Fig. 1

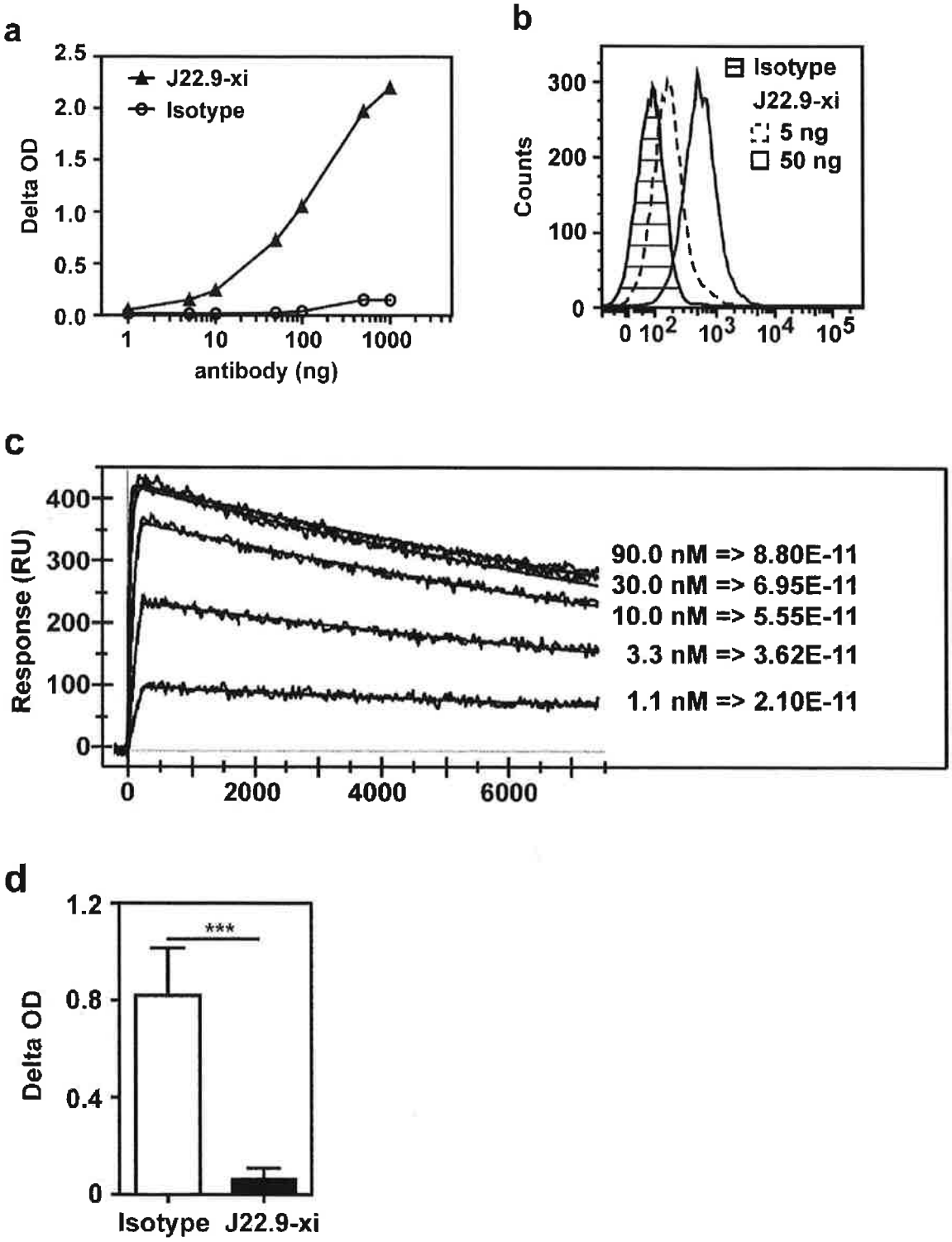

a
J22.9-xi
Isotype
Delta OD
antibody (ng)
b
Isotype
J22.9-xi
5 ng
50 ng
Counts
c
Response (RU)
90.0 nM => 8.80E-11
30.0 nM => 6.95E-11
10.0 nM => 5.55E-11
3.3 nM => 3.62E-11
1.1 nM => 2.10E-11
d
***
Delta OD
Isotype
J22.9-xi

