

# NIH GUIDE

---

## For Grants and Contracts

---

### NOTICE OF MAILING CHANGE

Check here if you wish to  
discontinue receiving this  
publication

Check here if your address has  
changed and you wish to con-  
tinue receiving this publication.  
Make corrections below and  
mail this page to:

NIH Guide  
Distribution Center  
National Institutes of Health  
Room B3BE07, Building 31  
Bethesda, Maryland 20892

---

U.S. DEPARTMENT OF HEALTH  
AND HUMAN SERVICES

OFFICIAL BUSINESS  
Penalty for Private Use, \$300

The NIH Guide announces scientific  
initiatives and provides policy and  
administrative information to indi-  
viduals and organizations who need to  
be kept informed of opportunities,  
requirements, and changes in extra-  
mural programs administered by the  
National Institutes of Health.

Third-Class Mail  
Postage & Fees Paid  
PHS/NIH/OD  
Permit No. G-291

NOTICES

- SOLID TUMOR CYTOGENETICS AND CANCER DIAGNOSIS.....1  
National Cancer Institute  
Index: CANCER
- JANUARY 10 DEADLINE FOR SHORT-TERM TRAINING PROGRAM.....1  
National Institutes of Health  
Index: SHORT-TERM TRAINING PROGRAM

DATED ANNOUNCEMENTS (RFPs AND RFAs AVAILABLE)

- EXTRAMURAL ASSOCIATES PROGRAM.....1  
National Institutes of Health  
Index: NATIONAL INSTITUTES OF HEALTH
- TEST FOR CHEMICALLY-INDUCED TRANSPOSITION IN DROSOPHILA (RFP).....2  
National Institute of Environmental Health Sciences  
Index: ENVIRONMENTAL HEALTH SCIENCES
- IN VITRO TRANSFORMATION OF ONCOGENE PRIMED CELLS  
BY GENOTOXIC CHEMICALS (RFP).....3  
National Institute of Environmental Health Sciences  
Index: ENVIRONMENTAL HEALTH SCIENCES
- SUPPORT OF THE NATIONAL HORMONE AND PITUITARY PROGRAM (RFP).....3  
National Institute of Diabetes and Digestive and Kidney Diseases  
Index: DIABETES AND DIGESTIVE AND KIDNEY DISEASES
- SOLID TUMOR CYTOGENETICS AND CANCER DIAGNOSIS (RFA).....4  
National Cancer Institute  
Index: CANCER

ONGOING PROGRAM ANNOUNCEMENTS

- THE ROLE OF OMEGA-3 POLYUNSATURATED FATTY ACIDS  
IN CANCER PREVENTION.....5  
National Cancer Institute  
Index: CANCER
- NUTRITIONAL AND METABOLIC FACTORS AFFECTING AGING PROCESSES  
AND HEALTH IN LATE LIFE.....8  
National Institute on Aging  
Index: AGING

ERRATUM

- COLLECTION AND ANNOTATION OF POPULATION LITERATURE  
AS A RESEARCH RESOURCE.....10  
National Institute of Child Health and Human Development  
Index: CHILD HEALTH AND HUMAN DEVELOPMENT

NOTICES

SOLID TUMOR CYTOGENETICS AND CANCER DIAGNOSIS

34; K.W. 1002015, 1002019, 0715035, 0745020, 1002004

National Cancer Institute

On May 23, 1986 the Announcement, "Solid Tumor Cytogenetics and Cancer Diagnosis," was published in the NIH GUIDE. This Announcement is now being withdrawn and replaced with a Request for Research Grant Applications (RFA) with the same title and the RFA number 86-CA-18.

