

Phenomics reveals a novel chloroplast fatty acid transporter in the marine diatom *Skeletonema marinoi* involved in temperature acclimation

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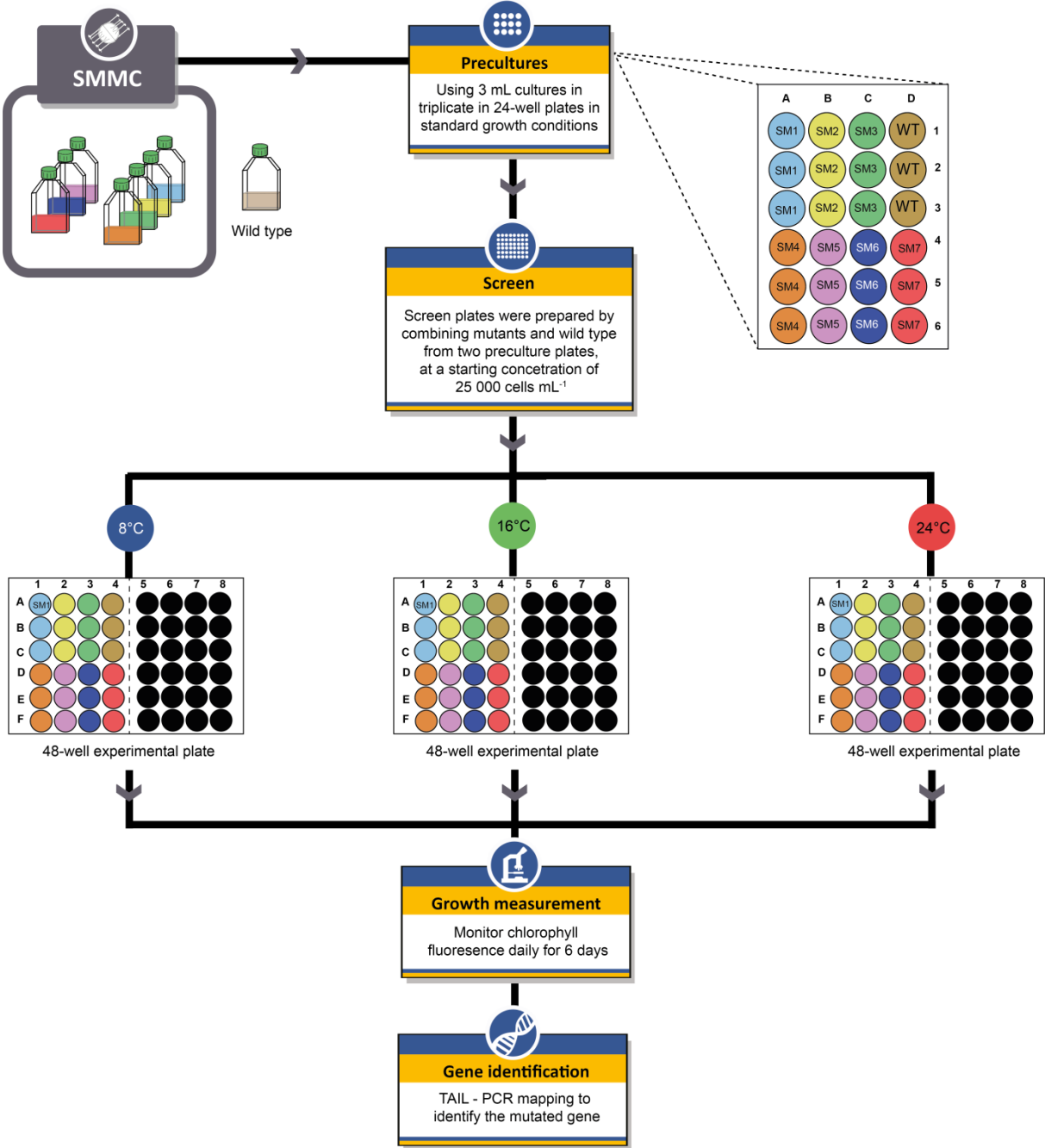
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Supplementary Figure 1. Overview of the temperature screening for *S. marinoi* mutant collection.



Supplementary Figure 2. List of primers

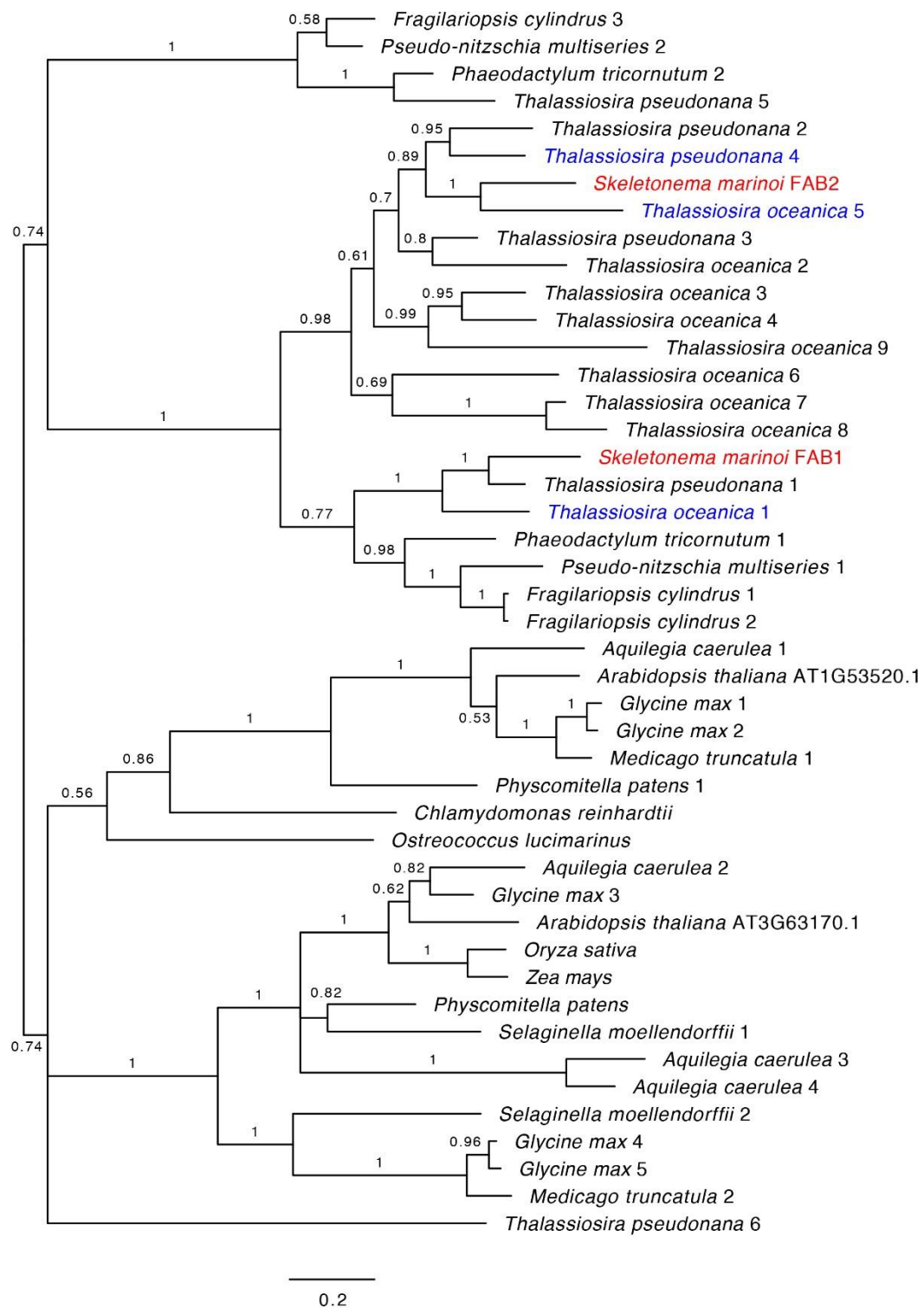
Primer	Sequence (5'->3')
TAIL-PCR	
<i>Insert specific primers</i>	
Promoter	
pISP[1]	CCTGCGAAATCATCCTCCACAAAATCTCG
pISP[2]	GAGAATCCGAGACGATCTGTCCAGAACTC
pISP[3]	AGCACTGGAACAGCACTTGTCAACTTTGC
Terminator	
tISP[1]	CGAGATTTTGTGGAGGATGATTTTCGCAGG
tISP[2]	GAATGGTCTGAAGTAGTGTCTACAAATTTCCGTG
tISP[3]	GCGTGCATTTCTGTGGCAGAAGAGCAAG
<i>Degenerate primers</i>	
Fusion-1	GGGCACGTCTACTATAGGGCACGCGTGGTNTCGASTWTSGWGTT
Fusion-2	GGGCACGTCTACTATAGGGCACGCGTGGTNGTCGASWGANAWGAA
Fusion-3	GGGCACGTCTACTATAGGGCACGCGTGGTWGTGNAGWANCANAGA
Fusion-4	GGGCACGTCTACTATAGGGCACGCGTGGTAGWGNAGWANCAWAGG
Fusion-5	GGGCACGTCTACTATAGGGCACGCGTGGTNGTAWAASGTNTSCAA
Fusion-6	GGGCACGTCTACTATAGGGCACGCGTGGTNGACGASWGANAWGAA
Fusion-7	GGGCACGTCTACTATAGGGCACGCGTGGTGTNCGASWCANAWGTT
Fusion-8	GGGCACGTCTACTATAGGGCACGCGTGGTNCAGCTWSCTNTSCTT
<i>Amplicon specific primer</i>	
ASP1	GGGCACGTCTACTATAGGGC
ASP2	ACTATAGGGCACGCGTGGT
Genotyping	
SM127-fwd	ACTGGACAAAAATTACTGCAAAGCAAGAGACGGC
SM127-rev	ATCCTATCTCCGTTCCATCAACAGATACTTTGACTCCC
qRT-PCR	
q_Lsu4e_Fwd	CATGGGGAAGTGGACGTGCCG
q_Lsu4e_Rev	GGTGTACTTACGGCCACGGGC
q_fat1_Fwd	AACAATTATTCTTGATGGCGTAGCGG
q_fat1_Rev	CGC TCCTGCGATAGTTTTTGCATCC

Supplementary Figure 3. Thermal conditions for the modified TAIL-PCR approach used to map the genomic insertion sites in *S. marinoi* transformants.

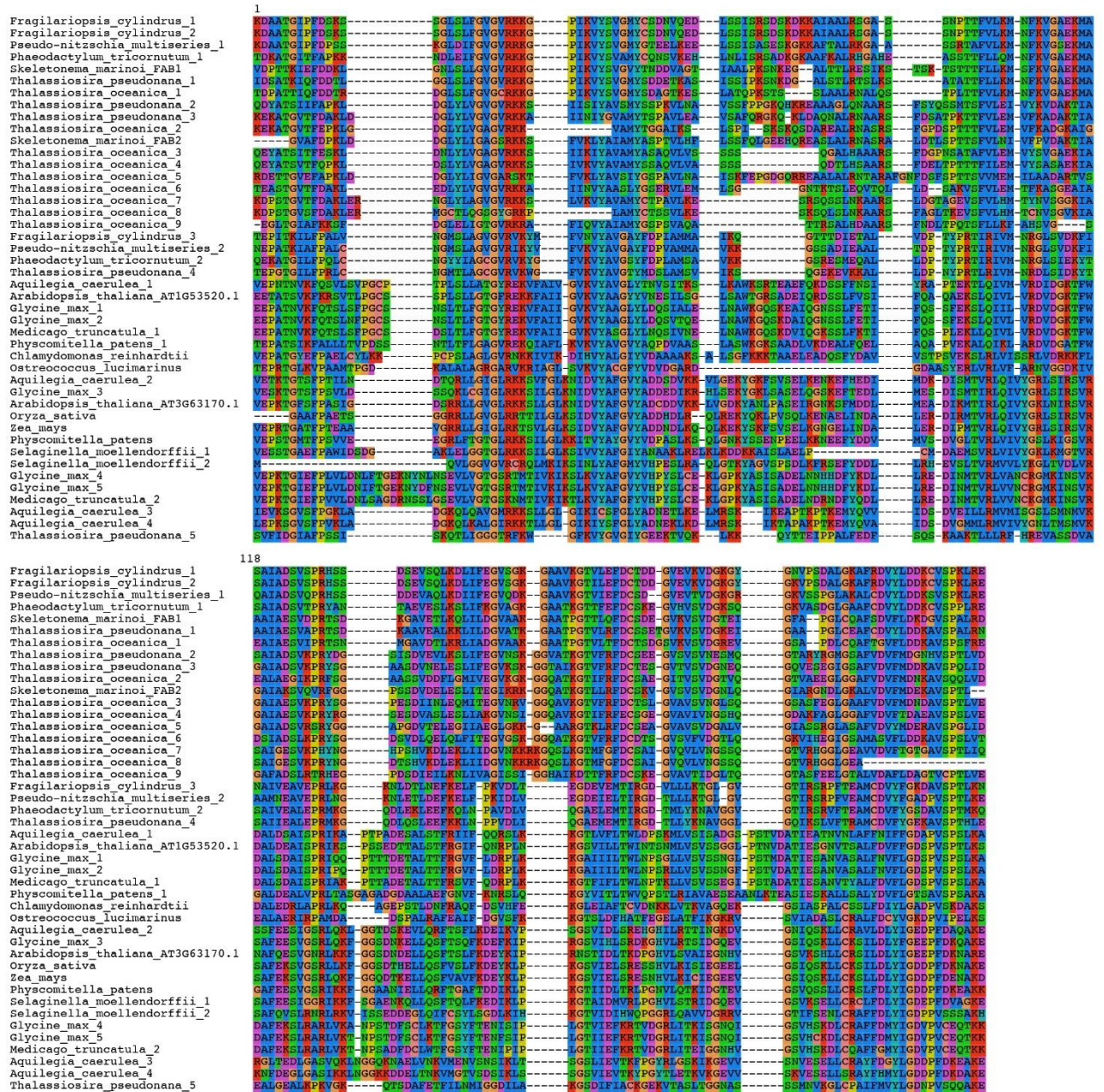
Primary reaction (1°)			Secondary reaction (2°)			Tertiary reaction (3°)		
Step	Temp.	Time	Step	Temp.	Time	Step	Temp.	Time
1	96°C	5 min	1	98°C	20 s	1	98°C	30 s
2	98°C	10 s	2	65°C	1 min	2	98°C	10 s
3	70°C	15 s	3	72°C	2 min	3	57°C	15 s
4	72°C	2 min	4	Go to 1	1 x	4	72°C	2 min
5	Go to 2	30 x	5	94°C	20 s	5	Go to 2	14 x
6	98°C	10 s	6	68°C	1 min	6	72°C	5 min
7	25°C	1 min	7	72°C	2 min	7	4°C	∞
8	72°C	2 min	8	94°C	20 s			
9	ramp 0.5 °C / sec		9	68°C	1 min			
10	Go to 6	1 x	10	72°C	2 min			
11	98°C	10 s	11	94°C	20 s			
12	70°C	15 s	12	55°C	1 min			
13	72°C	2 min	13	72°C	2 min			
14	98°C	10 s	15	72°C	5 min			
15	70°C	15 s	16	4°C	∞			
16	72°C	2 min						
17	98°C	10 s						
18	40°C	15 s						
19	72°C	2 min						
21	Go to 10	10 x						
22	72°C	5 min						
	4°C	∞						

<i>S. marinoi</i>	1	MA-----PSTLTATVGHLLAFLL
<i>T. oceanica</i>	1	MNFVGVAEKMDADAIESVHPRTPDGDVVEALKRLIADGVSSKGAATPGTLIRFDCKPGGVSVSDGTAGEAPFPSL-----AGALAAVFL
<i>T. pseudonana</i>	1	MEQQTSAQRRL-----BRLL-----AGVLL--DLL
<i>S. marinoi</i>	19	ANHQVLANHQRQYASLPSLSRSVAGVYVTSQHNLSNNKSSSSNHLRKTPTICNHNHKFVSTIRG--GALVDPVTKTEFDKDKGN-LSLL
<i>T. oceanica</i>	87	DDDGVSPLRL-----SVVENCCEGVAVAAPAGGSAGVDSG-----GEEAVSIESLESQLSPIKDSAGLISFGPKLEEGMYIA
<i>T. pseudonana</i>	23	SNVPLV-----
<i>S. marinoi</i>	106	GVGVRRKKGPIKVVSVGVYVNDVAGTIAALPKSNKEGALTTLRESIKSTSKSTTTFELKMSKRVGAEKMAAIAESVDPRTSKDKGA-VE
<i>T. oceanica</i>	160	GCVVRKKGPIKVVYAIAMYSPPKALAAVSS-----GDMNDAARTERTSEVLEMTENVAEKKAAIAIESIRPRYSGSSPDSVE
<i>T. pseudonana</i>	28	-----
<i>S. marinoi</i>	195	TRKOLLDDGVAAKGA-ATFGTTLDFDCSDEGVKVSVDGTEIGFAP--GLCOAFSDVFLDKDGVSPALRDSIVENSCKRAVAPKSSSSTSD
<i>T. oceanica</i>	236	ALFEALIVAGVNRKGGQADKGTTFRFDCSADGVVSDGSAEPGTASYDGLGALVVOVFTDGRAVSPA----FVSSCKDNWGSPAKRALASS
<i>T. pseudonana</i>	28	-----LASSSSRAEFLPESVAGARAS
<i>S. marinoi</i>	282	RKSSSGDESLESTESTL--IQKKEQAKSKVDVLEVLKAVESKLPVQDAATGVAFDPKLLDDGLYLIGAGSRKRSFKVLYAIAMYASPAV
<i>T. oceanica</i>	322	LMACDDPDAKKTAKTKSKGRAASPAAGGANGGVYAKLAVESRLKPIRDETGVGFAPKLLDDGLYLIGVGARSKFVLYAVSIIYGSPLV
<i>T. pseudonana</i>	49	SLSLKHHTSHGLSLNRLRLLRGGASPTSSSTAKLDAEESKLPVQDAATGVSESPKLLDD-LYLVGVGVRRKSTIKTKYAVSMYASPSV
<i>S. marinoi</i>	370	LHFLSSPOLGEBEFOREASIALRNASRA---LDNLS-PTTSFVLNIVFPVDAKTIAGAIKSVQVRGGSSDVELESLTIEGKRRKGGQ
<i>T. oceanica</i>	412	LNATSKPEPDGGRREAAALRNTRARAFNFS-PTTSVVMEMLLAADARTVSGAIDSVRSRYGGAPGSDVLEGITAEGLKGGK--
<i>T. pseudonana</i>	138	LNALSSLPSCQHRREAAALRNARL---FDNNSAKTIEVLEMMVGVDAKSIASATGDSIKPKRYGSDTIEGLESIAEGLSKGGQ
<i>S. marinoi</i>	456	ANKGTLRFDCSKVGVSVVDGNGLOGIARNDLGRALVDVMDERKAVSPHLESCIKRWCCARA--FTHELEOCKRASKSVKPGFDPFR
<i>T. oceanica</i>	499	AARGKILRFDCSEAGVAVSVGDALVGIASSRGLASAFVDVMDERAVSPGLIDSCLDITWRGRDAVDLSALILEEHVRVTKAIGRPRGDPFR
<i>T. pseudonana</i>	225	ASKGTVRFDCSEDDGVDSVDGKLGSSAKFKVGSFAFVDVETDDNAVSPSLVDSCTDNLSEPAKLSLSEALLEKVMVTAETSVASNGQSPR
<i>S. marinoi</i>	544	LRLKTDPSSTPLASLISKYYLSVPTSDGQ-VLGLTSDQRHNRKLYIEGPNLEQPIORSLISYITEQDFDKLVRILLVVAWVSAPFGLL
<i>T. oceanica</i>	589	VOLKTDPSSTIPKLSLKYILNVPALDKRLLGLTEQDRQRYVA-VYGNELDOPQORSLSFSTIEQDFDKLVRILLVVAWVSAPFGLL
<i>T. pseudonana</i>	315	LRVKSQDPSSTIPIALLSKRYLNVPISTSNKSLGLLAPTRERHNRKLYVYGNELQPPERTLMSYITEQDFDKLVRILLVVAWVSAPFGLV
<i>S. marinoi</i>	633	EVKKEVGEWGHLELLOPLKAPLHLHGHGDDSSHSHTKSS-IADEVVKEAKNLLSGKT-ESEKLEDFGKIDLEALVEPIVITITLIVINA
<i>T. oceanica</i>	678	ELKKEEMDVAGQMLHHLIG----LHFGEA-GGFSASAS-IADEVVNEATTIVGHSGDDTLEKLIKIKHVEALVEPIVITITLIVINA
<i>T. pseudonana</i>	405	ELKKEEMGEWGHLELLOPLVRRMTG-KGSGDAESAPPTSSSTWIASQVVEAKNIVSSEGAQSDGADHFGVKHLEALVEPIVITITLIVINA
<i>S. marinoi</i>	721	LVGGYQSLNASKGISALKQMAKAVVRCRG-NDVDEVELDASSLVPGDVVRLSVGQKIPADIRLVSSTSTFTVDEACLTGESDSVA
<i>T. oceanica</i>	761	LVGGYQSLDASKGISALKQMAKAVIRVSSGDSRSTFDEVEVDSSSLVPGDVVRLSVGQKIPADIRLVSSTSTFTVDEACLTGESDSVA
<i>T. pseudonana</i>	494	LVGGYQSLNASKGISALKQMAKAVIRVHOEKRSALDEVEVDASSLVPGDVVRLVGGQKIPADIRLVSSTSTFTVDEACLTGESDQVP
<i>S. marinoi</i>	810	KIPYKGDNRNDMONG-G-GTMGANSNGMLYGGTVITAGKGLGVVVRTGMDTEMGKIQRGVTEAASDEAHRTPLAIKLEDFGDKLTHII
<i>T. oceanica</i>	851	KIPYKGDPAKDPAPEG-GSSGMEFASGMLYGGTVITSGKGLGVVVRTGMSTEMGKIQRGVTEAASDENARTPLGKLEDFGDMLSVYII
<i>T. pseudonana</i>	584	KIPYKGDVONDEEHNGHGVGSMGXHANGMLYGGTVITAGKGLGVVVRTGMDTEMGKIQCGVTEAASDENARTPLAIKLEDFGDKLTVYII
<i>S. marinoi</i>	898	GHCIVGVWVASIPKFDPTFKQIEGAVYYAKVAVALGVAAL-ORLPAVITLCLSLGTRRMAKRNIVRKLPSVETLGCSTSVICTDKTGT
<i>T. oceanica</i>	940	GHCIAVWVASIPRFDPMFKRSPVEGAVYYAKVAVALGVAALPEGLPAVITLCLSLGTRRMAKRNIVRKLPSVETLGCSTSVICTDKTGT
<i>T. pseudonana</i>	674	GVICAVWVASIPKFDPTFRPTIEGAVYYAKVAVALGVAALPEGLPAVITLCLSLGTRRMAKRNIVRKLQSVETLGCSTSVICTDKTGT
<i>S. marinoi</i>	987	LTTNEMTAVSLVLEDNS----IVEEHAIISGVSYSEPTIDGIEHSVEIQNNEFGALADVAASALCNDAITVGNDAKPAKCTYERIGE
<i>T. oceanica</i>	1030	LTTNEMTAVSLVLEDNS----YVVEEHSISGVSYSPVGTVDGVEHEVELRNPHGAVADAAVSSLCNDAIRKGNNEPGETVKAEDRIGE
<i>T. pseudonana</i>	764	LTTNEMTAVSLVLEDSDEEGGVLYAEHEVSGSYSEPTITGVOHSEIADNPKGSVDVAVAALCNDAITVGNNEPKAASCTYERIGE
<i>S. marinoi</i>	1073	PTEAALCVLAEKLGKRSKASTSESTRSSANVNVWRTEHESQATLEFNDRKMSVLSN---ASSRGNRLLVKGAFNLLERCTHAKI
<i>T. oceanica</i>	1115	PTEAALCVLAEKLGKRSK-KRSSLNDSQASANVNSWRSAHPRTATLEFNDRKMSVLAPEHPPTSSDKGNRLLVKGAFNLLERCTHAKI
<i>T. pseudonana</i>	854	PTEAALCVLAEKLGGRVSTESTAPQPLASANVNCWRLLDHPQATLEFNDRKMSVLSANW---SSSEGNRLLVKGAFNLLERCTHAKI
<i>S. marinoi</i>	1160	RDGKIVKLDGKLRQIEQKTELATRLRCLALAVKETNOLEQSLREYSQE-ADNDRHPLLSDPQNYASIESGLTWGVMGKIDPARPE
<i>T. oceanica</i>	1204	RDGSVVKLDGKLRQIEQKTELASRLRCLGLAVKESANLEQSLRTYSQEDSSPEDECHPLLSDPQNYASIEGLTWGVMGKIDPARPE
<i>T. pseudonana</i>	941	RDGIVVKLDGKLRQIEQKTELATRLRCLALAVKETDLEESLRTYSVDEADDCARHPLLSDPQNYAKIESGLTWGVMGKIDPARPE
<i>S. marinoi</i>	1249	VAESINKCHAAQVVRVIMITGDARTAVAIARDVNILPPSSSGQVVKAYEGREFFVKPEKEQLLELA--GNMFCRAEFPDKQRLIKMLQS
<i>T. oceanica</i>	1294	VANAIKCHDAGVVRVIMITGDARTAVAIARDVNILPPASLGHQIKAYEGREFFKPDDEQLQLLSPGNMVFCAEAPDKQRLIKMLQS
<i>T. pseudonana</i>	1031	VADSIKCHCAGVVRVIMITGDARTAVAIARDVNILPPASSGMIKAYEGREFFKPESEQLQLLSPGNMVFCAEAPDKQRLIKMLQS
<i>S. marinoi</i>	1338	QGETIAMTGD-----GVNDAPALQOASIGIAMGISGTEVSKEADMVLADDNFSTIVAALDEGRSTIYNNMQAFICFLISCNIGEIAAILF
<i>T. oceanica</i>	1384	LDEISAMTGNFYQFHCVSDAPALQOANIGIAMGIGTEVSKEADMVLADDNFSTIVAAVEGRSTIYNNMQAFICFLISCNIGEIAAILF
<i>T. pseudonana</i>	1121	LGETIAMTGD-----GVNDAPALQOASIGIAMGISGTEVSKEADMVLADDNFSTIVAAVEGRSTIYNNMQAFICFLISCNIGEIAAILF
<i>S. marinoi</i>	1423	NAVCGFPEPLSAMHLLWVNLVTDGPPATALGFNPPADVVMQKPRPSDEPIMTKMAFRYLVTGLVYVGTAVGVSFVGHYLSQGVTLHQLS
<i>T. oceanica</i>	1474	SNLCGFPEPLSAMHLLWVNLVTDGPPATALGFNPPADVVMQKPRPSNEPIMTKMAFRYLVTGLVYVGTAVGVSFVSYLTDQGSIKLQLR
<i>T. pseudonana</i>	1206	SAVCGFPEPLSAMHLLWVNLVTDGPPATALGFNPPADVVMQKPRPSNEPIMTKMAFRYLVTGLVYVGTAVGVSFVGHYRSQGVTLHQLS
<i>S. marinoi</i>	1513	SWGKCDQWNSPPDGVTCSLFGQVGRELPQTLSTLVLMELFKALSAVSVSSLETVGPNQNPWLAVAGVAFPLHVAVYVSSKLGLEPG
<i>T. oceanica</i>	1564	SWGKCDQWNSPPDGVTCDLSLFGQVGRELPQTLSTLVLMELFKALSAVSVSSLLAVGPNQNPWLAVAGVAFPLHVAVYVSSKLGLEPG
<i>T. pseudonana</i>	1296	SWGKCDQWNSPPDGVTCDLSLFGQVGRELPQTLSTLVLMELFKALSAVSVSSLLSVGPNQNPWLMTGVAVPLHVAVYVSSKLGLEPG
<i>S. marinoi</i>	1603	LAKSFGLVPLSLHDWETALKWSAPILVIEEHLKRFGRK-R-----
<i>T. oceanica</i>	1654	LAKSFGLVSWA-----RVHRCQRR--V
<i>T. pseudonana</i>	1386	LAKSFGLV-RSLHDWETALKWSAPILVIEEMLKAAGRHRTMQSEAKQIIV

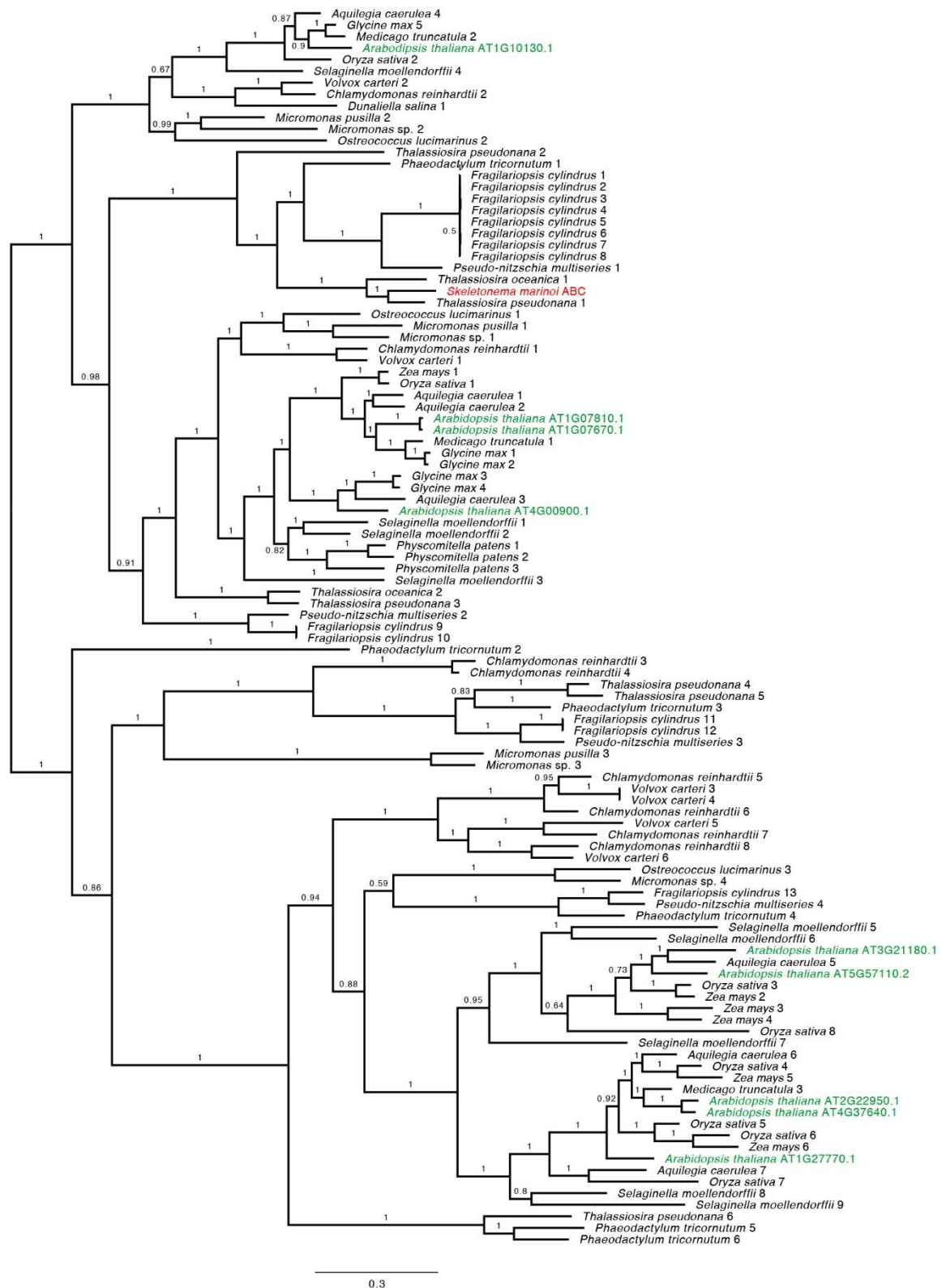
Supplementary Figure 4. Amino acid sequence alignment of the *S. marinoi* FAT1 protein with the orthologs in *T. oceanica* and *T. pseudonana*. The sequence from *T. pseudonana* consists of several ORF predictions (generated using the program getorf in the EMBOSS v6.3.1 package) grafted together after putative intron sequences where removed. Conserved sites are indicated by a black background, and similar amino acids by a grey background.



Supplementary Figure 5. Unrooted phylogenetic tree of the fatty acid-binding (FAB) domains presented in supplementary table SX. Highlighted in red are the two FAB regions found in the *S. marinoi* FAT1 protein. Highlighted in blue are the three domains from *T. oceanica* and *T. pseudonana* that are part of the proteins shown in Supplementary Figure 4. Posterior probability values appear above the branches, and the expected number of changes per site along the branches is indicated by the scale bar.



Supplementary Figure 6. Alignment of the FAB domains identified in green algae, land plants and diatoms and used for the phylogenetic analysis presented in Supplementary Figure 5. The length of the sequences has been adjusted to the length of the two domains found in *S. marinoi*. Numbers above the sequences indicate the positions in the alignment and the background color of the letters indicates size, shape, solubility, and ionization properties of the different amino acids.



Supplementary Figure 7. Unrooted phylogenetic tree of the ABC transporter domains presented in Supplementary Table SX. The position of the *S. marinoi* sequence is highlighted in red and eight homologous domains found in *Arabidopsis thaliana* are highlighted in green. Posterior probability values appear above the branches, and the expected number of changes per site along the branches is indicated by the scale bar.