Fig. 2



Fig. 2 B

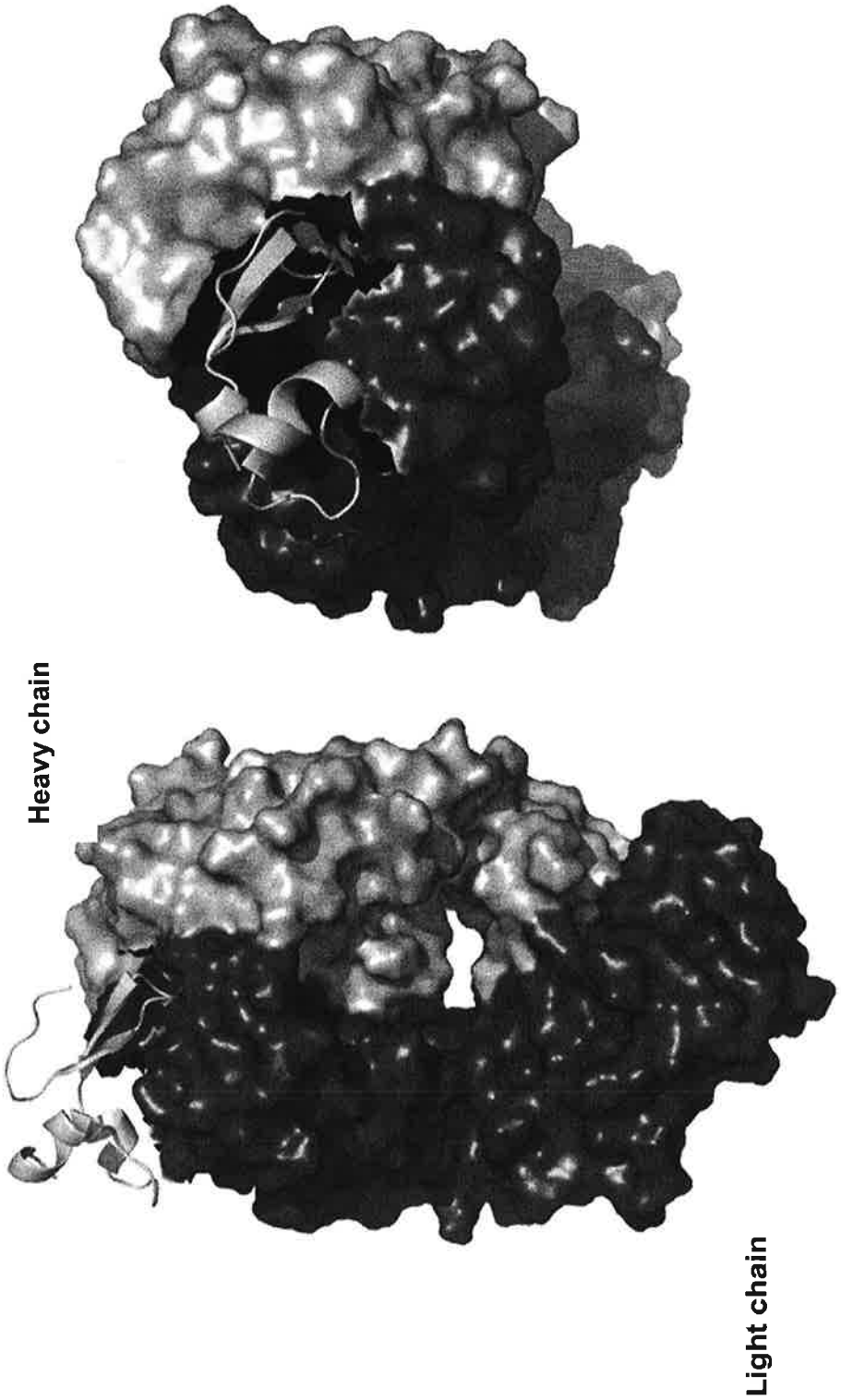


Fig. 3

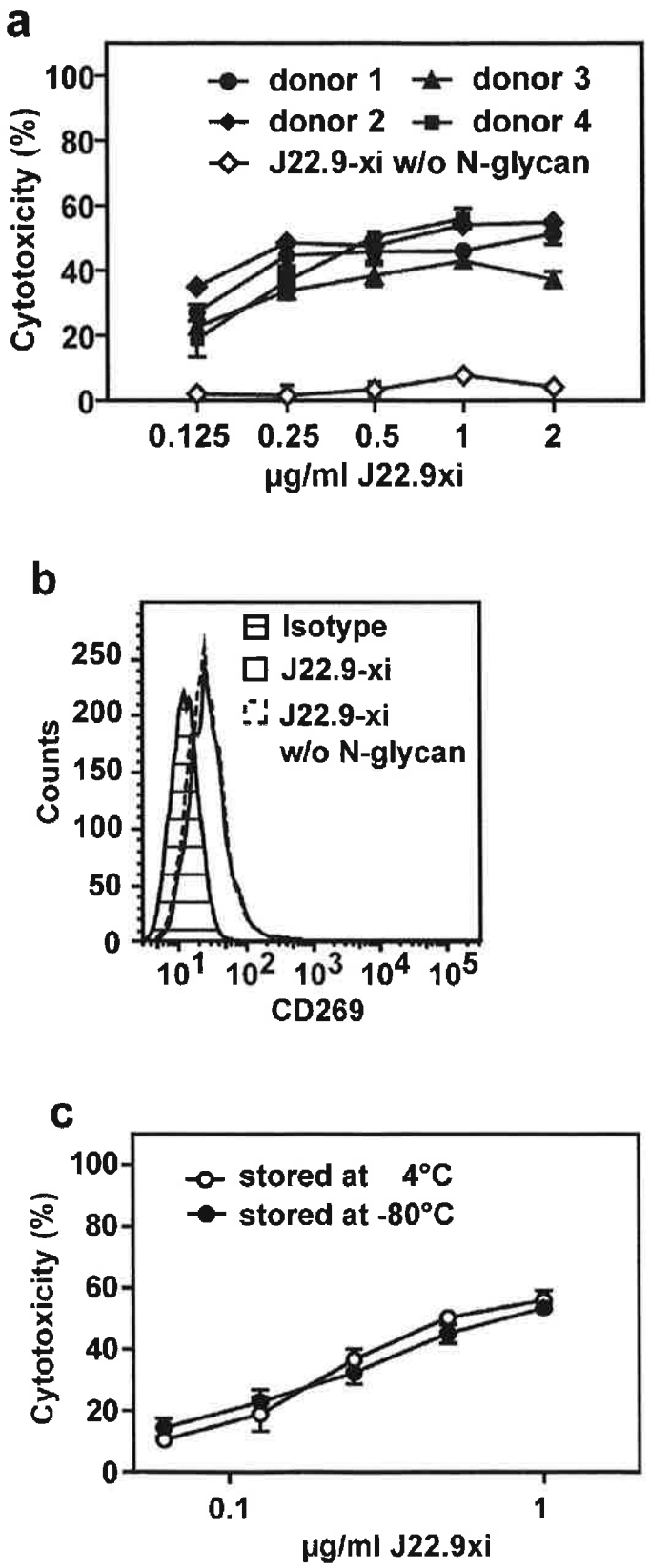

a
donor 1
donor 2
donor 3
donor 4
J22.9-xi w/o N-glycan
Cytotoxicity (%)
100
80
60
40
20
0
0.125
0.25
0.5
1
2
µg/ml J22.9xi
b
Isotype
J22.9-xi
J22.9-xi
w/o N-glycan
Counts
250
200
150
100
50
0
10^1
10^2
10^3
10^4
10^5
CD269
c
stored at 4°C
stored at -80°C
Cytotoxicity (%)
100
80
60
40
20
0
0.1
1
µg/ml J22.9xi

Fig. 4

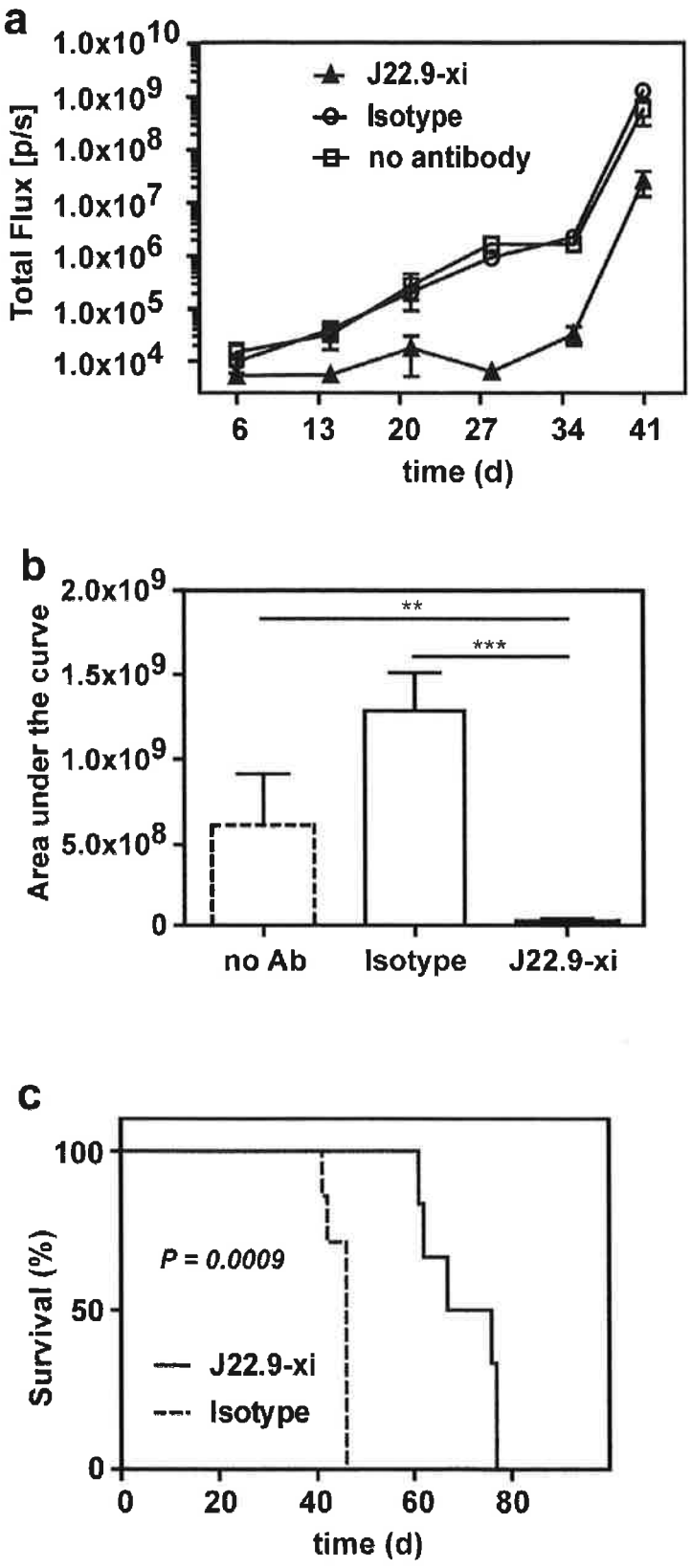
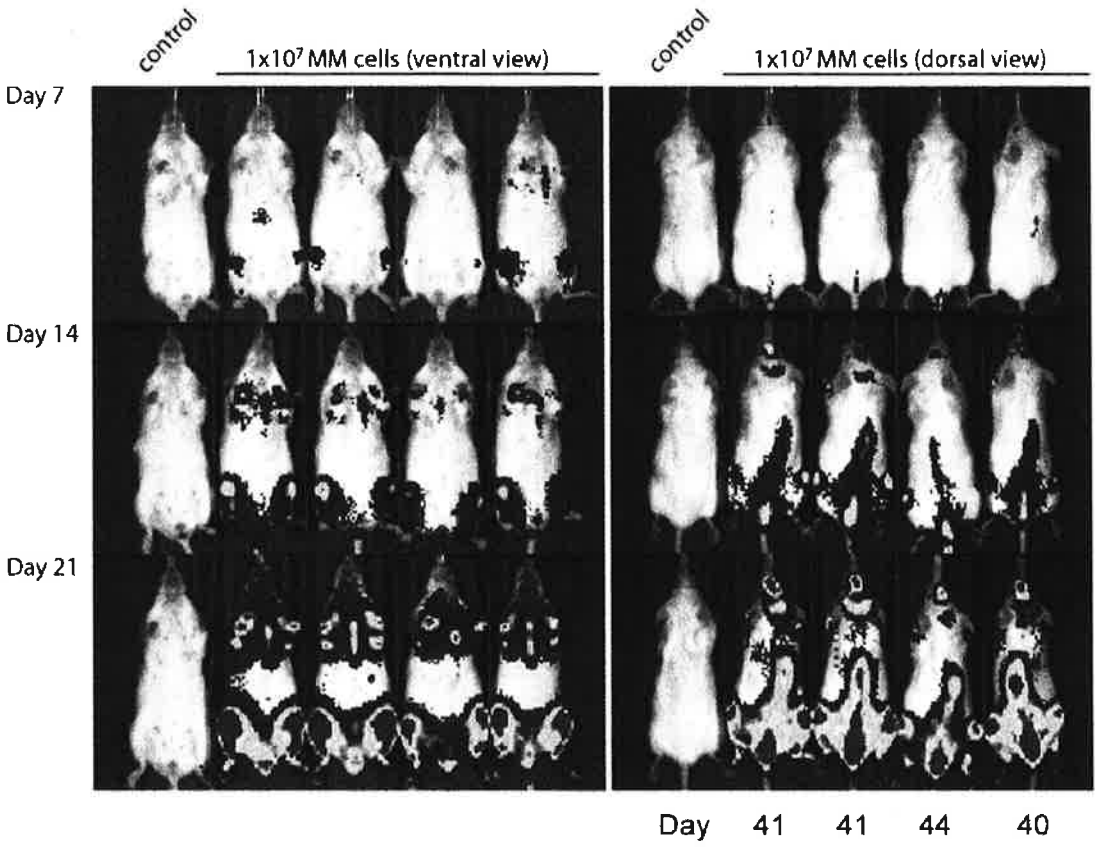

a
Total Flux [p/s]
1.0x10^10
1.0x10^9
1.0x10^8
1.0x10^7
1.0x10^6
1.0x10^5
1.0x10^4
J22.9-xi
Isotype
no antibody
6
13
20
27
34
41
time (d)
b
Area under the curve
2.0x10^9
1.5x10^9
1.0x10^9
5.0x10^8
0
**
***
no Ab
Isotype
J22.9-xi
c
Survival (%)
100
50
0
P = 0.0009
J22.9-xi
Isotype
0
20
40
60
80
time (d)

