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Distribution of Different Fibronectin Isoforms in the Extracellular Matrices of Human Term Placenta

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Abstract: Fibronectins are considered to be molecules that play important roles in cell migration and cell differentiation. Fibronectin molecules are thought to influence the differentiation of trophoblasts and the adhesion of these cells to maternal tissues. The aim of the present study was to analyze the distribution of fibronectin isoforms and to evaluate the differences between matrix-type fibrinoids, and other types of matrices produced by both maternal and fetal tissues. Tissue samples were collected from different sites of human term placentas. By using immunohistochemistry, the expression of fibronectin isoforms was determined and they were demonstrated by SDS-PAGE and Western blotting methods. In nearly all tissues reactivities to fibronectin isoforms were determined. The strongest reactivities for cellular and oncofetal fibronectins were found in areas like the basal plate, chorionic plate and chorion laeve, which are occupied by invasive trophoblast cells in high numbers. These results can lead to the conclusion that extravillous trophoblast (EVT) cells emerge from the same differentiation route in different sites of the placenta. Amnion having no EVT cells consisted of all fibronectin isoforms. The presence of oncofetal isoforms especially indicates the high healing activity of this tissue due to the rapidly growing fetus and its membranes.

Key Words: fibronectin, human placenta, extracellular matrix, pregnancy

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