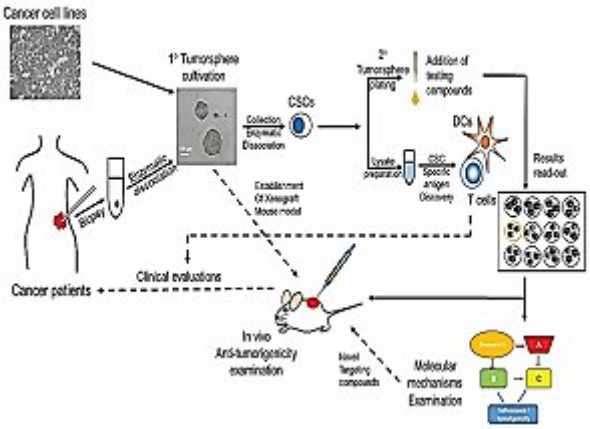
Subject 投稿領域前10%論文分享

生物醫學科學系 / 張文瑋教授

題目: Tumorsphere as an effective in vitro platform for screening anti-cancer stem cell drugs.(Oncotarget)



癌症幹細胞(Cancer stem cells)是近年來癌症研究的熱門領域，這群細胞與腫瘤的形成、抗藥性以及轉移有著密切關係，被認為是癌症復發的主因，也是目前癌症症療亟欲發展的標靶，被認為是成功治療癌症的關鍵。癌症球體(Tumorsphere)是一種三維培養癌症幹細胞的方式，目前被廣泛用於分析癌症幹細胞自我更新活性；而近年來一些研究也發現，以癌症球體進行藥物篩選的結果，較二維培養更能在活體分析上得到相符的驗證；此外，一些癌症藥物的臨床試驗也利用癌症球體培養作為藥物效用的評估方式之一。本篇綜論之，文章回顧了癌症幹細胞的研究歷程，並針對希望以癌症球體為癌症幹細胞藥物篩選平台之研究者，提出研究方法上的建議，並討論未來利用癌症球體培養開發針對癌症幹細胞為標的之免疫療法的方向。

Figure: Suggested screening flowchart in the discovery of anti-CSC agents with tumorsphere assay.The source of primary tumorspheres can be the established cancer cell lines or primary cancer cells from enzymatic dissociated cancer tissues. Primary tumorspheres could be collected by 100 μm cell strainer and processed to lysate preparation for identification of CSC-specific tumor antigens through dendritic cell presentation and T cell stimulating property. The primary tumorspheres could also be enzymatic dissociated into single cell suspension for secondary tumorsphere formation examination. The potential anti-CSC agents could be tested at this stage. The effects of potential agents will be determined by counting the number and/or the size of formed secondary tumorspheres. The agent with the ability to reduce secondary tumorsphere formation can be selected; the*in vivo* anti-tumorigenic effect of the agent can be determined; and a study on the molecular mechanisms in targeting CSCs can be conducted. Clinical evaluations can be further conducted after obtaining the results of CSC-specific antigen discovery or anti-tumor efficacy of selected anti-CSC agents. CSC, cancer stem cells; DCs, dendritic cells; 1°, primary; 2°, secondary.