BT5130 Tissue Engineering

Neural Tissue Engineering: Designing constructs for improved emulation

Submitted by Sahana Gangadharan (BE17B038)

ABSTRACT

Neurons, unlike other somatic cells, have a remarkable type of architecture. The neural system is unique and complex, owing to its sophisticated connectivity and the self-regeneration abilities of neural tissues are limited and not very extensive [1]. The idea of implants and tissue engineering that could aid in neurogenesis has been in existence for quite some time, but lately, major developments have been coming into effect. The intricacies in a neural tissue demand a successful construct that incorporates multiple features in tissue engineering such as electro-conductive properties, immunomodulatory properties, and optimal stiffness in the material [2]. It is also to note that it is difficult to locate suitable ECMs, and undesirable immune-responses are common setbacks in this field [3]. In this project, I'd like to examine different methods employed in engineering scaffolds and explore varied kinds of stem cells, including but not restricted to neonatal tissues, that will ensure that the side effects are reduced significantly.

References:

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3. Valter R.M. Lombardi, "New Challenges in CNS Repair: The Immune and Nervous Connection", Current Immunology Reviews (2012) 8: 87. https://doi.org/10.2174/157339512798991272