

## SANGER INSTITUTE STANDARD OPERATING PROCEDURE

**SUBJECT:** Rotarod –V1

<b>SOP Number: SOP0047</b>	<b>To be reviewed:</b>	
<b>Author(s):</b>	Signed:	Date:
<b>Approved by:</b>	Signed:	Date:
<b>Date of Implementation:</b>		

**INTRODUCTION:**

This procedure is used to measure the motor coordination in mice.

**HEALTH & SAFETY:**

- *Laboratory animal allergens*
- *Risk of being bitten*
- *Moving cages on transport rack*
- *Lifting cages*
- *Standing at change station*
- *Ethanol*
- *Noise*
- *Computer work*
- *Razor blade*
- *Moving/lifting rotarod apparatus*

**RESPONSIBILITIES:**

All staff performing this procedure are responsible for ensuring that this SOP has been read, understood and where applicable is followed in accordance with the relevant PPL. All staff should be trained and competent to perform the procedure, where applicable they should also be licensed to perform the procedure.

**RESOURCES:**

**Equipment:**

1. Mobile IVC rack
2. Interactive cage change station
3. Rotarod; Bioseb
4. Armacell Tubolit ODP Zero 28/9 foam
5. Disposable single edge razor blade
6. Weight scales
7. 3 timers
8. Disinfectants & cleaning agents: 70% ethanol & alcohol wipes
9. Paper towels

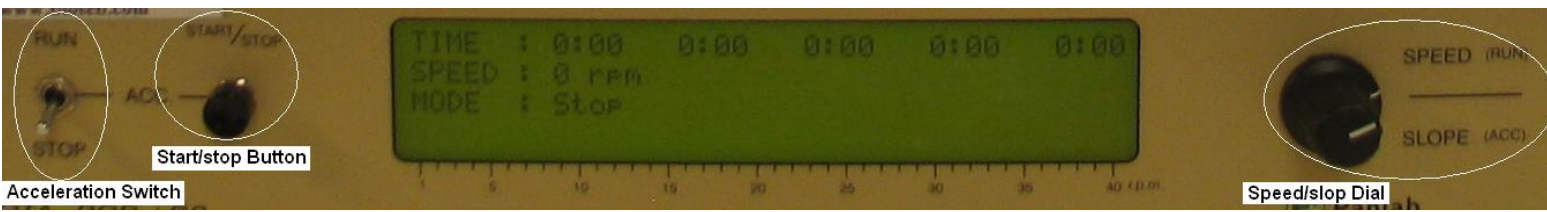
10. Lab Diet
11. Nestlets
12. Clean cage for every cage to be tested

**Associated SOPs:**

- **SOP0045** – Weigh Mice
- **SOP0064** – Use of Change Station

**Staff:** This test requires two phenotypers.

**PICTURE:**



**PROCEDURE:**

**Before performing the procedure, verify that this is the correct procedure at this point in the pipeline by consulting the cage card(s) and confirming that the procedure has not already been performed on the mouse.**

1. Move the mice from the animal holding room and place them on the mobile IVC rack a minimum of 15 minutes before the start of the test to let them acclimatize.
2. Prepare the change station for use (see SOP0064 – Use of Change Station).
3. Place the rotarod in the change station and plug it in before switching it on via the power button on the back of the device.
4. Get a tube of foam and the razor blade and cut off pieces that are just slightly longer than each of the rotarod lanes. Squeeze the pieces around the rod, making sure there is no gap between the two ends. If there is, throw it out and cut a new piece.
5. Clean the rotarod levers and lanes.
6. Prepare the scale and make sure it is connected to the computer.
7. Set the timers to 15 minutes.
8. Place the first cage in the change station.
9. Move the acceleration switch from *stop* to the first, or *acc*, position (not the second, or *run*, position!) so that the rod rotates at a constant 4

rotations per minute (rpm) (if you put the switch in the wrong position it will go far faster than 4 rpm).

10. Check that the *speed/slope* dial is set to 5 minutes so that the rod will accelerate from 4 rpm to 40 rpm over the course of this time. Check this periodically to ensure that it hasn't accidentally been moved,
11. Ensure that the levers are in the elevated position. The acceleration will not start, and an error message will appear, if all of the levers aren't raised.
12. With two people, load the mice onto the rod in ear mark order as they appear on the cage card. All mice must be facing away from the loaders. If there are five mice, load the centre one first and then simultaneously load the other four before pushing the *start/stop* button. If there are four mice or less, load them simultaneously before pushing the *start/stop* button.
13. Observe the mice closely and continuously until one of the following events occurs:
  - The mouse falls from the rod
  - The mouse stops walking and instead clings to the rod for a full passive rotation
  - The mouse jumps from the rod
  - The mouse has been on the rod for five minutes and is going at 40 rpm

When an end point occurs, instantly depress the lever if the mouse hasn't already done so. If it is possible to retrieve the mouse from the device *without touching* the rotating lane dividers (as that will suddenly slow the rod) do so. If not, leave the mice where they are until all the mice have finished. Warning: if you lift the levers free of the device, be careful not to let the end touch the magnet at the back as that will erase the time for that mouse.
14. As soon as the last mouse has finished, start the countdown on the timer and return the mice to their cage if they are still on the device and then return the cage to the rack.
15. Record the latency to end point and the end point in the database.
16. Put the acceleration switch to *stop* and thoroughly clean all of the levers and lanes that were used.
17. Wait until the timer on the first cage has reached 11 minutes before starting the second cage and repeating steps 9–16.
18. Wait until the timer for the second cage has reached 11 minutes before starting the third cage and repeating steps 9–16. If the timer from the first cage should reach 0 during this session, restart it so that it is

possible to calculate how long the inter-trial interval is. An inter-trial interval of more than 15 minutes is okay.

19. Once the first timer approaches 0, place the first cage back into the change station and repeat steps 9–16 for the second trial.
20. Record the inter-trial interval in the database.
21. Repeat steps 19 & 20 for the second and third cages.
22. When the timer on the first cage has once again reached 0, repeat steps 9–13, only when you remove the mouse from the rotarod, weigh it (see SOP0045 – Weigh Mice) before placing it into a new, clean cage.
23. Top up the food, add a new nestlet and transfer some of the old nestlet and a small handful of soiled bedding across from the old cage.
24. Record the inter-trial interval, latency to end point, end point and weight in the database.
25. Repeat steps 22-24 for the other two cages.
26. If there are additional sessions to be run, repeat steps 7-25.
27. Wipe the scales & mouse container.
28. Remove the foam from the rotarod and throw it out before thoroughly cleaning the device and putting it away.
29. Clean the change station.
30. Return the cages to the animal holding room.