Counteracting non-small cell lung cancer's resistance to radiation therapy

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Video Byte

Keywords: Radioresistance, Non-small cell lung cancer, CLPTM1L, ER β , Radiotherapy, Cell Communication and Signaling, cancer, lung cancer, lung disease, NSCLC, radiation, radiation therapy, radiation treatment

Posted Date: November 12th, 2020

DOI: <https://doi.org/10.21203/rs.3.rs-106652/v1>

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Abstract

Non-small cell lung cancer, or NSCLC, is the leading cause of cancer-related death worldwide. While radiation therapy can be powerful against NSCLC, lung cancer cells may develop resistance. A new study traces this “radioresistance” to a protein that interacts with estrogen receptor ER β . ER β is known to alter the radiation sensitivity of certain breast cancer cells. So researchers wondered: Might ER β might do the same in cells affected by NSCLC? To find out, they blasted lab-grown cells with gamma rays and tracked ER β ’s behavior. Results showed that radiation indirectly activated ER β -based defenses through the protein CLPTM1L. CLPTM1L is abnormally expressed in the cytoplasm of many human lung cancer cells, especially in cells affected by NSCLC. A closer look revealed that radiation caused CLPTM1L to migrate to the nucleus of cancer cells, where it gained direct access to ER β ’s genetic machinery and its ability to induce radioresistance. With the ongoing search for ways to penetrate NSCLC’s defenses against radiation, CLPTM1L offers cancer researchers a powerful new target.