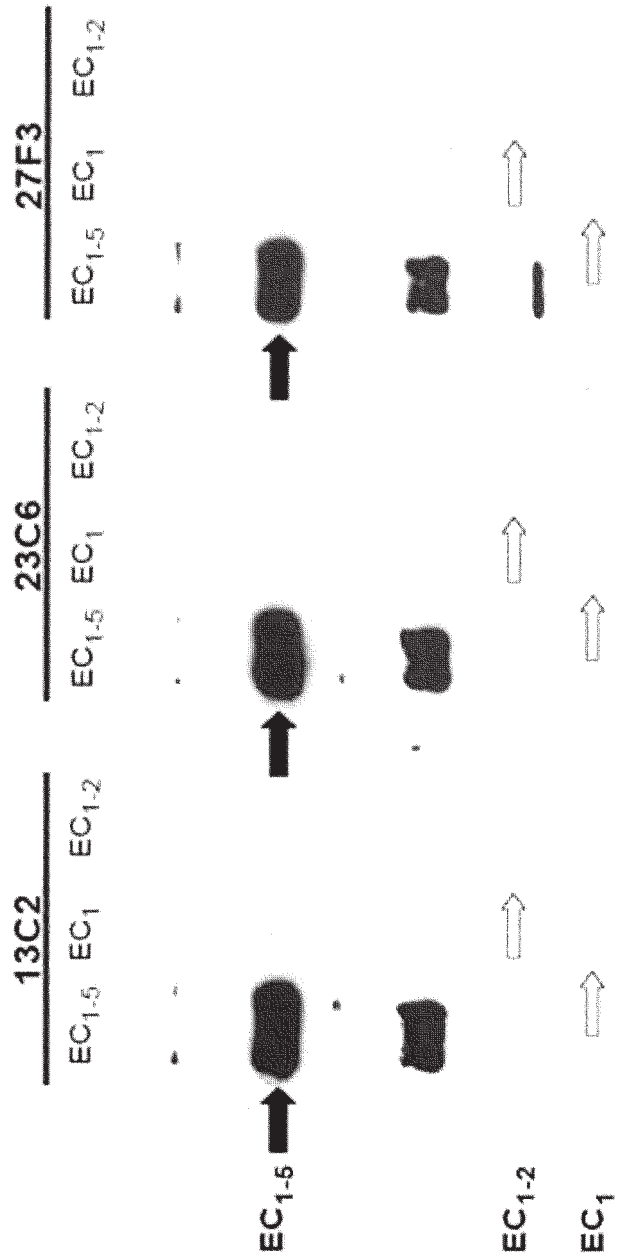

13C2
23C6
27F3
EC1-5
EC1
EC1-2
EC1-5
EC1
EC1-2
EC1-5
EC1
EC1-2
EC1-5
EC1-2
EC1

FIG. 1A

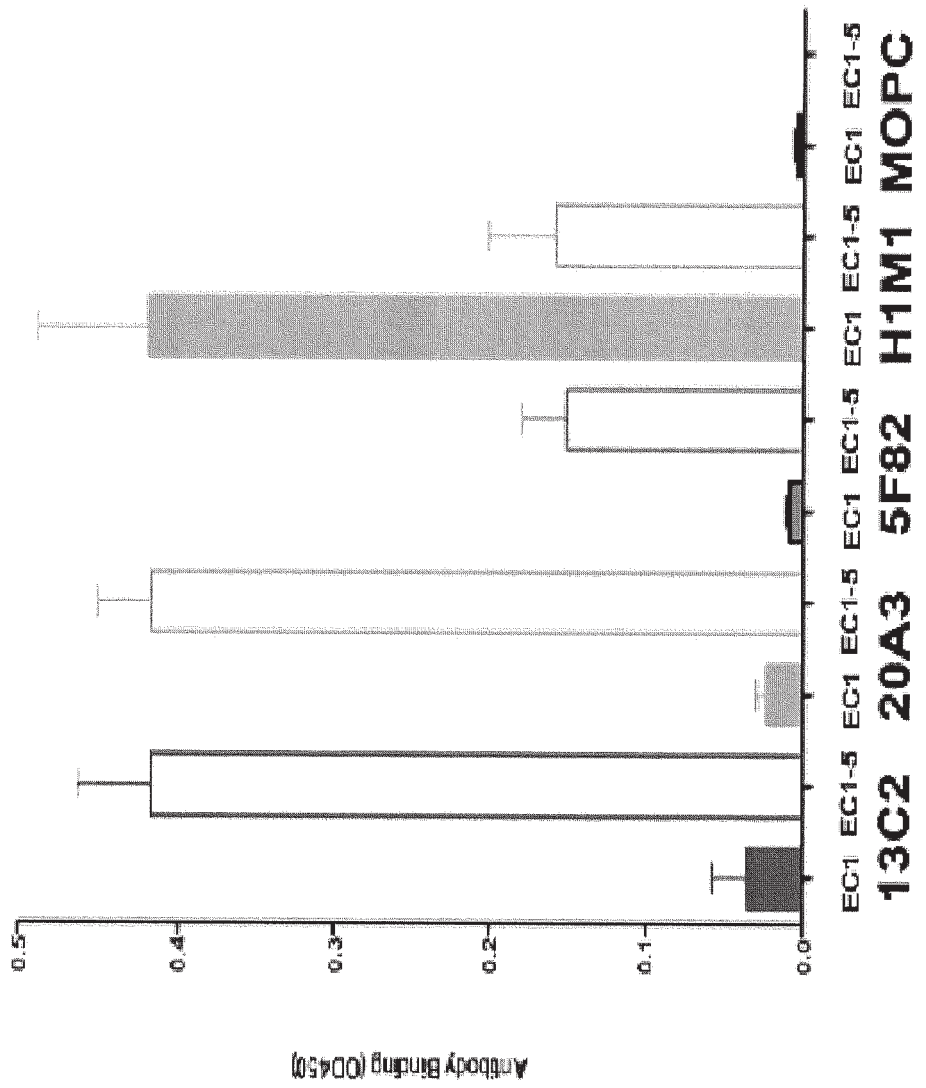

Antibody Binding (OD450)
0.5
0.4
0.3
0.2
0.1
0.0
EC1
EC1-5
EC1
EC1-5
EC1
EC1-5
EC1
EC1-5
EC1
EC1-5
13C2
20A3
5F82
H1M1
MOPC

FIG. 1B

Human Cad-11	GWVWN	QFFVI	EEYTG	PDPVL	VGRLH	SDIDS	GDGN	(SEQ ID NO:3)
Human Cad-8	GWVWN	QMFVL	EEFSG	PEPIL	VGRLH	TDLDP	GSKK	(SEQ ID NO:4)
Human MN-Cad	SWVWN	QFFVL	EEYTG	TDPLY	VGKLH	SDMDR	GDGS	(SEQ ID NO:5)

FIG. 2

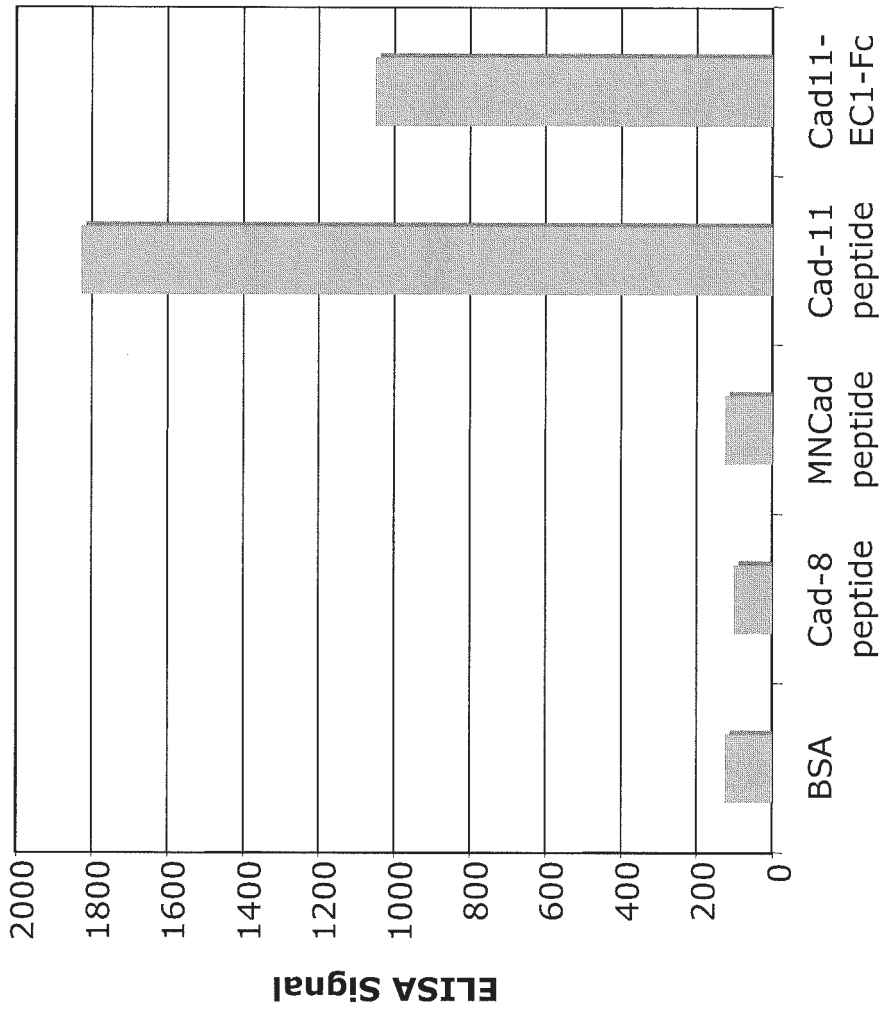
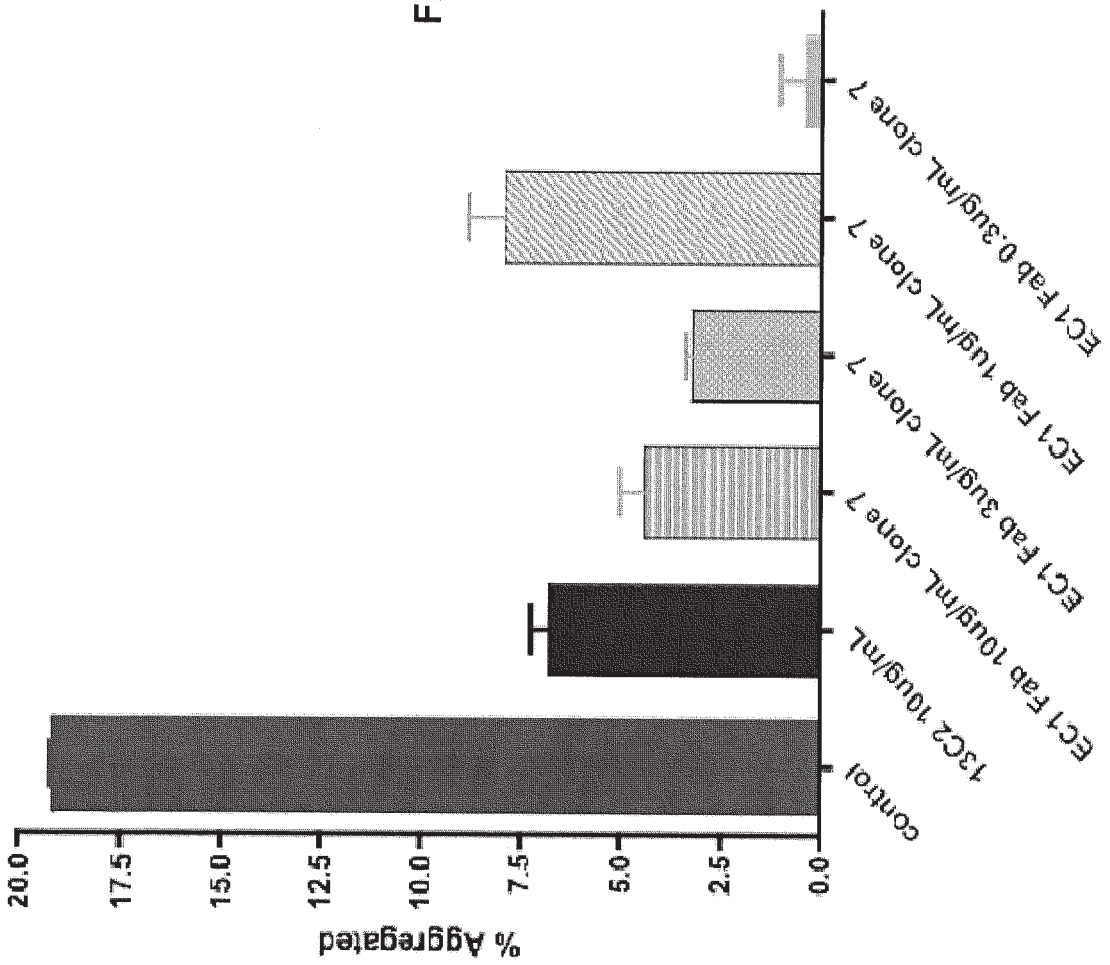

ELISA Signal
2000
1800
1600
1400
1200
1000
800
600
400
200
0
BSA
Cad-8 peptide
MNCad peptide
Cad-11 peptide
Cad11-EC1-Fc

FIG. 3

FIG. 4


% Aggregated
20.0
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
control
13C2 10ug/mL
EC1 Fab 10ug/mL clone 7
EC1 Fab 3ug/mL clone 7
EC1 Fab 1ug/mL clone 7
EC1 Fab 0.3ug/mL clone 7

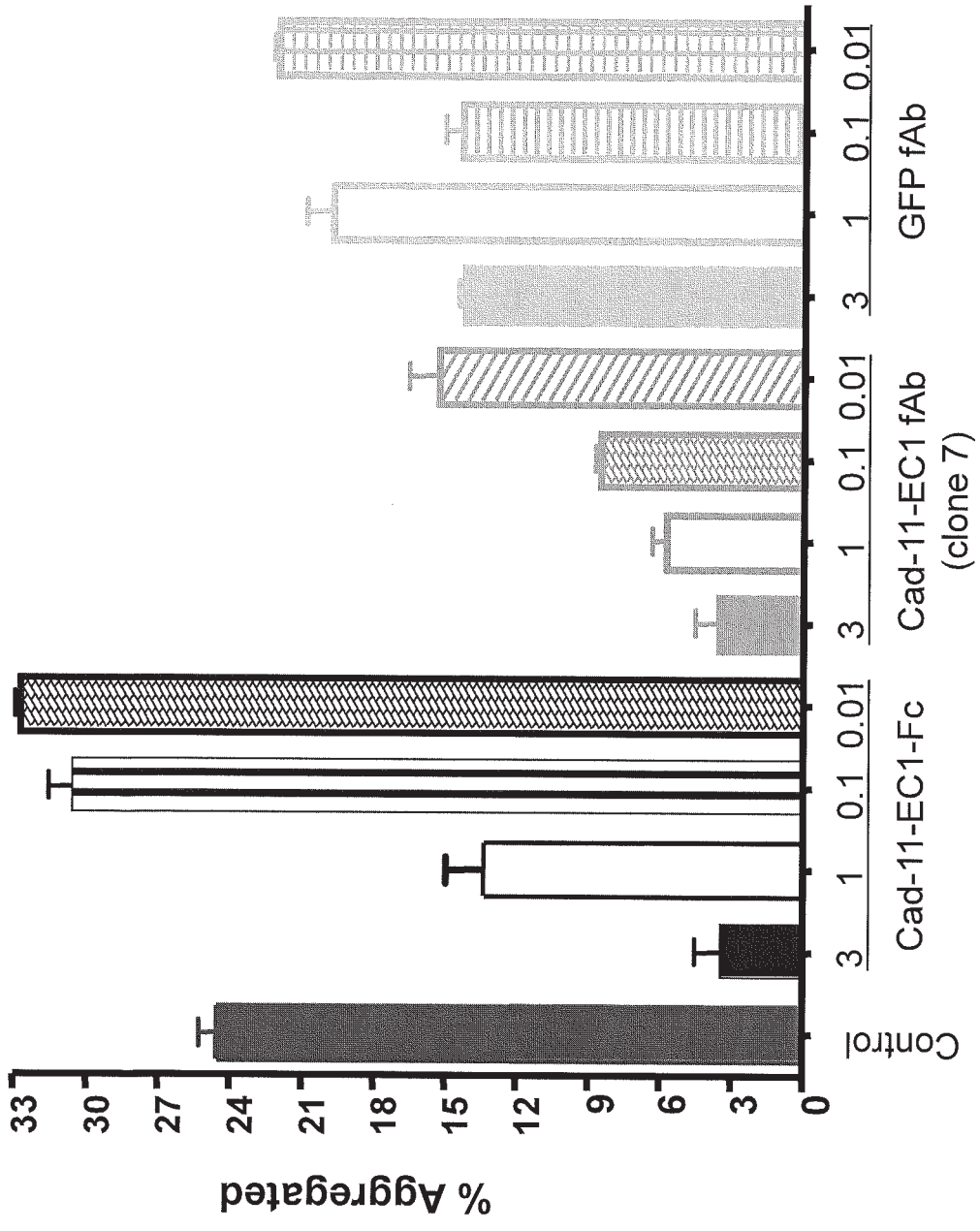

% Aggregated
33
30
27
24
21
18
15
12
9
6
3
0
Control
3 1 0.1 0.01
Cad-11-EC1-Fc
3 1 0.1 0.01
Cad-11-EC1 fAb
(clone 7)
3 1 0.1 0.01
GFP fAb

FIG. 5

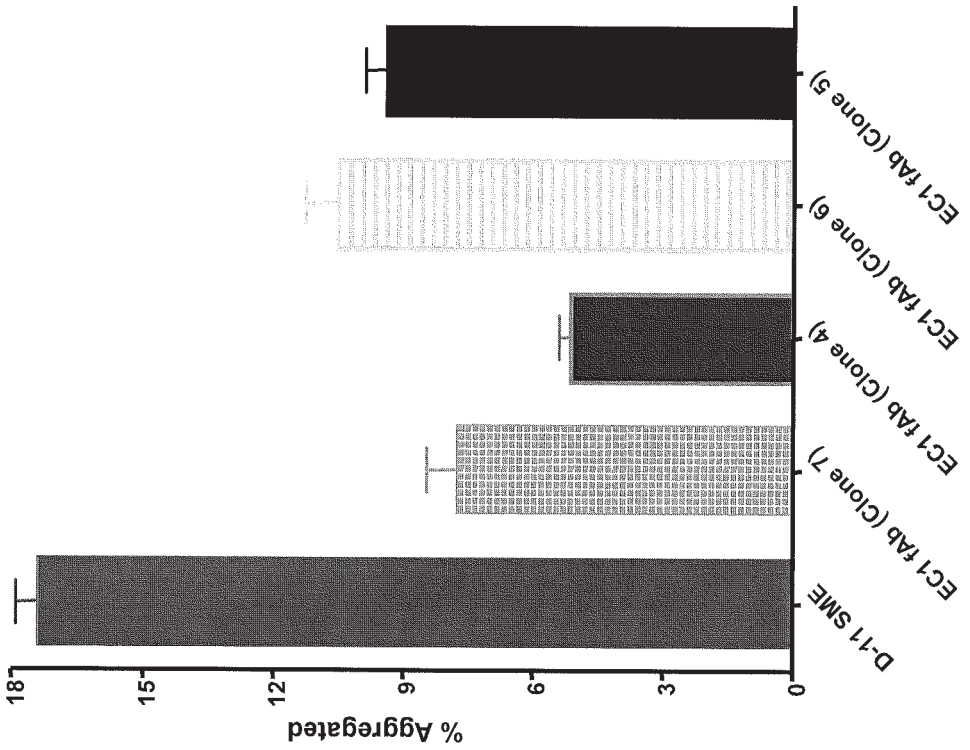

% Aggregated
0
3
6
9
12
15
18
D-11 SME
EC1 fAb (Clone 7)
EC1 fAb (Clone 4)
EC1 fAb (Clone 6)
EC1 fAb (Clone 5)

FIG. 6

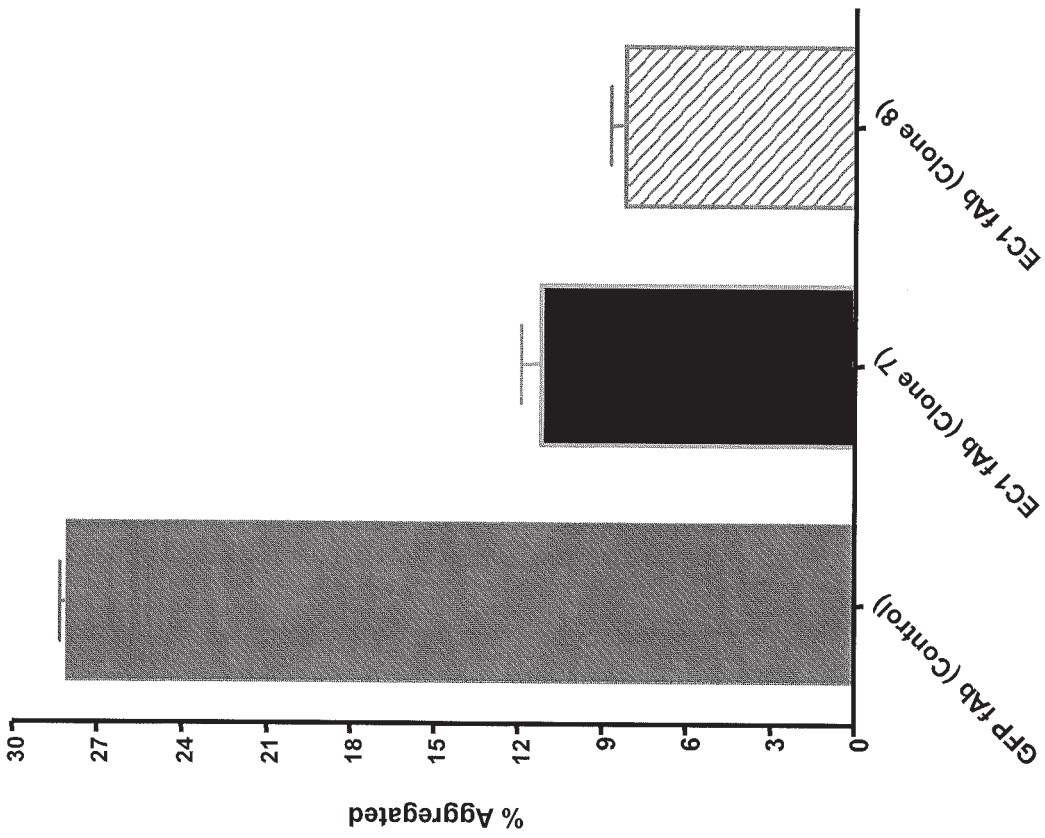

% Aggregated
30
27
24
21
18
15
12
9
6
3
0
GFP fAb (Control)
EC1 fAb (Clone 7)
EC1 fAb (Clone 8)

FIG. 7

ATGAAGGAGAACTACTGTTTACAAGCCGCCCTGGTGTGCCTGGGCATGCTGTGCCACAGCCATGCCTTTGC
CCCAGAGCGGCGGGGGGCACCTGCGGCCCTCCTTCCATGGGCACCATGAGAAGGGCAAGGAGGGCAGGT
GCTACAGCGCTCCAAGCGTGGCTGGGTCTGGAACCAGTTCTTCGTGATAGAGGAGTACACCGGGCCTGAC
CCCGTGCTTGTGGGCAGGCTTCATTCAGATATTGACTCTGGTGATGGGAACATTAAATACATTCTCTCAGGGG
AAGGAGCTGGAACCATTTTTTGTGATTGATGACAAATCAGGGAACATTCATGCCACCAAGACGTTGGATCGAG
AAGAGAGAGCCCAGTACACGTTGATGGCTCAGGCGGTGGACAGGGACACCAATCGGCCACTGGAGCCACC
*GTCGGAATTCATTGTCAAGGTCCAG*AGATCT**GTGGAGTGCCCACCTTGCCCAGCACCACCTGTGGCAGGA**
CCTTCAGTCTTCCTCTTCCCCCAAAACCCAAGGACACCCTGATGATCTCCAGAACCCCTGAGGTCACGT
GCGTGGTGGTGGACGTGAGCCACGAAGACCCCGAGGTCCAGTTCAACTGGTACGTGGACGGCATGGAG
GTGCATAATGCCAAGACAAAGCCACGGGAGGAGCAGTTCAACAGCACGTTCCGTGTGGTCAGCGTCCTC
ACCGTCGTGCACCAGGACTGGCTGAACGGCAAGGAGTACAAGTGCAAGGTCTCCAACAAAGGCCTCCC
AGCCCCCATCGAGAAAACCATCTCCAAAACCAAAGGGCAGCCCCGAGAACCACACAGGTGTACACCCTGCC
CCCATCCCGGGAGGAGATGACCAAGAACCAGGTCAGCCTGACCTGCCTGGTCAAAGGCTTCTACCCCAG
CGACATCGCCGTGGAGTGGGAGAGCAATGGGCAGCCGGAGAACAACTACAAGACCACACCTCCCATGCT
GGACTCCGACGGCTCCTTCTTCCTCTACAGCAAGCTCACCGTGGACAAGAGCAGGTGGCAGCAGGGGAA
CGTCTTCTCATGCTCCGTGATGCATGAGGCTCTGCACAACCACTACACACAGAAGAGCCTCTCCCTGTCT
CCGGGTAAATGAGTGCCACGGCTAGCTGG (SEQ ID NO:6)

FIG. 8

MKENYCLQAALVCLGMLCHSHAFAPERRGHLRPSFHGHHEKGKEGQVLQRSKR
GWVWNQFFVIEEYTGPDPVLVGRLHSDIDSGDGNIKYILSGEGAGTIFVIDDKSGNI
HATKTLDREERAQYTLMAQAVDRDTNRPLEPPSEFIVKVQ
RS**VECPPCPAPPVAGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVQFN**
WYVDGMEVHNAKTKPREEQFNSTFRVVSVLTVVHQDWLNGKEYKCKVSNKGLP
APIEKTISKTKGQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDIAVEWESN
GQPENNYKTTPPMLDSDGSFFLYSKLTVDKSRWQQGNVFSCSVMHEALHNHYT
QKSLSLSPGKVPRLA (SEQ ID NO:7)

FIG. 9

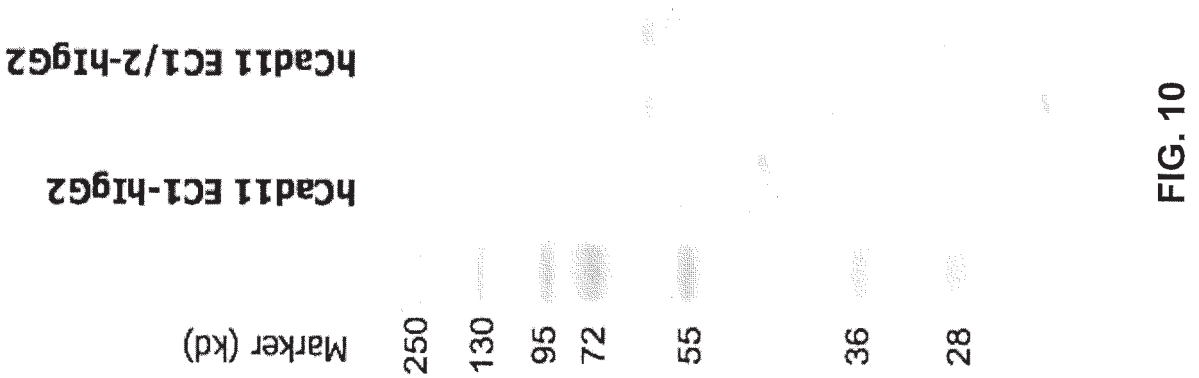

hCad11 EC1/2-hIgG2
hCad11 EC1-hIgG2
Marker (kd)
250
130
95
72
55
36
28

FIG. 10

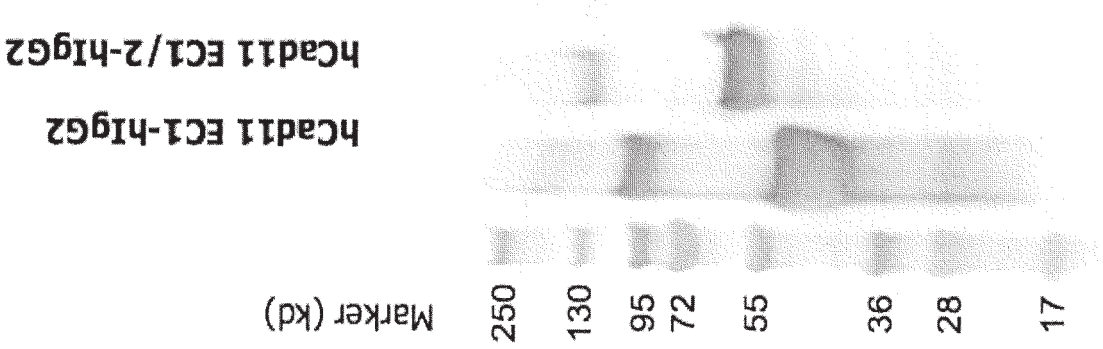

hCad11 EC1/2-hIgG2
hCad11 EC1-hIgG2
Marker (kd)
250
130
95
72
55
36
28
17

FIG. 11

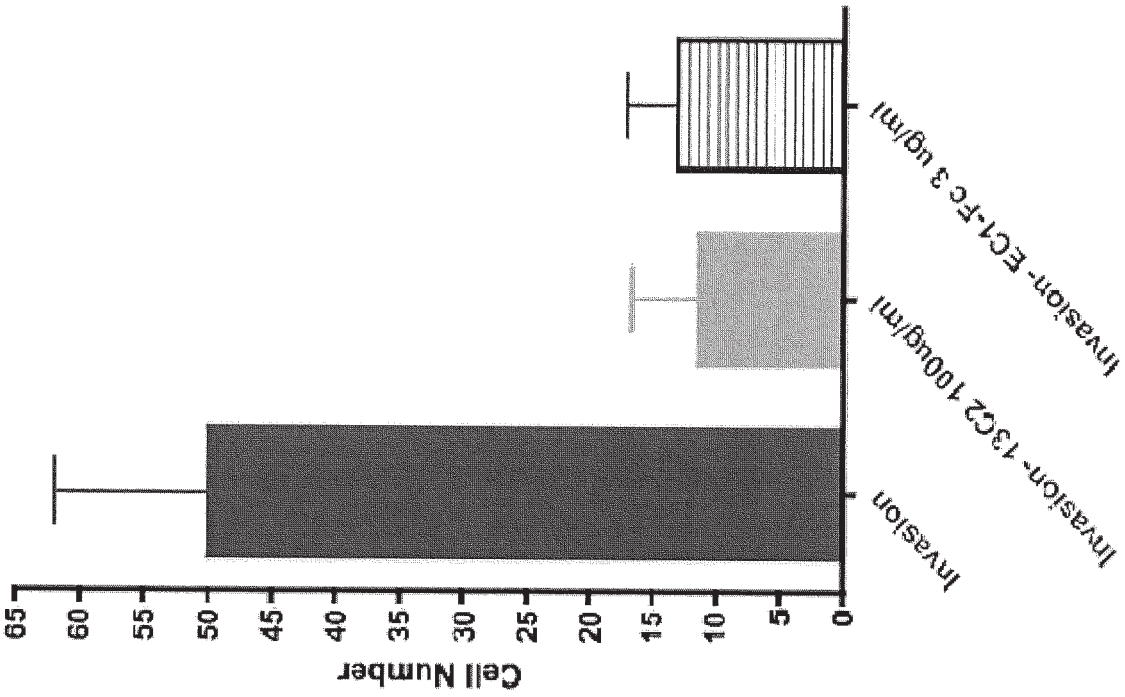

Cell Number
0
5
10
15
20
25
30
35
40
45
50
55
60
65
Invasion
Invasion- 13C2 100ug/ml
Invasion- EC1-Fc 3 ug/ml

