

SEQLTX

SEQUENCE LISTING

<110> Universidad de Córdoba
 <120> Método para mejorar la tolerancia a estreses abióticos en un organismo
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 ttacacagcg aaaacaagga agaaagtata ccggtgtttg aggccgtcaa gaagtatatt 660
 ctccaggaca ggccacattt gaagggcacg catcccattht acaatcggat gttgagagag 720
 ggcatattga aggttcccgt tctctttacg acccaggatga tctatgcaaa ctatgccagc 780
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 gatgacaggt ttgcgcagtc gaaggtgcga gccagaatcc tcgatggcat caactatttc 1020
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<400> 2

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SEQLTXT

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gaccattatg tgcgaaaaag ggttgttccc atcaattact actctgaaat agcgggagtc	240
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taccgcagtg	atctacacag cgaaaacaag gaagagagca taccggtgtt tgaggccgtc 600
aagaagtata	ttctccagga caggccacat ttgaaaggca cgcattcccat ttacaaccgg 660
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aattacgccg	gccgcttttt ctacacgttt gccaaagtat gcgataaccg aatcatcgag 780
gaggtggtga	ccaatccac cgacgaagtg gtgaagcgag cgggtgatgga gacgatcgag 840
aagtatatgg	tggtggaaga agacacgact gaaacgttta tgaaagccgt gattatctcg 900
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Leu	Thr	His	Asp	Gly	Asn	Ile	Leu	Asn	Pro	Phe	Ser	Glu	Arg	Phe	Thr
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Gln	Arg	Tyr	Leu	Ala	Asn	Val	Val	Gly	Cys	Ser	Ser	Val	Arg	Glu	Asp
	50				55					60					
Ile	Leu	Ser	Thr	Ile	Asn	His	Phe	Asp	Asn	His	Ser	Lys	Ser	His	
65					70				75					80	
Tyr	Val	Arg	Lys	Ser	Val	Val	Ser	Thr	Asp	His	Ala	Ser	Glu	Ile	Ala
			85						90					95	
Gly	Val	Lys	Glu	Ser	Lys	Leu	Asn	Val	Cys	Lys	Leu	Cys	Phe	Asn	His
			100					105					110		
Ala	Ser	Lys	Thr	His	Leu	Asn	Leu	His	Leu	Arg	Thr	Glu	His	Arg	Val
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Asn	Ser	Asn	Phe	Gln	Gln	His	Val	Phe	Arg	Thr	Thr	Gly	Tyr	Ala	Ile
	130					135					140				
Pro	Asn	Gln	Lys	Cys	Gly	Phe	Ser	Tyr	Leu	Tyr	Arg	Glu	Lys	Glu	Asp
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Thr	Lys	Pro	Pro	Thr	Ser	Met	Thr	Thr	Met	Glu	Gly	Pro	His	Thr	His
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Leu	Arg	His	Glu	Asp	Lys	Phe	Leu	Arg	Thr	Ile	Asn	Ala	Asn	Leu	Tyr
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Tyr	Gly	Lys	Gly	Tyr	Pro	Gln	Tyr	Leu	His	Ser	Glu	Asn	Lys	Glu	Glu
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Ser	Ile	Pro	Val	Phe	Glu	Ala	Val	Lys	Lys	Tyr	Ile	Leu	Gln	Asp	Arg
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Pro	His	Leu	Lys	Gly	Thr	His	Pro	Ile	Tyr	Asn	Arg	Met	Leu	Arg	Glu
