Contents

497 The Effect of Treatment with a Combination of 6-Mercaptopurine and Porfiramycin on an Established Friend Leukemia Virus Infection.
   Robert W. Sidwell, Glen J. Dixon, Patricia Compton, and Frank M. Schabel, Jr.

503 The Effects of Schedule and Dose of 7,12-Dimethylbenz(a)anthracene on the Induction and Growth of Mammary Carcinomas in Sprague-Dawley Female Rats.

506 Molecular Site of Substituents of Benz(a)anthracene Related to Carcinogenicity.
   John Pataki and Charles Huggins.

510 The Inhibition of DNA Synthesis by Initiators of Mouse Skin Tumorigenesis.
   Henry Hemmings and R. K. Boutwell.

515 An Immunochemotherapeutic System for the Treatment of a Transplanted Moloney Virus-induced Lymphoma in Mice.
   J. P. Glynn, B. L. Halpern, and A. Fefer.

521 The Inhibitory Effect of 3-Methylcholanthrene on Nucleolar Alterations Induced in Rat Liver Cells by 3'-Methyl-4-dimethylaminoazobenzene.
   Mary T. O'Hegarty and John W. Harman.

529 Toxicity Studies in Mice Treated with 1-β-D-Arabinofuranosylcytosine (ara-C).

536 Comparison of Soluble RNA Methylase Capacity in Paired Neoplastic and Nonneoplastic Cell Lines in Vitro.
   R. Gantt and V. J. Evans.

542 The Metabolic Interrelationship and Physicochemical Analysis of C-reactive Protein and Hepatic Catalase.

549 Liver Growth Associated with the Induction of Demethylase Activity after Injection of 3-Methylcholanthrene in Immature Rats.
   Thomas S. Argyris and Donald L. Layman.

554 The Teratogenic Effects of 5-Fluorocytosine in the Rat.
   Shakuntala Chaube and M. L. Murphy.

558 Effects of 4-Nitroquinoline-N-oxide on RNA Synthesis.
   J. S. Paul, R. C. Reynolds, and P. O'B. Montgomery.

571 Coordinated Changes in Biochemical Patterns: The Effect of Cytosine Arabinoside and Methotrexate on Leukocytes from Patients with Acute Granulocytic Leukemia.
   DeWayne Roberts, Thomas C. Hall, and David Rosenthal.

579 Large-Scale Fractionation of Cigarette Smoke Condensate for Chemical and Biologic Investigations.
   A. P. Swain, J. E. Cooper, and R. L. Stedman.

584 Bioassay of Major Fractions of Cigarette Smoke Condensate by an Accelerated Technic.

588 Vertical Transmission of Murine Leukemia Virus.

596 Vertical Transmission of Murine Leukemia Virus through Successive Generations.

   G. Caroline Engle, Shigekuni Shirahama, and Ray M. Dutcher.

610 Further Studies on Inhibition and Adaptation of a Parental Tumor in F1 Hybrid Mice.
   Richard P. Huemer.
617 Nucleotide Formation from α- and β-2′-Deoxythioguanosine in Extracts of Murine and Human Tissues. 
Amnon Peery and G. A. LePage.

624 Phorbol Ester Tumor-promoting Agents and Membrane Stability. 
Andrew Sivak, Frances Ray, and Benjamin L. Van Duuren.

631 A Comparative Cytologic Study of the Cultivation of Hepatomas of Different Growth Rates. 
Hisaya Watanabe and Edward Essner.

645 Additional Studies of Interferon Production by Human Leukemic Leukocytes in Vitro. 
S. H. S. Lee, C. E. vanRooyen, and R. L. Ozere.

653 “Virus-free” Renal Tumors Obtained from Prehibernating Leopard Frogs of Known Geographic Origin. 
Joseph Zambernard and Robert Gilmore McKinnell.

658 The Morphology and Growth Characteristics of Radiation-induced Epithelial Skin Tumors in the Rat. 

669 The Proportionality of Glutaminase Content to Growth Rate and Morphology of Rat Neoplasms. 
W. Eugene Knox, Maria L. Horowitz, and Gilbert H. Friedell.

