

Philippine and is currently being commercialized in the US by Epeius Biotechnologies.

Inventor: Bruce A. Shapiro (NCI).
Publications:

1. E Bindewald, C Grunewald, B Boyle, M O'Connor, BA Shapiro. Computational strategies for the automated design of RNA nanoscale structures from building blocks using NanoTiler. *J Mol Graph Model*. 2008 Oct;27(3):299–308.

2. B Shapiro, E Bindewald, W Kasprzak, Y Yingling. (E Gazit, F Nussinov, eds.) *Protocols for the In silico Design of RNA Nanostructures*. In: *Nanostructure Design Methods and Protocols*. Totowa, NJ: Humana Press; 2008. p. 93–115.

3. HM Martinez, JV Maizel Jr, BA Shapiro. RNA2D3D: a program for generating, viewing, and comparing 3-dimensional models of RNA. *J Biomol Struct Dyn*. 2008 Jun;25(6):669–683.

4. I Severcan, C Geary, L Jaeger, E Bindewald, W Kasprzak, B Shapiro. (G Alterovitz, M Ramoni, R Benson, eds.) *Computational and Experimental RNA Nanoparticle Design*. In: *Automation in Genomics and Proteomics: An Engineering Case-Based Approach*. Hoboken: Wiley Publishing; 2009.

5. E Bindewald, R Hayes, YG Yingling, W Kasprzak, BA Shapiro. RNAjunction: a database of RNA junctions and kissing loops for three-dimensional structural analysis and nanodesign. *Nucleic Acids Res*. 2008 Jan;36:D392–397.

6. YG Yingling and BA Shapiro. Computational design of an RNA hexagonal nanoring and an RNA nanotube. *Nano Lett*. 2007 Aug;7(8):2328–2334.

7. BA Shapiro and YG Yingling. PCT Application No. PCT/US2007/13027 filed 31 May 2007, which published as WO 2008/039254 on 03 Apr 2008, and U.S. Patent Application No. 12/227,955 filed 02 Dec 2008; both entitled “RNA Hexagonal Ring and RNA Nanotube.”

Patent Status: U.S. Provisional Application No. 61,187,495 filed 16 Jun 2009 (HHS Reference No. E-059-2009/0-US-01).

Licensing Status: Available for licensing.

Licensing Contacts: Uri Reichman, Ph.D., MBA; 301-435-4616; UR7a@nih.gov; John Stansberry, Ph.D.; 301-435-5236; js852e@nih.gov

Collaborative Research Opportunity: The National Cancer Institute's Nanobiology Program is seeking statements of capability or interest from parties interested in collaborative research to further develop, evaluate, or commercialize RNA nanostructures. Please contact John D. Hewes, Ph.D. at

301-435-3121 or hewesj@mail.nih.gov for more information.

Bactericidal Peptides From Avian Leukocyte Ribonuclease A-2

Description of Invention: These bactericidal polypeptides offer a novel alternative to conventional antibiotics that are used to treat and prevent bacterial infections. As infection-causing bacteria continue to develop antibiotic resistance to first line antibiotics there will always be a need for new antibiotic alternatives. Additionally, a greater understanding of the specific cytotoxic activity of RNase A ribonucleases, their functional domains, and their roles in promoting anti-pathogen host defense may provide insight into new therapeutic agents.

This invention includes a novel RNase A ribonuclease from chicken leukocytes and polypeptides that have bactericidal activities against both gram positive and gram negative bacteria, including such pathogens as *Escherichia coli*, *Salmonella spp.*, and *Staphylococcus*.

Applications:

- Polypeptides exhibiting bactericidal, bacteriostatic, and ribonuclease activity.
- Pharmaceutical compositions comprising the bactericidal polypeptides.
- Methods for treating bacterial infections.

Development Status: Early stage.

Market: With the increase in antibiotic and antibacterial drug resistance, the market for alternatives is growing.

Inventors: Helene F. Rosenberg et al. (NIAID).

Related Publication: T Nitto, KD Dyer, M Czapiga, HF Rosenberg. Evolution and function of leukocyte RNase A ribonucleases of the avian species, *Gallus gallus*. *J Biol Chem*. 2006 Sep 1;281(35):25622–25634.

Patent Status: U.S. Patent Application No. 12/438,700 filed 24 Feb 2009, claiming priority to 24 Aug 2006 (HHS Reference No. E-281-2006/0-US-03)

Licensing Status: Available for licensing.

Licensing Contact: RC Tang JD LLM; 301-435-5031; tangrc@mail.nih.gov.

