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EDUCATION

1993 Ph.D. Biochemistry	University of California, San Francisco Research Advisor: Marc W. Kirschner, Ph.D.
1987 A.B. Biochemistry	Harvard University Research advisor: Lawrence S.B. Goldstein, Ph.D.

POSITIONS

2024-present	Director, Institute of Molecular Biotechnology, Austrian Academy of Sciences, Vienna BioCenter
2016- 2024	Senior Scientist, Research Institute of Molecular Pathology, Vienna
2017-present	Honorary Professor, Technische Universität Dresden
2014-2016	Director DFG Research Center for Regenerative Therapies Dresden
2008-2016	W3 Full Professor, Animal Models of Regeneration Technische Universität Dresden DFG Research Center for Regenerative Therapies Dresden
1999-2008	Group Leader Max Planck Institute of Molecular Cell Biology and Genetics Dresden, Germany
1994-1999	Post-doctoral fellow Ludwig Cancer Research Institute, University College, London Research advisor: Jeremy P. Brockes, Ph.D.

AWARDS

2026	Elected member of the Royal Society, London
2025	Wittgenstein Prize
2025	Elected member of the German Leopoldina
2023	Elected Member of the National Academy of Sciences
2022	Elected Member of the Austrian Academy of Sciences
2019	EMBO/FEBS Women in Science Award
2018	Schroedinger Award of the Austrian Academy of Sciences
2017	Ernst Schering Award
2017	EMBO Member
2017	German Stem Cell Network Female Scientist Award
2013-2017	Fellow of the Max Planck Society
2003-2009	Biofutures Research Prize, Federal Ministry of Biotechnology (BMBF),
1995	Helen Hay Whitney Foundation Postdoctoral Fellowship
1994	Muscular Dystrophy Foundation Postdoctoral Fellowship

ADVISORY BOARDS

2010-2012	Bell Center for Regenerative Biology and Tissue Engineering at the Marine Biological Laboratories, Woodshole, USA
2012-2018	Board of Directors International Society for Stem Cell Research
2013	Institute of Science and Technology Austria Biology Panel Evaluation

- 2013- German Stem Cell Network Extended Board Member
- 2017-2020 Biotech Research and Innovation Centre, Copenhagen, Denmark
- 2019- SARS Institute, EMBO Outstation, Bergen Norway
- 2019-2025 Helmholtz Center, Munich, Germany
- 2021- Vice-President and founding Board member, International Society of Regeneration Biology
- 2022- Advisory Board, Mount Desert Island Biological Laboratories
- 2022- Max Delbrück Center, Berlin, Germany
- 2023- President, International Society of Regeneration Biology

REVIEW PANELS

- 2020-2024 Chair, LS3 Panel, ERC-StG
- 2015-2018 DFG Molecular Biology Review Panel
- 2013-2017 LS3 Panel member, ERC-CoG

EDITORIAL BOARDS

- 2011-2013 Molecular Biology of the Cell
- 2012- Developmental Cell
- 2013- Development

SOCIETY MEMBERSHIP

National Academy of Sciences, Austrian Academy of Science, British Society for Developmental Biology, American Association of Science, Eurosystems Associate Principle Investigator, American Society for Cell Biology, German Society for Developmental Biology, German Stem Cell Network, International Society for Stem Cell Research,

MEETING ORGANIZATION

- 2023 International Society of Regenerative Biology Inaugural Meeting
- 2023 Keystone meeting on Stem Cells
- 2020 ISSCR Annual Meeting Program Committee
- 2019 German Society for Developmental Biology Annual Meeting
- 2019 Titisee Conference on Tissue formation and regeneration: from molecules to models
- 2017 ISSCR Annual Meeting Program Committee
- 2016 ISSCR Regional Meeting, Dresden: Models of Neurodegeneration and Disease
- 2014 ISD/BSDB Meeting, London
- 2014 Riken CDB Symposium on Organ Regeneration and Morphogenesis

