

FLOW CYTOMETRY FOR IMMUNOMODULATION STUDIES



Learn more about our flow capabilities [here](#).

Immunomodulatory drug development is advancing toward more complex therapies, requiring deeper insight into cellular behavior. **With over 30 years of experience and hundreds of immunomodulatory studies conducted using flow cytometry**, we help balance efficacy and safety by revealing how cells respond in treatments for systemic diseases.

You'll benefit from:

Extensive expertise in developing and validating fit-for-purpose flow cytometry assays.

U.S. and Canadian laboratories equipped with BD LSRFortessa™ and BD FACSymphony™ A3 cell analyzers.

Customized panels developed by scientific and technical flow cytometry specialists to meet your study needs.

Same-day fresh sample analysis and rapid turnaround enabled by laboratories located near our clinical pharmacology units.

Flow Cytometry: A Sophisticated Bioanalytical Approach

Flow cytometry is a powerful single-cell analysis tool used in nonclinical and clinical immunomodulation studies to measure immune cell types, activation states, receptor occupancy, and functional responses. This detailed, multi-parameter technique helps us detect small, unintended changes in the immune system and understand how specific cell types respond—things that traditional assays might miss.

Here is a step-by-step guide explaining the approach:

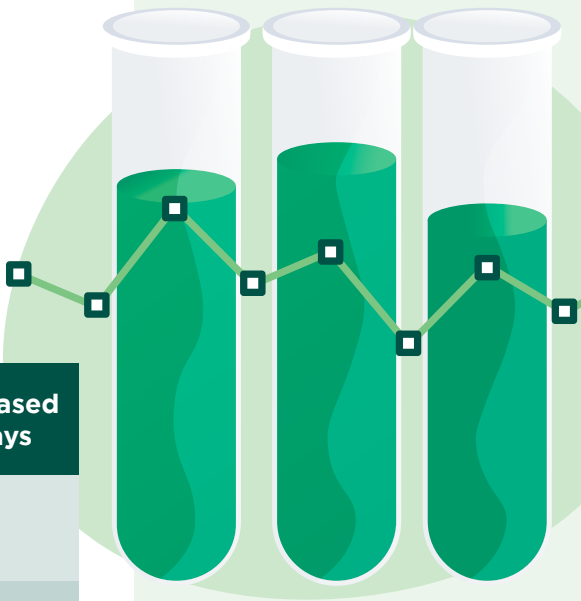
Steps	Procedures	Our Approach
Sample Collection	Blood, bone marrow aspirate, and tissue samples (spleen, lymph nodes, thymus, etc.) are collected	We focus on preserving cell integrity during sample collection in nonclinical and clinical studies. Same-day analysis is possible through our on-site laboratories with flow cytometry platforms and proximity to our clinical units
Staining	A cocktail of fluorochrome-labeled antibodies binds specific markers on cells to identify types and functions	We design optimized staining panels for precise identification of immune cell subsets as per the objective of the study
Acquisition	Single-cell suspension passes through our cytometers; detectors capture emitted fluorescent signals for each marker	We use daily calibrated cytometers to generate high-quality multi-parametric single-cell data
Data Analysis	Cell populations are identified, and functional responses (activation, proliferation, cytokine production) are quantified	We perform expert data analysis with our validated software and generate the dataset necessary to perform interpretation
Interpretation and Reporting	Data is interpreted in the context of immunomodulatory studies, summarizing key findings and trends	We deliver detailed reports and insights to support drug development decisions and regulatory submissions

Bioanalytical Platforms For Immunomodulatory Drugs

We use state-of-the-art bioanalytical platforms to assess multiple facets of immunomodulation across species with high sensitivity and specificity. Key biomarkers and endpoints include cytokines, complement factors, immune cell phenotyping, and functional assays evaluating cytokine release and cellular proliferation, all of which can be tailored to your specific drug.

Below, we highlight the features of commonly used platforms for monitoring intended immunomodulatory responses.

Characteristics	Flow Cytometry	ELISA/ Multiplexed Assays	ELISpot	Cell-Based Assays
Single-Cell Resolution	✓		✓	
Cell Population Phenotyping	✓			✓
Functional Immune Readout	✓		✓	✓
Quantification of Cytokines and Complement Factors	Intracellular cytokine staining	✓		✓
Multiplexing/Multiple Analytes	✓	✓	✓	
Detection of Rare Cell Populations	✓		✓	



Our laboratories are designed to handle pathogens and infectious samples in support of vaccine development programs. Validated panels for nonhuman primate, minipig, and human samples are available for rapid deployment, with guidance on optimal species, tissues, and marker selection.

AN INTEGRATED SOLUTION

Altasciences supports immunomodulatory programs through an integrated [nonclinical](#), [clinical](#), and [bioanalytical](#) solution offering designed to advance development from early research through clinical phases. With dedicated flow cytometry laboratories and aligned scientific teams, you will benefit from seamless data continuity, smoother phase transitions, and efficient translation of nonclinical findings into clinical strategies.

By proactively adapting and validating assays for both nonclinical and clinical use, potential challenges can be addressed early to help reduce delays and support informed decision-making. Whether delivered as part of an integrated program or a stand-alone initiative, our [flow cytometry services](#) provide the scientific and operational support needed to help accelerate timelines and move your program forward efficiently.

SPEAK WITH AN EXPERT