Example Abstract (scientific)

**Optimization of an extraction method to analyze neural gene expression in the context of urinary-bladder pain.**

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The central nucleus of the amygdala (CeA) is a brain region involved in modulating pain and emotion. Regardless of the side of injury in an organism, activation of the right CeA over the left, is detected, showing evidence for hemispheric lateralization. Changes in gene activation can be detected by measuring levels of pain markers, which are genes that are activated upon induction of pain, such as noxious urinary bladder distension. Previous Western blot and immunohistochemical evidence from our lab has shown lateralization of phosphorylation, and therefore activation, of extracellular signal-regulated kinase (ERK) in the right CeA. We are interested in identifying downstream expression changes from pERK at both the protein and transcript level. Western blot and quantitative real-time polymerase chain reaction (qRT-PCR) can be performed in order to quantify changes in gene expression and activation at not only the protein, but also the mRNA level. Moreover, using two methods simultaneously on one sample allows us to evaluate all levels of expression changes in the context of pain, as well as correlate transcript and protein changes. Here, we describe our optimization of this procedure. Future analyses will use this method to inform us about the molecular mechanisms of the observed lateralization associated with bladder pain.