



Prostate  
Cancer  
Foundation

## **6. Epigenetic- and Epigenomic-Informed Therapeutic Targets in Prostate Cancer**

### **Statement of Problem**

Identifying aberrantly activated signaling pathways and mutational analysis of these pathways has driven anti-neoplastic drug discovery and development in the genomic era of cancer research. Many promising medications have emerged and improvements in survival and quality of life have been documented.

Although the majority of these pathway-specific anti-neoplastic agents have been clinically tested in prostate cancer, currently there does not seem to be sufficient activity to continue investment. This approach to cancer therapeutic discovery and development will continue when new targets are identified and specific inhibitors are developed and tested.

Epigenetics is a relatively new area of research as a platform for anti-neoplastic drug discovery. The PCF encourages investigations of epigenetic changes that might result in proliferation, invasion and survival and that might be the basis for discovery of new drug candidates for the treatment of advanced prostate cancer.

### **Proposed Solution**

The PCF requests research applications focused on the epigenome as targets for cancer therapy. A three - five year or sooner goal of identification of a drug candidate that affects an epigenetic or epigenomic process, with rationale for clinical advancement, would be highly desirable.

Diagnostic analysis of epigenetics, if applied to prostate cancer progression, could be very useful in understanding how and when to use a new drug in this area and to understand the on-target effects of such a drug. Select patients for clinical investigations of epigenome-modifying experimental therapies (see RFA: Discovery and Validation of Progression Biomarkers) would also be a desirable potential outcome of these investigations. These diagnostic methods might be applied directly to tumor specimens or might measure methylation status of circulating DNA fragments in body fluids.