FIG. 12

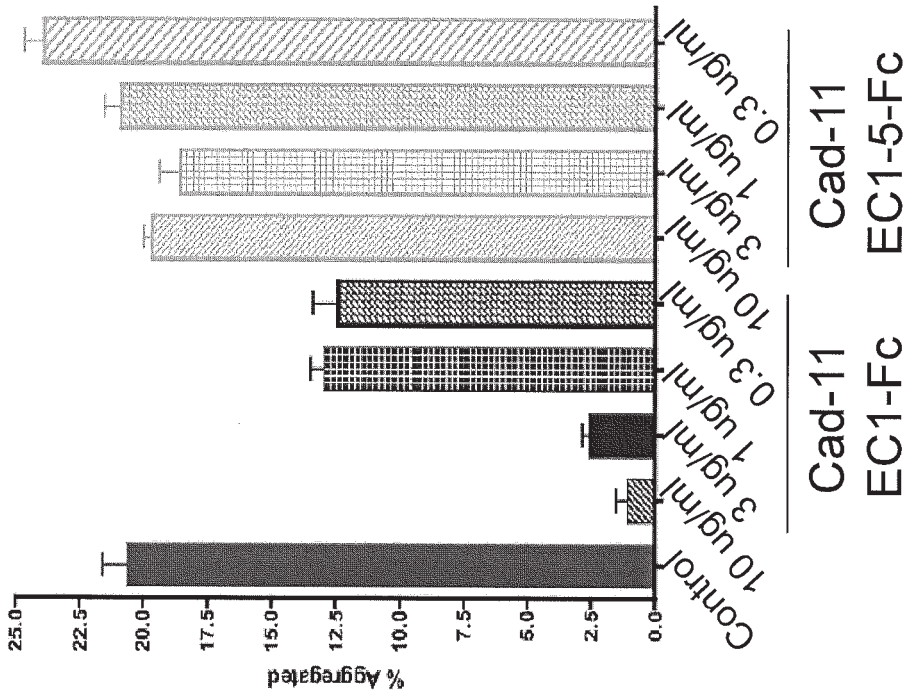


FIG. 13B

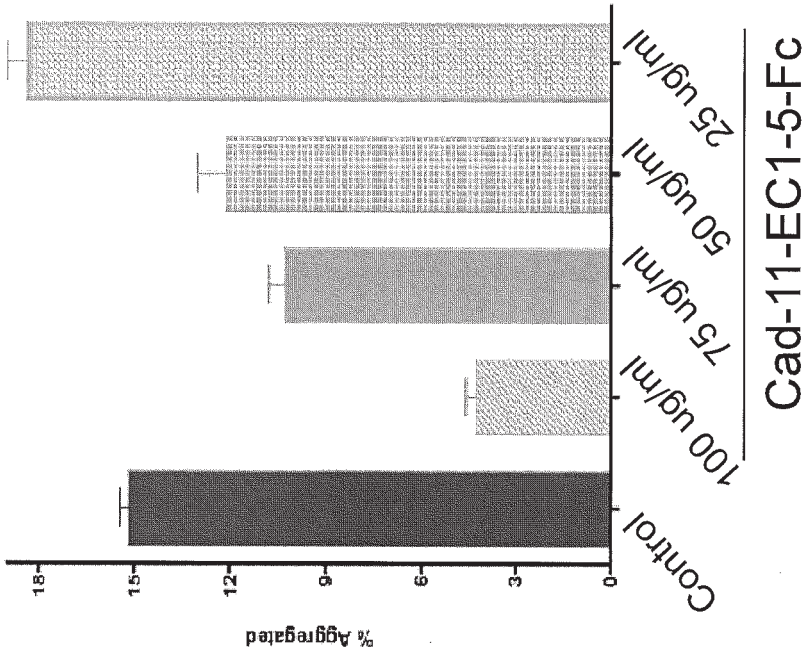


FIG. 13A

```
1    agatgccgcg ggggccgctc gcagccgccg ctgacttgtg aatgggaccg ggactggggc
61   cgggactgac accgcagcgc ttgccctgcg ccagggactg gcggctcgga ggttgcgtcc
121  accctcaagg gccccagaaa tcactgtgtt ttcagctcag cggccctgtg acattccttc
181  gtgttgtcat ttgttgagtg accaatcaga tgggtggagt gtgttacaga aattggcagc
241  aagtatccaa tgggtgaaga agaagctaac tggggacgtg ggcagccctg acgtgatgag
301  ctcaaccagc agagacattc catcccaaga gaggtctgcg tgacgcgtcc gggaggccac
361  cctcagcaag accaccgtac agttggtgga aggggtgaca gctgcattct cctgtgccta
421  ccacgtaacc aaaaatgaag gagaactact gtttacaagc cgccctggtg tgcctgggca
481  tgctgtgcca cagccatgcc tttgccccag agcggcgggg gcacctgcgg ccctccttcc
541  atgggcacca tgagaagggc aaggaggggc aggtgctaca gcgctccaag cgtggctggg
601  tctggaacca gttcttcgtg atagaggagt acaccgggcc tgaccccgtg cttgtgggca
661  ggcttcattc agatattgac tctggtgatg ggaacattaa atacattctc tcaggggaag
721  gagctggaac cattttgtg attgatgaca aatcagggaa cattcatgcc accaagacgt
781  tggatcgaga agagagagcc cagtacacgt tgatggctca ggcggtggac agggacacca
841  atcggccact ggagccaccg tcggaattca ttgtcaaggt ccaggacatt aatgacaacc
901  ctccggagtt cctgcacgag acctatcatg ccaacgtgcc tgagaggtcc aatgtgggaa
961  cgtcagtaat ccaggtgaca gcttcagatg cagatgaccc cacttatgga aatagcgcca
1021 agttagtgta cagtatcctc gaaggacaac cctatttttc ggtggaagca cagacaggta
1081 tcatcagaac agccctaccc aacatggaca gggaggccaa ggaggagtac cacgtggtga
1141 tccaggccaa ggacatgggt ggacatatgg gcggactctc agggacaacc aaagtgacga
1201 tcacactgac cgatgtcaat gacaacccac caaagtttcc gcagagcgta taccagatgt
1261 ctgtgtcaga agcagccgtc cctggggagg aagtaggaag agtgaaagct aaagatccag
1321 acattggaga aaatggctta gtcacataca atattgttga tggagatggt atggaatcgt
1381 ttgaaatcac aacggactat gaaacacagg agggggtgat aaagctgaaa aagcctgtag
1441 attttgaaac caaaagagcc tatagcttga aggtagaggc agccaacgtg cacatcgacc
1501 cgaagtttat cagcaatggc cctttcaagg acactgtgac cgtcaagatc tcagtagaag
1561 atgctgatga gccccctatg ttcttggccc caagttacat ccacgaagtc caagaaaatg
1621 cagctgctgg caccgtggtt gggagagtgc atgccaaaga ccctgatgct gccaacagcc
```

FIG. 14A

1681 cgataaggta ttccatcgat cgtcacactg acctcgacag atttttcact attaatccag
1741 aggatggttt tattaaaact acaaaacctc tggatagaga ggaaacagcc tggctcaaca
1801 tcactgtctt tgcagcagaa atccacaatc ggcatcagga agccaaagtc ccagtggcca
1861 ttagggtcct tgatgtcaac gataatgctc ccaagtttgc tgccccttat gaaggtttca
1921 tctgtgagag tgatcagacc aagccacttt ccaaccagcc aattgttaca attagtgcag
1981 atgacaagga tgacacggcc aatggaccaa gatttatctt cagcctaccc cctgaaatca
2041 ttcacaatcc aaatttcaca gtcagagaca accgagataa cacagcaggc gtgtacgccc
2101 ggcgtggagg gttcagtcgg cagaagcagg acttgtacct tctgcccata gtgatcagcg
2161 atggcggcat cccgcccatg agtagcacca acaccctcac catcaaagtc tgcgggtgcg
2221 acgtgaacgg ggcactgctc tcctgcaacg cagaggccta cattctgaac gccggcctga
2281 gcacaggcgc cctgatcgcc atcctcgcct gcatcgtcat tctcctggtc attgtagtat
2341 tgtttgtgac cctgagaagg caaaagaaag aaccactcat tgtctttgag gaagaagatg
2401 tccgtgagaa catcattact tatgatgatg aaggggtgg ggaagaagac acagaagcct
2461 ttgatattgc caccctccag aatcctgatg gtatcaatgg atttatcccc cgcaaagaca
2521 tcaaacctga gtatcagtac atgcctagac ctgggctccg gccagcgccc aacagcgtgg
2581 atgtcgatga cttcatcaac acgagaatac aggaggcaga caatgacccc acggctcctc
2641 cttatgactc cattcaaatc tacggttatg aaggcagggg ctcagtggcc gggtccctga
2701 gctccctaga gtcggccacc acagattcag acttggacta tgattatcta cagaactggg
2761 gacctcgttt taagaaacta gcagatttgt atggttccaa agacactttt gatgacgatt
2821 cttaacaata acgatacaaa tttggcctta agaactgtgt ctggcgttct caagaatcta
2881 gaagatgtgt aaacaggtat ttttttaaat caaggaaagg ctcatttaaa acaggcaaag
2941 ttttacagag aggatacatt taataaaact gcgaggacat caaagtggta aatactgtga
3001 aataccttt ctcacaaaaa ggcaaatatt gaagttgttt atcaacttcg ctagaaaaaa
3061 aaaacacttg gcatacaaaa tatttaagtg aaggagaagt ctaacgctga actgacaatg
3121 aagggaaatt gtttatgtgt tatgaacatc caagtctttc ttctttttta agttgtcaaa
3181 gaagcttcca caaaattaga aaggacaaca gttctgagct gtaatttcgc cttaaactct
3241 ggacactcta tatgtagtgc atttttaaac ttgaaatata taatattcag ccagcttaaa
3301 cccatacaat gtatgtacaa tacaatgtac aattatgtct cttgagcatc aatcttgtta
3361 ctgctgattc ttgtaaatct ttttgcttct actttcatct taaactaata cgtgccagat

FIG. 14B

3421 ataactgtct tgtttcagtg agagacgccc tatttctatg tcatttttaa tgtatctatt

3481 tgtacaattt taaagttctt attttagtat acgtataaat atcagtattc tgacatgtaa

3541 gaaaatgtta cggcatcaca cttatatttt atgaacattg tactgttgct ttaatatgag

3601 cttcaatata agaagcaatc tttgaaataa aaaaagattt ttttttaaaa aaaa (SEQ ID NO:1)

FIG. 14C

1 mkenyclqaa lvclgmlchs hafaperrgh lrpsfhghhe kgkegqvlqr skrgwvwnqf

61 fvieeytgpd pvlvgrlhsd idsgdgniky ilsgegagti fviddksgni hatktldree

121 raqytlmaqa vdrdtnrple ppsefivkvq dindnppefl hetyhanvpe rsnvgtsviq

181 vtasdaddpt ygnsaklvys ilegqpyfsv eaqtgiirta lpnmdreake eyhvviqakd

241 mgghmgglsg ttkvtitltd vndnppkfpq svyqmsvsea avpgeevgrv kakdpdigen

301 glvtynivdg dgmesfeitt dyetqegvik lkkpvdfetk rayslkveaa nvhidpkfis

361 ngpfkdtvtv kisvedadep pmflapsyih evqenaaagt vvgrvhakdp daanspirys

421 idrhtdldrf ftinpedgfi kttkpldree tawlnitvfa aeihnrhqea kvpvairvld

481 vndnapkfaa pyegficesd qtkplsnqpi vtisaddkdd tangprfifs lppeiihnpn

541 ftvrdnrdnt agvyarrggf srqkqdlyll pivisdggip pmsstntlti kvcgcdvnga

601 llscnaeayi lnaglstgal iailacivil lvivvlfvtl rrqkkepliv feeedvreni

661 ityddeggge edteafdiat lqnpdgingf iprkdikpey qymprpglrp apnsvdvddf

721 intriqeadn dptappydsi qiygyegrgs vagslssles attdsdldyd ylqnwgprfk

781 kladlygskd tfddds (SEQ ID NO: 2)

FIG. 15

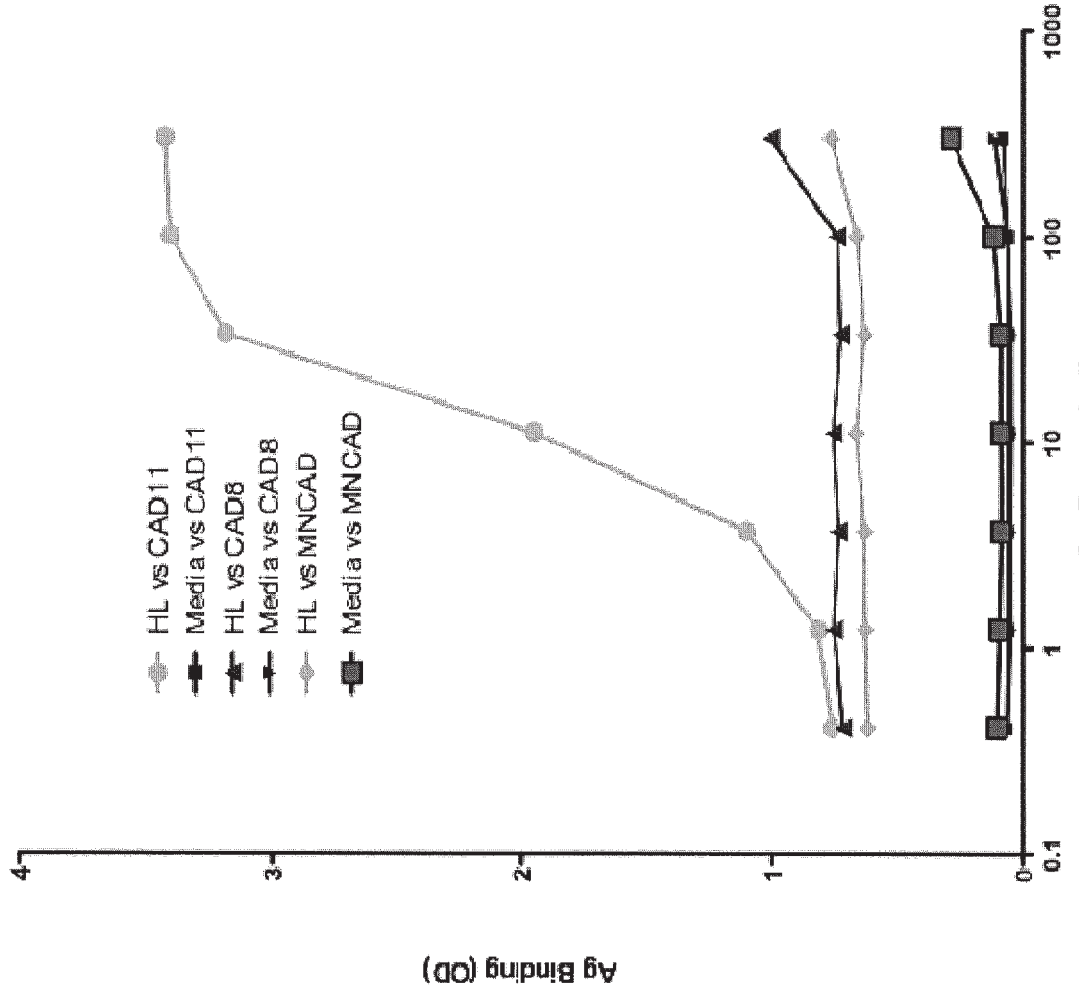

HL vs CAD11
Media vs CAD11
HL vs CAD8
Media vs CAD8
HL vs MNCAD
Media vs MNCAD
Ag Binding (OD)
Ag Concentration
0
1
2
3
4
0.1
1
10
100
1000