Fig. 4 (cont.)

d-1


control
1x10⁷ MM cells (ventral view)
control
1x10⁷ MM cells (dorsal view)
Day 7
Day 14
Day 21
Day 41 41 44 40

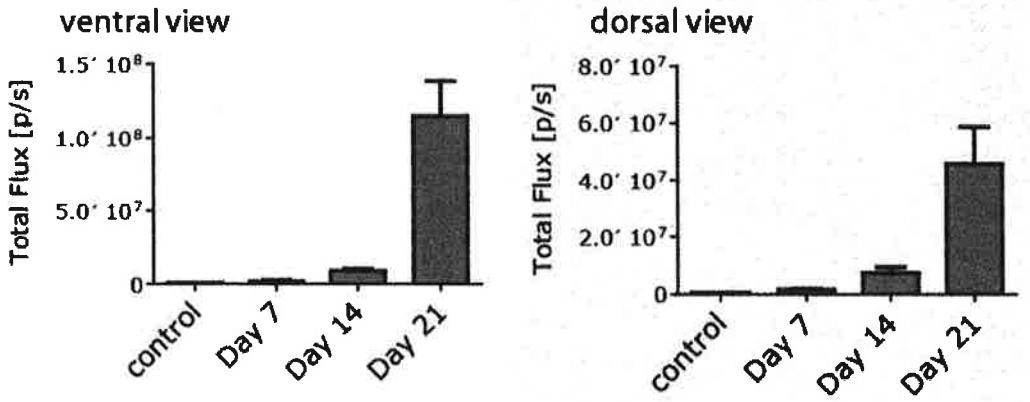

ventral view
Total Flux [p/s]
1.5· 10⁸
1.0· 10⁸
5.0· 10⁷
0
control
Day 7
Day 14
Day 21
dorsal view
Total Flux [p/s]
8.0· 10⁷
6.0· 10⁷
4.0· 10⁷
2.0· 10⁷
0
control
Day 7
Day 14
Day 21

Fig. 4 (cont.)

d-2

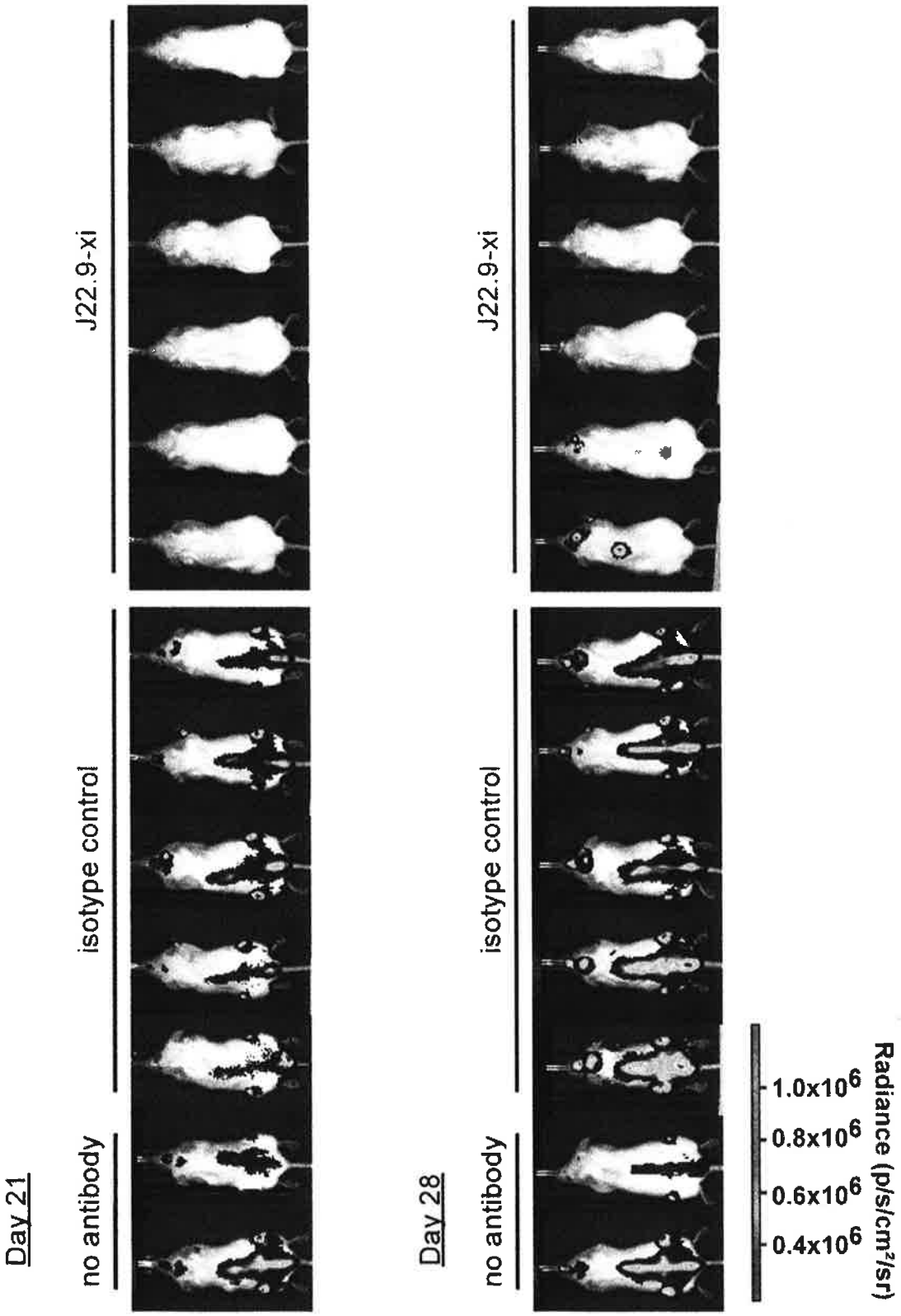
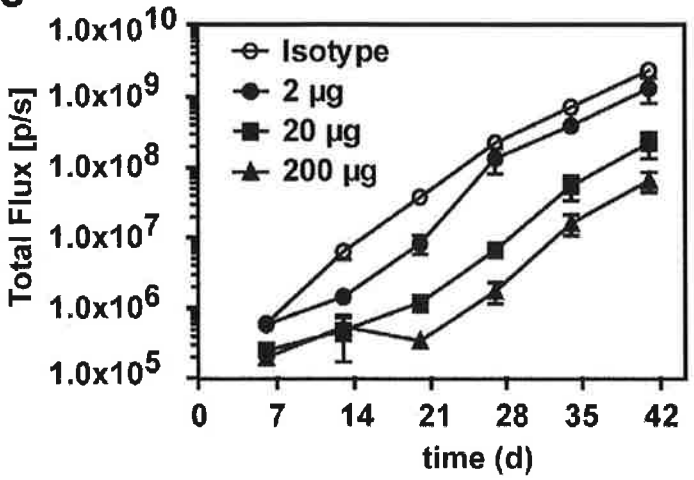
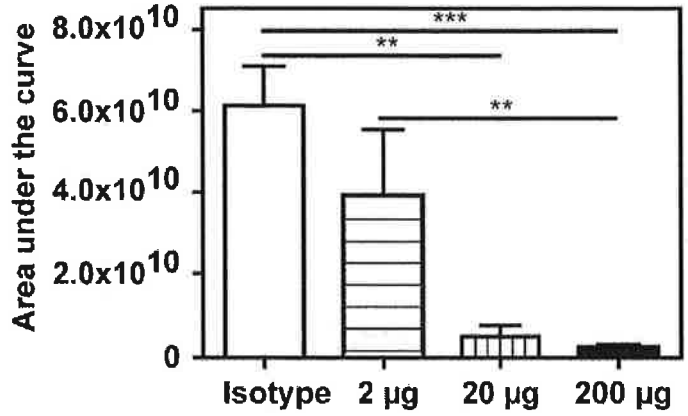

Day 21
no antibody
isotype control
J22.9-xi
Day 28
no antibody
isotype control
J22.9-xi
1.0x10^6
0.8x10^6
0.6x10^6
0.4x10^6
Radiance (p/s/cm²/sr)

Fig. 4 (cont.)

