

G1717WO_SEQUENCE LISTING
SEQUENCE LISTING

<110> SUNTORY HOLDINGS LIMITED

<120> Novel steviol glycoside and production method for same, and sweetener composition containing same

<130> G1717WO

<150> JP2016-253248

<151> 2016-12-27

<160> 36

<170> PatentIn version 3.5

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Gln Glu Leu Met Gly Glu Gly Gly His Lys Met Arg Asn Lys Ala Lys
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G1717WO_SEQUENCE LISTING

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Asn

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 100 105 110
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 Ala Ile Ile Tyr Asp Ser Met Thr Glu Trp Val Leu Asp Val Ala Ile
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G1717WO_SEQUENCE LISTING

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Arg Lys Ile Trp Asn Leu Lys Val Ile Gly Pro Thr Leu Pro Ser Met
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G1717WO_SEQUENCE LISTING

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 290 295 300
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 305 310 315 320
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ctt Leu 225	aag Lys	gga Gly	tct Ser	gat Asp	tgt Cys 230	ttg Leu	ctt Leu	tcc Ser	aaa Lys	tgt Cys 235	tac Tyr	cat His	gag Glu	ttt Phe	gga Gly 240			720
act Thr	caa Gln	tgg Trp	cta Leu	cct Pro 245	ctt Leu	ttg Leu	gag Glu	aca Thr	cta Leu 250	cac His	caa Gln	gta Val	ccg Pro	gtg Val 255	gtt Val			768
ccg Pro	gtg Val	gga Gly	tta Leu 260	ctg Leu	cca Pro	ccg Pro	gaa Glu	ata Ile 265	ccc Pro	gga Gly	gac Asp	gag Glu	aaa Lys 270	gat Asp	gaa Glu			816

G1717WO_SEQUENCE LISTING

aca tgg gtg tca atc aag aaa tgg ctc gat ggt aaa caa aaa ggc agt	864
Thr Trp Val Ser Ile Lys Lys Trp Leu Asp Gly Lys Gln Lys Gly Ser	
275	
gtg gtg tac gtt gca tta gga agc gag gtt ttg gtg agc caa acc gag	912
Val Val Tyr Val Ala Leu Gly Ser Glu Val Leu Val Ser Gln Thr Glu	
290 295 300	
gtt gtt gag tta gca ttg ggt ctc gag ctt tct ggg ttg cca ttt gtt	960
Val Val Glu Leu Ala Leu Gly Leu Glu Leu Ser Gly Leu Pro Phe Val	
305 310 315 320	
tgg gct tat aga aaa cca aaa ggt ccc gcg aag tca gac tcg gtg gag	1008
Trp Ala Tyr Arg Lys Pro Lys Gly Pro Ala Lys Ser Asp Ser Val Glu	
325 330 335	
ttg cca gac ggg ttc gtg gaa cga act cgt gac cgt ggg ttg gtc tgg	1056
Leu Pro Asp Gly Phe Val Glu Arg Thr Arg Asp Arg Gly Leu Val Trp	
340 345 350	
acg agt tgg gca cct cag tta cga ata ctg agc cat gag tcg gtt tgt	1104
Thr Ser Trp Ala Pro Gln Leu Arg Ile Leu Ser His Glu Ser Val Cys	
355 360 365	
ggt ttc ttg act cat tgt ggt tct gga tca att gtg gaa ggg cta atg	1152
Gly Phe Leu Thr His Cys Gly Ser Gly Ser Ile Val Glu Gly Leu Met	
370 375 380	
ttt ggt cac cct cta atc atg cta ccg att ttt ggg gac caa cct ctg	1200
Phe Gly His Pro Leu Ile Met Leu Pro Ile Phe Gly Asp Gln Pro Leu	
385 390 395 400	
aat gct cga tta ctg gag gac aaa cag gtg gga atc gag ata cca aga	1248
Asn Ala Arg Leu Leu Glu Asp Lys Gln Val Gly Ile Glu Ile Pro Arg	
405 410 415	
aat gag gaa gat ggt tgc ttg acc aag gag tcg gtt gct aga tca ctg	1296
Asn Glu Glu Asp Gly Cys Leu Thr Lys Glu Ser Val Ala Arg Ser Leu	
420 425 430	
agg tcc gtt gtt gtg gaa aaa gaa ggg gag atc tac aag gcg aac gcg	1344
Arg Ser Val Val Val Glu Lys Glu Gly Glu Ile Tyr Lys Ala Asn Ala	
435 440 445	
agg gag ctg agt aaa atc tat aac gac act aag gtt gaa aaa gaa tat	1392
Arg Glu Leu Ser Lys Ile Tyr Asn Asp Thr Lys Val Glu Lys Glu Tyr	
450 455 460	
gta agc caa ttc gta gac tat ttg gaa aag aat gcg cgt gcg gtt gcc	1440
Val Ser Gln Phe Val Asp Tyr Leu Glu Lys Asn Ala Arg Ala Val Ala	
465 470 475 480	
atc gat cat gag agt taa	1458
Ile Asp His Glu Ser	
485	

