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# Effect of Umbilical Cord Mesenchymal Stem Cells secretome in Melanoma.

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Melanoma of the skin is one of the most prominent and fastest growing malignancies. More than 300 thousand diagnosed cases and 57 thousand deaths in 2020 worldwide and roughly 517 thousand cases of were registered during the 2015–2020 period [1]. Melanoma is generally regarded as an aggressive and unpredictable cancer whose conventional therapies, such as local excision, chemotherapy and immunotherapy, have encountered difficulties to prevent larger scale-tumours and metastasis, as well as overcome recurrence and development of drug resistance [2]. Stem cell-based therapies have been studied as interesting therapeutical approaches for cancer whenever conventional therapy fails to impede its progression. That is owing to the anti-proliferative and immunomodulatory capacity of some SC, being one of the major examples, Mesenchymal Stem Cells. Due to its high abundance, well defined extraction and expansion protocols as well as documented anti-tumorigenic characteristics, Umbilical Cord derived Mesenchymal Stem Cells (UC-MSc) have been observed as a promising candidate for Melanoma treatment, specially through acellular therapy using its secretome [3,4]. MSC secretome is defined as the set of MSCs-derived bioactive factors available extracellularly and is responsible for the major therapeutic effects of MSCs, namely in oncological pathologies.

In this study we hypothesize the ability of UC-MSc's secretome to inhibit Melanoma growth in vitro. UC-MSc secretome, in the form of conditioned medium (CM), was obtained by extraction from selected umbilical cords and expansion of while murine melanoma cell line B16-F10 culture was established. After treating melanoma cells with different concentrations of CM (100%, 50% and 25%), common cancer hallmarks such as cell viability, motility, colony formation and cell interactions were assessed through MTT, Wound Healing and Colony formation and Hanging-Drop assays, respectively. General analysis of viability and motility showed no statistically significant difference between treated and control groups as well as no concentration-dependent effect whereas formation of cellular aggregates follows an inhibition trend on the treated groups.

These results put into perspective the effect of secretome of UC-MSCs. Moreover, further larger scale studies are needed for deeper understanding of MSC secretome mechanisms of action, therefore enabling their use in acellular therapies against melanoma in the future.

**Keywords:** Melanoma, Umbilical Cord Mesenchymal Stem Cells (UC-MSc), Secretome, Cancer

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