PhD/Postdoc Position available: Phagocytosis of IgG-coated emulsion droplets

Institut Pierre-Gilles de Gennes pour la Microfluidique
École Normale Supérieure, Chemistry Department
More informations on: **http://jacquesfattaccioli.wordpress.com**

We are recruiting a **PhD student** or a **postodoctoral researcher** to work on the phagocytosis of IgG-functionalized emulsion droplets.

Phagocytosis by macrophages represents a fundamental process essential for both immunity and tissue homeostasis. Most of our current quantitative knowledge on phagocytosis is based on the use of solid polymer microparticles as model targets that are well adapted to the study of phagocytosis mechanisms that do not involve any lateral mobility of the ligands, despite the relevance of this parameter in the immunological context. Recently, we designed monodisperse, IgG-coated emulsion droplets that are efficiently and specifically internalized by macrophages through in-vitro FcγR-mediated phagocytosis. We have shown that, contrary to solid polymeric beads, droplet uptake is efficient even for low IgG densities, and is accompagnied by the clustering of the opsonins in the zone of contact with the macrophage during the adhesion step.
During this project, we intend to work both on the influence of the mechanical properties of the droplets on the phagocytosis process, but also on the long-term fate of the internalized droplets.

Techniques : cell culture, microscopy, IF, microfluidics, physical-chemistry, surface functionalization, cytometry

Relevant reference for the project :K. Ben M'Barek, D. Molino, S. Quignard, M. Plamont, Y. Chen, P. Chavrier and J. Fattaccioli, **Biomaterials**, 2015, 51, 270–277.

Team presentation. J. Fattaccioli's team is part to the M*icrofluidics group* of the Chemistry Department of the ENS. The team is located within the newly built Institut Pierre-Gilles de Gennes. We are particularly interested in application of advanced microfabrication techniques, microfluidic tools as well as emerging concepts and biophysics.

Profile.

- PhD applicants should have completed a MSc. or engineering degree in biophysics, soft matter science, cell biology and related fields.
- Postdoctoral applicants should have completed a PhD in cell biology, biophysics, soft matter science and related fields and have a strong background in cell biology and quantitative experimental work/analysis. An expertise in the fields of phagocytosis or emulsion formulation will be a plus.

Applicants are expected to be self-driven, have a strong work-capacity and enthusiasm for science, and have good communication skills.

Funding and salary. This position is supported by an ANR Jeune Chercheur funding. It is offered on a fixed-term contract of up to 18 months (postdoc) or 3 years (PhD student).

Application procedure. Potential candidates are asked to send a research statement, their CV, and names and contact information of three references to **jacques.fattaccioli@ens.fr**