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Titel des Beitrags: First identification of Ewing's sarcoma-derived extracellular vesicles and exploration of their biological and potential diagnostic implications.

Abstract: Exosomes are small RNA- and protein-containing extracellular vesicles (EVs) that are thought to mediate hetero- and homotypic intercellular communication between normal and malignant cells. Tumour-derived exosomes are believed to promote re-programming of the tumour-associated stroma to favour tumour growth and metastasis. Currently, exosomes have been intensively studied in carcinomas. However, little is known about their existence and possible role in sarcomas. Here, we report on the identification of vesicles with exosomal features derived from Ewing's sarcoma (ES), the second most common soft-tissue or bone cancer in children and adolescents. ES cell line-derived EVs have been isolated by ultracentrifugation and analysed by flow-cytometric assessment of the exosome-associated proteins CD63 and CD81 as well as by electron microscopy. They proved to contain ES-specific transcripts including EWS-FLI1, which were suitable for the sensitive detection of ES cell line-derived exosomes by qRT-PCR in a pre-clinical model for patient plasma. Microarray analysis of ES cell line-derived exosomes revealed that they share a common transcriptional signature potentially involved in G-protein-coupled signalling, neurotransmitter signalling and...
stemness. In summary, our results imply that ES-derived exosomes could eventually serve as biomarkers for minimal residual disease diagnostics in peripheral blood and prompt further investigation of their potential biological role in modification of the ES-associated microenvironment.