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## Appointments & Affiliations

2021– **Assistant Professor** of Biology, and Anatomy & Neurobiology, Boston University, Boston, MA, USA  
2020–2021 **Associated Expert**, DFG Research Training Group MeInBio-BioInMe (GRK 2344)  
2019–2020 **FRIAS Junior Fellow**, Freiburg Institute for Advanced Studies, University of Freiburg  
2019–2021 **Klaus Tschira Boost Fund Fellow**, German Scholars Organisation e. V., Berlin, Germany  
2019–2021 **Group Leader**, Faculty of Biology (Bioinformatics & Molecular Genetics), University of Freiburg  
2018–2021 **Principal Investigator**, Cluster of Excellence BrainLinks-BrainTools, University of Freiburg  
Since 2018 Habilitation Candidate, Faculty of Biology (Developmental Biology), University of Freiburg  
2017–2021 **Lecturer** for Developmental Neurobiology, Faculty of Biology, University of Freiburg  
2012–2018 Postdoctoral Scientist, Prinz Lab (Neuropathology), University Medical Centre of Freiburg  
2011 Postdoctoral Scientist, Zhang Lab (Psychiatry), Columbia University Medical Centre, USA

## Education

2005–2010 *Doctor rerum naturalium*, Driever Lab (Biology), University of Freiburg, Germany  
2003–2005 Master of Science, Gong Lab (Biology), National University of Singapore (NUS), Singapore  
1998–2002 Bachelor of Applied Science with Honours (Biotechnology), NUS

## Awards & Grants

2020–2021 Lead PI, Research Grant, Wissenschaftliche Gesellschaft Freiburg (5,000 €)  
2020–2021 Co-PI, IMBIT & BrainLinks-BrainTools Centre, Ministry of Economics, Science and Arts of Baden-Württemberg (Sustainability Programme for Projects of the Excellence Initiative II) (100% E13 PhD position ~70,000 €)  
2019–2021 Lead PI, Research Innovation Fund, University of Freiburg (20,000 €)  
2019–2020 Lead PI, FRIAS Junior Fellowship (21,000 €)  
2019–2020 Lead PI, Klaus Tschira Boost Fund GSO/KT 10 (80,000 €)  
2019 1<sup>st</sup> Prize, Poster Presentation, 6<sup>th</sup> Venusberg Meeting on Neuroinflammation, DZNE, Bonn  
2019 Lead Co-PI, BrainLinks-BrainTools Project Seed Funds EXC1086 (52,000 €)  
2018 Helmut Holzer Research Prize, Wissenschaftliche Gesellschaft Freiburg (10,000 €)  
2017 Best Poster Prize, Research Day, University Medical Centre of Freiburg (250 €)  
2016–2017 Lead PI, Research Seed Capital, Ministry of Science, Research and the Arts (Baden-Württemberg), Germany (36,500 €)  
2015–2018 Lead PI, Bonus Research Funds, University Medical Centre of Freiburg (50,000 €)  
2014–2016 Lead PI, German Research Foundation (DFG) Individual Grant TA1029/1-1 (300,800 €)  
2013 Lead PI, Research Commission Grant, University Medical Centre of Freiburg (21,000 €)  
2005–2008 DFG Research Training Programme GRK 1104 Fellowship, Freiburg  
2004 Human Genome Organisation Pacific Fellowship Award  
2004 Society of Chinese Bioscientists in America Scholarship  
2003–2005 National University of Singapore Research Scholarship

