SIMON E. FISHER – CURRICULUM VITAE (JUNE 2024)

PERSONAL STATEMENT: I am a director of the Max Planck Institute for Psycholinguistics and Professor of Language and Genetics at the Donders Institute for Brain, Cognition and Behaviour, in Nijmegen, the Netherlands. I obtained a Natural Sciences degree at Cambridge University, UK, followed by a doctorate in human genetics at Oxford University, UK. For my postdoctoral research at the Wellcome Trust Centre for Human Genetics (WTCHG) in Oxford, I focused on genetic analyses of human neurodevelopmental disorders, and isolated the first gene implicated in speech and language deficits. In 2002, I was awarded a Royal Society University Research Fellowship and became head of my own WTCHG laboratory, investigating how language-related genes influence the brain. In 2010 I was appointed director of the Nijmegen MPI, leading a new department devoted to tracing functional links between genetics and language. My work involves extensive supervision of post-doctoral scientists, research assistants and students, and interdisciplinary collaborations worldwide. I am author of 15 book chapters, and >260 published journal articles, with original research in *Nature*, *Science*, *New England Journal of Medicine*, *Cell*, *Current Biology, PNAS, Nature Communications, Nature Neuroscience, Nature Human Behaviour* and *Nature Genetics*, and reviews in *Annual Review of Genetics/Neuroscience*, *Nature Reviews Genetics/Neuroscience*, *Trends in Genetics/Cognitive Sciences* and *Current Opinion in Genetics & Development/Neurobiology*, among others. According to Google Scholar, my work has been cited >37,000 times, with an *h*-index of 96. I have given >160 invited talks at departmental colloquia and international conferences, organized expert meetings at the Royal Society (UK) and KNAW (NL), and established a unique *Cold Spring Harbor Lab* course on *Genetics & Neurobiology of Language*. I am the co-founder/leader of major research consortia including *GenLang* (an international network to facilitate large-scale genomic investigations of speech, language, reading, and related skills) and *MusicGens* (promotes worldwide research on musicality genetics, genomics, and phenomics). Awards include the *Francis Crick Medal and Lecture* (2008) and the *Eric Kandel Young Neuroscientists Prize* (2009). My research adopts a multi-disciplinary viewpoint, integrating data from genomics, psychology, neuroscience, developmental biology and evolutionary anthropology.

EDUCATION:

1988-1991	Trinity Hall, Cambridge University, UK; BA Hons in Natural Sciences
1995	Trinity Hall, Cambridge University, UK; MA in Natural Sciences
1991-1996	St. Catherine's College, Oxford University, UK; DPhil in Genetics

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POSITIONS AND EMPLOYMENT:

1990	Summer research assistant under Dr. J. Williams, Imperial Cancer Research Fund, UK
1991	Undergraduate research under Dr. M. Akam, Genetics Dept., Cambridge University, UK
1991-1996	Doctoral research under Prof. I. Craig, Genetics Lab., Biochem. Dept., Oxford University, UK
1996 Feb-Oct	Post-doctoral research under Prof. A.V.S. Hill, WTCHG, Oxford University, UK
1996-2002	Post-doctoral research under Prof. A.P. Monaco, WTCHG, Oxford University, UK
2002-2010	Head of Molecular Neuroscience Group, WTCHG, Oxford University, UK
2010-2012	Honorary Research Fellow; WTCHG, Oxford University, UK
2010-present	Director, Max Planck Institute for Psycholinguistics, Nijmegen, the Netherlands
2012-present	Professor of Language and Genetics, Donders Institute for Brain, Cognition and Behaviour, Faculty of Science, Radboud University Nijmegen, the Netherlands
2019-present	Fellow, Max Planck School of Cognition, Germany

AWARDS AND HONOURS:

1989-1990	*Trinity Hall Scholar*, Cambridge University, UK
2002-2010	*University Research Fellow*, Royal Society, UK
2003-2006	Conferred with title of *University Research Lecturer*, Oxford University, UK
2005	Highly Commended for *Young Researcher of the Year* at the Times Higher Awards
2006-2010	Conferred with title of *Reader in Molecular Neuroscience*, Oxford University, UK
2007-2010	Appointed *Isobel Laing Fellow in Biomedical Sciences*, Oriel College, Oxford University, UK
2008	Awarded *Francis Crick Medal and Lecture* (Royal Society, UK)
2008	Delivered the *Nijmegen Lectures*

