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[\[醫療\] 中研院細生所吳漢忠副研究員研究團隊成功發展出新穎抗癌藥物傳輸系統](#)**[醫療] 中研院細生所吳漢忠副研究員研究團隊成功發展出新穎抗癌藥物傳輸系統**

中研院細胞與個體生物學研究所吳漢忠副研究員研究團隊，近期內在癌症標靶治療藥物研發上有突破性的發展。研究團隊成功發展出新穎抗癌藥物傳輸系統，能將藥物導向腫瘤組織。此一系列創新的研究成果已陸續申請6項專利，且部份已獲得美國及台灣專利權。中研院公共事物組已於三月下旬將其中3項專利授權給生技公司，準備對這些標靶藥物進行前臨床試驗。這些標靶抗癌藥物預計在近年內完成前臨床試驗並進入臨床試驗，期待早日解決目前癌症治療的困境。

研究團隊尋獲數條新穎標的胜肽，可與癌細胞及腫瘤新生血管專一性結合。為了發展新一代抗癌藥物傳輸系統，研究團隊將標的胜肽與帶有抗癌藥物的微脂體連結，明顯提高胜肽在活體內的穩定性。此具有標的功能的奈米微脂體 (targeting liposome) 被證明能攜帶大量的抗癌藥物專一性進入癌組織。在動物實驗中至少有二條新穎胜肽，分別有效的抑制肺癌及肝癌等腫瘤生長，並減低藥物的副作用，也大幅提升實驗動物的存活率。

研究團隊表示，化學療法仍是現今癌症治療的主流，但這些藥物並不具腫瘤專一性，因而產生嚴重的副作用以及抗藥性。新一代抗癌藥物傳輸系統可以讓癌細胞暴露於局部高劑量的抗癌藥物中，進而被更有效的毒殺，不完全的腫瘤毒殺效果所引起的抗藥性或癌症復發機會因而降低。目前與基因體中心陳鈴津副主任以及細生所游正博所長二個研究團隊合作，進行標的活體影像與標靶藥物最佳化的研究，以利智慧財產權進一步的保護及下一個階段的臨床研究。此一系列研究成果已於近期內發表數篇論文於知名學術期刊，包含 [Journal of Biological Chemistry](#), [PLoS ONE](#), [Cancer Research](#), and [Molecular Cancer Therapeutics](#)。

資訊來源：

[中研院新聞稿 2009/04/22](#)**[Medicine] Academia Sinica Presents Novel Drug Delivery Systems for Target Therapy of Cancer**

A research team from the Institute of Cellular and Organismic Biology, Academia Sinica, led by Dr. Han-Chung WU has identified cancer-specific targeting ligands and developed novel peptide-mediated drug delivery systems for the treatment of cancer. This series of research projects has resulted in the filing of six patent applications, several of which have already been granted in Taiwan and the United States. Academia Sinica has licensed three patents to a biotechnology company for preclinical testing. The research team plans to finish preclinical studies and progress to clinical studies in the future.

Recently, the research team has identified several novel peptides that bind specifically to the plasma membrane of cancer cells as well as tumor-associated endothelial cells. In an effort to develop ligand-targeted therapy, research team used peptide-linked liposomes (targeting liposomes) that carried doxorubicin to treat severe combined immunodeficiency (SCID) mice bearing human tumor xenografts. These novel drug delivery systems were found to have enhanced anti-tumor effects and decreased side effects, while significantly increasing survival rates in mice bearing human lung cancer and liver cancer xenografts.

The lack of tumor specificity remains a major drawback for effective chemotherapy regimes and results in dose-limiting toxicities. However, targeting drug delivery systems make possible tumor specificity with limited toxicity, and show promise for the development of novel therapies for cancer. The research team found that these treatment regimens could deliver sufficient amounts of a drug to targeted tumors while minimizing damage to normal tissues. Therefore, incomplete tumor response, early disease relapse, and drug resistance induced by conventional chemotherapeutic drugs could be reduced. At the same time, ongoing collaborative projects with Academia Sinica's Professor Alice Lin-Tsing YU at the Genomics Research Center and Professor John YU of the Institute of Cellular and Organismic Biology have been focusing on the study of in vivo imaging and optimization of targeting drug delivery systems. These results have been published in the prominent international journals, including [Journal of Biological Chemistry](#), [PLoS ONE](#), [Cancer Research](#), and [Molecular Cancer Therapeutics](#).

Reference:

[Academia Sinica Newsletter 2009/04/22](#)

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