## Teaching & Pedagogical Training

2019–2021 Lecturer, "Gender Equality in STEM" (interdisciplinary course, BEng and MEng), Faculty of Engineering, University of Freiburg  
Jul–Nov 2018 Trainee, Centre for Academic Instruction at Universities (Hochschuldidaktik Zentrum Universitäten Baden-Württemberg), "Learning in Research Projects" & "Fit for Teaching - Basics of Teaching and Learning at University Level 1 + 2"  
Dec 2017 Invited Lecturer, Master course "Advanced Immunology and Diseases", Ecole Normale Supérieure de Lyon, France  
2017–2021 Lecturer, Developmental Neurobiology, Faculty of Biology, University of Freiburg  
General & Neural Developmental Biology (MSc Biology and Neuroscience)  
Development of the Nervous System (MSc Biology and Neuroscience)  
Establishing the Nervous System (MSc Biology and Neuroscience)  
Methods in Developmental Neurobiology (MSc Biology and Neuroscience)

Developmental Neurobiology Lab Projects (MSc Biology and Neuroscience)  
Aberrant signaling in human diseases: from mechanism to therapy (MSc Biology)  
Developmental Biology and Genetics (MSc Biology)  
Signaling in aging, cancer and age-related diseases (BSc Biology)  
Oct 2015 Laboratory Course Trainer, 10<sup>th</sup> Biomedical Students' Symposium, University of Freiburg  
2003–2004 Teaching Assistant, Year 2 & 3 courses, Department of Biological Sciences, NUS, Singapore

## Project Supervision

2021– Graduate Student Advisor, Ouzéna Bouadi, Boston University  
2021– Graduate Student Advisor, Amritha V. Manjally, Boston University  
2021– Thesis Advisory Committee, Sarah A. DeVries, Rosene Lab, Boston University  
2020– Thesis Advisory Committee, Jia-Di Lin, Schachtrup Lab, University of Freiburg  
2020– Thesis Advisory Committee, Rhushikesh A. Phadke, Cruz-Martín Lab, Boston University  
2017–2021 Supervisor, 7 MSc (laboratory rotation/thesis) in Neuroscience or Developmental Biology programmes, 2 research assistants, 2 technical assistants, University of Freiburg  
2008–2018 Co-supervisor, 2 PhD, 1 medical PhD, 1 Erasmus, 5 MSc and 7 BSc students; 3 technical assistants, University of Freiburg & University Medical Centre of Freiburg

