

Publications

Listed below are publications of CiM-IMPRS students (current and alumni) from 2019 to (the beginning of) 2020 that resulted from their work within the graduate school sorted by year. To ease identification of individual contributions, **student names** are highlighted (**bold**) and faculty members underlined.

2019

Bondareva, O., Tsaryk, R., Bojovic, V., Odenthal-Schnittler, M., Siekmann, A.F., Schnittler, H.-J. (2019). Identification of atheroprone shear stress responsive regulatory elements in endothelial cells. *Cardiovasc Res* 115, 1487–1499.

Crécy-Lagard, V., Boccaletto, P., Mangleburg, C.G., **Sharma, P.**, Lowe, T.M., Leidel, S.A., Bujnicki, J.M. (2019). Matching tRNA modifications in humans to their known and predicted enzymes. *Nucleic Acids Res.* 47, 2143 – 2159.

de Vries, W.C.*, **Kudruk, S.***, Grill, D., Niehues, M., **Matos, A.L.L.**, Wissing, M., Studer, A., Gerke, V., Ravoo, B.J. (2019). Controlled Cellular Delivery of Amphiphilic Cargo by Redox-Responsive Nanocontainers. *Adv Sci* 6, 1901935.

Goedecke, L., Bengoetxea, X., Blaesse, P., Pape, H.-C., Jüngling, K. (2019). μ -opioid Receptor-Mediated Downregulation of Midline Thalamic Pathways to Basal and Central Amygdala. *Sci Rep* 9, 17837.

Govindasamy, N., **Duethorn, B.**, Oezgueldez, H.O., **Kim, Y.S.**, Bedzhov, I. (2019). Test-tube Embryos - Mouse and Human Development in Vitro to Blastocyst Stage and Beyond. *Int J Dev Biol*, 63, 203-215.

Govindasamy, N., Bedzhov, I. (2019). Isolation and Culture of Periimplantation and Early Postimplantation Mouse Embryos. *Methods Mol Biol*, 2006, 373-382.

Hamzeh, H., Alvarez, L., Strünker, T., **Kierzek, M.**, Brenker, C., Deal, P.E., Miller, E.W., Seifert, R. & Kaupp U.B. (2019). Kinetic and photonic techniques to study chemotactic signaling in sea urchin sperm. *Methods Cell Biol.* 151, 487-517.

Hannocks, M-J., Zhang, X., Gerwien, H., **Chashchina, A.**, **Burmeister, M.**, Korpos, E., Song, J., Sorokin, L. (2019). The Gelatinases, MMP-2 and MMP-9, as Fine Tuners of Neuroinflammatory Processes. *Matrix Biol* 75-76, 102-113.

Holthenrich, A., Drexler, H.C.A., Chehab, T., **Naß, J.**, Gerke, V. (2019). Proximity proteomics of endothelial Weibel-Palade bodies identifies novel regulator of von Willebrand factor secretion. *Blood* 134, 979–982.

Hundehege, P., Cerina, M., Eichler, S., Thomas, C., Herrmann, A. M., Göbel, K., Müntefering, T., Fernandez-Orth, J., **Bock, S.**, Narayanan, V., Budde, T., Speckmann, E. J., Wiendl, H., Schubart, A., Ruck, T., & Meuth, S.G. (2019). The next-generation sphingosine-1 receptor modulator BAF312

(siponimod) improves cortical network functionality in focal autoimmune encephalomyelitis. *Neural Regen Res.* 14, 1950–1960.

Jin, J., Ravindran, P., **Di Meo, D.**, Püschel, A.W. (2019). Igf1R/InsR Function Is Required for Axon Extension and Corpus Callosum Formation. *PLoS One*, 14, e0219362.

Koerdt, S.N., Ashraf, A.P.K., Gerke, V. (2019). Annexins and plasma membrane repair. *Curr Top in Membr.* 84, 43-65.

