

## Curriculum vitae

### Prof. Dr. Peter Soba



**Surname:** Soba  
**Given name(s):** Peter Andreas  
**Academic title:** Dr. rer. nat.

**Affiliation:** Institute of Physiology and Pathophysiology  
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**Current position:** DFG Heisenberg Professor for Cellular and Molecular Physiology

### Professional experience

since 12/2021 DFG Heisenberg Professor (W2) for Cellular and Molecular Neurophysiology, Friedrich Alexander University Erlangen-Nürnberg

12/2021 – 12/2024 Research Fellow, LIMES-Institute, University of Bonn

11/2020 – 11/2021 DFG Heisenberg Group leader, LIMES-Institute, University of Bonn

11/2019 – 11/2021 Guest Group, Center for Molecular Neurobiology, ZMNH, University Medical Center Hamburg-Eppendorf

02/2011 – 10/2019 Independent Research Group leader, Center for Molecular Neurobiology, ZMNH, University Medical Center Hamburg-Eppendorf

10/2005 – 01/2011 Postdoctoral associate at the Howard Hughes Medical Institute, University of California, San Francisco, UCSF (Prof. Dr. Yuh-Nung Jan)

10/2004 – 09/2005 Postdoctoral fellow at the Center for Molecular Biology (ZMBH), University of Heidelberg (Prof. Dr. Dr. h.c. Konrad Beyreuther)

### Academic education

07/1998 – 06/1999 Diploma work at the University of Heidelberg (Prof. Dr. J. Blümel): “Silica-immobilized Nickel-Posphane-Complexes and Cyclotrimerization of Phenylacetylene” (grade: 1.0).

04/1996 – 06/1998 Studies of Chemistry (Diploma), University of Heidelberg

10/1993 – 03/1996 Studies of Chemistry (Diploma), University of Konstanz.

**Academic degrees**

08/1999 – 09/2004 Ph.D. thesis at the Center for Molecular Biology (ZMBH), University of Heidelberg, (with Prof Dr. Dr. h.c. K. Beyreuther): “Studies of the cell biological function of the Amyloid Precursor Protein (APP) family in *Drosophila melanogaster* and mammals” (grade: 1.0, *magna cum laude*).

**Academic honors**

2020 DFG Heisenberg program fellow (started 11/2020)

10/2020 call for W2 Professorship for “Cellular and Molecular Neurophysiology”, Friedrich-Alexander University of Erlangen-Nürnberg (accepted)

06/2019 shortlisted (*secundo loco*) for W2 Professorship “Synaptic Plasticity and Regeneration of the CNS”, Ludwig Maximilian University of Munich

10/2004-09/2005 Fritz-Thyssen-Foundation post-doctoral fellowship

**Commissions of trust and faculty duties**

Since 2024 Committee member, Marohn foundation

Since 2022 Committee member, ELAN pilot project funding program

Since 2022 Rapporteur for fair faculty recruitment, FAU Erlangen-Nürnberg

2016-2020 Biosafety and work safety officer (Research groups)

Since 2012 Commission duties (faculty recruitment)

Since 2011 Budgeting of research group, project management, employee recruitment

2011-2020 Research group representative at ZMNH faculty meetings (rotating duty)

**Editor/Ad hoc reviewer duties**

Editor: Associate Editor, Editorial Board of Pain Research Methods, *Frontiers in Pain Research* (since 2023, Review Editor since 2021)  
Topic Editor at *Frontiers in Cellular Neuroscience: “Connecting Form and Function: Recent Advances in Understanding Dendrite Morphogenesis and Plasticity”* (2019-2021)  
*PLoS Genetics* (guest editor, 2020)

Journals: *Science*, *eLife*, *Current Biology*, *Current Opinion in Structural Biology*, *Bioactive Materials*, *Development*, *iScience*, *Scientific Reports*, *Frontiers in Neuroscience*, *Molecular Pain*, *Developmental Biology*, *Cells*, *European Journal of Neuroscience*, *JoVE*, *BioTechniques*, *Journal of Neuroscience Methods*, *PLoS ONE*, *The Canadian Entomologist*

Grant agencies: German Research Foundation (DFG), French National Research Agency (ANR), INCEPTION program (France), MINERVA foundation, Heinrich Hertz foundation

