

ITG Newsletter 2015

Dear All,

In this Newsletter we would like to share with you some good news and highlights from 2015. On behalf of all ITG, we congratulate all students and postdocs who received important awards, fellowships or successfully graduated in 2015. Several grants have been successfully received by ITG groups. Finally, many papers have been already published in high-ranking journals in 2015 and some of them (those which were sent to me by PIs) are listed below.

Finally, we are proud to announce three new professorships started in ITG this year:

Prof. Orian-Rousseau

Prof. Schepers

Prof. le Noble

Best regards and a Happy New Year,

Pavel Levkin and the ITG Newsletter team

Prizes, awards and fellowships

- Prize, Elevator Pitch BW, Region Karlsruhe for vasQlab (End of 2014) (**Schepers Group**)
- **Bettina Olshausen (Schepers Group)** was selected by the prestigious Science and Management Program of the Collège d'Ingenieur and received a PhD fellowship from the Landesgraduiertenförderung BW.
- **Bianka Grosshäuser (Schepers Group)** received a fellowship from the FAZIT Foundation for a 12 months research stay at Stanford University, USA
- **Ute Schepers** got the ISCB Excellence Award 2015 in Biological Sciences
- **Ute Schepers** was announced as Honorary Life Fellow of the Indian Society of Chemists and Biologist
- **Eliana Stanganello (Scholpp Group)** receives "*summa cum laude*" grade for her PhD, the main work of which was published in *Nature Communication* this year
- **David Koschut (Orian-Rousseau Group)** received "*summa cum laude*" grade for his PhD dissertation
- **Sandra Klusmeier (Sleeman Group)** recently won a poster prize and was invited to give a talk at the International Cancer Microenvironment Society meeting in Tel Aviv



- **Mijanur Molla (Levkin Group)** received prestigious Alexander von Humboldt Postdoctoral Fellowship for two years
- **Anna Popova (Levkin Group)** was awarded a poster prize at the Personalized Medicine conference organized jointly by EMBL and Stanford University
- **Pavel Levkin** received the 2015 [Heinz Maier-Leibnitz Prize](#) awarded by the DFG and BMBF



- **Bettina Fleck (Schepers Group)** received a DAAD-PROMOS fellowship for a 3 months research stay at the National University of Singapore
- **Irina Deygen (Schepers Group)** received a DAAD fellowship for a 6 months research stay
- **Vanessa Kappings** received a KHYS fellowship for a research stay in Australia
- **Manuela Wallesch (Bräse/Schepers Group)** received "summa cum laude" grade for her PhD dissertation
- **Carmen Seidl (Schepers Group)** received "summa cum laude" grade for her PhD dissertation.

Grant applications

- **Amcure GmbH**, a spin-off company from the group of **Prof. Orian-Rousseau**, received a 1,9 Mio. € financial support by the BMBF:
<http://www.businesswire.com/news/home/20151201005826/en/amcure-Awarded-BMBF-Research-Grant-Supporting-Plans>
Amcure develops first-in-class therapeutics for the treatment of epithelial cancers. Preclinical trials are underway in order to evaluate the anticancer activity of the v6-peptide developed in ITG.
- **Schepers Group** received the Helmholtz Enterprise Fond Grant of 260.000 € for the spinoff vasQlab
- Graduiertenkolleg 2039 „Molecular architectures for fluorescent cell imaging“ was successfully evaluated and started in April (participating groups from the ITG: **U. Strähle, S. Bräse, U. Nienhaus, U. Schepers, T. Dickmeis**)
- **Levkin Group** received the ERC Proof-of-concept grant to develop the Droplet-Microarray technology for personalized medicine applications

Publication highlights

(Below are references of papers published in journals with IF above 5 that were sent to the ITG Newsletter team)

On the Orthogonality of Two Thiol-Based Modular Ligations

H. Turgut, G. Delaittre *Chem. Eur. J.*, accepted, DOI: 10.1002/chem.201503844. (Impact Factor 5.731)

Secretome analysis identifies novel signal peptide peptidase-like 3 (SPPL3) substrates and reveals a role of SPPL3 in multiple Golgi glycosylation pathways

Kuhn PH, Voss M, Haug-Kröper M, Schröder B, Schepers U, Bräse S, Haass C, Lichtenthaler SF, Fluhrer R (2015) *Mol Cell Proteomics*, 14: 1584-1598 (Impact Factor 6.564)

