COVANCE
THE DEVELOPMENT SERVICES COMPANY

Sponsors:

APME Ad-Hoc APFO Toxicology Working Group

FINAL REPORT

Study Title:

26-Week Capsule Toxicity Study with Ammonium Perfluorooctanoate (APFO) in Cynomolgus Monkeys

Author:

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Study Completion Date:

December 18, 2001

Testing Facility:

Covance Laboratories Inc.
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Madison, Wisconsin 53704-2595

Laboratory Study Identification:

Covance 6329-231

Sponsor Study Identification:

3M T-6889.3

COMPLIANCE STATEMENT

26-Week Capsule Toxicity Study with Ammonium Perfluorooctanoate (APFO)
in Cynomolgus Monkeys

All aspects of this study were in accordance with the Environmental Protection Agency Good Laboratory Practice Standards, 40 CFR 792, except that bile acid and palmitoyl CoA oxidase determinations done by the University of Dundee were not done in compliance with GLPs and will be reported separately by the University of Dundee.

Peter J. Thomford, PhD
Study Director
Covance Laboratories Inc.

18 DEC. 2001
Date

Paul Lieder, PhD
Diplomate, ABT
Study Monitor
3M

Date

QUALITY ASSURANCE STATEMENT

This report, with exception of appendices 6, 7, and 8, has been reviewed by the Quality Assurance Unit of Covance Laboratories Inc., in accordance with the Environmental Protection Agency (EPA) Good Laboratory Practice Standards, 40 CFR 792. The following inspections were conducted and findings reported to the study director and study director management.

Inspection Dates			Date Reported to Study Director and
From	To	Phase	Study Director Management
09/24/98	09/24/98	Protocol Review	09/24/98
10/07/98	10/07/98	Analytical Laboratory Inspection	10/07/98
01/05/99	01/05/99	Body Weight	01/05/99
04/01/99	04/01/99	Protocol Amendment Review	04/01/99
05/03/99	05/03/99	Clinical Laboratory Inspection	05/03/99
06/18/99	06/18/99	Data Review	06/23/99
07/29/99	07/29/99	Protocol Amendment Review	07/29/99
08/11/99	08/11/99	Protocol Amendment Review	08/11/99
09/02/99	10/01/99	Data Review	10/01/99
09/13/99	10/01/99	Report Review	10/01/99
11/15/99	11/15/99	Protocol Amendment Review	11/18/99
01/15/01	01/15/01	Protocol Amendment Review	01/15/01
02/26/01	02/27/01	Report Review	03/01/01
12/04/01	12/04/01	Report Review	12/05/01

Mark R. Sullivan
Representative
Quality Assurance Unit

18 Dec 2001
Date

STUDY IDENTIFICATION

26-Week Capsule Toxicity Study with Ammonium Perfluorooctanoate (APFO) in Cynomolgus Monkeys

Test Material	Ammonium Perfluorooctanoate (APFO)
Sponsors	APME Ad-Hoc APFO Toxicology Working Group
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Study Location	Covance Laboratories Inc. 3301 Kinsman Boulevard Madison, Wisconsin 53704-2595
Study Director	Peter J. Thomford, PhD Covance Laboratories Inc. PO Box 7545 Madison, Wisconsin 53707-7545 608.241.7207

STUDY IDENTIFICATION (Continued)

26-Week Capsule Toxicity Study with Ammonium Perfluorooctanoate (APFO)
in Cynomolgus Monkeys

Study Timetable

Study Initiation Date	September 23, 1998
In-Life (Experimental) Start Date	September 29, 1998
In-Life Termination Date	July 2, 1999
Experimental Termination Date	December 18, 2001

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26-Week Capsule Toxicity Study with Ammonium Perfluorooctanoate (APFO) in Cynomolgus Monkeys

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ABSTRACT

The purpose of this study was to assess the effect of the test material, ammonium perfluorooctanoate (APFO), on critical enzyme levels, hormones, and other selected biochemical parameters when administered daily by capsule to cynomolgus monkeys for at least 26 weeks.

Male cynomolgus monkeys were assigned to four groups (six animals/group in Groups 1, 3, and 4, and four animals in Group 2). Animals in Group 1 received empty gelatin capsules. Animals in Groups 2 and 3 received gelatin capsules containing 3 and 10 mg APFO/kg of weight/day (mg/kg/day), respectively. Animals in Group 4 received gelatin capsules containing 30 mg APFO/kg/day on Days 1 through 11; dose administration was discontinued for Days 12 through 21 due to signs of toxicity. Beginning on Day 22 and continuing throughout the remainder of the study, Group 4 males were administered 20 mg APFO/kg/day with the exception that dosing for three animals was discontinued between Days 43 and 81; hereafter, the high dose will be referred to as 30/20 mg/kg/day. Animals were administered APFO daily for at least 26 weeks; two animals in Groups 1 and 3 were treated for 26 weeks, then treatment was discontinued and the animals were observed for reversibility, persistence, or delayed occurrence of toxic effects for 13 weeks posttreatment.

Food was provided once or twice daily. Water was provided *ad libitum*. The animals were observed twice daily (a.m. and p.m.) for mortality and moribundity. At least once daily, animals were examined for abnormalities and signs of toxicity, and food consumption was assessed qualitatively. Ophthalmic examinations were done before initiation of treatment and during Weeks 27 and 40. Body weight data were collected weekly before initiation of treatment, on the first day of treatment, and weekly thereafter. Blood samples for hormone analyses were collected at selected intervals during treatment and recovery. Blood, urine, and fecal samples were collected during Week 2 and every 2 weeks thereafter during treatment and recovery for APFO concentration analyses. Blood and urine samples were collected for clinical hematology, coagulation, clinical chemistry, and urinalysis tests at selected intervals during treatment and recovery. After 26 weeks of treatment, four animals/group in Groups 1 through 3, and all surviving animals in Group 4 were anesthetized, weighed, exsanguinated, and necropsied. After 26 weeks of treatment and 13 weeks without treatment, two animals/group in Groups 1 and 3 were anesthetized, weighed, exsanguinated, and necropsied. At necropsy, macroscopic observations were recorded, selected organs were weighed, and selected

tissues were collected and preserved. In addition, the right lateral lobe of liver was collected from each animal for palmitoyl CoA oxidase activity analyses. Representative samples of liver, right and left testes, and pancreas were collected from each animal for cell proliferation evaluation using proliferation cell nuclear antigen (PCNA). Bile was collected from each animal for bile acid determination. A sample of liver was collected from each animal for APFO concentration analyses. Microscopic examinations were done on tissues from each animal.

One male given 30/20 mg/kg/day and one male given 3 mg/kg/day were sacrificed in moribund condition on Days 29 and 137, respectively. Test material-related observations noted for the male given 30/20 mg/kg/day included hypoactive behavior, entire body cold to the touch, few or no feces, low or no food consumption, and weight loss. Clinical observations noted for the male given 3 mg/kg/day included limited use and paralysis of the hind limbs, ataxic and hypoactive behavior, few feces, and no food consumption.

During Week 1, males given 30 mg/kg/day had observations of few feces, low food consumption, and lost weight. Based on decreased food consumption and body weight loss, the dose level was lowered to 20 mg/kg/day beginning on Day 22. After the dose level was lowered, only two animals tolerated the dose level for remaining 23 weeks of dose administration; one of these animals continued to have test material-related observations of few feces and low food consumption. Dose administration was discontinued for three males given 30/20 mg/kg/day between Days 43 (Week 7) and 81 (Week 12). Test material-related observations noted for these animals included thin appearance, few or no feces, low or no food consumption, and weight loss (17.5 to 23.1%). These animals appeared to recover from the test material-related effects within 3 weeks after dose administration was discontinued.

There were no effects on estrone, estradiol, estriol, thyroid stimulating hormone, or testosterone that were clearly dose-related or consistent in their effects over time. Thyroid hormones in general were decreased beginning on Day 35 in animals administered 10 or 20 mg APFO/kg and in general exhibited recovery in the last 3 months of dosing or during the recovery phase. No alterations in cholecystokinin concentrations were observed at any of the time points.

Administration of APFO at dose levels of 3 or 10 mg/kg/day had no apparent effects on hematology, coagulation, clinical chemistry, or urinalysis results. Of uncertain relationship to administration of APFO at 30/20 mg/kg/day were mildly increased

triglyceride concentration and mildly to moderately decreased absolute neutrophil count, total protein concentration, and albumin concentration. In addition, two animals given APFO at 30/20 mg/kg/day exhibited moderately to markedly increased serum enzyme activities (i.e., aspartate aminotransferase, alanine aminotransferase, sorbitol dehydrogenase, and creatine kinase) and mildly increased serum bile acid concentration prior to the unscheduled sacrifice of one of the animals and the cessation of treatment for the other animal because of poor health. These findings, although not observed for most of the animals given 30/20 mg/kg/day, may also have been caused by the test material.

During recovery, there was no evidence of persistent or delayed toxic effects on clinical pathology test results.

After up to 26 weeks on study, enhanced cell proliferation was not evident in the pancreas or testes of male monkeys, whereas in the liver the findings were equivocal.

Test material-related and statistically significant increases were seen in mean absolute liver weights and mean liver-to-body weight percentages in animals in all dose groups at the terminal sacrifice. In addition, mean liver-to-brain weight significantly increased in animals in the 10 mg/kg/day group; this was also considered test material-related. However, no test material-related macroscopic or microscopic changes were seen in any organs at the terminal sacrifice, including liver, adrenal, spleen, pancreas, and testis.

At the recovery sacrifice, there were no test material-related effects on terminal body weights or on absolute or relative organ weights, indicating that the liver weight increases seen at the termination of dosing were reversible. There were no macroscopic or microscopic findings attributed to test material administration at the recovery sacrifice.

Two animals were sacrificed in a moribund condition during the course of the study, a male given 30/20 mg/kg/day (Day 29) and a male given 3 mg/kg/day (Day 137). The male given 30/20 mg/kg/day had esophageal and gastric lesions indicative of a dosing injury, and liver lesions presumed to be due to the test material. The cause of the moribund condition of the male given 3 mg/kg/day was unclear.

Based on the results of this study in which ammonium perfluorooctanoate (APFO) was administered orally by capsule to cynomolgus monkeys at doses of 0, 3, 10, or 30/20 mg/kg/day for 26 weeks, the no-observable-adverse-effect level (NOAEL) was

10 mg/kg/day. Effects seen in animals administered 10 mg/kg/day were not evident after 13 weeks of recovery.

PURPOSE

The purpose of this study was to assess the effect of the test material, ammonium perfluorooctanoate, on critical enzyme levels, hormones, and other selected biochemical parameters when administered daily by capsule to cynomolgus monkeys for at least 26 weeks.

REGULATORY COMPLIANCE

All aspects of this study were done in accordance with the Environmental Protection Agency Good Laboratory Practice Standards, 40 CFR 792, except that bile acid and palmitoyl CoA oxidase determinations done by the University of Dundee were not done in compliance with GLPs and will be reported separately by the University of Dundee.

TEST MATERIAL

Test Material

The test material, ammonium perfluorooctanoate (APFO), Lot No. 332 (expiration date: December 15, 2001), is a white powder and is 95.2% pure. It was received at Covance on June 10, and October 22, 1998. The test material was stored at room temperature.

Information on synthesis methods, composition, or other characteristics that define the test material is on file with the Sponsor. The Certificate of Analysis is in Appendix 1.

Reserve (Archive) Samples

A reserve sample (1 g) of the test material was taken before initiation of treatment and stored at room temperature. This sample was transferred to the Sponsor on May 2, 2001.

Disposition

The remaining test material was returned on May 2, 2001.

TEST ANIMALS AND HUSBANDRY

Animals

Young adult to adult cynomolgus monkeys were obtained from Covance Research Products Inc. (Denver, Pennsylvania) on August 25, 1998. The animals were approximately 3 to 7 years old and weighed 3.2 to 4.5 kg at initiation of treatment.

Identification

Each animal was assigned a permanent number upon arrival and identified with a collar tag before initiation of treatment. All data for an animal are recorded under this number.

Justification

APFO is a known hepatic peroxisome proliferator (PP) in the rat. When exposed to PP, nonhuman primates (such as the cynomolgus monkey) respond similarly to humans (i.e., low to no hepatic response) and therefore are an appropriate human surrogate species.

Husbandry

Animal Rooms 253 and 227 were used for this study. Recovery animals were transferred to Animal Room 227 on April 15, 1999 (Day 15 of recovery). Environmental controls for the animal rooms were set to maintain 18 to 29°C, a relative humidity of 30 to 70%, and a 12-hour light/12-hour dark cycle. Variations from these conditions are documented in the data and are considered to have had no effect on the outcome of the study.

The animals were housed individually in suspended, stainless-steel cages.

Certified primate diet (#8726C, Harlan Teklad) was provided once or twice daily. The lot numbers are recorded in the data. The diet is routinely analyzed by the manufacturer for nutritional components and environmental contaminants. Results of specified nutrient and contaminant analyses are on file with Covance-Madison. Fruits or additional supplements were provided, but did not require analysis. During the study, animals in the high-dose group were offered Gatorade® as well as other supplements to rehydrate and to stimulate food consumption. The lot numbers of the Gatorade® are recorded in the data.

Water was provided *ad libitum*. Samples of the water are analyzed for specified microorganisms and environmental contaminants. The results are on file with Covance-Madison.

There were no known contaminants in the diet or water at levels that would have interfered with this study.

Acclimation

Twenty-four males were received on August 25, 1998, and acclimated in Animal Room 253 for 35 days before initiation of treatment. In general, animals in this shipment appeared healthy. During acclimation, the animals were examined for abnormalities indicative of health problems. In addition, three tuberculosis tests, a physical examination, and a fecal flotation test for parasites were performed on each animal.

PROCEDURES

This study was conducted in accordance with the Protocol dated September 23, 1998, and Protocol Amendment Nos. 1 and 2. The protocol, protocol amendments, and protocol deviations are in Appendix 1.

Group Designations and Dose Level

Selection of animals for the study was based on data collected during acclimation. Animals were assigned to treatment groups using a computerized blocking procedure designed to achieve body weight balance with respect to treatment group.

Group	Dose Level (mg/kg/day)	No. of Males
1 (Control)	0[a]	6[b]
2 (Low)	3	4[c]
3 (Mid)	10	6[b]
4 (High)[d]	30/20	6

a The control group (Group 1) received empty gelatin capsules.
b Two animals in Groups 1 and 3 designated as recovery animals were treated for 26 weeks, then treatment was discontinued, and the animals were observed for reversibility, persistence, or delayed occurrence of toxic effects for 13 weeks posttreatment.
c Animal No. I05723 was replaced with Animal No. I05721. Dosing for Animal No. I05721 began on Day 17 (October 15, 1998).
d Dosing for Group 4 was suspended on Day 12 (October 10, 1998) and reinitiated at 20 mg/kg/day on Day 22 (October 20, 1998).

Dosing Procedures

Gelatin capsules (Torpac, Inc., Fairfield, New Jersey), Size No. 2, Lot No. 122932 were used for dose administration. Expiration dates for the empty gelatin capsules are maintained in the raw data.

The test material was dispensed into capsules at least weekly. The dose levels were based on the test material as supplied. For Groups 2 through 4, the specified amount of test material was weighed and transferred into the gelatin capsules. The top and bottom halves of each capsule were joined, and the capsules were placed into the appropriately labeled container. The prepared capsules were stored at room temperature.

Method of Administration. Gelatin capsules were administered orally to compare with previously conducted toxicology studies using the oral route.

The dose preparations were administered orally in gelatin capsules once daily, 7 days/week, for at least 26 weeks (183 days) except that Animal No. I05721 (Group 2 replacement animal) initiated dose administration on Day 17 and the animals in Group 4 were not dosed on Days 12 through 21; dose administration was also discontinued for Animal Nos. I05711, I05722, and I05703 (Group 4) on Days 43 (Week 7), 66 (Week 10), and 81 (Week 10), respectively (see Protocol Deviations for exceptions). Individual daily doses were calculated based on the most recently recorded body weights, with the exception of body weight collection days when the previous body weight was used.

Dose Analyses
Because the test material was not mixed with a vehicle, dose analyses were not required.

Observation of Animals
Clinical Observations. The animals were observed twice daily (a.m. and p.m.) for mortality and moribundity. Animals were observed at least once daily (a.m.) for signs of poor health or abnormal behavior and food consumption was assessed qualitatively; only abnormal findings were recorded. Animals were observed once weekly; abnormal findings or an indication of normal was recorded (see Protocol Deviations for exceptions).

Ophthalmology. Ophthalmic examinations were done on each animal before initiation of treatment and during Weeks 27 and 40 (recovery). The pupils were dilated with 1% Mydriacyl® and the anterior portion of the eye, optic media, and ocular fundus were examined with an indirect ophthalmoscope.

Body Weights. Individual body weight data were recorded weekly before initiation of treatment, on the first day of treatment, and weekly thereafter. An additional body weight was recorded on Day -1 for the Day 1 dose calculations.

Blood Hormone Determination
Blood was collected from a femoral vein of each animal three times before initiation of treatment (Days -18, -8, and -4) and on Days 35, 66, 94, and 183 of treatment and on Days 220, 248, and 276 during recovery. Animals were not fasted before collections. Approximately 6 mL of blood for plasma samples was collected into tubes with potassium EDTA as the anticoagulant. Blood samples for plasma were maintained chilled until plasma was harvested (see Protocol Deviations for exceptions). Approximately 6 mL of blood for serum samples was collected without anticoagulant and allowed to clot. Blood samples for serum were maintained at room temperature until serum was harvested. Samples for serum were centrifuged within 1 hour after collection, and serum was harvested. Serum was divided into two approximately equal aliquots and stored in a freezer, set to maintain -60 to -80°C, until packed on dry ice and shipped to Ani Lytics Inc., for analyses. The serum samples were analyzed for estradiol (E2), estrone (E1), estriol (E3), thyroid stimulating hormone (TSH), total and free

triiodothyronine (T3 and FT3, respectively), total and free thyroxin (T4 and FT4, respectively). Results of these analyses provided by Ani Lytics Inc. are in Appendix 6.

Samples for plasma were centrifuged within 1 hour after collection. Plasma was harvested and stored in a freezer, set to maintain -60 to -80°C, until packed on dry ice and shipped to DuPont for analyses. The plasma samples were analyzed by DuPont for cholecystokinin. Results of these analyses provided by DuPont are in Appendix 7.

Because the decision to analyze blood for testosterone (TESTOS) was made after the terminal sacrifice, an aliquot of plasma from prestudy and Days 35, 66, 94, and 183 collection intervals was transferred from DuPont to Ani Lytics Inc. for analysis of testosterone. In addition, serum samples collected during recovery (Days 220, 248, and 276) were also analyzed for testosterone. Results of these analyses provided by Ani Lytics Inc. are in Appendix 6.

Serum APFO Level Determination

Approximately 2 mL of whole blood were collected from a femoral vein of each animal during Week 2 (after 7 days of treatment) and every 2 weeks thereafter during treatment and recovery. In addition, blood was collected from Animal No. I05724 (Group 4) that was sacrificed in moribund condition. Animals were not fasted before collections. All samples were collected without anticoagulant, maintained at room temperature, and allowed to clot. Samples were centrifuged within 1 hour after collection, serum was harvested and stored in a freezer, set to maintain -10 to -30°C, until packed on dry ice and shipped to 3M for analyses. The samples were analyzed for APFO. Results of the analyses will be reported separately by 3M.

Urine and Feces APFO Level Determination

Samples of urine (at least 2 mL) and feces (at least 5 grams, see Protocol Deviations for exceptions) were collected from each animal during Week 2 (after 7 days of treatment) and every 2 weeks thereafter during treatment and recovery (concurrent with serum APFO sample collection). Animals were not fasted before collections. Urine (collected on wet ice) and feces were collected overnight. Urine and fecal samples were stored in a freezer, set to maintain -10 to -30°C, until packed on dry ice and shipped to 3M for

analyses. The samples were analyzed for APFO. Results of the analyses will be reported separately by 3M.

Clinical Pathology

Blood and urine samples were collected from each animal before initiation of treatment; before the daily dose on Days 31, 63, 91, and 182; and on Days 217, 245, and 275 during recovery. Animals were fasted overnight, and urine was collected on wet ice overnight (approximately 16 hours) before blood sampling; water was provided *ad libitum*. Blood was collected from a femoral vein. Anticoagulants were sodium citrate for coagulation tests and potassium EDTA for hematology tests. Samples for clinical chemistry were collected without anticoagulant. Blood samples were collected from animals sacrificed at an unscheduled interval. Animals were bled in random order. The following were evaluated.

Hematology

- red blood cell (erythrocyte) count
- hemoglobin
- hematocrit
- mean corpuscular volume
- mean corpuscular hemoglobin
- mean corpuscular hemoglobin concentration
- platelet count
- white blood cell (leukocyte) count
- differential blood cell count
  - segmented neutrophil count
  - lymphocyte count
  - monocyte count
  - eosinophil count
  - basophil count
- blood cell morphology
- reticulocyte count

Coagulation

- prothrombin time
- activated partial thromboplastin time
- fibrinogen

Clinical Chemistry

glucose	gamma glutamyltransferase
urea nitrogen	sorbitol dehydrogenase
creatinine	creatine kinase
total protein	calcium
albumin	inorganic phosphorus
globulin	sodium
total bilirubin	potassium
cholesterol	chloride
triglycerides	bile acids
aspartate aminotransferase	amylase
alanine aminotransferase	lipase
alkaline phosphatase	pancreatic-specific amylase

Urinalysis

volume (approximately 16 hours)	bilirubin
specific gravity	blood
pH	urobilinogen
protein	microscopic examination of sediment
glucose	appearance
ketones	

Additional Blood Collection

Whole blood (approximately 19 mL) was collected from the vena cava of each animal at the time of exsanguination (scheduled and unscheduled sacrifices). Approximately equal sized samples of serum [approximately 7 mL (collected without anticoagulant)], whole blood (approximately 5 mL), and plasma (approximately 7 mL) using potassium EDTA as the anticoagulant were transferred into containers and stored in a freezer, set to maintain -60 to -80°C, until packed on dry ice and shipped to 3M for possible future analysis. In addition to the required blood samples, additional whole blood (approximately 40 to 80 mL/animal) was collected from the animals in the control group at the terminal sacrifice using sodium heparin as an anticoagulant. One-half of this sample was transferred into cryotubes and pooled. The remaining half of the sample was centrifuged and the plasma and red blood cells were transferred into cryotubes and pooled. The pooled samples were stored in a freezer, set to maintain -60 to -80°C, until packed on dry ice and shipped to 3M for possible future analysis.

Anatomic Pathology

Necropsy. A necropsy was done on each animal that was sacrificed at an unscheduled interval. After 26 weeks of treatment, four animals/group in Groups 1 through 3 and all surviving animals in Group 4 were fasted overnight, then anesthetized with ketamine and xylazine, weighed, exsanguinated, and necropsied (see Protocol Deviations for exceptions). After 26 weeks of treatment and 13 weeks without treatment, two animals/group in Groups 1 and 3 were fasted overnight, then anesthetized with ketamine and xylazine, weighed, exsanguinated, and necropsied. Animals were necropsied in random order.

The necropsy included a macroscopic examination of the external surface of the body; all orifices; cranial cavity; the brain and spinal cord; the nasal cavity and paranasal sinuses; cervical tissues and organs; and the thoracic, abdominal, and pelvic cavities and viscera.

Organ Weights. At each scheduled and unscheduled sacrifice, the following organs (when present) were weighed; paired organs were weighed separately.

adrenal (2)	liver
brain	pancreas
epididymis (2)	testis (2)
kidney (2)	thyroid (2) with parathyroid

Organ-to-body weight percentages and organ-to-brain weight ratios were calculated.

Palmitoyl CoA Oxidase Determinations

The right lateral lobe of liver was collected from each animal at the scheduled and unscheduled sacrifices. The sample was weighed, flash-frozen in liquid nitrogen, and stored in a freezer set to maintain -60 to -80°C these samples will be packed on dry ice and shipped to the University of Dundee for palmitoyl CoA oxidase activity analyses. Results of palmitoyl CoA oxidase activity analyses will be reported separately by the University of Dundee.

Cell Proliferation Evaluation

Representative samples of the left lateral lobe of the liver, left and right testes, and pancreas were collected from each animal at the scheduled and unscheduled sacrifices

and preserved in zinc formalin (unscheduled sacrifices and for animals sacrificed during Week 27) or formalin [animals sacrificed during Week 40 (see Protocol Deviations for exceptions)]. After fixation, samples for proliferation cell nuclear antigen (PCNA) evaluation were embedded in paraffin and maintained at ambient temperature (with slides stained with hematoxylin and eosin) until shipped to Pathology Associates, A Charles River Company for PCNA analyses. Results of the evaluation provided by Pathology Associates, A Charles River Company are in Appendix 8.

Bile Acid Determination

All available bile (up to 5 mL) was collected from each animal at the scheduled and unscheduled sacrifices, flash-frozen in liquid nitrogen, and stored in a freezer set to maintain -60 to -80°C; these samples were packed on dry ice and shipped to the University of Dundee for bile acid determination. Results of the bile acid determination will be reported separately by the University of Dundee.

Receptor Level Determination

Samples (approximately 2 g each) of the liver (left median lobe) and pancreas were collected from each animal at the scheduled and unscheduled sacrifices, flash-frozen in liquid nitrogen, and stored in a freezer, set to maintain -60 to -80°C until packed on dry ice and shipped to DuPont for possible analysis. Results of receptor level determination, if any, will be reported separately.

Liver APFO Determination

A section of liver (a non-formalin treated liver sample) was collected from each animal at the scheduled sacrifice and unscheduled sacrifices, weighed, flash-frozen in liquid nitrogen, and stored in a freezer, set to maintain -60 to -80°C, until packed on dry ice and shipped to 3M for APFO analyses. Results of the analyses will be reported separately by 3M.

Tissue Preservation. The following tissues (when present) or representative samples were collected and preserved in 10% neutral-buffered formalin, unless otherwise specified.

adrenal (2)
aorta
brain
cecum
colon
duodenum
epididymis (2)
esophagus
eyes [preserved in Davidson's fixative (2)]
femur with bone marrow (articular surface of the distal end)
gallbladder
heart
ileum
jejunum
kidney (2)
lesions
liver
lung
lymph node (mesenteric)
mammary gland
pancreas
pituitary
prostate
rectum
salivary gland [mandibular (2)]
sciatic nerve
seminal vesicle (2)
skeletal muscle (thigh)
skin
spinal cord (cervical, thoracic, and lumbar)
spleen
sternum with bone marrow
stomach
testis [(2) preserved in Bouin's solution]
thymus
thyroid (2) with parathyroid
trachea
urinary bladder

Three samples (approximately 5 g each) of the liver and all remaining pancreas and left and right testes tissue (divided into three approximately equal samples) were collected from each animal at the scheduled and unscheduled sacrifices, weighed, flash-frozen in liquid nitrogen, and stored in a freezer, set to maintain -60 to -80°C, for possible future analysis. In addition, after all other required samples were taken, remaining kidney tissue was collected from the control animals at the terminal sacrifice (Week 27). These tissues were weighed, flash-frozen in liquid nitrogen, and stored in a freezer set to maintain -60 to -80°C. Testes and kidney tissue samples collected from control animals were packed on dry ice and shipped to 3M for possible future analysis.

Bone marrow smears from the sternum of each animal at the unscheduled and scheduled sacrifices were prepared, stained with Wright's stain, and retained for possible examination.

Histopathology. Tissues (as appropriate) were embedded in paraffin, sectioned, stained with hematoxylin and eosin, and examined microscopically from each animal including the Group 2 male that was replaced, Animal No. I05723 (see Protocol Deviations for exceptions). Pathology findings and histopathology tissue slides from specified animals

in the control, low-, and high-dose groups were transferred to Sierra Biomedical, Inc for a pathology peer review.

Statistical Analyses

Levene's test (Levene, 1960) was done to test for variance homogeneity. In the case of heterogeneity of variance at $p \leq 0.05$, transformations were used to stabilize the variance.

One-way analysis of variance [ANOVA (Winer, 1971a)] was used to analyze initial body weights, body weight changes, continuous clinical pathology values, and organ weight data.

ANOVA was done on the homogeneous or transformed data. If the ANOVA was significant, Dunnett's t-test (Dunnett, 1964) was used for control versus treated group comparisons.

One-way analysis of covariance [ANCOVA (Winer, 1971b)] was used to analyze body weights, with initial body weights as the covariate. Although Levene's test for variance homogeneity was done (see above), no transformations were used because covariance adjustment removed extraneous heterogeneity. If the ANCOVA was significant, covariate-adjusted means were used for control versus treated group comparisons.

Groups 2 through 4 were compared with Group 1 (Control). Group comparisons were evaluated at the 5.0%, two-tailed probability level. Only data collected on or after the first day of treatment were analyzed statistically. Data collected before the first day of treatment or during recovery (except for blood hormone analyses data) were not analyzed statistically.

Blood hormone levels, excluding estriol and cholecystokinin, were analyzed by repeated measures analysis of covariance (ANCOVA) procedure with average pretreatment measurements for the parameters as covariates. Treatment effects under ANOVA or ANCOVA procedures were evaluated at $p = 0.05$ level. All post hoc control-versus-treated-group mean comparisons (including values during recovery) were conducted using Dunnett's many-on-one t procedure. Analyses were carried out with SAS procedure PROC MIXED (SAS, 1996) or BMDP (BMDP, 1992), or both.

Record Retention

All raw data, documentation, records, protocol, and specimens generated as a result of this study will be archived in the storage facilities of Covance-Madison for a period of at least one year. One year after the submission of the final report, the Sponsor will determine the final disposition of the materials. All raw data stored on magnetic media, the protocol, study correspondence, and the original copy of the final report will be retained by Covance-Madison.

Within 1 year after submission of the final report, all of the aforementioned materials from the Sponsor's designees (Ani Lytics Inc., DuPont, 3M E.T. & S, and the University of Dundee) will be sent to the Sponsor (Paul Lieder, PhD, DABT, 3M). Pathology Associates, A Charles River Company (PAI) is responsible for the maintenance of any raw data or specimens produced by PAI.

RESULTS

Observation of Animals

Clinical Observations. Clinical observations are summarized in Tables 1 and 2; individual data are in Appendix 2. Individual animal fate data are also in Appendix 2.

One male (Animal No. I05724) given 30/20 mg/kg/day was sacrificed in moribund condition on Day 29 (Week 5). Test material-related observations noted for Animal No. I05724 included hypoactive behavior, entire body cold to the touch, few or no feces, and low or no food consumption; this animal lost 12.5% (0.5 kg) of its body weight from Week 1 to Week 5. One male given 3 mg/kg/day (Animal No. I05721) was sacrificed in moribund condition on Day 137. Clinical observations noted for Animal No. I05721 on Day 137 (Week 20) included limited use and paralysis of the hind limbs, ataxic and hypoactive behavior, few feces, and no food consumption; this animal lost 9.5% (0.4 kg) of its body weight from Week 19 to Week 20.

During Week 1, all males given 30 mg/kg/day had low food consumption and lost from 3.1 to 7.5% of their body weight; four of the six animals also had observations of few feces. Based on decreased food consumption and body weight loss, the dose level was lowered to 20 mg/kg/day beginning on Day 22. After the dose level was lowered, only two animals (Animal Nos. I05704 and I05713) tolerated the dose level for the remaining 23 weeks of dose administration. After Week 2, test material-related observations noted

for Animal No. I05713 included few feces and low food consumption. After Week 2, there were no clinical observations considered to be test material-related noted for Animal No. I05704.

During the study, dose administration was discontinued for three males given 30/20 mg/kg/day based on test material-related observations. Dose administration for Animal Nos. I05711, I05722, and I05703 was discontinued on Days 43 (Week 7), 66 (Week 10), and 81 (Week 12), respectively. Test material-related observations noted for Animal No. I05711 prior to the suspension of dosing included few or no feces and low or no food consumption; this animal lost 17.5% (0.7 kg) of its body weight from Week 1 to Week 7. Test material-related observations noted for Animal No. I05722 prior to the suspension of dosing included thin appearance, few or no feces, and low or no food consumption; this animal lost 23.1% (0.9 kg) of its body weight from Week 1 to Week 10. Test material-related observations noted for Animal No. I05703 prior to the suspension of dosing included thin appearance, few or no feces, and low or no food consumption; this animal lost 18.7% (0.6 kg) of its body weight from Week 1 to Week 12. These animals appeared to recover from the test material-related effects within 3 weeks after dose administration was discontinued.

During the study, several animals developed physical conditions that required examination by a laboratory animal veterinarian and administration of treatments. On Day 11 (Week 2), Animal No. I05724 (Group 4) had observations of no feces and no food consumption; this animal was treated with Lactated Ringers solution (Abbott Laboratories) on Days 11 through 13. During Weeks 5 and 6, Animal No. I05713 (Group 4) had observations of liquid feces and low food consumption; this animal was treated with erythromycin (Distal Products Co.) on Days 36 through 46. On Day 134 (Week 20), Animal No. I05721 (Group 2) had observations of few feces and low food consumption. Animal No. I05721 was treated with Ensure® (Abbott Laboratories) and Lactated Ringers solution (Abbott Laboratories) on Day 137; however, because the animal had observations of paralysis and limited use of the hind limbs, it was subsequently sacrificed. During Weeks 21 and 26, Animal No. I05719 (Group 3) had liquid feces; this animal was treated with erythromycin (Distal Products Co. or Barre) on Days 143 through 151 and on Days 179 through 183. The condition of these animals improved with treatment except for Animal No. I05721.

Ophthalmology. Ophthalmic observations are summarized in Tables 3 and 4; individual data are in Appendix 2. The Ophthalmology Report contains a discussion of the data.

There were no ophthalmic findings for any animal during the baseline or the Weeks 27 or 40 examinations.

Body Weights. Body weight data are summarized in Tables 5 and 6; individual data are in Appendix 3.

Covariate-adjusted mean body weights were notably lower throughout the study (statistically significant during Weeks 2 through 5 and Week 10) for males given 30/20 mg/kg/day. The lower body weights for the males given 30/20 mg/kg/day were considered test material-related.

All animals maintained body weights during recovery; there were no marked changes in body weight for each individual animal between the treatment and recovery phases. Differences in mean body weights between the mean body weights of the animals given 10 mg/kg/day and those of the controls during recovery can be attributed to biological variation.

Body Weight Changes. Body weight change data are summarized in Tables 7 and 8; individual data are in Appendix 3.

During the first 2 weeks of the study, mean body weight changes were notably lower (significantly lower during Week 2) for males initially given 30 mg/kg/day. After the dose level was lowered to 20 mg/kg/day, mean body weight changes were significantly lower than those of controls during Weeks 7, 9, and 24. Overall mean body weight changes (Weeks 1 through 27) were notably lower for the males given 30/20 mg/kg/day (14.3% of those of the control males).

Food Consumption. Food consumption data are summarized in Tables 1 and 2 (Summary of Clinical Observations); individual data are included in the individual clinical observations in Appendix 2.

There was an increased incidence of low or no food consumption for animals given 30/20 mg/kg/day. The decreased food consumption was considered to be test material-related.

Blood Hormone Determination

Summary and individual hormone analyses data provided by Ani Lytics Inc. or DuPont, are in Appendices 6 and 7 (cholecystokinin), respectively.

There were no effects on estrone, estradiol, estriol, thyroid stimulating hormone, or testosterone that were clearly dose-related or consistent in their effects over time. Total triiodothyronine was decreased beginning on Day 35 in animals administered 10 or 30/20 mg APFO/kg/day. While the low number of animals that remained on treatment in the group administered 30/20 mg/kg/day makes interpretation difficult, it appears that the level of triiodothyronine remained depressed through Day 183 in this group. Total thyroxin was decreased beginning on Day 35 in animals administered 10 or 30/20 mg/kg/day. While the low number of animals that remained on treatment in the group administered 30/20 mg/kg/day makes the interpretation difficult, it appears that the effect on thyroxin was most pronounced at Days 35 and 66 in animals administered 10 or 30/20 mg/kg/day, after which the effect began to diminish and there appeared to be recovery by the end of the study. Free triiodothyronine and free thyroxin were decreased beginning on Day 35 in animals administered 10 or 30/20 mg/kg/day. While the low number of animals that remained on treatment in the group administered 30/20 mg/kg/day makes the interpretation difficult, it appears that the level of triiodothyronine remained depressed through Day 183 in animals administered 10 or 30/20 mg/kg/day and that recovery occurred in animals administered 10 mg/kg during the recovery phase.

No alterations in cholecystokinin concentrations were observed at any of the time points.

Clinical Pathology

Hematology, coagulation, clinical chemistry, and urinalysis data are summarized in Tables 9 through 32; individual data are in Appendix 4. The Pathology Report contains a discussion of the data.

Administration of APFO at dose levels of 3 or 10 mg/kg/day had no apparent effects on hematology, coagulation, clinical chemistry, or urinalysis results. Of uncertain relationship to administration of APFO at 30/20 mg/kg/day were mildly increased triglyceride concentration and mildly to moderately decreased absolute neutrophil count, total protein concentration, and albumin concentration. In addition, two animals given APFO at 30/20 mg/kg/day exhibited moderately to markedly increased serum enzyme

activities (i.e., aspartate aminotransferase, alanine aminotransferase, sorbitol dehydrogenase, and creatine kinase) and mildly increased serum bile acid concentration prior to the unscheduled sacrifice of one of the animals and the cessation of treatment for the other animal because of poor health. These findings, although not observed for most of the animals given 30/20 mg/kg/day, may also have been caused by the test material.

During recovery, there was no evidence of persistent or delayed toxic effects on clinical pathology test results.

Cell Proliferation Evaluation

Results of cell proliferation evaluation provided by Pathology Associates, A Charles River Company are in Appendix 8.

After up to 26 weeks on study, enhanced cell proliferation was not evident in the pancreas or testes of male monkeys, whereas in the liver the findings were equivocal.

Anatomic Pathology

Terminal body weight and organ weight data are summarized in Tables 33 and 34; incidences of macroscopic and microscopic observations are summarized in Tables 35 through 38. Individual data are in Appendix 5. The Pathology Report contains a discussion of the data.

Test material-related and statistically significant increases were seen in mean absolute liver weights and mean liver-to-body weight percentages in animals in all dose groups at the terminal sacrifice. In addition, mean liver-to-brain weight significantly increased in animals in the 10 mg/kg/day group; this was also considered test material-related. However, no test material-related macroscopic or microscopic changes were seen in any organs at the terminal sacrifice, including liver, adrenal, spleen, pancreas, and testis.

At the recovery sacrifice, there were no test material-related effects on terminal body weights or on absolute or relative organ weights, indicating that the liver weight increases seen at the termination of dosing were reversible. There were no macroscopic or microscopic findings attributed to test material administration at the recovery sacrifice.

Two animals were sacrificed in a moribund condition during the course of the study, a male given 30/20 mg/kg/day (Day 29) and a male given 3 mg/kg/day (Day 137). The male given 30/20 mg/kg/day had esophageal and gastric lesions indicative of a dosing injury and liver lesions presumed to be due to the test material. The cause of the moribund condition of the male given 3 mg/kg/day was unclear.

DISCUSSION AND CONCLUSIONS

Based on the results of this study in which ammonium perfluorooctanoate (APFO) was administered orally by capsule to cynomolgus monkeys at doses of 0, 3, 10, or 30/20 mg/kg/day for 26 weeks, the no-observable-adverse-effect level (NOAEL) was 10 mg/kg/day. Effects seen in animals administered 10 mg/kg/day were not evident after 13 weeks of recovery.

SIGNATURES

Patricia K. McKee Pesik, BS, LAT
Study Coordinator
Covance Laboratories Inc.

18 Dec 2001
Date

Peter J. Thornford, PhD
Study Director
Covance Laboratories Inc.

18 Dec. 2001
Date

REFERENCES

BMDP, Biomedical Data Processing, BMDP Inc., Los Angeles, California, 1992.

Dunnett, C. W., "New Tables for Multiple Comparisons with a Control," Biometrics, 20:482-491 (1964).

Levene, H., "Robust Tests for Equality of Variances," Contributions to Probability and Statistics, (eds.) I. Olkin et al., Ch. 25, pp. 278-292, Stanford University Press: Stanford, California (1960).

SAS (Statistical Analysis System), SAS Institute, Release 6.12, Cary, North Carolina, 1996.

Winer, B. J., "Design and Analysis of Single-Factor Experiments," Statistical Principles in Experimental Design, Second Ed., Ch. 3, pp. 149-260, McGraw-Hill: New York, New York (1971a).

Winer, B. J., "Analysis of Covariance," Statistical Principles in Experimental Design, Second Ed., Ch. 10, pp. 752-812, McGraw-Hill: New York, New York (1971b).

OPHTHALMOLOGY REPORT

Ophthalmic examinations were done on each animal before initiation of treatment and during Weeks 27 and 40 (recovery). The pupils were dilated with 1% Mydriacyl®, and the anterior portion of the eye, optic media, and ocular fundus were examined with an indirect ophthalmoscope.

There were no ophthalmic findings for any animal during the baseline or the Weeks 27 or 40 examinations.

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Diplomate, ACLAM

17 DEC 01
Date

PATHOLOGY REPORT

SUMMARY

The purpose of the study was to assess the effect of the test material, ammonium perfluorooctanoate (APFO), on critical enzyme levels, hormones, and other selected biochemical parameters when administered daily by capsule to cynomolgus monkeys for at least 26 weeks. The test material was initially administered at dose levels of 3, 10, and 30 mg/kg/day. Administration of the highest dose was stopped on Day 12 because of signs of toxicity and then resumed on Day 22 at a lower dose level, 20 mg/kg/day.

Administration of APFO at dose levels of 3 or 10 mg/kg/day had no apparent effects on hematology, coagulation, clinical chemistry, or urinalysis results. Of uncertain relationship to administration of APFO at 30/20 mg/kg/day were mildly increased triglyceride concentration and mildly to moderately decreased absolute neutrophil count, total protein concentration, and albumin concentration. In addition, two animals given APFO at 30/20 mg/kg/day exhibited moderately to markedly increased serum enzyme activities (i.e., aspartate aminotransferase, alanine aminotransferase, sorbitol dehydrogenase, and creatine kinase) and mildly increased serum bile acid concentration prior to the unscheduled sacrifice of one of the animals and the cessation of treatment for the other animal because of poor health. These findings, although not observed for most of the animals given 30/20 mg/kg/day, may also have been caused by the test material.

During recovery, there was no evidence of persistent or delayed toxic effects on clinical pathology test results.

Test material-related and statistically significant increases were seen in mean absolute liver weights and mean liver-to-body weight percentages in animals in all dose groups at the terminal sacrifice. In addition, mean liver-to-brain weight significantly increased in animals in the 10 mg/kg/day group; this was also considered test material-related. However, no test material-related macroscopic or microscopic changes were seen in any organs at the terminal sacrifice, including liver, adrenal, spleen, pancreas, and testis.

At the recovery sacrifice, there were no test material-related effects on terminal body weights or on absolute or relative organ weights, indicating that the liver weight increases

seen at the termination of dosing were reversible. There were no macroscopic or microscopic findings attributed to test material administration at the recovery sacrifice.

Two animals were sacrificed in a moribund condition during the course of the study, a male given 30/20 mg/kg/day (Day 29) and a male given 3 mg/kg/day (Day 137). The male given 30/20 mg/kg/day had esophageal and gastric lesions indicative of a dosing injury, and liver lesions presumed to be due to the test material. The reason for the moribund condition of the male given 3 mg/kg/day was unclear.

METHODS

Four groups of male cynomolgus monkeys were administered the test material daily by capsule at a dose level of 0 (control group; received empty capsules), 3, 10, or 30 mg/kg of body weight/day (mg/kg/day). Treatment of the animals given the highest dose level was stopped on Day 12 because of signs of toxicity. The highest dose level was then reduced to 20 mg/kg/day, and treatment of these animals was resumed on Day 22. One animal given 30/20 mg/kg/day was sacrificed on Day 29 because of poor health, and dosing was permanently stopped for three additional animals given 30/20 mg/kg/day, one on each of Days 43, 66, and 81. At study initiation, there were six animals in the control group and the groups given 10 or 30 mg/kg/day; two animals in each of these groups were designated as recovery animals to be observed for approximately 13 weeks posttreatment. Because only two animals were given 30/20 mg/kg/day for the duration of the treatment period (approximately 26 weeks), there were no high-dose recovery animals. There were four animals in the group given 3 mg/kg/day; one of these animals was sacrificed on Day 137 because of poor health.

Blood and urine were collected for hematology, coagulation, clinical chemistry, and urinalysis tests once before initiation of treatment (Day -11), on Days 31, 63, 91, and 182, and on Days 217, 245, and 275 (recovery animals). Blood for hematology, coagulation, and clinical chemistry tests was also collected from animals prior to unscheduled sacrifices. The terminal and recovery sacrifices occurred on Days 184 and 277, respectively. All animals were necropsied; macroscopic observations were recorded, organ weights were obtained, and tissues were placed in fixative as specified by the protocol. The right lateral lobe of the liver was collected and frozen for analysis of palmitoyl CoA oxidase activity. Samples of pancreas, left and right testes, and the left lateral lobe of the liver were collected and preserved for cell proliferation evaluation

using proliferation cell nuclear antigen. Samples of bile were collected and frozen for bile acid determination. Samples of liver and pancreas were collected and frozen for receptor level determinations. A sample of liver was collected and frozen for APFO determination. Additional samples of the liver and all remaining pancreas and left and right testes tissue were collected and frozen for possible future analysis. Microscopic examinations were done on collected tissues from all animals, including the replaced animal.

Statistically significant differences cited in the Results and Discussion Section are based on comparisons between the control and treated groups.

RESULTS AND DISCUSSION

Mortality

One animal given 30/20 mg/kg/day (Animal No. I05724) was sacrificed on Day 29 because of poor health, and one animal given 3 mg/kg/day (Animal No. I05721) was sacrificed on Day 137 because of poor health. All other animals survived to the respective scheduled sacrifice.

Animal No. I05724, the male given 30/20 mg/kg/day that was sacrificed in a moribund condition on Day 29, had multiple significant microscopic findings. Edema and inflammation of the esophagus and erosions and ulcerations in both the esophagus and stomach suggested that a dosing injury was the immediate cause of the animal's death. However, lesions in the liver, including centrilobular and midzonal hepatocellular degeneration and necrosis, diffuse hepatocellular vacuolation, and hepatocyte basophilia in centrilobular areas (liver regeneration) probably contributed to the animal's moribund condition and were likely to be test material-related. Other important findings included involution of the thymus, a relatively common finding in stressed animals, and degeneration and necrosis in the heart, which were probably agonal changes.

The cause of death for Animal No. 105721, the male given 3 mg/kg/day that was sacrificed in a moribund condition on Day 137, was not apparent. The clinical history suggested that the blood supply to the animal's hind limbs was severely compromised, as the rear limbs were noticeably cold at the time of the final medical examination, and ketamine injected into the thigh muscles apparently failed to reach the systemic circulation (sedation did not occur). However, the macroscopic and microscopic findings

for this animal were minimal and incidental (i.e., evidence for spinal cord injury or impaired blood circulation was not uncovered in the post-life evaluations). Therefore, the role of test material-related toxicity in the animal's declining condition was unclear.

Clinical Pathology

Day -11. Results of clinical pathology tests indicated no obvious group or individual health abnormalities. Animal No. I05721 (Group 2) had a notably high hematocrit (49.7%) and albumin concentration (5.6 g/dL) that may have been an indication of mild dehydration. It also had the lowest absolute neutrophil count of all the animals (1,600/µL). Whether these findings were directly or indirectly related to the animal's illness requiring early sacrifice on Day 137 could not be determined.

Days 31, 63, 91, and 182. There were relatively few statistically significant or otherwise notable differences for clinical pathology test results between the control and treated animals, especially those animals given 3 or 10 mg/kg/day. None of the differences were consistent over time. Comparisons with the animals given 30/20 mg/kg/day were compromised by the unscheduled sacrifice of one animal in this group on Day 29 and the cessation of treatment for three others by Day 80. For the clinical pathology testing intervals on Days 91 and 182, there were only two animals in this group still receiving treatment.

Of uncertain relationship to administration of the test material were mildly increased triglyceride concentration and mildly to moderately decreased absolute neutrophil count, total protein concentration, and albumin concentration for animals given 30/20 mg/kg/day. The difference for triglyceride concentration was statistically significant on Days 31 and 91. The other differences were not statistically significant but were relatively consistent over time. Prior to stopping their treatment, absolute neutrophil count and albumin concentration were mildly decreased for each of the three animals given 30/20 mg/kg/day that had their treatment stopped prematurely because of poor health. All of these findings are generally nonspecific and can be associated with poor health for a variety of reasons. Specific mechanisms related to direct actions of the test material were not apparent.

Animal No. I05722, the animal in the high-dose group whose treatment was stopped on Day 66, had moderately high serum activities for aspartate aminotransferase, alanine aminotransferase, and creatine kinase and moderately high serum bile acid concentration

on Day 63. The relationship of these findings to administration of the test material is not known.

Statistically significant differences for other test results were considered incidental and unrelated to administration of the test material. These differences were inconsistent over time, and in some cases, were similar to differences that existed before the initiation of treatment.

Days 217, 245, and 275 (Recovery animals). There was no evidence of persistent or delayed toxic effects on clinical pathology test results.

Unscheduled Sacrifice Animals. Animal No. I05724, an animal in the high-dose group, was sacrificed on Day 29. Its most notable clinical pathology findings were a mild neutrophilia (13,700 neutrophils/µL); mild hypoglycemia (glucose = 53 mg/dL); mild azotemia (urea nitrogen = 29 mg/dL); moderate to marked hypoproteinemia (total protein = 5.6 g/dL; albumin = 2.9 g/dL; globulin = 2.7 g/dL); moderate hypocalcemia (calcium = 8.0 mg/dL; likely due to low albumin concentration); marked hypocholesterolemia (cholesterol = 14 mg/dL); marked serum enzyme activities (e.g., aspartate aminotransferase = 1,974 IU/L; alanine aminotransferase = 1,463 IU/L; sorbitol dehydrogenase = 59 IU/L; and creatine kinase = 68,850 IU/L); mild hyperbilirubinemia (total bilirubin = 1.8 mg/dL); mildly increased serum bile acid concentration (49 µmol/L); and moderate to marked hyponatremia (sodium = 133 mmol/L) and hypochloridemia (89 mmol/L). Although many of these findings are nonspecific and are commonly observed in animals that are very ill, the serum enzyme activities were indicative of substantial liver and muscle injury, and the hypocholesterolemia was unusually severe.

Animal No. I05721, an animal in the low-dose group, was sacrificed on Day 137. Its most notable clinical pathology findings were marked hyperfibrinogenemia (fibrinogen = 702 mg/dL); moderate lymphopenia (1,700 lymphocytes/µL); moderate hypoalbuminemia (albumin = 3.3 g/dL); and mild hypocholesterolemia (94 mg/dL). These findings were also nonspecific, and with the exception of low albumin concentration, were not typical of the findings observed in the animals in the high-dose group that had to be withdrawn from treatment. Although the findings for this animal in the low-dose group did not indicate a specific cause for its poor health, they were not considered to be directly related to administration of the test material.

Anatomic Pathology/Terminal Sacrifice (Week 27)

Terminal Body Weights and Organ Weights. Mean absolute liver weights and mean liver-to-body weight percentages were statistically significantly increased in animals that were dosed until Week 27 in the 3, 10, and 30/20 mg/kg/day dose groups. In addition, mean liver-to-brain weight ratio was statistically significantly increased in animals in the 10 mg/kg/day group only. Although no correlative macroscopic or microscopic changes were seen in livers in any of the animals from the terminal sacrifice, the increased liver weights in all dose groups may indicate a test material effect, given the nature of the test material and the liver lesions seen in the male in the high-dose group sacrificed on Day 29.

Absolute left kidney weight was statistically significantly increased in animals in the 30/20 mg/kg/day group, but this was considered an incidental finding because there were no test material-related macroscopic or microscopic findings in the kidney. There were no other statistically significant or toxicologically significant organ weight variations in treated animals.

Macroscopic Findings. There were no test material-related macroscopic findings. All macroscopic findings were of low incidence, were randomly distributed among treated and control animals, and were considered to be spontaneous or incidental changes that were of no toxicological significance.

Microscopic Findings. There were no test material-related microscopic findings in any of the tissues that were examined, including liver, adrenal, spleen, pancreas, and testis. All microscopic findings were considered to be spontaneous or incidental changes and typical of findings seen in monkeys on toxicity studies.

Anatomic Pathology/Recovery Sacrifice (Week 40)

Terminal Body Weights and Organ Weights. There were no test material-related effects on terminal body weights or on absolute or relative organ weights. Absolute organ weights and organ-to-brain weight ratios were consistently higher in the control males, but these elevations were attributed to higher terminal body weights in the control animals (one was even noted as being obese at necropsy). Mean organ-to-body weight percentages, including mean liver-to-body weight, showed only slight variations that were considered unremarkable. These findings indicated that the liver weight increases were reversible.

Macroscopic Findings. There were no test material-related macroscopic findings. In fact, no macroscopic lesions of any kind were seen in one control animal or in either of the 10 mg/kg/day animals. The remaining control male was considered to be obese and had liver adhesions, an incidental change.

Microscopic Findings. There were no test material-related microscopic findings at the recovery sacrifice. All microscopic findings were incidental, occurred randomly in control animals and in animals given 10 mg/kg/day, and were typical of findings seen in cynomolgus monkeys on toxicity studies.

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COMMENTS ON THE DATA

Various models of calculators, computers, and computer programs were used to analyze data in this study. Because different models round off or truncate numbers differently, values in some tables (e.g., means, standard deviations, or individual values) may differ slightly from those in other tables, from individually calculated data, or from statistical analysis data. Neither the integrity nor the interpretation of the data was affected by these differences.

Some tabular data were compiled using Excel® Version 7.0 software.

The units for the dose levels on the data collection system (PTS) summary tables are mg/kg/day.

The number of animals listed in the heading of the summary of clinical observations table (Table 1) reflects the number of animals assigned to each group at the start of the study.

The summary tables for clinical observations indicate the number of animals for which a condition was observed without regard to the specific nature, severity, reversibility, number of incidences/animal, or the length of time the condition persisted.

Only observations other than normal are indicated on the summary clinical observations tables.

The level of severity for observations of ataxic and hypoactive behavior was not specified at the time of the observation and is indicated as "UNSPECIFIED" on the summary and individual observations tables.

The specific details for comments in the individual clinical observations tables that are indicated with a "C" can be found at the end of each group for each sex.

The day of initiation of treatment is "Day 1, Week 1." Body weight data are entered at the start of a study week (e.g., a body weight recorded on Day 1 is considered a Week 1 body weight, a body weight recorded on Day 8 is considered a Week 2 body weight). Body weight change data are calculated from the first day of the study week to the first day of the following study week (e.g., Week 1 values are calculated from Day 1 through 7).

Differences in the population size (N) on the summary tables for clinical pathology are explained on the individual data tables.

COMMENTS ON THE DATA (Continued)

Results of clinical pathology samples collected for animals sacrificed at an unscheduled interval appear on the individual clinical pathology tables for the next scheduled interval. These results are not on the summary tables and are not included in the statistical analyses.

Dosing was discontinued for Animal Nos. I05711, I05722, and I05703 (Group 4) on Days 43 (Week 7), 66 (Week 10), and 81 (Week 12). Summary tables do not include data from these animals after dosing was discontinued and this data are not included in the statistical analyses.

Some animals were observed and treated by the laboratory animal veterinary staff, and the data were recorded on the day the examination was done. These data are referenced in the Request for Veterinary Services and are archived with the raw data but do not appear on the summary or individual clinical observations tables.

Data collected for Animal No. I05723 (Group 2) will be maintained in the raw data; this data will not be included in this report. Animal No. I05723 was sacrificed in moribund condition on Day 14; the cause of the moribund condition of this animal was determined to be a bacterial septicemia which was unrelated to the test material. Animal No. I05723 was replaced by Animal No. I05721 on Day 15.

CODES, ABBREVIATIONS, AND UNITS

General Codes and Abbreviations
Codes for Clinical Pathology
Abbreviations and Units for Clinical Hematology
Abbreviations and Units for Clinical Chemistry
Abbreviations and Units for Clinical Urinalysis
Codes for Anatomic Pathology

Note: The following lists of codes, abbreviations, and units are used by Covance. Some, but not necessarily all, of this information may be needed for this report.

General Codes and Abbreviations

WK	Week
N	Number of measurements in a group
Mean; MEAN	Arithmetic mean
CAM	Covariate-adjusted mean
SD; S.D.; STAND DEV; STANDARD DEV; sd	Standard deviation
*	Group mean is significantly different from the mean of the control group (Group 1) at $p \leq 0.05$
-; NA	No value; not applicable; not present
NVL	No visible lesions
C	Comment found at the end of each group for each sex
UNSCHED	Unscheduled
#	Number

Animal Death Codes:

T	Terminal sacrifice
M	Moribund
U	First postrecovery sacrifice

Codes for Clinical Pathology

GENERAL CODES

NS	No sample
QS/QNS	Quantity not sufficient
NR	No repeat (sample volume not sufficient for repeat analysis)
FS	Fibrin strands
SC	Sample clotted
SH	Slightly hemolyzed
H	Hemolyzed
SL	Slightly lipemic
L	Lipemic
SI	Slightly icteric
I	Icteric
NF	Animal not fasted
U	Unscheduled/moribund bleed
DT/DOT	Animal died on test
DB	Died during bleeding
TJ	Technician judgment to repeat test
TE	Technical error (instrument or technician error that results in unacceptable data, e.g., unacceptable instrument output, sample spilled, entry of invalid data)
RE	Recording error (recorded incorrect data, e.g., wrong number, spelling error, incorrect date)
EE	Entry error (incorrect keyboard entry)
SE	Sampling error
PC	Platelets clumped
PD	Platelets decreased
PI	Platelets increased
PL	Platelets large
PA	Platelets appear adequate
CO	Color interferes with test
HB	Heinz bodies observed
PLASMO	Plasmodium
NO AGG	No aggregation
FR	Fractious
UTD	Unable to determine
NO COAG	No coagulation

Codes for Clinical Pathology (Continued)

RESULTS NOT INCLUDED IN STATISTICAL ANALYSES

Hemolyzed clinical chemistry or coagulation samples
Samples from animals at unscheduled intervals
Prothrombin times (PT) greater than 50 seconds
Activated partial thromboplastin times (PTT) greater than 110 seconds
Bleed times (BLETIME) greater than 30 minutes

CODES FOR BLOOD CELL MORPHOLOGY

The following scale was used to measure the degree of anisocytosis (ANISO), poikilocytosis (POIK), polychromasia (POLY), hypochromasia (HYPO), and toxic neutrophils (TOXNEUT):

Scale	Degree	Presence
-	Normal for the species	Not present
1	Slight	Rare
2	Moderate	Few
3	Marked	Moderate
4	Not applicable	Many

URINE APPEARANCE

Color			Clarity	Miscellaneous
A Pale	E Amber	I Black	J Clear	M Debris
B Straw	F Brown	P Blue/green	K Hazy	O Feces
C Yellow	G Red	Q Blue	L Cloudy	
D Dark yellow	H Green	R Orange		

Codes for Clinical Pathology (Continued)

URINE CHEMISTRY MULTISTIX® STRIP

Urine Glucose		Urine Ketone		Urine Blood	
-	Negative	-	Negative	-	Negative
+	100 mg/dL	+	5 mg/dL	+	Small
++	250 mg/dL	++	15 mg/dL	++	Moderate
+++	500 mg/dL	+++	40 mg/dL	+++	Large
++++	1,000 mg/dL	++++	80 mg/dL		
+++++	≥2,000 mg/dL	+++++	160 mg/dL		

Urine Urobilinogen		Urine Bilirubin	
-	0.2 mg/dL	-	Negative
+	1 mg/dL	+	Small
++	2 mg/dL	++	Moderate
+++	4 mg/dL	+++	Large
++++	8 mg/dL		

(1 mg = approximately 1 Ehrlich unit)

URINE SEDIMENT

Cells, Crystals, Casts, and Comments				**Bacteria**	
A	Amorphous urates	Q	Sperm	0	Not present
B	Amorphous phosphates	R	Fecal contamination	1	Few
C	Uric acid	S	Pinworm ova found	2	Moderate
D	Triple phosphates	T	Pinworm larvae found	3	Many
E	Calcium oxalate	U	Parasite ova found		
F	Calcium carbonate				
G	Granular casts				
H	Hyaline casts	0	Not present		
I	Cellular casts	1	1-5 per field		
J	Waxy casts	2	6-10 per field		
K	Unknown crystal	3	11-20 per field		
P	Mucous threads	4	>20 per field		

Abbreviations and Units for Clinical Hematology

Test	Abbreviation (Units)
Red blood cell count	RBC (E6/UL or $X10^6/\mu L$)
Hemoglobin	HGB (G/DL)
Hematocrit	HCT (%)
Mean corpuscular volume	MCV (FL)
Mean corpuscular hemoglobin	MCH (PG)
Mean corpuscular hemoglobin concentration	MCHC (%)
Platelet count	PLT (E3/UL or $X10^3/\mu L$)
Mean platelet volume	MPV (FL)
Reticulocyte count	RETIC (%)
Absolute reticulocyte count	RETIC (E3/UL or $X10^3/\mu L$)
Heinz body count	HEINZ (%)
Erythrocyte sedimentation rate	ESR (MM/HR)
Prothrombin time	PT (SEC)
Activated partial thromboplastin time	PTT (SEC)
Thrombin time	TT (SEC)
Activated coagulation time	ACT (SEC)
Fibrinogen	FBR (MG/DL)
Fibrin/fibrinogen degradation products	FDP (UG/ML)
Platelet aggregation	
Collagen	PAGG/COL (%)
Adenosine diphosphate	PAGG/ADP (%)
Alpha 2-antiplasmin	ANTIPLAS (%)
Bleeding time	BLE TIME (SEC)
Methemoglobin	METHGB (%)
Plasma hemoglobin	PLA HGB (MG/DL)
Myeloid/erythroid ratio	M/E RATIO
Estimated myeloid/erythroid ratio	EST M/E RATIO
White blood cell count	WBC (E3/UL or $X10^3/\mu L$)
Differential blood cell count	
Nucleated red blood cell count	NRBC (/100 WBC)
Corrected white blood cell count	COR WBC (E3/UL or $X10^3/\mu L$)
Segmented neutrophil count	N-SEG (E3/UL or $X10^3/\mu L$) and %
Band neutrophil count	N-BAND (E3/UL or $X10^3/\mu L$) and %
Lymphocyte count	LYMPH (E3/UL or $X10^3/\mu L$) and %
Monocyte count	MONO (E3/UL or $X10^3/\mu L$) and %
Eosinophil count	EOSIN (E3/UL or $X10^3/\mu L$) and %
Basophil count	BASO (E3/UL or $X10^3/\mu L$) and %
Anisocytosis	ANISO (-,1,2,3)
Polychromasia	POLY (-,1,2,3)

Abbreviations and Units for Clinical Hematology (Continued)

Test	Abbreviation (Units)
Poikilocytosis	POIK (-,1,2,3)
Hypochromasia	HYPO (-,1,2,3)
Howell-Jolly bodies	HJBODY (-,1,2,3,4)
Basophilic stippling	BASTIP (-,1,2,3)
Toxic neutrophils	TOXNEUT (-,1,2,3,4)
Atypical lymphocytes	ATYPLYM (-,1,2,3,4)
Aqueous white blood cell count (right eye)	R EYE (WBC/UL)
Aqueous white blood cell count (left eye)	L EYE (WBC/UL)

Abbreviations and Units for Clinical Chemistry

Test	Abbreviation (Units)
Glucose	GLU (MG/DL)
Urea nitrogen	UN (MG/DL)
Urea	UREA (MG/DL)
Creatinine	CREAT (MG/DL)
Total protein	T PRO (G/DL)
Albumin	ALB (G/DL)
Globulin	GLOB (G/DL)
Albumin/globulin ratio	A/G RATIO
Total bilirubin	T BILI (MG/DL)
Direct bilirubin	D BILI (MG/DL)
Indirect bilirubin	I BILI (MG/DL)
Cholesterol	CHOL (MG/DL)
Triglyceride	TRIG (MG/DL)
Urea nitrogen/creatinine ratio	UN/CREAT (RATIO)
Total lipids	T LIPIDS (MG/DL)
Phospholipids	P LIPIDS (MG/DL)
High-density lipoprotein cholesterol	HDL (MG/DL)
Low-density lipoprotein cholesterol	LDL (MG/DL)
Uric acid	UA (MG/DL)
Aspartate aminotransferase	AST/SGOT (IU/L)
Alanine aminotransferase	ALT/SGPT (IU/L)
Alkaline phosphatase	ALK PHOS (IU/L)
Gamma glutamyltransferase	GGT (IU/L)
Sorbitol dehydrogenase	SDH (IU/L)
Lactate dehydrogenase	LDH (IU/L)
Creatine kinase	CK (IU/L)
Amylase	AMYLASE (IU/L)
Lipase	LIPASE (IU/L)
Pancreatic-specific Amylase	P AMYL (U/L)
Palmitoyl CoA oxidase	PCOAO (IU/G)
Calcium	CA (MG/DL)
Ionized calcium	ION CA (MG/DL)
Inorganic phosphorus	I PHOS (MG/DL)
Sodium	NA (MMOL/L)
Potassium	K (MMOL/L)
Chloride	CL (MMOL/L)
Magnesium	MG (MEQ/L or MG/DL)
Zinc	ZN (MG/L or PPM)
Strontium	SR (MG/L or PPM)
Iron	FE (UG/DL)

Abbreviations and Units for Clinical Chemistry (Continued)

Test	Abbreviation (Units)
Excess iron	EX FE (UG/DL)
Total iron binding capacity	TIBC (UG/DL)
Unbound iron binding capacity	UIBC (UG/DL)
Percent iron saturation	FE %SAT (%)
Plasma cholinesterase	CHEP (MU/ML)
Red blood cell cholinesterase	CHER (MU/ML)
Brain cholinesterase	CHEB (MU/ML)
Caudate putamen	CAUD PUT (UMOL/G)
Hippocampus	HIPPOCAM (UMOL/G)
Frontal cortex	F CORTEX (UMOL/G)
Cerebellum	CEREBELL (UMOL/G)
Bicarbonate	BICARB (MMOL/L)
Serum hemoglobin	SER HGB (MG/DL)
Serum bile acids	SBA (UMOL/L or MG/DL)
Fecal bile acids	FBA (UG/ML)
Average fecal weight	FCC WGT (G)
Fecal bile acids (calculation)	FBA (MG/Day)
Osmolality	OSMO (MOSM/KG)
Electrophoresis	
Albumin	E ALB (G/DL)
Alpha-1-globulin	E A-1 (G/DL)
Alpha-2-globulin	E A-2 (G/DL)
Beta globulin	E BETA (G/DL)
Gamma globulin	E GAMMA (G/DL)
High-density lipoprotein	E-HDL (%)
Low-density lipoprotein	E-LDL (%)
Very-low-density lipoprotein	E-VLDL (%)
Insulin	INSULIN (UU/ML)
Adrenocorticotropic hormone	ACTH (PG/ML)
Cortisol	CORTISOL (UG/ML)
Glucagon	GLUCAGON (PG/ML)
Creatine kinase isoenzymes	
BB	CK-BB (U/L)
MB	CK-MB (U/L)
MM	CK-MM (U/L)

Abbreviations and Units for Clinical Urinalysis

Test	Abbreviation (Units)
Urine volume	U VOL (ML)
8 hour urine volume	8 HR VOL (ML)
Specific gravity	SP GR
Urine osmolality	U OSMO (MOSM/KG)
Quantitative urinary/cerebrospinal fluid protein	QUAN PRO (MG/DL)
Urine protein excretion	PRO EXC (MG)
Urine chemistry Multistix® strip	
Urine pH	U PH
Urine protein	U PRO (MG/DL)
Urine glucose	U GLU
Urine ketones	U KET
Urine bilirubin	U BILI
Urine blood	U BLOOD
Urine urobilinogen	UROBILI
Urine reducing substances	U RE SUB
Microscopic examination of urine sediment	
Red blood cells per high-power field	RBC (PER HPF)
White blood cells per high-power field	WBC (PER HPF)
Epithelial cells per high-power field	EPITH (PER HPF)
Bacteria per high-power field	BACT (PER HPF)
Casts per low-power field	CASTS (PER LPF)
Crystals per low-power field	CRYSTALS (PER LPF1 or PER LPF2)
Urine appearance	URINE APP1 or URINE APP2
Comments	COMMENTS

Miscellaneous Codes and Abbreviations for Clinical Pathology

Fecal occult blood	Not applicable
Fecal parasite detection	Not applicable
Hemolytic potential	Not applicable

Codes for Anatomic Pathology

Code	Definition

ANIMAL DEATH CODES

T	Terminal sacrifice
U	First postrecovery sacrifice
M	Moribund

MICROSCOPIC CODES

Distribution of Findings

Focal
Diffuse
Multifocal

Grades for Severity or Amount

1	Minimal - the least amount of change that can be observed with the light microscope
2	Slight - less than average amount of change, but readily discernible as abnormal
3	Moderate - the average amount of change that is expected for a lesion
4	Moderately severe (marked) - a marked amount of change with possible loss of function of the affected cells or organs
5	Severe - a great amount of change with probable loss of function of the affected cell or organs and frequently involves large areas of the organ

TISSUE ABBREVIATIONS

Abbreviation	Definition
LF	Left
LN	Lymph node
LN, TRACHEOBRON	Tracheobronchial lymph node
RT	Right
STOMACH, GL	Glandular stomach
SALIV GL, MANDIB	Mandibular salivary gland
THYROID/PARA	Thyroid/parathyroid

Table 1

Summary of Clinical Observations

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

NUMBER OF ANIMALS AFFECTED

DAYS 1-184

	SEX:	MALE			
	GROUP:	1	2	3	4[a]
CATEGORY	DOSE:	0	3	10	20
KEYWORD					
QUALIFIER	NUMBER:	6	4	6	6
*** TOP OF LIST ***					
APPEARANCE					
LIMITED USE					
LIMBS-HIND		0	1	0	0
PARALYSIS					
HIND QUARTERS		0	1	0	0
THIN		0	0	0	2
BEHAVIOR					
ATAXIC					
<UNSPECIFIED>		0	1	0	0
HYPOACTIVE					
<UNSPECIFIED>		0	1	0	1
DISCHARGE					
VOMITUS					
CONTAINING FOOD		4	2	3	2
EXCRETION					
DISCOLORED URINE					
BROWN IN COLOR		0	0	0	1
FEW FECES		5	1	0	6
LIQUID FECES		2	1	1	2
MUCOID FECES		1	1	0	0
NO FECES		0	0	0	4
NON-FORMED FECES		1	1	2	1

a Group 4 males were administered 30 mg/kg/day on Days 1 through 11. Animals were not dosed on Days 12 through 21. Beginning on Day 22 and continuing throughout the remainder of the study, Group 4 males were administered 20 mg/kg/day, except that dosing for Animal Nos. I05711, I05722, and I05703 was discontinued on Days 43 (Week 7), 66 (Week 10), and 81 (Week 12), respectively.

Table 1

Summary of Clinical Observations

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

NUMBER OF ANIMALS AFFECTED

DAYS 1-184

SEX:	-------MALE-------			
GROUP:	1	2	3	4[a]
CATEGORY DOSE:	0	3	10	20
KEYWORD QUALIFIER NUMBER:	6	4	6	6
SKIN & PELAGE				
ALOPECIA				
HEAD-CRANIAL	1	0	0	0
LIMB-FRONT-LEFT	1	0	0	0
LIMB-FRONT-RIGHT	1	0	0	0
LIMBS-FRONT	1	0	0	0
COLD TO TOUCH				
BODY-ENTIRE	0	0	0	1
SCAB(S)				
PERI-ORBITAL-LEFT	0	0	1	0
PERI-ORBITAL-RIGHT	0	0	1	0
SCAR				
LIP(S)	0	0	0	1
MASS				
FACE NEXT TO NOSE	0	0	1	0
QUALITATIVE FOOD CONSUMPTION				
LOW	5	3	3	6
NONE	0	1	0	4

*** END OF LIST ***

a Group 4 males were administered 30 mg/kg/day on Days 1 through 11. Animals were not dosed on Days 12 through 21. Beginning on Day 22 and continuing throughout the remainder of the study, Group 4 males were administered 20 mg/kg/day, except that dosing for Animal Nos. I05711, I05722, and I05703 was discontinued on Days 43 (Week 7), 66 (Week 10), and 81 (Week 12), respectively.

