Genomic Instability and Human Hemopathies

RESEARCH AREAS & OBJECTIVES

Research areas
Identification of biomarkers of progression and new therapeutic targets in Lymphoma and lymphoblastic leukemia

Objectives
The laboratory aims at identifying "addictive" molecular alterations present in lymphoid neoplasia and in particular mutations founding the precursor cancer cells (CPC) that cause relapses. The research team tests inhibition of these targets in preclinical in vitro/in vivo customized models.

EXPERTISE

Biological targets and in vitro / in vivo / ex vivo models
Discovery and functional validation of therapeutic targets:
- Tumor genetics, including -omics (NGS, including single-cell)
- In vivo functional validation: production of murine preclinical customized models (KI/KO/Tg, conditional retrovirus, BMT, long-term chronic immunisation, tumor transplantation, PDX) and fine characterization of tumors (IHC, IF, CMF; molecular including NGS, single-cell)

Blood and tissue biomarkers
- Forward and reverse genetic / NGS screening of cohorts (clinical, epidemiological)

PLATFORMS & TECHNICAL RESOURCES
- L2/3 laboratory (CMF/cell sorting, technical platform of lentivirus production)
- Imaging (confocal/two-photon microscopy)
- Mouse engineering
- Single Cell (Biomark/C1)
- Collection of transplantable, biologically characterized and clinically annotated PDX from T-ALL patients

R&D OFFER
- Lymphoid neoplasia expertise
- Single-cell technology expertise and bioinformatics analysis pipelines
- CRISPR/CAS9 expertise
- Concept, design and customization of preclinical models
- PDX collection (T-ALL)

KEY WORDS
Follicular lymphoma, LAL-T, Oncogenesis, Oncogenic addiction, CPC, Single-cell, OMICS, Preclinical models, Predictive and prognostic biomarkers