

Symposium 02

Interactions between the brain and the periphery in response to social threat

Chair:
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Discussant:
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This symposium will focus on the inter-relationships among social threat, peripheral responses of the hypothalamic-pituitary-adrenal (HPA) axis and proinflammatory cytokines, and the central nervous system. The following questions will be addressed: how do social threats (i.e., social exclusion, social evaluation, social subordination) influence cognition, emotion, behavior and peripheral activity? What brain regions play a critical role in interpreting social cues, instantiating social appraisals and controlling peripheral output in the context of social threats? What does this information tell us about the social and psychological factors capable of influencing these peripheral systems? How do these systems act on the brain and influence psychological states including feelings of social threat? A variety of approaches will be utilized to address these questions including neuroimaging, lesion patient studies, and animal work. Findings from a study of male rats by Francis and Saxton suggest that social status is a predictor of behavioral response and HPA activity. Lower ranking rats exhibited poorer cognitive performance, higher behavioral levels of depression and a blunted cortisol response to an acute stressor. The role of the CNS in the relationship between social threat and HPA activity was examined by Shestyuk, Kemeny and Knight in a study of patients with brain lesions and in a study utilizing neuroimaging in healthy individuals. The findings suggest that the medial and lateral prefrontal cortices transduce social threat experience contributing to subjective perceptions of social threat and modulation of the HPA. These regions are implicated in self-monitoring and emotion regulation. In a study of healthy individuals conducted by Eisenberger, administration of a substance that causes release of pro-inflammatory cytokines induced feelings of social disconnection and depression. When exposed to an exclusion task, cytokine increases were associated with increases in depression and this relationship was mediated by "social pain"-related neural activity. The implications of these findings will be discussed by Pruessner.