



Department of Materials Science and Engineering,

Thesis Proposal Exam

May 3rd, 2023 at 1:30 p.m.

Bossone 302

Synthesis and Characterization of Poly (ethylene glycol) Replacement for Pharmaceutical Applications

Name: Yucheng Zhu

Advisor: Prof. Hao Cheng

Prof. Andrew Magenau

Abstract

Polyethylene glycol (PEG) has been widely utilized to increase stability, extend circulation half-life, and provide immune shielding for therapeutics such as nanomedicines, peptides, and proteins. However, recent research has revealed limitations of PEG, including pre-existing anti-PEG antibodies and PEGylated drug induced generation of anti-PEG antibodies in humans. The presence of anti-PEG antibodies can result in accelerated blood clearance of PEG-conjugated drugs and even life-threatening hypersensitivity reactions. My project aims to synthesize a PEG replacement polymer to improve circulation half-life of therapeutics with low immunogenicity.