

CPB 69700 RESEARCH SEMINAR

DEPARTMENT OF COMPARATIVE PATHOBIOLOGY

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3:30 pm

“Mechanisms Of Fibronectin Attachment Protein, From Bacillus Calmette-Guerin, Binding And Internalization In Bladder Tumor Cells”

Abstract:

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Instillation of bacillus Calmette-Guerin (BCG) is the most efficacious and widely used treatment for superficial bladder cancer. However, BCG treatments can induce toxicity in patients, leading to reduced anti-cancer effects. Previous studies from our laboratory have identified a conserved component of BCG, which mediates the binding of BCG to the bladder tumor cells, called Fibronectin Attachment Protein (FAP). Subsequent in vitro studies showed that FAP binds to fibronectin and associated alpha5beta1 integrin receptors on bladder tumor cells. We show that a shortened 179 amino acid FAP fragment alone is able to bind to bladder tumor cells in vitro and in vivo, and have identified the unique RWFV binding site necessary for FAP attachment to fibronectin. FAP is sufficient to induce anti-tumor immunity in the bladder. These data suggest that FAP is a potential alternative to BCG and can be used to target bladder tumor cells for therapy. Using immunofluorescence, we show FAP binding to and internalization with FN in bladder tumor cells. FAP can be found associated with clathrin-containing vesicles and in EEA-1 positive early endosomes. Studies are underway to further determine the molecular pathway of FAP internalization and determine the ability of FAP to target liposomes to bladder tumor cells.