GRANTS

- 2024-2030 ERC Synergy grant, AxoBrain
- 2022-2025 FWF stand alone, Regenerative Strategies for Cardiac Repair
- 2020-2023 FWF-DFG DACH FWF - I 4846 – Signal scaling during limb regeneration
- 2020-2023 FWF: I4453B Impact of Transposable Elements during Animal Regeneration
- 2020-2024 FWF: SFB F78 Stem cell modulation in neural development and regeneration
- 2020-2025 EU Horizon 2020: Reanima: Toward a new paradigm in heart regeneration
- 2019-2023 FWF: DocFunds SCORPION: Stem Cells, Tissues, Organoids – Dissecting Regulators of Potency and Pattern Formation
- 2018-2022 WWTF: Photochemical control of biohybrid matrices to reconstitute nervous system organization from three-dimensional spinal cord organoids

- 2018-2022 ERC Advanced Investigator Award, RegGeneMems: Understanding the evolution of regeneration-permissive gene expression and positional memory in Axolotl limb regeneration
- 2017-2020 BMBF VIP+ Award, An innovative screening platform to identify compounds that address retinal disease
- 2016-2019 BMBF Systems Biology Program project grant, co-PI
- 2016-2018 Leibniz Society Grant for Forward Genomics of Vertebrate Traits, co-PI
- 2016-2019 DFG/FNR TA 274/13-1 Eine Netzwerk-basierte Annäherung zur Formung von Zellnischeninteraktionen und deren Anwendung bei der Untersuchung der Salamandergliedmaßen
- 2016-2020 LeDucq Foundation Transatlantic Network Grant 15CVD03, Eliciting Heart Regeneration Through Cardiomyocyte Division
- 2015-2018 DFG TA 274/11-1 Molecular mechanisms of patterning the limb proximodistal axis and quantitative studies addressing its scalability over five-fold changes in size
- 2014-2017 DFG TA274/3-3 Development of transgenic knockdown methods in *Ambystoma mexicanum* to study satellite cell activation during limb regeneration
- 2013-2017 DFG SFB655--From Cells to Tissues
“ From neural stem cell to regenerated spinal cord: cell proliferation and diversification during spinal cord regeneration in *Ambystoma mexicanum*.” (300,000 euros)
- 2013-2014 Saxon State Ministry Biotechnology Offensive, Development of a human RPE system for Highthroughput Identification of Pharmacological Agents to Cure RPE Diseases.
- 2012-2017 ERC Advanced Investigator Award 294324. RegenerateAcross: A Cross Species Approach to Understand the Mechanism and Evolution of Limb Regeneration Capacity (2,500,000 euros)
- 2011-2014 DFG TA274/4-1 Identification of pluripotency factors using regeneration as a natural example of reprogramming (250,000 euros)
- 2011-2014 Competition for Leibniz Projects under the Joint Initiative for Research and Innovation: Multifunctional Polymer Matrices to Direct Virus-free Cell Reprogramming
- 2010-2013 DFG TA274/5-1. Progenitor cell formation from connective tissue during Axolotl limb regeneration. (270,000 euros total)
- 2010-2013 DFG TA274/3-1 Renewal. Testing the role of muscle dedifferentiation versus satellite cell activation during salamander appendage regeneration using transgenic methods. (250,000 euros total)
- 2010-2013 Human Frontiers Science Program
The regulation of growth as a driving force for patterning and regeneration (450,000 USD per year total for consortium)
- 2009-2012 Volkswagen Foundation. Studying the signaling pathways that promote radial glial dedifferentiation during Axolotl spinal cord regeneration. (200,000 euros)
- 2009-2011 CRTD Seed Grant. Establishment of Zinc Finger Nuclease technology to obtain targeted gene deletion and homologous recombination in Dresden model organisms. (50,000 euros)
- 2009-2011 International Foundation for Paraplegia, De novo generation of mammalian spinal cord tissue—an approach based on lessons from salamander regeneration (100,000 Euros)
- 2009-2013 DFG SFB655--From Cells to Tissues
“ From neural stem cell to regenerated spinal cord: cell proliferation and diversification during spinal cord regeneration in *Ambystoma mexicanum*.” (300,000 euros)

