PD Dr. Alexander Groh

Date of birth: 15. April, 1977 in Leipzig Germany
Address: Technical University Munich
Klinikum rechts der Isar
Department of Neurosurgery
Ismaningerstr. 22, 81675 Munich
Germany
Phone: +49-(0)89-4140-3352
Email: alexander.groh@gmail.com
Married, one child.

Professional experience

2015 - present	Group Leader, Department of Neurosurgery, Klinikum Rechts der Isar, Technical University Munich and Guest Researcher at Heidelberg University (SFB 1158).
2014	Independent Grass Foundation Investigator at the Marine Biological Laboratory, Woods Hole, MA, USA
2010 - 2015	Group leader at the Institute of Neuroscience, Sakmann lab, Technical University Munich.
2008 - 2010	Post-doctoral fellow with Prof. Dr. Bert Sakmann at Max-Planck Institute for Neurobiology and the Institute of Neuroscience, Technical University Munich.

Academic degrees

2017	Habilitation “Neuroscience & Neurophysiology”, Technical University Munich
2008	Ph.D. *summa cum laude* (Heidelberg University). Thesis work at the Max-Planck Institute for Medical Research, Heidelberg, Germany, Title: “A giant driver synapse in the rodent whisker system” (Advisor: Prof. Dr. Bert Sakmann)
2004	Master of Science in “Molecular and Cellular Biology” (Heidelberg University)
1999 - 2004	Molecular and Cellular Biology, Universities of Jena, Amsterdam, Otago, and Heidelberg

Grants and scholarships (selection)

2017	Heisenberg Scholarship (Deutsche Forschungsgemeinschaft)
2017	Research Grant (Deutsche Forschungsgemeinschaft, GR 3757/3-1): “Neuronal mechanisms of cortico-subcortical communication via cortical giant synapses in the mammalian brain.”
2015	Research Grant Collaborative Research Centre SFB 1158, Project Title: “Thalamic processing of pain and putative control by cortical feedback”
2014	Grass Fellowship at the Marine Biological Laboratory, Woods Hole, Massachusetts, USA. Title: “The role of electrical synaptic transmission in synchronizing thalamic activity”
2014	Travel Grant from the German Academic Exchange Service (DAAD): Annual Meeting of the Society for Neurosciences, Washington DC, and BARRELS satellite meeting in Baltimore, MD.
2010	Research Grant (Deutsche Forschungsgemeinschaft, GR 3757/1-1): “Role of genetically defined cortical neurons in sensorimotor processing in mice”
2004	Gertrud Reemtsma Scholarship (Promovendenpreis) for thesis work.

Supervision of graduate students and postdocs

2017 – present	MD thesis work Ekaterina Nedeoglo
2016 – present	Dr. Sailaja Antharvedi-Goda
2011 – 2016	Ph.D. thesis work Anton Sumser
2009 – 2012	Ph.D. thesis work Rita Förster
2010	Master thesis: Mike Hemberger

Main teaching activities

2016 – present	Lecture "Translational research in neuropsychiatric disorders – linking human brain imaging and animal research" in Ph.D. Program *"Medical Life Sciences & Technology"*, Technische Universität München.
2010 – present	Annual instructor in Basic Electronics and Electrophysiology Techniques for the Ph.D. Program *"Medical Life Sciences & Technology"*, Technische Universität München. Introduction to patch-clamp electrophysiology *in vivo* and *in vitro*.
2009 – 2010	Neuroscience lecture for the Ph.D. Program *"Medical Life Sciences & Technology"*, Technische Universität München.
2008 – 2014	Supervisor of four Bachelor Thesis projects: Anton Sumser, Markus Metz, Alexander Bürger, Florian Baumgartner.
2006	Teaching Assistant at the Neurobiology Summer Course, Marine Biological Laboratory, Woods Hole, USA. Squid giant synapse physiology

Review activities and coordinating functions

Reviewer for: *Cell Reports, Scientific Reports, PLOS ONE, Cerebral Cortex*, *Pain, Neuroscience*. Ad-hoc grant reviewer for the Minerva Foundation (Max-Planck Society), reviewer of applications for Ph.D.-Program *"Medical Life Sciences & Technology",* Technische Universität München. FENS 2010 symposium co-organizer. Member of the Munich Center for Neurosciences – Brain and Mind (MCN), Ludwig-Maximilians-Universität München.

