

Morphological and biochemical techniques to detect localization and possible role of ciliary neurotrophic factor in normal and cancer prostate

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Ciliary neurotrophic factor (CNTF) belongs to the hematopoietic cytokine superfamily including leukaemia inhibitory factor (LIF), interleukin-6 (IL-6), IL-11, and oncostatin. CNTF gene is localized to chromosome 11q12 in humans [1]. The receptor of CNTF (CNTFR) was initially found to be distributed in neural tissue, later it was also found in skeletal muscle, adrenal gland, liver, and other tissues. Because it does not have a transmembrane or cytoplasmic region and it is anchored to the cell surface membrane by glycosylphosphatidylinositol linkage, CNTFR can produce its effect in either membrane-bound form or soluble form [2]. Since it has been demonstrated that IL-6 is a mediator of prostate cancer morbidity [3]. We have hypothesized that also CNTF could be involved in prostate cancer development. The expressions of CNTF and CNTFR have been evaluated in benign and neoplastic prostate tissues by immunohistochemistry and their possible role in three prostate cell lines including normal human primary prostate epithelial cells PVR1E, human prostatic cancer cell line LNCaP, and human prostate cancer cell line castration resistant 22Rv1. Our findings indicate that CNTF and CNTFR are present in almost tissues analysed and show a localization in the basal cells and not in the luminal cells in benign prostate while a moderate staining of luminal cells was observed in adenocarcinoma sections. In addition, western blotting and cellular immunofluorescent staining analyses showed that all three cell lines expressed both CNTF and CNTFR. Our preliminary data on PVR1E treatment by CNTF suggest that this factor could be involved in prostate cell growth, in particular by negatively modulating cell proliferation.

References

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Key words

CNTF, CNTFR, prostate, cancer.