

# THE DEVELOPMENT OF A RODENT MODEL OF CO<sub>2</sub>- INDUCED ANXIETY

**Juan Medina**

**Dr. William E. DeCoteau, Faculty Mentor  
St. Lawrence University McNair Scholars Program**



Anxiety and panic attacks can be triggered by the inhalation of carbon dioxide (CO<sub>2</sub>) in both healthy individuals and patients with panic disorder (PD). Researchers, however, have not found what pathways of the cerebral system mediate these responses. The presence of anxiety can be studied in rodent behavioral states, and its presence and response can be extrapolated to study human PD. The open-field paradigm, an animal model of anxiety, may allow greater elucidation of the neurological circuits involved in panic attacks. The two treatments used in this experimentation included, room air (control) and 5% CO<sub>2</sub>. Our results indicate that the CO<sub>2</sub> open-field paradigm may serve as a useful rodent model of PD. Measures that were especially sensitive to the CO<sub>2</sub> challenge were zone entries and distance traveled within the apparatus. Time within the three zones of the open-field did not appear to be modulated by the 5% CO<sub>2</sub> treatment.