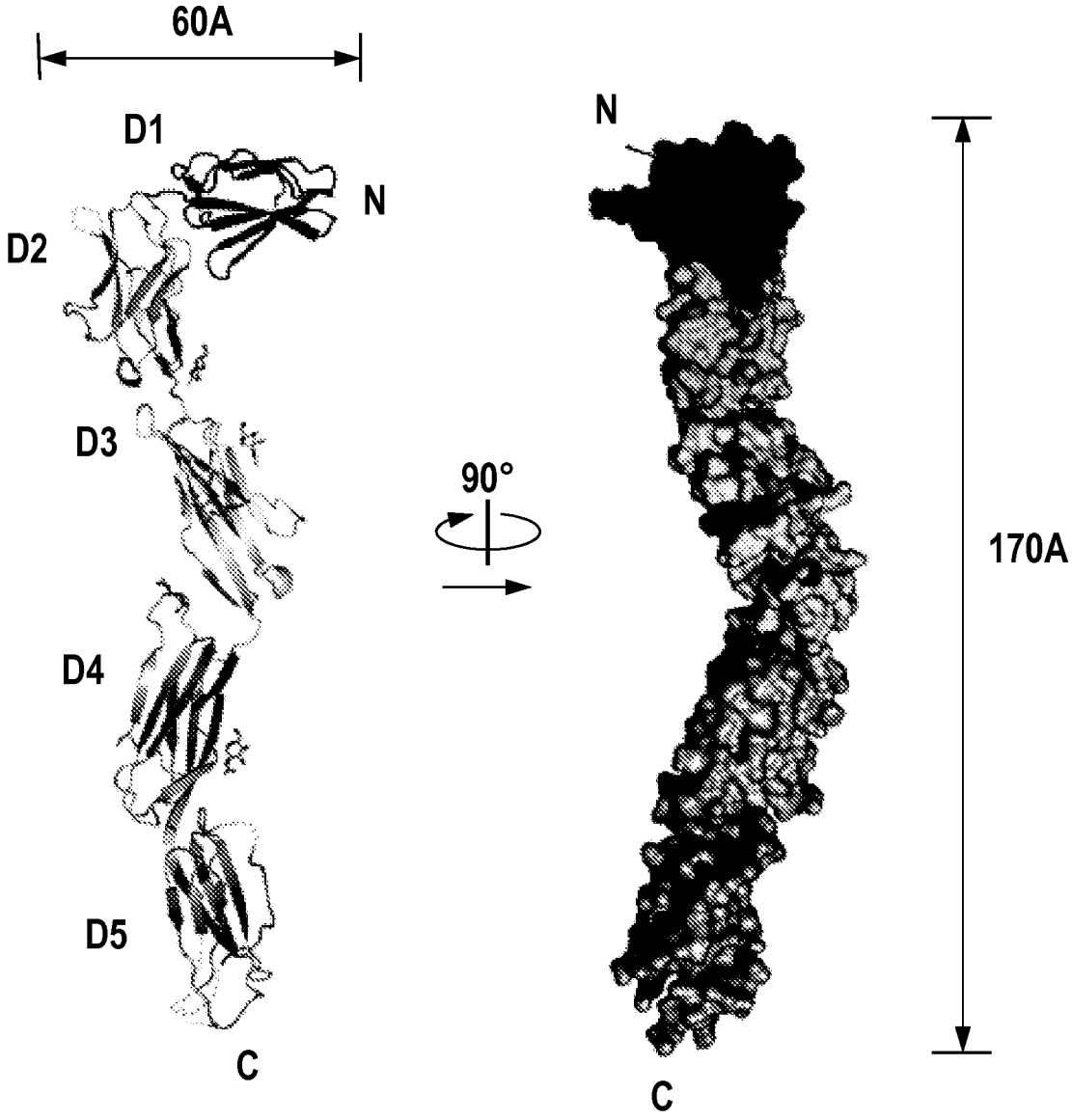


Fig. 1A

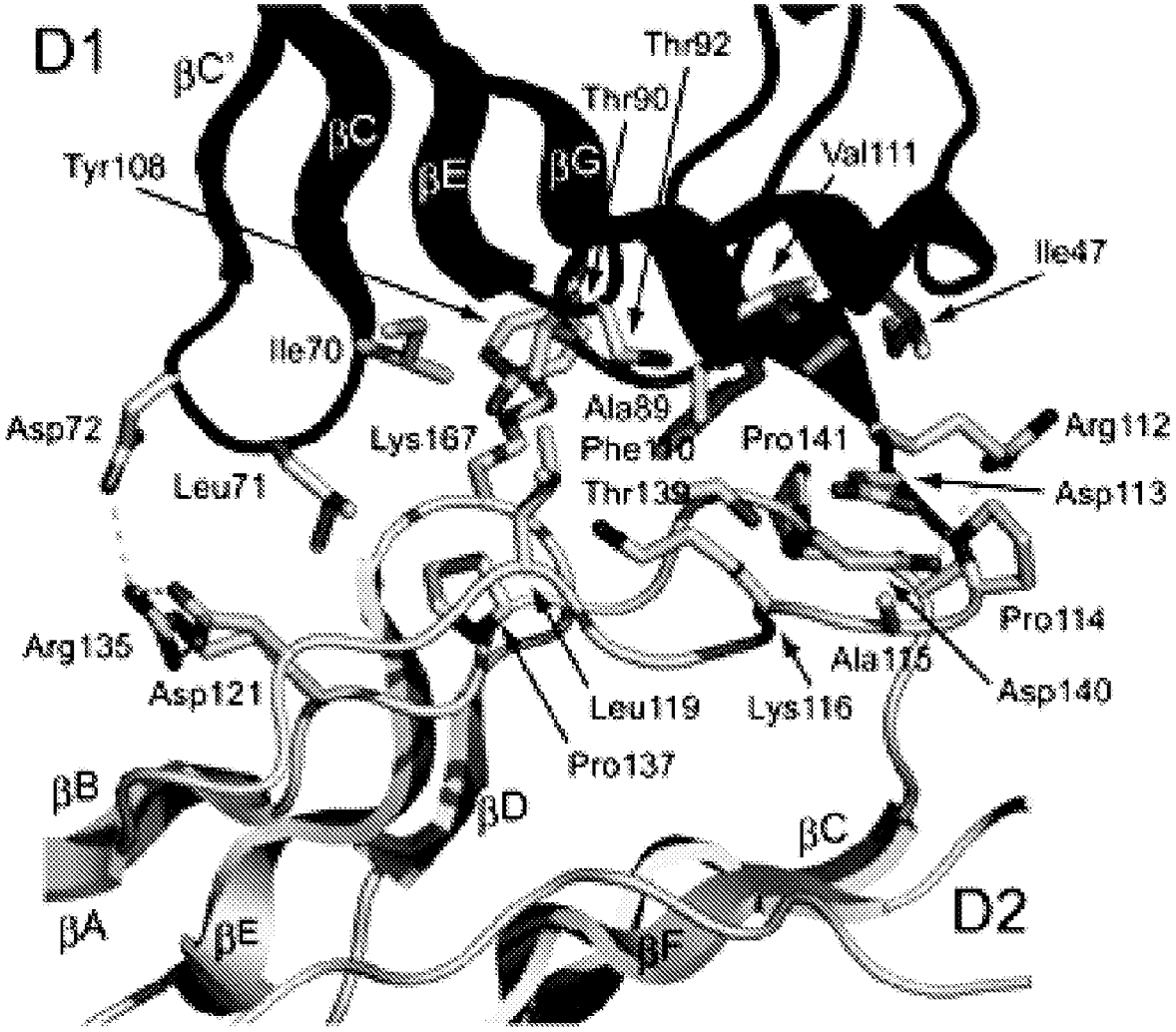

D1
βC'
βC
βE
βG
Thr92
Thr90
Val111
Tyr108
Ile47
Ile70
Asp72
Leu71
Lys167
Ala89
Phe140
Pro141
Arg112
Asp113
Thr139
Pro114
Arg135
Asp121
Ala115
Asp140
Leu119
Lys116
Pro137
βB
βD
βC
βA
βE
βF
D2

Fig. 1B

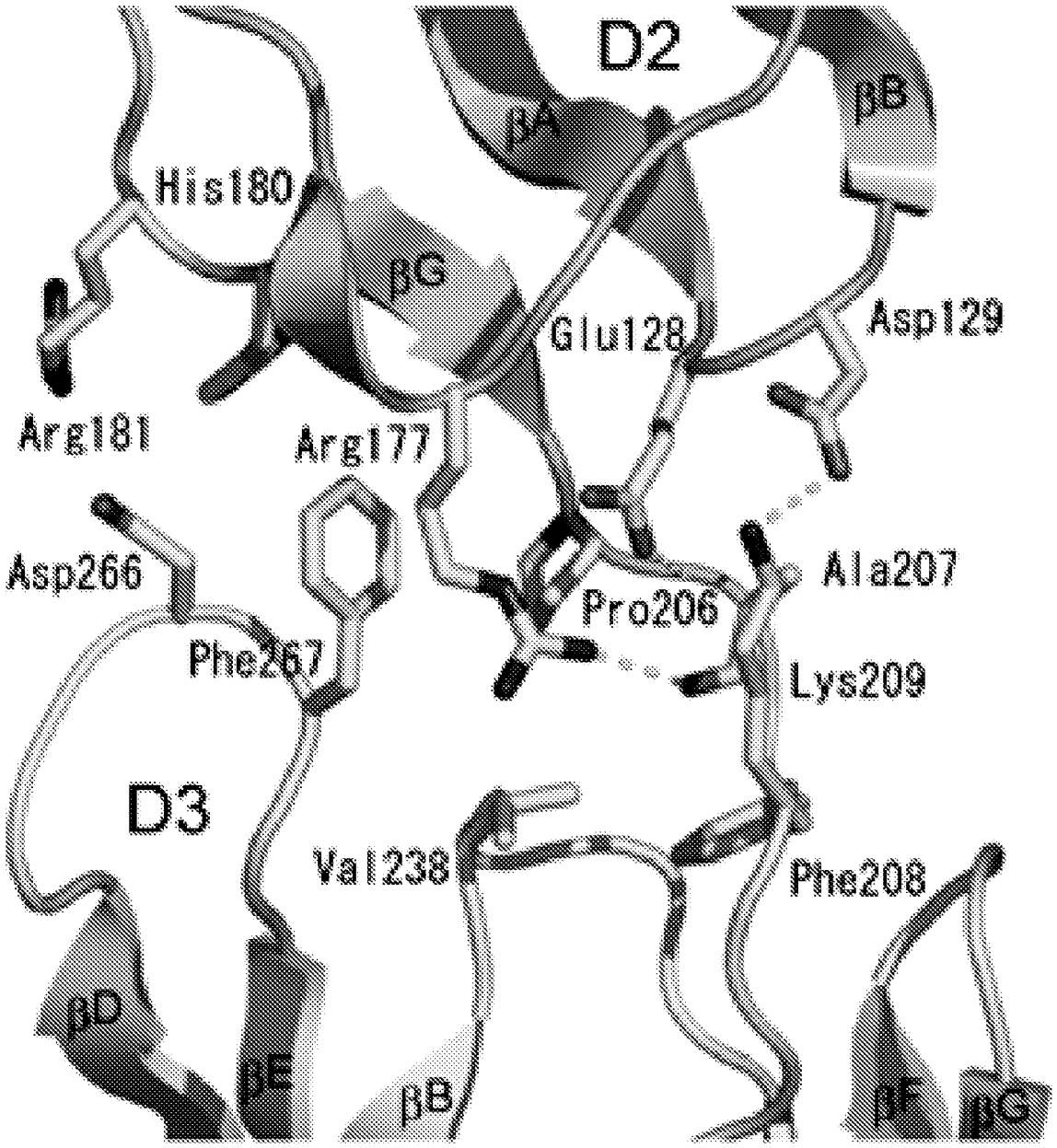

D2
βA
βB
His180
βG
Glu128
Asp129
Arg181
Arg177
Asp266
Ala207
Pro206
Phe267
Lys209
D3
Val238
Phe208
βD
βE
βB
βF
βG

Fig. 1C

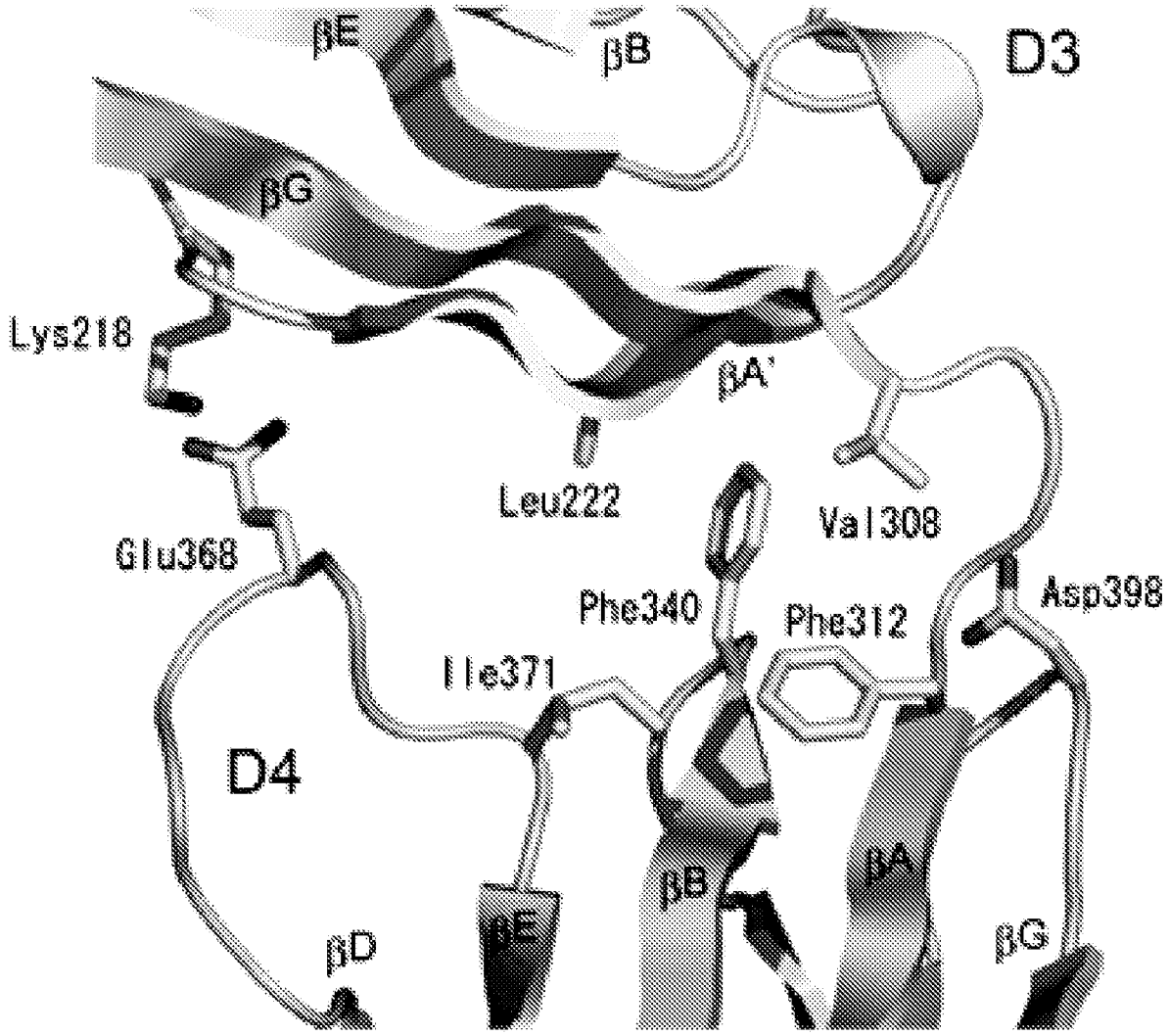

βE
βB
D3
βG
Lys218
βA'
Leu222
Val308
Glu368
Phe340
Phe312
Asp398
Ile371
D4
βB
βA'
βD
βE
βG

Fig. 1D

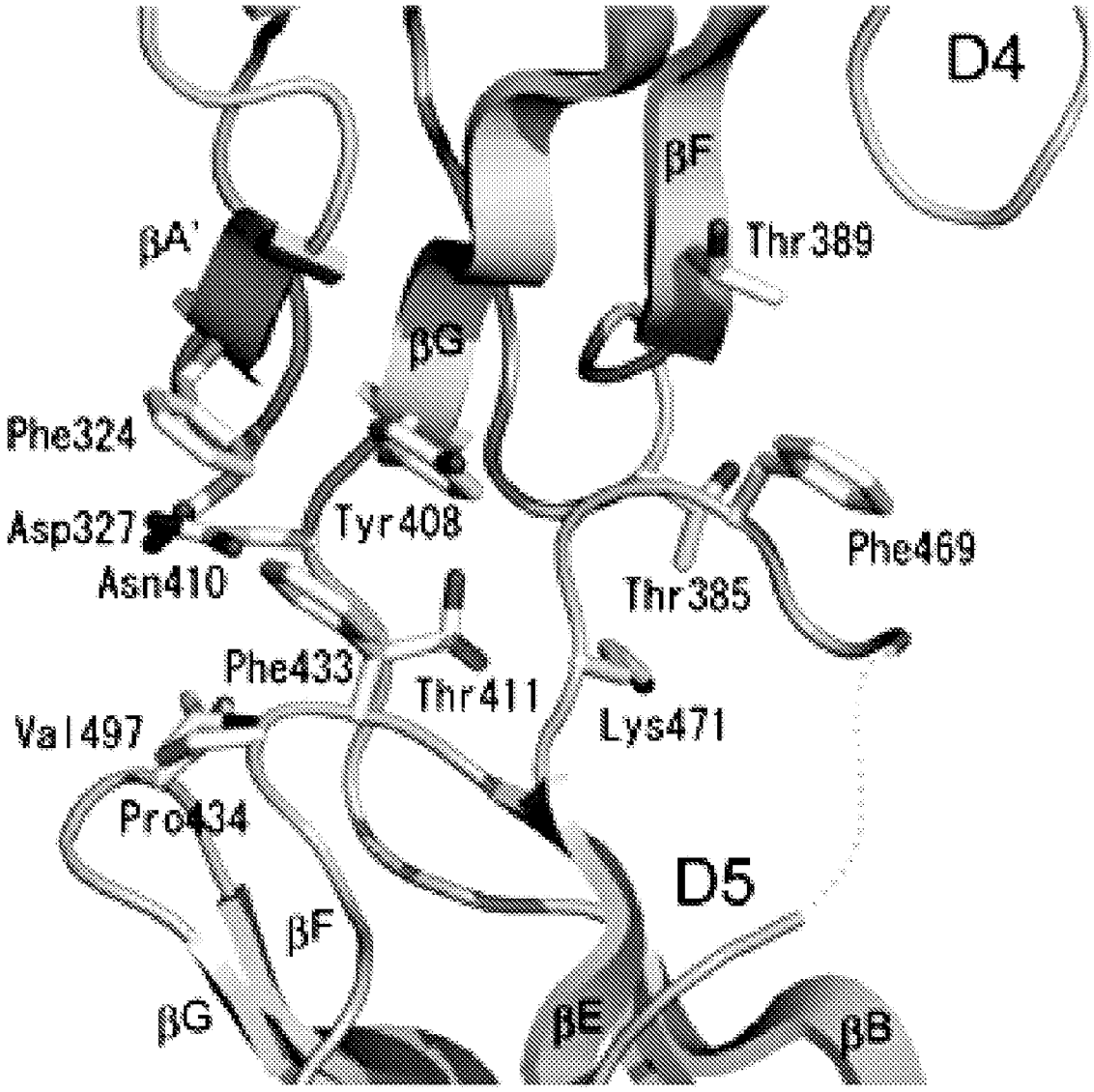

D4
βF
βA'
Thr389
βG
Phe324
Asp327
Tyr408
Asn410
Phe469
Thr385
Phe433
Thr411
Val497
Lys471
Pro434
D5
βF
βG
βE
βB

Fig. 1E

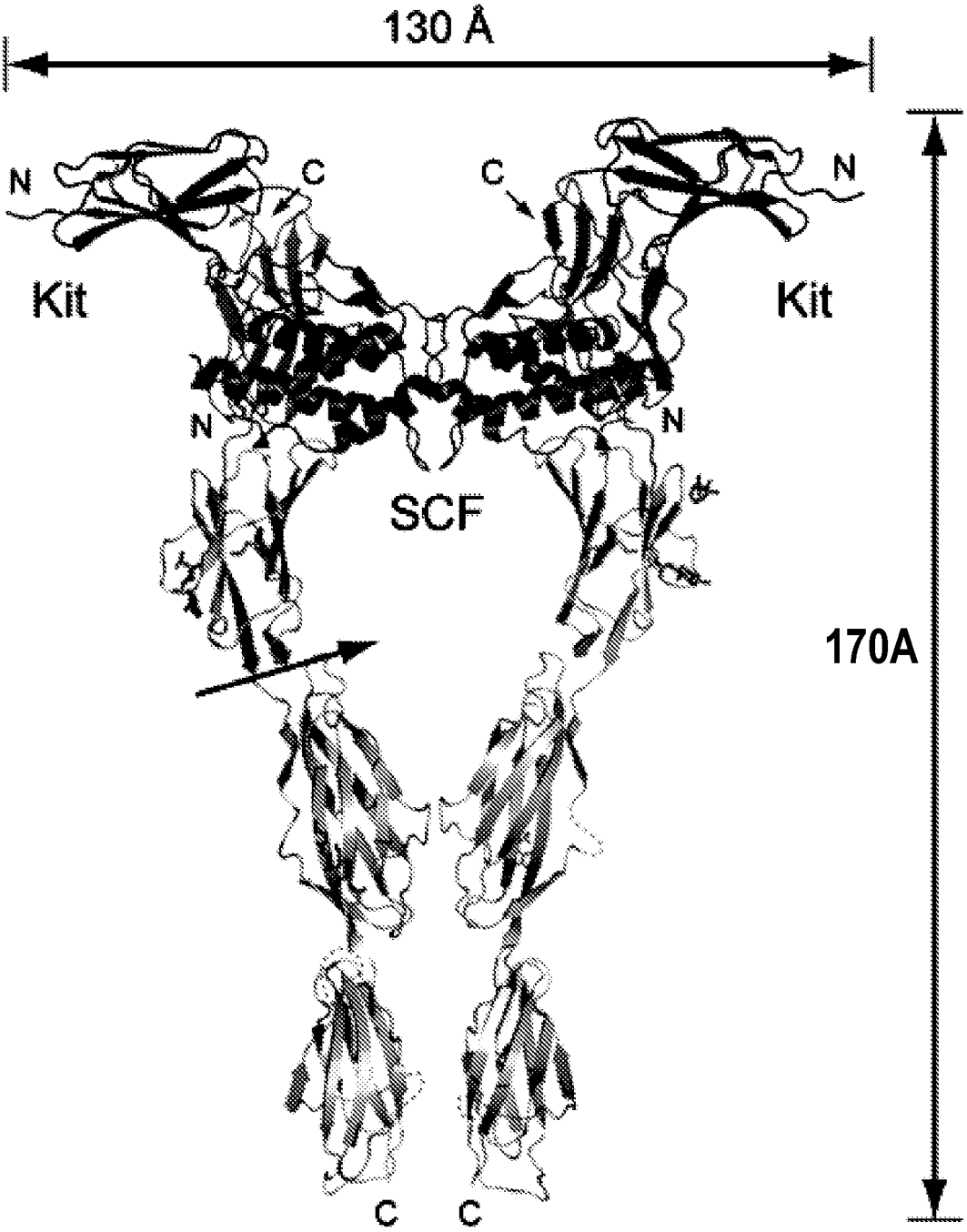


Fig. 2A

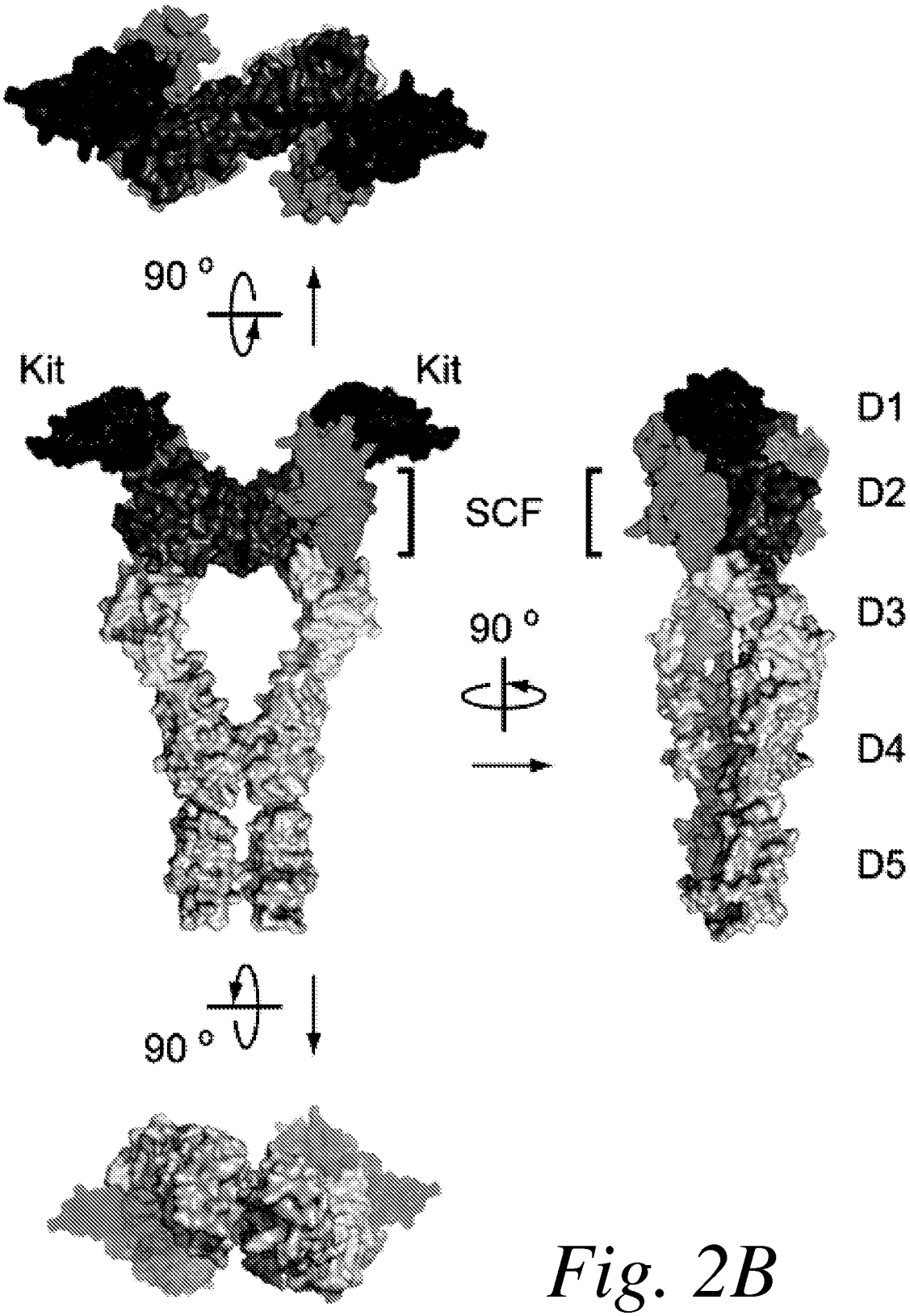


Fig. 2B

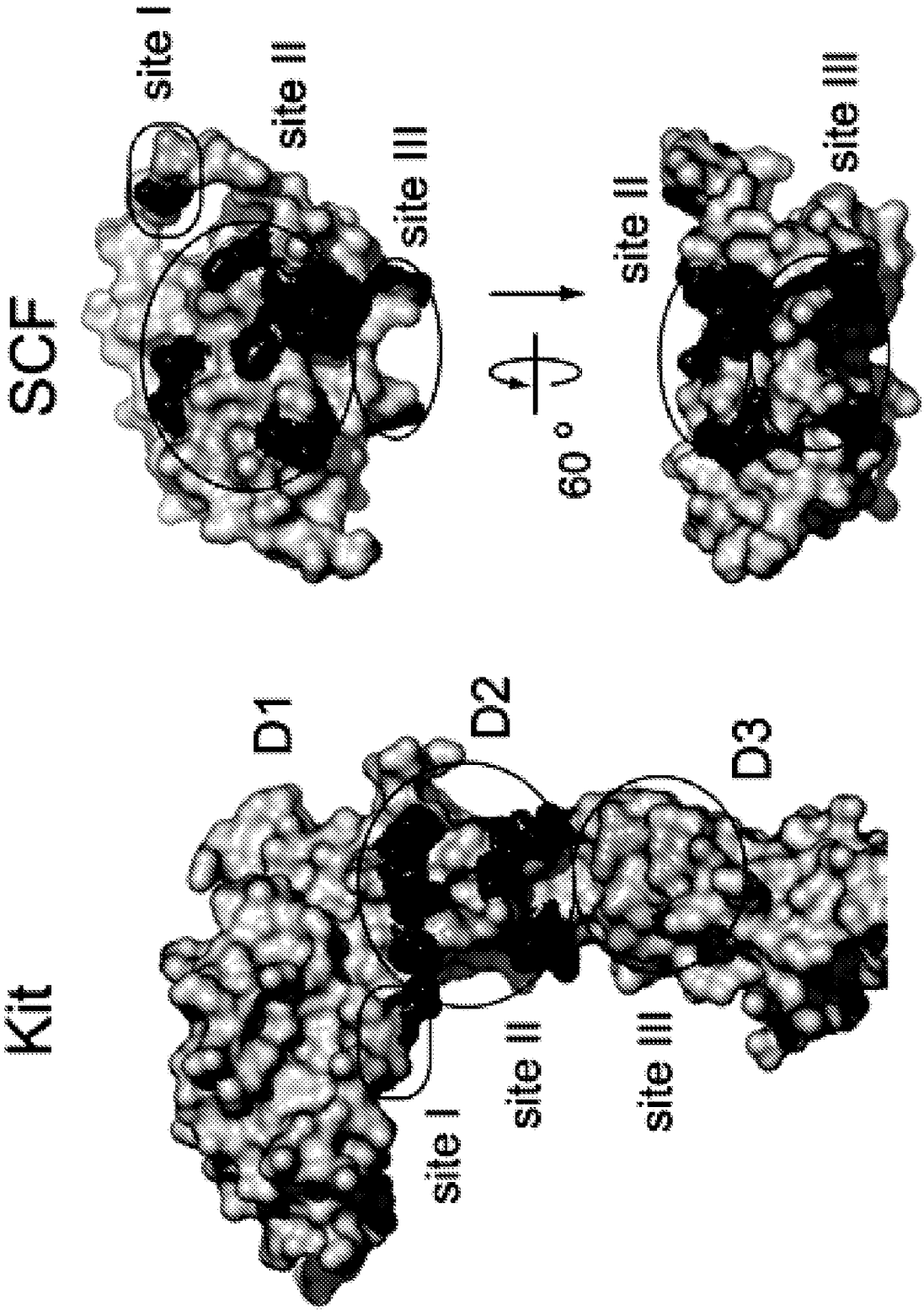

SCF
site I
site II
site III
60 °
site II
site III
Kit
D1
D2
D3
site I
site II
site III

