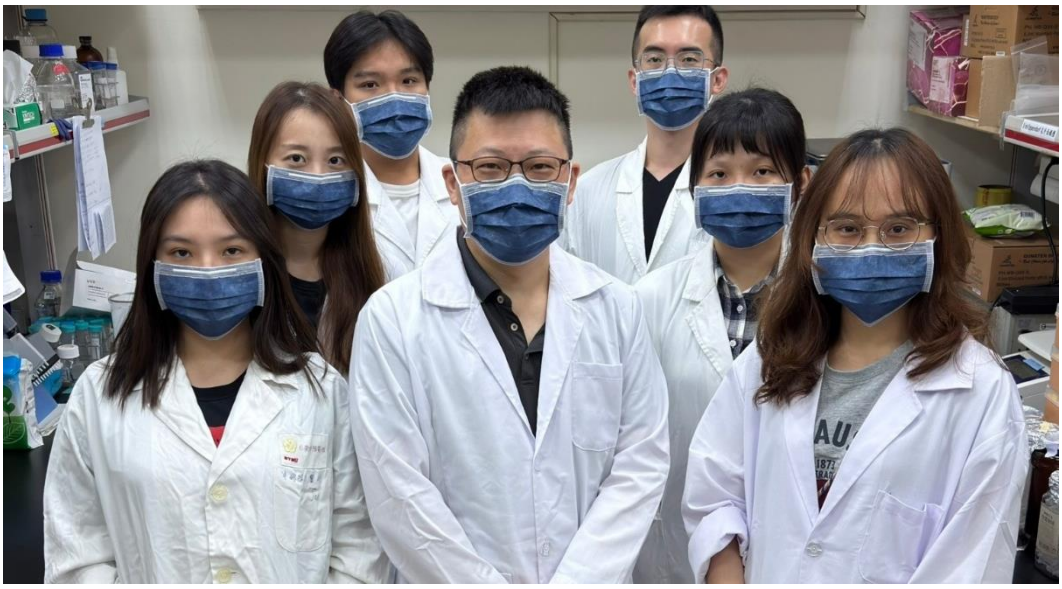
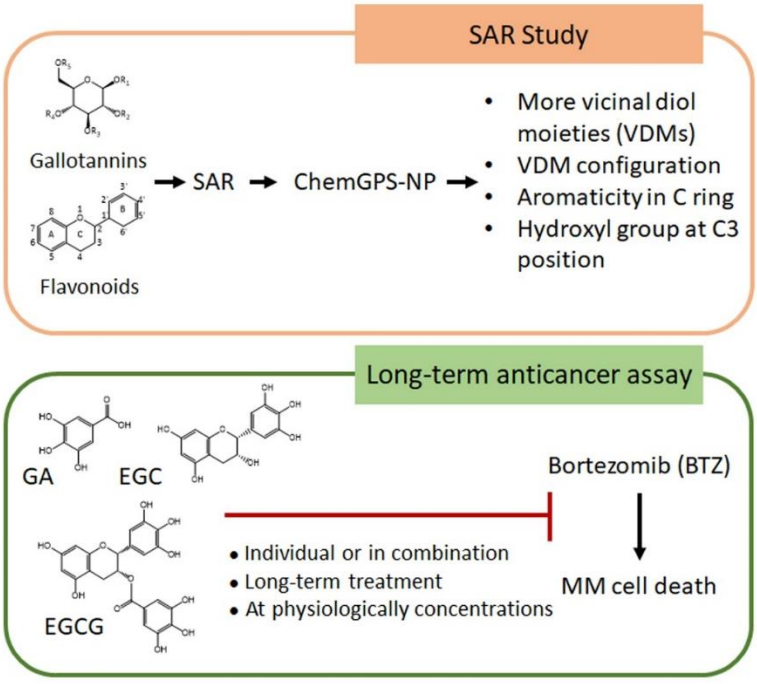


顏嘉宏 教授 藥學院/天然藥物研究所

自 2014 年起，本團隊整合高醫校內資源，建立高通量篩選平台，涵蓋獨特的天然物萃取物庫、半自動化篩選系統及高內涵影像系統，並開放校內外研究人員使用。經多年努力，平台於 2018 至 2022 年間獲科技部補助，成立「天然物藥庫暨高通量篩選核心設施（NPS）」，並於 2024 年初轉型為「植物資源研發與應用產學聯盟」，服務生技醫藥產業。疫情期間，使用者利用「可供食品使用植物萃取物庫」篩選出具抗 SARS-CoV2 感染效果的萃取物，相關健康補充品已上市。目前，本團隊致力於開發抗代謝性脂肪肝的植物新藥與保健品，從可食用植物萃取物庫中篩選出 3 種具顯著減脂活性的植物，初步研究顯示其活性成分能提升細胞內脂肪代謝活性，深具治療潛力，並已技轉合作開發。此外，團隊發現某些多酚化合物，如沒食子酸與表沒食子兒茶素沒食子酸酯，可能削



弱癌症患者接受 Bortezomib 治療的效果，即使在生理濃度下亦會中和其抗癌作用。相關研究已於今年發表於《Frontiers in Pharmacology》（Front. Pharmacol. 15:1403424）。