### **Organization of conferences/seminars**

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|-----------|--|
| 2023      | Organizer of ICN (Interdisciplinary Center for Neuroscience) summer symposium: AI meets Neuroscience (FAU Erlangen-Nürnberg) |
| 2014      | Co-organizer Blankenese Conference 2014 on “Brain Complexity: From Synaptic Dynamics to Connectomics”                        |
| 2016-2020 | Ph.D. student seminar series at ZMNH (initiator and organizer)   |
| 2014-2016 | Research in progress seminar series at ZMNH (initiator and organizer)  |

### **Public outreach**

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|-----------|---|
| 2015-2019 | participation in the “Night of Science”, University Medical Center public outreach event  |
| 2017      | invited talk on neurodevelopment and disease at teachers’ association conference, Hamburg |

### **Memberships**

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|------------|---|
| Since 2017 | German Neuroscience Society (NWG)<br>Federation of European Neuroscience Societies (FENS)<br>Deutscher Hochschulverband (DHV) |
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**List of Publications****a) Reviewed journal publications**

1. Lehman M, Barré C, Hasan MA, Flament B, Autran S, Dhiman N, **Soba P**, Masson J-B, Jovanic T (2025) Neural circuits underlying context-dependent competition between defensive actions in *Drosophila* larva. **Nature Commun** 16(1):1120. doi: 10.1038/s41467-025-56185-2
2. Wietek J, Nozownik A, Pulin M, Saraf-Sinik I, Matosevich N, Gowrishankar R, Gat A, Malan D, Brown BJ, Dine J, Imambocus BN, Levy R, Sauter K, Litvin A, Regev N, Subramaniam S, Abrera K, Summarli D, Goren EM, Mizrachi G, Bitton E, Benjamin A, Copits BA, Sasse P, Rost BR, Schmitz D, Bruchas MR, **Soba P**, Oren-Suissa M, Nir Y, Wiegert JS, Yizhar O (2024). A bistable inhibitory OptoGPCR for multiplexed optogenetic control of neural circuits. **Nature Methods** 21, 1275–1287. doi: 10.1038/s41592-024-02285-8. (citations: 12 (Google Scholar), IF: 48.0)
3. Zhou F, Tichy AM, Imambocus BN, Sakharwade S, Rodriguez Jimenez FJ, González Martínez M, Jahan I, Habib M, Wilhelmy N, Burre V, Lömker T, Sauter K, Helfrich-Förster C, Pielage J, Grunwald Kadow IC, Janovjak H, **Soba P** (2023). Optimized design and in vivo application of optogenetically functionalized *Drosophila* dopamine receptors. **Nature Commun** 14(1), 1–18. doi: 10.1038/s41467-023-43970-0. (citations: 2 (Google Scholar), IF: 16.6)
4. Imambocus BN, Formozov A, Zhou F, **Soba P** (2022). A two-choice assay for noxious light avoidance with temporal distribution analysis in *Drosophila melanogaster* larvae. **STAR Protoc** 3(4):101787. (citations: 1 (Google Scholar), IF: 1.344)
5. Rodriguez-Rozada S, Wietek J, Tenedini F, Sauter K, Hegemann P, **Soba P**, Wiegert JS (2022) Aion is a bistable anion-conducting channelrhodopsin that provides temporally extended and reversible neuronal silencing. **Commun Biol** 5(1):687. doi: 10.1038/s42003-022-03636-x. (citations: 13 (Google Scholar), IF: 6.548).
6. Meka DP, Kobler O, Hong S, Friedrich CM, Wuesthoff S, Henis M, Schwanke B, Krisp C, Schmuelling N, Rueter R, Ruecker T, Betleja E, Cheng T, Mahjoub MR, **Soba P**, Schlüter H, Fornasiero EF, Calderon de Anda F (2022) Centrosome-dependent microtubule modifications set the conditions for axon formation. **Cell Rep** 39:110686. doi: 10.1016/j.celrep.2022.110686 (citations: 9 (Google Scholar), IF: 9.423).
7. Imambocus BN, Zhou F, Formozov A, Wittich A, Tenedini F, Hu C, Sauter K, Macarenhas Varela E, Herédia F, Casimiro AP, Macedo A, Schlegel P, Yang C-H, Miguel-Aliaga I, Wiegert JS, Pankratz MJ, Gontijo AM, Cardona A, **Soba P** (2022) A neuropeptidergic circuit gates selective escape behavior of *Drosophila* larvae. **Curr Biol** 32:149-163.e8. doi: 10.1016/j.cub.2021.10.069. (citations: 50 (Google Scholar), IF: 10.834).
8. Hu C, Feng P, Chen M, Tang Y, **Soba P** (2022) Spatiotemporal changes in microtubule dynamics during dendritic morphogenesis. **Fly (Austin)** 16:13–23. doi: 10.1080/19336934.2021.1976033 (citations: 3 (Google Scholar), IF: 2.160).
9. Vierock J, Rodriguez-Rozada S, Dieter A, Pieper F, Sims R, Tenedini F, Bergs A, Bendifallah I, Zhou F, Zeitzschel N, Ahlbeck J, Augustin S, Sauter K, Papagiakoumou E, Gottschalk A, **Soba P**, Emiliani V, Engel A, Hegemann P, Wiegert JS. (2021) BiPOLES: a tool for bidirectional dual-color optogenetic control of neurons. **Nat Comm** 12(1):4527. doi: 10.1038/s41467-021-24759-5. (citations: 107 (Google Scholar), IF: 11.878).

