Johannes W. de Jong, PhD
j.w.dejong@berkeley.edu | +1 (510) 838-5702 | Berkeley, CA

CURRENT POSITION

University of California Berkeley — March 2015 – Present
Postdoctoral Scholar
Advisor: Stephan Lammel, PhD
Project: Encoding of Aversive Stimuli in the Mesolimbic Dopamine System

EDUCATION

Utrecht University — June 2015
PhD, Neuroscience
Advisor: Roger A.H. Adan, PhD & Louk J.M.J. Vanderschuren, PhD
Thesis: Eating addiction? The Nerves and Fibers that Control Food Intake

Utrecht University — August 2010
MSc, Neuroscience and Cognition
Advisor: Louk J.M.J. Vanderschuren, PhD
Thesis: The Neurobiological Basis of 'Wanting', 'Liking' and Compulsion
GPA: 4.0/4.0

Utrecht University — August 2008
BSc, Biomedical Sciences (honor student)
Advisor: J. Peter H. Burbach, PhD
Thesis: Contactins and Contactin-Associated Proteins

OTHER RESEARCH EXPERIENCE

Yale University — January 2010 – August 2010
Visiting Student
Advisor: Ralph DiLeone, PhD
Project: Analysis of Transcriptional Plasticity After Food Restriction.

Utrecht University — December 2008 – August 2009
Intern
Advisor: Roger A.H. Adan, PhD
Project: Food Anticipatory Activity

HONORS AND AWARDS

- NARSAD Young Investigator Award (2020 - 2021)
- Trainee and Professional Development Award, Society for Neuroscience (2018)
- Honorary mention (9/123), Gordon Research Conference on Optogenetic Approaches (2018)
- Poster prize (1st prize) Winter Conference on Brain Research (2018)
- David de Wied Travel Award, to attend the Society for Neuroscience Meeting (2014)
- Conference Travel Award from the Dutch Society for Pharmacological Sciences, to attend the Dopamine conference (2013)
- Conference Travel Award from the Dutch Society for Pharmacological Sciences, to attend the Society for Neuroscience Meeting in San Diego, CA (2013)
- Honor student at Utrecht University (2006 - 2008)

MANUSCRIPT IN PRESS

1. **J.W. de Jong**, Y. Liang, J.P.H. Verharen, K.M. Fraser, S. Lammel. State and temporal derivative encoding in parallel dopamine pathways ***Nature Neuroscience***, *accepted*

PUBLICATIONS

1. J.P.H. Verharen, **J.W. de Jong**, S. Lammel (2023) A computational analysis of mouse behavior in the sucrose preference test. ***Nature Communications***, 14(1), 2419

2. C. Liu, A.J. Tose, J.P.H. Verharen, Y. Zhu, **J.W. de Jong**, ..., S. Lammel (2022) An inhibitory brainstem input to dopamine neurons encodes nicotine aversion ***Neuron***, 110(18) 3018-3035

3. **J.W. de Jong**, K.M. Fraser, S. Lammel (2022) Mesoaccumbal Dopamine Heterogeneity: What Do Dopamine Firing and Release Have to Do with It? ***Annu Rev Neurosci***, 45(1) 109-129

4. H. Yang, **J.W.de Jong**, I. Cerniauskas, J.R. Peck, B.K. Lim, H. Gong, H.L. Fields, S. Lammel (2021) Pain modulates dopamine neurons via a spinal-parabrachial-mesencephalic circuit ***Nature Neuroscience***, 109(1) 1-12

5. C.M. Davenport, R. Rajappa, L. Katchan, C.R. Taylor, M.C. Tsai, C.M. Smith, **J.W.de Jong**, ..., R.H. Kramer (2021) Relocation of an Extrasynaptic GABAA Receptor to Inhibitory Synapses Freezes Excitatory Synaptic Strength and Preserves Memory ***Neuron***, 109(1), 123–134

6. J.P.H. Verharen, **J.W. de Jong**, S. Lammel (2020) Dopaminergic Control over the Tripartite Synapse. ***Neuron***, 105(6), 954–956
[*]Commentary on Corkrum et al. 2020

