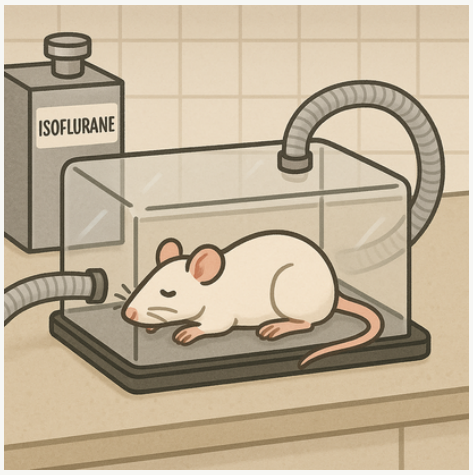
TMU實驗動物中心
Laboratory Animal Center

動物中心-現場快報

淺談氣麻後供氧之必要性



製圖：生成式 AI

文：獸醫師　劉光祐

為保障操作人員安全與提升動物福祉，在對實驗動物進行氣體麻醉後，務必在打開麻醉箱蓋之前灌流純氧（O_2 flush）10秒。此步驟可有效將殘留在箱內的麻醉氣體排出，避免操作人員暴露於Isoflurane中，降低頭暈、長期健康風險等不良影響[1]。同時，氧氣可幫助動物維持良好的血氧飽和度，減少麻醉過程中缺氧或甦醒延遲的情形。

參閱美國 ACLAM 國際動物照護指引與安全操作建議[2]，麻醉後氧氣灌流已被列為標準操作流程之一。敬請所有實驗人員能落實在每次操作的當下，共同維護實驗品質與動物中心操作環境之安全。

人員夜間時段進入
請使用紅光手電筒照明

文：獸醫師　劉光祐

小鼠與大鼠為典型夜行性動物，牠們的視網膜主要由桿狀細胞構成，對紅光（長波長 > 620 nm）反應極低甚至無感。此外，牠們也缺乏對紅光敏感的錐狀細胞，因此在紅光下視覺極為模糊，幾乎無感[3]。且因紅光不易被調節晝夜節律的光敏細胞（如ipRGCs）偵測到，因此不會顯著干擾褪黑激素（melatonin）的分泌或影響動物生理的晝夜節律。

為接軌國際趨勢，參考AAALAC動物照護指南，已建議在夜間操作時使用紅光照明[4]，以降低對動物的干擾。目前本中心動物房設定的日照週期為7:00-19:00，夜間若因實驗求需進入飼育室，為避免干擾日夜節律，請勿開啟飼育室燈光，並使用動物中心在走道提供之紅光手電筒，敬請各單位人員配合。

拍攝：獸醫師 劉光祐

參考文獻 ：
1. “Evaluation of waste isoflurane gas exposure during rodent surgery in an Australian university” (Johnstone et al., 2017)
2. “Position statements on occupational health and anesthesia practices.” (American College of Laboratory Animal Medicine, 2025)
3. "Light and the laboratory mouse. Journal of Neuroscience Methods" (Peirson et al., 2018)
4. AAALAC International. (2021). Frequently Asked Questions – Lighting.

PUBLISHED ON AUG 1, 2025 VALID UNTIL AUG 31, 2025

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TMU LAC - NEWSLETTER

Reminder on Gas Anesthesia Procedures: Importance of Oxygen Flushing

By Liu, K. Y., Vet of TMU LAC

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To ensure the safety of personnel and enhance animal welfare, it's essential to flush oxygen (O_2 flush) for 10 seconds before opening the anesthesia chamber lid after gas anesthesia. This step effectively removes residual anesthetic gas from the chamber, preventing operator exposure to isoflurane and reducing the risk of dizziness and long-term health effects[1]. Additionally, oxygen helps animals maintain adequate blood oxygen saturation, reducing the risk of hypoxia or delayed recovery during the anesthesia process.

According to the Guide for the Care and Use of Laboratory Animals in the U.S., post-anesthesia O_2 flushing has been listed as part of the standard operating procedures. All research personnel are urged to implement this step to maintain experimental quality and ensure safe procedure rooms in the animal center.

Respect the Dark Cycle: Use Red Flashlight

By Liu, K. Y., Vet of TMU LAC

Mice and rats are nocturnal animals with retinas dominated by rod cells, making them nearly insensitive to red light (>620 nm). They also lack red-sensitive cone cells, resulting in poor vision under red light. Since red light is less likely to activate ipRGCs, it has minimal impact on melatonin secretion and circadian rhythms.

To reduce animal disturbance, AAALAC guidelines recommend using red lighting at night. Our facility's light cycle is set from 07:00 to 19:00. Please avoid turning on room lights during off-hours and use the red flashlights provided in the corridor. We appreciate your cooperation in maintaining a stable research environment.

By Liu, K. Y., Vet of TMU LAC

References :
1. "Evaluation of waste isoflurane gas exposure during rodent surgery in an Australian university" (Johnstone et al., 2017)
2. "Position statements on occupational health and anesthesia practices." (American College of Laboratory Animal Medicine, 2025)
3. "Light and the laboratory mouse. Journal of Neuroscience Methods" (Peirson et al., 2018)
4. AAALAC International. (2021). Frequently Asked Questions – Lighting.