

# Pharma Discovery Services

# BioMAP® T Cell Autoimmune Panel

# In Vivo Insights with the Speed and Ease of an In Vitro Assay

For autoimmune indications, it is a challenge to design treatments that selectively reduce unwanted immune response-related injury without disrupting healthy immune function. Current models for studying candidate drugs, especially chemically-induced animal testing, rarely fully predict the effects a candidate drug will have in humans. The BioMAP T Cell Autoimmune Panel was created to more fully predict efficacy across a range of immune-related diseases in a format that is faster, higher throughput, and more clinically relevant than current methods.

## Phenotypic Profiling That Captures the Complexity of Human Autoimmune Disease

The BioMAP T Cell Autoimmune Panel contains complex co-cultures of early passage human primary immune and tissue cell types that model adaptive immune cell microenvironments, as well as T and B cell responses. This panel is used by leaders in drug development to:

- Prioritize candidates based on efficacy, cell potency, and mechanism of action
- Increase the likelihood of success in clinical trials with results that better translate to patient responses
- Perform competitive benchmarking against current standards of care in autoimmunity and inflammation

#### Anti-Inflammatory and Immunomodulatory Activities of Tofacitinib



Tofacitinib (Xeljanz<sup>®</sup>), a Jak Kinase inhibitor approved for rheumatoid arthritis, as profiled at 4 concentrations (red, orange, yellow and green) in the BioMAP T Cell Autoimmune Panel (n=3). Inflammation-related and immunomodulatory activities are annotated on the plot and represent biomarkers that demonstrate statistically significant change during treatment as compared to historical controls (represented by the gray "envelope"). Biomarker readouts are displayed along the x-axis and Log expression ratio (drug/vehicle control) is displayed along the y-axis.

### What Can the T Cell Autoimmune Panel Do for Your Program?

One of the many benefits of the BioMAP<sup>®</sup> T Cell Autoimmune Panel is the translational utility it provides in testing the effects of potential drugs on autoimmune disease and immune related dysfunction. The T Cell Autoimmune Panel has been used successfully to evaluate the impact of compounds on:

- Chronic inflammation Rheumatoid arthritis, psoriasis, Crohn's disease, etc.
- T and B cell activation Allergy, Asthma, Heme-oncology, etc.
- Inflammation associated with organ transplantation

Clinical compounds tested in the BioMAP T Cell Autoimmune Panel include Prednisolone, Cyclosporin A, Tofacitinib, Infliximab, Idelalisib, Ibrutinib, and Everolimus.

### BioMAP T Cell Autoimmune Panel Service

Service	Compound profiling (small molecule or biologics) in 4 systems modeling immune and autoimmune-related disease biology at 4 concentrations in triplicate.
Examples of Analysis Performed	Identification and biological interpretation of relevant biomarker activities that are increased or decreased in comparison to vehicle control. A direct comparison of test agent with clinical standards of care benchmarks.
Report Details	Eurofins DiscoverX provides a study report that includes: Annotation of biomarker activities with respect to biological significance, profile plots, graphical comparison of test and clinical standard of care benchmarks, and expert data interpretation and analysis.

## Human Biology Modeled by the T Cell Autoimmune Panel

System			Description
BT		B and T cell Autoimmunity	The B and T cell Autoimmunity (BT) system models T cell dependent B cell activation and class switching as would occur in a germinal center. This system is relevant for diseases and conditions where B cell activation and antibody production are relevant. These include autoimmune disease, oncology, asthma, and allergy.
SAg		Chronic Th1 Inflammation	The Chronic Th1 Inflammation (SAg) system models chronic inflammation of the Th1 type and T cell effector responses to TCR signaling with costimulation. This system is relevant to inflammatory conditions where T cells play a key role including organ transplantation, rheumatoid arthritis, psoriasis, Crohn's disease, and multiple sclerosis.
ITH2		Vascular Inflammation	The Vascular Inflammation (ITH2) system models vascular inflammation (mixed Th1 and Th2 types), an environment that promotes mast cell, basophil, eosinophil, T and B cell recruitment, vascular permeability, and is pro-angiogenic. This system is relevant for diseases where Th2 type inflammatory conditions play a role such as allergy, asthma, and ulcerative colitis.
HDFSAg		Tissue Inflammation	The Tissue Inflammation (HDFSAg) system models chronic inflammation of the Th1 type and T cell effector responses to TCR signaling with costimulation. This system is relevant to inflammatory conditions where T cells play a key role including rheumatoid arthritis, psoriasis, Crohn's disease, fibrosis, and wound healing biology.

# To learn more about how to better characterize molecules in the context of human immunological disorders, visit discoverx.com/tcellpanel