

## **MASTER 2 BMC PARCOURS GENOPATH ANNÉE 2023-2024**

### **Epigenetics of cancer: linking DNA methylation to cellular senescence**

**Nom, adresse de l'Unité d'accueil / Nom du responsable de l'unité :**

Epigenetics and Cell Fate, UMR7216 CNRS/Université Paris

Dir: Dr Valérie Mezger

**Nom, adresse de l'Equipe d'accueil / Nom du responsable d'équipe :**

Interpretation and dynamics of DNA methylation in mammals. Pierre-Antoine Defossez

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**Sujet de stage :**

DNA methylation is an essential epigenetic mark in mammals, and defects in this mark are linked to human disease, including cancer. We work on the mechanisms of DNA methylation establishment, maintenance, and functional interpretation. We are looking for an M2 candidate who will be able to continue with a PhD, investigating epigenetic mechanisms in cancer cells, especially DNA methylation, and targeting them for therapy.

We have developed cutting-edge degron tools to investigate the functions of the main proteins involved in DNA methylation maintenance, UHRF1 and DNMT1. These tools have led to exciting findings linking DNA methylation and senescence. The project will follow up on this lead.

**Technologies utilisées :**

The M2 student will be closely supervised by an experienced student and a technician. We use cutting-edge techniques including epigenomics, proteomics, CRISPR, and live-cell imaging. We are confident we offer an excellent chance to learn a lot, working on an exciting project in a stimulating environment. We have had 100% success rate at obtaining PhD fellowships for our students (11/11), and 3 of our last 4 students finished 1st at the Ecole Doctorale.

**Mots clés :**

Epigenetics, cancer, DNA methylation, CRISPR

**Publications d'intérêt :**

Roussel-Gervais ... and Defossez PA, Cancer Res 2017, PMID: 27815388

Ferry ... and Defossez PA, Molecular Cell 2017, PMID: 28803780

Miotto ... and Defossez PA, Nucleic Acids Research 2018, PMID: 29490077

Kori ... Defossez PA\* and Arita K\*, Structure 2019, PMID: 30639225

Naciri ... and Defossez PA, Nucleic Acids Research 2019, PMID: 30753595

Cornett, Ferry, Defossez, and Rothbart, Mol Cell 2020, PMID: 31539507

Gupta et al, NSMB in press

Yakhou et al, NAR in revision