

RESEARCH FELLOWSHIPS AND CAREER DEVELOPMENT AWARDS IN ARTHRITIS
AND MUSCULOSKELETAL AND SKIN DISEASES

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National Institute of Arthritis and Musculoskeletal and Skin Diseases

BACKGROUND

The objective of this Program Announcement is to emphasize the continuing commitment of the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) to support the research development of biomedical investigators who conduct research on the basic biology, organ systems, and diseases and disorders within its mandate. The NIAMS encourages all individuals, especially members of underrepresented groups, to submit applications. The aim is to increase the expertise and development of researchers in areas relevant to the mission of the NIAMS.

SCOPE

The NIAMS encourages applications for individual fellowships and research career awards. The research emphasis or thrust of such applications must be related to the mission of the NIAMS.

Major areas of interest include:

- o Arthritis and connective tissue diseases
- o Bone biology and diseases
- o Muscle biology and diseases
- o Musculoskeletal diseases and disorders

- o Skin biology and diseases
- o Musculoskeletal fitness, exercise physiology and gait analysis
- o Immunology and inflammatory processes related to diseases of connective tissue, bone, muscle, and skin
- o Epidemiology of arthritis, bone, muscle, and skin diseases
- o Structure, function and physiology of bone, muscle, skin, joints, and connective tissue
- o Metabolism of muscle, bone, and skin

MULTIDISCIPLINARY RESEARCH

Due to the complexity of the tissues and diseases, it is becoming increasingly clear that research excellence in arthritis, muscle biology, musculoskeletal disorders, and bone and skin diseases requires interdisciplinary approaches. Thus, the NIAMS encourages researchers at appropriate stages in their careers to develop additional expertise in areas such as molecular biology, cell biology, structural biology, biophysics, immunology, developmental biology, genetics, and epidemiology. Examples of multi-disciplinary approaches that are relevant to the NIAMS include, but are not limited to, the following:

- o The use of cell biology and molecular genetics to investigate the regulation of growth and proliferation of muscle, bone, and skin cells; extracellular controls (e.g., cytokines), receptors, extracellular matrix, structural function;
- o Immunology to investigate the basis of immune and autoimmune mediated diseases of muscle, bone, joints, and skin.
- o Membrane biochemistry, physiology, and molecular genetics to explore the molecular basis of defective membrane channels and ion transport in cells of muscle, bone, and skin;
- o Structural biology and human genetics to investigate the development or application of macromolecular X-ray diffraction and Nuclear Magnetic Resonance methods, computer-assisted modeling, and molecular dynamics or mechanical simulations to studies of enzyme function, molecular biology, molecular genetics, and/or biochemical genetics of hereditary diseases in model systems and humans;
- o Wide bore and whole body magnetic resonance spectroscopy and imaging of metabolic processes during rest and exercise, in normal or diseased tissue.

MECHANISMS OF SUPPORT

Several mechanisms exist that will support the professional development of individuals who can advance research in these areas. Each mechanism is tailored to a particular stage of the investigator's career. The existing mechanisms are: Individual Fellowships (F32, F33); Physician Scientist Award (PSA K11); Clinical Investigator Award (CIA K08); and Research Career Development Award (RCDA K04). Physician investigators are encouraged to use the PSA and CIA to develop expertise in basic and clinical research.

A research training or career development program for a physician-scientist should equip the individual to become an independent investigator capable of designing and executing rigorous research protocols carefully crafted to examine a hypothesis. Ideally, such investigators should be able to integrate patient-oriented and laboratory-oriented research methods to address questions related to the physiology and pathophysiology of arthritis and muscle, bone, and skin diseases and disorders.

Support mechanisms for training and research career development awards are summarized in this announcement. Detailed guidelines for each of the mechanisms may be obtained from the office of sponsored programs at most research institutions and from the Division of Research Grants, NIH, Westwood Building, Room 240, Bethesda, Maryland 20892, Phone, (301) 496-7441. Only U.S. citizens and non-citizen nationals are eligible for support under these programs.

A. INDIVIDUAL NATIONAL RESEARCH SERVICE AWARD (F32)

Individual National Research Service Awards (NRSA) are given at the postdoctoral level. The application must describe a specific research project that is guided and sponsored by a preceptor. This support is for full-time research training.

