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Differential effects of fatty acid binding protein-7 (FABP7) in triple negative breast cancer cell lines HS578T and MDA-MB-231 under hypoxic condition

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Triple negative breast cancer (TNBC) is the most aggressive subtype which contributes to approximately 10% of breast cancer cases. The absence of ER-, PR- and HER2 receptors in TNBC leaves this subtype with no targeted therapy. Recent studies showed that FABP7 is shown to significantly overexpress in TNBC tissues compared to other subtypes. FABPs are known to be lipid chaperones and they can affect lipid metabolism. To date, the evidence on its prognostic role in TNBC is contrasting. Liu et al. (2012) shows that FABP7 expression correlates with lower overall and recurrence-free survival. In contrast, two other studies by Alshareeda, et al. (2012) and Zhang, et al. (2010) demonstrates that FABP7-positive basal tumors are associated with better prognosis. Hence, we aim to investigate the function of FABP7 in TNBC through *in vitro* models. Despite the excessive FABP7 expression in TNBC tissue, FABP7 protein was not detected in TNBC cell lines (HS578T and MDA-MB-231). However, chronic hypoxia increased FABP7 mRNA expression in these cell lines. It indicates that FABP7 might only be important in hypoxic conditions. As FABP7 was not naturally expressed in the TNBC cell lines used in our study, we generated FABP7-transduced TNBC cell lines with lentivirus particles. MTT assay showed that FABP7 caused reduced cell viability in HS578T but not MDA-MB-231 cells under hypoxic condition. This study shows that FABP7 can cause cell death in HS578T cells under hypoxic condition but not in the more aggressive MDA-MB-231 cells. More research on FABP7 in TNBC is warranted as it could serve as a potential molecular target for TNBC.

Biography

Kwong Soke Chee is currently a PhD student at University of Malaya, Malaysia. Her research interest includes molecular biology and lipidomics. In specific, her project focuses on the function of FABP7 in TNBC. Besides doing bench work in the laboratory, she also has experience in recruiting patients for breast cancer cohort. In year 2015, she was selected to participate in Novartis International Biocamp in Basel, Switzerland to gain insights into research and business environment in pharmaceutical industry.

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