

Curriculum vitae

Dr. Peter Soba

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Given name(s): Peter Andreas
Academic title: Dr. rer. nat. (Ph.D.)

Affiliation: Neuronal Patterning and Connectivity
 Center for Molecular Neurobiology (ZMNH)
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Current position: Independent Research Group Leader
 Head of Research Group “Neuronal Patterning and Connectivity”

Children: 1 (4 years)

Professional experience

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

10/2005 – 01/2011 Postdoctoral fellow 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 award

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

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

Commissions of trust and faculty duties

2012 Commission duty (faculty recruitment)

Since 2011 Budgeting of research group, employee recruitment

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

Since 2016 Biosafety and work safety officer (Research groups)

Editor/Reviewer duties

Editor: Topic Editor at *Frontiers in Cellular Neuroscience*: “Connecting Form and Function: Recent Advances in Understanding Dendrite Morphogenesis and Plasticity” (2019, ongoing)

Journals: *Science*, *eLife*, *Current Biology*, *Current Opinion in Structural Biology*, *Development*, *Scientific Reports*, *Frontiers in Neuroscience*, *Molecular Pain*, *Protein&Cell*, *Developmental Biology*, *European Journal of Neuroscience*, *JoVE*, *BioTechniques*, *PlosONE*, *The Canadian Entomologist*

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

Organization of conferences/seminars

2014 Co-organizer Blankenese Conference 2014 on “Brain Complexity: From Synaptic Dynamics to Connectomics”

Since 2016 Ph.D. student seminar series at ZMNH (initiator and organizer)

2014-2016 Research in progress seminar series at ZMNH (initiator and organizer)

Public outreach

Since 2015 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

Since 2017 German Neuroscience Society (NWG)
Federation of European Neuroscience Societies (FENS)
Deutscher Hochschulverband (DHV)

Extramural funding

From 2020-2025 **DFG Heisenberg Program** on "Mechanisms of sensory circuit function, integration and neuromodulation in *Drosophila melanogaster*". (SO1337/6-1)

04/2020-03/2023 **DFG research grant** "Decoding modality-specific circuit function and neuromodulation in the *Drosophila* nociceptive network" (SO1337/7-1)

08/2019-07/2022 **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).

05/2019-04/2022 **ERA-NET NEURON consortium** (BMBF01EW1910), "Targeting TAO2 and its downstream pathway as critical effectors of Autism spectrum disorders in 16p11.2 microdeletion patients" (Coordinator: F. Calderon de Anda, Members: P. Soba, J. de Wit, K. Singh, S. Scherrer)

04/2018-03/2021 **DFG research grant** "Dissecting Ret receptor signaling in space-filling dendrite patterning in *Drosophila*" (SO1337/4-1)

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).

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

Collaborations**National (Germany)**

Prof. Dr. S. Wiegert	ZMNH, Hamburg	Optogenetic inhibition of neuronal activity (SPP1923 DFG grant)
Prof. Dr. T. Oertner	ZMNH, Hamburg	Optogenetic inhibition of neuronal activity
Prof. Dr. P. Hegemann	Humboldt University, Berlin	Optogenetic inhibition of neuronal activity
Dr. K. Duncan	ZMNH, Hamburg	Neuronal translational control
Prof. Dr. D. Dieterich	University of Magdeburg	Neuronal translational control
Dr. F. Calderon	ZMNH, Hamburg	Conserved Tao kinase function (ERANET-NEURON grant)
Dr. M. Mikhaylova	ZMNH, Hamburg	Actin und microtubule dynamics
Dr. S. Windhorst	UKE, Hamburg	Actin und microtubule dynamics
Dr. H. Shcherbata	University of Hannover	Neuronal Dystroglycan function
Prof. Dr. M. Friese	ZMNH, Hamburg	Neurodegeneration in Multiple Sclerosis
Dr. C. Metzendorf	University of Heidelberg	Function of DHHC enzymes in vivo
Prof. Dr. G. Tavosanis	DZNE, Bonn	Dendrite development

