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# EXPAND-EV

## EXPANDING the value of Extracellular Vesicles



Early detection



Prognosis



Personalised therapy

### Background

Extracellular Vesicles (EVs) are nanoscale particles released by cells that play a central role in cellular communication.

They carry proteins, nucleic acids, and sugars that reflect the health status of their cell of origin.

- Potential: Early disease detection, patient monitoring, personalised treatment
- Applications: Promising as biomarkers and as drug delivery systems

### Current challenges

Despite their potential, EVs face important barriers:

- Lack of standardised purification technologies
  - Limited clinical validation
- Incomplete understanding of their molecular signatures

### Our approach

The EXPAND-EV project will:

- Validate an innovative EV purification system in clinical labs
- Analyse patient samples from breast, liver, and lung cancer
- Build molecular EV profiles using multi-omics (proteomics, glycomics, transcriptomics)
- Develop edible plant-derived EVs (PDEVs) as natural carriers for siRNA, with GMP-compliant production and preclinical testing for safe, non-invasive cancer therapy

### Expected outcomes

- Identification of new biomarker panels for cancer
  - Tools for early and non-invasive diagnosis
  - Better prognostic insights for clinicians
- Foundations for personalised therapeutic strategies

These advances will accelerate precision medicine and open new pathways in cancer care

## Consortium



**Dr. Milica Popović, Coordinator,**  
**Faculty of Chemistry University of Belgrade**  
Studentski trg 12-16, 11158 Belgrade, Serbia



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