

CURRICULUM VITAE

NAME	Professor Dr. med. Gunter Schumann
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DATE OF BIRTH	29. September 1961
PLACE OF BIRTH	Nagold, Kreis Calw, Germany
LEGAL STATUS	married, 1 daughter
NATIONALITIES	German, British

POSITIONS AND ACHIEVEMENTS

- Distinguished Professor and Chair in Population Neuroscience, Fudan University, Shanghai.
- Director of the Centre for Population Neuroscience and Stratified Medicine (PONS), Dept. of Psychiatry and Neurosciences, CCM, Charite Universitaetsmedizin Berlin, Germany.
- Director of PONS Centre, Institute for Science and Technology of Brain-inspired Intelligence (ISTBI), Fudan University, Shanghai.

PONS is the first research centre dedicated to population neuroscience worldwide. Its work has led to transformative investigations of the relation of brain, environment and behaviour. PONS is situated at Charite University Medicine Berlin and Fudan University and is engaged in numerous active international collaborations (e.g. Xu et al. Nature HB 2022). PONS hosts the IMAGEN, STRATIFY and cVEDA cohorts and is the coordinating centre for the Horizon Europe 'environMENTAL' project. PONS promotes an active scientific exchange between Europe and China, including by supporting visiting researchers and organizing scientific conferences, such as the AI summit 2024 in Berlin, attended by the German Minister of Health, Prof. Karl Lauterbach.

- European Research Council, Advanced Investigator.

The ERC-funded project STRATIFY has developed a nosology for psychiatric illness based on quantitative neurobehavioural phenotypes taking into account brain structure and function, as well as their moderation by environment and genetics. By creating a diagnostic system that provides exact targets for pharmacological interventions while allowing easy translation into clinical practice, this discovery addresses a central problem of psychiatry that has concerned the field for years. (see Ing et al. Nature Human Behaviour 2019, Jia et al. Nature Human Behaviour 2020, Xie et al. Nature Medicine 2023, Lett et al. medXriv 2024).

- Coordinator of the environMENTAL consortium (www.environmental-project.org)

Pioneering the understanding how some of the greatest global environmental challenges, including urbanicity, climate change, pollution and social injustice affect brain and behaviour (see Xu et al. Nature Medicine 2023, Xu et al. Nature Human Behaviour 2022). environMENTAL is a Horizon Europe project funded with 10M Euros that was initiated in June 2022 to investigate major environmental changes affect brain health during the lifespan, and to develop interventions aimed at prevention and early intervention. It leverages federated cohort data of over 1 million European citizens and patients enriched with deep phenotyping data from large

scale behavioural neuroimaging cohorts to identify brain mechanisms related to environmental adversity underlying mental illness.

- Coordinator of the IMAGEN cohort (www.imagen-project.org)

Developed and pioneered large scale deep phenotyping gene-neuroimaging studies in psychiatry, the IMAGEN cohort (www.imagen-project.org) that enabled the discovery of biomarkers for stratification and treatment of psychiatric disorder as well as understanding the biological basis of behaviour. IMAGEN, initiated as an EC-FP6 Integrated Project in 2005, is the first longitudinal, multicentre study worldwide that combines behavioural and neuropsychological characterization, functional and structural neuroimaging and genome-wide association (GWAS) analyses in 2000 adolescents. IMAGEN was a model for subsequent projects globally, such as the American ABCD study, the Indian cVEDA study and the Chinese Zhangjiang and CHIMGEN cohorts. In over 200 publications, the project has advanced the field by identifying the neurobiological basis of individual variability in reinforcement-related behaviour, and to determine their predictive value for the development of neuropsychiatric disorders (e.g. Whelan et al. Nature 2014, Richiardi et al. Science 2015, Jia et al. PNAS 2016, Jia et al. Nature HB 2022).