Highly Luminescent, Water-Soluble Lanthanide Fluorobenzoates: Syntheses, Structures and Photophysics. Part I: Lanthanide Pentafluorobenzoates

Kalyakina, AS, Utochnikova, VV, Bushmarinov, IS, Ananyev, IV, Eremenko, IL, Volz, D, Rönicke, F, Schepers, U, Van Deun, R, Trigub, AL, Zubavichus, YV, Kuzmina, NP, Bräse, S (2015) *Chemistry*, 21:17921-32. (Impact Factor 5.731)

An ensemble-averaged, cell density-based digital model of zebrafish embryo development derived from light-sheet microscopy data with single-cell resolution

A. Y. Kobitski, J. C. Otte, M. Takamiya, B. Schäfer, J. Mertes, J. Stegmaier, S. Rastegar, F. Rindone, V. Hartmann, R. Stotzka, A. Garcia, J. v. Wezel, R. Mikut, U. Strähle, G. U. Nienhaus *Scientific Reports*, vol. 5, 8601, doi: 10.1038/srep08601 (2015) (Impact Factor 5.578)

The helix-loop-helix protein Id1 controls stem cell proliferation during regenerative neurogenesis in the adult zebrafish telencephalon

R. Rodriguez Viales, N. Diotel, J. Eich, O. Armant, M. Ferg, A. Alunni, M. März, L. Bally-Cuif, S. Rastegar, U. Strähle *Stem Cells*, vol. 33, pp. 892 – 903 (2015) (Impact Factor 6.523)

Mutations in TUBGCP4 Alter Microtubule Organization via the gamma-Tubulin Ring Complex in Autosomal-Recessive Microcephaly with Chorioretinopathy

S. Scheidecker, C. Etard, L. Haren, C. Stoetzel, S. Hull, G. Arno, V. Plagnol, S. Drunat, S. Passemard, A. Toutain, C. Obringer, M. Koob, V. Geoffroy, V. Marion, U. Strahle, P. Ostergaard, A. Verloes, A. Merdes, A. T. Moore, and H. Dollfus *Am J Hum Genet*, vol. 96, pp. 666-674 (2015) (Impact Factor 10.931)

Advanced Photochemical Strategies for Spatially Resolved Surface Design

G. Delaittre, A. S. Goldmann, J. O. Mueller, C. Barner-Kowollik *Angew. Chem. Int. Ed.* 2015, 54, 11388–11403. (Impact Factor 11.261)

Cycloadditions in Modern Polymer Chemistry

G. Delaittre, N. K. Guimard, C. Barner-Kowollik *Acc. Chem. Res.* 2015, 48, 1296–1307. (Impact Factor 22.323)

Photolithographic Patterning of 3D-Formed Polycarbonate Films for Targeted Cell Guiding

A. F. Hirschbiel, S. Geyer, B. Yameen, A. Welle, S. Giselbrecht, S. Scholpp, G. Delaittre, C. Barner-Kowollik *Adv. Mater.* 2015, 27, 2621–2626. (Impact Factor 17.49)

Red light-regulated reversible nuclear localization of proteins in mammalian cells and zebrafish

H. Beyer, S. Juillot, K. Herbst, S. Samodelov, K. Müller, W. Römer, E. Schäfer, F. Nagy, U. Strähle, W. Weber, M. Zurbriggen *ACS Synthetic Biology*, vol. 4, pp. 951-958 (2015) (Impact Factor 4.99)

Long-range evolutionary constraints reveal cis-regulatory interactions on the human X chromosome

M. Naville, M. Ishibashi, M. Ferg, H. Bengani, S. Rinkwitz, M. Krecsmarik, T. A. Hawkins, S. W. Wilson, E. Manning, C. S. R. Chilamakuri, D. I. Wilson, A. Louis, L. Raymond, S. Rastegar, U. Strähle, B. Lenhard, L. Bally-Cuif, V. van Hayningen, D. R. FitzPatrick, T. S. Becker, H. Roest Crolius *Nature communications*, 6:6904 (2015) (Impact Factor 11.47)

Loss of function of myosin chaperones triggers Hsf1-mediated transcriptional response in skeletal muscle cells

C. Etard, O. Armant, U. Roostalu, V. Gourain, M. Ferg, U. Strahle *Genome Biology*, 16:267, doi: 10.1186/s13059-015-0825-8 (2015) (Impact Factor 10.8)

