FIG. 1

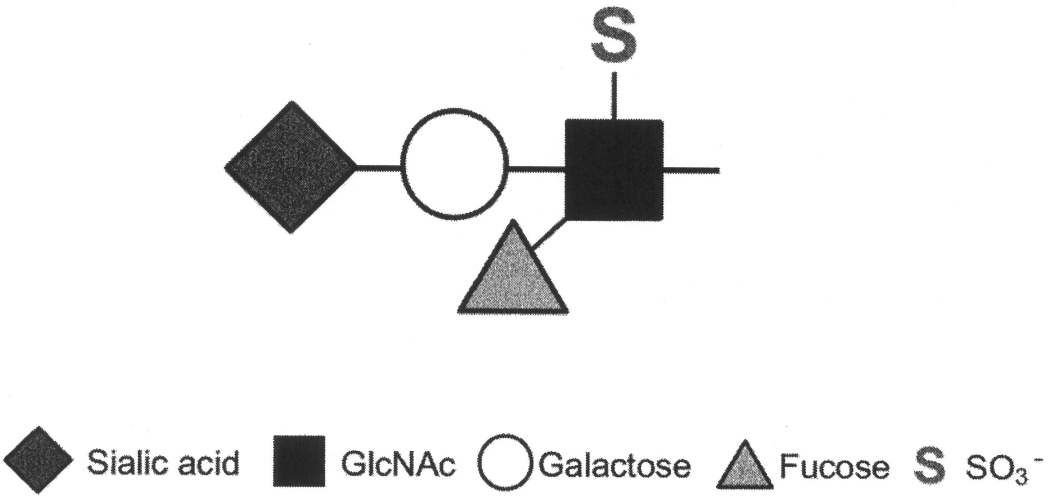

S
Sialic acid
GlcNAc
Galactose
Fucose
S
SO_3^-

FIG. 2

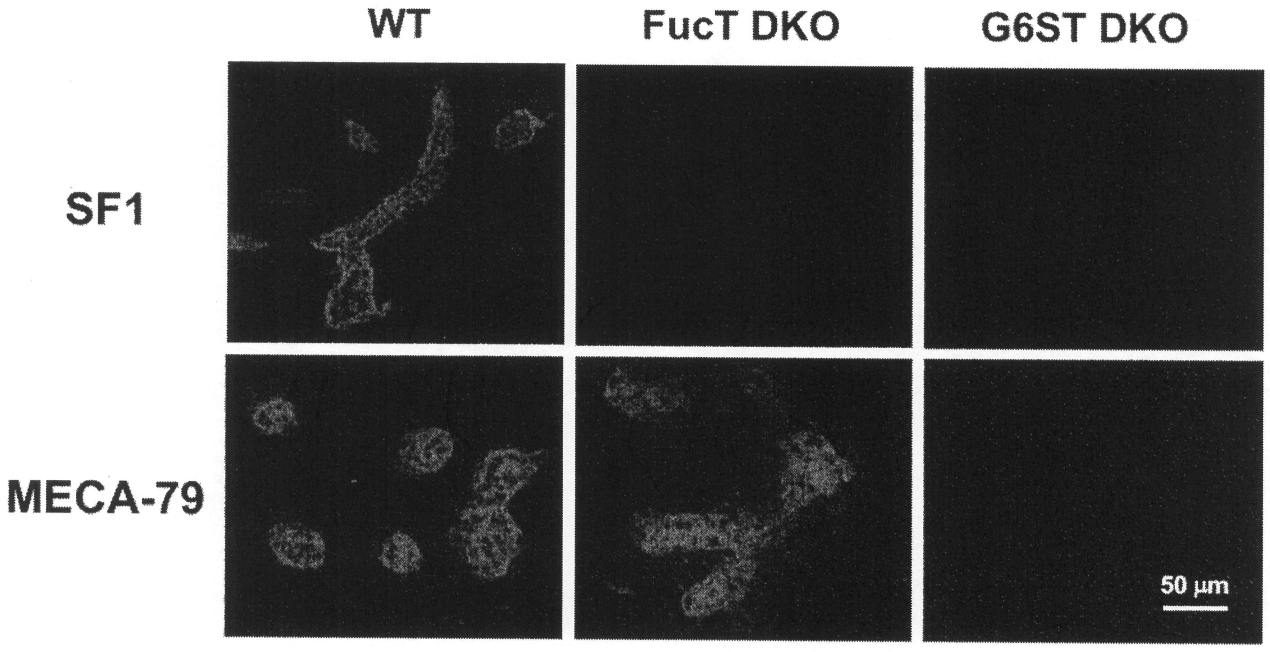

WT
FucT DKO
G6ST DKO
SF1
MECA-79
50 μm

FIG. 3

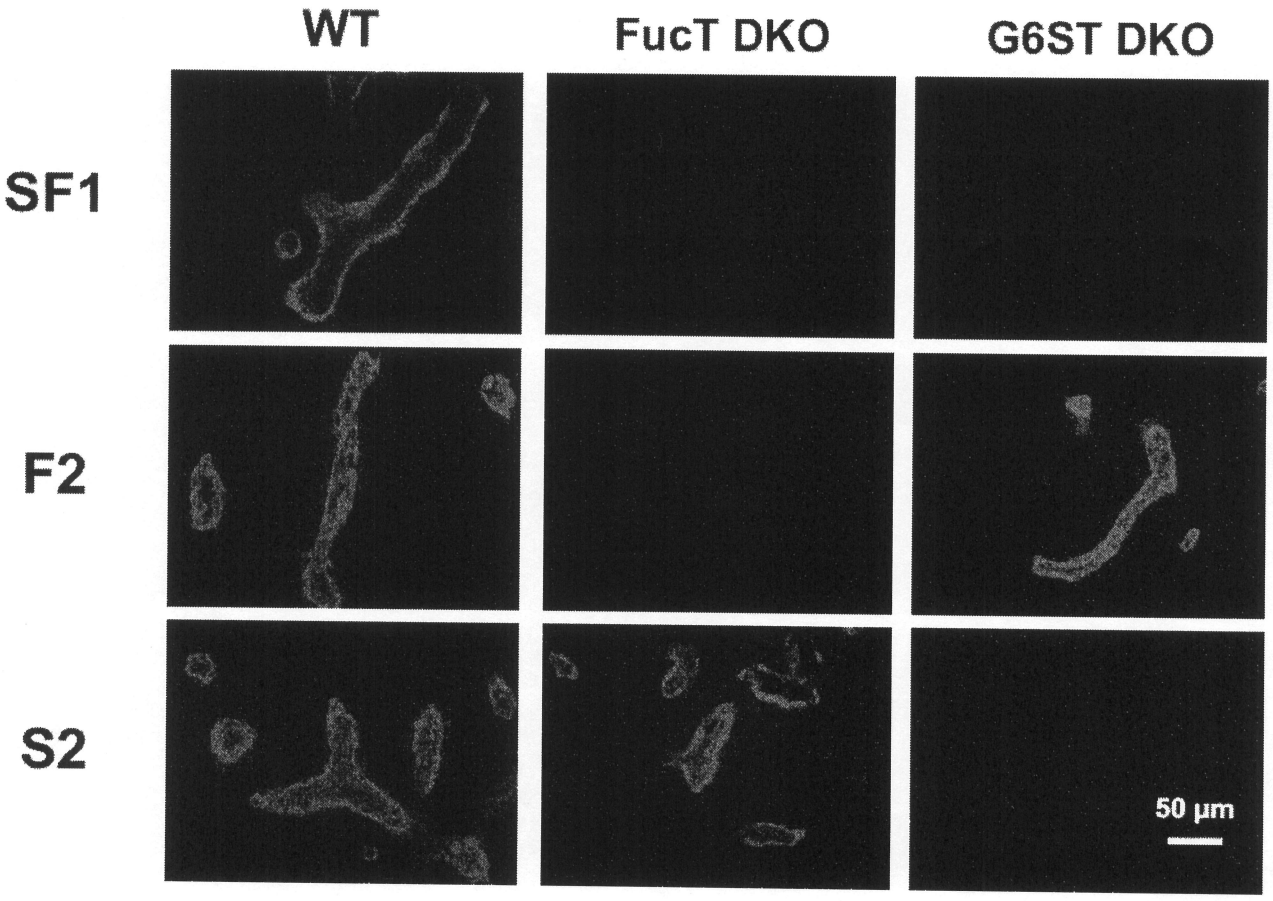

WT
FucT DKO
G6ST DKO
SF1
F2
S2
50 µm

FIG. 4

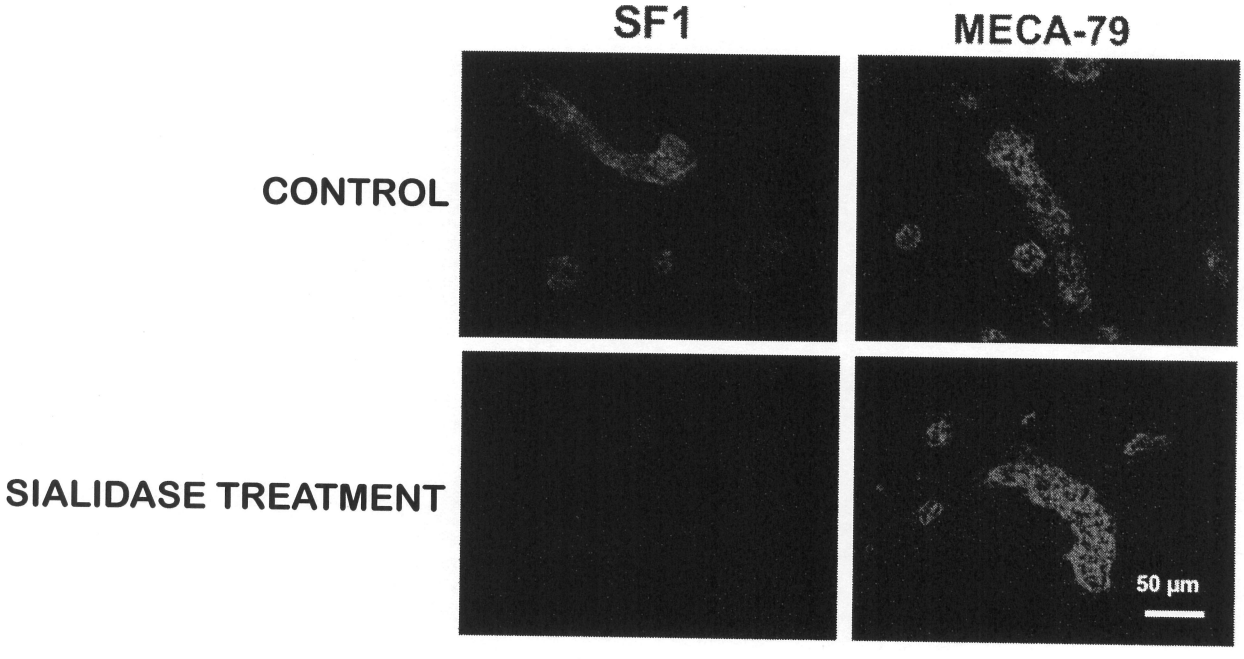

SF1
MECA-79
CONTROL
SIALIDASE TREATMENT
50 µm

FIG. 5

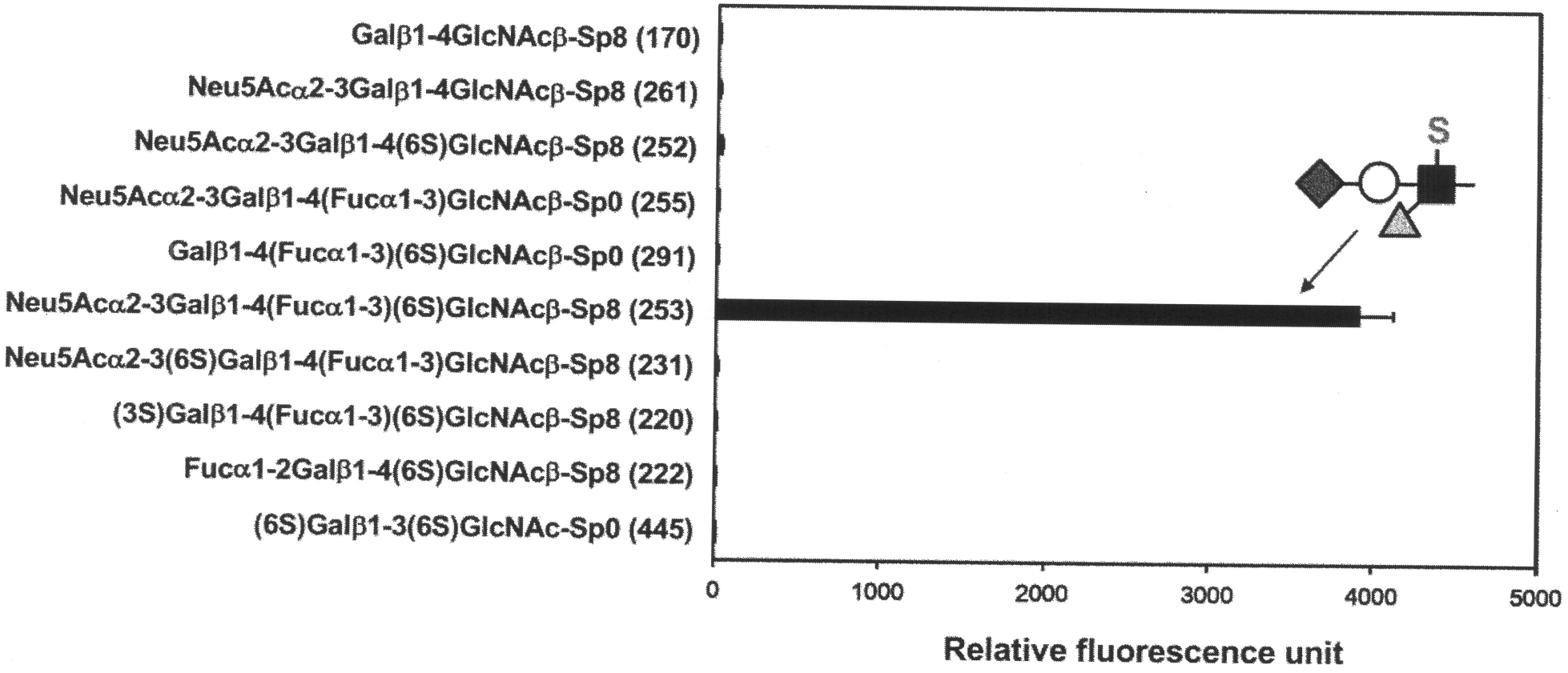

Galβ1-4GlcNAcβ-Sp8 (170)
Neu5Acα2-3Galβ1-4GlcNAcβ-Sp8 (261)
Neu5Acα2-3Galβ1-4(6S)GlcNAcβ-Sp8 (252)
Neu5Acα2-3Galβ1-4(Fucα1-3)GlcNAcβ-Sp0 (255)
Galβ1-4(Fucα1-3)(6S)GlcNAcβ-Sp0 (291)
Neu5Acα2-3Galβ1-4(Fucα1-3)(6S)GlcNAcβ-Sp8 (253)
Neu5Acα2-3(6S)Galβ1-4(Fucα1-3)GlcNAcβ-Sp8 (231)
(3S)Galβ1-4(Fucα1-3)(6S)GlcNAcβ-Sp8 (220)
Fucα1-2Galβ1-4(6S)GlcNAcβ-Sp8 (222)
