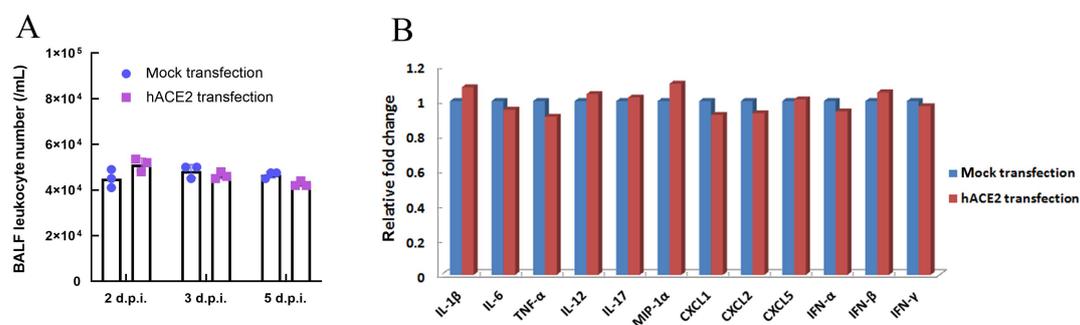


## Supplementary Material

Supplementary Table S1 qRT-PCR primers for cytokine mRNAs

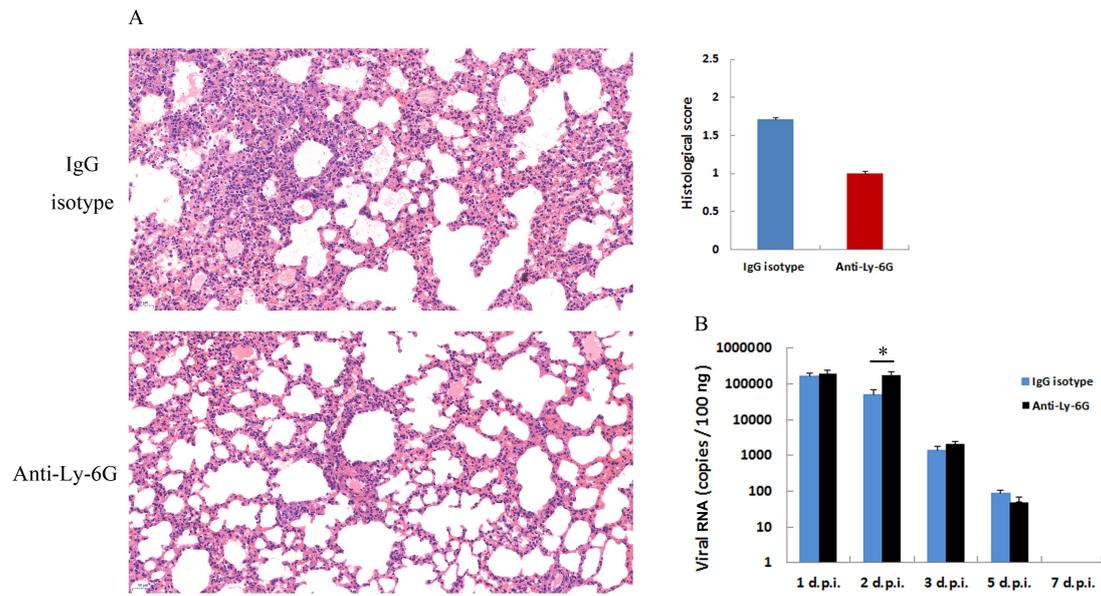
Genes	Direction	Sequence
$\beta$ -actin	forward	gtgacgttgacatccgtaaaga
	reverse	gccggactcatcgtactcc
IL-1 $\beta$	forward	gaaatgccacctttgacagtg
	reverse	tggatgctctcatcaggacag
TNF- $\alpha$	forward	caggcggcctatgtctc
	reverse	cgatcaccggaagttcagtag
IL-6	forward	ctgcaagagacttccatccag
	reverse	agtggatagacaggctctgttg
IL-2	forward	tctgcgcatgttctggattt
	reverse	atgtgtgtcagagcccttag
IL-4	forward	cccagctagttgcatcctg
	reverse	caagtgattttgtcgcacccg
IL-10	forward	cttactgactggcatgaggatca
	reverse	gcagctctaggagcatgtgg
IL-12P40	forward	gtcctcagaagctaaccatctcc
	reverse	ccagagcctatgactccatgctc
IL-17	forward	tcagcgtgtccaacactgag
	reverse	cgccaaggagttaaagactt
GM-CSF	forward	ggccttgaagcatgtagagg
	reverse	ggagaactcgttagagacgactt
MIP-1 $\alpha$	forward	tgtaccatgacactctgcaac
	reverse	caacgatgaattggcgtggaa
CCL5	forward	gttccatctcgccattcatgc

	reverse	gcggctatgactgaggaagg
CXCL1	forward	actgcacccaaccgaagtc
	reverse	tggggacaccttttagcatctt
CXCL2	forward	ccaaccaccaggctacagg
	reverse	gcgtcacactcaagctctg
CXCL5	forward	gttccatctcgccattcatgc
	reverse	gcggctatgactgaggaagg
IFN- $\alpha$	forward	atggctaggctcagcactttc
	reverse	ctcactcagacttgccagca
IFN- $\beta$	forward	agctccaagaaaggacgaaca
	reverse	gccctgtaggtgaggttgat
IFN- $\gamma$	forward	gccacggcacagtcattga
	reverse	tgctgatggcctgattgtctt



### Supplementary Figure S1 Lung immune response upon hACE2 *in-vivo* transfection

Mice underwent pulmonary transfection with hACE2 expression plasmid (35  $\mu$ g each) or control pCMV3 plasmid (mock transfection) via orotracheal intubation, after which lungs and BALF were harvested from mice at different days post-transfection. A: Total numbers of leukocytes in BALF at different dpi were determined. B: mRNA levels of cytokines from lung tissue homogenates of transfected mice at 2 dpi were examined by qRT-PCR (normalized to  $\beta$ -actin).



### Supplementary Figure S2 Effects of neutrophil depletion on pulmonary SARS-CoV-2 infection in hACE2 *in-vivo* transfected mice

Two days (48 h) after *in-vivo* transfection with hACE2 plasmid, mice were intranasally infected with SARS-CoV-2 virus ( $1 \times 10^5$  CCID<sub>50</sub>) and received intraperitoneal administration (500  $\mu$ g per mouse) of anti-Ly6G Ab or isotype control antibodies one day before infection and every 48 h thereafter. A: Lungs were harvested from infected mice at 2 dpi, fixed in formalin, and embedded in paraffin. Lung sections were stained with hematoxylin and eosin for histopathological analysis (original magnification, 20 $\times$ ). Lung histological scores were assessed by a veterinary pathologist blind to the study, as described in the Methods and Materials section. B: Lungs were harvested at different dpi, viral RNA was determined based on number of nucleocapsid (N) gene RNA copies detected by qRT-PCR. Error bars indicate standard deviation of triplicate biological samples. \*:  $P < 0.05$  based on Student's *t*-test.