

Resource Summary Report

Generated by [NIF](#) on Sep 16, 2026

NOD.Cg-Cd28^{tm1Mak} Cd40^{tm1Kik} Ifng^{tm1Ts} H2^{h4} /HbmMmmh

RRID:MMRRC_037143-MU

Type: Organism

Proper Citation

RRID:MMRRC_037143-MU

Organism Information

URL: https://www.mmrrc.org/catalog/sds.php?mmrrc_id=37143

Proper Citation: RRID:MMRRC_037143-MU

Description: Mus musculus with name NOD.Cg-Cd28^{tm1Mak} Cd40^{tm1Kik} Ifng^{tm1Ts} H2^{h4} /HbmMmmh from MMRRC.

Species: Mus musculus

Notes: Research areas: Immunology and Inflammation; Mutation Type: Targeted Mutation ; Collection: Mullen

Phenotype: increased leukocyte cell number [MP:0000218]| increased monocyte cell number [MP:0000220]| extramedullary hematopoiesis [MP:0000240]| increased granulocyte number [MP:0000322]| abnormal spleen morphology [MP:0000689]| enlarged spleen [MP:0000691]| abnormal lymph node size [MP:0000701]| enlarged lymph nodes [MP:0000702]| increased body weight [MP:0001260]| decreased body weight [MP:0001262]| increased metastatic potential [MP:0001272]| abnormal response to new environment [MP:0001413]| altered susceptibility to infection [MP:0001793]| abnormal humoral immune response [MP:0001800]| decreased IgG level [MP:0001805]| decreased IgM level [MP:0001806]| decreased IgA level [MP:0001807]| abnormal inflammatory response [MP:0001845]| increased inflammatory response [MP:0001846]| brain inflammation [MP:0001847]| kidney inflammation [MP:0001859]| liver inflammation [MP:0001860]| lung inflammation [MP:0001861]| stomach inflammation [MP:0001873]| decreased inflammatory response [MP:0001876]| abnormal lactation [MP:0001882]| mammary gland alveolar hyperplasia [MP:0001884]| decreased litter size [MP:0001935]| abnormal lung volume [MP:0001942]| increased airway responsiveness [MP:0001952]| emphysema [MP:0001958]| increased B cell derived lymphoma incidence [MP:0002023]| increased T cell derived lymphoma incidence [MP:0002024]| increased lung adenocarcinoma incidence [MP:0002027]| increased sarcoma incidence [MP:0002032]| increased carcinoma incidence [MP:0002038]| increased pituitary adenoma incidence

[MP:0002041] decreased tumor incidence [MP:0002052] premature death [MP:0002083] abnormal spleen size [MP:0002224] abnormal pulmonary alveolus morphology [MP:0002270] decreased airway responsiveness [MP:0002335] abnormal lymph node cortex morphology [MP:0002343] abnormal lymph node primary follicle morphology [MP:0002345] abnormal lymph node secondary follicle morphology [MP:0002346] abnormal spleen red pulp morphology [MP:0002356] abnormal spleen white pulp morphology [MP:0002357] abnormal dendritic cell physiology [MP:0002376] increased susceptibility to bacterial infection [MP:0002412] increased susceptibility to viral infection [MP:0002418] abnormal adaptive immunity [MP:0002420] altered susceptibility to autoimmune disorder [MP:0002425] abnormal macrophage physiology [MP:0002451] abnormal dendritic cell antigen presentation [MP:0002455] abnormal B cell physiology [MP:0002459] decreased immunoglobulin level [MP:0002460] increased immunoglobulin level [MP:0002461] abnormal immunoglobulin level [MP:0002490] decreased IgE level [MP:0002492] increased IgE level [MP:0002497] abnormal type IV hypersensitivity reaction [MP:0002534] glomerulonephritis [MP:0002743] decreased vertical activity [MP:0002757] albuminuria [MP:0002871] increased circulating alanine transaminase level [MP:0002941] abnormal cytokine secretion [MP:0003009] abnormal redox activity [MP:0003186] small intestinal inflammation [MP:0003306] abnormal tumor morphology [MP:0003448] increased fear-related response [MP:0003459] abnormal pancreatic beta cell physiology [MP:0003562] increased ovarian carcinoma incidence [MP:0003579] increased autoantibody level [MP:0003725] decreased autoantibody level [MP:0003726] abnormal nitric oxide homeostasis [MP:0003957] abnormal lung vasculature morphology [MP:0004007] abnormal maternal decidual layer morphology [MP:0004256] decreased length of allograft survival [MP:0004752] decreased anti-nuclear antigen antibody level [MP:0004795] decreased anti-double stranded DNA antibody level [MP:0004798] increased susceptibility to experimental autoimmune encephalomyelitis [MP:0004799] decreased susceptibility to systemic lupus erythematosus [MP:0004802] decreased susceptibility to autoimmune diabetes [MP:0004804] abnormal immune tolerance [MP:0005000] increased eosinophil cell number [MP:0005011] increased lymphocyte cell number [MP:0005013] increased T cell number [MP:0005015] abnormal response to infection [MP:0005025] decreased susceptibility to parasitic infection [MP:0005026] increased susceptibility to parasitic infection [MP:0005027] abnormal MHC II cell surface expression on macrophages [MP:0005040] impaired natural killer cell mediated cytotoxicity [MP:0005070] abnormal cytotoxic T cell physiology [MP:0005078] decreased double-negative T cell number [MP:0005089] cachexia [MP:0005150] abnormal response to injury [MP:0005164] decreased susceptibility to injury [MP:0005166] abnormal renal glomerulus morphology [MP:0005325] atherosclerotic lesions [MP:0005338] decreased susceptibility to autoimmune disorder [MP:0005351] abnormal Langerhans cell physiology [MP:0005362] increased susceptibility to fungal infection [MP:0005399] abnormal skin physiology [MP:0005501] corneal vascularization [MP:0005542] decreased circulating creatinine level [MP:0005554] increased blood urea nitrogen level [MP:0005565] decreased susceptibility to type IV hypersensitivity reaction [MP:0005616] increased susceptibility to type IV hypersensitivity reaction [MP:0005617] abnormal response to transplant [MP:0005671] abnormal mammary gland growth during pregnancy [MP:0006269] increased NK T cell number [MP:0008039] abnormal uterine NK cell morphology [MP:0008054] increased CD4-positive [MP:0008074] alpha beta T cell number [MP:0008078] increased CD8-positive [MP:0008135] alpha-beta T cell number [MP:0008466] small Peyer's patches [MP:0008474] enlarged mesenteric lymph nodes [MP:0008496] absent spleen germinal center [MP:0008497] decreased IgG2a level [MP:0008498] decreased IgG2b level [MP:0008499] decreased IgG3 level [MP:0008523]

