

IBPF12-538W0-E (seq) fin

SEQUENCE LISTING

<110> MEDICAL & BIOLOGICAL LABORATORIES CO., LTD.
 <120> METHOD FOR DETECTING PROTEIN-PROTEIN INTERACTION
 <130> IBPF12-538W0
 <150> JP2011/266103
 <151> 2011-12-05
 <160> 172
 <170> PatentIn version 3.1

<210> 1
 <211> 678
 <212> DNA
 <213> Artificial
 <220>
 <223> humanized codon Azami Green
 <220>
 <221> CDS
 <222> (1).. (678)
 <223> hAG
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atg	gtg	agc	gtg	atc	aag	ccc	gag	atg	aag	atc	aag	ctg	tgc	atg	agg	48
Met	Val	Ser	Val	Ile	Lys	Pro	Glu	Met	Lys	Ile	Lys	Leu	Cys	Met	Arg	
1			5					10					15			
ggc	acc	gtg	aac	ggc	cac	aac	ttc	gtg	atc	gag	ggc	gag	ggc	aag	ggc	96
Gly	Thr	Val	Asn	Gly	His	Asn	Phe	Val	Ile	Glu	Gly	Glu	Gly	Lys	Gly	
			20				25					30				
aac	ccc	tac	gag	ggc	acc	cag	atc	ctg	gac	ctg	aac	gtg	acc	gag	ggc	144
Asn	Pro	Tyr	Glu	Gly	Thr	Gln	Ile	Leu	Asp	Leu	Asn	Val	Thr	Glu	Gly	
		35				40					45					
gcc	ccc	ctg	ccc	ttc	gcc	tac	gac	atc	ctg	acc	acc	gtg	ttc	cag	tac	192
Ala	Pro	Leu	Pro	Phe	Ala	Tyr	Asp	Ile	Leu	Thr	Thr	Val	Phe	Gln	Tyr	
		50				55					60					
ggc	aac	agg	gcc	ttc	acc	aag	tac	ccc	gcc	gac	atc	cag	gac	tac	ttc	240
Gly	Asn	Arg	Ala	Phe	Thr	Lys	Tyr	Pro	Ala	Asp	Ile	Gln	Asp	Tyr	Phe	
65				70					75					80		
aag	cag	acc	ttc	ccc	gag	ggc	tac	cac	tgg	gag	agg	agc	atg	acc	tac	288
Lys	Gln	Thr	Phe	Pro	Glu	Gly	Tyr	His	Trp	Glu	Arg	Ser	Met	Thr	Tyr	
			85						90				95			
gag	gac	cag	ggc	atc	tgc	acc	gcc	acc	agc	aac	atc	agc	atg	agg	ggc	336
Glu	Asp	Gln	Gly	Ile	Cys	Thr	Ala	Thr	Ser	Asn	Ile	Ser	Met	Arg	Gly	
		100					105					110				
gac	tgc	ttc	ttc	tac	gac	atc	agg	ttc	gac	ggc	gtg	aac	ttc	ccc	ccc	384
Asp	Cys	Phe	Phe	Tyr	Asp	Ile	Arg	Phe	Asp	Gly	Val	Asn	Phe	Pro	Pro	
		115				120					125					
aac	ggc	ccc	gtg	atg	cag	aag	aag	acc	ctg	aag	tgg	gag	ccc	agc	acc	432
Asn	Gly	Pro	Val	Met	Gln	Lys	Lys	Thr	Leu	Lys	Trp	Glu	Pro	Ser	Thr	
		130				135					140					
gag	aag	atg	tac	gtg	agg	gac	ggc	gtg	ctg	aag	ggc	gac	gtg	aac	atg	480
Glu	Lys	Met	Tyr	Val	Arg	Asp	Gly	Val	Leu	Lys	Gly	Asp	Val	Asn	Met	
145				150					155					160		
gcc	ctg	ctg	ctg	gag	ggc	ggc	ggc	cac	tac	agg	tgc	gac	ttc	aag	acc	528
Ala	Leu	Leu	Leu	Glu	Gly	Gly	Gly	His	Tyr	Arg	Cys	Asp	Phe	Lys	Thr	
			165					170					175			
acc	tac	aag	gcc	aag	aag	gac	gtg	agg	ctg	ccc	gac	tac	cac	ttc	gtg	576
Thr	Tyr	Lys	Ala	Lys	Lys	Asp	Val	Arg	Leu	Pro	Asp	Tyr	His	Phe	Val	
		180				185						190				
gac	cac	agg	atc	gag	atc	ctg	aag	cac	gac	aag	gac	tac	aac	aag	gtg	624
Asp	His	Arg	Ile	Glu	Ile	Leu	Lys	His	Asp	Lys	Asp	Tyr	Asn	Lys	Val	
		195				200						205				
aag	ctg	tac	gag	aac	gcc	gtg	gcc	agg	tac	agc	atg	ctg	ccc	agc	cag	672
Lys	Leu	Tyr	Glu	Asn	Ala	Val	Ala	Arg	Tyr	Ser	Met	Leu	Pro	Ser	Gln	
		210				215					220					
gcc	aag															678
Ala	Lys															
225																

<210> 2
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IBPF12-538W0-E (seq) fin

<212> PRT

<213> Artificial

<220>

<223> humanized codon Azami Green

<400> 2

Met Val Ser Val Ile Lys Pro Glu Met Lys Ile Lys Leu Cys Met Arg
 1 5 10 15
 Gly Thr Val Asn Gly His Asn Phe Val Ile Glu Gly Glu Gly Lys Gly
 20 25 30
 Asn Pro Tyr Glu Gly Thr Gln Ile Leu Asp Leu Asn Val Thr Glu Gly
 35 40 45
 Ala Pro Leu Pro Phe Ala Tyr Asp Ile Leu Thr Thr Val Phe Gln Tyr
 50 55 60
 Gly Asn Arg Ala Phe Thr Lys Tyr Pro Ala Asp Ile Gln Asp Tyr Phe
 65 70 75 80
 Lys Gln Thr Phe Pro Glu Gly Tyr His Trp Glu Arg Ser Met Thr Tyr
 85 90 95
 Glu Asp Gln Gly Ile Cys Thr Ala Thr Ser Asn Ile Ser Met Arg Gly
 100 105 110
 Asp Cys Phe Phe Tyr Asp Ile Arg Phe Asp Gly Val Asn Phe Pro Pro
 115 120 125
 Asn Gly Pro Val Met Gln Lys Lys Thr Leu Lys Trp Glu Pro Ser Thr
 130 135 140
 Glu Lys Met Tyr Val Arg Asp Gly Val Leu Lys Gly Asp Val Asn Met
 145 150 155 160
 Ala Leu Leu Leu Glu Gly Gly Gly His Tyr Arg Cys Asp Phe Lys Thr
 165 170 175
 Thr Tyr Lys Ala Lys Lys Asp Val Arg Leu Pro Asp Tyr His Phe Val
 180 185 190
 Asp His Arg Ile Glu Ile Leu Lys His Asp Lys Asp Tyr Asn Lys Val
 195 200 205
 Lys Leu Tyr Glu Asn Ala Val Ala Arg Tyr Ser Met Leu Pro Ser Gln
 210 215 220
 Ala Lys
 225

<210> 3

<211> 306

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)..(306)

<223> p62(PB1)

<400> 3

atg gcg tcg ctc acc gtg aag gcc tac ctt ctg ggc aag gag gac gcg 48
 Met Ala Ser Leu Thr Val Lys Ala Tyr Leu Leu Gly Lys Glu Asp Ala
 1 5 10 15
 gcg cgc gag att cgc cgc ttc agc ttc tgc tgc agc ccc gag cct gag 96
 Ala Arg Glu Ile Arg Arg Phe Ser Phe Cys Cys Ser Pro Glu Pro Glu
 20 25 30
 gcg gaa gcc gag gct gcg gcg ggt ccg gga ccc tgc gag cgg ctg ctg 144
 Ala Glu Ala Glu Ala Ala Ala Gly Pro Gly Pro Cys Glu Arg Leu Leu
 35 40 45
 agc cgg gtg gcc gcc ctg ttc ccc gcg ctg cgg cct gcc ggc ttc cag 192
 Ser Arg Val Ala Ala Leu Phe Pro Ala Leu Arg Pro Gly Gly Phe Gln
 50 55 60
 gcg cac tac cgc gat gag gac ggg gac ttg gtt gcc ttt tcc agt gac 240
 Ala His Tyr Arg Asp Glu Asp Gly Asp Leu Val Ala Phe Ser Ser Asp
 65 70 75 80
 gag gaa ttg aca atg gcc atg tcc tac gtg aag gat gac atc ttc cga 288
 Glu Glu Leu Thr Met Ala Met Ser Tyr Val Lys Asp Asp Ile Phe Arg
 85 90 95
 atc tac att aaa gag aaa 306
 Ile Tyr Ile Lys Glu Lys
 100

<210> 4

IBPF12-538W0-E (seq) fin

<211> 102
 <212> PRT
 <213> Homo sapiens
 <223> p62 (PB1)
 <400> 4

Met Ala Ser Leu Thr Val Lys Ala Tyr Leu Leu Gly Lys Glu Asp Ala
 1 5 10 15
 Ala Arg Glu Ile Arg Arg Phe Ser Phe Cys Cys Ser Pro Glu Pro Glu
 20 25 30
 Ala Glu Ala Glu Ala Ala Ala Gly Pro Gly Pro Cys Glu Arg Leu Leu
 35 40 45
 Ser Arg Val Ala Ala Leu Phe Pro Ala Leu Arg Pro Gly Gly Phe Gln
 50 55 60
 Ala His Tyr Arg Asp Glu Asp Gly Asp Leu Val Ala Phe Ser Ser Asp
 65 70 75 80
 Glu Glu Leu Thr Met Ala Met Ser Tyr Val Lys Asp Asp Ile Phe Arg
 85 90 95
 Ile Tyr Ile Lys Glu Lys
 100

<210> 5
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 <212> DNA
 <213> Homo sapiens
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 <221> CDS
 <222> (1)..(282)
 <223> MEK5 (PB1)
 <400> 5

gtg ctg gta att cgc atc aag atc cca aat agt ggc gcg gtg gac tgg 48
 Val Leu Val Ile Arg Ile Lys Ile Pro Asn Ser Gly Ala Val Asp Trp
 1 5 10 15
 aca gtg cac toc ggg ccg cag tta ctc ttc agg gat gtg ctg gat gtg 96
 Thr Val His Ser Gly Pro Gln Leu Leu Phe Arg Asp Val Leu Asp Val
 20 25 30
 ata ggc cag gtt ctg cct gaa gca aca act aca gca ttt gaa tat gaa 144
 Ile Gly Gln Val Leu Pro Glu Ala Thr Thr Thr Ala Phe Glu Tyr Glu
 35 40 45
 gat gaa gat ggt gat cga att aca gtg aga agt gat gag gaa atg aag 192
 Asp Glu Asp Gly Asp Arg Ile Thr Val Arg Ser Asp Glu Glu Met Lys
 50 55 60
 gca atg ctg tca tat tat tat tcc aca gta atg gaa cag caa gta aat 240
 Ala Met Leu Ser Tyr Tyr Tyr Ser Thr Val Met Glu Gln Gln Val Asn
 65 70 75 80
 gga cag tta ata gag cct ctg cag ata ttt cca aga gcc tgc 282
 Gly Gln Leu Ile Glu Pro Leu Gln Ile Phe Pro Arg Ala Cys
 85 90

<210> 6
 <211> 94
 <212> PRT
 <213> Homo sapiens
 <223> MEK5 (PB1)
 <400> 6

Val Leu Val Ile Arg Ile Lys Ile Pro Asn Ser Gly Ala Val Asp Trp
 1 5 10 15
 Thr Val His Ser Gly Pro Gln Leu Leu Phe Arg Asp Val Leu Asp Val
 20 25 30
 Ile Gly Gln Val Leu Pro Glu Ala Thr Thr Thr Ala Phe Glu Tyr Glu
 35 40 45
 Asp Glu Asp Gly Asp Arg Ile Thr Val Arg Ser Asp Glu Glu Met Lys
 50 55 60
 Ala Met Leu Ser Tyr Tyr Tyr Ser Thr Val Met Glu Gln Gln Val Asn
 65 70 75 80
 Gly Gln Leu Ile Glu Pro Leu Gln Ile Phe Pro Arg Ala Cys
 85 90

<210> 7

IBPF12-538W0-E (seq) fin

<211> 246
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> CDS
 <222> (1)..(246)
 <223> Nbr1(PB1)
 <400> 7

cag gtt act cta aat gtg act ttt aaa aat gaa att caa agc ttt ctg	48
Gln Val Thr Leu Asn Val Thr Phe Lys Asn Glu Ile Gln Ser Phe Leu	
1 5 10 15	
gtt tot gat cca gaa aat aca act tgg gct gat atc gaa gct atg gta	96
Val Ser Asp Pro Glu Asn Thr Thr Trp Ala Asp Ile Glu Ala Met Val	
20 25 30	
aaa gtt tca ttt gat ctg aat act att caa ata aaa tac ctg gat gag	144
Lys Val Ser Phe Asp Leu Asn Thr Ile Gln Ile Lys Tyr Leu Asp Glu	
35 40 45	
gaa aat gaa gag gta tcc atc aac agt caa gga gaa tat gaa gaa gcg	192
Glu Asn Glu Glu Val Ser Ile Asn Ser Gln Gly Glu Tyr Glu Glu Ala	
50 55 60	
ctt aag atg gca gtt aaa cag gga aac caa ctg cag atg caa gtc cac	240
Leu Lys Met Ala Val Lys Gln Gly Asn Gln Leu Gln Met Gln Val His	
65 70 75 80	
gaa ggg	246
Glu Gly	

<210> 8
 <211> 82
 <212> PRT
 <213> Homo sapiens
 <223> Nbr1(PB1)
 <400> 8

Gln Val Thr Leu Asn Val Thr Phe Lys Asn Glu Ile Gln Ser Phe Leu	
1 5 10 15	
Val Ser Asp Pro Glu Asn Thr Thr Trp Ala Asp Ile Glu Ala Met Val	
20 25 30	
Lys Val Ser Phe Asp Leu Asn Thr Ile Gln Ile Lys Tyr Leu Asp Glu	
35 40 45	
Glu Asn Glu Glu Val Ser Ile Asn Ser Gln Gly Glu Tyr Glu Glu Ala	
50 55 60	
Leu Lys Met Ala Val Lys Gln Gly Asn Gln Leu Gln Met Gln Val His	
65 70 75 80	
Glu Gly	

<210> 9
 <211> 252
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> CDS
 <222> (1)..(252)
 <223> PKCiota(PB1)
 <400> 9

cag gtc cgg gtg aaa gcc tac tac cgc ggg gat atc atg ata aca cat	48
Gln Val Arg Val Lys Ala Tyr Tyr Arg Gly Asp Ile Met Ile Thr His	
1 5 10 15	
ttt gaa cct tcc atc tcc ttt gag gcc ctt tgc aat gag gtt cga gac	96
Phe Glu Pro Ser Ile Ser Phe Glu Gly Leu Cys Asn Glu Val Arg Asp	
20 25 30	
atg tgt tct ttt gac aac gaa cag ctc ttc acc atg aaa tgg ata gat	144
Met Cys Ser Phe Asp Asn Glu Gln Leu Phe Thr Met Lys Trp Ile Asp	
35 40 45	
gag gaa gga gac ccg tgt aca gta tca tct cag ttg gag tta gaa gaa	192
Glu Glu Gly Asp Pro Cys Thr Val Ser Ser Gln Leu Glu Leu Glu Glu	
50 55 60	
gcc ttt aga ctt tat gag cta aac aag gat tct gaa ctc ttg att cat	240

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 Ala Phe Arg Leu Tyr Glu Leu Asn Lys Asp Ser Glu Leu Leu Ile His
 65 70 75 80
 gtg ttc cct tgt
 Val Phe Pro Cys

252

<210> 10
 <211> 84
 <212> PRT
 <213> Homo sapiens
 <223> PKCιota(PB1)
 <400> 10
 Gln Val Arg Val Lys Ala Tyr Tyr Arg Gly Asp Ile Met Ile Thr His
 1 5 10 15
 Phe Glu Pro Ser Ile Ser Phe Glu Gly Leu Cys Asn Glu Val Arg Asp
 20 25 30
 Met Cys Ser Phe Asp Asn Glu Gln Leu Phe Thr Met Lys Trp Ile Asp
 35 40 45
 Glu Glu Gly Asp Pro Cys Thr Val Ser Ser Gln Leu Glu Leu Glu Glu
 50 55 60
 Ala Phe Arg Leu Tyr Glu Leu Asn Lys Asp Ser Glu Leu Leu Ile His
 65 70 75 80
 Val Phe Pro Cys

<210> 11
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 <212> DNA
 <213> Homo sapiens
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 <221> CDS
 <222> (1)..(246)
 <223> TFG(PB1)
 <400> 11
 aag cta atc atc aaa gct caa ctt ggg gag gat att cgg cga att cct 48
 Lys Leu Ile Ile Lys Ala Gln Leu Gly Glu Asp Ile Arg Arg Ile Pro
 1 5 10 15
 att cat aat gaa gat att act tat gat gaa tta gtg cta atg atg caa 96
 Ile His Asn Glu Asp Ile Thr Tyr Asp Glu Leu Val Leu Met Met Gln
 20 25 30
 cga gtt ttc aga gga aaa ctt ctg agt aat gat gaa gta aca ata aag 144
 Arg Val Phe Arg Gly Lys Leu Leu Ser Asn Asp Glu Val Thr Ile Lys
 35 40 45
 tat aaa gat gaa gat gga gat ctt ata aca att ttt gat agt tct gac 192
 Tyr Lys Asp Glu Asp Gly Asp Leu Ile Thr Ile Phe Asp Ser Ser Asp
 50 55 60
 ctt tcc ttt gca att cag tgc agt agg ata ctg aaa ctg aca tta ttt 240
 Leu Ser Phe Ala Ile Gln Cys Ser Arg Ile Leu Lys Leu Thr Leu Phe
 65 70 75 80
 gtt aat 246
 Val Asn

<210> 12
 <211> 82
 <212> PRT
 <213> Homo sapiens
 <223> TFG(PB1)
 <400> 12
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 1 5 10 15
 Ile His Asn Glu Asp Ile Thr Tyr Asp Glu Leu Val Leu Met Met Gln
 20 25 30
 Arg Val Phe Arg Gly Lys Leu Leu Ser Asn Asp Glu Val Thr Ile Lys
 35 40 45
 Tyr Lys Asp Glu Asp Gly Asp Leu Ile Thr Ile Phe Asp Ser Ser Asp
 50 55 60
 Leu Ser Phe Ala Ile Gln Cys Ser Arg Ile Leu Lys Leu Thr Leu Phe

65
Val Asn

70

75

80

<210> 13
 <211> 261
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> CDS
 <222> (1)..(261)
 <223> TEL (SAM)
 <400> 13

cct cga gcg ctc agg atg gag gaa gac tcg atc cgc ctg cct gcg cac	48
Pro Arg Ala Leu Arg Met Glu Glu Asp Ser Ile Arg Leu Pro Ala His	
1 5 10 15	
ctg cgc ttg cag cca att tac tgg agc agg gat gac gta gcc cag tgg	96
Leu Arg Leu Gln Pro Ile Tyr Trp Ser Arg Asp Asp Val Ala Gln Trp	
20 25 30	
ctc aag tgg gct gaa aat gag ttt tct tta agg cca att gac agc aac	144
Leu Lys Trp Ala Glu Asn Glu Phe Ser Leu Arg Pro Ile Asp Ser Asn	
35 40 45	
acg ttt gaa atg aat ggc aaa gct ctc ctg ctg ctg acc aaa gag gac	192
Thr Phe Glu Met Asn Gly Lys Ala Leu Leu Leu Leu Thr Lys Glu Asp	
50 55 60	
ttt cgc tat cga tct cct cat tca ggt gat gtg ctc tat gaa ctc ctt	240
Phe Arg Tyr Arg Ser Pro His Ser Gly Asp Val Leu Tyr Glu Leu Leu	
65 70 75 80	
cag cat att ctg aag cag agg	261
Gln His Ile Leu Lys Gln Arg	
85	

<210> 14
 <211> 87
 <212> PRT
 <213> Homo sapiens
 <223> TEL (SAM)
 <400> 14

Pro Arg Ala Leu Arg Met Glu Glu Asp Ser Ile Arg Leu Pro Ala His
1 5 10 15
Leu Arg Leu Gln Pro Ile Tyr Trp Ser Arg Asp Asp Val Ala Gln Trp
20 25 30
Leu Lys Trp Ala Glu Asn Glu Phe Ser Leu Arg Pro Ile Asp Ser Asn
35 40 45
Thr Phe Glu Met Asn Gly Lys Ala Leu Leu Leu Leu Thr Lys Glu Asp
50 55 60
Phe Arg Tyr Arg Ser Pro His Ser Gly Asp Val Leu Tyr Glu Leu Leu
65 70 75 80
Gln His Ile Leu Lys Gln Arg
85

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 <213> Homo sapiens
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 <221> CDS
 <222> (1)..(231)
 <223> EphB2 (SAM)
 <400> 15

ctg gac cgc acg atc ccc gac tac acc agc ttt aac acg gtg gac gag	48
Leu Asp Arg Thr Ile Pro Asp Tyr Thr Ser Phe Asn Thr Val Asp Glu	
1 5 10 15	
tgg ctg gag gcc atc aag atg ggg cag tac aag gag agc ttc gcc aat	96
Trp Leu Glu Ala Ile Lys Met Gly Gln Tyr Lys Glu Ser Phe Ala Asn	
20 25 30	
gcc ggc ttc acc tcc ttt gac gtc gtg tct cag atg atg atg gag gac	144
Ala Gly Phe Thr Ser Phe Asp Val Val Ser Gln Met Met Met Glu Asp	

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      35              40              45
att ctc cgg gtt ggg gtc act ttg gct ggc cac cag aaa aaa atc ctg      192
Ile Leu Arg Val Gly Val Thr Leu Ala Gly His Gln Lys Lys Ile Leu
      50              55              60
aac agt atc cag gtg atg cgg gcg cag atg aac cag att      231
Asn Ser Ile Gln Val Met Arg Ala Gln Met Asn Gln Ile
      65              70              75

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<210> 16
 <211> 77
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 <213> Homo sapiens
 <223> EphB2 (SAM)
 <400> 16

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Leu Asp Arg Thr Ile Pro Asp Tyr Thr Ser Phe Asn Thr Val Asp Glu
1      5      10      15
Trp Leu Glu Ala Ile Lys Met Gly Gln Tyr Lys Glu Ser Phe Ala Asn
      20      25      30
Ala Gly Phe Thr Ser Phe Asp Val Val Ser Gln Met Met Met Glu Asp
      35      40      45
Ile Leu Arg Val Gly Val Thr Leu Ala Gly His Gln Lys Lys Ile Leu
      50      55      60
Asn Ser Ile Gln Val Met Arg Ala Gln Met Asn Gln Ile
      65      70      75

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<210> 17
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 <221> CDS
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 <223> DGKdelta (SAM)
 <400> 17