(6S)Galβ1-3(6S)GlcNAc-Sp0 (445)
S
0
1000
2000
3000
4000
5000
Relative fluorescence unit

FIG. 6

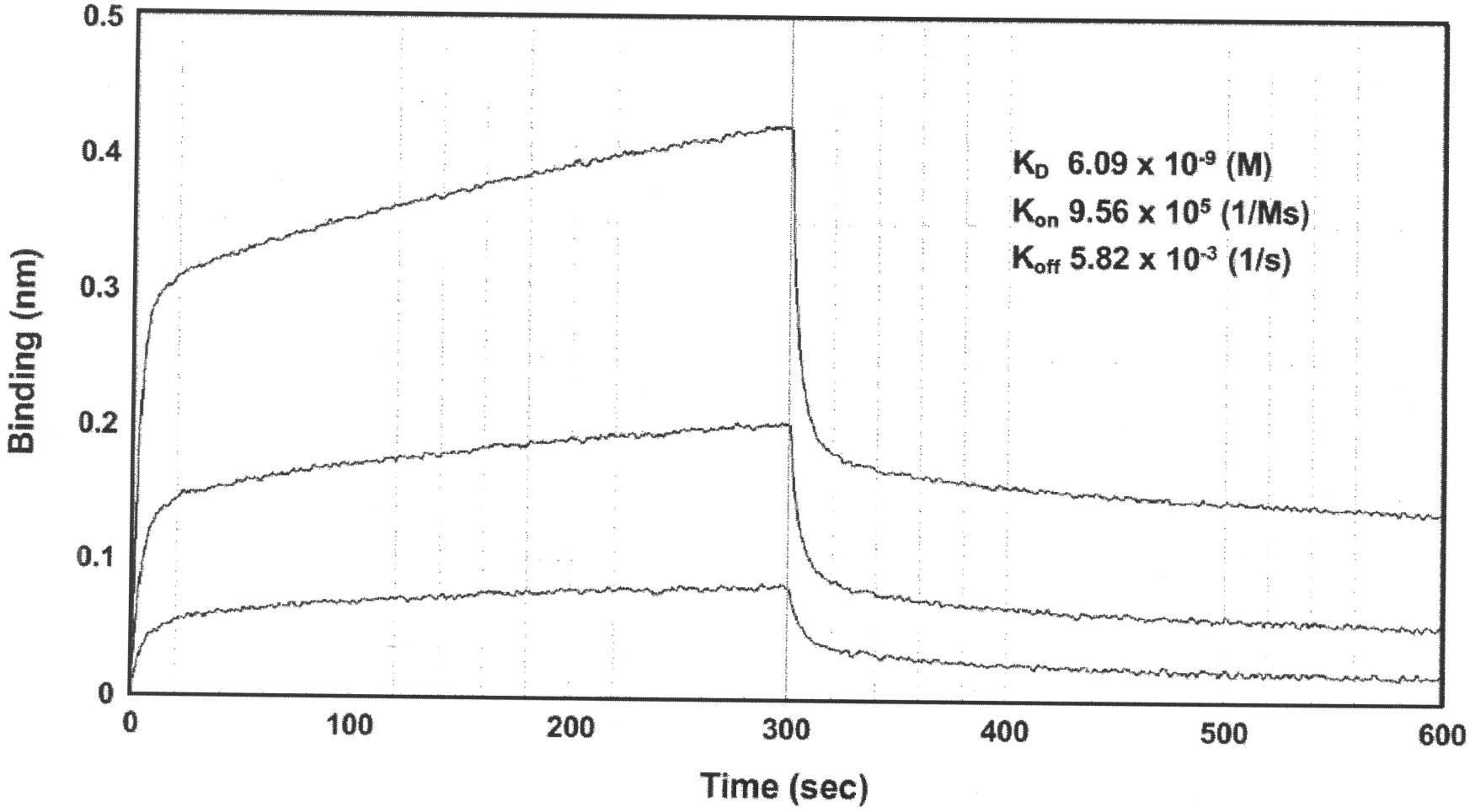

0.5
0.4
0.3
0.2
0.1
0
Binding (nm)
0
100
200
300
400
500
600
Time (sec)
K_D 6.09 x 10^{-9} (M)
K_{on} 9.56 x 10^{5} (1/Ms)
K_{off} 5.82 x 10^{-3} (1/s)

FIG. 7

	CDR1	CDR2	CDR3
HEAVY CHAIN	GFSLTSYA **(SEQ ID NO: 1)**	IWGGGST **(SEQ ID NO: 2)**	AKHEKLGRFPY **(SEQ ID NO: 3)**
LIGHT CHAIN	SSVSY **(SEQ ID NO: 4)**	EIS **(SEQ ID NO: 5)**	QQWNYPLAT **(SEQ ID NO: 6)**

FIG. 8

SF1 HEAVY CHAIN VARIABLE REGION (SEQ ID NO: 13)

QVQLKESGPGLVAPSQSLSITCTVS**GFSLTSYA**VHWVRQP
PGKGLEWLGI**IWGGGST**NYNSALMSRLSISKDNSKSQVFL
KMNSLQTDDTAMYYC**AKHEKLGRFPY**WGQGTLVTVSA

FIG. 9

SF1 LIGHT CHAIN VARIABLE REGION (SEQ ID NO: 14)

