### Contents

Murray J. Shear.

1325 Dose Schedule and Antitumor Studies of Arabinosyl Cytosine (NSC 63878).  

1333 Fractionation of Spleen and Serum in Attempts to Isolate the Radiation-Leukemia Protection Factor.  
Don B. Clewell, J. Donald Hubbard, Pao-Lo Yu, Lily C. Yip, and M. E. Hodes.

1341 A Comparison of Electron Density and Hepatocarcinogenic Activity for Various Derivatives of 4-Dimethylaminoazobenzene.  
Ellis V. Brown and William H. Kipp.

1345 Effect of Chemical Carcinogens on Virus-induced Rous Sarcoma.  
Claire G. Engle and Vincent Groupé.

1350 Ribonucleotide Reductase Activity in Cell-free Extracts of Yaba Poxvirus Tumor and Normal Monkey Tissues.  
Harry L. Gordon and Robert J. Fiel.

1356 The Oncogenic Effects of Nontransforming Viruses from Avian Myeloblastosis Virus.  
Ralph E. Smith and C. Moscovici.

1367 Apparent Antimutagenic Activity of Quinacrine Hydrochloride in Detroit-98 Human Sternal Marrow Cells Grown in Culture.  
Herbert G. Johnson and Michael K. Bach.

1371 Studies on the Effects of Hydroxyurea and Other Anticancer Drugs upon Pyrimidine Metabolism.  
William Ralph Vogler, Susan Horwitz, and D. P. Groth.

1379 The Role of the Regional Lymph Nodes in the Immunity to a Chemically Induced Sarcoma in C3H Mice.  
David S. Bard, William G. Hammond, and Yosef H. Pichl.

1385 Transplantable Friend Virus-induced Tumors in Rats.  

1393 Precipititin Response of Cattle to Bovine Papilloma Virus.  
Ki P. Lee and Carl Olson.

1398 The Role of Sex and Iodine Deficiency in the Growth and Function of the Rat Thyroid Transplantable Tumor.  

1407 Formation of Antibodies against Salmonella Lipopolysaccharides during a Latent Infection by Friend Murine Leukemia Virus.  
John P. Ransom, Joan M. Gorman, and Sibylle Tulve.

1416 Skin Nucleic Acid Phosphorus Metabolism of DBA/1J Mice during Implanted Tumor Development and Methylcholanthrene Carcinogenesis.  
Vernon E. Scholes.

1420 Role of Cellular and Humoral Factors in the Destruction of Nascent Plasma Cell Tumors.  
Hisashi Yamada, Atsuko Yamada, and Vincent P. Hollander.

1428 Rejection of Human Cancer Transplants by Tolerant Rats following Treatment with Allogeneic Lymphoid Cells.  
Chester M. Southam and Quirino S. Dizon.
Anderson Nettleship (b. 1910) and Paul S. Henshaw (b. 1902), assisted by Henry L. Meyer, in 1943, issued from the National Cancer Institute a report on the carcinogenic activity of urethan (ethyl carbamate) in mice (Induction of Pulmonary Tumors in Mice With Ethyl Carbamate (Urethane). J. Natl. Cancer Inst., 4: 309–319, 1943). This finding was unanticipated in the original experiment; it emerged as an accidental discovery based upon alert observation. Multiple, pulmonary tumors were detected in 26 of 29 mice anesthetized through intraperitoneal injections of urethan, preliminary to skin exposures to X-irradiation. Strain C3H mice used in these experiments have a low incidence of spontaneous lung tumors. The possibilities of carcinogenesis by direct radiation or through scattered radiation were subsequently eliminated. Direct tests defined urethan as the carcinogenic factor.

The biochemical and physiologic action of urethan carcinogenesis has not been elucidated. Experimentation with analogs has not revealed chemical intermediates that exceed the carcinogenic capacities of urethan itself. It remains the only anesthetic agent known to possess carcinogenic activity. For several years urethan was used as a chemotherapeutic agent in leukemia and multiple myeloma, but there are no reports of carcinogenic hazards to man.

A photograph of Nettleship, taken at the time of the urethan report, appears at left. The portrait of Henshaw (right) was reproduced from a Fabian Bachrach original.
Cancer Research

29 (7)


Updated version
Access the most recent version of this article at:
http://cancerres.aacrjournals.org/content/29/7.citation

E-mail alerts
Sign up to receive free email-alerts related to this article or journal.

Reprints and Subscriptions
To order reprints of this article or to subscribe to the journal, contact the AACR Publications Department at pubs@aacr.org.

Permissions
To request permission to re-use all or part of this article, contact the AACR Publications Department at permissions@aacr.org.