IN THE LOOP

Nude Model: Tumor Xenograft

ESCO SCIENTIFIC

Athymic nude mice are called so due to their hairless appearance, but immunologically, they are also vulnerable to pathogens and tumors due to their repressed immune system. These mice contain a genetic mutation, deletion in the Foxn1 gene, resulting in a deteriorated or absent thymus. This in effect, reduces the number of T-cells, affecting their immune response.

NUDE MICE AS AN EXPERIMENTAL MODEL FOR CANCER RESEARCH.

The suppressed immune response of athymic nude mice enables the transplantation of foreign tissue/cell lines without the full extent of the rejection mechanism of the host immune response. Hence, specific cell lines grown *in vitro* can be subcutaneously injected into the right or left flank of mice to establish a tumor. Due to the mouse being hairless, tumor growth can also easily be monitored and observed. Once the tumor has been established, chemotherapeutic agents can then be introduced to the mice and determine their anti-cancer effect.

Figure 1. Cancer xenografts generation from cancer cell lines

Experiments such as tumor and treatment injection in athymic nude mice may introduce contaminants and pathogens that are deleterious for the vulnerable mice. Lacking a complete immune system, these experiments should be conducted in an appropriate environment.

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Animal Handling Solutions for Vulnerable Animals

The **VIVA® Universal Animal Containment Workstations** provide ELISA-verified allergen containment and ISO Class 3 work zone to protect the nude mice in experimentation. These units are equipped with ULPA filter to ensure that the air supply is filtered while handling immune-deficient mice. Personnel protection is also guaranteed as chemotherapeutic agents' vapors are prevented from going out and be inhaled by the animal research worker.

Disclaimer: Esco does not in any way recommend or promote animal testing. Alternatives to animal testing are available and are currently being developed.

Reference:
[1] Szadvari I, Krizanova O, Babula P. Athymic nude mice as an experimental model for cancer treatment. Physiol Res. 2016 Dec 21;65(Suppl 4):S441-S453. doi: 10.33549/physiolres.933526. PMID: 28006926.