

- Descrivere la procedura di Caecum Ligature and Puncture (CLP per l'induzione della sepsi.

- Scale di valutazione dello stato di benessere nel topo.

- Creare una tabella excell per calcolare la media di un gruppo di valori

- In this longitudinal study we compare between and within-strain variation in the home-cage spatial preference of three widely used and commercially available mice strains—C57BL/6NCrl, BALB/cAnNCrl and CRL:CD1(ICR)—starting from the first hour post cage-change until the next cage-change, for three consecutive intervals, to further profile the circadian home-cage behavioural phenotypes.

Cage-change can be a stressful moment in the life of laboratory mice, since animals are disturbed

during the sleeping hours and must then rapidly re-adapt to a pristine environment, leading to

disruptions in normal motor patterns.

Our data

QUESTO NON SORTEGGIATO

I TRACCIA

- Metodi per il prelievo ematico nei roditori
- Metodiche di soppressione dei roditori
- Dimostrare come si allinea un testo con l'applicazione Word

The novelty of this study resides in characterizing new strainspecific biological phenomena, such as activity along the cage walls and frontality, using the vast data reserves generated by previous experimental data, thus introducing the potential and exploring the applicability of data repurposing to enhance Reduction principle when running in vivo studies. Our results, entirely obtained without the use of new animals, demonstrate that also when referring to space preference within the cage, C57BL/6NCrI has a high variability in the behavioural phenotypes from pre-puberty until early adulthood compared to BALB/cAnNCrI, which is confirmed to be socially disaggregated, and CRL:CD1(ICR) which is conversely highly active and socially aggregated.

QUESTO NON SORTEGGIATO

II TRACCIA

- Metodiche di marcatura per l'identificazione individuale dei roditori.
- Monitoraggio sanitario dello stabulario
- Creare una diapositiva su Power point

Profiling the motor behaviour of murine models has become one of the most widely used behavioural paradigms to determine the effects of various experimental approaches, e.g. genetic manipulation, pharmacological intervention, etc. Likewise other behaviours, differences in the motor activity between murine strains, which can be critical for in vivo research and influenced by the laboratory environment<sup>1</sup>, varies substantially across mouse strains<sup>2</sup>. and even substrains<sup>3</sup>. The motor activity in mice, as in all mammals, is deeply influenced by the light exposure. As nocturnal animals, the peak of activity generally occurs during night hours while the light hours are spent for resting and sleeping.

III TRACCIA ESTRATTA

- Metodiche di impianto di xenograft.
- Illustrare la procedura di iniezione intraperitoneale.
- Modifica dei caratteri su word

This biological trait is under the spotlight of the debate on translatability of murine models to human diurnal physiology. However, reversing light/dark cycles in the animal facility, which may provide an obvious way to study mice during their nocturnal active phase, may not represent a practical solution. Studying a nocturnal species at night is not the same as studying a diurnal species during the day, and adoption of such conditions must recognize these differences in temporal biology and consider the potential unintended consequences<sup>4</sup>. The automated recording of motor behaviour of mice may represent an alternative and invaluable approach to overcome the translatability concern. Automated systems, which record the circadian in-cage mice activity, in absence of stress related to handling or behavioural apparatus, may provide unbiased observations which can be translated to circadian human physiology.

- Illustrare il principio delle 3R e fare qualche esempio
- Arricchimento ambientale.
- Inserire una animazione di testo su power point

A challenge in the field of automated assessment of behavioural phenotype is represented by the in-cage spatial pattern of diurnal motor activity. Automated analysis of behaviour has been reported in several experimental settings, such as in the classical anxiety-related behaviour, relying on patterns of movement near the wall and in the center of the cage<sup>10</sup>. However, to our knowledge, an automated analysis to define the circadian rhythmicity of the motor profiles of mice maintained under standard husbandry conditions has never been reported. In a previous study, we have characterized the night and day strain-specific activity of three non-genetically altered mouse strains, inbred (C57BL/6NCr1 and BALB/cAnNCr1) and outbred (CRL:CD1(ICR)), through the analysis of different circadian metrics robustly demonstrating a clear strain-specific motor activity<sup>5</sup>.

ESTRATTA

V TRACCIA