EIVLTQSPAITAASLGQKVTITCSAS**SSVSY**MHWYQQKSG
TSPKPWIY**EIS**KLASGVPARFSGSGSGTSYSLTISSMEAE
DAAIYYC**QQWNYPLAT**FGGGTKLEIK

FIG. 10

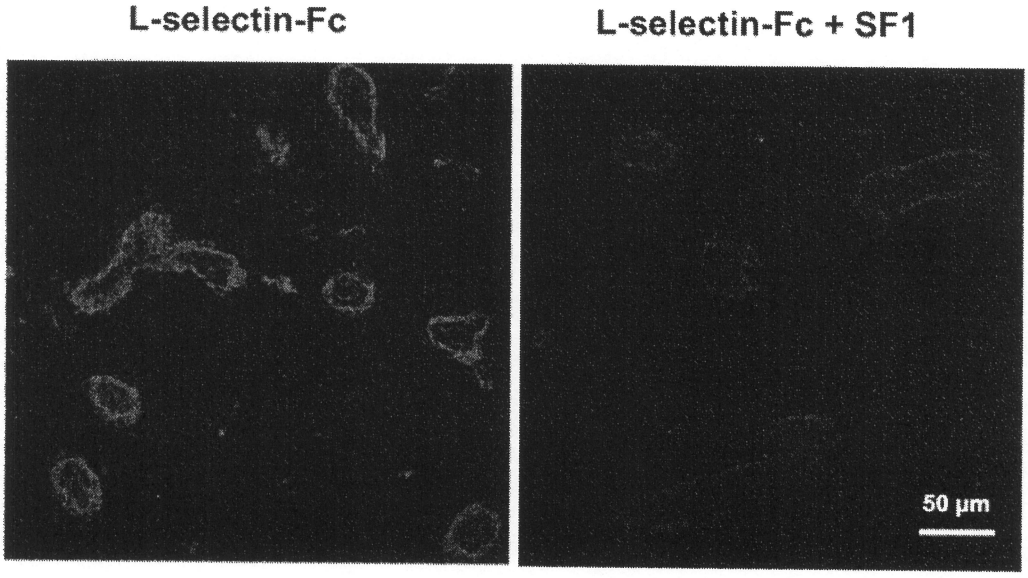

L-selectin-Fc
L-selectin-Fc + SF1
50 μm

FIG. 11

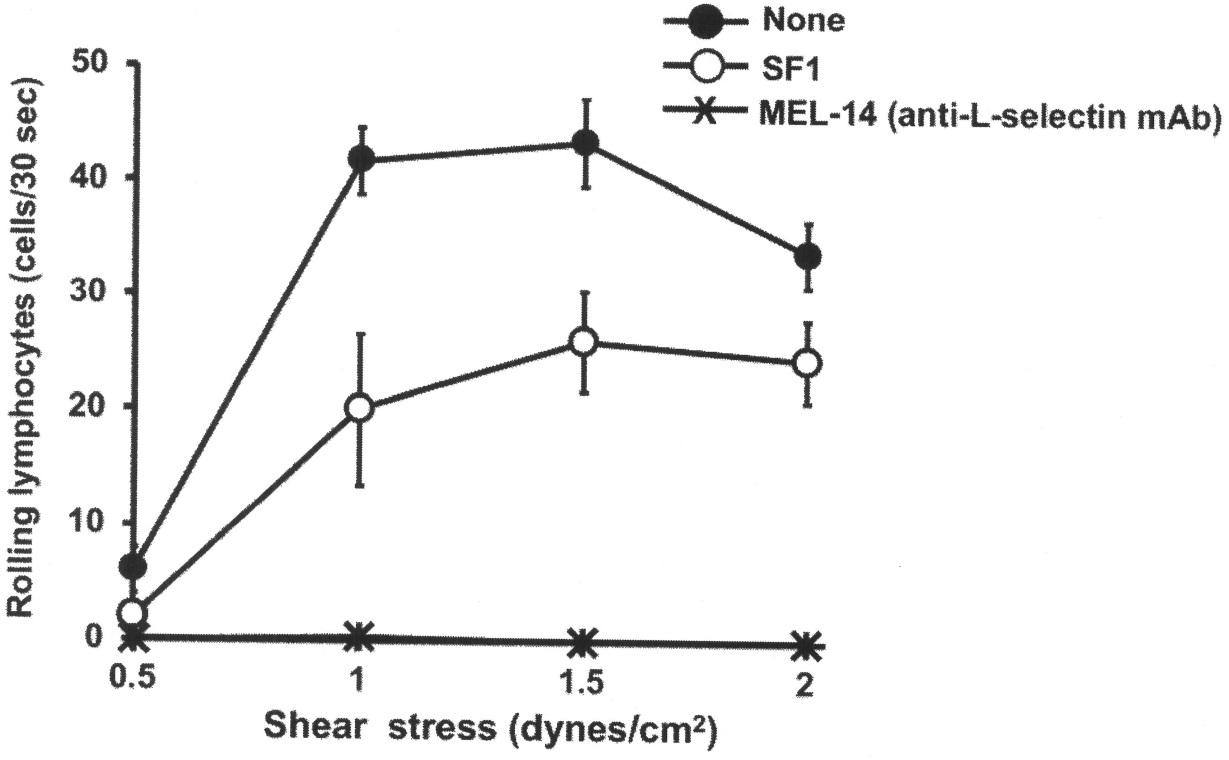

None
SF1
MEL-14 (anti-L-selectin mAb)
Rolling lymphocytes (cells/30 sec)
50
40
30
20
10
0
0.5
1
1.5
2
Shear stress (dynes/cm²)

FIG. 12

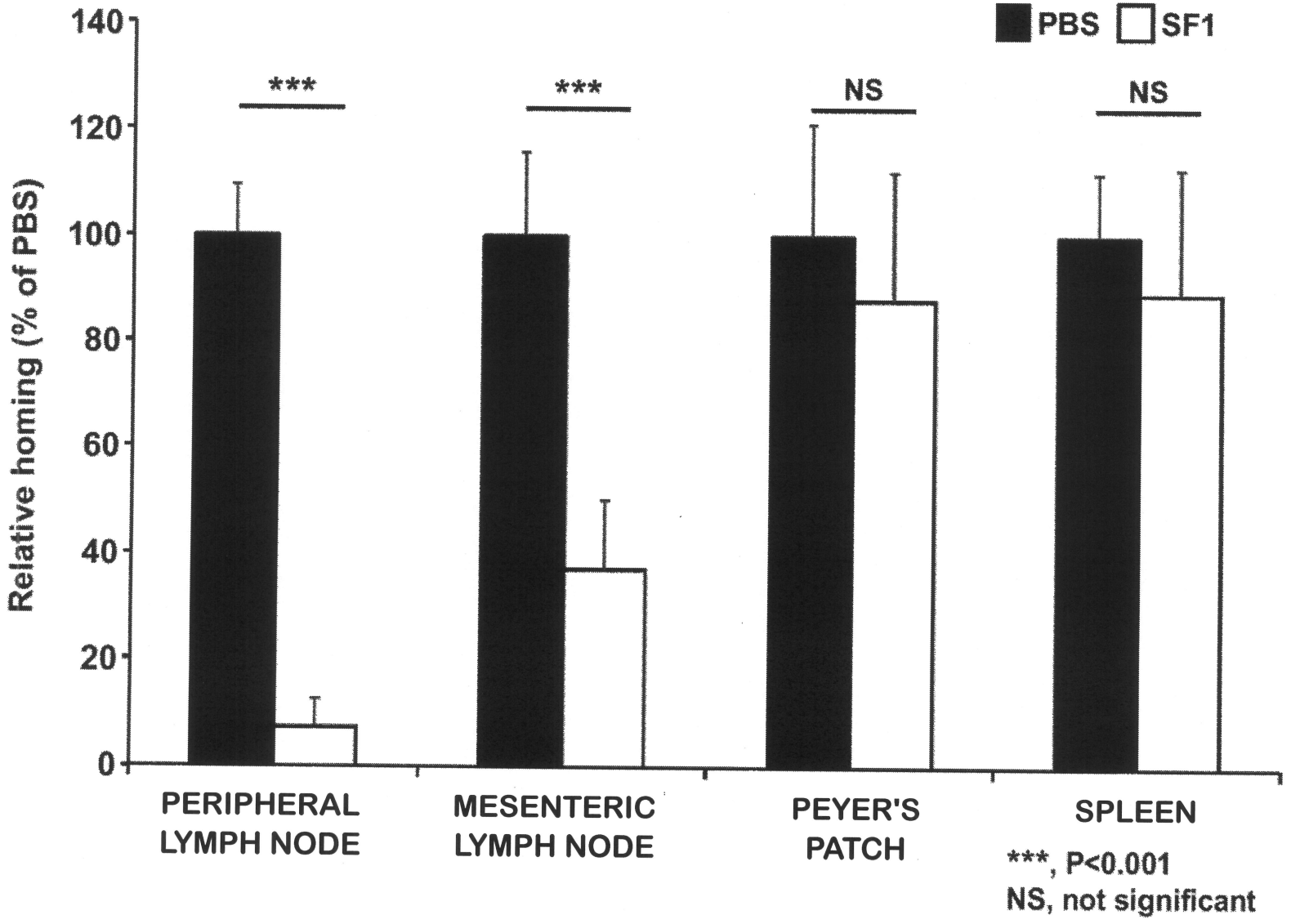

PBS
SF1
Relative homing (% of PBS)
140
120
100
80
60
40
20
0
***
***
NS
NS
PERIPHERAL LYMPH NODE
MESENTERIC LYMPH NODE
PEYER'S PATCH
SPLEEN
***, P<0.001
NS, not significant

