

CV Martien J. H. Kas

Education:

- 1995 – 1999 Ph.D. degree in Behavioral Neuroscience. Ph.D. thesis is entitled “Sleep and circadian timekeeping in Octodon degus; behavioral and photic determinants of activity phase preference.” Promotores: Prof. Dr. Dale Edgar (Stanford University, California, USA) and Prof. Dr. Serge Daan (University of Groningen, The Netherlands).
- 1991 - 1994 Master’s degree in Biology, specialization in Neurobiology, Psychopharmacology, and Ethology. Free University of Amsterdam, The Netherlands
- 1985 - 1989 Bachelor’s degree in Medical Microbiology, Hoger Laboratorium Onderwijs, Leidse Hoge School, Leiden, The Netherlands

Research:

- Present Assistant Professor, Department of Neuroscience and Pharmacology, Rudolf Magnus Institute of Neuroscience, University Medical Center Utrecht, The Netherlands
Established a new research-line within the institute on the identification of novel genes and gene functions in mice for behavioral traits relevant to psychiatric disorders, such as eating disorders and OCD. Conventional behavioral laboratory and newly developed and automated behavioral tests are used to dissect complex behaviours into behavioral phenotypes, such as approach and avoidance behavior. Forward genetic (from phenotype to genotype) and reverse genetic (from genotype to phenotype) strategies are applied to refined behavioral phenotypes.
- 1999 - 2002 Postdoctoral Fellow, Section Neural Integration, Rudolf Magnus Institute of Neuroscience, University Medical Center Utrecht, The Netherlands. Supervisor: Prof. Dr. R.A.H. Adan.
Investigated the biological substrates of food intake and energy expenditure. By using molecular genetic tools, the function of genes in energy metabolism was studied (in particular the role of the melanocortin system). I have developed an animal model for anorexia nervosa. By extending this model from rats to mice, genetically modified mice are currently tested to unravel the function of genes in semi-starvation-induced hyperactivity. Furthermore, vector-directed local gene expression was employed to study sites of action of neuropeptide systems in specific brain regions.
- 1995 - 1999 Graduate student, Department of Psychiatry and Behavioral Sciences, Stanford University, Stanford, USA. Supervisor: Prof. Dr. D.M. Edgar and Department of Animal Behavior, University of Groningen, the Netherlands. Supervisor: Prof. Dr. S. Daan
During my Ph.D. research at Stanford University (California, USA), I investigated the neurobiology of sleep-wake regulation in mammalian rodent species by using automated behavioural methods. Furthermore, I studied the neurophysiology of photic and behavioral control of circadian timekeeping in these species.

- 1995 Research assistant, Department of Psychiatry and Behavioral Sciences, Stanford University, Stanford, USA. Supervisor: Prof. Dr. S. Levine
Conducted experimental research concerning the influence of maternal deprivation on the development of the hypothalamo-pituitary-adrenocortical axis in infant rats.
- 1994 Master's Researcher, Department of Pharmacology, Free University of Amsterdam, The Netherlands. Supervisor: Prof. Dr. F.J.H. Tilders. Investigated brain mechanisms that are involved in stress and in abuse of stimulants, e.g. amphetamine. My work focused on the effects of corticosterone in the central dopaminergic regions of the rat brain.
- 1992 - 1993 Master's Researcher, Rudolf Magnus Institute of Neuroscience, University of Utrecht, The Netherlands. Supervisor: Prof. Dr. V.M. Wiegant. Performed scientific research on the central effects of neuropeptides in the rat brain. Scored behavioral changes and measured stress-related hormone-release. Wrote Master's thesis on this subject.

