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Gankyrin: A novel gene that promotes tamoxifen resistance in breast cancer patients

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Breast cancer is the most frequent malignancy in women worldwide. Oestrogen receptor α (ERα) antagonists like tamoxifen are used in endocrine therapies for ERα-positive (ERα+) breast cancer patients. Unfortunately, the clinical benefit is limited due to intrinsic and acquired drug resistance. Gankyrin (P28GANK) is a newly defined oncoprotein which was reported to confer a multidrug resistant phenotype in some cancer cells. Gankyrin also functions as a dual-negative regulator of the two most important tumor suppressor pathways: (I) INK4-CDK-pRb, and (II) ARF-MDM2-p53. In the present study, the levels of protein expression and mRNA transcripts were determined using immunohistochemical analysis and Real-Time quantitative PCR in 72 matched formalin-fixed paraffin-embedded and fresh frozen breast cancer tissues (36 tamoxifen resistant and 36 tamoxifen sensitive). Overexpression of P28GANK was present in about 56% of the tamoxifen sensitive breast cancer patients and more frequently (91%) in tamoxifen-refractory tumors. P28GANK gene was also found to be overexpressed at the protein level in tamoxifen resistance patients compared to tamoxifen sensitive samples (p=0.045). These results for the first time suggest that Gankyrin plays a role in tamoxifen-resistant breast cancer, and the inhibition of this oncoprotein may be a potential target for re-sensitizing the resistant breast cancer patients to tamoxifen-treatment in endocrine-resistant breast cancer patients

Biography

Khadijeh Jamialahmadi has completed her PhD from Tehran University of Medical Sciences, School of Pharmacy, Tehran, Iran. She is an Assistant Professor in the Department of Medical Biotechnology, School of Medicine, Mashhad University of Medical Sciences (MUMS), Mashhad, Iran. She has published more than 30 papers in reputed journals. Her current research interests are cancer targeted therapy, cancer epigenetics, identification of new biomarkers and therapeutic targets in cancer and multi drug resistance in cancer.

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