MicroRNA-mediated metastasis suppression

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Metastases are responsible for over 90% of cancer deaths. In the upcoming issue of *G&D,* Dr. Robert Weinberg (MIT) and colleagues lend molecular insight into how microRNAs suppress tumor metastasis.

Scott Valastyan, lead author on the study, describes it as presenting "detailed mechanistic insight regarding the process of tumor metastasis, and identifies several key regulators of this process that might prove to be interesting diagnostic and/or therapeutic targets in breast cancer."

Dr. Weinberg's group previously showed that the human microRNA, miR-31, suppresses breast cancer metastasis and that its expression is associated with patient outcome. miR-31 regulates the expression of almost 200 genes. However, in this new paper, the authors identify that re-introduction of three miR-31 targets is sufficient to completely reverse miR-31's influence on metastasis.

The researchers characterized both the individual and overlapping contributions that each of these three miR-31 effectors makes to the metastatic process. While three distinct steps are affected by this cohort of miR-31 targets (namely local invasion, early post-intravasation events and metastatic colonization), of particular interest was the finding that two of the three effectors regulate metastatic colonization - the final and rate-limiting step of metastasis.

Scott Valastyan emphasizes that "Our finding that miR-31, integrin-alpha5, and radixin affect the process of metastatic colonization may be of particular interest in light of the fact that colonization efficiency is strongly associated with patient survival outcome in many human tumor types - including breast cancer".

Source: Cold Spring Harbor Laboratory (news : web)

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