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ccg gtt cac ctc tgg ggg aca gag gag gtt gct gcc tgg ctg gag cac      48
Pro Val His Leu Trp Gly Thr Glu Glu Val Ala Ala Trp Leu Glu His
1      5      10      15
ctc agt ctc tgt gag tat aag gac atc ttc aca cgg cac gac atc cgg      96
Leu Ser Leu Cys Glu Tyr Lys Asp Ile Phe Thr Arg His Asp Ile Arg
      20      25      30
ggc tct gag ctc ctg cac ctg gag cgg agg gac ctc aag gac ctg ggc      144
Gly Ser Glu Leu Leu His Leu Glu Arg Arg Asp Leu Lys Asp Leu Gly
      35      40      45
gtg acc aag gtg ggc cac atg aag agg atc ctg tgt ggc atc aag gag      192
Val Thr Lys Val Gly His Met Lys Arg Ile Leu Cys Gly Ile Lys Glu
      50      55      60
ctg agc cgc agc
Leu Ser Arg Ser
      65

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<210> 18
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 <213> Homo sapiens
 <223> DGKdelta (SAM)
 <400> 18

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Pro Val His Leu Trp Gly Thr Glu Glu Val Ala Ala Trp Leu Glu His
1      5      10      15
Leu Ser Leu Cys Glu Tyr Lys Asp Ile Phe Thr Arg His Asp Ile Arg
      20      25      30
Gly Ser Glu Leu Leu His Leu Glu Arg Arg Asp Leu Lys Asp Leu Gly
      35      40      45
Val Thr Lys Val Gly His Met Lys Arg Ile Leu Cys Gly Ile Lys Glu
      50      55      60
Leu Ser Arg Ser
      65

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<210> 19

IBPF12-538W0-E (seq) fin

<211> 597
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 <213> Homo sapiens
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 <221> CDS
 <222> (1).. (597)
 <223> Tankyrase (SAM)
 <400> 19

ctg ata gat gcc atg ccc cca gag gcc tta cct acc tgt ttt aaa cct	48
Leu Ile Asp Ala Met Pro Pro Glu Ala Leu Pro Thr Cys Phe Lys Pro	
1 5 10 15	
cag gct act gta gtg agt gcc tct ctg atc tca cca gca tcc acc ccc	96
Gln Ala Thr Val Val Ser Ala Ser Leu Ile Ser Pro Ala Ser Thr Pro	
20 25 30	
tcc tgc ctc tcg gct gcc agc agc ata gac aac ctc act ggc cct tta	144
Ser Cys Leu Ser Ala Ala Ser Ser Ile Asp Asn Leu Thr Gly Pro Leu	
35 40 45	
gca gag ttg gcc gta gga gga gcc tcc aat gca ggg gat ggc gcc gcg	192
Ala Glu Leu Ala Val Gly Gly Ala Ser Asn Ala Gly Asp Gly Ala Ala	
50 55 60	
gga aca gaa agg aag gaa gga gaa gtt gct ggt ctt gac atg aat atc	240
Gly Thr Glu Arg Lys Glu Gly Glu Val Ala Gly Leu Asp Met Asn Ile	
65 70 75 80	
agc caa ttt cta aaa agc ctt ggc ctt gaa cac ctt cgg gat atc ttt	288
Ser Gln Phe Leu Lys Ser Leu Gly Leu Glu His Leu Arg Asp Ile Phe	
85 90 95	
gaa aca gaa cag att aca cta gat gtg ttg gct gat atg ggt cat gaa	336
Glu Thr Glu Gln Ile Thr Leu Asp Val Leu Ala Asp Met Gly His Glu	
100 105 110	
gag ttg aaa gaa ata ggc atc aat gca tat ggg cac cgc cac aaa tta	384
Glu Leu Lys Glu Ile Gly Ile Asn Ala Tyr Gly His Arg His Lys Leu	
115 120 125	
atc aaa gga gta gaa aga ctc tta ggt gga caa caa ggc acc aat cct	432
Ile Lys Gly Val Glu Arg Leu Leu Gly Gly Gln Gln Gly Thr Asn Pro	
130 135 140	
tat ttg act ttt cac tgt gtt aat cag gga acg att ttg ctg gat ctt	480
Tyr Leu Thr Phe His Cys Val Asn Gln Gly Thr Ile Leu Leu Asp Leu	
145 150 155 160	
gct cca gaa gat aaa gaa tat cag tca gtg gaa gaa gag atg caa agt	528
Ala Pro Glu Asp Lys Glu Tyr Gln Ser Val Glu Glu Glu Met Gln Ser	
165 170 175	
act att cga gaa cac aga gat ggt ggt aat gct ggc ggc atc ttc aac	576
Thr Ile Arg Glu His Arg Asp Gly Gly Asn Ala Gly Gly Ile Phe Asn	
180 185 190	
aga tac aat gtc att cga att	597
Arg Tyr Asn Val Ile Arg Ile	
195	

<210> 20
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 <212> PRT
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 <223> Tankyrase (SAM)
 <400> 20

Leu Ile Asp Ala Met Pro Pro Glu Ala Leu Pro Thr Cys Phe Lys Pro
1 5 10 15
Gln Ala Thr Val Val Ser Ala Ser Leu Ile Ser Pro Ala Ser Thr Pro
20 25 30
Ser Cys Leu Ser Ala Ala Ser Ser Ile Asp Asn Leu Thr Gly Pro Leu
35 40 45
Ala Glu Leu Ala Val Gly Gly Ala Ser Asn Ala Gly Asp Gly Ala Ala
50 55 60
Gly Thr Glu Arg Lys Glu Gly Glu Val Ala Gly Leu Asp Met Asn Ile
65 70 75 80
Ser Gln Phe Leu Lys Ser Leu Gly Leu Glu His Leu Arg Asp Ile Phe
85 90 95
Glu Thr Glu Gln Ile Thr Leu Asp Val Leu Ala Asp Met Gly His Glu
100 105 110

IBPF12-538W0-E (seq) fin

Glu	Leu	Lys	Glu	Ile	Gly	Ile	Asn	Ala	Tyr	Gly	His	Arg	His	Lys	Leu
		115					120					125			
Ile	Lys	Gly	Val	Glu	Arg	Leu	Leu	Gly	Gly	Gln	Gln	Gly	Thr	Asn	Pro
	130					135					140				
Tyr	Leu	Thr	Phe	His	Cys	Val	Asn	Gln	Gly	Thr	Ile	Leu	Leu	Asp	Leu
145					150					155					160
Ala	Pro	Glu	Asp	Lys	Glu	Tyr	Gln	Ser	Val	Glu	Glu	Glu	Met	Gln	Ser
				165					170					175	
Thr	Ile	Arg	Glu	His	Arg	Asp	Gly	Gly	Asn	Ala	Gly	Gly	Ile	Phe	Asn
			180					185					190		
Arg	Tyr	Asn	Val	Ile	Arg	Ile									
		195													

<210> 21
 <211> 270
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> CDS
 <222> (1)..(270)
 <223> mTOR (FRB)
 <400> 21

gag	atg	tgg	cat	gaa	ggc	ctg	gaa	gag	gca	tct	cgt	ttg	tac	ttt	ggg	48
Glu	Met	Trp	His	Glu	Gly	Leu	Glu	Glu	Ala	Ser	Arg	Leu	Tyr	Phe	Gly	
1				5					10					15		
gaa	agg	aac	gtg	aaa	ggc	atg	ttt	gag	gtg	ctg	gag	ccc	ttg	cat	gct	96
Glu	Arg	Asn	Val	Lys	Gly	Met	Phe	Glu	Val	Leu	Glu	Pro	Leu	His	Ala	
			20					25					30			
atg	atg	gaa	cgg	ggc	ccc	cag	act	ctg	aag	gaa	aca	tcc	ttt	aat	cag	144
Met	Met	Glu	Arg	Gly	Pro	Gln	Thr	Leu	Lys	Glu	Thr	Ser	Phe	Asn	Gln	
		35					40					45				
gcc	tat	ggt	cga	gat	tta	atg	gag	gcc	caa	gag	tgg	tgc	agg	aag	tac	192
Ala	Tyr	Gly	Arg	Asp	Leu	Met	Glu	Ala	Gln	Glu	Trp	Cys	Arg	Lys	Tyr	
	50					55					60					
atg	aaa	tca	ggg	aat	gtc	aag	gac	ctc	acc	caa	gcc	tgg	gac	ctc	tat	240
Met	Lys	Ser	Gly	Asn	Val	Lys	Asp	Leu	Thr	Gln	Ala	Trp	Asp	Leu	Tyr	
65				70						75					80	
tat	cat	gtg	ttc	cga	cga	atc	tca	aag	cag							270
Tyr	His	Val	Phe	Arg	Arg	Ile	Ser	Lys	Gln							
				85					90							

<210> 22
 <211> 90
 <212> PRT
 <213> Homo sapiens
 <223> mTOR (FRB)
 <400> 22

Glu	Met	Trp	His	Glu	Gly	Leu	Glu	Glu	Ala	Ser	Arg	Leu	Tyr	Phe	Gly
1				5					10					15	
Glu	Arg	Asn	Val	Lys	Gly	Met	Phe	Glu	Val	Leu	Glu	Pro	Leu	His	Ala
			20					25					30		
Met	Met	Glu	Arg	Gly	Pro	Gln	Thr	Leu	Lys	Glu	Thr	Ser	Phe	Asn	Gln
		35					40					45			
Ala	Tyr	Gly	Arg	Asp	Leu	Met	Glu	Ala	Gln	Glu	Trp	Cys	Arg	Lys	Tyr
	50					55					60				
Met	Lys	Ser	Gly	Asn	Val	Lys	Asp	Leu	Thr	Gln	Ala	Trp	Asp	Leu	Tyr
65				70						75					80
Tyr	His	Val	Phe	Arg	Arg	Ile	Ser	Lys	Gln						
				85					90						

<210> 23
 <211> 324
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> CDS
 <222> (1)..(324)
 <223> FKBP12

IBPF12-538W0-E (seq) fin

<400> 23

atg gga gtg cag gtg gaa acc atc tcc cca gga gac ggg cgc acc ttc 48
 Met Gly Val Gln Val Glu Thr Ile Ser Pro Gly Asp Gly Arg Thr Phe
 1 5 10 15
 ccc aag cgc ggc cag acc tgc gtg gtg cac tac acc ggg atg ctt gaa 96
 Pro Lys Arg Gly Gln Thr Cys Val Val His Tyr Thr Gly Met Leu Glu
 20 25 30
 gat gga aag aaa ttt gat tcc tcc cgg gac aga aac aag ccc ttt aag 144
 Asp Gly Lys Lys Phe Asp Ser Ser Arg Asp Arg Asn Lys Pro Phe Lys
 35 40 45
 ttt atg cta ggc aag cag gag gtg atc cga ggc tgg gaa gaa ggg gtt 192
 Phe Met Leu Gly Lys Gln Glu Val Ile Arg Gly Trp Glu Glu Gly Val
 50 55 60
 gcc cag atg agt gtg ggt cag aga gcc aaa ctg act ata tct cca gat 240
 Ala Gln Met Ser Val Gly Gln Arg Ala Lys Leu Thr Ile Ser Pro Asp
 65 70 75 80
 tat gcc tat ggt gcc act ggg cac cca ggc atc atc cca cca cat gcc 288
 Tyr Ala Tyr Gly Ala Thr Gly His Pro Gly Ile Ile Pro Pro His Ala
 85 90 95
 act ctc gtc ttc gat gtg gag ctt cta aaa ctg gaa 324
 Thr Leu Val Phe Asp Val Glu Leu Leu Lys Leu Glu
 100 105

<210> 24

<211> 108

<212> PRT

<213> Homo sapiens

<223> FKBP12

<400> 24

Met Gly Val Gln Val Glu Thr Ile Ser Pro Gly Asp Gly Arg Thr Phe
 1 5 10 15
 Pro Lys Arg Gly Gln Thr Cys Val Val His Tyr Thr Gly Met Leu Glu
 20 25 30
 Asp Gly Lys Lys Phe Asp Ser Ser Arg Asp Arg Asn Lys Pro Phe Lys
 35 40 45
 Phe Met Leu Gly Lys Gln Glu Val Ile Arg Gly Trp Glu Glu Gly Val
 50 55 60
 Ala Gln Met Ser Val Gly Gln Arg Ala Lys Leu Thr Ile Ser Pro Asp
 65 70 75 80
 Tyr Ala Tyr Gly Ala Thr Gly His Pro Gly Ile Ile Pro Pro His Ala
 85 90 95
 Thr Leu Val Phe Asp Val Glu Leu Leu Lys Leu Glu
 100 105

<210> 25

<211> 210

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1).. (210)

<223> p53

<400> 25

atg gag gag ccg cag tca gat cct agc gtc gag ccc cct ctg agt cag 48
 Met Glu Glu Pro Gln Ser Asp Pro Ser Val Glu Pro Pro Leu Ser Gln
 1 5 10 15
 gaa aca ttt tca gac cta tgg aaa cta ctt cct gaa aac aac gtt ctg 96
 Glu Thr Phe Ser Asp Leu Trp Lys Leu Leu Pro Glu Asn Asn Val Leu
 20 25 30
 tcc ccc ttg ccg tcc caa gca atg gat gat ttg atg ctg tcc ccg gac 144
 Ser Pro Leu Pro Ser Gln Ala Met Asp Asp Leu Met Leu Ser Pro Asp
 35 40 45
 gat att gaa caa tgg ttc act gaa gac cca ggt cca gat gaa gct ccc 192
 Asp Ile Glu Gln Trp Phe Thr Glu Asp Pro Gly Pro Asp Glu Ala Pro
 50 55 60
 aga atg cca gag gct gct 210
 Arg Met Pro Glu Ala Ala
 65 70

IBPF12-538W0-E (seq) fin

<210> 26
 <211> 70
 <212> PRT
 <213> Homo sapiens
 <223> p53
 <400> 26
 Met Glu Glu Pro Gln Ser Asp Pro Ser Val Glu Pro Pro Leu Ser Gln
 1 5 10 15
 Glu Thr Phe Ser Asp Leu Trp Lys Leu Pro Glu Asn Asn Val Leu
 20 25 30
 Ser Pro Leu Pro Ser Gln Ala Met Asp Asp Leu Met Leu Ser Pro Asp
 35 40 45
 Asp Ile Glu Gln Trp Phe Thr Glu Asp Pro Gly Pro Asp Glu Ala Pro
 50 55 60
 Arg Met Pro Glu Ala Ala
 65 70

<210> 27
 <211> 357
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> CDS
 <222> (1).. (357)
 <223> MDM2
 <400> 27

atg tgc aat acc aac atg tct gta cct act gat ggt gct gta acc acc 48
 Met Cys Asn Thr Asn Met Ser Val Pro Thr Asp Gly Ala Val Thr Thr
 1 5 10 15
 tca cag att cca gct tcg gaa caa gag acc ctg gtt aga cca aag cca 96
 Ser Gln Ile Pro Ala Ser Glu Gln Glu Thr Leu Val Arg Pro Lys Pro
 20 25 30
 ttg ctt ttg aag tta tta aag tct gtt ggt gca caa aaa gac act tat 144
 Leu Leu Leu Lys Leu Leu Lys Ser Val Gly Ala Gln Lys Asp Thr Tyr
 35 40 45
 act atg aaa gag gtt ctt ttt tat ctt ggc cag tat att atg act aaa 192
 Thr Met Lys Glu Val Leu Phe Tyr Leu Gly Gln Tyr Ile Met Thr Lys
 50 55 60
 cga tta tat gat gag aag caa caa cat att gta tat tgt tca aat gat 240
 Arg Leu Tyr Asp Glu Lys Gln Gln His Ile Val Tyr Cys Ser Asn Asp
 65 70 75 80
 ctt cta gga gat ttg ttt ggc gtg cca agc ttc tct gtg aaa gag cac 288
 Leu Leu Gly Asp Leu Phe Gly Val Pro Ser Phe Ser Val Lys Glu His
 85 90 95
 agg aaa ata tat acc atg atc tac agg aac ttg gta gta gtc aat cag 336
 Arg Lys Ile Tyr Thr Met Ile Tyr Arg Asn Leu Val Val Val Asn Gln
 100 105 110
 cag gaa tca tcg gac tca ggt 357
 Gln Glu Ser Ser Asp Ser Gly
 115

<210> 28
 <211> 119
 <212> PRT
 <213> Homo sapiens
 <223> MDM2
 <400> 28
 Met Cys Asn Thr Asn Met Ser Val Pro Thr Asp Gly Ala Val Thr Thr
 1 5 10 15
 Ser Gln Ile Pro Ala Ser Glu Gln Glu Thr Leu Val Arg Pro Lys Pro
 20 25 30
 Leu Leu Leu Lys Leu Leu Lys Ser Val Gly Ala Gln Lys Asp Thr Tyr
 35 40 45
 Thr Met Lys Glu Val Leu Phe Tyr Leu Gly Gln Tyr Ile Met Thr Lys
 50 55 60
 Arg Leu Tyr Asp Glu Lys Gln Gln His Ile Val Tyr Cys Ser Asn Asp
 65 70 75 80

IBPF12-538W0-E (seq) fin

Leu Leu Gly Asp Leu Phe Gly Val Pro Ser Phe Ser Val Lys Glu His
 85 90 95
 Arg Lys Ile Tyr Thr Met Ile Tyr Arg Asn Leu Val Val Val Asn Gln
 100 105 110
 Gln Glu Ser Ser Asp Ser Gly
 115

<210> 29
 <211> 297
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> CDS
 <222> (1).. (297)
 <223> Sec5
 <400> 29

atg tct cga tca cga caa ccc ccc ctt gtg acc ggc atc tct cca aat	48
Met Ser Arg Ser Arg Gln Pro Pro Leu Val Thr Gly Ile Ser Pro Asn	
1 5 10 15	
gaa ggg ata cca tgg acg aag gtc aca atc agg gga gaa aat ctg ggg	96
Glu Gly Ile Pro Trp Thr Lys Val Thr Ile Arg Gly Glu Asn Leu Gly	
20 25 30	
act ggc ccc acc gac ctc ata ggc ttg acc att tgt gga cat aat tgc	144
Thr Gly Pro Thr Asp Leu Ile Gly Leu Thr Ile Cys Gly His Asn Cys	
35 40 45	
ctc ctg acg gca gaa tgg atg tct gca agt aaa ata gta tgt cga gtg	192
Leu Leu Thr Ala Glu Trp Met Ser Ala Ser Lys Ile Val Cys Arg Val	
50 55 60	
gga caa gcc aaa aat gac aaa gga gac att att gtc acc act aag tca	240
Gly Gln Ala Lys Asn Asp Lys Gly Asp Ile Ile Val Thr Thr Lys Ser	
65 70 75 80	
ggt ggc aga gga acc tca aca gtc tct ttc aag cta ctc aaa cct gag	288
Gly Gly Arg Gly Thr Ser Thr Val Ser Phe Lys Leu Leu Lys Pro Glu	
85 90 95	
aaa ata ggc	297
Lys Ile Gly	

<210> 30
 <211> 99
 <212> PRT
 <213> Homo sapiens
 <223> Sec5
 <400> 30

Met Ser Arg Ser Arg Gln Pro Pro Leu Val Thr Gly Ile Ser Pro Asn	
1 5 10 15	
Glu Gly Ile Pro Trp Thr Lys Val Thr Ile Arg Gly Glu Asn Leu Gly	
20 25 30	
Thr Gly Pro Thr Asp Leu Ile Gly Leu Thr Ile Cys Gly His Asn Cys	
35 40 45	
Leu Leu Thr Ala Glu Trp Met Ser Ala Ser Lys Ile Val Cys Arg Val	
50 55 60	
Gly Gln Ala Lys Asn Asp Lys Gly Asp Ile Ile Val Thr Thr Lys Ser	
65 70 75 80	
Gly Gly Arg Gly Thr Ser Thr Val Ser Phe Lys Leu Leu Lys Pro Glu	
85 90 95	
Lys Ile Gly	

<210> 31
 <211> 621
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> CDS
 <222> (1).. (621)
 <223> Ra1B
 <400> 31

IBPF12-538W0-E (seq) fin

atg gct gcc aac aag agt aag ggc cag agc tcc ttg gcc ctc cac aag	48
Met Ala Ala Asn Lys Ser Lys Gly Gln Ser Ser Leu Ala Leu His Lys	
1 5 10 15	
gtg atc atg gtt ggc agc gga ggc gtt ggc aag tca gcc ctg acg ctt	96
Val Ile Met Val Gly Ser Gly Gly Val Gly Lys Ser Ala Leu Thr Leu	
20 25 30	
cag ttc atg tat gac gag ttt gta gaa gac tat gaa cct acc aaa gct	144
Gln Phe Met Tyr Asp Glu Phe Val Glu Asp Tyr Glu Pro Thr Lys Ala	
35 40 45	
gac agt tat aga aag aaa gtg gtt ctt gat ggg gaa gaa gtt cag ata	192
Asp Ser Tyr Arg Lys Lys Val Leu Asp Gly Glu Glu Val Gln Ile	
50 55 60	
gat att ctg gac acc gct ggg caa gag gac tac gca gcc att cga gat	240
Asp Ile Leu Asp Thr Ala Gly Gln Glu Asp Tyr Ala Ala Ile Arg Asp	
65 70 75 80	
aac tac ttt cgg agt ggg gaa ggg ttt ctt ctt gtg ttc tca atc aca	288
Asn Tyr Phe Arg Ser Gly Glu Gly Phe Leu Leu Val Phe Ser Ile Thr	
85 90 95	
gaa cat gaa tcc ttt aca gca act gcc gaa ttc agg gaa cag att ctc	336
Glu His Glu Ser Phe Thr Ala Thr Ala Glu Phe Arg Glu Gln Ile Leu	
100 105 110	
cgt gtg aag gct gaa gaa gat aaa att cca ctg ctc gtc gtg gga aac	384
Arg Val Lys Ala Glu Glu Asp Lys Ile Pro Leu Leu Val Val Gly Asn	
115 120 125	
aag tct gac cta gag gag cgg agg cag gtg cct gtg gag gag gcc agg	432
Lys Ser Asp Leu Glu Glu Arg Arg Gln Val Pro Val Glu Glu Ala Arg	
130 135 140	
agt aaa gcc gaa gag tgg ggc gtg cag tac gtg gag acg tca gcg aag	480
Ser Lys Ala Glu Glu Trp Gly Val Gln Tyr Val Glu Thr Ser Ala Lys	
145 150 155 160	
acc cgg gcc aac gtg gac aag gtg ttc ttt gac cta atg aga gaa atc	528
Thr Arg Ala Asn Val Asp Lys Val Phe Phe Asp Leu Met Arg Glu Ile	
165 170 175	
aga aca aag aag atg tca gaa aac aaa gac aag aat ggc aag aaa agc	576
Arg Thr Lys Lys Met Ser Glu Asn Lys Asp Lys Asn Gly Lys Lys Ser	
180 185 190	
agc aag aac aag aaa agt ttt aaa gaa aga tgt tgc tta cta tga	621
Ser Lys Asn Lys Lys Ser Phe Lys Glu Arg Cys Cys Leu Leu	
195 200 205	