Table 2

Summary of Clinical Observations
Recovery

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

	NUMBER OF ANIMALS AFFECTED	
DAYS 185-277		
	SEX:	--MALE--
	GROUP:	1 3
CATEGORY	DOSE:	0 10
KEYWORD		
QUALIFIER	NUMBER:	2 2
*** TOP OF LIST ***		
DISCHARGE		
VOMITUS		
CONTAINING FOOD		2 1
EXCRETION		
NO FECES		0 1
QUALITATIVE FOOD CONSUMPTION		
LOW		1 2
*** END OF LIST ***		

Table 3

Summary of Ophthalmic Observations

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

NUMBER OF ANIMALS AFFECTED

WEEK -1

	SEX:	MALE			
	GROUP:	1	2	3	4
CATEGORY	DOSE:	0	3	10	20
KEYWORD					
QUALIFIER	NUMBER:	6	4	6	6
*** TOP OF LIST ***					
NO VISIBLE LESIONS					
NO VISIBLE LESIONS					
EYES		6	4	6	6
*** END OF LIST ***					

Table 3

Summary of Ophthalmic Observations

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

NUMBER OF ANIMALS AFFECTED

WEEK 27 CATEGORY KEYWORD QUALIFIER	SEX: GROUP: DOSE: NUMBER:	MALE 1 0 6	MALE 2 3 3	MALE 3 10 6	MALE 4 20[a] 5
*** TOP OF LIST ***					
NO VISIBLE LESIONS					
NO VISIBLE LESIONS					
EYES		6	3	6	5
*** END OF LIST ***					

a Group 4 males were administered 30 mg/kg/day on Days 1 through 11. Animals were not dosed on Days 12 through 21. Beginning on Day 22 and continuing throughout the remainder of the study, Group 4 males were administered 20 mg/kg/day, except that dosing for Animal Nos. I05711, I05722, and I05703 was discontinued on Days 43 (Week 7), 66 (Week 10), and 81 (Week 12), respectively.

Table 4

Summary of Ophthalmic Observations
Recovery

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

		NUMBER OF ANIMALS AFFECTED	
WEEK 40			
	SEX:	--MALE--	
	GROUP:	1	3
CATEGORY	DOSE:	0	10
KEYWORD			
QUALIFIER	NUMBER:	2	2
*** TOP OF LIST ***			
NO VISIBLE LESIONS			
NO VISIBLE LESIONS			
EYES		2	2
*** END OF LIST ***			

Table 5

Summary of Body Weight Data (kg)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

	SEX:	MALE			
	GROUP:	1	2	3	4
	DOSE:	0	3	10	20[a]
WEEK	UNITS:	MG/KG/DAY	MG/KG/DAY	MG/KG/DAY	MG/KG/DAY
-2	N	6	4	6	6
	MEAN	3.7	4.0	3.8	3.8
	S.D.	0.45	0.24	0.34	0.26
-1[b]	N	6	4	6	6
	MEAN	3.8	4.0	3.8	3.8
	S.D.	0.52	0.34	0.37	0.27
-1[c]	N	6	4	6	6
	MEAN	3.8	3.9	3.7	3.8
	S.D.	0.54	0.34	0.43	0.29
1	N	6	4	6	6
	MEAN	3.8	4.0	3.8	3.9
	S.D.	0.56	0.36	0.33	0.32
2	N	6	4	6	6
	CAM	3.8	3.9	3.8	3.7 *
	MEAN	3.8	4.0	3.7	3.7
	S.D.	0.59	0.29	0.42	0.29
3	N	6	4	6	6
	CAM	3.9	3.8	3.7	3.6 *
	MEAN	3.9	4.0	3.7	3.6
	S.D.	0.56	0.24	0.46	0.29

a Group 4 males were administered 30 mg/kg/day on Days 1 through 11. Animals were not dosed on Days 12 through 21. Beginning on Day 22 and continuing throughout the remainder of the study, Group 4 males were administered 20 mg/kg/day, except that dosing for Animal Nos. I05711, I05722, and I05703 was discontinued on Days 43 (Week 7), 66 (Week 10), and 81 (Week 12), respectively.
b Day -7.
c Day -1.

Table 5

Summary of Body Weight Data (kg)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

	SEX:	MALE			
	GROUP:	1	2	3	4
	DOSE:	0	3	10	20[a]
WEEK	UNITS:	MG/KG/DAY	MG/KG/DAY	MG/KG/DAY	MG/KG/DAY
4	N	6	4	6	6
	CAM	4.0	3.9	3.9	3.7 *
	MEAN	4.0	4.0	3.8	3.7
	S.D.	0.57	0.22	0.44	0.27
5	N	6	4	6	6
	CAM	4.0	3.8	3.8	3.7 *
	MEAN	4.0	3.9	3.8	3.7
	S.D.	0.63	0.24	0.45	0.30
6	N	6	4	6	5
	CAM	4.0	4.0	3.9	3.7
	MEAN	4.0	4.1	3.9	3.7
	S.D.	0.53	0.21	0.53	0.30
7	N	6	4	6	5
	CAM	4.1	3.9	4.0	3.7
	MEAN	4.1	4.1	3.9	3.7
	S.D.	0.62	0.13	0.57	0.42
8	N	6	4	6	4
	CAM	4.0	4.0	4.0	3.6
	MEAN	4.0	4.1	3.9	3.6
	S.D.	0.51	0.14	0.52	0.42
9	N	6	4	6	4
	CAM	4.0	4.0	4.0	3.6
	MEAN	4.0	4.2	4.0	3.6
	S.D.	0.55	0.05	0.60	0.44

a Group 4 males were administered 30 mg/kg/day on Days 1 through 11. Animals were not dosed on Days 12 through 21. Beginning on Day 22 and continuing throughout the remainder of the study, Group 4 males were administered 20 mg/kg/day, except that dosing for Animal Nos. I05711, I05722, and I05703 was discontinued on Days 43 (Week 7), 66 (Week 10), and 81 (Week 12), respectively.

Table 5

Summary of Body Weight Data (kg)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

	SEX:	MALE			
	GROUP:	1	2	3	4
	DOSE:	0	3	10	20[a]
WEEK	UNITS:	MG/KG/DAY	MG/KG/DAY	MG/KG/DAY	MG/KG/DAY
10	N	6	4	6	4
	CAM	4.0	4.0	4.0	3.5 *
	MEAN	4.0	4.1	4.0	3.4
	S.D.	0.54	0.10	0.58	0.56
11	N	6	4	6	3
	CAM	4.1	4.0	4.1	3.6
	MEAN	4.1	4.2	4.0	3.5
	S.D.	0.58	0.05	0.59	0.60
12	N	6	4	6	3
	CAM	4.1	4.0	4.0	3.5
	MEAN	4.1	4.2	4.0	3.4
	S.D.	0.53	0.06	0.60	0.76
13	N	6	4	6	2
	CAM	4.1	4.1	4.2	3.8
	MEAN	4.1	4.2	4.1	3.9
	S.D.	0.53	0.10	0.58	0.35
14	N	6	4	6	2
	CAM	4.1	4.1	4.1	3.7
	MEAN	4.1	4.2	4.0	3.9
	S.D.	0.55	0.05	0.59	0.35
15	N	6	4	6	2
	CAM	4.2	4.2	4.1	3.7
	MEAN	4.2	4.3	4.1	3.8
	S.D.	0.53	0.06	0.59	0.49

a Group 4 males were administered 30 mg/kg/day on Days 1 through 11. Animals were not dosed on Days 12 through 21. Beginning on Day 22 and continuing throughout the remainder of the study, Group 4 males were administered 20 mg/kg/day, except that dosing for Animal Nos. I05711, I05722, and I05703 was discontinued on Days 43 (Week 7), 66 (Week 10), and 81 (Week 12), respectively.

Table 5

Summary of Body Weight Data (kg)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

	SEX:	MALE			
	GROUP:	1	2	3	4
	DOSE:	0	3	10	20[a]
WEEK	UNITS:	MG/KG/DAY	MG/KG/DAY	MG/KG/DAY	MG/KG/DAY
16	N	6	4	6	2
	CAM	4.2	4.1	4.2	3.7
	MEAN	4.2	4.2	4.1	3.8
	S.D.	0.53	0.05	0.56	0.49
17	N	6	4	6	2
	CAM	4.2	4.2	4.2	3.8
	MEAN	4.2	4.3	4.1	3.9
	S.D.	0.53	0.08	0.56	0.42
18	N	6	4	6	2
	CAM	4.3	4.3	4.3	3.9
	MEAN	4.2	4.4	4.2	4.0
	S.D.	0.57	0.10	0.58	0.42
19	N	6	4	6	2
	CAM	4.3	4.3	4.3	3.8
	MEAN	4.2	4.4	4.2	4.0
	S.D.	0.58	0.13	0.60	0.49
20	N	6	4	6	2
	CAM	4.3	4.2	4.3	3.7
	MEAN	4.3	4.3	4.2	3.9
	S.D.	0.56	0.32	0.58	0.64
21	N	6	3	6	2
	CAM	4.3	4.3	4.3	3.7
	MEAN	4.3	4.5	4.2	3.9
	S.D.	0.59	0.06	0.58	0.64

a Group 4 males were administered 30 mg/kg/day on Days 1 through 11. Animals were not dosed on Days 12 through 21. Beginning on Day 22 and continuing throughout the remainder of the study, Group 4 males were administered 20 mg/kg/day, except that dosing for Animal Nos. I05711, I05722, and I05703 was discontinued on Days 43 (Week 7), 66 (Week 10), and 81 (Week 12), respectively.

Table 5

Summary of Body Weight Data (kg)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

	SEX:	MALE			
	GROUP:	1	2	3	4
	DOSE:	0	3	10	20[a]
WEEK	UNITS:	MG/KG/DAY	MG/KG/DAY	MG/KG/DAY	MG/KG/DAY
22	N	6	3	6	2
	CAM	4.3	4.3	4.3	3.7
	MEAN	4.3	4.5	4.3	3.9
	S.D.	0.59	0.06	0.58	0.64
23	N	6	3	6	2
	CAM	4.4	4.4	4.4	3.9
	MEAN	4.3	4.5	4.3	4.0
	S.D.	0.60	0.06	0.56	0.57
24	N	6	3	6	2
	CAM	4.4	4.4	4.4	4.0
	MEAN	4.3	4.6	4.4	4.1
	S.D.	0.59	0.00	0.58	0.57
25	N	6	3	6	2
	CAM	4.4	4.5	4.4	3.9
	MEAN	4.4	4.6	4.3	3.9
	S.D.	0.59	0.06	0.60	0.64
26	N	6	3	6	2
	CAM	4.5	4.6	4.5	3.9
	MEAN	4.4	4.7	4.4	4.0
	S.D.	0.60	0.06	0.62	0.71
27	N	6	3	6	2
	CAM	4.5	4.6	4.5	4.0
	MEAN	4.5	4.8	4.4	4.1
	S.D.	0.64	0.06	0.60	0.71

a Group 4 males were administered 30 mg/kg/day on Days 1 through 11. Animals were not dosed on Days 12 through 21. Beginning on Day 22 and continuing throughout the remainder of the study, Group 4 males were administered 20 mg/kg/day, except that dosing for Animal Nos. I05711, I05722, and I05703 was discontinued on Days 43 (Week 7), 66 (Week 10), and 81 (Week 12), respectively.

Table 6

Summary of Body Weight Data (kg)
Recovery

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

	SEX:	---------MALE---------	
	GROUP:	1	3
	DOSE:	0	10
WEEK	UNITS:	MG/KG/DAY	MG/KG/DAY
28	N	2	2
	MEAN	5.1	3.8
	S.D.	0.28	0.07
29	N	2	2
	MEAN	5.2	3.8
	S.D.	0.28	0.00
30	N	2	2
	MEAN	5.2	3.7
	S.D.	0.21	0.07
31	N	2	2
	MEAN	5.2	3.7
	S.D.	0.21	0.14
32	N	2	2
	MEAN	5.3	3.8
	S.D.	0.28	0.07
33	N	2	2
	MEAN	5.3	3.8
	S.D.	0.42	0.14
34	N	2	2
	MEAN	5.5	3.8
	S.D.	0.28	0.14

Table 6

Summary of Body Weight Data (kg)
Recovery

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

WEEK	SEX:	MALE	MALE
	GROUP:	1	3
	DOSE:	0	10
	UNITS:	MG/KG/DAY	MG/KG/DAY
35	N	2	2
	MEAN	5.5	3.8
	S.D.	0.28	0.14
36	N	2	2
	MEAN	5.6	3.8
	S.D.	0.35	0.14
37	N	2	2
	MEAN	5.6	3.8
	S.D.	0.28	0.14
38	N	2	2
	MEAN	5.6	3.8
	S.D.	0.28	0.14
39	N	2	2
	MEAN	5.7	3.8
	S.D.	0.28	0.21
40	N	2	2
	MEAN	5.7	3.8
	S.D.	0.28	0.21

Table 7

Summary of Body Weight Change Data (kg)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

	SEX:	MALE			
	GROUP:	1	2	3	4
	DOSE:	0	3	10	20[a]
WEEKS	UNITS:	MG/KG/DAY	MG/KG/DAY	MG/KG/DAY	MG/KG/DAY
1-2	N	6	4	6	6
	MEAN	-0.1	0.0	-0.1	-0.2
	S.D.	0.05	0.08	0.12	0.08
2-3	N	6	4	6	6
	MEAN	0.1	0.0	0.0	-0.1 *
	S.D.	0.06	0.05	0.05	0.17
3-4	N	6	4	6	6
	MEAN	0.1	0.0	0.1	0.2
	S.D.	0.04	0.06	0.05	0.08
4-5	N	6	4	6	6
	MEAN	0.0	-0.1	-0.1	-0.1
	S.D.	0.10	0.08	0.05	0.08
5-6	N	6	4	6	5
	MEAN	0.0	0.2	0.1	0.0
	S.D.	0.10	0.05	0.10	0.07
6-7	N	6	4	6	5
	MEAN	0.1	0.0	0.0	0.0
	S.D.	0.10	0.08	0.10	0.15
7-8	N	6	4	6	4
	MEAN	-0.1	0.0	0.0	-0.3 *
	S.D.	0.12	0.10	0.09	0.10

a Group 4 males were administered 30 mg/kg/day on Days 1 through 11. Animals were not dosed on Days 12 through 21. Beginning on Day 22 and continuing throughout the remainder of the study, Group 4 males were administered 20 mg/kg/day, except that dosing for Animal Nos. I05711, I05722, and I05703 was discontinued on Days 43 (Week 7), 66 (Week 10), and 81 (Week 12), respectively.

Table 7

Summary of Body Weight Change Data (kg)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

	SEX:	MALE			
	GROUP:	1	2	3	4
	DOSE:	0	3	10	20[a]
WEEKS	UNITS:	MG/KG/DAY	MG/KG/DAY	MG/KG/DAY	MG/KG/DAY
8-9	N	6	4	6	4
	MEAN	0.0	0.1	0.1	0.0
	S.D.	0.13	0.13	0.08	0.08
9-10	N	6	4	6	4
	MEAN	0.0	0.0	0.0	-0.1 *
	S.D.	0.05	0.06	0.08	0.13
10-11	N	6	4	6	3
	MEAN	0.0	0.0	0.1	0.0
	S.D.	0.05	0.06	0.10	0.00
11-12	N	6	4	6	3
	MEAN	0.0	0.0	0.0	-0.1
	S.D.	0.06	0.05	0.05	0.17
12-13	N	6	4	6	2
	MEAN	0.0	0.1	0.1	0.1
	S.D.	0.05	0.05	0.06	0.00
13-14	N	6	4	6	2
	MEAN	0.0	-0.1	-0.1	-0.1
	S.D.	0.04	0.10	0.05	0.00
14-15	N	6	4	6	2
	MEAN	0.1	0.1	0.1	0.0
	S.D.	0.05	0.05	0.08	0.14

a Group 4 males were administered 30 mg/kg/day on Days 1 through 11. Animals were not dosed on Days 12 through 21. Beginning on Day 22 and continuing throughout the remainder of the study, Group 4 males were administered 20 mg/kg/day, except that dosing for Animal Nos. I05711, I05722, and I05703 was discontinued on Days 43 (Week 7), 66 (Week 10), and 81 (Week 12), respectively.

Table 7

Summary of Body Weight Change Data (kg)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

	SEX:	MALE			
	GROUP:	1	2	3	4
	DOSE:	0	3	10	20[a]
WEEKS	UNITS:	MG/KG/DAY	MG/KG/DAY	MG/KG/DAY	MG/KG/DAY
15-16	N	6	4	6	2
	MEAN	0.0	0.0	0.0	0.0
	S.D.	0.06	0.05	0.05	0.00
16-17	N	6	4	6	2
	MEAN	0.0	0.1	0.0	0.0
	S.D.	0.00	0.05	0.05	0.07
17-18	N	6	4	6	2
	MEAN	0.1	0.1	0.0	0.1
	S.D.	0.05	0.13	0.05	0.00
18-19	N	6	4	6	2
	MEAN	0.0	0.0	0.0	0.0
	S.D.	0.06	0.10	0.08	0.07
19-20	N	6	4	6	2
	MEAN	0.0	-0.1	0.0	-0.1
	S.D.	0.05	0.20	0.04	0.14
20-21	N	6	3	6	2
	MEAN	0.0	0.0	0.0	0.0
	S.D.	0.04	0.06	0.00	0.00
21-22	N	6	3	6	2
	MEAN	0.0	0.0	0.0	0.0
	S.D.	0.00	0.00	0.04	0.00

a Group 4 males were administered 30 mg/kg/day on Days 1 through 11. Animals were not dosed on Days 12 through 21. Beginning on Day 22 and continuing throughout the remainder of the study, Group 4 males were administered 20 mg/kg/day, except that dosing for Animal Nos. I05711, I05722, and I05703 was discontinued on Days 43 (Week 7), 66 (Week 10), and 81 (Week 12), respectively.

Table 7

Summary of Body Weight Change Data (kg)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

	SEX:	MALE			
	GROUP:	1	2	3	4
	DOSE:	0	3	10	20[a]
WEEKS	UNITS:	MG/KG/DAY	MG/KG/DAY	MG/KG/DAY	MG/KG/DAY
22-23	N	6	3	6	2
	MEAN	0.1	0.1	0.0	0.1
	S.D.	0.05	0.06	0.05	0.07
23-24	N	6	3	6	2
	MEAN	0.0	0.1	0.1	0.1
	S.D.	0.06	0.06	0.05	0.00
24-25	N	6	3	6	2
	MEAN	0.0	0.0	0.0	-0.2 *
	S.D.	0.05	0.06	0.05	0.07
25-26	N	6	3	6	2
	MEAN	0.1	0.1	0.1	0.1
	S.D.	0.04	0.00	0.04	0.07
26-27	N	6	3	6	2
	MEAN	0.0	0.0	0.0	0.1
	S.D.	0.05	0.06	0.06	0.00
1-27	N	6	3	6	2
	MEAN	0.7	0.7	0.6	0.1
	S.D.	0.33	0.35	0.34	0.71

a Group 4 males were administered 30 mg/kg/day on Days 1 through 11. Animals were not dosed on Days 12 through 21. Beginning on Day 22 and continuing throughout the remainder of the study, Group 4 males were administered 20 mg/kg/day, except that dosing for Animal Nos. I05711, I05722, and I05703 was discontinued on Days 43 (Week 7), 66 (Week 10), and 81 (Week 12), respectively.

Table 8

Summary of Body Weight Change Data (kg)
Recovery

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

	SEX:	---------MALE---------	
	GROUP:	1	3
	DOSE:	0	10
WEEKS	UNITS:	MG/KG/DAY	MG/KG/DAY
27-28	N	2	2
	MEAN	-0.1	-0.1
	S.D.	0.07	0.07
28-29	N	2	2
	MEAN	0.1	0.1
	S.D.	0.00	0.07
29-30	N	2	2
	MEAN	0.0	-0.2
	S.D.	0.07	0.07
30-31	N	2	2
	MEAN	0.0	0.1
	S.D.	0.00	0.07
31-32	N	2	2
	MEAN	0.2	0.0
	S.D.	0.07	0.07
32-33	N	2	2
	MEAN	0.0	0.0
	S.D.	0.14	0.07
33-34	N	2	2
	MEAN	0.2	0.0
	S.D.	0.14	0.00

Table 8

Summary of Body Weight Change Data (kg)
Recovery

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

SEX:		---------MALE---------	
GROUP:		1	3
DOSE:		0	10
WEEKS	UNITS:	MG/KG/DAY	MG/KG/DAY
34-35	N	2	2
	MEAN	0.0	0.0
	S.D.	0.00	0.00
35-36	N	2	2
	MEAN	0.1	0.0
	S.D.	0.07	0.00
36-37	N	2	2
	MEAN	0.0	0.0
	S.D.	0.07	0.00
37-38	N	2	2
	MEAN	0.0	0.0
	S.D.	0.00	0.00
38-39	N	2	2
	MEAN	0.1	0.0
	S.D.	0.00	0.07
39-40	N	2	2
	MEAN	0.0	0.0
	S.D.	0.00	0.00
27-40	N	2	2
	MEAN	0.5	0.0
	S.D.	0.07	0.21

Table 9

Summary of Clinical Hematology Data

Males Day -11

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		RBC $X10^6/\mu L$	HGB G/DL	HCT %	MCV FL	MCH PG	MCHC %	PLT $X10^3/\mu L$	RETIC %	RETIC $X10^3/\mu L$	PT SEC	PTT SEC	FBR MG/DL
0	MEAN	6.60	12.4	42.1	63.9	18.9	29.5	513	.7	45	9.7	18.2	286
	S.D.	.405	.26	.85	3.05	1.21	1.03	155.0	.36	26.3	.32	1.23	32.2
	N	6	6	6	6	6	6	6	6	6	6	6	6
3	MEAN	6.88	12.9	43.9	63.8	18.8	29.4	562	.7	48	9.6	20.5	345
	S.D.	.433	1.23	4.51	3.80	.95	.22	109.5	.42	29.9	.10	5.03	52.3
	N	4	4	4	4	4	4	4	4	4	4	4	4
10	MEAN	6.70	12.1	40.4	60.4	18.1	30.0	515	.6	43	9.6	18.3	315
	S.D.	.268	.56	1.92	3.78	1.02	.48	98.3	.38	24.7	.18	1.59	22.2
	N	6	6	6	6	6	6	6	6	6	6	6	6
30/20	MEAN	6.84	12.2	41.2	60.2	17.8	29.6	547	.7	49	9.8	20.0	304
	S.D.	.302	.83	2.68	2.63	.89	.58	90.6	.22	16.9	.36	3.76	44.9
	N	6	6	6	6	6	6	6	6	6	6	6	6

Table 9

Summary of Clinical Hematology Data

Males Day -11

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		WBC $X10^3/\mu L$	N-SEG $X10^3/\mu L$	LYMPH $X10^3/\mu L$	MONO $X10^3/\mu L$	EOSIN $X10^3/\mu L$	BASO $X10^3/\mu L$	N-SEG%	LYMPH%	MONO%	EOSIN%	BASO%
0												
	MEAN	12.7	6.0	5.5	1.0	.2	.0	47	43	8	2	0
	S.D.	4.36	2.21	2.06	.46	.12	.05	5.5	6.3	1.9	.5	.4
	N	6	6	6	6	6	6	6	6	6	6	6
3												
	MEAN	10.7	4.6	5.2	.8	.1	.0	40	51	8	1	0
	S.D.	3.62	2.84	1.00	.39	.15	.05	14.0	11.2	5.5	1.0	.6
	N	4	4	4	4	4	4	4	4	4	4	4
10												
	MEAN	11.4	5.7	4.6	.9	.2	.0	48	42	8	2	0
	S.D.	3.03	2.66	1.07	.32	.13	.05	14.4	11.2	2.8	2.0	.4
	N	6	6	6	6	6	6	6	6	6	6	6
30/20												
	MEAN	13.3	7.3	4.8	1.0	.2	.0	54	36	7	2	0
	S.D.	2.25	1.57	1.17	.60	.14	.08	5.0	7.1	4.6	.8	.4
	N	6	6	6	6	6	6	6	6	6	6	6

Table 10

Summary of Clinical Hematology Data

Males Day 31

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		RBC $X10^6/\mu L$	HGB G/DL	HCT %	MCV FL	MCH PG	MCHC %	PLT $X10^3/\mu L$	RETIC %	RETIC $X10^3/\mu L$	PT SEC	PTT SEC	FBR MG/DL
0	MEAN	6.81	12.9	44.0	64.7	19.0	29.3	428	.3	21	10.0	19.8	369
	S.D.	.415	.80	1.88	3.01	1.12	1.23	87.8	.11	8.4	.26	1.26	187.4
	N	6	6	6	6	6	6	6	6	6	6	6	6
3	MEAN	6.47	12.4	41.3	64.0	19.2	30.0	499	.2	13	9.8	21.9	334
	S.D.	.378	.57	1.76	3.43	1.06	.45	98.7	.14	10.4	.29	4.98	24.0
	N	4	4	4	4	4	4	4	4	4	4	4	4
10	MEAN	6.73	12.3	41.8	62.2	18.4	29.6	446	.2	11	10.1	20.0	291
	S.D.	.387	.51	2.11	3.73	1.09	.46	107.9	.08	5.2	.34	2.02	38.8
	N	6	6	6	6	6	6	6	6	6	6	6	6
30/20	MEAN	6.63	12.1	40.9	61.6	18.2	29.6	516	.3	23	10.0	24.0	475
	S.D.	.396	.99	3.06	3.23	.54	1.56	159.7	.26	19.1	.47	4.22	250.9
	N	5	5	5	5	5	5	5	5	5	5	5	5

Table 10

Summary of Clinical Hematology Data

Males Day 31

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		WBC $X10^3/\mu L$	N-SEG $X10^3/\mu L$	LYMPH $X10^3/\mu L$	MONO $X10^3/\mu L$	EOSIN $X10^3/\mu L$	BASO $X10^3/\mu L$	N-SEG%	LYMPH%	MONO%	EOSIN%	BASO%
0												
	MEAN	12.8	7.3	4.6	.8	.1	.0	54	40	6	1	0
	S.D.	4.48	4.05	.83	.54	.08	.00	14.1	15.0	3.1	.8	.0
	N	6	6	6	6	6	6	6	6	6	6	6
3												
	MEAN	7.8	2.8	4.2	.6	.2	.0	34	56	8	2	0
	S.D.	2.34	1.76	1.01	.36	.30	.05	15.3	11.1	3.5	3.4	.5
	N	4	4	4	4	4	4	4	4	4	4	4
10												
	MEAN	10.7	6.0	3.9	.6	.2	.0	53	38	6	2	0
	S.D.	3.51	3.45	.88	.23	.10	.04	13.6	11.9	2.4	1.2	.0
	N	6	6	6	6	6	6	6	6	6	6	6
30/20												
	MEAN	9.2	4.0	3.8	1.2	.1	.0	44	42	13 *	1	0
	S.D.	1.84	.98	.62	.88	.08	.00	5.0	7.1	6.6	.9	.4
	N	5	5	5	5	5	5	5	5	5	5	5

Table 11

Summary of Clinical Hematology Data

Males Day 63

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		RBC $X10^6/\mu L$	HGB G/DL	HCT %	MCV FL	MCH PG	MCHC %	PLT $X10^3/\mu L$	RETIC %	RETIC $X10^3/\mu L$	PT SEC	PTT SEC	FBR MG/DL
0													
	MEAN	6.66	12.5	42.1	63.3	18.8	29.7	458	.3	18	10.1	19.2	343
	S.D.	.641	1.10	3.75	3.24	1.03	.97	187.7	.05	4.4	.41	1.59	100.1
	N	6	6	6	6	6	6	6	6	6	6	6	6
3													
	MEAN	6.75	13.0	43.0	63.9	19.2	30.0	467	.4	28	10.0	21.7	318
	S.D.	.485	.90	2.45	4.66	1.27	.83	104.0	.17	10.4	.30	3.83	33.9
	N	4	4	4	4	4	4	4	4	4	4	4	4
10													
	MEAN	6.78	12.4	41.2	60.9	18.3	30.1	436	.2	13	10.2	20.0	257
	S.D.	.323	.37	1.17	2.86	1.05	.53	87.3	.11	6.6	.27	2.47	46.5
	N	6	6	6	6	6	6	6	6	6	6	6	6
30/20													
	MEAN	6.77	12.0	40.6	60.0	17.8	29.6	433	.2	12	10.8	24.7 *	194 *
	S.D.	.600	1.28	4.58	2.31	.54	.59	131.4	.10	5.6	.95	2.15	85.7
	N	4	4	4	4	4	4	4	4	4	4	4	4

Table 11

Summary of Clinical Hematology Data

Males Day 63

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		WBC $X10^3/\mu L$	N-SEG $X10^3/\mu L$	LYMPH $X10^3/\mu L$	MONO $X10^3/\mu L$	EOSIN $X10^3/\mu L$	BASO $X10^3/\mu L$	N-SEG%	LYMPH%	MONO%	EOSIN%	BASO%
0												
	MEAN	11.1	5.8	4.4	.7	.1	.0	51	41	6	1	0
	S.D.	1.78	1.83	1.04	.41	.05	.05	10.4	9.8	3.5	.5	.4
	N	6	6	6	6	6	6	6	6	6	6	6
3												
	MEAN	10.5	5.5	4.1	.6	.2	.0	50	42	6	2	0
	S.D.	3.52	2.91	.76	.17	.35	.06	13.5	12.3	1.0	2.9	.0
	N	4	4	4	4	4	4	4	4	4	4	4
10												
	MEAN	10.1	5.6	3.6	.7	.2	.0	54	37	7	2	0
	S.D.	1.60	1.93	.86	.22	.10	.05	12.6	10.9	2.0	.9	.5
	N	6	6	6	6	6	6	6	6	6	6	6
30/20												
	MEAN	7.7	2.7	4.2	.6	.2	.0	34	54	9	2	0
	S.D.	1.96	1.44	.95	.13	.17	.00	11.4	7.0	3.2	2.2	.6
	N	4	4	4	4	4	4	4	4	4	4	4

Table 12

Summary of Clinical Hematology Data

Males Day 91

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		RBC $X10^6/\mu L$	HGB G/DL	HCT %	MCV FL	MCH PG	MCHC %	PLT $X10^3/\mu L$	RETIC %	RETIC $X10^3/\mu L$	PT SEC	PTT SEC	FBR MG/DL
0													
	MEAN	6.87	12.9	44.2	64.4	18.8	29.1	435	.3	21	10.2	18.1	278
	S.D.	.372	.84	2.83	3.88	1.35	1.18	145.1	.11	8.2	.19	1.31	15.2
	N	6	6	6	6	6	6	6	6	6	6	6	6
3													
	MEAN	6.61	12.6	42.1	63.8	19.1	30.0	504	.3	22	10.3	19.6	311
	S.D.	.455	.91	3.30	4.08	.98	.81	129.5	.29	19.4	.22	2.73	49.0
	N	4	4	4	4	4	4	4	4	4	4	4	4
10													
	MEAN	6.82	12.5	41.6	61.1	18.4	30.1	421	.3	20	10.4	19.2	262
	S.D.	.374	.32	1.12	3.41	1.10	.75	42.1	.23	14.3	.34	1.64	36.2
	N	6	6	6	6	6	6	6	6	6	6	6	6
30/20													
	MEAN	6.46	11.1	37.2 *	57.6	17.2	29.8	406	.2	10	10.4	22.5	244
	S.D.	.559	.57	2.97	.42	.64	.92	70.7	.07	3.5	.49	2.05	57.3
	N	2	2	2	2	2	2	2	2	2	2	2	2

Table 12

Summary of Clinical Hematology Data

Males Day 91

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		WBC $X10^3/\mu L$	N-SEG $X10^3/\mu L$	LYMPH $X10^3/\mu L$	MONO $X10^3/\mu L$	EOSIN $X10^3/\mu L$	BASO $X10^3/\mu L$	N-SEG%	LYMPH%	MONO%	EOSIN%	BASO%
0												
	MEAN	10.8	4.4	5.5	.7	.2	.0	40	52	6	2	0
	S.D.	1.68	1.76	.57	.39	.14	.04	9.4	9.4	3.3	.8	.4
	N	6	6	6	6	6	6	6	6	6	6	6
3												
	MEAN	10.2	4.3	4.6	.6	.6	.0	42	46	6	5	0
	S.D.	2.73	1.91	1.45	.21	.82	.05	15.4	10.1	1.9	6.1	.5
	N	4	4	4	4	4	4	4	4	4	4	4
10												
	MEAN	10.4	5.4	4.0 *	.7	.2	.0	50	40	8	2	0
	S.D.	2.58	2.42	.88	.33	.18	.05	14.0	10.4	3.1	1.5	.4
	N	6	6	6	6	6	6	6	6	6	6	6
30/20												
	MEAN	7.7	3.4	3.6 *	.6	.1	.0	40	49	8	2	0
	S.D.	2.97	2.69	.35	.14	.00	.00	19.8	14.1	4.9	.7	.7
	N	2	2	2	2	2	2	2	2	2	2	2

Table 13

Summary of Clinical Hematology Data

Males Day 182

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		RBC $X10^6/\mu L$	HGB G/DL	HCT %	MCV FL	MCH PG	MCHC %	PLT $X10^3/\mu L$	RETIC %	RETIC $X10^3/\mu L$	PT SEC	PTT SEC	FBR MG/DL
0	MEAN	6.69	12.6	40.6	60.8	19.0	31.1	408	.6	42	10.2	17.9	272
	S.D.	.263	.55	.82	3.33	1.17	.98	133.8	.41	27.0	.43	1.53	30.2
	N	6	6	6	6	6	6	6	6	6	6	6	6
3	MEAN	6.91	12.7	40.9	59.4	18.5	31.2	516	.9	60	10.1	20.6	294
	S.D.	.928	1.04	4.41	2.56	1.01	1.21	132.3	.06	11.7	.45	4.98	7.5
	N	3	3	3	3	3	3	3	3	3	3	3	3
10	MEAN	6.76	12.3	39.1	58.1	18.3	31.5	416	.5	35	10.3	19.6	278
	S.D.	.470	.57	2.19	4.19	1.14	.67	103.5	.41	25.5	.23	1.74	66.9
	N	6	6	6	6	6	6	6	6	6	6	6	6
30/20	MEAN	6.18	10.6 *	33.9	55.0	17.2	31.4	378	.2	8	10.3	25.5	224
	S.D.	.841	1.13	4.45	.21	.49	.85	180.3	.21	12.0	.07	7.00	69.3
	N	2	2	2	2	2	2	2	2	2	2	2	2

Table 13

Summary of Clinical Hematology Data

Males Day 182

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		WBC $X10^3/\mu L$	N-SEG $X10^3/\mu L$	LYMPH $X10^3/\mu L$	MONO $X10^3/\mu L$	EOSIN $X10^3/\mu L$	BASO $X10^3/\mu L$	N-SEG%	LYMPH%	MONO%	EOSIN%	BASO%
0												
	MEAN	10.9	5.0	4.8	.8	.2	.0	45	45	7	2	0
	S.D.	3.43	2.08	1.40	.48	.13	.05	7.3	9.9	3.6	.5	.5
	N	6	6	6	6	6	6	6	6	6	6	6
3												
	MEAN	12.5	4.3	6.3	1.3	.5	.1	37	49	10	4	1
	S.D.	1.75	2.06	2.35	.85	.64	.06	20.7	11.4	5.0	4.6	.6
	N	3	3	3	3	3	3	3	3	3	3	3
10												
	MEAN	9.7	4.4	4.1	.8	.3	.1	45	43	9	3	1
	S.D.	2.93	1.84	1.53	.23	.19	.04	12.5	11.2	1.8	1.6	.4
	N	6	6	6	6	6	6	6	6	6	6	6
30/20												
	MEAN	7.8	2.5	4.1	.9	.2	.1	30	54	11	2	2
	S.D.	2.19	1.56	.28	.28	.21	.00	10.6	12.7	.0	2.1	.7
	N	2	2	2	2	2	2	2	2	2	2	2

Table 14

Summary of Clinical Hematology Data

Males Day 217 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		RBC $X10^6/\mu L$	HGB G/DL	HCT %	MCV FL	MCH PG	MCHC %	PLT $X10^3/\mu L$	RETIC %	RETIC $X10^3/\mu L$	PT SEC	PTT SEC	FBR MG/DL
0													
	MEAN	7.00	13.7	44.8	64.0	19.6	30.6	492	.6	46	9.8	17.9	305
	S.D.	.191	.14	.00	1.84	.28	.42	247.5	.07	6.4	.35	.92	53.7
	N	2	2	2	2	2	2	2	2	2	2	2	2
10													
	MEAN	7.04	12.3	39.8	56.5	17.5	31.0	390	.3	20	10.2	20.2	214
	S.D.	.389	.64	.99	1.70	.07	.71	78.5	.28	19.1	.21	1.34	14.8
	N	2	2	2	2	2	2	2	2	2	2	2	2

Table 14

Summary of Clinical Hematology Data

Males Day 217 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		WBC $X10^3/\mu L$	N-SEG $X10^3/\mu L$	LYMPH $X10^3/\mu L$	MONO $X10^3/\mu L$	EOSIN $X10^3/\mu L$	BASO $X10^3/\mu L$	N-SEG%	LYMPH%	MONO%	EOSIN%	BASO%
0												
	MEAN	18.7	7.4	8.8	1.7	.5	.2	36	49	10	3	1
	S.D.	8.56	5.87	2.62	.00	.00	.07	14.8	8.5	4.9	1.4	.0
	N	2	2	2	2	2	2	2	2	2	2	2
10												
	MEAN	11.1	4.6	4.9	1.1	.4	.1	42	43	10	4	0
	S.D.	1.13	1.48	1.56	.57	.42	.14	17.7	9.9	3.5	3.5	.7
	N	2	2	2	2	2	2	2	2	2	2	2

Table 15

Summary of Clinical Hematology Data

Males Day 245 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		RBC $X10^6/\mu L$	HGB G/DL	HCT %	MCV FL	MCH PG	MCHC %	PLT $X10^3/\mu L$	RETIC %	RETIC $X10^3/\mu L$	PT SEC	PTT SEC	FBR MG/DL
0													
	MEAN	6.92	13.6	44.4	64.1	19.6	30.5	529	.4	24	9.8	18.0	323
	S.D.	.028	.21	.85	1.56	.49	.00	190.9	.07	4.9	.35	1.77	4.2
	N	2	2	2	2	2	2	2	2	2	2	2	2
10													
	MEAN	7.25	12.7	40.8	56.3	17.5	31.2	421	.2	10	10.2	19.2	227
	S.D.	.410	.85	.85	1.98	.14	1.34	97.6	.21	14.8	.07	.21	14.1
	N	2	2	2	2	2	2	2	2	2	2	2	2

Table 15

Summary of Clinical Hematology Data

Males Day 245 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		WBC $X10^3/\mu L$	N-SEG $X10^3/\mu L$	LYMPH $X10^3/\mu L$	MONO $X10^3/\mu L$	EOSIN $X10^3/\mu L$	BASO $X10^3/\mu L$	N-SEG%	LYMPH%	MONO%	EOSIN%	BASO%
0												
	MEAN	15.8	5.7	8.2	1.4	.5	.2	35	52	8	4	1
	S.D.	2.90	2.83	.49	.21	.28	.07	11.3	5.7	3.5	2.1	.0
	N	2	2	2	2	2	2	2	2	2	2	2
10												
	MEAN	10.7	4.4	4.9	1.0	.3	.0	44	44	10	2	0
	S.D.	5.09	1.34	3.11	.35	.28	.07	8.5	7.8	.7	1.4	.7
	N	2	2	2	2	2	2	2	2	2	2	2

Table 16

Summary of Clinical Hematology Data

Males Day 275 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		RBC $X10^6/\mu L$	HGB G/DL	HCT %	MCV FL	MCH PG	MCHC %	PLT $X10^3/\mu L$	RETIC %	RETIC $X10^3/\mu L$	PT SEC	PTT SEC	FBR MG/DL
0													
	MEAN	6.96	13.8	43.6	62.5	19.8	31.6	584	.2	10	9.8	17.6	530
	S.D.	.714	1.20	3.89	.85	.35	.14	244.0	.07	4.2	.57	.49	173.2
	N	2	2	2	2	2	2	2	2	2	2	2	2
10													
	MEAN	7.20	12.8	41.1	57.2	17.7	31.0	446	.4	24	10.2	18.3	300
	S.D.	.325	.49	.64	1.63	.14	.64	53.7	.49	34.6	.21	.71	26.2
	N	2	2	2	2	2	2	2	2	2	2	2	2

Table 16

Summary of Clinical Hematology Data

Males Day 275 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		WBC $X10^3/\mu L$	N-SEG $X10^3/\mu L$	LYMPH $X10^3/\mu L$	MONO $X10^3/\mu L$	EOSIN $X10^3/\mu L$	BASO $X10^3/\mu L$	N-SEG%	LYMPH%	MONO%	EOSIN%	BASO%
0												
	MEAN	15.0	7.4	5.6	1.6	.2	.1	49	38	12	2	1
	S.D.	4.31	2.55	1.77	.07	.00	.00	2.8	.7	2.8	.7	.0
	N	2	2	2	2	2	2	2	2	2	2	2
10												
	MEAN	16.2	9.1	5.6	1.3	.1	.0	54	38	8	0	0
	S.D.	4.17	5.94	1.77	.00	.00	.00	23.3	20.5	2.1	.7	.0
	N	2	2	2	2	2	2	2	2	2	2	2

Table 17

Summary of Clinical Chemistry Data

Males Day -11

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		GLU MG/DL	UN MG/DL	CREAT MG/DL	T PRO G/DL	ALB G/DL	GLOB G/DL	T BILI MG/DL	SBA UMOL/L	CHOL MG/DL	TRIG MG/DL
0											
	MEAN	92	16	1.2	9.4	4.8	4.6	.0	9	147	39
	S.D.	15.3	2.6	.15	.58	.40	.56	.05	2.0	44.3	11.3
	N	6	6	6	6	6	6	6	6	6	6
3											
	MEAN	88	14	1.1	9.4	5.2	4.2	.1	10	174	50
	S.D.	11.7	4.6	.15	.87	.29	.63	.15	4.6	53.7	10.2
	N	4	4	4	4	4	4	4	4	4	4
10											
	MEAN	92	16	1.2	9.1	4.8	4.3	.2	9	145	61
	S.D.	21.5	1.6	.05	.68	.21	.63	.23	1.7	22.0	18.0
	N	6	6	6	6	6	6	6	6	6	6
30/20											
	MEAN	81	15	1.1	9.1	4.8	4.4	.2	8	140	56
	S.D.	4.6	2.0	.21	.77	.20	.70	.15	4.7	26.3	13.2
	N	6	6	6	6	6	6	6	6	6	6

Table 17

Summary of Clinical Chemistry Data

Males Day -11

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		AST/SGOT IU/L	ALT/SGPT IU/L	ALK PHOS IU/L	GGT IU/L	SDH IU/L	CK IU/L	AMYLASE IU/L	LIPASE IU/L	P AMYL U/L
0										
	MEAN	35	58	455	126	3	145	516	25	237
	S.D.	9.6	28.8	202.2	32.4	.8	77.2	214.2	9.1	79.8
	N	6	6	6	6	6	6	6	6	6
3										
	MEAN	40	42	556	135	5	142	377	38	183
	S.D.	3.9	8.1	180.3	24.3	2.7	19.1	41.6	27.3	30.4
	N	4	4	4	4	4	4	4	4	4
10										
	MEAN	40	77	604	120	5	128	369	14	195
	S.D.	7.3	52.6	173.8	38.0	2.1	45.0	98.5	8.7	70.6
	N	6	6	6	6	6	6	6	6	6
30/20										
	MEAN	39	66	521	117	3	142	380	37	187
	S.D.	8.3	41.8	231.6	49.1	1.4	56.6	89.3	29.6	46.0
	N	6	6	6	6	6	6	6	6	6

Table 17

Summary of Clinical Chemistry Data

Males Day -11

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		CA MG/DL	I PHOS MG/DL	NA MMOL/L	K MMOL/L	CL MMOL/L
0						
	MEAN	11.4	5.8	163	5.8	114
	S.D.	.45	.69	2.9	.50	1.6
	N	6	6	6	6	6
3						
	MEAN	11.4	6.7	162	5.9	110
	S.D.	.70	.53	5.7	.78	1.7
	N	4	4	4	4	4
10						
	MEAN	10.9	6.3	158	5.4	112
	S.D.	.45	1.37	2.4	.48	1.5
	N	6	6	6	6	6
30/20						
	MEAN	10.7	6.1	159	5.6	112
	S.D.	.57	.96	4.2	.56	2.2
	N	6	6	6	6	6

Table 18

Summary of Clinical Chemistry Data

Males Day 31

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		GLU MG/DL	UN MG/DL	CREAT MG/DL	T PRO G/DL	ALB G/DL	GLOB G/DL	T BILI MG/DL	SBA UMOL/L	CHOL MG/DL	TRIG MG/DL
0											
	MEAN	78	15	1.3	9.2	4.7	4.6	.2	8	146	44
	S.D.	22.9	2.4	.17	.58	.42	.56	.12	2.9	19.1	22.9
	N	6	6	6	6	6	6	6	6	6	6
3											
	MEAN	78	16	1.2	8.6	4.9	3.7	.1	7	151	51
	S.D.	9.3	4.4	.17	.37	.24	.45	.14	1.4	60.4	24.1
	N	4	4	4	4	4	4	4	4	4	4
10											
	MEAN	72	17	1.3	8.9	4.8	4.1	.2	10	142	76
	S.D.	8.5	1.5	.15	.75	.27	.55	.12	3.3	25.9	26.6
	N	6	6	6	6	6	6	6	6	6	6
30/20											
	MEAN	75	16	1.3	8.8	4.5	4.3	.1	8	158	108 *
	S.D.	9.3	2.4	.13	.49	.38	.37	.09	1.9	20.8	57.3
	N	5	5	5	5	5	5	5	5	5	5

Table 18

Summary of Clinical Chemistry Data

Males Day 31

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		AST/SGOT IU/L	ALT/SGPT IU/L	ALK PHOS IU/L	GGT IU/L	SDH IU/L	CK IU/L	AMYLASE IU/L	LIPASE IU/L	P AMYL U/L
0										
	MEAN	34	48	577	121	4	115	551	39	255
	S.D.	6.7	16.7	232.0	29.3	1.6	51.3	177.3	20.2	87.1
	N	6	6	6	6	6	6	6	6	6
3										
	MEAN	39	29	629	107	3	157	396	46	181
	S.D.	10.9	6.4	193.9	24.5	2.6	88.3	58.3	21.0	33.5
	N	4	4	4	4	4	4	4	4	4
10										
	MEAN	36	55	704	107	2	144	372	19	197
	S.D.	7.0	22.6	165.2	29.6	1.4	36.4	109.2	10.6	85.8
	N	6	6	6	6	6	6	6	6	6
30/20										
	MEAN	33	36	571	98	1	128	434	34	205
	S.D.	6.6	13.5	313.5	34.1	1.3	66.4	109.7	28.5	49.0
	N	5	5	5	5	5	5	5	5	5

Table 18

Summary of Clinical Chemistry Data

Males Day 31

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		CA MG/DL	I PHOS MG/DL	NA MMOL/L	K MMOL/L	CL MMOL/L
0						
	MEAN	11.0	5.9	158	5.8	113
	S.D.	.45	1.12	3.3	.37	2.8
	N	6	6	6	6	6
3						
	MEAN	10.1	5.8	152	5.3	111
	S.D.	.14	.88	2.5	.22	1.3
	N	4	4	4	4	4
10						
	MEAN	10.4	5.9	153	5.0	110
	S.D.	.34	.75	5.1	.55	2.1
	N	6	6	6	6	6
30/20						
	MEAN	10.7	4.9	157	5.8	112
	S.D.	.81	.63	6.2	.90	3.7
	N	5	5	5	5	5

Table 19

Summary of Clinical Chemistry Data

Males Day 63

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		GLU MG/DL	UN MG/DL	CREAT MG/DL	T PRO G/DL	ALB G/DL	GLOB G/DL	T BILI MG/DL	SBA UMOL/L	CHOL MG/DL	TRIG MG/DL
0											
	MEAN	78	17	1.2	9.0	4.6	4.4	.4	5	151	43
	S.D.	21.1	3.8	.19	.39	.42	.39	.18	3.7	36.9	13.5
	N	6	6	6	6	6	6	6	6	6	6
3											
	MEAN	68	18	1.1	8.9	5.0	3.8	.3	9	161	59
	S.D.	7.0	4.3	.10	.48	.25	.31	.08	5.1	61.3	20.4
	N	4	4	4	4	4	4	4	4	4	4
10											
	MEAN	71	17	1.2	8.6	4.6	4.0	.2	9	158	76
	S.D.	10.7	1.5	.16	.67	.35	.54	.10	3.2	46.2	27.4
	N	6	6	6	6	6	6	6	6	6	6
30/20											
	MEAN	76	20	1.2	8.1	3.9	4.2	.3	22	146	66
	S.D.	7.0	5.0	.13	1.20	.75	.67	.21	25.8	12.2	39.0
	N	4	4	4	4	4	4	4	4	4	4

Table 19

Summary of Clinical Chemistry Data

Males Day 63

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		AST/SGOT IU/L	ALT/SGPT IU/L	ALK PHOS IU/L	GGT IU/L	SDH IU/L	CK IU/L	AMYLASE IU/L	LIPASE IU/L	P AMYL U/L
0										
	MEAN	36	62	582	123	4	139	481	28	262
	S.D.	8.0	23.9	193.3	31.2	2.9	78.9	147.1	16.2	81.8
	N	6	6	6	6	6	6	6	6	6
3										
	MEAN	35	45	612	121	2	131	396	86	220
	S.D.	10.4	26.7	169.9	15.9	1.0	16.2	58.5	81.3	45.4
	N	4	4	4	4	4	4	4	4	4
10										
	MEAN	36	53	668	114	3	143	347	13	211
	S.D.	6.9	19.4	190.3	29.7	1.5	65.6	106.2	12.2	83.4
	N	6	6	6	6	6	6	6	6	6
30/20										
	MEAN	141	192	484	110	9	379	352	8	204
	S.D.	187.4	269.7	159.5	55.7	8.6	496.0	71.3	13.6	49.5
	N	4	4	4	4	4	4	4	4	4

Table 19

Summary of Clinical Chemistry Data

Males Day 63

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		CA MG/DL	I PHOS MG/DL	NA MMOL/L	K MMOL/L	CL MMOL/L
0						
	MEAN	10.6	5.9	156	5.1	111
	S.D.	.32	.44	3.4	.31	2.9
	N	6	6	6	6	6
3						
	MEAN	10.6	6.2	154	5.0	111
	S.D.	.33	1.07	3.9	.13	2.2
	N	4	4	4	4	4
10						
	MEAN	10.4	5.7	150 *	4.6	110
	S.D.	.38	.69	1.8	.45	2.6
	N	6	6	6	6	6
30/20						
	MEAN	9.8	4.9	152	5.8	111
	S.D.	.93	.48	3.9	.94	2.6
	N	4	4	4	4	4

Table 20

Summary of Clinical Chemistry Data

Males Day 91

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		GLU MG/DL	UN MG/DL	CREAT MG/DL	T PRO G/DL	ALB G/DL	GLOB G/DL	T BILI MG/DL	SBA UMOL/L	CHOL MG/DL	TRIG MG/DL
0											
	MEAN	79	19	1.3	9.5	4.9	4.6	.2	11	167	40
	S.D.	11.7	1.8	.23	.52	.33	.27	.17	4.5	45.3	8.5
	N	6	6	6	6	6	6	6	6	6	6
3											
	MEAN	78	18	1.2	8.9	4.9	4.0	.3	12	157	56
	S.D.	9.8	3.5	.14	.12	.19	.17	.10	4.0	51.3	25.2
	N	4	4	4	4	4	4	4	4	4	4
10											
	MEAN	77	20	1.3	9.1	4.7	4.3	.2	11	155	88 *
	S.D.	8.9	2.9	.12	.70	.33	.53	.12	5.2	30.6	36.8
	N	6	6	6	6	6	6	6	6	6	6
30/20											
	MEAN	84	17	1.0	9.0	4.4	4.6	.1	13	142	99 *
	S.D.	19.1	1.4	.21	1.13	.64	.49	.14	5.7	9.2	55.2
	N	2	2	2	2	2	2	2	2	2	2

Table 20

Summary of Clinical Chemistry Data

Males Day 91

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		AST/SGOT IU/L	ALT/SGPT IU/L	ALK PHOS IU/L	GGT IU/L	SDH IU/L	CK IU/L	AMYLASE IU/L	LIPASE IU/L	P AMYL U/L
0										
	MEAN	38	63	529	128	10	143	515	20	270
	S.D.	7.8	22.7	240.3	31.4	3.7	55.8	148.7	17.4	66.1
	N	6	6	6	6	6	6	6	6	6
3										
	MEAN	40	47	585	118	10	126	378	50	207
	S.D.	6.7	25.2	177.6	22.5	1.0	35.3	63.6	32.0	47.2
	N	4	4	4	4	4	4	4	4	4
10										
	MEAN	40	53	656	113	11	133	367	9	219
	S.D.	6.8	15.5	208.6	30.8	2.9	34.4	100.7	12.6	77.0
	N	6	6	6	6	6	6	6	6	6
30/20										
	MEAN	38	48	432	120	10	156	318	11	184
	S.D.	7.1	17.7	306.2	88.4	.0	31.8	67.9	15.6	62.9
	N	2	2	2	2	2	2	2	2	2

Table 20

Summary of Clinical Chemistry Data

Males Day 91

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		CA MG/DL	I PHOS MG/DL	NA MMOL/L	K MMOL/L	CL MMOL/L
0						
	MEAN	11.3	6.4	167	5.3	117
	S.D.	.20	.60	3.0	.38	2.7
	N	6	6	6	6	6
3						
	MEAN	10.8 *	6.3	162	5.1	118
	S.D.	.44	1.10	2.5	.46	1.7
	N	4	4	4	4	4
10						
	MEAN	10.8 *	6.1	160 *	4.8	117
	S.D.	.34	.80	3.7	.37	1.9
	N	6	6	6	6	6
30/20						
	MEAN	10.1 *	5.0	158 *	5.4	114
	S.D.	.71	.42	2.8	.85	3.5
	N	2	2	2	2	2

Table 21

Summary of Clinical Chemistry Data

Males Day 182

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		GLU MG/DL	UN MG/DL	CREAT MG/DL	T PRO G/DL	ALB G/DL	GLOB G/DL	T BILI MG/DL	SBA UMOL/L	CHOL MG/DL	TRIG MG/DL
0											
	MEAN	71	20	1.1	8.6	4.7	3.9	.3	18	156	44
	S.D.	14.5	3.1	.17	.50	.32	.41	.12	3.6	35.0	8.7
	N	6	6	6	6	6	6	6	6	6	6
3											
	MEAN	63	22	1.1	8.4	4.9	3.5	.2	17	142	51
	S.D.	8.1	5.8	.25	.51	.35	.35	.15	2.5	47.4	24.4
	N	3	3	3	3	3	3	3	3	3	3
10											
	MEAN	66	20	1.1	8.4	4.6	3.8	.2	16	154	72
	S.D.	19.7	2.4	.19	.71	.26	.62	.23	1.4	30.6	24.5
	N	6	6	6	6	6	6	6	6	6	6
30/20											
	MEAN	80	16	.9	8.3	4.2	4.2	.2	18	150	92
	S.D.	27.6	.7	.14	.14	.49	.35	.35	.7	15.6	40.3
	N	2	2	2	2	2	2	2	2	2	2

Table 21

Summary of Clinical Chemistry Data

Males Day 182

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		AST/SGOT IU/L	ALT/SGPT IU/L	ALK PHOS IU/L	GGT IU/L	SDH IU/L	CK IU/L	AMYLASE IU/L	LIPASE IU/L	P AMYL U/L
0										
	MEAN	37	68	444	124	5	140	500	39	328
	S.D.	4.8	15.7	190.8	30.5	2.3	28.8	144.3	25.0	91.9
	N	6	6	6	6	6	6	6	6	6
3										
	MEAN	46	43	574	130	6	139	457	106	313
	S.D.	1.5	5.8	290.4	39.2	2.0	37.6	105.5	63.8	72.0
	N	3	3	3	3	3	3	3	3	3
10										
	MEAN	44	53	544	110	7	922	362	11 *	268
	S.D.	11.6	26.7	181.0	24.1	2.2	1902.1	114.7	9.1	107.9
	N	6	6	6	6	6	6	6	6	6
30/20										
	MEAN	40	48	384	122	2	169	305	8	215
	S.D.	3.5	7.8	260.9	95.5	.7	58.0	55.2	12.0	65.1
	N	2	2	2	2	2	2	2	2	2

Table 21

Summary of Clinical Chemistry Data

Males Day 182

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		CA MG/DL	I PHOS MG/DL	NA MMOL/L	K MMOL/L	CL MMOL/L
0						
	MEAN	10.0	5.8	152	4.9	106
	S.D.	.23	.44	2.0	.33	1.3
	N	6	6	6	6	6
3						
	MEAN	10.3	6.0	154	4.9	109
	S.D.	1.29	2.12	10.4	.96	1.7
	N	3	3	3	3	3
10						
	MEAN	9.7	5.8	148	4.3	106
	S.D.	.52	1.16	3.9	.57	2.3
	N	6	6	6	6	6
30/20						
	MEAN	9.2	4.8	150	5.0	108
	S.D.	.21	.00	2.8	1.20	1.4
	N	2	2	2	2	2

Table 22

Summary of Clinical Chemistry Data

Males Day 217 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		GLU MG/DL	UN MG/DL	CREAT MG/DL	T PRO G/DL	ALB G/DL	GLOB G/DL	T BILI MG/DL	SBA UMOL/L	CHOL MG/DL	TRIG MG/DL
0											
	MEAN	101	17	1.4	9.2	4.8	4.4	.4	6	194	40
	S.D.	36.8	.0	.07	.28	.35	.07	.07	.0	48.8	.7
	N	2	2	2	2	2	2	2	2	2	2
10											
	MEAN	61	21	1.4	8.0	4.6	3.3	.2	7	159	80
	S.D.	9.9	1.4	.14	.21	.21	.42	.07	.0	39.6	43.8
	N	2	2	2	2	2	2	2	2	2	2

Table 22

Summary of Clinical Chemistry Data

Males Day 217 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		AST/SGOT IU/L	ALT/SGPT IU/L	ALK PHOS IU/L	GGT IU/L	SDH IU/L	CK IU/L	AMYLASE IU/L	LIPASE IU/L	P AMYL U/L
0										
	MEAN	34	42	247	140	5	92	612	20	415
	S.D.	7.8	17.0	18.4	51.6	1.4	14.1	221.3	13.4	192.3
	N	2	2	2	2	2	2	2	2	2
10										
	MEAN	29	18	548	120	6	140	477	22	392
	S.D.	2.8	8.5	196.6	31.1	1.4	3.5	94.8	7.1	133.6
	N	2	2	2	2	2	2	2	2	2

Table 22

Summary of Clinical Chemistry Data

Males Day 217 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		CA MG/DL	I PHOS MG/DL	NA MMOL/L	K MMOL/L	CL MMOL/L
0						
	MEAN	10.9	6.3	156	5.8	108
	S.D.	.00	.28	4.2	.35	3.5
	N	2	2	2	2	2
10						
	MEAN	9.9	6.2	146	4.6	108
	S.D.	.00	1.41	1.4	.14	.7
	N	2	2	2	2	2

Table 23

Summary of Clinical Chemistry Data

Males Day 245 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		GLU MG/DL	UN MG/DL	CREAT MG/DL	T PRO G/DL	ALB G/DL	GLOB G/DL	T BILI MG/DL	SBA UMOL/L	CHOL MG/DL	TRIG MG/DL
0	MEAN	95	15	1.3	9.1	4.8	4.2	.2	4	203	49
	S.D.	1.4	.0	.14	.00	.35	.35	.07	.0	67.9	2.8
	N	2	2	2	2	2	2	2	2	2	2
10	MEAN	80	20	1.3	8.1	4.8	3.2	.2	5	164	92
	S.D.	2.1	2.8	.14	.14	.21	.35	.07	1.4	30.4	64.3
	N	2	2	2	2	2	2	2	2	2	2

Table 23

Summary of Clinical Chemistry Data

Males Day 245 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		AST/SGOT IU/L	ALT/SGPT IU/L	ALK PHOS IU/L	GGT IU/L	SDH IU/L	CK IU/L	AMYLASE IU/L	LIPASE IU/L	P AMYL U/L
0										
	MEAN	35	44	245	134	4	508	604	46	420
	S.D.	7.1	1.4	58.0	65.8	.7	559.3	219.2	2.1	186.0
	N	2	2	2	2	2	2	2	2	2
10										
	MEAN	28	44	635	120	2	164	490	56	394
	S.D.	3.5	9.2	206.5	32.5	.7	53.0	70.0	13.4	112.4
	N	2	2	2	2	2	2	2	2	2

Table 23

Summary of Clinical Chemistry Data

Males Day 245 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		CA MG/DL	I PHOS MG/DL	NA MMOL/L	K MMOL/L	CL MMOL/L
0						
	MEAN	10.7	6.8	158	5.6	110
	S.D.	.00	.21	.0	1.27	.7
	N	2	2	2	2	2
10						
	MEAN	10.3	6.4	153	5.3	114
	S.D.	.00	1.06	2.8	.42	.7
	N	2	2	2	2	2

Table 24

Summary of Clinical Chemistry Data

Males Day 275 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		GLU MG/DL	UN MG/DL	CREAT MG/DL	T PRO G/DL	ALB G/DL	GLOB G/DL	T BILI MG/DL	SBA UMOL/L	CHOL MG/DL	TRIG MG/DL
0											
	MEAN	84	18	1.2	9.2	4.7	4.5	.3	10	194	38
	S.D.	12.0	2.1	.42	.57	.85	.28	.14	.7	88.4	12.0
	N	2	2	2	2	2	2	2	2	2	2
10											
	MEAN	90	21	1.3	8.2	4.9	3.3	.3	8	150	48
	S.D.	4.2	.0	.00	.00	.42	.42	.00	.7	39.6	36.8
	N	2	2	2	2	2	2	2	2	2	2

Table 24

Summary of Clinical Chemistry Data

Males Day 275 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		AST/SGOT IU/L	ALT/SGPT IU/L	ALK PHOS IU/L	GGT IU/L	SDH IU/L	CK IU/L	AMYLASE IU/L	LIPASE IU/L	P AMYL U/L
0										
	MEAN	60	108	270	112	2	1024	826	164	574
	S.D.	6.4	63.6	75.7	21.2	2.1	533.9	224.2	61.5	168.3
	N	2	2	2	2	2	2	2	2	2
10										
	MEAN	50	76	603	116	2	1524	1074	357	903
	S.D.	4.9	7.8	210.7	31.1	1.4	563.6	813.2	422.8	787.7
	N	2	2	2	2	2	2	2	2	2

Table 24

Summary of Clinical Chemistry Data

Males Day 275 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		CA MG/DL	I PHOS MG/DL	NA MMOL/L	K MMOL/L	CL MMOL/L
0						
	MEAN	10.9	4.9	154	6.0	107
	S.D.	.42	.99	.7	.78	4.2
	N	2	2	2	2	2
10						
	MEAN	10.2	5.2	150	4.4	103
	S.D.	.00	1.91	2.8	.00	.0
	N	2	2	2	2	2

Table 25

Summary of Clinical Urinalysis Data

Males Day -11

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		U VOL ML	SP GR	U PH
0				
	MEAN	136.8	1.016	8.2
	S.D.	131.02	.0073	.41
	N	6	6	6
3				
	MEAN	231.0	1.010	7.9
	S.D.	220.83	.0086	.25
	N	4	4	4
10				
	MEAN	141.0	1.014	8.2
	S.D.	157.36	.0060	.41
	N	6	6	6
30/20				
	MEAN	88.3	1.014	8.2
	S.D.	66.52	.0081	.42
	N	6	6	6

Table 26

Summary of Clinical Urinalysis Data

Males Day 31

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		U VOL ML	SP GR	U PH
0				
	MEAN	166.5	1.015	7.9
	S.D.	158.98	.0066	.38
	N	6	6	6
3				
	MEAN	241.8	1.010	7.8
	S.D.	141.01	.0092	.50
	N	4	4	4
10				
	MEAN	155.3	1.014	8.1
	S.D.	111.19	.0067	.20
	N	6	6	6
30/20				
	MEAN	223.2	1.007	7.5
	S.D.	99.35	.0056	.50
	N	5	5	5

Table 27

Summary of Clinical Urinalysis Data

Males Day 63

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		U VOL ML	SP GR	U PH
0				
	MEAN	189.0	1.013	8.1
	S.D.	191.82	.0078	.20
	N	6	6	6
3				
	MEAN	253.0	1.010	7.5 *
	S.D.	145.45	.0097	.41
	N	4	4	4
10				
	MEAN	190.0	1.012	8.2
	S.D.	188.04	.0057	.26
	N	6	6	6
30/20				
	MEAN	83.0	1.016	7.5
	S.D.	22.89	.0048	.58
	N	4	4	4

Table 28

Summary of Clinical Urinalysis Data

Males Day 91

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		U VOL ML	SP GR	U PH
0				
	MEAN	186.0	1.017	8.2
	S.D.	182.11	.0083	.27
	N	6	6	6
3				
	MEAN	272.0	1.012	7.8 *
	S.D.	218.99	.0088	.29
	N	4	4	4
10				
	MEAN	222.0	1.012	7.9
	S.D.	174.10	.0054	.20
	N	6	6	6
30/20				
	MEAN	71.0	1.020	8.2
	S.D.	9.90	.0000	.35
	N	2	2	2

Table 29

Summary of Clinical Urinalysis Data

Males Day 182

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		U VOL ML	SP GR	U PH
0				
	MEAN	159.5	1.015	7.7
	S.D.	67.63	.0063	.41
	N	6	6	6
3				
	MEAN	172.3	1.016	7.8
	S.D.	71.07	.0060	.29
	N	3	3	3
10				
	MEAN	208.5	1.013	7.2
	S.D.	159.04	.0067	.27
	N	6	6	6
30/20				
	MEAN	197.0	1.014	7.8
	S.D.	154.15	.0113	.35
	N	2	2	2

Table 30

Summary of Clinical Urinalysis Data

Males Day 217 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		U VOL ML	SP GR	U PH
0				
	MEAN	392.5	1.008	8.0
	S.D.	215.67	.0071	.00
	N	2	2	2
10				
	MEAN	290.0	1.006	7.8
	S.D.	233.35	.0035	.35
	N	2	2	2

Table 31

Summary of Clinical Urinalysis Data

Males Day 245 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		U VOL ML	SP GR	U PH
0				
	MEAN	196.0	1.013	8.0
	S.D.	166.88	.0099	.00
	N	2	2	2
10				
	MEAN	341.5	1.005	7.5
	S.D.	246.78	.0028	.00
	N	2	2	2

Table 32

Summary of Clinical Urinalysis Data

Males Day 275 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

DOSE mg/kg/day		U VOL ML	SP GR	U PH
0				
	MEAN	115.0	1.018	7.0
	S.D.	60.81	.0042	.00
	N	2	2	2
10				
	MEAN	135.5	1.012	8.0
	S.D.	61.52	.0028	.00
	N	2	2	2

Summary of Organ Weight Data

Week 27 Sacrifice

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=T;SUBSET=ALL

LF ADRENAL

SEX	DOSE GROUP		TERMINAL BODY WT (g)	ORGAN WEIGHT (g)	ORGAN-TO-BODY WT (%)	ORGAN-TO-BRAIN WT RATIO
M	1					
		NUMBER IN GROUP:	4	4	4	4
		MEAN:	3947.5	0.3085	0.0078	0.0048
		STANDARD DEV:	591.1	0.0462	0.0003	0.0004
M	2					
		NUMBER IN GROUP:	3	3	3	3
		MEAN:	4486.7	0.3720	0.0083	0.0056
		STANDARD DEV:	30.6	0.0460	0.0010	0.0009
M	3					
		NUMBER IN GROUP:	4	4	4	4
		MEAN:	4447.5	0.3030	0.0069	0.0048
		STANDARD DEV:	498.5	0.0940	0.0024	0.0017
M	4					
		NUMBER IN GROUP:	5	2	2	2
		MEAN:	3925.0	0.3320	0.0087	0.0045
		STANDARD DEV:	583.0	0.0311	0.0006	0.0002

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=T;SUBSET=ALL

RT ADRENAL

SEX	DOSE GROUP		TERMINAL BODY WT (g)	ORGAN WEIGHT (g)	ORGAN-TO-BODY WT (%)	ORGAN-TO-BRAIN WT RATIO
M	1					
		NUMBER IN GROUP:	4	4	4	4
		MEAN:	3947.5	0.2513	0.0063	0.0039
		STANDARD DEV:	591.1	0.0503	0.0008	0.0006
M	2					
		NUMBER IN GROUP:	3	3	3	3
		MEAN:	4486.7	0.3573	0.0080	0.0054
		STANDARD DEV:	30.6	0.0492	0.0010	0.0009
M	3					
		NUMBER IN GROUP:	4	4	4	4
		MEAN:	4447.5	0.2328	0.0054	0.0036
		STANDARD DEV:	498.5	0.0512	0.0016	0.0009
M	4					
		NUMBER IN GROUP:	5	2	2	2
		MEAN:	3925.0	0.2620	0.0067	0.0035
		STANDARD DEV:	583.0	0.0891	0.0012	0.0010

Summary of Organ Weight Data

Week 27 Sacrifice

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=T;SUBSET=ALL

BRAIN

SEX	DOSE GROUP		TERMINAL BODY WT (g)	ORGAN WEIGHT (g)	ORGAN-TO-BODY WT (%)	ORGAN-TO-BRAIN WT RATIO
M	1					
		NUMBER IN GROUP:	4	4	4	4
		MEAN:	3947.5	64.5708	1.6471	1.0000
		STANDARD DEV:	591.1	7.6823	0.1763	0.0000
M	2					
		NUMBER IN GROUP:	3	3	3	3
		MEAN:	4486.7	66.5134	1.4827	1.0000
		STANDARD DEV:	30.6	2.3695	0.0614	0.0000
M	3					
		NUMBER IN GROUP:	4	4	4	4
		MEAN:	4447.5	64.2743	1.4622	1.0000
		STANDARD DEV:	498.5	4.2590	0.2194	0.0000
M	4					
		NUMBER IN GROUP:	5	2	2	2
		MEAN:	3925.0	74.2460	1.9603	1.0000
		STANDARD DEV:	583.0	3.6416	0.2309	0.0000

Summary of Organ Weight Data

Week 27 Sacrifice

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=T;SUBSET=ALL

LF EPIDIDYMIS

SEX	DOSE GROUP		TERMINAL BODY WT (g)	ORGAN WEIGHT (g)	ORGAN-TO-BODY WT (%)	ORGAN-TO-BRAIN WT RATIO
M	1					
		NUMBER IN GROUP:	4	4	4	4
		MEAN:	3947.5	1.6380	0.0410	0.0256
		STANDARD DEV:	591.1	0.5473	0.0112	0.0095
M	2					
		NUMBER IN GROUP:	3	3	3	3
		MEAN:	4486.7	2.3627	0.0526	0.0355
		STANDARD DEV:	30.6	0.6805	0.0151	0.0100
M	3					
		NUMBER IN GROUP:	4	4	4	4
		MEAN:	4447.5	1.7010	0.0382	0.0268
		STANDARD DEV:	498.5	0.5692	0.0127	0.0094
M	4					
		NUMBER IN GROUP:	5	2	2	2
		MEAN:	3925.0	1.8945	0.0510	0.0257
		STANDARD DEV:	583.0	0.3345	0.0172	0.0058

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=T;SUBSET=ALL

RT EPIDIDYMIS

SEX	DOSE GROUP		TERMINAL BODY WT (g)	ORGAN WEIGHT (g)	ORGAN-TO-BODY WT (%)	ORGAN-TO-BRAIN WT RATIO
M	1					
		NUMBER IN GROUP:	4	4	4	4
		MEAN:	3947.5	1.7750	0.0449	0.0278
		STANDARD DEV:	591.1	0.4542	0.0100	0.0086
M	2					
		NUMBER IN GROUP:	3	3	3	3
		MEAN:	4486.7	2.3617	0.0526	0.0356
		STANDARD DEV:	30.6	0.5749	0.0127	0.0087
M	3					
		NUMBER IN GROUP:	4	4	4	4
		MEAN:	4447.5	1.6640	0.0375	0.0261
		STANDARD DEV:	498.5	0.5738	0.0133	0.0091
M	4					
		NUMBER IN GROUP:	5	2	2	2
		MEAN:	3925.0	1.7740	0.0476	0.0240
		STANDARD DEV:	583.0	0.2489	0.0144	0.0045