Revised receipt deadlines are November 17, 1986 and February 16, 1987. Specific information concerning application and review procedures are contained in the availability notice. Additional copies of the original announcement and further information can be obtained by contacting the Program Director:

Sheila E. Taube, Ph.D.  
Diagnosis Branch  
Division of Cancer Biology and Diagnosis  
Westwood Building, Room 10A15  
Bethesda, Maryland 20892  
Telephone: 301-496-1591

JANUARY 10 DEADLINE FOR SHORT-TERM TRAINING PROGRAM

P.T. 44; K.W. 0720005, 1014002

National Institutes of Health

Those planning on submitting competitive applications (new or competing continuation) under the Short-term Training Students in Health Professional Schools Program should note that there is only one deadline a year for competing applications in this program: January 10. Initial review of these applications will take place in June, and secondary review, by a National Advisory Council or Board, in October of that year. Awards that are made will have a start date the following spring. Application form (PHS 6025-1) with supplemental instructions is used to apply for competing support. Forms and instructions are available from:

Office of Grants Inquiries  
Division of Research Grants  
National Institutes of Health  
Westwood Building, Room 449  
Bethesda, Maryland 20892  
Telephone: (301) 496-7441

DATED ANNOUNCEMENTS (RFPs AND RFAs AVAILABLE)

EXTRAMURAL ASSOCIATES PROGRAM

P.T. 44, FF, II; K.W. 0901026, 0710030, 1014002

National Institutes of Health

Application Receipt Date: October 15, 1986

The Extramural Associates (EA) Program invites applications for the January 1987 and future classes of Associates to participate in an on-site training program on the Extramural activities of the NIH.

ELIGIBILITY

Minority and women's institutions are eligible to apply on behalf of one candidate. Candidates are reviewed on a competitive basis; and if selected, Associates participate in a 5 month residency at the NIH.

POSE

The EA Program is designed to promote the entry and participation of under-represented minorities and women in research funded by the NIH. It is viewed as an

activity that will yield multiple benefits -- to participating individuals and institutions, the NIH, and ultimately the vitality of health-related research in the Nation.

#### PROGRAM

The desired outcome of the EA Program is that, upon return to the home institution, each NIH-trained Associate will assume an active role to promote and expand opportunities for faculty and students to participate in biomedical research projects. While in the program, Associates will work with senior NIH staff as well as attend seminars, committee meetings and site visits and will have the opportunity to obtain information about Federal research programs and related grants and contract activities. Administrative arrangements provide that the NIH will reimburse the institution for a portion of the Associate's salary, travel and relocation costs.

#### APPLICATION DEADLINE

Applications for entry into the January 1987 group are due October 15, 1986 and will undergo an expedited review. Future applications routinely will be due on February 1 and October 1, for entry into either of the two available groups to begin on or about July 15th and January 15th.

#### STAFF CONTACT

To request a copy of the EA Program Announcement potential applicants from eligible institutions are encouraged to contact:

Joan S. Jacobs  
Director  
Extramural Associates Program  
Building 31, Room 1B-59  
9000 Rockville Pike  
Bethesda, Maryland 20892  
Telephone: (301) 496-9728

#### TEST FOR CHEMICALLY-INDUCED TRANSPOSITION IN DROSOPHILA

RFP AVAILABLE: NIH-ES-86-12

P.T. 34; K.W. 0780005, 1002019, 0755010, 1007002

National Institute of Environmental Health Sciences

The National Institute of Environmental Health Sciences (NIEHS), National Institutes of Health, is soliciting proposals from offerors having the capability for the development and evaluation of a methodology to detect chemically-induced gene transpositions in *Drosophila* using specific marked loci.

Factors to be determined should include, but need not be limited to, the following:

- 1 developmental stage of the treated animal;
- 2 means of chemical administration;
- 3 appropriate sample size;
- 4 positive control substances.

The project should also demonstrate the reproducibility of the assay and the ability of the assay to generate a dose-related response for the chosen endpoint after treatment with representative test chemicals.

It is estimated that the project will require approximately 1.5 professional person-years and 2 technical person-years per contract year. The estimated period of performance is two years. The estimated issuance date of RFP No. NIH-ES-86-12 is August 11, 1986, and responses will be due to be received by the Contract Specialist no later than October 10, 1986.