FIG. 16

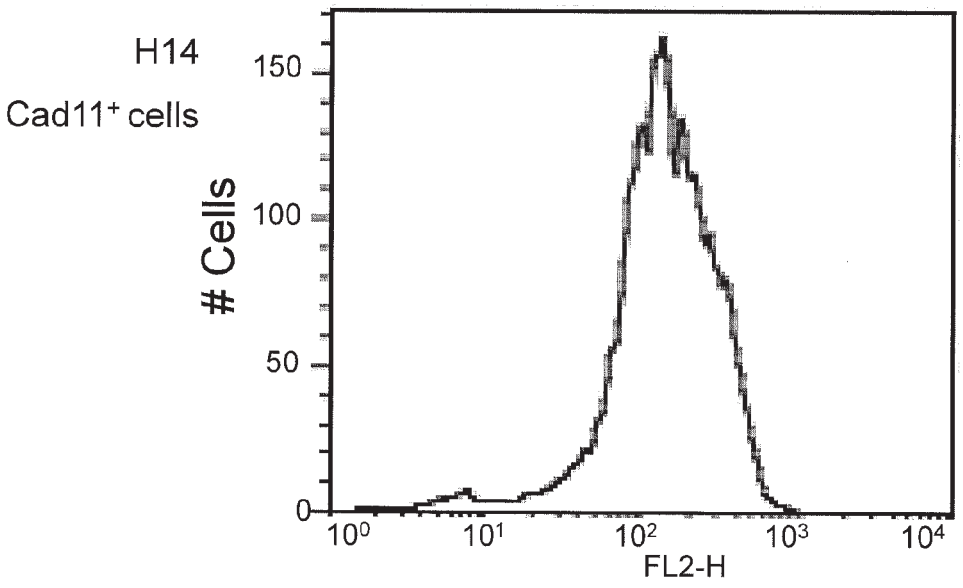


FIG. 17A

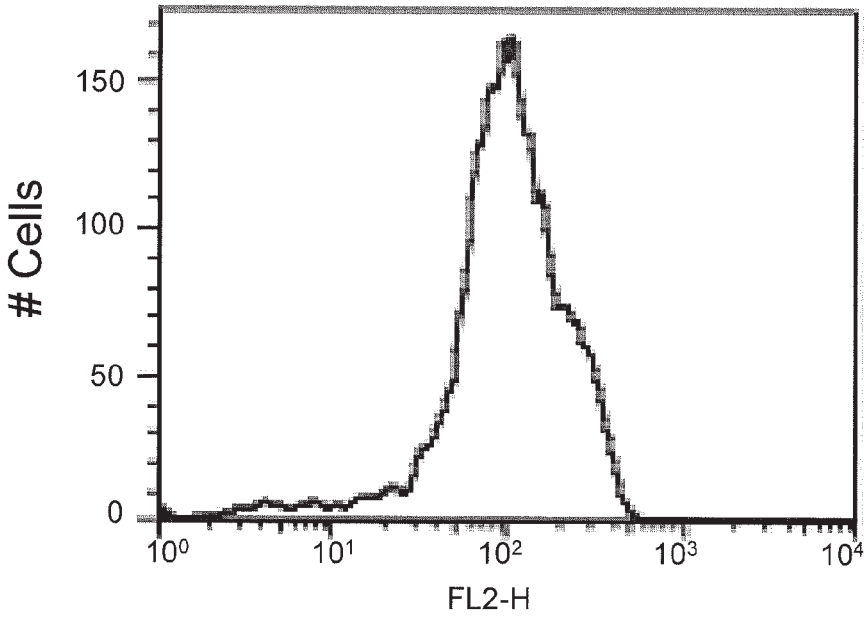


FIG. 17B

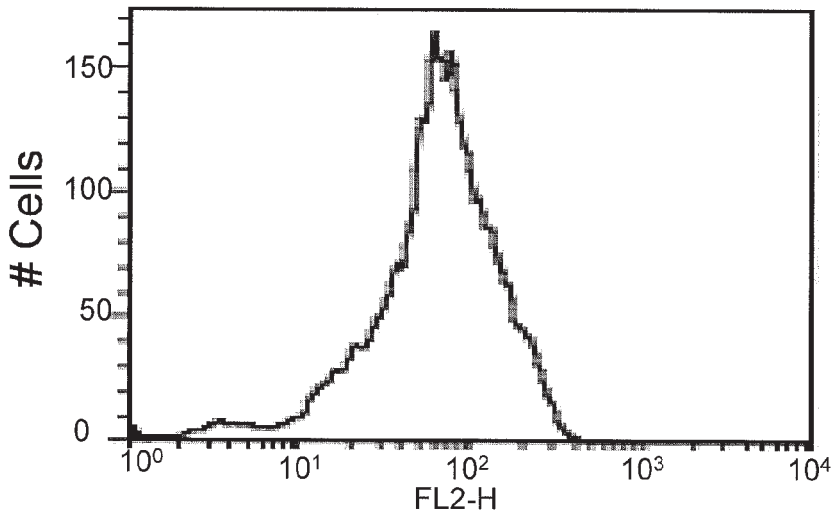


FIG. 17C

H14

Cad11- cells

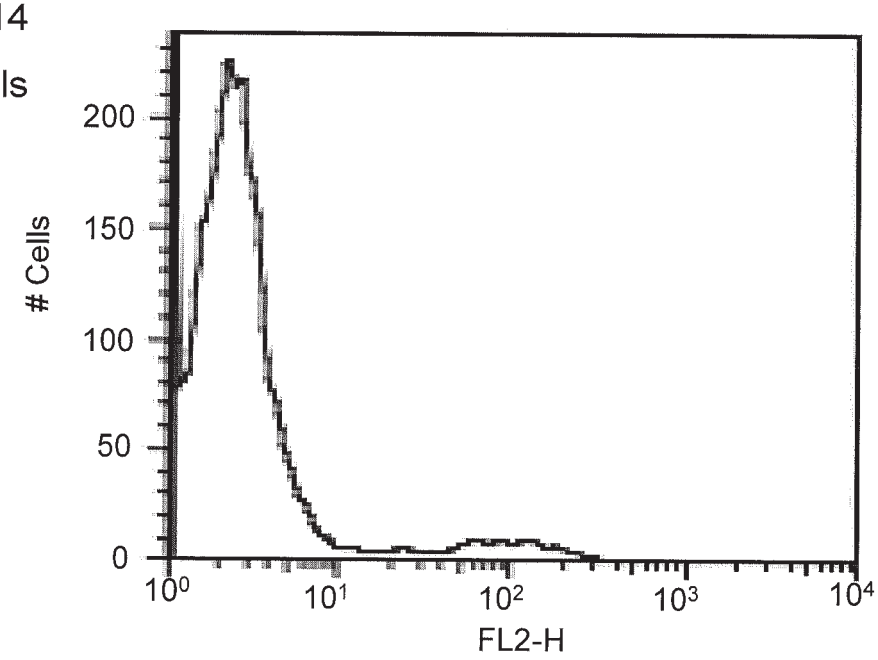


FIG. 17D

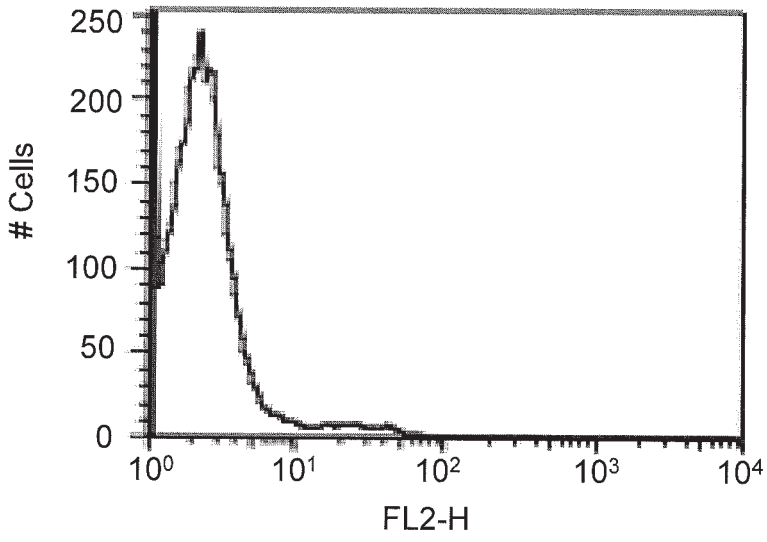


FIG. 17E

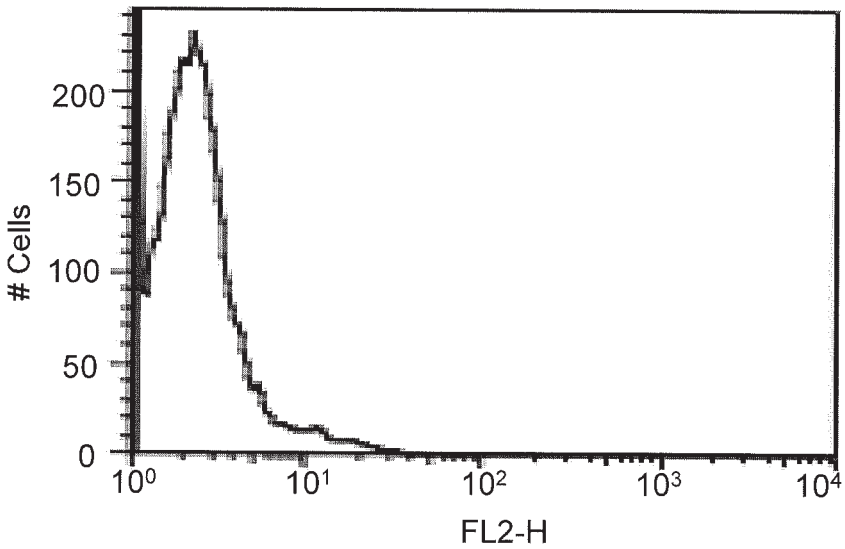


FIG. 17F

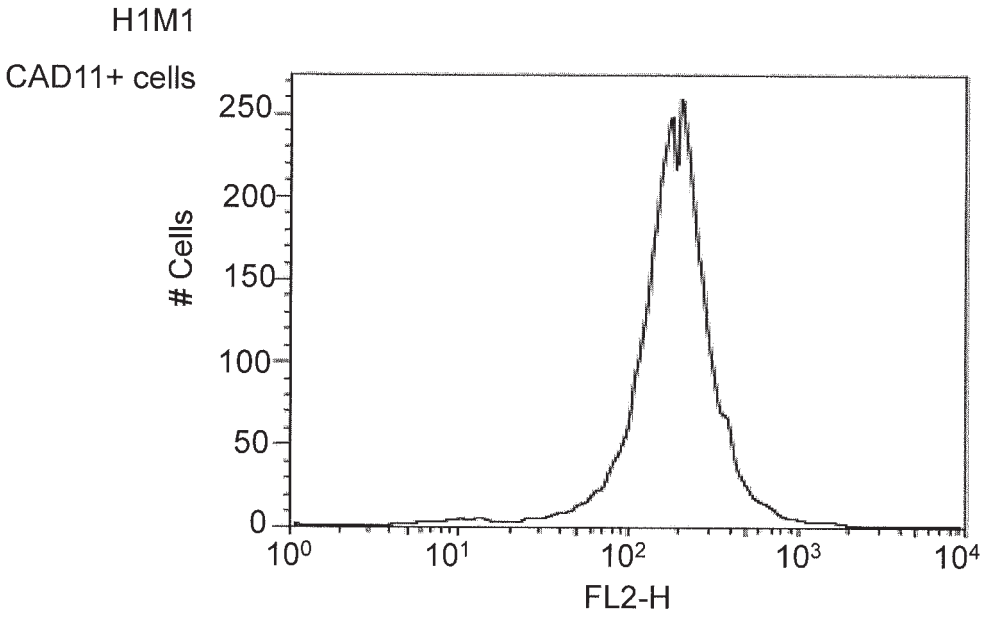


FIG. 17G

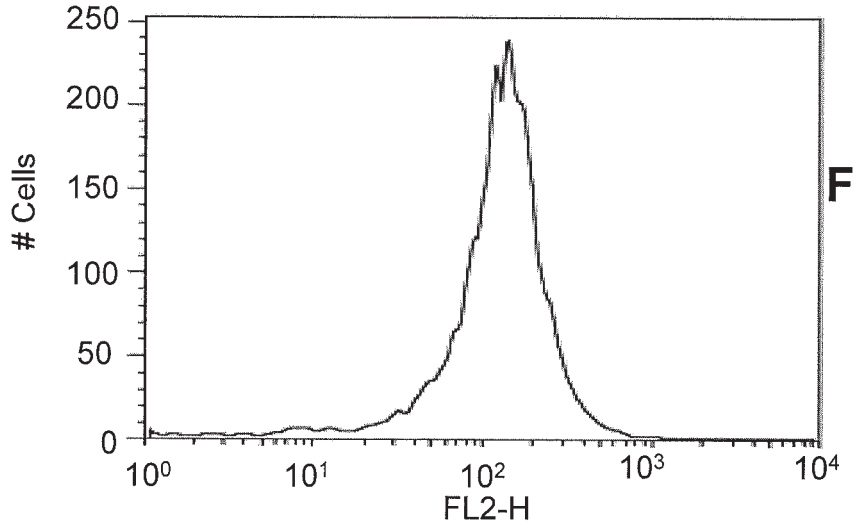


FIG. 17H

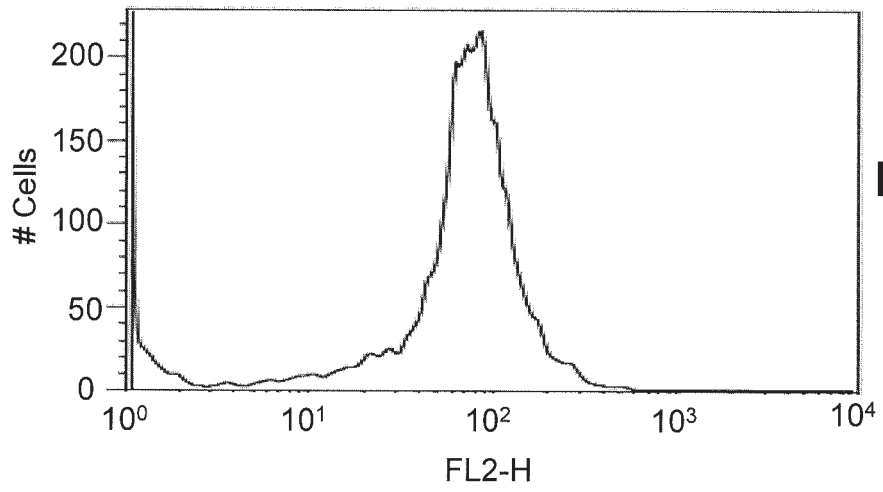


FIG. 17I

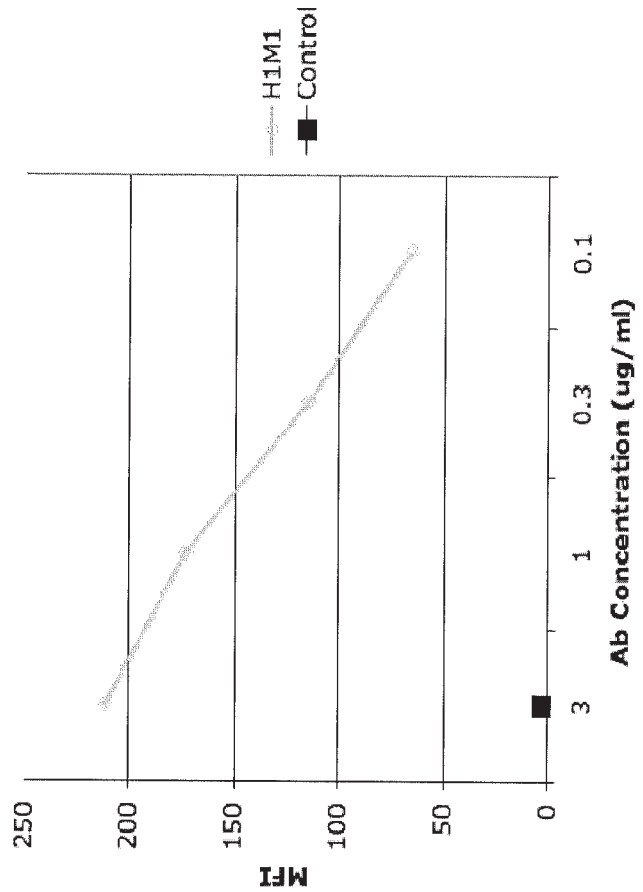


FIG. 18B

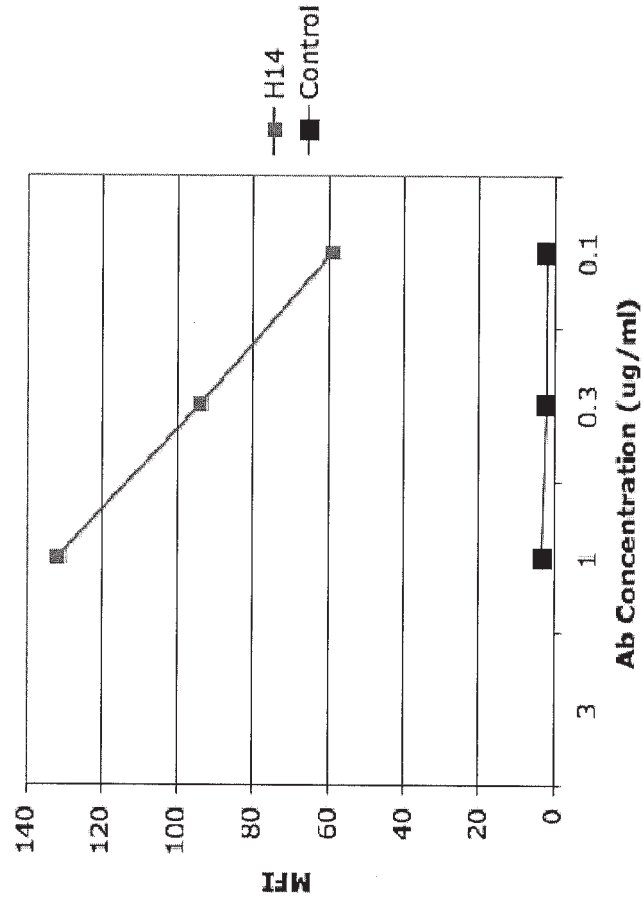


FIG. 18A

FIG. 19A

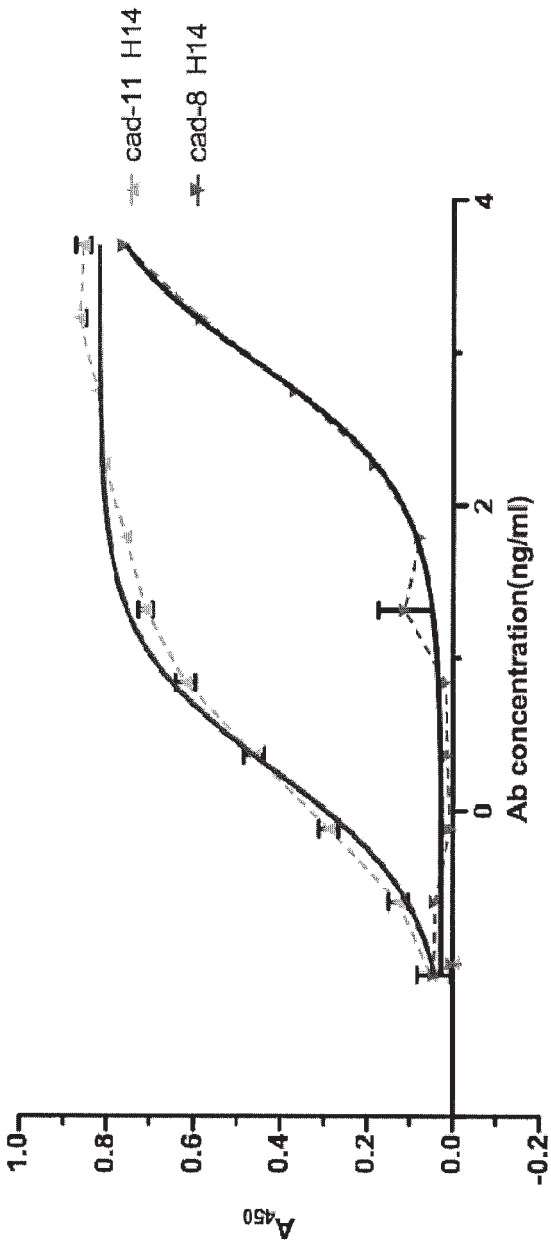


FIG. 19B

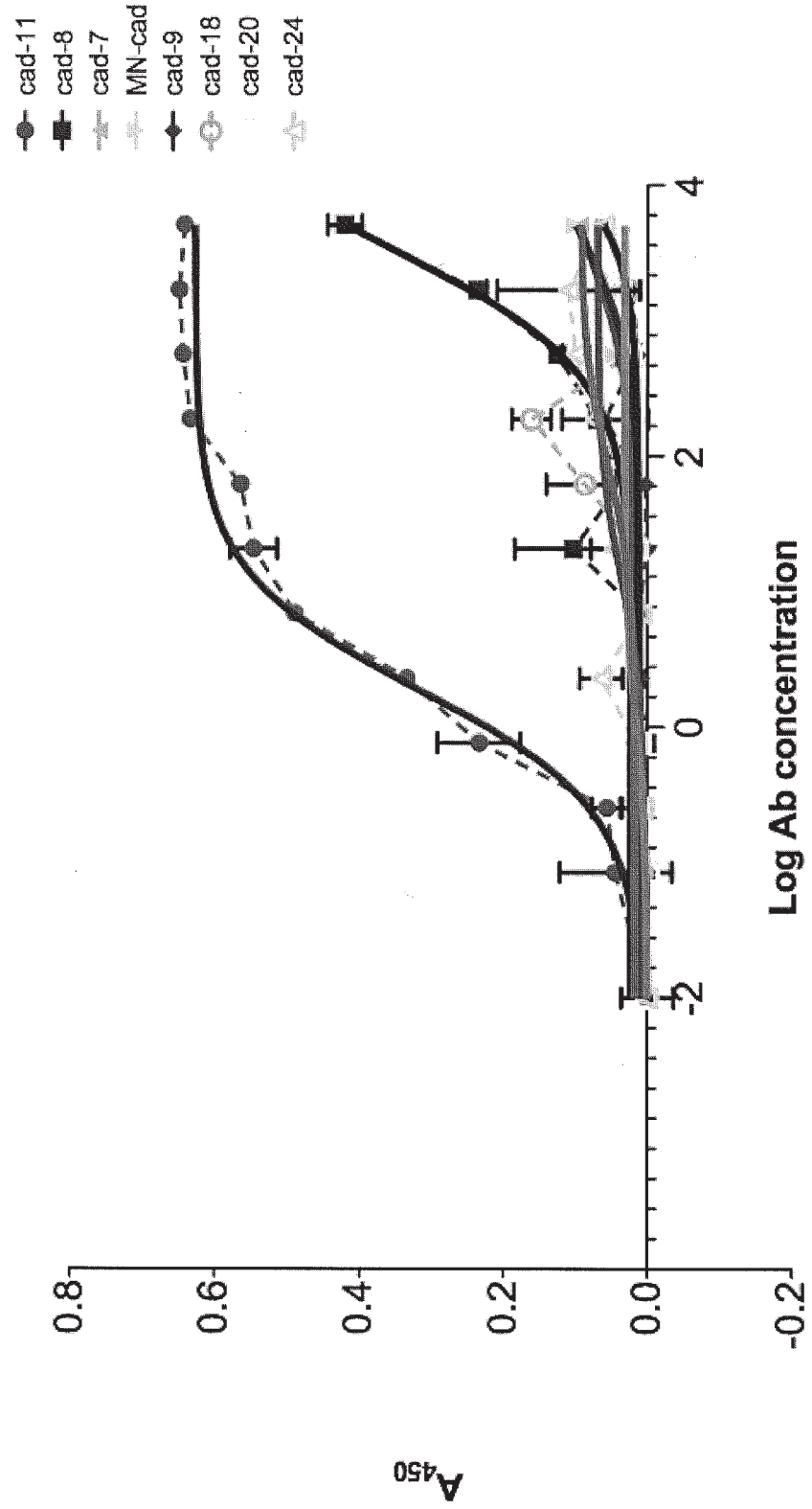

cad-11
cad-8
cad-7
MN-cad
cad-9
cad-18
cad-20
cad-24
0.8
0.6
0.4
0.2
0.0
-0.2
-2
0
2
4
Log Ab concentration
A450

FIG. 20

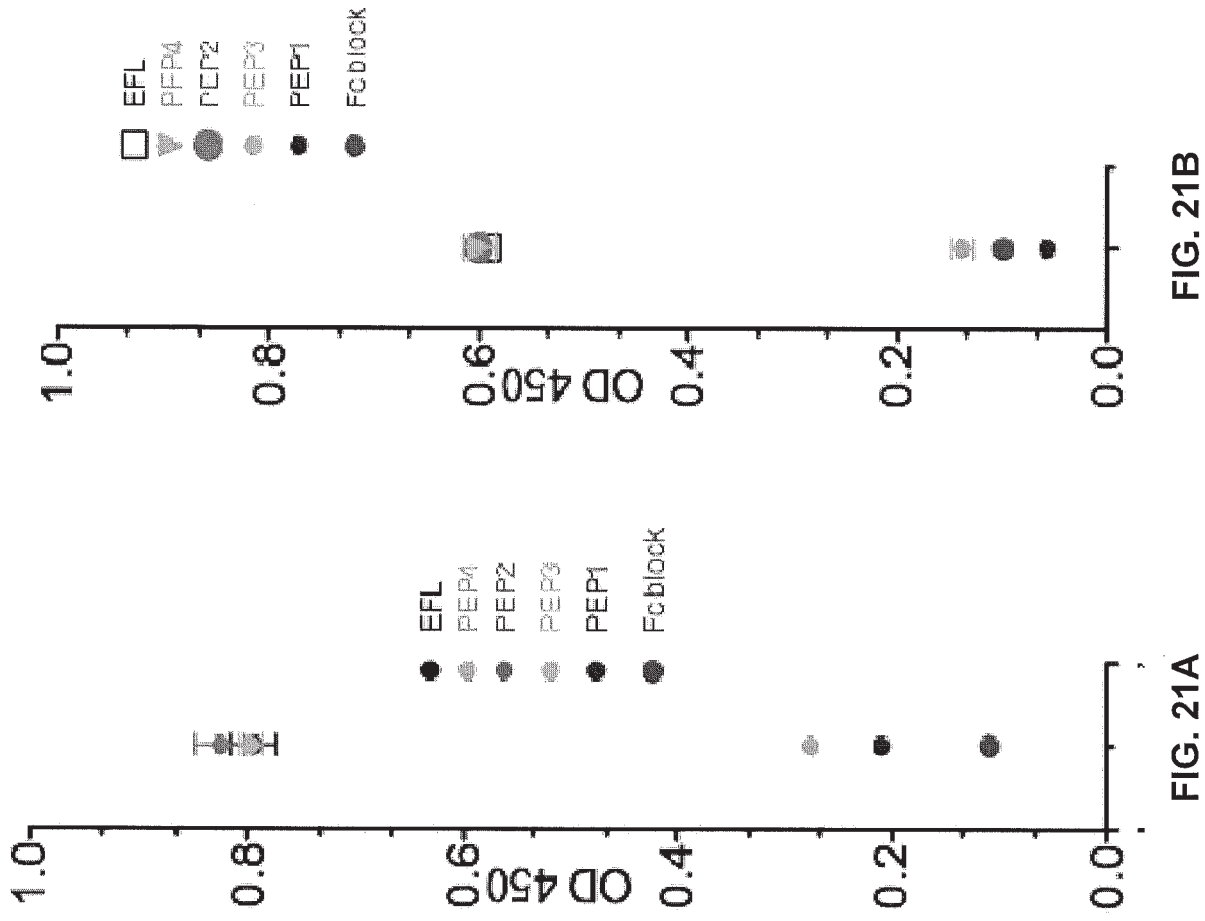


FIG. 21B

FIG. 21A

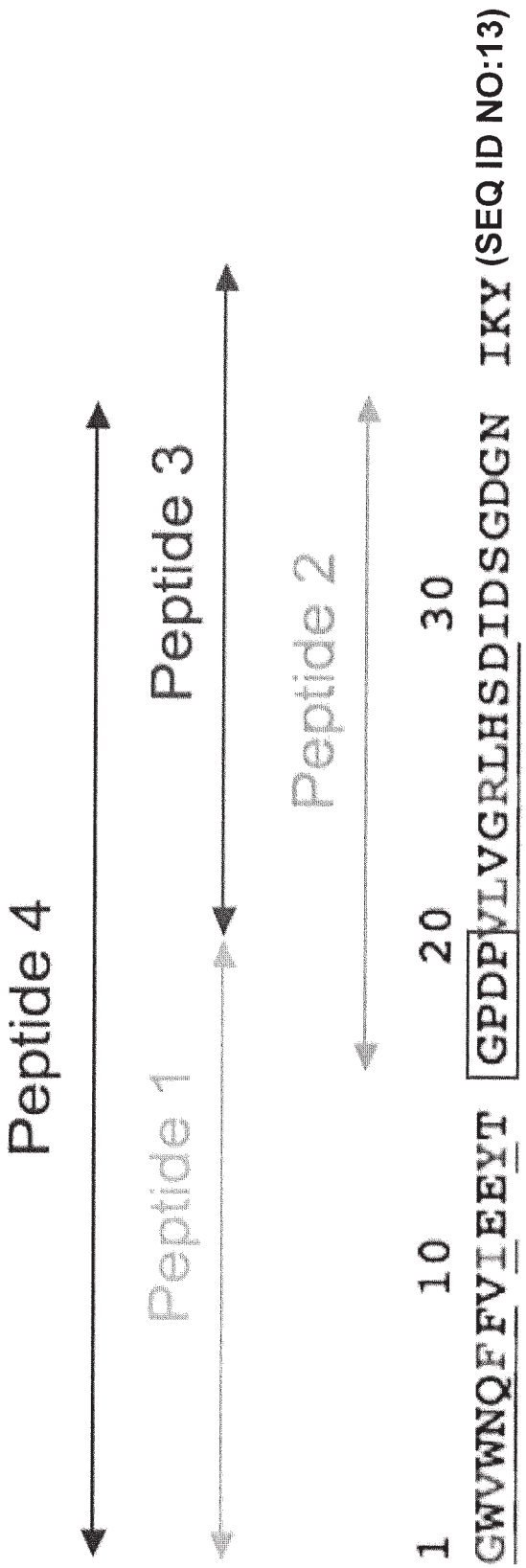

Peptide 4
Peptide 3
Peptide 2
Peptide 1
1
10
20
30
GWVWNQFFVIEEYT
GPDPVLVGRLHSDIDSGDGN
IKY (SEQ ID NO:13)

FIG. 22

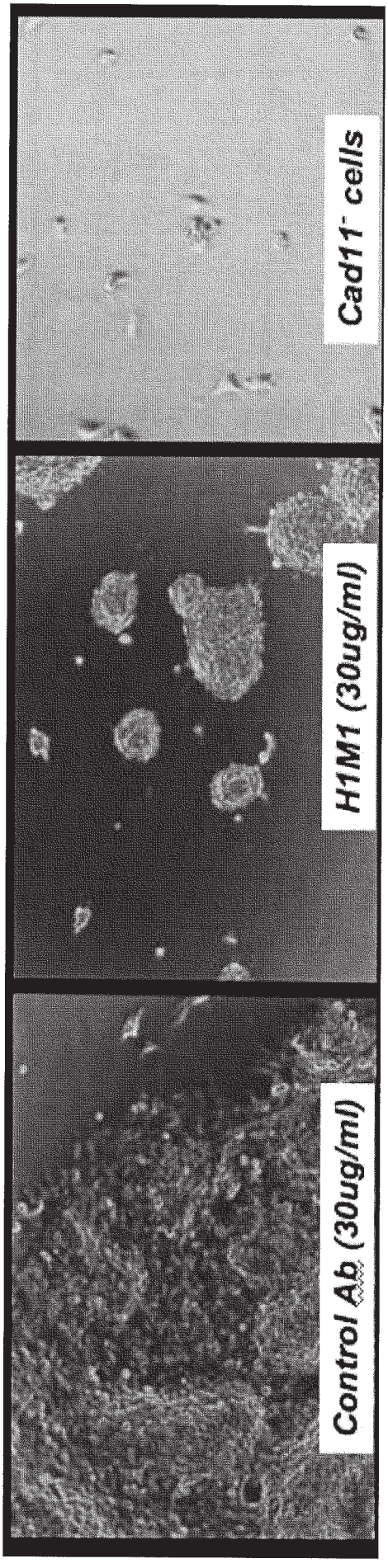


FIG. 23A

FIG. 23B

FIG. 23C

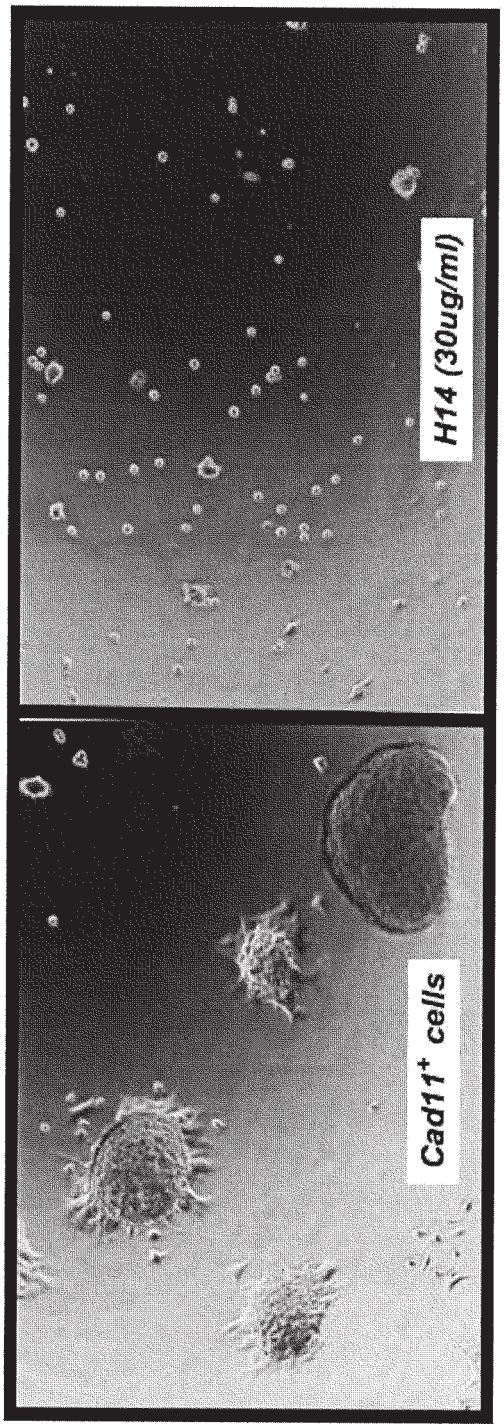


FIG. 24B

FIG. 24A

FIG. 25

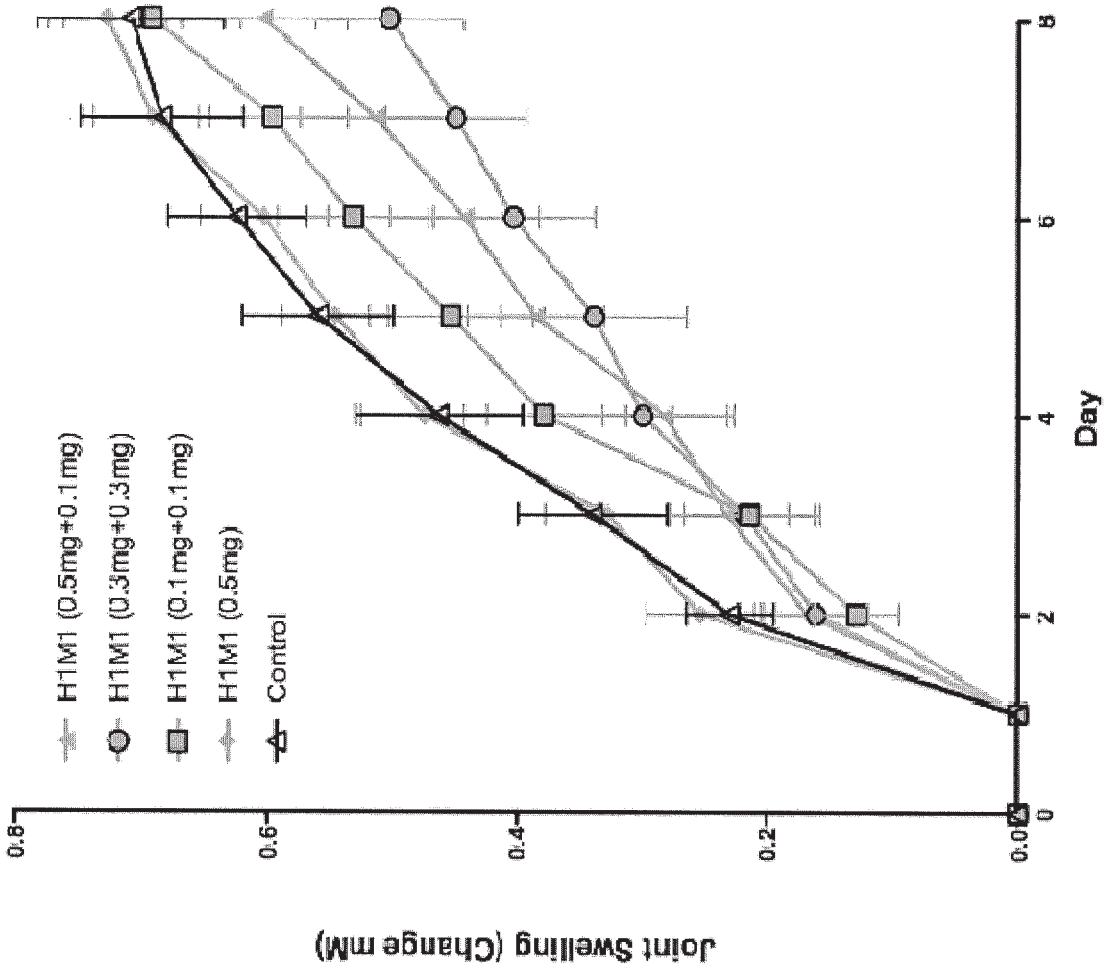

Joint Swelling (Change mM)
0.0
0.2
0.4
0.6
0.8
0
2
4
6
8
Day
H1M1 (0.5mg+0.1mg)
H1M1 (0.3mg+0.3mg)
H1M1 (0.1mg+0.1mg)
H1M1 (0.5mg)
Control

FIG. 26

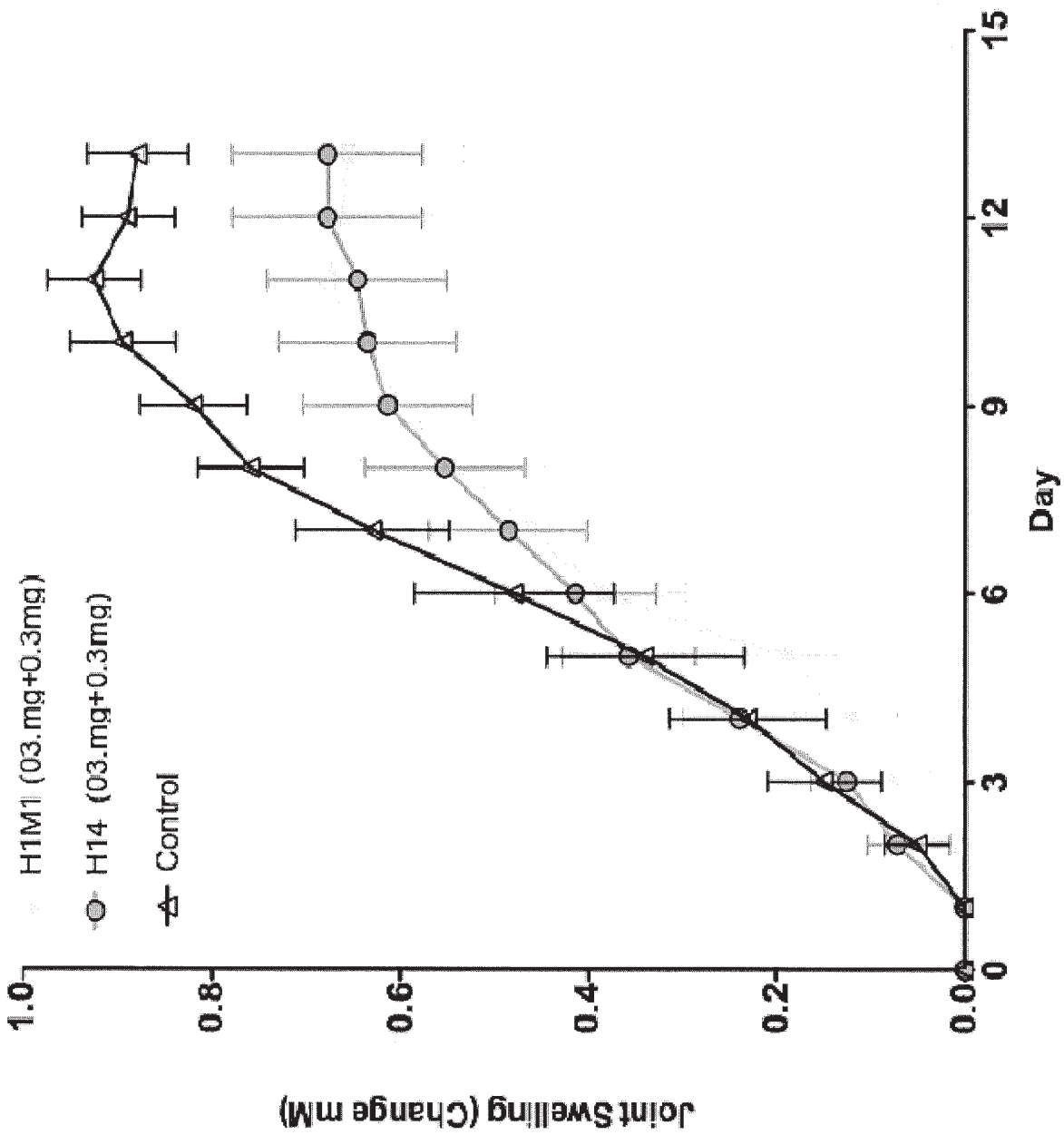

Joint Swelling (Change mM)
1.0
0.8
0.6
0.4
0.2
0.0
0
3
6
9
12
15
Day
H1M1 (03.mg+0.3mg)
H14 (03.mg+0.3mg)
Control

FIG. 27

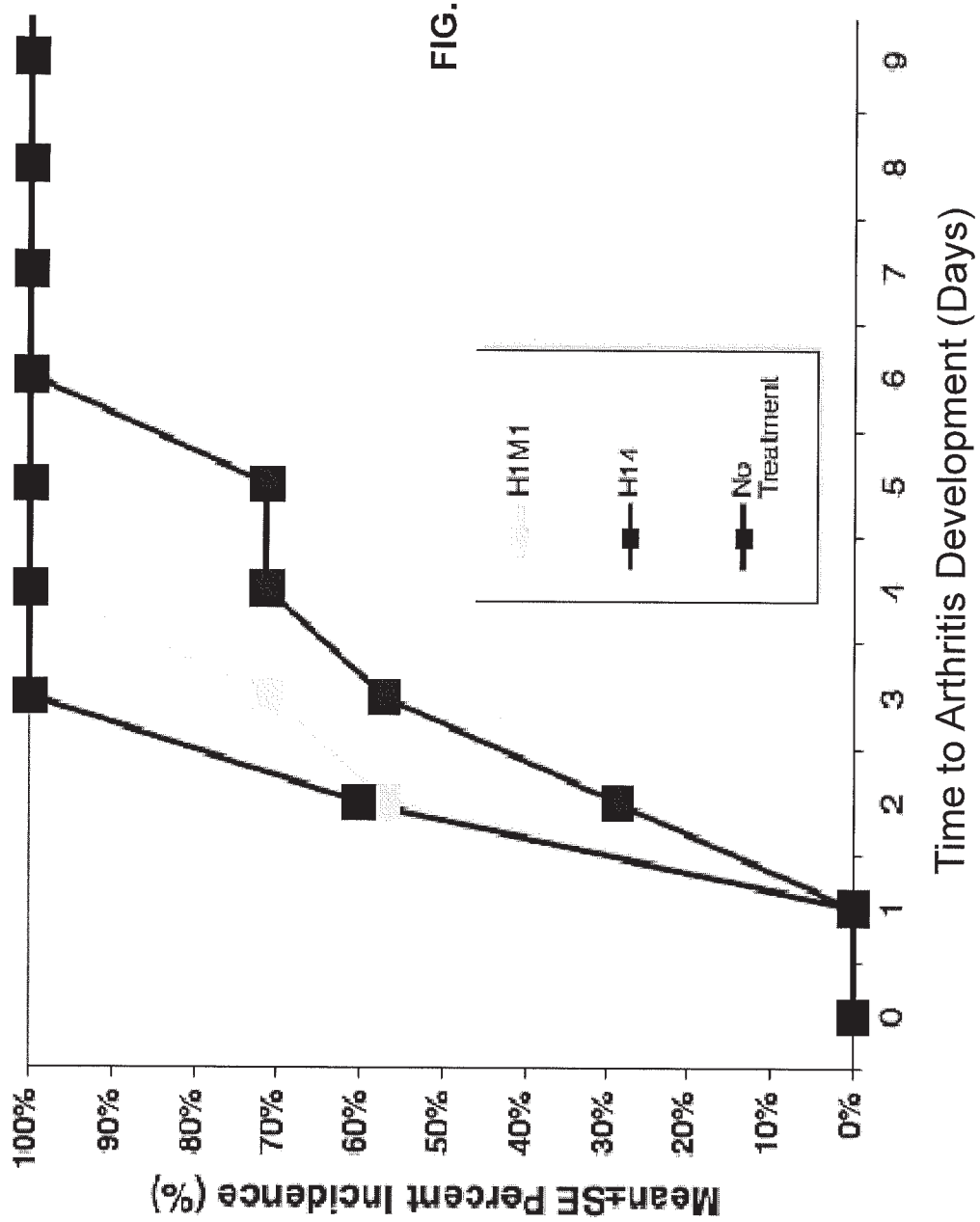
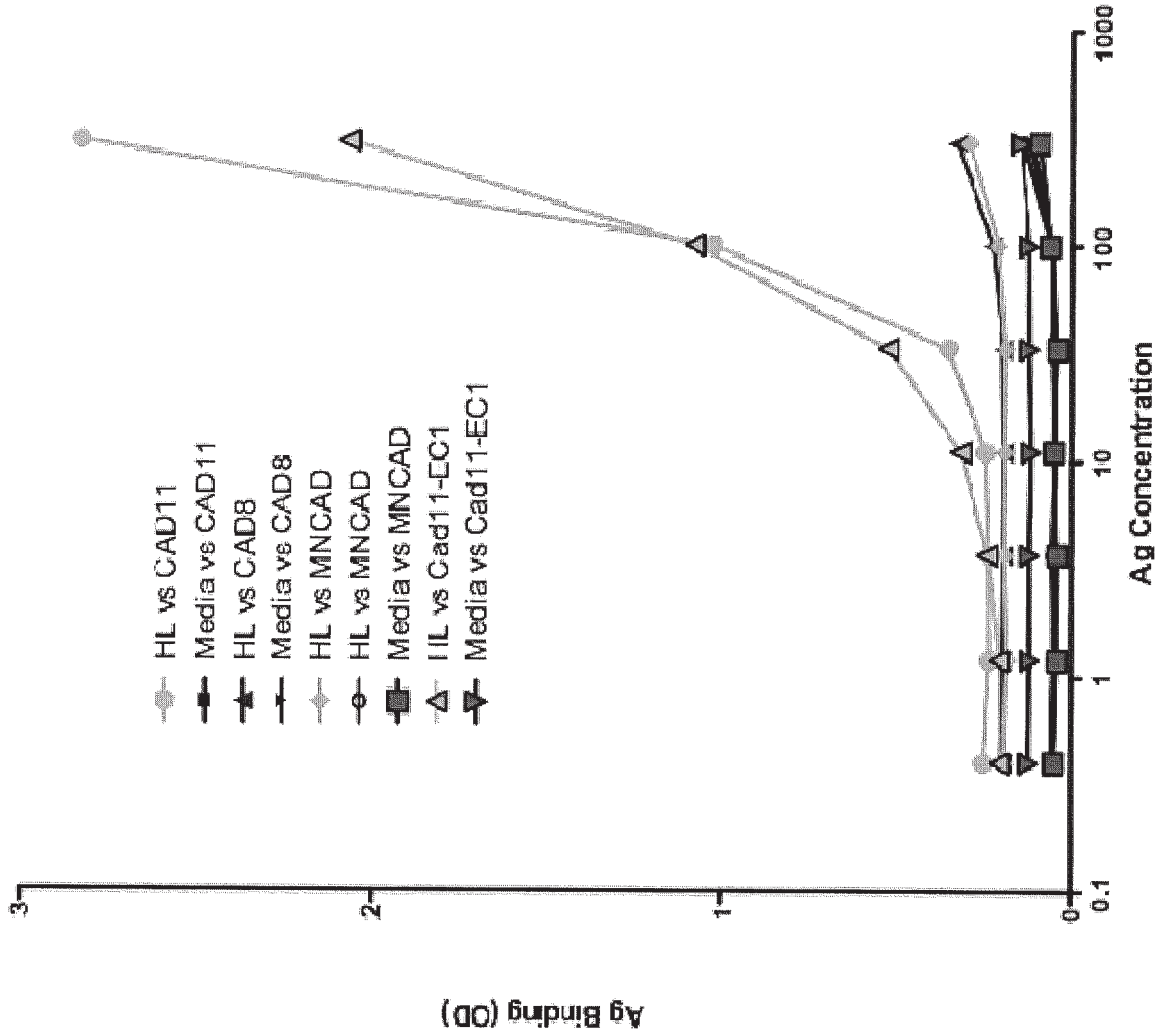

Mean±SE Percent Incidence (%)
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0
1
2
3
4
5
6
7
8
9
Time to Arthritis Development (Days)
H1M1
H14
No Treatment

FIG. 28


Ag Binding (OD)
Ag Concentration
0
1
2
3
0.1
1
10
100
1000
HL vs CAD11
Media vs CAD11
HL vs CAD8
Media vs CAD8
HL vs MNCAD
HL vs MNCAD
Media vs MNCAD
I IL vs Cad11-EC1
Media vs Cad11-EC1