The nucleotide excision repair protein XPC is essential for bulky DNA adducts to promote interleukin-6 expression via the activation of p38-SAPK

Schreck,I., Grico,N., Hansjosten,I., Marquardt,C., Bormann,S., Seidel,A., Kvietkova,D.L., Pieniazek,D., Segerbäck,D., Diabaté,S., van der Horst,G.T., Oesch-Bartlomowicz,B., Oesch,F., and Weiss,C. (2015). *Oncogene*, ahead of print. (Impact Factor 8.6)

A downstream target of the metastasis-promoting S100A4 protein, Serum Amyloid A is a potent inducer of tumor metastasis.

Hansen, M., Forst, B., Cremers, N., Quagliata, L., Ambartsumian, N., Klingelhöfer, J., Stein, U., Nielsen, G., Scherer, P., Lukanidin, E., Sleeman, J.P. and Grigorian, M. (2015). *Oncogene*, 34: 424-35 (Impact Factor 8.6)

TIMP-1 creates a pre-metastatic niche in the liver through SDF-1/CXCR4-dependent neutrophil recruitment in mice.

Seubert B, Grünwald B, Kobuch J, Cui H, Schelter F, Schaten S, Siveke JT, Lim NH, Nagase H, Simonavicius N, Heikenwälder M, Reinheckel T, Sleeman JP, Janssen KP, Knolle PA and Krüger A. (2015). *Hepatology*, 61: 238-248 (Impact Factor 11.055)

The proteasome inhibitor Bortezomib (Velcade) is an inhibitor of estrogen receptor-positive breast cancer

Thaler, S., Thiede, G., Hengstler, J. G., Schad, A., Schmidt, M. and Sleeman, J. P. (2015) *Int J. Cancer*, 137: 686-97. (Impact Factor 5.085)

A Systematic Approach to Defining the microRNA Landscape in Metastasis

Mudduluru, G., Abba, M., Batliner, J., Patil, N., Scharp, M., Lunavat, TR., Leupold, J., Oleksiuk, O., Juraeva, D., Thiele, W., Rothley, M., Benner, A., Ben-Neriah, Y., Sleeman, J. and Allgayer, H. (2015). *Cancer Research* 75: 3010-9 (Impact Factor 9.33)

Pre-metastatic conditioning of organ microenvironments by tumors: beyond preparing the soil

Sleeman, J.P. (2015). *J Mol Med* 93: 1171-2 (Impact Factor 5.107)

The lymph node pre-metastatic niche.

Sleeman, J.P. (2015). *J Mol Med* 93: 1173–1184 (Impact Factor 5.107)

Hierarchically functionalized magnetic core/multi-shell particles and their post-synthetic conversion to polymer capsules

S. Schmitt, M. Silvestre, M. Tsotsalas, A. Winkler, A. Shahnas, S. Grosjean, H. Gliemann, J. Lahann, S. Bräse, M. Franzreb, C. Wöll, *ACS Nano* 2015, 4219–4226 (Impact Factor 12.881)

Role of cytonemes in Wnt transport

Eliana Stanganello and Steffen Scholpp, *Journal of Cell Science* accepted (Impact Factor 5.7)

Dual-color dual-focus line-scanning FCS for quantitative analysis of receptor-ligand interactions in living specimens

Dörlich R, Qing Chen Q, Hedde P, Schuster V, Hippler M, Wesslowski J, Davidson G, and Nienhaus GU (2015) *Sci Rep* 5: 10149 (Impact Factor 5.578)

TRIM25 has a dual function in the p53/Mdm2 circuit

Zhang P, Elabd S, Hammer S, Solozobova V, Yan H, Bartel F, Inoue S, Henrich T, Wittbrodt J, Loosli F, Davidson G & Blattner C (2015) *Oncogene* (Impact Factor 8.459)

Inhibition of Tumor Growth and Metastasis in Pancreatic Cancer Models by interference with CD44v6 Signaling

Alexandra Matzke-Ogi, Katharina Jannasch, Marine Shatirishvili, Beatrix Fuchs, Sara Chiblak, Jennifer Morton, Bouchra Tawk, Thomas Lindner, Owen Sansom, Frauke Alves, Arne Warth, Christian Schwager, Walter Mier, Jörg Kleeff, Helmut Ponta, Amir Abdollahi, Véronique Orian-Rousseau *Gastroenterology* 2015 (Impact Factor 16.72)

