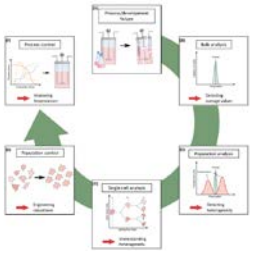
Bibliographic Overview

h-index = 20 (Google-Scholar)	**Total citations: 1329**	(updated on 30/09/2019)
h-index = 17 (Scopus)	**Total citations: 980**	(updated on 30/09/2019)

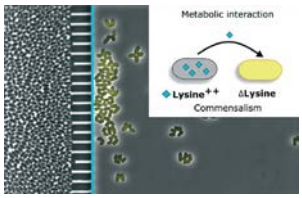
Peer-Reviewed Publications	**54**
(Shared-) first author	15
Corresponding author	6
Proceedings	**>10**
Talks	**>50** as presenting author**, 75** in total
Posters	**>30** as presenting author**, 90** in total
Patents	**=1**

Five most important publications



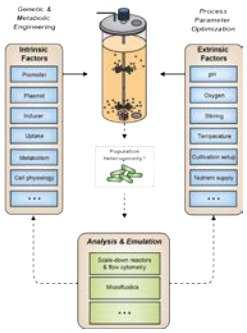
1. *J. Schmitz, T. Noll and **A. Grünberger***, Heterogeneity studies of mammalian cells for bioproduction: From tools to application, **Trends in Biotechnology 2019**, in print, DOI: doi.org/10.1016/j.tibtech.2018.11.007 ***Impact Factor: 13.6***

→ **Review article, which introduces to the field of heterogeneity studies within mammalian cells for bioprocess application. An overview into different tools such as flow cytometry and microfluidic methods and their application is given.**



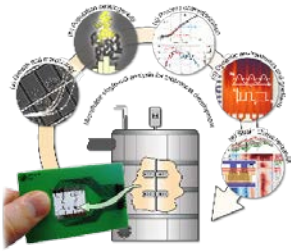
2. *A. Burmeister, F. Hilgers, A. Lange, C. Westerwalbesloh, Y. Kerkhoff, N. Tenhaef, T. Drepper, D. Kohlheyer, E. von Lieres, S. Noack and **A. Grünberger***, A microfluidic co-cultivation platform to investigate microbial interactions at defined microenvironments, **Lab on a Chip 2018**, 19(1):98-110, DOI: 10.1039/C8LC00977E ***Impact Factor: 6.1***

→ **Research paper, which describes the development of a novel microfluidic single cell co-cultivation device for the analysis of microbial growth and interaction of defined microbial co-cultures.**



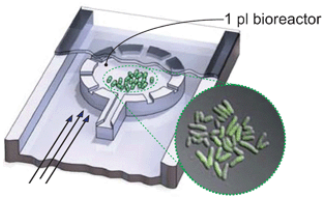
3. D. Binder, T. Drepper, KE. Jaeger, F. Delvigne, W. Wiechert, D. Kohlheyer and **A. Grünberger***, Homogenizing bacterial cell factories: Analysis and engineering of phenotypic heterogeneity, **Metabolic Engineering 2017**, 42:145-156, DOI: 10.1016/j.ymben.2017.06.009 ***Impact Factor: 7.8***

→ **Review article in the field of metabolic engineering, showing how mechanistic understanding about cell-to-cell heterogeneity in bacteria can be used to make microbial production systems more robust for industrial applications.**



4. **A. Grünberger**, W. Wiechert and D. Kohlheyer, *Single-Cell Microfluidics: Opportunity for Bioprocess Development*, **Current Opinion in Biotechnology 2014**, 29:15-23, DOI:10.1016/j.copbio.2014.02.008 ***Impact Factor: 9.3***

→ **Review article, discussing the application of microfluidic single-cell cultivation in the field of biotechnology and bioprocess engineering.**



5. **A. Grünberger**, N. Paczia, C. Probst, G. Schendzielorz, L. Eggeling, W. Wiechert and D. Kohlheyer, *A disposable picoliter bioreactor for cultivation and investigation of industrially relevant bacteria on single cell level*, **Lab on a Chip 2012**, 12:2060-2068, DOI: 10.1039/C2LC40156H ***Impact Factor: 6.1***

→ **Microfluidic research paper that demonstrates the concept, fabrication and application of single-cell bioreactors for applications in biotechnology.**

Peer-Reviewed Journal Contributions

§ These authors contributed equally to this work
** Corresponding author*

2019 (11)