10. Mahn M, Saraf-Sinik I, Patil P, Pulin M, Bitton E, Karalis N, Bruentgens F, Palgi S, Gat A, Dine J, Wietek J, Davidi I, Levy R, Litvin A, Zhou F, Sauter K, **Soba P**, Schmitz D, Lüthi A, Rost BR, Wiegert JS, Yizhar O. (2021) Efficient optogenetic silencing of neurotransmitter release with a mosquito rhodopsin. **Neuron** 109:1621-1635.e8. doi:10.1016/j.neuron.2021.03.013. (citations: 91 (Google Scholar), IF: 17.173).
11. Ingles-Prieto A, Furthmann N, Crossman SH, Tichy AM, Hoyer N, Petersen M, Zheden V, Biebl J, Reichhart E, Gyoergy A, Siekhaus DE, **Soba P**, Winklhofer KF, Janovjak H. (2021) Optogenetic delivery of trophic signals in a genetic model of Parkinson's disease. **PLoS Genet** 17:e1009479. doi: 10.1371/journal.pgen.1009479. (citations: 15 (Google Scholar), IF: 5.109).
12. Dannhäuser S, Lux TJ, Hu C, Selcho M, Chen JT-C, Ehmann N, Sachidanandan D, Stopp S, Pauls D, Pawlak M, Langenhan T, **Soba P**, Rittner HL, Kittel RJ (2020) Antinociceptive modulation by the adhesion GPCR CIRL promotes mechanosensory signal discrimination. **eLife** 9: e56738. doi: 10.7554/eLife.56738. (citations: 27 (Google Scholar), IF: 7.616).
13. Hu C, Kanellopoulos A, Richter M, Petersen M, Konietzny A, Tenedini F, Hoyer N, Cheng L, Poon C, Harvey K, Windhorst S, Parish JZ, Mikhaylova M, Bagni C, Calderon de Anda FC, **Soba P** (2020). Conserved Tao kinase activity regulates dendritic arborization, cytoskeletal dynamics and sensory function in *Drosophila*. **J Neurosci** 40 (9) 1819-1833. doi: 10.1523/JNEUROSCI.1846-19.2020. (citations: 21 (Google Scholar), IF: 6.074)).
14. Tenedini FM, Saéz Gonzáles M, Hu C, Pedersen L, Petruzzi MM, Wang D, Richter M, Petersen M, Spotowicz E, Schweizer M, Sigrist S, Calderon de Anda F, **Soba P** (2019). Maintenance of cell type-specific connectivity and circuit function requires Tao kinase. **Nat Comm** 10(1), 3506. doi: 10.1038/s41467-019-11408-1. (citations: 17 (Google Scholar), IF: 11.878)).
15. Schattling B, Engler JB, Volkmann C, Rothhammer N, Woo MS, Petersen M, Winkler I, Kaufmann M, Rosenkranz SC, Fejtova A, Thomas U, Bose A, Bauer S, Träger S, Miller KK, Brück W, Duncan KE, Salinas G, **Soba P**, Gundelfinger ED, Merkler D, Friese MA (2019). Bassoon proteinopathy drives neurodegeneration in multiple sclerosis. **Nat Neurosci** 22(6):887-896. doi: 10.1038/s41593-019-0385-4. (citations: 88 (Google Scholar), IF: 19.912).
16. Zhu S, Chen R, **Soba P**, Jan YN (2019) JNK signaling coordinates with ecdysone signaling to promote dendrite pruning of *Drosophila* sensory neurons. **Development** 146(8). dev163592. doi: 10.1242/dev.163592. doi: 10.1242/dev.163592. (citations: 26 (Google Scholar), IF: 5.413)
17. Hoyer N, Zielke P, Hu C, Petersen M, Sauter K, Scharrenberg R, Peng Y, Kim CC, Han C, Parish JZ, **Soba P** (2018). Ret and substrate-derived TGF $\beta$  maverick regulate space-filling dendrite growth in *Drosophila* sensory neurons. **Cell Rep** 24: 2261-2272. doi: 10.1016/j.celrep.2018.07.092. (citations: 20 (Google Scholar), IF: 9.423).
18. Hoyer N, Petersen M, Tenedini FM, **Soba P** (2018). Assaying Mechanonociceptive Behavior in *Drosophila* Larvae. **Bio-protocol** 8(4): e2736. doi: 10.21769/BIOPROTOCOL.2736 (citations: 18 (Google Scholar))
19. Petersen M, Tenedini FM, Hoyer N, Kutschera F, **Soba P** (2018). Assaying Theronociceptive Behavior in *Drosophila* Larvae. **Bio-protocol** 8(4): e2737. doi: 10.21769/BIOPROTOCOL.2737 (citations: 12 (Google Scholar))
20. Ziegler AB, Thiele C, Tenedini F, Richard M, Leyendecker P, **Soba P**, Tavosanis G (2017) Cell autonomous control of neuronal dendrite expansion via the fatty acid synthesis regulator SREBP **Cell Rep** 21(12):3346-3353. doi: 10.1016/j.celrep.2017.11.069. (citations: 68 (Google Scholar), IF: 8.032).

