The largest portfolio of immunodeficient mouse and rat models available today
Immunodeficient models have contributed to major scientific advances in immunology, transplantation, oncology, stem cell research, and infectious disease therapies. Taconic Biosciences is proud to offer a wide variety of immunodeficient mouse models that can be supplied quickly and efficiently to help propel your research forward.

You can rely on Taconic to supply models ranging from the standard outbred NCr nude model used in many xenograft studies, to the HRN™ nude which lacks liver P450 metabolism, to the super immune deficient CIEA NOG mouse® which provides an unparalleled ability to engraft human cells and tissues, thus making it an excellent choice for humanization studies.

Taconic also offers several popular models with Restricted Flora™, Excluded Flora, Opportunist Free, and Defined Flora health standard to meet your unique study needs. These models include the CIEA NOG mouse® and the C.B-17 scid.

For additional information on immunodeficient models visit Taconic.com

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**XENOGRAFTS**

Immunodeficient models are capable of engrafting cells and tissues from humans and other species.

Cancer cell lines can engraft in a wide variety of immunodeficient models. Patient-derived tumor xenografts (PDX) are typically engrafted in highly immunodeficient strains such as NOD scid and NOG. Normal human tissues can also be engrafted in some models.

**ADOPTIVE TRANSFER**

Transfer cells from one strain to another to study cell function and track cell movement.

Sets of models on a common background such as wild type C57BL/6NTac, B6 nude and the Rag2 knockout on the B6 background can serve as adoptive transfer partners. Cell surface markers such as CD45.1 (Ptprc) on the C57BL/6NTac background (B6. SJL model# 4007) and Rag2 (#461) can help with determination of cell origin (host or recipient).

**IMMUNE SYSTEM ENGRAFTED**

Super immunodeficient strains such as the CIEA NOG mouse® and CIEA BRG mouse can be engrafted with human immune cells or tissues to reconstitute a human immune system. Mice reconstituted with a human immune system represent critical research tools for basic research into the human immune system, modeling of certain human-specific infectious diseases with an immune component, as well as efficacy testing of immunotherapy approaches and safety assessment for new therapeutics.

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**TACONIC IMMUNODEFICIENT BENEFITS**

<table>
<thead>
<tr>
<th><strong>RF</strong></th>
<th><strong>SUPERIOR HEALTH STANDARDS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Production at the Taconic Restricted Flora™, Opportunist Free™, Excluded Flora, and Defined Flora health standards permits confidence in the health status of the animals used in your studies.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>INVENTOR ACCESS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>SCIENTIFIC ACCESS - CIEA NOG mouse®</td>
</tr>
<tr>
<td>Researchers receive direct access to the inventor of the CIEA NOG mouse® model for additional scientific data and know-how supporting their research.</td>
</tr>
</tbody>
</table>

The CIEA NOG mouse®: The MOST immunodeficient mouse model available today.
## COMPARISON TABLE OF IMMUNODEFICIENT MOUSE AND RAT MODELS