	1								
Skeletonema_marinoi_ABC	YLSVPTS	DDGQ	V	LGLTS			QDRHNR	LKYIFGPN	ELEQP
Thalassiosira_pseudonana_1									
Thalassiosira_oceanica_1	YLNVPAL	DKG		KTLGLTE			QDRQRRV	AVYGKN	ELDQP
Phaeodactylum_tricornutum_1				EGLSE			SQASARL	VQFGKN	SLEQS
Fragilariopsis_cylindrus_1	TT	TT	DDNY	LF	NGLSS		TKAKQLL	EIYGKN	ELQDL
Fragilariopsis_cylindrus_2				LF	NGLSS		TKAKQLL	EIYGKN	ELQDL
Fragilariopsis_cylindrus_3									
Fragilariopsis_cylindrus_4	TT	TT	DDNY	LF	NGLSS		TKAKQLL	EIYGKN	ELQDL
Fragilariopsis_cylindrus_5	TT	TT	DDNY	LF	NGLSS		TKAKQLL	EIYGKN	ELQDL
Fragilariopsis_cylindrus_6					GLSS		TKAKQLL	EIYGKN	ELQDL
Fragilariopsis_cylindrus_7	TT	TT	DDNY	LF	NGLSS		TKAKQLL	EIYGKN	ELQDL
Fragilariopsis_cylindrus_8								RIYGKN	ELQDL
Pseudo-nitzschia_multiseriata_1									
Thalassiosira_pseudonana_2				MH	TGLSN		QQASALI	SOIGPN	SLOPP
Ostreococcus_lucimarinus_1	DS	D		ET	VGLAS		ASVDDRR	RAGGHN	ELERE
Zea_mays_1	GV	S		AD	RGLSS		EEAAARL	QRHGPN	ELERH
Oryza_sativa_1	GV	A		AD	RGLSS		EEAAARL	RRYGPN	ELERH
Aquilegia_caerulea_1	KV	D		KH	QGLTT		QEVEKRC	QIYGLN	ELEKH
A.thaliana_AT1G07810.1	VV	S		RE	KGLSS		DEVLKRH	QIYGLN	ELEKP
A.thaliana_AT1G07670.1	GV	S		RE	KGLST		DEVLKRH	QIYGLN	ELEKP
Medicago_truncatula_1	KV	S		VK	TGLSH		DEVENRR	KIYGFN	ELEKH
Glycine_max_1	KV	N		VK	VGLNP		DEVENRR	KIHGLN	ELEKH
Glycine_max_2	KV	N		VK	VGLNH		DEVENRR	KIYGLN	ELEKH
Aquilegia_caerulea_2	KV	D		KE	LGLRV		EDVEERR	KIHGLN	ELEKH
Selaginella_moellendorffii_1	IT	D		LA	HGLSK		SSVEKRR	ELYGWN	ELEKE
Physcomitella_patens_1	EV	D		VR	SGLSQ		SSIAKRR	KQYGWN	ELEKE
Physcomitella_patens_2	EV	D		VK	SGLSQ		SSIENRR	KQYGWN	ELEKE
Physcomitella_patens_3	DV	D		PK	KGLSK		SVVQSSR	AKYGWN	ELQKE
Selaginella_moellendorffii_2	GV	D		PS	KGLSG		EEVIARR	ERYGWN	ELKRE
Glycine_max_3	GV	K		LD	KGLST		YEVOKRH	EKYGMN	ELAKE
Glycine_max_4	GV	K		LD	KGLST		YEVOKRL	EKYGWN	ELAKE
Aquilegia_caerulea_3	NV	K		LE	KGLSS		YDVENKR	EKCGWN	ELDKQ
A.thaliana_AT4G00900.1	KT	R		LD	KGLTS		EDVQIRR	OKYGFN	ELAKE
Chlamydomonas_reinhardtii_1	DV	D		PK	TGLTD		QKVEEKR	ATYGYN	ELEKE
Volvox_carteri_1	DV	D		VK	EGLTD		EKVAARR	AQYGYN	ELEKE
Micromonas_pusilla_1	GV	D		PA	NGLTS		AAARDAL	ARHGPN	ELDKE
Micromonas_sp_1	GV	D		PE	TGLDE		TKIAKLR	SEYGFN	ELDKE
Selaginella_moellendorffii_3	DV	D		IS	KGLNR		DAIDKKR	TTYGWN	ELQKP
Thalassiosira_oceanica_2	EV	D		TA	VGLSS		AQVEARR	AEYGWN	ELDKE
Thalassiosira_pseudonana_3	GV	D		LS	KGLST		AEVEAKR	EEFGWN	ELDKE
Pseudo-nitzschia_multiseriata_2	KV	T		LE	QGLSE		ARVEELR	KIHGTN	ELEHE
Fragilariopsis_cylindrus_9	HT	D		LK	SGLST		DRVHALR	ATYGSN	ELEKE
Fragilariopsis_cylindrus_10	HT	D		LK	SGLST		DRVHALR	ATYGSN	ELEKE
Aquilegia_caerulea_4	GV	D		QT	KGLND		SQVANNA	RIYGRN	VLPQE
Glycine_max_5	GV	D		PT	KGLSD		AEVVQHA	RLYGKN	VLAED
Medicago_truncatula_2	GV	D		PT	KGLSD		TQVAQHG	RLYGTN	VLHED
A.thaliana_AT1G10130.1	GV	D		PT	KGLSD		SQVVHHS	RLYGRN	VLPEE
Oryza_sativa_2	GV	D		PT	KGLSD		EQVASGS	KLLVKS	CCWWSMLGFTAKTSCPKKKNITNTPSVYMSVLI
Selaginella_moellendorffii_4	RV	D		PS	HGLAD		SQVEEAR	SLYGCN	GMLQI
Micromonas_pusilla_2	GV	D		PA	VGLSD		REAAALR	ARHGAN	EMPPE
Micromonas_sp_2	AV	D		PS	EGLSA		DDVWRLR	RTWGRN	ELSKG
Volvox_carteri_2	NV	N		LD	AGLSD		TDVFKAR	SRYGRN	ELAPE
Chlamydomonas_reinhardtii_2	NV	D		LD	KGLSD		TDVFKAR	TRYGRN	ELAPE
Dunaliella_salina_1	HV	D		LD	KGLSD		RDVQOAR	IKYGRN	QMEAE
Ostreococcus_lucimarinus_2	GV	LD		LA	HGLDR		ADVQRRR	DACGAN	ALPAQ
Phaeodactylum_tricornutum_2	SV	D		SSSTOLLS	HWST		ROI	STLR	LEFGAN
Chlamydomonas_reinhardtii_3	GS	S		VE	NGLSD		SEAQRRL	QLFGPN	KLTEV

Chlamydomonas reinhardtii_4	--GT	S	AE	NGLST	-----	AEAEERRI	QDFGPN	-----	KLTEV
Thalassiosira pseudonana_4	--GLKE	D	LPK	AGLST	-----	DEAASRI	TKYGP	-----	OMTEK
Thalassiosira pseudonana_5	--SLKD	D	LPK	MGLST	-----	EEACDRI	AKYGP	-----	QMAEK
Fragilariopsis cylindrus_11	--GLPS	D	IRK	KGLTA	-----	AEAQARI	EKYGP	-----	KLTTET
Fragilariopsis cylindrus_12	--GLPS	D	IRK	KGLTA	-----	AEAQARI	EKYGP	-----	KLTTET
Pseudo-nitzschia multiseriis_3	--DLPA	D	IRK	IGLTT	-----	AQAKERI	EKYGP	-----	KLTEK
Phaeodactylum tricorutum_3	--GCSP	N	SRR	EGLTS	-----	QEAARI	ERYGP	-----	QLTEK
Micromonas pusilla_3	--QT	D	KV	KGLTA	-----	AEAARKI	LEDGP	-----	ELEKP
Micromonas sp_3	--QT	N	AE	TGLSA	-----	AEAARKI	EEDGP	-----	ELEKP
Chlamydomonas reinhardtii_5	--VT	D	LH	AGLNE	SPAAAAADGLATAAA	SELGSVEAHR	KAYGP	-----	KFPEK
Chlamydomonas reinhardtii_6	--GT	D	LK	EGLSD	-----	AGVDSK	QAFGV	-----	SFPEK
Volvox carteri_3	--CT	D	LH	HGLTE	-----	QDDKTGVNAHR	AAYGP	-----	TFPEK
Volvox carteri_4	--CT	D	LH	HGLTE	-----	QDDKTGVNAHR	AAYGP	-----	TFPEK
Volvox carteri_5	--GS	S	PD	RGLNP	DPNA	TGHDSVSEHR	RIFGN	-----	KHAEV
Chlamydomonas reinhardtii_7	--SS	S	VE	SLNA	DPQA	AGDSSVLEHR	RVFGN	-----	KHAET
Chlamydomonas reinhardtii_8	--AT	S	LH	EGLDP	-----	STVDAHA	EAYGN	-----	KFKET
Volvox carteri_6	--LS	D	LH	KGLDP	-----	QGQGLASIEAHV	DAYGN	-----	KFPEV
Ostreococcus lucimarinus_3	--GC	D	LK	RGLCD	RA	WASEERK	ESYGV	-----	EFEYP
Micromonas sp_4	--KT	D	PK	VGLCG	TELSE	ESLARRK	EAFGV	-----	EFEYP
Selaginella moellendorffii_5	--ST	S	TK	NGIED	EV	PKIERRR	LLYGS	-----	TYPOQ
A.thaliana_AT3G21180.1	--KS	N	ME	QGINE	DE	KEVIDRK	NAFGS	-----	TYPKK
Aquilegia caerulea_5	--KT	N	PE	KGING	DD	ADILNRK	NTFGS	-----	TYPKK
A.thaliana_AT5G57110.2	--KT	N	PE	KGISG	DD	DDLLKRR	TIYGS	-----	TYPKK
Oryza sativa_3	--KT	D	TE	KGISG	DD	SDLTARR	NAFGS	-----	TYPKK
Zea mays_2	--KT	D	TQ	KGISG	DD	SDLLARR	NAFGS	-----	TYPKK
Zea mays_3	--KS	D	LD	RGLSP	DE	SELMRRR	DIFGN	-----	TYPKK
Zea mays_4	--KS	N	LE	KGVSP	NE	DELLQRK	NVYGS	-----	TYPKK
Selaginella moellendorffii_6	--HV	N	LE	KGIEP	DE	ESVOHRR	EAFGN	-----	SYPTK
Selaginella moellendorffii_7	--KI	D	PQ	KGLDA	TP	VDIKARR	DAFGN	-----	TYPLK
Aquilegia caerulea_6	--CT	S	TA	NGLTT	TG	DLLSRRQ	EIYGN	-----	KFTES
Medicago truncatula_3	--ST	S	AT	EGLSN	DA	DLLDKRQ	QIYGN	-----	KFTES
A.thaliana_AT2G22950.1	--KA	C	PN	AGLSTG	EP	EQLSKRQ	ELFGN	-----	KFAES
A.thaliana_AT4G37640.1	--KA	S	PT	DGLST	EA	AQLSQRQ	ELFGN	-----	KFAES
Oryza sativa_4	--CT	S	PE	DGLPK	SR	RRQAVRE	ELFGN	-----	RFAET
Zea mays_5	--ST	S	AS	DGLDDS	NE	PMTAARQ	ELFGV	-----	RFAEA
Oryza sativa_5	--AT	S	PA	DGLST	AE	ESIKRRQ	DVYGN	-----	KFTES
A.thaliana_AT1G27770.1	--ST	S	IA	SGIST	SE	DLLSVRK	EIYGN	-----	QFTES
Oryza sativa_6	--GT	S	LT	NGIVT	DK	DLLNQRQ	DIYGN	-----	KFAET
Zea mays_6	--AT	S	LA	DGITT	DE	LSLNQRQ	GMYGN	-----	KFTES
Aquilegia caerulea_7	--SV	S	LD	DGVSE	-----	KDLPRRQ	EIYGN	-----	RYVEK
Oryza sativa_7	--KA	S	LE	DGAKE	-----	TDIATRQ	MLYGN	-----	RHAEK
Selaginella moellendorffii_8	--LV	S	LD	DGVSK	-----	DEIDKRR	EAFGS	-----	MYEEK
Selaginella moellendorffii_9	--HVH	G	IE	HGIDP	-----	SELDARR	RAFGS	-----	TYKES
Oryza sativa_8	--AS	G	AE	RGIRG	DD	ADVARRK	KAFGS	-----	TYPKP
Fragilariopsis cylindrus_13	--AT	H	PD	HGAAE	-----	TSINKRR	ELFGS	-----	LLPSS
Pseudo-nitzschia multiseriis_4	--AT	N	RD	HGAAE	-----	STIETRR	ETFGS	-----	VLPST
Phaeodactylum tricorutum_4	--GT	D	PK	AGLDR	-----	ETIETRR	ACFGN	-----	RLPSA
Thalassiosira pseudonana_6	--RS	K	PE	DGITN	EQ	SDIEFRR	EAFGN	-----	AIADK
Phaeodactylum tricorutum_5	--RS	S	PE	VGIFP	-----	SEVEKRR	EAFGS	-----	RIAPK
Phaeodactylum tricorutum_6	--RS	S	PE	SGIDP	-----	REVEHRQ	SVFGS	-----	AIAAK

Fragilariopsis_cylindrus_11	EK	EGLLKKIWNQVNNILVLILVIVAVISVVTA	FVIPS	AV
Fragilariopsis_cylindrus_12	EK	EGLLKKIWNQVNNILVLILVIVAVISVVTA	FVIPS	AV
Pseudo-nitzschia_multiseriis_3	EK	ETLLQKIWNQVNNILVLILVIVAVISLISA	FVIPPE	DI
Phaeodactylum_tricornutum_3	EK	VTLLQRVWKQVNNVVGILVVFVAVVSLAKG	IST	SG
Micromonas_pusilla_3	PR	VSLLVLFLLIQNSVIMYLLMGAVVASAAIKATG		DD
Micromonas_sp_3	PR	VSLLVLFLLIQNSVIMYLLMAAVVASAAIKATG		DD
Chlamydomonas_reinhardtii_5	PP	PNFFMMLLEAAKDPMIIILLVIVAVITIVLGAA	VP	E
Chlamydomonas_reinhardtii_6	PP	PSFLSMLLEAAKDPMIVILLVIVAVITIVLGAA	VP	E
Volvox_carteri_3	PP	PSFLSMLLEASKDPMIIILLVVALVITIVLGAA	VP	E
Volvox_carteri_4	PP	PSFLSMLLEASKDPMIIILLVVALVITIVLGAA	VP	E
Volvox_carteri_5	PP	KNFFVLVWEVVDPIILLIIIAAAVSTILGSA	IP	E
Chlamydomonas_reinhardtii_7	PP	KNFFVLVWEVVDPIILLIIIAAATVSTVLGAA	IP	E
Chlamydomonas_reinhardtii_8	PP	KSFFSLVWENLQDPVIIILCVAAAVSTALGAA	IP	E
Volvox_carteri_6	PP	KSFLALVWGNLQDPVIIILIIAALVSTILGAA	IA	E
Ostreococcus_lucimarinus_3	PP	KSFWEICKDALGDLTVRIILIAASVVS LAVGAG	MK	S
Micromonas_sp_4	PP	KSFLLQCRDALDDLTVOILCVAIIISLGIGAG	LP	K
Selaginella_moellendorffii_5	SP	KGFLAFLWEACODLTLVILGVCAVVS LALA	LA	T
A.thaliana_AT3G21180.1	KG	KNFFMFLWEAWODLTLIILIIAAVTS LALG	IK	T
Aquilegia_caerulea_5	KG	RSFLNPLWEAWODLTLIILMVAAAAS LALG	IK	T
A.thaliana_AT5G57110.2	KG	KGFLRFLWDACHDLTLIILMVAAVAS LALG	IK	T
Oryza_sativa_3	KG	RSFLAFLWDACKDLTLIILMVAAAVS LALG	IT	T
Zea_mays_2	KG	RSFLAFVWDACKDLTLIILMVAAAVS LALG	IT	T
Zea_mays_3	ER	RSIWHFVFEACODLTLVILMVAAAI SFSLG	MA	T
Zea_mays_4	KR	KNILRFVFEACODLTLVILMIAAAI SLTLG	MT	T
Selaginella_moellendorffii_6	AG	KSFV		
Selaginella_moellendorffii_7	KR	IPFYMYVWEALQDETLMLILCAIVS LAVG	LT	T
Aquilegia_caerulea_6	EV	RSFWVFVWEALQDMTLMILGVCAFVSLIVG	LI	M
Medicago_truncatula_3	QA	KSFVWFVWEALQDMTLMILGVCAVSLIVG	IA	T
A.thaliana_AT2G22950.1	EL	RSFWVFVWEALQDMTLMILGVCAFVSLIVG	IA	T
A.thaliana_AT4G37640.1	EM	RGFWVFVWEALQDMTLMILGVCAFVSLIVG	IA	T
Oryza_sativa_4	ES	RSFWVFVWEALQDMTLMILAACAFFSLVVG	IA	T
Zea_mays_5	EP	RSFWVFVWEALQDMTLMILAACALVSLVVG	IA	T
Oryza_sativa_5	EV	RSFWVFVWEALQDTLLIILAVCAFVSLVVG	IA	M
A.thaliana_AT1G27770.1	PS	RGFWLFVWEALQDTLLMILAACAFVSLIVG	IL	M
Oryza_sativa_6	EI	RSFWEFVWEALEDTLLIILSACAFVSLVVG	IT	T
Zea_mays_6	EA	RSLWEFVWEALQDTLLVILIIACALVSVVVG	IA	T
Aquilegia_caerulea_7	PS	KGFFMFVWEALQDLTLMILMVCAVVSIGVVG	LA	T
Oryza_sativa_7	PP	RSFWMFVWDALHDLTLIILVVCAVSVVVG	LA	T
Selaginella_moellendorffii_8	PP	KGFWVFVWEAMHDLTLAILGFCAILSLVIG	VL	T
Selaginella_moellendorffii_9	PQ	RSVFSYILDASQDLTLLIILVVCAVSVVVG	IA	T
Oryza_sativa_8	KP	KGFFRHVWDALADVFLIVLLVCAAVSLAFG	IK	E
Fragilariopsis_cylindrus_13	PR	KSFYQLFIDTFDDATLQILIVAAIVSLCVG	MY	
Pseudo-nitzschia_multiseriis_4	PR	QSFVQLFVDTFDDATLQILIVAAIVSLAIG	IY	
Phaeodactylum_tricornutum_4	PR	KTFGQLFLDTFDDATLQILIVAAIVSLAVG	LY	
Thalassiosira_pseudonana_6	KL	DSFLKLCWNAVDFVLIMLIVLGVIGIVVETTIGLD		PG
Phaeodactylum_tricornutum_5	KI	ESFCKLCWHAIQDFVLVMLIVLGVISIGVEIYS	LE	ND
Phaeodactylum_tricornutum_6	SI	DSFFRLCWEAVDFVLIMLIVLGVISIVIEVGT	LE	DG

Skeletonema_marinoi_ABC AKNILSGKT-ESKELNDFGIKDLLLEALVEPIVITTTILVINALVGGYQSLNASKGISALKEMOASKA--VVRVC-RGG--NDVDEVELDASSLVPDGVRR
 Thalassiosira_pseudonana_1 -----ALVEPIVITTTILVINALVGGYQSLNASKGISALKEMOASKA-----SAIDEVEVDASSLVPDGVVI
 Thalassiosira_oceanica_1 ATTIVTGHSGDDTKLHKIGIKKHVIEALVEPIVITTTILVINALVGGYQSLDASKGISALKSQADKA--VIRVS-SGDR--STFDEVEVDSSSLVPGDITV
 Phaeodactylum_tricornutum_1 EA-----LWKSFVEPLVILAILLVNAAVGVVQSQSASDSLALQRMQSATA--TVLR-----DGVVWSSLEASDLVPGDIE
 Fragilariopsis_cylindrus_1 SS-----IWHRFAPVVISSLLIINAVGVVQSKSASGSEALKAMQPNIC--TVIRN-----NGTEYNDYPSCDLVVGDIII
 Fragilariopsis_cylindrus_2 SS-----IWHRFAPVVISSLLIINAVGVVQSKSASGSEALKAMQPNIC--TVIRN-----NGTEYNDYPSCDLVVGDIII
 Fragilariopsis_cylindrus_3 SS-----IWHRFAPVVISSLLIINAVGVVQSKSASGSEALKAMQPNIC--TVIRN-----NGTEYNDYPSCDLVVGDIII
 Fragilariopsis_cylindrus_4 SS-----IWHRFAPVVISSLLIINAVGVVQSKSASGSEALKAMQPNIC--TVIRN-----NGTEYNDYPSCDLVVGDIII
 Fragilariopsis_cylindrus_5 SS-----IWHRFAPVVISSLLIINAVGVVQSKSASGSEALKAMQPNIC--TVIRN-----NGTEYNDYPSCDLVVGDIII
 Fragilariopsis_cylindrus_6 SS-----IWHRFAPVVISSLLIINAVGVVQSKSASGSEALKAMQPNIC--TVIRN-----NGTEYNDYPSCDLVVGDIII
 Fragilariopsis_cylindrus_7 SS-----IWHRFAPVVISSLLIINAVGVVQSKSASGSEALKAMQPNIC--TVIRN-----NGTEYNDYPSCDLVVGDIII
 Fragilariopsis_cylindrus_8 SS-----IWHRFAPVVISSLLIINAVGVVQSKSASGSEALKAMQPNIC--TVIRN-----NGTEYNDYPSCDLVVGDIII
 Pseudo-nitzschia_multiseriata_1 ES-----LWHRFAEPIVSSLLVINASVGVVQSKSAGNSIEALKAMQPSVC-----TAEIADYPSADLVPGDLIV
 Thalassiosira_pseudonana_2 ST-----IQSFVEPFIIVAILLLNACVGVVQDLARSSELEALKKMPRKA--TVLRYDEDTNNNYSDWITDYDATQLVPGDIIR
 Ostreococcus_lucimarinus_1 EE-----GLAAYAEPVAVIALILVNAIVGVVQESNAERALDALKEMOSEHA--KCLR-----DGRWNGSLEARELVPGDVVE
 Zea_mays_1 EV-----GLTAFVEPLVIFLILIVNAVGVVQESNAEKALEALKEIQSEHA--TVRR-----DGRWSHGLPARDLVPGDIVE
 Oryza_sativa_1 EV-----GATAFVEPLVIFLILIVNAVGVVQESNAEKALEALKEIQSEHA--TVKR-----DGRWSHGLPARDLVPGDIVE
 Aquilegia_caerulea_1 EM-----GITAFVEPLVIFLILIVNAVGVVQETNAEKALEALKEIQSEHA--NVIR-----NGKRIPLPAKELVPGDIVE
 A.thaliana_AT1G07810.1 EM-----GITAFVEPLVIFLILIVNAVGIWQETNAEKALEALKEIQSOQA--TVMR-----DGTKVSSLPKELVPGDIVE
 A.thaliana_AT1G07670.1 EM-----GITAFVEPLVIFLILIVNAVGIWQETNAEKALEALKEIQSOQA--TVMR-----DGTKVSSLPKELVPGDIVE
 Medicago_truncatula_1 EM-----EITAFVEPLVIFLILIVNAVGVVQESNAEKALEALKEIQSEQA--SVIR-----NNEKIPSLPAKDLVPGDIVE
 Glycine_max_1 EM-----EITAFVEPLVIFLILIVNAVGVVQESNAEKALDALKEIQSEHA--VVIR-----EGAKIPNLPAKELVPGDIVE
 Glycine_max_2 EM-----EITAFVEPLVIFLILIVNAVGVVQESNAEKALDALKEIQSEHA--VVIR-----EGAKIPNLPAKELVPGDIVE
 Aquilegia_caerulea_2 EM-----GITAFVEPLVIFLILIVNAVGVVQESNAEKALEALKEIQSEHA--TVIR-----EGKIHNLPAKELVPGDIVE
 Selaginella_moellendorffii_1 ES-----DLTAYVEPLVIFLILIVNAVGVVQETNAESALEALKEMOSEHA--KCLR-----DGHWIPDLAARELVPGDVVE
 Physcomitella_patens_1 TS-----GIGAYVEPLVIFLILILNAVGVVQESNAENALEALKEMOSEHA--KVFR-----DGKISDLPAELVPGDIVE
 Physcomitella_patens_2 ES-----GIGAYVEPLVIFLILILNAVGVVQESNAERALEALEEMOSEHA--KVIR-----DGEFISNLPAELVPGDIVE
 Physcomitella_patens_3 EE-----GATAYVEPMVIMLILNAVGVVQESNAENALEALKEMOSEQA--EVIR-----DGVVSSLPKELVPGDIVE
 Selaginella_moellendorffii_2 ES-----ELTAYVEPLVIMLILNAVGVVQESNAERALEALKEMOSEHA--KCLR-----DGLLGLDLPARELVPGDVVE
 Glycine_max_3 ES-----GFEAYVEPLVILILVNAIVGVVQENNAEKALEALKEIQSESG--KCLR-----DGYFVPLPAKELVPGDIVE
 Glycine_max_4 ES-----GFEAYVEPLVILILVNAIVGVVQENNAEKALEALKEIQSESA--KCLR-----DGYFVPLPAKELVPGDIVE
 Aquilegia_caerulea_3 EA-----GFEAYVEPFVIVLILVNAIVGVVQETNAEKALEALKEIQSESA--KCLR-----DGNVPLNLPARELVPGDIVE
 A.thaliana_AT4G00900.1 GS-----GFEAFVEPFVIVLILILNAVGVVQESNAEKALEALKEMOSESA--KCLR-----DGNVPLNLPARELVPGDIVE
 Chlamydomonas_reinhardtii_1 EE-----GLRAFIEPLVILLILILNAVGVVQESNAESALEALKEIQSEHA--HVTR-----NGKMSDLPSRELLVPGDIVH
 Volvox_carteri_1 EE-----GIRAFIEPLVILLILILNAVGVVQESNAESALEALKEIQSEHA--HVTR-----NGKMSDLPAELVPGDVVH
 Micromonas_pusilla_1 PI-----DLVDFVEPGVILLILILNAVGVVQESNAENALEALKEMOSEDTA--RVLR-----DGKWDHAFQARDLVPGDVVE
 Micromonas_sp_1 EL-----SLVDFVEPGVILLILILVNAIVGVVQESNAESALEALKEMOSEHA--RCLR-----AGEWISDLPAELVPGDVVE
 Selaginella_moellendorffii_3 KL-----GPGAFTEPLVILSIIILNAVGVVQESKAESTLQALKEMOSEHA--RVLR-----DGKEIVDLPAELVPGDIVE
 Thalassiosira_oceanica_2 EE-----GILAYIEPIVILVILVNAIVGVVQENNAEAALKEALKEIQSEHA--RVLR-----DGKMGTVCSRELVPDIVE
 Thalassiosira_pseudonana_3 EE-----GILAYIEPIVILILILNAVGVVQESNAEAALKEALKEIQSEHA--RVLR-----DGKMATINSREIVPGDIE
 Pseudo-nitzschia_multiseriata_2 DH-----WVEAFVEPAVILLILILNAVGVVQESNAENALEALKMQSLHA--PCLR-----DGVVHDALPTEELVPGDIVK
 Fragilariopsis_cylindrus_9 GH-----WIEAFVEPAVILLILILNAVGVVQESNAENALEALKMQSLHT--PCLR-----GGIWDQLPTEELVPGDIVK
 Fragilariopsis_cylindrus_10 GH-----WIEAFVEPAVILLILILNAVGVVQESNAENALEALKMQSLHT--PCLR-----GGIWDQLPTEELVPGDIVK
 Aquilegia_caerulea_4 ET-----GLTAFLEPFVILLILAANAAGVITETNAEKALEELRAYQADVA--TVLR-----NGC-FSILPATLVPDIVE
 Glycine_max_5 ET-----GLMAFLEPVSILMILAANAAGVITETNAEKALEELRAYQADVA--TVLR-----NGC-FSILPATLVPDIVE
 Medicago_truncatula_2 ET-----GLMAFLEPVSILMILAANAAGVITETNAEKALEELRAYQADVA--TVLR-----NGC-FSILPATLVPDIVE
 A.thaliana_AT1G10130.1 ET-----GLTAFLEPFVILLILAANAAGVITETNAEKALEELRAYQANIA--TVLR-----NGC-FSILPATLVPDIVE
 Oryza_sativa_2 ET-----GLAAFLEPVSIFLILAANAAGVITETNAEKALEELRAYQADVA--TVLR-----NGC-FSILPATLVPDIVE
 Selaginella_moellendorffii_4 ET-----GPTAFVEPFVILLILAANAAGVITETNAEKALKEELKAYQADVA--TVLR-----NGI-LSIVPASNLVPGDIVE
 Micromonas_pusilla_2 D-----GSGAFVEPGVIVLILVANATVGVVTERNAERALEELKAYQANLA--TVLR-----SGR-LKVLPAELVPGDVVE
 Micromonas_sp_2 E-----GIYSLIEPVSIVACILIANAVGVVMTETNAERALEELKAYQADVA--TVCR-----GGS-LTVCPAAELVPGDIVE
 Volvox_carteri_2 EG-----VLGALVEPFVIVLILVANATVGVVTERNAEQALEELKAYEESA--TVLR-----SGV-LQLVPSGDLVPGDVVE
 Chlamydomonas_reinhardtii_2 EG-----VLGSLVEPFVILILIANATVGVVTERNAEQALEELKAYEESA--TVLR-----NGV-LQLVPGADLVPGDVVE
 Dunaliella_salina_1 ES-----IQSGLIEPMVILLILVANATVGVVTERNAEKALEELKYSYE-----
 Ostreococcus_lucimarinus_2 EG-----GSEAFLEPGVIVAILIANAAGVATEKNAERALEELKYEADVA--TCTR-----DGE-KRKVNAAELVPGDIVE
 Phaeodactylum_tricornutum_2 -----NOSEAISIAFALLIVSMVAAVQEYRSEAALEKATLAVPHTC--TVLR-----DGOVIDGFFAKELVGDIVL
 Chlamydomonas_reinhardtii_3 -----AESWAEFGLIIGVIVINTALGLYQEGRAEKAAADAIKALLSPNA--TVLR-----DGO-AAVLPAESLVPDIVL
 Chlamydomonas_reinhardtii_4 -----AESWAEFGLIIGVIVINTALGLYQEGRAEKAAADAIKALLSPNA--TVLR-----DGO-AAVLPAESLVPDIVL
 Thalassiosira_pseudonana_4 NT-----RFTAWFQVALIVSVITLNTWIGIYQEGNAEKAAADALKNMLSTDA--RVIR-----GGK-EVMIPAGDIVPGDVCL
 Thalassiosira_pseudonana_5 -----FTAWFQVALIVSVITLNTWIGIYQEGNAEKAAADALKNMLSTDA--RVIR-----SGK-EIMISAGEIVPGDVCL

Fragilariopsis_cylindrus_11	NP	-----	TYTNWIQVAIIVGVIVANTVIGIVQEGSAENAAEALKNMLSSDA	VLVR	-----	DGV	ETKVP SQFIVPGDVVV
Fragilariopsis_cylindrus_12	NP	-----	TYTNWIQVAIIVGVIVANTVIGIVQEGSAENAAEALKNMLSSDA	VLVR	-----	DGV	ETKVP SQFIVPGDVVV
Pseudo-nitzschia_multiseriata_3	NP	-----	RYTNFIQIGIILGVIVINTIIGLIQEGSAEAAEALKNMLSSDA	IVIR	-----	DGV	TTKVP AQLLVPGDAVI
Phaeodactylum_tricornutum_3	ED	-----	RVTNFIQIGIILGVIVINTIIGLIQEGSAEAAEALKNMLSSDA	ILIR	-----	DGK	EVKIPASDVVPGDVVV
Micromonas_pusilla_3	KD	-----	QFLSYIDSIATIIIVFINASIAAKAENNALEALSSLOQAPIS	TLIR	-----	DGE	EIRVESSDIVRGDLVK
Micromonas_sp_3	KD	-----	KFLSYVDSIAISIIILINATIAAVTENSANDALEALSSLOSPMC	TVIR	-----	GGE	EVSIESKNMVRGDIVK
Chlamydomonas_reinhardtii_5	QR	-----	AHQGWSEGLAVLGTALIVIFLIGAGQDFSKERQFQKLNALKDNIDV	KVTR	-----	GK	QVLVPNTEVVVGDIMF
Chlamydomonas_reinhardtii_6	QR	-----	AHQGWSEGLAVLGTALIVVFIGAGQDYSKERQFQKLNALKDNIEV	KVTR	-----	GK	QVLVPNTEVVVGDIMF
Volvox_carteri_3	QR	-----	AHDGWSSEGLAVLGTALIVIFLIGAGQDYSKERQFQKLNALKDNIDV	KVTR	-----	SGR	QVLVPNTEVVVGDILF
Volvox_carteri_4	QR	-----	AHDGWSSEGLAVLGTALIVIFLIGAGQDYSKERQFQKLNALKDNIDV	KVTR	-----	SGR	QVLVPNTEVVVGDILF
Volvox_carteri_5	ER	-----	KKNHWIEGVAVIIVVAVIVVTLVGAGNDYSKDLQFRKLNALKDNIDV	KVTR	-----	GGE	QILVNTDLVVGDIVI
Chlamydomonas_reinhardtii_7	ER	-----	AKSAWVEGVAVIIVVAVIVVTLVGAGNDYSKDLQFRKLNALKDNIEI	KVTR	-----	GGE	QILVNTDLVVGDIVI
Chlamydomonas_reinhardtii_8	QR	-----	KHGEWIEGVAVIIVVAVIVVTLVGAGNDYSKDLQFRKLNALKDNIMV	KVTR	-----	GGE	QILVNTDLVVGDIVI
Volvox_carteri_6	QR	-----	KHGEWIEGVAVIIVVAVIVVTLVGAGNDYSKDLQFRKLNALKDNIMV	KVTR	-----	GGE	QILVNTDLVVGDIVI
Ostreococcus_lucimarinus_3	HR	-----	EEYGYLEGIAIVLVVVFVVFVLFQAFIDYAKEMKFRQLNSVKNYQV	KVHR	-----	DGK	SVAVPAGEIMVGDIVE
Micromonas_sp_4	HR	-----	EEYGYLEGIAIVLVVVFVVFVLFQAFIDYAKEMKFRQLNSVKNYQV	KVHR	-----	DGK	SVAVPAGEIMVGDIVE
Selaginella_moellendorffii_5	KV	-----	KFASWYDGLIAFVAVLVVVFVVFVLFQAFIDYAKEMKFRQLNSVKNYQV	KVHR	-----	DGK	SVAVPAGEIMVGDIVE
A.thaliana_AT3G21180.1	EG	-----	LKEGWLDGGSIAFAVLLVIVVTAIVSDYRQSLQFQNLNDEKRNIOI	EVMR	-----	GGR	TVKISIVYDVVGDVIP
Aquilegia_caerulea_5	EG	-----	LKEGWLDGGSIAFAVLLVIVVTAIVSDYRQSLQFQNLNDEKRNIOI	EVMR	-----	GGR	TVKISIVYDVVGDVIP
A.thaliana_AT5G57110.2	EG	-----	LKEGWLDGGSIAFAVLLVIVVTAIVSDYRQSLQFQNLNDEKRNIOI	EVMR	-----	GGR	TVKISIVYDVVGDVIP
Oryza_sativa_3	EG	-----	LKEGWLDGGSIAFAVLLVIVVTAIVSDYRQSLQFQNLNDEKRNIOI	EVMR	-----	GGR	TVKISIVYDVVGDVIP
Zea_mays_2	EG	-----	LKEGWLDGGSIAFAVLLVIVVTAIVSDYRQSLQFQNLNDEKRNIOI	EVMR	-----	GGR	TVKISIVYDVVGDVIP
Zea_mays_3	EG	-----	LKEGWLDGGSIAFAVLLVIVVTAIVSDYRQSLQFQNLNDEKRNIOI	EVMR	-----	GGR	TVKISIVYDVVGDVIP
Zea_mays_4	EG	-----	LKEGWLDGGSIAFAVLLVIVVTAIVSDYRQSLQFQNLNDEKRNIOI	EVMR	-----	GGR	TVKISIVYDVVGDVIP
Selaginella_moellendorffii_6	EA	-----	RWYDGGGICFAIVVCMVAVSLSDYNQANQFQKLSAEKRKIYI	NVTR	-----	GGE	RTKVSIFELVVGDMVH
Selaginella_moellendorffii_7	EA	-----	RWYDGGGICFAIVVCMVAVSLSDYNQANQFQKLSAEKRKIYI	NVTR	-----	GGE	RTKVSIFELVVGDMVH
Aquilegia_caerulea_6	EG	-----	WPKGAHDGLGIAASILLVVFVTAIVSDYRQSLQFQNLNDEKRNIOI	EVMR	-----	GGR	TVKISIVYDVVGDVIP
Medicago_truncatula_3	EG	-----	WPKGAHDGLGIAASILLVVFVTAIVSDYRQSLQFQNLNDEKRNIOI	EVMR	-----	GGR	TVKISIVYDVVGDVIP
A.thaliana_AT2G22950.1	EG	-----	WPKGAHDGLGIAASILLVVFVTAIVSDYRQSLQFQNLNDEKRNIOI	EVMR	-----	GGR	TVKISIVYDVVGDVIP
A.thaliana_AT4G37640.1	EG	-----	WPKGAHDGLGIAASILLVVFVTAIVSDYRQSLQFQNLNDEKRNIOI	EVMR	-----	GGR	TVKISIVYDVVGDVIP
Oryza_sativa_4	EG	-----	WPKGAHDGLGIAASILLVVFVTAIVSDYRQSLQFQNLNDEKRNIOI	EVMR	-----	GGR	TVKISIVYDVVGDVIP
Zea_mays_5	EG	-----	WPKGAHDGLGIAASILLVVFVTAIVSDYRQSLQFQNLNDEKRNIOI	EVMR	-----	GGR	TVKISIVYDVVGDVIP
Oryza_sativa_5	EG	-----	WPKGAHDGLGIAASILLVVFVTAIVSDYRQSLQFQNLNDEKRNIOI	EVMR	-----	GGR	TVKISIVYDVVGDVIP
A.thaliana_AT1G27770.1	EG	-----	WPKGAHDGLGIAASILLVVFVTAIVSDYRQSLQFQNLNDEKRNIOI	EVMR	-----	GGR	TVKISIVYDVVGDVIP
Oryza_sativa_6	EG	-----	WPKGAHDGLGIAASILLVVFVTAIVSDYRQSLQFQNLNDEKRNIOI	EVMR	-----	GGR	TVKISIVYDVVGDVIP
Zea_mays_6	EG	-----	WPKGAHDGLGIAASILLVVFVTAIVSDYRQSLQFQNLNDEKRNIOI	EVMR	-----	GGR	TVKISIVYDVVGDVIP
Aquilegia_caerulea_7	EG	-----	WPKGAHDGLGIAASILLVVFVTAIVSDYRQSLQFQNLNDEKRNIOI	EVMR	-----	GGR	TVKISIVYDVVGDVIP
Oryza_sativa_7	EG	-----	WPKGAHDGLGIAASILLVVFVTAIVSDYRQSLQFQNLNDEKRNIOI	EVMR	-----	GGR	TVKISIVYDVVGDVIP
Selaginella_moellendorffii_8	EG	-----	WPKGAHDGLGIAASILLVVFVTAIVSDYRQSLQFQNLNDEKRNIOI	EVMR	-----	GGR	TVKISIVYDVVGDVIP
Selaginella_moellendorffii_9	EG	-----	WPKGAHDGLGIAASILLVVFVTAIVSDYRQSLQFQNLNDEKRNIOI	EVMR	-----	GGR	TVKISIVYDVVGDVIP
Oryza_sativa_8	EG	-----	WPKGAHDGLGIAASILLVVFVTAIVSDYRQSLQFQNLNDEKRNIOI	EVMR	-----	GGR	TVKISIVYDVVGDVIP
Fragilariopsis_cylindrus_13	DD	-----	PAAGYVEGMAILSACLIVSVVVTALNDYQKETQFRELVAANDEIDV	LVIR	-----	SGK	FQKIPVGGELVVGDLVS
Pseudo-nitzschia_multiseriata_4	DD	-----	PEVGYVEGMAILSACLIVSVVVTALNDYQKETQFRELVAANDEIDV	LVIR	-----	SGK	FQKIPVGGELVVGDLVS
Phaeodactylum_tricornutum_4	DD	-----	PATGYVEGMAILSACLIVSVVVTALNDYQKETQFRELVAANDEIDV	LVIR	-----	SGK	FQKIPVGGELVVGDLVS
Thalassiosira_pseudonana_6	EK	-----	CGMCWLEGAAILASVCIVVLTAVNDYQKETQFRELVAANDEIDV	LVIR	-----	NNV	HWQIPVGGELVVGDLVS
Phaeodactylum_tricornutum_5	EE	-----	CTTCWIEGAAILASVCIVVLTAVNDYQKETQFRELVAANDEIDV	LVIR	-----	NNV	HWQIPVGGELVVGDLVS
Phaeodactylum_tricornutum_6	ED	-----	CKTCWIEGAAILASVCIVVLTAVNDYQKETQFRELVAANDEIDV	LVIR	-----	NNV	HWQIPVGGELVVGDLVS