<210> 32
 <211> 206
 <212> PRT
 <213> Homo sapiens
 <223> Ra1B
 <400> 32

Met Ala Ala Asn Lys Ser Lys Gly Gln Ser Ser Leu Ala Leu His Lys	
1 5 10 15	
Val Ile Met Val Gly Ser Gly Gly Val Gly Lys Ser Ala Leu Thr Leu	
20 25 30	
Gln Phe Met Tyr Asp Glu Phe Val Glu Asp Tyr Glu Pro Thr Lys Ala	
35 40 45	
Asp Ser Tyr Arg Lys Lys Val Leu Asp Gly Glu Glu Val Gln Ile	
50 55 60	
Asp Ile Leu Asp Thr Ala Gly Gln Glu Asp Tyr Ala Ala Ile Arg Asp	
65 70 75 80	
Asn Tyr Phe Arg Ser Gly Glu Gly Phe Leu Leu Val Phe Ser Ile Thr	
85 90 95	
Glu His Glu Ser Phe Thr Ala Thr Ala Glu Phe Arg Glu Gln Ile Leu	
100 105 110	
Arg Val Lys Ala Glu Glu Asp Lys Ile Pro Leu Leu Val Val Gly Asn	
115 120 125	
Lys Ser Asp Leu Glu Glu Arg Arg Gln Val Pro Val Glu Glu Ala Arg	
130 135 140	
Ser Lys Ala Glu Glu Trp Gly Val Gln Tyr Val Glu Thr Ser Ala Lys	
145 150 155 160	
Thr Arg Ala Asn Val Asp Lys Val Phe Phe Asp Leu Met Arg Glu Ile	
165 170 175	

IBPF12-538W0-E (seq) fin

Arg	Thr	Lys	Lys	Met	Ser	Glu	Asn	Lys	Asp	Lys	Asn	Gly	Lys	Lys	Ser
			180					185					190		
Ser	Lys	Asn	Lys	Lys	Ser	Phe	Lys	Glu	Arg	Cys	Cys	Leu	Leu		
		195					200					205			

<210> 33
 <211> 621
 <212> DNA
 <213> Artificial
 <220>
 <223> RaIB Protein Q72L mutant
 <220>
 <221> CDS
 <222> (1)..(621)
 <223> RaIB(Q72L)
 <400> 33

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Met Ala Ala Asn Lys Ser Lys Gly Gln Ser Ser Leu Ala Leu His Lys	
1 5 10 15	
gtg atc atg gtt ggc agc gga ggc gtt ggc aag tca gcc ctg acg ctt	96
Val Ile Met Val Gly Ser Gly Gly Val Gly Lys Ser Ala Leu Thr Leu	
20 25 30	
cag ttc atg tat gac gag ttt gta gaa gac tat gaa cct acc aaa gct	144
Gln Phe Met Tyr Asp Glu Phe Val Glu Asp Tyr Glu Pro Thr Lys Ala	
35 40 45	
gac agt tat aga aag aaa gtg gtt ctt gat ggg gaa gaa gtt cag ata	192
Asp Ser Tyr Arg Lys Lys Val Val Leu Asp Gly Glu Glu Val Gln Ile	
50 55 60	
gat att ctg gac acc gct ggg cta gag gac tac gca gcc att cga gat	240
Asp Ile Leu Asp Thr Ala Gly Leu Glu Asp Tyr Ala Ala Ile Arg Asp	
65 70 75 80	
aac tac ttt cgg agt ggg gaa ggg ttt ctt ctt gtg ttc tca atc aca	288
Asn Tyr Phe Arg Ser Gly Glu Gly Phe Leu Leu Val Phe Ser Ile Thr	
85 90 95	
gaa cat gaa tcc ttt aca gca act gcc gaa ttc agg gaa cag att ctc	336
Glu His Glu Ser Phe Thr Ala Thr Ala Glu Phe Arg Glu Gln Ile Leu	
100 105 110	
cgt gtg aag gct gaa gaa gat aaa att cca ctg ctc gtc gtg gga aac	384
Arg Val Lys Ala Glu Glu Asp Lys Ile Pro Leu Leu Val Val Gly Asn	
115 120 125	
aag tct gac cta gag gag cgg agg cag gtg cct gtg gag gag gcc agg	432
Lys Ser Asp Leu Glu Glu Arg Arg Gln Val Pro Val Glu Glu Ala Arg	
130 135 140	
agt aaa gcc gaa gag tgg ggc gtg cag tac gtg gag acg tca gcg aag	480
Ser Lys Ala Glu Glu Trp Gly Val Gln Tyr Val Glu Thr Ser Ala Lys	
145 150 155 160	
acc cgg gcc aac gtg gac aag gtg ttc ttt gac cta atg aga gaa atc	528
Thr Arg Ala Asn Val Asp Lys Val Phe Phe Asp Leu Met Arg Glu Ile	
165 170 175	
aga aca aag aag atg tca gaa aac aaa gac aag aat ggc aag aaa agc	576
Arg Thr Lys Lys Met Ser Glu Asn Lys Asp Lys Asn Gly Lys Lys Ser	
180 185 190	
agc aag aac aag aaa agt ttt aaa gaa aga tgt tgc tta cta tga	621
Ser Lys Asn Lys Lys Ser Phe Lys Glu Arg Cys Cys Leu Leu	
195 200 205	

<210> 34
 <211> 206
 <212> PRT
 <213> Artificial
 <220>
 <223> RaIB Protein Q72L mutant
 <400> 34

Met Ala Ala Asn Lys Ser Lys Gly Gln Ser Ser Leu Ala Leu His Lys
1 5 10 15
Val Ile Met Val Gly Ser Gly Gly Val Gly Lys Ser Ala Leu Thr Leu
20 25 30
Gln Phe Met Tyr Asp Glu Phe Val Glu Asp Tyr Glu Pro Thr Lys Ala

IBPF12-538W0-E (seq) fin

35 40 45
 Asp Ser Tyr Arg Lys Lys Val Val Leu Asp Gly Glu Glu Val Gln Ile
 50 55 60
 Asp Ile Leu Asp Thr Ala Gly Leu Glu Asp Tyr Ala Ala Ile Arg Asp
 65 70 75 80
 Asn Tyr Phe Arg Ser Gly Glu Gly Phe Leu Leu Val Phe Ser Ile Thr
 85 90 95
 Glu His Glu Ser Phe Thr Ala Thr Ala Glu Phe Arg Glu Gln Ile Leu
 100 105 110
 Arg Val Lys Ala Glu Glu Asp Lys Ile Pro Leu Leu Val Val Gly Asn
 115 120 125
 Lys Ser Asp Leu Glu Glu Arg Arg Gln Val Pro Val Glu Glu Ala Arg
 130 135 140
 Ser Lys Ala Glu Glu Trp Gly Val Gln Tyr Val Glu Thr Ser Ala Lys
 145 150 155 160
 Thr Arg Ala Asn Val Asp Lys Val Phe Phe Asp Leu Met Arg Glu Ile
 165 170 175
 Arg Thr Lys Lys Met Ser Glu Asn Lys Asp Lys Asn Gly Lys Lys Ser
 180 185 190
 Ser Lys Asn Lys Lys Ser Phe Lys Glu Arg Cys Cys Leu Leu
 195 200 205

<210> 35
 <211> 621
 <212> DNA
 <213> Artificial
 <220>
 <223> RaIB Protein S28N mutant
 <220>
 <221> CDS
 <222> (1)..(621)
 <223> RaIB(S28N)
 <400> 35

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 Met Ala Ala Asn Lys Ser Lys Gly Gln Ser Leu Ala Leu His Lys
 1 5 10 15
 gtg atc atg gtt ggc agc gga ggc gtt ggc aag aac gcc ctg acg ctt 96
 Val Ile Met Val Gly Ser Gly Gly Val Gly Lys Asn Ala Leu Thr Leu
 20 25 30
 cag ttc atg tat gac gag ttt gta gaa gac tat gaa cct acc aaa gct 144
 Gln Phe Met Tyr Asp Glu Phe Val Glu Asp Tyr Glu Pro Thr Lys Ala
 35 40 45
 gac agt tat aga aag aaa gtg gtt ctt gat ggg gaa gaa gtt cag ata 192
 Asp Ser Tyr Arg Lys Lys Val Val Leu Asp Gly Glu Glu Val Gln Ile
 50 55 60
 gat att ctg gac acc gct ggg caa gag gac tac gca gcc att cga gat 240
 Asp Ile Leu Asp Thr Ala Gly Gln Glu Asp Tyr Ala Ala Ile Arg Asp
 65 70 75 80
 aac tac ttt cgg agt ggg gaa ggg ttt ctt ctt gtg ttc tca atc aca 288
 Asn Tyr Phe Arg Ser Gly Glu Gly Phe Leu Leu Val Phe Ser Ile Thr
 85 90 95
 gaa cat gaa tcc ttt aca gca act gcc gaa ttc agg gaa cag att ctc 336
 Glu His Glu Ser Phe Thr Ala Thr Ala Glu Phe Arg Glu Gln Ile Leu
 100 105 110
 cgt gtg aag gct gaa gaa gat aaa att cca ctg ctc gtc gtg gga aac 384
 Arg Val Lys Ala Glu Glu Asp Lys Ile Pro Leu Leu Val Val Gly Asn
 115 120 125
 aag tct gac cta gag gag cgg agg cag gtg cct gtg gag gag gcc agg 432
 Lys Ser Asp Leu Glu Glu Arg Arg Gln Val Pro Val Glu Glu Ala Arg
 130 135 140
 agt aaa gcc gaa gag tgg ggc gtg cag tac gtg gag acg tca gcg aag 480
 Ser Lys Ala Glu Glu Trp Gly Val Gln Tyr Val Glu Thr Ser Ala Lys
 145 150 155 160
 acc cgg gcc aac gtg gac aag gtg ttc ttt gac cta atg aga gaa atc 528
 Thr Arg Ala Asn Val Asp Lys Val Phe Phe Asp Leu Met Arg Glu Ile
 165 170 175
 aga aca aag aag atg tca gaa aac aaa gac aag aat ggc aag aaa agc 576
 Arg Thr Lys Lys Met Ser Glu Asn Lys Asp Lys Asn Gly Lys Lys Ser

IBPF12-538W0-E (seq) fin

agc	aag	aac	aag	aaa	agt	ttt	aaa	gaa	aga	tgt	tgc	tta	cta	tga	
Ser	Lys	Asn	Lys	Lys	Ser	Phe	Lys	Glu	Arg	Cys	Cys	Leu	Leu		
		195					200					205			621

<210> 36
 <211> 206
 <212> PRT
 <213> Artificial
 <220>
 <223> RaIB Protein S28N mutant
 <400> 36

Met	Ala	Ala	Asn	Lys	Ser	Lys	Gly	Gln	Ser	Ser	Leu	Ala	Leu	His	Lys
1			5					10					15		
Val	Ile	Met	Val	Gly	Ser	Gly	Gly	Val	Gly	Lys	Asn	Ala	Leu	Thr	Leu
		20					25					30			
Gln	Phe	Met	Tyr	Asp	Glu	Phe	Val	Glu	Asp	Tyr	Glu	Pro	Thr	Lys	Ala
		35				40					45				
Asp	Ser	Tyr	Arg	Lys	Lys	Val	Val	Leu	Asp	Gly	Glu	Glu	Val	Gln	Ile
	50				55				60						
Asp	Ile	Leu	Asp	Thr	Ala	Gly	Gln	Glu	Asp	Tyr	Ala	Ala	Ile	Arg	Asp
65				70				75						80	
Asn	Tyr	Phe	Arg	Ser	Gly	Glu	Gly	Phe	Leu	Val	Phe	Ser	Ile	Thr	
			85					90					95		
Glu	His	Glu	Ser	Phe	Thr	Ala	Thr	Ala	Glu	Phe	Arg	Glu	Gln	Ile	Leu
		100						105					110		
Arg	Val	Lys	Ala	Glu	Glu	Asp	Lys	Ile	Pro	Leu	Leu	Val	Val	Gly	Asn
		115				120						125			
Lys	Ser	Asp	Leu	Glu	Glu	Arg	Arg	Gln	Val	Pro	Val	Glu	Glu	Ala	Arg
		130				135					140				
Ser	Lys	Ala	Glu	Glu	Trp	Gly	Val	Gln	Tyr	Val	Glu	Thr	Ser	Ala	Lys
145					150				155					160	
Thr	Arg	Ala	Asn	Val	Asp	Lys	Val	Phe	Phe	Asp	Leu	Met	Arg	Glu	Ile
			165					170					175		
Arg	Thr	Lys	Lys	Met	Ser	Glu	Asn	Lys	Asp	Lys	Asn	Gly	Lys	Lys	Ser
		180						185					190		
Ser	Lys	Asn	Lys	Lys	Ser	Phe	Lys	Glu	Arg	Cys	Cys	Leu	Leu		
		195					200					205			

<210> 37
 <211> 441
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> CDS
 <222> (1)..(441)
 <223> Calmodulin
 <400> 37

gac	caa	ctg	aca	gaa	gag	cag	att	gca	gag	ttc	aaa	gaa	gcc	ttc	tca	48
Asp	Gln	Leu	Thr	Glu	Glu	Gln	Ile	Ala	Glu	Phe	Lys	Glu	Ala	Phe	Ser	
1			5					10					15			
tta	ttc	gac	aag	gat	ggg	gac	ggc	acc	atc	acc	aca	aag	gaa	ctt	ggc	96
Leu	Phe	Asp	Lys	Asp	Gly	Asp	Gly	Thr	Ile	Thr	Thr	Lys	Glu	Leu	Gly	
		20					25					30				
acc	gtt	atg	agg	tcg	ctt	gga	caa	aac	cca	acg	gaa	gca	gaa	ttg	cag	144
Thr	Val	Met	Arg	Ser	Leu	Gly	Gln	Asn	Pro	Thr	Glu	Ala	Glu	Leu	Gln	
		35			40						45					
gat	atg	atc	aat	gaa	gtc	gat	gct	gat	ggc	aat	gga	acg	att	tac	ttt	192
Asp	Met	Ile	Asn	Glu	Val	Asp	Ala	Asp	Gly	Asn	Gly	Thr	Ile	Tyr	Phe	
	50				55				60							
cct	gaa	ttt	ctt	act	atg	atg	gct	aga	aaa	atg	aag	gac	aca	gac	agc	240
Pro	Glu	Phe	Leu	Thr	Met	Met	Ala	Arg	Lys	Met	Lys	Asp	Thr	Asp	Ser	
65				70				75						80		
gaa	gag	gaa	atc	cga	gaa	gca	ttc	cgt	gtt	ttt	gac	aag	gat	ggg	aac	288
Glu	Glu	Glu	Ile	Arg	Glu	Ala	Phe	Arg	Val	Phe	Asp	Lys	Asp	Gly	Asn	
			85					90					95			
ggc	tac	atc	agc	gct	gct	gaa	tta	cgt	cac	gtc	atg	aca	aac	ctc	ggg	336
Gly	Tyr	Ile	Ser	Ala	Ala	Glu	Leu	Arg	His	Val	Met	Thr	Asn	Leu	Gly	

IBPF12-538W0-E (seq) fin

100	105	110	
gag aag tta aca gat gaa gaa gtt gat gaa atg ata agg gaa gca gat			384
Glu Lys Leu Thr Asp Glu Glu Val Asp Glu Met Ile Arg Glu Ala Asp			
115	120	125	
atc gat ggt gat ggc caa gta aac tat gaa gag ttt gta caa atg atg			432
Ile Asp Gly Asp Gly Gln Val Asn Tyr Glu Glu Phe Val Gln Met Met			
130	135	140	
aca gca aag			441
Thr Ala Lys			
145			

<210> 38
 <211> 147
 <212> PRT
 <213> Homo sapiens
 <223> Calmodulin
 <400> 38

Asp Gln Leu Thr Glu Glu Gln Ile Ala Glu Phe Lys Glu Ala Phe Ser	
1 5 10 15	
Leu Phe Asp Lys Asp Gly Asp Gly Thr Ile Thr Thr Lys Glu Leu Gly	
20 25 30	
Thr Val Met Arg Ser Leu Gly Gln Asn Pro Thr Glu Ala Glu Leu Gln	
35 40 45	
Asp Met Ile Asn Glu Val Asp Ala Asp Gly Asn Gly Thr Ile Tyr Phe	
50 55 60	
Pro Glu Phe Leu Thr Met Met Ala Arg Lys Met Lys Asp Thr Asp Ser	
65 70 75 80	
Glu Glu Glu Ile Arg Glu Ala Phe Arg Val Phe Asp Lys Asp Gly Asn	
85 90 95	
Gly Tyr Ile Ser Ala Ala Glu Leu Arg His Val Met Thr Asn Leu Gly	
100 105 110	
Glu Lys Leu Thr Asp Glu Glu Val Asp Glu Met Ile Arg Glu Ala Asp	
115 120 125	
Ile Asp Gly Asp Gly Gln Val Asn Tyr Glu Glu Phe Val Gln Met Met	
130 135 140	
Thr Ala Lys	
145	

<210> 39
 <211> 78
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> CDS
 <222> (1)..(78)
 <223> M13 peptide
 <400> 39

aag agg cgc tgg aag aaa aac ttc att gcc gtc agc gct gcc aac cgg	48
Lys Arg Arg Trp Lys Lys Asn Phe Ile Ala Val Ser Ala Ala Asn Arg	
1 5 10 15	
ttc aag aag atc tcc agc tcc ggg gca ctg	78
Phe Lys Lys Ile Ser Ser Ser Gly Ala Leu	
20 25	

<210> 40
 <211> 26
 <212> PRT
 <213> Homo sapiens
 <223> M13 peptide
 <400> 40

Lys Arg Arg Trp Lys Lys Asn Phe Ile Ala Val Ser Ala Ala Asn Arg	
1 5 10 15	
Phe Lys Lys Ile Ser Ser Ser Gly Ala Leu	
20 25	

<210> 41
 <211> 594
 <212> DNA

IBPF12-538W0-E (seq) fin

<213> Homo sapiens

<220>

<221> CDS

<222> (1).. (594)

<223> HRas

<400> 41

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atg acg gaa tat aag ctg gtg gtg gtg ggc gcc gtc ggt gtg ggc aag      48
Met Thr Glu Tyr Lys Leu Val Val Val Gly Ala Val Gly Val Gly Lys
1      5      10      15
agt gcg ctg acc atc cag ctg atc cag aac cat ttt gtg gac gaa tac      96
Ser Ala Leu Thr Ile Gln Leu Ile Gln Asn His Phe Val Asp Glu Tyr
20      25      30
gac ccc act ata gag gat tcc tac cgg aag cag gtg gtc att gat ggg      144
Asp Pro Thr Ile Glu Asp Ser Tyr Arg Lys Gln Val Val Ile Asp Gly
35      40      45
gag acg tgc ctg ttg gac atc ctg gat acc gcc ggc cag gag gag tac      192
Glu Thr Cys Leu Leu Asp Ile Leu Asp Thr Ala Gly Gln Glu Glu Tyr
50      55      60
agc gcc atg cgg gac cag tac atg cgc acc ggg gag ggc ttc ctg tgt      240
Ser Ala Met Arg Asp Gln Tyr Met Arg Thr Gly Glu Gly Phe Leu Cys
65      70      75      80
gtg ttt gcc atc aac aac acc aag tct ttt gag gac atc cac cag tac      288
Val Phe Ala Ile Asn Asn Thr Lys Ser Phe Glu Asp Ile His Gln Tyr
85      90      95
agg gag cag atc aaa cgg gtg aag gac tcg gat gac gtg ccc atg gtg      336
Arg Glu Gln Ile Lys Arg Val Lys Asp Ser Asp Asp Val Pro Met Val
100      105      110
ctg gtg ggg aac aag tgt gac ctg gct gca cgc act gtg gaa tct cgg      384
Leu Val Gly Asn Lys Cys Asp Leu Ala Ala Arg Thr Val Glu Ser Arg
115      120      125
cag gct cag gac ctc gcc cga agc tac ggc atc ccc tac atc gag acc      432
Gln Ala Gln Asp Leu Ala Arg Ser Tyr Gly Ile Pro Tyr Ile Glu Thr
130      135      140
tcg gcc aag acc cgg cag gga gtg gag gat gcc ttc tac acg ttg gtg      480
Ser Ala Lys Thr Arg Gln Gly Val Glu Asp Ala Phe Tyr Thr Leu Val
145      150      155      160
cgt gag atc cgg cag cac aag ctg cgg aag ctg aac gtc tcc gga ggt      528
Arg Glu Ile Arg Gln His Lys Leu Arg Lys Leu Asn Val Ser Gly Gly
165      170      175
ctc gag aag atg agc aaa gat ggt aaa aag aag aaa aag aag tca aag      576
Leu Glu Lys Met Ser Lys Asp Gly Lys Lys Lys Lys Lys Ser Lys
180      185      190
aca aag tgt gta att atg
Thr Lys Cys Val Ile Met
195

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<210> 42

<211> 198

<212> PRT

<213> Homo sapiens

<223> HRas

<400> 42

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Met Thr Glu Tyr Lys Leu Val Val Val Gly Ala Val Gly Val Gly Lys
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Ser Ala Leu Thr Ile Gln Leu Ile Gln Asn His Phe Val Asp Glu Tyr
20      25      30
Asp Pro Thr Ile Glu Asp Ser Tyr Arg Lys Gln Val Val Ile Asp Gly
35      40      45
Glu Thr Cys Leu Leu Asp Ile Leu Asp Thr Ala Gly Gln Glu Glu Tyr
50      55      60
Ser Ala Met Arg Asp Gln Tyr Met Arg Thr Gly Glu Gly Phe Leu Cys
65      70      75      80
Val Phe Ala Ile Asn Asn Thr Lys Ser Phe Glu Asp Ile His Gln Tyr
85      90      95
Arg Glu Gln Ile Lys Arg Val Lys Asp Ser Asp Asp Val Pro Met Val
100      105      110
Leu Val Gly Asn Lys Cys Asp Leu Ala Ala Arg Thr Val Glu Ser Arg
115      120      125

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IBPF12-538W0-E (seq) fin

Gln Ala Gln Asp Leu Ala Arg Ser Tyr Gly Ile Pro Tyr Ile Glu Thr
130 135 140
Ser Ala Lys Thr Arg Gln Gly Val Glu Asp Ala Phe Tyr Thr Leu Val
145 150 155
Arg Glu Ile Arg Gln His Lys Leu Arg Lys Leu Asn Val Ser Gly Gly
165 170 175
Leu Glu Lys Met Ser Lys Asp Gly Lys Lys Lys Lys Lys Ser Lys
180 185 190
Thr Lys Cys Val Ile Met
195

