



COLLEGE OF PHARMACY
PHARMACEUTICAL SCIENCES
UNIVERSITY OF MICHIGAN

Pharmaceutical Sciences Seminar Series

Wednesday, March 16, 2022

4:00pm

2548 NUB or [Zoom](#)

“Formulation and Characterization of Exenatide-PLGA Microspheres prepared by the Coacervation Method”

Presented by:

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Abstract: Diabetes is an extremely prevalent disease worldwide, with over 400 million confirmed cases. It also represents a significant expenditure of healthcare systems, with an estimated 200 billion dollars each year going towards treatment and alleviation of systems. However, antidiabetic drugs have a myriad of problems, the foremost of them being the low half-life of the drugs due to enzymatic deactivation. Two potential solutions are to use non-human peptides to evade endogenous enzymes, and to encapsulate the peptide within a polymer, such as PLGA, to extend the release time. Bydureon is a combination of these two solutions, which uses coacervation as a method of formulating microspheres. Coacervation is a notable way to formulate microspheres because of the low burst release of drug from the resultant microspheres, which in turn reduces side effects. However, information available concerning Bydureon is limited to the patent literature. This patent outlines details about the encapsulation procedure but does not offer any scientific insight into why the formulation parameters are selected. We will examine the details of coacervation and its use for Bydureon manufacturing by systematically adjusting encapsulation variables at constant composition of the microspheres. We will then measure the optimized microspheres against the industry standard and draw conclusions on how changing the formulation parameters affects downstream performance.

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