

# Varun Warriier

vw260@medschl.cam.ac.uk  
+44(0)7849467549  
St. John's College, Cambridge, CB2 1TP

## Education and Research Experience

2018 – present **Postdoctoral associate, Autism Research Centre Cambridge and the Wellcome Trust Sanger Institute**

I work on the genetics of autism and related traits to accelerate gene discovery and identify subgroups within the autism spectrum.

2014 - 18 **PhD in Psychiatry, University of Cambridge (No corrections)**

The genetics of autism and related traits: investigating the genetic architecture of autism, and related cognitive and non-cognitive phenotypes to identify potential genetic risk mechanisms

- Systematic review and meta-analysis of candidate gene association studies in autism.
- Genome-wide association analyses, heritability and genetic correlation analysis of self-reported empathy, cognitive empathy, social relationship satisfaction, theory of mind in adolescence, and systemizing.
- Integrative neuroimaging and genetic analyses to identify genetic contributors to cortical morphology differences in autistic children.
- Development and validation of the Mathematics Quotient.
- Genome-wide association study of aptitude in science, technology, engineering and mathematics in collaboration with the UK Biobank and the Social Sciences Genetic Association Consortium.
- Epigenome-wide association study of autistic traits in collaboration with ALSPAC.

2013 - 14 **MPhil Medical Sciences, University of Cambridge (No corrections)**

Oxytocin Receptor (*OXTR*) and autism: candidate gene association study and meta-analysis.

- Candidate gene association study of common genetic polymorphisms in 5 genes (*OXTR*, *GABRB3*, *SLC25A12*, *ARNT2*, *STX1A*) with autism and related traits.
- Pooled DNA genome-wide meta-analysis of Asperger syndrome and mathematical ability.
- Meta-analysis of candidate gene associations of *OXTR* in autism.

2012 – 13 **Intern, National Institute of Mental Health and Neurosciences, India**

- Correlation analyses between genetic estimates of inbreeding and schizophrenia in South Indian population isolates.
- Pedigree analysis and DNA extraction from individuals with Ataxia & Parkinsonism.

2011 – 12 **MSc Neuroscience, University College London (Distinction)**

The genetics of Neuronal Ceroid Lipofuscinosis (NCL).

- Identification and characterization of mutations in individuals with NCL.
- Comprehensive patient and mutation database development.
- Development and validation of genetic diagnostic tests for two NCL genes.

2009 – 11 **Diploma in Biology (Project Oriented Biological Education Fellow), Jawaharlal Nehru Centre for Advanced Scientific Research**

Molecular Genetics of Persistent Familial Stuttering

- Linkage study, haplotype analysis, candidate gene sequencing for persistent stuttering in South Indian families.

2008 - 11      **Bachelors in Zoology, Madras Christian College (Distinction - First rank)**

#### Academic Awards

- 2016      World Congress of Psychiatric Genetics Early Career Investigator Award
- 2014-17      St John's College Benefactors Scholarship and the Cambridge Trust Scholarship
- 2013-14      Cambridge Jawaharlal Nehru Memorial Trust and the Cambridge Trust Scholarship
- 2011-12      Commonwealth Scholarship
- 2008-11      Awards from Madras Christian College, University of Madras:
- George T. Subramanian Gold Medal for best outgoing student
  - Dr. Joshua Gold Medal for highest marks in all semesters
  - Prof.(Mrs) Ethel Baskaran Award for excellence in genetics
  - Tmt. Chellamal Raja Endowment Prize for animal physiology
  - Dr. G. J. Phanuel Gold Medal for animal behavior and environmental biology
  - Vasantharaj David Gold Medal for applied entomology
  - Shalini Prize for developmental biology
  - Buckie Prize for the highest marks in V and VI semesters
  - Dr. P.J Sanjeeva Raj Young Researcher Award
  - P.C Mathew Gold Medal for the highest marks in the III & IV semesters
  - Special Prize for the highest marks in I & II semesters
- 2008-11      Project Oriented Biological Education Fellowship for study towards a three-summer Diploma in Biology at the Jawaharlal Nehru Centre for Advanced Scientific Research

