Dr. Holger Franken

Background

- 06/2008 to 08/2012 research assistant at the Centre for Bioinformatics (ZBIT), University of Tübingen
- 05/2008 diploma in Computer Science (Bioinformatics).
- 10/2001-05/2008 Student of Bioinformatics at the University of Tübingen

Research Interests

- Systems biology
- Biomarker detection
- Metabolic networks
- Machine Learning Methods
- Evolutionary Algorithms

Projects

- Identification of novel metabolite biomarkers reflecting specific type 2 diabetes risk phenotypes and lifestyle intervention response
- Identification of biomarkers from mass spectrometry data using machine learning methods
- Identification and analysis of metabolic networks given experimental data

Ph.D. Thesis

- [Machine Learning and Computational Mass Spectrometry for the Discovery of Metabolite Biomarkers Involved in Type 2 Diabetes](#), available at [Verlag Dr. Hut](#), ISBN [978-3-8439-0941-9](#)

Publications

[1] Erhan Kenar, Holger Franken, Sara Forcisi, Kilian W6rmann, Hans-Ulrich H4ring, Rainer Lehmann, Philippe Schmitt-Kopplin, Andreas Zell, and Oliver Kohlbacher. Automated label-free quantification of metabolites from liquid chromatography-mass spectrometry data. *Molecular & Cellular Proteomics*, 13(1):348--359, 2014. [[DOI](#) | [arXiv](#) | [link](#)]

[2] Peiyuan Yin, Andreas Peter, Holger Franken, Xinjie Zhao, Sabine Sarah Neukamm, Lars Rosenbaum, Marianna Lucio, Andreas Zell, Hans-Ulrich Häring, Guowang Xu, and Rainer Lehmann. Pre-analytical aspects and sample quality assessment in metabolomics studies of human blood. *Clinical Chemistry*, 59(5):833--845, May 2013.

[3] R. Lehmann, H. Franken, S. Dammeier, L. Rosenbaum, K. Kantartzis, A. Peter, A. Zell, P. Adam, J. Li, G. Xu, A. Königsrainer, J. Machann, F. Schick, M. Hrabe de Angelis, M. Schwab, H. Staiger, E. Schleicher, A. Gastaldelli, A. Fritsche, H.-U. Häring, and N. Stefan. Circulating lyso-phosphatidylcholines are markers of ametabolically benign nonalcoholic fatty liver. *Diabetes Care*, 36(8):2331--2338, 2013.

[4] Holger Franken, Alexander Seitz, Rainer Lehmann, Hans-Ulrich Häring, Norbert Stefan, and Andreas Zell. Inferring disease-related metabolite dependencies with a bayesian optimization algorithm. In Mario Giacobini, Leonardo Vanneschi, and William Bush, editors, *Evolutionary Computation, Machine Learning and Data Mining in Bioinformatics*, volume 7246 of *Lecture Notes in Computer Science*, pages 62--73. Springer Berlin / Heidelberg, 2012. 10.1007/978-3-642-29066-4_6. [[link](#)]

[5] E. Kenar, H. Franken, L. Rosenbaum, R. Lehmann, S. Forcisi, K. Wörmann, M. Lucio, A. König, J. Rahnenfüher, P. Schmidt-Kopplin, H.-U. Häring, A. Zell, and O. Kohlbacher. Mit bioinformatik zu biomarkern. *Medizinische Welt*, 63(5):245--250, 2012.

[6] K. Wörmann, M. Lucio, S. Forcisi, S.S. Heinzmann, E. Kenar, H. Franken, L. Rosenbaum, P. Schmitt-Kopplin, O. Kohlbacher, A. Zell, H.-U. Häring, and R. Lehmann. Metabolomics in der Diabetesforschung. *Der Diabetologe*, pages 1--5, 2012. 10.1007/s11428-011-0778-9. [[link](#)]

[7] Holger Franken, Rainer Lehmann, Hans-Ulrich Häring, Andreas Fritsche, Norbert Stefan, and Andreas Zell. Wrapper- and ensemble-based feature subset selection methods for biomarker discovery in targeted metabolomics. In Marco Loog, Lodewyk Wessels, Marcel Reinders, and Dick de Ridder, editors, *Pattern Recognition in Bioinformatics*, volume 7036 of *Lecture Notes in Computer Science*, pages 121--132. Springer Berlin / Heidelberg, 2011. 10.1007/978-3-642-24855-9_11. [link]

[8] Miriam Hoene, Holger Franken, Louise Fritsche, Rainer Lehmann, Ann Kathrin Pohl, Hans-Ulrich Häring, Andreas Zell, Erwin D. Schleicher, and Cora Weigert. Activation of the mitogen-activated protein kinase (MAPK) signalling pathway in the liver of mice is related to plasma glucose levels after acute exercise. *Diabetologia*, 53(6):1131--1141, March 2010. [DOI | link]

Poster

Metabolomic Feature Detection in LC-MS data - A probabilistic approach
  E. Kenar, H. Franken, A. Fekete, S. Forcisi, K. Wörmann, Ph. Schmitt-Kopplin, R. Lehmann, H.U. Häring, A. Zell, and O. Kohlbacher
  presented at 'Metabolomics & More' , March 10 - 12, 2010 - Freising-Weihenstephan, Germany

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