## Conference & Seminar Presentations

Oct 2021 Invited Panellist (virtual), EMBO Workshop Microglia 2021, Heidelberg, Germany  
Dec 2020 Invited Speaker (virtual), Washington University Glia Group, St Louis, MO, USA  
Sep 2020 Invited Speaker (virtual), ACTRIMS-ECTRIMS 2020 Meeting, Washington DC, USA  
Jul 2020 Selected Poster Presenter, CSHL Virtual Meeting: Glia in Health & Disease, NY, USA  
Apr 2020 Invited Speaker (postponed), Centre de recherche du CHU de Québec-Université Laval, Québec City, Canada  
Apr 2020 Invited Speaker (postponed), Brain and Mind Research Institute, University of Ottawa, Canada  
Apr 2020 Invited Speaker (postponed), Department of Immunology, University of Toronto, Canada  
Apr 2020 Invited Speaker (virtual), Douglas Research Centre, McGill University, Montreal, Canada  
Feb 2020 Invited Speaker, Department of Anatomy & Neurobiology, Boston University, Boston, USA  
Nov 2019 Speaker, German Scholars Organisation e.V. Reception & Workshop, Berlin, Germany  
Oct 2019 Speaker, Freiburg Institute for Advanced Studies (FRIAS) Retreat, Titisee, Germany  
Sep 2019 Speaker, BrainLinks-BrainTools Annual Workshop 2019, University of Freiburg, Germany  
Aug 2019 Invited Speaker, Theodore Koch Institute, University of Bern, Bern, Switzerland  
May 2019 Speaker, EMBO-FEBS Lecture Course "Molecular Mechanisms of Tissue Injury, Repair and Fibrosis", Spetses Island, Greece  
May 2019 Speaker, 6<sup>th</sup> Venusberg Meeting on Neuroinflammation, DZNE, Bonn, Germany  
Nov 2018 Key Speaker (German), Commemorative Event for Helmut-Holzer Prize Award, Freiburg, Germany  
Oct 2018 Speaker, BrainLinks-BrainTools Annual Workshop 2018, University of Freiburg, Germany  
Oct 2018 Invited Speaker, Wolfson Centre for Age-Related Diseases, King's College London, UK  
Aug 2018 Speaker, 14<sup>th</sup> International Congress of Neuroimmunology, Brisbane, Australia  
May 2018 Speaker (Habilitation), Faculty of Biology, University of Freiburg, Germany  
Mar 2018 Speaker, EMBO Workshop: Microglia 2018, Heidelberg, Germany  
Feb 2018 Invited Speaker, Institut du Fer à Moulin, INSERM-UPMC, Paris, France  
Sep 2017 Selected Poster Presenter, Development of Tissue- and Pathogen-specific Cellular Innate Immunity International Symposium, Freiburg, Germany  
Aug 2017 Speaker, ISM Satellite Meeting: Immune Cells and the CNS, Cély, France  
May 2017 Invited Speaker, VIB Centre for Brain & Disease Research, Leuven, Belgium  
May 2017 Invited Speaker, Neurotech Seminar, University of Strasbourg, France  
May 2017 Invited Speaker, Hotchkiss Brain Institute and University of Calgary, Canada  
May 2017 Invited Speaker, Department of Developmental Biology, University of Freiburg, Germany  
Apr 2017 Selected Poster Presenter, Microglia Meeting: from Biology to Pathology, UMCG, Groningen, The Netherlands  
Mar 2017 Invited Speaker, Spring Brain Conference, Arizona, USA  
Jan 2017 Invited Speaker, 1<sup>st</sup> Microscopy and Image Analysis Platform (MIAP) BiImage Analysis Workshop, University of Freiburg, Germany  
Nov 2016 Invited Speaker, Centre de recherche du CHU de Québec-Université Laval, Canada  
Sep 2016 Invited Speaker, 8<sup>th</sup> Annual Symposium on "Models of Physiology and Disease", National University of Singapore  
Sep 2008 Invited Speaker, 6<sup>th</sup> Asia Pacific Symposium on Neuroregeneration, Singapore

## Scientific Management, Mentorship & Outreach

- 2020– Member, DEIJ (Diversity, Equity, Inclusion, and Justice) Committee, Department of Anatomy & Neurobiology, Boston University School of Medicine
- 2020–2022 Organiser, Virtual Microglia Symposium & Women In STEM Forum, Guest speakers: Dr. Soyon Hong, University College London, UK; Prof. Marie-Ève Tremblay, University of Victoria, Canada; Dr. Kanchan Bisht, University of Virginia, USA; Dr. Monique Mendes, Stanford University, USA
- 2020 Member, Selection Committee for Tenure-track Junior Professorship – Plant Developmental Signalling, Faculty of Biology, University of Freiburg
- Oct 2020 Jury, Poster Competition, “Medicine – Informatics – Biology: how NGS brings us together”, University of Freiburg
- 2020 Mentor, CyberMentor Programme for High School Female Pupils, Germany
- 2019–2020 Seminar Host (Biological Colloquium, University of Freiburg): Dr. Franziska Denk, King's College London, UK; Dr. Giuseppe Locatelli, Theodor Kocher Institute, Bern, Switzerland
- 2019– Workshop Trainer: "Scientific Writing", "CV Writing", "Project Management", "Leadership", "Team-building", "Time Management", Scientific Communication", "Career Planning & Negotiation"
- 2018–2019 Participant of workshops: "How to build your lab", "Storytelling in Presentations", "Effective Presentation & Rhetoric", "Funding Opportunities of the ERC", "Die erste Berufung auf eine Professur - Berufungsverhandlungen meistern", "Interactive Training & Teaching Strategies", "Sicherheit in der Gentechnik (§ 15 GenTSV)"
- 2018–2019 Young Scientist, BrainLinks-BrainTools R3 Coaching Programme, University of Freiburg
- 2018– Founder & Mentor, Diversity in STEM Postdocs peer mentoring group (formerly "Women in STEM Postdocs"), Freiburg, Germany
- 2018 Seminar Host (Neuropathology, University of Freiburg): Asst. Prof. Anne Roumier, Pierre and Marie Curie University / Institut du Fer à Moulin, Paris, France; Prof. V. Wee Yong, University of Calgary, Canada
- Jan 2017 Organiser, Speaker & Panellist, "Do I believe in the 'glass ceiling'? Women in STEM" full-day workshop for undergraduates, graduates and postdocs, University of Freiburg, Germany
- 2012–2021 Principal Investigator, animal work licences (Regional Council of Freiburg), Felasa B
- 2012–2020 Mentor, Singapore Students' Association in Germany (SSAG)