*This paper was highlighted by several interviews and news including Baden TV interview

Filopodia-based Wnt transport during vertebrate tissue patterning

Eliana Stanganello, Anja IH Hagemann, Benjamin Mattes, Claude Sinner, Dana Meyen, Sabrina Weber, Alexander Schug, Erez Raz, Steffen Scholpp *Nature communications*, 2015, 6, 5846 (Impact Factor 11.47)

UV-induced tetrazole-thiol reaction for polymer conjugation and spatial control of surface

Wenqian Feng, Linxian Li, Chengwu Yang, Alexander Welle, Oliver Trapp and Pavel A. Levkin. *Angewandte Chemie Int. Ed.*, 2015, 54, 8732–8735 (Impact Factor 11.336)

Reversible and Rewritable Surface Functionalization and Patterning via Photodynamic Disulfide

Xin Du, Junsheng Li, Alexander Welle, Linxian Li, Wenqian Feng and Pavel A. Levkin *Adv. Mat.* 2015, 27, 4997-5001 (Impact Factor 17.49)

Droplet-Array (DA) Sandwich Chip: A Versatile Platform for High-Throughput Cell Screening Based on Superhydrophobic–Superhydrophilic Micropatterning

Anna A. Popova, Sebastian M. Schillo, Konstantin Demir, Erica Ueda, A. Nesterov-Mueller and Pavel A. Levkin *Adv. Mat.* 2015, 27, 5217-5222 (Impact Factor 17.49)

Combinatorial Approach to Nanoarchitectonics for Nonviral Delivery of Nucleic Acids

M. Molla, P.A. Levkin *Adv. Mater.* 2015, in press (Impact Factor 17.49)

Hierarchical Micro-Nano Surface Topography Promotes Long-term Maintenance of Undifferentiated Mouse Embryonic Stem Cells

M. Jaggy, P. Zhang, A. M. Greiner, T.J. Autenrieth, V. Nadashkivska, A. N. Efremov, C. Blattner, M. Bastmeyer, P.A. Levkin *Nano Letters*, 2015, 15, 7176-7154 (Impact Factor 13.592)

Enhanced MDM4 exon 6 inclusion is a widespread oncogenic mechanism and a clinically compatible therapeutic target

Dewaele M, Tabaglio T, Willekens K, Bezzi M, Teo SX, Low DHP, Koh C, Rambow F, Fiers M, Rogier A, Radaelli E, Al-Haddawi M, Tan SY, Hermans E, Amant F, Yan H, Lakshmanan M, Koumar RC, Lim ST, Derheimer FA, Campbell RM, Bonday Z, Tergaonkar V, Shackleton M, Blattner C, Marine J-C, Guccione E (2015) (accepted). (Impact Factor 13.26)

p53 is active in murine stem cells and alters the transcriptome in a manner that is reminiscent of mutant p53.

Yan H, Solozobova V, Zhang P, Armant O, Kuehl B, Brenner-Weiss G, Blattner C. (2015) *Cell Death Dis*, 6:e1662. (Impact Factor 5.18)

TRIM25 has a dual function in the p53/Mdm2 circuit

Zhang P, Elabd S, Hammer S, Solozobova V, Yan H, Bartel F, Inoue S, Henrich T, Wittbrodt J, Loosli F, Davidson G, Blattner C. (2015) *Oncogene*. Mar 2. (Impact Factor 8.46)

CD44 Plays a Functional Role in Helicobacter pylori-induced Epithelial Cell Proliferation

Bertaux-Skeirik, N., R. Feng, M.A. Schumacher, J. Li, M.M. Mahe, A.C. Engevik, J.E. Javier, R.M. Peek Jr, K. Ottemann, V. Orian-Rousseau, G.P. Boivin, M.A. Helmrath, and Y. Zavros. 2015. *PLoS Pathog.* 11:e1004663 (Impact Factor 8.057)

Paracrine Met signaling triggers epithelial-mesenchymal transition in mammary luminal progenitors, affecting their fate

Di-Cicco, A., V. Petit, A. Chiche, L. Bresson, M. Romagnoli, V. Orian-Rousseau, M. Vivanco, D. Medina, M.M. Faraldo, M.A. Glukhova, and M.A. Deugnier. 2015. *Elife*. 4 (Impact Factor 9.322)