21. Wietek J, Rodriguez-Rozada S, Tutas J, Tenedini F, Grimm C, Oertner TG, **Soba P**, Hegemann P, Wiegert JS (2017) Anion-conducting channelrhodopsins with tuned spectra and modified kinetics engineered for optogenetic manipulation of behavior. **Sci Rep** 7:14957. doi: 10.1038/s41598-017-14330-y (citations: 72 (Google Scholar), IF: 4.122).
22. Perea D, Guiu J, Hudry B, Konstantinidou C, Milona A, Hadjieconomou D, Carroll T, Hoyer N, Natarajan D, Kallijärvi J, Walker JA, **Soba P**, Thapar N, Cordero J, Burns AJ, Jensen KB, Miguel-Aliaga I (2017) A new role for the Ret receptor tyrosine kinase in intestinal epithelia. **EMBO J** 36:3029-3045. doi: 10.15252/embj.201696247. (citations: 40 (Google Scholar), IF: 10.557).
23. Hu C\*, Petersen M\*, Hoyer N\*, Spitzweck B, Tenedini F, Wang D, Gruschka A, Burchardt LS, Szpotowicz E, Schweizer M, Guntur AR, Yang CH, **Soba P** (2017). Sensory integration and neuromodulatory feedback facilitate *Drosophila* mechanonociceptive behavior. **Nat Neurosci** 20(8):1085-95. doi: 10.1038/nn.4580. (\*equal contribution). (citations: 112 (Google Scholar), IF: 19.912).
24. Almeida-Carvalho MJ, Berh D, Braun A, Chen YC, Eichler K, Eschbach C, Fritsch PMJ, Gerber B, Hoyer N, Jiang X, Kleber J, Klämbt C, König C, Louis M, Michels B, Miroschnikow A, Mirth C, Miura D, Niewalda T, Otto N, Paisios E, Pankratz MJ, Petersen M, Ramsperger N, Randel N, Risse B, Saumweber T, Schlegel P, Schleyer M, **Soba P**, Sprecher SG, Tanimura T, Thum AS, Tushima N, Truman JW, Yarali A, Zlatić M (2017). The O11mpiad: Concordance of behavioural faculties of stage 1 and stage 3 *Drosophila* larvae. **J Exp Biol**, 220: 2452-2475. doi: 10.1242/jeb.156646. (citations: 48 (Google Scholar), IF: 3.179)
25. Meltzer S, Yadav S, Lee J, **Soba P**, Younger SH, Jin P, Zhang W, Parrish J, Jan LY, and Jan YN (2016). Epidermis-Derived Semaphorin Promotes Dendrite Self-Avoidance by Regulating Dendrite-Substrate Adhesion in *Drosophila* Sensory Neurons. **Neuron** 89(4):741-55. doi: 10.1016/j.neuron.2016.01.020. (citations: 53 (Google Scholar), IF: 17.173)
26. **Soba P\***, Han C, Zheng Y, Perea D, Miguel-Aliaga I, Jan LY, Jan YN\*. (2015) The Ret receptor regulates sensory neuron dendrite growth and integrin mediated adhesion. **Elife** 4:e05491. (\*co-corresponding authors). doi: 10.7554/eLife.05491. (citations: 55 (Google Scholar), IF: 8.140).
27. Stahl R, Schilling S, **Soba P**, Rupp C, Hartmann T, Wagner K, Merdes G, Eggert S, Kins S. (2014) Shedding of APP limits its synaptogenic activity and cell adhesion properties. **Front Cell Neurosci**. 8:410. doi: 10.3389/fncel.2014.00410. (citations: 72 (Google Scholar), IF: 4.300)
28. Jiang N, **Soba P**, Parker E, Kim CC, Parrish JZ (2014) The microRNA bantam regulates a developmental transition in epithelial cells that restricts sensory dendrite growth. **Development** 141:2657-2668. doi: 10.1242/dev.107573. (citations: 56 (Google Scholar), IF: 5.413)
29. Han C, Wang, D, **Soba P**, Zhu S, Jan LY, Jan YN (2012) Integrins are Essential for Repulsion-mediated Dendritic Spreading of *Drosophila* Sensory Neurons by Restricting Dendrites in a Two-dimensional Space. **Neuron** 73:64-78. doi: 10.1016/j.neuron.2011.10.036. (citations: 194 (Google Scholar), IF: 17.173)
30. **Soba P\***, Zhu S\*, Emoto K, Younger S, Yang SJ, Yu HH, Lee T, Jan LY, Jan YN (2007) *Drosophila* sensory neurons require Dscam for dendritic self-avoidance and proper dendritic field organization. **Neuron** 54:403-16. (\*equal contribution). doi: 10.1016/j.neuron.2007.03.029. (citations: 309 (Google Scholar), IF: 17.173).
31. Rusu P, Jansen A, **Soba P**, Kirsch J, Lower A, Merdes G, Kuan YH, Jung A, Beyreuther K, Kjaerulff O and Kins S (2007) Axonal accumulation of synaptic markers in APP transgenic *Drosophila* depends on the NPTY motif and is paralleled by defects in synaptic plasticity. **Eur J**

