

Analysis of the *Drosophila melanogaster wnt5* Mutant's Behavior towards Carbon Dioxide and Apple Cider Vinegar

The sense of smell, or olfaction, plays a critical role in the behavior of various animals. This is true for disease-transmitting insect vectors, including mosquitoes, which use odorants, like carbon dioxide, to find their hosts. We study the fruit fly, *Drosophila melanogaster*, to elucidate the mechanisms by which neural circuits control olfactory behaviors. In the experiments discussed here, we examined the *Drosophila melanogaster wnt5* mutant, which we have previously identified as a neurological mutant for its response towards carbon dioxide (a repulsive odor) and apple cider vinegar (an attractive odor). Data were collected by presenting wild-type and *wnt5* mutant flies with either a choice of carbon dioxide and air, or apple cider vinegar and water. While wild-type animals significantly chose vinegar over water, but air over carbon dioxide, *wnt5* mutant animals showed no significant difference in their choice between the neutral odor and either experimental odor. We conclude that *wnt5* mutant animals were unable to discriminate between neutral odors and experimental odors, probably as a result of defects in their brain circuits.

Key words: olfactory, *drosophila melanogaster*, carbon dioxide, apple cider vinegar, behavior