Publications:

- Gelegen C, van den Heuvel J, Collier DA, Campbell IC, Oppelaar H, Hessel E, Kas MJ. Dopaminergic and BDNF signalling in inbred mice exposed to a restricted feeding schedule. *Genes Brain Behav.* 2008, in press.
- Kas MJ, de Mooij-van Malsen AJ, Olivier B, Spruijt BM, Van Ree JM. Differential genetic regulation of motor activity and anxiety-related behavior in mice using an automated home cage task. *Behav. Neuroscience*, 2008, in press
- de Mooij-van Malsen AJ, Olivier B, Kas MJ. Behavioural genetics in mood and anxiety: A next step in finding novel pharmacological targets. *Eur J Pharmacol.* 2008 May 13;585(2-3):436-40.
- Chan JS, Olivier B, de Jong TR, Snoeren EM, Kooijman E, van Hasselt FN, Limpens JH, Kas MJ, Waldinger MD, Oosting RS. Translational research into sexual disorders: Pharmacology and genomics. *Eur J Pharmacol.* 2008 May 13;585(2-3):426-35.
- Smits SM, Noorlander CW, Kas MJ, Ramakers GM, Smidt MP. Alterations in serotonin signalling are involved in the hyperactivity of Pitx3-deficient mice. *Eur J Neurosci.* 2008 Jan;27(2):388-95.
- Kas MJ, van der Linden AJ, Oppelaar H, von Oerthel L, Ramakers GM, Smidt MP. Phenotypic segregation of aphakia and Pitx3-null mutants reveals that Pitx3 deficiency increases consolidation of specific movement components. *Behav Brain Res.* 2008 Jan 25;186(2):208-14.
- van Elburg AA, Hoek HW, Kas MJ, van Engeland H. Nurse evaluation of hyperactivity in anorexia nervosa: a comparative study. *Eur Eat Disord Rev.* 2007 Nov;15(6):425-9.
- van Elburg AA, Kas MJ, Hillebrand JJ, Eijkemans RJ, van Engeland H. The impact of hyperactivity and leptin on recovery from anorexia nervosa. *J Neural Transm.* 2007 Sep;114(9):1233-7.

- Martien J.H. Kas, Cathy Fernandes, Leonard C. Schalkwyk, and David A. Collier. Genetics of behavioural domains across the neuropsychiatric spectrum; of mice and men. *Molecular Psychiatry*, 2007 Apr;12(4):324-30.
- Leonie de Visser, Ruud van den Bos, Astrid K. Stoker, Martien J.H. Kas, and Berry M. Spruijt. Effects of genetic background and environmental novelty on wheel running as a rewarding behaviour in mice. *Behavioural Brain Research*, 2007 Feb 27;177(2):290-7.
- Cigdem Gelegen, David A. Collier, Iain C. Campbell, Hugo Oppelaar, Jose van den Heuvel, Roger A.H. Adan and Martien J.H. Kas. Difference in susceptibility to activity-based anorexia in two inbred strains of mice. *European Neuropsychopharmacology*, 2007 Feb;17(3):199-205.
- Adan RA, Tiesjema B, Hillebrand JJ, la Fleur SE, Kas MJ, de Krom M. The MC4 receptor and control of appetite. *British Journal of Pharmacology*, 149(7):815-27 2006.
- Leonie de Visser, Ruud van den Bos, Pim Kuurman, Martien J.H. Kas and Berry M. Spruijt. Analysis of novelty-induced and baseline locomotor activity in inbred mice using automated home cage observations. Novel approach to the behavioral characterization of inbred mice: automated home cage observations. *Genes, Brain and Behavior*, 5(6), 458-66, 2006.
- Cigdem Gelegen, David A. Collier, Iain C. Campbell, Hugo Oppelaar, and Martien J.H. Kas. Behavioral, physiological and molecular differences in response to dietary restriction in three inbred mouse strains. *American Journal of Physiology - Endocrinology and Metabolism*, 291(3), 574-81, 2006.
- Jacquélien J.G. Hillebrand, Martien J.H. Kas, and Roger A.H. Adan. To eat or not to eat; regulation by the melanocortin system. *Physiology and Behavior*, 89(1), 97-102, 2006
- Jacquélien J.G. Hillebrand, Martien J.H. Kas, Anton J. Scheurink, Gertjan van Dijk and Roger A. H. Adan. AgRP((83-132)) and SHU9119 differently affect activity-based anorexia. *European Neuropsychopharmacology*, 16(6), 403-12, 2006.
- Jacquélien J.G. Hillebrand, Angélique C. Heinsbroek, Martien J.H. Kas, and Roger A.H. Adan Hillebrand JJ, Heinsbroek AC, Kas MJ, Adan RA. The appetite suppressant d-fenfluramine reduces water intake, but not food intake, in activity-based anorexia. *Journal of Molecular Endocrinology* 36, 153-62, 2006
- Gertjan van Dijk, Koert de Vries, Csaba Nyakas, Bauke Buwalda, Tiziana Adage, Folkert Kuipers, Martien J.H. Kas, Roger A.H. Adan, Charles C. Wilkinson, Todd E. Thiele, and Anton J.W. Scheurink. Reduced anorexigenic efficacy of leptin, but not of the melanocortin receptor agonist melanotan-II, predicts diet-induced obesity in rats. *Endocrinology*, 146:12:5247-5256, 2005
- Martien J. H. Kas, Adrie W. Buijnzeel, Jurgen R. Haanstra, Victor M. Wiegant, and Roger A. H. Adan. Differential regulation of Agouti-related protein and Neuropeptide Y in hypothalamic neurons following a stressful event. *Journal of Molecular Endocrinology*, 35, 159-164, 2005.
- Jacquélien J.G. Hillebrand, Maarten P. Koeners, Corine E. de Rijke, Martien J.H. Kas and Roger A.H. Adan. Leptin treatment in activity-based anorexia. *Biological Psychiatry*, 58:2, 165-171, 2005.
- Jacquélien J.G. Hillebrand, Annemarie A van Elburg, Martien J.H. Kas, Herman van Engeland and Roger A.H. Adan. Olanzapine reduces physical activity in rats exposed to