<210> 6
 <211> 485
 <212> PRT
 <213> Stevia rebaudiana

<400> 6

Met Tyr Asn Val Thr Tyr His Gln Asn Ser Lys Ala Met Ala Thr Ser
1 5 10 15

G1717WO_SEQUENCE LISTING

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 Trp Leu Ala Phe Gly His Ile Leu Pro Tyr Leu Gln Leu Ser Lys Leu
 35 40 45
 Ile Ala Glu Lys Gly His Lys Val Ser Phe Leu Ser Thr Thr Arg Asn
 50 55 60
 Ile Gln Arg Leu Ser Ser His Ile Ser Pro Leu Ile Asn Val Val Gln
 65 70 75 80
 Leu Thr Leu Pro Arg Val Gln Glu Leu Pro Glu Asp Ala Glu Ala Thr
 85 90 95
 Thr Asp Val His Pro Glu Asp Ile Pro Tyr Leu Lys Lys Ala Ser Asp
 100 105 110
 Gly Leu Gln Pro Glu Val Thr Arg Phe Leu Glu Gln His Ser Pro Asp
 115 120 125
 Trp Ile Ile Tyr Asp Tyr Thr His Tyr Trp Leu Pro Ser Ile Ala Ala
 130 135 140
 Ser Leu Gly Ile Ser Arg Ala His Phe Ser Val Thr Thr Pro Trp Ala
 145 150 155 160
 Ile Ala Tyr Met Gly Pro Ser Ala Asp Ala Met Ile Asn Gly Ser Asp
 165 170 175
 Gly Arg Thr Thr Val Glu Asp Leu Thr Thr Pro Pro Lys Trp Phe Pro
 180 185 190
 Phe Pro Thr Lys Val Cys Trp Arg Lys His Asp Leu Ala Arg Leu Val
 195 200 205
 Pro Tyr Lys Ala Pro Gly Ile Ser Asp Gly Tyr Arg Met Gly Leu Val
 210 215 220
 Leu Lys Gly Ser Asp Cys Leu Leu Ser Lys Cys Tyr His Glu Phe Gly
 225 230 235 240
 Thr Gln Trp Leu Pro Leu Leu Glu Thr Leu His Gln Val Pro Val Val
 245 250 255
 Pro Val Gly Leu Leu Pro Pro Glu Ile Pro Gly Asp Glu Lys Asp Glu
 260 265 270
 Thr Trp Val Ser Ile Lys Lys Trp Leu Asp Gly Lys Gln Lys Gly Ser
 275 280 285

