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Effects of Src on Proliferation and Invasion of Lung Cancer Cells

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【 Abstract 】

Background and objective It has been proven that Src played pivotal roles in carcinogenesis, cancer progression and metastasis. The aim of this study is to explore the roles of Src phosphorylation on lung cancer cells. Methods Western blot and immunoprecipitation was used to detect the expression and phosphorylation of Src in lung cancer cells. MTT and Boyden chamber assay was used to examine the effects of inhibition of Src phosphorylation on proliferation and invasion of lung cancer cells *in vitro*, respectively. Results pp60^{src} was expressed in all lung cancer cell lines in this study. All 5 non-small cell lung cancer (NSCLC) cell lines had increased autophosphorylated tyrosine-418, while nearly no phosphorylated Src in small cell lung cancer SBC5 cell line was detected. The effect of inhibition of Src tyrosine kinase on cell proliferation varied among the lung cancer cell lines. Submicromolar Src tyrosine kinase inhibitor ($\leq 1 \mu\text{M}$) remarkably suppressed the proliferation of PC-9 and A549 cells in a dose dependent manner ($P<0.05$), while the same concentration of Src tyrosine kinase inhibitor had no significant effect on proliferation of H226, PC14PE6 and RERFLCOK cells. Invasiveness of lung cancer cells was significantly suppressed by Src tyrosine kinase in a dose-dependent manner ($P<0.05$). Conclusion Phosphorylation of Src, but not over-expression, plays a pivotal role in proliferation and invasion of NSCLC cell lines *in vitro*.

【 Keywords 】 Lung neoplasms; Src tyrosine kinase; Proliferation; Invasion

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肺癌是世界范围肿瘤相关性死亡的主要病因，近年来肺癌药物治疗的新策略转向抑制肿瘤生长进展中特异性通路和关键分子的分子靶向治疗^[1]。其中，表皮生长因子受体（epidermal growth factor receptor, EGFR）酪氨酸激酶抑制剂吉非替尼和厄洛替尼已成功地用于治疗某些晚期非小细胞肺癌（non-small cell lung cancer, NSCLC）。患

2. 心得

覺得上課的時候，演講者講了很多關於 Scifinder 的好處，因為他們發展出一套新的分類系統，讓我們在資料尋找上更方便，按照他講起來比大部分研究者在使用的 Pubmed 更為便利。

不過因為學校提供給學生使用的就那幾個功能，親身使用後卻覺得一頭霧水，譬如說我想知道「SrK 和 ErK 蛋白質對癌細胞增殖的影響」，原本想打關鍵字後縮小範圍尋找，卻發現縮小範圍的功能都不能使用，而且找出來的資料並不多，而 Pubmed 雖無法縮小搜尋範圍，且資料較多，比 Scifinder 來好像資料比較完整；另外有跟同學查過的資料做比較，雖然 SrK 和 ErK 蛋白質資料較少，關於 glucosamine 跟 joint 的資料比起來多一點；我想這是因為我們現在用的系統限制較多，而且在上課的短時間內無從得知其好處為何，不知可否老師之後上課請講者說明 Pubmed 和 Scifinder 的優劣呢？

謝謝老師讓我們多認識一個可以尋找文獻資料與論文的系統。