CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:
RP100348

Project Title:
Development of small molecule inhibitors that target the oncogenic SRC-3 coactivator and their characterization as novel anti-cancer agents

Award Mechanism:
Individual Investigator

Principal Investigator:
O'Malley, Bert

Entity:
Baylor College of Medicine

Lay Summary:

A group of proteins called coactivators are frequently overexpressed and 'oncogenic' in multiple human cancers; the most prominent of these is steroid receptor coactivator-3/amplified in breast cancer 1 (SRC-3/AIB1), a molecule studied extensively in our lab (>40 publications). Overexpression of SRC-3 has been validated as an oncogene in breast, ovarian, prostate, pancreatic, lung, and colorectal cancers; it is estimated to be involved in 322,000 new cancer cases and 91,000 cancer deaths every year. Given the fact that SRC-3-dependent cancers are frequently resistant to established chemotherapeutics, the development of small molecule inhibitors (SMIs) to inhibit SRC-3 function is critically important. Currently, no means exist to directly regulate SRC-3 concentration or activity. With our extensive background experience, we are in an excellent position to develop small molecule inhibitors (SMIs) of SRC-3 that can reduce SRC-3 proteins and activity. The work proposed herein represents a full scale effort to develop anticancer agents through a distinct mechanism of action - by directly targeting the oncogenic coactivator SRC-3. Our results provide a novel and important approach to intervention for the many human cancers that utilize overexpression of SRC-3 for oncogenesis.