Skeletonema_marinoi_ABC	LSVGG	-KIPADIRLVSV	ST	-SS	FTVDEACTLGS	SDSVNKIPYK	-	GD	TKNDDMO	NG	-	-	GGTMGANSNGMLYG	-
Thalassiosira_pseudonana_1	LTVGG	-KIPADIRLMSV	ST	-ST	FTVDEACTLGS	SDSVKIPYK	-	GD	VQNDDEEH	-	-	-	NGHHANGMLYG	-
Thalassiosira_oceanica_1	LSIGE	-KVPADIRLVSV	ST	-ST	FTVDEACTLGS	SDSVAKTIPYK	-	GD	PAKDPAP	EG	-	-	GSGSGEFASGMLYG	-
Phaeodactylum_tricornutum_1	LRVGD	-KIPADSRLLSL	QS	-SS	LQIDEGSLTGS	SVTVGKLP	-	-	GDEG	RA	-	-	DSPNRPVQDKGMLYS	-
Fragilariopsis_cylindrus_1	LKTGD	-KIPADARLVSY	YKGRRT	-	LMVDEASLTGS	SISVEKLICD	NNNDG	TTTOSKEE	SN	-	-	-	NSISNHQFNDGMCYS	-
Fragilariopsis_cylindrus_2	LKTGD	-KIPADARLVSY	YKGRRT	-	LMVDEASLTGS	SISVEKLICD	NNNDG	TTTOSKEE	SN	-	-	-	NSISNHQFNDGMCYS	-
Fragilariopsis_cylindrus_3	LKTGD	-KIPADARLVSY	YKGRRT	-	LMVDEASLTGS	SISVEKLICD	NNNDG	TTTOSKEE	SN	-	-	-	NSISNHQFNDGMCYS	-
Fragilariopsis_cylindrus_4	LKTGD	-KIPADARLVSY	YKGRRT	-	LMVDEASLTGS	SISVEKLICD	NNNDG	TTTOSKEE	SN	-	-	-	NSISNHQFNDGMCYS	-
Fragilariopsis_cylindrus_5	LKTGD	-KIPADARLVSY	YKGRRT	-	LMVDEASLTGS	SISVEKLICD	NNNDG	TTTOSKEE	SN	-	-	-	NSISNHQFNDGMCYS	-
Fragilariopsis_cylindrus_6	LKTGD	-KIPADARLVSY	YKGRRT	-	LMVDEASLTGS	SISVEKLICD	NNNDG	TTTOSKEE	SN	-	-	-	NSISNHQFNDGMCYS	-
Fragilariopsis_cylindrus_7	LKTGD	-KIPADARLVSY	YKGRRT	-	LMVDEASLTGS	SISVEKLICD	NNNDG	TTTOSKEE	SN	-	-	-	NSISNHQFNDGMCYS	-
Fragilariopsis_cylindrus_8	LKTGD	-KIPADARLVSY	YKGRRT	-	LMVDEASLTGS	SISVEKLICD	NNNDG	TTTOSKEE	SN	-	-	-	NSISNHQFNDGMCYS	-
Pseudo-nitzschia_multiseriata_1	LKTGD	-KIPADCRVRY	YQGRRS	-	LAVDETCLTGS	IAVEKLL	-	GOEG	LA	-	-	-	PSKAPVQSOSGMVFS	-
Thalassiosira_pseudonana_2	LRVGE	-YIPADARLASL	TS	-ST	MYVDESSLTGS	SVSVGKLP	-	GDEG	LPAG	-	-	-	DDKKTIPIDQSSMLFS	-
Ostreococcus_lucimarinus_1	LKTGD	-RVPADCRVIRL	KT	-AT	VRVEQASLTGS	SVAVDK	-	RVES	VK	-	-	-	DEDIELOGKTCMLFA	-
Zea_mays_1	LRVGD	-KVPADMRVLOL	IS	-ST	LRVEQGSLTGS	TASVNK	-	TSHK	IE	-	-	-	LEDTDIOGKECMVFA	-
Oryza_sativa_1	LRVGD	-KVPADMRVLOL	IS	-ST	LRVEQGSLTGS	TASVNK	-	TSHK	IE	-	-	-	LEDTDIOGKECMVFA	-
Aquilegia_caerulea_1	LRVGD	-KIPADLRLLTL	IT	-ST	VRVEQSSLTGS	EAVNK	-	TNKP	VS	-	-	-	VDTDIQKRCMLFA	-
A.thaliana_AT1G07810.1	LRVGD	-KVPADMRVVAL	IS	-ST	LRVEQGSLTGS	EAVSK	-	TKH	VD	-	-	-	E-NADIOGKCMVFA	-
A.thaliana_AT1G07670.1	LRVGD	-KVPADMRVVAL	IS	-ST	LRVEQGSLTGS	EAVSK	-	TKH	VD	-	-	-	E-NADIOGKCMVFA	-
Medicago_truncatula_1	LKVG	-KVPADMRVVVL	IS	-ST	LRLEQGSLTGS	EAVNK	-	TNKP	VA	-	-	-	E-DADIOGKCKIVFA	-
Glycine_max_1	LKVG	-KVPADMRVVVL	IS	-ST	LRLEQGSLTGS	EAVNK	-	TNKR	VD	-	-	-	E-DADIOGKRCMVFA	-
Glycine_max_2	LKVG	-KVPADMRVVVL	IS	-ST	LRLEQGSLTGS	EAVNK	-	TNKR	VD	-	-	-	E-DADIOGKRCMVFA	-
Aquilegia_caerulea_2	LRVGD	-KVPADMRVLSL	IS	-ST	LRLEQGSLTGS	EAVNK	-	TNKA	VA	-	-	-	VETDIOGKCMVFA	-
Selaginella_moellendorffii_1	LRVGD	-KVPADMRIAVL	RT	-ST	LRVEQSSLTGS	AAVVK	-	STQA	VE	-	-	-	LADVELQAKECMVFS	-
Physcomitella_patens_1	LRVGD	-KVPADMRIIVKL	KT	-ST	VRVEQSSLTGS	SMSVTK	-	TSYA	VE	-	-	-	ENIELQGKECMVFA	-
Physcomitella_patens_2	LRVGD	-KVPADMRIIVKL	KT	-ST	VRVEQSSLTGS	SMSVTK	-	TTNS	VK	-	-	-	ENIELQGKECMVFA	-
Physcomitella_patens_3	LRVGD	-KVPADMRIIVSL	KT	-ST	VRVEQSSLTGS	SMAVLK	-	SNQN	VE	-	-	-	EELIQGKCMVFA	-
Selaginella_moellendorffii_2	LRVGD	-KVPADMRIASL	KT	-ST	FRIEQSSLTGS	SVPVIK	-	GLOA	VE	-	-	-	SEDIQKDCMVFA	-
Glycine_max_3	LHVGD	-KVPADMRVAAL	KT	-ST	LRVEQSSLTGS	EAMPVLK	-	GTNP	VF	-	-	-	LDDCELOAKENMVFA	-
Glycine_max_4	LHVGD	-KVPADMRVAAL	KT	-SI	LRVEQSSLTGS	EAMPVLK	-	GTNP	VF	-	-	-	LDDCELOAKENMVFA	-
Aquilegia_caerulea_3	LRVGD	-KVPADMRVAVL	KT	-SI	LRVEQSSLTGS	EAMPVIK	-	STNP	VF	-	-	-	MDDCELOAKENMVFA	-
A.thaliana_AT4G00900.1	LNVGD	-KVPADMRVSSL	KT	-ST	LRVEQSSLTGS	EAMPVLK	-	GANL	VV	-	-	-	MDDCELOGKENMVFA	-
Chlamydomonas_reinhardtii_1	LHVGD	-RVPADCRVVAL	RT	-AT	CRVEQASLTGS	SVAVNK	-	GSDP	VA	-	-	-	DPNCELOAKECMLFA	-
Volvox_carteri_1	LHVGD	-KVPADCRMVAL	KT	-AT	VRAEQASLTGS	SVAVNK	-	STDP	VA	-	-	-	DPNCELOAKECMVFA	-
Micromonas_pusilla_1	VRTGD	-RVPADARVVTL	KT	-AT	IRLEQASLTGS	SVAVNK	-	DIDA	ID	-	-	-	DPDAELOAKECMLFG	-
Micromonas_sp_1	VRTGD	-RVPADCRVIRL	KT	-AT	IRLEQASLTGS	SVAVNK	-	TTEP	VA	-	-	-	DAGCELOGKECVLFG	-
Selaginella_moellendorffii_3	LRAGD	-KASADMVAVFL	KS	-GT	IRLQQAALTGS	SQPVLK	-	QPDS	ES	-	-	-	DEEVEIQGKDNMVFA	-
Thalassiosira_oceanica_2	VKVG	-RVPADTRVSEL	RT	-TS	LRIDQSALTGS	SQSVAK	-	DPAAP	NVK	-	-	-	DDELVVQAKTNMIFA	-
Thalassiosira_pseudonana_3	VKVG	-RVPADTRVTEL	RT	-TS	LRIDQSALTGS	SQSVAK	-	FPEVP	NVG	-	-	-	EDELVVQAKTNMIFA	-
Pseudo-nitzschia_multiseriata_2	ISVGD	-RAPADVRICKL	IT	-AT	LRSDEGALTGS	SETVLK	-	TSNA	IA	-	-	-	S-GEKISDQKNMVFA	-
Fragilariopsis_cylindrus_9	ISVGD	-RSPADCRVLSF	IT	-AT	LRADEGALTGS	SETVLK	-	QLEP	TSSN	-	-	-	SSNKSSISDQKNMVFA	-
Fragilariopsis_cylindrus_10	ISVGD	-RSPADCRVLSF	IT	-AT	LRADEGALTGS	SETVLK	-	QLEP	TSSN	-	-	-	SSNKSSISDQKNMVFA	-
Aquilegia_caerulea_4	VGVC	-KVPADMRTVEM	LG	-NQ	LRVDQAILTGS	ECSVAK	-	ELES	TS	-	-	-	ATNAVFDKTNILFS	-
Glycine_max_5	VSVGC	-KIPADMRMIEM	LS	-NQ	VRVDQAILTGS	SSSVEK	-	ELKT	TT	-	-	-	TTNAVYQDKTNILFS	-
Medicago_truncatula_2	VSVGC	-KIPADMRMIEM	LS	-NE	VRVDQAILTGS	SSSVEK	-	ELKT	TT	-	-	-	AANAVYQDKTNILFS	-
A.thaliana_AT1G10130.1	VTVGD	-KIPADLRMIEM	SS	-NT	FRVDQAILTGS	ECSVAK	-	DVDC	TL	-	-	-	TTNAVYQDKKNILFS	-
Oryza_sativa_2	VGVC	-KVPADMRMIEM	LS	-HQ	LRVDQAILTGS	ECSVAK	-	ELES	TS	-	-	-	TMNAVYQDKTNILFS	SNITNRDN
Selaginella_moellendorffii_4	VAVGC	-KVPADMRVIDM	LS	-SS	ALRVDQAILTGS	SSSVAK	-	ELEE	NP	-	-	-	VINPVYQDKTILFS	-
Micromonas_pusilla_2	CVVGN	-KVPADVRLVSI	AS	-ST	FRVDQSILTGS	SGSVSK	-	ELTP	CA	-	-	-	SAKAVVQDKTCMLYS	-
Micromonas_sp_2	LAVGD	-RIPADIRLSGI	VG	-ST	FRVDQAPLTS	GESEVTK	-	TIEK	IA	-	-	-	ATKAVLQDKTICAFS	-
Volvox_carteri_2	VAVGA	-KVPADIRLTAL	IG	-SV	LRADQSILTGS	ESHTVDK	-	QVRP	VL	-	-	-	KDNPVYQDKTNMLFS	-
Chlamydomonas_reinhardtii_2	VAVGA	-KVPADTRLAGL	LG	-NV	LRVDQSILTGS	ESHVSK	-	QVRP	VL	-	-	-	KDNPVYQDKTNMMFS	-
Dunaliella_salina_1	-VLGN	-KVPADTRVAHV	YT	-SS	LKTDSLLTGS	ESHAVEK	-	HTEV	VH	-	-	-	NKQAVYQDKLNMLFS	-
Ostreococcus_lucimarinus_2	IATGE	-KVPADCRVLKI	HS	-NV	LRCDAQLLTGS	SGSVAK	-	TERA	VE	-	-	-	HLGECVLQDKTCMVFS	-
Phaeodactylum_tricornutum_2	LATGD	-RVPADCRVV	DS	-VE	LILDESSLTGS	ENHPVAK	-	TGEG	VVL	-	-	-	GASPLTQKKNVFA	-
Chlamydomonas_reinhardtii_3	LKSGD	-KVPADVRLI	SA	-VN	LOVQEAMLTGS	SVPVSK	-	VLHP	-	-	-	-	APAQAGLDRKCMCF	-
Chlamydomonas_reinhardtii_4	LKSGD	-KVPADVRLI	SA	-VN	LOVQEAMLTGS	SVPVSK	-	VLHP	-	-	-	-	APAQAGLDRKCMCF	-
Thalassiosira_pseudonana_4	LGLGD	-KIPADLRLLI	SV	-SN	LATGEAALTGS	SVPIDK	-	VRMS	V	-	-	-	ANPDQVPLGDRKNMAYS	-
Thalassiosira_pseudonana_5	LGLGD	-KVPADMRLI	SV	-SN	LATGEAALTGS	SVPIDK	-	VTDA	IPCENG	-	-	-	MDPDQVPLGDRKNMAYS	-

Fragilariopsis_cylindrus_11	LALGD	KIPCDLRVI	EV	SN	MASAEAAAL	TGESVPIEK		TPLP	IELNEG	OLPKQVPL	GDRKNMCF	S
Fragilariopsis_cylindrus_12	LALGD	KIPCDLRVI	EV	SN	MASAEAAAL	TGESVPIEK		TPLP	IELNEG	OLPKQVPL	GDRKNMCF	S
Pseudo-nitzschia_multiseriis_3	LGLGD	RIPADLRVI	EV	SN	MASAEAAAL	TGESVPIEK		TPQA	IPLNEG	QLAKQVPL	GDRKNMCF	S
Phaeodactylum_tricornutum_3	LGTGD	RVPGDIRML	EV	NN	LACQEAAL	TGESVPIEK		VTDA	IDCGSG	KPEOVPL	GDRKNMCF	S
Micromonas_pusilla_3	LGTGD	VVPADVRCI	TA	ND	LRVNEMLLT	TGEPEDVAK		STKVKP		RVPGHP	PEKLTADNMAF	S
Micromonas_sp_3	LGTGD	VVPADCRCI	KA	ND	FRVNEMLLT	TGEPEDVAK		NTKIKK		RVPGQPEK	LTADNMAF	S
Chlamydomonas_reinhardtii_5	LDTGD	KVIADGIVI	DS	QG	LVLDEASLT	TGESDPIKK		D			PVSDPWVRS	S
Chlamydomonas_reinhardtii_6	LDTGD	KVIADGVVI	DS	QG	IVLDEASLT	TGESDPIKK		D			AVSDPWVRS	S
Volvox_carteri_3	LDTGD	KVIADGIVI	DS	QG	LVLDEASLT	TGESDPIKK		D			PLNDPWVRS	S
Volvox_carteri_4	LDTGD	KVIADGIVI	DS	QG	LVLDEASLT	TGESDPIKK		D			PLNDPWVRS	S
Volvox_carteri_5	LDTGD	KVVADAIVI	DS	QG	LTMDEASLT	TGESDPMKK		N			INEDPWVMS	S
Chlamydomonas_reinhardtii_7	LDTGD	KVVADAIVI	DS	QG	LTMDEASLT	TGESDPMKK		N			TTADPWVMS	S
Chlamydomonas_reinhardtii_8	LDTGD	KVVADGVCF	DC	QG	LVIDEASLT	TGESDPIKK		N			TDSDPWVRS	S
Volvox_carteri_6	LDTGD	KVVADGICF	DS	QG	LVVDEASLT	TGESDPIKK		N			PEDDCWVRS	S
Ostreococcus_lucimarinus_3	LAAGD	KVPADALFV	EG	SK	FKANEAAAM	TGEPIDISK		S			REKDPWVLS	S
Micromonas_sp_4	LSAGD	KVPADGVFL	EG	SK	LRADESAMT	TGEPIGIAK		S			HDKDPFLLS	S
Selaginella_moellendorffii_5	LKTGD	QIPADGVLV	DG	YS	LVVDESSLT	TGESDPVSM		PK			GLDHPFFMS	S
A.thaliana_AT3G21180.1	LRIGD	QVPADGVLI	SG	HS	LAIDESMT	TGESKIVHK		D			OKSPFLMS	S
Aquilegia_caerulea_5	LKIGD	QVPADGVLV	VG	HS	LAIDESMT	TGEAKIVHK		D			HRKDPFLMS	S
A.thaliana_AT5G57110.2	LNIGN	QVPADGVLI	SG	HS	LALDESMT	TGESKIVNK		D			ANKDPFLMS	S
Oryza_sativa_3	LKIGD	QVPADGILI	SG	HS	LSVDESMT	TGESKIVHK		D			OKSPFLMS	S
Zea_mays_2	LKIGD	QVPTDGILI	SG	HS	LSIDESMT	TGESKIVHK		D			OKSPFLMS	S
Zea_mays_3	LKIGD	QVPADGILI	YG	HS	LAIDESMT	TGESKIVNK		D			ORAPFLMS	S
Zea_mays_4	LKIGD	QVPADGVLI	SG	HS	LAIDESMT	TGESKVVHK		D			OKAPFLMS	S
Selaginella_moellendorffii_6	LNIGD	QVPADGVLV	SG	HS	LSIDESMT	TGSEPVHV		D			GKSPFLHS	S
Selaginella_moellendorffii_7	LAIGD	QIPADGLVY	VG	HS	LIVDESMT	TGESDPLPK		D			EEKPFLLS	S
Aquilegia_caerulea_6	LAIGD	QVPADGLFV	SG	FS	LSINESSLT	TGESDPVMV		N			AQNPYMLL	S
Medicago_truncatula_3	LAIGD	QVPADGLFV	SG	FS	LLIDESSLT	TGSEPVVV		N			TENPFLLS	S
A.thaliana_AT2G22950.1	LAIGD	QVPADGLFI	SG	FS	VVIDESSLT	TGSEPVVV		T			AQNPFLLS	S
A.thaliana_AT4G37640.1	LAIGD	QVPADGLFI	SG	FS	VVIDESSLT	TGSEPVVV		N			AQNPFLMS	S
Oryza_sativa_4	LSIGD	QVPADGLFI	SG	FS	LLINESSLT	TGSEPVAV		N			AENPFLLS	S
Zea_mays_5	LSIGD	QVPADGLFV	SG	FS	MLIDESSLT	TGSEPVAV		S			AENPFLLS	S
Oryza_sativa_5	LAIGD	QVPADGLFI	SG	FS	LLINESSLT	TGSEPVVV		N			EDNPFLLS	S
A.thaliana_AT1G27770.1	LGIGD	QIPADGLFI	SG	FS	VLINESSLT	TGSEPVSV		S			VEHPFLLS	S
Oryza_sativa_6	LAVGD	QVPADGLFI	SG	FS	VLVDESST	TGSEPVFV		N			EDNPYLLS	S
Zea_mays_6	LGVGD	QVPADGLFV	SG	YS	VLVNESST	TGSEPVVI		S			EDNPFLLS	S
Aquilegia_caerulea_7	LSIGD	QVPADGFFL	SG	YS	LVIDESSLS	TGSEPVNI		N			QRNPFLLA	S
Oryza_sativa_7	LSIGD	VVPADGLFI	SG	DC	LMIDESSSL	TGSEPVNI		S			EERPFLHA	S
Selaginella_moellendorffii_8	LSIGD	QVPADGLFI	SG	YS	LVIDESSMT	TGSEPVHV		G			KNKPFLLS	S
Selaginella_moellendorffii_9	LGIGD	QIPADGLLI	YG	QS	LLVDESCMT	TGSESEMRAK		S			AEQPFLIS	S
Oryza_sativa_8	LKIGD	VVPADGVFL	DG	HA	LQVDESMT	TGEPHPVEV		D			AVKSPFLAS	S
Fragilariopsis_cylindrus_13	LEAGD	SIPCDGVLV	NY	DG	LEVDESALT	TGEPEDIDK		D			FENDPFLLS	S
Pseudo-nitzschia_multiseriis_4	LEAGD	SIPCDGVVV	QY	DG	LTVDESALT	TGEPEDIEK		D			FENDPFLLS	S
Phaeodactylum_tricornutum_4	VEAGD	QIPCDGVLL	VA	DD	VQVDESALT	TGEPDIDVK		S			LQNDPFVLS	S
Thalassiosira_pseudonana_6	INAHNLAS	IPADCVVL	GPS	GG	LKMDESST	TGESVLIK					NPGDVVLS	S
Phaeodactylum_tricornutum_5	INAHNLAS	IPADCVLL	GPA	TD	LKMDESTLT	TGESKAVSK					KPGDVVLS	S
Phaeodactylum_tricornutum_6	VNAHNLAS	IPADCVLL	GPA	GD	LKMDESTLT	TGESKAVSK					KPGDIILS	S

Skeletonema_marinoi_ABC	-----GTVITAGKGLGVVVRTGMDTEMGKIQRGVT--EA-AS-----DEQ-AHRTPLAIKLDEFGDKLTIIG
Thalassiosira_pseudonana_1	-----GTVITAGKGVGVVVRTGMDTEMGKIQCGVT--EA-AS-----DEN-AHRTPLAIKLDEFGDLTSVIG
Thalassiosira_oceanica_1	-----GTVITSGKGLGVVVRTGMSTEMGKIQRGVT--DA-AA-----DEN-AQRTPLGVKLDEFGDMLSYIIG
Phaeodactylum_tricornutum_1	-----GTMVTSGSGKAVVVTGMTTQFGKIQQGVT--AA-KA-----EQ---PKTPLAIKLDEFGLTIIIG
Fragilariopsis_cylindrus_1	-----GTTIVNGGGIAIVVATGSQTEFGKIQSGVM--DA-KK-----DNKTENKTPLTKOLDEFGNQLTKLIG
Fragilariopsis_cylindrus_2	-----GTTIVNGGGIAIVVATGSQTEFGKIQSGVM--DA-KK-----DNKTENKTPLTKOLDEFGNQLTKLIG
Fragilariopsis_cylindrus_3	-----GTTIVNGGGIAIVVATGSQTEFGKIQSGVM--DA-KK-----DNKTENKTPLTKOLDEFGNQLTKLIG
Fragilariopsis_cylindrus_4	-----GTTIVNGGGIAIVVATGSQTEFGKIQSGVM--DA-KK-----DNKTENKTPLTKOLDEFGNQLTKLIG
Fragilariopsis_cylindrus_5	-----GTTIVNGGGIAIVVATGSQTEFGKIQSGVM--DA-KK-----DNKTENKTPLTKOLDEFGNQLTKLIG
Fragilariopsis_cylindrus_6	-----GTTIVNGGGIAIVVATGSQTEFGKIQSGVM--DA-KK-----DNKTENKTPLTKOLDEFGNQLTKLIG
Fragilariopsis_cylindrus_7	-----GTTIVNGGGIAIVVATGSQTEFGKIQSGVM--DA-KK-----DNKTENKTPLTKOLDEFGNQLTKLIG
Fragilariopsis_cylindrus_8	-----GTTIVNGGGIAIVVATGSQTEFGKIQSGVM--DA-KK-----DNKTENKTPLTKOLDEFGNQLTKLIG
Pseudo-nitzschia_multiseries_1	-----GTTVVSGAAVALVATGESTEFGRIOSGVL--EA-KR-----DSH-DQKTPLAQQDDFGNQLTGLIG
Thalassiosira_pseudonana_2	-----GSLVTRGSGTALVVRTGTSTQMGIQSTLA--EA-OS-----ETD-ERKTPLGEQLDQFGTTLTSYVIG
Ostreococcus_lucimarinus_1	-----GTAVSNGCCLCVNSTGMSTEIGKIQSQIK--EA-SE-----EE---EDTPLKOKLDRFGEALTMIG
Zea_mays_1	-----GTTVVNGSAVCVVTGTGMTEIGKIHAQIQ--EA-SQ-----EE---DDTPLKKKLNEFGEALTAIIG
Oryza_sativa_1	-----GTTIVNGSAVCVVTGTGMTEIGKIHAQIQ--EA-SQ-----EE---DDTPLKKKLNEFGEALTAIIG
Aquilegia_caerulea_1	-----GTTVVNGNCICLVITGTGMNTEIGSLHSQIQ--EA-SQ-----SE---EDTPLKKKLNEFGEALTAIIG
A.thaliana_AT1G07810.1	-----GTTVVNGNCICLVITGTGMNTEIGRVHSQIQ--EA-AQ-----HE---EDTPLKKKLNEFGEVLTMIIG
A.thaliana_AT1G07670.1	-----GTTVVNGNCICLVITGTGMNTEIGRVHSQIQ--EA-AQ-----HE---EDTPLKKKLNEFGEALTAIIG
Medicago_truncatula_1	-----GTTVVNGHCFCLVTGTGMTEIGKVHNOIH--EA-SQ-----SE---EDTPLKKKLNEFGERLTMMIG
Glycine_max_1	-----GTTVVNGNSICLVITGTGMTEIGKVHMQIH--VA-SQ-----SE---EDTPLKKKLNEFGEKLTIIIG
Glycine_max_2	-----GTTVVNGNCICLVITGTGMTEIGKVHMQIH--VA-SQ-----SE---EDTPLKKKLNEFGEKLTMIIG
Aquilegia_caerulea_2	-----GTTVVNGNCICLVITGTGMNTEIGKVHSQIH--AA-AQ-----EE---EDTPLKKKLNEFGEALTAIIG
Selaginella_moellendorffii_1	-----GTTIVNGCCVGVVSTGMFTEIGKIQAQIQ--EA-SM-----QD---DDTPLKKKLDEFGERLTIVVIG
Physcomitella_patens_1	-----GTTIVNGCFLSVVITGTGMKTEIGKIQSQIQ--EA-SL-----EE---ADTPLKKKLDEFGELLTKVIG
Physcomitella_patens_2	-----GTTIVNGSFLSMVMTGTGMKTEIGKIQSQIQ--EA-SK-----EE---ADTPLKKKLDEFGELLTKVIG
Physcomitella_patens_3	-----GTVVNGCFVSVVSTGMNTEIGKIQSQIA--EA-SL-----EE---ADTPLKKKLDEFGERLTIVVIG
Selaginella_moellendorffii_2	-----GTTVVNGSCFCIVTSTGMNTEIGKIQAQIQ--EA-AL-----EE---DDTPLKKKLDEFGERLTFVIG
Glycine_max_3	-----GTTVVNGSCVCIVITGTGMTEIGKIHKQIH--EA-SQ-----EE---SDTPLKKKLDEFGNRLTTAIG
Glycine_max_4	-----GTTVVNGSCVCIVITGTGMTEIGKIHKQIH--EA-SQ-----EE---SDTPLKKKLDEFGNRLTTAIG
Aquilegia_caerulea_3	-----GTTIMNGSICVUVSTGMNTEIGKIQTQIH--EA-SL-----EE---TDTPLKKKLDEFGGRLTTAIG
A.thaliana_AT4G00900.1	-----GTTVVNGSCVCIVTSIGMDTEIGKIQRQIH--EA-SL-----EE---SETPLKKKLDEFGSRLTTAIC
Chlamydomonas_reinhardtii_1	-----GTAIANGSCSAVVTSIGMTEIGKIQEQIS--AA-AK-----ED---DDTPLKKKLDEFGEMLAKVIA
Volvox_carteri_1	-----GTAIANGSCSAVVTSIGMTEIGKIQAQIS--EA-AK-----ED---DDTPLKKKLDEFGEMLAKVIA
Micromonas_pusilla_1	-----GTAASQGACVAIVTHTGMRTTEIGKIQAQIQ--AA-SE-----EE---EDTPLKOKLDRFGDQLTWGIG
Micromonas_sp_1	-----GTSVSQGACVAVIDTGMRTTEIGKIQAQIQ--AA-AE-----EE---DDTPLKOKLDRFGDQLTLMIG
Selaginella_moellendorffii_3	-----GTTVVNGSICIVITGTGMNTEIGKIQTQIQ--DA-SL-----SD---YDSPLTRKLDDEFADVLTKVVA
Thalassiosira_oceanica_2	-----TTTVVGGIARGIVTDIGMTEIGKIQQAVQ--SA-GE-----DE---EDTPLKKKLNEFGDMLSQVIG
Thalassiosira_pseudonana_3	-----TTTVVGGIARGIVTDIGMTEIGKIQQAVQ--GA-AE-----DE---EDTPLKKKLDEFGDMLSQVIG
Pseudo-nitzschia_multiseries_2	-----GTTISGGKAIQVVTATGMNTEIGKIQSAVT--EA-SE-----DA---EKTPLNOKLDEFGDLLTQVIT
Fragilariopsis_cylindrus_9	-----GTTISGGKAIQVCSIGMTEIGKIQSAVS--EA-SE-----EQ---EKTPLTQKLDEFGDLLTKVIT
Fragilariopsis_cylindrus_10	-----GTTISGGKAIQVCSIGMTEIGKIQSAVS--EA-SE-----EQ---EKTPLTQKLDEFGDLLTKVIT
Aquilegia_caerulea_4	-----GTVVAGRARAVVGVGSNTAMGGIRDAML--RT-TD-----RT---EVTPLKKKLDEFGTFLAKVIA
Glycine_max_5	-----GTMVAGRARAVVGVGPNTAMGSIHDSML--RT-ED-----RT---EVTPLKKKLDEFGTFLAKVIA
Medicago_truncatula_2	-----GTVVAGRARAVVGVGPNTAMGSIHDSML--QT-ED-----QT---EVTPLKKKLDEFGTFLAKVIA
A.thaliana_AT1G10130.1	-----GTDVVAGRRAVVGVSNTAMGSIHDSML--QT-DD-----QT---EATPLKKKLDEFGSFLAKVIA
Oryza_sativa_2	-----LHLNEYGHFLLSIRFIAVILYLLSAFFASKGTVVVAGRARAVVIGVSNAMGSIHDSML--RT-ED-----RT---EATPLKKKLDEFGTFLAK---
Selaginella_moellendorffii_4	-----GTVVAGRARAVVATGSETAMGSIHDSAMS--EV-TE-----EV---EMTPLKQDLNFGEFLLSKVIA
Micromonas_pusilla_2	-----GTVVTVGRCRGVVGTGLNTAIGKIRDAMT--EA-AA-----EE---EMTPLKKKLDEFGTLLSKVIA
Micromonas_sp_2	-----GTVVTVGRAGVAVVATGMSTAIGQIQNAVIT--EV-DC-----MD---ETPLKRRKLDEFGTFLSKVIA
Volvox_carteri_2	-----GTLVTSGRARGVVGTGASTAIGRIDALA--SA-DE-----D---QRTPLKOKLDEFGTLLSKVIA
Chlamydomonas_reinhardtii_2	-----GTLVTSGRGRGIVVGTGASTAIGRIDALS--AA-DG-----AD---EKTPLKOKLDEFGTLLSKVIA
Dunaliella_salina_1	-----GTLVVAGRARIVVGTGSSTAIGKIRDAMS--VE-ED-----VE---VVTPLKAKLDEFGALLSKVIA
Ostreococcus_lucimarinus_2	-----GTTVTVGKATCVVVGTSNTAMGKIQHTLE--QT-EE-----QT---ELTPLKKKLDEFGNLLGKIIA
Phaeodactylum_tricornutum_2	-----GSLVNAGRGRALVIAVGVSTEFKVAATELS--SV-AS-----SV---RKSPLQIKIDELGQRLAGLSS
Chlamydomonas_reinhardtii_3	-----ATNVVSGQGRGVVATGDSAEIGQINKMVG--TV-ES-----TV---ARNNLVHOLEVLGRWLVLVL
Chlamydomonas_reinhardtii_4	-----ATNVVSGQGRGVVATGDSAEIGQINKMVG--TV-ES-----TV---ARNNLVHOLEVLGRWLVLVL
Thalassiosira_pseudonana_4	-----ATLVAQSSGIGIAISTGDFTOIGTINRLVN--NT-ET-----NT---IKTDVLKQIDMVSKYLFIAIC
Thalassiosira_pseudonana_5	-----ATLVAQSSGIGVAIATGDFTOIGTINLLVN--NT-OS-----NT---IETDVLKQIDQISKYLFVAIC

Fragilariopsis_cylindrus_11	-----ATLIATGSGVGATSTGDNTEIGTINKLVN--NV-EK-----	-----KKTAVLEQIDTISIYLAVFIL
Fragilariopsis_cylindrus_12	-----ATLIATGSGVGATSTGDNTEIGTINKLVN--NV-EK-----	-----KKTAVLEQIDTISIYLAVFIL
Pseudo-nitzschia_multiseriis_3	-----ATLIAQSGSGVIAVATSTGDNTEIGTINKLVN--SQ-EK-----	-----TKTAVLEQIDTISLYLAGFIM
Phaeodactylum_tricornutum_3	-----ATLVAQGYGVGVVCTGDNTEIGTINSLVN--KV-ET-----	-----KRTAVLEQIDFVSKVLACFIF
Micromonas_pusilla_3	-----SCNVKAGACLGLVVATGMRTRKKK--EPCLP--DT-KS-----	-----GQSPLQENLEKLVKLGMAI
Micromonas_sp_3	-----SCNVKAGTCIGLVVATGMRTRAKK--EGCLP--DT-KA-----	-----GQTPLOANLEALSIKLGMAI
Chlamydomonas_reinhardtii_5	-----GTTVNEGSGHMLVLAVGVHSEWGKTALVN--EA-GD-----	-----DETPLOEQLTDVAAKVSCKMGV
Chlamydomonas_reinhardtii_6	-----GTTVNEGSGHMLVVAVGVNSEWGKTALVN--EA-GD-----	-----DETPLOEQLTDVAAKVSCKMGV
Volvox_carteri_3	-----GTTVNEGSGHVLIVAVGPHSEWGKTALVS--EA-GD-----	-----DQTPLOEQLTDVAAKVSCKMGV
Volvox_carteri_4	-----GTTVNEGSGHVLIVAVGPHSEWGKTALVS--EA-GD-----	-----DQTPLOEQLTDVAAKVSCKMGV
Volvox_carteri_5	-----GTQVTEGSGHVLIVAVGNSTWGKTALVLT--EA-GD-----	-----DETPLOEKLGVLTAIGKIGF
Chlamydomonas_reinhardtii_7	-----GTQVTEGSGRVLVTAVGNSTWGKTALVS--EA-GD-----	-----DETPLOOKLEVLAGAIGKVG
Chlamydomonas_reinhardtii_8	-----GTQVTEGSGKLLVVAVGENSEWGKTALVG--EA-GD-----	-----DETPLOVKLTWVASTVGVKIGF
Volvox_carteri_6	-----GTQVTEGSGKLLIVAVGENSEWGKTALVG--EA-GD-----	-----DETPLOVKLTWVASTVGVKIGF
Ostreococcus_lucimarinus_3	-----GTSISEGSGKALIIAVGSRSQWVILKTLIV--EP-----	-----SDTPLOERLERLVLLIGNFGI
Micromonas_sp_4	-----GTTISEGSGRMVVIAVGSSSQWVILKTLIV--EP-----	-----SSTPLODRDLVLVVTVGNFGI
Selaginella_moellendorffii_5	-----GCKVVDGYGTLLITVGVINTEWGRAMAALT--DD-SD-----	-----EETPLOMRLAGAAATVGAIGL
A.thaliana_AT3G21180.1	-----GCKVADGVGNMLVTGVGINTEWGLLMASIS--ED-TG-----	-----EETPLOVRLNGLATFIGIVGL
Aquilegia_caerulea_5	-----GCKVADGYGTMLVTVGVINTEWGLLMASIS--ED-TG-----	-----EETPLOVRLNGVATFIGIVGL
A.thaliana_AT5G57110.2	-----GCKVADGNGSMLVTGVGVINTEWGLLMASIS--ED-NG-----	-----EETPLOVRLNGVATFIGISIGL
Oryza_sativa_3	-----GCKVADGYGTMLVTVGVINTEWGLLMASIS--ED-SG-----	-----EETPLOVRLNGVATFIGMVGL
Zea_mays_2	-----GCKVADGYGTMLVTVAVGINTEWGLLMASIS--ED-SG-----	-----EETPLOVRLNGVATFIGMVGL
Zea_mays_3	-----GCKVADGYGSMLVTVGVINTEWGLMANLS--ED-IG-----	-----EETPLOVRLNGVATFIGIVGL
Zea_mays_4	-----GCKVADGYGSMLVTVGVINTEWGLMANLS--ED-NG-----	-----EETPLOVRLNGVATFIGLVGL
Selaginella_moellendorffii_6	-----GCKVVDGYGSMLITVGVINTEWQVMATLD--DD-SS-----	-----EETPLOVRLNGVATFIGKIGL
Selaginella_moellendorffii_7	-----GTKVLDGFGTMLVTVAVGMRTWGRVMATLS--ED-ND-----	-----EETPLOVRLNNLATIIGKVGL
Aquilegia_caerulea_6	-----GTKVQDGSCKMLVTTVGMRTQWGLLATLS--EG-GD-----	-----DETPLOVKLNGVATIIGKIGL
Medicago_truncatula_3	-----GTKVQDGSCKMLVTTVGMRTQWGLMATLS--EG-GD-----	-----DETPLOVKLNGVATIIGKIGL
A.thaliana_AT2G22950.1	-----GTKVQDGSCKMLVTTVGMRTQWGLMATLS--EG-GD-----	-----DETPLOVKLNGVATIIGKIGL
A.thaliana_AT4G37640.1	-----GTKVQDGSCKMMITTVGMRTQWGLMATLT--EG-GD-----	-----DETPLOVKLNGVATIIGKIGL
Oryza_sativa_4	-----GTKVQDGSCKMLVTTVGMRTQWGLMATLS--EG-GD-----	-----DETPLOVKLNGVATIIGKIGL
Zea_mays_5	-----GTKVQDGSCKMLVTTVGMRTQWGLMATLS--EG-GD-----	-----DETPLOVKLNGVATIIGKIGL
Oryza_sativa_5	-----GTKVQDGSCKMLVTTVGMRTQWGLMATLS--EG-GD-----	-----DETPLOVKLNGVATIIGKIGL
A.thaliana_AT1G27770.1	-----GTKVQDGSCKMLVTTVGMRTQWGLMATLS--EG-GD-----	-----DETPLOVKLNGVATIIGKIGL
Oryza_sativa_6	-----GTKVLDGSCIMLVTVAVGMRTQWGLMAVLT--DG-GD-----	-----DETPLOQTRLNGVANTIGKIGL
Zea_mays_6	-----GTKVLDGSCIMLVTVAVGMRTQWGLMAAIT--ES-GD-----	-----DETPLOQKLNQVANTIGNIGL
Aquilegia_caerulea_7	-----GTKVQDGSCKMLIASVGMRTWGRMLMETLS--EG-GE-----	-----DETPLOVKLNGVATIIGKIGL
Oryza_sativa_7	-----GNKVVDGAAKMLVTVAVGTRTEWGRKIMGTLN--GD-GV-----	-----DETPLOVKLNGVATIIGQIGL
Selaginella_moellendorffii_8	-----GTKVQDGSALMLVTVGVMNTEWGHMAVVG--EG-GD-----	-----DETPLOVRLNGVATLIGKIGL
Selaginella_moellendorffii_9	-----GTKVQDGSVMIVTVGVMNTEWGHSMISLGEDS--GQ-----	-----SETPLOHKLQDLATLIGKIGL
Oryza_sativa_8	-----GVKVVDGYGKMVTVAVGTDTAWGEEMRTIT--RE-NT-----	-----DPTPLOERLEGLTSSIGKIGI
Fragilariopsis_cylindrus_13	-----GCTAVAGSGRFVAIAVGNPSQWVVKSHLEQ--EQ-----	-----EETPLOEKLDIMAANIGYVGM
Pseudo-nitzschia_multiseriis_4	-----GCTVAVAGSTRFVAVAVGNPSQWVVKSHLEK--EQ-----	-----EETPLOEKLDMAAKIGYVGM
Phaeodactylum_tricornutum_4	-----GCTMEAGTARFLAIAVGNKSWQVGIKAHLDK--EH-----	-----SQTPLOEKLDMAAMIGYIGM
Thalassiosira_pseudonana_6	-----GTTAVQGSAKMVIIVAVGINSVAGKIAHVY--DS-SDHEGEGLEGD--	-----DESPFLFTKLEKIAQIGIAGT
Phaeodactylum_tricornutum_5	-----GTTNVQGSQAKLVVAVGIVHSVAGKIRAQVY--ES-EDHRDDLGGDD--	-----EESPLFVKLVNLAKRIGIAGT
Phaeodactylum_tricornutum_6	-----GTTASQSGSKMVIIVAVGIVHSVAGKIKARVY--ES-EDHEDELGGDD--	-----EHSPLFFKINAIKRVGIAGT

