



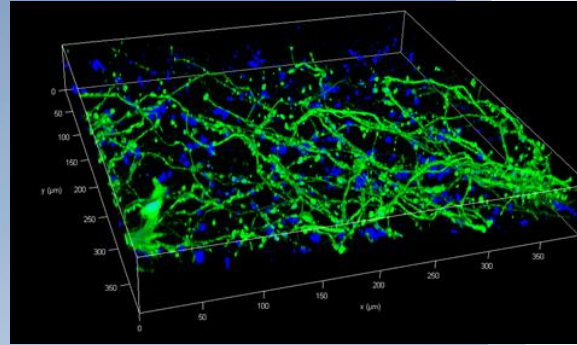
Engineering Scaffold-Based Treatments For Nervous System Regeneration

Wednesday, 21 April 2021 12:00 – 13:00

To attend the seminar, click [here](#)

Abstract

In order to restore normal structure and function in severely injured organs (due to trauma or disease), the field of regenerative medicine (RM) seeks treatments that can alter wound healing in situ using appropriate biomaterials, cells and compounds. My research seeks to develop novel RM treatments for the human nervous system based on porous collagen-based scaffolds (PCS), one of the few FDA-approved biomaterials with established clinical applications. The first part of the talk will present data from transected rat peripheral nerves grafted with PCS conduits, suggesting a major role of tissue biomechanics in peripheral nerve system (PNS) regeneration. Central Nervous System (CNS) injuries pose a significantly larger challenge in terms of wound healing complexity and intrinsic obstacles to regeneration. The second part of the talk describes recent and ongoing efforts to develop implants for CNS injuries where PCS deliver neural stem cells or neuroprotective small-molecule analogs of neurotrophins as well as new means to personalize grafts.



Short bio

Dr. Dimitrios Tzeranis is a lecturer at the department of Mechanical and Manufacturing Engineering at the University of Cyprus. He holds a Diploma degree in mechanical engineering from the National Technical University of Athens and the S.M. (2005) and Ph.D. (2013) degrees from Massachusetts Institute of Technology. His undergraduate studies and S.M. research focused on dynamic systems, design and robotics. His doctoral dissertation (supervised by Prof. I. Yannas and Prof. P. TC So) probed the ability of biomaterials to induce peripheral nerve regeneration using biochemistry and nonlinear microscopy. During his post-doctoral research, he was trained in biomechanics, multiplex proteomics (NTUA Systems Bioengineering lab & Protatonce Ltd, 2013-2016), stem-cell based implants and neurodegeneration (IMBB-FORTH, 2016-2019). He was awarded the Marie Curie Individual fellowship (2015-2017) and the ELIDEK postgraduate grant (2018-2021). His current research focuses on systems and devices built around biomaterials for regenerative medicine and systems neuropharmacology. Examples include implants for central nervous system injuries, drug delivery systems and 3D tissue models. Dr Tzeranis has published 18 articles in peer-reviewed journals in the fields of biomaterials, optics, medical devices and biomechanics.

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