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Hyaluronan: a modulator of the tumor microenvironment

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Highlights

1. The HA-rich tumor microenvironment recruits and activates stromal cells to enhance tumorigenicity.
2. Tumor-derived and stromal-derived HA molecules remodel tumor microenvironment to promote tumor progression.
3. HA regulates cancer stemness through the induction of EMT.

ABSTRACT

Tumors are cellular masses formed through dynamic interactions between tumor cells and a mixed population of stromal cells. Crosstalk between oncogenic and adjacent stromal cells contributes to the formation of a "tumor microenvironment" influencing the tumor cell behaviors of proliferation, invasion, and metastatic spread throughout cancer progression. The composition and structure of the tumor microenvironment vary among different types of tumors and are extensively remodeled in close association with tumor advancement. The tumor microenvironment is composed of not only cellular compartments, such as endothelial cells, fibroblasts, inflammatory cells, and immune cells, but also of bioactive substances, including growth factors and the extracellular matrix. Hyaluronan (HA) is a major component of the