



## IMMUNEMOD: AN IMMUNOMODULATORY EVALUATION PLATFORM FOR IMMUNE INTERACTING DRUGS

*At the Institute for Glycomics, we have developed a unique platform to measure the immunomodulatory and immunostimulatory effects of drugs targeting the human immune system.*

Our custom designed *in vitro* molecular testing platform measures cytokine expression levels in human cells as a consequence of drug treatment. Our approach complements standard existing methods for assessing cytokine expression and offers insights into the breadth of cytokine response and activity, potency and potential synergy of drugs and their combinations. The Institute for Glycomics ImmuneMod testing service is performed within our state of the art bioanalytical and array facilities by a team of experts with a proven track record.

### The technology

We have developed a high-throughput measurement platform to evaluate the immunomodulatory effects of natural products. Our 'lab-on-a-chip' approach measures the interaction of drugs and the immune system. The lab-on-a-chip allows the complexity of the human immune system to be represented in a single experiment, and consists of a single glass slide prepared to allow simultaneous analysis of immune cell response to immunomodulating molecules.

This measurement tool complements existing techniques to assess cytokine expression, which are also established at the Institute for Glycomics, and provides detailed information on how drugs affect cytokine expression. Using this Institute-developed, functionalised

lab-on-a-chip technology, rapid screening of single compounds and mixtures can be performed efficiently, while maintaining accuracy.

Our technology can also be utilised for product development, for example, by measuring synergistic activity of multiple product combinations with the aim of refining product formulation.

We can tailor the array as required and will work with the client to custom design a testing protocol to measure immunomodulatory effects relevant to the product being tested.

To date, this platform has been used to support the development of commercially available fungal extracts, optimised for polysaccharide activity ( $\beta$ -glucans), but can be customised to measure a wide variety of alternative molecular endpoints. The ImmuneMod platform can be used to:

- Refine product development by gaining insights into the activity of immune interacting drugs and/or combinations on the human immune system, product formulas can be developed and refined towards a particular immune response.
- Validate product formulations activity of current, on-market drugs and/or formulations can be quantified and validated.
- Discover new product indications our experts can provide in depth interpretation ImmuneMod results to assist identification of underlying molecular mechanisms of drugs and/or formulations and advise on new formulations that have optimised synergistic or antagonistic effects.

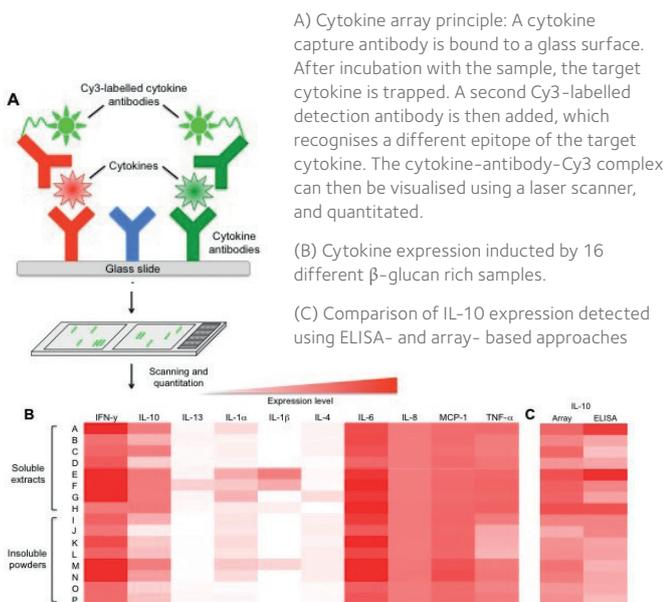


A/Prof Tiralongo recently established a partnership with Integria Healthcare to measure efficacy, potency and perform quality control on Mediherb® Mushroom Forte, which indicated the powerful synergistic immune-modulating effects of their proprietary formula [1]

## The facilities

When you partner with the Institute for Glycomics, you will gain access to our state-of-the-art infrastructure and world-leading scientific expertise. The Institute for Glycomics ImmuneMod Platform relies on use of our extensively-equipped Glycobiological Facility, which provides a microarray manufacturing suite for custom printing slides, through to characterisation of binding kinetics using Surface Plasmon Resonance. The Glycobiological Facility supports determination of glycan-binding profiles of proteins, whole eukaryotic and prokaryotic cells, parasite and viruses, through to characterisation of these binding interactions.

Combining a fully equipped facility with advanced instrumentation, strong expertise and extensive experience we can perform high-throughput analysis of the molecular effects of your product on human cells with high precision and a fast turnaround. Our experts can perform both efficacy testing mechanism identification so that you can assure your customers of an effective and high-quality product for their needs.



## Contact us

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## The expertise

The ImmuneMod Platform is operated by a multidisciplinary team with proven track records and unique expertise in glycobiology, organic and natural product chemistry, separation science, NMR spectroscopy and mass spectrometry, cell biology, immunology, biochemistry and microarray technology. The research team combines over 30 years of experience and is led by Associate Professor Joe Tiralongo, who is an expert in the field of glycobiology and internationally known for his expertise in glycomics arrays and successful industry collaboration.



## About us

The Institute for Glycomics is a flagship biomedical research institute at Griffith University's Gold Coast campus in Queensland, Australia.

The Institute is one of only six of its kind in the world and has a strategic focus on translating drug and vaccine discovery research into clinical outcomes.

We have a strong track record in commercialisation and industry engagement, and our research leaders and business personnel have extensive experience in developing technologies for the



1. Mallard B, Leach DN, Wohlmuth H, Tiralongo J. Synergistic immuno-modulatory activity in human macrophages of a medicinal mushroom formulation consisting of Reishi, Shiitake and Maitake. PLoS