

ผนวก ข

ลำดับนิวคลีโอไทด์และลำดับกรดอะมิโนของโปรตีนสารพิษ Cyt2Aa และ Cry4Ba

ลำดับนิวคลีโอไทด์และกรดอะมิโนของโปรตีน Cyt2Aa (EU835185)

1	atg tat act aaa aat ttt agt aat tcc aga atg gaa gta aaa ggt	45
1	Met Tyr Thr Lys Asn Phe Ser Asn Ser Arg Met Glu Val Lys Gly	15
46	aat aac ggc tgt tct gca cct att att aga aaa cca ttt aaa cat	90
16	Asn Asn Gly Cys Ser Ala Pro Ile Ile Arg Lys Pro Phe Lys His	30
91	att gta tta acg gtt cca tcc agt gat tta gat aat ttt aat aca	135
31	Ile Val Leu Thr Val Pro Ser Ser Asp Leu Asp Asn Phe Asn Thr	45
136	gtc ttt tat gta caa cca caa tac att aat cag gct ctt cat tta	180
46	Val Phe Tyr Val Gln Pro Gln Tyr Ile Asn Gln Ala Leu His Leu	60
181	gca aat gct ttt caa ggg gct ata gac cca ctt aat tta aat ttc	225
61	Ala Asn Ala Phe Gln Gly Ala Ile Asp Pro Leu Asn Leu Asn Phe	75
226	aat ttt gaa aag gca ctc caa att gca aat ggt att cct aat tct	270
76	Asn Phe Glu Lys Ala Leu Gln Ile Ala Asn Gly Ile Pro Asn Ser	90
271	gca att gta aaa act ctt aat caa agt gtt ata cag caa aca gtt	315
91	Ala Ile Val Lys Thr Leu Asn Gln Ser Val Ile Gln Gln Thr Val	105
316	gaa att tca gtt atg gtt gag caa ctt aaa aag att att caa gag	360
106	Glu Ile Ser Val Met Val Glu Gln Leu Lys Lys Ile Ile Gln Glu	120
361	gtt tta gga ctt gtt att aac agt act agt ttt tgg aat tcg gta	405
121	Val Leu Gly Leu Val Ile Asn Ser Thr Ser Phe Trp Asn Ser Val	135
406	gaa gct aca att aaa ggc aca ttt aca aat tta gac act caa ata	450
136	Glu Ala Thr Ile Lys Gly Thr Phe Thr Asn Leu Asp Thr Gln Ile	150
451	gat gaa gca tgg att ttt tgg cat agt tta tcc gcc cac aat aca	495
151	Asp Glu Ala Trp Ile Phe Trp His Ser Leu Ser Ala His Asn Thr	165
496	agt tat tat tat aat att tta ttt tct att caa aat gaa gat aca	540
166	Ser Tyr Tyr Tyr Asn Ile Leu Phe Ser Ile Gln Asn Glu Asp Thr	180
541	ggg gca gtt atg gca gta tta cct tta gca ttt gag gtt tct gtg	585
181	Gly Ala Val Met Ala Val Leu Pro Leu Ala Phe Glu Val Ser Val	195
586	gat gtt gaa aaa caa aaa gta tta ttc ttt aca ata aaa gat agt	630
196	Asp Val Glu Lys Gln Lys Val Leu Phe Phe Thr Ile Lys Asp Ser	210
631	gca cga tat gaa gtt aaa atg aaa gct ttg act tta gtt caa gct	675
211	Ala Arg Tyr Glu Val Lys Met Lys Ala Leu Thr Leu Val Gln Ala	225