FIG. 13

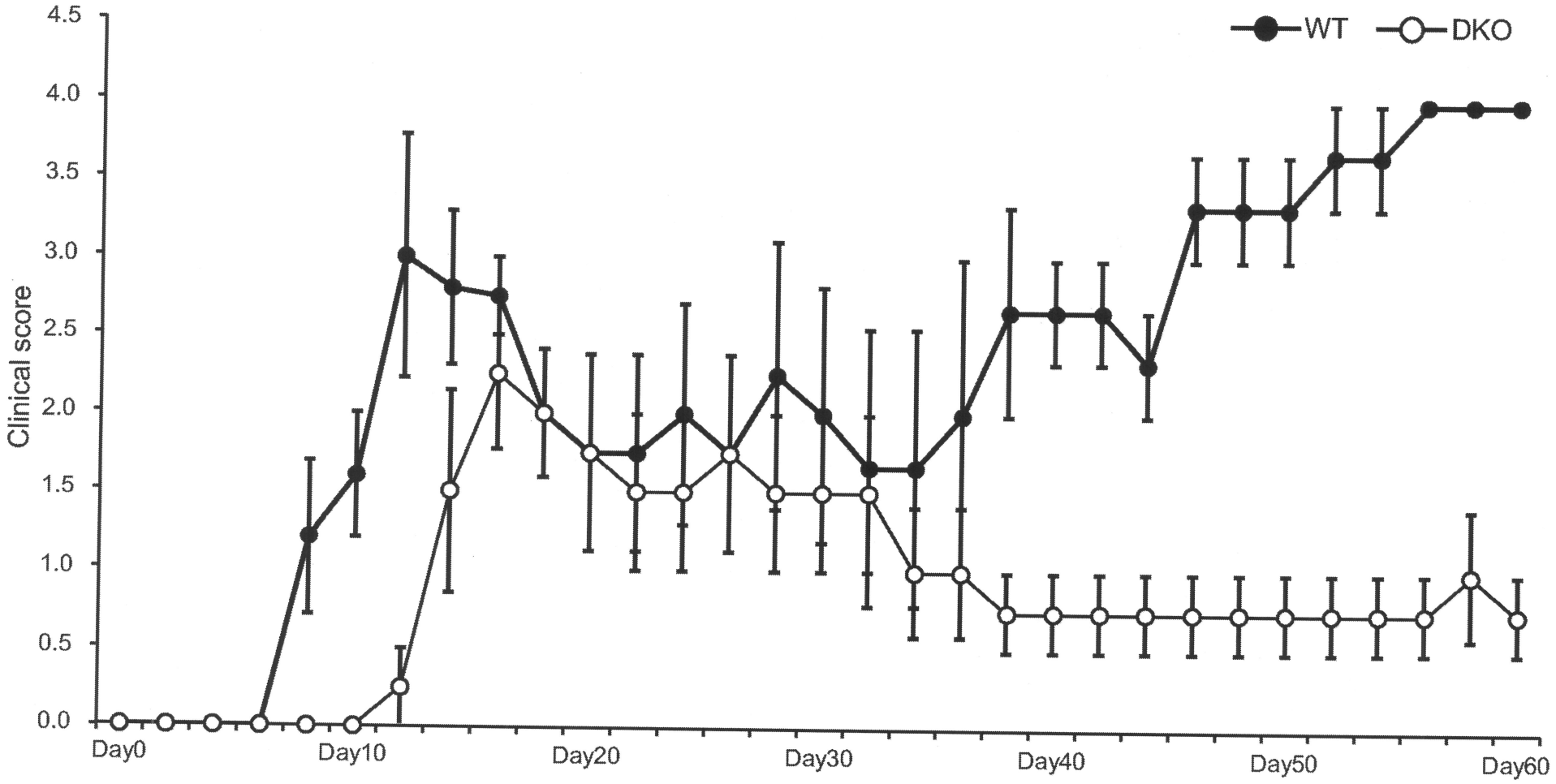

WT
DKO
Clinical score
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Day0
Day10
Day20
Day30
Day40
Day50
Day60

FIG. 14

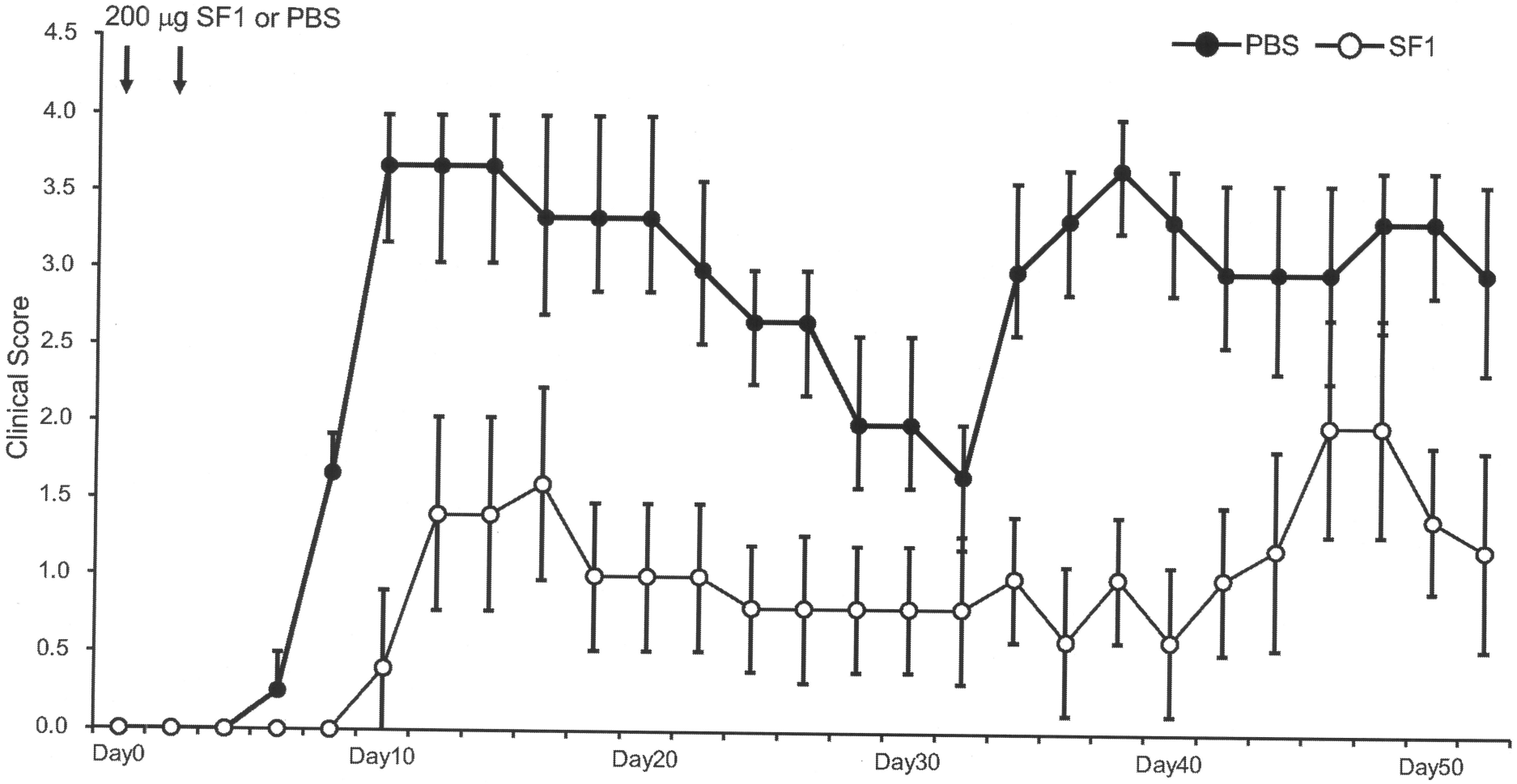

200 μg SF1 or PBS
PBS
SF1
Clinical Score
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Day0
Day10
Day20
Day30
Day40
Day50

FIG. 15

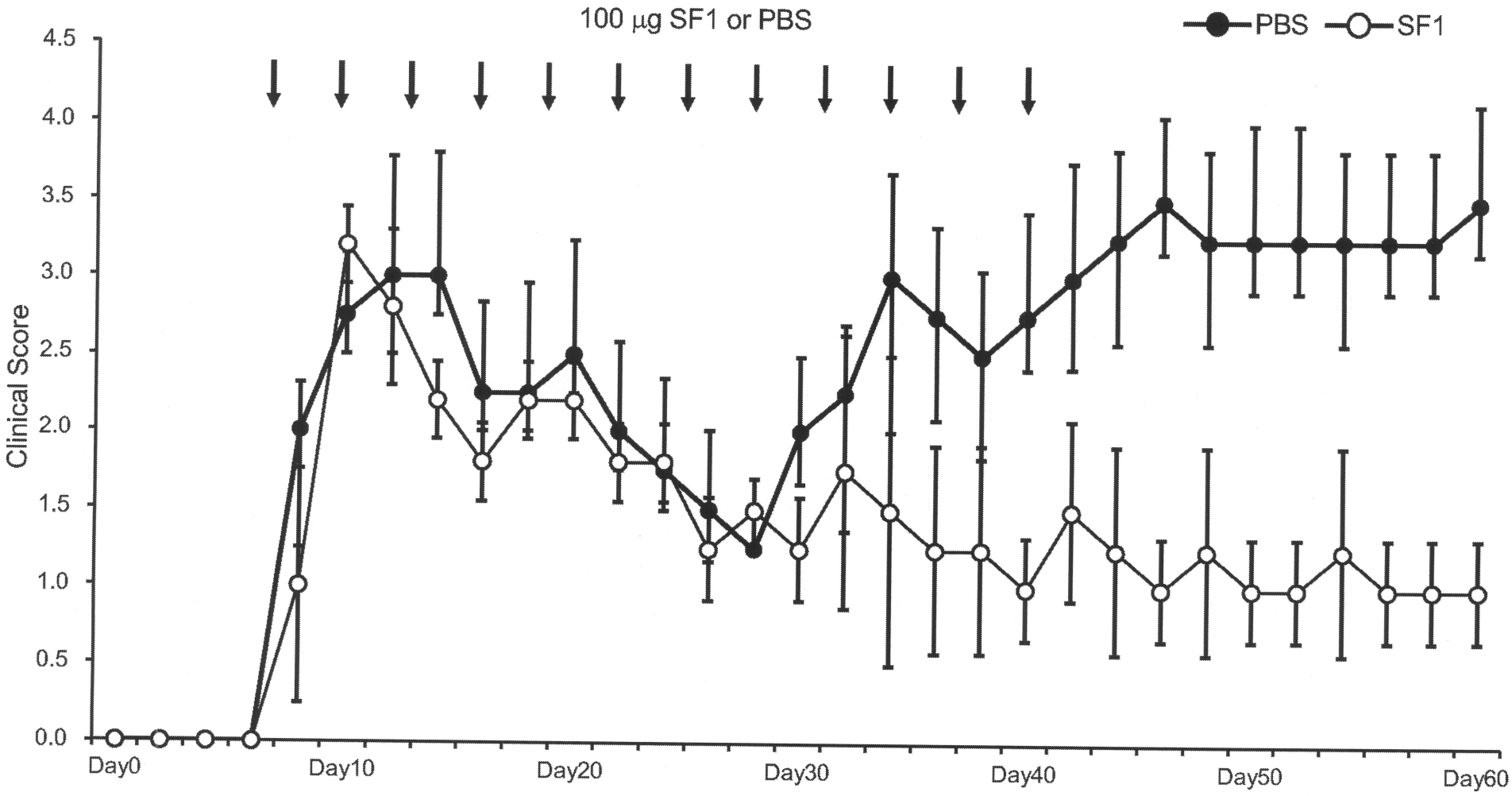

100 μg SF1 or PBS
PBS
SF1
Clinical Score
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Day0
Day10
Day20
Day30
Day40
Day50
Day60