G1717WO_SEQUENCE LISTING

Val Val Tyr Val Ala Leu Gly Ser Glu Val Leu Val Ser Gln Thr Glu
290 295 300

Val Val Glu Leu Ala Leu Gly Leu Glu Leu Ser Gly Leu Pro Phe Val
305 310 315 320

Trp Ala Tyr Arg Lys Pro Lys Gly Pro Ala Lys Ser Asp Ser Val Glu
325 330 335

Leu Pro Asp Gly Phe Val Glu Arg Thr Arg Asp Arg Gly Leu Val Trp
340 345 350

Thr Ser Trp Ala Pro Gln Leu Arg Ile Leu Ser His Glu Ser Val Cys
355 360 365

Gly Phe Leu Thr His Cys Gly Ser Gly Ser Ile Val Glu Gly Leu Met
370 375 380

Phe Gly His Pro Leu Ile Met Leu Pro Ile Phe Gly Asp Gln Pro Leu
385 390 395 400

Asn Ala Arg Leu Leu Glu Asp Lys Gln Val Gly Ile Glu Ile Pro Arg
405 410 415

Asn Glu Glu Asp Gly Cys Leu Thr Lys Glu Ser Val Ala Arg Ser Leu
420 425 430

Arg Ser Val Val Val Glu Lys Glu Gly Glu Ile Tyr Lys Ala Asn Ala
435 440 445

Arg Glu Leu Ser Lys Ile Tyr Asn Asp Thr Lys Val Glu Lys Glu Tyr
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465 470 475 480

Ile Asp His Glu Ser
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<211> 1377
<212> DNA
<213> Stevia rebaudiana

<220>
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<222> (1)..(1377)

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1 5 10 15

48

G1717WO_SEQUENCE LISTING

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			20					25					30			
gcc	aat	gtg	ttg	tac	tct	aaa	gga	ttc	agt	atc	acc	atc	ttt	cac	acc	144
Ala	Asn	Val	Leu	Tyr	Ser	Lys	Gly	Phe	Ser	Ile	Thr	Ile	Phe	His	Thr	
		35					40					45				
aac	ttc	aac	aaa	ccc	aaa	aca	tct	aat	tac	cct	cac	ttc	act	ttc	aga	192
Asn	Phe	Asn	Lys	Pro	Lys	Thr	Ser	Asn	Tyr	Pro	His	Phe	Thr	Phe	Arg	
	50					55					60					
ttc	atc	ctc	gac	aac	gac	cca	caa	gac	gaa	cgc	att	tcc	aat	cta	ccg	240
Phe	Ile	Leu	Asp	Asn	Asp	Pro	Gln	Asp	Glu	Arg	Ile	Ser	Asn	Leu	Pro	
65					70					75					80	
act	cat	ggg	ccg	ctc	gct	ggg	atg	cgg	att	ccg	att	atc	aac	gaa	cac	288
Thr	His	Gly	Pro	Leu	Ala	Gly	Met	Arg	Ile	Pro	Ile	Ile	Asn	Glu	His	
				85					90					95		
gga	gct	gac	gaa	tta	cga	cgc	gaa	ctg	gaa	ctg	ttg	atg	tta	gct	tct	336
Gly	Ala	Asp	Glu	Leu	Arg	Arg	Glu	Leu	Glu	Leu	Leu	Met	Leu	Ala	Ser	
			100					105					110			
gaa	gaa	gat	gaa	gag	gta	tcg	tgt	tta	atc	acg	gat	gct	ctt	tgg	tac	384
Glu	Glu	Asp	Glu	Glu	Val	Ser	Cys	Leu	Ile	Thr	Asp	Ala	Leu	Trp	Tyr	
		115					120					125				
ttc	gcg	caa	tct	gtt	gct	gac	agt	ctt	aac	ctc	cga	ccg	ctt	gtt	ttg	432
Phe	Ala	Gln	Ser	Val	Ala	Asp	Ser	Leu	Asn	Leu	Arg	Pro	Leu	Val	Leu	
	130					135					140					
atg	aca	agc	agc	ttg	ttt	aat	ttt	cat	gca	cat	gtt	tca	ctt	cct	cag	480
Met	Thr	Ser	Ser	Leu	Phe	Asn	Phe	His	Ala	His	Val	Ser	Leu	Pro	Gln	
145				150					155						160	
ttt	gat	gag	ctt	ggg	tac	ctc	gat	cct	gat	gac	aaa	acc	cgt	ttg	gaa	528
Phe	Asp	Glu	Leu	Gly	Tyr	Leu	Asp	Pro	Asp	Asp	Lys	Thr	Arg	Leu	Glu	
				165					170					175		
gaa	caa	gcg	agt	ggg	ttt	cct	atg	cta	aaa	gtg	aaa	gac	atc	aag	tct	576
Glu	Gln	Ala	Ser	Gly	Phe	Pro	Met	Leu	Lys	Val	Lys	Asp	Ile	Lys	Ser	
			180					185					190			
gcg	tat	tcg	aac	tgg	caa	ata	ctc	aaa	gag	ata	tta	ggg	aag	atg	ata	624
Ala	Tyr	Ser	Asn	Trp	Gln	Ile	Leu	Lys	Glu	Ile	Leu	Gly	Lys	Met	Ile	
		195					200					205				
aaa	caa	aca	aaa	gca	tct	tca	gga	gtc	atc	tgg	aac	tca	ttt	aag	gaa	672
Lys	Gln	Thr	Lys	Ala	Ser	Ser	Gly	Val	Ile	Trp	Asn	Ser	Phe	Lys	Glu	
	210					215					220					
ctc	gaa	gag	tct	gag	ctc	gaa	act	gtt	atc	cgt	gag	atc	ccg	gct	cca	720
Leu	Glu	Glu	Ser	Glu	Leu	Glu	Thr	Val	Ile	Arg	Glu	Ile	Pro	Ala	Pro	
225				230						235				240		
agt	ttc	ttg	ata	cca	ctc	ccc	aag	cat	ttg	aca	gcc	tct	tcc	agc	agc	768
Ser	Phe	Leu	Ile	Pro	Leu	Pro	Lys	His	Leu	Thr	Ala	Ser	Ser	Ser	Ser	
				245					250					255		
tta	cta	gac	cac	gat	cga	acc	gtt	ttt	caa	tgg	tta	gac	caa	caa	ccg	816
Leu	Leu	Asp	His	Asp	Arg	Thr	Val	Phe	Gln	Trp	Leu	Asp	Gln	Gln	Pro	
			260					265					270			
cca	agt	tcg	gta	ctg	tat	gtt	agt	ttt	ggg	agt	act	agt	gaa	gtg	gat	864
Pro	Ser	Ser	Val	Leu	Tyr	Val	Ser	Phe	Gly	Ser	Thr		Glu	Val	Asp	
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G1717WO_SEQUENCE LISTING

