

Sex Differences in Calcitonin Gene-Related Peptide expression in Norepinephrine subpopulation A7 in mice

Arun, A., Catalan Gallegos, V., Chenard, M., Morris, E.

Very little is known about the connection between calcitonin gene-related peptide gene expression and norepinephrine expressing neurons. Norepinephrine (NE) plays a vital role in regulating various bodily functions, including raising blood pressure and elevating heart rate. Likewise, Calcitonin Gene-Related Peptide (CGRP) is known as a vasodilator and a contributor to the migraine pathway. Recent neuroscience research has linked CGRP to the norepinephrine system, in which CGRP inhibits NE apoptosis. Noradrenergic neurons show that there are differences in expression among the sexes, specifically in the locus coeruleus. Further analysis is required to understand whether there are noradrenergic neurons found to have CGRP expression and if there are any anatomical differences between sexes. If noradrenergic neurons are found to have CGRP expression, these findings can be used to develop pharmaceutical treatments to better treat diseases with prominent sex-related differences. The methodology utilized to assess these differences was immunohistochemistry, staining, and microscopy. We hypothesized that CGRP in NE neuron subpopulation region A7 will be more prominent in female mice compared to male mice. Our findings show that there were no significant differences in the co-localization of CGRP and NE between sexes or the number of NE neurons, in the A7 region.