Requests must reference RFP No. NIH-ES-86-12 and be directed to the attention of:

Dorothy G. Williams  
Contract Specialist  
Contracts Management Office, OAM  
National Institute of Environmental Health Sciences,  
P.O. Box 12874  
Research Triangle Park, North Carolina 27709

IN VITRO TRANSFORMATION OF ONCOGENE PRIMED CELLS BY GENOTOXIC CHEMICALS

RFP AVAILABLE: NIH-ES-86-16

P.T. 34; K.W. 0755040, 1002004, 1002008, 0780015

National Institute of Environmental Health Sciences

The National Institute of Environmental Health Sciences (NIEHS), National Institutes of Health, is soliciting proposals from offerors having the capability for In Vitro Transformation of Oncogene Primed Cells by Genotoxic Chemicals. This project is to support studies of in vitro transformation induced by genotoxic chemicals in cells that are engineered to inappropriately express cellular oncogenes. By specifically activating certain oncogenes that are insufficient to fully transform cells, preneoplastic phenotypes may be created that are more clearly defined and are more experimentally manipulable than any that currently exist in culture. Such target cells would then be further transformed by chemically induced genotoxic events, possibly including the activation of other oncogenes.

The first phase of this project will be to construct and characterize the molecular aspects of the proto-oncogene clone. The proposal should include the rationale for selecting a particular mammalian species/strain, the choice of oncogene(s) and the battery of recipient cell types (primary and lines) to be utilized. The second phase will be to characterize the phenotype of various recipient cells and select appropriate target cells, controls and appropriate measurement endpoints to evaluate transformation by genotoxic chemicals. These studies should include, but not be limited to, characterization of the cells expressing the cloned proto-oncogene with respect to serum requirement, morphology, anchorage independent growth, immortality, tumorigenicity and stability of these properties. The third phase will be to transform oncogene primed cells and attempt to distinguish among chemicals and oncogenes by their ability to establish an efficient transformation system. Transfection of DNA from transformed cells will be attempted in NIH-3T3 cells and oncogene primed cells.

The estimated issuance date of RFP No. NIH-ES-86-16 is August 29, 1986 and responses will be due to be received by the Contract Specialist forty-five (45) days thereafter.

Requests must reference NIH-ES-86-16 and must be directed to the attention of:

Elizabeth B. Ford  
Contract Specialist, Contracts Management Office, OAM,  
National Institute of Environmental Health Sciences  
P.O. Box 12874,  
Research Triangle Park, North Carolina 27709.

SUPPORT OF THE NATIONAL HORMONE AND PITUITARY PROGRAM

RFP AVAILABLE: RFP-NIH-NIDDK-86-14

P.T. 36; K.W. 0780005, 0760025

National Institute of Diabetes and Digestive and Kidney Diseases

The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) has a requirement to continue the support of the National Hormone and Pituitary Program.

This is an announcement for a Request for Proposal (RFP). RFP No. NIH-NIDDK-86-14 will be issued on or about August 25, 1986, with a closing date tentatively set for October 10, 1986.

To receive a copy of this RFP, please supply this office with two self-addressed mailing labels. Requests must cite the RFP number referenced above and will be honored if received within twenty calendar days after the solicitation issue date. Since a limited number of copies will be printed, requests shall be filled on first-come, first-served basis until the supply is exhausted. Requests for copies of the RFP should be sent to the following address:

Ms. Shirley A. Shores  
Contracts Management Branch  
National Institute of Diabetes and Digestive and Kidney Diseases  
National Institutes of Health  
Westwood Building, Room 604  
Bethesda, Maryland 20892

This advertisement does not commit the Government to award a contract.

SOLID TUMOR CYTOGENETICS AND CANCER DIAGNOSIS

RFA AVAILABLE: 86-CA-18

P.T. 34; K.W. 1002015, 1002019, 0715035, 0745020, 1002004

National Cancer Institute

Application Receipt Dates: November 17, 1986 and February 16, 1987

The Division of Cancer Biology and Diagnosis of the National Cancer Institute published an Announcement with the above title in the NIH Guide issued May 23, 1986. It has been decided to withdraw the Announcement and issue a Request for Research Grant Applications with the same title. This change is being made because it is now possible to set funds aside for support of applications in response to this request.

This solicitation (the RFA) is being used to encourage and facilitate development of collaborations between cytogeneticists and researchers with expertise in cell culture. It is hoped that such joint efforts will result in improved ability to examine the chromosomes in human solid tumors; it then should be possible to increase the database and hopefully to gain new insights into the chromosome alterations associated with tumor development and progression in these tumors. This is an area of special importance to the National Cancer Program.

