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PhD

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Images of Research Competition

University of Alberta

Stuck in TRAFFIC

Semi-finalist (2020)

The TRAFFIC (Thread-Reinforced Alginate Fiber For Islet en Capsulation) device is a novel approach to use alginate, a gel-like compound, as a biomaterial for cell encapsulation. Advances in the field of transplantation are still restricted by the finite source of cells and tissues and by the need of chronic medication to avoid immune rejection. Stem cells provide a potentially limitless source of cells and/or tissues to be used for regenerative and transplantation medicine while cellular encapsulation within diverse biomaterials prevents direct cell-to-cell contact between the foreign cells and/or tissues and the recipient's immune system. In this picture, we have encapsulated human pluripotent stem cells that will transform into insulin-producing cells for the treatment of diabetes. By doing this, we hope to contribute to a solution for both the limited source of cells for transplantation therapies in diabetes and the requirement of chronic immunosuppression.