

Zena Werb, Ph.D.

Brief Biography 01/08

Zena Werb grew up in Canada and received a BSc in Biochemistry from the University of Toronto. She received a Ph.D. in Cell Biology from Rockefeller University, working with Dr. Zanvil Cohn on macrophages. Her postdoctoral fellowship at Strangeways Research Laboratory in Cambridge England introduced her to proteases. She joined the faculty of University of California as an Assistant Professor in 1976, became an Associate Professor in 1980, and was promoted to Professor in 1983. Dr. Werb is currently Professor and Vice-chair of the Department of Anatomy and member of the Program in Biological Sciences and Biomedical Science Program at the University of California, San Francisco.

Dr. Werb is recognized internationally for her original and fundamental discoveries about the molecular and cellular basis of extracellular matrix (ECM) proteolysis and its role in the normal functioning and pathogenesis of tissues. Her studies have fostered new paradigms about the role of the cellular microenvironment and intercellular communication in development and cancer. Her remarkable achievement was to establish, starting before the advent of molecular biology, that the correct extracellular matrix was critical to maintaining the differentiated state of cells and by extension, that its alteration was as important a contributor to cancer development as mutations. She pioneered the concept that extracellular proteolysis is a mechanism of altering extracellular signaling when most people regarded proteolysis as destructive only. Dr. Werb's discoveries has lead directly to the emerging concept of the tumor as an aberrant organ and has produced paradigm shifts in our thinking about cancer and novel therapies targeted to the stromal microenvironment. She has been a pioneer in demonstrating that three-dimensional architecture is critical in integrating signaling pathways that regulate normal function, malignant behavior and cell-death resistance in mammary epithelium. Her studies have provided the mechanistic underpinnings for this hypothesis and have had wide-ranging influences on the fields of cell biology and cancer biology. Dr. Werb has led the field in defining the critical role of MMPs in embryonic implantation, mammary and bone development and angiogenesis in vivo, and developed a new understanding of how MMPs are central players in stem cell biology and in neoplastic progression.

Dr. Werb has an impeccable international reputation both as a cell biologist and as a cancer biologist. She has received many honors and awards including a John Simon Guggenheim Foundation Fellowship, the R.R. Bensley Award of the American Association of Anatomists, election to Fellowship in American Association for the Advancement of Science, FASEB Excellence in Science Award, and the Charlotte Friend Award of the American Association for Cancer Research and the E.B. Wilson Medal from the American Society for Cell Biology. She has the honorary degree of Doctor in Medicine from the University of Copenhagen. Dr. Werb is a member of the Institute of Medicine of the National Academy of Sciences and a fellow of the American Academy of Arts and Sciences. She has been an elected officer of the American Society for Cell Biology, the American Association for Cancer Research, the American Society for Matrix Biology and AAAS. She was the elected President of the American Society of Cell Biology for 2005. She is a recipient of the Alexander von Humboldt Research Award, Germany. Dr. Werb has published more than 400 papers. She has given numerous presentations and honorary lectures during her career. She has served on the editorial boards of many journals including *Cell*, *Cancer Cell* and *Molecular Biology of the Cell*. She was a member of the Board of Scientific Councilors of the National Institute on Arthritis, Skin and Musculoskeletal Diseases and currently serves on numerous academic advisory boards. Dr. Werb has trained numerous students and post-doctoral fellows, who have gone on to distinguished careers in academia and industry