



FOXA1 as a biomarker for progression of bladder cancer

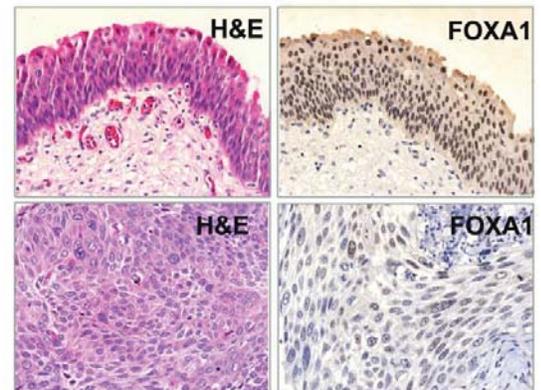
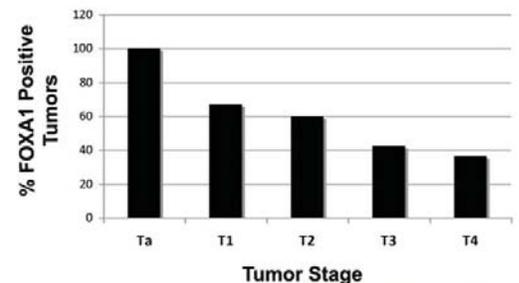
Summary

In 2009 over 70,000 American were diagnosed with urinary bladder cancer, and in that same year over 14,000 Americans died of bladder cancer. Low funding for bladder cancer helps explain the slow progress in both the identification of biomarkers and the development of new treatments for metastatic bladder cancer. Nonetheless, novel diagnostic biomarkers are needed to aid in the early identification of patients with bladder cancer, and also to determine which patients are likely to progress. Vanderbilt researchers have identified such a biomarker whose expression is reduced and lost during progression of bladder cancer

Description

The treatment of bladder cancer places tremendous fiscal burden on the health care system, as per capita, it is one of the most expensive malignancies to manage clinically. Vanderbilt researchers have identified a biomarker for the progression of bladder cancer, FOXA1, a transcription factor that plays an important role in urothelial differentiation.

DeGraff and colleagues have accumulated a host of data demonstrating a progressive reduction of FOXA1 as tumor invasion stage increases (top graph). Analysis of over 160 human bladder cancer tumors obtained both from Vanderbilt University Hospital and the University of Virginia indicates that FOXA1 expression is absent in 40% of urothelial cell carcinomas, and over 80% of squamous cell carcinomas of the bladder. The images to the right further illustrate the loss of FOXA1 from healthy tissue (top two images) to cancerous (lower two images). This test has the potential to be performed on cells isolated from urine, or a biopsy, and is important, not only because it is a biomarker for bladder cancer, but may be a biomarker for the most deadly types of invasive bladder cancer.



Patent status

PCT application has been filed.

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