Personal Data

Title	Prof. Dr.
First name	Marcus
Name	Jeschke
Current position	Professor for Primate Auditory Neuroscience
Current institution(s)/site(s), country	Cognitive Hearing in Primates lab Deutsches Primatenzentrum (DPZ) Göttingen, Germany
Identifiers/ORCID	0000-0002-9109-8765 / Google Scholar

Qualifications and Career

Stages	**Periods and Details**	
Degree programme	2000 - 2002	Pre-diploma studies in Psychology, Free University Berlin, Germany
Degree programme	2002 - 2006	Diploma studies in Neuroscience, Otto-von-Guericke University Magdeburg, Germany
Doctorate	2011	Dr. rer. nat., Supervisor: Prof. Frank Ohl, “The contribution of horizontal, intracortical connections to learning-induced gamma oscillations”, Otto-von-Guericke University Magdeburg, Germany
Stages of academic/ professional career	Since 2024	Professor for Primate Auditory Neuroscience, German Primate Center Göttingen and University Medical Center Göttingen
	Since 2018	Research Group Leader, German Primate Center Göttingen, Germany
	2013 - 2018	Postdoctoral Fellow, Institute for Auditory Neuroscience, University Medical Center Göttingen (UMG), Göttingen, Germany
	2011 - 2013	Postdoctoral Fellow, Department of Systems Physiology of Learning, Leibniz Institute for Neurobiology Magdeburg, Germany
	2007 - 2011	Guest scientist, Laboratory of Auditory Neuro-physiology (Prof. Dr. Xiaoqin Wang), Department of Biomedical Engineering, Johns Hopkins University School of Medicine, Baltimore, USA

Engagement in the Research System

Since 2024	Board member of the EKFZ ‘optogenetic therapies’
Since 2022	Review editor for Frontiers in Neuroscience, Frontiers in Psychology
Since 2019	Reviewer for the European Research Council

Since 2010	Peer review activities for various scientific journals (Cerebral Cortex, eNeuro, J Neurophysiology, iScience, Journal of Speech, Language and Hearing Research, Scientific Reports, Brain Sciences, PLoS Biology, Frontiers in Cellular Neuroscience, Frontiers in Systems Neuroscience, Frontiers in Neuroscience, Frontiers in Neural Circuits, Cell Reports)

Scientific Results

Category A

1. Michael M, Wolf BJ, Klinge-Strahl A, **Jeschke M**, Moser T, Dieter A. Devising a framework of optogenetic coding in the auditory pathway: Insights from auditory midbrain recordings. *Brain Stimul* 16(5):1486-1500. 2023. doi: 10.1016/j.brs.2023.09.018 **(OA)**
   Significance: Collaboration with the Moser lab establishing a framework for optogenetic coding of sounds, providing new insights from auditory midbrain recordings that could enhance the understanding of neural responses to optogenetic stimulation.
2. Calapai A*, Cabrera Moreno J*, Moser T, **Jeschke M** (2022) Flexible auditory training, psychophysics, and enrichment of common marmosets with an automated, touchscreen-based system. *Nat Commun* 13(1):1648. doi: 10.1038/s41467-022-29185-9 **(OA)**
   Significance: This research introduces an automated system for auditory training and enrichment in marmosets, significantly also advancing methodologies for behavioral studies and cognitive enrichment in non-human primates.
3. **Jeschke M**, Ohl FW, Wang X (2022) Effects of cortical cooling on sound processing in auditory cortex and thalamus of awake marmosets. *Front Neural Circuits* 15:786740. doi: 10.3389/fncir.2021.786740 **(OA)**
   Significance: The study explores the impact of corticofugal feedback on in the auditory thalamus of awake marmosets via cortical cooling, providing valuable insights into the neurophysiological mechanisms underlying auditory perception.
4. Kleinlogel S*, Vogl C*, **Jeschke M***, Neef J, Moser T (2020) Emerging approaches for restoration of hearing and vision. *Physiol Rev* 100(4):1467-1525. doi: 10.1152/physrev.00035.2019 **(OA)**
   Significance: This comprehensive literature review covers current efforts in restoring sensory functions, focusing on advanced techniques and innovations in treating auditory and visual disorders.
5. Keppeler D, Schwaerzle M, Harczos T, Jablonski L, Dieter A, Wolf B, Ayub S, Vogl C, Wrobel C, Hoch G, Abdelatif K, **Jeschke M**, Rankovic V, Paul O, Ruther P, Moser T (2020) Multichannel optogenetic stimulation of the auditory pathway using microfabricated LED cochlear implants. *Sci Transl Med* 12:eabb8086. doi: 10.1126/scitranslmed.abb8086 **(OA)**
   Significance: Together with the Ruther and Moser labs, we developed multichannel optogenetic stimulation using microfabricated LED cochlear implants, highlighting a significant advancement in the precision and effectiveness of auditory prostheses.
6. Dieter A, Klein E, Keppeler D, Jablonski L, Harczos T, Hoch G, Rankovic V, Paul O, **Jeschke M**, Ruther P, Moser T (2020) µLED-based optical cochlear implants for spectrally selective activation of the auditory nerve. *EMBO Mol Med* 12:e12387. doi: 10.15252/emmm.202012387 **(OA)**
   Significance: In collaboration with the Ruther and Moser labs, the research introduces µLED-based optical cochlear implants designed for precise and spectrally selective activation of the auditory nerve, offering a promising alternative to existing cochlear implant technologies.