- Neurosci** 25:1079-1086. doi: 10.1111/j.1460-9568.2007.05341.x. (citations: 52 (Google Scholar), IF: 2.832)
32. Kuan YH, Gruebl T, **Soba P**, Eggert S, Nestic I, Back S, Kirsch J, Beyreuther K and Kins S (2006) PAT1a modulates intracellular transport and processing of amyloid precursor protein (APP), APLP1, and APLP2. **J Biol Chem** 281:40114-40123. doi: 10.1074/jbc.M605407200. (citations: 49 (Google Scholar), IF: 4.010)
  33. Kwak YD, Brannen CL, Qu T, Kim HM, Dong X, **Soba P**, Majumdar A, Kaplan A, Beyreuther K and Sugaya K (2006) Amyloid precursor protein regulates differentiation of human neural stem cells. **Stem Cells Dev** 15:381-389. doi: 10.1089/scd.2006.15.381. (citations: 151 (Google Scholar), IF: 3.315)
  34. **Soba P\***, Eggert S., Wagner K., Zentgraf H, Siehl K, Kreger S, Loewer A, Langer A, Merdes G, Paro R, Masters CL, Muller U, Kins S, Beyreuther K (2005) Homo- and heterodimerization of APP family members promotes intercellular adhesion. **EMBO J** 24:3624-34. (\*corresponding author). doi: 10.1038/sj.emboj.7600824. (citations: 425 (Google Scholar), IF: 10.557).
  35. Merdes G, **Soba P**, Loewer A, Bilic MV, Beyreuther K, Paro R (2004) Interference of human and Drosophila APP and APP-like proteins with PNS development in Drosophila. **EMBO J** 23:4082-95. doi: 10.1038/sj.emboj.7600413. (citations: 99 (Google Scholar), IF: 10.557)
  36. Eggert S, Paliga K, **Soba P**, Evin G, Masters CL, Weidemann A and Beyreuther K (2004) The proteolytic processing of the amyloid precursor protein gene family members APLP-1 and APLP-2 involves alpha-, beta-, gamma-, and epsilon-like cleavages: modulation of APLP-1 processing by n-glycosylation. **J Biol Chem** 279:18146-18156. doi: 10.1074/jbc.M311601200. (citations: 299 (Google Scholar), IF: 4.010)
  37. Loewer A, **Soba P**, Beyreuther K, Paro R, Merdes G (2004) Cell-type-specific processing of the amyloid precursor protein by Presenilin during Drosophila development. **EMBO Rep** 5:405-11. doi: 10.1038/sj.embor.7400122. (citations: 31 (Google Scholar), IF: 8.749)
  38. Reinhard S, **Soba P**, Rominger F, Blümel J (2003) New silica-immobilized Nickel Catalysts for Cyclotrimerizations of Acetylenes. **Adv Synth Catal** 345:589-602. (citations: 34 (Web of Science) IF: 5.123)

