



# U. S. NAVAL HOSPITAL

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U. S. NAVAL HOSPITAL 59  
AND REFER TO NO. 29

St. Albans 25, L.I. N.Y.

725156

5 September, 1952

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Lee Farr, M.D.  
Medical Division  
Brookhaven National Laboratories  
Upton, Long Island, N.Y.

Dear Doctor Farr;

As requested by Dr. Patterson in our telephone conversation of 4 September, 1952, enclosed is a draft of a project proposal which would cover about all that we can envision at the present time. I hope that this will meet your needs, and is not too brief.

Enclosed also is a copy of the research proposal which was recently sent to the Bureau of Medicine and Surgery, requesting approval and allocation of funds. As yet no word has been received as to their action.

The AEC forms #313 required to obtain the pile and cyclotron time are being prepared and will be sent out in a few days to the Isotopes Division, Oak Ridge.

If I do not hear otherwise, you can expect me about 1000 on next Thursday, 11 September, 1952.

he  
opr

With best wishes, I remain,

*H. C. Dudley*  
H. C. DUDLEY  
CDR MSC USN

REPOSITORY Records Holding Area  
Bldg. 494  
COLLECTION Protocols - Clinical  
BOX No. 4  
FOLDER HUMAN PROTOCOLS 1950-1963

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OUTLINE OF PROJECT PROPOSAL

"A STUDY OF THE PHYSIOLOGICAL SIGNIFICANCE OF CERTAIN  
SHORT LIVED FISSION PRODUCTS"

- a. (Ga-72) as a means of localizing early metastatic lesions to bone. A clinical study at U. S. Naval Hospital, St. Albans, N.Y.
- b. (Ga-67) A study of the distribution and localization of this element in dogs and rabbits.
- c. (Ga-67) A study of repeated large doses of this isotope on the hematopoietic system of the guinea pig, rabbit and dog.
- d. (Ge-71) A study of the rate of clearance of Ge and GeO<sub>2</sub> dusts from the lungs of rats and rabbits.
- e. (Ge-71) A study of the effects of tissue implantation of GeO<sub>2</sub> needles containing Au-198 and P-32.

The above projects would be carried out by the staff of the Naval Hospital St. Albans, N.Y., utilizing their own facilities as far as possible. The project would be in cooperation with the Medical Division, Brookhaven National Laboratories, and all information obtained would be immediately available to the Brookhaven group.

The required forms, AEC 313, are now being prepared in order to obtain approval to carry out these studies, and to obtain the necessary radioisotopes from AEC sponsored facilities.

Estimated expenditures, Balance of fiscal year 1953, ( 1 Oct. 1952 to 1 July, 1953):

Cyclotron Time (Ga-67)	\$ 1,000.-
Pile Time (Ga-72, Ge-71)	500.-
Animals	500.-
Animal care, housing and feed	<u>2,000.-</u>
TOTAL	\$ 4,000.-

U. S. Naval Hospital, St. Albans 25, Long Island, N.Y.

Indefinite

Unclassified

- a) Dogs, Rabbits.
- b) Patients with advanced proven malignancy.

S. F. Williams CDR MC USN  
H. C. Dudley CDR MSC USN

\$5,000.00

Capt. H.C. Oard MC USN Chief of Medicine  
Capt. C. F. Storey MC USN Chief of Surgery

C. G. Lewallen LT MC USNR  
T. G. Mitchell ENS MSC USN

A systematic study of the shorter lived fission products and their significance with regard to Naval Medicine. The reasoning on which a study of this kind is proposed is as follows:

- (a) The shorter lived fission products contribute to the hazards immediately following an atomic explosion.
- (b) They may acquire considerable importance as agents in radiological warfare.
- (c) As the result of these basic studies, it is possible that some of the isotopes may be shown to be useful in medicine as diagnostic or therapeutic tools.

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RESEARCH PROPOSALS

EXPERIMENTAL DESIGN

I Immediate Procedures.

