

Program Announcement To DOE National Laboratories LAB 99-18

Pilot Projects in Biomedical Engineering

The Office of Biological and Environmental Research (BER) of the Office of Science (SC), U.S. Department of Energy (DOE), hereby announces its interest in receiving research proposals for a pilot program in Biomedical Engineering. The purpose of this pilot program is to support a limited number of short-term high potential projects that will enhance the BER Biomedical Engineering effort.

DEFINITION: Biomedical engineering is the application of principles of physics, chemistry, and engineering to problems dealing with human health. It advances fundamental concepts, creates knowledge from the molecular to the organ systems level, and develops innovative biologics, materials, processes, implants, devices, and informatics systems for the prevention, diagnosis, and treatment of disease and for improving human health.

PROGRAM FUNDING: It is anticipated that approximately \$1,500,000 to \$2,000,000 will be available each year to support approximately 6 to 10 projects in biomedical engineering for 1 to 2 years (funding for FY 1999 will be proportional to the time remaining in the fiscal year).

DATES: Potential proposers must submit a research proposal by 4:30 P.M., E.D.T., May 10, 1999. Each proposal should be written in a format that will allow review by a scientific review panel.

ADDRESSES: Proposals, referencing Program Announcement LAB99-18, should be sent to Ms. Sharon Betson, Office of Biological and Environmental Research, SC-73, U.S. Department of Energy, 19901 Germantown Road, Germantown, MD 20874-1290. This address must be used when submitting proposals by U.S. Postal Service Express Mail or any other commercial mail delivery service, or when hand-carried by the proposer. If desired, proposals can be submitted by e-mail to: dean.cole@science.doe.gov.

FOR FURTHER INFORMATION CONTACT: Dr. Dean Cole, telephone: (301) 903-3268, Office of Biological and Environmental Research, SC-73, U.S. Department of Energy, 19901 Germantown Road, Germantown, MD 20874-1290, e-mail: dean.cole@science.doe.gov.

ELIGIBILITY REQUIREMENTS: Proposals will be accepted from all DOE National Laboratory researchers. To be considered for review, each proposal must meet the research criteria discussed in the following sections. In addition, proposers must include scientific collaborations in engineering (or a related field) and biology (including medical expertise).

DESCRIPTION OF RESEARCH INTERESTS: BER is interested in funding innovative short-term research projects that will make a significant contribution to improving human health. To be applicable, the research project must address a critical medical need and be at a research stage that it can be completed in 1 to 2 years. Although not intended to be exclusive, the following list of biomedical engineering research areas is of interest to BER:

- **Biomaterials:** Biomaterials and devices, including the development of novel tissue, organ replacement, and device technologies that are designed to perform ideally in their respective biological environments.
- **Biological, Chemical, and Genetic Sensors:** Research and development of chemical sensors, biosensors and biochips by converging several of the analytical, chemical, physical, electrical, biological, computational, nano/micro/fabrication, and bioengineering technologies on chip substrates, wave guides or optical fibers.
- **Biomedical Applications of Lasers:** Research and development of new laser-based technologies and the application of these technologies in biology and medicine.
- **Imaging:** Research on all types of imaging at the macroscopic and/or microscopic levels. Proposals, for example, may address the development of new or improved imaging instruments employing the techniques of positron emission tomography, single photon tomography, standard x-ray and angiographic techniques, ultrasound, magnetic resonance imaging and spectroscopy, optical diffraction and spectroscopy, and x-ray and vibrational spectroscopy.
- **Informatics:** Informatics in biomedical engineering research broadly refers to applications of computer technology in biomedicine, including clinical information systems, networking, image processing and display, and related activities.

To be considered for funding, the proposed technology must be at a stage where it can be developed to a prototype level within 2 years. In addition, each research proposal must demonstrate both engineering and bioscience expertise. Only projects that are not supported by other funding sources (except LDRD supported projects) will be considered.

EVALUATION CRITERIA: Each proposal will be reviewed by a panel of technical experts for; (1) scientific and/or technical merit, (2) appropriateness of proposed method, (3) proposer's scientific knowledge and performance, (4) reasonableness and appropriateness of the proposed budget, (5) likelihood that the research will have a significant impact on human health, (6) potential for producing a new technology in the time period specified. The progress of each funded project will be reviewed annually.

PROPOSAL FORMAT: Each proposal should specifically address each of the items listed in the evaluation criteria and include a brief discussion of the budget. In addition, each proposal should discuss the impact the technology will have on human health and the anticipated time for completion. Proposals should not exceed 8 pages (excluding CV's, figures, and references). Appendices are strongly discouraged.

The following instructions were added April 29, 1999 2:00 p.m.

Number of Copies to Submit: An original and seven copies of the formal proposal/FWP must be submitted.

Field Work Proposal Format (Reference DOE Order 5700.7C)
(DOE ONLY)

The Field Work Proposal (FWP) is to be prepared and submitted consistent with policies of the investigator's laboratory and the local DOE Operations Office. Additional information is also requested to allow for scientific/technical merit review.

Laboratories may submit proposals directly to the SC Program office listed in this announcement. A copy should also be provided to the appropriate DOE operations office.

Proposal Cover Page

The following proposal cover page information may be placed on plain paper. No form is required.

Title of proposed project

SC Program announcement title

Name of laboratory

Name of principal investigator (PI)

Position title of PI

Mailing address of PI

Telephone of PI

Fax number of PI

Electronic mail address of PI

Name of official signing for laboratory*

Title of official

Fax number of official

Telephone of official

Electronic mail address of official

Requested funding for each year; total request

Use of human subjects in proposed project:

If activities involving human subjects are not planned at any time during the proposed project period, state "No"; otherwise state "Yes", provide the IRB Approval date and Assurance of Compliance Number and include all necessary information with the proposal should human subjects be involved.

Use of vertebrate animals in proposed project:

If activities involving vertebrate animals are not planned at any time during this project, state "No"; otherwise state "Yes" and provide the IACUC Approval date and Animal Welfare Assurance number from NIH and include all necessary information with the proposal.

Signature of PI, date of signature

Signature of official, date of signature*

*The signature certifies that personnel and facilities are available as stated in the proposal, if the project is funded.

Budget and Budget Explanation

A detailed budget is required for the entire project period, and for each fiscal year. It is preferred that DOE's budget page, Form 4620.1 be used for providing budget information*. Modifications of categories are permissible to comply with institutional practices, for example with regard to overhead costs.

A written justification of each budget item is to follow the budget pages. For personnel this should take the form of a one-sentence statement of the role of the person in the project. Provide a detailed justification of the need for each item of permanent equipment. Explain each of the other direct costs in sufficient detail for reviewers to be able to judge the appropriateness of the amount requested.

* Form 4620.1 is available at web site: ***<http://www.er.doe.gov/production/grants/forms.html>***