

TCS/19/22 - Pre-clinical validation of clinical grade human olfactory mucosal-derived mesenchymal stem cells

Spinal cord injury (SCI) can have devastating effects resulting in loss of nerve function and patient paralysis. There are currently no treatments to help patients restore function after SCI, however, cell transplantation where damaged tissue is replaced with healthy cells is a promising strategy. Many types of cells have been studied for transplantation, but we are focussing on cells from nose tissue, known as olfactory tissue. The olfactory system is of interest for regenerative medicine as it continually supports new nerve growth throughout life due to unique cells that reside in the tissue. Using cells generated from human olfactory mucosa (OM) biopsies, we have identified a novel stem-like cell that promotes myelination and neurite outgrowth in rat models of central nervous system injury both in a culture dish and in animal models. In this study, we aim to demonstrate that clinical grade cells can be generated with the same therapeutic properties as lab based cells with the aim to produce a protocol to support a subsequent clinical trial application to grant funders.