increased IgG1 level [MP:0008567] absent lymph node germinal center [MP:0008596] decreased interferon-gamma secretion [MP:0008660] increased circulating interleukin-6 level [MP:0008661] increased interleukin-10 secretion [MP:0008663] decreased interleukin-10 secretion [MP:0008681] increased interleukin-12 secretion [MP:0008687] increased interleukin-17 secretion [MP:0008699] increased interleukin-2 secretion [MP:0008702] increased interleukin-4 secretion [MP:0008713] increased interleukin-5 secretion [MP:0008770] abnormal cytokine level [MP:0008828] decreased survivor rate [MP:0008874] abnormal lymph node cell ratio [MP:0009099] decreased physiological sensitivity to xenobiotic [MP:0009246] abnormal uterine NK cell physiology [MP:0009336] pale spleen [MP:0009394] increased splenocyte proliferation [MP:0009419] increased uterine NK cell number [MP:0009643] skeletal muscle fibrosis [MP:0009763] abnormal urine homeostasis [MP:0009766] increased sensitivity to induced morbidity/mortality [MP:0009788] increased sensitivity to xenobiotic induced morbidity/mortality [MP:0009791] increased susceptibility to bacterial infection induced morbidity/mortality [MP:0009828] increased susceptibility to viral infection induced morbidity/mortality [MP:0010210] increased tumor latency [MP:0010308] abnormal circulating cytokine level [MP:0010574] decreased tumor latency [MP:0010639] aorta dilation [MP:0010659] altered tumor pathology [MP:0010740] abdominal aorta aneurysm [MP:0010750] abnormal dendritic cell chemotaxis [MP:0010751] increased susceptibility to parasitic infection induced morbidity/mortality [MP:0010760] decreased susceptibility to parasitic infection induced morbidity/mortality [MP:0010766] abnormal macrophage chemotaxis [MP:0011086] abnormal NK cell physiology [MP:0011320] postnatal lethality [MP:0011427] incomplete penetrance [MP:0012431] abnormal glomerular capillary morphology [MP:0013239] mesangial cell hyperplasia [MP:0013590] increased lymphoma incidence [MP:0030466] decreased bone mineral density [MP:0000063] decreased neutrophil cell number [MP:0000222] enlarged spleen [MP:0000691] enlarged lymph nodes [MP:0000702] abnormal humoral immune response [MP:0001800] decreased IgA level [MP:0001807] no abnormal phenotype detected [MP:0002169] abnormal thymus medulla morphology [MP:0002375] abnormal dendritic cell physiology [MP:0002376] increased susceptibility to bacterial infection [MP:0002412] abnormal B cell physiology [MP:0002459] decreased immunoglobulin level [MP:0002460] decreased IgE level [MP:0002492] glomerulonephritis [MP:0002743] increased urine protein level [MP:0002962] increased anti-double stranded DNA antibody level [MP:0004762] abnormal class switch recombination [MP:0004816] decreased B cell number [MP:0005017] decreased susceptibility to type II hypersensitivity reaction [MP:0005612] decreased cerebral infarction size [MP:0006058] increased follicular B cell number [MP:0008173] absent germinal center B cells [MP:0008179] increased marginal zone B cell number [MP:0008181] increased transitional stage B cell number [MP:0008189] abnormal B cell activation [MP:0008217] absent spleen germinal center [MP:0008474] decreased IgG1 level [MP:0008495] decreased IgG2a level [MP:0008496] decreased IgG2b level [MP:0008497] decreased IgG3 level [MP:0008498] abnormal thymus epithelium morphology [MP:0009544] decreased platelet aggregation [MP:0009549] decreased trabecular bone mass [MP:0010873] decreased compact bone mass [MP:0010962] renal glomerular immunoglobulin deposits [MP:0020519] abnormal cytokine secretion [MP:0003009] thyroid inflammation [MP:0003504] insulinitis [MP:0004031] decreased susceptibility to autoimmune diabetes [MP:0004804] periinsulinitis [MP:0005580] decreased physiological sensitivity to xenobiotic [MP:0008874] abnormal esophageal epithelium morphology [MP:0000468] enlarged thymus [MP:0000709] increased activated T cell number [MP:0001829] brain inflammation [MP:0001847] increased T cell derived lymphoma incidence [MP:0002024] abnormal T