<210> 43
<211> 243
<212> DNA
<213> Homo sapiens
<220>
<221> CDS
<222> (1).. (243)
<223> cRaf
<400> 43

cct tct aag aca agc aac act atc cgt gtt ttc ttg ccg aac aag caa	48
Pro Ser Lys Thr Ser Asn Thr Ile Arg Val Phe Leu Pro Asn Lys Gln	
1 5 10 15	
aga aca gtg gtc aat gtg cga aat gga atg agc ttg cat gac tgc ctt	96
Arg Thr Val Val Asn Val Arg Asn Gly Met Ser Leu His Asp Cys Leu	
20 25 30	
atg aaa gca ctc aag gtg agg ggc ctg caa cca gag tgc tgt gca gtg	144
Met Lys Ala Leu Lys Val Arg Gly Leu Gln Pro Glu Cys Cys Ala Val	
35 40 45	
ttc aga ctt ctc cac gaa cac aaa ggt aaa aaa gca cgc tta gat tgg	192
Phe Arg Leu Leu His Glu His Lys Gly Lys Lys Ala Arg Leu Asp Trp	
50 55 60	
aat act gat gct gcg tct ttg att gga gaa gaa ctt caa gta gat ttc	240
Asn Thr Asp Ala Ala Ser Leu Ile Gly Glu Glu Leu Gln Val Asp Phe	
65 70 75 80	
ctg	243
Leu	

<210> 44
<211> 81
<212> PRT
<213> Homo sapiens
<223> cRaf
<400> 44

Pro Ser Lys Thr Ser Asn Thr Ile Arg Val Phe Leu Pro Asn Lys Gln	
1 5 10 15	
Arg Thr Val Val Asn Val Arg Asn Gly Met Ser Leu His Asp Cys Leu	
20 25 30	
Met Lys Ala Leu Lys Val Arg Gly Leu Gln Pro Glu Cys Cys Ala Val	
35 40 45	
Phe Arg Leu Leu His Glu His Lys Gly Lys Lys Ala Arg Leu Asp Trp	
50 55 60	
Asn Thr Asp Ala Ala Ser Leu Ile Gly Glu Glu Leu Gln Val Asp Phe	
65 70 75 80	
Leu	

<210> 45
<211> 30
<212> DNA
<213> Homo sapiens
<220>
<221> CDS
<222> (1).. (30)
<223> Smac
<400> 45

atg gcc gtg ccc atc gcc cag aaa tca gag	30
Met Ala Val Pro Ile Ala Gln Lys Ser Glu	
1 5 10	

IBPF12-538WO-E (seq) fin

<210> 46
 <211> 10
 <212> PRT
 <213> Homo sapiens
 <223> Smac
 <400> 46

Met Ala Val Pro Ile Ala Gln Lys Ser Glu
 1 5 10

<210> 47
 <211> 342
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> CDS
 <222> (1).. (342)
 <223> XIAP
 <400> 47

gct gtg agt tct gat agg aat ttc cca aat tca aca aat ctt cca aga	48
Ala Val Ser Ser Asp Arg Asn Phe Pro Asn Ser Thr Asn Leu Pro Arg	
1 5 10 15	
aat cca tcc atg gca gat tat gaa gca cgg atc ttt act ttt ggg aca	96
Asn Pro Ser Met Ala Asp Tyr Glu Ala Arg Ile Phe Thr Phe Gly Thr	
20 25 30	
tgg ata tac tca gtt aac aag gag cag ctt gca aga gct gga ttt tat	144
Trp Ile Tyr Ser Val Asn Lys Glu Gln Leu Ala Arg Ala Gly Phe Tyr	
35 40 45	
gct tta ggt gaa ggt gat aaa gta aag tgc ttt cac tgt gga gga ggg	192
Ala Leu Gly Glu Gly Asp Lys Val Lys Cys Phe His Cys Gly Gly Gly	
50 55 60	
cta act gat tgg aag ccc agt gaa gac cct tgg gaa caa cat gct aaa	240
Leu Thr Asp Trp Lys Pro Ser Glu Asp Pro Trp Glu Gln His Ala Lys	
65 70 75 80	
tgg tat cca ggg tgc aaa tat ctg tta gaa cag aag gga caa gaa tat	288
Trp Tyr Pro Gly Cys Lys Tyr Leu Leu Glu Gln Lys Gly Gln Glu Tyr	
85 90 95	
ata aac aat att cat tta act cat tca ctt gag gag tgt ctg gta aga	336
Ile Asn Asn Ile His Leu Thr His Ser Leu Glu Glu Cys Leu Val Arg	
100 105 110	
act act	342
Thr Thr	

<210> 48
 <211> 114
 <212> PRT
 <213> Homo sapiens
 <223> XIAP
 <400> 48

Ala Val Ser Ser Asp Arg Asn Phe Pro Asn Ser Thr Asn Leu Pro Arg	
1 5 10 15	
Asn Pro Ser Met Ala Asp Tyr Glu Ala Arg Ile Phe Thr Phe Gly Thr	
20 25 30	
Trp Ile Tyr Ser Val Asn Lys Glu Gln Leu Ala Arg Ala Gly Phe Tyr	
35 40 45	
Ala Leu Gly Glu Gly Asp Lys Val Lys Cys Phe His Cys Gly Gly Gly	
50 55 60	
Leu Thr Asp Trp Lys Pro Ser Glu Asp Pro Trp Glu Gln His Ala Lys	
65 70 75 80	
Trp Tyr Pro Gly Cys Lys Tyr Leu Leu Glu Gln Lys Gly Gln Glu Tyr	
85 90 95	
Ile Asn Asn Ile His Leu Thr His Ser Leu Glu Glu Cys Leu Val Arg	
100 105 110	
Thr Thr	

<210> 49

IBPF12-538W0-E (seq) fin

<211> 627
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> CDS
 <222> (1)..(627)
 <223> BclIX(L)
 <400> 49

atg tct cag agc aac cgg gag ctg gtg gtt gac ttt ctc tcc tac aag	48
Met Ser Gln Ser Asn Arg Glu Leu Val Val Asp Phe Leu Ser Tyr Lys	
1 5 10 15	
ctt tcc cag aaa gga tac agc tgg agt cag ttt agt gat gtg gaa gag	96
Leu Ser Gln Lys Gly Tyr Ser Trp Ser Gln Phe Ser Asp Val Glu Glu	
20 25 30	
aac agg act gag gcc cca gaa ggg act gaa tcg gag atg gag acc ccc	144
Asn Arg Thr Glu Ala Pro Glu Gly Thr Glu Ser Glu Met Glu Thr Pro	
35 40 45	
agt gcc atc aat ggc aac cca tcc tgg cac ctg gca gac agc ccc gcg	192
Ser Ala Ile Asn Gly Asn Pro Ser Trp His Leu Ala Asp Ser Pro Ala	
50 55 60	
gtg aat gga gcc act ggc cac agc agc agt ttg gat gcc cgg gag gtg	240
Val Asn Gly Ala Thr Gly His Ser Ser Ser Leu Asp Ala Arg Glu Val	
65 70 75 80	
atc ccc atg gca gca gta aag caa gcg ctg agg gag gca ggc gac gag	288
Ile Pro Met Ala Ala Val Lys Gln Ala Leu Arg Glu Ala Gly Asp Glu	
85 90 95	
ttt gaa ctg cgg tac cgg cgg gca ttc agt gac ctg aca tcc cag ctc	336
Phe Glu Leu Arg Tyr Arg Arg Ala Phe Ser Asp Leu Thr Ser Gln Leu	
100 105 110	
cac atc acc cca ggg aca gca tat cag agc ttt gaa cag gta gtg aat	384
His Ile Thr Pro Gly Thr Ala Tyr Gln Ser Phe Glu Gln Val Val Asn	
115 120 125	
gaa ctc ttc cgg gat ggg gta aac tgg ggt cgc att gtg gcc ttt ttc	432
Glu Leu Phe Arg Asp Gly Val Asn Trp Gly Arg Ile Val Ala Phe Phe	
130 135 140	
tcc ttc ggc ggg gca ctg tgc gtg gaa agc gta gac aag gag atg cag	480
Ser Phe Gly Gly Ala Leu Cys Val Glu Ser Val Asp Lys Glu Met Gln	
145 150 155 160	
gta ttg gtg agt cgg atc gca gct tgg atg gcc act tac ctg aat gac	528
Val Leu Val Ser Arg Ile Ala Ala Trp Met Ala Thr Tyr Leu Asn Asp	
165 170 175	
cac cta gag cct tgg atc cag gag aac ggc tgg gat act ttt gtg	576
His Leu Glu Pro Trp Ile Gln Glu Asn Gly Gly Trp Asp Thr Phe Val	
180 185 190	
gaa ctc tat ggg aac aat gca gca gcc gag agc cga aag ggc cag gaa	624
Glu Leu Tyr Gly Asn Asn Ala Ala Ala Glu Ser Arg Lys Gly Gln Glu	
195 200 205	
cgc	627
Arg	

<210> 50
 <211> 209
 <212> PRT
 <213> Homo sapiens
 <223> BclIX(L)
 <400> 50

Met Ser Gln Ser Asn Arg Glu Leu Val Val Asp Phe Leu Ser Tyr Lys
1 5 10 15
Leu Ser Gln Lys Gly Tyr Ser Trp Ser Gln Phe Ser Asp Val Glu Glu
20 25 30
Asn Arg Thr Glu Ala Pro Glu Gly Thr Glu Ser Glu Met Glu Thr Pro
35 40 45
Ser Ala Ile Asn Gly Asn Pro Ser Trp His Leu Ala Asp Ser Pro Ala
50 55 60
Val Asn Gly Ala Thr Gly His Ser Ser Ser Leu Asp Ala Arg Glu Val
65 70 75 80
Ile Pro Met Ala Ala Val Lys Gln Ala Leu Arg Glu Ala Gly Asp Glu

IBPF12-538W0-E (seq) fin

65	70	75	80	
tgc ttt tcc ctt gtg agt cct gca tca ttt gaa aat gtc cgt gca aag				288
Cys Phe Ser Leu Val Ser Pro Ala Ser Phe Glu Asn Val Arg Ala Lys				
85	90	95		
tgg tat cct gag gtg cgg cac cac tgt ccc aac act ccc atc atc cta				336
Trp Tyr Pro Glu Val Arg His His Cys Pro Asn Thr Pro Ile Ile Leu				
100	105	110		
gtg gga act aaa ctt gat ctt agg gat gat aaa gac acg atc gag aaa				384
Val Gly Thr Lys Leu Asp Leu Arg Asp Asp Lys Asp Thr Ile Glu Lys				
115	120	125		
ctg aag gag aag aag ctg act ccc atc acc tat ccg cag ggt cta gcc				432
Leu Lys Glu Lys Lys Leu Thr Pro Ile Thr Tyr Pro Gln Gly Leu Ala				
130	135	140		
atg gct aag gag att ggt gct gta aaa tac ctg gag tgc tcg gcg ctc				480
Met Ala Lys Glu Ile Gly Ala Val Lys Tyr Leu Glu Cys Ser Ala Leu				
145	150	155	160	
aca cag cga ggc ctc aag aca gtg ttt gac gaa gcg atc cga gca gtc				528
Thr Gln Arg Gly Leu Lys Thr Val Phe Asp Glu Ala Ile Arg Ala Val				
165	170	175		
ctc tgc ccg cct ccc gtg aag aag agg aag aga aaa tgc ctg ctg ttg				576
Leu Cys Pro Pro Pro Val Lys Lys Arg Lys Arg Lys Cys Leu Leu Leu				
180	185	190		
taa				579

<210> 54
 <211> 192
 <212> PRT
 <213> Homo sapiens
 <223> Rac1
 <400> 54

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20 25 30	
Ile Pro Thr Val Phe Asp Asn Tyr Ser Ala Asn Val Met Val Asp Gly	
35 40 45	
Lys Pro Val Asn Leu Gly Leu Trp Asp Thr Ala Gly Gln Glu Asp Tyr	
50 55 60	
Asp Arg Leu Arg Pro Leu Ser Tyr Pro Gln Thr Asp Val Phe Leu Ile	
65 70 75 80	
Cys Phe Ser Leu Val Ser Pro Ala Ser Phe Glu Asn Val Arg Ala Lys	
85 90 95	
Trp Tyr Pro Glu Val Arg His His Cys Pro Asn Thr Pro Ile Ile Leu	
100 105 110	
Val Gly Thr Lys Leu Asp Leu Arg Asp Asp Lys Asp Thr Ile Glu Lys	
115 120 125	
Leu Lys Glu Lys Lys Leu Thr Pro Ile Thr Tyr Pro Gln Gly Leu Ala	
130 135 140	
Met Ala Lys Glu Ile Gly Ala Val Lys Tyr Leu Glu Cys Ser Ala Leu	
145 150 155 160	
Thr Gln Arg Gly Leu Lys Thr Val Phe Asp Glu Ala Ile Arg Ala Val	
165 170 175	
Leu Cys Pro Pro Val Lys Lys Arg Lys Arg Lys Cys Leu Leu Leu	
180 185 190	

<210> 55
 <211> 252
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> CDS
 <222> (1).. (252)
 <223> PBD
 <400> 55

aag aaa gag aaa gag cgg cca gag att tct ctc cct tca gat ttt gaa	48
Lys Lys Glu Lys Glu Arg Pro Glu Ile Ser Leu Pro Ser Asp Phe Glu	
1 5 10 15	
cac aca att cat gtc ggt ttt gat gct gtc aca ggg gag ttt acg gga	96

IBPF12-538W0-E (seq) fin

His	Thr	Ile	His	Val	Gly	Phe	Asp	Ala	Val	Thr	Gly	Glu	Phe	Thr	Gly	
		20						25				30				
atg	cca	gag	cag	tgg	gcc	cg	ttg	ctt	cag	aca	tca	aat	atc	act	aag	144
Met	Pro	Glu	Gln	Trp	Ala	Arg	Leu	Leu	Gln	Thr	Ser	Asn	Ile	Thr	Lys	
		35					40					45				
tcg	gag	cag	aag	aaa	aac	cgc	cag	gct	gtt	ctg	gat	gtg	ttg	gag	ttt	192
Ser	Glu	Gln	Lys	Lys	Asn	Pro	Gln	Ala	Val	Leu	Asp	Val	Leu	Glu	Phe	
		50				55					60					
tac	aac	tgc	aag	aag	aca	tcc	aac	agc	cag	aaa	tac	atg	agc	ttt	aca	240
Tyr	Asn	Ser	Lys	Lys	Thr	Ser	Asn	Ser	Gln	Lys	Tyr	Met	Ser	Phe	Thr	
		65			70				75					80		
gat	aag	tca	gct													252
Asp	Lys	Ser	Ala													

<210> 56
 <211> 84
 <212> PRT
 <213> Homo sapiens
 <223> PBD
 <400> 56

Lys	Lys	Glu	Lys	Glu	Arg	Pro	Glu	Ile	Ser	Leu	Pro	Ser	Asp	Phe	Glu	
1		5					10					15				
His	Thr	Ile	His	Val	Gly	Phe	Asp	Ala	Val	Thr	Gly	Glu	Phe	Thr	Gly	
		20					25				30					
Met	Pro	Glu	Gln	Trp	Ala	Arg	Leu	Leu	Gln	Thr	Ser	Asn	Ile	Thr	Lys	
		35				40					45					
Ser	Glu	Gln	Lys	Lys	Asn	Pro	Gln	Ala	Val	Leu	Asp	Val	Leu	Glu	Phe	
		50			55					60						
Tyr	Asn	Ser	Lys	Lys	Thr	Ser	Asn	Ser	Gln	Lys	Tyr	Met	Ser	Phe	Thr	
		65			70				75					80		
Asp	Lys	Ser	Ala													

<210> 57
 <211> 42
 <212> DNA
 <213> Artificial
 <220>
 <223> Artificially synthesized hAG forward primer 1 sequence
 <400> 57

ctagctagca ttgccaccat ggtgagcgtg atcaagcccg ag 42

<210> 58
 <211> 38
 <212> DNA
 <213> Artificial
 <220>
 <223> Artificially synthesized hAG reverse primer 1 sequence
 <400> 58

actaccggtc ttggcctggc tgggcagcat gctgtacc 38

<210> 59
 <211> 45
 <212> DNA
 <213> Artificial
 <220>
 <223> Artificially synthesized p62(PB1) forward primer 1 sequence
 <400> 59

aagaattcga tggcgtcgtc caccgtgaag gcctaccttc tgggc 45

<210> 60
 <211> 46
 <212> DNA
 <213> Artificial
 <220>
 <223> Artificially synthesized p62(PB1) reverse primer 1 sequence
 <400> 60

aattggcggc cgcttatttc tctttaatgt agattcggaa gatgtc 46

IBPF12-538W0-E (seq) fin

<210> 61
 <211> 32
 <212> DNA
 <213> Artificial
 <220>
 <223> Artificially synthesized hAG forward primer 2 sequence
 <400> 61
 ggaccggtat ggtgagcgtg atcaagcccg ag 32

<210> 62
 <211> 34
 <212> DNA
 <213> Artificial
 <220>
 <223> Artificially synthesized hAG reverse primer 2 sequence
 <400> 62
 tttctagatc acttggcctg gctgggcagc atgc 34

<210> 63
 <211> 40
 <212> DNA
 <213> Artificial
 <220>
 <223> Artificially synthesized p62(PB1) forward primer 2 sequence
 <400> 63
 gggaccggtg tggcgtcgt caccgtgaag gcctaccttc 40

<210> 64
 <211> 40
 <212> DNA
 <213> Artificial
 <220>
 <223> Artificially synthesized p62(PB1) reverse primer 2 sequence
 <400> 64
 acctctagat tatttctctt taatgtagat tcggaagatg 40

<210> 65
 <211> 50
 <212> DNA
 <213> Artificial
 <220>
 <223> Artificially synthesized p62(PB1) forward primer 3 sequence
 <400> 65
 tagcgctagc attgccacca tggcgtcgt caccgtgaag gcctaccttc 50

<210> 66
 <211> 37
 <212> DNA
 <213> Artificial
 <220>
 <223> Artificially synthesized p62(PB1) reverse primer 3 sequence
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 aaaaccggtt ttctctttaa ttagattcg gaagatg 37

<210> 67
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 <223> Artificially synthesized mTOR(FRB) forward primer sequence
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<210> 68
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IBPF12-538W0-E (seq) fin

<220>
 <223> Artificially synthesized mTOR(FRB) reverse primer sequence
 <400> 68
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 <223> Artificially synthesized MEK(PB1) forward primer sequence
 <400> 71
 ccgaattcgg tgctggtaat tcgcatcaag atcccaaa 38
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 <400> 72
 ttctcgagtt agcaggctct tggaaatctc tgcag 35
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 <223> Artificially synthesized Nbr1 (PB1) forward primer sequence
 <400> 73
 aagaattcgg caggttactc taaatgtgac ttttaaa 37
 <210> 74
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 <400> 74
 ttctcgagtt acccttcgtg gacttgcctc tgcagtt 37
 <210> 75
 <211> 37
 <212> DNA
 <213> Artificial
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 <400> 75
 aagaattcgc aggtccgggt gaaagcctac taccgag 37

IBPF12-538W0-E (seq) fin

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<210> 77
 <211> 39
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 <223> Artificially synthesized TFG(PB1) forward primer 1 sequence
 <400> 77
 aactgcagca aagctaataca tcaaagctca acttgggga 39

<210> 78
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 <212> DNA
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 <223> Artificially synthesized TFG(PB1) reverse primer 1 sequence
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<210> 79
 <211> 43
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 <223> Artificially synthesized TEL(SAM) forward primer sequence
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<210> 80
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 <212> DNA
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<210> 81
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 <212> DNA
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 <223> Artificially synthesized EphB2 (SAM) forward primer sequence
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<210> 82
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 <213> Artificial
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 <223> Artificially synthesized EphB2 (SAM) reverse primer sequence
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<210> 83
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IBPF12-538W0-E (seq) fin

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 <223> Artificially synthesized Tankyrase(SAM) forward primer sequence
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<210> 86
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<210> 87
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 <223> Artificially synthesized TEL (SAM) reverse primer 2 sequence
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IBPF12-538W0-E (seq) fin

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 <213> Artificial
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 aaaaaccggt ctgatatag ccatgcccc aga 33

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 <210> 97
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 <400> 97
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 <211> 43
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IBPF12-538W0-E (seq) fin

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 <212> DNA
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 <223> Artificially synthesized MDM2 reverse primer sequence
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 <223> Artificially synthesized Sec5 forward primer sequence
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<210> 102
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 <212> DNA
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 <223> Artificially synthesized Sec5 reverse primer sequence
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<210> 103
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 <212> DNA
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 <223> Artificially synthesized Ra1B forward primer sequence
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<210> 104
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 <223> Artificially synthesized Ra1B reverse primer sequence
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<210> 105
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 <212> DNA
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 <223> Artificially synthesized Ra1B(Q72L) mutant primer sequence
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IBPF12-538W0-E (seq) fin

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 <211> 43
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 <223> Artificially synthesized Calmodulin forward primer sequence
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<210> 108
 <211> 40
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 <223> Artificially synthesized Calmodulin reverse primer sequence
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 <211> 46
 <212> DNA
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 <223> Artificially synthesized M13 peptide forward primer sequence
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 <223> Artificially synthesized AGNLS forward primer sequence
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IBPF12-538W0-E (seq) fin

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gc 62

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aac 63

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<223> Artificially synthesized KRas forward primer sequence
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<211> 52
<212> DNA
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<223> Artificially synthesized cRaf reverse primer sequence
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<223> Artificially synthesized Smac forward primer sequence
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IBPF12-538W0-E (seq) fin

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 <223> Artificially synthesized XIAP forward primer sequence
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 <211> 45
 <212> DNA
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 <220>
 <223> Artificially synthesized XIAP reverse primer sequence
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 <210> 123
 <211> 42
 <212> DNA
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 <223> Artificially synthesized BclX(L) forward primer sequence
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 ttctcgagga tgtctcagag caaccgggag ctggtggttg ac 42

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 <211> 44
 <212> DNA
 <213> Artificial
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 <223> Artificially synthesized BclX(L) reverse primer sequence
 <400> 124
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 <210> 125
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 <223> Artificially synthesized BAD forward primer 1 sequence
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 <210> 126
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IBPF12-538W0-E (seq) fin

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 Gly Ser Val Asn Gly His Glu Phe Thr Ile Glu Gly Glu Gly Thr Gly
 20 25 30
 aga cct tac gag gga cat cag gag atg aca ctg cgc gtc aca atg gcc 144
 Arg Pro Tyr Glu Gly His Gln Glu Met Thr Leu Arg Val Thr Met Ala
 35 40 45
 gag ggc ggg cca atg cct ttc gcc ttc gac ctg gtg tcc cac gtg ttc 192
 Glu Gly Gly Pro Met Pro Phe Ala Phe Asp Leu Val Ser His Val Phe
 50 55 60
 tgt tac ggc cac aga gtt ttt acc aag tac cca gaa gag atc cca gac 240
 Cys Tyr Gly His Arg Val Phe Thr Lys Tyr Pro Glu Glu Ile Pro Asp
 65 70 75 80
 tat ttc aag cag gcc ttt cct gag ggc ctg tcc tgg gag agg tcc ctg 288
 Tyr Phe Lys Gln Ala Phe Pro Glu Gly Leu Ser Trp Glu Arg Ser Leu
 85 90 95
 gag ttc gag gac ggc ggc tcc gcc tcc gtg agc gcc cac atc agc ctg 336
 Glu Phe Glu Asp Gly Gly Ser Ala Ser Val Ser Ala His Ile Ser Leu
 100 105 110
 agg ggc aac acc ttc tac cac aag tcc aag ttc acc ggc gtg aac ttc 384
 Arg Gly Asn Thr Phe Tyr His Lys Ser Lys Phe Thr Gly Val Asn Phe
 115 120 125
 ccc gcc gac ggc ccc atc atg cag aac cag agc gtg gac tgg gag ccc 432
 Pro Ala Asp Gly Pro Ile Met Gln Asn Gln Ser Val Asp Trp Glu Pro
 130 135 140

