MERIT Awards

The NIEHS is pleased to announce that **Christopher A. Bradfield**, a professor of oncology at the University of Wisconsin at Madison, and **Michael B. Kastan**, chairman of the Department of Hematology/Oncology at St. Jude Children's Research Hospital, have each received an award under the Method to Extend Research in Time (MERIT) Award Program. MERIT awards are offered to investigators who have demonstrated superior skill and outstanding productivity during the course of their previous research endeavors. MERIT awards relieve investigators from writing frequent renewal applications by providing the opportunity to gain up to 10 years of support in two segments.

Bradfield is interested in understanding the significance and role of the family of transcriptional regulators known as PAS proteins, which control a number of processes including xenobiotic metabolism, circadian rhythms, angiogenesis, and neurogenesis. For the past 10 years he has concentrated on the upstream events in the Ah receptor (AHR) signal transduction pathway and showing the importance of the PAS domain in binding and dimerization with its partner protein ARNT (AHR nuclear translocator). He has developed genetic systems in yeast and mice that allow first the identification of genes required in signaling pathways and then an understanding of the physiological function of the proteins. He is a recognized leader in the field of the mechanism of dioxin action, and his research is widely held to engage in state-of-the-art approaches with innovative applications. Findings from these approaches will not only be important for an understanding of the function and control of the AHR, but also for understanding the role of PAS proteins as environmental sensors.

Kastan is a recognized leader in the field of signal transduction pathways, conducting important basic research in elucidating the molecular steps involved in cellular responses to DNA damage. He observed that wild-type p53 protein was induced following DNA damage in cells, and that *p53*, a commonly mutated gene in cancer tumors, exerts its growth-inhibitory effects following certain types of DNA damage. Exposure to environmental carcinogens—the majority of which damage DNA—appears to contribute to the development of a high percentage of human tumors. Therefore, slinking this commonly mutated cancer gene to the control of cell cycle arrest and apoptosis following DNA damage has provided invaluable insights into mechanisms of tumor development in humans. In addition, *p53* is involved in the stress-signaling pathway and is a central mediator activated in response to oxidant injury. His continued research into *p53* signaling should provide significant new information that has implications for both environmental carcinogenesis and tumor therapy.