Dr. Alessandra Granata

Department of Clinical Neurosciences
Heart & Lung Research Institute
Papworth Road
Cambridge Biomedical Campus
Cambridge, CB2 0BB, UK
ag686@cam.ac.uk

RESEARCH EXPERIENCE

2019-to 2023	MRF Fellow. Medical Research Foundation Stroke in Young Adults –Mid-career Fellowship. *Leading research into genetic forms of stroke and vascular dementia using in vitro human stem cells-based model to develop a new platform for drug screening and mechanistic studies.*
2016-2019	Senior Research Associate, Stroke Unit, Clinical Neurosciences. University of Cambridge, UK *Leading a research group, which focus on the development of stem cell-derived models for genetic stroke and cerebral small vessel disease to identify new therapeutic targets.*
2011-2016	Postdoctoral Research Associate, Anne McLaren Laboratory, University of Cambridge, UK *Modelling the vascular disorder, Marfan Syndrome, using human induced pluripotent stem cells to generate a human cell-based platform for disease modelling and drug screening.*
2004-2010	Postdoctoral Research Associate, Dept of Clinical Neuroscience, Royal Free & University College Medical School, London, UK *Investigating the movement disorder DYT1 Dystonia in a neuronal model.*

HIGHER EDUCATION

2000-2004	PhD student, MRC Centre for Developmental Neurobiology, King's College London, UK
1993-1999	BSc Honours in Biology, University of Milan, Italy

GRANTS

Evox Rare Disease (co-applicant)

Targeted exosome-mediated delivery of siRNA against neurological targets in a human blood brain barrier-on-chip model. £150,000 (2021-2023)

MRF Fellowship (grant holder)

Investigating CADASIL and CARASIL shared molecular mechanisms of the ECM in a human blood brain barrier model to understand the causes of early-onset stroke. £267,700 (2019-2023)

BHF research grant (co-applicant)

Determining the mechanisms by which the HDAC9 genetic risk variant leads to stroke. £263,000 (2019-2023)

Stroke Association research programme (co-applicant)

Disintegration of the cerebrovascular matrisome: a central mechanism leading to small vessel disease and vascular cognitive impairment. £799,800 (2017-2021).

Rosetrees Trust (grant holder)

Development of a human blood brain barrier model to study cerebral small vessel disease and stroke. £40,000 (2017-2019).

RECENT CONFERENCES AND INVITED TALKS

- UK Preclinical Stroke Symposium. Edinburgh September 2023. Invited Speaker
- ISSCR 2023. Boston, June 2023. Poster presentation
- BHF CRE annual conference. Cambridge, May 2023. Poster presentation
- BNA Festival of Science, April 2023. Poster presentation
- CADASIL meeting, April 2023. Invited speaker.
- CADASIL DAY patient meeting. November 2022, Invited speaker.
- BHF CRE annual conference. Cambridge, April 2022. Poster presentation
- UK DRI/DPUK Vascular Brain Research Models. University of Manchester, March 2022
- 4th NIHR Stroke Research Workshop at College court, Leicester, September 2021. Invited speaker.
- BHF CRE annual conference. Cambridge, April 2021. Invited speaker.
- Bristol Endothelial Meeting 2019. Bristol, September 2019. Invited Speaker.
- 25th International Stroke Genetics Workshop. Cambridge, April 2019.
- Cambridge International Stem Cell Symposium. Cambridge, September 2018. Poster presentation
- ISSCR 2018 Annual Meeting. Melbourne June 2018. Poster presentation.
- BAS/BSCR/BCS Spring Meeting 2018. Manchester, June 2018. Invited speaker.
- 22nd Workshop of the International Stroke Genetics Consortium, Utrecht, the Netherlands, November 2017. Poster presentation.

TEACHING

- Supervisor of 7 postgraduate students (2014-present)
- Member of the Clinical neuroscience graduate committee since 2018
- MPhil course in Bioscience Enterprise lecture for Novel Approaches for Treating Cardiovascular Disease (2017-to present).
- Pembroke-King's Programme (PKP) summer supervisor 2016.