7. Dieter A, Duque Afonso CJ, Rankovic V, **Jeschke M***, Moser T* (2019) Near physiological spectral selectivity of cochlear optogenetics. *Nat Commun* 10:1962. doi: 10.1038/s41467-019-09980-7 **(OA)**
   Significance: Working with the Moser lab, the study demonstrates that optogenetic cochlear implants provide better frequency selectivity than traditional electrical implants, closely mimicking natural hearing and offering potential improvements in auditory prostheses.
8. Wrobel C, Dieter A, Huet A, Keppeler D, Duque-Afonso CJ, Vogl C, Hoch G, **Jeschke M***, Moser T* (2018) Optogenetic stimulation of cochlear neurons activates the auditory pathway and restores auditory-driven behavior in deaf adult gerbils. *Sci Transl Med* 10:eaao0540. doi: 10.1126/scitranslmed.aao0540 **(OA)**
   Significance: With the Wrobel and Moser labs, we demonstrated successful restoration of auditory-driven behavior in deaf gerbils using optogenetic stimulation, providing a promising approach for future therapies restoring hearing.
9. Hernandez VH, Gehrt A, Reuter K, Jing Z, **Jeschke M**, Mendoza Schulz A, Hoch G, Bartels M, Vogt G, Garnham CW, Yawo H, Fukazawa Y, Augustine GJ, Bamberg E, Kügler S, Salditt T, de Hoz, L, Strenzke N, Moser T (2014) Optogenetic stimulation of the auditory pathway. *J Clin Invest* 124(3):1114-29. doi: 10.1172/JCI69050 **(OA)**
   Significance: Proof-of-concept studies demonstrating the feasibility of optogenetic stimulation of the auditory pathway and optogenetic hearing restoration. This marks a significant step towards new auditory prostheses.
10. Happel MFK*, **Jeschke M***, Ohl FW (2010) Spectral integration in primary auditory cortex attributable totemporally precise convergence of thalamocortical and intracortical input. *J Neurosci* 30(33):11.114-11.127. doi: 10.1523/JNEUROSCI.0689-10.2010 **(OA)**
    Significance: Demonstration of the role of long-range horizontal connections in the auditory cortex to frequency integration.

*Equal contribution, #Shared correspondence.
(OA): Publicly available (e.g. open access, open archive, preprint, free access, etc.).

Academic Distinctions

2006	Faculty prize / Faculty of Natural Science, Otto-von-Guericke University Magdeburg, Germany
2006	Doctoral scholarship, Otto-v.-Guericke Universität Magdeburg, declined