

CURRICULUM VITAE

Nico Hüttmann

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I. Education

Jan 2018 - Dec 2021 **M.Sc. in Chemistry**

University of Ottawa, Ottawa, Canada

Supervisor: Prof. Maxim V. Berezovski

Thesis title: "Surface Proteome of Extracellular Vesicles and Correlation Analysis for Identification of Breast Cancer Biomarkers"

Oct 2014 - Oct 2017 **B.Sc. in Biomolecular Engineering**

Technische Universität Darmstadt, Darmstadt, Germany

Bachelor thesis supervised by Prof. Michael Przybylski

II. Work Experience

May 2022 – to date **Research scientist**

AffyMSLifeChem, Centre for Analytical Biochemistry and Biomedical Mass Spectrometry, Rüsselsheim am Main, Germany

PI: Prof. Michael Przybylski

- MALDI-MS-based epitope determination of antibody/aptamer-protein complexes by epitope extraction or excision approaches, SPR-affinity measurement as validation
- RNA aptamer selection in collaboration with Süß lab, TU Darmstadt
- Development of data processing workflows with Shiny applications

Jan 2022 – to date **Data analyst**

John L. Holmes Mass Spectrometry Facility, University of Ottawa, Ottawa, Canada

- Proteomics and metabolomics data analysis including raw data processing, statistical and biological analysis
- Project discussion and experimental design
- Support with manuscript preparation by writing and visualizations
- Development of analysis workflows in R
- Teaching: basic data analysis for grad students, lectures for grad courses, workshop about sample preparation and data analysis

- May - Dec 2020 **Scientific assistant**
Berezovski lab and JLHMSF, Faculty of Science, University of Ottawa, Ottawa, Canada
 Proteomics data analysis for internal and collaborational projects
- Jan 2018 - Apr 2020 **Teaching assistant**
Faculty of Science, University of Ottawa, Ottawa, Canada
- Sep 2017 - May 2021 **Scientific assistant**
Steinbeis Centre for Biopolymer Analysis and Biomedical Mass Spectrometry, Rüsselsheim am Main, Germany
- Mar - Aug 2017 **Bachelor student**
Steinbeis Centre for Biopolymer Analysis and Biomedical Mass Spectrometry, Rüsselsheim am Main, Germany

III. Scientific competences

- Proteomics** *5+ years experience from Master's project, collaboration projects, and held workshops*
- Sample preparation from whole cells, extracellular vesicles, biofluids (plasma, urine), tissue (mouse liver) by various methods (e.g. FASP)
 - Protein enrichment using affinity-based methods (Biotinylated proteins/streptavidin columns, aptamer/antibody-based, phosphopeptide enrichment with IMAC/TiO₂)
 - Raw data processing with MaxQuant, Proteome Discoverer
 - Data analysis in R (statistical and bioinformatic, including self-written code and packages; use of Bioconductor packages, RMD, Shiny, GitHub, etc.) and other software/databases (Cytoscape, STRING, MSidDB, GPS 6.0, motif-x)
 - Metaproteomics analysis with MetaProteomeAnalyzer, Prophan and R
 - Basic instrument operation (Thermo Scientific Orbitrap Fusion, Thermo Scientific UltiMate 3000 and Vanquish HPLC)
- Metabolomics** *2 years experience from collaboration projects and held workshops*
- Basic sample preparation by solvent extraction
 - Raw data processing with MZMine
 - Metabolite annotation with SIRIUS
 - Data analysis and visualization with R
- Biology** Cell culture, cell fractionation/extracellular vesicle isolation by differential ultracentrifugation, surface protein labelling, flow cytometry
- Biochemical methods** Aptamer selection, surface plasmon resonance (SPR) affinity analysis (Reichert instruments), protein/DNA/RNA extraction, gel electrophoresis, spectroscopic assays, microscopy

