

SEQUENCE LISTING

<110> SAMSUNG LIFE PUBLIC WELFARE FOUNDATION
 <120> ANTIBODY BINDING TO NEUROPILIN 1 AND USE THEREOF
 <130> PF-B1893-SG
 <140> PCT/KR2015/013102
 <141> 2015-12-03
 <150> 10-2014-0171949
 <151> 2014-12-03
 <160> 42
 <170> PatentIn version 3.5
 <210> 1
 <211> 8
 <212> PRT
 <213> Artificial Sequence
 <220>
 <223> CDRH1 of 4F12
 <400> 1

Gly Phe Thr Phe Ser Gly Tyr Ala
 1 5

<210> 2
 <211> 8
 <212> PRT
 <213> Artificial Sequence
 <220>
 <223> CDRH2 of 4F12
 <400> 2

Ile Ser Pro Gly Ser Gly Ser Thr
 1 5

<210> 3
 <211> 9
 <212> PRT
 <213> Artificial Sequence
 <220>
 <223> CDRH3 of 4F12
 <400> 3

Ala Lys Arg Lys Thr Arg Phe Asp Tyr
 1 5

<210> 4
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> CDRL1 of 4F12

<400> 4

Ser Ser Asn Ile Gly Asn Asn Ser
1 5

<210> 5
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> CDRL2 of 4F12

<400> 5

Ala Asn Asn
1

<210> 6
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> CDRL3 of 4F12

<400> 6

Ala Ala Trp Asp Ser Ser Leu Asn Gly Tyr Val
1 5 10

<210> 7
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> CDRH1 of 1A03 or 3H10

<400> 7

Gly Phe Thr Phe Ser Ser Tyr Tyr
1 5

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

<220>
<223> CDRH2 of 1A03 or 3H10

<400> 8

Ile Ser Pro Gly Ser Ser Asn Lys
1 5

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

<220>
<223> CDRH3 of 1A03

<400> 9

Ala Arg Arg Lys Lys Ser Phe Asp Tyr
1 5

<210> 10
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> CDRL1 of 1A03 or 3H10

<400> 10

Ser Ser Asn Ile Gly Asn Asn Asp
1 5

<210> 11
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> CDRL2 of 1A03

<400> 11

Ser Asp Asn
1

<210> 12
<211> 11

<212> PRT
<213> Artificial Sequence

<220>
<223> CDRL3 of 1A03

<400> 12

Gly Ala Trp Val Ala Ser Leu Ser Ala Tyr Val
1 5 10

<210> 13
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> CDRH3 of 3H10

<400> 13

Ala Arg Arg Lys Tyr Met Phe Asp Tyr
1 5

<210> 14
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> CDRL2 of 3H10

<400> 14

Ser Asp Ser
1

<210> 15
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> CDRL3 of 3H10

<400> 15

Ala Ser Trp Asp Ser Ser Leu Ser Gly Tyr Val
1 5 10

<210> 16
<211> 116
<212> PRT
<213> Artificial Sequence

<220>

<223> VH of 4F12

<400> 16

Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Gly Tyr
20 25 30

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

Ser Gly Ile Ser Pro Gly Ser Gly Ser Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Lys Arg Lys Thr Arg Phe Asp Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110

Thr Val Ser Ser
115

<210> 17

<211> 110

<212> PRT

<213> Artificial Sequence

<220>

<223> VL of 4F12

<400> 17

Gln Ser Val Leu Thr Gln Pro Pro Ser Ala Ser Gly Thr Pro Gly Arg
1 5 10 15

Arg Val Thr Ile Ser Cys Ser Gly Ser Ser Ser Asn Ile Gly Asn Asn
20 25 30

Ser Val Tyr Trp Tyr Gln Gln Leu Pro Gly Thr Ala Pro Lys Leu Leu
35 40 45

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

Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu Ala Ile Ser Gly Leu Arg
65 70 75 80

Ser Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Ala Trp Asp Ser Ser Leu
85 90 95

Asn Gly Tyr Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu
100 105 110

<210> 18
<211> 116
<212> PRT
<213> Artificial Sequence

<220>
<223> VH of 1A03

<400> 18

Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
20 25 30

Tyr Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ser Ala Ile Ser Pro Gly Ser Ser Asn Lys Tyr Tyr Ala Asp Ser Val
50 55 60

Gln Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Arg Lys Lys Ser Phe Asp Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110

Thr Val Ser Ser
115

<210> 19
<211> 110
<212> PRT
<213> Artificial Sequence

<220>
<223> VL of 1A03

<400> 19

Gln Ser Val Leu Thr Gln Pro Pro Ser Ala Ser Gly Thr Pro Gly Gln
1 5 10 15

Arg Val Thr Ile Ser Cys Ser Gly Pro Ser Ser Asn Ile Gly Asn Asn
20 25 30

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

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

Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu Ala Ile Ser Gly Leu Arg
65 70 75 80