Li, Y.T., Goswami, D., Follmer, M., Artz, A., Pacheco-Blanco, M., Vestweber, D. (2019). Blood flow guides sequential support of neutrophil arrest and diapedesis by PILR- β 1 and PILR- α . *eLife* 8 e47642.

Lim, S. *, **Kierzek, M.***, O'Connor, A.E., Brenker, C., Merriner, D.J., Okuda, H., Volpert, M., Gaikwad, A., Bianco, D., Potter, D., Prabhakar, R., Strünker, T. & O'Bryan, M.K. (2019). CRISP2 is a regulator of multiple aspects of sperm function and male fertility. *Endocrinology* 160, 915-924.

Malik, V., Glaser, L.V., Zimmer, D., **Velychko, S.**, Weng, M., Holzner, M., Arend, M., Chen, Y., Srivastava, Y., Veerapandian, V., Shah, Esteban, M. A., Wang, H., Chen, J., Schöler, H. R., Hutchins, A. P., Meijsing, S. H., Pott, S., Jauch, R. (2019). Pluripotency reprogramming by competent and incompetent POU factors uncovers temporal dependency for Oct4 and Sox2. *Nat Commun* 10, 3477.

Mietkowska, M., Schuberth, C., Wedlich-Söldner, R., Gerke, V. (2019). Actin dynamics during Ca²⁺-dependent exocytosis of endothelial Weibel-Palade bodies. *Biochim Biophys Acta Mol Cell Res.* 1866, 1218-1229.

Nevesely, T., Daniliuc, C.G., Gilmour, R. (2019). Sequential Energy Transfer Catalysis: A Cascade Synthesis of Angularly-Fused Dihydrocoumarins. *Org Lett.* 21, 9724-9728.

Pethő, Z., **Najder, K.**, Bulk, E., Schwab, A. (2019). Mechanosensitive ion channels push cancer progression. *Cell Calcium.* 80, 79-90.

Preugschas, H.F., Hrincius, E. R., Mewis, **Tran, G.V.Q.**, Ludwig, S., Ehrhardt, C. (2019). Late Activation of the Raf/MEK/ERK Pathway Is Required for Translocation of the Respiratory Syncytial Virus F Protein to the Plasma Membrane and Efficient Viral Replication. *Cell Microbiol* 21, e12955.

Quiñonez-Silvero, C., Hübner, K. and Herzog, W. (2019). Development of the brain vasculature and the blood-brain barrier in zebrafish. *Dev Biology* 457, 181-190.

Tangherlini G, Kalinin DV, Schepmann D, Che T, Mykicky N, Ständer S, Loser K, Wunsch B. (2019). Development of Novel Quinoxaline-Based κ -Opioid Receptor Agonists for the Treatment of Neuroinflammation. *J Med Chem.* 62, 893-907.

Velychko, S., Adachi, K., Kim, K., **Hou, Y.**, MacCarthy, C.M., Wu, G., Schöler, H.R. (2019). Excluding Oct4 from Yamanaka cocktail unleashes developmental potential of mouse iPSCs to the level of ESCs. *Cell Stem Cell* 25, 737-753.

Velychko, S., Kang, K., Kim, S.M., Kwak, T. H., Kim, K., Park, C., Hong, K., Chung, C., Hyun, J. K., MacCarthy, C. M., Wu, G., Schöler, H. R., Han, D. W. (2019). Fusion of Reprogramming Factors Alters the Trajectory of Somatic Lineage Conversion. *Cell Rep* 27, 30-39.

Viplav, A., Saha, T., Huertas, J., Selenschik, P., Ebrahimkuty, M.P., Grill, D., Leirich, J. Hentschel, A., Biasizzo, M., Mengoni, S., Ahrends, R., Cojocar, V., Klingauf, J., and Galic, M. (2019). ArhGEF37 assists Dynamin2 during clathrin-mediated endocytosis. *J Cell Sci* 132, jcs226530.

