JACK KELLY

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EDUCATION

PhD in Medical studies at Plymouth University   *Oct 2017 - Exp. Sep 2020*
Title: Statistical learning on biomarker discovery for neurodegenerative diseases
MSc. in Biomedical Science at Plymouth University   *Sep 2016 - Sep 2017*
Project: Bioinformatic characterisation of the recent endogenous retrovirus lineages in the Rhesus and
Cynomolgus Macaques
BSc. in Biomedicine at the University of East Anglia   *Sep 2013 - Sep 2016*
Project: Analysis of the structure and binding between Smads and the WWP2 ubiquitin ligase

RESEARCH EXPERIENCE

I have an interest in high throughput genomics data analysis in particular in neurodegenerative diseases.
In addition, I have a particular interest in the shared underlying genomics between Parkinson's and
Alzheimer's disease. My research projects include:

- Use of novel meta-analysis methods on Parkinson's disease microarray data and investigation into
  Parkinson's relationship with Alzheimer's

- Building and analysing gene interaction networks for Parkinson's and Alzheimer's disease. Development of novel R function to use multiple methods to detect hubs in gene interaction networks
  and give significance using a permutation test

- Analysis of Huntington's RNA-seq data to identify gene regulators that may explain variance in
  disease severity not explained by huntingtin gene expansion

- Use of various machine and deep learning algorithms to identify a potential panel of genetic blood
  biomarkers for Parkinson's disease

SKILLS

- Fluent in R and Python programming languages

- MongoDB databasing and mySQL language

- Designing and applying Machine Learning algorithms

- Mining, cleaning and handling Big Data

- Basic wet lab skills (eg. gel electrophoresis, western blots, protein purification etc.)

- Creating Nextflow pipelines to handle high throughput data analysis

PUBLICATIONS

Kelly J, Moyeed R, Carroll C, Albani D and Li X (2019).Gene expression meta-analysis of Parkinsons
disease and its relationship with Alzheimer's disease. *Molecular Brain,* 12:16.

Maze E, Ham C, **Kelly J**, Ussher L, Almond N, Towers G, Berry N, Belshaw R (2019). Variable
Baseline Papio cynocephalus Endogenous Retrovirus (PcEV) Expression Is Upregulated in Acutely
SIV-Infected Macaques and Correlated to STAT1 Expression in the Spleen. *Frontiers in Immunology,*
10:901.

TALKS/POSTERS

- Poster at AD/PD 2019 Portugal titled: Integrated systems approach to identify genetic networks and hubs in Parkinsons disease

- Poster at Parkinsons Disease UK 2018 titled: Integrated systems approach to identify genetic networks and hubs in Parkinsons disease

- Poster at Alzheimers Research UK 2018 titled : Cross-talk between Parkinson and Alzheimer's disease

PROJECTS + TRAINING

- IPDGC Hackathon. Project using Python to scrape Reddit and twitter data to perform sentiment analysis and investigate attitudes towards Parkinson's disease. Also learnt how to use GitHub for team projects.

- M101P: MongoDB for Developers run by MongoDB University

- Big Data methods in R run by Mind Project

- Plymouth University AINT351 Machine Learning module

- Courses in academic writing and presenting run by Plymouth doctoral college

ADDITIONAL ACTIVITIES

- Reviewed for Journal of Translational Medicine and Communications Biology

- Assisted in supervising bioinformatics MSc student project