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The Impact of the effectiveness of GATA3 as a prognostic factor in breast cancer

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The transcription factor GATA3 plays a significant role in mammary gland development and differentiation. We analyzed expression of GATA3 in Breast Cancer (BC) cell lines and clinical specimens from BC patients in Taiwan. Semi-quantitative Reverse Transcriptase (RT)- Polymerase Chain Reaction (PCR), quantitative real-time PCR carried out to determine the mRNA level of GATA3 from 241 pairs of matched tumor and adjacent normal tissues from anonymous female donors. GATA3 Immunohistochemistry (IHC) staining and H-score were performed (n=25). Inducing and silencing of GATA3 were done by exposure MCF-7 cell line to nicotine or curcumin, respectively. GATA3 expression was detected in most of the estrogen receptor-positive (ER+) tumor specimens (176/241, 73%) compared with paired normal tissues (65/241, 27%) (p=<0.001). The GATA3 level was highest in Luminal A and independent t-tests revealed higher GATA3 were associated with ER+ (p=0.018) and BC stages (stage 2 and stage 4). Nuclear protein expression of GATA3 was detected in tumor tissues (p=<0.001) with higher H-score in Luminal A patients (p=0.012). Kaplan–Meier survival analyses showed that ER+/progesterone receptor (PgR)+ and lower grade BC patients with relatively high GATA3 had better clinical Overall Survival (OS). GATA3 regulate ERa and BCL-2 as BC luminal subtype markers. Cox univariate and multivariate analyses demonstrated that the expression of GATA3 was an effective predictor of the risk of death. We demonstrated a correlation between GATA3 expression and only ER+ and suggest that a higher GATA3 expression is a good prognostic factor for OS for ER+/ BC patients.

Biography

Abdulfattah Salah Fararjeh has his expertise in Molecular biology and Human Genetic and is pursuing his PhD in Cancer Biology and Drug Discovery with focusing on the molecular basis of breast cancer. He has recently published one review paper in 2016 and another is original research in human pathology 2018.

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