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Natural compound derived Z-ajoene decreases NOTCH signaling in U87-derived glioblastoma cancer stem cell

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Glioblastoma multiform (GBM) is the most common brain tumor and the GBM patients have a poor prognosis with median survival of one year. Recent evidence suggests the presence of cancer stem cell (CSC) in GBM and it is expected that rare CSC subpopulation is resistant to chemotherapy and may lead to recurrence and metastasis. CSCs can self-renew such as normal stem cell and have highly tumorigenic property. In this study, natural compounds including Z-ajoene with anti-CSC effect was screened and it was observed that Z-ajoene has anti-CSC effect. Although Z-ajoene is known to have antitumor effects, but its mechanism is not clearly understood yet. In this study, putative mechanism through focusing on self-renewal pathways associated with survival and maintenance of CSCs was examined. Z-ajoene decreased the transcript level of Notch, *Wnt*, TGF β , and PI3K/AKT pathways which is related with stemness and maintenance of CSCs while Z-ajoene showed elevated activity of ERK and P38 pathway is related with cellular stress. These results suggest that Z-ajoene can be an anti-CSC drugs which has less side effects and cytotoxicity.

Biography

Yuchae Jung has completed her PhD at the age of 30 years from Catholic University majoring in Computational Biology. She did her Postdoctoral studies from Brigham and Women's Hospital working on the relationship between glioblastoma and cooperative miRNAs. She continued to work on the relationship between GBM cancer stem cells with miRNA profiles supported by Korean National Research Foundation grant. She has published more than 12 papers in reputed journals.

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