

## PROFIL DE POSTE

Unité de recherche n° : U955

Directeur : Jorge BOCZKOWSKI

Équipe : Vaccine Research Institute (Eq16)

Responsable : Prof. Yves Levy

Lieu d'activité :

Institut Mondor de Recherche Biologique  
Hôpital Henri Mondor, Bat. Recherche R1  
51 avenue du Maréchal de Lattre de Tassigny  
94010 CRETEIL Cedex

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Intitulé du poste : HIV immune responses promoted by a vaccine targeting epidermal Langerhans cell : *in situ* study of the mechanisms of induction of Tfh and Germinal center B cells.

Durée du recrutement souhaitée : 36 mois

Supervisor: Sylvain CARDINAUD, PhD

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### Corps de recrutement :

Doctorant  Post-doctorant  Chercheur  Ingénieur d'études  Ingénieur de recherche  Assistant-ingénieur  Technicien de la recherche  Adjoint technique

Branche d'activité professionnelle (BAP)\* Biologie et santé, Sciences de la vie et de la terre

Emploi type \*: Ingénieur-e en techniques biologiques

\* Listes des BAP et emplois-types sont consultables via le site internet <http://www.enseignementsup-recherche.gouv.fr/cid106062/referens-le-referentiel-2016-des-emplois-types-de-la-recherche-et-de-l-enseignement-superieur.html>

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### Missions du poste :

**Background:** The main goal for the development of an HIV-1 vaccine remains the induction of protective antibodies. New modes of antigen delivery are warranted to improve the quality of immune responses. Our proposal is to target HIV antigen to receptors expressed on dendritic cells (DC) via fused monoclonal Ab (mAb) to promote cellular and humoral responses. We previously showed that targeting of the skin Langerhans cells (LC) with anti-Langerin mAb fused to HIV-1 Envelop (LC.Env) drives antigen-specific humoral responses, either in mice or using *in vitro* cultures of human LCs (Kervevan J. PLoS Path 2021).

**Hypothesis and Objectives:** The PhD candidate will i) decipher *in vivo* the molecular and cellular mechanisms involved in the induction of B cell responses by the LC.Env vaccination using preclinical models, ii) characterize in detail the humoral response, following the magnitude and the quality of circulating Env-specific IgG and untangling the maturation of the B cells, iii) target to LC other innovative HIV vaccine antigens developed in house or by our collaborators, and study whether they improve *in situ* the humoral responses.

**Significance:** Clinical development of DC-targeting vaccines might bring innovation in the delivery of antigen and a new way to elicit broad and potent integrated immune responses. Recent clinical results of aCD40.Env DC-targeting vaccine combined with TLR3 adjuvant are promising. Next generation of aLC vaccine would help to improve responses to conformational trimer Env immunogen with the aim to elicit NeutAb.

**Activités principales :**

- Production of innovative DC-targeting vaccines and *in vivo* immunological approaches.
- Analysis of bibliography, step-by-step reports of activity, redaction of peer-reviewed articles
- Oral communications and poster presentation in international congress (immunology, vaccinology)

**Compétences requises :**

- Solid knowledges in antiviral immunology and/or vaccinology
- Practical experience for culturing cells *in vitro*, and assessing immunological responses (ELISpot, FACS, Luminex)
- Experience in manipulating animals and validated training for ethics are a plus.
- Good level in English

**Environnement et contexte de travail :**

The VRI is a network of national and international clinical and research teams sharing the goal to develop innovative therapeutic and prophylactic vaccines and tools to analyze biological responses to immunotherapies and vaccines against HIV (and emerging infectious diseases). The overarching goal is the generation of novel DC-based preventive and therapeutic vaccine candidates inducing potent neutralizing and non-neutralizing Ab responses and T cell responses. The VRI-U955 laboratory includes BSL-2/3 and animal facilities endowed with last generation equipment (e.g., flow cytometers, cell sorter, Luminex and Illumina sequencing technology on HiSeq system) required for the successful implementation of the PhD program.

**Contraintes spécifiques :**

Compliance with regulations on working hours and leave entitlements. The candidate must comply with the health and safety obligations submitted to the laboratory.

**Diplôme requis :**

Master 2 in the field of molecular and cell biology, immunology, vaccinology

**Formation et expérience professionnelle souhaitées :**

Internship(s) carried out in an academic research laboratory (biochemistry and/or immunology).

**Remarques diverses :**

Application (with CV) should be addressed to

- Dr Sylvain CARDINAUD ([sylvain.cardinaud@inserm.fr](mailto:sylvain.cardinaud@inserm.fr))
- Prof. Véronique GODOT ([veronique.godot@inserm.fr](mailto:veronique.godot@inserm.fr))
- Prof. Yves LEVY ([yves.levy@inserm.fr](mailto:yves.levy@inserm.fr))