2009-present Elected Fellow, *Royal Society of Biology*
2009 Awarded inaugural *Eric Kandel Young Neuroscientists Prize* (Hertie Foundation, Germany)
2011-present Elected Member, *International Neuropsychological Symposium*
2012 *Special Presidential Lecturer* at Society for Neuroscience Annual Meeting, New Orleans
2018 Selected to deliver *Norman Geschwind Memorial Lecture*, International Dyslexia Association

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PROFESSIONAL MEMBERSHIPS, BOARDS AND COMMITTEES:

2007-present Member of the *American Society of Human Genetics* and the *Society for Neuroscience*
2009-2011 Royal Society Research Grants - Board F (dev. biol./genetics/immunology/microbiology)
2009-2010 Neuroscience Management Board (Co-leader: Genes & Development), Oxford University
2010-present Scientific Member of the *Max Planck Society*
2013 Scientific Committee for *IMFAR: International Meeting For Autism Research*
2013-2017 External Advisory Committee for *University of Connecticut* interdisciplinary training program
2014-2023 Scientific Advisory Board (Chair 2016-2023) of the *Netherlands Institute for Neuroscience*
2017 Scientific Committee for *International Conference for Cognitive Neuroscience*
2017-present Member of UCSD/Salk *Center for Academic Research and Training in Anthropogeny (CARTA)*
2018 External Evaluation Committee for *Neuroscience Department, Pasteur Institute*, Paris, France

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JOURNAL EDITORSHIPS:

2010-present Associate Editor of *Frontiers in Language Sciences*
2011-present Section Editor of the *European Journal of Human Genetics*
2013-present Associate Editor of *Neuroscience Research*
2014-present Editorial Board of *Journal of Neurolinguistics*
2015-2017 Reviewing Editor of *Brain and Language*
2019-present Senior Editor of *Neurobiology of Language*

SELECTED RESEARCH ARTICLES (from 260 papers https://www.mpi.nl/people/fisher-simon-e/publications)

Lloyd SE, Pearce SHS, **Fisher SE**, Steinmeyer K, Schwappach B, Scheinman SJ, Harding B, Bolino A, Devoto M, Goodyer P, Rigden SPA, Wrong O, Jentsch TJJ, Craig IW, Thakker RV (1996) A common molecular basis for three inherited kidney stone diseases. ***Nature*** 379:445-9

Fisher SE, Vargha-Khadem F, Watkins KE, Monaco AP, Pembrey ME (1998) Localisation of a gene implicated in a severe speech and language disorder. ***Nature Genetics*** 18:168-70

Lai CSL*, **Fisher SE***, Hurst JA, Vargha-Khadem F, Monaco AP (2001) A forkhead-domain gene is mutated in a severe speech and language disorder. ***Nature*** 413:519-23; ***joint first author**

Fisher SE, Francks C, Marlow AJ, MacPhie IL, Newbury DF, Cardon LR, Ishikawa-Brush Y, Richardson AJ, Talcott JB, Gayán J, Olson RK, Pennington BF, Smith SD, DeFries JC, Stein JF, Monaco AP (2002) Independent genome-wide scans identify a chromosome 18 quantitative-trait locus influencing dyslexia. ***Nature Genetics*** 30:86-91

Enard W, Przeworski M, **Fisher SE**, Lai CSL, Wiebe V, Kitano T, Monaco AP, Pääbo S (2002) Molecular evolution of FOXP2, a gene involved in speech and language. ***Nature*** 418:869-72

Vernes SC, Newbury DF, Abrahams BS, Winchester L, Nicod J, Groszer M, Alarcón M, Oliver PL, Davies KE, Geschwind DH, Monaco AP, **Fisher SE** (2008) A functional genetic link between distinct developmental language disorders. ***New England Journal of Medicine*** 359:2337-45

