

Area: Cellular and molecular biology

Research topics: Bioinformatics and systems biology

We use bioinformatic and computational biology to develop tools for data analysis from high-throughput technologies such as genomic, transcriptomic, proteomic and metabolomic. We use systems biology and big-data approaches to understand different complex models including host-parasite interactions as well as biotechnological processes. Studies on functional genomic and mathematical modelling of complex biological processes.

Investigators: Edmundo Carlos Grisard (P), Daniel Santos Mansur (P), Patrícia Hermes Stoco (P), Marcelo Maraschin (P), Andrea Rita Marrero (C), Glauber Wagner (C), Rubens Tadeu Delgado Duarte (C).

Area: Microbiology and parasitology

Research topics: Host-microorganism interaction

We study commensal and pathogenic microorganisms and its interactions with hosts. Using several different models, such as virus, bacteria, protozoan and fungi we aim to better understand the cellular and molecular mechanisms underlying the interaction of these microorganisms and its hosts. Virulence, immune system evasion, infectivity are also investigated. We are also interest in studying genetic variability of microorganisms and use this features to develop diagnostic tests and biomarkers.

Investigators: Aguinaldo Roberto Pinto (P), André Báfica (P), Daniel Santos Mansur (P), Edmundo Carlos Grisard (P), Mário Steindel (P), Patrícia Hermes Stoco (P), Rafael Diego da Rosa (P), Thaís Christine Marques Sincero (P), Robson Di Piero (P), Carlos Rodrigo Zarate-Bladés (C), Fabienne Antunes Ferreira (C), José Henrique Maia Campos de Oliveira (C), Ricardo Luiz Mazzon (C).

Area: Biotechnology

Research topics: Prospection of bioactive molecules and development of vaccines and therapies

We aim to prospect and characterize organisms and its metabolites and also synthetic compounds to study its antimicrobial and antitumoral activities applied to agriculture, animal and human health. In this research topic we are also interested in developing new diagnostic, prophylactic, therapeutic tools and protocols for infectious and non-infectious diseases.

Investigators: Cláudia Maria Oliveira Simões (P), Mário Steindel (P), Oscar Bruna-Romero (P), Rafael Diego da Rosa (P), Thais Cristine Marques Sincero (P), Carlos Rodrigo Zarate-Bladés (C).

Area: Biotechnology

Research topic: Bioprocesses development

We prospect biodiversity to obtain new products and processes applied to human and animal health, cosmetic and environment. In this research topic, we also aim to develop and optimize processes to improve residue exploitation, bioremediation, and production of bioactive molecules and biofuels, as well as, genetic enhancement of industrial microorganisms. Biotechnological application of photobiology in algae and plants. Development of plant growth regulators and phytopathogen control.

Investigators: Boris Juan Ugarte Stambuk (P), Marcelo Maraschin (P), Leonardo Rubi Rörig (P), José Bonomi Barufi (P), Robson Marcelo Di Piero (P), Célia Regina Monte Barardi (P), Maria Elisa Magri (P), Admir José Giachini (P), Diogo Robl (C), Gislaine Fongaro (C), Ana Maria Viana (C).