

Publications of the CiM-IMPRS Program

Listed below are publications of CiM-IMPRS students from 2009 to March 2023 that resulted from their work within the graduate school, sorted by year. Only published contributions are listed. In total, CiM-IMPRS students contributed to **482 publications** of which **251** were **first author** publications. To ease identification of individual contributions, **student names** are highlighted (**bold**) and faculty members underlined. Equal contributions of first authors are marked by an asterisk (*). **78 collaborative** studies between different institutions /departments within CiM-IMPRS are marked with (C). Collaborations with institutions outside of the program are not marked. **Patents** are shown at the end of this list.

2009

Callies, C., Schön, P., Liashkovich, I., Stock, C., Kusche-Vihrog, K., **Fels, J.**, Sträter, A.S., and Oberleithner, H. (2009). Simultaneous mechanical stiffness and electrical potential measurements of living vascular endothelial cells using combined atomic force and epifluorescence microscopy. *Nanotechnology* 20, 175104.

Oberleithner, H., **Callies, C.**, Kusche-Vihrog, K., Schillers, H., Shahin, V., Riethmüller, C., Macgregor, G.A., and de Wardener, H.E. (2009). Potassium softens vascular endothelium and increases nitric oxide release. *Proc Natl Acad Sci USA* 106, 2829-2834.

2010

Fels, J., Oberleithner, H., and Kusche-Vihrog, K. (2010). Ménage à trois: aldosterone, sodium and nitric oxide in vascular endothelium. *Biochim Biophys Acta* 1802, 1193-1202.

Fels, J., **Callies, C.**, Kusche-Vihrog, K., and Oberleithner, H. (2010). Nitric oxide release follows endothelial nanomechanics and not vice versa. *Pflugers Arch* 460, 915-923.

Kusche-Vihrog, K., **Callies, C.**, **Fels, J.**, and Oberleithner, H. (2010). The epithelial sodium channel (ENaC): Mediator of the aldosterone response in the vascular endothelium? *Steroids* 75, 544-549.

Rüter, C., Buss, C., **Scharnert, J.**, Heusipp, G., and Schmidt, M.A. (2010). A newly identified bacterial cell-penetrating peptide that reduces the transcription of pro-inflammatory cytokines. *J Cell Sci* 123, 2190-2198.

Stingl, K.*, **Müller, S.***, Scheidgen-Kleyboldt, G., Clausen, M., and Maier B. (2010). Composite system mediates two-step DNA uptake into *Helicobacter pylori*. *Proc Natl Acad Sci USA* 107, 1184-1189.

2011

Callies, C., **Fels, J.**, Liashkovich, I., Kliche, K., **Jeggle, P.**, Kusche-Vihrog, K., and Oberleithner, H. (2011). Membrane potential depolarization softens vascular endothelial cells. *J Cell Sci* 124, 1936-1942.

(C) Greber, B., Coulon, P., Zhang, M., Moritz, S., **Frank, S.**, Müller-Molina, A.J., Arauzo-Bravo, M.J., Han, D.W., Pape, H.C., and Schöler, H.R. (2011). FGF signaling inhibits neural induction in human embryonic stem cells. *EMBO J* 30, 4874-4884.

Hillje, A.-L., Worlitzer, M.M.A., Palm, T., and Schwamborn, J.C. (2011). Neural stem cells maintain their stemness through protein kinase C ζ -mediated inhibition of TRIM32. *Stem Cells* 9, 1437-1447.

Khazaei, M.R., Bunk, E.C., **Hillje, A.-L.**, Jahn, H.M., Riegler, E.M., Knoblich, J.A., Young, P., and Schwamborn, J.C. (2011). The E3-ubiquitin ligase TRIM2 regulates neuronal polarization. *J Neurochem* 117, 29-37.

Kliche, K., **Jeggle, P.**, Pavenstädt, H., and Oberleithner, H. (2011). Role of cellular mechanics in the function and life span of vascular endothelium. *Pflugers Arch* 462, 209-217.

