IN MEMORIAM

Bruce S. McEwen, Ph.D.

Mary Jeanne Kreek¹*Neuropsychopharmacology* (2020) 45:1079; <https://doi.org/10.1038/s41386-020-0645-8>

Bruce S. McEwen, Ph.D., died on January 2, 2020 at the age of 81, after a brief illness following a stroke in late-December. At the time of his death, Dr. McEwen was the Alfred E. Mirsky Professor and Head of the Harold and Margaret Milliken Hatch Laboratory of Neuroendocrinology. He was born in 1938 in Fort Collins, Colorado and grew up in Ann Arbor, Michigan. He graduated from Oberlin College in Ohio, where he majored in Chemistry. For his graduate studies he came to the Rockefeller Institute for Medical Research and became a member of Alfred Mirsky and Vincent Allfrey's laboratory. He graduated with a Ph.D. degree in 1964. Dr. McEwen did a brief postdoctoral training in Sweden. He returned to Rockefeller, renamed the Rockefeller University after around 65 years as the Rockefeller Institute, in 1966 as an assistant professor. He was promoted to associate professor in 1971, to Professor and Head of Lab in 1981, and was named the Alfred E. Mirsky Professor in 1999. He was elected to the American College of Neuropsychopharmacology (ACNP) in 1998, and became the inaugural winner of the *Neuropsychopharmacology* Editors' Award for a Review (NEAR) in 2017.

Dr. McEwen was internationally renowned for his extraordinary research documenting the profound role of stress and stress hormones, specifically the cortisol-like corticosterone steroid in rodents, on both brain structure and function. In 1968, Dr. McEwen and his colleagues first showed that the hippocampus is significantly altered by circulating stress hormones. In further research, he discovered that chronic and unavoidable stress actually reduces the numbers of neurons in the dentate gyrus. Subsequently, he also found that stress hormone action in the brain impacts immunity. Further, he also documented that the hormonal fluctuations that occur during the normal menstrual

cycle alter brain structures and that estrogens may induce formation of new synapses in the hippocampus

For over five decades, Dr. McEwen continued to conduct outstanding laboratory-based research, primarily in rodent models, to increasingly elucidate the details of how stress, stress hormones, and sex hormones impact specific aspects of brain function, with focus on the hippocampus. He incorporated techniques of neurobiology, endocrinology, and behavioral science in his work. More recently, he collaborated with his wife, Karen Bulloch, Ph.D., a Rockefeller University Research Associate Professor, to study immune cells in the brain that are known to increase with age, and based on their work and others, now known to play a role in both inflammation and neurodegenerative disease.

In recent years, he also reached out to increase our understanding on how the individual experiences, lifestyles, and environmental factors, such as nutrition, physical activity, and economic status, may impact child development and lead to significant inequality in health.

Over his career, he published hundreds of papers on basic laboratory-based research, which help elucidate the details of the effects of stress, stress hormones, and other factors on the specific factors of brain activity and connectivity.

In more recent years, Dr. McEwen was the author of many lay-language publications, which included his book published in 2002 "The End of Stress as We Know it". He was also a superb teacher, both to graduate students and postdoctoral fellows, and served as faculty advisor for the Rockefeller University initiative "Parents and Science", since its inception in 2007.

Dr. McEwen was recognized with many prestigious awards, including the Scolnick Prize in Neuroscience from the McGovern Institute of MIT, and the William James Lifetime Achievement Award for Basic Research presented in honor of the 25th Anniversary of American Psychological Society. He also was an elected member of the National Academy of Sciences, the National Academy of Medicines, and the American Society of Arts and Sciences.

As co-investigator of an active Cornell-Rockefeller neuroscience grant, Dr. McEwen clearly planned several more years of outstanding research at the intersection of stress, specific hormones, and specific drugs on the brain. Throughout his career, Dr. McEwen was a close friend and helpful colleague, as well as a superb basic scientist. He will be missed by all his colleagues at the Rockefeller University, and scientists in related fields throughout the nation and world. He is survived by his wife and a warm and loving family.

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