

Measuring attention and impulsivity in three mouse strains

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The use of the mouse as animal model for behavioural studies gained interest especially due to the increased possibilities in knock out and transgenic technologies. In addition, comparing behaviour of mouse strains is a valuable tool for genetic linkage studies. Therefore, it is of great importance to increase knowledge of strain differences in cognitive performance in order to choose the appropriate strains for genetic linkage studies, as genetic background for mutant animals, or as appropriate strain for pharmacological studies. In the present study we are studying strain differences in the 5-choice serial reaction time task. This task has analogies with a range of human attentional paradigms, and provides measures of sustained and divided attention in temporal and spatial domains. In this paradigm the animal must attend to a curved wall with 5 openings in order to detect the discriminative stimulus and respond correctly to it. Accurate responding thus requires attention both in the temporal and spatial domain. In addition, premature responding, e.g. responding before the onset of a stimulus, reflects failure of behavioral inhibition, and as such a form of impulsive behavior. We are currently training C57Bl6, 129 and DBA2 mice on the 5-choice serial reaction time task. Results so far indicate that DBA2 animals are more vulnerable to food-deprivation. Furthermore, 129 mice showed the fastest learning curve in terms of associating nose-poking in order to receive a food pellet at random location. In addition, 129 strain showed the fastest learning curve in an autoshaping procedure as well. DBA2 showed the poorest performance of the three strains in both training phases. Performance during next training stages will be presented.

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poster session Neuroscience 2