

# 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, M.I.T.**  
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); Federal Ministry of Science and Art Baden-Württemberg (Juniorprofessorenprogramm)  
**Past:** Else-Kröner/GSO Förderinitiative 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, 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, organization 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:** Deutsche Forschungsgemeinschaft (DFG), Medical Research Council UK, Neurological Foundation of New Zealand, French National Research Agency (ANR), Alexander-von-Humboldt Foundation, ETH Zurich Grants

**Publication reviews:** Brain, Epilepsia, Br J Pharmacology

**Editorial Board Member:** Scientific Reports

**Consultant:** RBV Capital (2015)

## Publications: Journals (peer-reviewed)

- 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, Palchadhuri 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, Zelman 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.