ESC
Council
Cardiovascular Genomics

Elections to Council Nucleus and Nominating committee 2024-2026

Motivation letter: Why are you interested in joining the Council Nucleus or Nominating committee (250 words max)?

Engaging clinicians and research scientists in the exciting and fast-paced world of cardiovascular genomics is paramount to supporting the development of our field and inspiring new creative synergies. Integration of big data based on the intersection of genomics, wider 'omics, and the vast amount of healthcare data now at our fingertips provides fantastic opportunities that can further bridge the gap between the translation of genomic research and clinical impact.

I am a Professor of Precision Medicine & Epidemiology at the University of Oxford focusing on large-scale –omics studies of coronary heart disease, stroke, and atrial fibrillation encompassing initiatives ranging from genetic discovery, Mendelian randomization, and polygenic risk through to pharmacogenetics and large-scale cardiovascular clinical trials. I have taken various leadership roles, for example in major international Consortia such as CARDIoGRAMplusC4D and METASTROKE, in academic and industry partnerships and contributed to our community through the ESC, British Heart Foundation and American Heart Association. I hope to be able to use these experiences to further promote and enhance our Cardiovascular Genomics Council and its mission.

If elected to the Nucleus, I hope to support the mission of the Council to encourage research, education and the sharing of genomic knowledge. In particular, we have an exciting opportunity to develop initiatives for genomic and wider –omic training, inspire cardiovascular scientists from various disciplines through approaches to making genomics more accessible, as well as to promote interdisciplinary research strategies. I am also a strong champion for early career researchers and women in science, and seek to actively support these groups. By continuing to enhance our visibility and engage our growing community we can look forward to an impactful future in cardiovascular genomics.

ESC
Council
Cardiovascular Genomics

SHORT CURRICULUM VITAE

JEMMA C HOPEWELL

BSc (Hons) MSc PhD (Cantab) FESC

PRESENT POSTS

- Professor of Precision Medicine & Epidemiology, Nuffield Department of Population Health, University of Oxford, UK
- Cardiovascular Theme of the NIHR Oxford Biomedical Research Centre, Co-Lead
- Steering Committee Member, British Heart Foundation Oxford Centre of Research Excellence
- Visiting Professor & Adjunct Member, Department of Human Genetics, McGill University, Canada
- Senior Scientist in Genetic Epidemiology and Clinical Trials, Nuffield Department of Population Health, University of Oxford, UK
- Cardiovascular Clinical Trials Genetics Programme and Group Lead (Precision Medicine; Causal inference and Pharmacogenetics), Nuffield Department of Population Health, University of Oxford)

SHORT BIOGRAPHY

After completing my PhD at the University of Cambridge, UK, I moved to the Clinical Trial Service Unit and Epidemiological Studies Unit, Nuffield Department and Population Health, University of Oxford. Over the last 12 years I have directed a programme of research focused on understanding the determinants, treatments, and sequelae of common cardiovascular diseases, including coronary heart disease, stroke and atrial fibrillation through large-scale clinical trials, population biobank studies and international consortia, culminating in becoming Professor of Precision Medicine and Epidemiology in 2020. My multi-omics to pharmaco-omics research programme brings together insights from phenomics (based on a range of clinical and routinely collected electronic healthcare records), genomics and a range of other –omic (e.g. proteomic) data sources. This approach capitalises on the value of big data and provides an efficient way to elucidate causal risk factors and disease mechanisms of disease, understand the potential of therapeutic targets, and consider how patients respond to treatment. Overall, my work provides insights into the causes and consequences of cardiovascular diseases, influencing therapeutic developments and drug response, in order to generate insights into precision medicine, and inform clinical trial and patient care.

