PML-II regulates ERK and AKT signal activation and IFN α -induced cell death

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Video Byte

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Abstract

The protein IFN α can reduce growth and promote apoptosis of cancer cells by stimulating genes such as PML, whose deficiency is linked to tumorigenesis, but the contributions of different PML isoforms to the anticancer effects remain unclear. Given that PML-II positively regulates genes that are induced during the type I IFN response, researchers recently investigated whether and how PML-II participates in IFN α -induced cell death using a cervical cancer cell line. In cells with PML-II deletion (siPML-II), death during IFN α stimulation was reduced, and IFN α -induced ISG54 mRNA expression was attenuated. In addition, silencing PML-II decreased the expression of TRAIL and PUMA during IFN α stimulation, indicating that the extrinsic and intrinsic apoptosis pathways were blunted. In contrast, the prosurvival ERK and AKT pathways were activated, suggesting that PML-II suppresses these pathways under normal conditions, and the enhanced AKT pathway activation during IFN α stimulation likely helped the cells resist IFN α -induced death. Although further research is needed to reveal the exact mechanisms and mediators, the results account for some of PML's tumor-suppressing effects and explain why PML deficiency is linked to apoptosis resistance.