Differential PTEN Protein Expression in Angiogenesis

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Phosphatidylinositol (PI) 3-kinase mediated intracellular signal transduction regulates angiogenesis. The tumor suppressor gene PTEN product has been shown to down-regulate PI 3-kinase signaling, suggesting possible regulatory role of PTEN in angiogenesis. However, the expression of PTEN protein in neovascularization in various physiological and pathological conditions has yet to be studied. We studied the PTEN protein expression in blood vessels of fetal and adult tissues, reparative granulation tissues, hemangiomas and tumor stroma. PTEN was differentially expressed in fetal blood vessels. PTEN immunostaining was strongly positive on fetal capillaries and vascular wall of medium and large fetal vessels, but was negative on endothelium of medium and large vessels, endocardium and myocardium. Capillaries and large vessels in chorionic villi were positive for PTEN immunostaining. PTEN immunostaining was negative on different-sized adult blood vessels, weakly positive on hemangioma, and blood vessels of granulation tissues, and weakly to moderately positive on tumor stromal vessels. The data suggests that PTEN participates in regulation of angiogenesis in wide range of physiological and pathological conditions.

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