Title of the PhD project
Regulatory B lymphocytes in sepsis-induced immunosuppression

Disciplines: Immunology
Laboratory EA 7426 PI3 Pathophysiology of Injury-Induced Immunosuppression
Director: Pr Guillaume MONNERET
Research Team and Supervisor: Lymphocyte Alterations – Dr Fabienne Venet

Doctoral school: Interdisciplinary Doctoral program in health-sciences (EDISS) - ED 205

Description
Scientific background and rationale:
Sepsis, defined as a life-threatening organ dysfunction caused by a dysregulated host response to infection, represents a major healthcare challenge with high incidence and mortality. Septic shock is associated with the development of immune dysfunctions which intensity and duration are associated with increased risk of secondary infections and mortality. Among immune cells, B lymphocytes play a pivotal role in the immune response. Since studies showed that TLR stimulation can favor IL-10 production by B cells and several sub-populations of regulatory B lymphocytes have been described, we hypothesized that B cell response may be oriented toward an immunoregulatory profile after septic shock.

Aim:
To evaluate the role of B lymphocytes in sepsis-induced immunosuppression.

Description of the project methodology:
Observational studies in clinical samples from septic shock patients and physiopathological evaluations in a murine model of septic shock (cecal ligation and puncture).

Expected results:
Results will decipher whether B lymphocyte response is oriented toward an immunosuppressive profile after septic shock and the mechanisms through which such regulatory B cell can modulate immune response after septic shock.

Perspectives:
This research project will describe a novel physiopathological mechanism of immunosuppression in sepsis which could represent a potential therapeutic target in this hitherto deadly disease.

Techniques to be used during the PhD project:
Flow cytometry and CyTOF, cell culture, cell purification, molecular biology (qRT-PCR, microarray), ELISA and Luminex protein dosages, surgery in animal models.

Skills required:
Autonomy in basic lab technics, excellent interpersonal skills, high motivation, correct level in spoken and written scientific English.

Bibliography:

Key-words:
Sepsis, Immunosuppression, B lymphocytes

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Application should include: CV, Letter of intent, Names and addresses of two references.
The application file should be sent before May 14, 2018 to: (fabienne.venet@chu-lyon.fr).
The open competitive recruitment process is in two steps: 1. Internal laboratory procedure. 2. Interdisciplinary jury of EDISS.