Supplementary Table 1: selected examples of immunological variation among common inbred strains of laboratory mice.

Gene	Function	Strain with deficits or polymorphisms	Normal expression	Strain-related References
Aryl hydrocarbon receptor (*Ahr)*	Activation of *Cyp*450 expression, decreased IL22, increased IL17	Ahr^d 129/J, AKR, DBA/2J, NZB, SJL/J, SWR	$Ahr^{b\text{-}1}$ $Ahr^{b\text{-}2}$ A/J, BALB/c, C57BL/6J, CBA/J, C3H/HeJ, DBA/1J	[1-4]
Cathepsin E (*Ctse)*	Chemotaxis, cell adhesion, antigen processing for MHC class II presentation	C57BL/6JOlaHsd, C57BL/6	BALB/c, 129S2/SvHsd, CBA/J	[5]
Dedicator of cytokinesis 2 (*Dock2*)	Chemotaxis, lymphocyte migration, B cell development, plasmacytoid DCs function	C57BL/6NHsd (from specific breeding facilities)	All other C57BL/6 substrains	[6,7]
Complement factor C5 (*Hc*)	Complement system, innate immunity, C5a anaphylatoxin with spasmogenic and chemotactic activity, C5b subunit of the membrane attack complex	A/J, AKR/J, DBA/2, FVB/NJ, NOD/ShiLtJ, SWR	C57BL/6, 129 strains, DBA/1, MRL/MpJ, NZB, NZW	[8,9]
Fc receptor, IgE, low affinity II, alpha polypeptide (*Fcer2a*)	CD23, low-affinity receptor for IgE, negative regulation of IgE response	$Fcer2a^{Hie}$ (reduced level of expression) NZB, 129P1/ReJ, 129/SvJ	BALB/c, C57BL/6	[10,11]
Interleukin 2 (*Il2*)	Clonal expansion of B and T cells, immune cell development and activation, immune tolerance, adaptive cell-mediated immunity	$Il2^{m1}$ (hypoactive) MRL/MpJ, NOD/ShiLtJ, SJL/J	C57BL/6	[12]
Interleukin 12b (*Il12b)*	Development and activation of T cells and NK cell, promotion of TH1-type immune response	Polymorphism enhances activity SJL/J	C57BL/6 , C57BL/10ScCr	[13-15]
MX dynamin-like GTPase 1 and 2 (*Mx1 and Mx2*)	Innate immunity, IFNα an IFNβ-mediated response to viral infection	Most inbred strains	Most of the wild mice or wild-derived strains	[16,17]
Neuronal apoptosis inhibitor protein (*Naip5)*	Recognition of flagellin, activation of the inflammasome, macrophage pyroptosis	A/J	Most inbred strains	[18,19]
2'-5' oligoadenylate synthetase 1B (*Oas1b*)	Activation of RNA nucleases, innate immunity, protection against flaviviruses	Most inbred strains	Most of wild mice or wild-derived strains	[20]

Gene	Function	Strain with deficits or polymorphisms	Normal expression	Strain-related References
NLR family, pyrin domain containing 1B (*Nlrp1b*)	Innate immunity, inflammasome, response to PAMPs and DAMPs, susceptibility/resistance to *Bacillus anthracis* infection and anthrax LT challenge	*Nlrp1b*^{s} BALB/cJ, CBA/J, C3H/HeJ, FVB/NJ	*Nlrp1b*^{r} C57BL/6J, NOD/LtJ, AKR/J, A/J, DBA/2J	[21]
Signal regulatory protein alpha (*Sirpa*)	T cell immune regulation, "don´t eat me" signal	Decreased function polymorphism BALB/c, NOD/ShiLtJ	Most other strains	[22]
Signaling lymphocyte activation molecule (SLAM) family	Innate and adaptive immunity, self tolerance	*Haplotype 2* NOD, MRL/MpJ, NZB, NZW, DBA/2J, 129/SvJ, BALB/cJ, C3H/HeJ, others	*Haplotype 1* C57BL/6, C3H/HeN	[23-25]
Solute carrier family-1 1a member 1 *(Slc11a1)*	Macrophage activation and iron metabolism in macrophages	*Slc11a1*^{s} BALB/c, C57BL/6J, C57BL/10J, DBA/1J, NZW	*Slc11a1*^{r} 129 strains, A/J, AKR/J, CBA/C3H/HeJ, C3H/HeN, DBA/2J, NZB	[26]
T cell receptor beta variable 8 (*Tcrb-V8*)	NKT and CD8+NKT, glycolipids in context of CD1d	SJL/J, FVB/NJ, SWR, C57L, C57BR	C57BL/6, 129, BALB/c	[27-29]
Toll-like receptor 4 (*Tlr4*)	Microbial PAMPs (LPS), endogenous DAMPs	*Tlr4*$^{Lps\text{-}d}$, *Tlr4*$^{Lps\text{-}del}$ C3H/HeJ, C57BL/10ScN	*Tlr4*$^{Lps\text{-}n}$ 129 strains, C3H/HeN, C3H/HeOuJ, C57BL/6, DBA/2J, FVB, NOD/ShiLtJ, NZB, NZW, SJ/J, SWR	[30,31]

Abbreviations and acronyms used in the table:

*Cyp*450: cytochrome p450, DAMPs: damage-associated molecular pattern molecules, DC: dendritic cell, IFN: interferon, IL: interleukin, MHC: major histocompatibility complex, NK: natural killer, NKT: natural killer T, PAMPs: pathogen-associated molecular pattern molecules, LPS: lipopolysaccharide, LT: lethal toxin.

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