activity-based anorexia: possible implications for treatment of anorexia nervosa? *Biological Psychiatry*, 58:8:651-657, 2005.

- Corine E. de Rijke, Pilgrim J. Jackson, Keith M. Garner, Rea J. van Rozen, Nick R. Douglas, Martien J.H. Kas, Glenn L. Millhauser and Roger A.H. Adan. Functional analysis of the Ala67Thr polymorphism in agouti related protein associated with Anorexia Nervosa and leanness. *Biochemical Pharmacology*, 70:2, 306-316, 2005.
- Jacqueliën J.G. Hillebrand, Martien J.H. Kas and Roger A.H. Adan. α -MSH enhances activity-based anorexia. *Peptides* 26:10, 1690-1696, 2005.
- Jacqueliën J.G. Hillebrand, Corine E. de Rijke, Jan H. Brakkee, Martien J.H. Kas and Roger A.H. Adan. Voluntary access to a warm plate reduces hyperactivity in activity-based anorexia. *Physiology and Behavior*, 85:2, 151-157, 2005.
- Martien J. H. Kas, Birgitte Tiesjema, Gertjan van Dijk, Keith M. Garner, Gregory S. Barsh, Olivier Ter Brake, Joost Verhaagen and Roger A. H. Adan. Induction of brain-region specific forms of obesity by Agouti. *Journal of Neuroscience*, 24:45, 10176-10181, 2004.
- Martien J. H. Kas, Ruud van den Bos, Annemarie M. Baars, Marianne Lubbers, Heidi M. B. Lesscher, Jacqueliën J. G. Hillebrand, Alwin G. Schuller, John E. Pintar and Berry M. Spruijt. Mu-opioid receptor knockout mice show diminished food-anticipatory activity. *European Journal of Neuroscience*, 20:6, 1624-1632, 2004.
- Martien J. H. Kas and Jan M. Van Ree. Dissecting complex behaviors in the post-genomic era. *Trends in Neurosciences*, 27, 366-369, 2004.
- Martien J. H. Kas, Annemarie A. van Elburg, Herman van Engeland, and Roger A. H. Adan. Refinement of behavioral traits in animals for the genetic dissection of eating disorders. *European Journal of Pharmacology*, 480, 13-20, 2003.
- Roger A. H. Adan, Jacqueliën J. G. Hillebrand, Corine De Rijke, Wouter Nijenhuis, Tom Vink, Keith M. Garner, and Martien J. H. Kas. Melanocortin system and eating disorders. *Annual New York Academy of Science*, 994, 267-274, 2003.
- Roger A. H. Adan and Martien J. H. Kas. Inverse agonism gains weight. *Trends in Pharmacological Sciences*, 24:6, 315-321, 2003.
- Martien J. H. Kas, Gertjan van Dijk, Anton J. W. Scheurink, and Roger A. H. Adan. Agouti-related protein prevents self-starvation. *Molecular Psychiatry*, 8:2, 235-240, 2003.
- Martien J. H. Kas and Dale M. Edgar. Scheduled voluntary wheel running activity modulates free-running circadian body temperature rhythms in *Octodon degus*. *Journal of Biological Rhythms*, 16:1, 66-75, 2001.
- Martien J. H. Kas and Dale M. Edgar. Photic phase response curve in *Octodon degus*: assessment as a function of activity phase preference. *American Journal of Physiology*, 278, R1385-R1389, 2000.
- Martien J. H. Kas and Dale M. Edgar. Circadian timed wakefulness at dawn opposes compensatory sleep responses after sleep deprivation in *Octodon degus*. *Sleep*, 22:8, 1045-1053, 1999.
- Martien J. H. Kas and Dale M. Edgar. A non-photoc stimulus inverts the diurnal-nocturnal