Skeletonema_marinoi_ABC	LICVGVVVASIPKF	NDPTFKQ	PIEGAIYYAKVAVALGVAAI	QRLPAVITLCLSLGTRRMAKRNIVRKLPSV
Thalassiosira_pseudonana_1	VICTAVVVASIPKF	YDPTFKT	PVEGAVVYAKVAVALGVAALPEGLPAVITLCLSLGTRRMAKRNIVRKLQSV	
Thalassiosira_oceanica_1	GICIAVWVASIPRF	HDPMFKS	PEGAVVYAKVAVALGVAALPEGLPAVITLCLSLGTRRMAKRNIVRKLPSV	
Phaeodactylum_tricornutum_1	VICLAVWIVSIPKM	NDPSFGS	VWVGAVVYAKVAVALGVAALPEGLPAVITLCLSLGTRRMAERNIVRKLQSV	
Fragilariopsis_cylindrus_1	LICGLVWIASIPKMLT	SNIFNS	KLEGIYYTKVAVALGVAALPEGLPAVITLCLSLGTRRMAQRNVIVRHLPSV	
Fragilariopsis_cylindrus_2	LICGLVWIASIPKMLT	SNIFNS	KLEGIYYTKVAVALGVAALPEGLPAVITLCLSLGTRRMAQRNVIVRHLPSV	
Fragilariopsis_cylindrus_3	LICGLVWIASIPKMLT	SNIFNS	KLEGIYYTKVAVALGVAALPEGLPAVITLCLSLGTRRMAQRNVIVRHLPSV	
Fragilariopsis_cylindrus_4	LICGLVWIASIPKMLT	SNIFNS	KLEGIYYTKVAVALGVAALPEGLPAVITLCLSLGTRRMAQRNVIVRHLPSV	
Fragilariopsis_cylindrus_5	LICGLVWIASIPKMLT	SNIFNS	KLEGIYYTKVAVALGVAALPEGLPAVITLCLSLGTRRMAQRNVIVRHLPSV	
Fragilariopsis_cylindrus_6	LICGLVWIASIPKMLT	SNIFNS	KLEGIYYTKVAVALGVAALPEGLPAVITLCLSLGTRRMAQRNVIVRHLPSV	
Fragilariopsis_cylindrus_7	LICGLVWIASIPKMLT	SNIFNS	KLEGIYYTKVAVALGVAALPEGLPAVITLCLSLGTRRMAQRNVIVRHLPSV	
Fragilariopsis_cylindrus_8	LICGLVWIASIPKMLT	SNIFNS	KLEGIYYTKVAVALGVAALPEGLPAVITLCLSLGTRRMAQRNVIVRHLPSV	
Pseudo-nitzschia_multiseriata_1	VICAAVWFASIPKMA	KDSTVFSS	PFEGMVYAKVAVALGVAALPEGLPAVITLCLSLGTRRMAQRNVIVRNLPSV	
Thalassiosira_pseudonana_2	GICLAVWIASVPRF	SDSAFST	WLEGAIYYAKVGVVALGVAALPEGLPAVITLCLSLGTRRMAERNIVRKLPSV	
Ostreococcus_lucimarinus_1	VICLLVWLINRHFVQ	FEFKAGS	TIPSAVFDLVKCTYYFKIAIALAVAAIPEGLPAVITLCLSLGTRKMAKKNIVRKLPSV	
Zea_mays_1	VICALVWLINLKYFLS	WEYVDG	WPTNFKFSFEKCTYYFEIAVALAVAAIPEGLPAVITLCLALGTRKMAQKNALVRKLPSV	
Oryza_sativa_1	VICALVWLINVKYFLT	WEYVDG	WPRNFKFSFEKCTYYFEIAVALAVAAIPEGLPAVITLCLALGTRKMAQKNALVRKLPSV	
Aquilegia_caerulea_1	VICALVWLINVKYFLT	WEYVDG	WPTNFHFSFEKCTYYFEIAVALAVAAIPEGLPAVITLCLALGTRKMAQKNALVRKLPSV	
A.thaliana_AT1G07810.1	LICALVWLINVKYFLS	WEYVDG	WPRNFKFSFEKCTYYFEIAVALAVAAIPEGLPAVITLCLALGTRKMAQKNALVRKLPSV	
A.thaliana_AT1G07670.1	LICALVWLINVKYFLS	WEYVDG	WPRNFKFSFEKCTYYFEIAVALAVAAIPEGLPAVITLCLALGTRKMAQKNALVRKLPSV	
Medicago_truncatula_1	LICILVWLINVKYFLT	WDYVDDG	WWPTNFKFSFEKCTYYFEIAVALAVAAIPEGLPAVITLCLALGTRKMAQKNALVRKLPSV	
Glycine_max_1	LICILVWLINVKYFLS	WEYVDG	WPRNFKFSFEKCTYYFEIAVALAVAAIPEGLPAVITLCLALGTRKMAQKNALVRKLPSV	
Glycine_max_2	LICILVWLINVKYFLS	WEYVDG	WPRNFKFSFEKCTYYFEIAVALAVAAIPEGLPAVITLCLALGTRKMAQKNALVRKLPSV	
Aquilegia_caerulea_2	IICALVWLINVKYFLT	WEYVDG	WPNFKFSFEKCTYYFEIAVALAVAAIPEGLPAVITLCLALGTRKMAQKNALVRKLPSV	
Selaginella_moellendorffii_1	VICLLVWIINRYKFLT	WDYADG	WPTNVRFSEKCTYYFEIAVALAVAAIPEGLPAVITLCLALGTRKMAQKNIVRKLPSV	
Physcomitella_patens_1	VICLLVWIINRYKFLS	WEMKDG	WPTNFQFSFEKCTYYFKIAVALAVAAIPEGLPAVITLCLALGTRKMAAKNAIVRKLPSV	
Physcomitella_patens_2	VICLLVWVINYKYFLS	WEMKDG	WPRNFQFSFEKCTYYFKIAVALAVAAIPEGLPAVITLCLALGTRKMAAKNAIVRKLPSV	
Physcomitella_patens_3	VICVLVWMINYKFLS	WDMKNG	FPTNFRFSFEKCTYYFKIAVALAVAAIPEGLPAVITLCLALGTRKMAAKNAIVRKLPSV	
Selaginella_moellendorffii_2	MICLLVWVINYKYFLS	WDVVG	WPRNVRFSEKCTYYFEIAVALAVAAIPEGLPAVITLCLALGTRKMAQKNIVRKLPSV	
Glycine_max_3	LVCLIVWVINYKNFIS	WEYVDG	WPSNINFSFKCTYYFKIAVALAVAAIPEGLPAVITLCLALGTRKMAQKNIVRKLPSV	
Glycine_max_4	LVCLIVWVINYKNFIS	WDVVDG	WPSNFKFSFKCTYYFKIAVALAVAAIPEGLPAVITLCLALGTRKMAQKNIVRKLPSV	
Aquilegia_caerulea_3	IVCLIVWVINYKNFLT	WDVVG	WPTNFRFSFEKCTYYFKIAVALAVAAIPEGLPAVITLCLALGTRKMAAKNAIVRKLPSV	
A.thaliana_AT4G00900.1	IVCVLWVMINYKNFVS	WDVVDG	YKPVNFKFSFEKCTYYFKIAVALAVAAIPEGLPAVITLCLALGTRKMAQKNIVRKLPSV	
Chlamydomonas_reinhardtii_1	AICVWVWLINYEHFVT	FTWKPEG	GLPGVAFNLSKATYYFKIAVALAVAAIPEGLPAVITLCLALGTRTMAKKNIVRKLPSV	
Volvox_carteri_1	AICVIVWLINYHFLT	ITFKPEG	GLPTFSFNLSKATYYFKIAVALAVAAIPEGLPAVITLCLALGTRTMAKKNIVRKLPSV	
Micromonas_pusilla_1	LVCLFVWLMNYKFFIS	WKRAPGS	FVYDVEFNFAKCTYYFKIAVALAVAAIPEGLPAVITLCLALGTRKMAAKNAIVRKLQSV	
Micromonas_sp_1	VICLLVWLMNYHFFIS	WKWGLSDP	FSITEVDFNFAKCTYYFKIAVALAVAAIPEGLPAVITLCLALGTRKMAAKNAIVRKLQSV	
Selaginella_moellendorffii_3	AICGLVWVINYKYFLT	WDVSNGL	PSNVQFDVQGATYYFKVAVALAVAAIPEGLPAVITLCLALGTRRMAEENIVRKLPSV	
Thalassiosira_oceanica_2	VICILVWAINYSHF	FDPVHGS	VFKGCIYYFKIAVALAVAAIPEGLPTVITLCLALGTRKMAAKNAIVRKLPSV	
Thalassiosira_pseudonana_3	VICLLVWAINYNHF	FDPVHGS	VFKGCIYYFKIAVALAVAAIPEGLPTVITLCLALGTRKMAAKNAIVRKLPSV	
Pseudo-nitzschia_multiseriata_2	GICVLVWVMNFNQF	SDPVFGG	VFKGCIYYLKIIVALGVAALPEGLPAVITLCLALGTRKMAKKNIVRKLPSV	
Fragilariopsis_cylindrus_9	AICVLVWVMNKNKF	FDPVFGG	IFKGCIIYYLKIIVALGVAALPEGLPAVITLCLALGTRKMAKKNIVRRLPSV	
Fragilariopsis_cylindrus_10	AICVLVWVMNKNKF	FDPVFGG	IFKGCIIYYLKIIVALGVAALPEGLPAVITLCLALGTRKMAKKNIVRRLPSV	
Aquilegia_caerulea_4	GICVLVWIVNIGHF	RDPAHGG	FLRGAIHYFKIAVALAVAAIPEGLPAVTTCLALGTRKMARLNIVRSLPSV	
Glycine_max_5	GICVLVWIVNIGHF	RDPHGG	FLRGAIHYFKIAVALAVAAIPEGLPAVTTCLALGTRKMARLNIVRSLPSV	
Medicago_truncatula_2	GICVLVWIVNIGHF	RDPHGG	FVHGAIHYFKIAVALAVAAIPEGLPAVTTCLALGTRKMARLNIVRSLPSV	
A.thaliana_AT1G10130.1	GICVLVWVNIHGF	SDPSHGG	FFKGAIHYFKIAVALAVAAIPEGLPAVTTCLALGTRKMARLNIVRSLPSV	
Oryza_sativa_2		KHRF	LKLRHTLFSQVAVALAVAAIPEGLPAVTTCLALGTRKMARLNIVRSLPSV	
Selaginella_moellendorffii_4	GICVLVWVNIHGF	RDPAHGG	ILRGAIYYLKIIVALAVAAIPEGLPAVTTCLALGTRKMASLNIVRSLPAV	
Micromonas_pusilla_2	VVCVLVWVNIHGF	ADKAHGG	MLRGAIYYFKIAVALAVAAIPEGLPAVTTCLALGTRKMAKQNAIVRSLPSV	
Micromonas_sp_2	AICILVWLINIRHF	RDYAHGG	IFRGAIHYFKVAVALAVAAIPEGLPAVTTCLALGTRKLAQKAIVRTLSSV	
Volvox_carteri_2	AICVIVWLMNIRRF	SDPALGG	WLSGALYYLKIIVALAVAAIPEGLPAVTTCLALGTRKMAKQNAIVRSLPSV	
Chlamydomonas_reinhardtii_2	TICVIVWLMNINRF	KDPALGG	WLSGALYYLKIIVALAVAAIPEGLPAVTTCLALGTRKMAKQNAIVRSLPSV	
Dunaliella_salina_1	GICVLVWVNIHGF	NDPALGG	WFOGAIHYFKIAVALAVAAIPEGLPAVTTCLALGTRKMARHNAIVRTLPSV	
Ostreococcus_lucimarinus_2	VICILVWVNIHGF	ADKAHGG	LLRGAVYYFKIAVALAVAAIPEGLPAVTTCLALGTRRMAKKNALVRTLPSV	
Phaeodactylum_tricornutum_2	IAISIIAMLGWI		LGRPFLETLTVAVALAVAAIPEGLPTVITLCLALGTRMARRNAIIRKLPSV	
Chlamydomonas_reinhardtii_3	AIGLAFLLALLHA		DOGFKEAFESAVSIAVAIVPEGLPAVTTIVLAIGTTVMARRNAIIRQLPAV	
Chlamydomonas_reinhardtii_4	AIGLAFLLALLHA		DOGFKEAFESAVSIAVAIVPEGLPAVTTIVLAIGTTVMARRNAIIRQLPAV	
Thalassiosira_pseudonana_4	TMCLATFFVAFYSDN		YKKDALGSINIALTCAVAMVPEGLEAIVTLTYSYAVKVMASQNAIVRALPAV	
Thalassiosira_pseudonana_5	TMCLGTFVAFYSDS		YKKNALSSVNIALTCAVAMVPEGLEAIVTLVYSYAVKVMATQNAIVRALPAV	

Fragilariopsis_cylindrus_11	I I A L I T F L Y E F L V N	-----	-----	K N N P L L S V N T A L V C A V A M I P E G L E A I V T V T Y A W A V S K M A T Q N A I V R A L P A V	
Fragilariopsis_cylindrus_12	I I A L I T F L Y E F L V N	-----	-----	K N N P L L S V N T A L V C A V A M I P E G L E A I V T V T Y A W A V S K M A T Q N A I V R A L P A V	
Pseudo-nitzschia_multiseriis_3	L V A L I T F L Y E W L H S	-----	-----	G T S P L M A L N T S L V C A V A M I P E G L E A I V T V T Y A W S V S K M A T L N A I V R A L P A V	
Phaeodactylum_tricornutum_3	V T A I I T W L V A F Y R I	-----	-----	D A S A I D A L S I A L V C A V A M I P E G L E A I V T M T Y S W S V S V M A K H N A I I R V L P A V	
Micromonas_pusilla_3	A V C I V V F I V G V S L N T K	-----	D P E D Q	D T P S W L F M I L V A V T I T V A A I P E G L P L C V T I A L T S G C A E M V K E N V L V R K I A A V	
Micromonas_sp_3	A V C L G V F I V G A S M G T K	-----	D P E D P	D V P S W L F M I M V A V T I T V A A I P E G L P L C V T I A L S S G C A N M V K E N V L M R K I A A V	
Chlamydomonas_reinhardtii_5	L V A V V C F L A L L I K W L I	-----	V T G G G D I D K I	N D N G P L Q F L L Y A I T I T V V S I P E G L P L A V T L T L A Y S M K K M M K D N N F V R V L S A C	
Chlamydomonas_reinhardtii_6	L V A V V C F L A L L I K W L I	-----	V T G G G D A S K I	N D N G P L Q F L L Y A I T I T V V S I P E G L P L A V T L T L A Y S M K K M M K D N N F V R V L S A C	
Volvox_carteri_3	L V A V V C F L A L L I K W L I	-----	V H K G G D V K K I	N D N G P L Q F L L Y A I T I T V V S I P E G L P L A V T L T L A Y S M K K M M R D K N F V R V L S A C	
Volvox_carteri_4	L V A V V C F L A L L I K W L I	-----	V H K G G D V K K I	N D N G P L Q F L L Y A I T I T V V S I P E G L P L A V T L T L A Y S M K K M M R D K N F V R V L S A C	
Volvox_carteri_5	L V A V C C F I A Q L I K W C V	-----	V N K G F P I K K I	N D N G P I Q F F L Y A I T I I V V A V P E G L P L A V T I S L A Y S M K K M M T D N N F V R V L A A C	
Chlamydomonas_reinhardtii_7	A V A I C C F I A Q L I K W C V	-----	E N N G F P I S E I	N N N G P I Q F F L Y A I T I I V V A V P E G L P L A V T I S L A Y S M K K M M A D Q N F V R V L A A C	
Chlamydomonas_reinhardtii_8	G V A I C C F A A L L I K W C V	-----	V N G G F P V S K I	N Q N G P I Q F F L Y A I T I I V V A V P E G L P L A V T I S L A Y S M K K M M R D K N F V R V L A A C	
Volvox_carteri_6	A V A I C C F A A L L I K W C V	-----	V N K G F P V K K I	N Q N G P I Q F F L Y S V T I I V V A V P E G L P L A V T I S L A Y S M K K M M K D N N F V R V L A A C	
Ostreococcus_lucimarinus_3	G A A V L T F L A S M I R W I A	-----	D S A K S G K W	D G T L V L E F L I N A V T I V V V A I P E G L P L A I T L G L A F A M R K M M A D Q N L V R R L E A C	
Micromonas_sp_4	G A A I A T F I A S M I R W I I	-----	D G S E G K G W	D G V L I L D Y L I N S V T I V V V A I P E G L P L A I T L G L A F A M R K M M A D Q N L V R R L E A C	
Selaginella_moellendorffii_5	A V A I I C F S M L F I R F A T I T H N D R Y F V E D	-----	Y K K D K K A V A	V F K R N V N I L S V A T I I V V A V P E G L P L A V T L S L A F A M K K M M D K A L V R H L A A C	
A.thaliana_AT3G21180.1	S V A L V V L V A L L V R Y F T G T T Q D T N G A T O F I K G T T S I S D	-----	-----	I V D D C V K I F T I A V T I V V V A V P E G L P L A V T L T L A Y S M R K M M A D K A L V R R L S A C	
Aquilegia_caerulea_5	A V A L V V L V L L A R Y F T G H T R E P N	-----	R F I K G K T N V S D	A V D G A I K I V T V A V T I V V V A V P E G L P L A V T L T L A Y S M R K M M A D K A L V R R L S A C	
A.thaliana_AT5G57110.2	A V A A A V L V I L L T R Y F T G H T K D N N G G P O F V K G K T K V G H	-----	-----	V I D D V V K V L T V A V T I V V V A V P E G L P L A V T L T L A Y S M R K M M A D K A L V R R L S A C	
Oryza_sativa_3	S V A L A V L V L L A R Y F T G H T Y N P D G S V Q Y V K G M G V G Q	-----	-----	T I R G I V G I F T V A V T I V V V A V P E G L P L A V T L T L A F S M R K M M D K A L V R R L S A C	
Zea_mays_2	S V A L A V L V L L A R Y F T G H T Y N P D G S V Q Y V K G M G V G Q	-----	-----	T I R G I V K I F T V A V T I V V V A V P E G L P L A V T L T L A F S M R K M M K D K A L V R R L S A C	
Zea_mays_3	S V A G A V L V I L W L R Y F T G H T K N P D G T T O F L A G T T G V K Q	-----	-----	G F M G A I R I L T I A V T I V V V A V P E G L P L A V T L T L A Y S M R K M M R D K A L V R R L S S C	
Zea_mays_4	S V A G A V L V L W I R Y F T G H T E N P D G T P O F V A G T T G V K Q	-----	-----	G F M G A I R I L T I A V T I V V V A V P E G L P L A V T L T L A Y S M K K M M R D K A L V R R L S S C	
Selaginella_moellendorffii_6	S V A I L V F V M L C L O E H C G H S F Y C G	-----	M F K L	E L E T I T A F M C L Q V T I V V V A V P E G L P L A V T L T L A Y S M K K M M A D K A L V R H L A A C	
Selaginella_moellendorffii_7	S V A V V C F I V C V I R F I E M H N T D Y O G I K W	-----	L M F	F I G R F H S Y R L L Q V T I V V V A V P E G L P L A V T L T L A Y S M K K M M T D R A L V R H L S A C	
Aquilegia_caerulea_6	F F A V V T F A V L V Q G L F S R K W Q D G T Y L W W	-----	S G D	D A L A L L E F F A V A V T I V V V A V P E G L P L A V T L S L A F A M K K M M N D K A L V R H L A A C	
Medicago_truncatula_3	F F A I V T F A V L V Q G L V S L K L Q E N F W N W	-----	N G D	D A L E M L E Y F A I A V T I V V V A V P E G L P L A V T L S L A F A M K K M M N D K A L V R N L A A C	
A.thaliana_AT2G22950.1	S F A I V T F A V L V Q G M F M R K L S L G P H W W W	-----	S G D	D A L E L L E Y F A I A V T I V V V A V P E G L P L A V T L S L A F A M K K M M N D K A L V R H L A A C	
A.thaliana_AT4G37640.1	F F A V V T F A V L V Q G M F M R K L S T G T H W V W	-----	S G D	E A L E L L E Y F A I A V T I V V V A V P E G L P L A V T L S L A F A M K K M M N D K A L V R H L A A C	
Oryza_sativa_4	I F A V V T F A V L T E G L F R R K I M D A S Y L S W	-----	T G D	D A M E L L E F F A I A V T I V V V A V P E G L P L A V T L S L A F A M K K M M N D K A L V R H L A A C	
Zea_mays_5	A F A V V T F A V L T Q S L F W R K L A D G S W L S W	-----	T G D	D A L E L L E F F A I A V T I V V V A V P E G L P L A V T L S L A F A M K K M M N D R A L V R H L A A C	
Oryza_sativa_5	F F A V I T F I V L S Q G L I S K K Y H E G L L L S W	-----	S G D	D A L E M L E H F A I A V T I V V V A V P E G L P L A V T L S L A F A M K K M M N D K A L V R H L A A C	
A.thaliana_AT1G27770.1	F F A V I T F A V L V Q G L A N Q R L D N S H W I W	-----	T A D	E L M A M L E Y F A V A V T I V V V A V P E G L P L A V T L S L A F A M K K M M N D K A L V R N L A A C	
Oryza_sativa_6	F F A V L T F I V L S Q G I I G Q K Y L D G L L L S W	-----	S G D	D V L E I L D H F A V A V T I V V V A V P E G L P L A V T L S L A F A M K K M M N D K A L V R Q L A A C	
Zea_mays_6	F F A L L T F V I L S Q G L V G Q K Y S D G L L L S W	-----	T G E	D V L E I L E H F A I A V T I V V V A V P E G L P L A V T L S L A F A M K K M M S E K A L V R Q L S A C	
Aquilegia_caerulea_7	G F A V V T F L V L T I R F L V E K A L Q H N L S N W	-----	S S V	D A L T L I N Y F A I S V T I I V V A V P E G L P L A V T L S L A F A M K K L M N D K A L V R H L S A C	
Oryza_sativa_7	V F A V L T F L V L L A R F L A D K G M H V G L L N W	-----	S A N	D A L T I V N Y F A I A V T I I V V A V P E G L P L A V T L S L A F A M K K L M H D K A L V R H L A A C	
Selaginella_moellendorffii_8	G F A V V T F L V L L L R F L I K K R	-----	F Q L V T H	D A L E I V N F F A I A V T I I V V A V P E G L P L A V T L T L A Y A M K K M M R D K A L V R H L S A C	
Selaginella_moellendorffii_9	G S A V A I F V I L V T K Y V T S K S	-----	G A W	S M H	D V M K G V Q F L S T A V T I V V V A V P E G L P L A V T L S L A F A M K K M M S E K A L V R H L A A C
Oryza_sativa_8	A V A V L V F A V L T A R H F T G S T R D E Q G N A L F D K R N V T F N A	-----	-----	V F S G L V G I F Q Q A V T I I V V A I P E G L P L A V T L T L A F S M K R M R E N A L V R R L S A C	
Fragilariopsis_cylindrus_13	A A A A T F I A M M C I K I F V D P	-----	E Y L R D V S	V F K H A L D A F I I G V T I V V V A V P E G L P L A V T I S L A Y S T K K M L A D K N L I R H L A A C	
Pseudo-nitzschia_multiseriis_4	G A A A L T F V A M M Y I K I V V D P	-----	E Y L R D V S	A F K H A L D A F I I G V T I V V V A V P E G L P L A V T I S L A Y S T K Q M L N D Q N L I R H L A A C	
Phaeodactylum_tricornutum_4	A A A A T F L A M M F I K V V L K P	-----	S Y L A H I S	V F N Y A L E A F I I G V T I V V V A V P E G L P L A V T I S L A F S T K K M L A D K N L I R H L S A C	
Thalassiosira_pseudonana_6	C A A L L S L T V N C I K G F A	-----	F A K E D	P K E F L I E Y I V V A I T V L A V S V P E G L P L A V T L A L A F S S N K M M K E Q N L V K H L D A C	
Phaeodactylum_tricornutum_5	I A A L V S F I G S C I I G L A	-----	I K G N	G A E A L V D Y M V V A I T V L A V S V P E G L P L A V T L A L A F S S M K M T Q D Q N L V K H L N A C	
Phaeodactylum_tricornutum_6	V A A A I S F I G S C I I G F A	-----	V E G N	K A T A I V D Y L V V A I T V L A V A V P E G L P L A V T L A L A F S S M K M T K E Q N L V K H L D A C	

Skeletonema_marinoi_ABC	ETLGCTSVICTDKTGTLLTNNEMTAVSLVLL	EDN	-----	SIVEEHAISGVSY	-----	P	-----	EGTIDGI
Thalassiosira_pseudonana_1	ETLGCTSVICTDKTGTLLTNNEMTAVSLVLL	ESDEEGG	-----	VLVAEHEVSGTSYS	-----	P	-----	IGTIKGV
Thalassiosira_oceanica_1	ETLGCTSVICTDKTGTLLTNNEMTAVSLVMI	EN	-----	YVVEEHSISGVSY	-----	P	-----	VGTVDGV
Phaeodactylum_tricornutum_1	ETLGCTSVICTDKTGTLLTNNEMTVVSLVLL	EHDEVGE	-----	VSIREFRIVEGFSYS	-----	P	-----	VGEVEGI
Fragilariopsis_cylindrus_1	ETLGCVSVICSDKTGTLLTNNEMTVISLLLF	QKNQDQKQKQNKRSKKNDKNNKND	SLSCLTEHTIDGVSYS	-----	-----	P	-----	IGKINDL
Fragilariopsis_cylindrus_2	ETLGCVSVICSDKTGTLLTNNEMTVISLLLF	QKNQDQKQKQNKRSKKNDKNNKND	SLSCLTEHTIDGVSYS	-----	-----	P	-----	IGKINDL
Fragilariopsis_cylindrus_3	ETLGCVSVICSDKTGTLLTNNEMTVISLLLF	QKNQDQKQKQNKRSKKNDKNNKND	SLSCLTEHTIDGVSYS	-----	-----	P	-----	IGKINDL
Fragilariopsis_cylindrus_4	ETLGCVSVICSDKTGTLLTNNEMTVISLLLF	QKNQDQKQKQNKRSKKNDKNNKND	SLSCLTEHTIDGVSYS	-----	-----	P	-----	IGKINDL
Fragilariopsis_cylindrus_5	ETLGCVSVICSDKTGTLLTNNEMTVISLLLF	QKNQDQKQKQNKRSKKNDKNNKND	SLSCLTEHTIDGVSYS	-----	-----	P	-----	IGKINDL
Fragilariopsis_cylindrus_6	ETLGCVSVICSDKTGTLLTNNEMTVISLLLF	QKNQDQKQKQNKRSKKNDKNNKND	SLSCLTEHTIDGVSYS	-----	-----	P	-----	IGKINDL
Fragilariopsis_cylindrus_7	ETLGCVSVICSDKTGTLLTNNEMTVISLLLF	QKNQDQKQKQNKRSKKNDKNNKND	SLSCLTEHTIDGVSYS	-----	-----	P	-----	IGKINDL
Fragilariopsis_cylindrus_8	ETLGCVSVICSDKTGTLLTNNEMT	-----	NDLSCLTEHTIDGVSYS	-----	-----	P	-----	IGKINDL
Pseudo-nitzschia_multiseries_1	ETLGCVSVICSDKTGTLLTNNEMTVKSLVLL	EKSKT	-----	NPIVEHSVEGVSYS	-----	P	-----	YGSIGGI
Thalassiosira_pseudonana_2	ETLGCTSVICTDKTGTLLTSNQMTSVSLVLL	ETIENG	-----	IELVEHEITGSSYN	-----	P	-----	FGSAVGI
Ostreococcus_lucimarinus_1	ETLGCTSVICSDKTGTLLTNNQMSAVKLITV	RDET	-----	HLTTYTVEGTTYN	-----	PT	-----	EGGVVG
Zea_mays_1	ETLGCTTVICSDKTGTLLTNNQMSAVKLVAI	GRWP	-----	DTLRSFKVDGTTYD	-----	PT	-----	DGKIHD
Oryza_sativa_1	ETLGCTTVICSDKTGTLLTNNQMSAVKLVAI	GRWP	-----	DTLRSFKVDGTTYD	-----	PS	-----	DGKINE
Aquilegia_caerulea_1	ETLGCTTVICSDKTGTLLTNNQMAVSKLVAL	GTRK	-----	DMIRTFRVDTTYS	-----	PG	-----	DGKIHN
A.thaliana_AT1G07810.1	ETLGCTTVICSDKTGTLLTNNQMAVSKLVAM	GSRI	-----	GTLRSFNVEGTSFD	-----	PR	-----	DGKIED
A.thaliana_AT1G07670.1	ETLGCTTVICSDKTGTLLTNNQMAVSKLVAM	GSRI	-----	GTLRSFNVEGTSFD	-----	PR	-----	DGKIED
Medicago_truncatula_1	ETLGCTTVICSDKTGTLLTNNQMAVSKLVAI	GTNV	-----	DALRAFKVEGTTYN	-----	PN	-----	DGQIEN
Glycine_max_1	ETLGCTTVICSDKTGTLLTNNQMAVAKLVAV	GHNV	-----	DTLRAFKVEGTTYN	-----	PA	-----	DGQIEN
Glycine_max_2	ETLGCTTVICSDKTGTLLTNNQMAVAKLVAI	GHNV	-----	DTLRAFKVEGTTYN	-----	PA	-----	DGQIEN
Aquilegia_caerulea_2	ETLGCTTVICSDKTGTLLTNNQMAVAKLVAM	GPST	-----	NAVRSFKVDGTTY	-----	PI	-----	DGKIHN
Selaginella_moellendorffii_1	ETLGCTTVICSDKTGTLLTNNQMSVMQLVGS	GIHP	-----	ADMEEFVEGTTYN	-----	PE	-----	DGGITG
Physcomitella_patens_1	ETLGCTTVICSDKTGTLLTNNQMSVTDLVLN	GPAA	-----	GVTRQFHVEGTTY	-----	FI	-----	DGKIAG
Physcomitella_patens_2	ETLGCTTVICSDKTGTLLTNNQMSVTELILN	GPAA	-----	GVTRDFHVEGTTY	-----	FI	-----	DGKIEG
Physcomitella_patens_3	ETLGCTTVICSDKTGTLLTNNQMSVTELVLN	GAEP	-----	GVTRFHVGGTSYD	-----	FC	-----	DGVIES
Selaginella_moellendorffii_2	ETLGCTTVICSDKTGTLLTNNQMSVMEFAGN	GGSA	-----	GEVREFSVEGTTYN	-----	PD	-----	DGEILG
Glycine_max_3	ETLGCTTVICSDKTGTLLTNNQMAVTEFFTL	GGKT	-----	TASRLISVEGTTYD	-----	PK	-----	DGGILD
Glycine_max_4	ETLGCTTVICSDKTGTLLTNNQMAVTEFFTL	GGKT	-----	TASRLIGVEGTTYD	-----	PK	-----	DGGILD
Aquilegia_caerulea_3	ETLGCTTVICSDKTGTLLTNNQMSVQFFTL	GGKT	-----	TISRIFNVEGTTYD	-----	PK	-----	DGGILD
A.thaliana_AT4G00900.1	ETLGCTTVICSDKTGTLLTNNQMSATEFFTL	GGKT	-----	TTTRVFSVSGTTYD	-----	PK	-----	DGGIVD
Chlamydomonas_reinhardtii_1	ETLGCTTVICSDKTGTLLTNNQMSAVALAAM	GS DG	-----	ASVRRWAVAGHTYC	-----	PD	-----	DGEVVG
Volvox_carteri_1	ETLGCTTVICSDKTGTLLTNNQMSAVALAFEPNG	-----	TSMRRWVAVAGHTYN	-----	-----	PD	-----	EGEVEG
Micromonas_pusilla_1	ETLGCTSVICSDKTGTLLTNNMSAVKLIVP	TIKP	-----	DVLKTYDVTGTSYD	-----	AS	-----	DGAVVGA
Micromonas_sp_1	ETLGCTSVICSDKTGTLLTNNMSAVRLV	-----	-----	VQGTSYD	-----	PS	-----	DGGVVG
Selaginella_moellendorffii_3	ETLGCTTVICSDKTGTLLTNNQMSVVQLLAV	EGP	-----	DELRTFRVVTGTSYD	-----	PD	-----	DGHVIG
Thalassiosira_oceanica_2	ETLGCTNVICSDKTGTLLTNNMSCEVEIVLP	GSKA	-----	EMSAHAVSGITYA	-----	PV	-----	GTIEPA
Thalassiosira_pseudonana_3	ETLGCTNVICSDKTGTLLTNNMSCEVEIVLP	EGKN	-----	EMTRFVSGITYA	-----	PT	-----	GEISPP
Pseudo-nitzschia_multiseries_2	ETLGCCTVICSDKTGTLLTNNQMVVEALVVP	DAEE	-----	GAIEEYRVGTTEYA	-----	PT	-----	DGEIQNY
Fragilariopsis_cylindrus_9	ETLGCCTVICSDKTGTLLTNNQMVVESI	-D DYSG	-----	NNIREYHITGTEYS	-----	PT	-----	DGAIQDY
Fragilariopsis_cylindrus_10	ETLGCCTVICSDKTGTLLTNNQMVVESI	-D DYSG	-----	NNIREYHITGTEYS	-----	PT	-----	DGAIQDY
Aquilegia_caerulea_4	ETLGCTTVICSDKTGTLLTNNMMSVSKICVI	SSVNHG	-----	AITAEYRVSGTTYA	-----	P	-----	EGIILDG
Glycine_max_5	ETLGCTTVICSDKTGTLLTNNMMSVAKVCVV	ESAKRG	-----	PVVSEYSVSGTTYA	-----	P	-----	EGIIFDS
Medicago_truncatula_2	ETLGCTTVICSDKTGTLLTNNMMSVAKICIV	ESSKSS	-----	PFVTEYGVSGTTYA	-----	P	-----	EGIIFDK
A.thaliana_AT1G10130.1	ETLGCTTVICSDKTGTLLTNNMMSVSKICVV	QSAEHG	-----	PMINEFTVSGTTYA	-----	P	-----	EGTVFDS
Oryza_sativa_2	ETLGCTTVICSDKTGTLLTNNMMSVSKICVV	RSVHOR	-----	PITDEYSISGTTFA	-----	P	-----	DGTFYDA
Selaginella_moellendorffii_4	ETLGCTTVICSDKTGTLLTNNMMSVTKICVV	ESA	-----	ATLSEFTVGTGTSYA	-----	P	-----	DGVIQNA
Micromonas_pusilla_2	ETLGCTSVICSDKTGTLLTNNAMLATRVCVV	DASEGAAGAAAARVG	-----	DACLAEYVGTGDGYS	-----	P	-----	DGVVTEA
Micromonas_sp_2	ETLGCTSVICSDKTGTVTTNIMTITHVCAV	NEVEAAAADDKISLA	-----	DCLTDYKVTGNGCA	-----	P	-----	EGDISV
Volvox_carteri_2	ETLGCTTVICSDKTGTLLTNNQMSAVGCSVV	QSCAAGG	-----	ASLMFEFVGTGTTY	-----	P	-----	EGMILGP
Chlamydomonas_reinhardtii_2	ETLGCTTVICSDKTGTLLTNNQMSAVGCAVV	QSCAAGG	-----	SALMEFSITGTTY	-----	P	-----	DGMILGP
Dunaliella_salina_1	ETLGCTTVICSDKTGTLLTNNQMSVIKVAAV	QSSS	-----	SQLAEFDVTGTTFS	-----	P	-----	EGMVLGP
Ostreococcus_lucimarinus_2	ETLGCTSVICSDKTGTLLTCNVMTVMRMCVI	ENSST	-----	AEVTNYGIRGEAYA	-----	Q	-----	NGEILDS
Phaeodactylum_tricornutum_2	ESLGCATAVASDKTGTLLTNNEMTVRTLFAV	AYPK	-----	AKFGFTGIGYG	SK	-----	-----	SGNLVYL
Chlamydomonas_reinhardtii_3	ETLGS LNVCSDKTGTLLTNNEMTVVALRTA	-----	-----	ATEYTVSGVGYE	-----	-----	-----	PGEFAML
Chlamydomonas_reinhardtii_4	ETLGS LNVCSDKTGTLLTNNEMTVVALRTA	-----	-----	ATEYTVSGVGYE	-----	-----	-----	PVGEFAML
Thalassiosira_pseudonana_4	ETLGSVTVICSDKTGTLLTNNIMSLTAFVTS	-----	-----	NARYKNN	-----	-----	-----	-----
Thalassiosira_pseudonana_5	ETLGSVTVICSDKTGTLLTNNIMSLTAFVTS	-----	-----	NARYKNN	-----	-----	-----	-----