Summary of Organ Weight Data

Week 27 Sacrifice

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=T;SUBSET=ALL

LF KIDNEY

SEX	DOSE GROUP		TERMINAL BODY WT (g)	ORGAN WEIGHT (g)	ORGAN-TO-BODY WT (%)	ORGAN-TO-BRAIN WT RATIO
M	1					
		NUMBER IN GROUP:	4	4	4	4
		MEAN:	3947.5	6.5898	0.1674	0.1023
		STANDARD DEV:	591.1	0.9070	0.0133	0.0110
M	2					
		NUMBER IN GROUP:	3	3	3	3
		MEAN:	4486.7	8.0123	0.1785	0.1209
		STANDARD DEV:	30.6	1.1567	0.0245	0.0216
M	3					
		NUMBER IN GROUP:	4	4	4	4
		MEAN:	4447.5	8.0508	0.1818	0.1260
		STANDARD DEV:	498.5	0.6366	0.0136	0.0168
M	4					
		NUMBER IN GROUP:	5	2	2	2
		MEAN:	3925.0	9.1090 *	0.2437	0.1232
		STANDARD DEV:	583.0	1.0041	0.0668	0.0196

Summary of Organ Weight Data

Week 27 Sacrifice

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=T;SUBSET=ALL

RT KIDNEY

SEX	DOSE GROUP		TERMINAL BODY WT (g)	ORGAN WEIGHT (g)	ORGAN-TO-BODY WT (%)	ORGAN-TO-BRAIN WT RATIO
M	1					
		NUMBER IN GROUP:	4	4	4	4
		MEAN:	3947.5	6.5520	0.1660	0.1014
		STANDARD DEV:	591.1	1.0155	0.0085	0.0092
M	2					
		NUMBER IN GROUP:	3	3	3	3
		MEAN:	4486.7	7.7810	0.1733	0.1175
		STANDARD DEV:	30.6	1.2850	0.0274	0.0237
M	3					
		NUMBER IN GROUP:	4	4	4	4
		MEAN:	4447.5	7.8853	0.1777	0.1235
		STANDARD DEV:	498.5	0.7930	0.0124	0.0191
M	4					
		NUMBER IN GROUP:	5	2	2	2
		MEAN:	3925.0	9.1500	0.2447	0.1237
		STANDARD DEV:	583.0	0.9772	0.0663	0.0192

Summary of Organ Weight Data

Week 27 Sacrifice

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=T;SUBSET=ALL

LIVER

SEX	DOSE GROUP		TERMINAL BODY WT (g)	ORGAN WEIGHT (g)	ORGAN-TO-BODY WT (%)	ORGAN-TO-BRAIN WT RATIO
M	1					
		NUMBER IN GROUP:	4	4	4	4
		MEAN:	3947.5	60.1698	1.5303	0.9344
		STANDARD DEV:	591.1	6.9386	0.0769	0.0736
M	2					
		NUMBER IN GROUP:	3	3	3	3
		MEAN:	4486.7	81.7917 *	1.8228 *	1.2317
		STANDARD DEV:	30.6	2.8112	0.0502	0.0856
M	3					
		NUMBER IN GROUP:	4	4	4	4
		MEAN:	4447.5	83.1743 *	1.8700 *	1.3042 *
		STANDARD DEV:	498.5	9.6617	0.0616	0.2255
M	4					
		NUMBER IN GROUP:	5	2	2	2
		MEAN:	3925.0	90.3925 *	2.4057 *	1.2203
		STANDARD DEV:	583.0	4.2208	0.5106	0.1167

Summary of Organ Weight Data

Week 27 Sacrifice

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=T;SUBSET=ALL

PANCREAS

SEX	DOSE GROUP		TERMINAL BODY WT (g)	ORGAN WEIGHT (g)	ORGAN-TO-BODY WT (%)	ORGAN-TO-BRAIN WT RATIO
M	1	NUMBER IN GROUP:	4	4	4	4
		MEAN:	3947.5	5.6195	0.1427	0.0872
		STANDARD DEV:	591.1	1.0600	0.0212	0.0136
M	2	NUMBER IN GROUP:	3	3	3	3
		MEAN:	4486.7	6.1023	0.1359	0.0922
		STANDARD DEV:	30.6	1.2194	0.0262	0.0214
M	3	NUMBER IN GROUP:	4	4	4	4
		MEAN:	4447.5	5.2703	0.1194	0.0828
		STANDARD DEV:	498.5	1.0885	0.0281	0.0206
M	4	NUMBER IN GROUP:	5	2	2	2
		MEAN:	3925.0	6.2610	0.1653	0.0843
		STANDARD DEV:	583.0	0.3168	0.0192	0.0001

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=T;SUBSET=ALL

LF TESTIS

SEX	DOSE GROUP		TERMINAL BODY WT (g)	ORGAN WEIGHT (g)	ORGAN-TO-BODY WT (%)	ORGAN-TO-BRAIN WT RATIO
M	1					
		NUMBER IN GROUP:	4	4	4	4
		MEAN:	3947.5	9.9312	0.2516	0.1580
		STANDARD DEV:	591.1	3.9350	0.0984	0.0783
M	2					
		NUMBER IN GROUP:	3	3	3	3
		MEAN:	4486.7	15.1513	0.3375	0.2279
		STANDARD DEV:	30.6	3.7198	0.0822	0.0552
M	3					
		NUMBER IN GROUP:	4	4	4	4
		MEAN:	4447.5	12.1860	0.2728	0.1915
		STANDARD DEV:	498.5	4.6403	0.1022	0.0740
M	4					
		NUMBER IN GROUP:	5	2	2	2
		MEAN:	3925.0	10.2960	0.2777	0.1396
		STANDARD DEV:	583.0	2.1680	0.1029	0.0360

Summary of Organ Weight Data

Week 27 Sacrifice

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=T;SUBSET=ALL

RT TESTIS

SEX	DOSE GROUP		TERMINAL BODY WT (g)	ORGAN WEIGHT (g)	ORGAN-TO-BODY WT (%)	ORGAN-TO-BRAIN WT RATIO
M	1	NUMBER IN GROUP:	4	4	4	4
		MEAN:	3947.5	9.6432	0.2453	0.1540
		STANDARD DEV:	591.1	3.8907	0.1000	0.0788
M	2	NUMBER IN GROUP:	3	3	3	3
		MEAN:	4486.7	16.1067	0.3588	0.2425
		STANDARD DEV:	30.6	4.2181	0.0930	0.0641
M	3	NUMBER IN GROUP:	4	4	4	4
		MEAN:	4447.5	11.5203	0.2584	0.1810
		STANDARD DEV:	498.5	3.9126	0.0867	0.0633
M	4	NUMBER IN GROUP:	5	2	2	2
		MEAN:	3925.0	9.8880	0.2667	0.1340
		STANDARD DEV:	583.0	2.0633	0.0983	0.0344

Summary of Organ Weight Data

Week 27 Sacrifice

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=T;SUBSET=ALL

LF THYROID/PARA

SEX	DOSE GROUP		TERMINAL BODY WT (g)	ORGAN WEIGHT (g)	ORGAN-TO-BODY WT (%)	ORGAN-TO-BRAIN WT RATIO
M	1					
		NUMBER IN GROUP:	4	4	4	4
		MEAN:	3947.5	0.2205	0.0058	0.0035
		STANDARD DEV:	591.1	0.0617	0.0023	0.0011
M	2					
		NUMBER IN GROUP:	3	3	3	3
		MEAN:	4486.7	0.1677	0.0037	0.0025
		STANDARD DEV:	30.6	0.0422	0.0009	0.0007
M	3					
		NUMBER IN GROUP:	4	4	4	4
		MEAN:	4447.5	0.3340	0.0074	0.0053
		STANDARD DEV:	498.5	0.1502	0.0028	0.0025
M	4					
		NUMBER IN GROUP:	5	2	2	2
		MEAN:	3925.0	0.2435	0.0063	0.0033
		STANDARD DEV:	583.0	0.0700	0.0008	0.0008

Summary of Organ Weight Data

Week 27 Sacrifice

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=T;SUBSET=ALL

RT THYROID/PARA

SEX	DOSE GROUP	TERMINAL BODY WT (g)	ORGAN WEIGHT (g)	ORGAN-TO-BODY WT (%)	ORGAN-TO-BRAIN WT RATIO
M	1				
	NUMBER IN GROUP:	4	4	4	4
	MEAN:	3947.5	0.2225	0.0058	0.0035
	STANDARD DEV:	591.1	0.0654	0.0023	0.0011
M	2				
	NUMBER IN GROUP:	3	3	3	3
	MEAN:	4486.7	0.1850	0.0041	0.0028
	STANDARD DEV:	30.6	0.0305	0.0007	0.0004
M	3				
	NUMBER IN GROUP:	4	4	4	4
	MEAN:	4447.5	0.3135	0.0070	0.0049
	STANDARD DEV:	498.5	0.1146	0.0023	0.0019
M	4				
	NUMBER IN GROUP:	5	2	2	2
	MEAN:	3925.0	0.2150	0.0054	0.0029
	STANDARD DEV:	583.0	0.1273	0.0024	0.0016

Summary of Organ Weight Data

Week 40 Recovery Sacrifice

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=U;SUBSET=ALL

LF ADRENAL

SEX	DOSE GROUP		TERMINAL BODY WT (g)	ORGAN WEIGHT (g)	ORGAN-TO-BODY WT (%)	ORGAN-TO-BRAIN WT RATIO
M	1					
		NUMBER IN GROUP:	2	2	2	2
		MEAN:	5410.0	0.3990	0.0074	0.0061
		STANDARD DEV:	240.4	0.0438	0.0005	0.0000
M	3					
		NUMBER IN GROUP:	2	2	2	2
		MEAN:	3932.5	0.2770	0.0072	0.0041
		STANDARD DEV:	618.7	0.0509	0.0024	0.0004

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=U;SUBSET=ALL

RT ADRENAL

SEX	DOSE GROUP		TERMINAL BODY WT (g)	ORGAN WEIGHT (g)	ORGAN-TO-BODY WT (%)	ORGAN-TO-BRAIN WT RATIO
M	1					
		NUMBER IN GROUP:	2	2	2	2
		MEAN:	5410.0	0.2465	0.0045	0.0037
		STANDARD DEV:	240.4	0.0389	0.0005	0.0002
M	3					
		NUMBER IN GROUP:	2	2	2	2
		MEAN:	3932.5	0.1920	0.0050	0.0029
		STANDARD DEV:	618.7	0.0382	0.0018	0.0003

Summary of Organ Weight Data

Week 40 Recovery Sacrifice

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=U;SUBSET=ALL

BRAIN

SEX	DOSE GROUP	TERMINAL BODY WT (g)	ORGAN WEIGHT (g)	ORGAN-TO-BODY WT (%)	ORGAN-TO-BRAIN WT RATIO
M	1				
NUMBER IN GROUP:		2	2	2	2
MEAN:		5410.0	65.7115	1.2128	1.0000
STANDARD DEV:		240.4	7.2811	0.0807	0.0000
M	3				
NUMBER IN GROUP:		2	2	2	2
MEAN:		3932.5	66.8240	1.7330	1.0000
STANDARD DEV:		618.7	6.1559	0.4292	0.0000

Summary of Organ Weight Data

Week 40 Recovery Sacrifice

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=U;SUBSET=ALL

LF EPIDIDYMIS

SEX	DOSE GROUP		TERMINAL BODY WT (g)	ORGAN WEIGHT (g)	ORGAN-TO-BODY WT (%)	ORGAN-TO-BRAIN WT RATIO
M	1					
		NUMBER IN GROUP:	2	2	2	2
		MEAN:	5410.0	2.6085	0.0481	0.0397
		STANDARD DEV:	240.4	0.2963	0.0033	0.0001
M	3					
		NUMBER IN GROUP:	2	2	2	2
		MEAN:	3932.5	1.6595	0.0425	0.0250
		STANDARD DEV:	618.7	0.0955	0.0043	0.0037

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=U;SUBSET=ALL

RT EPIDIDYMIS

SEX	DOSE GROUP		TERMINAL BODY WT (g)	ORGAN WEIGHT (g)	ORGAN-TO-BODY WT (%)	ORGAN-TO-BRAIN WT RATIO
M	1					
		NUMBER IN GROUP:	2	2	2	2
		MEAN:	5410.0	2.7290	0.0505	0.0418
		STANDARD DEV:	240.4	0.0382	0.0015	0.0040
M	3					
		NUMBER IN GROUP:	2	2	2	2
		MEAN:	3932.5	1.5995	0.0415	0.0239
		STANDARD DEV:	618.7	0.1605	0.0106	0.0002

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=U;SUBSET=ALL

LF KIDNEY

SEX	DOSE GROUP		TERMINAL BODY WT (g)	ORGAN WEIGHT (g)	ORGAN-TO-BODY WT (%)	ORGAN-TO-BRAIN WT RATIO
M	1					
		NUMBER IN GROUP:	2	2	2	2
		MEAN:	5410.0	9.0575	0.1680	0.1396
		STANDARD DEV:	240.4	1.0232	0.0264	0.0310
M	3					
		NUMBER IN GROUP:	2	2	2	2
		MEAN:	3932.5	5.8750	0.1493	0.0890
		STANDARD DEV:	618.7	0.9942	0.0018	0.0231

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=U;SUBSET=ALL

RT KIDNEY

SEX	DOSE GROUP		TERMINAL BODY WT (g)	ORGAN WEIGHT (g)	ORGAN-TO-BODY WT (%)	ORGAN-TO-BRAIN WT RATIO
M	1					
		NUMBER IN GROUP:	2	2	2	2
		MEAN:	5410.0	8.8620	0.1644	0.1365
		STANDARD DEV:	240.4	0.9730	0.0253	0.0299
M	3					
		NUMBER IN GROUP:	2	2	2	2
		MEAN:	3932.5	5.6370	0.1438	0.0852
		STANDARD DEV:	618.7	0.6449	0.0062	0.0175

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=U;SUBSET=ALL

LIVER

SEX	DOSE GROUP		TERMINAL BODY WT (g)	ORGAN WEIGHT (g)	ORGAN-TO-BODY WT (%)	ORGAN-TO-BRAIN WT RATIO
M	1					
		NUMBER IN GROUP:	2	2	2	2
		MEAN:	5410.0	90.1885	1.6697	1.3831
		STANDARD DEV:	240.4	2.4816	0.1201	0.1910
M	3					
		NUMBER IN GROUP:	2	2	2	2
		MEAN:	3932.5	66.0390	1.6898	0.9961
		STANDARD DEV:	618.7	5.2212	0.1331	0.1699

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=U;SUBSET=ALL

PANCREAS

SEX	DOSE GROUP		TERMINAL BODY WT (g)	ORGAN WEIGHT (g)	ORGAN-TO-BODY WT (%)	ORGAN-TO-BRAIN WT RATIO
M	1					
		NUMBER IN GROUP:	2	2	2	2
		MEAN:	5410.0	8.4993	0.1570	0.1295
		STANDARD DEV:	240.4	0.7025	0.0060	0.0037
M	3					
		NUMBER IN GROUP:	2	2	2	2
		MEAN:	3932.5	5.4815	0.1409	0.0824
		STANDARD DEV:	618.7	0.0955	0.0197	0.0090

Summary of Organ Weight Data

Week 40 Recovery Sacrifice

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=U;SUBSET=ALL

LF TESTIS

SEX	DOSE GROUP		TERMINAL BODY WT (g)	ORGAN WEIGHT (g)	ORGAN-TO-BODY WT (%)	ORGAN-TO-BRAIN WT RATIO
M	1					
		NUMBER IN GROUP:	2	2	2	2
		MEAN:	5410.0	16.0235	0.2975	0.2474
		STANDARD DEV:	240.4	2.4600	0.0587	0.0649
M	3					
		NUMBER IN GROUP:	2	2	2	2
		MEAN:	3932.5	10.0800	0.2598	0.1514
		STANDARD DEV:	618.7	0.1329	0.0443	0.0120

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=U;SUBSET=ALL

RT TESTIS

SEX	DOSE GROUP		TERMINAL BODY WT (g)	ORGAN WEIGHT (g)	ORGAN-TO-BODY WT (%)	ORGAN-TO-BRAIN WT RATIO
M	1					
		NUMBER IN GROUP:	2	2	2	2
		MEAN:	5410.0	16.3235	0.3030	0.2519
		STANDARD DEV:	240.4	2.3553	0.0570	0.0638
M	3					
		NUMBER IN GROUP:	2	2	2	2
		MEAN:	3932.5	10.2370	0.2627	0.1542
		STANDARD DEV:	618.7	0.4454	0.0300	0.0209

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=U;SUBSET=ALL

LF THYROID/PARA

SEX	DOSE GROUP		TERMINAL BODY WT (g)	ORGAN WEIGHT (g)	ORGAN-TO-BODY WT (%)	ORGAN-TO-BRAIN WT RATIO
M	1					
		NUMBER IN GROUP:	2	2	2	2
		MEAN:	5410.0	0.2545	0.0047	0.0039
		STANDARD DEV:	240.4	0.0134	0.0005	0.0006
M	3					
		NUMBER IN GROUP:	2	2	2	2
		MEAN:	3932.5	0.3165	0.0085	0.0046
		STANDARD DEV:	618.7	0.1732	0.0057	0.0022

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=U;SUBSET=ALL

RT THYROID/PARA

SEX	DOSE GROUP		TERMINAL BODY WT (g)	ORGAN WEIGHT (g)	ORGAN-TO-BODY WT (%)	ORGAN-TO-BRAIN WT RATIO
M	1					
		NUMBER IN GROUP:	2	2	2	2
		MEAN:	5410.0	0.2570	0.0048	0.0039
		STANDARD DEV:	240.4	0.0127	0.0004	0.0006
M	3					
		NUMBER IN GROUP:	2	2	2	2
		MEAN:	3932.5	0.3000	0.0081	0.0044
		STANDARD DEV:	618.7	0.1937	0.0062	0.0025

Incidence of Macroscopic Observations

Week 27 Sacrifice

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

		--- N U M B E R - O F - A N I M A L S - A F F E C T E D ---			
TABLE INCLUDES:					
SEX=ALL;GROUP=ALL;WEEKS=ALL	SEX:	-------MALE-------			
DEATH=T;SUBSET=ALL					
	GROUP:	-1-	-2-	-3-	-4-
ORGAN AND KEYWORD(S) OR PHRASE	NUMBER:	4	3	4	5
		-=-	-=-	-=-	-=-
** TOP OF LIST **					
GENERAL COMMENT (GC)	NUMBER EXAMINED :	4	3	4	5
BONE MARROW SMEAR TAKEN		4	3	4	5
EYES - DAVIDSONS		4	3	4	5
NO MACROSCOPIC LESIONS		3	0	1	4
ANIMAL OBESE		0	1	0	0
LIVER (LI)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	3	5
DIFFUSELY DARK		0	0	1	0
KIDNEY (KD)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	4	4
CYST(S)		0	0	0	1
LUNG (LU)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	2	3	5
MOTTLED		0	0	1	0
RED FOCUS(I)/AREA(S)		0	1	0	0

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=T;SUBSET=ALL

ORGAN AND KEYWORD(S) OR PHRASE		--- N U M B E R - O F - A N I M A L S - A F F E C T E D ---			
SEX:		-------MALE-------			
GROUP:		-1-	-2-	-3-	-4-
NUMBER:		4	3	4	5
PARATHYROID (PT)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	3	5
CYST(S)		0	0	1	0
CECUM (CE)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	3	2	4	5
RED FOCUS(I)/AREA(S)		1	1	0	0
SKIN (SK)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	3	5
CRUSTED AREA(S)		0	0	1	0
LN, TRACHEOBRON (TB)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	3	5
DIFFUSELY DARK		0	0	1	0
LN, MANDIBULAR (MN)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	4	4
LARGE		0	0	0	1

** END OF LIST

Incidence of Macroscopic Observations

Week 40 Recovery Sacrifice

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

TABLE INCLUDES:
SEX=ALL;GROUP=1,3;WEEKS=ALL
DEATH=U;SUBSET=ALL

ORGAN AND KEYWORD(S) OR PHRASE		--- N U M B E R - O F - A N I M A L S - A F F E C T E D ---	
	SEX:	--MALE--	
	GROUP:	-1-	-3-
	NUMBER:	2	2
** TOP OF LIST **			
GENERAL COMMENT (GC)	NUMBER EXAMINED:	2	2
BONE MARROW SMEAR TAKEN		2	2
EYES - DAVIDSONS		2	2
NO MACROSCOPIC LESIONS		1	2
ANIMAL OBESE		1	0
LIVER (LI)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	1	2
ADHESION(S)		1	0
** END OF LIST			

Incidence of Microscopic Observations

Week 27 Sacrifice

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=T;FIND=ALL;SUBSET=ALL

ORGAN AND FINDING DESCRIPTION		--- N U M B E R - O F - A N I M A L S - A F F E C T E D ---			
SEX:		-------MALE-------			
GROUP:		-1-	-2-	-3-	-4-
NUMBER:		4	3	4	5
** TOP OF LIST **					
ADRENAL, CORTEX (AC)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	3	1	2	3
--CORTICAL TISSUE, EXTRACAPSULAR		1	1	0	1
--ECTOPIC ZONA GLOMERULOSA-LIKE CELLS, ZONA FASCICULATA		0	0	0	1
--HYPERTROPHY, CORTICAL CELL		1	1	2	1
--MINERALIZATION		1	0	1	0
ADRENAL, MEDULLA (MA)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	4	5
LIVER (LI)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	1	1	0	0
--INFILTRATE, LYMPHOHISTIOCYTIC		3	2	4	5
--PIGMENT, HEPATOCELLULAR		0	1	0	0
--PIGMENT, KUPFFER CELL		0	1	0	2
SPLEEN (SP)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	4	5
PANCREAS (PA)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	3	5
--INFILTRATE, LYMPHOHISTIOCYTIC		0	0	1	0

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=T;FIND=ALL;SUBSET=ALL

ORGAN AND FINDING DESCRIPTION		--- N U M B E R - O F - A N I M A L S - A F F E C T E D ---			
SEX:		-------MALE-------			
GROUP:		-1-	-2-	-3-	-4-
NUMBER:		4	3	4	5
TESTIS (TE)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	4	4
--ATROPHY/DEGENERATION		0	0	0	1
BONE, FEMUR (FE)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	4	5
MARROW, FEMUR (FM)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	4	5
MARROW, STERNUM (SE)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	4	5
BONE, STERNUM (SB)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	4	5
EYE (EY)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	3	5
--INFILTRATE, LYMPHOHISTIOCYTIC, CONJUNCTIVAL		0	0	1	0

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=T;FIND=ALL;SUBSET=ALL

ORGAN AND FINDING DESCRIPTION		--- N U M B E R - O F - A N I M A L S - A F F E C T E D ---			
SEX:		-------MALE-------			
GROUP:		-1-	-2-	-3-	-4-
NUMBER:		4	3	4	5
BRAIN (BR)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	4	3
--INFILTRATE, LYMPHOHISTIOCYTIC		0	0	0	1
--MINERALIZATION		0	0	0	1
KIDNEY (KD)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	2	2	1	2
--CYST		0	0	0	1
--INFILTRATE, LYMPHOHISTIOCYTIC		1	1	0	1
--MINERALIZATION, TUBULAR		2	0	3	2
LUNG (LU)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	0	0	0	0
--CONGESTION		0	1	0	0
--INFILTRATE, EOSINOPHILIC		1	0	0	0
--INFILTRATE, MACROPHAGE, ALVEOLAR		0	0	3	1
--MINERALIZATION, ALVEOLAR		1	0	0	0
--PIGMENT		4	3	4	5
HEART (HT)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	2	2	4
--INFILTRATE, LYMPHOHISTIOCYTIC		0	1	2	1
--PIGMENT		0	1	0	0

Incidence of Microscopic Observations

Week 27 Sacrifice

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=T;FIND=ALL;SUBSET=ALL

ORGAN AND FINDING DESCRIPTION		--- N U M B E R - O F - A N I M A L S - A F F E C T E D ---			
SEX:		-------MALE-------			
GROUP:		-1-	-2-	-3-	-4-
NUMBER:		4	3	4	5
GALLBLADDER (GB)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	4	5
THYMUS (TH)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	2	2	5
--INVOLUTION		0	1	2	0
LN, MESENTERIC (MS)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	3	2	3	3
--INFILTRATE, EOSINOPHILIC		1	0	0	1
--INFLAMMATION, GRANULOMATOUS		1	0	0	0
--PARASITISM		1	0	0	0
--PIGMENT		1	1	1	1
TRACHEA (TR)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	4	5
ESOPHAGUS (ES)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	4	5

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=T;FIND=ALL;SUBSET=ALL

ORGAN AND FINDING DESCRIPTION		--- N U M B E R - O F - A N I M A L S - A F F E C T E D ---			
SEX:		-------MALE-------			
GROUP:		-1-	-2-	-3-	-4-
NUMBER:		4	3	4	5
THYROID (TY)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	3	3	0	2
--ECTOPIC THYMUS		0	0	2	2
--INFILTRATE, LYMPHOHISTIOCYTIC		0	0	2	1
--ONE EXAMINED		1	0	0	0
--CYST, THYROGLOSSAL		0	0	1	0
PARATHYROID (PT)	NUMBER EXAMINED:	3	3	4	5
	NOT REMARKABLE:	3	2	3	5
--CYST, GLANDULAR		0	1	1	0
AORTA (AO)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	4	5
PITUITARY (PI)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	3	3	4	5
--CYST		1	0	0	0
SALIV GL, MANDIB (SG)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	2	2	3	4
--INFILTRATE, LYMPHOHISTIOCYTIC		2	1	1	1

Incidence of Microscopic Observations

Week 27 Sacrifice

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=T;FIND=ALL;SUBSET=ALL

ORGAN AND FINDING DESCRIPTION		--- N U M B E R - O F - A N I M A L S - A F F E C T E D ---			
SEX:		-------MALE-------			
GROUP:		-1-	-2-	-3-	-4-
NUMBER:		4	3	4	5
MUSCLE, SKELETAL (SM)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	3	5
--DEGENERATION/NECROSIS		0	0	1	0
--INFLAMMATION, ACUTE		0	0	1	0
SPINAL CORD (SC)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	4	5
NERVE, SCIATIC (SN)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	4	5
STOMACH, GL (ST)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	4	4
--INFLAMMATION, GRANULOMATOUS		0	0	0	1
--PARASITISM		0	0	0	1
DUODENUM (DU)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	3	5
--PARASITISM		0	0	1	0
JEJUNUM (JE)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	4	5

Incidence of Microscopic Observations

Week 27 Sacrifice

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=T;FIND=ALL;SUBSET=ALL

ORGAN AND FINDING DESCRIPTION		--- N U M B E R - O F - A N I M A L S - A F F E C T E D ---			
SEX:		-------MALE-------			
GROUP:		-1-	-2-	-3-	-4-
NUMBER:		4	3	4	5
ILEUM (IL)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	3	5
--INFILTRATE, EOSINOPHILIC		0	0	1	0
CECUM (CE)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	3	3	3	5
--INFLAMMATION, GRANULOMATOUS		1	0	1	0
--PARASITISM		1	0	0	0
COLON (CO)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	3	3	4	5
--INFLAMMATION, CHRONIC		1	0	0	0
RECTUM (RE)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	3	5
--INFLAMMATION, GRANULOMATOUS		0	0	1	0
SKIN (SK)	NUMBER EXAMINED:	3	3	4	5
	NOT REMARKABLE:	3	3	3	5
--ACANTHOSIS		0	0	1	0
--INFLAMMATION, CHRONIC		0	0	1	0

Incidence of Microscopic Observations

Week 27 Sacrifice

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=T;FIND=ALL;SUBSET=ALL

ORGAN AND FINDING DESCRIPTION		--- N U M B E R - O F - A N I M A L S - A F F E C T E D ---			
SEX:		-------MALE-------			
GROUP:		-1-	-2-	-3-	-4-
NUMBER:		4	3	4	5
MAMMARY, MALE (MM)	NUMBER EXAMINED:	3	3	3	5
	NOT REMARKABLE:	3	3	3	5
URINARY BLADDER (UB)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	2	2	1	1
--INFILTRATE, EOSINOPHILIC		1	0	0	0
--INFILTRATE, LYMPHOHISTIOCYTIC		2	1	3	4
PROSTATE (PR)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	2	2	1	2
--INFILTRATE, LYMPHOHISTIOCYTIC		2	1	2	3
--INFLAMMATION, SUBACUTE		0	0	1	0
SEMINAL VESICLES (SV)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	4	3	2	5
--MINERALIZATION		0	0	2	0
EPIDIDYMIDES (EP)	NUMBER EXAMINED:	4	3	4	5
	NOT REMARKABLE:	3	3	4	4
--INFILTRATE, LYMPHOHISTIOCYTIC		1	0	0	1

TABLE INCLUDES:
SEX=ALL;GROUP=ALL;WEEKS=ALL
DEATH=T;FIND=ALL;SUBSET=ALL

ORGAN AND FINDING DESCRIPTION		--- NUMBER-OF-ANIMALS-AFFECTED ---			
SEX:		-------MALE-------			
GROUP:		-1-	-2-	-3-	-4-
NUMBER:		4	3	4	5
LN, MANDIBULAR (MN)	NUMBER EXAMINED:	0	0	0	1
	NOT REMARKABLE:	0	0	0	1
LN, TRACHEOBRON (TB)	NUMBER EXAMINED:	0	0	1	0
	NOT REMARKABLE:	0	0	0	0
--PIGMENT		0	0	1	0

** END OF LIST

Incidence of Microscopic Observations

Week 40 Recovery Sacrifice

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

TABLE INCLUDES:
SEX=ALL;GROUP=1,3;WEEKS=ALL
DEATH=U;FIND=ALL;SUBSET=ALL

ORGAN AND FINDING DESCRIPTION		--- N U M B E R - O F - A N I M A L S - A F F E C T E D ---	
SEX:		--MALE--	
GROUP:		-1-	-3-
NUMBER:		2	2
** TOP OF LIST **			
ADRENAL, CORTEX (AC)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	1	0
--CORTICAL TISSUE, EXTRACAPSULAR		1	2
ADRENAL, MEDULLA (MA)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	2	2
LIVER (LI)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	0	1
--FIBROSIS, CAPSULAR/SUBCAPSULAR		1	0
--INFILTRATE, LYMPHOHISTIOCYTIC		2	1
--PIGMENT, HEPATOCELLULAR		1	0
SPLEEN (SP)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	2	2
PANCREAS (PA)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	2	2
TESTIS (TE)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	2	2

TABLE INCLUDES:
SEX=ALL;GROUP=1,3;WEEKS=ALL
DEATH=U;FIND=ALL;SUBSET=ALL

ORGAN AND FINDING DESCRIPTION		--- NUMBER-OF-ANIMALS-AFFECTED ---	
SEX:		--MALE--	
GROUP:		-1-	-3-
NUMBER:		2	2
BONE, FEMUR (FE)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	2	2
MARROW, FEMUR (FM)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	2	2
MARROW, STERNUM (SE)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	2	2
BONE, STERNUM (SB)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	2	2
EYE (EY)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	0	2
--INFILTRATE, LYMPHOHISTIOCYTIC, CHOROIDAL		2	0
BRAIN (BR)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	0	1
--INFILTRATE, LYMPHOHISTIOCYTIC		2	1
--MINERALIZATION		1	0

Incidence of Microscopic Observations

Week 40 Recovery Sacrifice

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

TABLE INCLUDES:
SEX=ALL;GROUP=1,3;WEEKS=ALL
DEATH=U;FIND=ALL;SUBSET=ALL

ORGAN AND FINDING DESCRIPTION		--- N U M B E R - O F - A N I M A L S - A F F E C T E D ---	
SEX:		--MALE--	
GROUP:		-1-	-3-
NUMBER:		2	2
KIDNEY (KD)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	1	2
--INFILTRATE, LYMPHOHISTIOCYTIC		1	0
--INFLAMMATION, VASCULAR		1	0
--THICKENING, INTIMAL, VASCULAR		1	0
LUNG (LU)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	0	0
--PIGMENT		2	2
HEART (HT)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	2	1
--INFILTRATE, LYMPHOHISTIOCYTIC		0	1
GALLBLADDER (GB)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	2	2
THYMUS (TH)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	0	2
--INVOLUTION		2	0

TABLE INCLUDES:
SEX=ALL;GROUP=1,3;WEEKS=ALL
DEATH=U;FIND=ALL;SUBSET=ALL

ORGAN AND FINDING DESCRIPTION		--- N U M B E R - O F - A N I M A L S - A F F E C T E D ---	
SEX:		--MALE--	
GROUP:		-1-	-3-
NUMBER:		2	2
LN, MESENTERIC (MS)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	0	2
--PIGMENT		2	0
TRACHEA (TR)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	1	2
--INFLAMMATION, ACUTE		1	0
ESOPHAGUS (ES)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	2	2
THYROID (TY)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	2	1
--CYST, GLANDULAR		0	1
PARATHYROID (PT)	NUMBER EXAMINED:	1	2
	NOT REMARKABLE:	1	1
--INFILTRATE, LYMPHOHISTIOCYTIC		0	1
AORTA (AO)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	2	1
--THICKENING, INTIMAL		0	1

TABLE INCLUDES:
SEX=ALL;GROUP=1,3;WEEKS=ALL
DEATH=U;FIND=ALL;SUBSET=ALL

ORGAN AND FINDING DESCRIPTION		--- N U M B E R - O F - A N I M A L S - A F F E C T E D ---	
SEX:		--MALE--	
GROUP:		-1-	-3-
NUMBER:		2	2
PITUITARY (PI)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	2	2
SALIV GL, MANDIB (SG)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	0	0
--INFILTRATE, LYMPHOHISTIOCYTIC		2	2
MUSCLE, SKELETAL (SM)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	2	1
--PARASITISM		0	1
SPINAL CORD (SC)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	2	2
NERVE, SCIATIC (SN)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	1	2
--FIBROSIS		1	0
--INFILTRATE, LYMPHOHISTIOCYTIC		1	0
STOMACH, GL (ST)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	1	1
--INFLAMMATION, CHRONIC		0	1

TABLE INCLUDES:
SEX=ALL;GROUP=1,3;WEEKS=ALL
DEATH=U;FIND=ALL;SUBSET=ALL

ORGAN AND FINDING DESCRIPTION		--- N U M B E R - O F - A N I M A L S - A F F E C T E D ---	
	SEX:	--MALE--	
	GROUP:	-1-	-3-
	NUMBER:	2	2
** FROM PREVIOUS PAGE **			
STOMACH, GL (ST)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	1	1
--PARASITISM		0	1
--THICKENING, INTIMAL, VASCULAR		1	0
DUODENUM (DU)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	1	2
--PARASITISM		1	0
JEJUNUM (JE)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	2	2
ILEUM (IL)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	2	2
CECUM (CE)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	2	2
COLON (CO)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	1	2
--INFLAMMATION, EOSINOPHILIC		1	0

Incidence of Microscopic Observations

Week 40 Recovery Sacrifice

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

TABLE INCLUDES:
SEX=ALL;GROUP=1,3;WEEKS=ALL
DEATH=U;FIND=ALL;SUBSET=ALL

ORGAN AND FINDING DESCRIPTION		--- N U M B E R - O F - A N I M A L S - A F F E C T E D ---	
	SEX:	--MALE--	
	GROUP:	-1-	-3-
	NUMBER:	2	2
RECTUM (RE)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	2	2
SKIN (SK)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	2	2
MAMMARY, MALE (MM)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	2	2
URINARY BLADDER (UB)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	0	0
--INFILTRATE, LYMPHOHISTIOCYTIC		2	2
PROSTATE (PR)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	0	0
--INFILTRATE, LYMPHOHISTIOCYTIC		2	2
SEMINAL VESICLES (SV)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	2	2
EPIDIDYMIDES (EP)	NUMBER EXAMINED:	2	2
	NOT REMARKABLE:	2	2

** END OF LIST

APPENDIX 1

Protocol Deviations
Protocol
Protocol Amendment No. 1
Protocol Amendment No. 2
Material Safety Data Sheet
Certificate of Analysis

Protocol Deviations

Protocol. Husbandry. Diet. "Certified primate diet (#8726C, Harlan Teklad) once or twice daily."

Actual Procedure. All animals were fasted beginning in the afternoon on November 15, 1998 (Day 48); animals were provided with food in the morning on November 16, 1998 (Day 49).

Protocol. Dosing Procedures. Method of Administration. "Orally by gelatin capsules, daily (7 days/week) for at least 26 weeks."

Actual Procedure. There were several occasions when the test material was not administered to animals due to the condition of the animal or at the recommendation of a laboratory animal veterinarian. Dose administration was discontinued for Animal No. I05724 (Group 4) on Day 28; this animal was subsequently sacrificed in moribund condition on Day 29. Dose administration was discontinued for Animal Nos. I05711, I05722, and I05703 (Group 4) on Days 43 (Week 7), 66 (Week 10), and 81 (Week 12), respectively. Dose administration was discontinued for Animal No. I05721 (Group 2) for Days 135 and 136; this animal was subsequently sacrificed in moribund condition on Day 137.

On Day 44, Animal No. I05703 (Group 4) did not receive its amount of dose preparation because the capsule broke during dose administration procedures.

Protocol. Observation of Animals. Clinical Observations. "Once weekly, each animal will be observed; abnormal findings, or an indication that the animal is normal will be recorded."

Protocol Deviations (Continued)

Actual Procedure. The following animals did not have a weekly observation recorded on the following days: Animal No. I05714 (Group 1) on Days 1 and 22; Animal No. I05725 (Group 1) on Day 1; Animal No. I05717 (Group 2) on Day 57; Animal No. I05719 (Group 3) on Days 1 and 29; Animal No. I05703 (Group 4) on Days 8 and 15; Animal No. I05704 (Group 4) on Day 15; Animal No. I05711 (Group 4) on Days 8 and 15; Animal No. I05713 (Group 4) on Days 15, 43, and 64; and Animal No. I05724 (Group 4) on Day 8.

Protocol. Blood Hormone Determination. Method of Collection. "Blood samples will be maintained chilled until plasma is harvested."

Actual Procedure. Blood samples collected for blood hormone determination on Days 35, 66, and 94 were stored at room temperature during harvesting.

Protocol. Urine and Feces APFO Level Determination. Sample Handling. "Samples of urine (at least 2 mL) and feces (at least 5 grams) will be stored in a freezer set to maintain -10 to -30°C."

Actual Procedure. Approximately 3 grams of feces were collected from Animal Nos. I05711 and I05724 (Group 4) during Week 2 for feces APFO level Determination.

Protocol. Termination. Scheduled Sacrifices. "After at least 26 weeks of treatment, four animals/sex/group will be fasted overnight, then anesthetized with ketamine and xylazine, weighed, exsanguinated, and necropsied."

Actual Procedure. Animal No. I05709 (Group 1) was weighed incorrectly at the terminal sacrifice (Week 27, Day 184). The body weight collected for this animal on Day 183 was entered into the computer system for organ-to-body weight weight percentage calculations.

Protocol Deviations (Continued)

Protocol. Termination. Postmortem Procedures. Cell Proliferation Evaluation. "Representative samples of the left lateral lobe of the liver, left and right testes, and pancreas will be collected from each animal at the scheduled and unscheduled sacrifices and preserved in formalin."

Actual Procedure. The fixative used for the tissue samples collected from the left lateral lobe of the liver, left and right testes, and pancreas of the recovery animals for cell proliferation evaluation was documented incorrectly.

Protocol. Experimental Design. Postmortem Procedures. Histopathology. "Tissues from each animal (including Animal No. I05723) will be embedded in paraffin, sectioned, stained with hematoxylin and eosin, and examined microscopically."

Actual Procedure. Some tissues, required by the protocol, were not available for histopathologic examination. Missing tissues or insufficient tissue samples are listed with appropriate comments in the pathology data sheets for individual animals. Summary tables do not include them as having been examined.

These deviations are not expected to have affected the results of the study.

COVANCE
THE DEVELOPMENT SERVICES COMPANY

Sponsors:

APME Ad-Hoc APFO Toxicology Working Group

PROTOCOL

Study Title:

26-Week Capsule Toxicity Study with Ammonium Perfluorooctanoate (APFO) in Cynomolgus Monkeys

Date:

September 23, 1998

Performing Laboratory:

Covance Laboratories Inc.
3301 Kinsman Boulevard
Madison, Wisconsin 53704-2595

Laboratory Study Identification:

Proposal No. w6806a

Covance 6329-231

Study
26-Week Capsule Toxicity Study with Ammonium Perfluorooctanoate (APFO) in Cynomolgus Monkeys

Purpose
To assess the effect of the test material on critical enzyme levels, hormones, and other selected biochemical parameters when administered daily by capsule to cynomolgus monkeys for at least 26 weeks

Sponsors
APME Ad-Hoc APFO Toxicology Working Group

Study Monitor
Paul Lieder, PhD, DABT
3M
Toxicology Services
Building 220-2E-02, 3M Center
St. Paul, Minnesota, 55144-1000
Telephone No.: 612.737.2678
Facsimile No.: 612.733.1773

Alternate Study Monitor
John Butenhoff, PhD, DABT
3M
Telephone No.: 612.733.1962
Facsimile No.: 612.733.1733

Sponsor's Representative
David Farrar, PhD
ICI Chemicals & Polymers Limited
Occupational Health
The Heath, Runcorn, PO Box 13
Cheshire, WA7 4QF
Telephone No.: 01928.513953
Facsimile No.: 01928.515146

Study Location
Covance Laboratories Inc.
3301 Kinsman Boulevard
Madison, Wisconsin 53704

Mailing Address: PO Box 7545-2595
Madison, Wisconsin 53707-7545

Study Director
Peter J. Thomford, PhD
Covance Laboratories Inc.
Telephone No.: 608.241.7207
Facsimile No.: 608.242.2736

Toxicologist
Dale Aldridge, BS
Covance Laboratories Inc.

Proposed Study Timetable
Experimental Start Date: September 29, 1998
In-Life Start Date: September 29, 1998
In-Life End Date: July 2, 1999
Audited Draft Report Date: October 22, 1999
Experimental Termination Date: To be determined

Regulatory Compliance
This study will be conducted in compliance with the Environmental Protection Agency Good Laboratory Practice Regulations as set forth in Title 40 of the US Code of Federal Regulations, Part 792, issued November 29, 1983 (effective December 29, 1983), and with any applicable amendments except that bile acid determinations done by University of Dundee will not be done in compliance with GLPs.

Animal Care and Use Statement
All procedures in this protocol are in compliance with the Animal Welfare Act Regulations, 9 CFR 1-4. In the opinion of the Sponsor and study director, the study does not unnecessarily duplicate any previous work.

Quality Assurance
The protocol, study conduct, and final report will be audited by the Covance Quality Assurance Unit (QAU). The proliferation cell nuclear antigen evaluation data and report will be audited by the QAU of Pathology Associates International. The serum, urine, feces, and liver APFO analysis and report will be audited by the QAU of 3M Environmental Laboratories. The blood hormone determinations and report will be audited by the QAU of Ani Lytics Inc and DuPont, as appropriate. The receptor level determinations and report will be audited by the QAU of DuPont. Bile acid determinations done by the University of Dundee will not be audited.

Test Material

Identification
Ammonium Perfluorooctanoate (APFO)

Lot Number
The lot number will be maintained in the raw data.

Purity
Responsibility of the Sponsor

Stability
Responsibility of the Sponsor

Storage Conditions
At room temperature

Characteristics
Information on synthesis methods, composition, or other characteristics that define the test material is on file with the Sponsor.

Gelatin Capsules
Capsules (Size No. 2) obtained from Torpac, Inc. (Fairfield, New Jersey); lot number will be supplied by the manufacturer. Gelatin capsules will be stored at room temperature. A copy of the Certificate of Analysis provided by the manufacturer will be maintained in the data.

Reserve (Archive) Samples
A reserve sample of each lot of test material (1 g each) will be taken and stored at room temperature. These samples will be transferred to the Sponsor after completion of the in-life phase.

Disposition of Test Material
Any remaining test material will be returned after authorization from the Sponsor.

Animals

Species
Cynomolgus monkey

Source
Covance Research Products Inc.

Age at Initiation of Treatment
Young adult/adult

Weight at Initiation of Treatment
3 to 5 kg

Number and Sex
22 males

Identification
Collar tag

Husbandry

Housing
Individual; animals will be housed in suspended, stainless steel cages.

Diet
Certified primate diet (#8726C, Harlan Teklad) once or twice daily. The diet is routinely analyzed by the manufacturer for nutritional components and environmental contaminants. Results of specified nutrient and contaminant analyses are on file at Covance-Madison. Fruit, vegetables, or other supplements may be provided but will not require analysis.

Water
Ad libitum. Samples of the water are routinely analyzed for specified microorganisms and environmental contaminants. The results are on file at Covance-Madison.

Contaminants
There are no known contaminants in the diet or water at levels that might interfere with this study.

Environment
Environmental controls for the animal room will be set to maintain 18 to 29°C, a relative humidity of 30 to 70%, and a 12-hour light/12-hour dark cycle.

Acclimation
Minimum of 4 weeks

Randomization
Animals will be weighed, stratified by body weight, and allocated to the number of blocks equal to the number of animals to be selected for each group. Animals in each block will then be assigned to groups using computer-generated random numbers.

Justification
APFO is a known hepatic peroxisome proliferator (PP) in the rat. When exposed to PP, nonhuman primates (such as the cynomolgus monkey) respond similarly to humans (i.e., low to no hepatic response) and therefore are an appropriate human surrogate species.

Group Designations and Dosage Levels

Group	Dose Level (mg/kg/day)	Number of Males
1 (control)	0[a]	6[b]
2 (low-dose)	3	4
3 (mid-dose)	10	6[b]
4 (high-dose)	30	6[b]

a The control group (Group 1) will receive empty gelatin capsules.
b Two animals in Groups 1, 3, and 4 designated as recovery animals will be treated for 26 weeks, then treatment will be discontinued, and the animals will be observed for reversibility, persistence, or delayed occurrence of toxic effects for at least 13 weeks posttreatment. Based on plasma test material levels and clinical pathology findings, the recovery may be reduced or extended at the discretion of the study director after consultation with the Sponsors.

Dosing Procedures

Method of Administration
Orally by gelatin capsules, daily (7 days/week) for at least 26 weeks

Reason for Dosing Route
To compare with previously conducted toxicology studies using the oral route

Dose Preparation
Capsules will be prepared at least weekly. The size and number of capsules will depend on the physical characteristics of the test material, the dose level, and the weight of the monkey. Dose levels will be based on the test material as supplied. Individual daily doses will be based on the most recent individual body weights, with the exception of body weight collection days when the previous body weight will be used. All dose preparations will be stored at room temperature until dosed.

Dose Analysis
Because the test material is not being mixed with a vehicle, dose analyses are not required.

Observation of Animals

Clinical Observations
Each animal will be observed twice daily (a.m. and p.m.) for mortality and moribundity; findings will be recorded as they are observed.

Each animal will be observed daily and food consumption will be assessed qualitatively; abnormal findings will be recorded. Once weekly, each animal will be observed; abnormal findings, or an indication that the animal is normal will be recorded.

Additional findings will be recorded as they are observed.

Body Weights
Weekly before initiation of treatment, Day -1 (for the Day 1 dose calculations),on the first day of treatment, and weekly thereafter

Ophthalmic Examinations
Before initiation of treatment and before each scheduled sacrifice. The anterior portion of the eye, optic media, and ocular fundus will be examined using an indirect ophthalmoscope.

Clinical Pathology

Frequency

Unscheduled Collections
When possible, blood will be collected for clinical pathology tests from animals sacrificed at unscheduled intervals

Scheduled Collections
Before initiation of treatment; and (before the daily dose) after at least 30, 60, 90, and 180 days of treatment; and after at least 30, 60, and 90 days of recovery

Number of Animals
All

Method of Collection
Animals will be fasted overnight; blood will be collected from a femoral vein. Anticoagulants will be sodium citrate for coagulation tests and potassium EDTA for hematology tests. No anticoagulant is required for clinical chemistry tests. Urine will be collected on wet ice overnight (approximately 16 hours).

Tests

Hematology

red blood cell (erythrocyte) count	platelet count
hemoglobin	white blood cell (leukocyte) count
hematocrit	differential blood cell count
mean corpuscular volume	blood cell morphology
mean corpuscular hemoglobin	reticulocyte count
mean corpuscular hemoglobin concentration	

Coagulation

activated partial thromboplastin time	prothrombin time
	fibrinogen

Clinical Chemistry

glucose	aspartate aminotransferase
urea nitrogen	gamma glutamyltransferase
creatinine	sorbitol dehydrogenase
total protein	creatine kinase
albumin	calcium
globulin	inorganic phosphorus
total bilirubin	sodium
direct bilirubin (if total bilirubin is greater than 2.0 mg/dL)	potassium
	chloride
cholesterol	bile acids
triglycerides	amylase
alanine aminotransferase	lipase
alkaline phosphatase	pancreatic-specific amylase

Urinalysis

appearance	glucose
volume (approximately 16 hours)	ketones
specific gravity	bilirubin
pH	blood
protein	microscopic examination of sediment
urobilinogen	

Blood Hormone Determination

Frequency
Three times before initiation of treatment; after at least 30, 60, 90, and 180 days of treatment; and after at least 30, 60, and 90 days of recovery

Number of Animals
All

Method of Collection
Animals will not be fasted; blood will be collected from a femoral vein (an alternative vein may be used if necessary). Approximately 6 mL of blood for plasma samples will be collected into tubes with potassium EDTA as the anticoagulant. Approximately 6 mL of blood for serum samples will be collected without anticoagulant and allowed to clot. Blood samples will be maintained at room temperature until serum is harvested. Blood samples will be maintained chilled until plasma is harvested.

Serum Sample Handling
Samples for serum will be centrifuged within 1 hour after collection, and serum will be harvested. Serum will be divided into two approximately equal aliquots and stored in a freezer set to maintain -60 to -80°C until packed on dry ice and shipped to:

Dr. Saroj Das
Ani Lytics Inc.
200 Girard Street, Suite 200
Gaithersburg, Maryland 20877
Telephone No.: 301.921.0168
Facsimile No.: 301.977.0433

Ani Lytics Inc. will be notified regarding shipment of samples.

Serum Tests
Samples will be analyzed by Ani Lytics Inc., for estradiol, estrone, estriol, thyroid stimulating hormone, total and free triiodothyronine (T3), and total and free thyroxin (T4). Results will be provided for inclusion in the final report.

Plasma Sample Handling
Samples for plasma will be centrifuged within 1 hour after collection. Plasma will be harvested and stored in a freezer set to maintain -60 to -80°C until packed on dry ice and shipped to:

Jon C. Cook, PhD, DABT
E. I. du Pont de Nemours & Company, Inc.
Haskell Laboratory for Toxicology and Industrial Medicine
Building 11 Room 1325
1090 Elkton Road
Newark, Delaware 19711-0500
Telephone No.: 302.366.5495
Facsimile No.: 302.366.5003

DuPont will be notified regarding shipment of samples.

Plasma Analysis
Samples will be analyzed by DuPont Haskell Company for cholecystokinin. Results will be provided for inclusion in the final report.

Serum APFO Level Determination

Frequency
After 7 days of treatment and every 2 weeks thereafter during treatment and recovery

Number of Animals
All

Method of Collection
Animals will not be fasted; blood (approximately 2 mL) will be collected from a femoral vein (an alternative vein may be used if necessary) without an anticoagulant.

Sample Handling
Samples will be centrifuged within 1 hour after collection, and serum will be harvested. Serum samples will be stored in a freezer set to maintain -10 to -30°C.

Sample Shipping
Serum samples will be packed on dry ice and shipped to:

Kris J. Hansen, PhD
3M E.T. & S
Bldg. 2-3E-09
935 Bush Avenue
St. Paul, Minnesota 55106

Kris J. Hansen, PhD or her alternate will be notified regarding the shipment of the samples. Analysis of serum for APFO will be done on the samples. Results will be provided for inclusion in the final report.

Additional Blood Collection
At scheduled and unscheduled sacrifices, blood (as much as possible, up to 20 mL) will be collected from animals at the time of exsanguination. Approximately equally sized samples of serum (collected without anticoagulant) and whole blood and plasma (both collected using EDTA as an anticoagulant) from each animal will be transferred into containers (approximately 5 mL each). Whole blood, serum, and plasma samples will be stored in a freezer set to maintain -60 to -80°C until shipped to 3M (Kris Hansen) for possible future analysis.

Urine and Feces APFO Level Determination

Frequency
After 7 days of treatment and every 2 weeks thereafter during treatment and recovery (concurrent with serum APFO sample collection)

Number of Animals
All

Method of Collection
Animals will not be fasted; urine (collected on wet ice) and feces will be collected overnight.

Sample Handling
Samples of urine (at least 2 mL) and feces (at least 5 grams) will be stored in a freezer set to maintain -10 to -30°C.

Sample Shipping
Samples will be packed on dry ice and shipped to:

Kris J. Hansen, PhD
3M E.T. & S
Bldg. 2-3E-09
935 Bush Avenue
St. Paul, Minnesota 55106

Kris J. Hansen, PhD or her alternate will be notified regarding the shipment of the samples. Analysis of urine and feces for APFO will be done on the samples. Results will be provided for inclusion in the final report.

Termination

Unscheduled Sacrifices and Deaths
Necropsies will be done. Animals to be sacrificed will be anesthetized with ketamine and xylazine, weighed, and exsanguinated.

Scheduled Sacrifices
After at least 26 weeks of treatment, four animals/sex/group will be fasted overnight, then anesthetized with ketamine and xylazine, weighed, exsanguinated, and necropsied.

After at least 26 weeks of treatment and at least 13 weeks without treatment, the remaining animals will be fasted overnight, then anesthetized with ketamine and xylazine, weighed, exsanguinated, and necropsied.

Postmortem Procedures

Necropsy
The necropsy will include examination of:

all orifices
cranial cavity
external surface of the brain; the external surface of the spinal cord and cut surfaces of the brain and spinal cord will be examined whenever tissue trimming is performed
cervical tissues and organs
thoracic, abdominal, and pelvic cavities and viscera
external surface of the body
nasal cavity and paranasal sinuses

Organ Weights
From each animal at scheduled and unscheduled sacrifices, the following organs (when present) will be weighed; paired organs will be weighed separately:

adrenal (2)	liver
brain	pancreas
epididymis (2)	testis (2)
kidney (2)	thyroid (2) with parathyroid

Organ-to-body weight percentages and organ-to-brain weight ratios will be calculated.

Palmitoyl CoA Oxidase Determinations
The right lateral lobe of liver will be collected from each animal at the scheduled and unscheduled sacrifices, weighed, flash-frozen in liquid nitrogen, and stored in a freezer set to maintain -60 to -80°C until disposition of the samples is determined by the Sponsor.

Cell Proliferation Evaluation
Representative samples of left lateral lobe of the liver, left and right testes, and pancreas will be collected from each animal at the scheduled and unscheduled sacrifices, and preserved in zinc formalin.

After fixation, samples for proliferation cell nuclear antigen (PCNA) evaluation will be embedded in paraffin maintained at ambient temperature until disposition of the samples is determined by the Sponsor.

Bile Acid Determination
All available bile (up to 5 mL) will be collected from each animal at the scheduled and unscheduled sacrifices, flash-frozen in liquid nitrogen, and stored in a freezer set to maintain -60 to -80°C. Bile samples will be packed on dry ice and shipped to:

Biomedical Research Centre
Level 5
Ninewells Hospital and Medical School
University of Dundee
Dundee DD1 9SY
UK
Dr. Cliff Elcombe
Biomedical Research Centre
Ninewells Hospital and Medical School
University of Dundee
Dundee DD1 9SY, UK
Telephone: +44 (0)1382-632641
Fax: +44 (0)1382-425586

Results of bile acid determinations analyses will be provided for inclusion in the final report.

Receptor Level Determination
Samples (approximately 2 g) of liver and pancreas will be collected from each animal at the scheduled and unscheduled sacrifices, flash-frozen in liquid nitrogen, and stored in a freezer set to maintain -60 to -80°C. Liver and pancreas samples will be packed on dry ice and shipped to:

Jon C. Cook, PhD, DABT
E. I. du Pont de Nemours & Company, Inc.
Haskell Laboratory for Toxicology and Industrial Medicine
Building 11 Room 1325
1090 Elkton Road
Newark, Delaware 19711-0500
Telephone No.: 302.366.5495
Facsimile No.: 302.366.5003

DuPont will be notified regarding shipment of samples. Results of receptor level determinations will be provided for inclusion in the final report.

Tissue Preservation
Three samples (approximately 5 g each) of the liver and all remaining pancreas and left and right testes tissue, if any, (divided into three approximately equal samples) will be collected from each animal at the scheduled and unscheduled sacrifices, weighed, flash-frozen in liquid nitrogen, and stored in a freezer set to maintain -60 to -80°C for possible future analysis.

The following tissues (when present) from each animal will be preserved in 10% neutral-buffered formalin, unless otherwise specified, for possible future microscopic examination:

adrenal (2)
aorta
brain
cecum
colon
duodenum
epididymis (2)
esophagus
eye [(2) to be preserved in Davidson's fixative from sacrificed animals only]
femur with bone marrow (articular surface of the distal end)
gallbladder
heart
ileum
jejunum
kidney (2)
lesions
liver
lung
mammary gland
mesenteric lymph node
pancreas
pituitary
prostate
rectum
salivary gland [mandibular (2)]
sciatic nerve
seminal vesicle (2)
skeletal muscle (thigh)
skin
spinal cord (cervical, thoracic, and lumbar)
spleen
sternum with bone marrow
stomach
testis [(2) to be preserved in Bouins' solution from sacrificed animals only]
thymus
thyroid (2) with parathyroid
trachea
urinary bladder

Bone Marrow Smear
From the sternum of each animal at unscheduled and scheduled sacrifices (made and held for possible future examination)

Liver APFO Determination
A sample of liver (any non-formalin treated liver remaining after sampling for histopathology) will be collected from each animal at the scheduled and unscheduled sacrifices, weighed, flash-frozen in liquid nitrogen, and stored in a freezer set to maintain -60 to -80°C until shipped with serum samples to 3M (Kris Hansen) for analysis. Analysis of liver for APFO will be done on the samples. Results will be provided for inclusion in the final report.

Histopathology
Tissues from each animal in the control and high-dose groups and each animal that dies or is sacrificed at unscheduled interval will be embedded in paraffin, sectioned, stained with hematoxylin and eosin, and examined microscopically.

The adrenals, pancreas, liver, spleen, and testes from each animal in the low- and mid-dose groups will be embedded in paraffin, sectioned, stained with hematoxylin and eosin, and examined microscopically.

Suspected target organs noted at the high-dose will be embedded in paraffin, sectioned, stained with hematoxylin and eosin, and examined microscopically from all animals (at the Sponsor's request and added by amendment).

Reports
A draft report which includes the following information will be prepared and submitted:

Experimental Design and Methods

Results
mortality
clinical observations
body weights
body weight gains
food consumption
ophthalmic examination results
clinical pathology results
hormone analyses (provided by Ani Lytics, Inc. and the DuPont Haskell Company)
serum, urine, feces, and liver APFO levels (provided by 3M)
organ weights
organ-to-body weight percentages
organ-to-brain weight ratios
macroscopic observations
microscopic observations
palmitoyl CoA oxidase activities (provided by the Sponsor's designee)
cell proliferation evaluations (provided by Pathology Associates International)
bile acid determinations (provided by University of Dundee)
receptor determination (provided by DuPont)

Statistical Evaluation

Levene's test will be done to test for variance homogeneity. In the case of heterogeneity of variance at $p \leq 0.05$, transformations will be used to stabilize the variance. Comparison tests will take variance heterogeneity into consideration.

One-way analysis of variance (ANOVA) will be used (if applicable) to analyze initial body weights, body weight gains, continuous clinical pathology values, palmitoyl CoA oxidase activities, and organ weight data. If the ANOVA is significant, Dunnett's t-test will be used for control versus treated group comparisons.

One-way analysis of covariance (ANCOVA) will be used to analyze body weights, with initial body weights as the covariate. If the ANCOVA is significant, covariate-adjusted means will be used for control versus treated group comparisons.

Group comparisons (Groups 2 through 4 versus Group 1) will be evaluated at the 5.0% two-tailed probability level. Only data collected on or after the first day of treatment will be analyzed statistically. Data collected before the first day of treatment or during recovery will not be analyzed statistically.

At the end of 1 year after issuance of the audited draft report, if no requested revisions or instructions to finalize have been communicated by the Sponsor, then the audited draft report will be considered 'final' and issued as the final report, signed by the study director, and submitted to the Sponsor.

Any modifications or changes to the audited draft report requested 1 year after issuance will be performed at additional cost to the Sponsor.

Record Retention

All raw data, documentation, records, protocol, specimens, and final report generated as a result of this study will be archived in the storage facilities of Covance-Madison for a period of 1 year following submission of the final report to the Sponsor. One year after submission of the final report, all of the aforementioned materials will be sent to the Sponsor, and a return fee will be charged. The Sponsor may elect to have the materials retained in the Covance archives for an additional period of time, and Covance will charge a storage fee. If the Sponsor chooses to have Covance dispose of the materials, a disposal fee will be charged. All raw data stored on magnetic media will be retained by Covance.

Within one year after submission of the final report, all of the aforementioned materials from the Sponsor's designees (Ani Lytics Inc., E. I. du Pont de Nemours & Company, Inc., 3M E.T. & S, Pathology Associates International, and University of Dundee) will be sent to the Sponsor (Paul Lieder, PhD, DABT, 3M) to be maintained.

PROTOCOL APPROVAL

Paul Lieder, PhD
Diplomate, ABT
Study Monitor
3M

9/25/98
Date

David Farrar, PhD
ICI Chemicals & Polymers Limited

5th October 1998
Date

Peter J. Thomford, PhD
Study Director
Department of Toxicology
Covance Laboratories Inc.

9/23/98
Date

COVANCE

PROTOCOL AMENDMENT NO. 1

Covance 6329-231

26-Week Capsule Toxicity Study with Ammonium Perfluorooctanoate (APFO) in Cynomolgus Monkeys

Sponsor:	APME Ad-Hoc APFO Toxicology Working Group
Study Monitor:	Paul Lieder, PhD, DABT
Testing Facility:	Covance Laboratories Inc., Madison, Wisconsin
Study Director:	Peter J. Thomford, PhD

This amendment modifies the following portions of the protocol.

Effective October 9, 1998

1. **Page 6, Dosing Procedures, Method of Administration.** To reflect suspension of dosing to Group 4, delete the text in this section and replace with the following.

   Orally by gelatin capsules, daily (7 days/week) for at least 26 weeks unless otherwise specified

Effective October 9 and 13, 1998, and March 24, 1999

2. **Page 6, Group Designations and Dosage Levels.** To suspend dosing to Group 4 (effective October 9, 1998), to replace Animal No. I05723 with Animal No. I05721 (effective October 13, 1998), to designate an initial dosing date for Animal No. I05721 (effective October 13, 1998), to lower the dose level for Group 4 (effective October 13, 1998), and to indicate that all Group 4 animals will be sacrificed at the terminal sacrifice (effective March 24, 1999), delete this table and replace with the following.

Group	Dose Level (mg/kg/day)	No. of Males
1 (Control)	0[a]	6[b]
2 (Low)	3	4[c]
3 (Mid)	10	6[b]
4 (High)[d]	30/20	6

a The control group (Group 1) will receive empty gelatin capsules.

b Two animals in Groups 1 and 3 designated as recovery animals will be treated for 26 weeks, then treatment will be discontinued, and the animals will be observed for reversibility, persistence, or delayed occurrence of toxic effects for at least 13 weeks posttreatment. Based on plasma test material levels and clinical pathology findings, the recovery may be reduced or extended at the discretion of the Study Director after consultation with the Sponsor.

c Animal No. I05723 will be replaced with Animal No. I05721. Dosing for Animal No. I05721 will begin on Day 17 (October 15, 1998).

d Dosing for Group 4 will be suspended after Day 11 (October 9, 1998) and reinitiated at 20 mg/kg/day on Day 22 (October 20, 1998).

Effective October 21 and December 22, 1998

3. **Page 10, Blood Hormone Determination, Plasma Sample Handling, Paragraph 1, and Page 14, Receptor Level Determination, Paragraph 1.** To reflect that Jon Cook has been replaced at DuPont by John O'Connor (effective October 21, 1998) and to clarify the address (effective December 22, 1998), delete the name and address in this paragraph and replace with the following.

John O'Connor
E. I. du Pont de Nemours & Company, Inc.
Haskell Laboratory for Toxicology and Industrial Medicine
Building 1 Room 919
1090 Elkton Road
Newark, Delaware 19711-0500
Telephone No.: 302.366.6169
Facsimile No.: 302.366.5003

Effective March 24, 1999

4. **Page 12, Termination, Scheduled Sacrifices, Paragraph 1.** To indicate that all Group 4 animals will be sacrificed at the terminal sacrifice, delete this paragraph and replace with the following.

   After at least 26 weeks of treatment, four animals/group in Groups 1 through 3 and all surviving animals in Group 4 will be fasted overnight, then anesthetized with ketamine and xylazine, weighed, exsanguinated, and necropsied.

Effective March 30, 1999

5. **Page 14, Postmortem Procedures, Tissue Preservation.** To indicate that samples of kidney and testes tissue from animals in the control group at the terminal sacrifice will be collected, frozen, and shipped to 3M, add the following.

   In addition, after all other required samples, are taken any remaining kidney tissue will be collected from the control animals at the terminal sacrifice. These tissues will be weighed, flash-frozen in liquid nitrogen, and stored in a freezer set to maintain -60 to -80°C.

   From animals in the control group at the terminal sacrifice, any available kidney and testes tissues that were flash-frozen in liquid nitrogen and stored in a freezer set to maintain -60 to -80°C will be packed on dry ice and shipped to the recipient below for possible future analysis.

   Kris J. Hansen, PhD
   3M E.T. & S
   Bldg. 2-3E-09
   935 Bush Avenue
   St. Paul, Minnesota 55106

Effective March 31, 1999

6. **Page 11, Additional Blood Collection.** To indicate that an additional heparinized whole blood sample will be collected from animals in the control group at the terminal sacrifice, add the following.

In addition to the required blood samples, additional whole blood (as much as possible) will be collected using sodium heparin as an anticoagulant from the animals in the control group at the terminal sacrifice. One-half of this sample will be transferred into cryotubes and pooled. The remaining half of the sample will be centrifuged and the plasma and red blood cells will be transferred into cryotubes and pooled. The pooled samples will be stored in a freezer, set to maintain -60 to -80°C, until packed on dry ice and shipped to the recipient below for possible future analysis.

Kris J. Hansen, PhD
3M E.T. & S
Bldg. 2-3E-09
935 Bush Avenue
St. Paul, Minnesota 55106

Effective April 8, 1999

7. **Page 17, Record Retention, Paragraph 2.** To modify the record retention requirements for Pathology Associates International, delete this paragraph and replace with the following.

Within 1 year after submission of the final report, all of the aforementioned materials from the Sponsor's designees (Ani Lytics Inc., E. I. du Pont de Nemours & Company, Inc., 3M E.T. & S, and the University of Dundee) will be sent to the Sponsor (Paul Lieder, PhD, DABT, 3M). Pathology Associates International (PAI) is responsible for the maintenance of any raw data or specimens produced by PAI.

Effective May 4 and July 12 and 21 and November 12, 1999

8. **Page 17, Reports, Statistical Evaluation.** To add statistical analysis of hormone values (effective May 4, 1999), to include statistical analysis of hormone values during recovery (effective July 12, 1999), and to modify the statistical methods (effective July 21, 1999 and November 12, 1999), add the following to the end of this section.

Blood hormone levels, excluding estriol and cholecystokinin, will be analyzed by repeated measures analysis of covariance (ANCOVA) procedure with average pretreatment measurements for the parameters as covariates.

Treatment effects under ANOVA or ANCOVA procedures will be evaluated at p=0.05 level. All post hoc control-versus-treated-group mean comparisons (including values during recovery) will be conducted using Dunnett's many-on-one t procedure.

Analyses will be carried out with SAS procedure, PROC MIXED or BMDP or both.

Effective May 27, 1999

9. **Page 3, Regulatory Compliance.** To define the regulatory compliance requirement for the palmitoyl CoA oxidase determinations, delete the text in this section and replace with the following.

   This study will be conducted in compliance with the Environmental Protection Agency Good Laboratory Practice Regulations as set forth in Title 40 of the US Code of Federal Regulations, Part 792, issued November 29, 1983 (effective December 29, 1983), and with any applicable amendments except that bile acid and palmitoyl CoA oxidase determinations done by University of Dundee will not be done in compliance with GLPs.

10. **Page 3, Quality Assurance, Sentence 6.** To define the quality assurance responsibility for palmitoyl CoA oxidase determinations, delete this sentence and replace with the following.

    Bile acid and palmitoyl CoA oxidase determinations done by the University of Dundee will not be audited

11. **Page 3, Quality Assurance.** To define the quality assurance responsibility for proliferation cell nuclear antigen (PCNA) evaluations, add the following to the end of the section.

    Proliferation cell nuclear antigen (PCNA) and report will be audited by the QAU of Pathology Associates International

12. **Page 10, Blood Hormone Determination, Serum Tests.** To add serum testosterone analysis during recovery, delete the text in this section and replace with the following.

    Samples will be analyzed by Ani Lytics Inc. for estradiol, estrone, estriol, thyroid stimulating hormone, total and free triiodothyronine (T3), and total and free thyroxin (T4). In addition, samples collected during recovery will be analyzed for testosterone. Results will be provided for inclusion in the final report.

13. **Page 10, Blood Hormone Determination, Plasma Analysis.** To add plasma testosterone analysis from prestudy, treated, and recovery intervals, add the following to the end of the section.

    Samples from the pretest, treated, and recovery intervals will be analyzed by Ani Lytics Inc. for testosterone. Results will be provided for inclusion in the final report.

14. **Page 13, Postmortem Procedures, Cell Proliferation Evaluation.** To designate the laboratory to perform the analysis, to include preparation of slides stained with hematoxylin and eosin in the PCNA evaluation, and to change the fixative from zinc formalin to formalin, delete the text in this section and replace with the following.

    Representative samples of the left lateral lobe of the liver, left and right testes, and pancreas will be collected from each animal at the scheduled and unscheduled sacrifices and will be preserved in formalin.

    After fixation, samples for proliferation cell nuclear antigen (PCNA) evaluation will be embedded in paraffin maintained at ambient temperature (with slides stained with hematoxylin and eosin) until shipped to:

    Sandra R. Eldridge, PhD
    Pathology Associates International
    15 Worman's Mill Court
    Suite I
    Frederick, Maryland 21701
    Telephone No.: 301.624.2036
    Facsimile No.: 301.663.8994

Pathology Associates International will be notified regarding shipment of samples. Results of PCNA analyses will be provided for inclusion in the final report.

15. **Page 16, Postmortem Procedures, Histopathology.** To reflect the decision to evaluate all tissues from all animals microscopically, delete the text in this section and replace with the following.

Tissues from each animal (including Animal No. I05723) will be embedded in paraffin, sectioned, stained with hematoxylin and eosin, and examined microscopically.

Effective May 27 and July 14, 1999

16. **Page 13, Postmortem Procedures, Palmitoyl CoA Oxidase Determinations.** To designate the laboratory to perform the analysis (effective May 27, 1999) and to change the shipping address (effective July 14, 1999), delete the text in this section and replace with the following.

The right lateral lobe of liver will be collected from each animal at the scheduled and unscheduled sacrifices, weighed, flash-frozen in liquid nitrogen, and stored in a freezer set to maintain -60 to -80°C until packed on dry ice and shipped to Dr. Cliff Elcombe at the University of Dundee via the following shipping address.

Ms. Sara Spencer
Shamrock (Great Britain) Ltd.
Henfield Road
Small Dole
West Sussex
BN5 9XH
United Kingdom
Telephone: +44 (0)1903-879191
Fax: +44 (0)1903-812532

Results of analyses will be provided for inclusion in the final report.

Effective May 27 and August 2, 1999

17. **Page 10, Blood Hormone Determination, Plasma Sample Handling.** To add plasma testosterone analysis, add the following to the end of the section.

An aliquot of plasma from prestudy and treatment intervals will be transferred from DuPont to Ani Lytics Inc. for analysis of testosterone.

Effective May 27 and October 21, 1999

18. **Page 16, Reports, Results.** To identify the laboratory to conduct the palmitoyl CoA oxidase activities assays (effective May 27, 1999) and to reflect the Sponsor's decision to report the results of specified analyses separately (effective October 21, 1999), delete the text in this section and replace with the following.

mortality
clinical observations
body weights
body weight gains
food consumption
ophthalmic examination results
clinical pathology results
hormone analyses (provided by Ani Lytics Inc. and the DuPont Haskell Company)
organ weights
organ-to-body weight percentages
organ-to-brain weight ratios
macroscopic observations
microscopic observations
palmitoyl CoA oxidase activities (provided by the University of Dundee)
cell proliferation evaluations (provided by Pathology Associates International)

Effective October 13, 1999

19. **Page 16, Postmortem Procedures, Histopathology.** To reflect the decision to do an external pathology peer review, add the following after this section.

