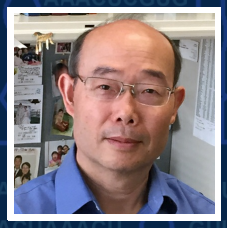
Overcoming Viruses



Biao Ding
Professor, Molecular Genetics

CURRENT RESEARCH

Understanding viral genome evolution to seek solutions in inhibiting infections

Viral infection is a constant threat to human health and agricultural production. New variants always appear that may render antiviral therapies, like vaccines, ineffective. Some new viruses are transmitted from animals to humans to cause devastating diseases, and it is critical to understand the structure of a viral genome to develop therapies that inhibit infection. Dr. Biao Ding, Professor of Molecular Genetics at The Ohio State University, studies the 3-dimensional (3D) structure of a viral RNA genome to lay a foundation for identifying new drug targets, in a field where there has been a general lack of productive tools to investigate the RNA 3D motif structure-function relationships at the whole genome level by virologists. His group is currently pioneering the integration of different cutting-edge approaches to genome-wide 3D structural prediction and validation and to approach these from an evolutionary perspective. To identify the rules that dictate how a virus genome will change and evolve over time, Dr. Ding is developing novel methods that will probe the 3D structure of the RNA, facilitating breakthroughs in the research field of infectious diseases, including the HIV and the Ebola viruses.

The structure of a viral genome is the backbone of how it functions to establish infection and how it evolves to invade new tissues and new species. Developing structural models of viruses is therefore extremely important to predict the emergence of new virus variants, and to advance innovative preventive and curative therapeutics. Dr. Ding foreruns these models to identify the 3D motifs in the viral RNA that may change very slowly or are conserved among different viruses, in hopes of using them as potential...

Read More at benefunder.com/

AFFILIATION

Ohio State University

EDUCATION

- Ph.D. in 1991,Cornell University
- M.S. in 1986,Cornell University
- B.S. in 1982,Beijing Forestry University, Beijing, China

AWARDS

- Fellow, American Association for the Advancement of Sciences, Elected 2012
- Harlan Hatcher Memorial Award for Excellence, 2005
- Outstanding Overseas Youth Research Award, 1/1/2005-12/31/2007
- The College of Arts and Sciences Faculty Council Junior Faculty Award for Scholarly Excellence, 1999
- Graduate Fellowship for Overseas Studies, 1983-1985

RESEARCH AREAS

Life Science, Infectious

FUNDING REQUEST

Your contributions will support the continuing research of Dr. Biao Ding of The Ohio State University as he develops novel models to understand 3D RNA structures. Donations will help fund the $200K/year required to support a robust team of talented researchers, supplies, and travels to professional conferences. The knowledge of RNA 3D structures will expedite further advancements in drug designs to treat viral infections and other diseases. Partner with his team today to shed light on fundamental mechanisms of virology!