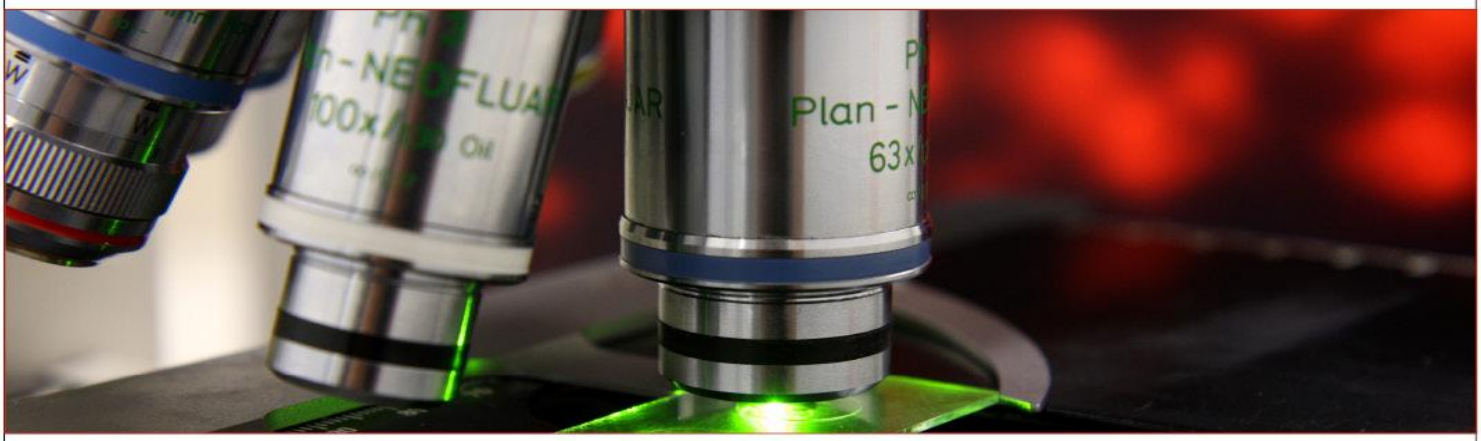
SÉMINAIRES ET CONFÉRENCES



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" Decoding RNA Splicing: A Molecular Continuum Across Stem Cells, Aging, Inflammation, and Cancer "

RNA splicing is a central axis of gene regulation whose dysregulation cuts across some of the most consequential biological transitions in human biology — stem cell identity, aging, inflammatory signaling, and malignant transformation. This talk presents an integrated view of splicing as a molecular continuum, rather than a set of isolated pathological events, drawing on transcriptomic discovery, mechanistic dissection, and therapeutic translation.

We leverage long-read RNA sequencing to generate high-resolution isoform-level landscapes of splicing alterations in cancer and aging. Beyond cataloguing aberrant splicing events, this approach enables us to discover novel isoforms with functional and clinical relevance — including spliced isoforms that stratify patient responses to immune checkpoint blockade in lung cancer, positioning the splicing transcriptome as an underexplored reservoir of predictive biomarkers in oncology.

We further dissect the regulatory logic governing splicing-factor networks, with a focus on autoregulatory poison exon mechanisms. These nonsense-mediated decay-coupled alternative exons serve as rheostats of splicing factor concentration and represent a layer of post-transcriptional control operative in both malignancy and stem cell homeostasis — underscoring the shared molecular grammar between developmental and oncogenic programs.

We translate these mechanistic insights into a therapeutic framework, demonstrating that splicing alterations are pharmacologically tractable targets. Antisense oligonucleotide-based strategies are presented as precision tools capable of redirecting aberrant splicing toward functional isoform restoration, with implications for both cancer and aging-associated disease.

Collectively, we articulate a unified framework in which splicing dysregulation is not incidental but causal across a spectrum of disease-relevant contexts, and in which the splicing machinery itself constitutes a high-value therapeutic target.

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Le lundi 4 mai, 11h30

Sur Zoom

invité de Pascale Legault
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