

University Animal Care Committee Standard Operating Procedure		
Document No: 10.35	Subject: Animal Welfare Assessment (Rats)	
Date Issued: March 2025	Revision: Original	Page No: 1

Location: Queen's University

Responsibility: Principal Investigators, Research Staff, Veterinary Staff

Purpose: The purpose of this Standard Operating Procedure (SOP) is to describe the procedures that are to be followed for Animal Welfare Assessments in Rats.

Introduction and Definitions: All animals that participate in science should be healthy and express a high prevalence and diversity of positively motivated species-typical behaviour, along with low levels of abnormal behaviour. Animal welfare is assessed through the evaluation of the following aspects; condition of the animal, psychological well-being of the animal, impact of experimental procedures on the animal, cumulative lifetime experiences (when appropriate) and environmental parameters.

Abbreviations: Animal Care Services **ACS**, Principal Investigator **PI**, subcutaneous **SC**, intravenous **IV**, intraperitoneal **IP**, intramuscular **IM**, per os **PO**, per rectum **PR**

Monitoring Requirements

Animal Care Services Staff:

- On a daily basis, trained animal care services staff observe the physical condition, psychological well-being of the animal and environmental parameters.
- As per species specific SOPs, cage side observations include:
 - a. Observe the whole cage environment, including the food level, presence of a water spigot, bedding quality, signs of stool or feces, signs of nesting
 - b. Are the rats in the nest? If yes, then rats are ok
 - c. Are they outside the nest? If yes, take the opportunity to assess if they are active and performing normal behaviours such as feeding or climbing or if they are isolated and hunched, indicating a potential health concern
 - d. If you have a concern with any one of the factors above, then the cage is removed for further assessment

University Animal Care Committee Standard Operating Procedure		
Document No: 10.35	Subject: Animal Welfare Assessment (Rats)	
Date Issued: March 2025	Revision: Original	Page No: 2

- e. Unhealthy rats present with clinical signs, for example, hunched posture, squinted or closed eyes, splayed ears, piloerection, abnormal gait
- Any health concerns are documented as per *SOP 14.3 Clinical Health Reports - Rodent Records*

Research Staff

- Prior to the initiation of any experimental procedure, research staff are responsible for health checking the rats, ensuring that they are healthy and psychologically sound. The health check must include:
 - A baseline body weight
 - The animal's mobility and ambulation
 - The responsiveness of the animal
 - The respiratory status
 - Tumour score (as necessary)
 - Following initiation of the study, these parameters must be evaluated at minimum weekly, with frequency increased based on the clinical signs of the animal and the anticipated impact of the experimental model
 - See Appendix 1 for an example of an Animal Welfare Assessment Score Sheet
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University Animal Care Committee Standard Operating Procedure		
Document No: 10.35	Subject: Animal Welfare Assessment (Rats)	
Date Issued: March 2025	Revision: Original	Page No: 3

Appendix 1:

ANIMAL WELFARE ASSESSMENT SCORE SHEET

Use the score sheet guide to determine intervention points and endpoints.

WELFARE STATUS	TOTAL SCORE
Acceptable welfare. No mitigation required. Monitor	0
Mild welfare concern. Humane intervention may be required as per the AUP and Queen's SOPs and policies.	1-2
Moderate welfare concern. Humane intervention required as per the AUP and Queen's SOPs and policies.	3-4
Serious welfare concern. Severe stress or pain. Humane intervention by the Veterinarian required as per the AUP and Queen's SOPs and policies. If treatment or supportive care does not improve or resolve the welfare concern, humane euthanasia is required.	5-8
Unacceptable welfare. Immediate euthanasia is required.	9

University Animal Care Committee Standard Operating Procedure		
Document No: 10.35	Subject: Animal Welfare Assessment (Rats)	
Date Issued: March 2025	Revision: Original	Page No: 4

Score Sheet: Assigning Scores A-E:

WELFARE PARAMETERS	SCORE
Body Weight Score (<i>Weigh rats and compare to initial body weight</i>)	
Weight loss of 0-5%	0
Weight loss of 6-10%	1
Weight loss of 11-15%	2
Weight loss of 15% or more*	3
Mobility and Ambulation (<i>Compare movement to that of a healthy animal</i>)	
Normal ability to ambulate	0
Reduced and slow mobility, but not visibly lame - can access food and water	1
Hindered ability, lame on one limb - can access food and water	2
Cannot ambulate – unable to use a limb, cannot access food or water	3
Responsiveness Score (<i>Compare behaviour of rats to that of normal rats of that breed</i>)	
Bright, alert and responsive	0
Quiet but alert, ruffled fur and/or slight dehydration	1
Lethargic, hunched, sunken eyes, moderate dehydration and/or less responsive	2
Moribund	3
Respiration (<i>Listen closely and observe if breathing seems laboured</i>)	
Normal	0
Mild increase – increased effort visible on the chest	1
Moderate increase – increased effort obvious on the chest	2
Sustained tachypnea or dyspnea (distress). Severe; open mouth breathing or holding elbows out from chest	3
Tumour Score (<i>Measure with calipers and observe skin surrounding the tumour</i>)	
Noticeable size <0.5cm, skin overlying growth is normal	0
Small size 0.5-1.0cm or skin red/inflamed over tumour	1
Mid-size 1.0-1.4cm or skin red/inflamed over and around tumour	2
Large size 1.5cm or larger or skin is ulcerated/opened over tumour	3

* can be a score of 2 ONLY if prior approval from the Animal Care Committee

University Animal Care Committee Standard Operating Procedure		
Document No: 10.35	Subject: Animal Welfare Assessment (Rats)	
Date Issued: March 2025	Revision: Original	Page No: 5

SOP Revision History:

Date	New Version