#### Research and Conference Funding

- 2017      Marmaduke Shield Fund for imaging-genetics research (£ 13,000)
- 2017      Russel Sage Foundation Summer School in Social Science Genomics, Santa Barbara
- 2015-18      Investigating Mathematical Talent and Autism using Genetics and Epigenetics (IMAGE)  
£1.8 million, Templeton World Charity Foundation, Inc.
- 2016      Co-wrote and designed the study with Prof. Simon Baron-Cohen (PI)
- 2016      World Congress of Psychiatric Genetics Early Career Investigator travel award
- 2016      Leena Peltonen School of Human Genetics, Wellcome Trust Sanger Institute
- 2016      IMFAR Diversity Student Award for IMFAR 2016
- 2015      EU-AIMS National School of Advanced Study travel award
- 2015      British Psychological Society Travel Award for training at Institut Pasteur
- 2015      The Genetics Society Training Grant for training at Institut Pasteur
- 2015      EG Fearnside Fund for IMFAR 2015
- 2014      Guarantors of Brain Fund for IMFAR 2014

#### Research Articles

Published

(\* indicates shared first authorship for equal contribution, # indicates corresponding author)

1. **Warrier V<sup>#</sup>**, Baron-Cohen S<sup>#</sup>. Genetic contribution to theory of mind in adolescence. Scientific Reports. 8(1):3465.
2. Romero-Garcia R\*, **Warrier V\***, Bullmore EB, Baron-Cohen S, Bethlehem RAI<sup>#</sup>. Synaptic and transcriptionally downregulated genes are associated with cortical thickness differences in children with autism. Molecular Psychiatry [Epub ahead of print]

3. **Warrier V<sup>#</sup>**, Toro R, Chakrabarti B, Litterman N, Hinds D, Bourgeron T, Baron-Cohen S<sup>#</sup>. Genome-wide analyses of self-reported empathy: correlations with autism, schizophrenia, and anorexia nervosa. *Translational Psychiatry*. 8(1):35.
4. **Warrier V<sup>#</sup>**, Grasby K, Uzefovsky F, Toro R, Smith P, Chakrabarti B, Khadake J, Mawbey-Adamson E, Litterman N, Hottenga J, Lubke G, Boomsma D, Martin NG, Hatemi PK, Medland SE, Hinds DA, Bourgeron T, and Baron-Cohen S<sup>#</sup> (2017) A genome-wide meta-analysis of cognitive empathy: Heritability and correlates with psychiatric conditions, psychological traits and cognition. *Molecular Psychiatry*. [Epub ahead of Print]
5. **Warrier V<sup>#</sup>**, Chee V\*, Smith PL, Chakrabarti B<sup>#</sup>, Baron-Cohen S (2015) A comprehensive meta-analysis of common genetic variants in Autism Spectrum Conditions. *Mol Autism*. 6:49
6. **Warrier V<sup>#</sup>**, Chakrabarti B\*, Laura Murphy, Chan A, Craig I, Mallya U, Lakatosova S, Rehnstrom K, Peltonen-Palotie L, Wheelwright S, Allison C, Fisher S and Baron-Cohen S<sup>#</sup> (2015) Pooled genome-wide association study identifies nominally significant loci for Asperger Syndrome. *PLoS One*. 10(7):e0131202
7. Di Napoli A<sup>#</sup>\*, **Warrier V\***, Murphy L, Baron-Cohen S, Chakrabarti B<sup>#</sup> (2015) Genetic variation rs17225178 in the ARNT2 gene is associated with Asperger Syndrome. *Mol Autism*. 6:9
8. Di Napoli A<sup>#</sup>\*, **Warrier V\***, Baron-Cohen S, Chakrabarti B<sup>#</sup> (2014) Genetic variation in the oxytocin receptor (OXTR) gene is associated with Asperger Syndrome. *Mol Autism*. 5(1):48
9. Baron-Cohen S<sup>#</sup>, Murphy L, Chakrabarti B, Craig I, Mallya U, Lakatosova S, Rehnstrom K, Peltonen-Palotie L, Wheelwright S, Allison C, Fisher S and **Warrier V<sup>#</sup>** (2014) A genome wide association study of mathematical ability reveals an association at chromosome 3q29. *PLOS One*. 9(5):e96374
10. Durdiakova J<sup>#</sup>, **Warrier V**, Baron-Cohen S, Chakrabarti B<sup>#</sup> (2014) SLC25A12 is associated with Asperger Syndrome. *Mol Autism*. 5(1):25.
11. Durdiakova J<sup>#</sup>, **Warrier V**, Baron-Cohen S, Chakrabarti B<sup>#</sup> (2014) STX1A and Asperger Syndrome: a replication study. *Mol Autism*. 5(1):14
12. **Warrier V<sup>#</sup>**, Baron-Cohen S, Chakrabarti B<sup>#</sup> (2013) Genetic variation in GABRB3 is associated with Asperger Syndrome and multiple endophenotypes relevant to autism. *Mol Autism*. 4(1):48
13. Guerreiro R, Bras JT, Vieira M, **Warrier V**, Agrawal S, Stewart H, Anderson G, Mole SE<sup>#</sup> (2013) CLN6 disease caused by the same mutation originating in Pakistan has varying pathology *Eur J Paediatr Neurol*. 17(6):657-60.

