

Institut Pasteur, V. Choumet – November 2025





52me-APPEL DOFFRES FPLJ

## BOURSES FONDATION PIERRE LEDOUX – JEUNESSE INTERNATIONALE Propositions de Stages

Institut	N°	Labo/Service d'accueil	Responsable (nom, e-mail)	Thématique	Durée	Formation initiale	Date d'arrivée souhaitée	Hébergement sur le campus et coût
FIOCRUZ Rio	1	Programa de Computação Científica –Fiocruz - RJ	Paulo Ricardo Batista pbatista@fiocruz.br	Computational modeling of bacterial resistance proteins This project aims to investigate the structural dynamics of bacterial proteins associated with antibiotic resistance using hybrid molecular dynamics simulations with normal modes. By exploring functional motions and allosteric mechanisms, we seek to identify molecular determinants that could guide the design of new inhibitory strategies.	3 to 10 months (the specific project will be defined according to student's availabili ty)	Students must have completed courses in Biology and Biochemistry, with basic experience in Linux and notions of programming in Python or R.	Flexible (to be defined according to student's availability)	Availability and fees for housing at "Casa Amarela" should be asked to casaamarela @fiocruz.br
FIOCRUZ Rio	2	Cellular Microbiology Laboratory – IOC/Fiocruz	Leticia Miranda Lery Santos leticia.lery@ioc.fiocruz.br	Interactions between pathogenic bacteria, microbiota and hosts  Our aim is to characterize bacterial components—such as secretion systems, effectors, and extracellular vesicles—involved in bacterial pathogenesis. We seek to elucidate the molecular mechanisms underlying the communication between bacteria, microbiota, and host cells, which play essential roles during infectious processes. To achieve this, we will employ molecular and cellular biology techniques, as well as microbiological tools and approaches.	3 to 10 months (the specific project will be defined according to student's availabili ty)	The student is required to have completed courses in microbiology and biosafety, and to have prior experience in a biology laboratory.	Flexible (to be defined according to student's availability)	Availability and fees for housing at "Casa Amarela" should be asked to casaamarela @fiocruz.br

Institut	N°	Labo/Service d'accueil	Responsable (nom, e-mail)	Thématique	Durée	Formation initiale	Date d'arrivée souhaitée	Hébergement sur le campus et coût
FIOCRUZ Rondônia	3	Cellular Immunology Applied to the Health Lab	Juliana Pavan Zuliani juliana.zuliani@fiocruz.br	The student will accompany the postgraduate students in the techniques developed in the lab (in vitro and in vivo): cell culture, PCR, blot, cytometry, microscopy, etc.	3-6 months	yes	February to July Augst to December	No
IP Montevideo	4	Laboratory Redox Biology of Trypanosomes	Dr. Marcelo Comini, mcomini@pasteur.edu.uy	"Role of trypanosomal prostaglandin E2 synthase in host-pathogen interaction"  Recently, we have identified two genes (GST1 and GST2) strictly conserved in trypanosomatids that encode for putative PGE2 synthase. PGE2 induces vascular leakage and is a key mammalian immunomodulator. This internship aims to investigate the role of GST1/GST2 in PGE2 production and pathogenesis, using state-of-the-art approaches (genetic engeenering, bioimaging, high resolution microscopy, single cell analysis, etc)	10 months	Yes	May 1 <sup>st</sup> 2026	No
IP Montevideo	5	Laboratory of Molecular and Structural Microbiology – Institut Pasteur de Montevideo (Uruguay)  Webpage: <a href="https://pasteur.uy/en/laboratories/molecular-and-structural-microbiology/">https://pasteur.uy/en/laboratories/molecular-and-structural-microbiology/</a>	Sonia MONDINO (smondino@pasteur.edu.u y)	Unravelling the molecular puzzle of Leptospira endoflagellar motility  Leptospira species are responsible for leptospirosis, one of the most important and prevalent zoonoses worldwide.  These bacteria move by rotating endoflagella confined within the periplasmic space, between the peptidoglycan and the outer membrane, distinguishing them from known exoflagellated bacteria. At a global level, the structure of the	6-8 months	- Pursuing or holding a Master's degree in Microbiology or Biology  - Basic knowledge of Molecular Biology and/or Microbiology is desirable. But most importantly:	January- February 2026 (Depending on the candidate's availability)	On-campus accommodation is not available.  If needed, advice when looking for housing will be provided.

flagellum is conserved between both	enthusiasm,
groups of bacteria. However,	curiosity and
Leptospira endoflagella are noticeably	willingness to
more complex, and little is known	work in a
about the role of such complexity in	collaborative
bacterial motility and infection.	environment!
Homologs of certain proteins that are	
important for flagella assembly in	- Proficiency in
exoflagellated bacteria are encoded in	Spanish is
the genome of <i>Leptospira</i> , but their	advantageous
function remains a mystery. Using a	for city life
multidisciplinary approach that	
involves molecular biology,	
microbiology, structural analysis,	
interatomic studies by mass	
spectrometry and bioinformatics, our	
group is interested in deciphering the	
role of such flagellar proteins.	
At present, we are focused on the	
analysis of a putative lytic	
transglycosylase protein potentially	
involved in the assembly of <i>Leptospira</i>	
endoflagella, and we are looking for	
motivated and curious students that	
would like to join our project! Students	
will have the opportunity to work in a	
collaborative environment, handling	
Leptospira cultures and learning	
complementary techniques. Depending	
on the time that will be spent in our	
laboratory, a detailed program of	
activities will be defined.	