

Sequence-listing-02APR15_ST25
SEQUENCE LISTING

<110> The Trustees of the University of Pennsylvania
MASON, Nicola
PATERSON, Yvonne

<120> COMBINATION IMMUNO THERAPY AND RADIOTHERAPY FOR THE TREATMENT OF
HER-2-POSITIVE CANCERS

<130> P-73423-PC3

<140> PCT/US15/999999
<141> 2015-04-02

<150> 14/669,629
<151> 2015-03-26

<150> 14/268,436
<151> 2014-05-02

<150> PCT/US15/17559
<151> 2015-02-25

<150> 62/076,411
<151> 2014-11-06

<160> 74

<170> PatentIn version 3.5

<210> 1
<211> 1263
<212> DNA
<213> Artificial Sequence

<220>
<223> Her-2 chimeric protein

<400> 1
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ctggaactca cctacctgcc caccaatgcc agcctgtcct tcctgcagga tatccaggag 120
gtgcagggct acgtgctcat cgctcacaac caagtgaggc aggtcccact gcagaggctg 180
cggattgtgc gaggcaccca gctctttgag gacaactatg ccctggccgt gctagacaat 240
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ctgcagcttc gaagcctcac agagatcttg aaaggagggg tcttgatcca gcggaacccc      360
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aagatctttg ggagcctggc atttctgccg gagagctttg atggggaccc agcctccaac      480
actgccccgc tccagccaga gcagctccaa gtgtttgaga ctctggaaga gatcacaggt      540
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caagtaatcc ggggacgaat tctgcacaat ggcgcttact cgctgaccct gcaagggctg      660
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caccataaca cccacctctg cttcgtgcac acggtgccct gggaccagct ctttcggaac      780
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caggcgcaga tgcggatcct gaaagagacg gagctgagga aggtgaaggt gcttgatct      1020
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ccagtggcca tcaaagtgtt gagggaaaac acatcccca aagccaacaa agaaatctta      1140
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<210> 2
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<220>
 <223> Her-2 chimeric protein

<400> 2

Glu Thr His Leu Asp Met Leu Arg His Leu Tyr Gln Gly Cys Gln Val
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Val Gln Gly Asn Leu Glu Leu Thr Tyr Leu Pro Thr Asn Ala Ser Leu
20 25 30

Ser Phe Leu Gln Asp Ile Gln Glu Val Gln Gly Tyr Val Leu Ile Ala
35 40 45

His Asn Gln Val Arg Gln Val Pro Leu Gln Arg Leu Arg Ile Val Arg
50 55 60

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

Gly Asp Pro Leu Asn Asn Thr Thr Pro Val Thr Gly Ala Ser Pro Gly
85 90 95

Gly Leu Arg Glu Leu Gln Leu Arg Ser Leu Thr Glu Ile Leu Lys Gly
100 105 110

Gly Val Leu Ile Gln Arg Asn Pro Gln Leu Cys Tyr Gln Asp Thr Ile
115 120 125

Leu Trp Lys Asn Ile Gln Glu Phe Ala Gly Cys Lys Lys Ile Phe Gly
130 135 140

Ser Leu Ala Phe Leu Pro Glu Ser Phe Asp Gly Asp Pro Ala Ser Asn
145 150 155 160

Thr Ala Pro Leu Gln Pro Glu Gln Leu Gln Val Phe Glu Thr Leu Glu
165 170 175

Glu Ile Thr Gly Tyr Leu Tyr Ile Ser Ala Trp Pro Asp Ser Leu Pro
180 185 190

Asp Leu Ser Val Phe Gln Asn Leu Gln Val Ile Arg Gly Arg Ile Leu
195 200 205

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His Asn Gly Ala Tyr Ser Leu Thr Leu Gln Gly Leu Gly Ile Ser Trp
210 215 220