Fig. 3A

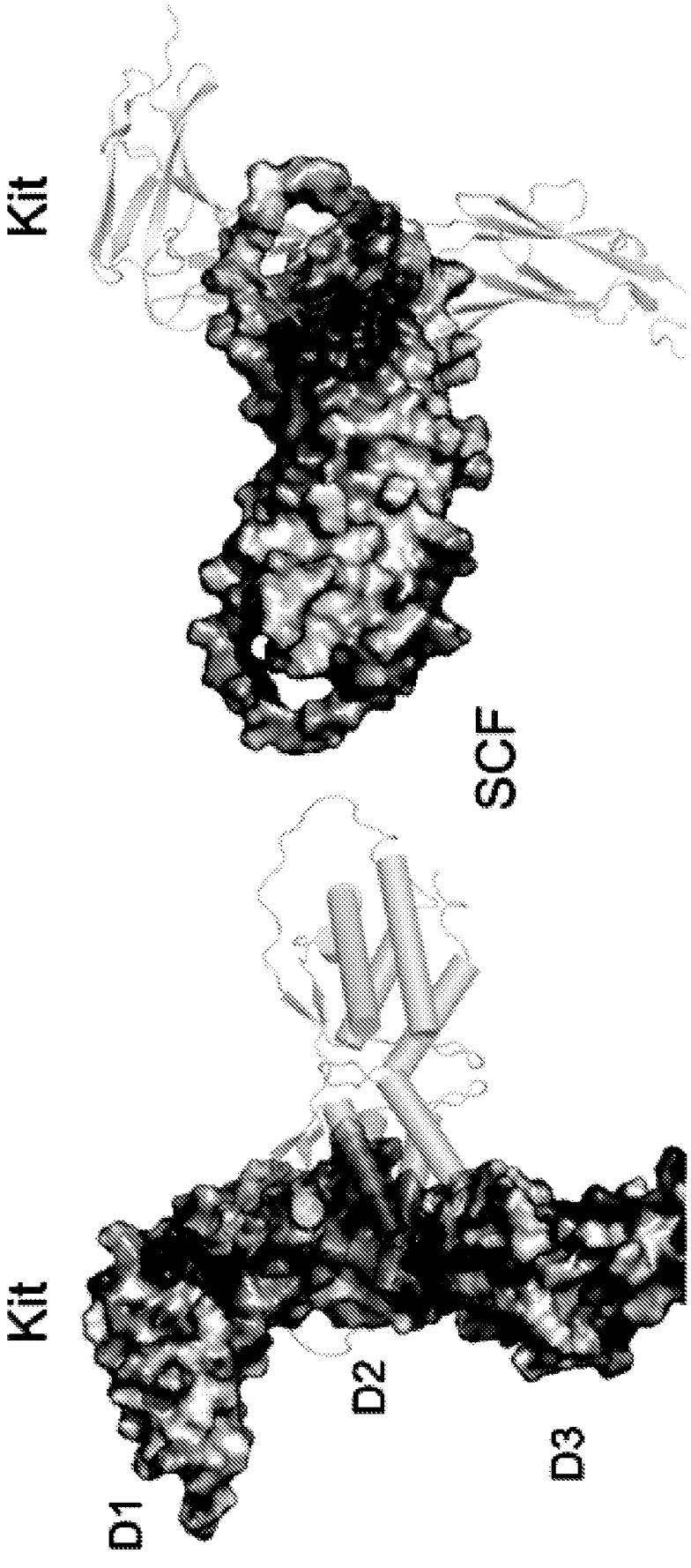


Fig. 3B

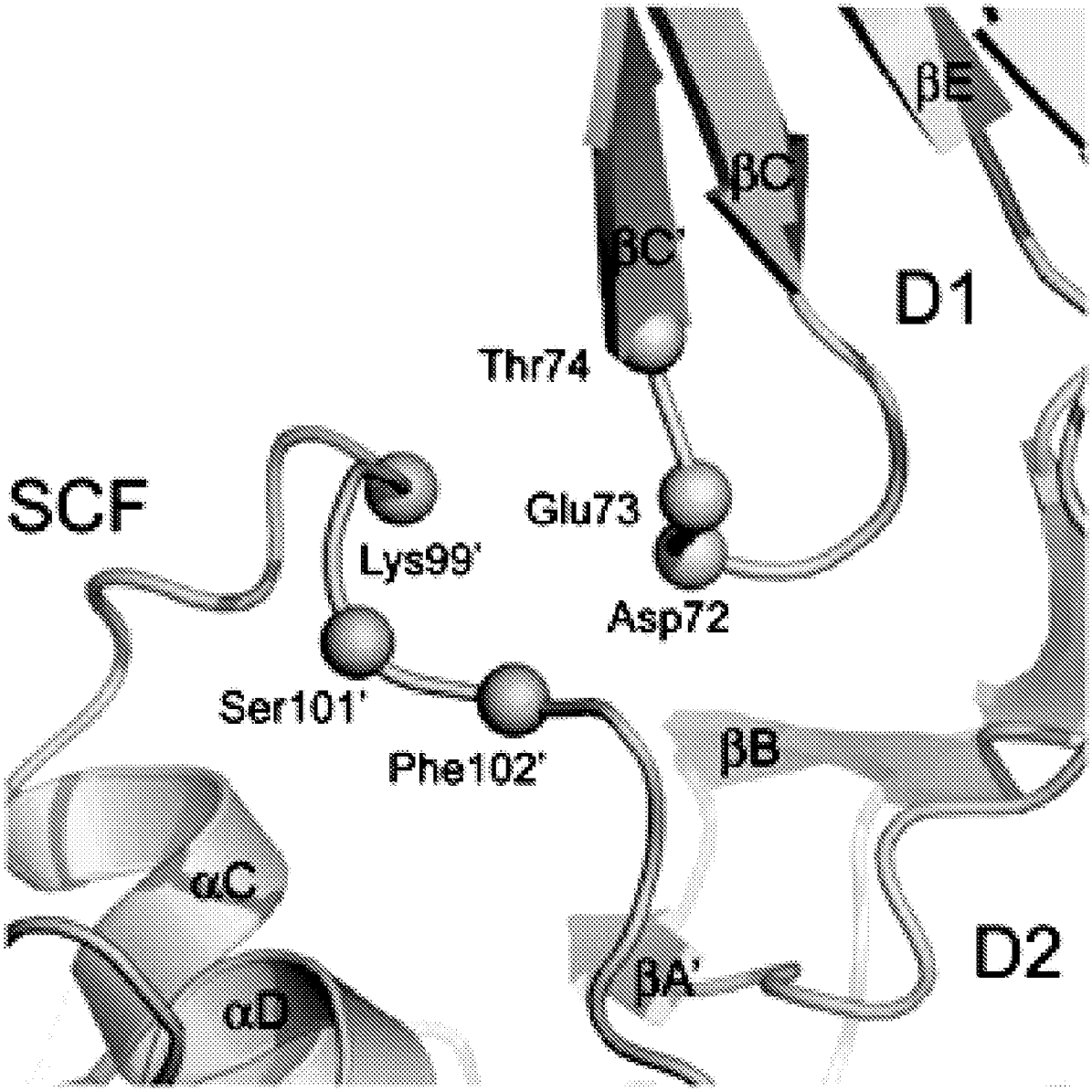

βE
βC
βC'
D1
Thr74
SCF
Glu73
Lys99'
Asp72
Ser101'
Phe102'
βB
αC
D2
βA'
αD

Fig. 3C

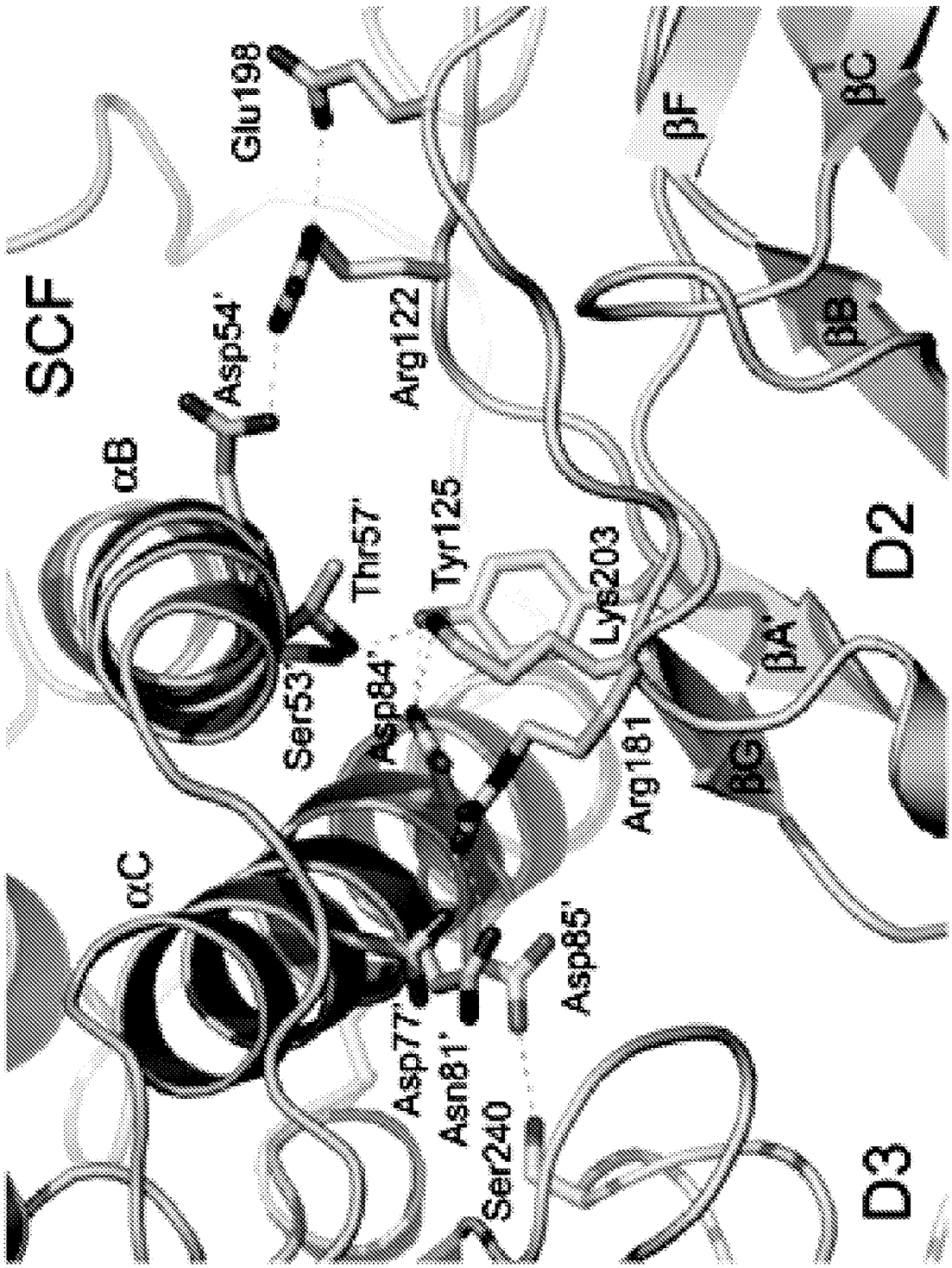

SCF
αB
αC
Glu198
Asp54'
Arg122
Ser53'
Thr57'
Asp84'
Tyr125
Lys203
Arg181
Asp77'
Asn81'
Asp85'
Ser240
βG
βA'
βF
βB
βC
D2
D3

Fig. 3D

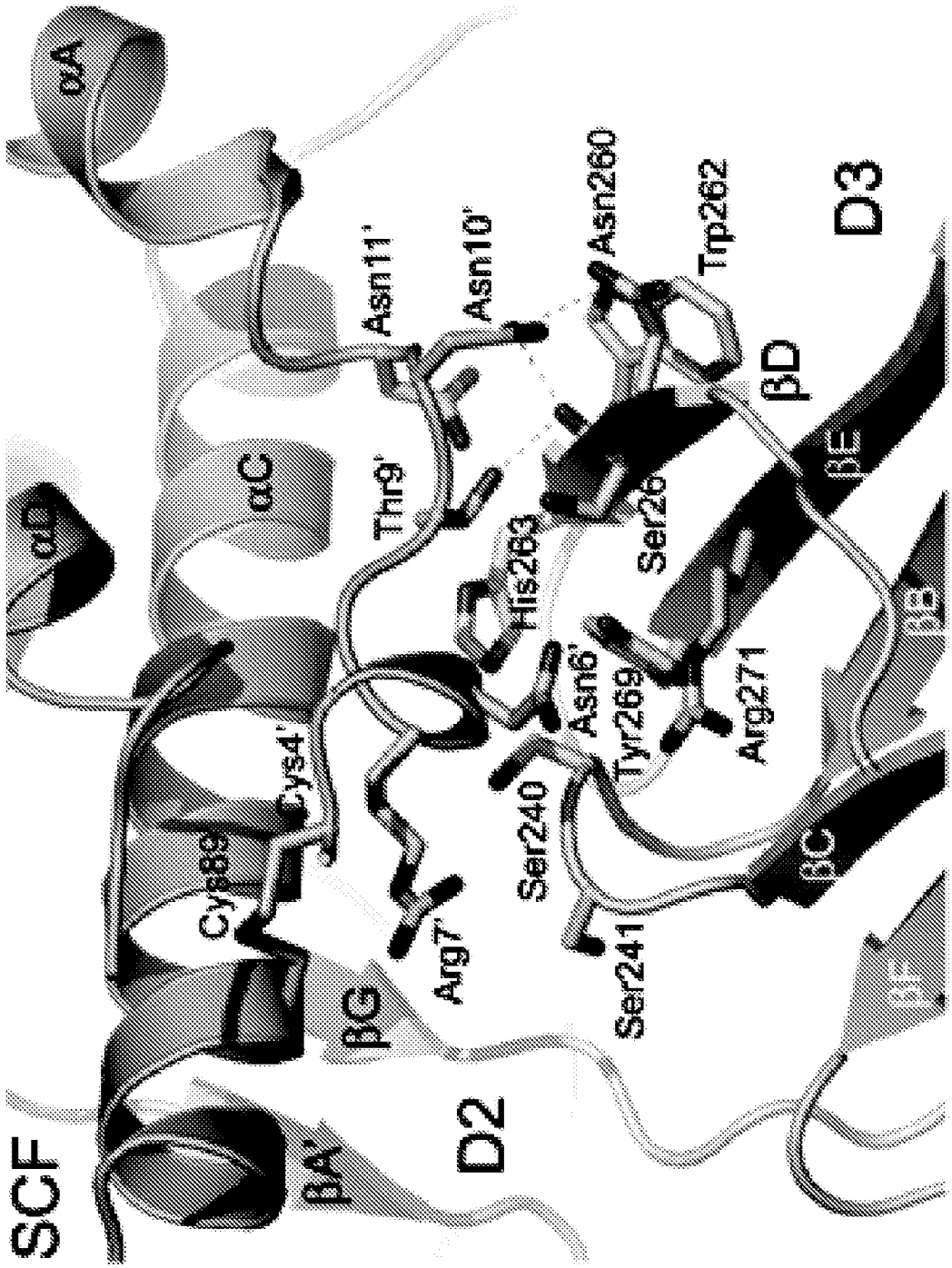

SCF
αA
αD
αC
βA'
βG
D2
D3
βD
βE
βC
Cys89'
Cys4'
Arg7'
Ser240
Ser241
Asn6'
Tyr269
His283
Thr9'
Asn11'
Asn10'
Asn260
Trp262
Arg271

Fig. 3E

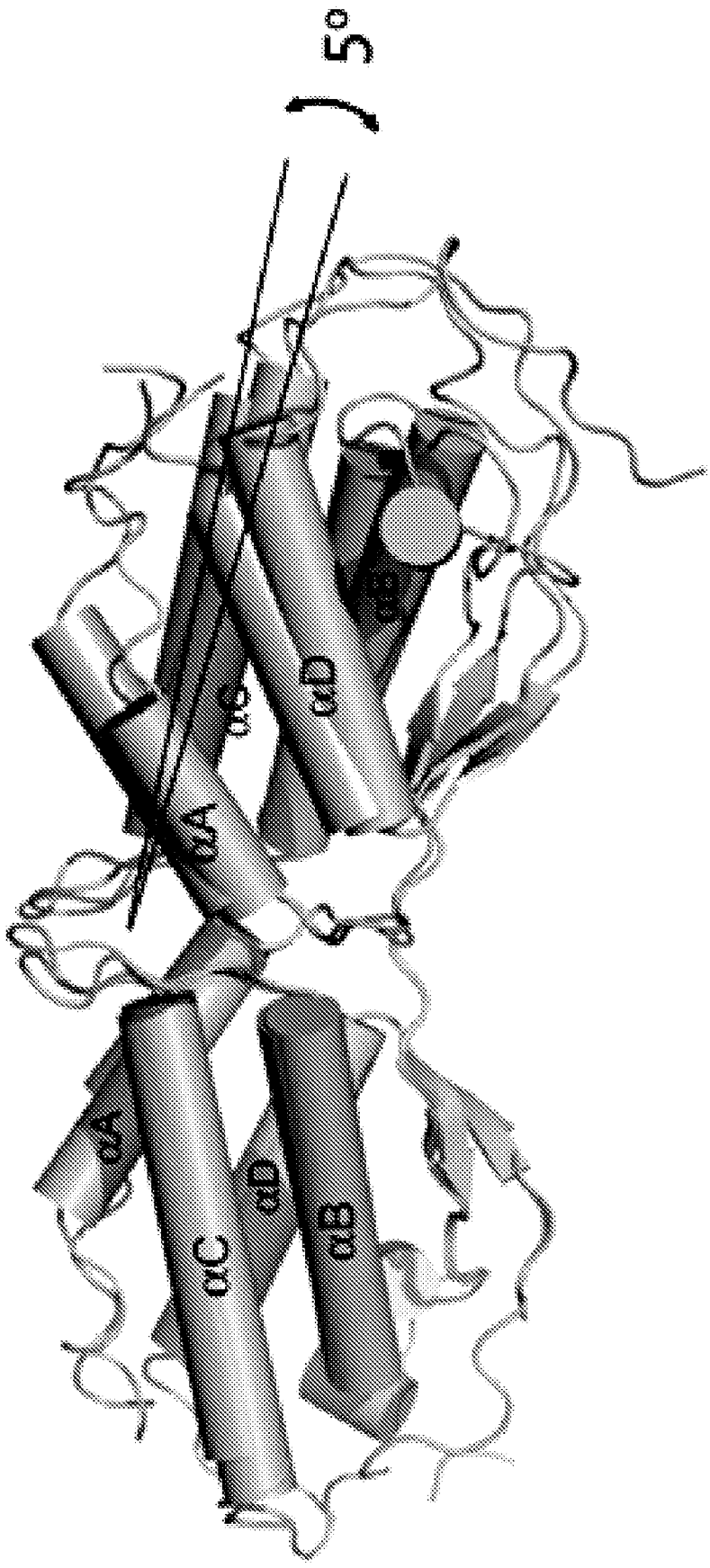


Fig. 4A

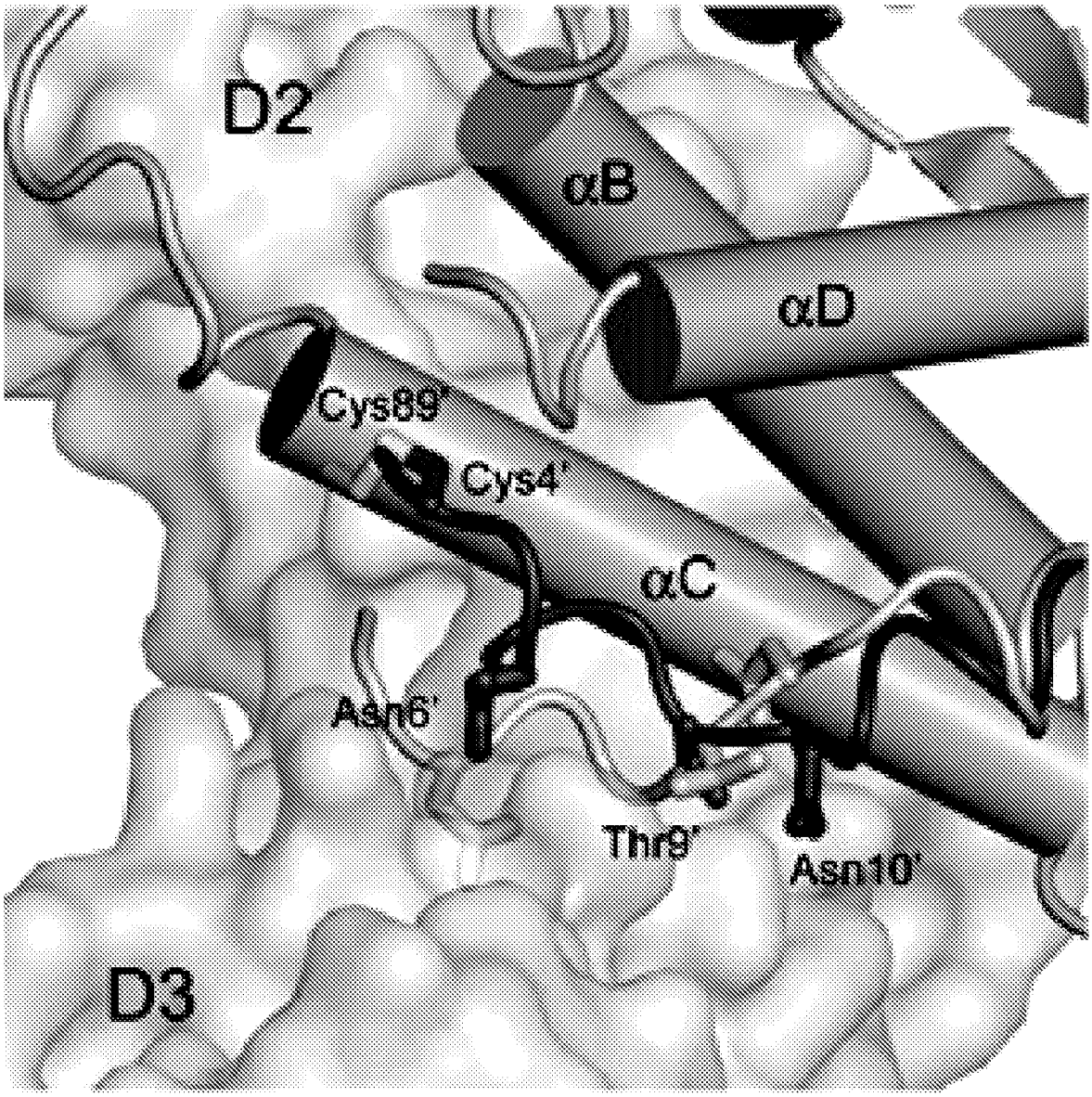


Fig. 4B

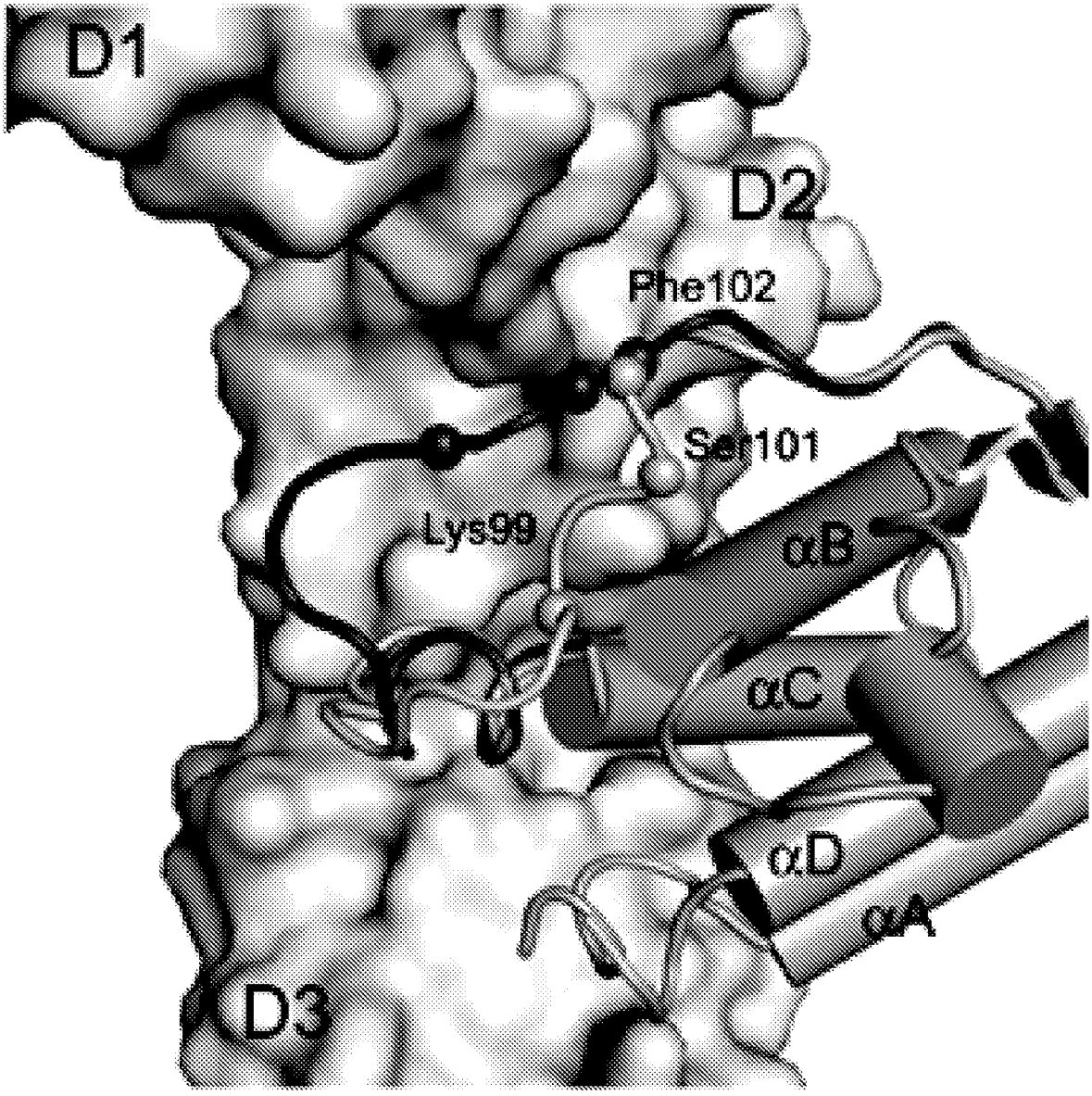


Fig. 4C

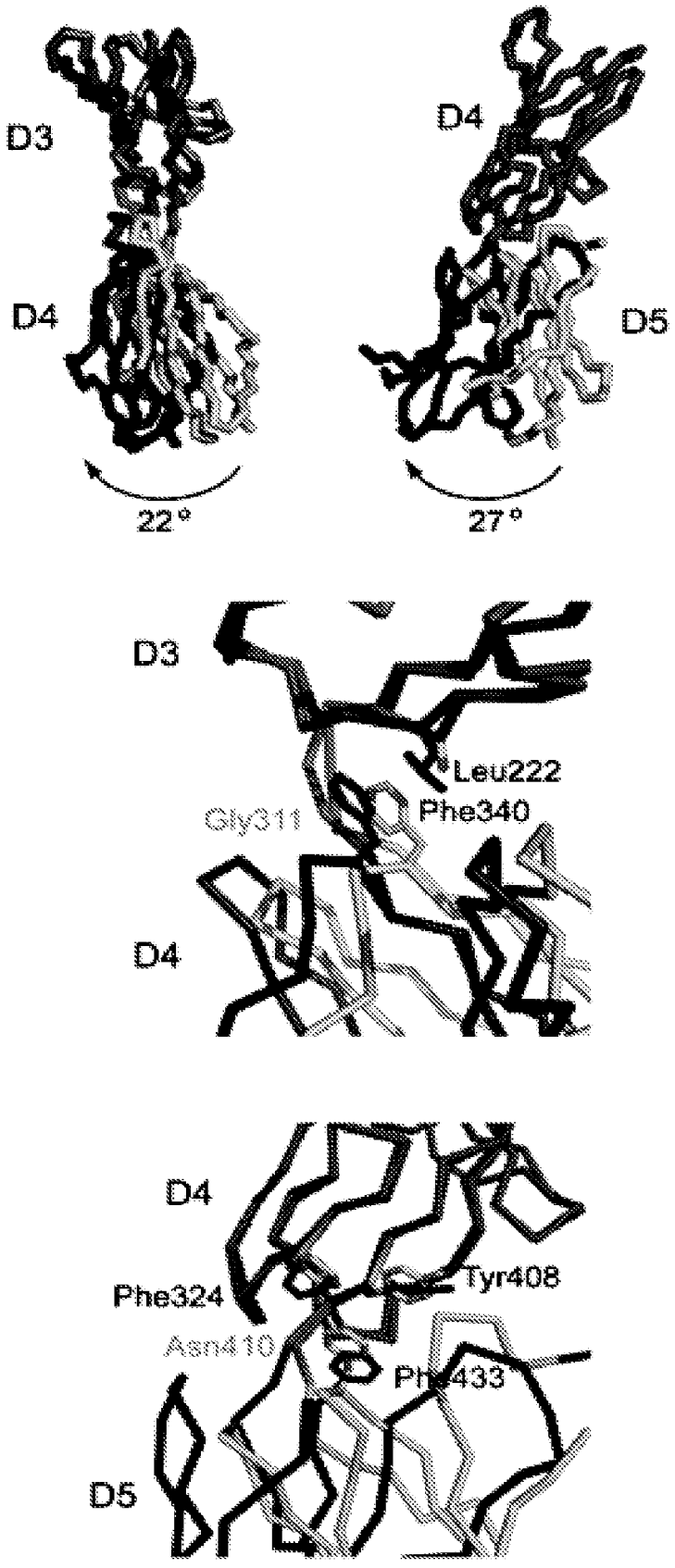

D3
D4
22°
D4
D5
27°
D3
Leu222
Gly311
Phe340
D4
D4
Tyr408
Phe324
Asn410
Phe433
D5

Fig. 5A

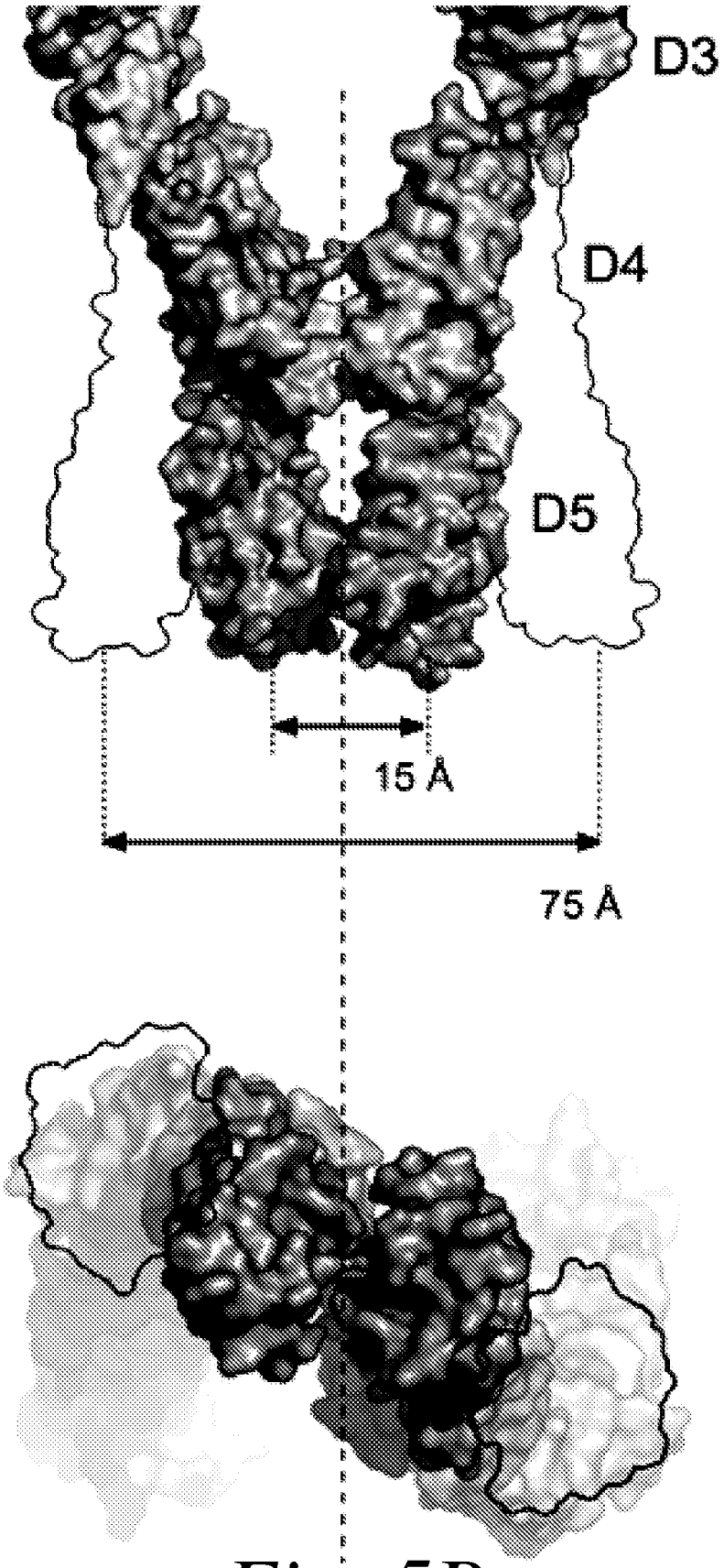


Fig. 5B

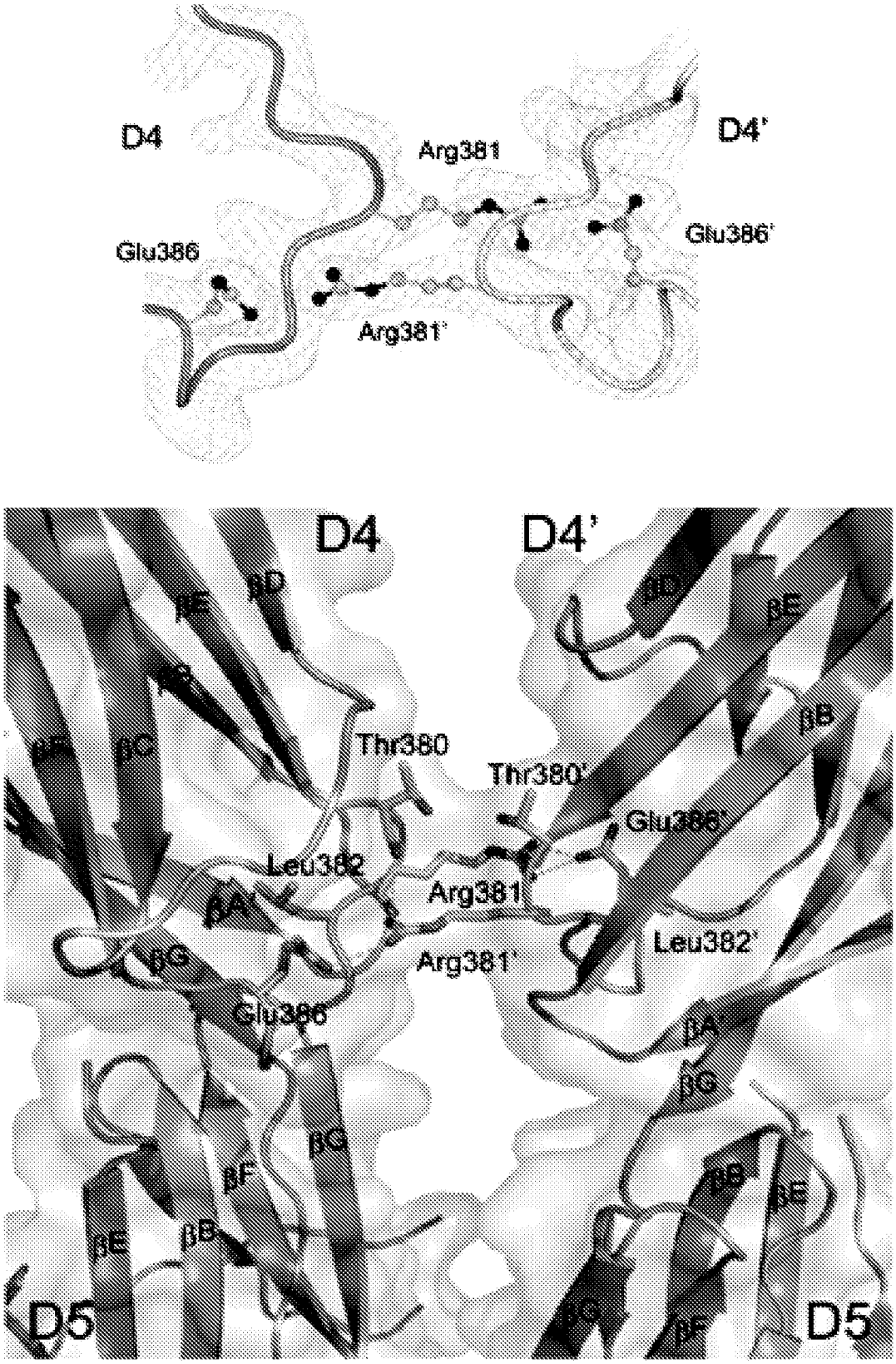
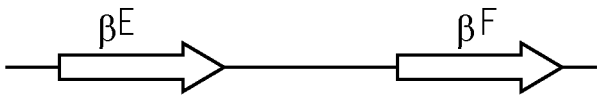

