

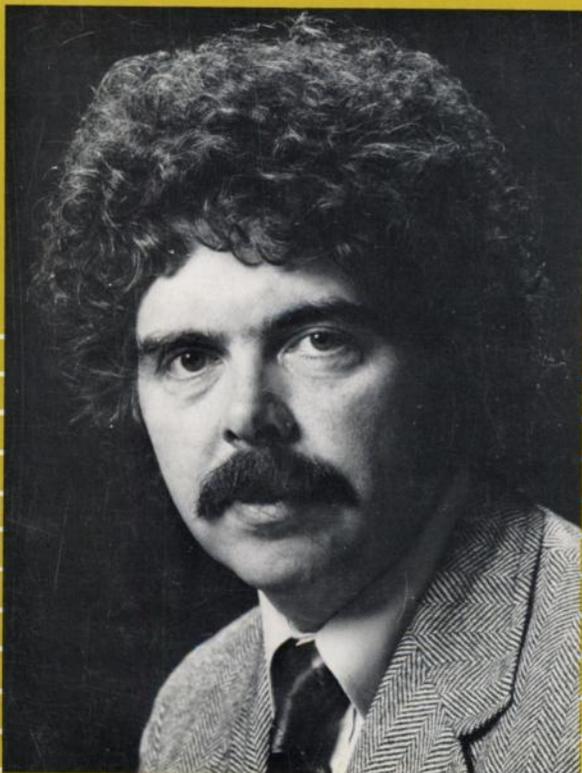
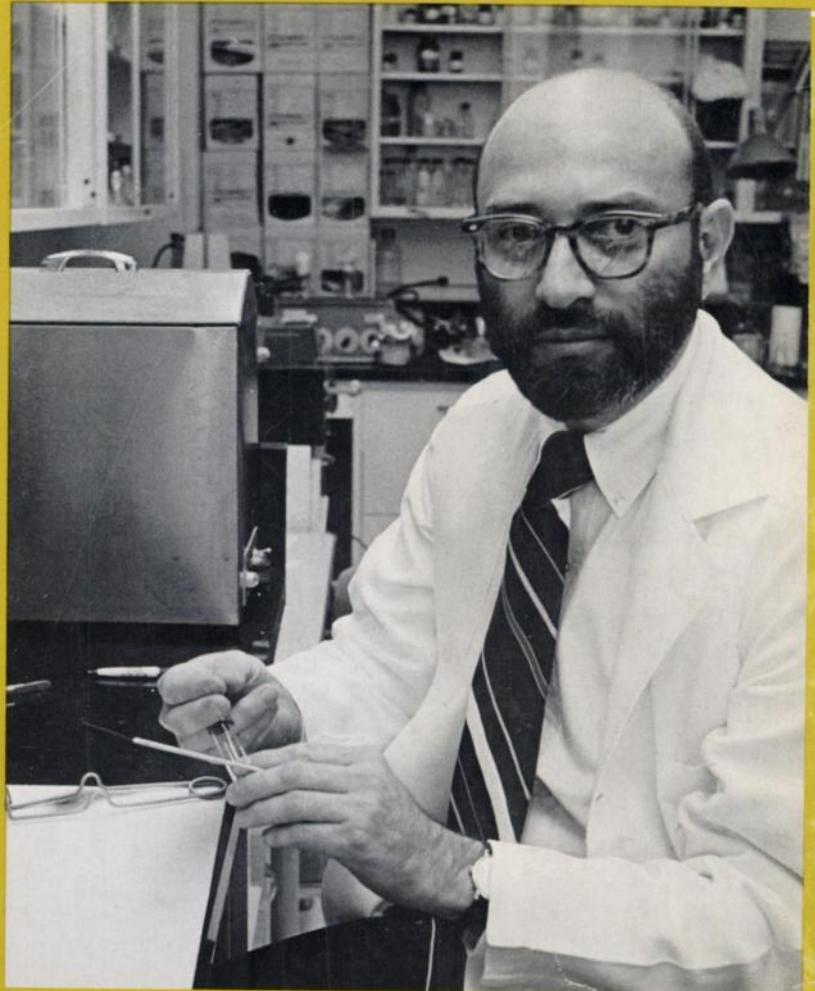
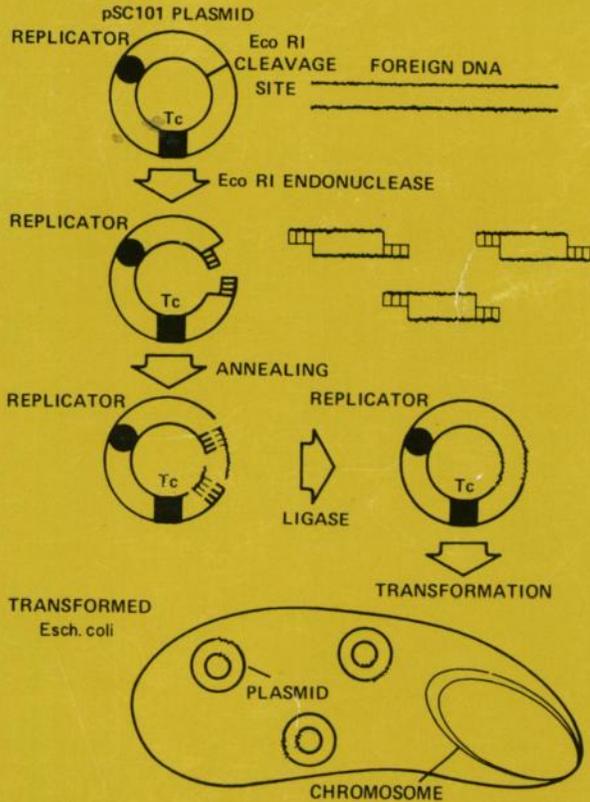