Leu Gly Leu Arg Ser Leu Arg Glu Leu Gly Ser Gly Leu Ala Leu Ile
225 230 235 240

His His Asn Thr His Leu Cys Phe Val His Thr Val Pro Trp Asp Gln
245 250 255

Leu Phe Arg Asn Pro His Gln Ala Leu Leu His Thr Ala Asn Arg Pro
260 265 270

Glu Asp Glu Cys Val Gly Glu Gly Leu Ala Cys His Gln Leu Cys Ala
275 280 285

Arg Gly Gln Gln Lys Ile Arg Lys Tyr Thr Met Arg Arg Leu Leu Gln
290 295 300

Glu Thr Glu Leu Val Glu Pro Leu Thr Pro Ser Gly Ala Met Pro Asn
305 310 315 320

Gln Ala Gln Met Arg Ile Leu Lys Glu Thr Glu Leu Arg Lys Val Lys
325 330 335

Val Leu Gly Ser Gly Ala Phe Gly Thr Val Tyr Lys Gly Ile Trp Ile
340 345 350

Pro Asp Gly Glu Asn Val Lys Ile Pro Val Ala Ile Lys Val Leu Arg
355 360 365

Glu Asn Thr Ser Pro Lys Ala Asn Lys Glu Ile Leu Asp Glu Ala Tyr
370 375 380

Val Met Ala Gly Val Gly Ser Pro Tyr Val Ser Arg Leu Leu Gly Ile
385 390 395 400

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Cys Leu Thr Ser Thr Val Gln Leu Val Thr Gln Leu Met Pro Tyr Gly
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Cys Leu Leu Asp
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<210> 3
 <211> 1323
 <212> DNA
 <213> *Listeria monocytogenes*

<400> 3
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 ccaccagcat ctccgcctgc aagtcctaag acgccaatcg aaaagaaaca cgcggatgaa 180
 atcgataagt atatacaagg attggattac aataaaaaaca atgtattagt ataccacgga 240
 gatgcagtga caaatgtgcc gccaaagaaa ggttacaaag atggaaatga atatattggt 300
 gtggagaaaa agaagaaatc catcaatcaa aataatgcag acattcaagt tgtgaatgca 360
 atttcgagcc taacctatcc aggtgctctc gtaaaagcga attcggaatt agtagaaaat 420
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 agtgcaaaaaa ttgattatga tgacgaaatg gcttacagt aatcacaatt aattgcgaaa 660
 tttggtacag catttaaaagc tgtaaataat agcttgaatg taaacttcgg cgcaatcagt 720
 gaagggaaaaa tgcaagaaga agtcattagt tttaaacaaa ttactataa cgtgaatggt 780
 aatgaaccta caagaccttc cagatTTTTT ggcaaagctg ttactaaaga gcagttgcaa 840
 gcgcttggag tgaatgcaga aaatcctcct gcatatatct caagtgtggc gtatggccgt 900
 caagtttatt tgaaattatc aactaattcc catagtacta aagtaaaagc tgcttttgat 960

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tcttccttca aagccgtaat ttacggaggt tccgcaaaag atgaagttca aatcatcgac	1080
ggcaacctcg gagacttacg cgatatTTTtg aaaaaaggcg ctacttttaa tcgagaaaca	1140
ccaggagttc ccattgctta tacaacaaac ttcctaaaag acaatgaatt agctgttatt	1200
aaaaacaact cagaatatat tgaacaact tcaaaagctt atacagatgg aaaaattaac	1260
atcgatcact ctggaggata cgttgctcaa ttcaacattt cttgggatga agtaaattat	1320
gat	1323

<210> 4
 <211> 441
 <212> PRT
 <213> *Listeria monocytogenes*

<400> 4

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Glu	Asn	Ser	Ile	Ser	Ser	Met	Ala	Pro	Pro	Ala	Ser	Pro	Pro	Ala	Ser
		35					40					45			