(54) F. Hilgers, N. Bitzenhofer, Y. Ackermann, A. Burmeister, **A. Grünberger**, KE. Jaeger and T. Drepper, *Genetically encoded photosensitizers as light-triggered antimicrobial agents,* **International Journal of Molecular Sciences 2019**, *20(18):4608, DOI: 10.3390/ijms20184608*

(53) A. Burmeister and **A. Grünberger**, *Single-cell analysis of microbial consortia,* **Current Opinion in Biotechnology 2019**, *in press*

(52) C.C. Sachs, J. Koepff, W. Wiechert, **A. Grünberger** and K. Nöh, *mycelyso - High-throughput analysis of Streptomyces mycelium live cell imaging data,* **BMC Bioinformatics 2019**, *20:452, DOI: 10.1186/s12859-019-3004-1*

(51) H. Sassi, T. Nguyen, S. Telek, G. Gosset, **A. Grünberger** and F. Delvigne, *Segregostat: A novel concept to control phenotypic diversification dynamics on the example of Gram-negative bacteria,* **Microbial Biotechnology 2019**, *12(5): 1064-1075, DOI: 10.1111/1751-7915.13442*

(50) C. Westerwalbesloh, C. Brehl, C. Probst, J. Widzgowski, **A. Grünberger**, C. Pfaff, L. Nedbal and D. Kohlheyer, *A microfluidic photobioreactor for simultaneous observation and cultivation of single microalgal cells or cell aggregates,* **PlosOne 2019**, *14(4): e0216093, DOI: 10.1371/journal.pone.0216093*

(49) D. Lindemann, C. Westerwalbesloh, D. Kohlheyer, **A. Grünberger** and E. von Lieres, *Microbial Single-Cell Growth Response at Defined Carbon Limiting Growth Conditions,* **RSC Advances 2019**, *9:14040-14050, DOI: 10.1039/C9RA02454A*

(48) P. Ho, C. Westerwalbesloh, E. Kaganovitch, A. Grünberger, P. Neubauer, D. Kohlheyer and E. von Lieres, *Reproduction of Large-Scale Bioreactor Conditions on Microfluidic Chips,* **Microorganism 2019**, *7, 105, DOI: 10.3390/microorganisms7040105*

(47) V.D. Jäger, R. Kloss, **A. Grünberger**, S. Seidel, D. Hahn, T. Karmainski, M. Piqueray, J. Embruch, S. Longerich, U. Mackfeld, K.E. Jaeger, W. Wiechert, M. Pohl and U. Kraus, *Tailoring the properties of (catalytically)-active inclusion bodies,* **Microbial Cell Factories 2019**, *18:33, DOI: 10.1186/s12934-019-1081-5*

(46) J. Schmitz, T. Noll and **A. Grünberger***, *Heterogeneity studies of mammalian cells for bioproduction: From tools to application,* **Trends in Biotechnology 2019**, *in print, DOI: doi.org/10.1016/j.tibtech.2018.11.007*

(45) A. Burmeister, F. Hilgers, A. Lange, C. Westerwalbesloh, Y. Kerkhoff, N. Tenhaef, T. Drepper, D. Kohlheyer, E. von Lieres, S. Noack and **A. Grünberger***, *A microfluidic co-cultivation platform to investigate microbial interactions at defined microenvironments,* **Lab on a Chip 2019**, 19(1):98-110, *DOI: 10.1039/C8LC00977E*

(44) C. Vilhena, E. Kaganovitch, **A. Grünberger**, M. Motz, I. Forne, D. Kohlheyer and K. Jung, *Importance of Pyruvate Sensing and Transport for the Resuscitation of Viable but Nonculturable Escherichia coli K-12,* **Journal of Bacteriology 2019**, *e00610-18, DOI: 10.1128/JB.00610-18*

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(43) J. Koepff, C.C. Sachs, W. Wiechert, D. Kohlheyer, K. Nöh, M. Oldiges and **A. Grünberger***, *Germination and Growth Analysis of Streptomyces lividans at the Single-Cell Level Under Varying Medium Compositions,* **Frontiers in Microbiology 2018**, *9(2680), DOI: 10.3389/fmicb.2018.02680*

(42) A. Theorell, J. Seiffarth, **A. Grünberger** and K. Nöh, *When a Single Lineage Is Not Enough: Uncertainty-Aware Tracking for Spatio-Temporal Live-Cell Image Analysis,* **Bioinformatics 2018**, *bty776, DOI: 10.1093/bioinformatics/bty776*