225					230					235					240
Gly	Ile	Leu	Lys	Val	Pro	Val	Leu	Phe	Thr	Thr	Gln	Val	Ile	Tyr	Ala
			245						250					255	
Asn	Tyr	Ala	Ser	Arg	Phe	Phe	Tyr	Thr	Phe	Ala	Lys	Val	Cys	Gly	Asn
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Arg	Ile	Ile	Glu	Glu	Val	Val	Thr	Asn	Pro	Thr	Asp	Glu	Val	Val	Lys
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Arg	Ala	Val	Met	Glu	Thr	Ile	Glu	Lys	Tyr	Ile	Val	Val	Glu	Glu	Asp
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Thr Thr Gly Met Phe Met Arg Ala Val SEQLTX Ile Ile Ser Leu Met Leu Pro
 305 310 315 320
 Asp Asp Arg Phe Ala Gln Ser Lys Val Arg Ala Arg Ile Leu Asp Gly
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 Asn Asn Ala Asn Gly Ile Leu
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 35 40 45
 Arg Asn Ile Leu Asn Pro Phe Ser Glu Arg Phe Asn Lys Arg Tyr Leu
 50 55 60
 Val Asn Ala Met Asp Cys Ser Ile Val Arg Asp Asp Ile Leu Ser Thr
 65 70 75 80
 Ile His Asn His Phe Asp Asn His Ser Lys Asp His Tyr Val Arg Lys
 85 90 95
 Arg Val Val Pro Ile Asn Tyr Tyr Ser Glu Ile Ala Gly Val Lys Glu
 100 105 110
 Ser Lys Leu Asn Val Cys Lys Ile Cys Phe Asn His Cys Ala Leu Asn
 115 120 125
 Tyr Ile Asn Gln His Leu Lys Lys Glu His Gly Val Lys Arg Lys Phe
 130 135 140
 Gln Arg His Val Phe Arg Thr Thr Gly Tyr Ala Ile Pro Asn Gln Lys
 145 150 155 160
 Cys Gly Phe Ser Tyr Leu Tyr Gly Glu Lys Glu Asp Thr Lys Pro Pro
 165 170 175
 Thr Ser Met Thr Thr Ile Glu Gly Pro Leu Thr His Leu Arg Tyr Glu
 180 185 190
 Asp Lys Phe Leu Arg Thr Ile Asn Ala Asn Leu Tyr Tyr Gly Lys Gly
 195 200 205
 Tyr Pro Gln Tyr Leu His Ser Glu Asn Lys Glu Glu Ser Ile Pro Val
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 Phe Glu Ala Val Lys Lys Tyr Ile Leu Gln Asp Arg Pro His Leu Lys
 225 230 235 240
 Gly Thr His Pro Ile Tyr Asn Arg Met Leu Arg Glu Gly Ile Leu Lys
 245 250 255
 Val Pro Val Leu Phe Thr Thr Gln Val Ile Tyr Ala Asn Tyr Ala Ser
 260 265 270
 Arg Phe Phe Tyr Thr Phe Ala Lys Leu Cys Asp Asn Arg Ile Ile Glu
 275 280 285
 Glu Val Val Thr Asn Pro Thr Asp Glu Val Val Lys Arg Ala Val Met
 290 295 300
 Glu Thr Ile Glu Arg Tyr Ile Val Val Glu Glu Asp Thr Thr Glu Thr
 305 310 315 320
 Phe Ile Lys Ala Val Ile Ile Ser Leu Met Leu Pro Asp Asp Arg Phe
 325 330 335
 Ala Gln Ser Lys Val Arg Ala Lys Ile Phe Asp Gly Ile Asn Tyr Phe
 340 345 350
 Leu Lys Leu Ala Ile Ala Asp Tyr Met Leu Met Arg Asn Asn Ala Lys
 355 360 365
 Glu Ile Ile Lys Asn Trp Glu His Leu Ala Tyr Gln Ala Phe Glu Ser
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 Thr Arg Ser Tyr Asn His Lys Phe Asn Arg Thr Leu Pro Ala Phe Gln
 385 390 395 400