Fragilariopsis_cylindrus_11	ETLGSVTVICSDKTGTLTTNVMSTLAFVTS	NAHYKNNVVSS	VMAVDI
Fragilariopsis_cylindrus_12	ETLGSVTVICSDKTGTLTTNVMSTLAFVTS	NAHYKNNVVSS	VMAVDI
Pseudo-nitzschia_multiseriis_3	ETLGSVTVICSDKTGTLTTNVMSTLAFVTS	NAHYKNNVHAS	DRTPA
Phaeodactylum_tricornutum_3	ETLGSVTVICSDKTGTLTKNEMSLIGFVTS	NARYKIDVDSK	NRSAD
Micromonas_pusilla_3	ETLGSASIICTDKTGTLTTEGKMTLVAMHAG	GVDYTVT	GKGFDP
Micromonas_sp_3	ETLGSASIICTDKTGTLTTEGKMTLVAMYAG	KVDYTVT	GKGFDP
Chlamydomonas_reinhardtii_5	ETMGGATAICSDKTGTLTENRMTVVEGWFA	GTAYP	QVPEGS
Chlamydomonas_reinhardtii_6	ETMGGATAICSDKTGTLTENRMTVVEGWFA	GTAYP	QVPEAS
Volvox_carteri_3	ETMGGATAICSDKTGTLTENRMTVVEGWFA	GTSFE	SVPPPE
Volvox_carteri_4	ETMGGATAICSDKTGTLTENRMTVVEGWFA	GTSFE	SVPPPE
Volvox_carteri_5	ETMGGATAICSDKTGTLTENRMTVVEGWFG	GKKYD	QAPRSG
Chlamydomonas_reinhardtii_7	ETMGGATAICSDKTGTLTENRMTVVEGWV	GRHFS	TAPKAN
Chlamydomonas_reinhardtii_8	ETMGGATAICSDKTGTLTENRMTVVEGWFA	GOQFD	HLPDPS
Volvox_carteri_6	ETMGGATAICSDKTGTLTENRMTVVEGWFA	GKSYD	HCPQPE
Ostreococcus_lucimarinus_3	ETMGSATQLNADKTGTLTQNRMTVTACWLG	GKVC	EQVPPP
Micromonas_sp_4	ETMGSATQLNADKTGTLTQNRMTVTDAYLG	GTQY	DSVPPD
Selaginella_moellendorffii_5	ETMGSATTICSDKTGTLTLNQMTVVEYAG	GOTRS	FHEIR
A.thaliana_AT3G21180.1	ETMGSATTICSDKTGTLTLNQMTVVEYAG	GSKMDV	ADNPS
Aquilegia_caerulea_5	ETMGSATTICSDKTGTLTLNQMTVVEAYSG	GKKLDS	SDYSR
A.thaliana_AT5G57110.2	ETMGSATTICSDKTGTLTLNQMTVVEYAG	GKKT	TE
Oryza_sativa_3	ETMGSATTICSDKTGTLTLNQMTVVEAYFG	GKKMDP	PDNVQ
Zea_mays_2	ETMGSATTICSDKTGTLTLNQMTVVEAYFG	GKKMDS	PDNAQ
Zea_mays_3	ETMGSATTICSDKTGTLTMNKMTVVEAYLG	GEKMDT	YDNAS
Zea_mays_4	ETMGSATTICSDKTGTLTLNKMTVVEAYFA	GTKLDP	CDDVS
Selaginella_moellendorffii_6	ETMGSATTICSDKTGTLTLNQMTVVEQVWIG	GGSL	AEAAN
Selaginella_moellendorffii_7	ETMGSATAICSDKTGTLTMNMMTVIRSWVC	GKLR	PTDLE
Aquilegia_caerulea_6	ETMGSATSICSDKTGTLTTNHMAVVKTCIC	GKVKEMNSS	DEVFTLCS
Medicago_truncatula_3	ETMGSATTICSDKTGTLTTNHMTVVKTCIC	MKSKEVSN	KTSSLCS
A.thaliana_AT2G22950.1	ETMGSATTICSDKTGTLTTNHMTVVKSCIC	MNVQDVAS	KSSSLQS
A.thaliana_AT4G37640.1	ETMGSATTICSDKTGTLTTNHMTVVKSCIC	MNVQDVAN	KGSSLQS
Oryza_sativa_4	ETMGSATTICSDKTGTLTTNHMTVVKACIC	GKIKDVESAS	DTKSLFS
Zea_mays_5	ETMGSATTICSDKTGTLTTNHMTVVKACIC	GKVRDVNSS	VEKTLPS
Oryza_sativa_5	ETMGSATTICSDKTGTLTTNHMTVVKACIC	GNIKEVNNP	KNASDLC
A.thaliana_AT1G27770.1	ETMGSATTICSDKTGTLTTNHMTVVKACIC	EQAKEVNGP	DAAMKFA
Oryza_sativa_6	ETMGSATVICSDKTGTLTTNRMTVVKACIC	GNTIQVNNP	QTPNMSS
Zea_mays_6	ETMGSATVICSDKTGTLTTNRMSVTKACIC	GNTMEVNSS	VLSSFFS
Aquilegia_caerulea_7	ETMGSASCICTDKTGTLTNHNMVVDKVVWIS	EEINVI	KKESGTLNRS
Oryza_sativa_7	ETMGSASCICTDKTGTLTNHNMIVDKVWIG	DVKF	VGDK
Selaginella_moellendorffii_8	ETMGSATCICSDKTGTLTTNHMTVVKSWIG	GRVW	SESRP
Selaginella_moellendorffii_9	ETMGSATCICSDKTGTLTTNQMTVIKSWIG	DELLVA	GRTERVP
Oryza_sativa_8	ETMGSVTAICTDKTGTLTNQMKTVEFWVG	ADR	PRSA
Fragilariopsis_cylindrus_13	ETMGNATNICSDKTGTLTENRMTVVGQVFA	NSK	D
Pseudo-nitzschia_multiseriis_4	ETMGNATNICSDKTGTLTENRMTVVRGVFA	DTK	D
Phaeodactylum_tricornutum_4	ETMGNATNICSDKTGTLTENRMTVVKGIFA	DTRC	DD
Thalassiosira_pseudonana_6	ETMGCATTICTDKTGTLTANKMTARAIYTT	KTDFS	TINRVPV
Phaeodactylum_tricornutum_5	ETMGCATTICTDKTGTLTANKMTARALFAA	EQNYV	VNDPA
Phaeodactylum_tricornutum_6	ETMGCATTICTDKTGTLTANKMTARAVFSG	TVNYV	VADPA

Skeletonema_marinoi_ABC	EH	SVEI	QNNPTG	ALADVAAVSALCNDATIVGN	DAPKAA	GKT	YE
Thalassiosira_pseudonana_1	QH	SSEI	ADNPKG	SVSDVAAVASLNCDAIAAA		SKT	YE
Thalassiosira_oceanica_1	EH	ELEV	LRNPHG	AVADIAAVSSLNCDAIRKGN	NNPEGT	VKA	FD
Phaeodactylum_tricornutum_1	QY	NKEV	KEDPLG	SVADVAAVCALCNDAKILGI	DS	EKA	FQ
Fragilariopsis_cylindrus_1	VFDK	YDKEL	YSSSG	SINDVIAVASLNCDAIRIGN	NNNNDNNE	ADGKNGKKNK	TORORQ
Fragilariopsis_cylindrus_2	VFDK	YDKEL	YSSSG	SINDVIAVASLNCDAIRIGN	NNNNDNNE	ADGKNGKKNK	TORORQ
Fragilariopsis_cylindrus_3	VFDK	YDKEL	YSSSG	SINDVIAVASLNCDAH		GKNGKKNK	TORORQ
Fragilariopsis_cylindrus_4	VFDK	YDKEL	YSSSG	SINDVIAVASLNCDAH		GKNGKKNK	TORORQ
Fragilariopsis_cylindrus_5	VFDK	YDKEL	YSSSG	SINDVIAVASLNCDAIRIGN	NNNNDNNE	ADGKNGKKNK	TORORQ
Fragilariopsis_cylindrus_6	VFDK	YDKEL	YSSSG	SINDVIAVASLNCDAIRIGN	NNNNDNNE	ADGKNGKKNK	TORORQ
Fragilariopsis_cylindrus_7	VFDK	YDKEL	YSSSG	SINDVIAVASLNCDAIRIGN	NNNNDNNE	ADGKNGKKNK	TORORQ
Fragilariopsis_cylindrus_8	VFDK	YDKEL	YSSSG	SINDVIAVASLNCDAIRIGN	NNNNDNNE	ADGKNGKKNK	TORORQ
Pseudo-nitzschia_multiseries_1	V		SDGFA	LLSDVAAVAALCNDARIMGN	DH	DGKSSN	LHD
Thalassiosira_pseudonana_2	DR	SETV	RLPNG	AVKDACDIMTLCNDARLIGN	DVLADNTEK	KNSSGGST	TQQ
Ostreococcus_lucimarinus_1			APKKLDA	SLRAIAKISALCNGAOLEY	K	NDA	YK
Zea_mays_1		W	PSLSMDE	NLQMIKIAAIVCNDASIAH	S	EHQ	YV
Oryza_sativa_1		W	PSLSMDE	NLQMIKIAAIVCNDASIAH	S	EHQ	YV
Aquilegia_caerulea_1		W	PAGRMDA	NLQMAKIASLNCDAKITQ	S	GHQ	YV
A.thaliana_AT1G07810.1		W	PMGRMDA	NLQMIKIAAICNDANVEQ	S	DOQ	FV
A.thaliana_AT1G07670.1		W	PTGRMDA	NLQMIKIAAICNDANVEK	S	DOQ	FV
Medicago_truncatula_1		W	PAGQLDA	NLQMAKIAAIVCNDAGISQ	S	EHK	FV
Glycine_max_1		W	PTGGLDA	NLQMIKIAAIVCNDAGVAQ	S	EHK	FV
Glycine_max_2		W	PTSGGLDA	NLQMIKIAAIVCNDAGVAQ	S	EHK	FV
Aquilegia_caerulea_2		F	PSGRMDV	NLQMIKIAAIVCNDAGVSO	S	GNH	YV
Selaginella_moellendorffii_1		Y	NPGMMSK	NLQSLAEIAAIVCNDAGIMC	K	GNQ	FR
Physcomitella_patens_1		L	RIGQLDP	NIQSFAEIASLNCDAIGLY	Q	GNT	FK
Physcomitella_patens_2		L	SVGQLDP	NMLSFAEIASLNCDAIGLY	Q	GNG	FK
Physcomitella_patens_3		L	EPGNLDR	NLETFAEIAARCNDAIVSL	K	NGV	FK
Selaginella_moellendorffii_2		L	PV-SMDR	NLQTIQIAAIVCNDAAITY	K	GGQ	FR
Glycine_max_3		W	GCYNMDA	NLQVMAEICAVCNDAGIYF	D	GRL	FR
Glycine_max_4		W	GCYNMDV	NLQVMAEICAVCNDAGIYF	D	GRL	FR
Aquilegia_caerulea_3		W	TCYNMDA	NLQSMAEICAVCNDAGVFR	K	GRL	FQ
A.thaliana_AT4G00900.1		W	GCNNMDA	NLQAVAEICISICNDAGVYF	E	GKL	FR
Chlamydomonas_reinhardtii_1		LG	HAAALDK	ALQTVAEVCAVCNEAHLEF	K	GSA	FR
Volvox_carteri_1		LA	PGAALDK	ALQTVAEVCAVCSEAQLF	K	GSA	FR
Micromonas_pusilla_1	PKP	T	KSKPLDA	SLAAVSKVCRGCNDAVIEM	D	HGH	AK
Micromonas_sp_1		L	VGGSLDA	CVTAVSRVCMCNESTVEL	K	DGA	FR
Selaginella_moellendorffii_3		L	PSELDH	NLRTLARICALCNDAGIQF	K	NGS	YS
Thalassiosira_oceanica_2		V	DFGKSPA	QLGMLSSIASLNCSSGIEYD	EK	GSK	YV
Thalassiosira_pseudonana_3		V	DFVKSSA	QLSMLSSIASLNCSSIEYD	TK	GKK	YV
Pseudo-nitzschia_multiseries_2			TSTTG	NLEQLANVCALCNEATIRY	L	EGQ	YV
Fragilariopsis_cylindrus_9	NTS		ADTSNGS	SLEMMALVCTLCNEAIKY	K	DGQ	YV
Fragilariopsis_cylindrus_10	NTS		ADTSNGS	SLEMMALVCTLCNEAIKY	K	DGQ	YV
Aquilegia_caerulea_4	S	GLQL	EFPAQCP	CLLHIAMCSALCNESSLQYN	PD	KGN	YE
Glycine_max_5	T	GLQL	DFPAQLP	CLLHMAMCSALCNESSLQYN	PD	KGN	YE
Medicago_truncatula_2	A	GVQL	DTPAQLQ	CLLHMAMCSALCNESSLQYN	PD	KGK	YE
A.thaliana_AT1G10130.1	N	GMQL	DLPAQSP	CLHHLAMCSSLNCDSILQYN	PD	KDS	YE
Oryza_sativa_2	G	GLQL	EFPPQSS	CLLHIAMCSALCNESSLQYN	PD	KKC	YE
Selaginella_moellendorffii_4	N	NQOI	DYPAALP	SLVQAACSSLNCDSIQYN	AE	KDI	YE
Micromonas_pusilla_2	NS	GKVV	EHPAERA	SVLHMSICASLNCDSALTYN	GK	TRA	YE
Micromonas_sp_2	LT	EKVV	DRPANLP	SILHLAICSSLNCDSLSYN	GK	THS	FD
Volvox_carteri_2	S	GAVL	QRPADSP	CLLHLAMASSLNCDSALVYR	PD	KGT	YQ
Chlamydomonas_reinhardtii_2	G	GAVL	QRPADSP	CLLHLAMGAALCNDALVYR	PD	KGT	YQ
Dunaliella_salina_1	G	GVVL	ROPADTP	CLAHAAQCAALCNDSSQVFA	QK	TGK	LQ
Ostreococcus_lucimarinus_2	R	GLVV	HEPADAA	AVAYVAMCCMCNDSTLNFDS	KE	KGS	FE
Phaeodactylum_tricornutum_2	DADGS	TGPKAPS	GKVTSECEYEA	ALSALLNTACLNNATLLOS	LDSELS	EGHTGGA	
Chlamydomonas_reinhardtii_3	VPDAA	ATDKGA	AVANGSGTRSQP	LDGAQRT	ALQQLKGTIVLNCNSSLVKEGPEVAISIGDDGAAADVAGAADKGGKDKG	GGGVV	YS
Chlamydomonas_reinhardtii_4	VPDAA	ATDKGAAI	ANGSGTRSQP	LDGAQRT	ALQQLKGTIVLNCNSSLVKEGPEVAISIGDDGAAADVAGAADKGGKDKG	GGKGVV	YS
Thalassiosira_pseudonana_4		PEGVKPAHPDDNFPV	SNG	ESPTKD	WIQSALACGVLCSKCVLGE	GGR	AG
Thalassiosira_pseudonana_5		GIKSAHPDDSF	PKNG	ESPSKD	WIRSALACGVLCSKCVLGE	GGR	AG

Fragilariopsis_cylindrus_11	-----SDTNPVGQG-----	GSPEQS	FFRQLIGGVLC	SKCTLGKD	-----	GGR	EG
Fragilariopsis_cylindrus_12	-----SDTNPVGQG-----	GSPEQS	FFRQLIGGVLC	SKCTLGKD	-----	GGR	EG
Pseudo-nitzschia_multiseriis_3	-----FGEKADISKG-----	GMPDQT	FWRQALIGGVLC	SNCKLGKN	-----	GTR	EG
Phaeodactylum_tricornutum_3	-----SLPVSSG-----	QSPTLE	FVRNALAGGVLC	SKCTLGKF	-----	GGR	DG
Micromonas_pusilla_3	NGTID	ASNDA	PIQATLGS	AVLCSNTSLKLE	-----	TDVETG	TSK
Micromonas_sp_3	KGDE	PANDAGG	VRAVLGS	AVLCSNTTLKLE	-----	TDPDSG	LAK
Chlamydomonas_reinhardtii_5	-----	VLGPQ	VLELLK	WNCAMNNRAFLVD	-----	QE	SGV
Chlamydomonas_reinhardtii_6	-----	ALHPQ	LLELLK	WNCAMNNRAFLVD	-----	KD	NV
Volvox_carteri_3	-----	QLSPT	LLSLLK	YNCALNNRAFLVD	-----	QD	NGT
Volvox_carteri_4	-----	QLSPT	LLSLLK	YNCALNNRAFLVD	-----	QD	NGT
Volvox_carteri_5	-----	DLQPE	LLEHLK	MNCALNSRAFVTV	-----	EK	DGK
Chlamydomonas_reinhardtii_7	-----	ELDPE	VCEQLK	MNCAMNAKAFIE	-----	KD	NGK
Chlamydomonas_reinhardtii_8	-----	ELPRE	VCDELK	LNCALNSRAFVIEA	-----	-----	GPK
Volvox_carteri_6	-----	ELPOD	VCDELK	LNCALNSKAFVLDN	-----	-----	GPK
Ostreococcus_lucimarinus_3	-----	SVSET	FSDTLC	QSMAVNSDANLSY	-----	KD	NGT
Micromonas_sp_4	-----	DISDE	FAALLA	ESICVNSDANLAH	-----	NE	NGT
Selaginella_moellendorffii_5	-----	GLPDA	VTSVIF	DGVAHNSAGSVYYTL	-----	DR	NGV
A.thaliana_AT3G21180.1	-----	GLHPK	LVALIS	EGVAQNTTGNIFH	-----	PKD	GGE
Aquilegia_caerulea_5	-----	SLSPT	AQSLLV	EGIAQNSTGSVFT	-----	SE	GGE
A.thaliana_AT5G57110.2	-----	QLPAT	ITSLVVE	GISQNTTGSIFV	-----	PEG	GGD
Oryza_sativa_3	-----	VLSAS	ISSLIVE	GIAQNTSGSIFE	-----	PEN	GQD
Zea_mays_2	-----	MLSAD	VTSLIVE	GIAQNTSGSIFE	-----	PEQ	GGQE
Zea_mays_3	-----	TMCTS	VTALLIE	GIAQNTTGTVFM	-----	PED	GGA
Zea_mays_4	-----	QMSDS	AASLIE	GIAQNTTGTVFL	-----	PED	GGA
Selaginella_moellendorffii_6	-----	SVGGE	ISKCI	IEGIAENSSGSVVF	-----	PKD	GGD
Selaginella_moellendorffii_7	-----	NISEG	VRKLLF	EAICLNTNASVET	-----	HE	GAP
Aquilegia_caerulea_6	-----	EVVST	TLKTL	LQSFNNTGGEVVV	-----	NK	NGK
Medicago_truncatula_3	-----	ELPES	VVLLQ	SIFNNTGGEVVV	-----	NK	QGK
A.thaliana_AT2G22950.1	-----	DIPEA	ALKLL	QLIFNNTGGEVVV	-----	NE	RGK
A.thaliana_AT4G37640.1	-----	EIPES	AVKLL	QSFNNTGGEVVV	-----	NK	HGK
Oryza_sativa_4	-----	ELPES	AMTLL	SQSFNNTGGDVVF	-----	NK	SGS
Zea_mays_5	-----	DLPAS	VVAML	LSAFNNTGGDIVL	-----	DC	DGR
Oryza_sativa_5	-----	ELPET	VVKTL	LESIFNNTGGEVVI	-----	DC	DGK
A.thaliana_AT1G27770.1	-----	GIPES	AVKLL	QSFNNTGGEIVV	-----	GK	GNK
Oryza_sativa_6	-----	NFPEV	AVETL	LESIFNNTGGEVVT	-----	NC	DGK
Zea_mays_6	-----	KVPEF	ALQIL	MESIFNNTAGEVVI	-----	NC	DGK
Aquilegia_caerulea_7	-----	MVSER	VLSIL	QSFNNTGSEVVI	-----	GK	DGK
Oryza_sativa_7	-----	TISER	VMAIL	IQGFVNTASEVVK	-----	GD	DGK
Selaginella_moellendorffii_8	-----	EVCAE	LHEL	VLENCFQNTSGDVGD	-----	GE	GKK
Selaginella_moellendorffii_9	-----	VVSR	SRE	MVLEGIFQNTSGEVVCPG	-----	EAYDPK	TKT
Oryza_sativa_8	-----	AVNGG	VVRL	LCQAGLNTTGSVYK	-----	PDN	VSP
Fragilariopsis_cylindrus_13	-----	NISEA	ALDVILE	GIACCSTARVLPAA	-----	LPKDGEQ	ENIDTR
Pseudo-nitzschia_multiseriis_4	-----	EISAT	ALNI	ILEAFACCSTARILPAA	-----	PIVDGE	ENYDNR
Phaeodactylum_tricornutum_4	-----	LINKK	ALEVILE	GIACCSTAKVIPAA	-----	AAVANEHGIDDL	HLVDDR
Thalassiosira_pseudonana_6	-----	-----	-----	-----	-----	-----	-----
Phaeodactylum_tricornutum_5	-----	-----	FVKNSID	-----	-----	DK	GKV
Phaeodactylum_tricornutum_5	-----	DTLGN	HVANHCG	-----	-----	GEN	G
Phaeodactylum_tricornutum_6	-----	HALGD	YVRNHQ	-----	-----	DAN	GLV

Skeletonema_marinoi_ABC	RIGEPTEAALC	VLAE	KI	GGKFS	D				SASTS
Thalassiosira_pseudonana_1	RMGEPTEAALC	VLTE	KL	GGKVS					TESTA
Thalassiosira_oceanica_1	RIGEPTEAALC	VLAE	KL	GGKSK					KRSSL
Phaeodactylum_tricornutum_1	RVGEPTEAALC	TLAE	KL	GGMSHY		LEKGR	LD	KKGLHFDVP	
Fragilariopsis_cylindrus_1	RTGEPTEAALC	TLAE	KI	GTASSA		SASSSATSS	SASPSSG	NDSFPLKQQQQQQLQ	
Fragilariopsis_cylindrus_2	RTGEPTEAALC	TLAE	KI	GTASSA		SASSSATSS	SASPSSG	NDSFPLKQQQQQQLQ	
Fragilariopsis_cylindrus_3	RTGEPTEAALC	TLAE	KI	GTASSA		SASSSATSS	SASPSSG		
Fragilariopsis_cylindrus_4	RTGEPTEAALC	TLAE	KI	GTASSA		SASSSATSS	SASPSSG		
Fragilariopsis_cylindrus_5	RTGEPTEAALC	TLAE	KI	GTASSA		SASSSATSS	SASPSSG	NDSFPLKQQQQQQLQ	
Fragilariopsis_cylindrus_6	RTGEPTEAALC	TLAE	KI	GTASSA		SASSSATSS	SASPSSG	NDSFPLKQQQQQQLQ	
Fragilariopsis_cylindrus_7	RTGEPTEAALC	TLAE	KI	GTASSA		SASSSATSS	SASPSSG	NDSFPLKQQQQQQLQ	
Fragilariopsis_cylindrus_8	RTGEPTEAALC	TLAE	KI	GTASSA		SASSSATSS	SASPSSG	NDSFPLKQQQQQQLQ	
Pseudo-nitzschia_multiseries_1	RTGEPTEAALC	VLAE	KL	GALQDK		KSTED		DEQQQKKP	
Thalassiosira_pseudonana_2	IEGEPTEAALI	VLVE	KL	GSISAD					ADES
Ostreococcus_lucimarinus_1	CVGEPTEGALK	VLCE	KI	GLDDMR		GVAX			KRSSK
Zea_mays_1	ATGMPTFAALK	VLVE	KM	GLPGG					YTPSL
Oryza_sativa_1	ATGMPTFAALK	VLVE	KM	GLPGG					YTPSL
Aquilegia_caerulea_1	SNGMPTFAALK	VLVE	KM	GLPEGF					DRSSTA
A.thaliana_AT1G07810.1	SRGMPTFAALK	VLVE	KM	GFPEG					LNEAS
A.thaliana_AT1G07670.1	SRGMPTFAALK	VLVE	KM	GFPEG					LNEAS
Medicago_truncatula_1	AHGMPTFAALK	ARYIFSCSLAC	VLVE	GLPEGS					KNVOSG
Glycine_max_1	AHGMPTFAALK	VLVE	KM	GLPEGS					KVAPSA
Glycine_max_2	AHGMPTFAALK	VLVE	KM	GLPEGS					KVQSA
Aquilegia_caerulea_2	ANGMPTFAALK	VLVE	KM	GNDGS					HHSSS
Selaginella_moellendorffii_1	ATGLPTEAALK	VLVE	KM	KLPHNY		NSDY			QNHIVD
Physcomitella_patens_1	ATGMPTFAALK	VVVE	KM	GVPDPA		TQSIITM	ORSS		EALAL
Physcomitella_patens_2	AIGMPTFAALK	VVVE	KM	GVPDFA		AQSVINN	ORSR		EIAL
Physcomitella_patens_3	AVGMPTFAALK	VVVE	KM	GVPDID		AQRFIME	ORASV		DPSAD
Selaginella_moellendorffii_2	ASGMPTFAALK	VLVE	KI	GLPDAK		EYCLN	RRA		
Glycine_max_3	ATGLPTEAALK	VLVE	KM	GVPDAK		ARNKIRN	NTE	LAA	NNMMN
Glycine_max_4	ATGLPTEAALK	VLVE	KM	GVPDAK		SRNKIRD	NTE	LAA	NNMMN
Aquilegia_caerulea_3	ATGLPTEAALK	VLAE	KM	GVPDVK		ARNRIRD	AQIAA		DCSID
A.thaliana_AT4G00900.1	ATGLPTEAALK	VLVE	KM	GIPEKK		NSENIEE	VT		NFSDN
Chlamydomonas_reinhardtii_1	AVGAPTEAALL	VLAE	KL	GVADPA		ETAAARK			KRTAT
Volvox_carteri_1	AVGAPTEAALL	VLAE	KL	GLQDPR		ETAAARK			KRTAT
Micromonas_pusilla_1	CAGQPTGALR	VLAS	KLE	RG					
Micromonas_sp_1	CAGEPTEGALK	VLAE	KI	GVADAA		ANAKIVK			LRAAD
Selaginella_moellendorffii_3	ATGMPTFAAML	VLVE	KL	GVPDKQ		SLQKFKA			KRMAD
Thalassiosira_oceanica_2	RVGEPTEASLK	VLVE	KI	GLPDGS		EQAALLE			KRES
Thalassiosira_pseudonana_3	RVGEPTEASLK	VLVE	KM	G					
Pseudo-nitzschia_multiseries_2	RVGEPTEAALK	CLVE	KM	GLPGQS		APSNEVE			
Fragilariopsis_cylindrus_9	RIGEPTEAALK	CLVE	KM	GLPSFT		PPSNEVE			
Fragilariopsis_cylindrus_10	RIGEPTEAALK	CLVE	KM	GLPSFT		PPSNEVE			
Aquilegia_caerulea_4	KIGESTEVALR	VLTE	KV	GLPGYD		SMPSSLN			MLS
Glycine_max_5	KIGESTEVALR	VLAE	KV	GLPGFN		SMPSSLN			MLT
Medicago_truncatula_2	KIGESTEVALR	VLVE	KV	GLPGYN		SMPSALN			MLS
A.thaliana_AT1G10130.1	KIGESTEVALR	VLAE	KV	GLPGFD		SMPSALN			MLS
Oryza_sativa_2	KIGESTEVALR	VLVE	KV	GLPGFD		SMPSALN			MLT
Selaginella_moellendorffii_4	KIGESTEVALR	VFSE	KV	GLPGFD		SMPTSLS			VLS
Micromonas_pusilla_2	KIGESTEVALR	VLTE	KI	GLPGFD		AMPSALT			RLS
Micromonas_sp_2	KIGESTEVALR	VLAE	KI	GLPGFD		DMPRALT			YLS
Volvox_carteri_2	RIGEATELALR	VFAE	KV	GLPASVGDHPGPLYVAG		SGPAVS			MG
Chlamydomonas_reinhardtii_2	RIGEATELALR	VFAE	KV	GLPASVADHPHVYVPAGSAAAAGLGGGPAAGG					SGRG
Dunaliella_salina_1	RIGESTEIALR	VFAE	KI	GLPSSV		RPDRPIS			
Ostreococcus_lucimarinus_2	KIGEATEIALR	VLTE	KI	GLPSDS		GII			GRA
Phaeodactylum_tricornutum_2	LSGOPTLALL	VAAD	KA	NLE					
Chlamydomonas_reinhardtii_3	PLGAPTEVALL	TAAE	KA	GLPPAA					
Chlamydomonas_reinhardtii_4	PLGAPTEVALL	TAAE	KA	GLPPAA					
Thalassiosira_pseudonana_4	EIGNPTELSII	RASY	FA	GV DIE					
Thalassiosira_pseudonana_5	EIGNPTELSII	RASY	FA	GIDIE					

Fragilariopsis_cylindrus_11	EIGNPTELSIL	RASY	WA	GIDVN
Fragilariopsis_cylindrus_12	EIGNPTELSIL	RASY	WA	GIDVN
Pseudo-nitzschia_multiseriis_3	EIGNPTELSIL	RATY	WS	GVDVN
Phaeodactylum_tricornutum_3	EIGNPTEISIL	RASY	FA	DINVS
Micromonas_pusilla_3	PRGNSSEAPLV	VAGQ	KV	GIKLE
Micromonas_sp_3	PRGNSSEAPLV	VAGH	KC	GIKLE
Chlamydomonas_reinhardtii_5	FVGNRTECALL	VLLR	KL	GFDYK
Chlamydomonas_reinhardtii_6	FVGNRTECALL	VLLR	KL	GHDYV
Volvox_carteri_3	FVGNRTECALL	VLLR	KL	GFDYK
Volvox_carteri_4	FVGNRTECALL	VLLR	KL	GFDYK
Volvox_carteri_5	FVGNRTECALL	LLMNRDL		ESDYK
Chlamydomonas_reinhardtii_7	FVGNRTECALL	LFMNKEL		GSNYN
Chlamydomonas_reinhardtii_8	FVGNRTECALL	MMIK	TW	GCTYT
Volvox_carteri_6	FVGNRTECALL	MMLR	NW	GCDYA
Ostreococcus_lucimarinus_3	HLGSKTECALL	QLVE	QMOP	PTDDTQTYI
Micromonas_sp_4	HIGSKTECALL	QLVE	DLRSAGKGNLP	ESSNFAYV
Selaginella_moellendorffii_5	VAGSPTEKAIL	SWGL	QL	GMDYS
A.thaliana_AT3G21180.1	ISGSPTEKAIL	SWAY	KL	GMKFD
Aquilegia_caerulea_5	ISGSPTEKAIL	SWGV	KL	GMKFE
A.thaliana_AT5G57110.2	YSGSPTEKAIL	GWGV	KL	GMNFE
Oryza_sativa_3	VTGSPTEKAIL	SWGL	KL	GMRFN
Zea_mays_2	VTGSPTEKAIL	SWGL	KL	GKFS
Zea_mays_3	ITGSPTEKAIL	SWGL	MI	GMDFK
Zea_mays_4	LTGSPTEKAIL	SWGL	KI	GMDFD
Selaginella_moellendorffii_6	VTGSPTEKAIL	GWGL	KA	GMNFE
Selaginella_moellendorffii_7	ITGTPTEVAVL	GWGV	KL	GANFD
Aquilegia_caerulea_6	ILGTPTEETALL	EFGL	SL	GGDFK
Medicago_truncatula_3	ILGTPTEETAIL	EFGL	SL	GGDFQ
A.thaliana_AT2G22950.1	ILGTPTEETAIL	ELGL	SL	GGKFK
A.thaliana_AT4G37640.1	LLGTPTEETAIL	ELGL	SL	GGKFK
Oryza_sativa_4	ILGTPTEETAIL	EFGL	SL	GGDFL
Zea_mays_5	ILGTPTEAAIL	EFGL	SL	GGDFA
Oryza_sativa_5	ILGTPTEETALL	EFAL	SL	GGNFK
A.thaliana_AT1G27770.1	ILGTPTEETALL	EFGL	SL	GGDFQ
Oryza_sativa_6	ILGTPTEETALL	EFAL	LL	DGDCK
Zea_mays_6	ILGTPTEAAIL	DFAL	TI	GGDFK
Aquilegia_caerulea_7	ILGTPTESALL	EFGL	LW	GGDFG
Oryza_sativa_7	ILGLATEETALL	EFGL	SL	EEHLY
Selaginella_moellendorffii_8	LIGTPTEETAVL	SFGI	SL	GGNFK
Selaginella_moellendorffii_9	VIGTPTEETALL	QFGL	DL	AGNWQG
Oryza_sativa_8	ITGSPTEKAIL	SWAVEEL		PMDAD
Fragilariopsis_cylindrus_13	LIGSKTEAAMI	LLSQ	SE	WGNDD
Pseudo-nitzschia_multiseriis_4	VIGSKTEGAMI	LLSQ	SE	WGNHDD
Phaeodactylum_tricornutum_4	IIGNKTEAALL	ILAR	SS	WTPHDD
Thalassiosira_pseudonana_6	STGNPTEVALI	VLAA	DL	GKDYR
Phaeodactylum_tricornutum_5		D	DN	VRQSH
Phaeodactylum_tricornutum_6	SCGNPTEVALI	HLCH	DL	GSNVE