7. I. Cerniauskas, J. Winteren, **J.W.de Jong**, D. Lukacsovich, H. Yang, ..., S. Lammel (2019) Chronic stress induces activity, synaptic, and transcriptional remodeling of the lateral habenula associated with deficits in motivated behaviors ***Neuron***, 104(5) 899-915

8. D.F. Cardozo Pinto, H. Yang, I. Pollak Dorocic, **J.W. de Jong**, V.J. Han, ..., S. Lammel (2019) Characterization of transgenic mouse models targeting neuromodulatory systems reveals organizational principles of the dorsal raphe ***Nature Communications*** 10(1), 4633

9. **J. W. de Jong**, S. A. Afjei, I. Pollak Dorocic, J. R. Peck, C. Liu, C.K. Kim, ..., S. Lammel (2019) A Neural Circuit Mechanism for Encoding Aversive Stimuli in the Mesolimbic Dopamine System ***Neuron***, 101(1) 133-151

10. J. P. H. Verharen, **J.W. de Jong**, T.J.M. Roelofs, C.F.M. Huffels, R. Van Zessen, ... L.J.M.J. Vanderschuren (2018) A Neuronal Mechanism Underlying Decision-Making Deficits During Hyperdopaminergic States. ***Nature Communications***, 9(1) 731

11. H. Yang, **J.W. de Jong**, Y. Tak, J. Peck, H.S. Bateup, S. Lammel (2018) Nucleus Accumbens Subnuclei Regulate Motivated Behavior via Direct Inhibition and Disinhibition of VTA Dopamine Subpopulations. ***Neuron***, 97(2) 434-449

12. L. Boekhoudt, E.C. Wijbrans, J.H.K. Man, M.C.M. Luijendijk, **J.W. de Jong**, ..., R.A.H. Adan (2018) Enhancing excitability of dopamine neurons promotes motivational behaviour through increased action initiation. ***European Neuropsychopharmacology*, 28(1), 171–184**

13. T.J.M. Roelofs, J.P.H. Verharen, G.A.F. van Tilborg, L. Boekhoudt, A. van der Toorn, **J.W. de Jong**, ..., R.M. Dijkhuizen (2017) A novel approach to map induced activation of neuronal networks using chemogenetics and functional neuroimaging in rats: A proof-of-concept study on the mesocorticolimbic system ***NeuroImage***, 156, 109–118

14. L. Boekhoudt, T.J.M. Roelofs, **J.W. de Jong**, A.E. de Leeuw, M.C.M. Luijendijk, ..., R.A.H. Adan (2017) Does activation of midbrain dopamine neurons promote or reduce feeding? ***International Journal of Obesity***, 41(7), 1131–1140

15. **J.W. de Jong**, L.J. Vanderschuren, R.A. Adan (2016) The mesolimbic system and eating addiction: what sugar does and does not do. ***Current Opinion in Behavioral Sciences***, 9 118-125

16. **J.W. de Jong**, T.J.M. Roelofs, F.M.U. Mol, ... R.A. Adan (2015) Reducing Ventral Tegmental Dopamine D2 Receptor Expression Selectively Boosts Incentive Motivation. ***Neuropsychopharmacology***, 40(9) 2085-2095

17. M.A. van Gestel, L.E. Sanders, **J.W. de Jong**, M.C.M. Luijendijk, R.A.H. Adan (2014) FTO knockdown in rat ventromedial hypothalamus does not affect energy balance ***Physiological Reports***, 2(12), e12152

18. J. Hebebrand, Ö. Albayrak, R.A.H. Adan, J. Antel, C. Dieguez, **J.W. de Jong**, G. Lenge, J. Menzies, J.G. Mercer, M. Murphy, G. Van der Plasse, S.L. Dickson (2014) "Eating addiction", rather than "food addiction", better captures addictive-like eating behavior. ***Neuroscience and Biobehavioral Reviews***, 47, 295–306

19. A.J. Boender, **J.W. de Jong**, L. Boekhoudt, M.C.M. Luijendijk, G. Van der Plasse, R.A.H. Adan (2014) Combined Use of the Canine Adenovirus-2 and DREADD-Technology to Activate Specific Neural Pathways In Vivo ***PLoS ONE***, 9(4) e95392.