(41) R. Kloss, T. Karmainski, V.D. Jäger, D. Hahn, **A. Grünberger**, M. Baumgart, U. Krauss, KE. Jaeger, W. Wiechert and M. Pohl, *Tailor-made catalytically active inclusion bodies for different applications in biocatalysis*, **Catalysis Science & Technology2018**, 8(22):5816-5826, *DOI: 10.1039/C8CY01891J*

(40) V. Jäger, R. Lamm, R. Kloss, E. Kaganovitch, **A. Grünberger**, M. Pohl, J. Büchs, KE. Jaeger and U. Krauss, *A synthetic reaction cascade implemented by co-localization of two proteins within catalytically-active inclusion bodies*, **ACS Synthetic Biology 2018**, 7(9):2282-2295, *DOI: 10.1021/acssynbio.8b00274*

(39) J. Kampf, J. Gerwig, K. Kruse, R. Cleverley, M. Dormeyer, **A. Grünberger**, D. Kohlheyer, FM Commichau, R. Lewis and J. Stülke, *Selective pressure for biofilm formation in Bacillus subtilis: Mutations in the master regulatory SinR differentially affect heterogeneous gene expression,* **mBio 2018**, 9(5):e01464-18, DOI: 10.1128/mBio.01464-18

(38) J. Hage-Hülsmann, **A. Grünberger**, S. Thies, B. Santiago-Schübel, S. Klein, J. Petruszka, D. Binder, F. Hilgers, A. Domröse, T. Drepper, D. Kohlheyer, KE. Jaeger and A. Loeschcke, *Natural biocide cocktails: Combinatorial antibiotic effects of bacterial secondary metabolites*, **PlosOne 2018**, 13(7):e0200940, DOI: 10.1371/journal.pone.0200940

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(35) M. Dormeyer, S. Lentes, P. Ballin, M. Wilkens, M. Schröder, S. Klumpp, D. Kohlheyer, L. Stannek, **A. Grünberger** and FM Commichau, *Visualization of tandem repeat mutagenesis in Bacillus subtilis,* **DNA Repair 2018**, 63 (1):10-15, *DOI: 10.1016/j.dnarep.2018.01.006*

(34) R. Hornung[§], **A. Grünberger[§]**, C. Westerwalbesloh, D. Kohlheyer, G. Gompper and J. Elgeti, *Quantitative modelling of nutrient-limited growth of bacterial colonies in microfluidic cultivation,* **Journal of The Royal Society Interface 2018,** 15(139):20170713, *DOI: 10.1098/rsif.2017.0713*

(33) C. Vilhena, E. Kaganovitch, J. Shin, **A. Grünberger**, S. Behr, I. Kristoficova, S. Brameyer, D. Kohlheyer, K. Jung, *A single cell view on the BtsSR/YpdAB pyruvate sensing network of Escherichia coli and its biological relevance,* **Journal of Bacteriology 2017**, 200(1):e00536-17, *DOI: 10.1128/JB.00536-17*

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(32) D. Binder, T. Drepper, KE. Jaeger, F. Delvigne, W. Wiechert, D. Kohlheyer and **A. Grünberger***, *Homogenizing bacterial cell factories: Analysis and engineering of phenotypic heterogeneity,* ***Metabolic Engineering 2017***, 42:145-156, *DOI: 10.1016/j.ymben.2017.06.009*

(31) F. Delvigne, J. Baert, H. Sassi, P. Fickers, **A. Grünberger** and C. Dusny, *Taking control over microbial populations: Current approaches for exploiting biological noise in bioprocesses,* **Journal of Biotechnology 2017**, 12(7):1600549, *DOI: 10.1002/biot.201600549*

(30) C. Westerwalbesloh, **A. Grünberger***, W. Wiechert, D. Kohlheyer and E. von Lieres*, *Coarse graining bacteria colonies for modeling critical solute distributions in single-cell bioreactors*, **Microbial Biotechnology 2017**, 10 (4):845-857, *DOI:10.1111/1751-7915.12708*

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(26) D. Binder[§], C. Probst[§], **A. Grünberger[§]**, F. Hilgers, A. Loeschcke, KE. Jaeger, D. Kohlheyer and T. Drepper, *Comparative single-cell analysis of different E. coli expression systems during microfluidic cultivation*, **PLoS ONE 2016**, 11(8):e0160711, DOI: 10.1371/journal.pone.0160711

