

The Crl:NIH-*Foxn1^{nu}* Rat: A T-cell-deficient, athymic nude model

Summary

The outbred *nu* rat is commonly used for tumor biology, immunology, and xenograft research when a model larger than a mouse is necessary.

Common Names

Nude rat, Rowett nude rat, Athymic rat, *nu* rat

Strain Origin and History

The NIH nude rat was developed from 1979-1980 at the NIH through a series of matings in which the Rowett nude gene was added and backcrossed into eight inbred rat strains: BN/SsN, MR/N, BUF/N, WN/N, ACI/N, WKY/N, M520/N, and F344/N. This rat was received from the National Institute of Health Animal Genetic Resources and cesarean rederived by Charles River in 2001.

Pathophysiology

- Phenotype: black, black & white with hooded pigmentation, and occasionally albino. During their life span, some animals exhibit intermittent periods of hair growth and loss.
- The athymic homozygous nude rat is T-cell-deficient and shows depleted cell populations in the thymus-dependent areas of peripheral lymphoid organs. Although it lacks T cells, the nude rat has a normal complement of bone-marrow-dependent B cells. Heterozygous nude rats (*Foxn1^{nu}/Foxn1⁺*) are NOT T-cell-deficient.

Breeding and Production Information

- Breeding method: outbred, monogamous production colony (female *nu/+* x male *nu/nu*)
- Colony maintained in isolators
 - Litter size: 10-12
- Gestation period: 21-23 days
- Weaning age: 21 days

Additional Information

Please contact your Charles River Regional Sales Manager or the Charles River Technical Services Department (1-800-338-9680) for updates on this colony and the full portfolio of oncology services that is offered by Charles River Discovery and Imaging Services. To place an order, please call our Customer Service Department (1-800-LAB-RATS). Visit us online at www.criver.com.

References

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technical sheet

Immunodeficient Models

| Strain | Hair | T Cells | B Cells | NK Cells |
|------------------------|------|---------|---------|----------|
| CD-1 [®] Nude | NO | NO | YES | YES |
| NU/NU | NO | NO | YES | YES |
| BALB/c Nude | NO | NO | YES | YES |
| NIH III Nude | NO | NO | NO | Impaired |
| RNU Nude | NO | NO | YES | YES |
| CB17 SCID | YES | NO | NO | YES |
| SCID Beige | YES | NO | NO | NO |
| NOD SCID | YES | NO | NO | Impaired |
| SHO [™] | NO | NO | NO | YES |

Note: Immunodeficient models are free of most opportunistic and commensal organisms as detailed on our web site.