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## EDUCATION

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| 2004 | B.A. Biochemistry, Occidental College, Los Angeles, CA, USA |
| 2010 | PhD Biomedical Sciences, University of California – San Diego, USA, Supervisor: Joseph Gleeson |

## PREVIOUS POSITIONS

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| 2010 – 2015 | Post-doctoral fellow, Institute of Molecular Biotechnology of the Austrian Academy of Sciences (IMBA), Vienna, Austria, Supervisor: Juergen Knoblich |
| 2015 – 2021 | Programme leader track (tenure-track group leader)<br>Cell Biology Division, MRC Laboratory of Molecular Biology, Cambridge, UK |

## CURRENT POSITION

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| 2021 – Curr. | Programme leader/MRC Investigator (tenured group leader)<br>Cell Biology Division, MRC Laboratory of Molecular Biology, Cambridge, UK |
| 2023 – Curr. | Affiliated Professor, Wellcome-MRC Cambridge Stem Cell Institute, University of Cambridge |

## FELLOWSHIPS, SCHOLARSHIPS, GRANTS

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|---|---|
| 2022 – 2026 | SFARI collaborative grant "The Autism Prenatal Sex Differences (APEX) Study" |
| 2021 – Curr. | Fellow, Clare Hall, University of Cambridge, UK |
| 2018 – 2023 | ERC Starting Grant 757710 "Evolutionary biology of human and great ape brain development in cerebral organoids" |
| 2015 – Curr. | MRC-LMB core funding MC_UP_1201/9 "Human brain development in cerebral organoids" |
| 2013 – 2015 | Marie Curie ERC International Incoming Fellowship |
| 2011 – 2013 | Helen Hay Whitney Foundation Post-doctoral Fellowship |
| 2011 | EMBO Post-doctoral Fellowship |
| 2005 – 2008 | NIH/NIGMS funded PhD studentship, University of California, San Diego |

## AWARDS

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| 2023 | Cheryll Tickle Medal, British Society for Development Biology |
| 2022 | EMBO Member |
| 2022 | Blavatnik Award for Young Scientists in the United Kingdom, Laureate in Life Sciences |
| 2021 | Vallee Scholars Award |
| 2021 | ISSCR Dr. Susan Lim Award for Outstanding Young Investigator |
| 2019 | EMBO-YIP Young Investigator |
| 2015 | 3Rs Prize, NC3Rs, UK |
| 2014 | Eppendorf Young European Investigator award |
| 2014 | Austrian Academy of Sciences Best Paper award |
| 2009 | ARCS (Achievement Rewards for College Scientists) Foundation Scholar, USA |

## PROFESSIONAL ACTIVITIES

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| 2022 | Member of the ISSCR Standards Task Force, Co-Chair of Model Systems subgroup |
| 2022 | Working Group member for RIVER guidelines for in vitro work, NC3Rs |
| 2021, 2024 | Conference co-organizer: Wellcome Connecting Science Organoids conference |

2020 – Curr. Advisory Board member of *Cell Stem Cell*
2020 – Curr. Member ISSCR International Committee
2020 – Curr. Editorial board member, Stem Cell Reports
2020, 2023 Conference co-organizer: EMBO/EMBL Symposium on Organoids
2020 Guest editor for special issue on "Brain organoids" in Seminars in Cell and Developmental Biology
2019 – Curr. Advisory Board Member of Review Commons, a peer-review platform by EMBO and ASAPbio
2019 – Curr. Editorial board member, PLOS Biology
2019 – Curr. Credibility Advisory Board member, British Neuroscience Association
2019 – Curr. Advisory Board member, OrganoVIR
2019 – Curr. Advisory Board member and cofounder, a:head bio
2018 Conference co-organizer: "Thinking beyond the dish: taking in vitro neural differentiation to the next level"; Company of Biologists Workshop

**SELECTED PUBLICATIONS**

Chiaradia I, Imaz-Rosshandler I, Nilges BS, Boulanger J, Pellegrini L, Das R, Kashikar ND, Lancaster MA. *Tissue morphology influences the temporal program of human brain organoid development.* **Cell Stem Cell**. 2023. In press.

Kelava I, Chiaradia I, Pellegrini L, Kalinka AT, Lancaster MA. *Androgens increase excitatory neurogenic potential in human brain organoids.* **Nature**. 2022 Jan 19.

Hoffman PC, Giandomenico SL, Ganeva I, Wozny MR, Sutcliffe M, Lancaster MA[#], Kukulski W[#]. *Electron cryo-tomography reveals the subcellular architecture of growing axons in human brain organoids.* **eLife.** 2021. Oct 26;10:e70269. [#]Co-senior author.

Benito-Kwiecinski S, Giandomenico SL, Sutcliffe M, Riis ES, Freire-Pritchett P, Kelava I, Wunderlich S, Martin U, Wray G, McDole K, Lancaster MA. *An early cell shape transition drives evolutionary expansion of human forebrain*. **Cell.** 2021. Mar 19:S0092-8674(21)00239-7.

Giandomenico SL, Sutcliffe M, Lancaster MA. *Generation and long-term culture of advanced cerebral organoids for studying later stages of neural development.* **Nat. Protocols.** 2020. Feb;16(2):579-602.

Chiaradia I, Lancaster MA. *Brain organoids for the study of human neurobiology at the interface of in vitro and in vivo* **Nat Neurosci.** 2020. Dec;23(12):1496-1508.

Pellegrini L, Mallery DL, Paul D, Carter AP, James LC, Lancaster MA. *SARS-CoV-2 infects the choroid plexus and disrupts the blood-CSF-barrier in human brain organoids.* **Cell Stem Cell**. 2020. Dec 3;27(6):951-961.e5.