20. **J.W. de Jong**, K.E. Meijboom, L.J.M.J. Vanderschuren, R.A.H. Adan (2013) Low control over palatable food intake in rats is associated with habitual behavior and relapse vulnerability: individual differences. ***PLoS ONE***, 8(9) 1-10

21. M. Merkestein, M.A.D. Brans, M.C.M. Luijendijk, **J.W. de Jong**, E. Egecioglu, S.L. Dickson, R.A.H. Adan (2012) Ghrelin Mediates Anticipation to a Palatable Meal in Rats ***Obesity***, 20(5), 963–971

22. **J.W. de Jong**, L.J.M.J. Vanderschuren, R.A.H. Adan (2012) Towards an animal model of food addiction ***Obesity Facts***, 5(2), 180-195

23. R. Pandit, **J.W. de Jong**, L.J.M.J. Vanderschuren, R.A.H. Adan (2011) Neurobiology of overeating and obesity: the role of melanocortins and beyond ***Eur J Pharmacol***, 660(1), 28-42

TEACHING EXPERIENCE

- Lecturer: *The Neurobiology of Drug Addiction* 2014 - 2015
  - Contributed to the development of an elective course for 3rd year medical students.
  - My contribution consisted of 3 lectures, a practicum and a site-visit.
- Chair: *Departmental Journalclub* 2014 - 2015
  - Facilitated the bi-weekly student-led journal club of the department.
- Teaching Assistant: *Neuroscience* 2010 - 2015
  - Elective course for students majoring in biomedical sciences.
  - Supervised a 3-week practicum during which students performed a behavioral experiment.
  - Taught a lecture on novel techniques in neuroscience.
- Teaching Assistant: *Circulation I* 2010 - 2013
  - Obligatory course for 1st year medical students.
  - Facilitated weekly work-group meetings and one-on-one meetings.
  - Discussion topics included the physiology of the heart and kidneys as well as basic pharmacology.
- Teaching Assistant: *The Senses, The Brain and Movement I* 2010 - 2013
  - Obligatory course for 1st or 2nd year medical students.
  - Facilitated weekly work-group meetings and one-on-one meetings.
  - Discussion topics included general pharmacology and neuroscience.

SERVICE

- Hosted the ONWAR-RMI Neuroscience retreat, a 3-day summerschool attended by neuroscience graduate students from the universities of Amsterdam, Rotterdam & Utrecht. (2013)
- Student representative to the Utrecht University Board of Studies of the Graduate School of Life Sciences (2012-2014)

VOLUNTEERING AND OUTREACH

- Volunteer judge at the West Contra Costa Unified School District science fair for middle and high school students (2019)
- Volunteer at Oakland Unified School District, provided guidance on sophomore projects (2017-2018)
- Volunteer Mind & Brain Day, Neuroscience outreach at Roosevelt Middle School in Oakland (2017)
- Volunteer at VICTAS Addiction Health Center in Utrecht, The Netherlands (2013-2015)

PROFESSIONAL MEMBERSHIPS

Society for Neuroscience (2013 - present)

PEER REVIEW SERVICE (*WITH SUPERVISOR)

Nature*, Science*, Neuron*, Nature Neuroscience*, PNAS*, Communications Biology, Behavioral Pharmacology, Current Opinion in Behavioral Sciences, Scientific Reports, STAR protocols

INVITED TALKS

- Invited Faculty, Summer School on Neural Circuit Development and Plasticity, Utrecht, The Netherlands (2023)
- State and Temporal Derivative Encoding in Midbrain Dopamine Neurons, Dopamine 2022, Montreal, Canada (2022)
- Functional Diversity Within the Mesolimbic Dopamine System During Motivated Behavior, WSU, Pullman, WA (2021)
- Decoding Neural Activity in The Nucleus Accumbens Underlying Reward Seeking, ViDA, online (2020)
- Diversity of Mesolimbic Dopamine Neurons During Motivated Behavior, SfN, Chicago, IL (2019)
- A Neural Circuit Mechanism For Aversive Coding in the Mesolimbic Dopamine System, Dutch Neuroscience Meeting, Lunteren, The Netherlands (2017)
- A Neural Circuit Mechanism For Aversive Coding in the Mesolimbic Dopamine System, HWNI Retreat, Tahoe, CA (2017)
- The Role of Dopamine in Motivation for Food and Drugs, Eating Disorders Topic Meeting, Oxford University (2014)

