Investigating the use of biomaterial microcarriers for delivery of drugs to treat peripheral nerve injuries

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Peripheral nerve damage is debilitating and can be caused by trauma, diseases such as diabetes, and drugs such as those used to treat cancer. There are currently no effective treatments that can be used to promote regeneration of damaged nerves beyond surgical reconnection, and restoration of function is poor.

There is considerable potential for developing new therapies using small molecules to improve outcomes following nerve damage and various drugs have been identified for investigation. Local delivery of drugs to the site of nerve injury might provide an effective alternative to systemic administration as a way to improve functional recovery with minimal side effects. The aim of this project is to investigate the use of microcarrier particles as systems for delivering small molecule therapeutics to treat nerve injuries.

The student will learn techniques that may include in vitro characterization and mathematical simulation with a view to predicting the optimal microcarrier delivery approaches to use for delivery of drugs to sites of nerve injury.

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