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Call for applications
« Master's grants – International Network » 2027

Internship offers – France Brazil PRISME

Two internship offers are published by the **France Brazil PRISME**.

Internship offer B_01

Internship title: Type I interferon signatures as host-response biomarkers in emerging arboviral infections: a translational approach benchmarked against Sjögren's disease.

Internship host institution: Hospices Civils de Lyon – Centre Hospitalier Lyon Sud (CHLS).

Country: France.

Scientific supervisor (tutor): Dr William MOUTON, (International Center for Research in Infectiology (CIRI), UMR 5308 CNRS / Inserm U1111 (CARVI team), Hospices Civils de Lyon, France).

Internship sites: Hospices Civils de Lyon (Centre Hospitalier Lyon Sud) and the International Center for Research in Infectiology (CIRI, UMR 5308 CNRS / Inserm U1111 – CARVI team), Université Claude Bernard Lyon 1, France.

Disciplines / Areas of training: Immunology and infectious diseases; virology; translational research on host-response biomarkers; molecular biology; bioinformatics and data analysis.

Main internship objectives: (1) Characterise the type I interferon (IFN-I) signature in patients with suspected arboviral infection, with a primary focus on dengue virus (DENV), by assessing interferon-stimulated gene (ISG) expression and quantifying associated mediators (CXCL10/IP-10, IFN-α) in blood and saliva; (2) Assess the biological specificity of the IFN-I response by comparing arboviral infections with primary Sjögren's disease (SjD), a systemic autoimmune disease with a well-characterized IFN-I signature, in order to anticipate false-positive results; (3) Evaluate the diagnostic performance of these host-response biomarkers for identification of viral infection.

Projects associated with the internship: The internship is embedded in the Franco-Brazilian research program "Translational Investigation of Type I Interferon Signatures in Emerging Arboviral Infections", coordinated by Dr Sophie TROUILLET-ASSANT (Head of the CARVI team, International Center for Research in Infectiology – CIRI, UMR 5308 CNRS / Inserm U1111, Université Claude Bernard Lyon 1 – Hospices Civils de Lyon, France) and Prof. Alan GRUPPIONI LOURENÇO (University of São Paulo, Ribeirão Preto School of Dentistry Brazil), which involves 848 patients with suspected arboviral infection and 110 patients with primary Sjögren's disease.
It builds directly on the ongoing collaboration between the CARVI team (CIRI) and the University of São Paulo, including the longitudinal follow-up of a 110-patient SjD cohort and the identification of urinary CXCL10/IP-10 as a prognostic biomarker of disease activity in SjD (invention declaration filed with PULSALYS, 2026).

Description of the internship: Arboviral diseases such as dengue, chikungunya and Zika are expanding beyond tropical regions, including into France, yet laboratory confirmation still relies mainly on direct viral detection during the early phase of illness. Host-response biomarkers, particularly the type I interferon (IFN-I) pathway, are promising complementary tools to identify viral infection in acute febrile syndromes; however, IFN-I activation is not specific to viral infection and is also a hallmark of systemic autoimmune diseases such as Sjögren's disease (SjD).

Under the supervision of Dr William Mouton, and in close interaction with the team in Ribeirão Preto (Brazil), the intern will: (i) conduct a structured literature review on IFN-I signatures in arboviral infections and autoimmunity; (ii) analyse ISG expression (RT-qPCR) and IFN-I mediators (CXCL10/IP-10, IFN-α and related cytokines) measured by high-sensitivity immunoassays in blood and saliva samples from patients with suspected arboviral infection, alongside already-collected samples from the SjD cohort and healthy controls; (iii) help to the modelling and statistical analyses to evaluate the diagnostic performance of the biomarkers (ROC curves, multivariable models) and their specificity versus SjD.
The intern will be fully integrated into the HCL translational research team and will benefit from their expertise in host-pathogen interactions and antiviral response

biomarkers (REVIDA project, early IFN-I screening of viral infections), as well as from regular exchanges with the Brazilian partners.

Potential outcomes following the internship: Manuscript submitted to an international peer-reviewed journal (the intern will be involved in drafting); master's thesis report.

Potential paths for the intern upon completion of the internship: Pursuit of a PhD within the Franco-Brazilian network (e.g., FAPESP/USP-COFECUB and ANRS MIE-funded programs), or continuation within ongoing research projects on host-response biomarkers and emerging infections in Lyon or Ribeirão Preto.

Expected candidate profile:

- **Education and prerequisites to be completed before the start of the 2027-2028 academic year (i.e., the master's programme year):** Bachelor's degree plus completion of the first year of a master's programme (M1 or equivalent, 4 years of university studies) in immunology, microbiology, virology, biochemistry or a related life-science field. Prior laboratory experience (molecular biology or immunoassays) during an internship is expected; basic knowledge of statistics is an asset.

- **Type of master's degree to be pursued for the 2027-2028 academic year, during which the internship will take place:** Master 2 (second year of a research master's programme) in immunology, infectiology or infectious diseases; the specific programme will be defined with the tutor according to the candidate's profile and admission.

- **Languages spoken:** English (minimum B2 level, spoken and written – required for data analysis, scientific reading and manuscript writing) or French. Portuguese is an asset.