The present RFA is for two competitions with the specified deadlines of November 17, 1986 and February 16, 1987 for receipt of applications. Applications should be prepared and submitted in accordance with the aims described in the original Program Announcement and the additional information and requirements described in the following sections:

- I. BACKGROUND INFORMATION (see 5/23/86 Announcement)
- II. RESEARCH GOALS AND SCOPE (see 5/23/86 Announcement)
- III. MECHANISM OF SUPPORT
- IV. REVIEW PROCEDURES AND CRITERIA
- V. METHOD OF APPLYING
- VI. INQUIRIES

III. MECHANISM OF SUPPORT

The support mechanism for this program will be the traditional NIH grant-in-aid and is governed by the policies applicable to such grants. Applicants will plan and execute their own programs. Approximately \$1,050,000 will be set aside to specifically fund applications submitted in response to this RFA (\$600,000 for the November receipt date and \$450,000 for the February receipt date). It is anticipated that approximately seven applications can be funded. These applications will not compete for funding within the general pool of dollars available for other investigator initiated research proposals. However, all applications received will be evaluated by the rigorous standards of Study Section review. The earliest expected starting dates are July 1, 1987 and December 1, 1987. Although this program is provided for in the financial plans of the National Cancer Institute, the award of grants pursuant to this RFA is contingent upon availability of funds appropriated for Fiscal Years 1987 and 1988. Only applications of sufficiently high scientific merit will be funded.

IV. REVIEW PROCEDURES AND CRITERIA

Upon receipt, applications will be reviewed by NCI staff for responsiveness to this announcement. If the application is judged unresponsive, the applicant will be given an option to withdraw the application or to submit it for consideration in the traditional grant program of NIH.

Applications judged responsive will be reviewed for scientific merit by an appropriate peer review group set up by the Division of Extramural Activities/NCI/NIH. The recommendation of the peer review group will be considered by the National Cancer Advisory Board.

The review criteria to be considered were listed in the May 23, 1986 Announcement under section II. These criteria must be addressed.

V. METHOD OF APPLYING

Applications should be submitted on form PHS 398. The conventional presentation for grant applications should be utilized and the points identified under the Review Criteria must be fulfilled. The number and title of this RFA should be typed in Section 2 on the front page of the application form. PHS 398 forms are available at most institutional business offices; from the Division of Research Grants, NIH, 9000 Rockville Pike, Bethesda, MD 20892; or from the Program Director named below.

The present RFA announcement is open to all interested investigators. Applications must be received no later than November 17, 1986 or February 16, 1987. Applications received after these dates will be returned. Send the signed, original, including checklist, plus four exact, single-sided photocopies to Division of Research Grants, Room 240, Westwood Building, 5333 Westbard Ave., Bethesda, MD 20892. An additional two copies should be sent separately to Referral Officer, Grants Review Branch/DEA/NCI, Room 828, Westwood Bldg., 5333 Westbard Avenue, Bethesda, MD 20892.

## VI. INQUIRIES

Applicants are urged to communicate with the Program Director concerning planned applications:

Sheila E. Taube, Ph.D.  
Diagnosis Branch  
Division of Cancer Biology and Diagnosis/NCI  
Westwood Building, Room 10A15  
Bethesda, Maryland 20892  
Telephone: (301) 496-1591

This program is described in the Catalog of Federal Domestic Assistance No. 13.394, Cancer Detection and Diagnosis Research. Grants will be awarded 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 grant policies and Federal Regulation 42 CFR Part 52 and 45 CFR Part 74. This program is not subject to the intergovernmental review requirements of Executive Order 12372 or Health Systems Agency review.

## ONGOING PROGRAM ANNOUNCEMENTS

### THE ROLE OF OMEGA-3 POLYUNSATURATED FATTY ACIDS IN CANCER PREVENTION

P.T. 34; K.W. 0715035, 0745055, 0710100, 0765025, 0710070, 0785050, 0755035

National Cancer Institute

Application Receipt Dates: October 1, February 1, June 1

The Division of Cancer Etiology (DCE) of the National Cancer Institute (NCI) invites grant applications from interested investigators for basic studies that are focused on providing insights and approaches to an understanding of the role of omega-3 polyunsaturated fatty acids in cancer prevention.

