Curriculum Vitae DI Dr. rer. nat. Ulrike Resch

Personal

Name, Title:	DI Dr.rer.nat. Ulrike Resch
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Education

10/2008:	Graduated as Dr. rer.nat at the Vienna University of Technology
10/2004-10/2008:	Ph.D. thesis: **"Role of XIAP in cellular signalling and novel interacting proteins"** at the Department of Vascular Biology and Thrombosis Research, Medical University of Vienna under the provision of Dr. R. de Martin and Dr. R. Mach, Vienna University of Technology, Department of Gene technology and Chemical Engineering.
02/2004:	Graduated as Dipl. Ing. at the University of Technology, Graz
02/2003-01/2004:	Diploma thesis: "Hypochlorite-modified low-density Lipoprotein and Apoptosis in human Jurkat T-cells" at the Department of Medical Biochemistry and Molecular biology, Medical University Graz under the provision of Dr. E. Malle
10/1993-01/2003:	Graduated from the Graz University of Technology for Biochemistry, Biotechnology and Food Technology.
09/1991-06/1993:	Graduated from the College for Technical Chemistry, Graz. Diploma thesis: "Atherosclerosis and Lp(a)", literature work).

Professional Experience and Training

06/2023-present	Senior Postdoctoral Researcher and independent group leader at the Department of Vascular Biology and Thrombosis Research, Medical University of Vienna. Projects "EVs for regeneration and reprogramming in liver cancer", "Source matters- the plasma EV´s proteome close and distant to the crime scene during cardiac arrest", "For DAMP- or good? EV´s oxidation specific epitopes in inflammation and immunity", "Role of SERPINA5 in COVID-19 pathology?", "Role of CTSL in metabolic rewiring of prostate cancer", "Adaptive mechanisms of pathogenic bacteria to micronanoplastics (MNP) and impact on their host", "Characterization of Klebsiella pneumoniae OMVs as basis for type-specific vaccines".

01/2023-05/2023	Postdoctoral Research (senior) at the Institute of Genetics, University of Cologne, CECAD, AG Krueger. Projects "Cardiovascular proteomics", "NMJ-on-a-Chip: high throughput analysis of human co-cultures with focus on neurodegenerative diseases", "Proteomic profiling of DBS biopsies to uncover proteotypic signatures in Alzheimer, Parkinson, Essential Tremor and Epilepsy", "Decipher the dynamics of macrophage´s polarization-dependent de-novo synthetized whole cell, soluble and EV-packed proteome utilizing MetRs-based BONCAT and characterize the secretome´s uptake and impact on dermal fibroblasts", "PTM (phospho, methyl, acetyl) analysis of cardiomyocytes and cardiac tissue". Supervision of bachelor and master students. Lecturer "Mechanisms of Aging and Aging associated Diseases".
07/2022-12/2022	Postdoctoral Research (senior) at the Department of Cardiac Surgery, Cardiovascular Regenerative Medicine and Tissue Engineering 3D Lab (CURE^{3D}), Heinrich-Heine University Düsseldorf, Germany and Guest Scientist at CECAD, University of Cologne, AG Krueger. Project "Comparative protein expression signatures of human heart right and left ventricles in patients admitted to heart transplantation".
03/2019-06/2022	Postdoctoral Research (senior) at the Department of Vascular Biology and Thrombosis Research, Centre of Physiology and Pharmacology, Medical University of Vienna, and Institute of Pathology, Pathology of Laboratory Animals, University of Veterinary Medicine Vienna. Projects: i) "Nuclear Cathepsin L and SerpinA5", ii) "Deciphering functions of Cathepsin L in prostate cancer by in quantitative (2D-DIGE and shotgun) proteomic approaches". iii) "Untersuchungen zur Inaktivierung der SARS-CoV-2 aktivierenden Protease TMPRSS2 durch SERPINA5 und andere körpereigene Serpine", iv) "Comparative characterization of outer membrane vesicles (OMVs) isolated from multidrug resistant Klebsiella pneumoniae as basis for development of type-specific vaccines", v) "Evaluation of oxidative stress biomarkers in subjects with elevated Lp(a) ", vi) "Impact of micronanoplastics (MNPs) on bacterial stress response".
12/2018-02/2019	Freelancing in research collaborations at the Clinical Institute of Laboratory Medicine, Proteomics Core Facility; Medical University of Vienna (proteomics and metaproteogenomics), and Department of Vascular Biology and Thrombosis Research, Centre of Physiology and Pharmacology, Medical University of Vienna (DIA/DDA quantitative shotgun and 2D-DIGE proteomics).
06/2018-11/2018:	Postdoctoral Research Engineer at the Department of Clinical Microbiology, Unit Virology, Group Anne-Marie Fors-Connolly, project: Deciphering molecular mechanisms underlying thrombosis and bleeding during Haemorrhagic Fever with Renal Syndrome (HFRS).
11/2014-5/2018:	Postdoctoral Research (senior) at the Department of Vascular Biology and Thrombosis Research, Medical University of Vienna, Project: SFB54-InThro: Activation of endothelial cells by platelets. Gene-and proteomic profiling, translational intellectual input and knowledge-transfer. Quantitative proteomics (SILAC and DIA) of circulating plasma microparticles from liver-cancer patients undergoing partial liver-hepatectomy. Phosphoproteomics of murine platelets and megakaryocytes.
06/2013-06/2014:	Postdoctoral Research Engineer at the Department of Molecular Biology Umeå University, Molecular Infection Medicine Sweden (MIMS) Group Emmanuelle Marie Charpentier. Project: Host interactions of *Streptococcus pyogenes* MAMPs and PAMPs, Omics-analysis of secreted Extracellular Vesicles.