Under review

(\* indicates shared first authorship for equal contribution, # indicates corresponding author)

1. **Warrier V<sup>#</sup>**, Toro R, Chakrabarti B, iPSYCH-Broad autism consortium, the 23andMe Research Team, Grove J, Borglum A, Hinds DA, Bourgeron T, Baron-Cohen S<sup>#</sup>. Systemizing is genetically correlated with autism and genetically distinct from social autistic traits. (Preprint available on BioRxiv)
2. **Warrier V<sup>#</sup>**, Bourgeron T, Baron-Cohen S<sup>#</sup>. Genome-wide association study of social relationship satisfaction: significant loci and correlations with psychiatric conditions. (Preprint available on BioRxiv)

3. Greenberg DM<sup>#</sup>, **Warrier V**<sup>\*</sup>, Allison C, Baron-Cohen S. Testing the Empathizing-Systemizing theory of sex differences and the Extreme Male Brain theory of autism in half a million people.
4. Baron-Cohen S<sup>#</sup>, **Warrier V**<sup>#</sup>, Smith P, Allison C. Do mothers of autistic children show an aptitude for STEM (science, technology, engineering and math)?
5. Uzefovsky F<sup>#</sup>, Bethlehem RAI, Shamay-Tsoory S, Ruigrok A, Holt R, Spencer M, Chura L, **Warrier V**, Chakrabarti B, Bullmore EB, Suckling J, Floris D, and Baron-Cohen S. The Oxytocin Receptor gene predicts brain activity during an emotion recognition task in autism.

## Reviews and book chapters

1. Massrali AT<sup>#</sup>, **Warrier V**, Paul A, Adhya D, Srivastava DP, Kotter M, Baron-Cohen S. The Epigenetics of Autism. Chromatin Signaling and Neurological Disorders (Forthcoming).
2. **Warrier V**<sup>#</sup>, Baron-Cohen S<sup>#</sup> (2017) The genetics of autism. eLS. John Wiley & Sons Ltd, Chichester.
3. **Warrier V**<sup>#\*</sup>, Bethlehem RAI<sup>\*</sup>, Baron-Cohen S (2017) The Reading the Mind in the Eyes Test. Encyclopaedia of Personality and Individual Differences, edited by Virgil Zeigler-Hill and Todd K. Shackelford. 1:1-5.
4. **Warrier V**<sup>#</sup>, Baron-Cohen S<sup>#</sup> (2016) The genetics of mathematical aptitude. eLS. John Wiley & Sons Ltd, Chichester.
5. **Warrier V**, Viera M, Mole SE<sup>#</sup> (2013) Genetic basis and phenotypic correlations of the Neuronal Ceroid Lipofusinoses. Biochim Biophys Acta. (11):1827-30.