Mickoleit, M*, **Banisch, T.U.***, and Raz, E. (2011). Regulation of *hub* mRNA stability and translation by miR430 and the Dead end protein promotes preferential expression in zebrafish primordial germ cells. *Dev Dynamics* 240, 695-703.

Psathaki, O.E., Hübner, K., Sabour, D., Sebastiano, V., Wu, G., **Sugawa, F.**, Wieacker, P., Pennekamp, P., and Schöler, H.R. (2011). Ultrastructural characterization of mouse embryonic stem cell-derived oocytes and granulosa cells. *Stem Cells Dev* 20, 2205-2215.

Rojo Pulido, I., Nightingale, T.D., Darchen, F., Seabra, M.C., Cutler, D.F., and Gerke, V. (2011). Myosin Va acts in concert with Rab27a and MyRIP to regulate acute von-Willebrand factor release from endothelial cells. *Traffic* 12, 1371-1382.

Sandmann, T., Vogg, M.C., **Owlarn, S.**, Boutros, M., and Bartscherer, K. (2011). The head-regeneration transcriptome of the planarian *Schmidtea mediterranea*. *Genome Biol* 12, R76.

Schulte, D., Küppers, V., **Dartsch, N.**, Broermann, A., Li, H., Zarbock, A., Kamenyeva, O., Kiefer, F., Khandoga, A., Massberg, S., and Vestweber, D. (2011). Stabilizing the VE-cadherin-catenin complex blocks leukocyte extravasation and vascular permeability. *EMBO J* 30, 4157-4170.

Syed, M.H., Krudewig, A., Engelen, D., Stork, T., and Klämbt, C. (2011). The CD59 family member Leaky/Coiled is required for the establishment of the blood brain barrier in *Drosophila*. *J Neurosci* 31, 7876-7885.

Tiemann, U., Sgodda, M., Warlich, W., Ballmaier, M., Schöler, H.R., Schambach, A., and Cantz, T. (2011). Optimal reprogramming factor stoichiometry increases colony numbers and affects molecular characteristics of murine induced pluripotent stem cells. *Cytometry A* 79, 426-435.

2012

Banisch, T.U., Goudarzi, M., and Raz, E. (2012). Small RNAs in germ cell development. *Curr Top Dev Biol* 99, 79-113.

Bittner, S., Bauer, M.A., Ehling, P., Bobak, N., **Breuer, J.**, Herrmann, A.M., Golfels, M., Wiendl, H., Budde, T., and Meuth, S.G. (2012). The TASK1 channel inhibitor A293 shows efficacy in a mouse model of multiple sclerosis. *Exp Neurol* 238, 149-155.

Fels, J., **Jeggle, P.**, Kusche-Vihrog, K., and Oberleithner, H. (2012). Cortical actin nanomechanics determines nitric oxide release in vascular endothelium. *PLoS One* 7, e41520.

Frank, S., Zhang, M., Schöler, H.R., and Greber, B. (2012). Small molecule-assisted, line-independent maintenance of human pluripotent stem cells in defined conditions. *PLoS One* 7, e41958.

Goudarzi, M.*, **Banisich, T.U.***, Mobin, M.B., Maghelli, N., Tarbashevich, K., van den Berg, J., Blaser, H., Bandemer, S., Paluch, E., Tolić-Nørrelykke, I.M., and Raz, E. (2012). Identification and regulation of a molecular module for bleb-based cell motility. *Dev Cell* 23, 210-218.

(C) Han, D.W., Tapia, N., Hermann, A., Hemmer, K., Zaehres, H., Araúzo-Bravo, M.J., Greber, B., Yang, J.H., Moritz, S., Lee, H.T., Storch, A., **Frank, S.**, Höing, S., Wu, G., Schwamborn, J.C., and Schöler, H.R. (2012). Direct reprogramming of fibroblasts into neural stem cells by defined factors. *Cell Stem Cell* 10, 465-472.

