

Christopher D. WHELAN, Ph.D.

POPULATION HEALTH • PROTEOMICS • PREVENTIVE MEDICINE • NEUROSCIENCE

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EXECUTIVE SUMMARY

- **Domain expert** in human genetics, population health, neuroscience, proteomics, and drug discovery.
- **Strategic leader** who has founded and chaired transformative public-private consortia like UKB-PPP, managed cross-functional teams, and defined scientific strategies for Fortune 100 companies.
- **Deep network** spanning global pharmaceutical companies, biotechs, and academic leaders.
- **Science communicator** at international conferences and in national newspapers and podcasts.
- **High-impact researcher**, publishing corresponding author papers in *Nature*, *Neurology*, *Nature Communications*, *Brain* and more, which have been collectively cited over 15,000 times (*h*-index: 44).

EXPERIENCE

Ignition Scientific • Boston, Massachusetts, USA

2025 - Present

Founder & Managing Director

I founded Ignition Scientific, LLC (<https://ignitionscientific.com/>) to advise nonprofits, biotechs and pharmas in the population health, multi-omics and preventive medicine spaces. To date, my clients include:

- **National Institutes of Health (NIH)**, where I lead consortium formation for the All of Us Program,
- **Eli Lilly**, where I lead the scientific strategy for biobanks and multi-omics,
- **Abbvie**, where I advise on precision stratification approaches for psychiatric illnesses,
- **Danaher Corporation**, where I advise on a new data-driven biomarkers initiative,
- **Flagship Pioneering**, where I help incubate new technology platform companies,
- **The Michael J. Fox Foundation for Parkinson's disease**, where I chair the DATA-PD biomarkers initiative,
- **Helix, Inc.**, where I advise on population genomics, proteomics, and industry collaborations, and
- **IMU Biomedicines**, where I guide a biobank-scale study of the human immune system.

Johnson & Johnson Innovative Medicine (Janssen) • Cambridge, MA

2022 - 2025

Head of Molecular Neuroscience Data Science & Digital Health

At J&J, I directly managed a team of five scientists across the U.S. and Belgium and indirectly managed a larger matrixed organization of biologists and bioinformaticians across the Neuroscience Therapeutic Area and Data Sciences & Digital Health (DSDH) departments. Notable achievements include:

- **Leading major industry collaborations:** As the Chair of the UK Biobank Pharma Proteomics Project (UKB-PPP), I secured over \$47m USD in competitive research funding – including \$26.5m in funding from the UK Government - to expand UKB-PPP from 55,000 to 600,000 plasma samples. My responsibilities as Chair are outlined further below. I also supervised the construction of J&J's single

cell RNA-seq neuroscience atlas and oversaw the generation and analysis of multiple multi-omics datasets from the Banner Institute, Gates Ventures, Finngen, PPMI and many more.

- **Growing the J&J portfolio with data-driven drug targets:** My team leveraged large-scale multi-omics and advanced modeling techniques (Mendelian randomization, colocalization) to identify dozens of proteins with causal links to brain illnesses, resulting in several new drug programs entering the portfolio, including a schizophrenia drug candidate that has advanced to lead optimization.
- **Modernizing biomarker discovery:** I developed a ‘pharmacoproteomics’ framework to accelerate biomarker discovery via next-generation proteomic profiling of Phase III clinical trials (Olink, Somalogic, Alamar NULISA). We implemented this approach to identify predictive, prognostic and pharmacodynamic biomarkers of J&J compounds including Seltorexant, Nipocalimab & Aticaprant and found potential repurposing opportunities.
- **Leading AI/ML-based patient stratification:** I applied advanced AI/ML on proteomics from brain tissue, CSF and plasma to identify biological subtypes of brain illnesses like Parkinson’s disease and depression, driving the precision medicine strategies for several compound development programs.
- **Advising internal & external leadership:** I was appointed to the Neuropsychiatry Disease Area Strategy Leadership Team, regularly collaborating with and advising senior J&J leadership. I also closely collaborated with external scientific leaders like Sir Rory Collins, Hussein Manji and Kári Stefánsson.
- **Consistently exceeding goals:** All annual performance reviews were ‘exceptional’ (Top 5%).

Biogen, Inc. • Cambridge, MA

2018 - 2022

Associate Director, Head of Translational Genetics

2020 - 2022

As Head of Translational Genetics at Biogen, I directly managed a team of four genetic epidemiologists. During this time, I:

- Conceptualized, founded and led the **UK Biobank Pharma Proteomics Project** – a consortium of thirteen pharmaceutical companies that successfully measured 2,932 plasma proteins across 54,000 plasma samples. I conceived the project in 2019 and formally secured \$15M USD in funding in 2020. The consortium appointed me as Chair and Principal Investigator, imparting responsibilities such as: (i) ensuring ethics and IRB compliance, (ii) coordinating legal, business development, commercial and scientific stakeholders towards contract executions, (iii) leading monthly Joint Steering Committee meetings amongst the industry stakeholders (Amgen, AstraZeneca, Alnylam, Biogen, BMS, Calico, Genentech, GSK, J&J, Novo Nordisk, Pfizer, Regeneron, Takeda), (iv) overseeing the pre-competitive scientific analysis working group, (v) regularly reviewing and resolving logistic and QC matters with Olink Proteomics, UK Biobank and consortium members, (vi) writing the flagship UKB-PPP paper as senior author [[Sun & Whelan et al., Nature, 2023](#)], (vii) communicating the impact of the study’s findings at major international conferences (e.g., ESC, HUPO, ASHG) and in media interviews (e.g., *The Times*, *Endpoints News*, *GEN*, *The Genetics Podcast*, *Proteomics in Proximity*, et al).
- Successfully led a cross-functional R&D team towards **portfolio entry** for a small interfering RNA (siRNA) drug development program for the treatment of Alzheimer’s disease.

- Oversaw genetic sequencing of the Phase III trials of **aducanumab** (Aduhelm®) [[Loomis & Whelan et al., *Neurology*, 2024](#)], which identified **safety biomarkers** and was included in **regulatory filings**. Successfully lobbied for the findings to be included in drug labeling.
- Combined large-scale MRI data with genome-wide association data to discover genetic variants influencing neurological endophenotypes [[Sun & Whelan et al., *Nature Communications*, 2023](#)].

Senior Scientist

2018 – 2020

- In my earlier role as Senior Scientist, I served as **Biology Lead** for the **KCNT1** ASO program for epilepsy. I was responsible for designing *in-vitro* & *in-vivo* experiments, conducting human genetics studies, supporting the establishment of a patient advocacy group (KCNT1 Epilepsy Foundation), and overseeing genetics-based patient recall for Phase 1 trials [[Hinckley & Nguyen et al., *Epilepsia*, 2023](#)].
- I championed multiple genetically validated drug targets; several entered Biogen's R&D portfolio.
- I led a sponsored research agreement with Lund University, identifying protein quantitative trait loci (pQTLs) and biosignatures of Alzheimer's disease [[Hansson & Mattson-Carlgren et al., *EMBO*, 2023](#)].
- I devised combination therapy strategies for Alzheimer's disease (small molecules, antibodies, ASOs).

Pfizer, Inc. • Cambridge, MA

2016 – 2018

Manager, Human Genetics

As Manager of Human Genetics and Head of Scientific Strategy for Neuroscience, I served as genetics point-of-contact for Pfizer's neuroscience division – driving the following initiatives:

- Co-leading an international collaboration to identify novel biomarkers for Alzheimer's and Parkinson's disease (www.biofinder.se) [[Whelan & Hansson et al., *Acta Neuropathologica Comms*, 2019](#)].
- Designing and executing multiple neuroscience focused GWAS analyses with 23andMe.
- Using human genetics to identify new therapeutic targets, initiating two new drug discovery projects.
- Devising and leading a long-term scientific strategy for neuroinflammation genetics, uniting scientists from multidisciplinary groups including Computational Target Validation, Functional Genomics, and Internal Medicine to conduct integrated *in-silico*, *in-vitro*, and *in-vivo* experiments.
- Leading external collaborations with the University of Maryland, Lund University and 23andMe.

University of Southern California, Los Angeles, CA

2014 –2016

Post-doctoral Researcher • Imaging Genetics Center, Keck School of Medicine

I moved from Dublin, Ireland to Los Angeles, California to complete a post-doctoral fellowship at the Keck School of Medicine. There, I helped expand the ENIGMA Consortium – a worldwide network of 400+ neuroscientists, geneticists, and clinicians across 40 countries and 100 institutions worldwide. My achievements included:

- Coordinating the ENIGMA consortium's portfolio of 35 international scientific collaborations.
- Founding and leading **ENIGMA-Epilepsy**: the world's largest collaboration between 24 global epilepsy neuroimaging centers [[Whelan et al. Brain, 2018](#); [Hatton et al., Brain, 2020](#)]
- Conducting a comprehensive study of the heritability of human hippocampal volumes and validating an automated hippocampal subfield extraction algorithm [[Whelan et al., NeuroImage, 2016](#)].
- Contributing to several population-scale genome-wide association studies of brain imaging endpoints.

EDUCATION

- **Ph.D.** Diagnostics and Therapeutics for Human Disease • Focus – Neuroscience and Statistical Genetics • Royal College of Surgeons in Ireland (RCSI), Ireland 2014
- **M.Sc.** (with distinction) • Neuroscience • Trinity College Dublin, Ireland 2010
- **B.A.** (First Class Honours) • Psychology • University College Dublin, Ireland 2009

AFFILIATIONS & MEMBERSHIPS

- **Honorary Faculty** • Royal College of Surgeons in Ireland 2025-
- **DATA-PD Chair** • Michael J. Fox Foundation for Parkinson's disease 2024-
- **Steering Committee Member** • NeuroInsight (<https://neuroinsight.eu/>) 2023-
- **Society Member** • Human Proteome Organization (HUPO), American Society of Human Genetics (ASHG) 2020-
- **Journal Reviewer** • *Nature, Cell, Science Translational Medicine, Nature Neuroscience, Nature Human Behavior, Nature Genetics, Cell Genomics, Brain, Neuroimage, Epilepsia, Human Brain Mapping, Journal of Infection* 2016-