D4
D4'
Arg381
Glu386
Glu386'
Arg381'
D4
D4'
βD
βE
βB
βC
βF
Thr380
Thr380'
Glu386'
Leu382
Arg381
βA'
Arg381'
Leu382'
βG
Glu386
βA'
βG
βG
βF
βB
βE
βB
βE
βF
D5
D5

Fig. 6A



KIT		
human	NIRYVSELHLTRLKGTEGGTYTFLVSNSD	398
mouse	NIRYVNQLRLTRLKGTEGGTYTFLVSNSD	401
chicken	NNSYTSELHLTRLKGTEGGIYTFFVSNSD	384
xenopus	NNRYVSELHLIRLKGTEKGIYTFYSSNSD	390
salamander	NSRYISELHLIRLKGAERGIYTFHVDNSD	394
zebrafish type A	N-SYTSELKLVRLKVSESGIYTFSCLNRD	392
zebrafish type B	Y-RYISELRLVRVHGSEGGIYTFSANHKY	456
CSFIR		
human	TYRHTFTLSLPRLKPSEAGRYSFLARNPG	387
mouse	IYRYTFKLFLNRVKASEAGQYFLMAQNKA	385
torafugu type A	--IYHARLQLKRNNAQEQGQYTFYAKSNL	397
torafugu type B	--RSEASLLLRRVRQEDHGSYTFHFSNSF	462
PDGFRα		
human	EIRYRSKLKLIRAKEEDSGGHYTIVAQNE	399
mouse	ETRYQSKLKLIRAKEEDSGGHYTIIVQNE	399
PDGFRβ		
human	ETRYVSELTLVRVKVAEAGHYTMRAFHED	402
mouse	ETRYVSELILVRVKVSEAGYYTMRAFHED	401
VEGFR (7th domain)		
human type 1	LGPGSSTLFIERVTEEDEGVYHCKATNQK	737
human type 2	LKDGNRNLTIRRVRKEDEGLYTCQACSVL	743
human type 3	LADSNQKLSIQRVREEDAGRYLCSVCNAK	754

Fig. 6B

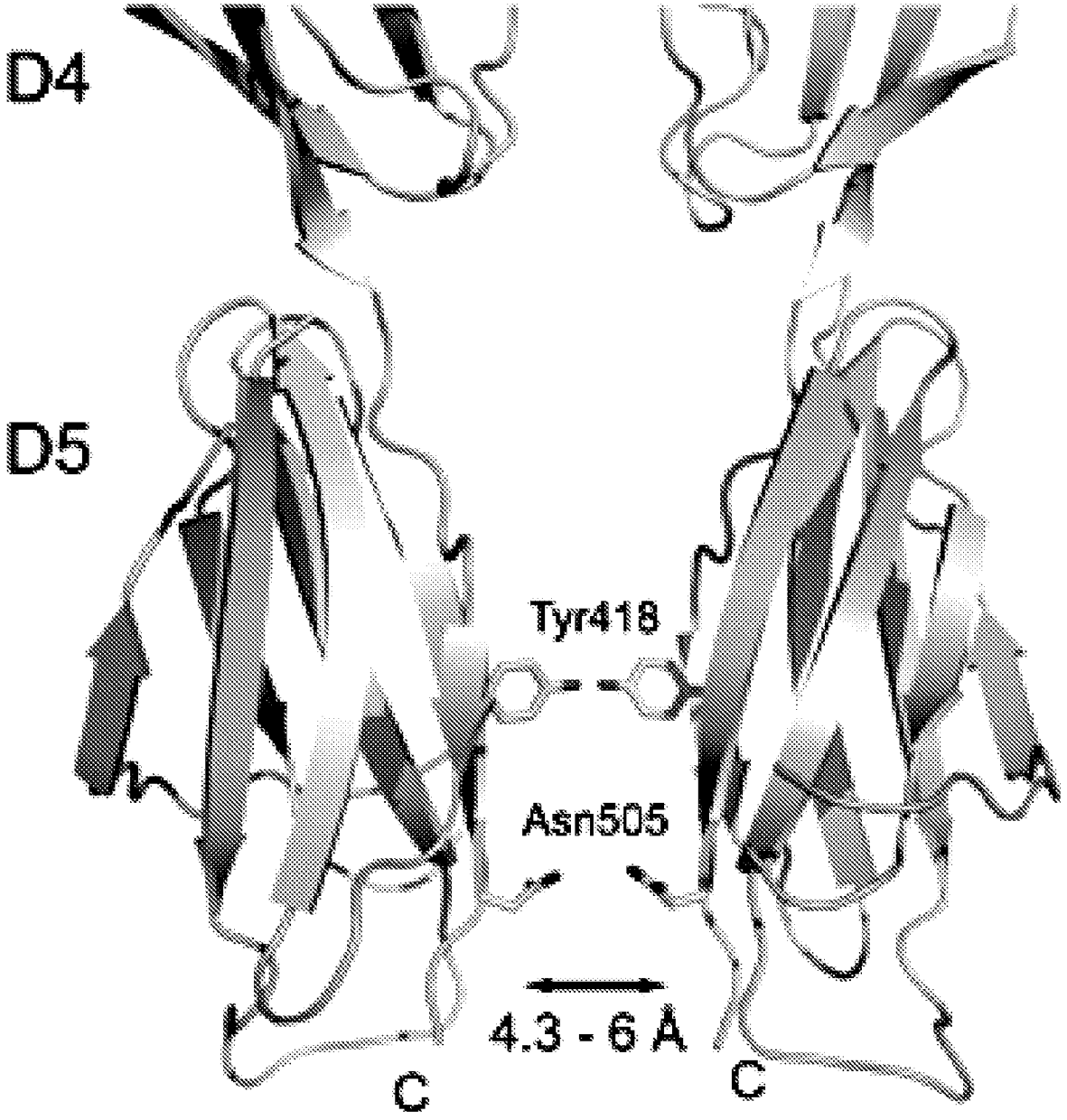


Fig. 6C

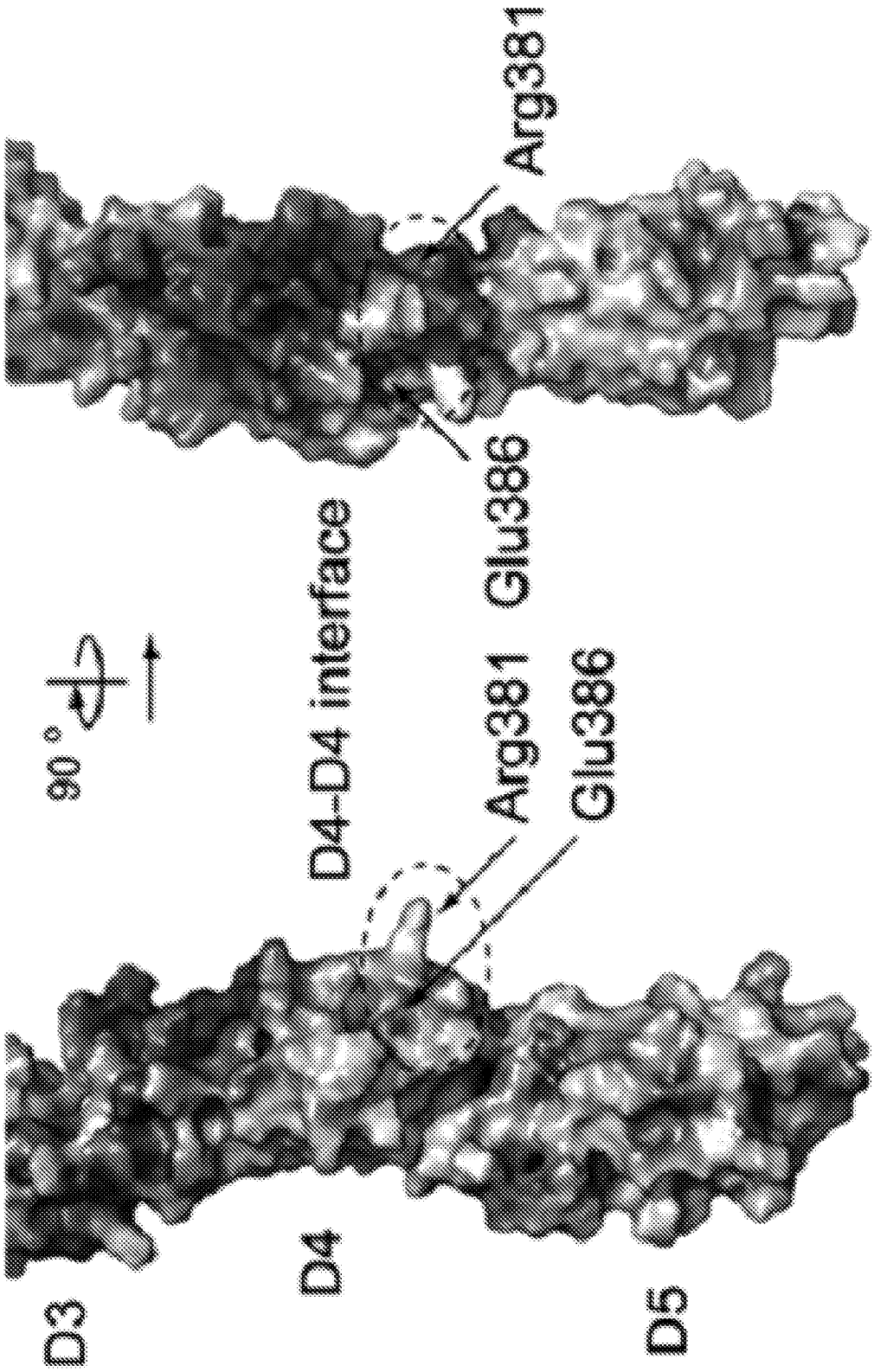


Fig. 6D

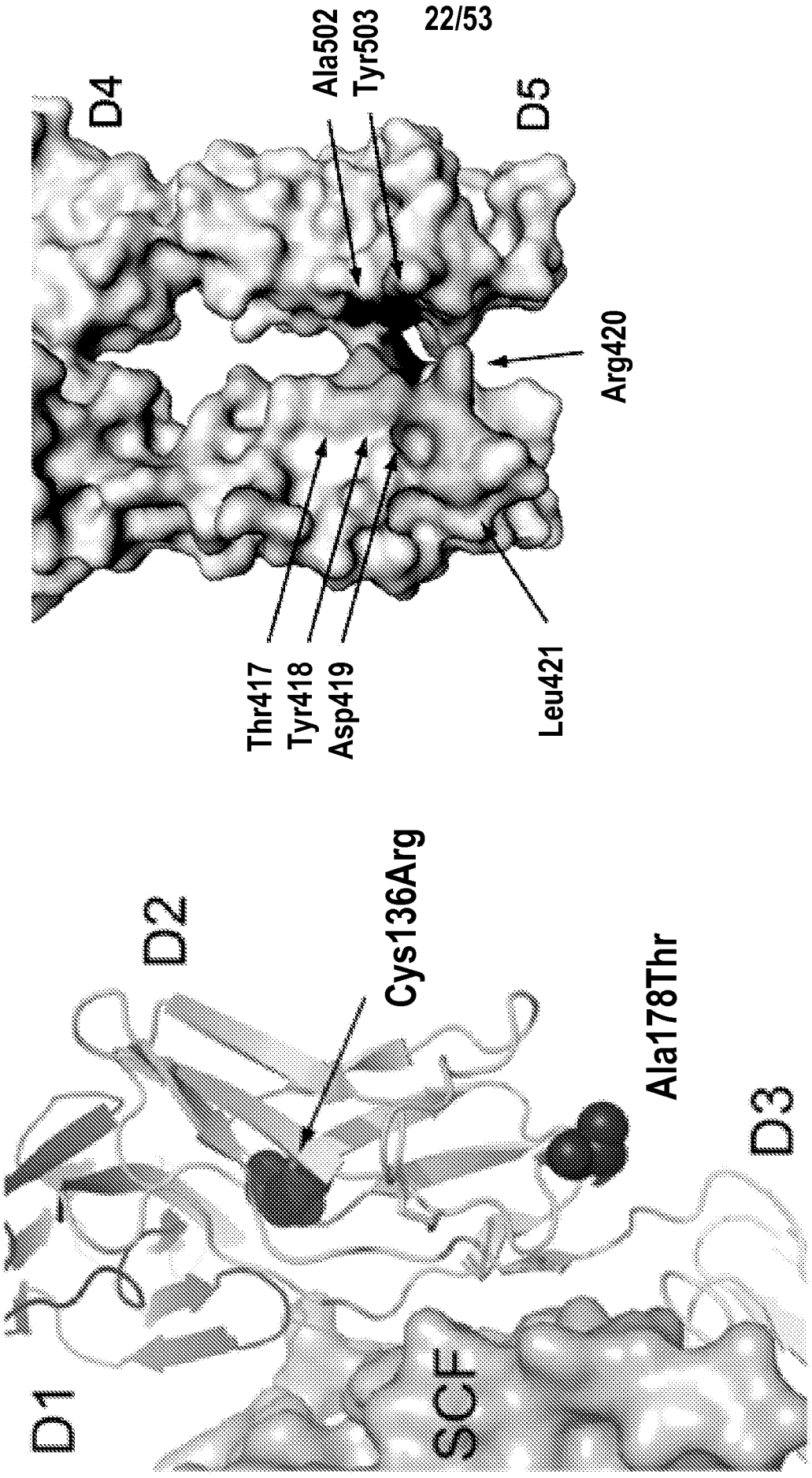

D4
Ala502
Tyr503
D5
Arg420
Thr417
Tyr418
Asp419
Leu421
D1
D2
Cys136Arg
Ala178Thr
D3
SCF

Fig. 7A

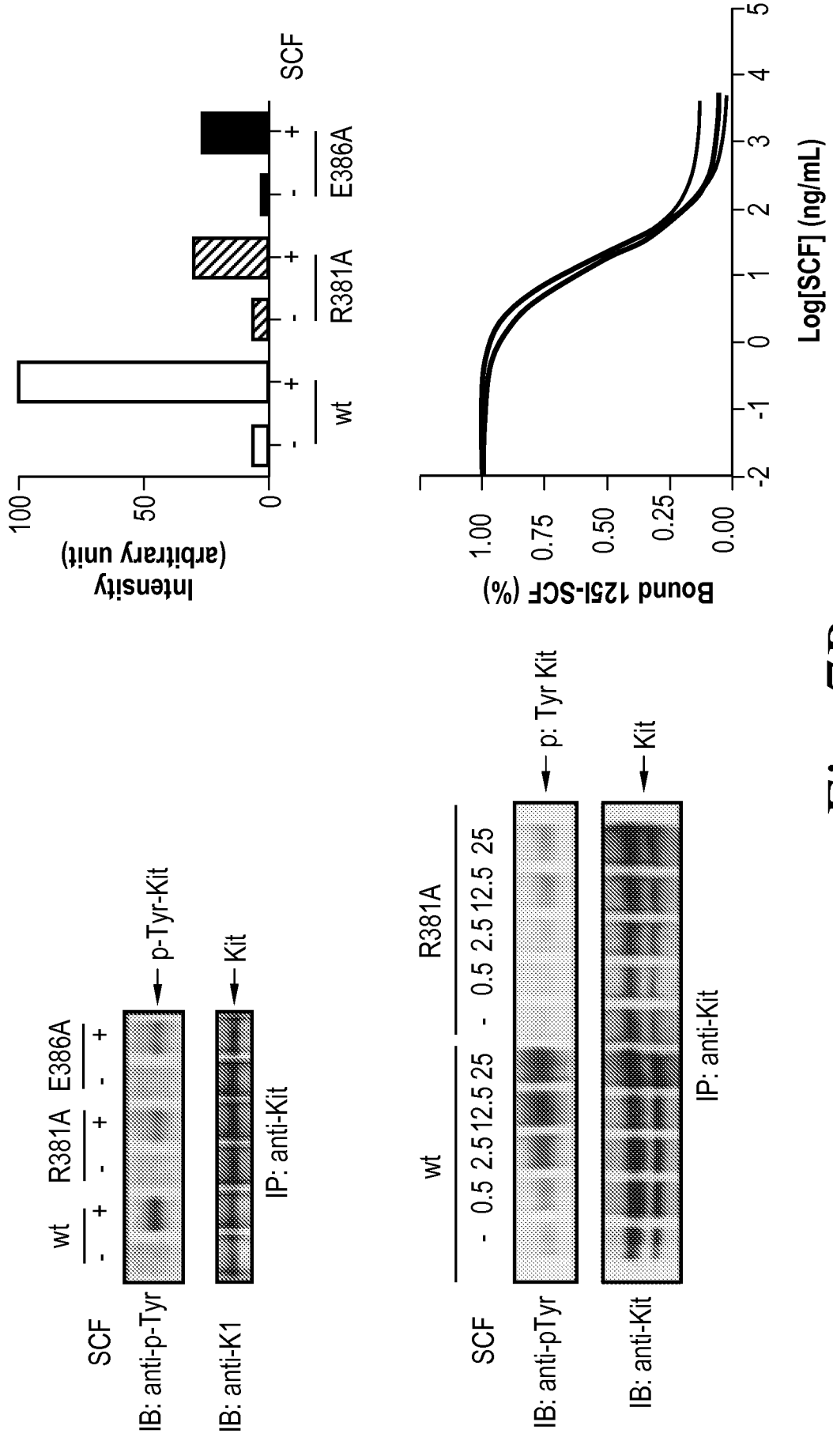

Intensity (arbitrary unit)
100
50
0
- + - + - +
wt R381A E386A
SCF
Bound 125I-SCF (%)
1.00
0.75
0.50
0.25
0.00
-2 -1 0 1 2 3 4 5
Log[SCF] (ng/mL)
SCF
wt
R381A
- 0.5 2.5 12.5 25 - 0.5 2.5 12.5 25
IB: anti-pTyr
IB: anti-Kit
p: Tyr Kit
Kit
IP: anti-Kit
SCF
wt R381A E386A
- + - + - +
IB: anti-p-Tyr
IB: anti-K1
p-Tyr-Kit
Kit
IP: anti-Kit

Fig. 7B

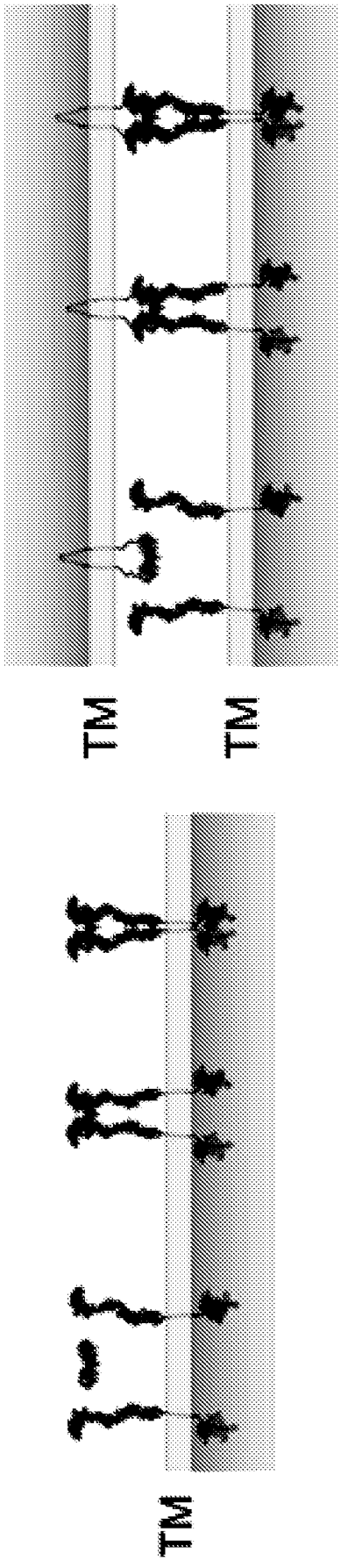


Fig. 7C

D1
A A' B C C' E F G
40 50 60 70 80 90 100 110
Kit human PSPPSIHPGKSDLIVRVGDEIRLLCTDPGFVKWTFEI-LDETNE----------NKQNEWITEKAEATNTGKYTCTNKH--------GLSNSIYVFVR
Kit mouse PSPPSIHPAQSELIVEAGDTLSLTCIDPDFVRWTFKTYFNEMVE----------NKKNEWIQEKAEATRTGTYTCSNSN--------GLTSSIYVFVR 113
CSF1R human QGIPVIEPSVPELVVKPGATVTLRCVGNGSVEWDGPPSPHWTLYS----------DGSSSILSTNNATFQNTGTYRCTEPG----DPLGGSAAIHLYVK 102
PDGFRα human -SLPSILPNENEKVVQLNSSFSLRCFGESEVSWQYPMSEEESSDVEIRNEENNSGLFVTVLEVSSASAAHTGLYTCYYNHTQTEENELEGRHIYIYVP 122
PDGFRβ human -QGLVVTPPGPELVLNVSSTFVLTCSGSAPVVWERMSQEPPQEMAKA------QDGTFSSVLTLTNLTGLDTGEYFCTHNDSRGLETDER-KRLYIFVP 121
☆☆
D2
A B C D E F G
120 130 140 150 160 170 180 190 200
Kit human DPAKLFLVD--RSLYGK--EDNDTLVRCPLTDPEV-TNYSLKGCQGKPLPKDLRFIPDPKAGIMIKSVKRAYHRL-CLHCSVDQEGKSVLSEKFILKVRP
Kit mouse DPAKLFLVG--LPLFGK--EDSDALVRCPLTDPQV-SNYSLIECDGKSLPTDLTFVPNPKAGITIKNVKRAYHRL-CVRCAAQRDGTWLHSDKFTLKVRA 207
CSF1R human DPARPWNVLAQEVVVF----EDQDALLPCLLTDPVLEAGVSLVRVRGRPLMRHTNYSFSPWHGFTIHRAKFIQSQ--DYQCSALMGGRKVMSISIRLKVQK 197
PDGFRα human DPDVAFVPLGMTDYLVIVEDDDSAIIPCRTTDPET--PVTLHN----------SEGVVPASYDSRQGFNGTFTVGPYICEATVKGKKFQTIPFNVYALK 209
PDGFRβ human DPTVGFLPNDAEELFIFLTEITEITIPCRVTDPQL--VVTLHEKKG----------DVALPVPYDHQRGFSGIFEDRSYICKTTIGDREVDSDAYYVYRL- 209
Flt3 human RNTLLYTLR--RPYFRKM-ENQD-ALVC-ISESV----PEPIVEWVLCDSQGESCKEESPAVVKKEEKVLHELFGT-DIRCCARNELGRECTRLFTIDLN- 250
☆☆☆ ☆☆ ☆☆☆☆
D3
A A' B C D E F G
210 220 230 240 250 260 270 280 290 300
Kit human AFKAVPVVSVS-KASYLLREGEEFTVTCTIKDVSSSVYSTWKRENSQ--TKLQEKYNSWHHGDFNYERQATLTISSARVNDSGVFMCYANNTFG--SANVTTTLEVVD
Kit mouse AIKAIPVVSVP-ETSHLLKKGDTFTVVCTIKDVSTSVNSMWLKMNPQPQHIAQVKHNSWHRGDFNYERQETLTISSARVDDSGVFMCYANNTFG--SANVTTTLKVVE 312
CSF1R human VIPGPPALTLV-PAELVRIRGEAAQIVCSASSVDVNFDVFLQHNN----------TKLAIPQQSDFHNNRYQKVLTLNLDQVDFQHAGNYSCVASNVQG--KHSTSMFFRVVE 297
PDGFRα human -ATSELDLEMEALKTVYKS-GETIVVTCAVFN-NEVVDLQWTYPG----EVKGKGITMLEEIKVPSIKLVYTLTVPEATVKDSGDYECAARQATREVKEMKKVTISVHE 311
PDGFRβ human -QVSSINVSVNAVQTVVRQ-GENITLMCIVIG-NEVVNFEWTYPR--KESGRLVEPVTDFLLDMPYHIRSILHIPSAELEDSGTYTCNVTESVNDHQDEKAINITVVE 312
Flt3 human ----QTPQTTL----PQLFLKVGEPLWIRCKAVHVNHGFGLTWELENKALEEGNYFEMSTYSTNRTMIRILFAF-VSSVARNDTGYYTCSSSKHPS-QSALVTIVGKGFI 350
☆☆☆ ☆☆☆☆☆ ☆☆

Fig. 8A

D4
A
A'
B
C
D
E
F
G
310 320 330 340 350 360 370 380 390 400 410
Kit human KGFINIFPMINTTVFVNDGENVDLIVEYEAFPKPEHQQWIYMNRTFTD-KWE-DYPKSENESNIRYVSELHLTRLKGTEGGTYTFLVSNSDVNAAIAFNVYVN
Kit mouse KGFINISPVKNTTVFVTDGENVDLVVEYEAYPKPEHQQWIYMNRTSAN-KGK-DYVKSDNKSNIRYVNQLRLTRLKGTEGGTYTFLVSNSDASASVTFNVYVN 413
CSFLR human SAYLNLSSEQNLIQEVTVGEGLNLKVMVEAYPGLQGFNWTYLGPFSDH-QPEPKLANATTKDTYRHTFTLSLPRLKPSEAGRYSFLARNPGGWRALTFELTLR 399
PDGFR α human KGFIEIKPTFSQLEAVNLHEVKHFVVEVRAYP-PPRISWLKNNLTLIE-NLTEITTDVEKIQEIRYRSKLKLIRAKEEDSGHYTIVAQNEDAVKSYTFELLTQ 412
PDGFR β human SGYVRLLGEVGTLQFAELHRSRTLQVVFEAYP-PPTVLWFKDNRTLGDSSAGEIALSTRNVSETRYVSELTLVRVKVAEAGHYTMRAFHEDAEVQLSFQLQIN 414
D5
A
B
C
C'
D
E
F
G
420 430 440 450 460 470 480 490 500
Kit human TKPEILTYDRLV————NGMLQCVAAGFPEPTIDWYFCPGTEQRCSAS————VLPVDVQTLNSSG————PPFGKLVVQSSIDSSAFKHNGTVECKAYNDVGKTSAYFNFAFK
Kit mouse TKPEILTYDRLI————NGMLQCVAEGFPEPTIDWYFCTGAEQRCTTP————VSPVDVQVQNVSV————SPFGKLVVQSSIDSSVFRHNGTVECKASNDVGKSSAFFNFAFK 512
CSFLR human YPPEVSVIWTFI————NGSGTLLCAASGYPQPNVTWLQCSGHTDRCDEA————QVLQVWDDPYPEVLSQ————EPFHKVTVQSLLTVETLEHNQTYECRAHNSVGSGSWAFIPISA 503
PDGFR α human -VP-SSILDLVDDHHGSTGGQTVRCTAEGTPLPDIEWMICKDIK-KCNNETSWTILANNVSNIITEI————HSRDRSTVEGRVTFAKVEETIAVRCLAKNLLGAENRELKLVA- 518
PDGFR β human -VP-VRVLELSESHPD-SGEQTVRCRGRGMPQPNIIWSACRDLK-RCPRELPPTLLGNSSEEESQLETNVTYWEEEQEFEVVSTLRLQHVDRPLSVRCTLRNAVGQDTQEVIVVP- 525
Flt3 human RKP-QVLAEASA————SQASCFSDGYPLPSWTWKKCSDKSPNCTEE————ITEGVWNRKANR————KVFGQWVSSSTLNMSEAIKGFLVKCCAYNSLGTSCETILLNSP 532
SCF
αA
β1
αB
3 10 20 30 40 50 60 70
SCF human ICRNRVTN——NVKDVTKLVANLPKD-YMITLKYVPGMDVLPSHCWISEMVVQLSDSLTDLLDKFSNISEGLSN
SCF mouse ICGNPVTD——NVKDITKLVANLPND-YMITLNYVAGMDVLPSHCWLRDMVIQLSLSLSTTLLDKFSNISEGLSN
CSF human YCS-HMIG-SGHLQSLQRLIDSQMETSCQITFEFVDQEQLADPVCYLKKAFLLVQDIMEDTM——RFRDNTPN 73
Flt3L human S——PISSD——FAVKIRELSDYLLQDY——PVTVASNLQDDELCGGLWRLVLAQRWMERLKTVA——GSKM 68
SCF
αC
β2
αD
80 90 100 110 120 130 140
SCF human YSIIDKLVNIVDDLVECVKENSSKDLKKSFKSPEPRLFTPEEFFRIFNRSIDAFKDFVVASET——SDCVVS
SCF mouse YSIIDKLGKIVDDLVLCMEENAPKNIKESPKRPETRSFTPEEFFSIFNRSIDAFKDFMVASDT——SDCVLS
CSF human AIAIVQLQELSLRLKSCF——TKDYEEHDAAC-VRTFYETPLQLLEKVKNVFNETKNLLDKDANIFSKNCNNS 142
Flt3L human QGLLERVNTEIHFVTKC————AFQPPPSC-LRFVQTNISRLLQETSEQLVALKPWITRQNFSRCLELQCQ 133

Fig. 8B

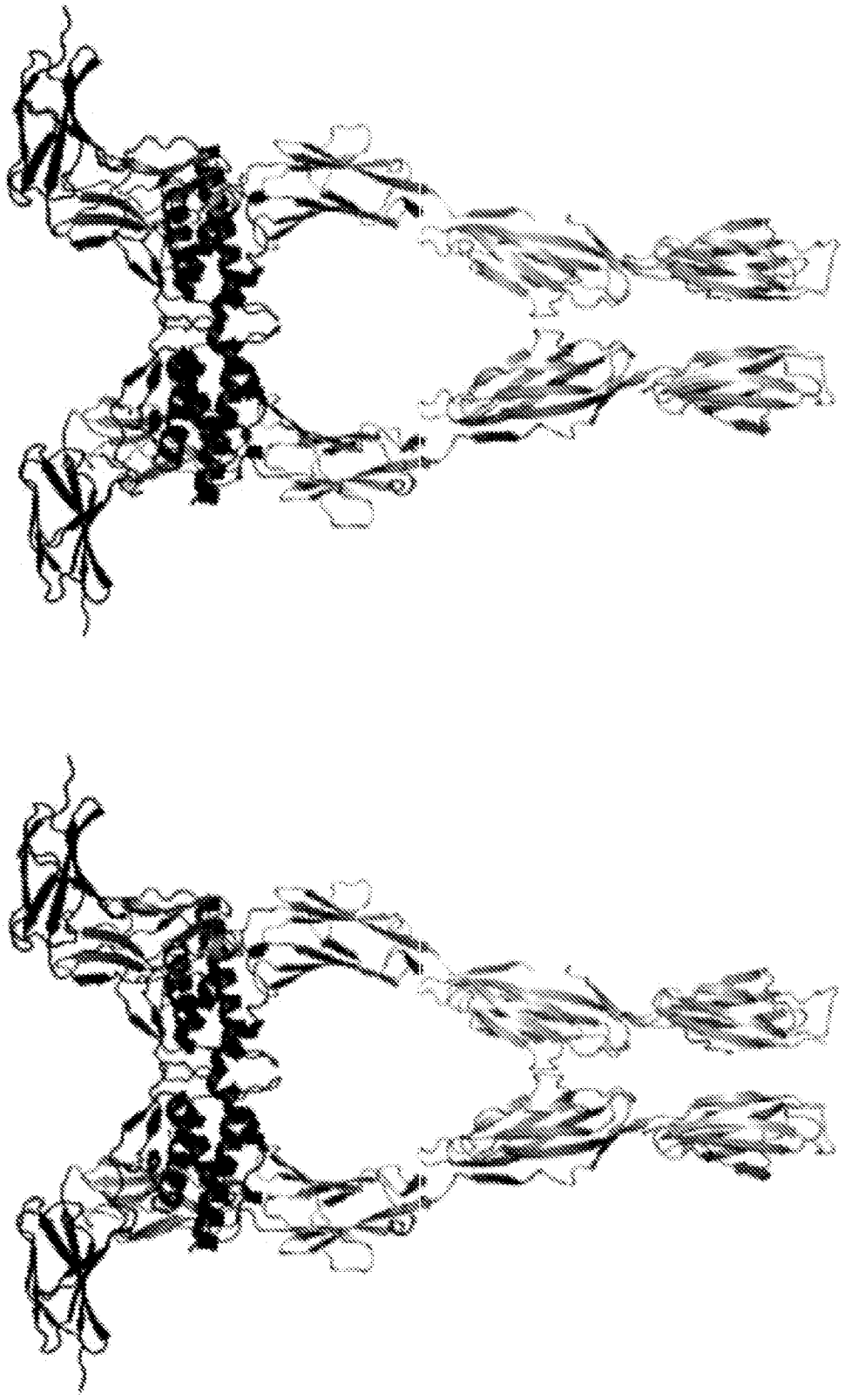


Fig. 9

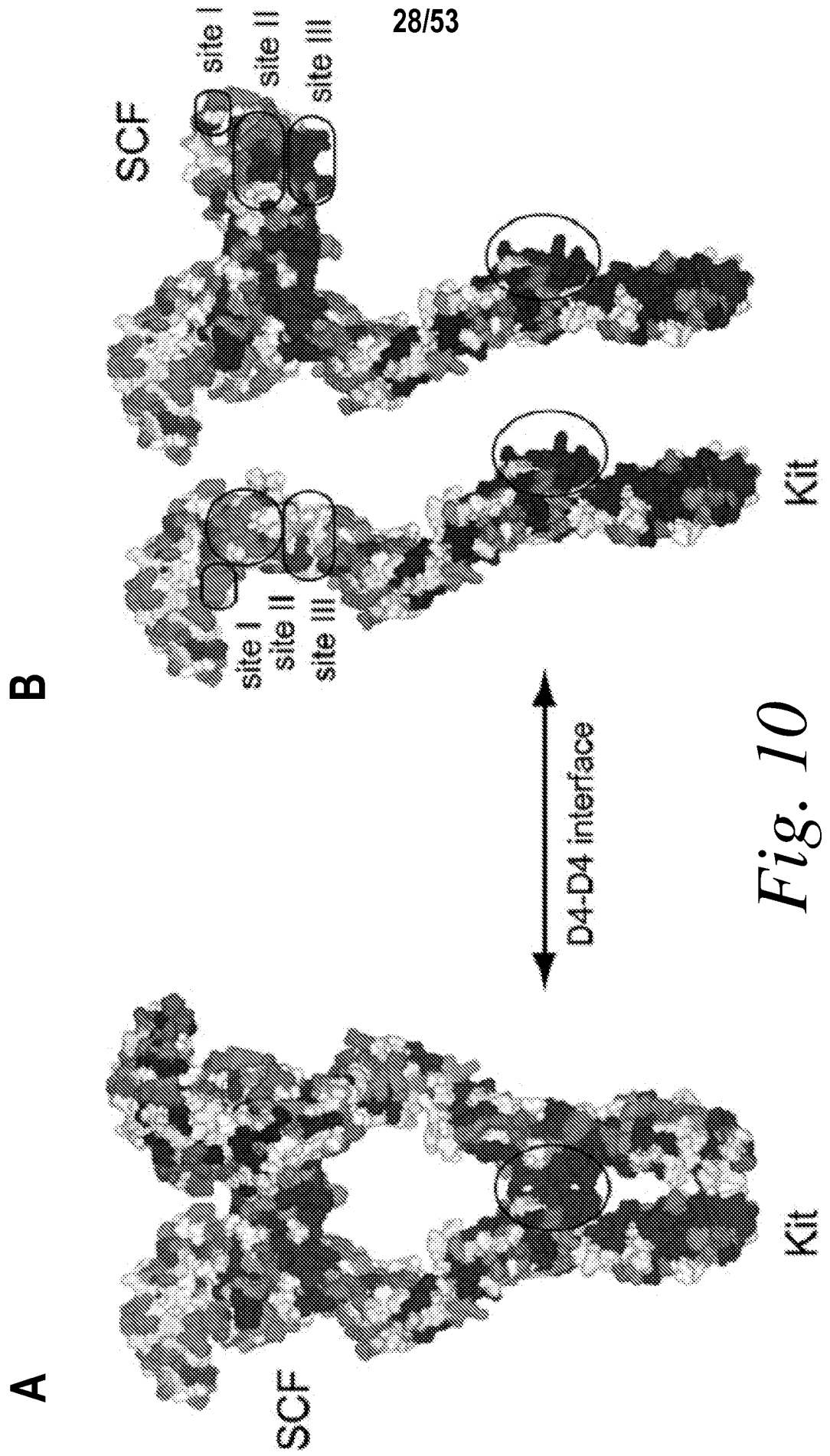

A
SCF
Kit
D4-D4 interface
B
site I
site II
site III
SCF
site I
site II
site III
Kit

