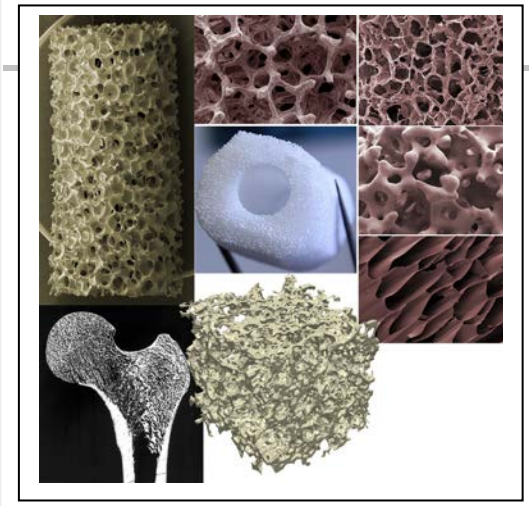
UNSW SYDNEY | Australia's Global University

3D printing and Design of Bone Grafts and Orthopaedic Implants

School of Chemistry

Our technology enables us to develop synthetic bone grafts that can revolutionlise the treatment of bone defects and fusions. Simply put, our technology is based on combination of novel chemistry and unique architechture of grafts that addresses an increasing demand for a bone graft substitute with the efficacy of autograft (the patient's own bone).



Synthetic bone grafts with similar architecture to human bone.

Competitive advantage

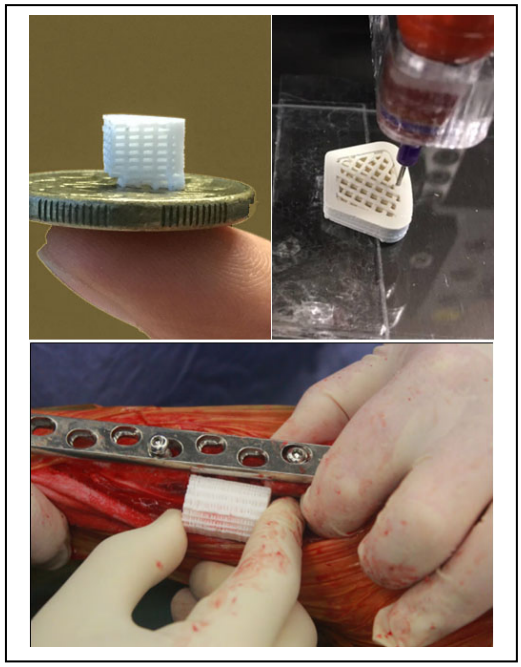
- High throughput 3D printing technique.
- Unprecedented technology for fabrication of complex shaped bioceramics.
- Novel 3D printing technique to fabricate heat sensitive bone grafts at room temperature.

Recent research projects

- "Treatment of bone metastasis", NHMRC, 243,607.00 AUD.
- "Optimising bone regeneration using advanced technologies", NHMRC, AUD $916,671.00.
- "Macrophage-Scaffold interactions". US National Science Foundation, USD $70,000.
- "Synthetic bone substitutes for bone regeneration", AO Foundation, AUD $95,000.
- Novel dental and orthopedic biomaterials for bone regeneration.
- Resorbable, bone forming and load bearing porous implants.
- Stem cell-modulator synthetic bone grafts.

Successful applications

- Spinal cages made from [Sr-Gahnite] Alumina Calcium Silicate Composite Scaffold, Patent No. 9220806, with Allegra orthopaedic,



3D printing of patient specific bone grafts.

Dr Iman Roohani

NHMRC ECR Fellow, Biomaterials Design and Tissue Engineering

T: +61 431297407

E: iman.roohani@unsw.edu.au

新南威尔士大学火炬创新园区
Torch Innovation Precinct at UNSW