Internship Proposition
(one page max)
Master 2 GP Immunology & ImmunoIntervention (I^3)
2024-2025

Lab: OSE Immunotherapeutics

Name and position of the supervisor: Aurore MORELLO

Email of the supervisor: aurore.morello@ose-immuno.com

Candidate (if internship filled):

Title of the internship: Evaluation of the bioactivity of Bispecific antibodies to regulate activity of myeloid cells

Summary of the internship proposal:

We have developed at OSE Immunotherapeutics an immunocytokine platform called BICKI® based on fusion of a targeting antibody to a cytokine (*e.g*. BICKI®IL7v fusing an antagonist anti PD-1 antibody to mutated IL-7 immuno-activatory cytokine). This technology allows to redirect activity of IL-7 cytokine to PD-1 activated tumor specific T cells while sparing non-specific PD-1 negative T cells. Cytokines are highly potent drug to reactivate or suppress immune cells but their short-half life and toxicity due to weak specificity limit their clinical developability for the treatment of cancers and inflammatory diseases. BICKI®IL7v demonstrated high anti-tumor efficacy in vitro to activate in cis-manner PD-1+ cells while sparing PD-1 negative T cells. BICKI®IL7v also demonstrated high long-term efficacy in vivo in several tumor mouse.
Using our expertise on BICKI Immunocytokine and our novel technology of cytokine masking (OSE®Cytomask), we have developed the next generation of immunocytokine drug for the treatment of inflammatory diseases that are able to specifically modulate activation of T cells or Myeloid cells. Different formats of the Immunocytokine have been created to optimize the CIS-activity of the drug. The objective of the internship will be to screen bioactivity of these different immunocytokines to select the adequate construction with optimal effect to inhibit inflammatory macrophages. In vitro assays using primary myeloïd cells, and monocytes-derived cell lines will be developed to characterize intrinsic signaling induced by the immunocytokine and its biological effect on myeloid cells (anti-inflammatory cytokine secretion, phagocytosis activity, inhibition of autoimmune T cell activation) to further decipher the mechanistic of the drug in vitro. The experiment performed will allow to select a lead candidate with optimal activity that targets and modulates myeloid cells while sparing other immune cells using several immunologic methods (ELISA, flow cytometry, PBMC isolation and macrophage differentiation). The student may also participate to in vivo preliminary study to evaluate activity of the drug in acute inflammatory mouse models developed in our laboratory.

Option(s) linked to the project:

☐ Experimental Biology Profile (Recherche Expérimentale)

Form to be sent by email to : gpi3@univ-nantes.fr