**Behaviour & Welfare**

**Mission**
The B&W program strives to break new ground in animal welfare research. The research in the B&W program is based on the concept that the welfare of an animal depends upon its ability to adapt to the environment in order to achieve a state that it perceives as positive. These adaptive capacities are determined by adequate emotional and cognitive processes. Therefore, we investigate the emotional states and cognitive abilities that are crucial for an animal’s adaptive capacity and their neural underpinnings.

**Research Focus**
The B&W program studies how emotional and cognitive processes contribute to animal welfare, i.e. the adaptive capacities of animals. These adaptive capacities are modulated through an interplay of internal (e.g. genetic background, health state) and external factors (e.g. life events, present environment, drug exposure).

Since the welfare of an animal strongly depends on its ability to adapt to the environment, adaptive capacities require that both positive and negative emotions are processed adequately. In other words, welfare is not dependent on the absence of negative and the presence of positive states, but on the animal’s ability to make use of these states in an adaptive process. In order to deal with changeable environmental circumstances, and the emotional states that they evoke, adequate cognitive function is essential. In fact, we think that emotional and cognitive processes work in concert to generate appropriate behavioural courses of action. The B&W program therefore investigates cognitive functions such as learning, memory, attention, impulse control, and decision making, as well as emotional processes such as reward, motivation, anxiety, fear, and pain.

The knowledge gathered in this program can be readily translated to veterinary practice, in order to identify and control risk factors that compromise animal welfare, in an evidence-based manner. In addition, the scientific insight gained allows for the development of innovative translational animal models of (neurobehavioural) diseases in animals and humans. To this end, a broad range of species, from rodents (mice, rats), companion animals (dogs), to farm animals (pigs, chickens) are used as model animals.

**Key objectives:**
- Investigate how the interaction between the genetic background and/or health state of an animal on the one hand, and positive and negative influences during pre- and postnatal development on the other hand, modulates the animal’s its adaptive capacities
- Investigate the neural mechanisms underlying emotional and cognitive processes that contribute to animal welfare
- Translate our results into evidence-based and societally accepted concepts of animal welfare and actions to improve/safeguard animal welfare
- Contribute to the understanding of adaptive and maladaptive behaviour, as relevant for veterinary practice and mental health in humans

**Program organization**
The program combines research efforts of the Departments of Animals in Science and Society and Farm Animal Health, with links to the Department of Clinical Sciences of Companion Animals. The senior investigators of B&W are affiliated partners of the Brain Center Rudolf Magnus, and participate in the UU strategic theme Dynamics of Youth, and the focus areas Sport & Society, Future Food and Game Research.

- Prof. dr. L.J.M.J. Vanderschuren (program coordinator)
- Prof. dr. L.J.M.J. Vanderschuren (leader research line Positive Emotions and Cognitive Control)
- Prof. dr. F. Ohl (leader research line Negative Emotions and Adaptation)
- Dr. F.J. van der Staay (leader research line Ontogeny of emotion/cognition)
**Key publications:**

**Group Vanderschuren:**


Vanderschuren LJMJ, Trezza V (2014) What the laboratory rat has taught us about social play behavior: role in behavioral development and neural mechanisms. Current Topics in Behavioural Neuroscience 16:189-212

**Group Ohl:**


**Group van der Staay:**


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