

Handling Instructions for Immunodeficient Rats

This document contains basic precautions for the introduction of immunodeficient rats. Please read it thoroughly for safe use and ensure that relevant personnel are informed. If you have any questions or concerns, please feel free to contact nbrp_rat@ims.u.tokyo.ac.jp.

1. Confirmation of Housing Conditions

1.1. Housing Room and Facilities

- ① Prepare a barrier housing room or a bio-bubble room where temperature is maintained between 23-25° C and humidity between 40-60%. Avoid housing rats from different strains in the same room as immunodeficient rats as much as possible.
- ② Additionally, prepare facilities that strictly accommodate immunodeficient rats, such as vinyl isolators, clean racks, IVC racks, and other clean housing equipment, to establish an isolated environment for immunodeficient rats.
- ③ Create housing work paths that do not overlap with those of other rats in the housing area. Also, prioritize housing procedures considering microbial control, and create SOPs with the highest priority in the area.
- ④ Prepare a high-pressure steam sterilizer for sterilizing housing equipment, and consider sterilization or disinfection for all introduced items.

1.2. Housing Equipment and Apparatus

- ① Prepare specific housing equipment for immunodeficient rats, including cages, lids, water bottles, label holders, etc. For open rack housing, it is recommended to use filter caps on each cage to stabilize the cage environment.
- ② Use solid feed that has been either irradiation sterilized (30K Gy or more) or high-pressure steam sterilized (121° C, 30 minutes). It is recommended to use indicators to confirm steam sterilization.
- ③ Use water that has been either filter-sterilized or high-pressure steam sterilized (121° C, 30 minutes). A chlorine concentration of approximately 5ppm is recommended.

2. Precautions During Reception

2.1. Reception

- ① Be aware of the arrival time and make arrangements to promptly introduce rats into the cages in the housing room without leaving them unattended.
- ② When introducing transport boxes, prepare the disinfectant specified by the facility and

perform thorough wiping and disinfection of the entire surface of the transport box.

③ When transferring rats from the transport box to the housing cage, it is recommended to change gloves.

④ Due to potential sensitivity of rats caused by transportation stress, handle the transfer with care.

⑤ If any abnormalities are observed in the rats upon delivery, make a judgment regarding isolation or other measures. Especially during the peak summer season, it is recommended to plan experiments taking this into consideration.

3. Precautions for Housing Management

3.1. Cage Exchange

① Before exchanging cages, prepare the disinfectant specified by the facility and be sure to thoroughly wipe and disinfect the workbench.

② The frequency of cage exchange depends on the number of housed animals, but it should be at least 11 times a week, and feeding (replenishment) and water supply (exchange) should be performed simultaneously to reduce the risk of microbial contamination (recommendation: water bottles should be exchanged weekly, lids and feed should be exchanged monthly).

③ To avoid stress-induced disturbance, handle the transfer of rats with extra care.

④ After completing cage exchange, be sure to conduct sweeping and wiping disinfection of the workbench and the housing room.

⑤ Updating of the housing room and housing equipment should be done approximately 11 times a year, and please use them after re-disinfection.

3.2. Microbiological Examination

① If immunodeficient rats are to be housed for 3 months or more, conduct microbiological and biological examinations. In addition to the examination items monitored in the housing area, add examination items for opportunistic pathogens that may be brought in from humans, such as *Staphylococcus aureus*, *Pneumocystis carinii*, etc.

② Immunodeficient rats cannot undergo serum testing. If selecting decoy rats for serum testing, it is recommended to use immunodeficient-grade rats from appropriate breeders and to recommend the combined use of immunodeficient rats and immunocompetent rats.

③ If abnormalities such as weakness, weight loss, or abnormal appearance are observed, isolate the rats as quickly as possible and conduct microbiological examination.

3.3. Response to Abnormal Individuals

① Consider isolating abnormal individuals promptly.

- ② Conduct microbiological and pathological examinations, and implement prescribed measures if infectious diseases or other issues are suspected.

4. Prohibited Actions

4.1. Housing

- ① Comply with relevant regulations and properly manage housing facilities at P1A level. Make efforts to prevent escapes, losses, thefts, etc.
- ② Long-term housing for more than 6 months increases the risk of microbial infection, so please refrain from it.

4.2. Breeding

- ① Breeding of immunodeficient rats is limited to a maximum of 1-2 generations.
- ② Do not place male and female immunodeficient rats together for breeding purposes, and do not expose them to environments where breeding could occur.

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NBRP Rat

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