- Towards an Animal Model of Compulsive Food Seeking, Dutch Neuroscience Meeting, Lunteren, The Netherlands (2011)

SYMPOSIUM CHAIRED

Dopamine and Food Reward. Dutch Neuroscience Meeting, Lunteren, The Netherlands (2013)

IN THE MEDIA

- Dopamine's yin-yang personality: It's an upper and a downer, Berkeley News, December 10, 2018 https://news.berkeley.edu/2018/12/10/dopamines-yin-yang-personality-its-an-upper-and-a-downer/
- Sugar is not addictive [Dutch], Telegraaf (major Dutch newspaper), June 30, 2015 https://www.telegraaf.nl/nieuws/794241/suiker-is-niet-verslavend
- Sugar is rewarding, but less addictive than drugs of abuse [Dutch], Volkskrant (major Dutch newspaper), June 30, 2015 https://www.volkskrant.nl/wetenschap/suiker-is-belonend-maar-minder-verslavend-dan-drugs b9e6497e/

SELECTED POSTER PRESENTATIONS

J.W. de Jong, Y. Liang, J.P.H. Verharen, K.M. Fraser, S. Lammel (2022, July) Distinct Dopamine Circuits Separately Encode Value or Prediction Errors. Gordon Research Conference on Optogenetic Approaches to Understanding Neural Circuits and Behavior. Newry, ME.

J.W. de Jong, Y. Liang, S. Obayashi, I. Cerniauskas, S. Lammel (2019, October) Diversity of Mesolimbic Dopamine Neurons During Motivated Behavior. 49$^{\text{th}}$ Annual Meeting of the Society for Neuroscience. Chicago, IL.

J.W. de Jong, S.A. Afjei, I. Pollak Dorocic, J.R. Peck, V. Han, C.K. Kim, K. Deisseroth, S. Lammel (2019, January) A Neural Circuit Mechanism for Encoding Aversive Stimuli in the Mesolimbic Dopamine System. UCSF Addiction Research Poster Session.

J.W. de Jong, S.A. Afjei, I. Pollak Dorocic, J. Peck, V. Han, C.K. Kim, K. Deisseroth, S. Lammel (2018, November) A Neural Circuit Mechanism for Coding Negative Motivational Stimuli in the Mesolimbic Dopamine System. 48$^{\text{th}}$ Annual Meeting of the Society for Neuroscience. San Diego, CA.

*Selected for the Trainee Professional Development Award

J.W. de Jong, S.A. Afjei, I. Pollak Dorocic, J.R. Peck, C.K. Kim, K. Deisseroth, S. Lammel (2018, July) Neural Circuit Mechanism for Coding Negative Motivational Stimuli in the Mesolimbic Dopamine System, Gordon Research Conference on Optogenetic Approaches to Understanding Neural Circuits and Behavior. Newry, ME.

*Received Honorary Mention

J.W. de Jong, S.A. Afjei, I. Pollak Dorocic, J.R. Peck, V. Han, C.K. Kim, K. Deisseroth, S. Lammel (2018, January) Neural Circuit Mechanisms Underlying Drug-Induced Changes in Motivated Behaviors. Winter Conference on Brain Research, Whistler, B.C. Canada.

*Selected for the Prize Poster Session, Received First Price

J.W. de Jong, S.A. Afjei, I. Pollak Dorocic, J. Peck, V. Han, C.K. Kim, K. Deisseroth, S. Lammel (2016, November) Circuit Mechanisms of Drug-Induced Changes in Motivated Behaviors. 46$^{\text{th}}$ Annual Meeting of the Society for Neuroscience. San Diego, CA.

J.W. de Jong, S.A. Afjei, J. Peck, V. Han, C.K. Kim, K. Deisseroth, S. Lammel (2016, September) Circuit Mechanisms of Drug-Induced Changes in Motivated Behaviors. Dopamine 2016, Vienna, Austria.