

Research Funding and Support

A talented multidisciplinary scientific staff, in conjunction with the academic interests of graduate and undergraduate students studying food technology and nutritional science participate in the Institute's research activities. For students, the research often augments their thesis work or research practicum. Virtually any research venture or proposal will be examined by our research committee on the basis of cost and technical feasibility.

The Institute's work is supported by tax-deductible business and industry grants, subcontracts or fees for services rendered, plus subcontracts or awards from the National Institutes of Health and other government agencies.

Proprietary developments, production processes, and formulations will be held in strict confidence according to our clients' requirements.



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Institute for Food Science, Technology and Nutritional Biochemistry



INSTITUTE GOALS AND CURRENT RESEARCH

Research Activities

Resolution of Complex Food and nutrition problems requires strategically planned and carefully executed solutions. Nearly every aspect of modern food product development, processing, toxicology, flavor, deterioration, labeling verification, packaging, and ingredient application involves chemical or microbiological considerations. There are few dimensions of nutritional science where the challenges are more complicated than those of applied food technology, or the interactions of environmental food contaminants, nutrition, and public health.

The Institute for Food Science, Technology and Nutritional Biochemistry is a research arm of the Chemistry and Food Science Department at Framingham State University. As an outgrowth of the University's century-long commitment to food and nutritional studies, the Institute is dedicated to business and academic challenges dealing with foods and nutrition as well as supporting research on advanced food technologies in the Commonwealth.

Research programs are tailored to the requirements of business and academic interests large or small-and technical support for start-up business ventures is of special interest since the Institute is a fee conscious, knowledge-based asset of the Commonwealth.

Current research efforts include a variety of nutritional biochemical studies along with several in advanced analytical chemistry and food product development. Food resource development involving new plant crops or aquacultured foods and their environmental protection are also considered. Specific studies have included:

- Epidemiology studies on osteoporosis and pioneering nutritional biochemistry work on bone growth and metabolism in young women
- Dietary calcium intake and hypertension in young people .
- Advanced laboratory robotic systems development for complex high volume chemical analysis
- Flavor encapsulation technology designed for newly formulated baked foods
- Dietary behavior and characteristics of lactose intolerant females related to the presence or absence of osteoporosis
- Public health surveillance of foods sold in the Commonwealth for truth in labeling, food safety compliance, filth, and carcinogens
- The role of resistant starch in food and health
- Analysis of resveratrol in different varieties of grapes and wine
- Plant cell wall structure and the texture of foods

Apart from studies such as those detailed above, the Institute is interested in working with clients to develop quality assurance guidelines for complete food products, ingredients, or unit food processing steps.

Professional Scientific Staff

Scientific capabilities of the Institute's staff include a wide range of specialists who have excellent credentials. academic, industrial, and practical expertise includes the full scope of interests including classical food science and technology, food product development, nutritional biochemistry, advanced analytical chemistry, applied nutrition and dietetics.

Modern Food Research Pilot Plant and Analytical Facilities

As a "Center of Excellence" in food science and technology, the Institute maintains a food pilot plant facility designed to cope with many facets of food and nutritional research. Some of the facilities' capabilities include:

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| * Spray drying. | * Filtration |
| * Freeze drying . | * Freezing |
| * Frying | * HTST Pasteurization |
| * Colloid milling | * Flash freezing |
| * Homogenization | * Complete test-recipe and food formulation trials |
| * Blending | |
| * Baking | |

Proximate, microbial, and specialty analytical procedures such as aflatoxin surveys are routine. Analytical chemistry is supported by a range of instrumentation including liquid (HPLC) and gas (GC) chromatography, gas chromatography/mass spectrometry (GC/MS), laboratory robotics for routine assays and procedures, IR, UV-VIS, and fluorescent spectrophotometry, atomic absorption, gamma-based radioanalytical systems, Na +, K +, and Ca + 2 analytical systems, gel permeation chromatography, and many other instruments that permit basic and advanced chemical analyses of foods or food resources.