IBPF12-538W0-E (seq) fin

tcc acc gag aag atc acc gcc agc gac ggc gtg ctg aag ggc gac gtg	480
Ser Thr Glu Lys Ile Thr Ala Ser Asp Gly Val Leu Lys Gly Asp Val	
145 150 155 160	
acc atg tac ctg aag ctg gag ggc ggc ggc aac cac aag tgc cag atg	528
Thr Met Tyr Leu Lys Leu Glu Gly Gly Asn His Lys Cys Gln Met	
165 170 175	
aag acc acc tac aag gcc gcc aag gag atc ctg gag atg ccc ggc gac	576
Lys Thr Thr Tyr Lys Ala Ala Lys Glu Ile Leu Glu Met Pro Gly Asp	
180 185 190	
cac tac atc ggc cac agg ctg gtg agg aag acc gag ggc aac atc acc	624
His Tyr Ile Gly His Arg Leu Val Arg Lys Thr Glu Gly Asn Ile Thr	
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Glu Gln Val Glu Asp Ala Val Ala His Ser	
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35 40 45	
Glu Gly Gly Pro Met Pro Phe Ala Phe Asp Leu Val Ser His Val Phe	
50 55 60	
Cys Tyr Gly His Arg Val Phe Thr Lys Tyr Pro Glu Glu Ile Pro Asp	
65 70 75 80	
Tyr Phe Lys Gln Ala Phe Pro Glu Gly Leu Ser Trp Glu Arg Ser Leu	
85 90 95	
Glu Phe Glu Asp Gly Gly Ser Ala Ser Val Ser Ala His Ile Ser Leu	
100 105 110	
Arg Gly Asn Thr Phe Tyr His Lys Ser Lys Phe Thr Gly Val Asn Phe	
115 120 125	
Pro Ala Asp Gly Pro Ile Met Gln Asn Gln Ser Val Asp Trp Glu Pro	
130 135 140	
Ser Thr Glu Lys Ile Thr Ala Ser Asp Gly Val Leu Lys Gly Asp Val	
145 150 155 160	
Thr Met Tyr Leu Lys Leu Glu Gly Gly Gly Asn His Lys Cys Gln Met	
165 170 175	
Lys Thr Thr Tyr Lys Ala Ala Lys Glu Ile Leu Glu Met Pro Gly Asp	
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ggc acc gtg aac ggc cac aac ttc gtg atc gag ggc gag ggc aag ggc	96
Gly Thr Val Asn Gly His Asn Phe Val Ile Glu Gly Glu Gly Lys Gly	

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aac ccc tac gag ggc acc cag atc ctg gac ctg aac gtg acc gag ggc	144
Asn Pro Tyr Glu Gly Thr Gln Ile Leu Asp Leu Asn Val Thr Glu Gly	
35 40 45	
gcc ccc ctg ccc ttc gcc tac gac atc ctg acc acc gtg ttc cag tac	192
Ala Pro Leu Pro Phe Ala Tyr Asp Ile Leu Thr Thr Val Phe Gln Tyr	
50 55 60	
ggc aac agg gcc ttc acc aag tac ccc gcc gac atc cag gac tac ttc	240
Gly Asn Arg Ala Phe Thr Lys Tyr Pro Ala Asp Ile Gln Asp Tyr Phe	
65 70 75 80	
aag cag acc ttc ccc gag ggc tac cac tgg gag agg agc atg acc tac	288
Lys Gln Thr Phe Pro Glu Gly Tyr His Trp Glu Arg Ser Met Thr Tyr	
85 90 95	
gag gac cag gcc atc tgc acc gcc acc agc aac atc agc atg agg ggc	336
Glu Asp Gln Gly Ile Cys Thr Ala Thr Ser Asn Ile Ser Met Arg Gly	
100 105 110	
gac tgc ttc ttc tac gac atc agg ttc gac ggc acc aac ttc ccc ccc	384
Asp Cys Phe Phe Tyr Asp Ile Arg Phe Asp Gly Thr Asn Phe Pro Pro	
115 120 125	
aac ggc ccc gtg atg cag aag aag acc ctg aag tgg gag ccc agc acc	432
Asn Gly Pro Val Met Gln Lys Lys Thr Leu Lys Trp Glu Pro Ser Thr	
130 135 140	
gag aag atg tac gtg gag gac ggc gtg ctg aag ggc gac gtg aac atg	480
Glu Lys Met Tyr Val Glu Asp Gly Val Leu Lys Gly Asp Val Asn Met	
145 150 155 160	
agg ctg ctg ctg gag ggc ggc ggc cac tac agg tgc gac ttc aag acc	528
Arg Leu Leu Leu Glu Gly Gly Gly His Tyr Arg Cys Asp Phe Lys Thr	
165 170 175	
acc tac aag gcc aag aag gag gtg agg ctg ccc gac gcc cac aag atc	576
Thr Tyr Lys Ala Lys Lys Glu Val Arg Leu Pro Asp Ala His Lys Ile	
180 185 190	
gac cac agg atc gag atc ctg aag cac gac aag gac tac aac aag gtg	624
Asp His Arg Ile Glu Ile Leu Lys His Asp Lys Asp Tyr Asn Lys Val	
195 200 205	
aag ctg tac gag aac gcc gtg gcc agg tac tcc atg ctg ccc agc cag	672
Lys Leu Tyr Glu Asn Ala Val Ala Arg Tyr Ser Met Leu Pro Ser Gln	
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Ala Lys	
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35 40 45	
Ala Pro Leu Pro Phe Ala Tyr Asp Ile Leu Thr Thr Val Phe Gln Tyr	
50 55 60	
Gly Asn Arg Ala Phe Thr Lys Tyr Pro Ala Asp Ile Gln Asp Tyr Phe	
65 70 75 80	
Lys Gln Thr Phe Pro Glu Gly Tyr His Trp Glu Arg Ser Met Thr Tyr	
85 90 95	
Glu Asp Gln Gly Ile Cys Thr Ala Thr Ser Asn Ile Ser Met Arg Gly	
100 105 110	
Asp Cys Phe Phe Tyr Asp Ile Arg Phe Asp Gly Thr Asn Phe Pro Pro	
115 120 125	
Asn Gly Pro Val Met Gln Lys Lys Thr Leu Lys Trp Glu Pro Ser Thr	
130 135 140	
Glu Lys Met Tyr Val Glu Asp Gly Val Leu Lys Gly Asp Val Asn Met	
145 150 155 160	

IBPF12-538W0-E (seq) fin

Arg	Leu	Leu	Leu	Glu	Gly	Gly	Gly	His	Tyr	Arg	Cys	Asp	Phe	Lys	Thr
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Thr	Tyr	Lys	Ala	Lys	Lys	Glu	Val	Arg	Leu	Pro	Asp	Ala	His	Lys	Ile
			180					185					190		
Asp	His	Arg	Ile	Glu	Ile	Leu	Lys	His	Asp	Lys	Asp	Tyr	Asn	Lys	Val
		195					200					205			
Lys	Leu	Tyr	Glu	Asn	Ala	Val	Ala	Arg	Tyr	Ser	Met	Leu	Pro	Ser	Gln
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Ala	Lys														
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 <222> (1).. (696)
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1				5					10					15		
tac	cgc	atg	gag	ggc	agc	gtg	aac	ggc	cac	gag	ttc	acc	atc	gag	ggc	96
Tyr	Arg	Met	Glu	Gly	Ser	Val	Asn	Gly	His	Glu	Phe	Thr	Ile	Glu	Gly	
			20				25					30				
gtg	ggc	acc	ggc	aac	ccc	tac	gag	ggc	aag	cag	acc	tcc	gag	ctg	gtg	144
Val	Gly	Thr	Gly	Asn	Pro	Tyr	Glu	Gly	Lys	Gln	Thr	Ser	Glu	Leu	Val	
		35				40					45					
atc	atc	aag	ccc	aag	ggc	aag	ccc	ctg	ccc	ttc	tcc	ttc	gac	atc	ctg	192
Ile	Ile	Lys	Pro	Lys	Gly	Lys	Pro	Leu	Pro	Phe	Ser	Phe	Asp	Ile	Leu	
		50			55					60						
tcc	acc	gtg	ttc	cag	tac	ggc	aac	agg	tgc	ttc	acc	aag	tac	ccc	gcc	240
Ser	Thr	Val	Phe	Gln	Tyr	Gly	Asn	Arg	Cys	Phe	Thr	Lys	Tyr	Pro	Ala	
		65			70				75					80		
gac	atg	ccc	gac	tac	ttc	aag	cag	gcc	ttc	ccc	gac	ggc	atg	tcc	tac	288
Asp	Met	Pro	Asp	Tyr	Phe	Lys	Gln	Ala	Phe	Pro	Asp	Gly	Met	Ser	Tyr	
			85					90					95			
gag	agg	tcc	ttc	ctg	ttc	gag	gac	ggc	ggc	gtg	gcc	acc	gcc	agc	tgg	336
Glu	Arg	Ser	Phe	Leu	Phe	Glu	Asp	Gly	Gly	Val	Ala	Thr	Ala	Ser	Trp	
		100					105					110				
agc	atc	cgc	ctg	gag	ggc	aac	tgc	ttc	atc	cac	aac	tcc	atc	tac	cac	384
Ser	Ile	Arg	Leu	Glu	Gly	Asn	Cys	Phe	Ile	His	Asn	Ser	Ile	Tyr	His	
		115			120						125					
ggc	acc	aac	ttc	ccc	gcc	gac	ggc	ccc	gtg	atg	aag	aag	cag	acc	atc	432
Gly	Thr	Asn	Phe	Pro	Ala	Asp	Gly	Pro	Val	Met	Lys	Lys	Gln	Thr	Ile	
		130			135					140						
ggc	tgg	gac	aag	tcc	tcc	gag	aag	atg	agc	gtg	gcc	aag	gag	gtg	ctg	480
Gly	Trp	Asp	Lys	Ser	Ser	Glu	Lys	Met	Ser	Val	Ala	Lys	Glu	Val	Leu	
		145			150			155						160		
agg	ggc	gac	gtg	acc	cag	ttc	ctg	ctg	ctg	gag	ggc	ggc	ggc	tac	cag	528
Arg	Gly	Asp	Val	Thr	Gln	Phe	Leu	Leu	Leu	Glu	Gly	Gly	Gly	Tyr	Gln	
			165					170					175			
agg	tgc	cag	ctg	cac	tcc	acc	tac	aag	acc	gag	aag	ccc	gtg	gcc	atg	576
Arg	Cys	Gln	Leu	His	Ser	Thr	Tyr	Lys	Thr	Glu	Lys	Pro	Val	Ala	Met	
		180					185					190				
ccc	ccc	agc	cac	gtg	gtg	gag	cac	cag	atc	gtg	agg	acc	gac	ctg	ggc	624
Pro	Pro	Ser	His	Val	Val	Glu	His	Gln	Ile	Val	Arg	Thr	Asp	Leu	Gly	
		195				200					205					
cag	acc	gcc	aag	ggc	ttc	aag	gtg	aag	ctg	gag	gag	cac	gcc	gag	gcc	672
Gln	Thr	Ala	Lys	Gly	Phe	Lys	Val	Lys	Leu	Glu	Glu	His	Ala	Glu	Ala	
		210			215					220						
cac	gtg	aac	ccc	ctg	aag	gtg	aag									696
His	Val	Asn	Pro	Leu	Lys	Val	Lys									
225					230											

IBPF12-538W0-E (seq) fin

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 Tyr Arg Met Glu Gly Ser Val Asn Gly His Glu Phe Thr Ile Glu Gly
 20 25 30
 Val Gly Thr Gly Asn Pro Tyr Glu Gly Lys Gln Thr Ser Glu Leu Val
 35 40 45
 Ile Ile Lys Pro Lys Gly Lys Pro Leu Pro Phe Ser Phe Asp Ile Leu
 50 55 60
 Ser Thr Val Phe Gln Tyr Gly Asn Arg Cys Phe Thr Lys Tyr Pro Ala
 65 70 75 80
 Asp Met Pro Asp Tyr Phe Lys Gln Ala Phe Pro Asp Gly Met Ser Tyr
 85 90 95
 Glu Arg Ser Phe Leu Phe Glu Asp Gly Gly Val Ala Thr Ala Ser Trp
 100 105 110
 Ser Ile Arg Leu Glu Gly Asn Cys Phe Ile His Asn Ser Ile Tyr His
 115 120 125
 Gly Thr Asn Phe Pro Ala Asp Gly Pro Val Met Lys Lys Gln Thr Ile
 130 135 140
 Gly Trp Asp Lys Ser Ser Glu Lys Met Ser Val Ala Lys Glu Val Leu
 145 150 155 160
 Arg Gly Asp Val Thr Gln Phe Leu Leu Leu Glu Gly Gly Gly Tyr Gln
 165 170 175
 Arg Cys Gln Leu His Ser Thr Tyr Lys Thr Glu Lys Pro Val Ala Met
 180 185 190
 Pro Pro Ser His Val Val Glu His Gln Ile Val Arg Thr Asp Leu Gly
 195 200 205
 Gln Thr Ala Lys Gly Phe Lys Val Lys Leu Glu Glu His Ala Glu Ala
 210 215 220
 His Val Asn Pro Leu Lys Val Lys
 225 230

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 1 5 10 15
 ggc tct gta aac ggg cac aag ttc gtg att aca ggg aaa gga agt ggc 96
 Gly Ser Val Asn Gly His Lys Phe Val Ile Thr Gly Lys Gly Ser Gly
 20 25 30
 aga cct tac gag gga aca cag act gtg gac ctg aca gtc ata gag ggc 144
 Arg Pro Tyr Glu Gly Thr Gln Thr Val Asp Leu Thr Val Ile Glu Gly
 35 40 45
 gga cct ctt cct ttt gct ttc gat atc ctg aca aca gca ttc cat tac 192
 Gly Pro Leu Pro Phe Ala Phe Asp Ile Leu Thr Thr Ala Phe His Tyr
 50 55 60
 ggc aac cgg gta ttt gtc gaa tac cca gaa gaa ata gta gac tac ttc 240
 Gly Asn Arg Val Phe Val Glu Tyr Pro Glu Glu Ile Val Asp Tyr Phe
 65 70 75 80
 aag cag tcg ttt cct gag ggt tat tot tgg gaa cga agc atg agt tac 288
 Lys Gln Ser Phe Pro Glu Gly Tyr Ser Trp Glu Arg Ser Met Ser Tyr
 85 90 95
 gaa gac ggg gga att tgc ctc gcc aca aac aat ata acg atg aag aaa 336

IBPF12-538W0-E (seq) fin

Glu	Asp	Gly	Gly	Ile	Cys	Leu	Ala	Thr	Asn	Asn	Ile	Thr	Met	Lys	Lys		
			100					105					110				
gac	ggc	agc	aac	act	ttt	gtc	aat	gaa	att	cga	ttt	gat	ggt	aca	aac		384
Asp	Gly	Ser	Asn	Thr	Phe	Val	Asn	Glu	Ile	Arg	Phe	Asp	Gly	Thr	Asn		
			115				120					125					
ttt	cct	gcc	aat	ggt	cca	ggt	atg	cag	agg	aag	acc	gtc	aaa	tgg	gag		432
Phe	Pro	Ala	Asn	Gly	Pro	Val	Met	Gln	Arg	Lys	Thr	Val	Lys	Trp	Glu		
			130				135					140					
cca	tcc	act	gag	aaa	atg	tat	gtg	cgt	gat	gga	gtg	ctg	aag	ggt	gat		480
Pro	Ser	Thr	Glu	Lys	Met	Tyr	Val	Arg	Asp	Gly	Val	Leu	Lys	Gly	Asp		
			145				150				155				160		
ggt	gaa	atg	gct	ctg	ttg	ctt	gaa	gga	ggt	ggc	cat	tac	cga	tgt	gac		528
Val	Glu	Met	Ala	Leu	Leu	Glu	Gly	Gly	Gly	His	Tyr	Arg	Cys	Asp			
			165					170					175				
ttc	aga	act	act	tac	aaa	gca	aag	aag	ggt	gtc	cag	ttg	cca	gac	tat		576
Phe	Arg	Thr	Thr	Tyr	Lys	Ala	Lys	Lys	Val	Val	Gln	Leu	Pro	Asp	Tyr		
			180					185				190					
cac	tac	gtg	gat	cat	caa	atg	gag	ata	aca	agc	cat	gac	aag	gat	tac		624
His	Tyr	Val	Asp	His	Gln	Met	Glu	Ile	Thr	Ser	His	Asp	Lys	Asp	Tyr		
			195				200					205					
aac	aag	ggt	aag	gcg	tat	gaa	cat	gct	aag	gct	tat	tcc	ggg	acc	tac		672
Asn	Lys	Val	Lys	Ala	Tyr	Glu	His	Ala	Lys	Ala	Tyr	Ser	Gly	Thr	Tyr		
			210				215				220						
agg	ggc	gcc	aag	tat	gaa	ttt	gaa	gcc	taa								702
Arg	Gly	Ala	Lys	Tyr	Glu	Phe	Glu	Ala									
						230											

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Met	Val	Ser	Val	Ile	Thr	Ser	Glu	Met	Lys	Ile	Glu	Leu	Arg	Met	Glu		
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Gly	Ser	Val	Asn	Gly	His	Lys	Phe	Val	Ile	Thr	Gly	Lys	Gly	Ser	Gly		
			20					25					30				
Arg	Pro	Tyr	Glu	Gly	Thr	Gln	Thr	Val	Asp	Leu	Thr	Val	Ile	Glu	Gly		
			35				40					45					
Gly	Pro	Leu	Pro	Phe	Ala	Phe	Asp	Ile	Leu	Thr	Thr	Ala	Phe	His	Tyr		
			50				55				60						
Gly	Asn	Arg	Val	Phe	Val	Glu	Tyr	Pro	Glu	Glu	Ile	Val	Asp	Tyr	Phe		
			65			70			75						80		
Lys	Gln	Ser	Phe	Pro	Glu	Gly	Tyr	Ser	Trp	Glu	Arg	Ser	Met	Ser	Tyr		
			85					90				95					
Glu	Asp	Gly	Gly	Ile	Cys	Leu	Ala	Thr	Asn	Asn	Ile	Thr	Met	Lys	Lys		
			100					105					110				
Asp	Gly	Ser	Asn	Thr	Phe	Val	Asn	Glu	Ile	Arg	Phe	Asp	Gly	Thr	Asn		
			115				120					125					
Phe	Pro	Ala	Asn	Gly	Pro	Val	Met	Gln	Arg	Lys	Thr	Val	Lys	Trp	Glu		
			130				135					140					
Pro	Ser	Thr	Glu	Lys	Met	Tyr	Val	Arg	Asp	Gly	Val	Leu	Lys	Gly	Asp		
			145				150				155				160		
Val	Glu	Met	Ala	Leu	Leu	Leu	Glu	Gly	Gly	Gly	His	Tyr	Arg	Cys	Asp		
			165					170					175				
Phe	Arg	Thr	Thr	Tyr	Lys	Ala	Lys	Lys	Val	Val	Gln	Leu	Pro	Asp	Tyr		
			180					185					190				
His	Tyr	Val	Asp	His	Gln	Met	Glu	Ile	Thr	Ser	His	Asp	Lys	Asp	Tyr		
			195				200					205					
Asn	Lys	Val	Lys	Ala	Tyr	Glu	His	Ala	Lys	Ala	Tyr	Ser	Gly	Thr	Tyr		
			210				215				220						
Arg	Gly	Ala	Lys	Tyr	Glu	Phe	Glu	Ala									
						230											

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IBPF12-538W0-E (seq) fin

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<223> KCy1

<220>

<221> CDS

<222> (1).. (663)

<223>

<400> 140

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ggc tcc gtc aat ggg cat gag ttc aca gtt gaa ggt gaa ggc aca ggc      96
Gly Ser Val Asn Gly His Glu Phe Thr Val Glu Gly Glu Gly Thr Gly
20      25      30
aga cct tac gag gga aag cac aaa ata aca ctt gac gtc acc aag ggt      144
Arg Pro Tyr Glu Gly Lys His Lys Ile Thr Leu Asp Val Thr Lys Gly
35      40      45
ggg cca ctg cct ttt gcg ttt gac ttg ttg tct aca gtg ttc tct tat      192
Gly Pro Leu Pro Phe Ala Phe Asp Leu Leu Ser Thr Val Phe Ser Tyr
50      55      60
ggc aac aga gcc ctt act aaa tat cct gac gat atc ccc gac tat ttc      240
Gly Asn Arg Ala Leu Thr Lys Tyr Pro Asp Asp Ile Pro Asp Tyr Phe
65      70      75      80
aaa caa tgc ttt cct gga ggc tat tca tgg gaa aga aag ttt gag ttc      288
Lys Gln Cys Phe Pro Gly Gly Tyr Ser Trp Glu Arg Lys Phe Glu Phe
85      90      95
gaa gat ggc ggg ttg gcg ata gcc aaa gcg gaa ata agc ctt aaa gga      336
Glu Asp Gly Gly Leu Ala Ile Ala Lys Ala Glu Ile Ser Leu Lys Gly
100      105      110
aac tgc ttc gaa cac aaa tcc acc att gaa ggc act ttt ccc gat agc      384
Asn Cys Phe Glu His Lys Ser Thr Ile Glu Gly Thr Phe Pro Asp Ser
115      120      125
agt cct att atg caa aac aag acg cta gga tgg gaa cca tcc acc gag      432
Ser Pro Ile Met Gln Asn Lys Thr Leu Gly Trp Glu Pro Ser Thr Glu
130      135      140
aag atg acc gtc cgc gac gga tca atg aag ggt gat gat gcg gcc tac      480
Lys Met Thr Val Arg Asp Gly Ser Met Lys Gly Asp Asp Ala Ala Tyr
145      150      155      160
ctc aaa ttg gtg gga ggc ggc aat cac aaa tgc tac ttt aca act acc      528
Leu Lys Leu Val Gly Gly Gly Asn His Lys Cys Tyr Phe Thr Thr Thr
165      170      175
tac aca gcg aag aaa aag att cct aac ctg cca gga agc cat ttc att      576
Tyr Thr Ala Lys Lys Ile Pro Asn Leu Pro Gly Ser His Phe Ile
180      185      190
ggc cat cgc atc tcc agt gtc gtc gag ggc act aaa att aaa gtg atg      624
Gly His Arg Ile Ser Ser Val Val Glu Gly Thr Lys Ile Lys Val Met
195      200      205
gaa gat gca att gct cat ctt tac cct ttt aat ggc agc      663
Glu Asp Ala Ile Ala His Leu Tyr Pro Phe Asn Gly Ser
210      215      220

