

SEQUENCE LISTING

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<120> ANTI-OX40 ANTIBODIES AND METHODS OF USE

<130> F19W0526PCT

<160> 31

<170> PatentIn version 3.5

<210> 1

<211> 277

<212> PRT

<213> Homo sapiens

<400> 1

Met	Cys	Val	Gly	Ala	Arg	Arg	Leu	Gly	Arg	Gly	Pro	Cys	Ala	Ala	Leu
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Leu	Leu	Leu	Gly	Leu	Gly	Leu	Ser	Thr	Val	Thr	Gly	Leu	His	Cys	Val
			20					25					30		

Gly	Asp	Thr	Tyr	Pro	Ser	Asn	Asp	Arg	Cys	Cys	His	Glu	Cys	Arg	Pro
		35					40					45			

Gly	Asn	Gly	Met	Val	Ser	Arg	Cys	Ser	Arg	Ser	Gln	Asn	Thr	Val	Cys
	50					55					60				

Arg	Pro	Cys	Gly	Pro	Gly	Phe	Tyr	Asn	Asp	Val	Val	Ser	Ser	Lys	Pro
65					70					75				80	

Cys	Lys	Pro	Cys	Thr	Trp	Cys	Asn	Leu	Arg	Ser	Gly	Ser	Glu	Arg	Lys
				85					90					95	

Gln	Leu	Cys	Thr	Ala	Thr	Gln	Asp	Thr	Val	Cys	Arg	Cys	Arg	Ala	Gly
			100					105					110		

Thr	Gln	Pro	Leu	Asp	Ser	Tyr	Lys	Pro	Gly	Val	Asp	Cys	Ala	Pro	Cys
		115					120					125			

Pro	Pro	Gly	His	Phe	Ser	Pro	Gly	Asp	Asn	Gln	Ala	Cys	Lys	Pro	Trp
	130					135					140				