SKILLS

Leadership & Strategy: Global public-private consortia, cross-functional team building, scientific communication, people management, drug discovery & development, biomarker discovery, diagnostics | **Proteomics:** Olink, Somalogic, Alamar NULISA, Seer, mass spectrometry | **Genetics & Functional Genomics:** GWAS, Mendelian randomization, colocalization, fine-mapping | **Population Health:** UK Biobank, FinnGen, Our Future Health, All of Us, 23andMe, BioFINDER, ADNI, AIBL, PPMI, GNPC | **Neuroscience:** Diffusion tensor imaging, structural MRI, functional MRI, FreeSurfer, FSL • **Applied AI/ML:** Clustering (k-means, PAM, HYDRA, consensus clustering, random forest) | **Programming:** R, Bash

AWARDS AND HONORS

- J&J Innovative Leadership Award for thought leadership in proteomics 2023
- Biogen CEO Award for consistent exceptional performance 2020
- 20+ Biogen “BIG” awards for making key R&D contributions 2018-2021
- Pfizer Core Values Award, for exhibiting behaviors embodying the company’s “core values” of expertise, teamwork, and transparency 2018
- Pfizer W.E. Upjohn Award, for contributions towards early R&D portfolio 2016

SELECTED PUBLICATIONS

1. Duff EP, Zetterberg H, [...], Whelan CD, Sun BB, Matthews PM. Plasma proteomic evidence for increase β -amyloid pathology after SARS-Cov-2 infection. *Nature Medicine* 31, 797-806 (2025).
2. Loomis SH, Miller R, Budd Haeberlein S, Whelan CD. Genome-wide association studies of ARIA from the aducanumab phase 3 ENGAGE and EMERGE studies. *Neurology* 103 (3) (2024).
3. Sun BB, Chiou J, Traylor M, [...], Whelan CD. Plasma proteomic associations with genetics and health in the UK Biobank. *Nature* 622 (7982), 329-338 (2023).
4. Sun BB, Loomis SJ, Pizzagalli F, [...], Whelan CD. Genetic map of regional sulcal morphology in the human brain. *Nature Communications* 13 (1), 6071 (2022).
5. Brouwer RM, [...], Whelan CD, [...], Hulshoff Pol HE. Genetic variants associated with longitudinal changes in brain structure across the lifespan. *Nature Neuroscience* (2022).
6. Liu JZ, Chen CY, Tsai EA, Whelan CD, Sexton D, John S, Runz H. The burden of rare protein-truncating variants on human lifespan. *Nature Aging* (2022).
7. Szustakowski JD, [...], Whelan CD, [...], Reid JG. Advancing human genetics research and drug discovery through exome sequencing of the UK Biobank. *Nature Genetics* 53, 942-948 (2021).
8. Grasby K, [...], Whelan CD, [...], Medland S. The genetic architecture of the human cerebral cortex. *Science* 367 (2020).
9. Hatton SN, [...], Whelan CD, Janahshad N, Sisodiya SM & McDonald, CR. White matter abnormalities across different epilepsy syndromes in adults: an ENIGMA Epilepsy study. *Brain* 143(8), (2020).
10. Whelan CD, Mattson N, [...], Malarstig A, Hansson O. Multiplex proteomics identifies novel CSF and plasma biomarkers of early Alzheimer’s disease. *Acta Neuropathologica Communications* (2019).
11. Whelan CD, Altmann A, Hibar DP... Thompson PM, Sisodiya S. Structural brain abnormalities in the common epilepsies assessed in a worldwide ENIGMA study. *Brain* 141(2), 391-408 (2018).
12. Hibar DP, Adams HHH, Jahanshad N... Whelan CD... Thompson PM, Ikram MA. Novel genetic loci influence hippocampal volume. *Nature Communications* 8, 13624 (2017).
13. Whelan CD, Hibar DP, van Velzen LS, Zannas AS, Carrillo-Roa T, [...], Jahanshad N, Schmaal L, Sämann PG & Thompson PM. Heritability and reliability of automatically segmented human hippocampal formation subregions. *NeuroImage* 128, 125-137 (2016).
14. Whelan CD, Alhusaini S, O’Hanlon E, Cheung M, Iyer PM, Meaney JF, Fagan A, Boyle G, Delanty N, Doherty CP & Cavalleri GL. White matter alterations in MRI-negative temporal lobe epilepsy patients and their asymptomatic siblings. *Epilepsia* 56(10), 1551-1561 (2015).
15. Whelan CD*, The International League Against Epilepsy Consortium on Complex Epilepsies [*banner authorship; principal data analyst, ‘joint’ first author]. Genetic determinants of common epilepsies: a meta-analysis of genome-wide association studies. *The Lancet Neurology* 13(9), 893-903 (2014).

For a full list of 60+ publications, please visit [Google Scholar](#).