



Development of Quinoline-type Compounds as Novel Anti-Cancer Agents

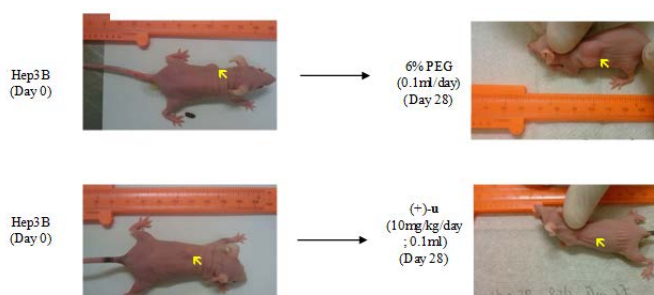
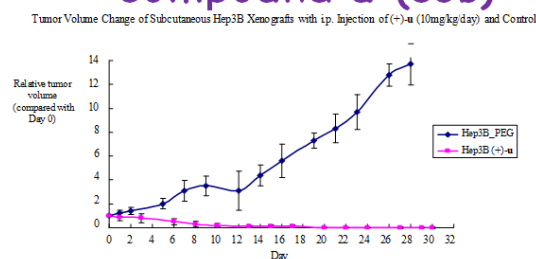
Dr. Johnny C.O. TANG
Department of Applied Biology and Chemical Technology

Drug
Discovery

- Quinoline-type Anti-Cancer Drugs with Lesser Side Effects .
- New Path for Future Development of Novel Anti-Cancer Agents .

Traditional Chinese Medicines (TCMs) have emerged as an invaluable source for drug discovery in the past decade. Some drugs isolated or derived from TCMs have been proven successful in combating diseases where western medicines fail. More and more TCMs and related active compounds have been reported having potential biological activities, which provide a base for the development of effective pharmaceutical leads. Among them quinoline compounds have shown promising anticancer activities. We have designed and prepared a series of novel quinoline-based compounds, and investigated their cytotoxicities against human cancer cells, and the identification of lead compounds for the drug development in future. Among the synthesized compounds, 8-hydroxy-2-quinolinecarbaldehyde and chiral 1,2,3,4-tetrahydroquinoline compounds displayed remarkable in vitro cytotoxicities against a series of human cancer cell lines of different tissue origins. The nude mice tumor xenograft models also demonstrated that these quinoline derivatives could dramatically reduce the tumor size of the subcutaneous Hep3B hepatocellular carcinoma with the i.p. injection dose of 10mg/kg/day and showed no damage of vital organs at histological level at all. Thus these effective quinoline-type anticancer drugs with lesser side effect paved the new path for the future development of novel anti-cancer agents.

In vivo anti-cancer effect of compound u (83b)



Representative Publications

- Chan, SH, Chui CH, Chan SW Kok, SHL, Chan D, Tsoi MYT, Leung PHM, Lam AKY, Chan ASC*, Lam KH*, Tang JCO*. Synthesis of 8-hydroxyquinoline derivatives as novel anti-tumor agents. ACS Medicinal Chemistry Letters 4:170-174 (2013)
- Lam KH, Lee KK, Gambari R, Wong RSM, Cheng GYM, Tong SW, Chan KW, Lau FY, Lai PBS, Wong WY, Chan ASC, Kok SHL, Tang JCO*, Chui CH*. Preparation of Galipea officinalis Hancock type tetrahydroquinoline alkaloid analogues as anti-tumour agents. Phytomedicine 20(2):166-171 (2013)
- Lam KH, Chui CH, Gambari R, Wong RS, Cheng GY, Lau FY, Lai PB, Tong SW, Chan KW, Wong WY, Chan ASC*, Tang JCO*. The preparation of bi-functional organophosphine oxides as potential antitumor agents. European Journal of Medicinal Chemistry 45(11):5527-30 (2010)



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Development Office
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Contact Us

Ms. Nelly Lam . Executive Officer
T // (852) 3400 2819
E // nelly.lam@polyu.edu.hk

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