Award ID:
RP140542

Project Title:
Biology and Therapy of Basal Bladder Cancers

Award Mechanism:
Individual Investigator

Principal Investigator:
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Entity:
The University of Texas M.D. Anderson Cancer Center

Lay Summary:

Muscle-invasive bladder cancer is a deadly disease. Although approximately half of patients can be cured with surgery and chemotherapy, the other half experiences rapid tumor progression and uniform mortality, usually within 18 months. Essentially no clinical progress has been made in the treatment of muscle-invasive bladder cancer in over three decades. We attribute this lack of progress to a poor understanding of disease biology. Progress in bladder cancer research has been severely hampered by extremely poor levels of research funding. Fortunately, two large projects were completed over the last year that we think will dramatically change this dismal situation. First, The Cancer Genome Atlas (TCGA) Bladder Cancer project was completed, and we now have a complete picture of the genetic abnormalities associated with the disease. Second, our group also completed a deep analysis of muscle-invasive bladder cancers. We discovered that they form "intrinsic subtypes" that are surprisingly similar to subtypes that were previously identified in breast cancer. Furthermore, like breast cancer, we discovered that sensitivity to frontline chemotherapy is strongly influenced by tumor subtype. In this project we will exploit this new information to simultaneously accomplish two important goals: (1) to obtain an even better understanding of the biology of muscle-invasive bladder cancers, particularly how they metastasize and become resistant to therapies, and (2) to identify biomarkers that can be used to predict which patients will respond to conventional and investigational (targeted) therapy. The results could have immediate impact on the clinical management of patients with muscle-invasive bladder cancer.