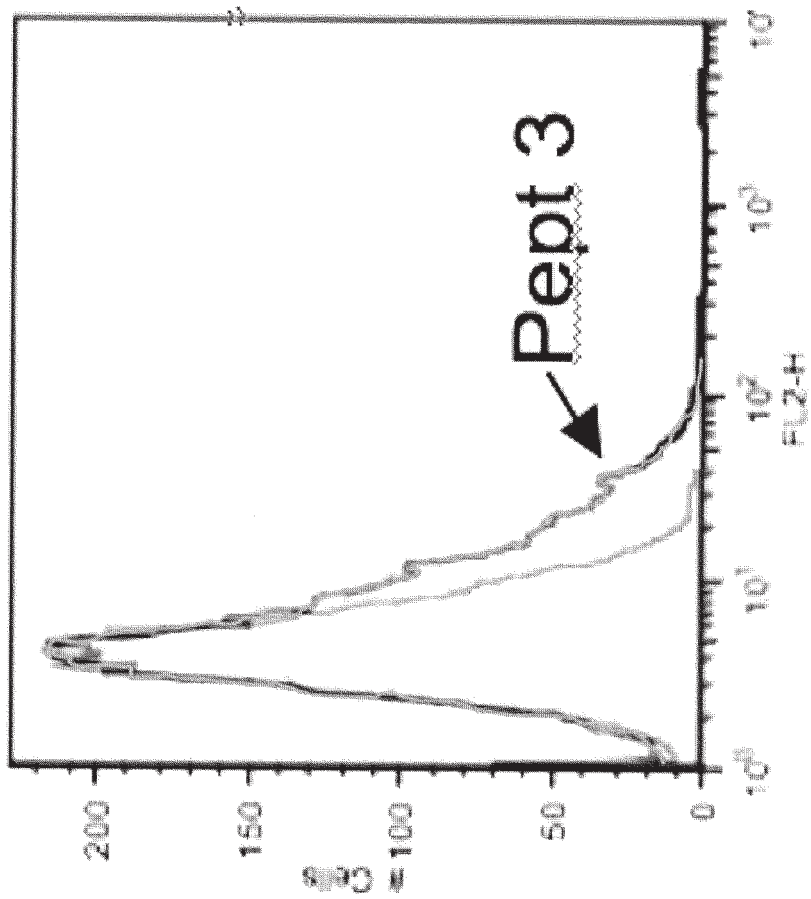


FIG. 29

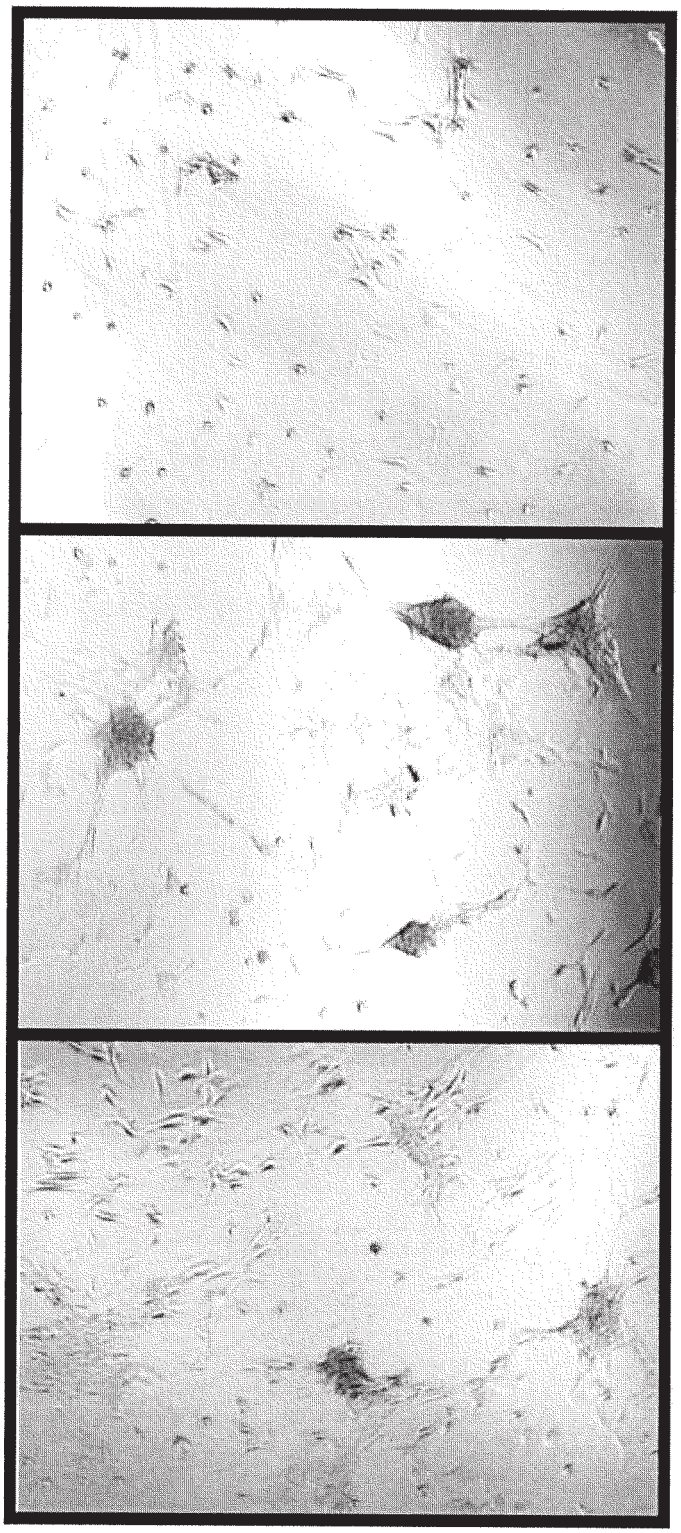


FIG. 30C

FIG. 30B

FIG. 30A

FIG. 31

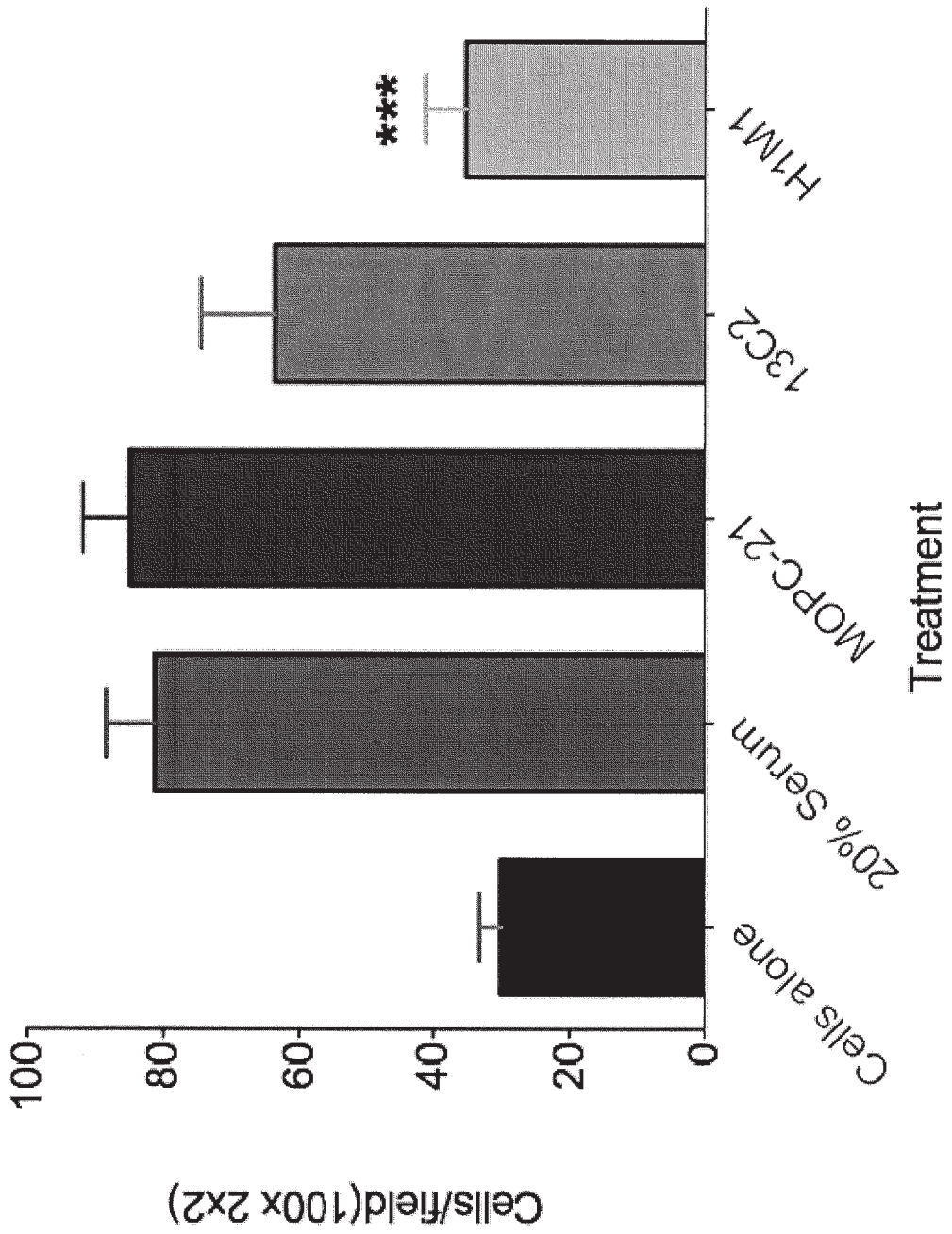
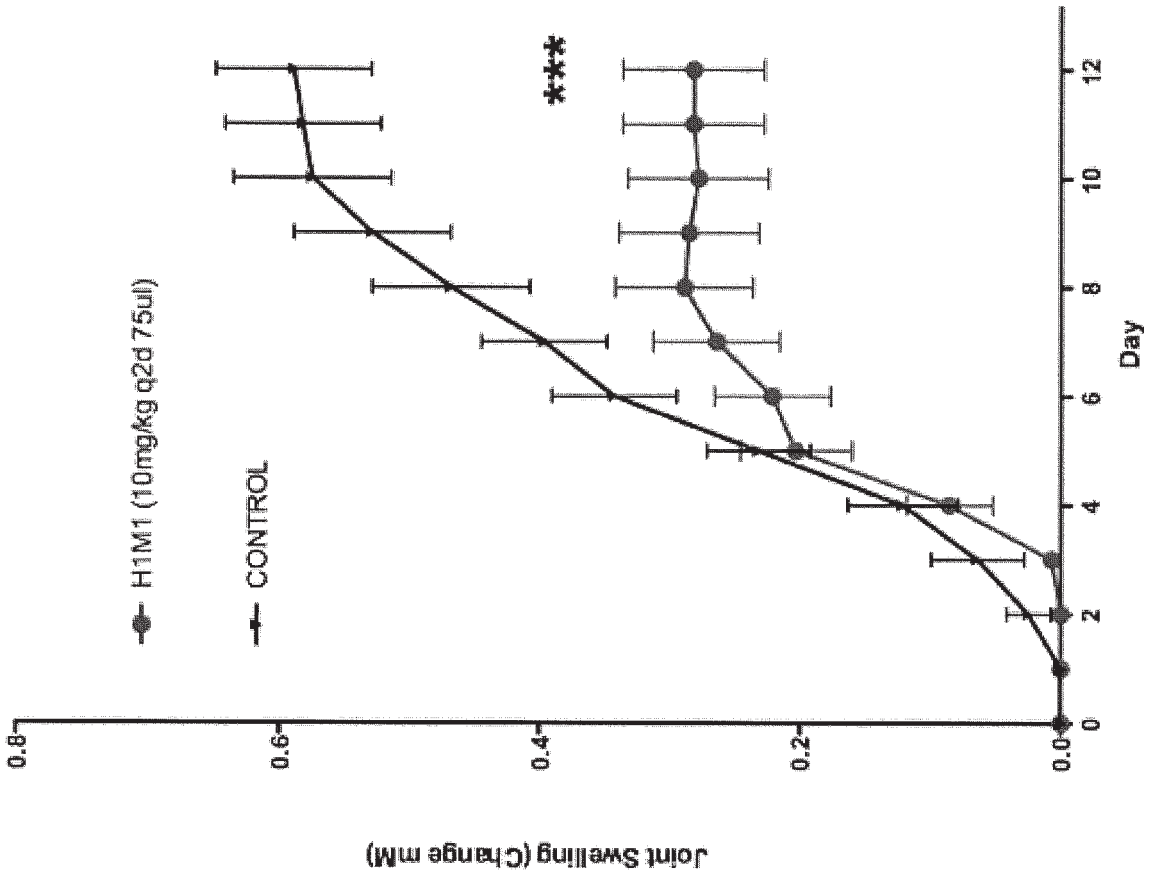

Cells/field(100x 2x2)
100
80
60
40
20
0
***
Cells alone
20% Serum
MOPC-21
13C2
H1M1
Treatment

FIG. 32


H1M1 (10mg/kg q2d 75ul)
CONTROL
***
Joint Swelling (Change mM)
Day
0.0
0.2
0.4
0.6
0.8
0
2
4
6
8
10
12

```
        10        20        30        40        50        60        70        80        90        100
GAGGTTCAGCTGCAGCAGTCTGGACCTGAGCTGGTGAAGCCTGGGGCTTCAGTGAAGATATCCTGCAAGGCTTCTGGTTACTCATTTACTGGCTACTTTA
 E  V  Q  L  Q  Q  S  G  P  E  L  V  K  P  G  A  S  V  K  I  S  C  K  A  S  G  Y  S  F  T  G  Y  F
                           10                                20                                30

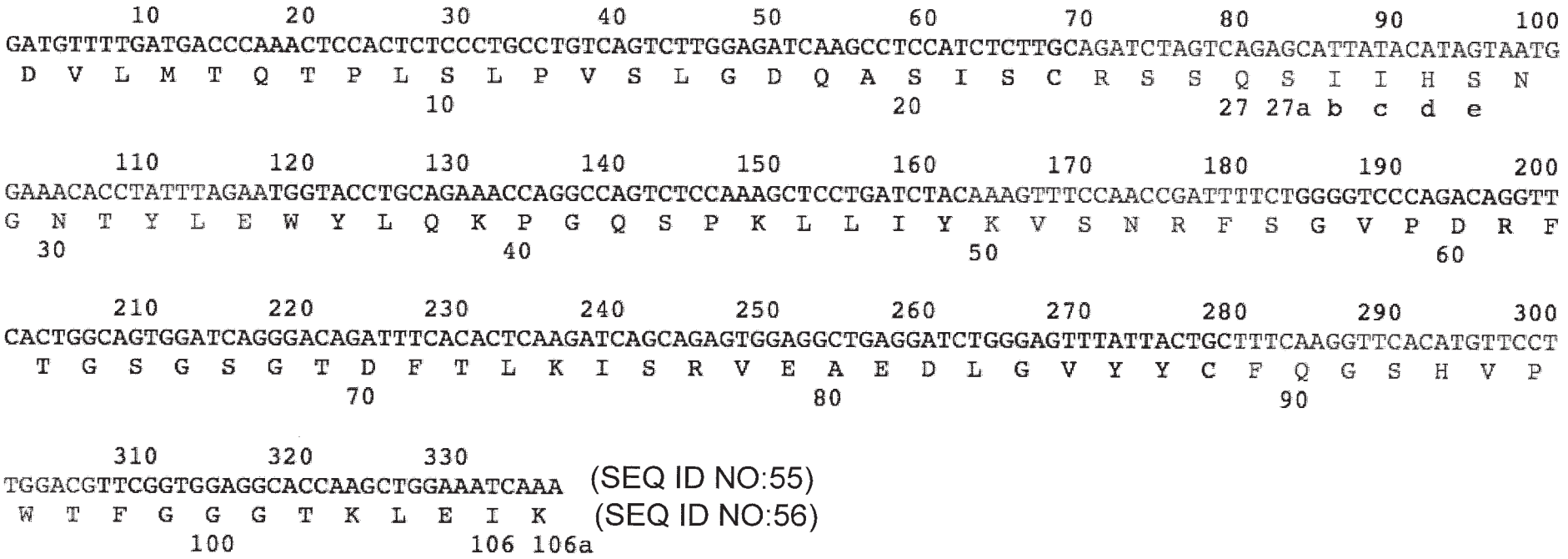
       110       120       130       140       150       160       170       180       190       200
TGAACTGGGTGAAGCAGAGCCATGGAAAGAGCCTTGAGTGGATTGGACGTATTAATCCTTACACTGGTGATACTTTCTACAACCAGAAGTTCAAGGGCAA
M  N  W  V  K  Q  S  H  G  K  S  L  E  W  I  G  R  I  N  P  Y  T  G  D  T  F  Y  N  Q  K  F  K  G  K
                  40                                50    52 52a                    60

       210       220       230       240       250       260       270       280       290       300
GGCCACATTGACTGTTGACAAATCCTCTAGCACAGCCCACATGGAGCTCCTGAGCCTGTCATCTGAAGACTCTGCAGTCTATTATTGTGGACGACTCGGT
  A  T  L  T  V  D  K  S  S  S  T  A  H  M  E  L  L  S  L  S  S  E  D  S  A  V  Y  Y  C  G  R  L  G
        70                                80    82 82a b  c                    90

       310       320       330       340       350
AGTAGGTACTGGTACTTCGATGTCTGGGGCGCAGGGACCACGGTCACCGTCTCCTC   (SEQ ID NO:50)
S  R  Y  W  Y  F  D  V  W  G  A  G  T  T  V  T  V  S  S      (SEQ ID NO:51)
       100 a  b                          110
```

CDR1: GYFMN (SEQ ID NO:52)
CDR2: RINPYTGDTFYNQKFKG (SEQ ID NO:53)
CDR3: LGSRYWYFDV (SEQ ID NO:54)

FIG. 33



CDR1: RSSQSIIHSNGNTYLE (SEQ ID NO:57)
CDR2: KVSNRFS (SEQ ID NO:58)
CDR3: FQGSHVPWT (SEQ ID NO:59)

FIG. 34

Anti-CAD11 EC1 VH1 Heavy Chain Sequences

```
        10        20        30        40        50        60        70        80        90        100
GAGGTTCAGCTGGTGCAGTCTGGACCTGAGCTGAAGAAGCCTGGGGCTTCAGTGAAGATATCCTGCAAGGCTTCTGGTTACTCATTTACTGGCTACTTTA
 E  V  Q  L  V  Q  S  G  P  E  L  K  K  P  G  A  S  V  K  I  S  C  K  A  S  G  Y  S  F  T  G  Y  F
                          10                                   20                                   30

       110       120       130       140       150       160       170       180       190       200
TGAACTGGGTGAAGCAGGCCCATGGACAGGGCCTTGAGTGGATTGGACGTATTAATCCTTACACTGGTGATACTTTCTACAACCAGAAGTTCAAGGGCAG
M  N  W  V  K  Q  A  H  G  Q  G  L  E  W  I  G  R  I  N  P  Y  T  G  D  T  F  Y  N  Q  K  F  K  G  R
                 40                                   50    52  a                                   60

       210       220       230       240       250       260       270       280       290       300
GGCCACATTGACTGTTGACAAAATCCTCTAGCACAGCCTACATGGAGCTCGTGAGCCTGTCATCTGAAGACTCTGCAGTCTATTATTGTGGACGACTCGGT
  A  T  L  T  V  D  K  S  S  S  T  A  Y  M  E  L  V  S  L  S  S  E  D  S  A  V  Y  Y  C  G  R  L  G
        70                                   80    82  a  b  c                                   90

       310       320       330       340       350
AGTAGGTACTGGTACTTCGATGTCTGGGGCCAGGGGACCACGGTCACCGTCTCCTCA (SEQ ID NO:60)
 S  R  Y  W  Y  F  D  V  W  G  Q  G  T  T  V  T  V  S  S  (SEQ ID NO:61)
       100  a  b                                   110
```

CDR definitions and protein sequence numbering according to Kabat. CDR nucleotide and protein sequences are highlighted in red

FIG. 35A

Anti-CAD11 EC1 VH2 Heavy Chain Sequences

```
        10         20         30         40         50         60         70         80         90        100
GAGGTTCAGCTGGTGCAGTCTGGAGCCGAGGTGAAGAAGCCTGGGGCTTCAGTGAAGATATCCTGCAAGGCTTCTGGTTACTCATTTACTGGCTACTTTA
 E  V  Q  L  V  Q  S  G  A  E  V  K  K  P  G  A  S  V  K  I  S  C  K  A  S  G  Y  S  F  T  G  Y  F
                                10                                  20                                  30

       110        120        130        140        150        160        170        180        190        200
TGAACTGGGTGAAGCAGGCCCCTGGACAGGGCCTTGAGTGGATTGGACGTATTAATCCTTACACTGGTGATACTTTCTACAACCAGAAGTTCAAGGGCAG
 M  N  W  V  K  Q  A  P  G  Q  G  L  E  W  I  G  R  I  N  P  Y  T  G  D  T  F  Y  N  Q  K  F  K  G  R
                   40                                  50    52  a                       60

       210        220        230        240        250        260        270        280        290        300
GGCCACATTGACTGTTGACAAATCCACCAGCACAGCCTACATGGAGCTCTCCAGCCTGAGATCTGAAGACACCGCAGTCTATTATTGTGGACGACTCGGT
  A  T  L  T  V  D  K  S  T  S  T  A  Y  M  E  L  S  S  L  R  S  E  D  T  A  V  Y  Y  C  G  R  L  G
          70                                  80    82  a  b  c                       90

       310        320        330        340        350
AGTAGGTACTGGTACTTCGATGTCTGGGGCCAGGGGACCACGGTCACCGTCTCCTCA (SEQ ID NO:62)
 S  R  Y  W  Y  F  D  V  W  G  Q  G  T  T  V  T  V  S  S  (SEQ ID NO:63)
       100  a  b                       110
```

CDR definitions and protein sequence numbering according to Kabat. CDR nucleotide and protein sequences are highlighted in red

FIG. 35B

Anti-CAD11 EC1 VH3 Heavy Chain Sequences

```
                10        20        30        40        50        60        70        80        90       100
GAGGTTCAGCTGGTGCAGTCTGGAGCAGAGGTGAAAAAGCCCGGGGAGTCTCTGAGGATCTCCTGTAAGGGTTCTGGATACAGCTTTACCAGCTACTGG
 E  V  Q  L  V  Q  S  G  A  E  V  K  K  P  G  E  S  L  R  I  S  C  K  G  S  G  Y  S  F  T  S  Y  W
                10        20        30        40        50        60        70        80        90

               110       120       130       140       150       160       170       180       190       200
TGAACTGGGTGCGCCAGATGCCCGGGAAAGGCCTGGAGTGGATGGGGATCATCTATCCTGGTGACTCTGATACCAGATACAGCCCGTCCTTCCAAGGCCAG
M  N  W  V  R  Q  M  P  G  K  G  L  E  W  M  G  I  I  Y  P  G  D  S  D  T  R  Y  S  P  S  F  Q  G  Q
               40        50        52  a

              210       220       230       240       250       260       270       280       290       300
GTCACCATCTCAGCCGACAAGTCCATCAGCACCGCCTACCTGCAGTGGAGCAGCCTGAAGGCCTCGGACACCGCCATGTATTACTGTGCGAGACGCTAC
 V  T  I  S  A  D  K  S  I  S  T  A  Y  L  Q  W  S  S  L  K  A  S  D  T  A  M  Y  Y  C  A  R  R  Y
                70        80        82  a  b  c        90

              310       320       330       340       350
AGGTACGGTATGGACGTCTGGGGCCAAGGGACCACGGTCACCGTCTCCTCA (SEQ ID NO:64)
 R  Y  G  M  D  V  W  G  Q  G  T  T  V  T  V  S  S  (SEQ ID NO:65)
               100  a  b
                                  110
```

FIG. 35C

Anti-CAD11 EC1 VH4 Heavy Chain Sequences

```
          10        20        30        40        50        60        70        80        90       100
CAGGTTCAGCTGGTGCAGTCTGGAGCTGAGGTGAAGAAGCCTGGGGCCTCAGTGAAGGTCTCCTGCAAGGCTTCTGGCTACACCTTTACCAGCTATTA
 Q  V  Q  L  V  Q  S  G  A  E  V  K  K  P  G  A  S  V  K  V  S  C  K  A  S  G  Y  T  F  T  S  Y  Y
                    10                  20                  30

         110       120       130       140       150       160       170       180       190       200
TGAACTGGGTGCGACAGGCCCCTGGACAAGGGCTTGAGTGGATGGGATGGATCAACCCTAACAGTGGTGGCACAAACTATGCACAGAAGTTTCAGGGCAG
M  N  W  V  R  Q  A  P  G  Q  G  L  E  W  M  G  W  I  N  P  N  S  G  G  T  N  Y  A  Q  K  F  Q  G  R
                   40                  50                  60                  70                  80

         210       220       230       240       250       260       270       280       290       300
GGCCACAATCACCATGACCAGGGACACGTCCATAAGCACAGCCTACATGGAGCTGAGCAGGCTGAGATCTGACGACACGGCCGTGTATTACTGTGCGAGA
 A  T  I  T  M  T  R  D  T  S  I  S  T  A  Y  M  E  L  S  R  L  R  S  D  D  T  A  V  Y  Y  C  A  R
                90                 100                 110
```

(SEQ ID NO:66)
(SEQ ID NO:67)

FIG. 35D

Anti-CAD11 EC1 VH5 Heavy Chain Sequences

```
          10        20        30        40        50        60        70        80        90       100
GAGGTTCAGCTGGTGCAGTCTGGAGCAGAGGTGAAAAAGCCCGGGGAGTCTCTGAGGATCTCCTGTAAGGGTTCTGGATACAGCTTTACCAGCTACTGGATCGGCTGGGTGCGCCAG
  E  V  Q  L  V  Q  S  G  A  E  V  K  K  P  G  G  S  L  R  I  S  C  K  G  S  G  Y  S  F  T  S  Y  W  I  G  W  V  R  Q
                                10                                  20                                  30

         110       120       130       140       150       160       170       180       190       200
ATGCCCGGGAAAGGCCTGGAGTGGATGGGGATCATCTATCCTGGTGACTCTGATACCAGATACAGCCCGTCCTTCCAAGGCCAGGTCACCATCTCAGCCGACAAGTCCATCAGCACC
  M  P  G  K  G  L  E  W  M  G  I  I  Y  P  G  D  S  D  T  R  Y  S  P  S  F  Q  G  Q  V  T  I  S  A  D  K  S  I  S  T
                                40                                  50                                  60

         210       220       230       240       250       260       270       280       290       300
GCCTACCTGCAGTGGAGCAGCCTGAAGGCCTCGGACACCGCCATGTATTACTGTGCGAGACATAGTGGGTATAGCTACGGCCGCCTCGACTACTGGGGCCAGGGAACCCTGGTCACC
  A  Y  L  Q  W  S  S  L  K  A  S  D  T  A  M  Y  Y  C  A  R  H  S  G  Y  S  Y  G  R  L  D  Y  W  G  Q  G  T  L  V  T
                                80                                  90                                 100

         310       320       330       340       350
GTCTCCTCAGCTAGCACCAAGGGCCCATCGGTCTTCCCCCTGGCACCCTCCTCCAAGAGCACCTCTGGGGGCACAGCGGCCCTGGGCTGCCTGGTCAAGGACTACTTCCCCGAA
  V  S  S  A  S  T  K  G  P  S  V  F  P  L  A  P  S  S  K  S  T  S  G  G  T  A  A  L  G  C  L  V  K  D  Y  F  P  E
                                100                                 110
```

(SEQ ID NO:68)
(SEQ ID NO:69)

FIG. 35E

Anti-CAD11 EC1 VK1 Light Chain Sequences

```
        10         20         30         40         50         60         70         80         90         100
GATGTTTTGATGACCCAAACTCCACTCTCCCTCCCCTGTCACCCTTGGACAGCCAGCCTCCATCTCTTGCAGATCTAGTCAGAGCATTATACATAGTAATG
 D  V  L  M  T  Q  T  P  L  S  S  P  V  T  L  G  Q  P  A  S  I  S  C  R  S  S  Q  S  I  I  H  S  N
                           10                                20                27  a  b  c  d  e

       110        120        130        140        150        160        170        180        190        200
GAAACACCTATTTAGAATGGTACCTGCAGAAACCAGGCCAGTCTCCACAGCTCCTGATCTACAAAGTTTCCAACCGATTTTCTGGGGTCCCAGACAGGTT
 G  N  T  Y  L  H  W  Y  L  Q  K  P  G  Q  S  P  Q  L  L  I  Y  K  V  S  N  R  F  S  G  V  P  D  R  F
   30                                40                                50                                60

       210        220        230        240        250        260        270        280        290        300
CACTGGCAGTGGATCAGGGACAGATTTCACACTCAAAATCAGCAGAGTGGAGGCTGAGGATGTGGGAGTTTATTACTGCTTTCAAGGTTCACATGTTCCT
  T  G  S  G  S  G  T  D  F  T  L  K  I  S  R  V  E  A  E  D  V  G  V  Y  Y  C  F  Q  G  S  H  V  P
                        70                                80                                90

       310        320        330
TGGACGTTCGGTCAGGGCACCAAGCTGGAAATCAAA(SEQ ID NO:70)
 W  T  F  G  Q  G  T  K  L  E  I  K (SEQ ID NO:71)
          100               106  a
```

FIG. 35F

Anti-CAD11 EC1 VK2 Light Chain Sequences

```
        10         20         30         40         50         60         70         80         90         100
GATGTTTTGATGACCCAAACTCCACTCTCCCTCCCCTGTCACCCTTGGACAGCCAGCCTCCATCTCTTGCAGATCTAGTCAGAGCATTATACATAGTAATG
 D  V  L  M  T  Q  T  P  L  S  S  P  V  T  L  G  Q  P  A  S  I  S  C  R  S  S  Q  S  I  I  H  S  N
                           10                                 20                 27  a  b  c  d  e

        110        120        130        140        150        160        170        180        190        200
GAAACACCTATTTAGAATGGTACCTGCAGAAACCAGGCCAGTCTCCACAGCTCCTGATCTACAAAGTTTCCAACCGATTTTCTGGGGTCCCAGACAGGTT
 G  N  T  Y  L  E  W  Y  L  Q  K  P  G  Q  S  P  Q  L  L  I  Y  K  V  S  N  R  F  S  G  V  P  D  R  F
   30                                 40                                 50                                 60

        210        220        230        240        250        260        270        280        290        300
CAGCGGCAGTGGATCAGGGACAGATTTCACACTCAAGATCAGCAGAGTGGAGGCTGAGGATGTGGGAGTTTATTACTGCTTTCAAGGTTCACATGTTCCT
   S  G  S  G  S  G  T  D  F  T  L  K  I  S  R  V  E  A  E  D  V  G  V  Y  Y  C  F  Q  G  S  H  V  P
                        70                                 80                                 90

        310        320        330
TGGACGTTCGGTCAGGGCACCAAGCTGGAAATCAAA (SEQ ID NO:72)
 W  T  F  G  Q  G  T  K  L  E  I  K (SEQ ID NO:73)
           100                106  a
```

FIG. 35G

Anti-CAD11 EC1 VK3 Light Chain Sequences

```
                10        20        30        40        50        60        70        80        90       100
GATGTTGTGATGACCCAAACTCCACTCTCCCTGCCTGTCACTCCTGGACAGCCGGCCTCCATCTCTTGCAGATCTAGTCAGAGCCTTATACACAGTAATG
 D  V  V  M  T  Q  T  P  L  S  L  P  V  T  L  G  Q  P  A  S  I  S  C  R  S  S  Q  S  L  I  H  S  N
                    10                  20                  27  a  b  c  d  e

               110       120       130       140       150       160       170       180       190       200
GAACACCTATTTGGAATGGTACCTGCAGAAACCAGGCCAGTCTCCACAGCTCCTGATCTACAAAGTTTCCAACCGATTTTCTGGGGTCCCAGACAGGTT
 C  N  T  Y  L  E  W  Y  L  Q  K  P  G  Q  S  P  Q  L  L  I  Y  K  V  S  N  R  F  S  G  V  P  D  R  F
    30                40                50                60                70                80                90

              210       220       230       240       250       260       270       280       290       300
CAGCGGCAGTGGATCAGGGACAGATTTCACACTCAAGATCAGCAGAGTGGAGGCTGAGGATGTGGGAGTTTATTACTGCTTTCAAGGTTCACATGTTCCT
 S  G  S  G  S  G  T  D  F  T  L  K  I  S  R  V  E  A  E  D  V  G  V  Y  Y  C  F  Q  G  S  H  V  P
                   70                80                90

              310       320       330
TGGACGTTCGGTCAGGGCACCAAGCTGGAAATCAAA (SEQ ID NO:74)
 W  T  F  G  Q  G  T  K  L  E  I  K  (SEQ ID NO:75)
                100               106  a
```

FIG. 35H

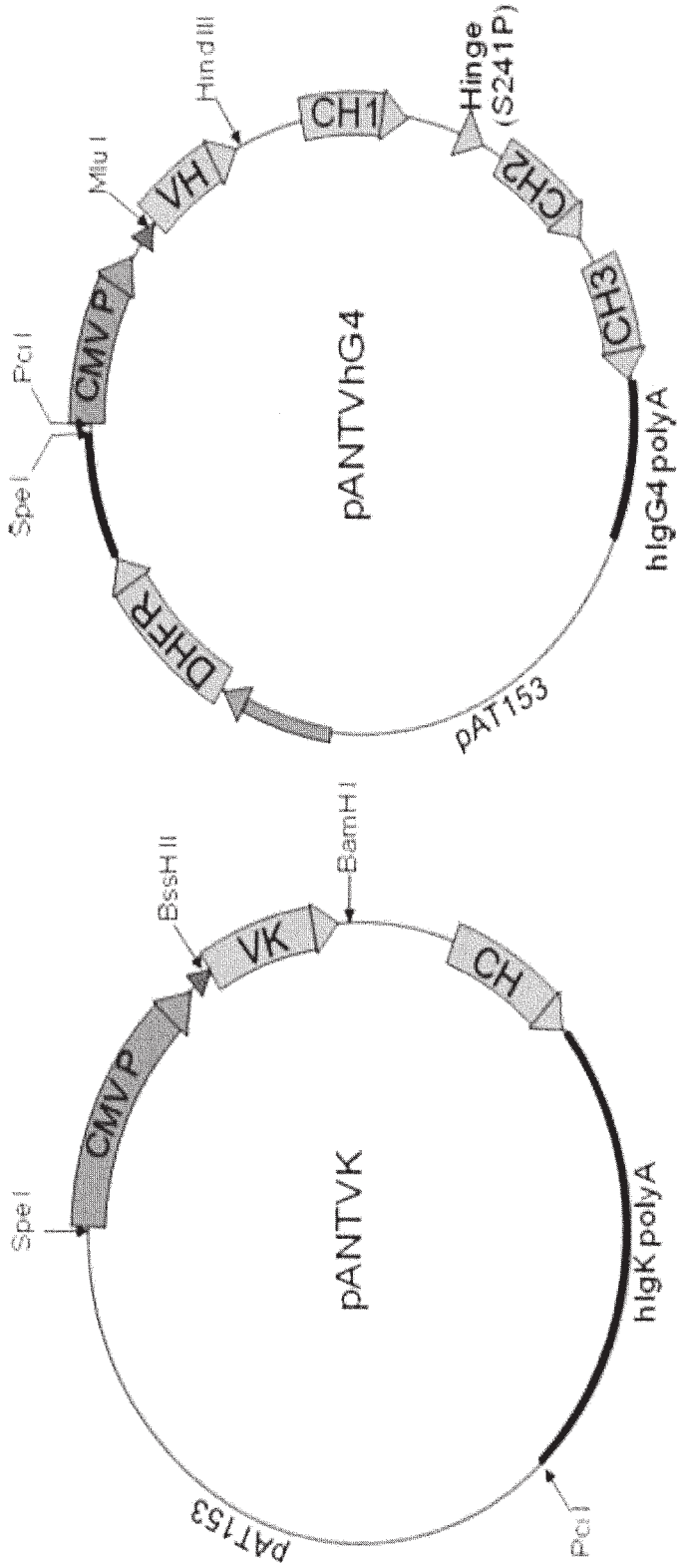

pANTVhG4
CH1
Hinge (S241P)
CH2
CH3
hIgG4 polyA
pAT153
DHFR
CMV P
VH
Hind III
Mlu I
Pci I
Spe I
pANTVK
VK
CH
hIgK polyA
pAT153
BssH II
BamH I
Spe I
Pci I