MEMBERSHIP

- Member of the Editorial Board for BMC Cardiovascular Disorders since 2021
- International Society for Stem Cell Research (ISSCR) since 2018
- British Society for Cardiovascular Research 2017
- British Society for Cell Biology since 2004

SELECTED PUBLICATIONS

- Maha Al-Thani, Mary Goodwin-Trotman…and **Alessandra Granata**. A novel human iPSC model of COL4A1/A2 small vessel disease unveils a key pathogenic role of matrix metalloproteinases. Stem Cell Reports, 2023, ISSN 2213-6711. https://doi.org/10.1016/j.stemcr.2023.10.014.
- Sarmi Sri, Adam Greenstein, **Alessandra Granata**…and Joanna M Wardlaw. A multi-disciplinary commentary on preclinical research to investigate vascular contributions to dementia. Cerebral Circulation - Cognition and Behavior. Volume 5, 2023,100189, ISSN 2666-2450, https://doi.org/10.1016/j.cccb.2023.100189.
- **Granata, A.** Functional genomics in stroke: current and future applications of iPSCs and gene editing to dissect the function of risk variants. *BMC Cardiovasc Disord* **23**, 223 (2023). https://doi.org/10.1186/s12872-023-03227-6
- Al-Thani M, Goodwin-Trotman M, Bell S, Patel K, Fleming LK, Vilain C…and **Granata A**. A novel human iPSC model of COL4A1/A2 small vessel disease unveils a key pathogenic role of matrix metalloproteinases in extracellular matrix abnormalities (2023). bioRxiv. 2023;2023.02.23.529680
- Davaapil H, McNamara M, **Granata A**, Macrae RGC, Hirano M, Fitzek M, Aragon-Martin JA, Child A, Smith DM, Sinha S. A phenotypic screen of Marfan syndrome iPSC-derived vascular smooth muscle cells uncovers GSK3β as a new target. Stem Cell Reports. 2023 Feb 14;18(2):555-569. doi: 10.1016/j.stemcr.2022.12.014. Epub 2023 Jan 19. PMID: 36669494; PMCID: PMC9968988.
- Goodwin-Trotman M, Patel K, **Granata A.** An hiPSC-Derived In Vitro Model of the Blood-Brain Barrier. Methods Mol Biol. 2022; 2492:103-116. doi: 10.1007/978-1-0716-2289-6_5.
- **Granata A**, Kasioulis I, Serrano F, Cooper JD, Traylor M, Sinha S and Markus HS. (2022) The HDAC9 stroke-risk variant promotes apoptosis and inflammation in a human iPSC-derived vascular model. Front. Cardiovasc. Med., 30 March 2022; https://doi.org/10.3389/fcvm.2022.849664
- Pokhilko A, Brezzo G, Heilig R, Lennon R, Smith C, Allan SM, **Granata A**…. Horsburgh K. Global proteomic analysis of extracellular matrix in mouse and human brain highlights relevance to cerebrovascular disease. J Cereb Blood Flow Metab. 2021;41:2423–38.
- Serrano F, Bernard WG, **Granata A**, Iyer,D, Kim M, Gambardella L, and Sinha. A novel human pluripotent stem cell-derived neural crest model of Treacher-Collins syndrome shows defects in cell death and migration (2019). Stem Cells Dev. 2019 Jan 15;28(2):81-100.
- Karen Horsburgh, Joanna M. Wardlaw, …**Alessandra Granata**, … Lorraine M. Work. (2018) Small vessels, dementia and chronic diseases - molecular mechanisms and pathophysiology. Clinical Science Apr 30, 132(8)851-868;
- **Granata A**, Serrano F, Bernard WG, McNamara M, Low L, Sastry P and Sinha S. (2017) An iPSC-derived vascular model of Marfan syndrome identifies key mediators of smooth muscle cell death. Nat Genet. Jan;49 (1):97-109.