Dennis Kätzel, D.Phil(OXON), Dipl.-Humanbiol., Mag. Artium

Occupational Career

Since Dec 2015	Assistant Professor of Neurophysiology, **Ulm University**
2012 - 2015	Sir Henry Wellcome Postdoctoral Fellow, **UCL**, **Oxford**, **MIT**
2011 – 2012	Research Associate, Institute of Neurology, **UCL**
2011 – 2014	Academic Visitor, Centre for Neural Circuits & Behaviour, **Oxford**

Education

2011 *D.Phil:* Physiology, Anatomy and Genetics, **Oxford**

2007 *Magister Artium*: Philosophy (Maj.), Psychology (Min.), Sociology (Min.), **Marburg**

2007 *Diplom:* Human Biology, **Marburg**

Scholarships & Grants

Active: Deutsche Forschungsgemeinschaft (DFG); Boehringer-Ingelheim – Ulm University BioCenter (BIU)

Past: Boehringer Ingelheim; Boehringer-Ingelheim – Ulm University BioCenter (BIU); Federal Ministry of Science and Art Baden-Württemberg (Juniorprofessorenprogramm); Else-Kröner/GSO Förderintiative für medizinische Spitzenforscher aus dem Ausland; NARSAD Young Investigator Award (BBR); John Fell Fund (Oxford University Press), Roche, Wellcome Trust

Pre-doctoral fellowships: Boehringer Ingelheim Fonds, Christopher Welch Scholarship Fund, Studienstiftung des deutschen Volkes

Current teaching: Human Medicine, Dental Medicine, Molecular Medicine

Main neurophysiology lectures: vision, nociception, autonomous nervous system, motor system, language, motivation, attention, memory and emotion

Advanced lectures: optogenetics

Seminars: motor systems, reward system, skeletal muscle, heart physiology, autonomic nervous system, vision and hearing, biological psychiatry

Practicals: visual system

Research

Interests: schizophrenia, ADHD, translational psychiatry, organization & function of neuronal circuits, inhibition

Methods: optogenetics, chemogenetics, viral vectors, LFP, multi-electrode recordings, miniscope imaging, patch-clamp, mouse models of psychiatric diseases, behavioural testing & pharmacology

Invited reviewer

Grant reviews: Alexander-von-Humboldt Foundation, Deutsche Forschungsgemeinschaft (DFG), ETH Zurich Grants, Rosetrees Trust, French National Research Agency (ANR), Medical Research Council UK, Neurological Foundation of New Zealand, Studienstiftung des deutschen Volkes

Publication reviews: Advances in Pharmacology, Biological Psychiatry, Brain, Brain Communications, Brain Research Bulletin, Br J Pharmacology, Cerebral Cortex, Epilepsia, Frontiers in Cellular Neuroscience, Frontiers in Molecular

Neuroscience, Neuropsych Disease & Treatment, Neuroscientist, Neuropsychopharmacology, Schizophrenia Research, Translational Psychiatry

Editorial Board Member: Scientific Reports

Publications: Journals / Pre-prints (* corresponding author)

van der Veen B, Kapanaiah STK, Kilonzo K, Steele-Perkins P, Jendryka MM, Schulz S, Tasic B, Yao Z, Zeng H, Akam T, Nicholson JR, Liss B, Nissen W, Pekcec A, Kätzel D*: *Control of impulsivity by G_i-protein signalling in layer-5 pyramidal neurons of the anterior cingulate cortex*, **Communications Biology**, 2021.

Kilonzo K, van der Veen B, Teutsch J, Schulz S, Kapanaiah SKT, Liss B, Kätzel D*: *Delayed-matching-to-position working memory in mice relies on NMDA-receptors in prefrontal pyramidal cells*. **Scientific Reports**, 2021.

Strahnen D, Kapanaiah STK, Bygrave A, Liss B, Sprengel R, Bannerman DM, Akam T, Grewe BF, Johnson EL, Kätzel D*: *Highly task-specific and distributed neural connectivity in working memory revealed by single-trial decoding in mice and humans*, **bioRXiv**, 2021. *(pre-print)*

Strahnen D, Kapanaiah STK, Bygrave A, Kätzel D*: *Lack of redundancy between electrophysiological measures of long-range neuronal communication*. **BMC Biology**, 2021.

Kätzel D*, Wolff AR, Bygrave AM, Bannermann DM: *Hippocampal hyperactivity as a druggable circuit-level origin of aberrant salience in schizophrenia*. **Front Pharmacology**, 2020.