676	cta cat tcc tct gat gcc cca att gta gat ata ttt aat gtt aat	720
226	Leu His Ser Ser Asp Ala Pro Ile Val Asp Ile Phe Asn Val Asn	240
721	aac tat aat tta tac cat tct aat cat aag att att caa aat tta	765
241	Asn Tyr Asn Leu Tyr His Ser Asn His Lys Ile Ile Gln Asn Leu	255
766	aat tta tcg aat tga	780

256 Asn Leu Ser Asn End

ลำดับนิวคลีโอไทด์และกรดอะมิโนของโปรตีน Cryt4Ba (AL731825)

1	atg aat tca ggc tat ccg tta gcg aat gac tta caa ggg tca atg	45
1	Met Asn Ser Gly Tyr Pro Leu Ala Asn Asp Leu Gln Gly Ser Met	15
46	aaa aac acg aac tat aaa gat tgg cta gcc atg tgt gaa aat aac	90
16	Lys Asn Thr Asn Tyr Lys Asp Trp Leu Ala Met Cys Glu Asn Asn	30
91	caa cag tat ggc gtt aat cca gct gcg att aat tct tct tca gtt	135
31	Gln Gln Tyr Gly Val Asn Pro Ala Ala Ile Asn Ser Ser Ser Val	45
136	agt acc gct tta aaa gta gct gga gct atc ctt aaa ttt gta aac	180
46	Ser Thr Ala Leu Lys Val Ala Gly Ala Ile Leu Lys Phe Val Asn	60
181	cca cct gca ggt act gtc tta acc gta ctt agc gcg gtg ctt cct	225
61	Pro Pro Ala Gly Thr Val Leu Thr Val Leu Ser Ala Val Leu Pro	75
226	att ctt tgg ccg act aat act cca acg cct gaa aga gtt tgg aat	270
76	Ile Leu Trp Pro Thr Asn Thr Pro Thr Pro Glu Arg Val Trp Asn	90
271	gat ttc atg acc aat aca ggg aat ctt att gat caa act gta aca	315
91	Asp Phe Met Thr Asn Thr Gly Asn Leu Ile Asp Gln Thr Val Thr	105
316	gct tat gta cga aca gat gca aat gca aaa atg acg gtt gtg aaa	360
106	Ala Tyr Val Arg Thr Asp Ala Asn Ala Lys Met Thr Val Val Lys	120
361	gat tat tta gat caa tat aca act aaa ttt aac act tgg aaa aga	405
121	Asp Tyr Leu Asp Gln Tyr Thr Thr Lys Phe Asn Thr Trp Lys Arg	135
406	gag cct aat aac cag tcc tat aga aca gca gta ata act caa ttt	450
136	Glu Pro Asn Asn Gln Ser Tyr Arg Thr Ala Val Ile Thr Gln Phe	150
451	aac tta acc agt gcc aaa ctt cga gag acc gca gtt tat ttt agc	495
151	Asn Leu Thr Ser Ala Lys Leu Arg Glu Thr Ala Val Tyr Phe Ser	165
496	aac tta gta ggt tat gaa tta ttg tta tta cca ata tac gca caa	540
166	Asn Leu Val Gly Tyr Glu Leu Leu Leu Leu Pro Ile Tyr Ala Gln	180
541	gta gca aat ttc aat tta ctt tta ata aga gat ggc ctc ata aat	585
181	Val Ala Asn Phe Asn Leu Leu Leu Ile Arg Asp Gly Leu Ile Asn	195
