

Anti-angiogenic therapy

Antiangiogenic therapy is an old method to fight cancer that aims to abolish the nutrient and oxygen supply to the tumor cells through the decrease of the vascular network and the avoidance of new blood vessels formation.

Anti-angiogenic therapy have shown modest success, as tumors develop rapid resistance to treatment owing to activation of redundant pathways that aid **vascularization**. Shenoy et al. hypothesized that simultaneously targeting different pathways of **neovascularization** will circumvent the current issue of **drug resistance** and offer enhanced therapeutic benefits. To test this hypothesis, they used of two distinct models of tumor-neovascularization, which exhibit equally dense **microvasculature** but show disparate sensitivity to anti-SDF-1 treatment. Lewis lung carcinoma (LLC) is primarily a vasculogenic-tumor that is associated with **Hematopoietic stem cells** functioning as a hemangioblast to generate circulating Endothelial Progenitor Cells contributing to formation of new blood vessels, and responds to anti-SDF-1 treatment. B16F0 melanoma is an angiogenic-tumor that derives new blood vessels from existing vasculature and is resistant to anti-SDF-1 therapy. In this study, we observed increased expression of the angiogenic-factor, Robo1 predominantly expressed on the blood vessels of B16F0 tumor. Blockade of Robo1 by the decoy receptor, RoboN, resulted in reduced microvascular-density and tumor-growth. However, this was associated with mobilization of BM-cells into the B16F0 tumor, thus switching the mode of neovascularization from angiogenic to vasculogenic. The use of a combinatorial treatment of RoboN and the monoclonal anti-SDF-1 antibody effectively attenuated tumor-growth and inhibited both angiogenic and BM-derived microvessels ¹⁾

see **Fc endostatin**.

see **Bevacizumab**.

An **angiogenesis** inhibitor is a **substance** that inhibits the growth of new **blood vessels** (**angiogenesis**).

Some **antiangiogenics** are endogenous and a normal part of the body's control and others are obtained exogenously through pharmaceutical drugs or diet.

Angiogenesis inhibitors were once thought to have potential as a “silver bullet” treatment applicable to many types of cancer, but the limitations of antiangiogenic therapy have been shown in practice.

¹⁾

Shenoy AK, Pi L, Ligocki AP, Hosaka K, Cogle CR, Scott EW. Targeting Redundant **ROBO1** and SDF-1 Pathways Prevents Adult Hemangioblast Derived-EPC and CEC Activity Effectively Blocking Tumor Neovascularization. Stem Cell Rev Rep. 2023 Jan 18. doi: 10.1007/s12015-022-10498-7. Epub ahead of print. PMID: 36652143.

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