International

Prof. Dr. O. Yizhar	Weizmann Institute, Rehovot, Israel	Optogenetic tool development (SPP1923 DFG grant)
Prof. Dr. C. Bagni	University of Lausanne	Tao kinase function
Prof. Dr. J. deWit	VIB, Leuven, Belgium	Tao kinase function (ERANET-NEURON grant)
Prof. Dr. K. Singh	University of Toronto, Canada	Tao kinase function (ERANET-NEURON grant)
Prof. Dr. J. Parrish	University of Washington, Seattle	RNAseq analysis of the somatosensory network
Prof. Dr. C. Han	Cornell University, Ithaca, USA	Dendrite development
Prof. Dr. K. Emoto	Tokyo University, Japan	Dendrite development
Prof. Dr. I. Miguel-Aliaga	MRC Clinical Sciences, London	Ret receptor function
Prof. Dr. A. Cardona	Janelia Research Campus, USA	EM reconstruction of the <i>Drosophila</i> larval nervous system
Prof. Dr. M. Zlatic	Janelia Research Campus, USA	<i>Drosophila</i> nociceptive circuit function
Prof. Dr. C.-H. Yang	Duke University, Durham, USA	<i>Drosophila</i> nociceptive circuit function
Prof. Dr. H. Janovjak	Monash University, Melbourne, Australia	Optogenetic GPCR development and application
Dr. A. Gontijo	CEDOC, Lisbon	Neuropeptide receptors
Prof. Dr. Kieran Harvey	PeterMac, Melbourne, Australia	Tao kinase function

Invited talks**2019**

University of Kaiserslautern (Prof. J. Pielage): “Maintain your network! Neuronal Connectivity and Circuit Function during Growth”

University of Erlangen-Nürnberg (shortlist talk for Associate (W2) Professor position for Cellular and Molecular Neurophysiology): “Maintain your network: How neuronal circuits develop and adapt during challenging times”

National Institute of Health (NIH, Dr. Q. Yuan): “Maintain your network: Connectivity and Circuit Function during Growth”

University of Michigan (Prof. B. Ye): “Maintain your network: Connectivity and Circuit Function during Growth”

University of Würzburg (Prof. C. Wegener): “No pain, no gain: Somatosensory encoding of noxious stimuli in *Drosophila*”

University of Copenhagen (shortlist talk for Associate Professor position for Neurophysiology): “Maintain your network: Connectivity and Circuit Function during Growth”

2018

Ludwig Maximilian University of Munich (shortlist talk for Associate (W2) Professor position for “Synaptic Plasticity and Regeneration of the CNS”): “Of flies and men: Maintenance of nervous system connectivity and function during growth”

FENS Forum Satellite Symposium, Berlin, Resolving the brain circuitry: a story of tools, experiments and models: “Engineered optogenetic anion channels for in vivo analysis of neuronal circuits”

University of Leipzig (Prof. R. Kittel): “Establishing and maintaining circuit function during developmental growth”

University of Bremen (shortlist talk for Associate (W2) Professor position for Synthetic Biology): “Molecular control of neuronal development, maintenance and function”

2017

Institute of Science and Technology (IST), Vienna (Dr. H. Janovjak): “Development and function of a nociceptive circuit”

European Neuroscience Institute, Göttingen (Dr. M. Silies): “Modality specific encoding of nociceptive behavior in *Drosophila*”

2016

University of Magdeburg/LIN (Prof. D. Dieterich): “Exploring the molecular control of nociceptive circuit development in *Drosophila*”

Free University Berlin (Prof. R. Hiesinger): “Modality specific encoding of nociceptive behavior in *Drosophila*”

LIMES, Universität Bonn (Dr. G. Tavano): “Novel functions for the Ret receptor in dendrite development”

2015

Francis Crick Institute, London (Dr. I. Salecker): “Exploring the molecular control of nociceptive circuit development”

- 2014** MRC Clinical Sciences Centre, Imperial College, London (Dr. I. Miguel-Aliaga): “Exploring the molecular control of sensory circuit development in *Drosophila*”
University of Zürich (Prof. M. Müller): „Exploring the molecular control of sensory circuit development in *Drosophila*”
- 2013** University of Münster (Prof. C. Klämbt): “From dendrite development to circuits & behavior”
- 2012** University of Heidelberg (Prof. H. Bading): “Organization of sensory dendritic fields by cell surface receptors”
- 2010** Center for Molecular Neurobiology in Hamburg (ZMNH), Group Leader position interview and talk
- 2009** European Molecular Biology Laboratory (EMBL), Heidelberg, Group Leader position interview and talk
University of Freiburg, BioSS, Freiburg, Group Leader position interview and talk

Conference talks (selected)