<table>
<thead>
<tr>
<th>MODEL NUMBER</th>
<th>MODEL NAME</th>
<th>COAT COLOR</th>
<th>CELL DEFICIENCIES</th>
<th>OTHER IMMUNODEFICIENCIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>BALBNU</td>
<td>BALB/c nude mouse</td>
<td>NU</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>B6NU</td>
<td>B6 nude mouse</td>
<td>NU</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>NCRNU</td>
<td>NCr nude mouse</td>
<td>NU</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>NMRINU</td>
<td>NMRI nude mouse</td>
<td>NU</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>NIH-NU</td>
<td>NIH nude rat</td>
<td>NU</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>9066**</td>
<td>HRN** nude mouse</td>
<td>NU</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>1147</td>
<td>Jh mouse</td>
<td>NU</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>CB17SC</td>
<td>C.B-17 scid mouse</td>
<td>NU</td>
<td>T</td>
<td>B</td>
</tr>
<tr>
<td>ICRSC</td>
<td>ICR scid mouse</td>
<td>NU</td>
<td>T</td>
<td>B</td>
</tr>
<tr>
<td>NODSC</td>
<td>NOD scid mouse</td>
<td>NU</td>
<td>T</td>
<td>Shows reduced NK function, Defective dendritic cells and macrophages and reduced complement activity.</td>
</tr>
<tr>
<td>RAG2</td>
<td>Rag2 (129S6) mouse</td>
<td>NU</td>
<td>T</td>
<td>B</td>
</tr>
<tr>
<td>461°</td>
<td>Rag2 (B6.SJL) mouse</td>
<td>NU</td>
<td>T</td>
<td>B</td>
</tr>
<tr>
<td>601</td>
<td>Rag2 (BALB/c) mouse</td>
<td>NU</td>
<td>T</td>
<td>B</td>
</tr>
<tr>
<td>RAGN12</td>
<td>Rag2 (C57BL/6) mouse</td>
<td>NU</td>
<td>T</td>
<td>B</td>
</tr>
<tr>
<td>CBSCBG</td>
<td>Scid-beige mouse</td>
<td>NU</td>
<td>T</td>
<td>B</td>
</tr>
<tr>
<td>4111</td>
<td>Rag2/112Rg Double knockout mouse</td>
<td>NU</td>
<td>T</td>
<td>B</td>
</tr>
<tr>
<td>11503</td>
<td>CIEA BRG mouse</td>
<td>NU</td>
<td>T</td>
<td>B</td>
</tr>
<tr>
<td>NOG</td>
<td>CIEA NOG mouse*</td>
<td>NU</td>
<td>T</td>
<td>B</td>
</tr>
</tbody>
</table>

**Lacks P450 activity in liver**

° Model is cryopreserved

**KEY:**
- Black and White Nude
- Albino Nude
- White-bellied agouti
- Black
- Albino
- T Cell Deficient
- B Cell Deficient
- NK Cell Deficient

*DISCUSS YOUR NEEDS*

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Take Your Research Further

**GEMs DESIGN**
Taconic Biosciences Genetically Engineered Models (GEMs) Design empowers our clients to develop research models specifically suited to the unique needs of their discovery and development studies or therapeutic programs.

- Gene Inactivation
- Gene Mutation or Replacement
- CRISPR Gene Editing
- Transgene Expression
- miRNA Expression
- Cohort Production Packages

**PRECISION RESEARCH MODELS**
Research organizations demand precision tools that better reflect human physiology. Taconic Biosciences leads the field delivering innovative solutions to meet these continually evolving needs. Our core competencies include the delivery of complex strategies that both integrate human genetic sequences and engraft human cells and tissues into custom mouse and rat models.

- Human Gene Replacement
- Human Cell and Tissue Engraftment

**GEMs MANAGEMENT**
Taconic’s fully integrated GEMs Management brings innovative models from design to study-ready cohorts with unprecedented speed and transparency.

- Embryology
- Rapid Colony Expansion
- Contract Breeding
- Surgical Services
- Tissue Collection
- Genotyping and Molecular Analysis
- Microbiome and Germ-Free Research Models and Services

**CHOOSE TACONIC**
For more than 60 years, Taconic has anticipated the needs of the scientific community to deliver models and services that meet the diverse needs of biomedical and biopharmaceutical researchers.

Today that forward thinking and commitment to working collaboratively has resulted in a client-centric environment infused with a knowledge bank that allows you to select the optimum model for your study based on informed insight into the generation of genetically engineered mouse and rat models.

**YOUR COLLABORATIVE PARTNER**
As a full-service biosciences company, Taconic can help you acquire, test, develop, breed, cryopreserve, prepare, and distribute highly relevant research lines worldwide. Whether you require custom genetically engineered, cell or tissue engrafted models or traditional models, Taconic’s scientists will partner with you to rapidly and efficiently deliver the highest quality models.

**TALK TO A SCIENTIST**
Our scientific teams are happy to meet and talk with you about the most efficient way to achieve your study goals. Working in partnership with clients the world over, our scientific teams offer expert advice that can help you speed up your research and reduce your overall costs.

**TALK TO A REPRESENTATIVE**
For general information, you can talk to a member of our customer service team. Our customer service team is here to help you make the right decisions and get the models you need fast. Contact us at info@taconic.com

**VISIT TACONIC.COM**
For more information on the entire Taconic portfolio of products and services designed to help further your research, visit taconic.com

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