

# CESTI IHU: TOWARDS AN INNOVATIVE THERAPY AIMING AT MODULATING THE IMMUNE SYSTEM



CESTI IHU : towards an innovative therapy aiming at modulating the immune system

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The research program led by Prof. Karin Tarte (ITIS Laboratory, Rennes University Hospital, member of the CESTI IHU) aims to understand more fully the immunological properties of mesenchymal stromal cells (MSCs), which are used in regenerative medicine and in the treatment of diseases of the immune system.

In transplantation, these cells may notably be used to modulate the immune system in transplanted patients.

## STROMAL MESENCHYMAL CELLS: POWERFUL IMMUNOSUPPRESSANTS

The MSCs, that can be produced in large quantities from the bone marrow and adipose tissue, are endowed with potent anti-inflammatory and immunosuppressive capabilities, which make them useful in cell therapy for diseases of the immune system, such as severe autoimmune diseases, organ transplant rejection or hostile reaction of the graft against the host, but also in restorative medicine to promote the regeneration of the host tissue.

The mechanisms involved in this potential suppressant are numerous and they are still insufficiently characterized. Thus, there are no specific markers to predict the patients' clinical response. The identification of such markers would enable the optimization of these cell production methodologies, the testing of the design, and the monitoring of patients.

The objective of the CESTI IHU is to improve the patients health and their clinical management, supporting the development of innovative therapy in the transplantation of organs, cells and genes.

The Rennes University Hospital SITI laboratory, a member of the CESTI IHU, is a laboratory of reference in this field. Heavily involved in the monitoring of French and European clinical trials, which use MSCs, they are currently working not only on the impact of tissue-derived MSCs, on the amplification level in culture, and on hypoxia, but also on their immunological properties and their genetic stability, in order to ensure the safety and effectiveness of the proposed strategies.

## A NATIONAL CONSORTIUM

The SITI laboratory belongs to eCellFrance Infrastructure program, of which it is one of the two immunomonitoring platforms of reference. This consortium coordinates the clinical use of MSCs in France and therefore complements the approach of the CESTI IHU, in which SITI focuses on preclinical development and translational research in the field of CSM.

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