

COMP39/9900 Computer Science/IT Capstone Project

School of Computer Science and Engineering, UNSW

Project Number: P34

Project Title: The Association of Gene Expression of Microbes and Host Immune Responses in Eye Infections.

Project Clients: Nicole Carnt

Project Specializations: Bioinformatics/Biomedical.

Number of groups: 2

Background:

The balance between microbes and the host immune response in ocular surface eye infections is balanced by the control of the infective process and limiting scarring from excess inflammation. A dataset of total RNA from eye infections collected by ocular surface swabs and analysed by RNASeq has been investigated for host immune response. Preliminary data on microbe/microbiome gene expression has been extracted but how this aligns with the type and outcome of infection is not known.

Requirements and Scope:

In this study, you will investigate the total RNA gene expression from ocular surface eye infections using emerging software tools and design of novel algorithms. This will be associated with infection type and outcome (which will be provided by the client).

Required Knowledge and skills:

Capability to use "R" packages for data analysis and visualisation.

Expected outcomes/deliverables:

Source code, pilot data to be used in funding applications.

Supervision:

Nicole Carnt

Additional resources:

Laptop and software access.