

# REGINA H REYNOLDS

## ★ KEY PUBLICATIONS

2021

- **Cross-platform transcriptional profiling identifies common and distinct molecular pathologies in Lewy body disorders<sup>1</sup>**

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<sup>2</sup> of cell-type-specific changes in the Lewy body diseases.

2020

- **Dystonia genes functionally converge in specific neurons and share neurobiology with psychiatric disorders<sup>3</sup>**

Brain

- Mencacci, NE, **Reynolds, RH**, Garcia Ruiz, S, Vandrovčova, 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<sup>4</sup>**

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<sup>5</sup>**

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 model<sup>6</sup>**

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.

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

## CONTACT

✉ [rhreynolds@hotmail.co.uk](mailto:rhreynolds@hotmail.co.uk)

/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 2023-03-12.

## PUBLICATIONS

2023

- **The IPDGC/GP2 Hackathon - an open science event for training in data science, genomics, and collaboration using Parkinson's disease data<sup>7</sup>**  
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

- **IntroVerse: a comprehensive database of introns across human tissues<sup>8</sup>**  
Nucleic Acid Research
  - García-Ruiz, S, Gustavsson, EK, Zhang, D, Reynolds, RH et al.
  - **Role:** Adviser. Critiqued manuscript.

2022

- **Genome-wide association study of REM sleep behavior disorder identifies polygenic risk and brain expression effects<sup>9</sup>**  
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 ggplot2<sup>10</sup>**  
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 gene<sup>11</sup>**  
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 disease<sup>12</sup>**  
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 epilepsies<sup>13</sup>**  
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.

2021

- An integrated genomic approach to dissect the genetic landscape regulating the cell-to-cell transfer of  $\alpha$ -synuclein<sup>14</sup>  
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.

2021

- Heritability enrichment implicates microglia in Parkinson's disease pathogenesis<sup>15</sup>  
Annals of Neurology
  - Andersen, MS, Bandres-Ciga, S, **Reynolds, RH** et al.
  - **Role:** Adviser. Reviewed and critiqued statistical analyses and manuscript.

2021

- Human-lineage-specific genomic elements: relevance to neurodegenerative disease and APOE transcript usage<sup>16</sup>  
Nature Communications
  - Chen, Z, Zhang, D, **Reynolds, RH** et al.
  - **Role:** Analyst. Performed partitioned SNP-heritability analyses.

2021

- Identification of Candidate Parkinson Disease Genes by Integrating Genome-Wide Association Study, Expression, and Epigenetic Data Sets<sup>17</sup>  
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.

2021

- Modelling multifunctionality of genes with secondary gene co-expression networks in human brain provides novel disease insights<sup>18</sup>  
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.

2021

- Genome sequencing analysis identifies new loci associated with Lewy body dementia and provides insights into the complex genetic architecture<sup>19</sup>  
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 networks<sup>20</sup>  
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 study<sup>21</sup>**  
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 disease<sup>22</sup>**  
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 types<sup>23</sup>**  
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 disease<sup>24</sup>**  
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 expression<sup>25</sup>**  
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 dementia<sup>26</sup>**  
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 disorders<sup>27</sup>**  
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 information<sup>28</sup>**  
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 risk<sup>29</sup>**  
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 onset<sup>30</sup>**  
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 phenotype<sup>31</sup>**  
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
- **Association of genetic variation at the GJA5/ACP6 locus with motor progression in Parkinson's<sup>32</sup>**  
medRxiv
    - Martinez-Carrasco, A, Real, R, Lawton, M, **Reynolds, RH** et al.
    - **Role:** Adviser. Reviewed and critiqued statistical analyses and manuscript.
- 2022
- **Pseudogenes limit the identification of novel common transcripts generated by their parent genes<sup>33</sup>**  
bioRxiv
    - Gustavsson, EK, Sethi, S, Gao, Y, Brenton, J, Ruiz, SG, Zhang, D, **Reynolds, RH** et al.
    - **Role:** Adviser. Critiqued manuscript.
- 2022
- **Local genetic correlations exist among neurodegenerative and neuropsychiatric diseases<sup>34</sup>**  
medRxiv
    - **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.

- 2022
- Association between the LRP1B and APOE loci and the development of Parkinson's disease dementia<sup>35</sup>  
medRxiv
    - Real, R, Martinez-Carrasco, A, **Reynolds, RH** et al.
    - **Role:** Adviser. Critiqued manuscript.
- 2021
- Detection of pathogenic splicing events from RNA-sequencing data using dasper<sup>36</sup>  
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 datasets<sup>37</sup>  
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 disorders<sup>38</sup>  
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.