FIG. 36

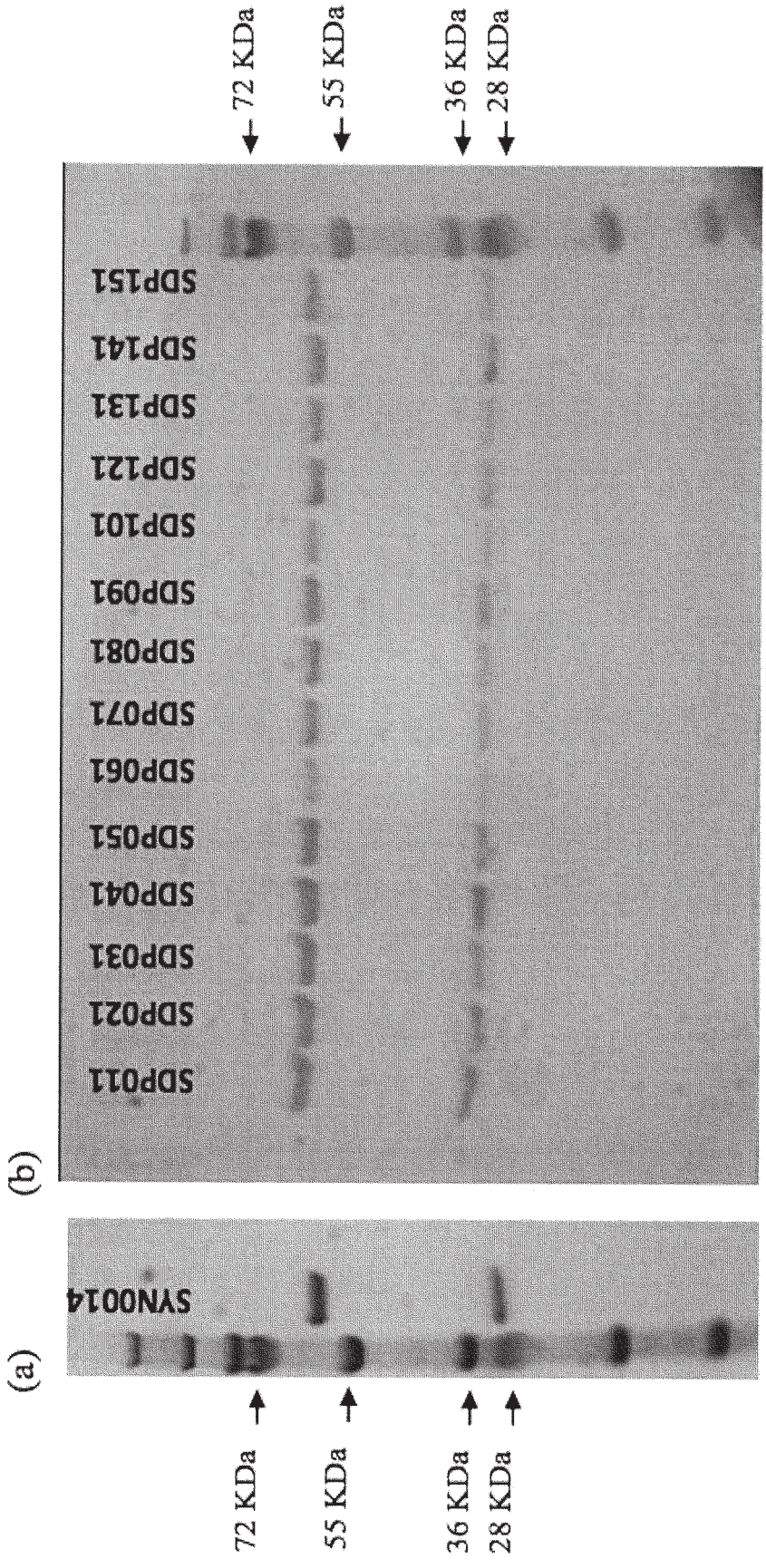

72 KDa
55 KDa
36 KDa
28 KDa
SDP151
SDP141
SDP131
SDP121
SDP101
SDP091
SDP081
SDP071
SDP061
SDP051
SDP041
SDP031
SDP021
SDP011
(b)
SYN0014
(a)
72 KDa
55 KDa
36 KDa
28 KDa

FIG. 37

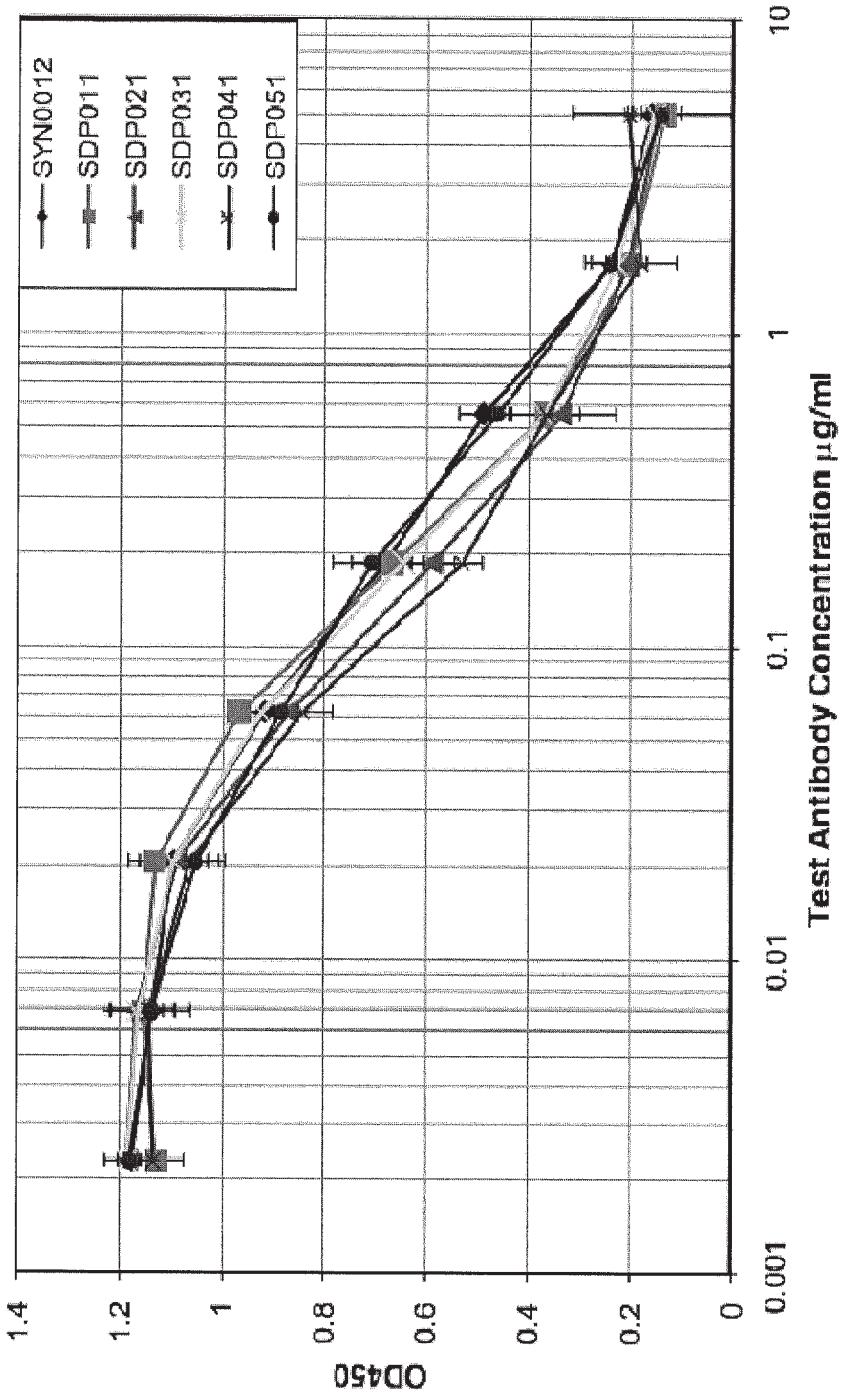

SYN0012
SDP011
SDP021
SDP031
SDP041
SDP051
OD450
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0.001
0.01
0.1
1
10
Test Antibody Concentration µg/ml

FIG. 38A

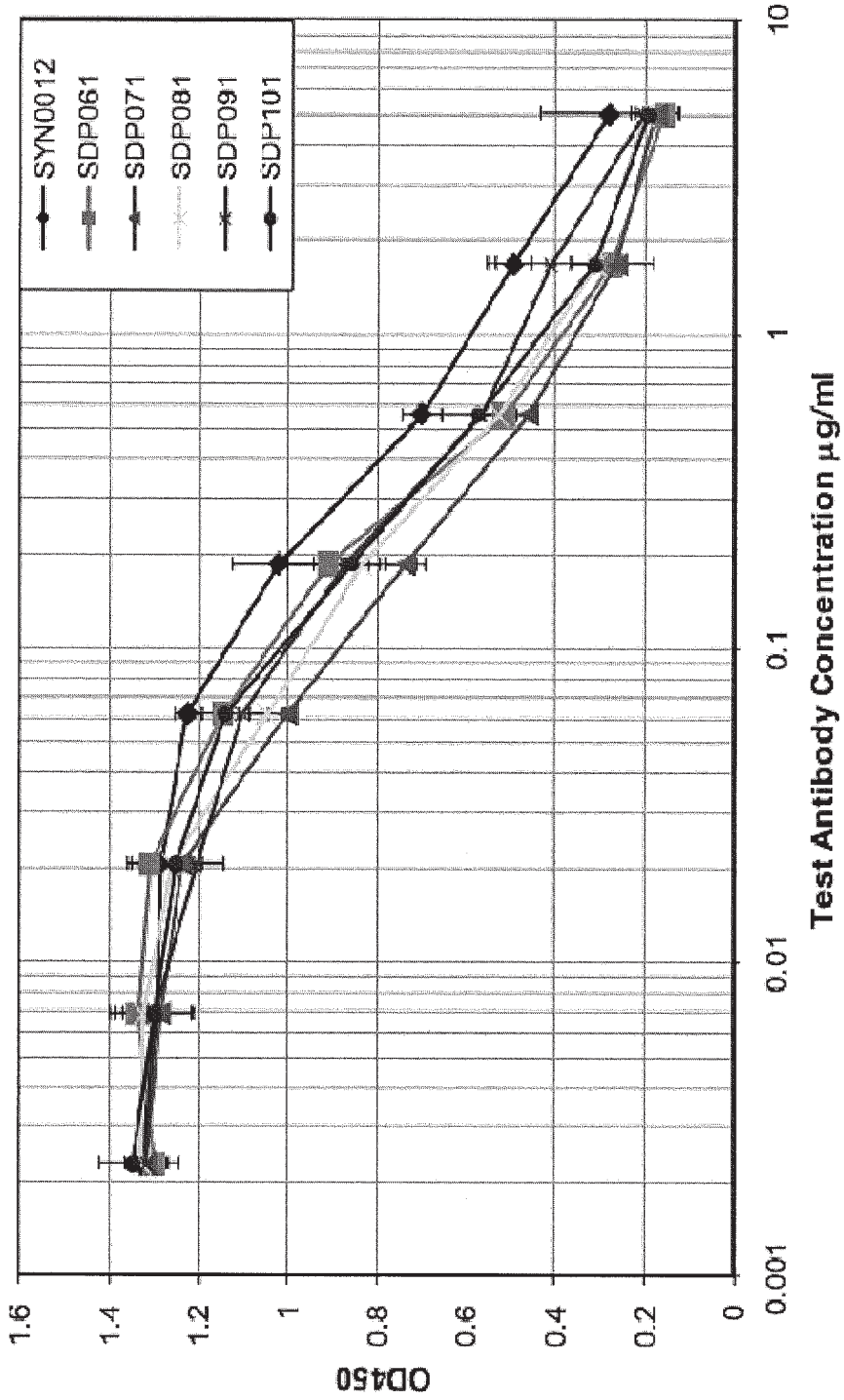

SYN0012
SDP061
SDP071
SDP081
SDP091
SDP101
OD450
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0.001
0.01
0.1
1
10
Test Antibody Concentration µg/ml

FIG. 38B

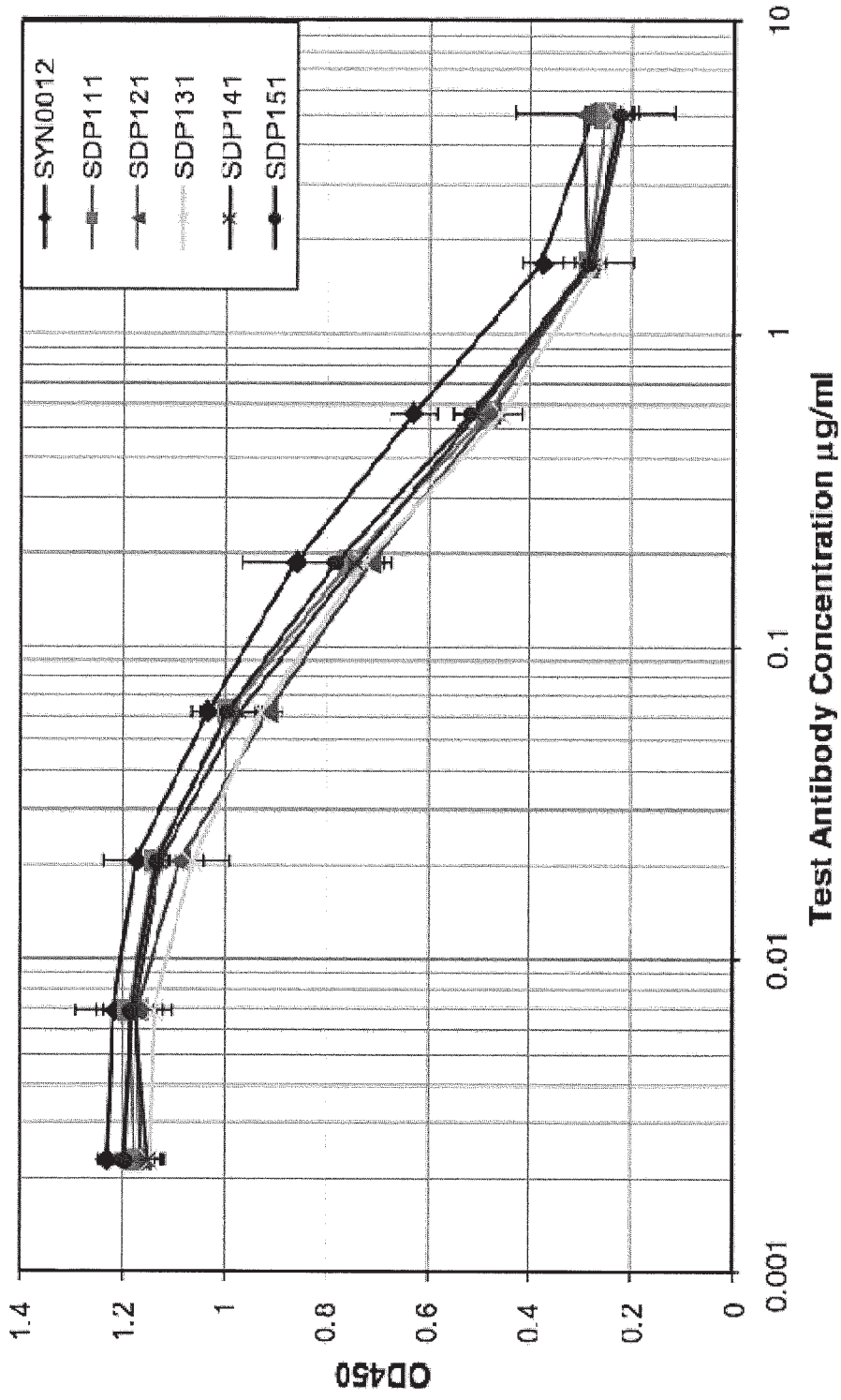

SYN0012
SDP111
SDP121
SDP131
SDP141
SDP151
OD450
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0.001
0.01
0.1
1
10
Test Antibody Concentration µg/ml

FIG. 38C

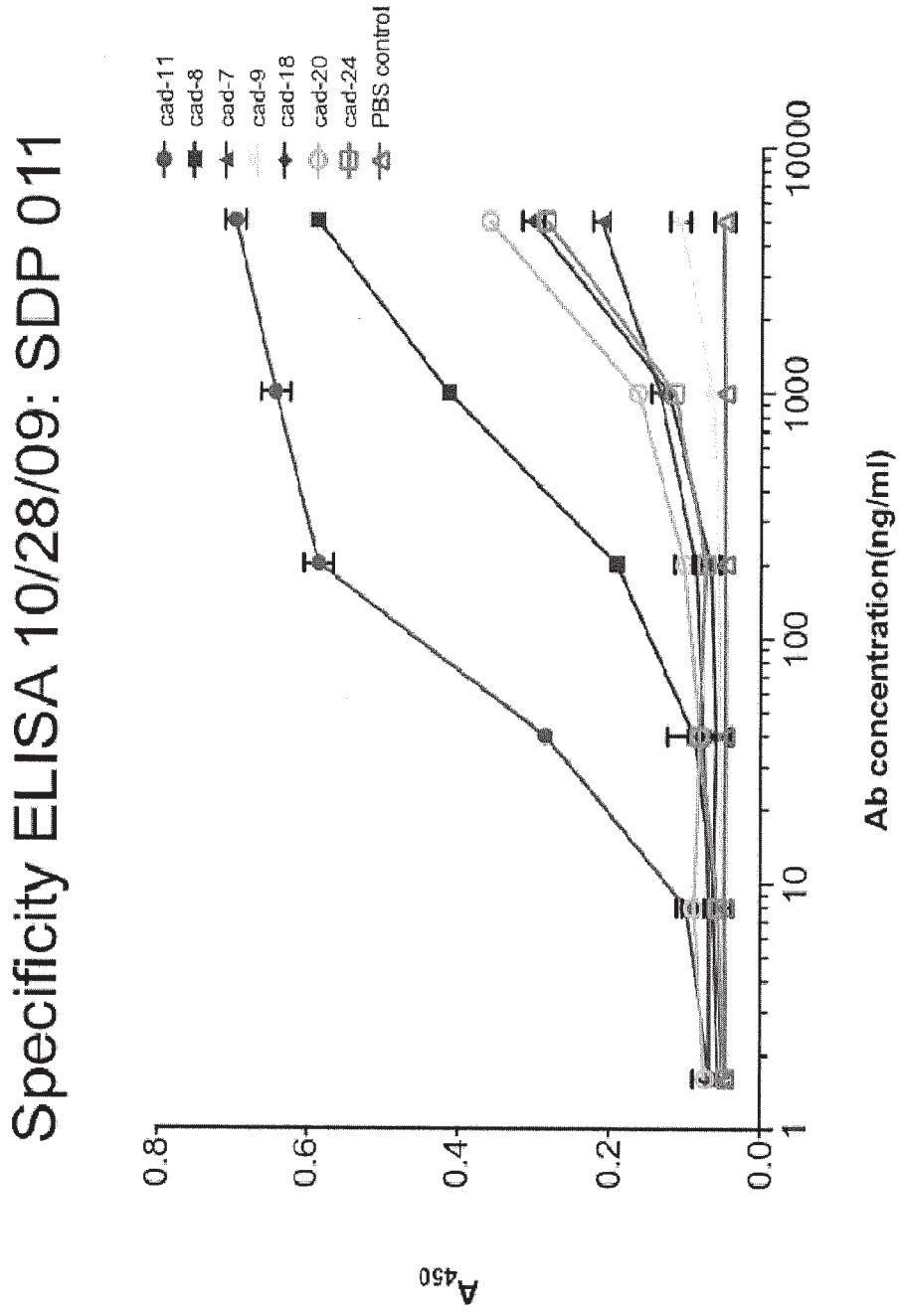

Specificity ELISA 10/28/09: SDP 011
cad-11
cad-8
cad-7
cad-9
cad-18
cad-20
cad-24
PBS control
A450
0.0
0.2
0.4
0.6
0.8
1
10
100
1000
10000
Ab concentration(ng/ml)

FIG. 39A

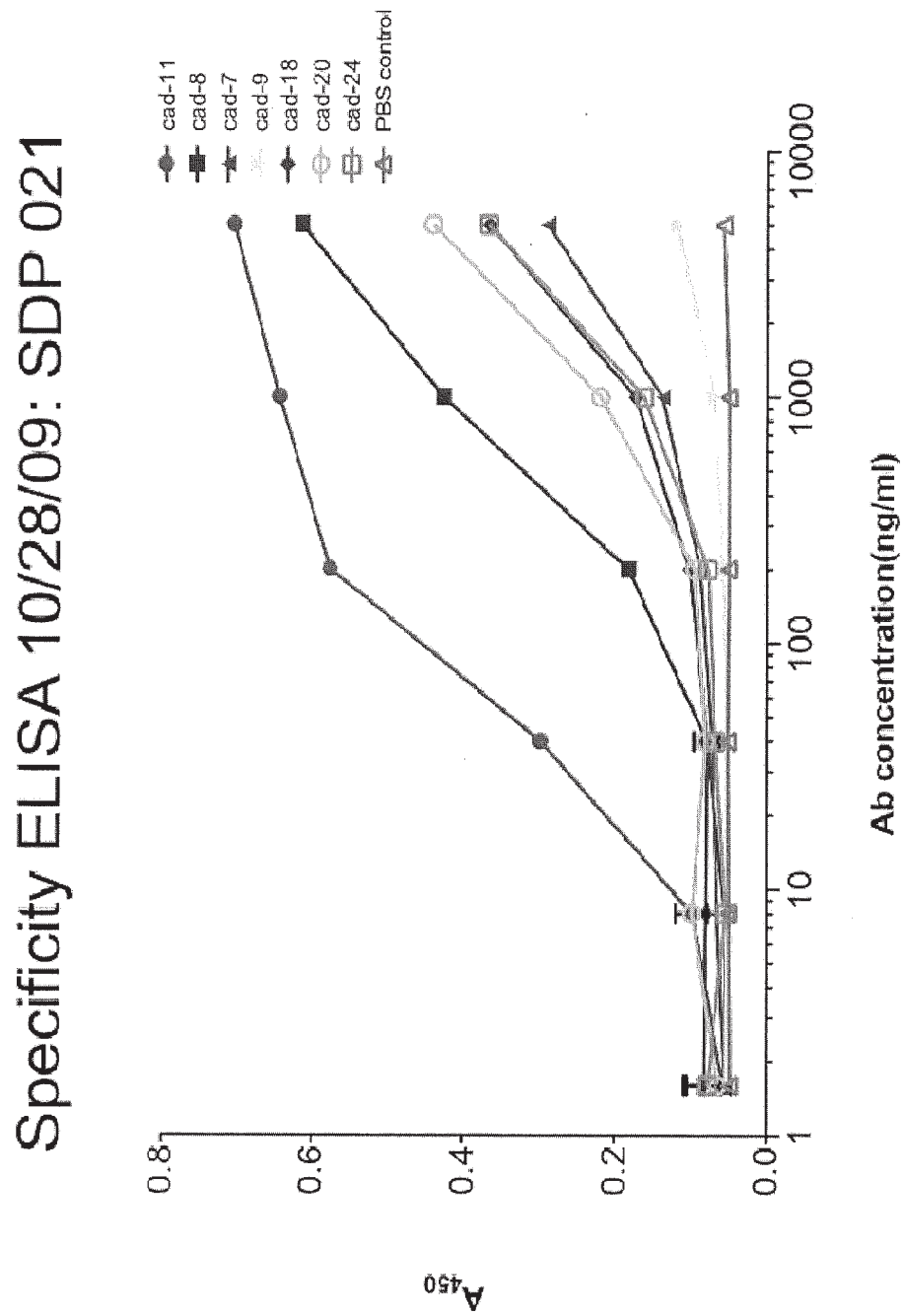

Specificity ELISA 10/28/09: SDP 021
cad-11
cad-8
cad-7
cad-9
cad-18
cad-20
cad-24
PBS control
A450
0.0
0.2
0.4
0.6
0.8
1
10
100
1000
10000
Ab concentration(mg/ml)

FIG. 39B

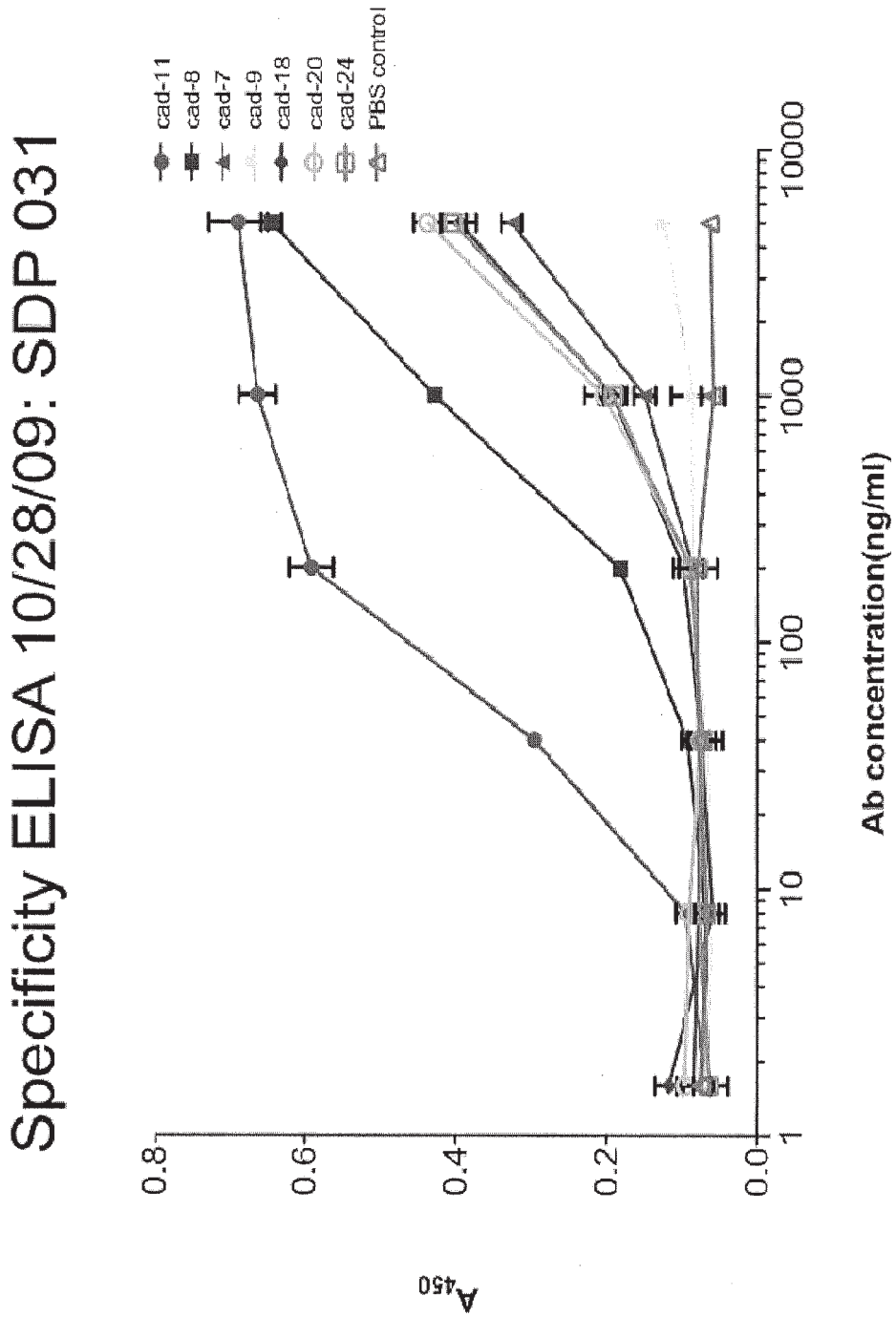

Specificity ELISA 10/28/09: SDP 031
cad-11
cad-8
cad-7
cad-9
cad-18
cad-20
cad-24
PBS control
A450
0.0
0.2
0.4
0.6
0.8
1
10
100
1000
10000
Ab concentration(ng/ml)

FIG. 39C

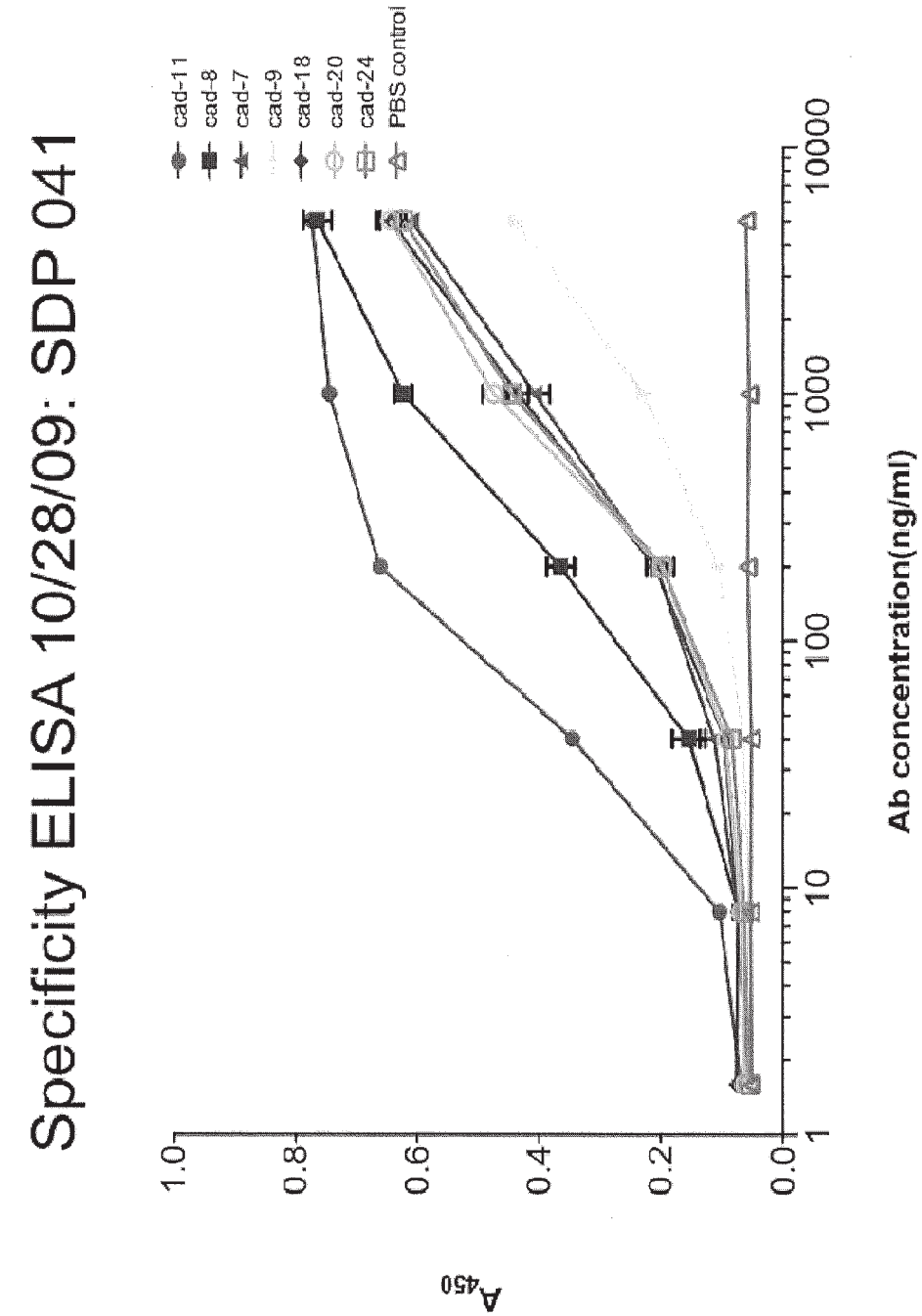

Specificity ELISA 10/28/09: SDP 041
cad-11
cad-8
cad-7
cad-9
cad-18
cad-20
cad-24
PBS control
A450
1.0
0.8
0.6
0.4
0.2
0.0
1
10
100
1000
10000
Ab concentration(ng/ml)

