

Attachments to Letter to C. Auer dated May 4, 2000  
Perfluorooctane Sulfonate Studies

AR226-013 7

Repeated-Dose Toxicity

- 1) Ninety-Day Subacute Rhesus Monkey Toxicity Study, with Fluorad® Fluorochemical Surfactant FC-95, International Research and Development Corporation, Project No. 137-092, December 18, 1978.
  - a) Study Report
  - b) Aborted Study: Ninety-Day Subacute Rhesus Monkey Toxicity Study, with Fluorad® Fluorochemical Surfactant FC-95, International Research and Development Corporation, Project No. 137-087, January 2, 1979.
- 2) Ninety-Day Subacute Rat Toxicity Study, with Fluorad® Fluorochemical Surfactant FC-95, International Research and Development Corporation, Project No. 137-085, November, 1978.
- 3) 104-week Dietary Chronic Study and Carcinogenicity Study with Perfluorooctane Sulfonic Acid Potassium Salt (PFOS; T-6295) in Rats, Covance Laboratories Inc., Study Number 6329-183. In progress.
  - a) Summary Report - Week 53 undated
  - b) "Liver Slide Review," Marvin Case to John Butenhoff and Andrew Seacat dated April 5, 2000 relaying the results of an independent histopathologic review of liver slides from the study.
  - c) Second Draft Cell Proliferation Report, Pathology Associates International, August 24, 1999. [final interim report, to be incorporated in final report]
  - d) Study Report of Determination of Cyanide Insensitive Palmitoyl-CoA oxidation in samples from 3M Environmental Laboratory - Covance Studies 6329-183 and 6329-212, Centre For Xenobiotic Research, University of Dundee, Biomedical Research Center, Study Number XR0108, February 18, 1999.
- 4) Range-finder: 4-Week Capsule Toxicity Study with Perfluorooctane Sulfonic Acid Potassium Salt (PFOS; T-6295) in Cynomolgus Monkeys, Covance Laboratories Inc., Study Number 6329-222
  - a) Unaudited Draft Final Report, 4-Week Capsule Toxicity Study with Perfluorooctane Sulfonic Acid Potassium Salt (PFOS; T-6295) in Cynomolgus Monkeys, Covance Laboratories Inc., Study Number 6329-222 (draft not complete).

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**Attachments to Letter to C. Auer dated May 4, 2000  
Perfluorooctane Sulfonate Studies**

- b) Cell Proliferation Report, 4-Week Capsule Toxicity Study with Perfluorooctane Sulfonic Acid Potassium Salt (PFOS; T-6295) in Cynomolgus Monkeys, Covance Laboratories Inc., Study Number 6329-222 (draft to be incorporated in final report)
  - c) Protocol – Analytical Study, Quantitative Analysis of Perfluorooctane Sulfonic Acid Potassium Salt (PFOS; T-6295) in Cynomolgus Monkeys Following Administration of a 4-Week Capsule Toxicity Study, 3M Environmental Laboratory, AMDT-041598.1
  - d) Memorandum from Marvin Case, regarding histopathology review of liver tissue in Covance Study 6329-222, July 27, 1998
- 5) 26-Week Capsule Toxicity Study with Perfluorooctane Sulfonic Acid Potassium Salt (PFOS: T-6295) in Cynomolgus Monkeys, Covance Laboratories Inc., Study Number 6329-223. In progress.
- a) Undated report covering the 26-week dosing phase and one year of recovery.
  - b) John Butenhoff, "Dose-Setting Rationale for Six-Month Chronic Oral Study in Cynomolgus Monkeys," dated July 29, 1998 and followup Aug. 3, 1998.
  - c) Fecal Urobilinogen Analysis, Mayo Clinic, Porphyrins and Nutritional Chemistry Group, Test Code: 8308.
    - i) Summary Report from Dr. Joseph P. McConnell, dated March 16, 1999.
    - ii) General information from Mayo Clinic, Porphyrins and Nutritional Chemistry Group on Urobilinogen Analysis, dated January 14, 1999.
    - iii) Individual animal urobilinogen lab reports (raw data) from Mayo Clinic, Porphyrins and Nutritional Chemistry Group.
  - d) Pathology Report (Ancillary Study), Electron Microscopic Evaluation of Liver in Cynomolgus Monkeys, Pathology Associates International, Study No. EM99.76, July 13, 1999.
  - e) Pathology Review, Marv Case to Andrew Seacat, dated July 22, 1999 relaying the results of a histopathology review of slides.

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**Attachments to Letter to C. Auer dated May 4, 2000**  
**Perfluorooctane Sulfonate Studies**

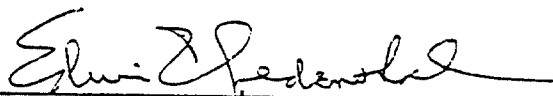
- f) Laboratory Report, Interim Report of Preliminary Data for 26 Week Capsule Toxicology Study with PFOS in Cynomolgus Monkeys, 3M Environmental Laboratory, Report No. FACT-TOX-030, dated March 29, 1999.
- 6) Two Week Oral Rangefinding Toxicity Study of T-2509CoC in Rats, Safety Evaluation Laboratory, Riker Laboratories, Inc., Experiment No. 179RR023, 3M Reference no. T-2509.3 (FC-99 New Formula, L-4509, 25 % diethanolamine salt of perfluorooctanesulfonate in water), February 25, 1980.
- 7) [Submitted under claim of Confidentiality] - Being handled as a separate FYI on an exploratory 28-day oral toxicity study in rats with PFOS and other test materials; also accompanying analytical report.

RDT-1

*International Research and Development Corporation*

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SPONSOR: 3M Company  
COMPOUND: Fluorad® Fluorochemical Surfactant FC-95  
SUBJECT: Ninety-Day Subacute Rhesus Monkey  
Toxicity Study.



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Date: December 18, 1978

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I. SYNOPSIS

Fluorad® Fluorochemical Surfactant FC-95 was administered by gavage to rhesus monkeys at dosage levels of 0, (distilled water only) 0.5, 1.5 and 4.5 mg/kg/day for 90 days. Two male and two female monkeys were initiated at each dosage level and also in the control group. The monkeys were observed twice daily for general physical appearance, behavior and pharmacotoxic signs. Body weights were recorded weekly. Hematological and biochemical studies and urinalysis were conducted once in the control period and at the end of the first and third month of the study.

The monkeys treated at the 4.5-mg/kg/day dosage level died or were sacrificed in extremis between week 5 and 7 of the study. These monkeys exhibited signs of toxicity in the gastrointestinal tract (anorexia, emesis, black stool and dehydration) from the first or second day of study. All the high-dose monkeys had decreased activity and before death showed marked to severe rigidity, convulsions, generalized body trembling, prostration and loss of body weight. The mean body weight decreased from 3.44 kg at the beginning of the study to 2.70 kg at week 5 of study. At 1 month of study all monkeys at the 4.5-mg/kg/day dosage level had decreased serum cholesterol values and serum alkaline phosphatase activity.

All monkeys at the 1.5-mg/kg/day dosage level survived to the end of the study. The monkeys exhibited slightly decreased activity from the first week of the study which occasionally became moderate to marked. Monkeys at the 1.5-mg/kg/day dosage level occasionally had black stools, diarrhea, mucous in the stool and bloody stool and exhibited dehydration or general body trembling at the end of study. The monkeys from this group had a slight decrease in mean body weight.

In the laboratory tests, there was a decrease in the alkaline phosphatase activity and the concentration of inorganic phosphate in the serum at 3 months of study.

All monkeys at the 0.5-mg/kg/day dosage level survived to the end of the study. Monkeys at this dosage level exhibited an occasional soft stool, diarrhea, anorexia and emesis. Slightly decreased activity was noted in three monkeys at this dosage level. At 3 months of study a slight decrease in the serum alkaline phosphatase activity was noted.

No gross or microscopic pathological lesions which were considered compound-related were seen in tissues other than the adrenals, pancreas, and submandibular salivary glands of male and female rhesus monkeys at the 4.5-mg/kg/day dosage level. Microscopically, the adrenals from male and female monkeys at the 4.5-mg/kg/day dosage level had compound-related marked diffuse lipid depletion; the pancreas from male and female monkeys at the 4.5-mg/kg/day dosage level had compound-related moderate diffuse atrophy of exocrine cells; the submandibular salivary glands from male and female monkeys had compound-related moderate diffuse atrophy of the serous alveolar cells.

No statistically significant variations in sex group mean weights of organs occurred between the control and experimental groups.



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## II. COMPOUND

The compound was received from 3M Company, Saint Paul, Minnesota on October 24, 1977 as shown below:

| <u>Label</u>                                                                                               | <u>Description</u> |
|------------------------------------------------------------------------------------------------------------|--------------------|
| Fluorad® Fluorochemical Surfactant<br>FC-95 3-M Stock No. 98-0207-0103-7<br>Lot 640 Net wt. 5 lbs. 2,2 kg. | white powder       |

III. CLINICAL STUDIES

A. METHOD:

1. General Procedure:

Eight male (weighing from 2.55 to 3.55 kg) and eight female (weighing from 2.70 to 3.75 kg) rhesus monkeys were initiated in this study. The monkeys were purchased from Primate Imports, Port Washington, New York. The monkeys were housed individually in hanging wire mesh "squeeze-type" cages and maintained in a temperature-, humidity- and light-controlled environment. Purina® Monkey Chow® was fed twice each day and fresh apples were fed 3 times a week. Water was available ad libitum.

During the conditioning period, the monkeys were tattooed on the inner surface of the thigh and intrapalpebral tuberculin tests were conducted. Tuberculin tests also were conducted twice during the treatment period. Complete physical examinations were conducted by the staff veterinarian prior to initiation of compound administration. Only monkeys in good health were selected.

This study was initiated on February 16, 1978. Terminal sacrifices were conducted on May 17, 1978.

2. Compound Administration:

At the end of the conditioning period the monkeys were divided into four groups on a random basis, so that the initial average body weights were similar:

| <u>Dosage Level</u><br><u>(mg/kg/day)</u> | <u>Number of Monkeys</u> |               |
|-------------------------------------------|--------------------------|---------------|
|                                           | <u>Male</u>              | <u>Female</u> |
| 0 (Control)                               | 2                        | 2             |
| 0.5                                       | 2                        | 2             |
| 1.5                                       | 2                        | 2             |
| 4.5                                       | 2                        | 2             |

The monkeys in the control group were previously employed as the control group in an aborted 90 day study in monkeys on FC-95 (study 137-087). The test compound suspended in distilled water, was administered 7 days a week by gavage. All doses were given in the same volume of water. This volume of distilled water was given to the control group. Individual daily doses were based upon the body weights obtained weekly.

3. Observations:

The monkeys were observed twice daily for general physical appearance, behavior and pharmacotoxic signs. Individual body weights were recorded weekly. General physical examinations were conducted in the control period and monthly during the study. Food consumption was estimated.

4. Clinical Laboratory Tests:

Blood and urine samples were obtained for analysis from all monkeys once during the control period and at 1 and 3 months of study. The monkeys were fasted overnight prior to the collection of blood and urine samples.

a. Hematology:

Hematological studies included: hemoglobin<sup>1</sup>, hematocrit<sup>2</sup>, erythrocyte count<sup>3</sup>, total<sup>3</sup> and differential leucocyte counts, reticulocyte count<sup>4</sup>, platelet count<sup>5</sup>, prothrombin time<sup>6</sup> and activated partial thromboplastin time<sup>7</sup> (APTT). Mean corpuscular hemoglobin, mean corpuscular volume and mean corpuscular hemoglobin concentration were calculated.

b. Biochemistry:

Biochemical studies included: the determinations of fasting blood glucose<sup>8</sup>, blood urea nitrogen<sup>8</sup>, the activities of serum alkaline phosphatase<sup>8</sup>, serum glutamic oxalacetic

transaminase<sup>8</sup>, and serum glutamic pyruvic transaminase<sup>8</sup>, and the concentrations of cholesterol<sup>9</sup>, total protein<sup>9</sup>, albumin<sup>8</sup>, sodium<sup>10</sup>, potassium<sup>10</sup>, chloride<sup>9</sup>, inorganic phosphate<sup>9</sup>, as well as the activities of  $\gamma$ -glutamyl transpeptidase<sup>11</sup> and creatinine phosphokinase<sup>12</sup>.

c. Urinalysis:

Urinalysis included: measurement of volume, pH<sup>13</sup> and specific gravity; description of color and appearance; qualitative tests for protein<sup>13</sup>, glucose<sup>13</sup>, ketones<sup>13</sup>, occult blood<sup>13</sup> and microscopic examination of the sediment.

d. Statistical Analysis:

All statistical analyses compared the treatment groups with the control group, by sex.

Body weights (week 13), percent change in body weights between control period and 1, 2 and 3 months (sexes combined), hematological, biochemical and urinalysis parameters (months 1 and 3) and absolute and relative organ weights (terminal sacrifice) were compared by analysis of variance (one-way classification), Bartlett's test for homogeneity of variances and the appropriate t-test (for equal or unequal variances) as described by Steel and Torrie<sup>14</sup> using Dunnett's<sup>15</sup> multiple comparison tables to judge significance of differences.

B. RESULTS:

1. General Behavior, Appearance and Survival:

There was no mortality in the control, 0.5- and 1.5-mg/kg/day dosage levels. Three monkeys at the 4.5-mg/kg/day dosage level died between week 5 and 6 of the study. The fourth monkey from this group was sacrificed in extremis in week 7 of the study.

a. Control:

The monkeys from this group showed an occasional soft stool or diarrhea (slight to severe). For one day Monkey 7358 had

bloody diarrhea, anorexia and slight ataxia and for 3 days Monkey 7368 had anorexia. Emesis was noted rarely.

b. 0.5 mg/kg/day:

Monkeys 7466 and 7504 exhibited occasional diarrhea or soft stools. For Monkeys 7463 and 7483 the soft stools and diarrhea were frequent with occasional appearance of mucus in the stools. On one occasion bloody mucus in the stool and in the refuse pan was observed for Monkey 7483. Occasional anorexia and emesis were noted for Monkeys 7463, 7466 and 7504. Similarly, a slight intermittent decrease in activity was noted for Monkeys 7463, 7483 and 7504.

c. 1.5 mg/kg/day:

All monkeys at this dosage level exhibited a slight decrease in activity during the first week of study. For Monkey 7501 the decreased activity frequently was noted throughout the study and by week 13 had become moderate. Although no emesis, soft stools and diarrhea were noted for this monkey, slight general body trembling and mucus in the stool was observed in week 12, as well as slight dehydration in weeks 12 and 13. For Monkey 7501 and 7500 anorexia became persistent during weeks 12 and 13. For Monkey 7500 diarrhea and soft stool appeared along with mucus in the stool at week 2, black stool at week 8 and slight dehydration in week 12. This monkey exhibited "bruising" around the right eye followed by "bruising" around both eyes at week 12.

For Monkey 7486 occasional soft stool and diarrhea were observed along with anorexia which became persistent in week 10. During weeks 10 and 11 slight dehydration was also noted. Monkey 7462 had occasional soft stool, emesis for 1 day each in weeks 1 and 3 and the decreased activity was observed in week 1 only.

d. 4.5 mg/kg/day:

At 4.5 mg/kg/day the monkeys showed apparent signs of toxicity in the gastrointestinal tract from the first to the second day of the study (anorexia and partial anorexia, emesis, black stool and/or dehydration from slight to moderate). All had decreased activity from slight to severe. Before death they showed marked to severe rigidity, convulsions, moderate generalized body trembling and finally prostration. Monkey 7485 had petechial hemorrhages on the skin of the inguinal area, thorax and face and Monkey 7484 had pale gums after week 3 of the study.

2. Body Weights (Table 1):

Changes in the body weights were similar for monkeys in the control and at the 0.5-mg/kg/day dosage level. The male monkeys in the 1.5-mg/kg/day dosage level had a decrease in their body weight from 3.15 kg at the beginning of the study to 2.93 kg at the end of the study and from 3.22 kg to 2.75 kg for the female monkeys. The change in body weight for this group of monkeys was not statistically significant from the control group.

The monkeys at the 4.5-mg/kg/day dosage level showed a loss of the body weight after 2 weeks of the study. Their average body weight decreased from 3.44 kg at the beginning of the study to 3.23 kg (week 2) - 3.13 kg (week 3) - 2.97 kg (week 4) - 2.70 kg (week 5) for both sexes. At week 6 and 7 of the study they died. There was no statistical evaluation of the body weights for monkeys at the 4.5-mg/kg/day dosage level, because they were not alive at week 13, when the statistics were done.