Fig. 10

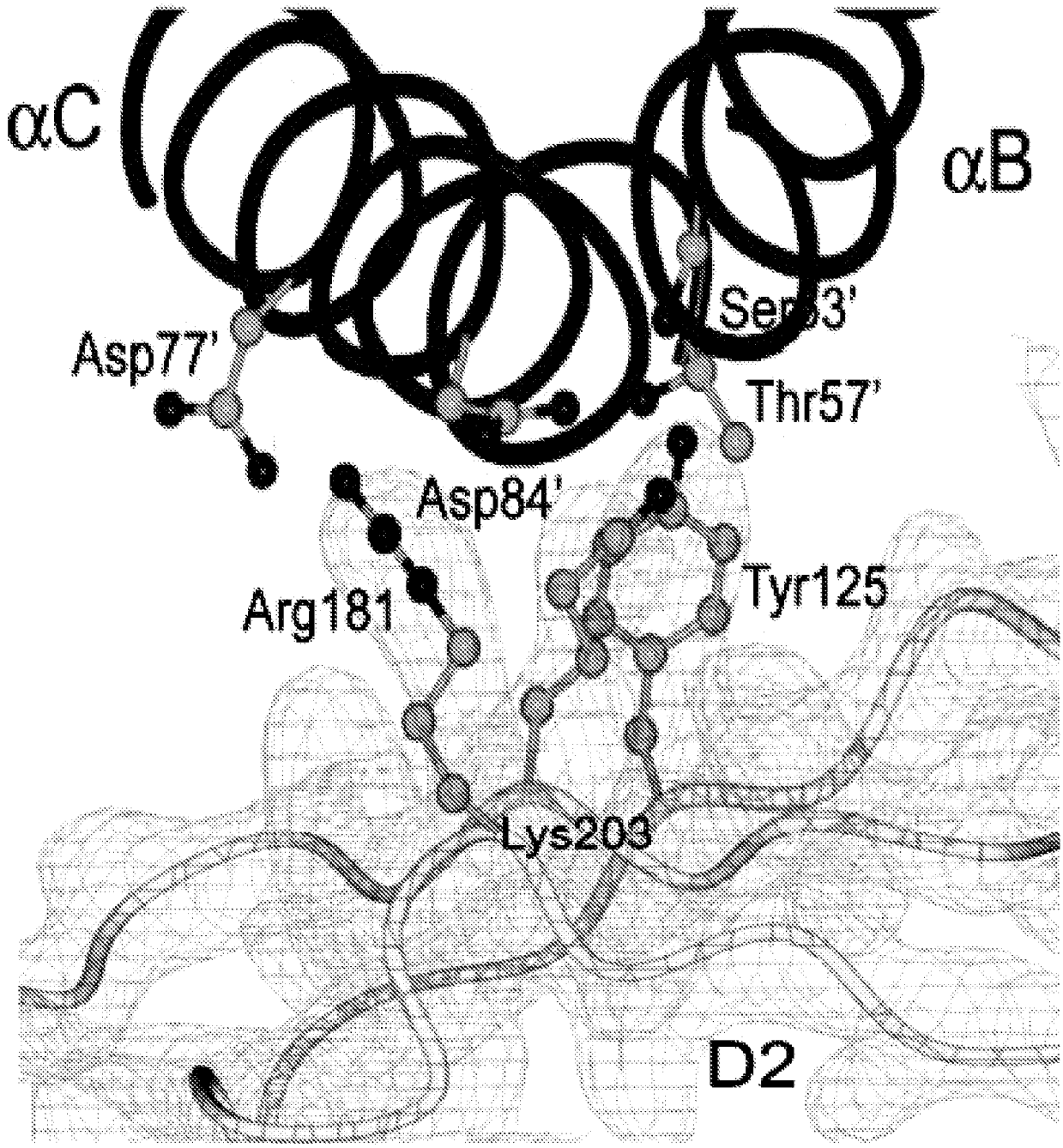


Fig. 11A

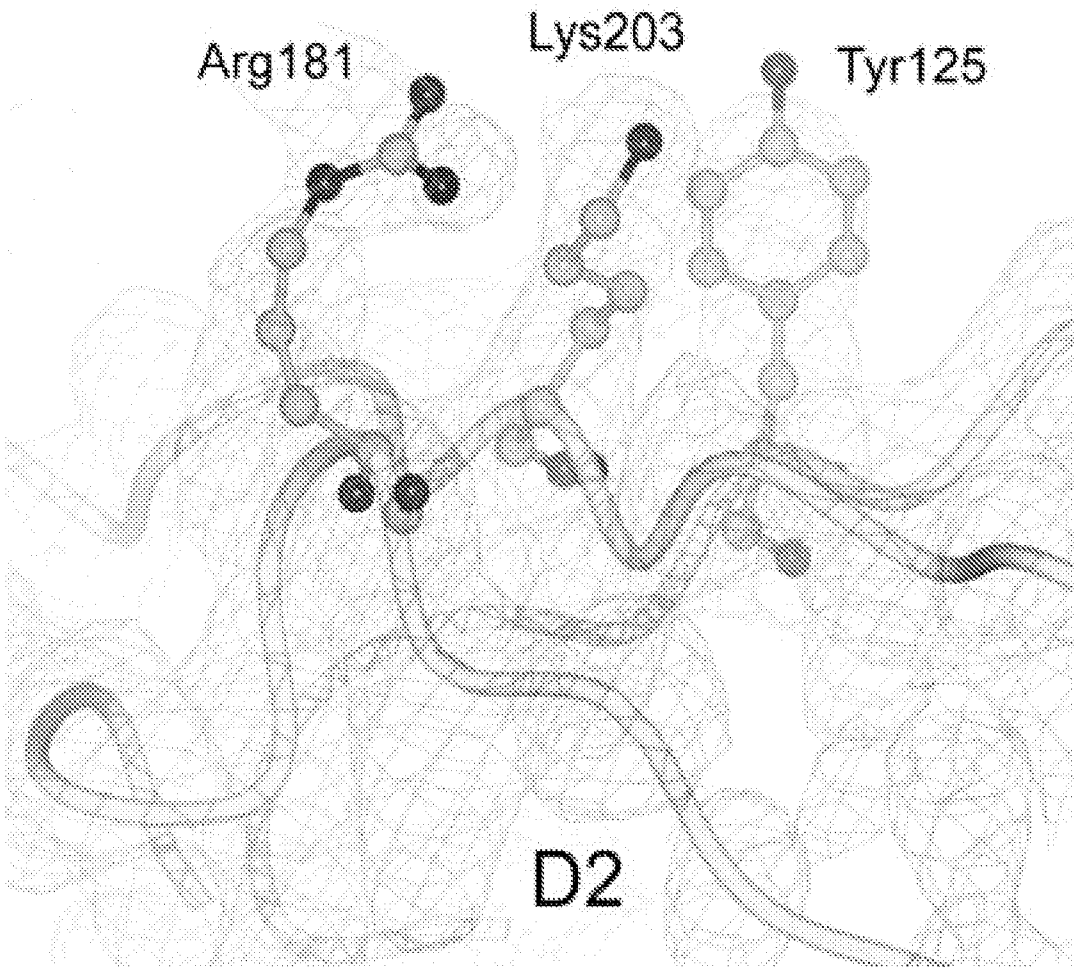


Fig. 11B

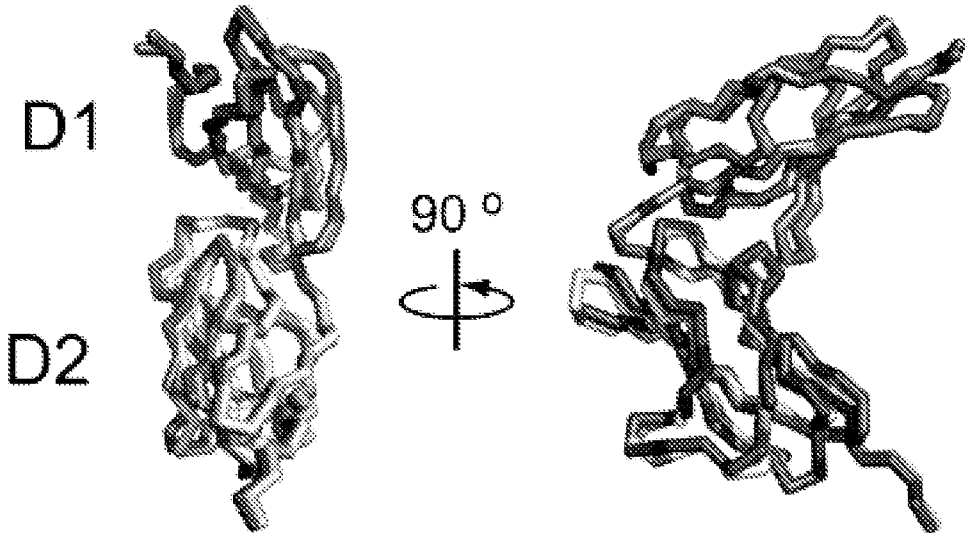


Fig. 12A

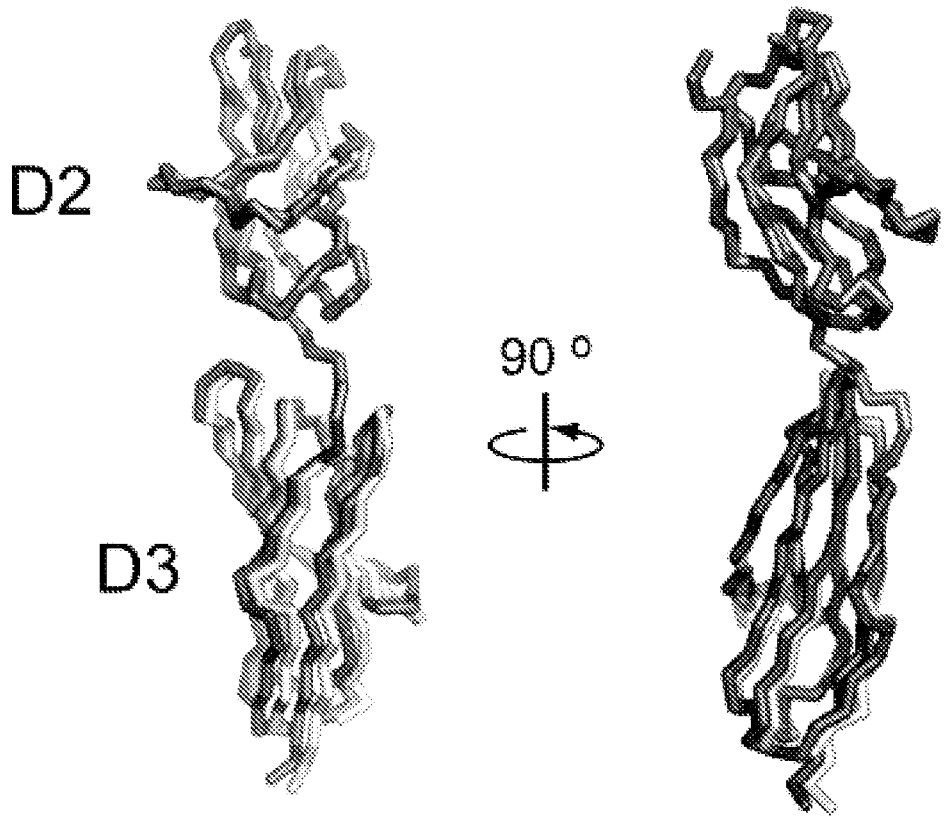


Fig. 12B

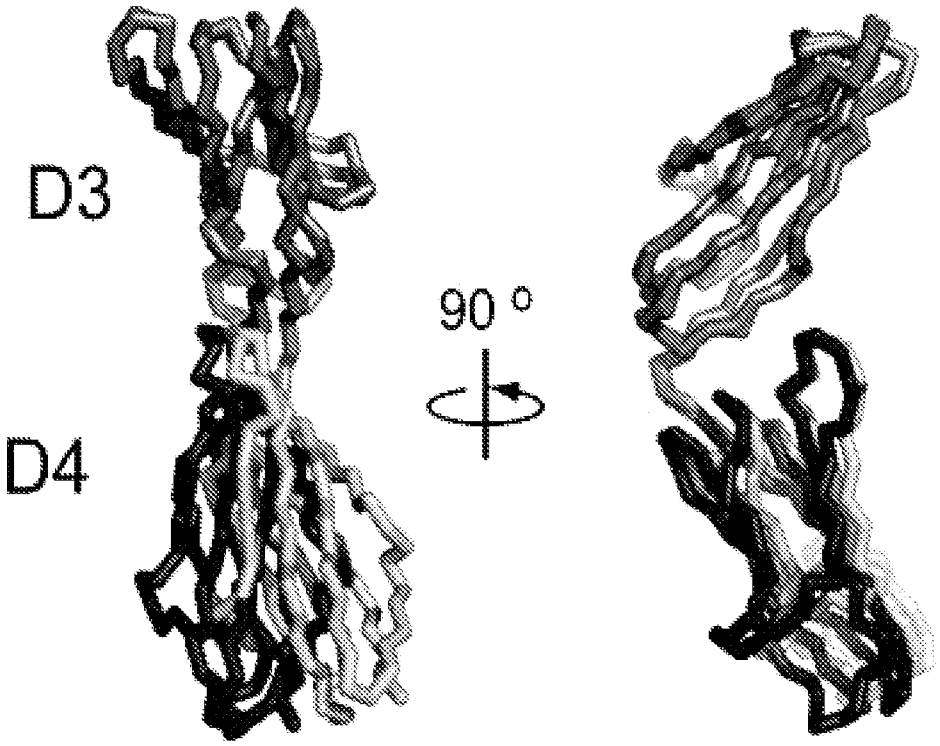


Fig. 12C

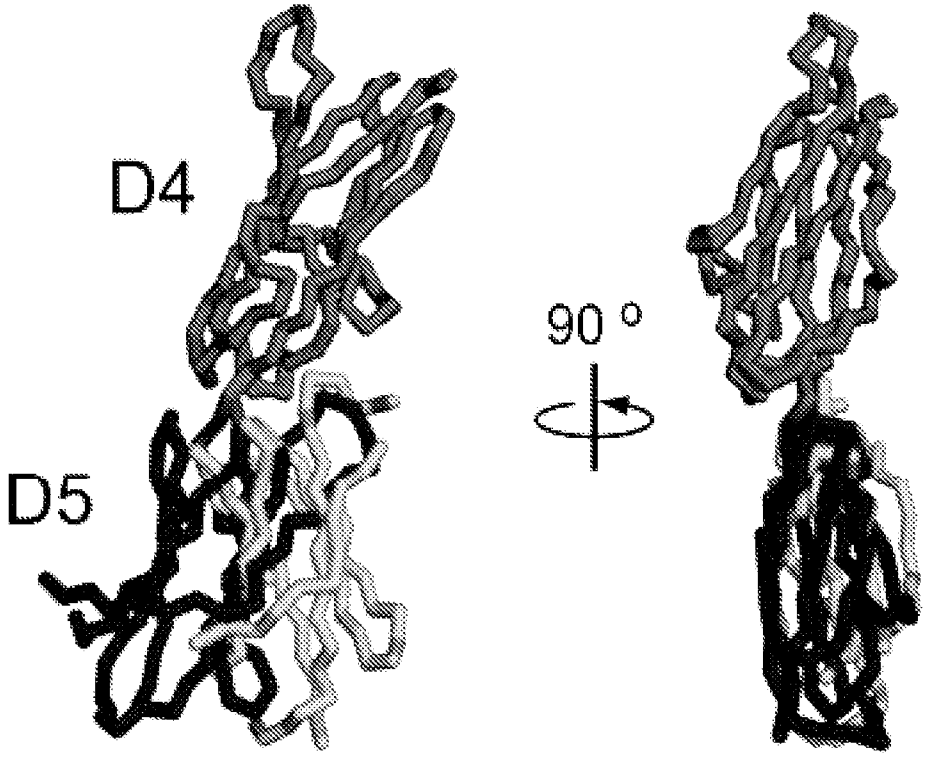


Fig. 12D

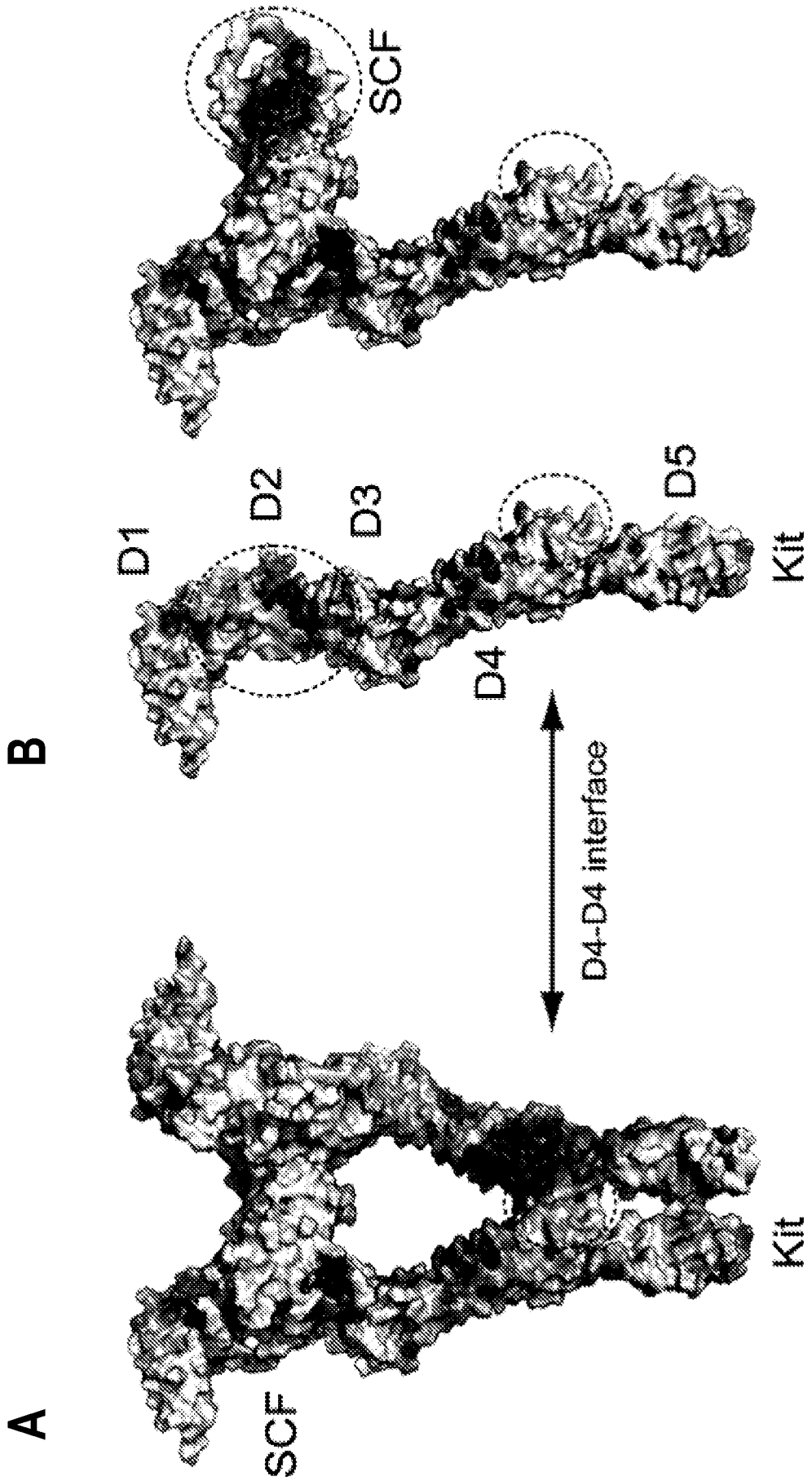


Fig. 13

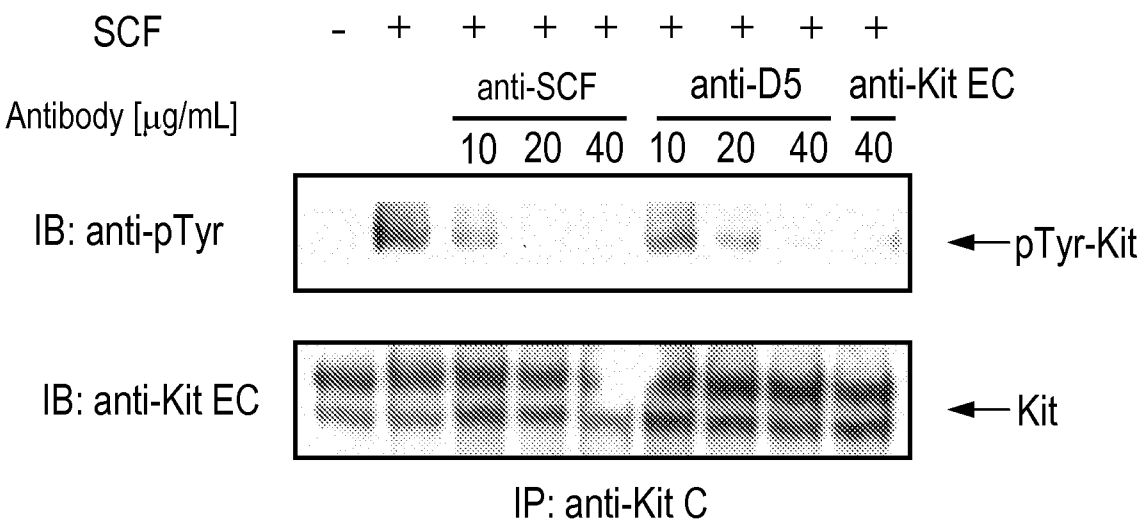

SCF
- + + + + + + + +
Antibody [μg/mL]
anti-SCF
anti-D5
anti-Kit EC
10 20 40 10 20 40 40
IB: anti-pTyr
pTyr-Kit
IB: anti-Kit EC
Kit
IP: anti-Kit C

Fig. 14

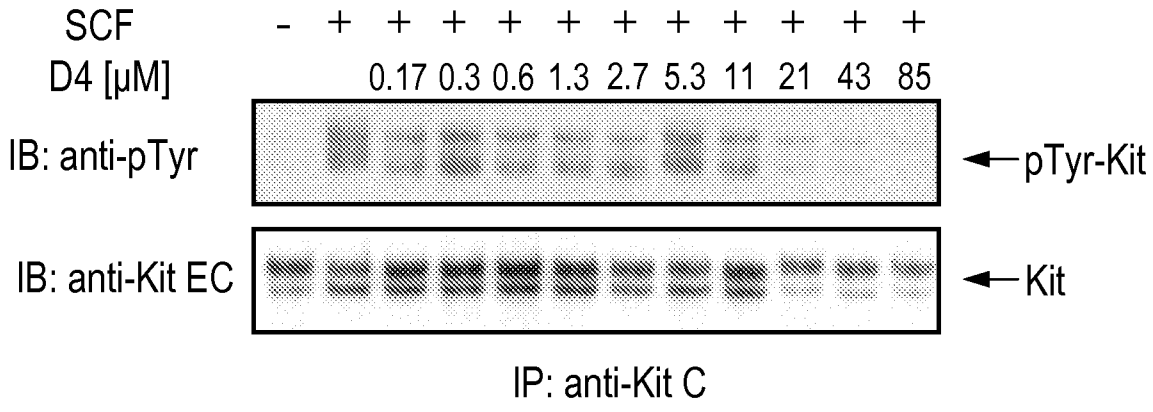

SCF
- + + + + + + + + + + +
D4 [μM]
0.17 0.3 0.6 1.3 2.7 5.3 11 21 43 85
IB: anti-pTyr
pTyr-Kit
IB: anti-Kit EC
Kit
IP: anti-Kit C