#### I. BACKGROUND INFORMATION

It has been generally observed that the risk of developing cancer at certain sites (e.g. breast, colon, prostate, pancreas, endometrium and ovary) is higher among people who consume diets high in fat and low in vegetables, fruits, whole grains and other fiber-rich foods. Additionally, recent studies have suggested that not only the amount of fat, but the composition and type of fat consumed may have a significant influence on the development of cancer.

Fats containing polyunsaturated fatty acids (PUFA) of the omega-6 family are apparently more favorable to the growth of tumor cells. The PUFA generally consumed are derived from vegetable oils which contain high levels of linoleic acid. Experiments with laboratory animals have demonstrated that dietary linoleic acid favors the growth of tumor cells. The mechanism(s) of fatty acid enhanced tumorigenesis and tumor growth are not well defined. Possible mechanisms include the fact that polyunsaturated fatty acids can easily undergo oxidation to yield a variety of potential mutagens, promoters, and carcinogens, such as fatty acid hydroperoxides, endoperoxides, enals, aldehydes, alkoxy, and hydro peroxy radicals which promote the growth of cancer cells. In addition, polyunsaturated fatty acids like linoleic acid give rise to arachidonic acid when elongated and desaturated. Arachidonic acid is the precursor for biologically active prostaglandins, such as prostaglandin E2 (PGE2). PGE2 exerts suppressive action on immunological cells, which is postulated to enable tumor cells to escape the immunosurveillance of the body and metastasize and proliferate. There is evidence that omega-6 PUFA are conducive to promotion of cancer by virtue of their ability to elicit production of immunosuppressive prostaglandins.

It is not feasible to eliminate PUFA completely from the human diet to reduce the risk of cancer because these PUFA are needed for normal biochemical functions and the maintenance of normal health. Furthermore, there is widespread advocacy for increased consumption of omega-6 PUFA (vegetable oils) to lower serum cholesterol levels (especially LDL cholesterol) and reduce coronary heart disease.

Ideally, we need a source of dietary PUFA that would exert beneficial effects on overt coronary heart and neoplastic disease while also suppressing the development of these afflictions. The omega-3 PUFA which occur in fish oils, particularly from fish that live in deep, cold waters, may serve that function. Fish oils extracted from mackerel, bluefish, herring, and menhaden, for instance, have low levels of omega-6 fatty acids, but contain high levels of omega-3 PUFA, such as eicosapentaenoic acid (20:5) and docosahexaenoic acid (22:6). Epidemiological studies with Greenland Eskimos, Japanese, and Icelanders indicate that populations consuming seafood regularly are less prone to coronary heart diseases, atherosclerosis, hypertension, and some types of cancer, such as those in the mammary gland and colon. However, changes in their food habits to western style diets is correlated with increased mortality rates from such cancers. Recent studies have demonstrated that diets containing these omega-3 fatty acids effectively retard the growth of tumor cells in animal models. Despite these various observations, the mechanisms underlying the relationship between dietary fat and cancer are not well understood.

