

DISTRIBUTION OF PDGFR α + CELLS AND INTERSTITIAL CELLS OF CAJAL IN THE HUMAN FETAL GUT

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Two types of interstitial cells, interstitial cells of Cajal (ICC) and "fibroblast-like" cells, recently named platelet-derived growth factors receptor positive (PDGFR α +) cells, are present within the muscular layer of gastrointestinal (GI) tract. ICC and PDGFR α + cells represent different classes of cells with unique ultrastructure, molecular phenotype and function, and they occupy the same anatomical niches in the GI tract. It is considered that PDGFR α + cells such as ICC, mediate enteric inhibitory neurotransmission. Platelet-derived growth factors (PDGFs) are major mitogens for many cell types of mesenchymal origin, like fibroblasts and smooth muscle cells, and during embryogenesis, PDGF signaling is important in organogenesis. In the available literature, there is no data on the presence and distribution of PDGFR α immunoreactive cells in the human intestine during fetal period.

The aim of this study was to identify PDGFR α immunoreactive cells in the gut of human fetuses, as well as to determine their distribution in relation to smooth muscle cells, ICC and enteric nerve structures.

The material consisted of 12 Human Fetuses, gestational age from 10 to 12 weeks. The immunohistochemical test was carried out with the PDGFR- α antibody, ICC were identified using the C-kit antibody, while the muscle structures were demonstrated by the Desmin antibody.

During the development of the human intestine, at week 11, PDGFR α immunoreactive cells are present within the circular muscle layer, while they are absent in the myenteric plexus region and in the parts below the serosa. Unlike them, ICC are present only around the inception of the myenteric plexus ganglia.

In the fetal period of the human development, PDGFR α immunoreactive cells are present in all parts of the intestines, they are localized within the circular muscle layer and do not coincide with the ICC.

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Key words: PDGFR α , C-kit, interstitial cells of Cajal, fetal gastrointestinal tract