

Office of Science
Notice DE-FG01-04ER04-15

*Institutes for the
Advancement of Computational Biology Research and
Education*

Department of Energy

Office of Science Financial Assistance Program Notice DE-FG01-04ER04-15; Institutes for the Advancement of Computational Biology Research and Education

AGENCY: U.S. Department of Energy

ACTION: Notice inviting grant applications.

SUMMARY: The Office of Advanced Scientific Computing Research (ASCR) of the Office of Science (SC), U.S. Department of Energy (DOE), hereby announces its interest in receiving applications for institutes for the advancement of computational biology research and education, in support of the ASCR computational biology program, the ASCR-BER (Office of Biological and Environmental Research) DOE Genomic: GTL program, and the broader SC research programs. Prospective applicants should observe that:

- 1) Applications serving two complementary objectives – the advancement of computational biology research as an intellectual pursuit; and innovative approaches to educating biologists as computational scientists – are sought;
- 2) The focus of the proposed effort should be on advancing computational biology research and education as counterbalancing and complementary activities to experimental biology – rather than on computation as a support activity to experimental biology;
- 3) Proposed research and educational activities should be relevant to the mission of the Office of Science and, in particular to the long term goals of the GTL program;
- 4) Proposed activities should include a plan for an active dialogue with industry, universities, and other laboratories and centers in order to maximize the dissemination of information, promote and support technology commercialization, and avoid unnecessary duplication of effort;
- 5) Multiple year funding is not guaranteed, although applicants may request periods of performance ranging up to 3 years.

More specific information on this solicitation is outlined in the Supplementary Information section below.

DATES: The deadline for receipt of formal applications is 4:30 P.M., Eastern Time, Tuesday, April 6, 2004, in order to be accepted for merit review and to permit timely consideration for award in Fiscal Year 2004.

ADDRESSES: Formal applications in response to this solicitation are to be electronically submitted by an authorized institutional business official through DOE's Industry Interactive Procurement System (IIPS) at: <http://e-center.doe.gov/>. IIPS provides for the posting of solicitations and receipt of applications in a paperless environment via the Internet. In order to submit applications through IIPS your business official will need to register at the IIPS website. It is suggested that this registration be completed several days prior to the date on which you plan to submit the formal application. The Office of Science will include attachments as part of this notice that provide the appropriate forms in PDF fillable format that are to be submitted through IIPS. IIPS offers the option of using multiple files, please limit submissions to one volume and one file if possible, with a maximum of no more than four PDF files. Color images should be submitted in IIPS as a separate file in PDF format and identified as such. These images should be kept to a minimum due to the limitations of reproducing them. They should be numbered and referred to in the body of the technical scientific proposal as Color image 1, Color image 2, etc. Questions regarding the operation of IIPS may be e-mailed to the IIPS Help Desk at: helpdesk@pr.doe.gov or you may call the help desk at: (800) 683-0751. Further information on the use of IIPS by the Office of Science is available at: <http://www.sc.doe.gov/production/grants/grants.html>.

If you are unable to submit the application through IIPS, please contact the Grants and Contracts Division, Office of Science at: (301) 903-5212 or (301) 903-3604, in order to gain assistance for submission through IIPS or to receive special approval and instruction on how to submit printed applications.

FOR FURTHER INFORMATION CONTACT: Dr. Gary Johnson, U.S. Department of Energy, Office of Science, SC-31/Germantown Building, 1000 Independence Avenue, S.W., Washington, DC 20585-1290, telephone: (301) 903-5800, fax: (301) 903-7774, E-mail: GaryJ@er.doe.gov.

SUPPLEMENTARY INFORMATION: DOE's Office of Science, in order to accomplish its mission, is faced with the need for computational biology capabilities that far exceed what is currently available. In particular, the Office of Science's needs for its GTL program are documented at the DOE Genomics: GTL web site: <http://www.doegenomestolife.org/>.

The goals of the GTL program are:

- identify the protein machines that carry out critical life functions,
- characterize the gene regulatory networks that control these machines,
- explore the functional repertoire of complex microbial communities in their natural environments to provide a foundation for understanding and using their remarkably diverse capabilities to address DOE missions, and
- develop the computational capabilities to integrate and understand these data and begin to model complex biological systems.

This solicitation announces ASCR's interest in receiving applications for institutes for the advancement of computational biology research and education, serving two complementary objectives:

- **Computational Biology Research:** Developing new computational approaches to support the Office of Science's missions in microbial biology and GTL: and
- **Computational Biology Education:** Developing and implementing programs to educate biologists in the use of computation as a principal tool for biological research and discovery.

As integrated activities are sought, applicants should craft applications that respond to both of these objectives, rather than selecting just one.