# Cancer Research

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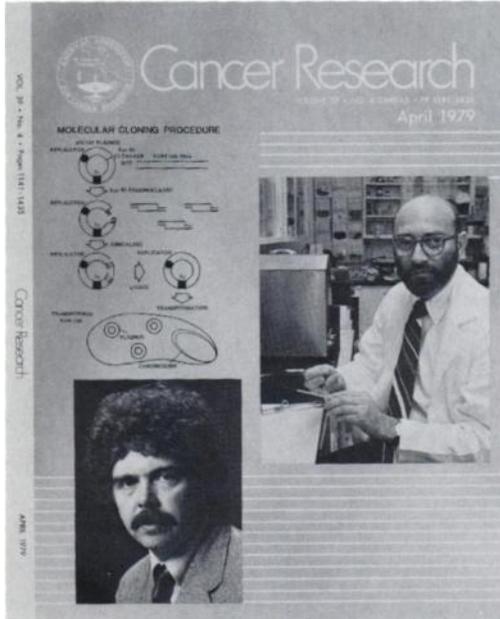
April 1979

## MOLECULAR CLONING PROCEDURE



# COVER LEGEND

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Recombination of DNA was made possible by four discoveries during the last decade: breaking and joining DNA molecules; gene carriers that can replicate themselves and link foreign DNA segments; introduction of DNA into foreign cells; and selection of clones of molecular chimeras.

In 1973, Stanley N. Cohen and Annie C. Y. Chang of Stanford University and Herbert W. Boyer and Robert B. Helling of the University of California at San Francisco reported (Proc. Natl. Acad. Sci. U. S., 70: 3240-3244, 1973) "the construction in a test tube of biologically functional DNA molecules that combined genetic information from two different sources." Segments of two different plasmids of the colon bacillus *Escherichia coli* were replicated and expressed genetic information of both parent plasmids. Plasmid genes from an unrelated

bacterial species, *Staphylococcus aureus*, were also successfully introduced into *E. coli*, and later (Proc. Natl. Acad. Sci. U. S., 71: 1743-1747, 1974) some genes from the toad *Xenopus laevis* were inserted into *E. coli* cells. The developments are recorded by Cohen in his articles on gene manipulation that appeared in the July, 1975, issue of *Scientific American* and the April 15, 1976, issue of *New England Journal of Medicine*.

Stanley N. Cohen was born in 1935 in New Jersey and was educated at Rutgers University and the University of Pennsylvania School of Medicine, where he received his M.D. degree in 1960. He has been a faculty member of the Department of Medicine of Stanford University School of Medicine since 1968, rising to full professor in 1975.

Herbert W. Boyer was born in 1936 in Pittsburgh, Pennsylvania, and was educated at the University of Pittsburgh, where he received his Ph.D. in bacteriology in 1963. Following a postdoctoral fellowship at Yale University, he joined the University of California at San Francisco, rising to full professor in 1976.

The practical and theoretical implications of recombinant DNA have made it a topic of national and, indeed, international interest and concern. It is inevitable that recombinant DNA research will be useful in studies on mechanisms that control gene function and thus will contribute to oncology as well as to other areas of biomedical research. The complex history of the topic is told from one viewpoint by John Lear (*Recombinant DNA. The Untold Story*, New York: Crown Publishing, 1978).

We are indebted to Professor Cohen (*right*) and Professor Boyer (*left*) for the material and information.

M.B.S.