ABSTRACT BOOK ABSTRACTS



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MELANOMA AND MELANOCYTIC NAEVI

MULTIPARAMETRIC ANALYSIS OF PLASMA EXOSOMES DERIVED FROM MELANOMA PATIENTS. NANOMETRIC CLICK OF A PATHOLOGIC STATUS.

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Introduction: Exosomes, extracellular vesicles of 30-150 nm, are released by normal and tumor cells. Exosomes play a major role in cell communication and can be found in biological fluids as carriers of biomarkers. Tumor exosomes can inhibit immune responses, mediate drug resistance and transform mesenchymal stem cells. In contrast to healthy donors, cancer patients' plasma contain higher levels of exosomes. Cutaneous melanoma is a very aggressive cancer whose incidence has rapidly increased worldwide and the prognosis is generally poor, given the propensity of melanoma cells to spread to distant sites while evading immune system control.

Objective:To investigate potential differences between plasma exosomes derived from healthy donors and melanoma patients at different stages of disease.

Materials and Methods:We isolated plasma exosomes from 30 melanoma patients and healthy donors by differential ultracentrifugation and evaluated them quantitatively by Nanoparticle Tracking Analysis. For qualitative mass spectrometry analysis we developed









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an ad hoc exosome immune capture system to purify them without contamination of among all protein complexes, normally perturbing the MS analysis. The lipid profile was assessed by gas chromatography.

Results:The level of exosomes circulating in plasma of stage 0-IV melanoma patients is higher compared to healthy donors, showing also different sizes. Spectrometry analysis identified unique as well as several upregulated proteins expressed by patients' exosomes, with respect to healthy donors. Interestingly, melanoma patients' exosomes displayed a different protein profile in stages 0-I versus II-IV stages. Moreover, lipid analysis revealed differences in long-chain fatty acid composition, highlighting that melanoma patients' exosomes contain fewer long-chain fatty acids than those from healthy donors.

Conclusions: The multilevel differences found in plasma exosomes of melanoma patients strengthen the importance of these nanostructures. Our work contributes to unravel plasma exosomes as protagonists for an immediate and easy detection of an ongoing disease.





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