Pathology Peer Review
Pathology findings and histopathology tissue slides from specified animals in the control, low-, and high-dose groups will be transferred to the recipient below for a pathology peer review.

Craig Schmidt
Sierra Biomedical, Inc
587 Dunn Circle
Sparks, Nevada 89431

Upon completion of the peer review, these materials will be returned to Covance.

Effective October 21, 1999

20. **Page 11, Serum APFO Level Determinations, Sample Shipping, Paragraph 2, Sentence 3.** To reflect the Sponsor's decision to report the results of specified analyses separately, delete this sentence and replace with the following.

    Results will be reported separately.

21. **Page 12, Urine and Feces APFO Level Determinations, Sample Shipping, Paragraph 2, Sentence 3.** To reflect the Sponsor's decision to report the results of specified analyses separately, delete this sentence and replace with the following.

    Results will be reported separately.

22. **Page 14, Postmortem Procedures, Bile Acid Determination, Paragraph 2.** To reflect the Sponsor's decision to report the results of specified analyses separately, delete this paragraph and replace with the following.

    Results of bile acid determinations will be reported separately.

23. **Page 14, Postmortem Procedures, Receptor Level Determination, Paragraph 2, Sentence 2.** To reflect the Sponsor's decision to report the results of specified analyses, if done, separately, delete this sentence and replace with the following.

    Results of receptor level determination, if any, will be reported separately.

24. **Page 15, Postmortem Procedures, Liver APFO Determination, Sentence 3.** To reflect the Sponsor's decision to report the results of specified analyses separately, delete this sentence and replace with the following.

    Results will be reported separately.

AMENDMENT APPROVAL

Paul Lieder, PhD
Diplomate, ABT
Study Monitor
3M

15 Jan 2001
Date

David Farrar, PhD
ICI Chemicals & Polymers Limited

29th January 2001
Date

Peter J. Thornford, PhD
Study Director
Covance Laboratories Inc.

18 Nov 1999
Date

COVANCE
THE DEVELOPMENT SERVICES COMPANY

PROTOCOL AMENDMENT NO. 2

Covance 6329-231

26-Week Capsule Toxicity Study with Ammonium Perfluorooctanoate (APFO) in Cynomolgus Monkeys

Sponsor:	APME Ad-Hoc APFO Toxicology Working Group
Study Monitor:	Paul Lieder, PhD, DABT
Testing Facility:	Covance Laboratories Inc., Madison, Wisconsin
Study Director:	Peter J. Thomford, PhD

This amendment modifies the following portions of the protocol.

Effective 22 December 2000

1. **Page 13, Postmortem Procedures, Palmitoyl CoA Oxidase Determinations, Paragraph 3.** To reflect the sponsor's decision to report the results of the Palmitoyl CoA Oxidase determinations separately, delete this paragraph and replace with the following.

   Results will be reported separately.

2. **Page 16, Reports, Results.** To reflect the sponsor's decision to report the results of the Palmitoyl CoA Oxidase determinations separately, delete "palmitoyl CoA oxidase activities (provided by the University of Dundee)."

3. **Page 17, Reports, Statistical Evaluation, Paragraph 2.** To reflect the sponsor's decision to report the results of the Palmitoyl CoA Oxidase determinations separately, delete this paragraph and replace with the following.

   One-way analysis of variance (ANOVA) will be used (if applicable) to analyze initial body weights, body weight gains, continuous clinical pathology values, and organ weight data. If the ANOVA is significant, Dunnett's t-test will be used for control versus treated group comparisons.

AMENDMENT APPROVAL

Paul N. Lieder

Paul Lieder, PhD
Diplomate, ABT
Study Monitor
3M

16 Jan 2001
Date

David Farrar, PhD
ICI Chemicals & Polymers Limited

29th January 2001
Date

Peter J. Thornford, PhD
Study Director
Covance Laboratories Inc.

05 Jan 2001
Date

MATERIAL SAFETY DATA SHEET

3M
3M Center
St. Paul, Minnesota
55144-1000
1-800-364-3577 or (651) 737-6501 (24 hours)

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DIVISION: 3M CHEMICALS
TRADE NAME:
FC-143 FLUORAD Brand Fluorochemical Surfactant
ID NUMBER/U.P.C.:

98-0211-0008-0	00-51135-09138-8	98-0211-0891-9	00-51135-09365-8
98-0211-5489-7	00-51135-02941-1	98-0211-6581-0	00-51135-10405-7
98-0211-7394-7	00-51135-10762-1	ZF-0002-0378-4	- - -

ISSUED: January 29, 1998
SUPERSEDES: November 05, 1997
DOCUMENT: 10-3808-2

1. INGREDIENT	C.A.S. NO.	PERCENT
AMMONIUM PERFLUOROOCTANOATE.....	3825-26-1	93 - 97
AMMONIUM PERFLUOROHEPTANOATE.....	6130-43-4	1 - 3
AMMONIUM PERFLUOROPENTANOATE.....	68259-11-0	1 - 3
AMMONIUM PERFLUOROHEXANOATE.....	21615-47-4	0.1 - 1

2. PHYSICAL DATA

BOILING POINT:..... N/A
VAPOR PRESSURE:..... N/A
VAPOR DENSITY:..... N/A
EVAPORATION RATE:..... N/A
SOLUBILITY IN WATER:..... apprec.
SPECIFIC GRAVITY:..... 0.4 - 0.5 Water=1 (Bulk)
PERCENT VOLATILE:..... N/A
pH:..... ca. 5 (0.5% Aqueous)
VISCOSITY:..... N/D
MELTING POINT:..... N/A

APPEARANCE AND ODOR:
Light colored powder; slight odor.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

---

3. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:..... Non-flammable
FLAMMABLE LIMITS - LEL:..... N/A
FLAMMABLE LIMITS - UEL:..... N/A
AUTOIGNITION TEMPERATURE:..... N/A

EXTINGUISHING MEDIA:
Water, Carbon dioxide, Dry chemical, Foam

SPECIAL FIRE FIGHTING PROCEDURES:
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
See Hazardous Decomposition section for products of combustion.

---

4. REACTIVITY DATA

\BILITY: Stable

INCOMPATIBILITY - MATERIALS/CONDITIONS TO AVOID:
Not Applicable

HAZARDOUS POLYMERIZATION: Hazardous polymerization will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS:
Carbon Monoxide and Carbon Dioxide, Oxides of Nitrogen, Hydrogen Fluoride, Ammonia.

---

5. ENVIRONMENTAL INFORMATION

SPILL RESPONSE:
Observe precautions from other sections. Collect spilled material. Use wet sweeping compound or water to avoid dusting. Clean up residue. Place in a closed container.

RECOMMENDED DISPOSAL:
Incinerate in an industrial or commercial facility in the presence of a combustible material. Combustion products will include HF. Disposal alternative: Dispose of waste product in a facility permitted to accept chemical waste.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

---

5. ENVIRONMENTAL INFORMATION (continued)

ENVIRONMENTAL DATA:
SUPPORTING DATA:

BIODEGRADATION:
Theoretical Oxygen Demand (ThOD): 0.320 g/g
Chemical Oxygen Demand (COD): 0.0007 g/g
20-Day Biochemical Oxygen Demand (BOD20): Nil

AQUATIC TOXICITY:
Fathead minnow (Pimephales promelas) 96-hr LC50: 766 mg/L
Water flea (Daphnia magna) 48-hr EC50: 632 mg/L
Bluegill sunfish (Lepomis macrochirus) 96-hr EC50: 569 mg/L
Green Algae (Selenastrum capricornutum) 14-Day EC50:
>1000 mg/L
Microtox (Photobacterium phosphoreum) 30-min EC50: 730 mg/L

BIONCONCENTRATION:
BCF = 1.8

REGULATORY INFORMATION:
Volatile Organic Compounds: N/A.
VOC Less H2O & Exempt Solvents: N/A.

Since regulations vary, consult applicable regulations or authorities before disposal. U.S. EPA Hazardous Waste Number = None (Not U.S. EPA Hazardous).

The components of this product are in compliance with the chemical registration requirements of TSCA, EINECS, CDSL, AICS, MITI and KTCCL.

OTHER ENVIRONMENTAL INFORMATION:
This substance did not degrade significantly in a ready biodegradation test.

This compound is completely fluorinated (perfluorinated), or it contains perfluorinated portions. Perfluoroalkyl groups resist degradation in most natural environments.

This substance has minimal toxicity to aquatic organisms (100 mg/L < Lowest LC50, EC50, or IC50 < or = 1000 mg/L).

No data are available on the toxicity effects of this substance on wastewater treatment system organisms.

This substance has been found to not bioconcentrate or accumulate significantly in one or more living organisms.

EPCRA HAZARD CLASS:
FIRE HAZARD: No PRESSURE: No REACTIVITY: No ACUTE: Yes CHRONIC: Yes

---

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

---

6. SUGGESTED FIRST AID

EYE CONTACT:
Immediately flush eyes with large amounts of water for at least 15 minutes. Get immediate medical attention.

SKIN CONTACT:
Flush skin with large amounts of water. If irritation persists, get medical attention.

INHALATION:
If signs/symptoms occur, remove person to fresh air. If signs/symptoms continue, call a physician.

IF SWALLOWED:
Do not induce vomiting. Drink two glasses of water. Call a physician.

---

7. PRECAUTIONARY INFORMATION

EYE PROTECTION:
Avoid eye contact. Wear vented goggles.

SKIN PROTECTION:
Avoid skin contact. Wear appropriate gloves when handling this material. A pair of gloves made from the following material(s) are recommended: butyl rubber. Use one or more of the following personal protection items as necessary to prevent skin contact: head covering, coveralls. Protective garments (other than gloves) should be made of either of the following materials: polyethylene/polyvinylidene chloride (Saranex).

RECOMMENDED VENTILATION:
Use with appropriate local exhaust ventilation. Provide sufficient ventilation to maintain emissions below recommended exposure limits. If exhaust ventilation is not adequate, use appropriate respiratory protection.

RESPIRATORY PROTECTION:
Avoid breathing of airborne material. Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: full-face high-efficiency filter respirator, full-face supplied air respirator.

PREVENTION OF ACCIDENTAL INGESTION:
Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Wash hands after handling and before eating.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

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7. PRECAUTIONARY INFORMATION (continued)

RECOMMENDED STORAGE:
Do not store containers on their sides. Store at room temperature. Keep container dry. Keep container closed when not in use.

PREVENT MOISTURE CONTAMINATION TO KEEP POWDER FREE FLOWING.

FIRE AND EXPLOSION AVOIDANCE:
Keep container tightly closed. No smoking while handling this material.

HMIS HAZARD RATINGS: HEALTH: 3 FLAMMABILITY: 0 REACTIVITY: 0
PERSONAL PROTECTION: X (See precautions, section 7.)

EXPOSURE LIMITS

INGREDIENT	VALUE	UNIT	TYPE	AUTH	SKIN*
AMMONIUM PERFLUOROOCTANOATE.....	0.01	MG/M3	TWA	ACGIH	Y
AMMONIUM PERFLUOROHEPTANOATE.....	0.1	MG/M3	TWA	3M	Y
AMMONIUM PERFLUOROPENTANOATE.....	0.1	MG/M3	TWA	3M	Y
AMMONIUM PERFLUOROHEXANOATE.....	0.1	MG/M3	TWA	3M	Y

SKIN NOTATION: Listed substances indicated with 'Y' under SKIN refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

SOURCE OF EXPOSURE LIMIT DATA:
- ACGIH: American Conference of Governmental Industrial Hygienists
- 3M: 3M Recommended Exposure Guidelines

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8. HEALTH HAZARD DATA

EYE CONTACT:
Moderate Eye Irritation: signs/symptoms can include redness, swelling, pain, tearing, and hazy vision.

Airborne product may cause eye injury consisting of corneal opacity.

SKIN CONTACT:
Product is not expected to be irritating to the skin.

Mild Skin Irritation (after prolonged or repeated contact): signs/symptoms can include redness, swelling, and itching.

May be absorbed through the skin and persist in the body for an extended time.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

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). HEALTH HAZARD DATA (continued)

INHALATION:
Illness requiring medical attention may result from a single exposure by inhalation to moderate quantities of this material.

May be absorbed by inhalation and persist in the body for an extended time.

Single overexposure, above recommended guidelines, may cause:

Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing.

Prolonged or repeated overexposure, above recommended guidelines, may cause:

Liver Effects: signs/symptoms can include yellow skin(jaundice) and tenderness of upper abdomen.

Repeated inhalation of airborne product above the exposure guideline can result in elevated organofluoride levels in the blood.

IF SWALLOWED:
Ingestion is not a likely route of exposure to this product.

Illness may result from a single swallowing of a moderate quantity of this material.

CANCER:
A mixture of ammonium perfluorooctanoate, ammonium perfluoroheptanoate, ammonium perfluoropentanoate and ammonium perfluorohexanoate, that was 93 to 97% AMMONIUM PERFLUOROOCTANOATE (3825-26-1) was fed to albino rats for 2 years, no compound induced carcinogenicity was found in the study. There were statistically significant compound related benign testicular tumors. In a second two-year study there were statistically significant compound related benign tumors in the liver, pancreas, and testis when compared to ad libitum and pair-fed controls. Based on the current knowledge, these findings have no human health implications. (3825-26-1) (1983 and 1993 studies conducted jointly by 3M and DuPont).

MUTAGENICITY:
Not mutagenic in invitro mutagenicity assays. Did not cause cell transformation in a mammalian cell transformation assay.

REPRODUCTIVE/DEVELOPMENTAL TOXINS:
Not teratogenic in rabbits by oral administration. Not teratogenic to rats by gavage or inhalation exposures.

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

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3. HEALTH HAZARD DATA (continued)

OTHER HEALTH HAZARD INFORMATION:
This product is not known to contain any substances regulated under California Proposition 65.

A Product Toxicity Summary Sheet is available.

SECTION CHANGE DATES

HEADING SECTION CHANGED SINCE November 05, 1997 ISSUE

Abbreviations: N/D - Not Determined N/A - Not Applicable CA - Approximately

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The information in this Material Safety Data Sheet (MSDS) is believed to be correct as of the date issued. 3M MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of use or application. Given the variety of factors that can affect the use and application of a 3M product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of use or application.

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Centre Analytical Laboratories, Inc.
3048 Research Drive State College, PA 16801
Phone: (814) 231-8032 Fax: (814) 231-1253 or (814) 231-1580

INTERIM CERTIFICATE OF ANALYSIS

Centre Analytical Laboratories COA Reference #: 023-033
3M Product: Ammonium Perfluorooctanoate
Test Control Reference #: TCR-99131-37, Lot #: 332
Purity: 95.2%

Test Name	Specifications	Result
Purity[1]		**95.2%**
Appearance	White, crystalline solid	Conforms
Identification NMR		Positive
Metals (ICP/MS) 1. Calcium 2. Magnesium 3. Sodium 4. Potassium 5. Nickel 6. Iron 7. Manganese		 1. 0.001 wt./wt.% 2. <0.001 wt./wt.% 3. 0.005 wt./wt.% 4. <0.001 wt./wt.% 5. <0.001 wt./wt.% 6. <0.001 wt./wt.% 7. <0.001 wt./wt.%
Total % Impurity (NMR)		0.34 wt./wt.%
Total % Impurity (LC/MS)		4.49 wt./wt.%
Total % Impurity (GC/MS)		None Quantified
Residual Solvents (TGA)		None Detected
Purity by DSC		99.7%
Inorganic Anions (IC) 1. Chloride 2. Fluoride 3. Bromide 4. Nitrate 5. Nitrite 6. Phosphate 7. Sulfate		 1. <0.015 wt./wt.% 2. <0.005 wt./wt.% 3. <0.040 wt./wt.% 4. <0.009 wt./wt.% 5. <0.006 wt./wt.% 6. <0.006 wt./wt.% 7. <0.040 wt./wt.%
Organic Acids[2] (IC) 1. TFA 2. PFPA 3. HFBA 4. NFPA		 1. <0.1 wt./wt.% 2. <0.1 wt./wt.% 3. <0.1 wt./wt.% 4. <0.25 wt./wt.%
Elemental Analysis[3]: 1. Carbon 2. Hydrogen 3. Nitrogen 4. Sulfur 5. Fluorine	 Theoretical Value = 22.3% Theoretical Value = 0.935% Theoretical Value = 3.25% Theoretical Value = 0% Theoretical Value = 66.1%	 1. 18.9 wt./wt.% 2. 1.31 wt./wt.% 3. 3.75 wt./wt.% 4. 4.34 wt./wt.% 5. 63.2 wt./wt.%
Ammonium Analysis[3] Ion Selective Electrode	Theoretical Value = 4.18%	3.49 wt./wt. %

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INTERIM CERTIFICATE OF ANALYSIS

Centre Analytical Laboratories COA Reference #: 023-033
3M Product: Ammonium Perfluorooctanoate
Test Control Reference #: TCR-99131-37, Lot #: 332

Date of Last Analysis: 12/15/00

Expiration Date: 12/15/01

Storage Conditions: < -10 °C

Re-assessment Date: 12/15/01

[1]Purity = 100% - (Total Metal impurities, 0.006% + Total NMR impurities, 0.34% + Total LC/MS impurities, 4.49%)

Total impurity from all tests = 4.84%
Purity = 100% - 4.84% = 95.2%

[2] TFA Trifluoroacetic acid
HFBA Heptafluorobutyric acid
NFPA Nonafluoropentanoic acid
PFPA Pentafluoropropanoic acid

[3]Theoretical value calculations based on the empirical formula, $C_8F_{15}O_2^{(-)}NH_4^{(+)}$ (MW=431.1)

LC/MS Purity Profile:

Peak #	Retention Time (min)	Mass(s)	Identity	Area	% Area
1	12.140	269	C_6	167596	0.73
2	13.504	331, 319	C_7 homologue/F_{13}	860991	3.76
3	14.099	369	PFOA	21861700	-
Total	-	-	-	22890287	4.49

This work was conducted under EPA Good Laboratory Practice Standards (40 CFR 160).

Prepared By: _____ 1/09/01
David S. Bell Date
Scientist, Centre Analytical Laboratories

Reviewed By: _____ 1/9/01
John Flaherty Date
Laboratory Manager, Centre Analytical Laboratories

APPENDIX 2

Individual Animal Fate Data
Individual Clinical Observations
Individual Ophthalmic Observations

Individual Animal Fate Data

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	DOSE GROUP	SEX	DEATH CODE	TYPE OF DEATH	DESCRIPTION OF DEATH	DATE OF DEATH	DAY OF STUDY	WEEK OF STUDY
I05709	1	MALE	T	SCHEDULED	TERMINAL SACRIFICE	03/31/99	184	27
I05714	1	MALE	T	SCHEDULED	TERMINAL SACRIFICE	03/31/99	184	27
I05715	1	MALE	T	SCHEDULED	TERMINAL SACRIFICE	03/31/99	184	27
I05718	1	MALE	U	SCHEDULED	FIRST POST-RECOV SAC	07/02/99	277	40
I05720	1	MALE	U	SCHEDULED	FIRST POST-RECOV SAC	07/02/99	277	40
I05725	1	MALE	T	SCHEDULED	TERMINAL SACRIFICE	03/31/99	184	27
I05702	2	MALE	T	SCHEDULED	TERMINAL SACRIFICE	03/31/99	184	27
I05706	2	MALE	T	SCHEDULED	TERMINAL SACRIFICE	03/31/99	184	27
I05717	2	MALE	T	SCHEDULED	TERMINAL SACRIFICE	03/31/99	184	27
I05721	2	MALE	M	UNSCHEDULED	UNSCHEDULED DEATH	02/12/99	137	20
I05707	3	MALE	T	SCHEDULED	TERMINAL SACRIFICE	03/31/99	184	27
I05708	3	MALE	T	SCHEDULED	TERMINAL SACRIFICE	03/31/99	184	27
I05710	3	MALE	T	SCHEDULED	TERMINAL SACRIFICE	03/31/99	184	27
I05712	3	MALE	U	SCHEDULED	FIRST POST-RECOV SAC	07/02/99	277	40
I05716	3	MALE	U	SCHEDULED	FIRST POST-RECOV SAC	07/02/99	277	40
I05719	3	MALE	T	SCHEDULED	TERMINAL SACRIFICE	03/31/99	184	27
I05703	4	MALE	T	SCHEDULED	TERMINAL SACRIFICE	03/31/99	184	27
I05704	4	MALE	T	SCHEDULED	TERMINAL SACRIFICE	03/31/99	184	27
I05711	4	MALE	T	SCHEDULED	TERMINAL SACRIFICE	03/31/99	184	27
I05713	4	MALE	T	SCHEDULED	TERMINAL SACRIFICE	03/31/99	184	27
I05722	4	MALE	T	SCHEDULED	TERMINAL SACRIFICE	03/31/99	184	27
I05724	4	MALE	M	UNSCHEDULED	UNSCHEDULED DEATH	10/27/98	29	5

Appendix 2

Individual Clinical Observations

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	DEATH CODE	WK OF DEATH	CATEGORY / KEYWORD / QUALIFIER (GROUP: M1 DOSE: 0 MG/KG/DAY)	DAYS 1-277 - OBSERVED DURING THE DAYS LISTED BELOW; 'C' - COMMENTS LISTED AT END OF OBSERVATIONS
I05709	T	27	DISCHARGE	
			VOMITUS	
			CONTAINING FOOD	184
			EXCRETION	
			FEW FECES	31
			SKIN & PELAGE	
			ALOPECIA	
			HEAD-CRANIAL	62
			LIMB-FRONT-RIGHT	9-10, 15-17, 23, 27
			NORMAL	
			NO REMARKABLE OBSERVATIONS	1, 8, 22, 29, 36, 43, 50, 57, 64, 71, 78, 85, 92, 99, 106, 113 120, 127, 134, 141, 148, 155, 162, 169, 176, 183-184
			QUALITATIVE FOOD CONSUMPTION	
			LOW	36
I05714	T	27	DISCHARGE	
			VOMITUS	
			CONTAINING FOOD	142
			EXCRETION	
			FEW FECES	56
			LIQUID FECES	102
			MUCOID FECES	31
			NORMAL	
			NO REMARKABLE OBSERVATIONS	8, 15, 29, 36, 43, 50, 57, 64, 71, 78, 85, 92, 99, 106, 113, 120 127, 134, 141, 148, 155, 162, 169, 176, 183-184

Appendix 2

Individual Clinical Observations

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	DEATH CODE	WK OF DEATH	CATEGORY / KEYWORD / QUALIFIER (GROUP: M1 DOSE: 0 MG/KG/DAY)	DAYS 1-277 - OBSERVED DURING THE DAYS LISTED BELOW; 'C' - COMMENTS LISTED AT END OF OBSERVATIONS
(CONTINUED FROM PREVIOUS PAGE)				
I05714	T	27	QUALITATIVE FOOD CONSUMPTION	
			LOW	1, 22, 24, 54-56, 58, 123
I05715	T	27	DISCHARGE	
			VOMITUS	
			CONTAINING FOOD	184
			EXCRETION	
			FEW FECES	31, 36
			NORMAL	
			NO REMARKABLE OBSERVATIONS	1, 8, 15, 22, 29, 43, 50, 57, 64, 71, 78, 85, 92, 99, 106, 113 120, 127, 134, 141, 148, 155, 162, 169, 176, 183-184
I05718	U	40	DISCHARGE	
			VOMITUS	
			CONTAINING FOOD	275
			EXCRETION	
			FEW FECES	31, 50-51
			NORMAL	
			NO REMARKABLE OBSERVATIONS	1, 8, 15, 22, 29, 36, 43, 57, 64, 71, 78, 85, 92, 99, 106, 113 120, 127, 134, 141, 148, 155, 162, 169, 176, 183-184, 190, 197 204, 211, 218, 225, 232, 239, 246, 253, 260, 267, 274, 277
			QUALITATIVE FOOD CONSUMPTION	
			LOW	50-51

Appendix 2

Individual Clinical Observations

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	DEATH CODE	WK OF DEATH	CATEGORY / KEYWORD / QUALIFIER (GROUP: M1 DOSE: 0 MG/KG/DAY)	DAYS 1-277 - OBSERVED DURING THE DAYS LISTED BELOW; 'C' - COMMENTS LISTED AT END OF OBSERVATIONS
I05720	U	40	DISCHARGE	
			VOMITUS	
			CONTAINING FOOD	275
			EXCRETION	
			FEW FECES	6
			LIQUID FECES	5-6
			NON-FORMED FECES	4, 7-11, 14-15, 17
			NORMAL	
			NO REMARKABLE OBSERVATIONS	1, 22, 29, 36, 43, 50, 57, 64, 71, 78, 85, 92, 99, 106, 113, 120 127, 134, 141, 148, 155, 162, 169, 176, 183-184, 190, 197, 204 211, 218, 225, 232, 239, 246, 253, 260, 267, 274, 277
			QUALITATIVE FOOD CONSUMPTION	
			LOW	6, 185, 263
I05725	T	27	DISCHARGE	
			VOMITUS	
			CONTAINING FOOD	184
			SKIN & PELAGE	
			ALOPECIA	
			LIMB-FRONT-LEFT	107, 113, 116
			LIMBS-FRONT	62, 64
			NORMAL	
			NO REMARKABLE OBSERVATIONS	8, 15, 22, 29, 36, 43, 50, 57, 71, 78, 85, 92, 99, 106, 120, 127 134, 141, 148, 155, 162, 169, 176, 183-184
			QUALITATIVE FOOD CONSUMPTION	
			LOW	1, 122

Appendix 2

Individual Clinical Observations

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	DEATH CODE	WK OF DEATH	CATEGORY / KEYWORD / QUALIFIER (GROUP: M2 DOSE: 3 MG/KG/DAY)	DAYS 1-277 - OBSERVED DURING THE DAYS LISTED BELOW; 'C' - COMMENTS LISTED AT END OF OBSERVATIONS
I05702	T	27	NORMAL	
			NO REMARKABLE OBSERVATIONS	1, 8, 15, 22, 29, 36, 43, 50, 57, 64, 71, 78, 85, 92, 99, 106 113, 120, 127, 134, 141, 148, 155, 162, 169, 176, 183-184
I05706	T	27	DISCHARGE	
			VOMITUS	
			CONTAINING FOOD	184
			NORMAL	
			NO REMARKABLE OBSERVATIONS	1, 8, 15, 22, 29, 36, 43, 50, 57, 64, 71, 78, 85, 92, 99, 106 113, 120, 127, 134, 141, 148, 155, 162, 169, 176, 183-184
			QUALITATIVE FOOD CONSUMPTION	
			LOW	10-12, 14
I05717	T	27	DISCHARGE	
			VOMITUS	
			CONTAINING FOOD	184
			NORMAL	
			NO REMARKABLE OBSERVATIONS	1, 8, 15, 22, 29, 36, 43, 50, 64, 71, 78, 85, 92, 99, 106, 113 120, 127, 134, 141, 148, 155, 162, 169, 176, 183-184
			QUALITATIVE FOOD CONSUMPTION	
			LOW	14, 16, 34, 45, 53, 55, 57, 67, 73, 86, 88, 110-111, 114

Appendix 2

Individual Clinical Observations

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	DEATH CODE	WK OF DEATH	CATEGORY / KEYWORD / QUALIFIER (GROUP: M2 DOSE: 3 MG/KG/DAY)	DAYS 1-277 - OBSERVED DURING THE DAYS LISTED BELOW; 'C' - COMMENTS LISTED AT END OF OBSERVATIONS
I05721[a]	M	20	APPEARANCE	
			LIMITED USE	
			LIMBS-HIND	137
			PARALYSIS	
			HIND QUARTERS	137
			BEHAVIOR	
			ATAXIC	
			<UNSPECIFIED>	137
			HYPOACTIVE	
			<UNSPECIFIED>	136-137
			EXCRETION	
			FEW FECES	29-30, 125, 127, 129, 133-137
			LIQUID FECES	16, 18, 27-28
			MUCOID FECES	18, 29
			NON-FORMED FECES	18, 21-24, 27-28, 32, 54
			NORMAL	
			NO REMARKABLE OBSERVATIONS	36, 43, 50, 57, 64, 71, 78, 85, 92, 99, 106, 113, 120
			QUALITATIVE FOOD CONSUMPTION	
			LOW	24, 27-30, 32-34, 125, 127, 129, 133-136
			NONE	16, 137

a Animal No. I05721 replaced Animal No. I05723 on Day 15. Dose administration for this animal initiated on Day 17 (Week 3).

Appendix 2

Individual Clinical Observations

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	DEATH CODE	WK OF DEATH	CATEGORY / KEYWORD / QUALIFIER (GROUP: M3 DOSE: 10 MG/KG/DAY)	DAYS 1-277 - OBSERVED DURING THE DAYS LISTED BELOW; 'C' - COMMENTS LISTED AT END OF OBSERVATIONS
I05707	T	27	NORMAL	
			NO REMARKABLE OBSERVATIONS	1, 8, 15, 22, 29, 36, 43, 50, 57, 64, 71, 78, 85, 92, 99, 106 113, 120, 127, 134, 141, 148, 155, 162, 169, 176, 183-184
			QUALITATIVE FOOD CONSUMPTION	
			LOW	18
I05708	T	27	DISCHARGE	
			VOMITUS	
			CONTAINING FOOD	184
			NORMAL	
			NO REMARKABLE OBSERVATIONS	1, 8, 15, 22, 29, 36, 43, 50, 57, 64, 71, 78, 85, 92, 99, 106 113, 120, 127, 134, 141, 148, 155, 162, 169, 176, 183-184
I05710	T	27	SKIN & PELAGE	
			SCAB(S)	
			PERI-ORBITAL-LEFT	9-10
			PERI-ORBITAL-RIGHT	23, 27
			NORMAL	
			NO REMARKABLE OBSERVATIONS	1, 8, 15, 22, 29, 36, 43, 50, 57, 64, 71, 78, 85, 92, 99, 106 113, 120, 127, 134, 141, 148, 155, 162, 169, 176, 183-184
I05712	U	40	DISCHARGE	
			VOMITUS	
			CONTAINING FOOD	184, 275
			EXCRETION	
			NO FECES	275
			NON-FORMED FECES	1

Appendix 2

Individual Clinical Observations

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	DEATH CODE	WK OF DEATH	CATEGORY / KEYWORD / QUALIFIER (GROUP: M3 DOSE: 10 MG/KG/DAY)	DAYS 1-277 - OBSERVED DURING THE DAYS LISTED BELOW; 'C' - COMMENTS LISTED AT END OF OBSERVATIONS
(CONTINUED FROM PREVIOUS PAGE)				
I05712	U	40	NORMAL	
			NO REMARKABLE OBSERVATIONS	8, 15, 22, 29, 36, 43, 50, 57, 64, 71, 78, 85, 92, 99, 106, 113 120, 127, 134, 141, 148, 155, 162, 169, 176, 183, 190, 197, 204 211, 218, 225, 232, 239, 246, 253, 260, 267, 274, 277
			QUALITATIVE FOOD CONSUMPTION	
			LOW	185
I05716	U	40	DISCHARGE	
			VOMITUS	
			CONTAINING FOOD	55, 184
			NORMAL	
			NO REMARKABLE OBSERVATIONS	1, 8, 15, 22, 29, 36, 43, 50, 57, 64, 71, 78, 85, 92, 99, 106 113, 120, 127, 134, 141, 148, 155, 162, 169, 176, 183, 190, 197 204, 211, 218, 225, 232, 239, 246, 253, 260, 267, 274, 277
			QUALITATIVE FOOD CONSUMPTION	
			LOW	13, 21, 185, 187, 276
I05719	T	27	EXCRETION	
			LIQUID FECES	140-141, 175-176, 178-180
			NON-FORMED FECES	34, 142-143, 147-151, 174
			SKIN & PELAGE	
			OTHER	140-143C, 147-151C, 155C, 161-162C, 164-165C, 169C, 174-180C 183-184C
			NORMAL	
			NO REMARKABLE OBSERVATIONS	8, 15, 22, 36, 43, 50, 57, 64, 71, 78, 85, 92, 99, 106, 113, 120 127, 134

Appendix 2

Individual Clinical Observations

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	DEATH CODE	WK OF DEATH	CATEGORY KEYWORD QUALIFIER	GROUP: M3 DOSE: 10 MG/KG/DAY DAYS 1-277 - OBSERVED DURING THE DAYS LISTED BELOW; 'C' - COMMENTS LISTED AT END OF OBSERVATIONS
(CONTINUED FROM PREVIOUS PAGE)				
I05719	T	27	QUALITATIVE FOOD CONSUMPTION LOW	1, 3, 23-24, 29, 33, 55, 177-180

Appendix 2

Individual Clinical Observations

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL	GROUP	STUDY DAY	WK	CATEGORY KEYWORD QUALIFIER	FREE-TEXT COMMENT
I05719	M3	140	20	SKIN & PELAGE	APPROX 1CM X 1CM MASS ON FACE NEXT TO NOSE
	TO	184	27	OTHER	

Appendix 2

Individual Clinical Observations

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	CODE	DEATH	WK OF DEATH	CATEGORY / KEYWORD / QUALIFIER (GROUP: M4 DOSE: 20 MG/KG/DAY[b])	DAYS 1-277 - OBSERVED DURING THE DAYS LISTED BELOW; 'C' - COMMENTS LISTED AT END OF OBSERVATIONS
I05703[c]	T		27	APPEARANCE	
				THIN	76-83
				DISCHARGE	
				VOMITUS	
				CONTAINING FOOD	77, 184
				EXCRETION	
				DISCOLORED URINE	
				BROWN IN COLOR	79
				FEW FECES	11, 45-46, 50-52, 54-60, 62, 64-66, 68, 70, 72, 75, 77-80, 82-83
				LIQUID FECES	76
				NO FECES	43, 61, 71
				NORMAL	
				NO REMARKABLE OBSERVATIONS	1, 22, 29, 36, 85, 92, 99, 106, 113, 120, 127, 134, 141, 148 155, 162, 169, 176, 183-184
				QUALITATIVE FOOD CONSUMPTION	
				LOW	3, 8-11, 15-16, 24, 27-28, 34, 36, 38-40, 43-47, 50-52, 54-59 61-62, 64-66, 68-70, 72, 77-83, 128
				NONE	60, 71, 73-76
I05704	T		27	DISCHARGE	
				VOMITUS	
				CONTAINING FOOD	184
				EXCRETION	
				FEW FECES	11-12
				NORMAL	
				NO REMARKABLE OBSERVATIONS	1, 8, 22, 29, 36, 43, 50, 57, 64, 71, 78, 85, 92, 99, 106, 113

b Group 4 males were administered 30 mg/kg/day on Days 1 through 11. Animals were not dosed on Days 12 through 21. Beginning on Day 22 and continuing throughout the remainder of the study, Group 4 males were administered 20 mg/kg/day.
c Dose administration discontinued on Day 81 (Week 12).

Appendix 2

Individual Clinical Observations

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	DEATH CODE	WK OF DEATH	CATEGORY KEYWORD QUALIFIER (GROUP: M4 DOSE: 20 MG/KG/DAY[b])	DAYS 1-277 - OBSERVED DURING THE DAYS LISTED BELOW; 'C' - COMMENTS LISTED AT END OF OBSERVATIONS
(CONTINUED FROM PREVIOUS PAGE)				
I05704	T	27	NORMAL	
			NO REMARKABLE OBSERVATIONS	120, 127, 134, 141, 148, 155, 162, 169, 176, 183-184
			QUALITATIVE FOOD CONSUMPTION	
			LOW	11-12, 15
I05711[d]	T	27	EXCRETION	
			FEW FECES	11-12, 29-30, 38-46, 121-122, 124-125, 127
			NO FECES	31, 35-36
			NORMAL	
			NO REMARKABLE OBSERVATIONS	1, 22, 50, 57, 64, 71, 78, 85, 92, 99, 106, 113, 120, 134, 141 148, 155, 162, 169, 176, 183-184
			QUALITATIVE FOOD CONSUMPTION	
			LOW	7-12, 14-16, 18, 28-30, 32-34, 38-45, 120-122, 124-125, 127-128 158
			NONE	35-37
I05713	T	27	EXCRETION	
			FEW FECES	45, 49-51, 66, 70, 134, 136, 138
			LIQUID FECES	34-36
			NON-FORMED FECES	32-33, 37-38, 46
			NORMAL	
			NO REMARKABLE OBSERVATIONS	1, 8, 22, 29, 57, 71, 78, 85, 92, 99, 106, 113, 120, 127, 141 148, 155, 162, 169, 176, 183-184
			QUALITATIVE FOOD CONSUMPTION	
			LOW	3, 10-12, 15, 34-35, 37-43, 45-46, 48, 50-51, 59, 62, 64, 66, 70 129-130, 133-134, 136, 138

b Group 4 males were administered 30 mg/kg/day on Days 1 through 11. Animals were not dosed on Days 12 through 21. Beginning on Day 22 and continuing throughout the remainder of the study, Group 4 males were administered 20 mg/kg/day.
d Dose administration discontinued on Day 43 (Week 7).

Appendix 2

Individual Clinical Observations

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	DEATH CODE	WK OF DEATH	CATEGORY / KEYWORD / QUALIFIER (GROUP: M4 DOSE: 20 MG/KG/DAY[b])	DAYS 1-277 - OBSERVED DURING THE DAYS LISTED BELOW; 'C' - COMMENTS LISTED AT END OF OBSERVATIONS
I05722[e]	T	27	APPEARANCE	
			THIN	65-69, 71-76
			EXCRETION	
			FEW FECES	29, 35-36, 45-46, 49-52, 56-62, 69
			NO FECES	43, 53-55, 64-66
			SKIN & PELAGE	
			SCAR	
			LIP(S)	1, 3, 8, 10-12, 15, 22, 28-30, 32-39, 42-43, 45-62, 64-69, 71-76 78, 85, 92, 99, 106, 113, 120, 127, 134, 141, 148, 155, 162, 166 169, 176, 183-184
			NORMAL	
			NO REMARKABLE OBSERVATIONS	8, 22, 78, 85, 92, 99, 106, 113, 120, 127, 134, 141, 148, 155 162, 169, 176, 183-184
			QUALITATIVE FOOD CONSUMPTION	
			LOW	3, 10-12, 15, 28-30, 32-35, 37-39, 42-43, 45-48, 50-59, 61-62 67-69
			NONE	60, 64-66
I05724	M	5	BEHAVIOR	
			HYPOACTIVE	
			<UNSPECIFIED>	28-29
			EXCRETION	
			FEW FECES	9-10, 18, 28-29
			NO FECES	11-17

b Group 4 males were administered 30 mg/kg/day on Days 1 through 11. Animals were not dosed on Days 12 through 21. Beginning on Day 22 and continuing throughout the remainder of the study, Group 4 males were administered 20 mg/kg/day.
e Dose administration discontinued on Day 66 (Week 10).

Appendix 2

Individual Clinical Observations

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	CODE	DEATH	WK OF DEATH	CATEGORY KEYWORD QUALIFIER	GROUP: M4 DOSE: 20 MG/KG/DAY[b] DAYS 1-277 - OBSERVED DURING THE DAYS LISTED BELOW; 'C' - COMMENTS LISTED AT END OF OBSERVATIONS
(CONTINUED FROM PREVIOUS PAGE)					
I05724	M		5	SKIN & PELAGE	
				COLD TO TOUCH	
				BODY-ENTIRE	29
				NORMAL	
				NO REMARKABLE OBSERVATIONS	1, 22
				QUALITATIVE FOOD CONSUMPTION	
				LOW	3, 7-8, 16, 18, 21, 24-25
				NONE	9-15, 17, 27-29

b Group 4 males were administered 30 mg/kg/day on Days 1 through 11. Animals were not dosed on Days 12 through 21. Beginning on Day 22 and continuing throughout the remainder of the study, Group 4 males were administered 20 mg/kg/day.

Appendix 2

Individual Ophthalmic Observations

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	DEATH CODE	WK OF DEATH	CATEGORY KEYWORD QUALIFIER	GROUP: M1 DOSE: 0 MG/KG/DAY WEEKS -1, 27, AND 40 - OBSERVED DURING THE WEEKS LISTED BELOW; 'C' - COMMENTS LISTED AT END OF OBSERVATIONS
I05709	T	27	NO VISIBLE LESIONS	
			NO VISIBLE LESIONS	
			EYES	-1, 27
I05714	T	27	NO VISIBLE LESIONS	
			NO VISIBLE LESIONS	
			EYES	-1, 27
I05715	T	27	NO VISIBLE LESIONS	
			NO VISIBLE LESIONS	
			EYES	-1, 27
I05718	U	40	NO VISIBLE LESIONS	
			NO VISIBLE LESIONS	
			EYES	-1, 27, 40
I05720	U	40	NO VISIBLE LESIONS	
			NO VISIBLE LESIONS	
			EYES	-1, 27, 40
I05725	T	27	NO VISIBLE LESIONS	
			NO VISIBLE LESIONS	
			EYES	-1, 27

Appendix 2

Individual Ophthalmic Observations

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	DEATH CODE	WK OF DEATH	CATEGORY / KEYWORD / QUALIFIER (GROUP: M2 DOSE: 3 MG/KG/DAY)	WEEKS -1, 27, AND 40 - OBSERVED DURING THE WEEKS LISTED BELOW; 'C' - COMMENTS LISTED AT END OF OBSERVATIONS
I05702	T	27	NO VISIBLE LESIONS	
			NO VISIBLE LESIONS	
			EYES	-1, 27
I05706	T	27	NO VISIBLE LESIONS	
			NO VISIBLE LESIONS	
			EYES	-1, 27
I05717	T	27	NO VISIBLE LESIONS	
			NO VISIBLE LESIONS	
			EYES	-1, 27
I05721	M	20	NO VISIBLE LESIONS	
			NO VISIBLE LESIONS	
			EYES	-1

Appendix 2

Individual Ophthalmic Observations

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	DEATH CODE	WK OF DEATH	CATEGORY / KEYWORD / QUALIFIER	GROUP: M3 DOSE: 10 MG/KG/DAY WEEKS -1, 27, AND 40 - OBSERVED DURING THE WEEKS LISTED BELOW; 'C' - COMMENTS LISTED AT END OF OBSERVATIONS
I05707	T	27	NO VISIBLE LESIONS	
			NO VISIBLE LESIONS	
			EYES	-1, 27
I05708	T	27	NO VISIBLE LESIONS	
			NO VISIBLE LESIONS	
			EYES	-1, 27
I05710	T	27	NO VISIBLE LESIONS	
			NO VISIBLE LESIONS	
			EYES	-1, 27
I05712	U	40	NO VISIBLE LESIONS	
			NO VISIBLE LESIONS	
			EYES	-1, 27, 40
I05716	U	40	NO VISIBLE LESIONS	
			NO VISIBLE LESIONS	
			EYES	-1, 27, 40
I05719	T	27	NO VISIBLE LESIONS	
			NO VISIBLE LESIONS	
			EYES	-1, 27

Appendix 2

Individual Ophthalmic Observations

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	DEATH CODE	WK OF DEATH	CATEGORY / KEYWORD / QUALIFIER (GROUP: M4 DOSE: 20 MG/KG/DAY)	WEEKS -1, 27, AND 40 - OBSERVED DURING THE WEEKS LISTED BELOW; 'C' - COMMENTS LISTED AT END OF OBSERVATIONS
I05703	T	27	NO VISIBLE LESIONS	
			NO VISIBLE LESIONS	
			EYES	-1, 27
I05704	T	27	NO VISIBLE LESIONS	
			NO VISIBLE LESIONS	
			EYES	-1, 27
I05711	T	27	NO VISIBLE LESIONS	
			NO VISIBLE LESIONS	
			EYES	-1, 27
I05713	T	27	NO VISIBLE LESIONS	
			NO VISIBLE LESIONS	
			EYES	-1, 27
I05722	T	27	NO VISIBLE LESIONS	
			NO VISIBLE LESIONS	
			EYES	-1, 27
I05724	M	5	NO VISIBLE LESIONS	
			NO VISIBLE LESIONS	
			EYES	-1

APPENDIX 3

Individual Body Weight Data (kg)
Individual Body Weight Change Data (kg)

Appendix 3

Individual Body Weight Data (kg)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	WEEK -2	WEEK[a] -1	WEEK[b] -1	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7
GROUP: MALE 1 - 0 MG/KG/DAY										
I05709	4.2	4.4	4.4	4.5	4.5	4.6	4.7	4.8	4.7	4.8
I05714	3.2	3.3	3.2	3.2	3.1	3.2	3.3	3.2	3.3	3.2
I05715	3.7	3.8	3.7	3.8	3.8	3.8	3.9	3.9	4.0	4.0
I05718	4.1	4.4	4.3	4.4	4.3	4.4	4.5	4.4	4.4	4.5
I05720	3.8	3.9	3.8	3.9	3.8	3.9	4.1	4.2	4.2	4.4
I05725	3.1	3.2	3.1	3.2	3.1	3.3	3.4	3.3	3.5	3.5
GROUP: MALE 2 - 3 MG/KG/DAY										
I05702	3.8	3.9	3.8	3.9	3.9	3.9	4.0	3.9	4.1	4.1
I05706	4.3	4.5	4.4	4.5	4.4	4.3	4.3	4.2	4.3	4.2
I05717	3.8	3.8	3.7	3.8	3.8	3.8	3.9	3.9	4.1	4.1
I05721[c]	3.9	3.8	3.7	3.7	3.8	3.8	3.8	3.6	3.8	3.9
GROUP: MALE 3 - 10 MG/KG/DAY										
I05707	3.9	3.9	3.9	4.0	3.8	3.8	3.9	3.8	4.0	4.0
I05708	3.9	3.9	3.8	3.9	3.9	3.9	4.0	4.0	4.2	4.2
I05710	4.2	4.3	4.3	4.3	4.4	4.4	4.5	4.5	4.7	4.8
I05712	3.4	3.4	3.2	3.4	3.3	3.2	3.4	3.3	3.3	3.3
I05716	3.3	3.3	3.2	3.5	3.3	3.2	3.3	3.3	3.4	3.3
I05719	3.8	3.7	3.7	3.7	3.6	3.6	3.8	3.7	3.7	3.9

a Day -7.
b Day -1.
c Animal No. I05721 replaced Animal No. I05723 on Day 15. Dose administration for this animal initiated on Day 17 (Week 3).

Appendix 3

Individual Body Weight Data (kg)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	WEEK -2	WEEK[a] -1	WEEK[b] -1	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7
GROUP: MALE 4 - 20 MG/KG/DAY[d]										
I05703	3.3	3.3	3.2	3.2	3.1	3.1	3.3	3.2	3.3	3.3
I05704	4.0	4.0	3.9	4.0	3.9	3.9	4.1	4.1	4.1	4.3
I05711[e]	3.8	4.0	3.9	4.0	3.7	3.6	3.8	3.6	3.5	3.3
I05713	3.9	3.8	3.9	4.0	3.8	3.7	3.8	3.7	3.7	3.8
I05722	3.7	3.8	3.8	3.9	3.7	3.8	3.8	3.8	3.8	3.8
I05724	4.0	4.0	4.0	4.0	3.8	3.4	3.6	3.5		

a Day -7.
b Day -1.
d Group 4 males were administered 30 mg/kg/day on Days 1 through 11. Animals were not dosed on Days 12 through 21. Beginning on Day 22 and continuing throughout the remainder of the study, Group 4 males were administered 20 mg/kg/day.
e Dose administration was discontinued on Day 43 (Week 7).

Appendix 3

Individual Body Weight Data (kg)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	WEEK 8	WEEK 9	WEEK 10	WEEK 11	WEEK 12	WEEK 13	WEEK 14	WEEK 15	WEEK 16	WEEK 17
GROUP: MALE 1 - 0 MG/KG/DAY										
I05709	4.6	4.5	4.5	4.6	4.5	4.6	4.6	4.6	4.5	4.5
I05714	3.3	3.1	3.2	3.2	3.3	3.3	3.3	3.4	3.4	3.4
I05715	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
I05718	4.3	4.4	4.5	4.6	4.6	4.6	4.6	4.7	4.7	4.7
I05720	4.3	4.4	4.4	4.4	4.4	4.4	4.4	4.5	4.6	4.6
I05725	3.5	3.6	3.6	3.6	3.6	3.7	3.6	3.7	3.7	3.7
GROUP: MALE 2 - 3 MG/KG/DAY										
I05702	4.0	4.1	4.0	4.1	4.1	4.2	4.1	4.2	4.2	4.3
I05706	4.3	4.2	4.2	4.2	4.2	4.3	4.2	4.2	4.2	4.3
I05717	4.1	4.2	4.2	4.2	4.2	4.3	4.2	4.3	4.3	4.4
I05721	4.0	4.2	4.1	4.2	4.1	4.1	4.2	4.3	4.2	4.2
GROUP: MALE 3 - 10 MG/KG/DAY										
I05707	4.0	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.2
I05708	4.1	4.2	4.2	4.3	4.2	4.3	4.3	4.3	4.3	4.4
I05710	4.8	5.0	4.9	5.0	5.0	5.1	5.0	5.1	5.1	5.1
I05712	3.4	3.4	3.3	3.5	3.4	3.5	3.4	3.6	3.6	3.6
I05716	3.4	3.4	3.5	3.4	3.4	3.6	3.5	3.5	3.6	3.6
I05719	3.8	3.8	3.7	3.8	3.8	3.9	3.8	3.8	3.9	4.0
GROUP: MALE 4 - 20 MG/KG/DAY										
I05703[f]	3.1	3.1	2.9	2.9	2.6	2.8	2.9	3.2	3.3	3.4
I05704[g]	4.1	4.1	4.1	4.1	4.1	4.2	4.1	4.2	4.2	4.2
I05711[g]	3.3	3.6	3.7	3.9	3.9	3.9	3.9	3.9	3.9	3.9
I05713[h]	3.6	3.7	3.6	3.6	3.6	3.7	3.6	3.5	3.5	3.6
I05722[h]	3.4	3.3	3.0	3.1	3.3	3.6	3.6	4.0	4.1	4.3

f Dose administration was discontinued on Day 81 (Week 12).
g Dose administration was discontinued on Day 43 (Week 7).
h Dose administration was discontinued on Day 66 (Week 10).

Appendix 3

Individual Body Weight Data (kg)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	WEEK 18	WEEK 19	WEEK 20	WEEK 21	WEEK 22	WEEK 23	WEEK 24	WEEK 25	WEEK 26	WEEK 27
GROUP: MALE 1 - 0 MG/KG/DAY										
I05709	4.6	4.5	4.6	4.6	4.6	4.6	4.6	4.7	4.8	4.8
I05714	3.4	3.4	3.5	3.5	3.5	3.5	3.6	3.6	3.7	3.7
I05715	4.0	4.0	4.0	4.0	4.0	4.1	4.0	4.1	4.1	4.1
I05718	4.8	4.9	4.9	5.0	5.0	5.1	5.1	5.1	5.2	5.3
I05720	4.7	4.7	4.7	4.7	4.7	4.8	4.8	4.8	4.9	5.0
I05725	3.8	3.8	3.8	3.8	3.8	3.9	3.9	3.9	4.0	4.0
GROUP: MALE 2 - 3 MG/KG/DAY										
I05702	4.3	4.4	4.4	4.4	4.4	4.5	4.6	4.7	4.8	4.8
I05706	4.5	4.5	4.5	4.5	4.5	4.6	4.6	4.6	4.7	4.8
I05717	4.3	4.4	4.4	4.5	4.5	4.5	4.6	4.6	4.7	4.7
I05721	4.3	4.2	3.8							
GROUP: MALE 3 - 10 MG/KG/DAY										
I05707	4.2	4.2	4.2	4.2	4.2	4.3	4.4	4.3	4.4	4.3
I05708	4.4	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.6	4.6
I05710	5.2	5.2	5.2	5.2	5.2	5.2	5.3	5.3	5.4	5.4
I05712	3.6	3.6	3.7	3.7	3.7	3.7	3.8	3.7	3.8	3.8
I05716	3.7	3.6	3.6	3.6	3.6	3.7	3.7	3.7	3.7	3.8
I05719	4.1	4.2	4.2	4.2	4.3	4.4	4.5	4.5	4.6	4.6
GROUP: MALE 4 - 20 MG/KG/DAY										
I05703[f]	3.5	3.5	3.5	3.5	3.5	3.6	3.5	3.6	3.6	3.7
I05704[g]	4.3	4.3	4.3	4.3	4.3	4.4	4.5	4.4	4.5	4.6
I05711[g]	3.9	3.7	3.8	3.9	3.9	4.0	4.0	4.0	4.0	4.1
I05713[h]	3.7	3.6	3.4	3.4	3.4	3.6	3.7	3.5	3.5	3.6
I05722[h]	4.5	4.5	4.6	4.7	4.7	4.8	4.8	4.8	4.9	4.9

f Dose administration was discontinued on Day 81 (Week 12).
g Dose administration was discontinued on Day 43 (Week 7).
h Dose administration was discontinued on Day 66 (Week 10).

Appendix 3

Individual Body Weight Data (kg)
Recovery

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	WEEK 28	WEEK 29	WEEK 30	WEEK 31	WEEK 32	WEEK 33	WEEK 34	WEEK 35	WEEK 36	WEEK 37
GROUP: MALE 1 - 0 MG/KG/DAY										
I05718	5.3	5.4	5.3	5.3	5.5	5.6	5.7	5.7	5.8	5.8
I05720	4.9	5.0	5.0	5.0	5.1	5.0	5.3	5.3	5.3	5.4
GROUP: MALE 3 - 10 MG/KG/DAY										
I05712	3.8	3.8	3.7	3.8	3.8	3.9	3.9	3.9	3.9	3.9
I05716	3.7	3.8	3.6	3.6	3.7	3.7	3.7	3.7	3.7	3.7

Appendix 3

Individual Body Weight Data (kg)
Recovery

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	WEEK 38	WEEK 39	WEEK 40
GROUP: MALE 1 - 0 MG/KG/DAY			
I05718	5.8	5.9	5.9
I05720	5.4	5.5	5.5
GROUP: MALE 3 - 10 MG/KG/DAY			
I05712	3.9	4.0	4.0
I05716	3.7	3.7	3.7

Appendix 3

Individual Body Weight Change Data (kg)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	WEEK 1-2	WEEK 2-3	WEEK 3-4	WEEK 4-5	WEEK 5-6	WEEK 6-7	WEEK 7-8	WEEK 8-9	WEEK 9-10	WEEK 10-11
GROUP: MALE 1 - 0 MG/KG/DAY										
I05709	0.0	0.1	0.1	0.1	-0.1	0.1	-0.2	-0.1	0.0	0.1
I05714	-0.1	0.1	0.1	-0.1	0.1	-0.1	0.1	-0.2	0.1	0.0
I05715	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
I05718	-0.1	0.1	0.1	-0.1	0.0	0.1	-0.2	0.1	0.1	0.1
I05720	-0.1	0.1	0.2	0.1	0.0	0.2	-0.1	0.1	0.0	0.0
I05725	-0.1	0.2	0.1	-0.1	0.2	0.0	0.0	0.1	0.0	0.0
GROUP: MALE 2 - 3 MG/KG/DAY										
I05702	0.0	0.0	0.1	-0.1	0.2	0.0	-0.1	0.1	-0.1	0.1
I05706	-0.1	-0.1	0.0	-0.1	0.1	-0.1	0.1	-0.1	0.0	0.0
I05717	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.1	0.0	0.0
I05721[a]	0.1	0.0	0.0	-0.2	0.2	0.1	0.1	0.2	-0.1	0.1
GROUP: MALE 3 - 10 MG/KG/DAY										
I05707	-0.2	0.0	0.1	-0.1	0.2	0.0	0.0	0.1	0.0	0.0
I05708	0.0	0.0	0.1	0.0	0.2	0.0	-0.1	0.1	0.0	0.1
I05710	0.1	0.0	0.1	0.0	0.2	0.1	0.0	0.2	-0.1	0.1
I05712	-0.1	-0.1	0.2	-0.1	0.0	0.0	0.1	0.0	-0.1	0.2
I05716	-0.2	-0.1	0.1	0.0	0.1	-0.1	0.1	0.0	0.1	-0.1
I05719	-0.1	0.0	0.2	-0.1	0.0	0.2	-0.1	0.0	-0.1	0.1

a Animal No. I05721 replaced Animal No. I05723 on Day 15. Dose administration for this animal initiated on Day 17 (Week 3).

Appendix 3

Individual Body Weight Change Data (kg)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	WEEK 1-2	WEEK 2-3	WEEK 3-4	WEEK 4-5	WEEK 5-6	WEEK 6-7	WEEK 7-8	WEEK 8-9	WEEK 9-10	WEEK 10-11
GROUP: MALE 4 - 20 MG/KG/DAY[b]										
I05703	-0.1	0.0	0.2	-0.1	0.1	0.0	-0.2	0.0	-0.2	0.0
I05704	-0.1	0.0	0.2	0.0	0.0	0.2	-0.2	0.0	0.0	0.0
I05711[c]	-0.3	-0.1	0.2	-0.2	-0.1	-0.2	0.0	0.3	0.1	0.2
I05713	-0.2	-0.1	0.1	-0.1	0.0	0.1	-0.2	0.1	-0.1	0.0
I05722[d]	-0.2	0.1	0.0	0.0	0.0	0.0	-0.4	-0.1	-0.3	0.1
I05724	-0.2	-0.4	0.2	-0.1						

b Group 4 males were administered 30 mg/kg/day on Days 1 through 11. Animals were not dosed on Days 12 through 21. Beginning on Day 22 and continuing throughout the remainder of the study, Group 4 males were administered 20 mg/kg/day.
c Dose administration was discontinued on Day 43 (Week 7).
d Dose administration was discontinued on Day 66 (Week 10).

Appendix 3

Individual Body Weight Change Data (kg)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	WEEK 11-12	WEEK 12-13	WEEK 13-14	WEEK 14-15	WEEK 15-16	WEEK 16-17	WEEK 17-18	WEEK 18-19	WEEK 19-20	WEEK 20-21
GROUP: MALE 1 - 0 MG/KG/DAY										
I05709	-0.1	0.1	0.0	0.0	-0.1	0.0	0.1	-0.1	0.1	0.0
I05714	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0
I05715	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I05718	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.1
I05720	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0
I05725	0.0	0.1	-0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0
GROUP: MALE 2 - 3 MG/KG/DAY										
I05702	0.0	0.1	-0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0
I05706	0.0	0.1	-0.1	0.0	0.0	0.1	0.2	0.0	0.0	0.0
I05717	0.0	0.1	-0.1	0.1	0.0	0.1	-0.1	0.1	0.0	0.1
I05721	-0.1	0.0	0.1	0.1	-0.1	0.0	0.1	-0.1	-0.4	
GROUP: MALE 3 - 10 MG/KG/DAY										
I05707	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
I05708	-0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0
I05710	0.0	0.1	-0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0
I05712	-0.1	0.1	-0.1	0.2	0.0	0.0	0.0	0.0	0.1	0.0
I05716	0.0	0.2	-0.1	0.0	0.1	0.0	0.1	-0.1	0.0	0.0
I05719	0.0	0.1	-0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0
GROUP: MALE 4 - 20 MG/KG/DAY										
I05703[e]	-0.3	0.2	0.1	0.3	0.1	0.1	0.1	0.0	0.0	0.0
I05704[c]	0.0	0.1	-0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0
I05711[c]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2	0.1	0.1
I05713[d]	0.0	0.1	-0.1	-0.1	0.0	0.1	0.1	-0.1	-0.2	0.0
I05722[d]	0.2	0.3	0.0	0.4	0.1	0.2	0.2	0.0	0.1	0.1

c Dose administration was discontinued on Day 43 (Week 7).
d Dose administration was discontinued on Day 66 (Week 10).
e Dose administration was discontinued on Day 81 (Week 12).

Appendix 3

Individual Body Weight Change Data (kg)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	WEEK 21-22	WEEK 22-23	WEEK 23-24	WEEK 24-25	WEEK 25-26	WEEK 26-27	TOTAL 1-27
GROUP: MALE 1 - 0 MG/KG/DAY							
I05709	0.0	0.0	0.0	0.1	0.1	0.0	0.3
I05714	0.0	0.0	0.1	0.0	0.1	0.0	0.5
I05715	0.0	0.1	-0.1	0.1	0.0	0.0	0.3
I05718	0.0	0.1	0.0	0.0	0.1	0.1	0.9
I05720	0.0	0.1	0.0	0.0	0.1	0.1	1.1
I05725	0.0	0.1	0.0	0.0	0.1	0.0	0.8
GROUP: MALE 2 - 3 MG/KG/DAY							
I05702	0.0	0.1	0.1	0.1	0.1	0.0	0.9
I05706	0.0	0.1	0.0	0.0	0.1	0.1	0.3
I05717	0.0	0.0	0.1	0.0	0.1	0.0	0.9
GROUP: MALE 3 - 10 MG/KG/DAY							
I05707	0.0	0.1	0.1	-0.1	0.1	-0.1	0.3
I05708	0.0	0.0	0.0	0.0	0.1	0.0	0.7
I05710	0.0	0.0	0.1	0.0	0.1	0.0	1.1
I05712	0.0	0.0	0.1	-0.1	0.1	0.0	0.4
I05716	0.0	0.1	0.0	0.0	0.0	0.1	0.3
I05719	0.1	0.1	0.1	0.0	0.1	0.0	0.9
GROUP: MALE 4 - 20 MG/KG/DAY							
I05703[e]	0.0	0.1	-0.1	0.1	0.0	0.1	0.5
I05704	0.0	0.1	0.1	-0.1	0.1	0.1	0.6
I05711[c]	0.0	0.1	0.0	0.0	0.0	0.1	0.1
I05713	0.0	0.2	0.1	-0.2	0.0	0.1	-0.4
I05722[d]	0.0	0.1	0.0	0.0	0.1	0.0	1.0

c Dose administration was discontinued on Day 43 (Week 7).
d Dose administration was discontinued on Day 66 (Week 10).
e Dose administration was discontinued on Day 81 (Week 12).

Appendix 3

Individual Body Weight Change Data (kg)
Recovery

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	WEEK 27-28	WEEK 28-29	WEEK 29-30	WEEK 30-31	WEEK 31-32	WEEK 32-33	WEEK 33-34	WEEK 34-35	WEEK 35-36	WEEK 36-37
GROUP: MALE 1 - 0 MG/KG/DAY										
I05718	0.0	0.1	-0.1	0.0	0.2	0.1	0.1	0.0	0.1	0.0
I05720	-0.1	0.1	0.0	0.0	0.1	-0.1	0.3	0.0	0.0	0.1
GROUP: MALE 3 - 10 MG/KG/DAY										
I05712	0.0	0.0	-0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0
I05716	-0.1	0.1	-0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0

Appendix 3

Individual Body Weight Change Data (kg)
Recovery

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	WEEK 37-38	WEEK 38-39	WEEK 39-40	TOTAL 27-40
GROUP: MALE 1 - 0 MG/KG/DAY				
I05718	0.0	0.1	0.0	0.6
I05720	0.0	0.1	0.0	0.5
GROUP: MALE 3 - 10 MG/KG/DAY				
I05712	0.0	0.1	0.0	0.2
I05716	0.0	0.0	0.0	-0.1

APPENDIX 4

Individual Clinical Hematology Data
Individual Clinical Chemistry Data
Individual Clinical Urinalysis Data

Appendix 4

Individual Clinical Hematology Data

Males Day -11

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	RBC $X10^6/\mu L$	HGB G/DL	HCT %	MCV FL	MCH PG	MCHC %	PLT $X10^3/\mu L$	RETIC %	RETIC $X10^3/\mu L$	PT SEC	PTT SEC	FBR MG/DL
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day									
I05709	7.15	12.7	42.1	59.0	17.8	30.1	576	.7	50	9.8	19.2	313
I05714	6.13	12.3	41.6	67.8	20.1	29.6	499	.8	49	10.1	19.2	261
I05715	7.04	12.0	43.6	62.0	17.0	27.4	362	1.3	92	10.0	17.4	299
I05718	6.46	12.4	41.7	64.5	19.3	29.9	785	.5	32	9.4	16.1	285
I05720	6.32	12.4	41.2	65.2	19.6	30.0	475	.3	19	9.3	18.8	236
I05725	6.52	12.7	42.5	65.2	19.5	29.9	380	.4	26	9.7	18.6	320
MEAN	6.60	12.4	42.1	63.9	18.9	29.5	513	.7	45	9.7	18.2	286
S.D.	.405	.26	.85	3.05	1.21	1.03	155.0	.36	26.3	.32	1.23	32.2
N	6	6	6	6	6	6	6	6	6	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day									
I05702	6.36	12.1	41.2	64.9	19.0	29.3	416	.8	51	9.7	16.5	317
I05706	7.17	13.3	45.2	63.1	18.6	29.5	677	1.1	79	9.5	27.7	331
I05717	6.70	11.8	39.6	59.0	17.6	29.7	599	.8	54	9.6	17.7	309
I05721	7.30	14.5	49.7	68.1	19.9	29.2	555	.1	7	9.5	20.2	422
MEAN	6.88	12.9	43.9	63.8	18.8	29.4	562	.7	48	9.6	20.5	345
S.D.	.433	1.23	4.51	3.80	.95	.22	109.5	.42	29.9	.10	5.03	52.3
N	4	4	4	4	4	4	4	4	4	4	4	4
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day									
I05707	6.99	11.9	40.4	57.8	17.0	29.4	489	.6	42	9.7	16.2	309
I05708	6.77	12.2	40.6	60.0	18.1	30.1	474	1.2	81	9.5	19.7	309
I05710	6.43	12.9	43.5	67.7	20.0	29.6	692	.4	26	9.4	19.5	346
I05712	6.32	11.2	37.6	59.4	17.7	29.9	482	1.0	63	9.6	17.8	280
I05716	6.91	12.2	39.6	57.2	17.6	30.8	550	.2	14	9.9	19.7	315
I05719	6.80	12.3	40.9	60.2	18.0	30.0	404	.5	34	9.7	16.7	329
MEAN	6.70	12.1	40.4	60.4	18.1	30.0	515	.6	43	9.6	18.3	315
S.D.	.268	.56	1.92	3.78	1.02	.48	98.3	.38	24.7	.18	1.59	22.2
N	6	6	6	6	6	6	6	6	6	6	6	6

Appendix 4

Individual Clinical Hematology Data

Males Day -11

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	RBC $X10^6/\mu L$	HGB G/DL	HCT %	MCV FL	MCH PG	MCHC %	PLT $X10^3/\mu L$	RETIC %	RETIC $X10^3/\mu L$	PT SEC	PTT SEC	FBR MG/DL
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day									
I05703	7.31	13.3	44.9	61.4	18.2	29.7	635	1.1	80	9.8	20.0	310
I05704	6.46	10.8	36.8	57.0	16.7	29.3	437	.7	45	9.6	20.6	324
I05711	6.73	12.4	41.4	61.5	18.5	30.0	639	.5	34	9.9	18.8	330
I05713	7.07	11.8	40.3	57.0	16.7	29.2	494	.5	35	10.4	27.0	339
I05722	6.72	12.3	42.6	63.4	18.3	28.8	468	.7	47	9.4	17.1	308
I05724	6.74	12.5	41.1	61.0	18.6	30.4	608	.8	54	9.5	16.6	216
MEAN	6.84	12.2	41.2	60.2	17.8	29.6	547	.7	49	9.8	20.0	304
S.D.	.302	.83	2.68	2.63	.89	.58	90.6	.22	16.9	.36	3.76	44.9
N	6	6	6	6	6	6	6	6	6	6	6	6

Appendix 4

Individual Clinical Hematology Data

Males Day -11

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	WBC $X10^3/\mu L$	N-SEG $X10^3/\mu L$	LYMPH $X10^3/\mu L$	MONO $X10^3/\mu L$	EOSIN $X10^3/\mu L$	BASO $X10^3/\mu L$	N-SEG%	LYMPH%	MONO%	EOSIN%	BASO%
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day								
I05709	13.1	5.6	6.6	.7	.2	.0	42	50	6	2	0
I05714	9.2	4.9	3.4	.7	.1	.0	53	37	8	1	0
I05715	15.5	6.6	7.8	.9	.2	.0	42	50	6	1	0
I05718	15.0	6.5	6.5	1.6	.3	.1	43	43	11	2	1
I05720	17.4	9.5	6.0	1.5	.3	.1	54	35	9	2	0
I05725	5.8	2.8	2.5	.5	.0	.0	48	43	8	1	0
MEAN	12.7	6.0	5.5	1.0	.2	.0	47	43	8	2	0
S.D.	4.36	2.21	2.06	.46	.12	.05	5.5	6.3	1.9	.5	.4
N	6	6	6	6	6	6	6	6	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day								
I05702	10.6	5.2	4.9	.4	.0	.0	50	46	4	0	0
I05706	15.5	8.2	5.9	1.2	.2	.1	53	38	7	1	1
I05717	10.1	3.2	6.2	.5	.3	.0	32	61	5	2	0
I05721	6.7	1.6	4.0	1.0	.0	.0	24	60	16	0	1
MEAN	10.7	4.6	5.2	.8	.1	.0	40	51	8	1	0
S.D.	3.62	2.84	1.00	.39	.15	.05	14.0	11.2	5.5	1.0	.6
N	4	4	4	4	4	4	4	4	4	4	4
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day								
I05707	7.7	2.4	4.4	.8	.1	.0	31	58	10	1	0
I05708	8.2	2.8	4.0	.9	.4	.0	34	49	11	6	0
I05710	15.0	9.4	4.3	.9	.3	.1	63	29	6	2	1
I05712	10.7	7.0	3.1	.4	.1	.0	66	30	4	1	0
I05716	13.9	6.3	6.0	1.4	.1	.1	45	44	10	1	0
I05719	12.9	6.3	5.6	1.0	.1	.0	49	43	7	1	0
MEAN	11.4	5.7	4.6	.9	.2	.0	48	42	8	2	0
S.D.	3.03	2.66	1.07	.32	.13	.05	14.4	11.2	2.8	2.0	.4
N	6	6	6	6	6	6	6	6	6	6	6

Appendix 4

Individual Clinical Hematology Data

Males Day -11

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	WBC $X10^3/\mu L$	N-SEG $X10^3/\mu L$	LYMPH $X10^3/\mu L$	MONO $X10^3/\mu L$	EOSIN $X10^3/\mu L$	BASO $X10^3/\mu L$	N-SEG%	LYMPH%	MONO%	EOSIN%	BASO%
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day								
I05703	11.3	6.1	4.2	.6	.3	.0	54	38	6	2	0
I05704	13.8	6.9	6.1	.5	.3	.0	50	44	4	2	0
I05711	14.1	6.8	5.8	1.1	.3	.0	48	41	8	2	0
I05713	11.5	6.4	2.9	1.9	.2	.2	55	25	16	2	1
I05722	11.9	7.2	4.4	.3	.0	.0	60	37	3	0	0
I05724	17.2	10.4	5.1	1.3	.4	.1	60	30	7	2	0
MEAN	13.3	7.3	4.8	1.0	.2	.0	54	36	7	2	0
S.D.	2.25	1.57	1.17	.60	.14	.08	5.0	7.1	4.6	.8	.4
N	6	6	6	6	6	6	6	6	6	6	6

Appendix 4

Individual Clinical Hematology Data

Males Day -11

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	ANISO	POLY	POIK	HYPO	TOXNEUT
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day		
I05709	-	-	-	-	-
I05714	-	-	-	-	-
I05715	-	-	-	-	-
I05718	-	-	-	-	-
I05720	-	-	-	-	-
I05725	-	-	-	-	-
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day		
I05702 a	-	-	-	-	-
I05706	-	-	-	-	-
I05717	-	-	-	-	-
I05721	-	-	-	-	-
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day		
I05707	-	-	-	-	-
I05708	-	-	-	-	-
I05710	-	-	-	-	-
I05712	-	-	-	-	-
I05716	-	-	-	-	-
I05719	-	-	-	-	-
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day		
I05703	-	-	-	-	-
I05704	-	-	-	-	-
I05711	-	-	-	-	-
I05713	-	-	-	-	-
I05722	-	-	-	-	-
I05724	-	-	-	-	-

a Plasmodium was observed.

