

## PREFACE

This 7<sup>th</sup> graduate Neuropsychopharmacology course, designed for PhD students and postdocs in the field of neurosciences, is organized by the Graduate School Neurosciences Amsterdam Rotterdam, the Rudolf Magnus Graduate School of Neurosciences (Utrecht) and the Centre for Human Drug Research (Leiden). The course addresses our current understanding of the pharmacology of CNS active drugs, the discovery of CNS drug targets as well as the development of innovative medicines, allowing students to become familiar with the fascinating field of neuropsychopharmacology. In this respect, the major classes of pharmacotherapeutics for the clinical management of various neurological and psychiatric diseases and the pathological mechanisms of these brain disorders will be discussed.

Each day addresses a particular type of neurological or psychiatric disorder from basics to bedside. Lectures are primarily scheduled in the mornings. The afternoon sessions include demonstrations, site visits and special lectures. **Keynote lectures**, that are open to all interested scientists, are scheduled at the end of the day and will be presented by leading experts in the field.

The different topics of the course will be presented at different locations in Amsterdam, Utrecht and Leiden. Travel instructions and local maps are included in the reader.

Attendance of all lectures is mandatory and will be honoured with a certificate.

**Accreditation** covers 56 hours in the graduate teaching programs on neuroscience. If you would not be able to attend a specific activity, we trust that you will notify Prof. A.N.M. Schoffemeer (anm.schoffemeer@vumc.nl).

We hope that you will appreciate this course,

The organizing committee,

Dr. B. Drukarch

Dr. M.A.F.M. Gerrits

Prof.dr. J. van Gerven

Prof.dr. A.N.M. Schoffemeer (chair)

Prof.dr. D.J. Veltman

Dr. H.E. de Vries

Prof.dr. W.J. Wadman

**PROGRAM**  
**Course on Neuropsychopharmacology**  
**October 7-15, 2010**

**Topics and places**

October 7	Basic principles	Amsterdam	NIN
October 8	Psychotic disorders	Utrecht	UMCU
October 11	Neurodegenerative disorders	Amsterdam	NIN
October 12	Affective disorders	Amsterdam	NIN
October 13	Question-based development of CNS-active drugs	Leiden	CHDR
October 14	Epilepsy	Amsterdam	UvA
October 15	Addiction	Amsterdam	VUmc

Thursday 7 October 2010: "Basic principles"

Venue: Lecture room, Netherlands Institute for Neuroscience, Meibergdreef 47, Amsterdam-ZO

*Coordinator: A.N.M. Schoffemeer (VUmc)*

08.30 - 09.00: Introduction and registration  
A.N.M. Schoffemeer, VUmc

09.00 - 10.00: Functional neuroanatomy  
P. Voorn, VUmc

10.00 - 10.15: Coffee/tea

10.15 - 11.15: Targeting G-protein coupled receptors  
R. Leurs, VU

11.15 - 12.15: The brain as drug target  
A.G. de Boer, LACDR

12.15 - 13.30: Lunch (not provided)

Venue:

13.30 - 14.30: PET in drug development  
A.A. Lammertsma, VUmc

14.30 - 15.30: **Keynote lecture**  
Rational design of ligands for nicotinic acetylcholine receptors  
A.B. Smit, VU

Friday 8 October 2010: "Psychotic disorders"

Venue: University Medical Center Utrecht (room Unnik Groen in the W.C. van Unnik building at the Uithof, Heidelberglaan 2, Utrecht)

*Coordinator: M.A.F.M. Gerrits (UMCU)*

- 09.00 - 10.00: First psychotic episode: symptoms, classification, treatment and brain morphology  
W. Cahn, UMC Utrecht
- 10.00 - 11.00: Antipsychotics: mechanism of action and pharmacological profiles  
T. Werkman, UvA.
- 11.00 - 11.15: Coffee/tea
- 11.15 - 12.15: Animal models of antipsychotic drug research  
B. Ellenbroek, Evotec, Hamburg, Germany
- 12.15 - 13.15: Gray and white matter density changes in schizophrenia  
H. Hulshoff-Pol, UMC Utrecht
- 13.15 - 14.00: Lunch (provided)
- 14.00 - 16.00: Site visit brain imaging, max 15 personen  
H. Hulshoff-Pol, UMC Utrecht

