

Metka Lenassi, PhD, is Associate Professor of Biochemistry and Molecular Biology at the Faculty of Medicine, University of Ljubljana, where she leads the Laboratory for Extracellular Vesicle Research. Her research uses HIV infection as a model system to investigate the cellular mechanisms that regulate EV biogenesis and function. In parallel, she develops methodologies for EV research and collaborates closely with clinical partners to advance the use of EVs as biomarkers in clinically relevant diseases. She has led nationally funded research projects, serves as President of the Slovenian Network for Extracellular Vesicles (SiN-EV), and previously held leadership positions within the International Society for Extracellular Vesicles (ISEV).

Education:

September 2002: BSc in Microbiology, Biotechnical Faculty, University of Ljubljana

June 2007: PhD in Biochemistry and Molecular Biology, Faculty of Medicine, University of Ljubljana

October 2008: Postdoctoral training in Virology, University of California, San Francisco (UCSF), USA

Current position

Associate Professor of Biochemistry and Molecular Biology

Employment:

2003–2007: PhD Student, Institute of Biochemistry and Molecular Genetics (IBKMG), Faculty of Medicine, University of Ljubljana

January–March 2007: Marie Curie Early Stage Research Training Fellow, University of Gothenburg, Sweden

2007–2008: Postdoctoral Fellow, UCSF, USA

2007–2009: Part-time Research Fellow, IBKMG, Faculty of Medicine, University of Ljubljana

2009–2010: Postdoctoral Fellow, IBKMG, Faculty of Medicine, University of Ljubljana

2010–2014: Teaching Assistant, IBKMG, Faculty of Medicine, University of Ljubljana

2014–2024: Assistant Professor, IBKMG, Faculty of Medicine, University of Ljubljana

2014: Visiting Scholar, UCSF, USA

2018: Specialist Lecturer, Oxford Brookes University, United Kingdom

November 2024–present: Associate Professor, IBKMG, Faculty of Medicine, University of Ljubljana

Leadership and management experience:

Head of the Laboratory for Extracellular Vesicle Research, IBKMG, Faculty of Medicine, University of Ljubljana (2018–present)

- Principal Investigator or Co-Principal Investigator of competitively funded ARIS research projects on extracellular vesicle biology, HIV pathogenesis, and EV biomarkers
- Supervised 10 PhD students (6 ongoing), 6 MSc students, and 4 BSc students; mentees received one PhD *Cum Laude* distinction, four Faculty Prešeren Awards, and three Krka Awards for scientific excellence

Scientific and Academic Leadership:

- Executive Chair of the Science & Meetings Committee and later the Science & Journals Committee, International Society for Extracellular Vesicles (ISEV) Board (2022–2024), providing strategic leadership for scientific programmes, Special Interest Groups, Rigor & Standardization initiatives, and intersociety collaborations
- President of the Slovenian Network for Extracellular Vesicles (SiN-EV) (2019–present), a national scientific society with more than 100 members

- Member of the International Organizing Committee for 27 predominantly international scientific meetings and workshops (up to 1,200 participants)
- Deputy Coordinator for the Scientific Field of Biochemistry and Molecular Biology, Doctoral Programme in Biomedicine, University of Ljubljana (2023–present)

Professional service:

- Section Editor, Archives of Medical Science and Acta Chimica Slovenica
- Member of the Board of Reviewers, Journal of Extracellular Vesicles
- Invited reviewer of grant proposals for national and international funding agencies and European Union research programmes
- Ad hoc reviewer for journals including Nature Communications, Journal of Extracellular Biology, European Journal of Cell Biology, ACS Applied Materials & Interfaces, and others
- Member of national and international PhD examination committees

Awards:

- 2025: University of Ljubljana Outstanding Research Achievement (Principal Investigator), “Extracellular Vesicles in Blood as a Promising Diagnostic Resource”
- 2025: ARIS Outstanding Achievement in Science (Co-author), “Cosmopolitan Extracellular Vesicles for Applications in Medicine, Industry, Environmental Sciences, and Agriculture”
- 2024: University of Ljubljana Outstanding Research Achievement (Co-author), “Membrane Nanostructures”
- 2021: ARIS Outstanding Achievement in Science (Principal Investigator), “Enrichment of Plasma Extracellular Vesicles for Reliable Quantification of Their Size and Concentration for Biomarker Discovery”
- 2019: Lavrič Award for Best Teaching Assistant, Faculty of Medicine, University of Ljubljana

Selected Invited Lectures:

- EVERNET Mini-Symposium, Karolinska Institutet, Stockholm, Sweden (May 2026)
- Korean Society for Extracellular Vesicles Annual Meeting, Jeju, South Korea (November 2023)
- Chinese Society for Extracellular Vesicles Annual Meeting, Shanghai, China (October 2023)
- Small New World – Joint Meeting of ASEV & GSEV, Salzburg, Austria (October 2022)
- Elettra Sincrotrone Research Centre, Trieste, Italy (June 2018)
- University of California, Riverside, Riverside, USA (December 2014)

Bibliometric indicators: h-index 24; >15,000 citations (Web of Science)

Contributions to science:

Extracellular vesicles in HIV pathogenesis:

Demonstrated that the HIV protein Nef is released via extracellular vesicles (EVs) from HIV-1-infected T lymphocytes, microglia, and astrocytes. Discovered and characterized a novel EV biogenesis pathway and distinct Nef-containing EV populations in human microglia. Established that Nef-containing EVs contribute to HIV pathogenesis in uninfected cells, revealing a previously unrecognized mechanism of host–virus communication.

Extracellular vesicles as diagnostic biomarkers:

Established robust methods for the isolation of EVs from blood and urine, enabling their application as biomarkers across multiple clinical settings. Pioneered the use of EV-bound DNA as a biomarker for

kidney allograft injury and performed comprehensive phenotyping of blood EVs in healthy individuals, laying the foundation for a reference framework for clinical EV biomarker studies.

Methodological advances in EV research:

Among the first to apply asymmetric flow field-flow fractionation (AF4) coupled with multi-detector analysis for accurate determination of EV size and concentration. Demonstrated the limitations of PKH dyes for EV labelling in functional studies, improving methodological rigor in the field.