- Coordinator of the cVEDA cohort to study environmental and genetic influences on brain development and behaviour in India (www.cveda-project.org)

The Indian multi-centric, accelerated-longitudinal cVEDA cohort, of over 9100 participants aged 8-23 years, including 1300 neuroimaging scans, has for the first time applied deep phenotype approaches used in precision medicine in a large cohort in Low and Middle Income Countries (LMIC) to investigate environmental factors and their genetic interaction with brain and mental health-related behaviour. cVEDA is the largest study of its kind in Low and Middle Income countries worldwide (e.g. Zhang et al. Mol Psych. 2020, Vaidya et al. JAMA open network 2023).

- Chair of the Earth Brain Health Nature Commission on environment, brain and mental health.

The aim of the Commission is to focus and boost research on environment-related mental health by organizing scientific knowledge, identifying critical questions and providing actionable solutions to improve targeted prevention and early intervention at the societal and individual level. By focusing on adaptation of the brain to complex environments and its modelling, we aim to facilitate the implementation of precision medicine at a global level. The approach strongly aligns with UN Sustainable Development Goals (SDG) relevant for mental health (See article series in Nature Mental Health, September 2024)

- Coordinator of the PONS network of over 200.000 participants in Europe, U.S.A., China, India and South Africa.

Developing precision medicine uniquely in High Income Countries (HIC) runs the risk of ignoring the needs of Low and Medium Income Countries (LMIC) that carry the greatest burden of mental disorders, thus contributing to the global gap in mental health treatment. The PONS network works towards the application of precision medicine in LMIC by taking into account geographically distinct environmental exposure, lifestyle and biological vulnerability, which often differ greatly from HIC (e.g. Schumann et al. Lancet Glob. Health 2019).

ACADEMIC AND CLINICAL APPOINTMENTS

- 2021- to date: **Distinguished Professor and Chair in Population Neuroscience**, Fudan University, Shanghai.
- 2011 – 2020: **Chair in Biological Psychiatry**, Institute of Psychiatry, Psychology and Neuroscience, King’s College, London (IoPPN) and Honorary Consultant Psychiatrist, South London and Maudsley NHS Foundation Trust (SLaM)
- 2005 – 2011: Chair in Addiction Biology, IoPPN, Honorary Consultant Psychiatrist, South SLaM.
- 2000 – 2005: Consultant Psychiatrist and Head, Molecular Genetics Laboratory, Central Institute for Mental Health, University of Heidelberg.
- 1995 – 2000: Research Fellow at the Dept. of Psychiatry, UMC Freiburg working on cytokine-induced signal transduction and differential gene expression in the brain.
- 1993 – 1995: Research Fellow at the Dept. of Mol. Hematology at the UMC Freiburg.
- 1991 – 1993: Research Fellow in Pathology, **Harvard Medical School** at the Dana-Farber-Cancer-Institute, Div. of Immunogenetics.

ACADEMIC TRAINING

- 1991 Research Fellow (Harvard Medical School, Dept. of Pathology) at the Department of Immunogenetics at the Dana-Farber Cancer Institute (18 months)
- 1991 Clerkships in psychiatry and internal medicine at Harvard Medical School (8 months)
- 1991 National Board Examination part 2 (ECFMG-number: 04221883)
- 1990 FMGEMS part 1
- 1989 Clerkships in neurology and medical oncology at Harvard Medical School.
- 1988 University of Hamburg, Medical School
- 1983 University of Tübingen, Medical School
- 1982 University of Tübingen, Studies in Islamic Sciences and Cultural Anthropology
- 1993 Approbation as Medical Doctor: Freie und Hansestadt Hamburg
- 1994 Dissertation (Universität Hamburg; Magna cum laude)
- 2001 Specialty in Psychiatry and Psychotherapy
- 2004 Habilitation (Venia legendi, Ruprechts Karl Universitaet, Heidelberg)