Appendix 4

Individual Clinical Hematology Data

Males Day 31

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	RBC $X10^6/\mu L$	HGB G/DL	HCT %	MCV FL	MCH PG	MCHC %	PLT $X10^3/\mu L$	RETIC %	RETIC $X10^3/\mu L$	PT SEC	PTT SEC	FBR MG/DL
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day									
I05709	7.25	13.3	43.4	59.8	18.4	30.7	521	.5	36	10.0	19.6	339
I05714	6.42	12.7	43.7	68.1	19.8	29.1	438	.2	13	10.0	20.3	234
I05715	6.87	11.8	43.4	63.2	17.1	27.1	273	.3	21	10.2	17.8	293
I05718	7.29	13.8	46.9	64.3	18.9	29.3	502	.3	22	10.2	20.5	745
I05720	6.28	12.2	41.4	65.9	19.5	29.5	424	.2	13	9.5	19.3	314
I05725	6.76	13.6	45.3	67.1	20.2	30.1	411	.3	20	10.1	21.5	290
MEAN	6.81	12.9	44.0	64.7	19.0	29.3	428	.3	21	10.0	19.8	369
S.D.	.415	.80	1.88	3.01	1.12	1.23	87.8	.11	8.4	.26	1.26	187.4
N	6	6	6	6	6	6	6	6	6	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day									
I05702	6.06	11.6	38.9	64.3	19.1	29.7	402	.1	6	9.9	17.9	308
I05706	6.60	12.7	41.3	62.6	19.2	30.6	626	.2	13	10.2	29.0	325
I05717	6.93	12.4	41.8	60.4	17.9	29.6	525	.4	28	9.5	19.1	338
I05721 a	6.29	12.9	43.1	68.5	20.5	29.9	444	.1	6	9.8	21.6	365
MEAN	6.47	12.4	41.3	64.0	19.2	30.0	499	.2	13	9.8	21.9	334
S.D.	.378	.57	1.76	3.43	1.06	.45	98.7	.14	10.4	.29	4.98	24.0
N	4	4	4	4	4	4	4	4	4	4	4	4
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day									
I05707	7.21	12.4	42.7	59.3	17.2	29.0	384	.1	7	10.1	18.0	306
I05708	6.58	12.3	41.5	63.0	18.7	29.7	459	.3	20	9.7	20.3	277
I05710	6.29	12.8	43.2	68.6	20.3	29.7	644	.2	13	10.0	18.5	311
I05712	6.33	11.4	38.1	60.1	18.0	29.9	353	.2	13	9.9	19.0	229
I05716	7.03	12.4	41.1	58.5	17.6	30.1	469	.1	7	10.0	20.9	278
I05719	6.96	12.8	44.1	63.4	18.4	29.0	370	.1	7	10.7	23.5	343
MEAN	6.73	12.3	41.8	62.2	18.4	29.6	446	.2	11	10.1	20.0	291
S.D.	.387	.51	2.11	3.73	1.09	.46	107.9	.08	5.2	.34	2.02	38.8
N	6	6	6	6	6	6	6	6	6	6	6	6

a Dosing was started on Day 17.

Appendix 4

Individual Clinical Hematology Data

Males Day 31

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	RBC $X10^6/\mu L$	HGB G/DL	HCT %	MCV FL	MCH PG	MCHC %	PLT $X10^3/\mu L$	RETIC %	RETIC $X10^3/\mu L$	PT SEC	PTT SEC	FBR MG/DL
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day									
I05703	7.24	13.3	44.1	60.9	18.4	30.1	750	.7	51	10.1	23.8	325
I05704	6.24	10.9	37.1	59.4	17.5	29.5	360	.2	12	10.2	21.5	336
I05711	6.80	12.9	41.9	61.6	19.0	30.9	598	.0	0	9.3	21.6	349
I05713	6.47	11.7	38.2	59.1	18.1	30.6	474	.4	26	10.5	31.4	451
I05722	6.41	11.6	43.0	67.1	18.1	27.0	396	.4	26	9.7	21.9	915
I05724 a	6.21	11.7	39.1	63.0	18.8	29.9	361	.1	6	NO COAG	NO COAG	UTD
MEAN	6.63	12.1	40.9	61.6	18.2	29.6	516	.3	23	10.0	24.0	475
S.D.	.396	.99	3.06	3.23	.54	1.56	159.7	.26	19.1	.47	4.22	250.9
N	5	5	5	5	5	5	5	5	5	5	5	5

a Unscheduled sacrifice on Day 29.

Appendix 4

Individual Clinical Hematology Data

Males Day 31

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	WBC $X10^3/\mu L$	N-SEG $X10^3/\mu L$	LYMPH $X10^3/\mu L$	MONO $X10^3/\mu L$	EOSIN $X10^3/\mu L$	BASO $X10^3/\mu L$	N-SEG%	LYMPH%	MONO%	EOSIN%	BASO%
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day								
I05709	19.5	13.6	4.9	.8	.2	.0	70	25	4	1	0
I05714	11.0	6.7	3.5	.7	.1	.0	61	32	6	0	0
I05715	14.3	7.6	5.8	.6	.1	.0	53	41	4	1	0
I05718	15.3	9.6	3.9	1.8	.0	.0	63	25	12	0	0
I05720	9.6	3.9	5.0	.4	.2	.0	41	53	4	2	0
I05725	7.0	2.3	4.3	.3	.1	.0	33	61	5	1	0
MEAN	12.8	7.3	4.6	.8	.1	.0	54	40	6	1	0
S.D.	4.48	4.05	.83	.54	.08	.00	14.1	15.0	3.1	.8	.0
N	6	6	6	6	6	6	6	6	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day								
I05702	8.8	3.8	4.5	.4	.0	.0	43	52	5	0	0
I05706	9.4	4.8	3.9	.6	.0	.0	51	42	7	0	0
I05717	8.6	1.6	5.3	1.1	.6	.1	18	62	13	7	1
I05721 a	4.3	1.1	2.9	.3	.0	.0	25	67	7	1	0
MEAN	7.8	2.8	4.2	.6	.2	.0	34	56	8	2	0
S.D.	2.34	1.76	1.01	.36	.30	.05	15.3	11.1	3.5	3.4	.5
N	4	4	4	4	4	4	4	4	4	4	4
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day								
I05707	7.6	3.2	4.0	.4	.1	.0	42	52	5	1	0
I05708	8.6	3.3	4.1	.8	.3	.0	38	48	10	4	0
I05710	16.7	12.5	3.4	.5	.2	.0	75	20	3	1	0
I05712	8.0	5.0	2.4	.5	.0	.0	62	30	6	1	0
I05716	12.8	6.8	4.7	1.0	.2	.1	53	36	8	2	0
I05719	10.7	5.4	4.7	.6	.1	.0	50	43	6	1	0
MEAN	10.7	6.0	3.9	.6	.2	.0	53	38	6	2	0
S.D.	3.51	3.45	.88	.23	.10	.04	13.6	11.9	2.4	1.2	.0
N	6	6	6	6	6	6	6	6	6	6	6

a Dosing was started on Day 17.

Appendix 4

Individual Clinical Hematology Data

Males Day 31

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	WBC $X10^3/\mu L$	N-SEG $X10^3/\mu L$	LYMPH $X10^3/\mu L$	MONO $X10^3/\mu L$	EOSIN $X10^3/\mu L$	BASO $X10^3/\mu L$	N-SEG%	LYMPH%	MONO%	EOSIN%	BASO%
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day								
I05703	7.6	3.3	3.3	.9	.2	.0	43	43	12	2	0
I05704	10.0	4.4	4.8	.6	.2	.0	44	48	6	2	0
I05711	7.3	2.7	3.6	.9	.1	.0	37	49	12	2	0
I05713	9.2	4.7	3.3	1.0	.1	.0	51	36	11	1	1
I05722	11.8	5.0	3.9	2.8	.0	.0	43	33	24	0	0
I05724 a	16.4	13.7	2.4	.1	.1	.0	84	15	1	1	0
MEAN	9.2	4.0	3.8	1.2	.1	.0	44	42	13	1	0
S.D.	1.84	.98	.62	.88	.08	.00	5.0	7.1	6.6	.9	.4
N	5	5	5	5	5	5	5	5	5	5	5

a Unscheduled sacrifice on Day 29.

Appendix 4

Individual Clinical Hematology Data

Males Day 31

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	ANISO	POLY	POIK	HYPO	TOXNEUT
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day		
I05709	-	-	-	-	-
I05714	-	-	-	-	-
I05715	-	-	-	-	-
I05718	-	-	-	-	-
I05720	-	-	-	-	-
I05725	-	-	-	-	-
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day		
I05702	-	-	-	-	-
I05706	-	-	-	-	-
I05717	-	-	-	-	-
I05721 b	-	-	-	-	-
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day		
I05707	-	-	-	-	-
I05708	-	-	-	-	-
I05710	-	-	-	-	-
I05712	-	-	-	-	-
I05716	-	-	-	-	-
I05719	-	-	-	-	-
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day		
I05703	-	-	-	-	-
I05704	-	-	-	-	-
I05711	-	-	-	-	-
I05713	-	-	-	-	-
I05722	-	-	-	-	-
I05724 a	-	-	-	-	-

a Unscheduled sacrifice on Day 29.
b Dosing was started on Day 17.

Appendix 4

Individual Clinical Hematology Data

Males Day 63

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	RBC $X10^6/\mu L$	HGB G/DL	HCT %	MCV FL	MCH PG	MCHC %	PLT $X10^3/\mu L$	RETIC %	RETIC $X10^3/\mu L$	PT SEC	PTT SEC	FBR MG/DL
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day									
I05709	7.21	13.0	42.1	58.4	18.0	30.9	461	.3	22	10.5	19.7	338
I05714	5.54	11.1	36.9	66.6	20.0	30.1	631	.2	11	9.9	21.0	361
I05715	6.79	11.6	41.2	60.7	17.2	28.3	230	.3	20	10.4	17.4	253
I05718	6.28	11.9	39.7	63.2	19.0	30.1	725	.3	19	9.7	17.5	530
I05720	7.10	13.6	47.1	66.3	19.1	28.8	342	.3	21	9.7	18.8	273
I05725	7.04	13.7	45.5	64.7	19.5	30.1	361	.2	14	10.6	20.9	301
MEAN	6.66	12.5	42.1	63.3	18.8	29.7	458	.3	18	10.1	19.2	343
S.D.	.641	1.10	3.75	3.24	1.03	.97	187.7	.05	4.4	.41	1.59	100.1
N	6	6	6	6	6	6	6	6	6	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day									
I05702	6.19	11.9	40.1	64.8	19.2	29.6	385	.5	31	10.2	19.6	286
I05706	7.25	13.8	44.2	60.9	19.0	31.3	599	.2	14	10.2	26.8	338
I05717	7.05	12.5	42.1	59.8	17.7	29.6	502	.4	28	9.6	18.1	294
I05721	6.52	13.6	45.7	70.1	20.8	29.7	383	.6	39	9.8	22.5	356
MEAN	6.75	13.0	43.0	63.9	19.2	30.0	467	.4	28	10.0	21.7	318
S.D.	.485	.90	2.45	4.66	1.27	.83	104.0	.17	10.4	.30	3.83	33.9
N	4	4	4	4	4	4	4	4	4	4	4	4
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day									
I05707	7.03	12.1	40.8	58.0	17.3	29.8	397	.1	7	10.4	17.6	309
I05708	6.53	12.1	40.3	61.8	18.5	29.9	403	.2	13	9.8	19.9	248
I05710	6.27	12.7	41.2	65.7	20.3	30.9	602	.4	25	10.0	18.1	287
I05712	6.75	12.0	40.5	60.0	17.8	29.7	347	.2	14	10.2	19.4	191
I05716	7.02	12.5	40.9	58.2	17.8	30.6	434	.1	7	10.4	20.8	216
I05719	7.06	12.9	43.5	61.7	18.2	29.6	431	.2	14	10.5	24.5	290
MEAN	6.78	12.4	41.2	60.9	18.3	30.1	436	.2	13	10.2	20.0	257
S.D.	.323	.37	1.17	2.86	1.05	.53	87.3	.11	6.6	.27	2.47	46.5
N	6	6	6	6	6	6	6	6	6	6	6	6

Appendix 4

Individual Clinical Hematology Data

Males Day 63

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	RBC $X10^6/\mu L$	HGB G/DL	HCT %	MCV FL	MCH PG	MCHC %	PLT $X10^3/\mu L$	RETIC %	RETIC $X10^3/\mu L$	PT SEC	PTT SEC	FBR MG/DL
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day									
I05703	7.47	13.7	46.1	61.7	18.4	29.8	623	.2	15	10.7	24.6	166
I05704	6.01	10.6	35.1	58.4	17.6	30.2	325	.3	18	9.8	21.7	279
I05711 a	6.66	12.8	41.9	62.9	19.2	30.6	558	.1	7	9.8	20.0	309
I05713	6.88	11.7	39.6	57.6	17.1	29.6	410	.1	7	10.8	26.4	245
I05722	6.73	12.0	41.8	62.2	17.9	28.8	374	.1	7	12.1	26.1	87
MEAN	6.77	12.0	40.6	60.0	17.8	29.6	433	.2	12	10.8	24.7	194
S.D.	.600	1.28	4.58	2.31	.54	.59	131.4	.10	5.6	.95	2.15	85.7
N	4	4	4	4	4	4	4	4	4	4	4	4

a Dosing was stopped on Day 43; not included in the statistical analyses.

Appendix 4

Individual Clinical Hematology Data

Males Day 63

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	WBC $X10^3/\mu L$	N-SEG $X10^3/\mu L$	LYMPH $X10^3/\mu L$	MONO $X10^3/\mu L$	EOSIN $X10^3/\mu L$	BASO $X10^3/\mu L$	N-SEG%	LYMPH%	MONO%	EOSIN%	BASO%
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day								
I05709	10.8	3.9	6.2	.4	.2	.0	36	58	4	2	0
I05714	13.6	8.9	3.9	.6	.1	.0	66	29	5	1	0
I05715	10.9	6.5	4.1	.2	.1	.0	59	38	2	1	0
I05718	11.7	5.4	5.1	1.0	.1	.1	46	44	8	1	0
I05720	11.3	5.7	4.0	1.3	.2	.1	50	36	12	2	1
I05725	8.1	4.1	3.3	.5	.1	.0	51	41	6	1	0
MEAN	11.1	5.8	4.4	.7	.1	.0	51	41	6	1	0
S.D.	1.78	1.83	1.04	.41	.05	.05	10.4	9.8	3.5	.5	.4
N	6	6	6	6	6	6	6	6	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day								
I05702	13.7	9.0	3.9	.7	.0	.1	66	28	5	0	0
I05706	11.2	5.9	4.4	.8	.0	.1	53	40	7	0	0
I05717	11.7	5.2	5.0	.7	.7	.0	45	43	6	6	0
I05721	5.5	1.9	3.2	.4	.0	.0	34	58	7	1	0
MEAN	10.5	5.5	4.1	.6	.2	.0	50	42	6	2	0
S.D.	3.52	2.91	.76	.17	.35	.06	13.5	12.3	1.0	2.9	.0
N	4	4	4	4	4	4	4	4	4	4	4
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day								
I05707	8.4	4.5	3.1	.7	.1	.0	54	37	8	1	0
I05708	8.9	3.9	3.9	.8	.2	.0	44	44	9	3	0
I05710	11.7	7.4	3.3	.6	.3	.1	64	28	5	3	1
I05712	11.1	8.3	2.4	.4	.1	.0	74	21	4	1	0
I05716	11.8	5.8	4.7	1.0	.3	.1	49	40	8	2	0
I05719	8.7	3.6	4.4	.5	.1	.0	41	51	6	2	1
MEAN	10.1	5.6	3.6	.7	.2	.0	54	37	7	2	0
S.D.	1.60	1.93	.86	.22	.10	.05	12.6	10.9	2.0	.9	.5
N	6	6	6	6	6	6	6	6	6	6	6

Appendix 4

Individual Clinical Hematology Data

Males Day 63

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	WBC $X10^3/\mu L$	N-SEG $X10^3/\mu L$	LYMPH $X10^3/\mu L$	MONO $X10^3/\mu L$	EOSIN $X10^3/\mu L$	BASO $X10^3/\mu L$	N-SEG%	LYMPH%	MONO%	EOSIN%	BASO%
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day								
I05703	7.6	1.5	4.8	.8	.4	.0	20	63	11	5	1
I05704	9.3	4.3	4.3	.6	.1	.0	46	46	6	1	0
I05711 a	9.9	4.5	4.2	.9	.2	.0	46	43	9	2	0
I05713	5.0	1.5	2.8	.6	.1	.0	30	55	12	2	1
I05722	9.0	3.6	4.8	.5	.0	.0	40	54	6	0	0
MEAN	7.7	2.7	4.2	.6	.2	.0	34	54	9	2	0
S.D.	1.96	1.44	.95	.13	.17	.00	11.4	7.0	3.2	2.2	.6
N	4	4	4	4	4	4	4	4	4	4	4

a Dosing was stopped on Day 43; not included in the statistical analyses.

Appendix 4

Individual Clinical Hematology Data

Males Day 63

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	ANISO	POLY	POIK	HYPO	TOXNEUT
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day		
I05709	-	-	-	-	-
I05714	-	-	-	-	-
I05715	-	-	-	-	-
I05718	-	-	-	-	-
I05720	-	-	-	-	-
I05725	-	-	-	-	-
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day		
I05702	-	-	-	-	-
I05706	-	-	-	-	-
I05717	-	-	-	-	-
I05721	-	-	-	-	-
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day		
I05707	-	-	-	-	-
I05708	-	-	-	-	-
I05710	-	-	-	-	-
I05712	-	-	-	-	-
I05716	-	-	-	-	-
I05719	-	-	-	-	-
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day		
I05703	-	-	-	-	-
I05704	-	-	-	-	-
I05711 a	-	-	-	-	-
I05713	-	-	-	-	-
I05722	-	-	-	-	-

a Dosing was stopped on Day 43.

Appendix 4

Individual Clinical Hematology Data

Males Day 91

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	RBC $X10^6/\mu L$	HGB G/DL	HCT %	MCV FL	MCH PG	MCHC %	PLT $X10^3/\mu L$	RETIC %	RETIC $X10^3/\mu L$	PT SEC	PTT SEC	FBR MG/DL
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day									
I05709	6.82	12.3	40.1	58.8	18.0	30.6	441	.3	20	10.5	18.3	299
I05714	6.15	12.6	42.6	69.2	20.4	29.5	477	.1	6	10.3	19.8	256
I05715	7.14	11.9	44.1	61.8	16.7	27.0	238	.4	29	10.2	16.6	267
I05718	6.95	12.8	43.9	63.2	18.4	29.1	680	.3	21	10.2	16.6	288
I05720	7.05	13.5	46.5	65.9	19.2	29.1	378	.3	21	9.9	18.5	281
I05725	7.11	14.2	48.1	67.6	19.9	29.5	397	.4	28	10.2	19.1	279
MEAN	6.87	12.9	44.2	64.4	18.8	29.1	435	.3	21	10.2	18.1	278
S.D.	.372	.84	2.83	3.88	1.35	1.18	145.1	.11	8.2	.19	1.31	15.2
N	6	6	6	6	6	6	6	6	6	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day									
I05702	6.00	11.5	37.9	63.1	19.1	30.3	381	.4	24	10.4	17.1	287
I05706	7.06	13.4	43.4	61.4	19.0	30.9	632	.1	7	10.5	23.4	329
I05717	6.82	12.2	41.5	60.8	17.9	29.5	599	.7	48	10.0	18.3	258
I05721	6.55	13.3	45.7	69.7	20.3	29.1	405	.1	7	10.3	19.8	370
MEAN	6.61	12.6	42.1	63.8	19.1	30.0	504	.3	22	10.3	19.6	311
S.D.	.455	.91	3.30	4.08	.98	.81	129.5	.29	19.4	.22	2.73	49.0
N	4	4	4	4	4	4	4	4	4	4	4	4
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day									
I05707	6.84	12.3	40.1	58.6	18.0	30.7	388	.1	7	10.6	17.1	301
I05708	6.59	12.3	40.5	61.4	18.6	30.4	431	.2	13	10.0	19.7	241
I05710	6.24	12.8	42.0	67.3	20.5	30.5	487	.7	44	10.1	17.6	263
I05712	6.95	12.2	41.9	60.2	17.5	29.1	383	.3	21	10.1	19.2	224
I05716	7.33	13.0	42.2	57.6	17.7	30.7	448	.1	7	10.6	20.2	233
I05719	7.00	12.6	43.1	61.5	18.0	29.2	387	.4	28	10.8	21.5	310
MEAN	6.82	12.5	41.6	61.1	18.4	30.1	421	.3	20	10.4	19.2	262
S.D.	.374	.32	1.12	3.41	1.10	.75	42.1	.23	14.3	.34	1.64	36.2
N	6	6	6	6	6	6	6	6	6	6	6	6

Appendix 4

Individual Clinical Hematology Data

Males Day 91

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	RBC $X10^6/\mu L$	HGB G/DL	HCT %	MCV FL	MCH PG	MCHC %	PLT $X10^3/\mu L$	RETIC %	RETIC $X10^3/\mu L$	PT SEC	PTT SEC	FBR MG/DL
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day									
I05703 a	6.30	11.8	39.3	62.4	18.7	30.0	587	1.8	113	9.7	22.4	274
I05704	6.06	10.7	35.1	57.9	17.6	30.5	356	.2	12	10.1	21.0	285
I05711 b	6.92	13.3	42.9	62.0	19.2	31.0	510	.1	7	10.5	19.5	283
I05713	6.85	11.5	39.3	57.3	16.7	29.2	456	.1	7	10.8	23.9	204
I05722 c	6.59	12.6	44.8	68.0	19.0	28.0	436	.3	20	10.2	19.7	221
MEAN	6.46	11.1	37.2	57.6	17.2	29.8	406	.2	10	10.4	22.5	244
S.D.	.559	.57	2.97	.42	.64	.92	70.7	.07	3.5	.49	2.05	57.3
N	2	2	2	2	2	2	2	2	2	2	2	2

a Dosing was stopped on Day 81; not included in the statistical analyses.
b Dosing was stopped on Day 43; not included in the statistical analyses.
c Dosing was stopped on Day 66; not included in the statistical analyses.

Appendix 4

Individual Clinical Hematology Data

Males Day 91

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	WBC $X10^3/\mu L$	N-SEG $X10^3/\mu L$	LYMPH $X10^3/\mu L$	MONO $X10^3/\mu L$	EOSIN $X10^3/\mu L$	BASO $X10^3/\mu L$	N-SEG%	LYMPH%	MONO%	EOSIN%	BASO%
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day								
I05709	10.4	4.1	5.8	.4	.1	.0	40	55	4	1	0
I05714	13.5	7.9	4.6	.7	.2	.0	59	34	5	2	0
I05715	10.2	3.9	5.8	.4	.1	.0	38	57	4	1	0
I05718	10.5	3.8	6.1	.4	.2	.0	36	58	4	2	0
I05720	11.8	4.2	5.7	1.4	.4	.1	36	48	12	3	1
I05725	8.5	2.8	5.0	.7	.0	.0	33	58	8	1	0
MEAN	10.8	4.4	5.5	.7	.2	.0	40	52	6	2	0
S.D.	1.68	1.76	.57	.39	.14	.04	9.4	9.4	3.3	.8	.4
N	6	6	6	6	6	6	6	6	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day								
I05702	10.0	5.7	3.8	.3	.1	.1	57	38	3	1	1
I05706	11.1	6.0	4.2	.8	.1	.0	54	38	7	1	0
I05717	13.0	3.7	6.8	.6	1.8	.0	28	52	5	14	0
I05721	6.5	1.9	3.8	.5	.3	.0	30	58	7	5	0
MEAN	10.2	4.3	4.6	.6	.6	.0	42	46	6	5	0
S.D.	2.73	1.91	1.45	.21	.82	.05	15.4	10.1	1.9	6.1	.5
N	4	4	4	4	4	4	4	4	4	4	4
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day								
I05707	9.2	4.8	3.4	.7	.1	.0	53	38	8	1	0
I05708	7.3	2.4	3.8	.8	.3	.0	32	53	10	4	0
I05710	15.0	9.5	4.0	.8	.5	.1	64	27	6	3	0
I05712	9.5	6.2	2.8	.4	.1	.0	65	29	5	1	0
I05716	11.0	3.8	5.3	1.3	.4	.1	35	48	12	4	1
I05719	10.5	5.4	4.6	.4	.1	.0	52	44	4	1	0
MEAN	10.4	5.4	4.0	.7	.2	.0	50	40	8	2	0
S.D.	2.58	2.42	.88	.33	.18	.05	14.0	10.4	3.1	1.5	.4
N	6	6	6	6	6	6	6	6	6	6	6

Appendix 4

Individual Clinical Hematology Data

Males Day 91

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	WBC $X10^3/\mu L$	N-SEG $X10^3/\mu L$	LYMPH $X10^3/\mu L$	MONO $X10^3/\mu L$	EOSIN $X10^3/\mu L$	BASO $X10^3/\mu L$	N-SEG%	LYMPH%	MONO%	EOSIN%	BASO%
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day								
I05703 a	10.0	4.0	4.2	1.4	.3	.0	40	42	14	4	0
I05704	9.8	5.3	3.8	.5	.1	.0	54	39	5	1	0
I05711 b	16.0	9.8	4.3	1.5	.4	.1	61	27	9	2	0
I05713	5.6	1.5	3.3	.7	.1	.0	26	59	12	2	1
I05722 c	8.2	1.8	5.3	.7	.4	.0	22	64	8	5	0
MEAN	7.7	3.4	3.6	.6	.1	.0	40	49	8	2	0
S.D.	2.97	2.69	.35	.14	.00	.00	19.8	14.1	4.9	.7	.7
N	2	2	2	2	2	2	2	2	2	2	2

a Dosing was stopped on Day 81; not included in the statistical analyses.
b Dosing was stopped on Day 43; not included in the statistical analyses.
c Dosing was stopped on Day 66; not included in the statistical analyses.

Appendix 4

Individual Clinical Hematology Data

Males Day 91

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	ANISO	POLY	POIK	HYPO	TOXNEUT
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day		
I05709	-	-	-	-	-
I05714	-	-	-	-	-
I05715	-	-	-	-	-
I05718	-	-	-	-	-
I05720	-	-	-	-	-
I05725	-	-	-	-	-
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day		
I05702	-	-	-	-	-
I05706	-	-	-	-	-
I05717	-	-	-	-	-
I05721	-	-	-	-	-
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day		
I05707	-	-	-	-	-
I05708	-	-	-	-	-
I05710	-	-	-	-	-
I05712	-	-	-	-	-
I05716	-	-	-	-	-
I05719	-	-	-	-	-
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day		
I05703 a	-	-	-	-	-
I05704	-	-	-	-	-
I05711 b	-	-	-	-	-
I05713	-	-	-	-	-
I05722 c	-	-	-	-	-

a Dosing was stopped on Day 80.
b Dosing was stopped on Day 43.
c Dosing was stopped on Day 66.

Appendix 4

Individual Clinical Hematology Data

Males Day 182

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	RBC $X10^6/\mu L$	HGB G/DL	HCT %	MCV FL	MCH PG	MCHC %	PLT $X10^3/\mu L$	RETIC %	RETIC $X10^3/\mu L$	PT SEC	PTT SEC	FBR MG/DL
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day									
I05709	7.11	12.8	39.7	55.7	18.0	32.2	488	.4	28	10.3	19.3	313
I05714	6.33	12.6	40.8	64.5	19.9	30.8	390	.9	57	10.2	19.0	233
I05715	6.83	11.7	39.6	58.0	17.2	29.6	245	.6	41	10.3	16.0	277
I05718	6.67	12.7	40.9	61.3	19.0	31.1	630	1.2	80	10.2	16.3	300
I05720	6.56	12.7	41.1	62.5	19.3	30.9	346	.7	46	9.4	17.3	261
I05725	6.63	13.4	41.7	63.0	20.3	32.2	352	.0	0	10.7	19.3	251
MEAN	6.69	12.6	40.6	60.8	19.0	31.1	408	.6	42	10.2	17.9	272
S.D.	.263	.55	.82	3.33	1.17	.98	133.8	.41	27.0	.43	1.53	30.2
N	6	6	6	6	6	6	6	6	6	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day									
I05702	5.86	11.5	36.4	62.1	19.6	31.6	366	.8	47	10.1	17.3	302
I05706	7.23	13.2	41.2	57.0	18.3	32.1	617	.9	65	10.5	26.3	287
I05717	7.63	13.4	45.2	59.2	17.6	29.8	564	.9	69	9.6	18.1	293
I05721 a	5.26	10.7	35.4	67.2	20.3	30.2	399	.3	16	10.2	22.1	702
MEAN	6.91	12.7	40.9	59.4	18.5	31.2	516	.9	60	10.1	20.6	294
S.D.	.928	1.04	4.41	2.56	1.01	1.21	132.3	.06	11.7	.45	4.98	7.5
N	3	3	3	3	3	3	3	3	3	3	3	3
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day									
I05707	7.20	12.1	39.2	54.5	16.8	30.9	409	.5	36	10.2	17.1	315
I05708	6.24	11.7	36.6	58.6	18.7	32.0	383	.6	37	10.7	21.9	243
I05710	6.38	12.9	42.0	65.9	20.2	30.6	609	1.3	83	10.1	18.9	273
I05712	6.43	11.7	36.5	56.7	18.2	32.1	322	.2	13	10.3	18.8	216
I05716	7.36	13.0	40.3	54.7	17.6	32.1	432	.2	15	10.1	20.0	226
I05719	6.93	12.5	40.2	58.0	18.1	31.2	338	.4	28	10.4	21.1	393
MEAN	6.76	12.3	39.1	58.1	18.3	31.5	416	.5	35	10.3	19.6	278
S.D.	.470	.57	2.19	4.19	1.14	.67	103.5	.41	25.5	.23	1.74	66.9
N	6	6	6	6	6	6	6	6	6	6	6	6

a Unscheduled sacrifice on Day 137.

Appendix 4

Individual Clinical Hematology Data

Males Day 182

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	RBC $X10^6/\mu L$	HGB G/DL	HCT %	MCV FL	MCH PG	MCHC %	PLT $X10^3/\mu L$	RETIC %	RETIC $X10^3/\mu L$	PT SEC	PTT SEC	FBR MG/DL
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day									
I05703 a	7.12	13.4	41.7	58.6	18.8	32.2	610	.8	57	10.3	19.4	244
I05704	5.58	9.8	30.8	55.2	17.6	32.0	250	.3	17	10.3	20.6	273
I05711 b	7.00	13.1	40.6	58.0	18.6	32.2	428	.3	21	10.1	19.1	338
I05713	6.77	11.4	37.1	54.9	16.9	30.8	505	.0	0	10.4	30.5	175
I05722 c	6.81	12.9	42.3	62.1	18.9	30.4	406	.2	14	9.5	17.2	293
MEAN	6.18	10.6	33.9	55.0	17.2	31.4	378	.2	8	10.3	25.5	224
S.D.	.841	1.13	4.45	.21	.49	.85	180.3	.21	12.0	.07	7.00	69.3
N	2	2	2	2	2	2	2	2	2	2	2	2

a Dosing was stopped on Day 81; not included in the statistical analyses.
b Dosing was stopped on Day 43; not included in the statistical analyses.
c Dosing was stopped on Day 66; not included in the statistical analyses.

Appendix 4

Individual Clinical Hematology Data

Males Day 182

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	WBC $X10^3/\mu L$	N-SEG $X10^3/\mu L$	LYMPH $X10^3/\mu L$	MONO $X10^3/\mu L$	EOSIN $X10^3/\mu L$	BASO $X10^3/\mu L$	N-SEG%	LYMPH%	MONO%	EOSIN%	BASO%
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day								
I05709	10.5	4.1	5.8	.4	.3	.0	39	55	4	2	0
I05714	11.5	6.5	3.5	1.3	.1	.1	57	30	11	1	1
I05715	10.3	4.3	5.6	.3	.1	.0	42	54	2	1	0
I05718	15.7	8.0	6.0	1.3	.3	.1	51	38	8	2	0
I05720	12.1	5.2	5.3	1.2	.3	.1	43	44	10	2	1
I05725	5.1	2.0	2.6	.5	.0	.0	39	51	9	1	0
MEAN	10.9	5.0	4.8	.8	.2	.0	45	45	7	2	0
S.D.	3.43	2.08	1.40	.48	.13	.05	7.3	9.9	3.6	.5	.5
N	6	6	6	6	6	6	6	6	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day								
I05702	11.0	5.9	4.4	.5	.1	.0	54	40	5	1	0
I05706	12.0	5.1	5.5	1.2	.1	.1	43	46	10	1	1
I05717	14.4	2.0	8.9	2.2	1.2	.1	14	62	15	9	1
I05721 a	9.4	6.6	1.7	1.1	.0	.0	70	18	12	0	0
MEAN	12.5	4.3	6.3	1.3	.5	.1	37	49	10	4	1
S.D.	1.75	2.06	2.35	.85	.64	.06	20.7	11.4	5.0	4.6	.6
N	3	3	3	3	3	3	3	3	3	3	3
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day								
I05707	8.2	4.0	3.0	.9	.1	.1	50	37	11	1	1
I05708	8.2	3.4	3.4	.8	.4	.1	42	42	10	5	1
I05710	12.9	6.9	4.5	1.0	.4	.1	54	35	8	3	0
I05712	9.3	5.6	3.0	.5	.1	.1	60	32	6	1	1
I05716	13.5	4.9	7.0	1.1	.5	.1	36	52	8	4	1
I05719	6.0	1.6	3.6	.6	.1	.0	26	61	10	2	1
MEAN	9.7	4.4	4.1	.8	.3	.1	45	43	9	3	1
S.D.	2.93	1.84	1.53	.23	.19	.04	12.5	11.2	1.8	1.6	.4
N	6	6	6	6	6	6	6	6	6	6	6

a Unscheduled sacrifice on Day 137.

Appendix 4

Individual Clinical Hematology Data

Males Day 182

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	WBC $X10^3/\mu L$	N-SEG $X10^3/\mu L$	LYMPH $X10^3/\mu L$	MONO $X10^3/\mu L$	EOSIN $X10^3/\mu L$	BASO $X10^3/\mu L$	N-SEG%	LYMPH%	MONO%	EOSIN%	BASO%
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day								
I05703 a	9.5	4.6	3.5	1.2	.2	.0	48	37	13	2	1
I05704	9.4	3.6	4.3	1.1	.4	.1	38	45	11	4	1
I05711 b	13.6	8.1	4.3	1.0	.1	.1	60	32	7	1	0
I05713	6.3	1.4	3.9	.7	.1	.1	23	63	11	1	2
I05722 c	13.2	7.4	5.2	.6	.1	.0	56	39	4	1	0
MEAN	7.8	2.5	4.1	.9	.2	.1	30	54	11	2	2
S.D.	2.19	1.56	.28	.28	.21	.00	10.6	12.7	.0	2.1	.7
N	2	2	2	2	2	2	2	2	2	2	2

a Dosing was stopped on Day 81; not included in the statistical analyses.
b Dosing was stopped on Day 43; not included in the statistical analyses.
c Dosing was stopped on Day 66; not included in the statistical analyses.

Appendix 4

Individual Clinical Hematology Data

Males Day 182

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	ANISO	POLY	POIK	HYPO	TOXNEUT
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day		
I05709	-	-	-	-	-
I05714	-	-	-	-	-
I05715	-	-	-	-	-
I05718	-	-	-	-	-
I05720	-	-	-	-	-
I05725	-	-	-	-	-
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day		
I05702	-	-	-	-	-
I05706	-	-	-	-	-
I05717	-	-	-	-	-
I05721 d	-	-	-	-	-
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day		
I05707	-	-	-	-	-
I05708	-	-	-	-	-
I05710	-	-	-	-	-
I05712	-	-	-	-	-
I05716	-	-	-	-	-
I05719	-	-	-	-	-
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day		
I05703 a	-	-	-	-	-
I05704	-	-	-	-	-
I05711 b	-	-	-	-	-
I05713	-	-	-	-	-
I05722 c	-	-	-	-	-

a Dosing was stopped on Day 81.
b Dosing was stopped on Day 43.
c Dosing was stopped on Day 66.
d Unscheduled sacrifice on Day 137.

Appendix 4

Individual Clinical Hematology Data

Males Day 217 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	RBC $X10^6/\mu L$	HGB G/DL	HCT %	MCV FL	MCH PG	MCHC %	PLT $X10^3/\mu L$	RETIC %	RETIC $X10^3/\mu L$	PT SEC	PTT SEC	FBR MG/DL
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day									
I05718	7.14	13.8	44.8	62.7	19.4	30.9	667	.7	50	10.0	17.3	343
I05720	6.87	13.6	44.8	65.3	19.8	30.3	317	.6	41	9.5	18.6	267
MEAN	7.00	13.7	44.8	64.0	19.6	30.6	492	.6	46	9.8	17.9	305
S.D.	.191	.14	.00	1.84	.28	.42	247.5	.07	6.4	.35	.92	53.7
N	2	2	2	2	2	2	2	2	2	2	2	2
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day									
I05712	6.77	11.9	39.1	57.7	17.6	30.5	335	.5	34	10.1	19.2	203
I05716	7.32	12.8	40.5	55.3	17.5	31.5	446	.1	7	10.4	21.1	224
MEAN	7.04	12.3	39.8	56.5	17.5	31.0	390	.3	20	10.2	20.2	214
S.D.	.389	.64	.99	1.70	.07	.71	78.5	.28	19.1	.21	1.34	14.8
N	2	2	2	2	2	2	2	2	2	2	2	2

Appendix 4

Individual Clinical Hematology Data

Males Day 217 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	WBC $X10^3/\mu L$	N-SEG $X10^3/\mu L$	LYMPH $X10^3/\mu L$	MONO $X10^3/\mu L$	EOSIN $X10^3/\mu L$	BASO $X10^3/\mu L$	N-SEG%	LYMPH%	MONO%	EOSIN%	BASO%
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day								
I05718	24.7	11.6	10.7	1.7	.5	.2	47	43	7	2	1
I05720	12.6	3.3	7.0	1.7	.5	.1	26	55	14	4	1
MEAN	18.7	7.4	8.8	1.7	.5	.2	36	49	10	3	1
S.D.	8.56	5.87	2.62	.00	.00	.07	14.8	8.5	4.9	1.4	.0
N	2	2	2	2	2	2	2	2	2	2	2
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day								
I05712	10.3	5.7	3.8	.7	.1	.0	55	36	7	1	0
I05716	11.9	3.6	6.0	1.5	.7	.2	30	50	12	6	1
MEAN	11.1	4.6	4.9	1.1	.4	.1	42	43	10	4	0
S.D.	1.13	1.48	1.56	.57	.42	.14	17.7	9.9	3.5	3.5	.7
N	2	2	2	2	2	2	2	2	2	2	2

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Individual Clinical Hematology Data

Males Day 217 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	ANISO	POLY	POIK	HYPO	TOXNEUT
Group: 1 Dose Level: 0 Dosage Unit: mg/kg/day					
I05718	-	-	-	-	-
I05720	-	-	-	-	-
Group: 3 Dose Level: 10 Dosage Unit: mg/kg/day					
I05712	-	-	-	-	-
I05716	-	-	-	-	-

Appendix 4

Individual Clinical Hematology Data

Males Day 245 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	RBC $X10^6/\mu L$	HGB G/DL	HCT %	MCV FL	MCH PG	MCHC %	PLT $X10^3/\mu L$	RETIC %	RETIC $X10^3/\mu L$	PT SEC	PTT SEC	FBR MG/DL
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day									
I05718	6.94	13.4	43.8	63.0	19.2	30.5	664	.4	28	10.0	16.7	326
I05720	6.90	13.7	45.0	65.2	19.9	30.5	394	.3	21	9.5	19.2	320
MEAN	6.92	13.6	44.4	64.1	19.6	30.5	529	.4	24	9.8	18.0	323
S.D.	.028	.21	.85	1.56	.49	.00	190.9	.07	4.9	.35	1.77	4.2
N	2	2	2	2	2	2	2	2	2	2	2	2
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day									
I05712	6.96	12.1	40.2	57.7	17.4	30.2	352	.3	21	10.1	19.0	217
I05716	7.54	13.3	41.4	54.9	17.6	32.1	490	.0	0	10.2	19.3	237
MEAN	7.25	12.7	40.8	56.3	17.5	31.2	421	.2	10	10.2	19.2	227
S.D.	.410	.85	.85	1.98	.14	1.34	97.6	.21	14.8	.07	.21	14.1
N	2	2	2	2	2	2	2	2	2	2	2	2

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Individual Clinical Hematology Data

Males Day 245 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	WBC $X10^3/\mu L$	N-SEG $X10^3/\mu L$	LYMPH $X10^3/\mu L$	MONO $X10^3/\mu L$	EOSIN $X10^3/\mu L$	BASO $X10^3/\mu L$	N-SEG%	LYMPH%	MONO%	EOSIN%	BASO%
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day								
I05718	17.9	7.7	8.5	1.2	.3	.2	43	48	6	2	1
I05720	13.8	3.7	7.8	1.5	.7	.1	27	56	11	5	1
MEAN	15.8	5.7	8.2	1.4	.5	.2	35	52	8	4	1
S.D.	2.90	2.83	.49	.21	.28	.07	11.3	5.7	3.5	2.1	.0
N	2	2	2	2	2	2	2	2	2	2	2
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day								
I05712	7.1	3.5	2.7	.7	.1	.0	50	39	10	1	0
I05716	14.3	5.4	7.1	1.2	.5	.1	38	50	9	3	1
MEAN	10.7	4.4	4.9	1.0	.3	.0	44	44	10	2	0
S.D.	5.09	1.34	3.11	.35	.28	.07	8.5	7.8	.7	1.4	.7
N	2	2	2	2	2	2	2	2	2	2	2

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Individual Clinical Hematology Data

Males Day 245 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	ANISO	POLY	POIK	HYPO	TOXNEUT
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day		
I05718	-	-	-	-	-
I05720	-	-	-	-	-
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day		
I05712	-	-	-	-	-
I05716	-	-	-	-	-

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Individual Clinical Hematology Data

Males Day 275 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	RBC $X10^6/\mu L$	HGB G/DL	HCT %	MCV FL	MCH PG	MCHC %	PLT $X10^3/\mu L$	RETIC %	RETIC $X10^3/\mu L$	PT SEC	PTT SEC	FBR MG/DL
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day									
I05718	7.47	14.6	46.3	61.9	19.5	31.5	756	.1	7	10.2	17.3	408
I05720	6.46	12.9	40.8	63.1	20.0	31.7	411	.2	13	9.4	18.0	653
MEAN	6.96	13.8	43.6	62.5	19.8	31.6	584	.2	10	9.8	17.6	530
S.D.	.714	1.20	3.89	.85	.35	.14	244.0	.07	4.2	.57	.49	173.2
N	2	2	2	2	2	2	2	2	2	2	2	2
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day									
I05712	6.97	12.4	40.7	58.3	17.8	30.5	408	.7	49	10.1	17.8	282
I05716	7.43	13.1	41.6	56.0	17.6	31.4	484	.0	0	10.4	18.8	319
MEAN	7.20	12.8	41.1	57.2	17.7	31.0	446	.4	24	10.2	18.3	300
S.D.	.325	.49	.64	1.63	.14	.64	53.7	.49	34.6	.21	.71	26.2
N	2	2	2	2	2	2	2	2	2	2	2	2

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Individual Clinical Hematology Data

Males Day 275 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	WBC $X10^3/\mu L$	N-SEG $X10^3/\mu L$	LYMPH $X10^3/\mu L$	MONO $X10^3/\mu L$	EOSIN $X10^3/\mu L$	BASO $X10^3/\mu L$	N-SEG%	LYMPH%	MONO%	EOSIN%	BASO%
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day								
I05718	18.1	9.2	6.9	1.7	.2	.1	51	38	10	1	1
I05720	12.0	5.6	4.4	1.6	.2	.1	47	37	14	2	1
MEAN	15.0	7.4	5.6	1.6	.2	.1	49	38	12	2	1
S.D.	4.31	2.55	1.77	.07	.00	.00	2.8	.7	2.8	.7	.0
N	2	2	2	2	2	2	2	2	2	2	2
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day								
I05712	19.1	13.3	4.4	1.3	.1	.0	70	23	7	0	0
I05716	13.2	4.9	6.9	1.3	.1	.0	37	52	10	1	0
MEAN	16.2	9.1	5.6	1.3	.1	.0	54	38	8	0	0
S.D.	4.17	5.94	1.77	.00	.00	.00	23.3	20.5	2.1	.7	.0
N	2	2	2	2	2	2	2	2	2	2	2

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Individual Clinical Hematology Data

Males Day 275 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	ANISO	POLY	POIK	HYPO	TOXNEUT
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day		
I05718	-	-	-	-	-
I05720	-	-	-	-	-
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day		
I05712	-	-	-	-	-
I05716	-	-	-	-	-

Appendix 4

Individual Clinical Chemistry Data

Males Day -11

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	GLU MG/DL	UN MG/DL	CREAT MG/DL	T PRO G/DL	ALB G/DL	GLOB G/DL	T BILI MG/DL	SBA UMOL/L	CHOL MG/DL	TRIG MG/DL
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day							
I05709	85	20	1.3	8.9	4.3	4.6	.0	11	132	28
I05714	96	15	1.3	8.8	5.0	3.8	.0	7	128	48
I05715	83	15	1.2	10.4	5.3	5.1	.1	8	122	30
I05718	122	16	1.2	9.4	5.0	4.4	.0	12	237	57
I05720	82	12	.9	9.7	4.4	5.3	.0	8	127	33
I05725	87	17	1.3	9.3	5.1	4.2	.1	10	138	40
MEAN	92	16	1.2	9.4	4.8	4.6	.0	9	147	39
S.D.	15.3	2.6	.15	.58	.40	.56	.05	2.0	44.3	11.3
N	6	6	6	6	6	6	6	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day							
I05702	78	13	1.0	10.0	5.2	4.8	.3	4	154	45
I05706	78	19	1.3	9.2	5.2	4.0	.0	11	120	55
I05717	96	15	1.0	8.3	4.9	3.4	.0	9	176	61
I05721	100	8	1.2	10.2	5.6	4.6	.0	15	247	38
MEAN	88	14	1.1	9.4	5.2	4.2	.1	10	174	50
S.D.	11.7	4.6	.15	.87	.29	.63	.15	4.6	53.7	10.2
N	4	4	4	4	4	4	4	4	4	4
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day							
I05707	78	15	1.2	8.9	4.6	4.3	.1	11	127	50
I05708	77	16	1.2	8.7	4.8	3.9	.0	7	138	57
I05710	134	18	1.3	10.1	4.9	5.2	.1	9	139	65
I05712	85	17	1.2	8.6	5.1	3.5	.0	7	183	80
I05716	96	14	1.3	8.5	4.6	3.9	.1	10	125	33
I05719	84	14	1.3	9.8	5.0	4.8	.6	10	158	79
MEAN	92	16	1.2	9.1	4.8	4.3	.2	9	145	61
S.D.	21.5	1.6	.05	.68	.21	.63	.23	1.7	22.0	18.0
N	6	6	6	6	6	6	6	6	6	6

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Individual Clinical Chemistry Data

Males Day -11

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	GLU MG/DL	UN MG/DL	CREAT MG/DL	T PRO G/DL	ALB G/DL	GLOB G/DL	T BILI MG/DL	SBA UMOL/L	CHOL MG/DL	TRIG MG/DL
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day							
I05703	88	14	1.4	10.3	4.7	5.6	.1	3	153	61
I05704	79	17	1.0	9.9	5.1	4.8	.4	2	123	75
I05711	84	14	1.2	8.6	4.7	3.9	.3	9	165	42
I05713	75	12	.8	8.8	4.5	4.3	.1	6	106	43
I05722	78	17	1.2	8.7	4.8	3.9	.0	14	170	52
I05724	80	16	1.2	8.5	4.7	3.8	.1	11	122	66
MEAN	81	15	1.1	9.1	4.8	4.4	.2	8	140	56
S.D.	4.6	2.0	.21	.77	.20	.70	.15	4.7	26.3	13.2
N	6	6	6	6	6	6	6	6	6	6

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Individual Clinical Chemistry Data

Males Day -11

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	AST/SGOT IU/L	ALT/SGPT IU/L	ALK PHOS IU/L	GGT IU/L	SDH IU/L	CK IU/L	AMYLASE IU/L	LIPASE IU/L	P AMYL U/L
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day						
I05709	37	42	290	109	4	88	376	26	194
I05714	28	36	699	99	3	102	320	24	175
I05715	24	35	442	151	2	128	552	25	266
I05718	52	96	300	107	4	160	917	21	387
I05720	34	44	288	181	3	100	420	13	191
I05725	36	93	711	111	4	294	514	41	210
MEAN	35	58	455	126	3	145	516	25	237
S.D.	9.6	28.8	202.2	32.4	.8	77.2	214.2	9.1	79.8
N	6	6	6	6	6	6	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day						
I05702	44	38	333	101	3	146	391	31	202
I05706	42	52	514	159	4	121	358	69	166
I05717	40	33	762	141	9	134	428	46	214
I05721	35	43	616	138	4	166	332	4	149
MEAN	40	42	556	135	5	142	377	38	183
S.D.	3.9	8.1	180.3	24.3	2.7	19.1	41.6	27.3	30.4
N	4	4	4	4	4	4	4	4	4
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day						
I05707	42	144	903	136	5	139	409	26	196
I05708	42	45	598	158	6	129	246	0	129
I05710	51	130	468	84	8	205	285	10	157
I05712	38	91	673	167	5	80	374	19	184
I05716	30	40	411	85	3	126	526	13	331
I05719	34	14	572	92	2	86	375	13	173
MEAN	40	77	604	120	5	128	369	14	195
S.D.	7.3	52.6	173.8	38.0	2.1	45.0	98.5	8.7	70.6
N	6	6	6	6	6	6	6	6	6

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Individual Clinical Chemistry Data

Males Day -11

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	AST/SGOT IU/L	ALT/SGPT IU/L	ALK PHOS IU/L	GGT IU/L	SDH IU/L	CK IU/L	AMYLASE IU/L	LIPASE IU/L	P AMYL U/L
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day						
I05703	42	38	790	72	6	136	448	85	249
I05704	43	98	581	57	3	200	390	50	215
I05711	40	48	266	176	3	117	413	41	184
I05713	25	24	288	139	2	122	331	0	155
I05722	49	56	774	162	3	213	469	32	200
I05724	34	135	427	96	3	61	226	15	118
MEAN	39	66	521	117	3	142	380	37	187
S.D.	8.3	41.8	231.6	49.1	1.4	56.6	89.3	29.6	46.0
N	6	6	6	6	6	6	6	6	6

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Individual Clinical Chemistry Data

Males Day -11

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	CA MG/DL	I PHOS MG/DL	NA MMOL/L	K MMOL/L	CL MMOL/L
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day		
I05709	11.3	6.0	164	6.0	114
I05714	11.5	4.6	164	5.4	113
I05715	12.2	5.6	168	6.0	116
I05718	11.5	6.1	162	6.4	111
I05720	10.9	6.2	159	5.0	113
I05725	11.1	6.6	163	5.8	114
MEAN	11.4	5.8	163	5.8	114
S.D.	.45	.69	2.9	.50	1.6
N	6	6	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day		
I05702	11.6	6.9	166	6.3	112
I05706	11.5	6.8	164	5.8	112
I05717	10.5	5.9	154	4.9	109
I05721	12.2	7.1	166	6.7	109
MEAN	11.4	6.7	162	5.9	110
S.D.	.70	.53	5.7	.78	1.7
N	4	4	4	4	4
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day		
I05707	10.7	7.0	158	5.1	113
I05708	10.7	6.0	159	5.4	112
I05710	11.8	8.1	162	6.1	111
I05712	10.7	6.7	155	4.9	109
I05716	10.6	4.0	156	4.9	111
I05719	11.0	5.9	158	5.7	113
MEAN	10.9	6.3	158	5.4	112
S.D.	.45	1.37	2.4	.48	1.5
N	6	6	6	6	6

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Individual Clinical Chemistry Data

Males Day -11

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	CA MG/DL	I PHOS MG/DL	NA MMOL/L	K MMOL/L	CL MMOL/L
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day		
I05703	11.5	7.0	159	6.3	110
I05704	11.1	5.8	159	5.4	109
I05711	10.2	5.1	157	5.3	113
I05713	10.1	6.3	158	5.7	111
I05722	10.9	7.3	166	6.3	115
I05724	10.3	5.0	153	4.9	113
MEAN	10.7	6.1	159	5.6	112
S.D.	.57	.96	4.2	.56	2.2
N	6	6	6	6	6

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Individual Clinical Chemistry Data

Males Day 31

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	GLU MG/DL	UN MG/DL	CREAT MG/DL	T PRO G/DL	ALB G/DL	GLOB G/DL	T BILI MG/DL	SBA UMOL/L	CHOL MG/DL	TRIG MG/DL
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day							
I05709	72	17	1.2	8.6	4.2	4.4	.3	5	123	24
I05714	61	14	1.5	8.8	4.9	3.9	.0	10	153	40
I05715	63	19	1.4	10.2	5.1	5.1	.1	12	126	36
I05718	123	13	1.3	9.6	4.5	5.1	.3	8	174	89
I05720	81	13	1.0	9.2	4.2	5.0	.1	5	143	36
I05725	71	15	1.3	9.1	5.1	4.0	.1	10	154	36
MEAN	78	15	1.3	9.2	4.7	4.6	.2	8	146	44
S.D.	22.9	2.4	.17	.58	.42	.56	.12	2.9	19.1	22.9
N	6	6	6	6	6	6	6	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day							
I05702	80	18	1.1	9.0	4.7	4.3	.3	7	130	38
I05706	64	18	1.2	8.8	5.2	3.6	.1	5	76	37
I05717	81	17	1.2	8.4	4.7	3.7	.0	8	190	87
I05721 a	85	9	1.5	8.2	5.0	3.2	.0	8	209	42
MEAN	78	16	1.2	8.6	4.9	3.7	.1	7	151	51
S.D.	9.3	4.4	.17	.37	.24	.45	.14	1.4	60.4	24.1
N	4	4	4	4	4	4	4	4	4	4
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day							
I05707	70	16	1.4	8.9	4.9	4.0	.0	8	120	64
I05708	70	17	1.2	8.5	4.5	4.0	.1	8	148	82
I05710	81	16	1.5	9.4	4.7	4.7	.3	11	138	90
I05712	84	18	1.1	8.3	4.7	3.6	.3	16	190	116
I05716	69	19	1.2	8.1	4.5	3.6	.2	7	120	38
I05719	61	15	1.3	10.1	5.2	4.9	.1	9	137	65
MEAN	72	17	1.3	8.9	4.8	4.1	.2	10	142	76
S.D.	8.5	1.5	.15	.75	.27	.55	.12	3.3	25.9	26.6
N	6	6	6	6	6	6	6	6	6	6

a Dosing was started on Day 17.

Appendix 4

Individual Clinical Chemistry Data

Males Day 31

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	GLU MG/DL	UN MG/DL	CREAT MG/DL	T PRO G/DL	ALB G/DL	GLOB G/DL	T BILI MG/DL	SBA UMOL/L	CHOL MG/DL	TRIG MG/DL
Group: 4	Dose Level: 30/20			Dosage Unit: mg/kg/day						
I05703	71	19	1.5	9.3	4.9	4.4	.1	7	179	122
I05704	68	18	1.4	9.0	4.9	4.1	.2	11	146	129
I05711	70	17	1.2	8.1	4.1	4.0	.2	6	181	45
I05713	75	13	1.2	8.5	4.4	4.1	.0	8	137	57
I05722	91	15	1.4	9.1	4.2	4.9	.2	7	145	185
I05724 SH,a	53	29	1.9	5.6	2.9	2.7	1.8	49	14	87
MEAN	75	16	1.3	8.8	4.5	4.3	.1	8	158	108
S.D.	9.3	2.4	.13	.49	.38	.37	.09	1.9	20.8	57.3
N	5	5	5	5	5	5	5	5	5	5

a Unscheduled sacrifice on Day 29.

Appendix 4

Individual Clinical Chemistry Data

Males Day 31

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	AST/SGOT IU/L	ALT/SGPT IU/L	ALK PHOS IU/L	GGT IU/L	SDH IU/L	CK IU/L	AMYLASE IU/L	LIPASE IU/L	P AMYL U/L
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day						
I05709	40	34	364	121	6	78	429	25	213
I05714	33	53	810	96	5	112	368	24	202
I05715	27	45	632	151	2	124	550	43	244
I05718	30	40	411	80	3	70	838	31	426
I05720	32	39	363	154	4	93	446	34	192
I05725	45	80	882	122	6	211	675	78	251
MEAN	34	48	577	121	4	115	551	39	255
S.D.	6.7	16.7	232.0	29.3	1.6	51.3	177.3	20.2	87.1
N	6	6	6	6	6	6	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day						
I05702	47	33	362	85	4	114	354	66	179
I05706	25	22	686	104	0	77	342	57	156
I05717	48	26	824	142	6	157	466	42	229
I05721 a	35	36	645	98	2	280	421	18	160
MEAN	39	29	629	107	3	157	396	46	181
S.D.	10.9	6.4	193.9	24.5	2.6	88.3	58.3	21.0	33.5
N	4	4	4	4	4	4	4	4	4
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day						
I05707	41	80	906	113	2	162	391	30	181
I05708	47	52	682	149	5	187	272	9	145
I05710	38	74	587	80	3	151	272	12	144
I05712	28	65	811	134	2	88	335	27	164
I05716	33	42	452	78	2	161	565	28	369
I05719	31	19	785	90	1	113	397	7	177
MEAN	36	55	704	107	2	144	372	19	197
S.D.	7.0	22.6	165.2	29.6	1.4	36.4	109.2	10.6	85.8
N	6	6	6	6	6	6	6	6	6

a Dosing was started on Day 17.

Appendix 4

Individual Clinical Chemistry Data

Males Day 31

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	AST/SGOT IU/L	ALT/SGPT IU/L	ALK PHOS IU/L	GGT IU/L	SDH IU/L	CK IU/L	AMYLASE IU/L	LIPASE IU/L	P AMYL U/L
Group: 4 Dose Level: 30/20			Dosage Unit: mg/kg/day						
I05703	36	32	696	67	3	111	438	34	241
I05704	41	60	738	60	0	244	372	79	203
I05711	31	31	188	130	0	78	409	27	176
I05713	23	29	300	133	2	116	333	0	142
I05722	33	28	931	98	2	93	617	30	264
I05724 SH,a	1974	1463	452	90	59	68850	180	64	95
MEAN	33	36	571	98	1	128	434	34	205
S.D.	6.6	13.5	313.5	34.1	1.3	66.4	109.7	28.5	49.0
N	5	5	5	5	5	5	5	5	5

a Unscheduled sacrifice on Day 29.

Appendix 4

Individual Clinical Chemistry Data

Males Day 31

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	CA MG/DL	I PHOS MG/DL	NA MMOL/L	K MMOL/L	CL MMOL/L
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day		
I05709	10.5	6.3	157	5.8	117
I05714	11.5	6.1	160	6.3	112
I05715	11.0	6.1	162	5.2	112
I05718	11.5	4.1	158	5.7	109
I05720	10.5	5.4	153	5.9	115
I05725	10.9	7.5	161	6.0	113
MEAN	11.0	5.9	158	5.8	113
S.D.	.45	1.12	3.3	.37	2.8
N	6	6	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day		
I05702	10.0	5.3	150	5.1	111
I05706	10.3	4.9	152	5.6	111
I05717	10.1	6.9	152	5.3	112
I05721 a	10.0	6.0	156	5.2	109
MEAN	10.1	5.8	152	5.3	111
S.D.	.14	.88	2.5	.22	1.3
N	4	4	4	4	4
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day		
I05707	10.4	6.1	153	4.6	109
I05708	10.5	6.0	156	5.8	114
I05710	10.7	6.8	157	5.6	110
I05712	10.0	5.8	145	4.7	109
I05716	9.9	4.5	149	4.5	111
I05719	10.7	6.0	158	5.0	108
MEAN	10.4	5.9	153	5.0	110
S.D.	.34	.75	5.1	.55	2.1
N	6	6	6	6	6

a Dosing was started on Day 17.

Appendix 4

Individual Clinical Chemistry Data

Males Day 31

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	CA MG/DL	I PHOS MG/DL	NA MMOL/L	K MMOL/L	CL MMOL/L
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day		
I05703	11.6	5.6	164	6.8	115
I05704	10.3	5.4	152	4.5	107
I05711	10.1	4.2	154	6.5	116
I05713	9.9	4.8	151	5.6	110
I05722	11.5	4.3	163	5.8	111
I05724 SH,a	8.0	4.9	133	5.6	89
MEAN	10.7	4.9	157	5.8	112
S.D.	.81	.63	6.2	.90	3.7
N	5	5	5	5	5

a Unscheduled sacrifice on Day 29.

Appendix 4

Individual Clinical Chemistry Data

Males Day 63

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	GLU MG/DL	UN MG/DL	CREAT MG/DL	T PRO G/DL	ALB G/DL	GLOB G/DL	T BILI MG/DL	SBA UMOL/L	CHOL MG/DL	TRIG MG/DL
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day							
I05709	61	20	1.2	8.7	4.4	4.3	.5	4	126	30
I05714	67	18	1.0	8.5	4.1	4.4	.3	10	113	61
I05715	60	23	1.2	9.5	5.1	4.4	.7	6	139	33
I05718	115	14	1.3	9.1	4.1	5.0	.2	1	216	59
I05720	74	13	.9	9.3	4.7	4.6	.5	2	168	42
I05725	88	16	1.4	8.7	4.9	3.8	.5	9	143	35
MEAN	78	17	1.2	9.0	4.6	4.4	.4	5	151	43
S.D.	21.1	3.8	.19	.39	.42	.39	.18	3.7	36.9	13.5
N	6	6	6	6	6	6	6	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day							
I05702	75	20	1.0	9.3	5.1	4.2	.3	2	132	46
I05706	62	23	1.2	9.0	5.3	3.7	.2	8	91	39
I05717	73	17	1.1	8.2	4.7	3.5	.4	14	191	83
I05721	62	13	1.0	9.1	5.1	4.0	.3	11	229	69
MEAN	68	18	1.1	8.9	5.0	3.8	.3	9	161	59
S.D.	7.0	4.3	.10	.48	.25	.31	.08	5.1	61.3	20.4
N	4	4	4	4	4	4	4	4	4	4
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day							
I05707	76	16	1.2	9.0	4.7	4.3	.1	4	122	69
I05708	63	19	.9	8.0	4.2	3.8	.3	10	164	81
I05710	78	15	1.2	8.7	4.4	4.3	.2	9	137	80
I05712	83	18	1.2	8.2	5.0	3.2	.3	10	246	124
I05716	70	17	1.4	8.0	4.5	3.5	.3	13	125	41
I05719	54	16	1.2	9.7	5.1	4.6	.1	6	151	64
MEAN	71	17	1.2	8.6	4.6	4.0	.2	9	158	76
S.D.	10.7	1.5	.16	.67	.35	.54	.10	3.2	46.2	27.4
N	6	6	6	6	6	6	6	6	6	6

Appendix 4

Individual Clinical Chemistry Data

Males Day 63

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	GLU MG/DL	UN MG/DL	CREAT MG/DL	T PRO G/DL	ALB G/DL	GLOB G/DL	T BILI MG/DL	SBA UMOL/L	CHOL MG/DL	TRIG MG/DL
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day							
I05703	81	19	1.4	8.9	3.8	5.1	.3	15	143	72
I05704	69	20	1.2	9.0	4.7	4.3	.3	12	138	116
I05711 a	61	18	1.2	8.5	4.5	4.0	.0	12	166	47
I05713	83	15	1.2	8.1	4.1	4.0	.0	2	139	56
I05722	71	27	1.1	6.4	2.9	3.5	.5	60	164	22
MEAN	76	20	1.2	8.1	3.9	4.2	.3	22	146	66
S.D.	7.0	5.0	.13	1.20	.75	.67	.21	25.8	12.2	39.0
N	4	4	4	4	4	4	4	4	4	4

a Dosing was stopped on Day 43; not included in the statistical analyses.

Appendix 4

Individual Clinical Chemistry Data

Males Day 63

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	AST/SGOT IU/L	ALT/SGPT IU/L	ALK PHOS IU/L	GGT IU/L	SDH IU/L	CK IU/L	AMYLASE IU/L	LIPASE IU/L	P AMYL U/L
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day						
I05709	31	36	366	143	2	85	426	9	245
I05714	46	63	729	80	7	118	287	17	176
I05715	30	52	534	126	2	113	465	17	252
I05718	31	70	592	111	3	113	729	41	418
I05720	30	46	400	170	0	105	435	38	226
I05725	46	104	870	107	7	298	542	49	255
MEAN	36	62	582	123	4	139	481	28	262
S.D.	8.0	23.9	193.3	31.2	2.9	78.9	147.1	16.2	81.8
N	6	6	6	6	6	6	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day						
I05702	45	46	386	104	2	114	400	113	237
I05706	21	21	576	113	2	121	415	187	228
I05717	34	31	757	140	0	143	455	36	260
I05721	40	82	727	128	2	147	316	6	155
MEAN	35	45	612	121	2	131	396	86	220
S.D.	10.4	26.7	169.9	15.9	1.0	16.2	58.5	81.3	45.4
N	4	4	4	4	4	4	4	4	4
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day						
I05707	33	48	880	115	2	108	334	25	188
I05708	45	51	603	154	5	256	226	0	138
I05710	32	52	502	86	2	117	248	5	154
I05712	44	88	908	147	4	84	364	24	212
I05716	32	53	452	91	1	187	519	22	371
I05719	29	28	665	94	2	105	391	0	203
MEAN	36	53	668	114	3	143	347	13	211
S.D.	6.9	19.4	190.3	29.7	1.5	65.6	106.2	12.2	83.4
N	6	6	6	6	6	6	6	6	6

Appendix 4

Individual Clinical Chemistry Data

Males Day 63

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	AST/SGOT IU/L	ALT/SGPT IU/L	ALK PHOS IU/L	GGT IU/L	SDH IU/L	CK IU/L	AMYLASE IU/L	LIPASE IU/L	P AMYL U/L
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day						
I05703	85	90	496	70	11	114	418	0	262
I05704	37	49	591	57	2	167	330	28	207
I05711 a	38	42	186	167	2	137	351	17	185
I05713	22	34	255	175	2	113	262	0	141
I05722	419	595	595	136	20	1122	400	3	205
MEAN	141	192	484	110	9	379	352	8	204
S.D.	187.4	269.7	159.5	55.7	8.6	496.0	71.3	13.6	49.5
N	4	4	4	4	4	4	4	4	4

a Dosing was stopped on Day 43; not included in the statistical analyses.

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Individual Clinical Chemistry Data

Males Day 63

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	CA MG/DL	I PHOS MG/DL	NA MMOL/L	K MMOL/L	CL MMOL/L
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day		
I05709	10.7	6.2	158	5.5	112
I05714	10.5	5.9	150	5.3	106
I05715	10.9	5.9	159	5.3	115
I05718	10.5	5.1	155	5.2	110
I05720	10.8	6.0	158	4.8	111
I05725	10.0	6.4	154	4.7	111
MEAN	10.6	5.9	156	5.1	111
S.D.	.32	.44	3.4	.31	2.9
N	6	6	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day		
I05702	10.5	5.8	156	4.9	109
I05706	10.8	5.2	153	5.2	114
I05717	10.1	6.2	150	5.0	110
I05721	10.8	7.7	159	5.1	111
MEAN	10.6	6.2	154	5.0	111
S.D.	.33	1.07	3.9	.13	2.2
N	4	4	4	4	4
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day		
I05707	10.7	5.7	151	4.3	110
I05708	9.9	5.9	150	4.5	111
I05710	10.2	5.9	149	5.5	112
I05712	10.8	6.1	151	4.5	112
I05716	10.1	4.4	147	4.3	111
I05719	10.7	6.4	152	4.6	105
MEAN	10.4	5.7	150	4.6	110
S.D.	.38	.69	1.8	.45	2.6
N	6	6	6	6	6

Appendix 4

Individual Clinical Chemistry Data

Males Day 63

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	CA MG/DL	I PHOS MG/DL	NA MMOL/L	K MMOL/L	CL MMOL/L
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day		
I05703	10.6	5.1	158	7.0	111
I05704	10.4	5.3	151	4.7	107
I05711 a	10.9	5.0	155	6.4	116
I05713	9.4	4.2	152	5.8	113
I05722	8.6	4.9	149	5.8	112
MEAN	9.8	4.9	152	5.8	111
S.D.	.93	.48	3.9	.94	2.6
N	4	4	4	4	4

a Dosing was stopped on Day 43; not included in the statistical analyses.

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Individual Clinical Chemistry Data

Males Day 91

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	GLU MG/DL	UN MG/DL	CREAT MG/DL	T PRO G/DL	ALB G/DL	GLOB G/DL	T BILI MG/DL	SBA UMOL/L	CHOL MG/DL	TRIG MG/DL
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day							
I05709	66	19	1.7	9.0	4.5	4.5	.2	11	131	33
I05714	71	20	1.3	9.2	4.7	4.5	.1	10	158	55
I05715	68	22	1.2	10.5	5.4	5.1	.3	19	144	32
I05718	88	18	1.4	9.5	4.9	4.6	.0	5	257	43
I05720	86	18	1.0	9.5	4.9	4.6	.5	12	154	40
I05725	93	17	1.3	9.5	5.2	4.3	.2	10	158	36
MEAN	79	19	1.3	9.5	4.9	4.6	.2	11	167	40
S.D.	11.7	1.8	.23	.52	.33	.27	.17	4.5	45.3	8.5
N	6	6	6	6	6	6	6	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day							
I05702	74	22	1.0	9.0	4.8	4.2	.3	17	137	40
I05706	68	20	1.3	9.0	5.2	3.8	.2	8	97	33
I05717	91	17	1.3	8.8	4.9	3.9	.4	14	180	89
I05721	79	14	1.2	8.8	4.8	4.0	.2	10	215	62
MEAN	78	18	1.2	8.9	4.9	4.0	.3	12	157	56
S.D.	9.8	3.5	.14	.12	.19	.17	.10	4.0	51.3	25.2
N	4	4	4	4	4	4	4	4	4	4
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day							
I05707	77	16	1.3	9.3	4.7	4.6	.2	9	124	66
I05708	67	21	1.1	8.5	4.3	4.2	.3	6	170	83
I05710	84	17	1.4	9.4	4.7	4.7	.0	6	136	112
I05712	90	21	1.4	8.6	5.0	3.6	.2	15	205	148
I05716	76	24	1.3	8.4	4.5	3.9	.1	11	131	46
I05719	68	20	1.2	10.2	5.2	5.0	.3	19	163	70
MEAN	77	20	1.3	9.1	4.7	4.3	.2	11	155	88
S.D.	8.9	2.9	.12	.70	.33	.53	.12	5.2	30.6	36.8
N	6	6	6	6	6	6	6	6	6	6

Appendix 4

Individual Clinical Chemistry Data

Males Day 91

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	GLU MG/DL	UN MG/DL	CREAT MG/DL	T PRO G/DL	ALB G/DL	GLOB G/DL	T BILI MG/DL	SBA UMOL/L	CHOL MG/DL	TRIG MG/DL
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day							
I05703 a	96	20	1.2	8.9	3.8	5.1	.1	12	186	75
I05704	71	18	1.2	9.8	4.9	4.9	.2	9	148	138
I05711 b	63	23	1.4	8.9	4.8	4.1	.4	11	159	58
I05713	98	16	.9	8.2	4.0	4.2	.0	17	135	60
I05722 c	74	19	1.1	9.1	4.6	4.5	.2	14	177	41
MEAN	84	17	1.0	9.0	4.4	4.6	.1	13	142	99
S.D.	19.1	1.4	.21	1.13	.64	.49	.14	5.7	9.2	55.2
N	2	2	2	2	2	2	2	2	2	2

a Dosing was stopped on Day 81; not included in the statistical analyses.
b Dosing was stopped on Day 43; not included in the statistical analyses.
c Dosing was stopped on Day 66; not included in the statistical analyses.