Provisions of these awards include:

- o Awards for up to 36 months of training
- o Stipends based on years of experience: range is \$18,600-32,300 per year;
- o Institutional allowance of \$3,000 per year (\$2,000 per year for fellows at NIH) to help meet expenses;
- o Support for more than 12 months requires "payback."

B. SENIOR NATIONAL RESEARCH SERVICE AWARD (F33)

Senior fellowships are designed for experienced scientists who wish to make major changes in the direction of their research career, to broaden their research capabilities, or to enlarge their

command of an allied research field. Applicants for an F33 must hold a doctoral degree or equivalent and show at least seven subsequent years of relevant professional or research experience.

Provisions of the award include:

- o Awards for up to 24 months;
- o Stipend up to \$32,300 per year.

APPLICATION SUBMISSION AND REVIEW FOR FELLOWSHIP AWARDS

Application receipt dates for these two awards are January 10, May 10, and September 10. Applicants must use Fellowship Application Kit (PHS 416-1, Revised 4/89). Fellowships will be reviewed through the accelerated NIH peer review system in the Division of Research Grants. Earliest possible funding start dates will be seven to eight months after receipt dates.

Fellowship applications submitted in response to this announcement must be identified by typing PA-RESEARCH FELLOWSHIP AWARDS and PA-92-34 on Item 3 of the face page, below the title of the project.

C. PHYSICIAN SCIENTIST AWARD - (K11)

The Physician Scientist Award (PSA) is designed to encourage the newly trained clinician to develop independent research skills and experience in a fundamental science. The award is divided into two phases. During Phase I, which may last two to three years, the candidate is expected to develop independent research skills and experience in a fundamental science. The primary sponsor must be an accomplished basic science investigator. Phase II entails intensive research activity, applying the skills learned during Phase I.

Applicants for the PSA must:

- o Hold an M.D. or equivalent clinical degree. Generally, candidates holding the Ph.D. are ineligible;
- o Have completed at least one postgraduate year of clinical training by the time of award;
- o Not have previous independent research support.

Provisions of the PSA include:

- o Five years of support, nonrenewable; durations of three or four years may be requested at the time of application;
- o Salary up to \$50,000 per year plus fringe benefits;
- o Up to \$10,000 (Phase I) and \$20,000 (Phase II) per year for research supplies, equipment, technical assistance, travel;
- o Commitment, as a minimum, of 75 percent time to PSA activities.

D. CLINICAL INVESTIGATOR AWARD - (K08)

The Clinical Investigator Award (CIA) is offered to provide the opportunity for promising clinically trained individuals with demonstrated aptitude in research to develop as independent investigators.

Applicants for the CIA must:

- o Hold an M.D. or other health professional degree;
- o Have approximately four to eight years of postdoctoral experience, both clinical and research (a minimum of two years of each) by the projected start of the award;
- o Not have been a Principal Investigator on a Public Health Service-supported research project.

Provisions of the CIA include:

- o Five years of support, nonrenewable; tenures of three or four years may be requested at time of application;
- o Salary up to \$50,000 per year plus fringe benefits;
- o Up to \$20,000 per year for research supplies, equipment, technical assistance, travel;
- o Commitment, as a minimum, of 75 percent time to the project.

E. RESEARCH CAREER DEVELOPMENT AWARD - (K04)

The Research Career Development Award (RCDA) provides salary support to enhance the research capabilities of individuals in the formative stages of their careers. Candidates who have

demonstrated outstanding potential as independent investigators in health-related research, but need to be released from some of the teaching, clinical, and administrative duties assigned to junior faculty, are eligible.

Applicants for the RCDA must:

- o Hold a doctoral degree or equivalent, have usually at least five years postdoctoral research experience, and be principal investigator of a peer-reviewed research grant;
- o Describe in the application how the award will enhance development as an independent investigator;
- o Have enough independent research support for the research proposed in the RCDA application;
- o Hold a faculty appointment.

Provisions of the RCDA include:

- o Five years of support, nonrenewable;
- o Salary up to \$50,000 per year plus fringe benefits. No funds are available under this award for research expenses. These expenses are expected to be included in the independent research support described above.
- o Commitment of at least 80 percent time to research. The remaining time (up to 20 percent) must be spent on research-related activities that will enhance research career development.

RCDA applications may be submitted concurrently with a traditional research grant application but may not be submitted concurrently with other development awards such as PSA, CIA, or First Independent Research Support and Transition (FIRST) Award.