Pro	Lys	Thr	Pro	Ile	Glu	Lys	Lys	His	Ala	Asp	Glu	Ile	Asp	Lys	Tyr
	50					55					60				

Ile	Gln	Gly	Leu	Asp	Tyr	Asn	Lys	Asn	Asn	Val	Leu	Val	Tyr	His	Gly
65					70					75					80

Asp	Ala	Val	Thr	Asn	Val	Pro	Pro	Arg	Lys	Gly	Tyr	Lys	Asp	Gly	Asn
				85					90					95	

Glu	Tyr	Ile	Val	Val	Glu	Lys	Lys	Lys	Lys	Ser	Ile	Asn	Gln	Asn	Asn
			100					105					110		

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Ala Asp Ile Gln Val Val Asn Ala Ile Ser Ser Leu Thr Tyr Pro Gly
115 120 125

Ala Leu Val Lys Ala Asn Ser Glu Leu Val Glu Asn Gln Pro Asp Val
130 135 140

Leu Pro Val Lys Arg Asp Ser Leu Thr Leu Ser Ile Asp Leu Pro Gly
145 150 155 160

Met Thr Asn Gln Asp Asn Lys Ile Val Val Lys Asn Ala Thr Lys Ser
165 170 175

Asn Val Asn Asn Ala Val Asn Thr Leu Val Glu Arg Trp Asn Glu Lys
180 185 190

Tyr Ala Gln Ala Tyr Pro Asn Val Ser Ala Lys Ile Asp Tyr Asp Asp
195 200 205

Glu Met Ala Tyr Ser Glu Ser Gln Leu Ile Ala Lys Phe Gly Thr Ala
210 215 220

Phe Lys Ala Val Asn Asn Ser Leu Asn Val Asn Phe Gly Ala Ile Ser
225 230 235 240

Glu Gly Lys Met Gln Glu Glu Val Ile Ser Phe Lys Gln Ile Tyr Tyr
245 250 255

Asn Val Asn Val Asn Glu Pro Thr Arg Pro Ser Arg Phe Phe Gly Lys
260 265 270

Ala Val Thr Lys Glu Gln Leu Gln Ala Leu Gly Val Asn Ala Glu Asn
275 280 285

Pro Pro Ala Tyr Ile Ser Ser Val Ala Tyr Gly Arg Gln Val Tyr Leu
290 295 300

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Lys Leu Ser Thr Asn Ser His Ser Thr Lys Val Lys Ala Ala Phe Asp
305 310 315 320

Ala Ala Val Ser Gly Lys Ser Val Ser Gly Asp Val Glu Leu Thr Asn
325 330 335

Ile Ile Lys Asn Ser Ser Phe Lys Ala Val Ile Tyr Gly Gly Ser Ala
340 345 350

Lys Asp Glu Val Gln Ile Ile Asp Gly Asn Leu Gly Asp Leu Arg Asp
355 360 365

Ile Leu Lys Lys Gly Ala Thr Phe Asn Arg Glu Thr Pro Gly Val Pro
370 375 380

Ile Ala Tyr Thr Thr Asn Phe Leu Lys Asp Asn Glu Leu Ala Val Ile
385 390 395 400

Lys Asn Asn Ser Glu Tyr Ile Glu Thr Thr Ser Lys Ala Tyr Thr Asp
405 410 415

Gly Lys Ile Asn Ile Asp His Ser Gly Gly Tyr Val Ala Gln Phe Asn
420 425 430

Ile Ser Trp Asp Glu Val Asn Tyr Asp
435 440

<210> 5

<211> 14

<212> PRT

<213> *Listeria monocytogenes*

<400> 5

Lys Thr Glu Glu Gln Pro Ser Glu Val Asn Thr Gly Pro Arg
1 5 10

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<210> 6
 <211> 28
 <212> PRT
 <213> *Listeria monocytogenes*

