Combining the \textit{Prkdc} mutation with the \textit{Cd38} targeted allele in these mice completely prevents Type 1 diabetes, which otherwise would develop in mice carrying only the \textit{Cd38} targeted allele.

Donating Investigator

Dr. Edward Leiter, The Jackson Laboratory
CD38 is an ADP-ribosyl cyclase/cyclic ADP-ribose hydrolase. This ubiquitously expressed ectoenzyme is the major NAD hydrolase in mice. NOD/Lt mice homozygous for the Cd38<sup>tm1Lnd</sup> targeted allele develop accelerated Type 1 diabetes associated with an ART2 (T cell ADP-ribosyltransferase)-dependent and NAD-mediated loss of regulatory CD4+CD25+Foxp3+ and CD4+iNKT cells (Chen, J. et al 2006; Chen, Y.G et al 2006). Combining the Prkdc<sup>scid</sup> mutation with the Cd38<sup>tm1Lnd</sup> targeted allele completely prevents diabetes development. For investigators wishing to study the role of CD38 in beta cell biology, the presence of the Prkdc<sup>scid</sup> allele provides insulin-free islets for analysis. Congenic, doubly homozygous NOD.Cd38<sup>tm1Lnd</sup> Prkdc<sup>scid</sup> mutant mice exhibit no significant difference in glucose tolerance when compared to NOD or NOD. Prkdc<sup>scid</sup>, thus not supporting a previous report (Okamoto, H. and S. Takasawa; 2002) that CD38 is required for normal pancreatic beta cell glucose responsiveness. NOD.Cg-Cd38<sup>tm1Lnd</sup> Prkdc<sup>scid</sup> /LU mice offer an alternative means for maintaining the targeted CD38 allele on the NOD background. Without the Prkdc<sup>scid</sup> mutation, the accelerated diabetogenesis produced by CD38 deficiency makes colony propagation difficult.
Genotyping Protocols
Standard PCR: Cd38
Genotyping resources and troubleshooting

Appearance
albino, pink eyed
Related Genotype: A/A Tyr<sup>c</sup>/Tyr<sup>c</sup>
Citation
When using the NOD.CD38<sup>null</sup>, scid<sup>null</sup> mouse strain in a publication, please cite the originating article(s) and include JAX stock #005345 in your Materials and Methods section.

Animal Health Reports
Facility Barrier Level Descriptions

Production of mice from cryopreserved embryos or sperm occurs in a maximum barrier room, G200

Pricing & Availability

Typically mice are recovered in 10-14 weeks. Contact Customer Service to place an order or for more information.
Payment Terms and Conditions

Terms are granted by individual review and stated on the customer invoice(s) and account statement. These transactions are payable in U.S. currency within the granted terms. Payment for services, products, shipping containers, and shipping costs that are rendered are expected within the payment terms indicated on the invoice or stated by contract. Invoices and account balances in arrears of stated terms may result in The Jackson Laboratory pursuing collection activities including but not limited to outside agencies and court filings.

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- All
- By Allele
- By Gene
- By Collection