Fragilariopsis_cylindrus_11	AVKDAC	PIIAEVPFSSEYKFMATVH	ESN	LDND	G
Fragilariopsis_cylindrus_12	AVKDAC	PIIAEVPFSSEYKFMATVH	ESN	LDND	G
Pseudo-nitzschia_multiseriis_3	EVKEAC	PIIAEVPFSSEYKFMATVH	ESS	PEND	G
Phaeodactylum_tricornutum_3	GMKEEA	PIVAEPFSSSEYKFMATVH	EPR	VEND	G
Micromonas_pusilla_3	DLEDAL	ERTAEIPFSSSRKMMVTVT	KTVKQ	TPLAHVAKI	G
Micromonas_sp_3	DLEASL	TRVYEIPFSSSRKMMVTIT	KTTGA	TSLSHVAAS	G
Chlamydomonas_reinhardtii_5	QLREER	EADQIKLYGFSSARKMASVLL	RER	AAG	G
Chlamydomonas_reinhardtii_6	QLREQR	EADQVKLYGFSSARKMASVLL	RE	PSS	G
Volvox_carteri_3	QIREER	EODQIKMYGFSSARKMASVLV	R	EPS	G
Volvox_carteri_4	QIREER	EODQIKMYGFSSARKMASVLV	R	EPS	G
Volvox_carteri_5	AYRTOH	ERSVEKIYGFSSARKMASVLV	R	LGD	G
Chlamydomonas_reinhardtii_7	DYRHKY	DKAVVKLYGFSSAKKMASVLI	Q	LPD	G
Chlamydomonas_reinhardtii_8	AVREFY	EASVYKMGFSSSKKMASCSV	K	FAD	G
Volvox_carteri_6	SVRDEY	DASVFKVGFSSSTKKMASATI	K	FAD	G
Ostreococcus_lucimarinus_3	KLREKF	PVAQLYHFTSARKRMSTAI	S	NGS	G
Micromonas_sp_4	AGREKH	DVAQRYHFTSARKRMSTAV	P	MN	G
Selaginella_moellendorffii_5	TVRAAS	SIIAVEPFNSTKKMAGVAI	K	RNN	G
A.thaliana_AT3G21180.1	TIRSES	AIIHAFPFNSEKKRGGVAV	L	RGD	S
Aquilegia_caerulea_5	VVRSEA	SILHVFPFNSEKKRGGVAV	K	LPN	N
A.thaliana_AT5G57110.2	TARSOS	SILHAFPFNSEKKRGGVAV	K	TAD	G
Oryza_sativa_3	DTRTKS	SILHVFPFNSEKKRGGVAV	H	LGGSES	G
Zea_mays_2	ETRSKS	SILHVFPFNSEKKRGGVAV	Y	LAG	S
Zea_mays_3	DVRSKS	SVLHVVPFNSEKKRGGVAL	Q	VSD	T
Zea_mays_4	DVRTKS	SVIHVFPFNSEKKRGGVAV	Q	LDD	G
Selaginella_moellendorffii_6	EVRSNN	TVMHVETFNSTKKRAGVAF	K	RKD	G
Selaginella_moellendorffii_7	RVKESA	TVTEVDAFNSTKKRMAVIA	K	TED	G
Aquilegia_caerulea_6	AERESA	KLVKVEPFNSEKKRGGVAV	E	LPE	G
Medicago_truncatula_3	GERQAC	KLVKVEPFNSTKKRGGVAV	E	LPS	G
A.thaliana_AT2G22950.1	EERQSN	KVIKVEPFNSTKKRGGVVI	E	LPEG	G
A.thaliana_AT4G37640.1	EERKSY	KVIKVEPFNSTKKRGGVVI	E	LPEG	G
Oryza_sativa_4	AVRKAS	TLVKVEPFNSAKKRMGVVI	Q	LPG	G
Zea_mays_5	AVRKAS	TLLKVEPFNSAKKRMGVVI	Q	LPG	G
Oryza_sativa_5	AKRDET	KIVKMEPFNSTKKRMCVVL	K	LPG	G
A.thaliana_AT1G27770.1	EVROAS	NVVKVEPFNSTKKRGGVVI	E	LPE	R
Oryza_sativa_6	EKQLGS	KIVKVEPFNSTKKRGGVVI	E	LPG	G
Zea_mays_6	EKRQET	KIVKVEPFNSTKKRGGVVI	E	LPG	G
Aquilegia_caerulea_7	SQRQES	KIVKVEPFNSDKKRMGVVL	S	LST	G
Oryza_sativa_7	DDYNKL	TRIKVDPFNSTKKRGGVVI	Q	LPN	G
Selaginella_moellendorffii_8	DVRSQS	SILKVEPFNSAKKRMGVVL	K	GGH	G
Selaginella_moellendorffii_9	VSEVRSRS	RVIRVEPFNSVKKMMGVVL	A	VNG	GG
Oryza_sativa_8	ALKRKC	KVVVVEAFNSDKKRSVGL	RD	AAT	G
Fragilariopsis_cylindrus_13	TDKRREA	ESGSRLPFSSSRKRMVTLV	K	KGG	N
Pseudo-nitzschia_multiseriis_4	TDMRREA	EGGSRLPFSSSRKRMVTLV	K	KGG	D
Phaeodactylum_tricornutum_4	TDQRRVD	EGGSRLPFSSSRKCMVTFV	T	KDE	A
Thalassiosira_pseudonana_6	DIRDSTRGRSDK	GELAEYLVEGKQIGFSSARKMMSWAV	P	SEG	G
Phaeodactylum_tricornutum_5	RIRASTKGRSDQ	ASLAEFFSEGKRFDFSSARKMMSWAI	P	Y	E
Phaeodactylum_tricornutum_6	NIRNRTGRSDQ	SLGAFLCQKQYGFSSARKMMSWAV	P	LAD	G

Skeletonema_marinoi_ABC	-----GNRLLVKGA	PNMLLERCTHAKL	RDGKI	-----VKLDGKLRRO	IEQKTFE	-----LA	TRPLRCLALAV	KETNOLE	OSLRHYSOE	-----
Thalassiosira_pseudonana_1	-----GNRLLVKGA	PNMLLERCTHAKC	RDGTV	-----VKLDGKLRRO	IEQKTFE	-----LA	TRPLRCLALAI	KETDHL	EE	-----
Thalassiosira_oceanica_1	-----GNRLLVKGA	PNLLPRCTHAKM	RDGSV	-----VKLDGKLRRO	IEQKTFSD	-----LA	SRPLRCLGLAV	KESANLE	OSLRTYSOE	-----
Phaeodactylum_tricornutum_1	-----AGNRLLLKGA	PNLLIERCTNVKF	RDGTI	-----APMTGALRRS	IEDQVSK	-----MA	ARPLRCLALAI	KDQDEL	DDSLKSFEPD	-----
Fragilariopsis_cylindrus_1	-----PCNRLLVKGA	ANMVVDRCTHIKY	RDGSI	-----GRMTNVLKKE	IDSKITD	-----MA	TRPLRCLALAI	KEESQL	PKSLKNFOSN	-----
Fragilariopsis_cylindrus_2	-----PCNRLLVKGA	ANMVVDRCTHIKY	RDGSI	-----GRMTNVLKKE	IDSKITD	-----MA	TRPLRCLALAI	KEESQL	PKSLKNFOSN	-----
Fragilariopsis_cylindrus_3	-----PCNRLLVKGA	ANMVVDRCTHIKY	RDGSI	-----GRMTNVLKKE	IDSKITD	-----MA	TRPLRCLALAI	KEESQL	PKSLKNFOSN	-----
Fragilariopsis_cylindrus_4	-----PCNRLLVKGA	ANMVVDRCTHIKY	RDGSI	-----GRMTNVLKKE	IDSKITD	-----MA	TRPLRCLALAI	KEESQL	PKSLKNFOSN	-----
Fragilariopsis_cylindrus_5	-----PCNRLLVKGA	ANMVVDRCTHIKY	RDGSI	-----GRMTNVLKKE	IDSKITD	-----MA	TRPLRCLALAI	KEESQL	PKSLKNFOSN	-----
Fragilariopsis_cylindrus_6	-----PCNRLLVKGA	ANMVVDRCTHIKY	RDGSI	-----GRMTNVLKKE	IDSKITD	-----MA	TRPLRCLALAI	KEESQL	PKSLKNFOSN	-----
Fragilariopsis_cylindrus_7	-----PCNRLLVKGA	ANMVVDRCTHIKY	RDGSI	-----GRMTNVLKKE	IDSKITD	-----MA	TRPLRCLALAI	KEESQL	PKSLKNFOSN	-----
Fragilariopsis_cylindrus_8	-----PCNRLLVKGA	ANMVVDRCTHIKY	RDGSI	-----GRMTNVLKKE	IDSKITD	-----MA	TRPLRCLALAI	KEESQL	PKSLKNFOSN	-----
Pseudo-nitzschia_multiseries_1	-----AHNRLLVKGA	ANMVLDRCTHVKY	RDGSV	-----AKISGSLRRE	LEKKITD	-----MA	TRPLRCLALAV	KDES	SKLOSSLRHFQPR	-----
Thalassiosira_pseudonana_2	-----ONKFLFKVGA	PSMLLRCSHAKL	RDGKV	-----VPLTPQLRSQ	IEDEISS	-----IG	DRALRCLSLAF	KDDSLAP	QLO	-----
Ostreococcus_lucimarinus_1	-----RGSANELLVKGA	PEVLLERCAFVOM	PDGAT	-----APLSATMRN	VILNEQAT	-----MA	RDALRCLAF	AKKV	SLGDLSSYDGS	-----
Zea_mays_1	-----KNLLLVKGA	VENLLERCTHIQL	LDGSV	-----VLLDDGAKAL	LILSTLRD	-----MS	ASALRCLGF	FAYKD	ELSEFATYDG	-----
Oryza_sativa_1	-----KNLLLVKGA	VENLLERSGYIQL	LDGSV	-----VLLDEGAKAL	LILSTLRE	-----MS	ASALRCLGF	FAYKE	DLAEFATYDG	-----
Aquilegia_caerulea_1	-----RNSLLVKGA	VENLLERSKYIQL	LDGSV	-----ISLDPNCRE	LILQALHE	-----MS	STALRCLGF	FAYKD	DLAEFATYDGD	-----
A.thaliana_AT1G07810.1	-----NKLLLVKGA	VENLERSSTHIQL	LDGSK	-----RELDQYSRD	LILQSLRD	-----MS	LSALRCLGF	FAYSD	VP	SDFATYDGS
A.thaliana_AT1G07670.1	-----NKLLLVKGA	VENLERSSTHIQL	LDGST	-----RELDQYSRD	LILQSLHD	-----MS	LSALRCLGF	FAYS	VP	SDFATYDGS
Medicago_truncatula_1	-----KKSLLLVKGA	VENLDRSSKVQL	RDGSV	-----VKLDNNAK	NLILQALHE	-----MS	TSALRCLGF	FAYKD	ELTNFENYNGN	-----
Glycine_max_1	-----KRSLLVKGA	VENLDRSSKIQL	RDGSI	-----VNLDDNARN	LVLQALHE	-----MS	TSALRCLGF	FAYKD	ELPKFENYSGN	-----
Glycine_max_2	-----KRSLLVKGA	VENLDRSSKIQL	RDGSI	-----VNLDDNARN	LVLQALHE	-----MS	TSALRCLGF	FAYKD	ELPKFENYSGN	-----
Aquilegia_caerulea_2	-----RNSLLLVKGA	VENLERSSTFLOL	LDGSI	-----VELDQNSR	KLILQSLHE	-----MS	TTALRCLGF	FAYKD	NLSEFATYDGD	-----
Selaginella_moellendorffii_1	-----KNRLLLVKGA	VENLLERSSYLOL	KDGTI	-----VSLDSNSR	DAWIKKLD	-----MS	SKALRCLGF	FAYKD	NL	GDFSSYNG
Physcomitella_patens_1	-----VNRLLVKGA	VENILERSTRVQL	SDGSV	-----VKMTQOSAR	DDLAKLDS	-----LS	AKALRCLGL	LAYKD	DLQDLG	YDYG
Physcomitella_patens_2	-----VNRLLVKGA	VENILERSTRVQL	LDGSV	-----ANMTEGAR	DALLGKLN	-----LS	ARALRCLGL	LAYKD	DLQELSD	YDYG
Physcomitella_patens_3	-----TNKLLLVKGA	VENLERSSTHVQL	LDGTIV	-----KEMTEEAR	KLILSKIYS	-----MS	TKLRLCLGL	LAYTD	DLGDLSD	YDYG
Selaginella_moellendorffii_2	-----QSTLLLVKGA	VENLERSCFMQL	MDGTIV	-----VELDNASRA	AILSKLNT	-----MS	SKALRCLGL	LAYKD	DLGELST	YDYG
Glycine_max_3	-----QNRLLVKGA	VESLLERSSHVQL	ADGSL	-----VPIDDQC	RELLRLQ	-----MS	SKGLRCLGF	FAYND	ELGEFSD	YYA
Glycine_max_4	-----FNRLLVKGA	VESLLERSSHVQL	ADGSV	-----VPIDDQC	RELLRLQ	-----MS	SKGLRCLGF	FAYND	DLGEFSD	YYA
Aquilegia_caerulea_3	-----FNRLLVKGA	VESLLERSLHVQL	ADGSI	-----APMDEPCR	QLLHRHME	-----MS	SKGLRCLAL	LAYKD	ELGEFSD	YYS
A.thaliana_AT4G00900.1	-----QNRLLVKGA	ESILERSSFAQL	ADGSI	-----VALDESSR	EVIKKHSE	-----MT	SKGLRCLGL	LAYKD	ELGEFSD	YSS
Chlamydomonas_reinhardtii_1	-----RNALLVKGA	AECVIDRCNRMLL	PDGRV	-----VPLTPVARA	AVLGAVKD	-----MA	RDALRCLAL	AVKP	DPPAPLS	DWDGSD
Volvox_carteri_1	-----KNSLLVKGA	AECVIERSTRMML	PDGRI	-----VPLTDAARA	AVLGAVQG	-----MA	RDALRCLAI	AVKP	DVPSPLA	EYNGD
Micromonas_pusilla_1	-----ANANANELLVKGA	PEHVLERCAFVQL	PNGDV	-----VPLTKAARA	AVVKRAET	-----MS	ADALRCLAL	ATKSGASL	GALAS	YDGA
Micromonas_sp_1	-----SNKNSLLVKGA	PECVLDRCSKVLL	PDGSV	-----TTLSPALRE	EIVATVAE	-----MS	SSALRCLGF	FALKTGAEL	GKLG	YDGG
Selaginella_moellendorffii_3	-----NSLLLVKGA	AEFVLERCTSVQL	KDGSV	-----VPLTPSFRE	NIISCINA	-----MT	SKGLRVLAL	ASKS	DLGPLSD	YTG
Thalassiosira_oceanica_2	-----TNQLLVKGA	PEGLLARCTHIMQ	ANGKV	-----VKLDKASAD	AVSAQQOR	-----MS	GRALRVLAL	LAYKD	LSGDLGS	YDGT
Thalassiosira_pseudonana_3	-----TNQLLVKGA	PEGLLISRCNKIML	GNKGV	-----VSLDKDGN	AVNAILNQOR	-----MA	GRALRVLAL	LAYKD	LSGDLGS	YDGT
Pseudo-nitzschia_multiseries_2	-----DRALFVKGA	AELLNRCTSIMR	PDGSV	-----QALSAKDR	VAFARITD	-----MS	KRPLRVLG	MAIKT	NVP	-----
Fragilariopsis_cylindrus_9	-----KRTLFLVKGA	AELLQRCTTIMR	PNGEV	-----VKLTSIERN	ALAKQITT	-----MS	QRPLRVLG	MAIKC	NMN	-----
Fragilariopsis_cylindrus_10	-----KRTLFLVKGA	AELLQRCTTIMR	PNGEV	-----VKLTSIERN	ALAKQITT	-----MS	QRPLRVLG	MAIKC	NMN	-----
Aquilegia_caerulea_4	-----QEIVFSKGA	PESIIISRCTN	ILCNDGCT	-----APLTAADIRA	EALMARFHS	-----FAGKDTLR	CLALALKE	-----MPFG	QOOLAF	-----
Glycine_max_5	-----MHVLFKGA	PESIIISRCTS	ILCNDGSI	-----VSLTADIRA	EALSRFHS	-----FAGKETLR	CLALALKW	-----MPST	QOOLSF	-----
Medicago_truncatula_2	-----LHVLFKGA	PESIIISKCTT	ILCNDGGSV	-----MPLTADIRA	EALSKFNS	-----FAGKETLR	CLALALKW	-----MPSD	QOOLSF	-----
A.thaliana_AT1G10130.1	-----MDVMFSKGA	PESIIARCNK	ILCNDGGSV	-----VPLTAAGRA	EALSRFYS	-----FGDETLR	CLALAFKT	-----VPHG	QOOLSY	-----
Oryza_sativa_2	-----OEIMFSKGA	PESVIMARCTH	ILCNDGSS	-----VPLTMDIR	NELEAFQS	-----FAGKDTLR	CLALALKR	-----MPEG	QOOLSY	-----
Selaginella_moellendorffii_4	-----RTVLLSKGA	PEVILQRSSYVVC	NDGGSV	-----TKLSPELKL	SLEEFHRQDLI	SLDAF	FASQETLR	CLALAYKD	VPTG	QOOLTE
Micromonas_pusilla_2	-----QSILFTKGA	AETVLAKCTOAL	TNASGAA	-----EPLTDAMRA	ALSKLQK	-----FA	ASSLRLAL	AMRP	TPPK	TTKVSV
Micromonas_sp_2	-----QSILFTKGS	PEAVLLRCTRVLT	NSKGI	-----EPISITQVR	DALTEKYRT	-----YA	RRSLRVLAL	AMRP	ISSD	QCHTSP
Volvox_carteri_2	-----RSVLWSKGA	PESILARCSSV	LANNGEV	-----VPLTDAARA	ALASVVKR	-----YG	RRALRTLAL	AYKP	MPSG	TKLSP
Chlamydomonas_reinhardtii_2	-----RSIMWSKGA	PESILARCTSVL	LANNGEV	-----VPLTDAARA	ALAAATRR	-----FG	HRALRTLAL	AYKP	LP	GGSKALSP
Dunaliella_salina_1	-----QHNIWSKGA	PEFVLKCSHVL	LANNGEA	-----VPLTDSMRO	AILSDMOA	-----FGSRQALR	CLALAFKS	-----VPT	TSTTKLGY	-----
Ostreococcus_lucimarinus_2	-----ESILFVKGA	PESVLSICTSVMS	NRNGRA	-----ERMTDQVRE	QVAEQMRG	-----YA	NDALRVLAL	AMRP	MGRG	VTTTCE
Phaeodactylum_tricornutum_2	-----SFLYVKG	MEKILGECSTYGO	SNGSA	-----ELLVEDDRA	AEVLLQARR	-----MA	AGGLRVLAF	AYGO	-----	-----
Chlamydomonas_reinhardtii_3	-----GGSSELIMYKGA	PDRLPLCNSQV	VDNDL	-----SRTAALDP	PGFWKAQAA	-----LS	SRGLRVLAL	CRTV	LP	PEDTDL
Chlamydomonas_reinhardtii_4	-----GGSSELIMYKGA	PDRLPLCNSQV	VDNDL	-----SRTAALDP	PGFWKAQAA	-----LS	SRGLRVLAL	CRTV	LP	PEDTDL
Thalassiosira_pseudonana_4	-----P-DGKYTCFVKGA	PDRLMLCKYQA	KGGVAGE	-----ENLEEI	IDEAYWIEQIAV	-----LS	SHGLRVLGL	CRAY	IDK	SSVQAGAQ
Thalassiosira_pseudonana_5	-----P-EGKYTAFVKGA	PDRLMLCKYQA	KGGATGD	-----DNYEDI	IDEAYWIEQIAI	-----LS	SHGLRVLGL	-----	FGAQ	-----

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Fragilariopsis_cylindrus_11  --PGLEDKLIIHVKGAPDRMVKLCNTQA--VAGELG---KTEPINAEFWQEQIAI-----LS-SHGLRVLALLRGT---LEKGSVTPGDS-----
Fragilariopsis_cylindrus_12  --PGLEDKLIIHVKGAPDRMVKLCNTQA--VAGELG---KTEPINAEFWQEQIAI-----LS-SHGLRVLALLRGT---LEKGSVTPGDS-----
Pseudo-nitzschia_multiseries_3  --PGLENKNIIHVKGAPDRMVKLCNTQA--VAGQLG---KTEPINADFWEQEQIAI-----LS-SHGLRVLALLRGT---VEKGSVKQGDA-----
Phaeodactylum_tricornutum_3  --AGNDGSLVVHVKGAPDRMVKLCSTQA--KAGLLGE--GNKEPINMGFWTEQEQIAI-----LS-SHGLRVLALCRGS--E-----
Micromonas_pusilla_3         -----EQTAHVKGAPNYIMEKCTKYIT--ADGSV---KPLDDAVKKKIMSTVDD-----LS-EQALRVLAVATKN---VGGKLPF---DSEQ-----
Micromonas_sp_3              -----EHTAHVKGAPNYIMEKCTSYMA--ADGSI---VDFDEAAKAFTAKVDE-----LS-SQALRVLAIAATKD---LGAKLPY---GEEE-----
Chlamydomonas_reinhardtii_5  -----NLRLYNKGAAEWVLRRCVGLAR--PDGST---EPMTPAKLEEMNALVTG-----MA-KRGLRCICLSYRD---YAGSDP-----
Chlamydomonas_reinhardtii_6  -----NLRLYNKGAAEWVLRRCSSLMR--PDGST---EPMTEARLAEMIELVTS-----MA-KRGLRCICLSYRD---YAGSDP-----
Volvox_carteri_3             -----NLRLYNKGAAEWVLRRCSAMLO--PDGST---IPMDKVILEEMNSLVTA-----MA-MRGLRCICLSYRD---YPANDL-----
Volvox_carteri_4             -----NLRLYNKGAAEWVLRRCSAMLO--PDGST---IPMDKVILEEMNSLVTA-----MA-MRGLRCICLSYRD---YPANDL-----
Volvox_carteri_5             -----KYRLYNKGAAEWVLKRCSRCIT--QAGVV---E-MTPALRGQLLDEVTA-----MA-KRGLRCICLTYAD---FALVDP-----
Chlamydomonas_reinhardtii_7  -----KLRLYNKGAAEWVLKRCIRCHT--EAGIV---E-MTPALRGKLLDEVTN-----MA-KRGLRCICLSYTD---YPISDP-----
Chlamydomonas_reinhardtii_8  -----KFRHYNKGAAEWVLKRCTSMYN--GSQIV---Q-MGDAEREKLFVVTG-----MA-KRGLRCICLTYTD---YPLVDD-----
Volvox_carteri_6             -----KFRHYNKGAAEWVLKRCTSMYD--GARVI---E-MTEVERARLMEVVTG-----MA-KRGLRCICLTYTD---YPLVDD-----
Ostreococcus_lucimarinus_3  -----GTRLHVKGASEIVVKLCTKMMG--ADGKV---SSLTTPMLKEAFAAIEA-----FA-RQGLRTLCIAYTD---LGKSPS-----
Micromonas_sp_4              -----GGVRLHVKGASEIVVKLCTKMMK--TDGSV---EDFSPEDLAAAEKAITA-----MA-STGLRTLCIAYVD---LDTAPS-----
Selaginella_moellendorffii_5  -----TLCALYKGAAEIILDLCTKWMG--GEGTE---KVLSETMVEINGTLTH-----MA-ASSLRCLAFAIKT---YN-----
A.thaliana_AT3G21180.1       -----EVFIHWKGAAEIVLACCTQYMD--SNGTL---QSIESQK--EFFRVAIDS-----MA-KNSLRCVAIACRT---QELNOV-----
Aquilegia_caerulea_5        -----EVHIHWKGAAEIVLACSSFLD--ADGAV---KPLDEDKVAYHKKAIGD-----MA-EGSLRCVALAYRL---FDINKV-----
A.thaliana_AT5G57110.2      -----EVHVHWKGAAEIVLACSRSYD--EDGNV---APMTDDKASFFKNGIND-----MA-GRTLRCVALAFRT---YEAEKV-----
Oryza_sativa_3              -----EVHIHWKGAAEIVLDSCKSWLA--ADGSK---HSMTPEKVAEFKKFIED-----MA-ASSLRCVAFAYRT---YEMDV-----
Zea_mays_2                   -----EVHIHWKGAAEIVLDSCTSWVD--TGGSK---HSMTPEKVAEFKKFIED-----MA-AASLRCVAFAYRT---HEMDDV-----
Zea_mays_3                   -----EVHIHWKGAAEIVLLLSACRSWLS--TDGSI---QQMNSIKHNEFKERIDD-----MA-MSSLRCVAFAYCP---WEPKMV-----
Zea_mays_4                   -----VHIHWKGAAEIVLSSCKSWLS--VDGSV---QSMSAEKHDFKRSIED-----MG-ANSLRCVAFAYCS---FDIEKI-----
Selaginella_moellendorffii_6  -----NAYVHWKGAAEIVLDLCTKWMG--DGSE---NQLSETKKVEIQNGIAIGD-----MA-SRSLRCVALAYRP---ISANQI-----
Selaginella_moellendorffii_7  -----KAWIHWKGAAEIVVLAQCSNFMD--EOGNV---SPLTEPKLQELQEIDIT-----FA-NAALRTLCLACKE---FPQNEFLARA-----
Aquilegia_caerulea_6        -----GLRAHCKGASEIILDACDKFID--SNGEV---VRLDEATLNHLNNTIEQ-----FA-NEALRTLCLAYME---LGNDY-----
Medicago_truncatula_3       -----GLRAHCKGASEIVLAACDKVLN--SNGEV---VPLDEESTNHLTNTINQ-----FA-NEALRTLCLAYME---LENGF-----
A.thaliana_AT2G22950.1      -----RIRAHTKGASEIVLAACDKVIN--SSGEV---VPLDDESIKFLNVTIDE-----FA-NEALRTLCLAYMD---IESGF-----
A.thaliana_AT4G37640.1      -----RMRAHTKGASEIVLAACDKVVN--SSGEV---VPLDEESIKYLNVTINE-----FA-NEALRTLCLAYMD---IEGGF-----
Oryza_sativa_4              -----AMRAHCKGASEIILSACSKYLN--DQGNV---VPLDDATVAHLNATINS-----FA-NEALRTLCLAYVD---VGDGF-----
Zea_mays_5                   -----ALRAHCKGASEIVLASCTRYLD--ERGSA---VALDGATADRLRATIDS-----FA-NEALRTLCLAYVD---VGDGF-----
Oryza_sativa_5              -----GCRAHCKGASEIVLAACDKFMD--ETGAV---VPLDKTTADKLNGIES-----FA-NEALRTLCLGYRE---MEEGF-----
A.thaliana_AT1G27770.1     -----HFRAHCKGASEIVLDSCDKYIN--KDGEV---VPLDEKSTSHLKNIEE-----FA-SEALRTLCLAYFE---IGDEF-----
Oryza_sativa_6              -----GYRAHCKGASEIVLAACDKFID--ERGCI---VPLDDKTSSKLNDIKA-----FS-SEALRTLCLAYRE---MEEGF-----
Zea_mays_6                   -----GYRAHCKGASEVVLAACDNFID--ARGTI---VALDKTATKKLSDVIET-----FS-KEALRTLCLAYRE---MDDSF-----
Aquilegia_caerulea_7        -----GFRVFCKGASEIVLRMCDKIVD--KNGKP---ILLSEAQIENVMGING-----FA-NEALRTLCLAFKD---MDK-----
Oryza_sativa_7              -----GIRTFCKGASEIILEQCNTIHN--TDGNI---VPLSEMQKHNVLNINS-----FA-SEALRTLCIAFKD---MD-----
Selaginella_moellendorffii_8  -----TIRAHWKGASEIVLGMCDKYLD--TEGNV---CPIDEKKYRELKGIITT-----FA-DEALRTLCMAFRE---LESE-----
Selaginella_moellendorffii_9  --EQSAPSYRVHWKGASEIVMGMCDWYLD--SGRK---VALDDSKNWELRGIIRR-----FA-DEGLRTLCLAYRD---LEIAP-----
Oryza_sativa_8              -----AVTAHVKGAAEIVLARCTVYVG--ADGAA---RELGVEORRKLEQVING-----MA-AASLRCIAFAYK---VVDGGD-----
Fragilariopsis_cylindrus_13  -----DVIMYHKGAEEIILKNCTOYLD--VDGTQ---KPMTAEKRKYYENISE-----FA-GDALRCIASAHRN---QIESITK-----
Pseudo-nitzschia_multiseries_4  -----NVTMYHKGAEEIILKNCTKYLD--ANGSQ---MPLTEPKRQYFESIIQE-----FA-EDALRCIAIAHRN---EIQTITK-----
Phaeodactylum_tricornutum_4  RATKNVQSYTLYHKGAEEIVLDKCTKYLD--IDGTE---KEMSDQKREEFAKLIRE-----FA-SQALRCVALHRR---DIQNVV-----
Thalassiosira_pseudonana_6  -----GYRIYCKGASEVLVRCNOHLV--KSGND---TSEELNNETRQDILVAEM-----YA-RRGMRTLALAYRD---LPSGSD-----
Phaeodactylum_tricornutum_5  -----GYRLYCKGAPEVLLARSKSYIN--ALSEV---VDMTEDFRREFLSVSEG-----YA-RRGMRCLALAYRD---VPMEFDEGKS-----
Phaeodactylum_tricornutum_6  -----GYRLYCKGAPEVLMSRCVLFVN--ASGED---ETLTEHVLGEFQEVSVG-----YG-RRGMRCLALAYRD---IPAGFDLESLS-----

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Skeletonema_marinoi_ABC -----ADNDRRHPLLSDPONYAS--IESGLTWVGMVGIKDPARPEVAESINKCHAAAGVRVIMITGDARDTAVAIARDVNILPPS-----
 Thalassiosira_pseudonana_1 -----TDDCARHPLLSDPONYAK--IESGLTWVGMAGIKDPARPEVADSIKCHGAGIRVIMITGDARDTAVAIARDVNILPPA-----
 Thalassiosira_oceanica_1 -----DSSDEQHPLLSDPONYAG--IENGLTWCVMGVIKDPARPEVANAIKKCHDAGVRVIMITGDARDTAVAIARDVNILPPA-----
 Phaeodactylum_tricornutum_1 -----NDRAVSRHPLLSDPTNYRS--VESGLTLVGVIGIKDPARPEVAESMKQCTRAGIRVMMITGDAKDTAIAIARDVNIFSPV-----
 Fragilariopsis_cylindrus_1 -----D--DIRNHPLLKDPNKYED--IESGLTLVGVIGIKDPARPEVADSIKCTQAGIRVMMITGDARDTAVAIARDVNIFNPL-----
 Fragilariopsis_cylindrus_2 -----D--DIRNHPLLKDPNKYED--IESGLTLVGVIGIKDPARPEVADSIKCTQAGIRVMMITGDARDTAVAIARDVNIFNPL-----
 Fragilariopsis_cylindrus_3 -----D--DIRNHPLLKDPNKYED--IESGLTLVGVIGIKDPARPEVADSIKCTQAGIRVMMITGDARDTAVAIARDVNIFNPL-----
 Fragilariopsis_cylindrus_4 -----D--DIRNHPLLKDPNKYED--IESGLTLVGVIGIKDPARPEVADSIKCTQAGIRVMMITGDARDTAVAIARDVNIFNPL-----
 Fragilariopsis_cylindrus_5 -----D--DIRNHPLLKDPNKYED--IESGLTLVGVIGIKDPARPEVADSIKCTQAGIRVMMITGDARDTAVAIARDVNIFNPL-----
 Fragilariopsis_cylindrus_6 -----D--DIRNHPLLKDPNKYED--IESGLTLVGVIGIKDPARPEVADSIKCTQAGIRVMMITGDARDTAVAIARDVNIFNPL-----
 Fragilariopsis_cylindrus_7 -----D--DIRNHPLLKDPNKYED--IESGLTLVGVIGIKDPARPEVADSIKCTQAGIRVMMITGDARDTAVAIARDVNIFNPL-----
 Fragilariopsis_cylindrus_8 -----D--DIRNHPLLKDPNKYED--IESGLTLVGVIGIKDPARPEVADSIKCTQAGIRVMMITGDARDTAVAIARDVNIFNPL-----
 Pseudo-nitzschia_multiseriata_1 -----DDNDVRKHPLLKDPKSYQD--IESGLTLVGLVGIKDPARPEVADSIKKCTDAGIRVIMITGDARDTAVAIARDVNIFDKDA-----
 Thalassiosira_pseudonana_2 -----ENHQYNDYLKDSSEIFEV--IESDLVFGVITAIRDPPRDGVAESIDLCKQAGIRVMMITGDSKSTSVAIARDVHIFKENH-----
 Ostreococcus_lucimarinus_1 -----EKHKAKHPLLKDPKSYAS--IESDLIFVGMGLRDPPEVAGAIKACHTAGIRVIMITGDNKLTAEAICTEIGVFKS-----
 Zea_mays_1 -----EEHAAHKYL-LDPSYSS--IESNLIFCGFVGLRDPPEEVHKAIEDCRAAGIRVMMITGDNKETAEAICREIGVFGS-----
 Oryza_sativa_1 -----EEHPAHDLL-LKPSNYSS--IESDLIFVGFVGLRDPPEEVYKAIEDCRAAGIRVMMITGDNKNTAEAICTEIGVFGP-----
 Aquilegia_caerulea_1 -----EDHPAHQOL-LNPSNYSS--IESNLIFCGFVGLRDPPEEVYKAIADCRTAGIRVMMITGDNKSTAEAICTEIGVFEA-----
 A.thaliana_AT1G07810.1 -----EDHPAHQOL-LNPSNYSS--IESNLIFCGFVGLRDPPEEVYKAIADCRTAGIRVMMITGDNKSTAEAICTEIGVFEA-----
 A.thaliana_AT1G07670.1 -----EDHPAHQOL-LNPSNYSS--IEDELIFVGLVGLRDPPEEVYKAIEDCRAAGIRVMMITGDNKNTAEAICTEIGVFEA-----
 Medicago_truncatula_1 -----EDHPAHQOL-LNPSNYSS--IESDLIFVGLVGLRDPPEEVYKAIEDCRDAGIRVMMITGDNKNTAEAICTEIGVFEA-----
 Glycine_max_1 -----EDHPAHQOL-LNPSNYSS--IESDLIFVGLVGLRDPPEEVYKAIEDCREAGIRVMMITGDNKNTAEAICTEIGVFEA-----
 Glycine_max_2 -----EDHPAHQOL-LNPSNYSS--IESDLIFVGLVGLRDPPEEVYKAIEDCREAGIRVMMITGDNKHTAEAICTEIGVFEA-----
 Aquilegia_caerulea_2 -----ATHPAHVVLQDPANYPD--IESDLIFVGMVGLRDPPEEVYKAAIEDCKEAGIQVMVITGDNKKTAEAICTEIGVFEA-----
 Selaginella_moellendorffii_1 -----DHPHGHARLLDTSNYDK--IESDLIFVGMAGIRDPPEEVYKAIEDCNEAGIRVMMITGDNKNTAEAICTEIGVFEA-----
 Physcomitella_patens_1 -----ENHPGHARLLDTSNYDK--IESDLIFVGMAGIRDPPEEVYKAIEDCNEAGIRVMMITGDNKNTAEAICTEIGVFEA-----
 Physcomitella_patens_2 -----ESHSAHKLL-LDPMNYDD--IESRLIFVGMVGLRDPPEEVYKAIEDCSEAGIRVMMITGDNKNTAEAICTEIGVFEA-----
 Physcomitella_patens_3 -----ESHSAHKLL-LDPMNYDD--IESRLIFVGMVGLRDPPEEVYKAIEDCSEAGIRVMMITGDNKNTAEAICTEIGVFEA-----
 Selaginella_moellendorffii_2 -----ESHSAHKLL-LDPMNYDD--IESDLVYCGMVGLRDPPEEVYKAIEDCSEAGIRVMMITGDNKNTAEAICTEIGVFEA-----
 Glycine_max_3 -----DTHPAHKLL-LDPTYYSS--IESDLVFGVGLRDPPEEVYKAIEDCKEAGIRVMMITGDNKSTAEAICTEIGVFEA-----
 Glycine_max_4 -----DTHPAHKLL-LDPTYYSS--IESDLVFGVGLRDPPEEVYKAIEDCKEAGIRVMMITGDNKSTAEAICTEIGVFEA-----
 Aquilegia_caerulea_3 -----DSHPAHKLL-LDPMNYSS--IESNLIFCGFVGLRDPPEEVYKAIEDCRDAGIRVMMITGDNKSTAEAICTEIGVFEA-----
 A.thaliana_AT4G00900.1 -----EEHPSHKLL-LDPSYSS--IESNLIFCGFVGLRDPPEEVYKAIEDCRDAGIRVMMITGDNKSTAEAICTEIGVFEA-----
 Chlamydomonas_reinhardtii_1 -----AEHSPAGRLL-RDPATYAA--VESLVLVGLTGLQDPPRPEVRAIPAESCKAAGIRVMMITGDNKDTAEAICTEIGVFEA-----
 Volvox_carteri_1 -----SHHPAMKLL-RDPATYAA--VESLVLVGLAGLQDPPRPEVRAIPAESCKAAGIRVMMITGDNKDTAEAICTEIGVFEA-----
 Micromonas_pusilla_1 -----TTHAAHASL-ADSGYAA--IESDLVFGVGLRDPPEEVYKAIEDCASAGIRVMMITGDNKNTAEAICTEIGVFEA-----
 Micromonas_sp_1 -----EQHPAHKLL-MDPGKYES--IESDLTFGLVGLRDPPEEVYKAIEDCKEAGIRVMMITGDNKLTAEAICTEIGVFEA-----
 Selaginella_moellendorffii_3 -----PDHPAQNILVKPEYVVL--VESQLTFVGLAGLQDPPRPEVYKAIEDCKRAGIRVMMITGDNKNTAEAICTEIGVFEA-----
 Thalassiosira_oceanica_2 -----PGHPATKILGQTSFAFE--IESGLTFVGLVGIIDPPREEIAPMVQCKTAGIRMMITGDNKLTAEAICTEIGVFEA-----
 Thalassiosira_pseudonana_3 -----REHKATAILSQDTSFSS--IESGLTFVGLVGIIDPPREEIAPMVQCKTAGIRMMITGDNKLTAEAICTEIGVFEA-----
 Pseudo-nitzschia_multiseriata_2 -----PKEELPSQL-LNLNEYAQ--VESGLTFVGLTGIKDPPEEVYKAIKRCQDAGIRVMMITGDNKTTAEAIARDVGFHE-----
 Fragilariopsis_cylindrus_9 -----SKEKLPSEL-KNINEYEA--VESLTFIAGLTIKDPPEEVYKAIKRCQDAGIRVMMITGDNKVTAEAIARDVGFHE-----
 Fragilariopsis_cylindrus_10 -----SKEKLPSEL-KNINEYEA--VESLTFIAGLTIKDPPEEVYKAIKRCQDAGIRVMMITGDNKVTAEAIARDVGFHE-----
 Aquilegia_caerulea_4 -----D--DEKDLTFIAGLVGMLDPPRDEVRNAMSCTAGIRVIVVTGDNKSTAEALCRKIGAFDH-----
 Glycine_max_5 -----D--DEKDLTFIAGLVGMLDPPRDEVRNAMSCTAGIRVIVVTGDNKSTAEALCRKIGAFDH-----
 Medicago_truncatula_2 -----D--DEKDLTFIAGLVGMLDPPRDEVRNAMSCTAGIRVIVVTGDNKSTAEALCRKIGAFDH-----
 A.thaliana_AT1G10130.1 -----D--NENDLTFIAGLVGMLDPPRDEVRNAMSCTAGIRVIVVTGDNKSTAEALCRKIGAFDH-----
 Oryza_sativa_2 -----D--DEANLTFIAGLVGMLDPPRDEVRNAMSCTAGIRVIVVTGDNKSTAEALCRKIGAFDH-----
 Selaginella_moellendorffii_4 -----D--DENGLLIGMVGMLDPPRPEVYKAAIATCKSAGIRVMMITGDNKKTAEALCHRIGVFEA-----
 Micromonas_pusilla_2 -----D--DERDLTFIAGLVGMLDPPRPEVYKAAIATCKSAGIRVMMITGDNKSTAEALCHRIGVFEA-----
 Micromonas_sp_2 -----S--DETGLTFIAGLVGMLDPPRPEVYKAAIATCKSAGIRVMMITGDNKLTAEAIARDVGFHE-----
 Volvox_carteri_2 -----A--DESGLTFIAGLVGMLDPPRPEVYKAAIATCKSAGIRVMMITGDNKATAEAVAROVGGLPRE-----
 Chlamydomonas_reinhardtii_2 -----A--DEAGLTFIAGLVGMLDPPRPEVYKAAIATCKSAGIRVMMITGDNKATAEAVAROVGGLPRE-----
 Dunaliella_salina_1 -----N--DESGLTFIAGLVGMLDPPRPEVYKAAIATCKSAGIRVMMITGDNKATAEAVAROVGGLPRE-----
 Ostreococcus_lucimarinus_2 -----T--DENNLTFIAGLVGMLDPPRPEVYKAAIATCKSAGIRVMMITGDNKATAEAVAROVGGLPRE-----
 Phaeodactylum_tricornutum_2 -----S--SLGELVFAGLVGMLDPPRPEVYKAAIATCKSAGIRVMMITGDNKATAEAVAROVGGLPRE-----
 Chlamydomonas_reinhardtii_3 -----AWLLS--GGVNP-EAAAAAAAE--GKPPPAPA--AKLQLSMVLVAILDPPRPEVYKAAIATCKSAGIRVMMITGDNKATAEAVAROVGGLPRE-----
 Chlamydomonas_reinhardtii_4 -----AWLLS--GGVNP-EAAAAAAAE--GKPPPAPA--AKLQLSMVLVAILDPPRPEVYKAAIATCKSAGIRVMMITGDNKATAEAVAROVGGLPRE-----
 Thalassiosira_pseudonana_4 -----LQGEFVNGRPEKWLTMVGLCAIMDPPRPEVYKAAIATCKSAGIRVMMITGDNKATAEAVAROVGGLPRE-----
 Thalassiosira_pseudonana_5 -----LQGEFVNGRPERKWLTMVGLCAIMDPPRPEVYKAAIATCKSAGIRVMMITGDNKATAEAVAROVGGLPRE-----