586	gca caa gaa tgg tct tta gca cgt agt gct ggt gac caa cta tat	630
196	Ala Gln Glu Trp Ser Leu Ala Arg Ser Ala Gly Asp Gln Leu Tyr	210
631	aac act atg gtg cag tac act aaa gaa tat att gca cat agc att	675
211	Asn Thr Met Val Gln Tyr Thr Lys Glu Tyr Ile Ala His Ser Ile	225
676	aca tgg tat aat aaa ggt tta gat gta ctt aga aat aaa tct aat	720
226	Thr Trp Tyr Asn Lys Gly Leu Asp Val Leu Arg Asn Lys Ser Asn	240
721	gga caa tgg att acg ttt aat gat tat aaa aga gag atg act att	765
241	Gly Gln Trp Ile Thr Phe Asn Asp Tyr Lys Arg Glu Met Thr Ile	255
766	caa gta tta gat ata ctc gct ctt ttt gcc agt tat gat cca cgt	810
256	Gln Val Leu Asp Ile Leu Ala Leu Phe Ala Ser Tyr Asp Pro Arg	270
811	cga tac cct gcg gac aaa ata gat aat acg aaa cta tca aaa aca	855
271	Arg Tyr Pro Ala Asp Lys Ile Asp Asn Thr Lys Leu Ser Lys Thr	285
856	gaa ttt aca aga gag att tat aca gct tta gta gaa tct cct tct	900

286	Glu	Phe	Thr	Arg	Glu	Ile	Tyr	Thr	Ala	Leu	Val	Glu	Ser	Pro	Ser	300
901	agt	aaa	tct	ata	gca	gca	ctg	gag	gca	gca	ctt	aca	cga	gat	gtt	945
301	Ser	Lys	Ser	Ile	Ala	Ala	Leu	Glu	Ala	Ala	Leu	Thr	Arg	Asp	Val	315
946	cat	tta	ttc	act	tgg	cta	aag	aga	gta	gat	ttc	tgg	acc	aat	act	990
316	His	Leu	Phe	Thr	Trp	Leu	Lys	Arg	Val	Asp	Phe	Trp	Thr	Asn	Thr	330
991	ata	tat	caa	gat	tta	aga	ttt	tta	tct	gcc	aat	aaa	att	ggg	ttt	1035
331	Ile	Tyr	Gln	Asp	Leu	Arg	Phe	Leu	Ser	Ala	Asn	Lys	Ile	Gly	Phe	345
1036	tca	tat	aca	aat	tct	tct	gca	atg	caa	gaa	agt	gga	att	tat	gga	1080
346	Ser	Tyr	Thr	Asn	Ser	Ser	Ala	Met	Gln	Glu	Ser	Gly	Ile	Tyr	Gly	360
1081	agt	tct	ggg	ttt	ggg	tca	aat	ctt	act	cat	caa	att	caa	ctt	aat	1125
361	Ser	Ser	Gly	Phe	Gly	Ser	Asn	Leu	Thr	His	Gln	Ile	Gln	Leu	Asn	375
1126	tct	aat	gtt	tat	aaa	act	tct	atc	aca	gat	act	agc	tcc	ccc	tct	1170
376	Ser	Asn	Val	Tyr	Lys	Thr	Ser	Ile	Thr	Asp	Thr	Ser	Ser	Pro	Ser	390
1171	aat	cga	gtt	aca	aaa	atg	gat	ttc	tac	aaa	att	gat	ggg	act	ctt	1215
391	Asn	Arg	Val	Thr	Lys	Met	Asp	Phe	Tyr	Lys	Ile	Asp	Gly	Thr	Leu	405
1216	gcc	tct	tat	aat	tca	aat	ata	aca	cca	act	cct	gaa	ggg	tta	agg	1260
406	Ala	Ser	Tyr	Asn	Ser	Asn	Ile	Thr	Pro	Thr	Pro	Glu	Gly	Leu	Arg	420
1261	acc	aca	ttt	ttt	gga	ttt	tca	aca	aat	gag	aac	aca	cct	aat	caa	1305
421	Thr	Thr	Phe	Phe	Gly	Phe	Ser	Thr	Asn	Glu	Asn	Thr	Pro	Asn	Gln	435
