

Ajit Johnson Nirmal

Phone: +44 7443355660 • E-Mail: ajit.nirmal@roslin.ed.ac.uk

Objective

A highly motivated individual, trained in both wet and dry lab, desiring to use his skills for high-impact research in which initiative, ambitions and commitment to excellence are utilized to their full potential.

Work experience

Research Officer, National Cancer Centre Singapore Jan 2013 to Sep 2014

Individually handled a project on developing an autologous cellular gene therapy for Hemophilia A. As a part of this project, I used several gene-editing techniques such as CRISPR, TALENs and ZFNs. Day to day activities involved cloning, transfection, cell culturing, FACS, activity assays, infusion of gene-edited cells into pre-clinical models (pigs and dogs) and extensive record keeping.

Research Assistant, Indian Institute of Science Jan 2012 to Dec 2012

Assisted a project investigating the role of HOP1 protein in chromosome synapsis, genetic recombination and DNA repair. Day to day activities involved cloning, protein extraction, western blots and record keeping.

Education

PhD [ongoing], University of Edinburgh, UK 2014 to 2018

Deconvolution of the immune landscape of cancer transcriptomics data, its relationship to patient survival and tumour sub-grouping. Using a network-based approach, I used several publically available datasets to define immune signatures. The immune signatures were used to associate immune infiltrate in tumors with survival and response to therapy. Cancers were also sub-grouped based on their immune profile and related to prognosis. The project involved extensive use of R and Python programming languages.

Master of Science, University College London, UK 2010 to 2011

Course: Molecular medicine. The final dissertation was on exploring the relationship between autophagy and apoptosis in colon cancer cell lines.

Bachelor of Technology, Karunya University, India 2006 to 2010

Course: Biotechnology. The final project was carried out at the Rajiv Gandhi Centre of Biotechnology. The project involved studying the cross-regulation between proteins cks1 & skp2 and its implication in oral cancer progression. The project involved using techniques such as immunohistochemistry, immunocytochemistry and cell culturing.

Skills

Programming languages: Proficient in R, Python, HTML and CSS.

Bioinformatics/ Data science: Expertise in processing and analysis of array and sequence-based transcriptomics data using standard statistical and network-based analysis. Experience in the usage of machine learning and deep learning algorithms.

Knowledge in querying online portals for meta-analyses (e.g. cBioPortal, Ensembl, BioMart, GEO, ArrayExpress, TCGA) Extensive experience in data visualization (e.g. Cytoscape, ggplots, Miru), pathway analysis (e.g. Panther, Reactome, KEGG) and use of various gene enrichment tools (e.g. DAVID, BioGPS, ToppFun, GSEA).

Wet lab: Proficient in culturing of primary cells and cell lines,

Molecular techniques such as DNA/RNA/Protein isolation, ELISA, cloning, gene editing and transfection of primary cells and cell lines by electroporation.

Others: Photoshop, GitHub, PRISM, Final-cut-pro and advanced excel.