<400> 6

Lys Ala Ser Val Thr Asp Thr Ser Glu Gly Asp Leu Asp Ser Ser Met
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Gln Ser Ala Asp Glu Ser Thr Pro Gln Pro Leu Lys
 20 25

<210> 7
 <211> 20
 <212> PRT
 <213> *Listeria monocytogenes*

<400> 7

Lys Asn Glu Glu Val Asn Ala Ser Asp Phe Pro Pro Pro Pro Thr Asp
 1 5 10 15

Glu Glu Leu Arg
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<210> 8
 <211> 33
 <212> PRT
 <213> *Listeria monocytogenes*

<400> 8

Arg Gly Gly Ile Pro Thr Ser Glu Glu Phe Ser Ser Leu Asn Ser Gly
 1 5 10 15

Asp Phe Thr Asp Asp Glu Asn Ser Glu Thr Thr Glu Glu Glu Ile Asp
 20 25 30

Arg

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<210> 9
 <211> 17
 <212> PRT
 <213> Streptococcus pyogenes

<400> 9

Lys Gln Asn Thr Ala Ser Thr Glu Thr Thr Thr Thr Asn Glu Gln Pro
 1 5 10 15

Lys

<210> 10
 <211> 17
 <212> PRT
 <213> Streptococcus equisimilis

<400> 10

Lys Gln Asn Thr Ala Asn Thr Glu Thr Thr Thr Thr Asn Glu Gln Pro
 1 5 10 15

Lys

<210> 11
 <211> 9
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> mapped HLA-A2 epitope located on extracellular domain of HER2

<400> 11

His Leu Tyr Gln Gly Cys Gln Val Val
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<210> 12
 <211> 9

Sequence-listing-02APR15_ST25

<212> PRT
<213> Artificial Sequence

<220>
<223> mapped HLA-A2 epitope located on extracellular domain of HER3

<400> 12

Lys Ile Phe Gly Ser Leu Ala Phe Leu
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<210> 13
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> mapped HLA-A2 epitope located on intracellular domain of HER2

<400> 13

Arg Leu Leu Gln Glu Thr Glu Leu Val
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<210> 14
<211> 55
<212> DNA
<213> Artificial Sequence

<220>
<223> Alignment of EC2 (975 -1029 bp of Her-2-neu)

<400> 14
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<210> 15
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Alignment of EC2 (975 -1029 bp of Her-2-neu)

<400> 15
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Sequence-listing-02APR15_ST25

<210> 16
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Alignment of EC2 (975 -1029 bp of Her-2-neu)

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<210> 17
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Alignment of EC2 (975 -1029 bp of Her-2-neu)

<400> 17
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<210> 18
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Alignment of EC2 (975 -1029 bp of Her-2-neu)

<400> 18
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<210> 19
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Alignment of EC2 (975 -1029 bp of Her-2-neu)

<400> 19
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Sequence-listing-02APR15_ST25

<210> 20
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Alignment of EC2 (975 -1029 bp of Her-2-neu)

<400> 20
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<210> 21
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Alignment of EC2 (975 -1029 bp of Her-2-neu)

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<210> 22
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Alignment of EC2 (975 -1029 bp of Her-2-neu)

<400> 22
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<210> 23
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Alignment of EC2 (975 -1029 bp of Her-2-neu)

<400> 23
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Sequence-listing-02APR15_ST25

<210> 24
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Alignment of EC2 (975 -1029 bp of Her-2-neu)

<400> 24
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<210> 25
 <211> 57
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Alignment of IC1 (2114-3042 bp of Her-2-neu)

<400> 25
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<210> 26
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Alignment of IC1 (2114-3042 bp of Her-2-neu)

<400> 26
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<210> 27
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Alignment of IC1 (2114-3042 bp of Her-2-neu)

<400> 27
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Sequence-listing-02APR15_ST25

<210> 28
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Alignment of IC1 (2114-3042 bp of Her-2-neu)

<400> 28
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<210> 29
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Alignment of IC1 (2114-3042 bp of Her-2-neu)

