

P010 Human skeletal muscle-derived microvesicles induce apoptosis in highly metastatic prostate cancer cells

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The human skeletal muscle is a highly vascularised tissue that contributes approximately 40% of the total body mass. These two factors make it a prime target for secondary cancer metastases. Surprisingly, malignant cancers rarely metastasize to the skeletal muscle. Only 1.6% of all soft tissue sarcomas (muscle) examined are metastatic in origin. Various researchers over the years have therefore tried to elucidate the cellular and molecular mechanisms contributing to this rarity of secondary metastasis but they still remain obscure. Although some have postulated high levels of lactic acid or reported factors such as adenosine released by the skeletal muscle cell to create a toxic environment for secondary tumour development, the role of skeletal muscle microvesicles (MVs) on tumour cells is yet to be reported. In previous work we showed MVs capable of fusing with target cells. In this study, we show that MVs derived from human skeletal muscle cells (HskMC) have a cytotoxic effect (inducing 30% apoptosis) upon interaction with highly metastatic prostate cancer cells (PC3M). We therefore postulate that HskMC MVs and possibly exosomes may contain certain protein factor(s) that could be the cause of the cytotoxic effect observed on targeted tumour cells.