3. Laboratory Tests (Tables 2-13):

a. One Month of the Study:

At 1 month of study there were no pathological changes in values for monkeys from the control and 0.5-mg/kg/day dosage level.

At the 1.5-mg/kg/day dosage level only Monkey 7501 had a slight decrease in the erythrocytes which was recovered in the third month of study.

Both the male and female monkeys at the 4.5-mg/kg/day dosage level had low values for serum cholesterol which were statistically significant.

Monkey 7484 had a decreased alkaline phosphatase activity (312 unit/l), serum potassium (3.6 meq/liter) and chloride concentration (102 meq/liter) and Monkey 7503 also had low serum chloride concentration (102 meq/liter).

Although the S.G.O.T. activity of male Monkeys 7484 and 7485 was in the highest expected normal range (115 units) the differences between these values and that of the control were not statistically significant.

The only unusual changes in the urinalysis were the appearance of glucose from Monkey 7500 (1.5 mg/kg/day) and from Monkeys 7485 and 7503 (4.5 mg/kg/day). However, these monkeys had no pathological increase of the blood glucose.

b. Three Months of the Study:

There was a statistically significant decrease in the serum alkaline phosphatase activity for the male monkeys at the 0.5-mg/kg/day dosage level and for two Monkeys, 7500 and 7501, at the 1.5-mg/kg/day dosage level. These latter monkeys also had a decreased values of serum potassium concentrations. Monkey 7501 at 1.5-mg/kg/day had very low serum cholesterol and Monkey 7500 at 1.5-mg/kg/day had a slight decrease in the inorganic phosphate (4.2 mg/100 ml) concentration.

IV. PATHOLOGICAL STUDIES

A. METHODS:

1. Gross Pathology:

After completion of the compound administration period all surviving monkeys were anesthetized with Sernylan<sup>®</sup>\*, exsanguinated and necropsied. At necropsy the heart, liver, adrenals, spleen, pituitary, kidneys, testes/ovaries and brain were weighed and representative tissues were collected in buffered neutral 10% formalin. Eyes were fixed in Russell's fixative. The thyroid/parathyroid was weighed after fixation.

Monkeys which died during the study were necropsied as above.

2. Histopathology:

Microscopic examination of formalin fixed hematoxylin and eosin stained paraffin sections was performed for all animals in the control and treatment groups. The following tissues were examined:

|                               |                                 |                    |
|-------------------------------|---------------------------------|--------------------|
| adrenals                      | kidneys                         | salivary gland     |
| aorta                         | liver                           | lumbar spinal cord |
| brain                         | lung                            | pituitary          |
| esophagus                     | skin                            | stomach            |
| eyes                          | mesenteric lymph node           | testes/ovaries     |
| gallbladder                   | retropharyngeal lymph node      | thyroid            |
| heart (with coronary vessels) | mammary gland                   | parathyroid        |
| duodenum                      | nerve (with muscle)             | thymus             |
| ileum                         | spleen                          | trachea            |
| jejunum                       | pancreas                        | tonsil             |
| cecum                         | prostate/uterus                 | tongue             |
| colon                         | bone/bone marrow (rib junction) | urinary bladder    |
| rectum                        |                                 | vagina             |
|                               |                                 | tattoo             |

and any other tissue(s) with lesions

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\*Phencyclidine HCl - BioCeutic Laboratories, Inc.,  
St. Joseph, Missouri.



B. RESULTS:

1. Gross Pathology (Table 14) and Organ Weights (Table 15):

No gross lesions considered compound-related were seen in male and female rhesus monkeys which died or were sacrificed in extremis or were sacrificed after 90 days of study.

No statistically significant variations in sex group mean weights of organs occurred between the control and experimental groups.

2. Histopathology (Table 16):

All male and female monkeys at the 4.5 mg/kg/day dosage level had marked diffuse lipid depletion in the adrenals. One male and two females at the 4.5 mg/kg/day dosage level had moderate diffuse atrophy of the pancreatic exocrine cells. The lesion consisted of decreased cell size and loss of zymogen granules. Two male and one female monkeys at the 4.5 mg/kg/day dosage level had moderate diffuse atrophy of the serous alveolar cells characterized by decreased cell size and loss of cytoplasmic granules. These microscopic findings were considered compound-related.

No microscopic changes which were considered compound-related were seen in the adrenals, pancreas or submandibular salivary glands in male and female monkeys at the 0.5 and 1.5 mg/kg/day dosage levels. No microscopic lesions in tissues other than the adrenals, pancreas and submandibular salivary glands of male and female monkeys at the 4.5 mg/kg/day dosage level were considered compound-related.

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TABLE 1.

Individual Body Weights, Kilograms.

| Group,<br>Monkey<br>Number | Sex | Control |      | Study Weeks |      |      |      |       |       |      |       |      |      |      |      |      |
|----------------------------|-----|---------|------|-------------|------|------|------|-------|-------|------|-------|------|------|------|------|------|
|                            |     | -1      | 0    | 1           | 2    | 3    | 4    | 5     | 6     | 7    | 8     | 9    | 10   | 11   | 12   | 13   |
| <b>Control:</b>            |     |         |      |             |      |      |      |       |       |      |       |      |      |      |      |      |
| 7355                       | M   | 3.20    | 3.20 | 3.25        | 3.15 | 3.25 | 3.25 | 3.15  | 3.30  | 3.20 | 3.30  | 3.40 | 3.40 | 3.45 | 3.35 | 3.55 |
| 7358                       | M   | 3.65    | 3.55 | 3.65        | 3.30 | 3.30 | 3.45 | 3.50  | 3.70  | 3.70 | 3.60  | 3.90 | 3.90 | 4.10 | 3.90 | 3.75 |
| 7368                       | F   | 3.10    | 3.10 | 3.15        | 3.10 | 3.20 | 3.20 | 3.10  | 3.20  | 3.15 | 3.05  | 3.25 | 3.30 | 3.45 | 3.25 | 3.15 |
| 7372                       | F   | 3.55    | 3.65 | 3.60        | 3.35 | 3.80 | 3.85 | 3.80  | 3.90  | 4.10 | 4.10  | 4.35 | 4.40 | 4.70 | 4.30 | 4.20 |
| Mean                       |     | 3.38    | 3.38 | 3.41        | 3.23 | 3.39 | 3.44 | 3.39  | 3.53  | 3.54 | 3.51  | 3.73 | 3.75 | 3.93 | 3.70 | 3.66 |
| <b>0.5 mg/kg/day:</b>      |     |         |      |             |      |      |      |       |       |      |       |      |      |      |      |      |
| 7463                       | M   | 2.40    | 2.55 | 2.55        | 2.40 | 2.50 | 2.60 | 2.40  | 2.50  | 2.55 | 2.55  | 2.70 | 2.65 | 2.55 | 2.60 | 2.65 |
| 7483                       | M   | 3.50    | 3.55 | 3.45        | 3.40 | 3.50 | 3.60 | 3.55  | 3.55  | 3.65 | 3.55  | 3.65 | 3.65 | 3.75 | 3.70 | 3.55 |
| 7466                       | F   | 3.20    | 3.40 | 3.25        | 3.35 | 3.35 | 3.50 | 3.50  | 3.70  | 3.70 | 3.60  | 3.70 | 3.80 | 3.65 | 3.65 | 3.55 |
| 7504                       | F   | 3.25    | 3.15 | 3.10        | 3.10 | 3.20 | 3.30 | 3.15  | 3.20  | 3.30 | 3.20  | 3.40 | 3.40 | 3.35 | 3.35 | 3.35 |
| Mean                       |     | 3.09    | 3.16 | 3.09        | 3.06 | 3.14 | 3.25 | 3.15  | 3.24  | 3.30 | 3.23  | 3.36 | 3.38 | 3.33 | 3.33 | 3.28 |
| <b>1.5 mg/kg/day:</b>      |     |         |      |             |      |      |      |       |       |      |       |      |      |      |      |      |
| 7462                       | M   | 2.70    | 2.90 | 2.70        | 2.60 | 2.70 | 2.75 | 2.70  | 2.70  | 2.80 | 2.80  | 2.90 | 3.05 | 3.00 | 2.95 | 2.80 |
| 7486                       | M   | 3.40    | 3.40 | 3.15        | 3.30 | 3.15 | 3.30 | 3.10  | 3.20  | 3.20 | 3.30  | 3.35 | 3.40 | 3.30 | 3.25 | 3.05 |
| 7500                       | F   | 3.85    | 3.75 | 3.75        | 3.45 | 3.45 | 3.40 | 3.30  | 3.35  | 3.40 | 3.30  | 3.45 | 3.40 | 3.50 | 3.35 | 3.20 |
| 7501                       | F   | 2.75    | 2.70 | 2.55        | 2.45 | 2.50 | 2.55 | 2.50  | 2.55  | 2.55 | 2.50  | 2.55 | 2.50 | 2.50 | 2.45 | 2.30 |
| Mean                       |     | 3.18    | 3.19 | 3.04        | 2.95 | 2.95 | 3.00 | 2.90  | 2.95  | 2.99 | 2.98  | 3.06 | 3.09 | 3.08 | 3.00 | 2.84 |
| <b>4.5 mg/kg/day:</b>      |     |         |      |             |      |      |      |       |       |      |       |      |      |      |      |      |
| 7484                       | M   | 3.45    | 3.30 | 3.15        | 3.25 | 2.90 | 2.55 | 2.20  | 2.15* | Died |       |      |      |      |      |      |
| 7485                       | M   | 3.25    | 3.20 | 3.30        | 3.00 | 3.00 | 2.75 | 2.50* | Died  |      |       |      |      |      |      |      |
| 7502                       | F   | 3.50    | 3.50 | 3.55        | 3.20 | 3.25 | 3.25 | 3.10  | 3.10  | 2.70 | 2.65* | Died |      |      |      |      |
| 7503                       | F   | 3.80    | 3.75 | 3.80        | 3.45 | 3.35 | 3.35 | 2.80  | 2.55* | Died |       |      |      |      |      |      |
| Mean                       |     | 3.50    | 3.44 | 3.45        | 3.23 | 3.13 | 2.98 | 2.70  | 3.10  | 2.70 | Died  |      |      |      |      |      |

\*Terminal weight not included in mean.

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TABLE 2.

MALES: Means and Significance of Hematological Values.

| Hematology                            | Study Month | Control | 0.5 mg/kg/day | 1.5 mg/kg/day | 4.5 mg/kg/day |
|---------------------------------------|-------------|---------|---------------|---------------|---------------|
| Erythrocytes,<br>10 <sup>6</sup> /cmm | Control     | 4.93    | 5.36          | 5.04          | 5.47          |
|                                       | 1           | 4.67    | 4.81          | 4.66          | 4.71          |
|                                       | 3           | 4.63    | 4.84          | 4.45          | -             |
| Hemoglobin,<br>g/100 ml               | Control     | 12.3    | 12.7          | 12.3          | 13.7          |
|                                       | 1           | 12.4    | 13.8          | 13.2          | 12.8          |
|                                       | 3           | 12.3    | 12.4          | 11.6          | -             |
| Hematocrit,<br>%                      | Control     | 35      | 38            | 37            | 39            |
|                                       | 1           | 37      | 37            | 37            | 37            |
|                                       | 3           | 39      | 39            | 36            | -             |
| Platelets,<br>10 <sup>3</sup> /cmm    | Control     | 129     | 140           | 114           | 180           |
|                                       | 1           | 181     | 226           | 161           | 177           |
|                                       | 3           | 205     | 226           | 223           | -             |
| Reticulocytes,<br>%                   | Control     | 0.5     | 0.9           | 0.6           | 1.0           |
|                                       | 1           | 0.3     | 0.3           | 0.2           | 0.2           |
|                                       | 3           | 0.2     | 0.3           | 0.1           | -             |
| Prothrombin Time,<br>sec              | Control     | 11      | 11            | 11            | 11            |
|                                       | 1           | 11      | 12            | 11            | 12            |
|                                       | 3           | 12      | 11            | 11            | -             |
| Activated P.T.T.,<br>sec              | Control     | 29      | 28            | 29            | 26            |
|                                       | 1           | 24      | 25            | 24            | 29            |
|                                       | 3           | 25      | 22            | 28            | -             |
| Leucocytes,<br>10 <sup>3</sup> /cmm   | Control     | 7.03    | 10.29         | 8.22          | 6.39          |
|                                       | 1           | 10.59   | 10.41         | 8.39          | 11.37         |
|                                       | 3           | 8.67    | 7.06          | 9.04          | -             |
| MCV,<br>μ <sup>3</sup>                | Control     | 71      | 70            | 73            | 71            |
|                                       | 1           | 79      | 77            | 80            | 78            |
|                                       | 3           | 84      | 80            | 81            | -             |
| MCH,<br>μg                            | Control     | 25      | 24            | 25            | 25            |
|                                       | 1           | 27      | 29            | 28            | 27            |
|                                       | 3           | 27      | 26            | 26            | -             |
| MCHC,<br>g/100 ml                     | Control     | 36      | 34            | 34            | 36            |
|                                       | 1           | 34      | 37            | 36            | 35            |
|                                       | 3           | 32      | 33            | 32            | -             |

- = Not available

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TABLE 2. Cont.

FEMALES: Means and Significance of Hematological Values.

| Hematology                            | Study Month | Control | 0.5 mg/kg/day | 1.5 mg/kg/day | 4.5 mg/kg/day |
|---------------------------------------|-------------|---------|---------------|---------------|---------------|
| Erythrocytes,<br>10 <sup>6</sup> /cmm | Control     | 5.66    | 5.56          | 5.11          | 5.08          |
|                                       | 1           | 5.02    | 4.56          | 3.95          | 5.00          |
|                                       | 3           | 4.71    | 4.79          | 4.37          | -             |
| Hemoglobin,<br>g/100 ml               | Control     | 13.1    | 12.6          | 12.5          | 11.8          |
|                                       | 1           | 14.1    | 13.4          | 12.0          | 12.9          |
|                                       | 3           | 12.0    | 12.2          | 11.7          | -             |
| Hematocrit,<br>%                      | Control     | 39      | 38            | 34            | 35            |
|                                       | 1           | 40      | 38            | 35            | 37            |
|                                       | 3           | 38      | 39            | 37            | -             |
| Platelets,<br>10 <sup>3</sup> /cmm    | Control     | 176     | 164           | 164           | 182           |
|                                       | 1           | 151     | 177           | 158           | 194           |
|                                       | 3           | 232     | 236           | 229           | -             |
| Reticulocytes,<br>%                   | Control     | 0.4     | 0.8           | 0.3           | 0.8           |
|                                       | 1           | 0.2     | 0.1           | 0.2           | 0.1           |
|                                       | 3           | 0.1     | 0.1           | 0.1           | -             |
| Prothrombin Time,<br>sec              | Control     | 11      | 10            | 11            | 11            |
|                                       | 1           | 11      | 11            | 11            | 12            |
|                                       | 3           | 12      | 11            | 11            | -             |
| Activated P.T.T.,<br>sec              | Control     | 27      | 27            | 26            | 27            |
|                                       | 1           | 27      | 27            | 25            | 28            |
|                                       | 3           | 25      | 29            | 27            | -             |
| Leucocytes,<br>10 <sup>3</sup> /cmm   | Control     | 7.39    | 10.31         | 8.81          | 12.71         |
|                                       | 1           | 8.77    | 7.82          | 9.14          | 11.28         |
|                                       | 3           | 4.62    | 9.09**        | 6.84*         | -             |
| MCV,<br>μ <sup>3</sup>                | Control     | 68      | 69            | 67            | 68            |
|                                       | 1           | 79      | 82            | 88            | 75            |
|                                       | 3           | 81      | 81            | 85            | -             |
| MCH,<br>μg                            | Control     | 23      | 23            | 25            | 23            |
|                                       | 1           | 28      | 30            | 31            | 26            |
|                                       | 3           | 26      | 26            | 27            | -             |
| MCHC,<br>g/100 ml                     | Control     | 34      | 33            | 37            | 34            |
|                                       | 1           | 36      | 36            | 35            | 35            |
|                                       | 3           | 32      | 31            | 32            | -             |

\*Significantly different from Control group mean, p&lt;0.05.

\*\*Significantly different from Control group mean, p&lt;0.01.

- = Not available

TABLE 3.