(25) P. Kusen, G. Wandrey, C. Probst, **A. Grünberger**, M. Holz, S. Meyer zu Berstenhorst, D. Kohlheyer, J. Büchs, J. Pietruszka, *Optogenetic regulation of complex gene expression in yeast using photo-Labile caged methionine,* **ACS Chemical Biology 2016**, 11(10):2915-2922, DOI: 10.1021/acschembio.6b00462

(24) **A. Grünberger**, K. Schmitz, C. Probst, G. Kornfeld, T. Hardiman, W. Wiechert, D. Kohlheyer and S. Noack, *Real-time monitoring of fungal growth and morphogenesis at single-cell resolution*, **Engineering in Life Science 2016**,17(1):86-92, DOI: 10.1002/elsc.201600083

(23) D. Binder, C. Bier, **A. Grünberger**, D. Drobietz, J. Hage-Hülsmann, G. Wandrey, J. Büchs, D. Kohlheyer, A. Loeschcke, W. Wiechert, KE. Jaeger, J. Pietruszka and T. Drepper, Photocaged Arabinose – A Novel Optogenetic Switch for Rapid and Gradual Control of Microbial Gene Expression, **ChemBioChem 2016**, 17(4):296-299, DOI: 10.1002/cbic.201500609

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(22) CEM Krämer, A. Singh, S. Helfrich, **A. Grünberger**, W. Wiechert, K. Nöh and D. Kohlheyer, *Non-Invasive Microbial Metabolic Activity Sensing at Single Cell Level by Perfusion of Calcein Acetoxymethyl Ester,* **PLoS ONE 2015**, 10(10):e0141768, DOI:10.1371/journal.pone.0141768

(21) C. Westerwalbesloh[§], **A. Grünberger[§]**, B. Stute, W. Wiechert, D. Kohlheyer and E. von Lieres, *Modeling and CFD Simulation of Bacterial Single-Cell Bioreactors at Picoliter Scale,* **Lab on a Chip 2015**, 15(21):4177-4186, DOI: 10.1039/C5LC00646E

(20) S. Helfrich, C. Azzouzi, C. Probst, **A. Grünberger**, W. Wiechert, D. Kohlheyer and K. Nöh, *Vizardous: Interactive Analysis of Microbial Populations with Single Cell Resolution,* **Bioinformatics 2015**, 31(23):3875-2877, DOI: 10.1093/bioinformatics/btv468

(19) **A. Grünberger[§]**, C. Probst[§], S. Helfrich, A. Nanda, B. Stute, W. Wiechert, E. von Lieres, K. Nöh, J. Frunzke and D. Kohlheyer, *Spatiotemporal microbial single-cell analysis using a high-throughput microfluidics cultivation platform,* **Cytometry A 2015**, 87(12):1101-1115, DOI: 10.1002/cyto.a.22779

(18) C. Dusny[§], **A. Grünberger[§]**, C. Probst, W. Wiechert, D. Kohlheyer and Andreas Schmid, *Technical bias of microcultivation environments on single cell physiology in Corynebacterium,* **Lab on a Chip 2015**, 15(8):1822-34, DOI: 10.1039/C4LC01270D

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(15) **A. Grünberger**, W. Wiechert and D. Kohlheyer, *Single-Cell Microfluidics: Opportunity for Bioprocess Development,* **Current Opinion in Biotechnology 2014**, 29:15-23, DOI:10.1016/j.copbio.2014.02.008

(14) N. Mustafi[§], **A. Grünberger[§]**, S. Helfrich, K. Nöh, B. Blombach, D. Kohlheyer and J. Frunzke, *Application of a genetically encoded biosensor for live cell imaging of L-valine production in pyruvate dehydrogenase complex-deficient Corynebacterium glutamicum strains,* **PLOS ONE 2014**, 9:e85731, DOI:10.1371/journal.pone.0085731

(13) S. Unthan[§], **A. Grünberger[§]**, J. van Ooyen, J. Gätgens, J. Heinrich, N. Paczia, W. Wiechert, D. Kohlheyer, S. Noack, *Beyond Growth Rate 0.6: What drives Corynebacterium glutamicum to higher growth rates in defined medium,* **Biotechnology and Bioengineering 2014,** 111:459-371, DOI:10.1002/bit.25103

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2013 (8)