Ser Glu Asp Glu Ala Asp Tyr Tyr Cys Gly Ala Trp Val Ala Ser Leu
85 90 95

Ser Ala Tyr Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu
100 105 110

<210> 20
<211> 116
<212> PRT
<213> Artificial Sequence

<220>
<223> VH of 3H10

<400> 20

Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
20 25 30

Tyr Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45

Ser Ala Ile Ser Pro Gly Ser Ser Asn Lys Tyr Tyr Ala Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Arg Arg Lys Tyr Met Phe Asp Tyr Trp Gly Gln Gly Thr Leu Val
 100 105 110

Thr Val Ser Ser
 115

<210> 21
 <211> 110
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> VL of 3H10

<400> 21

Gln Ser Val Leu Thr Gln Pro Pro Ser Ala Ser Gly Thr Pro Gly Gln
 1 5 10 15

Arg Val Thr Ile Ser Cys Thr Gly Ser Ser Ser Asn Ile Gly Asn Asn
 20 25 30

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

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

Gly Ser Lys Ser Gly Thr Ser Ala Ser Leu Ala Ile Ser Gly Leu Arg
 65 70 75 80

Ser Glu Asp Glu Ala Asp Tyr Tyr Cys Ala Ser Trp Asp Ser Ser Leu
 85 90 95

Ser Gly Tyr Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu
100 105 110

<210> 22
<211> 348
<212> DNA
<213> Artificial Sequence

<220>
<223> VH of 4F12

<400> 22
gaggtgcagc tgttggagtc tggggggaggc ttggtacagc ctgggggggct cctgagactc
60
tcctgtgcag cctctggatt cacctttagc ggttatgcta tgagctgggt ccgccaggct
120
ccaggaagg ggctggagt ggtctcagg atctctcctg gtagtggtag tacatattac
180
gctgattctg taaaaggctg gttcaccatc tccagagaca attccaagaa cacgctgtat
240
ctgcaaatga acagcctgag agccgaggac acggccgtgt attactgtgc gaaacgtaag
300
actaggttcg actactgggg ccaggggtaca ctggtcaccg tgagctca
348

<210> 23
<211> 330
<212> DNA
<213> Artificial Sequence

<220>
<223> VL of 4F12

<400> 23
cagtctgtgc tgactcagcc accctcagcg tctgggaccc ccgggcggag gggtcaccatc
60
tctttagtagt gctcttcac taatattggc aataattctg tctactggta ccagcagctc
120
ccaggaacgg ccccaaact cctcatctat gctaataata agcgccaag cggggtcctt
180
gaccgattct ctggctcaa gtctggcacc tcagcctccc tggccatcag tgggctccgg
240
tccgaggatg aggctgatta ttactgtgct gcttgggatt ctacgctgaa tgggttatgtc
300
ttcggcggag gcaccaagct gacggtccta
330

<210> 24
<211> 348
<212> DNA
<213> Artificial Sequence

<220>
<223> VH of 1A03

<400> 24
gaggtgcagc tgttggagtc tgggggaggc ttggtacagc ctgggggggc cctgagactc
60
tcctgtgcag cctctggatt cacctttagc agttattata tgagctgggt ccgccaggct
120
ccaggaagg ggcctggagt ggtctcagcg atctctcctg gtagtagtaa taaatattac
180
gctgattctg tacaaggctg gttcaccatc tccagagaca attccaagaa cacgctgtat
240
ctgcaaatga acagcctgag agccgaggac acggccgtgt attactgtgc gagaaggaag
300
aagtcgttcg actactgggg ccagggtaca ctggtcaccg tgagctca
348

<210> 25
<211> 330
<212> DNA
<213> Artificial Sequence

<220>
<223> VL of 1A03

<400> 25
cagtctgtgc tgactcagcc accctcagcg tctgggaccc ccgggcagag ggtcaccatc
60
tcttgtagtg gcccttcacg taatattggc aataatgatg tctcctggta ccagcagctc
120
ccaggaacgg ctcccaaact cctcatctat tctgataata atcgccaag cggggtcctt
180
gaccgattct ctggctccaa gtctggcacc tcagcctccc tggccatcag tgggctccgg
240
tccgaggatg aggctgatta ttactgtggt gcttggggtg ctagcctgag tgcttatgtc
300
ttcggcggag gcaccaagct gacggtccta
330

