

Unité ISTCT  
Directrice : Myriam BERNAUDIN  
Directeur adjoint : Samuel VALABLE

**“Offer to host a researcher” within ISTCT research unit « Imaging and therapeutic strategies for cancers and cerebral tissues » UMR6030 CNRS-University of Caen Normandy**

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The ISTCT Lab "Imaging and Therapeutic Strategies for Cancers and Brain Tissues," UMR6030 CNRS-University of Caen Normandy, led by Dr. Myriam BERNAUDIN (Director) and Dr. Samuel VALABLE (Deputy Director), seeks to welcome a researcher (statutory or not) to strengthen an emerging team within it, named OncoCARE "Oncogenesis, Biomarkers, and Therapeutic Targets of Solid Cancers and Hematologic Malignancies" (Headed by Prof. Guénaëlle LEVALLET).

The ISTCT lab focuses on the pathophysiological mechanisms of tumor and brain pathologies (glioblastomas, bronchial cancers and their brain metastases, hypoxia/ischemia, deregulation of the HIF transcription factor pathway, and the Hippo pathway, particularly involving the NDR2 kinase) in order to develop innovative therapeutic or biomedical imaging strategies by combining multimodal imaging approaches (MRI, PET) and new therapeutic strategies, including various radiotherapy modalities and/or nanoparticle-based therapies. This lab, comprising around sixty people, brings together researchers, teacher-researchers, clinicians, technicians/engineers, and students from various backgrounds, fostering the development of interdisciplinary, transversal, and translational research.

The ISTCT lab benefits from laboratory equipment for cellular and molecular biology (L1/L2 cell culture rooms, hypoxia chamber, PCR...), preclinical experimentation (surgical stations, behavioral tests), and, as a lab hosted at GIP CYCERON, access to the large equipment of this biomedical imaging platform (7T MRI/preclinical PET, 3T Human MRI, PET/CT, two-photon microscope, X-ray irradiator...). The lab also has access to all the university service platforms of PLATON (VIRTUAL'HIS, ORGAPRED, IMPEDANCE platforms...) and EMERODE (CMABio3 platform...), as well as the ONCOMODELS platform of GIP CYCERON.

The researcher will strengthen the research conducted within the OncoCARE branch, which currently includes 19 members (teacher-researchers, clinicians, students), in view of structuring it into a team for the upcoming five-year contract (2028-2032). Within ISTCT, this emerging OncoCARE team focuses particularly on the tumorigenic mechanisms of solid tumors (lung, kidney, gliomas) and hematologic malignancies (lymphomas) to identify new diagnostic, prognostic, theranostic, or monitoring biomarkers for individuals at risk of more aggressive and/or metastatic cancers and to improve their management. These new biomarkers are particularly scrutinized in the Hippo signaling pathway. For example, the researcher could initiate a project aimed at studying the role of the microbiota in lung cancer, or other cancers studied in this group, and the link between this microbiota and Hippo signaling. The lungs have long been considered a sterile environment. The formal proof of the existence

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of a physiological lung microbiota is indeed recent. Since this demonstration, the involvement of the lung microbiota has been suspected in lung carcinogenesis, particularly due to the inflammation caused by its imbalance, which deregulates certain signaling pathways (ERK and PI3K) in connection with Hippo signaling. The researcher could thus develop this new theme within this future team, by identifying and implementing models that can evaluate the role of the microbiota in bronchial carcinogenesis and determining whether Hippo signaling is influenced by this microbiota, and if so, dissecting the mechanisms involved.

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