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Supplemental information

A critical role for MSR1 in vesicular stomatitis virus infection of the central nervous system

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Supplemental Figures

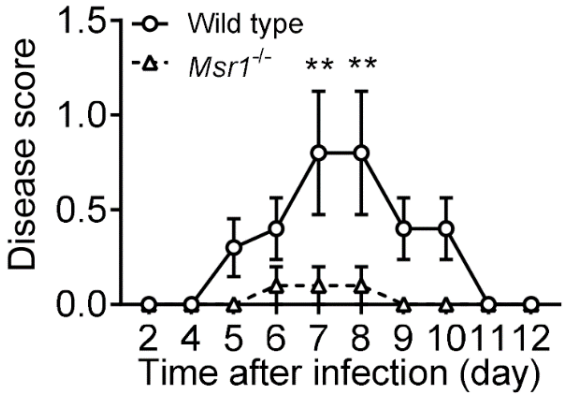

Figure S1 Msr1-deficiency renders mice resistant to VSV intranasal infection, Related to Figure 1. The disease scores of WT and *Msr1*$^{-/-}$ mice inoculated with VSV intranasally. The mice were inoculated intranasally with 1×10^7 PFU of VSV per mouse in a 25-μl volume. The disease scores from WT and *Msr1*$^{-/-}$ were then recorded on a scale of 0-5, as previously described in the detailed methods (N=10 mice/group). The data are presented as mean n ± SD and statistical significances are analyzed by non-parametric Mann-Whitney U test, ** P<0.01.