A few examples can be cited in which experimental observations are related to possible mechanistic hypotheses of fish oil efficacy in the therapy and prevention of cancer. Thus, it has been generally observed that the high serum levels of PGE<sub>2</sub> derived from omega-6 PUFA are conducive to the growth of tumor cells and there is a good correlation between the levels of prostaglandin E<sub>2</sub> and tumor growth in experimental animals. Fish oil enriched diets decrease the formation of PGE<sub>2</sub>, and this coincides with the retarded growth of tumor cells. In this respect, monocyte-macrophages are important relevant cells which are the major producers of PGE<sub>2</sub>. Massive invasions of macrophages have been observed in tumors. Because of the presence of high levels of PGE<sub>2</sub> these macrophages do not function in their normal capacity as cytotoxic cells against tumors. However, by reducing the local concentrations of PGE<sub>2</sub>, the suppressive action of PGE<sub>2</sub> on macrophage function could be relieved. Dietary intervention with fish oils may provide such an approach. It has been demonstrated that macrophages can effectively take up omega-3 fatty acids from dietary sources. This reduces cellular arachidonic acid levels, and subsequently decreases their capacity to synthesize PGE<sub>2</sub>. Thus, the overall levels of PGE<sub>2</sub> can be decreased by dietary omega-3 fatty acids, and thereby relieve the inhibition of the phagocytic activity of the macrophages. This could retard the growth of tumor cells. In addition, it has been observed that omega-3 fatty acid enrichment also enhances arginase production in macrophages, and this enzyme exerts cytolytic action on tumors. Thus, dietary omega-3 fatty acids could significantly retard the growth of tumor cells without affecting the normal functions of macrophages. Significantly, the omega-3 PUFA of fish oils may, by inhibiting cyclooxygenase and reducing PGE<sub>2</sub> synthesis, divert the arachidonic acid into the lipoxygenase pathway which produces compounds such as hydroxyeicosatetraenoic acid (HETE) and leukotrienes (LT), e.g., LTB<sub>4</sub>. These compounds are chemotactic agents for macrophages and other immunological cells, which function in the control of tumors. Most significantly, HETE inhibits the growth of tumor cells.

Of especial interest have been recent studies directed at determining the potential effectiveness of dietary fish oils in cancer prevention in animals. Although results are only preliminary at this time, high levels of dietary fish oil (menhaden oil) appear to inhibit or retard the development of MNU-induced mammary tumors, and the development of azaserine-induced putative preneoplastic lesions of the rat pancreas. In addition, fish oils contain high levels of retinoids (Vitamin A) which can act as antineoplastic agents. Furthermore, another recent study indicates that a diet high in menhaden fish oil does not promote chemically-induced colon carcinogenesis, in contrast to a parallel-fed diet high in corn oil-derived omega-6 PUFA. Hence, omega-3 PUFA may act via a number of mechanisms. These observations suggest that fish oils and/or seafood-based diets may provide an effective non-invasive dietary intervention approach for reducing the risk of tumor growth and cancer.

## II. RESEARCH OBJECTIVES AND SCOPE

The Chemical and Physical Carcinogenesis Branch is issuing this Program Announcement to encourage basic mechanistic studies on the role of omega-3 polyunsaturated fatty acids in cancer prevention. Among the areas of particular interest are: (1) anticarcinogenesis studies in various organ systems, particularly those organ systems in which the type and level of fat have been shown to play a role; (2) determination of whether efficacy obtains during the initiation period by modifying the susceptibility of the host to early events, or whether these fatty acids modulate the carcinogenic response in the post-initiation period, or both, and including determination of efficacy over the lifetime of the animal; (3) pharmacokinetic studies on the absorption, distribution, metabolism and excretion of these fatty acids, including such studies performed under the experimental conditions demonstrating cancer prevention; (4) studies on toxicology of the agents, including lifetime administration studies under defined dietary conditions in several species of animals; (5) comparative metabolic studies in human vs. animal systems; (6) in-depth studies of mechanisms of action, especially as related to conditions known or demonstrating anticarcinogenic efficacy. It is particularly



desired that mechanism studies on anticarcinogenesis be reflective of the current state-of-the-art in molecular and cellular carcinogenesis, experimental pathology, immunology, endocrinology, cocarcinogenesis and tumor promotion. Program Projects or consortial arrangements under traditional R01 grants where collaborating expertise, special facilities and equipment are deemed necessary to approach and carry out these investigations are encouraged.

### III. METHOD OF APPLYING

Any non-profit and for-profit institution, domestic and foreign, may apply. All PHS and NIH grants policies governing regular research project grants will apply to applications received in response to this announcement. Applications should be submitted on form PHS 398, Grant Application Kit, which is available in the grants and contracts business office at most academic and research institutions. Copies may also be requested by writing to:

Office of Grants Inquiries  
Division of Research Grants  
National Institutes of Health  
Westwood Building - Room 449  
5333 Westbard Avenue  
Bethesda, Maryland 20892

Please type "The Role of Omega-3 PUFA in Cancer Prevention" in item 2 on the face page of the application.