- 2019** EMBO Conference “Cell biology of the neuron: Polarity, plasticity and regeneration” (selected abstract talk): “Maintenance of Cell Type-specific Connectivity and Circuit Function Requires Tao Kinase”
- 2018** Behavioral Neurogenetics of *Drosophila* Larva, Edinburgh (selected abstract talk): “Maintenance of circuit integrity and function during larval development”
EMBO Workshop “Molecular and developmental biology of *Drosophila*” selected participant (talk)
GBM Molecular Biology study group meeting, “Dynamics of the Nervous System in Health and Disease ” (selected abstract talk): “Microtubule dynamics are regulated by conserved Tao kinase activity to control dendrite development”
- 2017** EMBO Conference “Cell biology of the neuron: Polarity, plasticity and regeneration” (selected abstract talk): “Maintenance of scaled dendritic and synaptic growth during juvenile development requires Tao kinase function”
- 2016** Janelia Research Campus conference “Behavioral Neurogenetics of *Drosophila* Larva” (invited talk): „Integration of mechanosensory modalities and neuropeptide mediated signaling facilitates nociceptive behavior”
- 2014** Blankenese conference, Hamburg (invited talk): „The receptor tyrosine kinase Ret: A novel regulator of dendrite morphogenesis and sensory neuron function”
- 2011** Cold Spring Harbor conference “Neurobiology of *Drosophila*” (selected abstract talk): „Ret regulates dendrite patterning and adhesion“

List of Publications**a) Reviewed journal publications**

1. 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**. Conserved Tao kinase activity regulates dendritic arborization, cytoskeletal dynamics and sensory function in *Drosophila*. **J Neurosci** *accepted*.
2. 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.
3. 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. (*citations: 2 (Google Scholar)*).
4. 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.
5. Hoyer N, Zielke P, Hu C, Petersen M, Sauter K, Scharrenberg R, Peng Y, Kim CC, Han C, Parrish JZ, **Soba P** (2018). Ret and substrate-derived TGF β maverick regulate space-filling dendrite growth in *Drosophila* sensory neurons. **Cell Rep** 24: 2261-2272. (*citations: 2 (Google Scholar)*).
6. Hoyer N, Petersen M, Tenedini FM, **Soba P** (2018). Assaying Mechanonociceptive Behavior in *Drosophila* Larvae. **Bio-protocol** 8(4): e2736. (*citations: 2 (Google Scholar)*)
7. Petersen M, Tenedini FM, Hoyer N, Kutschera F, **Soba P** (2018). Assaying Thermonociceptive Behavior in *Drosophila* Larvae. **Bio-protocol** 8(4): e2737.
8. 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. (*citations: 8 (Google Scholar)*).
9. 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. (*citations: 17 (Google Scholar)*).
10. 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. (*citations: 5 (Google Scholar)*).
11. 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. (*equal contribution). (*citations: 37 (Google Scholar)*).
12. 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, Miroshnikow 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,

- Toshima N, Truman JW, Yarali A, Zlatic M (2017). The Olimpiad: Concordance of behavioural faculties of stage 1 and stage 3 *Drosophila* larvae. **J Exp Biol**, 220: 2452-2475. (citations: 20 (Google Scholar))
13. 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. (citations: 30 (Google Scholar))
 14. **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). (citations: 28 (Google Scholar)).
 15. 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. (citations: 37 (Google Scholar))
 16. 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. (citations: 35 (Google Scholar))
 17. 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. (citations: 103 (Google Scholar))
 18. **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). (citations: 217 (Google Scholar)).
 19. 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. (citations: 40 (Google Scholar))
 20. Kuan YH, Gruebl T, **Soba P**, Eggert S, Nesic 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. (citations: 43 (Google Scholar))
 21. 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. (citations: 122 (Google Scholar))
 22. **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). (citations: 327 (Google Scholar)).
 23. 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. (citations: 88 (Google Scholar))
 24. 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. (citations: 232 (Google Scholar))

25. 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. (*citations: 25 (Google Scholar)*)
26. 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)*)

c) Book Chapters:

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

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

- 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)
Role: 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 “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)
Role: 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)
- WiSe 2014-WiSe 2018/20 “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 Drosophila (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)
- WiSe 2011-WiSe 2019/20 „Sensory systems“ lecture (in English, annual)
10-15 Ph.D. students within the Advanced Studies in Molecular Biology (ASMB) graduate program
Role: class teacher, 1x 2h lecture on somatosensory system function and development
- WiSe 2011-WiSe 2019/20 „Neuronal patterning and connectivity“ practical (in English, each semester)
4 Ph.D. students within the Advanced Studies in Molecular Biology (ASMB) graduate program
Role: coordinator and class teacher for 3 days, 2h introductory seminar, practical experiments on neuronal development in Drosophila (genetics, in vivo confocal imaging, tissue dissection and immunostaining, morphological analysis, behavioral experiments and quantitative analysis)

