

## Pierre Stallforth, PhD – *Curriculum Vitae*

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### Education, Research Experience, Positions

- 02/2020 Habilitation in Organic Chemistry, Faculty of Earth Sciences and Chemistry, **Friedrich-Schiller University** of Jena
- 01/2020 – Head of the Department **Paleobiotechnology** funded by the Werner Siemens-Stiftung at the **Leibniz Institute for Natural Product Research and Infection Biology**, (Hans Knöll Institute, HKI, Jena)  
Excellence Cluster, Balance of the Microverse, associated member and sub-coordinator of Research Area A
- 01/2020 – Temporary visiting professorship, Organic Chemistry, **University of Hamburg**
- 12/2013 – 12/2019 Independent Junior Group Leader, **Leibniz Institute for Natural Product Research and Infection Biology**, (Hans Knöll Institute, HKI, Jena)  
Dept. of Chemistry of Microbial Communication
- 2/2011 – 11/2013 Postdoc, **Harvard Medical School**, Dept. of Biological Chemistry and Molecular Pharmacology, Boston. Mentor: Prof. Jon Clardy
- 11/2006 – 11/2010 Graduate Studies (Dr. sc. ETH Zurich), **ETH Zurich** and **Max Planck Institute**, Colloids and Interfaces, Biomolecular Systems, Berlin  
Supervisor: Prof. Peter H. Seeberger (co-supervisor: Prof. Donald Hilvert)  
“*Synthesis of Bacterial Carbohydrates and Glycolipids for Application in Novel Vaccine Strategies*”
- 09/2005 – 07/2006 Master Thesis, **University of Oxford**, Supervisor: Prof. David E. Logan (1<sup>st</sup> class)
- 10/2002 – 07/2006 MSc Studies Chemistry, St Edmund Hall, **University of Oxford**  
(1<sup>st</sup> class, being placed 2<sup>nd</sup> out of 150 students)

### Fellowships, Awards, and Third Party Funding

- 01/2020 Werner Siemens-Stiftung
- 10/2020 Funding by the DFG Excellence Cluster Balance of the Microverse
- 05/2019 Beutenberg-Campus Research Prize
- 02/2019 DECHEMA Research Award Natural Product Research
- 11/2018 medac Research Award
- 09/2018 Best Talk Prize, Bioorganic Symposium, Bochum 2018
- 07/2018 Max-Buchner-Stipend (DECHEMA)
- 06/2018 Boehringer Ingelheim Exploration Grant
- 03/2018 DFG Research Grant STA1431/3-1
- 08/2017 Best Talk Prize, International 2017 *Dictyostelium* Conference, Geneva
- 07/2017 DFG Research Grant STA1431/2-1
- 11/2016 medac Reserach Award
- 12/2015 Funding from the Fonds der Chemischen Industrie
- 12/2015 Funding from the Dr. Illing Foundation
- 02/2014 Fellowship of the Daimler and Benz Foundation
- 06/2012 Feodor Lynen-Postdoc Fellowship (A. v. Humboldt Foundation)
- 02/2011 Swiss National Fund Postdoc Fellowship
- 06/2007 PhD Fellowship, Studienstiftung (German Academic Merit Foundation)
- 06/2005 Gibbs Prize for excellence in the final examination
- 06/2005 – 07/2006 Fellowship of the Studienstiftung (German Academic Merit Foundation)
- 2003 and 2004 Turbutt Prize for excellence in practical organic chemistry
- 06/2003 – 07/2006 University of Oxford, Open Scholarship
- 06/2002 Prize for the best Abitur at Paul-Klee-Gymnasium, Gersthofen

**Organization of Scientific Meetings and Editorial Work**

- 2019 Guest Editor at ChemBioChem  
2019 Chair of the Organizing Committee for the conference *Advances in Chemical Biology*, Frankfurt am Main  
2019 Chair of the Session ‘Molecules in Life – Molecules of Life’ Science forum of the German Chemical Society (GDCh), Aachen  
2016 Chair of the *Symposium Bioorganic Chemistry (Nachwuchsgruppentreffen Bioorganische Chemie)*, Jena

**Commissions of Trust**

- 2018– Chair of the Joint Group Chemical Biology (Gemeinsame Fachgruppe Chemische Biologie der DECHEMA, GDCh, DPhG, GBM)  
2010 – Member of the Selection Committee, German Academic Merit Foundation (Studienstiftung des deutschen Volkes)