phase preference in *Octodon degus*. *Journal of Neuroscience*, 19:1, 328-333, 1999.

- Martien J. H. Kas and Dale M. Edgar. Crepuscular rhythms of EEG sleep-wake in a hystericomorph rodent: *Octodon degus*. *Journal of Biological Rhythms*, 13:1, 9-17, 1998.

Supervisor of Ph.D. students:

- Jacqueline Hillebrand (Rudolf Magnus Institute of Neuroscience, UMCU, The Netherlands) (graduated January 2005)
- Cidgem Gelegen (Institute of Psychiatry, London, UK) (graduated September 2006)
- Annemarie van Elburg (Rudolf Magnus Institute of Neuroscience, UMCU, The Netherlands) (graduated June 2007)
- Annetrude de Mooij-van Malsen (Rudolf Magnus Institute of Neuroscience, UMCU, The Netherlands) (Ph.D. dissertation pending)
- Hilgo Bruining (Rudolf Magnus Institute of Neuroscience, UMCU, The Netherlands) (dissertation pending)
- Simone de Jong (Rudolf Magnus Institute of Neuroscience, UMCU, The Netherlands) (started recently)
- Ellen Hessel (Rudolf Magnus Institute of Neuroscience, UMCU, The Netherlands) (started recently)
- Eneida Pjetri (Rudolf Magnus Institute of Neuroscience, UMCU, The Netherlands) (started recently)
- Ria de Haas (Rudolf Magnus Institute of Neuroscience, UMCU, The Netherlands) (started recently)

Supervisor of international visiting scientists:

- 2003 Dr. Andrey Malyshkin (post-doc, Institute of Pharmacology, St. Petersburg, Russia)
- 2004 - 2006 Cidgem Gelegen (Ph.D. student, Institute of Psychiatry, London, UK)
- 2005 and 2006-2007. Dr. Cathy Fernandes (post-doc, Institute of Psychiatry, London, UK)

Invited lectures:

- April 2008: Congress of the Dutch Society for Psychiatry, Amsterdam, The Netherlands, Title seminar: The neurobiology of eating disorders.
- March 2008: Lausanne Neurobiology Seminar Series, Lausanne, Switzerland. Title seminar: Genetics of behavioral domains across the neuropsychiatric spectrum; of mice and men
- March 2008: Keynote speaker at the ECNP Workshop on Neuropsychopharmacology, Nice, France. Title seminar: Novel approaches in behavioral genomics
- January 2008: Molecular Medicine Seminars, UMC Groningen, The Netherlands. Title seminar: The genetics of eating behavior.
- January 2007: Institute of Psychiatry, London, United Kingdom. Title seminar: Mouse behavioral genetics
- November 2007; Rudolf Magnus Institute of Neuroscience Symposium, Utrecht, The Netherlands. Title seminar; Genetics of behavioral domains across the neuropsychiatric spectrum; of mice and men
- Genetics of behavioral domains relevant to eating disorders, Endo-Neuro Meeting, Doorwerth, The Netherlands, 2007
- Interspecies comparison of functional genetic variations; relevance to eating disorders, Institute of Psychiatry, London, United Kingdom, 2006