FIG. 39D

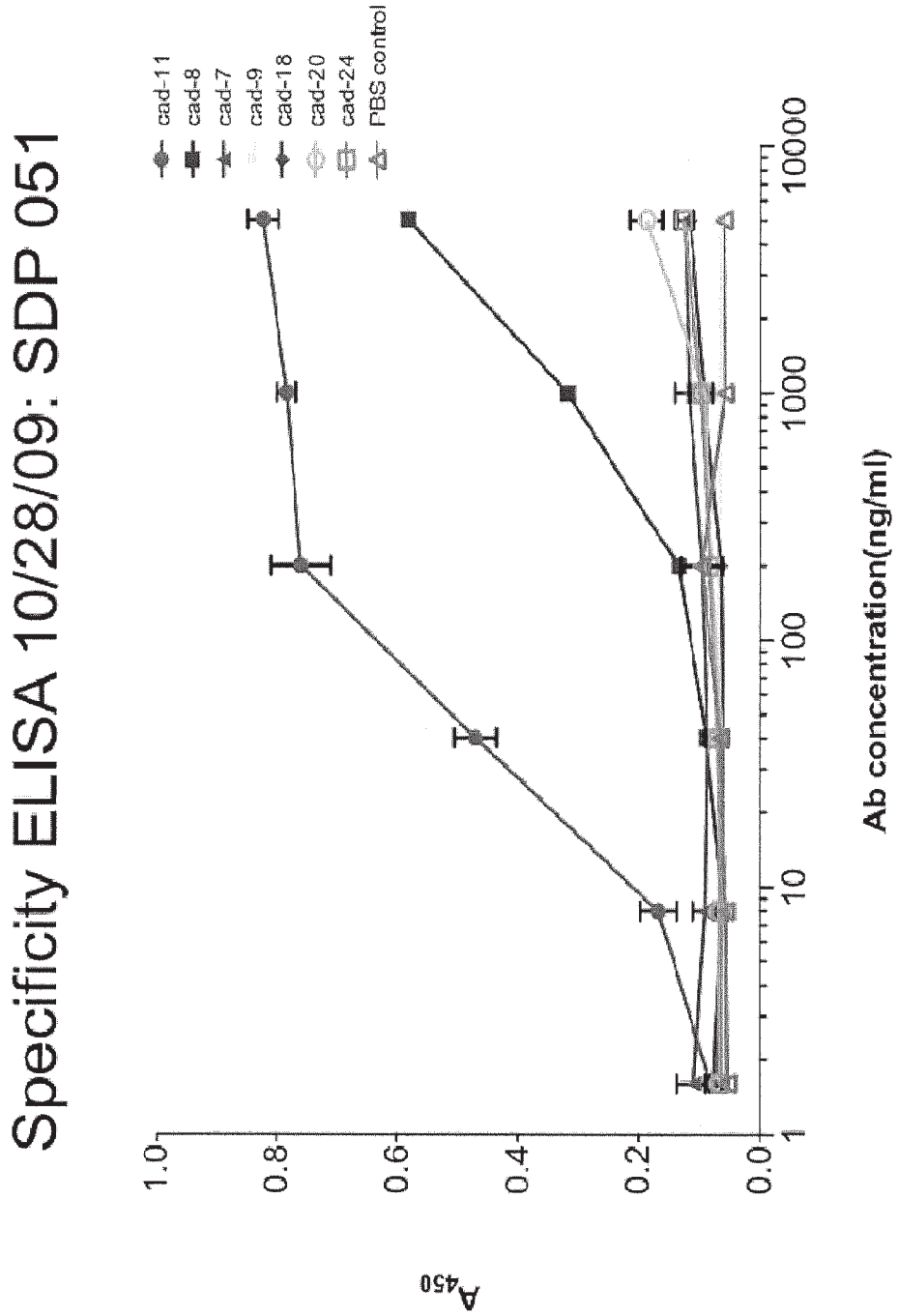

Specificity ELISA 10/28/09: SDP 051
cad-11
cad-8
cad-7
cad-9
cad-18
cad-20
cad-24
PBS control
A450
1.0
0.8
0.6
0.4
0.2
0.0
1
10
100
1000
10000
Ab concentration(ng/ml)

FIG. 39E

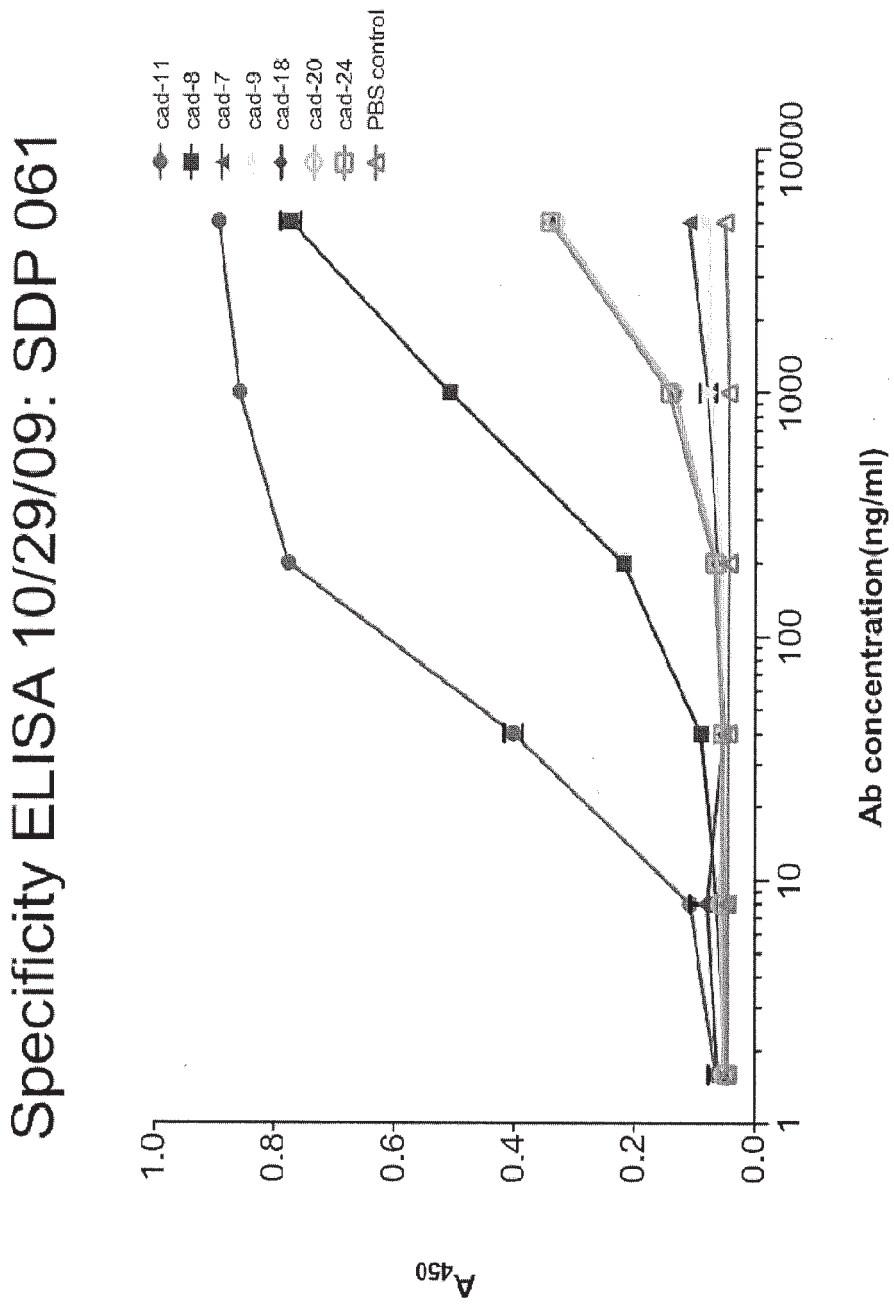

Specificity ELISA 10/29/09: SDP 061
cad-11
cad-8
cad-7
cad-9
cad-18
cad-20
cad-24
PBS control
A450
1.0
0.8
0.6
0.4
0.2
0.0
1
10
100
1000
10000
Ab concentration(ng/ml)

FIG. 39F

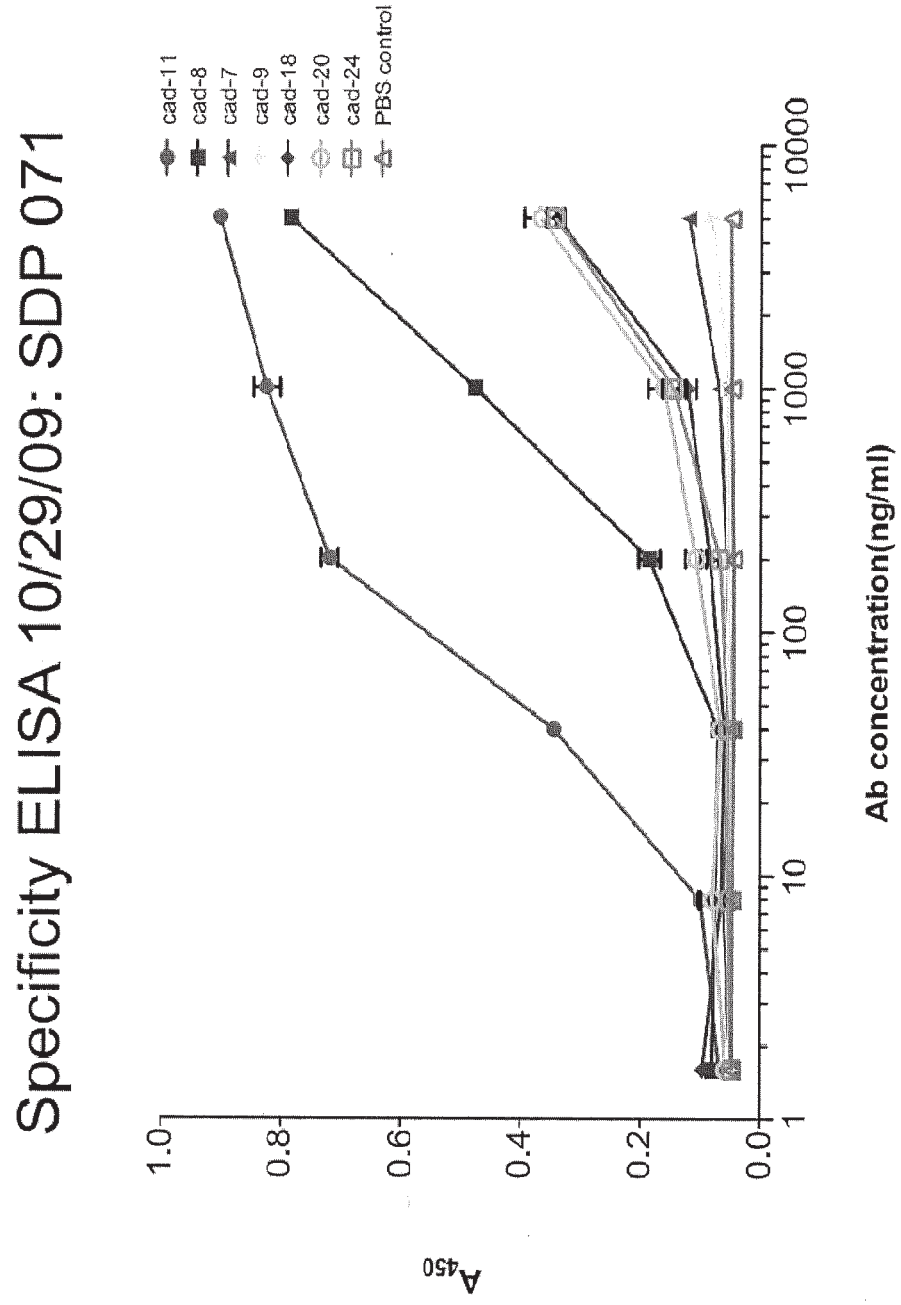

Specificity ELISA 10/29/09: SDP 071
cad-11
cad-8
cad-7
cad-9
cad-18
cad-20
cad-24
PBS control
1.0
0.8
0.6
0.4
0.2
0.0
A450
1
10
100
1000
10000
Ab concentration(ng/ml)

FIG. 39G

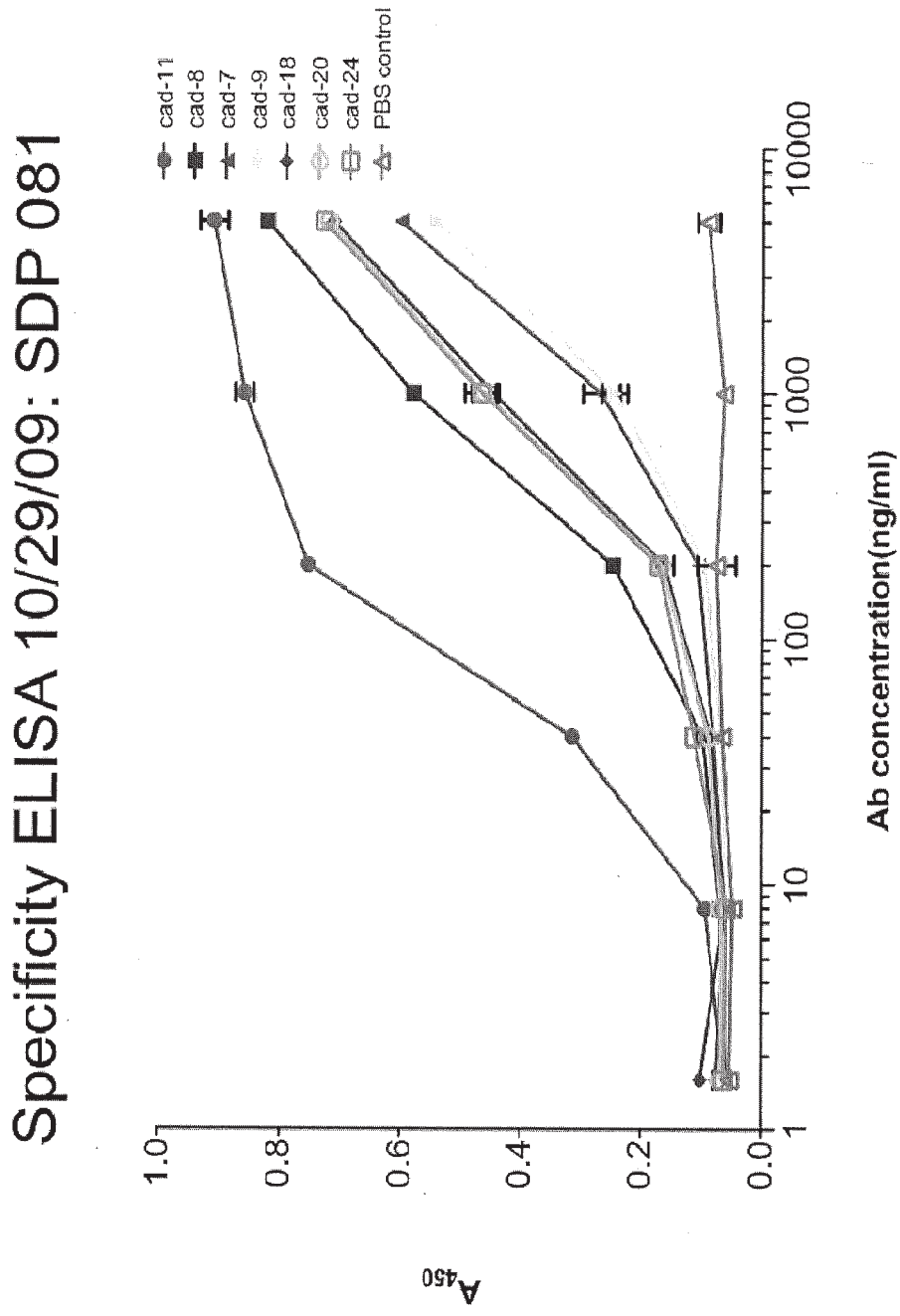

Specificity ELISA 10/29/09: SDP 081
cad-11
cad-8
cad-7
cad-9
cad-18
cad-20
cad-24
PBS control
A450
1.0
0.8
0.6
0.4
0.2
0.0
1
10
100
1000
10000
Ab concentration(ng/ml)

FIG. 39H

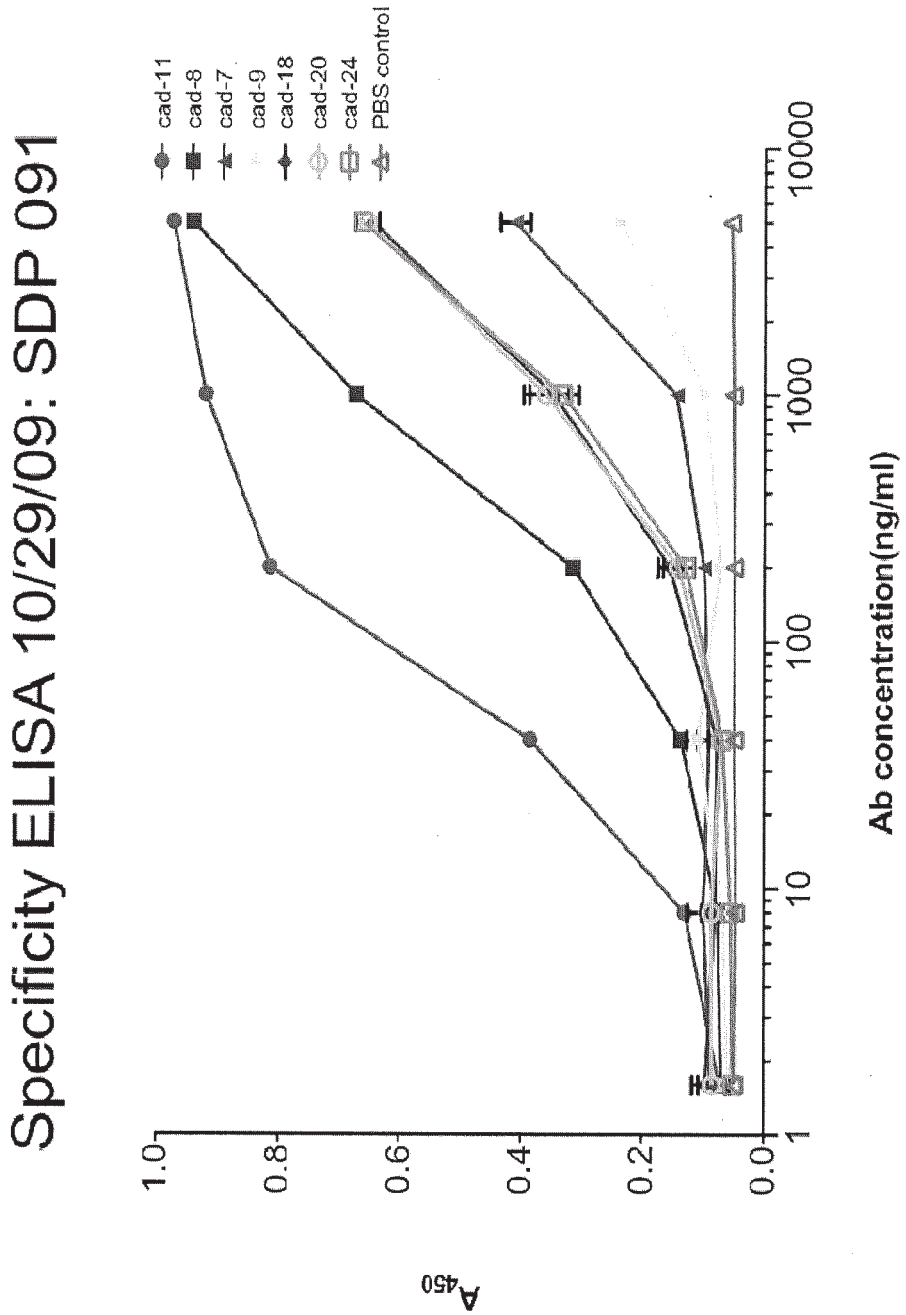

Specificity ELISA 10/29/09: SDP 091
cad-11
cad-8
cad-7
cad-9
cad-18
cad-20
cad-24
PBS control
A450
1.0
0.8
0.6
0.4
0.2
0.0
1
10
100
1000
10000
Ab concentration(ng/ml)

FIG. 39I

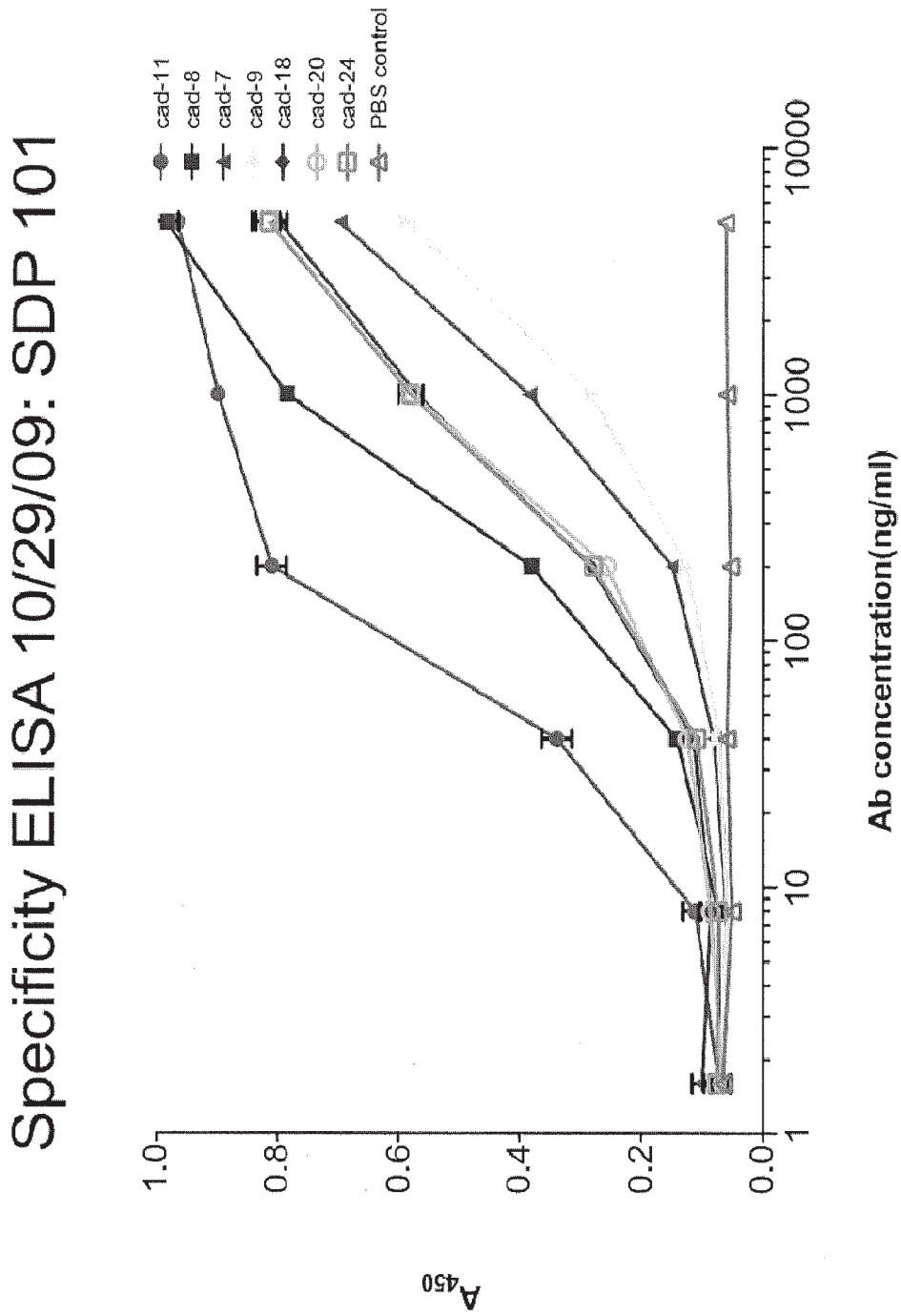

Specificity ELISA 10/29/09: SDP 101
cad-11
cad-8
cad-7
cad-9
cad-18
cad-20
cad-24
PBS control
A450
1.0
0.8
0.6
0.4
0.2
0.0
1
10
100
1000
10000
Ab concentration(ng/ml)

FIG. 39J

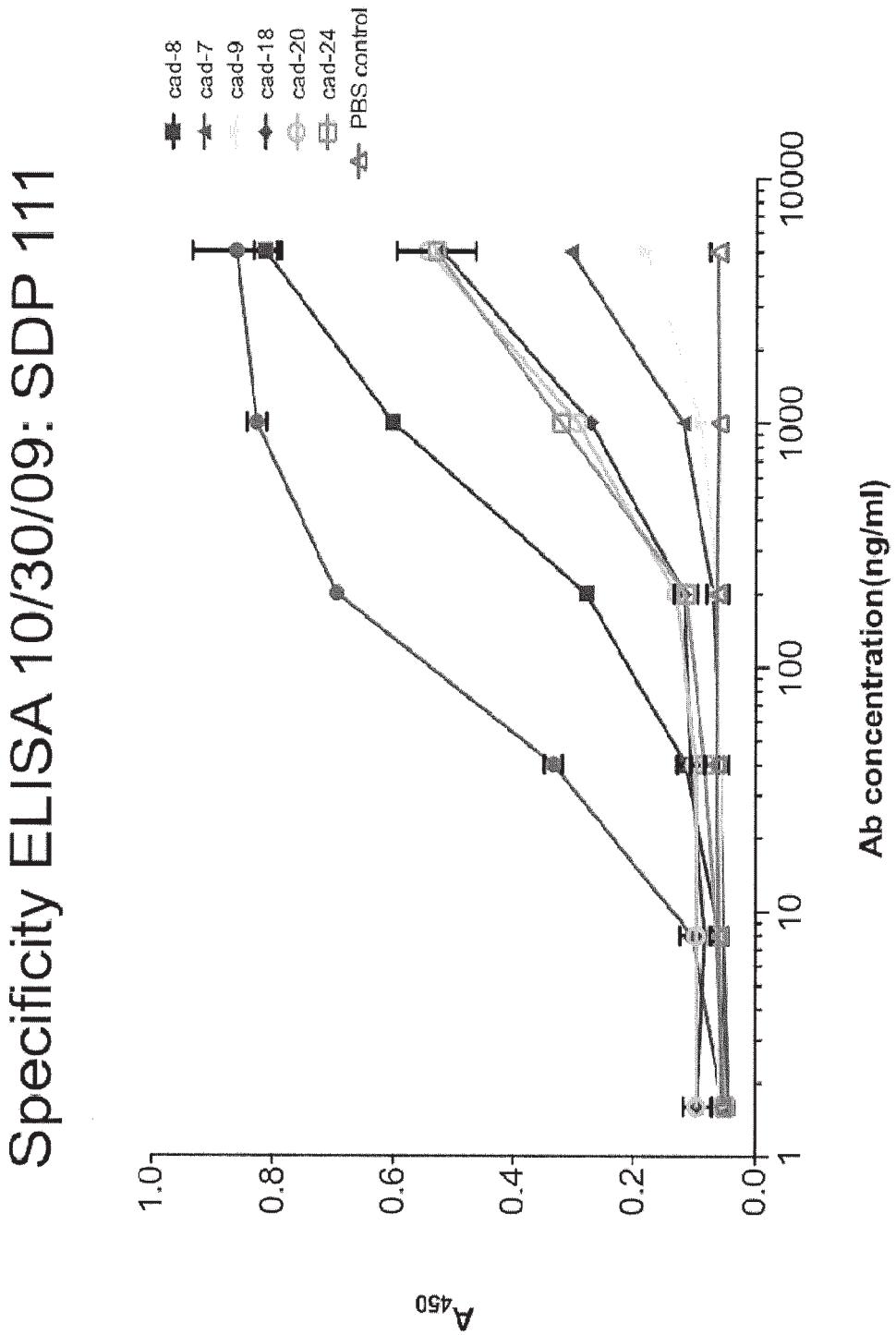

Specificity ELISA 10/30/09: SDP 111
cad-8
cad-7
cad-9
cad-18
cad-20
cad-24
PBS control
A450
1.0
0.8
0.6
0.4
0.2
0.0
1
10
100
1000
10000
Ab concentration(ng/ml)

FIG. 39K

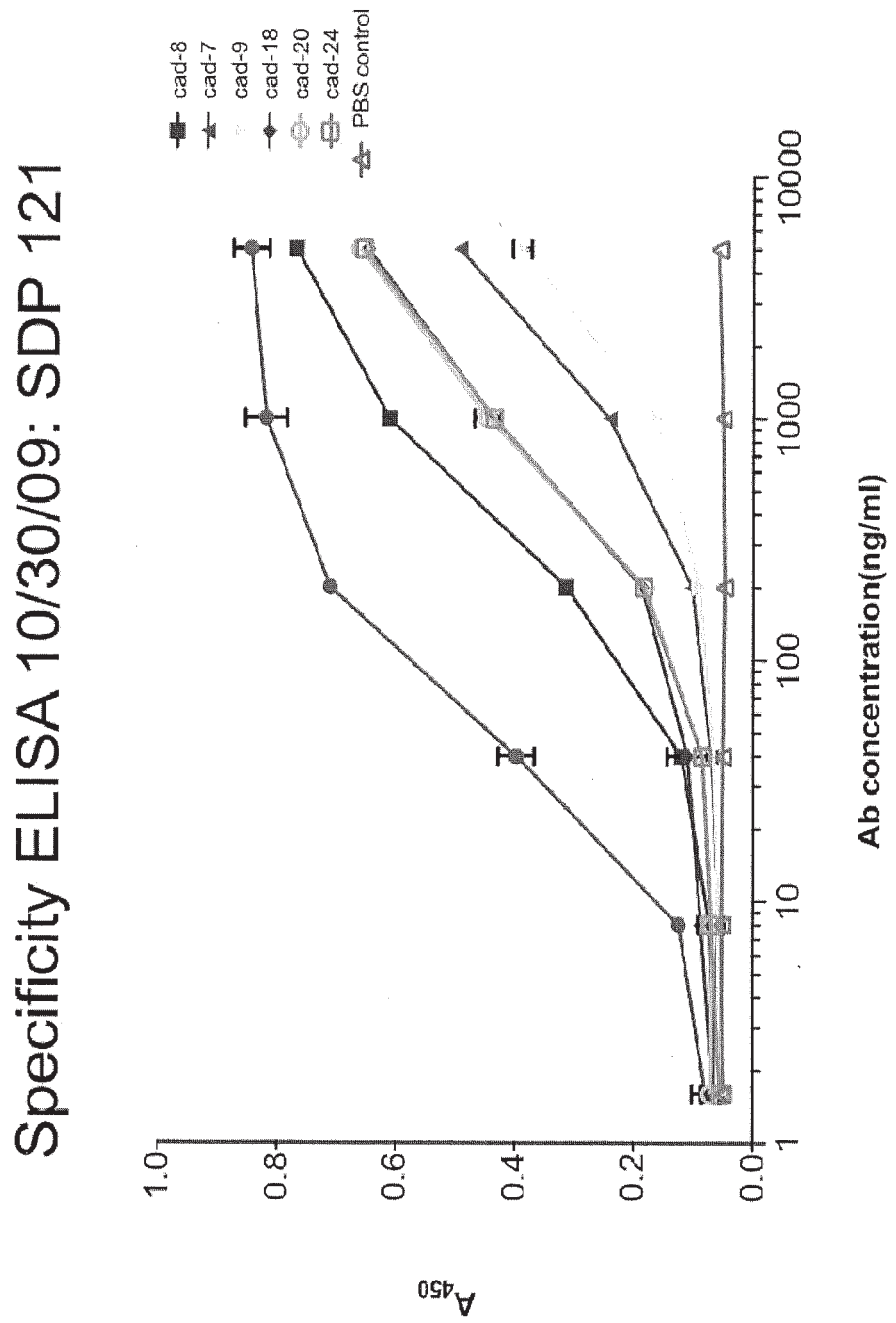

Specificity ELISA 10/30/09: SDP 121
cad-8
cad-7
cad-9
cad-18
cad-20
cad-24
PBS control
A450
1.0
0.8
0.6
0.4
0.2
0.0
1
10
100
1000
10000
Ab concentration(ng/ml)

