Laboratory of Molecular Mechanisms of Hematologic Disorders and Therapeutic Implications

TEAM LEADER
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LABORATORY
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IMAGINE

TYPE OF COLLABORATION
Collaborative research
Partnering research
Expertise
Clinical databases
Collections

RESEARCH AREAS & OBJECTIVES

Research areas
- Virus-associated lymphoproliferations (HTLV1, HCV, EBV)
- Lymphoproliferations associated with immunodeficiencies
- Mantle cell lymphoma
- Enteropathy-associated T-cell lymphoma (EATL)
- Graft-versus-host disease
- Antitumoral immunotherapy

Objectives
The laboratory covers several aspects of the physiopathology and treatment of malignant and benign hematologic disorders. Major research objectives are: i) the characterization of mechanisms governing the physiopathology of hematological disorders; ii) the development of therapeutic strategies to treat these diseases; iii) the development of clinical research and iv) technology transfer.

EXPERTISE

Biological targets and in vitro / in vivo / ex vivo models
Targets:
- Immune checkpoints and immunological synapse
- Tyrosine kinases (ex: Ckit, PDGF-R, Lyn)
- NK receptors (ex: KIR), Neuropilin 1 (NRP1), Transferrin receptor (TFR)
Models:
- In vitro: cell lines of B and T-cell non-Hodgkin lymphoma and acute lymphoblastic leukemia, coculture of cell lines or primary cells with macrophages or NK cells
- In vivo: immunodeficient mice (xenografts of cell lines or primary cells), spontaneous animal models (dogs, cats)
- Ex vivo: in vitro expansion of primary iNKT cells, expansion of normal and pathologic CD34+ cells

Blood and tissue biomarkers
- Assessment of in vitro human iNKT cells expansion to predict GVH
- Expression of NRP1 and TFR as prognostic factors

Early pharmacodynamic signs of activity
- Kinases activation
- Telomeres and telomerase activity

Tools, processes and platforms in connection with clinical research
- Bioinformatics (sequencing data analysis) and biostatistics platforms
- Imaging technics (image stream, confocal microscopy)
- Patients cohorts: EATL, HTLV1-associated lymphomas, NK/T-cell lymphomas, subcutaneous panniculitis-like gamma/delta T-cell lymphomas

PLATFORMS & TECHNICAL RESOURCES

Available platforms
- Genomics (exome sequencing, targeted resequencing, SNP array), proteomics
- Flow cytometry and cell sorting, microscopy (confocal microscopy, image stream, videomicroscopy)
- Mice facility / Transgenesis
- Induced pluripotent stem cells

Other available tools
- Study of ADCC, apoptosis, vaccine response in mouse models, activity of regulatory T cells, lymphocytotoxicity (mediated by CD8+ T lymphocytes or NK cells).

R&D OFFER

- Collaborative and partnering research: pharmacologic modulation of biological targets, prognostic biomarkers development
- Expertise: HTLV1-associated lymphomas, mantle cell lymphomas, EATL, immunodeficiency-related lymphomas, HCV-associated lymphomas
- Clinical databases: HTLV1-associated lymphomas, EATL, NK/T-cell lymphomas
- Tumor samples collections: EATL, HTLV1-associated lymphomas, NK/T lymphomas, subcutaneous panniculitis-like gamma/delta T-cell lymphomas
- Spontaneous tumor animal models

KEY WORDS
Molecular and cellular mechanisms of pathogenesis, Therapeutic innovation, Valorisation