



Master Biologie Moléculaire et Cellulaire 'BMC',  
Université Paris Cité - UFR Sciences du Vivant

Parcours : **Biologie et Développement Cellulaires 'BDC'**

<https://master2bdc.ijm.fr/>

Fiche de Projet de Stage de M2, 2026-2027

<b>UMR7216 CNRS/Université Paris Cité</b>	<b>Responsable du Stage : Pierre-Antoine Defossez</b>
<b>Equipe "Dynamique et interprétation de la méthylation de l'ADN"</b>	<b>Contacts</b> Adresse : 35 rue Hélène Brion, 75013 Paris
<b>ED d'appartenance : HOB, ED561</b>	Email : pierre-antoine.defossez@u-paris.fr
<b>Responsable de l'Equipe : Pierre-Antoine Defossez</b>	Tel : 06 26 44 78 07

**Titre du projet : Environmental Epigenetics: Decoding How the Environment Shapes Our Epigenome and Health**

**Résumé du Projet de Stage** (en 300 mots maximum, mots clés en gras)

DNA methylation is a cornerstone of mammalian biology, orchestrating chromatin architecture, gene expression, and genomic stability. Its dysregulation underpins devastating diseases—from rare syndromes like ICF, Prader-Willi, and Angelman, to widespread cancers. This internship offers a **unique opportunity to explore how environmental factors—pollutants, metabolites, etc—reshape our epigenome, with potential implications for health.**

We are looking for an M2 candidate to continue on to a Phd, to address three pivotal questions:

- How does the environment modulate DNA methylation and other chromatin marks?
- Which genomic regions are most vulnerable or resilient to environmental insults?
- Are epigenetic changes reversible, or do they leave lasting “scars” across generations?

You will be mentored by an experienced researcher and technician, using state-of-the-art tools—human embryonic stem cells, CRISPR, chemical screens, and single-cell epigenomics—to dissect these mechanisms.

We provide a stimulating, interdisciplinary environment where you'll develop expertise in cutting-edge techniques and collaborate with excellent scientists in France and abroad. We are dedicated to training and supporting our M2 students, and as a consequence all 100% of our past students have secured PhD fellowships (14/14), with 4 ranked 1st.

This project bridges fundamental biology and translational science, offering a rare chance to contribute to breakthroughs with real-world impact. In addition, our team coordinates the "France Environmental Epigenetics" network (CNRS GDR "FREE"), a collaborative initiative uniting top labs in epidemiology, chemistry, and molecular biology across France, putting us, and you, in a unique position to unravel how environmental cues influence the epigenome.

#### **Publications de l'équipe relatives au projet de stage (max 5)**

Gupta, Yakhou\* ... and Defossez PA, Nature Structural and Molecular Biology, PMID: 37488355

Yakhou\* ... and Defossez PA, Nucleic Acids Research 2023, PMID: 37650637

Laisné\* ... and Defossez PA, Oncogene 2024, PMID: 38467851

Yamaguchi, Chen\*, ... and Defossez PA, Nature Communications 2024 PMID: 38580649

Chen\* ... and Defossez PA, Nature Communications 2025 PMID: 40595593

\*: PhD student in the team. Underlined: co-first author