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The possible role of adipose-derived stem cells in tumor microenvironment

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Adipose stem cells which compose the breast cancer environment play an important role in breast cancer development and progression since mammary gland is surrounded by adipose tissues. These tissue-resident mesenchymal stem cells are increasing regarding as important regulators of tumor progression and treatment response. Resistance to therapeutic regimen is a major obstacle facing current cancer treatment. Despite high response rates to initial therapy, many tumors develop drug resistance against original chemotherapy or targeted therapy eventually. In our study, we found that adipose stem cells' conditioned medium induces drug resistance against doxorubicin in triple negative breast cancer cells through up-regulation breast cancer resistance protein

(BCRP). We also demonstrated that adipose stem cells' conditioned medium also enhanced cell migration and colony formation in triple negative breast cancer cells. Moreover, we also identified several important mediators in the adipose stem cells' conditioned medium which may be responsible for the observed drug resistance. Furthermore, we revealed that naringenin, but not other flavonoids such as fisetin or silibinin, restored adipose stem cells' conditioned medium-induced doxorubicin resistance through reversed BCRP protein expression in triple negative breast cancer cells. These studies reveal favorable auspices that the strategy for reversing anti-cancer drug resistance by using flavonoids alongside standard chemotherapeutic regimens is promising.

Biography

Wei-Lan Yeh has completed her PhD from National Taiwan University and Postdoctoral Studies from Harvard University and Massachusetts General Hospital, Boston, MA. She is now the faculty of Institute of new drug development, China Medical University, Taiwan. She has published more than 25 papers in reputed journals and has been serving as an editorial board member of repute.

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