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3D Cell Culture to Analyze Tumor Cell Nanovesicles Role in Prostate Cancer Pathogenesis

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Abstract

Cancer is one of the main causes of death in developed countries and it is estimated to become the same worldwide, with prostate cancer being the fourth most common type in the world population. The study of nanovesicles, called exosomes, with approximately 50-100 nm in diameter, which have a lipid bilayer that can carry molecules such as RNA, DNA, proteins, and lipids, have been shown to play an important role in carcinogenesis. Thus, this work aimed to analyze the action of tumor cell nanovesicles on normal cells, for a better understanding of the prostate cancer pathogenesis. Therefore, nanovesicles were isolated from the supernatant of LNCaP, PC3 and RWPE-1cell lines, using ultracentrifugation methodology and characterized by scanning electron microscopy. Nanovesicles were incubated with 3D-cultured prostate epithelial cells. The expression of CD133, c-myc, Oct4 and SOX2 genes were analyzed by the qPCR technique. The results obtained proved that nanovesicles can significantly alter the expression of cancer related generation.

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