



Austrian Society for
Extracellular Vesicles



UNIVERSITY CLINIC OF DENTISTRY
MEDICAL UNIVERSITY OF VIENNA



ASEV-CzeSEV

**A joint meeting of the local Extracellular Vesicles
communities
in Austria and Czech Republic**

*Medical University Vienna, University Clinic of Dentistry, Sensengasse 2a, 1090, Vienna, Austria
16-17 September 2024*



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PROCEEDINGS

Austrian Society for Extracellular Vesicles
Czech Society for Extracellular Vesicles®
University Clinic of Dentistry, Medical University of Vienna

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OP12: Investigating the effect of extracellular vesicles from *Trichinella spiralis* on reduction of respiratory allergy induced by ovalbumin in BALB/c mice

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Introduction: We have recently discovered that extracellular vesicles from *Trichinella spiralis* muscle larvae (TsEVs) exhibit immunomodulatory properties in vitro. Our goal was to investigate the potential of TsEVs to ameliorate ovalbumin (OVA)-induced allergy in a murine model. **Material & Methods:** Experimental allergic airway inflammation was induced in BALB/c mice. Treatment by intranasal administration of TsEVs was performed on the days of sensitization and challenge. Cells from bronchoalveolar lavage, lungs and spleen were stained and analyzed by FACS or cultivated for cytokine analysis. **Results:** TsEVs treatment led to a significant reduction in the OVA-specific IgE in the sera, decrease in number of eosinophils in the bronchoalveolar lavage and decline in percentage of eosinophils, macrophages and NK cells in the lungs of treated animals. Also, the percent of CD103+ dendritic cells in lungs of treated mice was increased, while the percent of CD11b+Ly6C+ cells was decreased, compared to the cell phenotype of the control group. Additionally, treatment with TsEVs led to a significant increase in CD4+Foxp3+ regulatory T cells, as well as IL-10-producing regulatory T cells. Mice which received treatment with TsEVs had significantly lower production Th2 cytokines IL-4, IL-5, IL-13 but had increased production of the IL-10 cytokine from immune cells isolated from lungs and spleen. **Discussion:** These results show that TsEVs have immunomodulatory properties which can alleviate allergic airway inflammation in mice. This encourages further research directed to possible application of TsEVs as therapeutics for respiratory allergies. (Funded by Ministry of Science, Republic of Serbia, Co. No. 451-03-47/2023- 01/200019)

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