

PROGRAM

June 8, Sunday – Opening from 16.00 hrs

- * Prof.Dr. Marian Joëls
SILS-CNS, University of Amsterdam, NL

June 9, Monday

- * Prof.Dr. Stafford L. Lightman
RC Neuroendocrinology, University of Bristol, U.K.
- * Prof.Dr. Johannes M.H.M. Reul
Henry Wellcome LINE, University of Bristol, U.K.

June 10, Tuesday

- * Prof.Dr. Bertram Muller-Myhsok
Max-Planck Institute for Psychiatry, Munich, Germany
- * Prof.Dr. Wim van den Brink
AMC, University of Amsterdam, NL

June 11, Wednesday

- * Prof.Dr. Guillen Fernandez
FC Donders Centrum, Radb. University Nijmegen, NL
- * Prof.Dr. Jack van Honk
Helmholtz Institute, University of Utrecht, NL

In this Summer School three timely aspects of steroid hormone action are highlighted.

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.

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.

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.

FROM MONDAY TO WEDNESDAY:

- 09.00 – 10.00 Preparation of questions
- 10.00 – 10.45 Lecture
- 10.45 – 11.15 Coffee
- 11.15 – 12.30 Plenary discussion
- 12.30 – 14.00 Lunch
- 14.00 – 14.45 Lecture
- 14.45 – 15.00 Break
- 15.00 – 16.00 Plenary discussion
- 16.00 – 16.30 Coffee / drinks
- 16.30 – 18.15 PhD projects presentation

Read more about the Summerschool at:

www.mellyoitzl.org/IRTG-school08

Organizing Committee:

Roel de Rijk
Onno Meijer
Melly Oitzl
Femke Groeneweg
Liane Klok
Annelies Polman

*Division of Medical Pharmacology;
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PSYCHOBIOLOGY of STRESS: Steroid Hormone Actions

IRTG – Summer School
June 8-11, 2008

- Mechanisms of steroid signaling
- Stress-related psychopathologies
- Cognition and emotions

**Einsteinweg 55
LACDR. Gorlaeus Laboratoria**



Department of Clinical
Pharmacology and
Pharmacogenetics



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