

NIH Roadmap National Centers for Biomedical Computing (NCBC)

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Lister Hill Auditorium
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NCBC History

- Top recommendation of the 1999 BISTI report.
 - Co-Chairs: David Botstein and Larry Smarr
- Provide a networked national effort to build computational tools and infrastructure for biomedical computing.
- Cover all facets of biomedical computing,
 - from basic research in computational science
 - to providing the tools and resources that biomedical, clinical, and behavioral researchers need to do their work.
- Acting Chair BISTIC: John Whitmarsh (NIGMS)

NCBC Participants

NIH Roadmap Implementation Working Group Co-Chairs

Donald Lindberg, Director, National Library of Medicine

Jeremy Berg, Director, National Institute of General Medical Sciences

NCBCs funded in 2004

Physics-based Simulation of Biological Structures. Russ Altman, Stanford University

National Alliance for Medical Imaging Computing. Ron Kikinis, B&WH

Informatics for Integrating Biology and the Bedside. Isaac Kohane, B&WH

Center for Computational Biology
Arthur Toga, UCLA

NCBCs funded in 2005

National Center for Integrative Biomedical Informatics. Brian Athey, University of Michigan

National Center for the Multi-scale Study of Cellular Networks. Andrea Califano, Columbia University

National Center for Biomedical Ontology. Mark Musen, Stanford University

NCBC Collaborations

- 7 Centers, each with multiple collaborations
- Each center has 3 to 5 “Driving Biological Problems” that focus NCBC computing development on biomedical research needs.
- Two ongoing program announcements support **new** collaborations with the NCBCs.
 - PAR-07-249: R01 Collaborations with NCBC
 - PAR-07-250: R21 Exploratory Collaborations
 - have their own review
- Each NCBC has a “bridging post-doc” funded to cross between that NCBC and another major biomedical research project.

Some of the funded collaborations

- CCB: James Gee (University of Pennsylvania), “Shape Optimizing Diffeomorphisms for Computational Biology”
- Simbios: Antonio Van Den Bogert (Cleveland Clinic), “Efficient Methods for Multi-Domain Biomechanical Simulations”
- NCBO: James Brinkley (University of Washington), “Realizing the potential of reference ontologies for the semantic web”
- NAMIC: Nicole Grosland (University of Iowa), “Integrating Automated Mesh Development into the NAMIC Toolkit”

NCBC Software and Data Integration Working Groups

[http://na-mic.org/Wiki/index.php/SDIWG:Software and Data Integration Working Group](http://na-mic.org/Wiki/index.php/SDIWG:Software_and_Data_Integration_Working_Group)

1. Cross-NCBC Scientific Ontologies

[http://na-mic.org/Wiki/index.php/SDIWG: NCBC Scientific Ontologies](http://na-mic.org/Wiki/index.php/SDIWG:NCBC_Scientific_Ontologies)

Develop a consistent approach across NCBCs for use and application of ontologies.

2. Yellow Pages and Resourceome (iTools)

[http://na-mic.org/Wiki/index.php/SDIWG: NCBC Resource Yellow Pages and Software Ontologies](http://na-mic.org/Wiki/index.php/SDIWG:NCBC_Resource_Yellow_Pages_and_Software_Ontologies)

Develop XML descriptions of NCBC software/tools/applications and a tool for searching them.

3. Applications of Systems Biology, Modeling, and Analysis

[http://na-mic.org/Wiki/index.php/SDIWG: NCBC Systems Biology](http://na-mic.org/Wiki/index.php/SDIWG:NCBC_Systems_Biology)

Provide tools, data, and methodologies for the analysis of cellular networks and for their use in the dissection of complex traits and biological processes

Leads: Andrea Califano & Brian Athey

Or google "SDIWG" and "NCBC"

2006 NCBC All Hands Meeting

- July 17-19, 2006
- Theme: “Building Bridges”
- Meeting Report:

<http://www.bisti.nih.gov/ahm2006/>

- Dissemination Events
- Building Bridges Compendium: lists related government programs and initiatives (including the TCNPs)

NIH Roadmap NCBC Project Team

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Daniel Gallahan (NCI) bios
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John Haller (NIBIB) 2b2
Peter Highnam (NCRR) NCBI

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