生物策略表

類別	生物策略 (Strategy)
生物策略 STRATEGY	鬍鬚偵測細節 (Whiskers Detect Details)
生物系統 LIVING SYSTEM	哺乳動物 (Mammals)
功能類別 FUNCTIONS	#感知觸覺 #機械力 #Sense touch #Mechanical forces
作用機制標題	一些哺乳動物的觸鬚通過尖端幫助檢測細緻的表面紋理。 (The whiskers of some mammals help detect detailed surface textures via tapered ends.)
生物系統/作用機制示意圖 (確認版權、註明出處；畫質)	

作用機制摘要說明 (SUMMARY OF FUNCTIONING MECHANISMS)

"陸地哺乳動物的臉部觸鬚（鬍鬚）在行為中的作用主要是作為短距離視覺的補充或替代。陣列中的每根觸鬚都作為機械轉換器，將施加在軸上的力傳遞到鬚基部的機械感受器中。對機械感受器輸出的後續處理允許對物體距離、方向和表面紋理進行高精度的區分。陸地哺乳動物的觸鬚是尖細的，截面近似圓形。我們認為，與假設的未尖細的觸鬚相比，尖細的觸鬚提供了一些觸覺感知上的優勢，這也解釋了為什麼在陸地哺乳動物的進化過程中保留了尖細的觸鬚..."

"The role of facial vibrissae (whiskers) in the behavior of terrestrial mammals is principally as a supplement or substitute for short-distance vision. Each whisker in the array functions as a mechanical transducer, conveying forces applied along the shaft to mechanoreceptors in the follicle at the whisker base. Subsequent processing of mechanoreceptor output allows high accuracy discriminations of object distance, direction, and surface texture. The whiskers of terrestrial mammals are tapered and approximately circular in cross section. We argue that a tapered whisker provides some advantages for tactile perception (as compared to a hypothetical untapered whisker), and that this may explain why the taper has been preserved during the evolution of terrestrial mammals…
文獻引用 (REFERENCES)
「我們建議，鬍須錐形的主要優勢之一，至少對主動鬍鬍鬍師來說，是在鬍須尖端提供小直徑，以允許更細小表面特徵的探針。」(Williams & Kramer 2010: e8806) "…We suggest that one of the main advantages of whisker taper, at least for active whiskers, is to provide a small diameter at the whisker tip, to allow for a finer probe of small surface features." (Williams & Kramer 2010: e8806)
參考文獻清單與連結 (REFERENCE LIST) **Harvard 或 APA 格式**
The Advantages of a Tapered Whisker *PLoS ONE* | 19/01/2010 | Christopher M. Williams, Eric M. Kramer (https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0008806)
延伸閱讀: Harvard 或 APA 格式（取自 AskNature 原文；若為翻譯者補充，請註明）
生物系統延伸資訊連結 (LEARN MORE ABOUT THE LIVING SYSTEM/S)
撰寫/翻譯/編修者與日期
吳翌溱翻譯 (2024/3/25)；陳柏宇編修 (2024/11/30)
AskNature 原文連結
https://asknature.org/strategy/whiskers-detect-details/

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