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BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC., UPTON, L.I., N.Y. 11973

MEDICAL DEPARTMENT

TELEPHONE: (516) 345- 3185

The Medical Research Center
Brookhaven National Laboratory
Upton, L. I., New York

November 25, 1975

David C. Camp, Ph.D.
Senior Staff Physicist
Radiochemistry Division
Lawrence Livermore Laboratory
University of California
Livermore, California 94550

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BOX No. 1
FOLDER Lead Proposals - Slatkin

Dear Dr. Camp,

Thank you for your response of November 18, 1975 to my letter (Nov. 11, 1975) requesting low level gamma counting of our supply of ^{205}Pb in anticipation of human metabolic studies.

Your assumption that we are concerned with the possible hazard of introducing unwanted body burdens of radioactive contaminants with the ^{205}Pb tracer is correct. The amount of tracer that we will have to introduce into patients will be approximately 6 μg ^{205}Pb per kilogram body weight, in order to attain acceptable precision in the mass spectrometric analysis of patients' samples.

Your suggestion that our sample be counted after your week-long holiday background count is appreciated. We assume that the overall rise of research activity in the laboratory during the post-holiday period will not cause a systematic rise in background.

The nominal analysis of the enclosed sample, as we received it from the supplier, is:

5.2 mg lead (carbonate)	
^{204}Pb	13.70%
^{205}Pb	78.87%
^{206}Pb	4.68%
^{207}Pb	1.22%
^{208}Pb	1.53%

We will be pleased to acknowledge your measurements and calculations in future publications. Since we hope to use this tracer in children, the results of analysis will be scrutinized thoroughly by our group and by independent medical research review committees.

We are sending our entire supply of ^{205}Pb in its original container, in the hope that the large sample will maximize the sensitivity for detection of trace radionuclides. On page 194 of your publication "Low-Background Ge(Li) Detector Systems for Radioenvironmental Studies", D. C. Camp et al., Nuclear Instruments and Methods 117, 189-211, 1974, you indicate that "every sample introduced into the spectrometer is put into a clear polystyrene container or canned in an aluminum container (tuna-can geometry)". I assume, then, that our sample could be counted without being removed from the innermost glass container only if the activity of the glass is negligible. Since the activity of the glass in unknown, it would be appreciated if the lead carbonate could be transferred with great care from this glass container to your control-counted dry plastic vial for the duration of the count, then transferred back to our glass vial for re-shipment to Brookhaven. I believe that transfer losses should be kept well below a milligram, if the transfers are followed gravimetrically. Presumably a stainless steel spatula, rinsed in distilled water and thoroughly dried, will be used for the transfer. If more elaborate precautions are taken we would appreciate being informed of your technique for transfer of material, especially if dust and/or bacteria aerosols are excluded from the sample during transfer.

Your prompt and generous response to our request is greatly appreciated. We are hopeful that your detailed data will help us obtain appropriate NIH support for the project.

Yours sincerely,

Daniel N. Slatkin, M.D.

DNS:kt
Enclosure: ^{205}Pb

cc: Dr. Hobart W. Kraner, BNL
Dr. John Rosen, Montfiore Hospital, New York, N.Y.

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