Fig. 15

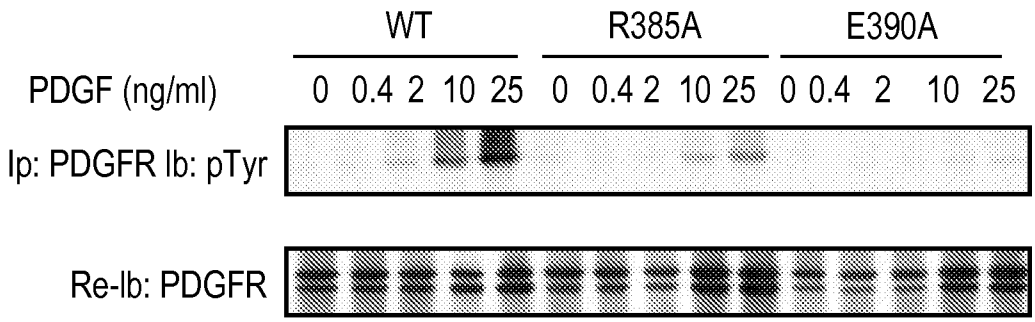


Fig. 16A

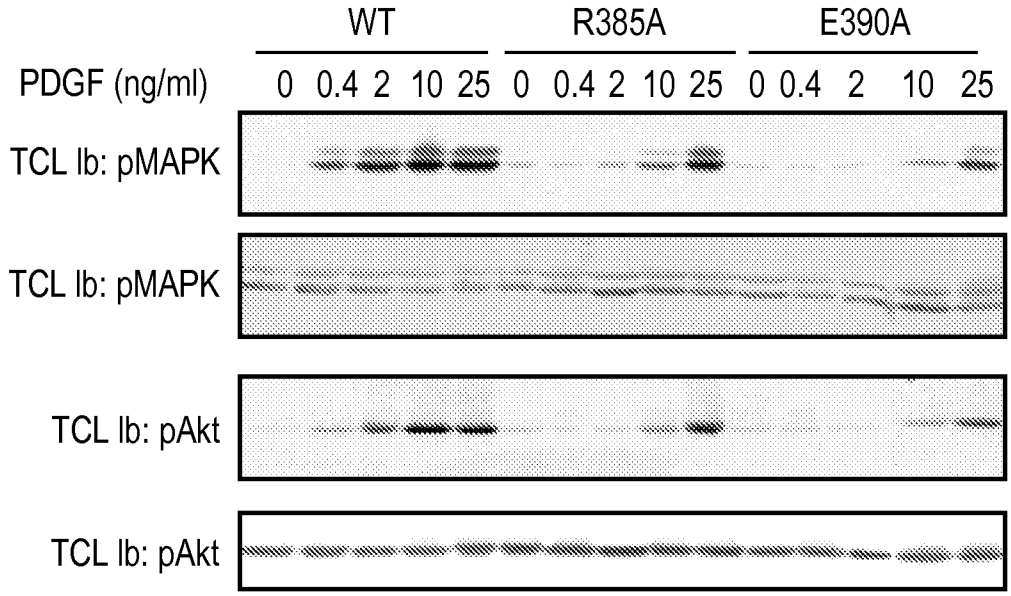


Fig. 16B

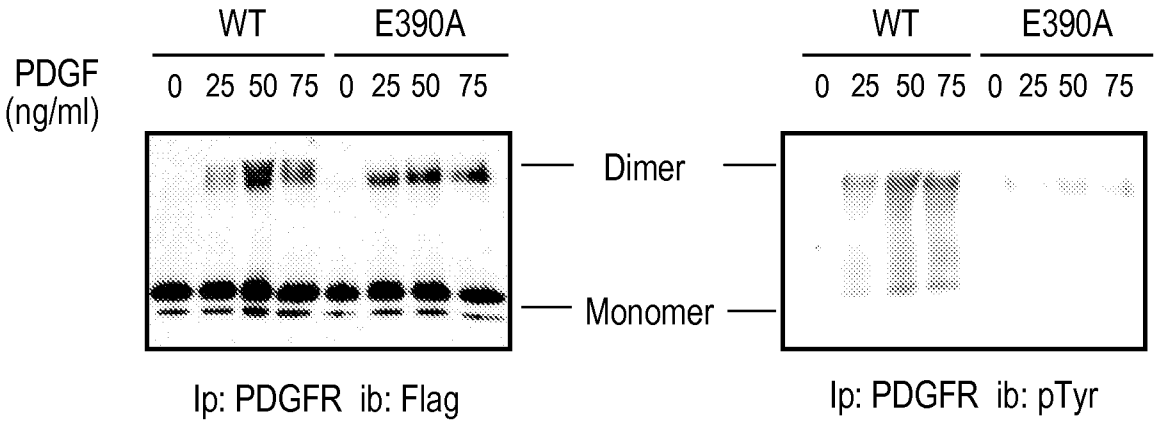


Fig. 16C

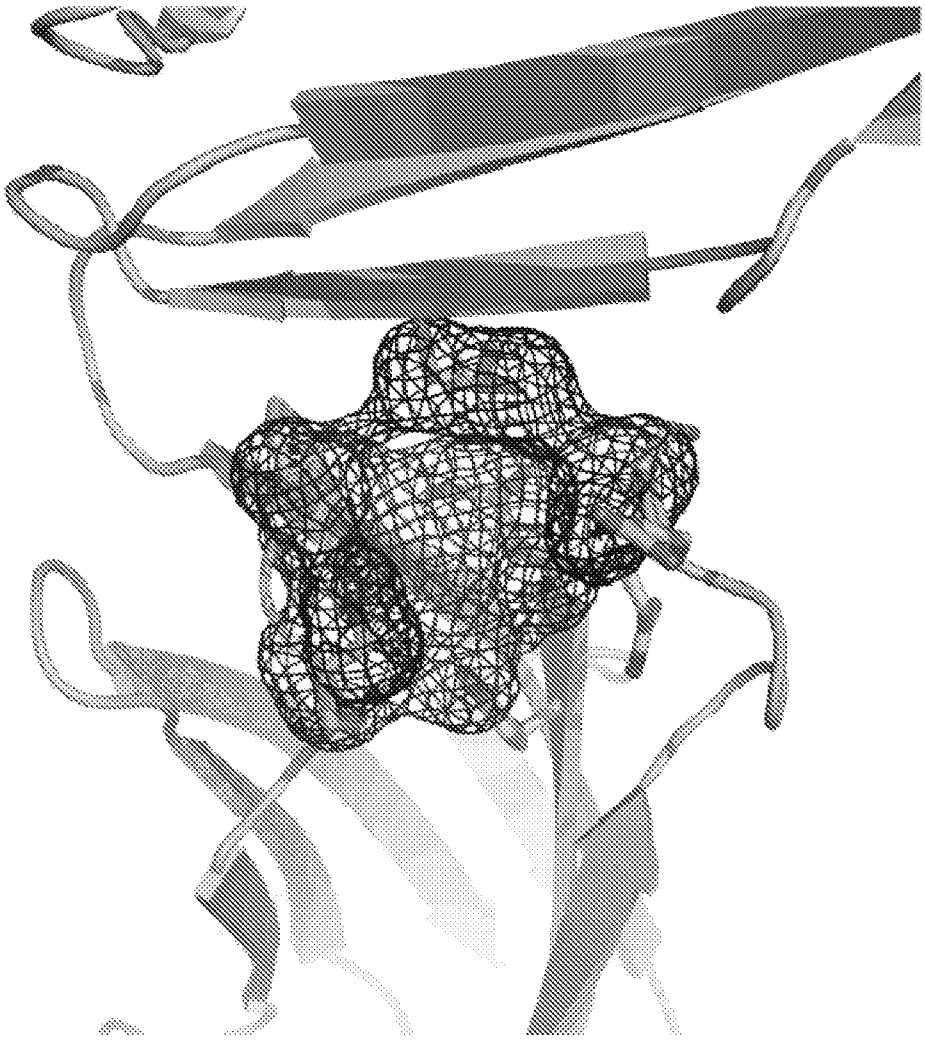


Fig. 17A

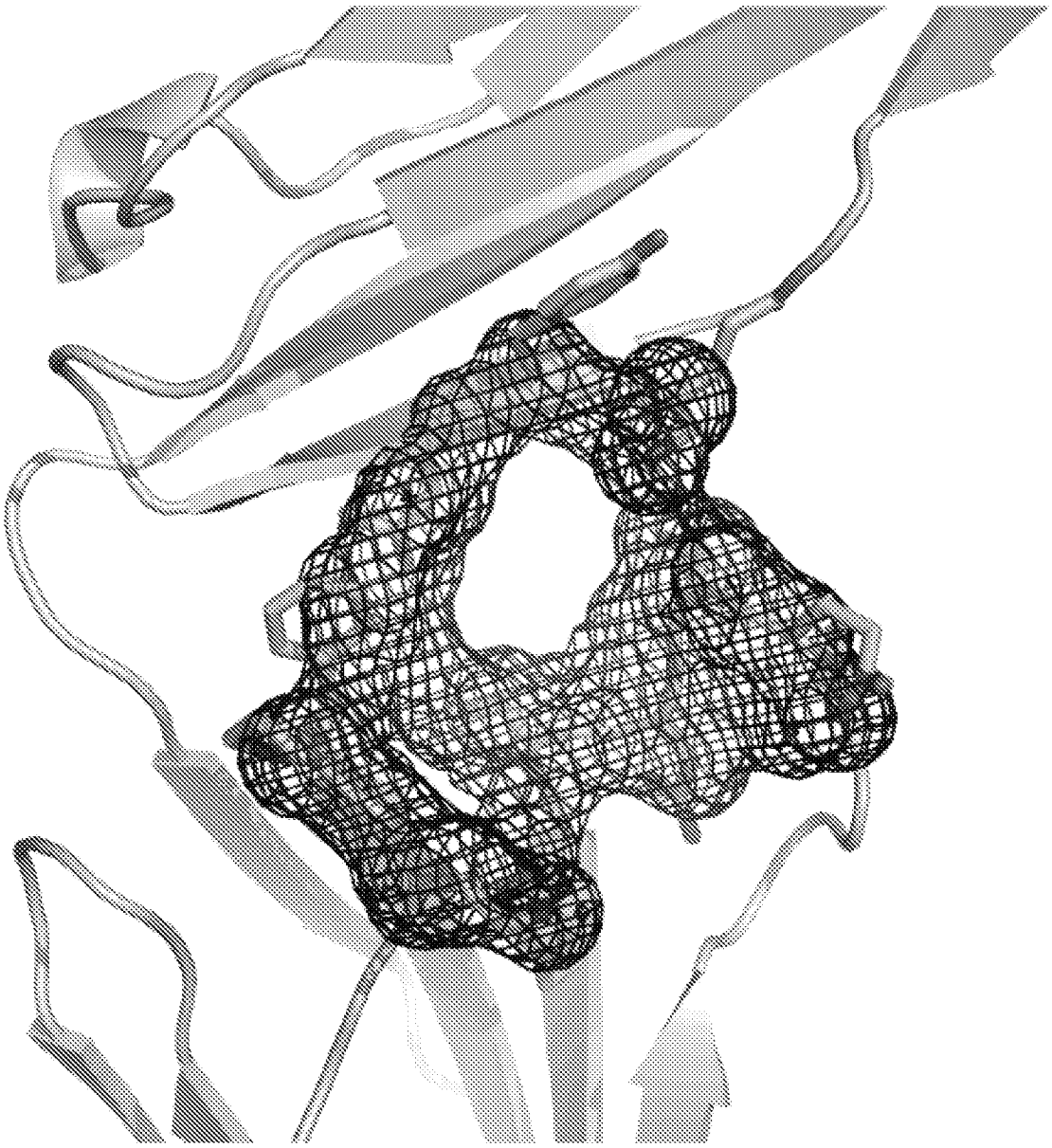


Fig. 17B

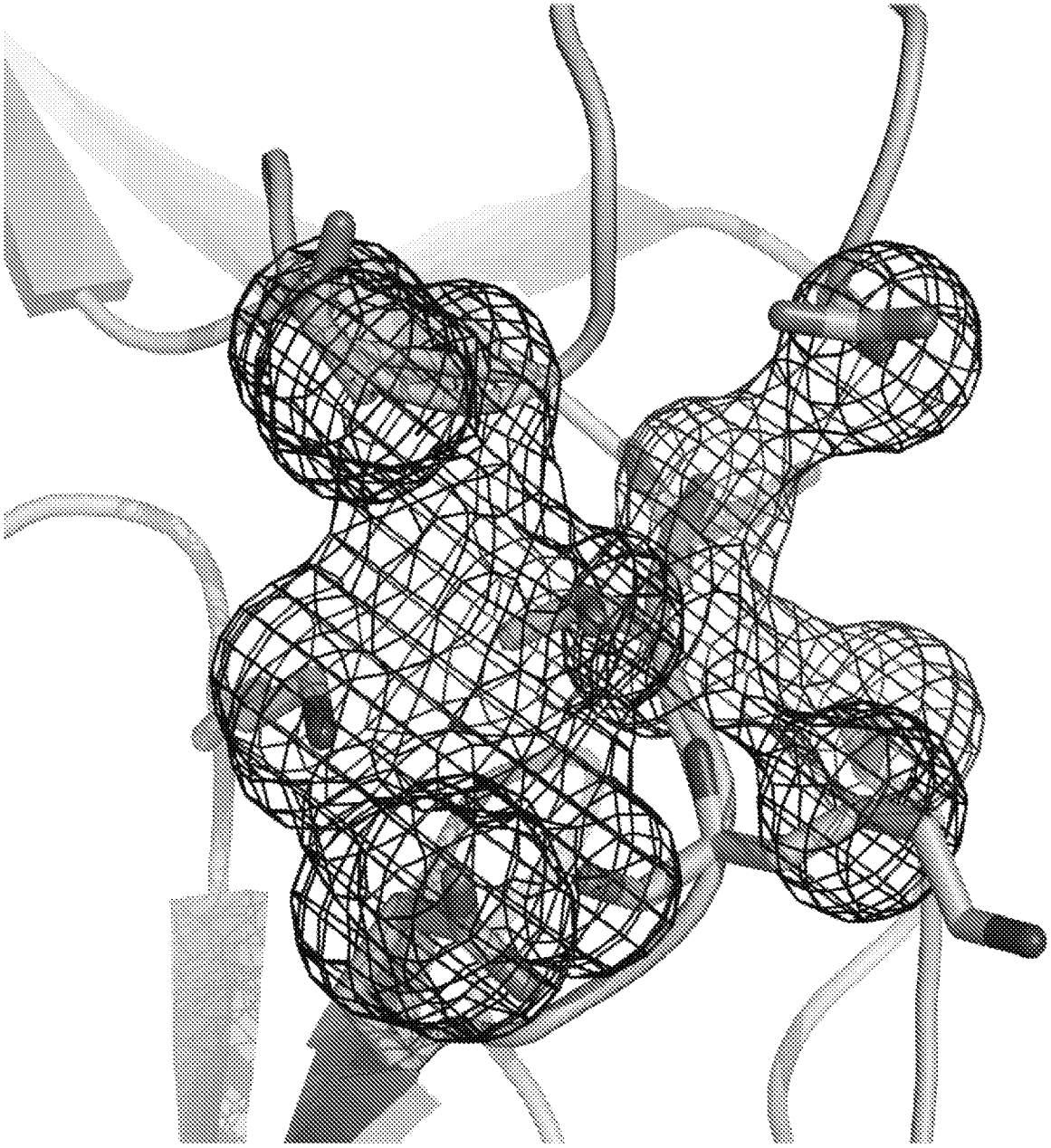


Fig. 18A

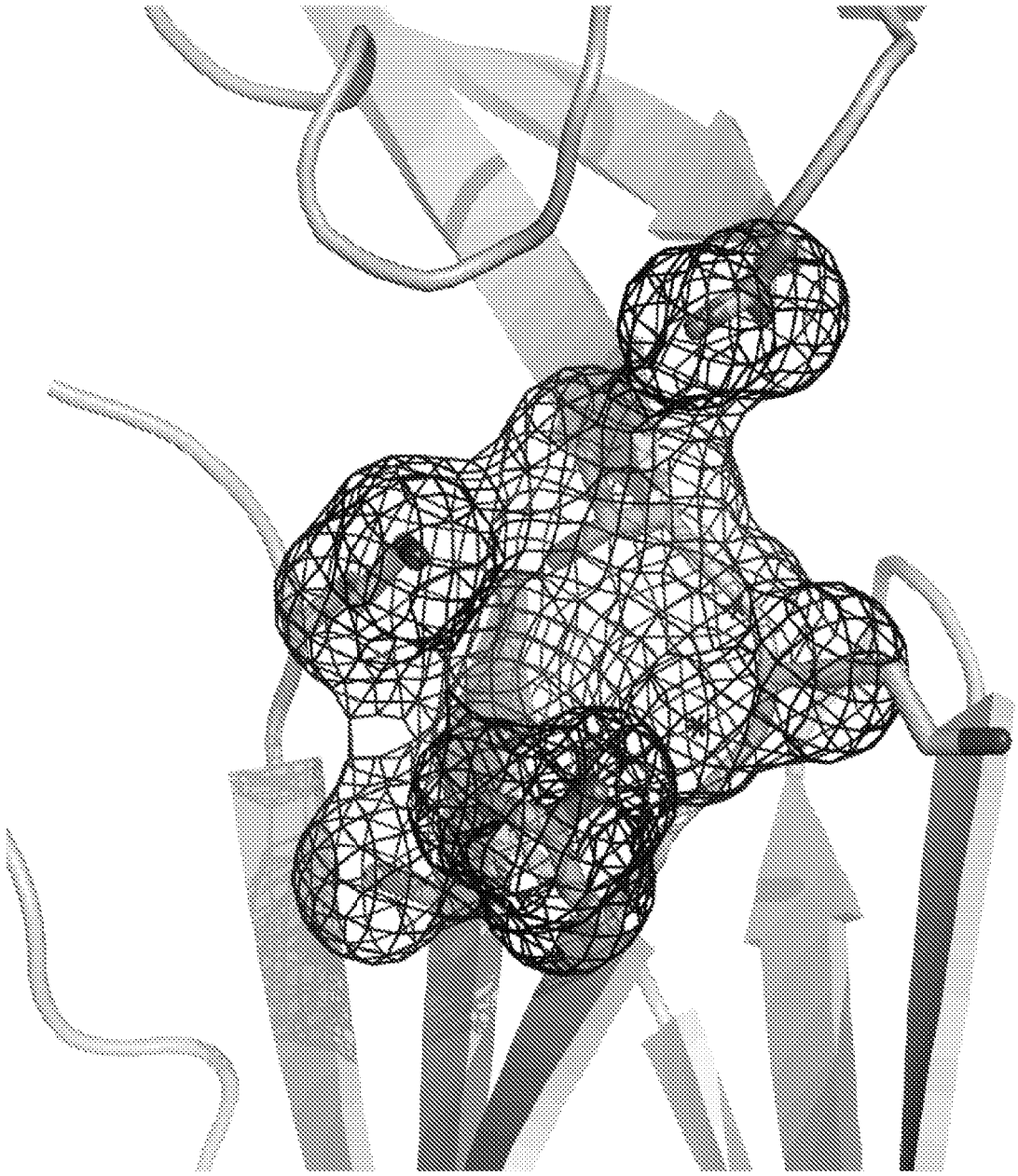


Fig. 18B

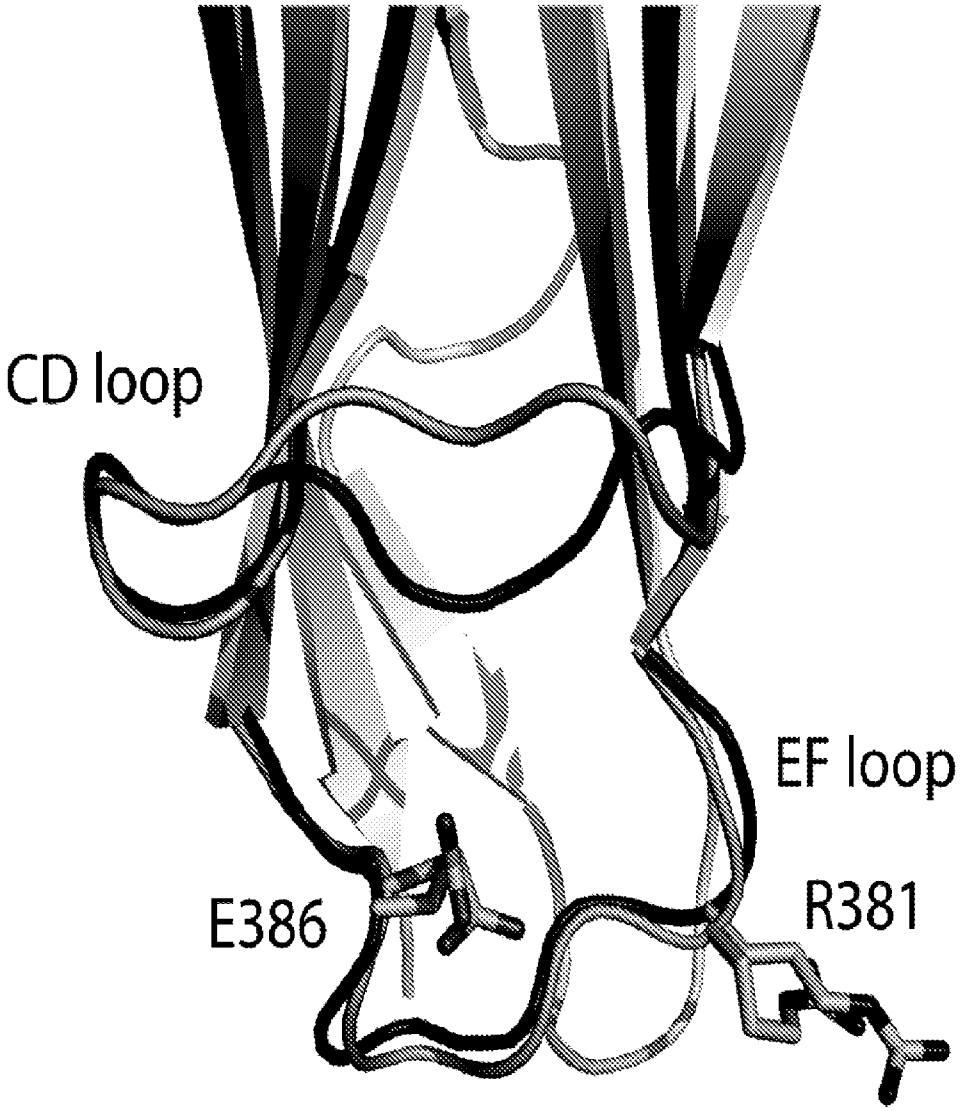


Fig. 19A

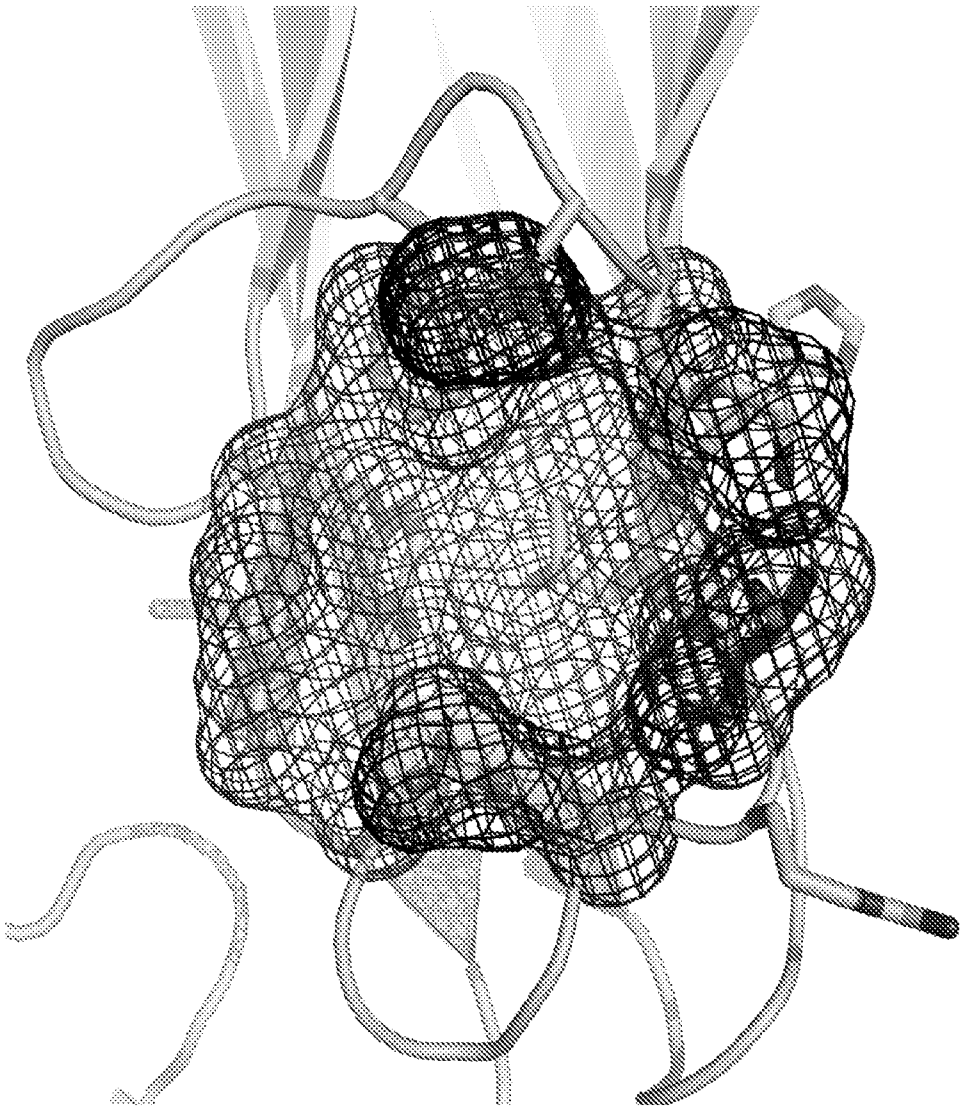


Fig. 19B

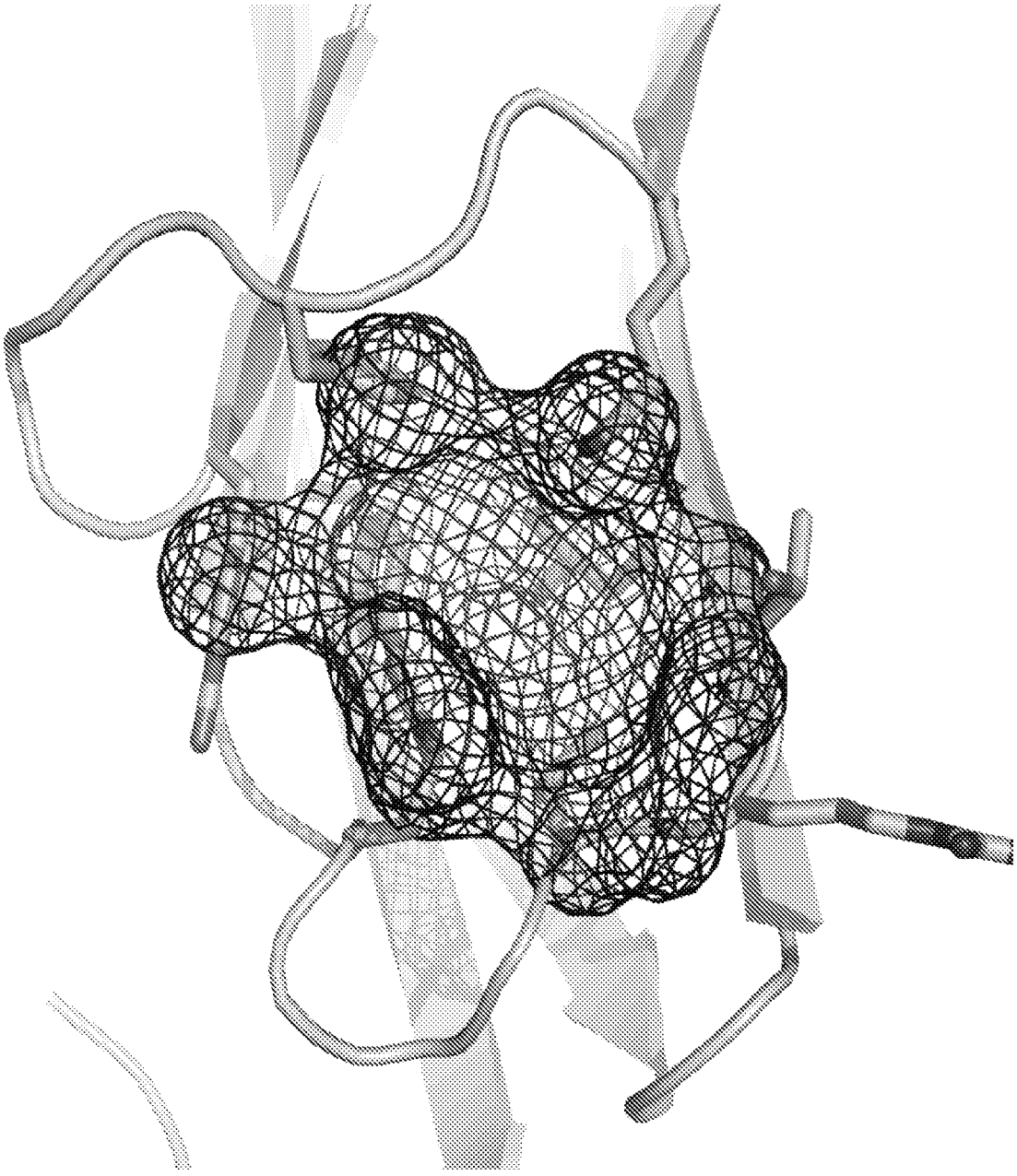


Fig. 19C

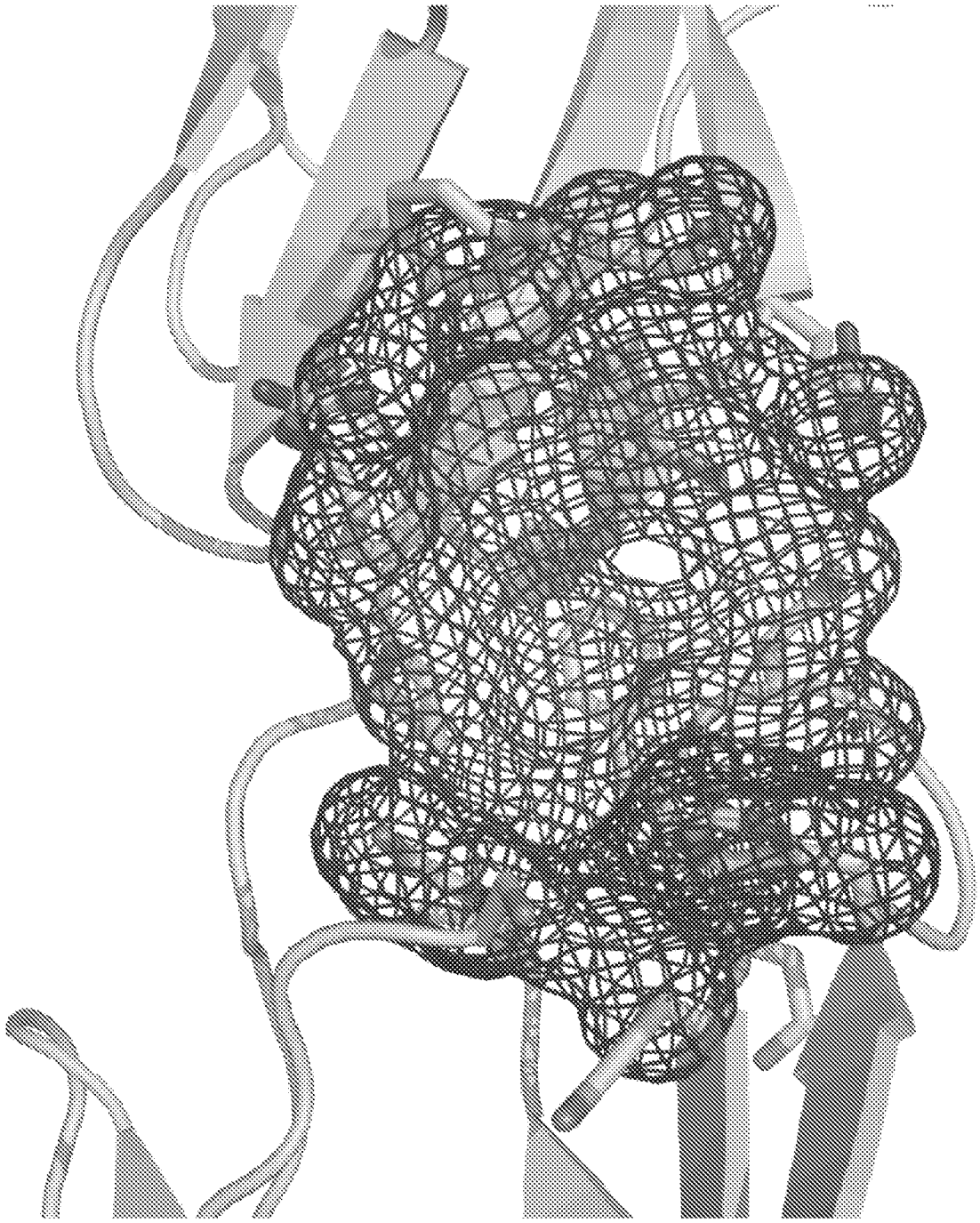


Fig. 20A

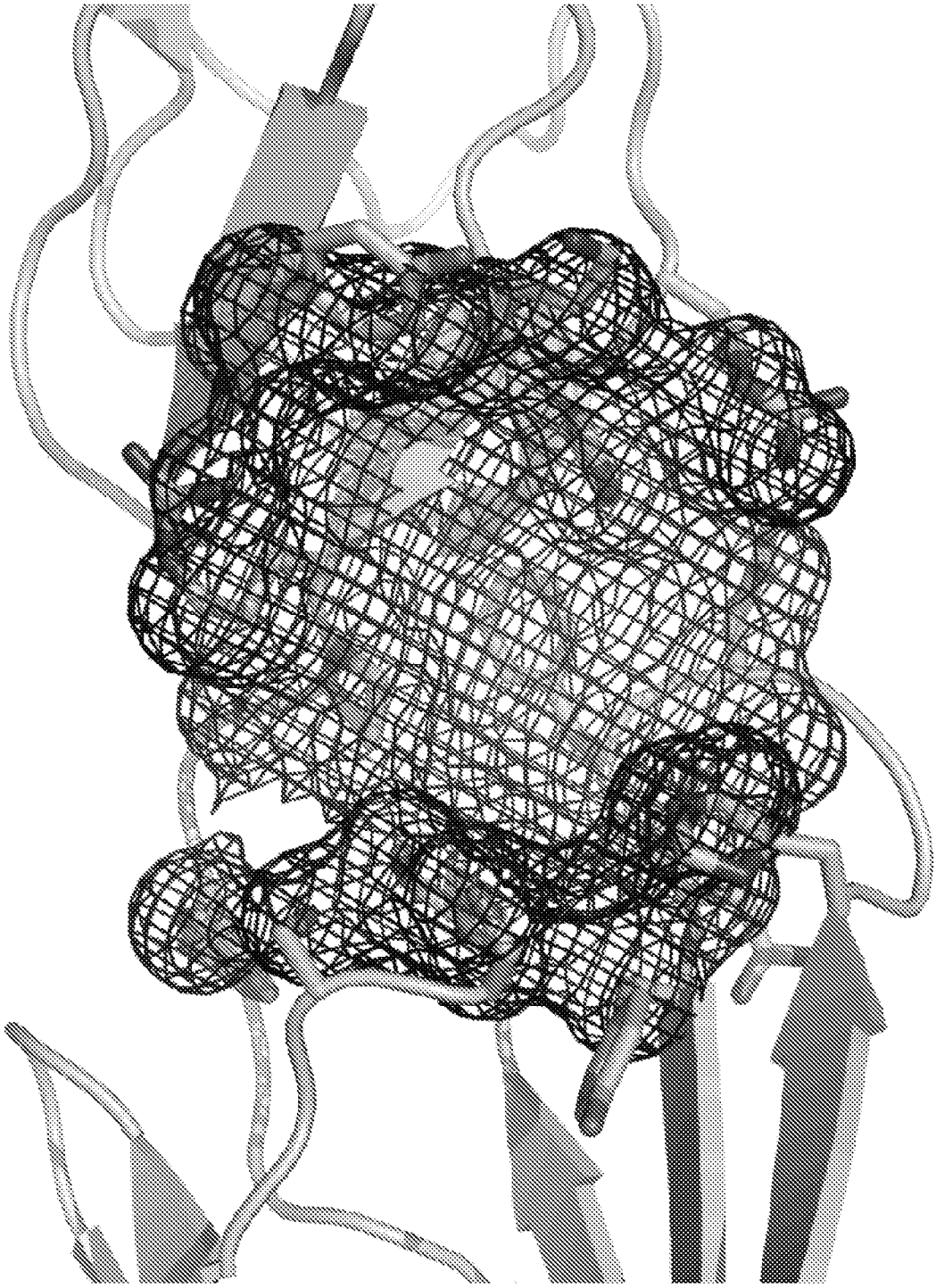


Fig. 20B

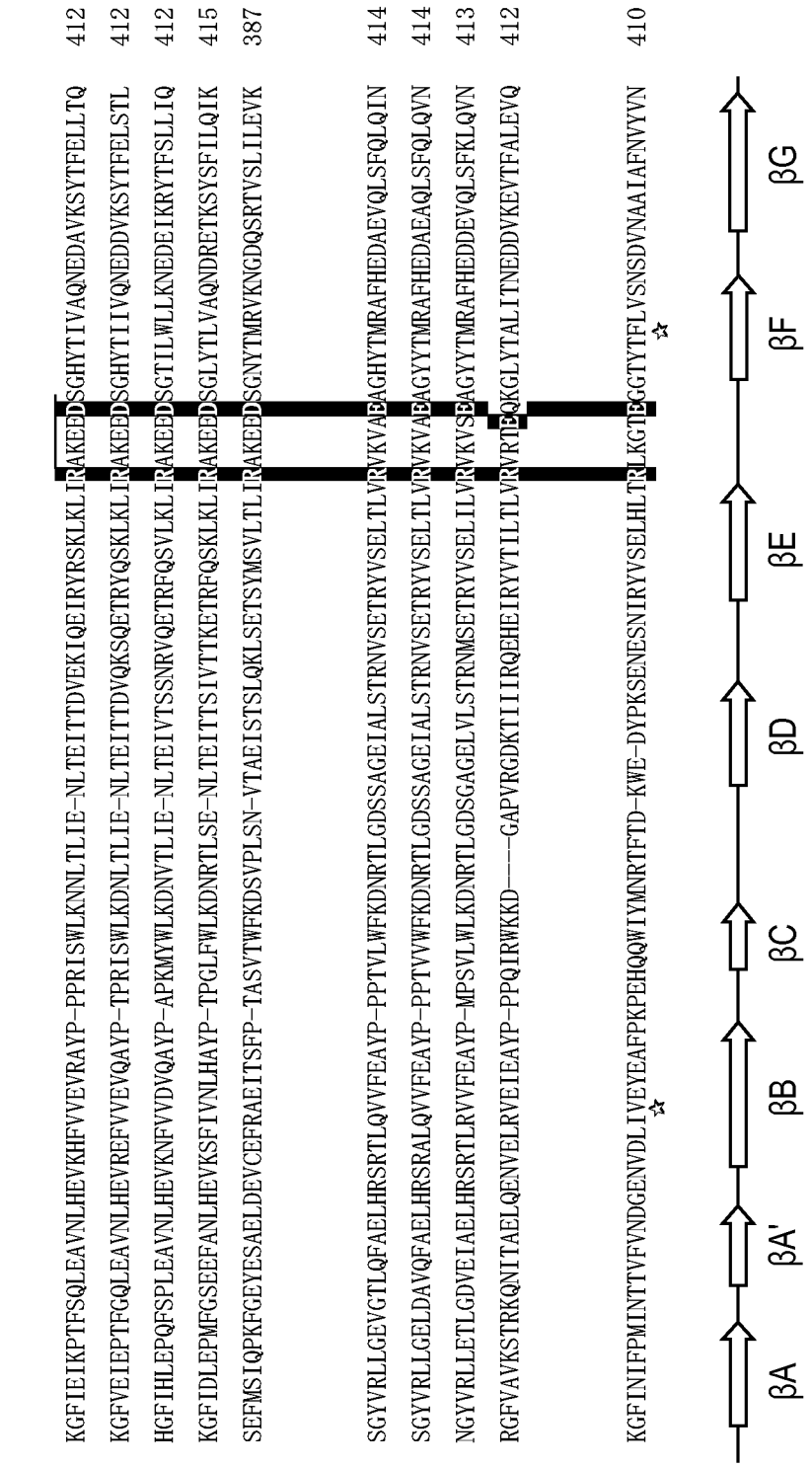

PDGFR α
human: KGFIEIKPTFSQLEAVNLHEVKHFVVEVRAYP-PPRISWLKNNLTLIE-NLTEITTDVEKIQEIRYRSKLKLIRAKEEDSGHYTIVAQNEDAVKSYTFELLTQ 412
mouse: KGFVEIEPTFGQLEAVNLHEVREFVVEVQAYP-TPRISWLKDNLTLIE-NLTEITTDVQKSQETRYQSKLKLIRAKEEDSGHYTIIVQNEDDVKSYTFELSTL 412
chicken: HGFIHLEPQFSPLEAVNLHEVKNFVVDVQAYP-APKMYWLKDNVTLIE-NLTEIVTSSNRVQETRFQSVLKLIRAKEEDSGTILWLLKNEDEIKRYTFSLLIQ 412
frog: KGFIDLEPMFGSEEFANLHEVKSFIVNLHAYP-TPGLFWLKDNRTLSE-NLTEITTSIVTTKETRFQSKLKLIRAKEEDSGLYTLVAQNDRETKSYSFILQIK 415
fugu: SEFMSIQPKFGEYESAELDEVCEFRAEITSFP-TASVTWFKDSVPLSN-VTAEISTSLQKLSETSYMSVLTLIRAKEEDSGNVTMRVKNGDQSRTVSLILEVK 387
PDGFR β
human: SGYVRLLGEVGTLQFAELHRSRTLQVVFEAYP-PPTVLWFKDNRTLGDSSAGEIALSTRNVSETRYVSELTLVRVKVAEAGHYTMRAFHEDAEVQLSFQLQIN 414
dog: SGYVRLLGELDAVQFAELHRSRALQVVFEAYP-PPTVVWFKDNRTLGDSSAGEIALSTRNVSETRYVSELTLVRVKVAEAGYYTMRAFHEDAEAQLSFQLQVN 414
mouse: NGYVRLLETLGDVEIAELHRSRTLRVVFEAYP-MPSVLWLKDNRTLGDSGAGELVLSTRNMSETRYVSELILVRVKVSEAGYYTMRAFHEDDEVQLSFKLQVN 413
fugu: RGFVAVKSTRKQNITAELQENVELRVEIEAYP-PPQIRWKKD----GAPVRGDKTIIIRQEHEIRYVTILTLVRVRTEQKGLYTALITNEDDVKEVTFALEVQ 412
KIT
Human: KGFINIFPMINTTVFVNDGENVDLIVEYEAFPKPEHQQWIYMNRTFTD-KWE-DYPKSENESNIRYVSELHLTRLKGTEGGTYTFLVSNSDVNAAIAFNVYVN 410
βA
βA'
βB
βC
βD
βE
βF
βG

