NIH Grant Watch

Macromolecular Crystallography; Cytokinesis Probes

BioTechniques and NIH Sales reviewed grants made by the National Institutes of Health during the last 30 days. Here are some highlights from among the largest R01 grants awarded during February 2009.

Time-Resolved Macromolecular Crystallography \$581,972

(2R01GM036452-24, National Institute of General Medical Sciences)

John Moffat (University of Chicago, Chicago, IL)

Goal: To increase understanding of the dynamic changes in protein structure during catalysis, ligand binding and release, protein folding, and signal transduction, by using high-resolution time-resolved crystallography to detect structural intermediates with durations as small as picoseconds. Specifically, time-resolved crystallographic experiments will elucidate the mechanism of light-dependent signal transduction in selected water-soluble photoreceptors at the atomic level.

Small-molecule Probes of Cytokinesis \$444,002

(5R01GM082834-02, National Institute of General Medical Sciences)

Ulrike Eggert (Dana Farber Cancer Institute, Boston, MA)

Goal: To elucidate the mechanism of cytokinesis by using three small molecules that inhibit cell division. An interdisciplinary approach involving chemistry, imaging techniques, and biochemistry will be employed to probe the cellular targets of these small molecules and their activity in contractile ring assembly, constriction, and regulation of cytokinesis.

Dynamic Fluorescence Studies of DNA-protein Complexes \$407,550

(2R01GM044060-15A2, National Institute of General Medical Sciences)

David Millar (Scripps Research Institute, La Jolla, CA)

Goal: To understand how DNA polymerases achieve high-fidelity DNA replication. The program plans to develop single-molecule fluorescence methods and to use mutation analysis to investigate the movement of protein domains relative to the DNA substrate during nucleotide selection and proofreading in the Klenow fragment of *Escherichia coli* and RB69 bacteriophage DNA polymerase models.

Transcription Factor Mutants of Yeast \$402,974

(2R01GM052593-14, National Institute of General Medical Sciences)

Karen Arndt (University of Pittsburgh, Pittsburgh, PA)

Goal: To identify factors that regulate transcription by RNA polymerase II and to elucidate their mechanisms of action using the Paf1 complex in *Saccharomyces cerevisiae* as a model. The project will be accomplished through in vivo and in vitro elongation assays, genetic and biochemical interaction studies, chromatin immunoprecipitation, and Northern analyses.

A Core Database of Interacting Proteins (DIP) \$373,872

(5R01GM071909-04, National Institute of General Medical Sciences)

David Eisenberg (University of California Los Angeles, Los Angeles, CA)

Goal: To define a core set of methods for the assessment of data quality that will allow the inclusion of experimental data submitted directly from primary authors to the Database of Interacting Proteins (DIP). Once the methods are defined, they will be used to assemble a core set of highly reliable interaction data that will permit the construction of networks of interacting proteins. DIP will also be extended by the addition of two more catalogs: LiveDIP, which will focus on protein interactions in defined states, and ProLinks, which will include functional relationships between proteins inferred from genomic and proteomic data.

Selected and written by Kristie Nybo and Bruce Perry.

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