1306	cca	act	gta	aat	gat	tat	acg	cat	att	tta	agc	tat	ata	aaa	act	1350
436	Pro	Thr	Val	Asn	Asp	Tyr	Thr	His	Ile	Leu	Ser	Tyr	Ile	Lys	Thr	450
1351	gat	gtt	ata	gat	tat	aac	agt	aac	agg	gtt	tca	ttt	gct	tgg	aca	1395
451	Asp	Val	Ile	Asp	Tyr	Asn	Ser	Asn	Arg	Val	Ser	Phe	Ala	Trp	Thr	465
1396	cat	aag	att	gtt	gac	cct	aat	aat	caa	ata	tac	aca	gat	gct	atc	1440
466	His	Lys	Ile	Val	Asp	Pro	Asn	Asn	Gln	Ile	Tyr	Thr	Asp	Ala	Ile	480
1441	aca	caa	gtt	ccg	gcc	gta	aaa	tct	aac	ttc	ttg	aat	gca	aca	gct	1485
481	Thr	Gln	Val	Pro	Ala	Val	Lys	Ser	Asn	Phe	Leu	Asn	Ala	Thr	Ala	495
1486	aaa	gta	atc	aag	gga	cct	ggg	cat	aca	ggg	ggg	gat	cta	gtt	gct	1530
496	Lys	Val	Ile	Lys	Gly	Pro	Gly	His	Thr	Gly	Gly	Asp	Leu	Val	Ala	510
1531	ctt	aca	agc	aat	ggg	act	cta	tca	ggc	aga	atg	gag	att	caa	tgt	1575
511	Leu	Thr	Ser	Asn	Gly	Thr	Leu	Ser	Gly	Arg	Met	Glu	Ile	Gln	Cys	525
1576	aaa	aca	agt	att	ttt	aat	gat	cct	aca	aga	agt	tac	gga	tta	cgc	1620
526	Lys	Thr	Ser	Ile	Phe	Asn	Asp	Pro	Thr	Arg	Ser	Tyr	Gly	Leu	Arg	540
1621	ata	cgt	tat	gct	gca	aat	agt	cca	att	gta	ttg	aat	gta	tca	tat	1665
541	Ile	Arg	Tyr	Ala	Ala	Asn	Ser	Pro	Ile	Val	Leu	Asn	Val	Ser	Tyr	555
1666	gta	tta	caa	gga	gtt	tct	aga	gga	aca	acg	att	agt	aca	gaa	tct	1710
556	Val	Leu	Gln	Gly	Val	Ser	Arg	Gly	Thr	Thr	Ile	Ser	Thr	Glu	Ser	570
1711	acg	ttt	tca	aga	cct	aat	aat	ata	ata	cct	aca	gat	tta	aaa	tat	1755
571	Thr	Phe	Ser	Arg	Pro	Asn	Asn	Ile	Ile	Pro	Thr	Asp	Leu	Lys	Tyr	585
1756	gaa	gag	ttt	aga	tac	aaa	gat	cct	ttt	gat	gca	att	gta	ccg	atg	1800
586	Glu	Glu	Phe	Arg	Tyr	Lys	Asp	Pro	Phe	Asp	Ala	Ile	Val	Pro	Met	600
1801	aga	tta	tct	tct	aat	caa	ctg	ata	act	ata	gct	att	caa	cca	tta	1845
601	Arg	Leu	Ser	Ser	Asn	Gln	Leu	Ile	Thr	Ile	Ala	Ile	Gln	Pro	Leu	615

1846	aac	atg	act	tca	aat	aat	caa	gtg	att	att	gac	aga	atc	gaa	att	1890
616	Asn	Met	Thr	Ser	Asn	Asn	Gln	Val	Ile	Ile	Asp	Arg	Ile	Glu	Ile	630
1891	att	cca	atc	act	caa	tct	gta	tta	gat	gag	aca	gag	aac	caa	aat	1935
631	Ile	Pro	Ile	Thr	Gln	Ser	Val	Leu	Asp	Glu	Thr	Glu	Asn	Gln	Asn	645
1936	tta	gaa	tca	gaa	cga	gaa	gtt	gtg	aat	gca	ctg	ttt	aca	aat	gac	1980
646	Leu	Glu	Ser	Glu	Arg	Glu	Val	Val	Asn	Ala	Leu	Phe	Thr	Asn	Asp	660
1981	gcg	aaa	gat	gca	tta	aac	att	gga	acg	aca	gat	tat	gac	ata	gat	2025
