

Nikolai Köhler

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EDUCATION

- Nov. 2020 – present **Ph.D.** in Bioinformatics TUM SCHOOL OF LIFE SCIENCES (CHAIR OF EXPERIMENTAL BIOINFORMATICS)
Working Title: “Graph-Based Methods for the Analysis and Integration of Lipidome and Metabolome Data into the Omics-Landscape”
- Network-based pathway enrichment integrating microbiome and multi-omics host data
 - Multi-partite (edge-centric) graph analysis
 - Edge-centric graph machine learning methods for metabolomic networks
- Oct. 2018 – Oct. 2020 **M.Sc.** in Molecular Biotechnology (with high distinction) TECHNICAL UNIVERSITY OF MUNICH (TUM)
Thesis: “Analysis of Organ-specific Lipidome Compositions and their Network Interactions in Mice”
- Graph-theoretical approaches to multi-organ lipid data integration
 - *de-novo* pathway enrichment
- Oct. 2014 – Oct. 2018 **B.Sc.** in Agricultural Science (with distinction) TECHNICAL UNIVERSITY OF MUNICH (TUM)
Thesis: “Regulation of Pyrrolizidine Alkaloid Biosynthesis in *Crassocephalum crepidioides*”
- Integration of transcript abundances and metabolite levels

PUBLICATIONS

Journal Publications

1. **Nikolai Köhler**[†], Tim Daniel Rose[†], Lisa Falk and Josch Konstantin Pauling. Investigating Global Lipidome Alterations with the Lipid Network Explorer. *Metabolites*, 2021; 11(8), 488.
2. Haberl EM, Weiss TS, Peschel G, Weigand K, **Köhler N**, Pauling JK, Wenzel JJ, Höring M, Krautbauer S, Liebisch G, Buechler C. Liver Lipids of Patients with Hepatitis B and C and Associated Hepatocellular Carcinoma. *International Journal of Molecular Sciences*. 2021; 22(10):5297
3. Sebastian Schramm, **Nikolai Köhler**, Wilfried Rozhon. Pyrrolizidine Alkaloids: Biosynthesis, Biological Activities and Occurrence in Crop Plants. *Molecules*, 2019, 24, 498.

Preprints

1. Sebastian Dieckmann, Akim Strohmeyer, Monja Willershäuser, Stefanie Maurer, Wolfgang Wurst, Susan Marschall, Martin Hrabe de Angelis, Ralf Kühn, Anna Worthmann, Marceline M Fuh, Joerg Heeren, **Nikolai Köhler**, Josch K. Pauling, Martin Klingenspor. Susceptibility to diet induced obesity at thermoneutral conditions is independent of UCP1. *bioRxiv*, 2021; doi: <https://doi.org/10.1101/2021.06.30.450595>

[†] These authors contributed equally to this work.TALKS AND WORKSHOPS

Presentations

- **Nikolai Köhler**[†], Tim Daniel Rose[†], Lisa Falk and Josch Konstantin Pauling. Investigating Global Lipidome Alterations with the Lipid Network Explorer. 1st International Lipidomics Society Conference/7th Lipidomics Forum, 2021

Workshops

- LipiTUM Workshop on Patient Stratification and Lipid Metabolic Network Analysis. 1st International Lipidomics Society Conference/7th Lipidomics Forum, 2021

INTERNSHIPS

Oct. 2017 – Mar. 2018	Roessner Lab (Chair for Plant Biochemistry) at the University of Melbourne/Metabolomics Australia
Aug. 2015 – Sep. 2015	Julius Kühn Institute, Federal Research Centre for Cultivated Plants, Institute for Grapevine Breeding

WORK EXPERIENCE

June. 2019 – Oct. 2020	Student Research Assistant	LIPiTUM/CHAIR OF EXPERIMENTAL BIOINFORMATICS (TUM)
Apr. 2018 – Mar. 2019	Student Research Assistant	CHAIR FOR BIOTECHNOLOGY OF HORTICULTURAL CROPS (TUM)
Apr. 2017 – Aug. 2017	Student Research Assistant	CHAIR OF PLANT BREEDING (TUM)

SCHOLARSHIPS

Oct. 2017 – Mar. 2018	PROMOS Travel Scholarship German Academic Exchange Service
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SUPERVISION

Bioinformatics

- "Development of a Deep Learning Model for the Detection and Prediction of Characteristic Fragmentation Patterns in Lipid Mass Spectra"
- "Network Integration of Metabolome and Microbiome Data using Local Search Optimisation"

Molecular Biotechnology

- "A Network-based Meta-Analysis to Link Nutritional Metabolites to Lipid Metabolism and Related Diseases"