

# **The use of positive reinforcement in Göttingen minipigs**

**Peter Glerup**

**CiToxLAB, Denmark**

Various experimental procedures, such as dosing, weighing, physical examinations etc are usual parameters included in non-clinical safety and efficacy studies using laboratory animals. The majority of these procedures are un-natural and is often associated with discomfort for the animals. Therefore, in most cases the animals must be restrained during the procedures in order to complete them successfully. However, this causes stress to the animals, which may have potential impacts on the study results. In addition, technical staff may have to work in ergonomic undesired positions during the restrain of large animal species, such as the Göttingen minipig.

At our laboratory we have therefore aimed to find a method to facilitate various procedures, eliminating stress experienced by the animals and at the same time optimising the working conditions for our technical staff.

Positive reinforcement is a process of training an animal using a marker for a behaviour that will earn positive reinforcement. The method has been used for many years training pet and zoo animals, but has only been used to a very limited extent in laboratory animal species.

We therefore chose to implement this method in a repeat dose toxicity study with intranasal dosing 10 times daily for one week in Göttingen minipigs. A total of three animals were included in the study and each animal was trained for approximately 30 minutes per day during 14 days. Training was performed by a dedicated team of trainers, using clickers as a marker for the desired behaviour and GLP-certified dietary pellets as rewards. The principle of “shaping” was used in the training sessions, gradually transforming specific behaviours into the desired behaviour. First, the sound

of the clicker was associated with the reward, followed by the acceptance of approximation of the trainer to the animal. This was followed by further successive training steps until the complete desired behaviour was reached. The completely trained animal voluntarily came forward, stepped onto a box (to elevate the animal), accepted approximation of the intranasal device and the subsequent dosing in one nostril in a “freeze” position.

All animals learned the complete behaviour prior to study start, although differences in the ease of learning were noticed between the animals. The study was completed successfully using positive reinforcement throughout the study, increasing animal welfare and working conditions significantly. We consider positive reinforcement a great potential in relation to other experimental procedures in the Göttingen minipig as well as in other laboratory animal species.