# AIBN Master Projects | Ernst Wolvetang

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## Making faces? Discovering the genes controlling human cranial neural crest cell specification and delamination.

Abnormalities in formation, survival, or migration differentiation of SOX10-expressing cranial neural crest cells, a cell type that generates many cell types of the human face, lead to a variety of clinical pathologies collectively known as cranial neurocristopathies, and these represent over one-third of all birth defects. To functionally validate mutations and genes implicated in cranial neurocristopathies, and to discover novel coding and non-coding genes that interfere with human craniofacial development, we will use CRISPR-enabled screens in human stem cell derived cranial neural crest cells endowed with a SOX10 reporter.

Lead Investigator: Prof Ernst Wolvetang

## Genes that make you old: discovering the drivers of accelerated ageing in Down syndrome

Down syndrome is a progeroid (accelerated ageing) syndrome but the genes on HSA21 that are responsible remain unknown. Leveraging a unique set of isogenic induced pluripotent Down syndrome stem cell lines with inbuilt CRISPR-enabled genome manipulation tools that allow multiplexed and selective  repression of HSA21 genes, we propose to identify the combination of chromosome 21 gene(s) responsible for premature senescence of Down syndrome mesenchymal stem cells, as well as test whether senolytics can slow this.

Lead Investigator: Dr Julio Aguado Perez

Contact the project advisor directly to discuss the project and arrange a meeting or AIBN Events (aibn.events@uq.edu.au) to arrange a visit to the AIBN lab.

## Contact Information

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