(11) M. Nanda, A. Heyer, C. Krämer, **A. Grünberger**, D. Kohlheyer and J. Frunzke, *Analysis of SOS-Induced Spontaneous Prophage Induction in Corynebacterium glutamicum at the Single-Cell Level,* ***Journal of* Bacteriology 2013,** 196 (1):180-188, DOI: 10.1128/JB.01018-13

(10) C. Probst[§], **A. Grünberger[§]**, W. Wiechert and D. Kohlheyer, *Polydimethylsiloxane (PDMS) sub-micron traps for single-cell analysis of bacteria,* **Micromachines 2013**, 4(4):357-369, DOI: 10.3390/mi4040357

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(7) **A. Grünberger**, C. Probst, A. Heyer, J. Frunzke, W. Wiechert and D. Kohlheyer, *Microfluidic Picoliter Bioreactor for Microbial Single Cell Analysis: Fabrication, System Setup and Operation,* **Journal of Visualized Experiments 2013**, (82):e50560, DOI: 10.3791/50560

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(3) **A. Grünberger**, N. Paczia, C. Probst, G. Schendzielorz, L. Eggeling, W. Wiechert and D. Kohlheyer, *A disposable picoliter bioreactor for cultivation and investigation of industrially relevant bacteria on single cell level,* **Lab on a Chip 2012**, 12:2060-2068, DOI: 10.1039/C2LC40156H

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Non-Peer Reviewed Journal Contributions

2019

(5) J. Schmitz and **A. Grünberger**, *Ich sehe 'was, was du nicht siehst*, **LABO 2019**, 51(9):30-33, *Link*

(4) A. Burmeister, F. Hilgers, and **A. Grünberger**, *Mikrofluidische Einzelzelluntersuchungen mikrobieller Interaktionen*, **Biospektrum 2019**, 25(5):515-519, *DOI: 10.1007/s12268-019-1088-9*

2018

(3) Dechema Zukunftsforum Biotechnologie (inclusive **A. Grünberger**), *Revisionsbedürftig? Rechte und Pflichten akademischer Nachwuchsführungskräfte*, **Forschung und Lehre 2018**, 9(18):788-789, *Link*

2015

(2) D. Binder, C. Probst, C. Bier, A. Loeschcke and **A. Grünberger**, *Lichtgesteuerte Genexpression auf Einzelzellebene*, **Biospektrum 2015**, 21(6):612-615, *DOI: 10.1007/s12268-015-0622-7*

(1) **A. Grünberger**, *Einzelzell-Bioreaktoren – fast unsichtbar aber nicht unscheinbar, **Biospektrum 2015**, 3(1): 353, DOI: 10.1007/s12268-015-0585-8*

Books and Book Chapters

2016

- T. Ladner[§], **A. Grünberger[§]**, J. Büchs, C. Probst, D. Kohlheyer and F. Delvigne, *Application of mini-and micro-bioreactors for microbial bioprocesses, In: New and future developments in biotechnology & bioengineering, **Elsevier 2016**, 433-461,* DOI: 10.1016/B978-0-444-63663-8.00015-X

Monographs

2015

- A. Grünberger, *Single-Cell Analysis of Microbial Production Strains in Microfluidic Bioreactors,* PhD Thesis, Schriften des Forschungszentrums Jülich. Reihe Schlüsseltechnologien / Key Technologies. 114, 2015; XIX, 225 pages; ISBN 978-3-95806-092-0

2010

- A. Grünberger, *Coarse graining protein interactions as a foundation for interpreting and predicting B_{22}*, Master Thesis

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- A. Grünberger, *Media optimization for the micro algae Chlamydomonas reinhardtii Stm6 using statistical design*, Studienarbeit (~Bachelor Thesis)

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2016

- E. Kaganovitch, M. Krischer, C. Probst, A. Grünberger, E. Zunic, C. Freier, W. Wiechert, and D. Kohlheyer, *Microfludic device for control and sensing of dynamic oxygen levels during cell cultivation,* **Proceedings of the 18th International Conference on Miniaturized Systems for Chemistry and Life Science,** 09th -13th October 2016, Dublin, Ireland, ISBN 978-1-5108-3416-3
- C. Westerwalbesloh, A. Grünberger, W. Wiechert, D. Kohlheyer and E. von Lieres*, Comparison of Different Cultivation Chamber Designs for Microfluidic Bioreactors,* **Chemie Ingenieur Technik 2016,** 88(9):1390*,* DOI: 10.1002/cite.201650080

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