Hermann, S., **Starsichova, A.**, Waschkau, B., Kuhlmann, M., Wenning, C., Schober, O., and Schäfers, M. (2012) Non-FDG imaging of atherosclerosis: will imaging of MMPs assess plaque vulnerability? *J Nucl Cardiol* 19, 609-617.

Izumi, N., **Helker, C.**, Ehling, M., Behrens, A., Herzog, W., and Adams, R.H. (2012). Fbxw7 controls angiogenesis by regulating endothelial Notch activity. *PLoS One* 7, e41116.

Kläver, R., Bleiziffer, A., Redmann, K., Mallidis, C., Kliesch, S., and Gromoll, J. (2012). Routine cryopreservation of spermatozoa is safe - evidence from the DNA methylation pattern of nine spermatozoa genes. *J Assist Reprod Genet* 29, 943-950.

Nicklas, S.*, Otto, A.*, Wu, X., Miller, P., Stelzer, S., Wen, Y., Kuang, S., Wrogemann, K., Patel, K., Ding, H., and Schwamborn, J.C. (2012). TRIM32 regulates skeletal muscle stem cell differentiation and is necessary for normal adult muscle regeneration. *PLoS One* 7, e30445.

Palm, T., *, **Bahnassawy, L.***, and Schwamborn, J. (2012). miRNAs and neural stem cells: A team to treat Parkinson's disease? *RNA Biol* 9, 720-730.

Schelhaas, M., **Shah, B.**, Holzer, M., Blattmann, P., Day, P.M., Schiller, J.T., and Helenius, A. (2012). HPV-16 entry into host cells occurs by a novel clathrin- and caveolin-independent endocytic pathway. *PloS Pathog.* 8, e1002657.

Schmidt, I., **Thomas, S.**, Kain, P., Risse, B., Naffin, E., and Klämbt, C. (2012). Kinesin heavy chain function in *Drosophila* glial cells controls neuronal activity. *J Neurosci* 32, 7466-7476.

Stelzer, S., Worlitzer M.M.A., **Bahnassawy, L.**, Hemmer, K., Rugani, K., Werthschulte, I., Schön, A.L., Brinkmann, B., Bunk, E.C., Palm, T., Ebnet, K., and Schwamborn, J.C. (2012). JAM-C is an apical surface marker for neural stem cells. *Stem Cells Dev* 21, 757-766.

2013

Bahnassawy, L., **Nicklas, S.**, Palm, T., Menzl, I., Birzele, F., Gillardon, F., and Schwamborn, J.C. (2013). The parkinson's disease-associated LRRK2 mutation R1441G inhibits neuronal differentiation of neural stem cells. *Stem Cells Dev* 22, 2487-2496.

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Behera, S., and Kudla, J. (2013). Live cell imaging of cytoplasmic Ca²⁺ dynamics in *Arabidopsis* guard cells. *Cold Spring Harb Protoc* 2013, 665-669.

