Siloxane Toxicity Assay on Encapsulated Cells Jessica Weaver Ph.D, Tuhfah Alamin, Rowan Fenley, Tempe, AZ, School of Biological and Health Systems Engineering, Arizona State University Phoenix, AZ

INTRODUCTION

Diabetes is a very prevalent disease that affects about 38.4 million people in the united states alone (1). Current treatments are managing blood sugar through diet, exercise and medication such as insulin injections. None of the current treatments are cures for type 1 diabetes. It has been found that islet cells, which are clusters of cells from the pancreas, are able to produce hormones that regulate blood sugar (2). Transplanting these cells into type 1 diabetics could be a possible treatment and or cure the only issue is the body is foreign body response to transplantations. A solution to this problem is to encapsulate the cells in a hydrogel and then implant the hydrogel into the body.







Alamar Blue test showed that above 10% siloxane becomes toxic to cells. Cell active was decreased at 20% compared to the lower levels.

It was found that: Siloxane below 20% is not toxic to cells

Future Direction: Creating spirals with siloxane and testing the oxygen consumption between spirals and cylinders

1. Centers for Disease Control and Prevention. "National Diabetes Statistics Report." CDC, 15 May 2024, www.cdc.gov/diabetes/php/data-research/index.html. 2. National Institute of Diabetes and Digestive and Kidney Disease. Islet Cell Transplantation. 17 Feb. 2017, medlineplus.gov/isletcelltransplantation.html#:~:text=Islets%20are%20cells%20found%20in,live%2 0without%20daily%20insulin%20injections.

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RESULTS

SUMMARY, CONCLUSIONS AND FUTURE DIRECTIONS

REFERENCES

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