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ENVIRONMENTAL ENRICHMENT

1. Policy statements

Animals must be provided with environmental conditions appropriate to their behavioural and biological needs, unless contrary conditions are approved by the IACUC for the purposes of a protocol.

This policy outlines the standards of the provision of environmental enrichment when housing research animals. In accordance with the Guide, all animals should be provided with appropriate space and additional resources to promote physical and psychological well-being. The National Advisory Committee on Laboratory Animal Research (NACLAR) Guidelines requires that an animal's living environment, whenever possible, is enriched to promote species-typical behaviour.

2 Definitions

Environmental enrichment	Additions to an animal's environment, which provide structural, sensory and/or motor stimuli, to promote the expression of species-typical behaviour, physical and psychological well-being.

3 Scope

This policy applies to all species used for research, testing and teaching in NUS.

4 Guidelines

4.1 Principles

In general, environmental enrichment includes social, structural enrichment, motor and sensory enrichment (such as manipulanda, audio-visual, feed, other best practices etc.). Each of these components should be included in the plan.

Behavioural management/enrichment programs should be reviewed by the IACUC, researchers, and the attending veterinarian (AV) on a regular basis to ensure that they are beneficial to animal well-being and consistent with the goals of animal use.

4.2 IACUC protocol requirements and justifications

All animals housed in NUS should receive environmental enrichment. Any other/alternate enrichment plan not in accordance with CM SOP must be included in the IACUC protocol and should include a description of the following:

1. Type/s of environmental enrichment*
2. Reasons or scientific justification
3. Duration when enrichment cannot be provided

** A CM veterinarian should be consulted prior to proposing alternative (not part of CM SOP) forms of enrichment*

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4.3 Other considerations

Not every item added to the animals' environment would benefit their well-being. Hence, the type of enrichment must be considered for effectiveness, novelties and safety.

The amount of food enrichment should be limited to prevent dietary imbalances and/or excess caloric intake leading to malnutrition or obesity.

While it is recognised that all species of animals used for scientific purposes should be provided with a physical environment conducive to their well-being, the greater complexity of NHPs requires greater emphasis on their psychological well-being through enrichment of their environment.

Researchers can refer to the CM SOP for species-related enrichment plans at CM animal facilities.

5. References

1. Guide for the Care and Use of Laboratory Animals. National Research Council, 2011.
2. Guidelines on the Care and Use of Animals for Scientific Purposes. National Advisory Committee for Laboratory Animal Research. 2022

6 Related documents/SOPs

1. IACUC Policy P203 HOUSING OF SOCIAL SPECIES
2. CM SOP 540: Environmental enrichment

IACUC Approved

Revision	Author	IACUC approval date
Last reviewed	Dr Lee Liying Corinne	18 July 2018
P204.01. Reviewed to: 1. ensure policies are in compliance with the NACLAR Guidelines 2022 and the updated Animals and Birds (Care and Use of Animals for Scientific Purposes) Rules 2004; and 2. up-to-date with current practices Changes made: added 1. "Animals must be provided with environmental conditions appropriate to ……approved by the IACUC for the purposes of a protocol." To section 1; and 2. "Behavioural management/enrichment programs should be reviewed ….. beneficial to animal well-being and consistent with the goals of animal use." to section 4.1; and 3. "The amount of food enrichment should be limited …… NHPs requires greater emphasis on their psychological well-being through enrichment of their environment" to section 4.3; and 4. Under section 5, updated to "Guidelines on the Care and Use of Animals for Scientific Purposes. National Advisory Committee for Laboratory Animal Research. 2022"	Dr Chew Li Li IACUC	3 January 2023