

CONCEPT CLEARANCE REVIEW

January 24, 2008

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- Innovative Statistical and Computational Methods for the Design and Analysis of Multilevel Studies in Childhood Obesity
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- Studies of the Interaction Between Iron and Malaria

**Concept Clearance by Council
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Using Proven Factors in Risk Prevention to Promote Protection from HIV Transmission

A request for applications (RFA) is proposed entitled "Using Proven Factors in Risk Prevention to Promote Protection from HIV Transmission". The proposed RFA will use the research project grant application (R01).

Purpose:

HIV and other sexually transmitted infections (STI) are threats to the health and well-being of youth, with about 25% of HIV cases occurring in the under 25 year old population and almost 4 million new cases of STIs occurring annually in American adolescents. Preventing early and unprotected sexual intercourse in adolescents is critical to slow the epidemic of HIV and to reduce the negative consequences of disease. Despite a science base for some effective prevention programs, many communities continue to invest in prevention programs with limited effectiveness.

Scope:

The proposed RFA will stimulate collaborative, multidisciplinary research on the prevention of behaviorally acquired HIV infection in high-risk preadolescents using theory-based sexuality education/HIV prevention programs. By delaying the onset of sexual activity, reducing health risk behaviors, and enhancing resiliency, HIV prevention programs have the potential to reduce disease and improve the quality of life for youth.

Objective:

The ultimate goal of this RFA is to stimulate research that will increase the number of effective HIV prevention programs for high-risk youth and reduce the spread of HIV and other sexually transmitted infections.

Program Contact:

Lynne Haverkos, MD, MPH
Child Development and Behavior Branch

intervention

*informed by OAR
intervention based on previous efforts → apply to HIV*

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Innovative Statistical and Computational Methods for the Design and Analysis of Multilevel Studies in Childhood Obesity

A Request for Applications (RFA) is proposed entitled "Innovative Statistical and Computational Methods for the Design and Analysis of Multilevel Studies in Childhood Obesity." The proposed RFA will use the research project grant (R01) award mechanism.

Purpose

The purpose of this initiative is to enhance multilevel research in childhood obesity, which involves the simultaneous consideration of the complex socio-environmental and biological factors (e.g., from genetics to food policy), and their interplay, that regulate the dietary and physical activity patterns of children and their families. However, current statistical methods used in obesity research are insufficient to account for more than 2-3 levels of behavioral influences at the same time. Statistical approaches such as Bayesian methods and fractional factorial or adaptive intervention designs, as well as computational techniques such as systems dynamics modeling and agent-based modeling, are promising new approaches that can further enhance the understanding and prevention effort of childhood obesity.

Scope

The need for new, innovative approaches to childhood obesity is pressing, as efforts to date have led to no effective and sustainable strategies for its prevention or reduction. Because of the complex web of factors that influences diet and physical activity, future research must be able to account and address not only proximal but distal factors that enable or constrain behavior.

Objective

The ultimate objective of this initiative is to lay the methodological foundation for the next frontier of obesity research that can help to quantify and determine the degree of influence of a wide range of factors, from biological to socio-environmental, on the dietary and physical activity behavior of children. Such a methodological foundation is necessary for truly multilevel research in order to generate effective and sustainable strategies to address childhood obesity.

Program Contact

Terry T-K Huang, PhD, MPH
Program Director, Pediatric Obesity and Metabolic Syndrome
Endocrinology, Nutrition and Growth Branch

*Component of cross-IC dietary effort
OBSSR*

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Youth and HIV Risk

A request for applications (RFA) is proposed entitled "Youth and HIV Risk". The proposed RFA will use the research project grant application (R01) and exploratory grant (R21) mechanisms.

Purpose:

The purpose of the proposed RFA is to stimulate collaborative, multidisciplinary research in an area in which unsolicited applications have been too narrowly focused to advance the science optimally. It will call for research on the interactions among developmental and environmental/cultural/social processes contributing to HIV risk in youth. It will call for studies focusing on HIV risk in specific settings around the globe where HIV prevalence is high or increasing.

Scope:

The proposed **RFA** will solicit research on the relationships and interactions of HIV risk and developmental aspects of youth between the ages of 15-24 and how these are affected by and affect the social world that youth move in. Social aspects include such factors as increasing age at marriage, migration, social unrest, Westernization and the technological advances that accompany these changes.

social context

Objective:

The ultimate goal of this RFA is to build the body of basic social science *data* upon which preventive **interventions may profitably be** built. Applicants will be encouraged to address the implications for practical, sustainable and culturally appropriate interventions from the studies that they propose.

