

## Proposition de Stage de Master (M2) Master BMC

Université de Paris - UFR des Sciences du Vivant

*Conventions : Sorbonne Université, Université Sorbonne Paris Nord, Université Paris Saclay,  
Muséum National d'Histoire Naturelle, Institut Pasteur*

### Equipe d'Accueil :

Intitulé de l'Unité : UMR\_S 959, Immunology Immunopathology Immunotherapy Lab

Nom du Responsable de l'Unité : David Klitzmann

Nom du Responsable de l'Équipe : Guillaume Darrasse-Jèze

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### 9 Parcours de M2

(plusieurs parcours peuvent être choisis)

**- Biologie moléculaire, cellulaire et fonctionnelle de l'hématopoïèse**

Responsables: S. Giraudier, N. Dulphy, E. Lauret

**- Biomolécules, biologie et pathologie moléculaires**

Responsables: JM. Dupret, F. Rodrigues-Lima

**- Biologie et développement cellulaires : contactez directement les responsables**

Responsables: A. Guichet, A. Benmerah

**- Inflammation et maladies inflammatoires**

Responsables: R. Monteiro, L. Mouthon

**- Biothérapeutiques: Conception et applications**

Responsables: I. Garcia-Verdugo, JM. Sallenave

**- Immunologie et Immunopathologies**

Responsables: M. Viguiet, E. Tartour, S Siberil

**- Microbiologie**

Responsables: I. Martin-Verstraete, X. Nassif

**- Virologie**

Responsables: S. van der Werf, F. Rozenberg

**- Microbiologie et génie biologique**

Responsables: O. Dussurget

**Titre du sujet de recherche :**

**Nature and role of Antigen Presenting Cells in Maternal Fetal Tolerance**

**Résumé du projet**

The nature of antigen presenting cells (APCs) involved in the process of maternal fetal tolerance is poorly known, and their role is ambiguous as they may induce the priming of fetal- or Allo- specific T cells but also favor the recruitment of fetus-protecting regulatory T cells and NK cells.

The aim of this M2 internship project is to decipher the role of APC subsets in normal or pathological pregnancy mice models.

The student will identify and quantify the different APCs present at the maternal fetal interface during normal and pathological pregnancy in mice, and evaluate the impact of low level or high level of APCs in genetically-modified mice deficient for, or overexpressing specific dendritic cell or macrophage subsets. To achieve these goals, the student will perform in vivo experiments and use multi-parameters flow cytometry to study the composition, activation status, and cellular interaction of dendritic cells and macrophages subsets at the maternal fetal interface and in the conceptus draining lymph nodes. He/She will then evaluate the correlation between these APCs and the levels of Tregs and NK cells and the success of pregnancy.

Cells and Biomarker identified in these models will later be evaluated in patients with implantation failures and multiple miscarriages, with the hope to improve diagnosis and propose new therapies for these pathologies.

**Publications:**

- Desbois AC, Régnier P, Quiniou V, Lejoncour A, Maciejewski-Duval A, Comarmond C, Vallet H, Rosenzweig M, **Darrasse-Jèze G**, Derian N, Pouchot J, Samson M, Bienvenu B, Fouret P, Koskas F, Garrido M, Sène D, Bruneval P, Cacoub P, Klatzmann D, Saadoun D. **Specific Follicular Helper T Cell Signature in Takayasu Arteritis**. Arthritis Rheumatol. 2021 Jul;73(7):1233-1243.

- Maschalidi S, Nunes P, Nascimento C, Salent P, Lannoy V, Garfa-Traore M, Cagnard N, Sepulveda FE, Vargas P, Lennon-Dummenil AM, Van Ender P, Capiod T, Demaurex N, **Darrasse-Jèze G**, Manoury B. **UNC93B1 regulates cross-presentation of antigens in dendritic cells via its association with the calcium sensor STIM1**, 21 Nov 2017 Nature Communication

- **Darrasse-Jèze G**<sup>1</sup>, Podsypanina K. **How numbers, nature and immune status of regulatory T cells shape the early immunological events in tumor development**. Frontiers In Immunology 2013; 4:292. Review. <sup>1</sup>: corresponding author

- **Darrasse-Jèze G**<sup>\*</sup>, Chen T<sup>\*</sup>, Bergot AS, Valdivia K, Strominger JL, Chaouat G Klatzmann D. **Immunosurveillance by self-specific memory regulatory T cells similarly protects embryo and tumor at implantation**. Journal of Immunology, 2013, 191(5):2273-81. \* : co-authors

- Guermonprez P, Helft J, Claser C, Deroubaix S, Karanja H, Gazumyan M, **Darrasse-Jèze G**, Telerman S, Kamphorst AO, Meredith M, Niec R, Constantin Takacs<sup>1</sup>, Hari A, Bosque D, Eisenreich T, Merad M, Shi Y, Renia L, Ginhoux F, Urban B, Nussenzweig MC. **A systemic Flt3-L release by mastocytes regulates DC homeostasis and adaptive immune responses to Plasmodium infection**. Nat Med. 2013;19(6):730-8.

- Meredith M, Liu K, **Darrasse-Jèze G**, Kamphorst AO, Guermonprez P, Yao KH, Cheong C, Niec RE, Rudensky A, and Nussenzweig MC. **Expression of the zinc finger transcription factor 'zDC' defines the conventional dendritic cell lineage**. J Exp Med. 2012; 209(6):1153-65

- Billiard F, **Darrasse-Jèze G**<sup>\*</sup>, Lobry C<sup>\*</sup>, Waite J, Liu X, Mouquet H, Danave A, Tait M, Idoyaga J, Leboeuf M, Klinakis A, Zhang W, Fury W, Thurston G, Merad M, Murphy AJ, Yancopoulos GD, Aifantis I, Skokos D. **A Novel Function For Dll4-Notch Signaling in Flt3-Independent Dendritic Cell Development and Autoimmunity in Mice**. J Exp Med. 2012; 209(5):1011-28. \* : co-authors

**Darrasse-Jèze G**<sup>1</sup>, Deroubaix S, Mouquet H, Victora GD, Eisenreich T, Yao KH, Masilamani RF, Dustin ML, Rudensky A, Liu K, Nussenzweig MC. **Feedback control of regulatory T cell homeostasis by dendritic cells in vivo**. J Exp Med. 2009; 206(9):1853-62. <sup>1</sup>: corresponding author

Waskow C, Liu K, **Darrasse-Jèze G**, Guermonprez P, Ginhoux F, Merad M, Shengelia T, Yao K, and Nussenzweig MC. 2008. **The receptor tyrosine kinase Flt3 is required for dendritic cell development in peripheral lymphoid tissues**. Nature immunology, 2008; 9(6):676-683.

**Ce projet s'inscrit-il dans la perspective d'une thèse :**

oui

non

**si oui type de financement prévu : Année Recherche, Bourse FRM ou similaire**

**Ecole Doctorale de rattachement : ED 394 - Physiologie, physiopathologie et thérapeutique**

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