B6. Clgngtrp1Amt Ifnar1 double knockout

Also Known As: Ifngr1 Ifnar1 double knockout

Available

Place Order

Live mice available in varying quantities. Ask Customer Service for details.
These C57BL/6J-congenic Ifngr1 Ifnar1 double mutant animals harbor knockout alleles of the receptors for interferon-γ and interferon-α/β. When homozygous for each allele, the double knockout mice exhibit a reduced immune response and increased susceptibility to infectious agents. These mice may be useful in studying antiviral immune responses, as well as interferon stimulation. Mouse mutants involving these genes have been used in studies of Zika virus pathogenesis.
These C57BL/6J-congenic Ifngr1 Ifnar1 double mutant animals harbor null alleles of the receptors for interferon-γ and interferon-α/β. The phenotype of each individual mutation is described below. When homozygous for each null allele, the Ifngr1 Ifnar1 double knockout mice (Ifngr1 Ifnar1 dKO) may have even greater susceptibility to certain infections/agents. These mice may be useful in studying antiviral immune responses, as well as interferon stimulation. Mouse mutants involving these genes have been used in studies of Zika virus pathogenesis.

Ifngr1 encodes the ligand-binding chain (alpha) of the heterodimeric IFN-γ receptor (found on macrophages). Ifnar1 encodes the type-I interferon-α/β receptor (type-I IFN receptor). Binding of their ligands (type-II IFN and type-I IFN, respectively) activates JAK-STAT signaling pathways critical for regulating growth, survival, differentiation, pathogen resistance and antiviral immune responses.

The Ifngr1 null allele (Stock No. 003288), often referred to as ‘G129’ when maintained on a 129 genetic background, encodes a non-functional protein lacking the cytoplasmic domain needed for signaling. Mice singly homozygous for this null allele (Ifngr1-) have normal T cell responses but are defective in natural resistance, evidenced by an increased susceptibility to infection by Listeria monocytogenes and vaccinia virus. Homozygotes are viable and fertile with the immune deficiencies described above.

The Ifnar1 null allele (from Stock No. 028288) has exon 3 deleted; resulting in a non-functional protein (the exon 2-4 splice variant and frameshift leads to translation of 11 arbitrary (missense) amino acids within the N-terminal extracellular domain followed by a stop codon). Mice singly homozygous for this null allele (Ifnar1-) lack type-I IFN receptor function; leading to reduced immune response and increased susceptibility to viral infection. For example, in response to Pneumocystis lung infection, Ifnar1- animals develop a transient bone marrow crisis largely due to loss of neutrophils. Homozygous null mice are viable and fertile, with the immune deficiencies described above. Heterozygous mice are viable and fertile with no reported abnormalities.

Similar to other immunodeficient strains, maintaining Ifnar1- mice in high health status (specific pathogen-free) vivaria promotes overall colony health. If homozygous null animals are maintained in lowhealth barrier rooms, the use of medicated water (e.g., sulfatrim/trimethoprim-sulfa or enrofloxacin/Baytril) is suggested to increase overall colony health.
Genotyping Protocols
Standard PCR: Ifnar1
Standard PCR: Ifngr1-Alternate 1

Genotyping resources and troubleshooting

Dietary Information
New Diet as of March 2015: Lab Diet® 5K0Q (6% fat)

Breeding Considerations
When maintaining a live colony, mice homozygous for both null alleles (Ifngr1 Ifnar1 dKO) may be bred together.

Mice homozygous for both null alleles (Ifngr1 Ifnar1 dKO) are viable and fertile but immunodeficient. As such, and similar to other immunodeficient strains, maintaining Ifngr1 Ifnar1 dKO mice in high health status (specific pathogen-free) vivaria promotes overall colony health. If Ifngr1 Ifnar1 dKO animals are maintained in low health barrier rooms, the use of medicated water (e.g., sulfatrim/trimethoprim-sulfa or enrofloxacin/Baytril) is suggested to increase overall colony health.

Additional Breeding and Husbandry Support

Mating System
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Citation
When using the Ifngr1 Ifnar1 double knockout mouse strain in a publication, please cite the originating article(s) and include JAX stock #029098 in your Materials and Methods section.

Animal Health Reports

Facility Barrier Level Descriptions

Pricing & Availability

Live mice available in varying quantities. Ask Customer Service for details.

Available

Live Mouse

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