- WiSe 2014/15, SuSe 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
Role: 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
- SuSe 2018 “Optogenetic tool application in *Drosophila* and Zebrafish” lecture part of Summer School on Optogenetics (preceding SPP1926 Symposium 2018)
20 M.Sc/Ph.D. students
Role: class teacher, 1h lecture as part of 1-day summer school
- SuSe 2017 “Optogenetic tool application in *Drosophila*” 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 *Drosophila* genetics, optogenetic tool considerations and applications, experiments assaying neuronal network function and behavior in vivo using live animal tracking and optogenetic circuit manipulation)
- WiSe 2000-WiSe 2004/05 “Molecular Biology” practical (in German, annual)
30 M.Sc./Diploma students, ZMBH, University of Heidelberg
Role: coordinator and class teacher, 1 week, practical experiments on molecular cloning, cell transfection, biochemical analysis (Coomassie staining, Western Blotting), protein purification
- 2001-2003 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“.)
Role: Teacher teaching of 8x 1.5h lectures, preparation of teaching materials, preparation and evaluation of written exam

b. Supervision of thesis work and junior researchers

PhD theses: 5

- Nina Hoyer (2016) The Ret receptor mediates sensory neuron dendrite growth through TGF β . Department of Biology, University of Hamburg.
- Chun Hu (2016) The role of Tao kinase in cytoskeletal regulation of dendrite plasticity and function in *Drosophila melanogaster*. Department of Biology, University of Hamburg.
- Federico Tenedini Quantitative analysis of synaptic growth and circuit maintenance during development of *Drosophila melanogaster*. (since 05/2015, projected PhD in 12/2019)

Nusreen Imambocus Internal state dependent control of behavioral action selection. (since 09/2016, projected PhD in 06/2020)

Fangmin Zhou Optogenetic engineering of G-protein coupled receptors for in vivo analyses of nociceptive circuit function and behavior (CSC scholar since 09/2018, projected PhD in 09/2021)

Role: direct PhD thesis advisor with regular (weekly) meetings, progress evaluation based on lab meetings and discussions, regular goal evaluation and adjustment, revision and evaluation of written thesis, thesis defense evaluation.

Master theses: 4

Alisa Gruschka (2015) Investigating the role of the receptor tyrosine kinase Ret in the *Drosophila melanogaster* larval light avoidance circuit. Department of Biology, University of Hamburg.

Philip Zielke (2016) The role of the TGF- β ligand maverick in sensory dendrite development and its link to the receptor tyrosine kinase Ret in *Drosophila melanogaster*. Department of Biology, University of Hamburg.

Fatma Hemdan (2019) Regulation of sensory dendrite development by the microtubule regulator Stathmin in *Drosophila melanogaster*. Faculty of Science, Alexandria University, Egypt.

Mabel Petruzzi (2019) Optogenetic dissection of nociceptive circuit function and behavior. Department of Biology, University of Hamburg.

Role: direct M.Sc. thesis advisor with regular (weekly) meetings, progress evaluation based on lab meetings and discussions, regular goal evaluation and adjustment, revision and evaluation of written thesis, thesis defense evaluation.

Bachelor theses: 2

Janine Tutas (2017) Testing next generation optogenetic tools in *Drosophila*. Department of Biology, University of Hamburg.

Maria Saéz Gonzáles (2017) The role of the Autism susceptibility gene Tao in synapse development, maintenance and specificity in *Drosophila*. Faculty of Biology, Universitat de Barcelona, Spain

Role: direct B.Sc. thesis advisor with regular (weekly) meetings, progress evaluation based on lab meetings and discussions, regular goal evaluation and adjustment, revision and evaluation of written thesis, thesis defense evaluation.

Rotation students: 8 (6-8 week lab rotations, M.Sc. student from Molecular Life Science or Biology program)

Role: assignment of mini-project with balanced methods portfolio, hands-on training performed by experienced co-worker (senior Ph.D. student or post-doc), student progress evaluation based on regular (weekly) meetings, oral presentation of results at the end of the lab rotation, evaluation and grading of results and overall performance.

Thesis committee member:

Amrutha Palavalli (Lecuit lab, IBDM – Institut de Biologie du Développement de Marseille, France), external Ph.D. thesis committee member and reviewer (2019)

Aida Cardona Alberich (RG Duncan, ZMNH), Ph.D. in 2018

Prakash Nidadavolu (RG Kramer, ZMNH) , Ph.D. in 2017

Role: annual evaluation of thesis progress, protocolled recommendations for goal adjustments, time-lines and anticipated outcomes.