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 (including self-written code, 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, Prophane 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

	Cambridge First Certificate in English, Council of Europe Level B2 IELTS Academic, Overall: 7.5 (2018)
French	Elementary proficiency Diplôme d'Études en Langue Française (DELF), 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

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