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<210> 141

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<212> PRT

<213> Artificial

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<223> KCy1

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20      25      30
Arg Pro Tyr Glu Gly Lys His Lys Ile Thr Leu Asp Val Thr Lys Gly
35      40      45
Gly Pro Leu Pro Phe Ala Phe Asp Leu Leu Ser Thr Val Phe Ser Tyr
50      55      60
Gly Asn Arg Ala Leu Thr Lys Tyr Pro Asp Asp Ile Pro Asp Tyr Phe
65      70      75      80

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IBPF12-538W0-E (seq) fin

Lys	Gln	Cys	Phe	Pro	Gly	Gly	Tyr	Ser	Trp	Glu	Arg	Lys	Phe	Glu	Phe
				85					90					95	
Glu	Asp	Gly	Gly	Leu	Ala	Ile	Ala	Lys	Ala	Glu	Ile	Ser	Leu	Lys	Gly
			100					105					110		
Asn	Cys	Phe	Glu	His	Lys	Ser	Thr	Ile	Glu	Gly	Thr	Phe	Pro	Asp	Ser
		115					120					125			
Ser	Pro	Ile	Met	Gln	Asn	Lys	Thr	Leu	Gly	Trp	Glu	Pro	Ser	Thr	Glu
		130				135					140				
Lys	Met	Thr	Val	Arg	Asp	Gly	Ser	Met	Lys	Gly	Asp	Asp	Ala	Ala	Tyr
145					150					155					160
Leu	Lys	Leu	Val	Gly	Gly	Asn	His	Lys	Cys	Tyr	Phe	Thr	Thr	Thr	
			165					170					175		
Tyr	Thr	Ala	Lys	Lys	Lys	Ile	Pro	Asn	Leu	Pro	Gly	Ser	His	Phe	Ile
			180					185					190		
Gly	His	Arg	Ile	Ser	Ser	Val	Val	Glu	Gly	Thr	Lys	Ile	Lys	Val	Met
		195				200						205			
Glu	Asp	Ala	Ile	Ala	His	Leu	Tyr	Pro	Phe	Asn	Gly	Ser			
	210					215					220				

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 <222> (1).. (678)
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Met	Val	Ser	Val	Ile	Lys	Pro	Glu	Met	Lys	Ile	Lys	Leu	Cys	Met	Arg	
1				5					10					15		
ggc	act	gta	aac	ggg	cat	aat	ttc	gtg	att	gaa	gga	gaa	gga	aaa	gga	96
Gly	Thr	Val	Asn	Gly	His	Asn	Phe	Val	Ile	Glu	Gly	Glu	Gly	Lys	Gly	
			20				25						30			
aat	cct	tac	gag	gga	acg	cag	att	tta	gac	ctg	aac	gtc	act	gaa	ggc	144
Asn	Pro	Tyr	Glu	Gly	Thr	Gln	Ile	Leu	Asp	Leu	Asn	Val	Thr	Glu	Gly	
		35				40						45				
gca	cct	ctg	cct	ttc	gct	tac	gat	atc	ttg	aca	aca	gtg	ttc	cag	tac	192
Ala	Pro	Leu	Pro	Phe	Ala	Tyr	Asp	Ile	Leu	Thr	Thr	Val	Phe	Gln	Tyr	
	50				55				60							
ggc	aac	agg	gca	ttc	acc	aag	tac	cca	gca	gat	att	cag	gac	tat	ttc	240
Gly	Asn	Arg	Ala	Phe	Thr	Lys	Tyr	Pro	Ala	Asp	Ile	Gln	Asp	Tyr	Phe	
65				70					75						80	
aag	cag	act	ttt	cct	gag	ggg	tat	cac	tgg	gaa	aga	agc	atg	act	tat	288
Lys	Gln	Thr	Phe	Pro	Glu	Gly	Tyr	His	Trp	Glu	Arg	Ser	Met	Thr	Tyr	
			85					90					95			
gaa	gac	cag	ggc	att	tgc	acc	gcc	aca	agc	aac	ata	agc	atg	cgt	ggc	336
Glu	Asp	Gln	Gly	Ile	Cys	Thr	Ala	Thr	Ser	Asn	Ile	Ser	Met	Arg	Gly	
			100					105					110			
gac	tgt	ttt	ttc	tat	gac	att	cgt	ttt	gat	ggt	gtg	aac	ttt	cct	ccc	384
Asp	Cys	Phe	Phe	Tyr	Asp	Ile	Arg	Phe	Asp	Gly	Val	Asn	Phe	Pro	Pro	
		115				120						125				
aat	ggt	cgc	gtt	atg	cag	aag	act	ctt	aaa	tgg	gag	cca	tcc	act		432
Asn	Gly	Pro	Val	Met	Gln	Lys	Lys	Thr	Leu	Lys	Trp	Glu	Pro	Ser	Thr	
	130					135					140					
gag	aaa	atg	tac	gta	cgt	gat	gga	gtg	ctg	aag	ggt	gat	gtt	aac	atg	480
Glu	Lys	Met	Tyr	Val	Arg	Asp	Gly	Val	Leu	Lys	Gly	Asp	Val	Asn	Met	
145					150				155						160	
gct	ctg	ttg	ctt	gaa	gga	ggt	ggc	cat	tat	cga	tgt	gat	ttc	aaa	act	528
Ala	Leu	Leu	Leu	Glu	Gly	Gly	Gly	His	Tyr	Arg	Cys	Asp	Phe	Lys	Thr	
			165					170					175			
act	tac	aaa	gca	aag	aag	gat	gtc	cgt	ttg	cca	gac	gcg	cac	aaa	gtg	576
Thr	Tyr	Lys	Ala	Lys	Lys	Asp	Val	Arg	Leu	Pro	Asp	Ala	His	Lys	Val	
			180					185					190			
gac	cac	cgc	att	gag	att	ttg	aag	cat	gac	aaa	gat	tac	aac	aag	gtc	624
Asp	His	Arg	Ile	Glu	Ile	Leu	Lys	His	Asp	Lys	Asp	Tyr	Asn	Lys	Val	

IBPF12-538W0-E (seq) fin

aag	ctc	tat	gag	aat	gcc	gtt	gct	cgc	tat	tct	atg	ctg	cgc	agt	cag		
Lys	Leu	Tyr	Glu	Asn	Ala	Val	Ala	Arg	Tyr	Ser	Met	Leu	Pro	Ser	Gln		672
	210					215					220						
gcc	aag																678
Ala	Lys																
225																	

<210> 143
 <211> 226
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 <223> dAG (AB)
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Gly	Thr	Val	Asn	Gly	His	Asn	Phe	Val	Ile	Glu	Gly	Glu	Gly	Lys	Gly		
			20					25					30				
Asn	Pro	Tyr	Glu	Gly	Thr	Gln	Ile	Leu	Asp	Leu	Asn	Val	Thr	Glu	Gly		
		35					40					45					
Ala	Pro	Leu	Pro	Phe	Ala	Tyr	Asp	Ile	Leu	Thr	Thr	Val	Phe	Gln	Tyr		
	50					55					60						
Gly	Asn	Arg	Ala	Phe	Thr	Lys	Tyr	Pro	Ala	Asp	Ile	Gln	Asp	Tyr	Phe		
65					70				75						80		
Lys	Gln	Thr	Phe	Pro	Glu	Gly	Tyr	His	Trp	Glu	Arg	Ser	Met	Thr	Tyr		
			85					90						95			
Glu	Asp	Gln	Gly	Ile	Cys	Thr	Ala	Thr	Ser	Asn	Ile	Ser	Met	Arg	Gly		
			100					105					110				
Asp	Cys	Phe	Phe	Tyr	Asp	Ile	Arg	Phe	Asp	Gly	Val	Asn	Phe	Pro	Pro		
		115					120					125					
Asn	Gly	Pro	Val	Met	Gln	Lys	Lys	Thr	Leu	Lys	Trp	Glu	Pro	Ser	Thr		
	130					135					140						
Glu	Lys	Met	Tyr	Val	Arg	Asp	Gly	Val	Leu	Lys	Gly	Asp	Val	Asn	Met		
145					150					155					160		
Ala	Leu	Leu	Leu	Glu	Gly	Gly	Gly	His	Tyr	Arg	Cys	Asp	Phe	Lys	Thr		
				165					170					175			
Thr	Tyr	Lys	Ala	Lys	Lys	Asp	Val	Arg	Leu	Pro	Asp	Ala	His	Lys	Val		
			180					185					190				
Asp	His	Arg	Ile	Glu	Ile	Leu	Lys	His	Asp	Lys	Asp	Tyr	Asn	Lys	Val		
		195					200					205					
Lys	Leu	Tyr	Glu	Asn	Ala	Val	Ala	Arg	Tyr	Ser	Met	Leu	Pro	Ser	Gln		
	210					215					220						
Ala	Lys																
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<210> 144
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 <400> 144

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Met	Val	Ser	Val	Ile	Lys	Pro	Glu	Met	Lys	Ile	Lys	Leu	Cys	Met	Arg		48
1				5					10					15			
ggc	act	gta	aac	ggg	cat	aat	ttc	gtg	att	gaa	gga	gaa	gga	aaa	gga		96
Gly	Thr	Val	Asn	Gly	His	Asn	Phe	Val	Ile	Glu	Gly	Glu	Gly	Lys	Gly		
			20					25					30				
aat	cct	tac	gag	gga	acg	cag	att	tta	gac	ctg	aac	gtc	act	gaa	ggc		144
Asn	Pro	Tyr	Glu	Gly	Thr	Gln	Ile	Leu	Asp	Leu	Asn	Val	Thr	Glu	Gly		
		35					40					45					
gca	cct	ctg	cct	ttc	gct	tac	gat	atc	ttg	aca	aca	gtg	ttc	cag	tac		192
Ala	Pro	Leu	Pro	Phe	Ala	Tyr	Asp	Ile	Leu	Thr	Val	Phe	Gln	Tyr			

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50	55	60	
ggc aac agg gca ttc acc aag tac cca gca gat att cag gac tat ttc			240
Gly Asn Arg Ala Phe Thr Lys Tyr Pro Ala Asp Ile Gln Asp Tyr Phe			
65	70	75	80
aag cag act ttt cct gag ggg tat cac tgg gaa aga agc atg act tat			288
Lys Gln Thr Phe Pro Glu Gly Tyr His Trp Glu Arg Ser Met Thr Tyr			
85	90	95	
gaa gac cag ggc att tgc acc gcc aca agc aac ata agc atg cgt ggc			336
Glu Asp Gln Gly Ile Cys Thr Ala Thr Ser Asn Ile Ser Met Arg Gly			
100	105	110	
gac tgt ttt ttc tat gac att cgt ttt gat ggt acc aac ttt cct ccc			384
Asp Cys Phe Phe Tyr Asp Ile Arg Phe Asp Gly Thr Asn Phe Pro Pro			
115	120	125	
aat ggt ccg gtt atg cag aag aag act ctt aaa tgg gag cca tcc act			432
Asn Gly Pro Val Met Gln Lys Lys Thr Leu Lys Trp Glu Pro Ser Thr			
130	135	140	
gag aaa atg tac gta cgt gat gga gtg ctg aag ggt gat gtt aac atg			480
Glu Lys Met Tyr Val Arg Asp Gly Val Leu Lys Gly Asp Val Asn Met			
145	150	155	160
gct ctg ttg ctt gaa gga ggt ggc cat tat cga tgt gat ttc aaa act			528
Ala Leu Leu Leu Glu Gly Gly Gly His Tyr Arg Cys Asp Phe Lys Thr			
165	170	175	
act tac aaa gca aag aag gat gtc cgt ttg cca gac tat cac ttt gtg			576
Thr Tyr Lys Ala Lys Lys Asp Val Arg Leu Pro Asp Tyr His Phe Val			
180	185	190	
gac cac ccg att gag att ttg aag cat gac aaa gat tac aac aag gtc			624
Asp His Arg Ile Glu Ile Leu Lys His Asp Lys Asp Tyr Asn Lys Val			
195	200	205	
aag ctc tat gag aat gcc gtt gct cgc tat tct atg ctg ccg agt cag			672
Lys Leu Tyr Glu Asn Ala Val Ala Arg Tyr Ser Met Leu Pro Ser Gln			
210	215	220	
gcc aag			678
Ala Lys			
225			

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 <223> dAG(AC)
 <400> 145

Met Val Ser Val Ile Lys Pro Glu Met Lys Ile Lys Leu Cys Met Arg	
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Gly Thr Val Asn Gly His Asn Phe Val Ile Glu Gly Glu Gly Lys Gly	
20 25 30	
Asn Pro Tyr Glu Gly Thr Gln Ile Leu Asp Leu Asn Val Thr Glu Gly	
35 40 45	
Ala Pro Leu Pro Phe Ala Tyr Asp Ile Leu Thr Thr Val Phe Gln Tyr	
50 55 60	
Gly Asn Arg Ala Phe Thr Lys Tyr Pro Ala Asp Ile Gln Asp Tyr Phe	
65 70 75 80	
Lys Gln Thr Phe Pro Glu Gly Tyr His Trp Glu Arg Ser Met Thr Tyr	
85 90 95	
Glu Asp Gln Gly Ile Cys Thr Ala Thr Ser Asn Ile Ser Met Arg Gly	
100 105 110	
Asp Cys Phe Phe Tyr Asp Ile Arg Phe Asp Gly Thr Asn Phe Pro Pro	
115 120 125	
Asn Gly Pro Val Met Gln Lys Lys Thr Leu Lys Trp Glu Pro Ser Thr	
130 135 140	
Glu Lys Met Tyr Val Arg Asp Gly Val Leu Lys Gly Asp Val Asn Met	
145 150 155 160	
Ala Leu Leu Leu Glu Gly Gly Gly His Tyr Arg Cys Asp Phe Lys Thr	
165 170 175	
Thr Tyr Lys Ala Lys Lys Asp Val Arg Leu Pro Asp Tyr His Phe Val	
180 185 190	
Asp His Arg Ile Glu Ile Leu Lys His Asp Lys Asp Tyr Asn Lys Val	
195 200 205	

IBPF12-538W0-E (seq) fin

Lys	Leu	Tyr	Glu	Asn	Ala	Val	Ala	Arg	Tyr	Ser	Met	Leu	Pro	Ser	Gln
210						215					220				
Ala	Lys														
225															

<210> 146
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 <221> CDS
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 <400> 146

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Met	Val	Ser	Val	Ile	Gly	Lys	Asp	Met	Ile	Met	Lys	Leu	His	Val	Glu	
1			5					10					15			
gga	tgt	gtc	aac	ggc	cac	tcc	ttc	aag	att	gag	ggt	gac	ggc	aaa	ggc	96
Gly	Cys	Val	Asn	Gly	His	Ser	Phe	Lys	Ile	Glu	Gly	Asp	Gly	Lys	Gly	
			20					25					30			
aaa	cgc	tac	gag	gga	gac	caa	act	gtg	aag	ctg	cgt	ggt	act	gaa	gga	144
Lys	Pro	Tyr	Glu	Gly	Asp	Gln	Thr	Val	Lys	Leu	Arg	Val	Thr	Glu	Gly	
			35				40					45				
ggg	ccc	tta	cca	ttc	gca	ttt	gac	atc	ttg	tca	gcc	tca	atg	tgt	tat	192
Gly	Pro	Leu	Pro	Phe	Ala	Phe	Asp	Ile	Leu	Ser	Ala	Ser	Met	Cys	Tyr	
			50			55					60					
gga	aac	agg	tgt	ttt	acc	aaa	tat	cgc	gca	gag	att	ccc	gac	att	ttc	240
Gly	Asn	Arg	Cys	Phe	Thr	Lys	Tyr	Pro	Ala	Glu	Ile	Pro	Asp	Ile	Phe	
					70					75					80	
aag	cag	aca	ttt	cct	gaa	ggc	tac	tca	tgg	gaa	aga	gcc	ttg	aca	ttt	288
Lys	Gln	Thr	Phe	Pro	Glu	Gly	Tyr	Ser	Trp	Glu	Arg	Ala	Leu	Thr	Phe	
				85					90					95		
gaa	gat	gga	ggg	ttt	gct	tca	tca	agc	tgc	cac	atc	agt	gtc	cgt	ggc	336
Glu	Asp	Gly	Gly	Phe	Ala	Ser	Ser	Ser	Ser	His	Ile	Ser	Val	Arg	Gly	
			100					105					110			
aac	tgc	ttc	ttc	tac	gac	gtc	aaa	tat	cat	ggc	gta	aac	ttc	cct	tcc	384
Asn	Cys	Phe	Phe	Tyr	Asp	Val	Lys	Tyr	His	Gly	Val	Asn	Phe	Pro	Ser	
			115				120					125				
aat	gga	cca	att	atg	caa	aga	aag	aca	atc	ggc	tgg	caa	cca	tcc	aca	432
Asn	Gly	Pro	Ile	Met	Gln	Arg	Lys	Thr	Ile	Gly	Trp	Gln	Pro	Ser	Thr	
			130			135					140					
gag	aaa	ttg	tac	atc	gga	gag	gga	acg	ctg	aag	ggt	gat	gat	acg	atg	480
Glu	Lys	Leu	Tyr	Ile	Gly	Glu	Gly	Thr	Leu	Lys	Gly	Asp	Asp	Thr	Met	
					150					155					160	
ttc	ctc	aag	ctc	gaa	gga	ggg	gga	act	cat	aaa	tgc	cac	gtc	cta	acc	528
Phe	Leu	Lys	Leu	Glu	Gly	Gly	Gly	Thr	His	Lys	Cys	His	Val	Leu	Thr	
				165				170					175			
act	tac	aaa	acg	aag	aaa	gat	gtc	cag	atg	cca	gac	agc	cac	ttc	att	576
Thr	Tyr	Lys	Thr	Lys	Lys	Asp	Val	Gln	Met	Pro	Asp	Ser	His	Phe	Ile	
				180				185					190			
gac	cat	cgt	ctc	ctg	acc	agc	cac	ctt	gat	aag	gaa	tgc	aac	aac	gtg	624
Asp	His	Arg	Leu	Leu	Thr	Ser	His	Leu	Asp	Lys	Glu	Cys	Asn	Asn	Val	
							200					205				
gaa	ttg	cgc	gag	cac	gca	gtt	gcg	cgt	aac	tca	agt	ctg	cct	tcc	cgt	672
Glu	Leu	Arg	Glu	His	Ala	Val	Ala	Arg	Asn	Ser	Ser	Leu	Pro	Ser	Arg	
						215					220					

<210> 147
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 <212> PRT
 <213> Artificial
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 <223> TGuv
 <400> 147

Met	Val	Ser	Val	Ile	Gly	Lys	Asp	Met	Ile	Met	Lys	Leu	His	Val	Glu
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IBPF12-538W0-E (seq) fin

Gly	Cys	Val	Asn	Gly	His	Ser	Phe	Lys	Ile	Glu	Gly	Asp	Gly	Lys	Gly
			20					25					30		
Lys	Pro	Tyr	Glu	Gly	Asp	Gln	Thr	Val	Lys	Leu	Arg	Val	Thr	Glu	Gly
		35				40						45			
Gly	Pro	Leu	Pro	Phe	Ala	Phe	Asp	Ile	Leu	Ser	Ala	Ser	Met	Cys	Tyr
	50					55					60				
Gly	Asn	Arg	Cys	Phe	Thr	Lys	Tyr	Pro	Ala	Glu	Ile	Pro	Asp	Ile	Phe
	65				70					75				80	
Lys	Gln	Thr	Phe	Pro	Glu	Gly	Tyr	Ser	Trp	Glu	Arg	Ala	Leu	Thr	Phe
				85					90					95	
Glu	Asp	Gly	Gly	Phe	Ala	Ser	Ser	Ser	Ser	His	Ile	Ser	Val	Arg	Gly
			100					105					110		
Asn	Cys	Phe	Phe	Tyr	Asp	Val	Lys	Tyr	His	Gly	Val	Asn	Phe	Pro	Ser
		115					120					125			
Asn	Gly	Pro	Ile	Met	Gln	Arg	Lys	Thr	Ile	Gly	Trp	Gln	Pro	Ser	Thr
	130					135					140				
Glu	Lys	Leu	Tyr	Ile	Gly	Glu	Gly	Thr	Leu	Lys	Gly	Asp	Asp	Thr	Met
	145				150					155				160	
Phe	Leu	Lys	Leu	Glu	Gly	Gly	Gly	Thr	His	Lys	Cys	His	Val	Leu	Thr
				165					170					175	
Thr	Tyr	Lys	Thr	Lys	Lys	Asp	Val	Gln	Met	Pro	Asp	Ser	His	Phe	Ile
			180					185					190		
Asp	His	Arg	Leu	Leu	Thr	Ser	His	Leu	Asp	Lys	Glu	Cys	Asn	Asn	Val
		195					200					205			
Glu	Leu	Arg	Glu	His	Ala	Val	Ala	Arg	Asn	Ser	Ser	Leu	Pro	Ser	Arg
	210					215					220				

<210> 148
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 <212> DNA
 <213> Artificial
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 <223> Momiji
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 <221> CDS
 <222> (1).. (687)
 <223>
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atg	gtg	agc	gtg	atc	aag	gac	gag	atg	aag	gtg	aac	ctg	cgc	atg	gag	48
Met	Val	Ser	Val	Ile	Lys	Asp	Glu	Met	Lys	Val	Asn	Leu	Arg	Met	Glu	
1			5					10				15				
ggc	agc	gtg	aac	ggc	cac	gac	ttc	gtg	atc	gac	ggc	ctg	ggc	tcc	ggc	96
Gly	Ser	Val	Asn	Gly	His	Asp	Phe	Val	Ile	Asp	Gly	Leu	Gly	Ser	Gly	
			20				25					30				
aag	ccc	aag	gag	ggc	acc	cag	acc	atc	gag	ctg	aag	gtg	gtg	aag	ggc	144
Lys	Pro	Lys	Glu	Gly	Thr	Gln	Thr	Ile	Glu	Leu	Lys	Val	Val	Lys	Gly	
		35				40					45					
ggc	ccc	ctg	ccc	ttc	gcc	tac	gac	atc	ctg	acc	acc	gcc	ttc	cac	tac	192
Gly	Pro	Leu	Pro	Phe	Ala	Tyr	Asp	Ile	Leu	Thr	Thr	Ala	Phe	His	Tyr	
	50				55						60					
ggc	aac	agg	gtg	ttc	gcc	aag	tac	ccc	aag	gac	atc	ccc	aac	tac	ttc	240
Gly	Asn	Arg	Val	Phe	Ala	Lys	Tyr	Pro	Lys	Asp	Ile	Pro	Asn	Tyr	Phe	
	65				70					75				80		
gag	cag	tcc	ttc	ccc	gag	ggc	tac	tcc	tgg	gag	agg	agc	atg	atc	ttc	288
Glu	Gln	Ser	Phe	Pro	Glu	Gly	Tyr	Ser	Trp	Glu	Arg	Ser	Met	Ile	Phe	
			85					90					95			
gag	gac	ggc	ggc	atc	tgc	atc	gcc	agg	aac	gac	atc	act	atg	gac	ggc	336
Glu	Asp	Gly	Gly	Ile	Cys	Ile	Ala	Arg	Asn	Asp	Ile	Thr	Met	Asp	Gly	
			100					105					110			
ggc	acc	ttc	tac	aac	aag	gtg	agg	ttc	tac	ggc	gtg	aac	ttc	ccc	ccc	384
Gly	Thr	Phe	Tyr	Asn	Lys	Val	Arg	Phe	Tyr	Gly	Val	Asn	Phe	Pro	Pro	
		115				120					125					
aac	ggc	ccc	gtg	atg	cag	aag	aag	acc	cag	aag	tgg	gag	cag	tcc	acc	432
Asn	Gly	Pro	Val	Met	Gln	Lys	Lys	Thr	Gln	Lys	Trp	Glu	Gln	Ser	Thr	
	130					135					140					
gag	aag	atg	tac	gcc	agg	gac	ggc	gtg	ctg	acc	ggc	gac	atc	aac	atg	480
Glu	Lys	Met	Tyr	Ala	Arg	Asp	Gly	Val	Leu	Thr	Gly	Asp	Ile	Asn	Met	
	145				150					155					160	