MANAGEMENT EXPERIENCE

- 2022 – to date: Coordinator, environMENTAL consortium
- 2021 – to date: Director, Centre for Population Neuroscience and Stratified Medicine (PONS), ISTBI, Fudan University, Shanghai, PR China
- 2018 – to date: Lead, PONS Centre, Department of Psychiatry and Psychotherapy, Charite University Medicine, Berlin, Germany
- 2015 - to date: Coordinator, PONS network.
- 2015 - to date: Coordinator, Consortium on Vulnerability and Externalising disorders in Adolescents (cVEDA).
- 2017 - 2020: Director, Centre for Population Neuroscience and Stratified Medicine (PONS), IoPPN.
- 2011 - 2014: Lead, Biomedical Research; EC-FP7 Coordinating Action: A Roadmap for Mental Health Research in Europe.
- 2008 - 2013: Lead, BRC-Bioresource and operationalised electronic patient assessment (OPCRIT+).
- 2007 – to date: Coordinator; European IMAGEN longitudinal imaging genetics project.
- 2006 – 2011: Deputy-Director, National Institute of Health Research – Biomedical Research Centre (BRC) “Mental Health”.

STIPENDS, AWARDS, MEASURES OF ESTEEM

- 2024 Chair, Nature Commission on Environment, Brain and Mental Health.
- 2021 Alexander von Humboldt Prize, Germany
- 2020 National Thousand Talent Award, P.R. China
- 2019 Plenary Lecture, German Society for Psychiatry, Psychotherapy and Neurology
- 2019 Visiting Professor, Ludwig Maximilian University, Munich
- 2018 Honorary Professor, Tianjin Medical University, P.R. China
- 2017 Visiting Distinguished Professor, Fudan University, Shanghai, P.R. China
- 2016 Scientific Advisory Board, Innovative Medicine Initiative 'AETIONOMY'
- 2016 ERC European Research Council Advanced Investigator Grant
- 2016 Plenary Lecture, Hungarian Society for Psychiatry
- 2016 Plenary Lecture, Turkish Society for Psychiatry
- 2014 Plenary Lecture, German Society for Addiction Research, Berlin
- 2012 Visiting Professor, Fudan University, Shanghai, P.R. China
- 2012 Scientific Advisory Board, Leibniz Institut für Neurobiologie, Magdeburg
- 2012 Plenary Lecture, „Int. Society for Biological Research in Alcoholism“, Sapporo
- 2011 Scientific evaluation expert panel, „Neuroscience Research at Imperial College“
- 2009 Expert panel, Addiction Research Strategy, Medical Research Council (MRC).
- 2009 Plenary Lecture, „World Congress for Psychiatric Genetics“, San Diego
- 2009 Plenary Lecture, European College of Neuropharmacology, Istanbul
- 2008 National Clinical Excellence Award (Bronze)
- 2007 Royal Society Symposium “Neurobiology of addiction: New vistas”
- 2006 16th Okey Lecture: Identifying the neurobiol. mechanisms of addictive behaviour
- 2005 Wilhelm Feuerlein Research Award of the German Addiction Foundation
- 1999 Winter Conference on Brain Research (Fellowship Award)
- 1998 European College of Neuropharmacology (ECNP) (Project Award)
- 1993 German Society for Immunology (Young Investigator Award)
- 1992 German National Science Foundation (Studienstiftung des deutschen Volkes)
- 1991 German Academic Exchange Service (DAAD)
- 1989 Hansische Universitätsstiftung
- 1988 Tübinger Stipendienstiftung

LANGUAGES

Fluent German, English, French, Spanish;

RESEARCH FUNDING

Total funding > 40 million Euro in 31 research grants. Below, please find grants listed with >1 million Euro support as PI/coordinator

- 1) EC-FP6 Integrated Project: Reinforcement-related behaviour in normal brain function and psychopathology (IMAGEN); 2/2007 – 1/2012; €10.000.000.-
- 2) National Institute for Health Research (NIHR) Biomedical Research Centre (BRC) Grant Clinical Research Theme “Addiction”; 4/2007 – 3/2012; £ 2.820.675.-
- 3) Medical Research Council (MRC)-programme grant; Developmental pathways into adolescent substance abuse: neurobehavioural, genetic and environmental determinants
Lead applicant. 4/2010-3/2015; £ 1.233.944.-
- 4) ERC advanced grant ‘STRATIFY’; 10/2016 – 9/2021; € 3.490.000

5) EC Horizon Europe: environMENTAL - Reducing the impact of major environmental challenges on mental health. 6/2022-5/2027; € 9.980.913.

