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ARMED FORCES INST OF PATHOLOGY WASHINGTON DC
ARMY MEDICAL RESEARCH & DEVELOPMENT TECHNICAL REPORT. (U)
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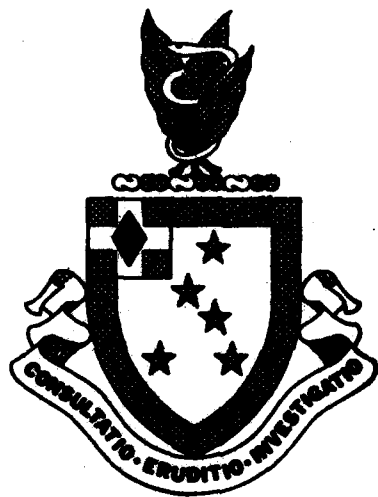
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1 October 1979 - 30 September 1980

U.S. ARMY
MEDICAL RESEARCH AND DEVELOPMENT REPORT
RCS MEDDH-298 (RI)

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DISCLAIMER

In conducting the research described in this report, utilizing animals, the investigators adhered to the 'Guide for the Care and Use of Laboratory Animals,' as promulgated by the Committee on Revision of the Guide for Laboratory Animal Facilities and Care of the Institute of Laboratory Animal Resources, National Academy of Sciences - National Research Council.

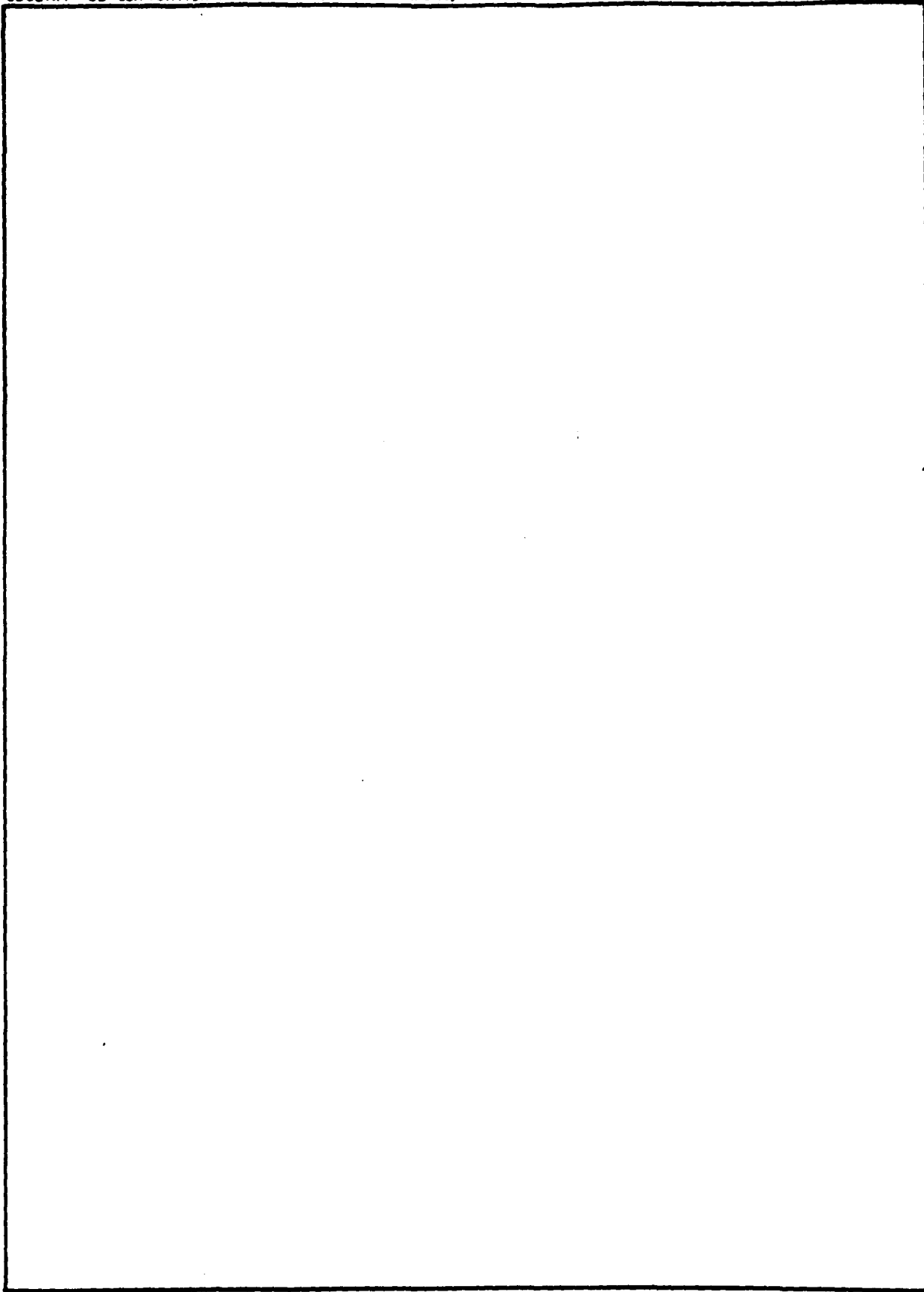
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Research Supported By:

U.S. ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND

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a. PRIMARY	6.47.13.A	1J664713DL47		00	001		
b. CONTRIBUTING							
c. CONTRIBUTING							
11. TITLE (Precede with Security Classification Code) ⁹							
(U) Lesions in Animals Fed Enzyme Inactivated Frozen and Irradiated Meats							
12. SCIENTIFIC AND TECHNOLOGICAL AREAS ¹⁰							
13. START DATE		14. ESTIMATED COMPLETION DATE		15. FUNDING AGENCY		16. PERFORMANCE METHOD	
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e. KIND OF AWARD:		f. CUM. AMT.				49.	
19. RESPONSIBLE DOD ORGANIZATION				20. PERFORMING ORGANIZATION			
NAME ¹²				NAME ¹³			
Armed Forces Institute of Pathology				Armed Forces Institute of Pathology			
ADDRESS ¹⁴				ADDRESS ¹⁵			
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RESPONSIBLE INDIVIDUAL				PRINCIPAL INVESTIGATOR (Furnish SSAN if U.S. Academic Institution)			
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Cowart, E. C., Jr., CAPT MC USN				Jones, S. R., Col., USAF, BSC(VC)			
TELEPHONE ¹⁸				TELEPHONE ¹⁹			
202-576-2905				202-576-2601			
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				NAME:			
				Trucksa, R. C., LTC, VC, USA			
				NAME:			
22. KEYWORDS (Precede EACH with Security Classification Code)							
(U) Food, (U) Radiation, (U) Sterilization, (U) Meat, (U) Experimental, (U) Laboratory Animals							
23. TECHNICAL OBJECTIVE, ²⁰ 24. APPROACH, 25. PROGRESS (Furnish individual paragraphs identified by number. Precede text of each with Security Classification Code.)							
<p>23. (U) To determine the wholesomeness for human consumption of radiation sterilized meat by studying the pathologic effects, if any, of feeding dogs and mice irradiated meat. Preservation of food is vital to military operations.</p> <p>24. (U) The U.S. Army is conducting contractual studies on the wholesomeness for human consumption of radiation sterilized meat. Pathological results obtained from experimental animals will be statistically analyzed and submitted together with other experimental data to the FDA and USDA to establish a regulation permitting unlimited consumption of radiation sterilized meat. The AFIP serves as monitor and reviewer of the pathologic findings in the contractor's experimental and control animals.</p> <p>25. (U) 7910-8009. AFIP pathologists performed six site visits to the contractor's laboratories, Raltech Services Inc., during FY 1980, to review the procedures and results of the pathology portions of the project. Complete sets of specimens from 331 animal cases consisting of 4193 paraffin blocks were selected by AFIP pathologists for detailed histologic review for quality control studies. These cases have been accessioned into the Registry of Veterinary Pathology for permanent accessibility. The pathology studies are now centered on the older mice and, as expected, neoplasms are being diagnosed with increasing frequency in both test and control mice. The pathology studies in dogs to date have been performed on the younger animals. Lesions including neoplasms studied to date are of the type expected to occur in any large group of laboratory animals under longterm observation. Overall the contractor's pathology effort was judged at an acceptable professional level. At the close of FY 1980, the USAMRDC contract was terminated for fiscal reasons and the project was transferred to the USDA Eastern Regional Research Laboratory, 600 East Memorial Lane, Philadelphia, PA 19118.</p>							

ANNUAL PROGRESS REPORT

TITLE PAGE

Project No. 1J664713DL47

Title: Lesions in Animals Fed
Enzyme Inactivated Frozen
and Irradiated Meats

Task No. 00

Name and Address of Reporting Installation:

Armed Forces Institute of Pathology
Washington, D. C. 20306

Name of Department: Veterinary Pathology

Period Covered by Report: 1 October 1979 - 30 September 1980

Professional Authors: S. R. Jones, Colonel, USAF, BSC(VC)
R. C. Trucksa, LTC, VC, USA