gag Glu	aaa Lys	gat Asp	ttc Phe	ttg Leu	gaa Glu	ata Ile	gct Ala	cgt Arg	ggg Gly	ttg Leu	ggt Val	gat Asp	agc Ser	aag Lys	cag Gln	912
290						295					300					
tcg Ser	ttt Phe	tta Leu	tgg Trp	gtg Val	ggt Val	cga Arg	cct Pro	ggg Gly	ttt Phe	gtc Val	aag Lys	ggt Gly	tcg Ser	acg Thr	tgg Trp	960
305					310					315					320	
gtc Val	gaa Glu	ccg Pro	ttg Leu	cca Pro	gat Asp	ggg Gly	ttc Phe	ttg Leu	ggt Gly	gaa Glu	aga Arg	gga Gly	cgt Arg	att Ile	gtg Val	1008
				325					330					335		
aaa Lys	tgg Trp	ggt Val	cca Pro	cag Gln	caa Gln	gaa Glu	gtg Val	cta Leu	gct Ala	cat His	gga Gly	gca Ala	ata Ile	ggc Gly	gca Ala	1056
			340					345					350			
ttc Phe	tgg Trp	act Thr	cat His	agc Ser	gga Gly	tgg Trp	aac Asn	tct Ser	acg Thr	ttg Leu	gaa Glu	agc Ser	ggt Val	tgt Cys	gaa Glu	1104
		355					360					365				
ggt Gly	ggt Val	cct Pro	atg Met	att Ile	ttc Phe	tcg Ser	gat Asp	ttt Phe	ggg Gly	ctc Leu	gat Asp	caa Gln	ccg Pro	ttg Leu	aat Asn	1152
	370					375					380					
gct Ala	aga Arg	tac Tyr	atg Met	agt Ser	gat Asp	ggt Val	ttg Leu	aag Lys	gta Val	ggg Gly	gtg Val	tat Tyr	ttg Leu	gaa Glu	aat Asn	1200
					390					395					400	
ggg Gly	tgg Trp	gaa Glu	aga Arg	gga Gly	gag Glu	ata Ile	gca Ala	aat Asn	gca Ala	ata Ile	aga Arg	aga Arg	ggt Val	atg Met	gtg Val	1248
				405					410					415		
gat Asp	gaa Glu	gaa Glu	gga Gly	gaa Glu	tac Tyr	att Ile	aga Arg	cag Gln	aat Asn	gca Ala	aga Arg	ggt Val	ttg Leu	aaa Lys	caa Gln	1296
			420					425					430			
aag Lys	gca Ala	gat Asp	ggt Val	tct Ser	ttg Leu	atg Met	aag Lys	ggt Gly	ggt Gly	tcg Ser	tct Ser	tac Tyr	gaa Glu	tca Ser	tta Leu	1344
		435					440					445				
gag Glu	tct Ser	cta Leu	ggt Val	tct Ser	tac Tyr	att Ile	tca Ser	tcg Ser	ttg Leu	taa						1377
	450					455										