## Individual Hematological Values - Control.

| Group,<br>Monkey<br>Number | Sex | Erythro-<br>cytes<br>10 <sup>6</sup> /cmm | Hemo-<br>globin<br>g/100 ml | Hemato-<br>crit<br>% | Plate-<br>lets<br>10 <sup>3</sup> /cmm | Reticu-<br>locytes<br>% | Pro-<br>thrombin<br>Time<br>sec | Activated<br>P.T.T.<br>sec | Leuco-<br>cytes<br>10 <sup>3</sup> /cmm | Neutrophils |          | Lympho-<br>cytes<br>% | Eosino-<br>phils<br>% | Mono-<br>cytes<br>% | Baso-<br>phils<br>% | MCV<br>μ | MCH<br>μg | MCHC<br>g/100 ml |
|----------------------------|-----|-------------------------------------------|-----------------------------|----------------------|----------------------------------------|-------------------------|---------------------------------|----------------------------|-----------------------------------------|-------------|----------|-----------------------|-----------------------|---------------------|---------------------|----------|-----------|------------------|
|                            |     |                                           |                             |                      |                                        |                         |                                 |                            |                                         | Seg.        | Non-Seg. |                       |                       |                     |                     |          |           |                  |
| Control:                   |     |                                           |                             |                      |                                        |                         |                                 |                            |                                         |             |          |                       |                       |                     |                     |          |           |                  |
| 7355                       | M   | 4.65                                      | 11.4                        | 32                   | 110                                    | 0.7                     | 10                              | 31                         | 5.39                                    | 19          | 0        | 80                    | 0                     | 1                   | 0                   | 69       | 25        | 36               |
| 7358                       | M   | 5.20                                      | 13.2                        | 38                   | 147                                    | 0.2                     | 11                              | 27                         | 8.66                                    | 13          | 0        | 84                    | 3                     | 0                   | 0                   | 73       | 25        | 35               |
| 7368                       | F   | 5.78                                      | 13.4                        | 41                   | 180                                    | 0.5                     | 11                              | 25                         | 7.61                                    | 24          | 1        | 74                    | 1                     | 0                   | 0                   | 71       | 23        | 33               |
| 7372                       | F   | 5.53                                      | 12.7                        | 36                   | 172                                    | 0.3                     | 11                              | 28                         | 7.17                                    | 12          | 0        | 87                    | 1                     | 0                   | 0                   | 65       | 23        | 35               |
| Mean                       |     | 5.29                                      | 12.7                        | 37                   | 152                                    | 0.4                     | 11                              | 28                         | 7.21                                    | 17          | 0        | 82                    | 1                     | 0                   | 0                   | 70       | 24        | 35               |
| 0.5 mg/kg/day:             |     |                                           |                             |                      |                                        |                         |                                 |                            |                                         |             |          |                       |                       |                     |                     |          |           |                  |
| 7463                       | M   | 5.38                                      | 12.7                        | 37                   | 131                                    | 0.5                     | 10                              | 27                         | 9.73                                    | 58          | 0        | 40                    | 2                     | 0                   | 0                   | 69       | 24        | 34               |
| 7483                       | M   | 5.34                                      | 12.7                        | 38                   | 148                                    | 1.2                     | 11                              | 28                         | 10.84                                   | 47          | 0        | 50                    | 3                     | 0                   | 0                   | 71       | 24        | 33               |
| 7466                       | F   | 5.64                                      | 13.2                        | 39                   | 157                                    | 1.2                     | 10                              | 29                         | 9.61                                    | 20          | 0        | 80                    | 0                     | 0                   | 0                   | 69       | 23        | 34               |
| 7504                       | F   | 5.47                                      | 11.9                        | 37                   | 170                                    | 0.3                     | 10                              | 25                         | 11.00                                   | 28          | 0        | 72                    | 0                     | 0                   | 0                   | 68       | 22        | 32               |
| Mean                       |     | 5.46                                      | 12.6                        | 38                   | 152                                    | 0.8                     | 10                              | 27                         | 10.30                                   | 38          | 0        | 61                    | 1                     | 0                   | 0                   | 69       | 23        | 33               |
| 1.5 mg/kg/day:             |     |                                           |                             |                      |                                        |                         |                                 |                            |                                         |             |          |                       |                       |                     |                     |          |           |                  |
| 7462                       | M   | 5.03                                      | 12.2                        | 37                   | 101                                    | 0.2                     | 11                              | 28                         | 7.28                                    | 16          | 0        | 83                    | 1                     | 0                   | 0                   | 74       | 24        | 33               |
| 7486                       | M   | 5.04                                      | 12.4                        | 36                   | 126                                    | 0.9                     | 11                              | 29                         | 9.15                                    | 22          | 0        | 78                    | 0                     | 0                   | 0                   | 71       | 25        | 34               |
| 7500                       | F   | 4.96                                      | 12.4                        | 32                   | 142                                    | 0.2                     | 11                              | 26                         | 10.07                                   | 53          | 0        | 43                    | 3                     | 1                   | 0                   | 65       | 25        | 39               |
| 7501                       | F   | 5.25                                      | 12.5                        | 36                   | 186                                    | 0.3                     | 11                              | 26                         | 7.54                                    | 34          | 0        | 64                    | 2                     | 0                   | 0                   | 69       | 24        | 35               |
| Mean                       |     | 5.07                                      | 12.4                        | 35                   | 139                                    | 0.4                     | 11                              | 27                         | 8.51                                    | 31          | 0        | 67                    | 2                     | 0                   | 0                   | 70       | 25        | 35               |
| 4.5 mg/kg/day:             |     |                                           |                             |                      |                                        |                         |                                 |                            |                                         |             |          |                       |                       |                     |                     |          |           |                  |
| 7484                       | M   | 5.40                                      | 12.9                        | 36                   | 197                                    | 0.8                     | 11                              | 27                         | 6.72                                    | 20          | 0        | 79                    | 0                     | 0                   | 1                   | 67       | 24        | 36               |
| 7485                       | M   | 5.54                                      | 14.5                        | 41                   | 162                                    | 1.2                     | 11                              | 25                         | 6.05                                    | 33          | 0        | 64                    | 3                     | 0                   | 0                   | 74       | 26        | 35               |
| 7502                       | F   | 5.27                                      | 12.7                        | 35                   | 191                                    | 0.5                     | 10                              | 25                         | 13.89                                   | 34          | 0        | 63                    | 2                     | 0                   | 1                   | 66       | 24        | 36               |
| 7503                       | F   | 4.88                                      | 10.9                        | 34                   | 173                                    | 1.0                     | 11                              | 29                         | 11.53                                   | 35          | 0        | 60                    | 5                     | 0                   | 0                   | 70       | 22        | 32               |
| Mean                       |     | 5.27                                      | 12.8                        | 37                   | 181                                    | 0.9                     | 11                              | 27                         | 9.55                                    | 31          | 0        | 65                    | 3                     | 0                   | 1                   | 69       | 24        | 35               |

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TABLE 4.

## Individual Hematological Values - 1 Month.

| Group,<br>Monkey<br>Number | Sex | Erythro-<br>cytes<br>10 <sup>6</sup> /cmm | Hemo-<br>globin<br>g/100 ml | Hemato-<br>crit<br>% | Plate-<br>lets<br>10 <sup>3</sup> /cmm | Reticu-<br>locytes<br>% | Pro-<br>thrombin<br>Time<br>sec | Activated<br>P.T.T.<br>sec | Leuco-<br>cytes<br>10 <sup>3</sup> /cmm | Neutrophils |               | Lympho-<br>cytes<br>% | Eosino-<br>phils<br>% | Mono-<br>cytes<br>% | Baso-<br>phils<br>% | MCV<br>μ <sup>3</sup> | MCH<br>μg | MCHC<br>g/100 ml |
|----------------------------|-----|-------------------------------------------|-----------------------------|----------------------|----------------------------------------|-------------------------|---------------------------------|----------------------------|-----------------------------------------|-------------|---------------|-----------------------|-----------------------|---------------------|---------------------|-----------------------|-----------|------------------|
|                            |     |                                           |                             |                      |                                        |                         |                                 |                            |                                         | Seg.<br>%   | Non-Seg.<br>% |                       |                       |                     |                     |                       |           |                  |
| Control:                   |     |                                           |                             |                      |                                        |                         |                                 |                            |                                         |             |               |                       |                       |                     |                     |                       |           |                  |
| 7355                       | M   | 4.74                                      | 12.5                        | 38                   | 166                                    | 0.0                     | 12                              | 26                         | 5.22                                    | 48          | 0             | 52                    | 0                     | 0                   | 0                   | 80                    | 26        | 33               |
| 7358                       | M   | 4.60                                      | 12.3                        | 36                   | 196                                    | 0.5                     | 10                              | 21                         | 15.95                                   | 61          | 0             | 34                    | 5                     | 0                   | 0                   | 78                    | 27        | 34               |
| 7368                       | F   | 5.43                                      | 14.7                        | 42                   | 134                                    | 0.1                     | 11                              | 25                         | 11.05                                   | 64          | 0             | 35                    | 0                     | 1                   | 0                   | 77                    | 27        | 35               |
| 7372                       | F   | 4.60                                      | 13.4                        | 37                   | 168                                    | 0.2                     | 11                              | 28                         | 6.48                                    | 23          | 0             | 72                    | 5                     | 0                   | 0                   | 80                    | 29        | 36               |
| Mean                       |     | 4.84                                      | 13.2                        | 38                   | 166                                    | 0.2                     | 11                              | 25                         | 9.68                                    | 49          | 0             | 48                    | 3                     | 0                   | 0                   | 79                    | 27        | 35               |
| 0.5 mg/kg/day:             |     |                                           |                             |                      |                                        |                         |                                 |                            |                                         |             |               |                       |                       |                     |                     |                       |           |                  |
| 7463                       | M   | 4.92                                      | 14.0                        | 37                   | 220                                    | 0.2                     | 11                              | 26                         | 10.52                                   | 65          | 0             | 34                    | 1                     | 0                   | 0                   | 75                    | 28        | 38               |
| 7483                       | M   | 4.69                                      | 13.5                        | 37                   | 232                                    | 0.3                     | 12                              | 24                         | 10.29                                   | 53          | 0             | 47                    | 0                     | 0                   | 0                   | 79                    | 29        | 36               |
| 7466                       | F   | 4.74                                      | 14.0                        | 39                   | 222                                    | 0.0                     | 11                              | 24                         | 7.42                                    | 37          | 0             | 62                    | 1                     | 0                   | 0                   | 82                    | 30        | 36               |
| 7504                       | F   | 4.38                                      | 12.7                        | 36                   | 131                                    | 0.1                     | 11                              | 29                         | 8.22                                    | 40          | 0             | 58                    | 2                     | 0                   | 0                   | 82                    | 29        | 35               |
| Mean                       |     | 4.68                                      | 13.6                        | 37                   | 201                                    | 0.2                     | 11                              | 26                         | 9.11                                    | 49          | 0             | 50                    | 1                     | 0                   | 0                   | 80                    | 29        | 36               |
| 1.5 mg/kg/day:             |     |                                           |                             |                      |                                        |                         |                                 |                            |                                         |             |               |                       |                       |                     |                     |                       |           |                  |
| 7462                       | M   | 4.67                                      | 13.3                        | 37                   | 160                                    | 0.2                     | 11                              | 24                         | 8.54                                    | 59          | 0             | 41                    | 0                     | 0                   | 0                   | 79                    | 28        | 36               |
| 7486                       | M   | 4.64                                      | 13.1                        | 37                   | 161                                    | 0.2                     | 11                              | 24                         | 8.23                                    | 47          | 0             | 51                    | 1                     | 1                   | 0                   | 80                    | 28        | 35               |
| 7500                       | F   | 4.01                                      | 12.0                        | 32                   | 155                                    | 0.2                     | 11                              | 26                         | 11.06                                   | 50          | 0             | 50                    | 0                     | 0                   | 0                   | 80                    | 30        | 38               |
| 7501                       | F   | 3.89                                      | 12.0                        | 37                   | 160                                    | 0.1                     | 11                              | 23                         | 7.21                                    | 48          | 0             | 50                    | 2                     | 0                   | 0                   | 95                    | 31        | 32               |
| Mean                       |     | 4.30                                      | 12.6                        | 36                   | 159                                    | 0.2                     | 11                              | 24                         | 8.76                                    | 51          | 0             | 48                    | 1                     | 0                   | 0                   | 84                    | 29        | 35               |
| 4.5 mg/kg/day:             |     |                                           |                             |                      |                                        |                         |                                 |                            |                                         |             |               |                       |                       |                     |                     |                       |           |                  |
| 7484                       | M   | 4.66*                                     | 12.0                        | 34                   | 204                                    | 0.0                     | 12                              | 32                         | 11.83                                   | 82          | 0             | 17                    | 0                     | 1                   | 0                   | 73                    | 26        | 35               |
| 7485                       | M   | 4.76                                      | 13.5                        | 39                   | 149                                    | 0.4                     | 11                              | 26                         | 10.90                                   | 66          | 0             | 32                    | 1                     | 1                   | 0                   | 82                    | 28        | 35               |
| 7502                       | F   | 4.20                                      | 12.7                        | 35                   | 202                                    | 0.1                     | 11                              | 27                         | 12.90                                   | 60          | 0             | 40                    | 0                     | 0                   | 0                   | 83                    | 30        | 36               |
| 7503                       | F   | 5.80                                      | 13.0                        | 38                   | 186                                    | 0.1                     | 12                              | 29                         | 9.66                                    | 62          | 0             | 37                    | 1                     | 0                   | 0                   | 66                    | 22        | 34               |
| Mean                       |     | 4.86                                      | 12.8                        | 37                   | 185                                    | 0.2                     | 12                              | 29                         | 11.32                                   | 68          | 0             | 30                    | 1                     | 1                   | 0                   | 76                    | 27        | 35               |

\*1+Anisocytosis

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TABLE 5.

