

## **Intra-BNST Pituitary Adenylyl Cyclase Activating Polypeptide Increases Plasma Corticosterone**

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In rats, exposure to repeated variate stress has been shown to increase PACAP and its cognate PAC1 receptor expression in the oval nucleus of the bed nucleus of the stria terminalis (BNST). BNST activity is critical for both anxiety-like behavior and physiological stress responses such as the activation of the hypothalamic-pituitary-adrenal (HPA) axis. Moreover, changes in BNST PACAP signaling following repeated variate stress may be involved in the maladaptive changes in stress responding that may underlie anxiety disorders in humans. The current set of studies examined the dose-dependency and time-course of intra-BNST PACAP elevations in plasma corticosterone. Following intra-BNST PACAP38 infusion (0µg/µl, 0.1µg/µl, 0.5µg/µl or 1.0µg/µl in 0.05% bovine serum albumin vehicle), we observed a dose-dependent increase in plasma corticosterone levels 30 minutes following infusions. We further found that PACAP38 increased plasma corticosterone levels at both 30 minutes and 60 minutes, but not 4 hours or 24 hours following infusion. Importantly, the ability of intra-BNST PACAP38 infusion to increase plasma corticosterone was not due to spread of the drug into the nearby lateral ventricles as direct PACAP38 infusion into the lateral ventricles did not alter plasma corticosterone levels. These results suggest that intra-BNST PACAP can modulate corticosterone levels. The mechanism through which these effects may occur will be further discussed.