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 <212> PRT
 <213> Stevia rebaudiana

<400> 8

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			20					25					30		

Ala	Asn	Val	Leu	Tyr	Ser	Lys	Gly	Phe	Ser	Ile	Thr	Ile	Phe	His	Thr
		35					40					45			

Asn	Phe	Asn	Lys	Pro	Lys	Thr	Ser	Asn	Tyr	Pro	His	Phe	Thr	Phe	Arg
	50					55					60				

G1717WO_SEQUENCE LISTING

Phe Ile Leu Asp Asn Asp Pro Gln Asp Glu Arg Ile Ser Asn Leu Pro
 65 70 75 80
 Thr His Gly Pro Leu Ala Gly Met Arg Ile Pro Ile Ile Asn Glu His
 85 90 95
 Gly Ala Asp Glu Leu Arg Arg Glu Leu Leu Met Leu Ala Ser
 100 105 110
 Glu Glu Asp Glu Glu Val Ser Cys Leu Ile Thr Asp Ala Leu Trp Tyr
 115 120 125
 Phe Ala Gln Ser Val Ala Asp Ser Leu Asn Leu Arg Pro Leu Val Leu
 130 135 140
 Met Thr Ser Ser Leu Phe Asn Phe His Ala His Val Ser Leu Pro Gln
 145 150 155 160
 Phe Asp Glu Leu Gly Tyr Leu Asp Pro Asp Asp Lys Thr Arg Leu Glu
 165 170 175
 Glu Gln Ala Ser Gly Phe Pro Met Leu Lys Val Lys Asp Ile Lys Ser
 180 185 190
 Ala Tyr Ser Asn Trp Gln Ile Leu Lys Glu Ile Leu Gly Lys Met Ile
 195 200 205
 Lys Gln Thr Lys Ala Ser Ser Gly Val Ile Trp Asn Ser Phe Lys Glu
 210 215 220
 Leu Glu Glu Ser Glu Leu Glu Thr Val Ile Arg Glu Ile Pro Ala Pro
 225 230 235 240
 Ser Phe Leu Ile Pro Leu Pro Lys His Leu Thr Ala Ser Ser Ser Ser
 245 250 255
 Leu Leu Asp His Asp Arg Thr Val Phe Gln Trp Leu Asp Gln Gln Pro
 260 265 270
 Pro Ser Ser Val Leu Tyr Val Ser Phe Gly Ser Thr Ser Glu Val Asp
 275 280 285
 Glu Lys Asp Phe Leu Glu Ile Ala Arg Gly Leu Val Asp Ser Lys Gln
 290 295 300
 Ser Phe Leu Trp Val Val Arg Pro Gly Phe Val Lys Gly Ser Thr Trp
 305 310 315 320
 Val Glu Pro Leu Pro Asp Gly Phe Leu Gly Glu Arg Gly Arg Ile Val
 325 330 335