## b) Reviews, Editorials

39. Chen M, Xu L, Wu Y, **Soba P\***, Hu C\* (2023). The Organization and Function of the Golgi Apparatus in Dendrite Development and Neurological Disorders. **Genes & Diseases** 10(6) 2425-2442. doi: 10.1016/j.gendis.2022.11.009 (\*corresponding authors). (citations: 7 (Google Scholar), IF: 7.243)
40. Imambocus BN, **Soba P** (2022). The elegance of prickly sensations. **Elife**. 11. doi: 10.7554/eLife.8416
41. Yuan Q, Han C, and **Soba P** (2022). Editorial: Connecting Form and Function: Recent Advances in Understanding Dendrite Morphogenesis and Plasticity. **Front. Cell. Neurosci**. doi: 10.3389/fncel.2022.867364

## c) Book Chapters

42. **Soba P** (2016), Dendritic self-avoidance, in Dendrites: development and disease (Emoto K, Wong R, Huang E, Hoogenraad C, ed.). (citations: 1 (Google Scholar))

**d) Preprints**

43. Lipid Disbalance Affects Neuronal Dendrite Growth and Maintenance in a Human Ceramide Synthase Disease Model (2024). Ziegler AB, Wesselmann C, Beckschaefer K, Wulf AL, Dhiman N, Soba P, Thiele C, Bauer R, Tavosanis G, bioRxiv, 2024.10. 31.621235. doi.org/10.1101/2024.10.31.621235
44. Tenedini F, Yin C, Huang J, Dhiman N, **Soba P\***, Parrish JZ\* (2024). Axon length-dependent synapse loss is mediated by neuronal cytokine-induced glial phagocytosis. bioRxiv, 2024.06.09.598122. (\*corresponding authors). doi: 10.1101/2024.06.09.598122