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Fragilariopsis_cylindrus_11 -----LKPEFVSG--KEPWLTIIVGLCAIIDPPRSECVVAIEEAHHASVRVAMITGDHKDTALAI GATLGLV--DVEH-----
Fragilariopsis_cylindrus_12 -----LKPEFVSG--KEPWLTIIVGLCAIIDPPRSECVVAIEEAHHASVRVAMITGDHKDTALAI GATLGLV--DVEH-----
Pseudo-nitzschia_multiseriis_3 -----LKPEFVNG--REPWLTIMVGLCAIVDPPRPECVVAIEEAHHASVRVAMITGDHKDTALAI GASLGLV--DTEH-----
Phaeodactylum_tricornutum_3 -----GEPWLTIVGLCAIMDPPRPECVQAIAEAHGAGVRVAMITGDHRDTALAI GMSLGLV--DREH-----
Micromonas_pusilla_3 -----DITDKVFAK--LVNDLTFGCGLCASIDPERDGVKDAVRTSKVAGVRVVMITGDYIKTAIAIAKNI GIL--NAKTFTEG-----
Micromonas_sp_3 -----ETDAKFDK--IVNGLTLCGLCASIDPERDGVKDSVLSRQAGVRVVMITGDYIKTAIAIAKNI NIL--NRHFTTEG-----
Chlamydomonas_reinhardtii_5 -----ARPA--DFFEDADQ--VDRDLIAVAIVGIKDPVVRKEVPDAVATCQKAGIVVRMVTGDN IHTAQHIARECGLLTTE-----
Chlamydomonas_reinhardtii_6 -----ARPA--DFFEDADQ--VDNGLTCLAIVGIKDPVVRKEVPDAVRTCQKAGITVVRMVTGDN IHTAQHISRECGIL--VE-----
Volvox_carteri_3 -----VRTP--DFFEDADQ--VDNGLIACAIVGIKDPVRAEVPDAVRTCQAGIVVRMVTGDN IHTARHIARECGIL--VD-----
Volvox_carteri_4 -----VRTP--DFFEDADQ--VDNGLIACAIVGIKDPVRAEVPDAVRTCQAGIVVRMVTGDN IHTARHIARECGIL--VD-----
Volvox_carteri_5 -----KRPA--DFFEDVDN--VDNDLTCIGIVGIKDPVVRTEVPDAVRTCKRAGITVVRMVTGDN IHTARHIARECGIL--YDMG-----
Chlamydomonas_reinhardtii_7 -----SRPE--NFFEEADT--VDDNLTCLGIVGIKDPVRAEVPDAVRTCKRAGIVVRMVTGDN IHTAQHIARECGIL--YDMG-----
Chlamydomonas_reinhardtii_8 -----SRPA--DFFEDSDN--LDRNLVALAIVGIKDPVVRKEVPEAVRVCQAGITVVRMVTGDN IHTAQHIARECGIL--TE-----
Volvox_carteri_6 -----SRPL--DFFEDSDY--LDRNLVAMAIVGIKDPVVRKEVPEAVRVCQAGITVVRMVTGDN IHTAQHIARECGIL--TD-----
Ostreococcus_lucimarinus_3 -----SLGETP--PESDLTLLGIMGIKDPVIRPETAEAVRLLRGAGITVVRMVTGDN IHTAEAIAREAGIL--EDGD-----
Micromonas_sp_4 -----GLSDEP--PEANLTLGGITGIKDPVIRPETAEAVRLLRQAGIVVRMVTGDN IHTAEAIAREAGIL--EDGD-----
Selaginella_moellendorffii_5 -----S--MDGRPI--PTAGLTFVALVIGIKDPCRPGVDEAVRKCQAGIVVRMVTGDN IHTARAIARECGIL--MP-----
A.thaliana_AT3G21180.1 -----PKEQ--EDLDKQWAL--PEDELILLAIVGIKDPCRPGVREAVRICTSAGVVKVRMVTGDN IHTAKAIALECGIL--SS-----
Aquilegia_caerulea_5 -----PKDE--DLEQWVI--PEEDLVLLAIVGIKDPCRPGVKNVAVQLCTNAGVVKVRMVTGDN IHTAKAIALECGIL--DS-----
A.thaliana_AT5G57110.2 -----PTGE--E--LSKWVL--PEDDLILLAIVGIKDPCRPGVKSIVLCCONAGVVKVRMVTGDN IHTAKAIALECGIL--SS-----
Oryza_sativa_3 -----PSED--R--RVDWIL--PEDDLIMLGIVGIKDPCRPGVDEAVRKCQAGIVVRMVTGDN IHTAKAIALECGIL--S-----
Zea_mays_2 -----PDED--R--REEWQL--PEDNLMILGIVGIKDPCRPGVRSVRLCQAAGIKVRMVTGDN IHTAKAIALECGIL--D-----
Zea_mays_3 -----PMES--L--DKWKL--PEDDLTLIGMVGIKDPCRPGVKNVAVQLCTAGVVKVRMVTGDN IHTAKAIAVECGIL--DA-----
Zea_mays_4 -----PMED--ITSWEL--PEDDLTLGGIIGIKDPCRPGVDAVRLCTTAGVVKVRMVTGDN IHTAKAIALECGIL--DA-----
Selaginella_moellendorffii_6 -----PDES--E--WESWKI--PEDDLVLLGIMGIKDPCRPGVDEAVRKCQAGIVVRMVTGDN IHTARAIARECGIL--SP-----
Selaginella_moellendorffii_7 -----PPKKH--S--TIGPPI--PEDGLTCLAIVGIKDPCRPGVPEAVHKQIAGIKVRMVTGDN IHTAKAIAVECGIL--T-----
Aquilegia_caerulea_6 -----SKDSI--PLKGYTCIGIVGIKDPVVRPGVKE$VAICRSAGITVVRMVTGDN IHTAKAIAARECGIL--TD-----
Medicago_truncatula_3 -----SAEDTI--PVTGYTCIGVVGIKDPCRPGVKE$VALCRSAGITVVRMVTGDN IHTAKAIAARECGIL--TD-----
A.thaliana_AT2G22950.1 -----SADEGI--PEKGFTICIGIVGIKDPVVRPGVRESVELCRRAGIMVRMVTGDN IHTAKAIAARECGIL--TD-----
A.thaliana_AT4G37640.1 -----SPDDAI--PASGFTCVGIVGIKDPVVRPGVKE$VELCRRAGITVVRMVTGDN IHTAKAIAARECGIL--TD-----
Oryza_sativa_4 -----SANDQI--PEDGYTCIGIVGIKDPVVRPGVKE$VAICRSAGIMVRMVTGDN IHTAKAIAARECGIL--TE-----
Zea_mays_5 -----SPSEQI--PTDGYTCICVVGIKDPCRPGVKE$VAICRSAGITVVRMVTGDN IHTAKAIAARECGIL--TD-----
Oryza_sativa_5 -----SVEEQI--PLQGYTCIGIVGIKDPVVRPGVRESVATCRSAGIMVRMVTGDN IHTAKAIAARECGIL--TE-----
A.thaliana_AT1G27770.1 -----SLEAPI--PSGGYTCIGIVGIKDPVVRPGVKE$VAICRSAGITVVRMVTGDN IHTAKAIAARECGIL--TD-----
Oryza_sativa_6 -----STQEQI--PLQGYTCIGIVGIKDPVVRPGVRSVATCRSAGISVRMITGDN IHTAKAIAARECGIL--TK-----
Zea_mays_6 -----SVDEQI--PLQGYTCIGIVGIKDPVVRPGVRSVATCRSAGIAVRMVTGDN IHTAKAIAARECGIL--TE-----
Aquilegia_caerulea_7 -----SSGDSL--PSEGYTLIAVVGIKDPCRPGVKEAVQTLAAGITVVRMVTGDN IHTAKAIAARECGIL--TD-----
Oryza_sativa_7 -----EFPNDQPI--SDDGYTLIAVVGIKDPCRPGVKDAVRTCMAAGIRVRMVTGDN IHTAKAIAARECGIL--TE-----
Selaginella_moellendorffii_8 -----PAEDKL--PDNGFTICIGIVGIKDPVVRPGVREAVQLCFAAGIKVRMVTGDN IHTAKAIAARECGIL--T-----
Selaginella_moellendorffii_9 -----QGEAL--PQQGFVCAGIVGIKDPVVRPGVEAVRMCMSAGIRVRMVTGDN IHTAKAIAARECGIL--TD-----
Oryza_sativa_8 -----SDNAKI--DDEGLTLLGFVLDKPCRPEVKSIAEACTKAGIAVKMVTGDN IHTAKAIAARECGIL--SGND-----
Fragilariopsis_cylindrus_13 -----DISTF--SIADCESE--LEKDMCLDALVGIADPLRGDVIEAVATCQRCGIFVRMVTGDN IHTAKAIAQAGIL--TE-----
Pseudo-nitzschia_multiseriis_4 -----DISKV--VVGDCEST--LEKDMCLDALVGISDPLREDVDAIAVCQKAGIFVRMVTGDN IHTAKAIAQAGIL--TK-----
Phaeodactylum_tricornutum_4 -----DPQTV--TQDCEKK--LEKEMCLDAIAGIMDPLRPVVEAVAIQCRAGIFVRMVTGDN IHTAKAIAQAGIL--TE-----
Thalassiosira_pseudonana_6 -----NVLN--SDGSEALS--VETELVFAALVGIEDPLRPEVQEAIKKCY$SAGIDVRLVTDSPNTAVSIAYQADIL--QDFHF$RNDSD-----
Phaeodactylum_tricornutum_5 -----SVIKN--ADGTEANE--IETEMTSYCPHWYRRPSSR-----VTGDNPNTAVSIAYQAGIL--RDFHFLE$SI-----
Phaeodactylum_tricornutum_6 -----SEHTN--ADGRDAYV--AETDLIAIALVGIEDPLRAEVPGAIEKCYQAGIDVRLVTDSPNTAVSIAYQAGIL--RDFHFLE$NTD-----

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Skeletonema_marinoi_ABC	SSGQ	M	V	K	AYEGREFFVK	PEK	FOLE
Thalassiosira_pseudonana_1	SSGD	M	I	K	AYEGREFFNK	PES	EQLQ
Thalassiosira_oceanica_1	SLGH	Q	I	K	AYEGREFFLK	PDD	EQLO
Phaeodactylum_tricornutum_1	DDGR	P	L	K	AYEGREFFLK	AER	EQLE
Fragilariopsis_cylindrus_1	ETDPT	K	L	K	AYEGQEFFLK	PKE	EQIE
Fragilariopsis_cylindrus_2	ETDPT	K	L	K	AYEGQEFFLK	PKE	EQIE
Fragilariopsis_cylindrus_3	ETDPT	K	L	K	AYEGQEFFLK	PKE	EQIE
Fragilariopsis_cylindrus_4	ETDPT	K	L	K	AYEGQEFFLK	PKE	EQIE
Fragilariopsis_cylindrus_5	ETDPT	K	L	K	AYEGQEFFLK	PKE	EQIE
Fragilariopsis_cylindrus_6	ETDPT	K	L	K	AYEGQEFFLK	PKE	EQIE
Fragilariopsis_cylindrus_7	ETDPT	K	L	K	AYEGQEFFLK	PKE	EQIE
Fragilariopsis_cylindrus_8	ETDPT	K	L	K	AYEGQEFFLK	PKE	EQIE
Pseudo-nitzschia_multiseries_1	PADGT	S	L	K	AFEGQEFFLK	PRE	EQIE
Thalassiosira_pseudonana_2	EEGTT	H	S	R	AYEGREFFAL	PEA	EQFD
Ostreococcus_lucimarinus_1	SADV	K	G	K	SFTGREFAAM	SKS	KQLK
Zea_mays_1	HEDI	S	S	K	SFTGKEFMGL	S	DKKE
Oryza_sativa_1	TEDI	S	S	K	SFTGKEFMSI	S	DKKK
Aquilegia_caerulea_1	KEDI	S	T	K	SLTGKEFMEL	H	DQKI
A.thaliana_AT1G07810.1	DEDI	S	S	R	SLTGIEFMDV	Q	DQKN
A.thaliana_AT1G07670.1	DEDI	S	S	R	SLTGKEFMDV	K	DQKN
Medicago_truncatula_1	NENI	S	S	K	SLTGKDFMEL	R	DKKA
Glycine_max_1	DEDI	S	S	K	SLTGRDFMEL	H	DKKA
Glycine_max_2	DEDI	S	S	K	SLTGRDFMEL	R	DKKT
Aquilegia_caerulea_2	HEDI	R	P	K	SLTGREFMDL	R	DQKN
Selaginella_moellendorffii_1	GENL	S	G	K	SFTGRDFLSL	PDD	QRRK
Physcomitella_patens_1	GEDL	K	D	K	SFTGREFMEE	SPE	RRRK
Physcomitella_patens_2	NEDI	R	D	K	SFTGHEFMEE	SVE	RRKQ
Physcomitella_patens_3	DEDL	R	E	K	SYTGREFMDL	TPE	KRKE
Selaginella_moellendorffii_2	GESL	A	G	K	SFTGKDFMAL	STE	QRCK
Glycine_max_3	DEDL	T	G	Q	SLAGKEFISL	SHS	EQVK
Glycine_max_4	DEDL	T	G	Q	SLTGKEFISF	SPS	EQVK
Aquilegia_caerulea_3	SEDL	R	L	R	SYTGKEFMAL	SST	LQKE
A.thaliana_AT4G00900.1	NEDL	S	Q	S	SFTGKEFMSI	PAS	RRSE
Chlamydomonas_reinhardtii_1	GDDV	S	L	Y	SYTGRDFVSL	PRE	RQME
Volvox_carteri_1	GDDL	S	S	V	SFTGRAFVAL	PRE	RQLE
Micromonas_pusilla_1	AEDV	A	G	R	SFTGREFGAM	TKA	KQFA
Micromonas_sp_1	PSDA	V	G	R	SFTGREFSDM	PLA	KKKK
Selaginella_moellendorffii_3	QNDL	S	E	H	SLTGKDFMKL	SVS	DRRA
Thalassiosira_oceanica_2	GFDP		E	C	SFTGTDFFRM	GEA	DQLK
Thalassiosira_pseudonana_3	GFDA		D	S	SFTGSDFFKK	SDS	EQLO
Pseudo-nitzschia_multiseries_2	GDNL	A	G	K	SFTGAEFFQG	SISDE	ERAR
Fragilariopsis_cylindrus_9	DDDL	K	G	K	SFTGAEFFHG	SISDE	ERAR
Fragilariopsis_cylindrus_10	DDDL	K	G	K	SFTGAEFFHG	SISDE	ERAR
Aquilegia_caerulea_4	LEDF	S	G	R	SYTASEFEEL	PAL	OKGS
Glycine_max_5	LIDF	A	E	H	SYTASEFEEL	PAL	QOTI
Medicago_truncatula_2	LIDF	T	E	H	SYTASEFEEL	PAL	QOTI
A.thaliana_AT1G10130.1	LVDF	S	G	M	SYTASEFERL	PAV	QOTL
Oryza_sativa_2	LEDF	T	G	Y	SYTASEFEGL	PPL	EKAN
Selaginella_moellendorffii_4	SDDV	S	S	K	SLTAAEFDSL	TPM	QQAV
Micromonas_pusilla_2	ATSTQLLARK	MIDDA	AKAGLATNAGVLLPPG	K	SFTGLEFDEM	SAA	EQSD
Micromonas_sp_2			GIMFPPD	R	SYEGLEFDEM	DGL	TQSN
Volvox_carteri_2	AEDDEAAL	Q	G	L	SYTGQEFDAL	SASPGGSS	EQSA
Chlamydomonas_reinhardtii_2	SSPYGYQNHNMYDDADAEADEAAL	R	G	L	SYTGQEFDAL	AGGGGFSS	DEQAA
Dunaliella_salina_1	DDEDT	P	G	F	SYTGRQFEEM	GAL	GOAA
Ostreococcus_lucimarinus_2	STQNSF	K	G	K	SFTGVFEFAM	TIE	QREE
Phaeodactylum_tricornutum_2	ENG	D	T	A	ALSGAELDAI	SPO	NLAE
Chlamydomonas_reinhardtii_3	KAANEPPAKA		AAGHGHGHDARRASSKAVP	VITGPQVDAM	DDA	GLQA	
Chlamydomonas_reinhardtii_4	DDEAPART		ALATAAGARRPAAAVP	VITGPQVDAM	DDA	GLQA	
Thalassiosira_pseudonana_4			S	E	AVTGPELDAM	SDD	ELRK
Thalassiosira_pseudonana_5			S	E	AVTGPELDAM	SDD	EIRK

Fragilariopsis_cylindrus_11	-----	P	-----	G	SITGPELDAM	-----	DDE	-----	EFKK
Fragilariopsis_cylindrus_12	-----	P	-----	G	SITGPELDAM	-----	DDE	-----	EFKK
Pseudo-nitzschia_multiseriis_3	-----	P	-----	A	AITGPELDSM	-----	SDE	-----	EIKK
Phaeodactylum_tricornutum_3	-----	S	-----	E	AVTGPEMDSM	-----	SEA	-----	ELRI
Micromonas_pusilla_3	N	GE	-----	-----	ATDCKALRPE	-----	KDTEYASSD	-----	KIDA
Micromonas_sp_3	N	GE	-----	-----	ATDCGALRPH	-----	KEGEYLSNP	-----	FIDA
Chlamydomonas_reinhardtii_5	D	A	-----	I	AMEGPVFRAM	-----	PAT	-----	ELIP
Chlamydomonas_reinhardtii_6	D	C	-----	I	ALEGPVFRAM	-----	PAT	-----	ELIP
Volvox_carteri_3	D	G	-----	I	AMEGPAFRNM	-----	PAG	-----	ELVP
Volvox_carteri_4	D	G	-----	I	AMEGPAFRNM	-----	PAG	-----	ELVP
Volvox_carteri_5	PGKP	E	-----	V	AMEGPAFRDMLKEDSFVALRERIADDKA	-----	ALC	-----	ELRE
Chlamydomonas_reinhardtii_7	PNHP	E	-----	H	AMEGPVFRREMLKDPDFMALRERMNDPKADGQKEALQ	-----	AAQ	-----	EMKE
Chlamydomonas_reinhardtii_8	-----	A	-----	V	AMEGPDFFRM	-----	AAQ	-----	ELLP
Volvox_carteri_6	D	C	-----	I	ALEGPDFRKM	-----	AAQ	-----	ELLP
Ostreococcus_lucimarinus_3	D	G	-----	L	VLEGPDFRKM	-----	SDA	-----	EKEA
Micromonas_sp_4	D	G	-----	I	ILEGPVFRKM	-----	SQS	-----	EKEA
Selaginella_moellendorffii_5	G	G	-----	L	VCEGSFFRNL	-----	TDN	-----	ERFQ
A.thaliana_AT3G21180.1	D	TE	-----	A	VEPT	-----	SEK	-----	EREQ
Aquilegia_caerulea_5	D	AA	-----	A	TEPN	-----	SDS	-----	AREE
A.thaliana_AT5G57110.2	D	AD	-----	L	SEPT	-----	TDA	-----	ERDK
Oryza_sativa_3	D	PN	-----	V	SEPV	-----	SDL	-----	EREE
Zea_mays_2	D	PN	-----	V	SEPV	-----	SDL	-----	ERED
Zea_mays_3	-----	K	-----	D	AEPN	-----	SET	-----	ARED
Zea_mays_4	-----	N	-----	S	IEPV	-----	SES	-----	ARGE
Selaginella_moellendorffii_6	-----	G	-----	L	VVEGKDFRSY	-----	TDE	-----	ERLE
Selaginella_moellendorffii_7	N	G	-----	T	AIEGKDFRNM	-----	SPD	-----	EQYE
Aquilegia_caerulea_6	G	G	-----	I	AIEGPVFREK	-----	SLE	-----	ELQE
Medicago_truncatula_3	D	G	-----	I	AIEGPEFREK	-----	SLE	-----	ELLE
A.thaliana_AT2G22950.1	D	G	-----	I	AIEGPVFREK	-----	NQE	-----	EMLE
A.thaliana_AT4G37640.1	D	G	-----	I	AIEGPVFREK	-----	NQE	-----	ELLE
Oryza_sativa_4	G	G	-----	I	AIEGPDFRTK	-----	SAE	-----	ELNE
Zea_mays_5	G	G	-----	V	AIEGPDFRVK	-----	TEE	-----	ELQE
Oryza_sativa_5	D	G	-----	L	AIEGPEFREK	-----	SLD	-----	ELLK
A.thaliana_AT1G27770.1	-----	G	-----	I	AIEGPEFREK	-----	SDE	-----	ELLK
Oryza_sativa_6	D	G	-----	I	AIEGAEFREK	-----	SAE	-----	ELHD
Zea_mays_6	D	G	-----	I	AIEGAEFREK	-----	NPE	-----	ELLE
Aquilegia_caerulea_7	D	G	-----	V	AIEGPDFRKM	-----	SPO	-----	EMKD
Oryza_sativa_7	D	G	-----	I	AIEGQQLNKK	-----	SSD	-----	ELKE
Selaginella_moellendorffii_8	-----	D	-----	E	AIEGPDFRRL	-----	STE	-----	EMRK
Selaginella_moellendorffii_9	-----	G	-----	E	AVEGPVFRSW	-----	TGE	-----	EMRR
Oryza_sativa_8	DDA	AG	-----	V	VIEGHEFRAM	-----	SEQ	-----	EQLA
Fragilariopsis_cylindrus_13	G	G	-----	I	AMTGDEFRLK	-----	TPA	-----	ELDD
Pseudo-nitzschia_multiseriis_4	G	G	-----	T	AMTGEEFRKL	-----	TPA	-----	ELDR
Phaeodactylum_tricornutum_4	G	G	-----	I	SMIGEKFRKL	-----	TPA	-----	QLDE
Thalassiosira_pseudonana_6	-----	P	-----	V	LMEGKVFRRKVVYRI	-----	DDDGKKEFDQT	-----	AFDN
Phaeodactylum_tricornutum_5	-----	E	-----	V	LMEGKAFRNQVYIS	-----	RGESGSGEFNQL	-----	EFDK
Phaeodactylum_tricornutum_6	-----	E	-----	V	LMEGKAFRRMVYVD	-----	GKEKGSKEFDQS	-----	AFDK

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Skeletonema_marinoi_ABC	LL	AT	GNMIFC	RAEPSDKQRLIK	MLQ	S	Q
Thalassiosira_pseudonana_1	LL	ASP	GNMVFC	RAEPSDKQRLIK	MLQ	S	L
Thalassiosira_oceanica_1	LL	KSP	GNMVFC	RAEPADKQKLIK	MLQ	S	L
Phaeodactylum_tricornutum_1	IL	RE	GNIVFC	RAEPADKQKLVK	MLQ	N	L
Fragilariopsis_cylindrus_1	IL	KS	DNIVFC	RAQPSDKQKLIK	MLQ	SKEL	
Fragilariopsis_cylindrus_2	IL	KS	DNIVFC	RAQPSDKQKLIK	MLQ	SKEL	
Fragilariopsis_cylindrus_3	IL	KS	DNIVFC	RAQPSDKQKLIK	MLQ	SKEL	
Fragilariopsis_cylindrus_4	IL	KS	DNIVFC	RAQPSDKQKLIK	MLQ	SKEL	
Fragilariopsis_cylindrus_5	IL	KS	DNIVFC	RAQPSDKQKLIK	MLQ	SKEL	
Fragilariopsis_cylindrus_6	IL	KS	DNIVFC	RAQPSDKQKLIK	MLQ	SKEL	
Fragilariopsis_cylindrus_7	IL	KS	DNIVFC	RAQPSDKQKLIK	MLQ	SKEL	
Fragilariopsis_cylindrus_8	IL	KS	DNIVFC	RAQPSDKQKLIK	MLQ	SKEL	
Pseudo-nitzschia_multiseries_1	IL	SK	DNIVFC	RAQPSDKQALIK	MLQ	N	DL
Thalassiosira_pseudonana_2	VL	KS	GNLVIC	RAEPSDKQRLVK	MLQ	S	T
Ostreococcus_lucimarinus_1	AL	LGE	GGRVFS	RTEPKHKQDIVR	LLR	D	S
Zea_mays_1	LL	RQQ	GGLLFS	RAEPKHKQEIVR	LLK	E	D
Oryza_sativa_1	LL	ROT	GGLLFS	RAEPKHKQEIVR	LLK	E	D
Aquilegia_caerulea_1	HL	RQS	GGLLFS	RAEPRHKQEIVR	LLK	E	D
A.thaliana_AT1G07810.1	HL	ROT	GGLLFS	RAEPKHKQEIVR	LLK	E	D
A.thaliana_AT1G07670.1	HL	ROT	GGLLFS	RAEPKHKQEIVR	LLK	E	D
Medicago_truncatula_1	YL	ROT	GGLLFS	RAEPRHKQDIVR	LLK	E	D
Glycine_max_1	YL	RQH	GGLLFS	RAEPRHKQEIVR	LLK	E	E
Glycine_max_2	YL	RQP	GGLLFS	RAEPRHKQEIVR	LLK	E	E
Aquilegia_caerulea_2	HL	RQS	GGLLFS	RAEPRHKQEIVR	LLK	E	D
Selaginella_moellendorffii_1	VL	SGK	GGRVFS	RAEPRHKQEIVR	MLK	E	A
Physcomitella_patens_1	IL	SGT	GGRVFS	RAEPKHKQDIVR	ILK	E	A
Physcomitella_patens_2	IL	SGT	GGRVFS	RAEPKHKQDIVR	ILK	D	A
Physcomitella_patens_3	IL	FGK	GGRVFS	RAEPKHKQDIVR	ILK	D	G
Selaginella_moellendorffii_2	VL	SGS	GGRVFS	RAEPRHKQEIVR	MLK	D	A
Glycine_max_3	IL	LRP	GKVFVS	RAEPRHKQEIVR	LLK	E	M
Glycine_max_4	IL	LRP	GKVFVS	RAEPRHKQEIVR	LLK	E	M
Aquilegia_caerulea_3	IL	SKP	GGMVFS	RAEPKHKQEIVR	MLK	E	M
A.thaliana_AT4G00900.1	IL	SKS	GKVFVS	RAEPRHKQEIVR	MLK	E	M
Chlamydomonas_reinhardtii_1	IL	ASA	PAMCFS	RAEPRHKQDIVR	LLK	E	Q
Volvox_carteri_1	LL	AAA	PAMCFS	RAEPRHKQDIVR	LLK	E	Q
Micromonas_pusilla_1	AL	TAP	GGCVFS	RAEPKHKQDIVR	LLK	E	R
Micromonas_sp_1	LL	ATP	GGCVFS	RAEPKHKQDIVR	LLK	E	A
Selaginella_moellendorffii_3	LL	GNQSDS	KGFVFS	RSEP1HKQEIVR	VLK	D	G
Thalassiosira_oceanica_2	IL	AGD	GGLVFS	RTEPTHKQQLVK	LLK	S	Q
Thalassiosira_pseudonana_3	IL	MKDN	GGLVFS	RTEPRHKQQLVK	LLK	S	Q
Pseudo-nitzschia_multiseries_2	LIM	QGG	GSRVFS	RTEPRDKQLLVK	LLR	S	C
Fragilariopsis_cylindrus_9	LIM	VGG	GSRVFS	RTEPRDKQLLVK	LLR	N	C
Fragilariopsis_cylindrus_10	LIM	VGG	GSRVFS	RTEPRDKQLLVK	LLR	N	C
Aquilegia_caerulea_4	AL	Q	HMLFT	RVEPSHKRMLVE	ALQ	Q	Q
Glycine_max_5	AL	Q	RMALFT	RVEPSHKRMLVE	ALQ	H	Q
Medicago_truncatula_2	AL	Q	RMALFT	RVEPSHKRMLVE	ALQ	H	Q
A.thaliana_AT1G10130.1	AL	R	RMTLFS	RVEPSHKRMLVE	ALQ	K	Q
Oryza_sativa_2	AL	Q	RMVLFSSFTGCC	RVEPSHKRMLVE	ALQ	L	H
Selaginella_moellendorffii_4	AV	Q	NLVLS	RVNPSHKSMMLVD	VLK	R	H
Micromonas_pusilla_2	AV	A	NMAVFS	RVEPRHKSKLIE	ILK	R	Q
Micromonas_sp_2	AA	L	SMSVFS	RVEPLHKTRLVE	LLK	A	H
Volvox_carteri_2	AV	S	RLAVFS	RVEPMHKLRLEVE	LLR	S	Q
Chlamydomonas_reinhardtii_2	AV	D	NVVVLS	RVEPMHKLRLEVE	QLR	A	R
Dunaliella_salina_1	AT	R	NLVVLS	RVEPMHKLRLEVE	LLK	A	Q
Ostreococcus_lucimarinus_2	AA	R	TMCVFS	RVEPAQKSKLVE	ILK	R	Q
Phaeodactylum_tricornutum_2	SI	S	GVRVfy	RVAPRHKLAIVR	ALQ	E	R
Chlamydomonas_reinhardtii_3	VV	M	GCVVFA	RASPENKLRIVR	ALQ	A	L
Chlamydomonas_reinhardtii_4	VV	M	GCVVFA	RASPENKLRIVK	ALQ	A	L
Thalassiosira_pseudonana_4	CV	M	THNVFA	RASPONKIRIVK	ALQ	A	E
Thalassiosira_pseudonana_5	CV	L	THNVFA	RASPONKIRIVK	ALQ	A	E

Fragilariopsis_cylindrus_11	AV	M	TYNVFA	RASPENKIKIVK	ALQ	S	Q
Fragilariopsis_cylindrus_12	AV	M	TYNVFA	RASPENKIKIVK	ALQ	S	Q
Pseudo-nitzschia_multiseriis_3	AV	M	TYNVFA	RASPENKIKIVK	ALQ	S	Q
Phaeodactylum_tricornutum_3	AT	Q	KYNVFA	RASPONKIRIVK	ALQ	A	E
Micromonas_pusilla_3	LT	R	TTSVFA	RAKPEDKLEIVK	SLQ	R	Q
Micromonas_sp_3	LT	K	TTSVFA	RAKPEDKLEIVK	SLQ	R	Q
Chlamydomonas_reinhardtii_5	LL	P	RLRVLA	RSSPEDKLLTVS	LLK	K	Q
Chlamydomonas_reinhardtii_6	LL	P	RLRVLA	RSSPEDKLLTVS	LLK	K	Q
Volvox_carteri_3	LL	P	KLRVLA	RSSPEDKLLTVS	LLK	K	Q
Volvox_carteri_4	LL	P	KLRVLA	RSSPEDKLLTVS	LLK	K	Q
Volvox_carteri_5	KM	D	AVRV	RPGRGGRLKVVRRGKNTTYSWLAS		Q	A
Chlamydomonas_reinhardtii_7	KI	N	HVRVLA	RSSPEDKLLQVLR	LLK	E	M
Chlamydomonas_reinhardtii_8	LL	P	KLRVLA	RSSPEDKLLTVS	MLK	Q	H
Volvox_carteri_6	LL	P	KLRVLA	RSSPEDKLLTVS	MLK	Q	Q
Ostreococcus_lucimarinus_3	IA	M	RIRVLA	RSSPSDKLVLCN	LQR	K	L
Micromonas_sp_4	VA	V	KIRVLA	RSSPADKMLCN	LOK	S	L
Selaginella_moellendorffii_5	IV	P	KIDVLA	RSTPSDKLLLVK	TLK	S	L
A.thaliana_AT3G21180.1	VA	K	KITVMG	RSSPNDKLLLVQ	ALR	K	N
Aquilegia_caerulea_5	IA	D	KISVMG	RSSPNDKLLLVK	ALK	R	R
A.thaliana_AT5G57110.2	IS	D	KISVMG	RSSPNDKLLLVQ	SLR	R	Q
Oryza_sativa_3	AA	E	KISVMG	RSSPNDKLLLVK	ALR	K	R
Zea_mays_2	AA	E	KISVMG	RSSPNDKLLLVK	ALR	A	R
Zea_mays_3	IA	D	KITVMG	RSSPNDKLLLVQ	CLK	R	R
Zea_mays_4	AA	D	KIIVMG	RSSPNDKLLLVQ	ALK	R	K
Selaginella_moellendorffii_6	LV	P	KLEVMA	RSSPMDKLLLVK	TLR	S	M
Selaginella_moellendorffii_7	IL	P	AIQVMA	RSSPTDKHTLVK	RLL	E	M
Aquilegia_caerulea_6	II	P	KIQVMA	RSSPLDKHTLVK	HLR	T	TF
Medicago_truncatula_3	LI	P	KIQVMA	RSSPLDKHTLVK	HLR	T	TF
A.thaliana_AT2G22950.1	LI	P	KIQVMA	RSSPMDKHTLVK	QLR	T	TF
A.thaliana_AT4G37640.1	LI	P	KIQVMA	RSSPMDKHTLVK	QLR	T	TF
Oryza_sativa_4	LI	P	KIQVMA	RSSPLDKHTLVK	HLR	T	TF
Zea_mays_5	LI	P	KIQVMA	RSSPLDKHTLVK	HLR	T	TF
Oryza_sativa_5	LI	P	KIQVMA	RSSPLDKHTLVK	HLR	T	TF
A.thaliana_AT1G27770.1	LI	P	KIQVMA	RSSPLDKHTLVK	HLR	T	TF
Oryza_sativa_6	LI	P	KMQVLA	RSSPLDKHTLVK	HLR	T	AF
Zea_mays_6	LI	P	KMQVLA	RSSPLDKHALVK	YLR	T	TF
Aquilegia_caerulea_7	LV	P	KIQVMA	RSMPMDKHTLVK	HLR	T	VI
Oryza_sativa_7	LL	P	KIQVIA	RSLPMDKYLVT	SLK	S	MY
Selaginella_moellendorffii_8	LI	P	SLQVMA	RSSPTDKHTLVK	ELR	A	L
Selaginella_moellendorffii_9	RI	P	KMQILA	RSSPSDKHRLVK	ELQ	A	M
Oryza_sativa_8	IV	D	NIRVMA	RSLPLDKLVLVQ	RLK	Q	K
Fragilariopsis_cylindrus_13	IL	P	TLQVLA	RSSPEDKHTLVQ	RLNG		
Pseudo-nitzschia_multiseriis_4	VL	P	TLQVLA	RSSPEDKHTLVQ	RLNGGLMPETEEFWLERHPCGRDFDTEKDLLLPGYKEEWSRSRGG	V	
Phaeodactylum_tricornutum_4	IL	P	RLQVLA	RSSPEDKHTLVQ	RLNGAASPSTESEWCEAHPNKDFATQRNLLLPGYKDEWAKSRFG	V	
Thalassiosira_pseudonana_6	IW	P	HLRVLA	RSSPDDKLLTAH	GLN	Q	STL
Phaeodactylum_tricornutum_5	IW	P	HLRVLA	RSSPDDKLLTAH	GLN	Q	SNLFVDKGLCQ
Phaeodactylum_tricornutum_6	IW	P	RLRVLA	RSSPDDKLLTAH	GLN	K	

