

National Science Foundation



Quantitative Cell Biology; Funding Opportunities

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Cellular Dynamics and Function

Division of Molecular and Cellular Biosciences



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Federal Research and Education Agency

Vision

Advancing discovery, innovation and education beyond the frontiers of current knowledge and empowering future generations in science and engineering

Core values

Visionary
Dedicated to excellence
Broadly inclusive
Accountable

Strategic goals

Discovery
Learning
Research infrastructure
Stewardship

NSF Directorates

Biological Sciences

Computer & Information Science & Engineering**

Education & Human Resources

Engineering**

Geosciences**

Mathematical & Physical Sciences**

Social, Behavioral & Economic Sciences



Divisions in the Directorate for Biological Sciences

MCB



IOS

Integrative Organismal Systems

DEB

Environmental Biology



DBI

Biological Infrastructure

THE DIVISION OF MOLECULAR AND CELLULAR BIOSCIENCES ENCOURAGES SUBMISSION OF PROPOSALS THAT ADDRESS

- Quantitative, predictive, theory-driven cell and molecular science
- Such projects are often at the interfaces with the exact sciences





MCB

Directorate

Biological Sciences

Clusters

Molecular Biophysics

Cellular Dynamics and Function

Genetic Mechanisms

Systems and Synthetic Biology

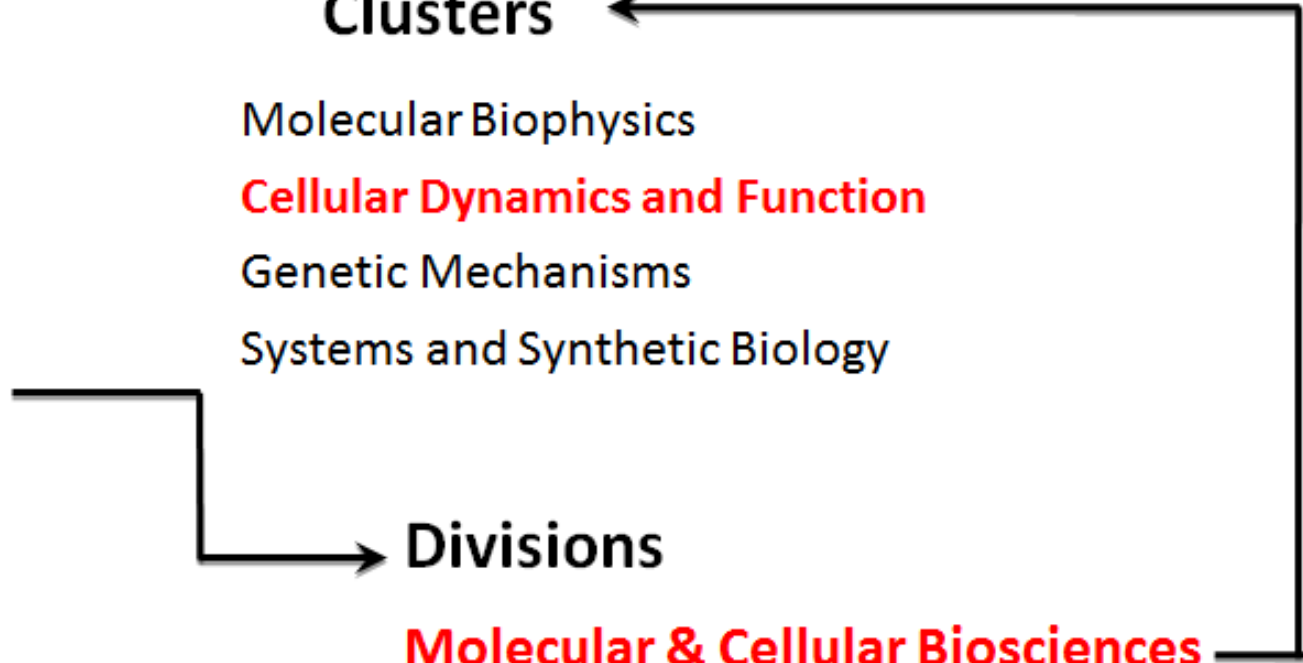
Divisions

Molecular & Cellular Biosciences

Biological Infrastructure

Integrative Organismal Systems

Environmental Biology





Cross-cutting Research Areas Given High Priority in All Clusters in MCB

Integrating Across Scales Integrating knowledge from single molecules to molecular machines and from networks to cellular and organismal complexity

Methods and Resources Developing technologies for molecular and cellular biology research, including biophysical and computational methods for broad application and genetic resources for model systems

Molecular and Cellular Evolution Discovering mechanisms and theoretical underpinnings of evolutionary changes in molecules, genomes, and cells

Synthesizing Life-like Systems Using synthetic molecular parts and processes to understand the transition from simple to complex and to build novel living systems

Genomes to Phenomes Integrating theoretical, computational and high-throughput experimental approaches aimed at understanding and predicting how the genome (and epigenome) gives rise to the phenotype



MCB Cluster Descriptions

Molecular Biophysics

General principles of the relationship between structure, dynamics and function of biomolecules

Fundamental principles governing biomolecular interactions and mechanisms



MCB Cluster Descriptions

Systems and Synthetic Biology

Systems-level, theory-driven analysis of regulatory, signaling and metabolic networks

Synthetic biology to address fundamental biological questions including the origin of life, minimal cell, emergent behavior in complex systems, robustness in design and organization

Tool development to facilitate systems and synthetic biology studies



MCB Cluster Descriptions

Genetic Mechanisms

Gene expression, including epigenetics and RNA-mediated regulation

Chromosome dynamics, DNA replication, repair, recombination and inheritance

Evolution of genes and genomes



MCB Cluster Descriptions

Cellular Dynamics and Function

Predictive understanding of the behavior of living cells through integration of modeling and experimentation

Integrative cellular function across broad spatiotemporal scales, from single molecules to whole cells

Origin, evolution and function of cells, organelles and microcompartments

Funding Opportunities

- Investigator-Initiated Proposals (MCB 13-510; RUI 14-579; CAREER 15-555)
- Topic-Specific Solicitations
- Supplements to active NSF awards

Investigator-Initiated Proposals

- Regular research awards
- Faculty Early Career Development Awards (CAREER)
- Early-concept Grants for Exploratory Research (EAGER)
- INSPIRE (pilot, expected to continue)
- Grants for Rapid Response Research (RAPID)
- Research Coordination Networks (RCN and RCN-UBE)
- Science Across Virtual Institutes (SAVI)
- Conference and Workshop Awards
- Opportunities for International Collaborations





Questions?