

New Model for Studying Traumatic Brain Injuries



Barry Ganetzky

Professor, Genetics, Steenbock Professor of Biological Sciences

CURRENT RESEARCH

Small flies help provide big answers about traumatic brain injury

Most common in sports, car accidents, and falls, traumatic brain injury (TBI) can result in severe short-term and long-term consequences for affected individuals. It is the leading cause of death for people under the age of 45 in the US, and 2.5-6.5 million people are living with the consequences of TBI, including both neurological and non-neurological disorders. Unfortunately, there are no therapies currently available to improve TBI outcomes. Since 1985, at least 21 clinical trials have been conducted, and none have shown a significant benefit, potentially due to the highly complex series of molecular events triggered by TBI. Drs. Barry Ganetzky and David Wassarman, at the University of Wisconsin-Madison, have developed new ways to study TBI using *Drosophila* (fruit flies) as a simple experimental model. With this model, Drs. Ganetzky and Wassarman hope to understand how cellular and molecular pathways are affected and altered by TBI, which will ultimately help develop therapies to reduce its consequences.

These two investigators have a long history of influential research using *Drosophila*, much of which has had an important impact on human disease. Experts in Genetics and Molecular Biology, respectively, Drs. Ganetzky and Wassarman possess a deep understanding of *Drosophila*, its advantages as an experimental organism and its biological systems. Now, they have combined their expertise to pioneer a cutting-edge line of research, using for the first time, a simple invertebrate organism as opposed to vertebrate rodent models to investigate TBI. *Drosophila* is unique in that it enables almost unlimited experimental capabilities as well as accuracy and reproducibility; the functions, structure, and the...

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AFFILIATION

 University of Wisconsin-Madison

EDUCATION

- B. S. with Honors and Departmental Distinction in Biology 1971, University of Illinois-Chicago
- Ph.D. in Genetics 1976, University of Washington
- Postdoctoral in Neurogenetics 1976, California Institute of Technology

AWARDS

- NIH Career Development Award, 1982-1987
- Steenbock Professorship in the Biological Sciences, 1995-2015
- Elected to the National Academy of Sciences, 2006
- University of Illinois-Chicago Alumni Achievement Award, 2012
- UW-Madison Hilldale Award in Biological Sciences, 2013

RESEARCH AREAS

Life Science, Metabolic / Diabetes, Neurological / Cognitive, Diagnostics

FUNDING REQUEST

Your contributions will fund the continued research of the Ganetzky and Wassarman team at the University of Wisconsin-Madison as they probe into the cellular and molecular pathways of fruit flies to study traumatic brain injury. The resources of \$250K-500K/year supporting personnel, supplies, and equipment will help the team perform experiments with cutting-edge technologies that are critical for understanding the deleterious physiological consequences of mechanical injury to the brain.