Fig. 21A

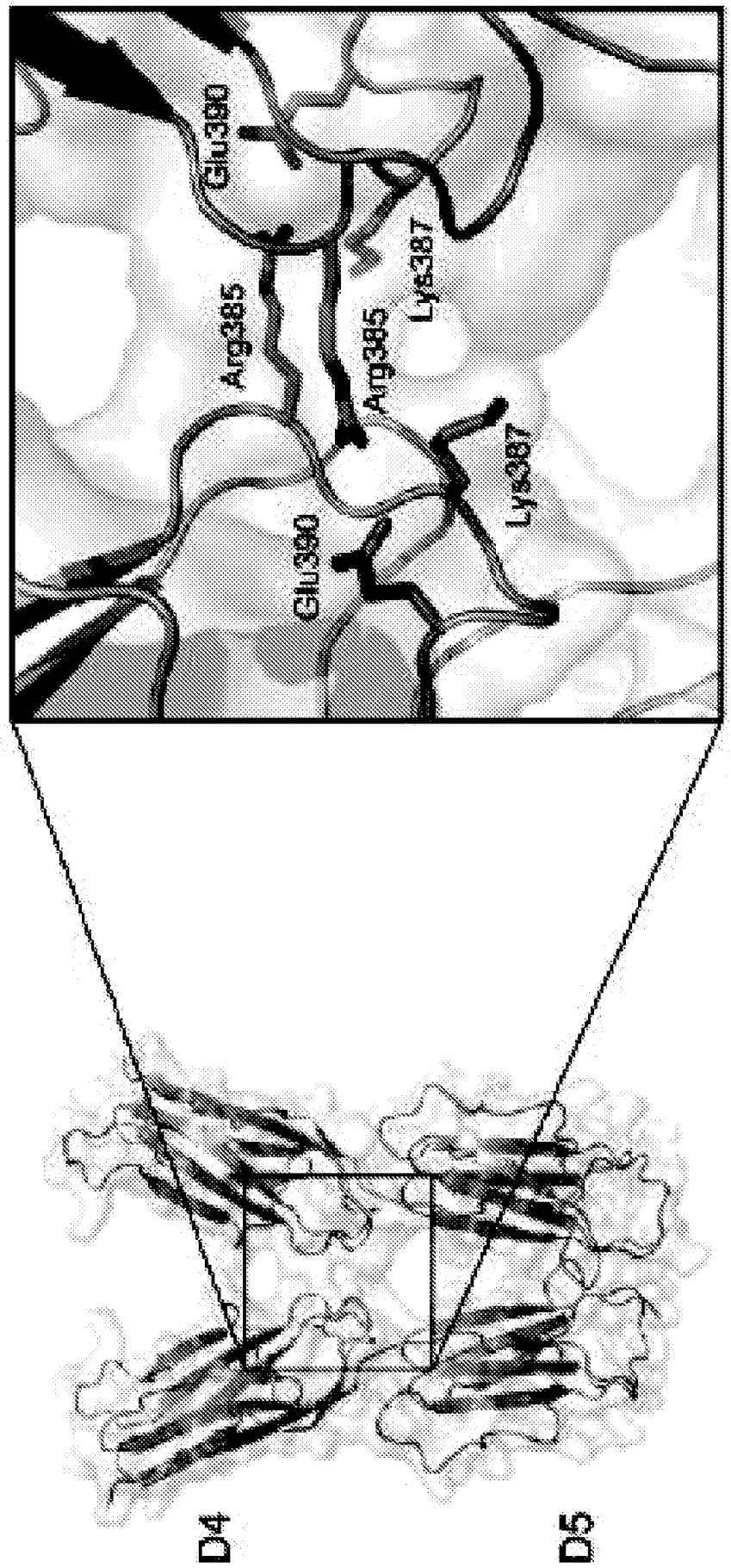


Fig. 21B

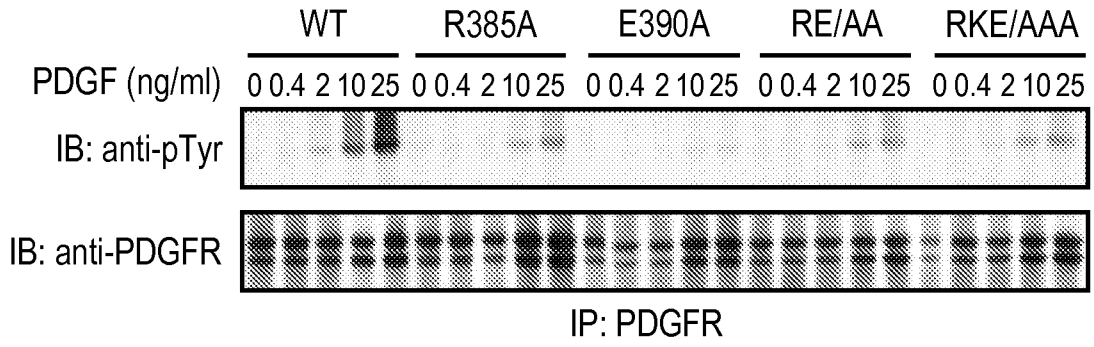


Fig. 22A

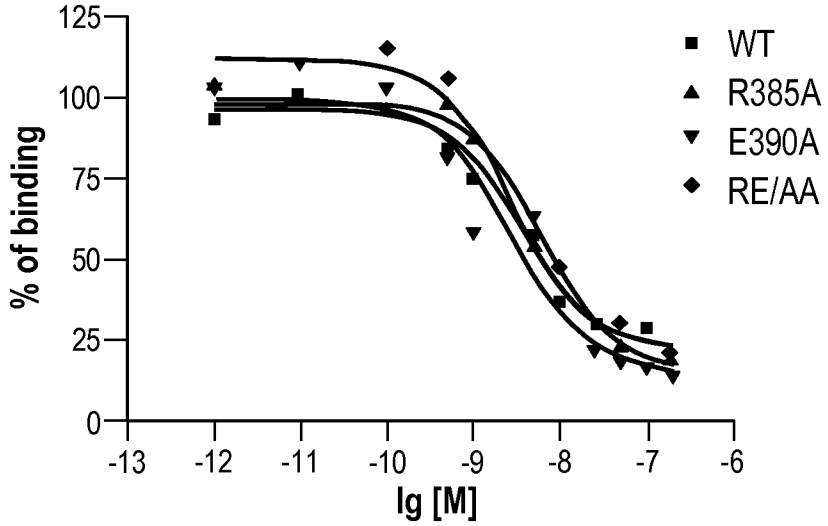


Fig. 22B

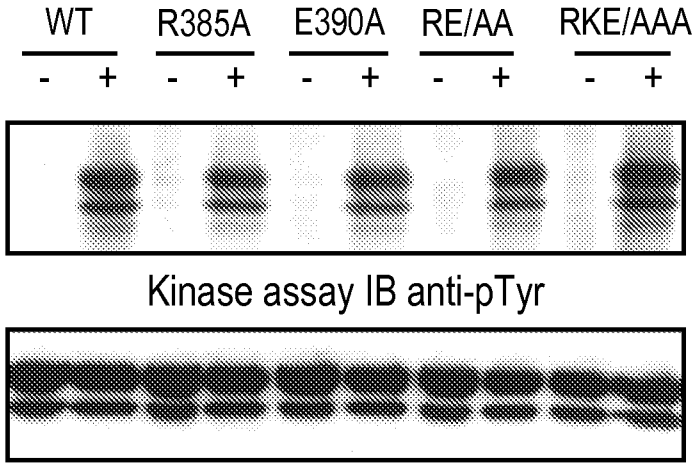


Fig. 22C

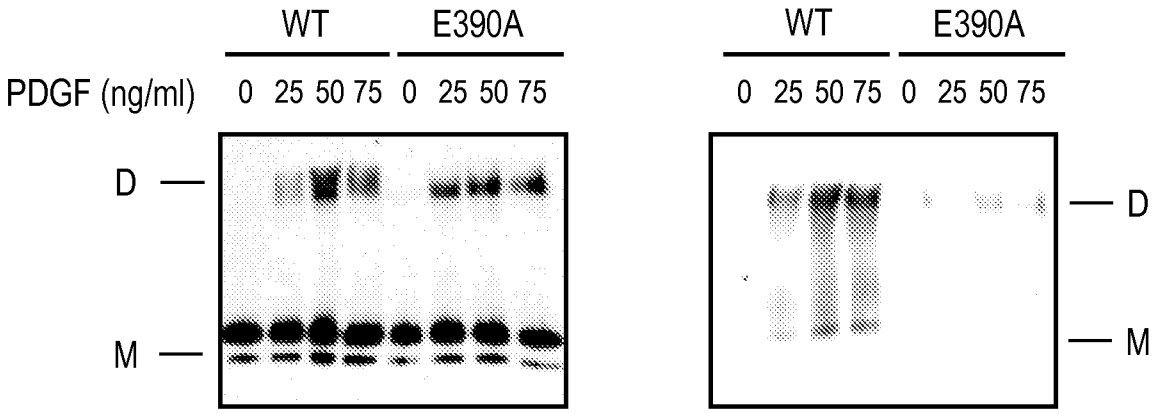

WT
E390A
WT
E390A
PDGF (ng/ml)
0 25 50 75 0 25 50 75
0 25 50 75 0 25 50 75
D
M
D
M

Fig. 23

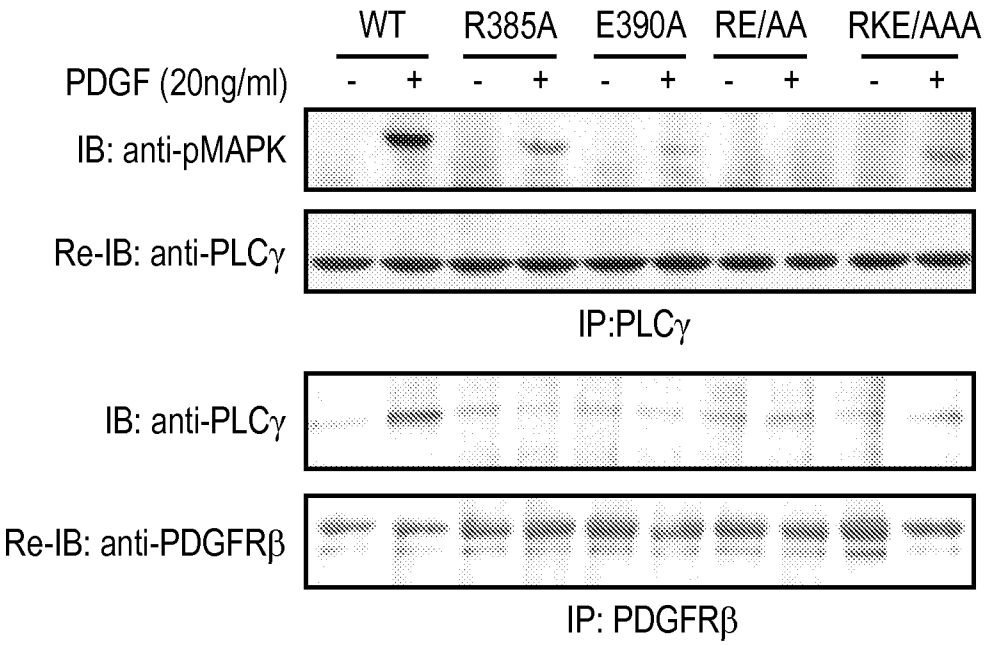


Fig. 24A

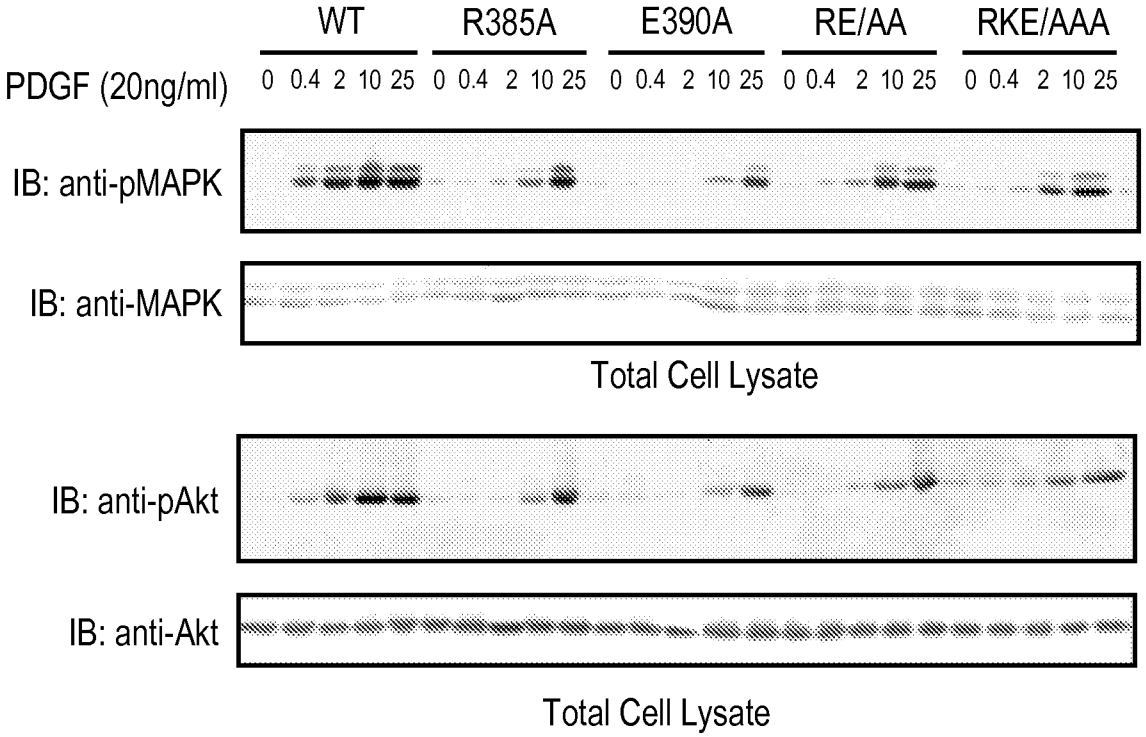
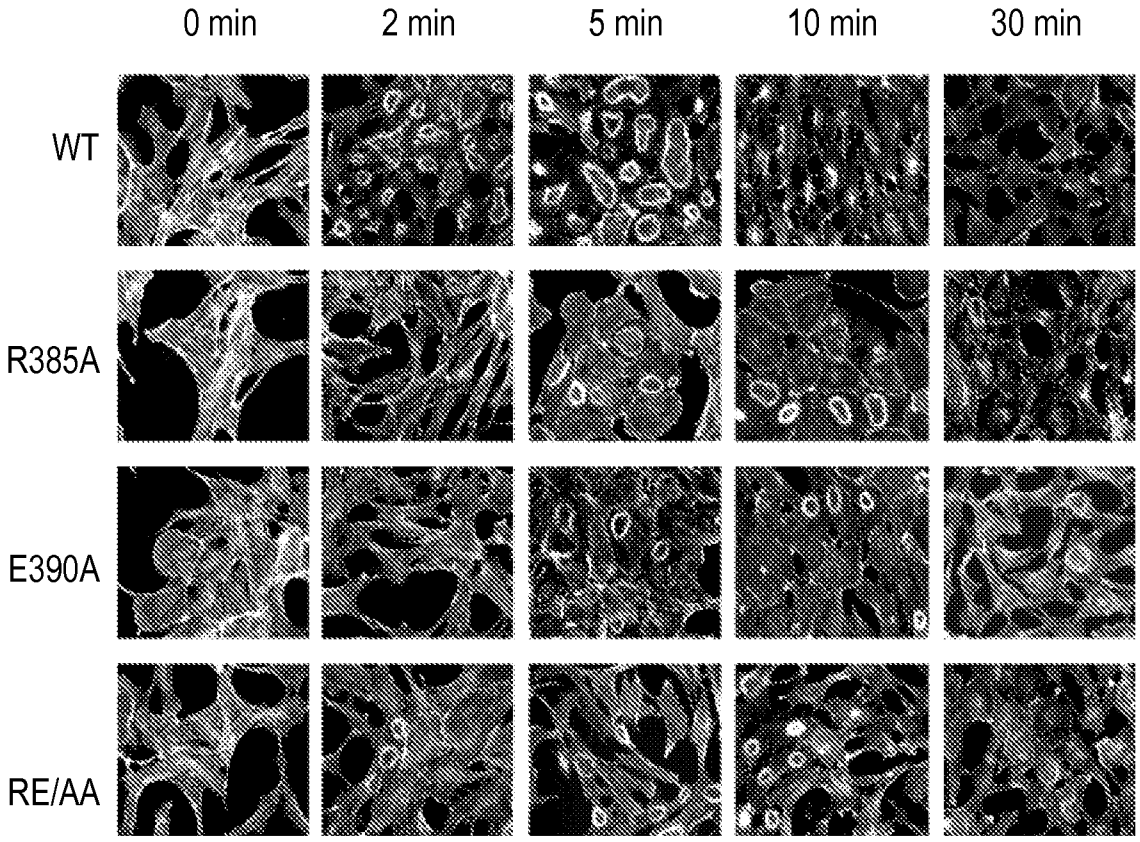


Fig. 24B


0 min
2 min
5 min
10 min
30 min
WT
R385A
E390A
RE/AA

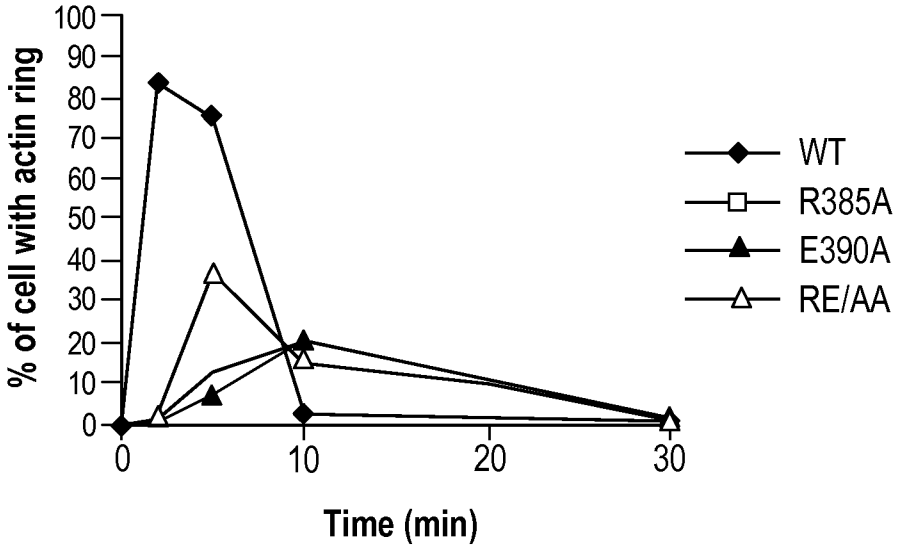

% of cell with actin ring
100
90
80
70
60
50
40
30
20
10
0
0
10
20
30
Time (min)
WT
R385A
E390A
RE/AA

Fig. 25

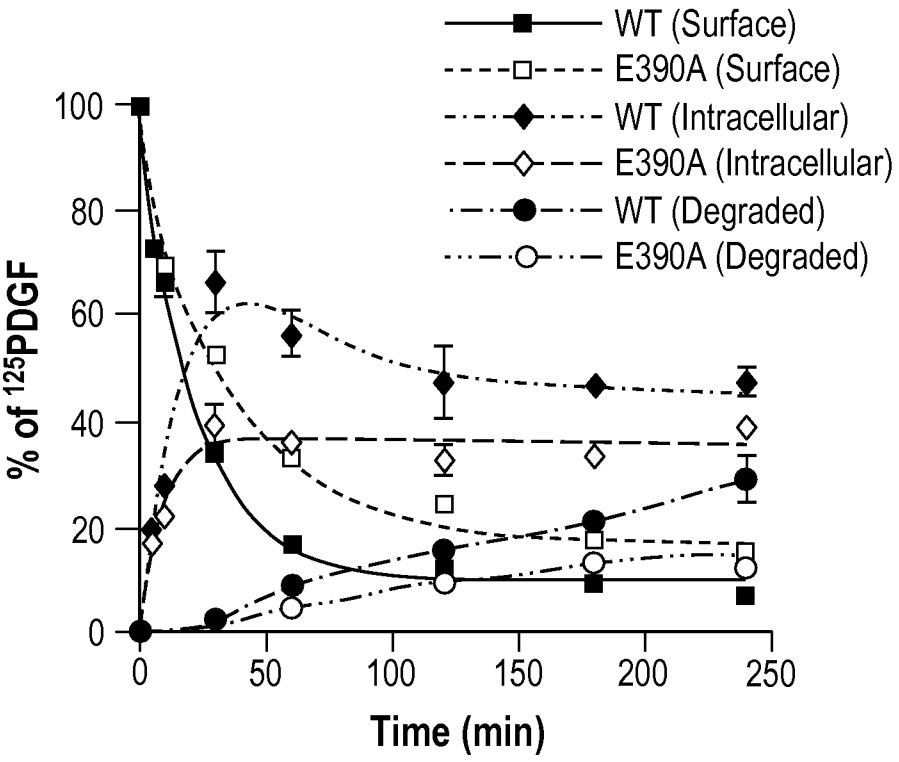


Fig. 26A

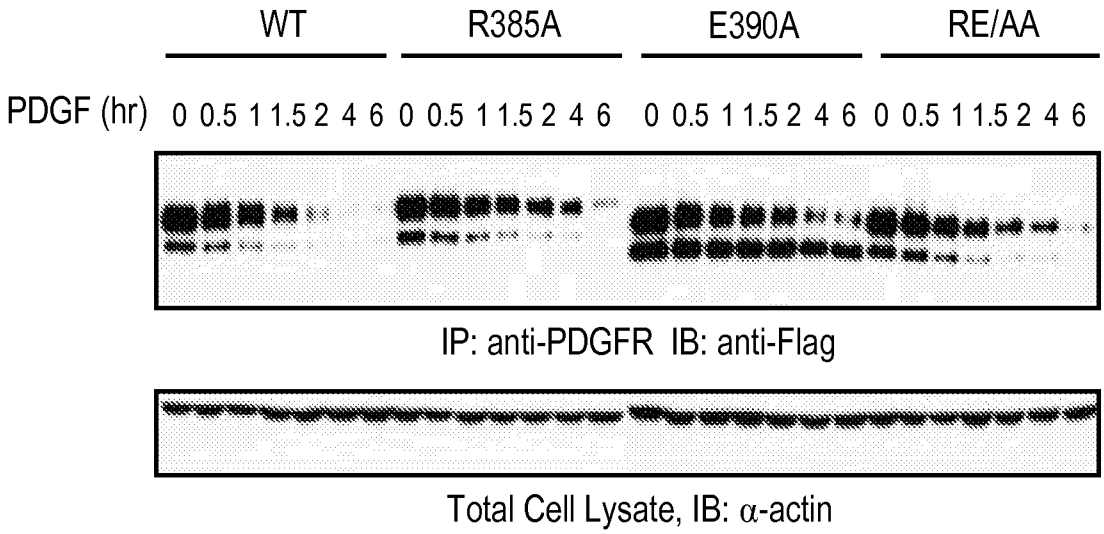


Fig. 26B

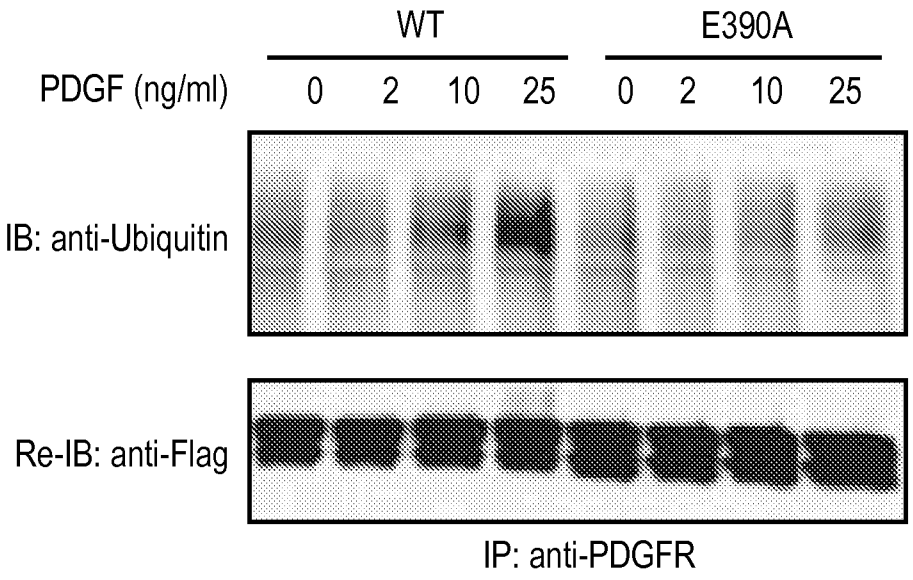


Fig. 26C

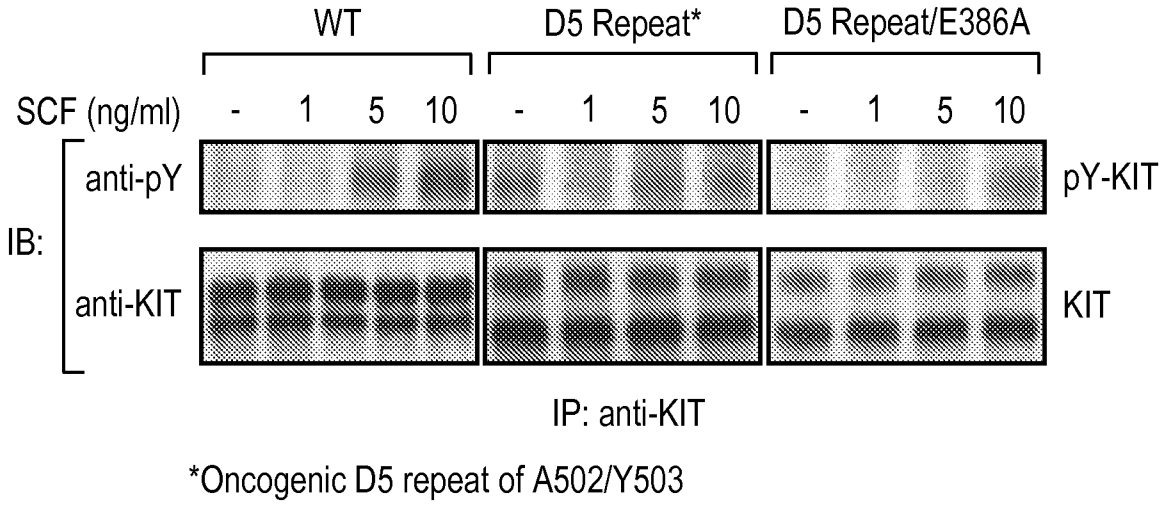


Fig. 27

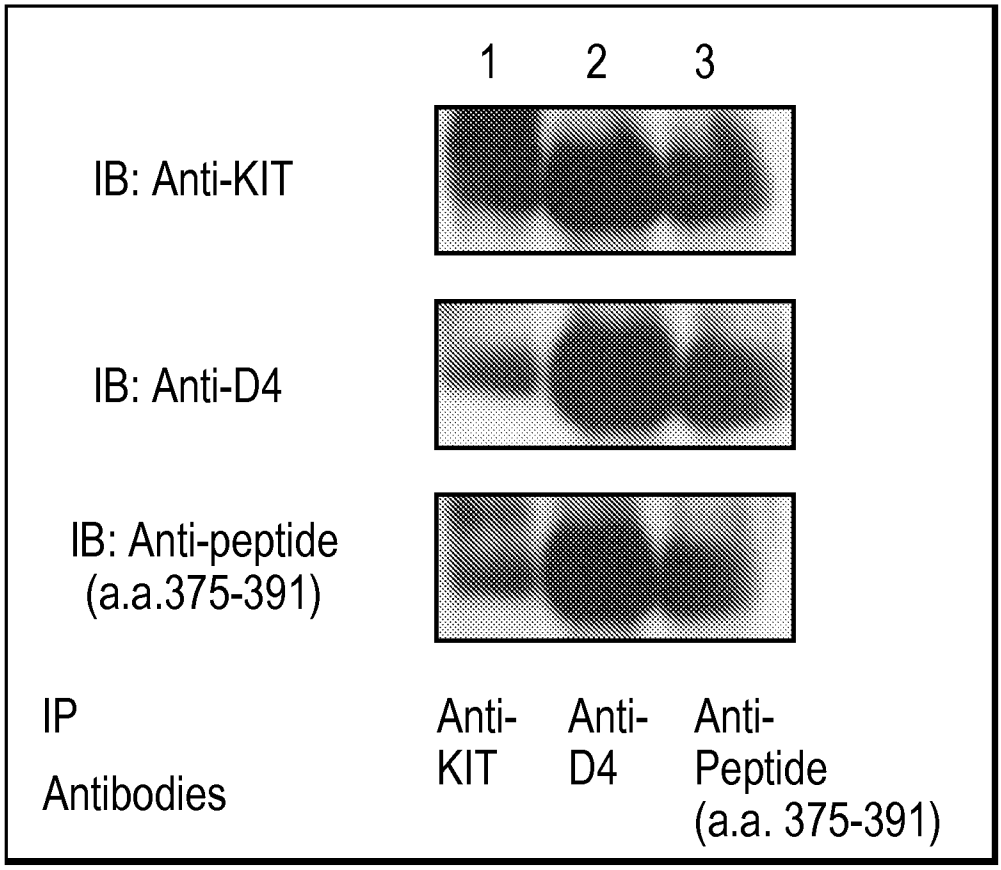

1
2
3
IB: Anti-KIT
IB: Anti-D4
IB: Anti-peptide
(a.a.375-391)
IP
Antibodies
Anti-
KIT
Anti-
D4
Anti-
Peptide
(a.a. 375-391)

Fig. 28

SEQUENCE LISTING

<110> YALE UNIVERSITY

<120> INHIBITORS OF RECEPTOR TYROSINE KINASES AND METHODS OF USE THEREOF

<130> KO4-001PC

<140>
<141>

<150> 61/070,506
<151> 2008-03-24

<150> 61/009,482
<151> 2007-12-28

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1 5

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1 5

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1 5

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1 5 10

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1 5

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1 5

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1 5 10

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1

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<211> 8
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 31
Asp Lys Trp Glu Leu His Leu Thr
1 5

<210> 32
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 32
His Leu Thr Arg Leu Lys Gly Thr Glu Gly Gly Thr
1 5 10

<210> 33
<211> 22
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 33
Met Asn Arg Thr Phe Thr Asp Lys Trp Glu His Leu Thr Arg Leu Lys
1 5 10 15

Gly Thr Glu Gly Gly Thr
20

<210> 34
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 34
Val Phe Val Asn Asp Gly Glu Asn Val Asp
1 5 10