**Teaching Experience**

- 12/2019 – Lectures Advanced Organic Chemistry (University of Hamburg)  
04/2018 – Lectures (summer semester): Syntheseplanung (for master students in Chemical Biology, 2SWS)  
11/2016 – 02/2018 Lectures (winter semester): Microbiology (for pharmacists 2SWS) and Biochemistry (for pharmacists 2SWS)  
08/2016 Summer School (2 weeks, Studienstiftung) Antibiotics and Resistance  
11/2015 – 12/2015 Lectures (winter semester): Analytical Chemistry (Friedrich-Schiller-University, Jena, Ringvorlesung 4 lectures)  
09/2014 – 01/2018 Seminars (winter semester): Bioanalytical Chemistry (Friedrich-Schiller-University, Jena, 2SWS)  
07/2013 Biosynthesis (5d summer school Braz. Soc. of Pharmacognosy, Macapá, Brazil)  
09/2009 – 12/2009 Practical Organic Chemistry I (ETH Zurich)  
02/2008 – 06/2008 Practical Organic Chemistry II (ETH Zurich)  
09/2007 – 12/2007 Teaching Assistant: Biological Chemistry I (ETH Zurich)  
02/2007 – 07/2007 Teaching Assistant: Organic Chemistry II (ETH Zurich)

**Institutional Responsibilities**

- 2013 – Faculty member, Leibniz Institute for Natural Product Research and Infection Biology, Hans Knöll Institute – HKI  
2014 – Associated member of the Faculty of Biological and Pharmaceutical Sciences, Friedrich-Schiller-Universität, Jena  
2014 – Faculty member, Jena School for Microbial Communication, Jena  
2014 – Faculty member, International Leibniz Research School, Jena  
2018 – Excellence Cluster: Balance of the Microverese  
Associate Member and Sub-Coordinator of Research Area A

**Supervision of Graduate Students and Postdoctoral Fellows**

- 2013 – 5 Postdocs, 6 PhD, 6 Master, 1 Bachelor students, ca. 25 interns  
2011 – 2013 2 PhD students (rotation students, Harvard Medical School)  
2006 – 2011 2 Master, 1 Bachelor students (ETH Zurich)

**PhD Commissions**

- 2013 – Faculty of Earth Sciences and Chemistry/Faculty of Biological Sciences FSU Jena  
Member of 10 Commissions

