



18 months full-time engineer contract

Transcriptional injuries and recovery following oxidative DNA damage

Anna Campalans laboratory (CEA / François Jacob Institute of Biology)

A fully funded 18-month contract is available in the laboratory of Anna Campalans. The laboratory is located in the Institute of Biology François Jacob (CEA center of Fontenay-aux-Roses), at only 10 km from the center of Paris (easily accessible by public transportation). The team is part of the UMR Genetic Stability, Stem cells and Radiation and provides state-of-the-art facilities and an excellent scientific environment with a highly interactive group of researchers in the field of DNA damage, genome stability, and cancer.

Our team aims to understand how cells preserve the stability of both nuclear and mitochondrial genomes. Oxidative stress generates numerous DNA lesions—such as single-strand breaks, modified bases, and abasic sites—that are primarily repaired through the base excision repair pathway. These lesions, as well as the repair processes that resolve them, can alter transcription. Clarifying how oxidative stress-induced DNA damage affects transcription is essential for understanding how cells respond to genomic insults. Transcriptional changes can act as signals for DNA damage detection and repair—such as in transcription-coupled repair—and contribute more broadly to the cellular DNA damage response.

The general objective of our project is to understand the consequence of oxidative DNA damage and its repair on transcription by investigating the transcriptional changes induced by direct oxidative DNA damage at gene promoters, and to characterize the mechanisms involved in recovery of normal transcription. By using a combination of multidisciplinary tools going from whole genome approaches to live-cell single molecule analysis using cutting-edge microscopy, we will explore the connection between oxidative DNA damage, repair and transcription with an unprecedented spatial and temporal resolution that should shed light on the molecular mechanisms allowing the coordination between these two major cellular processes.

We are looking for a highly dynamic, open-minded, passionate and curious candidate to join us in this project. Knowledge in cellular and molecular biology as well as microscopy and image analysis will be appreciated.

This project will be developed in very close collaboration with the team of Yvan Canitrot and Didier Trouche (CBI, Toulouse). Interested candidates should send their curriculum vitae, a motivation letter and the contact information of two references to Anna Campalans (anna.campalans@cea.fr). Please feel free to contact us for further information and informal discussion.