The original and six copies of the application should be sent or delivered to:

Application Receipt Office  
Division of Research Grants  
National Institutes of Health  
Westwood Building - Room 240  
Bethesda, Maryland 20892

### IV. DEADLINE

Applications will be accepted in accordance with the usual National Institutes of Health (NIH) receipt dates for new applications. Deadline dates are: October 1, February 1, and June 1. Earliest possible start dates would be: July 1, December 1, and April 1, respectively.

### V. REVIEW PROCEDURES AND CRITERIA

Applications in response to this announcement will be reviewed in accordance with the usual NIH peer review procedures. They will first be reviewed for scientific and technical merit by an appropriate review group composed mostly of non-Federal scientific consultants. Following this initial review, the application will be evaluated by an appropriate National Advisory Board or Council. The review criteria customarily employed by the NIH for regular research grant applications will prevail.

### VI. STAFF CONTACT

For further information, investigators are encouraged to contact:

Dr. Carl E. Smith  
Chemical and Physical  
Carcinogenesis Branch  
Division of Cancer Etiology  
National Cancer Institute  
Landow Building - Room 9B-06  
7910 Woodmont Avenue  
Bethesda, Maryland 20892  
Telephone: (301) 496-4141

Dr. David G. Longfellow  
Chief, Chemical and Physical  
Carcinogenesis Branch  
Division of Cancer Etiology  
National Cancer Institute  
Landow Building - Room 9A-02  
7910 Woodmont Avenue  
Bethesda, Maryland 20892  
Telephone: (301) 496-5471

In order to alert the Division of Cancer Etiology to the submission of proposals with primary thrust directed to chemical and physical carcinogenesis research, applicants are encouraged to send a brief letter to Dr. Smith indicating their plans to apply and identifying other participating investigators.

This program is described in the Catalog of Federal Domestic Assistance number 13.393, Cancer Cause and Prevention Research. Awards will be made under authorization of the Public Health Service Act, Section 301(c) and Section 402 (Public Law-78-410, as amended; 42 USC 241; 42 USC 282) and administered under PHS grant policies and Federal Regulations 42 CFR Part 52 and 45 CFR Part 74. This program is not subject to the requirements of Executive Order 12372 or review by a Health Systems Agency.

## NUTRITIONAL AND METABOLIC FACTORS AFFECTING AGING PROCESSES AND HEALTH IN LATE LIFE

P.T. 34; K.W. 0710010, 0710095, 0765020, 0785165, 0765035

National Institute on Aging

### BACKGROUND

Epidemiologic and experimental evidence indicates that nutritional and metabolic factors significantly affect aging processes. Incidence of mortality and specific diseases of late life appears to be strongly related to dietary patterns. Manipulations of the diet of experimental animals affect both longevity and the incidence of age-related diseases, most dramatically through caloric restriction, which can markedly extend lifespan. Age-related metabolic changes may influence the progression of chronic pathophysiologic processes such as atherogenesis, and metabolic byproducts such as free radicals have been suggested to play a role in cumulative damage to tissues with age. Considerable evidence suggests that excessive consumption of certain nutrients over the lifespan may be as important as nutritional deficiencies in regard to disorders of late life.

Information is needed about the appropriateness of current nutritional recommendations for the elderly, relationships of specific nutrients to specific diseases of later life, and chronic effects of nutritional factors and specific metabolic pathways on the development of age-related pathology. For these reasons, the National Institute on Aging has a continuing interest in supporting research on the relationships between nutrition, metabolism, aging processes, and health and disease in late life.

### RESEARCH GOALS AND SCOPE

Epidemiologic, clinical, and physiologic research involving humans or animals is encouraged in two general areas:

Effects of nutritional and metabolic factors acting over the lifespan on longevity, health, and diseases of late life. Examples include:

- o Mechanisms of slowing of specific age-related changes by dietary restriction and other metabolic interventions in established rodent models.
- o Effects of chronic dietary restriction and other metabolic interventions on the progression of age-related changes in nonrodent species, particularly primates.
- o Long-term effects of caloric intake, obesity, and intake of specific macro- and micro-nutrients on the incidence of specific age-related diseases and the progression of age-related physiologic and pathophysiologic changes in humans and appropriate animal models. The effects of excess consumption of nutrients, as well as inadequate intake, are of interest.
- o The contribution of metabolic byproducts such as free radicals or glycosylated proteins to age-related pathology, through their effects on cellular or tissue constituents and functions.