11/2012-06/2013: Freelancing in research collaborations at the Department of Vascular Biology and Thrombosis Research (Prof. Alice Assinger), Department of and Department of Nuclear Medicine, Medical University of Vienna; revision of a project proposal; supervision of master students.

05/2012-10/2012: Guest Scientist at the University of Umea, Molecular Infection Medicine Sweden, Project: Host-Pathogen interactions and DNA-damage. Functional genomics (lentiviral shRNA gene silencing); Macrophage infection-biology, signal transduction; Supervision of Master and PhD students, Interdisciplinary Project development and pilot experiments. Participation in research grants proposals.

07/2011-04/2012: Freelancing in research collaborations at the Department of Vascular Biology and Thrombosis Research Medical University of Vienna. Training in Bioinformatics, Systems Biology and Java-programming. "Omics" data analysis.

04/2009-06/2011: Postdoctoral Assistant at the University of Cologne, Dept. of Mouse Genetics and Inflammation; Establishment of SILAC-based quantitative Mass spectrometry. Tissue specific proteome profiling from transgenic mice. Knowledge-transfer workshops on SILAC-MS/MS and analysis of protein-protein interactions. Participation in research grant proposals. Collaborative Project with the Center of Molecular Medicine (CeMM), Vienna; Method optimization for phosphoproteomic workflows. Proteomic-data analysis. Lecturer at the Technikum Wien, Topic: "Modern tools of Molecular Biology and Signal Transduction". Interdisciplinary project initiation, pilot studies.

11/2008-04/2009: Postdoctoral Assistant at the Dept. of Vascular Biology and Thrombosis Research, Medical University of Vienna. Revising scientific manuscripts, project planning and pilot studies; Supervising Diploma students and supporting PhD students.

10/2004-10/2008: Doctoral Thesis at the Dept. of Vascular Biology and Thrombosis Research, Medical University of Vienna. Yeast two hybrid screening, primary cell culture, protein expression and posttranslational modifications, scientific presentations and contributions at international meetings and journals.

02/2003-02/2004: Diploma Thesis at the Dept. of Medical Biochemistry, University Graz; Oxidative Stress, oxidative modifications of lipoproteins and Apoptosis.

10/1998-01/2003: Research Assistant at the Dept. of Nuclear Medicine, General Hospital Vienna Group Helmut Sinzinger. Bioassay development Oxidative Stress and Auto-antibodies, characterization of Oxidatively modified lipoproteins. Clinical Studies: Thyroid dysfunction, Lipid-lowering drug intervention studies.

10/1993-09/1998: Technical Assistant at the Dept. of Biochemistry, University Graz; Responsibilities: Lipid- and antioxidant profiling of lipoproteins (HPLC, GC, DC), Assay development for the detection of autoantibodies. Monoclonal Antibody generation and characterization, ELISA, Cell Culture.

Main Areas of Research

Research Areas: Vascular Biology; Cardiovascular dysfunction; Inflammation; Innate Immunity; Signal Transduction; Post-translational modifications; Ubiquitin Biology; Protein-lipid interactions; Extracellular matrix; Cell biology and multicellular models; Biochemistry; Molecular Biology; Live-Cell Imaging; Oxidative Stress; Vesicle biogenesis; Host-Pathogen-Interaction; Antibiotic resistance mechanisms, Vaccine development, Intra- and intercellular, intra- and inter-kingdom communication;

Research Focus: Extracellular Vesicles: EVs mirror both cause and consequence of organismal stress, instigated by endogenous lipid and carbohydrate metabolic disorders (atherosclerosis, diabetes) and exogenous threats (bacterial- and viral infection, environmental poisons), altogether leading to inflammation, organelle dysfunction, oxidative stress and cell death. My excitement on EV-research started in 2012 during a postdoctoral research project at the Umea University, Sweden. Since then, my research focuses on the molecular characterization of EVs with the aim to understand their biological significance in intercellular and interkingdom-communication and the impact of this systemic information interchange on vascular integrity, innate and adaptive immune response.