681 Combination Chemotherapy: Synergistic Inhibition of Lymphoma L5178Y Cells in Culture and in Vivo with 6-Mercaptopurine and 6-(Methylmercapto)purine Ribonucleoside. 
A. R. P. Paterson and A. Moriwaki.

687 The Locus of Action of 1-β-D-Arabinofuranosylcytosine in the Cell Cycle. 
Myron Karon and Shigeru Shirakawa.

697 Observations on the Mechanism of Hemorrhagic Toxicity in Mitramycin (NSC 24559) Therapy. 

705 The Histogenesis and Biologic Behavior of Primary Human Malignant Melanomas of the Skin. 
Wallace H. Clark, Jr., Lyn From, Evelina A. Bernardino, and Martin C. Mihm.

brief communications:

728 Reversal of Antileukemic Action and Toxicity of 1-Aminocyclopentanecarboxylic Acid in Mice by L-Valine. 
Francis J. Gregory, Stephanie F. Flint, Hans W. Ruelius, and George H. Warren.

730 Transmission Experiments with Lymphocytic Sarcoma of the Mouse. 
Reiko Tokuzen and Waro Nakahara.

734 Antitumor Activity of Aqueous Extracts of Edible Mushrooms. 
Tetsuro Ikekawa, Nobuaki Uehara, Yuko Maeda, Miyako Nakanishi, and Fumiko Fukuoka.

736 Announcements.

736 Erratum.

Cover legend

Leonell Clarence Strong (b. 1894 in Renova, Pennsylvania), former Research Professor at Yale University School of Medicine, and Director of The Springville Laboratories of Roswell Park Memorial Institute, was the originator of many inbred strains of mice used in cancer research. The now famous A and C or High Tumor Family (HTF) of inbred mice were started in July 1921 at St. Stephen's College (now Bard College), Annandale, New York. The original unpigedeed mice and their descendants were housed from 1921 to 1925 in a tar-paper shack. This building, shown with Strong and his two sons, was heated by a potbelly stove. Tar paper was added for warmth in the winter and removed during the summer. The mice were maintained in wooden boxes and fed a diet of bread, milk, and mixed seed.

The original matings of unpigedeed mice, obtained from various sources, were represented by a letter of the alphabet. From the original letters, only the F, I, and N strains exist today. The A and B lines, both albino, were mated and their descendants were housed from 1921 to 1925 in a tar-paper shack. This building, shown with Strong and his two sons, was heated by a potbelly stove. Tar paper was added for warmth in the winter and removed during the summer. The mice were maintained in wooden boxes and fed a diet of bread, milk, and mixed seed.

The pedigrees of unpigedeed mice, obtained from various sources, were represented by a letter of the alphabet. From the original letters, only the F, I, and N strains exist today. The A and B lines, both albino, were mated and from this cross arose the A strain. The A line was crossed also to the D line, a dilute brown; the offspring were selected for high rates of spontaneous tumors. As shown in the pedigree, the descendants of this cross produced the C, C3H, CHI, and CBA strains. The letters on the bottom left side of the pedigree squares represent the line; the numbers on the right, the age when a spontaneous tumor first appeared in the mouse. The pedigree represents the direct descent of the first few generations of the C Family. Hundreds of collateral lines were not maintained or shown in the pedigree.

With the exception of a few father-to-daughter matings in the early pedigrees, all matings were strictly brother to sister, for over 100 generations. In terms of human generations, a comparable genealogy would span over 3500 years.

The strains, once developed, were disseminated among many investigators. Today there are hundreds of sublines scattered throughout the world. In a 17-month period, from December 1966 to April 1967, approximately 840 publications appeared in the world literature, using mice as a research tool. Of these papers, 43% depended on the use of one or more strains of mice first developed in the old tar-paper shack. The pedigree is reproduced from Cancer Res., 2: 531, 1942. We are indebted to Dr. Stanley J. Mann for his assistance in the preparation of the material.