

WELCOME

Welcome to the 2nd IRTG-Summer School, this year organized by the Leiden-team! We are very pleased to be surrounded by a number of top researchers and students. We encourage everyone to interact on a scientific and social level. The course has the following format:

Morning:

09.00 – 10.00	Preparation of questions (panels of the day)
10.00 – 10.45	Keynote lecture
10.45 – 11.15	Coffee
11.15 – 12.30	Plenary discussion

12.30 – 14.00	Lunch
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Afternoon:

14.00 – 14.45	Keynote lecture
14.45 – 15.00	Break
15.00 – 16.00	Plenary discussion
16.00 – 16.30	Coffee / drinks
16.30 – 18.15	Master classes

Evening:

18.15-	Social activity
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Every day we have one topic which will be discussed in a morning and afternoon session each led by one of our key lecturers. As a preparation for the sessions, the students are every day divided among six groups, the panels of the day, which have to formulate 4-6 questions for the speakers. The composition of the groups differs per day, so all students have the opportunity to work with each other. Some of the students also have the opportunity to present their own research (Master Classes) in the afternoon and again we encourage all of the students to interact as much as possible and ask challenging questions.

Last but not least, the students of Leiden have organized a number of social activities, starting on Sunday with a boat tour on the Leiden canals combined with an excellent haute cuisine diner.

We are sure that these days will inspire and broaden everyone's view on the psychobiology of stress. Who knows: perhaps new cooperation cross links evolve!

All the best!
The organizing committee

Monday, June 9

Mechanisms of steroid signaling in the brain

How does the organism respond and adapt to stressful events? How is the information encoded in changed hormone levels translated by the brain? Corticosteroids, the major stress hormones, act via two types of receptors the mineralocorticoid (MR) and the glucocorticoid receptor (GR). The *pulsatile nature* of stress steroid secretion and the recently described rapid *non-genomic action* constitute a novel framework, in which the action of the hormone via MR and GR will be discussed. The actions of stress steroids at the genomic level involve transcriptional changes that are reflected in neuronal plasticity and behavioural adaptation. The roles of intracellular signal pathways and of *epigenetic mechanisms* (i.e. chromatin remodelling through histone modifications) for adaptation within neuronal networks will be discussed.

09.00 – 10.00	<u>Preparation of questions</u> : check the “panels of the day”- list to view your group number and topic to prepare
10.00 – 10.45	<u>Lecture</u> : Stafford L. Lightman RC Neuroendocrinology, University of Bristol, U.K. “Mechanisms of steroid signaling in the brain: Pulsatility”
10.45 – 11.15	Coffee
11.15 – 12.30	Plenary discussion
12.30 – 14.00	Lunch
14.00 – 14.45	<u>Lecture</u> : Johannes M.H.M. Reul Henry Wellcome LINE, University of Bristol, U.K. “Epigenetic mechanisms in stress-related neuroplasticity and behavioural adaptation”
14.45 – 15.00	Break
15.00 – 16.00	Plenary discussion
16.00 – 16.30	Coffee / drinks
16.30 – 18.15	<u>PhD projects presentations</u> : Angela Sarabdjitsing , Leiden Tissue responsivity to chronic levels of corticosteroids: nuclear dynamics of MR and GR Nikos Daskalakis , Leiden Modeling early-life events. Implications of novelty in the repeated maternal separation paradigm. Andrea Schote , Trier Interactions between nuclear receptors: the search for new relationships Annelies Polman , Leiden Identification of epigenetic changes of glucocorticoid-related pathways shaping susceptibility to stress-related psychiatric disorders Xiao-Dong Wang , Munchen Effects of chronic stress in conditional CRHR1 knockout mice

Tuesday, June 10

Stress-related psychopathologies

Genetics is thought to revolutionize the search for factors involved in psychopathology. However, for many diseases the complexity of pathways from genotypes to clinical phenotype poses a major problem. Approaches to deal with this problem range from Genome Wide Association studies to focus on individual functional single nucleotide polymorphisms. Moreover, valid clinical phenotyping is an often overlooked critical component of these studies. Finally, information concerning environmental factors present during development or as an acute challenge has to be taken into account. Bottlenecks and solutions in the *diagnosis and approach of the genetics of biological psychiatry* will be addressed.

