

# GaLSIC Guest Seminar

## “The Syndecan-2–MMP-7 Axis in Inflammation and Inflammation-Associated Diseases”

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**Time:** 2:00 PM – 5:30 PM  
**Room:** E203



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## Abstract

Syndecans are cell-surface heparan sulfate proteoglycans that regulate diverse cellular processes through interactions with extracellular ligands. Among the syndecan family members, syndecan-2 is highly expressed in colorectal cancer and is upregulated during the early stages of tumor development, suggesting a critical role in disease progression. Syndecan-2 promotes the expression of pro-MMP-7 and facilitates its activation by serving as a docking receptor. Activated MMP-7 cleaves extracellular matrix components as well as the ectodomain of syndecan-2, generating shed syndecan-2 that further enhances tumor growth, invasion, and angiogenesis.

Beyond cancer, syndecan shedding has emerged as an important mechanism in inflammation-associated diseases, including colitis. Many of the biological functions of syndecans are regulated by transmembrane domain-mediated dimerization, highlighting the importance of structural regulation in syndecan signaling. In addition, syndecans are key components of the epithelial and endothelial glycocalyx, where they contribute to tissue homeostasis and barrier function. Their shedding can therefore directly influence inflammatory responses and disease progression.

This presentation will discuss recent advances in understanding the roles of syndecans, particularly syndecan-2, in inflammation and inflammation-associated diseases. Special emphasis will be placed on the syndecan-2–MMP-7 axis as a molecular mechanism linking inflammation and disease pathogenesis, and as a promising therapeutic target for inflammatory disorders.