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Trans-generational effects of maternal exposure to social stress on anxiety-like behaviour in rats

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particularly sensitive to the early environment, with adverse caregiving affecting the trajectory of later HPA activity. The current study will examine parenting behaviors impacted by IPC that are critical for proper infant biobehavioral regulation across caregiving contexts.

Methods: Couples with a 6 month old infant ($n=120$) were randomized into a positive or conflict marital discussion followed by two mother–infant interactions, a freeplay session, and a post-stressor soothing episode. Infant saliva samples were collected in order to index cortisol's baseline, reactivity, and recovery to interactions. Using this dataset we examined the impact of maternal intrusion and detachment on infant biobehavioral regulation during mother–infant interactions.

Results: In the conflict condition, mothers expressed higher levels of withdrawal and hostility, which predicted later problematic parenting with her infant. In turn, problematic parenting influenced infant mood, and cortisol reactivity and recovery. During the play interaction, maternal detachment had the most potent effect on infant mood and physiology while following exposure to a stressor, maternal intrusion was more strongly related to infant's physiological recovery.

Conclusion: Findings illustrate the role of problematic parenting as a mechanism of spillover between interparental conflict and infant physiological and emotional regulation.

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Posters

Abstracts considered for Poster Prize

PO1

Examining the prospective relationship between anxiety symptoms and salivary immunoglobulin A levels from childhood to late adolescence: Evidence for a “vicious cycle”



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Stress has been shown to have adverse effects on immunity, hindering the immune system's ability to effectively defend against foreign antigens. In children and adolescents, the experiences of psychological symptoms, in particular anxiety, can be extremely stressful. These symptoms disrupt the homeostasis of the system, resulting in distress and negative physical health outcomes. Little is known to date regarding the nature and directionality of the relationship between children's stressful experiences of anxiety, and levels of mucosal immunity (i.e., salivary immunoglobulin A (sigA) levels) over time. SigA is a first line of defense against foreign bodies, with lowered levels indicative of weakened immunity. The goal of the present study was to examine the transactional relations between children's anxiety and levels of sigA over several years. The sample included 100 children from the Concordia Longitudinal Risk Research Project, followed across 5 time points every 3 years since early childhood. SigA samples were taken at 2-hour intervals over two consecutive days between ages 9–12, 12–15, and 15–18. Participants also filled out a self-reported questionnaire on anxiety (Revised Children's Manifest Anxiety Scale) at all three times. Using a double-cross lagged panel design, results showed that higher levels of anxiety at Time 1 (age 9–12) significantly predicted lower levels of sigA three years later at Time 2 (age 12–15) ($B = -0.33$; $p < 0.05$). Lowered sigA levels at Time 2 in turn predicted higher anxiety at Time 3 (Age 15–18) ($B = -0.30$, $p < 0.05$) illustrat-

ing a “vicious cycle” feedback loop between anxiety symptoms and immunity over time.

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PO2

Trans-generational effects of maternal exposure to social stress on anxiety-like behaviour in rats



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Prenatal Stress (PNS) exposure is associated with increased anxiety-like behaviour in the first filial generation (F1). Little is known about transfer of this trait to the next generation. Here we examined whether the anxiogenic effects of PNS exposure and the associated alterations in central gene expression are transmitted to the second filial generation (F2) via the maternal line. Pregnant rats were exposed to social stress for during late pregnancy. To generate the F2 rats, adult PNS females were mated with control males. Anxiety-like behaviour in the adult F2 offspring was investigated using the light–dark box (LDB) and elevated plus maze (EPM). Differences in mRNA expression for corticotropin releasing hormone (Crh) and its receptors (Crhr1 and Crhr2) in the amygdala were analysed using in situ hybridization. F2 males exhibited significantly greater anxiety-like behaviour in the LDB and EPM compared with control males. There was no difference in anxiety-like behaviour between control and F2 females during metestrus/diestrus. At proestrus/estrus, control females displayed a reduction in anxiety-like behaviour, but this effect was not observed in the F2 females. Crh mRNA expression was significantly greater in the central nucleus of the amygdala in F2 males compared with controls. Moreover, Crhr1 mRNA expression was significantly increased, whereas Crhr2 was significantly decreased in discrete regions of the amygdala in F2 males compared with controls. However there were no differences in Crh, Crhr1 and Crhr2 mRNA expression in the females. In conclusion, PNS effects can be transferred to the F2 generation in a sex-dependent manner.

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PO3

Modulation of the approach-avoidance tendencies of persons with high social anxiety by the neuropeptide oxytocin



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The neuropeptide oxytocin (OXT) is thought to modulate the perception and the processing of social information. Several studies could show that OXT attenuates anxiety, promotes trust and empathy in social interaction, and seems to influence the approach-avoidance tendencies to social stimuli. The aim of this double-blind placebo-controlled fMRI study was to investigate the influence of OXT (24IU, intranasal) on approach-avoidance tendencies of individuals with high ($N=80$) and low social anxiety ($N=80$). Participants had respond to images of happy and angry faces