KEY PREVIOUS APPOINTMENTS

British Heart Foundation Intermediate Basic Science Research Fellow

Associate Professor in Genetic Epidemiology & Clinical Trials, Nuffield Department of Population Health, University of Oxford

University Research Lecturer, Nuffield Department of Population Health, University of Oxford

British Heart Foundation Oxford Centre for Research Excellence Intermediate Fellow

SELECTED AWARDS AND DISTINCTIONS (WITHIN LAST 10 YRS)

"100 Women of Oxford Medical Sciences", University of Oxford

NIHR Oxford Biomedical Research Centre (Cardiovascular) Women Transforming Leadership Award

Professorial Recognition of Distinction

International Michele Sale Award for Women in Stroke Genetics

Visiting Professorship, Department of Human Genetics, McGill University, Canada

CATCH-ME European Collaboration Presentation Prize

Fellow of the European Society of Cardiology

SELECTED EXPERT PANELS/FUNDING BODIES/LEADERSHIP ROLES (WITHIN LAST 10 YRS)

British Heart Foundation Project Grants Committee, Member

American Heart Association Human Studies Fellowship Committee, Chair

Government of Canada, Strategic Science Fund, Invited Expert

MHRA Yellow Card Biobank Scientific Consultation, Invited Expert

American Heart Association Clinical / Human Studies Fellowship Committee, Member

Genome Canada, Genomic Applications Partnership Program, Expert Review Panel Member

University of Oxford John Fell Fund, Medical Sciences Division Committee, Member

American Heart Association Institute for Precision Cardiovascular Medicine - Data Science Grants Study Section, Member

American Heart Association Institute for Precision Cardiovascular Medicine - Artificial Intelligence & Machine Learning, Training and Clinical Training Grants Committee, Member

Government of Canada, Networks of Centers of Excellence, Expert Panel Member

Editorial Board, *Stroke*

Guest Editor (Preventive Cardiology), *PLOS One*

NIHR Oxford Biomedical Research Centre, Cardiovascular Medicine Theme, and identifying and validating new therapeutic targets subtheme, Co-lead

CARDIoGRAMplusC4D International Consortium, Co-Chair (I currently co-Chair the world's largest consortia of coronary disease genetics involving over 100 collaborators. Prior to taking this leadership role in 2022, I was a member of the scientific and analysis committees)

ORION-4 (Phase 3 clinical trial of inclisiran among 16,000 high-risk patients), Steering Committee

PROTECT-U (Phase 3 clinical trial examining risk factor management in patients with unruptured intracranial aneurysms), Data Safety Monitoring Board Member

METASTROKE Collaboration of the International Stroke Genetics Consortium (ISGC), Chair

GoLEAD Consortium (Genetics of peripheral vascular disease), Steering Committee/Co-Senior Investigator.

HPS3-REVEAL (Phase 3 cardiovascular clinical trial of anacetrapib among 30,000 high-risk patients), Steering Committee and Sub-study Committee Member.

PROCARDIS (Precocious Coronary Artery Disease) Study, Co-PI.

I have taken leadership roles and participated in numerous consortia and collaborations across academia and industry (e.g. Merck, Regeneron, Novo Nordisk, Astra Zeneca, Novartis, Bayer), contributed to a number a various cardiovascular clinical trial steering and data monitoring committees, and have led the genotyping and downstream work of numerous large-scale cardiovascular trials.

TEACHING, TRAINING AND MENTORSHIP (WITHIN LAST 10 YRS)

Chair, Professors Network for Women**,** Nuffield Department of Population Health, University of Oxford.

Genetics Module Lead, EPSRC Centre for Doctoral Training in Health Data Science, University of Oxford.

Academic Director, Nuffield Department of Population Health Mentorship Programme, University of Oxford.

Academic tutor, MSc Clinical Trials, Nuffield Department of Population Health, University of Oxford.

Genetic Epidemiology Lead and Organising Committee, MSc Global Health Science & Epidemiology, Nuffield Department of Population Health, University of Oxford.

Over the last 10 years I have supervised 10 DPhil/MD/MSc student theses to completion (with a further 3 DPhils ongoing), 9 interns, and a team of directly-reporting research staff (i.e. clinical fellows and post-doctoral research scientists), as well as being a formal mentor to numerous researchers. My trainees have been awarded national and international prizes, young investigator awards (including ESC) and other accolades, and have successfully progressed to faculty positions in academia, advanced clinical training, medical directorships, and generation of new start-ups.

