



## WE FIND PATHS WHERE OTHERS FAIL TO LOOK

At the Sandoz Cytokine Development Unit (CDU), we are exploring new paths of research and development and studying more options in disease treatment than were ever thought possible. Using the latest technology, the CDU is working to develop these treatments rapidly, with the same high-quality standards we have always upheld.

At the CDU, our commitment to research and development is unsurpassed. Sandoz created the

CDU as an independent unit, fueled by the dedication of specialized personnel. These highly skilled individuals have been brought together for a common goal-to explore new paths of therapy.



## **COVER LEGEND**





Pictured on this issue's cover is Lee W. Wattenberg, President of the American Association for Cancer Research (AACR) during the current period 1992–1993. Dr. Wattenberg, Professor of Pathology and Laboratory Medicine at the University of Minnesota School of Medicine, is distinguished by a long career devoted to cancer prevention and, in particular, chemoprevention. Early in his career he recognized that in between efforts at eliminating exposure to cancer-producing substances and early diagnosis of the disease was a vast area in which relatively little was being done to help human subjects. In 1966, he published a paper, entitled "Chemoprophylaxis of Carcinogenesis: A Review" (Cancer Res., 26: 1520, 1966), in which the scattered literature on the use of chemical compounds to prevent the occurrence of cancer was brought together. It recognized the promise of this type of strategy for filling the gap described above, provided an organizational framework, and constituted a beginning effort at moving chemoprevention into a modern research endeavor.

In his earliest studies, dating from 1965, Dr. Wattenberg identified as chemopreventive agents compounds such as flavones, phenothiazines, a variety of phenolic antioxidants, thiocarbamates, and later, with Ernest Bueding, dithiolethiones such as oltipraz. His contributions also include the finding of preventive substances in food. Most of these substances are minor, nonnutrient constituents of vegetables and fruits. They include aromatic isothiocyanates, glucosinolates, phenols, and polyphenols found in cruciferous vegetables; terpenes in citrus fruit and some oils; organosul-

fur compounds in garlic and onions; and cyclic hydrocarbons from coffee oil. The occurrence of inhibitory compounds in the nonnutrient component of foods of plant origin buttresses epidemiological and experimental studies pointing to the protective effects of consumption of vegetables and fruits and provides a possible basis for food selection to minimize cancer risk. Dr. Wattenberg has categorized preventive agents into three classes according to their modes of action: compounds that prevent carcinogen activation; compounds that prevent potential carcinogens from reaching or reacting with target sites (so-called blocking agents); and those that act to suppress neoplastic development after effective exposure to carcinogens (so-called suppressing agents). Administration of combinations of blocking and suppressing agents may be particularly useful, as reported by Clement Ip and Howard E. Ganther (Carcinogenesis, 12: 365, 1991).

Shortly after his graduation from the College of the City of New York in 1941, Dr. Wattenberg went to work on the Manhattan Project at the University of Chicago. In 1946, he enrolled at the University of Minnesota Medical School, from which he received the M.D. in 1950. He then entered residency training in the Department of Pathology of the University of Minnesota. Upon completion of this program, he became a member of that department and has remained there since, with the exception of two years at Walter Reed Medical Center in Washington (1952–1954) and a year at the Chester Beatty Research Institute, London (1964–1965).

Dr. Wattenberg has been a major force in the field of chemoprevention. Beyond his own contributions, he has been active in organizing and chairing meetings and conferences on chemoprevention, has advised the National Cancer Institute on its chemoprevention program, and has urged and directed other organizations in advancing this field. For his contributions to this field, he received the Naylor Dana Award of the American Health Foundation in 1991. He has served on numerous committees of the AACR and other scientific societies and has organized conferences and symposia on cancer prevention, including one by the AACR.

Since 1983, Dr. Wattenberg has been an Associate Editor of the journal *Cancer Research*. He also serves as a member of the Editorial Advisory Board of the ACCR's new journal in the field, *Cancer Epidemiology, Biomarkers & Prevention*. In February 1995, he will cochair the Third Joint Meeting of the AACR and the Japanese Cancer Association in Maui, Hawaii, on "Advances in Cancer Prevention and Treatment: Molecular Biology and Other Approaches." He is the author or coauthor of 132 research papers and reviews, of which the most recent are "Inhibition of Carcinogenesis by Minor Dietary Constituents" (Cancer Res., 52: 2085s, 1992) and "Inhibition of Carcinogenesis by Minor Nutrient Constituents of the Diet" (Proc. Nutr. Soc., 49: 173, 1990).

Sidney Weinhouse