



Mouse Model of Invasive Bladder Cancer (*Cory Abate-Shen, 06-38 UMDNJ*) Research Tool

Background

Despite significant improvements in diagnosis and treatment, neoplasia of the bladder continues to result in significant mortality. Bladder cancers range from being benign to highly aggressive, and most are epithelial in origin and urothelial in nature. They are believed to arise from two distinct precursor lesions, namely, a papillary form (called Papillary Urothelial Neoplasm of Low Malignant Potential or PUNLMP) and carcinoma-in-situ (CIT). However, it is not well understood how these precursors relate to each other or to benign versus invasive disease. The present invention is a double knockout mouse to be used as animal models for bladder cancer.

Description of the Technology

The present invention is an autochthonous mouse model of bladder cancer that originates in the urothelium and ultimately progresses to invasive disease. This was accomplished by using adenovirus-Cre delivery system to achieve sporadic deletion of tumor suppressor function specifically in the bladder urothelium. Simultaneous deletion of two tumor suppressor genes leads to the development of invasive bladder tumors with 100% penetrance by 4 months, including distant metastases to the liver and other tissues, which are also sites for bladder cancer metastases in humans. The histological appearance of these tumors is remarkably similar to invasive human bladder cancer.

Applications

This invention provides a tool for identifying therapeutic agents, method of observing the effects of treatment, and an animal model for the development of bladder disease, not limited to cancer.

Patent Status

United States Provisional Application – 2006.

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