09.00 – 10.00	<u>Preparation of questions</u> : check the "panels of the day"- list to view your group number and topic to prepare
10.00 – 10.45	<u>Lecture: Bertram Muller-Myhsok</u> Max-Planck Institute for Psychiatry, Munich, Germany "Genetics and statistics "
10.45 – 11.15	Coffee
11.15 – 12.30	Plenary discussion
12.30 – 14.00	Lunch
14.00 – 14.45	<u>Lecture: Wim van den Brink</u> AMC, University of Amsterdam, NL Neurobiology of addiction: options for pharmacological and neurophysiological treatment
14.45 – 15.00	Break
15.00 – 16.00	Plenary discussion
16.00 – 16.30	Coffee / drinks
16.30 – 18.15	<u>PhD projects presentations:</u> Jorge Castro , Lausanne Psychobiological vulnerability to stress: Personality traits and neurobiological mechanisms Liane Klok , Leiden Functionality of haplotypes in the human mineralocorticoid receptor gene Anja Billing , Luxemburg Proteomic analysis of the cortisol mediated stress response in THP-1 monocytes/macrophages using DIGE technology Miriam Vogt , Mannheim Tamoxifen-inducible forebrain-specific MRGR double mutants show distinct features of depressive-like behavior Sanne Claessens , Leiden Early-life experiences within the family unit promote development of individual differences across the lifespan

Wednesday, June 11

Cognition and emotion in humans: modulation by steroid hormones

Memory systems:

Steroid hormones affect human cognition. The organization of the declarative memory system is investigated using fMRI, MEG and EEG recorded from intracerebral depth electrodes, pharmacological manipulations and genotyping. Steroid hormone effects on memory formation, consolidation, or retrieval as well as functional interactions between this memory system and other domains, like emotion, working-memory, procedural memory and sleep will be covered.

Emotional processing:

Sex and stress hormones and their distinct influence on emotions and brain activity in humans are discussed. Sex hormones do more than affecting libido. For example, testosterone-induced impairment detecting the socially correct facial signal contributes to antisocial behaviour, but may also affect depression. Cortisol shifts attention between fear and anger signals. The involvement of the hypothalamic-pituitary-gonadal (HPG) axis is central to this session.

09.00 – 10.00	<u>Preparation of questions:</u> check the "panels of the day"- list to view your group number and topic to prepare
10.00 – 10.45	<u>Lecture:</u> Guillen Fernandez FC Donders Centrum, Radb. University Nijmegen, NL Probing the neural consequences of psychological stress at the brain system level in humans
10.45 – 11.15	Coffee
11.15 – 12.30	Plenary discussion
12.30 – 14.00	Lunch
14.00 – 14.45	<u>Lecture:</u> Jack van Honk Helmholtz Institute, University of Utrecht, NL Neuroendocrine manipulation of the human social emotional brain
14.45 – 15.00	Break
15.00 – 16.00	Plenary discussion
16.00 – 16.30	Coffee / drinks
16.30 – 18.15	<u>PhD projects presentations:</u> Johanna Lass-Hennemann , Trier The effects of post-learning stress on impression formation Hein van Marle , Nijmegen Moderate psychological stress alters amygdala reactivity to emotional facial expressions. *Katja Bertsch , *Robina Khan The influence of aggression on the processing of emotional stimuli Simone Alt , Luxemburg Changes in promotor usage and expression levels of glucocorticoid receptor first exon variants in major depression disorder John Pooley , Bristol Pulsatile glucocorticoid presentation generates pulses of glucocorticoid receptor recruitment to responsive gene promoters <i>in vitro</i> and <i>in vivo</i> .