



Laboratory Rats

2023 Animal Welfare Assessment Contest



Advisory

- The information provided in this scenario is fictitious and has been altered for the purposes of the judging contest
- This scenario does not represent the factual reality of rats managed by the UWRF neuropsychology program

Questions to Answer

The UWRF Institutional Animal Care & Use Committee (IACUC) recently inspected the Neuroscience lab. During their inspection they discovered several animal welfare concerns.

Please perform an assessment of the rats and laboratory to identify the welfare concerns noted by the IACUC team.

- Present the judges with an overview of your assessment
- Identify some high points and your most significant concerns
- Provide suggestions for meaningful actions to enhance the rats' welfare

Background

- Lab used for neuropsychology research and teaching
- The number of rats in the colony varies based on current projects
- Long Evans (e.g., hooded) rats make up the bulk of the population
 - Enter research cycle between 2-3 months of age
 - Average program life span is 3 weeks - 2 months
 - Batch euthanasia at project end via CO₂
- Mice are occasionally used for research
 - No mice in the facility at this time

Laboratory Space

- The laboratory space was originally designed as a series of offices and lab space for non-animal work
- It is now divided into:
 - Five flex spaces – used as offices, experimental chambers, and storage rooms
 - One small room where rats are house (colony room)
 - One surgical/medical suite
 - One experimental prep and wet/lab suite (largest space)
- Faculty and students working in the space report problems including:
 - The ventilation system providing sufficient air flow
 - Detection of non-managed pest mice and rats

Personnel

- Lab is co-led by two faculty members, Principal Investigators (PIs)
 - Bren Derlin, PhD: neurobiology
 - Cornelius Evazan, PhD: neuropsychology
- Local veterinarians are on call
 - Their practice primarily focuses on companion animals and horses
 - One of the veterinarians attends webinars and seminars hosted by the American College of Laboratory Animal Medicine
- 4-10 undergraduate research assistants work on projects with the rats



Personnel Training

- All personnel are required to complete regular online training via university in:
 - Animal care and use
 - Working with Rats in Research Settings
 - Post-Procedure Care of Mice and Rats in Research
- PIs have training in:
 - Rat tickling – National Centre for the Replacement and Reduction of Animals in Research (NC3Rs)
 - Neurological surgical procedures – Charles River
- All students must complete additional training with the PI team or through UWRF's Office of Risk Management:
 - Handling and restraint
 - Experimental protocols – can include surgery
 - Post surgical care
 - Biosecurity and Zoonoses
 - Working with hazardous chemicals
 - Recordkeeping

Research Goals

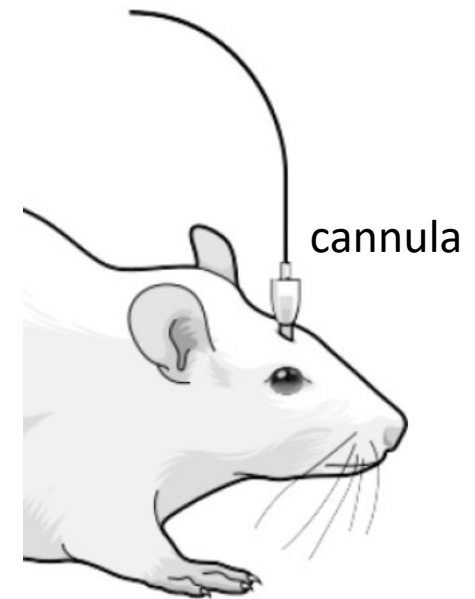
- The lab focuses on research in the following areas:
 - Early life stressors (e.g., drug exposure, trauma, social isolation) and buffers (e.g., social support, environmental enrichment) on brain development, neural plasticity, learning, and memory
 - The role of the basal ganglia and limbic systems on the development of abnormal repetitive behavior.
 - The role of the frontal cortex in anhedonic, anxious, and depressive like behaviors

Research Methods

- Most research methods are minimally invasive behavior tests: place preference tests, elevated mazes, and cognitive bias tests
- Some research protocols involve invasive surgeries: brain cannulas, jugular catheters, or microinjector
- Other procedures are performed on animal tissues after euthanasia: tissue sectioning, staining, and microscopy work (e.g., histochemistry, Golgi staining)



elevated plus maze

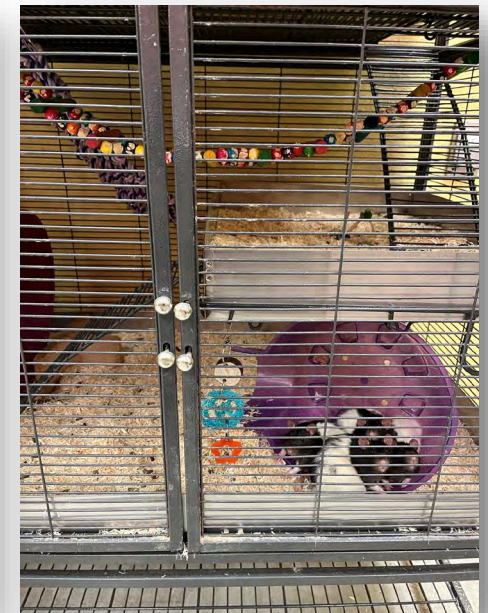
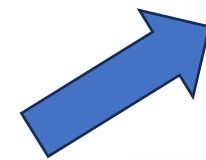


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Animal Housing

- Rats are typically managed socially
 - Some experimental protocols require animals managed in isolation
- Standard plastic rodent housing on racks
 - Enrichment rotated weekly
- All rats spend some time in the enriched housing unit (aka the Mojo Dojo Casa)
 - Four-week rotation schedule



All Photos:b greco

Records

- Cage cards include animal IDs, protocol numbers, and treatment information
- IACUC Records are submitted digitally and retained for three years
 - Deviations from approved protocol, Guide, or Public Health Service (PHS) policy are recorded and reported to both PIs and to IACUC
- Procedure logs are retained digitally
- Animal care and management records are managed in physical and digital forms
- Emergency protocols are posted in visible places in the various rooms
- The Guide for the Care and Use of Laboratory Animals is available digitally
- PHS policy on the Humane Care and Use of Laboratory Animals is available digitally via NIH-Office of Laboratory Animal Welfare
- Material Safety Data Sheets (MSDS) are available digitally via campus catalog