PUBLICATIONS

Google scholar 08.07.2024: 30734 citations, H-Index 83, i10 index 309.

393 peer-reviewed publications: **42 publications in *Nature, Science, Nature Journals and Proc. Nat. Acad. Sci. (USA.)***; 79 publications in top specialty journal (IF>10): 13 in *JAMA Psychiatry*, 14 in *American Journal of Psychiatry*, 37 in *Molecular Psychiatry*, 15 in *Biological Psychiatry*.

https://scholar.google.com/citations?hl=en&user=e8q7A28AAAAJ&view_op=list_works&sortby=pubdate

10 MOST IMPORTANT PUBLICATIONS

(1) Xu J, Liu N, Polemiti E, Garcia-Mondragon L, Tang J, Liu X, Lett T, Yu L, Nöthen MM, Feng J, Yu C, Marquand A, **Schumann G**; the environMENTAL Consortium. [Effects of urban living environments on mental health in adults](#). *Nat Med*. 2023 Jun;29(6):1456-1467. Cited by 38

(2) Xie C, Xiang S, Shen C, Peng X, Kang J, Li Y, Cheng W, He S, Bobou M, Broulidakis MJ, van Noort BM, Zhang Z, Robinson L, Vaidya N, Winterer J, Zhang Y, King S, Banaschewski T, Barker GJ, Bokde ALW, Bromberg U, Büchel C, Flor H, Grigis A, Garavan H, Gowland P, Heinz A, Ittermann B, Lemaître H, Martinot JL, Martinot MP, Nees F, Orfanos DP, Paus T, Poustka L, Fröhner JH, Schmidt U, Sinclair J, Smolka MN, Stringaris A, Walter H, Whelan R, Desrivières S, Sahakian BJ, Robbins TW, **Schumann G***, Jia T*, Feng J*; IMAGEN Consortium; STRATIFY/ESTRA Consortium; ZIB Consortium. [A shared neural basis underlying psychiatric comorbidity](#). *Nat Med*. 2023 May;29(5):1232-1242. Cited by 36

(3) Xu J, Liu X, Li Q, Goldblatt R, Qin W, Liu F, Chu C, Luo Q, Ing A, Guo L, Liu N, Liu H, Huang C, Cheng J, Wang M, Geng Z, Zhu W, Zhang B, Liao W, Qiu S, Zhang H, Xu X, Yu Y, Gao B, Han T, Cui G, Chen F, Xian J, Li J, Zhang J, Zuo XN, Wang D, Shen W, Miao Y, Yuan F, Lui S, Zhang X, Xu K, Zhang L, Ye Z, Banaschewski T, Barker GJ, Bokde ALW, Flor H, Grigis A, Garavan H, Gowland P, Heinz A, Brühl R, Martinot JL, Artiges E, Nees F, Orfanos DP, Lemaître H, Paus T, Poustka L, Robinson L, Hohmann S, Fröhner JH, Smolka MN, Walter H, Whelan R, Winterer J, Patrick K, Calhoun V, Li MJ, Liang M, Gong P, Barker ED, Clinton N, Marquand A, Yu L, Yu C, **Schumann G**; CHIMGEN; IMAGEN Consortia. [Global urbanicity is associated with brain and behaviour in young people](#). *Nat Hum Behav*. 2022 Feb;6(2):279-293. Cited by 41