Bygrave AM, Kilonzo K, Kullmann DM, Bannerman DM, Kätzel D*: *Can NMDA-receptor hypofunction in schizophrenia be localized to an individual cell-type?* **Front Psychiatry**, 2019.

Teutsch J, Kätzel D*: *Operant Assessment of DMTP spatial working memory in mice*. **Front Behav Neurosci**, 2019.

Bygrave AM, Jahans-Price T, Wolff AR, Sprengel R, Kullmann DM, Bannerman DM*, Kätzel D*: *Hippocampal-prefrontal coherence mediates working memory and selective attention at distinct frequency bands and provides a causal link between schizophrenia and its risk gene GRIA1*. **Translational Psychiatry**, 2019.

Jendryka M, Palchaudhuri M, Ursu D, van der Veen B, Liss B, Kätzel D, Nissen W, Pekcec A*: *Pharmacokinetic and pharmacodynamic actions of clozapine-N-oxide, clozapine, and compound 21 in DREADD-based chemogenetics in mice*. **Scientific Reports**, 2019.

Bygrave AM, Masiulis S, Kullmann DM*, Bannerman DM*, Kätzel D*: *Gene-environment interaction in a conditional NMDAR-knockout model of schizophrenia*. **Front Behav Neurosci**, 2018.

Grimm CM, Aksamaz S, Schulz S, Teutsch J, Sicinski P, Liss B and Kätzel D: *Schizophrenia-related cognitive dysfunction in the Cyclin-D2 knockout mouse model of ventral hippocampal hyperactivity*. **Translational Psychiatry**, 2018.

Wolff AR, Bygrave AM, Sanderson DJ, Boyden ES, Bannerman DM*, Kullmann DM*, Kätzel D*: *Optogenetic induction of the schizophrenia-related endophenotype of ventral hippocampal hyperactivity causes rodent correlates of positive and cognitive symptoms.* **Scientific Reports**, 2018.

Bruyckere E, Simon R, Nestel S, Heimrich B, Kätzel D, Egorov AV, Liu P, Jenkins NA, Copeland NG, Schwegler H, Draguhn A, Britsch S*: *Stability and function of hippocampal mossy fiber synapses depends on Bcl11b/Ctip2.* **Front Mol Neurosci**, 2018.

Bygrave AM, Masiulis S, Nicholson E, Berkemann M, Barkus C, Sprengel R, Harrison P, Kullmann DM*, Bannerman DM*, Kätzel D*: *Knockout of NMDA-receptors from parvalbumin interneurons sensitizes to schizophrenia-related deficits induced by MK-801.* **Translational Psychiatry**, 2016.

Anastasiades PG, Marques-Smith A, Lyngholm D, Lickiss T, Raffiq S, Kätzel D, Miesenböck G, Butt SJ*: *GABAergic interneurons form transient, layer-specific circuits in early postnatal neocortex.* **Nature Communications**, 2016.

Kätzel D, Nicholson E, Schorge S, Walker M, Kullmann D*: *Chemical-genetic silencing of focal neocortical seizures.* **Nature Communications**, 2014.

Kätzel D & Miesenböck G*: *Experience-dependent rewiring of specific inhibitory connections in adult neocortex.* **PLoS Biology**, 2014.

Kätzel D, Zemelman BV, Buetfering C, Wölfel M, Miesenböck G*: *The columnar and laminar organization of inhibitory connections to neocortical excitatory cells.* **Nature Neuroscience**, 2011.

Publications: Books and Book Chapters

Liss B, Kätzel D: *Kleinhirn*, in Brandes R, Lang F, Schmidt RF: ***Physiologie des Menschen: mit Pathophysiologie***, **Springer-Verlag**, 2019.

Kohl MM, Kätzel D: *Optogenetic mapping of neuronal connections and their plasticity*, in Appasani K (ed.): ***Optogenetics: from neuronal function to mapping and disease biology,*** **Cambridge University Press,** 2017.

Kätzel D, Kullmann D: *Optogenetic and chemogenetic tools for drug discovery in schizophrenia*, in Lipina T, Roder J (eds.): ***Drug discovery for schizophrenia***, **RSC Publishing**, 2015

Kätzel D: *Gen und Gestalt – Der Genbegriff der Entwicklungsbiologie*. **LIT-Verlag**, 2011.