FIG. 16

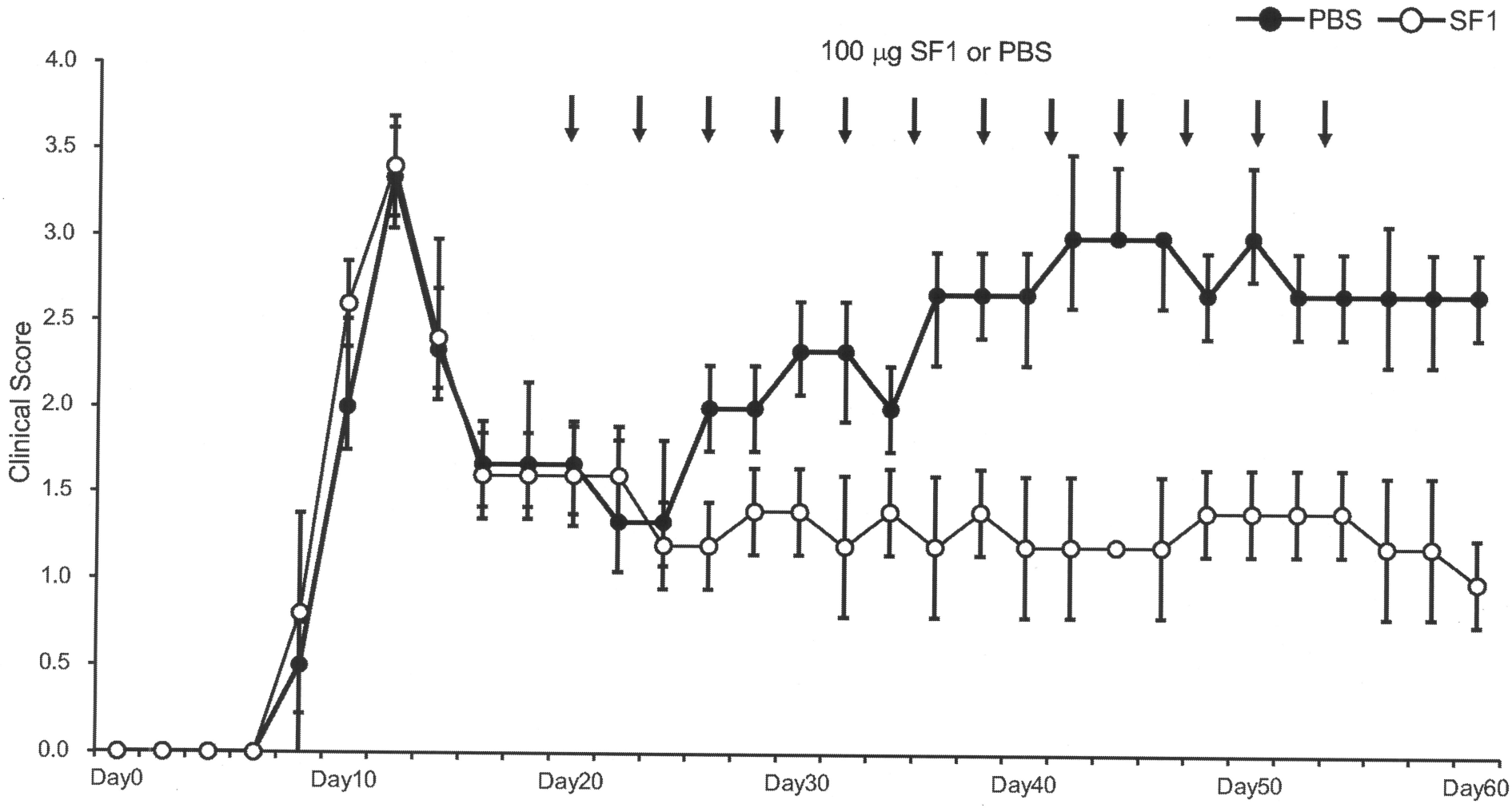

PBS
SF1
100 μg SF1 or PBS
Clinical Score
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Day0
Day10
Day20
Day30
Day40
Day50
Day60

FIG. 17

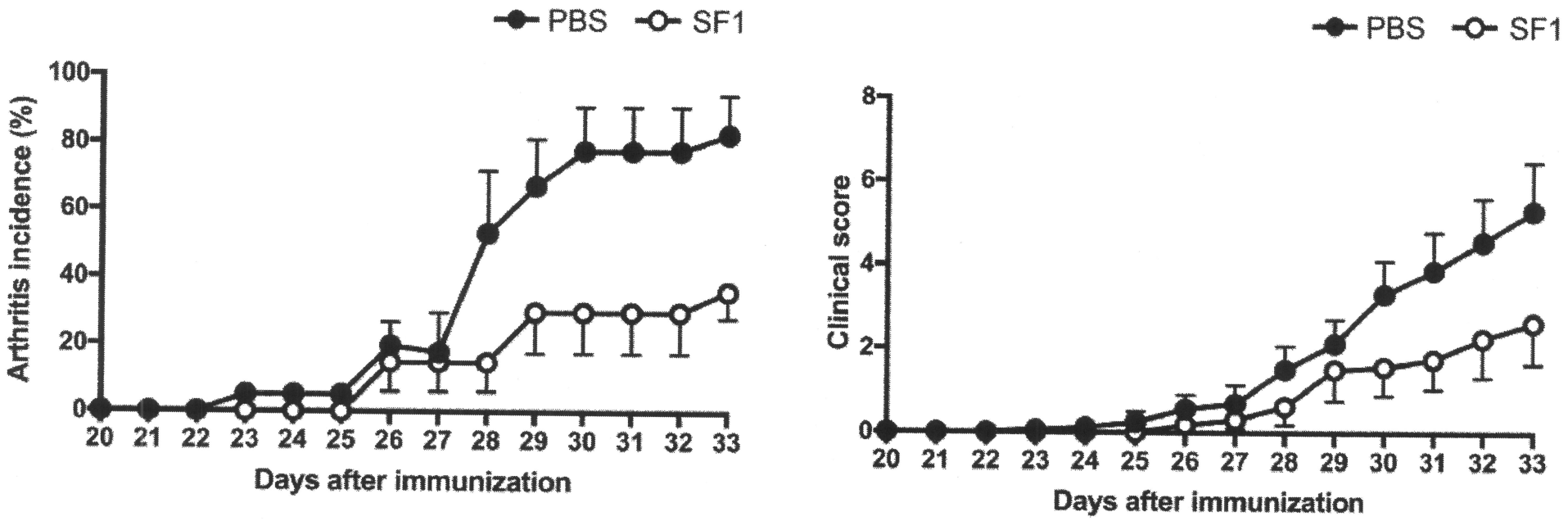

PBS
SF1
Arthritis incidence (%)
100
80
60
40
20
0
20 21 22 23 24 25 26 27 28 29 30 31 32 33
Days after immunization
PBS
SF1
Clinical score
8
6
4
2
0
20 21 22 23 24 25 26 27 28 29 30 31 32 33
Days after immunization

FIG. 18

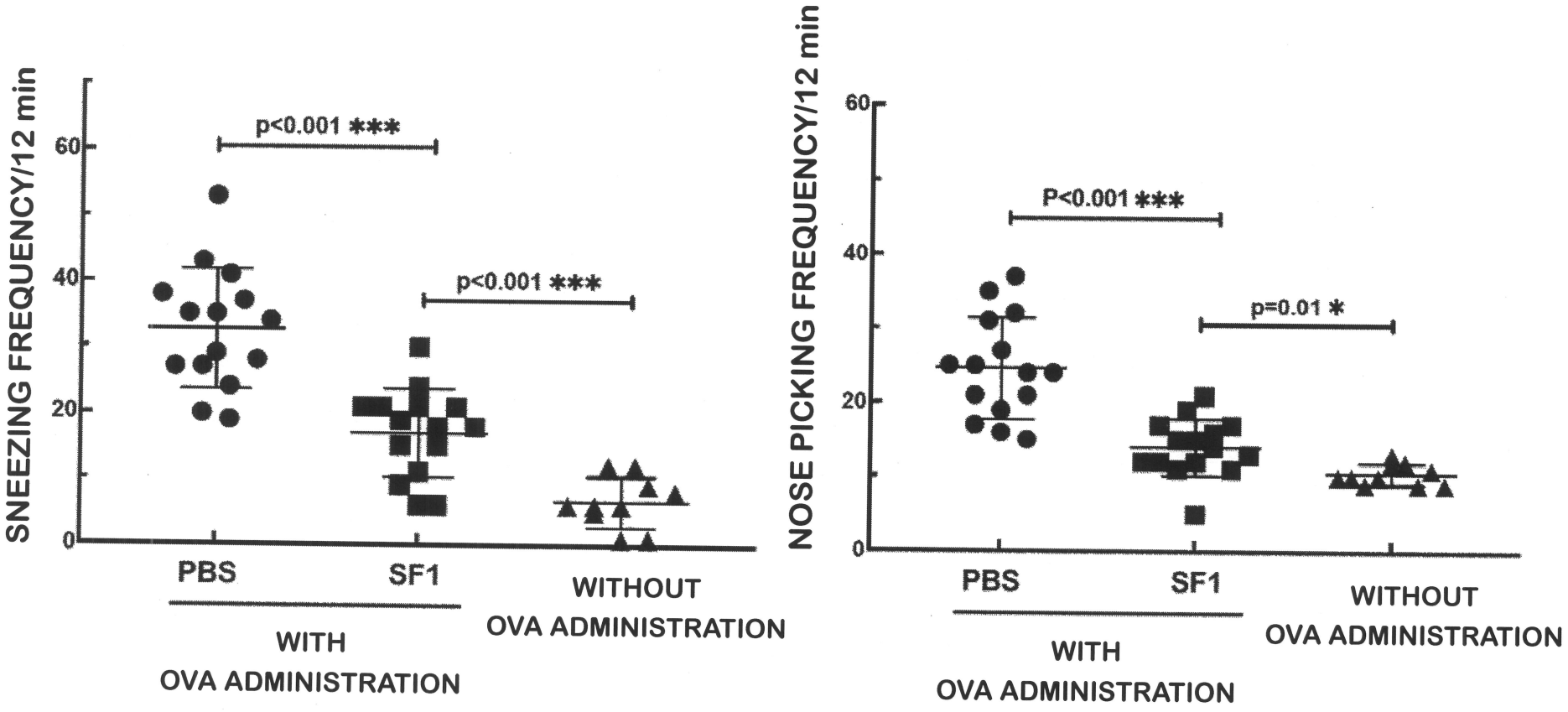

SNEEZING FREQUENCY/12 min
60
40
20
0
p<0.001 ***
p<0.001 ***
PBS
SF1
WITHOUT
OVA ADMINISTRATION
WITH
OVA ADMINISTRATION
NOSE PICKING FREQUENCY/12 min
60
40
20
0
P<0.001 ***
p=0.01 *
PBS
SF1
WITHOUT
OVA ADMINISTRATION
WITH
OVA ADMINISTRATION