With regard to the computational biology research objective, the proposed activity should provide an intellectual home for a scientific community carrying out research enabling the solution of cutting-edge biology problems. Activities should be designed to support interdisciplinary and inter-institutional collaborations. Activities should embrace interdisciplinary teams of researchers, drawn from the physical and life sciences, computational mathematics and computer science. These teams should focus on application development to harness the power of computational science for the solution of data-intensive and/or computation-intensive biology problems. No experimental activities are foreseen. Researchers should draw upon the biological data available from the GTL community, as well as, the broader community. The research objectives should focus on advancing computation as a tool for biological discovery, hypothesis formulation, and providing guidance to future experimentation.

With regard to the computational biology education objective, the proposed activity should develop, implement and disseminate materials for the education of computational biologists at the graduate level. The education program should be tested through actual prototyping and use. The courseware developed should cover as broad a spectrum of both data-intensive and computation-intensive biology problems as possible. Illustrative examples should be drawn from biology applications of interest to the Office of Science, to the extent possible.

The proposed activities should include a plan for playing an active role in maintaining a dialogue with industry, universities, and other laboratories and centers in order to maximize the dissemination of information, promote and support technology commercialization, and avoid unnecessary duplication of effort.

Collaboration

Applicants are encouraged to collaborate with researchers in other institutions, such as universities, industry, non-profit organizations, federal laboratories and Federally Funded Research and Development Centers (FFRDCs), including the DOE National Laboratories, where appropriate, and to include cost sharing wherever feasible. Additional information on collaboration is available in the Application Guide for the Office of Science Financial Assistance Program that is available via the Internet at:

<http://www.sc.doe.gov/production/grants/Colab.html>.

Program Funding

It is anticipated that up to \$3 million will be available in Fiscal Year 2004, contingent upon availability of appropriated funds. It is anticipated that no more than 4 awards will be made. Multiple year funding is not guaranteed, although applicants may request periods of performance ranging up to 3 years.

Merit Review

Applications will be subjected to scientific merit review (peer review) and will be evaluated against the following evaluation criteria, which are listed in descending order of importance codified at 10 CFR 605.10(d):

- 1) Scientific and/or Technical Merit of the Project,
- 2) Appropriateness of the Proposed Method or Approach,
- 3) Competency of Applicant's Personnel and Adequacy of Proposed Resources,
- 4) Reasonableness and Appropriateness of the Proposed Budget.

The evaluation under item 1, Scientific and/or Technical Merit of the Project, will also consider the following elements:

- a) The relevance of the proposed program of computational biology research and education to the mission of the Office of Science.
- b) The extent to which the focus of the proposed effort is on advancing computational biology research and education as counterbalancing and complementary activities to experimental biology – rather than on computation as a support activity to experimental biology.
- c) The potential of the proposed project to make a significant impact on computational biology research and education.
- d) The potential of the proposed project to identify and advance the development of new research and educational techniques intended to accelerate the adoption of computation as a principal mode of research for biologists.

The evaluation under item 2, Appropriateness of the Proposed Method or Approach, will also consider the following elements:

- a) The degree to which the project adheres to the management philosophy of integrating both research and education into the project execution.
- b) The extent to which the project incorporates broad community (industry/academia/other federal programs) interaction and outreach.
- c) Quality and clarity of proposed work schedule and deliverables.

d) Extent to which materials developed under this project will be available to the public (e.g. as “open source”).

The evaluation under item 3, Competency of Applicant's Personnel and Adequacy of Proposed Resources, will also consider the following elements:

a) Quality of the physical and intellectual environment for both research and educational activities in computational biology.

The evaluation will include program policy factors, such as the relevance of the proposed research to the terms of the announcement and the agency's programmatic needs. Note: External peer reviewers are selected with regard to both their scientific expertise and the absence of conflict-of-interest issues. Non-federal reviewers will often be used, and submission of an application constitutes agreement that this is acceptable to the investigator(s) and the submitting institution.

Submission Information

The Project Description must be 20 pages or less, exclusive of attachments. It must contain an abstract or project summary on a separate page with the name of the applicant, mailing address, phone, FAX and email listed. The application must include letters of intent from collaborators (briefly describing the intended contribution of each to the research), and short curriculum vitae for the applicant and any co-PIs.

Applicants must disclose all information on their current and pending grants. To provide a consistent format for the submission, review and solicitation of grant applications submitted under this notice, the preparation and submission of grant applications must follow the guidelines given in the Application Guide for the Office of Science Financial Assistance Program, 10 CFR Part 605. Access to SC's Financial Assistance Application Guide is possible via the World Wide Web at: <http://www.science.doe.gov/production/grants/grants.html>. DOE is under no obligation to pay for any costs associated with the preparation or submission of applications if an award is not made.

The Catalog of Federal Domestic Assistance number for this program is 81.049, and the solicitation control number is ERFAP 10 CFR Part 605.

Martin Rubinstein
Acting Director
Grants and Contracts Division
Office of Science

Published in the Federal Register March 9, 2004, Volume 69, Number 46, Pages 10994-10996.