

Claudius Lenz

Email: claudius.lenz@uni-jena.de

Biosynthesis of basidiomycete polyenes

Various basidiomycetes produce polyene pigments, for which ecological functions have been assumed or shown. This project aims at characterizing polyene polyketide synthase genes and enzymes of selected basidiomycetes. Further, polyenes will be analyzed chemically and tested for their biological activity. The objective is a more profound understanding of fungal polyketide synthases and their products, and how structural features impact bioactivities. Methodologically, this project emphasizes chemical analysis, yet strongly interfaces with biochemistry, mycology, and molecular biology.

Publications

Lenz C, Dörner S, Trottmann F, Hertweck C, Sherwood A, Hoffmeister D (2022) Assessment of Bioactivity-Modulating Pseudo-Ring Formation in Psilocin and Related Tryptamines. *Chembiochem*, e202200183. [Details](#) [PubMed](#)

Lenz C, Dörner S, Sherwood A, Hoffmeister D (2021) Structure Elucidation and Spectroscopic Analysis of Chromophores Produced by Oxidative Psilocin Dimerization. *Chemistry* 27(47), 12166-12171. [Details](#) [PubMed](#)

Lenz C, Sherwood A, Kargbo R, Hoffmeister D (2021) Taking Different Roads: l-Tryptophan as the Origin of Psilocybe Natural Products. *Chempluschem* 86(1), 28-35. (Review) [Details](#) [PubMed](#)

Fricke J, Kargbo R, Regestein L, Lenz C, Peschel G, Rosenbaum MA, Sherwood A, Hoffmeister D (2020) Scalable Hybrid Synthetic/Biocatalytic Route to Psilocybin. *Chemistry* 26(37), 8281-8285. [Details](#) [PubMed](#)

Seibold PS, Lenz C, Gressler M, Hoffmeister D (2020) The Laetiporus polyketide synthase LpaA produces a series of antifungal polyenes. *J Antibiot (Tokyo)* 73(10), 711-720. [Details](#) [PubMed](#)

Fricke J, Lenz C, Wick J, Blei F, Hoffmeister D (2019) Production Options for Psilocybin: Making of the Magic. *Chemistry* 25(4), 897-903. [Details](#) [PubMed](#)

Lenz C, Wick J, Braga D, García-Altares M, Lackner G, Hertweck C, Gressler M, Hoffmeister D (2019) Injury-Triggered Blueing Reactions of Psilocybe *Angew Chem Int Ed Engl* 59(4), 1450-1454. [Details](#) [PubMed](#)

Tauber JP, Matthäus C, Lenz C, Hoffmeister D, Popp J (2018) Analysis of basidiomycete pigments in situ by Raman spectroscopy. *J Biophotonics* 11(6), e201700369. [Details](#) [PubMed](#)

Supervisor

[Dirk Hoffmeister](#)

Start of PhD

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Doctoral Disputation

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