## Professional Memberships

- 2020– Member, Federation of European Neuroscience Societies (FENS)
- 2020– Member, German Neuroscience Society (Neurowissenschaftliche Gesellschaft, NWG)
- 2018– Member, International Society of Neuroimmunology (ISNI)
- 2018– Member, SciNet, a Network for Young Scientists and Academics, Freiburg, Germany
- 2013– Member, Neurex: Neuroscience Upper Rhine Network (France, Germany, Switzerland)

## Editorial Work & Grant Review

- 2019–2021 *Frontiers in Immunology* Research Topic Lead Editor, "Understanding the Roles of Glia and Circulating Leukocytes in Neurodegenerative Diseases"
- 2019– Grant Reviewer, “la Caixa” Foundation, Spain; Medical Research Council, UK; Wellcome Trust, UK
- 2018– Reviewer, *Nature Neuroscience*, *Frontiers in Immunology*, *Frontiers in Neurology*, *Frontiers in Molecular Neuroscience*, *Neuroscience Letters*
- 2017– Invited Commentator, Alzforum (Alzheimer Research Forum)
- 2014–2018 Co-reviewer, *Immunity*, *Developmental Cell*, *Cell Reports*, UK BBSRC grant
- 2008–2009 Editor, *Development & Communication*, University of Helsinki (via the Finnish-German Doctoral Training Network in Developmental Biology “FinGerDevNet”)

## List of Publications

h-index: **16**; total citations 25<sup>th</sup> November 2021: **2909** (Google Scholar)

\*corresponding author, #co-first author

Bouadi O, **Tay TL\*** (2021) More than cell markers: understanding heterogeneous glial responses to implantable neural devices. *Front Cell Neurosci*, 15: 658992.

**Tay TL\***, Carrier M, Tremblay MÈ\* (2019) Physiology of Microglia. In: Verkhratsky A., Ho M., Zorec R., Parpura V. (eds) Neuroglia in Neurodegenerative Diseases. **Advances in Experimental Medicine and Biology**, vol 1175. Springer, Singapore

Jordão MJC, Brendecke SM, Sankowski R, Sagar, Locatelli G, Tai Y-H, **Tay TL**, Schramm E, Armbruster S, Hagemeyer N, Mai D, Çiçek Ö, Falk T, Kerschensteiner M, Grün D, Prinz M (2019) Single-cell profiling of the myeloid compartment identifies new cell populations with distinct fates during neuroinflammation. **Science**, 363: eaat7554.

Falk T, Mai D, Bensch R, Çiçek Ö, Abdulkadir A, Marrakchi Y, Böhm A, Deubner J, Jäckel Z, Seiwald K, Dovzhenko A, Tietz O, Dal Bosco C, Walsh S, Saltukoglu D, **Tay TL**, Prinz M, Palme K, Simons M, Diester I, Brox T, Ronneberger O (2019) U-Net: deep learning for cell counting, detection, and morphometry. **Nat Methods**, 16: 67-70.