**Teaching record****a. List of courses taught and educational responsibilities.**

SoSe 2024-	Optogenetics and sensors, lectures and seminars (in English), 1 SWS, M.Sc. Molecular Medicine program, FAU Erlangen-Nürnberg Role: class teacher
WiSe 2023/24-	Cell physiology seminar (in German), 0.5 SWS, Medical program, FAU Erlangen-Nürnberg Role: class teacher, bi-weekly seminar
WiSe 2022/23-	Neurophysiology seminar (in German), 3 SWS, Medical program, FAU Erlangen-Nürnberg Role: class teacher, weekly seminar
WiSe 2022/23-	Somatosensory physiology and reflexes practical (in German), 4 SWS, Medical program, FAU Erlangen-Nürnberg Role: course organizer
WiSe 2022/23-	Cognitive Neuroscience Seminar (in German), 2 SWS, Medical program, FAU Erlangen-Nürnberg Role: class teacher
SoSe 2022-	Neurophysiology lectures (somatosensory system, in German), Medical program, FAU Erlangen-Nürnberg Role: class teacher, 3 1h lectures/semester
WiSe 2022/23-WiSe 23/24	Neuroscience practical (2 weeks), B.Sc. Biology program, LIMES-Institute, University of Bonn Role: supervisor
WiSe 2019/20-WiSe 2020/21	“Neuronal Morphology and Patterning I+II” Module BL5220 – “Advanced Animal Development”, Temasek Life Science Laboratory, Singapore Role: class teacher, 2x 2h lectures as external expert
WiSe 2014/15, SoSe 2015-19	„Sensory physiology I+II” (human visual system, in German, annual), part of human and animal physiology course, 6 ECTS (1 ECTS for module part) 50-70 B.Sc. students/semester, B.Sc. Biology program, University of Hamburg <u>Role:</u> coordinator and class teacher, 3-4 day practical, written short tests, introductory lecture, experiments on human vision (dark adaptation, accommodation, field of view, 3D vision, color vision), presentation and discussion of results
WiSe 2017-WiSe 2019/20	“Molecular Neurobiology” seminar and practical (in English, annual) M.Sc. Biology program, University of Hamburg, 3 ECTS 10 M.Sc. students 4 weeks (split between 8 labs/2 tiers) <u>Role:</u> class teacher and coordinator, 2h lecture “Introduction to Neuroscience”, 2h lecture “Optogenetic circuit analysis”, 2 day practical on “Optogenetic circuit analysis”, (covering Drosophila genetics, optogenetic tool considerations and applications, experiments assaying neuronal network function and behavior in vivo using live animal tracking and optogenetic circuit manipulation), 1x Journal Club assignment and

	preparation (with 1 student), final exam and grading (10 min presentations + 10min questions with all students)
WiSe 2014-WiSe 2019/20	<p>“Developmental Neurobiology” lecture series (in English, annual)  5-20 M.Sc. students from Molecular Life Sciences (MLS) program, University of Hamburg, 3 ECTS  Entire semester (13x 2h lectures)  <u>Role:</u> coordinator and class teacher for 5/13 lectures (1. Introduction to Developmental Neuroscience, 4. Sensory Systems (CNS), 9. Cellular specification (axon guidance, dendrite morphogenesis), 10. Network Connectivity and Specification I (Patterning and synaptic specification), 11. Network Connectivity and Specification II (axon/dendrite targeting, synaptic specificity), assembly and evaluation of written final exam (1.5 h)</p>
WiSe 2014-WiSe 2018/20	<p>“Developmental Neurobiology” practical (in English, annual)  5-10 M.Sc. students from Molecular Life Sciences (MLS) program, University of Hamburg, 3 ECTS  2 weeks (students rotating between 3 labs, 3-4 days each)  Role: coordinator and class teacher for 3-4 days, 2h introductory seminar, practical experiments on neuronal development in <i>Drosophila</i> (genetics, in vivo confocal imaging, tissue dissection and immunostaining, morphological analysis, behavioral experiments and quantitative analysis)  final exam and grading (10 min presentations + 10min questions with all students)</p>
WiSe 2011-WiSe 2019/20	<p>„Sensory systems“ lecture (in English, annual)  10-15 Ph.D. students within the Advanced Studies in Molecular Biology (ASMB) graduate program  <u>Role:</u> class teacher, 1x 2h lecture on somatosensory system function and development</p>
WiSe 2011-WiSe 2020/21	<p>„Neuronal patterning and connectivity“ practical (in English, each semester)  4 Ph.D. students within the Advanced Studies in Molecular Biology (ASMB) graduate program  <u>Role:</u> coordinator and class teacher for 3 days, 2h introductory seminar, practical experiments on neuronal development in <i>Drosophila</i> (genetics, in vivo confocal imaging, tissue dissection and immunostaining, morphological analysis, behavioral experiments and quantitative analysis)</p>
SuSe 2018/SuSe 2021	<p>“Optogenetic tool application in <i>Drosophila</i> and Zebrafish” lecture part of Summer School on Optogenetics (preceding SPP1926 Symposium 2018)  20 M.Sc/Ph.D. students  <u>Role:</u> class teacher, 1h lecture as part of 1 day summer school</p>
SuSe 2017/ SuSe 2021	<p>“Optogenetic tool application in <i>Drosophila</i>” workshop on Optogenetics (within SPP1926 consortium)  4 Ph.D. students from different consortium member labs  Role: class teacher and coordinator of 2h lecture and 2 day practical in English (covering <i>Drosophila</i> genetics, optogenetic tool considerations and applications, experiments assaying neuronal network function and behavior in vivo using live animal tracking and optogenetic circuit manipulation)</p>

