

Verena Heise

Curriculum Vitae

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About me

Neuroscientist with expertise in molecular biology, cognitive neuroscience and epidemiology

Researcher with focus on Alzheimer's disease and meta-research in biomedical sciences, investigating the History of Science to shape the **Future of Science**

Open Research practitioner: Pre-registration, Open Data, Open Methods, Open Access, Open Source, publishing of null results, replication project

Open Research advocate: internal and external community building, institutional lobbying, development of training courses

Teacher and mentor especially in the Open Research community

Leadership within/ outside of academia: initial driving force behind Reproducible Research Oxford and Berlin-Oxford Open Research summer school, initiating and leading research projects, former trustee of the Oxford Bach Choir

Team player in multidisciplinary teams: as molecular biologist in cognitive neuroscience, as cognitive neuroscientist in epidemiology, as Open Research expert in computer sciences

Employment History

- since 04/2021 **Freelance researcher, trainer and consultant for open and reproducible research**
- 06/2020–03/2021 **Research Fellow**, *Hanse-Wissenschaftskolleg, Delmenhorst, Germany*; Research project: The reproducibility/ replication "crisis" in biomedical sciences - A literature review
- 05/2017–04/2020 **NDPH Intermediate Fellow**, *University of Oxford, Nuffield Department of Population Health, Oxford, UK*; Research project: Genetic and lifestyle determinants of brain ageing
PI: Prof Sarah Parish
- 10/2015–04/2017 **Postdoctoral researcher**, *University of Oxford, Department of Psychiatry, Oxford, UK*;
Research groups: Translational Neuroimaging and Neurobiology of Ageing
PIs: Prof Clare Mackay and Prof Klaus Ebmeier
- 09/2013–08/2015 **Postdoctoral researcher**, *DZNE, German Center for Neurodegenerative Diseases, Bonn, Germany*; Research group: Memory dysfunction in neurodegenerative diseases
PI: Prof. Dr. Nikolai Axmacher
- 04/2007–07/2008 **Research assistant (part-time)**, *Central Institute of Mental Health, Institute of Psychopharmacology, Mannheim, Germany*; Research group: Developmental Neuropsychopharmacology
Supervisors: PD Dr. Miriam Schneider, Prof. Dr. Rainer Spanagel

Education

- 10/2017–09/2018 **Master of Science in Global Health Science and Epidemiology**
Green Templeton College, University of Oxford, UK
- 04/2010–11/2013 **DPhil in Psychiatry**
Merton College, University of Oxford, UK
DPhil thesis title: How can Magnetoencephalography and Magnetic Resonance Imaging improve our understanding of genetic susceptibility to Alzheimer's disease?
Supervisors: Prof Clare Mackay and Prof Klaus Ebmeier
- 10/2008–09/2009 **Master of Science in Neuroscience**
Merton College, University of Oxford, UK
- 10/2007–09/2008 **Master programme in Molecular Biosciences**
Ruprecht-Karls-University Heidelberg, Germany
- 10/2004–09/2007 **Bachelor of Science in Molecular Cell Biology**
Ruprecht-Karls-University Heidelberg, Germany
- 09/2006–02/2007 **Erasmus exchange student**
University of Leeds, UK
- 07/1995–07/2004 **Allgemeine Hochschulreife**
Heinrich-Heine-Gymnasium, Bottrop, Germany

Grants, Fellowships, Scholarships and Awards

- 06/2020–06/2021 **innOsci Future Lab Fellowship, Stifterverband, Germany**
- 07/2019–06/2021 **Visiting Fellowship, QUEST Center for Transforming Biomedical Research, Berlin Institute of Health**
- 2018, 2019 **Oxford-Berlin Research Partnership grant for Open Research summer school**
- 05/2017–04/2020 **NDPH Intermediate Fellowship**
- 04/2010–07/2013 **Alzheimer's Research UK PhD scholarship**
- 10/2008–09/2009 **Scholarship of the German Academic Scholarship Foundation (Studienstiftung)**

