

Loss of PTEN expression causes metabolic reprogramming in hepatocellular carcinoma

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Video Byte

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Abstract

Cancer involves the reprogramming of the body's cells to allow them to grow, divide, and travel throughout the body. One of the processes involved – metabolic reprogramming – allows cells to use new energy sources for fuel, switching from oxidative phosphorylation to glycolysis. and enabling tumor cells to grow uncontrolled. A recent study evaluated the involvement of the tumor suppressor gene PTEN in metabolic reprogramming. Researchers compared cancerous and noncancerous liver tissue from 128 patients with hepatocellular carcinoma. They found that in cancerous liver tissue, PTEN had a reciprocal relationship with another protein, PI3K. PTEN was downregulated in HCC tissues, and its loss predicted a poor prognosis. Overexpressing PTEN blocked the switch to glycolysis, while elevated PI3K expression was observed in HCC tissues and was inhibited by PTEN overexpression. This suggests that loss of PTEN is a major event during cancer progression, enabling tumor cells to proliferate indefinitely, making the PTEN/PI3K axis an ideal target for new avenues of HCC treatment.