



COLLEGE OF PHARMACY
PHARMACEUTICAL SCIENCES
UNIVERSITY OF MICHIGAN

Pharmaceutical Sciences Seminar

Wednesday, November 18, 2020

Join Zoom Meeting

<https://umich-health.zoom.us/j/96037906837>

4:00-5:00 pm

“Design of bispecific antibodies for brain delivery and imaging”

Presented by:

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Abstract: The brain is one of the most important organs in the body with over 600 neurological diseases. Treatment of these diseases are normally limited to small molecule drugs. Large therapeutic proteins such as antibodies are notoriously difficult to reach the brain due to a protective layer known as the blood-brain barrier (BBB). There are a few pathways for transport of large molecules into the brain, but the most common pathway is through receptor-mediated transcytosis. Among the receptors on the BBB, the transferrin receptor (TfR) and CD98 heavy chain (CD98hc) are the most highly expressed receptors and potential targets for delivery of antibodies. Here we show the design and generation of bispecific antibodies for improved brain delivery by fusing receptor-specific antibody fragments onto a parent antibody. We selected near-infrared (NIR) fluorescence imaging as a non-invasive and fast imaging modality. Our goal is to develop an antibody-based platform to enable imaging of targets located in the brain. Ultimately, this platform will be adapted for imaging of neurodegenerative diseases and specific pathological proteins.

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