e



f

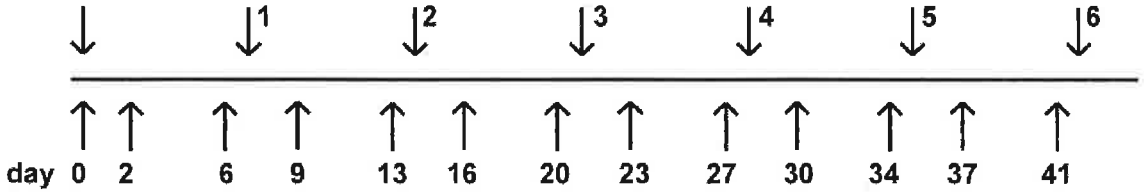


g

Experimental time line

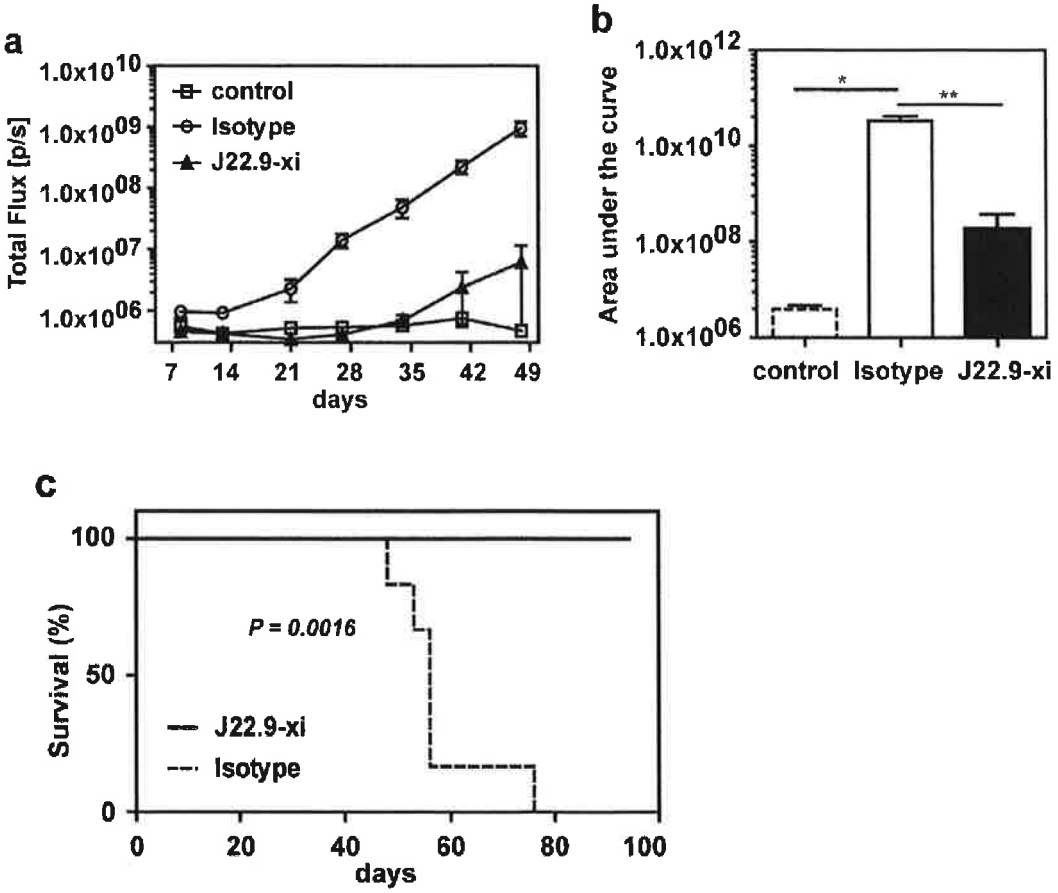
tumor cell injection (i.v.)
$1*10^7$ cells/mouse

weekly tumor monitoring (IVIS)



antibody injection (i.p.)
200 µg J22.9-xi or isotype control

Fig. 5



d

Experimental time line

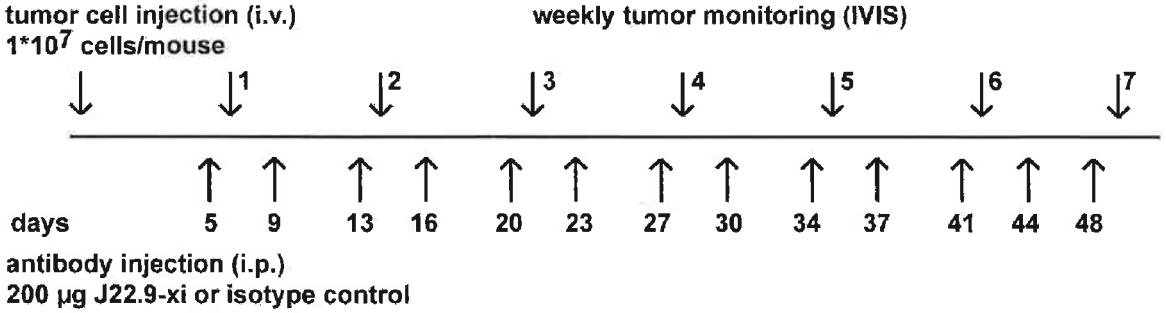


Fig. 6

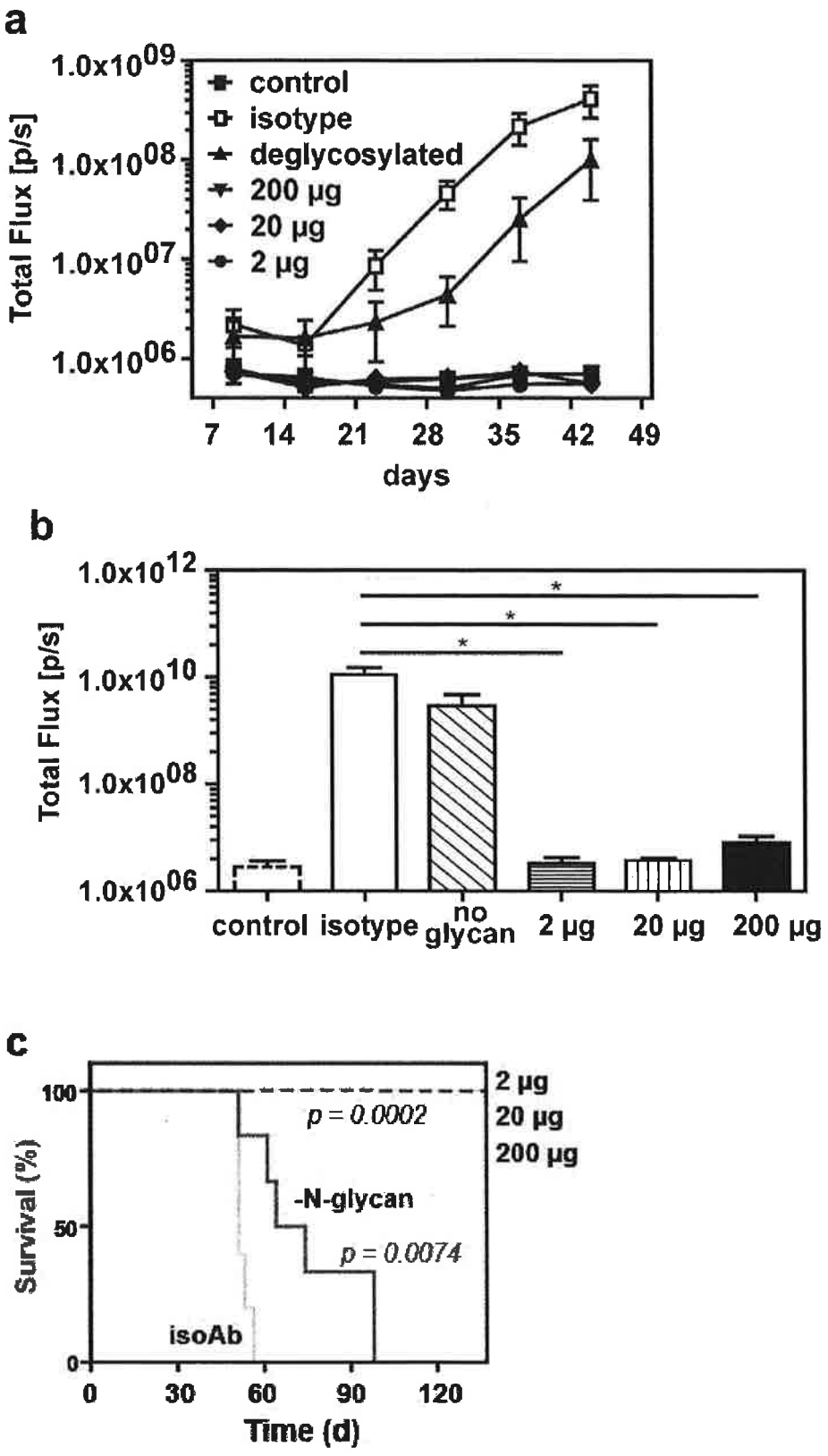
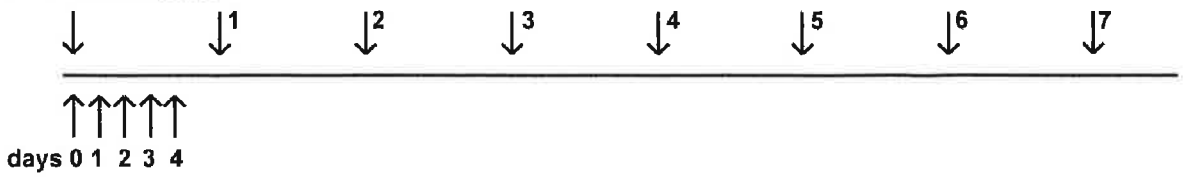

a
Total Flux [p/s]
1.0x10^09
1.0x10^08
1.0x10^07
1.0x10^06
control
isotype
deglycosylated
200 µg
20 µg
2 µg
7
14
21
28
35
42
49
days
b
Total Flux [p/s]
1.0x10^12
1.0x10^10
1.0x10^08
1.0x10^06
*
*
*
control
isotype
no glycan
2 µg
20 µg
200 µg
c
Survival (%)
100
50
0
2 µg
20 µg
200 µg
p = 0.0002
-N-glycan
p = 0.0074
isoAb
0
30
60
90
120
Time (d)

