Immunology Assays and in vivo Models Overview

ChemPartner Immunologists specialize in T cell biology, and other primary immune assays. We use readouts from proliferation, ELISA, Luminex as well as flow cytometry analyses to help our global Pharma and Biotech partners in drug discovery for cancer immunotherapy and autoimmune diseases.

The efficacy and mode of action (MOA) of client compounds are further characterized in our extensive array of in vivo pharmacodynamics (PD) and pharmacological models of human diseases, including rheumatoid arthritis (RA), multiple sclerosis (MS), asthma, inflammatory bowel diseases (IBD), skin inflammatory diseases, respiratory inflammation, and syngeneic tumor models. We complement normal efficacy studies with additional imaging studies, including microCT of bone mineral density for evaluating drugs that are used to treat RA bone erosion, together with collecting synovial fluid to analyze cytokine content as surrogate markers.

Our inflammatory PD models include LPS-induced TNFα release in rodents or monkeys, skin DTH, and air pouch assay, while immune profiling of bronchoalveolar lavage, and of isolated draining lymph nodes or inflamed tissues (FACS or IHC) provide opportunities for MOA understanding and biomarker discovery.
Primary immune cell assay & Immune cell line assay

- Whole blood/PBMC/splenocyte
- Isolated T cells (naive CD4 T cell, total CD4 T cell, total T, hu/mu)
- Polarized Th1, Th17
- Isolated monocytes
- ELISA/Luminex cytokine assay
- CFSE staining FACS
- Intracellular cytokine FACS
- Antigen recall assay
- PBMC LPS-induced TNFα release
- TLR4-NF-κB reporter assay
- THP1 cytokine release assay
- Jurkat T cell (e.g., IL-2)
- TF-1
- Raji

Autoimmune disease models

- Rat collagen induced arthritis (CIA)—paw swelling, clinical scoring, bone mineral density by micro-CT
- Synovial fluid cytokines
- Adjuvant induced arthritis (AIA)
- Mouse/rat Ova asthma model
- Experimental autoimmune encephalomyelitis model (MOG-induced EAE)
- Inflammatory Bowel Disease (DSS-induced)

In vivo PD models

- LPS-induced TNFα release (rat, monkey)
- LPS-induced lung neutrophilia (mouse)
- Air pouch assay
- Delayed type sensitivity (DTH)
- Passive cutaneous anaphylaxis

Cytokines from murine ears of DTH or PMA upon Dex or cpdC