REGINA H REYNOLDS

Molecular biologist turned bioinformatician, with a passion for systems-level biology, statistics and data visualisation and the application of these to answer biological questions. My current work explores the role of different cell types in neurodegeneration, making use of large-scale genomic and transcriptomic datasets.

View this CV online with links at https://rhreynolds.github.io/cv

CONTACT

- rhreynolds@hotmail.co.uk
- GitHub
- LinkedIn
- ResearchGate

PROGRAMMING LANGUAGES

- R
- Git/GitHub
- Bash
- Nextflow
- docker
- Python

EDUCATION

2021 | 2016 — **PhD, Bioinformatics**
University College London — London, UK

- Thesis: Exploring the importance of cell-type-specific gene expression regulation and splicing in Parkinson's disease[7]
- Integrated bulk-tissue and single-cell transcriptomic data with summary-level genetic association data to investigate the role of cell-type-specific gene expression regulation and splicing in Parkinson's disease.
- Published 3 first/co-first author research articles and 1 first author review.
- Successfully secured £10,000 from Signe og Peter Gregersens Mindefond to undertake transcriptional profiling of Parkinson's disease brain tissue.

2016 | 2014 — **MSc, Molecular Biomedicine**
University of Copenhagen — Copenhagen, Denmark

- Thesis: Changes in the miR-34a-SIRT1 axis in Huntington's disease
- Grade: A (92.5%)

2013 | 2010 — **BSc, Molecular Biomedicine**
University of Copenhagen — Copenhagen, Denmark

- Thesis: Pro-apoptotic factors in Huntington's disease: a study in the R6/2 transgenic mouse model
- Grade: A (96.7%)

2008 | 2006 — **General Certificate of Education Advanced Level**
Doha College — Doha, Qatar

- Grades: Biology (A), Chemistry (A), History (A), Mathematics (A), Advanced Extension Award History (Merit)

WORK EXPERIENCE

Present | 2022 — **Principal Bioinformatician**
CoSyne Therapeutics — London, UK

Made with the R packages datadrivencv and pagedown.

The source code is available GitHub.

Last updated on 2022-10-24.

2022 | 2021

Research Fellow

University College London — London, UK

- Lead analyst involved in processing and analysing transcriptomic data generated with the aim of identifying molecular signatures of Parkinson's disease progression. Work done primarily using R, nextflow and docker.
- Co-lead of Code and Pipeline Alignment Working Group in the Aligning Sciences Across Parkinson's[2] initiative. This group aims to maximize the value of data generated from finite post-mortem brain tissues through code alignment, which will enable eventual meta-analysis.

2016 | 2016

Research Assistant

University of Copenhagen — Copenhagen, Denmark

- Led project exploring the interactions between miR-34a, Sirt1 and p53 in a Huntington's disease mouse model, which culminated in a first author publication[3].

2015 | 2013

Housing Assistant

DIS, Study Abroad in Scandinavia, Denmark — Copenhagen, Denmark

- Student assistant involved in general administrative tasks; organisation of bi-annual orientation meeting for hosts/students; and conflict mediation between hosts and students.

TEACHING EXPERIENCE

Present | 2021

Subsidiary PhD Supervisor

University College London — London, UK

- Involved in top-level project planning and provide a second opinion/additional areas of expertise where appropriate.

2022 | 2019

R fundamentals with Clinician Coders[4]

University College London — London, UK

- Developed materials[5] and led workshops teaching basic R and tidy data principles to clinical academics.

2019 | 2017

Omics Techniques

King's College London — London, UK

- Lectured graduate level students on the principles of genome-wide association studies and led a workshop on how/why to use the Genotype-Tissue Expression portal.

VOLUNTARY WORK

Present | 2018

Peer Reviewer

London, UK

- Reviewer[6] for several scientific journals.

Present | 2017

Mentor

Social Mobility Foundation — London, UK

- Mentored 4 A-level students looking to work in the field of biomedical research.

