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TMU實驗動物中心
Laboratory Animal Center

動物中心-現場快報

實驗動物的籠邊臨床觀察與築巢評分

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籠邊觀察（Cage-side observation）是實驗動物照護與臨床評估中最基礎且關鍵的起手式。它不僅是動物福祉評估的重要依據，也是早期偵測疾病、實驗相關不良反應、以及維持實驗數據可靠性的第一道防線。相較於侵入性檢查，籠邊觀察具有快速、低壓力與可重複性高等優點。

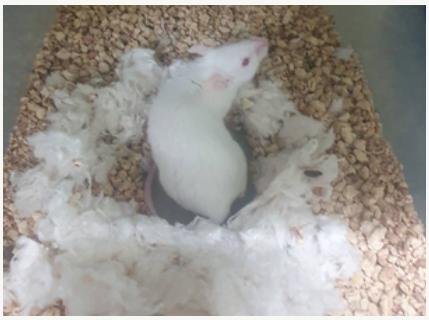
籠邊觀察強調「不干擾、不驚擾、持續性」三項原則。觀察者應在不開籠、不觸碰動物的情況下，從動物外觀、行為及環境互動中蒐集臨床訊息。觀察頻率依動物種類、研究性質與健康風險分層而定，常規建議每日至少一次，特別試驗或術後動物應增加觀察次數。

一般來說，籠邊臨床觀察涵蓋一般狀況（General appearance）、行為表現（Behavioral observation）與環境互動（Environmental interaction）等三大面向。一般狀況的觀察項目包含體態、毛的紋理、是否有口鼻分泌物與呼吸頻率等。行為表現則涵蓋活動力評估、探索與社交行為和自我照護行為，如理毛、進食、飲水等。最後，在與環境互動的面相，除了飼食與排泄情形，築巢行為與巢築完整度更是齧齒類動物的觀察重點指標之一。

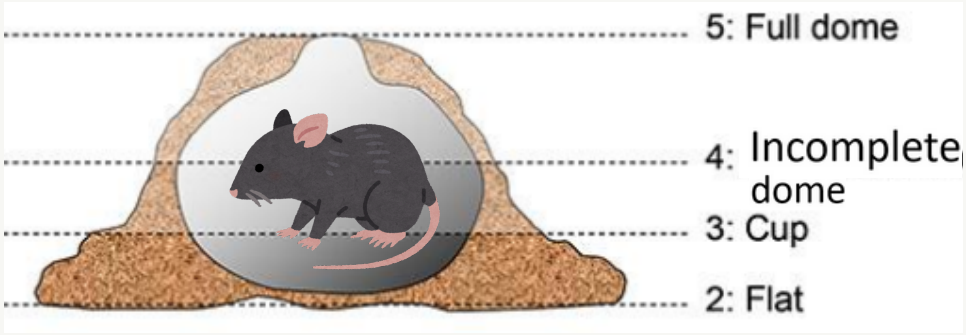
於西元 2006 年，由 Deacon 博士提出的「築巢評分」（Nesting Score）是目前最廣泛被運用的評分系統。這個系統會依據「巢穴完整度」與「巢材使用率」來評估齧齒類動物是否展現正常築巢表現與良好活動力。首先，理想的可壓縮巢材如碎紙條或棉片，準備 8–10 克約一個手掌抓取量的，提供度動物使用。「巢穴完整度」，通常以「4–5 分」視為正常築巢表現，若連續兩日低於 3 分則需進一步檢查動物健康狀況。至於「巢材使用率」若少於 25% 則代表動物可能有異常情形，需格位留意。

「巢穴完整度」評分法
0分：巢料未被操作
1分：築巢的位置不明確，巢料遍布整個籠子
2分：有築巢，但巢穴平坦，沒有做出牆壁
3分：巢稍微有牆，但牆高不到小鼠身高一半
4分：巢已經程現半球型
5分：巢的牆的高度
　　高於圓頂高度的二分之一

「巢材使用率」（Nestlet utilization）
計算巢材被撕碎的比例，輔助行為評分：
<25% 未撕碎 → 可能異常
25–75% 部分撕碎 → 中等活性
75% 幾乎全撕碎 → 正常活動