(a) Gallium (Ga-72) Pile Produced.

To study the usefulness of this isotope as a diagnostic agent for the early localization of metastatic lesions to bone.

This procedure has been carried out at the U. S. Naval Hospital, Bethesda, Maryland, but it desired to apply the newer scanning and counting techniques in patients with neoplastic lesions.

(b) Gallium (Ga-67) Cyclotron Produced.

1. To study the localization, distribution, and excretion of this isotope in rabbits and dogs.
2. To study the effect of large doses of Gallium-67, with and without small amounts of carrier Gallium, to determine in these species the limiting amount (millicuries/kilogram) of the isotope which may be administered without causing undue changes in the hematopoietic system.
3. Study of Gallium-67 (80 hour half life) as a possible replacement for Gallium-72 (14.3 hour half life) in the utilization of Gallium as a diagnostic tool.
4. Study of Gallium-67 as an agent for the relief of pain, and possibly to promote repair in advanced cases of metastatic lesions involving bone. This phase of the project has been approved by the Atomic Energy Commission for study at the U. S. Naval Hospital, Bethesda, Md. but has not been carried out due to the lack of sufficient quantities of Gallium-67.

RESEARCH PROPOSALS

II Future Plans

To survey the literature, and after critical evaluation, determine the shorter lived fission products which have not been adequately studied. Preliminary literature research has been completed on Rubidium and Niobium (Columbium). In the event that certain of the isotopes seems to offer promise, the following basic research would be initiated:

- (a) Preparation of compounds, both stable and radioactive, suitable for injection, ingestion, and inhalation.
- (b) Determination of toxicity of carrier materials in experimental animals.
- (c) Determination of the radiation effect of the injected and ingested radioactive materials, as well as the distribution and excretion patterns in experimental animals.
- (d) Analysis of the mechanisms producing the toxic effects, by biochemical, autoradiographic and hematologic techniques.

NOTE:

Preliminary arrangements have been made with the Medical Division, Brookhaven National Laboratories, Upton N.Y., for the furnishing of animals, food, care and cages for the animals on a cost-only basis. (No overhead will be charged). It is also possible to obtain from this organization most of the pile produced radioactive isotopes which may be needed in the research program. The use of the particle accelerators (cyclotron and cosmotron) will depend on their availability at the time. However it is believed that cyclotron time for the production of Gallium-67 will be no problem.

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RESEARCH PROPOSALS

Note: (cont'd)

Applications are now being prepared for submission to the Atomic Energy Commission (via the Atomic Defense Division of the Bureau of Medicine and Surgery) for authorization to obtain the radioactive isotopes outlined above. Such authorizations should not be difficult to obtain since the procedures are an extension of the studies previously carried on at the Naval Medical Research Institute and the Naval Hospital, Bethesda Maryland.

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RESEARCH PROPOSALS

III Fiscal

The Brookhaven National Laboratory is managed by a non-profit Organization (Associated Universities Incorporated) which draws the major part of its support from the Atomic Energy Commission. Inquiry there, and with the finance officer here, indicate that the best means of obtaining the service of the Brookhaven Laboratories is for the Research Division of the Bureau of Medicine to make available to the Atomic Energy Commission, for transfer to Brookhaven National Laboratories, sufficient funds to cover the costs of these services.

Should the project be approved it is recommended that the following division of funds be made:

To Brookhaven National Laboratory:

For Animals	\$ 500.-
Animal care, housing and feed	2,000.-
Pile irradiation time	500.-
Cyclotron irradiation time	<u>1,000.-</u>
Sub Total	\$ 4,000.-

To U. S. Naval Hospital, St. Albans, N.Y.

For Laboratory equipment	\$ 500.-
Radioisotopes from the Atomic Energy Commission (Oak Ridge Lab)	<u>500.-</u>
Sub Total	\$ 1,000.-

GRAND TOTAL

\$ 5,000.-

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