Thr Asn Cys Thr Leu Ala Gly Lys His Thr Leu Gln Pro Ala Ser Asn
 145 150 155 160

Ser Ser Asp Ala Ile Cys Glu Asp Arg Asp Pro Pro Ala Thr Gln Pro
 165 170 175

Gln Glu Thr Gln Gly Pro Pro Ala Arg Pro Ile Thr Val Gln Pro Thr
 180 185 190

Glu Ala Trp Pro Arg Thr Ser Gln Gly Pro Ser Thr Arg Pro Val Glu
 195 200 205

Val Pro Gly Gly Arg Ala Val Ala Ala Ile Leu Gly Leu Gly Leu Val
 210 215 220

Leu Gly Leu Leu Gly Pro Leu Ala Ile Leu Leu Ala Leu Tyr Leu Leu
 225 230 235 240

Arg Arg Asp Gln Arg Leu Pro Pro Asp Ala His Lys Pro Pro Gly Gly
 245 250 255

Gly Ser Phe Arg Thr Pro Ile Gln Glu Glu Gln Ala Asp Ala His Ser
 260 265 270

Thr Leu Ala Lys Ile
 275

<210> 2
 <211> 216
 <212> PRT
 <213> Homo sapiens

<400> 2

Met Cys Val Gly Ala Arg Arg Leu Gly Arg Gly Pro Cys Ala Ala Leu
 1 5 10 15

Leu Leu Leu Gly Leu Gly Leu Ser Thr Val Thr Gly Leu His Cys Val
 20 25 30

Gly Asp Thr Tyr Pro Ser Asn Asp Arg Cys Cys His Glu Cys Arg Pro
 35 40 45

Gly Asn Gly Met Val Ser Arg Cys Ser Arg Ser Gln Asn Thr Val Cys
 50 55 60

Arg Pro Cys Gly Pro Gly Phe Tyr Asn Asp Val Val Ser Ser Lys Pro
65 70 75 80

Cys Lys Pro Cys Thr Trp Cys Asn Leu Arg Ser Gly Ser Glu Arg Lys
85 90 95

Gln Leu Cys Thr Ala Thr Gln Asp Thr Val Cys Arg Cys Arg Ala Gly
100 105 110

Thr Gln Pro Leu Asp Ser Tyr Lys Pro Gly Val Asp Cys Ala Pro Cys
115 120 125

Pro Pro Gly His Phe Ser Pro Gly Asp Asn Gln Ala Cys Lys Pro Trp
130 135 140

Thr Asn Cys Thr Leu Ala Gly Lys His Thr Leu Gln Pro Ala Ser Asn
145 150 155 160

Ser Ser Asp Ala Ile Cys Glu Asp Arg Asp Pro Pro Ala Thr Gln Pro
165 170 175

Gln Glu Thr Gln Gly Pro Pro Ala Arg Pro Ile Thr Val Gln Pro Thr
180 185 190

Glu Ala Trp Pro Arg Thr Ser Gln Gly Pro Ser Thr Arg Pro Val Glu
195 200 205

Val Pro Gly Gly Arg Ala Val Ala
210 215

<210> 3
<211> 5
<212> PRT
<213> Mus musculus

<400> 3

Ser Tyr Ile Ile His
1 5

<210> 4
<211> 17
<212> PRT
<213> Mus musculus

<400> 4

Tyr	Ile	Asn	Pro	Tyr	Asn	Asp	Gly	Thr	Arg	Tyr	Asn	Glu	Lys	Phe	Lys
1				5					10					15	

Gly

<210> 5
 <211> 11
 <212> PRT
 <213> Mus musculus

<400> 5

Gly	Tyr	Tyr	Gly	Ser	Ser	Tyr	Ala	Met	Asp	Tyr
1				5					10	

<210> 6
 <211> 11
 <212> PRT
 <213> Mus musculus

<400> 6

Ser	Ala	Ser	Gln	Gly	Ile	Ser	Asn	Tyr	Leu	Asn
1				5					10	

<210> 7
 <211> 7
 <212> PRT
 <213> Mus musculus

<400> 7

Asp	Thr	Ser	Thr	Leu	Tyr	Ser
1				5		

<210> 8
 <211> 9
 <212> PRT
 <213> Mus musculus

<400> 8

Gln	Gln	Tyr	Ser	Lys	Leu	Pro	Tyr	Thr
1				5				

<210> 9
 <211> 120
 <212> PRT
 <213> Mus musculus

<400> 9

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

Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Lys Phe Thr Ser Tyr
 20 25 30