G1717WO_SEQUENCE LISTING

Lys Trp Val Pro Gln Gln Glu Val Leu Ala His Gly Ala Ile Gly Ala
340 345 350

Phe Trp Thr His Ser Gly Trp Asn Ser Thr Leu Glu Ser Val Cys Glu
355 360 365

Gly Val Pro Met Ile Phe Ser Asp Phe Gly Leu Asp Gln Pro Leu Asn
370 375 380

Ala Arg Tyr Met Ser Asp Val Leu Lys Val Gly Val Tyr Leu Glu Asn
385 390 395 400

Gly Trp Glu Arg Gly Glu Ile Ala Asn Ala Ile Arg Arg Val Met Val
405 410 415

Asp Glu Glu Gly Glu Tyr Ile Arg Gln Asn Ala Arg Val Leu Lys Gln
420 425 430

Lys Ala Asp Val Ser Leu Met Lys Gly Gly Ser Ser Tyr Glu Ser Leu
435 440 445

Glu Ser Leu Val Ser Tyr Ile Ser Ser Leu
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<212> DNA
<213> Arabidopsis thaliana

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gct gga ttt att gct tct cat gtt gcc aac aga tta atc cgt aac tat	96
Ala Gly Phe Ile Ala Ser His Val Ala Asn Arg Leu Ile Arg Asn Tyr	
20 25 30	
cct gat tac aag atc gtt gtt ctt gac aag ctt gat tac tgt tca gat	144
Pro Asp Tyr Lys Ile Val Val Leu Asp Lys Leu Asp Tyr Cys Ser Asp	
35 40 45	
ctg aag aat ctt gat cct tct ttt tct tca cca aat ttc aag ttt gtc	192
Leu Lys Asn Leu Asp Pro Ser Phe Ser Ser Pro Asn Phe Lys Phe Val	
50 55 60	
aaa gga gat atc gcg agt gat gat ctc gtt aac tac ctt ctc atc act	240
Lys Gly Asp Ile Ala Ser Asp Asp Leu Val Asn Tyr Leu Leu Ile Thr	
65 70 75 80	
gaa aac att gat acg ata atg cat ttt gct gct caa act cat gtt gat	288
Glu Asn Ile Asp Thr Ile Met His Phe Ala Ala Gln Thr His Val Asp	
85 90 95	
aac tct ttt ggt aat agc ttt gag ttt acc aag aac aat att tat ggt	336