Appendix 4

Individual Clinical Chemistry Data

Males Day 91

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	AST/SGOT IU/L	ALT/SGPT IU/L	ALK PHOS IU/L	GGT IU/L	SDH IU/L	CK IU/L	AMYLASE IU/L	LIPASE IU/L	P AMYL U/L
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day						
I05709	36	47	328	128	5	99	413	7	238
I05714	48	69	637	103	14	144	319	12	201
I05715	26	54	509	126	9	110	520	10	278
I05718	38	65	322	100	11	120	694	12	384
I05720	35	40	424	187	9	131	463	26	222
I05725	45	104	956	121	15	252	679	53	297
MEAN	38	63	529	128	10	143	515	20	270
S.D.	7.8	22.7	240.3	31.4	3.7	55.8	148.7	17.4	66.1
N	6	6	6	6	6	6	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day						
I05702	48	44	344	96	10	104	340	21	199
I05706	32	27	571	107	10	90	378	94	197
I05717	41	33	757	148	12	147	468	33	272
I05721	38	83	667	121	10	165	327	50	159
MEAN	40	47	585	118	10	126	378	50	207
S.D.	6.7	25.2	177.6	22.5	1.0	35.3	63.6	32.0	47.2
N	4	4	4	4	4	4	4	4	4
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day						
I05707	32	49	897	115	8	99	387	3	204
I05708	46	48	592	145	16	165	248	0	153
I05710	43	62	410	78	12	122	261	0	164
I05712	48	78	871	154	13	118	393	33	229
I05716	35	50	445	87	10	186	520	12	366
I05719	34	32	720	101	9	109	395	5	200
MEAN	40	53	656	113	11	133	367	9	219
S.D.	6.8	15.5	208.6	30.8	2.9	34.4	100.7	12.6	77.0
N	6	6	6	6	6	6	6	6	6

Appendix 4

Individual Clinical Chemistry Data

Males Day 91

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	AST/SGOT IU/L	ALT/SGPT IU/L	ALK PHOS IU/L	GGT IU/L	SDH IU/L	CK IU/L	AMYLASE IU/L	LIPASE IU/L	P AMYL U/L
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day						
I05703 a	55	58	347	80	15	130	446	5	279
I05704	43	60	648	57	10	178	366	22	229
I05711 b	46	55	277	160	8	151	389	21	209
I05713	33	35	215	182	10	133	270	0	140
I05722 c	44	51	390	133	9	188	390	26	184
MEAN	38	48	432	120	10	156	318	11	184
S.D.	7.1	17.7	306.2	88.4	.0	31.8	67.9	15.6	62.9
N	2	2	2	2	2	2	2	2	2

a Dosing was stopped on Day 81; not included in the statistical analyses.
b Dosing was stopped on Day 43; not included in the statistical analyses.
c Dosing was stopped on Day 66; not included in the statistical analyses.

Appendix 4

Individual Clinical Chemistry Data

Males Day 91

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	CA MG/DL	I PHOS MG/DL	NA MMOL/L	K MMOL/L	CL MMOL/L
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day		
I05709	10.9	6.1	164	5.5	119
I05714	11.4	6.4	165	5.1	115
I05715	11.4	5.8	170	5.2	118
I05718	11.2	6.0	163	6.0	112
I05720	11.4	6.4	169	4.9	119
I05725	11.4	7.5	169	5.3	117
MEAN	11.3	6.4	167	5.3	117
S.D.	.20	.60	3.0	.38	2.7
N	6	6	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day		
I05702	10.2	5.5	159	4.6	119
I05706	11.1	5.2	163	5.4	120
I05717	11.1	7.3	162	5.6	119
I05721	10.6	7.2	165	4.9	116
MEAN	10.8	6.3	162	5.1	118
S.D.	.44	1.10	2.5	.46	1.7
N	4	4	4	4	4
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day		
I05707	11.2	6.0	162	4.9	119
I05708	10.4	6.2	160	5.1	119
I05710	10.7	6.3	159	5.2	119
I05712	10.9	6.6	158	4.5	116
I05716	10.4	4.6	155	4.3	115
I05719	11.1	6.9	166	5.1	116
MEAN	10.8	6.1	160	4.8	117
S.D.	.34	.80	3.7	.37	1.9
N	6	6	6	6	6

Appendix 4

Individual Clinical Chemistry Data

Males Day 91

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	CA MG/DL	I PHOS MG/DL	NA MMOL/L	K MMOL/L	CL MMOL/L
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day		
I05703 a	11.2	6.3	164	7.4	121
I05704	10.6	5.3	156	4.8	112
I05711 b	10.8	4.4	159	5.3	121
I05713	9.6	4.7	160	6.0	117
I05722 c	10.9	8.4	169	6.3	119
MEAN	10.1	5.0	158	5.4	114
S.D.	.71	.42	2.8	.85	3.5
N	2	2	2	2	2

a Dosing was stopped on Day 81; not included in the statistical analyses.
b Dosing was stopped on Day 43; not included in the statistical analyses.
c Dosing was stopped on Day 66; not included in the statistical analyses.

Appendix 4

Individual Clinical Chemistry Data

Males Day 182

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	GLU MG/DL	UN MG/DL	CREAT MG/DL	T PRO G/DL	ALB G/DL	GLOB G/DL	T BILI MG/DL	SBA UMOL/L	CHOL MG/DL	TRIG MG/DL
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day							
I05709	60	21	1.3	8.6	4.3	4.3	.5	14	134	34
I05714	71	22	.9	8.3	4.7	3.6	.2	15	149	52
I05715	56	23	1.2	9.6	5.2	4.4	.3	15	138	31
I05718	95	17	1.2	8.5	4.8	3.7	.2	23	225	48
I05720	63	15	.9	8.5	4.4	4.1	.4	20	153	47
I05725	79	19	1.2	8.2	4.8	3.4	.4	19	134	49
MEAN	71	20	1.1	8.6	4.7	3.9	.3	18	156	44
S.D.	14.5	3.1	.17	.50	.32	.41	.12	3.6	35.0	8.7
N	6	6	6	6	6	6	6	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day							
I05702	68	19	.9	8.3	4.6	3.7	.1	14	120	40
I05706	54	29	1.1	8.0	4.9	3.1	.2	17	109	34
I05717	68	19	1.4	9.0	5.3	3.7	.4	19	196	79
I05721 a	96	6	.8	8.5	3.3	5.2	.1	6	94	61
MEAN	63	22	1.1	8.4	4.9	3.5	.2	17	142	51
S.D.	8.1	5.8	.25	.51	.35	.35	.15	2.5	47.4	24.4
N	3	3	3	3	3	3	3	3	3	3
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day							
I05707	54	18	1.0	8.6	4.5	4.1	.1	17	128	68
I05708	71	23	.9	7.7	4.2	3.5	.4	14	174	57
I05710	101	21	1.3	9.6	4.9	4.7	.6	18	157	99
I05712	67	19	1.1	7.8	4.8	3.0	.1	16	203	102
I05716	61	20	1.4	8.0	4.6	3.4	.0	16	134	39
I05719	43	16	1.1	8.6	4.4	4.2	.3	17	126	66
MEAN	66	20	1.1	8.4	4.6	3.8	.2	16	154	72
S.D.	19.7	2.4	.19	.71	.26	.62	.23	1.4	30.6	24.5
N	6	6	6	6	6	6	6	6	6	6

a Unscheduled sacrifice on Day 137.

Appendix 4

Individual Clinical Chemistry Data

Males Day 182

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	GLU MG/DL	UN MG/DL	CREAT MG/DL	T PRO G/DL	ALB G/DL	GLOB G/DL	T BILI MG/DL	SBA UMOL/L	CHOL MG/DL	TRIG MG/DL
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day							
I05703 a	64	21	1.3	8.8	4.6	4.2	.2	16	151	100
I05704	61	17	1.0	8.4	4.5	3.9	.0	17	139	120
I05711 b	44	21	1.3	8.5	4.7	3.8	.5	17	162	53
I05713	100	16	.8	8.2	3.8	4.4	.5	18	161	63
I05722 c	82	20	1.2	8.4	4.7	3.7	.4	21	194	56
MEAN	80	16	.9	8.3	4.2	4.2	.2	18	150	92
S.D.	27.6	.7	.14	.14	.49	.35	.35	.7	15.6	40.3
N	2	2	2	2	2	2	2	2	2	2

a Dosing was stopped on Day 81; not included in the statistical analyses.
b Dosing was stopped on Day 43; not included in the statistical analyses.
c Dosing was stopped on Day 66; not included in the statistical analyses.

Appendix 4

Individual Clinical Chemistry Data

Males Day 182

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	AST/SGOT IU/L	ALT/SGPT IU/L	ALK PHOS IU/L	GGT IU/L	SDH IU/L	CK IU/L	AMYLASE IU/L	LIPASE IU/L	P AMYL U/L
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day						
I05709	33	55	291	151	3	110	402	73	282
I05714	45	68	553	110	9	128	356	8	270
I05715	33	52	401	115	5	122	480	30	308
I05718	39	88	280	101	3	137	745	65	510
I05720	38	57	364	173	4	153	428	25	271
I05725	33	85	778	97	4	191	590	31	327
MEAN	37	68	444	124	5	140	500	39	328
S.D.	4.8	15.7	190.8	30.5	2.3	28.8	144.3	25.0	91.9
N	6	6	6	6	6	6	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day						
I05702	48	36	251	93	6	119	350	89	249
I05706	45	46	659	125	8	115	460	177	299
I05717	46	46	813	171	4	182	561	53	391
I05721 a	21	9	611	83	4	201	361	2	185
MEAN	46	43	574	130	6	139	457	106	313
S.D.	1.5	5.8	290.4	39.2	2.0	37.6	105.5	63.8	72.0
N	3	3	3	3	3	3	3	3	3
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day						
I05707	41	43	798	115	8	103	358	17	241
I05708	42	48	512	132	10	206	237	0	179
I05710	67	104	339	82	8	4804	258	0	199
I05712	39	53	724	142	5	105	391	12	273
I05716	39	46	397	95	8	194	558	22	478
I05719	35	25	496	91	4	122	371	15	241
MEAN	44	53	544	110	7	922	362	11	268
S.D.	11.6	26.7	181.0	24.1	2.2	1902.1	114.7	9.1	107.9
N	6	6	6	6	6	6	6	6	6

a Unscheduled sacrifice on Day 137.

Appendix 4

Individual Clinical Chemistry Data

Males Day 182

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	AST/SGOT IU/L	ALT/SGPT IU/L	ALK PHOS IU/L	GGT IU/L	SDH IU/L	CK IU/L	AMYLASE IU/L	LIPASE IU/L	P AMYL U/L
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day						
I05703 a	45	41	1070	104	10	117	452	88	338
I05704	42	54	568	54	3	210	344	17	261
I05711 b	47	47	350	156	2	141	415	25	273
I05713	37	43	199	189	2	128	266	0	169
I05722 c	63	70	833	174	6	302	531	46	333
MEAN	40	48	384	122	2	169	305	8	215
S.D.	3.5	7.8	260.9	95.5	.7	58.0	55.2	12.0	65.1
N	2	2	2	2	2	2	2	2	2

a Dosing was stopped on Day 81; not included in the statistical analyses.
b Dosing was stopped on Day 43; not included in the statistical analyses.
c Dosing was stopped on Day 66; not included in the statistical analyses.

Appendix 4

Individual Clinical Chemistry Data

Males Day 182

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	CA MG/DL	I PHOS MG/DL	NA MMOL/L	K MMOL/L	CL MMOL/L
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day		
I05709	10.1	6.2	153	5.1	107
I05714	10.2	6.1	154	4.9	107
I05715	10.0	5.6	153	4.7	107
I05718	10.3	5.2	153	5.4	104
I05720	9.8	5.4	149	4.5	105
I05725	9.7	6.2	150	4.7	105
MEAN	10.0	5.8	152	4.9	106
S.D.	.23	.44	2.0	.33	1.3
N	6	6	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day		
I05702	9.2	4.4	147	4.0	108
I05706	9.9	5.2	149	4.7	108
I05717	11.7	8.4	166	5.9	111
I05721 a	9.0	4.8	142	3.9	100
MEAN	10.3	6.0	154	4.9	109
S.D.	1.29	2.12	10.4	.96	1.7
N	3	3	3	3	3
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day		
I05707	9.8	5.0	146	3.8	108
I05708	9.3	5.3	146	3.8	108
I05710	10.7	7.8	155	5.2	103
I05712	9.5	6.2	149	4.2	108
I05716	9.5	4.5	145	3.9	105
I05719	9.4	5.8	145	4.7	104
MEAN	9.7	5.8	148	4.3	106
S.D.	.52	1.16	3.9	.57	2.3
N	6	6	6	6	6

a Unscheduled sacrifice on Day 137.

Appendix 4

Individual Clinical Chemistry Data

Males Day 182

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	CA MG/DL	I PHOS MG/DL	NA MMOL/L	K MMOL/L	CL MMOL/L
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day		
I05703 a	9.8	6.7	151	5.3	107
I05704	9.4	4.8	148	4.2	107
I05711 b	9.8	3.9	148	5.5	111
I05713	9.1	4.8	152	5.9	109
I05722 c	10.3	8.1	155	6.5	112
MEAN	9.2	4.8	150	5.0	108
S.D.	.21	.00	2.8	1.20	1.4
N	2	2	2	2	2

a Dosing was stopped on Day 81; not included in the statistical analyses.
b Dosing was stopped on Day 43; not included in the statistical analyses.
c Dosing was stopped on Day 66; not included in the statistical analyses.

Appendix 4

Individual Clinical Chemistry Data

Males Day 217 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	GLU MG/DL	UN MG/DL	CREAT MG/DL	T PRO G/DL	ALB G/DL	GLOB G/DL	T BILI MG/DL	SBA UMOL/L	CHOL MG/DL	TRIG MG/DL
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day							
I05718	127	17	1.4	9.4	5.0	4.4	.3	6	228	40
I05720	75	17	1.5	9.0	4.5	4.5	.4	6	159	39
MEAN	101	17	1.4	9.2	4.8	4.4	.4	6	194	40
S.D.	36.8	.0	.07	.28	.35	.07	.07	.0	48.8	.7
N	2	2	2	2	2	2	2	2	2	2
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day							
I05712	68	20	1.3	7.8	4.8	3.0	.2	7	187	111
I05716	54	22	1.5	8.1	4.5	3.6	.3	7	131	49
MEAN	61	21	1.4	8.0	4.6	3.3	.2	7	159	80
S.D.	9.9	1.4	.14	.21	.21	.42	.07	.0	39.6	43.8
N	2	2	2	2	2	2	2	2	2	2

Appendix 4

Individual Clinical Chemistry Data

Males Day 217 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	AST/SGOT IU/L	ALT/SGPT IU/L	ALK PHOS IU/L	GGT IU/L	SDH IU/L	CK IU/L	AMYLASE IU/L	LIPASE IU/L	P AMYL U/L
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day						
I05718	40	54	234	103	6	102	769	11	551
I05720	29	30	260	176	4	82	456	30	279
MEAN	34	42	247	140	5	92	612	20	415
S.D.	7.8	17.0	18.4	51.6	1.4	14.1	221.3	13.4	192.3
N	2	2	2	2	2	2	2	2	2
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day						
I05712	31	24	687	142	7	143	410	27	298
I05716	27	12	409	98	5	138	544	17	487
MEAN	29	18	548	120	6	140	477	22	392
S.D.	2.8	8.5	196.6	31.1	1.4	3.5	94.8	7.1	133.6
N	2	2	2	2	2	2	2	2	2

Appendix 4

Individual Clinical Chemistry Data

Males Day 217 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	CA MG/DL	I PHOS MG/DL	NA MMOL/L	K MMOL/L	CL MMOL/L
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day		
I05718	10.9	6.1	153	6.0	106
I05720	10.9	6.5	159	5.5	111
MEAN	10.9	6.3	156	5.8	108
S.D.	.00	.28	4.2	.35	3.5
N	2	2	2	2	2
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day		
I05712	9.9	7.2	147	4.5	108
I05716	9.9	5.2	145	4.7	107
MEAN	9.9	6.2	146	4.6	108
S.D.	.00	1.41	1.4	.14	.7
N	2	2	2	2	2

Appendix 4

Individual Clinical Chemistry Data

Males Day 245 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	GLU MG/DL	UN MG/DL	CREAT MG/DL	T PRO G/DL	ALB G/DL	GLOB G/DL	T BILI MG/DL	SBA UMOL/L	CHOL MG/DL	TRIG MG/DL
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day							
I05718	96	15	1.4	9.1	5.1	4.0	.2	4	251	51
I05720	94	15	1.2	9.1	4.6	4.5	.3	4	155	47
MEAN	95	15	1.3	9.1	4.8	4.2	.2	4	203	49
S.D.	1.4	.0	.14	.00	.35	.35	.07	.0	67.9	2.8
N	2	2	2	2	2	2	2	2	2	2
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day							
I05712	82	18	1.2	8.0	5.0	3.0	.2	6	186	138
I05716	79	22	1.4	8.2	4.7	3.5	.3	4	143	47
MEAN	80	20	1.3	8.1	4.8	3.2	.2	5	164	92
S.D.	2.1	2.8	.14	.14	.21	.35	.07	1.4	30.4	64.3
N	2	2	2	2	2	2	2	2	2	2

Appendix 4

Individual Clinical Chemistry Data

Males Day 245 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	AST/SGOT IU/L	ALT/SGPT IU/L	ALK PHOS IU/L	GGT IU/L	SDH IU/L	CK IU/L	AMYLASE IU/L	LIPASE IU/L	P AMYL U/L
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day						
I05718	30	43	204	87	3	113	759	44	551
I05720	40	45	286	180	4	904	449	47	288
MEAN	35	44	245	134	4	508	604	46	420
S.D.	7.1	1.4	58.0	65.8	.7	559.3	219.2	2.1	186.0
N	2	2	2	2	2	2	2	2	2
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day						
I05712	25	51	781	143	3	127	441	66	315
I05716	30	38	489	97	2	202	540	47	474
MEAN	28	44	635	120	2	164	490	56	394
S.D.	3.5	9.2	206.5	32.5	.7	53.0	70.0	13.4	112.4
N	2	2	2	2	2	2	2	2	2

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Individual Clinical Chemistry Data

Males Day 245 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	CA MG/DL	I PHOS MG/DL	NA MMOL/L	K MMOL/L	CL MMOL/L
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day		
I05718	10.7	6.6	158	6.5	111
I05720	10.7	6.9	158	4.7	110
MEAN	10.7	6.8	158	5.6	110
S.D.	.00	.21	.0	1.27	.7
N	2	2	2	2	2
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day		
I05712	10.3	7.1	155	5.0	113
I05716	10.3	5.6	151	5.6	114
MEAN	10.3	6.4	153	5.3	114
S.D.	.00	1.06	2.8	.42	.7
N	2	2	2	2	2

Appendix 4

Individual Clinical Chemistry Data

Males Day 275 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	GLU MG/DL	UN MG/DL	CREAT MG/DL	T PRO G/DL	ALB G/DL	GLOB G/DL	T BILI MG/DL	SBA UMOL/L	CHOL MG/DL	TRIG MG/DL
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day							
I05718	93	20	1.5	9.6	5.3	4.3	.2	10	256	30
I05720	76	17	.9	8.8	4.1	4.7	.4	9	131	47
MEAN	84	18	1.2	9.2	4.7	4.5	.3	10	194	38
S.D.	12.0	2.1	.42	.57	.85	.28	.14	.7	88.4	12.0
N	2	2	2	2	2	2	2	2	2	2
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day							
I05712	93	21	1.3	8.2	5.2	3.0	.3	8	178	74
I05716	87	21	1.3	8.2	4.6	3.6	.3	7	122	22
MEAN	90	21	1.3	8.2	4.9	3.3	.3	8	150	48
S.D.	4.2	.0	.00	.00	.42	.42	.00	.7	39.6	36.8
N	2	2	2	2	2	2	2	2	2	2

Appendix 4

Individual Clinical Chemistry Data

Males Day 275 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	AST/SGOT IU/L	ALT/SGPT IU/L	ALK PHOS IU/L	GGT IU/L	SDH IU/L	CK IU/L	AMYLASE IU/L	LIPASE IU/L	P AMYL U/L
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day						
I05718	64	153	216	97	4	647	984	208	693
I05720	55	63	323	127	1	1402	667	121	455
MEAN	60	108	270	112	2	1024	826	164	574
S.D.	6.4	63.6	75.7	21.2	2.1	533.9	224.2	61.5	168.3
N	2	2	2	2	2	2	2	2	2
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day						
I05712	47	70	752	138	1	1922	499	58	346
I05716	54	81	454	94	3	1125	1649	656	1460
MEAN	50	76	603	116	2	1524	1074	357	903
S.D.	4.9	7.8	210.7	31.1	1.4	563.6	813.2	422.8	787.7
N	2	2	2	2	2	2	2	2	2

Appendix 4

Individual Clinical Chemistry Data

Males Day 275 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	CA MG/DL	I PHOS MG/DL	NA MMOL/L	K MMOL/L	CL MMOL/L
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day		
I05718	11.2	5.6	154	6.6	104
I05720	10.6	4.2	153	5.5	110
MEAN	10.9	4.9	154	6.0	107
S.D.	.42	.99	.7	.78	4.2
N	2	2	2	2	2
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day		
I05712	10.2	6.6	152	4.4	103
I05716	10.2	3.9	148	4.4	103
MEAN	10.2	5.2	150	4.4	103
S.D.	.00	1.91	2.8	.00	.0
N	2	2	2	2	2

Appendix 4

Individual Clinical Urinalysis Data

Males Day -11

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	U VOL ML	SP GR	U PH
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day
I05709	100.0	1.021	8.5
I05714	395.0	1.002	7.5
I05715	50.0	1.021	8.5
I05718	128.0	1.016	8.0
I05720	108.0	1.019	8.0
I05725	40.0	1.019	8.5
MEAN	136.8	1.016	8.2
S.D.	131.02	.0073	.41
N	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day
I05702	64.0	1.015	8.0
I05706	129.0	1.019	8.0
I05717	176.0	1.006	8.0
I05721	555.0	1.000	7.5
MEAN	231.0	1.010	7.9
S.D.	220.83	.0086	.25
N	4	4	4
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day
I05707	50.0	1.021	8.5
I05708	50.0	1.012	8.5
I05710	139.0	1.016	8.0
I05712	455.0	1.003	7.5
I05716	86.0	1.014	8.0
I05719	66.0	1.016	8.5
MEAN	141.0	1.014	8.2
S.D.	157.36	.0060	.41
N	6	6	6

Appendix 4

Individual Clinical Urinalysis Data

Males Day -11

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	U VOL ML	SP GR	U PH
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day
I05703	158.0	1.005	8.0
I05704	19.0	1.027	8.5
I05711	166.0	1.010	7.5
I05713	11.0	1.020	8.5
I05722	73.0	1.014	8.5
I05724	103.0	1.009	8.5
MEAN	88.3	1.014	8.2
S.D.	66.52	.0081	.42
N	6	6	6

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Individual Clinical Urinalysis Data

Males Day -11

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	U PRO MG/DL	U GLU	U KET	U BILI	U BLOOD	UROBILI
Group: 1 Dose Level: 0 Dosage Unit: mg/kg/day						
I05709	10	-	-	-	-	-
I05714	10	-	-	-	-	-
I05715	10	-	-	-	-	-
I05718	10	-	-	-	-	-
I05720	10	-	-	-	-	-
I05725	10	-	-	-	-	-
Group: 2 Dose Level: 3 Dosage Unit: mg/kg/day						
I05702	10	-	-	-	+	-
I05706	10	-	-	-	-	-
I05717	0	-	-	-	-	-
I05721	0	-	-	-	-	-
Group: 3 Dose Level: 10 Dosage Unit: mg/kg/day						
I05707	10	-	-	-	-	-
I05708	0	-	-	-	-	-
I05710	0	-	-	-	-	-
I05712	0	-	-	-	-	-
I05716	0	-	-	-	-	-
I05719	10	-	-	-	-	-
Group: 4 Dose Level: 30/20 Dosage Unit: mg/kg/day						
I05703	0	-	-	-	-	-
I05704	10	-	-	-	-	-
I05711	0	-	-	-	-	-
I05713	0	-	-	-	-	-
I05722	0	-	-	-	-	-
I05724	10	-	-	-	-	-

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Individual Clinical Urinalysis Data

Males Day -11

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	RBC PER HPF	WBC PER HPF	EPITH PER HPF	BACT PER HPF	CASTS PER LPF	CRYSTALS PER LPF1	CRYSTALS PER LPF2	URINE APP1	COMMENTS
Group: 1 Dose Level: 0				Dosage Unit: mg/kg/day					
I05709	0	0	0	2	0	1B4E	0	CK	-
I05714	0	0	0	2	0	0	0	AJ	-
I05715	0	0	0	1	0	3B1D	0	CK	Q
I05718	0	0	0	2	0	2B2E	0	CK	-
I05720	0	0	0	2	0	2B1E	0	CK	-
I05725	0	0	0	2	0	2B2D	0	CK	-
Group: 2 Dose Level: 3				Dosage Unit: mg/kg/day					
I05702	0	0	1	3	0	4B4D	0	CK	-
I05706	0	0	0	3	0	4E4F	0	CK	-
I05717	0	0	0	3	0	2B1E	0	BK	-
I05721	0	0	0	2	0	0	0	AJ	-
Group: 3 Dose Level: 10				Dosage Unit: mg/kg/day					
I05707	0	0	1	3	0	3B2D	1F	CK	-
I05708	0	0	1	3	0	2B1F	0	BK	Q
I05710	0	0	0	2	0	3B1E	2F	BK	-
I05712	0	0	0	3	0	0	0	AJ	-
I05716	0	1	0	2	0	2B1D	0	BK	-
I05719	0	0	0	1	0	3B1E	0	CK	-
Group: 4 Dose Level: 30/20				Dosage Unit: mg/kg/day					
I05703	0	0	0	3	0	2B	0	AJ	-
I05704	0	0	0	3	0	3E4F	0	CK	Q
I05711	0	0	0	3	0	2B1E	0	BK	-
I05713	0	0	0	3	0	4F	0	GK	-
I05722	0	0	0	3	0	0	0	CJ	-
I05724	0	0	0	3	0	1E	0	BK	-

Appendix 4

Individual Clinical Urinalysis Data

Males Day 31

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	U VOL ML	SP GR	U PH
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day
I05709	89.0	1.021	8.0
I05714	490.0	1.002	7.5
I05715	98.0	1.017	8.5
I05718	90.0	1.016	7.5
I05720	122.0	1.018	8.0
I05725	110.0	1.014	8.0
MEAN	166.5	1.015	7.9
S.D.	158.98	.0066	.38
N	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day
I05702	210.0	1.010	8.0
I05706	64.0	1.023	8.0
I05717	397.0	1.004	8.0
I05721 a	296.0	1.003	7.0
MEAN	241.8	1.010	7.8
S.D.	141.01	.0092	.50
N	4	4	4
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day
I05707	84.0	1.020	8.0
I05708	94.0	1.018	8.0
I05710	228.0	1.008	8.0
I05712	350.0	1.003	8.0
I05716	107.0	1.014	8.0
I05719	69.0	1.018	8.5
MEAN	155.3	1.014	8.1
S.D.	111.19	.0067	.20
N	6	6	6

a Dosing was started on Day 17.

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Individual Clinical Urinalysis Data

Males Day 31

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	U VOL ML	SP GR	U PH
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day
I05703	215.0	1.005	7.5
I05704	282.0	1.005	7.0
I05711	180.0	1.006	7.0
I05713	350.0	1.003	8.0
I05722	89.0	1.017	8.0
MEAN	223.2	1.007	7.5
S.D.	99.35	.0056	.50
N	5	5	5

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Individual Clinical Urinalysis Data

Males Day 31

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	U PRO MG/DL	U GLU	U KET	U BILI	U BLOOD	UROBILI
Group: 1 Dose Level: 0			Dosage Unit: mg/kg/day			
I05709	10	-	-	-	+	-
I05714	0	-	-	-	-	-
I05715	10	-	-	-	-	-
I05718	30	-	-	-	-	-
I05720	0	-	-	-	-	-
I05725	0	-	-	-	-	-
Group: 2 Dose Level: 3			Dosage Unit: mg/kg/day			
I05702	0	-	-	-	++	-
I05706	0	-	-	-	-	-
I05717	0	-	-	-	-	-
I05721 a	0	-	-	-	-	-
Group: 3 Dose Level: 10			Dosage Unit: mg/kg/day			
I05707	0	-	-	-	-	-
I05708	0	-	-	-	-	-
I05710	0	-	-	-	-	-
I05712	0	-	-	-	-	-
I05716	0	-	-	-	-	-
I05719	0	-	-	-	-	-
Group: 4 Dose Level: 30/20			Dosage Unit: mg/kg/day			
I05703	0	-	-	-	-	-
I05704	0	-	-	-	+	-
I05711	0	-	-	-	-	-
I05713	0	-	-	-	-	-
I05722	0	-	-	-	-	-

a Dosing was started on Day 17.

Appendix 4

Individual Clinical Urinalysis Data

Males Day 31

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	RBC PER HPF	WBC PER HPF	EPITH PER HPF	BACT PER HPF	CASTS PER LPF	CRYSTALS PER LPF1	CRYSTALS PER LPF2	URINE APP1	COMMENTS
Group: 1 Dose Level: 0				Dosage Unit: mg/kg/day					
I05709	0	0	0	3	0	4B3D	0	BK	-
I05714	0	0	0	3	0	0	0	AJ	-
I05715	0	0	1	3	0	4B	0	BK	-
I05718	0	1	1	3	0	0	0	BJ	Q
I05720	0	0	0	3	0	4B1E	0	BL	-
I05725	0	0	0	3	0	4B	0	BK	-
Group: 2 Dose Level: 3				Dosage Unit: mg/kg/day					
I05702	0	0	0	3	0	4B	0	AK	-
I05706	0	0	0	3	0	4B	0	BJ	-
I05717	0	0	1	3	0	0	0	AJ	-
I05721 a	0	1	0	3	0	1B	0	AJ	Q
Group: 3 Dose Level: 10				Dosage Unit: mg/kg/day					
I05707	0	1	0	3	0	2B2D	0	BJ	-
I05708	0	0	0	3	0	4B2E	3F	BL	-
I05710	0	1	1	3	0	1E	0	AJ	-
I05712	0	0	0	2	0	1D	0	AJ	-
I05716	0	0	0	3	0	4B	0	BL	-
I05719	0	0	0	3	0	2B1D	0	CJ	-
Group: 4 Dose Level: 30/20				Dosage Unit: mg/kg/day					
I05703	0	0	1	3	0	0	0	AJ	-
I05704	0	1	1	2	0	1B	0	AJ	Q
I05711	0	0	0	3	1H	2B	0	AJ	PQ
I05713	0	0	1	3	0	3B	0	AJ	Q
I05722	0	0	0	2	0	2B4D	0	BL	-

a Dosing was started on Day 17.

Appendix 4

Individual Clinical Urinalysis Data

Males Day 63

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	U VOL ML	SP GR	U PH
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day
I05709	48.0	1.024	8.0
I05714	570.0	1.002	8.0
I05715	124.0	1.014	8.0
I05718	170.0	1.009	8.5
I05720	78.0	1.019	8.0
I05725	144.0	1.010	8.0
MEAN	189.0	1.013	8.1
S.D.	191.82	.0078	.20
N	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day
I05702	240.0	1.006	7.5
I05706	52.0	1.024	7.0
I05717	360.0	1.004	7.5
I05721	360.0	1.004	8.0
MEAN	253.0	1.010	7.5
S.D.	145.45	.0097	.41
N	4	4	4
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day
I05707	88.0	1.019	8.5
I05708	162.0	1.011	8.5
I05710	96.0	1.015	8.0
I05712	570.0	1.002	8.0
I05716	122.0	1.011	8.0
I05719	102.0	1.014	8.0
MEAN	190.0	1.012	8.2
S.D.	188.04	.0057	.26
N	6	6	6

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Individual Clinical Urinalysis Data

Males Day 63

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	U VOL ML	SP GR	U PH
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day
I05703	114.0	1.011	8.0
I05704	74.0	1.021	8.0
I05711 a	98.0	1.015	8.0
I05713	60.0	1.020	7.0
I05722	84.0	1.014	7.0
MEAN	83.0	1.016	7.5
S.D.	22.89	.0048	.58
N	4	4	4

a Dosing was stopped on Day 43; not included in the statistical analyses.

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Individual Clinical Urinalysis Data

Males Day 63

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	U PRO MG/DL	U GLU	U KET	U BILI	U BLOOD	UROBILI
Group: 1 Dose Level: 0 Dosage Unit: mg/kg/day						
I05709	10	-	-	-	-	-
I05714	0	-	-	-	-	-
I05715	10	-	-	-	-	-
I05718	0	-	-	-	-	-
I05720	10	-	-	-	-	-
I05725	0	-	-	-	-	-
Group: 2 Dose Level: 3 Dosage Unit: mg/kg/day						
I05702	0	-	-	-	+	-
I05706	10	-	-	-	-	-
I05717	0	-	-	-	-	-
I05721	0	-	-	-	-	-
Group: 3 Dose Level: 10 Dosage Unit: mg/kg/day						
I05707	0	-	-	-	-	-
I05708	10	-	-	-	-	-
I05710	0	-	-	-	-	-
I05712	0	-	-	-	-	-
I05716	0	-	-	-	-	-
I05719	0	-	-	-	-	-
Group: 4 Dose Level: 30/20 Dosage Unit: mg/kg/day						
I05703	0	-	-	-	-	-
I05704	0	-	-	-	-	-
I05711 a	0	-	-	-	-	-
I05713	0	-	-	-	-	-
I05722	0	-	-	-	-	-

a Dosing was stopped on Day 43.

Appendix 4

Individual Clinical Urinalysis Data

Males Day 63

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	RBC PER HPF	WBC PER HPF	EPITH PER HPF	BACT PER HPF	CASTS PER LPF	CRYSTALS PER LPF1	CRYSTALS PER LPF2	URINE APP1	COMMENTS
Group: 1 Dose Level: 0				Dosage Unit: mg/kg/day					
I05709	0	0	0	3	0	4D	0	CK	Q
I05714	0	0	1	3	0	0	0	AJ	-
I05715	0	0	0	3	0	2B1D	0	BK	Q
I05718	0	0	0	3	0	0	0	BK	-
I05720	0	0	0	3	0	4B2D	1E	CK	-
I05725	0	1	0	3	0	0	0	BJ	Q
Group: 2 Dose Level: 3				Dosage Unit: mg/kg/day					
I05702	0	0	1	3	0	0	0	AK	-
I05706	0	1	0	3	0	1E	0	CK	Q
I05717	0	0	1	3	0	0	0	AJ	Q
I05721	0	0	1	3	0	2B	0	AK	Q
Group: 3 Dose Level: 10				Dosage Unit: mg/kg/day					
I05707	0	0	0	3	0	1B2D	1E	CK	-
I05708	0	0	0	3	0	4B4D	0	BK	-
I05710	0	0	0	3	0	2E4F	0	CK	-
I05712	0	0	0	3	0	0	0	AJ	-
I05716	0	0	0	3	0	4B4D	1E	BK	-
I05719	0	0	0	3	0	2B	0	CK	-
Group: 4 Dose Level: 30/20				Dosage Unit: mg/kg/day					
I05703	0	0	0	3	0	4B3D	2E	BK	-
I05704	0	0	0	1	0	1B1D	1E	CK	Q
I05711 a	0	0	0	3	0	4B1E	0	BK	-
I05713	0	0	1	2	0	1D	0	CK	PQ
I05722	0	1	1	3	0	1B4D	0	CJ	-

a Dosing was stopped on Day 43.

Appendix 4

Individual Clinical Urinalysis Data

Males Day 91

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	U VOL ML	SP GR	U PH
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day
I05709	69.0	1.025	8.5
I05714	546.0	1.004	8.0
I05715	93.0	1.020	8.0
I05718	137.0	1.017	8.5
I05720	79.0	1.025	8.5
I05725	192.0	1.011	8.0
MEAN	186.0	1.017	8.2
S.D.	182.11	.0083	.27
N	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day
I05702	124.0	1.018	8.0
I05706	74.0	1.021	7.5
I05717	338.0	1.006	8.0
I05721	552.0	1.003	7.5
MEAN	272.0	1.012	7.8
S.D.	218.99	.0088	.29
N	4	4	4
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day
I05707	88.0	1.019	8.0
I05708	163.0	1.015	7.5
I05710	234.0	1.010	8.0
I05712	564.0	1.003	8.0
I05716	146.0	1.012	8.0
I05719	137.0	1.014	8.0
MEAN	222.0	1.012	7.9
S.D.	174.10	.0054	.20
N	6	6	6

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Individual Clinical Urinalysis Data

Males Day 91

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	U VOL ML	SP GR	U PH
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day
I05703 a	402.0	1.005	8.0
I05704	78.0	1.020	8.0
I05711 b	106.0	1.018	7.5
I05713	64.0	1.020	8.5
I05722 c	185.0	1.010	8.0
MEAN	71.0	1.020	8.2
S.D.	9.90	.0000	.35
N	2	2	2

a Dosing was stopped on Day 81; not included in the statistical analyses.
b Dosing was stopped on Day 43; not included in the statistical analyses.
c Dosing was stopped on Day 66; not included in the statistical analyses.

Appendix 4

Individual Clinical Urinalysis Data

Males Day 91

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	U PRO MG/DL	U GLU	U KET	U BILI	U BLOOD	UROBILI
Group: 1 Dose Level: 0 Dosage Unit: mg/kg/day						
I05709	10	-	-	-	-	-
I05714	0	-	-	-	-	-
I05715	10	-	-	-	-	-
I05718	0	-	-	-	-	-
I05720	10	-	-	-	-	-
I05725	0	-	-	-	-	-
Group: 2 Dose Level: 3 Dosage Unit: mg/kg/day						
I05702	0	-	-	-	-	-
I05706	0	-	-	-	-	-
I05717	0	-	-	-	-	-
I05721	0	-	-	-	-	-
Group: 3 Dose Level: 10 Dosage Unit: mg/kg/day						
I05707	0	-	-	-	-	-
I05708	0	-	-	-	-	-
I05710	0	-	-	-	-	-
I05712	0	-	-	-	-	-
I05716	0	-	-	-	-	-
I05719	0	-	-	-	-	-
Group: 4 Dose Level: 30/20 Dosage Unit: mg/kg/day						
I05703 a	0	-	-	-	-	-
I05704	0	-	-	-	-	-
I05711 b	0	-	-	-	-	-
I05713	0	-	-	-	-	-
I05722 c	0	-	-	-	-	-

a Dosing was stopped on Day 81.
b Dosing was stopped on Day 43.
c Dosing was stopped on Day 66.

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Individual Clinical Urinalysis Data

Males Day 91

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	RBC PER HPF	WBC PER HPF	EPITH PER HPF	BACT PER HPF	CASTS PER LPF	CRYSTALS PER LPF1	CRYSTALS PER LPF2	URINE APP1	COMMENTS
Group: 1 Dose Level: 0				Dosage Unit: mg/kg/day					
I05709	0	0	0	3	0	4B4D	0	BJ	-
I05714	0	0	1	2	0	0	0	AJ	-
I05715	0	0	0	3	0	2B	0	BK	Q
I05718	0	0	0	3	0	2B2E	0	BJ	Q
I05720	0	0	1	2	0	4B4D	4E3F	BK	PQ
I05725	0	0	0	3	0	3B	0	BJ	-
Group: 2 Dose Level: 3				Dosage Unit: mg/kg/day					
I05702	0	0	0	3	0	4B2D	2E2F	BK	-
I05706	0	0	1	3	0	4B4D	3E	BJ	-
I05717	0	0	1	3	0	0	0	AJ	Q
I05721	0	0	1	3	0	1B1E	0	AJ	-
Group: 3 Dose Level: 10				Dosage Unit: mg/kg/day					
I05707	0	0	0	3	0	4B4D	0	BK	-
I05708	0	0	0	3	0	3B2E	2F	BK	-
I05710	0	0	0	2	0	1B3E	0	AJ	-
I05712	0	0	1	2	0	0	0	AJ	-
I05716	0	0	0	3	0	4B	0	BK	-
I05719	0	0	0	3	0	4B4E	2F	BJ	-
Group: 4 Dose Level: 30/20				Dosage Unit: mg/kg/day					
I05703	0	0	1	2	0	2E	0	AJ	-
I05704	0	0	0	3	0	3B4D	1E	BK	-
I05711	0	0	0	3	0	4B1F	0	BK	-
I05713	0	0	0	3	0	4B4D	0	BK	-
I05722	0	0	0	3	0	4B1E	1F	BK	-

a Dosing was stopped on Day 81.
b Dosing was stopped on Day 43.
c Dosing was stopped on Day 66.

Appendix 4

Individual Clinical Urinalysis Data

Males Day 182

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	U VOL ML	SP GR	U PH
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day
I05709	86.0	1.026	8.0
I05714	218.0	1.010	7.5
I05715	158.0	1.013	8.0
I05718	255.0	1.011	8.0
I05720	90.0	1.019	7.5
I05725	150.0	1.011	7.0
MEAN	159.5	1.015	7.7
S.D.	67.63	.0063	.41
N	6	6	6
Group: 2	Dose Level: 3		Dosage Unit: mg/kg/day
I05702	198.0	1.015	8.0
I05706	92.0	1.022	7.5
I05717	227.0	1.010	8.0
MEAN	172.3	1.016	7.8
S.D.	71.07	.0060	.29
N	3	3	3
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day
I05707	66.0	1.021	7.0
I05708	306.0	1.006	7.5
I05710	214.0	1.012	7.5
I05712	473.0	1.004	7.5
I05716	122.0	1.015	7.0
I05719	70.0	1.018	7.0
MEAN	208.5	1.013	7.2
S.D.	159.04	.0067	.27
N	6	6	6

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Individual Clinical Urinalysis Data

Males Day 182

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	U VOL ML	SP GR	U PH
Group: 4	Dose Level: 30/20		Dosage Unit: mg/kg/day
I05703 a	290.0	1.005	7.5
I05704	88.0	1.022	8.0
I05711 b	159.0	1.012	7.0
I05713	306.0	1.006	7.5
I05722 c	49.0	1.020	8.0
MEAN	197.0	1.014	7.8
S.D.	154.15	.0113	.35
N	2	2	2

a Dosing was stopped on Day 81; not included in the statistical analyses.
b Dosing was stopped on Day 43; not included in the statistical analyses.
c Dosing was stopped on Day 66; not included in the statistical analyses.

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Individual Clinical Urinalysis Data

Males Day 182

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	U PRO MG/DL	U GLU	U KET	U BILI	U BLOOD	UROBILI
Group: 1 Dose Level: 0			Dosage Unit: mg/kg/day			
I05709	0	-	-	-	-	-
I05714	0	-	-	-	-	-
I05715	0	-	-	-	-	-
I05718	0	-	-	-	-	-
I05720	0	-	+	-	-	-
I05725	0	-	-	-	-	-
Group: 2 Dose Level: 3			Dosage Unit: mg/kg/day			
I05702	0	-	-	-	+	-
I05706	0	-	+	-	-	-
I05717	0	-	-	-	-	-
Group: 3 Dose Level: 10			Dosage Unit: mg/kg/day			
I05707	0	-	+	-	-	-
I05708	0	-	-	-	-	-
I05710	0	-	-	-	-	-
I05712	0	-	-	-	-	-
I05716	0	-	-	-	-	-
I05719	0	-	++++	-	+	-
Group: 4 Dose Level: 30/20			Dosage Unit: mg/kg/day			
I05703 a	0	-	-	-	-	-
I05704	0	-	-	-	-	-
I05711 b	0	-	-	-	-	-
I05713	0	-	-	-	-	-
I05722 c	0	-	-	-	-	-

a Dosing was stopped on Day 81.
b Dosing was stopped on Day 43.
c Dosing was stopped on Day 66.

Appendix 4

Individual Clinical Urinalysis Data

Males Day 182

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	RBC PER HPF	WBC PER HPF	EPITH PER HPF	BACT PER HPF	CASTS PER LPF	CRYSTALS PER LPF1	CRYSTALS PER LPF2	URINE APP1	COMMENTS
Group: 1 Dose Level: 0				Dosage Unit: mg/kg/day					
I05709	0	0	0	2	1H	3B1D	3F	BJ	Q
I05714	0	0	1	3	0	2B	0	BJ	-
I05715	0	0	1	3	0	4B3D	0	BK	-
I05718	0	0	1	3	0	2B	0	BJ	-
I05720	0	0	0	3	1H	2B4D	3E	BJ	Q
I05725	0	1	0	3	0	0	0	BJ	P
Group: 2 Dose Level: 3				Dosage Unit: mg/kg/day					
I05702	0	0	0	2	0	3B1E	0	BK	-
I05706	0	0	1	3	0	3B1F	0	BJ	-
I05717	0	0	1	3	0	0	0	AJ	Q
Group: 3 Dose Level: 10				Dosage Unit: mg/kg/day					
I05707	0	0	1	3	0	1B3D	0	BJ	-
I05708	0	0	1	3	0	2B	0	AJ	Q
I05710	0	0	0	3	0	3B2D	0	BJ	Q
I05712	0	0	0	3	0	0	0	AJ	-
I05716	0	0	1	3	0	2B	0	BJM	-
I05719	0	0	1	3	0	1D	0	BJ	Q
Group: 4 Dose Level: 30/20				Dosage Unit: mg/kg/day					
I05703 a	0	0	1	3	0	0	0	AJ	Q
I05704	0	0	0	3	0	4B4D	0	BK	-
I05711 b	0	0	0	3	0	1B	0	BJ	-
I05713	0	0	0	3	0	0	0	AJ	Q
I05722 c	0	0	0	1	0	3B4D	1E	BJ	Q

a Dosing was stopped on Day 81.
b Dosing was stopped on Day 43.
c Dosing was stopped on Day 66.

Appendix 4

Individual Clinical Urinalysis Data

Males Day 217 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	U VOL ML	SP GR	U PH
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day
I05718	240.0	1.013	8.0
I05720	545.0	1.003	8.0
MEAN	392.5	1.008	8.0
S.D.	215.67	.0071	.00
N	2	2	2
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day
I05712	455.0	1.004	8.0
I05716	125.0	1.009	7.5
MEAN	290.0	1.006	7.8
S.D.	233.35	.0035	.35
N	2	2	2

Appendix 4

Individual Clinical Urinalysis Data

Males Day 217 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	U PRO MG/DL	U GLU	U KET	U BILI	U BLOOD	UROBILI
Group: 1 Dose Level: 0 Dosage Unit: mg/kg/day						
I05718	0	-	-	-	-	-
I05720	0	-	-	-	-	-
Group: 3 Dose Level: 10 Dosage Unit: mg/kg/day						
I05712	0	-	-	-	-	-
I05716	0	-	-	-	-	-

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Individual Clinical Urinalysis Data

Males Day 217 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	RBC PER HPF	WBC PER HPF	EPITH PER HPF	BACT PER HPF	CASTS PER LPF	CRYSTALS PER LPF1	CRYSTALS PER LPF2	URINE APP1	COMMENTS
Group: 1 Dose Level: 0				Dosage Unit: mg/kg/day					
I05718	0	0	0	1	0	3B1D	0	BJ	-
I05720	0	0	0	2	0	3B1D	1E	AJ	-
Group: 3 Dose Level: 10				Dosage Unit: mg/kg/day					
I05712	0	0	0	2	0	1B	0	AJ	-
I05716	0	0	0	3	0	2B1D	0	AJ	-

Appendix 4

Individual Clinical Urinalysis Data

Males Day 245 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	U VOL ML	SP GR	U PH
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day
I05718	78.0	1.020	8.0
I05720	314.0	1.006	8.0
MEAN	196.0	1.013	8.0
S.D.	166.88	.0099	.00
N	2	2	2
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day
I05712	516.0	1.003	7.5
I05716	167.0	1.007	7.5
MEAN	341.5	1.005	7.5
S.D.	246.78	.0028	.00
N	2	2	2

Appendix 4

Individual Clinical Urinalysis Data

Males Day 245 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	U PRO MG/DL	U GLU	U KET	U BILI	U BLOOD	UROBILI
Group: 1 Dose Level: 0 Dosage Unit: mg/kg/day						
I05718	0	-	-	-	-	-
I05720	0	-	-	-	-	-
Group: 3 Dose Level: 10 Dosage Unit: mg/kg/day						
I05712	0	-	-	-	-	-
I05716	0	-	-	-	-	-

Appendix 4

Individual Clinical Urinalysis Data

Males Day 245 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	RBC PER HPF	WBC PER HPF	EPITH PER HPF	BACT PER HPF	CASTS PER LPF	CRYSTALS PER LPF1	URINE APP1	COMMENTS
Group: 1 Dose Level: 0			Dosage Unit: mg/kg/day					
I05718	0	0	0	3	0	4B1E	BL	Q
I05720	0	0	0	2	0	1B	BK	-
Group: 3 Dose Level: 10			Dosage Unit: mg/kg/day					
I05712	0	0	1	3	0	1B	AKM	Q
I05716	0	0	1	3	0	2B	BK	Q

Appendix 4

Individual Clinical Urinalysis Data

Males Day 275 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	U VOL ML	SP GR	U PH
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day
I05718	158.0	1.015	7.0
I05720	72.0	1.021	7.0
MEAN	115.0	1.018	7.0
S.D.	60.81	.0042	.00
N	2	2	2
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day
I05712	179.0	1.010	8.0
I05716	92.0	1.014	8.0
MEAN	135.5	1.012	8.0
S.D.	61.52	.0028	.00
N	2	2	2

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Individual Clinical Urinalysis Data

Males Day 275 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	U PRO MG/DL	U GLU	U KET	U BILI	U BLOOD	UROBILI
Group: 1	Dose Level: 0		Dosage Unit: mg/kg/day			
I05718	10	+	-	-	+	-
I05720	10	+	+	-	+	-
Group: 3	Dose Level: 10		Dosage Unit: mg/kg/day			
I05712	0	-	-	-	-	-
I05716	10	+	-	-	+	-

Appendix 4

Individual Clinical Urinalysis Data

Males Day 275 (Recovery)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO)
IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	RBC PER HPF	WBC PER HPF	EPITH PER HPF	BACT PER HPF	CASTS PER LPF	CRYSTALS PER LPF1	URINE APP1	COMMENTS
Group: 1 Dose Level: 0			Dosage Unit: mg/kg/day					
I05718	0	2	1	3	0	3B	BK	-
I05720	0	0	0	3	0	3B1D	CK	-
Group: 3 Dose Level: 10			Dosage Unit: mg/kg/day					
I05712	0	1	1	1	0	1D	BJ	Q
I05716	0	0	1	3	0	3B1D	BK	-

APPENDIX 5

Individual Anatomic Pathology Data

Individual Anatomic Pathology Data

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05709 SEX: MALE DOSE GROUP: 1 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 4800.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 10:13 PROSECTOR: NANCY DIEDRICH RECORDER: JERALD W. JOHNSON
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: JERALD W. JOHNSON

ORGAN NAME	ABSOLUTE ORGAN WEIGHT (GRAMS)	ORGAN WEIGHT RELATIVE TO BODY WEIGHT (%)	ORGAN TO BRAIN WEIGHT RATIO	O R G A N S T A T U S
LF ADRENAL (AD0)	.3730	.0078 %	.0050	WEIGHT TAKEN
RT ADRENAL (AD1)	.3040	.0063 %	.0041	WEIGHT TAKEN
BRAIN (BR)	73.9130	1.5399 %	1.0000	WEIGHT TAKEN
LF EPIDIDYMIS (EP0)	2.0600	.0429 %	.0279	WEIGHT TAKEN
RT EPIDIDYMIS (EP1)	2.0060	.0418 %	.0271	WEIGHT TAKEN
LF KIDNEY (KD0)	7.5960	.1582 %	.1028	WEIGHT TAKEN
RT KIDNEY (KD1)	7.9230	.1651 %	.1072	WEIGHT TAKEN
LIVER (LI)	69.5030	1.4480 %	.9403	WEIGHT TAKEN
PANCREAS (PA)	6.9550	.1449 %	.0941	WEIGHT TAKEN
LF TESTIS (TE0)	10.4110	.2169 %	.1409	WEIGHT TAKEN
RT TESTIS (TE1)	9.5080	.1981 %	.1286	WEIGHT TAKEN
LF THYROID/PARA (TT0)	.1850	.0039 %	.0025	WEIGHT TAKEN
RT THYROID/PARA (TT1)	.2090	.0044 %	.0028	WEIGHT TAKEN

O B S E R V A T I O N S

NECROPSY

HISTOPATHOLOGY

KIDNEY (KD) :
-MINERALIZATION, TUBULAR,-MINIMAL
LUNG (LU) :
-PIGMENT,-MINIMAL
PITUITARY (PI) :
-CYST,-PRESENT
URINARY BLADDER (UB) :
-INFILTRATE, EOSINOPHILIC,-MINIMAL
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
PROSTATE (PR) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL

PAGE: 2

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05709 SEX: MALE DOSE GROUP: 1 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 4800.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 10:13 PROSECTOR: NANCY DIEDRICH RECORDER: JERALD W. JOHNSON
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: JERALD W. JOHNSON

O B S E R V A T I O N S (CONTINUED)

NECROPSY

GENERAL COMMENT (GC) :
-BONE MARROW SMEAR TAKEN
-EYES - DAVIDSONS
-NO MACROSCOPIC LESIONS

THE FOLLOWING ORGANS WERE UNREMARKABLE AT NECROPSY:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), LIVER (LI), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), LUNG (LU), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP), LN, MANDIBULAR (MN), LN, TRACHEOBRON (TB)

HISTOPATHOLOGY

THE FOLLOWING TISSUES WERE UNREMARKABLE AT MICROSCOPIC EXAMINATION:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), LIVER (LI), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05714 SEX: MALE DOSE GROUP: 1 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 3445.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 10:28 PROSECTOR: STEVE VAN ADESTINE RECORDER: TERRI L. WILLIAMS
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: TERRI L. WILLIAMS

ORGAN NAME	ABSOLUTE ORGAN WEIGHT (GRAMS)	ORGAN WEIGHT RELATIVE TO BODY WEIGHT (%)	ORGAN TO BRAIN WEIGHT RATIO	O R G A N S T A T U S
LF ADRENAL (AD0)	.2650	.0077 %	.0043	WEIGHT TAKEN
RT ADRENAL (AD1)	.1840	.0053 %	.0030	WEIGHT TAKEN
BRAIN (BR)	61.7660	1.7929 %	1.0000	WEIGHT TAKEN
LF EPIDIDYMIS (EP0)	.9650	.0280 %	.0156	WEIGHT TAKEN
RT EPIDIDYMIS (EP1)	1.1580	.0336 %	.0187	WEIGHT TAKEN
LF KIDNEY (KD0)	5.4390	.1579 %	.0881	WEIGHT TAKEN
RT KIDNEY (KD1)	5.5320	.1606 %	.0896	WEIGHT TAKEN
LIVER (LI)	53.0460	1.5398 %	.8588	WEIGHT TAKEN
PANCREAS (PA)	5.8810	.1707 %	.0952	WEIGHT TAKEN
LF TESTIS (TE0)	6.0980	.1770 %	.0987	WEIGHT TAKEN
RT TESTIS (TE1)	6.1630	.1789 %	.0998	WEIGHT TAKEN
LF THYROID/PARA (TT0)	.3120	.0091 %	.0051	WEIGHT TAKEN
RT THYROID/PARA (TT1)	.3150	.0091 %	.0051	WEIGHT TAKEN

O B S E R V A T I O N S

NECROPSY

CECUM (CE) :
-RED FOCUS(I)/AREA(S); WITHIN WALL: SINGLE DARK RED AND FIRM AREA, 0.4 CM IN DIAMETER; COLLECTED ON ROUTINE SECTION

HISTOPATHOLOGY

LIVER (LI) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
LUNG (LU) :
-PIGMENT,-MINIMAL
SALIV GL, MANDIB (SG) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
CECUM (CE) :
-INFLAMMATION, GRANULOMATOUS,-MODERATE
-PARASITISM,-PRESENT
COLON (CO) :
-INFLAMMATION, CHRONIC,-MINIMAL

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26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05714 SEX: MALE DOSE GROUP: 1 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 3445.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 10:28 PROSECTOR: STEVE VAN ADESTINE RECORDER: TERRI L. WILLIAMS
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: TERRI L. WILLIAMS

O B S E R V A T I O N S (CONTINUED)

NECROPSY	HISTOPATHOLOGY
SKIN (SK) :	SKIN (SK) :
>NOTE:>TRIMMING COMMENT: MISSING FROM WET TISSUE	>TISSUE MISSING
MAMMARY, MALE (MM) :	MAMMARY, MALE (MM) :
>NOTE:>TRIMMING COMMENT: MISSING FROM WET TISSUE	>TISSUE MISSING
GENERAL COMMENT (GC) :	
-BONE MARROW SMEAR TAKEN	
-EYES - DAVIDSONS	

THE FOLLOWING ORGANS WERE UNREMARKABLE AT NECROPSY:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), LIVER (LI), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), LUNG (LU), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP), LN, MANDIBULAR (MN), LN, TRACHEOBRON (TB)

THE FOLLOWING TISSUES WERE UNREMARKABLE AT MICROSCOPIC EXAMINATION:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), RECTUM (RE), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP)

Individual Anatomic Pathology Data

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05715 SEX: MALE DOSE GROUP: 1 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 3835.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 8:26 PROSECTOR: NANCY DIEDRICH RECORDER: JERALD W. JOHNSON
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: JERALD W. JOHNSON

ORGAN NAME	ABSOLUTE ORGAN WEIGHT (GRAMS)	ORGAN WEIGHT RELATIVE TO BODY WEIGHT (%)	ORGAN TO BRAIN WEIGHT RATIO	O R G A N S T A T U S
LF ADRENAL (AD0)	.2900	.0076 %	.0052	WEIGHT TAKEN
RT ADRENAL (AD1)	.2490	.0065 %	.0045	WEIGHT TAKEN
BRAIN (BR)	55.8000	1.4550 %	1.0000	WEIGHT TAKEN
LF EPIDIDYMIS (EP0)	2.1070	.0549 %	.0378	WEIGHT TAKEN
RT EPIDIDYMIS (EP1)	2.2030	.0574 %	.0395	WEIGHT TAKEN
LF KIDNEY (KD0)	6.4160	.1673 %	.1150	WEIGHT TAKEN
RT KIDNEY (KD1)	6.1400	.1601 %	.1100	WEIGHT TAKEN
LIVER (LI)	57.6270	1.5027 %	1.0327	WEIGHT TAKEN
PANCREAS (PA)	5.1700	.1348 %	.0927	WEIGHT TAKEN
LF TESTIS (TE0)	15.2070	.3965 %	.2725	WEIGHT TAKEN
RT TESTIS (TE1)	15.1080	.3940 %	.2708	WEIGHT TAKEN
LF THYROID/PARA (TT0)	.1820	.0047 %	.0033	WEIGHT TAKEN
RT THYROID/PARA (TT1)	.1610	.0042 %	.0029	WEIGHT TAKEN

O B S E R V A T I O N S

NECROPSY

HISTOPATHOLOGY

ADRENAL, CORTEX (AC) :
-CORTICAL TISSUE, EXTRACAPSULAR,-MINIMAL
-HYPERTROPHY, CORTICAL CELL,-MINIMAL
-MINERALIZATION,-MINIMAL
LIVER (LI) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
KIDNEY (KD) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
-MINERALIZATION, TUBULAR,-MINIMAL
LUNG (LU) :
-INFILTRATE, EOSINOPHILIC,-MINIMAL
-PIGMENT,-MINIMAL

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05715 SEX: MALE DOSE GROUP: 1 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 3835.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 8:26 PROSECTOR: NANCY DIEDRICH RECORDER: JERALD W. JOHNSON
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: JERALD W. JOHNSON

O B S E R V A T I O N S (CONTINUED)

NECROPSY

GENERAL COMMENT (GC) :
-BONE MARROW SMEAR TAKEN
-EYES - DAVIDSONS
-NO MACROSCOPIC LESIONS

HISTOPATHOLOGY

LUNG (LU) :
>NOTE:>EOSINOPHILS ARE MULTIFOCALLY TRANSMIGRATING THE BRONCHIAL EPITHELIUM.
SALIV GL, MANDIB (SG) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
URINARY BLADDER (UB) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
PROSTATE (PR) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
EPIDIDYMIDES (EP) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05715 SEX: MALE DOSE GROUP: 1 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 3835.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 8:26 PROSECTOR: NANCY DIEDRICH RECORDER: JERALD W. JOHNSON
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: JERALD W. JOHNSON

THE FOLLOWING ORGANS WERE UNREMARKABLE AT NECROPSY:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), LIVER (LI), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), LUNG (LU), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP), LN, MANDIBULAR (MN), LN, TRACHEOBRON (TB)

THE FOLLOWING TISSUES WERE UNREMARKABLE AT MICROSCOPIC EXAMINATION:
ADRENAL, MEDULLA (MA), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), SEMINAL VESICLES (SV)

PAGE: 8

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05718 SEX: MALE DOSE GROUP: 1 SACRIFICE STATUS: SCHEDULED, FIRST POST-RECOV SAC
DATE OF DEATH: 07/02/99 STUDY DAY OF DEATH: 277 STUDY WEEK OF DEATH: 40 TERMINAL BODY WEIGHT: 5580.0 GRAMS
DATE AND TIME OF NECROPSY: 07/02/99 8:01 PROSECTOR: WENDY CHERRY RECORDER: JILL PAUS
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: JILL PAUS

ORGAN NAME	ABSOLUTE ORGAN WEIGHT (GRAMS)	ORGAN WEIGHT RELATIVE TO BODY WEIGHT (%)	ORGAN TO BRAIN WEIGHT RATIO	O R G A N S T A T U S
LF ADRENAL (AD0)	.4300	.0077 %	.0061	WEIGHT TAKEN
RT ADRENAL (AD1)	.2740	.0049 %	.0039	WEIGHT TAKEN
BRAIN (BR)	70.8600	1.2699 %	1.0000	WEIGHT TAKEN
LF EPIDIDYMIS (EP0)	2.8180	.0505 %	.0398	WEIGHT TAKEN
RT EPIDIDYMIS (EP1)	2.7560	.0494 %	.0389	WEIGHT TAKEN
LF KIDNEY (KD0)	8.3340	.1494 %	.1176	WEIGHT TAKEN
RT KIDNEY (KD1)	8.1740	.1465 %	.1154	WEIGHT TAKEN
LIVER (LI)	88.4330	1.5848 %	1.2480	WEIGHT TAKEN
PANCREAS (PA)	8.9960	.1612 %	.1270	WEIGHT TAKEN
LF TESTIS (TE0)	14.2840	.2560 %	.2016	WEIGHT TAKEN
RT TESTIS (TE1)	14.6580	.2627 %	.2069	WEIGHT TAKEN
LF THYROID/PARA (TT0)	.2450	.0044 %	.0035	WEIGHT TAKEN
RT THYROID/PARA (TT1)	.2480	.0044 %	.0035	WEIGHT TAKEN

O B S E R V A T I O N S

NECROPSY

HISTOPATHOLOGY

ADRENAL, CORTEX (AC) :
-CORTICAL TISSUE, EXTRACAPSULAR,-MINIMAL
LIVER (LI) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
EYE (EY) :
-INFILTRATE, LYMPHOHISTIOCYTIC, CHOROIDAL,-MINIMAL
BRAIN (BR) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
-MINERALIZATION,-MINIMAL
KIDNEY (KD) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
-INFLAMMATION, VASCULAR,-MODERATE

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05718 SEX: MALE DOSE GROUP: 1 SACRIFICE STATUS: SCHEDULED, FIRST POST-RECOV SAC
DATE OF DEATH: 07/02/99 STUDY DAY OF DEATH: 277 STUDY WEEK OF DEATH: 40 TERMINAL BODY WEIGHT: 5580.0 GRAMS
DATE AND TIME OF NECROPSY: 07/02/99 8:01 PROSECTOR: WENDY CHERRY RECORDER: JILL PAUS
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: JILL PAUS

O B S E R V A T I O N S (CONTINUED)

NECROPSY

HISTOPATHOLOGY

KIDNEY (KD) :
-THICKENING, INTIMAL, VASCULAR,-MODERATE
>NOTE:>BOTH RENAL ARTERIES AND THEIR BRANCHES HAVE THICKENED INTIMA INFILTRATED BY LOW NUMBERS OF INFLAMMATORY CELLS. SEVERAL ARCUATE ARTERIES OR THEIR BRANCHES ARE THICKENED AND SURROUNDED BY GRANULOMATOUS OR PYOGRANULOMATOUS INFLAMMATION.
LUNG (LU) :
-PIGMENT,-MINIMAL
THYMUS (TH) :
-INVOLUTION,-MODERATELY SEVERE
LN, MESENTERIC (MS) :
-PIGMENT,-MINIMAL
SALIV GL, MANDIB (SG) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
STOMACH, GL (ST) :
-THICKENING, INTIMAL, VASCULAR,-MINIMAL
URINARY BLADDER (UB) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
PROSTATE (PR) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL

GENERAL COMMENT (GC) :
-BONE MARROW SMEAR TAKEN
-EYES - DAVIDSONS
-NO MACROSCOPIC LESIONS

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05718 SEX: MALE DOSE GROUP: 1 SACRIFICE STATUS: SCHEDULED, FIRST POST-RECOV SAC
DATE OF DEATH: 07/02/99 STUDY DAY OF DEATH: 277 STUDY WEEK OF DEATH: 40 TERMINAL BODY WEIGHT: 5580.0 GRAMS
DATE AND TIME OF NECROPSY: 07/02/99 8:01 PROSECTOR: WENDY CHERRY RECORDER: JILL PAUS
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: JILL PAUS

THE FOLLOWING ORGANS WERE UNREMARKABLE AT NECROPSY:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), LIVER (LI), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), LUNG (LU), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP), LN, MANDIBULAR (MN), LN, TRACHEOBRON (TB)

THE FOLLOWING TISSUES WERE UNREMARKABLE AT MICROSCOPIC EXAMINATION:
ADRENAL, MEDULLA (MA), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), HEART (HT), GALLBLADDER (GB), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP)

Individual Anatomic Pathology Data

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05720 SEX: MALE DOSE GROUP: 1 SACRIFICE STATUS: SCHEDULED, FIRST POST-RECOV SAC
DATE OF DEATH: 07/02/99 STUDY DAY OF DEATH: 277 STUDY WEEK OF DEATH: 40 TERMINAL BODY WEIGHT: 5240.0 GRAMS
DATE AND TIME OF NECROPSY: 07/02/99 8:45 PROSECTOR: WENDY CHERRY RECORDER: JILL PAUS
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: JILL PAUS

ORGAN NAME	ABSOLUTE ORGAN WEIGHT (GRAMS)	ORGAN WEIGHT RELATIVE TO BODY WEIGHT (%)	ORGAN TO BRAIN WEIGHT RATIO	O R G A N S T A T U S
LF ADRENAL (AD0)	.3680	.0070 %	.0061	WEIGHT TAKEN
RT ADRENAL (AD1)	.2190	.0042 %	.0036	WEIGHT TAKEN
BRAIN (BR)	60.5630	1.1558 %	1.0000	WEIGHT TAKEN
LF EPIDIDYMIS (EP0)	2.3990	.0458 %	.0396	WEIGHT TAKEN
RT EPIDIDYMIS (EP1)	2.7020	.0516 %	.0446	WEIGHT TAKEN
LF KIDNEY (KD0)	9.7810	.1867 %	.1615	WEIGHT TAKEN
RT KIDNEY (KD1)	9.5500	.1823 %	.1577	WEIGHT TAKEN
LIVER (LI)	91.9440	1.7547 %	1.5182	WEIGHT TAKEN
PANCREAS (PA)	8.0025	.1527 %	.1321	WEIGHT TAKEN
LF TESTIS (TE0)	17.7630	.3390 %	.2933	WEIGHT TAKEN
RT TESTIS (TE1)	17.9890	.3433 %	.2970	WEIGHT TAKEN
LF THYROID/PARA (TT0)	.2640	.0050 %	.0044	WEIGHT TAKEN
RT THYROID/PARA (TT1)	.2660	.0051 %	.0044	WEIGHT TAKEN

O B S E R V A T I O N S

NECROPSY

LIVER (LI) :
-ADHESION(S); LEFT AND RIGHT MEDIAN LOBES TO OMENTUM:
MULTIPLE GRAY FIBROUS ADHESIONS; COLLECTED

HISTOPATHOLOGY

LIVER (LI) :
-FIBROSIS, CAPSULAR/SUBCAPSULAR,-MODERATE
-INFILTRATE, LYMPHOHISTIOCYTIC,-SLIGHT
-PIGMENT, HEPATOCELLULAR,-SLIGHT
EYE (EY) :
-INFILTRATE, LYMPHOHISTIOCYTIC, CHOROIDAL,-MINIMAL
BRAIN (BR) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
LUNG (LU) :
-PIGMENT,-MINIMAL
THYMUS (TH) :
-INVOLUTION,-MODERATE

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05720 SEX: MALE DOSE GROUP: 1 SACRIFICE STATUS: SCHEDULED, FIRST POST-RECOV SAC
DATE OF DEATH: 07/02/99 STUDY DAY OF DEATH: 277 STUDY WEEK OF DEATH: 40 TERMINAL BODY WEIGHT: 5240.0 GRAMS
DATE AND TIME OF NECROPSY: 07/02/99 8:45 PROSECTOR: WENDY CHERRY RECORDER: JILL PAUS
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: JILL PAUS

O B S E R V A T I O N S (CONTINUED)

NECROPSY	HISTOPATHOLOGY
	LN, MESENTERIC (MS) : -PIGMENT,-MINIMAL TRACHEA (TR) : -INFLAMMATION, ACUTE,-MINIMAL PARATHYROID (PT) : >SECTION EXAMINED; TISSUE NOT PRESENT SALIV GL, MANDIB (SG) : -INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL NERVE, SCIATIC (SN) : -FIBROSIS,-MODERATELY SEVERE -INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL DUODENUM (DU) : -PARASITISM,-PRESENT COLON (CO) : -INFLAMMATION, EOSINOPHILIC,-SLIGHT URINARY BLADDER (UB) : -INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL PROSTATE (PR) : -INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL

GENERAL COMMENT (GC) :
-BONE MARROW SMEAR TAKEN
-EYES - DAVIDSONS
-ANIMAL OBESE

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05720 SEX: MALE DOSE GROUP: 1 SACRIFICE STATUS: SCHEDULED, FIRST POST-RECOV SAC
DATE OF DEATH: 07/02/99 STUDY DAY OF DEATH: 277 STUDY WEEK OF DEATH: 40 TERMINAL BODY WEIGHT: 5240.0 GRAMS
DATE AND TIME OF NECROPSY: 07/02/99 8:45 PROSECTOR: WENDY CHERRY RECORDER: JILL PAUS
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: JILL PAUS

THE FOLLOWING ORGANS WERE UNREMARKABLE AT NECROPSY:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), LUNG (LU), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP), LN, MANDIBULAR (MN), LN, TRACHEOBRON (TB)

THE FOLLOWING TISSUES WERE UNREMARKABLE AT MICROSCOPIC EXAMINATION:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), KIDNEY (KD), HEART (HT), GALLBLADDER (GB), ESOPHAGUS (ES), THYROID (TY), AORTA (AO), PITUITARY (PI), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), STOMACH, GL (ST), JEJUNUM (JE), ILEUM (IL), CECUM (CE), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP)

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26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05725 SEX: MALE DOSE GROUP: 1 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 3710.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 10:52 PROSECTOR: TODD ACKER RECORDER: LAURIE J. SCHULLER
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: LAURIE J. SCHULLER

ORGAN NAME	ABSOLUTE ORGAN WEIGHT (GRAMS)	ORGAN WEIGHT RELATIVE TO BODY WEIGHT (%)	ORGAN TO BRAIN WEIGHT RATIO	O R G A N S T A T U S
LF ADRENAL (AD0)	.3060	.0082 %	.0046	WEIGHT TAKEN
RT ADRENAL (AD1)	.2680	.0072 %	.0040	WEIGHT TAKEN
BRAIN (BR)	66.8040	1.8006 %	1.0000	WEIGHT TAKEN
LF EPIDIDYMIS (EP0)	1.4200	.0383 %	.0213	WEIGHT TAKEN
RT EPIDIDYMIS (EP1)	1.7330	.0467 %	.0259	WEIGHT TAKEN
LF KIDNEY (KD0)	6.9080	.1862 %	.1034	WEIGHT TAKEN
RT KIDNEY (KD1)	6.6130	.1782 %	.0990	WEIGHT TAKEN
LIVER (LI)	60.5030	1.6308 %	.9057	WEIGHT TAKEN
PANCREAS (PA)	4.4720	.1205 %	.0669	WEIGHT TAKEN
LF TESTIS (TE0)	8.0090	.2159 %	.1199	WEIGHT TAKEN
RT TESTIS (TE1)	7.7940	.2101 %	.1167	WEIGHT TAKEN
LF THYROID/PARA (TT0)	.2030	.0055 %	.0030	WEIGHT TAKEN
RT THYROID/PARA (TT1)	.2050	.0055 %	.0031	WEIGHT TAKEN

O B S E R V A T I O N S

NECROPSY

HISTOPATHOLOGY

LIVER (LI) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
LUNG (LU) :
-MINERALIZATION, ALVEOLAR,-MINIMAL
-PIGMENT,-MINIMAL
LN, MESENTERIC (MS) :
-INFILTRATE, EOSINOPHILIC,-MINIMAL
-INFLAMMATION, GRANULOMATOUS,-SLIGHT
-PARASITISM,-PRESENT
-PIGMENT,-MINIMAL
>NOTE:>GRANULOMATOUS INFLAMMATION ENCIRCLES A NEMATODE
PARASITE IN THE ADJACENT CONNECTIVE TISSUE.