## Individual Hematological Values - 3 Months.

| Group,<br>Monkey<br>Number | Sex | Erythro-<br>cytes<br>10 <sup>6</sup> /cmm | Hemo-<br>globin<br>g/100 ml | Hemato-<br>crit<br>% | Plate-<br>lets<br>10 <sup>3</sup> /cmm | Reticu-<br>locytes<br>% | Pro-<br>thrombin<br>Time<br>sec | Activated<br>P.T.T.<br>sec | Leuco-<br>cytes<br>10 <sup>3</sup> /cmm | Neutrophils |          | Lympho-<br>cytes<br>% | Eosino-<br>phils<br>% | Mono-<br>cytes<br>% | Baso-<br>phils<br>% | MCV<br>μ <sup>3</sup> | MCH<br>μg | MCHC<br>g/100 ml |
|----------------------------|-----|-------------------------------------------|-----------------------------|----------------------|----------------------------------------|-------------------------|---------------------------------|----------------------------|-----------------------------------------|-------------|----------|-----------------------|-----------------------|---------------------|---------------------|-----------------------|-----------|------------------|
|                            |     |                                           |                             |                      |                                        |                         |                                 |                            |                                         | Seg.        | Non-Seg. |                       |                       |                     |                     |                       |           |                  |
| Control:                   |     |                                           |                             |                      |                                        |                         |                                 |                            |                                         |             |          |                       |                       |                     |                     |                       |           |                  |
| 7355                       | M   | 4.59                                      | 12.1                        | 37                   | 187                                    | 0.3                     | 12                              | 26                         | 6.63                                    | 49          | 0        | 51                    | 0                     | 0                   | 0                   | 81                    | 26        | 33               |
| 7358                       | M   | 4.67                                      | 12.5                        | 40                   | 222                                    | 0.0                     | 11                              | 23                         | 10.70                                   | 20          | 0        | 76                    | 3                     | 1                   | 0                   | 86                    | 27        | 31               |
| 7368                       | F   | 5.05                                      | 12.5                        | 40                   | 235                                    | 0.2                     | 12                              | 24                         | 4.33                                    | 38          | 0        | 61                    | 1                     | 0                   | 0                   | 79                    | 25        | 31               |
| 7372                       | F   | 4.36                                      | 11.5                        | 36                   | 228                                    | 0.0                     | 11                              | 25                         | 4.91                                    | 27          | 0        | 66                    | 7                     | 0                   | 0                   | 83                    | 26        | 32               |
| Mean                       |     | 4.67                                      | 12.2                        | 38                   | 218                                    | 0.1                     | 12                              | 25                         | 6.64                                    | 34          | 0        | 63                    | 3                     | 0                   | 0                   | 82                    | 26        | 32               |
| 0.5 mg/kg/day:             |     |                                           |                             |                      |                                        |                         |                                 |                            |                                         |             |          |                       |                       |                     |                     |                       |           |                  |
| 7463                       | M   | 5.01                                      | 12.8                        | 39                   | 230                                    | 0.3                     | 10                              | 20                         | 7.15                                    | 46          | 0        | 53                    | 1                     | 0                   | 0                   | 78                    | 26        | 33               |
| 7483                       | M   | 4.66                                      | 12.0                        | 38                   | 222                                    | 0.2                     | 11                              | 24                         | 6.96                                    | 42          | 0        | 54                    | 4                     | 0                   | 0                   | 82                    | 26        | 32               |
| 7466                       | F   | 4.86                                      | 12.9                        | 41                   | 229                                    | 0.0                     | 11                              | 27                         | 9.30                                    | 15          | 0        | 83                    | 2                     | 0                   | 0                   | 84                    | 27        | 31               |
| 7504                       | F   | 4.72                                      | 11.5                        | 37                   | 242                                    | 0.1                     | 11                              | 31                         | 8.82                                    | 33          | 0        | 66                    | 1                     | 0                   | 0                   | 78                    | 24        | 31               |
| Mean                       |     | 4.81                                      | 12.3                        | 39                   | 231                                    | 0.2                     | 11                              | 26                         | 8.06                                    | 34          | 0        | 64                    | 2                     | 0                   | 0                   | 81                    | 26        | 32               |
| 1.5 mg/kg/day:             |     |                                           |                             |                      |                                        |                         |                                 |                            |                                         |             |          |                       |                       |                     |                     |                       |           |                  |
| 7462                       | M   | 4.30                                      | 11.3                        | 35                   | 230                                    | 0.1                     | 11                              | 29                         | 7.71                                    | 18          | 0        | 81                    | 1                     | 0                   | 0                   | 81                    | 26        | 32               |
| 7486                       | M   | 4.60                                      | 11.9                        | 37                   | 216                                    | 0.1                     | 11                              | 26                         | 10.37                                   | 18          | 0        | 81                    | 1                     | 0                   | 0                   | 80                    | 26        | 32               |
| 7500                       | F   | 4.12                                      | 11.1                        | 35                   | 234                                    | 0.1                     | 11                              | 26                         | 7.22                                    | 34          | 0        | 64                    | 2                     | 0                   | 0                   | 85                    | 27        | 32               |
| 7501                       | F   | 4.61                                      | 12.2                        | 39                   | 224                                    | 0.0                     | 11                              | 27                         | 6.45                                    | 47          | 0        | 50                    | 3                     | 0                   | 0                   | 85                    | 26        | 31               |
| Mean                       |     | 4.41                                      | 11.6                        | 37                   | 226                                    | 0.1                     | 11                              | 27                         | 7.94                                    | 29          | 0        | 69                    | 2                     | 0                   | 0                   | 83                    | 26        | 32               |
| 4.5 mg/kg/day:             |     |                                           |                             |                      |                                        |                         |                                 |                            |                                         |             |          |                       |                       |                     |                     |                       |           |                  |
| 7484                       | M   | Died                                      |                             |                      |                                        |                         |                                 |                            |                                         |             |          |                       |                       |                     |                     |                       |           |                  |
| 7485                       | M   | Died                                      |                             |                      |                                        |                         |                                 |                            |                                         |             |          |                       |                       |                     |                     |                       |           |                  |
| 7502                       | F   | Died                                      |                             |                      |                                        |                         |                                 |                            |                                         |             |          |                       |                       |                     |                     |                       |           |                  |
| 7503                       | F   | Died                                      |                             |                      |                                        |                         |                                 |                            |                                         |             |          |                       |                       |                     |                     |                       |           |                  |
| Mean                       |     |                                           |                             |                      |                                        |                         |                                 |                            |                                         |             |          |                       |                       |                     |                     |                       |           |                  |

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TABLE 6.

MALES: Summary of Mean Biochemical Values.

| Biochemistry                                         | Study Month | Control | 0.5 mg/kg/day | 1.5 mg/kg/day | 4.5 mg/kg/day |
|------------------------------------------------------|-------------|---------|---------------|---------------|---------------|
| Glucose,<br>mg/100 ml                                | Control     | 118     | 106           | 102           | 116           |
|                                                      | 1           | 96      | 92            | 115           | 99            |
|                                                      | 3           | 77      | 80            | 107           | -             |
| B.U.N.,<br>mg/100 ml                                 | Control     | 23.7    | 29.8          | 31.4          | 19.6          |
|                                                      | 1           | 23.3    | 33.3          | 32.8          | 29.1          |
|                                                      | 3           | 28.2    | 26.5          | 19.6          | -             |
| Alkaline Phosphatase,<br>int'l units/l               | Control     | 1070    | 680           | 1035          | 1300          |
|                                                      | 1           | 1113    | 897           | 1110          | 564           |
|                                                      | 3           | 1095    | 747*          | 891           | -             |
| S.G.O.T.,<br>int'l units/l                           | Control     | 22      | 23            | 18            | 25            |
|                                                      | 1           | 56      | 49            | 54            | 115           |
|                                                      | 3           | 56      | 49            | 53            | -             |
| S.G.P.T.,<br>int'l units/l                           | Control     | 40      | 32            | 29            | 35            |
|                                                      | 1           | 42      | 27            | 38            | 27            |
|                                                      | 3           | 35      | 28            | 28            | -             |
| Cholesterol,<br>mg/100 ml                            | Control     | 183     | 172           | 185           | 190           |
|                                                      | 1           | 198     | 200           | 213           | 87**          |
|                                                      | 3           | 162     | 152           | 122           | -             |
| Total Protein,<br>g/100 ml                           | Control     | 8.38    | 8.74          | 8.68          | 8.90          |
|                                                      | 1           | 8.46    | 8.59          | 8.74          | 8.90          |
|                                                      | 3           | 7.85    | 8.07          | 8.38          | -             |
| Albumin,<br>g/100 ml                                 | Control     | 4.96    | 5.22          | 5.36          | 5.50          |
|                                                      | 1           | 4.75    | 5.17          | 5.22          | 5.31          |
|                                                      | 3           | 4.70    | 4.69          | 4.98          | -             |
| Sodium,<br>meq/l                                     | Control     | 150     | 156           | 156           | 160           |
|                                                      | 1           | 161     | 160           | 160           | 153           |
|                                                      | 3           | 153     | 151           | 150           | -             |
| Potassium,<br>meq/l                                  | Control     | 4.9     | 5.6           | 5.4           | 4.6           |
|                                                      | 1           | 4.9     | 4.6           | 4.7           | 4.7           |
|                                                      | 3           | 4.2     | 4.2           | 4.8           | -             |
| Chloride,<br>meq/l                                   | Control     | 112     | 114           | 116           | 113           |
|                                                      | 1           | 117     | 118           | 121           | 105           |
|                                                      | 3           | 112     | 110           | 111           | -             |
| Inorganic Phosphate,<br>mg/100 ml                    | Control     | 6.8     | 6.4           | 6.0           | 6.4           |
|                                                      | 1           | 8.1     | 6.4           | 8.5           | 4.9*          |
|                                                      | 3           | 7.4     | 6.5           | 6.0           | -             |
| $\gamma$ - Glutamyl Transpeptidase<br>Sigma units/ml | Control     | 56      | 36            | 50            | 46            |
|                                                      | 1           | 42      | 45            | 55            | 26            |
|                                                      | 3           | 56      | 29            | 45            | -             |
| Creatinine Phosphokinase,<br>Sigma units/ml          | Control     | 25      | 44            | 11            | 13            |
|                                                      | 1           | 62      | 34            | 67            | 55            |
|                                                      | 3           | 20      | 40            | 40            | -             |

\*Significantly different from Control group mean,  $p < 0.05$ .\*\*Significantly different from Control group mean,  $p < 0.01$ .

- = Not available

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## Ninety-Day Subacute Rhesus Monkey Toxicity Study.

TABLE 6. Cont.

## FEMALES: Summary of Mean Biochemical Values.

| Biochemistry                                         | Study Month | Control | 0.5 mg/kg/day | 1.5 mg/kg/day | 4.5 mg/kg/day |
|------------------------------------------------------|-------------|---------|---------------|---------------|---------------|
| Glucose,<br>mg/100 ml                                | Control     | 107     | 139           | 113           | 144           |
|                                                      | 1           | 163     | 98            | 119           | 164           |
|                                                      | 3           | 88      | 97            | 108           | -             |
| B.U.N.,<br>mg/100 ml                                 | Control     | 23.6    | 22.0          | 20.7          | 22.4          |
|                                                      | 1           | 25.2    | 25.5          | 26.4          | 31.6          |
|                                                      | 3           | 28.7    | 21.5          | 22.6          | -             |
| Alkaline Phosphatase,<br>int'l units/l               | Control     | 1173    | 1013          | 770           | 875           |
|                                                      | 1           | 1092    | 942           | 753           | 615           |
|                                                      | 3           | 831     | 861           | 618           | -             |
| S.G.O.T.,<br>int'l units/l                           | Control     | 16      | 39            | 20            | 37            |
|                                                      | 1           | 46      | 55            | 45            | 75*           |
|                                                      | 3           | 36      | 36            | 27            | -             |
| S.G.P.T.,<br>int'l units/l                           | Control     | 23      | 42            | 32            | 37            |
|                                                      | 1           | 23      | 37            | 35            | 45            |
|                                                      | 3           | 29      | 27            | 34            | -             |
| Cholesterol,<br>mg/100 ml                            | Control     | 180     | 208           | 204           | 176           |
|                                                      | 1           | 198     | 221           | 169           | 112*          |
|                                                      | 3           | 165     | 169           | 100           | -             |
| Total Protein,<br>g/100 ml                           | Control     | 7.70    | 8.77          | 8.67          | 8.88          |
|                                                      | 1           | 7.66    | 8.47          | 8.63          | 8.82*         |
|                                                      | 3           | 7.49    | 8.02          | 8.47          | -             |
| Albumin,<br>g/100 ml                                 | Control     | 4.71    | 5.27          | 5.20          | 5.16          |
|                                                      | 1           | 4.86    | 5.41          | 5.42          | 5.39          |
|                                                      | 3           | 4.77    | 4.82          | 5.21          | -             |
| Sodium,<br>meq/l                                     | Control     | 156     | 158           | 157           | 159           |
|                                                      | 1           | 155     | 162           | 157           | 156           |
|                                                      | 3           | 152     | 151           | 149           | -             |
| Potassium,<br>meq/l                                  | Control     | 4.8     | 5.3           | 5.2           | 5.3           |
|                                                      | 1           | 4.7     | 5.1           | 3.8           | 4.3           |
|                                                      | 3           | 4.6     | 5.1           | 3.7           | -             |
| Chloride,<br>meq/l                                   | Control     | 111     | 112           | 115           | 116           |
|                                                      | 1           | 111     | 116           | 113           | 110           |
|                                                      | 3           | 113     | 111           | 109           | -             |
| Inorganic Phosphate,<br>mg/100 ml                    | Control     | 6.4     | 7.5           | 5.4           | 6.4           |
|                                                      | 1           | 6.5     | 8.2           | 5.7           | 5.6           |
|                                                      | 3           | 6.5     | 7.3           | 4.7           | -             |
| $\gamma$ - Glutamyl Transpeptidase<br>Sigma units/ml | Control     | 38      | 50            | 43            | 34            |
|                                                      | 1           | 41      | 47            | 28            | 30            |
|                                                      | 3           | 32      | 40            | 30            | -             |
| Creatinine Phosphokinase,<br>Sigma units/ml          | Control     | 10      | 20            | 24            | 27            |
|                                                      | 1           | 50      | 39            | 31*           | 49            |
|                                                      | 3           | 5       | 10            | 7             | -             |

\*Significantly different from Control group mean,  $p < 0.05$ .\*\*Significantly different from Control group mean,  $p < 0.01$ .

- = Not available

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TABLE 7.

## Individual Biochemical Values - Control.

| Group,<br>Monkey<br>Number | Sex | Glucose<br>mg/100 ml | B.U.N.<br>mg/100 ml | Alkaline<br>Phosphatase<br>int'l u/l | S.G.O.T.<br>int'l<br>u/l | S.G.P.T.<br>int'l<br>u/l | Choles-<br>terol<br>mg/100 ml | Total<br>Protein<br>g/100 ml | Albumin<br>g/100 ml | Sodium<br>meq/l | Potas-<br>sium<br>meq/l | Chlo-<br>ride<br>meq/l | Inorganic<br>Phosphate<br>mg/100 ml | γ - Glutamyl<br>Transpeptidase<br>Sigma u/ml | Creatinine<br>Phos.<br>Sigma u/ml |
|----------------------------|-----|----------------------|---------------------|--------------------------------------|--------------------------|--------------------------|-------------------------------|------------------------------|---------------------|-----------------|-------------------------|------------------------|-------------------------------------|----------------------------------------------|-----------------------------------|
| <u>Control:</u>            |     |                      |                     |                                      |                          |                          |                               |                              |                     |                 |                         |                        |                                     |                                              |                                   |
| 7355                       | M   | 119                  | 20.2                | 1050                                 | 46                       | 24                       | 192                           | 8.65                         | 4.92                | 153             | 5.4                     | 115                    | 7.1                                 | 51                                           | 38                                |
| 7358                       | M   | 117                  | 27.2                | 1090                                 | 33                       | 21                       | 174                           | 8.11                         | 5.00                | 148             | 4.4                     | 110                    | 6.6                                 | 61                                           | 12                                |
| 7368                       | F   | 117                  | 24.9                | 1170                                 | 23                       | 18                       | 155                           | 8.09                         | 4.93                | 158             | 5.4                     | 111                    | 6.6                                 | 39                                           | 18                                |
| 7372                       | F   | 97                   | 22.2                | 1175                                 | 23                       | 14                       | 204                           | 7.30                         | 4.49                | 153             | 4.2                     | 111                    | 6.2                                 | 37                                           | 2                                 |
| Mean                       |     | 113                  | 23.6                | 1121                                 | 31                       | 19                       | 181                           | 8.04                         | 4.84                | 153             | 4.9                     | 112                    | 6.6                                 | 47                                           | 18                                |
| <u>0.5 mg/kg/day:</u>      |     |                      |                     |                                      |                          |                          |                               |                              |                     |                 |                         |                        |                                     |                                              |                                   |
| 7463                       | M   | 123                  | 26.5                | 635                                  | 33                       | 29                       | 182                           | 7.94                         | 4.96                | 149             | 4.4                     | 111                    | 5.2                                 | 35                                           | 81                                |
| 7483                       | M   | 90                   | 33.2                | 725                                  | 31                       | 17                       | 161                           | 9.53                         | 5.49                | 164             | 6.7                     | 117                    | 7.5                                 | 38                                           | 6                                 |
| 7466                       | F   | 121                  | 19.1                | 1250                                 | 33                       | 31                       | 208                           | 8.61                         | 5.07                | 161             | 5.6                     | 114                    | 8.5                                 | 55                                           | 13                                |
| 7504                       | F   | 156                  | 24.9                | 775                                  | 51                       | 46                       | 208                           | 8.93                         | 5.46                | 155             | 5.0                     | 109                    | 6.4                                 | 44                                           | 27                                |
| Mean                       |     | 123                  | 25.9                | 846                                  | 37                       | 31                       | 190                           | 8.75                         | 5.25                | 157             | 5.4                     | 113                    | 6.9                                 | 43                                           | 32                                |
| <u>1.5 mg/kg/day:</u>      |     |                      |                     |                                      |                          |                          |                               |                              |                     |                 |                         |                        |                                     |                                              |                                   |
| 7462                       | M   | 96                   | 29.9                | 800                                  | 36                       | 17                       | 196                           | 8.26                         | 5.00                | 150             | 4.6                     | 111                    | 5.9                                 | 46                                           | 9                                 |
| 7486                       | M   | 109                  | 32.9                | 1270                                 | 22                       | 20                       | 174                           | 9.10                         | 5.71                | 162             | 6.2                     | 120                    | 6.2                                 | 55                                           | 13                                |
| 7500                       | F   | 116                  | 18.4                | 1080                                 | 29                       | 19                       | 172                           | 8.82                         | 5.18                | 162             | 5.4                     | 118                    | 5.4                                 | 51                                           | 33                                |
| 7501                       | F   | 109                  | 22.9                | 460                                  | 34                       | 21                       | 236                           | 8.52                         | 5.22                | 151             | 4.9                     | 112                    | 5.3                                 | 34                                           | 14                                |
| Mean                       |     | 108                  | 26.0                | 903                                  | 30                       | 19                       | 195                           | 8.68                         | 5.28                | 156             | 5.3                     | 115                    | 5.7                                 | 47                                           | 17                                |
| <u>4.5 mg/kg/day:</u>      |     |                      |                     |                                      |                          |                          |                               |                              |                     |                 |                         |                        |                                     |                                              |                                   |
| 7484                       | M   | 120                  | 19.0                | 985                                  | 30                       | 18                       | 186                           | 9.25                         | 5.69                | 163             | 4.7                     | 114                    | 6.5                                 | 34                                           | 8                                 |
| 7485                       | M   | 112                  | 20.2                | 1615                                 | 40                       | 32                       | 194                           | 8.54                         | 5.30                | 156             | 4.5                     | 112                    | 6.3                                 | 58                                           | 18                                |
| 7502                       | F   | 137                  | 23.6                | 965                                  | 36                       | 22                       | 182                           | 8.90                         | 5.17                | 160             | 5.0                     | 116                    | 6.7                                 | 33                                           | 36                                |
| 7503                       | F   | 150                  | 21.1                | 785                                  | 38                       | 51                       | 170                           | 8.86                         | 5.14                | 157             | 5.6                     | 116                    | 6.1                                 | 34                                           | 17                                |
| Mean                       |     | 130                  | 21.0                | 1088                                 | 36                       | 31                       | 183                           | 8.89                         | 5.33                | 159             | 5.0                     | 115                    | 6.4                                 | 40                                           | 20                                |

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TABLE 8.