Collaborative Research Opportunity: The NIAID Laboratory of Allergic Diseases is seeking statements of capability or interest from parties interested in collaborative research to further develop, evaluate, or commercialize this technology. Please contact William Ronnenberg, NIAID Office of Technology Development, at 301-451-3522 or

wronnenberg@niaid.nih.gov for more information.

Dated: September 17, 2009.

Richard U. Rodriguez,

Director, Division of Technology Development and Transfer, Office of Technology Transfer, National Institutes of Health.

[FR Doc. E9-22975 Filed 9-22-09; 8:45 am]

BILLING CODE 4140-01-P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Food and Drug Administration

[Docket No. FDA-2009-N-0440]

Availability of Grant Funds for the Support of Cooperative Agreement Award to Georgetown University Entitled: Genome Wide Methylation Arrays for Detecting Markers of Increased Susceptibility to Mammary Cancer Caused by In-Utero Exposures to Endocrine Disruptors (U01)

AGENCY: Food and Drug Administration, HHS.

ACTION: Notice.

SUMMARY: The Food and Drug Administration (FDA), Center for Veterinary Medicine (CVM), and Office of New Animal Drugs (ONAD) is announcing the availability of grant funds for the support of a sole source, cooperative agreement award to Georgetown University, Lombardi Cancer Research Center and Department of Oncology entitled: “Genome Wide Methylation Arrays for Detection Markers of Increased Susceptibility to Mammary Cancer Caused by In-Utero Exposures to Endocrine Disruptors (U01).” The main purpose of this study is to help gain an understanding of the extent to which exposures to endocrine disruptors early in life increase later susceptibility to developing breast cancer by inducing heritable epigenetic changes in transcription factors, which are linked to increased breast cancer risk. The study is subject to the requirements of the Federal Food, Drug, and Cosmetic Act (the act) (21 U.S.C. 331, *et seq.*) regulations issued under it and applicable Department of Health and Human Services statutes and regulations.

DATES: Important dates are as follows:

1. The application due date is 30 days from the publication in the **Federal Register**.

2. The anticipated start date is September 2009.

FOR FURTHER INFORMATION CONTACT:

Peer Review/Administrative Contact: Michelle Fuller, Center for

Veterinary Medicine (HFV-10), Food and Drug Administration, 7519 Standish Pl., Rockville, MD 20855, 240-276-9736, FAX: 240-276-9744, e-mail: michelle.fuller@fda.hhs.gov.

Scientific Contact: M. Cecilia Aguila, Center for Veterinary Medicine (HFV-153), Food and Drug Administration, 7500 Standish Pl. (rm. E478), Rockville, MD 20855, 240-276-8125, FAX: 240-276-8116, e-mail:

Cecilia.aguila@fda.hhs.gov.

For more information on this funding opportunity announcement (FOA), and to obtain detailed requirements, please refer to the full FOA located at <http://www.fda.gov/cvm>.

SUPPLEMENTARY INFORMATION:

I. Funding Opportunity Description

Request for Application: RFA FD09-020
Catalog of Federal Domestic Assistance
Number: 93.103

A. Background

More than 80,000 chemicals are registered for use in commerce in the United States and an estimated 2,000 new chemicals are introduced annually. These chemicals are used or present as contaminants in everyday items such as: Foods, personal care products, prescription drugs, household cleaners, and lawn care products (National Toxicology Program, 2002). Scientists are continually learning more about how these compounds interact with the body and the long-term impact of these interactions on our health. For example, many synthetic chemicals have been identified as known or suspected EDCs (endocrine disruptors), including DES (diethylstilbesterol), BPA (bisphenol A), and GEN (genistein). The long-term impact of these chemicals on human health is still largely unknown, particularly when the exposure levels are relatively low and do not cause any apparent toxic effects. EDCs may have estrogenic, antiestrogenic, androgenic, and/or anti-androgenic actions and/or they may disrupt adrenal and/or thyroid functions, too.

The endocrine system participates in many important functions of an organism, such as sexual differentiation before birth, sexual maturation during puberty, reproduction in adulthood, growth, metabolism, digestion, cardiovascular and immune functions, and excretion. Hormones are implicated in the etiology of certain cancers of hormone-dependent tissues, such as those of the breast, uterus, and prostate gland. Environmentally released man-made chemicals are suspected of being

responsible for numerous adverse effects on the endocrine function in wildlife species as well as in humans.

EDCs may be harmful to human health following fetal exposure. This likely relates to epigenetic changes in gene methylation patterns occurring during gametogenesis and embryonic development. During these periods, most of our genes are demethylated, followed by remethylation; the timing and pattern of remethylation depends on the tissue lineage, intrauterine environment, and maternal nutrition and other exposures. Several genes have been identified whose expression is epigenetically altered in adult tissues in animals that have been exposed in utero to environmental contaminants with endocrine disrupting activity. Therefore, we hypothesize that in utero EDC exposures increase hypomethylation of genes, including those that regulate mammary stem cell behavior.