綜合我們的研究結果，多酚類化合物上的鄰二醇（VDMs）的數量以及結構配置對其削弱 Bortezomib 抗癌效果的程度具有關鍵影響。即使是在生理濃度下，來自富含 EGCG（表沒食子兒茶素沒食子酸酯）、EGC（表沒食子兒茶酚）和 GA（沒食子酸）等多酚的食物（如茶）的膳食多酚，也可能削弱 Bortezomib 的抗癌效能。因此，在接受 Bortezomib 治療多發性骨髓瘤（MM）期間，建議限制多酚的攝取。

【具體成果】

1. 獲國科會補助執行「植物資源研發與應用產學聯盟」計畫，進一步深化產學鏈結。
2. 與胡志明市越南國家大學以及菲律賓聖多默大學的學者合作，在 113 年分別都發表了 1 篇國際期刊文章。
3. 兩個專利案在申請中，另完成一案先期技轉的簽署。

【研究團隊】

團隊成員：顏嘉宏、陳宜孝、文珍珍、林芊孜、黃思樺、董昱琦、鄭思亭、施作堂

團隊簡介：團隊內目前有 2 位博士班學生、3 位研究助理、以及 2 位碩士班學生，協助多項的生物活性實驗平台的建立與篩選以及脂肪肝小鼠模式的相關研究。

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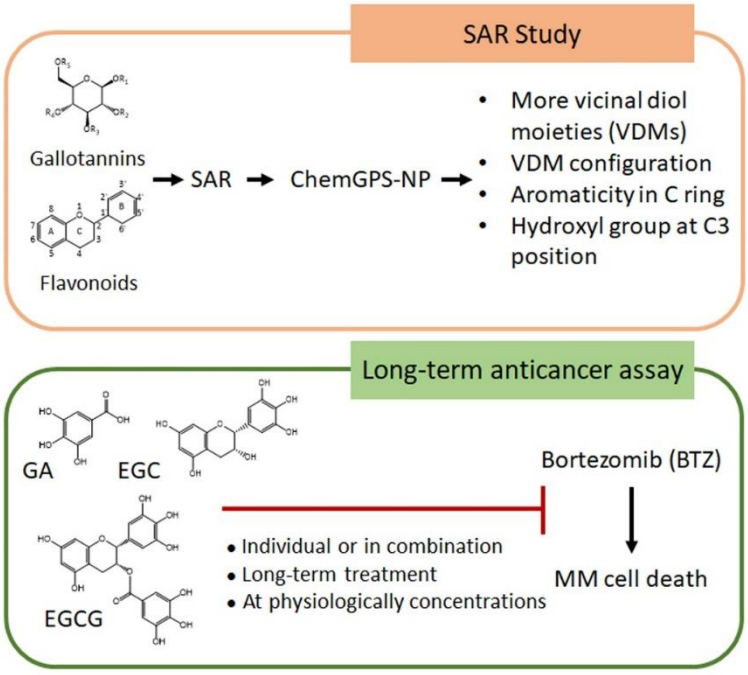
Since 2014, our team has integrated resources within KMU to establish a high-throughput screening platform, featuring a unique natural product extract library, semi-automated screening systems, and high-content imaging systems, which have been made accessible to researchers both within and outside the university. After years of effort, the platform was supported by the Ministry of Science and Technology from 2018 to 2022, leading to the establishment of the **Natural Product Library and High-Throughput Screening Core Facility** (**NPS**). In early 2024, it transitioned into the **Plant Resource Research and Application Industry-Academia Consortium**, serving the biotech and pharmaceutical industries. During the COVID-19 pandemic, users of the Editable Plant Extract Library identified extracts with anti-SARS-CoV-2 infection effects, resulting in the development of health supplements that are now commercially available. Currently, our team is focusing on developing botanical drug and nutraceuticals for combating metabolic fatty liver disease.

Through the extract library, we identified three plants with significant lipid-reducing activities. Preliminary studies indicate that their active compounds enhance intracellular lipid metabolism, showing promising therapeutic potential. These findings have been transferred to industrial partners for further collaborative development. Additionally, the team discovered that certain dietary polyphenolic compounds, such as gallic acid and epigallocatechin gallate (EGCG), may weaken the efficacy of Bortezomib treatment in cancer patients. Even at physiological concentrations, these compounds can neutralize the anticancer effects of Bortezomib. This research was published earlier this year in Frontiers in Pharmacology (Front. Pharmacol. 15:1403424).

Collectively, our findings indicated that the structural configuration, origin, and number of VDMs are crucial in determining the extent to which polyphenols counteract BTZ. Even at physiological levels, dietary polyphenols, especially from EGCG, EGC, and GA-rich foods like tea, may compromise BTZ´s anticancer efficacy. Hence, limiting polyphenol intake during BTZ treatment for MM is advisable.



Concrete Results:

1. Received funding from the National Science and Technology Council (NSTC) to execute the " Plant Resource Research and Application Industry-Academia Consortium " project, further strengthening industry-academia collaboration.
2. Collaborated with scholars from Ho Chi Minh City Vietnam National University and the University of Santo Tomas in the Philippines, resulting in the publication of one international journal article with each partner in 2024.
3. Two patent applications are currently under review, with one pre-licensing agreement already signed.

【Research Team】

Team Members: Chia-Hung Yen, Yi-Siao Chen, Tran Tran Thi Van, Chien-Tzu Lin, Si-Hua Huang, Yu-Chi Tung, Ssu-Ting Cheng, Zuo-Tang Shi.

Research Team Introduction: within 100 words

The team currently includes two Ph.D. students, three research assistants, and two master's students, who assist in the establishment and screening of various bioactivity experimental platforms as well as research related to the fatty liver mouse model.

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