

Stressor influence can lead to homeostatic disruption. To eliminate this threat, mechanism which compensates negative effects of stressor was evolved by organisms. It's called stress response. One of two major systems that moderate stress response of organism is hypothalamic-pituitary-adrenal axis (HPA axis). Effectors of the HPA axis are glucocorticoids, steroid hormones secreted from adrenal glands.

Enzymes which metabolize glucocorticoids are located in target tissues for these hormones. They convert active glucocorticoids into their inactive forms, or vice versa. Until now, two such enzymes have been described - 11beta-hydroxysteroid dehydrogenases type 1 and type 2. It was proved that expression and activity of these enzymes can change under the influence of stressor. These changes are tissue-specific and dependent on type of applied stressor.