<210> 35
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 35
Val Asn Thr Lys Pro Glu Ile
1 5

<210> 36
<211> 8
<212> PRT

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 36
Ala Tyr Asn Asp Val Gly Lys Thr
1 5

<210> 37
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 37
Val Asn Thr Lys Pro Glu Ile Ala Tyr Asn Asp Val Gly Lys Thr
1 5 10 15

<210> 38
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 38
Ala Gly Phe Pro Glu Pro Thr
1 5

<210> 39
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 39
Val Asn Thr Lys Pro Glu Ile Ala Gly Phe Pro Glu Pro Thr
1 5 10

<210> 40
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 40
Phe Gly Lys Leu Val
1 5

<210> 41
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 41
Val Asn Thr Lys Pro Glu Ile Phe Gly Lys Leu Val
1 5 10

<210> 42
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 42
Val Asn Asp Gly Glu Asn
1 5

<210> 43
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 43
Val Asn Thr Lys Pro Glu Ile Val Asn Asp Gly Glu Asn
1 5 10

<210> 44
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 44
Arg Leu Lys Gly Thr Glu Gly
1 5

<210> 45
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 45
Val Asn Thr Lys Pro Glu Ile Arg Leu Lys Gly Thr Glu Gly
1 5 10

<210> 46
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 46
Gly Pro Pro Phe Gly Lys Leu
1 5

<210> 47
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 47
Gly Thr Glu Gly Gly
1 5

<210> 48
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 48
Gly Pro Pro Phe Gly Lys Leu Gly Thr Glu Gly Gly
1 5 10

<210> 49
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 49
Val Asn Asp Gly Glu
1 5

<210> 50
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 50
Tyr Asn Asp Val Gly Lys
1 5

<210> 51
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 51
Val Asn Asp Gly Glu Tyr Asn Asp Val Gly Lys
1 5 10

<210> 52
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 52
Thr Lys Pro Glu Ile Leu Thr Tyr Asp Arg Leu
1 5 10

<210> 53
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 53
Asp Arg Leu Val Asn Gly Met Leu Gln Cys
1 5 10

<210> 54
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 54
Gly Lys Thr Ser Ala Tyr Phe Asn Phe Ala Phe Lys
1 5 10

<210> 55
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 55
Cys Pro Gly Thr Glu Gln Arg Cys Ser Ala Ser
1 5 10

<210> 56
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 56
Cys Ser Ala Ser Val Leu Pro Val Asp Val Gln
1 5 10

<210> 57
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 57
Asp Ser Ser Ala Phe Lys His Asn Gly Thr
1 5 10

<210> 58
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 58
Gly Thr Val Glu Cys Lys Ala Tyr Asn Asp
1 5 10

<210> 59
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 59
Leu Asn Ser Ser Gly Pro Pro Phe Gly Lys Leu
1 5 10

<210> 60
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 60
Phe Ala Phe Lys Gly Asn Asn Lys Glu Gln Ile

1 5 10

<210> 61
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 61
Thr Lys Pro Glu Ile Leu
1 5

<210> 62
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 62
Val Gly Lys Thr Ser Ala
1 5

<210> 63
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 63
Thr Lys Pro Glu Ile Leu Val Gly Lys Thr Ser Ala
1 5 10

<210> 64
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 64
Ile Leu Thr Tyr Asp Arg Leu
1 5

<210> 65
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 65
Ala Tyr Phe Asn Phe Ala
1 5

<210> 66
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 66
Ile Leu Thr Tyr Asp Arg Leu Ala Tyr Phe Asn Phe Ala
1 5 10

<210> 67
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 67
Lys His Asn Gly Thr
1 5

<210> 68
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 68
Ala Tyr Phe Asn Phe Ala Lys His Asn Gly Thr
1 5 10

<210> 69
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 69
Gly Thr Glu Gln Arg Cys
1 5

<210> 70
<211> 12
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 70
Ala Tyr Phe Asn Phe Ala Gly Thr Glu Gln Arg Cys
1 5 10

<210> 71
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 71
Tyr His Arg Lys Val Arg Pro Val Ser Ser His Gly Asp Phe Asn Tyr
1 5 10 15

<210> 72
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 72
Pro Phe Val Ser
1

<210> 73
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 73
Lys Ala Phe Thr
1

<210> 74
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 74
Leu Ala Phe Lys Glu Ser Asn Ile Tyr
1 5

<210> 75
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 75
Leu Leu Glu Val Phe Glu Phe Ile
1 5

<210> 76
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 76
Arg Val Lys Gly Phe Pro Asp
1 5

<210> 77
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 77
Lys Ala Ser Asn Glu Ser
1 5

<210> 78
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 78
Lys Ala Glu Ser
1

<210> 79
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 79
Gly Thr Thr Lys Glu Lys
1 5

<210> 80
<211> 5

<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 80
Tyr Phe Gly Lys Leu
1 5

<210> 81
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 81
Phe Val Asn Asn
1

<210> 82
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 82
Asp Asn Thr Lys Val
1 5

<210> 83
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 83
Gly Gly Val Lys
1

<210> 84
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 84
Leu Gly Val Val
1

<210> 85
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 85
Tyr Gly His Arg Lys Val Arg Pro Phe Val Ser Ser Ser His Gly Asp
1 5 10 15

Phe Asn Tyr

<210> 86
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 86
Lys Ser Tyr Leu Phe Pro Lys Asn Glu Ser Asn Ile Tyr
1 5 10

<210> 87
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 87
Gly Gly Gly Tyr Val Thr Phe Phe Gly Lys
1 5 10

<210> 88
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 88
Asp Thr Lys Glu Ala Gly Lys
1 5

<210> 89
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 89
Tyr Phe Lys Leu Thr Arg Leu Glu Thr
1 5

<210> 90
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 90
Glu Gly Phe Pro
1

<210> 91
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 91
Glu Tyr Phe Pro
1

<210> 92
<211> 976
<212> PRT
<213> Homo sapiens

<400> 92
Met Arg Gly Ala Arg Gly Ala Trp Asp Phe Leu Cys Val Leu Leu Leu
1 5 10 15

Leu Leu Arg Val Gln Thr Gly Ser Ser Gln Pro Ser Val Ser Pro Gly
20 25 30

Glu Pro Ser Pro Pro Ser Ile His Pro Gly Lys Ser Asp Leu Ile Val
35 40 45

Arg Val Gly Asp Glu Ile Arg Leu Leu Cys Thr Asp Pro Gly Phe Val
50 55 60

Lys Trp Thr Phe Glu Ile Leu Asp Glu Thr Asn Glu Asn Lys Gln Asn
65 70 75 80

Glu Trp Ile Thr Glu Lys Ala Glu Ala Thr Asn Thr Gly Lys Tyr Thr
85 90 95

Cys Thr Asn Lys His Gly Leu Ser Asn Ser Ile Tyr Val Phe Val Arg
100 105 110

```
Asp Pro Ala Lys Leu Phe Leu Val Asp Arg Ser Leu Tyr Gly Lys Glu
        115                 120                 125

Asp Asn Asp Thr Leu Val Arg Cys Pro Leu Thr Asp Pro Glu Val Thr
    130                 135                 140

Asn Tyr Ser Leu Lys Gly Cys Gln Gly Lys Pro Leu Pro Lys Asp Leu
145                 150                 155                 160

Arg Phe Ile Pro Asp Pro Lys Ala Gly Ile Met Ile Lys Ser Val Lys
                165                 170                 175

Arg Ala Tyr His Arg Leu Cys Leu His Cys Ser Val Asp Gln Glu Gly
            180                 185                 190

Lys Ser Val Leu Ser Glu Lys Phe Ile Leu Lys Val Arg Pro Ala Phe
        195                 200                 205

Lys Ala Val Pro Val Val Ser Val Ser Lys Ala Ser Tyr Leu Leu Arg
    210                 215                 220

Glu Gly Glu Glu Phe Thr Val Thr Cys Thr Ile Lys Asp Val Ser Ser
225                 230                 235                 240

Ser Val Tyr Ser Thr Trp Lys Arg Glu Asn Ser Gln Thr Lys Leu Gln
                245                 250                 255

Glu Lys Tyr Asn Ser Trp His His Gly Asp Phe Asn Tyr Glu Arg Gln
            260                 265                 270

Ala Thr Leu Thr Ile Ser Ser Ala Arg Val Asn Asp Ser Gly Val Phe
        275                 280                 285

Met Cys Tyr Ala Asn Asn Thr Phe Gly Ser Ala Asn Val Thr Thr Thr
    290                 295                 300

Leu Glu Val Val Asp Lys Gly Phe Ile Asn Ile Phe Pro Met Ile Asn
305                 310                 315                 320

Thr Thr Val Phe Val Asn Asp Gly Glu Asn Val Asp Leu Ile Val Glu
                325                 330                 335

Tyr Glu Ala Phe Pro Lys Pro Glu His Gln Gln Trp Ile Tyr Met Asn
            340                 345                 350

Arg Thr Phe Thr Asp Lys Trp Glu Asp Tyr Pro Lys Ser Glu Asn Glu
        355                 360                 365
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Ser Asn Ile Arg Tyr Val Ser Glu Leu His Leu Thr Arg Leu Lys Gly
    370                 375                 380

Thr Glu Gly Gly Thr Tyr Thr Phe Leu Val Ser Asn Ser Asp Val Asn
385                 390                 395                 400

Ala Ala Ile Ala Phe Asn Val Tyr Val Asn Thr Lys Pro Glu Ile Leu
                405                 410                 415

Thr Tyr Asp Arg Leu Val Asn Gly Met Leu Gln Cys Val Ala Ala Gly
            420                 425                 430

Phe Pro Glu Pro Thr Ile Asp Trp Tyr Phe Cys Pro Gly Thr Glu Gln
        435                 440                 445

Arg Cys Ser Ala Ser Val Leu Pro Val Asp Val Gln Thr Leu Asn Ser
    450                 455                 460

Ser Gly Pro Pro Phe Gly Lys Leu Val Val Gln Ser Ser Ile Asp Ser
465                 470                 475                 480

Ser Ala Phe Lys His Asn Gly Thr Val Glu Cys Lys Ala Tyr Asn Asp
                485                 490                 495

Val Gly Lys Thr Ser Ala Tyr Phe Asn Phe Ala Phe Lys Gly Asn Asn
            500                 505                 510

Lys Glu Gln Ile His Pro His Thr Leu Phe Thr Pro Leu Leu Ile Gly
        515                 520                 525

Phe Val Ile Val Ala Gly Met Met Cys Ile Ile Val Met Ile Leu Thr
    530                 535                 540

Tyr Lys Tyr Leu Gln Lys Pro Met Tyr Glu Val Gln Trp Lys Val Val
545                 550                 555                 560

Glu Glu Ile Asn Gly Asn Asn Tyr Val Tyr Ile Asp Pro Thr Gln Leu
                565                 570                 575

Pro Tyr Asp His Lys Trp Glu Phe Pro Arg Asn Arg Leu Ser Phe Gly
            580                 585                 590

Lys Thr Leu Gly Ala Gly Ala Phe Gly Lys Val Val Glu Ala Thr Ala
        595                 600                 605

Tyr Gly Leu Ile Lys Ser Asp Ala Ala Met Thr Val Ala Val Lys Met
    610                 615                 620
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Leu Lys Pro Ser Ala His Leu Thr Glu Arg Glu Ala Leu Met Ser Glu
625                 630                 635                 640

Leu Lys Val Leu Ser Tyr Leu Gly Asn His Met Asn Ile Val Asn Leu
                645                 650                 655

Leu Gly Ala Cys Thr Ile Gly Gly Pro Thr Leu Val Ile Thr Glu Tyr
            660                 665                 670

Cys Cys Tyr Gly Asp Leu Leu Asn Phe Leu Arg Arg Lys Arg Asp Ser
        675                 680                 685

Phe Ile Cys Ser Lys Gln Glu Asp His Ala Glu Ala Ala Leu Tyr Lys
    690                 695                 700

Asn Leu Leu His Ser Lys Glu Ser Ser Cys Ser Asp Ser Thr Asn Glu
705                 710                 715                 720

Tyr Met Asp Met Lys Pro Gly Val Ser Tyr Val Val Pro Thr Lys Ala
                725                 730                 735

Asp Lys Arg Arg Ser Val Arg Ile Gly Ser Tyr Ile Glu Arg Asp Val
            740                 745                 750

Thr Pro Ala Ile Met Glu Asp Asp Glu Leu Ala Leu Asp Leu Glu Asp
        755                 760                 765

Leu Leu Ser Phe Ser Tyr Gln Val Ala Lys Gly Met Ala Phe Leu Ala
    770                 775                 780

Ser Lys Asn Cys Ile His Arg Asp Leu Ala Ala Arg Asn Ile Leu Leu
785                 790                 795                 800

Thr His Gly Arg Ile Thr Lys Ile Cys Asp Phe Gly Leu Ala Arg Asp
                805                 810                 815

Ile Lys Asn Asp Ser Asn Tyr Val Val Lys Gly Asn Ala Arg Leu Pro
            820                 825                 830

Val Lys Trp Met Ala Pro Glu Ser Ile Phe Asn Cys Val Tyr Thr Phe
        835                 840                 845

Glu Ser Asp Val Trp Ser Tyr Gly Ile Phe Leu Trp Glu Leu Phe Ser
    850                 855                 860

Leu Gly Ser Ser Pro Tyr Pro Gly Met Pro Val Asp Ser Lys Phe Tyr
865                 870                 875                 880
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Lys Met Ile Lys Glu Gly Phe Arg Met Leu Ser Pro Glu His Ala Pro
885 890 895

Ala Glu Met Tyr Asp Ile Met Lys Thr Cys Trp Asp Ala Asp Pro Leu
900 905 910

Lys Arg Pro Thr Phe Lys Gln Ile Val Gln Leu Ile Glu Lys Gln Ile
915 920 925

Ser Glu Ser Thr Asn His Ile Tyr Ser Asn Leu Ala Asn Cys Ser Pro
930 935 940

Asn Arg Gln Lys Pro Val Val Asp His Ser Val Arg Ile Asn Ser Val
945 950 955 960

Gly Ser Thr Ala Ser Ser Ser Gln Pro Leu Leu Val His Asp Asp Val
965 970 975

<210> 93
<211> 972
<212> PRT
<213> Homo sapiens

<400> 93
Met Arg Gly Ala Arg Gly Ala Trp Asp Phe Leu Cys Val Leu Leu Leu
1 5 10 15

Leu Leu Arg Val Gln Thr Gly Ser Ser Gln Pro Ser Val Ser Pro Gly
20 25 30

Glu Pro Ser Pro Pro Ser Ile His Pro Gly Lys Ser Asp Leu Ile Val
35 40 45

Arg Val Gly Asp Glu Ile Arg Leu Leu Cys Thr Asp Pro Gly Phe Val
50 55 60

Lys Trp Thr Phe Glu Ile Leu Asp Glu Thr Asn Glu Asn Lys Gln Asn
65 70 75 80

Glu Trp Ile Thr Glu Lys Ala Glu Ala Thr Asn Thr Gly Lys Tyr Thr
85 90 95

Cys Thr Asn Lys His Gly Leu Ser Asn Ser Ile Tyr Val Phe Val Arg
100 105 110

Asp Pro Ala Lys Leu Phe Leu Val Asp Arg Ser Leu Tyr Gly Lys Glu
115 120 125

Asp Asn Asp Thr Leu Val Arg Cys Pro Leu Thr Asp Pro Glu Val Thr
130 135 140

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Asn Tyr Ser Leu Lys Gly Cys Gln Gly Lys Pro Leu Pro Lys Asp Leu
145                 150                 155                 160

Arg Phe Ile Pro Asp Pro Lys Ala Gly Ile Met Ile Lys Ser Val Lys
                165                 170                 175

Arg Ala Tyr His Arg Leu Cys Leu His Cys Ser Val Asp Gln Glu Gly
            180                 185                 190

Lys Ser Val Leu Ser Glu Lys Phe Ile Leu Lys Val Arg Pro Ala Phe
        195                 200                 205

Lys Ala Val Pro Val Val Ser Val Ser Lys Ala Ser Tyr Leu Leu Arg
    210                 215                 220

Glu Gly Glu Glu Phe Thr Val Thr Cys Thr Ile Lys Asp Val Ser Ser
225                 230                 235                 240

Ser Val Tyr Ser Thr Trp Lys Arg Glu Asn Ser Gln Thr Lys Leu Gln
                245                 250                 255

Glu Lys Tyr Asn Ser Trp His His Gly Asp Phe Asn Tyr Glu Arg Gln
            260                 265                 270

Ala Thr Leu Thr Ile Ser Ser Ala Arg Val Asn Asp Ser Gly Val Phe
        275                 280                 285

Met Cys Tyr Ala Asn Asn Thr Phe Gly Ser Ala Asn Val Thr Thr Thr
    290                 295                 300

Leu Glu Val Val Asp Lys Gly Phe Ile Asn Ile Phe Pro Met Ile Asn
305                 310                 315                 320

Thr Thr Val Phe Val Asn Asp Gly Glu Asn Val Asp Leu Ile Val Glu
                325                 330                 335

Tyr Glu Ala Phe Pro Lys Pro Glu His Gln Gln Trp Ile Tyr Met Asn
            340                 345                 350

Arg Thr Phe Thr Asp Lys Trp Glu Asp Tyr Pro Lys Ser Glu Asn Glu
        355                 360                 365

Ser Asn Ile Arg Tyr Val Ser Glu Leu His Leu Thr Arg Leu Lys Gly
    370                 375                 380

Thr Glu Gly Gly Thr Tyr Thr Phe Leu Val Ser Asn Ser Asp Val Asn
385                 390                 395                 400
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Ala Ala Ile Ala Phe Asn Val Tyr Val Asn Thr Lys Pro Glu Ile Leu
405 410 415

Thr Tyr Asp Arg Leu Val Asn Gly Met Leu Gln Cys Val Ala Ala Gly
420 425 430

Phe Pro Glu Pro Thr Ile Asp Trp Tyr Phe Cys Pro Gly Thr Glu Gln
435 440 445

Arg Cys Ser Ala Ser Val Leu Pro Val Asp Val Gln Thr Leu Asn Ser
450 455 460

Ser Gly Pro Pro Phe Gly Lys Leu Val Val Gln Ser Ser Ile Asp Ser
465 470 475 480

Ser Ala Phe Lys His Asn Gly Thr Val Glu Cys Lys Ala Tyr Asn Asp
485 490 495

Val Gly Lys Thr Ser Ala Tyr Phe Asn Phe Ala Phe Lys Glu Gln Ile
500 505 510

His Pro His Thr Leu Phe Thr Pro Leu Leu Ile Gly Phe Val Ile Val
515 520 525

Ala Gly Met Met Cys Ile Ile Val Met Ile Leu Thr Tyr Lys Tyr Leu
530 535 540

Gln Lys Pro Met Tyr Glu Val Gln Trp Lys Val Val Glu Glu Ile Asn
545 550 555 560

Gly Asn Asn Tyr Val Tyr Ile Asp Pro Thr Gln Leu Pro Tyr Asp His
565 570 575

Lys Trp Glu Phe Pro Arg Asn Arg Leu Ser Phe Gly Lys Thr Leu Gly
580 585 590

Ala Gly Ala Phe Gly Lys Val Val Glu Ala Thr Ala Tyr Gly Leu Ile
595 600 605

Lys Ser Asp Ala Ala Met Thr Val Ala Val Lys Met Leu Lys Pro Ser
610 615 620

Ala His Leu Thr Glu Arg Glu Ala Leu Met Ser Glu Leu Lys Val Leu
625 630 635 640

Ser Tyr Leu Gly Asn His Met Asn Ile Val Asn Leu Leu Gly Ala Cys
645 650 655

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Thr Ile Gly Gly Pro Thr Leu Val Ile Thr Glu Tyr Cys Cys Tyr Gly
            660                 665                 670

Asp Leu Leu Asn Phe Leu Arg Arg Lys Arg Asp Ser Phe Ile Cys Ser
        675                 680                 685

Lys Gln Glu Asp His Ala Glu Ala Ala Leu Tyr Lys Asn Leu Leu His
    690                 695                 700

Ser Lys Glu Ser Ser Cys Ser Asp Ser Thr Asn Glu Tyr Met Asp Met
705                 710                 715                 720

Lys Pro Gly Val Ser Tyr Val Val Pro Thr Lys Ala Asp Lys Arg Arg
                725                 730                 735

Ser Val Arg Ile Gly Ser Tyr Ile Glu Arg Asp Val Thr Pro Ala Ile
            740                 745                 750

Met Glu Asp Asp Glu Leu Ala Leu Asp Leu Glu Asp Leu Leu Ser Phe
        755                 760                 765

Ser Tyr Gln Val Ala Lys Gly Met Ala Phe Leu Ala Ser Lys Asn Cys
    770                 775                 780

Ile His Arg Asp Leu Ala Ala Arg Asn Ile Leu Leu Thr His Gly Arg
785                 790                 795                 800

Ile Thr Lys Ile Cys Asp Phe Gly Leu Ala Arg Asp Ile Lys Asn Asp
                805                 810                 815

Ser Asn Tyr Val Val Lys Gly Asn Ala Arg Leu Pro Val Lys Trp Met
            820                 825                 830

Ala Pro Glu Ser Ile Phe Asn Cys Val Tyr Thr Phe Glu Ser Asp Val
        835                 840                 845

Trp Ser Tyr Gly Ile Phe Leu Trp Glu Leu Phe Ser Leu Gly Ser Ser
    850                 855                 860

Pro Tyr Pro Gly Met Pro Val Asp Ser Lys Phe Tyr Lys Met Ile Lys
865                 870                 875                 880

Glu Gly Phe Arg Met Leu Ser Pro Glu His Ala Pro Ala Glu Met Tyr
                885                 890                 895

Asp Ile Met Lys Thr Cys Trp Asp Ala Asp Pro Leu Lys Arg Pro Thr
            900                 905                 910
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Phe Lys Gln Ile Val Gln Leu Ile Glu Lys Gln Ile Ser Glu Ser Thr
915 920 925

Asn His Ile Tyr Ser Asn Leu Ala Asn Cys Ser Pro Asn Arg Gln Lys
930 935 940

Pro Val Val Asp His Ser Val Arg Ile Asn Ser Val Gly Ser Thr Ala
945 950 955 960

Ser Ser Ser Gln Pro Leu Leu Val His Asp Asp Val
965 970

<210> 94
<211> 29
<212> PRT
<213> Homo sapiens

<400> 94
Asn Ile Arg Tyr Val Ser Glu Leu His Leu Thr Arg Leu Lys Gly Thr
1 5 10 15

Glu Gly Gly Thr Tyr Thr Phe Leu Val Ser Asn Ser Asp
20 25

<210> 95
<211> 29
<212> PRT
<213> Mus musculus

<400> 95
Asn Ile Arg Tyr Val Asn Gln Leu Arg Leu Thr Arg Leu Lys Gly Thr
1 5 10 15

Glu Gly Gly Thr Tyr Thr Phe Leu Val Ser Asn Ser Asp
20 25

<210> 96
<211> 29
<212> PRT
<213> Gallus gallus

<400> 96
Asn Asn Ser Tyr Thr Ser Glu Leu His Leu Thr Arg Leu Lys Gly Thr
1 5 10 15

Glu Gly Gly Ile Tyr Thr Phe Phe Val Ser Asn Ser Asp
20 25

<210> 97
<211> 29
<212> PRT
<213> Xenopus laevis

<400> 97
Asn Asn Arg Tyr Val Ser Glu Leu His Leu Ile Arg Leu Lys Gly Thr
1 5 10 15

Glu Lys Gly Ile Tyr Thr Phe Tyr Ser Ser Asn Ser Asp
20 25

<210> 98
<211> 29
<212> PRT
<213> Ambystoma mexicanum

<400> 98
Asn Ser Arg Tyr Ile Ser Glu Leu His Leu Ile Arg Leu Lys Gly Ala
1 5 10 15

Glu Arg Gly Ile Tyr Thr Phe His Val Asp Asn Ser Asp
20 25

<210> 99
<211> 28
<212> PRT
<213> Danio rerio

<400> 99
Asn Ser Tyr Thr Ser Glu Leu Lys Leu Val Arg Leu Lys Val Ser Glu
1 5 10 15

Ser Gly Ile Tyr Thr Phe Ser Cys Leu Asn Arg Asp
20 25

<210> 100
<211> 28
<212> PRT
<213> Danio rerio

<400> 100
Tyr Arg Tyr Ile Ser Glu Leu Arg Leu Val Arg Val His Gly Ser Glu
1 5 10 15

Gly Gly Ile Tyr Thr Phe Ser Ala Asn His Lys Tyr
20 25

<210> 101
<211> 29
<212> PRT
<213> Homo sapiens

<400> 101
Thr Tyr Arg His Thr Phe Thr Leu Ser Leu Pro Arg Leu Lys Pro Ser
1 5 10 15

Glu Ala Gly Arg Tyr Ser Phe Leu Ala Arg Asn Pro Gly
20 25

<210> 102
<211> 29
<212> PRT
<213> Mus musculus

<400> 102
Ile Tyr Arg Tyr Thr Phe Lys Leu Phe Leu Asn Arg Val Lys Ala Ser
1 5 10 15

Glu Ala Gly Gln Tyr Phe Leu Asn Ala Gln Asn Lys Ala
20 25

<210> 103
<211> 27
<212> PRT
<213> Takifugu rubripes

<400> 103
Ile Tyr His Ala Arg Leu Gln Leu Lys Arg Asn Asn Ala Gln Glu Gln
1 5 10 15

Gly Gln Tyr Thr Phe Tyr Ala Lys Ser Asn Leu
20 25

<210> 104
<211> 27
<212> PRT
<213> Takifugu rubripes

<400> 104
Arg Ser Glu Ala Ser Leu Leu Leu Arg Arg Val Arg Gln Glu Asp His
1 5 10 15

Gly Ser Tyr Thr Phe His Phe Ser Asn Ser Phe
20 25

<210> 105
<211> 29
<212> PRT
<213> Homo sapiens

<400> 105
Glu Ile Arg Tyr Arg Ser Lys Leu Lys Leu Ile Arg Ala Lys Glu Glu
1 5 10 15

Asp Ser Gly Gly His Tyr Thr Ile Val Ala Gln Asn Glu
20 25

<210> 106
<211> 29
<212> PRT
<213> Mus musculus

<400> 106
Glu Thr Arg Tyr Gln Ser Lys Leu Lys Leu Ile Arg Ala Lys Glu Glu
1 5 10 15

Asp Ser Gly Gly His Tyr Thr Ile Ile Val Gln Asn Glu
20 25

<210> 107
<211> 29
<212> PRT
<213> Homo sapiens

<400> 107
Glu Thr Arg Tyr Val Ser Glu Leu Thr Leu Val Arg Val Lys Val Ala
1 5 10 15

Glu Ala Gly His Tyr Thr Met Arg Ala Phe His Glu Asp
20 25

<210> 108
<211> 29
<212> PRT
<213> Mus musculus

<400> 108
Glu Thr Arg Tyr Val Ser Glu Leu Ile Leu Val Arg Val Lys Val Ser
1 5 10 15

Glu Ala Gly Tyr Tyr Thr Met Arg Ala Phe His Glu Asp
20 25

<210> 109
<211> 29
<212> PRT
<213> Homo sapiens

<400> 109
Leu Gly Pro Gly Ser Ser Thr Leu Phe Ile Glu Arg Val Thr Glu Glu
1 5 10 15

Asp Glu Gly Val Tyr His Cys Lys Ala Thr Asn Gln Lys
20 25

<210> 110
<211> 29
<212> PRT
<213> Homo sapiens

<400> 110
Leu Lys Asp Gly Asn Arg Asn Leu Thr Ile Arg Arg Val Arg Lys Glu
1 5 10 15

Asp Glu Gly Leu Tyr Thr Cys Gln Ala Cys Ser Val Leu
20 25

<210> 111
<211> 29
<212> PRT
<213> Homo sapiens

<400> 111
Leu Ala Asp Ser Asn Gln Lys Leu Ser Ile Gln Arg Val Arg Glu Glu
1 5 10 15

Asp Ala Gly Arg Tyr Leu Cys Ser Val Cys Asn Ala Lys
20 25

<210> 112
<211> 79
<212> PRT
<213> Homo sapiens

<400> 112
Pro Ser Pro Pro Ser Ile His Pro Gly Lys Ser Asp Leu Ile Val Arg
1 5 10 15

Val Gly Asp Glu Ile Arg Leu Leu Cys Thr Asp Pro Gly Phe Val Lys
20 25 30

Trp Thr Phe Glu Ile Leu Asp Glu Thr Asn Glu Asn Lys Gln Asn Glu
35 40 45

Trp Ile Thr Glu Lys Ala Glu Ala Thr Asn Thr Gly Lys Tyr Thr Cys
50 55 60

Thr Asn Lys His Gly Leu Ser Asn Ser Ile Tyr Val Phe Val Arg
65 70 75

<210> 113
<211> 80
<212> PRT
<213> Mus musculus

<400> 113
Pro Ser Pro Pro Ser Ile His Pro Ala Gln Ser Glu Leu Ile Val Glu
1 5 10 15

Ala Gly Asp Thr Leu Ser Leu Thr Cys Ile Asp Pro Asp Phe Val Arg
20 25 30

Trp Thr Phe Lys Thr Tyr Phe Asn Glu Met Val Glu Asn Lys Lys Asn
35 40 45

Glu Trp Ile Gln Glu Lys Ala Glu Ala Thr Arg Thr Gly Thr Tyr Thr
50 55 60

Cys Ser Asn Ser Asn Gly Leu Thr Ser Ser Ile Tyr Val Phe Val Arg
65 70 75 80

<210> 114
<211> 85
<212> PRT

<213> Homo sapiens

<400> 114
Gln Gly Ile Pro Val Ile Glu Pro Ser Val Pro Glu Leu Val Val Lys
1 5 10 15

Pro Gly Ala Thr Val Thr Leu Arg Cys Val Gly Asn Gly Ser Val Glu
20 25 30

Trp Asp Gly Pro Pro Ser Pro His Trp Thr Leu Tyr Ser Asp Gly Ser
35 40 45

Ser Ser Ile Leu Ser Thr Asn Asn Ala Thr Phe Gln Asn Thr Gly Thr
50 55 60

Tyr Arg Cys Thr Glu Pro Gly Asp Pro Leu Gly Gly Ser Ala Ala Ile
65 70 75 80

His Leu Tyr Val Lys
85

<210> 115
<211> 97
<212> PRT
<213> Homo sapiens

<400> 115
Ser Leu Pro Ser Ile Leu Pro Asn Glu Asn Glu Lys Val Val Gln Leu
1 5 10 15

Asn Ser Ser Phe Ser Leu Arg Cys Phe Gly Glu Ser Glu Val Ser Trp
20 25 30

Gln Tyr Pro Met Ser Glu Glu Glu Ser Ser Asp Val Glu Ile Arg Asn
35 40 45

Glu Glu Asn Asn Ser Gly Leu Phe Val Thr Val Leu Glu Val Ser Ser
50 55 60

Ala Ser Ala Ala His Thr Gly Leu Tyr Thr Cys Tyr Tyr Asn His Thr
65 70 75 80

Gln Thr Glu Glu Asn Glu Leu Glu Gly Arg His Ile Tyr Ile Tyr Val
85 90 95

Pro

<210> 116
<211> 91
<212> PRT
<213> Homo sapiens

<400> 116
Gln Gly Leu Val Val Thr Pro Pro Gly Pro Glu Leu Val Leu Asn Val
1 5 10 15

Ser Ser Thr Phe Val Leu Thr Cys Ser Gly Ser Ala Pro Val Val Trp
20 25 30

Glu Arg Met Ser Gln Glu Pro Pro Gln Glu Met Ala Lys Ala Gln Asp
35 40 45

Gly Thr Phe Ser Ser Val Leu Thr Leu Thr Asn Leu Thr Gly Leu Asp
50 55 60

Thr Gly Glu Tyr Phe Cys Thr His Asn Asp Ser Arg Gly Leu Glu Thr
65 70 75 80

Asp Glu Arg Lys Arg Leu Tyr Ile Phe Val Pro
85 90

<210> 117
<211> 94
<212> PRT
<213> Homo sapiens

<400> 117
Asp Pro Ala Lys Leu Phe Leu Val Asp Arg Ser Leu Tyr Gly Lys Glu
1 5 10 15

Asp Asn Asp Thr Leu Val Arg Cys Pro Leu Thr Asp Pro Glu Val Thr
20 25 30

Asn Tyr Ser Leu Lys Gly Cys Gln Gly Lys Pro Leu Pro Lys Asp Leu
35 40 45

Arg Phe Ile Pro Asp Pro Lys Ala Gly Ile Met Ile Lys Ser Val Lys
50 55 60

Arg Ala Tyr His Arg Leu Cys Leu His Cys Ser Val Asp Gln Glu Gly
65 70 75 80

Lys Ser Val Leu Ser Glu Lys Phe Ile Leu Lys Val Arg Pro
85 90

<210> 118
<211> 94
<212> PRT
<213> Mus musculus

<400> 118
Asp Pro Ala Lys Leu Phe Leu Val Gly Leu Pro Leu Phe Gly Lys Glu
1 5 10 15

Asp Ser Asp Ala Leu Val Arg Cys Pro Leu Thr Asp Pro Gln Val Ser
20 25 30

Asn Tyr Ser Leu Ile Glu Cys Asp Gly Lys Ser Leu Pro Thr Asp Leu
35 40 45

Thr Phe Val Pro Asn Pro Lys Ala Gly Ile Thr Ile Lys Asn Val Lys
50 55 60

Arg Ala Tyr His Arg Leu Cys Val Arg Cys Ala Ala Gln Arg Asp Gly
65 70 75 80

Thr Trp Leu His Ser Asp Lys Phe Thr Leu Lys Val Arg Ala
85 90

<210> 119
<211> 95
<212> PRT
<213> Homo sapiens

<400> 119
Asp Pro Ala Arg Pro Trp Asn Val Leu Ala Gln Glu Val Val Val Phe
1 5 10 15

Glu Asp Gln Asp Ala Leu Leu Pro Cys Leu Leu Thr Asp Pro Val Leu
20 25 30

Glu Ala Gly Val Ser Leu Val Arg Val Arg Gly Arg Pro Leu Met Arg
35 40 45

His Thr Asn Tyr Ser Phe Ser Pro Trp His Gly Phe Thr Ile His Arg
50 55 60

Ala Lys Phe Ile Gln Ser Gln Asp Tyr Gln Cys Ser Ala Leu Met Gly
65 70 75 80

Gly Arg Lys Val Met Ser Ile Ser Ile Arg Leu Lys Val Gln Lys
85 90 95

<210> 120
<211> 87
<212> PRT
<213> Homo sapiens

<400> 120
Asp Pro Asp Val Ala Phe Val Pro Leu Gly Met Thr Asp Tyr Leu Val
1 5 10 15

Ile Val Glu Asp Asp Asp Ser Ala Ile Ile Pro Cys Arg Thr Thr Asp
20 25 30