## Individual Biochemical Values - 1 Month.

| Group,<br>Monkey<br>Number | Sex | Glucose<br>mg/100 ml | B.U.N.<br>mg/100 ml | Alkaline<br>Phosphatase<br>int'l u/l | S.G.O.T.<br>int'l<br>u/l | S.G.P.T.<br>Sigma<br>u/ml | Choles-<br>terol<br>mg/100 ml | Total<br>Protein<br>g/100 ml | Albumin<br>g/100 ml | Sodium<br>meq/l | Potas-<br>sium<br>meq/l | Chlo-<br>ride<br>meq/l | Inorganic<br>Phosphate<br>mg/100 ml | γ - Glutamyl<br>Transpeptidase<br>Sigma u/ml | Creatinine<br>Phos.<br>Sigma u/ml |
|----------------------------|-----|----------------------|---------------------|--------------------------------------|--------------------------|---------------------------|-------------------------------|------------------------------|---------------------|-----------------|-------------------------|------------------------|-------------------------------------|----------------------------------------------|-----------------------------------|
| <b>Control:</b>            |     |                      |                     |                                      |                          |                           |                               |                              |                     |                 |                         |                        |                                     |                                              |                                   |
| 7355                       | M   | 103                  | 23.3                | 1146                                 | 40                       | 39                        | 212                           | 8.36                         | 5.19                | 164             | 5.0                     | 119                    | 8.9                                 | 40                                           | 32                                |
| 7358                       | M   | 89                   | 23.2                | 1080                                 | 72                       | 45                        | 184                           | 8.55                         | 4.30                | 157             | 4.7                     | 114                    | 7.3                                 | 43                                           | 91                                |
| 7368                       | F   | 196                  | 30.0                | 1158                                 | 51                       | 25                        | 188                           | 8.13                         | 5.16                | 157             | 5.0                     | 109                    | 6.7                                 | 42                                           | 50                                |
| 7372                       | F   | 129                  | 20.3                | 1026                                 | 41                       | 20                        | 208                           | 7.19                         | 4.55                | 152             | 4.3                     | 113                    | 6.2                                 | 40                                           | 50                                |
| Mean                       |     | 129                  | 24.2                | 1103                                 | 51                       | 32                        | 198                           | 8.06                         | 4.80                | 158             | 4.8                     | 114                    | 7.3                                 | 41                                           | 56                                |
| <b>0.5 mg/kg/day:</b>      |     |                      |                     |                                      |                          |                           |                               |                              |                     |                 |                         |                        |                                     |                                              |                                   |
| 7463                       | M   | 82                   | 30.8                | 924                                  | 58                       | 31                        | 208                           | 8.06                         | 5.36                | 159             | 4.5                     | 121                    | 5.8                                 | 46                                           | 34                                |
| 7483                       | M   | 101                  | 35.8                | 870                                  | 40                       | 22                        | 192                           | 9.12                         | 4.97                | 161             | 4.6                     | 115                    | 7.0                                 | 43                                           | 34                                |
| 7466                       | F   | 100                  | 24.1                | 1164                                 | 48                       | 38                        | 230                           | 8.45                         | 5.30                | 165             | 5.7                     | 118                    | 8.7                                 | 46                                           | 30                                |
| 7504                       | F   | 96                   | 26.9                | 720                                  | 61                       | 36                        | 211                           | 8.48                         | 5.51                | 158             | 4.5                     | 113                    | 7.7                                 | 48                                           | 48                                |
| Mean                       |     | 95                   | 29.4                | 920                                  | 52                       | 32                        | 210                           | 8.53                         | 5.29                | 161             | 4.8                     | 117                    | 7.3                                 | 46                                           | 37                                |
| <b>1.5 mg/kg/day:</b>      |     |                      |                     |                                      |                          |                           |                               |                              |                     |                 |                         |                        |                                     |                                              |                                   |
| 7462                       | M   | 131                  | 29.8                | 870                                  | 50                       | 37                        | 222                           | 8.60                         | 5.30                | 161             | 4.1                     | 123                    | 8.5                                 | 54                                           | 72                                |
| 7486                       | M   | 98                   | 35.8                | 1350                                 | 58                       | 38                        | 204                           | 8.87                         | 5.14                | 159             | 5.3                     | 119                    | 8.4                                 | 55                                           | 61                                |
| 7500                       | F   | 125                  | 23.9                | 816                                  | 40                       | 39                        | 154                           | 8.55                         | 5.15                | 159             | 3.9                     | 113                    | 6.1                                 | 35                                           | 31                                |
| 7501                       | F   | 112                  | 28.9                | 690                                  | 50                       | 31                        | 184                           | 8.70                         | 5.69                | 155             | 3.7                     | 112                    | 5.3                                 | 21                                           | 30                                |
| Mean                       |     | 117                  | 29.6                | 932                                  | 50                       | 36                        | 191                           | 8.68                         | 5.32                | 159             | 4.3                     | 117                    | 7.1                                 | 41                                           | 49                                |
| <b>4.5 mg/kg/day:</b>      |     |                      |                     |                                      |                          |                           |                               |                              |                     |                 |                         |                        |                                     |                                              |                                   |
| 7484                       | M   | 97                   | 35.0                | 312                                  | 115                      | 21                        | 76                            | 8.11                         | 5.02                | 154             | 3.6                     | 102                    | 4.6                                 | 15                                           | 32                                |
| 7485                       | M   | 100                  | 23.2                | 816                                  | 115                      | 32                        | 97                            | 9.68                         | 5.59                | 152             | 5.7                     | 107                    | 5.1                                 | 36                                           | 77                                |
| 7502                       | F   | 172                  | 26.2                | 564                                  | 80                       | 54                        | 128                           | 8.90                         | 5.69                | 163             | 4.2                     | 118                    | 6.3                                 | 26                                           | 77                                |
| 7503                       | F   | 155                  | 37.0                | 666                                  | 69                       | 36                        | 96                            | 8.74                         | 5.08                | 149             | 4.3                     | 102                    | 4.8                                 | 34                                           | 20                                |
| Mean                       |     | 131                  | 30.4                | 590                                  | 95                       | 36                        | 99                            | 8.86                         | 5.35                | 155             | 4.5                     | 107                    | 5.2                                 | 28                                           | 52                                |

TABLE 9.

## Individual Biochemical Values - 3 Months.

| Group,<br>Monkey<br>Number | Sex | Glucose<br>mg/100 ml | B.U.N.<br>mg/100 ml | Alkaline<br>Phosphatase<br>int'l u/l | S.G.O.T.<br>int'l<br>u/l | S.G.P.T.<br>Sigma<br>u/ml | Choles-<br>terol<br>mg/100 ml | Total<br>Protein<br>g/100 ml | Albumin<br>g/100 ml | Sodium<br>meq/l | Potas-<br>sium<br>meq/l | Chlo-<br>ride<br>meq/l | Inorganic<br>Phosphate<br>mg/100 ml | γ - Glutamyl<br>Transpeptidase<br>Sigma u/ml | Creatinine<br>Phos.<br>Sigma u/ml |
|----------------------------|-----|----------------------|---------------------|--------------------------------------|--------------------------|---------------------------|-------------------------------|------------------------------|---------------------|-----------------|-------------------------|------------------------|-------------------------------------|----------------------------------------------|-----------------------------------|
| <u>Control:</u>            |     |                      |                     |                                      |                          |                           |                               |                              |                     |                 |                         |                        |                                     |                                              |                                   |
| 7355                       | M   | 83                   | 34.1                | 1110                                 | 59                       | 40                        | 179                           | 7.69                         | 4.78                | 154             | 4.0                     | 115                    | 8.0                                 | 43                                           | 20                                |
| 7358                       | M   | 70                   | 22.3                | 1080                                 | 52                       | 29                        | 144                           | 8.00                         | 4.61                | 152             | 4.3                     | 109                    | 6.7                                 | 68                                           | 19                                |
| 7368                       | F   | 112                  | 26.9                | 876                                  | 33                       | 29                        | 144                           | 7.68                         | 5.01                | 152             | 4.4                     | 110                    | 5.8                                 | 36                                           | 6                                 |
| 7372                       | F   | 63                   | 30.4                | 786                                  | 39                       | 29                        | 185                           | 7.30                         | 4.53                | 151             | 4.8                     | 115                    | 7.1                                 | 27                                           | 3                                 |
| Mean                       |     | 82                   | 28.4                | 963                                  | 46                       | 32                        | 163                           | 7.67                         | 4.73                | 152             | 4.4                     | 112                    | 6.9                                 | 44                                           | 12                                |
| <u>0.5 mg/kg/day:</u>      |     |                      |                     |                                      |                          |                           |                               |                              |                     |                 |                         |                        |                                     |                                              |                                   |
| 7463                       | M   | 83                   | 22.8                | 690                                  | 42                       | 26                        | 160                           | 7.62                         | 4.97                | 152             | 4.2                     | 111                    | 5.8                                 | 40                                           | 9                                 |
| 7483                       | M   | 76                   | 30.1                | 804                                  | 56                       | 29                        | 143                           | 8.52                         | 4.41                | 150             | 4.1                     | 108                    | 7.2                                 | 18                                           | 71                                |
| 7466                       | F   | 106                  | 18.1                | 978                                  | 32                       | 27                        | 178                           | 8.11                         | 4.80                | 153             | 5.5                     | 110                    | 8.4                                 | 38                                           | 6                                 |
| 7504                       | F   | 87                   | 24.8                | 744                                  | 40                       | 27                        | 160                           | 7.92                         | 4.83                | 148             | 4.7                     | 111                    | 6.1                                 | 42                                           | 13                                |
| Mean                       |     | 88                   | 24.0                | 804                                  | 43                       | 27                        | 160                           | 8.04                         | 4.75                | 151             | 4.6                     | 110                    | 6.9                                 | 35                                           | 25                                |
| <u>1.5 mg/kg/day:</u>      |     |                      |                     |                                      |                          |                           |                               |                              |                     |                 |                         |                        |                                     |                                              |                                   |
| 7462                       | M   | 92                   | 15.2                | 816                                  | 82                       | 35                        | 132                           | 8.51                         | 4.85                | 149             | 5.0                     | 112                    | 6.8                                 | 46                                           | 76                                |
| 7486                       | M   | 121                  | 23.9                | 966                                  | 23                       | 20                        | 112                           | 8.24                         | 5.11                | 151             | 4.5                     | 109                    | 5.1                                 | 43                                           | 4                                 |
| 7500                       | F   | 106                  | 17.7                | 690                                  | 22                       | 33                        | 113                           | 8.81                         | 4.98                | 150             | 3.4                     | 109                    | 4.2                                 | 35                                           | 5                                 |
| 7501                       | F   | 110                  | 27.5                | 546                                  | 32                       | 34                        | 87                            | 8.12                         | 5.44                | 148             | 3.9                     | 109                    | 5.1                                 | 24                                           | 8                                 |
| Mean                       |     | 107                  | 21.1                | 755                                  | 40                       | 31                        | 111                           | 8.42                         | 5.10                | 150             | 4.2                     | 110                    | 5.3                                 | 37                                           | 23                                |
| <u>4.5 mg/kg/day:</u>      |     |                      |                     |                                      |                          |                           |                               |                              |                     |                 |                         |                        |                                     |                                              |                                   |
| 7484                       | M   | Died                 |                     |                                      |                          |                           |                               |                              |                     |                 |                         |                        |                                     |                                              |                                   |
| 7485                       | M   | Died                 |                     |                                      |                          |                           |                               |                              |                     |                 |                         |                        |                                     |                                              |                                   |
| 7502                       | F   | Died                 |                     |                                      |                          |                           |                               |                              |                     |                 |                         |                        |                                     |                                              |                                   |
| 7503                       | F   | Died                 |                     |                                      |                          |                           |                               |                              |                     |                 |                         |                        |                                     |                                              |                                   |
| Mean                       |     |                      |                     |                                      |                          |                           |                               |                              |                     |                 |                         |                        |                                     |                                              |                                   |

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FC-95:

## Ninety-Day Subacute Rhesus Monkey Toxicity Study.

TABLE 10.

MALES: Summary of Mean Urinalysis Values.

| Urinalysis       | Study Month | Control            | 0.5 mg/kg/day      | 1.5 mg/kg/day    | 4.5 mg/kg/day |
|------------------|-------------|--------------------|--------------------|------------------|---------------|
| Volume,<br>ml    | Control     | 22                 | 22                 | 28               | 58            |
|                  | 1           | 30                 | 25                 | 40               | 38            |
|                  | 3           | 10                 | 33                 | 75               | -             |
| pH               | Control     | 7.2                | 8.3                | 8.5              | 8.4           |
|                  | 1           | 6.4                | 5.5                | 5.9              | 6.4           |
|                  | 3           | 7.0 <sup>a</sup>   | 7.2 <sup>a</sup>   | 8.0 <sup>a</sup> | -             |
| Specific Gravity | Control     | 1.032              | 1.027              | 1.030            | 1.034         |
|                  | 1           | 1.028              | 1.027              | 1.021            | 1.033         |
|                  | 3           | 1.034 <sup>a</sup> | 1.033 <sup>a</sup> | 1.024            | -             |

<sup>a</sup>Significance not determined due to only one value in the Control group.

- = Not available

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FC-95: Ninety-Day Subacute Rhesus Monkey Toxicity Study.

TABLE 10. Cont. FEMALES: Summary of Mean Urinalysis Values.

| Urinalysis       | Study Month | Control | 0.5 mg/kg/day | 1.5 mg/kg/day | 4.5 mg/kg/day |
|------------------|-------------|---------|---------------|---------------|---------------|
| Volume,<br>ml    | Control     | 32      | 53            | 20            | 30            |
|                  | 1           | 25      | 13            | 28            | 23            |
|                  | 3           | 80      | 30            | 40            | -             |
| pH               | Control     | 8.1     | 7.9           | 8.3           | 8.8           |
|                  | 1           | 5.8     | 5.5           | 6.4           | 6.5           |
|                  | 3           | 8.0     | 9.0           | 8.0           | -             |
| Specific Gravity | Control     | 1.031   | 1.027         | 1.031         | 1.027         |
|                  | 1           | 1.032   | 1.032         | 1.028         | 1.036         |
|                  | 3           | 1.021   | 1.021         | 1.025         | -             |

- = Not available

TABLE 11.