- **Technical skills/tools and level of proficiency:** Good command of molecular biology techniques (ideally RT-qPCR) and/or immunoassays (ELISA); basic statistics; proficiency with office tools; programming or data-analysis skills (R, Python) and an interest in bioinformatics are strong assets.

- **Interpersonal skills:** Rigor, autonomy and initiative; ability to work in a team within an international (Franco-Brazilian) and multidisciplinary environment; interest in emerging infectious diseases, global health and translational research; good written and oral communication skills.

- **Other expected criteria:** Candidates from Brazil are particularly encouraged,

given the existing collaboration with the University of São Paulo.

- **Availability (internship period):** February-July 2028 (approximately 6 months), during the 2027-2028 academic year.

Internship offer B_02

Internship title: Community-based research and the psychosocial dimensions of infectious diseases.

Internship host institution: Université Lumière Lyon 2[1].

Country: France.

Scientific supervisor (tutor): Dr Dulce FERRAZ (Associate Professor of Social Psychology, Université Lumière Lyon 2).

Internship site: RESHAPE (Research on Healthcare Performance – INSERM U1290) laboratory, Lyon, France.

Disciplines / Areas of training: Social sciences, public health, ecology, and related disciplines.

Main internship objectives: The main objective is to strengthen the intern's skills in community-based research, exploring how social participation can be applied throughout the research process in the fields of social sciences and infectious diseases.
Depending on the intern's background and the work plan agreed before arrival, activities may include:

- a targeted literature review on a topic related to the intern's master's research project;
- participation in qualitative data analysis in the context of community-based research;
- contribution to the writing of a scientific article and/or a conference communication;
- participation in team meetings, scientific seminars and methodological workshops;
- presentation of the intern's own master's project to the team.

A detailed work plan, including objectives and expected outputs, will be defined jointly by the intern, their master's supervisor and the host team before the start of the internship.

Projects associated with the internship:
Two main community-based research projects, developed within French Brazilian collaborations and co-led by Dr Ferraz, are associated with this internship:

[1] Université Lumière Lyon 2 is a public French university internationally recognised for its expertise in social sciences, psychology, and interdisciplinary health studies.

- ANRS0502 PISTAS, which focuses on HIV prevention among sex workers in Lyon, São Paulo and Salvador. It is funded by the ANRS MIE and co-led by Dr Ferraz (Université Lumière Lyon 2), Dr Alexandre Grangeiro (Universidade de São Paulo) and Dr Inês Dourado (Universidade Federal da Bahia);
- ECO-Amazon, which focuses on the institutional and psychosocial dimensions of preparedness for emerging infectious diseases in the Brazilian Amazon. It is funded by the ANR and Lyon 2 and is conducted in partnership with the Instituto Nacional de Pesquisas da Amazônia (INPA) and the Instituto Juruá. It is co-led by Dr Ferraz and Dr João Vitor Campos da Silva.

Description of the internship: The intern will be integrated into the RESHAPE team, a multidisciplinary research unit affiliated with Université Lumière Lyon 2 and Université Claude Bernard Lyon 1. This laboratory conducts interdisciplinary research at the intersection of social sciences, psychology, and public health, with a particular focus on participatory and community-based approaches.
The intern will work on one of the projects above, according to their master's topic and interests. The internship combines learning and contribution. The intern will be introduced to the principles and practices of community-based and participatory research, will take part in the analysis of qualitative material produced with community partners, and will contribute to scientific outputs. Particular attention will be paid to ethical issues in research with stigmatised populations and to the role of community partners at each stage of the research process.
The intern will be supervised by Dr Ferraz and will take part in regular meetings with the team.
The intern will be integrated into a dynamic academic and research environment, benefiting from close interaction with faculty members, research teams, and graduate students.

Potential outcomes following the internship:
- A scientific article co-authored by the candidate and the RESHAPE researchers working with them, prepared for submission to a peer-reviewed journal.
- A joint scientific abstract for a conference

Potential paths for the intern upon completion of the internship: The internship will help prepare the intern for an academic career, in particular for a PhD or a position as a research assistant. The intern might also be able to pursue collaboration between RESHAPE and the Brazilian partners participating in the related projects.

<u>Expected candidate profile</u>:

- **Education and prerequisites to be completed before the start of the 2027-2028 academic year (i.e., the master's programme year):** Bachelor's degree

or equivalent in social sciences, psychology, public health, ecology or a related discipline.

- **Type of master's degree to be pursued for the 2027-2028 academic year, during which the internship will take place:** First or second year of master's degree in social sciences, psychology, public health, ecology or a related discipline.

- **Languages spoken:** English is required (minimum B2 level). Knowledge of French is not mandatory but considered an asset.

- **Technical skills/tools and level of proficiency:**
  - Intermediate or advanced skills in qualitative methods (e.g. thematic analysis, NVivo or equivalent software).
  - Knowledge of HIV and other STIs or emerging infectious diseases, and of the social determinants of health.
  - Experience in community-based research is an asset.

- **Interpersonal skills:** Ability to work in an interdisciplinary and international team; autonomy and good organisation; respect, openness and ethical sensitivity when working with communities, including stigmatised populations; good written and oral communication skills; adaptability to a new academic and cultural environment.

- **Availability (internship period):** during the 2027-2028 academic year (exact dates to be agreed depending on the master's programme calendar).