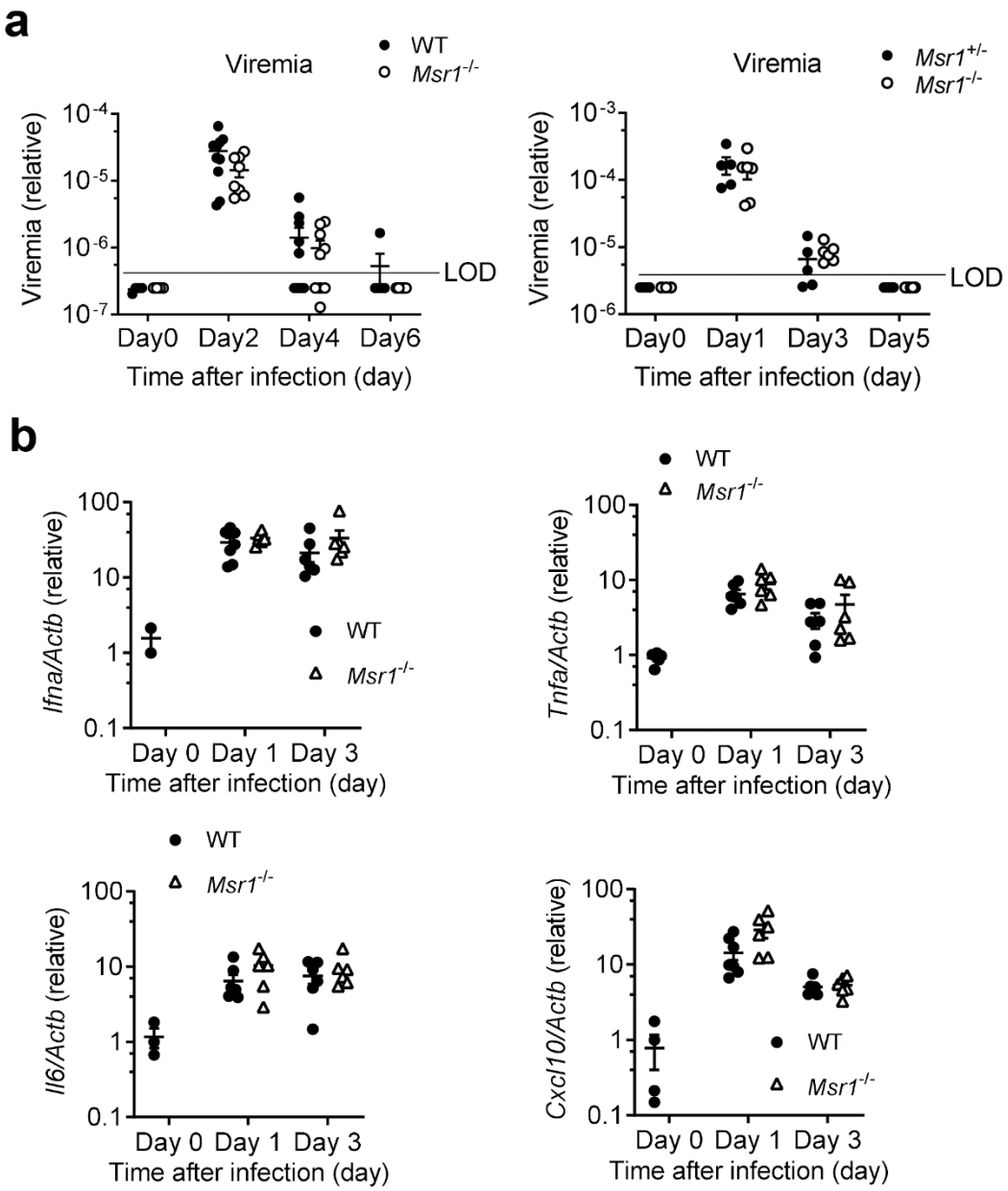

Figure S2 Msr1 is dispensable for systemic VSV dissemination and innate immune responses, Related to Figure 2. a) The viremia of WT mice, *Msr1*$^{+/-}$ and *Msr1*$^{-/-}$ littermates infected with 1×10^6 PFU/mouse of VSV by retro-orbital injection, assessed by quantitative RT-PCR, N=8-9 mice/group for WT and *Msr1*$^{-/-}$, N=5 mice/genotype for *Msr1*$^{+/-}$ and *Msr1*$^{-/-}$ littermates. **b)** The mRNA levels of *Ifnα*, *Tnfα*, *Il6* and *Cxcl10* in leukocytes of WT and *Msr1*$^{-/-}$ mice after VSV infection, assessed by quantitative RT-PCR, N=6 mice/group. All the data are presented as mean ± S.E.M. and statistical significance are analyzed by non-parametric Mann-Whitney U test.

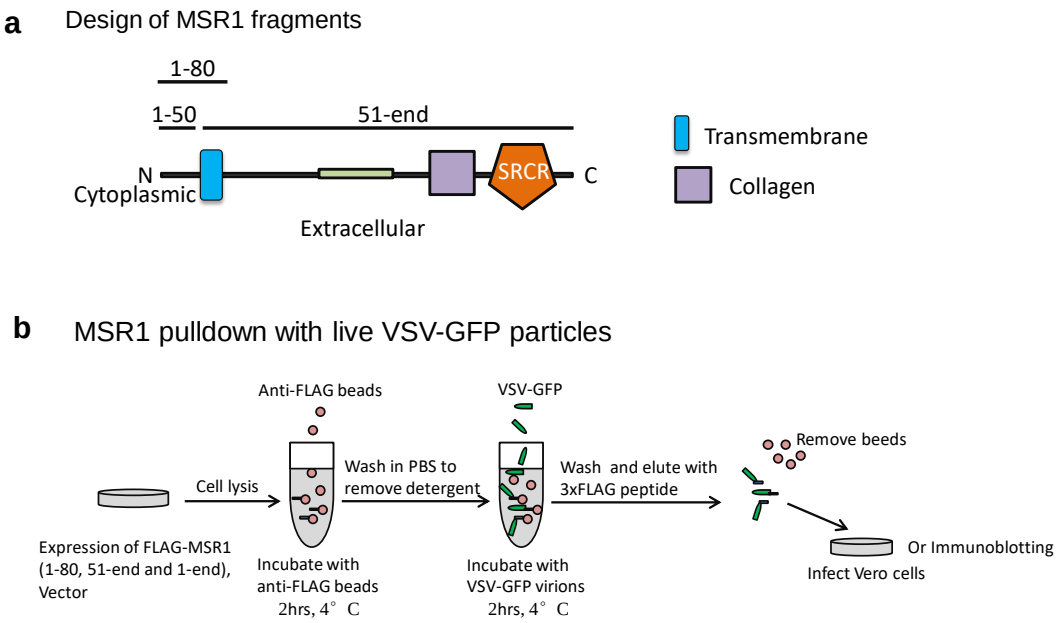

Figure S3 The domain structure of MSR1 protein and workflow of MSR1 pulldown with live VSV-GFP virions, Related to Figure 5 and Figure 6. a) Amino residues 1-50: cytoplasmic N-tail, 1-80: cytoplasmic N-tail plus transmembrane, and 51-end: extracellular domains including the collagen, scavenger receptor cysteine-rich (SRCR) and the transmembrane domains. **b**) The procedure of MSR1 pulldown with live VSV-GFP particles.

