Contents

1099 The Enzymology of the Formation and Interconversion of Labile 1-Carbon Groups in Five Hepatomas and in Walker Tumor 256. Raymond Lepage, Lionel A. Poirier, Miriam C. Poirier, and Harold P. Morris.

1104 The Hepatic Activities of 1-Carbon Enzymes during the Chronic Administration of Diethylnitrosamine, 2-Acetylaminofluorene, and N,N-Dimethyl-4-aminoazobenzene to Rats. Miriam C. Poirier, Lionel A. Poirier, and Raymond Lepage.


1117 Identification of Contaminating Clostridium Spores as the Oncolytic Agent in Some Chalone Preparations. U. Mohr, W. Hondius Boldingh, and J. Althoff.

1122 Oncolysis by a New Strain of Clostridium. U. Mohr, W. Hondius Boldingh, A. Emminger, and H. A. Behagel.

1129 RNA Tumor Virus gs Antigen and Tumor Induction by Various Doses of 3-Methylcholanthrene in Various Strains of Mice Treated as Weanlings. Carrie E. Whitmire and Ronald A. Salerno.

1133 Chromosome Breakage by 1-Methyl-2-benzylhydrazine in Mouse Cancer Cells. Eeva Therman.

1137 Inhibition of DNA and RNA Metabolism by Daunorubicin and Adriamycin in L1210 Mouse Leukemia. W. Delano Meriwether and Nicholas R. Bachur.


1154 Herpesviruses in Tumors of Postspawning Rana pipiens. Robert Gilmore McKinell and Virginia L. Ellis.

1160 Depression of Thymidylate Synthetase Activity in Response to Cytosine Arabinoside. DeWayne Roberts and Ellen V. Loehr.


1184 Isolation and Characterization of Rat α1-Fetoprotein. Stewart Sell, Irene Jalowayski, Clifford Bellone, and H. T. Wepsic.

1190 Liver and Blood Cell Catalase Activity of Tumor-bearing Mice. Joel H. Kaplan and James N. Groves.

1195 Potentiation of Drug Effect by Tween 80 in Chinese Hamster Cells Resistant to Actinomycin D and Daunomycin. Hansjörg Richm and June L. Biedler.


1206 The Response of Human Lymphoma Cells in Vitro to Bleomycin and 1,3-Bis(2-chloroethyl)-1-nitrosourea. Benjamin Drewinko, Judy K. Novak, and S. C. Barranco.

1209 Experimental Cancer of the Lung in Rabbits Induced by Chemical Carcinogens. Fumio Hirao, Tomoo Fujisawa, Eiro Tsubura, and Yuichi Yamamura.


1226 Inhibition of Cell Proliferation by Azathioprine. Daniel Malamud, Eduardo M. Gonzalez, Hua-i Chiu, and Ronald A. Malt.

1230 Strand Scission and Rejoining of DNA in Cultured Mammalian Cells Induced by 4-Nitroquinoline 1-Oxide. Toshiwo Andoh and Toshinori Ide.

1236 Scissions of Proteins Linking DNA in Cultured Mammalian Cells Induced by 4-Nitroquinoline 1-Oxide and Their Repair. Toshinori Ide and Toshiwo Andoh.
Cover Legend

Signal contributions to cancer research and prevention of cancer have been made by epidemiologists and statisticians. Among them have been two British colleagues, Austin Bradford Hill and Richard Doll. They collaborated in the pioneer studies on the relationship of smoking to lung cancer (Smoking and Carcinoma of the Lung, Brit. Med. J., 2: 739, 1950; The Mortality of Doctors in Relation to their Smoking Habits, Brit. Med. J., 1: 1451, 1954), which, with the retrospective study of Wynder and Graham and the prospective studies of Hammond and Horn and of Doll in the United States, established the carcinogenic and other health hazards of tobacco smoking. It is noteworthy that the findings of all three studies were remarkably similar, presenting no conflicting evidence. The most important findings were that the total death rate from all causes combined is far higher among cigarette smokers than among pipe and cigar smokers and among nonsmokers, that the death rate increases in direct relation to the amount of cigarette smoking, and that the incidence of carcinoma of the lung would be reduced by 80 or 90% in the absence of smoking. Subsequent studies by Hill and Doll (The Study of Aetiology of Carcinoma of the Lung, Brit. Med. J., 2: 1271, 1952; Mortality in Relation to Smoking: Observations on British Doctors, Brit. Med. J., 2: 1071, 1956, and 1: 1399, 1964) revealed that the agent in tobacco smoke might act as a cocarcinogen in the presence of another element in the environment, provided some additional evidence that lung carcinoma is more common in urban areas than in rural areas, that the greater mortality in cigarette smokers over pipe smokers is a function of method of smoking irrespective of amount, and that deaths from cancer in sites other than the lung and upper respiratory and digestive tracts reveal little association between mortality and smoking.

Sir Austin Bradford Hill (b. 1897, London) is Emeritus Professor of Medical Statistics at the University of London and currently a member of the British Committee on the Safety of Medicines and a member of the International Statistical Institute. He has written many papers on clinical trials of drugs, smoking and lung cancer, and experimental methods in preventative medicine, which are included in his book Statistical Methods in Clinical and Preventive Medicine (E & S Livingstone, Edinburgh, 1963). In his Principles of Medical Statistics, first published in 1943 (The Lancet, London, 9th edition, 1971), he explains how investigations into forms of treatment can be planned and how figures derived from them can be analysed in order to yield fruitful results.

Richard Doll (b. 1912, London) has since 1969 held the position of Regius Professor of Medicine at the University of Oxford. Since 1936 he has written various articles on the etiology of cancer, many of which are summarized in his brilliant Carling Lectures, Prevention of Cancer, Pointers from Epidemiology (Nuffield Provincial Hospital Trust, London, 1967). In this book he indicates ways in which epidemiological studies can contribute to the prevention of cancer, the most intensively used method being that of correlating differences in cancer incidence in various communities with differences in the prevalence of a potential etiological factor.

We are indebted to Barratt’s Photo Press, Ltd., London, England, for the portrait of Doll and permission to reproduce it, and to Hill for the portrait of himself. Doll appears at lower right; Hill, upper left.