2020

Bittern, J., **Pogodalla, N.**, Ohm, H., Brüser, L., Kottmeier, R., Schirmeier, S., Klämbt, C. (2020). Neuron-glia Interaction in the Drosophila Nervous System. *Dev Neurobiol.* 2020 Feb 25. doi: 10.1002/dneu.22737. Online ahead of print.

Duong, C.N., Nottebaum, A.F., Butz, S., Volkery, S., Zeuschner, D., Stehling, M. Vestweber, D. (2020). Interference With ESAM (Endothelial Cell-Selective Adhesion Molecule) Plus Vascular Endothelial-Cadherin Causes Immediate Lethality and Lung-Specific Blood Coagulation. *Arterioscler Thromb Vasc Biol* 40, 378-393.

Fischer-Riepe, L., Daber, N., Schulte-Schrepping, J., **Véras De Carvalho, B.C.**, **Russo, A.**, Pohlen, M., Fischer, J., Chasan, A.I., Wolf, M., Ulas, T., Glander, S., Schulz, C., Skryabin, B., Wollbrink, Dipl-Ing A., Steingraebe, N., Stremmel, C., Koehle, M., Gärtner, F., Vettorazzi, S., Holzinger, D., Gross, J., Rosenbauer, F., Stoll, M., Niemann, S., Tuckermann, J., Schultze, J.L., Roth, J., Barczyk-Kahlert, K. (2020). CD163 expression defines specific, IRF8-dependent, immune-modulatory macrophages in the bone marrow. *J Allergy Clin Immunol.* pii: S0091-6749(20)30344-4. doi: 10.1016/j.jaci.2020.02.034. Online ahead of print.

Grimaldi, C., Raz, E. (2020). Germ cell migration-Evolutionary issues and current understanding. *Semin Cell Dev Biol* 100, 152-159.

Huertas, J., MacCarthy, C. M., Schöler, H. R. & Cojocar, V. (2020). Nucleosomal DNA Dynamics Mediate Oct4 Pioneer Factor Binding. *Biophys J* 118:2280-2296.

Kuntze, A., Goetsch, O., Fels, B., **Najder, K.**, Unger, A., Wilhelmi, M., Sargin, S., Schimmelpfennig, S., Neumann, I., Schwab, A., Pethő, Z. (2020). Protonation of Piezo1 Impairs Cell-Matrix Interactions of Pancreatic Stellate Cells. *Front Physiol* 11:89. doi:10.3389/fphys.2020.00089.

Laure, M., Hamza, H., Koch-Heier, J., Quernheim, M., Müller, C., **Schreiber, A.**, Müller, G., Pleschka, S., Ludwig, S., Planz, O. (2020). Antiviral Efficacy Against Influenza Virus and Pharmacokinetic Analysis of a Novel MEK-inhibitor, ATR-002, in Cell Culture and in the Mouse Model. *Antiviral Res* 178, 104806. doi: 10.1016/j.antiviral.2020.104806. Epub 2020 Apr 15.

Leiter, J., **Reichert, D.**, Rentmeister, A., Micura, R. (2020). Practical synthesis of cap-4 RNA. *Chembio Chem.* 21, 265-271.

Li, Y., Song, Y., Xu, W., Li, Q., Li, K., Wang, J., Liu, Z., **Velychko, S.**, ..., Sun, Q. (2020). R-loops Function as the Balance for Reprogramming to Pluripotency. *Sci Adv* (in press).

Lindemann, O., Rossaint, J., **Najder, K.**, Schimmelpfennig S., Hofschroer, V., Wälte, M., Fels, B., Oberleithner, H., Zarbock, A., Schwab, A. (2020). Intravascular adhesion and recruitment of neutrophils in response to CXCL1 depends on their TRPC6 channels. *J Mol Med* 98, 349-360.

Leussink, S., Aranda-Pardos, I., A-Gonzalez, N. (2020). 'Lipid metabolism as a mechanism of immunomodulation in macrophages: the role of liver X receptors'. *Curr Opin Pharmacol* 53, 18-26.