G1717WO_SEQUENCE LISTING

Asn	Ser	Phe	Gly 100	Asn	Ser	Phe	Glu 105	Phe	Thr	Lys	Asn	Asn	Ile 110	Tyr	Gly		
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Thr	His	Val 115	Leu	Leu	Glu	Ala	Cys 120	Lys	Val	Thr	Gly	Gln 125	Ile	Arg	Arg		
ttt	atc	cat	gtg	agt	acc	gat	gaa	gtc	tat	gga	gaa	acc	gat	gag	gat	432	
Phe	Ile 130	His	Val	Ser	Thr	Asp 135	Glu	Val	Tyr	Gly	Glu 140	Thr	Asp	Glu	Asp		
gct	gct	gta	gga	aac	cat	gaa	gct	tct	cag	ctg	tta	ccg	acg	aat	cct	480	
Ala 145	Ala	Val	Gly	Asn	His 150	Glu	Ala	Ser	Gln	Leu 155	Leu	Pro	Thr	Asn	Pro 160		
tac	tct	gca	act	aag	gct	ggt	gct	gag	atg	ctt	gtg	atg	gct	tat	ggt	528	
Tyr	Ser	Ala	Thr	Lys 165	Ala	Gly	Ala	Glu	Met 170	Leu	Val	Met	Ala	Tyr 175	Gly		
aga	tca	tat	gga	ttg	cct	ggt	att	acg	act	cgc	ggg	aac	aat	ggt	tat	576	
Arg	Ser	Tyr	Gly 180	Leu	Pro	Val	Ile	Thr 185	Thr	Arg	Gly	Asn	Asn 190	Val	Tyr		
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Gly	Pro	Asn 195	Gln	Phe	Pro	Glu	Lys 200	Met	Ile	Pro	Lys	Phe 205	Ile	Leu	Leu		
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Ala	Met 210	Ser	Gly	Lys	Pro	Leu 215	Pro	Ile	His	Gly	Asp 220	Gly	Ser	Asn	Val		
cgg	agt	tac	ttg	tac	tgc	gaa	gac	gtt	gct	gag	gct	ttt	gag	ggt	gtt	720	
Arg 225	Ser	Tyr	Leu	Tyr	Cys 230	Glu	Asp	Val	Ala	Glu 235	Ala	Phe	Glu	Val	Val 240		
ctt	cac	aaa	gga	gaa	atc	ggt	cat	gtc	tac	aat	gtc	ggc	aca	aaa	aga	768	
Leu	His	Lys	Gly	Glu 245	Ile	Gly	His	Val	Tyr 250	Asn	Val	Gly	Thr	Lys 255	Arg		
gaa	agg	aga	gtg	atc	gat	gtg	gct	aga	gac	atc	tgc	aaa	ctt	ttc	ggg	816	
Glu	Arg	Arg	Val 260	Ile	Asp	Val	Ala	Arg 265	Asp	Ile	Cys	Lys	Leu 270	Phe	Gly		
aaa	gac	cct	gag	tca	agc	att	cag	ttt	gtg	gag	aac	cgg	ccc	ttt	aat	864	
Lys	Asp	Pro 275	Glu	Ser	Ser	Ile	Gln 280	Phe	Val	Glu	Asn	Arg 285	Pro	Phe	Asn		
gat	caa	agg	tac	ttc	ctt	gat	gat	cag	aag	ctg	aag	aaa	ttg	ggg	tgg	912	
Asp	Gln 290	Arg	Tyr	Phe	Leu	Asp 295	Asp	Gln	Lys	Leu	Lys 300	Lys	Leu	Gly	Trp		
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Gln 305	Glu	Arg	Thr	Asn	Trp 310	Glu	Asp	Gly	Leu	Lys 315	Lys	Thr	Met	Asp	Trp 320		
tac	act	cag	aat	cct	gag	tgg	tgg	ggt	gat	gtt	tct	gga	gct	ttg	ctt	1008	
Tyr	Thr	Gln	Asn	Pro 325	Glu	Trp	Trp	Gly	Asp 330	Val	Ser	Gly	Ala	Leu 335	Leu		
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Pro	His	Pro	Arg 340	Met	Leu	Met	Met	Pro 345	Gly	Gly	Arg	Leu	Ser 350	Asp	Gly		
tct	agt	gag	aag	aaa	gac	gtt	tca	agc	aac	acg	gtc	cag	aca	ttt	acg	1104	
Ser	Ser	Glu 355	Lys	Lys	Asp	Val	Ser 360	Ser	Asn	Thr	Val	Gln 365	Thr	Phe	Thr		
gtt	gta	aca	cct	aag	aat	ggt	gat	tct	ggt	gac	aaa	gct	tcg	ttg	aag	1152	

G1717WO_SEQUENCE LISTING

Val 370	Val	Thr	Pro	Lys	Asn	Gly 375	Asp	Ser	Gly	Asp	Lys 380	Ala	Ser	Leu	Lys	
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cta Leu	tgt Cys	gag Glu	aag Lys	caa Gln 405	ggg Gly	att Ile	aca Thr	tat Tyr	gag Glu 410	tat Tyr	ggg Gly	aaa Lys	gga Gly	cgt Arg 415	ctg Leu	1248
gag Glu	gat Asp	aga Arg	gct Ala 420	tct Ser	ctt Leu	gtg Val	gcg Ala	gat Asp 425	att Ile	cgt Arg	agc Ser	atc Ile	aaa Lys 430	cct Pro	act Thr	1296
cat His	gtg Val	ttt Phe 435	aat Asn	gct Ala	gct Ala	ggt Gly	tta Leu 440	act Thr	ggc Gly	aga Arg	ccc Pro	aac Asn 445	ggt Val	gac Asp	tgg Trp	1344
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tct Ser	atc Ile	gag Glu	atg Met 580	gcg Ala	aag Lys	aga Arg	aac Asn	cta Leu 585	aga Arg	ggc Gly	ata Ile	tgg Trp	aat Asn 590	ttc Phe	acc Thr	1776
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tac Tyr	atc Ile 610	gag Glu	cca Pro	ggt Gly	ttt Phe	aaa Lys 615	tgg Trp	tcc Ser	aac Asn	ttc Phe	aca Thr 620	gtg Val	gaa Glu	gaa Glu	caa Gln	1872
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G1717WO_SEQUENCE LISTING

