Corticosterone

- Comparative analysis of neurosteroid levels in normal and adenomatous human pituitary tissue
- The effects of chronic sleep restriction on the hypothalamic-pituitary-adrenal axis and its interaction with abstinence from opioid use
- Sex-dependent effects of FGF21 on HPA axis regulation and adrenal regeneration after Cushing syndrome in mice
- Chaihu-Shugan-San Ameliorated Osteoporosis of Mice with Depressive Behavior Caused by Chronic Unpredictable Mild Stress via Repressing Neuroinflammation and HPA Activity
- The gut microbiome in patients with Cushing's disease affects depression- and anxiety-like behavior in mice
- Correction: Effects of single housing on behavior, corticosterone level and body weight in male and female mice
- Effects of single housing on behavior, corticosterone level and body weight in male and female mice
- Corrigendum to "HPOB, an HDAC6 inhibitor, attenuates corticosterone-induced injury in rat adrenal pheochromocytoma PC12 cells by inhibiting mitochondrial GR translocation and the intrinsic apoptosis pathway'[Neurochemistry International 99 (2016) 239-251]

Corticosterone is a steroid hormone produced by the adrenal glands, which are located on top of each kidney. It is a glucocorticoid, a type of corticosteroid hormone, and it plays a crucial role in various physiological processes in the body. Corticosterone is involved in the body's response to stress, and it helps regulate metabolism, immune function, and the balance of salt and water in the body.

Here are some key functions and roles of corticosterone:

Stress Response: Corticosterone is released in response to stress, whether physical or psychological. It helps the body cope with stress by increasing energy production and reducing inflammation. It also plays a role in regulating the body's “fight or flight” response.

Metabolism: Corticosterone can influence glucose metabolism, helping to maintain blood sugar levels within a normal range. It does this by increasing gluconeogenesis (the production of glucose from non-carbohydrate sources) and reducing glucose utilization in certain tissues.

Immune Regulation: Corticosterone has immunosuppressive effects, meaning it can dampen the activity of the immune system. This can be beneficial in situations where the immune response needs to be controlled, but prolonged exposure to high levels of corticosterone can weaken the immune system.

Anti-inflammatory: Corticosterone has anti-inflammatory properties and can reduce the production of inflammatory substances, such as prostaglandins and cytokines. This is one reason why corticosteroid medications, which mimic the actions of corticosterone, are used to treat inflammatory conditions.

Salt and Water Balance: Corticosterone plays a role in regulating the balance of salt (sodium and potassium) and water in the body. It can influence the reabsorption of sodium and the excretion of potassium in the kidneys.

It's important to note that corticosterone is just one of several corticosteroid hormones produced by the adrenal glands. The most well-known corticosteroid is cortisol, which has similar functions and is

often used interchangeably with corticosterone in scientific literature.

Both corticosterone and cortisol are part of the body's complex endocrine system, and their levels are tightly regulated to maintain overall health and homeostasis. Dysregulation of corticosterone levels can lead to various health problems, including conditions like Cushing's syndrome (excess corticosteroids) or Addison's disease (insufficient corticosteroids).

Extracellular vesicles were extracted from neural stem cells. The depression rat model was established by corticosterone (CORT) induction and treated with NSC-EVs. The depression behavioral/pathological changes in rats were assessed using forced swimming test, open field test, sucrose consumption test and western blotting. The neuronal apoptosis in hippocampal tissue were detected. CORT-induced PC12 cell model was established. EV uptake by PC12 cells was measured and PC12 cell apoptosis was detected. The downstream targets of miR-16-5p were predicted and verified. The expressions of miR-16-5p and MYB in rats, PC12 cells, and EVs were measured. Functional rescue experiments were conducted to verify the role of miR-16-5p and MYB in PC12 cell apoptosis.

CORT induction increased neuronal apoptosis in hippocampal tissue and induced depression-like behaviors in rats, while NSC-EV treatment improved depression-like behaviors and apoptosis in rats. In PC12 cells, NSC-EVs decreased CORT-induced PC12 cell apoptosis. NSC-EVs carried miR-16-5p into PC12 cells. miR-16-5p knockdown in EVs partially reversed the inhibitory effects of NSC-EVs on CORT-induced PC12 cell apoptosis. miR-16-5p targeted to inhibit MYB to repress CORT-induced PC12 cell apoptosis. In vivo experiments further verified that NSC-EVs reduced neuronal injury in CORT-induced depression rats via the miR-16-5p/MYB axis.

NSC-EVs-mediated alleviation on neuronal injury by carrying miR-16-5p to target MYB was highly likely one of the mechanisms by which NSC-EVs mediated miR-16-5p in neuroprotection of depression rats [1)]

1)
Min XL, Liu HJ, Dou XK, Chen FX, Zhao Q, Zhao XH, Shi Y, Zhao QY, Sun SJ, Wang Z, Yu SH. Extracellular vesicles from neural stem cells carry microRNA-16-5p to reduce corticosterone-induced neuronal injury in depression rats. Neuroscience. 2023 Sep 29:S0306-4522(23)00440-2. doi: 10.1016/j.neuroscience.2023.09.016. Epub ahead of print. PMID: 37778691.

From:
https://neurosurgerywiki.com/wiki/ - **Neurosurgery Wiki**

Permanent link:
https://neurosurgerywiki.com/wiki/doku.php?id=corticosterone

Last update: **2024/06/07 02:51**