KEY PUBLICATIONS

2021

Cross-platform transcriptional profiling identifies common and distinct molecular pathologies in Lewy body disorders[7]

Acta Neuropathologica

- Feleke, R, **Reynolds, RH**, Smith, A, Tilley, B, Gagliano Taliun, SA, Hardy, J, Matthews, PM, Gentleman, S, Owen , D, Johnson, MR, Srivastava, P, Ryten, M
- **Role**: Co-first author and analyst.
- Transcriptomic analysis[8] of cell-type-specific changes in the Lewy body diseases.

2020

Dystonia genes functionally converge in specific neurons and share neurobiology with psychiatric disorders[9]

Brain

- Mencacci, NE, **Reynolds, RH**, Garcia Ruiz, S, Vandrovcova, J, Forabosco, P, Sánchez-Ferrer, A, Volpato, V, UK Brain Expression Consortium, International Parkinson's Disease Genomics Consortium, Weale, ME, Bhatia, KP, Webber, C, Hardy, J, Botía, JA, Ryten, M
- **Role**: Co-first author and analyst.
- Integrative omics analysis of monogenic dystonias, with the aim of improving our understanding of the pathways driving this clinically heterogeneous group of movement disorders.

2019

Informing disease modelling with brain-relevant functional genomic annotations[10]

Brain

- **Reynolds, RH**, Hardy, J, Ryten, M, Gagliano Taliun, SA
- **Role**: First author.
- Review of conceptual advances in the generation of brain-relevant functional genomic annotations and among tools that allow integration of these annotations with genome-wide association summary statistics.

2019

Moving beyond neurons: the Role of cell type-specific gene regulation in Parkinson's disease heritability[11]

NPJ Parkinson's disease

- **Reynolds, RH**, Botía, JA, Nalls, MA, International Parkinson's Disease Genomic Consortium (IPDGC), System Genomics of Parkinson's Disease (SGPD), Hardy, J, Gagliano Taliun, SA, Ryten, M
- **Role**: First author and lead analyst.
- Analysis of Parkinson's disease common variation, with the aim of identifying cell types and pathways of importance to disease risk.

CONFERENCES

2022

AD/PD, Alzheimer's & Parkinson's Diseases Conference

Hybrid event

- **Talk**: Identifying genetic correlations among neurodegenerative and neuropsychiatric diseases

A full list of publications is available online at https://rhreynolds.github.io/cv

2021 **Genomics of Brain Disorders**

Virtual event

- **Talk**: Dysregulation of splicing in human brain from individuals with Lewy body disease informs disease mechanisms

2019 **International Parkinson's Disease Genomics Consortium**

London, UK

- **Talk**: Pairing bulk and single-nuclear RNA-seq to identify dementia-related pathways in PD

2019 **AD/PD, Alzheimer's & Parkinson's Diseases Conference**

Lisbon, Portugal

- **Talk**: Mapping Parkinson's disease heritability to specific brain cell types
- Received mention in a blog post on Alzforum[12].

2018 **International Parkinson's Disease Genomics Consortium**

Reykjavik, Iceland

- **Talk**: Moving beyond neurons: exploring the importance of cell type-specific gene expression in Parkinson's disease

LINKS

1: https://discovery.ucl.ac.uk/id/eprint/10119171/
2: https://parkinsonsroadmap.org/research-network/pd-functional-genomics/
3: https://pubmed.ncbi.nlm.nih.gov/29289683/
4: https://www.ucl.ac.uk/school-life-medical-sciences/about-slms/office-vice-provost-health/academic-careers-office/career-schemes/clinician-coders
5: https://github.com/ClinicianCoders/ClinicianCoders
6: https://publons.com/researcher/3017104/regina-hertfelder-reynolds/peer-review/
7: https://pubmed.ncbi.nlm.nih.gov/34309761/
8: https://rhreynolds.github.io/LBD-seq-bulk-analyses/
9: https://pubmed.ncbi.nlm.nih.gov/32889528/
10: https://pubmed.ncbi.nlm.nih.gov/31603214/
11: https://pubmed.ncbi.nlm.nih.gov/31016231/
12: https://www.alzforum.org/news/conference-coverage/expression-expression-expression-time-get-board-eqtls