(4) Jia T, Ing A, Quinlan EB, Tay N, Luo Q, Francesca B, Banaschewski T, Barker GJ, Bokde ALW, Bromberg U, Büchel C, Desrivières S, Feng J, Flor H, Grigis A, Garavan H, Gowland P, Heinz A, Ittermann B, Martinot JL, Martinot MP, Nees F, Orfanos DP, Paus T, Poustka L, Fröhner JH, Smolka MN, Walter H, Whelan R, **Schumann G**; IMAGEN Consortium. [Neurobehavioural characterisation and stratification of reinforcement-related behaviour](#). *Nat Hum Behav*. 2020 May;4(5):544-558. Cited by 20

(5) Ing A, Sämann P G, Chu C, Tay N, Biondo F, Robert G, Jia T, Wolfers T, Desrivières S, Banaschewski T, Bokde A L W, Bromberg U, Büchel C, Conrod P, Fadai T, Flor H, Frouin V, Garavan H, Spechler P A, Gowland P, Grimmer Y, Heinz A, Ittermann B, Kappel V, Martinot J-L, Meyer-Lindenberg A, Millenet S, Nees F, van Noort B, Orfanos D P, Martinot M-L P, Penttilä J, Poustka L, Quinlan E B, Smolka M N, Stringaris A, Struve M, Veer I M, Walter H, Whelan R, Andreassen O A, Agartz I, Lemaître H, Barker E D, Ashburner J, Binder E, Buitelaar J, Marquand A, Robbins T W, **Schumann G**, & IMAGEN Consortium (2019). [Identification of neurobehavioural symptom groups based on shared brain mechanisms](#). *Nature Human Behaviour*, 2019 Dec;3(12):1306-1318. Cited by 49

(6) **Schumann G**, Liu C, O'Reilly P, Gao H, Song P, Xu B, Ruggeri B, Amin N, Jia T, Preis S, Segura Lepe M, Akira S, Barbieri C, Baumeister S, Cauchi S, Clarke TK, Enroth S, Fischer K, Hällfors J, Harris SE, Hieber S, Hofer E, Hottenga JJ, Johansson Å, Joshi PK, Kaartinen N, Laitinen J, Lemaitre R, Loukola A, Luan J, Lyytikäinen LP, Mangino M, Manichaikul A, Mbarek H, Milaneschi Y, Moayyeri A, Mukamal K, Nelson C, Nettleton J, Partinen E, Rawal R, Robino A, Rose L, Sala C, Satoh T, Schmidt R, Schraut K, Scott R, Smith AV, Starr JM, Teumer A, Trompet S, Uitterlinden AG, Venturini C, Vergnaud AC, Verweij N, Vitart V, Vuckovic D, Wedenoja J, Yengo L, Yu B, Zhang W, Zhao JH, Boomsma DI, Chambers J, Chasman DI, Daniela T, de Geus E, Deary I, Eriksson JG, Esko T, Eulenburg V, Franco OH, Froguel P, Gieger C, Grabe HJ, Gudnason V, Gyllensten U, Harris TB, Hartikainen AL, Heath AC, Hocking L, Hofman A, Huth C, Jarvelin MR, Jukema JW, Kaprio J, Kooner JS, Kutalik Z, Lahti J, Langenberg C, Lehtimäki T, Liu Y, Madden PA, Martin N, Morrison A, Penninx B, Pirastu N, Psaty B, Raitakari O, Ridker P, Rose R, Rotter JJ, Samani NJ, Schmidt H, Spector TD, Stott D, Strachan D, Tzoulaki I, van der Harst P, van Duijn CM, Marques-Vidal P, Vollenweider P, Wareham NJ, Whitfield JB, Wilson J, Wolffebuttel B, Bakalkin G, Evangelou E, Liu Y, Rice KM, Desrivieres S, Kliewer SA, Mangelsdorf DJ, Müller CP, Levy D, Elliott P. [KLB is associated with alcohol drinking, and its gene product \$\beta\$ -Klotho is necessary for FGF21 regulation of alcohol preference.](#) *Proc Natl Acad Sci U S A*. 2016 Nov 28. Cited by 247

