Inhibition of ABL tyrosine kinases shows potential for metastatic cancer treatment

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Video Byte

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Abstract

Cancer develops as a small cluster of abnormally replicating cells that form a tumor. As this tumor grows, cancerous cells may begin to invade other tissues in the body in a process called the “metastatic cascade”. During this advanced stage of cancer, aggressive cancer cells detach from the primary tumor, move through the bloodstream to other organs, and develop new tumors. Because such late-stage cancer is usually associated with a poor prognosis, preventing metastasis is critical to the development of effective cancer treatments. One promising area of research focuses on tyrosine kinases. Tyrosine kinases are enzymes with important roles in cell health when functioning normally, but those in the Abelson (ABL) family (ABL1 and ABL2) can promote tumor progression when abnormally activated. ABL1 and ABL2 affect how cells attach to one another as well as their orientation, thereby enabling previously stationary cells to become mobile and promoting the metastatic cascade. These findings indicate that the inhibition of ABL1 and ABL2 could prevent metastasis and that ABL kinase inhibitors hold promise in the development of novel treatments of advanced metastatic cancer.