cell differentiation [MP:0002145] abnormal lymphopoiesis [MP:0002401] decreased immunoglobulin level [MP:0002460] abnormal cytokine secretion [MP:0003009] esophageal inflammation [MP:0003278] insulinitis [MP:0004031] increased length of allograft survival [MP:0004751] decreased susceptibility to experimental autoimmune encephalomyelitis [MP:0004800] increased susceptibility to autoimmune diabetes [MP:0004803] abnormal class switch recombination [MP:0004816] abnormal regulatory T cell physiology [MP:0004946] decreased regulatory T cell number [MP:0004974] abnormal T cell clonal deletion [MP:0005002] increased eosinophil cell number [MP:0005011] increased susceptibility to parasitic infection [MP:0005027] abnormal cytotoxic T cell physiology [MP:0005078] decreased cytotoxic T cell cytolysis [MP:0005079] decreased T cell proliferation [MP:0005095] increased T cell proliferation [MP:0005348] abnormal CD4-positive [MP:0005463] alpha-beta T cell physiology [MP:0005465] abnormal T-helper 1 physiology [MP:0005466] abnormal T-helper 2 physiology [MP:0005596] increased susceptibility to type I hypersensitivity reaction [MP:0005671] abnormal response to transplant [MP:0006413] increased T cell apoptosis [MP:0008049] increased memory T cell number [MP:0008074] increased CD4-positive [MP:0008078] alpha beta T cell number [MP:0008192] increased CD8-positive [MP:0008482] alpha-beta T cell number [MP:0008495] abnormal germinal center B cell physiology [MP:0008496] decreased spleen germinal center number [MP:0008497] decreased IgG1 level [MP:0008500] decreased IgG2a level [MP:0008566] decreased IgG2b level [MP:0008567] increased IgG2a level [MP:0008578] increased interferon-gamma secretion [MP:0008603] decreased interferon-gamma secretion [MP:0008687] decreased circulating interferon-gamma level [MP:0008688] decreased circulating interleukin-4 level [MP:0008699] increased interleukin-2 secretion [MP:0008700] decreased interleukin-2 secretion [MP:0008747] increased interleukin-4 secretion [MP:0009335] decreased interleukin-4 secretion [MP:0010268] abnormal T cell anergy [MP:0010766]

Affected Gene: Cd28||Ifng||Cd40||

Catalog Number: 037143-MU

Background: Targeted Mutation

Database: Mutant Mouse Resource and Research Center (MMRRC)

Database Abbreviation: MMRRC

Alternate IDs: MMRRC_37143-MU, MMRRC_037143, MMRRC_37143

Organism Name: NOD.Cg-Cd28^{tm1Mak} Cd40^{tm1Kik} Ifng^{tm1Ts} H2^{h4}/HbmMmmh

Record Creation Time: 20230308T055150+0000

Record Last Update: 20260912T134850+0000

Ratings and Alerts

No rating or validation information has been found for NOD.Cg-Cd28^{tm1Mak} Cd40^{tm1Kik} Ifng^{tm1Ts} H2^{h4}/HbmMmmh.

Warning: Warning. Researchers have noted that this genotype does not sufficiently model human systemic lupus erythematosus.

Data and Source Information

Source: [Integrated Animals](#)

Source Database: Mutant Mouse Resource and Research Center (MMRRC)

Usage and Citation Metrics

We found 1 mentions in open access literature.

Listed below are recent publications. The full list is available at [NIF](#) .

Kayes TD, et al. (2016) New Murine Model of Early Onset Autoimmune Thyroid Disease/Hypothyroidism and Autoimmune Exocrinopathy of the Salivary Gland. Journal of immunology (Baltimore, Md. : 1950), 197(6), 2119.