

The Center for Research and Innovation in Biodiversity and Drug Discovery (CIBFar) is a joint initiative resulting from existing collaborative research projects involving the Laboratory of Medicinal and Computational Chemistry (LQMC) at the Institute of Physics of São Carlos (IFSC), University of São Paulo (USP); the Nucleus of Bioassays, Biosynthesis, and Ecophysiology of Natural Products (NUBBE), at the Institute of Chemistry, São Paulo State University (UNESP); the Laboratories of Organic Synthesis, at the Institute of Chemistry, State University of Campinas (UNICAMP); the Laboratories of Natural Products and Organic Synthesis, at the Department of Chemistry, Federal University of São Carlos (UFSCar); and the Laboratory of Natural Products, at the School of Pharmaceutical Sciences of Ribeirão Preto, University of São Paulo (USP).

The major goal is to perform basic and applied science as well as technological development in all areas of biodiversity and drug discovery that rely on the state-of-the-art methods of natural products chemistry, synthetic organic chemistry, molecular and structural biology, biological, biochemical and pharmacological assays, medicinal chemistry and drug design.

The specific goals are the bio prospection of the Brazilian flora with a view to the identification of hits with a broad spectrum of biological activities (antiparasitic, antibacterial, anticancer); the selection of promising hits, leading to organic synthesis and structure-activity relationship studies; the use of structure and ligand-based drug design approaches to guide hit to lead optimization; and preclinical *in vitro* and *in vivo* evaluation and optimization of candidate compounds, toxicology and pharmacokinetics studies. The final goal is the development of novel, patentable drug candidates for clinical development (e.g., enzyme inhibitors or receptor agonists/antagonists). To this end, a very high priority of CIBFar is to provide not only solid scientific competency and expertise in all areas of



interest but also to provide a very well organized structure for the integration of modern approaches in biodiversity and drug discovery. Maximum integration and collaboration with the private sector is sought, particularly with national and international pharmaceutical companies and research institutes within the health sectors.

On the educational front, CIBFar also relies on the considerable experience that has been acquired over the last ten years from previous experience as a RIDC-FAPESP. For this proposal, the strong training programs for undergraduate/graduate students and researchers, with an emphasis on modern methodologies used in the fields of biodiversity and drug discovery research will be expanded. Furthermore, CIBFar will work with the Center for Scientific and Cultural Diffusion, at the Federal University of São Carlos, through programs directed towards elementary and secondary students, to further the education of schoolteachers, to extend libraries of experiments for school exhibition and to educate at a distance via the Internet, videos, science fairs and lectures.

**Host Institution**

University of São Paulo (USP, campus São Carlos)

**Associated Institutions**

State University of Campinas (UNICAMP)

São Paulo State University (UNESP)

Federal University of São Carlos (UFSCar)

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