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Leu Lys Asn Leu Asp Pro Ser Phe Ser Ser Pro Asn Phe Lys Phe Val
50 55 60

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

Glu Asn Ile Asp Thr Ile Met His Phe Ala Ala Gln Thr His Val Asp
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Asn Ser Phe Gly Asn Ser Phe Glu Phe Thr Lys Asn Asn Ile Tyr Gly
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Thr His Val Leu Leu Glu Ala Cys Lys Val Thr Gly Gln Ile Arg Arg
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Phe Ile His Val Ser Thr Asp Glu Val Tyr Gly Glu Thr Asp Glu Asp
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Ala Ala Val Gly Asn His Glu Ala Ser Gln Leu Leu Pro Thr Asn Pro
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Tyr Ser Ala Thr Lys Ala Gly Ala Glu Met Leu Val Met Ala Tyr Gly
165 170 175

Arg Ser Tyr Gly Leu Pro Val Ile Thr Thr Arg Gly Asn Asn Val Tyr
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Gly Pro Asn Gln Phe Pro Glu Lys Met Ile Pro Lys Phe Ile Leu Leu
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G1717WO_SEQUENCE LISTING

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215

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Gln Glu Arg Thr Asn Trp Glu Asp Gly Leu Lys Lys Thr Met Asp Trp
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Tyr Thr Gln Asn Pro Glu Trp Trp Gly Asp Val Ser Gly Ala Leu Leu
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Pro His Pro Arg Met Leu Met Met Pro Gly Gly Arg Leu Ser Asp Gly
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Ser Ser Glu Lys Lys Asp Val Ser Ser Asn Thr Val Gln Thr Phe Thr
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Val Val Thr Pro Lys Asn Gly Asp Ser Gly Asp Lys Ala Ser Leu Lys
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Phe Leu Ile Tyr Gly Lys Thr Gly Trp Leu Gly Gly Leu Leu Gly Lys
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Leu Cys Glu Lys Gln Gly Ile Thr Tyr Glu Tyr Gly Lys Gly Arg Leu
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Glu Asp Arg Ala Ser Leu Val Ala Asp Ile Arg Ser Ile Lys Pro Thr
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His Val Phe Asn Ala Ala Gly Leu Thr Gly Arg Pro Asn Val Asp Trp
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Cys Glu Ser His Lys Pro Glu Thr Ile Arg Val Asn Val Ala Gly Thr
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Leu Thr Leu Ala Asp Val Cys Arg Glu Asn Asp Leu Leu Met Met Asn
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Phe Ala Thr Gly Cys Ile Phe Glu Tyr Asp Ala Thr His Pro Glu Gly
 Page 20

G1717WO_SEQUENCE LISTING

485

490

495

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Asn Asn Pro Arg Asn Phe Ile Thr Lys Ile Ser Arg Tyr Asn Lys Val
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Val Asp Ile Pro Asn Ser Met Thr Val Leu Asp Glu Leu Leu Pro Ile
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Ser Ile Glu Met Ala Lys Arg Asn Leu Arg Gly Ile Trp Asn Phe Thr
580 585 590

Asn Pro Gly Val Val Ser His Asn Glu Ile Leu Glu Met Tyr Lys Asn
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Tyr Ile Glu Pro Gly Phe Lys Trp Ser Asn Phe Thr Val Glu Glu Gln
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Ala Lys Val Ile Val Ala Ala Arg Ser Asn Asn Glu Met Asp Gly Ser
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