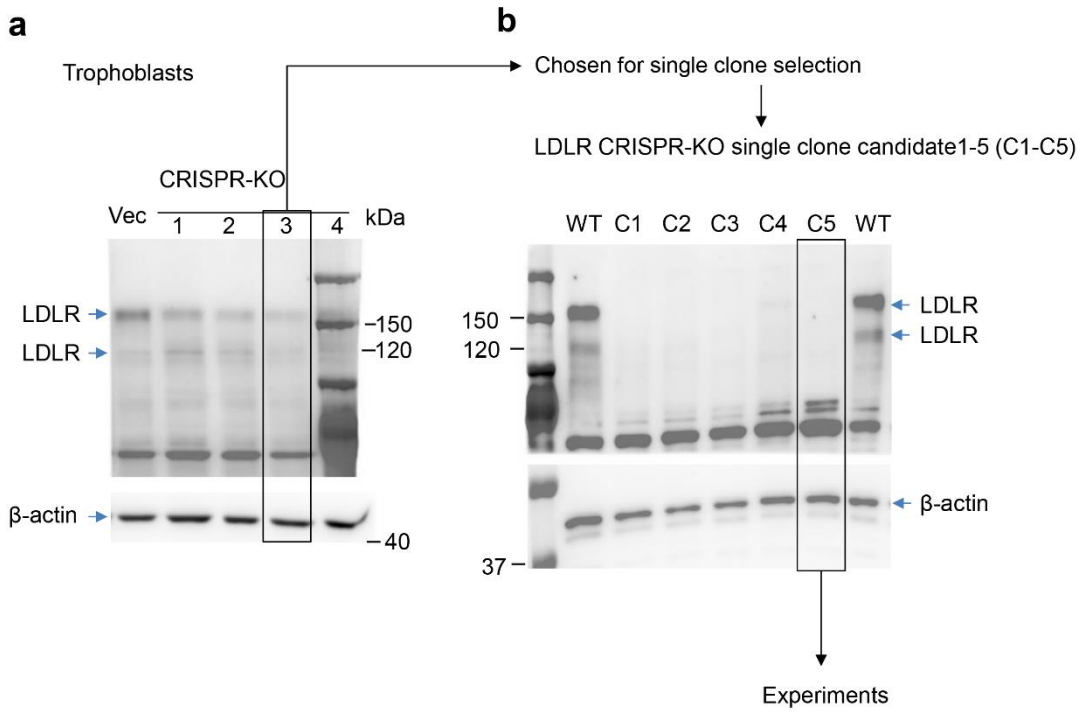

Figure S4 Generating *LDLR*$^{-/-}$ single clonal trophoblast by CRISPR-Cas9 system, Related to Figure 4. a) Generating knockout of LDLR in trophoblasts using CRISPR-Cas9 method. LDLR band size: 120 kDa, 150 kDa. **b)** Single clone selection of CRISPR-knockout *LDLR*$^{-/-}$ trophoblast, C1-C5: Candidate 1-5. The C5 was chosen to further experiment due to its complete knockout of LDLR. β-actin is a housekeeping control.

Supplemental Tables

Supplemental Table S1

Primers for gene subcloning and expression with restriction enzyme sites, Related to STAR Methods and Figure 5

Gene	Species	Forward primer (5'-3')	Reverse primer (5'-3')	Enzyme sites
MSR1	Hs	CTTGCGGCCGCGGAGC AGTGGGATCACTTTCA	TTGGATCCCTATAAAGTGC AAGTGACTCCAGC	NotI and BamHI
MSR1 fragment *1-50*	Hs	CTTGCGGCCGCGGAGC AGTGGGATCACTTTCA	TTGGATCCCTAAGCTTTG AAGGACTTCAGTT	NotI and BamHI
MSR1 fragment *1-80*	Hs	CTTGCGGCCGCGGAGC AGTGGGATCACTTTCA	TTGGATCCCTACGTTTCCC ACTTCAGGAG	NotI and BamHI
MSR1 fragment *51-end*	Hs	CTTGCGCCCGCGGCAC TGATTGCCCTTTAC	TTGGATCCCTATAAAGTGC AAGTGACTCCAGC	NotI and BamHI

100 Supplemental Table S2

101 **Primers for qPCR, Related to Figure 3**

Gene	Species	Forward primer (5'-3')	Reverse primer (5'-3')
VSV	Indiana strain	TGATACAGTACAATTATTTTGGGAC	GAGACTTTCTGTTACGGGATCTGG
Ldlr	Mm	GAATCTACTGGTCCGACCTGTC	CTGTCCAGTAGATGTTGCGGTG
Msr1 (Scara1)	Mm	AGTGCTGTCTTCTTTACCAGC	GTGAGGAAGGGATGCTGTA
Scara2	Mm	ATGGCACCAAGGGAGACAAAGG	GCCTGGTTTTCCAGCATCACCT
Scara3	Mm	CCACGGAGAAATCCTTCGCAATG	TAGGTCCTCTGCTACCAACAGG
Scara4	Mm	ACTCCAAGCACGGTCAGCTCAT	CTTGTTGCCAGTTGGACCAGGT
Scara5	Mm	TTTGATGGCAGGAGCCTGTCCA	CCCACAAGAATCAGGAAGACCAG
Scarb1	Mm	ACACCCGAATCCTCGCTGGAAT	CCGTTGGCAAACAGAGTATCGG
Scarb2	Mm	TAGCCAACACCTCCGAAAACGC	CGAACTTCTCGTCGGCTTGGTA
Scarb3 (CD36)	Mm	GGACATTGAGATTCTTTTCCTCTG	CAAAGGCATTGGCTGGAAGAAC
Msr2	Mm	CCTGATCCAGAGTGCAATCGTG	CACATCTCCGATGAAGGGCAAG
Actin	Mm	AGAGGGAAATCGTGCGTGAC	CAATAGTGATGATGACCTGGCCGT
Ifna	Mm	CTTCCACAGGATCACTGTGTACCT	TTCTGCTCTGACCACCTCCC
Tnfa	Mm	CTCCAGGCGGTGCCTATGT	GAAGAGCGTGGTGGCCC
Il6	Mm	CCAGAAACCGCTATGAAGTTCC	TCACCAGCATCAGTCCCAAG
Cxcl10	Mm	ATCATCCCTGCGAGCCTATCCT	GACCTTTTTTGGCTAAACGCTTTC

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