**Publications** (<sup>+</sup>equal contributions, \*corresponding author)

38. S. Götze, **P. Stallforth**\* “Structure Elucidation of Bacterial Nonribosomal Lipopeptides” **2020** *Org. Biomol. Chem. accepted*. DOI: 10.1039/C9OB02539A
37. S. Götze, **P. Stallforth**\* “Structure, Properties, and Biological Functions of Nonribosomal Lipopeptides from Pseudomonads” *Nat. Prod. Rep.* **2020**, *37*, 29–54.
36. R. Mukherji<sup>+</sup>, S. Zhang<sup>+</sup>, S. Chowdhury, **P. Stallforth**\* “Chimeric LuxR Transcription Factors Rewire Natural Product Regulation” *Angew. Chem. Int. Ed.* **2020** *early view DOI 10.1002/anie.201914449*.
35. M. Klapper, K. Schlabach, A. Paschold, S. Zhang, S. Chowdhury, K.-D. Menzel, M. A. Rosenbaum, **P. Stallforth**\* “Biosynthesis of *Pseudomonas*-Derived Butenolides” *Angew. Chem. Int. Ed.* **2020** *early view DOI 10.1002/anie.201914154*
34. R. Herbst, M. Günther, **P. Stallforth**\* “Chemical Ecology of *Dictyostelium discoideum*” *Comprehensive Natural Products III*, Elsevier, **2019**.
33. S. Götze, J. Arp, G. Lackner, S. Zhang, H. Kries, M. Klapper, M. García-Altres, K. Willing, M. Günther, **P. Stallforth**\* “Structure Elucidation of the Syringafactin Lipopeptides Provides Insight in the Evolution of Nonribosomal Peptide Synthetases” *Chem. Sci.* **2019**, *10*, 10979–10990.
32. D. Fischer, G. Gessner, T. Pacheco Fill, R. Barnett, K. Tron, K. Dornblut, F. Kloss, **P. Stallforth**, B. Hube, S. H. Heinemann, C. Hertweck, K. Scherlach,\* S. Brunke\* “Disruption of membrane integrity by the bacteria-derived antifungal jagaricin” *Antimicrob. Agents Chemother.* **2019**, *63*, e00707.
31. M. Klapper, A. Paschold, S. Zhang, C. Weigel, H.-M. Dahse, S. Götze, S. Pace, S. König, Z. Rao, L. Reimer, O. Werz, **P. Stallforth**\* “Bioactivity and Mode of Action of Bacterial Tetramic Acids” *ACS Chem. Biol.* **2019**, *14*, 1693.
30. A. Oberheide, S. Pflanze, **P. Stallforth**, H.-D. Arndt\* “Solid Phase-Based Total Synthesis and Stereochemical Assignment of the Cryptic Natural Product Aurantizolicin” *Org. Lett.* **2019**, *21*, 729.
29. F. Broecker, S. Götze, J. Hudon, D. C. K. Rathwell, C. L. Pereira, **P. Stallforth**, A. Chakkumkalag, P. H. Seeberger\* “Synthesis, Liposomal Formulation, and Immunological Evaluation of a Minimalistic Carbohydrate- $\alpha$ -GalCer Vaccine Candidate” *J. Med. Chem.* **2018**, *61*, 4918.
28. D. Heinrich, R. Barnett, L. Tweedy, R. Insall, **P. Stallforth**, T. Winckler\* “The chemoattractant glorin is inactivated by ester cleavage during multicellular development of the social amoeba *Polysphondylium pallidum*” *ACS Chem. Biol.* **2018** *13*, 1506.
27. J. Arp<sup>+</sup>, S. Götze<sup>+</sup>, R. Mukherji, D. J. Mattern, M. García-Altres, M. Klapper, D. A. Brock, A. A. Brakhage, J. E. Strassmann, D. C. Queller, B. Bardl, K. Willing, G. Peschel, **P. Stallforth**\*, “Synergistic activity of co-secreted natural products from amoebae-associated bacteria” *Proc. Natl. Acad. Sci. USA.* **2018**, *115*, 3758
26. M. Klapper, D. Braga, G. Lackner, R. Herbst, **P. Stallforth**\* “Bacterial Alkaloid Biosynthesis: Structural Diversity via a Minimalistic Nonribosomal Peptide Synthetase” *Cell Chem. Biol.* **2018**, *25*, 659.
25. M. Klapper, J. Arp, M. Günther, **P. Stallforth**\* “The Role of Bacterial Natural Products in Predator Defense” *Synlett*, **2018**, *29*, 537.
24. R. Barnett, **P. Stallforth**\*, “Natural Products from Social Amoebae” *Chem. Eur. J.* **2018**, *24*, 4202.
23. S. Götze, R. Herbst-Irmer, M. Klapper, H. Görls, K. R. A. Schneider, R. Barnett, T. Burks, U. Neu, P. Stallforth\* “Structure, Biosynthesis, and Biological Activity of the Cyclic Lipopeptide Anikasin” *ACS Chem. Biol.* **2017**, *12*, 2498.
22. R. Gallegos-Monterrosa, S. Kankel, S. Götze, R. Barnett, **P. Stallforth**\*, A. T. Kovács\* “*Lysinibacillus fusiformis* M5 induces increased complexity in *Bacillus subtilis* 168 colony biofilms via hypoxanthine” *J. Bact.* **2017**, 199:e00204-17.
21. J. Arp, **P. Stallforth**\* “Rationalizing the Right Ratios”, *Cell Chem. Biol.* **2017**, *24*, 539.
20. R. Barnett, D. Raszkowski, T. Winckler, **P. Stallforth**\* “A Versatile Synthesis of the Signaling Peptide Glorin” *Beilstein J. Org. Chem.* **2017**, *13*, 247.
19. M. Klapper, S. Götze, R. Barnett, K. Willing, **P. Stallforth**\* “Bacterial Alkaloids Prevent Amoebal Predation” *Angew. Chem. Int. Ed. Engl.* **2016**, *55*, 8944.
18. A. Adibekian\*, **P. Stallforth**\* “Cutting Edge Chemical Biology: Report from the 2016 International Symposium on Chemical Biology, January 13–15, Geneva, Switzerland” *ACS Chem. Biol.* **2016**, *11*, 816.
17. S. Götze, **P. Stallforth**\*, “Chemical Communication in Microbial Communities” *GIT Lab. J.* **2015**, *11-12*, 16.

