



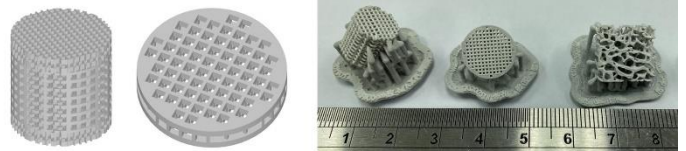
王彥雄 教授

口腔醫學院/牙醫學系

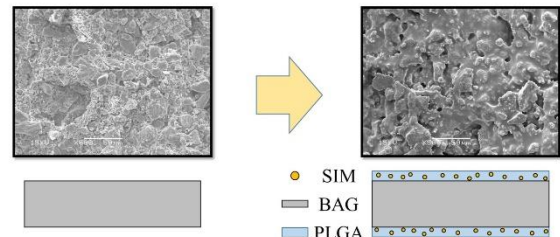
- ▶ 與校內外不同領域專家共同合作，發展新型醫材和口腔疾病(口腔黏膜下纖維化、口腔癌等)機制的探討，透過跨域的合作在專利技轉上有一定的產出，也曾獲得國家新創獎的肯定。

已發表於 Materials & Design 期刊的研究中，首先我們將生醫玻璃材料應用 3D 列印技術，製作出符合骨生長需要的孔洞結構和具有形態客製化的人造骨材，其次為促進骨再生的能力，我們將列印並燒結後的骨材，以聚乳酸甘醇酸 (PLGA) 均勻的攜帶具有促進骨生成的活性藥物 - 辛伐他汀 (Simvastatin) 於整個人造骨材中。結果中顯示含藥骨材能夠長時間釋放活性藥物，同時細胞實驗和動物實驗也證明能夠有效的促進骨細胞的分化和大鼠頭蓋骨缺損的修復。此研究除了發展出新型的人工骨材外，也提供將藥物有效附著於多孔材料的解決方案。

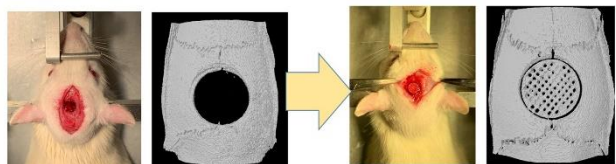
3D printing
BAG scaffold



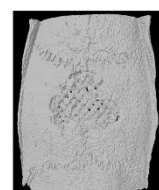
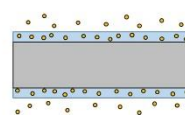
PLGA/SIM coating