Fig. 6 (cont.)

d

Experimental time line



antibody injection (i.p.)
2 µg, 20 µg or 200 µg J22.9-xi, J22.9-xi w/o N-glycan or isotype control

Fig. 7

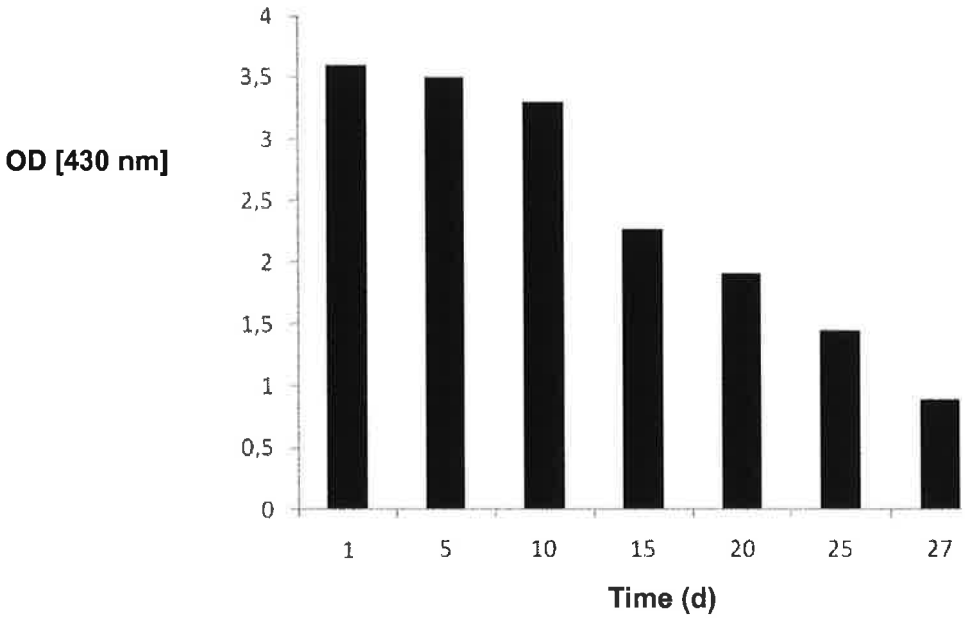


Fig. 8

HC

```
      1         10         20         30         40         50
HCg   XVQLXXSGGGLVQPGGSLXLSCAASGXXFXXYXXXWVRXAPGKGLXXXGX
HCm   QVQLQQSGGGLVQPGGSLKLSCAASGIDFSRYWMSWVRRAPGKGLEWIGE
HCpH  EVQLVESGGGLVQPGGSLRLSCAASGFTFDDYWMSWVRQAPGKGLEWVGE
hHC01 EVQLVESGGGLVQPGGSLRLSCAASGFTFSRYWMSWVRQAPGKGLVWVGE
hHC02 EVQLVESGGGLVQPGGSLRLSCAASGFTFSRYWXSWVRQAPGKGLVWVGE
hHC03 EVQLVESGGGLVQPGGSLRLSCAASGFTFSRYXMXWVRQAPGKGLVXVGX
hHC04 EVQLVESGGGLVQPGGSLRLSCAASGFTFSRYWISWVRQAPGKGLVWVGE
hHC05 EVQLVESGGGLVQPGGSLRLSCAASGFTFSRYWFSWVRQAPGKGLVWVGE
hHC06 EVQLVESGGGLVQPGGSLRLSCAASGFTFSRYWISWVRQAPGKGLVWVGE
hHC07 EVQLVESGGGLVQPGGSLRLSCAASGFTFSRYWFSWVRQAPGKGLVWVGE

      51        60         70         80         90        100
HCg   INPXXSTINYAPSLKXXFXISRDNAKNTLYLQMXXXRSEDTAXYYCASXX
HCm   INPDSSTINYAPSLKDKFIISRDNAKNTLYLQMSKVRSEDTALYYCASLY
HCpH  INPDSSTINYAPSLKGRFTISRDNAKNTLYLQMNSLRAEDTAVYYCASLY
hHC01 INPDSSTINYAPSLKDKFTISRDNAKNTLYLQMNSLRAEDTAVYYCASLY
hHC02 INPXXSTINYAPSLKDKFTISRDNAKNTLYLQMNSLRAEDTAVYYCASLY
hHC03 INPDSSTINYAPSLKDKFTISRDNAKNTLYLQMNSLRAEDTAVYYCASXX
hHC04 INPNSSTINYAPSLKDKFTISRDNAKNTLYLQMNSLRAEDTAVYYCASLY
hHC05 INPNSSTINYAPSLKDKFTISRDNAKNTLYLQMNSLRAEDTAVYYCASLY
hHC06 INPSSSTINYAPSLKDKFTISRDNAKNTLYLQMNSLRAEDTAVYYCASLY
hHC07 INPSSSTINYAPSLKDKFTISRDNAKNTLYLQMNSLRAEDTAVYYCASLY

      101       110
HCg   XDYGDXXDYWGQGTXVTVSS
HCm   YDYGDAMDYWGQGTSVTVSS
HCpH  YDYGDAMDYWGQGTLVTVSS
hHC01 YDYGDAMDYWGQGTLVTVSS
hHC02 XDYGDAXDYWGQGTLVTVSS
hHC03 XDYGDXMDYWGQGTLVTVSS
hHC04 YDYGDAYDYWGQGTLVTVSS
hHC05 YDYGDAYDYWGQGTLVTVSS
hHC06 YDYGDAYDYWGQGTLVTVSS
hHC07 YDYGDAYDYWGQGTLVTVSS
```

X: Variable amino acid according to humanized sequences
HCg: General heavy chain variable sequence
HCm: mouse heavy chain variable sequence
HCpH: partially humanized heavy chain variable sequence
CDRs are underlined in general and mouse sequences.

Fig. 9

LC

```
          1         10         20         30         40         50
LCg       XIVMTQSXXXXXXSXGXXVSXXCKASQSVXXXVXWXQQKPXQXPKXLIXX
LCm       DIVMTQSQRFMTTSVGDRVSVTCKASQSVDSNVAWYQQKPRQSPKALIFS
LCpH      DIVMTQSPATLSVSVGDEVTLTCKASQSVDSNVAWYQQKPGQAPKLLIYS
hLC01     EIVMTQSPATLSVSPGERATLSCKASQSVDSNVAWYQQKPGQAPRALIYS
hLC02     EIVMTQSPATLSVSPGERATLSCKASQSVXXNVAWYQQKPGQAPRALIYS
hLC03     EIVMTQSPATLSVSPGERATLSCKASQSVDXXVXWXQQKPGQAPRALIXX
hLC04     EIVMTQSPATLSVSPGERATLSCKASQSVESNVAWYQQKPGQAPRALIYS

          51        60         70         80         90         100
LCg       XXXRXSGXPARFXGSXXGTXFTLTISXLQSEDXAXYXCXQXNNXPXTFGA
LCm       ASLRFSGVPARFTGSGSGTDFTLTISNLQSEDLAEYFCQQYNNYPLTFGA
LCpH      DDLRFSGVPARFSGSGSGTDFTLTISSLQSEDFAVYYCQQYNNYPLTFGA
hLC01     ASLRFSGIPARFSGSGSGTEFTLTISSLQSEDFAVYYCQQYNNYPLTFGA
hLC02     ASLRFSGIPARFSGSGSGTEFTLTISSLQSEDFAVYYCQQYNNYPLTFGA
hLC03     AXXRXSGIPARFSGSXXGTEFTLTISSLQSEDFAVYYCXQXNNXPXTFGA
hLC04     ASLRFSGIPARFSGSGSGTEFTLTISSLQSEDFAVYYCQQYNNYPLTFGA

          101
LCg       GTKLELKR
LCm       GTKLELKR
LCpH      GTKLELKR
hLC01     GTKLELKR
hLC02     GTKLELKR
hLC03     GTKLELKR
hLC04     GTKLELKR
```

X: Variable amino acid according to either mouse or humanized sequences
LCg: General heavy chain variable sequence
LCm: mouse heavy chain variable sequence
LCpH: partially humanized heavy chain variable sequence
CDRs are underlined in general and mouse sequences.

