# Motor evoked stimulation with a recovered head bar mouse.

(Ketamine/Xylazine edition with Antisedan antidote for faster recovery)

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While the mouse is under anaesthesia, check for responses every 10 minutes. If you get a toe pinch response, readminister 1 tick of ketamine and see if this is sufficient.

**Note**: I have decreased the ketamine dosage (<https://pubmed.ncbi.nlm.nih.gov/21880935/>) down to 50mg/kg. Previous dosage was 100mg/kg. Dosage of Xylazine is also in the lower range of 5mg/kg. Since this is a recovery experiment with no need for a surgical plane of anaesthesia, I have minimized the drugs which enable better electrophysiological response amplitudes. This is also a lighter physiological load on the mouse, enabling faster recovery and easier breathing.

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| --- | --- | --- |
| Drug | Initial Concentration | Dosage |
| Xylazine | 1% w/v | 0.005mg/g |
| Ketamine | 50mg/ml | 0.05mg/g |
| Antisedan | 5mg/ml | 0.001mg/g |

**Weight: Subtract 3g from the weighed weight of a head bar mouse in order to get their weight sans headbar when calculating the dosages.**

|  |  |  |  |
| --- | --- | --- | --- |
| Weight (g) | 1:10 dilution Antisedan IP | Ket IP | Xyl IP |
| 20 | 4 | 1 | 0.5 |
| 22 | 4.4 | 1.1 | 0.55 |
| 24 | 4.8 | 1.2 | 0.6 |
| 26 | 5.2 | 1.3 | 0.65 |
| 28 | 5.6 | 1.4 | 0.7 |
| 30 | 6 | 1.5 | 0.75 |
| 32 | 6.4 | 1.6 | 0.8 |
| 34 | 6.8 | 1.7 | 0.85 |
| 36 | 7.2 | 1.8 | 0.9 |

**Experiment Pre- Prep:**

1. Get the programs ready to run and check all hardware arrangements the day before.
2. Turn on the oxygen tank for the experiment area to 15psi.
3. Turn on the heat mat, turn on the lights.
4. Check the isoflurane level and fill if needed.
5. Turn on heat mat.
6. Turn on gas canister, but not yet the motor or power up.
7. Turn on microscope light.
8. Ensure anaesthesia system is set to chamber.
9. Weight mouse and prepare Xylazine, Ketamine and Antisedan (antidote for Xylazine) based on mouse weight. Subtract 3g from the weighed mouse to account for the head bar when preparing dosages.
10. Prepare injectable saline syringe.
11. Place tissue in warming chamber and turn it in in preparation for mouse recovery period.

**Experiment:**

1. Anesthetize the mouse in the induction chamber. Iso to 3%, timer 2 minutes.
2. Take mouse out of chamber and administer injection subcutaneously of Ket and Xyl based on weight (dosages shown above).
3. Turn off the oxygen cylinder for experiment rig, letting it flow out of anaesthetic apparatus.
4. Fit headplate into neurotar.
5. Apply Optix care eye lube to eyes to protect them from drying out.
6. Inject mouse with 0.25ml of saline through sub-cutaneous injection to stay hydrated.

**Stimulation Experiment:**

**Run the code intended – changeable.**

**Clean Up and Power Down:**

1. When mouse whiskers start moving, inject mouse with subcutaneous dose of antisedan.
2. Move mouse to warming chamber. It will wake up off balance and slowly recover over the following hour. Recovery is slower than Isoflurane anesthesia.
3. When mouse recovers and is moving freely return to cage with wet mash so it hydrates and eats more over the next 24 hours.