Monday 11 October 2010: “Neurodegenerative disorders”

Venue: Lecture room, Netherlands Institute for Neuroscience, Meibergdreef 47, Amsterdam-ZO

*Coordinators: H.E. de Vries (VUmc) and B. Drukarch (VUmc)*

- 09.00 - 09.15: Introduction
- 09.15 - 10.00: Multiple Sclerosis pathogenesis 2010: where are we now?  
J. van Horsen, VUmc
- 10.00 - 10.45: Therapeutic targets for Multiple Sclerosis  
H.E. de Vries, VUmc
- 10.45 - 11.15: Coffee/tea
- 11.15 - 12.00: Dysregulation of impulse control and pharmacotherapy of Parkinson’s disease  
O.A. van den Heuvel, VUmc
- 12.00 - 12.45: Partial dopamine D2 receptor agonists in Parkinson’s disease  
E. Ronken (Solvay)
- 12.45 - 14.00: Lunch (not provided)
- 14.00 - 14.45: Parkinson’s disease: a subcellular movement disorder providing novel therapeutic targets  
B. Drukarch, VUmc
- 14.45 - 15.30: Stimulation of beta-amyloid clearance in therapy of Alzheimer dementia  
M. Wilhelmus, VUmc
- 15.30 - 16.00: Coffee/tea
- 16.00 - 17.00: **Keynote lecture**  
Mechanism based pharmacokinetic / pharmacodynamic (PK/PD) modelling for CNS-active drugs  
Dr. E. de Lange, LACDR

Tuesday 12 October 2010: "Affective disorders"

Venue: Lecture room, Netherlands Institute for Neuroscience, Meibergdreef 47, Amsterdam-ZO

*Coordinator: D. Veltman (VUmc/AMC)*

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|----------------|---|
| 09.00 - 09.10: | Introduction<br>D.J. Veltman, VUmc/AMC  |
| 09:10 - 10:05: | Clinical features and treatment of bipolar disorder<br>R. Kupka, VUmc/Altrecht                              |
| 10:05 - 11:00: | Major depressive disorder: clinical and neurobiological aspects<br>A.H. Schene, AMC                         |
| 11:00 - 11:20: | Coffee/tea  |
| 11:20 - 12:15: | Animal models for depression: opportunities and limitations<br>L. Groenink, UU                              |
| 12:15 - 13:30: | Lunch (not provided)  |
| 13:30 - 14:25: | Neuropsychopharmacology of today's and future antidepressants<br>T. Steckler, Janssen Pharmaceutica, Beerse |
| 14:25 - 15:20: | Imaging antidepressants: visualizing mechanisms of action<br>H.G. Ruhé, AMC                                 |

Wednesday 13 October 2010: "Question-based development of CNS-active drugs"

Venue: Centre for Human Drug Research, Zernikedreef 10, 2333 CL Leiden

*Coordinators: J.M.A. van Gerven and G.J. Groeneveld (Centre for Human Drug Research)*

- 08.30 - 09.00: Welcome and coffee/tea  
*Introduction*
- 09.00 - 09.45: CNS drug development: from phases to questions  
A.F.Cohen, Leiden
- 09.45 - 10.30: Case: Migraine - from genes to mouse model and drug target  
M.D. Ferrari, Leiden
- 10.30 - 10.45: Coffee/tea  
*Answering questions in early CNS drug development*
- 10.45 - 11.30: What is the dose range for first-in-human administration?  
*Investigators' brochure and animal-to-human predictions*  
J.M.A.van Gerven, Leiden
- 11.30 - 12.15: Does the drug enter the central nervous system?  
*Pharmacokinetics and pharmacodynamics of BBB-penetration*  
G.J. Groeneveld, Leiden
- 12.15 - 13.00: Does the drug have its anticipated pharmacological effects?  
*Pharmacological biomarkers and challenge tests*  
J.M.A. van Gerven, Leiden
- 13.00 - 14.00: Lunch (provided)
- 14.00 - 14.45: Does the drug have meaningful (patho)physiologically effects?  
*Translational disease models and disease models*  
G.J. Groeneveld, Leiden
- 14:45 - 15:00: Coffee/tea
- 15.00 - 17.00: Laboratory visits  
*NeuroCart and PainCart demonstrations*