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BODY OF REPORT

Project No. LJ664713CL47

Title: Lesions in Animals Fed Enzyme
Inactivated Frozen and
Irradiated Meats

Task No. 00

Personnel of the Department of Veterinary Pathology, Armed Forces Institute of Pathology, served as the quality control monitor and reviewer of the pathology findings in experimental and control animals on the longterm U. S. Army R&D Project on wholesomeness testing of irradiated meats. The work is being performed under contract by Raltech Scientific Services, Inc., Ralston Purina Company, St. Louis, Missouri. During FY 1980, AFIP pathologists performed six site visits to the contractor's laboratories: 1-3 Oct 79, 31 Jan - 1 Feb 80, 25-27 Feb 80, 21-23 Apr 80, 2-4 Jun 80, and 14-15 Jul 80.

The contractor's quarterly reports were reviewed by the AFIP pathologists. Observations pertaining to the pathology data in these reports were provided to the project officer.

Selection of cases to be studied histopathologically at AFIP was accomplished by a detailed review of the contractor's pathology reports on each individual animal. This permits an appraisal of all the contractor's diagnoses and the histological review of cases with diagnoses of an unusual nature, in addition to a review of the contractor's interpretation of the lesions normally expected in laboratory animals. The number of blocks for each case forwarded to the AFIP is recorded by Raltech on an AFIP form. This number is then checked by the number of blocks received by the AFIP and finally the number of slides processed. Specimens from 331 animal cases consisting of 4193 paraffin blocks were received at the AFIP during FY 1980 and were accessioned in the Registry of Veterinary Pathology.

Data from AFIP review of Raltech cases is compiled into reports which are uniform in format and permit direct comparison of AFIP results with those reported by Raltech pathologists. Copies of these reports were provided to the project officer as well as the contractor.

Pathologists from AFIP worked closely with the contractor's pathologists in the standardization of interpreting and coding of all lesions. Major and minor differences in diagnoses were recorded, jointly reviewed via dual-viewing microscope, discussed and resolved prior to Raltech's final formal report. Consultation was provided on cases of poorly differentiated neoplasms and otherwise difficult neoplastic or nonneoplastic lesions. The following morphologic findings were clarified as normal in immature 26-week-old dogs: Prominence of C-cells in the thyroid glands, aspermatogenesis, and mildly hypercellular and wide alveolar walls. During the 31 Jan - 1 Feb site visit, the pathology consultant from AFIP

Title: Lesions in Animals Fed Enzyme Inactivated Frozen and Irradiated Meats

presented a lecture and wet laboratory demonstration to the contractor's histopathology technicians on proper grossing-in and processing in the histologic preparation of the eye specimens.

Lesions reviewed to date in animals fed irradiated chicken were representative of the spectrum of spontaneous diseases normally expected in a large group of laboratory animals.

At present the AFIP has reviewed all of the mouse study cases up to and including the 18-month sacrifice group. Presently being reviewed are the remaining F₀ generation mice (24-month sacrifice), F_{2b} mice (3-month sacrifice), the last of the 26-week canine sacrifice, F_{1a} canine (26-week sacrifice), F_{1b} canine (26-week sacrifice), and spontaneous deaths in all generations of mice over 12 months of age.

The pathology studies are now centered on the older mice and, as expected, neoplasms are being diagnosed with increasing frequency in both test and control mice. Numerous cases of alveogenic tumor of the lungs and lymphosarcoma, together with a variety of other neoplasms have occurred in the mice. The pathology studies in dogs to date have been performed on the younger animals.

The nonneoplastic lesions most frequently diagnosed in both control and test mice were glomerulopathy-glomerulonephropathy and retinal degeneration of the eye. The etiology of the retinal lesion remains undetermined. Hereditary origin is strongly suggested, however, since dietary deficiency, infectious disease, and intense light have been ruled out as possible causes.

In general the pathology portion of this project is proceeding satisfactorily. Lesions studied to date are of the type expected to occur in any large group of laboratory animals under longterm observation. Analysis of pathologic data in relationship to the different diet groups will be accomplished by the contractor when all pathology studies are completed. The AFIP studies indicate that the professional aspects of the pathology studies should permit meaningful conclusions to be drawn at completion of the project.

At the close of FY 1980 the contract was transferred from USAMRDC to the Eastern Regional Research Laboratory, USDA, 600 East Memorial Lane, Philadelphia, PA, 19118. Doctor Alec C. Keyl, USDA toxicologist, replaces Major Frank Chappel as the contract monitor. Through an Interagency Agreement, USDA has requested that AFIP continue as pathology quality control monitor and reviewer for one year or until all mice and canine studies are completed.

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