FIG. 39L

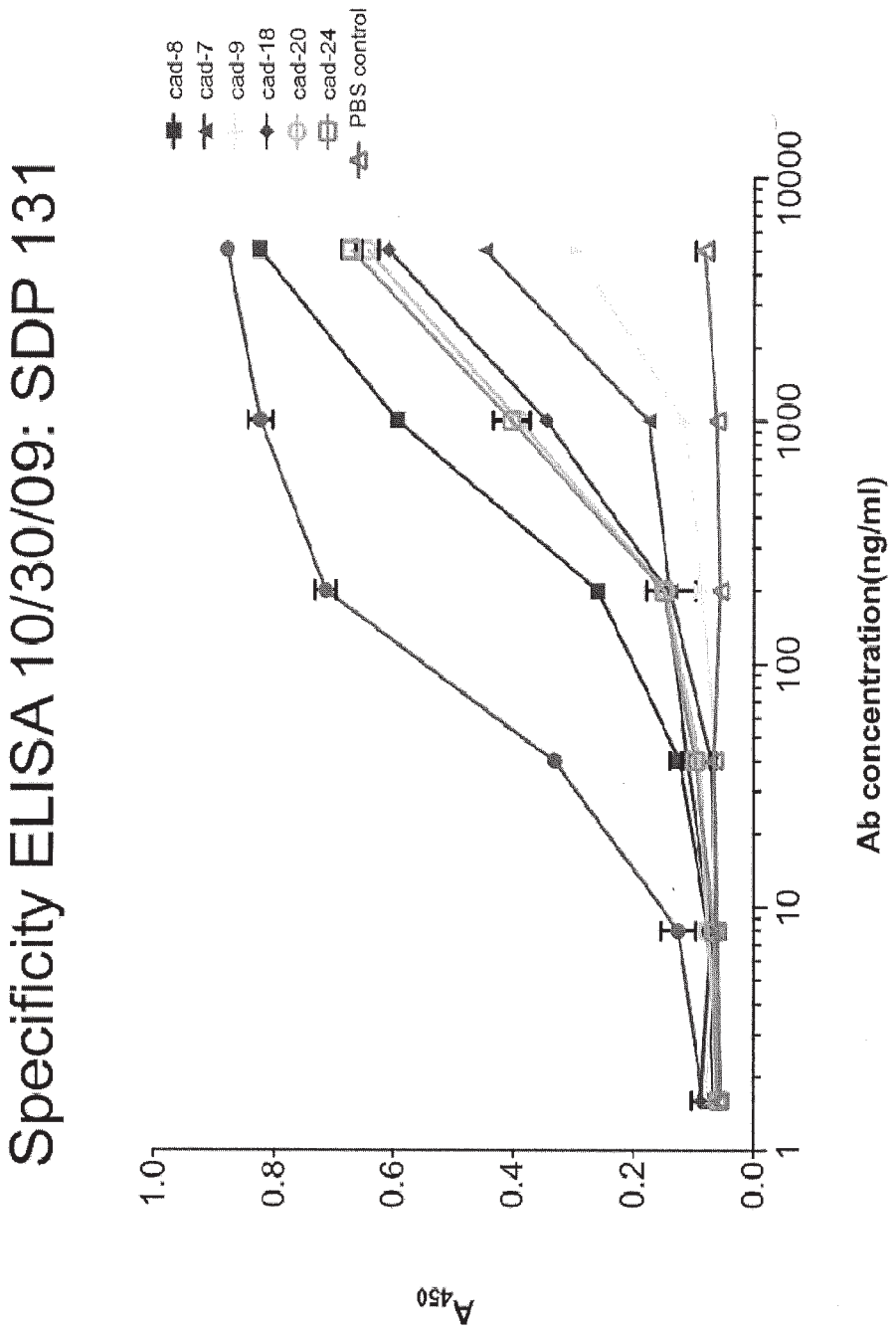

Specificity ELISA 10/30/09: SDP 131
cad-8
cad-7
cad-9
cad-18
cad-20
cad-24
PBS control
A450
1.0
0.8
0.6
0.4
0.2
0.0
1
10
100
1000
10000
Ab concentration(ng/ml)

FIG. 39M

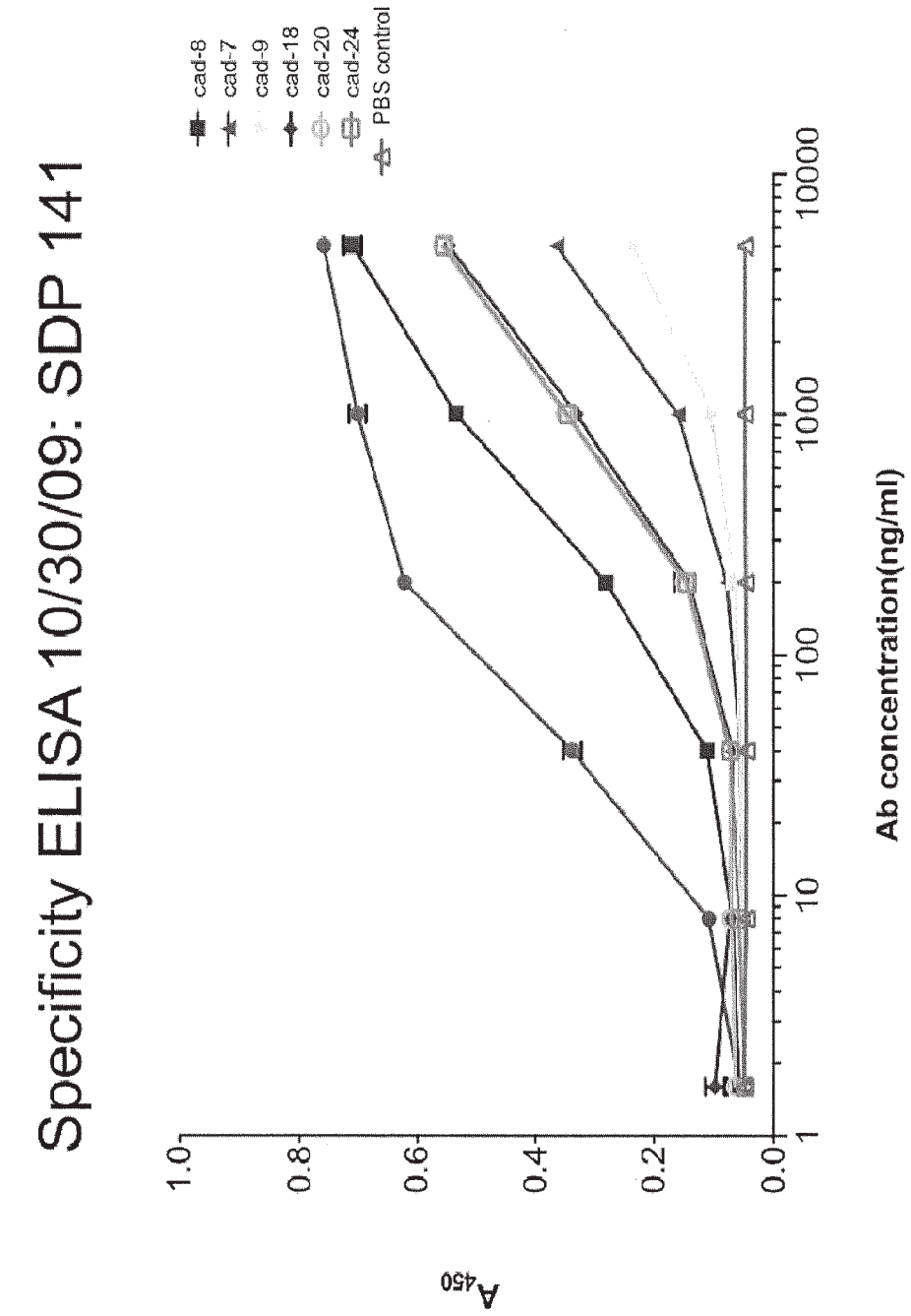

Specificity ELISA 10/30/09: SDP 141
cad-8
cad-7
cad-9
cad-18
cad-20
cad-24
PBS control
A450
1.0
0.8
0.6
0.4
0.2
0.0
1
10
100
1000
10000
Ab concentration(ng/ml)

FIG. 39N

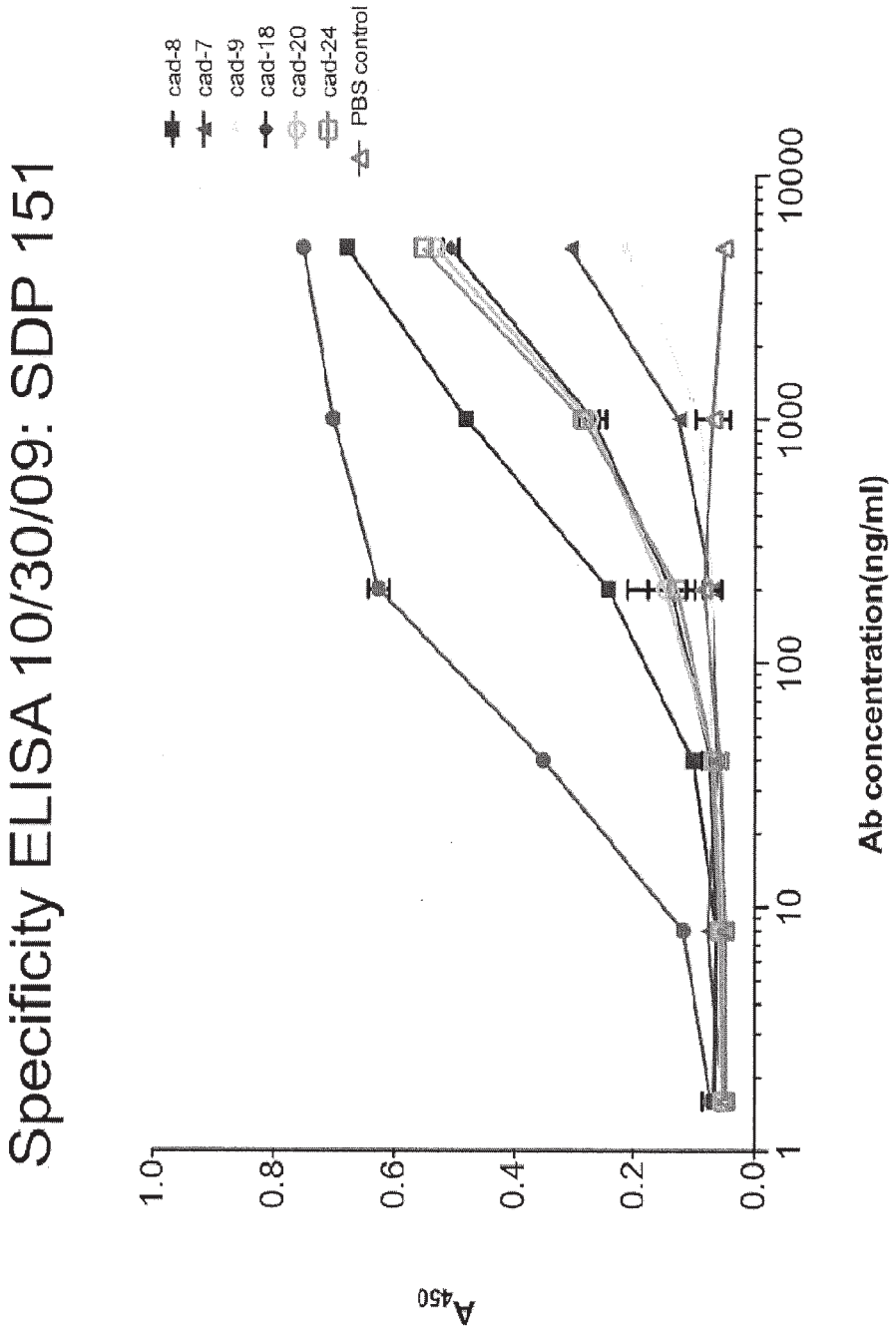

Specificity ELISA 10/30/09: SDP 151
cad-8
cad-7
cad-9
cad-18
cad-20
cad-24
PBS control
A450
1.0
0.8
0.6
0.4
0.2
0.0
1
10
100
1000
10000
Ab concentration(ng/ml)

FIG. 39O

>SDP031_LIGHT CHAIN

DVLMTQTPLSSPVTLGQPASISCRSSQSIIHSNGNTYLEWYLQKPGQSPQLLIYKVS
NRFSGVPDRFTGSGSGTDFTLKISRVEAEDVGVYYCFQGSHVPWTFGQGTKLEIK
(SEQ ID NO:71)

>SDP031_HEAVY CHAIN

EVQLVQSGAEVKKPGASVKISCKASGYSFTGYFMNWVRQAPGQGLEWIGRINPYT
GDTFYNQKFKGRATLTVDKSTSTAYMELSSLRSEDTAVYYCGRLGSRYWYFDVWG
QGTTVTVSS (SEQ ID NO:65)

FIG. 40A

>SDP051_ LIGHT CHAIN

DVLMTQTPLSSPVTLGQPASISCRSSQSIIHSNGNTYLEWYLQKPGQSPQLLIYKVSN
RFSGVPDRFTGSGSGTDFTLKISRVEAEDVGVYYCFQGSHVPWTFGQGTKLEIK
(SEQ ID NO:71)

>SDP051_ HEAVY CHAIN

EVQLVQSGAEVKKPGASVKVSCKASGYSFTGYFMNWVRQAPGQGLEWIGRINPYT
GDTFYNQKFKGRVTITVDKSTSTAYMELSSLRSEDTAVYYCGRLGSRYWYFDVWGQ
GTTVTVSS (SEQ ID NO:69)

FIG. 40B

>SDP061_ LIGHT CHAIN

DVLMTQTPLSSPVTLGQPASISCRSSQSIIHSNGNTYLEWYLQKPGQSPQLLIYKVSNRF
SGVPDRFSGSGSGTDFTLKISRVEAEDVGVYYCFQGSHVPWTFGQGTKLEIK (SEQ ID
NO:73)

>SDP061_ HEAVY CHAIN

EVQLVQSGPELKKPGASVKISCKASGYSFTGYFMNWVKQAHGQGLEWIGRINPYTGDT
FYNQKFKGRATLTVDKSSSTAYMELVSLSSEDSAVYYCGRLGSRYWYFDVWGQGTTVT
VSS (SEQ ID NO:61)

FIG. 40C

>SDP071_ LIGHT CHAIN

DVLMTQTPLSSPVTLGQPASISCRSSQSIIHSNGNTYLEWYLQKPGQSPQLLIYKVSNRFSGVPD RFSGSGSGTDFTLKISRVEAEDVGVYYCFQGSHVPWTFGQGTKLEIK (SEQ ID NO:73)

>SDP071_ HEAVY CHAIN

EVQLVQSGAEVKKPGASVKISCKASGYSFTGYFMNWVKQAPGQGLEWIGRINPYTGDTFYNQK FKGRATLTVDKSTSTAYMELSSLRSEDTAVYYCGRLGSRYWYFDVWGQGTTVTVSS (SEQ ID NO:63)

FIG. 40D

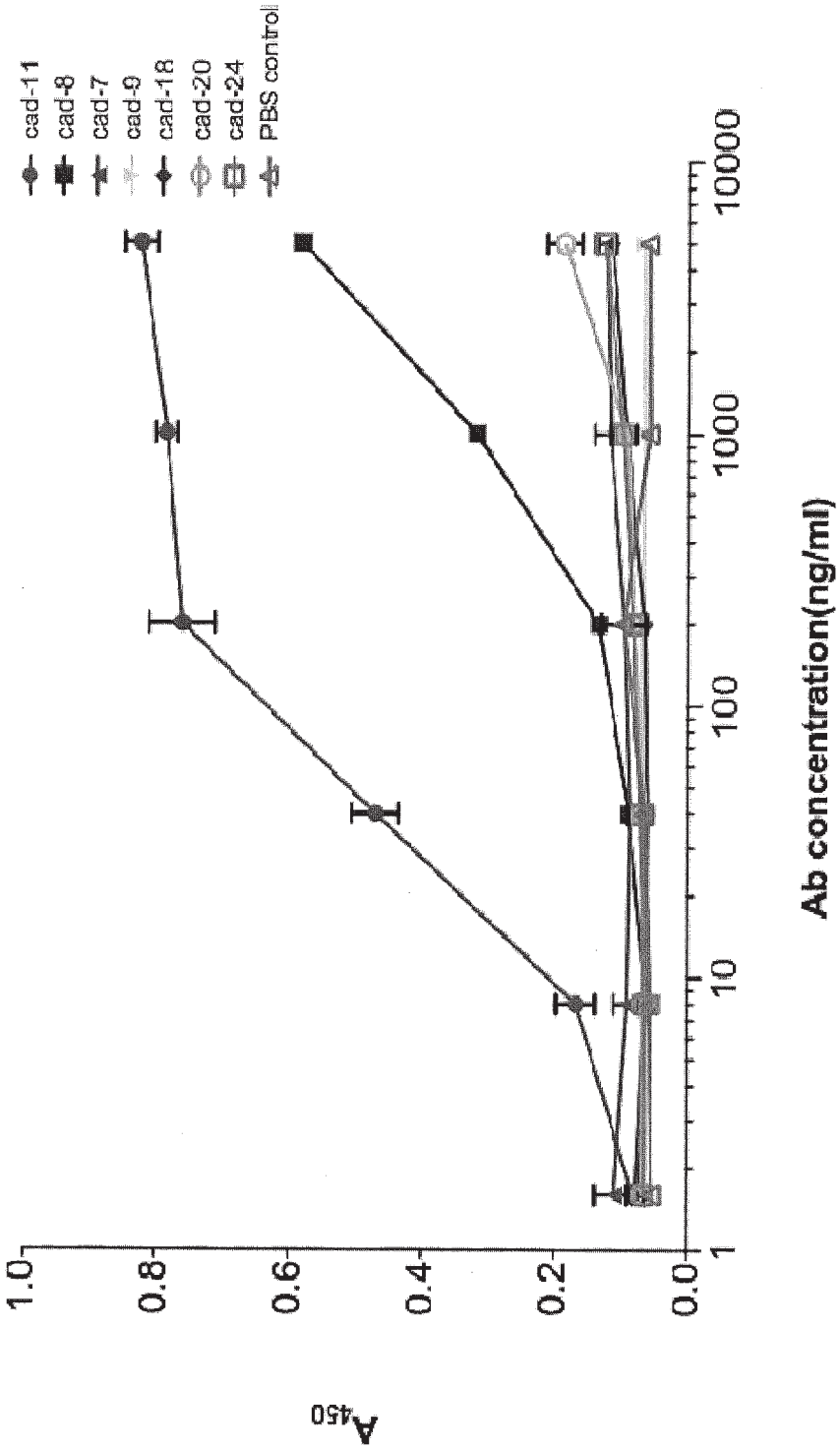

cad-11
cad-8
cad-7
cad-9
cad-18
cad-20
cad-24
PBS control
A450
1.0
0.8
0.6
0.4
0.2
0.0
1
10
100
1000
10000
Ab concentration(ng/ml)

FIG. 41A

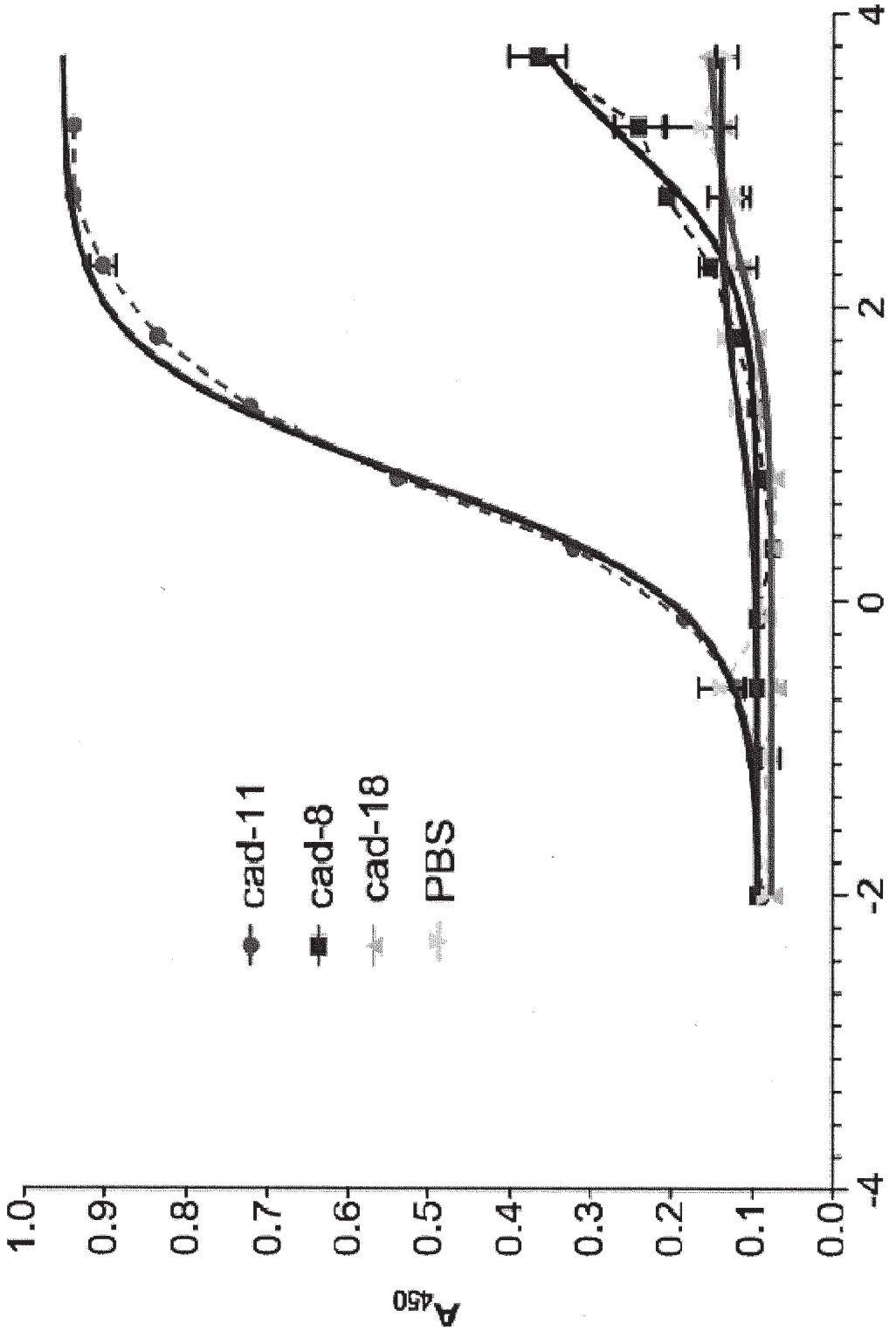

1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
A450
-4
-2
0
2
4
Log Ab concentration
cad-11
cad-8
cad-18
PBS

FIG. 41B

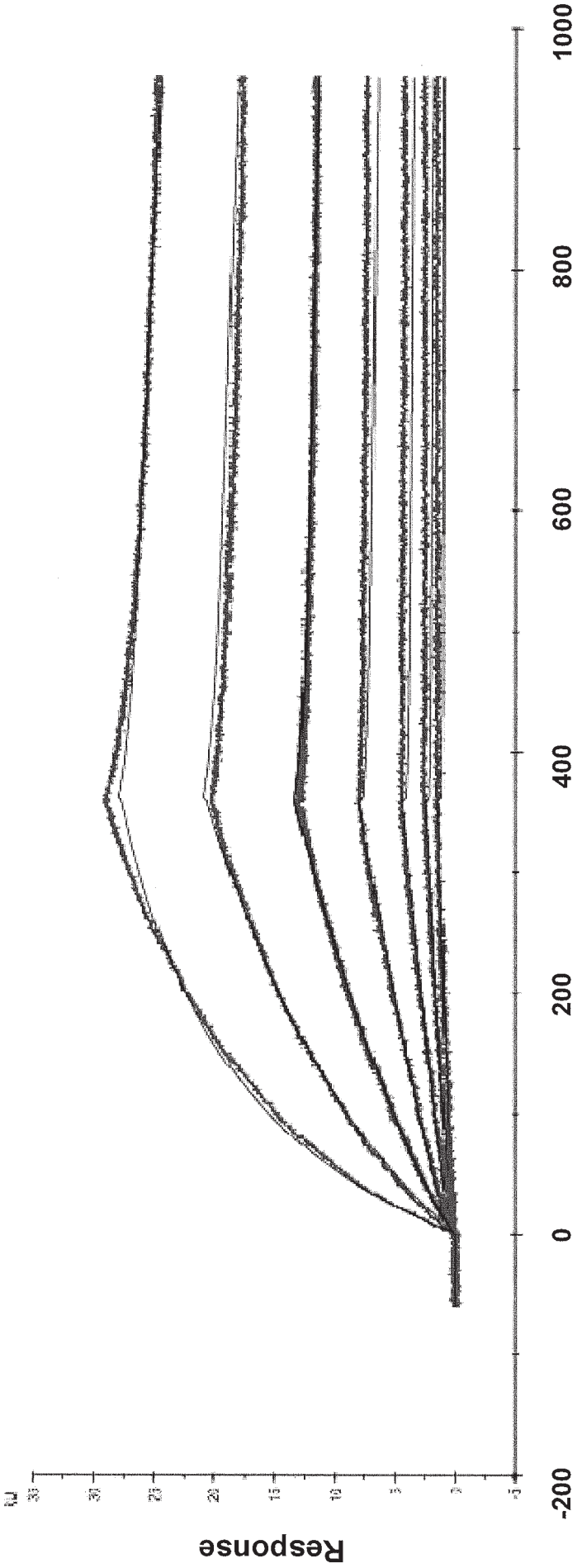


FIG. 42

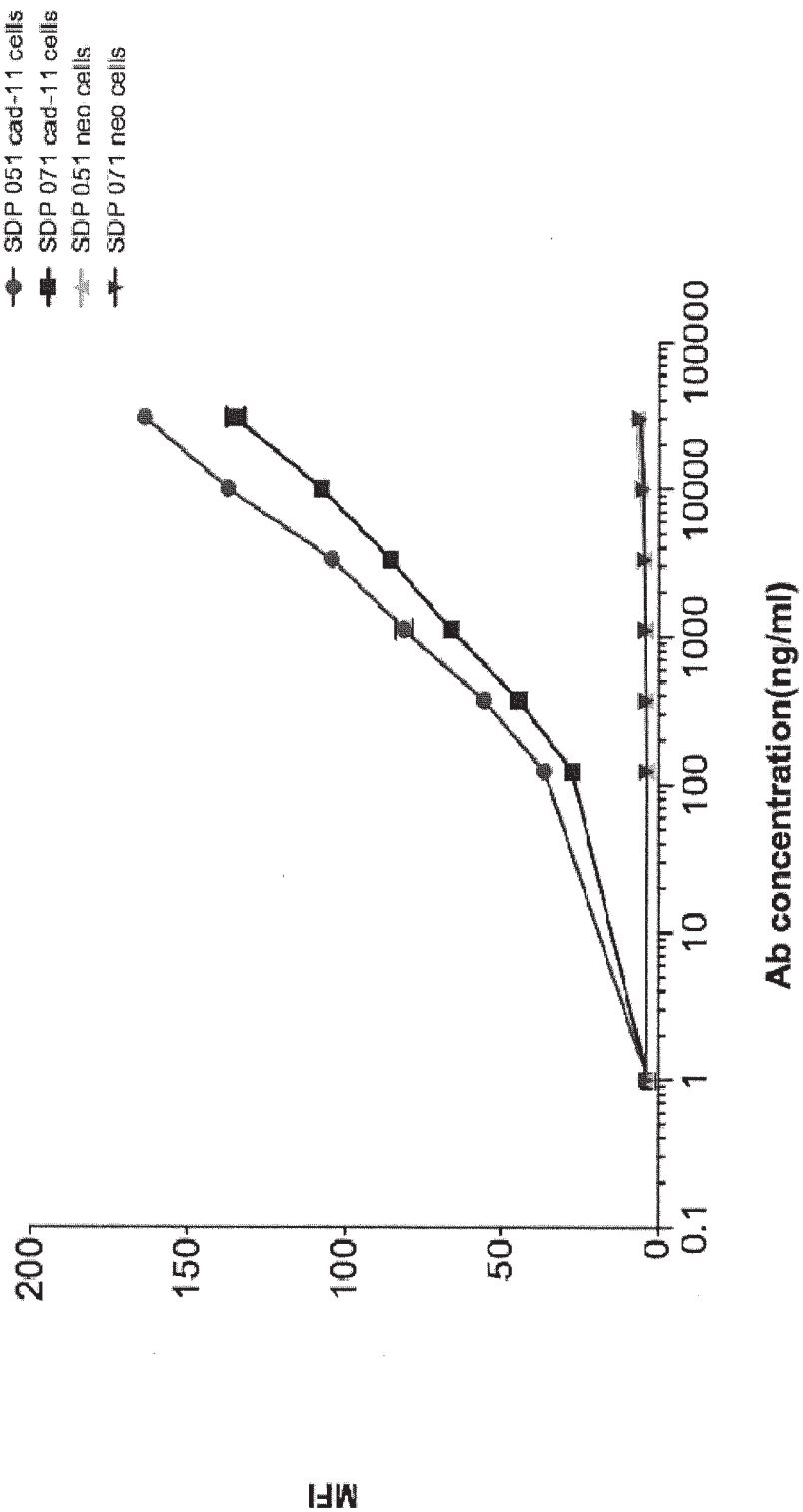

SDP 051 cad-11 cells
SDP 071 cad-11 cells
SDP 051 neo cells
SDP 071 neo cells
MFI
200
150
100
50
0
0.1
1
10
100
1000
10000
100000
Ab concentration(ng/ml)

FIG. 43

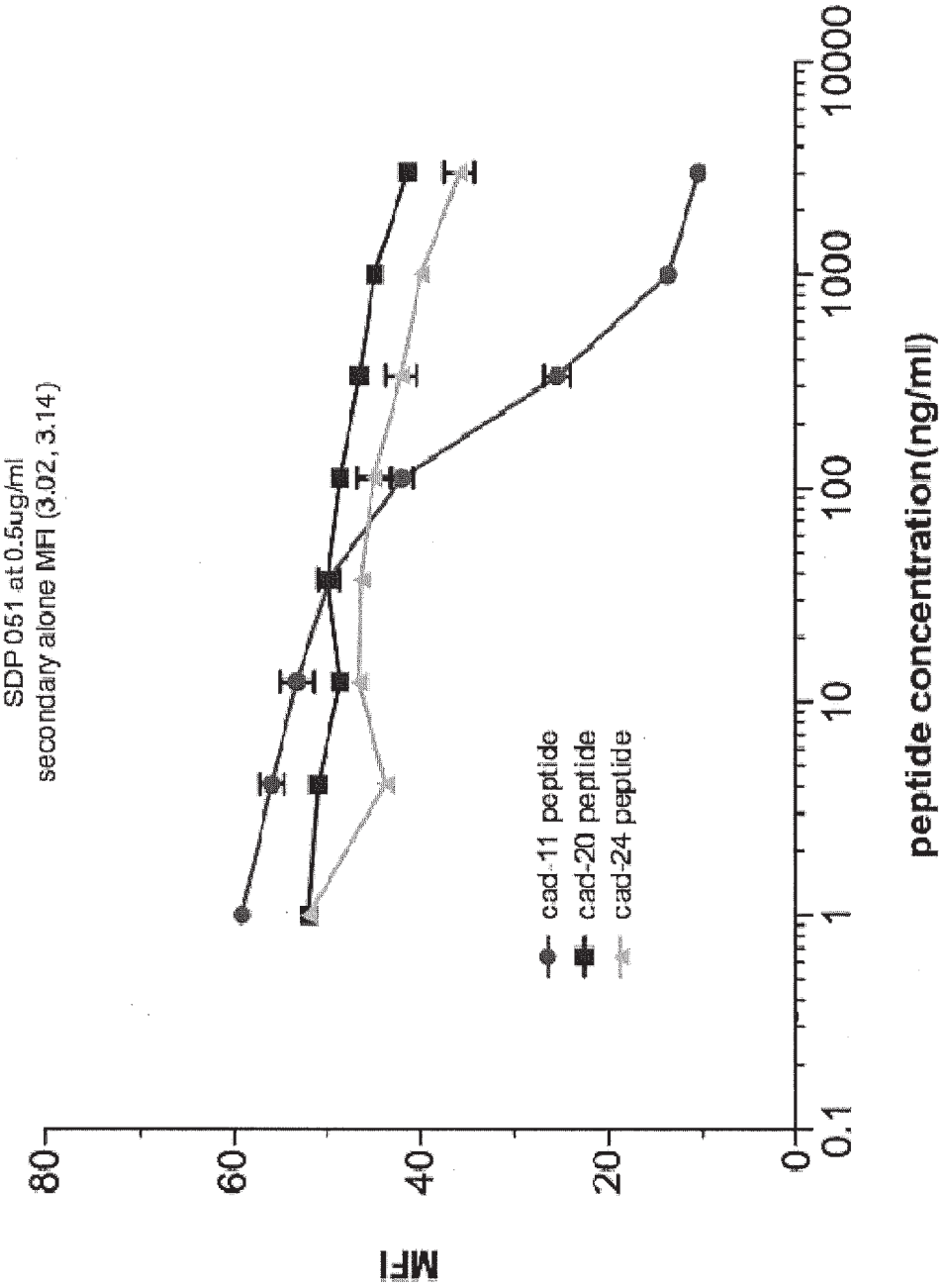

SDP 051 at 0.5ug/ml
secondary alone MFI (3.02, 3.14)
MFI
80
60
40
20
0
0.1
1
10
100
1000
10000
peptide concentration(ng/ml)
cad-11 peptide
cad-20 peptide
cad-24 peptide

