BRACCO FELLOWSHIPS
EDUCATION IN RESEARCH
ENROLMENT FORM

Institution : **Beaujon Hospital, Assistance Publique des Hôpitaux de Paris.Nord**

City and Country of Institution : **Clichy, France**

Brief description of the research group and of its mission:

The Radiology Department of Beaujon Hospital, Paris Cité Université, is renowned for its expertise in hepatic and pancreatic diseases and tumors, digestive vascular diseases, and interventional abdominal vascular and oncological radiology. Over the **past five years**, the department has published **336 original articles**, with 23% (76) featured in the top 10% of journals in their category and 17% (57) with a department member as the first author.
The research conducted spans both **clinical and fundamental studies**, from screening to treatment monitoring. Beaujon Hospital benefits from established patient cohorts, and the radiology department leads pilot projects using the APHP health data warehouse. A strong emphasis is placed on **collaboration with the pathology department**, which has enabled the acquisition of several national project grants totaling, such as the RHU OPERANDI project (Optimization and Enhancement of Targeted Radionuclide Therapies in Digestive Cancers through Imagomics).
The mission of the Radiology Department at Beaujon Hospital is to advance the understanding and treatment of digestive diseases and cancers through cutting-edge research and interdisciplinary collaboration, ultimately improving patient outcomes.

TITLE OF PROPOSED RESEARCH PROJECT

Prediction of Survival in Patients with Resected Hepatocellular Carcinoma

OBJECTIVES

1. **Primary Objective:**

The primary goal is to construct a comprehensive model that combines the following data to **predict recurrence-free survival** (according to mRECIST) in patients with resected solitary hepatocellular carcinoma:

- **Clinical Data:** Age, sex, cirrhosis status, Child-Pugh score, BCLC stage.
- Biological **Data:** Bilirubin levels, albumin levels (ALBI), prothrombin time (PT), alpha-fetoprotein (AFP).
- **MRI** Data**:** Tumor size, **LI-RADS** categories and features, and **peritumoral features**:
    1. Peritumoral hepatobiliary phase hypointensity
    2. Peritumoral portal venous phase hypoenhancement
    3. Peritumoral mild to moderate T2 hyperintensity
    4. Corona enhancement
    5. Incomplete capsule
- **Biopsy Data:**

1. Histological data: H&E staining (histological subtype, tumor differentiation) and immunohistochemistry (H4K16ac, H4K20me2, PIVKA-II, Ki67, and CD34 for "vessel encapsulating tumor cluster")
2. Transcriptomic data: Microscopic vascular invasion signature as described by our pathology team (*Beaufrère A et al., Journal of Hepatology 2022*).

2. Secondary Objectives:

To predict:

- **Microscopic Vascular Invasion (MVI)**. All digitized slides have been centralized and reviewed by a hepatopathology specialist.
- **Overall Survival:** Overall survival of the patients post-surgery.

APPLICANT'S DUTIES

- **Data Curation:** Review the peritumoral features of 307 MRIs (other features already collected for the MRIs) and all features of 106 MRIs.
- **Data Analysis:** Participate in the analysis of the data.
- **Manuscript Drafting:** Contribute to drafting the manuscript.
- **Research Participation:** Participate in other research projects of the department.

APPLICANT'S BENEFITS

- **Work Environment:** Join a dynamic, young, and welcoming team with an excellent working atmosphere.
- **High Research Standards:** Benefit from the stimulation of working within a team that maintains high research standards.
- **Publication:** Opportunity to be the first author on one publication, with potential for additional publications based on the level of involvement.
- **Presentations:** Each project will be associated with a presentation at the ESGAR congress.
- **Networking:** Gain valuable opportunities to build a professional network within the institution.
- **Collaboration:** Engage in massive interspecialty collaboration.
- **Learning Opportunities:** Attend numerous multidisciplinary rounds and radiology lectures within the department.

CONTACT

- Project Leaders: Dr **Jules Grégory** (MD, PhD) & Pr **Maxime Ronot** (MD, PhD)
- Members: Pr **Valérie Vilgrain** (MD, PhD), Dr Aurélie Beaufrère (Pathologist MD, PhD), Pr Valérie Paradis (Pathologist MD, PhD)