Burnet
reach for the many

IgA technologies for mucosal immunity

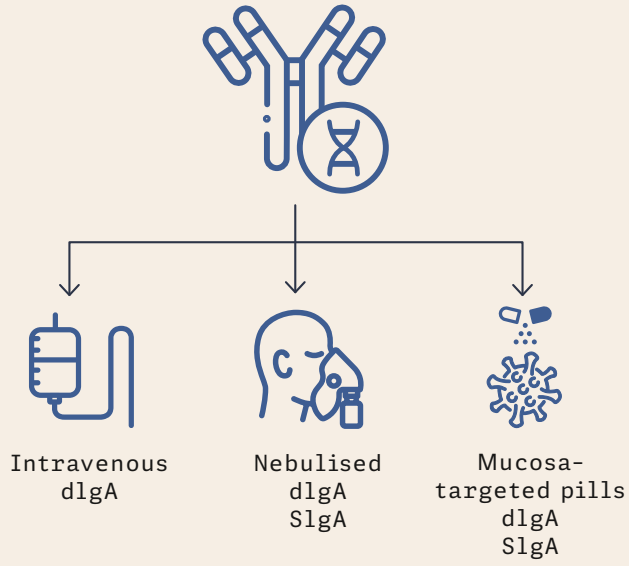
Most pathogens causing significant public health risks enter via mucosal surfaces of the respiratory tract or gut, yet current interventions fail to block transmission or induce efficient mucosal antibody responses.

Re-engineering antibodies to neutralise pathogens

A collaborative team led by Burnet research scientists has **re-engineered IgAs from IgG sequences**, allowing the antibody to function in mucosal environments while retaining its original antigen-binding ability.

This allows the development of next-generation dimeric IgA (dIgA) therapies, using mRNA modality and/or nanoparticle delivery.

Already shown to enhance neutralisation of the SARS-CoV-2 pathogen, this transformational technology offers an opportunity to improve mucosal immunity to other respiratory pathogens, including MERS-CoV, CoV-1, RSV and influenza.



Burnet's patented technology

Burnet's researchers are global leaders in understanding immune response to hepatitis C and SARS-CoV-2 infection. Burnet has developed novel assays and technology for measuring IgA. Our technology:

- enables the development of IgA-based therapeutic antibodies
- offers the ability to understand the role of different forms of IgA in immune responses to pathogens or vaccine candidates.

Burnet has the research expertise and commercial track record to bring novel dIgA therapies to address some of the world's most prevalent pathogens.

Our current partners

Monash Institute of Pharmaceutical Sciences
Yale University

Partner with us today to bring your discovery to market.

Burnet's IgA expertise

- IgA chimerisation, to adapt any antibody to IgA, secretory IgA or dimeric IgA
- Development of novel bispecific IgA antibodies
- For use in antibody therapeutics or studying the role of IgA in mucosal immunity
- High-throughput plate-based and bead-based assays, to detect and monitor dimeric IgA in serum/plasma
- Transcytosis assays, to measure functional pIgR/dIgA interactions and conversion to secretory IgA
- Effector cell assays, to determine complement fixation, ADCC, ADCP, antibody dependent cytokine release function of IgA antibodies
- High throughput flow cytometry-based assays to assess IgA interaction with surface expressed antigens
- Transwell FcRn – antibody recycling assays
- Backed by ISO 9001 Quality Management System

BDi Burnet Diagnostic Initiative

Track record

Hanafiah et al (2024) *Dimeric immunoglobulin A as a novel diagnostic marker of measles infection.* DOI:10.1128/spectrum.03437-23

Laumaea et al (2023) *Small CD4 mimetics sensitize HIV-1-infected macrophages to antibody-dependent cellular cytotoxicity.* DOI: 10.1016/j.celrep.2022.111983

Wei et al (2023) *Serological assays to measure dimeric IgA antibodies in SARS-CoV-2 infections.* DOI: 10.1111/imcb.12682

Marchitto et al (2023) Impact of HIV-1 *Vpu-mediated downregulation of CD48 on NK-cell-mediated antibody-dependent cellular cytotoxicity.* DOI: 10.1128/mbio.00789-23

Work with us

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