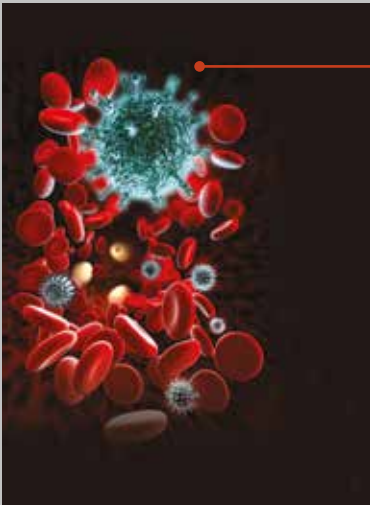


# CUTTING EDGE RESEARCH

Long-term funding (10+years)  
for multi-institutional research centers of  
excellence, in all areas of knowledge

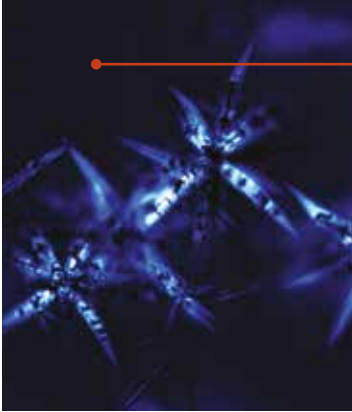
RESEARCH | TECHNOLOGY TRANSFER | EDUCATION



## RESEARCH ON INFLAMMATION

Producing integrative and translational scientific research to identify and validate new biological pathways involved in the induction and resolution of inflammation:

- ▷ Recognize and understand the molecular, immunological, pathological and pharmacological mechanisms involved;
- ▷ Identify new biological targets for the development of pharmacological therapeutic tools;
- ▷ Search for possible diagnostic markers and prognostic indications;
- ▷ Apply new knowledge to design and synthesize molecules aimed at treating inflammatory diseases.



Vladimir Fokin

## RESEARCH IN VITREOUS MATERIALS

R&D on new active glasses and glass-ceramics presenting application-relevant functionalities, such as high mechanical strength and electrical conductivity, biological and optical or catalytic activity:

- ▷ Fundamental research on structure-property relations;
- ▷ XRD and microanalyses for elucidating nano and microstructures
- ▷ Molecular dynamics simulations;
- ▷ Search for applications such as structural reinforcement materials (dental and bio glass-ceramics), optical materials (laser glasses), materials for electrochemical energy storage devices (electrolytes, high-temperature seals), and catalytically active systems.

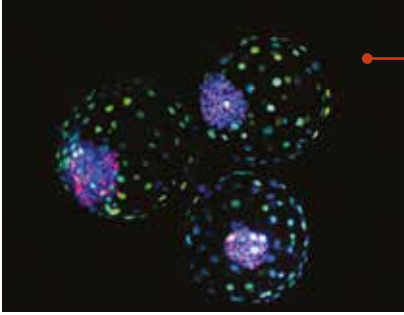
## MATHEMATICS & INDUSTRY

Solving challenging industrial problems by using mathematical sciences, as well as developing new transformative mathematical techniques and exploring their applications for the benefit of society:

- ▷ Numerical simulations of turbulence on aircraft wings;
- ▷ Pre-salt oil production simulation;
- ▷ Hypersustaining surfaces;
- ▷ Reduction in expenses with export taxes;
- ▷ Tomography Image Reconstruction Optimization;
- ▷ Lives saved through social isolation during the Covid-19 pandemic.



Léo Ramos Chaves



## CENTER FOR CELL THERAPY

Investigating stem-cells, especially in hematology, and the use of cell based therapies.

- ▷ Mechanisms of pluripotency;
- ▷ Diseases of stem-cells and telomeres;
- ▷ Treatment of diseases with cell transplants;
- ▷ CAR T-cell therapy;
- ▷ Clinical trials.



## CENTER FOR METROPOLITAN STUDIES

Center of excellence in georeferenced observation of cities, research on the role of public policies in reducing poverty and social inequality:

- ▷ Relationship between social changes, democracy and inequality;
- ▷ Impact of public policy on poverty reduction;
- ▷ Role of political institutions;
- ▷ Different forms of governance in urban areas.

## NEUROSCIENCE AND NEUROTECHNOLOGY

Research on epilepsy and strokes, as well as the injury mechanisms that follow disease onset and progression; prevention, diagnosis and treatment.

- ▷ Virtual reality-based rehabilitation programs;
- ▷ Effects of infection by SARS-CoV-2 on the central nervous system;
- ▷ Mapping small variations in the genome that may influence the structure of key brain regions.



- 1 Biodiversity and Drug Discovery (CIBFar) – USP
- 2 Toxins, Immune-Response and Cell Signaling (CeTICS) – Butantan Institute
- 3 Cell-Based Therapy (CTC) – USP
- 4 Optics and Photonics (Cepof) – USP
- 5 Metropolitan Studies (CEM) – USP
- 6 Food Research (FoRC)
- 7 Vitreous Materials (CeRTEV)
- 8 Mathematical Sciences Applied to Industry (CeMEAI)
- 9 Human Genome and Stem-Cells (HUG-CELL)
- 10 Neuroscience and Neurotechnology (BRAINNN)
- 11 Study of Violence (NEV)
- 12 Obesity and Comorbidities (OCRC)
- 13 Inflammatory Diseases (CRID)
- 14 Research on Redox Processes in Biomedicine (Redoxoma)
- 15 Computational Engineering and Sciences (CCES)
- 16 Neuromathematics (NeuroMat)
- 17 Research and Development of Functional Materials (CDMF)
- 18 Antimicrobial Resistance Institute of São Paulo (The Aries Project)
- 19 Carbon Research in Tropical Agriculture (CCARBON)
- 20 Cancer Theranostics Innovation (CancerThera)
- 21 Research on Biodiversity Dynamics and Climate Change
- 22 Biology of Bacteria and Bacteriophages (CEPID B3)

Learn more  
about the RIDC

