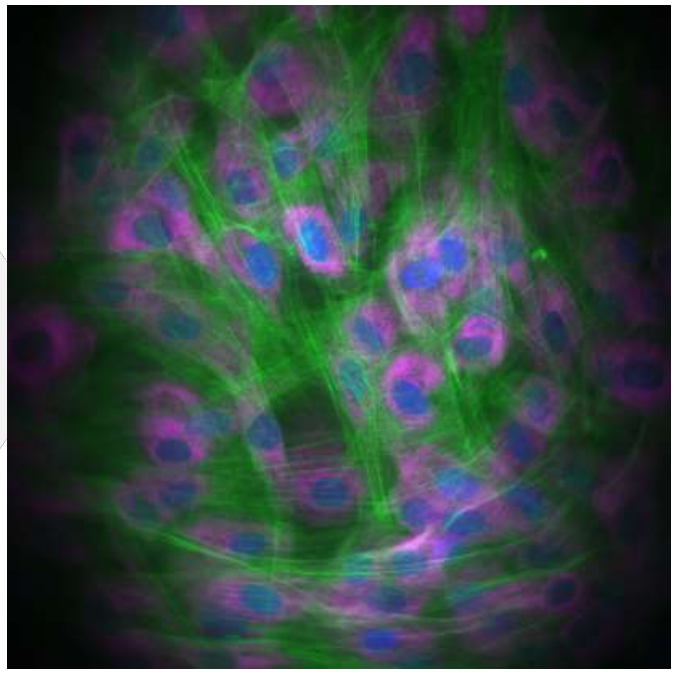
Institut Cochin
recherche biomédicale

PhD position



Team Dycric (Dynamics of the cytoskeleton-dependent responses of immune cells) directed by Jérôme Delon and Paolo Pierobon at Institut Cochin is looking for a PhD candidate.

Website:
https://institutcochin.fr/en/equipes/dynamics-cytoskeleton-dependent-responses-immune-cells

Starting date: Sept/Oct 2025

Supervision: Jérôme Delon (DR2 Inserm, HDR)

Funding: The selected applicant is expected to apply for funding from *Fondation pour la Recherche Médicale* and *Ecole Doctorale BioSPC* (Immunology Department). Alternatively, funding already secured by the team from an ANR grant could be used.

Project: Impact of mutations in RHO GTPases pathways in patients with auto-inflammatory diseases
Auto-inflammatory diseases (AIDs) are rare disorders associated with hyperactivation of the innate immune system. Among them, autoinflammatory actinopathies are recently described diseases associated with mutations affecting actin filament polymerisation. The small GTPases of the RHO family (notably RHOA, RAC1 and CDC42) play a central role in cytoskeleton regulation, polarity, adhesion and cell migration. Using imaging, biochemistry, immunology and cell biology techniques, the aim of the research project is to characterise the molecular mechanisms responsible for auto-inflammatory syndromes in actinopathies, by studying the links between the cytoskeleton and inflammation pathways. A better understanding of these diseases and their pathophysiological mechanisms will enable these rare but serious conditions to be better treated.

Main recent publications of the team:

- El Masri R. *et al.* A postzygotic *GNA13* variant upregulates the RHOA/ROCK pathway and alters melanocyte function in a mosaic skin hypopigmentation syndrome. Nat Commun. 2025 Feb 18;16(1):1751.
- Iannuzzo A. *et al.* Autoinflammatory patients with Golgi-trapped CDC42 exhibit intracellular trafficking defects leading to STING hyperactivation and ER stress. Nat Commun. 2024 Nov 16;15(1):9940.
- Delafontaine S., Iannuzzo A. *et al.* Heterozygous mutations in the C-terminal domain of COPA underlie a complex autoinflammatory syndrome. J Clin Invest. 2024 Jan 4;134(4):e163604.
- El Masri R., Delon J. RHO GTPases: from new partners to complex immune syndromes. Nat Rev Immunol. 2021 Aug;21(8):499–513.
- Bekhouche B., Tourville A. *et al.* A toxic palmitoylation of Cdc42 enhances NF-kB signaling and drives a severe autoinflammatory syndrome. J Allergy Clin Immunol. 2020 Nov;146(5):1201-1204.e8.

Interested candidates should contact Jérôme Delon : jerome.delon@inserm.fr and provide CV, a letter of motivation and a letter of recommandation.