Thursday 14 October 2010: "Epilepsy"

Venue: CWI - Turing Zaal, Science Park 123, Amsterdam

*Coordinator: W.J. Wadman (UvA)*

- 09.30 - 10.30: Clinical aspects of epilepsy  
A. Gaitatzis (SEIN, Heemstede)
- 10.30 - 11.30: Pharmacological modulation of Amino Acid mediated synaptic transmission  
R. Voskuyl, RUL
- 11.30 - 12.30: Strategies to prevent or stop the progression of epilepsy or  
pharmacoresistance in epilepsy  
J. Gorter, UvA
- 12:30 - 13:30 Lunch (not provided)
- 13.30 - 14:15: Local delivery and cell therapy in refractory epilepsy  
R. Raedt, AZG, Gent
- 14.15 - 15.00: Pharmacology of ion channels in epilepsy  
W.J. Wadman, UvA
- 16.00 - 17.00: Keynote lecture  
How does the brain become epileptic?  
T. Baram (Irvine, USA)

Friday 15 October 2010: "Addiction"

Venue: De Maas (VUmc – ZH 4 E11), Van der Boechorststraat 4, Amsterdam

Coordinator: A.N.M. Schoffelmeer (VUmc)

- 08.45 - 09.45:           Addiction: new treatment options  
W. van den Brink, UvA/AMC
- 09.45 - 10.45:           Kicking the habit-automatic behaviours in drug addiction  
L.J.M.J. Vanderschuren, UMCU
- 10.45 - 11.00:           Coffee/tea
- 11.00 - 12.00:           Impulsivity as a risk factor for addiction  
T. Pattij, VUmc
- 12.00 – 13.00:           Prefrontal cortex plasticity mechanisms in heroin seeking and relapse  
S. Spijker, VU
- 13.00 - 14.00:           Lunch (not provided)
- 14.00 – 15.00:           **Swammerdam Lecture**  
A. Araque, Cajal Institute, Madrid  
Tripartite synapses: Astrocytes process and control synaptic  
information  
host: E. Aronica, UvA/AMC
- 15.00 - 16.00:           Certificates of attendance and drinks!

October 7, 11 and 12, 2010

**NETHERLANDS INSTITUTE FOR NEUROSCIENCE, lecture room, 3<sup>rd</sup> floor  
Meibergdreef 47, Amsterdam-Zuidoost**  
<http://www.nin.knaw.nl/information/route/>

October 8, 2010

**UNIVERSITY MEDICAL CENTER UTRECHT (ROOM UNNIK GROEN IN THE W.C. VAN UNNIK BUILDING  
AT THE UITHOF IN UTRECHT), Heidelberglaan 2, Utrecht**  
Dutch: <http://idc.fss.uu.nl/dmdocuments/Routebeschrijving%20Van%20Unnikgebouw.pdf>  
English: <http://www.uu.nl/faculty/geosciences/en/Contact/Pages/adresenroute.aspx>

October 13, 2010

**CENTRE FOR HUMAN DRUG RESEARCH, ZERNIKEDREEF 10, LEIDEN**  
<http://www.proefpersoon.nl/default.asp?id=905>

October 14, 2010

Centrum voor Wiskunde en Informatica (CWI-UvA) – Turingzaal, Science Park 123, Amsterdam  
[http://homepages.cwi.nl/~schaefer/agt10/map\\_science\\_park.pdf](http://homepages.cwi.nl/~schaefer/agt10/map_science_park.pdf)  
<http://www.cwi.nl/en/general/Address>

October 15, 2010

**VU UNIVERSITY MEDICAL CENTER, ROOM DE MAAS = ZH 4 E 11 (HOSPITAL)**  
Address: **Van der Boechorststraat 4, Amsterdam**, use the stairs to the 4th floor  
<http://www.vumc.com/patientcare/477446/>  
(Please note that you can also get to the stairs through the hospital, De Boelelaan 1117, Amsterdam.)

VU University medical center, pantry = ZH 2 E (hospital)  
Address: **Van der Boechorststraat 4, Amsterdam**, 2 floors down from ZH 4 E 11  
(please see above.)