

REGINA H REYNOLDS



KEY PUBLICATIONS

2023

- **Local genetic correlations exist among neurodegenerative and neuropsychiatric diseases¹**
NPJ Parkinson's disease
 - Reynolds, RH, Wagen, AZ, Lona-Durazo, F, Scholz, SW, Shoai, M, Hardy, J, Gagliano Taliun, SA, Ryten, M
 - **Role:** Co-first author, lead analyst and corresponding author.
 - Analysis² of local genetic correlations between neurodegenerative and neuropsychiatric disorders, with the aim of identifying genomic regions and genes that may drive pleiotropy.

2021

- **Cross-platform transcriptional profiling identifies common and distinct molecular pathologies in Lewy body disorders³**
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 analysis⁴ of cell-type-specific changes in the Lewy body diseases.

2020

- **Dystonia genes functionally converge in specific neurons and share neurobiology with psychiatric disorders⁵**
Brain
 - Mencacci, NE, Reynolds, RH, Garcia Ruiz, S, Vandrovčová, 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 annotations⁶**
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.

View this publications list online with links at <https://rhreynolds.github.io/cv>

CONTACT

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- /github [GitHub](#)
- /in [LinkedIn](#)
- /e [ResearchGate](#)

The long-form version of my CV is available [here](#).

Made with the R packages [datadrivencv](#) and [pagedown](#).

The source code is available [GitHub](#).

Last updated on 2023-09-09.

2019

- **Moving beyond neurons: the Role of cell type-specific gene regulation in Parkinson's disease heritability⁷**

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.

2018

- **Perturbations in the p53/miR-34a/SIRT1 pathway in the R6/2 Huntington's disease model⁸**

Molecular and Cellular Neuroscience

- Reynolds, RH, Petersen, MH, Willert, CW, Heinrich, M, Nymann, N, Dall, M, Treebak, JT, Björkqvist, M, Silahtaroglu, A, Hasholt, L and Nørremølle, A
- **Role:** First author, lead experimentalist and analyst.



PUBLICATIONS

2023

- **aws-s3-integrity-check: an open-source bash tool to verify the integrity of a dataset stored on Amazon S3⁹**

GigaByte

- Garcia-Ruiz, S, Reynolds, RH et al.
- **Role:** Adviser. Contributed to idea development and critiqued manuscript.

2023

- **Genome-wide Analysis of Motor Progression in Parkinson Disease¹⁰**

Neurology Genetics

- Martinez-Carrasco, A, Real, R, Lawton, M, Reynolds, RH et al.
- **Role:** Adviser. Reviewed and critiqued statistical analyses and manuscript.

2023

- **Regional genetic correlations highlight relationships between neurodegenerative disease loci and the immune system¹¹**

Communications Biology

- Lona-Durazo, F, Reynolds, RH et al.
- **Role:** Analyst and advisor. Contributed to code base and critiqued manuscript.

2023

- **Association between the LRP1B and APOE loci and the development of Parkinson's disease dementia¹²**

Brain

- Real, R, Martinez-Carrasco, A, Reynolds, RH et al.
- **Role:** Adviser. Critiqued manuscript.

2023

- **The contribution of Neanderthal introgression and natural selection to neurodegenerative diseases¹³**

Neurobiology of Disease

- Chen, Z, Reynolds RH et al.
- **Role:** Author and analyst. Performed partitioned SNP-heritability analyses and contributed to writing of results.

2023

- **The IPDGC/GP2 Hackathon - an open science event for training in data science, genomics, and collaboration using Parkinson's disease data¹⁴**
NPJ Parkinson's disease
 - Leonard, HL, Reynolds, RH et al. on behalf of The International Parkinson Disease Genomics Consortium (IPDGC) and The Global Parkinson's Genetics Program (GP2)
 - **Role:** Author and analyst. Contributed to creation of tools.

2023

- **ensemblQueryR: fast, flexible and high-throughput querying of Ensembl LD API endpoints in R¹⁵**
arXiv
 - Fairbrother-Browne, A, Garcia-Ruiz, S, Reynolds, RH et al.
 - **Role:** Adviser. Contributed to conceptualisation and critiqued manuscript.

2022

- **IntroVerse: a comprehensive database of introns across human tissues¹⁶**
Nucleic Acid Research
 - García-Ruiz, S, Gustavsson, EK, Zhang, D, Reynolds, RH et al.
 - **Role:** Adviser. Critiqued manuscript.
- **Genome-wide association study of REM sleep behavior disorder identifies polygenic risk and brain expression effects¹⁷**
Nature Communications
 - Krohn, L, Heilbron, K, Blauwendraat, C, Reynolds, RH, et al.
 - **Role:** Analyst. Performed colocalisation analyses and gene expression analyses.

