



Laboratory TIMC UMR CNRS UGA 5525

Director : Philippe Cinquin

Team **Th**érapie **R**ecombinante **E**xpérimentale

Director : Pr Toussaint

Bâtiment Jean Roget 8th Floor

38000 GRENOBLE – France

<https://www.univ-grenoble-alpes.fr/english/>

Corresponding

Dr LE GOUELLEC Audrey

+33 (0)6 86 76 31 71

alegouellec@chu-grenoble.fr

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Object : Postdoctoral position in laboratory TIMC Team TheREx UMR 5525 CNRS- University of Grenoble Alpes – France

Reference(s) : 0001-09

The TIMC laboratory and the TheREx team (Thérapeutiques recombinantes Expérimentales) has developed a photochemical treatment making the bacterium killed but metabolically active (KBMA) (Le Gouellec et al. Molecular therapy 2013). They have shown the ability to use this KBMA *Pseudomonas aeruginosa* as a vaccination against heterologous antigens with long-term immunization (Chauchet et al Mol therapy Oncolytics). The MMAVax project deals with the optimization of the scale up of production of the vaccine KBMA *Pseudomonas aeruginosa* and is being supported by the Technology Transfer Acceleration Company LINKSIUM.

A Post-doctoral opportunity, coordinated by Prof. Toussaint Bertrand and Dr Le Gouellec Audrey, is open within the scope of the MMAVax Project .

Candidates must hold a Ph.D. degree in chemistry, biochemistry, microbiology, or related fields and a 3 years' experience in vaccinology. Candidates must have microbiology skills, more precisely in bacterial culture and fermentation to propose improvement of vaccine's production. Skills in immunology and animal experimentation would be appreciated.

The expected candidate must have an appetite for entrepreneurship as the path to the creation of an innovative biotech company is favoured at the end of the project.

Registration: Submit documented resume; letter of interest and one reference letter by Oct 15, 2020 by email at : alegouellec@chu-grenoble.fr including "MMAVax" in the subject.

The selected candidate will receive a Post-Doctoral fellowship from the UGA.

More about the MMAVax project :

Respiratory infections caused by *Pseudomonas aeruginosa* (Pa) are a major public health concern, especially for patients with chronic lung disorders such as cystic fibrosis and chronic obstructive pulmonary disease (COPD). After 50 years of research and clinical trials up to Phase 3, no biotechnology company has been able to provide an effective vaccine against Pa. It has been widely discussed that only a vaccine that causes both humoral and cell-mediated immune responses would be protective and could help neutralize or eliminate Pa. Subcellular recombinant vaccines have already been tested, targeting different candidate antigens (e.g., lipopolysaccharide,

alginate, flagella...). However, despite numerous clinical trials, these vaccines have failed to protect cystic fibrosis patients mainly because of the genetic plasticity of Pa and a flaw in the design of the clinical trials. In parallel, live attenuated vaccines have been developed to mimic the antigenic variability of Pa; they were particularly promising because of the variability of the immune responses they triggered, including the stimulation of a humoral and cell-mediated immune response. However, the safety of use of these live attenuated vaccines in humans remained uncertain. In addition, researchers have demonstrated the importance of the Th17 pathway, which is essential to achieve Pa eradication, and have identified certain Pa proteins that are able to induce a high secretion of IL-17. In a recent study, we demonstrated that the MMAVax Pa vaccine candidate, which contains the pEi plasmid positively controlling the expression of SST3 on the Pa surface, immunizes and protects against a lethal challenge to Pa. In this study, MMAVax Pa was shown to be safe to use (non-cytotoxic in vitro and safe to use in preclinical model with small and big animal models) and to stimulate both humoral-mediated protective immunity and especially Pa specific Th17 cell-based immunity (Meynet et al . Vaccine 2018).

More about TMC-TheREx :

The TheREx team belongs to TIMC laboratory (UMR 5525 CNRS UGA) and their members work at the Medical and Pharmaceutical Schools of the Université Grenoble Alpes. Its objective is a research from patient's bed to bench and back. Therefore, TheREx's research project goes from preclinic to clinic, around the use of Synthetic Biology and its development for patients suffering from infectious and oncology diseases. Over this last 5 years, the team won €1,523,054 of public funding and €988,345 of private funding totaling €2,511,399. Over the same period, the team has published 160 articles in peer-reviewed journals and filled 5 patents.

More about SATT Linksium :

Linksium (Société d'Accélération du Transfert de Technologies-SATT) is the Technology Transfer office and Incubator of the Grenoble Alpes site. Linksium supports and finances projects by researchers and entrepreneurs that lead to the creation of innovative startups. These projects are led to recruit qualified profiles including engineers or PhDs with the scientific skills to work on the technological development of innovation and potentially motivated to get involved in the future business project. Depending on their maturity, these recruitments are made within the team of a research laboratory or startup.

Dr LE GOUELLEC Audrey