圖片來源：獸醫師劉光祐拍攝



（圖片由臺大醫學院實驗動物中心 李侑俊獸醫師提供）

參考文獻 ：
1.Deacon RM. Assessing nest building in mice. Nat Protoc. 2006;1(3):1117-9.0.1038/nprot.2006.170. PMID

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TMU LAC - NEWSLETTER

Foundational Reviews in Cage-Side Clinical Assessment and Nest-Building Scoring for Laboratory Animals

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

Cage-side observation is one of the most fundamental components of laboratory animal care and clinical assessment. It provides essential information for evaluating animal welfare and physical conditions, detecting early signs of disease or experiment-related adverse effects, and ensuring data reliability. Compared with invasive procedures, cage-side assessment is rapid, low-stress, and easily repeatable.

This approach follows three principles: non-intrusive, non-disturbing, and continuous. Broadly, cage-side clinical observation includes three major domains: general appearance, behavioral performance, and environmental interaction. General appearance involves assessment of body condition, coat texture, nasal or oral discharge, and respiratory rate. Behavioral performance covers activity level, exploration, social behavior, and self-maintenance behaviors such as grooming, feeding, and drinking. Finally, environmental interaction includes monitoring food and water usage, excretion patterns, and—particularly for rodents—the presence and quality of nest building, which is a key welfare indicator. Observation frequency varies by species, study design, and health risk, but daily monitoring is generally recommended, with increased frequency for special studies or postoperative animals.

In 2006, Dr. Deacon proposed the Nesting Score, now one of the most widely applied scoring systems for rodents. This system evaluates nest-building behavior based on nest completeness and nesting material utilization, providing insight into normal activity and welfare status. Ideally, compressible nesting materials such as shredded paper or cotton (8–10 g, roughly one handful) are provided. A score of 4–5 generally reflects normal nest-building performance; scores below 3 for two consecutive days warrant further health assessment. Likewise, if less than 25% of nesting material is used, this may indicate abnormal conditions requiring closer monitoring.

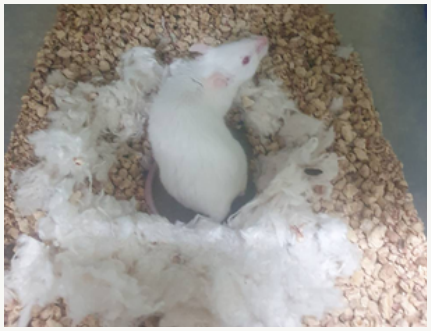
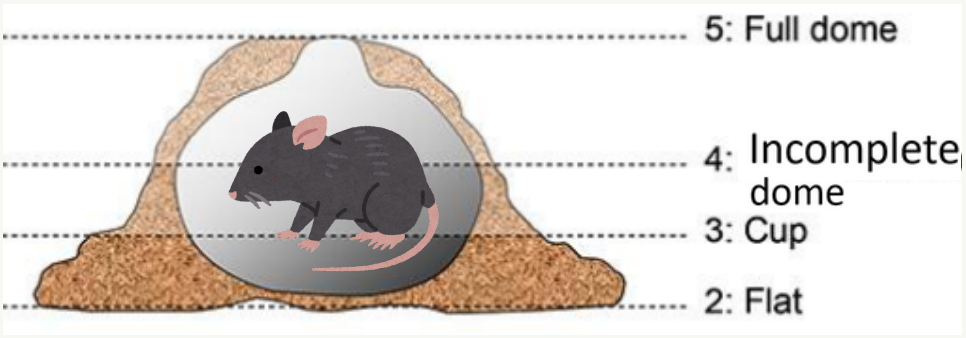


Photo taken by Liu, K. Y., Vet of TMU LAC



Courtesy of Dr. You-Jun Li, NTU Laboratory Animal Center

References :
1.Deacon RM. Assessing nest building in mice. Nat Protoc. 2006;1(3):1117-9.0.1038/nprot.2006.170. PMID