Palmitoylation of Tetraspanin CD82 Is Required for Its Biological Activities of Anti-apoptosis in Breast Cancer

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Abstract

Background: CD82/KAI-1 which is a member of the tetraspanin superfamily, has been proposed to exert its activity via the Tetraspanin Web. However, the mechanism of CD82 palmitoylation in this web has not been fully elucidated. The purpose of this study is to investigate cell migration and apoptosis by mutation of tetraspanin CD82 palmitoylation. Methods: This study elucidated the impact of various palmitoylation site mutations on apoptosis in breast cancer cells through a comprehensive approach involving RT-PCR, Western blotting, TUNEL assay, immunofluorescence, and tumor formation assay in athymic nude mice model. Results: We found that the mutation of CD82 palmitoylation at cys74 and cys83 or cys5 and cys74 and cys83 simultaneously increased apoptosis in breast cancer. However, the other forms of mutation of CD82 palmitoylation showed no effects on apoptosis. Conclusion: The study strongly implicate that CD82 palmitoylation at cys74 and cys83 are both closely related to maintain biological function.

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