Fig. 10

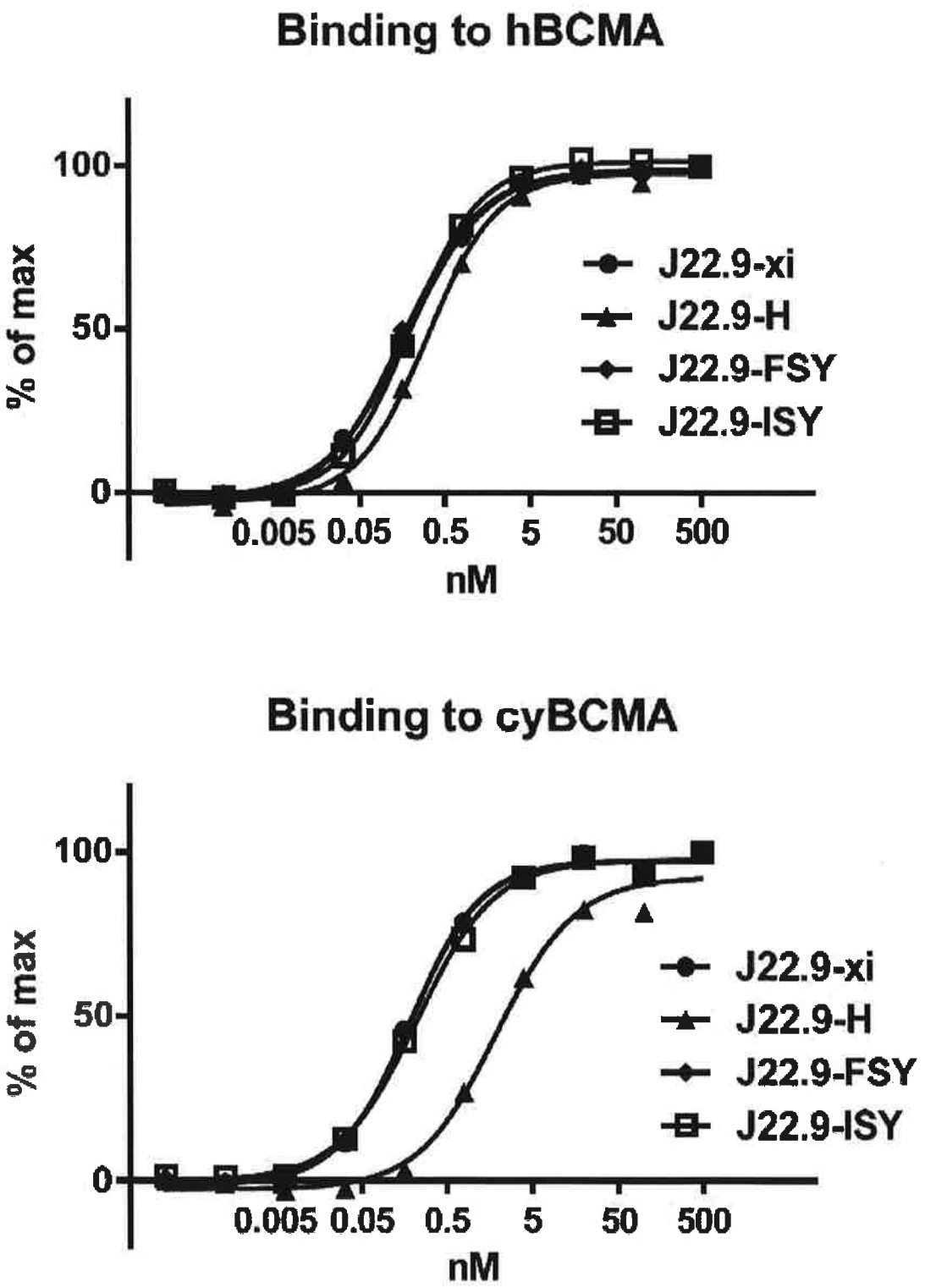

Binding to hBCMA
100
50
0
% of max
0.005 0.05 0.5 5 50 500
nM
J22.9-xi
J22.9-H
J22.9-FSY
J22.9-ISY
Binding to cyBCMA
100
50
0
% of max
0.005 0.05 0.5 5 50 500
nM
J22.9-xi
J22.9-H
J22.9-FSY
J22.9-ISY

Fig. 11

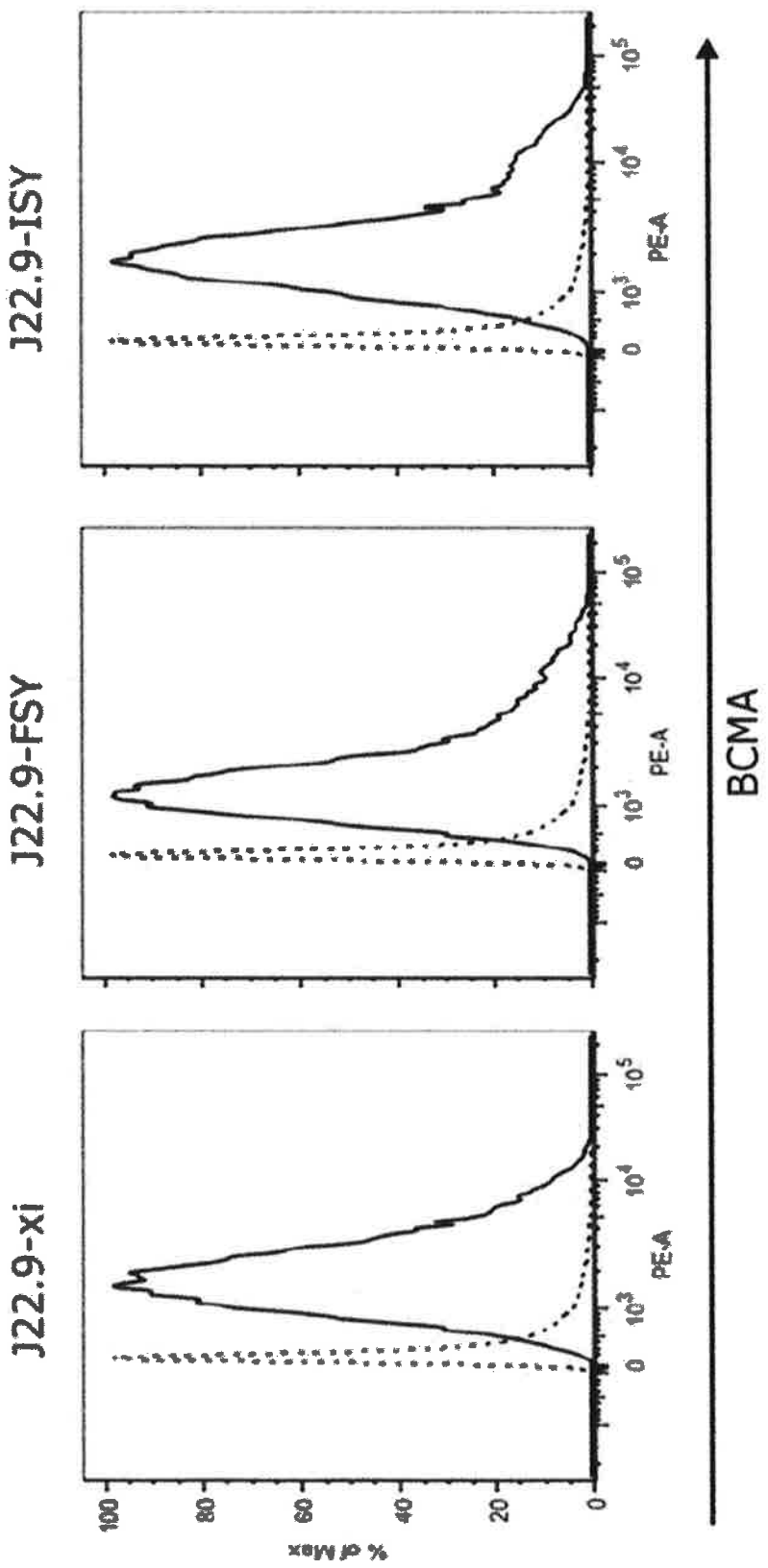

J22.9-xi
J22.9-FSY
J22.9-ISY
% of Max
100
80
60
40
20
0
0
10^3
10^4
10^5
PE-A
BCMA