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05725 SEX: MALE DOSE GROUP: 1 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 3710.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 10:52 PROSECTOR: TODD ACKER RECORDER: LAURIE J. SCHULLER
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: LAURIE J. SCHULLER

O B S E R V A T I O N S (CONTINUED)

NECROPSY	HISTOPATHOLOGY
THYROID (TY) :	THYROID (TY) :
>NOTE:>TRIMMING COMMENT: ONLY ONE THYROID FOUND AT TRIMMING	-ONE EXAMINED,-PRESENT
PARATHYROID (PT) :	PARATHYROID (PT) :
>NOTE:>TRIMMING COMMENT: ONLY ONE PARATHYROID FOUND AT TRIMMING	>SECTION EXAMINED; TISSUE NOT PRESENT
GENERAL COMMENT (GC) :	
-BONE MARROW SMEAR TAKEN	
-EYES - DAVIDSONS	
-NO MACROSCOPIC LESIONS	

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05725 SEX: MALE DOSE GROUP: 1 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 3710.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 10:52 PROSECTOR: TODD ACKER RECORDER: LAURIE J. SCHULLER
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: LAURIE J. SCHULLER

THE FOLLOWING ORGANS WERE UNREMARKABLE AT NECROPSY:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), LIVER (LI), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), LUNG (LU), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP), LN, MANDIBULAR (MN), LN, TRACHEOBRON (TB)

THE FOLLOWING TISSUES WERE UNREMARKABLE AT MICROSCOPIC EXAMINATION:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), HEART (HT), GALLBLADDER (GB), THYMUS (TH), TRACHEA (TR), ESOPHAGUS (ES), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP)

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26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05702 SEX: MALE DOSE GROUP: 2 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 4520.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 11:48 PROSECTOR: STEVE VAN ADESTINE RECORDER: TERRI L. WILLIAMS
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: TERRI L. WILLIAMS

ORGAN NAME	ABSOLUTE ORGAN WEIGHT (GRAMS)	ORGAN WEIGHT RELATIVE TO BODY WEIGHT (%)	ORGAN TO BRAIN WEIGHT RATIO	O R G A N S T A T U S
LF ADRENAL (AD0)	.4180	.0092 %	.0065	WEIGHT TAKEN
RT ADRENAL (AD1)	.4140	.0092 %	.0065	WEIGHT TAKEN
BRAIN (BR)	63.8380	1.4123 %	1.0000	WEIGHT TAKEN
LF EPIDIDYMIS (EP0)	2.4140	.0534 %	.0378	WEIGHT TAKEN
RT EPIDIDYMIS (EP1)	2.5390	.0562 %	.0398	WEIGHT TAKEN
LF KIDNEY (KD0)	9.2760	.2052 %	.1453	WEIGHT TAKEN
RT KIDNEY (KD1)	9.2350	.2043 %	.1447	WEIGHT TAKEN
LIVER (LI)	84.9350	1.8791 %	1.3305	WEIGHT TAKEN
PANCREAS (PA)	7.3540	.1627 %	.1152	WEIGHT TAKEN
LF TESTIS (TE0)	15.7540	.3485 %	.2468	WEIGHT TAKEN
RT TESTIS (TE1)	17.5050	.3873 %	.2742	WEIGHT TAKEN
LF THYROID/PARA (TT0)	.2150	.0048 %	.0034	WEIGHT TAKEN
RT THYROID/PARA (TT1)	.1860	.0041 %	.0029	WEIGHT TAKEN

O B S E R V A T I O N S

NECROPSY

HISTOPATHOLOGY

ADRENAL, CORTEX (AC) :
-CORTICAL TISSUE, EXTRACAPSULAR,-SLIGHT
LIVER (LI) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
-PIGMENT, HEPATOCELLULAR,-MINIMAL
KIDNEY (KD) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
LUNG (LU) :
-PIGMENT,-MINIMAL
HEART (HT) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
-PIGMENT,-MINIMAL

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05702 SEX: MALE DOSE GROUP: 2 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 4520.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 11:48 PROSECTOR: STEVE VAN ADESTINE RECORDER: TERRI L. WILLIAMS
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: TERRI L. WILLIAMS

O B S E R V A T I O N S (CONTINUED)

NECROPSY	HISTOPATHOLOGY
	THYMUS (TH) : -INVOLUTION,-SLIGHT LN, MESENTERIC (MS) : -PIGMENT,-MINIMAL SALIV GL, MANDIB (SG) : -INFILTRATE, LYMPHOHISTIOCYTIC,-SLIGHT
CECUM (CE) : -RED FOCUS(I)/AREA(S); DIFFUSE, WITHIN WALL: MULTIPLE DARK RED AND FIRM AREAS, UP TO 0.4 CM IN DIAMETER; COLLECTED ON ROUTINE SECTION	CECUM (CE) : >UNREMARKABLE
GENERAL COMMENT (GC) : -BONE MARROW SMEAR TAKEN -EYES - DAVIDSONS	

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05702 SEX: MALE DOSE GROUP: 2 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 4520.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 11:48 PROSECTOR: STEVE VAN ADESTINE RECORDER: TERRI L. WILLIAMS
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: TERRI L. WILLIAMS

THE FOLLOWING ORGANS WERE UNREMARKABLE AT NECROPSY:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), LIVER (LI), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), LUNG (LU), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP), LN, MANDIBULAR (MN), LN, TRACHEOBRON (TB)

THE FOLLOWING TISSUES WERE UNREMARKABLE AT MICROSCOPIC EXAMINATION:
ADRENAL, MEDULLA (MA), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), GALLBLADDER (GB), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP)

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26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05706 SEX: MALE DOSE GROUP: 2 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 4480.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 12:05 PROSECTOR: NANCY DIEDRICH RECORDER: JERALD W. JOHNSON
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: JERALD W. JOHNSON

ORGAN NAME	ABSOLUTE ORGAN WEIGHT (GRAMS)	ORGAN WEIGHT RELATIVE TO BODY WEIGHT (%)	ORGAN TO BRAIN WEIGHT RATIO	O R G A N S T A T U S
LF ADRENAL (AD0)	.3260	.0073 %	.0048	WEIGHT TAKEN
RT ADRENAL (AD1)	.3330	.0074 %	.0049	WEIGHT TAKEN
BRAIN (BR)	68.3500	1.5257 %	1.0000	WEIGHT TAKEN
LF EPIDIDYMIS (EP0)	3.0160	.0673 %	.0441	WEIGHT TAKEN
RT EPIDIDYMIS (EP1)	2.8270	.0631 %	.0414	WEIGHT TAKEN
LF KIDNEY (KD0)	7.7550	.1731 %	.1135	WEIGHT TAKEN
RT KIDNEY (KD1)	7.3100	.1632 %	.1069	WEIGHT TAKEN
LIVER (LI)	80.9240	1.8063 %	1.1840	WEIGHT TAKEN
PANCREAS (PA)	6.0350	.1347 %	.0883	WEIGHT TAKEN
LF TESTIS (TE0)	18.5330	.4137 %	.2711	WEIGHT TAKEN
RT TESTIS (TE1)	19.4480	.4341 %	.2845	WEIGHT TAKEN
LF THYROID/PARA (TT0)	.1540	.0034 %	.0023	WEIGHT TAKEN
RT THYROID/PARA (TT1)	.2150	.0048 %	.0031	WEIGHT TAKEN

O B S E R V A T I O N S

NECROPSY

LUNG (LU) :
-RED FOCUS(I)/AREA(S); ALL LOBES: MULTIPLE LINEAR AREAS, UP TO 2 X LESS THAN 1 MM

GENERAL COMMENT (GC) :
-BONE MARROW SMEAR TAKEN
-EYES - DAVIDSONS

HISTOPATHOLOGY

LUNG (LU) :
-CONGESTION,-MINIMAL
-PIGMENT,-MINIMAL
PARATHYROID (PT) :
-CYST, GLANDULAR,-PRESENT

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05706 SEX: MALE DOSE GROUP: 2 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 4480.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 12:05 PROSECTOR: NANCY DIEDRICH RECORDER: JERALD W. JOHNSON
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: JERALD W. JOHNSON

THE FOLLOWING ORGANS WERE UNREMARKABLE AT NECROPSY:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), LIVER (LI), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP), LN, MANDIBULAR (MN), LN, TRACHEOBRON (TB)

THE FOLLOWING TISSUES WERE UNREMARKABLE AT MICROSCOPIC EXAMINATION:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), LIVER (LI), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05717 SEX: MALE DOSE GROUP: 2 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 4460.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 10:40 PROSECTOR: NANCY DIEDRICH RECORDER: JERALD W. JOHNSON
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: JERALD W. JOHNSON

ORGAN NAME	ABSOLUTE ORGAN WEIGHT (GRAMS)	ORGAN WEIGHT RELATIVE TO BODY WEIGHT (%)	ORGAN TO BRAIN WEIGHT RATIO	O R G A N S T A T U S
LF ADRENAL (AD0)	.3720	.0083 %	.0055	WEIGHT TAKEN
RT ADRENAL (AD1)	.3250	.0073 %	.0048	WEIGHT TAKEN
BRAIN (BR)	67.3520	1.5101 %	1.0000	WEIGHT TAKEN
LF EPIDIDYMIS (EP0)	1.6580	.0372 %	.0246	WEIGHT TAKEN
RT EPIDIDYMIS (EP1)	1.7190	.0385 %	.0255	WEIGHT TAKEN
LF KIDNEY (KD0)	7.0060	.1571 %	.1040	WEIGHT TAKEN
RT KIDNEY (KD1)	6.7980	.1524 %	.1009	WEIGHT TAKEN
LIVER (LI)	79.5160	1.7829 %	1.1806	WEIGHT TAKEN
PANCREAS (PA)	4.9180	.1103 %	.0730	WEIGHT TAKEN
LF TESTIS (TE0)	11.1670	.2504 %	.1658	WEIGHT TAKEN
RT TESTIS (TE1)	11.3670	.2549 %	.1688	WEIGHT TAKEN
LF THYROID/PARA (TT0)	.1340	.0030 %	.0020	WEIGHT TAKEN
RT THYROID/PARA (TT1)	.1540	.0035 %	.0023	WEIGHT TAKEN

O B S E R V A T I O N S

NECROPSY

HISTOPATHOLOGY

ADRENAL, CORTEX (AC) :
-HYPERTROPHY, CORTICAL CELL,-SLIGHT
LIVER (LI) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
-PIGMENT, KUPFFER CELL,-MINIMAL
LUNG (LU) :
-PIGMENT,-MINIMAL
URINARY BLADDER (UB) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
PROSTATE (PR) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL

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26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05717 SEX: MALE DOSE GROUP: 2 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 4460.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 10:40 PROSECTOR: NANCY DIEDRICH RECORDER: JERALD W. JOHNSON
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: JERALD W. JOHNSON

O B S E R V A T I O N S (CONTINUED)

NECROPSY

GENERAL COMMENT (GC) :
-BONE MARROW SMEAR TAKEN
-EYES - DAVIDSONS
-ANIMAL OBESE

THE FOLLOWING ORGANS WERE UNREMARKABLE AT NECROPSY:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), LIVER (LI), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), LUNG (LU), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP), LN, MANDIBULAR (MN), LN, TRACHEOBRON (TB)

HISTOPATHOLOGY

THE FOLLOWING TISSUES WERE UNREMARKABLE AT MICROSCOPIC EXAMINATION:
ADRENAL, MEDULLA (MA), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP)

Individual Anatomic Pathology Data

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05721 SEX: MALE DOSE GROUP: 2 SACRIFICE STATUS: UNSCHEDULED (M)
DATE OF DEATH: 02/12/99 STUDY DAY OF DEATH: 137 STUDY WEEK OF DEATH: 20 TERMINAL BODY WEIGHT: 3995.0 GRAMS
DATE AND TIME OF NECROPSY: 02/12/99 14:25 PROSECTOR: LAURIE J. SCHULLER RECORDER: TERRI L. WILLIAMS
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: AS ASSIGNED WEIGHER: TERRI L. WILLIAMS

ORGAN NAME	ABSOLUTE ORGAN WEIGHT (GRAMS)	ORGAN WEIGHT RELATIVE TO BODY WEIGHT (%)	ORGAN TO BRAIN WEIGHT RATIO	O R G A N S T A T U S
LF ADRENAL (AD0)	.3040	.0076 %	.0052	WEIGHT TAKEN
RT ADRENAL (AD1)	.2430	.0061 %	.0042	WEIGHT TAKEN
BRAIN (BR)	58.4860	1.4640 %	1.0000	WEIGHT TAKEN
LF EPIDIDYMIS (EP0)	1.3310	.0333 %	.0228	WEIGHT TAKEN
RT EPIDIDYMIS (EP1)	1.4600	.0365 %	.0250	WEIGHT TAKEN
LF KIDNEY (KD0)	8.9430	.2239 %	.1529	WEIGHT TAKEN
RT KIDNEY (KD1)	9.1420	.2288 %	.1563	WEIGHT TAKEN
LIVER (LI)	97.3000	2.4355 %	1.6636	WEIGHT TAKEN
PANCREAS (PA)	6.5560	.1641 %	.1121	WEIGHT TAKEN
LF TESTIS (TE0)	8.3940	.2101 %	.1435	WEIGHT TAKEN
RT TESTIS (TE1)	8.3410	.2088 %	.1426	WEIGHT TAKEN
LF THYROID/PARA (TT0)	.1220	.0031 %	.0021	WEIGHT TAKEN
RT THYROID/PARA (TT1)	.1460	.0037 %	.0025	WEIGHT TAKEN

O B S E R V A T I O N S

NECROPSY

LIVER (LI) :
-LIGHT FOCUS(I)/AREA(S); ALONG MARGIN OF LEFT LATERAL LOBE: SINGLE TAN AREA, 0.3 CM IN DIAMETER; COLLECTED ON ROUTINE SECTION

HISTOPATHOLOGY

LIVER (LI) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
-VACUOLATION, HEPATOCELLULAR, FOCAL,-MINIMAL

LUNG (LU) :
-PIGMENT,-MINIMAL
THYMUS (TH) :
-INVOLUTION,-MINIMAL
PITUITARY (PI) :
-INFILTRATE, LYMPHOCYTIC,-MINIMAL
SALIV GL, MANDIB (SG) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05721 SEX: MALE DOSE GROUP: 2 SACRIFICE STATUS: UNSCHEDULED (M)
DATE OF DEATH: 02/12/99 STUDY DAY OF DEATH: 137 STUDY WEEK OF DEATH: 20 TERMINAL BODY WEIGHT: 3995.0 GRAMS
DATE AND TIME OF NECROPSY: 02/12/99 14:25 PROSECTOR: LAURIE J. SCHULLER RECORDER: TERRI L. WILLIAMS
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: AS ASSIGNED WEIGHER: TERRI L. WILLIAMS

O B S E R V A T I O N S (CONTINUED)

NECROPSY

COLON (CO) :
-DIVERTICULUM(A); PROXIMAL TO CECUM: SINGLE DIVERTICULUM,
1.0 CM IN DIAMETER; COLLECTED

GENERAL COMMENT (GC) :
-BONE MARROW SMEAR TAKEN
-EYES - DAVIDSONS

HISTOPATHOLOGY

COLON (CO) :
>UNREMARKABLE
>NOTE:>THE SECTION FROM THE TISSUE IDENTIFIED AS A
DIVERTICULUM IS COMPOSED MICROSCOPICALLY OF NORMAL-
APPEARING COLONIC TISSUE.
URINARY BLADDER (UB) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
PROSTATE (PR) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
CAUSE OF DEATH (CD) :
-UNKNOWN,-PRESENT

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05721 SEX: MALE DOSE GROUP: 2 SACRIFICE STATUS: UNSCHEDULED (M)
DATE OF DEATH: 02/12/99 STUDY DAY OF DEATH: 137 STUDY WEEK OF DEATH: 20 TERMINAL BODY WEIGHT: 3995.0 GRAMS
DATE AND TIME OF NECROPSY: 02/12/99 14:25 PROSECTOR: LAURIE J. SCHULLER RECORDER: TERRI L. WILLIAMS
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: AS ASSIGNED WEIGHER: TERRI L. WILLIAMS

THE FOLLOWING ORGANS WERE UNREMARKABLE AT NECROPSY:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), LUNG (LU), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP), LN, MANDIBULAR (MN), LN, TRACHEOBRON (TB)

THE FOLLOWING TISSUES WERE UNREMARKABLE AT MICROSCOPIC EXAMINATION:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), HEART (HT), GALLBLADDER (GB), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05707 SEX: MALE DOSE GROUP: 3 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 4090.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 8:09 PROSECTOR: TODD ACKER RECORDER: LAURIE J. SCHULLER
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: LAURIE J. SCHULLER

ORGAN NAME	ABSOLUTE ORGAN WEIGHT (GRAMS)	ORGAN WEIGHT RELATIVE TO BODY WEIGHT (%)	ORGAN TO BRAIN WEIGHT RATIO	O R G A N S T A T U S
LF ADRENAL (AD0)	.2600	.0064 %	.0038	WEIGHT TAKEN
RT ADRENAL (AD1)	.2490	.0061 %	.0036	WEIGHT TAKEN
BRAIN (BR)	68.6950	1.6796 %	1.0000	WEIGHT TAKEN
LF EPIDIDYMIS (EP0)	.8690	.0212 %	.0127	WEIGHT TAKEN
RT EPIDIDYMIS (EP1)	.8850	.0216 %	.0129	WEIGHT TAKEN
LF KIDNEY (KD0)	7.9840	.1952 %	.1162	WEIGHT TAKEN
RT KIDNEY (KD1)	7.7280	.1889 %	.1125	WEIGHT TAKEN
LIVER (LI)	73.6910	1.8017 %	1.0727	WEIGHT TAKEN
PANCREAS (PA)	3.8970	.0953 %	.0567	WEIGHT TAKEN
LF TESTIS (TE0)	5.7840	.1414 %	.0842	WEIGHT TAKEN
RT TESTIS (TE1)	6.0340	.1475 %	.0878	WEIGHT TAKEN
LF THYROID/PARA (TT0)	.1490	.0036 %	.0022	WEIGHT TAKEN
RT THYROID/PARA (TT1)	.1690	.0041 %	.0025	WEIGHT TAKEN

O B S E R V A T I O N S

NECROPSY

LUNG (LU) :
-MOTTLED; ALL LOBES: RED AND GRAY

HISTOPATHOLOGY

LIVER (LI) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
LUNG (LU) :
-INFILTRATE, MACROPHAGE, ALVEOLAR,-MINIMAL
-PIGMENT,-MINIMAL
HEART (HT) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
LN, MESENTERIC (MS) :
-PIGMENT,-MINIMAL
THYROID (TY) :
-ECTOPIC THYMUS,-PRESENT
-INFILTRATE, LYMPHOHISTIOCYTIC,-SLIGHT

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05707 SEX: MALE DOSE GROUP: 3 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 4090.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 8:09 PROSECTOR: TODD ACKER RECORDER: LAURIE J. SCHULLER
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: LAURIE J. SCHULLER

O B S E R V A T I O N S (CONTINUED)

NECROPSY	HISTOPATHOLOGY
	PROSTATE (PR) : -INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL

GENERAL COMMENT (GC) :
-BONE MARROW SMEAR TAKEN
-EYES - DAVIDSONS

THE FOLLOWING ORGANS WERE UNREMARKABLE AT NECROPSY:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), LIVER (LI), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP), LN, MANDIBULAR (MN), LN, TRACHEOBRON (TB)

THE FOLLOWING TISSUES WERE UNREMARKABLE AT MICROSCOPIC EXAMINATION:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), GALLBLADDER (GB), THYMUS (TH), TRACHEA (TR), ESOPHAGUS (ES), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05708 SEX: MALE DOSE GROUP: 3 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 4285.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 11:05 PROSECTOR: STEVE VAN ADESTINE RECORDER: TERRI L. WILLIAMS
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: TERRI L. WILLIAMS

ORGAN NAME	ABSOLUTE ORGAN WEIGHT (GRAMS)	ORGAN WEIGHT RELATIVE TO BODY WEIGHT (%)	ORGAN TO BRAIN WEIGHT RATIO	ORGAN STATUS
LF ADRENAL (AD0)	.2260	.0053 %	.0034	WEIGHT TAKEN
RT ADRENAL (AD1)	.2200	.0051 %	.0033	WEIGHT TAKEN
BRAIN (BR)	67.1490	1.5671 %	1.0000	WEIGHT TAKEN
LF EPIDIDYMIS (EP0)	2.1590	.0504 %	.0322	WEIGHT TAKEN
RT EPIDIDYMIS (EP1)	2.2640	.0528 %	.0337	WEIGHT TAKEN
LF KIDNEY (KD0)	7.2760	.1698 %	.1084	WEIGHT TAKEN
RT KIDNEY (KD1)	6.9880	.1631 %	.1041	WEIGHT TAKEN
LIVER (LI)	79.9010	1.8647 %	1.1899	WEIGHT TAKEN
PANCREAS (PA)	5.6250	.1313 %	.0838	WEIGHT TAKEN
LF TESTIS (TE0)	16.7130	.3900 %	.2489	WEIGHT TAKEN
RT TESTIS (TE1)	15.2510	.3559 %	.2271	WEIGHT TAKEN
LF THYROID/PARA (TT0)	.4190	.0098 %	.0062	WEIGHT TAKEN
RT THYROID/PARA (TT1)	.4110	.0096 %	.0061	WEIGHT TAKEN

O B S E R V A T I O N S

NECROPSY

HISTOPATHOLOGY

ADRENAL, CORTEX (AC) :
-HYPERTROPHY, CORTICAL CELL,-MINIMAL
LIVER (LI) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
PANCREAS (PA) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
EYE (EY) :
-INFILTRATE, LYMPHOHISTIOCYTIC, CONJUNCTIVAL,-MINIMAL
KIDNEY (KD) :
-MINERALIZATION, TUBULAR,-MINIMAL
LUNG (LU) :
-INFILTRATE, MACROPHAGE, ALVEOLAR,-MINIMAL

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05708 SEX: MALE DOSE GROUP: 3 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 4285.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 11:05 PROSECTOR: STEVE VAN ADESTINE RECORDER: TERRI L. WILLIAMS
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: TERRI L. WILLIAMS

O B S E R V A T I O N S (CONTINUED)

NECROPSY	HISTOPATHOLOGY
	LUNG (LU) : -PIGMENT,-MINIMAL HEART (HT) : -INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL THYROID (TY) : -INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL SALIV GL, MANDIB (SG) : -INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL MUSCLE, SKELETAL (SM) : -DEGENERATION/NECROSIS,-SLIGHT -INFLAMMATION, ACUTE,-SLIGHT ILEUM (IL) : -INFILTRATE, EOSINOPHILIC,-SLIGHT MAMMARY, MALE (MM) : >SECTION EXAMINED; TISSUE NOT PRESENT URINARY BLADDER (UB) : -INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL SEMINAL VESICLES (SV) : -MINERALIZATION,-MINIMAL

GENERAL COMMENT (GC) :
-BONE MARROW SMEAR TAKEN
-EYES - DAVIDSONS
-NO MACROSCOPIC LESIONS

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05708 SEX: MALE DOSE GROUP: 3 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 4285.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 11:05 PROSECTOR: STEVE VAN ADESTINE RECORDER: TERRI L. WILLIAMS
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: TERRI L. WILLIAMS

THE FOLLOWING ORGANS WERE UNREMARKABLE AT NECROPSY:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), LIVER (LI), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), LUNG (LU), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP), LN, MANDIBULAR (MN), LN, TRACHEOBRON (TB)

THE FOLLOWING TISSUES WERE UNREMARKABLE AT MICROSCOPIC EXAMINATION:
ADRENAL, MEDULLA (MA), SPLEEN (SP), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), BRAIN (BR), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), PROSTATE (PR), EPIDIDYMIDES (EP)

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26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05710 SEX: MALE DOSE GROUP: 3 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 5185.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 10:12 PROSECTOR: TODD ACKER RECORDER: LAURIE J. SCHULLER
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: LAURIE J. SCHULLER

ORGAN NAME	ABSOLUTE ORGAN WEIGHT (GRAMS)	ORGAN WEIGHT RELATIVE TO BODY WEIGHT (%)	ORGAN TO BRAIN WEIGHT RATIO	O R G A N S T A T U S
LF ADRENAL (AD0)	.2870	.0055 %	.0047	WEIGHT TAKEN
RT ADRENAL (AD1)	.1700	.0033 %	.0028	WEIGHT TAKEN
BRAIN (BR)	60.6750	1.1702 %	1.0000	WEIGHT TAKEN
LF EPIDIDYMIS (EP0)	1.8850	.0364 %	.0311	WEIGHT TAKEN
RT EPIDIDYMIS (EP1)	1.7040	.0329 %	.0281	WEIGHT TAKEN
LF KIDNEY (KD0)	8.8300	.1703 %	.1455	WEIGHT TAKEN
RT KIDNEY (KD1)	8.9130	.1719 %	.1469	WEIGHT TAKEN
LIVER (LI)	96.5540	1.8622 %	1.5913	WEIGHT TAKEN
PANCREAS (PA)	5.0640	.0977 %	.0835	WEIGHT TAKEN
LF TESTIS (TE0)	13.9480	.2690 %	.2299	WEIGHT TAKEN
RT TESTIS (TE1)	12.8270	.2474 %	.2114	WEIGHT TAKEN
LF THYROID/PARA (TT0)	.4870	.0094 %	.0080	WEIGHT TAKEN
RT THYROID/PARA (TT1)	.4000	.0077 %	.0066	WEIGHT TAKEN

O B S E R V A T I O N S

NECROPSY

LIVER (LI) :
-DIFFUSELY DARK; ALL LOBES: BROWN

HISTOPATHOLOGY

LIVER (LI) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
KIDNEY (KD) :
-MINERALIZATION, TUBULAR,-MINIMAL
LUNG (LU) :
-INFILTRATE, MACROPHAGE, ALVEOLAR,-MINIMAL
-PIGMENT,-MINIMAL
THYMUS (TH) :
-INVOLUTION,-MODERATE
THYROID (TY) :
-CYST, THYROGLOSSAL,-PRESENT

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26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05710 SEX: MALE DOSE GROUP: 3 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 5185.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 10:12 PROSECTOR: TODD ACKER RECORDER: LAURIE J. SCHULLER
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: LAURIE J. SCHULLER

O B S E R V A T I O N S (CONTINUED)

NECROPSY	HISTOPATHOLOGY
PARATHYROID (PT) : -CYST(S); LEFT: SINGLE CLEAR FLUID FILLED CYST, 0.5 CM IN DIAMETER	PARATHYROID (PT) : -CYST, GLANDULAR,-PRESENT
	DUODENUM (DU) : -PARASITISM,-PRESENT
	CECUM (CE) : -INFLAMMATION, GRANULOMATOUS,-MODERATE
	RECTUM (RE) : -INFLAMMATION, GRANULOMATOUS,-SLIGHT
	URINARY BLADDER (UB) : -INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
	PROSTATE (PR) : -INFLAMMATION, SUBACUTE,-MINIMAL
LN, TRACHEOBRON (TB) : -DIFFUSELY DARK; BROWN (CAP 32)	LN, TRACHEOBRON (TB) : -PIGMENT,-SLIGHT
GENERAL COMMENT (GC) : -BONE MARROW SMEAR TAKEN -EYES - DAVIDSONS	

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05710 SEX: MALE DOSE GROUP: 3 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 5185.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 10:12 PROSECTOR: TODD ACKER RECORDER: LAURIE J. SCHULLER
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: LAURIE J. SCHULLER

THE FOLLOWING ORGANS WERE UNREMARKABLE AT NECROPSY:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), LUNG (LU), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP), LN, MANDIBULAR (MN)

THE FOLLOWING TISSUES WERE UNREMARKABLE AT MICROSCOPIC EXAMINATION:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), HEART (HT), GALLBLADDER (GB), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), JEJUNUM (JE), ILEUM (IL), COLON (CO), SKIN (SK), MAMMARY, MALE (MM), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP)

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26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05712 SEX: MALE DOSE GROUP: 3 SACRIFICE STATUS: SCHEDULED, FIRST POST-RECOV SAC
DATE OF DEATH: 07/02/99 STUDY DAY OF DEATH: 277 STUDY WEEK OF DEATH: 40 TERMINAL BODY WEIGHT: 4370.0 GRAMS
DATE AND TIME OF NECROPSY: 07/02/99 8:00 PROSECTOR: STEVE VAN ADESTINE RECORDER: JODI THIEREN
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: JODI THIEREN

ORGAN NAME	ABSOLUTE ORGAN WEIGHT (GRAMS)	ORGAN WEIGHT RELATIVE TO BODY WEIGHT (%)	ORGAN TO BRAIN WEIGHT RATIO	O R G A N S T A T U S
LF ADRENAL (AD0)	.2410	.0055 %	.0039	WEIGHT TAKEN
RT ADRENAL (AD1)	.1650	.0038 %	.0026	WEIGHT TAKEN
BRAIN (BR)	62.4710	1.4295 %	1.0000	WEIGHT TAKEN
LF EPIDIDYMIS (EP0)	1.7270	.0395 %	.0276	WEIGHT TAKEN
RT EPIDIDYMIS (EP1)	1.4860	.0340 %	.0238	WEIGHT TAKEN
LF KIDNEY (KD0)	6.5780	.1505 %	.1053	WEIGHT TAKEN
RT KIDNEY (KD1)	6.0930	.1394 %	.0975	WEIGHT TAKEN
LIVER (LI)	69.7310	1.5957 %	1.1162	WEIGHT TAKEN
PANCREAS (PA)	5.5490	.1270 %	.0888	WEIGHT TAKEN
LF TESTIS (TE0)	9.9860	.2285 %	.1599	WEIGHT TAKEN
RT TESTIS (TE1)	10.5520	.2415 %	.1689	WEIGHT TAKEN
LF THYROID/PARA (TT0)	.1940	.0044 %	.0031	WEIGHT TAKEN
RT THYROID/PARA (TT1)	.1630	.0037 %	.0026	WEIGHT TAKEN

O B S E R V A T I O N S

NECROPSY

HISTOPATHOLOGY

ADRENAL, CORTEX (AC) :
-CORTICAL TISSUE, EXTRACAPSULAR,-MINIMAL
LIVER (LI) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
LUNG (LU) :
-PIGMENT,-MINIMAL
THYROID (TY) :
-CYST, GLANDULAR,-PRESENT
AORTA (AO) :
-THICKENING, INTIMAL,-MINIMAL
SALIV GL, MANDIB (SG) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05712 SEX: MALE DOSE GROUP: 3 SACRIFICE STATUS: SCHEDULED, FIRST POST-RECOV SAC
DATE OF DEATH: 07/02/99 STUDY DAY OF DEATH: 277 STUDY WEEK OF DEATH: 40 TERMINAL BODY WEIGHT: 4370.0 GRAMS
DATE AND TIME OF NECROPSY: 07/02/99 8:00 PROSECTOR: STEVE VAN ADESTINE RECORDER: JODI THIEREN
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: JODI THIEREN

O B S E R V A T I O N S (CONTINUED)

NECROPSY	HISTOPATHOLOGY
	STOMACH, GL (ST) : -INFLAMMATION, CHRONIC,-SLIGHT -PARASITISM,-PRESENT URINARY BLADDER (UB) : -INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL PROSTATE (PR) : -INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL

GENERAL COMMENT (GC) :
-BONE MARROW SMEAR TAKEN
-EYES - DAVIDSONS
-NO MACROSCOPIC LESIONS

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05712 SEX: MALE DOSE GROUP: 3 SACRIFICE STATUS: SCHEDULED, FIRST POST-RECOV SAC
DATE OF DEATH: 07/02/99 STUDY DAY OF DEATH: 277 STUDY WEEK OF DEATH: 40 TERMINAL BODY WEIGHT: 4370.0 GRAMS
DATE AND TIME OF NECROPSY: 07/02/99 8:00 PROSECTOR: STEVE VAN ADESTINE RECORDER: JODI THIEREN
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: JODI THIEREN

THE FOLLOWING ORGANS WERE UNREMARKABLE AT NECROPSY:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), LIVER (LI), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), LUNG (LU), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP), LN, MANDIBULAR (MN), LN, TRACHEOBRON (TB)

THE FOLLOWING TISSUES WERE UNREMARKABLE AT MICROSCOPIC EXAMINATION:
ADRENAL, MEDULLA (MA), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), PARATHYROID (PT), PITUITARY (PI), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP)

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26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05716 SEX: MALE DOSE GROUP: 3 SACRIFICE STATUS: SCHEDULED, FIRST POST-RECOV SAC
DATE OF DEATH: 07/02/99 STUDY DAY OF DEATH: 277 STUDY WEEK OF DEATH: 40 TERMINAL BODY WEIGHT: 3495.0 GRAMS
DATE AND TIME OF NECROPSY: 07/02/99 8:45 PROSECTOR: STEVE VAN ADESTINE RECORDER: JODI THIEREN
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: JODI THIEREN

ORGAN NAME	ABSOLUTE ORGAN WEIGHT (GRAMS)	ORGAN WEIGHT RELATIVE TO BODY WEIGHT (%)	ORGAN TO BRAIN WEIGHT RATIO	O R G A N S T A T U S
LF ADRENAL (AD0)	.3130	.0090 %	.0044	WEIGHT TAKEN
RT ADRENAL (AD1)	.2190	.0063 %	.0031	WEIGHT TAKEN
BRAIN (BR)	71.1770	2.0365 %	1.0000	WEIGHT TAKEN
LF EPIDIDYMIS (EP0)	1.5920	.0456 %	.0224	WEIGHT TAKEN
RT EPIDIDYMIS (EP1)	1.7130	.0490 %	.0241	WEIGHT TAKEN
LF KIDNEY (KD0)	5.1720	.1480 %	.0727	WEIGHT TAKEN
RT KIDNEY (KD1)	5.1810	.1482 %	.0728	WEIGHT TAKEN
LIVER (LI)	62.3470	1.7839 %	.8759	WEIGHT TAKEN
PANCREAS (PA)	5.4140	.1549 %	.0761	WEIGHT TAKEN
LF TESTIS (TE0)	10.1740	.2911 %	.1429	WEIGHT TAKEN
RT TESTIS (TE1)	9.9220	.2839 %	.1394	WEIGHT TAKEN
LF THYROID/PARA (TT0)	.4390	.0126 %	.0062	WEIGHT TAKEN
RT THYROID/PARA (TT1)	.4370	.0125 %	.0061	WEIGHT TAKEN

O B S E R V A T I O N S

NECROPSY

HISTOPATHOLOGY

ADRENAL, CORTEX (AC) :
-CORTICAL TISSUE, EXTRACAPSULAR,-MINIMAL
BRAIN (BR) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
LUNG (LU) :
-PIGMENT,-MINIMAL
HEART (HT) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
PARATHYROID (PT) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
SALIV GL, MANDIB (SG) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL

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26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05716 SEX: MALE DOSE GROUP: 3 SACRIFICE STATUS: SCHEDULED, FIRST POST-RECOV SAC
DATE OF DEATH: 07/02/99 STUDY DAY OF DEATH: 277 STUDY WEEK OF DEATH: 40 TERMINAL BODY WEIGHT: 3495.0 GRAMS
DATE AND TIME OF NECROPSY: 07/02/99 8:45 PROSECTOR: STEVE VAN ADESTINE RECORDER: JODI THIEREN
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: JODI THIEREN

O B S E R V A T I O N S (CONTINUED)

NECROPSY	HISTOPATHOLOGY
	MUSCLE, SKELETAL (SM) : -PARASITISM,-PRESENT URINARY BLADDER (UB) : -INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL PROSTATE (PR) : -INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL

GENERAL COMMENT (GC) :
-BONE MARROW SMEAR TAKEN
-EYES - DAVIDSONS
-NO MACROSCOPIC LESIONS

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05716 SEX: MALE DOSE GROUP: 3 SACRIFICE STATUS: SCHEDULED, FIRST POST-RECOV SAC
DATE OF DEATH: 07/02/99 STUDY DAY OF DEATH: 277 STUDY WEEK OF DEATH: 40 TERMINAL BODY WEIGHT: 3495.0 GRAMS
DATE AND TIME OF NECROPSY: 07/02/99 8:45 PROSECTOR: STEVE VAN ADESTINE RECORDER: JODI THIEREN
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: JODI THIEREN

THE FOLLOWING ORGANS WERE UNREMARKABLE AT NECROPSY:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), LIVER (LI), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), LUNG (LU), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP), LN, MANDIBULAR (MN), LN, TRACHEOBRON (TB)

THE FOLLOWING TISSUES WERE UNREMARKABLE AT MICROSCOPIC EXAMINATION:
ADRENAL, MEDULLA (MA), LIVER (LI), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), KIDNEY (KD), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), AORTA (AO), PITUITARY (PI), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP)

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26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05719 SEX: MALE DOSE GROUP: 3 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 4230.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 11:36 PROSECTOR: TODD ACKER RECORDER: LAURIE J. SCHULLER
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: LAURIE J. SCHULLER

ORGAN NAME	ABSOLUTE ORGAN WEIGHT (GRAMS)	ORGAN WEIGHT RELATIVE TO BODY WEIGHT (%)	ORGAN TO BRAIN WEIGHT RATIO	O R G A N S T A T U S
LF ADRENAL (AD0)	.4390	.0104 %	.0072	WEIGHT TAKEN
RT ADRENAL (AD1)	.2920	.0069 %	.0048	WEIGHT TAKEN
BRAIN (BR)	60.5780	1.4321 %	1.0000	WEIGHT TAKEN
LF EPIDIDYMIS (EP0)	1.8910	.0447 %	.0312	WEIGHT TAKEN
RT EPIDIDYMIS (EP1)	1.8030	.0426 %	.0298	WEIGHT TAKEN
LF KIDNEY (KD0)	8.1130	.1918 %	.1339	WEIGHT TAKEN
RT KIDNEY (KD1)	7.9120	.1870 %	.1306	WEIGHT TAKEN
LIVER (LI)	82.5510	1.9516 %	1.3627	WEIGHT TAKEN
PANCREAS (PA)	6.4950	.1535 %	.1072	WEIGHT TAKEN
LF TESTIS (TE0)	12.2990	.2908 %	.2030	WEIGHT TAKEN
RT TESTIS (TE1)	11.9690	.2830 %	.1976	WEIGHT TAKEN
LF THYROID/PARA (TT0)	.2810	.0066 %	.0046	WEIGHT TAKEN
RT THYROID/PARA (TT1)	.2740	.0065 %	.0045	WEIGHT TAKEN

O B S E R V A T I O N S

NECROPSY

HISTOPATHOLOGY

ADRENAL, CORTEX (AC) :
-HYPERTROPHY, CORTICAL CELL,-MINIMAL
-MINERALIZATION,-SLIGHT
LIVER (LI) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
KIDNEY (KD) :
-MINERALIZATION, TUBULAR,-MINIMAL
LUNG (LU) :
-PIGMENT,-MINIMAL
THYMUS (TH) :
-INVOLUTION,-MODERATE

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05719 SEX: MALE DOSE GROUP: 3 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 4230.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 11:36 PROSECTOR: TODD ACKER RECORDER: LAURIE J. SCHULLER
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: LAURIE J. SCHULLER

O B S E R V A T I O N S (CONTINUED)

NECROPSY	HISTOPATHOLOGY
	THYROID (TY) : -ECTOPIC THYMUS,-PRESENT
SKIN (SK) : -CRUSTED AREA(S); LEFT SIDE OF MUZZLE: SINGLE DARK BROWN, DRY AREA, 0.6 CM IN DIAMETER (CAP 32)	SKIN (SK) : -ACANTHOSIS,-MODERATE -INFLAMMATION, CHRONIC,-SLIGHT
	URINARY BLADDER (UB) : -INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
	PROSTATE (PR) : -INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
	SEMINAL VESICLES (SV) : -MINERALIZATION,-MINIMAL
GENERAL COMMENT (GC) : -BONE MARROW SMEAR TAKEN -EYES - DAVIDSONS	

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05719 SEX: MALE DOSE GROUP: 3 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 4230.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 11:36 PROSECTOR: TODD ACKER RECORDER: LAURIE J. SCHULLER
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: LAURIE J. SCHULLER

THE FOLLOWING ORGANS WERE UNREMARKABLE AT NECROPSY:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), LIVER (LI), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), LUNG (LU), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), MAMMARY, MALE (MM), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP), LN, MANDIBULAR (MN), LN, TRACHEOBRON (TB)

THE FOLLOWING TISSUES WERE UNREMARKABLE AT MICROSCOPIC EXAMINATION:
ADRENAL, MEDULLA (MA), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), HEART (HT), GALLBLADDER (GB), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), MAMMARY, MALE (MM), EPIDIDYMIDES (EP)

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26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05703 SEX: MALE DOSE GROUP: 4 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 3395.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 8:58 PROSECTOR: STEVE VAN ADESTINE RECORDER: TERRI L. WILLIAMS
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: TERRI L. WILLIAMS

ORGAN NAME	ABSOLUTE ORGAN WEIGHT (GRAMS)	ORGAN WEIGHT RELATIVE TO BODY WEIGHT (%)	ORGAN TO BRAIN WEIGHT RATIO	O R G A N S T A T U S
LF ADRENAL (AD0)	.3150	.0093 %	.0045	EXCLUDE
RT ADRENAL (AD1)	.2230	.0066 %	.0032	EXCLUDE
BRAIN (BR)	70.4970	2.0765 %	1.0000	EXCLUDE
LF EPIDIDYMIS (EP0)	1.0740	.0316 %	.0152	EXCLUDE
RT EPIDIDYMIS (EP1)	1.1260	.0332 %	.0160	EXCLUDE
LF KIDNEY (KD0)	5.2860	.1557 %	.0750	EXCLUDE
RT KIDNEY (KD1)	5.3070	.1563 %	.0753	EXCLUDE
LIVER (LI)	63.4060	1.8676 %	.8994	EXCLUDE
PANCREAS (PA)	5.1560	.1519 %	.0731	EXCLUDE
LF TESTIS (TE0)	5.4680	.1611 %	.0776	EXCLUDE
RT TESTIS (TE1)	5.6610	.1667 %	.0803	EXCLUDE
LF THYROID/PARA (TT0)	.1370	.0040 %	.0019	EXCLUDE
RT THYROID/PARA (TT1)	.1310	.0039 %	.0019	EXCLUDE

O B S E R V A T I O N S

NECROPSY

HISTOPATHOLOGY

LIVER (LI) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
BRAIN (BR) :
-MINERALIZATION,-MINIMAL
KIDNEY (KD) :
-MINERALIZATION, TUBULAR,-MINIMAL
LUNG (LU) :
-PIGMENT,-MINIMAL
LN, MESENTERIC (MS) :
-INFILTRATE, EOSINOPHILIC,-MINIMAL
THYROID (TY) :
-ECTOPIC THYMUS,-PRESENT

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05703 SEX: MALE DOSE GROUP: 4 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 3395.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 8:58 PROSECTOR: STEVE VAN ADESTINE RECORDER: TERRI L. WILLIAMS
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: TERRI L. WILLIAMS

O B S E R V A T I O N S (CONTINUED)

NECROPSY	HISTOPATHOLOGY
	SALIV GL, MANDIB (SG) : -INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL URINARY BLADDER (UB) : -INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL

GENERAL COMMENT (GC) :
-BONE MARROW SMEAR TAKEN
-EYES - DAVIDSONS
-NO MACROSCOPIC LESIONS

THE FOLLOWING ORGANS WERE UNREMARKABLE AT NECROPSY:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), LIVER (LI), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), LUNG (LU), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP), LN, MANDIBULAR (MN), LN, TRACHEOBRON (TB)

THE FOLLOWING TISSUES WERE UNREMARKABLE AT MICROSCOPIC EXAMINATION:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), HEART (HT), GALLBLADDER (GB), THYMUS (TH), TRACHEA (TR), ESOPHAGUS (ES), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP)

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26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05704 SEX: MALE DOSE GROUP: 4 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 4275.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 11:20 PROSECTOR: NANCY DIEDRICH RECORDER: JERALD W. JOHNSON
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: JERALD W. JOHNSON

ORGAN NAME	ABSOLUTE ORGAN WEIGHT (GRAMS)	ORGAN WEIGHT RELATIVE TO BODY WEIGHT (%)	ORGAN TO BRAIN WEIGHT RATIO	O R G A N S T A T U S
LF ADRENAL (AD0)	.3540	.0083 %	.0046	WEIGHT TAKEN
RT ADRENAL (AD1)	.3250	.0076 %	.0042	WEIGHT TAKEN
BRAIN (BR)	76.8210	1.7970 %	1.0000	WEIGHT TAKEN
LF EPIDIDYMIS (EP0)	1.6580	.0388 %	.0216	WEIGHT TAKEN
RT EPIDIDYMIS (EP1)	1.5980	.0374 %	.0208	WEIGHT TAKEN
LF KIDNEY (KD0)	8.3990	.1965 %	.1093	WEIGHT TAKEN
RT KIDNEY (KD1)	8.4590	.1979 %	.1101	WEIGHT TAKEN
LIVER (LI)	87.4080	2.0446 %	1.1378	WEIGHT TAKEN
PANCREAS (PA)	6.4850	.1517 %	.0844	WEIGHT TAKEN
LF TESTIS (TE0)	8.7630	.2050 %	.1141	WEIGHT TAKEN
RT TESTIS (TE1)	8.4290	.1972 %	.1097	WEIGHT TAKEN
LF THYROID/PARA (TT0)	.2930	.0069 %	.0038	WEIGHT TAKEN
RT THYROID/PARA (TT1)	.3050	.0071 %	.0040	WEIGHT TAKEN

O B S E R V A T I O N S

NECROPSY

LIVER (LI) :
>NOTE:>TRIMMING COMMENT: LIVER GALLBLADDER SECTION NOT FOUND AT TRIMMING

HISTOPATHOLOGY

LIVER (LI) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL

KIDNEY (KD) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
LUNG (LU) :
-PIGMENT,-MINIMAL
THYROID (TY) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
URINARY BLADDER (UB) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05704 SEX: MALE DOSE GROUP: 4 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 4275.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 11:20 PROSECTOR: NANCY DIEDRICH RECORDER: JERALD W. JOHNSON
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: JERALD W. JOHNSON

O B S E R V A T I O N S (CONTINUED)

NECROPSY	HISTOPATHOLOGY
	PROSTATE (PR) : -INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL

GENERAL COMMENT (GC) :
-BONE MARROW SMEAR TAKEN
-EYES - DAVIDSONS
-NO MACROSCOPIC LESIONS

THE FOLLOWING ORGANS WERE UNREMARKABLE AT NECROPSY:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), LIVER (LI), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), LUNG (LU), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP), LN, MANDIBULAR (MN), LN, TRACHEOBRON (TB)

THE FOLLOWING TISSUES WERE UNREMARKABLE AT MICROSCOPIC EXAMINATION:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP)

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26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05711 SEX: MALE DOSE GROUP: 4 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 3850.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 12:20 PROSECTOR: TODD ACKER RECORDER: LAURIE J. SCHULLER
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: LAURIE J. SCHULLER

ORGAN NAME	ABSOLUTE ORGAN WEIGHT (GRAMS)	ORGAN WEIGHT RELATIVE TO BODY WEIGHT (%)	ORGAN TO BRAIN WEIGHT RATIO	O R G A N S T A T U S
LF ADRENAL (AD0)	.3190	.0083 %	.0055	EXCLUDE
RT ADRENAL (AD1)	.3180	.0083 %	.0055	EXCLUDE
BRAIN (BR)	57.7460	1.4999 %	1.0000	EXCLUDE
LF EPIDIDYMIS (EP0)	1.8990	.0493 %	.0329	EXCLUDE
RT EPIDIDYMIS (EP1)	1.9690	.0511 %	.0341	EXCLUDE
LF KIDNEY (KD0)	6.1270	.1591 %	.1061	EXCLUDE
RT KIDNEY (KD1)	6.7780	.1761 %	.1174	EXCLUDE
LIVER (LI)	59.5960	1.5479 %	1.0320	EXCLUDE
PANCREAS (PA)	4.7660	.1238 %	.0825	EXCLUDE
LF TESTIS (TE0)	14.5170	.3771 %	.2514	EXCLUDE
RT TESTIS (TE1)	13.5200	.3512 %	.2341	EXCLUDE
LF THYROID/PARA (TT0)	.1430	.0037 %	.0025	EXCLUDE
RT THYROID/PARA (TT1)	.1270	.0033 %	.0022	EXCLUDE

O B S E R V A T I O N S

NECROPSY

KIDNEY (KD) :
-CYST(S); RIGHT CORTICAL SURFACE: SINGLE CLEAR FLUID FILLED CYST, 0.4 CM IN DIAMETER

HISTOPATHOLOGY

ADRENAL, CORTEX (AC) :
-CORTICAL TISSUE, EXTRACAPSULAR,-SLIGHT
-ECTOPIC ZONA GLOMERULOSA-LIKE CELLS, ZONA FASCICULATA,-PRESENT
LIVER (LI) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
-PIGMENT, KUPFFER CELL,-MINIMAL
BRAIN (BR) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
KIDNEY (KD) :
-CYST,-MODERATE
-MINERALIZATION, TUBULAR,-MINIMAL

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05711 SEX: MALE DOSE GROUP: 4 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 3850.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 12:20 PROSECTOR: TODD ACKER RECORDER: LAURIE J. SCHULLER
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: LAURIE J. SCHULLER

O B S E R V A T I O N S (CONTINUED)

NECROPSY	HISTOPATHOLOGY
	LUNG (LU) :
	-INFILTRATE, MACROPHAGE, ALVEOLAR,-MINIMAL
	-PIGMENT,-MINIMAL
	HEART (HT) :
	-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
	STOMACH, GL (ST) :
	-INFLAMMATION, GRANULOMATOUS,-SLIGHT
	-PARASITISM,-PRESENT
	PROSTATE (PR) :
	-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
	EPIDIDYMIDES (EP) :
	-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
LN, MANDIBULAR (MN) :	LN, MANDIBULAR (MN) :
-LARGE; BILATERAL: EACH IS UP TO 1.4 X 1.0 X 0.8 CM (CAP 32)	>UNREMARKABLE
GENERAL COMMENT (GC) :	
-BONE MARROW SMEAR TAKEN	
-EYES - DAVIDSONS	

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05711 SEX: MALE DOSE GROUP: 4 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 3850.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 12:20 PROSECTOR: TODD ACKER RECORDER: LAURIE J. SCHULLER
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: LAURIE J. SCHULLER

THE FOLLOWING ORGANS WERE UNREMARKABLE AT NECROPSY:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), LIVER (LI), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), LUNG (LU), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP), LN, TRACHEOBRON (TB)

THE FOLLOWING TISSUES WERE UNREMARKABLE AT MICROSCOPIC EXAMINATION:
ADRENAL, MEDULLA (MA), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), SEMINAL VESICLES (SV)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05713 SEX: MALE DOSE GROUP: 4 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 3375.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 8:17 PROSECTOR: STEVE VAN ADESTINE RECORDER: TERRI L. WILLIAMS
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: TERRI L. WILLIAMS

ORGAN NAME	ABSOLUTE ORGAN WEIGHT (GRAMS)	ORGAN WEIGHT RELATIVE TO BODY WEIGHT (%)	ORGAN TO BRAIN WEIGHT RATIO	O R G A N S T A T U S
LF ADRENAL (AD0)	.3100	.0092 %	.0043	WEIGHT TAKEN
RT ADRENAL (AD1)	.1990	.0059 %	.0028	WEIGHT TAKEN
BRAIN (BR)	71.6710	2.1236 %	1.0000	WEIGHT TAKEN
LF EPIDIDYMIS (EP0)	2.1310	.0631 %	.0297	WEIGHT TAKEN
RT EPIDIDYMIS (EP1)	1.9500	.0578 %	.0272	WEIGHT TAKEN
LF KIDNEY (KD0)	9.8190	.2909 %	.1370	WEIGHT TAKEN
RT KIDNEY (KD1)	9.8410	.2916 %	.1373	WEIGHT TAKEN
LIVER (LI)	93.3770	2.7667 %	1.3029	WEIGHT TAKEN
PANCREAS (PA)	6.0370	.1789 %	.0842	WEIGHT TAKEN
LF TESTIS (TE0)	11.8290	.3505 %	.1650	WEIGHT TAKEN
RT TESTIS (TE1)	11.3470	.3362 %	.1583	WEIGHT TAKEN
LF THYROID/PARA (TT0)	.1940	.0057 %	.0027	WEIGHT TAKEN
RT THYROID/PARA (TT1)	.1250	.0037 %	.0017	WEIGHT TAKEN

O B S E R V A T I O N S

NECROPSY

HISTOPATHOLOGY

ADRENAL, CORTEX (AC) :
-HYPERTROPHY, CORTICAL CELL,-MINIMAL
LIVER (LI) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
TESTIS (TE) :
-ATROPHY/DEGENERATION,-MINIMAL
LUNG (LU) :
-PIGMENT,-MINIMAL
>NOTE:>PIGMENT IS ALSO PRESENT IN THE MEDULLA OF A TRACHEOBRONCHIAL LYMPH NODE AT THE PERIPHERY OF THE SECTION.

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05713 SEX: MALE DOSE GROUP: 4 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 3375.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 8:17 PROSECTOR: STEVE VAN ADESTINE RECORDER: TERRI L. WILLIAMS
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: TERRI L. WILLIAMS

O B S E R V A T I O N S (CONTINUED)

NECROPSY	HISTOPATHOLOGY
	LN, MESENTERIC (MS) : -PIGMENT,-MINIMAL URINARY BLADDER (UB) : -INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL PROSTATE (PR) : -INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL

GENERAL COMMENT (GC) :
-BONE MARROW SMEAR TAKEN
-EYES - DAVIDSONS
-NO MACROSCOPIC LESIONS

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05713 SEX: MALE DOSE GROUP: 4 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 3375.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 8:17 PROSECTOR: STEVE VAN ADESTINE RECORDER: TERRI L. WILLIAMS
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: TERRI L. WILLIAMS

THE FOLLOWING ORGANS WERE UNREMARKABLE AT NECROPSY:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), LIVER (LI), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), LUNG (LU), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP), LN, MANDIBULAR (MN), LN, TRACHEOBRON (TB)

THE FOLLOWING TISSUES WERE UNREMARKABLE AT MICROSCOPIC EXAMINATION:
ADRENAL, MEDULLA (MA), SPLEEN (SP), PANCREAS (PA), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), HEART (HT), GALLBLADDER (GB), THYMUS (TH), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP)

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26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05722 SEX: MALE DOSE GROUP: 4 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 4730.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 8:37 PROSECTOR: TODD ACKER RECORDER: LAURIE J. SCHULLER
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: LAURIE J. SCHULLER

ORGAN NAME	ABSOLUTE ORGAN WEIGHT (GRAMS)	ORGAN WEIGHT RELATIVE TO BODY WEIGHT (%)	ORGAN TO BRAIN WEIGHT RATIO	O R G A N S T A T U S
LF ADRENAL (AD0)	.3570	.0075 %	.0049	EXCLUDE
RT ADRENAL (AD1)	.2810	.0059 %	.0039	EXCLUDE
BRAIN (BR)	72.5150	1.5331 %	1.0000	EXCLUDE
LF EPIDIDYMIS (EP0)	1.4080	.0298 %	.0194	EXCLUDE
RT EPIDIDYMIS (EP1)	1.6810	.0355 %	.0232	EXCLUDE
LF KIDNEY (KD0)	9.3880	.1985 %	.1295	EXCLUDE
RT KIDNEY (KD1)	8.4920	.1795 %	.1171	EXCLUDE
LIVER (LI)	94.6850	2.0018 %	1.3057	EXCLUDE
PANCREAS (PA)	5.9610	.1260 %	.0822	EXCLUDE
LF TESTIS (TE0)	9.1580	.1936 %	.1263	EXCLUDE
RT TESTIS (TE1)	8.6990	.1839 %	.1200	EXCLUDE
LF THYROID/PARA (TT0)	.3060	.0065 %	.0042	EXCLUDE
RT THYROID/PARA (TT1)	.2680	.0057 %	.0037	EXCLUDE

O B S E R V A T I O N S

NECROPSY

HISTOPATHOLOGY

LIVER (LI) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL
-PIGMENT, KUPFFER CELL,-MINIMAL
LUNG (LU) :
-PIGMENT,-MINIMAL
THYROID (TY) :
-ECTOPIC THYMUS,-PRESENT
URINARY BLADDER (UB) :
-INFILTRATE, LYMPHOHISTIOCYTIC,-MINIMAL

GENERAL COMMENT (GC) :
-BONE MARROW SMEAR TAKEN
-EYES - DAVIDSONS

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05722 SEX: MALE DOSE GROUP: 4 SACRIFICE STATUS: SCHEDULED, TERMINAL SACRIFICE
DATE OF DEATH: 03/31/99 STUDY DAY OF DEATH: 184 STUDY WEEK OF DEATH: 27 TERMINAL BODY WEIGHT: 4730.0 GRAMS
DATE AND TIME OF NECROPSY: 03/31/99 8:37 PROSECTOR: TODD ACKER RECORDER: LAURIE J. SCHULLER
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: LAURIE J. SCHULLER

O B S E R V A T I O N S (CONTINUED)

NECROPSY

GENERAL COMMENT (GC) :
-NO MACROSCOPIC LESIONS

THE FOLLOWING ORGANS WERE UNREMARKABLE AT NECROPSY:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), LIVER (LI), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), LUNG (LU), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP), LN, MANDIBULAR (MN), LN, TRACHEOBRON (TB)

HISTOPATHOLOGY

THE FOLLOWING TISSUES WERE UNREMARKABLE AT MICROSCOPIC EXAMINATION:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), HEART (HT), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), ESOPHAGUS (ES), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), STOMACH, GL (ST), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP)

PAGE: 56

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05724 SEX: MALE DOSE GROUP: 4 SACRIFICE STATUS: UNSCHEDULED (M)
DATE OF DEATH: 10/27/98 STUDY DAY OF DEATH: 29 STUDY WEEK OF DEATH: 5 TERMINAL BODY WEIGHT: 3505.0 GRAMS
DATE AND TIME OF NECROPSY: 10/27/98 8:40 PROSECTOR: TODD ACKER RECORDER: NANCY DIEDRICH
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: NANCY DIEDRICH

ORGAN NAME	ABSOLUTE ORGAN WEIGHT (GRAMS)	ORGAN WEIGHT RELATIVE TO BODY WEIGHT (%)	ORGAN TO BRAIN WEIGHT RATIO	O R G A N S T A T U S
LF ADRENAL (AD0)	.3680	.0105 %	.0066	WEIGHT TAKEN
RT ADRENAL (AD1)	.2850	.0081 %	.0051	WEIGHT TAKEN
BRAIN (BR)	56.1560	1.6022 %	1.0000	WEIGHT TAKEN
LF EPIDIDYMIS (EP0)	1.1670	.0333 %	.0208	WEIGHT TAKEN
RT EPIDIDYMIS (EP1)	1.3200	.0377 %	.0235	WEIGHT TAKEN
LF KIDNEY (KD0)	7.9420	.2266 %	.1414	WEIGHT TAKEN
RT KIDNEY (KD1)	7.6550	.2184 %	.1363	WEIGHT TAKEN
LIVER (LI)	83.1880	2.3734 %	1.4814	WEIGHT TAKEN
PANCREAS (PA)	6.3820	.1821 %	.1136	WEIGHT TAKEN
LF TESTIS (TE0)	5.0850	.1451 %	.0906	WEIGHT TAKEN
RT TESTIS (TE1)	5.3130	.1516 %	.0946	WEIGHT TAKEN
LF THYROID/PARA (TT0)	.1970	.0056 %	.0035	WEIGHT TAKEN
RT THYROID/PARA (TT1)	.2210	.0063 %	.0039	WEIGHT TAKEN

O B S E R V A T I O N S

NECROPSY

LIVER (LI) :
-DIFFUSELY LIGHT; ALL LOBES: TAN

HISTOPATHOLOGY

ADRENAL, CORTEX (AC) :
-HYPERTROPHY, CORTICAL CELL,-MINIMAL
LIVER (LI) :
-BASOPHILIA, HEPATOCELLULAR, CENTRILOBILAR,-MODERATE
-DEGENERATION, HEPATOCELLULAR, CENTRILOBULAR AND MIDZONAL,-MODERATE
-INFILTRATE, LYMPHOHISTIOCYTIC,-SLIGHT
-PIGMENT, KUPFFER CELL,-MINIMAL
-VACUOLATION, HEPATOCELLULAR, DIFFUSE,-MODERATELY SEVERE
>NOTE:>DEGENERATING HEPATOCYTES IN MIDZONAL AREAS HAVE BRIGHTLY EOSINOPHILIC GLOBULAR INTRACYTOPLASMIC MATERIAL.

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05724 SEX: MALE DOSE GROUP: 4 SACRIFICE STATUS: UNSCHEDULED (M)
DATE OF DEATH: 10/27/98 STUDY DAY OF DEATH: 29 STUDY WEEK OF DEATH: 5 TERMINAL BODY WEIGHT: 3505.0 GRAMS
DATE AND TIME OF NECROPSY: 10/27/98 8:40 PROSECTOR: TODD ACKER RECORDER: NANCY DIEDRICH
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: NANCY DIEDRICH

O B S E R V A T I O N S (CONTINUED)

NECROPSY

HEART (HT) :
-DIFFUSELY LIGHT; TAN

ESOPHAGUS (ES) :
-THICKENED WALL; AREA THAT LIES ALONG THE LUNGS: FIRM
-LARGE; AREA THAT LIES ALONG THE LUNGS: UP TO 1.0 CM IN DIAMETER

STOMACH, GL (ST) :
-THICKENED WALL; DIFFUSE
-DARK FOCUS(I)/AREA(S); MUCOSA: MULTIPLE, DARK BROWN FOCI, UP TO 0.1 CM IN DIAMETER

GENERAL COMMENT (GC) :
-BONE MARROW SMEAR TAKEN
-EYES - DAVIDSONS

HISTOPATHOLOGY

KIDNEY (KD) :
-MINERALIZATION, TUBULAR,-SLIGHT
-VACUOLATION, TUBULAR EPITHELIUM,-SLIGHT
HEART (HT) :
-DEGENERATION/NECROSIS,-SLIGHT
THYMUS (TH) :
-INVOLUTION,-MODERATELY SEVERE
LN, MESENTERIC (MS) :
-INFILTRATE, NEUTROPHILIC,-SLIGHT
ESOPHAGUS (ES) :
-EDEMA, SUBMUCOSAL,-MODERATELY SEVERE
-EROSION,-MODERATE
-INFLAMMATION, ACUTE,-SLIGHT
-ULCERATION,-MINIMAL
STOMACH, GL (ST) :
-EROSION,-SLIGHT
-ULCERATION,-MODERATE

ILEUM (IL) :
-INFLAMMATION, ACUTE,-MINIMAL
CECUM (CE) :
-INFLAMMATION, ACUTE,-MINIMAL
CAUSE OF DEATH (CD) :
-DOSING INJURY,-PRESENT

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER: I05724 SEX: MALE DOSE GROUP: 4 SACRIFICE STATUS: UNSCHEDULED (M)
DATE OF DEATH: 10/27/98 STUDY DAY OF DEATH: 29 STUDY WEEK OF DEATH: 5 TERMINAL BODY WEIGHT: 3505.0 GRAMS
DATE AND TIME OF NECROPSY: 10/27/98 8:40 PROSECTOR: TODD ACKER RECORDER: NANCY DIEDRICH
POST-FIX WEIGHER: NOT AVAILABLE PATHOLOGIST: JOHN EIGHMY WEIGHER: NANCY DIEDRICH

O B S E R V A T I O N S (CONTINUED)

NECROPSY

GENERAL COMMENT (GC) :
-GI TRACT-DARK FLUID CONTENT; STOMACH, DUODENUM, JEJUNUM, AND ILEUM: DARK BROWN, MUCOID SEMIFLUID; GALLBLADDER: DARK GREEN, THICK, MUCOID SEMIFLUID

THE FOLLOWING ORGANS WERE UNREMARKABLE AT NECROPSY:
ADRENAL, CORTEX (AC), ADRENAL, MEDULLA (MA), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), KIDNEY (KD), LUNG (LU), GALLBLADDER (GB), THYMUS (TH), LN, MESENTERIC (MS), TRACHEA (TR), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), DUODENUM (DU), JEJUNUM (JE), ILEUM (IL), CECUM (CE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP), LN, MANDIBULAR (MN), LN, TRACHEOBRON (TB)

HISTOPATHOLOGY

THE FOLLOWING TISSUES WERE UNREMARKABLE AT MICROSCOPIC EXAMINATION:
ADRENAL, MEDULLA (MA), SPLEEN (SP), PANCREAS (PA), TESTIS (TE), BONE, FEMUR (FE), MARROW, FEMUR (FM), MARROW, STERNUM (SE), BONE, STERNUM (SB), EYE (EY), BRAIN (BR), LUNG (LU), GALLBLADDER (GB), TRACHEA (TR), THYROID (TY), PARATHYROID (PT), AORTA (AO), PITUITARY (PI), SALIV GL, MANDIB (SG), MUSCLE, SKELETAL (SM), SPINAL CORD (SC), NERVE, SCIATIC (SN), DUODENUM (DU), JEJUNUM (JE), COLON (CO), RECTUM (RE), SKIN (SK), MAMMARY, MALE (MM), URINARY BLADDER (UB), PROSTATE (PR), SEMINAL VESICLES (SV), EPIDIDYMIDES (EP)

APPENDIX 6

Quality Assurance Statements
Summary of Hormone Analyses Data
Summary of Testosterone Analyses Data (ng/mL)
Individual Hormone Analyses Data
Individual Testosterone Analyses Data (ng/mL)

Note: The data included in this appendix were supplied by Ani Lytics Inc. and have been reviewed by the Quality Assurance Unit of Ani Lytics Inc.

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

The reports listed below was reviewed for compliance with the FDA Good Laboratory Practices and with the EPA Good Laboratory Practices. The final report and all associated raw data were reviewed for accuracy and consistency and the findings were reported to management.

The methods used were the methods described and the report accurately reflects the data. Therefore, these studies were done in compliance with the FDA and EPA Good Laboratory Practices.

Franklin B. Newman
QA Auditor

SPONSOR: COVANCE LABS INC STUDY: 6329-231

REPORT TYPE:	AUDIT DATE:	REPORT TO MGMT:	AUDIT #:
E1, E2, E3, T5I7 T3, T4, FT3, FT4	11-15-98	11-16-98	98-876

MANAGEMENT 11/16/98

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

The reports listed below was reviewed for compliance with the FDA Good Laboratory Practices and with the EPA Good Laboratory Practices. The final report and all associated raw data were reviewed for accuracy and consistency and the findings were reported to management.

The methods used were the methods described and the report accurately reflects the data. Therefore, these studies were done in compliance with the FDA and EPA Good Laboratory Practices.

Frank Newman
Franklin B. Newman
QA Auditor

SPONSOR: COVANCE LABS, INC. STUDY: 6329-231

REPORT TYPE:	AUDIT DATE:	REPORT TO MGMT:	AUDIT #:
E1, E2, E3, TSH, T3, T4, FT3, FT4	4-25-99	4-26-99	99-304

MANAGEMENT 4/26/99

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

The reports listed below was reviewed for compliance with the FDA Good Laboratory Practices and with the EPA Good Laboratory Practices. The final report and all associated raw data were reviewed for accuracy and consistency and the findings were reported to management.

The methods used were the methods described and the report accurately reflects the data. Therefore, these studies were done in compliance with the FDA and EPA Good Laboratory Practices.

Franklin B. Newman
QA Auditor

SPONSOR: COVANCE LABS INC STUDY: 6329-231

REPORT TYPE:	AUDIT DATE:	REPORT TO MGMT:	AUDIT #:
TESTOS	8-15-99	8-16-99	99-699

MANAGEMENT 8/16/99

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

The reports listed below was reviewed for compliance with the FDA Good Laboratory Practices and with the EPA Good Laboratory Practices. The final report and all associated raw data were reviewed for accuracy and consistency and the findings were reported to management.

The methods used were the methods described and the report accurately reflects the data. Therefore, these studies were done in compliance with the FDA and EPA Good Laboratory Practices.

