

Institution :

Centre de Recherche en Cancérologie de Lyon
Inflammasome and Cancer Team - Dr V Petrilli
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Project description :

Better understanding the molecular events controlling the DNA double strand breaks (DSB) repair to maintain genome integrity and cell fitness is a major need to prevent premature aging and for better cancer patient care. Indeed, chemoresistance to DNA damaging agents is a major issue in cancer treatments including Breast Cancer. DSB are the most toxic as they can cause genomic instability and induce cell death. The DSB repair pathway choice depends on different factors including the nature of the break and the engagement of DNA end resection. Recently, our team discovered that NLRP3, an innate immune receptor well-known for its function in inflammasome, has a novel role in the control of the DNA damage response and DSB repair (Bodnar-Wachtel et al., 2020, and unpublished). We identified that NLRP3 forms complexes with proteins involved in the choice of the repair pathway. Intriguingly, NLRP3 expression is down-regulated in lung and breast cancers. The objective of the internship will be to contribute to the deciphering of these novel functions of NLRP3 in collaboration with the team members.

Bodnar-Wachtel, M., Huber, A.-L., Gorry, J., Hacot, S., Gerossier, L., Guey, B., Goutagny, N., Bartosch, B., Ballot, E., Ghiringhelli, F., et al. (2020). NLRP3 controls ATM activation in response to DNA damage. BioRxiv 2020.05.12.087015.

<https://www.crcl.fr/departement-citi/inflammasome-et-cancer/>

About the candidate:

We are looking for an enthusiastic and highly motivated student who has the capacity to compete for a PhD fellowship at the doctorate school BMIC.

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