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 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Alignment of IC1 (2114-3042 bp of Her-2-neu)

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<210> 31
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Alignment of IC1 (2114-3042 bp of Her-2-neu)

<400> 31
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<210> 32
 <211> 60
 <212> DNA
 <213> Artificial Sequence

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 <223> Alignment of IC1 (2114-3042 bp of Her-2-neu)

<400> 32
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<210> 33
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Alignment of IC1 (2114-3042 bp of Her-2-neu)

<400> 33
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<210> 34
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Alignment of IC1 (2114-3042 bp of Her-2-neu)

<400> 34
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<210> 35
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
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<400> 35
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<210> 36
 <211> 59
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Alignment of IC1 (2114-3042 bp of Her-2-neu)

 <400> 36
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 <210> 37
 <211> 58
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Alignment of IC1 (2114-3042 bp of Her-2-neu)

 <400> 37
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 <210> 38
 <211> 54
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Alignment of IC1 (2114-3042 bp of Her-2-neu)

 <400> 38
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 <210> 39
 <211> 52
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Alignment of IC1 (2114-3042 bp of Her-2-neu)

 <400> 39
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<210> 40
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Alignment of EC1 (399-758 bp of Her-2-neu)

<400> 40
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<210> 41
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Alignment of EC1 (399-758 bp of Her-2-neu)

<400> 41
 gaagggagga gttttgatcc gtgggaaccc tcagctctgc taccaggaca tggttttgtg 60

<210> 42
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Alignment of EC1 (399-758 bp of Her-2-neu)

<400> 42
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<210> 43
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Alignment of EC1 (399-758 bp of Her-2-neu)

<400> 43
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Sequence-listing-02APR15_ST25

<210> 44
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Alignment of EC1 (399-758 bp of Her-2-neu)

<400> 44
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<210> 45
 <211> 3716
 <212> DNA
 <213> Rattus norvegicus

<400> 45
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 gcaacttgga gcttacctac gtgcctgcca atgccagcct ctcattcctg caggacatcc 180
 aggaagttca ggggttacatg ctcatcgctc acaaccaggt gaagcgcgtc ccaactgcaaa 240
 ggctgcgcat cgtgagaggg acccagctct ttgaggacaa gtatgccctg gctgtgctag 300
 acaaccgaga tcctcaggac aatgtcgccg cctccacccc aggcagaacc ccagaggggc 360
 tgcgggagct gcagcttcga agtctcacag agatcctgaa gggaggagtt ttgatccgtg 420
 ggaaccctca gctctgctac caggacatgg ttttgtggaa ggacgtcttc cgcaagaata 480
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 ccgcctgcaa agacaatcac tgttgggggtg agagtccgga agactgtcag atcttgactg 600
 gcaccatctg taccagtggg tgtgcccggg gcaagggccg gctgcccact gactgctgcc 660
 atgagcagtg tgccgcaggc tgcacgggcc ccaagcattc tgactgcctg gcctgcctcc 720
 acttcaatca tagtggtatc tgtgagctgc actgcccagc cctcgtcacc tacaacacag 780
 acacctttga gtccatgcac aaccctgagg gtcgctacac ctttggtgcc agctgcgtga 840

Sequence-listing-02APR15_ST25

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<212> DNA

<213> Homo sapiens

<400> 50

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<212> DNA
<213> Homo sapiens

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gtaaacccat tatatcgggt ttttgagggg atttcaagtc ttttaagaaga taccaggcaa	4080

Sequence-listing-02APR15_ST25

tcaattaaga aaaacttagt tgattgcctt ttttgttgtg attcaacttt gatcgtagct	4140
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gaaactgtgc ttcatgacgg cttgttaaag tacaaattta aaaatagtaa aattcgctca	4260
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Sequence-listing-02APR15_ST25