<210> 26
<211> 348
<212> DNA
<213> Artificial Sequence

<220>
<223> VH of 3H10

<400> 26
gagggtgcagc tgttggagtc tggggggagggc ttggtacagc ctgggggggct cctgagactc
60

tcctgtgcag cctctggatt cacctttagc agttattata tgagctgggt ccgccaggct
120

ccaggggaagg ggctggagtg ggtctcagcg atctctcctg gtagtagtaa taaatattac
180

gctgattctg taaaaggctg gttcaccatc tccagagaca attccaagaa cacgctgtat
240

ctgcaaatga acagcctgag agccgaggac acggccgtgt attactgtgc gagaaggaag
300

tatatgttcg actactgggg ccaggggtaca ctggtcaccg tgagctca
348

<210> 27
<211> 330
<212> DNA
<213> Artificial Sequence

<220>
<223> VL of 3H10

<400> 27
cagtctgtgc tgactcagcc accctcagcg tctgggaccc ccgggcagag ggtcaccatc
60

tcttgacttg gctcttcacg taatattggc aataatgatg tctactggta ccagcagctc
120

ccaggaacgg caccctaaact cctcatctat tctgatagta atcgccaag cgggggtccct
180

gaccgattct ctgggtccaa gtctggcacc tcagcctccc tggccatcag tgggctccgg
240

tccgaggatg aggctgatta ttactgtgct tcttgggatt ctagcctgag tggttatgtc
300

ttcggcggag gcaccaagct gacggtccta
330

<210> 28
<211> 25

<212> PRT
<213> Artificial Sequence

<220>
<223> 1A03, 3H10 & 4F12 Hv FR1

<400> 28

Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser
20 25

<210> 29
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> 1A03 & 3H10 Hv FR2

<400> 29

Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ser
1 5 10 15

Ala

<210> 30
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> 4F12 Hv FR2

<400> 30

Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ser
1 5 10 15

Gly

<210> 31
<211> 38
<212> PRT
<213> Artificial Sequence

<220>

<223> 1A03 Hv FR3

<400> 31

Tyr Tyr Ala Asp Ser Val Gln Gly Arg Phe Thr Ile Ser Arg Asp Asn
1 5 10 15

Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp
20 25 30

Thr Ala Val Tyr Tyr Cys
35

<210> 32

<211> 38

<212> PRT

<213> Artificial Sequence

<220>

<223> 3H10 & 4F12 Hv FR3

<400> 32

Tyr Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn
1 5 10 15

Ser Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp
20 25 30

Thr Ala Val Tyr Tyr Cys
35

<210> 33

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> 1A03, 3H10 & 4F12 Hv FR4

<400> 33

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
1 5 10

<210> 34

<211> 25

<212> PRT

<213> Artificial Sequence

<220>

<223> .1A03 Lv FR1

<400> 34

Gln	Ser	Val	Leu	Thr	Gln	Pro	Pro	Ser	Ala	Ser	Gly	Thr	Pro	Gly	Gln
1				5					10					15	

Arg	Val	Thr	Ile	Ser	Cys	Ser	Gly	Pro
			20					25

<210> 35

<211> 25

<212> PRT

<213> Artificial Sequence

<220>

<223> 3H10 Lv FR1

<400> 35

Gln	Ser	Val	Leu	Thr	Gln	Pro	Pro	Ser	Ala	Ser	Gly	Thr	Pro	Gly	Gln
1				5					10					15	

Arg	Val	Thr	Ile	Ser	Cys	Thr	Gly	Ser
			20					25

<210> 36

<211> 25

<212> PRT

<213> Artificial Sequence

<220>

<223> 4F12 Lv FR1

<400> 36

Gln	Ser	Val	Leu	Thr	Gln	Pro	Pro	Ser	Ala	Ser	Gly	Thr	Pro	Gly	Arg
1				5					10					15	

Arg	Val	Thr	Ile	Ser	Cys	Ser	Gly	Ser
			20					25

<210> 37

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> 1A03 Lv FR2

<400> 37

Val Ser Trp Tyr Gln Gln Leu Pro Gly Thr Ala Pro Lys Leu Leu Ile
1 5 10 15

Tyr

<210> 38
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> 3H10 Lv FR2

<400> 38

Val Tyr Trp Tyr Gln Gln Leu Pro Gly Thr Ala Pro Lys Leu Leu Ile
1 5 10 15

Tyr

<210> 39
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> 4F12 Lv FR2

<400> 39

Val Tyr Trp Tyr Gln Gln Leu Pro Gly Thr Ala Pro Lys Leu Leu Ile
1 5 10 15

Tyr

<210> 40
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> 1A03 & 3H10 Lv FR3

<400> 40

Asn Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly
1 5 10 15

Thr Ser Ala Ser Leu Ala Ile Ser Gly Leu Arg Ser Glu Asp Glu Ala
20 25 30

Asp Tyr Tyr Cys
35

<210> 41
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> 4F12 Lv FR3

<400> 41

Lys Arg Pro Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Lys Ser Gly
1 5 10 15

Thr Ser Ala Ser Leu Ala Ile Ser Gly Leu Arg Ser Glu Asp Glu Ala
20 25 30

Asp Tyr Tyr Cys
35

<210> 42
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> 1A03, 3H10 & 4F12 Lv FR4

<400> 42

Phe Gly Gly Gly Thr Lys Leu Thr Val Leu
1 5 10