

Prof. Dr. Christine Beemelmanns



General information

Research area

I am interested in the structural diversity of microbial natural products, their biosynthesis and regulation. In my research group, we analyze different microbe-microbe or microbe-host interactions that play important roles in ecological model systems to correlate the production of natural products to their ecological functions and physiological roles. To efficiently elucidate the absolute structures of natural products, we combine state-of-the-art analytical techniques with total synthetic approaches, genome mining and molecular biology tools. Identified natural products and structural derivatives are being evaluated for their ecological functions within the microbe-host interactions and their pharmacological potential.

Academic education

- 2001-2006 Chemistry, RWTH Aachen University,
Diploma mentor: Prof. Dr. Carsten Bolm

Scientific education

- 2010 Doctorate in Chemistry, Freie Universität Berlin, Prof. Dr. H-U. Reiβig

Professional career

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| 2013-present | Junior research group leader (HKI) |
| 2011-2013 | Postdoc, Harvard Medical School, Boston, USA; Prof. Jon Clardy |
| 2011-2011 | Postdoc, Freie Universität Berlin; Prof. Dr. H.-U.Reißig |
| 2010-2011 | Postdoc, Tokyo Institute of Technology, Japan; Prof. Keisuke Suzuki |

Miscellaneous

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| 2021 | Dechema Young Scientist award for Natural Products Research |
| 2020 | Docent award; Fonds der Chemischen Industrie |
| 2020 | Guest editor, Beilstein Journal of Organic Chemistry |
| 2018-2024 | ERC Starting Grant MORPHEUS |
| 2018 | Grant award; Dr. Otto Röhm-Gedächtnis-Stiftung |
| 2016 | Guest Editor Frontiers |
| 2014-2015 | Postdoc fellowship, Daimler and Benz Foundation and the Reinhard Frank Foundation |
| 2011-2013 | Postdoc fellowship, German National Academy of Natural Sciences Leopoldina; Postdoc fellowship from the DFG rejected |
| 2011 | Ernst-Reuter-Award of the Freie Universität Berlin; Ernst-Reuter-Gesellschaft der Freunde, Förderer und Ehemaligen der Freien Universität Berlin |
| 2010-2011 | Postdoc fellowship from the DAAD |
| 2010-present | Member of Selection Commission, Studienstiftung des deutschen Volkes |
| 2007-2010 | Doctoral fellowship (ideational), Studienstiftung des deutschen Volkes |
| 2007-2009 | Doctoral fellowship, Verband der Chemischen Industrie (VCI) |
| 2006 | Springorum commemorative coin, RWTH Aachen |
| 2006 | Procter and Gamble award, RWTH Aachen |
| 2006-2007 | RIKEN fellowship, Studienstiftung des deutschen Volkes |
| 2006 | Springorum-Gedenkmünze der RWTH Aachen |

2006	Procter and Gamble Award, <i>Fachgruppe Chemie</i> , RWTH Aachen
2003	Chemistry award of the Faculty for Mathematics, Computer Science and Natural Sciences; RWTH Aachen
2003 RWTH	Schöneborn Preis der Gesellschaft der Freunde und Förderer der Aachen e.V., RWTH Aachen

Most important publications

- [1] F. Schalk, C. Gostinčar, N. B. Kreuzenbeck, B. H. Schantz-Conlon, E. Sommerwerk, P. Rabe, I. Burkhardt, T. Krüger, O. Kniemeyer, A. A. Brakhage, N. Gunde-Cimerman, W. Z. De Beer, J. S. Dickschat, M. Poulsen, **C. Beemelmanns**, The termite fungal cultivar *Termitomyces* combines diverse enzymes and oxidative reactions for plant biomass conversion, *mBio* **2021**, 12, e03551-20.
- [2] H. Guo, M. Rischer, M. Westermann, **C. Beemelmanns**, Two distinct bacterial biofilm components trigger metamorphosis in the colonial hydrozoan *Hydractinia echinata*, *mBio* **2021**, 12, e0040121.
- [3] H. Guo, J. W. Schwitalla, R. Benndorf, M. Baunach, C. Steinbeck, H. Görls, Z. W. de Beer, L. Regestein, **C. Beemelmanns**, Gene cluster activation in a bacterial symbiont leads to halogenated angucyclic maduralactomycins and spirocyclic actinospirools, *Org. Lett.* **2020**, 22, 2634-2638.
- [4] D. Roman, L. Raguz, F. Keiff, F. Meyer, F. Barthels, T. Schirmeister, F. Kloss, **C. Beemelmanns**, Modular solid-phase synthesis of antiprotozoal barnesin derivatives, *Org. Lett.* **2020**, 22, 3744-3748.
- [5] M. Rischer, S. R. Lee, H. J. Eom, H. B. Park, J. Vollmers, A. K. Kaster, J. H. Shin, D. C. Oh, K. H. Kim, **C. Beemelmanns**, Spirocyclic cladosporicin A and cladosporiumins I and J from a *Hydractinia*-associated *Cladosporium sphaerospermum* SW67, *Org. Chem. Front.* **2019**, 6, 1084-1093.
- [6] H. Guo, R. Benndorf, S. König, D. Leichnitz, C. Weigel, G. Peschel, P. Berthel, M. Kaiser, C. Steinbeck, O. Werz, M. Poulsen, **C. Beemelmanns**, Expanding the rubterolone family: Intrinsic reactivity and directed diversification of PKS-derived pyrans, *Chem. Eur. J.* **2018**, 24, 11319-11324.
- [7] M. Rischer, L. Raguz, H. Guo, F. Keiff, G. Diekert, T. Goris, **C. Beemelmanns**, Biosynthesis, synthesis and activities of barnesin A, a NRPS-PKS hybrid produced by an anaerobic Epsilonproteobacterium, *ACS Chem. Biol.* **2018**, 13, 1990-1995.
- [8] H. Guo, R. Benndorf, D. Leichnitz, J. L. Klassen, J. Vollmers, H. Görls, M. Steinacker, C. Weigel, H. M. Dahse, A. K. Kaster, Z. W. de Beer, M. Poulsen, **C. Beemelmanns**, Isolation, biosynthesis and chemical modifications of rubterolones A–F, rare tropolone alkaloids from *Actinomadura* sp. 5-2., *Chem Eur. J.* **2017**, 23, 9338-9345.
- [9] H. Guo, N. B. Kreuzenbeck, S. Otani, M. Garcia-Altares, H. M. Dahse, C. Weigel, D. K. Aanen, C. Hertweck, M. Poulsen, **C. Beemelmanns**, Pseudoxyallemycins A-F, cyclic tetrapeptides with rare allenyl modifications isolated from *Pseudoxyilaria* sp. X802: A competitor of fungus-growing termite cultivars, *Org. Lett.* **2016**, 18, 3338-3341.
- [10] A. M. Cantley, A. Woznicka, **C. Beemelmanns**, N. King, J. Clardy, Isolation and synthesis of a bacterially produced inhibitor of rosette development in choanoflagellates, *J. Am. Chem. Soc.* **2016**, 138, 4326-4329.