

Accepted Manuscript

Title: Anticancer effect of curcumin on breast cancer and stem cells

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PII: S2213-4530(18)30053-3
DOI: <https://doi.org/10.1016/j.fshw.2018.06.001>
Reference: FSHW 137

To appear in:

Received date: 30-4-2018
Accepted date: 6-6-2018

Please cite this article as: Liu H-Tien, Ho Y-Soon, Anticancer effect of curcumin on breast cancer and stem cells, *Food Science and Human Wellness* (2018), <https://doi.org/10.1016/j.fshw.2018.06.001>

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Anticancer effect of curcumin on breast cancer and stem cells

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Abstract

Numerous studies have shown that curcumin, a natural compound, exerts anticancer effects by inhibiting cancer cell proliferation and metastasis and by inducing cell cycle arrest and apoptosis. In particular, curcumin exhibits potent inhibitory effects on breast cancer, the most prevalent type of cancer among women worldwide. It has low maximal inhibitory concentration for breast cancer cell lines that express the hormone receptor ER and sensitizes cell lines to anticancer drugs. Moreover, it can induce apoptosis in cell lines independently of hormone receptor expression. In addition, curcumin inhibits the proliferation of breast cancer stem cells (BCSC), an important factor that influences cancer recurrence. The inhibition of BCSC proliferation suppresses metastasis and reattachment, ultimately limiting tumor formation. A xenograft study similarly showed that curcumin exerts tumor-suppression effects on cancer cells and cancer stem cells. Therefore, curcumin is a potential anticancer compound, and its concurrent application with other anticancer drugs appears promising.

Keywords: Curcumin, breast cancer, breast cancer stem cell

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