Mancinelli, G., Galic, M. (2020). Exploring the interdependence between self-organization and functional morphology in cellular systems. *J Cell Sci* (in press).

Matos, A.L.L.*, **Kudruk, S.***, Moratz, J., Heflik, M., Grill, D., Ravoo, B.J., Gerke, V. (2020). Membrane Binding Promotes Annexin A2 Oligomerization, *Cells* 9, pii: E1169. doi: 10.3390/cells9051169.

Pinto, R., Vågbø, C.B., Jakobsson, M.E., Kim, Y., Baltissen, M.P., O'Donohue, M.F., Guzmán, U.H., Malecki, J.M., **Wu, J.**, Kirpekar, F., Olsen, J.V., Gleizes, P.E., Vermeulen, M., Leidel, S.A., Slupphaug, G., Falnes, P.Ø. (2020). The Human Methyltransferase ZCCHC4 Catalyses N6-methyladenosine Modification of 28S Ribosomal RNA. *Nucleic Acids Res* 48, 830-846.

Pottanam Chali, S., Ravoo, B.J. (2020). Polymer Nanocontainers for Intracellular Delivery. *Angew Chem Int Ed* 59, 2962 -2972.

Pottanam Chali, S., Ravoo, B.J. (2020). Adamantane-Terminated Polypeptides: Synthesis by N-Carboxyanhydride Polymerization and Template-Based Self-Assembly of Responsive Nanocontainers via Host–Guest Complexation with β -Cyclodextrin. *Macromol Rapid Commun.* 2020 May 17:e2000049. doi: 10.1002/marc.202000049. Online ahead of print.

Quiñonez-Silvero, C., **Hübner, K.**, Herzog, W. (2020). Development of the brain vasculature and the blood-brain barrier in zebrafish. *Dev Biol* 457, 181-190.

Samus, M., **Li, Y.T.**, Sorokin, L., Rottner, K., Vestweber, D. (2020). Actin-Binding Protein Cortactin Promotes Pathogenesis of Experimental Autoimmune Encephalomyelitis by Supporting Leukocyte Infiltration into the Central Nervous System. *J Neurosci* 40, 1389-1404.

Schreiber, A., Liedmann, S., Brunotte, L., Anhlan, D., Ehrhardt, C., Ludwig, S. (2020). Type I Interferon Antagonistic Properties of Influenza B Virus Polymerase Proteins. *Cell Microbiol* 22, e13143. doi: 10.1111/cmi.13143. Epub 2019 Dec 8.

Sivaraj, K.K., Dharmalingam, B., **Mohanakrishnan, V.**, Jeong, H.W., Kato, K., Schröder, S., Adams, S., Koh, G.Y., Adams, R.H. (2020). YAP1 and TAZ negatively control bone angiogenesis by limiting hypoxia-inducible factor signaling in endothelial cells. *elife* 9, doi: 10.7554/eLife.50770.

Wang, G., Muhl, L., Padberg, Y., Dupont, L., Peterson-Maduro, J., Stehling, M., le Noble, F., Colige, A., Betsholtz, C., Schulte-Merker, S., van Impel, A. (2020). Specific fibroblast subpopulations and neuronal structures provide local sources of Vegfc-processing components during zebrafish lymphangiogenesis. *Nat Commun* 11, 2724.

Westerich, K.J., Chandrasekaran, K.S., **Gross-Thebing, T.**, Kueck, N., Raz, E., Rentmeister, A. (2020). Bioorthogonal mRNA labeling at the poly(A) tail for imaging localization and dynamics in live zebrafish embryos. *Chem Sci* 11, 3089-3095.

Zhang, X., Wang, Y., Song, J., Gerwien, H., **Chuquisana, O.**, **Chashchina, A.**, Denz, C., Sorokin, L. (2020). The Endothelial Basement Membrane Acts as a Checkpoint for Entry of Pathogenic T Cells Into the Brain. *J Exp Med* 217, e20191339.