PREPRINTS:

Wouter Masselink, Tobias Gerber, Francisco Falcon, Tom Deshayes, Sofia-Christina Papadopoulos, Marko Pende, Vijayishwer Singh Jamwal, Yuka Taniguchi-Sugiura, Tzi-Yang Lin, Thomas Kurth, Jingkui Wang, Detlev Arendt, Ji-Feng Fei, Barbara Treutlein, Elly M. Tanaka, Prayag Murawala
 bioRxiv 2024.01.31.577464; doi: <https://doi.org/10.1101/2024.01.31.577464>

PUBLICATIONS:

Haluza Y, Gruhl B, Wagner A, Kurth T, Tanaka EM, Yun MH. Axolotls retain fertility throughout lifespan. *BMC Biol.* 2026 Feb 14;24(1):52. doi: 10.1186/s12915-026-02545-3. PMID: 41689039; PMCID: PMC12930804.

Wang L, Song L, Yi C, Zhou J, Yong Z, Hu Y, Pan X, Qiao N, Cai H, Zhao W, Zhang R, Yang L, Liu L, Peng G, Tanaka EM, Li H, Liu Y, Fei JF. Divergent stem cell mechanisms govern the primary body axis and appendage regeneration in the axolotl. *Sci Adv.* 2026 Feb 6;12(6):eadx5697. doi: 10.1126/sciadv.adx5697. Epub 2026 Feb 6. PMID: 41650255; PMCID: PMC12880522.

Krammer T, Tanaka EM. A Robust and Reproducible Protocol for Neural Tube Organoid Generation from Single Mouse Embryonic Stem Cells. *J Vis Exp.* 2025 Dec 19;(226). doi: 10.3791/67883. PMID: 41490589.

Xiang X, Gao A, Handler D, Falcon F, Rodriguez-Terrones D, Nowoshilow S, Liu W, Tanaka EM, O'Carroll D. A mammalian-like piRNA pathway in Axolotl reveals the origins of piRNA-directed DNA methylation. *EMBO J.* 2026 Mar;45(6):1933-1956. doi: 10.1038/s44318-025-00631-w. Epub 2025 Nov 13. PMID: 41233617; PMCID: PMC7618676.

Kon-Nanjo K, Kon T, Yu TCK, Rodriguez-Terrones D, Falcon F, Martínez DE, Steele RE, Tanaka EM, Holstein TW, Simakov O. The dynamic genomes of Hydra and the anciently active repeat complement of animal chromosomes. *Genome Biol.* 2025 Jul 1;26(1):186. doi: 10.1186/s13059-025-03653-z. PMID: 40597406; PMCID: PMC12220107.

Otsuki L, Plattner SA, Taniguchi-Sugiura Y, Falcon F, Tanaka EM. Molecular basis of positional memory in limb regeneration. *Nature.* 2025 Jun;642(8068):730-738. doi: 10.1038/s41586-025-09036-5. Epub 2025 May 21. PMID: 40399677; PMCID: PMC12176643.

Tajer BJ, Kalu G, Jay S, Wynn E, Decaux A, Gilbert P, Singer HD, Kidd MD, Nelson JA, Harake N, Lopez NJ, Souchet NR, Luong AG, Savage AM, Min S, Karabacak A, Böhm S, Kim RT, Froitzheim T, Sousounis K, Courtemanche K, Han J, Payzin-Dogru D, Blair SJ, Roy S, Fei JF, Tanaka EM, Whited JL. Optimized toolkit for the manipulation of immortalized axolotl fibroblasts. *Methods.* 2025 Aug;240:21-34. doi: 10.1016/j.ymeth.2025.03.019. Epub 2025 Apr 3. PMID: 40187387.