Pellegrini L, Bonfio C, Chadwick J, Begum F, Skehel M, Lancaster MA. *Human CNS barrier-forming organoids with cerebrospinal fluid production.* **Science**. 2020 Jul 10;369(6500).

Giandomenico SL, Mierau SB, Gibbons GM, Wenger LMD, Masullo L, Sit T, Sutcliffe M, Boulanger J, Tripodi M, Derivery E, Paulsen O, Lakatos A, Lancaster MA. *Cerebral organoids at the air-liquid interface generate diverse nerve tracts with functional output.* **Nat Neurosci.** 2019. Apr;22(4):669-679.

Lancaster MA. *Brain organoids get vascularized.* **Nat Biotechnol.** 2018 May; 36, 407–408.

Lancaster MA. *Crinkle-cut brain organoids.* **Cell Stem Cell.** 2018 May 3;22(5):616-618.

Lancaster MA[#], Corsini NS, Wolfinger S, Gustafson EH, Phillips AW, Burkard TR, Otani T, Livesey FJ, Knoblich JA[#]. *Guided self-organization and cortical plate formation in human brain organoids.* **Nat Biotechnol.** 2017 May 31. [#]Co-corresponding author

Renner M*, Lancaster MA*, Bian S, Choi H, Ku T, Peer A, Chung K, Knoblich JA. *Self-organized developmental patterning and differentiation in cerebral organoids.* **EMBO J.** 2017 May 15;36(10):1316-1329. *Equal contribution.

Sutcliffe M, Lancaster MA. *A Simple Method of Generating 3D Brain Organoids Using Standard Laboratory Equipment.* **Methods Mol Biol.** 2017 Mar 31.

Giandomenico SL, Lancaster MA. *Probing human brain evolution and development in organoids.* **Curr Opin Cell Biol.** 2017 Jan 31;44:36-43.

Luo C*, Lancaster MA*, Castanon R, Nery JR, Knoblich JA, Ecker JR. *Cerebral Organoids Recapitulate Epigenomic Signatures of the Human Fetal Brain*. **Cell Rep**. 2016 Dec 20;17(12):3369-3384. *Equal contribution.

Kelava I, Lancaster MA. *Stem cell models of human brain development.* **Cell Stem Cell**. 2016 Jun 2;18(6):736-48.

Lancaster MA[#], Knoblich JA[#]. *Generation of cerebral organoids from human pluripotent stem cells.* **Nat. Protoc.** 2014, 9(10): 2329-40. [#]Co-corresponding author.

Lancaster MA, Knoblich JA. *Organogenesis in a dish: Modeling development and disease using organoid technologies.* **Science**. 2014, 345(6194):1247125.

Lancaster MA, Renner M, Martin C-A, Wenzel D, Bicknell LS, Hurles ME, Homfray T, Penninger JM, Jackson AP, Knoblich JA. *Cerebral organoids model human brain development and microcephaly.* **Nature.** 2013, 501(7467):373-9.

Lancaster MA, Gopal DJ, Kim J, Saleem SN, Silhavy JL, Louie CM, Thacker BE, Williams Y, Zaki MS, Gleeson, JG. *Defective Wnt-dependent cerebellar midline fusion in a mouse model of Joubert syndrome.* **Nature Medicine.** 2011, 17(6): 726-31.

Lancaster MA, Schroth J, Gleeson, JG. *Subcellular spatial regulation of canonical Wnt signaling at the primary cilium.* **Nature Cell Biology**. 2011, 13(6): 702-9.

Lancaster MA, Louie CM, Silhavy JL, Sintasath L, DeCambre M, Nigam SK, Willert K, Gleeson JG. *Impaired Wnt/β-catenin signaling disrupts adult renal homeostasis and leads to cystic kidney ciliopathy.* **Nature Medicine**. 2009, 15: 1046-1054.

**Complete list of Published Work**:
https://www.ncbi.nlm.nih.gov/pubmed/?term=lancaster+madeline

**PATENTS**
WO2014090993A1, *Three dimensional heterogeneously differentiated tissue culture*, EU, US, CA, JP, 2012.
WO2017121754A1, *Supported in vitro developed tissue culture and culturing methods*, EU, US, CA, JP, 2016.
WO2020152272A1, *Choroid plexus organoids and methods for production thereof*, EU, US, CA, JP, AU, CN, 2019.
GB202308828D0, *Standardising pluripotent stem cells*, Application filed, 2023.

**CAREER BREAKS**
2013 Maternity leave – birth of first child
2016 Maternity leave – birth of second child

**SELECTED PRESENTATIONS**
TEDxCERN, 2015: "Growing mini brains to discover what makes us human"
Keynote presentation, Royal College of Psychiatry Neuroscience Spring Conference, 2019
Keynote presentation, ELRIG Research and Innovation, 2019
The Biochemical Society Sponsored Lecture, EMBO Cell Polarity and Membrane Dynamics, 2019
Keynote Lecture, European Organoid Symposium, 2019
Keynote Speaker, King's Wellcome Trust 'Cell Therapies and Regenerative Medicine' PhD Day, 2019
Plenary Speaker, ISSCR International Meeting, 2020
ISSCR Dr. Susan Lim Outstanding Young Investigator Award lecture, ISSCR International Meeting, 2021
Keynote Speaker, Neuroscience Bridges Lecturer, Movement Disorder Society International Congress, 2021
Keynote Speaker, Frontiers in Human Model Systems conference, 2021
Opening Plenary Session speaker, British Neuroscience Association meeting, 2023