Key National and International Cooperation Partners

Prof. Dr. Alice Assinger and Dr. Waltraud Schrottmair (MedUniVienna, Platelet biology, animal models)

Prof. Dr. Maria Zellner (MedUniVienna, Platelet biology, 2D-DIGE, clinical studies, Alzheimer)

Prof. Dr. Patrick Starlinger (MedUniVienna and Mayo Clinic Rochester, Surgeon, liver transplantation biobank MedUniVienna)

Dr. med. David Pereyra (MedUniVienna, liver transplantation and transfusion medicine)

Prof. Dr. Christoph Binder and Dr. Taras Afonyushkin (MedUniVienna, Laboratory medicine, immune functions in atherosclerosis)

Prof. Dr. Irene Lang and Dr. Anna Ondracek (MedUniVienna, Cardiology, clinical and experimental cardiovascular vascular medicine)

Prof. Dr. Klaus Kratochwill (MedUniVienna, Proteomics Core Facility) and Dr. Goran Mitulovic (Bruker Daltontics Austria)

Prof. Dr. Lukas Kenner (MedUniVienna, Department of Pathology, molecular mechanisms of cancer initiation, progression and metastasis)

Prof. Marcus Krueger (University Cologne, CECAD, Head of Proteomics)

Dr. Daniel Bachurski (University Clinic of Cologne, EV-specialist)

Dr. Elvira Weber (Heinrich-Heine-University Düsseldorf, CURE3D, Cardiovascular Regenerative Medicine &Tissue Engineering)

Prof. Emmanuelle Charpentier and Kathirvel Alagesan (MPUSP, Science of Pathogens, *S. pyogenes*)

Core Competences

Techniques: Biochemistry (Signal Transduction, Protein expression, Posttranslational modifications, Enzymatic Assays, Immunoblotting, Immunohistochemistry, ELISA); preparative and analytical ultracentrifugation (Lipoproteins, Vesicles); Molecular Biology (Cloning, RTq-PCR, gene silencing -shRNA-lentivirus, gene knock-out -CRISRP-Cas); Proteomics (SILAC, Interaction/immuno-proteomics, phosphoproteomics, proteome profiling, clinical proteomics, 2D-DIGE), Bioanalytics: MS (Orbitrap, TimsToF, MALDI), Chromatography (n/U-HPLC, DC, GC); Omics-data analysis

Reviewer for Journals:

Journal of Extracellular Vesicles (ISSN:2001-3078), IF 14.5

Journal of Proteomics (*ISSN*: 1876-7737), IF 2.8

Journal of Cell Science (ISSN 1477-9137), IF 5.235

Metabolism (ISSN: 0026-0495), IF 2.733

Molecular Cancer (ISSN: 1476-4598), IF 5.195

Immunology and Cell Biology (ISSN:1440-1711), IF 4

International Journal of Cardiology (ISSN: 0167-5273), IF 4.039

Frontiers in Physiology (ISSN: 1664-042X), IF 4.755

Frontiers in Cell and Developmental Biology (ISSN 2296-634X), IF 6.081

Frontiers in Immunology (ISSN 1664-3224), IF 7.3

Frontiers in Chemistry (ISSN 2296-2464), IF 5.5

Frontiers in Cardiovascular Medicine (ISSN 2297-055X), IF: 3.8

Journal of Vascular Research (ISSN 1018-1172), IF 1.7

Nutrients (ISSN 2072-6643), IF 5.9

Cells (ISSN 2073-4409), IF 4.829

Vienna, 20.08.2025

Funding track records

• December 2020: CVC Translational Synergy Grant: Evaluation of oxidative stress biomarkers in subjects with elevated Lipoprotein (a). Joint grant awarded to DI Dr. Ulrike Resch (Vascular Biology and Thrombosis Research, Medical University of Vienna) and Dr. Lore Schrutka (Department of Internal Medicine II, Division of Cardiology, Medical University of Vienna).

• May 2019: Medical Scientific Fund of the Major of Vienna, project number 19048, assigned to Prof. Dr. Diethart Schmid and DI Dr. Ulrike Resch. Title: „Comparative characterization of outer membrane vesicles (OMVs) isolated from multidrug resistant Klebsiella pneumoniae as basis for development of type-specific vaccines".

• May 2018: Innovationscheck, FFG to Omnignostica Forschungs GmbH (U. Resch and W. Wonsich): Title: Haben oxidative Stress Parameter einen prädiktiven Wert für die Leberregeneration und damit auch der Gesundheitsentwicklung von Patienten nach partieller Leberresektion. Research partner: Prof. Alice Assinger, Department of Vascular Biology and Thrombosis Research, Medical University of Vienna.