Research expertise

Meta-research

- since 2020 Systematic literature review of Open Science practices and reproducibility of research evidence in biomedical sciences

Alzheimer's disease

- since 2009 Investigating effects of genetic susceptibility to Alzheimer's disease on the human brain

Neuroimaging

- 2010–2016 Human magnetoencephalography data acquisition and analysis
- since 2009 Human structural and functional magnetic resonance imaging data acquisition and analysis

Open Research practices

- since 2017 Open Access publishing and publication of null results: <https://doi.org/10.1371/journal.pone.0181392>
- since 2017 Open data: <https://neurovault.org/collections/2678>
- since 2017 Pre-registration: <https://osf.io/brn3h>
- since 2017 Open source software: R and RStudio for data analysis

Epidemiology

- since 2017 Working with large-scale epidemiological dataset: UK Biobank
- since 2017 Replication project: Effects of *APOE* genotype on human brain structure

Teaching expertise

- since 2018 **Lecturer for the annual Berlin-Oxford Open Research summer school:** Introduction to Open Research; Critical Thinking; Empowering ECRs
- 2017 **Lecturer for the Oxford Online Programme in Sleep Medicine:** Molecular biology of a neuron
- 2015–2020 **Lecturer for the WIN MRI graduate programme:** Open Neuroimaging; Molecular biology of a neuron

Invited Open Research talks

Slides and recordings: <https://osf.io/5rfm6>

- 2018–2020 **Robust Research - A practical guide**, Brainhack Donostia (online), Imperial College London, Oxford Brookes University, University of Sussex, King's College London, University of Sheffield
- 2018–2020 **Regular internal talks at Oxford: Robust Research - A practical guide**
- 11/2020 **Online panel discussion: Practical advice for reproducibility in neuroscience**, Cortex Club, University of Oxford
- 06/2020 **Corpus Curiosum Webinar: Credibility in Neuroscience**
- 04/2020 **eLife ECRWednesday Webinar: How ECRs can improve training and research quality at their institutions**
- 02/2020 **Research Improvement by and for early career researchers**, Reward Equator Conference, Berlin Germany
- 09/2019 **Talk and workshop on Open and Reproducible Research**, Graduate School retreat, LMU München, Germany
- 04/2019 **Open Science - an ECR perspective**, BNA2019 Festival of Neuroscience, Dublin, Ireland
- 01/2019 **Research Integrity beyond misconduct**, The Future of Medical Research Integrity and Ethics in Higher Education, Westminster Briefing, London, UK
- 2018, 2019 **Open Science - Better Science?** Royal Holloway University of London, University of Cambridge
- 11/2018 **Junk Science and how to avoid it**, Future Medicine Science Match, Berlin, Germany
- 10/2018 **Robust Research for Early Career Researchers**, University College Cork, Ireland
- 09/2018 **The Robust Research Initiative Oxford - Changing culture from the bottom up**, Competence Center for Reproducible Science, University of Zurich, Switzerland

Membership of Committees

- since 05/2020 **Expert Group for Publishing Reproducible Research Output**, Knowledge Exchange <https://knowledge-exchange.info/event/publishing-reproducible-research-output>
- since 12/2018 **Advisory Board for Credibility in Neuroscience**, British Neuroscience Association <https://www.bnacredibility.org.uk>
- 10/2018–04/2020 **Lead for Open Science Community theme**, Wellcome Centre for Integrative Neuroimaging, University of Oxford <https://www.win.ox.ac.uk/open-neuroimaging/open-neuroimaging-project>
- 09/2017–04/2020 **Steering group of Reproducible Research Oxford**, University of Oxford <https://ox.ukrn.org>

