



## CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:  
RP120880

Project Title:  
Eliminating Cancer Pain by Growth Factor Inhibition

Award Mechanism:  
Bridging the Gap: Early Translational Research Awards

Principal Investigator:  
Gutstein, Howard

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

### Lay Summary:

One of the most feared complications of cancer is unbearable, unrelenting pain. The prevalence of pain in patients presenting with cancer or undergoing treatment is greater than 50%, while the prevalence of chronic pain in cancer survivors has been estimated at 33%. Opiate narcotics, which have been used for centuries, are still the primary treatment for severe cancer pain. Unfortunately, narcotics are not very effective against pain caused by nerve injury, invasion or compression, which are prominent components of cancer pain. Opiates also become less effective over time because tolerance develops to their pain-relieving effects. For years, narcotic tolerance and cancer pain have long been thought to utilize similar cellular signals. However, these mechanisms are poorly understood. We recently made the amazing discovery that the commonly used anti-cancer drug Gleevec eliminates morphine tolerance and restores morphine's effectiveness against nerve injury pain.

This breakthrough was made possible by developing a new formulation of Gleevec that dramatically increased drug levels in the brain. The commercial potential of this technology encompasses all cancers and extends to impact all diseases. Our initial studies aimed at commercialization have been promising. This proposal consists of two drug safety studies that are essential for evaluating potential drug toxicity before human studies are undertaken. These studies are required by the FDA and represent a major milestone for our commercialization efforts.

This technology has the potential to revolutionize the treatment of cancer pain. Uncontrollable, unbearable pain would no longer be a dreaded consequence of cancer or its treatment. For the first time, physicians would be able to consistently fulfill the most basic tenet of medicine, to relieve pain and suffering. This could become one of the most compelling victories not only for the war against cancer, but for the eternal struggle to eliminate human suffering.