## Individual Urinalysis Values - Control.

| Group,<br>Monkey<br>Number | Sex | Volume<br>ml | Color<br>and<br>Appear. | Spec.<br>pH | Spec.<br>Grav. | Protein | Glucose | Occult<br>Blood | Ke-<br>tones | Leuco-<br>cytes | Erythro-<br>cytes | Epi.<br>Cells | Urates | Triple<br>Phos. | Cal.<br>Ox. | Uric<br>Acid<br>Crystals | Bac-<br>teria | Casts |
|----------------------------|-----|--------------|-------------------------|-------------|----------------|---------|---------|-----------------|--------------|-----------------|-------------------|---------------|--------|-----------------|-------------|--------------------------|---------------|-------|
| <u>Control:</u>            |     |              |                         |             |                |         |         |                 |              |                 |                   |               |        |                 |             |                          |               |       |
| 7355                       | M   | 25           | LS-cl                   | 7.7         | 1.029          | N       | N       | N               | N            | -               | -                 | occ           | F      | F               | F           | -                        | M             | -     |
| 7358                       | M   | 20           | LS-cl                   | 6.7         | 1.035          | N       | N       | N               | N            | -               | -                 | occ           | occ    | occ             | F           | -                        | F             | -     |
| 7368                       | F   | 8            | DS-cl                   | 9.0         | 1.034          | 2+      | N       | 3+              | N            | -               | 30+               | 1-3           | F      | occ             | -           | -                        | M             | -     |
| 7372                       | F   | 55           | LS-cl                   | 7.2         | 1.028          | N       | N       | N               | N            | -               | 1-3               | occ           | F      | occ             | -           | -                        | M             | -     |
| <u>0.5 mg/kg/day:</u>      |     |              |                         |             |                |         |         |                 |              |                 |                   |               |        |                 |             |                          |               |       |
| 7463                       | M   | 30           | LS-cl                   | 9.0         | 1.020          | N       | N       | tr              | N            | -               | -                 | -             | F      | occ             | occ         | -                        | M             | -     |
| 7483                       | M   | 15           | DS-cl                   | 7.6         | 1.034          | N       | N       | N               | N            | -               | -                 | -             | F      | occ             | F           | -                        | M             | -     |
| 7466                       | F   | 80           | LS-cl                   | 6.8         | 1.023          | N       | N       | N               | N            | -               | occ               | occ           | F      | occ             | occ         | -                        | M             | -     |
| 7504                       | F   | 25           | S-C                     | 9.0         | 1.031          | N       | N       | N               | N            | -               | -                 | occ           | occ    | occ             | F           | -                        | F             | -     |
| <u>1.5 mg/kg/day:</u>      |     |              |                         |             |                |         |         |                 |              |                 |                   |               |        |                 |             |                          |               |       |
| 7462                       | M   | 25           | LS-cl                   | 8.0         | 1.033          | N       | N       | N               | N            | -               | -                 | -             | F      | occ             | F           | -                        | M             | -     |
| 7486                       | M   | 30           | S-C                     | 9.0         | 1.027          | N       | N       | N               | N            | -               | occ               | -             | F      | F               | occ         | -                        | M             | -     |
| 7500                       | F   | 30           | S-C                     | 7.7         | 1.024          | N       | N       | tr              | 1+           | -               | occ               | occ           | F      | occ             | -           | -                        | F             | -     |
| 7501                       | F   | 10           | S-C                     | 8.8         | 1.037          | N       | N       | N               | N            | -               | -                 | occ           | F      | F               | occ         | -                        | F             | -     |
| <u>4.5 mg/kg/day:</u>      |     |              |                         |             |                |         |         |                 |              |                 |                   |               |        |                 |             |                          |               |       |
| 7484                       | M   | 105          | LS-cl                   | 7.7         | 1.034          | N       | N       | N               | N            | -               | occ               | occ           | F      | occ             | -           | -                        | F             | -     |
| 7485                       | M   | 12           | S-C                     | 9.0         | 1.033          | N       | N       | N               | N            | -               | -                 | occ           | F      | occ             | -           | -                        | M             | -     |
| 7502                       | F   | 30           | LS-C                    | 8.8         | 1.028          | N       | N       | tr              | 1+           | -               | -                 | occ           | F      | F               | -           | -                        | F             | -     |
| 7503                       | F   | 30           | LS-C                    | 8.8         | 1.025          | N       | N       | tr              | N            | -               | -                 | occ           | F      | occ             | F           | -                        | M             | -     |

tr - Trace  
1+ - Trace to slight  
2+ - Slight to moderate  
3+ - Moderate  
4+ - Marked

S - Straw  
LS - Light Straw  
DS - Dark Straw  
LAM - Light Amber  
DAM - Dark Amber  
cl - Cloudy  
C - Clear

N - Negative  
F - Few  
L - Loaded  
M - Many  
R - Rare

occ - Occasional  
QNS - Quantity not sufficient  
- None seen

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TABLE 12.

Individual Urinalysis Values - 1 Month.

| Group,<br>Monkey<br>Number | Sex | Volume<br>ml | Color<br>and<br>Appear. | pH  | Spec.<br>Grav. | Protein | Glucose | Occult<br>Blood | Ke-<br>tones | Leuco-<br>cytes | Erythro-<br>cytes | Eip.<br>Cells | Urates | Triple<br>Phos. | Cal.<br>Ox. | Uric<br>Acid<br>Crystals | Bac-<br>teria | Casts |
|----------------------------|-----|--------------|-------------------------|-----|----------------|---------|---------|-----------------|--------------|-----------------|-------------------|---------------|--------|-----------------|-------------|--------------------------|---------------|-------|
| <u>Control:</u>            |     |              |                         |     |                |         |         |                 |              |                 |                   |               |        |                 |             |                          |               |       |
| 7355                       | M   | 25           | LS-C                    | 6.8 | 1.030          | N       | N       | N               | 3+           | 1-3             | occ               | 1-3           | F      | F               | -           | -                        | M             | -     |
| 7358                       | M   | 35           | LS-cl                   | 6.0 | 1.025          | N       | N       | N               | 3+           | -               | occ               | 1-3           | F      | occ             | -           | -                        | M             | -     |
| 7368                       | F   | 15           | S-cl                    | 6.0 | 1.032          | N       | N       | N               | 3+           | 3-5             | -                 | occ           | F      | F               | M           | -                        | M             | -     |
| 7372                       | F   | 35           | S-cl                    | 5.5 | 1.032          | N       | N       | N               | N            | -               | occ               | -             | M      | F               | occ         | -                        | F             | -     |
| <u>0.5 mg/kg/day:</u>      |     |              |                         |     |                |         |         |                 |              |                 |                   |               |        |                 |             |                          |               |       |
| 7463                       | M   | 25           | LS-cl                   | 5.5 | 1.024          | N       | N       | N               | 3+           | -               | -                 | occ           | F      | F               | F           | -                        | F             | -     |
| 7483                       | M   | 25           | LS-cl                   | 5.5 | 1.029          | N       | N       | N               | 3+           | -               | -                 | occ           | F      | occ             | F           | -                        | M             | -     |
| 7466                       | F   | 6            | LS-cl                   | 5.5 | 1.028          | N       | N       | N               | 3+           | -               | occ               | 1-3           | F      | F               | M           | -                        | M             | -     |
| 7504                       | F   | 20           | LS-cl                   | 5.5 | 1.035          | N       | N       | N               | 3+           | -               | -                 | occ           | F      | occ             | M           | -                        | F             | -     |
| <u>1.5 mg/kg/day:</u>      |     |              |                         |     |                |         |         |                 |              |                 |                   |               |        |                 |             |                          |               |       |
| 7462                       | M   | 30           | LS-C                    | 6.2 | 1.025          | N       | N       | N               | 3+           | -               | 1-3               | -             | F      | F               | -           | -                        | F             | -     |
| 7486                       | M   | 50           | LS-cl                   | 5.5 | 1.017          | N       | N       | N               | 3+           | -               | -                 | occ           | F      | occ             | -           | -                        | F             | -     |
| 7500                       | F   | 40           | LS-cl                   | 6.8 | 1.020          | N       | 1+      | N               | N            | occ             | -                 | occ           | F      | occ             | occ         | -                        | M             | -     |
| 7501                       | F   | 15           | LS-cl                   | 6.0 | 1.036          | N       | N       | N               | 3+           | occ             | 1-3               | occ           | F      | occ             | occ         | -                        | M             | -     |
| <u>4.5 mg/kg/day:</u>      |     |              |                         |     |                |         |         |                 |              |                 |                   |               |        |                 |             |                          |               |       |
| 7484                       | M   | 40           | LS-cl                   | 6.5 | 1.030          | N       | N       | N               | N            | -               | occ               | occ           | F      | F               | -           | -                        | F             | -     |
| 7485                       | M   | 35           | LS-cl                   | 6.2 | 1.035          | tr      | 1+      | tr              | N            | -               | occ               | -             | M      | F               | -           | -                        | M             | -     |
| 7502                       | F   | 5            | LS-cl                   | 7.0 | 1.037          | N       | N       | N               | 2+           | -               | -                 | 1-3           | F      | F               | -           | -                        | M             | -     |
| 7503                       | F   | 40           | LS-cl                   | 6.0 | 1.035          | N       | 1+      | 3+              | 2+           | -               | -                 | occ           | F      | occ             | -           | -                        | M             | -     |

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tr - Trace  
 1+ - Trace to slight  
 2+ - Slight to moderate  
 3+ - Moderate  
 4+ - Marked

S - Straw  
 LS - Light Straw  
 DS - Dark Straw  
 LAm - Light Amber  
 DAm - Dark Amber  
 cl - Cloudy  
 C - Clear

N - Negative  
 F - Few  
 L - Loaded  
 M - Many  
 R - Rare

occ - Occasional  
 QNS - Quantity not sufficient  
 - None seen

002061

TABLE 13.

Individual Urinalysis Values - 3 Months.

| Group,<br>Monkey<br>Number | Sex | Volume<br>ml | Color<br>and<br>Appear. | pH  | Spec.<br>Grav. | Protein | Glucose | Occult<br>Blood | Ke-<br>tones | Leuco-<br>cytes | Erythro-<br>cytes | Epi.<br>Cells | Urates<br>Urates | Triple<br>Triple<br>Phos. | Cal.<br>Cal.<br>Ox. | Uric<br>Acid<br>Crystals | Bac-<br>teria | Casts |
|----------------------------|-----|--------------|-------------------------|-----|----------------|---------|---------|-----------------|--------------|-----------------|-------------------|---------------|------------------|---------------------------|---------------------|--------------------------|---------------|-------|
| <u>Control:</u>            |     |              |                         |     |                |         |         |                 |              |                 |                   |               |                  |                           |                     |                          |               |       |
| 7355                       | M   | 20           | S-cl                    | 7.0 | 1.034          | N       | N       | N               | 4+           | -               | occ               | 8-10          | F                | occ                       | -                   | -                        | M             | -     |
| 7358                       | M   | 0            |                         |     |                |         |         |                 |              |                 |                   |               |                  |                           |                     |                          |               |       |
| 7368                       | F   | 30           | S-cl                    | 7.5 | 1.026          | N       | N       | N               | 4+           | -               | -                 | 1-3           | M                | occ                       | F                   | -                        | M             | -     |
| 7372                       | F   | 130          | S-cl                    | 8.5 | 1.016          | 2+      | N       | 4+              | 1+           | 1-3             | occ               | 5-8           | M                | M                         | -                   | -                        | M             | -     |
| <u>0.5 mg/kg/day:</u>      |     |              |                         |     |                |         |         |                 |              |                 |                   |               |                  |                           |                     |                          |               |       |
| 7463                       | M   | 35           | S-cl                    | 7.3 | 1.028          | N       | N       | N               | 1+           | occ             | occ               | -             | M                | occ                       | M                   | -                        | M             | -     |
| 7483                       | M   | 30           | S-cl                    | 7.0 | 1.038          | N       | N       | N               | 4+           | -               | -                 | occ           | M                | M                         | occ                 | -                        | M             | -     |
| 7466                       | F   | 25           | S-cl                    | 9.0 | 1.021          | N       | N       | N               | N            | -               | -                 | 5-8           | M                | M                         | F                   | -                        | M             | -     |
| 7504                       | F   | 35           | S-cl                    | 9.0 | 1.020          | N       | N       | 1+              | N            | occ             | -                 | 1-3           | F                | F                         | F                   | -                        | M             | -     |
| <u>1.5 mg/kg/day:</u>      |     |              |                         |     |                |         |         |                 |              |                 |                   |               |                  |                           |                     |                          |               |       |
| 7462                       | M   | 50           | S-cl                    | 8.0 | 1.025          | N       | N       | N               | N            | -               | -                 | 1-3           | M                | F                         | F                   | -                        | M             | -     |
| 7486                       | M   | 100          | S-cl                    | 8.0 | 1.023          | N       | N       | N               | N            | -               | -                 | -             | F                | F                         | F                   | -                        | M             | -     |
| 7500                       | F   | 55           | S-cl                    | 8.0 | 1.016          | N       | N       | 4+              | 3+           | -               | -                 | occ           | F                | occ                       | occ                 | -                        | M             | -     |
| 7501                       | F   | 25           | S-cl                    | 8.0 | 1.033          | N       | N       | 4+              | 3+           | -               | -                 | occ           | F                | F                         | occ                 | -                        | M             | -     |
| <u>4.5 mg/kg/day:</u>      |     |              |                         |     |                |         |         |                 |              |                 |                   |               |                  |                           |                     |                          |               |       |
| 7484                       | M   | Died         |                         |     |                |         |         |                 |              |                 |                   |               |                  |                           |                     |                          |               |       |
| 7485                       | M   | Died         |                         |     |                |         |         |                 |              |                 |                   |               |                  |                           |                     |                          |               |       |
| 7502                       | F   | Died         |                         |     |                |         |         |                 |              |                 |                   |               |                  |                           |                     |                          |               |       |
| 7503                       | F   | Died         |                         |     |                |         |         |                 |              |                 |                   |               |                  |                           |                     |                          |               |       |

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tr - Trace  
1+ - Trace to slight  
2+ - Slight to moderate  
3+ - Moderate  
4+ - Marked

S - Straw  
LS - Light Straw  
DS - Dark Straw  
LAm - Light Amber  
DAm - Dark Amber  
cl - Cloudy  
C - Clear

N - Negative  
F - Few  
L - Loaded  
M - Many  
R - Rare

occ - Occasional  
QNS - Quantity not sufficient  
- None seen

002062

**Ninety Day Subacute Rhesus Monkey Toxicity Study.**

#### Necropsy Observations, Terminal Sacrifice and Deaths.

\*Died or sacrificed in extremis.

Ninety Day Subacute Rhesus Monkey Toxicity Study.

TABLE 15. Absolute (Grams) and Relative (% Body Weight) Organ Weights, Terminal Sacrifice.