Project Management

- 2020 **Co-organiser**, Reproducible Research Oxford launch event
- since 2018 **Co-organiser**, annual Berlin-Oxford Open Research summer schools
- 2017, 2018 **Co-organiser**, Oxford Reproducibility Schools
- 2017 **PRINCE2 Foundation and Practitioner certificate in Project Management**
- 2016, 2017 **Co-organiser**, Oxford Dementia Research Days

Research Outputs

Google scholar profile: <https://tinyurl.com/y3kqvrug>

Open data

- 2017 **Summary statistics** for the MRI-based analyses of the project: Uncoupling protein 2 Haplotype does not affect Human Brain Structure and Function in a Sample of Community-Dwelling Older Adults: <https://neurovault.org/collections/2678/>

Preregistration

- 2017 Effects of *APOE* genotype on human brain structure: <https://osf.io/brn3h>

Journal articles

First authorships

- 2017 **V Heise**, E Zsoldos, S Suri, C Sexton, A Topiwala, N Filippini, A Mahmood, CL Allan, A Singh-Manoux, M Kivimäki, CE Mackay, KP Ebmeier: Uncoupling protein 2 Haplotype does not affect Human Brain Structure and Function in a Sample of Community-Dwelling Older Adults. *PLoS ONE* 12(8): e0181392.
- 2014 **V Heise**, N Filippini, AJ Trachtenberg, S Suri, KP Ebmeier, CE Mackay: Apolipoprotein E genotype, gender and age modulate connectivity of the hippocampus in healthy adults. *NeuroImage* 98:23-30.
- 2011 **V Heise**, N Filippini, KP Ebmeier, CE Mackay: The APOE ϵ 4 allele modulates brain white matter integrity in healthy adults. *Molecular Psychiatry* 16:908-916.

Co-authorships

- 2020 E Zsoldos, A Mahmood, N Filippini, S Suri, **V Heise**, L Griffanti, CE Mackay, A Singh-Manoux, M Kivimäki, KP Ebmeier: Association of mid-life stroke risk with structural brain integrity and memory performance at older ages: A longitudinal cohort study. *Brain Communications* 2:fcaa026.
- 2019 A Topiwala, S Suri, CL Allan, V Valkanova, N Filippini, CE Sexton, **V Heise**, E Zsoldos, A Mahmood, A Singh-Manoux, CE Mackay, M Kivimäki, KP Ebmeier: Predicting cognitive resilience from midlife lifestyle and multi-modal MRI: A 30-year prospective cohort study. *PLoS ONE* 14(2): e0211273.
- 2019 RA Feis, MJRJ Bouts, EGP Dopfer, N Filippini, **V Heise**, AJ Trachtenberg, JC van Swieten, MA van Buchem, J van Der Grond, SARB Rombouts, CE Mackay: Multimodal MRI of grey matter, white matter, and functional connectivity in cognitively healthy mutation carriers at risk for frontotemporal dementia and Alzheimer's disease. *BMC Neurology* 19:343.
- 2015 RA Feis, SM Smith, N Filippini, G Douaud, EGP Dopfer, **V Heise**, AJ Trachtenberg, JC van Swieten, MA van Buchem, SARB Rombouts, CE Mackay: ICA-based artifact removal diminishes scan site differences in multi-centre resting-state fMRI. *Frontiers in Neuroscience* 9:395.
- 2014 M Rolinski, K Szewczyk-Krolikowski, RAL Menke, N Filippini, **V Heise**, G Zamboni, G Wilcock, K Talbot, M Hu, CE Mackay: Resting state fMRI discerns early Parkinson's from controls. *Journal of Neurology, Neurosurgery and Psychiatry* 85:A1-A57.
- 2013 S Suri, **V Heise**, AJ Trachtenberg, CE Mackay: The forgotten APOE allele: a review of the evidence and suggested mechanisms for the protective effect of APOE ϵ 2. *Neuroscience and Biobehavioral Reviews* 37:2878-2886.
- 2011 KP Ebmeier, N Filippini, **V Heise**, CE Sexton: Other magnetic resonance imaging techniques. *International Psychogeriatrics* 23 Suppl 2:S50-57.
- 2010 M Schneider, **V Heise**, R Spanagel: Differential involvement of the endogenous opioid receptor antagonist naloxone in motivational and hedonic aspects of reward. *Behavioural Brain Research* 208:466-472.