SEQLTX

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Glu	Tyr	His	Thr	Thr	Val	Arg	Asn	Leu	Leu	Pro	Asp	Gly	Met	Leu	Met
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Val	Asp	Glu	Leu	Tyr	Glu	Glu	Phe	Arg	Lys	His	Ala	Lys	Asp	Met	Phe
	450					455					460				
Ser	Cys	Thr	Asp	Leu	Gly	Tyr	Ser	Val	Phe	Tyr	Gly	Thr	Asp	Glu	Leu
465					470					475					480
Asn	Lys	Leu	Ser	Tyr	Gln	Gln	Arg	Arg	Thr	Tyr	Glu	Glu	Ala	Val	Gly
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Asp	Lys	Trp	Lys	Asn	Gln	Lys	Tyr	Met	Arg	Ser	Met	Phe	Asp	Gln	Phe
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Thr	Arg	Leu	Asn	Leu	Asn	Ile	Phe	Val	Cys	Ile	Leu	Ile	Thr	Cys	Gly
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Thr	Asp	Leu	Val	Arg	Thr	Met	Tyr	Tyr	Ser	Asn	Glu	His	Ile	Gln	Ile
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Asn	Leu	Leu	Tyr	Asn	Lys	Asn	Thr	His	Ser	Ser	Met	Arg	Tyr	Ser	Asn
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His	Thr	Lys	Met	Leu	Pro	Ile	Glu	Val	Ser	Lys	Ile	Val	Ile	His	Tyr
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Val	Ser	Ile	Ile	Lys	Tyr	Leu	Glu	Val	Ala	Ile	Val	Glu	Glu	His	Gly
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Trp	Ala	Lys	Ser	Lys	Ser	Asp	Met	Ser	Val	Ala	Asp	Asp	Trp	Glu	Asp
	610					615					620				
Asp	Glu	Glu	Phe	Asp	Glu	Leu	Asp	Gly	Asn	Asp	Leu	Glu	Asp	Gly	Ala
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Ser	Leu	Leu	Ala	Ser	Lys	Ala	Leu	Ser	Lys	Arg	Asp	Glu	Ile	Lys	Thr
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Lys	Tyr	Leu	Glu	Leu	Val	Ser	Glu	Lys	Tyr	Ile	Arg	Glu	Lys	Tyr	Thr
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Pro	Arg	Ile	Leu	Arg	Gln	Ala	Leu	Val	Tyr	Phe	Thr	Arg	Thr	Leu	Leu
	690					695					700				
Glu	Glu	Ala	Lys	Tyr	Gln	Gly	Val	Gly	Ile	Leu	Asn	Arg	Ile	Asp	Ser
705					710					715					720
Ile	Ala	Gly	His	Arg	Ser	Glu	Thr	Ala	Asp	Leu	Gln	Tyr	Gly	Val	Thr
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His	Asp	Arg	Asn	Thr	Leu	Asn	Pro	Phe	Ser	Glu	Arg	Phe	Asn	Lys	Arg
			20					25					30		
Tyr	Leu	Val	Asn	Ala	Met	Asp	Cys	Ser	Ile	Ile	Arg	Asp	Asp	Ile	Leu
		35					40					45			
Ser	Thr	Ile	His	Asn	His	Phe	Asp	Asn	His	Ser	Lys	Asp	His	Tyr	Val
	50					55					60				
Arg	Lys	Arg	Val	Val	Pro	Ile	Asn	Tyr	Tyr	Ser	Glu	Ile	Ala	Gly	Val
65					70					75					80
Lys	Glu	Ser	Lys	Leu	Asn	Val	Cys	Lys	Ile	Cys	Phe	Asn	His	Cys	Ala
				85					90					95	
Leu	Asn	Tyr	Ile	Asn	Gln	His	Leu	Lys	Lys	Glu	His	Ser	Val	Lys	Arg
			100					105					110		

