Department of Life Science

Drug screening and mechanism study of cancer stem cell

The long-term goal of my studies is to investigate the molecular mechanism of cancer progression, especially the regulation of glioblastoma and colon cancer stem cells (CSC). We now focus on identifying the new regulating molecules for CSCs and the herbal extracts which may serve as a new drug for targeting CSCs.

Techniques used in study

Cell culture (including primary cell culture, suspension stemloid cell culture) Zebrafish xenotransplantation model Mouse xenotransplantation model Immunofluorescent staining Co-immunoprecipitation and Western blot analysis Quantitative reverse-transcription PCR

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Backbround:

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Identify the effective herbal extracts and their active principle targeting cancer stem cell Glioblastoma stem cell _{Sox 2↓} Cerbera manghas Stem Akt activation Neriifolin 鱼 G1 Cyclin E Arrest CDK4 PARP Cleavage , Neriifolin Pro-Caspase 8 L C Apoptosis Fruit Bcl-2 **KIF12** Screening and mechanism miR-194-3 study of cancer stem cell biomarkers Cell Colony **Cell cycle Autophagy** Proliferation formation **CRCSC** maintenance

Publications

Tsai JC, Liu WS, Tseng YT, Lam HI, Chen SY, Fang CL, Tong TS, Lai YJ^{*} (2018, Sep). Extracts of Cerbera manghas L. effectively inhibit the viability of glioblastoma cell lines and their cancer stemloids in vitro and in mouse xenograft model. Journal of Functional Food 48; 283-96.
Lai YJ, Tsai JC, Tseng YT, Wu MS, Liu WS, Lam HI, Yu JH, Nozell SE, Benveniste EN (2017, Feb). Small G protein Rac GTPases regulate the maintenance of glioblastoma stem-like cells in vitro and in vivo. Oncotarget 14;8(11):18031-18049.



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