| Group,<br>Monkey<br>Number | Sex | Body<br>Wt.<br>kg | Spleen |      | Liver |      | Adrenals |      | Kidneys |      | Testes |                   | Heart |      | Thyroid/<br>Parathyroid |                   | Brain |      | Pituitary |                   |
|----------------------------|-----|-------------------|--------|------|-------|------|----------|------|---------|------|--------|-------------------|-------|------|-------------------------|-------------------|-------|------|-----------|-------------------|
|                            |     |                   | g      | %    | g     | %    | g        | %x10 | g       | %    | g      | %x10 <sup>2</sup> | g     | %    | g                       | %x10              | g     | %    | g         | %x10 <sup>2</sup> |
| Control:                   |     |                   |        |      |       |      |          |      |         |      |        |                   |       |      |                         |                   |       |      |           |                   |
| 7355                       | M   | 3.55              | 3.70   | 0.10 | 87.49 | 2.46 | 0.77     | 0.22 | 15.47   | 0.44 | 1.04   | 0.03              | 14.69 | 0.41 | 0.557                   | 0.16              | 85.21 | 2.40 | 0.049     | 0.14              |
| 7358                       | M   | 3.75              | 4.01   | 0.11 | 68.48 | 1.83 | 0.79     | 0.21 | 16.60   | 0.44 | 1.40   | 0.04              | 14.83 | 0.40 | 0.885                   | 0.24              | 91.83 | 2.45 | 0.068     | 0.18              |
| Mean                       |     | 3.65              | 3.86   | 0.11 | 77.99 | 2.15 | 0.78     | 0.21 | 16.04   | 0.44 | 1.22   | 0.03              | 14.76 | 0.40 | 0.721                   | 0.20              | 88.52 | 2.42 | 0.059     | 0.16              |
| 7368                       | F   | 3.15              | 2.81   | 0.09 | 59.58 | 1.89 | 0.85     | 0.27 | 15.06   | 0.48 | 0.35   | 1.11              | 13.39 | 0.43 | 0.485                   | 0.15              | 71.29 | 2.26 | 0.061     | 0.19              |
| 7372                       | F   | 4.20              | 4.03   | 0.10 | 95.60 | 2.28 | 0.80     | 0.19 | 16.25   | 0.39 | 0.30   | 0.71              | 16.94 | 0.40 | 0.857                   | 0.20              | 88.03 | 2.10 | 0.071     | 0.17              |
| Mean                       |     | 3.68              | 3.42   | 0.09 | 77.59 | 2.08 | 0.83     | 0.23 | 15.66   | 0.43 | 0.33   | 0.91              | 15.17 | 0.41 | 0.671                   | 0.18              | 79.66 | 2.18 | 0.066     | 0.18              |
| 0.5 mg/kg/day:             |     |                   |        |      |       |      |          |      |         |      |        |                   |       |      |                         |                   |       |      |           |                   |
| 7463                       | M   | 2.65              | 2.68   | 0.10 | 81.09 | 3.06 | 0.61     | 0.23 | 11.64   | 0.44 | 0.45   | 0.02              | 9.35  | 0.35 | 0.444                   | 0.17              | 83.26 | 3.14 | 0.042     | 0.16              |
| 7483                       | M   | 3.55              | 2.19   | 0.06 | 86.79 | 2.44 | 0.58     | 0.16 | 15.32   | 0.43 | 0.95   | 0.03              | 15.01 | 0.42 | 0.580                   | 0.16              | 86.83 | 2.45 | 0.070     | 0.20              |
| Mean                       |     | 3.10              | 2.44   | 0.08 | 83.94 | 2.75 | 0.60     | 0.20 | 13.48   | 0.44 | 0.70   | 0.02              | 12.18 | 0.39 | 0.512                   | 0.17              | 85.05 | 2.79 | 0.056     | 0.18              |
| 7466                       | F   | 3.55              | 4.07   | 0.11 | 92.19 | 2.60 | 0.81     | 0.23 | 16.14   | 0.45 | 0.67   | 1.89              | 14.11 | 0.40 | 0.693                   | 0.20              | 89.28 | 2.51 | 0.065     | 0.18              |
| 7504                       | F   | 3.35              | 4.85   | 0.14 | 87.28 | 2.61 | 0.59     | 0.18 | 12.75   | 0.38 | 0.11   | 0.33              | 13.00 | 0.39 | 0.747                   | 0.22              | 76.26 | 2.28 | 0.062     | 0.19              |
| Mean                       |     | 3.45              | 4.46   | 0.13 | 89.74 | 2.60 | 0.70     | 0.20 | 14.45   | 0.42 | 0.39   | 1.11              | 13.56 | 0.39 | 0.720                   | 0.21              | 82.77 | 2.40 | 0.064     | 0.18              |
| 1.5 mg/kg/day:             |     |                   |        |      |       |      |          |      |         |      |        |                   |       |      |                         |                   |       |      |           |                   |
| 7462                       | M   | 2.80              | 3.39   | 0.12 | 80.63 | 2.88 | 0.65     | 0.23 | 11.82   | 0.42 | 0.59   | 0.02              | 11.70 | 0.42 | 0.627                   | 0.22              | 87.56 | 3.13 | 0.056     | 0.20              |
| 7486                       | M   | 3.05              | 2.44   | 0.08 | 85.38 | 2.80 | 0.80     | 0.26 | 13.79   | 0.45 | 1.77   | 0.06              | 14.85 | 0.49 | 0.902                   | 0.30              | 87.53 | 2.87 | 0.086     | 0.28              |
| Mean                       |     | 2.93              | 2.92   | 0.10 | 83.01 | 2.84 | 0.73     | 0.25 | 12.81   | 0.44 | 1.18   | 0.04              | 13.28 | 0.45 | 0.765                   | 0.26              | 87.55 | 3.00 | 0.071     | 0.24              |
| 7500                       | F   | 3.20              | 3.51   | 0.11 | 84.15 | 2.63 | 0.91     | 0.28 | 16.76   | 0.52 | 0.32   | 1.00              | 15.48 | 0.48 | 0.772                   | 0.24              | 77.43 | 2.42 | 0.055     | 0.17              |
| 7501                       | F   | 2.30              | 1.55   | 0.07 | 16.03 | 0.70 | 0.79     | 0.34 | 10.77   | 0.47 | 0.11   | 0.48              | 9.66  | 0.42 | 0.814                   | 0.35              | 74.35 | 3.23 | 0.056     | 0.24              |
| Mean                       |     | 2.75              | 2.53   | 0.09 | 50.09 | 1.66 | 0.85     | 0.31 | 13.77   | 0.50 | 0.22   | 0.74              | 12.57 | 0.45 | 0.793                   | 0.30              | 75.89 | 2.83 | 0.056     | 0.21              |
| Died on Study:             |     |                   |        |      |       |      |          |      |         |      |        |                   |       |      |                         |                   |       |      |           |                   |
| 4.5 mg/kg/day:             |     |                   |        |      |       |      |          |      |         |      |        |                   |       |      |                         |                   |       |      |           |                   |
| 7484                       | M   | 2.15              | 1.22   | 0.06 | 80.55 | 3.75 | 1.45     | 0.67 | 15.73   | 0.73 | 0.54   | 0.03              | 11.13 | 0.52 | 0.805                   | 0.37              | 81.29 | 3.78 | 0.060     | 0.28              |
| 7485                       | M   | 2.50              | 2.06   | 0.08 | 79.73 | 3.19 | 1.82     | 0.73 | 18.17   | 0.73 | 0.62   | 0.03              | 12.33 | 0.49 | 0.824 <sup>a</sup>      | 0.33 <sup>a</sup> | 77.60 | 3.10 | 0.040     | 0.16              |
| 7502                       | F   | 2.65              | 2.21   | 0.08 | 86.20 | 3.25 | 1.14     | 0.43 | 15.08   | 0.57 | 0.15   | 0.57              | 15.20 | 0.57 | 0.709                   | 0.27              | 77.11 | 2.91 | 0.500     | 1.89              |
| 7503                       | F   | 2.55              | 1.25   | 0.05 | 78.44 | 3.08 | 1.70     | 0.67 | 14.97   | 0.59 | 0.08   | 0.31              | 11.45 | 0.45 | 0.668                   | 0.26              | 81.33 | 3.19 | 0.070     | 0.27              |

Group mean relative organ weights shown in this table were calculated by averaging the individually calculated relative organ weights.

a - Weight of thyroids only.

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TABLE 16.

## Microscopic Observations.

| Tissue Lesion                                                                  | Group, Monkey Number | Control |        |        |        | 0.5 mg/kg/day |        |        |        | 1.5 mg/kg/day |        |        |        | 4.5 mg/kg/day |         |         |         |
|--------------------------------------------------------------------------------|----------------------|---------|--------|--------|--------|---------------|--------|--------|--------|---------------|--------|--------|--------|---------------|---------|---------|---------|
|                                                                                |                      | M 7355  | M 7358 | F 7368 | F 7372 | M 7463        | M 7483 | F 7466 | F 7504 | M 7462        | M 7486 | F 7500 | F 7501 | M 7484*       | M 7485* | F 7502* | F 7503* |
| Brain                                                                          |                      | 1       | 1      | 1      | 1      | 1             | 1      | 1      | 1      | 1             | 1      | 1      | 1      | 1             | 1       | 1       | 1       |
| Spinal Cord                                                                    |                      | 1       | 1      | -      | 1      | 1             | 1      | 1      | 1      | 1             | 1      | 1      | 1      | 1             | 1       | 1       | 1       |
| Peripheral Nerve                                                               |                      | 1       | 1      | 1      | 1      | 1             | 1      | 1      | 1      | 1             | 1      | 1      | 1      | 1             | 1       | 1       | 1       |
| Eye                                                                            |                      | 1       |        |        |        | 1             | 1      |        |        | 1             | 1      | 1      | 1      | 1             | 1       |         |         |
| foci of inflammatory cell infiltrates in palpebral/ocular conjunctiva          |                      |         | 2      | 2      | 2      | 2             |        | 2      |        |               |        |        |        |               |         |         | 2       |
| foci of lymphoid infiltrates in lacrimal gland                                 |                      |         | 3      |        |        |               |        |        |        |               |        |        |        |               |         |         |         |
| cystic tarsal glands                                                           |                      |         |        |        |        |               |        |        |        |               |        |        |        | x             |         |         |         |
| Pituitary                                                                      |                      | 1       |        | 1      | 1      | 1             | 1      | -      | 1      | 1             | 1      | 1      | 1      | 1             | 1       | 1       | 1       |
| large focus of lymphoid infiltrate in pars nervosa                             |                      |         | 3      |        |        |               |        |        |        |               |        |        |        |               |         |         |         |
| Adrenals                                                                       |                      |         |        |        |        | 1             | 1      |        |        | 1             |        |        |        |               |         |         |         |
| foci of dystrophic mineralization                                              |                      |         | 3      |        | 3      |               |        |        |        | 2             |        |        | 2      | 2             | 3       | 3       | 2       |
| focus of lymphoid infiltrate in medulla                                        |                      |         |        | 2      |        |               |        |        |        |               |        |        |        |               |         |         |         |
| diffuse congestion                                                             |                      |         |        |        |        |               |        |        |        |               |        |        |        |               | 4       | 4       | 4       |
| acidophilic degeneration of individual to small groups of cells                |                      | 3       | 3      | 3      |        | 2             |        |        |        |               |        | 2      | 2      | 2             | 3       | 3       | 2       |
| multifocal lipid depletion                                                     |                      |         |        |        |        |               |        | 3      |        |               |        |        | 3      |               |         |         |         |
| diffuse lipid depletion                                                        |                      |         |        |        |        |               |        |        |        |               |        |        |        | 5             | 5       | 5       | 5       |
| Thyroid                                                                        |                      | 1       | 1      |        | 1      | 1             | 1      | 1      | 1      | 1             | 1      | 1      | 1      | 1             | 1       | 1       | 1       |
| focus of interstitial lymphoid infiltrates                                     |                      |         |        | 2      |        |               |        |        |        |               |        |        |        |               |         |         |         |
| Parathyroid                                                                    |                      | -       | 1      | 1      | 1      | 1             | -      | 1      | -      | -             | -      | -      | 1      | 1             | -       | 1       | 1       |
| Tongue                                                                         |                      |         |        |        | 1      | 1             |        | 1      |        | 1             |        | 1      |        |               | 1       | 1       | 1       |
| focal hyalin degeneration of muscle                                            |                      | 3       |        |        |        |               | 3      |        |        | 3             |        |        |        | 4             |         |         |         |
| foci of inflammatory cell infiltrates in mucosal epithelium and lamina propria |                      | 3       | 2      | 2      |        |               |        | 2      |        |               |        | 2      |        |               |         |         |         |
| foci of inflammatory cell infiltrate in muscle                                 |                      |         |        |        |        |               | 2      |        |        | 2             |        |        |        | 3             |         |         |         |
| Gongylonema sp. in mucosal epithelium                                          |                      |         |        |        |        | x             |        |        |        |               |        |        |        |               |         |         |         |
| Trachea                                                                        |                      |         |        |        |        |               |        |        |        |               |        |        |        | 1             | 1       | 1       |         |
| foci of inflammatory cell infiltrates in lamina propria                        |                      |         | 4      | 3      | 2      | 2             | 2      | 3      | 2      | 2             | 2      | 2      | 3      |               |         |         | 2       |
| foci of inflammatory cell infiltrates in lamina propria and trachealis muscle  |                      | 3       |        |        |        |               |        |        |        |               |        |        |        |               |         |         |         |
| Esophagus                                                                      |                      | 1       | 1      |        |        |               |        |        |        |               |        |        | 1      | 1             | 1       | 1       | 1       |
| foci of inflammatory cell infiltrates in lamina propria                        |                      |         |        | 3      | 2      | 3             | 3      | 2      | 2      | 4             | 3      | 2      |        |               |         |         |         |
| Heart                                                                          |                      | 1       |        |        |        | 1             |        |        |        | 1             |        | 1      |        | 1             | 1       |         |         |
| foci of interstitial lymphoid infiltrates                                      |                      |         | 2      | 3      | 3      |               | 3      | 2      | 3      | 3             |        | 2      |        | 2             |         |         | 2       |
| small focus of myocardial necrosis                                             |                      |         |        |        |        |               | 2      |        |        |               |        |        |        |               |         |         |         |

Code: x - condition present      3 - slight      6 - extreme  
 1 - not remarkable      4 - moderate      - = not available  
 2 - very slight      5 - marked      \* - died or sacrificed in extremis

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## Ninety Day Subacute Rhesus Monkey Toxicity Study.

TABLE 16. Cont.

## Microscopic Observations.

| Tissue Lesion                                                                    | Group, Monkey Number | Control |      |      |      | 0.5 mg/kg/day |      |      |      | 1.5 mg/kg/day |      |      |      | 4.5 mg/kg/day |       |       |       |
|----------------------------------------------------------------------------------|----------------------|---------|------|------|------|---------------|------|------|------|---------------|------|------|------|---------------|-------|-------|-------|
|                                                                                  |                      | M       | M    | F    | F    | M             | M    | F    | F    | M             | M    | F    | F    | M             | M     | F     | F     |
|                                                                                  |                      | 7355    | 7358 | 7368 | 7372 | 7463          | 7483 | 7466 | 7504 | 7462          | 7486 | 7500 | 7501 | 7484*         | 7485* | 7502* | 7503* |
| Aorta                                                                            |                      | 1       | 1    | 1    | 1    | 1             | 1    | 1    | 1    | 1             | 1    | 1    | 1    | 1             | 1     | 1     | 1     |
| Salivary Gland                                                                   |                      |         |      |      |      | 1             | 1    |      |      | 1             | 1    |      |      |               |       | 1     |       |
| foci of interstitial lymphoid infiltrates                                        |                      | 2       | 2    | 3    | 2    |               | 3    | 2    |      | 2             | 2    |      |      |               |       |       |       |
| decreased cell size, loss of cytoplasmic granules                                |                      |         |      |      |      |               |      |      |      |               |      |      |      | 4             | 4     |       | 4     |
| dilated ducts                                                                    |                      |         |      |      | 3    |               |      |      |      |               |      |      |      |               |       |       |       |
| Lung                                                                             |                      |         |      |      |      |               |      |      |      |               |      |      |      |               |       |       |       |
| acute focal bronchitis                                                           |                      |         |      |      |      |               |      | 3    |      |               |      |      |      |               |       |       |       |
| focal perivascular neutrophil infiltrates                                        |                      |         |      |      |      |               | 4    |      |      |               |      |      |      |               |       |       |       |
| focal aggregates of alveolar macrophages                                         |                      |         |      |      |      | 3             |      |      |      |               |      |      |      |               |       |       |       |
| acarian pigment (peribronchiolar, peribronchial, perivascular)                   |                      | 2       | 2    | 2    | 2    | 3             | 2    | 2    | 2    | 2             | 2    | 2    | 2    | 2             | 2     | 2     | 2     |
| foci of perivascular lymphoid infiltrates                                        |                      |         |      |      |      |               |      | 3    |      | 3             |      |      |      |               |       |       |       |
| foci of peribronchial/peribronchiolar lymphoid aggregates                        |                      | 3       | 3    | 3    | 3    | 3             | 3    | 2    | 3    | 3             | 3    | 3    | 3    |               | 3     | 2     | 2     |
| lung mite in bronchiolar lumen                                                   |                      |         |      |      |      | x             |      |      |      |               |      |      |      |               | x     |       |       |
| acute focal bronchopneumonia                                                     |                      |         | 3    |      |      |               | 3    |      |      |               |      |      |      |               |       |       |       |
| chronic focal pleuritis                                                          |                      |         |      |      |      |               | 3    |      |      |               |      |      |      |               |       |       |       |
| interstitial pneumonia                                                           |                      |         |      |      |      |               |      |      |      |               |      |      |      |               |       | 3     | 3     |
| focal accumulation of blood and neutrophils in alveoli                           |                      |         |      |      |      |               |      |      |      | 3             |      |      |      |               |       |       |       |
| focal hemorrhage, focal interstitial fibrosis                                    |                      |         |      |      |      |               |      |      |      |               |      |      |      |               |       |       | 3     |
| Tonsil                                                                           |                      |         |      |      | -    | -             | -    | -    | x    | -             | -    | 1    |      | -             | 1     | -     |       |
| keratin-filled cyst                                                              |                      |         |      |      |      |               |      |      |      |               |      |      |      |               |       |       |       |
| foci of inflammatory cell infiltrates in mucosal epithelium and lamina propria   |                      |         | 4    | 3    |      |               |      |      |      |               |      |      |      |               |       |       |       |
| foci of inflammatory cell infiltrates in surface epithelium and tonsillar crypts |                      | 3       | 4    |      |      | 3             |      |      |      | 3             |      |      |      | 3             |       |       |       |
| Thymus                                                                           |                      | 1       | 1    | 1    | 1    | 1             | 1    | 1    | 1    | 1             | 1    | 1    | 1    | -             | -     | -     | -     |
| Lymph Nodes                                                                      |                      | -       | 1    | 1    | 1    | 1             | 1    | 1    | 1    | 1             | 1    | 1    | 1    | 1             | 1     | 1     |       |
| diffuse reticuloendothelial cell hyperplasia                                     |                      |         |      |      |      |               |      |      |      |               |      |      |      |               |       |       | 3     |
| Stomach                                                                          |                      | 1       |      |      |      |               |      |      |      |               |      |      |      | 1             |       | 1     |       |
| foci of inflammatory cell infiltrates in lamina propria                          |                      |         | 4    | 3    |      | 2             | 3    | 2    |      | 4             |      | 2    |      |               |       |       |       |
| foci of inflammatory cell infiltrates in lamina propria and submucosa            |                      |         |      |      | 5    |               |      | 4    |      |               |      | 3    |      |               | 2     |       | 3     |
| foci of inflammatory cell infiltrates in lamina propria and serosa               |                      |         |      |      |      |               |      |      |      | 3             |      |      |      |               |       |       |       |
| Small Intestine                                                                  |                      | 1       | 1    | 1    | 1    | 1             | 1    | 1    | 1    | 1             | 1    | 1    | 1    | 1             | a     | 1     |       |
| multifocal cystic dilatation of duodenal glands                                  |                      |         |      |      |      |               |      |      |      |               |      |      |      |               |       |       | 4     |

Code: x - condition present      3 - slight      6 - extreme  
 1 - not remarkable      4 - moderate      - = not available  
 2 - very slight      5 - marked      \* - died or sacrificed in extremis

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## Ninety Day Subacute Rhesus Monkey Toxicity Study.

