










LABORATORY OF MOLECULAR AND COMPUTATIONAL BIOLOGY OF FUNGI

POSTGRADUATE PROGRAMME IN BIOINFORMATICS AND POSTGRADUATE PROGRAMME IN MICROBIOLOGY

INSTITUTE OF BIOLOGICAL SCIENCES - UFMG

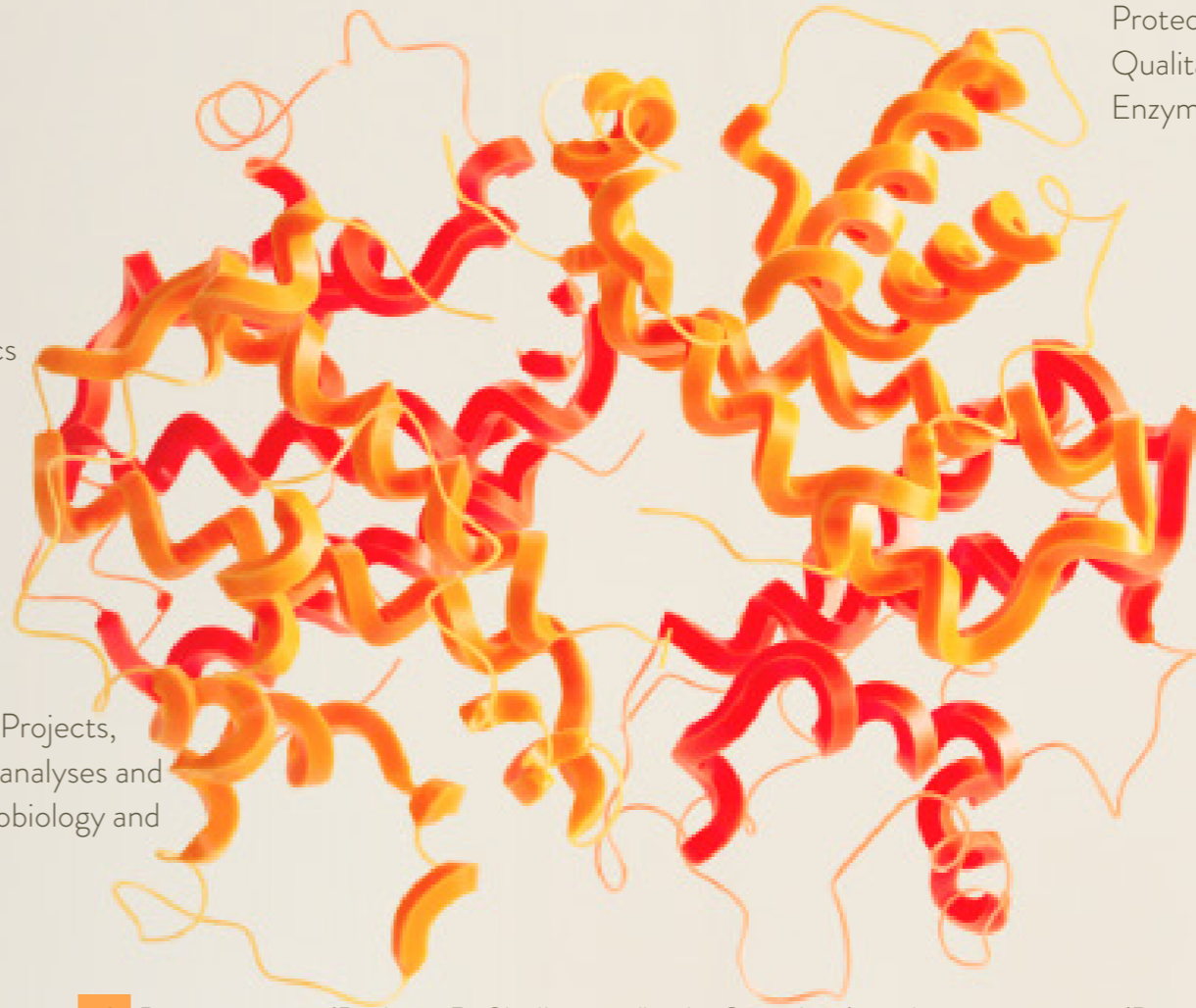
MAIN FIELDS OF ACTION

-  MICROBIOLOGY
-  SYSTEMATICS
-  ECOLOGY
-  BIOTECHNOLOGY
-  CELLULAR AND MOLECULAR BIOLOGY
-  BIOINFORMATICS
-  BIOMATERIALS
-  BIODESIGN
-  OPEN SOURCE HARDWARE

AND SOFTWARE

GROUP EXPERTISE

-  Field collection, sample processing, isolation, cultivation, preservation, characterization and phenotypic and genotypic identification of macro and microscopic fungi;
-  Molecular Characterization of Micro-organisms (Genomics, Metagenomics, Transcriptomics, Proteomics): DNA and RNA extraction; Qualitative PCR, qPCR and ddPCR; Enzyme characterization;
-  Phylogenetic and phylogenomic analyses;
-  Bioprospecting of natural and synthetic antimicrobials: bioassays and physical-chemical characterisation;
-  Studies of environmental and host-associated microbiomes by amplicon and shotgun metagenomics and metatranscriptomics;
-  Programming (Python, R, Shell script/bash, C++, Java), web programming (Django, JavaScript, Bootstrap), Database (MySQL, PostgreSQL, Oracle 10g/11g, SQL Server, SQLite), ETL (Extract, Transform and Load), Massive Processes, Bioinformatics Analysis and Statistics of Results in the field of microorganism omics and Metaomics (Amplicon Metagenomics, Shotgun Metagenomics and Metatranscriptomics) in different environments and programming languages;
-  Design and Biodesign;
-  Quantum calculations and structural bioinformatics with docking and molecular dynamics analysis;
-  Virtualization (Docker, VMs). Augmented Reality, Virtual Reality. Machine learning. Genome assembly.
-  Prototyping using Open Source Hardware and Software;



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