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- Drerup, M.M., Schlücking, K., Hashimoto, K., **Manishankar, P.**, Steinhorst, L., Kuchitsu, K., and Kudla, J. (2013). The Calcineurin B-like calcium sensors CBL1 and CBL9 together with their interacting protein kinase CIPK26 regulate the Arabidopsis NADPH oxidase RBOHF. *Mol Plant* 6, 559–569.
- Frank, S.**, Skryabin, B.V., and Greber, B. (2013). A modified TALEN-based system for robust generation of knock-out human pluripotent stem cell lines and disease models. *BMC Genomics* 14, 773.
- Gonzalez-Cano, L., **Hillje, A.-L.**, Fuertes-Alvarez, S., Marques, M.M., Blanch, A., Ian, R.W., Irwin, M.S., Schwamborn, J.C., and Marín, M.C. (2013). Regulatory feedback loop between TP73 and TRIM32. *Cell Death Dis* 4, e704.
- Helker, C.S.M.**, Schuermann, A., Karpanen, T., Zeuschner, D., Belting, H.-G., Affolter, M., Schulte-Merker, S., and Herzog, W. (2013). The zebrafish common cardinal veins develop by a novel mechanism: lumen ensheathment. *Development* 140, 2776–2786.
- Hillje, A.-L.***, **Pavlou, M. a. S.***, Beckmann, E., Worlitzer, M.M.A., **Bahnassawy, L.**, Lewejohann, L., Palm, T., and Schwamborn, J.C. (2013). TRIM32-dependent transcription in adult neural progenitor cells regulates neuronal differentiation. *Cell Death Dis* 4, e976.
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Nakayama, M., **Nakayama, A.**, **van Lessen, M.**, Yamamoto, H., Hoffmann, S., Drexler, H.C.A., Itoh, N., Hirose, T., Breier, G., Vestweber, D., Cooper, J.A., Ohno, S., Kaibuchi, K., and Adams, R.H. (2013). Spatial regulation of VEGF receptor endocytosis in angiogenesis. *Nat. Cell Biol* 15, 249–260.

Palm, T., Hemmer, K., Winter, J., Fricke, I.B., Tarbashevich, K., Sadeghi Shakib, F., Rudolph, I.-M., **Hillje, A.-L.**, De Luca, P., **Bahnassawy, L.**, Madel, R., Viel, T., De Siervi, A., Jacobs, A.H., Diederichs, S., and Schwamborn, J.C. (2013). A systemic transcriptome analysis reveals the regulation of neural stem cell maintenance by an E2F1-miRNA feedback loop. *Nucleic Acids Res* 41, 3699–3712.

(C) Risse, B., **Thomas, S.**, **Otto, N.**, Löpmeier, T., Valkov, D., Jiang, X., and Klämbt, C. (2013). FIM, a novel FTIR-based imaging method for high throughput locomotion analysis. *PLoS ONE* 8, e53963.

Ruck, T., Bittner, S., Gross, C.C., **Breuer, J.**, Albrecht, S., Korr, S., Göbel, K., Pankratz, S., Henschel, C.M., Schwab, N., Staszewski, O., Prinz, M., Kuhlmann, T., Meuth, S.G., and Wiendl, H. (2013). CD4+NKG2D+ T cells exhibit enhanced migratory and encephalitogenic properties in neuroinflammation. *PLoS ONE* 8, e81455.

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Schürmann, J., Buttermann, D., **Herrmann, A.**, Giesbert, S., and Tudzynski, P. (2013). Molecular characterization of the NADPH oxidase complex in the ergot fungus *Claviceps purpurea*: CpNox2 and CpPls1 are important for a balanced host-pathogen interaction. *Mol Plant Microbe Interact* 26, 1151–1164.

Schwab, N., Schneider-Hohendorf, T., Posevitz, V., **Breuer, J.**, Göbel, K., Windhagen, S., Brochet, B., Vermersch, P., Lebrun-Frenay, C., Posevitz-Fejfar, A., Capra, R., Imberti, L., Straeten, V., Haas, J., Wildemann, B., Havla, J., Kümpfel, T., Meinel, I., Niessen, K., Goelz, S., Kleinschnitz, C., Warnke, C., Buck, D., Gold, R., Kieseier, B.C., Meuth, S.G., Foley, J., Chan, A., Brassat, D., and Wiendl, H. (2013). L-selectin is a possible biomarker for individual PML risk in natalizumab-treated MS patients. *Neurology* 81, 865–871.

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Zariwala, M.A., Gee, H.Y., Kurkowiak, M., Al-Mutairi, D.A., Leigh, M.W., Hurd, T.W., **Hjeij, R.**, ..., Omran, H., Knowles, M.R., and Hildebrandt, F. (2013). ZMYND10 is mutated in primary ciliary dyskinesia and interacts with LRRC6. *Am J Hum Genet* 93, 336–345.

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2014

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