Publications

Research papers

Meyer, K., Ostrenko, O., Bourantas, G., Morales-Navarrete, H., Porat-Shliom, N., Segovia-Miranda, F., Nonaka, H., Ghaemi, A., Verbavatz, J.M., Brusch, L. and Sbalzarini, I., Kalaidzidis, Y., Weigert, R., Zerial M.
A Predictive 3D Multi-Scale Model of Biliary Fluid Dynamics in the Liver Lobule. *Cell Systems* 4 (3), 277–290, 2017.

K.B. Hoffmann, A. Voss-Böhme, J.C. Rink, L. Brusch.
A dynamically diluted alignment model reveals the impact of cell turnover on the plasticity of tissue polarity patterns. *Journal of the Royal Society Interface* 14 (135), 20170466, 2017.

O. Ostrenko, P. Incardona, R. Ramaswamy, L. Brusch, I.F. Sbalzarini.
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O. Parvu and D. Gilbert.
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M. Herberg, T. Zerjatke, W. de Back, I. Glauche and I. Roeder.
Image-based quantification and mathematical modeling of spatial heterogeneity in ESC colonies.
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O. Parvu and D. Gilbert.
Automatic validation of computational models using pseudo-3D spatio-temporal model checking.
BMC Systems Biology, 8:124, 2014.

A. Köhn-Luque, W. de Back, Y. Yamaguchi, K. Yoshimura, M. A. Herrero and T. Miura.
Dynamics of VEGF matrix-retention in vascular network patterning.
Physical Biology, 10:066007, 2013.

W. de Back, R. Zimm, L. Brusch
Transdifferentiation of pancreatic cells by loss of contact-mediated signaling.
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W. de Back, J. X. Zhou, L. Brusch
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Journal of the Royal Society Interface 10(79):20120766, 2012.

A. Köhn-Luque, W. de Back, J. Starruß, A. Mattiotti, A. Deutsch, J. M. Pérez-Pomares, M. A. Herrero
Early embryonic vascular patterning by matrix-mediated paracrine signalling.
PLoS ONE 6(9):e24175, 2011.

J. Starruß, T. Bley, L. Søgaard-Andersen, A. Deutsch
A new mechanism for collective migration in Myxococcus xanthus.
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Also cited in

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Design Automation in Synthetic Biology. *Cold Spring Harbor Perspectives in Biology*, 2017.

Cytowski, M., Szymańska, Z., Umiński, P., Andrejczuk, G. and Raszkowski, K.
Implementation of an Agent-Based Parallel Tissue Modelling Framework for the Intel MIC Architecture. *Scientific Programming*, 2017.

P. Macklin, H. Frieboes, J. Sparks, A. Ghaffarizadeh, S. Friedman, E. Juarez, E. Jonckheere, S. Mumenthaler
Progress Towards Computational 3-D Multicellular Systems Biology
In: *Systems Biology of Tumor Microenvironment* (edited by: K. Rejniak), 2016.

J. S. Yu, N. Bagheri. Multi-class and multi-scale models of complex biological phenomena *Current Opinion in Biotechnology*, 39:167–173, 2016.
O. Chara, E. Tanaka, L. Brusch. Mathematical Modeling of Regenerative Processes. In: *Current Topics in Developmental Biology*: Mechanisms of Regeneration (edited by: B. Galliot) Volume 108, 2014.
S.J. Parker, K. Raedschelders and J. E. Van Eyk. Emerging proteomic technologies for elucidating context-dependent cellular signaling events: A big challenge of tiny proportions. *Proteomics*, 2014.
L.A. D'Alessandro, S. Hoehme, A. Henney, D. Drasdo and U. Klingmüller. Unraveling liver complexity from molecular to organ level: Challenges and perspectives. *Progress in biophysics and molecular biology*, 2014.
S. Kang, S. Kahan, J. McDermott, N. Flann and I. Shmulevich. Biocellion: accelerating computer simulation of multicellular biological system models. *Bioinformatics* 30(2):3101-3108, 2014.

Beyond this selection, 44 sources have so far cited our paper in total (as of Dec. 2017).

Conferences

Talks and poster presentations at the following conferences and workshops:

W. de Back, Morpheus 2: Modeling and simulation platform for multicellular systems biology. And MorpheusML: declarative markup language for multicellular systems biology, Workshop “Towards a unified framework for benchmarking multi-cellular models and simulation software” (organized D. Drasdo and S. Hoehme et al., Leipzig, March 2016 (invited talks)
W. de Back, Spatial multiscale computational systems biology, Schloss **Dagstuhl** - Leibniz-Zentrum für Informatik, Germany, November 2014 (talk)
L. Brusch, W. de Back, J. Starruß, A. Deutsch, Morpheus: a User-friendly Modeling Environment for Multiscale and Multicellular Systems Biology, Symposium on “*Executable cell biology for tissue engineering and regenerative medicine*”, **TERMIS-EU**, Genova, Italy, 2014. (abstract) (talk)
W. de Back, Integrative modeling in developmental systems biology, Institute for Medical Informatics and Biometry, Medical Faculty „Carl Gustav Carus“, Technische Universität Dresden, 2013. (talk)
W. de Back, A. Deutsch, Morpheus: Modeling and Simulation in Multicellular System Biology, 1st Sino-German Workshop on Simulation, Changsha, China, 2011. (talk)