Effects of estrogen on PMCA 2 and 4 in Human Fibroblast-like Synovial cells and Mouse Macrophage-like cells

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Abstract

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We investigated the possible roles of estrogen on plasma membrane Ca(2+)-ATPase (PMCA) in human fibroblast-like synovial cells (HFLS) and mouse macrophage-like cells (RAW 264.7). Western blots revealed the expression of PMCA 2 and 4 in both cells. In vitro treatments with 17beta-estradiol for 24 hours resulted in a concentration dependent decrease in PMCA expression. Moreover, Ca(2+)-ATPase specific activity was similarly decreased with estrogen treatments. However, treatments for 1 hour in the presence or absence of cycloheximide demonstrated non-significant effects. These results suggest that estrogen has a modulatory role on Ca(2+) homeostasis through decreasing PMCA expression and abating their activity.

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