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Discoidin domain receptor 2, an anti-cancer target against both tumor cells and tumor stroma

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Accumulating evidences indicate that collagen matrix play an important role in disease progression, including cancer. Discoidin domain receptors (DDRs), consisting of DDR1 and DDR2, are collagen receptors as well as receptor tyrosine kinases (RTKs). By use of breast and oral cancer models, we found that DDR2 facilitates tumor cell metastasis and the mechanisms involve control of MMP expression and EMT. In addition, we also demonstrated that DDR2 is highly expressed by tumor endothelial cells (ECs) and enhances endothelial angiogenic activities. By use of a spontaneous *Ddr2* mutant mouse colony, it was shown that DDR2 deficient stroma is refractory to induction of xenograft tumor growth and angiogenesis. Notably, our newly developed chemical compound that blocks the phosphorylation of DDR2 reduces tumor growth, angiogenesis and metastasis. Thus, DDR2 may represent an anti-cancer target against both tumor cells and tumor stroma.

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