How radiation helps rather than harms glioblastoma

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Video Byte

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Abstract

Radiation is one of the most powerful cancer therapies especially for glioblastoma, an aggressive and hard-to-treat form of brain cancer. But growing evidence suggests that radiation can actually increase the invasiveness of glioblastoma. A new study outlines how this unintended consequence can happen. The process begins with the protein EMMPRIN. Glioblastoma cells release tiny sacs filled with EMMPRIN into their microenvironment which are then taken up by specialized nerve cells called astrocytes. EMMPRIN causes astrocytes to secrete matrix metalloproteinases, or MMPs. MMPs are degradative proteins that promote the growth and spread of glioblastoma and other cancers. This EMMPRIN-MMP pathway, the team found, goes into overdrive when zapping glioblastoma with gamma rays. More radiation means more EMMPRIN, more MMPs, and therefore more invasive glioblastoma. Understanding this effect is crucial to developing safe and more effective therapies that shut down glioblastoma cells once and for all.