CONFIDENTIAL

Interoffice Correspondence 3M COMPANY

Subject: Analytical Request A62781

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6

FROM: J. BELISLE - ANALYTICAL RESEARCH - 201-1S

Analysis of the serum from mice fed FC-807 at IBT has been completed. Two serum samples were submitted:

(1) Control

(2) Exposure - obtained by combining the serum from 2 groups of test mice, one fed 1000 ppm FC-807 and the other at 3000 ppm. As a first approximation, this serum represents the feeding of 2000 ppm FC-807.

Sample	Organic Fluorine	Fluoride
Human - Literature Average	0.03 ppm	0.02 ppm
Control Mice	? est. 0 (0-0.5)[1]	est. 0.5 (0.5-1.5)[1]
Exposed[2] Mice	102	0.6
Animals[3]	< 0.006	not reported

[1] insufficient sample for accurate analysis

[2] approximately 2000 ppm FC-807/30 days

[3] Guy and Taves report organic fluorine level in eleven different animals (rats not studied) as less than 0.006 ppm.

The fluorochemical was isolated from the serum of the exposed mice. The extraction technique (HCl and ether) followed by analysis indicates that 80% of the fluorochemical was in the ether extract (4 extractions) while ~20% remained in the denatured protein phase and less than 5% in the water phase. Further experiments are necessary to establish if the fluorochemical is still protein bound, if a different fluorochemical is bound, or simply not extracted by the ether.

Exhibit
1133
State of Minnesota v. 3M Co.,
Court File No. 27-CV-10-28862

NMR of the ether extract (and this represent about 75% of the fluorochemical present in the serum solids) establishes the fluorochemical to be most likely $C_8F_{17}SO_3H$.

As a follow-up experiment, 1 mg. of FC-807 was added to 15 ml. of Red Cross plasma and the sample worked-up using the above procedure. NMR of this ether extract indicated the fluorochemical to be FC-807. This is good evidence that the body and not the chemical work-up is responsible for the sulfonic acid as the major (if not only) metabolite of FC-807 bound to the serum. ?

CONCLUSION

Mice fed FC-807 at a level of 2000 ppm (see sample description) for a period of 30 days develop a fluorochemical level of approximately 10,000 greater than the control. The fluorochemical in the blood is a metabolite of FC-807, namely $C_8F_{17}SO_3H$.

Neutron Activation Analysis

I spoke with Dr. Kovar of General Activation Analysis regarding the analysis of total fluorine in blood. He indicated that they had never run this determination but felt it would be possible using a linear accelerator. The cost would be $300 for the first sample and $80 per additional sample. I think we should discuss the subject in more detail with GAA and should consider sending them several samples as a check on our analytical results.

Jon Belisle

Jon Belisle
jz