IV. General competences and Interests

- German Native language
- English Professional working proficiency

French	Cambridge First Certificate in English, Council of Europe Level B2 IELTS Academic, Overall: 7.5 (2018) Elementary proficiency Diplôme d'Études en Langue Française (DELFF), niveau A1
Computer Skills	R (incl. RMarkdown, Shiny, Bioconductor, tidyverse, etc.) Basic knowledge of Python, Java
Sports	Handball and tennis (both competitively)

V. Conferences

05. - 09. Jun 2022	70th ASMS Conference on Mass Spectrometry and Allied Topics Poster presentation: "Epitope identification of SARS-CoV-2 variant spike protein antibodies by SPR-MALDI-MS provides molecular insight for immune diagnostics"
10. - 13. Aug 2020	36th Trent Conference on Mass Spectrometry, virtual meeting Oral presentation: "Understanding Proteomics Data of Extracellular Vesicles in Network Concepts"
23. - 24. Apr 2020	Ottawa Extracellular Vesicle e-Symposium, virtual meeting Oral presentation: "Understanding EVs in Network Concepts"
07. - 08. Nov 2019	Workshop & Innovation Conference: "Mass spectrometry in Medical Technology", Rüsselsheim am Main, Germany Poster presentation: "Multiple Hypothesis Scoring Algorithm for High-Throughput Aptamer-Protein Target Identification"

VI. Instructing/Mentoring

31. Aug - 2. Sep '22	Workshop: "Data Analysis for Metabolomics and Proteomics" Demonstration of basic data types from proteomics and metabolomics experiments, data handling, qualitative and quantitative methods and biological data bases
Jul 2020 - Apr 2021	Supervision of Honours Project, Dr. Maxim Berezovski, University of Ottawa Abdullah Khraibah: "Comparative proteomics of EVs after coronavirus infection"
Dec 2020	Development of Undergraduate lab experiment, Dr. Berezovski BIM 4316 Modern Bioanalytical Chemistry
28. - 30. May 2019	Workshop: "Sample preparation for Mass Spectrometry based Bottom-Up Proteomics" organized by Dr. Zoran Minic Demonstration of sample preparation, Presentation on data processing using MaxQuant and ProteomeDiscoverer
2018/2019	Graduate Course (M.Sc, Ph.D.): Analytical Approach to Chemical Problems: Mass Spectrometry-Based Proteomics (26 students), lecturer: Dr. Zoran Minic, University of Ottawa Demonstration data processing using MaxQuant and Proteome Discoverer

VII. Publications

Allameh, A.*, Hüttmann, N.*, Charlebois, E.*, Katsarou, A., Gu, W., Gkouvatsos, K., Pasini, E., Bhat, M., Minic, Z., Berezovski, M., Guido, M., Fillebeen, C., Pantopoulos, K. Hemojuvelin Deficiency Promotes Liver Mitochondrial Dysfunction and Predisposes Mice to Hepatocellular Carcinoma. *Commun Biol* **2022**, 5, 153. <https://doi.org/10.1038/s42003-022-03108-2>

Minic, Z., Hüttmann, N., Poolsup, S., Li, Y., Susevski, V., Zaripov, E., Berezovski, M.V. Phosphoproteomic Analysis of Breast Cancer-Derived Small Extracellular Vesicles Reveals Disease-Specific Phosphorylated Enzymes. *Biomedicines* **2022**, 10, 408. <https://doi.org/10.3390/biomedicines10020408>

Lupu, L., Wiegand, P., Hüttmann, N., Rawer, S., Kleinekofort, W., Shugureva, I., Kichkailo, A. S., Tomilin, F. N., Lazarev, A., Berezovski, M. V., Przybylski, M. Molecular Epitope Determination of Aptamer Complexes of the Multidomain Protein C-Met by Proteolytic Affinity-Mass Spectrometry. *ChemMedChem* **2020**, 15, 363. <https://doi.org/10.1002/cmdc.201900489>

[Google Scholar](#)