






MSCA Postdoctoral Fellowships at Sorbonne University

Call for expression of interest 2024

MEDICINE	
Code	Topics and supervisors / research units
MED1	<p>Development of a human lymphoid organ-on-a chip platform to study the role of interleukin-1 in antibody production Stéphanie Graff-Dubois – Immunologie, Immunopathologie, Immunothérapie (I3) - Paris</p> <p><i>The novel theory that interleukin-1 controls humoral immune responses must be validated in humans using a trustworthy experimental model. By using human lymphoid cells as the basis for new organ-on-a-chip technology, it will be feasible to study the effects of IL-1 on human follicular T cells for long enough durations to evaluate antibody production.</i></p>
MED2	<p>Immune aging trajectories Delphine Sauce - Centre d'immunologie et des maladies infectieuses (CIMI) - Paris</p> <p><i>Establishing the impact of chronic infections and inflammation in immunosenescence is relevant to our understanding of its consequences for the health of older people. Our knowledge of the cellular and molecular changes underlying the decline in immune function with age remains limited. We are therefore conducting comparative studies of immunological and inflammatory attributes in settings with signs of immune ageing, including advanced age, certain viral infections, and reduced thymic activity.</i></p>
MED3	<p>The effect of diet on immune and vaccine responses in people living with obesity in Tanzania. Martin Larsen - Centre d'immunologie et des maladies infectieuses (CIMI) - Paris</p> <p><i>Seeking a postdoc to investigate the diet-microbiome-immune axis in obese Tanzanian individuals, based on a dietary intervention study with traditional Tanzanian diets. The candidate will establish a cause-and-effect relationship between diet and immune function, emphasizing the regulatory role of host immunity to gut microbiota. Insights gained may pave the way to improve natural and vaccine induced immunity in obese individuals.</i></p>
MED4	<p>Targeted manipulation of antibody-regulated host-microbe interactions Guy Gorochov - Centre d'immunologie et des maladies infectieuses (CIMI) - Paris</p> <p><i>A synergy between the host immune system and the gut microbiome is altered in Primary Immunodeficiencies (PI). The goal of this project is to establish a strategy for restoring host-microbe homeostasis in PI. Our approach will be based on antibody supplements, omics approaches and animal models to provide a targeted approach for correcting the host-microbiome dysbiosis. This study has the potential for clinical translation in the treatment of diseases involving microbe-immune deregulations.</i></p>
MED5	<p>Unraveling Immunological Responses in Retinal Diseases Florian Sennlaub - Institut de la Vision (IDV) - Paris</p> <p><i>Our team studies the inflammatory mechanisms that lead to neuronal degeneration and vascular remodelling in age-related macular disease (AMD), diabetic retinopathy (DR), and non-infectious uveitis (NIU). Our aim is to determine the inflammatory state of immune cells in cohorts of AMD, DR and NIU patients and to identify similarities and differences in immune response in these retinal diseases using complementary approaches such as in-depth phenotyping, animal models, human iPSC cells...</i></p>




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MED6	Linking cellular and functional changes in age-related macular degeneration Denis Sheynikhovich - Institut de la Vision (IDV) - Paris	
	<i>Age-related macular degeneration is the main cause of blindness in western countries but its diagnosis is made too late: the large majority of patients have irreversible loss when first diagnosed. This project combines state-of-the-art retinal imaging methods, pioneered by the Clinical Investigation Center of the Quinze-Vingts ophthalmological hospital (Paris), eye tracking and visual psychophysics in order to develop functional visual markers of early disease onset.</i>	
MED7	Study of neural correlates of visual aging using combined fMRI and EEG recordings Denis Sheynikhovich - Institut de la Vision (IDV) - Paris	
	<i>Visual aging, both healthy and pathological, affects our ability to orient in space – one of the most complex and important daily tasks heavily relying on vision. This project aims at characterizing neural correlates of aging in high-level visual areas, implicated in spatial orientation functions, both in healthy subjects and patients with eye disorders such as age-related macular degeneration. This project is a collaboration between the Vision Institute and the Quinze-Vingts hospital.</i>	
MED8	Preclinical development of allele-specific silencing therapy for the dominant centronuclear myopathy Marc Bitoun – Centre de Recherche en Myologie - Paris	
	<i>Dynamin 2 (DNM2) is a key actor of membrane trafficking whose mutations cause the autosomal dominant centronuclear myopathy (AD-CNM). We developed a therapy for AD-CNM based on RNA interference-mediated allele-specific silencing of the mutated DNM2 mRNA without affecting the wild-type ones. The project will pursue preclinical developments in vivo in a mouse model and in vitro in patient-derived cells for the AD-CNM and will extend application of the therapy for the other forms of CNM.</i>	
MED9	The microtubule network in dilated cardiomyopathy: from mechanism to therapy Antoine Muchir – Centre de Recherche en Myologie - Paris	
	<i>Mutations in A-type nuclear lamins cause dilated cardiomyopathy, a disease with no effective treatment. Alterations of the microtubule cytoskeleton have been implicated in cardiac pathologies. Yet how the heart achieves this modified network is poorly understood. The elucidation of the mechanisms by which the microtubule cytoskeleton is altered, and in particular the implication of the tubulin code in this process, could provide novel means to preserve cardiac structure and function.</i>	
MED10	Implication of innate immune cells in autoimmune Myasthenia Gravis Rozen Le Panse – Centre de Recherche en Myologie - Paris	
	<i>Immune dysfunction associated with autoimmunity has long focused on the role of adaptive immune cells, neglecting the role of innate immune cells. We hypothesize that innate immunity plays a role at various stages of Myasthenia Gravis (MG) from initiation to maintaining immune system imbalance. Therefore, we wish to study the involvement of innate immune cells in MG to gain a deeper understanding of their involvement in autoimmune diseases that share common mechanisms.</i>	



