



Garvan Institute of Medical Research

## Leaders in Science & Society



# A/Prof Justin O'Sullivan

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Auckland, New Zealand

**“Decoding the functional roles of genetic variants in complex phenotypes”**

**Monday 16 April 2018 12PM, AUDITORIUM**

**Host: Prof John Mattick**

My group takes a holistic approach to understand genomes and cell structure formation, function, and inheritance. Our goal is to interpret the relationships between what a cell's DNA codes for (the genotype) and what we actually see (the phenotype) in terms of genome biology. To do this we use and develop methods and technologies from molecular biology, bioinformatics, and computational biology to integrate the spatial organization of genomes with measures of their function.

We are currently interested in: 1) how single nucleotide polymorphisms work together to contribute to growth and complex diseases; 2) how the mitochondria contributes to the regulation of nuclear genes; 3) how genomes change shape during development and migration and how these changes affect genes and replication; 4) how bacteria and single celled eukaryotes organise their genomes to optimise cellular metabolism; 5) the role of host selection on the microbiome during development/treatment of complex disorders