Groszer M, Keays DA, Deacon RM, de Bono JP, Prasad-Mulcare S, Gaub S, Baum MG, French CA, Nicod J, Coventry JA, Enard W, Fray M, Brown SD, Nolan PM, Pääbo S, Channon KM, Costa RM, Eilers J, Ehret G, Rawlins JN, **Fisher SE** (2008) Impaired synaptic plasticity and motor learning in mice with a point mutation implicated in human speech deficits. ***Current Biology*** 18: 354-62

O'Roak BJ, Deriziotis P, Lee C, Vives L, Schwartz JJ, Girirajan S, Karakoc E, MacKenzie AP, Ng S, Baker C, Rieder M, Nickerson D, Bernier R, **Fisher SE**, Shendure J, Eichler EE (2011) Exome sequencing in sporadic autism spectrum disorders identifies severe de novo mutations. ***Nature Genetics*** 43:585-9

Deriziotis P, O'Roak BJ, Graham SA, Estruch SB, Dimitropoulou D, Bernier RA, Gerdts J, Shendure JA, Eichler EE, **Fisher SE** (2014) De novo TBR1 mutations in sporadic autism disrupt protein functions. ***Nature Communications*** 5:4954

Hibar DP et al. (2015) Common genetic variants influence human subcortical brain structures. ***Nature*** 520:224-9

Tilot AK, Kucera KS, Vino A, Asher JE, Baron-Cohen S, **Fisher SE** (2018) Rare variants in axonogenesis genes connect three families with sound-color synesthesia. ***Proc Natl Acad Sci USA*** 115:3168-73

Snijders Blok L,…… **Fisher SE***, Campeau PM* (2018) CHD3 helicase domain mutations cause a neurodevelopmental syndrome with macrocephaly and impaired speech and language. ***Nature Communications*** 9:4619 ***joint senior author**

Eising E, Carrion-Castillo A, Vino A, Strand EA, Jakielski KJ, Scerri TS, Hildebrand MS, Webster R, Ma A, Mazoyer B, Francks C, Bahlo M, Scheffer IE, Morgan AT, Shriberg LD, **Fisher SE** (2019). A set of regulatory genes co-expressed in embryonic human brain is implicated in disrupted speech development. ***Molecular Psychiatry*** 24:1065-78

Gunz P, Tilot AK, Wittfeld K, Teumer A, Shapland CY, van Erp TGM, Dannemann M, Vernot B, Neubauer S, Guadalupe T, Fernández G, Brunner HG, Enard W, Fallon J, Hosten N, Völker U, Profico A, Di Vincenzo F, Manzi G, Kelso J, St Pourcain B, Hublin JJ, Franke B, Pääbo S, Macciardi F, Grabe HJ, **Fisher SE** (2019) Neandertal introgression sheds light on modern human endocranial globularity. ***Current Biology*** 29:120-7

Grasby KL et al. (2020) The genetic architecture of the human cerebral cortex. ***Science*** 367:eaay6690

Eising E,…… **Fisher SE** (2022) Genome-wide analyses of individual differences in quantitatively assessed reading- and language-related skills in up to 34,000 people. ***Proc Natl Acad Sci USA*** 119:e2202764119

Doust C, Fontanillas P, Eising E, Gordon SD, Wang Z, Alagöz G, Molz B; 23andMe Research Team; Quantitative Trait Working Group of the GenLang Consortium; Pourcain BS, Francks C, Marioni RE, Zhao J, Paracchini S, Talcott JB, Monaco AP, Stein JF, Gruen JR, Olson RK, Willcutt EG, DeFries JC, Pennington BF, Smith SD, Wright MJ, Martin NG, Auton A, Bates TC, **Fisher SE**, Luciano M (2022) Discovery of 42 genome-wide significant loci associated with dyslexia. ***Nature Genetics*** 54:1621-9

Alagöz G, Molz B, Eising E, Schijven D, Francks C, Stein JL, **Fisher SE** (2022) Using neuroimaging genomics to investigate the evolution of human brain structure. ***Proc Natl Acad Sci USA*** 119:e2200638119

Sha Z, Schijven D, **Fisher SE**, Francks C (2023) Genetic architecture of the white matter connectome of the human brain. ***Science Advances*** 9:eadd2870

Schijven D, Soheili-Nezhad S, **Fisher SE**, Francks C (2024) Exome-wide analysis implicates rare protein-altering variants in human handedness. ***Nature Communications*** 15:2632

Wesseldijk LW, Henechowicz TL, Baker DJ, Bignardi G, Karlsson R, Gordon RL, Mosing MA, Ullén F, **Fisher SE** (2024) Notes from Beethoven's genome. ***Current Biology*** 34:R233-R234

SELECTED LECTURES (from >160 invited talks, see https://www.mpi.nl/people/fisher-simon-e for full list)

July 2001: **Plenary session speaker.** 31st Annual Meeting, Behavior Genetics Association. Cambridge, UK.