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caataaagga tttcttactt ccattatact cccatthttcc aaaaacatac ggggaacacg	5820
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Sequence-listing-02APR15_ST25

agaattaatt ttatatattgat taataactaag tttacccaggt tttcacctaa aaaacaaatg 7020

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<210> 54

<211> 921

<212> DNA

<213> Homo sapiens

<400> 54

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gagacccacc tggacatgct ccgccacctc taccagggtg gccagggtgt gcagggaac 120

ctggaactca cctacctgcc caccaatgcc agcctgtcct tcctgcagga tatccaggag 180

gtgcagggtg acgtgtcat cgctcacaac caagtgaggc aggtcccact gcagaggctg 240

cggattgtgc gaggcacca gctctttgag gacaactatg ccctggccgt gctagacaat 300

ggagacccgc tgaacaatac caccctgtc acaggggcct cccaggagg cctgcgggag 360

ctgcagcttc gaagcctcac agagatcttg aaaggagggg tcttgatcca gcggaacccc 420

cagctctgct accaggacac gattttgtgg aaggacatct tccacaagaa caaccagctg 480

gctctcacac tgatagacac caaccgtct cgggcctgcc acccctgttc tccgatgtgt 540

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tgtgctgccg gctgcacggg cccaagcac tctgactgcc tggcctgcct ccacttcaac 720

cacagtggca tctgtgagct gactgcccc gccctgggtc cctacaacac agacacgttt 780

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caagagggtga cagcagagga t 921

<210> 55

<211> 597

<212> DNA

Sequence-listing-02APR15_ST25

<213> Homo sapiens

<400> 55

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tatggtctgg gcatggagca cttgcgagag gtgagggcag ttaccagtgc caatatccag	180
gagtttgctg gctgcaagaa gatctttggg agcctggcat ttctgccgga gagctttgat	240
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ctggaagaga tcacagggtta cctatacatc tcagcatggc cggacagcct gcctgacctc	360
agcgtcttcc agaacctgca agtaatccgg ggacgaattc tgcacaatgg cgcctactcg	420
ctgaccctgc aagggtctggg catcagctgg ctggggctgc gctcactgag ggaactgggc	480
agtggactgg ccctcatcca ccataacacc cacctctgct tcgtgcacac ggtgccctgg	540
gaccagctct ttcggaaccc gcaccaagct ctgctccaca ctgccaaccg gccagag	597

<210> 56

<211> 1209

<212> DNA

<213> Homo sapiens

<400> 56

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gagctgagga aggtgaaggt gcttggatct ggcgcttttg gcacagtcta caaggcatc	180
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cagcttatgc cctatggctg cctcttagac catgtccggg aaaaccgcgg acgcctgggc	420
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gtgcggctcg tacacaggga cttggccgct cggaacgtgc tggtaagag tcccaaccat	540

Sequence-listing-02APR15_ST25

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gcagatgggg gcaaggtgcc catcaagtgg atggcgctgg agtccattct ccgccggcgg	660
ttcaccacc agagtgatgt gtggagttat ggtgtgactg tgtgggagct gatgactttt	720
ggggccaaac cttacgatgg gatcccagcc cgggagatcc ctgacctgct ggaaaagggg	780
gagcggctgc cccagcccc catctgcacc attgatgtct acatgatcat ggtcaaagt	840
tggatgattg actctgaatg tcggccaaga ttccgggagt tgggtgtctga attctccgc	900
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gaaggggct	1209

<210> 57
 <211> 28
 <212> DNA
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<220>
 <223> Her-2-Chimera (F)

<400> 57	
tgatctcgag acccacctgg acatgctc	28

<210> 58
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<220>
 <223> HerEC1-EC2F (Junction)

<400> 58	
ctaccaggac acgattttgt ggaagaatat ccaggagttt gctggctgc	49

Sequence-listing-02APR15_ST25

<210> 59
 <211> 49
 <212> DNA
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 <220>
 <223> HerEC1-EC2R (Junction)