661	Ala	Lys	Asp	Ala	Leu	Asn	Ile	Gly	Thr	Thr	Asp	Tyr	Asp	Ile	Asp	675
2026	caa	gcc	gca	aat	ctt	gtg	gaa	tgt	att	tct	gaa	gaa	tta	tat	cca	2070
676	Gln	Ala	Ala	Asn	Leu	Val	Glu	Cys	Ile	Ser	Glu	Glu	Leu	Tyr	Pro	690
2071	aaa	gaa	aaa	atg	ctg	tta	tta	gat	gaa	gtt	aaa	aat	gcg	aaa	caa	2115
691	Lys	Glu	Lys	Met	Leu	Leu	Leu	Asp	Glu	Val	Lys	Asn	Ala	Lys	Gln	705
2116	ctt	agt	caa	tct	cga	aat	gta	ctt	caa	aac	ggg	gat	ttt	gaa	tcg	2160
706	Leu	Ser	Gln	Ser	Arg	Asn	Val	Leu	Gln	Asn	Gly	Asp	Phe	Glu	Ser	720
2161	gct	acg	ctt	ggg	tgg	aca	aca	agt	gat	aat	atc	aca	att	caa	gaa	2205
721	Ala	Thr	Leu	Gly	Trp	Thr	Thr	Ser	Asp	Asn	Ile	Thr	Ile	Gln	Glu	735
2206	gat	gat	cct	att	ttt	aaa	ggg	cat	tac	ctt	cat	atg	tct	ggg	gcg	2250
736	Asp	Asp	Pro	Ile	Phe	Lys	Gly	His	Tyr	Leu	His	Met	Ser	Gly	Ala	750
2251	aga	gac	att	gat	ggg	acg	ata	ttt	ccg	acc	tat	ata	ttc	caa	aaa	2295
751	Arg	Asp	Ile	Asp	Gly	Thr	Ile	Phe	Pro	Thr	Tyr	Ile	Phe	Gln	Lys	765
2296	att	gat	gaa	tca	aaa	tta	aaa	ccg	tat	aca	cgt	tac	cta	gta	agg	2340
766	Ile	Asp	Glu	Ser	Lys	Leu	Lys	Pro	Tyr	Thr	Arg	Tyr	Leu	Val	Arg	780
2341	gga	ttt	gta	gga	agt	agt	aaa	gat	gta	gaa	cta	gtg	gtt	tca	cgc	2385
781	Gly	Phe	Val	Gly	Ser	Ser	Lys	Asp	Val	Glu	Leu	Val	Val	Ser	Arg	795
2386	tat	ggg	gaa	gaa	att	gat	gcc	atc	atg	aat	gtt	cca	gct	gat	tta	2430
796	Tyr	Gly	Glu	Glu	Ile	Asp	Ala	Ile	Met	Asn	Val	Pro	Ala	Asp	Leu	810
2431	aac	tat	ctg	tat	cct	tct	acc	ttt	gat	tgt	gaa	ggg	tct	aat	cgt	2475
811	Asn	Tyr	Leu	Tyr	Pro	Ser	Thr	Phe	Asp	Cys	Glu	Gly	Ser	Asn	Arg	825
2476	tgt	gag	acg	tcc	gct	gtg	ccg	gct	aac	att	ggg	aac	act	tct	gat	2520
826	Cys	Glu	Thr	Ser	Ala	Val	Pro	Ala	Asn	Ile	Gly	Asn	Thr	Ser	Asp	840
2521	atg	ttg	tat	tca	tgc	caa	tat	gat	aca	ggg	aaa	aag	cat	gtc	gta	2565
841	Met	Leu	Tyr	Ser	Cys	Gln	Tyr	Asp	Thr	Gly	Lys	Lys	His	Val	Val	855
2566	tgt	cag	gat	tcc	cat	caa	ttt	agt	ttc	act	att	gat	aca	ggg	gca	2610
856	Cys	Gln	Asp	Ser	His	Gln	Phe	Ser	Phe	Thr	Ile	Asp	Thr	Gly	Ala	870
2611	tta	gat	aca	aat	gaa	aat	ata	ggg	gtt	tgg	gtc	atg	ttt	aaa	ata	2655
871	Leu	Asp	Thr	Asn	Glu	Asn	Ile	Gly	Val	Trp	Val	Met	Phe	Lys	Ile	885
2656	tct	tct	cca	gat	gga	tac	gca	tca	tta	gat	aat	tta	gaa	gta	att	2700
886	Ser	Ser	Pro	Asp	Gly	Tyr	Ala	Ser	Leu	Asp	Asn	Leu	Glu	Val	Ile	900
2701	gaa	gaa	ggg	cca	ata	gat	ggg	gaa	gca	ctg	tca	cgc	gtg	aaa	cac	2745
