Targeting TAOK3 gene could boost breast cancer chemotherapy

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Video Byte

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Abstract

Chemotherapy is one of the most effective treatments against advanced breast cancer. But resistance to chemotherapy drugs such as taxanes remains a persistent problem. To identify molecular targets for reversing resistance to the taxane drug paclitaxel, researchers recently screened the genes coding for 724 kinase proteins which are implicated in primary cancer processes such as metastasis and proliferation. That led to the identification of the gene TAOK3. TAOK3 was associated with the most significant decrease in the effectiveness of paclitaxel. Blocking TAOK3 expression reduced paclitaxel resistance in breast cancer cells derived from humans and in tumors grafted onto mice. Further experiments revealed that TAOK3 promoted chemoresistance by enhancing NF- κ B signaling. By disrupting this interaction between TAOK3 and NF- κ B, researchers could begin to develop new ways of boosting the effectiveness of breast cancer treatments.