Ile Ile His Trp Val Lys Gln Lys Pro Gly Gln Gly Leu Glu Trp Ile
 35 40 45

Gly Tyr Ile Asn Pro Tyr Asn Asp Gly Thr Arg Tyr Asn Glu Lys Phe
 50 55 60

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

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

Ala Arg Gly Tyr Tyr Gly Ser Ser Tyr Ala Met Asp Tyr Trp Gly Gln
 100 105 110

Gly Thr Ser Val Thr Val Ser Ser
 115 120

<210> 10
 <211> 360
 <212> DNA
 <213> Mus musculus

<400> 10
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 60

tcctgcaagg cttctggata taaattcact agctatatta tacactgggt gaagcagaag
 120

cctgggcagg gccttgagtg gattggatat attaatcctt acaatgatgg tactaggtac
 180

aatgagaagt tcaaaggcaa ggccacactg acttcagaca aatcctccag cacagcctac
 240

atggagtaca gcagcctgac ctctgaggac tctgcggtct attactgtgc aaggggttac
 300

tacggtagta gctatgctat ggactactgg ggtcaaggaa cctcagtcac cgtctcctca
 360

<210> 11

<211> 107
 <212> PRT
 <213> Mus musculus

<400> 11

Asp Ile Gln Met Thr Gln Thr Thr Ser Ser Leu Ser Ala Ser Leu Gly
 1 5 10 15

Asp Arg Val Thr Ile Ser Cys Ser Ala Ser Gln Gly Ile Ser Asn Tyr
 20 25 30

Leu Asn Trp Tyr Gln Gln Lys Pro Asp Gly Thr Ile Lys Leu Leu Ile
 35 40 45

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

Ser Gly Ser Gly Thr Asp Tyr Phe Leu Thr Ile Ser Asn Leu Glu Pro
 65 70 75 80

Glu Asp Ile Ala Thr Tyr Tyr Cys Gln Gln Tyr Ser Lys Leu Pro Tyr
 85 90 95

Thr Phe Gly Gly Gly Thr Lys Leu Glu Lys Lys
 100 105

<210> 12
 <211> 321
 <212> DNA
 <213> Mus musculus

<400> 12

gatatccaga tgacacagac tacatcctcc ctgtctgcct ctctgggaga cagagtcacc
 60

atcagttgca gtgcaagtca gggcattagc aattatttaa actggtatca gcagaaacca
 120

gatggaacta ttaaactcct gatctatgac acatcaacct tatactcagg agtcccatca
 180

aggttcagtg gcagtgggtc tgggacagat tatttttctca ccatcagcaa cctggaacct
 240

gaagatattg ccacttacta ttgtcagcag tatagtaagc ttccgtacac gttcggaggg
 300

gggaccaagc tggaaaaaaaa a
 321

<210> 13
 <211> 17
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> 445-1 HCDR2

<400> 13

Tyr Ile Asn Pro Tyr Asn Asp Gly Thr Arg Tyr Asn Gln Lys Phe Gln
 1 5 10 15

Gly

<210> 14
 <211> 120
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> 445-1 VH pro

<400> 14

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Lys Phe Thr Ser Tyr
 20 25 30

Ile Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45

Gly Tyr Ile Asn Pro Tyr Asn Asp Gly Thr Arg Tyr Asn Gln Lys Phe
 50 55 60

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

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

Ala Arg Gly Tyr Tyr Gly Ser Ser Tyr Ala Met Asp Tyr Trp Gly Gln
 100 105 110

Gly Thr Thr Val Thr Val Ser Ser
 115 120

<210> 15
 <211> 360
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> 445-1 VH DNA

 <400> 15
 caggtgcagc tggcgcagtc tggagcagag gtgaagaagc caggcagctc cgtgaaggtg
 60

 tcctgcaagg cctctggcta caagttcacc tcctatatca tccactgggt gcggcaggca
 120

 ccaggacagg gactggagtg gatgggctac atcaaccctt ataatgacgg cacacggtag
 180

 aaccagaagt ttcagggcag agtgaccctg acaagcgata agtctaccag cacagcctat
 240

 atggagctgt ctagcctgag gtccgaggac accgccgtgt actattgtgc cagaggctac
 300

 tatggctcct cttacgccat ggattattgg ggccagggca ccacagtgc agtgagctcc
 360

<210> 16
 <211> 107
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> 445-1 VK pro

<400> 16

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

Asp	Arg	Val	Thr	Ile	Thr	Cys	Ser	Ala	Ser	Gln	Gly	Ile	Ser	Asn	Tyr
			20					25					30		

Leu	Asn	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Lys	Ala	Ile	Lys	Leu	Leu	Ile
		35					40					45			

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

Ser	Gly	Ser	Gly	Thr	Asp	Tyr	Thr	Leu	Thr	Ile	Ser	Ser	Leu	Gln	Pro
65					70					75				80	

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Ser Lys Leu Pro Tyr
85 90 95

Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
100 105

<210> 17
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> 445-1 VK DNA

<400> 17
gacatccaga tgacccagtc tcccagctcc ctgtccgcct ctgtgggcga tagggtgacc
60

atcacatgca ggcctccca gggcatctcc aactacctga attggtatca gcagaagcca
120

ggcaaggcca tcaagctgct gatctacgac acctctacac tgtatagcgg cgtgccctcc
180

agattctctg gcagcggctc cggaaccgac tacaccctga caatctctag cctgcagccc
240

gaggatttcg ccacatacta ttgtcagcag tacagcaagc tgccttatac ctttggcggc
300

ggcacaaagg tggagatcaa g
321

<210> 18
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> 445-2 HCDR2

<400> 18

Tyr Ile Asn Pro Tyr Asn Glu Gly Thr Arg Tyr Ala Gln Lys Phe Gln
1 5 10 15

Gly

<210> 19
<211> 7
<212> PRT
<213> Artificial Sequence

<220>

<223> 445-2 LCDR2

<400> 19

Asp Ala Ser Thr Leu Tyr Ser
1 5

<210> 20

<211> 120

<212> PRT

<213> Artificial Sequence

<220>

<223> 445-2 VH pro

<400> 20

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Lys Phe Thr Ser Tyr
20 25 30

Ile Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Tyr Ile Asn Pro Tyr Asn Glu Gly Thr Arg Tyr Ala Gln Lys Phe
50 55 60

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

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

Ala Arg Gly Tyr Tyr Gly Ser Ser Tyr Ala Met Asp Tyr Trp Gly Gln
100 105 110

Gly Thr Thr Val Thr Val Ser Ser
115 120

<210> 21

<211> 360

<212> DNA

<213> Artificial Sequence

<220>

<223> 445-2 VH DNA

<400> 21
caggtgcagc tgggtgcagtc tggagcagag gtgaagaagc caggcagctc cgtgaaggtg
60
tcctgcaagg cctctggcta caagttcacc tcctatatca tccactgggt gcggcaggca
120
ccaggacagg gactggagtg gatgggctac atcaaccctt ataatgaggg cacacggtac
180
gccagaagt ttcagggcag agtgaccctg acagccgata agtctaccag cacagcctat
240
atggagctgt ctagcctgag gtccgaggac accgccgtgt actattgtgc cagaggctac
300
tatggctcct cttacgccat ggattattgg ggccagggca ccacagtgc agtgagctcc
360

<210> 22
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> 445-2 VK pro

<400> 22

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

Asp	Arg	Val	Thr	Ile	Thr	Cys	Ser	Ala	Ser	Gln	Gly	Ile	Ser	Asn	Tyr
			20					25					30		

Leu	Asn	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Lys	Ala	Ile	Lys	Leu	Leu	Ile
		35					40					45			

Tyr	Asp	Ala	Ser	Thr	Leu	Tyr	Ser	Gly	Val	Pro	Ser	Arg	Phe	Ser	Gly
	50					55					60				

Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Thr	Ile	Ser	Ser	Leu	Gln	Pro
65					70					75				80	

Glu	Asp	Phe	Ala	Thr	Tyr	Tyr	Cys	Gln	Gln	Tyr	Ser	Lys	Leu	Pro	Tyr
				85					90					95	

Thr	Phe	Gly	Gly	Gly	Thr	Lys	Val	Glu	Ile	Lys
			100					105		

<210> 23
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> 445-2 VK DNA

<400> 23
gacatccaga tgacccagtc tcccagctcc ctgtccgcct ctgtgggcga tagggtgacc
60

atcacatgca gcgcctccca gggcatctcc aactacctga attggtatca gcagaagcca
120

ggcaaggcca tcaagctgct gatctacgac gcctctacac tgtatagcgg cgtgccctcc
180

agattctctg gcagcggctc cggaaccgac ttcaccctga caatctctag cctgcagccc
240

gaggatttcg ccacatacta ttgtcagcag tacagcaagc tgccttatac ctttggcggc
300

ggcacaaagg tggagatcaa g
321

<210> 24
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> 445-3 HCDR2

<400> 24

Tyr	Ile	Asn	Pro	Tyr	Asn	Glu	Gly	Thr	Arg	Tyr	Asn	Gln	Lys	Phe	Gln
1				5					10					15	