Calvarial defect
implantation



Drug delivery &
Bone reconstruction





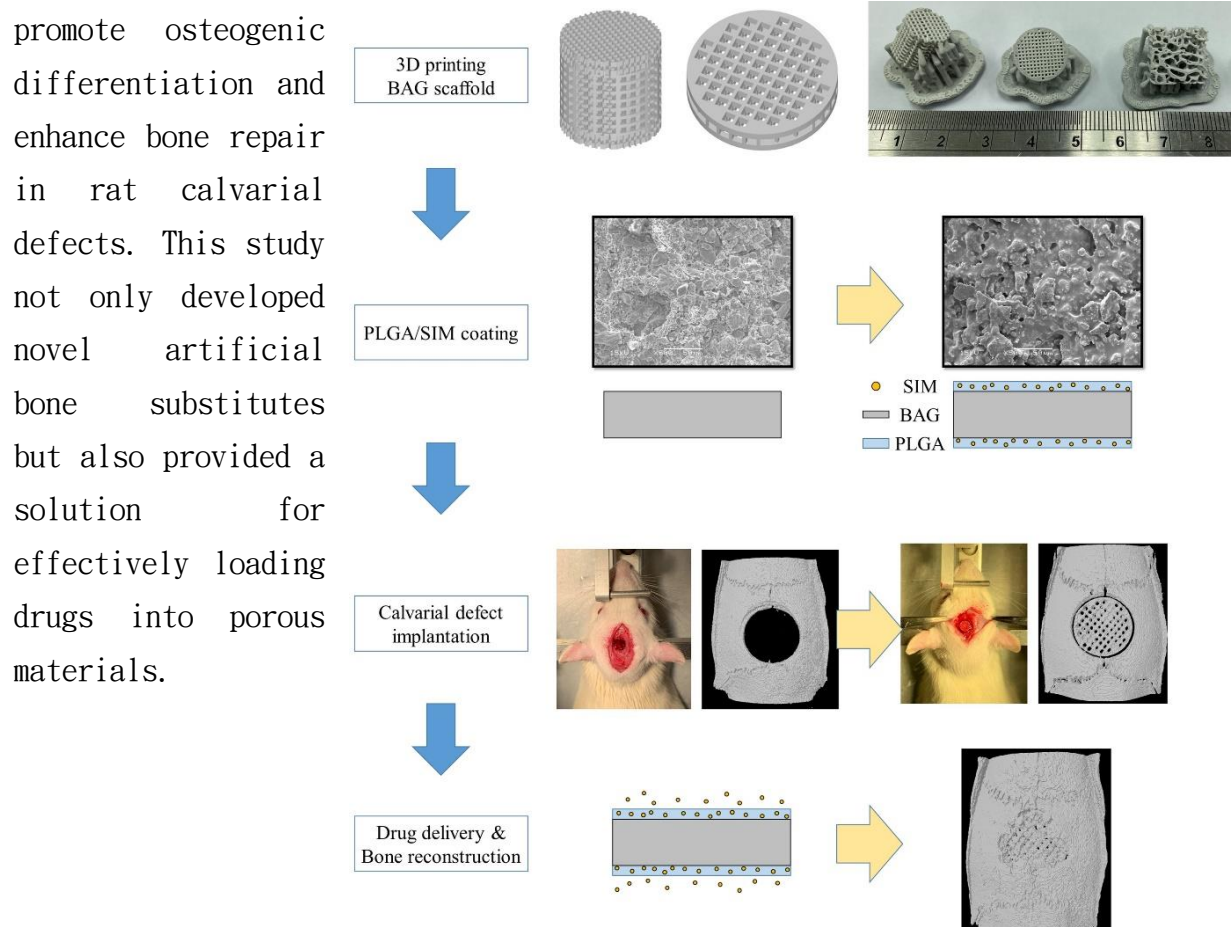
【研究團隊】

團隊成員：蕭郁芳(研究助理)

團隊簡介：研究室的成員包括專任助理一名，碩士生 4 名和博士生 3 名。研究室的研究主題多以創新醫材和口腔相關疾病為主要的研究方向，並且與材料、化學和臨床的專家進行跨域的合作。

研究聯繫 Email: yhwang@kmu.edu.tw

The research was published in the journal *Materials & Design*. Firstly, we applied 3D-printing technology to bioactive glass materials to create artificial bone substitutes, which contain pore configurations that support bone growth and are customized in shape. Furthermore, to enhance bone regeneration, the printed and sintered bone substitutes were uniformly loaded with a mixture of poly(lactic-co-glycolic acid) (PLGA) and simvastatin, a drug that promotes bone formation. The results showed that the drug-loaded bone substitutes could release the active drug over an extended period, and both cell and animal experiments demonstrated their ability to effectively promote osteogenic





Concrete Results: In recent years, I have had the privilege of collaborating with experts from various fields both within and outside KMU to develop new medical materials and explore the mechanisms of oral diseases (such as oral submucous fibrosis, oral cancer, etc.). Through interdisciplinary cooperation, we have not only published papers but also made significant contributions to patent technology transfer and received recognition with a National Innovation Award.

【Research Team】

Team Members: Yu-Fang Hsiao (Research Assistant)

Research Team Introduction: The research team includes one full-time assistant, four master's students, and three doctoral students. The main research focus of the lab is on innovative medical materials and oral-related diseases. The team collaborates across disciplines with experts in materials, chemistry, and clinical fields.

Research Contacts Email: yhwang@kmu.edu.tw