Feb 2003: Symposium 'From gene to speech'. Annual Meeting, American Association for the Advancement of Science (AAAS). Denver, USA.

Nov 2003: Symposium 'Transgenic Models of Complex Behavioral Phenotypes'. 53rd Annual Meeting, American Society of Human Genetics (ASHG). Los Angeles, USA.

Oct 2004: **Keynote.** 16th Annual Meeting of European Academy of Childhood Disability. Edinburgh, UK.

Feb 2006: **Two invited talks in independent symposia.** Symposium 'In Search of Genes that Influence Language: Phenotypes and Molecules' AND Symposium 'Language Evolution: New Perspectives from Genetics, Neuroscience, and Human Infants'. AAAS Annual Meeting. St. Louis, USA.

May 2006: Symposium 'Genetics of speech, reading, writing'. 38th European Human Genetics Conference. Amsterdam, the Netherlands.

Oct 2006: Minisymposium 'Singing mice and songbirds'. 36th Annual Meeting, Society for Neuroscience. Atlanta, USA.

Nov 2006: **Keynote.** Symposium 'Future Directions in Search of Genes that Influence Language'. 31st Boston University Conference on Language Development. Boston, USA.

Aug 2007: **Presenter of Main Report.** 27th World Congress, International Association of Logopedics and Phoniatrics. Copenhagen, Denmark.

Oct 2007: Invited session 'Human brain evolution: What makes us unique?' 57th ASHG Annual Meeting. San Diego, USA.

Dec 2008: **3-day Lecture Series.** Nijmegen Lectures 2008. 'The Nature and Origins of Language: A Genetic Perspective'. Co-presented with Prof. Gary Marcus. Nijmegen, the Netherlands.

Dec 2008: **Prize Lecture.** Francis Crick Medal and Lecture. Royal Society, London, UK.

Oct 2009: **Keynote.** 1st Annual Meeting of the Society for the Neurobiology of Language. Chicago, USA.

June 2010: **Plenary.** Plenary session 'Human Language - Lessons from FOXP2'. European Human Genetics Conference 2010. Gothenburg, Sweden.

July 2011: **Plenary.** 12th Congress of the International Association for the Study of Child Language. Montreal, Canada.

Oct 2011: **Invited speaker & session co-moderator.** Invited session 'Neurogenetic Pathways Underlying Speech and Language Disorders'. 12th International Congress on Human Genetics. Montreal, Canada.

March 2012: **Plenary.** 9th International Conference on the Evolution of Language (Evolang IX). Kyoto, Japan.

Oct 2012: **Presidential Special Lecture.** 42nd Annual Meeting, Society for Neuroscience. New Orleans, USA.

Feb 2013: Symposium 'The biology and evolution of human language'. AAAS Annual Meeting. Boston, USA.

April 2013: Symposium 'Building blocks for language'. Cognitive Neuroscience Society 20th Anniversary Meeting. San Francisco, USA.

July 2014, 2016, 2018, 2022: **Course leader.** Genetics & Neurobiology of Language, Cold Spring Harbor, New York, USA.

Nov 2016: **Keynote.** Cambridge Language Sciences Annual Symposium. University of Cambridge, UK.

March 2017: Symposium 'Genetics and cognitive neuroscience: What does the future hold?' Cognitive Neuroscience Society Annual Meeting. San Francisco, USA.

May 2017: Symposium 'Extraordinary Variations of the Human Mind: Implications for Anthropogeny' UCSD/Salk Center for Academic Research and Training in Anthropogeny (CARTA). San Diego, California, USA.

Oct 2017: **Chair/Moderator.** Symposium 'Evolutionary genomics of brain development'. 67th ASHG Annual Meeting. Orlando, Florida, USA.

