

NOD SCID

Strain Name : NOD-Prkdc^{em26Cd52}/Gpt

Strain Type : CRISPR/Cas9 knock-out

Strain ID : T001492

Background : NOD/ShiLtJGpt

Application

1. Diabetes and Obesity Research: Analysis of Type 1 Diabetes
2. Immune and inflammatory studies (B cell and T cell deficiency), allograft, xenograft
3. Immunization and inflammation studies (immune defects), internal organ research (lymphoid tissue defects)
4. Cancer research: tumor suppression, lymphoma induction, etc.

Description

Non-obese diabetic (NOD) mice are a polygenic model of autoimmune type 1 diabetes, which will develop insulin-dependent diabetes mellitus (IDDM) spontaneously. IDDM is caused by autoimmune destruction of the insulin-producing β -cell in the pancreas. Specifically, the pancreatic islets β -cell antigen were wrongly presented to helper T cells, which causes immune system produce a large number of specific antibodies against islets β cells, destroying islet cell functions, significantly reducing insulin's synthesis and secretion.

Gemphamatech developed the NOD SCID mice with gene editing technology. These mice optimize the precious NOD/ShiLtJFpt mice by knocking out the Prkdc gene, which makes genetic background simpler and the experiment data more stable. Homozygous mice have hypogammaglobulinemia, lack functional T cells, B cells and lymphocytes, but have normal hematopoietic environment, which can be used for allografts and xenotransplants.

References

1. Shultz LD, Schweitzer PA, Christianson SW, et al.(1995). "Multiple defects in innate and adaptive immunologic function in NOD/LtSz-scid mice" . *J. Immunol.*154(1):180-91.
2. Takenaka K, Prasolava TK, Wang JC, et al.(2007). "Polymorphism in Sirpa modulates engraftment of human hematopoietic stem cells" . *Nat. Immunol.*8(12):1313-23
3. Creiner DL, Hesselton RA, Shultz LD(1998). "SCID mouse models of human stem cell engraftment" . *Stem cells.*16(3):166-177.