16. J. Braesel, S. Götze, F. Shah, D. Heine, J. Tauber, C. Hertweck, A. Tunlid, **P. Stallforth**, D. Hoffmeister\* “Three Redundant Synthetases Secure Redox-Active Pigments Production in the Basidiomycete *Paxillus involutus*” *Chem. Biol.* **2015**, *22*, 1325.
15. S. Matthies, **P. Stallforth**, P. H. Seeberger\* “Total Synthesis of Legionaminic Acid as Basis for Serological Studies” *J. Am. Chem. Soc.* **2015**, *137*, 2848.
14. M. Cavallari<sup>+</sup>, **P. Stallforth**<sup>+</sup>, A. Kalinichenko<sup>+</sup>, D. Rathwell, T. M. A. Gronewold, A. Adibekian, L. Mori, R. Landmann, P. H. Seeberger\*, G. DeLibero\* “A semi-synthetic carbohydrate-lipid vaccine that protects against *S. pneumoniae* in mice” *Nat. Chem. Biol.* **2014**, *10*, 950.
13. **P. Stallforth**, J. Clardy\* “An Atlas for Drug Discovery” *Proc. Natl. Acad. Sci. USA*, **2014**, *111*, 3655.
12. **P. Stallforth**, D. A. Brock, A. M. Cantley, X. Tian, D. C. Queller, J. E. Strassmann, J. Clardy\* “A bacterial symbiont is converted from an inedible producer of beneficial molecules into food by a single mutation in the *gacA* gene” *Proc. Natl. Acad. Sci. USA*, **2013**, *110*, 14528. (Highlighted in PNAS, *Nat. Rev. Microbiol.*, *BioTechniques*, and other)
11. **P. Stallforth**, J. Clardy\* “X-ray crystallography: one size fits most” *Nature*, **2013**, *495*, 456.
10. **P. Stallforth**<sup>+</sup>, S. Matthies<sup>+</sup>, A. Adibekian, D. G. Gillingham, D. Hilvert, P. H. Seeberger\* “Chemoenzymatic Synthesis of Sialic Acid” *Chem. Commun.* **2012**, *48*, 11987.
9. **P. Stallforth**, J. Clardy\* “Protein Evolution: When Two Become Three” *Curr. Biol.*, **2012**, *22*, R685.
8. A. Adibekian, **P. Stallforth**, M.-L. Hecht, D. B. Werz, P. Gagneux, P. H. Seeberger\* “Comparative bioinformatics analysis of the mammalian and bacterial glycomes” *Chem. Sci.* **2010**, *2*, 337.
7. T. Ohara, A. Adibekian, D. Esposito, **P. Stallforth** and P. H. Seeberger\* “Towards the synthesis of a *Yersinia pestis* cell wall polysaccharide: enantioselective synthesis of an L-glycero-D-manno-heptose building blocks” *Chem. Commun.* **2010**, *46*, 4106.
6. R. Pragani, **P. Stallforth**, P. H. Seeberger\* “De Novo Synthesis of a 2-Acetamido-4-amino-2,4,6-trideoxy-D-galactose (AAT) Building Block for the Preparation of a *Bacteroides fragilis* A1 Polysaccharide Fragment” *Org. Lett.* **2010**, *12*, 1624.
5. D. G. Gillingham<sup>+</sup>, **P. Stallforth**<sup>+</sup>, A. Adibekian, P. H. Seeberger\*, D. Hilvert\* “Chemoenzymatic Synthesis of Differentially Protected 3-Deoxysugars” *Nature Chem.* **2010**, *2*, 102.
4. **P. Stallforth**, B. Lepenies, A. Adibekian, P. H. Seeberger\* “Carbohydrates – A Frontier in Medicinal Chemistry” *J. Med. Chem.* **2009**, *52*, 5561.
3. M.-L. Hecht, **P. Stallforth**, D. Varón-Silva, A. Adibekian, P. H. Seeberger\* “Recent Advances in Carbohydrate-based Vaccines” *Curr. Opin. Chem. Biol.* **2009**, *13*, 354.
2. A. Adibekian, M. S. M. Timmer, **P. Stallforth**, J. van Rijn, P. H. Seeberger\* “Stereocontrolled synthesis of fully functionalized D-glucosamine monosaccharides via a domino nitro Michael/Henry reaction” *Chem. Commun.* **2008**, *30*, 3549.
1. **P. Stallforth**, A. Adibekian, P. H. Seeberger\* “De novo Synthesis of a D-Galacturonic Acid Thioglycoside as Key to the Total Synthesis of a Glycosphingolipid from *Sphingomonas yanoikuyae*” *Org. Lett.* **2008**, *10*, 1573.