- Mouse genetical genomics; identifying novel genes for dissected neuropsychiatric traits using mouse genetical genomic strategies, European Winter Brain Conference, Switzerland, 2006
- Mouse genetical genomics; identifying novel genetic cascades for neurobehavioral traits, Endo-Neuro Meeting, Doorwerth, The Netherlands, 2006
- Mouse genetical genomics; identifying novel drug targets for dissected neuropsychiatric traits, European College of Neuropsychopharmacology Congress, Amsterdam, 2005
- Behavioral genetics; why and how? Behavioral Genetics Symposium, Utrecht, 2005
- Stress and the regulation of energy balance. European Winter Brain Conference, France, 2004
- Genetic dissection of complex behaviors using chromosome substitution strains of mice, Free University, Amsterdam, 2004
- Genetic dissection of refined behavioral phenotypes in mice. Eumorphia meeting, Rome, Italy, 2003.
- Automated mouse behavioral observations in the home cage. European Brain and Behavior Society, Barcelona, Spain, 2003.
- Animal models in the genetic dissection of eating disorders. International meeting of eating disorders, Florence, Italy, 2003
- A stressful event dissociates food stimulating hypothalamic neurons; implication for obesity and anorexia nervosa. European College of Neuropsychopharmacology Congress, Spain, 2002
- Activity-based anorexia, an animal model for anorexia nervosa. Endo-Neuro Meeting, Doorwerth, The Netherlands, 2002
- Neuropeptides and body weight (Symposium) Upregulation of the central melanocortin system in activity-induced-anorexia. Endo-Neuro Meeting, Doorwerth, The Netherlands, 2000.
- Diurnality: Definitions and Underlying mechanisms. Society for Research on Biological Rhythms, Jacksonville, Florida, USA, 2000.

Symposia:

- Organized and chaired the Dutch Behavioral Genetics meeting, UMC Utrecht, The Netherlands, 2008
- Organized and chaired a session, entitled: the genetic dissection of complex behaviors, of mice and men at the European Winter Brain Conference, Switzerland, 2006
- Organized and chaired a symposium on Behavioral genetics at the UMC Utrecht, The Netherlands 2005
- Organized and chaired the Rudolf Magnus Institute of Neuroscience Summerschool, 2004 and 2005
- Organized and chaired a symposium on the genetic dissection of complex behaviours at the Endo-Psycho-Neuro Meeting, Doorwerth, The Netherlands, 2004, 2006, and 2007

Scientific committees:

- 2008: Member of the review committee for the Scientific Program for the yearly European Congress of Neuropsychopharmacology meeting.
- 2008: Selected as Faculty Member of Faculty of 1000 Medicine (www.f1000medicine.com) for the section eating disorders.
- 2007: Member of the organizing committee of the International Brain and Neural Genetics Society meeting
- 2007-present: President of the Dutch Behavioral Genetics Contact group.

Grants and Awards:

- VIDI-grant ZonMW. Interspecies genetics of eating disorders; of mice and men.
- FP6 project grant participant of the INTACT Research Training Network (Individually Tailored Stepped Care for Women with Eating Disorders) (FP6 call-2005-Mobility-1)
- Marie Curie Fellowship (researcher in charge). CSS-omics; a powerful tool to study the stress response in mice.
- Figon poster award. Mouse genetical genomics on automatically screened behaviors in the home cage
- National Epilepsy Foundation Grant. Identification of epilepsy susceptibility genes using chromosome substitution mouse strains
- NWO-British Council: UK-Netherlands Partnership Program in Science Grant
- EMBO fellowship (host laboratory) on animal behavioral genetics
- NWO project grant participant on functional studies on melanocortin signaling in an animal model for anorexia nervosa
- Research excellence Award from the American Sleep Research Society and American Sleep Disorders Association