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Calsequestrin-2 regulates migration and invasion in breast cancer cells

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Calsequestrin (CASQ) is a Ca^{2+}-binding protein localized in the endoplasmic/sarcoplasmic reticulum (ER/SR), an intracellular Ca^{2+} release and storage of muscle. *CASQ2* forms a complex with Ryanodine Receptor-2 (RyR2) luminal calcium release channel and the intrinsic membrane proteins Triadin and junction in cardiac muscle. Ca^{2+} is a sequester and regulator of diverse cellular processes and specific Ca^{2+} channels play important roles in cell proliferation and invasiveness of breast cancers. To know the role of *CASQ2* in breast cancer cells, we established *CASQ2* over-expressing stable cells in Hs578T cells using retrovirus. *CASQ2* over-expressing Hs578T cells showed higher level of migration and invasion rate compared to Hs578T, which indicated that overexpression of *CASQ2* related with cellular functions. We also found that *CASQ2* overexpression elevates extracellular signal-related kinase (ERK) expression. In epidermal growth factor (EGF) treated cells, CASQ2 over-expressing Hs578T had higher phosphorylated ERK compared to Hs578T. The results from this study show a possible cause of migration and invasiveness in breast cancer cells. Taken together, these findings demonstrate that CASQ2 could be a new therapeutic target for breast cancer.

Biography

Ju Hee Kim is currently working as a Research Fellow in Seoul National University Hospital, Seoul, South Korea. She has completed her PhD in Life Science, Ewha Womans University and Post-Doctorate in Catholic-Harvard Wellman Photomedicine Center, Seoul, South Korea.

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