



# AUTOMATED ANIMAL ACTIVITY MONITORING TO REDUCE ANIMAL USE AND IMPROVE ANIMAL WELFARE


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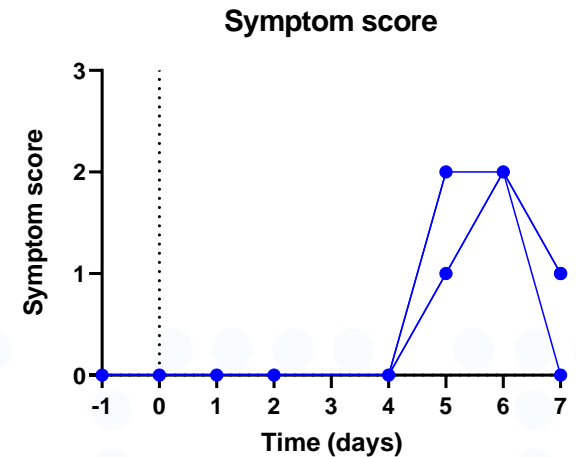
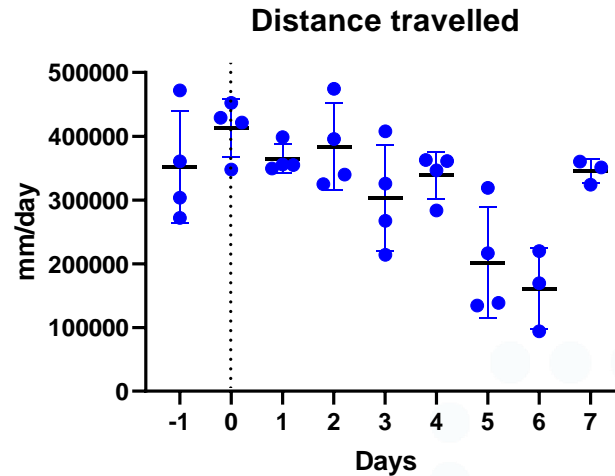
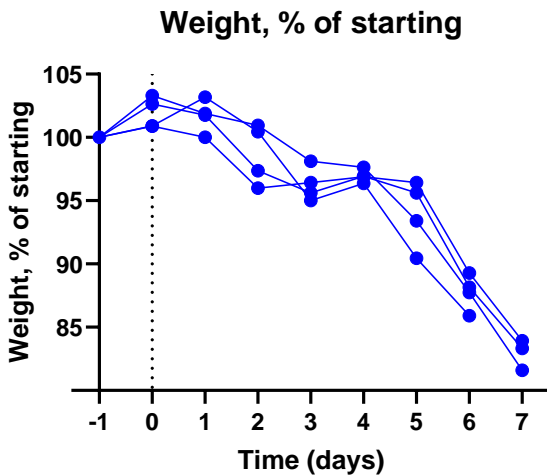
- ❖ Animal challenge studies are performed as part of pre-clinical development in order to
  - Elucidate whether vaccine candidates are protective
  - Address risk, e.g. vaccine-associated enhanced respiratory disease (ERD)
- ❖ Animal challenge studies can be used to support a request for “Fast Track” designation by the regulatory authorities
- ❖ Animal challenge studies can be used to define correlates of protection

- ❖ Animals are currently monitored (subjectively) by animal caretakers scoring for activity
- ❖ Aim: Use automated monitoring to continuously assess animals following viral infection. Hereby, data quality should be improved, allowing us to:
  - **Refine** experiments to use lower viral challenge doses and thus improve animal welfare
  - **Reduce** the number of animals used to test protective efficacy of vaccines.



- ❖ Automated activity monitoring is measured by radio-frequency identification (RFID) technology, which tracks individual mice within a cage
  - ❖ The animals are subcutaneously tagged with a biocompatible glass-encapsulated RFID transponder and detected by a sensor plate system (attached underneath each cage)
  - ❖ By measuring the frequency of crossed sensors, an approximate activity measure is given
  - ❖ Different vendors and choosing the best system
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- Aim: Test if automated animal activity monitoring can be used to measure activity in a murine influenza viral challenge study (using a standard viral dose)



- ❖ Vendor chosen
- ❖ Investigate how movement relates to (subjective) symptom scoring by animal caretakers
- ❖ Investigate if we can reduce the challenge dose and still see a drop in movement
- ❖ Determine data quality/consistency and estimate group size reduction