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 <210> 60
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 <213> Artificial Sequence

 <220>
 <223> HerEC2-ICIF (Junction)

 <400> 60
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 <210> 61
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 <220>
 <223> HerEC2-ICIR (Junction)

 <400> 61
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 <210> 62
 <211> 39
 <212> DNA
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 <220>
 <223> Her-2-Chimera (R)

 <400> 62
 gtggcccggg tctagattag tctaagaggc agccatagg 39

Sequence-listing-02APR15_ST25

<210> 63
 <211> 28
 <212> DNA
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<220>
 <223> Her-2-EC1(F)

<400> 63
 ccgcctcgag gccgcgagca cccaagtg 28

<210> 64
 <211> 31
 <212> DNA
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<220>
 <223> Her-2-EC1(R)

<400> 64
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<210> 65
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 <212> DNA
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<220>
 <223> Her-2-EC2(F)

<400> 65
 ccgcctcgag tacctttcta cggacgtg 28

<210> 66
 <211> 30
 <212> DNA
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<220>
 <223> Her- 2- EC2(R)

<400> 66
 cgcgactagt ttactctggc cggttggcag 30

Sequence-listing-02APR15_ST25

<210> 67
 <211> 31
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<220>
 <223> Her-2-Her-2-IC1(F)

<400> 67
 ccgcctcgag cagcagaaga tccggaagta c 31

<210> 68
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Her-2-IC1(R)

