

Social Interaction

What is it?

We have established a putative animal model for assessing one aspect of the avolition domain of negative symptoms in CNS disorders, social withdrawal. The social interaction test is a 10 minute, one-trial task that assesses the behavioural interaction of a test rat with an un-familiar, weight matched conspecific. This test detects behavioural changes in social behaviour and is widely used in rodents for investigating deficits in a variety of animal models of human conditions where social impairments are observed (e.g. aspects of the negative symptomatology associated with schizophrenia).

How does it work?

Following initial habituation to the empty test arena, the test consists of one trial. In this trial, the test animal is put into the arena with an unfamiliar weight matched conspecific.

The main behaviours we score in this test are:

1. Sniffing behaviour
2. Investigation of an inanimate object (control)
3. Line crossings to measure locomotor activity

Behaviour is recorded and scored by a trained experimenter who is blind to the treatment groups.

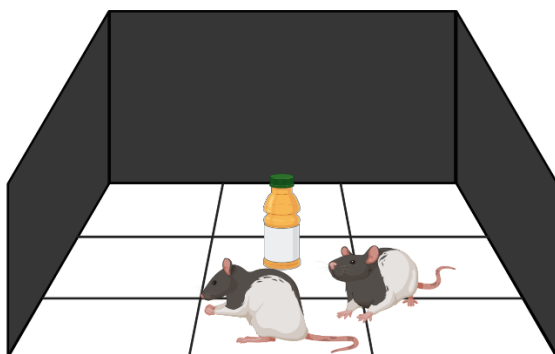


Figure 1: Social Interaction test arena.

The effect of subchronic Phencyclidine (scPCP) in the SI test

The b-neuro laboratory have demonstrated a selective, long lasting and robust deficit in this task induced following subchronic Phencyclidine (scPCP) treatment regimen. Using the scPCP model in this test, we observe robust reductions in pro-social behaviour (i.e. sniffing) with no difference in exploration of the unfamiliar inanimate object (Figure 2).

Social Interaction

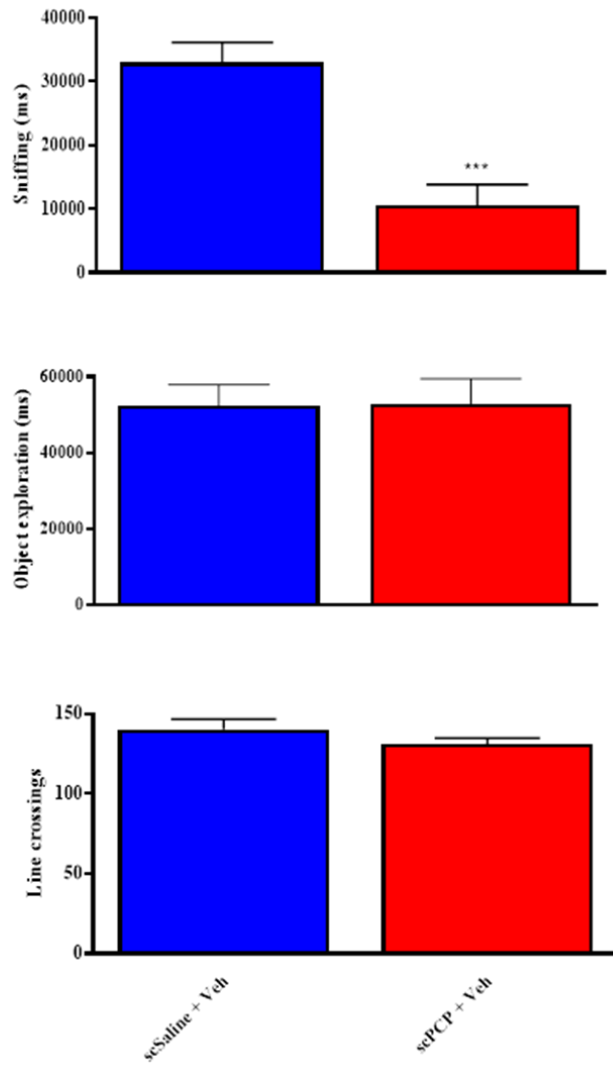


Figure 2: Times (secs) spent sniffing the conspecific, investigating the inanimate object (control) and number of line crossings for scSaline and scPCP treated animals are shown.

Social Interaction



Reversal of the scPCP SI deficit by a reference compound.

At b-neuro we have demonstrated the ability of a range of compounds in this paradigm. Reproducibility and validation data can be shared upon request. We work with clients to pick the most relevant reference compound.

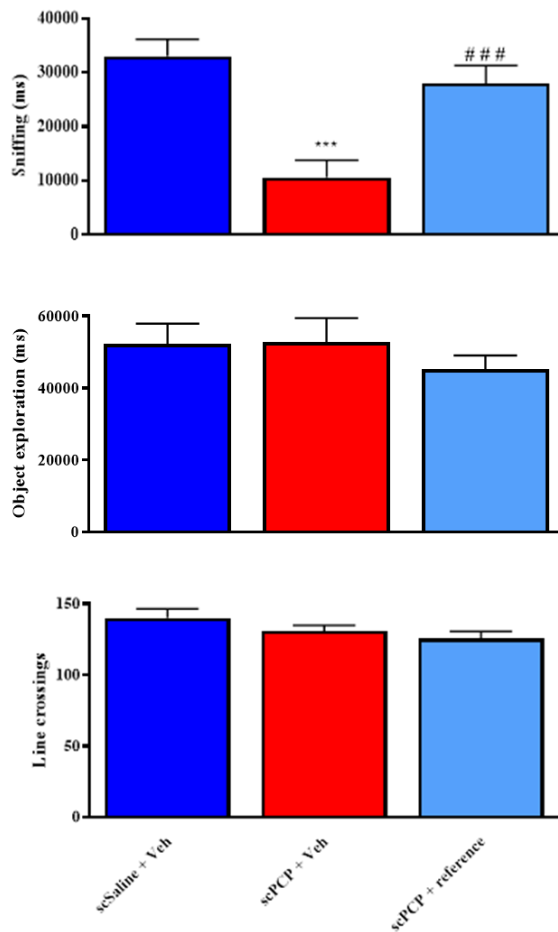


Figure 3: Times (secs) spent sniffing the conspecific, investigating the inanimate object (control) and number of line crossings for scSaline, scPCP + veh, scPCP + Reference (e.g. risperidone 0.1 mg/kg) treated animals are shown.

For further information, please see review articles below.

Cadinu D, Grayson B, Podda G, Harte MK, Doostdar N, Neill JC (2017) NMDA receptor antagonist rodent models for cognition in schizophrenia and identification of novel drug treatments, an update. *Neuropharmacology*; S0028-3908(17)30584-1.

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Invited review

NMDA receptor antagonist rodent models for cognition in schizophrenia and identification of novel drug treatments, an update

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Neill, JC, Barnes, S, Cook, S, Grayson, B, Idris, NF, McLean, SL, Snigdha S, Rajagopal, L, Harte, MK. (2010) Animal models of cognitive dysfunction and negative symptoms of schizophrenia: focus on NMDA receptor antagonism. *Pharmacology and Therapeutics*, 128(3):419-32.

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Animal models of cognitive dysfunction and negative symptoms of schizophrenia: Focus on NMDA receptor antagonism

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