NIH Award from the National Institute of Neurological Disorders and Stroke

Principal investigator: Anis Contractor, physiology
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- **Project:** Kainate Receptor Signaling at Excitatory Synapses
- **Start Date:** July 27, 2009
- **Total Award Amount:** $37,308

**How the results of this project will benefit society:**
Kainate receptors are glutamate-gated neurotransmitter receptors that are critical to synaptic signaling and cellular excitability in the central nervous system. Pathophysiological activation of these receptors has been linked to several important neurological conditions including chronic pain, neuroinflammatory demyelinating diseases, and temporal lobe epilepsy. The goals of this study are to delineate the actions of kainate receptors at synapses and to comprehensively uncover their roles in modulating neuronal excitability, thus providing further validation of these receptors as potential therapeutic targets.

**The problem the project is trying to solve:**
This proposal is a request for support of the Northwestern University pre-doctoral training program in molecular biophysics. Past support from the training grant has played a major role in stimulating interdisciplinary interactions between faculty, students and post-doctoral fellows within five participating departments in the Weinberg College of Arts and Sciences, the McCormick School of Engineering, and the Feinberg School of Medicine. The hiring of many faculty in biology, chemistry and engineering departments with research interests in molecular biophysics has generated a highly-interactive research environment focused on the application of quantitative physical methods and approaches to problems of macromolecular structure and function.

**How this project will work:**
The Biophysics Training Program benefits from access to state-of-the-art equipment facilities, including instrumentation within the Keck Biophysics Facility, two beamlines for macromolecular crystallography at the Advanced Photon Source and other key research resources.

The training program has a core biophysics curriculum to be followed by students entering through each of the participating graduate programs, providing a common didactic experience to students with diverse educational backgrounds. Advanced graduate-level courses in key research areas of the program, such as structural biology, are central to the training experience. Students also participate in monthly Biophysics Club and Journal Club meetings, and attend a Biophysics Seminar Series as part of the program.

Support for biophysics students is requested for the second through fourth years of graduate education, enhancing the training program role in mentoring students through key stages of their graduate studies.

This award is issued under the American Recovery and Reinvestment Act of 2009, NIH Award number: 3T32GM008382-17S1.