Lust K, Tanaka EM. Adeno-associated viruses for efficient gene expression in the axolotl nervous system. *Proc Natl Acad Sci U S A.* 2025 Mar 11;122(10):e2421373122. doi: 10.1073/pnas.2421373122. Epub 2025 Mar 5. PMID: 40042904; PMCID: PMC11912378.

Miyara S, Adler M, Umansky KB, Häußler D, Bassat E, Divinsky Y, Elkahal J, Kain D, Lendengolts D, Ramirez Flores RO, Bueno-Levy H, Golani O, Shalit T, Gershovits M, Weizman E, Genzelinakh A, Kimchi DM, Shakked A, Zhang L, Wang J, Baehr A, Petrover Z, Sarig R, Dorn T, Moretti A, Saez-Rodriguez J, Kupatt C, Tanaka EM, Medzhitov R, Krüger A, Mayo A, Alon U, Tzahor E. Cold and hot fibrosis define clinically distinct cardiac pathologies. *Cell Syst.* 2025 Mar 19;16(3):101198.

- doi: 10.1016/j.cels.2025.101198. Epub 2025 Feb 18. PMID: 39970910; PMCID: PMC11922821.
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- Falcon F, Tanaka EM, Rodriguez-Terrones D. Transposon waves at the water-to-land transition. *Curr Opin Genet Dev*. 2023;81:102059. doi: 10.1016/j.gde.2023.102059.
- Ishihara K, Mukherjee A, Gromberg E, Brugués J, Tanaka EM, Jülicher F. Topological morphogenesis of neuroepithelial organoids. *Nat Phys*. 2023;19(2):177-183. doi: 10.1038/s41567-022-01822-6.*corresponding
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- Polikarpova A, Ellinghaus A, Schmidt-Bleek O, Grosser L, Bucher CH, Duda GN, Tanaka EM, Schmidt-Bleek K. The specialist in regeneration-the Axolotl-a suitable model to study bone healing? *NPJ Regen Med*. 2022;7:35. doi: 10.1038/s41536-022-00229-4.
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- Lin TY, Gerber T, Taniguchi-Sugiura Y, Murawala P, Hermann S, Grosser L, Shibata E, Treutlein B*, Tanaka EM*. Fibroblast Dedifferentiation as a Determinant of Successful Regeneration, 2021, *Dev. Cell*, 56:1541-1551. doi: [10.1016/j.devcel.2021.04.016](https://doi.org/10.1016/j.devcel.2021.04.016) *corresponding
- Cura Costa E, Otsuki L, Rodrigo Albors A, Tanaka EM, Chara O. Spatiotemporal control of cell cycle acceleration during axolotl spinal cord regeneration. *Elife.* 2021 10:e55665. doi: 10.7554/eLife.55665.
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- Nowoshilow S, Tanaka EM. Introducing www.axolotl-omics.org - an integrated-omics data portal for the axolotl research community. *Exp Cell Res.* 2020 394:112143. doi: 10.1016/j.yexcr.2020.112143.
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*Corresponding
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- Currie JD, Kawaguchi A, Traspas RM, Schuez M, Chara O, Tanaka EM. (2016) Live Imaging of Axolotl Digit Regeneration Reveals Spatiotemporal Choreography of Diverse Connective Tissue Progenitor Pools. *Dev Cell*. 39:411-423.
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- Fei JF, Knapp D, Schuez M, Murawala P, Zou Y, Singh P, Drechsel D, Tanaka EM. (2016) Tissue and time-directed electroporation of CAS9 protein-gRNA complexes *in vivo* yields efficient multigene knockout for studying gene function in regeneration. *Nature Regenerative Medicine*,
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- Diogo R, Tanaka EM (2014) Development of fore- and hindlimb muscles in GFP-transgenic axolotls: morphogenesis, the tetrapod bauplan, and new insights on the forelimb-hindlimb enigma. *Journal of experimental zoology Part B, Molecular and developmental evolution* 322: 106-27
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Patent

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