2022

- **ggtranscript: an R package for the visualization and interpretation of transcript isoforms using ggplot2¹⁸**
Bioinformatics
 - Gustavsson, EK, Zhang, D, Reynolds, RH, Ruiz, SG, Ryten, MR
 - **Role:** Adviser. Performed beta testing and critiqued manuscript.

2021

- **A genetic link between risk for Alzheimer's disease and severe COVID-19 outcomes via the OAS1 gene¹⁹**
Brain
 - Magusali, N, Graham, AC, Piers, TM, Panichnantakul, P, Yaman, U, Shoai, M, Reynolds, RH et al.
 - **Role:** Adviser. Reviewed and critiqued statistical analyses and manuscript.

2021

- **Mitochondrial-nuclear cross-talk in the human brain is modulated by cell type and perturbed in neurodegenerative disease²⁰**
Communications Biology
 - Fairbrother-Browne, A, Ali, A, Reynolds, RH et al.
 - **Role:** Adviser. Advised on tools available for cell-type specificity and heritability analyses.

2021

- **A systems-level analysis highlights microglial activation as a modifying factor in common epilepsies²¹**
Neuropathology and Applied Neurobiology
 - Altmann, A, Ryten, M, Di Nunzio, M, Ravizza, T, Tolomeo, D, **Reynolds, RH** et al.
 - **Role:** Analyst. Collated gene lists designed to capture microglial states.
- **An integrated genomic approach to dissect the genetic landscape regulating the cell-to-cell transfer of α-synuclein²²**
Cell Reports
 - Kara, E, Crimi, A, Wiedmer, A, Emmenegger, M, Manzoni, C, Bandres-Ciga, S, D'Sa, K, **Reynolds, RH** et al.
 - **Role:** Analyst. Performed expression-weighted cell-type enrichment analyses.
- **Heritability enrichment implicates microglia in Parkinson's disease pathogenesis²³**
Annals of Neurology
 - Andersen, MS, Bandres-Ciga, S, **Reynolds, RH** et al.
 - **Role:** Adviser. Reviewed and critiqued statistical analyses and manuscript.
- **Human-lineage-specific genomic elements: relevance to neurodegenerative disease and APOE transcript usage²⁴**
Nature Communications
 - Chen, Z, Zhang, D, **Reynolds, RH** et al.
 - **Role:** Analyst. Performed partitioned SNP-heritability analyses.
- **Identification of Candidate Parkinson Disease Genes by Integrating Genome-Wide Association Study, Expression, and Epigenetic Data Sets²⁵**
JAMA Neurology
 - Kia, DA, Zhang, D, Guelfi, S, Manzoni, C, Hubbard, L, **Reynolds, RH** et al.
 - **Role:** Analyst. Involved in cell-type annotation of prioritised genes.
- **Modelling multifunctionality of genes with secondary gene co-expression networks in human brain provides novel disease insights²⁶**
Bioinformatics
 - Sánchez, JA, Gil-Martínez, AL, Cisterna, A, García-Ruiz, S, Gómez-Pascual, A, **Reynolds, RH** et al.
 - **Role:** Adviser. Reviewed and critiqued statistical analyses and manuscript.
- **Genome sequencing analysis identifies new loci associated with Lewy body dementia and provides insights into the complex genetic architecture²⁷**
Nature Genetics
 - Chia, R, Sabir, MS, Bandres-Ciga, S, Saez-Atienzar, S, **Reynolds, RH** et al.
 - **Role:** Analyst. Performed colocalisation analyses and gene expression analyses.