FIG. 44A

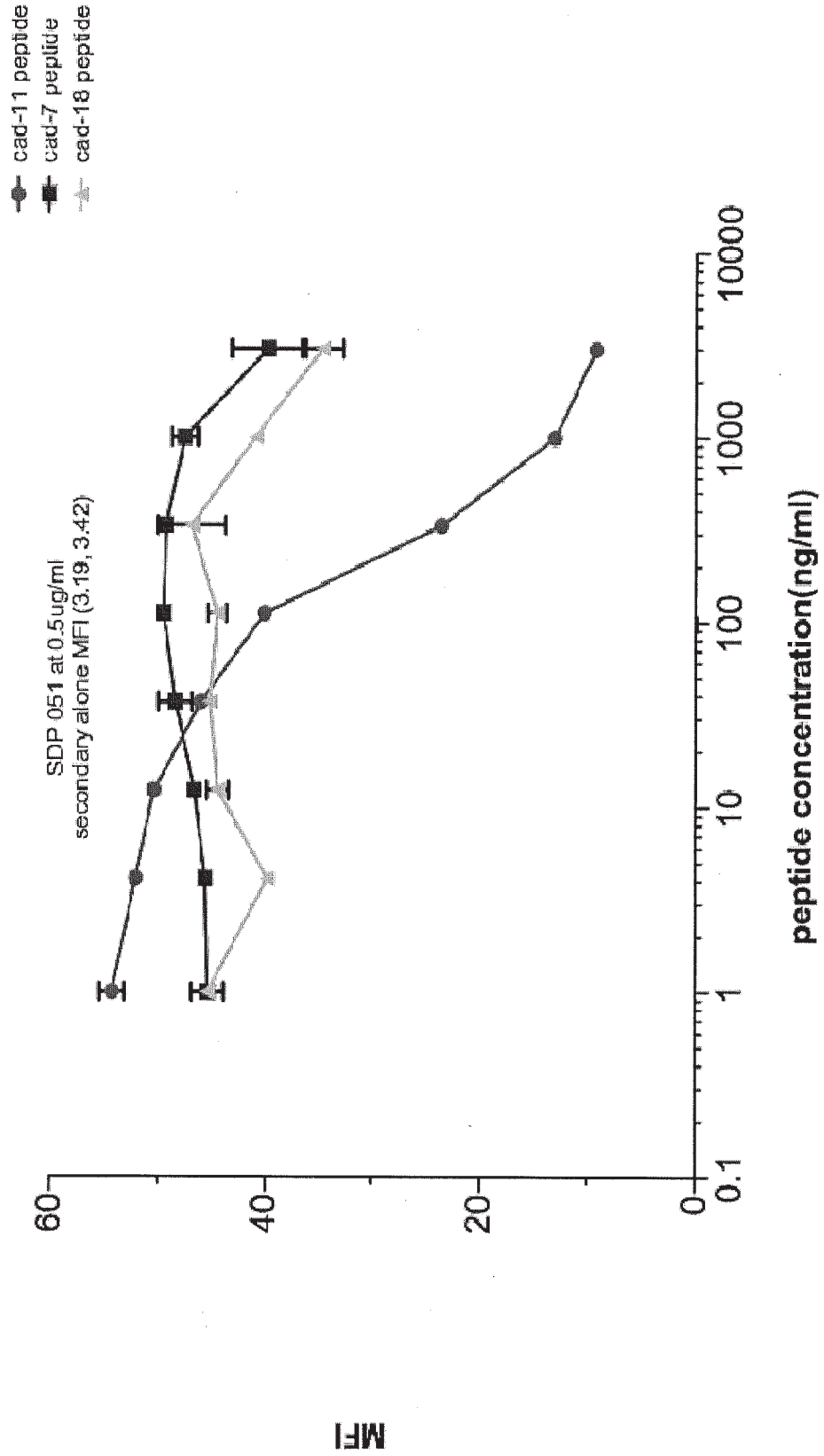

cad-11 peptide
cad-7 peptide
cad-18 peptide
SDP 051 at 0.5ug/ml
secondary alone MFI (3.19, 3.42)
MFI
60
40
20
0
0.1
1
10
100
1000
10000
peptide concentration(ng/ml)

FIG. 44B

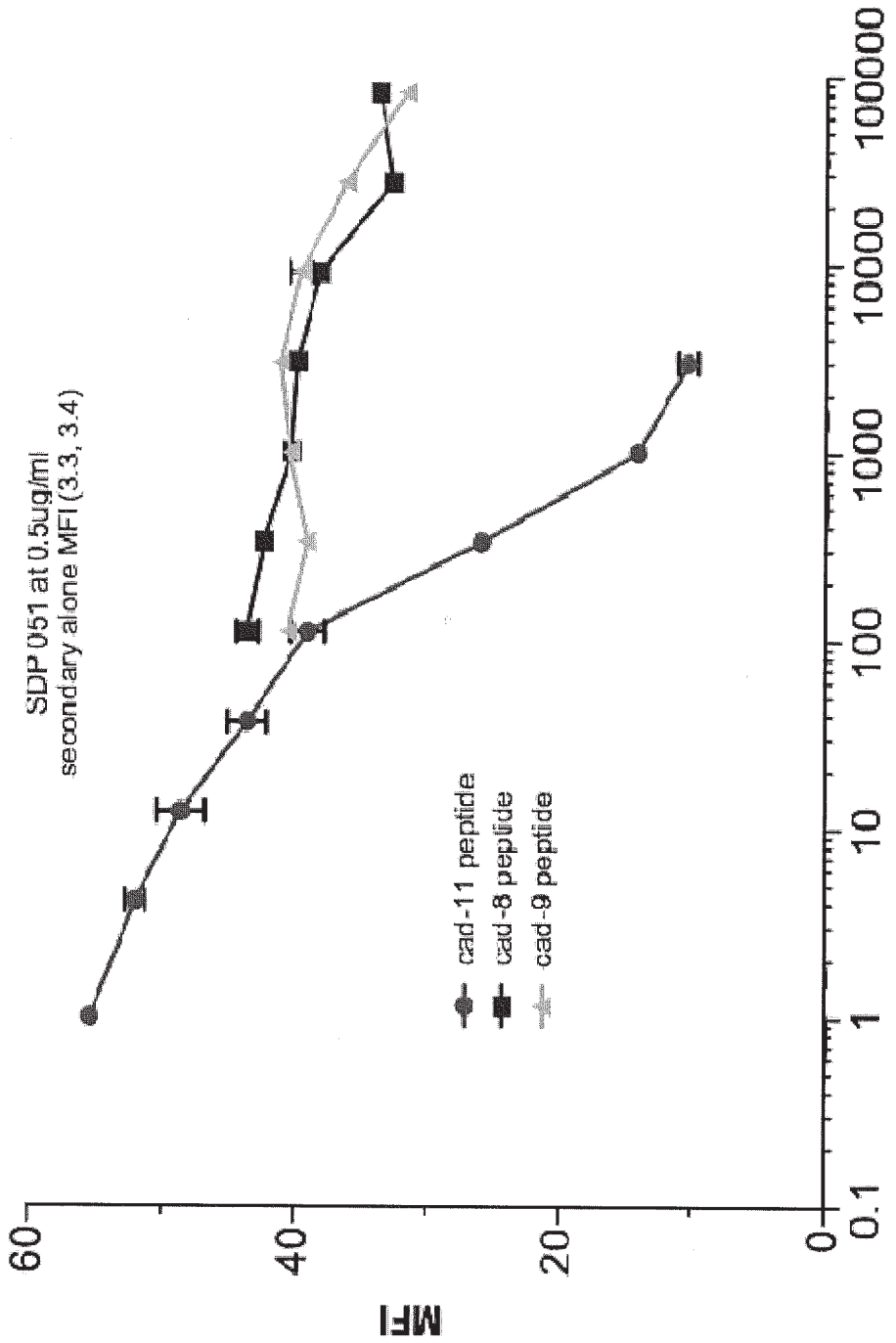

SDP 051 at 0.5ug/ml
secondary alone MFI (3.3, 3.4)
cad-11 peptide
cad-8 peptide
cad-9 peptide
MFI
60
40
20
0
0.1
1
10
100
1000
10000
100000
peptide concentration(ng/ml)

FIG. 44C

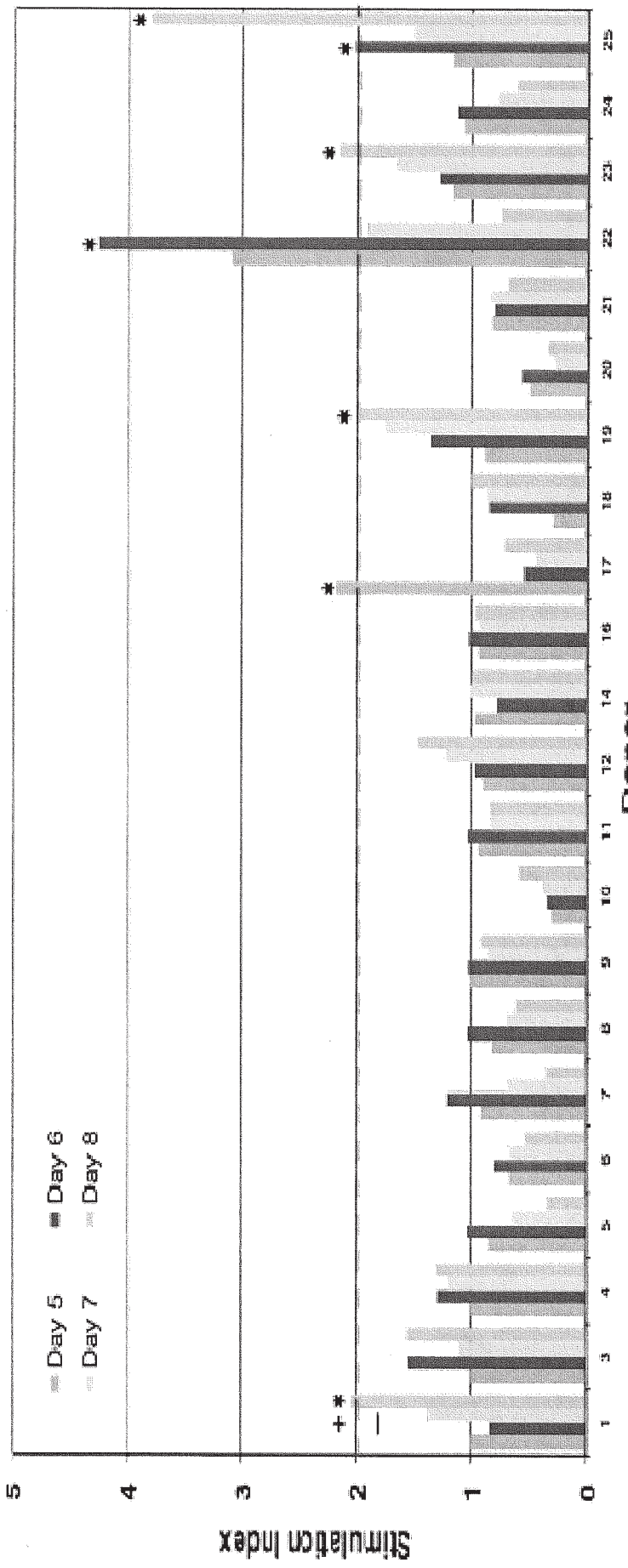

Stimulation Index
0
1
2
3
4
5
Donor
1
3
4
5
6
7
8
9
10
11
12
14
16
17
18
19
20
21
22
23
24
25
Day 5
Day 6
Day 7
Day 8

FIG. 45A

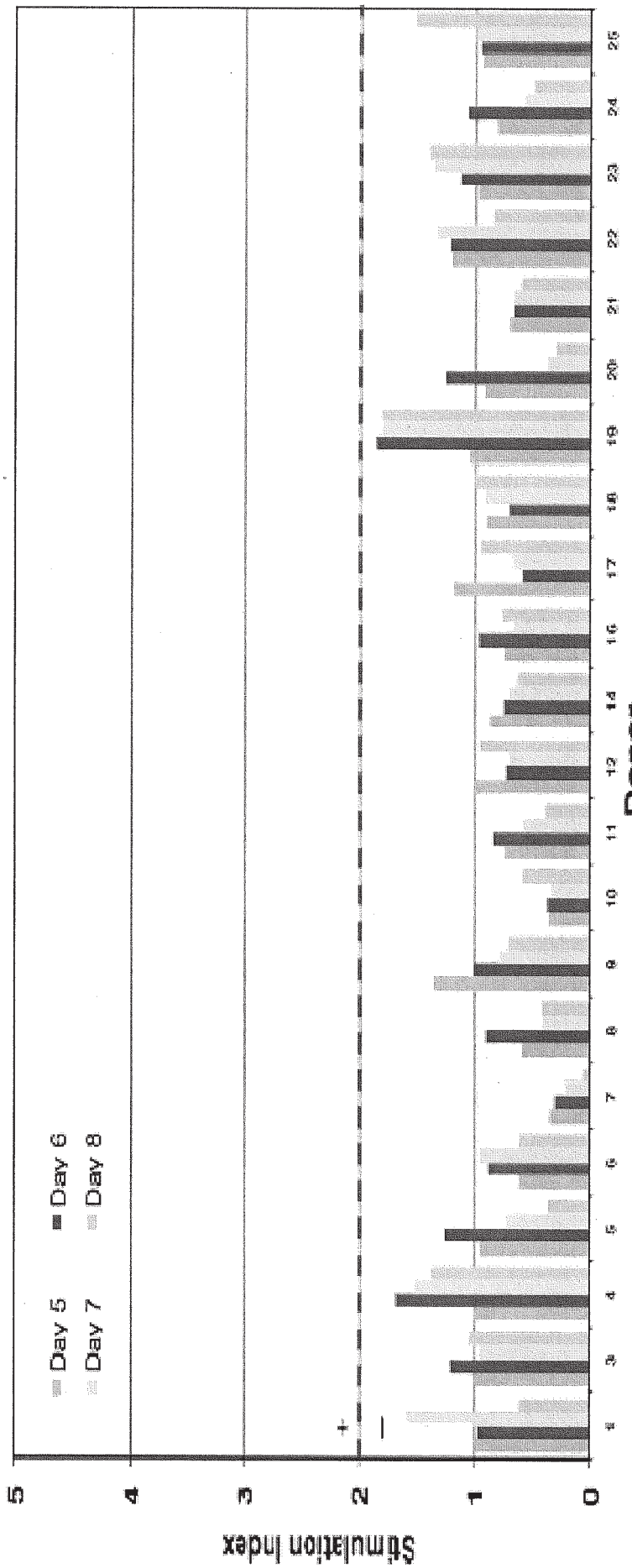


FIG. 45B

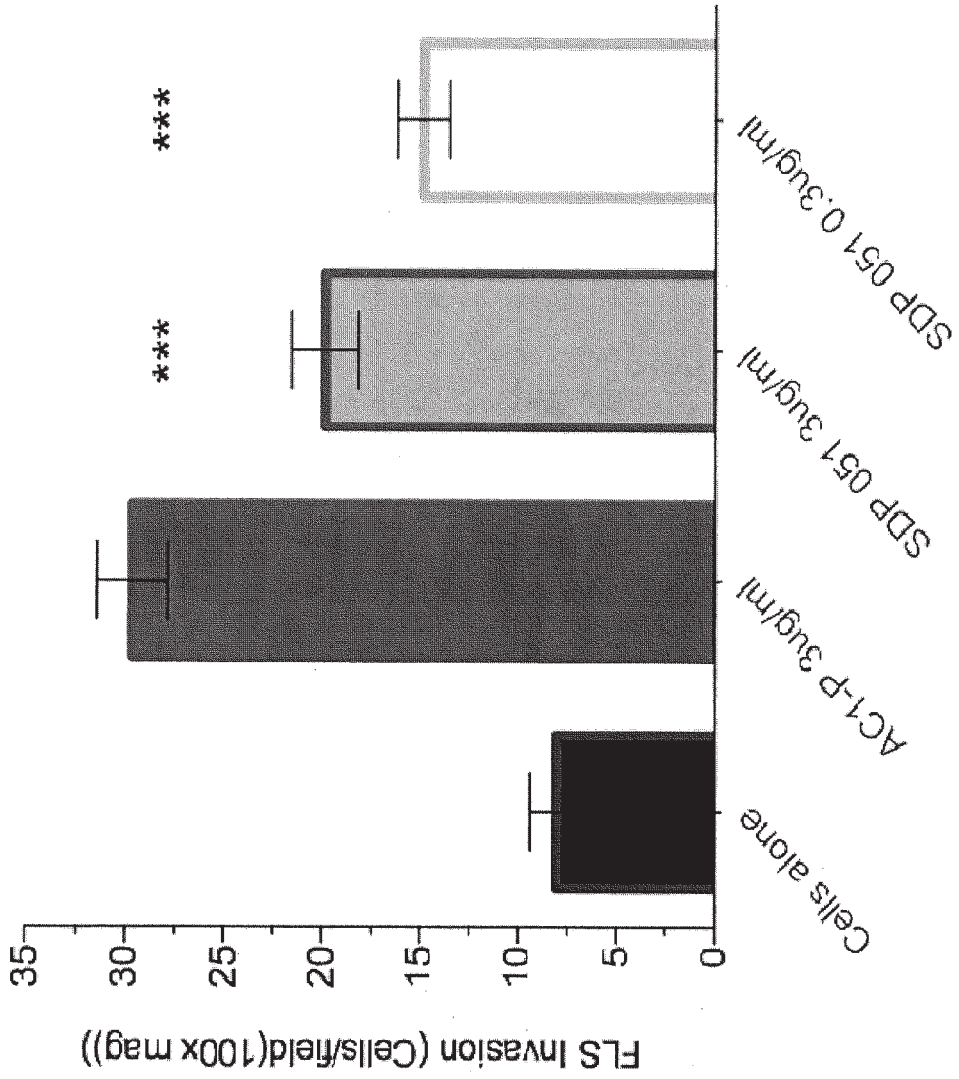

FLS Invasion (Cells/field(100x mag))
35
30
25
20
15
10
5
0
Cells alone
AC1-P 3ug/ml
SDP 051 3ug/ml
SDP 051 0.3ug/ml
***
***

FIG. 46

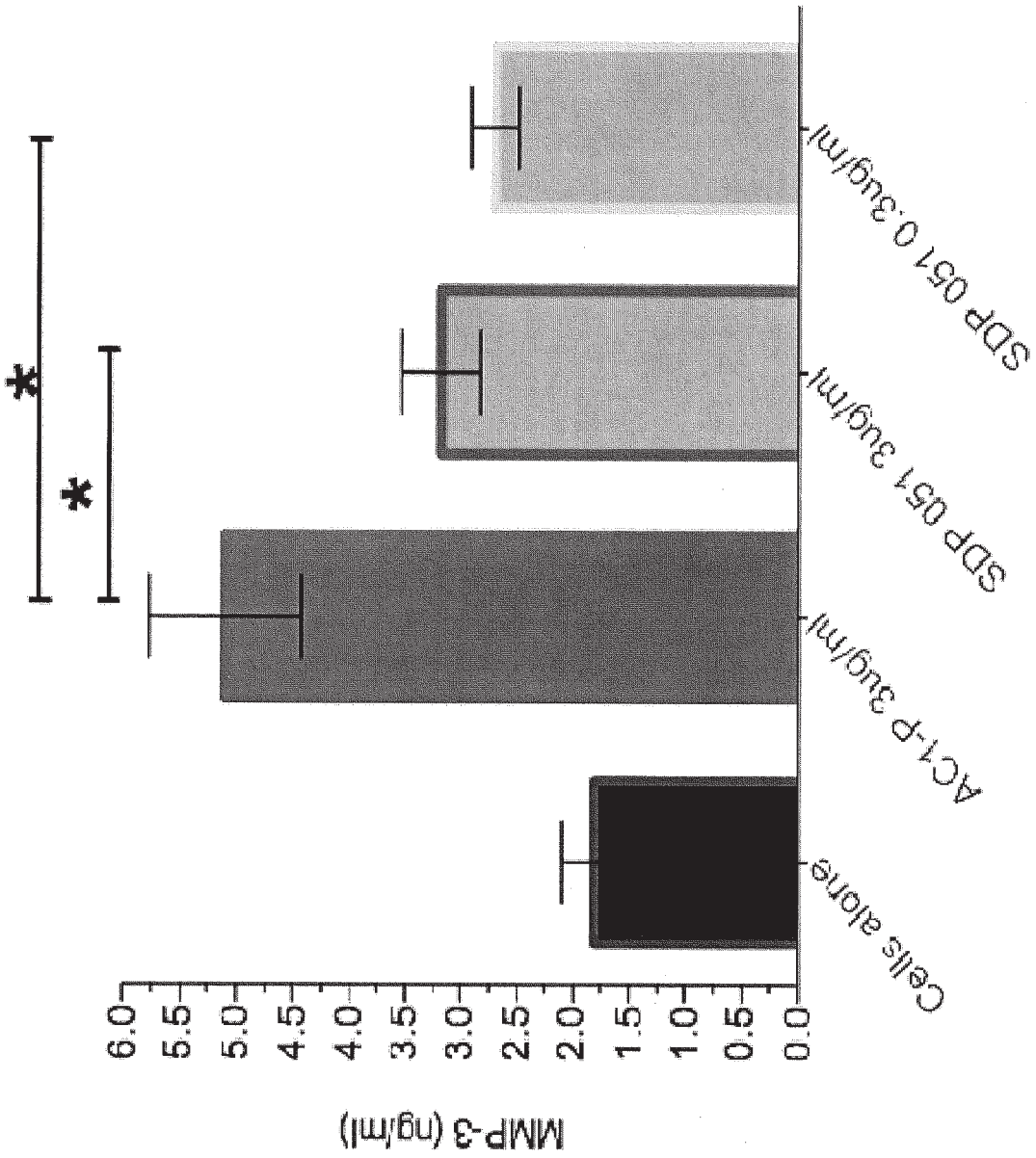

MMP-3 (ng/ml)
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Cells alone
AC1-P 3ug/ml
SDP 051 3ug/ml
SDP 051 0.3ug/ml
*
*

FIG. 47

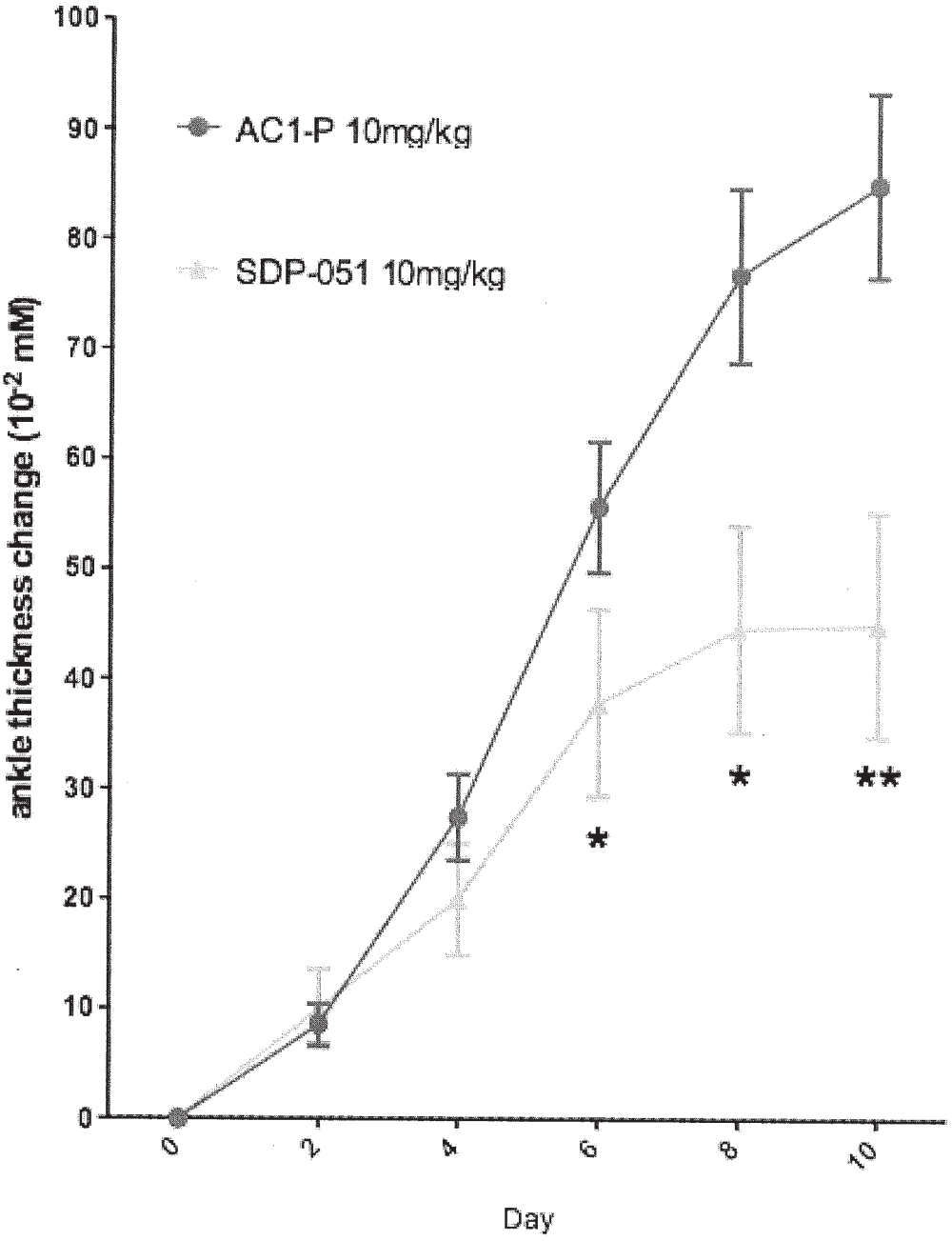

AC1-P 10mg/kg
SDP-051 10mg/kg
ankle thickness change (10^{-2} mM)
Day
0
10
20
30
40
50
60
70
80
90
100
0
2
4
6
8
10
*
*
**

FIG. 48

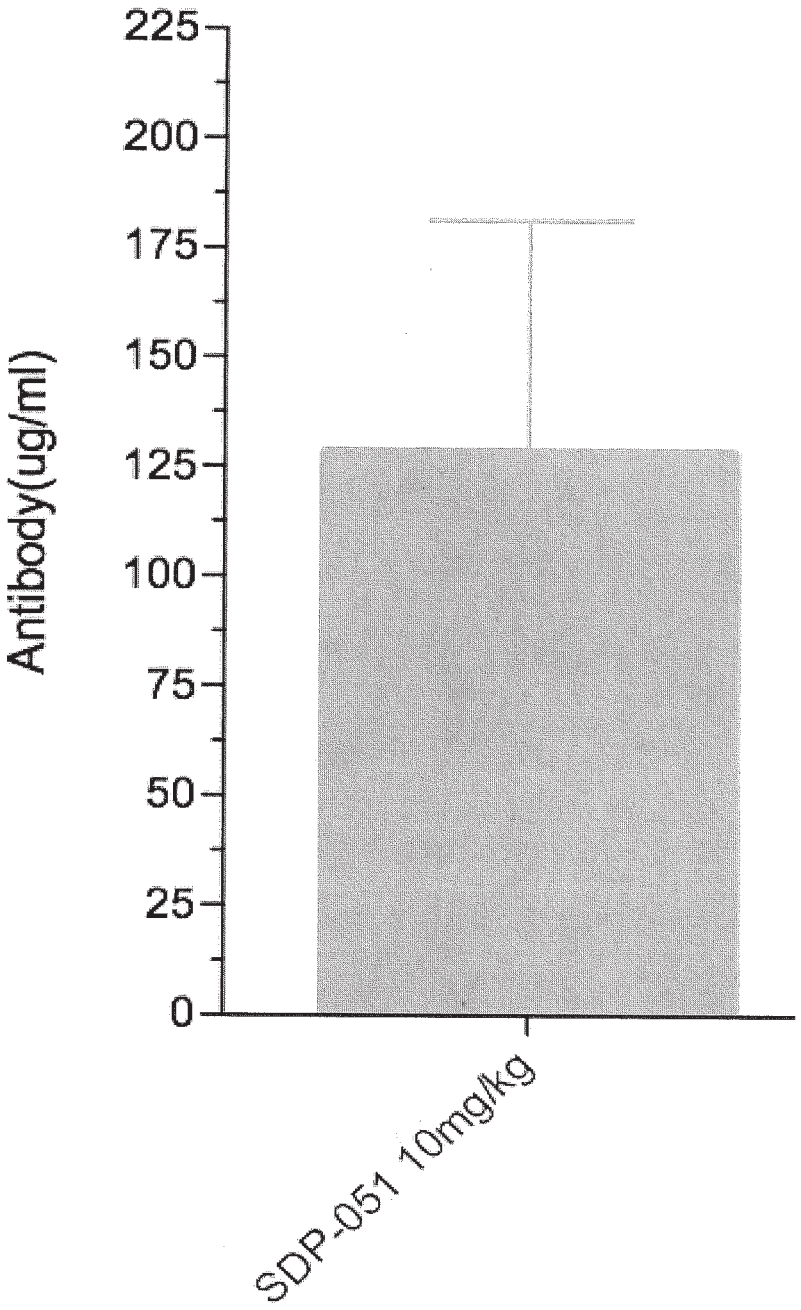
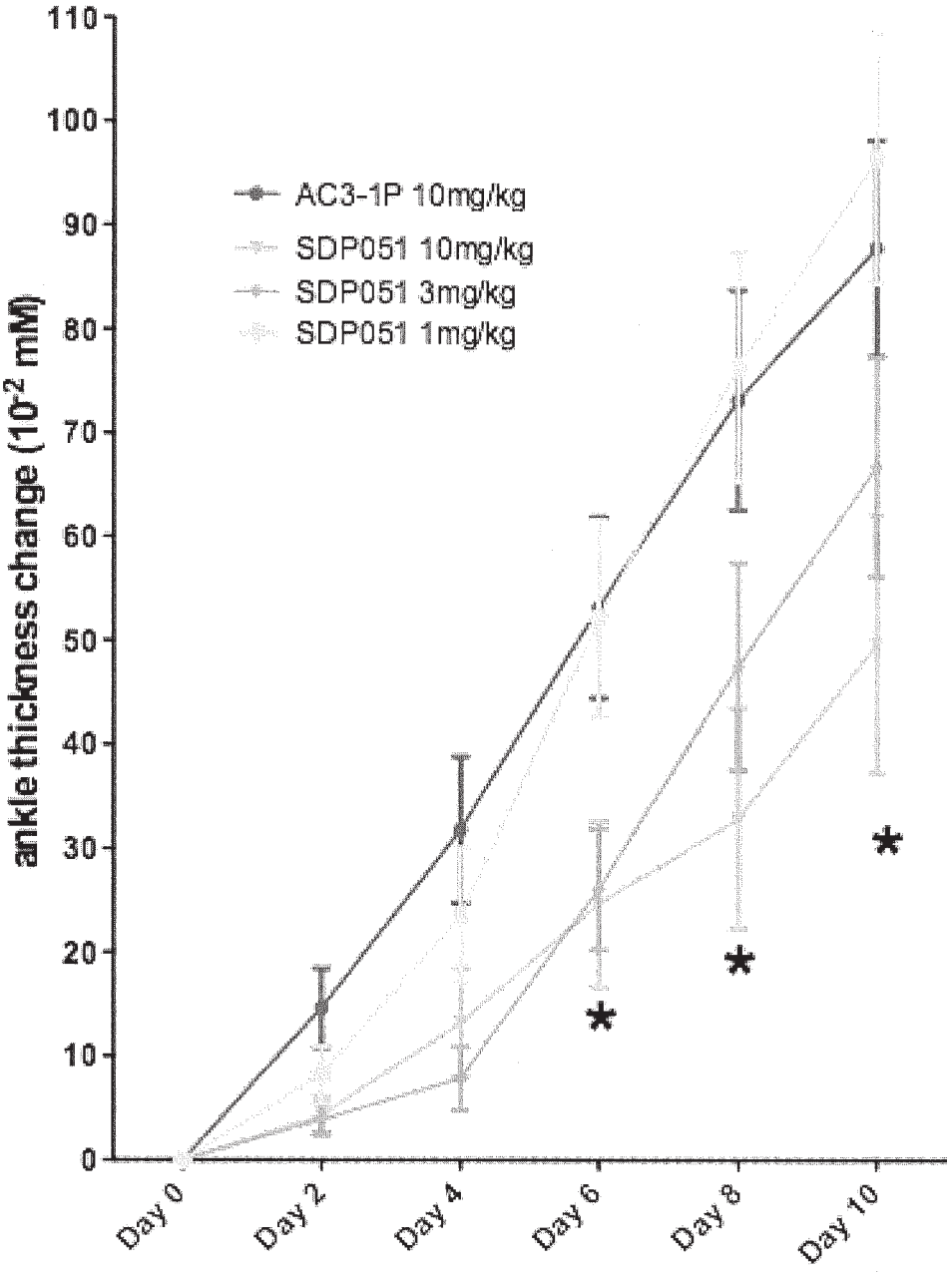


FIG. 49


110
100
90
80
70
60
50
40
30
20
10
0
ankle thickness change (10^{-2} mM)
AC3-1P 10mg/kg
SDP051 10mg/kg
SDP051 3mg/kg
SDP051 1mg/kg
Day 0
Day 2
Day 4
Day 6
Day 8
Day 10
*
*
*

* = $p<0.05$

FIG. 50