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Titre de la thèse :

Single cell high-throughput measurements of cell
surface receptors interactions with soluble ligands

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The hallmark of vaccination or infection is the presence of antigen-specific antibodies in circulation. Antibodies are produced by specific immune cells, B cells, but more than 95% of B cells do not secrete but only express their antibody at the cell surface, then called a B cell Receptor (BCR). However, methods to determine the interaction of a cell surface receptor for its ligand in a diverse cell population are lacking : our goal is therefore to develop single-cell high-throughput measurements of cell surface receptors interactions with soluble ligands, using droplets microfluidics. We will measure the affinity of BCR to antigen as a proof-of-concept.

The project should broaden our understanding of antibody responses, and help to validate a technology that we propose to apply to vaccination and infection.

Mots clés : Biophysique, Chimie analytique, Immunologie