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MED11	Epigenetic defects in striated muscle laminopathies Anne Bertrand – Centre de Recherche en Myologie - Paris	
	<i>LMNA encodes for lamin A/C, major component of the lamina involved in the regulation of chromatin organization and gene expression. LMNA mutations are responsible for rare genetic disorders, including striated muscle laminopathies (SML). The proposed project aims at a better understanding of the epigenetic defects in SML patient's cells by different omic approaches (ATAC-seq, CHIP-seq and RNA-seq). It will be developed in the team of Dr Bonne, pioneer in genetics of SML, in strong collaboration</i>	
MED12	Evaluation of a gene therapy for striated muscle laminopathies Anne Bertrand – Centre de Recherche en Myologie - Paris	
	<i>Striated muscle laminopathy (SML) is a group of rare disorders due to LMNA mutations and for which no cure is available yet. Following the selection of the best muscle/heart-specific adeno-associated virus and promoter, the present project will evaluate the therapeutic potential of an atypical allele-specific shRNA knock-down against mutated Lmna mRNA combined to shRNA-resistant lamin A overexpression in a mouse model of SML. The host team, headed by Dr Bonne, pioneer in the genetics of SML, has</i>	
MED13	Study of mechanisms that sustained ventilation improvement in Central Hypoventilation syndrome after transcutaneous direct current stimulation (tDCS) - Florence Cayetanot - Neurophysiologie Respiratoire Expérimentale et Clinique - Paris	
	<i>DCS is a noninvasive, well-tolerated technique for modulating neuronal excitability. We have demonstrated the value of tDCS for increasing ventilation in healthy subjects. Same results have been obtained in mice modeling central hypoventilation syndrome. In preclinical models, the candidate will conduct a project aimed at characterizing mechanisms of neuroplasticity by assessing changes in neuronal excitability and expression of neuroplasticity markers in structures linked to respiratory control</i>	
MED14	Exploration in a preclinical model of the expiratory recruitment defect as a novel physiological biomarker in patients suffering from the neurorespiratory disease Central Congenital Hypoventilation syndrome (CCHS) Laurence Bodineau - Neurophysiologie Respiratoire Expérimentale et Clinique - Paris	
	<i>Based on an observational pilot study we have made in patients, we develop a translational program aimed at determining whether a defect in expiratory recruitment constitutes a new physiological biomarker of central impairment in CCHS patients. In constant interaction with the non-clinicians and clinicians involved, candidate will develop a research project aimed at exploring expiratory drive by various approaches in a rodent preclinical model of CCHS.</i>	
MED15	Expiratory recruitment defect as a novel physiological biomarker in patients suffering from the neurorespiratory disease Central Congenital Hypoventilation syndrome (CCHS) Pierantonio Laveneziana - Neurophysiologie Respiratoire Expérimentale et Clinique - Paris	
	<i>Based on an observational pilot study we performed in patients, we develop a translational programme aimed at determining whether a defect in expiratory recruitment constitutes a new physiological biomarker of central impairment in CCHS patients. In constant interaction with the non-clinicians and clinicians involved, the candidate will develop a research project aimed at exploring respiratory mechanics and drive by various approaches in patients suffering from CCHS.</i>	

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MED16	Transcending Cell Death: Unraveling the Metabolic Impact of Necroptotic Mediators in Obesity Jérémie Gautheron – Centre de Recherche Saint Antoine (CRSA) - Paris	
	<i>Exploring the metabolic functions of necroptotic mediators, such as MLKL, in the context of obesity reveals their influence beyond cell death. These mediators impact energy balance and metabolic pathways, suggesting potential implications for obesity-related conditions. Understanding the interplay between necroptosis and metabolic dysregulation may unveil novel therapeutic targets.</i>	
MED17	Ex vivo generation of erythrocytes and platelets from hematopoietic cell lines Laurence Guyonneau-Harmand – Centre de Recherche Saint Antoine (CRSA) - Paris	
	<i>The ex vivo generation of erythrocytes and platelets from hematopoietic cell lines is a potential means to ensure a continuous and safe blood supply and a major challenge in transfusion therapy. You will work with our immortalized hematopoietic cell lines. You will analyze existing scRNA sequencing data, improve the terminal differentiation of our cell lines and evaluate the maintenance of blood group and human platelet antigens through engineering and culture processes.</i>	