Program Contact:

Susan F Newcomer, PhD
Demographic & Behavioral Sciences (DM) Branch

OAR print

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Translational Research in Female Pelvic Floor Disorders

A request for applications (RFA) is proposed entitled "Translational Research in Female Pelvic Floor Disorders". The proposed RFA will use the research project grant (R01) and Small Grant (R03) award mechanisms.

Purpose:

The purpose of the proposed RFAs is to address these gaps by soliciting collaborative, multidisciplinary research from basic and clinical researchers in the study of female pelvic floor disorders.

Scope:

The scope of the proposed solicitations will address unknown aspects of physiology and pathophysiology of pelvic floor function; however, research questions related to treatment of pelvic floor disorders may be appropriate provided the requirement for collaboration is met.

Objective:

The ultimate goal of these RFAs is to attract more basic scientists into the field of female pelvic floor disorders, to establish collaborations between basic scientists and clinical researchers, and to promote research that has the greatest clinical applicability in addressing unknown aspects of physiology and pathophysiology of pelvic function.

Program Contact:

Susan Meikle, MD MSPH
Contraception and Reproductive Health Branch

basic x clinical

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Epigenetic Processes in Development

A Request for Applications (RFA) is proposed entitled "Epigenetic Processes in Development." The proposed RFA will use the Exploratory-Developmental Research Grant (R21) award mechanism.

Purpose

The purpose of this RFA is to enable scientists to pursue novel, high risk/high-payoff projects in Developmental Epigenetics, complementary to the efforts encouraged in the NIH-wide Epigenomics Roadmap initiatives. Epigenetic marks regulate gene expression, fine-tuning the genetic apparatus of cells. Epigenetic changes can both set in motion a developmental program, and occur in response to it. We hope to encourage scientists to consider both roles of epigenetics in development and to propose projects that are specifically relevant to the NICHD's interest in epigenetics.

Scope

Projects responsive to this RFA would propose high-risk/high-payoff hypothesis testing, or studies to establish new techniques, animal models or cell culture systems for developmental epigenetics. We envision projects that are tightly focused on a developmental milestone, or that compare distinct developmental stages, to identify and manipulate associated epigenetic marks and determine the effects on gene expression; to uncover downstream mechanisms of epigenetic changes through development; to decipher the interplay of genotype and epigenetic marks during development, and the role of the environment in establishing or altering an epigenetic state or its functional read-out during development. To maximize the relevance of this RFA to the NICHD mission, in contrast to the NIH Epigenomics Roadmap initiative, projects responsive to this RFA need not use a reference epigenome, but can study in-depth a particular process or stage in any appropriate model, and focus on the regulation of candidate genes and epigenetic marks.

Objective

The ultimate objective of this initiative is to encourage **researchers to pursue** novel and potentially risky, high-payoff projects to break new ground in Developmental Epigenetics, a field that is critical to many of the research areas which NICHD supports.

Program Contact

Susan Taymans, Ph.D.
Director, Reproductive Genetics and Epigenetics Program
Reproductive Sciences Branch

not disease-based

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Studies of Antimicrobial and Prebiotic Activity of Oligosaccharides

A request for applications (RFA) is proposed entitled "Studies of Antimicrobial and Prebiotic Activity of Oligosaccharides". The proposed RFA will use the research project grant (R01) award mechanism.

Purpose:

The purpose of this initiative is to stimulate research on the antimicrobial and prebiotic properties of oligosaccharides. The majority of the world's 10 million children younger than age five who die every year succumb to enteric microbial infections. Therefore, the development of a new class of antimicrobial agents directed at intestinal pathogens would be of great public health importance. After lipids and galactose, oligosaccharides comprise the third most prevalent component of human milk. Oligosaccharides are composed of sugar molecules, such as D-glucose, N-acetyl glucosamine, D-galactose, sialic acid and L-fucose, linked together in short chains in hundreds of combinations. However, oligosaccharides are non-nutritive for human infants. Evidence is accumulating that the reason for the evolutionary persistence of large amounts of oligosaccharides in human milk is because of their antimicrobial properties. This initiative is designed to stimulate research on how various kinds of oligosaccharides and their glycoconjugates prevent enteric infections. This initiative will be aimed at developing specific oligosaccharides and their glycoconjugates as antimicrobial agents to prevent and treat gastrointestinal infections.

Scope:

Projects responsive to this RFA would propose research on how various kinds of oligosaccharides prevent enteric infections and the development of a new class of therapeutic agents to prevent or treat enteric bacterial and viral infections and on the expression of genes in the host that determine oligosaccharide assembly and linkage is needed.