IBPF12-538W0-E (seq) fin

gcc	ctg	ctg	ctg	aag	ggc	ggc	ggc	cac	tac	agg	tgc	gac	ttc	agg	acc	528
Ala	Leu	Leu	Leu	Lys	Gly	Gly	Gly	His	Tyr	Arg	Cys	Asp	Phe	Arg	Thr	
				165					170					175		
acc	tac	aag	gcc	aag	gag	aag	ggc	gtc	aag	ctg	ccc	ggc	tac	cac	ttc	576
Thr	Tyr	Lys	Ala	Lys	Glu	Lys	Gly	Val	Lys	Leu	Pro	Gly	Tyr	His	Phe	
			180					185					190			
atc	gac	cac	tgc	atc	gag	atc	ctg	agc	cac	agg	aac	gac	tac	aac	aac	624
Ile	Asp	His	Cys	Ile	Glu	Ile	Leu	Ser	His	Arg	Asn	Asp	Tyr	Asn	Asn	
			195				200					205				
gtg	acc	ctg	ttc	gag	cac	ggc	gtg	ggc	agg	tcc	ggc	ctg	caa	gac	aag	672
Val	Thr	Leu	Phe	Glu	His	Ala	Val	Ala	Arg	Ser	Gly	Leu	Gln	Asp	Lys	
	210					215					220					
gag	aag	cag	cag	cag												687
Glu	Lys	Gln	Gln	Gln												
225																

<210> 149
 <211> 229
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 <213> Artificial
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 <223> Momiji
 <400> 149

Met	Val	Ser	Val	Ile	Lys	Asp	Glu	Met	Lys	Val	Asn	Leu	Arg	Met	Glu	
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Gly	Ser	Val	Asn	Gly	His	Asp	Phe	Val	Ile	Asp	Gly	Leu	Gly	Ser	Gly	
			20					25					30			
Lys	Pro	Lys	Glu	Gly	Thr	Gln	Thr	Ile	Glu	Leu	Lys	Val	Val	Lys	Gly	
		35					40					45				
Gly	Pro	Leu	Pro	Phe	Ala	Tyr	Asp	Ile	Leu	Thr	Thr	Ala	Phe	His	Tyr	
	50					55					60					
Gly	Asn	Arg	Val	Phe	Ala	Lys	Tyr	Pro	Lys	Asp	Ile	Pro	Asn	Tyr	Phe	
65					70					75					80	
Glu	Gln	Ser	Phe	Pro	Glu	Gly	Tyr	Ser	Trp	Glu	Arg	Ser	Met	Ile	Phe	
			85					90					95			
Glu	Asp	Gly	Gly	Ile	Cys	Ile	Ala	Arg	Asn	Asp	Ile	Thr	Met	Asp	Gly	
			100					105					110			
Gly	Thr	Phe	Tyr	Asn	Lys	Val	Arg	Phe	Tyr	Gly	Val	Asn	Phe	Pro	Pro	
		115					120					125				
Asn	Gly	Pro	Val	Met	Gln	Lys	Lys	Thr	Gln	Lys	Trp	Glu	Gln	Ser	Thr	
	130					135					140					
Glu	Lys	Met	Tyr	Ala	Arg	Asp	Gly	Val	Leu	Thr	Gly	Asp	Ile	Asn	Met	
145					150					155					160	
Ala	Leu	Leu	Leu	Lys	Gly	Gly	Gly	His	Tyr	Arg	Cys	Asp	Phe	Arg	Thr	
			165						170					175		
Thr	Tyr	Lys	Ala	Lys	Glu	Lys	Gly	Val	Lys	Leu	Pro	Gly	Tyr	His	Phe	
			180					185					190			
Ile	Asp	His	Cys	Ile	Glu	Ile	Leu	Ser	His	Arg	Asn	Asp	Tyr	Asn	Asn	
		195					200					205				
Val	Thr	Leu	Phe	Glu	His	Ala	Val	Ala	Arg	Ser	Gly	Leu	Gln	Asp	Lys	
	210					215					220					
Glu	Lys	Gln	Gln	Gln												
225																

<210> 150
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atg	gcc	ctg	agc	aag	cac	ggc	ctg	acc	aag	aac	atg	acc	acc	aag	tac	
Met	Ala	Leu	Ser	Lys	His	Gly	Leu	Thr	Lys	Asn	Met	Thr	Thr	Lys	Tyr	
1			5						10					15		

48

IBPF12-538W0-E (seq) fin

agg atg gag ggc tgc gtg gac ggc cac aag ttc gtg atc acc ggc gac	96
Arg Met Glu Gly Cys Val Asp Gly His Lys Phe Val Ile Thr Gly Asp	
20 25 30	
ggc atc ggc gac ccc ttc gag ggc aag cag acc agc atc gac ctg tgc	144
Gly Ile Gly Asp Pro Phe Glu Gly Lys Gln Thr Ser Ile Asp Leu Cys	
35 40 45	
gtg gtg gag ggc ggc ccc ctg ccc ttc agc gag gac atc ctg agc acc	192
Val Val Glu Gly Gly Pro Leu Pro Phe Ser Glu Asp Ile Leu Ser Thr	
50 55 60	
gtg ttc gac tac ggc aac agg gtg ttc acc aag tac ccc cag gac ctg	240
Val Phe Asp Tyr Gly Asn Arg Val Phe Thr Lys Tyr Pro Gln Asp Leu	
65 70 75 80	
gtg gac tac ttc aag aac agc tgc ccc gcc ggc tac acc tgg cag agg	288
Val Asp Tyr Phe Lys Asn Ser Cys Pro Ala Gly Tyr Thr Trp Gln Arg	
85 90 95	
agc ttc ctg ttc gag gac ggc gcc gtg tgc acc gcc agc gcc gac atc	336
Ser Phe Leu Phe Glu Asp Gly Ala Val Cys Thr Ala Ser Ala Asp Ile	
100 105 110	
agg gtg agc gtg gag gag aac tgc ttc tac cac gag agc aag ttc cac	384
Arg Val Ser Val Glu Glu Asn Cys Phe Tyr His Glu Ser Lys Phe His	
115 120 125	
ggc gtg aac ttc ccc gcc gac ggc ccc gtg atg aag aag atg acc acc	432
Gly Val Asn Phe Pro Ala Asp Gly Pro Val Met Lys Lys Met Thr Thr	
130 135 140	
aac tgg gag ccc agc tgc gag aag atc acc ccc atc ctg aac gag ggc	480
Asn Trp Glu Pro Ser Cys Glu Lys Ile Thr Pro Ile Leu Asn Glu Gly	
145 150 155 160	
atc ctg aag ggc gac gtg acc atg ttc ctg ctg ctg aag gac ggc ggc	528
Ile Leu Lys Gly Asp Val Thr Met Phe Leu Leu Leu Lys Asp Gly Gly	
165 170 175	
agg tac agg tgc cag ttc gac acc gtg tac aag gcc aag gcc gac gcc	576
Arg Tyr Arg Cys Gln Phe Asp Thr Val Tyr Lys Ala Lys Ala Asp Ala	
180 185 190	
aag aag atg ccc gag tgg cac ttc atc cag cac gag ctg acc agg gag	624
Lys Lys Met Pro Glu Trp His Phe Ile Gln His Glu Leu Thr Arg Glu	
195 200 205	
gac agg agc gac gcc aag cac cag aag tgg agg ctg gtg gag aac gcc	672
Asp Arg Ser Asp Ala Lys His Gln Lys Trp Arg Leu Val Glu Asn Ala	
210 215 220	
atc gcc tac agg agc acc ctg ccc	696
Ile Ala Tyr Arg Ser Thr Leu Pro	
225 230	

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 <223> COR3.01
 <400> 151

Met Ala Leu Ser Lys His Gly Leu Thr Lys Asn Met Thr Thr Lys Tyr	
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20 25 30	
Gly Ile Gly Asp Pro Phe Glu Gly Lys Gln Thr Ser Ile Asp Leu Cys	
35 40 45	
Val Val Glu Gly Gly Pro Leu Pro Phe Ser Glu Asp Ile Leu Ser Thr	
50 55 60	
Val Phe Asp Tyr Gly Asn Arg Val Phe Thr Lys Tyr Pro Gln Asp Leu	
65 70 75 80	
Val Asp Tyr Phe Lys Asn Ser Cys Pro Ala Gly Tyr Thr Trp Gln Arg	
85 90 95	
Ser Phe Leu Phe Glu Asp Gly Ala Val Cys Thr Ala Ser Ala Asp Ile	
100 105 110	
Arg Val Ser Val Glu Glu Asn Cys Phe Tyr His Glu Ser Lys Phe His	
115 120 125	
Gly Val Asn Phe Pro Ala Asp Gly Pro Val Met Lys Lys Met Thr Thr	
130 135 140	

IBPF12-538W0-E (seq) fin

Asn	Trp	Glu	Pro	Ser	Cys	Glu	Lys	Ile	Thr	Pro	Ile	Leu	Asn	Glu	Gly
145					150					155					160
Ile	Leu	Lys	Gly	Asp	Val	Thr	Met	Phe	Leu	Leu	Leu	Lys	Asp	Gly	Gly
				165					170					175	
Arg	Tyr	Arg	Cys	Gln	Phe	Asp	Thr	Val	Tyr	Lys	Ala	Lys	Ala	Asp	Ala
			180					185					190		
Lys	Lys	Met	Pro	Glu	Trp	His	Phe	Ile	Gln	His	Glu	Leu	Thr	Arg	Glu
		195					200					205			
Asp	Arg	Ser	Asp	Ala	Lys	His	Gln	Lys	Trp	Arg	Leu	Val	Glu	Asn	Ala
	210					215					220				
Ile	Ala	Tyr	Arg	Ser	Thr	Leu	Pro								
225					230										

<210> 152
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 <223> DsRed2
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 <221> CDS
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Met Ala Ser Ser Glu Asn Val Ile Thr Glu Phe Met Arg Phe Lys Val	
1 5 10 15	
cgc atg gag ggc acc gtg aac ggc cac gag ttc gag atc gag ggc gag	96
Arg Met Glu Gly Thr Val Asn Gly His Glu Phe Glu Ile Glu Gly Glu	
20 25 30	
ggc gag ggc cgc ccc tac gag ggc cac aac acc gtg aag ctg aag gtg	144
Gly Glu Gly Arg Pro Tyr Glu Gly His Asn Thr Val Lys Leu Lys Val	
35 40 45	
acc aag ggc ggc ccc ctg ccc ttc gcc tgg gac atc ctg tcc ccc cag	192
Thr Lys Gly Gly Pro Leu Pro Phe Ala Trp Asp Ile Leu Ser Pro Gln	
50 55 60	
ttc cag tac ggc tcc aag gtg tac gtg aag cac ccc gcc gac atc ccc	240
Phe Gln Tyr Gly Ser Lys Val Tyr Val Lys His Pro Ala Asp Ile Pro	
65 70 75 80	
gac tac aag aag ctg tcc ttc ccc gag ggc ttc aag tgg gag cgc gtg	288
Asp Tyr Lys Lys Leu Ser Phe Pro Glu Gly Phe Lys Trp Glu Arg Val	
85 90 95	
atg aac ttc gag gac ggc ggc gtg gcg acc gtg acc cag gac tcc tcc	336
Met Asn Phe Glu Asp Gly Gly Val Ala Thr Val Thr Gln Asp Ser Ser	
100 105 110	
ctg cag gac ggc tgc ttc atc tac aag gtg aag ttc atc ggc gtg aac	384
Leu Gln Asp Gly Cys Phe Ile Tyr Lys Val Lys Phe Ile Gly Val Asn	
115 120 125	
ttc ccc tcc gac ggc ccc gtg atg cag aag aag acc atg ggc tgg gag	432
Phe Pro Val Ser Asp Gly Pro Val Met Gln Lys Lys Thr Met Gly Trp Glu	
130 135 140	
gcc tcc acc gag cgc ctg tac ccc cgc gac ggc gtg ctg aag ggc gag	480
Ala Ser Thr Glu Arg Leu Tyr Pro Arg Asp Gly Val Leu Lys Gly Glu	
145 150 155 160	
acc cac aag gcc ctg aag ctg aag gac ggc ggc cac tac ctg gtg gag	528
Thr His Lys Ala Leu Lys Leu Lys Asp Gly His Tyr Leu Val Glu	
165 170 175	
ttc aag tct atc tac atg gcc aag aag ccc gtg cag ctg ccc ggc tac	576
Phe Lys Ser Ile Tyr Met Ala Lys Lys Pro Val Gln Leu Pro Gly Tyr	
180 185 190	
tac tac gtg gac gcc aag ctg gac atc acc tcc cac aac gag gac tac	624
Tyr Tyr Val Asp Ala Lys Leu Asp Ile Thr Ser His Asn Glu Asp Tyr	
195 200 205	
acc atc gtg gag cag tac gag cgc acc gag ggc cgc cac cac ctg ttc	672
Thr Ile Val Glu Gln Tyr Glu Arg Thr Glu Gly Arg His His Leu Phe	
210 215 220	
ctg tag	678
Leu	

225

<210> 153
 <211> 225
 <212> PRT
 <213> Artificial
 <220>
 <223> DsRed2
 <400> 153
 Met Ala Ser Ser Glu Asn Val Ile Thr Glu Phe Met Arg Phe Lys Val
 1 5 10 15
 Arg Met Glu Gly Thr Val Asn Gly His Glu Phe Glu Ile Glu Gly Glu
 20 25 30
 Gly Glu Gly Arg Pro Tyr Glu Gly His Asn Thr Val Lys Leu Lys Val
 35 40 45
 Thr Lys Gly Gly Pro Leu Pro Phe Ala Trp Asp Ile Leu Ser Pro Gln
 50 55 60
 Phe Gln Tyr Gly Ser Lys Val Tyr Val Lys His Pro Ala Asp Ile Pro
 65 70 75 80
 Asp Tyr Lys Lys Leu Ser Phe Pro Glu Gly Phe Lys Trp Glu Arg Val
 85 90 95
 Met Asn Phe Glu Asp Gly Gly Val Ala Thr Val Thr Gln Asp Ser Ser
 100 105 110
 Leu Gln Asp Gly Cys Phe Ile Tyr Lys Val Lys Phe Ile Gly Val Asn
 115 120 125
 Phe Pro Ser Asp Gly Pro Val Met Gln Lys Lys Thr Met Gly Trp Glu
 130 135 140
 Ala Ser Thr Glu Arg Leu Tyr Pro Arg Asp Gly Val Leu Lys Gly Glu
 145 150 155 160
 Thr His Lys Ala Leu Lys Leu Lys Asp Gly Gly His Tyr Leu Val Glu
 165 170 175
 Phe Lys Ser Ile Tyr Met Ala Lys Lys Pro Val Gln Leu Pro Gly Tyr
 180 185 190
 Tyr Tyr Val Asp Ala Lys Leu Asp Ile Thr Ser His Asn Glu Asp Tyr
 195 200 205
 Thr Ile Val Glu Gln Tyr Glu Arg Thr Glu Gly Arg His His Leu Phe
 210 215 220
 Leu
 225

<210> 154
 <211> 49
 <212> DNA
 <213> Artificial
 <220>
 <223> Artificially synthesized primer sequence
 <400> 154
 gcttccaggc gcactaccgc gctgagcgcg gggacttggt tgccttttc

49

<210> 155
 <211> 372
 <212> DNA
 <213> Artificial
 <220>
 <223> Artificially synthesized polynucleotide sequence
 <220>
 <221> CDS
 <222> (1).. (372)
 <223>
 <400> 155

aat gca tcc aac ttg aaa att gta aga atg gac agg aca gct gga tgt
 Asn Ala Ser Asn Leu Lys Ile Val Arg Met Asp Arg Thr Ala Gly Cys
 1 5 10 15
 gtg act gga ggg gag gaa att tat ctt ctt tgt gac aaa gtt cag aaa
 Val Thr Gly Gly Glu Glu Ile Tyr Leu Leu Cys Asp Lys Val Gln Lys
 20 25 30
 gat gac atc cag att cga ttt tat gaa gag gaa gaa aat ggt gga gtc
 Asp Asp Ile Gln Ile Arg Phe Tyr Glu Glu Glu Glu Asn Gly Gly Val
 35 40 45 50

48

96

144

IBPF12-538W0-E (seq) fin

35	40	45	
tgg gaa gga ttt gga gat ttt tcc ccc aca gat gtt cat aga caa ttt			192
Trp Glu Gly Phe Gly Asp Phe Ser Pro Thr Asp Val His Arg Gln Phe			
50	55	60	
gcc att gtc ttc aaa act cca aag tat aaa gat att aat att aca aaa			240
Ala Ile Val Phe Lys Thr Pro Lys Tyr Lys Asp Ile Asn Ile Thr Lys			
65	70	75	
cca gcc tct gtg ttt gtc cag ctt cgg agg aaa tct gac ttg gaa act			288
Pro Ala Ser Val Phe Val Gln Leu Arg Arg Lys Ser Asp Leu Glu Thr			
85	90	95	
agt gaa cca aaa cct ttc ctc tac tat cct gaa atc aaa gat aaa gaa			336
Ser Glu Pro Lys Pro Phe Leu Tyr Tyr Pro Glu Ile Lys Asp Lys Glu			
100	105	110	
gaa gtg cag agg aaa cgt cag aag ggc tcg aga taa			372
Glu Val Gln Arg Lys Arg Gln Lys Gly Ser Arg			
115	120		

<210> 156
 <211> 123
 <212> PRT
 <213> Artificial
 <220>
 <223> Artificially synthesized polypeptide sequence
 <400> 156

Asn Ala Ser Asn Leu Lys Ile Val Arg Met Asp Arg Thr Ala Gly Cys	
1 5 10 15	
Val Thr Gly Gly Glu Glu Ile Tyr Leu Leu Cys Asp Lys Val Gln Lys	
20 25 30	
Asp Asp Ile Gln Ile Arg Phe Tyr Glu Glu Glu Glu Asn Gly Gly Val	
35 40 45	
Trp Glu Gly Phe Gly Asp Phe Ser Pro Thr Asp Val His Arg Gln Phe	
50 55 60	
Ala Ile Val Phe Lys Thr Pro Lys Tyr Lys Asp Ile Asn Ile Thr Lys	
65 70 75 80	
Pro Ala Ser Val Phe Val Gln Leu Arg Arg Lys Ser Asp Leu Glu Thr	
85 90 95	
Ser Glu Pro Lys Pro Phe Leu Tyr Tyr Pro Glu Ile Lys Asp Lys Glu	
100 105 110	
Glu Val Gln Arg Lys Arg Gln Lys Gly Ser Arg	
115 120	

<210> 157
 <211> 393
 <212> DNA
 <213> Artificial
 <220>
 <223> Artificially synthesized polynucleotide sequence
 <220>
 <221> CDS
 <222> (1).. (393)
 <223>
 <400> 157

act gcc gag ctc aag atc tgc cga gtg aac cga aac tct ggc agc tgc	48
Thr Ala Glu Leu Lys Ile Cys Arg Val Asn Arg Asn Ser Gly Ser Cys	
1 5 10 15	
ctc ggt ggg gat gag atc ttc cta ctg tgt gac aag gtg cag aaa gag	96
Leu Gly Gly Asp Glu Ile Phe Leu Leu Cys Asp Lys Val Gln Lys Glu	
20 25 30	
gac att gag gtg tat ttc acg gga cca ggc tgg gag gcc cga ggc tcc	144
Asp Ile Glu Val Tyr Phe Thr Gly Pro Gly Trp Glu Ala Arg Gly Ser	
35 40 45	
ttt tcg caa gct gat gtg cac cga caa gtg gcc att gtg ttc cgg acc	192
Phe Ser Gln Ala Asp Val His Arg Gln Val Ala Ile Val Phe Arg Thr	
50 55 60	
cct ccc tac gca gac ccc agc ctg cag gct cct gtg cgt gtc tcc atg	240
Pro Pro Tyr Ala Asp Pro Ser Leu Gln Ala Pro Val Arg Val Ser Met	
65 70 75 80	
cag ctg cgg cgg cct tcc gac cgg gag ctc agt gag ccc atg gaa ttc	288

IBPF12-538W0-E (seq) fin
 Gln Leu Arg Arg Pro Ser Asp Arg Glu Leu Ser Glu Pro Met Glu Phe
 85 90 95
 cag tac ctg cca gat aca gac gat cgt cac cgg att gag gag aaa cgt 336
 Gln Tyr Leu Pro Asp Thr Asp Asp Arg His Arg Ile Glu Glu Lys Arg
 100 105 110
 aaa agg aca tat gag acc ttc aag agc atc atg aag aag agt cct ttc 384
 Lys Arg Thr Tyr Glu Thr Phe Lys Ser Ile Met Lys Lys Ser Pro Phe
 115 120 125
 agc gga taa 393
 Ser Gly
 130

<210> 158
 <211> 130
 <212> PRT
 <213> Artificial
 <220>
 <223> Artificially synthesized polypeptide sequence
 <400> 158
 Thr Ala Glu Leu Lys Ile Cys Arg Val Asn Arg Asn Ser Gly Ser Cys
 1 5 10 15
 Leu Gly Gly Asp Glu Ile Phe Leu Leu Cys Asp Lys Val Gln Lys Glu
 20 25 30
 Asp Ile Glu Val Tyr Phe Thr Gly Pro Gly Trp Glu Ala Arg Gly Ser
 35 40 45
 Phe Ser Gln Ala Asp Val His Arg Gln Val Ala Ile Val Phe Arg Thr
 50 55 60
 Pro Pro Tyr Ala Asp Pro Ser Leu Gln Ala Pro Val Arg Val Ser Met
 65 70 75 80
 Gln Leu Arg Arg Pro Ser Asp Arg Glu Leu Ser Glu Pro Met Glu Phe
 85 90 95
 Gln Tyr Leu Pro Asp Thr Asp Asp Arg His Arg Ile Glu Glu Lys Arg
 100 105 110
 Lys Arg Thr Tyr Glu Thr Phe Lys Ser Ile Met Lys Lys Ser Pro Phe
 115 120 125
 Ser Gly
 130

<210> 159
 <211> 41
 <212> DNA
 <213> Artificial
 <220>
 <223> Artificially synthesized primer sequence
 <400> 159
 acattttcag acctattgaa actacttcct gaaaacaacg t 41