901	Glu	Glu	Gly	Pro	Ile	Asp	Gly	Glu	Ala	Leu	Ser	Arg	Val	Lys	His	915
2746	atg	gag	aag	aaa	tgg	aac	gat	caa	atg	gaa	gca	aaa	cgt	tcg	gaa	2790
916	Met	Glu	Lys	Lys	Trp	Asn	Asp	Gln	Met	Glu	Ala	Lys	Arg	Ser	Glu	930

2791	aca caa caa gca tat gat gta gcg aaa caa gcc att gat gct tta	2835
931	Thr Gln Gln Ala Tyr Asp Val Ala Lys Gln Ala Ile Asp Ala Leu	945
2836	ttc aca aat gta caa gat gag gct tta cag ttt gat acg aca ctc	2880
946	Phe Thr Asn Val Gln Asp Glu Ala Leu Gln Phe Asp Thr Thr Leu	960
2881	gct caa att cag tac gct gag tat ttg gta caa tcg att cca tat	2925
961	Ala Gln Ile Gln Tyr Ala Glu Tyr Leu Val Gln Ser Ile Pro Tyr	975
2926	gtg tac aat gat tgg ttg tca gat gtt cca ggt atg aat tat gat	2970
976	Val Tyr Asn Asp Trp Leu Ser Asp Val Pro Gly Met Asn Tyr Asp	990
2971	atc tat gta gag ttg gat gca cga gtg gca caa gcg cgt tat ttg	3015
991	Ile Tyr Val Glu Leu Asp Ala Arg Val Ala Gln Ala Arg Tyr Leu	1005
3016	tat gat aca aga aat att att aaa aat ggt gat ttt aca caa ggg	3060
1006	Tyr Asp Thr Arg Asn Ile Ile Lys Asn Gly Asp Phe Thr Gln Gly	1020
3061	gta atg ggg tgg cat gta act gga aat gca gac gta caa caa ata	3105
1021	Val Met Gly Trp His Val Thr Gly Asn Ala Asp Val Gln Gln Ile	1035
3106	gat ggt gtt tct gta ttg gtt cta tct aat tgg agt gct ggc gta	3150
1036	Asp Gly Val Ser Val Leu Val Leu Ser Asn Trp Ser Ala Gly Val	1050
3151	tct caa aat gtc cat ctc caa cat aat cat ggg tat gtc tta cgt	3195
1051	Ser Gln Asn Val His Leu Gln His Asn His Gly Tyr Val Leu Arg	1065
3196	gtt att gcc aaa aaa gaa gga cct gga aat ggg tat gtc acg ctt	3240
1066	Val Ile Ala Lys Lys Glu Gly Pro Gly Asn Gly Tyr Val Thr Leu	1080
3241	atg gat tgt gag gag aat caa gaa aaa ttg acg ttt acg tct tgt	3285
1081	Met Asp Cys Glu Glu Asn Gln Glu Lys Leu Thr Phe Thr Ser Cys	1095
3286	gaa gaa gga tat att acg aag aca gta gat gta ttc cca gat aca	3330
1096	Glu Glu Gly Tyr Ile Thr Lys Thr Val Asp Val Phe Pro Asp Thr	1110
3331	gat cgt gta cga att gag ata ggc gaa acc gaa ggt tcg ttt tat	3375
1111	Asp Arg Val Arg Ile Glu Ile Gly Glu Thr Glu Gly Ser Phe Tyr	1125
3376	atc gaa agc att gaa tta att tgc atg aac gag tga	3411
1126	Ile Glu Ser Ile Glu Leu Ile Cys Met Asn Glu End	