## Selected Talks

- |      |  |
|------|--|
| 2018 | Dissociable shared genetics between social and non-social traits in autism. University of Cambridge  |
| 2018 | Cambridge and Mathematics: shared biology. Ethics in Mathematics Conference, Cambridge   |
| 2018 | Understanding the genetics of autism from the genetics of psychological traits, IoP, London  |
| 2017 | Systemizing is genetically distinct from social autistic traits. Birkbeck, UoL   |
| 2017 | Distinct contribution to autism from social and non-social traits. Sanger Institute  |
| 2017 | Genome-wide meta-analysis of cognitive empathy: heritability and correlates with sex, psychiatric conditions and cognition. Broad Institute. |
| 2016 | Genome-wide meta-analysis of cognitive empathy. World Congress of Psychiatric Genetics.  |
| 2016 | Using cognitive traits to understand the genetics of psychiatric conditions. Ben-Gurion University of the Negev.                             |
| 2016 | The genetics of talent and disability in autism and schizophrenia. St. John's College, Cambridge   |
| 2016 | The Genetics of emotion recognition. Wellcome Trust Sanger Institute   |
| 2016 | Genome-wide association studies of empathy and systemizing, IMFAR.   |
| 2016 | Genome-wide association studies of empathy and systemizing, eSCAMPS  |
| 2015 | Genetics of emotion recognition, Psychiatry postgraduate seminar, University of Cambridge  |
| 2015 | Linking psychological traits with psychiatric conditions through genetics, Institut Pasteur  |
| 2015 | The genetics of psychological traits, Autism Research Centre   |
| 2015 | Understanding the genetic architecture of Autism, St. John's College, Cambridge  |
| 2014 | Common Variants in Autism Spectrum Conditions, Psychiatry Seminar, Cambridge   |

2013 Genetics of Autism, Cambridge BioResource Open Evening, University of Cambridge  
 2012 Molecular Genetic Diagnosis of Neuronal NCL, Goodenough College

### Poster Presentations

2017 Integrated genetic analysis of educational attainment, autism, and schizophrenia identifies points of convergence. IMFAR 2017  
 2016 Genome-wide meta-analysis of cognitive empathy, Neuroscience away day, Cambridge  
 2015 A comprehensive meta-analysis of common variants in Autism, IMFAR 2015  
 2014 Genetic Variation in *GABRB3* is associated with Asperger Syndrome and multiple related endophenotypes, IMFAR 2014  
 2014 Pooled genome-wide association study identifies nominally significant loci for Asperger Syndrome, Cambridge Neuroscience Symposium, Cambridge

### Workshops (Selected Participation)

2017 Russel Sage Foundation Summer School in Social Science Genomics, Santa Barbara  
 2016 Leena Peltonen School of Human Genetics, Wellcome Trust Sanger Institute  
 2015 Autism Spectrum Disorders: Neuroscience School of Advanced Studies  
 2012 16th ADNAT Symposium on Genomics and Beyond, University of Hyderabad  
 2011 The Second Cognition Summer School, National Institute of Advanced Studies

### Teaching Experience

2015 - 17 Supervisor: Experimental Psychology – University of Cambridge  
 2013 - 15 Supervisor: MSc Human Genetics research project – Imperial College London  
 2013 Supervisor: Research internship – University of Comenius

### Ad-hoc Reviewer

Nature Human Behaviour, Molecular Psychiatry, Biological Psychiatry, Lancet Psychiatry, Translational Psychiatry, Psychoneuroendocrinology, Human Molecular Genetics, Molecular Autism, Behavioural Genetics, PLOS One

### Committee Experience

2016 - 17 Welfare Officer, Samuel Butler Room Society, St. John's College, Cambridge  
 2016 - 17 Chair – Cambridge University Commonwealth Society  
 2015 - 16 Department Representative, Department of Psychiatry, Cambridge  
 2015 - 16 Treasurer, Cambridge University Commonwealth Society  
 2014 - 15 Committee member, Cambridge University Commonwealth Society  
 2010 – 11 Literary and Debating Convenor, Madras Christian College  
 2010 – 11 Secretary, Rotaract Club of Madras Christian College  
 2009 – 11 Editor, Madras Christian College annual magazine and newsletter

### Voluntary Engagements

2015 Blogger, The Huffington Post (<http://www.huffingtonpost.in/varun-warrier/>)  
 2014 Contributing writer, The Citizen Newspaper ([www.thecitizen.in](http://www.thecitizen.in))  
 2013 - 14 Editor, Bricolage Magazine ([www.bricolagemagazine.com](http://www.bricolagemagazine.com))