April 2018: **Keynote.** British Dyslexia Association International Conference. Telford, UK.

Oct 2018: **Organiser/Chair.** Symposium 'Bridging Senses: New Developments in Synaesthesia'. Royal Society, London, UK.

Oct 2018: **Norman Geschwind Memorial Lecture.** International Dyslexia Assoc. Annual Conference. Connecticut, USA.

April 2019: **Keynote.** Language Literacy and Learning Conference. Perth, Australia.

June 2019: **Organiser/Chair/Moderator.** Masterclass & Colloquium 'Deciphering the biology of human musicality through state-of-the-art genomics'. Royal Netherlands Academy of Arts and Sciences, Amsterdam, Netherlands.

Sept 2021: **Keynote.** International Symposium 'The Molecular Anthropology of Language: Results and Prospects'. National Center of Competence in Research (NCCR) Evolving Language. Zurich, Switzerland.

Oct 2022: **Keynote.** NOMIS Foundation Dialogue 'Deciphering the Evolution of the Human Brain' NOMIS Foundation Dialogue. Lenzerheide, Switzerland.

April 2024: **Keynote.** Experimental Methods in Language Acquisition Research EMLAR Conference. Utrecht, Netherlands.

SUPERVISION AND MENTORING: During my time as a group leader at Oxford University I was the promotor of 3 students who completed their DPhil studies (*Sonja Vernes, Fanny Elahi, Joses Ho*). In the Netherlands, I have been promotor of 16 PhD students who successfully defended their theses at Radboud University, Nijmegen (*Alessandro Gialluisi, Martin Becker, Amaia Carrión Castillo, Tulio Guadalupe, Sara Estruch, Rick Janssen, Jon-Ruben van Rhijn, Elliot Sollis, Anna Castells Nobau, Ella Lattenkamp, Ellen Verhoef, Merel Postema, Lot Snijders Blok, Joery den Hoed, Midas Anijs*) and at Leiden University (*Fabian Heim*), with a further 8 PhD students in Nijmegen currently in progress. Four of the completed PhD students (*Estruch*, *Lattenkamp*, *Snijders Blok*, *den Hoed*) were recipients of prestigious Otto Hahn Medals from the Max Planck Society, awarded to young researchers for outstanding scientific achievements in connection with their doctorate. During my career so far, I have also supervised >25 students carrying out Masters internship projects, and >30 post-doctoral scientists, hosting competitive Marie-Skłodowska-Curie Fellowships (*Jérôme Nicod, Amanda Tilot*), Dutch Research Council VENI career development awards (*Else Eising*), and Max Planck Minerva Fast-track Fellowships (*Limor Raviv*). I currently lead a department at the Nijmegen Max Planck Institute which includes 2 senior investigators, 10 postdoctoral scientists, a lab manager, 3 technicians/RAs, and many student trainees.

TEACHING: As *Isobel Laing Fellow* at Oriel College, Oxford University, I was responsible for teaching Biochemistry & Medical Genetics to undergraduates. For over a decade I lectured on a number of Oxford undergraduate and graduate courses. In Nijmegen, I have taught on multiple courses of the Radboud University Cognitive Neuroscience and Medical Biology Masters, as well as for Radboud Summer Schools, including co-founding/leading the Summer School on '*Brain Imaging Genetics: Genetics for Imagers'*. I am founder and leader of the *'Neurogenomics of Speech, Language and Reading Disorders'* Masters course which has been running annually since 2015. I am a Fellow of the Max Planck School of Cognition.

SELECTED RESEARCH SUPPORT:

