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

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Video Byte

**Keywords:** promyelocytic leukemia protein, PML-II, IFNα, apoptotic signaling, ERK, AKT, cell death, apoptosis, interferon, IFN, promyelocytic leukaemia protein, type I interferon, type I IFN, HeLa cells, siRNA, tumor suppressor, pathogen response, damage response, gene silencing, cancer pathway, cancer signaling, anticancer, antitumor, tumorigenesis, Cell Communication and Signaling

**Posted Date:** October 13th, 2021

**DOI:** [https://doi.org/10.21203/rs.3.rs-966255/v1](https://doi.org/10.21203/rs.3.rs-966255/v1)

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Abstract

The protein IFNα 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 IFNα-induced cell death using a cervical cancer cell line. In cells with PML-II deletion (siPML-II), death during IFNα stimulation was reduced, and IFNα-induced ISG54 mRNA expression was attenuated. In addition, silencing PML-II decreased the expression of TRAIL and PUMA during IFNα 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 IFNα stimulation likely helped the cells resist IFNα-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.