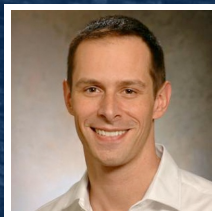


When Stress Causes Disease



Allan Drummond

Assistant Professor, Biochemistry & Molecular Biology Assistant Professor, Human Genetics

CURRENT RESEARCH

Guiding treatments and cures for neurodegenerative diseases

Stress comes in many forms—for us, a hard day of work, and for our cells, unexpected changes in their environment, from temperature swings to injury to infection. Dr. Allan Drummond, Assistant Professor of Biochemistry and Molecular Biology at the University of Chicago, studies how cells respond to stress at the molecular level. In particular, he studies a largely unexplored process by which stress triggers an assembly of massive, complex aggregates inside the cell, much as a traumatic event in human affairs might trigger the assembly of large crowds of people in a city. Many neurodegenerative diseases involve similar massive aggregates, and Dr. Drummond's work is likely to be an important model for understanding and ultimately treating and preventing these diseases.

By figuring out how cells respond to stress, Dr. Drummond and his team hope to control and exploit cells' molecular tools for human purposes. Thus, he and his team are able to develop cheap, nontoxic, robust, and functional molecular tools that can control molecules and chemical reactions in novel ways. Specifically, he and his team are using self-assembling molecules to control the locations of reactants in chemical reactions, allowing them to do things, like protein purification, that until now required expensive equipment. Therefore, his research is likely to transform how science is done and who can do it! Secondly, Dr. Drummond's work on understanding how cells sense and respond to stress aims to provide a way to control those same cellular processes. This is a critical step towards developing preventions, therapies, and perhaps even cures for neurodegeneration.

Current research includes:

- Stressed Cells:...

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AFFILIATION

 University of Chicago

EDUCATION

- B.S.E., in Mechanical & Aerospace Engineering, 1995 , Princeton University
- Ph.D., in Computation & Neural Systems, 2006 , California Institute of Technology

AWARDS

- Pew Scholar in the Biomedical Sciences, Pew Charitable Trusts
- Sloan Research Fellow, Alfred P. Sloan Foundation
- Pritzker Scholar, University of Chicago
- Milton and Francis Clauser Doctoral Prize (thesis prize, all fields), California Institute of Technology
- Demetriades-Tzafka Prize in Bioengineering, California Institute of Technology

RESEARCH AREAS

Health & Wellness, Wellness, Aging Research

FUNDING REQUEST

Your contributions will support the continued research of Dr. D. Allan Drummond, at the University of Chicago, as he figures out how cells respond to stress in order to control cells and exploit their molecular tools. Donations will fund the necessary \$500K/year required for personnel, services, and supplies. Join in pushing the frontiers of human knowledge in ways that will fundamentally transform how we understand, prevent, and treat neurodegenerative diseases.