Objective:

The ultimate goal of this RFA is to lead to a better understanding of the how oligosaccharide binding sites for specific enteric pathogens are synthesized, packaged, transported, and incorporated into the cell membrane of the enterocyteto stimulate research on how oligosaccharides prevent enteric infections and to develop a new class of antimicrobial therapy to prevent or treat enteric bacterial or viral infections.

Program Contact:

Gilman D. Grave, M.D.
Branch Chief, Endocrinology, Nutrition, and Growth Branch

+ encourage a grant of beneficial
proteins

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Factors Affecting Cognitive Function in individuals with Down Syndrome
During Lifespan Transitions

A Request for Applications (RFA) entitled "Factors Affecting Cognitive Function in Individuals with Down Syndrome During Lifespan Transitions" is proposed. The proposed RFA will use the investigator initiated research application (R01) funding mechanism.

Purpose:

The purpose of this RFA is to encourage investigator-initiated research that focuses upon the maximization and maintenance of cognitive function in individuals with Down syndrome, particularly during life transitions in adolescence and adulthood. Although some research has focused on transitions in childhood and during the aging process, there is a paucity of biomedical, behavioral, and biobehavioral evidence to inform decisions about medical, educational, psychosocial, and psychiatric issues that arise in adolescents and adults with Down syndrome. Since the average life expectancy now reaches at least 50 years and the population of adults with Down syndrome is expected to increase substantially in the next twenty years, encouragement of such research is needed.

Scope:

The scope of the RFA would include but not be limited to medical, educational, social, psychosocial, and psychiatric issues. Proposed studies might include changing and challenging issues faced by families as persons with Down syndrome age, quality of life issues as adults with Down syndrome transition from family to independent and/or assisted living, assistive strategies to improve quality of life in individuals with Down syndrome, consent issues when caregivers become impaired (medications, clinical trial participation) and exploring the wide racial disparity in survival in individuals with Down syndrome as they age.

Objective:

The objective is to create a more substantial base of evidence to inform future research directions in studies of adults with Down syndrome and to better meet the medical, psychosocial, and psychiatric needs of a growing population of adults with Down syndrome in the United States and internationally.

Program Contact:

Mary Lou Oster-Granite, Ph.D.
Mental Retardation and Developmental Disabilities Branch

*multic - IC
cognitive fun in Down + change in development*

**Concept Review by Council
January 2008**

Studies of the interaction between iron and malaria

D. G. M. S. Y. O.

As part of a collaboration between the Bill and Melinda Gates Foundation and NICHD, a Request for Applications (RFA) is proposed entitled "Reevaluation of factors affecting the safety and effectiveness of interventions to prevent and treat iron deficiency in resource-limited settings with endemic malaria." The proposed RFA will use the RO1 award mechanism.

Purpose:

With this RFA the NICHD will invite new and experienced basic scientists, epidemiologists, and clinical investigators to submit research grant applications to further understand: 1) the relationship between iron status and infection (particularly malaria) from both the host and infectious agent perspective 2) factors affecting the safe and efficacious delivery of iron to prevent and treat nutritional anemia in malarious regions and 3) the best available methods for assessing iron status in women, infants and children living in resource limited settings.

Scope:

This RFA will encourage basic, clinical and operational research using appropriate combinations of available nutritional and immunological, and microbiological assessment methodologies to address the following issues. 1) factors affecting the safety and effectiveness of different interventions for preventing iron deficiency in women, infants, and children; 2) identification of biomarkers and indicators for assessing iron exposure, status, and functional utilization during and in the absence of infection; and, 3) determination of plausible biological mechanisms, including genetics, to explain interactions between iron and infection, particularly malaria in endemic areas.

Objective:

The objectives of this RFA are to facilitate a better understanding of the full interaction between iron nutrition and infection and current pharmacological interventions for prevention and treatment of malaria. This program will also serve as a proof of concept for how best to generate evidence regarding the role of diet and nutrition for population living in a complex environment of food insecurity, infectious disease, indigenous culture, and limited resources. The products of this program will thereby provide the support for evidence-based programs particularly those targeting populations in resource-limited settings, both in the U.S. and globally, hardest hit by endemic infections including malaria, HIV, and TB. The ultimate goal of this research is to improve the short- and long-term health status of people infected and affected by major infections, especially women, infants and children.

Program Contact:

Daniel J. Raiten, Ph.D.
Endocrinology, Nutrition and Growth Branch