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Effect of Constitutive Androstane Receptor on Transcriptional Activity of Estrogen Receptor in Estrogen Independent Breast Cancer Cell Line MCF-7-K3

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The purpose of this study was to examine the effects of a xenobiotic nuclear receptor, constitutive androstane receptor, on the transcriptional activity of estrogen receptor in estrogen-independent human breast cancer cell line. The breast cancer cell line, MCF-7-K3, was cultured and effects of CAR on the ER-mediated transcriptional activation of synthetic (4ERE)-tk-luciferase reporter gene were analyzed. Whereas CAR antagonized ER-mediated transcriptional activity in a dose dependent manner in Hep G2 cells, transactivation was not inhibited by exogenous CAR expression or activation of CAR by its ligand TCPOBOP in MCF-7-K3 cells. This study demonstrates that the effect of a xenobiotic nuclear receptor CAR in ER-mediated transactivation of a synthetic 4ERE-tk-luciferase is different between the human hepatoma cell line Hep G2 and the human breast cancer cell line MCF-7-K3. Therefore, we conclude that the transcriptional regulation by estrogen may involve different cross-talk interaction between estrogen receptor and CAR depending on the estrogen target cells.

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