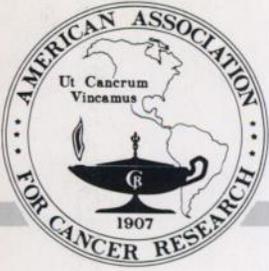


September 1, 1990

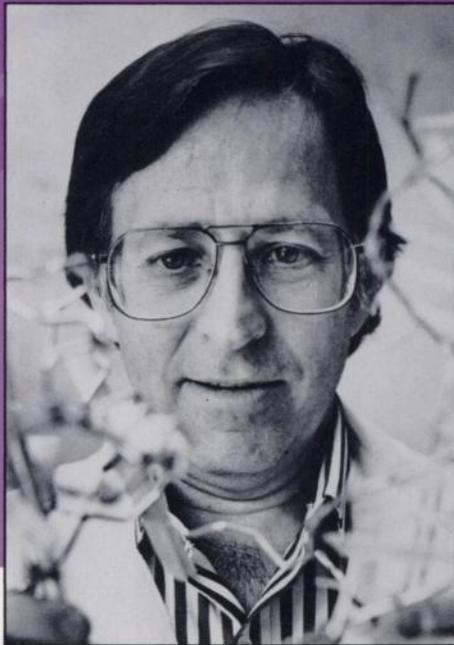
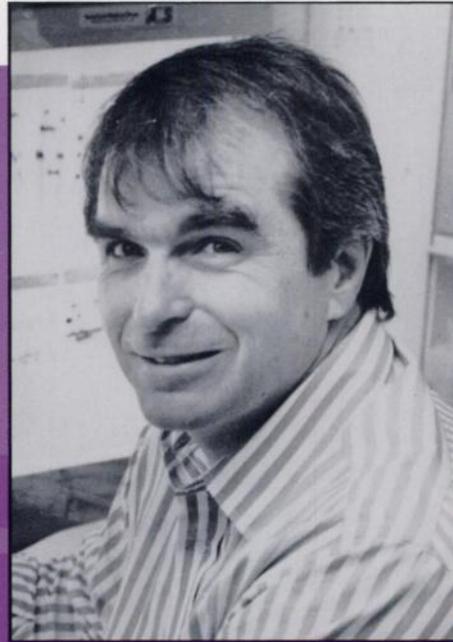
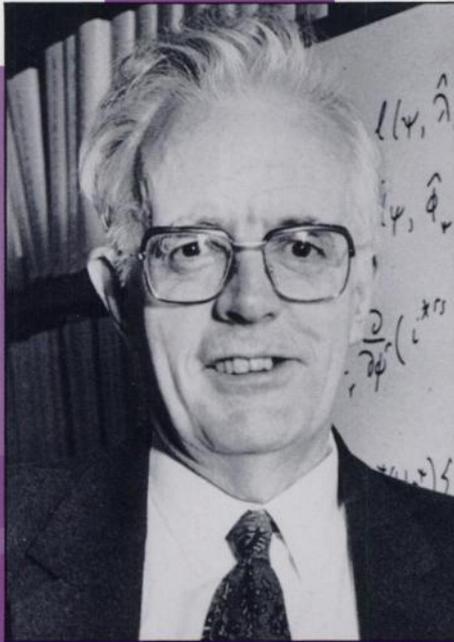