(7) Jia T, Macare C, Desrivieres S, Gonzalez DA, Tao C, Ji X, Ruggeri B, Nees F, Banaschewski T, Barker GJ, Bokde AL, Bromberg U, Büchel C, Conrod PJ, Dove R, Frouin V, Gallinat J, Garavan H, Gowland PA, Heinz A, Ittermann B, Lathrop M, Lemaitre H, Martinot JL, Paus T, Pausova Z, Poline JB, Rietschel M, Robbins T, Smolka MN, Müller CP, Feng J, Rothenfluh A, Flor H, **Schumann G**; IMAGEN Consortium. [Neural basis of reward anticipation and its genetic determinants.](#) *Proc Natl Acad Sci U S A*. 2016 Apr 5;113(14):3879-84. Cited by 60

(8) Whelan R, Watts R, Orr CA, Althoff RR, Artiges E, Banaschewski T, Barker GJ, Bokde AL, Büchel C, Carvalho FM, Conrod PJ, Flor H, Fauth-Bühler M, Frouin V, Gallinat J, Gan G, Gowland P, Heinz A, Ittermann B, Lawrence C, Mann K, Martinot JL, Nees F, Ortiz N, Paillère-Martinot ML, Paus T, Pausova Z, Rietschel M, Robbins TW, Smolka MN, Ströhle A, **Schumann G**, Garavan H; IMAGEN Consortium. [Neuropsychosocial profiles of current and future adolescent alcohol misusers.](#) *Nature*. 2014 Aug 14;512(7513):185-9. Cited by 484

(9) **Schumann G**, Coin LJ, Lourdasamy A, Charoen P, Berger KH, Stacey D, Desrivieres S, Aliev FA, Khan AA, Amin N, Aulchenko YS, Bakalkin G, Bakker SJ, Balkau B, Beulens JW, Bilbao A, de Boer RA, Beury D, Bots ML, Breetvelt EJ, Cauchi S, Cavalcanti-Proença C, Chambers JC, Clarke TK, Dahmen N, de Geus EJ, Dick D, Ducci F, Easton A, Edenberg HJ, Esko T, Fernández-Medarde A, Foroud T, Freimer NB, Girault JA, Grobbee DE, Guarrera S, Gudbjartsson DF, Hartikainen AL, Heath AC, Hesselbrock V, Hofman A, Hottenga JJ, Isohanni MK, Kaprio J, Khaw KT, Kuehnel B, Laitinen J, Lobbens S, Luan J, Mangino M, Maroteaux M, Matullo G, McCarthy MI, Mueller C, Navis G, Numans ME, Núñez A, Nyholt DR, Onland-Moret CN, Oostra BA, O'Reilly PF, Palkovits M, Penninx BW, Polidoro S, Pouta A, Prokopenko I, Ricceri F, Santos E, Smit JH, Soranzo N, Song K, Sovio U, Stumvoll M, Surakk I, Thorgeirsson TE, Thorsteinsdottir U, Troakes C, Tyrfingsson T, Tönjes A, Uitterlinden CS, Uitterlinden AG, van der Harst P, van der Schouw YT, Staehlin O, Vogelzangs N, Vollenweider P, Waeber G, Wareham NJ, Waterworth DM, Whitfield JB, Wichmann EH, Willemsen G, Witteman JC, Yuan X, Zhai G, Zhao JH, Zhang W, Martin NG, et al. [Genome-wide association and genetic functional studies identify autism susceptibility candidate 2 gene \(AUTS2\) in the regulation of alcohol consumption.](#) *Proc Natl Acad Sci U S A*. 2011 Apr 26;108(17):7119-24. Cited by 318

(10) Spanagel R, Pendyala G, Abarca C, Zghoul T, Sanchis-Segura C, Magnone MC, Lascorz J, Depner M, Holzberg D, Soyka M, Schreiber S, Matsuda F, Lathrop M, **Schumann G**, Albrecht U. [The clock gene Per2 influences the glutamatergic system and modulates alcohol consumption.](#) *Nat Med*. 2005 Jan;11(1):35-42. Cited by 686