

JOURNEE DES MASTERS (Recherche et Pro)

Recensement des Projets par équipe/plateforme

Edition 2021

EQUIPE/PLATEFORME

Libellé : **DNA damage and genome instability**

Chef(s) d'équipe ou responsable(s) scientifique(s) de plateforme :

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SUJET DE MASTER PROPOSE et PI DU SUJET

Titre : **Formation and processing of single strand DNA gaps upon replication blockage**

PI du sujet (Nom, Prénom) : **LAURETI, Luisa**

HDR Oui Non

Etudiants en thèse Oui Non

(si oui, préciser le nb) :

RESUME DU PROJET

Résumé (10 lignes)

In the team, we are interested to understand how a damaged DNA is replicated, using both bacteria and yeast as model organisms. Replication blockage due to an unrepaired lesion is a common event all organisms must face and is characterized by the formation of a single stranded DNA (ssDNA) gap downstream the lesion. This ssDNA gap is immediately covered by single-stranded DNA binding proteins (SSB) that emerged as the central hub for the recruitment of many proteins involved in the processing of the ssDNA gap and the resumption of replication. Our recent studies clearly indicates that how the ssDNA gap is processed affects genome stability mechanisms, in particular lesion tolerance pathways. We want to identify the proteins involved in the formation and the processing of such ssDNA gaps, decipher their mechanisms of action and their kinetics. In the laboratory, we set up a unique genetic system able to insert a single replication blocking lesion into an *Escherichia coli* cell. We can monitor lesion bypass through a colorimetric assay. By combining this genetic tool with *in vitro* assays and a proteomic approach we want to provide answers to the regulation of lesion tolerance pathways and on how cells preserve genome stability.

FLECHAGE MASTER

Immunologie

BIP

Biologie Santé