



Position Title	PhD Studentship – Immune modulating biological scaffolds for functional tissue regeneration
Project Abstract	<p>Despite decades of research, there have been relatively few examples of successful tissue and organ regeneration in humans using biomaterial scaffolds. This may be because such bioscaffolds are designed to modulate the later stages of the healing process such as stem cell differentiation, while less focus has been placed on the manner in which the host immune system responds to the particular intervention. As a result, efforts are being made to manipulate the interplay between the implant material itself and the host immune system, as recent evidence suggests that promoting specific interactions between the two can boost immune tolerance and positive healing outcomes.</p> <p>The goal of this project is to expand on these studies and to further explore how the composition of biomaterial scaffolds determines immune cell recruitment, macrophage polarization, vascularization, progenitor cell recruitment and differentiation and, ultimately, functional tissue regeneration within critically sized bone defects.</p> <p>Furthermore, we will determine if biomaterial - induced metabolic changes impact on the ultimate fate of MSCs and whether this can be manipulated to promote favourable chondrogenesis and osteogenesis. These questions will be addressed using established <i>in vivo</i> and <i>in vitro</i> models using both biomimetic scaffolds (produced from the bottom up by combining specific organic and inorganic matrix components) and extracellular matrix (ECM) derived scaffolds (produced from decellularized porcine tissue).</p>
Experience	The PhD position is funded for 4 years, including a monthly stipend and materials and travel budget. Applicants should hold a minimum of an honours bachelor's degree at 2:1 level or equivalent in a relevant subject such as Bioengineering/Immunology/Biomedical Science. Candidates should also have a strong interest in regenerative medicine.
Funding	The studentship will cover fees up to €5,500 pa and a stipend of €18,500 pa
Location	TCD
Closing Date	Friday 29 th June 2018
For more information contact	Dr. Aisling Dunne; + 353-1-8962437; aidunne@tcd.ie

AMBER,
CRANN Institute,
Trinity College Dublin,
Dublin 2, Ireland

T + 353 (0) 1 8963030
W ambercentre.ie
twitter @ambercentre

