

Paululat, Achim, Prof. Dr.

Full professor

Chair of the Zoology & Developmental Biology Department

Osnabrück University, Department of Biology/Chemistry, Department of Zoology & Developmental Biology, D-49069 Osnabrück, Germany

Education

1981-1986 Studies of Biology and Chemistry at the University of Münster, Germany

1987-1991 PhD in Biology, University of Münster (with Prof. Dr. D. Ribbert)

Research experience

1987-1991 Fellow employee (freelancer) at the Museum of Natural Science in Münster, Germany

1992-1996 Post Doc at the Department of Biology, Marburg, Germany

1996 Guest scientist at the HHMI, Harvard Medical School, Boston, USA

1996-2002 Postdoctoral fellow at the Department of Biology, Marburg, Germany

2000 Venia legendi for Zoology and Developmental Biology

2002-2004 Associate Professor, Marburg, Germany

since 2004 Full Professor for Zoology and Developmental Biology, Osnabrück, Germany

Since 2008 Chair of three Graduate Schools „Cell- and Tissue Differentiation“, „Membranes and Cellular Communication“, and “Functional dynamics and coupling to cellular networks”

Fellowships and Awards

1986-1989 Fellowship from the Dr. Jost Henkel Stiftung (Henkel AG)

1987-1989 Fellowship from the Fritz-ter-Meer Stiftung (Bayer AG)

1989-1990 Fellowship from the Land NRW

Since 2020 Member of the DFG Reviewer Panel 203 (Zoology)

Research interests

Drosophila cardiac and renal system, myoblast fusion, endocytic pathway and their role in cellular adaptation

Publications 2020-2024

- Jürgens, K.J., Meyer, H., Klinke, N., Menzel, L., Schäper, L., Breitsprecher, L., Holtmannspötter, M., Psathaki, O.E., Walter, S., Ratnavadivel, S., Malmendal, A., Milting, H. and **Paululat, A.** (submitted) The ARVC-5-associated protein TMEM43 controls mitochondrial energy metabolism by stabilising ER-mitochondrial contact sites.
- Ratnavadivel, S., Klinke, N., Gärtner, A., Dammeier, J., Klingel, K., Malmendal, A., Walter, S., Boen, H., van Craennenbroeck, E., Jürgens, K., Schramm, R., Kostareva, A., Gummert, J., Kassner, K., Meer, H., **Paululat, A.**, and Milting, H. (submitted) TMEM43 p.S358L develops an impaired cardiac energy metabolism and altered mitochondrial function through altered interaction partners.
- Paululat, A.** and Purschke, G. (2025) *Metazoa - Morphology and Evolution of Animals: A Practical Guide to the Dissection and Comparative Study of Animals*. 2. Edition. Springer Spektrum, Print: 978-3662699034, <https://shorturl.at/XJa9V>
- Cheetham-Wilkinson, I.J., Sivalingam, B., Flitton, C., Flottmann, F., Vehling, F., Drechsler, M., Stojchevska, M., Raimondi, A., **Paululat, A.**, Fröhlich, F., Swan, L.E., Stagi, M. (in revision) ILV-RpH: a new probe for lysosomal pH sensing and measuring acute LLOMe-mediated lysosomal membrane permeabilization, in mammalian cells and *Drosophila*. *Science Advances*, in revision
- Meyer, H., Bossen, J., Janz, M., Müller, X., Künzel, S., Roeder, T. and **Paululat, A.** (2024). Combined transcriptome and proteome profiling reveal cell-type-specific functions of *Drosophila* garland and pericardial nephrocytes. *Communications Biology* 7:1424. doi: 10.1038/s42003-024-07062-z
- Jürgens, K. J., Drechsler, M. and **Paululat, A.** (2024) An anatomical atlas of *Drosophila melanogaster* - the wild-type. *Genetics*. doi: 10.1093/genetics/iyae129
- Ratnavadivel, S., Dammeier, J., Gaertner, A., Szymanski de Toledo, M.A., Zenke, M., Gummert, J., Rasmussen, T.B., Klinke, N., Jürgens, K., Meyer, H., **Paululat, A.** and Milting, H. (2024) Generation of a TMEM43 knockout human induced pluripotent stem cell line (HDZi003-A-1) using CRISPR/Cas9. *Stem Cell Research* 76: 103354. doi.org/10.1016/j.scr.2024.103354
- Bucher, G., Fischer, K., Gerlach, G., Harzsch, S., Merzendorfer, H., **Paululat, A.**, Reinhold, K., Rödel, M.-O., Röder, T., Schmidt-Rhaesa, A., Schneider, J., Steffan-Dewenter, I., & Uhl, G. (2023). Publizieren in einem sich wandelnden Umfeld. *Biologie in Unserer Zeit*, 53(4), 311–312. doi.org/10.11576/biuz-6816
- Paululat, A.** and Purschke, G. (2023) *Metazoa - Morphologie und Evolution der vielzelligen Tiere: Ein Praxisbuch zum Zoologischen Praktikum*. 1. Auflage. Springer Spektrum, ISBN des eBooks: 978-3-662-66184-0, ISBN des gedruckten Buches: 978-3-662-66183-3
- Meyer, C., Drechsler, M., Meyer, H. and **Paululat, A.** (2023) Differentiation and function of cardiac valves in the adult *Drosophila* heart. *Journal of Experimental Biology (J Exp Biol)* 226(13) doi: 10.1242/jeb.245839.
- Borchers A.-C., Janz, M., Schäfer, J.-H., Moeller, A., Kümmel, D., **Paululat, A.**, Ungermann, C. and Langemeyer, L. (2023) Regulatory sites in the Mon1-Ccz1 complex control Rab5 to Rab7 transition and endosome maturation. *Proc. Natl. Acad. Sci USA*. 120(30): doi: 10.1073/pnas.2303750120.
- Reinhardt, M., Drechsler, M. and **Paululat, A.** (2023) *Drosophila* collagens in specialised extracellular matrices. *Biological Chemistry*. doi: 10.1515/hsz-2022-0297.
- Meyer, C., Bataillé, L., Drechsler, M. and **Paululat, A.** (2022) Tailup expression in *Drosophila* larval and adult cardiac valve cells. *Genesis. The Journal of Genetics and Development* 2022; e23506. Doi: 10.1002/dvg.23506
- Meyer, C., Breitsprecher, L., Bataillé, L., Vincent, A.J.M., Drechsler, M., Meyer, H. and **Paululat, A.** (2022) Formation and function of a highly specialised type of organelle in cardiac valve cells. *Development*. 149(19):dev200701. doi: 10.1242/dev.200701.