Franklin B. Newman
QA Auditor

SPONSOR: COVANCE LABS STUDY: 6329-231

REPORT TYPE:	AUDIT DATE:	REPORT TO MGMT:	AUDIT #:
E1, E2, E3, TSH, T3 TH, FT3, FT4, TESTOS	8-15-99	8-16-99	99-658

MANAGEMENT 8/16/99

Appendix 6

Summary of Hormone Analyses Data
Day -18

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

	ESTRONE pg/mL	ESTRADIOL pg/mL	ESTRIOL ng/mL	THYROID STIMULATING HORMONE μIU/mL	TOTAL TRIIODOTHYRONINE ng/dL	TOTAL THYROXIN μg/DL	FREE TRIIODOTHYRONINE pg/mL	FREE THYROXIN ng/dL
Group: Male 1 Dose Level: 0				Dosage Unit: mg/kg/day				
MEAN	52.49	32.82	0.00	0.60	258.48	5.65	9.74	2.96
S.D.	10.538	11.396	0.000	0.446	66.361	1.130	0.983	0.483
N	6	6	6	6	6	6	6	6
Group: Male 2 Dose Level: 3				Dosage Unit: mg/kg/day				
MEAN	48.22	36.82	0.01	0.53	316.73	4.43	9.65	3.13
S.D.	3.001	4.435	0.025	0.713	54.114	0.746	0.598	0.338
N	4	4	4	4	4	4	4	4
Group: Male 3 Dose Level: 10				Dosage Unit: mg/kg/day				
MEAN	49.71	33.94	0.00	0.38	253.91	3.92	8.88	2.55
S.D.	9.152	6.474	0.000	0.437	39.961	1.142	1.805	0.399
N	6	6	6	6	6	6	6	6
Group: Male 4 Dose Level: 20				Dosage Unit: mg/kg/day				
MEAN	50.97	27.54	0.00	0.27	245.32	4.82	8.17	2.81
S.D.	11.508	5.889	0.000	0.192	59.058	0.988	1.006	0.334
N	6	6	6	6	6	6	6	6

Appendix 6

Summary of Hormone Analyses Data
Day -8

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

	ESTRONE pg/mL	ESTRADIOL pg/mL	ESTRIOL ng/mL	THYROID STIMULATING HORMONE μIU/mL	TOTAL TRIIODOTHYRONINE ng/dL	TOTAL THYROXIN μg/DL	FREE TRIIODOTHYRONINE pg/mL	FREE THYROXIN ng/dL
Group: Male 1 Dose Level: 0				Dosage Unit: mg/kg/day				
MEAN	53.67	29.96	0.00	0.61	222.54	3.93	9.47	2.58
S.D.	12.749	12.677	0.000	0.321	60.023	0.554	1.516	0.682
N	6	6	6	6	6	6	6	6
Group: Male 2 Dose Level: 3				Dosage Unit: mg/kg/day				
MEAN	47.64	31.53	0.00	0.68	247.69	3.71	11.11	2.28
S.D.	8.506	3.840	0.000	0.715	32.547	0.345	1.705	0.367
N	4	4	4	4	4	4	4	4
Group: Male 3 Dose Level: 10				Dosage Unit: mg/kg/day				
MEAN	54.51	34.54	0.00	0.56	253.54	3.49	10.28	2.24
S.D.	9.283	5.880	0.000	0.556	74.851	0.865	1.404	0.407
N	6	6	6	6	6	6	6	6
Group: Male 4 Dose Level: 20				Dosage Unit: mg/kg/day				
MEAN	49.94	29.81	0.00	0.73	198.91	4.24	10.92	2.86
S.D.	10.167	7.632	0.000	0.605	45.640	1.244	2.387	0.638
N	6	6	6	6	6	6	6	6

Appendix 6

Summary of Hormone Analyses Data
Day -4

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

	ESTRONE pg/mL	ESTRADIOL pg/mL	ESTRIOL ng/mL	THYROID STIMULATING HORMONE μIU/mL	TOTAL TRIIODOTHYRONINE ng/dL	TOTAL THYROXIN μg/DL	FREE TRIIODOTHYRONINE pg/mL	FREE THYROXIN ng/dL
Group: Male 1 Dose Level: 0				Dosage Unit: mg/kg/day				
MEAN	38.98	24.88	0.00	0.37	155.11	5.13	6.39	1.77
S.D.	10.162	6.306	0.000	0.363	18.112	0.809	0.634	0.288
N	6	6	6	6	6	6	6	6
Group: Male 2 Dose Level: 3				Dosage Unit: mg/kg/day				
MEAN	40.20	35.09	0.00	0.53	149.69	5.16	6.06	1.72
S.D.	6.930	9.703	0.000	0.583	26.462	1.284	0.628	0.354
N	4	4	4	4	4	4	4	4
Group: Male 3 Dose Level: 10				Dosage Unit: mg/kg/day				
MEAN	37.25	30.16	0.00	0.46	169.61	4.17	6.16	1.56
S.D.	4.702	7.409	0.000	0.571	23.153	0.511	0.440	0.178
N	6	6	6	6	6	6	6	6
Group: Male 4 Dose Level: 20				Dosage Unit: mg/kg/day				
MEAN	39.40	27.73	0.00	0.29	147.22	4.51	6.00	1.56
S.D.	10.143	6.663	0.000	0.279	16.027	0.788	0.877	0.257
N	6	6	6	6	6	6	6	6

Appendix 6

Summary of Hormone Analyses Data
Day 35

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

	ESTRONE pg/mL	ESTRADIOL pg/mL	ESTRIOL ng/mL	THYROID STIMULATING HORMONE μIU/mL	TOTAL TRIIODOTHYRONINE ng/dL	TOTAL THYROXIN μg/DL	FREE TRIIODOTHYRONINE pg/mL	FREE THYROXIN ng/dL
Group: Male 1 Dose Level: 0				Dosage Unit: mg/kg/day				
MEAN	46.54	7.62	0.00	0.23	170.71	4.72	5.49	1.60
S.D.	9.590	6.963	0.000	0.232	15.946	0.946	0.699	0.341
N	6	6	6	6	6	6	6	6
Group: Male 2 Dose Level: 3				Dosage Unit: mg/kg/day				
MEAN	41.44	14.67	0.00	0.36	166.57	4.02	5.58	1.47
S.D.	10.467	12.614	0.000	0.533	29.681	0.756	0.652	0.158
N	4	4	4	4	4	4	4	4
Group: Male 3 Dose Level: 10				Dosage Unit: mg/kg/day				
MEAN	37.54	11.23	0.00	0.26	151.51	2.95	5.13	1.09
S.D.	7.589	7.403	0.000	0.440	15.053	0.463	0.414	0.171
N	6	6	6	6	6	6	6	6
Group: Male 4 Dose Level: 20				Dosage Unit: mg/kg/day				
MEAN	36.69	4.63	0.00	0.03	109.80	3.70	3.79	1.23
S.D.	11.745	7.126	0.000	0.044	39.245	0.286	1.178	0.058
N	5	5	5	5	5	5	5	5

Appendix 6

Summary of Hormone Analyses Data
Day 66

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

	ESTRONE pg/mL	ESTRADIOL pg/mL	ESTRIOL ng/mL	THYROID STIMULATING HORMONE μIU/mL	TOTAL TRIIODOTHYRONINE ng/dL	TOTAL THYROXIN μg/DL	FREE TRIIODOTHYRONINE pg/mL	FREE THYROXIN ng/dL
Group: Male 1 Dose Level: 0				Dosage Unit: mg/kg/day				
MEAN	39.60	15.00	0.00	0.23	163.31	4.65	5.71	1.48
S.D.	7.881	12.534	0.000	0.343	19.398	0.864	1.143	0.263
N	6	6	6	6	6	6	6	6
Group: Male 2 Dose Level: 3				Dosage Unit: mg/kg/day				
MEAN	36.63	18.31	0.00	0.19	169.92	3.52	6.23	1.34
S.D.	7.000	11.446	0.000	0.274	20.976	0.525	0.590	0.300
N	4	4	4	4	4	4	4	4
Group: Male 3 Dose Level: 10				Dosage Unit: mg/kg/day				
MEAN	36.04	19.83	0.00	0.56	162.50	3.04	5.31	1.08
S.D.	11.306	10.105	0.000	1.067	9.951	0.455	0.537	0.199
N	6	6	6	6	6	6	6	6
Group: Male 4 Dose Level: 20				Dosage Unit: mg/kg/day				
MEAN	21.78	2.06	0.00	0.22	89.66	3.27	3.01	1.08
S.D.	6.437	4.125	0.000	0.252	51.035	1.023	1.958	0.263
N	4	4	4	4	4	4	4	4

Appendix 6

Summary of Hormone Analyses Data
Day 94

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

	ESTRONE pg/mL	ESTRADIOL pg/mL	ESTRIOL ng/mL	THYROID STIMULATING HORMONE μIU/mL	TOTAL TRIIODOTHYRONINE ng/dL	TOTAL THYROXIN μg/DL	FREE TRIIODOTHYRONINE pg/mL	FREE THYROXIN ng/dL
Group: Male 1 Dose Level: 0				Dosage Unit: mg/kg/day				
MEAN	41.74	13.46	0.00	0.54	162.04	4.22	5.02	1.49
S.D.	8.263	10.122	0.000	0.463	25.417	0.902	0.732	0.504
N	6	6	6	6	6	6	6	6
Group: Male 2 Dose Level: 3				Dosage Unit: mg/kg/day				
MEAN	37.11	7.74	0.00	0.60	176.93	3.55	5.28	1.32
S.D.	5.322	7.822	0.000	0.552	27.852	0.375	0.343	0.278
N	4	4	4	4	4	4	4	4
Group: Male 3 Dose Level: 10				Dosage Unit: mg/kg/day				
MEAN	35.52	6.41	0.00	0.38	156.97	2.93	4.98	1.06
S.D.	8.323	7.867	0.000	0.529	18.134	0.420	0.894	0.197
N	6	6	6	6	6	6	6	6
Group: Male 4 Dose Level: 20				Dosage Unit: mg/kg/day				
MEAN	28.18	0.00	0.00	0.20	120.02	3.76	3.96	1.34
S.D.	8.832	0.000	0.000	0.106	35.171	0.424	1.464	0.269
N	2	2	2	2	2	2	2	2

Appendix 6

Summary of Hormone Analyses Data
Day 183

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

	ESTRONE pg/mL	ESTRADIOL pg/mL	ESTRIOL ng/mL	THYROID STIMULATING HORMONE μIU/mL	TOTAL TRIIODOTHYRONINE ng/dL	TOTAL THYROXIN μg/DL	FREE TRIIODOTHYRONINE pg/mL	FREE THYROXIN ng/dL
Group: Male 1 Dose Level: 0				Dosage Unit: mg/kg/day				
MEAN	38.69	10.75	0.00	0.40	157.28	3.84	5.62	1.55
S.D.	10.736	17.027	0.000	0.231	15.387	0.769	0.893	0.426
N	6	6	6	6	6	6	6	6
Group: Male 2 Dose Level: 3				Dosage Unit: mg/kg/day				
MEAN	46.87	13.56	0.00	0.65	133.47	2.58	4.87	1.04
S.D.	17.528	11.112	0.000	0.171	16.777	0.173	0.121	0.035
N	3	3	3	3	3	3	3	3
Group: Male 3 Dose Level: 10				Dosage Unit: mg/kg/day				
MEAN	32.65	7.83	0.00	0.87	134.47	2.71	4.67	0.96
S.D.	7.402	6.225	0.000	1.088	22.554	0.351	0.637	0.131
N	6	6	6	6	6	6	6	6
Group: Male 4 Dose Level: 20				Dosage Unit: mg/kg/day				
MEAN	26.90	0.00	0.00	0.39	103.37	2.61	3.39	0.90
S.D.	1.365	0.000	0.000	0.099	32.958	0.247	1.541	0.240
N	2	2	2	2	2	2	2	2

Appendix 6

Summary of Hormone Analyses Data
Day 220

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

	ESTRONE pg/mL	ESTRADIOL pg/mL	ESTRIOL ng/mL	THYROID STIMULATING HORMONE μIU/mL	TOTAL TRIIODOTHYRONINE ng/dL	TOTAL THYROXIN μg/DL	FREE TRIIODOTHYRONINE pg/mL	FREE THYROXIN ng/dL
Group: Male 1 Dose Level: 0				Dosage Unit: mg/kg/day				
MEAN	51.58	44.19	0.00	0.17	170.61	3.44	5.44	0.87
S.D.	22.847	18.569	0.000	0.212	6.456	1.400	0.269	0.474
N	2	2	2	2	2	2	2	2
Group: Male 3 Dose Level: 10				Dosage Unit: mg/kg/day				
MEAN	27.20	27.85	0.00	0.42	175.08	3.39	5.54	0.93
S.D.	8.853	3.974	0.000	0.424	4.660	0.283	0.445	0.134
N	2	2	2	2	2	2	2	2

Appendix 6

Summary of Hormone Analyses Data
Day 248

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

	ESTRONE pg/mL	ESTRADIOL pg/mL	ESTRIOL ng/mL	THYROID STIMULATING HORMONE μIU/mL	TOTAL TRIIODOTHYRONINE ng/dL	TOTAL THYROXIN μg/DL	FREE TRIIODOTHYRONINE pg/mL	FREE THYROXIN ng/dL
Group: Male 1 Dose Level: 0				Dosage Unit: mg/kg/day				
MEAN	46.80	40.43	0.00	0.06	162.75	3.46	5.36	1.02
S.D.	7.276	19.537	0.000	0.078	1.853	1.485	1.252	0.629
N	2	2	2	2	2	2	2	2
Group: Male 3 Dose Level: 10				Dosage Unit: mg/kg/day				
MEAN	33.81	30.91	0.00	0.34	173.48	3.91	7.19	1.13
S.D.	11.413	7.149	0.000	0.092	17.211	0.163	0.679	0.028
N	2	2	2	2	2	2	2	2

Appendix 6

Summary of Hormone Analyses Data
Day 276

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

	ESTRONE pg/mL	ESTRADIOL pg/mL	ESTRIOL ng/mL	THYROID STIMULATING HORMONE μIU/mL	TOTAL TRIIODOTHYRONINE ng/dL	TOTAL THYROXIN μg/DL	FREE TRIIODOTHYRONINE pg/mL	FREE THYROXIN ng/dL
Group: Male 1 Dose Level: 0				Dosage Unit: mg/kg/day				
MEAN	71.61	46.33	0.00	0.00	167.29	4.81	5.02	1.48
S.D.	18.180	21.362	0.000	0.000	16.023	0.841	0.453	0.728
N	2	2	2	2	2	2	2	2
Group: Male 3 Dose Level: 10				Dosage Unit: mg/kg/day				
MEAN	35.81	30.17	0.00	0.01	172.47	4.05	6.02	1.47
S.D.	4.695	10.218	0.000	0.014	35.447	0.396	0.078	0.318
N	2	2	2	2	2	2	2	2

Appendix 6

Summary of Testosterone Analyses Data (ng/mL)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

	DAY -18	DAY -8	DAY -4	DAY 35	DAY 66	DAY 94	DAY 183	DAY 220	DAY 248	DAY 276
Group: Male 1 Dose Level: 0 Dosage Unit: mg/kg/day										
MEAN	2.96	6.53	3.83	2.22	3.67	4.95	6.33	3.90	5.27	9.25
S.D.	1.917	10.033	3.376	2.629	3.615	4.423	4.070	0.834	0.332	2.362
N	6	6	6	6	6	6	6	2	2	2
Group: Male 2 Dose Level: 3 Dosage Unit: mg/kg/day										
MEAN	2.87	2.94	6.67	3.03	3.68	7.36	7.81			
S.D.	1.592	2.008	6.550	2.991	2.259	2.656	4.274			
N	4	4	4	4	4	4	3			
Group: Male 3 Dose Level: 10 Dosage Unit: mg/kg/day										
MEAN	3.60	3.81	2.47	2.00	5.15	2.89	7.83	5.70	5.58	15.23
S.D.	2.793	3.896	2.423	2.016	3.918	2.055	3.685	2.213	2.341	17.501
N	6	6	6	6	6	6	6	2	2	2
Group: Male 4 Dose Level: 20 Dosage Unit: mg/kg/day										
MEAN	1.20	2.13	3.97	0.81	2.76	1.25	1.74			
S.D.	0.505	2.311	3.205	0.484	3.007	0.092	0.438			
N	6	6	6	5	4	2	2			

Appendix 6

Individual Hormone Analyses Data
Day -18

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	ESTRONE pg/mL	ESTRADIOL pg/mL	ESTRIOL ng/mL	THYROID STIMULATING HORMONE μIU/mL	TOTAL TRIIODOTHYRONINE ng/dL	TOTAL THYROXIN μg/DL	FREE TRIIODOTHYRONINE pg/mL	FREE THYROXIN ng/dL
Group: Male 1 Dose Level: 0				Dosage Unit: mg/kg/day				
I05709	44.14	31.72	0.00	0.46	232.97	5.94	8.31	2.69
I05714	54.81	33.66	0.00	0.37	189.19	5.08	10.01	3.60
I05715	70.39	33.31	0.00	1.32	180.50	4.93	9.64	3.03
I05718	55.35	53.44	0.00	0.00	327.72	7.57	9.80	3.16
I05720	40.48	20.97	0.00	0.80	323.10	4.37	9.33	2.17
I05725	49.78	23.79	0.00	0.67	297.42	6.02	11.33	3.08
Group: Male 2 Dose Level: 3				Dosage Unit: mg/kg/day				
I05702	52.71	30.68	0.00	0.11	255.67	3.88	9.24	3.30
I05706	46.90	36.46	0.05	0.46	296.53	3.69	9.05	3.52
I05717	46.88	39.75	0.00	0.00	331.42	5.07	10.30	2.90
I05721	46.40	40.37	0.00	1.56	383.31	5.07	10.00	2.80
Group: Male 3 Dose Level: 10				Dosage Unit: mg/kg/day				
I05707	37.74	23.20	0.00	0.05	311.45	2.77	8.10	2.51
I05708	47.50	36.92	0.00	0.01	269.41	2.75	8.64	2.08
I05710	50.43	31.77	0.00	0.49	234.48	3.64	6.87	2.10
I05712	42.38	36.22	0.00	0.70	226.15	4.11	9.77	2.94
I05716	59.59	32.95	0.00	1.05	202.58	4.49	12.01	3.00
I05719	60.61	42.57	0.00	0.00	279.41	5.76	7.88	2.68
Group: Male 4 Dose Level: 20				Dosage Unit: mg/kg/day				
I05703	50.41	35.60	0.00	0.28	293.22	5.94	7.90	2.98
I05704	58.88	23.56	0.00	0.00	257.86	5.99	8.24	3.32
I05711	68.29	32.76	0.00	0.22	231.62	3.90	7.11	2.38
I05713	43.24	28.23	0.00	0.40	148.42	4.67	8.13	2.59
I05722	35.57	19.80	0.00	0.55	224.85	3.64	7.60	2.93
I05724	49.44	25.31	0.00	0.15	315.97	4.79	10.05	2.66

Appendix 6

Individual Hormone Analyses Data
Day -8

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	ESTRONE pg/mL	ESTRADIOL pg/mL	ESTRIOL ng/mL	THYROID STIMULATING HORMONE μIU/mL	TOTAL TRIIODOTHYRONINE ng/dL	TOTAL THYROXIN μg/DL	FREE TRIIODOTHYRONINE pg/mL	FREE THYROXIN ng/dL
Group: Male 1 Dose Level: 0				Dosage Unit: mg/kg/day				
I05709	49.89	29.82	0.00	0.51	263.59	4.29	8.52	1.93
I05714	47.97	35.78	0.00	0.66	295.00	3.85	10.48	3.03
I05715	69.01	24.57	0.00	0.95	270.09	3.93	9.84	2.32
I05718	69.53	51.51	0.00	0.02	178.30	4.62	10.65	3.07
I05720	38.17	14.70	0.00	0.77	159.73	2.97	10.48	1.74
I05725	47.44	23.38	0.00	0.73	168.55	3.93	6.82	3.41
Group: Male 2 Dose Level: 3				Dosage Unit: mg/kg/day				
I05702	49.71	27.23	0.00	0.09	257.73	3.35	9.65	2.47
I05706	57.64	34.02	0.00	0.94	254.81	3.69	13.21	2.10
I05717	46.05	35.42	0.00	0.11	277.04	4.18	11.77	2.69
I05721	37.14	29.43	0.00	1.57	201.16	3.63	9.79	1.87
Group: Male 3 Dose Level: 10				Dosage Unit: mg/kg/day				
I05707	44.28	23.99	0.00	0.36	213.19	3.26	12.06	2.90
I05708	51.59	41.10	0.00	0.39	285.05	2.48	10.86	1.81
I05710	67.23	35.96	0.00	0.34	249.20	4.58	8.86	2.21
I05712	44.66	33.74	0.00	0.68	352.02	4.50	11.06	2.54
I05716	57.85	33.96	0.00	1.61	288.47	3.26	10.47	1.97
I05719	61.42	38.48	0.00	0.00	133.31	2.85	8.36	2.03
Group: Male 4 Dose Level: 20				Dosage Unit: mg/kg/day				
I05703	50.52	32.76	0.00	0.38	177.15	3.42	10.32	2.23
I05704	40.33	25.33	0.00	0.00	158.15	5.38	9.64	3.22
I05711	65.03	43.77	0.00	0.32	246.01	2.68	8.74	2.27
I05713	44.88	26.98	0.00	0.95	266.86	5.89	10.29	2.77
I05722	40.21	22.41	0.00	1.09	166.93	4.55	11.01	3.93
I05724	58.67	27.61	0.00	1.64	178.37	3.52	15.54	2.76

Appendix 6

Individual Hormone Analyses Data
Day -4

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	ESTRONE pg/mL	ESTRADIOL pg/mL	ESTRIOL ng/mL	THYROID STIMULATING HORMONE μIU/mL	TOTAL TRIIODOTHYRONINE ng/dL	TOTAL THYROXIN μg/DL	FREE TRIIODOTHYRONINE pg/mL	FREE THYROXIN ng/dL
Group: Male 1 Dose Level: 0				Dosage Unit: mg/kg/day				
I05709	38.01	22.74	0.00	0.06	136.58	4.58	5.94	1.42
I05714	40.66	30.15	0.00	0.15	140.65	5.25	6.75	2.23
I05715	49.70	25.20	0.00	0.46	150.86	4.43	6.06	1.66
I05718	50.07	33.29	0.00	0.00	183.59	5.66	6.21	1.98
I05720	24.50	15.40	0.00	0.63	169.99	4.41	7.52	1.62
I05725	30.92	22.48	0.00	0.92	149.01	6.42	5.88	1.72
Group: Male 2 Dose Level: 3				Dosage Unit: mg/kg/day				
I05702	35.97	22.63	0.00	0.27	112.59	4.19	5.27	1.38
I05706	50.27	34.06	0.00	0.02	154.40	4.25	6.70	1.55
I05717	39.26	46.03	0.00	0.48	175.31	6.94	6.39	2.20
I05721	35.31	37.63	0.00	1.36	156.45	5.24	5.86	1.75
Group: Male 3 Dose Level: 10				Dosage Unit: mg/kg/day				
I05707	39.08	22.41	0.00	0.25	172.89	3.55	6.72	1.44
I05708	36.22	24.03	0.00	0.00	162.30	3.93	6.38	1.40
I05710	40.30	33.22	0.00	0.58	148.51	4.15	5.61	1.57
I05712	28.25	31.56	0.00	0.41	214.06	5.09	6.20	1.52
I05716	38.71	27.08	0.00	1.53	161.96	4.25	6.39	1.53
I05719	40.95	42.65	0.00	0.00	157.92	4.06	5.66	1.90
Group: Male 4 Dose Level: 20				Dosage Unit: mg/kg/day				
I05703	52.45	31.41	0.00	0.37	168.50	3.81	5.82	1.50
I05704	38.96	19.52	0.00	0.00	146.82	5.63	6.84	2.06
I05711	46.11	37.97	0.00	0.10	130.79	3.51	5.44	1.36
I05713	39.54	27.98	0.00	0.51	149.03	4.57	6.35	1.42
I05722	22.27	21.72	0.00	0.06	127.68	5.10	4.63	1.44
I05724	37.07	27.79	0.00	0.69	160.50	4.42	6.89	1.60

Appendix 6

Individual Hormone Analyses Data
Day 35

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	ESTRONE pg/mL	ESTRADIOL pg/mL	ESTRIOL ng/mL	THYROID STIMULATING HORMONE μIU/mL	TOTAL TRIIODOTHYRONINE ng/dL	TOTAL THYROXIN μg/DL	FREE TRIIODOTHYRONINE pg/mL	FREE THYROXIN ng/dL
Group: Male 1 Dose Level: 0				Dosage Unit: mg/kg/day				
I05709	47.59	0.00	0.00	0.00	151.08	5.15	4.54	1.60
I05714	46.19	12.52	0.00	0.31	172.92	5.13	6.32	1.85
I05715	53.53	3.41	0.00	0.07	158.25	4.28	5.42	1.71
I05718	58.70	19.11	0.00	0.06	169.74	6.18	4.87	2.01
I05720	30.92	5.07	0.00	0.62	174.95	3.90	5.61	1.10
I05725	42.31	5.59	0.00	0.29	197.30	3.66	6.16	1.30
Group: Male 2 Dose Level: 3				Dosage Unit: mg/kg/day				
I05702	52.77	2.53	0.00	0.06	147.88	3.04	5.04	1.24
I05706	47.02	5.13	0.00	0.04	149.50	3.84	5.76	1.51
I05717[a]	36.62	24.15	0.00	0.17	210.55	4.47	6.43	1.57
I05721[a]	29.36	26.88	0.00	1.15	158.33	4.74	5.10	1.57
Group: Male 3 Dose Level: 10				Dosage Unit: mg/kg/day				
I05707	36.62	5.92	0.00	0.00	162.71	3.08	4.70	1.08
I05708	34.46	2.60	0.00	0.07	144.58	2.31	4.74	0.81
I05710	50.13	21.41	0.00	0.00	144.62	3.01	5.15	1.11
I05712	27.73	13.17	0.00	0.41	172.47	3.20	5.71	1.22
I05716	41.47	6.54	0.00	1.10	154.68	2.51	5.52	1.01
I05719	34.81	17.71	0.00	0.00	130.00	3.57	4.95	1.30
Group: Male 4 Dose Level: 20[b]				Dosage Unit: mg/kg/day				
I05703	31.99	17.08	0.00	0.00	151.98	3.56	4.36	1.15
I05704	33.13	2.80	0.00	0.00	142.88	3.62	5.35	1.24
I05711	33.03	0.00	0.00	0.00	74.00	3.35	3.04	1.19
I05713	27.95	3.25	0.00	0.10	114.82	3.95	3.88	1.30
I05722	57.36	0.00	0.00	0.04	65.30	4.04	2.30	1.25

a Animal No. I05721 replaced Animal No. I05723 on Day 15. Dose administration for this animal initiated on Day 17 (Week 3).
b Group 4 males were administered 30 mg/kg/day on Days 1 through 11. Animals were not dosed on Days 12 through 21. Beginning on Day 22 and continuing throughout the remainder of the study, Group 4 males were administered 20 mg/kg/day.

Appendix 6

Individual Hormone Analyses Data
Day 66

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	ESTRONE pg/mL	ESTRADIOL pg/mL	ESTRIOL ng/mL	THYROID STIMULATING HORMONE μIU/mL	TOTAL TRIIODOTHYRONINE ng/dL	TOTAL THYROXIN μg/DL	FREE TRIIODOTHYRONINE pg/mL	FREE THYROXIN ng/dL
Group: Male 1 Dose Level: 0				Dosage Unit: mg/kg/day				
I05709	32.82	5.66	0.00	0.00	161.17	5.42	5.84	1.48
I05714	34.56	1.75	0.00	0.81	136.94	4.54	4.10	1.54
I05715	40.44	23.69	0.00	0.01	152.11	4.08	5.36	1.55
I05718	51.93	35.58	0.00	0.01	157.79	5.72	4.97	1.82
I05720	32.39	10.87	0.00	0.50	187.17	3.37	6.86	1.01
I05725	45.47	12.42	0.00	0.06	184.67	4.78	7.10	1.46
Group: Male 2 Dose Level: 3				Dosage Unit: mg/kg/day				
I05702	44.91	16.02	0.00	0.01	141.93	2.84	5.71	1.20
I05706	34.58	6.14	0.00	0.06	165.96	3.92	7.06	1.74
I05717	38.76	33.76	0.00	0.10	188.15	3.95	6.20	1.37
I05721	28.28	17.31	0.00	0.60	183.65	3.38	5.94	1.04
Group: Male 3 Dose Level: 10				Dosage Unit: mg/kg/day				
I05707	29.88	4.46	0.00	0.05	164.93	2.84	5.45	1.12
I05708	28.72	14.63	0.00	0.22	159.20	2.35	4.67	0.80
I05710	57.00	31.54	0.00	0.26	160.10	3.15	4.68	1.10
I05712	26.14	15.34	0.00	0.11	179.10	3.47	5.48	1.15
I05716	39.17	25.77	0.00	2.73	163.19	2.87	6.04	0.91
I05719	35.35	27.23	0.00	0.00	148.48	3.58	5.54	1.37
Group: Male 4 Dose Level: 20				Dosage Unit: mg/kg/day				
I05703	23.05	0.00	0.00	0.00	86.91	2.79	2.22	0.86
I05704[c]	28.22	8.25	0.00	0.01	146.63	4.09	5.55	1.32
I05711	43.55	20.14	0.00	0.02	107.53	2.32	3.50	0.72
I05713	23.00	0.00	0.00	0.41	101.86	4.15	3.33	1.30
I05722	12.85	0.00	0.00	0.47	23.24	2.06	0.93	0.85

c Dose administration was discontinued on Day 43 (Week 7).

Appendix 6

Individual Hormone Analyses Data
Day 94

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	ESTRONE pg/mL	ESTRADIOL pg/mL	ESTRIOL ng/mL	THYROID STIMULATING HORMONE μIU/mL	TOTAL TRIIODOTHYRONINE ng/dL	TOTAL THYROXIN μg/DL	FREE TRIIODOTHYRONINE pg/mL	FREE THYROXIN ng/dL
Group: Male 1 Dose Level: 0				Dosage Unit: mg/kg/day				
I05709	33.68	2.52	0.00	0.29	149.21	4.48	4.29	1.37
I05714	34.36	16.26	0.00	0.64	147.60	3.49	4.67	1.05
I05715	47.70	19.40	0.00	0.03	124.41	3.38	4.30	1.36
I05718	52.75	26.08	0.00	0.43	179.12	5.76	5.21	2.45
I05720	35.32	0.00	0.00	1.39	187.51	3.68	6.10	1.15
I05725	46.64	16.47	0.00	0.48	184.41	4.53	5.57	1.57
Group: Male 2 Dose Level: 3				Dosage Unit: mg/kg/day				
I05702	43.91	4.65	0.00	0.73	147.42	3.01	5.41	1.29
I05706	37.28	0.00	0.00	0.32	169.30	3.75	5.70	1.63
I05717	36.31	18.42	0.00	0.04	214.32	3.85	4.94	1.39
I05721	30.94	7.90	0.00	1.31	176.69	3.57	5.07	0.96
Group: Male 3 Dose Level: 10				Dosage Unit: mg/kg/day				
I05707	32.24	0.00	0.00	0.14	159.36	3.49	4.54	1.12
I05708	27.49	2.63	0.00	0.20	169.28	3.03	4.66	0.84
I05710	49.47	19.42	0.00	0.32	132.05	2.90	3.61	1.01
I05712	27.61	12.52	0.00	0.18	180.58	2.57	5.34	1.13
I05716	38.00	0.00	0.00	1.44	160.71	2.35	6.10	0.88
I05719	38.32	3.88	0.00	0.00	139.81	3.23	5.64	1.38
Group: Male 4 Dose Level: 20				Dosage Unit: mg/kg/day				
I05703[d]	34.25	7.04	0.00	0.00	162.68	2.91	3.99	0.76
I05704[c]	34.42	0.00	0.00	0.12	144.89	4.06	4.99	1.53
I05711	41.78	4.84	0.00	0.19	128.34	2.63	4.49	1.04
I05713[e]	21.93	0.00	0.00	0.27	95.15	3.46	2.92	1.15
I05722	28.22	0.00	0.00	1.27	121.72	3.08	3.95	1.15

c Dose administration was discontinued on Day 43 (Week 7).
d Dose administration was discontinued on Day 81 (Week 12).
e Dose administration was discontinued on Day 66 (Week 10).

Appendix 6

Individual Hormone Analyses Data
Day 183

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	ESTRONE pg/mL	ESTRADIOL pg/mL	ESTRIOL ng/mL	THYROID STIMULATING HORMONE μIU/mL	TOTAL TRIIODOTHYRONINE ng/dL	TOTAL THYROXIN μg/DL	FREE TRIIODOTHYRONINE pg/mL	FREE THYROXIN ng/dL
Group: Male 1 Dose Level: 0				Dosage Unit: mg/kg/day				
I05709	28.31	0.00	0.00	0.10	137.07	4.02	4.65	1.44
I05714	33.09	6.32	0.00	0.77	151.09	3.19	4.76	1.26
I05715	45.72	12.20	0.00	0.21	145.02	3.88	5.29	1.92
I05718	55.92	44.17	0.00	0.41	174.04	5.01	5.81	2.14
I05720	29.23	0.00	0.00	0.41	162.47	2.81	6.92	0.98
I05725	39.86	1.81	0.00	0.47	173.98	4.10	6.31	1.58
Group: Male 2 Dose Level: 3				Dosage Unit: mg/kg/day				
I05702	66.27	18.72	0.00	0.83	129.99	2.43	4.98	1.01
I05706	32.18	0.81	0.00	0.49	118.70	2.54	4.89	1.04
I05717	42.15	21.16	0.00	0.63	151.71	2.77	4.74	1.08
Group: Male 3 Dose Level: 10				Dosage Unit: mg/kg/day				
I05707	36.88	0.00	0.00	0.00	132.21	3.34	4.33	1.09
I05708	23.41	6.72	0.00	0.51	135.82	2.47	4.93	0.76
I05710	43.28	14.90	0.00	0.75	108.04	2.82	3.67	1.05
I05712	25.17	12.54	0.00	0.91	175.84	2.61	5.58	0.97
I05716	33.64	1.17	0.00	2.97	123.73	2.34	4.76	0.84
I05719	33.50	11.66	0.00	0.09	131.15	2.65	4.77	1.04
Group: Male 4 Dose Level: 20				Dosage Unit: mg/kg/day				
I05703[d]	38.78	10.05	0.00	0.08	160.48	2.75	4.81	0.90
I05704	25.93	0.00	0.00	0.32	126.67	2.78	4.48	1.07
I05711[c]	42.26	22.30	0.00	0.08	116.73	2.72	3.38	1.22
I05713[e]	27.86	0.00	0.00	0.46	80.06	2.43	2.30	0.73
I05722	34.96	0.00	0.00	0.47	123.04	1.93	4.15	0.83

c Dose administration was discontinued on Day 43 (Week 7).
d Dose administration was discontinued on Day 81 (Week 12).
e Dose administration was discontinued on Day 66 (Week 10).

Appendix 6

Individual Hormone Analyses Data
Day 220

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	ESTRONE pg/mL	ESTRADIOL pg/mL	ESTRIOL ng/mL	THYROID STIMULATING HORMONE μIU/mL	TOTAL TRIIODOTHYRONINE ng/dL	TOTAL THYROXIN μg/DL	FREE TRIIODOTHYRONINE pg/mL	FREE THYROXIN ng/dL
Group: Male 1 Dose Level: 0				Dosage Unit: mg/kg/day				
I05718	67.73	57.32	0.00	0.02	166.04	4.43	5.25	1.20
I05720	35.42	31.06	0.00	0.32	175.17	2.45	5.63	0.53
Group: Male 3 Dose Level: 10				Dosage Unit: mg/kg/day				
I05712	20.94	30.66	0.00	0.12	178.37	3.59	5.85	1.02
I05716	33.46	25.04	0.00	0.72	171.78	3.19	5.22	0.83

Appendix 6

Individual Hormone Analyses Data
Day 248

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	ESTRONE pg/mL	ESTRADIOL pg/mL	ESTRIOL ng/mL	THYROID STIMULATING HORMONE μIU/mL	TOTAL TRIIODOTHYRONINE ng/dL	TOTAL THYROXIN μg/DL	FREE TRIIODOTHYRONINE pg/mL	FREE THYROXIN ng/dL
Group: Male 1 Dose Level: 0				Dosage Unit: mg/kg/day				
I05718	51.94	54.24	0.00	0.00	164.06	4.51	4.47	1.46
I05720	41.65	26.61	0.00	0.11	161.44	2.41	6.24	0.57
Group: Male 3 Dose Level: 10				Dosage Unit: mg/kg/day				
I05712	25.74	25.85	0.00	0.40	185.65	4.02	7.67	1.15
I05716	41.88	35.96	0.00	0.27	161.31	3.79	6.71	1.11

Appendix 6

Individual Hormone Analyses Data
Day 276

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	ESTRONE pg/mL	ESTRADIOL pg/mL	ESTRIOL ng/mL	THYROID STIMULATING HORMONE μIU/mL	TOTAL TRIIODOTHYRONINE ng/dL	TOTAL THYROXIN μg/DL	FREE TRIIODOTHYRONINE pg/mL	FREE THYROXIN ng/dL
Group: Male 1 Dose Level: 0				Dosage Unit: mg/kg/day				
I05718	58.75	61.43	0.00	0.00	155.96	5.40	4.70	1.99
I05720	84.46	31.22	0.00	0.00	178.62	4.21	5.34	0.96
Group: Male 3 Dose Level: 10				Dosage Unit: mg/kg/day				
I05712	32.49	37.39	0.00	0.02	197.53	4.33	6.07	1.69
I05716	39.13	22.94	0.00	0.00	147.40	3.77	5.96	1.24

Appendix 6

Individual Testosterone Analyses Data (ng/mL)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	DAY -18	DAY -8	DAY -4	DAY 35	DAY 66	DAY 94	DAY 183	DAY 220	DAY 248	DAY 276
Group: Male 1 Dose Level: 0 Dosage Unit: mg/kg/day										
I05709	3.32	3.90	3.39	0.59	0.62	0.53	12.09			
I05714	2.32	1.64	0.79	0.61	1.89	1.23	1.91			
I05715	3.56	3.02	4.33	1.11	2.61	2.06	4.82			
I05718	6.17	26.86	10.02	7.02	7.82	11.85	10.58	3.31	5.03	7.58
I05720	1.88	3.25	3.59	3.55	8.59	6.94	3.44	4.49	5.50	10.92
I05725	0.51	0.52	0.84	0.41	0.46	7.08	5.14			
Group: Male 2 Dose Level: 3 Dosage Unit: mg/kg/day										
I05702	2.39	1.98	1.70	1.45	1.98	6.73	3.88			
I05706	4.91	5.94	14.34	7.43	4.78	8.20	7.19			
I05717	3.07	2.11	9.87	2.30	6.32	10.42	12.36			
I05721[a]	1.09	1.72	0.76	0.92	1.62	4.09				
Group: Male 3 Dose Level: 10 Dosage Unit: mg/kg/day										
I05707	0.69	0.14	0.11	0.08	0.20	0.15	4.02			
I05708	7.17	10.11	1.55	1.43	10.88	3.82	10.03			
I05710	0.98	1.02	0.60	1.12	7.12	2.21	13.09			
I05712	2.22	1.30	1.53	1.29	1.30	2.10	3.69	7.26	7.23	27.60
I05716	6.58	6.74	5.71	2.22	5.42	6.30	9.42	4.13	3.92	2.85
I05719	3.97	3.57	5.31	5.87	5.95	2.73	6.74			

a Animal No. I05721 replaced Animal No. I05723 on Day 15. Dose administration for this animal initiated on Day 17 (Week 3).

Appendix 6

Individual Testosterone Analyses Data (ng/mL)

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE
(APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	DAY -18	DAY -8	DAY -4	DAY 35	DAY 66	DAY 94	DAY 183	DAY 220	DAY 248	DAY 276
Group: Male 4 Dose Level: 20[b] Dosage Unit: mg/kg/day										
I05703[c]	0.63	0.33	0.50	0.66	0.45	3.85	4.84			
I05704[d]	0.94	1.74	3.02	1.66	6.47	1.18	1.43			
I05711	2.01	2.41	8.22	0.73	3.15	3.30	4.77			
I05713	1.54	1.22	5.25	0.48	3.93	1.31	2.05			
I05722[e]	0.87	0.52	0.41	0.53	0.18	4.41	1.35			
I05724	1.22	6.58	6.43							

b Group 4 males were administered 30 mg/kg/day on Days 1 through 11. Animals were not dosed on Days 12 through 21. Beginning on Day 22 and continuing throughout the remainder of the study, Group 4 males were administered 20 mg/kg/day.
c Dose administration was discontinued on Day 81 (Week 12).
d Dose administration was discontinued on Day 43 (Week 7).
e Dose administration was discontinued on Day 66 (Week 10).

APPENDIX 7

Quality Assurance Documentation
Hormonal Measurements Report (cholecystokinin analyses data)

Note: This appendix of the report contains information supplied by the DuPont and has been reviewed by the Quality Assurance Unit of DuPont.

Quality Assurance Documentation

Haskell Sample Number(s):

Not Applicable

Dates of Inspections:

Hormonal
Records, Reports: October 29, 30, 31, 1999; November 1, 1999

Dates Findings Reported to:

Study Director: November 5, 1999

Management: November 5, 1999

Reported by: Joseph C Hamill 12-APR-2001

Joseph C. Hamill
Sr. Quality Assurance Auditor

Date

Hormonal Measurements Report:

26-Week Capsule Toxicity Study With Ammonium Perfluorooctanoate (APFO) in Cynomologus Monkeys

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Study Director: John C O'Connor 31-Aug-2001

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Date

26-Week Capsule Toxicity Study With Ammonium Perfluorooctanoate (APFO) in Cynomologus Monkeys

SUMMARY

Ammonium perfluorooctanoate (AFPO) was evaluated for its ability to alter serum cholecystokinin (CCK) concentrations in cynomologous monkeys exposed to either 3, 10, or 30/20 mg/kg/day AFPO. Serum was collected at three time points prior to study initiation, and on test days 35, 66, 94, and 183. CCK concentrations were measured by radioimmunoassay (RIA). No alterations in CCK concentrations were observed at any of the time points.

26-Week Capsule Toxicity Study With Ammonium Perfluorooctanoate (APFO) in Cynomologus Monkeys

INTRODUCTION

Ammonium perfluorooctanoate (AFPO) was evaluated for its ability to alter serum cholecystokinin (CCK) concentrations in cynomologous monkeys exposed to either 3, 10, or 30 mg/kg/day AFPO. Due to excessive toxicity, the animals in the 30 mg/kg/day dose level were removed from compound administration on test day 12 and administered a reduced dose level of 20 mg/kg/day beginning on test day 22. Serum was collected at three time points prior to study initiation, and on test days 35, 66, 94, and 183. CCK concentrations were measured by radioimmunoassay (RIA).

METHODS

At three time points during the pretest period (Test days –18, -8, and –4) or after exposure to either 3, 10, or 30 mg/kg/day AFPO for either 35, 66, 94, or 183 days, blood was collected from the monkeys from each group designated for CCK evaluation. Due to excessive toxicity, the animals in the 30 mg/kg/day dose level were removed from compound administration on test day 12 and administered a reduced dose level of 20 mg/kg/day beginning on test day 22. Plasma was prepared from the blood and frozen for quantitation of CCK. Frozen plasma samples were sent to Haskell Laboratory for CCK analysis. Plasma samples were extracted over a C-18 Sep Pak column (Supelco Co., Bellefonte, PA) washed with 0.05% trifluoroacetic acid (TFA) and eluted with 50% acetonitrile/50% TFA. Extracted samples were dried under vacuum and reconstituted prior to analysis by radioimmunoassay (RIA).

All data were analyzed using Jonckheere's test for trend ($p < 0.05$).

RESULTS and DISCUSSION

No statistically significant or biologically significant alterations in plasma CCK concentrations were observed at any of the time points. Under the conditions of the study, AFPO does not alter plasma CCK levels in male cynomologous monkeys when exposed orally to concentrations up to 30/20 mg/kg/day for 183 days.

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26-Week Capsule Toxicity Study With Ammonium Perfluorooctanoate (APFO) in Cynomologus Monkeys

TABLES

26-Week Capsule Toxicity Study With Ammonium Perfluorooctanoate (APFO) in Cynomologus Monkeys

Table 1

Summary Of Cholecystokinin (CCK) Data In Male Cynomologous Monkeys

Group	Cholecystokinin (fmol/ml)						
	Test Day -18	Test Day -8	Test Day -4	Test Day 35	Test Day 66	Test Day 94	Test Day 183
1 (0 mg/kg/day)[a]	1.0 ± 0.3[b,c]	1.0 ± 0.4	1.8 ± 0.6	3.1 ± 0.9	3.1 ± 1.5	1.8 ± 0.6	2.4 ± 0.8
2 (3 mg/kg/day)[d]	1.2 ± 0.2	1.4 ± 0.4	1.8 ± 0.8	3.0 ± 1.3	3.9 ± 2.7	1.4 ± 0.7[e]	3.0 ± 1.4[e]
3 (10 mg/kg/day)[a]	1.1 ± 0.5	1.1 ± 0.4[c]	1.5 ± 0.6	3.1 ± 1.2	2.7 ± 1.3	1.4 ± 0.2[c]	2.3 ± 0.9
4 (30 mg/kg/day)[a]	1.0 ± 0.2	0.9 ± 0.3	1.9 ± 1.1	2.5 ± 0.4[c]	2.8 ± 1.3[c]	1.8 ± 0.7[d]	2.3 ± 0.7[c]

Note: Due to excessive toxicity, the animals in the 30 mg/kg/day dose level were removed from compound administration on test day 12 and administered a reduced dose level of 20 mg/kg/day beginning on test day 22.

[a] The n = 6 unless otherwise noted.

[b] Mean ± standard deviation.

[c] The n = 5.

[d] The n = 4 unless otherwise noted.

[e] The n = 3.

No statistically significant difference from control ($p < 0.05$) by Jonckheere's test.

APPENDIX A

INDIVIDUAL ANIMAL DATA

26-Week Capsule Toxicity Study With Ammonium Perfluorooctanoate (APFO) in Cynomologus Monkeys

Individual Animal Data: Plasma Cholecystokinin Concentrations In Male Cynomologous Monkeys

Group	Animal Number	Test Day -18	Test Day -8	Test Day -4	Test Day 35	Test Day 66	Test Day 94	Test Day 183
1	I05709	1.491	1.526	1.970	2.179	1.450	1.771	3.056
(0 mg/kg/day)	I05714	0.863	0.952	1.655	4.593	4.173	1.516	1.623
	I05715	0.914	1.360	2.726	2.346	5.129	2.931	3.696
	I05718	0.979	1.039	1.717	3.236	3.783	1.222	2.586
	I05720	1.002	0.639	1.357	3.145	2.362	1.615	1.957
	I05725	0.316[a]	0.399	1.151	3.379	1.522	1.666	1.645
2	I05702	1.473	1.461	1.147	3.218	7.906	2.193	3.828
(3 mg/kg/day)	I05706	1.035	1.926	1.056	1.333	2.214	-[a]	3.866
	I05717	1.237	1.079	2.593	4.455	2.910	1.160	1.384
	I05721	1.121	1.119	2.451	3.077	2.573	0.774	-[b]
3	I05707	0.968	0.468	0.579	3.114	2.462	1.056	1.547
(10 mg/kg/day)	I05708	2.022	1.546	1.002	3.096	3.044	1.455	2.200
	I05710	0.441	-[a]	2.146	2.141	1.396	-[a]	1.375
	I05712	0.816	0.970	1.758	2.484	2.535	1.680	2.546
	I05716	1.088	1.308	2.047	2.407	1.876	1.557	2.371
	I05719	1.390	1.215	1.649	5.376	5.122	1.406	3.846
4	I05703	1.109	1.154	1.182	2.980	3.868	0.834	2.651
(30 mg/kg/day)	I05704	0.760	0.523	1.053	2.328	1.233	1.994	2.622
	I05711	0.952	0.995	3.841	2.197	4.391	-[a]	2.437
	I05713	1.246	0.800	1.537	2.965	2.111	1.802	0.984
	I05722	1.124	0.819	2.372	2.272	2.538	2.376	2.702
	I05724	0.899	1.345	1.305	-[b]	-[b]	-[b]	-[b]

Note: Due to excessive toxicity, the animals in the 30 mg/kg/day dose level were removed from compound administration on test day 12 and administered a reduced dose level of 20 mg/kg/day beginning on test day 22.

[a] Sample was not included in group mean calculations due to a technical problem with the plasma extraction procedure.

[b] No sample received from sponsor for analysis.

APPENDIX 8

Cell Proliferation Report

Note: This appendix of the report contains information supplied by Pathology Associates, A Charles River Company and has been reviewed by the Quality Assurance Unit of Pathology Associates, A Charles River Company.

PATHOLOGY ASSOCIATES
A CHARLES RIVER COMPANY

FINAL
CELL PROLIFERATION REPORT

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS
COVANCE STUDY NUMBER 6329-231

PREPARED FOR:

3M
TOXICOLOGY SERVICES
BUILDING 220-2E-02, 3M CENTER
ST. PAUL, MN 55144-1000

PREPARED BY:

PATHOLOGY ASSOCIATES – A CHARLES RIVER COMPANY
15 WORMAN'S MILL COURT, SUITE I
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CELL PROLIFERATION REPORT FOR:

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS COVANCE STUDY NUMBER 6329-231

INTRODUCTION

The purpose of the study was to assess the effect of the test material on critical enzyme levels, hormones, and other selected biochemical parameters when administered daily by capsule to cynomolgus monkeys for at least 26 weeks.

This report, submitted by Pathology Associates – A Charles River Company (PAI) formally Pathology Associates International to the study Sponsor, 3M Toxicology Services, represents the cell proliferation findings and interpretation for Covance Study Number 6329-231 entitled "26-Week Capsule Toxicity Study with Ammonium Perfluorooctanoate In Cynomolgus Monkeys".

REGULATORY COMPLIANCE

All aspects of the tasks associated with PAI's portion of this study were conducted in compliance with the Environmental Protection Agency Good Laboratory Practice (GLP) Regulations as set forth in Title 40 of the US Code of Federal Regulations, Part 792, issued November 29, 1983(effective December 29, 1983), and with any applicable amendments.

MATERIALS AND METHODS

Experimental Design

Treatment Group	Dose Level (mg/kg/day)	Number of Animals Main Study	Recovery
1 (Control)	0	4	2
2 (Low-dose)	3	4	0
3 (Mid-dose)	10	4	2
4 (High-dose)	30	4	2

All animals (main study and recovery) were treated for up to 26 weeks. Two animals in groups 1, 3 and 4 were designated as recovery animals. Treatment in these animals was discontinued and the Sponsor determined the recovery period.

Tissue Collection for Cell Proliferation

Representative samples of the left lateral lobe of the liver, left and right testes, and pancreas from each of the 22 animals was fixed and processed to paraffin block by Covance per protocol specifications. Tissue blocks were shipped to PAI for sectioning and staining. From each block, slides were prepared for H&E evaluation and immunohistochemical detection of proliferating cell nuclear antigen (PCNA), a marker of cell proliferation.

Immunohistochemistry for Cell Proliferation

Sections of paraffin-embedded tissues were cut ≅ 5 µm and placed on positively charged slides (Superfrost Plus, Fisher Scientific, Pittsburgh, PA) to ensure adhesion during processing for PCNA. Standard immunohistochemical methods for PCNA (Eldridge, et al., 1993) were used to stain tissues. Briefly, tissue sections were incubated with a monoclonal antibody to PCNA (Lot # 107 Exp. 11/00 DAKO, Carpinteria, CA) and reagents required for the avidin-biotin peroxidase (MslgG Kit Lot# PK6102 Exp. 4/22/00, Vector, Burlingame, CA) method for the detection of the antigen-antibody complex. PCNA expression in cells in all phases of the cell cycle (G1, S, G2 and M) was localized by the chromagen 3,3'-diaminobenzidine (DAB Lot# 108H8210 Exp. 8/20/01; Sigma Chemical Co., St. Louis, MO). Tissue sections were counterstained with hematoxylin.

Cell Proliferation Measurements

Positive staining for PCNA was categorized based on cellular distribution and intensity of the brown to black reaction product that correlated with the different phases of the cell cycle (Eldridge et al., 1993). Uniform, dark brown to black nuclear staining was judged to be positive for S phase cells. A cell in the G_1 phase of the cell cycle had diffuse, stippled nuclear staining that was lighter than a cell in S phase. Cells in the G_2 phase exhibited distinct, diffuse cytoplasmic stippling with or without nuclear staining. Mitotic figures were conspicuous with diffuse cytoplasmic stippling. A negative control slide was included in the staining run and consisted of study tissue (animal no. I05709) that was not incubated with the primary antibody.

For cell proliferation evaluations, slides were first perused at low magnification (100X) to judge quality of staining, processing and sectioning, pattern of cell labeling (e.g., centrilobular or panlobular, extrahepatocellular proliferation, such as Kupffer cells, bile duct epithelium, endothelium), and histomorphologic changes. The later was further assessed by evaluating the serial H&E slide for each animal evaluated for cell proliferation. Cell proliferation was then quantified at higher magnification (200X) as described above.

For cell proliferation measurements in the liver, the percentage of dark, nuclear-stained hepatocytes that represent cells in S-phase was determined by scoring at least 3000 hepatocytes in 10 randomly selected fields per animal. Cell proliferation within islet and exocrine cells of the

pancreas was scored subjectively with 3 = exocrine stained greater than islets, and 4 = islets and exocrine stained heavily as determined by positive PCNA staining. The entire tissue section represented on the slide was perused at 100X and 400X. For measuring cell proliferation in the testes, the section farthest from the slide label was scored. The percentage of PCNA-labeled Leydig cells was determined by scoring at least 100 Leydig cells in the entire section that was examined.

Statistical Analysis

Due to the small samples sizes within main study and recovery groups, and because not all animals within a treatment group were sacrificed on the same day, statistical analysis was not performed on cell proliferation data.

RESULTS

Cell Proliferation

Individual animal cell proliferation data are presented in Section II (Table II-1) and graphically in Figures III-1 - 3. Clearly, cell proliferation was not increased by treatment in the pancreas or testes of monkeys as determined by examining the scatter plots in Section II, Figures III-2 and III-3. In the liver, however, there did appear to be an enhancement of cell proliferation in the highest dose tested (30 mg/kg/day) as revealed in Section II, Figure (III -1). Data points 6, 8, 9 and 10 (30 mg/kg/day; animals I05704, I05713, I05711, I05722, and I05703, respectively) were greater than or equal to the highest control value (data point 1; animal I05714). The lowest dose tested (data point 3; 3 mg/kg/day), however, had one animal (animal I05706) with a labeling index that exceeded all animals examined. Thus, an apparent increase in cell proliferation was not necessarily dose-related.

Histopathology

Sections from the same tissue blocks used for preparation of PCNA-stained slides were stained with hematoxylin and eosin (H&E) for histopathologic evaluation to facilitate the interpretation of the immunostained slides. Individual animal findings are presented in Section IV.

Representative sections of liver, pancreas and testes from 22 monkeys were evaluated histologically. Each tissue section was stained with hematoxylin and eosin. The purpose of this evaluation was to determine whether or not morphologic changes were occurring in these tissues that may alter or confound the specificity of the PCNA staining observed in these animals.

The results showed that no significant changes that would alter the interpretation of the PCNA staining in this study were observed in the liver, pancreas or testes from male monkeys. Although chronic inflammation was reported for several animals, it was minimal in severity and occurred across all groups. Furthermore, the PCNA labeling index did not correlate with the

observation of inflammation in the liver. For example, inflammation was not observed in the animal with the highest liver labeling index (animal I05706). Numerous findings were reported for animal I05724 that included hypertrophy, inflammation, fat infiltration and possibly bacterial colonization. Based on the substantial non-specific PCNA staining observed in the liver of this animal, clearly these lesions confounded the ability to measure hepatocellular proliferation; therefore, no attempt was made to evaluate the PCNA labeling index in animal I05724.

DISCUSSION

In the present study, cell proliferation was measured within the liver, pancreas and testes of male monkeys from control and treated groups after up to 26 weeks on study, as well as a recovery period. An increase in cell proliferation, as determined by the PCNA labeling index, was not observed in the pancreas or testes of male monkeys. Cell proliferation in the liver, however, was equivocal.

SUMMARY

After up to 26 weeks on study, enhanced cell proliferation was not evident in the pancreas or testes of male monkeys, whereas in the liver the findings were equivocal.

LITERATURE CITED

Eldridge, S.R., Butterworth, B.E., Goldsworthy, T.L. (1993). Proliferating cell nuclear antigen: a marker for hepatocellular proliferation in rodents. *Environ. Health Perspec.* 101: 211-218.

II. TABLES

TABLE II-1. CELL PROLIFERATION IN MONKEYS

Dose Group	Day of Death	Animal Number	Labeling Index Liver	Labeling Index Pancreas	Labeling Index Testes
0 mg/kg/day (Control)	26 Weeks	IO5709	0.025%	3	22.86%
0 mg/kg/day (Control)	26 Weeks	IO5714	0.075%	3	11.00%
0 mg/kg/day (Control)	26 Weeks	IO5715	0.000%	3	14.91%
0 mg/kg/day (Control)	26 Weeks	IO5725	0.074%	4	27.00%
0 mg/kg/day (Control)	Recovery animal	IO5718	0.025%	3	41.51%
0 mg/kg/day (Control)	Recovery animal	IO5720	0.000%	3	23.42%
3 mg/kg/day (Low dose)	26 Weeks	IO5702	0.000%	4	10.58%
3 mg/kg/day (Low dose)	26 Weeks	IO5706	0.170%	3	21.78%
3 mg/kg/day (Low dose)	26 Weeks	IO5717	0.099%	3	22.77%
3 mg/kg/day (Low dose)	Sacrificed week 20	IO5721	0.000%	NP	13.00%
10 mg/kg/day (Mid dose)	26 Weeks	IO5707	0.075%	3	15.53%
10 mg/kg/day (Mid dose)	26 Weeks	IO5708	0.050%	3	17.14%
10 mg/kg/day (Mid dose)	26 Weeks	IO5710	0.024%	3	17.92%
10 mg/kg/day (Mid dose)	26 Weeks	IO5719	0.025%	3	35.17%
10 mg/kg/day (Mid dose)	Recovery animal	IO5712	0.073%	3	18.81%
10 mg/kg/day (Mid dose)	Recovery animal	IO5716	0.000%	4	10.89%
30 mg/kg/day (High dose)	26 Weeks	IO5704	0.100%	3	10.78%
30 mg/kg/day (High dose)	26 Weeks	IO5713	0.075%	4	15.84%
30 mg/kg/day (High dose)	Sacrificed day 29	IO5724	ND	3	16.35%
30 mg/kg/day (High dose)	Stopped dosing week 7; Sacrificed week 27	IO5711	0.126%	4	21.70%
30 mg/kg/day (High dose)	Stopped dosing week 10; Sacrificed week 27	IO5722	0.149%	3	14.29%
30 mg/kg/day (High dose)	Stopped dosing week 12; Sacrificed week 27	IO5703	0.075%	3	20.19%

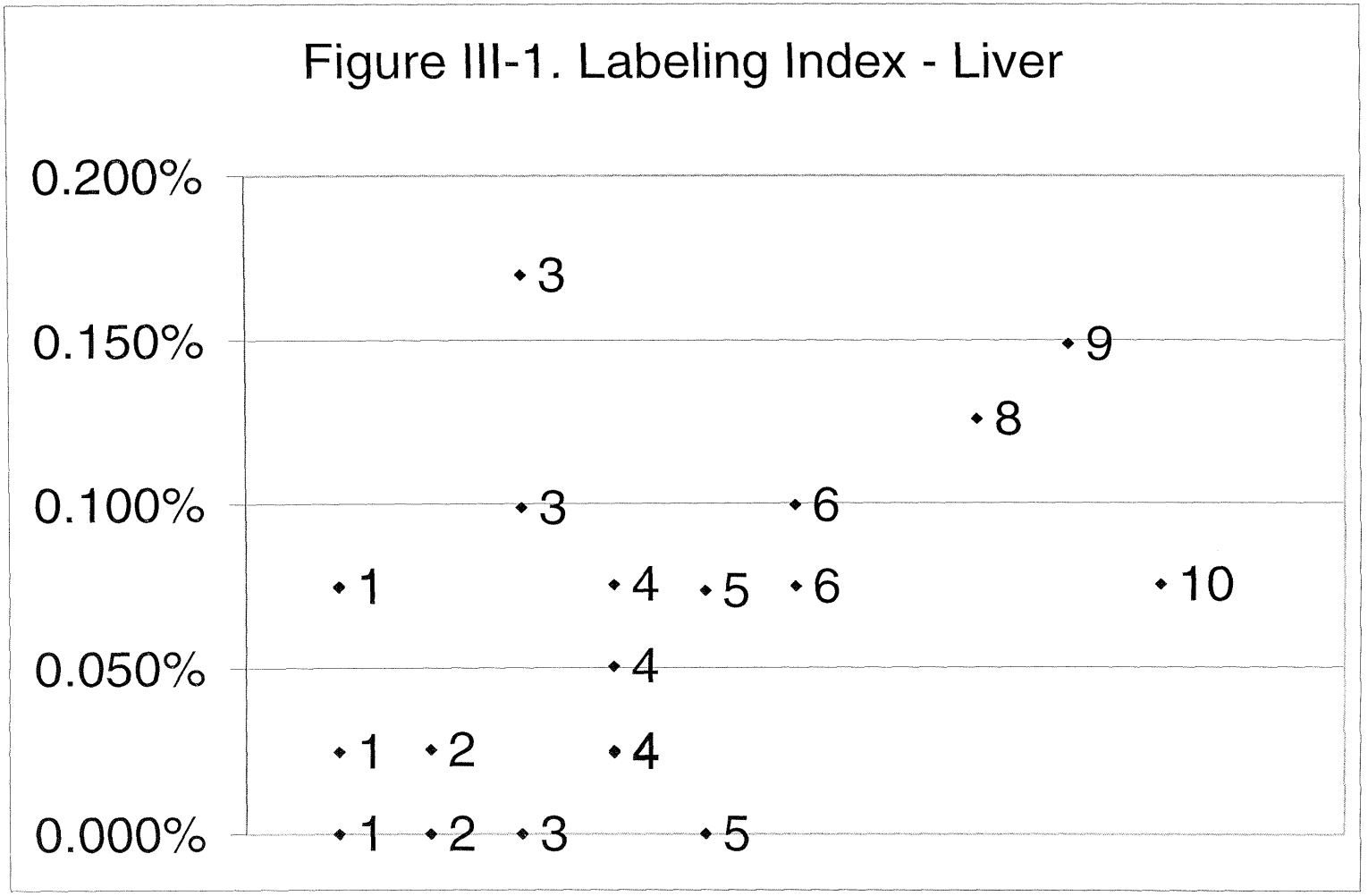
Skip slide=negative control; animal no. IO5709
ND, not determined due to too much non-specific staining
NP, tissue not present on slide
Liver: Only dark nuclear stained hepatocytes scored as S-phase; 200X
Pancreas: Scored subjectively with 4=islets and exocrine stained heavily (>50% labeled); 3=exocrine stained greater than islets; perused at 100X and 400X
Testes: Section farthest from slide label scored; Leydig cells scored at 400X

III. FIGURES

Legend for data points on Figures III-1 - 3

Group	Treatment	Day of Death
1	0 mg/kg/day	26 weeks
2	0 mg/kg/day	Recovery animal
3	3 mg/kg/day	26 weeks
4	10 mg/kg/day	26 weeks
5	10 mg/kg/day	Recovery animal
6	30 mg/kg/day	26 weeks
7	30 mg/kg/day	Sacrificed day 29
8	30 mg/kg/day	Stopped dosing day 43
9	30 mg/kg/day	Stopped dosing day 66
10	30 mg/kg/day	Stopped dosing day 81

3M
Covance Study No. 6329-231
Page III-1



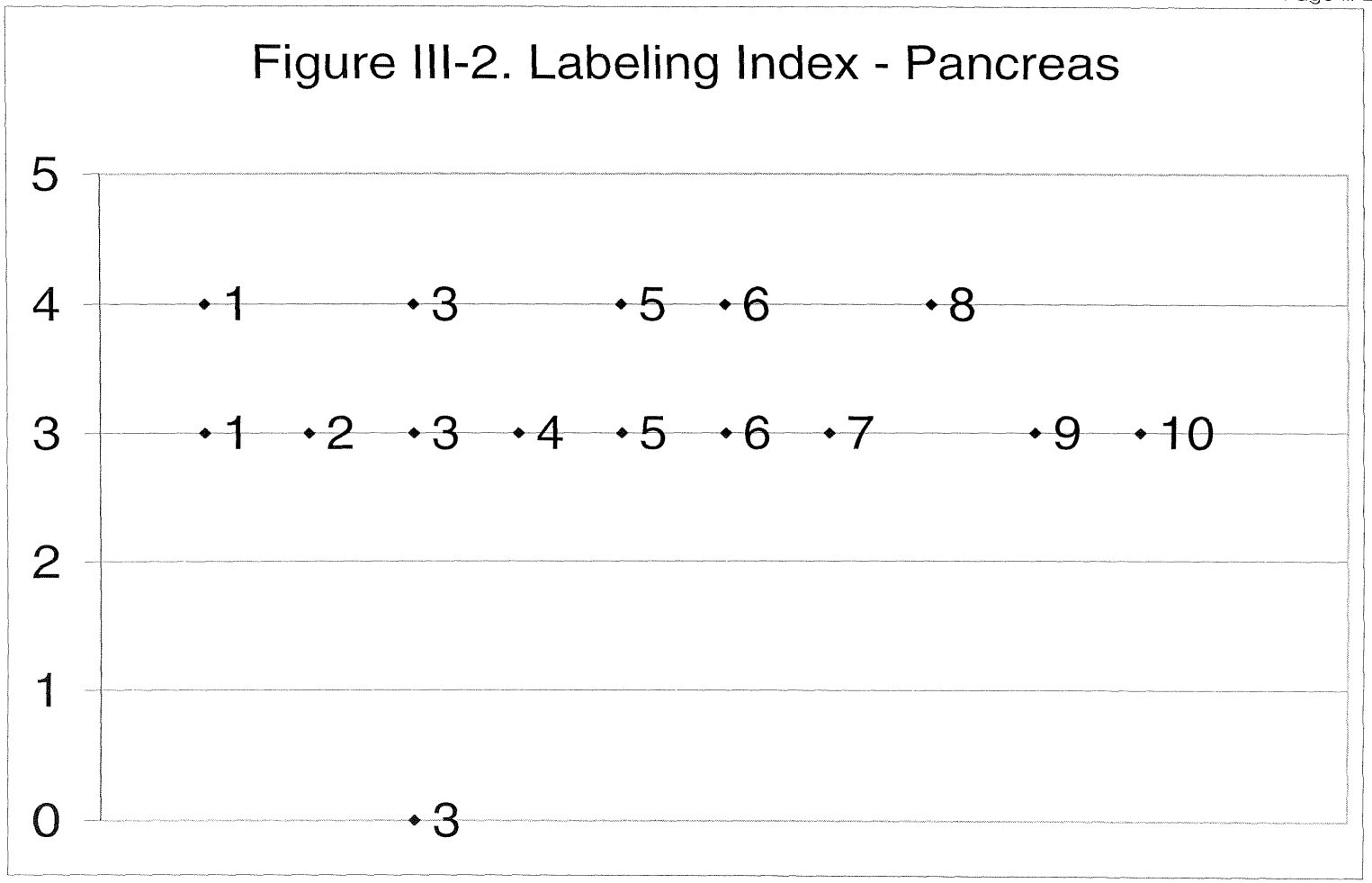


Figure III-2. Labeling Index - Pancreas
5
4
3
2
1
0
1
3
5
6
8
1
2
3
4
5
6
7
9
10
3

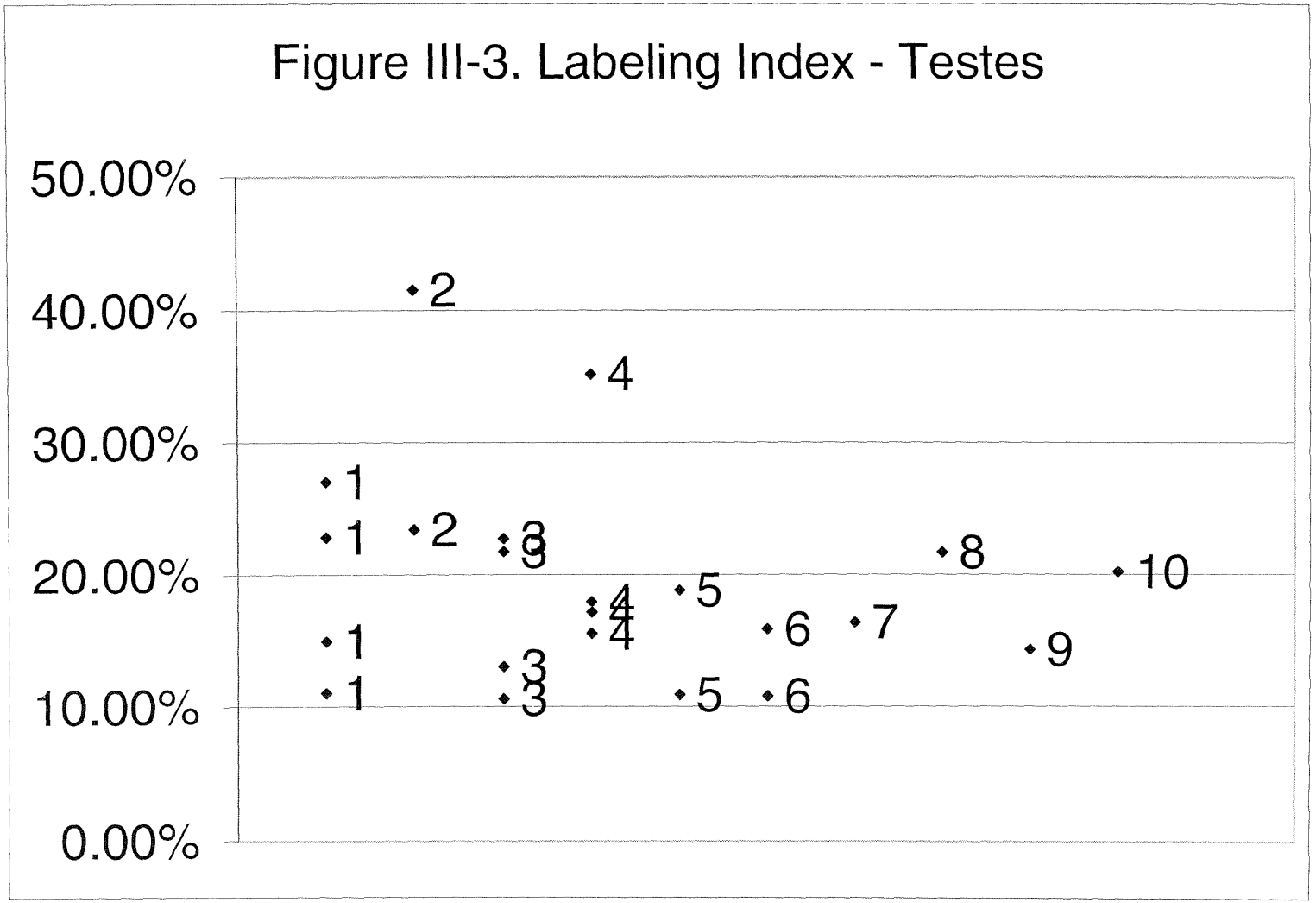


Figure III-3. Labeling Index - Testes
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%

IV. INDIVIDUAL ANIMAL HISTOPATHOLOGY FINDINGS

Individual Animal Findings

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	SEX	DOSE GROUP	HISTOLOGIC FINDINGS
I05709	M	1	Liver - chronic inflammation, minimal Pancreas - autolysis, focal Testes - crush artifact Spleen - NSF
I05714	M	1	Liver - chronic inflammation, minimal Pancreas - NSF Testes - NSF Spleen - NSF
I05715	M	1	Liver - NSF Pancreas - NSF Testes - NSF Spleen - NSF
I05725	M	1	Liver - NSF Pancreas - NSF Testes - NSF Spleen - NSF
I05718	M	1	Liver - NSF Pancreas - NSF Testes - crush artifacts Spleen - NSF
I05720	M	1	Liver - NSF Pancreas - NSF Testes - NSF Spleen - NSF
I05702	M	2	Liver - NSF Pancreas - NSF Testes - NSF Spleen - hemosiderin deposition, mild
I05706	M	2	Liver - NSF Pancreas - NSF Testes - NSF Spleen - NSF
I05717	M	2	Liver - NSF Pancreas - NSF Testes - crush artifact Spleen - NSF

Legend: NSF = no significant findings

Individual Animal Findings

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	SEX	DOSE GROUP	HISTOLOGIC FINDINGS
I05721	M	2	Liver - chronic inflammation, minimal Pancreas - NSF Testes - NSF Spleen - NSF
I05707	M	3	Liver - NSF Pancreas - NSF Testes - NSF Spleen - hemosiderin deposition, minimal
I05708	M	3	Liver - NSF Pancreas - NSF Testes - NSF Spleen - NSF
I05710	M	3	Liver - NSF Pancreas - NSF Testes - NSF Spleen - NSF
I05712	M	3	Liver - chronic inflammation, minimal Pancreas - NSF Testes - NSF Spleen - NSF
I05716	M	3	Liver - NSF Pancreas - NSF Testes - NSF Spleen - NSF
I05719	M	3	Liver - NSF Pancreas - NSF Testes - NSF Spleen - NSF
I05703	M	4	Liver - NSF Pancreas - NSF Testes - NSF Spleen - NSF
I05704	M	4	Liver - chronic inflammation, minimal Pancreas - NSF Testes - NSF Spleen - hemosiderin, minimal

Legend: NSF = no significant findings

Individual Animal Findings

26-WEEK CAPSULE TOXICITY STUDY WITH AMMONIUM PERFLUOROOCTANOATE (APFO) IN CYNOMOLGUS MONKEYS

ANIMAL NUMBER	SEX	DOSE GROUP	HISTOLOGIC FINDINGS
I05711	M	4	Liver - chronic inflammation, minimal - hemosiderin, minimal Pancreas - NSF Testes - NSF Spleen - NSF
I05713	M	4	Liver - chronic inflammation, minimal Pancreas - NSF Testes - NSF Spleen - NSF
I05722	M	4	Liver - hemosiderin, minimal Pancreas - NSF Testes - NSF Spleen - NSF
I05724	M	4	Liver - periportal , fat infiltration, severe periportal, cellular hypertrophy, severe periportal, chronic inflammation,moderate midzonal, necrosis, moderate to severe centrilobular, fat infiltration, severe centrilobular, cellular hypertrophy, severe random distribution, bacterial colonies??? Pancreas - islets, fat infiltration, mild to moderate Testes - NSF Spleen - NSF

Legend: NSF = no significant findings

V. SIGNATURE PAGE

Submitted by:

Project Manager:

Sandra R. Eldridge, Ph.D.

SRE for 6/22/01
6-22-01
Date

Project Pathologist:

Carolyn Moyer, D.V.M., Diplomate, A.C.V.P.

6/21/01
Date

VI. QUALITY ASSURANCE STATEMENT

PATHOLOGY ASSOCIATES
A CHARLES RIVER COMPANY

Cell Proliferation Report

26-Week Capsule Toxicity Study With Ammonium Perfluorooctanoate (APFO) in Cynomolgus Monkeys

Covance Study Number: 6329-231

QUALITY ASSURANCE STATEMENT

This cell proliferation project has been inspected and audited by the PAI Quality Assurance Unit (QAU) as required by the Good Laboratory Practice (GLP) regulations promulgated by the U.S. Environmental Protection Agency. The cell proliferation report is an accurate reflection of the recorded data. The following table is a record of the inspections/audits performed and reported by the QAU.

Date of Inspection	Phase Inspected	Date Findings Reported to PAI Management/Project Manager
10/25/99	PCNA Dilutions/Staining	10/25/99
09/06,07/00	Study Data and Supporting Documentation	09/07/00
09/06,07,25/00	Draft Cell Proliferation Report	09/07,25/00
06/07,13/01	Final Cell Proliferation Report	06/13/01

Doraine Dundee
Quality Assurance Specialist

June 13, 2001
Date

APPENDIX I

PROTOCOL DEVIATION REPORT

Date:	September 28, 2000
Study Number:	Covance Study No. 6329-231
Title:	26-Week Capsule Toxicity Study with Ammonium Perfluorooctanoate In Cynomolgus Monkeys
Protocol Deviation #1:	Representative samples of liver, testes and pancreas were to be collected for cell proliferation evaluation, which included preparation of an H&E slide for correlative morphologic interpretation of the cell proliferation findings. Samples of spleen were inadvertently submitted to PAI and the H&E slide examined for this tissue.
Reason:	Spleen was inadvertently submitted. The H&E slide was inadvertently evaluated microscopically and the histologic findings reported. This deviation had no impact on the study.
Submitted by:	Sandra R. Eldridge, Ph.D. PAI Project Manager

Sandra R. Eldridge
PAI Project Manager

9-28-00
Date