<400> 68
 cgcgactagt ttaagcccct tcggagggtg 30

<210> 69
 <211> 131
 <212> PRT
 <213> Homo sapiens

<400> 69

Ser Leu Ser Phe Leu Gln Asp Ile Gln Glu Val Gln Gly Tyr Val Leu
 1 5 10 15

Ile Ala His Asn Gln Val Arg Gln Val Pro Leu Gln Arg Leu Arg Ile
 20 25 30

Val Arg Gly Thr Gln Leu Phe Glu Asp Asn Tyr Ala Leu Ala Val Leu
 35 40 45

Asp Asn Gly Asp Pro Leu Asn Asn Thr Thr Pro Val Thr Gly Ala Ser
 50 55 60

Sequence-listing-02APR15_ST25

Pro Gly Gly Leu Arg Glu Leu Gln Leu Arg Ser Leu Thr Glu Ile Leu
65 70 75 80

Lys Gly Gly Val Leu Ile Gln Arg Asn Pro Gln Leu Cys Tyr Gln Asp
85 90 95

Thr Ile Leu Trp Lys Asp Ile Phe His Lys Asn Asn Gln Leu Ala Leu
100 105 110

Thr Leu Ile Asp Thr Asn Arg Ser Arg Ala Cys His Pro Cys Ser Pro
115 120 125

Met Cys Lys
130

<210> 70
<211> 131
<212> PRT
<213> Canis familiaris

<400> 70

Ser Leu Ser Phe Leu Gln Asp Ile Gln Glu Val Gln Gly Tyr Val Leu
1 5 10 15

Ile Ala His Ser Gln Val Arg Gln Ile Pro Leu Gln Arg Leu Arg Ile
20 25 30

Val Arg Gly Thr Gln Leu Phe Glu Asp Asn Tyr Ala Leu Ala Val Leu
35 40 45

Asp Asn Gly Asp Pro Leu Glu Gly Gly Ile Pro Ala Pro Gly Ala Ala
50 55 60

Pro Gly Gly Leu Arg Glu Leu Gln Leu Arg Ser Leu Thr Glu Ile Leu
65 70 75 80

Lys Gly Gly Val Leu Ile Gln Arg Ser Pro Gln Leu Cys His Gln Asp

Sequence-listing-02APR15_ST25

85

90

95

Thr Ile Leu Trp Lys Asp Val Phe His Lys Asn Asn Gln Leu Ala Leu
100 105 110

Thr Leu Ile Asp Thr Asn Arg Ser Arg Ala Cys Pro Pro Cys Ser Pro
115 120 125

Ala Cys Lys
130

<210> 71
<211> 75
<212> PRT
<213> Homo sapiens

<400> 71

Thr Ala Pro Leu Gln Pro Glu Gln Leu Gln Val Phe Glu Thr Leu Glu
1 5 10 15

Glu Ile Thr Gly Tyr Leu Tyr Ile Ser Ala Trp Pro Asp Ser Leu Pro
20 25 30

Asp Leu Ser Val Phe Gln Asn Leu Gln Val Ile Arg Gly Arg Ile Leu
35 40 45

His Asn Gly Ala Tyr Ser Leu Thr Leu Gln Gly Leu Gly Ile Ser Trp
50 55 60

Leu Gly Leu Arg Ser Leu Arg Glu Leu Gly Ser
65 70 75

<210> 72
<211> 75
<212> PRT
<213> Canis familiaris

<400> 72

Sequence-listing-02APR15_ST25

Thr Ala Pro Leu Gln Pro Glu Gln Leu Arg Val Phe Glu Ala Leu Glu
1 5 10 15

Glu Ile Thr Gly Tyr Leu Tyr Ile Ser Ala Trp Pro Asp Ser Leu Pro
20 25 30

Asn Leu Ser Val Phe Gln Asn Leu Arg Val Ile Arg Gly Arg Val Leu
35 40 45

His Asp Gly Ala Tyr Ser Leu Thr Leu Gln Gly Leu Gly Ile Ser Trp
50 55 60

Leu Gly Leu Arg Ser Leu Arg Glu Leu Gly Ser
65 70 75

<210> 73
<211> 131
<212> PRT
<213> Homo sapiens

<400> 73

Asn Gln Ala Gln Met Arg Ile Leu Lys Glu Thr Glu Leu Arg Lys Val
1 5 10 15

Lys Val Leu Gly Ser Gly Ala Phe Gly Thr Val Tyr Lys Gly Ile Trp
20 25 30

Ile Pro Asp Gly Glu Asn Val Lys Ile Pro Val Ala Ile Lys Val Leu
35 40 45

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

Tyr Val Met Ala Gly Val Gly Ser Pro Tyr Val Ser Arg Leu Leu Gly
65 70 75 80

Sequence-listing-02APR15_ST25

Ile Cys Leu Thr Ser Thr Val Gln Leu Val Thr Gln Leu Met Pro Tyr
85 90 95

Gly Cys Leu Leu Asp His Val Arg Glu Asn Arg Gly Arg Leu Gly Ser
100 105 110

Gln Asp Leu Leu Asn Trp Cys Met Gln Ile Ala Lys Gly Met Ser Tyr
115 120 125

Leu Glu Asp
130

<210> 74
<211> 131
<212> PRT
<213> Canis familiaris

<400> 74

Asn Gln Ala Gln Met Arg Ile Leu Lys Glu Thr Glu Leu Arg Lys Val
1 5 10 15

Lys Val Leu Gly Ser Gly Ala Phe Gly Thr Val Tyr Lys Gly Ile Trp
20 25 30

Ile Pro Asp Gly Glu Asn Val Lys Ile Pro Val Ala Ile Lys Val Leu
35 40 45

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

Tyr Val Met Ala Gly Val Gly Ser Pro Tyr Val Ser Arg Leu Leu Gly
65 70 75 80

Ile Cys Leu Thr Ser Thr Val Gln Leu Val Thr Gln Leu Met Pro Tyr
85 90 95

Gly Cys Leu Leu Asp His Val Arg Glu Asn Arg Gly Arg Leu Gly Ser

Sequence-listing-02APR15_ST25

100

105

110

Gln Asp Leu Leu Asn Trp Cys Met Gln Ile Ala Lys Gly Met Ser Tyr
 115 120 125

Leu Glu Asp
 130