



2016 NOBCChE National Science Fair Abstract

Category: **Biological Science**

Title: **Inhibition of neurokinin B signaling in CRF neurons during chronic stress: implications for the treatment of Posttraumatic Stress Disorder**

Jordan Purcell

Senior Level (High School)

Arabia Mountain High School

Individuals with Posttraumatic Stress Disorder have trouble coping after trauma and experience flashbacks in response to triggers associated with their experience. The NK3R pathway is involved in the consolidation of fear memories. Osanetant, an NK3 receptor antagonist, has been shown to impair fear consolidation in the amygdala. The NK3 receptor is also expressed in the bed nucleus of the stria terminalis, a region crucial for anxiety behavior; however, little is known about the NK3 receptor's role in changes in anxiety behavior after chronic stress. Our experiment tested the effects of systemic administration of Osanetant over a period of chronic shock stress. Acoustic startle response, context fear, and open field tests were used to measure anxiety-like behavior in rats. Quantitative PCR measured gene expression of NK3 receptors and CRF. Osanetant had no effect on behavior in ASR, context fear, and open field tests, but attenuated the increase in CRF.

The National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) National Science Fair is a poster competition in which students present an independent completed research project. Each contestant in the Science Fair must demonstrate their ability to conduct a research project by:

- Submitting an abstract of 150 words or less on an individual research project in one of the following **four categories: physical science, math & engineering, consumer science, or biological science.**
- Presenting the results of the research in a poster format, including answering questions from judges; and submitting a written report during the poster presentation.
- For more information, visit www.nobccheSTEMwkd.com.