Research Group "Psychoneuroendocrinology"

Group Leader:
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, PhD

Over the past decade, one of the most exciting areas on the frontier of social neuroscience has been the opportunity to bridge insights emerging from social behavior in animals to preclinical human research, through the integration of brain imaging, neuroendocrinology, behavioral genetics, and social interaction experiments. The perspective for the next decade is to further span this translational bridge from a better knowledge of the social human brain to potential novel therapeutic approaches, particularly for mental disorders characterized by social dysfunction, such as autism, social anxiety disorder, and borderline personality disorder.

The Psychoneuroendocrinology group investigates the role of hormonal systems (e.g., oxytocin, vasopressin, testosterone, glucocorticoids) in the human brain with regard to social behavior, systems-level neuroscience, neuroendocrinology, genetics, and clinical studies. In particular, the group has developed and extensively tested methods for conducting controlled experiments using intranasal neuropeptides such as oxytocin or vasopressin. The approaches used include behavioral testing, endocrinological assessment and administration, functional magnetic resonance imaging (fMRI), electrophysiological recording, and molecular genetics. The Laboratory for Biological and Personality Psychology is equipped with a biochemistry laboratory, a psychophysiology laboratory, and a behavioral laboratory, including dedicated facilities for conducting standardized stress tasks and social interaction experiments (e.g., custom-designed experimental laboratory for simultaneous assessment of up to 16 participants) (see
overview of laboratories
). The infrastructure of the laboratory also includes a specialized
Outpatient Clinic and Research Unit for Stress-Related Disorders
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The research group "Psychoneuroendocrinology" is affiliated with the Laboratory for Biological and Personality Psychology at the Department of Psychology. For further information, please refer to the following
sites
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Selected Key Publications

Heinrichs, M., Baumgartner, T., Kirschbaum, C. & Ehlert, U. (2003). Social support and oxytocin interact to suppress cortisol and subjective responses to psychosocial stress. Biological Psychiatry, 54, 1389-1398.

Kosfeld, M.*, Heinrichs, M.*, Zak, P., Fischbacher, U. & Fehr, E. (2005). Oxytocin increases trust in humans. Nature, 435, 673-676. [* shared first authorship]

Soravia, L. M., Heinrichs, M., Aerni, A., Maroni, C., Schelling, G., Ehlert, U., Roozendaal, B. & de Quervain, D. J.-F. (2006). Glucocorticoids reduce phobic fear in humans. Proceedings of the National Academy of Sciences of the United States of America (PNAS), 103, 5585-5590.

Baumgartner, T., Heinrichs, M., Vonlanthen, A., Fischbacher, U. & Fehr, E. (2008). Oxytocin shapes the neural circuitry of trust and trust adaptation in humans. Neuron, 58, 639-650.

Heinrichs, M. & Domes, G. (2008). Neuropeptides and social behavior: Effects of oxytocin and vasopressin in humans. Progress in Brain Research, 170, 337-350.

Heinrichs, M., von Dawans, B. & Domes, G. (2009). Oxytocin, vasopressin, and human social behavior. Frontiers in Neuroendocrinology, 30, 548-557.

Eisenegger, C., Naef, M., Snozzi, R., Heinrichs, M. & Fehr, E. (2010). Prejudice and truth about the effect of testosterone on human bargaining behaviour. Nature, 463, 356-359.

Chen, F. S., Kumsta, R., von Dawans, B., Monakhov, M., Ebstein, R. P. & Heinrichs, M. (2011). Common oxytocin receptor gene (OXTR) polymorphism and social support interact to reduce stress in humans. Proceedings of the National Academy of Sciences of the United States of America (PNAS), 108, 19937-19942.

Meyer-Lindenberg, A., Domes, G., Kirsch., P. & Heinrichs, M. (2011). Oxytocin and vasopressin in the human brain: social neuropeptides for translational medicine. Nature Reviews Neuroscience, 12, 524-538.