Effects of age-related changes on nutritional requirements and on pathophysiologic processes related to excessive or inadequate consumption of calories or specific nutrients. Examples include:

- o Effects of age-related changes in nutrient digestion, absorption, metabolism, and body composition on nutrient requirements and susceptibility to specific diseases, e.g., effects of age-related changes in cholesterol and glucose metabolism on chronic disease processes and degenerative conditions of later life such as atherogenesis and non-insulin dependent diabetes mellitus.
- o Contributions of deficits or excesses of specific nutrients in old age to specific diseases or dysfunctions.
- o Effects of physiologic changes with age on nutritional requirements and intermediary metabolism.

The above list is not exhaustive; NIA welcomes innovative projects on other topics in this field.

### MECHANISMS OF SUPPORT

Applications may be submitted for any of the conventional NIH grant support mechanisms, including the individual research project grant, program project, Clinical Investigator Award, New Investigator Award, Research Career Development Award (RCDA), Physician Scientist Award, and individual and institutional

postdoctoral National Research Service Award (NRSA), and Special Emphasis Research Career Award in Nutrition, Metabolism and Aging (see NIH Guide to Grants and Contracts, Vol. 15, No. 7; June 6, 1986). Potential applicants for program project awards should contact NIA staff very early in the planning stages.

#### APPLICATION AND REVIEW PROCEDURES

Applications should be submitted on PHS Forms 398 (research grants), PHS Form 6025 (institutional NRSA) or PHS Forms 416-1, 416-2, and 416-3 (individual NRSA). On item 2 of the face page of the application, applicants should enter: NIA Nutrition Program.

Applicants may obtain information and the appropriate application kits from their institution's grants office or by writing or calling:

Office of Grants Inquiries  
Division of Research Grants  
National Institutes of Health  
Bethesda, Maryland 20892  
Telephone: (301) 496-7441

Applicants are strongly encouraged to notify the NIA staff listed at the conclusion of this announcement before sending the completed application to the Division of Research Grants (address below).

Applications should be submitted according to the deadlines for the appropriate review schedule as indicated below and mailed to:

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

Applications will be reviewed for scientific merit in accordance with NIH policy and procedure involving peer review. Awards will be made on a competitive basis with all applications competing in a given review cycle.

#### APPLICATION RECEIPT DATES

For institutional and individual NRSAs, the deadline dates are January 10, May 10, and September 10. Physician Scientist Awards, Clinical Investigator Awards, Academic Awards, RCDAs, new and competing continuation program projects, and new research grant applications and supplemental research grant applications, the deadline dates are February 1, June 1, and October 1.

For competing continuations and supplemental research grant applications, the deadline dates are March 1, July 1, and November 1.

#### INQUIRIES AND CORRESPONDENCE

Correspondence, including requests for information, and advice should be directed to:

Nutrition Program  
National Institute on Aging  
National Institutes of Health  
Building 31, Room 5C-21  
Bethesda, Maryland 20892  
Telephone: (301) 496-1033

NRSAs will be supported under the authority of the Public Health Service Act, Section 472, 42 USC 2891-1, and administered under PHS grants policy and Federal Regulation 42 CFR Part 66. Other awards will be made under the authority of the Public Health Service Act Section 301 (42 USC 241) and administered under 42 CFR Part 52 and 45 CFR Part 74. This program is not subject to the intergovernmental review requirements of Executive Order 12372 or to Health Systems Agency Review. This program is described in the Catalog of Federal Domestic Assistance No. 13.866, Aging Research.

ERRATUM

COLLECTION AND ANNOTATION OF POPULATION LITERATURE AS A RESEARCH RESOURCE

RFP AVAILABLE: RFP-NICHD-DBS-86-13

P.T. 34; K.W. 0413004, 0413000, 1103002, 1004008

National Institute of Child Health and Human Development

A line was omitted from the above RFP in the August 8 issue of the Guide (Vol. 15, No. 14). The last sentence of the first paragraph should read as follows:

This RFP is a recompetition of the current contract with Princeton University.