

Lena Barra, Ph.D.

Education

2013 – 2018

PhD in Chemistry

University of Bonn (until 2014: Technical University of Braunschweig)

Supervisor: Prof. Dr. Jeroen S. Dickschat

2011 – 2013

Master of Science in Chemistry, Technical University of Braunschweig

2007 – 2011

Bachelor of Science in Chemistry, Technical University of Braunschweig

Research and Professional Experience

2018 – 2021

Postdoctoral Research Associate

Graduate School of Pharmaceutical Sciences, The University of Tokyo

Supervisor: Prof. Ikuro Abe

2022 –

J.-Professor

Fachbereich Chemie, Universität Konstanz

List of Publications

1. **Barra, L.**, Awakawa, T., Abe, I. “ β -NAD as a building block in natural product biosynthesis.” *JACS Au* 2, in press (2022)
2. **Barra, L.**,[†] Awakawa, T.,[†] Shirai, K., Hu, Z., Bashiri, G., Abe, I. “ β -NAD as a building block in natural product biosynthesis.” *Nature* 600, 754-758 (2021)
3. **Barra, L.**, Abe, I. “Chemistry of fungal meroterpenoid cyclases.” *Nat. Prod. Rep.* 38, 566-585 (2021)
4. Awakawa, T.,[†] **Barra, L.**,[†] Abe, I. “Biosynthesis of sulfonamide and sulfamate antibiotics in *Actinomyces*.” *J. Ind. Microbiol. Biotechnol.* 48, kuab0001 (2021)
†co-first author
5. Mitsuhashi, T.,[†] **Barra, L.**,[†] Powers, Z.,[†] Kojasoy, V.,[†] Cheng, A., Yang, F., Taniguchi, Y., Kikuchi, T., Fujita, M., Tantillo, D. J., Porco, J. A. Jr., Abe, I. “Exploiting the potential of meroterpenoid cyclases to expand the chemical space of fungal meroterpenoids.” *Angew. Chem. Int. Ed.* 59, 23772-23781 (2020)
†co-first author

6. Powers, Z., Scharf, A., Yang, F., Cheng, A., Mitsuhashi, T., **Barra, L.**, Taniguchi, Y., Kikuchi, T., Fujita, M., Abe, I., Porco, J. A. Jr. "Biomimetic synthesis of meroterpenoids by dearomatization-driven polycyclization." **Angew. Chem. Int. Ed.** 58, 16141-16146 (2019)
7. Murai, K., Lauterbach, L., Teramoto, K., Quan, Z., **Barra, L.**, Yamamoto, T., Nonaka, K., Shiomi, K., Nishiyama, M., Kuzuyama, T., Dickschat, J. S. "An unusual skeletal rearrangement in the biosynthesis of the sesquiterpene trichobrasilenol from *Trichoderma*." **Angew. Chem. Int. Ed.** 58, 15046-15050 (2019)
8. Hoogendoorn, K., **Barra, L.**, Waalwijk, C., Dickschat, J. S., van der Lee, T. A. J., Medema, M. H. "Evolution and diversity of biosynthetic gene clusters in *Fusarium*." **Front. Microbiol.** 9, 1158 (2018)
9. **Barra, L.**, Dickschat, J. S. "Harzianone biosynthesis by the biocontrol fungus *Trichoderma*." **ChemBioChem** 18, 2358-2365 (2017)
10. **Barra, L.**, Barac, P., König, G. M., Crüsemann, M., Dickschat, J. S. "Volatiles from the fungal microbiome of the marine sponge *Callyspongia* cf. *flammea*." **Org. Biomol. Chem.** 15, 7411-7421 (2017)
11. **Barra, L.**, Dickschat, J. S. "Sceptrin – enantioselective synthesis of a tetrasubstituted all-*trans* cyclobutane key intermediate." **Eur. J. Org. Chem.** 4566-4571 (2017)
12. Mohseni, M. M., Höver, T., **Barra, L.**, Kaiser, M., Dorrestein, P. C., Dickschat, J. S., Schäberle, T. F. "Discovery of a mosaic-like biosynthetic assembly line with a decarboxylative off-loading mechanism through a combination of genome mining and imaging." **Angew. Chem. Int. Ed.** 55, 13611-13614 (2016)
13. Rabe, P., Rinkel, J., Klapschinski, T. A., **Barra, L.**, Dickschat, J. S. "A method for investigating the stereochemical course of terpene cyclisations." **Org. Biomol. Chem.** 14, 158-164 (2016)
14. Rabe, P., **Barra, L.**, Rinkel, J., Riclea, R., Citron, C. A., Klapschinski, T. A., Janusko, A., Dickschat, J. S. "Conformational analysis, thermal rearrangement and EI-MS-fragmentation mechanism of (1(10)*E*,4*E*,6*S*,7*R*)-germacradien-6-ol by ¹³C-labeling experiments." **Angew. Chem. Int. Ed.** 54, 13448-13451 (2015)
15. **Barra, L.**, Ibrom, K., Dickschat, J. S. "Structural revision and biosynthesis of hypodoratoxide by ¹³C, ¹³C-COSY-NMR." **Angew. Chem. Int. Ed.** 54, 6637-6640 (2015)
16. Citron, C. A., **Barra, L.**, Wink, J., Dickschat, J. S. "Volatiles from nineteen recently genome sequenced *Actinomycetes*." **Org. Biomol. Chem.** 13, 2673-2683 (2015)
17. Citron, C. A., Rabe, P., **Barra, L.**, Nakano, C., Hoshino, T., Dickschat, J. S. "Synthesis of isotopically labelled oligoprenyl diphosphates and their application in mechanistic investigations of terpene cyclases." **Eur. J. Org. Chem.** 7684-7691 (2014)

18. **Barra, L.**, Schulz, B., Dickschat, J. S. "Pogostol biosynthesis by the endophytic fungus *Geniculosporium*." **ChemBioChem** 15, 2379-2383 (2014)