RESEARCH FUNDING (WITHIN LAST 10 YRS)

Grant funding as PI/co-PI/co-I over the last 10 years totalling >£150M from various sources (e.g. British Heart Foundation, NIH-NHLBI, EU and industry partners)

SELECTED INVITED TALKS (WITHIN LAST 10 YRS)

6th European Society of Cardiology Heart & Stroke International Conference, Oxford, UK

Parliamentary Reception Invited Presentation, British Heart Foundation, Houses of Parliament, UK

DNANexus Cardiovascular Virtual RoundTable

5th McGill - RIKEN Integrative Medical Science Symposium, Montreal, Canada

European Atherosclerosis Society, Expert Webinar

14th Annual Ottawa Conference, Keynote Lecture, Ottawa Heart Institute, Canada

4th NIHR TSA BASP Stroke Research Workshop, Leicester, UK

4th European Society of Cardiology Heart & Stroke International Conference

UK Biobank Scientific Conference, Genomics and Democratizing Access, Expert panel member

Michael Salé Award Lecture, ISGC Conference, St Louis, USA

16th Global Cardiovascular Clinical Trialists' Forum, Washington DC, USA

American Heart Association Scientific Sessions, Philadelphia, USA (Joint Session with European Society of Cardiology on Big Data to Solve Big Problems in Cardiovascular Health)

7th McGill-Kyoto Symposium: Genomics and Data - The Future for Health Care, Montreal, Canada

European Society of Cardiology, Paris, France (Hot Line Session Trial Discussant, Chairperson, Interviewer for ESC TV, Invited Scientific Faculty for joint Session with the International Congress of Cardiology)

European Stroke Organisation Conference, Milan, Italy

Frank Yatsu Symposium Lecture, World Stroke Congress, Canada

Neurology Grand Rounds, University of Virginia, Charlottesville, USA

Medical Grand Rounds and Lecture Series, University of Tokai, Japan

6th International Symposium on Disease Genomics, Kyoto, Japan

European Society of Cardiology 2019 Cardiovascular Roundtable on Stroke, Munich, Germany

European Society of Cardiology 2017 Basic Science Summer School Faculty, Nice, France

PUBLICATIONS

Publication history of 112 manuscripts (h-index = 57 and >30,000 citations), of which 20 selected publications are shown below with (co) first/senior authorship indicated in bold.

1. **Valdes-Marquez E, Clarke R, Hill M et al. Proteomic profiling identifies novel independent relationships between inflammatory proteins and myocardial infarction. *European Journal of Preventive Cardiology*. 2023. 30(7):583-591. doi:10.1093/eurjpc/zwad020.**
2. **Clarke R, Von Ende A, Schmidt L, et al. Apolipoprotein proteomics for residual lipid-related risk in coronary heart disease. *Circulation Research*. 2023;132(4):452-464. doi:10.1161/CIRCRESAHA.122.321690.**
3. Aragam K, Jiang T, Goel A, et al. Discovery and systematic characterization of risk variants and genes for coronary artery disease in over a million participants. *Nature Genetics*. 2022;54(12):1803-1815. doi:10.1038/s41588-022-01233-6.
4. Mishra A, Malik R, Hachiya T, et al. Stroke genetics informs drug discovery and risk prediction across ancestries. *Nature*. 2022. 611(7934):115-123. doi:10.1038/s41586-022-05165-3.
5. **Staplin N, Herrington W G, Murgia F, et al. Determining the relationship between blood pressure, kidney function, and chronic kidney disease: Insights from genetic epidemiology. *Hypertension*. 2022. 79(12):2671-2681. doi:101161HypertensionAHA12219354.**

6. Tapela NM, Collister J, Liu X, et al. Are polygenic risk scores for systolic blood pressure and LDL-cholesterol associated with treatment effectiveness, and clinical outcomes among those on treatment? *European Journal of Preventive Cardiology*. 2022. 29(6):925-937. doi: 10.1093/eurjpc/zwab192.