FIG. 19

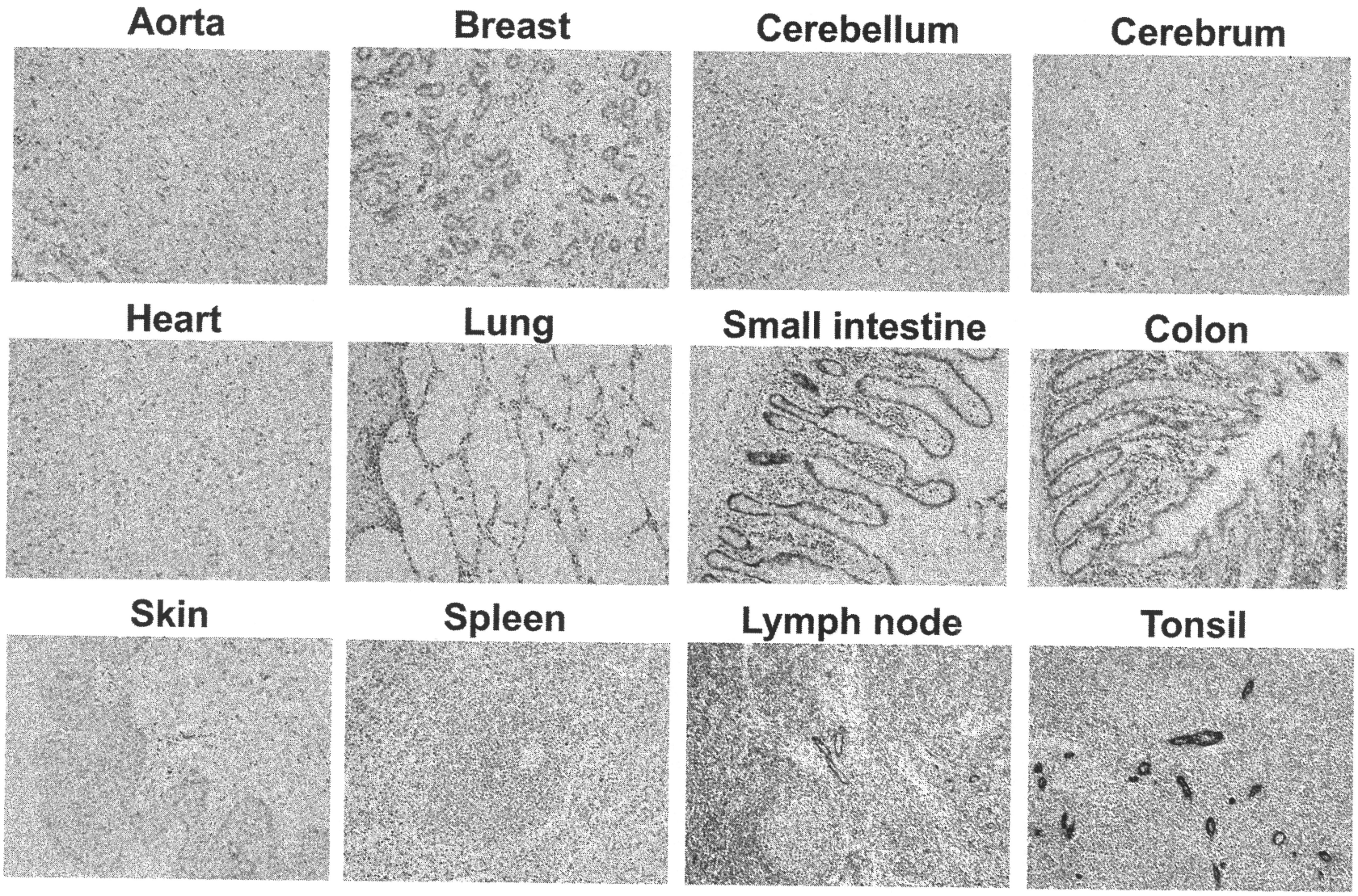

Aorta
Breast
Cerebellum
Cerebrum
Heart
Lung
Small intestine
Colon
Skin
Spleen
Lymph node
Tonsil

FIG. 20

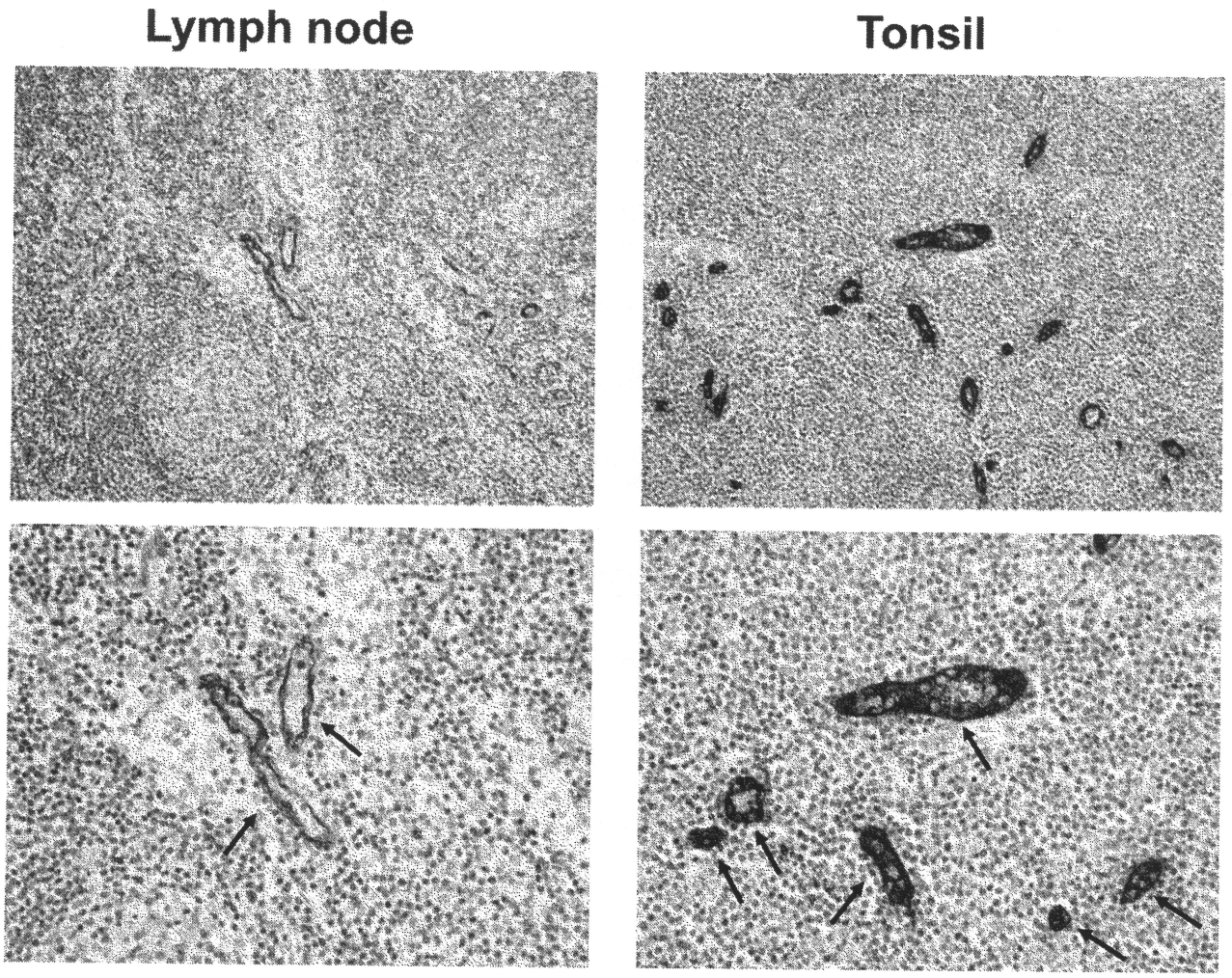


FIG. 21

HUMANIZED SF1 HEAVY CHAIN VARIABLE REGION H1 (SEQ ID NO: 15)

QVQLQESGPGLVKPSETLSLTCTVS**GFSLTSYA**VHWVRQP
PGKGLEWLGI**IWGGGST**NYNSALKSRVTISKDNSKSQVSL
KLSSVTAADTAVYYC**AKHEKLGRFPY**WGQGTLVTVSS

HUMANIZED SF1 HEAVY CHAIN VARIABLE REGION H2 (SEQ ID NO: 16)

QVQLQESGPGLVKPSETLSLTCTVS**GFSLTSYA**VHWIRQP
PGKGLEWIGI**IWGGGST**NYNSALKSRVTISKDNSKSQVSL
KLSSVTAADTAVYYC**AKHEKLGRFPY**WGQGTLVTVSS

HUMANIZED SF1 HEAVY CHAIN VARIABLE REGION H3 (SEQ ID NO: 17)

QVQLVESGGGVVQPGGSLRLSCAVS**GFSLTSYA**VHWVRQA
PGKGLEWLGI**IWGGGST**NYNSAVKGRFTISKDNSKSSVYL
QMNSLRTEDTALYYC**AKHEKLGRFPY**WGQGTLVTVSS

HUMANIZED SF1 LIGHT CHAIN VARIABLE REGION L1 (SEQ ID NO: 18)

EIQLTQSPSSLSASVGDRVTITCRAS**SSVSY**MHWYQQKPG
KAPKPLIY**EIS**KLASGVPSRFSGSGSGTDYTLTISSLQPE
DFATYYC**QQWNYPLAT**FGGGTKLEIK

HUMANIZED SF1 LIGHT CHAIN VARIABLE REGION L2 (SEQ ID NO: 19)

DIQLTQSPSSLSASVGDRVTITCRAS**SSVSY**MHWYQQKPG
KAPKPLIY**EIS**KLASGVPSRFSGSGSGTDYTLTISSLQPE
DFATYYC**QQWNYPLAT**FGGGTKLEIK

HUMANIZED SF1 LIGHT CHAIN VARIABLE REGION L3 (SEQ ID NO: 20)

EIVLTQSPDFQSVTPKEKVTITCRAS**SSVSY**MHWYQQKPD
QSPKPLIY**EIS**KLASGVPSRFSGSGSGTDYTLTINSLEAE
DAATYYC**QQWNYPLAT**FGGGTKLEIK

FIG. 22

HUMANIZED SF1-scFv-H1L1 (SEQ ID NO: 21)

