

## 2027 Internship Offer

**Master 1:** NO

**Master 2:** YES – Duration: 6 months

Team, Contact	Molecular Basis of Inflammation (IGMM CNRS UMR5535)– Nadine Laguette <a href="mailto:Nadine.laguette@igmm.cnrs.fr">Nadine.laguette@igmm.cnrs.fr</a>
Title	<b>Dissecting the role of DNA-PK as an integrator of damage-related signaling</b>
Research Themes and questions	<p>Abnormal DNA arising from genome instability or pathogen invasion is recognized as a trigger of DNA damage responses and nucleic acid immunity. Our recent work has positioned the DNA-PK DNA repair holoenzyme as a key rheostat controlling the breadth and nature of innate immune responses to abnormal DNA species.</p> <p>Yet, key questions remain unanswered:</p> <ul style="list-style-type: none"> <li>- How does this dual function of DNA-PK influence pathogen infection in different cell types?</li> <li>- Does DNA-PK play a role in shaping adaptive immune responses?</li> <li>- What is the role of DNA-PK-associated immune signaling in the context of chronic inflammatory pathologies?</li> </ul> <p>The Molecular Basis of Inflammation laboratory is seeking to recruit a motivated Master 2 student, willing to dive into these outstanding questions. The project will particularly focus on the interaction of DNA-PK with the cGAS-STING pathway, using a range of biochemistry, cell biology and molecular biology approaches.</p>
Methods and experimental approaches	The project will combine a range of biochemistry approaches (Western blot, protein purification, immunoprecipitation, in vitro assays...) with cellular imaging (confocal microscopy...) and flow cytometry approaches. The Master 2 student will work on both human and murine primary cells or cell lines depending on the question addressed.
2-3 Publications	<ol style="list-style-type: none"> <li>1. Vila IK, Messaoud-Nacer Y, Taffoni C, [...], Vlachakis D, <b>Laguette N</b>. <i>DNA-PK interacts with cyclic dinucleotides and inhibits type I interferon responses</i>. 2026 <b>Journal of Experimental Medicine</b> <a href="https://doi.org/10.1084/jem.20251796">https://doi.org/10.1084/jem.20251796</a></li> <li>2. Chamma H, [...], Vila IK, <b>Laguette N</b>. <i>The methyl-CpG-binding protein 2 inhibits cGAS-associated signaling</i>. <b>Nature Communications</b>. 2025. <a href="https://doi.org/10.1038/s41467-025-65713-z">https://doi.org/10.1038/s41467-025-65713-z</a></li> <li>3. Taffoni C#, Marines J#, [...], Vila IK, <b>N Laguette*</b>. <i>DNA damage repair kinase DNA-PK and cGAS synergize to induce cancer-related inflammation in glioblastoma</i>. <b>EMBO Journal</b>. 2022. <a href="https://doi.org/10.15252/embj.2022111961">https://doi.org/10.15252/embj.2022111961</a></li> </ol>