



# Department of Chemistry and Biochemistry Colloquium Speaker



## Dr. Joseph J. Barchi Jr

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### "The Many Faces and Functions of the Thomsen Friedenreich Tumor- Associated Carbohydrate Antigen"

**Abstract:** Cellular carbohydrates function in a myriad of ways beyond energy production and storage. A greater understanding of the function of these structures will allow the design of interventions to slow tumor cell proliferation and invasion. In addition, many tumor glycans are recognized by the immune system (so called tumor-associated carbohydrate antigens, TACAs) and thus have been used in antitumor immunotherapies. One of these, the Thomsen Friedenreich antigen (TFag) disaccharide, is the focus of most of our work. Our lab has been developing novel multivalent constructions of various presentations of the TFag built on platforms of self-assembled nanomaterials. We have concentrated on gold nanoparticles for their ease of use and preparation, ability to readily create/control multivalency and their relatively non-toxic nature. A second focus of our research is geared toward the development of unique new anticancer treatments based on the properties of a molecule called antiproliferative factor (APF), a fascinating glycopeptide found in the urine of patients with a bladder disease called interstitial cystitis/painful bladder syndrome (IC/PBS). APF has been found to be potent in inhibiting bladder tumor cell proliferation. Results from work in both these areas of research will be discussed.

**Monday November 14<sup>th</sup>, 2016**

**4:00 pm**

**WO 1205**

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