

**Call for Proposals
Center for Advanced Food Technology
Cooperative Research Program**

Background: The Center for Advanced Food Technology (CAFT) serves the food and affiliated industries by engaging in research, training, education, extension and economic development activities. Research programs funded by the Center are a reflection of the interests of the food industry members and the final selection of research projects is based on input from the member companies.

Cooperative Research Program: CAFT's Cooperative Research Program serves the food industry through fundamental and applied research and an active program of technology transfer. Cooperative Research supports basic generic core research and proprietary research conducted by faculty throughout Rutgers University. The oversight committee for CAFT is its Industrial Advisory Board (IAB). The Board meets twice a year and offers advice and guidance on the nature of the core research programs carried out in the Center. Progress reports of the research are presented to the IAB members and their technical representatives twice a year.

The Center's faculty/staff and CAFT's member companies develop Cooperative Research Clusters jointly. Core research programs currently focus on the following areas:

- **Food Ingredient Technology**
- **Food Safety and Defense**
- **Functional Foods and Health Promotion**
- **Nanotechnology Applications to Food**

More details on these research areas can be found below in the Guidance for Proposal Submission below, and faculty members are also encouraged to discuss proposal ideas for in any research area that might be of interest to the food industry.

Instruction for Preparation of Proposals (2009-2012)

The length of proposals must not exceed five (5) single-spaced, 10-point font pages with 1-inch margins. The proposal should include the following components:

- 1, Rationale: The fundamental issues to be investigated within a three year should be presented in this section. Emphasis must be given to expected impact on the food industry; improved quality, reduced cost, food safety, new products, etc. (not to exceed half-page).
2. Background: Past accomplishments related to the project topic should be presented (not to exceed 1 page).
3. Goals and Objectives: Present the long-term (3 year) goals and specific short-term (1 year) objectives of the project. The goal of the project should indicate the extent to which an industry need can be achieved within in 3 years (not to exceed half-page).
4. Approach: Describe the methodological approach to be followed in responding to the project goals. Methods, measurements and data analysis should be presented, as well as steps required for interpretation of results into meaningful conclusions (not to exceed half- page).
5. Anticipated Results: Describe the specific type of results from the project in terms that address the food industry needs (not to exceed half-page).
6. References: Use Journal of Food Science or other scientific journal format.

7. Timetable: Timeline for accomplishment of specific project objectives and sub-objectives on a quarterly basis should be presented.

8. Budget: Identify the key items to be funded from the projects funds. Note that the total budget cannot exceed \$15,000.

Project proposals must be submitted by **April 15, 2009**. Notice of awards will be communicated in June 2009 and funding will commence on July 1, 2009, subject to availability of funds.

CAFT supports a total of approximately 15 active research projects and the total number is a function of the funds available. The average level of annual funding is approximately \$15,000 per project. It is intended to supplement funding from other sources or provide seed money to generate preliminary data for new grant applications. **Faculty members are required to present progress reports at CAFT's spring and fall meetings.**

Guidance for Proposal Submission

The Cooperative Research program is seeking proposals on focus areas described below, **but we welcome proposals in any research area that you believe would be of interest to the food industry.** Faculty members are invited to contact the Associate Director (prior to April 1, 2009) to discuss the suitability of any potential research topics. Successful proposals will be funded at a level of approximately \$15,000 per year. All communications should be directed to Dr. William C. Franke, Associate Director at franke@aesop.rutgers.edu or (732-932-8306 Ext 315).

Food Ingredient Technology: New food ingredients are appearing almost daily in response to health benefits and concerns as well as issues of sustainability, "green", organic, GMO and economic viability. The objective of this cluster is bring members up to date on the latest developments in the area of proteins, carbohydrates, lipids, flavors and nutrients and engage in active discussion on these important topics. Basic research and applied research will be considered.

Suggested areas of interest include: elimination of trans fats; incorporation of health fats; new sweeteners; fat substitutes; protein functionality and natural preservatives

Food Safety and Defense: The overall objective of the food safety research cluster is to ensure safety of the food supply; from both microbiological and toxicological agents. The research outcomes would include information on application of new technologies (non-thermal, antimicrobials, natural preservatives, etc) for control of microbial pathogens, as well as rapid methods for identification of pathogens or evaluating the influence of product formulations on creation of compounds of toxicological concern during food processing operations.

Suggested areas of interest: understanding the mechanisms of action of natural antimicrobials for control of pathogens in foods; application of non-thermal and hybrid processing to insure both microbial and chemical safety; development of methods for rapid detection of pathogens in foods; strategies to control or eliminate reactions producing compounds of concern in processed foods; using the methods of molecular biology to investigate virulence and survival of food-borne pathogens and biofilm formation and elimination

Functional Foods and Health Promotion: The overall objective of this cluster is to identify health-promoting compounds in foods and food ingredients, and to quantify the influence of processing operations (including non-thermal, membrane, and similar technologies) on the effectiveness of these compounds in particular on inflammatory pathways, obesity, diabetes or emerging health needs. The outcomes from the research would include the identification of compounds that improve health promotion attributes of foods, and the opportunities for product differentiation through clinical trials, as well as the potential for label claims.

Suggested areas of interest include: understanding the mechanisms for targeted delivery of health promoting compounds; nutritional benefit of whole grain products, in particular in glycemic index control; enhancement of health promotion (anti-inflammatory, glycemic index control, obesity, diabetes, emerging health concerns) compounds in foods through processing; studies on the inhibitory influence of compounds, with emphasis on anti-inflammatory activity; bioavailability and metabolomics; benefits of probiotics

Nanotechnology Application to Foods: The objective of the nanotechnology cluster is to apply emerging advances in nanotechnology to food resulting in improved quality and functionality or innovative new products. Research outcomes include novel encapsulation methods or delivery systems (e.g., solid lipid nanoparticles, hydrophobically modified starch or chitosan nanoparticles, nanoemulsions) for flavors with improved stability or nutraceuticals with improved oral bioavailability and other functionalities; Novel biopolymer nanocomposites for edible films or food packaging applications are another possible outcome; reduced energy consumption during food processing is another area of investigation.

Suggested areas of interest include: nano-encapsulation of flavors, colors or bioactives; nanotechnology applied to functional beverages; biodegradable films and nano-composites with enhanced functionality