Publications

- Durable engraftment of genetically-modified FVIII-secreting autologous bone marrow stromal cells in the intramedullary microenvironment –SS Lee, Jaichandran S, AJ Nirmal, WH Ng, Irene K, IC Song, CY Kiong, KA Gales, Frederic C, EM Pena, BE Ogden, OL Kon- *Journal of Cellular and Molecular Medicine*, 2018.
- Macrophage colony-stimulating factor increases hepatic macrophage content, liver growth and lipid accumulation in neonatal rats – C Pridans, KA Sauter, KM Irvine, GM Davis, L Lefevre, A Raper, R Rojo, AJ Nirmal, P Beard, M Cheeseman, and DA Hume – *American Journal of Physiology-Gastrointestinal and Liver Physiology*, 2018.
- Continuous Biomarker Assessment by Exhaustive Survival Analysis– D. A. Pearce, AJ Nirmal, TC Freeman, and AH Sims – bioRxiv 2017. [Under review at BMC Cancer]
- ImSig: A resource for the identification and quantification of immune signatures in blood and tissue transcriptomics data– AJ Nirmal, T Regan, BBJ Shih, DA Hume, TC Freeman – bioRxiv 2016. [Under review at Cancer Immunology Research]
- Derivation of marker gene signatures from human skin and their use in the interpretation transcriptional changes associated with dermatological disorders. BBJ Shih, AJ Nirmal, DJ Headon, AN Akbar, NA Mabbott, TC Freeman – *The Journal of Pathology*, 2016.
- Multidimensional genome-wide analyses show accurate FVIII integration by ZFN in primary human cells J Sivalingam, D Kenanov, H Han, AJ Nirmal, WH Ng, *et al.* – *Molecular Therapy*, 2016.
- Peptide vaccine therapy in colorectal cancer. A Bartnik, AJ Nirmal, SY Yang – *Vaccines*, 2013.
- Cell-cycle analysis and micronuclei frequency reveals G0/G1 blockers as weak micronuclei inducers A Krishnan, VR Gopinath, AJ Nirmal, SA Nair – *Drug and chemical toxicology*, 2013.

Honors and awards

Best poster award

2015

Functional Genomics and Systems Biology: From Model Organisms to Human Health conference held at Wellcome Genome Campus, Cambridge, UK.

Roslin Institute and CMVM scholarship

2014 to 2018

Edinburgh global research scholarship

2014 to 2018

President

2004 to 2006

Elected as the president of students union for two consecutive years through an election process by the student body (Strength of 1100 Students)- Hebron Matriculation Higher Secondary School, Tamil Nadu, India.

First place

2004

Secured first place in a district level painting competition conducted by the Rotary Club, India.

First place

2002

Won first place in a state level art competition conducted by Tamil Nadu art masters association, India.

First place

2000

Won first place in State-Level Universal Talent Search Examination conducted by Shakespeare Institute of English, India.

Selected conferences and scientific presentations

- **Oral presentation** at the EIG symposium conducted by the Edinburgh Cancer Immunology Network - June 2017.
- **Presentation a poster** at the 23rd Annual meeting of ISCB and the 14th European Conference on Computational Biology (ECCB) between 10 and 14 July 2015
- **Presentation a poster** at the Functional Genomics and Systems Biology: From Model Organisms to Human Health conference held at Wellcome Genome Campus, Cambridge, UK- 2015.

- Participated in “The International Course in Haemophilia from Diagnosis to Therapy” conducted by Lund University and Singapore General Hospital – 2014.
- Participated in a three-day international conference “CANCERCON 2010”, Indian Institute of Technology, Chennai.
- **Presentation a poster** titled “Development of novel markers for improved cancer screening” in a two-day national level symposium on ‘Research Methodologies in Biomedical Sciences’, Karunya University, India – 2009.
- **Presentation a poster** titled “Mellitin as immunotoxin to control cancer” in a national level conference on “Role of radioprotectors in experimental medicine”, Karunya University, India – 2008.

Teaching and mentoring experience

- Assisted my supervisor in teaching ‘Network Visualisation and Analysis of Biological Data’ at Cambridge University, UK - April 2016.
- Assisted my supervisor in teaching Wellcome Trust Advanced Course (WTAC) course: Functional Genomics and Systems Biology - June 2015.

Public engagement

I strongly believe in the active communication of science with the public. During my leisure hours, I developed an online platform called the Surg (www.thesurg.com) to communicate science with the public. As a part of this, I have worked with several scientists around the world to communicate their publications in plain English to the public. I also sometimes make short videos of the same. These videos have crossed over 30 million views. I also use Twitter to engage and decimate the latest discoveries to the public.

Declaration

I believe that all the above information provided is true to the best of my knowledge. I will be a committed smart worker with a willingness to update my knowledge in tune with the latest happenings in the field.