Book chapters

- 2021 S Suri, V Valkanova, **V Heise**, CE Sexton, KP Ebmeier: Neuroimaging, *Oxford Textbook of Old Age Psychiatry*, 3rd edition.
- 2020 **V Heise**, E Zsoldos, KP Ebmeier: Ageing and the Human Brain, *New Oxford Textbook of Psychiatry*, 3rd edition.
- 2013 CE Sexton, **V Heise**, KP Ebmeier: Neuroimaging, *Oxford Textbook of Old Age Psychiatry*, 2nd edition.

Other Conference Presentations

Talks

- 2013 The effect of APOE genotype on human brain structure and function. *Alzheimer's Research UK conference*, Belfast, UK.
- 2012, 2013 Resting-State and APOE - why add MEG to fMRI? *MEGUK Conference*, Cambridge, UK and *Donders Discussions*, Nijmegen, Netherlands.
- 2011 The APOE ϵ 4 allele modulates brain white matter integrity in healthy adult. *Alzheimer's Research UK conference*, Leeds, UK.

Selected Posters

- 2019 Z Arya, **V Heise**, SM Smith, CE Mackay, M Jenkinson: Estimating brain age using errors-in-variables. *Annual Meeting of the Organization for Human Brain Mapping*
- 2018 C Lancaster, I Koychev, **V Heise**, A Chinner, J Blane, C Chatham, KI Taylor, C Hinds: Gallery Game: Building Digital Biomarkers for the Detection of Preclinical Alzheimer's Disease. *Alzheimer's Association International Conference*
- 2017 **V Heise**, F Alfaró-Almagro, S Suri, K Miller, M Jenkinson, KP Ebmeier, SM Smith, CE Mackay: APOE genotype affects volume but not iron content of subcortical structures in the UK Biobank study. *Annual Meeting of the Organization for Human Brain Mapping*
- 2017 A Firouzian, **V Heise**, DL Thomas, RD Newbould, F Aigbirhio, GB Williams, C Lucatelli, G Macnaught, A Waldman, W Hallett, EA Rabiner, P Marsden, G Charles-Edwards, J Matthews, L Parkes, D Brooks, M Firbank, JC Klein, RN Gunn, CE Mackay: Deep and Frequent Phenotyping Study: PET and MR imaging protocol. *Alzheimer's Association International Conference*
- 2017 HL Lee, **V Heise**, D Brenner, R Stirnberg, T Stoecker, C Montag, S Jung, N Axmacher: The influence of APOE genotype on pattern separation in the human dentate gyrus. *Alzheimer's Association International Conference*
- 2016 **V Heise**, E Zsoldos, S Suri, N Filippini, A Mahmood, A Singh-Manoux, M Kivimäki, AC Nobre, CE Mackay, KP Ebmeier: UCP2 haplotype establishes a novel genetic link between mitochondria and mood disorders. *Annual Meeting of the Society for Neuroscience*
- 2013 **V Heise**, HT Luckhoo, KP Ebmeier, MW Woolrich, CE Mackay: APOE genotype affects neuronal function at rest and during task - a MEG study. *Annual Meeting of the Society for Neuroscience*
- 2012 **V Heise**, N Filippini, AJ Trachtenberg, KP Ebmeier, CE Mackay: APOE genotype and gender modulate functional and structural connectivity of the hippocampus in healthy adults. *Annual Meeting of the Society for Neuroscience*
- 2011 **V Heise**, N Filippini, KP Ebmeier, CE Mackay: The APOE ϵ 4 allele modulates brain white matter integrity in healthy adults. *Alzheimer's Research UK conference*