Gly

<210> 25
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> 445-3 LCDR1

<400> 25

Arg	Ala	Ser	Gln	Gly	Ile	Ser	Asn	Tyr	Leu	Asn
1				5					10	

<210> 26
 <211> 120
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> 445-3 VH pro

<400> 26

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

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Lys Phe Thr Ser Tyr
 20 25 30

Ile Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45

Gly Tyr Ile Asn Pro Tyr Asn Glu Gly Thr Arg Tyr Asn Gln Lys Phe
 50 55 60

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

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

Ala Arg Gly Tyr Tyr Gly Ser Ser Tyr Ala Met Asp Tyr Trp Gly Gln
 100 105 110

Gly Thr Thr Val Thr Val Ser Ser
 115 120

<210> 27
 <211> 360
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> 445-3 VH DNA

<400> 27

caggtgcagc tgggtgcagtc tggagcagag gtgaagaagc caggcagctc cgtgaaggtg
 60

tcctgcaagg cctctggcta caagttcacc tcctatatca tccactgggt gcggcaggca
 120

ccaggacagg gactggagtg gatgggctac atcaaccctt ataatgaggg cacacggtac
180

aaccagaagt ttcagggcag agtgaccctg acagccgata agtctaccag cacagcctat
240

atggagctgt ctagcctgag gtccgaggac accgccgtgt actattgtgc cagaggctac
300

tatggctcct cttacgccat ggattattgg ggccagggca ccacagtgc agtgagctcc
360

<210> 28
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> 445-3 VK pro

<400> 28

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

Asp	Arg	Val	Thr	Ile	Thr	Cys	Arg	Ala	Ser	Gln	Gly	Ile	Ser	Asn	Tyr
			20					25					30		

Leu	Asn	Trp	Tyr	Gln	Gln	Lys	Pro	Asp	Gly	Ala	Ile	Lys	Leu	Leu	Ile
		35					40					45			

Tyr	Asp	Ala	Ser	Thr	Leu	Tyr	Ser	Gly	Val	Pro	Ser	Arg	Phe	Ser	Gly
	50					55					60				

Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Thr	Ile	Ser	Ser	Leu	Gln	Pro
65					70					75					80

Glu	Asp	Phe	Ala	Thr	Tyr	Tyr	Cys	Gln	Gln	Tyr	Ser	Lys	Leu	Pro	Tyr
				85					90					95	

Thr	Phe	Gly	Gly	Gly	Thr	Lys	Val	Glu	Ile	Lys
			100					105		

<210> 29
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> 445-3 VK DNA

<400> 29
gacatccaga tgacccagtc tcccagctcc ctgtccgcct ctgtgggcga tagggtgacc
60
atcacatgcc gggcctccca gggcatctcc aactacctga attggtatca gcagaagcca
120
gacggcgcca tcaagctgct gatctacgac gcctctacac tgtatagcgg cgtgccctcc
180
agattctctg gcagcggctc cggaaccgac ttcaccctga caatctctag cctgcagccc
240
gaggatttcg ccacatacta ttgtcagcag tacagcaagc tgccttatac ctttggcggc
300
ggcacaaagg tggagatcaa g
321

<210> 30
<211> 18
<212> PRT
<213> Homo sapiens

<400> 30
His Thr Leu Gln Pro Ala Ser Asn Ser Ser Asp Ala Ile Cys Glu Asp
1 5 10 15

Arg Asp

<210> 31
<211> 41
<212> PRT
<213> Homo sapiens

<400> 31
Pro Cys Pro Pro Gly His Phe Ser Pro Gly Asp Asn Gln Ala Cys Lys
1 5 10 15

Pro Trp Thr Asn Cys Thr Leu Ala Gly Lys His Thr Leu Gln Pro Ala
20 25 30

Ser Asn Ser Ser Asp Ala Ile Cys Glu
35 40