Invitations (selection)

2017	Systems Neuroscience Symposium, Max-Planck Center for Physics and Medicine, Erlangen
2017	Neuroscience Seminar Series, Erasmus University Medical Center Rotterdam
2017	European Brain and Behaviour Society Meeting, Bilbao
2017	Mediterranean Neuroscience Meeting, Malta
2016	International Pain Summer School in Prien on Chiemsee
2016	Scientists Meet Scientists - Wednesday Coffee Talk, Institute of Advanced Studies Munich
2016	Heidelberg Neurobiology Lecture Series
2016	Ruhr Universität Bochum, Lecture Series
2015	Johannes Gutenberg Universität Mainz, Seminar Series
2015	Janelia Farm Conference "Thalamus and Corticothalamic Interactions"
2014	Barrels Meeting at the Annual Meeting of the Society for Neurosciences, Washington, DC
2014	Albert Einstein College of Medicine, New York, Seminar Series
2014	Institute for Basic Science (IBS) Korea, Seoul
2014	European Neuroscience Institute Göttingen

Publications

Journal articles

Sumser A, Mease RA, Sakmann B, **Groh A** (2017) Organization and somatotopy of corticothalamic projections from L5B in mouse barrel cortex. *Proceedings of the National Academy of Sciences*

Mease RA, Kuner T, Fairhall AL, **Groh A** (2017) Multiplexed spike coding and adaptation in the thalamus. *Cell Reports*

Mease RA, Sumser A, Sakmann B, **Groh A** (2016) Cortical dependence of whisker responses in posterior-medial thalamus in vivo**.** *Cerebral Cortex* (with front cover)

Mease RA, Sumser A, Sakmann B, **Groh A** (2016) Corticothalamic spike transfer via the L5B-POm pathway in vivo**.** *Cerebral Cortex* (with front cover)

Mease RA, Markus Metz, **Groh A** (2016) Cortical sensory responses are enhanced by the higher-order thalamus. *Cell Reports*

Mease RA, Krieger P, **Groh A** (2014) Cortical control of adaptation and sensory relay mode in the thalamus. *Proceedings of the National Academy of Sciences*

Groh A*, Bokor H*, Mease RA, Plattner VM, Hangya B, Stroh A, Deschenes M, Acsády L (2014) Convergence of Cortical and Sensory Driver Inputs on Single Thalamocortical Cells. *Cerebral Cortex,* *equal contribution.

Groh A, Krieger P (2013) Structure-Function Analysis of Genetically Defined Neuronal Populations. *Cold Spring Harbor protocols* (with front cover)

Stroh A, Adelsberger H, **Groh A**, Ruhlmann C, Fischer S, Schierloh A, Deisseroth K, Konnerth A (2013) Making waves: initiation and propagation of Corticothalamic Ca(2+) waves in vivo. *Neuron*

Groh A, Meyer HS, Schmidt EF, Heintz N, Sakmann B, Krieger P (2010) Cell-type specific properties of pyramidal neurons in neocortex underlying a layout that is modifiable depending on the cortical area. *Cerebral Cortex* (with front cover)

Groh A, de Kock CP, Wimmer VC, Sakmann B, Kuner T (2008) Driver or coincidence detector: modal switch of a corticothalamic giant synapse controlled by spontaneous activity and short-term depression. *The Journal of Neuroscience*

Wimmer VC, Horstmann H, **Groh A**, Kuner T (2006) Donut-like topology of synaptic vesicles with a central cluster of mitochondria wrapped into membrane protrusions: a novel structure-function module of the adult calyx of Held. *The Journal of Neuroscience*

Review articles

Groh A, Mease RA, Krieger P (in press) Pain processing in the thalamocortical system. *Neuroforum*

Books / Book chapters

Krieger P and **Groh A** Editors (2015) Sensorimotor Integration in the Whisker System. ISBN 978-1-4939-2975-7, *Springer*

Groh A, Krieger, P. (2011) Structure–Function Analysis of Genetically Defined Neuronal Populations. *Imaging in Neuroscience: A Laboratory Manual (Fritjof Helmchen et al., eds) Cold Spring Harbor Laboratory Press*

In revision

Groh A, Krieger P, Mease RA, Henderson L Acute and chronic pain processing in the thalamocortical system of humans and animal models. *Neuroscience*