# Cancer Research

OFFICIAL JOURNAL OF THE AMERICAN ASSOCIATION FOR CANCER RESEARCH

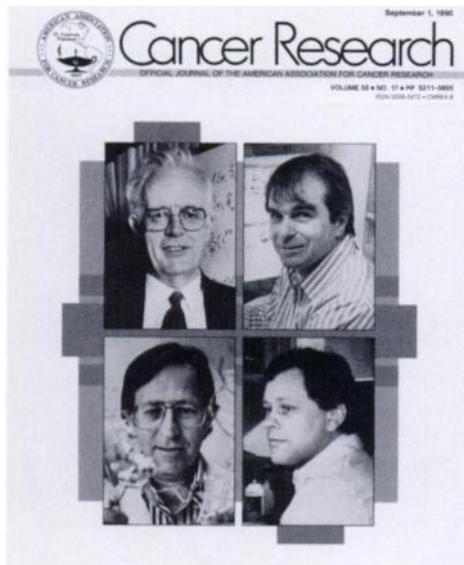
VOLUME 50 • NO. 17 • PP 5211-5605

ISSN 0008-5472 • CNREA 8



# COVER LEGEND

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The impact of molecular genetics on our insights into cancer causation is again exemplified by the 1990 awards of the General Motors Cancer Research Foundation. The Charles S. Mott Prize for Outstanding Contributions to Cancer Cause and Prevention is shared by Webster K. Cavenee, Ph.D., and Raymond L. White, Ph.D. The Alfred P. Sloan Prize for Outstanding Basic Science Contributions goes to Mark S. Ptashne, Ph.D., and the Charles F. Kettering Award for Outstanding Contributions to Cancer Treatment to Sir David Cox, Ph.D., F.R.S. Drs. Cavenee and White in 1983 brilliantly applied the technique of restriction fragment length polymorphism in identifying the loss of one allele of a suppressor gene from chromosome 13 in retinoblastoma, thereby establishing that the hereditary nature of this disease involves the loss of a normal suppressor allele, thus triggering a carcinogenic response from an originally defective gene, as proposed by a 1988 GM awardee, Alfred Knudson (*Cancer Research* cover, November 1, 1988). Drs. White and Cavenee have since independently extended the role of suppressor genes in a host of other sporadic and hereditary human cancers of bone, nerve, muscle, and kidney and found that aggressiveness and resistance to therapy are associated with sets of genetic alterations consistent with a clonal evolution model put forth by a 1989 GM awardee,

Peter Nowell, and with cytogenetic observations of another 1989 GM awardee, Janet Rowley (both featured on *Cancer Research* cover, October 1, 1989). Recent reviews are: Mikkelsen, I., and Cavenee, W.K. Suppressors of the malignant phenotype. *Cell Growth & Differ.*, 1: 201–207, 1990 and Scrable, H.J., Sapienza, C., and Cavenee, W.K. Genetic and epigenetic losses of heterozygosity in cancer predisposition and progression. *Adv. Cancer Res.*, 54: 25–62, 1990.

Mark Ptashne is cited for his landmark contributions to mechanisms of regulation of gene expression. He has shown how regulatory proteins can bind DNA and turn genes on and off. What has been of fundamental importance in biology is the discovery that the same basic mechanism of gene regulation applies to all life, from the  $\lambda$  virus to the human genome. These sites of gene and protein interaction are obvious targets for future strategies in experimental approaches to cancer prevention and treatment (Ptashne, Mark. How gene activators work. *Sci. Am.*, 260: 40–47, 1989).

Sir David Cox received the Charles F. Kettering Prize for his invention of a statistical method for analyzing data from clinical trials, allowing more detailed and incisive analysis and interpretation of results (Cox, David and Oakes, G. *Analysis of Survival Data*. Chapman and Hall, 1984). The practical importance of the Cox model in assessing therapies has been great and widespread, according to clinicians.

Dr. Cavenee, *lower right*, is director of the Montreal branch of the Ludwig Institute for Cancer Research and associate professor in the Departments of Pathology, Neurology, Medicine, Biology, and Human Genetics, McGill University, Montreal, Canada. Dr. White, *upper right*, is professor and cochairman of the Department of Human Genetics and Investigator in the Howard Hughes Medical Institute, University of Utah School of Medicine, Salt Lake City. Mark S. Ptashne, *lower left*, is professor of biochemistry and molecular biology, Harvard University, and Sir David Cox, *upper left*, is Warden of Nuffield College, Oxford.

Each award is for \$100,000, and awardees are given an additional \$30,000 to support a workshop of their choice. Photographs and information were kindly provided by Peter J. Peterson of the General Motors Cancer Research Foundation.

Sidney Weinhouse