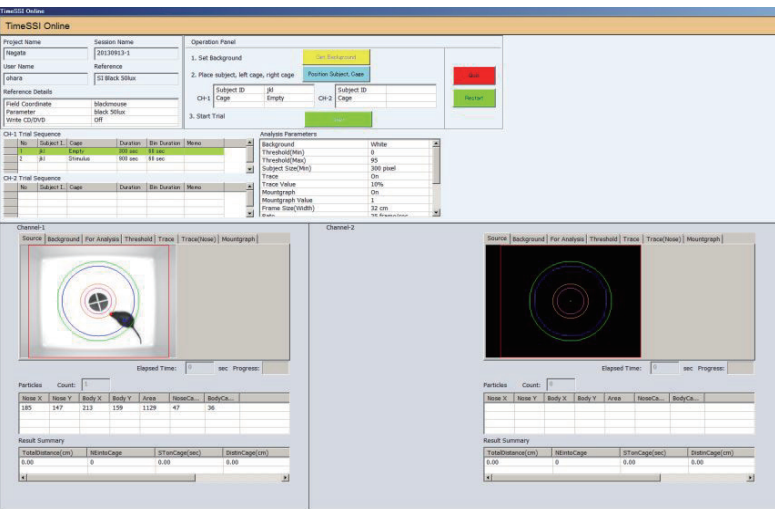


Social Interaction test

Dr. Sonoko Ogawa version

Social behavior
in
home territory!

Automatic detection of tip of nose
Measurement approaching behavior to stimulus
Uniform condition for stable data



SONOKO
SOCIAL
INTERACTION



This system is for measuring social investigation in home territory of experimental subject*1.

Subject mouse is housed several days in the experimental cage. On the test day, subject is acclimated to an empty cylinder placed in the center of his cage. Then, stimulus mouse is placed into the cylinder. Subjects are tested for behavioral responses toward the cylinder containing stranger. By software of this system, number of contact to the cylinder and its cumulative duration are automatically measured.

The software has a function for detecting position of nose automatically*2, so it would be helpful to judge whether subject approaches to cylinder can be judged as social contact to stimulus or not.

The experimental cage is modified from commercially available plastic cage, so the cost is inexpensive. The cage is set into a special sound attenuating box, which has a LED panel light with controller.

Measurements under uniform sound condition and shadowless uniform dark condition are achieved.

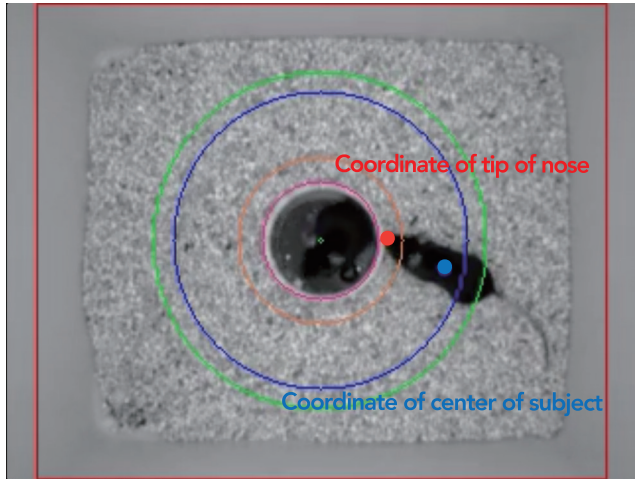
*1 This system was originally designed and developed by Dr. Sonoko Ogawa et al., of University of Tsukuba.

Tsuda MC, Ogawa S (2012) Long-Lasting Consequences of Neonatal Maternal Separation on Social Behaviors in Ovariectomized Female Mice. *PLoS ONE* 7(3): e33028

*2 Title of the Innovation: image processor and program, Copyright holder: University of Tokyo, Patent number: Patent application 2012-170548, Name of software: Automated detection software for direction of head of freely moving mouse



Social Interaction test (Dr. Sonoko Ogawa version)



By detecting coordinate of center of subject (shown in blue), cumulative staying duration, number of entry to surrounding area of each wire cage, and distance et al. can be measured by online.

By detecting coordinate of tip of nose of subject (shown in red), cumulative staying duration, number of entry, contact duration to wire cage per once et al. can be also measured by online. By offline, not only analysis parameters but definition of "surrounding" & "contact" also can be reviewed, and can re-analyze again and again.

Example of representative data

Result file

- Traveled distance • Moving speed • Immobile time
- Cumulative staying duration, entry number & distance of surrounding cylinder
- Cumulative duration & number to contact to cylinder
- Average duration of contact to cylinder per once

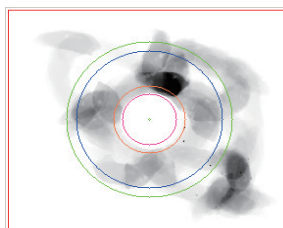
XY data file

Image file during analysis

Mount graph

Trace of center position

Trace of tip of nose



Mount graph:

Depend on staying duration of subject, the staying position is shown darker and darker.

You can realize the position of subject obviously.

● Cylinder for stranger



Subject able to sniff stranger or contact by nose top, but unable to contact directly.



● Mouse cage PP

The cage is used as housing cage for several days and allowed subject to establish home territory, then the cage is directly applicable to experiment with the subject.

System configuration

- ① Software for image analysis with automated detection of position of nose
- ② Mouse cage PP with Stainless cage top
- ③ Cylinder for stranger
- ④ Sound attenuating box with monochrome CCD camera, panel light with controller
- ⑤ Interface with start switch
- ⑥ Computer set for image analysis
Windows 7 32bit
Data format : text file (tab delimited)



- Panel light with controller (0-650Lux)
Uniform dim condition achieved



The cage is drawably and washable!

manufacturer



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