APPLICATION SUBMISSION AND REVIEW FOR THE K AWARDS

Application receipt dates for all career development awards (K series) are February 1, June 1, and October 1. The PSA and CIA applications will be reviewed by an appropriate review committee within a funding Institute. RCDA applications will be reviewed by an initial review group

in the Division of Research Grants. Earliest possible funding dates are approximately 10 months after the receipt dates. Use application form PHS 398, Rev. 10/88 and 9/91, with special instructions for the PSA, CIA, and RCDA ("The K Awards," October 1991) available from the Office of Grants Inquiries.

Applications submitted in response to this announcement must be identified by typing PA-RESEARCH CAREER AWARDS and PA-92-34 on line 2 of the face page, below the title of the project.

The typed original application and six signed exact single-sided photocopies must be submitted or delivered to:

Division of Research Grants
National Institutes of Health
Westwood Building, Room 240
Bethesda, MD 20892**

Applicants from institutions that have a General Clinical Research Center (GCRC) funded by the NIH National Center for Research Resources may identify the GCRC as a resource for conducting the proposed activity. In such a case, a letter of agreement from either the GCRC program director or Principal Investigator must be included with the application.

SPECIAL INSTRUCTIONS FOR INCLUSION OF WOMEN AND MINORITIES IN CLINICAL RESEARCH STUDIES

NIH and ADAMHA policy is that applicants for NIH/ADAMHA clinical research grants and cooperative agreements will be required to include minorities and women in study populations so that research findings can be of benefit to all persons at risk of the disease, disorder or condition under study; special emphasis should be placed on the need for inclusion of minorities and women in studies of diseases, disorders and conditions which disproportionately affect them. This policy is intended to apply to males and females of all ages. If women or minorities are excluded or inadequately represented in clinical research, particularly in proposed population-based studies, a clear compelling rationale should be provided.

The composition of the proposed study population must be described in terms of gender and racial/ethnic group. In addition, gender and racial/ethnic issues should be addressed in developing a research design and sample size appropriate for the scientific objectives of the

study. This information should be included in the form PHS 398 in Section 2, A-D of the Research Plan AND summarized in Section 2, E, Human Subjects. Applicants/offerors are urged to assess carefully the feasibility of including the broadest possible representation of minority groups. However, NIH recognizes that it may not be feasible or appropriate in all research projects to include representation of the full array of United States racial/ethnic minority populations (i.e., Native Americans (including American Indians or Alaskan Natives), Asian/Pacific Islanders, Blacks, Hispanics).

The rationale for studies on single minority populations groups should be provided.

For the purpose of this policy, clinical research includes human biomedical and behavioral studies of etiology, epidemiology, prevention (and preventive strategies), diagnosis, or treatment of diseases, disorders or conditions, including but not limited to clinical trials.

The usual NIH policies concerning research on human subjects also apply. Basic research or clinical studies in which human tissues cannot be identified or linked to individuals are excluded. However, every effort should be made to include human tissues from women and racial/ethnic minorities when it is important to apply the results of the study broadly, and this should be addressed by applicants.

For foreign awards, the policy on inclusion of women applies fully; since the definition of minority differs in other countries, the applicant must discuss the relevance of research involving foreign population groups to the United States' population, including minorities.

If the required information is not contained within the application, the application will be returned. Peer reviewers will address specifically whether the research plan in the application conforms to these policies. If the representation of women or minorities in a study design is inadequate to answer the scientific question(s) addressed AND the justification for the selected study population is inadequate, it will be considered a scientific weakness or deficiency in the study design and will be reflected in assigning the priority score to the application.

All applications for clinical research submitted to NIH are required to address these policies. NIH funding components will not award grants or cooperative agreements that do not comply with these policies.

INQUIRIES

For further information about these awards, contact:

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For administrative and fiscal matters, contact:

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Bethesda, MD 20892
Telephone: (301) 496-7495

AUTHORITY AND REGULATIONS

This program is described in the Catalog of Federal Domestic Assistance No. 93.846, Arthritis, Musculoskeletal and Skin Diseases Research. Awards will be made under the authority of the Public Health Service Act, Title III, Section 301 (Public Law 78-410, as amended; 42 USC 241) and administered under PHS grants policies and Federal Regulations 42 CFR Part 52 and Part 66 and 45 CFR Part 74. This program is not subject to the intergovernmental review requirements of Executive Order 12372 or Health Systems Agency review.

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