

## **P6.25.**

### **Pituitary adenylate cyclase-activating polypeptide deficient (PACAP<sup>-/-</sup>) mice display reduced c-Fos response to forced swim stress**

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PACAP<sup>-/-</sup> mice show depression-like behavior in forced swim test (FST) and hyperlocomotion in open field (OF). Examination of c-Fos expression could explore which nuclei are involved in the behavioral changes. Here we hypothesized that PACAP<sup>-/-</sup> mice vs. wildtype counterparts upon OF and FST show altered neuronal activity in stress-related areas. Our results revealed that both locomotor activity in OF and immobility in FST were greater in PACAP<sup>-/-</sup> mice in accordance with the literature. Counting of c-Fos immunoreactive neurons revealed that stress increased the activity of all examined brain areas. Stressed PACAP<sup>-/-</sup> mice showed reduced c-Fos response in the oval, anterolateral and anteromedial bed nucleus of the stria terminalis (BNST), dorsal raphe (DR) and Edinger-Westphal nuclei (EW) moreover we found stress x genotype interaction. The c-Fos expression of the periaqueductal gray matter (PAG), paraventricular nucleus (PVN) and basolateral amygdaloid nucleus (BLA) did not drop significantly in stressed PACAP<sup>-/-</sup> mice but a clear interaction between stress and genotype was observed. The ventral lateral septum (LSv) showed markedly reduced c-Fos expression in transgenic mice without interaction. c-Fos expression in the central and medial amygdala and dorsal lateral septal nucleus were not influenced by PACAP. Based on these we conclude that specific PACAP influence on the BNST, DR, EW, PAG, PVN, BLA and LSv nuclei could play a role in stress-related behavioral changes.