ISEV INTERNATIONAL SOCIETY FOR EXTRACELLULAR VESICLES
ISEV 2014
Rotterdam, The Netherlands
April 30th - May 3rd

Abstract Submission

ABSSUB-156

CHRONIC MYELOID LEUKAEMIA- DERIVED EXOSOMES PROMOTE TUMOUR GROWTH AND SURVIVAL THROUGH AN AUTOCRINE MECHANISM

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Introduction:
Cancer cells can generate their own signals in order to sustain their growth and survival. Several studies have revealed the role of cancer derived-exosomes in activating signal transduction pathways involved in cancer cell proliferation and survival. Chronic myeloid leukaemia (CML) is a myeloproliferative disorder characterized by the expression of the chimeric BCR-ABL oncoprotein with constitutive tyrosine kinase activity. We have previously shown that chronic myeloid leukaemia cells released exosomes able to affect tumour microenvironment.

Methods:
Cell lines used in experiments are LAMA84, a human CML cell line. MTT assay was performed after LAMA84 serum deprivation and up to 1 week of exosomes treatment; colony formation assay was performed in methylcellulose to assess the capabilities of CML-derived exosomes to promote the formation of LAMA84-colonies. NOD-SCID mice were subcutaneously injected with LAMA84 cells and exosomes inoculation was performed in tumour site, twice a week; tumour growth was measured and tumours were removed to extract RNA. RNA was extracted from LAMA84 cells, colonies and mice biopsies. Quantitative gene expression analysis for pro- and anti- apoptotic genes was performed by TaqMan RT-PCR.

Results:
CML cells, exposed to serum deprivation and treated, up to one week, with exosomes, result in a growth advantage. Moreover, exosomes treatment promotes the formation of LAMA84 colonies in methylcellulose. *In vivo* experiments show a greater increase in tumour size in mice treated with exosomes, compared to control. Real time PCR analyses, performed after RNA extraction from both *in vitro* and *in vivo* samples, show an increase of mRNA levels of anti-apoptotic genes, such us bcl-w, bcl-xl and survivin and a reduction of pro-apoptotic genes, bad, bax and puma.

Summary/Conclusion:
Chronic myeloid leukaemia derived-exosomes promote, through an autocrine mechanism, the proliferation and survival of tumour cells, both *in vitro* and *in vivo*, by activation of anti-apoptotic pathways.

Disclosure of Interest: None Declared

Topics: 03. Cellular and organ targeting of EVs, 11. EVs in cancer,