

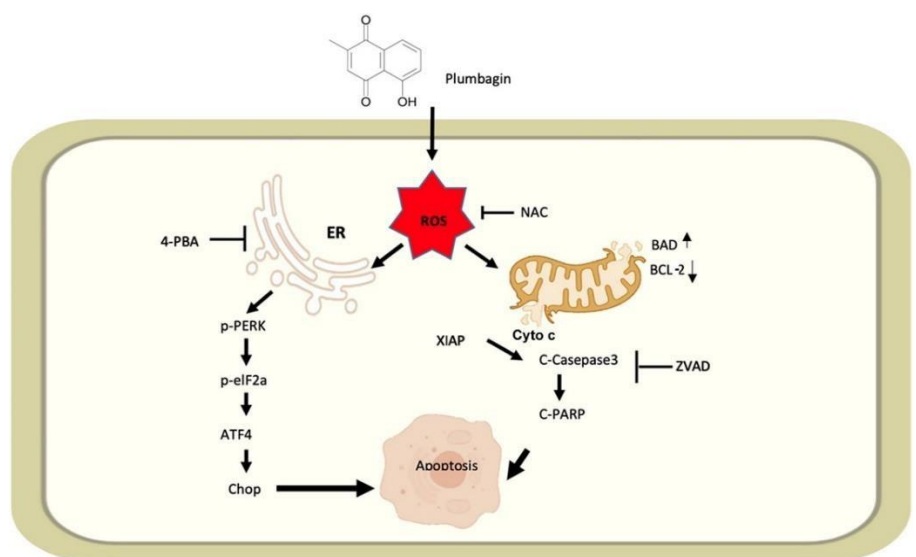


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本研究團隊聚焦於治療口腔癌的藥物開發，特別是針對抗藥性的口腔癌。口腔癌是全球癌症相關死亡的主要原因之一，化療的效果常因抗藥性而受到限制，這使得尋找新型治療成分以克服這一挑戰變得尤為迫切。研究結果顯示，植物白花丹中的 Plumbagin 對抗藥性的口腔癌細胞具有顯著的抑制作用，能有效降低細胞活性並誘導細胞凋亡。透過促進細胞內及粒線體的氧化壓力生成，進一步導致粒線體功能障礙，進而引發內質網壓力的增加。當使用抗氧化劑 N-乙醯半胱氨酸(NAC)抑制氧化壓力生成時，Plumbagin 誘導的內質網壓力和細胞凋亡現象均得以緩解，這進一步強調了氧化壓力在 Plumbagin 抗癌機制中的關鍵角色。此外，在斑馬魚和抗藥性口腔癌小鼠模型中重現了相同的結果，總結來說，本研究揭示了植物白花丹中的 Plumbagin 對抗藥性的口腔癌的抗癌機制，並為

未來開發新型口腔
癌治療方案提供了
重要的實驗依據。也
為天然化合物在癌症
治療中的應用開
闢了新途徑。此篇
研究發表在
Phytomedicine.
2023;111:154655.





【研究團隊】

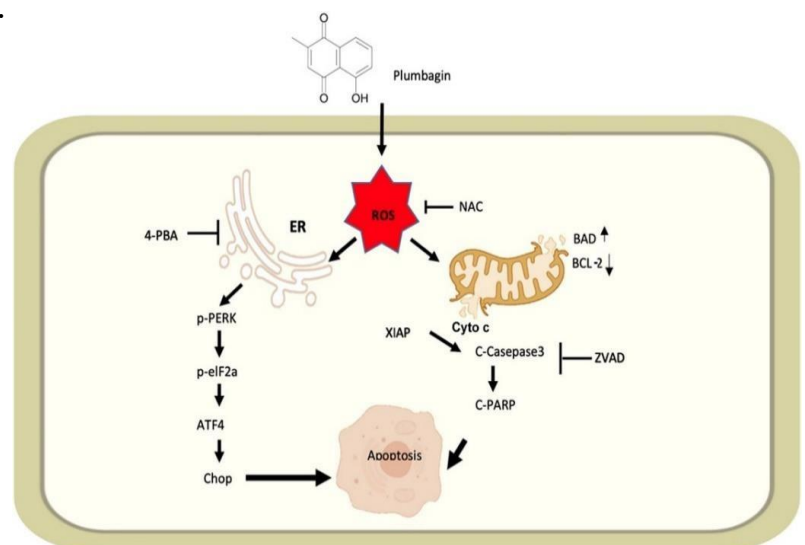
團隊成員：黃宛萍(碩士，已畢業)、蔡尚杰(博士)、張惠敏(助理)、吳婉汝(助理)、陳逸夫 教授(<https://reurl.cc/6jgZ00>)、林常申 教授(<https://reurl.cc/46g1X2>)

團隊簡介：一個小而堅韌的研究團隊正默默奉獻著心血與智慧。團隊中有充滿理想的學生和無私奉獻的助理，與兩位致力於口腔癌基礎研究的教授攜手合作。這群志同道合的研究者們，肩負著揭示抗藥性口腔癌致病原因的使命，並致力於藥物的開發，渴望為無數患者帶來希望與光明。雖然挑戰重重，我們始終相信科學的力量能為生命開創新的可能。

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Our team is dedicated to the development of therapeutic agents for oral cancer, with a specific focus on addressing drug resistance. Drug resistance poses significant challenges in oral cancer treatment, as it contributes to therapeutic failure, tumor recurrence, and eventual metastasis. This investigation reveals that Plumbagin, a bioactive compound derived from *Plumbago zeylanica*, significantly inhibits drug-resistant oral cancer cells by reducing cellular viability and promoting apoptosis. The mechanism of action involves the induction of cellular and mitochondrial oxidative stress, leading to mitochondrial dysfunction and increased endoplasmic reticulum (ER) stress. Notably, the antioxidant N-acetyl cysteine (NAC) effectively alleviates Plumbagin-induced ER stress and apoptosis. These findings were corroborated in in vivo models, including zebrafish and murine models of drug-resistant oral cancer.

In conclusion, this study elucidates the molecular mechanisms through which Plumbagin exerts its anti-cancer effects against drug-resistant oral cancer, offering a foundation for the future development of innovative therapeutic strategies.





Additionally, it paves the way for the integration of natural compounds into cancer treatment paradigms. This research has been published in *Phytomedicine* (2023:111:154655).

【Research Team】

Team Members: Wan-Ping Huang, Sheng-Chieh Tsai, Hui-Min Chang, Wan-Ju Wu, Chang-Shen Lin, Jeff Yi-Fu Chen

Research Team Introduction: Our team is small but hardworking, composed of serious students and dedicated assistants, working with two professors dedicated to basic research into oral cancer. This group of like-minded researchers is on a mission to uncover the mechanisms behind drug-resistant oral cancer and is working to develop novel treatments designed to bring hope and improved outcomes to countless patients. Despite the many challenges, We remain convinced of the power of science to create new possibilities for life.

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