- Royal Society (UK) University Research Fellowship: Oct 2002-Sept 2010. ~£476,000.
- Wellcome Trust Project Grant: 'Investigating the role of the Foxp2 transcription factor in mouse neurodevelopment'. March 2004-Feb 2007. ~£243,000.
- UK Medical Research Council Project Grant (Brain Sciences Initiative): 'Molecular dissection of neural pathways underlying neurodevelopmental disorders'. April 2004-May 2007. ~£218,000.
- Marie Curie Intra-European Fellowship: Funded by the 6th European Community Framework Programme, Oct 2004-Sept 2006. Postdoctoral fellowship for Dr Jérôme Nicod to work in my lab. ~€159,000.
- Autism Speaks Pilot Study Grant: 'A ChIP-on-chip system for dissecting genetic pathways involved in developmental language disorders'. July 2006-June 2008. ~$116,000.
- Wellcome Trust Project Grant: 'Uncovering the functions of the Foxp2 gene in the mammalian central nervous system'. March 2007-Feb 2010. ~£405,000.
- Co-Applicant on Wellcome Trust Capital Award: 'Oxford Behavioural and Systems Neuroscience Centre'. Principal Applicant is Prof. J. N. P. Rawlins. Oct 2008-Dec 2011. ~£2M.
- Simons Foundation Autism Research Initiative (SFARI) Individual Grant: 'Functional Genomic Dissection of Language-Related Disorders'. Dec 2009-Nov 2011. ~$634,000.
- Max Planck Society: Longterm core support for 'Language and Genetics' Department. Oct 2010-Aug 2037. Core funding of dept is currently ~€2M per annum. I also received equipment startup of €1.1M.
- Work Package leader and Board Member on NWO Gravitation award: 'Language in Interaction' Consortium. Principal Applicant is Prof. P. Hagoort. July 2013-June 2022. ~€27.6M. https://www.languageininteraction.nl/
- Co-Applicant on National Health & Medical Research Council (NHMRC) (Aus) award: 'Centre for Research Excellence in Speech & Language Neurobiology'. Principal Applicant is Prof. A. Morgan. 2016-2021. AUD2.5M.
- Co-Investigator on NHMRC (Aus) award: 'Translational Centre for Speech Disorders'. Principal Applicant is Prof. A. Morgan. 2023-2028. AUD2.5M. https://www.geneticsofspeech.org.au/

COMMUNICATION OF SCIENCE: My work involves frequent interaction with the media. I have conducted interviews for major national newspapers (including the New York Times, Sunday Times, Daily Telegraph, The Guardian, Financial Times, Le Monde, de Volkskrant), popular science magazines (New Scientist, Scientific American, National Geographic etc.) and radio/TV in the UK, Italy, USA, Canada and Japan. Major documentary interviews include the Channel 4 (UK) TV series 'What Makes Us Human', the PBS (USA) TV series 'The Human Spark', and the award-winning 'What the Songbird Said' for BBC Radio 4. Public engagement includes a 'talking point' (60 minute talk, 30 minute Q&A session) at the Royal Institution (UK) in 2009, a Café Scientifique on 'Talking primates' at the Summer Science Exhibition of the Royal Society (UK) in 2011, and lay talks at Rome's Science Festival (Italy) in 2014, InScience, the Dutch International Science Film Festival in 2016 and 2024, and New Scientist Live, the UK's biggest science festival, in 2017.

PEER REVIEW: I have acted as peer reviewer for many journals across diverse fields, including:

American Journal of Human Genetics
American Journal of Medical Genetics
Annals of Neurology
Archives of General Psychiatry
Behavior Genetics
Biological Psychiatry
BMC Evolutionary Biology
BMC Genetics
Child Development
Clinical Genetics
Cortex
Cognition
Current Anthropology
Current Biology
Development
European Journal of Human Genetics
European Journal of Medical Genetics
Genomics
Human Genetics
Human Molecular Genetics
Journal of Comparative Neurology
Journal of Medical Genetics
Journal of Neurodevelopmental Disorders
Journal of Neuroscience
Journal of Neuroscience Research
Journal of Speech Language Hearing Res
Molecular Biology and Evolution
Molecular and Cellular Biology
Molecular Psychiatry
Nature Communications
Nature Genetics
Nature Medicine
Nature Reviews Neuroscience
Neural Development
Neurobiology of Disease
Neuroinformatics
Neuron
Neuroscience
New England Journal of Medicine
PLoS Biology
PLoS Genetics
PLoS ONE
Science
Trends in Cognitive Sciences

In addition, I have reviewed grant proposals for funding bodies in the UK (Wellcome Trust, MRC, BBSRC, SPARKS, Autism Speaks), Europe (Pasteur Institute), US (NIH and NSF), Hong Kong (Research Grants Council).