SEQLTX

Asn	Phe	Gln	Arg	His	Val	Phe	Arg	Thr	Thr	Gly	Tyr	Ala	Ile	Pro	Asn
		115					120					125			
Gln	Lys	Cys	Gly	Phe	Ser	Tyr	Leu	Tyr	Arg	Glu	Lys	Glu	Asp	Thr	Lys
	130					135					140				
Pro	Pro	Thr	Ser	Met	Thr	Thr	Ile	Glu	Gly	Pro	Leu	Thr	His	Leu	Arg
145					150					155					160
His	Glu	Asp	Lys	Phe	Leu	Arg	Thr	Ile	Asn	Ala	Asn	Leu	Tyr	Tyr	Gly
				165					170					175	
Lys	Gly	Tyr	Pro	Gln	Tyr	Leu	His	Ser	Glu	Asn	Lys	Glu	Glu	Ser	Ile
			180					185					190		
Pro	Met	Phe	Glu	Ala	Val	Lys	Lys	Tyr	Ile	Leu	Gln	Asp	Ile	Pro	His
		195					200					205			
Leu	Lys	Gly	Thr	His	Pro	Ile	Tyr	Asn	Arg	Met	Leu	Arg	Glu	Gly	Ile
	210					215					220				
Leu	Lys	Val	Pro	Val	Leu	Phe	Thr	Thr	Gln	Val	Ile	Tyr	Ala	Asn	Tyr
225					230					235					240
Ala	Ser	Arg	Phe	Phe	Tyr	Thr	Phe	Ala	Lys	Leu	Cys	Asp	Asn	Arg	Ile
				245					250					255	
Ile	Glu	Glu	Val	Val	Thr	Ser	Pro	Thr	Asp	Glu	Val	Val	Lys	Arg	Ala
			260					265					270		
Val	Met	Glu	Thr	Ile	Glu	Lys	Tyr	Ile	Val	Ala	Glu	Glu	Asp	Thr	Thr
		275					280					285			
Glu	Met	Phe	Met	Lys	Val	Val	Ile	Ile	Ser	Leu	Met	Leu	Pro	Asp	Asp
	290					295					300				
Arg	Phe	Ala	Gln	Ser	Lys	Val	Arg	Ala	Lys	Ile	Phe	Asp	Gly	Ile	Asn
305					310					315					320
Tyr	Phe	Leu	Lys	Leu	Ala	Ile	Ala	Asp	Tyr	Met	Leu	Met	Arg	Asn	Asn
				325					330					335	
Ala	Lys	Glu	Ile	Ile	Lys	Lys	Leu	Gly	Glu	Ser	Ser	Ile	Pro	Gly	Ile
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 <212> PRT
 <213> Artificial Sequence

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			20					25					30		
Phe	Asn	His	Ala	Ser	Lys	Ser	His	Ile	Asn	His	His	Leu	Arg	Thr	Glu
		35					40					45			
His	Arg	Val	Asn	Cys	Asn	Phe	Gln	Arg	His	Val	Phe	Arg	Thr	Thr	Gly
	50					55					60				
Tyr	Ala	Ile	Pro	Asn	Gln	Lys	Cys	Gly	Phe	Ser	Tyr	Leu	Tyr	Arg	Glu
65					70					75					80
Lys	Glu	Tyr	Thr	Lys	Pro	Pro	Thr	Ser	Met	Thr	Thr	Ile	Glu	Gly	Pro
				85					90					95	
His	Thr	His	Leu	Arg	His	Glu	Asn	Glu	Phe	Leu	Arg	Thr	Ile	Asn	Thr
			100					105					110		
Asn	Leu	Tyr	Tyr	Gly	Lys	Arg	Tyr	Pro	Gln	Tyr	Leu	His	Ser	Glu	Asn
		115					120					125			
Lys	Glu	Glu	Ser	Ile	Pro	Val	Phe	Glu	Ala	Val	Lys	Lys	Tyr	Ile	Leu
	130					135					140				
Gln	Asp	Arg	Pro	His	Leu	Lys	Gly	Thr	His	Pro	Ile	Tyr	Asn	Arg	Met
145					150					155					160
Leu	Arg	Glu	Gly	Ile	Leu	Lys	Val	Pro	Ala	Leu	Phe	Thr	Thr	Gln	Val
				165					170					175	
Ile	Tyr	Ala	Asn	Tyr	Ala	Gly	Arg	Phe	Phe	Cys	Thr	Phe	Ala	Lys	Leu
			180					185					190		
Cys	Asn	Asn	Arg	Ile	Ile	Glu	Glu	Val	Val	Thr	Asn	Pro	Thr	Asp	Glu
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<211> 331
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<223> DEHA2E00198

