WP1: Intrinsic Escape Mechanisms			
PhD Project Title	**Brief description**	**PhD Supervisor / Co-supervisor**	**Candidate Profile**
1.2. The metabolic landscape of **cancer-associated fibroblasts** and its role in colorectal cancer progression and resistance	Cancer-associated fibroblasts (CAFs) have been suggested to play an important role in tumor development, especially in relation to tumor initiation and metastasis. CAFs are highly heterogeneous and enhance cellular migration of epithelial tumor cells, display elevated pro-angiogenic cytokine signaling, and facilitate inflammation. They can also affect immune-recognition of tumor cells. By generating and integrating multi-omics data (transcriptomics, proteomics and metabolomics) of normal fibroblasts and tumor-associated fibroblasts from the same patient, we aim at building CAF-specific metabolic models and identify CAF-specific targets by using an integrated computational approach. Ultimately, this project aims at unraveling resistance mechanisms and new therapeutic strategies for colorectal cancer that are focused on the tumor microenvironment.	Elisabeth Letellier (UL) Serge Haan (UL)	• Master in molecular or cell biology, or related • Practical experience in laboratory environment • Fluent in spoken and written English • The candidate will be integrated into a collaborative environment, excellent communication skills are needed
1.3. The **non-coding genome**: contribution to tumour heterogeneity and functional implications in tumour development and drug resistance	In this project, the focus will be on computationally exploring the non-coding (nc) parts of the genomes of melanoma: mutations and rearrangements (types and numbers) affecting promoters and other regulatory regions as well as miRNAs and lnc RNAs. The potential functional impact of the nc genome on tumour development and drug resistance will be explored *in silico* (RNA-Seq data generated from suitable cell models) followed by selected wet lab validation.	Stephanie Kreis (UL)	• Background (MSc) in computational and molecular biology

WP2: Induced Escape Mechanisms			
PhD Project Title	**Brief description**	**PhD Supervisor**	**Candidate Profile**
2.2. Targeting the **Jak/STAT pathway** in cancer: inhibitors and resistance mechanisms	The Jak/STAT pathway is often found constitutively active in cancer cells, either due to driver mutations affecting the signalling players or due to upregulation of activators, such as cytokines of the IL-6 family. This pathway can support a stemness phenotype of cancer cells and be involved in the development of chemoresistance, EMT and metastasis. This project aims at investigating the molecular mechanisms underlying (cytokine)/Jak/STAT-mediated effects. Moreover, drugs targeting this pathway should be evaluated, including compounds already used in the clinic or in pre-clinical studies as well as novel drug candidates.	Iris Behrmann (UL)	• Master in molecular or cell biology, or related • Practical experience in laboratory environment • Fluent in spoken and written English
2.4. Endogenous molecular mechanisms of receptor tyrosine kinase inhibition and resistance in **Glioblastoma**.	Our research focuses on the biology of malignant gliomas with the aim to elucidate novel treatment strategies. In this project we will address the molecular mechanisms of an endogenous inhibitor of receptor tyrosine kinases (RTK) in Glioblastoma. LRIG1 protein is a *pan*-RTK regulator that potently inhibits GBM growth *in vitro* and *in vivo*. Here we aim to identify the active residue of LRIG1, its post-translational modifications and protein-protein interactions. This project will drive the design of a *pan*-RTK targeting approach in the context of GBM and resistance to anti-RTK therapy.	Simone Niclou (LIH/UiB)	• Strong interest in molecular biology and protein biochemistry • Master in molecular biology, biochemistry or related • Experience in protein biochemistry and background expertise in cell biology is an asset • Fluent in spoken and written English