- Klinke, N., Meyer, H., Ratnavadivel, S., Reinhardt, M., Heinisch, J.J., Malmendal, A., Milting, H. and **Paululat, A.** (2022) A *Drosophila melanogaster* model for TMEM43 related Arrhythmogenic right ventricular cardiomyopathy type 5. *Cellular and Molecular Life Sciences (Cell Mol Life Sci)*, 79(8):444. DOI: 10.1007/s00018-022-04458-0
- Schiemann, R., Buhr, A., Cordes, E., Walter, S., Heinisch, J.J., Ferrero, P., Milting, H., **Paululat, A.** and Meyer, H. (2022) Neprilysins regulate muscle contraction and heart function via cleavage of SERCA-inhibitory micropeptides. *Nature Communications*. 13(1): 4420. DOI: 10.1038/s41467-022-31974-1.
- Santalla, M., Garcia, A., Mattiazzi, A., Valverde, C.A., Schiemann, R., **Paululat, A.**, Hernandez, G., Meyer, H. and Ferrero, P. (2022) Interplay between SERCA, 4E-BP, and eIF4E in the *Drosophila* heart. *PlosOne* 17(5). doi: 10.1371/journal.pone.0267156.
- Paradis, M., Kucharowski, N., Edarwds Faret, G., Maya Palacios, S.J., Meyer, C., Stümpges, B., Jamitzky, I., Kalinoswski, J., Thiele, C., Bauer, R., **Paululat, A.**, Sellin, J. and Bülow, M.H. (2022) The ER protein Creld regulates ER-mitochondria contact dynamics and respiratory complex activity. *Science Advances* 8(29):eabo0155. doi: 10.1126/sciadv.abo0155.
- Psathaki, O.-E. and **Paululat, A.** (2022) Preparation of *Drosophila* tissues and organs for transmission electron microscopy. *Methods in Molecular Biology (Methods Mol Biol)*. 2540:361-385. doi: 10.1007/978-1-0716-2541-5_19
- Tögel, M., Pass, G. and **Paululat, A.** (2022) Wing hearts in four-winged Ultrabithorax-mutant flies - the role of Hox genes in wing heart specification. *Genetics*, 220(1):iyab191. doi: 10.1093/genetics/iyab191
- Musielak, M., Sterk, C., Schubert, F., Meyer, C., **Paululat, A.** and Heinisch, J.J. (2021) The small GTPase KIRho5 responds to oxidative stress and affects cytokinesis in the dairy yeast *Kluyveromyces lactis*. *Journal of Cell Science* 134 (18): jcs258301. doi: 10.1242/jcs.258301.
- Vittadello, L., Kijatkin, C., Kelenen, J., Dzikonski, D., Koempe, K., Meyer, C., **Paululat, A.** and Imlau, M. (2021) Nonlinear widefield imaging with harmonic potassium niobate nanoparticles: study based on tunable, re-generatively amplified fs-pulse laser system. *Optical Materials Express* 11(7): 1953-1969, doi.org/10.1364/OME.423401.
- Dehnen, L.*, Janz, M.*, Kumar Verma, J., Psathaki, O.E., Langemeyer, L., Fröhlich, F., Heinisch, J.J., Meyer, H., Ungermann, C. and **Paululat, A.** (2020) A trimeric metazoan Rab7 GEF complex is crucial for endocytosis and scavenger function. *Journal of Cell Science* 133 (13) jcs.247080, doi: 10.1242/jcs.247080.
- Beyenbach, K.W., Schöne, F., Breitsprecher, L.H., Tirbucy, F., Furuse, M., Izumi, Y., Meyer, H., Jonusaite, S., Rodan, A.R. and **Paululat, A.** (2020) The septate junction protein Tetraspanin 2A is critical to the structure and function of Malpighian tubules in *Drosophila melanogaster*. *American Journal of Physiology - Cell Physiology*. 318 (6): C1107-C1122. doi: 10.1152/ajpcell.00061.2020.
- Bataillé, L., Colombié, N., Pelletier, A., Paululat, A., Lebreton, G., Carrier, Y., Frendo, J.-L. and Vincent, A. (2020) Alary Muscles and TARMs, a novel type of striated muscles maintaining internal organs positions. *Development* 147 (8) dev.185645. doi: 10.1242/dev.185645.
- Jonusaite, S., Beyenbach, K.W., Meyer, H., **Paululat, A.**, Izumi, Y., Furuse, M. and Rodan, A.R. (2020) The septate junction protein Mesh is required for epithelial morphogenesis, ion transport and paracellular permeability in the *Drosophila* Malpighian tubule. *American Journal of Physiology - Cell Physiology* 318 (3): C675-C694. doi: 10.1152/ajpcell.00492.2019