Line 1: The manuscript will benefit from thorough language revision as there numerous grammatical errors throughout. Please thoroughly review the manuscript and edit any errors preferably by a proficient English speaker.

**We sincerely appreciate your efforts in editing our manuscript. We have revised the parts in the social interaction, the rotarod test and the novel object recognition test in response to your comments. Please be noted that the line number may be different with the trace of revision. We apologize for any potential inconvenience.**

Line 76: What is the exact age and sex?

**We have stated in the manuscript that the mice used were 3-month-old male C57BL/6N mice in line 76 – 77.**

Line 105: Guidance of what?

**We have stated in the manuscript that it was the guidance of the local animal unit.**

Line 114: Administration of what?

**We have stated in the manuscript that the administration of drug/toxin (e.g. intranasal instillation to silica nanoparticles).**

Line 165: Basically a cross?

**4 x 4 grid means a grid composed by 4 squares \* 4 squares.**

Line 171: What is the definition of central area here? Unclear.

**The central area is the four squares in the center of the arena.**

Line 178: Please remove or replace the commercial name. You can add it to the table of materials.

**Thanks for the instruction. The commercial name has been removed.**

Line 183 – 184: Treatment with what?

**We have revised this part for clarity.**

Line 187: Unclear what happens in each trial. Please describe. How long is each trial?

**Thanks for pointing out this issue. Each trial starts with the rotation of the rod and ends with the drop of the mouse.**

Line 194: Is this training or testing?

**The protocol is the same on each day of training and on the day of testing.**

Line 196: How long of a rest do you allow during repeats? Where is the mouse placed during the rest?

**There is no rest between trials. The mouse stays on the static rod between trials.**

Line 211: Was this mouse experienced in the other tests? How was the novel mouse handled before the social interaction test? Are they cage-mates? Are they litter-mates? Are they from the same group?

**We have added this part from line 210 – 219. The novel mouse means it is novel to the subject mice. hence it is not a litter-mate nor cage-mate of the subject mice. It is not from the same group of the subject mice.**

Line 223: I cannot understand this sentence, please revise.

**We have edited this part (line 223 – 227).**

Line 230: Different home cages?

**Yes, in different home cages. We are sorry for the ambiguous expression and has revised it.**

Line 240: There is no step 2.3.8, please revise.

**We have revised this part in line 239 – 241.**

Line 250: Unclear what IS meant.

**We have revised the description of the elevated plus maze in line 248 -250.**

Line 259 – 260: Define these terms please.

**Thanks for the instruction. We have done so in the revised manuscript.**

Line 269 -270: In the water?

**Yes, in the water. We have clarified this point in this revision.**

Line 275: Define this.

**We have defined the mobility in the forced swim test in line 276 – 277.**

Line 287: Unclear what is meant. Later you say the familiarization involves placing the novel objects in the field. Unclear what the difference between habituation and familiarization is. If the mice are familiar with the objects, how can you call them “novel objects”?

**We have revised the expression in the protocol of the novel object recognition test for clarity. The mouse interacts with two identical objects (old objects) in familiarization. In the test, the mouse interacts with one of the old objects and a new object.**

Line 303: Unclear which wall.

**We have stated this point in the manuscript (line 303).**

Line 312: What is meant here? How do the objects differ between the sets?

**The difference of the two objects are described in the Note of 2.6.1..**

Line 316: This terminology is not clear because it has not yet been defined clearly. What do A and B represent?

**A and B represents two objects. Each set of objects has two identical ones, which is A & A and B & B. The mouse interacts with A & A in the familiarization so object A is the old object for this mouse. In the test, the mouse interacts with A & B so B is the novel object. We wanted to emphasize here that the choice of novel objects between A & B and the side where the novel objects appears should be counterbalanced within the group.**

Line 324: Define tnew and told.

**We have done so in line 319 – 320.**

Line 329: Define the terms clearly. Which is the right and left side of the arena?

**The right and left side is the right and left side of the experimenter when facing the arena in our study (line 317 - 318).**

**We have revised the typo in the protocol of Morris water maze test.**

Line 353: Is it made opaque or just translucent?

**We turned the water opaque with milk powder.**

Line 354: What is done to habituate the mouse?

**As described in 1.2.3., the mouse are habituated to the behavioral room for 15 to 30 min once done set-up.**

Line 355: Is the infrared light in the maze? Why does the mouse need drying prior to swimming? Please clarify.

**The infrared light is above the cages, hence is outside the maze. We turned on the light beforehand to habituate the mice to the lighting.**

Line 376: How? Unclear what the experimenter does to guide the mouse.

**As described in line 376 – 377, the experimenter places the mouse to stay on the platform to stay for 10 s.**

Line 386 – 387: Does escape latency include the 10s spent on the platform?

**The escape latency does not include the 10s on the platform.**

Line 389 : What is escape latency plotted against?

**We have clarified this point in line 389.**

Line 396: 6th day relative to what time point? 6th day of MWM?

**Yes, it was the 6th day of MWM.**

Line 399: Diagonally opposite?

**Yes.**

Line 406: As in 2.7.2.6?

**In the probe test phase of the MWM, the parameter is the times of platform-crossing. So it is not the same in 2.7.2.6.**

Line 408: Is this quantified? If so, how?

**We have added this part in line 407 – 408.**

Line 456: Please add a figure title here.

**We have added the figure title accordingly.**

Line 457: Please edit “Close arm” to “Closed arm” in the figure. Please edit “24h” to “24 h” in 3 instances in the figure.

**Thanks for the instruction. The figure has been edited and uploaded.**