```
Pro Glu Thr Pro Val Thr Leu His Asn Ser Glu Gly Val Val Pro Ala
        35                  40                  45

Ser Tyr Asp Ser Arg Gln Gly Phe Asn Gly Thr Phe Thr Val Gly Pro
    50                  55                  60

Tyr Ile Cys Glu Ala Thr Val Lys Gly Lys Lys Phe Gln Thr Ile Pro
65                  70                  75                  80

Phe Asn Val Tyr Ala Leu Lys
                85
```

<210> 121
<211> 95
<212> PRT
<213> Homo sapiens

<400> 121

```
Asp Pro Thr Val Gly Phe Leu Pro Asn Asp Ala Glu Glu Leu Phe Ile
1               5                   10                  15

Phe Leu Thr Glu Ile Thr Glu Ile Thr Glu Ile Thr Ile Pro Cys Arg
            20                  25                  30

Val Thr Asp Pro Gln Leu Val Val Thr Leu His Glu Lys Lys Gly Asp
        35                  40                  45

Val Ala Leu Pro Val Pro Tyr Asp His Gln Arg Gly Phe Ser Gly Ile
    50                  55                  60

Phe Glu Gly Ile Phe Glu Asp Arg Ser Tyr Ile Cys Lys Thr Thr Ile
65                  70                  75                  80

Gly Asp Arg Glu Val Asp Ser Asp Ala Tyr Tyr Val Tyr Arg Leu
                85                  90                  95
```

<210> 122
<211> 90
<212> PRT
<213> Homo sapiens

<400> 122

```
Arg Asn Thr Leu Leu Tyr Thr Leu Arg Arg Pro Tyr Phe Arg Lys Met
1               5                   10                  15

Glu Asn Gln Asp Ala Leu Val Cys Ile Ser Glu Ser Val Pro Glu Pro
            20                  25                  30

Ile Val Glu Trp Val Leu Cys Asp Ser Gln Gly Glu Ser Cys Lys Glu
        35                  40                  45

Glu Ser Pro Ala Val Val Lys Lys Glu Glu Lys Val Leu His Glu Leu
```

50 55 60

Phe Gly Thr Asp Ile Arg Cys Cys Ala Arg Asn Glu Leu Gly Arg Glu
65 70 75 80

Cys Thr Arg Leu Phe Thr Ile Asp Leu Asn
85 90

<210> 123
<211> 103
<212> PRT
<213> Homo sapiens

<400> 123
Ala Phe Lys Ala Val Pro Val Val Ser Val Ser Lys Ala Ser Tyr Leu
1 5 10 15

Leu Arg Glu Gly Glu Glu Phe Thr Val Thr Cys Thr Ile Lys Asp Val
20 25 30

Ser Ser Ser Val Tyr Ser Thr Trp Lys Arg Glu Asn Ser Gln Thr Lys
35 40 45

Leu Gln Glu Lys Tyr Asn Ser Trp His His Gly Asp Phe Asn Tyr Glu
50 55 60

Arg Gln Ala Thr Leu Thr Ile Ser Ser Ala Arg Val Asn Asp Ser Gly
65 70 75 80

Val Phe Met Cys Tyr Ala Asn Asn Thr Phe Gly Ser Ala Asn Val Thr
85 90 95

Thr Thr Leu Glu Val Val Asp
100

<210> 124
<211> 105
<212> PRT
<213> Mus musculus

<400> 124
Ala Ile Lys Ala Ile Pro Val Val Ser Val Pro Glu Thr Ser His Leu
1 5 10 15

Leu Lys Lys Gly Asp Thr Phe Thr Val Val Cys Thr Ile Lys Asp Val
20 25 30

Ser Thr Ser Val Asn Ser Met Trp Leu Lys Met Asn Pro Gln Pro Gln
35 40 45

His Ile Ala Gln Val Lys His Asn Ser Trp His Arg Gly Asp Phe Asn
50 55 60

Tyr Glu Arg Gln Glu Thr Leu Thr Ile Ser Ser Ala Arg Val Asp Asp
65 70 75 80

Ser Gly Val Phe Met Cys Tyr Ala Asn Asn Thr Phe Gly Ser Ala Asn
85 90 95

Val Thr Thr Thr Leu Lys Val Val Glu
100 105

<210> 125
<211> 100
<212> PRT
<213> Homo sapiens

<400> 125
Val Ile Pro Gly Pro Pro Ala Leu Thr Leu Val Pro Ala Glu Leu Val
1 5 10 15

Arg Ile Arg Gly Glu Ala Ala Gln Ile Val Cys Ser Ala Ser Ser Val
20 25 30

Asp Val Asn Phe Asp Val Phe Leu Gln His Asn Asn Thr Lys Leu Ala
35 40 45

Ile Pro Gln Gln Ser Asp Phe His Asn Asn Arg Tyr Gln Lys Val Leu
50 55 60

Thr Leu Asn Leu Asp Gln Val Asp Phe Gln His Ala Gly Asn Tyr Ser
65 70 75 80

Cys Val Ala Ser Asn Val Gln Gly Lys His Ser Thr Ser Met Phe Phe
85 90 95

Arg Val Val Glu
100

<210> 126
<211> 102
<212> PRT
<213> Homo sapiens

<400> 126
Ala Thr Ser Glu Leu Asp Leu Glu Met Glu Ala Leu Lys Thr Val Tyr
1 5 10 15

Lys Ser Gly Glu Thr Ile Val Val Thr Cys Ala Val Phe Asn Asn Glu
20 25 30

Val Val Asp Leu Gln Trp Thr Tyr Pro Gly Glu Val Lys Gly Lys Gly
35 40 45

Ile Thr Met Leu Glu Glu Ile Lys Val Pro Ser Ile Lys Leu Val Tyr
50 55 60

Thr Leu Thr Val Pro Glu Ala Thr Val Lys Asp Ser Gly Asp Tyr Glu
65 70 75 80

Cys Ala Ala Arg Gln Ala Thr Arg Glu Val Lys Glu Met Lys Lys Val
85 90 95

Thr Ile Ser Val His Glu
100

<210> 127
<211> 103
<212> PRT
<213> Homo sapiens

<400> 127
Gln Val Ser Ser Ile Asn Val Ser Val Asn Ala Val Gln Thr Val Val
1 5 10 15

Arg Gln Gly Glu Asn Ile Thr Leu Met Cys Ile Val Ile Gly Asn Glu
20 25 30

Val Val Asn Phe Glu Trp Thr Tyr Pro Arg Lys Glu Ser Gly Arg Leu
35 40 45

Val Glu Pro Val Thr Asp Phe Leu Leu Asp Met Pro Tyr His Ile Arg
50 55 60

Ser Ile Leu His Ile Pro Ser Ala Glu Leu Glu Asp Ser Gly Thr Tyr
65 70 75 80

Thr Cys Asn Val Thr Glu Ser Val Asn Asp His Gln Asp Glu Lys Ala
85 90 95

Ile Asn Ile Thr Val Val Glu
100

<210> 128
<211> 100
<212> PRT
<213> Homo sapiens

<400> 128
Gln Thr Pro Gln Thr Thr Leu Pro Gln Leu Phe Leu Lys Val Gly Glu
1 5 10 15

Pro Leu Trp Ile Arg Cys Lys Ala Val His Val Asn His Gly Phe Gly
20 25 30

```
Leu Thr Trp Glu Leu Glu Asn Lys Ala Leu Glu Glu Gly Asn Tyr Phe
        35                  40                  45

Glu Met Ser Thr Tyr Ser Thr Asn Arg Thr Met Ile Arg Ile Leu Phe
    50                  55                  60

Ala Phe Val Ser Ser Val Ala Arg Asn Asp Thr Gly Tyr Tyr Thr Cys
65                  70                  75                  80

Ser Ser Ser Lys His Pro Ser Gln Ser Ala Leu Val Thr Ile Val Gly
                85                  90                  95

Lys Gly Phe Ile
            100
```

<210> 129
<211> 101
<212> PRT
<213> Homo sapiens

<400> 129

```
Lys Gly Phe Ile Asn Ile Phe Pro Met Ile Asn Thr Thr Val Phe Val
1               5                   10                  15

Asn Asp Gly Glu Asn Val Asp Leu Ile Val Glu Tyr Glu Ala Phe Pro
            20                  25                  30

Lys Pro Glu His Gln Gln Trp Ile Tyr Met Asn Arg Thr Phe Thr Asp
        35                  40                  45

Lys Trp Glu Asp Tyr Pro Lys Ser Glu Asn Glu Ser Asn Ile Arg Tyr
    50                  55                  60

Val Ser Glu Leu His Leu Thr Arg Leu Lys Gly Thr Glu Gly Gly Thr
65                  70                  75                  80

Tyr Thr Phe Leu Val Ser Asn Ser Asp Val Asn Ala Ala Ile Ala Phe
                85                  90                  95

Asn Val Tyr Val Asn
            100
```

<210> 130
<211> 101
<212> PRT
<213> Mus musculus

<400> 130

```
Lys Gly Phe Ile Asn Ile Ser Pro Val Lys Asn Thr Thr Val Phe Val
1               5                   10                  15
```

Thr Asp Gly Glu Asn Val Asp Leu Val Val Glu Tyr Glu Ala Tyr Pro
20 25 30

Lys Pro Glu His Gln Gln Trp Ile Tyr Met Asn Arg Thr Ser Ala Asn
35 40 45

Lys Gly Lys Asp Tyr Val Lys Ser Asp Asn Lys Ser Asn Ile Arg Tyr
50 55 60

Val Asn Gln Leu Arg Leu Thr Arg Leu Lys Gly Thr Glu Gly Gly Thr
65 70 75 80

Tyr Thr Phe Leu Val Ser Asn Ser Asp Ala Ser Ala Ser Val Thr Phe
85 90 95

Asn Val Tyr Val Asn
100

<210> 131
<211> 102
<212> PRT
<213> Homo sapiens

<400> 131
Ser Ala Tyr Leu Asn Leu Ser Ser Glu Gln Asn Leu Ile Gln Glu Val
1 5 10 15

Thr Val Gly Glu Gly Leu Asn Leu Lys Val Met Val Glu Ala Tyr Pro
20 25 30

Gly Leu Gln Gly Phe Asn Trp Thr Tyr Leu Gly Pro Phe Ser Asp His
35 40 45

Gln Pro Glu Pro Lys Leu Ala Asn Ala Thr Thr Lys Asp Thr Tyr Arg
50 55 60

His Thr Phe Thr Leu Ser Leu Pro Arg Leu Lys Pro Ser Glu Ala Gly
65 70 75 80

Arg Tyr Ser Phe Leu Ala Arg Asn Pro Gly Gly Trp Arg Ala Leu Thr
85 90 95

Phe Glu Leu Thr Leu Arg
100

<210> 132
<211> 100
<212> PRT
<213> Homo sapiens

<400> 132

```
Lys Gly Phe Ile Glu Ile Lys Pro Thr Phe Ser Gln Leu Glu Ala Val
1               5                  10                  15

Asn Leu His Glu Val Lys His Phe Val Val Glu Val Arg Ala Tyr Pro
            20                  25                  30

Pro Pro Arg Ile Ser Trp Leu Lys Asn Asn Leu Thr Leu Ile Glu Asn
        35                  40                  45

Leu Thr Glu Ile Thr Thr Asp Val Glu Lys Ile Gln Glu Ile Arg Tyr
    50                  55                  60

Arg Ser Lys Leu Lys Ile Arg Ala Lys Glu Glu Asp Ser Gly His Tyr
65                  70                  75                  80

Thr Ile Val Ala Gln Asn Glu Asp Ala Val Lys Ser Tyr Thr Phe Glu
                85                  90                  95

Leu Leu Thr Gln
            100


<210> 133
<211> 102
<212> PRT
<213> Homo sapiens

<400> 133
Ser Gly Tyr Val Arg Leu Leu Gly Glu Val Gly Thr Leu Gln Phe Ala
1               5                  10                  15

Glu Leu His Arg Ser Arg Thr Leu Gln Val Val Phe Glu Ala Tyr Pro
            20                  25                  30

Pro Pro Thr Val Leu Trp Phe Lys Asp Asn Arg Thr Leu Gly Asp Ser
        35                  40                  45

Ser Ala Gly Glu Ile Ala Leu Ser Thr Arg Asn Val Ser Glu Thr Arg
    50                  55                  60

Tyr Val Ser Glu Leu Thr Leu Val Arg Val Lys Val Ala Glu Ala Gly
65                  70                  75                  80

His Tyr Thr Met Arg Ala Phe His Glu Asp Ala Glu Val Gln Leu Ser
                85                  90                  95

Phe Gln Leu Gln Ile Asn
            100


<210> 134
<211> 99
<212> PRT
```

<213> Homo sapiens

<400> 134
Thr Lys Pro Glu Ile Leu Thr Tyr Asp Arg Leu Val Asn Gly Met Leu
1 5 10 15

Gln Cys Val Ala Ala Gly Phe Pro Glu Pro Thr Ile Asp Trp Tyr Phe
20 25 30

Cys Pro Gly Thr Glu Gln Arg Cys Ser Ala Ser Val Leu Pro Val Asp
35 40 45

Val Gln Thr Leu Asn Ser Ser Gly Pro Pro Phe Gly Lys Leu Val Val
50 55 60

Gln Ser Ser Ile Asp Ser Ser Ala Phe Lys His Asn Gly Thr Val Glu
65 70 75 80

Cys Lys Ala Tyr Asn Asp Val Gly Lys Thr Ser Ala Tyr Phe Asn Phe
85 90 95

Ala Phe Lys

<210> 135
<211> 99
<212> PRT
<213> Mus musculus

<400> 135
Thr Lys Pro Glu Ile Leu Thr Tyr Asp Arg Leu Ile Asn Gly Met Leu
1 5 10 15

Gln Cys Val Ala Glu Gly Phe Pro Glu Pro Thr Ile Asp Trp Tyr Phe
20 25 30

Cys Thr Gly Ala Glu Gln Arg Cys Thr Thr Pro Val Ser Pro Val Asp
35 40 45

Val Gln Val Gln Asn Val Ser Val Ser Pro Phe Gly Lys Leu Val Val
50 55 60

Gln Ser Ser Ile Asp Ser Ser Val Phe Arg His Asn Gly Thr Val Glu
65 70 75 80

Cys Lys Ala Ser Asn Asp Val Gly Lys Ser Ser Ala Phe Phe Asn Phe
85 90 95

Ala Phe Lys

<210> 136
<211> 104
<212> PRT
<213> Homo sapiens

<400> 136
Tyr Pro Pro Glu Val Ser Val Ile Trp Thr Phe Ile Asn Gly Ser Gly
1 5 10 15

Thr Leu Leu Cys Ala Ala Ser Gly Tyr Pro Gln Pro Asn Val Thr Trp
20 25 30

Leu Gln Cys Ser Gly His Thr Asp Arg Cys Asp Glu Ala Gln Val Leu
35 40 45

Gln Val Trp Asp Asp Pro Tyr Pro Glu Val Leu Ser Gln Glu Pro Phe
50 55 60

His Lys Val Thr Val Gln Ser Leu Leu Thr Val Glu Thr Leu Glu His
65 70 75 80

Asn Gln Thr Tyr Glu Cys Arg Ala His Asn Ser Val Gly Ser Gly Ser
85 90 95

Trp Ala Phe Ile Pro Ile Ser Ala
100

<210> 137
<211> 106
<212> PRT
<213> Homo sapiens

<400> 137
Val Pro Ser Ser Ile Leu Asp Leu Val Asp Asp Glu Glu Gly Ser Thr
1 5 10 15

Gly Gly Gln Thr Val Arg Cys Thr Ala Glu Gly Thr Pro Leu Pro Asp
20 25 30

Ile Glu Trp Met Ile Cys Lys Asp Ile Lys Lys Cys Asn Asn Glu Thr
35 40 45

Ser Trp Thr Ile Leu Ala Asn Asn Val Ser Asn Ile Ile Thr Glu Ile
50 55 60

Glu Ser Arg Asp Arg Ser Thr Val Glu Gly Arg Val Thr Phe Ala Lys
65 70 75 80

Val Glu Glu Thr Ile Ala Val Arg Cys Leu Ala Lys Asn Leu Leu Gly
85 90 95

Ala Glu Asn Arg Glu Leu Lys Leu Val Ala
100 105

<210> 138
<211> 111
<212> PRT
<213> Homo sapiens

<400> 138
Val Pro Val Arg Val Leu Glu Leu Ser Glu Ser His Pro Asp Ser Gly
1 5 10 15

Glu Gln Thr Val Arg Cys Arg Gly Arg Gly Met Pro Gln Pro Asn Ile
20 25 30

Ile Trp Ser Ala Cys Arg Asp Leu Lys Arg Cys Pro Arg Glu Leu Pro
35 40 45

Pro Thr Leu Leu Gly Asn Ser Ser Glu Glu Glu Ser Gln Leu Glu Thr
50 55 60

Asn Val Thr Tyr Trp Glu Glu Glu Gln Glu Phe Glu Val Val Ser Thr
65 70 75 80

Leu Arg Leu Gln His Val Asp Arg Pro Leu Ser Val Arg Cys Thr Leu
85 90 95

Arg Asn Ala Val Gly Gln Asp Thr Gln Glu Val Ile Val Val Pro
100 105 110

<210> 139
<211> 96
<212> PRT
<213> Homo sapiens

<400> 139
Arg Lys Pro Gln Val Leu Ala Glu Ala Ser Ala Ser Gln Ala Ser Cys
1 5 10 15

Phe Ser Asp Gly Tyr Pro Leu Pro Ser Trp Thr Trp Lys Lys Cys Ser
20 25 30

Asp Lys Ser Pro Asn Cys Thr Glu Glu Ile Thr Glu Gly Val Trp Asn
35 40 45

Arg Lys Ala Asn Arg Lys Val Phe Gly Gln Trp Val Ser Ser Ser Thr
50 55 60

Leu Asn Met Ser Glu Ala Ile Lys Gly Phe Leu Val Lys Cys Cys Ala
65 70 75 80

Tyr Asn Ser Leu Gly Thr Ser Cys Glu Thr Ile Leu Leu Asn Ser Pro

85 90 95

<210> 140
<211> 70
<212> PRT
<213> Homo sapiens

<400> 140
Ile Cys Arg Asn Arg Val Thr Asn Asn Val Lys Asp Val Thr Lys Leu
1 5 10 15

Val Ala Asn Leu Pro Lys Asp Tyr Met Ile Thr Leu Lys Tyr Val Pro
20 25 30

Gly Met Asp Val Leu Pro Ser His Cys Trp Ile Ser Glu Met Val Val
35 40 45

Gln Leu Ser Asp Ser Leu Thr Asp Leu Leu Asp Lys Phe Ser Asn Ile
50 55 60

Ser Glu Gly Leu Ser Asn
65 70

<210> 141
<211> 70
<212> PRT
<213> Mus musculus

<400> 141
Ile Cys Gly Asn Pro Val Thr Asp Asn Val Lys Asp Ile Thr Lys Leu
1 5 10 15

Val Ala Asn Leu Pro Asn Asp Tyr Met Ile Thr Leu Asn Tyr Val Ala
20 25 30

Gly Met Asp Val Leu Pro Ser His Cys Trp Leu Arg Asp Met Val Ile
35 40 45

Gln Leu Ser Leu Ser Leu Thr Thr Leu Leu Asp Lys Phe Ser Asn Ile
50 55 60

Ser Glu Gly Leu Ser Asn
65 70

<210> 142
<211> 68
<212> PRT
<213> Homo sapiens

<400> 142
Tyr Cys Ser His Met Ile Gly Ser Gly His Leu Gln Ser Leu Gln Arg
1 5 10 15

```
Leu Ile Asp Ser Gln Met Glu Thr Ser Cys Gln Ile Thr Phe Glu Phe
            20                  25                  30

Val Asp Gln Glu Gln Leu Ala Asp Pro Val Cys Tyr Leu Lys Lys Ala
        35                  40                  45

Phe Leu Leu Val Gln Asp Ile Met Glu Asp Thr Met Arg Phe Arg Asp
    50                  55                  60

Asn Thr Pro Asn
65
```

<210> 143
<211> 60
<212> PRT
<213> Homo sapiens

<400> 143

```
Ser Pro Ile Ser Ser Asp Phe Ala Val Lys Ile Arg Glu Leu Ser Asp
1               5                   10                  15

Tyr Leu Leu Gln Asp Tyr Pro Val Thr Val Ala Ser Asn Leu Gln Asp
            20                  25                  30

Asp Glu Leu Cys Gly Gly Leu Trp Arg Leu Val Leu Ala Gln Arg Trp
        35                  40                  45

Met Glu Arg Leu Lys Thr Val Ala Gly Ser Lys Met
    50                  55                  60
```

<210> 144
<211> 69
<212> PRT
<213> Homo sapiens

<400> 144

```
Tyr Ser Ile Ile Asp Lys Leu Val Asn Ile Val Asp Asp Leu Val Glu
1               5                   10                  15

Cys Val Lys Glu Asn Ser Ser Lys Asp Leu Lys Lys Ser Phe Lys Ser
            20                  25                  30

Pro Glu Pro Arg Leu Phe Thr Pro Glu Glu Phe Phe Arg Ile Phe Asn
        35                  40                  45

Arg Ser Ile Asp Ala Phe Lys Asp Phe Val Val Ala Ser Glu Thr Ser
    50                  55                  60

Asp Cys Val Val Ser
65
```

<210> 145

<211> 69
<212> PRT
<213> Mus musculus

<400> 145
Tyr Ser Ile Ile Asp Lys Leu Gly Lys Ile Val Asp Asp Leu Val Leu
1 5 10 15

Cys Met Glu Glu Asn Ala Pro Lys Asn Ile Lys Glu Ser Pro Lys Arg
20 25 30

Pro Glu Thr Arg Ser Phe Thr Pro Glu Glu Phe Phe Ser Ile Phe Asn
35 40 45

Arg Ser Ile Asp Ala Phe Lys Asp Phe Met Val Ala Ser Asp Thr Ser
50 55 60

Asp Cys Val Leu Ser
65

<210> 146
<211> 69
<212> PRT
<213> Homo sapiens

<400> 146
Ala Ile Ala Ile Val Gln Leu Gln Glu Leu Ser Leu Arg Leu Lys Ser
1 5 10 15

Cys Phe Thr Lys Asp Tyr Glu Glu His Asp Ala Ala Cys Val Arg Thr
20 25 30

Phe Tyr Glu Thr Pro Leu Gln Leu Leu Glu Lys Val Lys Asn Val Phe
35 40 45

Asn Glu Thr Lys Asn Leu Leu Asp Lys Asp Ala Asn Ile Phe Ser Lys
50 55 60

Asn Cys Asn Asn Ser
65

<210> 147
<211> 65
<212> PRT
<213> Homo sapiens

<400> 147
Gln Gly Leu Leu Glu Arg Val Asn Thr Glu Ile His Phe Val Thr Lys
1 5 10 15

Cys Ala Phe Gln Pro Pro Pro Ser Cys Leu Arg Phe Val Gln Thr Asn
20 25 30

```
Ile Ser Arg Leu Leu Gln Glu Thr Ser Glu Gln Leu Val Ala Leu Lys
        35                  40                  45

Pro Trp Ile Thr Arg Gln Asn Phe Ser Arg Cys Leu Glu Leu Gln Cys
    50                  55                  60

Gln
65
```

<210> 148
<211> 101
<212> PRT
<213> Homo sapiens

```
<400> 148
Lys Gly Phe Ile Glu Ile Lys Pro Thr Phe Ser Gln Leu Glu Ala Val
1               5                  10                  15

Asn Leu His Glu Val Lys His Phe Val Val Glu Val Arg Ala Tyr Pro
            20                  25                  30

Pro Pro Arg Ile Ser Trp Leu Lys Asn Asn Leu Thr Leu Ile Glu Asn
        35                  40                  45

Leu Thr Glu Ile Thr Thr Asp Val Glu Lys Ile Gln Glu Thr Arg Tyr
    50                  55                  60

Gln Ser Lys Leu Lys Leu Ile Arg Ala Lys Glu Glu Asp Ser Gly His
65                  70                  75                  80

Tyr Thr Ile Val Ala Gln Asn Glu Asp Ala Val Lys Ser Tyr Thr Phe
                85                  90                  95

Glu Leu Leu Thr Gln
            100
```

<210> 149
<211> 101
<212> PRT
<213> Mus musculus

```
<400> 149
Lys Gly Phe Val Glu Ile Glu Pro Thr Phe Gly Gln Leu Glu Ala Val
1               5                  10                  15

Asn Leu His Glu Val Arg Glu Phe Val Val Glu Val Gln Ala Tyr Pro
            20                  25                  30

Thr Pro Arg Ile Ser Trp Leu Lys Asp Asn Leu Thr Leu Ile Glu Asn
        35                  40                  45
```

Leu Thr Glu Ile Thr Thr Asp Val Gln Lys Ser Gln Glu Thr Arg Tyr
50 55 60

Gln Ser Lys Leu Lys Leu Ile Arg Ala Lys Glu Glu Asp Ser Gly His
65 70 75 80

Tyr Thr Ile Ile Val Gln Asn Glu Asp Asp Val Lys Ser Tyr Thr Phe
85 90 95

Glu Leu Ser Thr Leu
100

<210> 150
<211> 101
<212> PRT
<213> Gallus gallus

<400> 150
His Gly Phe Ile His Leu Glu Pro Gln Phe Ser Pro Leu Glu Ala Val
1 5 10 15

Asn Leu His Glu Val Lys Asn Phe Val Val Asp Val Gln Ala Tyr Pro
20 25 30

Ala Pro Lys Met Tyr Trp Leu Lys Asp Asn Val Thr Leu Ile Glu Asn
35 40 45

Leu Thr Glu Ile Val Thr Ser Ser Asn Arg Val Gln Glu Thr Arg Phe
50 55 60

Gln Ser Val Leu Lys Leu Ile Arg Ala Lys Glu Glu Asp Ser Gly Thr
65 70 75 80

Ile Leu Trp Leu Leu Lys Asn Glu Asp Glu Ile Lys Arg Tyr Thr Phe
85 90 95

Ser Leu Leu Ile Gln
100

<210> 151
<211> 101
<212> PRT
<213> Rana sp.

<400> 151
Lys Gly Phe Ile Asp Leu Glu Pro Met Phe Gly Ser Glu Glu Phe Ala
1 5 10 15

Asn Leu His Glu Val Lys Ser Phe Ile Val Asn Leu His Ala Tyr Pro
20 25 30

```
Thr Pro Gly Leu Phe Trp Leu Lys Asp Asn Arg Thr Leu Ser Glu Asn
        35                  40                  45

Leu Thr Glu Ile Thr Thr Ser Ile Val Thr Thr Lys Glu Thr Arg Phe
    50                  55                  60

Gln Ser Lys Leu Lys Leu Ile Arg Ala Lys Glu Glu Asp Ser Gly Leu
65                  70                  75                  80

Tyr Thr Leu Val Ala Gln Asn Asp Arg Glu Thr Lys Ser Tyr Ser Phe
                85                  90                  95

Ile Leu Gln Ile Lys
            100
```

<210> 152
<211> 101
<212> PRT
<213> Takifugu rubripes

<400> 152

```
Ser Glu Phe Met Ser Ile Gln Pro Lys Phe Gly Glu Tyr Glu Ser Ala
1               5                   10                  15

Glu Leu Asp Glu Val Cys Glu Phe Arg Ala Glu Ile Thr Ser Phe Pro
            20                  25                  30

Thr Ala Ser Val Thr Trp Phe Lys Asp Ser Val Pro Leu Ser Asn Val
        35                  40                  45

Thr Ala Glu Ile Ser Thr Ser Leu Gln Lys Leu Ser Glu Thr Ser Tyr
    50                  55                  60

Met Ser Val Leu Thr Leu Ile Arg Ala Lys Glu Glu Asp Ser Gly Asn
65                  70                  75                  80

Tyr Thr Met Arg Val Lys Asn Gly Asp Gln Ser Arg Thr Val Ser Leu
                85                  90                  95

Ile Leu Glu Val Lys
            100
```

<210> 153
<211> 102
<212> PRT
<213> Homo sapiens

<400> 153

```
Ser Gly Tyr Val Arg Leu Leu Gly Glu Val Gly Thr Leu Gln Phe Ala
1               5                   10                  15
```

```
Glu Leu His Arg Ser Arg Thr Leu Gln Val Val Phe Glu Ala Tyr Pro
            20                  25                  30

Pro Pro Thr Val Leu Trp Phe Lys Asp Asn Arg Thr Leu Gly Asp Ser
        35                  40                  45

Ser Ala Gly Glu Ile Ala Leu Ser Thr Arg Asn Val Ser Glu Thr Arg
    50                  55                  60

Tyr Val Ser Glu Leu Thr Leu Val Arg Val Lys Val Ala Glu Ala Gly
65                  70                  75                  80

His Tyr Thr Met Arg Ala Phe His Glu Asp Ala Glu Val Gln Leu Ser
                85                  90                  95

Phe Gln Leu Gln Ile Asn
            100
```

<210> 154
<211> 102
<212> PRT
<213> Canis familiaris

<400> 154

```
Ser Gly Tyr Val Arg Leu Leu Gly Glu Leu Asp Ala Val Gln Phe Ala
1               5                   10                  15

Glu Leu His Arg Ser Arg Ala Leu Gln Val Val Phe Glu Ala Tyr Pro
            20                  25                  30

Pro Pro Thr Val Val Trp Phe Lys Asp Asn Arg Thr Leu Gly Asp Ser
        35                  40                  45

Ser Ala Gly Glu Ile Ala Leu Ser Thr Arg Asn Val Ser Glu Thr Arg
    50                  55                  60

Tyr Val Ser Glu Leu Thr Leu Val Arg Val Lys Val Ala Glu Ala Gly
65                  70                  75                  80

Tyr Tyr Thr Met Arg Ala Phe His Glu Asp Ala Glu Ala Gln Leu Ser
                85                  90                  95

Phe Gln Leu Gln Val Asn
            100
```

<210> 155
<211> 102
<212> PRT
<213> Mus musculus

<400> 155

```
Asn Gly Tyr Val Arg Leu Leu Glu Thr Leu Gly Asp Val Glu Ile Ala
1               5                  10                  15

Glu Leu His Arg Ser Arg Thr Leu Arg Val Val Phe Glu Ala Tyr Pro
            20                  25                  30

Met Pro Ser Val Leu Trp Leu Lys Asp Asn Arg Thr Leu Gly Asp Ser
        35                  40                  45

Gly Ala Gly Glu Leu Val Leu Ser Thr Arg Asn Met Ser Glu Thr Arg
    50                  55                  60

Tyr Val Ser Glu Leu Ile Leu Val Arg Val Lys Val Ser Glu Ala Gly
65                  70                  75                  80

Tyr Tyr Thr Met Arg Ala Phe His Glu Asp Asp Glu Val Gln Leu Ser
                85                  90                  95

Phe Lys Leu Gln Val Asn
            100
```

<210> 156
<211> 98
<212> PRT
<213> Takifugu rubripes

<400> 156

```
Arg Gly Phe Val Ala Val Lys Ser Thr Arg Lys Gln Asn Ile Thr Ala
1               5                  10                  15

Glu Leu Gln Glu Asn Val Glu Leu Arg Val Glu Ile Glu Ala Tyr Pro
            20                  25                  30

Pro Pro Gln Ile Arg Trp Lys Lys Asp Gly Ala Pro Val Arg Gly Asp
        35                  40                  45

Lys Thr Ile Ile Ile Arg Gln Glu His Glu Ile Arg Tyr Val Thr Ile
    50                  55                  60

Leu Thr Leu Val Arg Val Arg Thr Glu Gln Lys Gly Leu Tyr Thr Ala
65                  70                  75                  80

Leu Ile Thr Asn Glu Asp Asp Val Lys Glu Val Thr Phe Ala Leu Glu
                85                  90                  95

Val Gln
```

<210> 157
<211> 101
<212> PRT

<213> Homo sapiens

<400> 157

```
Lys Gly Phe Ile Asn Ile Phe Pro Met Ile Asn Thr Thr Val Phe Val
1               5                  10                  15

Asn Asp Gly Glu Asn Val Asp Leu Ile Val Glu Tyr Glu Ala Phe Pro
            20                  25                  30

Lys Pro Glu His Gln Gln Trp Ile Tyr Met Asn Arg Thr Phe Thr Asp
        35                  40                  45

Lys Trp Glu Asp Tyr Pro Lys Ser Glu Asn Glu Ser Asn Ile Arg Tyr
    50                  55                  60

Val Ser Glu Leu His Leu Thr Arg Leu Lys Gly Thr Glu Gly Gly Thr
65                  70                  75                  80

Tyr Thr Phe Leu Val Ser Asn Ser Asp Val Asn Ala Ala Ile Ala Phe
                85                  90                  95

Asn Val Tyr Val Asn
            100
```