#### Patents

1. P. H. Seeberger, **P. Stallforth**, G. DeLibero, M. Cavallari, “Carbohydrate-Glycolipid Conjugate Vaccines” WO 2013/178236 A1

#### Invited Talks and Conference Presentations

- 2012 Hans Knöll Institute, Jena
- 2014 Leibniz Research Alliance, Bioactive Compounds and Biotechnology, Berlin
- 2014 Daimler and Benz Foundation, Ladenburg
- 2015 Harvard Medical School, Boston MA, USA
- 2015 Bioorganic Symposium, Hamburg
- 15. 01. 2016 University of Mainz
- 14. 03. 2016 VAAM Conference, Jena
- 04. 08. 2016 Summer Academy, Studienstiftung, Neubeuern
- 10. 10. 2016 Small Molecules and Microbes, Konstanz
- 12. 11. 2016 Peter Seeberger Symposium, Berlin
- 08. 12. 2016 University of Düsseldorf
- 02. 03. 2017 University of Geneva, CH
- 14. 03. 2017 Chemiedozententagung, Marburg
- 16. 03. 2017 Symposium Biosynthetic Strategies, Jena
- 22. 03. 2017 MiCom, Jena

- 10. 04. 2017 Leibniz Research Alliance, Bioactive Compounds and Biotechnology, Freising
- 04. 05. 2017 New England Biolabs, Ipswich MA, USA
- 13. 06. 2017 Bioorganic Gordon Research Conference, Andover NH, USA
- 22. 08. 2017 Dictyostelium Conference, Geneva, CH
- 21. 09. 2017 2017 Bioorganic Symposium, Berlin
- 11. 01. 2018 MPI for Chemical Ecology, Jena
- 31. 01. 2018 Advances in Chemical Biology, Frankfurt
- 05. 03. 2018 Chemiedozententagung, Jena
- 19. 03. 2018 MiCom, Jena
- 27. 03. 2018 University of Utrecht, NL
- 05. 04. 2018 MPI for Chemical Ecology, Jena
- 24. 04. 2018 Leibniz Research Alliance, Bioactive Compounds and Biotechnology, Halle
- 28. 05. 2018 Max Planck Institute for Terrestrial Microbiology, Marburg
- 17. 07. 2018 Freie Universität Berlin
- 26. 07. 2018 University of Tübingen
- 14. 08. 2018 *Dictyostelium* Conference, Egmond aan Zee, NL
- 04. 09. 2018 Harvard Medical School, Boston MA, USA
- 19. 09. 2018 2018 Bioorganic Symposium, Bochum
- 06. 11. 2018 Chemistry Colloquium, University of Hamburg
- 13. 12. 2018 Biomolecular Systems Day, MPI Colloids and Interfaces, Potsdam-Golm
- 10. 01. 2019 University of Cologne
- 20. 02. 2019 2019 Naturstoff-Tage Irsee
- 19. 03. 2019 VAAM Conference, Mainz
- 19. 03. 2019 Chemiedozententagung, Koblenz
- 15. 04. 2019 University of Braunschweig
- 13. 05. 2019 Karlsruhe Institute of Technology
- 14. 06. 2019 University of Konstanz
- 29. 07. 2019 University of York (Chemistry Department)
- 29. 07. 2019 University of York (Biology Department)
- 04. 09. 2019 Swiss Society for Microbiology Meeting, Zurich
- 24. 09. 2019 2019 Bioorganic Symposium, Bochum
- 14. 10. 2019 Technical University Munich, (Medicinal Microbiology Department)
- 17. 10. 2019 Technical University Munich (Chemistry Department)
- 07. 11. 2019 Jacobs University, Bremen

#### Upcoming

- 17. 03. 2020 EPFL, Lausanne, Switzerland