It is increasingly evident that many diseases, including breast cancer, may originate during fetal life. Experimental findings and limited human data show that maternal exposures during pregnancy to synthetic estrogens such as DES or endocrine disruptors present in food may precipitate mammary gland development and increase breast cancer risk. To date, traditional toxicity tests such as the 2-year rodent bioassay have been the bases for most regulatory decisions regarding the carcinogenic potential of chemicals in the food. The agency recommends an in utero exposure in these bioassays for direct food and color additives. Therefore, only a limited number of chemicals have been studied by this approach. Additionally, these in vivo toxicology studies are not routinely used to predict the effects of in utero exposures on later susceptibility to various diseases.

B. Research Objectives

The main purpose of the this study is to help gain an understanding of the extent to which exposures to endocrine disruptors early in life increase later susceptibility to developing breast cancer by inducing heritable epigenetic changes in transcription factors, which are linked to increased breast cancer risk. This will be accomplished, first, by exposing pregnant rodents to estrogen and estrogen-like endocrine disruptors at doses previously found to increase mammary cancer among offspring. Focus will be on the resulting hypomethylated genes that express high levels of transcription factors, which regulate proliferation, apoptosis, and differentiation of mammary epithelial cells. Second, humans will be exposed to maternal diet containing plant-

derived compounds with hormonal activity during pregnancy to determine if the diet induces epigenetic changes among daughters in the same transcription factors identified in rodents. Third, the study will utilize genetically modified animal models to determine if the epigenetic changes identified in global methylation arrays are causally linked to an increased susceptibility to developing mammary cancer in vivo.

The data from this study will be used to develop the Prenatal Endocrine Disruption and Mammary Tumor Susceptibility assay (PEDMATS), which will provide a novel approach for predicting the safety of chemicals with endocrine activity. Consequently, the agency will benefit from the proposed study, which combines mechanism-focused toxicology studies and modern molecular biology tools, and addresses the question of the cellular target of breast cancer initiation; i.e., mammary stem and progenitor cells. PEDMATS would help the agency to predict the potential breast cancer risk for chemicals that have been identified as having, or that may have, endocrine activity, and for which there are no valid rodent carcinogenicity bioassays. Another valuable feature of this approach is the potential that the PEDMATS studies can be integrated into the current reproductive and developmental toxicity assessment battery used to evaluate the safety of new drugs.

C. Eligibility Information

Georgetown University is uniquely qualified to conduct this research. It has the expertise to study genetic markers in breast cancer in animal models and humans. Importantly, Georgetown University has expertise and proven ability in identifying genes affected in breast cancer. The data analysis is a critical component of the hybridization array experiments and poses a number of challenges due to the large amount of data generated even in a single experiment. Sophisticated, statistically principled data mining tools should be used. These state-of-the-art clustering pattern analyses use standard Finite Normal Mixture models and probabilistic component subspaces, multimodal clusters being automatically identified using Akaike information criterion and minimal information analysis. Georgetown University, Lombardi Cancer Center recently developed a simple approach for the exploration of limited gene expression data sets. To reduce dimensionality, a simple univariate statistical analysis (t-test) to compare gene expression data is

used. The reduced dimensional data set is visualized in three dimensions using these novel algorithms. These visualized algorithms derive the first three principal components from Fisher's matrix and project the multidimensional data into three dimensional gene expression data space. Exploration of the reduced dimensional data set allows for the identification of discriminant genes that are either assembled into a predictive neural network, and/ or selected for functional studies. These approaches have proved useful in recent studies conducted by Dr. Hilakivi-Clarke (Georgetown University, Lombardi Cancer Center) in identifying genes affected by timing of dietary exposures on breast cancer risk and are the preferred approaches for this study.

Georgetown University, Lombardi Cancer Research Center Animal Core Facility has an AAALAC (Association for Assessment and Accreditation of Laboratory Animal Care) accredited animal facility where the animals can be housed. Georgetown can provide the software, hardware, and sophisticated, statistically principled data mining tools. In addition, Georgetown University is already collaborating in an on-going women study in Finland measuring hormone and adipokine levels from blood samples.

This is a sole source award to Lombardi Comprehensive Cancer Center and Department of Oncology, Georgetown University, Washington, DC.

II. Award Information/Funds Available

Awards are made under the authorization of section 301 of the Public Health Service Act (PHS Act) (42 U.S.C. 241), as amended, and under Federal regulations at 42 CFR part 52 and 45 CFR parts 74 and 92.

A. Award Amount

The total amount CVM expects to award is \$100,400 in the first year and \$104,400 in the second year for a total award of \$204,800; total award amount includes direct and indirect costs.