QVQLQESGPGLVKPSETLSLTCTVS**GFSLTSYA**VHWVRQP
PGKGLEWLGI**IWGGGST**NYNSALKSRVTISKDNSKSQVSL
KLSSVTAADTAVYYC**AKHEKLGRFPY**WGQGTLVTVSSGGG
GSGGGGSGGGGSEIQLTQSPSSLSASVGDRVTITCRAS**SS**
VSYMHWYQQKPGKAPKPLIY**EIS**KLASGVPSRFSGSGSGT
DYTLTISSLQPEDFATYYC**QQWNYPLAT**FGGGTKLEIKGL
QQGGTHHHHHH

HUMANIZED SF1-scFv-H1L2 (SEQ ID NO: 22)

QVQLQESGPGLVKPSETLSLTCTVS**GFSLTSYA**VHWVRQP
PGKGLEWLGI**IWGGGST**NYNSALKSRVTISKDNSKSQVSL
KLSSVTAADTAVYYC**AKHEKLGRFPY**WGQGTLVTVSSGGG
GSGGGGSGGGGSDIQLTQSPSSLSASVGDRVTITCRAS**SS**
VSYMHWYQQKPGKAPKPLIY**EIS**KLASGVPSRFSGSGSGT
DYTLTISSLQPEDFATYYC**QQWNYPLAT**FGGGTKLEIKGL
QQGGTHHHHHH

HUMANIZED SF1-scFv-H2L1 (SEQ ID NO: 23)

QVQLQESGPGLVKPSETLSLTCTVS**GFSLTSYA**VHWIRQP
PGKGLEWIGI**IWGGGST**NYNSALKSRVTISKDNSKSQVSL
KLSSVTAADTAVYYC**AKHEKLGRFPY**WGQGTLVTVSSGGG
GSGGGGSGGGGSEIQLTQSPSSLSASVGDRVTITCRAS**SS**
VSYMHWYQQKPGKAPKPLIY**EIS**KLASGVPSRFSGSGSGT
DYTLTISSLQPEDFATYYC**QQWNYPLAT**FGGGTKLEIKGL
QQGGTHHHHHH

HUMANIZED SF1-scFv-H3L3 (SEQ ID NO: 24)

QVQLVESGGGVVQPGGSLRLSCAVS**GFSLTSYA**VHWVRQA
PGKGLEWLGI**IWGGGST**NYNSAVKGRFTISKDNSKSSVYL
QMNSLRTEDTALYYC**AKHEKLGRFPY**WGQGTLVTVSSGGG
GSGGGGSGGGGSEIVLTQSPDFQSVTPKEKVTITCRAS**SS**
VSYMHWYQQKPDQSPKPLIY**EIS**KLASGVPSRFSGSGSGT
DYTLTINSLEAEDAATYYC**QQWNYPLAT**FGGGTKLEIKGL
QQGGTHHHHHH

FIG. 23

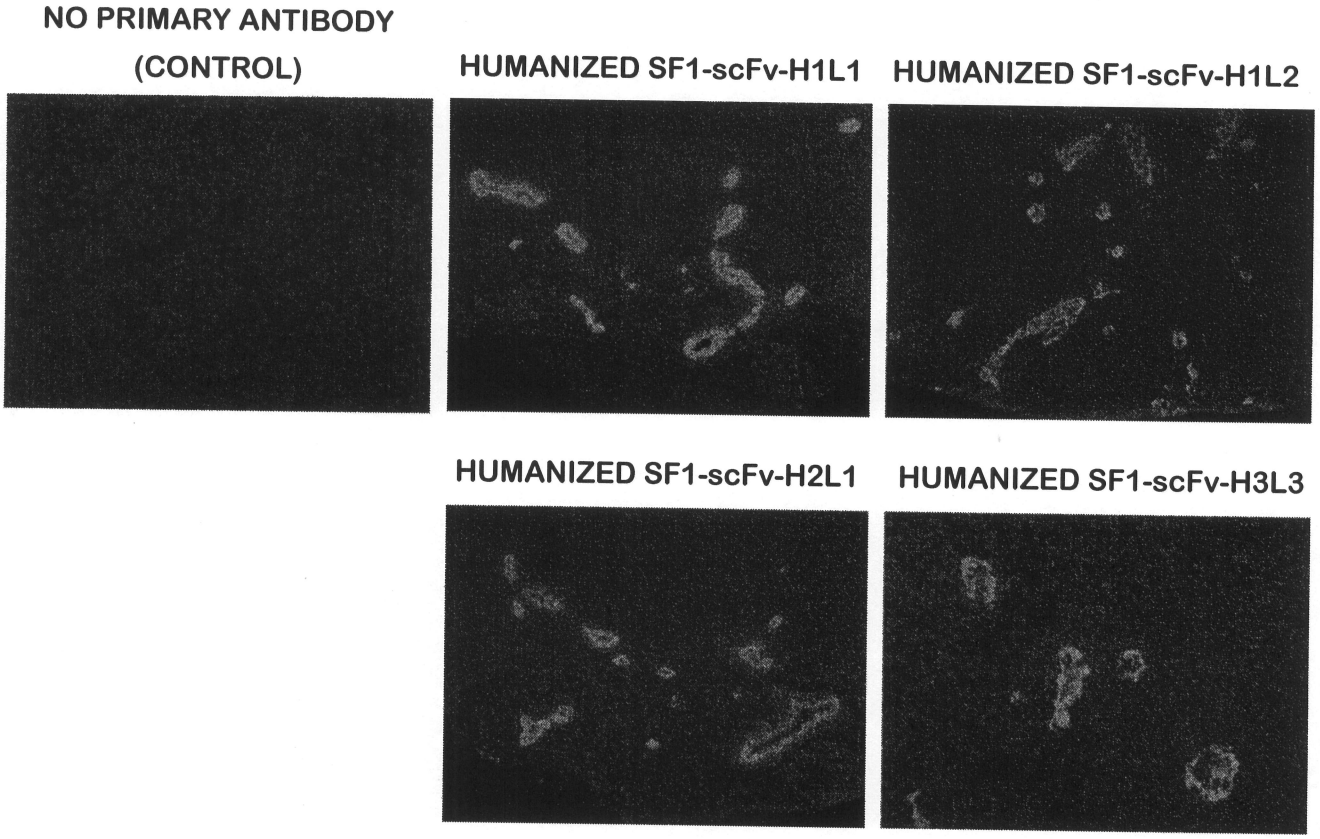


FIG. 24

HUMANIZED SF1 HEAVY CHAIN FULL LENGTH (SEQ ID NO: 25)

QVQLQESGPGLVKPSETLSLTCTVS**GFSLTSYA**VHWVRQP
PGKGLEWLGI**IWGGGST**NYNSALKSRVTISKDNSKSQVSL
KLSSVTAADTAVYYC**AKHEKLGRFPY**WGQGTLVTVSSAST
KGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNS
GALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTQTYIC
NVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPELLGGPSV
FLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVD
GVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNGKEYK
CKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRDELTK
NQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDS
DGSFFLYSKLTVDKSRWQQGNVFSCSVMHEALHNHYTQKS
LSLSPGK

FIG. 25

HUMANIZED SF1 LIGHT CHAIN FULL LENGTH (SEQ ID NO: 26)

EIQLTQSPSSLSASVGDRVTITCRAS**SSVSY**MHWYQQKPG
KAPKPLIY**EIS**KLASGVPSRFSGSGSGTDYTLTISSLQPE
DFATYYC**QQWNYPLAT**FGGGTKLEIKRTVAAPSVFIFPPS
DEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQE
SVTEQDSKDSTYSLSSTLTLSKADYEKHKVYACEVTHQGL
SSPVTKSFNRGEC