TABLE 16. Cont.

## Microscopic Observations.

| Tissue Lesion                                                             | Group, Monkey Number | Control |      |      |      | 0.5 mg/kg/day |      |      |      | 1.5 mg/kg/day |      |      |      | 4.5 mg/kg/day |       |       |       |
|---------------------------------------------------------------------------|----------------------|---------|------|------|------|---------------|------|------|------|---------------|------|------|------|---------------|-------|-------|-------|
|                                                                           |                      | M       | M    | F    | F    | M             | M    | F    | F    | M             | M    | F    | F    | M             | M     | F     | F     |
|                                                                           |                      | 7355    | 7358 | 7368 | 7372 | 7463          | 7483 | 7466 | 7504 | 7462          | 7486 | 7500 | 7501 | 7484*         | 7485* | 7502* | 7503* |
| Cecum                                                                     |                      |         |      |      |      |               |      |      |      |               |      |      |      |               |       |       |       |
| parasitic granuloma in mesentery                                          |                      |         |      |      |      |               |      |      |      |               |      |      |      |               |       | x     |       |
| parasitic granuloma in submucosa                                          |                      |         |      |      |      |               | x    |      |      |               |      |      |      |               |       | x     |       |
| parasitic granuloma in muscularis                                         |                      |         |      |      |      |               |      |      |      |               |      |      |      |               |       |       | x     |
| foci of inflammatory cell infiltrates in submucosa, serosa and mesentery  |                      |         |      |      |      | 3             |      |      |      |               |      |      |      |               |       |       |       |
| Colon                                                                     |                      | 1       | 1    | 1    | 1    | 1             | 1    | 1    |      | 1             | 1    |      |      |               |       |       |       |
| focal mucosal hemorrhage                                                  |                      |         | 3    |      |      |               |      |      |      |               |      |      |      |               |       |       |       |
| parasitic granuloma in muscularis and submucosa                           |                      |         |      |      |      |               | x    |      |      |               |      |      |      |               |       | x     |       |
| parasitic granuloma in serosa and mesentery                               |                      |         |      |      |      |               |      |      |      |               |      | x    |      |               |       |       |       |
| foci of inflammatory cell infiltrates in muscularis and serosa            |                      |         |      |      |      | 3             |      |      |      |               |      |      |      |               |       |       |       |
| foci of inflammatory cell infiltrates in submucosa, muscularis and serosa |                      |         |      |      |      |               |      |      |      |               |      | 3    |      |               |       |       |       |
| foci of inflammatory cell infiltrates in muscularis, serosa and mesentery |                      |         |      |      |      |               |      |      |      |               |      |      | 3    |               |       |       |       |
| parasitic granuloma in mesentery                                          |                      |         |      |      |      |               |      |      |      |               |      |      |      |               | x     | x     | x     |
| parasitic granuloma in muscularis                                         |                      |         |      |      |      |               |      |      |      |               |      |      |      |               |       |       | x     |
| chronic focal serositis                                                   |                      |         |      |      |      |               |      |      |      |               |      |      |      |               |       |       | 3     |
| Rectum                                                                    |                      | 1       | 1    | 1    | 1    | 1             | 1    | 1    |      | 1             | 1    | 1    | 1    | 1             | 1     | 1     | 1     |
| foci of inflammatory cell infiltrates in muscularis                       |                      |         |      |      |      |               | 2    |      |      |               |      |      |      |               |       |       |       |
| Liver                                                                     |                      | 1       |      |      |      |               |      |      |      |               |      |      |      |               |       |       |       |
| portal inflammatory cell infiltrates                                      |                      |         | 3    | 2    | 2    | 2             | 2    | 3    |      | 3             |      |      |      |               | 2     |       | 3     |
| multifocal bile duct proliferation                                        |                      |         | 2    |      |      |               | 2    |      |      | 2             | 2    | 2    |      |               |       |       |       |
| acidophilic degeneration of individual to small groups of hepatocytes     |                      |         | 3    |      |      |               |      |      |      |               |      |      | 3    |               |       | 3     |       |
| parenchymal inflammatory cell infiltrates                                 |                      |         | 3    |      | 3    |               | 2    | 2    | 2    | 3             |      | 3    |      |               |       |       |       |
| diffuse congestion                                                        |                      |         |      |      |      |               |      |      |      |               |      |      |      |               | 4     | 4     | 4     |
| neutrophilic infiltrate in sinusoids                                      |                      |         |      |      |      |               |      |      |      |               |      |      |      |               | 3     |       |       |
| brown pigment in Kupffer cells                                            |                      |         |      |      |      |               |      |      |      |               |      |      |      |               |       | 3     |       |
| focal/multifocal cytoplasmic vacuolation of hepatocytes                   |                      |         | 2    |      |      |               |      |      |      |               |      | 4    |      |               |       |       |       |
| small focus of hepatocellular necrosis                                    |                      |         |      |      |      |               |      |      |      |               | 2    |      |      |               |       |       |       |
| Gallbladder                                                               |                      |         |      |      |      |               |      |      |      |               |      |      |      |               | a     | a     |       |
| foci of inflammatory cell infiltrates in lamina propria                   |                      |         | 3    | 3    | 3    | 2             |      | 2    | 3    | 3             | 3    | 2    | 2    |               |       |       |       |
| foci of inflammatory cell infiltrates in lamina propria and muscularis    |                      |         |      |      |      |               | 3    |      |      |               | 2    |      |      |               |       | 3     | 3     |
| foci of hemorrhage in lamina propria and muscularis                       |                      |         |      |      |      |               |      |      |      |               |      |      |      |               |       |       | 4     |
| Pancreas                                                                  |                      | 1       | 1    | 1    |      | 1             | 1    |      |      | 1             | 1    |      |      | 1             |       |       |       |
| focal lymphoid infiltrates in peripancreatic fat tissue                   |                      |         |      |      | 3    |               |      |      |      |               |      |      |      |               |       |       |       |
| decreased cell size, loss of zymogen granules                             |                      |         |      |      |      |               |      |      |      |               |      |      |      |               |       | 4     | 4     |
| focal interstitial lymphoid infiltrates                                   |                      |         |      |      |      |               | 2    | 3    |      |               |      | 3    | 2    |               |       |       | 3     |

Code: x - condition present  
1 - not remarkable  
2 - very slight

3 - slight  
4 - moderate  
5 - marked

6 - extreme  
- = not available  
\* = died or sacrificed in extremis  
a - autolyzed

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TABLE 16. Cont.

## Microscopic Observations.

| Tissue Lesion                                                          | Group, Monkey Number | Control |      |      |      | 0.5 mg/kg/day |      |      |      | 1.5 mg/kg/day |      |      |      | 4.5 mg/kg/day |       |       |       |
|------------------------------------------------------------------------|----------------------|---------|------|------|------|---------------|------|------|------|---------------|------|------|------|---------------|-------|-------|-------|
|                                                                        |                      | M       | M    | F    | F    | M             | M    | F    | F    | M             | M    | F    | F    | M             | M     | F     | F     |
|                                                                        |                      | 7355    | 7358 | 7368 | 7372 | 7463          | 7483 | 7466 | 7504 | 7462          | 7486 | 7500 | 7501 | 7484*         | 7485* | 7502* | 7503* |
| Spleen                                                                 |                      |         |      |      |      |               |      |      |      |               |      |      |      |               |       |       |       |
| diffuse atrophy of lymphoid follicles                                  |                      | 1       | 1    | 1    | 1    | 1             | 1    | 1    | 1    | 1             | 1    | 1    | 1    |               |       | 1     | 1     |
|                                                                        |                      |         |      |      |      |               |      |      |      |               |      |      |      |               | 3     |       | 3     |
| Kidney                                                                 |                      |         |      |      |      |               |      |      |      |               |      |      |      |               |       |       |       |
| multinucleated lining epithelium in papillary ducts                    |                      | x       |      |      |      | x             | x    | x    |      | x             |      |      |      |               |       |       |       |
| focal interstitial lymphoid infiltrates                                |                      | 2       | 2    | 3    | 2    | 2             | 2    | 3    | 3    |               | 3    | 2    | 2    | 2             |       | 2     | 2     |
| focus of glomerular fibrosis                                           |                      |         |      | x    |      |               |      |      |      |               |      |      |      |               |       |       |       |
| diffuse congestion                                                     |                      |         |      |      |      |               |      |      |      | 3             |      |      |      | 4             | 3     | 3     | 3     |
| microlith in renal tubules                                             |                      |         |      |      |      |               |      |      |      |               |      |      | x    | x             |       |       | x     |
| cystic glomeruli                                                       |                      |         |      |      |      | x             |      |      |      |               |      |      |      |               |       |       |       |
| Urinary Bladder                                                        |                      | 1       |      |      |      |               |      | -    |      |               |      |      |      | 1             | 1     |       |       |
| foci of inflammatory cell infiltrates in lamina propria                |                      |         | 3    | 3    |      | 2             | 2    | 3    |      | 2             | 3    | 2    | 2    |               |       | 3     |       |
| foci of inflammatory cell infiltrates in lamina propria and muscularis |                      |         |      |      | 3    |               |      |      |      |               |      |      |      |               |       |       |       |
| foci of inflammatory cell infiltrates in lamina propria and serosa     |                      |         |      |      |      |               |      |      |      |               |      |      |      |               |       |       | 4     |
| Prostate                                                               |                      | -       | -    |      |      | 3             | 3    |      |      | 1             |      |      |      | -             | 1     |       |       |
| foci of interstitial lymphoid infiltrates                              |                      |         |      |      |      |               |      |      |      |               |      |      |      |               |       |       |       |
| lymphoid nodules/infiltrates in corpus cavernosum                      |                      |         |      |      |      | 3             | 2    |      |      |               |      |      |      |               |       |       |       |
| Sarcocystis sp. in muscle                                              |                      |         |      |      |      |               |      |      |      | x             |      |      |      |               |       |       |       |
| Uterus                                                                 |                      |         | 1    |      |      |               | 1    |      |      |               |      | 1    |      |               |       | 1     |       |
| inflammatory exudate in lumen of uterine glands                        |                      |         |      |      |      |               |      |      |      |               |      | 2    |      |               |       |       |       |
| small foci of hemorrhage in endometrium                                |                      |         |      | 2    |      |               |      |      |      |               |      | 2    |      |               |       |       |       |
| inflammatory cell infiltrates in endometrium                           |                      |         |      | 3    |      |               |      | 2    |      |               |      |      |      |               |       |       |       |
| focus of lymphoid infiltrates in serosa                                |                      |         |      |      |      |               |      |      |      |               |      |      |      |               |       |       | 2     |
| Testes                                                                 |                      |         |      |      |      |               |      |      |      |               |      |      |      |               |       |       |       |
| prepuberal development                                                 |                      | x       | x    |      |      | x             | x    |      |      | x             | x    |      |      | x             | x     |       |       |
| Ovaries                                                                |                      |         | 1    |      |      |               |      | 1    |      |               |      |      |      |               |       | 1     | 1     |
| small foci of dystrophic mineralization                                |                      |         |      | 3    |      |               | 2    |      |      |               | 2    | 2    |      |               |       |       |       |
| Vagina                                                                 |                      |         |      |      |      |               |      |      |      |               |      |      |      |               |       |       |       |
| foci of lymphoid infiltrates in mucosal epithelium and lamina propria  |                      |         | 4    | 3    |      |               | 4    | 3    |      |               | 3    | 2    |      |               |       | 3     | 4     |
| foci of lymphoid infiltrates in muscularis                             |                      |         | 2    | 2    |      |               | 2    | 2    |      |               | 2    |      |      |               |       |       |       |
| focus of mucosal epithelium necrosis                                   |                      |         | 2    |      |      |               |      |      |      |               |      |      |      |               |       |       |       |
| Skeletal muscle                                                        |                      | 1       | 1    |      |      | 1             | 1    | 1    |      | 1             | 1    | 1    |      | 1             | 1     |       | 1     |
| Sarcocystis sp.                                                        |                      |         |      |      |      |               |      |      |      | x             |      |      |      |               |       |       |       |
| foci of interstitial inflammatory cell infiltrates                     |                      |         |      | 3    | 2    |               |      | 2    |      |               |      |      |      |               |       |       |       |
| small foci of necrosis                                                 |                      |         |      | 3    |      |               |      |      |      |               |      |      |      |               |       |       | 2     |

Code:

x - condition present

1 - not remarkable

2 - very slight

3 - slight

4 - moderate

5 - marked

6 - extreme

- = not available

\* - died or sacrificed in extremis

137-092

002068



FC-95:

Ninety Day Subacute Rhesus Monkey Toxicity Study.

TABLE 16. Cont.

Microscopic Observations.

| Tissue Lesion                          | Group, Monkey Number | Control |      |      |      | 0.5 mg/kg/day |      |      |      | 1.5 mg/kg/day |      |      |      | 4.5 mg/kg/day |       |       |       |
|----------------------------------------|----------------------|---------|------|------|------|---------------|------|------|------|---------------|------|------|------|---------------|-------|-------|-------|
|                                        |                      | M       | M    | F    | F    | M             | M    | F    | F    | M             | M    | F    | F    | M             | M     | F     | F     |
|                                        |                      | 7355    | 7358 | 7368 | 7372 | 7463          | 7483 | 7466 | 7504 | 7462          | 7486 | 7500 | 7501 | 7484*         | 7485* | 7502* | 7503* |
| <b>Skin</b>                            |                      |         |      |      |      |               |      |      |      |               |      |      |      |               |       |       |       |
| brown/black pigment in dermis          |                      | x       | x    | x    | x    | x             | x    | x    | x    | x             | x    | x    | x    | x             | x     | x     | x     |
| dermal inflammatory cell infiltrates   |                      |         |      |      |      | 2             |      | 2    |      |               |      |      |      |               | 2     |       |       |
| focus of subcutaneous hemorrhage       |                      |         |      |      | 4    |               |      |      |      |               |      |      |      |               |       |       |       |
| hyperkeratosis                         |                      |         |      |      |      |               |      |      |      |               | 3    |      |      | 3             |       |       | 3     |
| focal hemorrhage in dermis             |                      |         |      |      |      |               |      | 3    |      |               |      |      |      |               |       |       |       |
| multifocal foreign body granulomas     |                      |         |      |      |      |               |      | x    |      |               |      |      |      |               |       |       |       |
| <b>Mammary Gland</b>                   |                      |         |      |      |      |               |      |      |      |               |      |      |      |               |       |       |       |
| dermal inflammatory cell infiltrates   |                      | 2       |      | 3    | 2    |               | 3    | 2    | 3    |               |      | 2    | 2    |               |       |       | 2     |
| inflammatory exudate in ducts          |                      |         |      |      |      | 2             |      | 2    |      |               |      |      |      |               |       |       |       |
| intraepidermal microabscess            |                      |         | x    |      |      |               |      |      |      |               |      |      |      |               |       |       |       |
| dilated ducts                          |                      |         |      |      |      | x             |      |      |      | x             |      |      |      |               |       |       |       |
| brown pigment in dermis                |                      | x       | x    | x    | x    | x             | x    | x    | x    | x             | x    | x    |      | x             | x     | x     | x     |
| hyperkeratosis                         |                      | 3       | 3    |      | 3    |               | 3    |      | 3    | 3             | 4    | 3    |      |               | 3     |       |       |
| <b>Bone/Bone marrow (Rib junction)</b> |                      |         |      |      |      |               |      |      |      |               |      |      |      |               |       |       |       |
| hypocellular marrow                    |                      | 1       | 1    | 1    | 1    | 1             | 1    | 1    | 1    | 1             | 1    | 1    | 1    |               | 1     |       |       |
| diffuse congestion                     |                      |         |      |      |      |               |      |      |      |               |      |      |      | 4             |       |       | 3     |

Code:      x - condition present      3 - slight      6 - extreme  
              1 - not remarkable      4 - moderate      - = not available  
              2 - very slight      5 - marked      \* - died or sacrificed in extremis

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