- 2021 • **CoExp Web, a web tool for the exploitation of co-expression networks²⁸**
Frontiers in Genetics
• García-Ruiz, S, Gil-Martínez, AL, Cisterna, A, Jurado, F, Reynolds, RH et al.
• **Role:** Analyst. Involved in cell-type annotation of gene co-expression networks.
- 2021 • **Genetic determinants of survival in progressive supranuclear palsy: a genome-wide association study²⁹**
Lancet Neurology
• Jabbari, E, Koga, S, Valentino, R, Reynolds, RH et al.
• **Role:** Analyst. Performed colocalisation analyses.
- 2021 • **Genome-wide association studies of cognitive and motor progression in Parkinson's disease³⁰**
Movement Disorders
• Tan, MMX, Lawton, MA, Jabbari, E, Reynolds, RH et al.
• **Role:** Adviser. Reviewed and critiqued statistical analyses and manuscript.
- 2021 • **Genetic analysis of amyotrophic lateral sclerosis identifies contributing pathways and cell types³¹**
Science Advances
• Saez-Atienzar, S, Bandres-Ciga, S, Langston, RG, Kim, JJ, Choi, SW, Reynolds, RH et al.
• **Role:** Adviser. Reviewed and critiqued statistical analyses and manuscript.
- 2020 • **Differences in network controllability and regional gene expression underlie hallucinations in Parkinson's disease³²**
Brain
• Zarkali, A, McColgan, P, Ryten, M, Reynolds, RH et al.
• **Role:** Adviser. Reviewed and critiqued statistical analyses and manuscript.
- 2020 • **Dementia risk in Parkinson's disease is associated with interhemispheric connectivity loss and determined by regional gene expression³³**
NeuroImage: Clinical
• Zarkali, A, McColgan, P, Ryten, M, Reynolds, RH et al.
• **Role:** Adviser. Reviewed and critiqued statistical analyses and manuscript.
- 2020 • **Analysis of brain atrophy and local gene expression in genetic frontotemporal dementia³⁴**
Brain Communications
• Altmann, A, Cash, DM, Bocchetta, M, Heller, C, Reynolds, RH et al.
• **Role:** Analyst. Performed expression-weighted cell-type enrichment analyses.

- 2020 • Incomplete annotation of disease-associated genes is limiting our understanding of Mendelian and complex neurogenetic disorders³⁵
Science Advances
• Zhang, D, Guelfi, S, Ruiz, SG, Costa, B, Reynolds, RH et al.
• Role: Analyst. Performed expression-weighted cell-type enrichment analyses.
- 2020 • Regulatory sites for known and novel splicing in human basal ganglia are enriched for disease-relevant information³⁶
Nature Communications
• Guelfi, S*, D'Sa, K*, Botía, JA*, Vandrovčová, J, Reynolds, RH et al.
• Role: Experimentalist and analyst. Performed PCR validation of transcription and partitioned SNP-heritability analyses.
- 2019 • Genetic variability in response to amyloid beta deposition influences Alzheimer's risk³⁷
Brain Communications
• Salih, DA, Bayram, S, Guelfi, S, Reynolds, RH et al.
• Role: Analyst. Performed colocalisation analyses.
- 2019 • Mitochondria function associated genes contribute to Parkinson's Disease risk and later age at onset³⁸
NPJ Parkinson's disease
• Billingsley, KJ, Barbosa, IA, Bandrés-Ciga S, Quinn, JP, Bubb, VJ, Deshpande, C, Botía, JA, Reynolds, RH et al.
• Role: Analyst. Performed expression-weighted cell-type enrichment analyses.
- 2018 • Variation at the TRIM11 locus modifies Progressive Supranuclear Palsy phenotype³⁹
Annals of Neurology
• Jabbari, E, John, W, Tan, MMX, Maryam, S, Pittman, A, Ferrari, R, Mok, KY, Zhang, D, Reynolds, RH et al.
• Role: Analyst. Performed gene-based association testing and analysis of gene expression data.

🔒 PRE-PRINTS

- 2022 • Pseudogenes limit the identification of novel common transcripts generated by their parent genes⁴⁰
bioRxiv
• Gustavsson, EK, Sethi, S, Gao, Y, Brenton, J, Ruiz, SG, Zhang, D, Reynolds, RH et al.
• Role: Adviser. Critiqued manuscript.
- 2021 • Detection of pathogenic splicing events from RNA-sequencing data using dasper⁴¹
bioRxiv
• Zhang, D, Reynolds, RH, et al.
• Role: Adviser. Helped guide and troubleshoot feature selection for outlier detection of splicing events.

2019

- **ERASE: Extended Randomization for assessment of annotation enrichment in ASE datasets⁴²**

bioRxiv

- D'Sa, K, Reynolds RH et al.
- **Role:** Analyst. Performed partitioned SNP-heritability analyses.

2018

- **G2P: Using machine learning to understand and predict genes causing rare neurological disorders⁴³**

bioRxiv

- Botía, JA, Guelfi, S, Zhang, D, D'Sa, K, **Reynolds, RH** et al.
- **Role:** Adviser. Helped interpret the output of machine-learning-based models to distinguish disease genes from non-disease genes.