B. Length of Support

The project period will be from September 2009 to August 31, 2011. The first budget period will be from September 2009 to August 31, 2010.

The second year award will depend on the availability of funds and recipient approved performance.

III. Paper Application, Registration, and Submission Information

To submit a paper application in response to this FOA, applicants should first review the full announcement

located at <http://www.fda.gpo/cvm>. Persons interested in applying for a grant may obtain application forms and instructions at <http://grants.nih.gov/grants/forms.htm>. For all paper application submissions, the following steps are required:

- Step 1: Obtain a Dun and Bradstreet (DUNS) Number
- Step 2: Register With Central Contractor Registration (CCR)
- Step 3: Register With Electronic Research Administration (eRA) Commons

Steps 1 (DUNS Number) and 2 (CCR), in detail, can be found at http://www07.grants.gov/applicants/organization_registration.jsp. Step 3 (eRA Commons), in detail, can be found at <https://commons.era.nih.gov/commons/registration/registrationInstructions.jsp>.

After you have followed these steps, submit paper applications to the Grants Management Contact at the following address:

Gladys M. Bohler, Division of Acquisition Support and Grants (HFA-500), Food and Drug Administration, 5630 Fishers Lane, rm. 2105, Rockville, MD 20857, 301-827-7168, FAX: 301-827-7101, e-mail: gladys.bohler@fda.hhs.gov.

Dated: September 17, 2009.

David Horowitz,

Assistant Commissioner for Policy.

[FR Doc. E9-22848 Filed 9-22-09; 8:45 am]

BILLING CODE 4160-01-S

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

National Institute of Dental & Craniofacial Research; Notice of Closed Meeting

Pursuant to section 10(d) of the Federal Advisory Committee Act, as amended (5 U.S.C. App.), notice is hereby given of the following meeting.

The meeting will be closed to the public in accordance with the provisions set forth in sections 552b(c)(4) and 552b(c)(6), Title 5 U.S.C., as amended. The grant applications and the discussions could disclose confidential trade secrets or commercial property such as patentable material, and personal information concerning individuals associated with the grant applications, the disclosure of which would constitute a clearly unwarranted invasion of personal privacy.

Name of Committee: National Institute of Dental and Craniofacial Research Special Emphasis Panel; Review of R34 Clinical Trial

Pilot Applications PAR-08-195 and R01 PA-07-070 Applications.

Date: October 30, 2009.

Time: 10:30 a.m. to 1:30 p.m.

Agenda: To review and evaluate grant applications.

Place: National Institutes of Health, One Democracy Plaza, 6701 Democracy Boulevard, Bethesda, MD 20892, (Telephone Conference Call).

Contact Person: Rebecca Wagenaar Miller, PhD, Scientific Review Officer, Scientific Review Branch, National Inst of Dental & Craniofacial Research, National Institutes of Health, 6701 Democracy, Rm 666, Bethesda, MD 20892, 301-594-0652, rwagenaar@mail.nih.gov.

Catalogue of Federal Domestic Assistance Program Nos. 93.121, Oral Diseases and Disorders Research, National Institutes of Health, HHS)

Dated: September 16, 2009.

Jennifer Spaeth,

Director, Office of Federal Advisory Committee Policy.

[FR Doc. E9-22969 Filed 9-22-09; 8:45 am]

BILLING CODE 4140-01-P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

National Institute of Allergy and Infectious Diseases; Notice of Closed Meeting

Pursuant to section 10(d) of the Federal Advisory Committee Act, as amended (5 U.S.C. App.), notice is hereby given of the following meeting.

The meeting will be closed to the public in accordance with the provisions set forth in sections 552b(c)(4) and 552b(c)(6), Title 5 U.S.C., as amended. The grant applications and the discussions could disclose confidential trade secrets or commercial property such as patentable material, and personal information concerning individuals associated with the grant applications, the disclosure of which would constitute a clearly unwarranted invasion of personal privacy.

Name of Committee: Microbiology, Infectious Diseases and AIDS Initial Review Group; Microbiology and Infectious Diseases Research Committee.

Date: October 6, 2009.

Time: 8 a.m. to 5 p.m.

Agenda: To review and evaluate grant applications.

Place: The Legacy, 1775 Rockville Pike, Rockville, MD 20852.

Contact Person: Michelle M. Timmerman, PhD, Scientific Review Officer, Scientific Review Program, DEA/NIAID/NIH/DHHS, Room 2217, 6700B Rockledge Drive, MSC-7616, Bethesda, MD 20892-7616. 301-451-4573. timmermanm@niaid.nih.gov.

This notice is being published less than 15 days prior to the meeting due to the timing