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The apple polyphenol phloretin inhibits breast cancer cell migration and proliferation via inhibition of signals by type 2 glucose transporter

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Glucose transporters (GLUTs) are required for glucose uptake in malignant cancer cells and are ideal targets for cancer therapy. To determine whether the inhibition of GLUTs could be used in TNBC cell therapy, the apple polyphenol phloretin (Ph) was used as a specific antagonist of GLUT2 protein function in human TNBC cells. Interestingly, we found that Ph (10-150μM, for 24h) inhibited cell growth and arrested the cell cycle in MDA-MB-231 cells in a p53 mutant-dependent manner, which was confirmed by pre-treatment of the cells with a p53-specific dominant-negative expression vector. Furthermore, the anti-tumorigenic effect of Ph (10, 50mg/kg or DMSO twice a week for six weeks) was demonstrated in vivo using BALB/c nude mice bearing MDA-MB-231 tumor xenografts. In conclusion, inhibition of GLUT2 by the apple polyphenol Ph could potentially suppress TNBC tumor cell growth and metastasis.

Biography

Yuan-Soon Ho is a professor of Graduate Institute of Medical Sciences. He Chairman, professor School Medical Technology, Taipei Medical University, He is having research interests in the field of Molecular Biology, Cell Biology, Apoptosis, Tumors, Cancer Cells, Food Science, Kinase, Food Biochemistry, Functional Food, Agricultural and Food Safety Economics.

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