

Expression of the ciliary neurotrophic factor and its receptor α in human placenta of first and third trimester of gestation

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The ciliary neurotrophic factor (CNTF) is a member of the IL-6 family of cytokines along with cardiotrophin-1, IL-11, leukemia inhibitory factor, oncostatin-M and IL-6 itself. These cytokines play an important role in the regulation of cellular processes such as gene activation and cell proliferation and differentiation. CNTF is a pleiotropic cytokine which effects are mediated via CNTF receptor α (CNTFR α). CNTF increases differentiation and/or survival in neuronal cells but it also has different effects on other cell types such as muscle cells, bone cells, adipocytes, retinal cells and pancreatic β -cells (1, 2). In addition, recent studies demonstrate that CNTF plays an important role in weight control since exogenously administration of CNTF has an anorectic effect in mice (3,4). Although many studies proved that CNTF plays different roles in many cell types, its role in the development of human placenta has never been investigated. In this study we investigated the expression of CNTF and CNTFR α in human trophoblast by, immunohistochemistry, immunocytochemistry and Western Blot analysis using normal first and third trimester human placentas and HTR-8/SVneo cell lines. Interestingly, using immunohistochemistry CNTF and CNTFR α were expressed in the cytotrophoblast and syncytiotrophoblast in the first and third trimester of gestation respectively. Moreover, the immunofluorescence analyses by confocal microscopy showed that CNTF is expressed in the cytoplasm and nuclei whereas CNTFR α is mainly expressed in the cell membrane and cytoplasm of HTR-8/SVneo cell line. In this study we demonstrated that CNTF and CNTFR α are normally expressed in human placenta and they may play an important role during placental development.

References

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Keywords

CNTF; CNTFR α ; ciliary neurotrophic factor; placenta; HTR-8/SVneo; immunofluorescence.