

RIDC

Research at the cutting edge of knowledge

The Sao Paulo Research Foundation (FAPESP) supports 17 Centers for Research, Innovation and Diffusion Centers (RIDC), hubs of excellence in research, bringing together scientists of the State of São Paulo and abroad. This initiative is one of the largest investments in research programs in Brazil. The FoRC (Food Research Center) is one RIDC conceived and based at the University of São Paulo.

The most important characteristic of the RIDCs is the multiplicity of missions. Apart from developing essential or applied research in specific issues, RIDCs must contribute to society with innovation through development of efficient means of technology transfer. They are also responsible for extension activities, aimed at primary and middle school education and the public in general.



INSTITUTIONS PARTICIPATING OF FoRC

Headquarters

University of São Paulo (USP)

- School of Pharmaceutical Sciences (FCF)
- Polytechnic School (EP)
- Luiz de Queiroz College of Agriculture (ESALQ)
- Faculty of Pharmaceutical Sciences at Ribeirão Preto (FCFRP)
- Faculty of Medicine (FM)
- Faculty of Public Health (FSP)
- Faculty of Animal Science and Food Engineering (FZEA)

Associated Institutions

Mauá Institute of Technology (IMT)

Food Technology Institute (ITAL)

Faculty of Food Engineering of State University of Campinas (FEA - UNICAMP)

School of Medicine of São Paulo State University (FMB - UNESP)

Executive Committee

Director

Professor Bernadette D. G. Melo Franco

Vice-Director

Professor Carmen Cecilia Tadini

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Professor Beatriz Rosana Cordenunsi

Coordinators for Education and Knowledge Dissemination

Professor Eduardo Purgatto

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Coordinator of Technology Transfer

Professor Carmen Cecilia Tadini



Science for a Healthy Life

FOOD RESEARCH CENTER

Science for a Healthy Life

The Food Research Center (FoRC) is a Research, Innovation and Dissemination Center (RIDC) supported by FAPESP, the Sao Paulo

Research Foundation. Set up in 2013, FoRC develops basic, applied or strategic scientific research focused on foods and nutrition, in partnership with several research centers in Brazil and abroad. Another important mission is education and knowledge dissemination. Researchers in FoRC are leaders in the Brazilian scientific community, and work as multidisciplinary teams.

Research conducted at FoRC is focused on four areas:

- Biological Systems in Foods
- Food, Nutrition and Health
- Food Quality and Safety
- New Technologies and Innovation

Apart from advancing scientific knowledge, research and development (R&D) at FoRC aim at the generation of innovative products and processes that result in social and economic impact. Another goal is human resources development and training, to meet technological and social needs in food science and nutrition.

Open Innovation

FoRC develops R&D in partnership with public and private enterprises and also non-governmental organizations (NGOs), and provides consultancy and technical assistance. These activities are carried out with support from the University of São Paulo Innovation Agency, responsible for managing innovation policy to promote the use of scientific, technological and cultural knowledge produced at the university.



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Biological Systems in Foods

Focuses on the chemical composition of foods, aiming at advancing scientific knowledge related to their quality. Research in this area is a key element to foster improvement in agricultural production and food manufacturing.

Research projects:

- Characterization of commercially relevant Brazilian foods, in terms of macronutrients (carbohydrates, proteins and fats), micronutrients (minerals, vitamins and pro-vitamins), compounds that affect sensorial properties (color, texture and flavor), compounds with potential health benefits (fibers, phenolic substances and bioactive ingredients) and those that compromise food safety (toxins and allergens).
- Study of the molecular mechanisms regulating biosynthesis and catabolism of these compounds in vegetables, and the effects of pre and post-harvest handling.
- Identification of potential applications of nutritionally, functionally or technologically relevant compounds, evaluated in laboratorial settings and pilot plants.
- Exploitation of the biodiversity of Brazilian foods of plant origin through screening and identification of their components, aiming at adding value to food manufacturing.

Coordinators:

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Food, Nutrition and Health

Focuses the biological benefits of bioactive compounds in foods and evaluates the functionality potential of foods for promotion of health and reduction of the risk of developing non-transmissible diseases. The innovative approach includes pre-clinical and clinical trials, using systems biology concepts and 'omic' technologies.

Research Projects:

- Study of bioactive compounds and micronutrients, their characterization in plant foods, bioavailability and specific activity, such as anti-inflammation and anti-proliferation, using cell cultures and animal and human models.
- Clinical studies using short to medium duration interventions, with foods as sources of bioactive compounds. Wide characterization of their influence on genomic expression (epigenome, transcriptome, proteome and metabolome), elucidating the effects on health and patterns of physiological response.
- Study of the influence of food consumption patterns, source of phenolic compounds (maternal and paternal) on offspring susceptibility to development of chronic non-transmissible diseases, especially breast cancer.

Coordinators:

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Food Quality and Safety

Research on improvement of food safety, considering the risks of contaminations with microbial pathogens and chemical agents. Establishment of strategies to reduce the risks to human health, helping industries to overcome bottlenecks and to boost their competitiveness in international trade.

Research Projects:

- Risk assessment throughout the food production chain – primary production, processing, storage, distribution and commercialization – using biomarkers and sophisticated analytical techniques.
- Studies on the probability of contamination, backed up by methodologies of good manufacturing practices, risk assessment and food safety management for enhancement of regulatory benchmark and food control systems.

Coordinators:

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New Technologies and Innovation

Foods with better sensorial quality and that promote health through specific functionalities are a new consumer trend. Research focuses the development of novel functional foods and innovative processes for preservation, including eco-efficient packaging.

Research Projects:

- Exploration of alternative technological routes for obtention of new functional foods with properties capable of reducing the risk of non-transmissible chronic diseases, such as cancer and diabetes, among others.
- R&D for innovative processes for the use of natural preservatives or emerging physical techniques (processing by microwaves, high pressure) for food preservation.
- Development of new packaging materials, based on biopolymers from renewable sources, with potential use in passive or active packaging, enabling the control of physiological, microbiological and biochemical changes in foods.
- Use of packaging as vector for the controlled release of preservatives or functional ingredients, requiring development of nanostructures and compliance with legislation currently in force, in relation to the use of food additives.

Coordinators:

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