WiSe 2000-WiSe 2004/05	<p>“Molecular Biology” practical (in German, annual)  30 M.Sc./Diploma students, ZMBH, University of Heidelberg  <u>Role:</u> coordinator and class teacher, 1 week, practical experiments on molecular cloning, cell transfection, biochemical analysis (Coomassie staining, Western Blotting), protein purification</p>
2001-2003	<p>General chemistry course (inorganic and organic chemistry, in German, annual)  20-30 nursing school students  Health and Nursing School, University Hospital Mannheim („Gesundheits- und Krankenpflegeschule, Universitätsklinikum Mannheim“.)  <u>Role:</u> Teacher teaching of 8x 1.5h lectures, preparation of teaching materials, preparation and evaluation of written exam</p>

### **b. Supervision of thesis work and junior researchers**

PhD theses:	10
MD theses:	3
Master’s theses:	5
Bachelor theses:	3
Rotation/visiting students:	>20 (6-12 week lab rotations, B.Sc/M.Sc. student, visiting students, ERASMUS program)

**Extramural funding**

- 04/2023-10/2025 **IZKF grant** “Deciphering autosomal recessive neurodevelopmental disorders” (with A. Reis, FAU Erlangen-Nürnberg, own share: 158 k€)
- 06/2021-05/2024 **ERA-NET NEURON consortium** (BMBF 01EW2108), “Targeting Sensory Dysfunctions in Autism Spectrum Disorders (SensingASD)” (Coordinator and PI, Members: F. Calderon de Anda, C. Bagni, K. Singh, S. Scherrer, B. Jansone; 917 k€ total, own share: 125 k€)
- 11/2020-10/2025 **DFG Heisenberg Program** on “Mechanisms of sensory circuit function, integration and neuromodulation in *Drosophila melanogaster*”. (SO1337/6-1, PI, own position, 293 k€)  
extension was granted by positive evaluation by the DFG
- 01/2021-03/2024 **DFG research grant** "Decoding modality-specific circuit function and neuromodulation in the *Drosophila* nociceptive network" (SO1337/7-1, PI single application, 289 k€)
- 08/2019-12/2023 **DFG priority program SPP1926 “Next generation optogenetics“**, “Optogenetic silencing tools for precise, all-optical analysis of synaptic circuits”. Lead Co-PI single application (with J.S. Wiegert and O. Yizhar, SO1337/2-2, own share: 226 k€).
- 05/2019-04/2022 **ERA-NET NEURON consortium** (BMBF 01EW1910), "Targeting TAO2 and its downstream pathway as critical effectors of Autism spectrum disorders in 16p11.2 microdeletion patients" (PI, Coordinator: F. Calderon de Anda, Members: J. de Wit, K. Singh, S. Scherrer; 1,139 k€ total, own share: 322 k€)
- 04/2018-12/2021 **DFG research grant** "Dissecting Ret receptor signaling in space-filling dendrite patterning in *Drosophila*" (SO1337/4-1, PI single application, 341 k€)
- 08/2016-07/2019 **DFG priority program SPP1926 “Next generation optogenetics“**, “Development of next-generation light-gated inhibitory ion channels to probe somatosensory integration in the *Drosophila* nociceptive circuit *in vivo*”. Lead Co-PI single application (with J.S. Wiegert, SO1337/2-1, own share 320 k€)
- 11/2014-12/2017 **State funding initiative Hamburg** (LFF-FV27) "Molecular mechanisms of network modification: synapse and network adaptation in neuronal plasticity", state funded consortium, PI on project A2 (own share: 100 k€)