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Leu	Val	His	Lys 20	Asp	Lys	Ile	Val	Asn 25	Pro	Leu	Ala	Glu	Lys 30	Phe	Ala
Asn	Lys	Tyr 35	Leu	Pro	Arg	Leu	Ile 40	Glu	Ser	Ser	Glu	Ile 45	Arg	Ser	Thr
Ile	Leu	Ser	Glu	Ile	Lys	Ser	Tyr 50	Tyr	Gln	Glu	His 60	Ser	Lys	Gln	His
Tyr 65	Leu	Leu	Lys	Gln	Ile 70	Ile	Ala	Val	Thr	Asp 75	Asp	Ser	Glu	Val	Pro 80
Gly	Val	Lys	Glu	Ser 85	Lys	Leu	Asn	Val	Cys 90	Lys	Leu	Cys	Phe	Asn 95	His
Ala	Ser	Lys	Ser 100	His	Ile	Asn	His	His 105	Leu	Arg	Thr	Glu	His 110	Arg	Val
Asn	Cys	Asn 115	Phe	Gln	Arg	His	Val 120	Phe	Arg	Thr	Thr	Gly 125	Tyr	Ala	Ile
Pro	Asn 130	Gln	Lys	Cys	Gly	Phe 135	Ser	Tyr	Ile	Tyr	Arg 140	Glu	Lys	Glu	Asp
Thr 145	Lys	Pro	Pro	Thr	Ser 150	Met	Thr	Thr	Ile	Glu 155	Gly	Pro	His	Thr	His 160
Leu	Arg	His	Glu	Asp 165	Lys	Phe	Leu	Arg	Thr 170	Ile	Asn	Ala	Asn	Leu 175	Tyr
Tyr	Gly	Lys	Gly 180	Tyr	Pro	Gln	Tyr	Leu 185	His	Ser	Glu	Asn	Lys 190	Glu	Glu
Ser	Ile	Pro 195	Val	Phe	Glu	Ala	Val 200	Lys	Lys	Tyr	Ile	Leu 205	Gln	Asp	Arg
Pro	His 210	Leu	Lys	Gly	Thr	His 215	Pro	Ile	Tyr	Asn	Arg 220	Met	Leu	Arg	Glu
Gly 225	Ile	Leu	Lys	Val	Pro 230	Val	Leu	Phe	Thr	Thr 235	Gln	Val	Ile	Tyr	Ala 240
Asn	Tyr	Ala	Gly	Arg 245	Phe	Phe	Tyr	Thr	Phe 250	Ala	Lys	Leu	Cys	Asp 255	Asn
Arg	Ile	Ile	Glu 260	Glu	Val	Val	Thr	Asn 265	Pro	Thr	Asp	Glu	Val 270	Val	Lys
Arg	Ala	Val 275	Met	Glu	Thr	Ile	Glu 280	Lys	Tyr	Ile	Val	Val 285	Glu	Glu	Asp
Thr	Thr 290	Glu	Thr	Phe	Met	Lys 295	Ala	Val	Ile	Ile	Ser 300	Leu	Met	Leu	Pro
Asp 305	Asp	Arg	Phe	Ala	Gln 310	Ser	Lys	Val	Arg	Ala 315	Lys	Ile	Phe	Asp	Gly 320
Ile	Asn	Tyr	Phe	Leu 325	Lys	Leu	Ala	Ile	Ala 330	Asp					