Chronic pain (such as cancer pain and neuropathic pain) is one of the most common syndromes among clinical disorders. Despite intensive research into the neurobiological mechanism of chronic pain during the past decades, our understanding of chronic pain is still in its infancy and its treatment is often poorly managed by current drugs. Opioids are still the gold standard for chronic pain management in the clinical setting. However, the long-term use of the opioids produces opioid analgesic tolerance, opioid-induced hyperalgesia, and other side effects. Thus, uncovering the mechanisms underlying chronic pain and opioid-induced tolerance and hyperalgesia may develop novel therapeutic strategies for prevention and/or treatment of these disorders.

The research projects in Dr. Tao’s laboratory, at Rutgers, The State University of New Jersey, focus on understanding the molecular and cellular mechanisms that underlie chronic pain and opioid-induced analgesic tolerance and hyperalgesia. The analytical methodology includes molecular biology, morphology, biochemistry, electrophysiology, and behavioral tests. Chronic pain models as well as opioid-induced analgesic tolerance and hyperalgesia models in animals have been well characterized. Dr. Tao’s laboratory has made great measurable progress, including two approved patents and one pending patent resulting from his laboratory studies. Research work has been published in top-rated scientific journals, including Nature Neuroscience, Journal of Clinical Investigation, Journal of Neuroscience, Pain, Anesthesiology, and etc. Currently, the ongoing projects at Dr. Tao’s laboratory are looking for novel molecular targets in preventing and treating chronic pain and chronic opioid tolerance.


For more information on the weekly colloquium, contact vaccumanno@burke.org

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