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Středoevropský technologický institut, výzkumná skupina Chytré nanostroje
Laboratoř metalomiky a nanotechnologií, Mendelova univerzita v Brně

Seminář/Seminar PRO_4726

Vás zve na seminář:

Ultrafiltration with size-exclusion liquid chromatography for high yield isolation of extracellular vesicles preserving intact biophysical and functional properties

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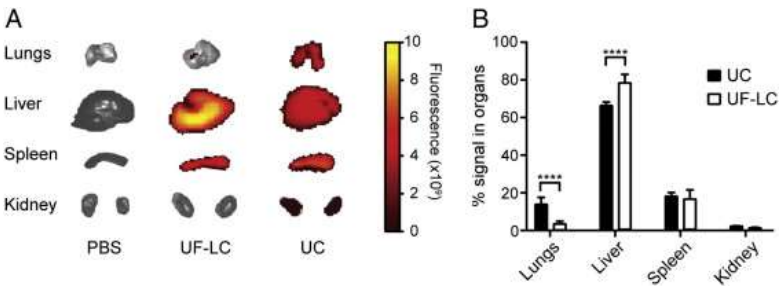
Abstrakt

Extracellular vesicles (EVs) are natural nanoparticles that mediate intercellular transfer of RNA and proteins and are of great medical interest; serving as novel biomarkers and potential therapeutic agents. However, there is little consensus on the most appropriate method to isolate high-yield and high-purity EVs from various biological fluids. Here, we describe a systematic comparison between two protocols for EV purification: ultrafiltration with subsequent liquid chromatography (UF-LC) and differential ultracentrifugation (UC). A significantly higher EV yield resulted from UF-LC as compared to UC, without affecting vesicle protein composition. Importantly, we provide novel evidence that, in contrast to UC-purified EVs, the biophysical properties of UF-LC-purified EVs are preserved, leading to a different in vivo biodistribution, with less accumulation in lungs. Finally, we show that UF-LC is scalable and adaptable for EV isolation from complex media types such as stem cell media, which is of huge significance for future clinical applications involving EVs.



11. 12. 2015, 15:00 h

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