

APPROACHING NIH FOR SUPPORT FOR A COMPUTATIONAL PROJECT

THE BISTI VISION AND YOU

- In ten years, BISTI wants every person involved in the biomedical enterprise--- basic researcher, clinical researcher, practitioner, student, teacher, policy maker--- to have at their fingertips through their keyboard instant access to all the data sources, analysis tools, modeling tools, visualization tools, and interpretative materials necessary to do their jobs with no inefficiencies in computation or information technology being a rate-limiting step.
- In twenty years, much of the information retrieval, analysis, and modeling that people will be doing in ten years should be done by intelligent agents, so that people will be able to deal rapidly, effectively, and rigorously with biomedical issues at the highest conceptual level.
- If you have ideas that can contribute to this vision, and the ability to implement them, we would like you to apply for project support from the NIH.

GENERAL PRINCIPLES

- First Principle: NIH is a mission-driven agency. We support basic science (lots of it) and technology and infrastructure development (on an increasing trend line), but it all must be justifiable by a payoff down the line in improving the health of the American people.
- Corollary Principle: We understand that the payoff may not be immediate, so we support work where the payoff is a decade or more in the future. It is better to present a justification for a reasonable but long-term payoff than to claim an unrealistic short-term payoff.

PERSPECTIVES ON THE ROLE OF COMPUTATION IN BIOMEDICAL RESEARCH AND HEALTH CARE DELIVERY

- We see that non-trivial computation is critical to every aspect of our mission, from the most basic research to the efficient and effective delivery of health care in all venues.
- We see the corollary: Inefficiencies, gaps, and flaws in computation are limiting the pace and scope of all aspects of our mission.
- We have only gotten the message in recent years, so we are a work-in-progress with respect to implementing our understandings about computation in programs and practices.
- We need computer scientists, physical scientists, computational scientists, and information technologists to be partners with experimental biomedical researchers and NIH scientific staff in getting it right.

SOME DRAMATIC SINGULAR SUCCESSES OF COMPUTATION IN BIOMEDICINE

- The computational model for the generation of signals in excitable membranes that has provided a major part of the conceptual framework for molecular and cellular neuroscience for decades.
- The computer model of interaction between the HIV virus and the human immune system that was essential for the design of the multi-drug therapy, which in turn has dramatically reduced deaths from HIV infection in the industrialized world.
- Algorithms and implementation to transform magnetic resonance spectra into images for medical diagnosis.
- Computational techniques for inferring structure of biomolecules from x-ray crystallography.

FINDING OUT WHAT NIH ACTUALLY FUNDS

- CRISP data base ([Google “NIH CRISP”](#)) provides keyword-searchable database of all NIH-funded projects from 1972-2004
- Comprehensive access to publications by NIH grantees provided by author-searchable Pubmed literature database ([Google “pubmed”](#))

PRACTICAL STEPS FOR BUILDING ON YOUR KNOWLEDGE OF WHAT NIH FUNDS TO FIGURE OUT WHAT NIH MIGHT SUPPORT YOU FOR DOING IN BIOMEDICAL COMPUTATION: I. THE PROGRAM SIDE

- First-stop (but not “one stop”) information source is the BISTI home page ([Google “NIH BISTI”](#)), button under “Funding”
- If you don’t find a funding announcement that fits your ideas/capabilities, but you feel you have something to contribute, don’t hesitate to send an unsolicited application. (Receipt dates February 1, June 1, and October 1 each year for new applications). Success rates for unsolicited applications are often as good as, in some cases better than, success rates for proposals submitted in response to specific funding announcements.
- Consult with an NIH Program Director at the concept development stage. This is easy if you are responding to a funding announcement—the right contact information is in the funding announcement. For an unsolicited application, you may need to browse through Web sites for many of the semi-autonomous 27 Institutes and Centers that comprise the NIH, as well as the NIH Roadmap site, that contains information on NIH-wide initiatives. But---NIH is a strongly interconnected community, so if you start calling program staff and the first person you call is not the right person, you will get good direction to the right person fairly quickly.
- A useful resource for funding opportunities is the NIH Guide to Grants and Contracts <http://grants.nih.gov/grants/guide/>
- NIH Funding Opportunities are available in RSS (Really Simple News Syndication) format - see http://grants.nih.gov/grants/guide/rss_info.htm for details.

PRACTICAL STEPS FOR BUILDING ON YOUR KNOWLEDGE OF WHAT NIH FUNDS TO FIGURE OUT WHAT NIH MIGHT SUPPORT YOU FOR DOING IN BIOMEDICAL COMPUTATION: II. FINDING THE RIGHT STUDY SECTION

- First understand this: Program and review staff at NIH collaborate with each other but are independently accountable. This is different from NSF for example, where the same individuals are responsible for both creating program and overseeing review. Therefore, while it is appropriate to discuss review issues with program staff, with respect to review policy and practices, the AUTHORITATIVE information comes from the review side. With that in mind, the following steps are aimed at helping you decide whether you wish to request that your application go to a particular study section, and if so, which one.
- Start with CSR home page (url <http://www.csr.nih.gov/>) or [Google "nih csr"](#) and hit first link
- Click on link for "Study Section Information" and within that link click on "Integrated Review Groups" (or just start at step 2 with url <http://www.csr.nih.gov/review/irgdesc.htm>)
- Scroll down a bit and put your keyword search phrase in the web form space labeled "Search IRG:" and hit "search"
- Hits from step 3 will take you to the web page of any relevant IRG(s). To search within that page for the exact passage and study
 - section description(s) that incorporate your keyword search phrase,
 - click on [Preview document matches]. This will take you to an unformatted text of the full web page for the IRG with your keyword search phrase highlighted wherever it appears. To see the same information in a formatted context:
 - Scroll to the top of the page of the hit from Step 4, and click on the link for the URL of the IRG. This will take you to the IRG Web page itself. To re-find the instances of your keyword search phrase, put the phrase into the "Find (On this page)" utility under the "Edit" tab in your Web browser. This will provide the information in an easy to read and interpret format.
 - To finish evaluating the suitability of any study section for any proposal, look at the roster as well as the description, by the hyperlink to the roster just under the study section title on the Web page of each IRG (Reached by Step 5 above.)
 - Useful information about each of the study section members may be obtained by using that person's last name as a search phrase in the pubmed data base www.ncbi.nlm.nih.gov/entrez/query.fcgi for publications and in the CRISP data base crisp.cit.nih.gov/ for information about that person's support from NIH.

AND FINALLY.....

FOLLOW THE APPLICATION RULES AND GUIDELINES EXACTLY! ([Google "NIH 398"](#) in addition to particular funding announcements. NIH is currently in the process of converting to electronic submission, to find about that [Google "NIH SF424"](#)) If you do everything formally right, that gives program and review staff more time to deal with your scientifically substantive concerns, because they won't have to work around emergent procedural issues.