Cancer-associated fibroblasts help tumors resist radiation therapy

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Video Byte

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Abstract

Cancer-associated fibroblasts, or CAFs, make up 50 to 90% of a solid tumor's volume. Embedded between a tumor's core and healthy tissue, CAFs contribute to tumor initiation, progression, and invasion, and according to a new study, CAFs might also contribute to tumors' ability to resist radiation therapy. Researchers coaxed CAFs to form by culturing normal fibroblasts with cancer cells from different tissues, including the breast, brain, lung, and prostate. Compared to normal fibroblasts, these CAFs showed less DNA damage from gamma ray radiation. This "radioresistance" was linked to DNA repair machinery deployed by CAFs. Treating CAFs with molecules inhibiting the repair of single- and double-stranded DNA reduced their defenses against radiation. Further insight into how CAFs communicate with surrounding cancer cells and healthy tissue could prove vital, as it could help researchers and clinicians find ways to topple tumors' defenses against anticancer therapies.