FIG. 26

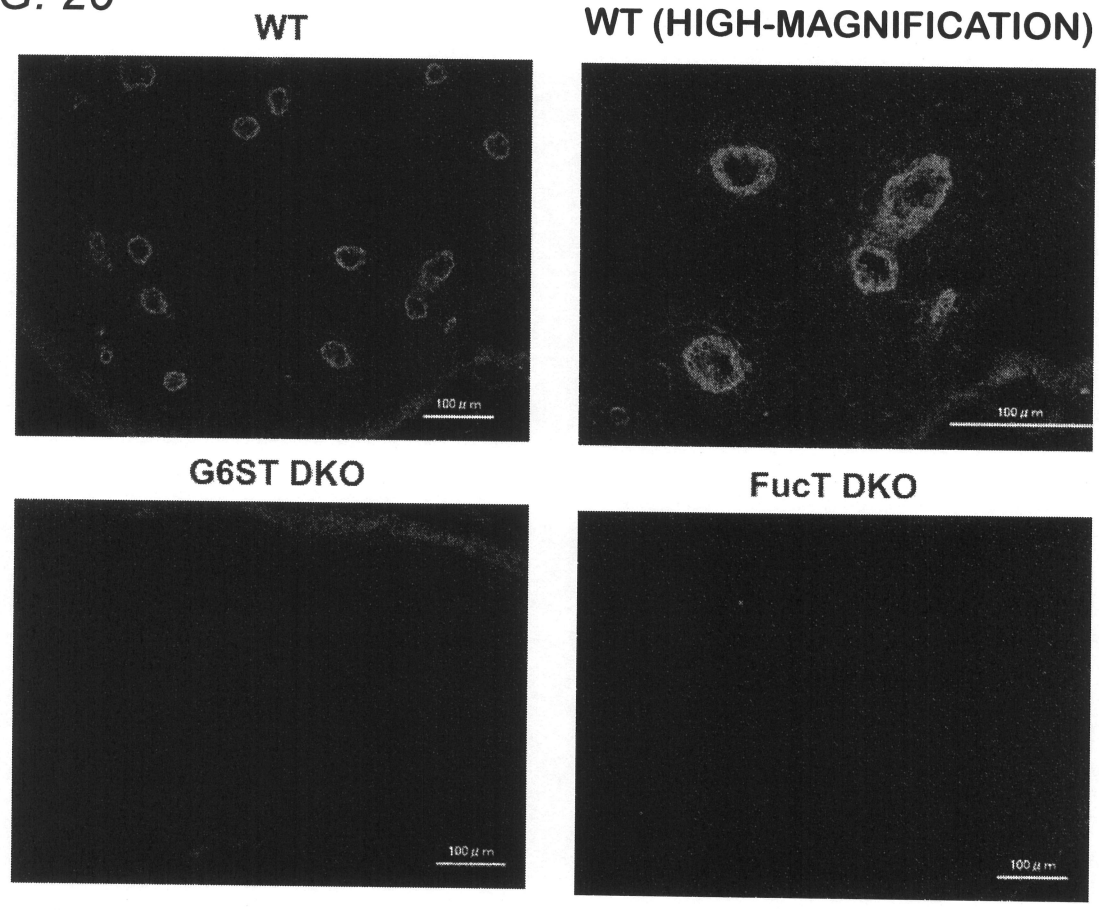


FIG. 27

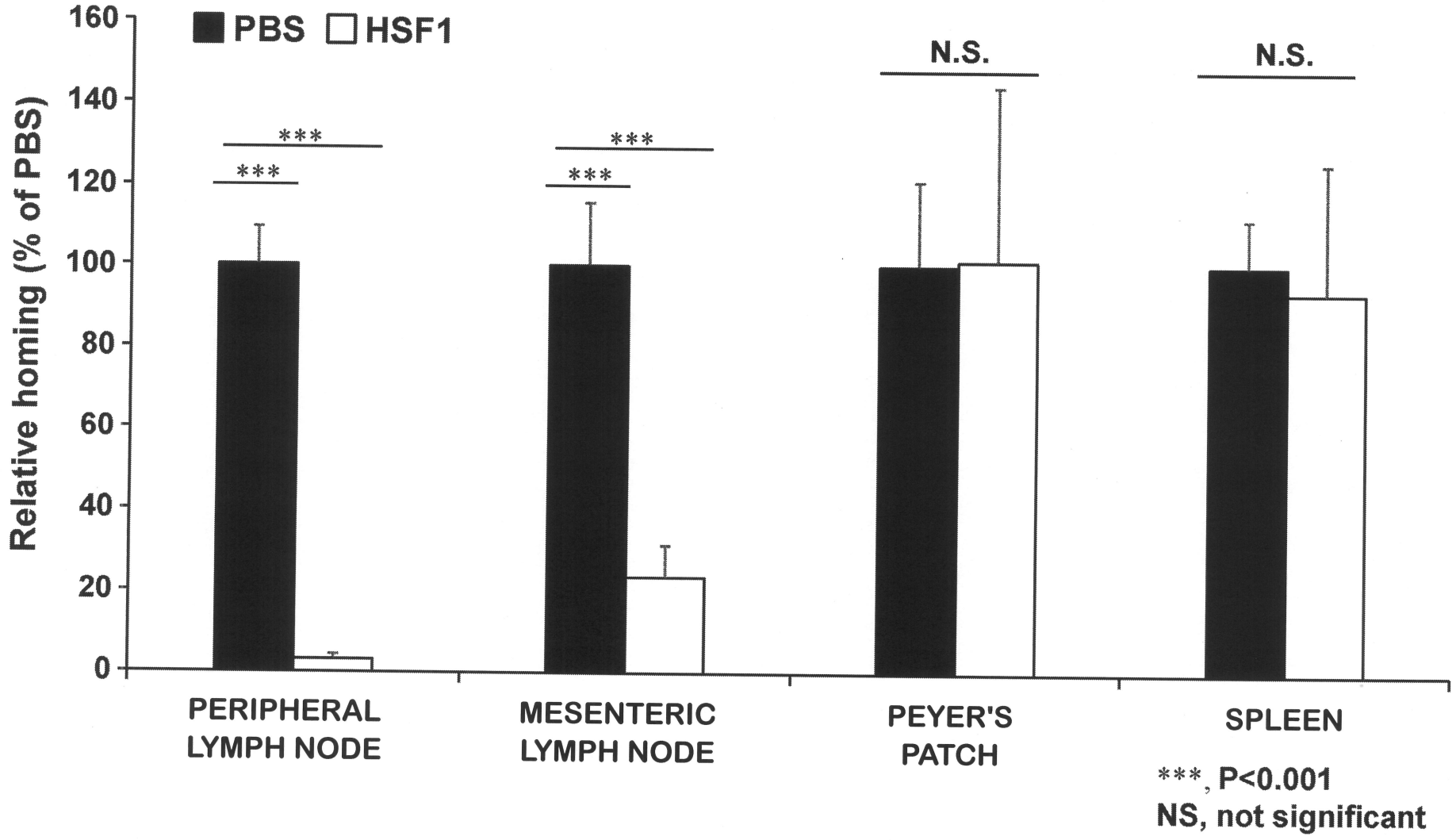

PBS
HSF1
Relative homing (% of PBS)
160
140
120
100
80
60
40
20
0
***
***
***
***
N.S.
N.S.
PERIPHERAL LYMPH NODE
MESENTERIC LYMPH NODE
PEYER'S PATCH
SPLEEN
***, P<0.001
NS, not significant

FIG. 28

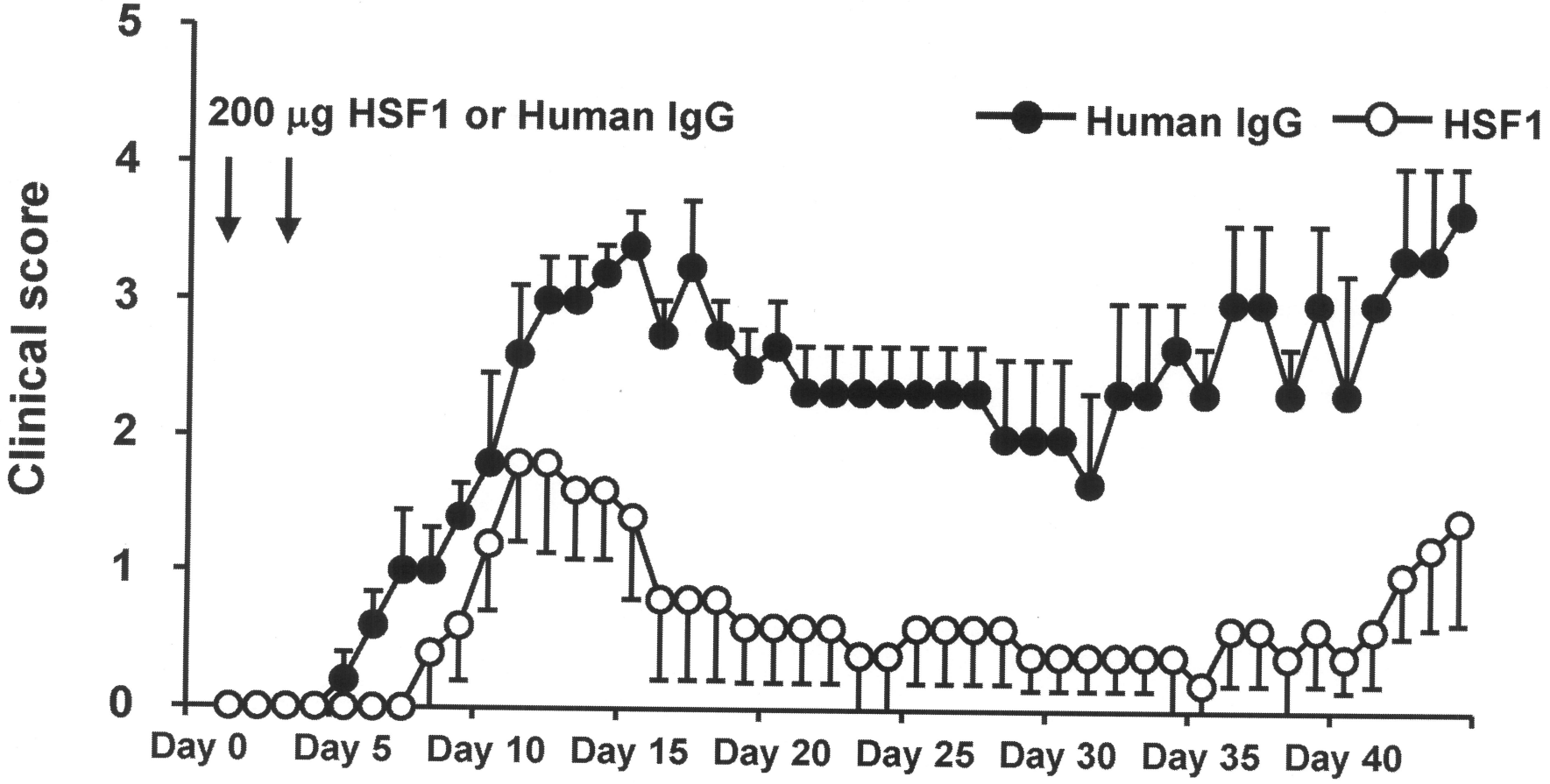

Clinical score
5
4
3
2
1
0
200 μg HSF1 or Human IgG
Human IgG
HSF1
Day 0
Day 5
Day 10
Day 15
Day 20
Day 25
Day 30
Day 35
Day 40

FIG. 29

HUMANIZED SF1 HEAVY CHAIN IgG1-LALA VARIANT FULL LENGTH (SEQ ID NO: 27)

QVQLQESGPGLVKPSETLSLTCTVS**GFSLTSYA**VHWVRQP
PGKGLEWLGI**IWGGGST**NYNSALKSRVTISKDNSKSQVSL
KLSSVTAADTAVYYC**AKHEKLGRFPY**WGQGTLVTVSSAST
KGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNS
GALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTQTYIC
NVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPEAAGGPSV
FLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVD
GVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNGKEYK
CKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRDELTK
NQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDS
DGSFFLYSKLTVDKSRWQQGNVFSCSVMHEALHNHYTQKS
LSLSPGK

FIG. 30

HUMANIZED SF1 HEAVY CHAIN IgG4-SPLE VARIANT FULL LENGTH (SEQ ID NO: 28)

QVQLQESGPGLVKPSETLSLTCTVS**GFSLTSYA**VHWVRQP
PGKGLEWLGI**IWGGGST**NYNSALKSRVTISKDNSKSQVSL
KLSSVTAADTAVYYC**AKHEKLGRFPY**WGQGTLVTVSSAST
KGPSVFPLAPCSRSTSESTAALGCLVKDYFPEPVTVSWNS
GALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTKTYTC
NVDHKPSNTKVDKRVESKYGPPCPPCPAPEFEGGPSVFLF
PPKPKDTLMISRTPEVTCVVVDVSQEDPEVQFNWYVDGVE
VHNAKTKPREEQFNSTYRVVSVLTVLHQDWLNGKEYKCKV
SNKGLPSSIEKTISKAKGQPREPQVYTLPPSQEEMTKNQV
SLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGS
FFLYSRLTVDKSRWQEGNVFSCSVMHEALHNHYTQKSLSL
SLGK

FIG. 31