Shemer A#, Grozovski J#, **Tay TL**#, Tao J, Süß P, Volaski A, Gross M, Kim J-S, David E, Chappell-Maor L, Thielecke L, Glass CK, Cornils K, Prinz M, Jung S (2018) Engrafted parenchymal brain macrophages differ from host microglia in transcriptome, epigenome and responsiveness to challenge. **Nat Commun**, 9: 5206.

**Tay TL**##, Sagar#, Dautzenberg J, Grün D\*, Prinz M\* (2018) Unique microglia recovery population revealed by single-cell RNAseq following neurodegeneration. **Acta Neuropathol Commun**, 6: 87.

Datta M, Staszewski O, Raschi E, Frosch M, Hagemeyer N, **Tay TL**, Blank T, Kreuzfeldt M, Merkler D, Ziegler-Waldkirch S, Matthias P, Meyer-Luehmann M, Prinz M (2018) Histone deacetylases 1 and 2 regulate microglia function during development, homeostasis and neurodegeneration in a context-dependent manner. **Immunity**, 48(3): 514-529.

Weinhard L, d'Errico P, **Tay TL**\* (2018) Headmasters: microglial regulation of learning and memory in health and disease. **AIMS Mol Sci**, 5: 63-89.

**Tay TL**\*, Béchade C, d'Andrea I, St-Pierre M-K, Henry MS, Roumier A\*, Tremblay M-È\* (2018) Microglia gone rogue: impacts on psychiatric disorders across the lifespan. **Front Mol Neurosci**, 10: 421.

**Tay TL**\*, Mai D, Dautzenberg J, Fernandez-Klett F, Lin G, Sagar, Datta M, Drougard A, Stempf T, Ardura-Fabregat A, Staszewski O, Margineanu A, Sporbert A, Steinmetz L, Pospisilik JA, Jung S, Priller J, Grün D, Ronneberger O, Prinz M\* (2017) A new fate mapping system reveals context-dependent random or clonal expansion of microglia. **Nat Neurosci**, 20(6): 793-803.

**Tay TL**\*, Savage JC, Hui CW, Bisht K, Tremblay M-È\* (2017) Microglia across the lifespan: from origin to function in brain development, plasticity and cognition. **J Physiol**, 595(6): 1929-1945.

**Tay TL**, Hagemeyer N, Prinz M (2016) The force awakens: insights into the origin and formation of microglia. **Curr Opin Neurobiol**, 39: 30-37.

Goldmann T, Zeller N, Raasch J, Kierdorf K, Frenzel K, Ketscher L, Basters A, Staszewski O, Brendecke SM, Spieß A, **Tay TL**, Kreuz C, Timmer J, Mancini GMS, Blank T, Fritz G, Biber K, Lang R, Malo D, Merkler D, Heikenwalder M, Knobloch K-P, Prinz M (2015) USP18 lack in microglia causes destructive interferonopathy of the mouse brain. **EMBO J**, 34(12): 1612-1629.

Prinz M, **Tay TL**, Wolf Y, Jung S (2014) Microglia: unique and common features with other tissue macrophages. **Acta Neuropathol**, 128(3): 319-331.

Goldmann T, **Tay TL**, Prinz M (2013) Love and death: microglia, NLRP3 and the Alzheimer's brain. **Cell Res**, 23(5): 595-596.

**Tay TL**, Ronneberger O, Ryu S, Nitschke R, Driever W (2011) Comprehensive catecholaminergic projectome analysis reveals single-neuron integration of zebrafish ascending and descending dopaminergic systems. **Nat Commun**, 2: 171.

**Tay TL**, Lin Q, Seow TK, Tan KH, Hew CL, Gong Z (2006) Proteomic analysis of protein profiles during early development of the zebrafish, *Danio rerio*. **Proteomics**, 6(10): 3176-3188.

Gong Z, Wan H, **Tay TL**, Wang H, Chen M, Yan T (2003) Development of transgenic fish for ornamental and bioreactor by strong expression of fluorescent proteins in the skeletal muscle. **Biochem Biophys Res Comm**, 308(1): 58-63.