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Research interests:
The research of the group focuses on determinants of behaviour, especially of behavioural strategies and of biological processes that are essential across species and that are affected in various neuropsychiatric disorders (e.g., social interaction and sensory information processing). By means of cross-species genetic analysis of neurobehavioral traits (of mice and men) we aim to identify genotype-phenotype relationships relevant to the development and treatment of autism spectrum disorders, Alzheimer's Disease, eating disorders, and schizophrenia. These studies will lead to our understanding of conserved gene function in regulating essential behavioural strategies and will ultimately improve therapeutic and preventive strategies to contribute to healthy aging.

Experimental strategy:
The identification of molecular genetic mechanisms of neurobehavioral traits is established by performing fine-grained analysis of behaviour using both well-established testing paradigms, as well as novel automated behavioural phenotyping methods (e.g., automated home cage recordings in rodents and smartphone application monitoring of human behaviour). Behavioural and EEG dynamics in developing genetic mouse models for human candidate genes of neuropsychiatric disorders are studied across different developmental stages and in relation to brain development. Ultimately, genotype-phenotype relationships are translated to relevant human patient populations.

Websites:
Personal profile: http://www.rug.nl/staff/m.j.h.kas/
PRISM project: www.prism-project.eu

Recent key publications:
1: Bruining H, Matsui A, Oguro-Ando A, Kahn RS, Van't Spijker HM, Akkermans G, Stiedl O, van Engeland H, Koopmans B, van Lith HA, Oppelaar H, Tieland L, Nonkes LJ, Yagi T, Kaneko R, Burbach JP, Yamamoto N, Kas MJ. Genetic Mapping in Mice Reveals the Involvement of Pcdh9 in Long-Term Social and Object Recognition and Sensorimotor Development. Biological Psychiatry, 2015, 78(7):485-95

2: Eskes P, Spruit M, Brinkkemper S, Vorstman J, Kas MJ. The sociability score: App-based social profiling from a healthcare perspective. Computers in Human Behavior, 2016, 59, 39-48

3: Schughart K, Libert C, and Kas MJ. Human disease: strength to strength for mouse models. Nature, 2012, 492, 41

4: Kas MJ, Kahn RS, Collier DA, Waddington JL, Ekelund J, Porteous DJ, Schughart K, Hovatta I. Translational neuroscience of schizophrenia: seeking a meeting of minds between mouse and man. Science Translational Medicine, 2011, 3(102):102mr3.

5: Laarakker MC, Reinders NR, Bruining H, Ophoff RA, Kas MJ. Sex-dependent novelty response in neurexin-1α mutant mice. PLoS One, 2012, 7(2):e31503.