Fig. 12 A

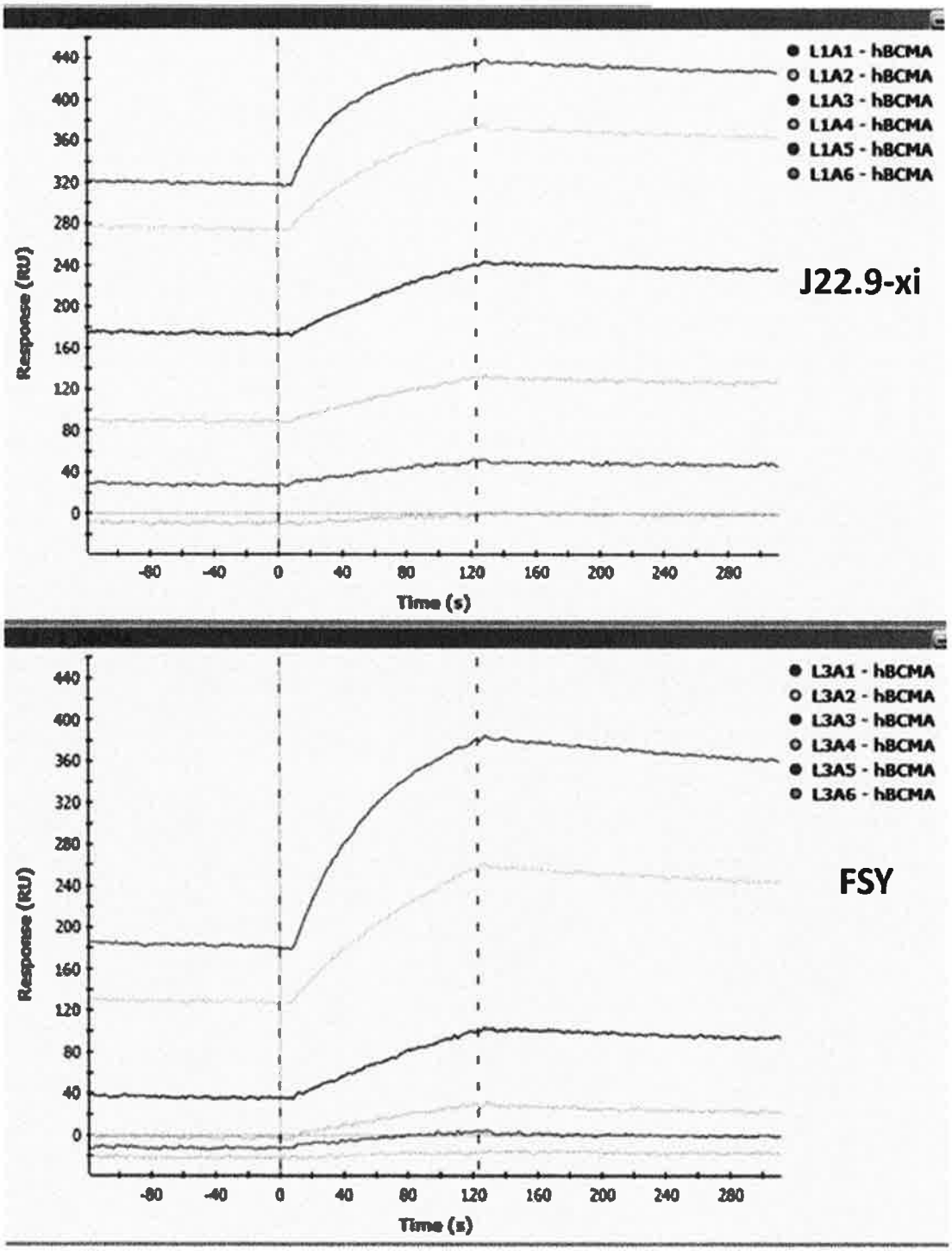

L1A1 - hBCMA
L1A2 - hBCMA
L1A3 - hBCMA
L1A4 - hBCMA
L1A5 - hBCMA
L1A6 - hBCMA
J22.9-xi
Response (RU)
Time (s)
L3A1 - hBCMA
L3A2 - hBCMA
L3A3 - hBCMA
L3A4 - hBCMA
L3A5 - hBCMA
L3A6 - hBCMA
FSY
Response (RU)
Time (s)

Fig. 12 A (cont.)

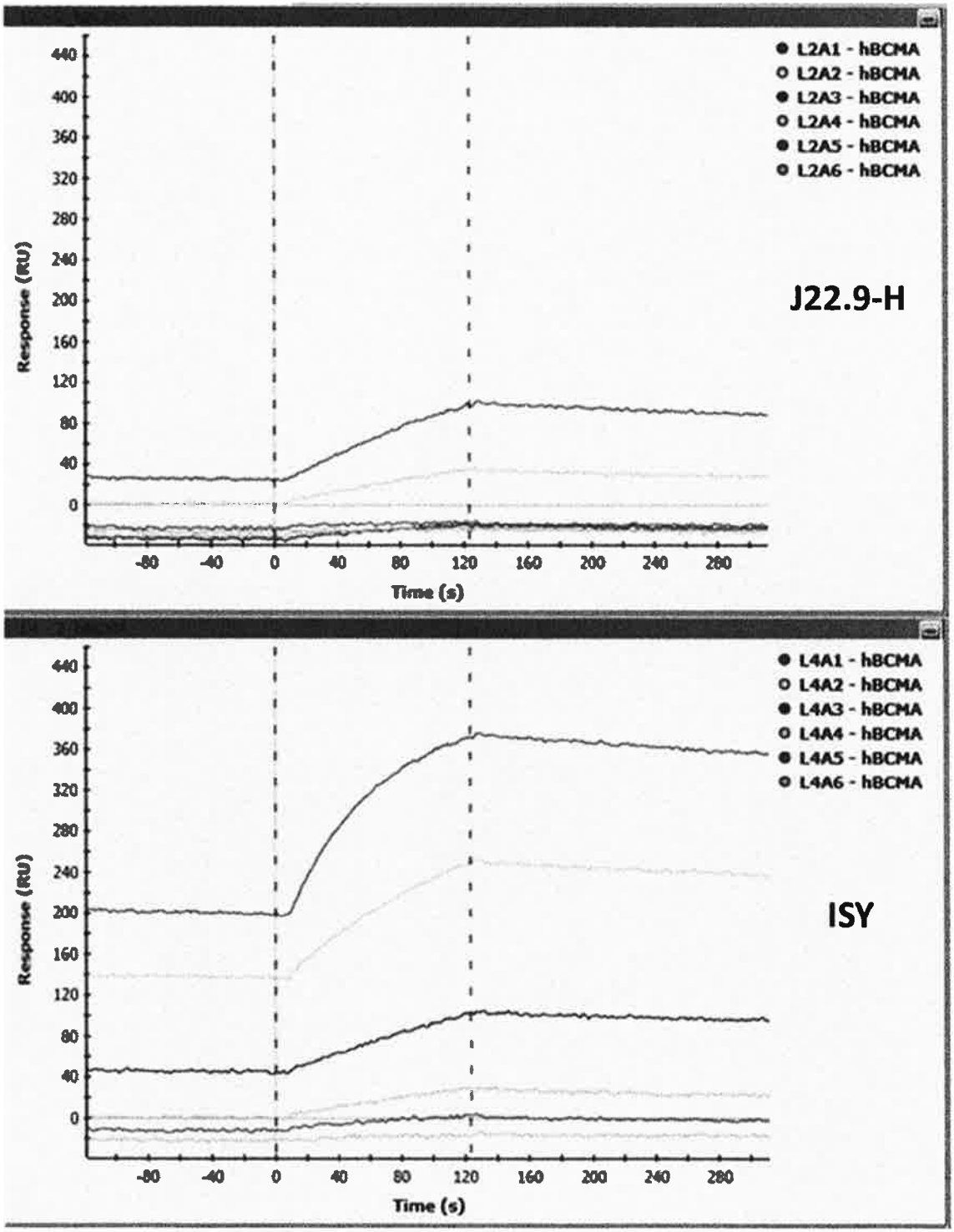

L2A1 - hBCMA
L2A2 - hBCMA
L2A3 - hBCMA
L2A4 - hBCMA
L2A5 - hBCMA
L2A6 - hBCMA
J22.9-H
Response (RU)
Time (s)
L4A1 - hBCMA
L4A2 - hBCMA
L4A3 - hBCMA
L4A4 - hBCMA
L4A5 - hBCMA
L4A6 - hBCMA
ISY
Response (RU)
Time (s)

