PRIORITIZED RESEARCH LINES

- Cardiovascular disease: Nutritional Prevention and Integration of Genome and Exposome Determinants. Determine the burden of atherosclerotic vascular diseases at the population level; identify new biomarkers related to cardiovascular diseases, assessing their causal role and the mechanisms involved in the pathogeny of these diseases; develop and evaluate new predictive tools to estimate cardiovascular risk; and, improve the prevention of these diseases based on nutritional and lifestyle recommendations.

- Global Burden and Outcomes of Mental Disorders and Occupational Conditions.
  Frequency, risk factors, disability and costs related to poor mental health, mental disorders and suicide, occupation and labor conditions, and related urban and environmental inequalities.

- Cancer Epidemiology: Environmental Causes, Early Detection Programs, and Patient-Reported Outcomes.
  Clinical and molecular epidemiology focuses on pancreatic cancer, particularly on environmental causes such as persistent organic pollutants. Also, improve the effectiveness of early detection programs for breast and colorectal cancer, personalized cancer screening based on patient's individual risk, and the assessment of the needs and the use of health services of cancer survivors.

- Substance use disorders: comorbidities, gender and treatment: Elucidating the participation of the endocannabinoid, glutamatergic and monoaminergic systems in brain structures involved in cognitive, affective and reward processes.

- Biomarkers and therapeutic strategies in mental health and neurodegenerative diseases: Approaches in animal models and clinical studies looking for biomarkers and different therapeutic approaches for the treatment of mental and neurodegenerative diseases.

- Prevention of cognitive decline in intellectual disabilities and the aging population: Understand the biological processes that precede the onset of dementia due to Alzheimer's disease to establish prevention programs to stop or at least delay the onset

of cognitive impairment and, ultimately, dementia, in asymptomatic people at risk of developing the disease.

- Kidney Transplant and Chronic Kidney Failure: Research in deciphering the mechanisms involved in the progression of renal failure associated with diabetes and those responsible for rejection.

- Infectious disease: Analysis of the epidemiology, clinical aspects and therapy of complex infections like multidrug resistant bacterial infections, HIV and COVID-19, as well as the analysis of immunologic aspects of these entities.

- Muscular respiratory function: Study of skeletal muscles dysfunction and limitations on daily life activities and respiratory failure through cellular and molecular aspects.

- Personalized medicine in colorectal cancer: Develop novel strategies to individualize and improve colorectal cancer early diagnosis and treatment based in liquid biopsy, prognosis prediction and understanding of the tumor microenvironment and its clinical implications.

- Immunotherapy and personalized medicine in breast cancer: Developing novel ways to increase the vulnerability of breast cancer to immunotherapy, deepening the understanding of the tumor microenvironment and developing novel epidemiologically based strategies for screening.

- Cancer stem cells in solid and hematologic cancers: Novel ways of targeting stem cells and EMT in solid and hematological malignancies to overcome resistance to chemotherapy and immunotherapy.

- Computational Genomics: Development of algorithms for transcriptomic data sequence evolution and the study of neurological diseases.

- Integrative Biomedical Informatics: Knowledge management and analysis for an enhanced understanding of diseases, text mining and databases.

- Computational Pharmacology and Toxicology: Application of computational methods and tools to study the molecular mechanisms of drugs and other chemicals.