7. **Clift AK, von Ende A, Tan PS, et al. Smoking and COVID-19 outcomes: an observational and Mendelian randomisation study using the UK Biobank cohort. *Thorax*. 2022. 77(1), 65-73. doi:10.1136/thoraxjnl-2021-217080.**

8. **Camm CF, Lacey B, Massa MS, et al. Independent effects of adiposity measures on risk of atrial fibrillation in men and women: a study of 0.5 million individuals. *International Journal of Epidemiology*. 2021. 51(3):984-995. doi:10.1093/ije/dyab184.**

9. **Gajendragadkar PR, Von Ende A, Ibrahim M, et al. Assessment of the causal relevance of ECG parameters for risk of atrial fibrillation: A Mendelian randomisation study. *PLoS Medicine*. 2021. 18(5), e1003572. doi:10.1371/journal.pmed.1003572.**

10. **van Zuydam NR, Stiby, A, Abdalla, M, et al. Genome-Wide Association Study of Peripheral Artery Disease. Circulation. *Genomic and Precision Medicine*. 2021. 14(5), e002862. doi:10.1161/CIRCGEN.119.002862.**

11. **Hopewell JC*, Clarke R*, Watkins H*. Lp(a) (Lipoprotein[a]), an exemplar for precision medicine: Insights from UK Biobank. *Arteriosclerosis, Thrombosis, and Vascular Biology*. 2021. 475-477. doi:10.1161/ATVBAHA.120.315549.**

12. **Hopewell JC, Offer A, Haynes R, et al. Independent risk factors for simvastatin-related myopathy and relevance to different types of muscle symptom. *European Heart Journal*. 2020. 41(35), 3336-3342. doi:10.1093/eurheartj/ehaa574.**

13. Doehner W, Mazighi M, Hofmann BM, et al. Cardiovascular care of patients with stroke and high risk of stroke: The need for interdisciplinary action: A consensus report from the European Society of Cardiology Cardiovascular Round Table. *European Journal of Preventive Cardiology.* 2020. 27(7), 682-692. doi:10.1177/2047487319873460.

14. **Hopewell JC, Ibrahim M, Hill M, et al. Impact of *ADCY9* genotype on response to anacetrapib. *Circulation.* 2019. 140(11), 891-898. doi:10.1161/CIRCULATIONAHA.119.041546**

15. **Valdes-Marquez E, Parish S, Clarke R, et al. Relative effects of LDL-C on ischemic stroke and coronary disease: A Mendelian randomization study. *Neurology*. 2019. 92(11), E1176-E1187. doi:10.1212/WNL.0000000000007091.**

16. **Parish S*, Hopewell JC*, Hill MR*, et al. Impact of apolipoprotein(a) isoform size on lipoprotein(a) lowering in the HPS2-THRIVE study. *Circulation: Genomic and Precision Medicine*. 2018;11(2):e001696. doi: 10.1161/CIRCGEN.117.001696.**

17. Malik R, Chauhan G, Traylor M, et al. Multiancestry genome-wide association study of 520,000 subjects identifies 32 loci associated with stroke and stroke subtypes. *Nature Genetics*. 2018. 50(4):524-37. doi:10.1038/s41588-018-0058-3.

18. **Hopewell JC, Malik R, Valdes-Marquez E, et al. Differential effects of *PCSK9* variants on risk of coronary disease and ischaemic stroke. *European Heart Journal*. 2018. 39(5):354-9. doi:10.1093/eurheartj/ehx373.**

19. The HPS3/TIMI55–REVEAL Collaborative Group. Effects of anacetrapib in patients with atherosclerotic vascular disease. *NEJM*. 2017. 377:1217-1227. doi: 10.1056/NEJMoa1706444.

20. **Clarke R*, Peden J*, Hopewell JC*, et al. Genetic variants associated with Lp(a) lipoprotein level and coronary disease. *NEJM*. 2009. 361:2518-2528. doi: 10.1056/NEJMoa0902604.**