Fig. 12 B

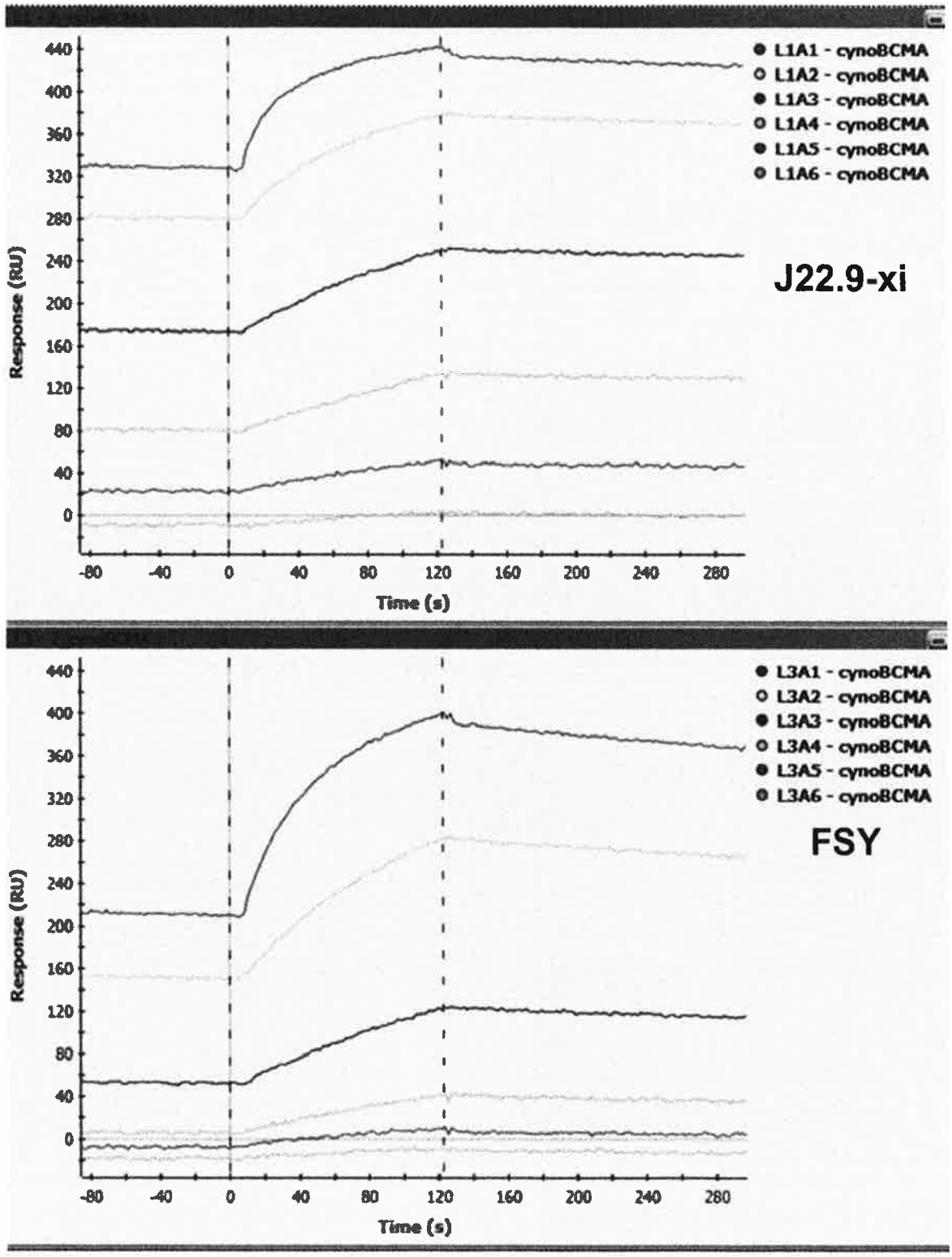

L1A1 - cynoBCMA
L1A2 - cynoBCMA
L1A3 - cynoBCMA
L1A4 - cynoBCMA
L1A5 - cynoBCMA
L1A6 - cynoBCMA
J22.9-xi
Response (RU)
Time (s)
L3A1 - cynoBCMA
L3A2 - cynoBCMA
L3A3 - cynoBCMA
L3A4 - cynoBCMA
L3A5 - cynoBCMA
L3A6 - cynoBCMA
FSY
Response (RU)
Time (s)

Fig. 12 B (cont.)

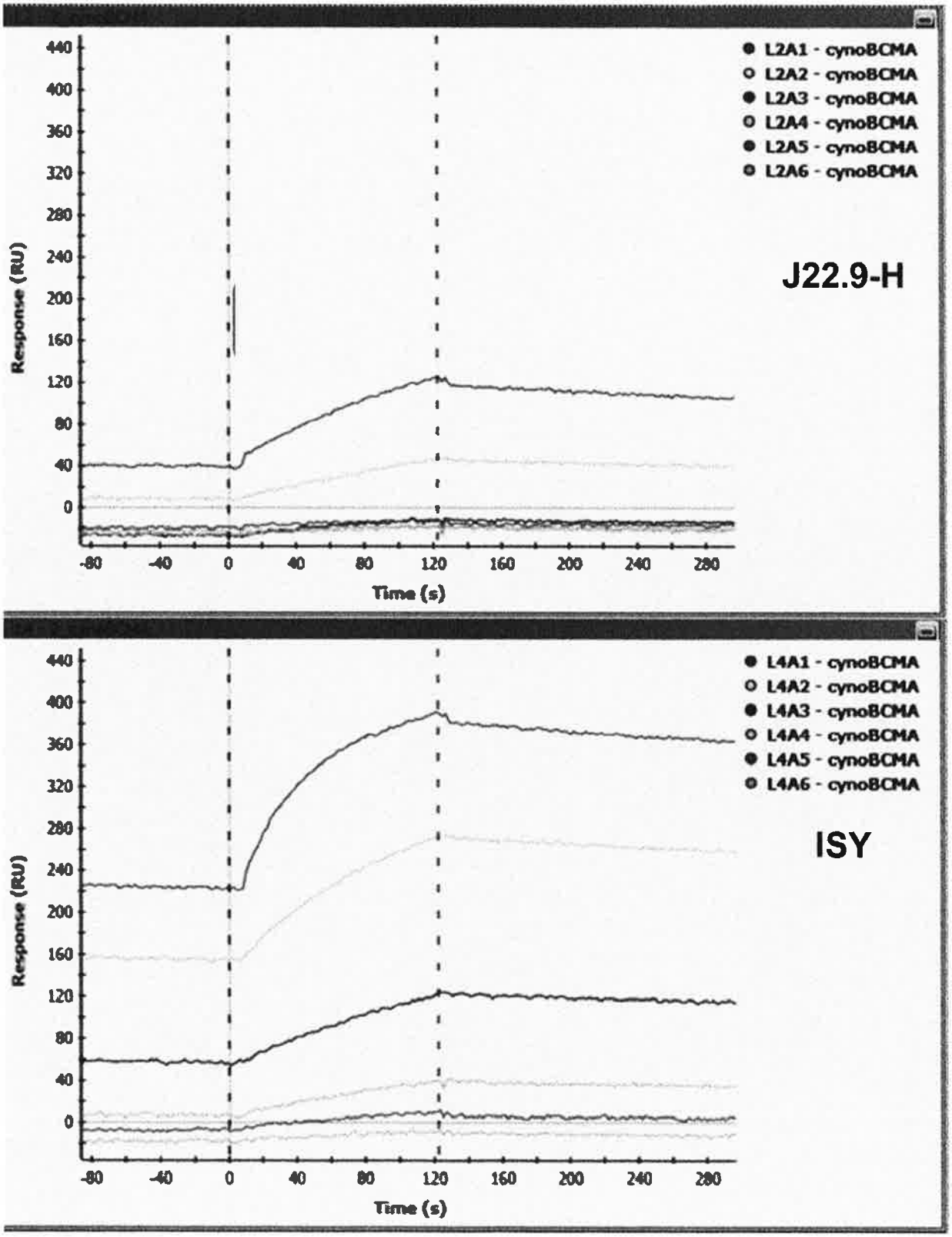
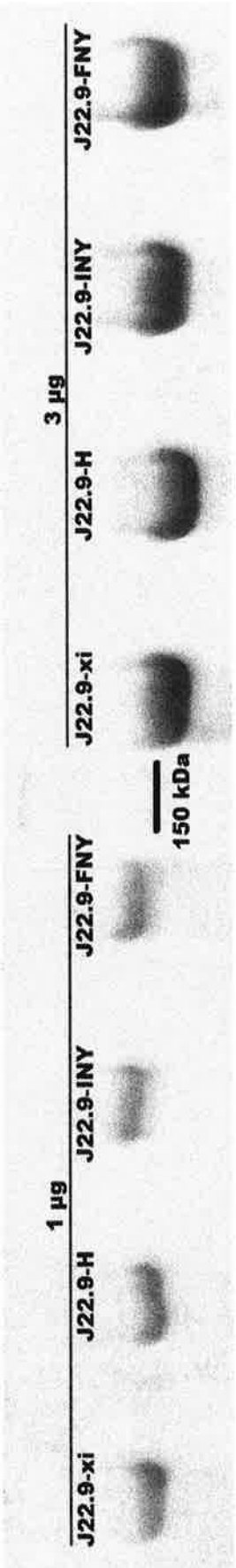

L2A1 - cynoBCMA
L2A2 - cynoBCMA
L2A3 - cynoBCMA
L2A4 - cynoBCMA
L2A5 - cynoBCMA
L2A6 - cynoBCMA
J22.9-H
Response (RU)
Time (s)
L4A1 - cynoBCMA
L4A2 - cynoBCMA
L4A3 - cynoBCMA
L4A4 - cynoBCMA
L4A5 - cynoBCMA
L4A6 - cynoBCMA
ISY
Response (RU)
Time (s)

Fig. 13


1 µg
3 µg
J22.9-xi
J22.9-H
J22.9-INY
J22.9-FNY
J22.9-xi
J22.9-H
J22.9-INY
J22.9-FNY
150 kDa