<210> 160
 <211> 42
 <212> DNA
 <213> Artificial
 <220>
 <223> Artificially synthesized primer sequence
 <400> 160
 cttgtggtag ttggagctga cggcgtaggc aagagtgctt tg 42

<210> 161
 <211> 243
 <212> DNA
 <213> Artificial
 <220>
 <223> Artificially synthesized polynucleotide sequence
 <220>
 <221> CDS
 <222> (1).. (243)
 <223>
 <400> 161
 oct tct aag aca agc aac act atc got gtt ttc ttg ccg aac aag caa 48

IBPF12-538W0-E (seq) fin

Pro	Ser	Lys	Thr	Ser	Asn	Thr	Ile	Ala	Val	Phe	Leu	Pro	Asn	Lys	Gln	
1				5					10					15		
aga	aca	gtg	gtc	aat	gtg	cga	aat	gga	atg	agc	ttg	cat	gac	tgc	ctt	96
Arg	Thr	Val	Val	Asn	Val	Arg	Asn	Gly	Met	Ser	Leu	His	Asp	Cys	Leu	
			20					25					30			
atg	aaa	gca	ctc	aag	gtg	agg	ggc	ctg	caa	cca	gag	tgc	tgt	gca	gtg	144
Met	Lys	Ala	Leu	Lys	Val	Arg	Gly	Leu	Gln	Pro	Glu	Cys	Cys	Ala	Val	
		35					40					45				
ttc	aga	ctt	ctc	cac	gaa	cac	aaa	ggt	aaa	aaa	gca	cgc	tta	gat	tgg	192
Phe	Arg	Leu	Leu	His	Glu	His	Lys	Gly	Lys	Lys	Ala	Arg	Leu	Asp	Trp	
	50					55					60					
aat	act	gat	gct	gcg	tct	ttg	att	gga	gaa	gaa	ctt	caa	gta	gat	ttc	240
Asn	Thr	Asp	Ala	Ala	Ser	Leu	Ile	Gly	Glu	Glu	Leu	Gln	Val	Asp	Phe	
65					70				75						80	
ctg																243
Leu																

<210> 162
 <211> 81
 <212> PRT
 <213> Artificial
 <220>
 <223> Artificially synthesized polypeptide sequence
 <400> 162

Pro	Ser	Lys	Thr	Ser	Asn	Thr	Ile	Ala	Val	Phe	Leu	Pro	Asn	Lys	Gln	
1				5					10					15		
Arg	Thr	Val	Val	Asn	Val	Arg	Asn	Gly	Met	Ser	Leu	His	Asp	Cys	Leu	
			20					25					30			
Met	Lys	Ala	Leu	Lys	Val	Arg	Gly	Leu	Gln	Pro	Glu	Cys	Cys	Ala	Val	
		35					40					45				
Phe	Arg	Leu	Leu	His	Glu	His	Lys	Gly	Lys	Lys	Ala	Arg	Leu	Asp	Trp	
	50					55					60					
Asn	Thr	Asp	Ala	Ala	Ser	Leu	Ile	Gly	Glu	Glu	Leu	Gln	Val	Asp	Phe	
65					70				75						80	
Leu																

<210> 163
 <211> 48
 <212> DNA
 <213> Artificial
 <220>
 <223> Artificially synthesized polynucleotide sequence
 <220>
 <221> CDS
 <222> (1).. (48)
 <223>
 <400> 163

ggg	cag	gtg	gga	cgg	cag	ctc	gcc	atc	atc	ggg	gac	gac	atc	aac	cga	48
Gly	Gln	Val	Gly	Arg	Gln	Leu	Ala	Ile	Ile	Gly	Asp	Asp	Ile	Asn	Arg	
1				5					10					15		

<210> 164
 <211> 16
 <212> PRT
 <213> Artificial
 <220>
 <223> Artificially synthesized polypeptide sequence
 <400> 164

Gly	Gln	Val	Gly	Arg	Gln	Leu	Ala	Ile	Ile	Gly	Asp	Asp	Ile	Asn	Arg	
1				5					10					15		

<210> 165
 <211> 63
 <212> DNA
 <213> Artificial
 <220>

IBPF12-538W0-E (seq) fin

<223> Artificially synthesized polynucleotide sequence

<220>

<221> CDS

<222> (1).. (63)

<223>

<400> 165

cag	gat	gcg	tcc	acc	aag	aag	ctg	agc	gag	tgt	ctc	aag	cgc	atc	ggg	48
Gln	Asp	Ala	Ser	Thr	Lys	Lys	Leu	Ser	Glu	Cys	Leu	Lys	Arg	Ile	Gly	
1				5					10					15		
gac	gaa	ctg	gac	agt												63
Asp	Glu	Leu	Asp	Ser												
			20													

<210> 166

<211> 21

<212> PRT

<213> Artificial

<220>

<223> Artificially synthesized polypeptide sequence

<400> 166

Gln	Asp	Ala	Ser	Thr	Lys	Lys	Leu	Ser	Glu	Cys	Leu	Lys	Arg	Ile	Gly	
1				5					10					15		
Asp	Glu	Leu	Asp	Ser												
			20													

<210> 167

<211> 1449

<212> DNA

<213> Artificial

<220>

<223> Artificially synthesized polynucleotide sequence

<220>

<221> CDS

<222> (1).. (1449)

<223>

<400> 167

atg	gcg	tcg	ctc	acc	gtg	aag	gcc	tac	ctt	ctg	ggc	aag	gag	gac	gcg	48
Met	Ala	Ser	Leu	Thr	Val	Lys	Ala	Tyr	Leu	Leu	Gly	Lys	Glu	Asp	Ala	
1				5					10					15		
gcg	cgc	gag	att	cgc	cgc	ttc	agc	ttc	tgc	tgc	agc	ccc	gag	cct	gag	96
Ala	Arg	Glu	Ile	Arg	Arg	Phe	Ser	Phe	Cys	Cys	Ser	Pro	Glu	Pro	Glu	
			20					25					30			
gcg	gaa	gcc	gag	gct	gcg	gcg	ggt	cgc	gga	ccc	tgc	gag	cgg	ctg	ctg	144
Ala	Glu	Ala	Glu	Ala	Ala	Ala	Gly	Pro	Gly	Pro	Cys	Glu	Arg	Leu	Leu	
			35				40					45				
agc	cgg	gtg	gcc	gcc	ctg	ttc	ccc	gcg	ctg	cgg	cct	ggc	ggc	ttc	cag	192
Ser	Arg	Val	Ala	Ala	Leu	Phe	Pro	Ala	Leu	Arg	Pro	Gly	Gly	Phe	Gln	
			50			55					60					
gcg	cac	tac	cgc	gat	gag	gac	ggg	gac	ttg	gtt	gcc	ttt	tcc	agt	gac	240
Ala	His	Tyr	Arg	Asp	Glu	Asp	Gly	Asp	Leu	Val	Ala	Phe	Ser	Ser	Asp	
65				70					75					80		
gag	gaa	ttg	aca	atg	gcc	atg	tcc	tac	gtg	aag	gat	gac	atc	ttc	cga	288
Glu	Glu	Leu	Thr	Met	Ala	Met	Ser	Tyr	Val	Lys	Asp	Asp	Ile	Phe	Arg	
			85					90						95		
atc	tac	att	aaa	gag	aaa	acc	ggt	aat	tcc	gct	gac	ggc	ggc	gga	gga	336
Ile	Tyr	Ile	Lys	Glu	Lys	Thr	Gly	Asn	Ser	Ala	Asp	Gly	Gly	Gly	Gly	
			100					105					110			
tcg	ggt	ggt	agt	ggt	ggt	tca	gga	gga	gga	tcg	acc	caa	gga	gga	tcc	384
Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Gly	Ser	Thr	Gln	Gly	Gly	Ser	
			115				120					125				
cca	gat	gtc	cct	aga	act	cca	gtg	ggc	aaa	ttc	cag	ttc	cca	gga	agc	432
Pro	Asp	Val	Pro	Arg	Thr	Pro	Val	Gly	Lys	Phe	Gln	Phe	Pro	Gly	Ser	
			130			135					140					
gga	gct	act	aac	ttc	agc	ctg	ctg	aag	cag	gct	gga	gac	gtg	gag	gag	480
Gly	Ala	Thr	Asn	Phe	Ser	Leu	Leu	Lys	Gln	Ala	Gly	Asp	Val	Glu	Glu	
			145			150				155				160		
aac	cct	gga	cct	atg	gtg	agc	gtg	atc	aag	ccc	gag	atg	aag	atc	aag	528
Asn	Pro	Gly	Pro	Met	Val	Ser	Val	Ile	Lys	Pro	Glu	Met	Lys	Ile	Lys	

IBPF12-538W0-E (seq) fin

ctg tgc atg agg ggc acc gtg aac ggc cac aac ttc gtg atc gag ggc	576
Leu Cys Met Arg Gly Thr Val Asn Gly His Asn Phe Val Ile Glu Gly	
165 170 175	
gag ggc aag ggc aac ccc tac gag ggc acc cag atc ctg gac ctg aac	624
Glu Gly Lys Gly Asn Pro Tyr Glu Gly Thr Gln Ile Leu Asp Leu Asn	
180 185 190	
gtg acc gag ggc gcc ccc ctg ccc ttc gcc tac gac atc ctg acc acc	672
Val Thr Glu Gly Ala Pro Leu Pro Phe Ala Tyr Asp Ile Leu Thr Thr	
200 205	
gtg ttc cag tac ggc aac agg gcc ttc acc aag tac ccc gcc gac atc	720
Val Phe Gln Tyr Gly Asn Arg Ala Phe Thr Lys Tyr Pro Ala Asp Ile	
210 215 220	
cag gac tac ttc aag cag acc ttc ccc gag ggc tac cac tgg gag agg	768
Gln Asp Tyr Phe Lys Gln Thr Phe Pro Glu Gly Tyr His Trp Glu Arg	
225 230 235	
agc atg acc tac gag gac cag ggc atc tgc acc gcc acc agc aac atc	816
Ser Met Thr Tyr Glu Asp Gln Gly Ile Cys Thr Ala Thr Ser Asn Ile	
240 245 250	
agc atg agg ggc gac tgc ttc ttc tac gac atc agg ttc gac ggc gtg	864
Ser Met Arg Gly Asp Cys Phe Phe Tyr Asp Ile Arg Phe Asp Gly Val	
255 260 265	
aac ttc ccc ccc aac ggc ccc gtg atg cag aag aag acc ctg aag tgg	912
Asn Phe Pro Pro Asn Gly Pro Val Met Gln Lys Lys Thr Leu Lys Trp	
270 275 280	
gag ccc agc acc gag aag atg tac gtg agg gac ggc gtg ctg aag ggc	960
Glu Pro Ser Thr Glu Lys Met Tyr Val Arg Asp Gly Val Leu Lys Gly	
285 290 295	
gac gtg aac atg gcc ctg ctg ctg gag ggc ggc ggc cac tac agg tgc	1008
Asp Val Asn Met Ala Leu Leu Leu Glu Gly Gly Gly His Tyr Arg Cys	
300 305 310	
gac ttc aag acc acc tac aag gcc aag aag gac gtg agg ctg ccc gac	1056
Asp Phe Lys Thr Thr Tyr Lys Ala Lys Lys Asp Val Arg Leu Pro Asp	
315 320 325	
tac cac ttc gtg gac cac agg atc gag atc ctg aag cac gac aag gac	1104
Tyr His Phe Val Asp His Arg Ile Glu Ile Leu Lys His Asp Lys Asp	
330 335 340	
tac aac aag gtg aag ctg tac gag aac gcc gtg gcc agg tac agc atg	1152
Tyr Asn Lys Val Lys Leu Tyr Glu Asn Ala Val Ala Arg Tyr Ser Met	
345 350 355	
ctg ccc agc cag gcc aag acc ggt aat tcc gct gac ggc ggc gga gga	1200
Leu Pro Ser Gln Ala Lys Thr Gly Asn Ser Ala Asp Gly Gly Gly Gly	
360 365 370	
tcg ggt ggt agt ggt ggt tca gga gga gga tcg acc caa gga gga tcc	1248
Ser Gly Gly Ser Gly Gly Ser Gly Gly Gly Ser Thr Gln Gly Gly Ser	
375 380 385	
atg gcg gac gag gag aag ctg ccg ccc ggc tgg gag aag cgc atg agc	1296
Met Ala Asp Glu Glu Lys Leu Pro Pro Gly Trp Glu Lys Arg Met Ser	
390 395 400	
cgc agc tca ggc cga gtg tac tac ttc aac cac atc act aac gcc agc	1344
Arg Ser Ser Gly Arg Val Tyr Tyr Phe Asn His Ile Thr Asn Ala Ser	
405 410 415	
cag tgg gag cgg ccc agc ggc aac agc agc agt ggt ggc aaa aac ggg	1392
Gln Trp Glu Arg Pro Ser Gly Asn Ser Ser Ser Gly Gly Lys Asn Gly	
420 425 430	
cag ggg gag cct gcc agg ctt cag aag aaa ctc gag gaa ctt gag ctt	1440
Gln Gly Glu Pro Ala Arg Leu Gln Lys Lys Leu Glu Glu Leu Glu Leu	
435 440 445	
gat gag taa	1449
Asp Glu	

<210> 168
 <211> 482
 <212> PRT
 <213> Artificial
 <220>
 <223> Artificially synthesized polypeptide sequence

IBPF12-538W0-E (seq) fin

<400> 168

Met Ala Ser Leu Thr Val Lys Ala Tyr Leu Leu Gly Lys Glu Asp Ala
 1 5 10 15
 Ala Arg Glu Ile Arg Arg Phe Ser Phe Cys Cys Ser Pro Glu Pro Glu
 20 25 30
 Ala Glu Ala Glu Ala Ala Ala Gly Pro Gly Pro Cys Glu Arg Leu Leu
 35 40 45
 Ser Arg Val Ala Ala Leu Phe Pro Ala Leu Arg Pro Gly Gly Phe Gln
 50 55 60
 Ala His Tyr Arg Asp Glu Asp Gly Asp Leu Val Ala Phe Ser Ser Asp
 65 70 75 80
 Glu Glu Leu Thr Met Ala Met Ser Tyr Val Lys Asp Asp Ile Phe Arg
 85 90 95
 Ile Tyr Ile Lys Glu Lys Thr Gly Asn Ser Ala Asp Gly Gly Gly Gly
 100 105 110
 Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Thr Gln Gly Gly Ser
 115 120 125
 Pro Asp Val Pro Arg Thr Pro Val Gly Lys Phe Gln Phe Pro Gly Ser
 130 135 140
 Gly Ala Thr Asn Phe Ser Leu Leu Lys Gln Ala Gly Asp Val Glu Glu
 145 150 155 160
 Asn Pro Gly Pro Met Val Ser Val Ile Lys Pro Glu Met Lys Ile Lys
 165 170 175
 Leu Cys Met Arg Gly Thr Val Asn Gly His Asn Phe Val Ile Glu Gly
 180 185 190
 Glu Gly Lys Gly Asn Pro Tyr Glu Gly Thr Gln Ile Leu Asp Leu Asn
 195 200 205
 Val Thr Glu Gly Ala Pro Leu Pro Phe Ala Tyr Asp Ile Leu Thr Thr
 210 215 220
 Val Phe Gln Tyr Gly Asn Arg Ala Phe Thr Lys Tyr Pro Ala Asp Ile
 225 230 235 240
 Gln Asp Tyr Phe Lys Gln Thr Phe Pro Glu Gly Tyr His Trp Glu Arg
 245 250 255
 Ser Met Thr Tyr Glu Asp Gln Gly Ile Cys Thr Ala Thr Ser Asn Ile
 260 265 270
 Ser Met Arg Gly Asp Cys Phe Phe Tyr Asp Ile Arg Phe Asp Gly Val
 275 280 285
 Asn Phe Pro Pro Asn Gly Pro Val Met Gln Lys Lys Thr Leu Lys Trp
 290 295 300
 Glu Pro Ser Thr Glu Lys Met Tyr Val Arg Asp Gly Val Leu Lys Gly
 305 310 315 320
 Asp Val Asn Met Ala Leu Leu Leu Glu Gly Gly His Tyr Arg Cys
 325 330 335
 Asp Phe Lys Thr Thr Tyr Lys Ala Lys Lys Asp Val Arg Leu Pro Asp
 340 345 350
 Tyr His Phe Val Asp His Arg Ile Glu Ile Leu Lys His Asp Lys Asp
 355 360 365
 Tyr Asn Lys Val Lys Leu Tyr Glu Asn Ala Val Ala Arg Tyr Ser Met
 370 375 380
 Leu Pro Ser Gln Ala Lys Thr Gly Asn Ser Ala Asp Gly Gly Gly Gly
 385 390 395 400
 Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Thr Gln Gly Gly Ser
 405 410 415
 Met Ala Asp Glu Glu Lys Leu Pro Pro Gly Trp Glu Lys Arg Met Ser
 420 425 430
 Arg Ser Ser Gly Arg Val Tyr Tyr Phe Asn His Ile Thr Asn Ala Ser
 435 440 445
 Gln Trp Glu Arg Pro Ser Gly Asn Ser Ser Ser Gly Gly Lys Asn Gly
 450 455 460
 Gln Gly Glu Pro Ala Arg Leu Gln Lys Lys Leu Glu Glu Leu Glu Leu
 465 470 475 480
 Asp Glu

<210> 169

<211> 684

<212> DNA

<213> Artificial

IBPF12-538W0-E (seq) fin

<220>

<223> Artificially synthesized polynucleotide sequence

<220>

<221> CDS

<222> (1).. (684)

<223>

<400> 169

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atg ctc gaa cca tac tgg ctt cca aat ttc atg gat gtt ttt act tgg      48
Met Leu Glu Pro Tyr Trp Leu Pro Asn Phe Met Asp Val Phe Thr Trp
1      5      10      15
tcc ctt cca ttt gtt ggg gaa aaa gtg act gag atg ctg gta aat gtc      96
Ser Leu Pro Phe Val Gly Glu Lys Val Thr Glu Met Leu Val Asn Val
20     25     30
ctc aac atc tgc tca gat gat gaa cta ggg tca gaa gaa gat gga ttt      144
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Asp Gly Ala Thr Ala Ala Arg Lys Glu Val Glu Glu Ala Ser Tyr
50     55     60
cct ttg gaa atg tgc tca cac ttt gat gcg gat gaa att aaa agg cta      240
Pro Leu Glu Met Cys Ser His Phe Asp Ala Asp Glu Ile Lys Arg Leu
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Gly Lys Arg Phe Lys Lys Leu Asp Leu Asn Ser Gly Ser Leu Ser
85     90     95
gtg gaa gag ttc atg tct ctg cct gag tta caa cag aat cct tta gta      336
Val Glu Glu Phe Met Ser Leu Pro Glu Leu Gln Gln Asn Pro Leu Val
100    105    110
cag cga gta ata gat ata ttc gac aca gat ggg aat gga gaa gta gac      384
Gln Arg Val Ile Asp Ile Phe Asp Thr Asp Gly Asn Gly Glu Val Asp
115    120    125
ttt aaa gaa ttc att gag ggc gtc tct cag ttc agt gtc aaa gga gat      432
Phe Lys Glu Phe Ile Glu Gly Val Ser Gln Phe Ser Val Lys Gly Asp
130    135    140
aag gag cag aaa ttg agg ttt gct ttc cgt atc tat gac atg gat aaa      480
Lys Glu Gln Lys Leu Phe Ala Phe Arg Ile Tyr Asp Met Asp Lys
145    150    155    160
gat ggc tat att tcc aat ggg gaa ctc ttc cag gta ttg aag atg atg      528
Asp Gly Tyr Ile Ser Asn Gly Glu Leu Phe Gln Val Leu Lys Met Met
165    170    175
gtg ggg aac aat ctg aaa gat aca cag tta cag caa att gta gac aaa      576
Val Gly Asn Asn Leu Lys Asp Thr Gln Leu Gln Gln Ile Val Asp Lys
180    185    190
acc ata ata aat gca gat aag gat gga gat gga aga ata tcc ttt gaa      624
Thr Ile Ile Asn Ala Asp Lys Asp Gly Asp Gly Arg Ile Ser Phe Glu
195    200    205
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Leu Asn Ile Cys Ser Asp Asp Glu Leu Gly Ser Glu Glu Asp Gly Phe
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Asp Gly Ala Thr Ala Ala Ala Arg Lys Glu Val Glu Glu Ala Ser Tyr
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Pro Leu Glu Met Cys Ser His Phe Asp Ala Asp Glu Ile Lys Arg Leu
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Phe Lys Glu Phe Ile Glu Gly Val Ser Gln Phe Ser Val Lys Gly Asp
130 135 140
Lys Glu Gln Lys Leu Arg Phe Ala Phe Arg Ile Tyr Asp Met Asp Lys
145 150 155 160
Asp Gly Tyr Ile Ser Asn Gly Glu Leu Phe Gln Val Leu Lys Met Met
165 170 175
Val Gly Asn Asn Leu Lys Asp Thr Gln Leu Gln Gln Ile Val Asp Lys
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Gly Ile Gly Asp Pro Phe Glu Gly Lys Gln Thr Ser Ile Asp Leu Cys	
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gtg gtg gag ggc ggc ccc ctg ccc ttc agc gag gac atc ctg agc acc	192
Val Val Glu Gly Gly Pro Leu Pro Phe Ser Glu Asp Ile Leu Ser Thr	
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Val Phe Asp Tyr Gly Asn Arg Val Phe Thr Lys Tyr Pro Gln Asp Leu	
65 70 75 80	
gtg gac tac ttc aag aac agc tgc ccc gcc ggc tac acc tgg cag agg	288
Val Asp Tyr Phe Lys Asn Ser Cys Pro Ala Gly Tyr Thr Trp Gln Arg	
85 90 95	
agc ttc ctg ttc gag gac ggc gcc gtg tgc acc gcc agc gcc gac atc	336
Ser Phe Leu Phe Glu Asp Gly Ala Val Cys Thr Ala Ser Ala Asp Ile	
100 105 110	
agg gtg agc gtg gag gag aac tgc ttc tac cac gag agc aag ttc cac	384
Arg Val Ser Val Glu Glu Asn Cys Phe Tyr His Glu Ser Lys Phe His	
115 120 125	
ggc gtg aac ttc ccc gcc gac ggc cca gtg atg aag aag atg acc acc	432
Gly Val Asn Phe Pro Ala Asp Gly Pro Val Met Lys Lys Met Thr Thr	
130 135 140	
aac tgg gag ccc agc tgc gag aag atc acc ccc atc ctg aac gag ggc	480
Asn Trp Glu Pro Ser Cys Glu Lys Ile Thr Pro Ile Leu Asn Glu Gly	
145 150 155 160	
atc ctg aag ggc gac gtg acc atg ttc ctg ctg ctg aag gac ggc ggc	528
Ile Leu Lys Gly Asp Val Thr Met Phe Leu Leu Leu Lys Asp Gly Gly	
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Val	Val	Glu	Gly	Gly	Pro	Leu	Pro	Phe	Ser	Glu	Asp	Ile	Leu	Ser	Thr		
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Ile	Ala	Tyr	Arg	Ser	Thr	Pro	Pro										
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