Skeletonema_marinoi_ABC	-----GEI	---AAMTGD	----GVNDAPALQQ	----ASIGIAMG	ISGTEVSK	EAADMVLAD	NFSTIVA	AAIEEGRS	IYNNMQ	AFICFL	IS
Thalassiosira_pseudonana_1	-----GEI	---PAMTGD	----GVNDAPALQQ	----ASIGVAMG	ISGTEVSK	EAADMVLAD	NFSTIVA	AAVEEGR	CIYANM	QAFICFL	IS
Thalassiosira_oceanica_1	-----DEI	---SAMTGN	FYQFHC	VDAPALQQ	----ANIGIAMG	ISGTEVSK	EAADMVLAD	NFSTIVA	AAVEEGR	CIYANM	QAFICFL
Phaeodactylum_tricornutum_1	-----DEI	---PAMTGD	----GVNDAPALQQ	----AAIGIAMG	ITGTEVSK	NAADMILAD	NFSTIVS	AVEEGR	RIYSNM	QAFICFL	IS
Fragilariopsis_cylindrus_1	-----NEI	---PAMTGD	----GVNDAPALQQ	----AAIGVAMG	-TGTAVAK	EADMILAD	DDFSTIVS	AVEEGR	TIYANM	QAFICFL	IS
Fragilariopsis_cylindrus_2	-----NEI	---PAMTGD	----GVNDAPALQQ	----AAIGVAMG	-TGTAVAK	EADMILAD	DDFSTIVS	AVEEGR	TIYANM	QAFICFL	IS
Fragilariopsis_cylindrus_3	-----NEI	---PAMTGD	----GVNDAPALQQ	----AAIGVAMG	-TGTAVAK	EADMILAD	DDFSTIVS	AVEEGR	TIYANM	QAFICFL	IS
Fragilariopsis_cylindrus_4	-----NEI	---PAMTGD	----GVNDAPALQQ	----AAIGVAMG	-TGTAVAK	EADMILAD	DDFSTIVS	AVEEGR	TIYANM	QAFICFL	IS
Fragilariopsis_cylindrus_5	-----NEI	---PAMTGD	----GVNDAPALQQ	----AAIGVAMG	-TGTAVAK	EADMILAD	DDFSTIVS	AVEEGR	TIYANM	QAFICFL	IS
Fragilariopsis_cylindrus_6	-----NEI	---PAMTGD	----GVNDAPALQQ	----AAIGVAMG	-TGTAVAK	EADMILAD	DDFSTIVS	AVEEGR	TIYANM	QAFICFL	IS
Fragilariopsis_cylindrus_7	-----NEI	---PAMTGD	----GVNDAPALQQ	----AAIGVAMG	-TGTAVAK	EADMILAD	DDFSTIVS	AVEEGR	TIYANM	QAFICFL	IS
Fragilariopsis_cylindrus_8	-----NEI	---PAMTGD	----GVNDAPALQQ	----AAIGVAMG	-TGTAVAK	EADMILAD	DDFSTIVS	AVEEGR	TIYANM	QAFICFL	IS
Pseudo-nitzschia_multiseriata_1	-----GEI	---AAMTGD	----GVNDAPALQQ	----AAIGVAMG	-TGTAVS	KEADMVLAD	DDFSTIVS	AVEEGR	TIYANM	QAFICFL	IS
Thalassiosira_pseudonana_2	-----DEI	---PAMTGD	----GVNDAPALQQ	----ASIGVAMG	ISGTDVAK	EADMILVDD	NFSTIVD	AVEEGR	CIYANM	QAFINFL	ITC
Ostreococcus_lucimarinus_1	-----GDV	---VAMTGD	----GVNDAPALKL	----ADIGIAMG	ITGTEVAK	EADMVLAD	NFSTIVE	AVSEGR	IYNNMK	KAFIRYMI	SS
Zea_mays_1	-----GEV	---VAMTGD	----GVNDAPALKL	----ADIGVAMG	ITGTEVAK	EADMVLAD	NFSTIVA	AVGEGR	IYNNMK	KAFIRYMI	SS
Oryza_sativa_1	-----GEV	---VAMTGD	----GVNDAPALKL	----ADIGVAMG	ITGTEVAK	EADMVLAD	NFSTIVA	AVGEGR	IYNNMK	KAFIRYMI	SS
Aquilegia_caerulea_1	-----GEV	---VAMTGD	----GVNDAPALKL	----ADIGIAMG	ITGTEVAK	EADMVLAD	NFSTIVA	AVGEGR	IYNNMK	KAFIRYMI	SS
A.thaliana_AT1G07810.1	-----GEV	---VAMTGD	----GVNDAPALKL	----ADIGVAMG	ISGTEVAK	EADMVLAD	NFSTIVA	AVGEGR	IYNNMK	KAFIRYMI	SS
A.thaliana_AT1G07670.1	-----GEV	---VAMTGD	----GVNDAPALKL	----ADIGIAMG	ITGTEVAK	EADMVLAD	NFSTIVA	AVGEGR	IYNNMK	KAFIRYMI	SS
Medicago_truncatula_1	-----GEV	---VAMTGD	----GVNDAPALKL	----ADIGIAMG	ITGTEVAK	EADMVLAD	NFSSIVA	AVGEGR	IYNNMK	KAFIRYMI	SS
Glycine_max_1	-----GEV	---VAMTGD	----GVNDAPALKL	----ADIGIAMG	ITGTEVAK	EADMVLAD	NFSSIVA	AVGEGR	IYNNMK	KAFIRYMI	SS
Glycine_max_2	-----GEV	---VAMTGD	----GVNDAPALKL	----ADIGIAMG	ITGTEVAK	EADMVLAD	NFSSIVA	AVGEGR	IYNNMK	KAFIRYMI	SS
Aquilegia_caerulea_2	-----GEV	---VAMTGD	----GVNDAPALKL	----ADIGIAMG	ITGTEVAK	EADMVLAD	NFSTIVS	AVGEGR	IYNNMK	KAFIRYMI	SS
Selaginella_moellendorffii_1	-----GEV	---VAMTGD	----GVNDAPALKL	----ADIGIAMG	ITGTEVAK	EADMVLAD	NFSTIVS	AVGEGR	IYNNMK	KAFIRYMI	SS
Physcomitella_patens_1	-----GEV	---VAMTGD	----GVNDAPALKL	----ADIGVAMG	ITGTEVAK	EADMVLAD	NFSTIVA	AVGEGR	IYNNMK	KAFIRYMI	SS
Physcomitella_patens_2	-----GEV	---VAMTGD	----GVNDAPALKL	----ADIGVAMG	ITGTEVAK	EADMVLAD	NFSTIVA	AVGEGR	IYNNMK	KAFIRYMI	SS
Physcomitella_patens_3	-----GEV	---VAMTGD	----GVNDAPALKL	----ADIGIAMG	ITGTEVAK	EADMVLAD	NFSTIVA	AVGEGR	IYNNMK	KAFIRYMI	SS
Selaginella_moellendorffii_2	-----GEV	---VAMTGD	----GVNDAPALKL	----ADIGIAMG	ITGTEVAK	EADMVLAD	NFSTIVS	AVGEGR	IYNNMK	KAFIRYMI	SS
Glycine_max_3	-----GEI	---VAMTGD	----GVNDAPALKL	----ADIGIAMG	ITGTEVAK	EADMVLAD	NFSTIVL	AVGEGR	IYNNMK	KSFIRYMI	SS
Glycine_max_4	-----GEI	---VAMTGD	----GVNDAPALKL	----ADIGIAMG	ITGTEVAK	EADMVLAD	NFSTIVS	AVGEGR	IYNNMK	KSFIRYMI	SS
Aquilegia_caerulea_3	-----GEI	---VAMTGD	----GVNDAPALKL	----ADIGIAMG	ITGTEVAK	EADMVLAD	NFSTIVS	AVGEGR	IYNNMK	KAFIRYMI	SS
A.thaliana_AT4G00900.1	-----GEI	---VAMTGD	----GVNDAPALKL	----ADIGIAMG	ITGTEVAK	EADMVLAD	NFSTIVS	AVGEGR	IYNNMK	KAFIRYMI	SS
Chlamydomonas_reinhardtii_1	-----GEV	---TAMTGD	----GVNDAPALKL	----ADIGVAMG	ITGTEVAK	EADMVLAD	NFSSIVA	AVGEGR	IYNNMK	KAFIRYMI	SS
Volvox_carteri_1	-----GEV	---AAMTGD	----GVNDAPALKL	----ADIGVAMG	ITGTEVAK	EADMVLAD	NFSSIVA	AVGEGR	IYNNMK	KAFIRYMI	SS
Micromonas_pusilla_1	-----DEI	---VAMTGD	----GVNDAPALKL	----ADIGIAMG	ITGTEVAK	EADMVLAD	NFSSIVD	AVSEGR	IYNNMK	KAFIRYMI	SS
Micromonas_sp_1	-----DEI	---VAMTGD	----GVNDAPALKL	----ADIGIAMG	ITGTEVAK	EADMVLAD	NFSSIVD	AVSEGR	IYNNMK	KAFIRYMI	SS
Selaginella_moellendorffii_3	-----GEI	---VAMTGD	----GVNDAPALKL	----ADIGIAMG	LSGTEVAK	EADMVLAD	DFATIVV	AVREGR	IYDNM	RAFIRYLI	SS
Thalassiosira_oceanica_2	-----GCV	---VAMTGD	----GVNDAPALKQ	----ADIGIAMG	LTGTEVAK	EADMVLAD	NFATIVL	AVEEGR	IYNNM	QAFIRYLI	SS
Thalassiosira_pseudonana_3	-----GCV	---VAMTGD	----GVNDAPALKQ	----ADIGIAMG	LTGTEVAK	EADMVLAD	NFATIVH	AVEEGR	IYNNM	QAFIRYLI	SS
Pseudo-nitzschia_multiseriata_2	-----GEV	---PAMTGD	----GVNDAPALKQ	----ASIGIAMG	ISGTEVAK	EADMILAD	NFATIVS	AVEEGR	IYSNM	KAFIRYMI	SS
Fragilariopsis_cylindrus_9	-----DEV	---PAMTGD	----GVNDAPALKQ	----ASIGIAMG	ISGTEVAK	EADMILAD	NFATIVD	AVEEGR	IYSNM	KAFIRYMI	SS
Fragilariopsis_cylindrus_10	-----DEV	---PAMTGD	----GVNDAPALKQ	----ASIGIAMG	ISGTEVAK	EADMILAD	NFATIVD	AVEEGR	IYSNM	KAFIRYMI	SS
Aquilegia_caerulea_4	-----NEV	---VAMTGD	----GVNDAPALKK	----ADIGIAMG	-SGTAVAK	SADMVLAD	NFASIVA	AVGEGR	IYNNM	KAFIRYMI	SS
Glycine_max_5	-----NEV	---VAMTGD	----GVNDAPALKK	----ADIGIAMG	-SGTAVAK	SADMVLAD	NFASIVA	AVGEGR	IYNNM	KAFIRYMI	SS
Medicago_truncatula_2	-----NEV	---VAMTGD	----GVNDAPALKK	----ADIGIAMG	-SGTAVAK	SADMVLAD	NFASIVA	AVGEGR	IYNNM	KAFIRYMI	SS
A.thaliana_AT1G10130.1	-----NEV	---VAMTGD	----GVNDAPALKK	----ADIGIAMG	-SGTAVAK	SADMVLAD	NFASIVA	AVGEGR	IYNNM	KAFIRYMI	SS
Oryza_sativa_2	-----NEV	---VAMTGD	----GVNDAPALKK	----ADIGIAMG	-SGTAVAK	SADMVLAD	NFATIVA	AVSEGR	IYNNM	KAFIRYMI	SS
Selaginella_moellendorffii_4	-----KEV	---VAMTGD	----GVNDAPALKQ	----ADIGIAMG	-SGTAVAK	SADMVLAD	NFATIVV	AVGEGR	IYNNM	KAFIRYMI	SS
Micromonas_pusilla_2	-----GHV	---VAMTGD	----GVNDAPALKR	----ADIGIAMG	-SGTAVAK	SSADMVLAD	NFATIVS	AVGEGR	IYNNM	KAFIRYMI	SS
Micromonas_sp_2	-----GOV	---VAMTGD	----GVNDAPALRL	----ADIGIAMG	-SGTAVAK	NAADMVLAD	NFATIVT	AVEGR	GFNNT	KQFVRYMI	SS
Volvox_carteri_2	-----GHV	---VAMTGD	----GVNDAPALAR	----ADIGVAMG	-SGTAVAK	GAADMVLAD	NFATIVA	AVGEGR	IYNNM	KAFIRYMI	SS
Chlamydomonas_reinhardtii_2	-----GHV	---VAMTGD	----GVNDAPALSR	----ADIGVAMG	-SGTAVAK	GAADMVLAD	NFATIVS	AVGEGR	IYNNM	KAFIRYMI	SS
Dunaliella_salina_1	-----GHV	---VAMTGD	----GVNDAPALLR	----ADIGIAMG	-SGTAVAK	HAADMVLAD	NFATIVFA	-----	-----	-----	-----
Ostreococcus_lucimarinus_2	-----DNI	---VAMTGD	----GVNDAPALKC	----ADIGIAMG	-SGTAVAK	GAADMVLAD	NFSTIVE	AVGEGR	IYNNM	KAFIRYMI	SS
Phaeodactylum_tricornutum_2	-----GDI	---VAMTGD	----GVNDAPALKG	----ADIGIAMG	LTGTDVAK	EADMVLAD	DFRTITMA	IAEGK	GIFFL	AFYMLV	SS
Chlamydomonas_reinhardtii_3	-----GOT	---AAMTGD	----GVNDAPALKA	----ADVGVAMG	ITGTDVSK	EAKMVLAD	NFATIVA	AVREGRR	VWDIRK	ILIFNL	PV
Chlamydomonas_reinhardtii_4	-----GOT	---AAMTGD	----GVNDAPALKA	----ADVGVAMG	ITGTDVSK	EAKMVLAD	NFATIVA	AVREGRR	VWDIRK	ILIFNL	PV
Thalassiosira_pseudonana_4	-----GOV	---SSMTGD	----GVNDAPALKA	----ANMGVAMG	KEGTDVARE	ASEMILAD	NFATIVFA	VKQGR	VWDIRK	VLLVNT	PI
Thalassiosira_pseudonana_5	-----GOV	---TSMTGD	----GVNDAPALKA	----ANMGVAMG	KEGTDVARE	ASEMILAD	NFATIVFA	VKQGR	VWDIRK	VLLVNT	PI

Fragilariopsis_cylindrus_11	-----GEV--ASMTGD-----GVNDAPALKA-----ANMGVAMGKEGTDVAREAADMILADNFATILTAVKEGRVVDNLRKVLMLINTPI
Fragilariopsis_cylindrus_12	-----GEV--ASMTGD-----GVNDAPALKA-----ANMGVAMGKEGTDVAREAADMILADNFATILTAVKEGRVVDNLRKVLMLINTPI
Pseudo-nitzschia_multiseriis_3	-----GEV--ASMTGD-----GVNDAPALKA-----ANMGVAMGLEGTDVAREAAEMILADNFATILSAVKEGRVVDNLRKVLMLINTPI
Phaeodactylum_tricornutum_3	-----GEV--CAMTGD-----GVNDAPALKA-----ADMGVAMGKEGTDVAREAAEMILADNFATIIISAVREGRVVDNLRKVLMLINTPI
Micromonas_pusilla_3	-----GWV--CAMTGD-----GVNDAPALQR-----ADIGVAMGLEGTEVAKGASDMILTDDNFCSIVKAIKGRITIIYAGIQKFVAFIMSV
Micromonas_sp_3	-----GFV--CAMTGD-----GVNDAPALNR-----ADIGVAMGLEGTEVAKGASDMILTDDNFCSIVKAIKGRITIIYAGIQKFVAFIMSV
Chlamydomonas_reinhardtii_5	-----GEI--VAVTGD-----GTNDAPALKE-----SDVGLAMGIAGTEVAKEAADI I I L D D N F S S I V K S V L W G R A V Y M N I R K F L V F O L S I
Chlamydomonas_reinhardtii_6	-----GEV--VAVTGD-----GTNDAPALKE-----SDVGLAMGIAGTEVAKEAADI I I L D D N F S S I V K S V L W G R T V Y M N I R K F L V F O L S I
Volvox_carteri_3	-----GEV--VAVTGD-----GTNDAPALKE-----SDVGLAMGIAGTEVAKEAADI I I L D D N F S S I V K S V L W G R C V Y M N I R K F L V F O L S I
Volvox_carteri_4	-----GEV--VAVTGD-----GTNDAPALKE-----SDVGLAMGIAGTEVAKEAADI I I L D D N F S S I V K S V L W G R C V Y M N I R K F L V F O L S I
Volvox_carteri_5	-----PDSTFGVQSNGG-----GGPRGERMDEGSGTKGGDCALGEADGGTEVSKAADI I I L D D N F S S I V K S V L W G R S V F A N I R K F L O F O L T V
Chlamydomonas_reinhardtii_7	-----GDV--VAVTGD-----GTNDAPALKE-----SDVGLAMGIAGTEVAKEAADI I I L D D N F S S I V K S V K W G R S V F A N I R K F L O F O L T V
Chlamydomonas_reinhardtii_8	-----GDV--VAVTGD-----GTNDAPALKE-----SDVGLAMGIAGTEVAKEAADI I I L D D N F S S I V K S V L W G R S V F T N I R K F L M F O L T V
Volvox_carteri_6	-----GEV--VAVTGD-----GTNDAPALKE-----SDVGLAMGIAGTEVAKEAADI I I L D D N F S S I V K S V L W G R S V F T N I R K F L M F O L T V
Ostreococcus_lucimarinus_3	-----GEV--VAVTGD-----GTNDAPALKD-----ADVGFALGIAGTEIAKEACDI I I L D D N I K S M A K A V L W G R N V Y Q S I R K F L O F O L V V
Micromonas_sp_4	-----GEV--VSVTGD-----GTNDAPALKE-----ADVGFALGIAGTEIAKEACDI I I L D D N I Q S M A K A V L W G R N V F Q S I R K F L O F O L V V
Selaginella_moellendorffii_5	-----NEI--VAVTGD-----GTNDAPALRE-----AHIGLSMGIQTEVAKESSDI I I L D D N F A S V V K V V H W G R S V Y A N I Q K F I Q F O L T V
A.thaliana_AT3G21180.1	-----GDV--VAVTGD-----GTNDAPALHE-----ADIGLSMGIQTEVAKESSDI I I L D D N F A S V V K V V R W G R S V Y A N I Q K F I Q F O L T V
Aquilegia_caerulea_5	-----GHV--VAVTGD-----GTNDAPALHE-----ADIGLSMGIQTEVAKESSDI I I L D D N F S S V V K V V R W G R S V Y A N I Q K F I Q F O L T V
A.thaliana_AT5G57110.2	-----GHV--VAVTGD-----GTNDAPALHE-----ADIGLSMGIQTEVAKESSDI I I L D D N F A S V V K V V R W G R S V Y A N I Q K F I Q F O L T V
Oryza_sativa_3	-----GHV--VAVTGD-----GTNDAPALHE-----ADIGLSMGIQTEVAKESSDI I I L D D N F A S V V R V V R W G R S V Y A N I Q K F I Q F O L T V
Zea_mays_2	-----GHV--VAVTGD-----GTNDAPALHE-----ADIGLSMGIQTEVAKESSDI I I L D D N F A S V V R V V R W G R S V Y A N I Q K F I Q F O L T V
Zea_mays_3	-----GHV--VAVTGD-----GTNDAPALHE-----ADIGLSMGIQTEVAKESSDI I I L D D D F T S V V K V V R W G R S V Y A N I Q K F I Q F O L T V
Zea_mays_4	-----GHV--VAVTGD-----GTNDAPALHE-----ADIGLSMGIQTEVAKESSDI I I L D D D F T S V V K V V R W G R S V Y A N I Q K F I Q F O L T V
Selaginella_moellendorffii_6	-----NDV--VAVTGD-----GTNDAPALHE-----ADIGLSMGIQTEVAKESSDI I I L D D N F A S V V K V V R W G R S V Y A N I Q K F I Q F O L T V
Selaginella_moellendorffii_7	-----GEI--VAVTGD-----GTNDAPALHE-----ASIGLSMGIQTEVAKESSDI I I M D D D F A S I V K V V R W G R A V Y A N I Q K F V Q F O C T V
Aquilegia_caerulea_6	-----GEV--VAVTGD-----GTNDAPALHE-----ADIGLSMGIQTEVAKESSDI I I L D D N F S T I V T V A K W G R S V Y I N I Q K F V Q F O L T V
Medicago_truncatula_3	-----GEV--VAVTGD-----GTNDAPALHE-----ADIGLSMGIQTEVAKESSDI I I L D D N F S T I V T V A K W G R S V Y I N I Q K F V Q F O L T V
A.thaliana_AT2G22950.1	-----DEV--VAVTGD-----GTNDAPALHE-----ADIGLSMGIQTEVAKEIADVI I I L D D N F S T I V T V A K W G R S V Y I N I Q K F V Q F O L T V
A.thaliana_AT4G37640.1	-----DEV--VAVTGD-----GTNDAPALHE-----ADIGLSMGIQTEVAKEIADVI I I L D D N F S T I V T V A K W G R S V Y I N I Q K F V Q F O L T V
Oryza_sativa_4	-----DEV--VAVTGD-----GTNDAPALHE-----ADIGLSMGIQTEVAKEIADVI I I L D D N F S T I V T V A K W G R S V Y I N I Q K F V Q F O L T V
Zea_mays_5	-----DEV--VAVTGD-----GTNDAPALHE-----ADIGLSMGIQTEVAKEIADVI I I L D D N F S T I V T V A K W G R S V Y I N I Q K F V Q F O L T V
Oryza_sativa_5	-----NEV--VAVTGD-----GTNDAPALHE-----ADIGLSMGIQTEVAKEIADVI I I L D D N F S T I V T V A K W G R S V Y V N I Q K F V Q F O L T V
A.thaliana_AT1G27770.1	-----QEV--VAVTGD-----GTNDAPALHE-----ADIGLSMGIQTEVAKEIADVI I I L D D N F S T I V T V A K W G R S V Y I N I Q K F V Q F O L T V
Oryza_sativa_6	-----NEV--VAVTGD-----GTNDAPALRE-----ADIGLSMGIQTEVAKEIADVI I I L D D N F S T I V T V A K W G R S V Y V N I Q K F V Q F O L T V
Zea_mays_6	-----NEV--VAVTGD-----GTNDAPALRE-----ADIGLSMGIQTEVAKEIADVI I I L D D N F S T I V T V A K W G R S V Y V N I Q K F V Q F O L T V
Aquilegia_caerulea_7	-----GEV--VAVTGD-----GTNDAPALHE-----SDIGLAMGIAGTEVAKEIADVI I I M D D N F S T I V N V A K W G R A V Y I N I Q K F V Q F O L T V
Oryza_sativa_7	-----QEV--VAVTGD-----GTNDAPALHE-----SDIGLAMGIAGTEVAKEIADVI I I M D D N F S T I V N V A K W G R A V Y I N I Q K F V Q F O L T V
Selaginella_moellendorffii_8	-----DEV--VSVTGD-----GTNDAPALHE-----ADVGLAMGIAGTEVAKEIADVI I I L D D K F N T I V V V A K W G R S V Y T N I Q K F V Q F O L T V
Selaginella_moellendorffii_9	-----GEV--VGVTDG-----GTNDAPALRE-----ADIGLSMGIQTEVAKESSDI I I L D D N F A S I V N V A L W G R S V Y T N I Q K F V Q F O A T V
Oryza_sativa_8	-----GHV--VAVTGD-----GTNDAPALKE-----ADVGLSMGLSGTDVAKNASDI I I M D D K F S S I V K A V L W G R S V Y D N I R K F L O F O L T V
Fragilariopsis_cylindrus_13	-----GEV--VGVTDG-----GTNDGPALKA-----ADVGLSMGLSGTDVAKNASDI I I M D D K F S S I V K A V L W G R S V Y D N I R K F L O F O L T V
Pseudo-nitzschia_multiseriis_4	-----GEV--VGVTDG-----GTNDGPALKA-----ADVGLSMGLSGTDVAKNASDI I I M D D K F S S I V K A V L W G R S V F D N I R K F L O F O L T V
Phaeodactylum_tricornutum_4	-----GEV--VGVTDG-----GTNDAPALKA-----ADVGLSMGLSGTDVAKNASDI I I M D D N F A S I V R A V L W G R S V F D N I R K F L O F O L T V
Thalassiosira_pseudonana_6	-----EDNIIIFPDROV--VAMTGD-----GTNDAPALKR-----ADIGFAMGIAGTQIAKDAADI I I L D D N F A S I V T A A K W G R N Y A S I Q K F L O F O L T V
Phaeodactylum_tricornutum_5	-----KYNLEDGINIFPDROV--IAMTGD-----GTNDAPALKR-----ADIGFAMGIAGTQIAKDAADI I I L D D N F A S I V T A A K W G R N Y A S I Q K F L O F O L T V
Phaeodactylum_tricornutum_6	-----EGIKVFPDROV--IAMTGD-----GTNDAPALKR-----ADIGFAMGIAGTQIAKDAADI I I L D D N F A S I V T A A K W G R N Y A S I Q K F L O F O L T V

Skeletonema_marinoi_ABC	NIGETIAAILFAAVCGFPE	-----	PLSAMHLLWVNLVTDGPPATALGFNPPSPDVMQKPR	-----
Thalassiosira_pseudonana_1	NIGETIAAILISAVCGFPE	-----	PLSAMHLLWVNLVTDGPPATALGFNPPAPDVMSQKPR	-----
Thalassiosira_oceanica_1	NIGETIAAILLSTLCGFPE	-----	PLSAMHLLWVNLVTDGPPATALGFNPPAPDVMSQKPR	-----
Phaeodactylum_tricornutum_1	NIGETICAIFFATLGFPE	-----	PLTAMHLLWVNLVTDGPPATALGFNPPAPDLMEQPPR	-----
Fragilariopsis_cylindrus_1	NIGETICAIFFATLGFPE	-----	PLTAMHLLWVNLVTDGPPATALGFNPPPLPNIMKQPPR	-----
Fragilariopsis_cylindrus_2	NIGETICAIFFATLGFPE	-----	PLTAMHLLWVNLVTDGPPATALGFNPPPLPNIMKQPPR	-----
Fragilariopsis_cylindrus_3	NIGETICAIFFATLGFPE	-----	PLTAMHLLWVNLVTDGPPATALGFNPPPLPNIMKQPPR	-----
Fragilariopsis_cylindrus_4	NIGETICAIFFATLGFPE	-----	PLTAMHLLWVNLVTDGPPATALGFNPPPLPNIMKQPPR	-----
Fragilariopsis_cylindrus_5	NIGETICAIFFATLGFPE	-----	PLTAMHLLWVNLVTDGPPATALGFNPPPLPNIMKQPPR	-----
Fragilariopsis_cylindrus_6	NIGETICAIFFATLGFPE	-----	PLTAMHLLWVNLVTDGPPATALGFNPPPLPNIMKQPPR	-----
Fragilariopsis_cylindrus_7	NIGETICAIFFATLGFPE	-----	PLTAMHLLWVNLVTDGPPATALGFNPPPLPNIMKQPPR	-----
Fragilariopsis_cylindrus_8	NIGETICAIFFATLGFPE	-----	PLTAMHLLWVNLVTDGPPATALGFNPPPLPNIMKQPPR	-----
Pseudo-nitzschia_multiseries_1	NIGETICAIFFATLLGFPE	-----	PLTAMHLLWVNLVTDGPPATALGFNPPSPNSMKEKPR	-----
Thalassiosira_pseudonana_2	NIGEVIGVFLATILGFPE	-----	LLTPLHLLWVNLVTDGPPATALGFNPPGPGVMAQKPR	-----
Ostreococcus_lucimarinus_1	NVGEVVSIFLTAALGMPE	-----	GLVPVQLLWVNLVTDGPPATALGFNPPDKIMTKPPR	-----
Zea_mays_1	NIGEVASIFLTSALGIPE	-----	GLIPVQLLWVNLVTDGPPATALGFNPPDKIMKKPPR	-----
Oryza_sativa_1	NIGEVASIFLTSALGIPE	-----	GLIPVQLLWVNLVTDGPPATALGFNPPDKIMKKPPR	-----
Aquilegia_caerulea_1	NIGEVASIFLTAALGIPE	-----	GLIPVQLLWVNLVTDGPPATALGFNPPDRDIMKKPPR	-----
A.thaliana_AT1G07810.1	NIGEVASIFLTAALGIPE	-----	GMIPVQLLWVNLVTDGPPATALGFNPPDKIMKKPPR	-----
A.thaliana_AT1G07670.1	NIGEVASIFLTAALGIPE	-----	GMIPVQLLWVNLVTDGPPATALGFNPPDKIMKKPPR	-----
Medicago_truncatula_1	NIGEVASIFLTAALGIPE	-----	GLIPVQLLWVNLVTDGPPATALGFNPPDKIMKKPPR	-----
Glycine_max_1	NIGEVASIFLTAALGIPE	-----	GLIPVQLLWVNLVTDGPPATALGFNPPDKIMKKPPR	-----
Glycine_max_2	NIGEVASIFLTAALGIPE	-----	GLIPVQLLWVNLVTDGPPATALGFNPPDKIMKKPPR	-----
Aquilegia_caerulea_2	NIGEVASIFLTAALGIPE	-----	GLIPVQLLWVNLVTDGPPATALGFNPPDKIMKKPPR	-----
Selaginella_moellendorffii_1	NIGEVASIFLTAALGMPE	-----	GLTPVQLLWVNLVTDGPPATALGFNPPDVIDIMRKKPPR	-----
Physcomitella_patens_1	NIGEVASIFMNTAALGMPE	-----	GLVPVQLLWVNLVTDGPPATALGFNPPDLDIMQKPPR	-----
Physcomitella_patens_2	NIGEVASIFMNTAALGMPE	-----	GLVPVQLLWVNLVTDGPPATALGFNPPDLDIMQKPPR	-----
Physcomitella_patens_3	NMGEVASIFLTAALGLPE	-----	GLIPVQLLWVNLVTDGPPATALGFNPPDKIMKKPPR	-----
Selaginella_moellendorffii_2	NIGEVASIFLTAALGMPE	-----	GLIPVQLLWVNLVTDGPPATALGFNPPDLGIMKKPPR	-----
Glycine_max_3	NIGEVISIFLTAALGIPE	-----	CMISVQLLWVNLVTDGPPATALGFNPPADVIDIMQKPPR	-----
Glycine_max_4	NVGEVISIFLTAALGIPE	-----	CMIPVQLLWVNLVTDGPPATALGFNPPADVIDIMQKPPR	-----
Aquilegia_caerulea_3	NVGEVISIFLTAALGIPE	-----	CLIPVQLLWVNLVTDGPPATALGFNPPADVIDIMRKKPPR	-----
A.thaliana_AT4G00900.1	NVGEVISIFLTAALGIPE	-----	CMIPVQLLWVNLVTDGPPATALGFNPPADVIDIMRKKPPR	-----
Chlamydomonas_reinhardtii_1	NIGEVASIFLTAALGLPE	-----	GLIPVQLLWVNLVTDGPPATALGFNPPDKIMSKPPR	-----
Volvox_carteri_1	NIGEVASIFLTAALGLPE	-----	GLIPVQLLWVNLVTDGPPATALGFNPPDKIMSRPPR	-----
Micromonas_pusilla_1	NVGEVVSIFLTAALGMPE	-----	GLIPVQLLWVNLVTDGPPATALGFNPPDVIDIMTKTPR	-----
Micromonas_sp_1	NVGEVVSIFLTAALGMPE	-----	GLIPVQLLWVNLVTDGPPATALGFNPPDVIDIMTKKPR	-----
Selaginella_moellendorffii_3	NIGEVAIFLTAALGMPE	-----	GLIPVQLLWVNLVTDGPPATALGFNPPDVIDIMDRPPR	-----
Thalassiosira_oceanica_2	NIGEVAIFLTAALGLPE	-----	GLIPVQLLWVNLVTDGPPATALGFNPPDADIMKKLPR	-----
Thalassiosira_pseudonana_3	NIGEVAIFLTAALGMPE	-----	GLIPVQLLWVNLVTDGPPATALGFNPPADKDIMKKLPR	-----
Pseudo-nitzschia_multiseries_2	NIGEVSIFLTSALGIPE	-----	GLIPVQLLWVNLVTDGPPATALGFNPPDPDVMLKPPR	-----
Fragilariopsis_cylindrus_9	NIGEVSIFLTSALGIPE	-----	GLIPVQLLWVNLVTDGPPATALGFNPPDPDVMLKPPR	-----
Fragilariopsis_cylindrus_10	NIGEVSIFLTSALGIPE	-----	GLIPVQLLWVNLVTDGPPATALGFNPPDPDVMLKPPR	-----
Aquilegia_caerulea_4	NIGEVCIFVAAVLGIPE	-----	TLVPVQLLWVNLVTDGLPATALGFNPKQSDVMKAKPR	-----
Glycine_max_5	NIGEVCIFVAAVLGIPE	-----	TLAPVQLLWVNLVTDGLPATALGFNPKQSDVMRAKPR	-----
Medicago_truncatula_2	NIGEVCIFVAAVLGIPE	-----	TLAPVQLLWVNLVTDGLPATALGFNPKQSDVMKVKPR	-----
A.thaliana_AT1G10130.1	NIGEVCIFVAAVLGIPE	-----	TLAPVQLLWVNLVTDGLPATALGFNPKQSDVMKAKPR	-----
Oryza_sativa_2	NIGEVCIFVAAVLGMPE	-----	TLVPVQLLWVNLVTDGLPATALGFNPKQSDVIMTVKPR	LHHSATTIIRWLTDAHGKQCFGLAFIVDMGVGDGLD
Selaginella_moellendorffii_4	NIGEVCIFVAALGLPE	-----	TLIPVQLLWVNLVTDGLPATALGFNPKQDRNVMMAKPR	-----
Micromonas_pusilla_2	NIGEVCIFIAAALGMPE	-----	TLCPVQLLWVNLVTDGLPATALGFNPKPDRDIMRARR	-----
Micromonas_sp_2	NIGEVCIFIAAALGLPE	-----	TLCPVQLLWVNLVTDGLPATALGFNPKPEQDIMORRR	-----
Volvox_carteri_2	NIGEVAIFVAALLGVPE	-----	VLTPVQLLWVNLVTDGLPATALGFNPKPDKIMAVRPR	-----
Chlamydomonas_reinhardtii_2	NIGEVAIFVAALLGVPE	-----	VLTPVQLLWVNLVTDGLPATALGFNRPDKIMSRPPR	-----
Dunaliella_salina_1	--GGVV	-----	-----	-----
Ostreococcus_lucimarinus_2	NIGEVCIFIAAALGFPE	-----	TLVPVQLLWVNLVTDGLPATALGFNRPADGIMRQPR	-----
Phaeodactylum_tricornutum_2	SFAALTMASIAATAFGLPS	-----	PLNATQILWINILMDGPPAOSLGVPEVDEKILRAKPR	-----
Chlamydomonas_reinhardtii_3	NLAQGFSVLWSYIILSLDN	-----	VLPTALQVLLVNLITSVTLGLALAAEPPEPDIMERQPR	-----
Chlamydomonas_reinhardtii_4	NLAQGFSVLYSYIILGFKD	-----	VLPTALQVLLVNLITSVTLGLALAAEPPEPDIMERQPR	-----
Thalassiosira_pseudonana_4	NNSQGLSVLVGLVRLPN	-----	TPITTIQILYSNFCIVTLGFVCAIEPAEDGIMALPPR	-----
Thalassiosira_pseudonana_5	NNSQGLCVFFGMLVRLPN	-----	TPITTIQILYSNFCIVTLGFVCAIEPAEDGIMALPPR	-----

Fragilariopsis_cylindrus_11	NNAQGLSVLFGIFCGFSRGESAFDGVILTSIQVLYCNLICAVTLGFVAAVEPAEDGIMDVPPR	-----
Fragilariopsis_cylindrus_12	NNAQGLSVLFGIFCGFSRGESAFDGVILTSIQVLYCNLICAVTLGFVAAVEPAEDGIMDVPPR	-----
Pseudo-nitzschia_multiseriis_3	NNAQGLSVLFGIICGFSRGTQNDKVIILTAIQVLYCNLICAVTLGFVAAVEPAEAGIMDVPPR	-----
Phaeodactylum_tricornutum_3	NNAQGLSVLFGIFLFLGLKE-----TPLSSIQVLYCNLICAVTLGFVAAVEPAEDGIMELEPR	-----
Micromonas_pusilla_3	HFAEVVQIFLFCIVSSIPV-----MROPLQILFLILVTDLPPSIALGFEPGEDLTMKRSPR	-----
Micromonas_sp_3	HFAEVLQIFLFCIVSSIPV-----MROPLQILFLILVTDLPPSIALGFEPGEALTMKRAPR	-----
Chlamydomonas_reinhardtii_5	NLVAMISAAVGALYGGVP-----PLNVQLLWVNMIMDTLAALALATEDPYPELLDDKPH	-----
Chlamydomonas_reinhardtii_6	NLVAMISAAVGALYGGVP-----PLNVQLLWVNMIMDTLAALALATENPYPELLDEMPH	-----
Volvox_carteri_3	NLVAMISAAVGALYGGVP-----PLNVQLLWVNMIMDTLAALALATEDPYPELLQDTPH	-----
Volvox_carteri_4	NLVAMISAAVGALYGGVP-----PLNVQLLWVNMIMDTLAALALATEDPYPELLQDTPH	-----
Volvox_carteri_5	NFVALVTAFVGAAGGHE-----PLNQLLWVNLIMDTMGALALATEDPHALLLQRPN	-----
Chlamydomonas_reinhardtii_7	NLVALVTAFVGAAGGHE-----PLNQLLWVNLIMDTMGALALATEPHPTLLLQRPN	-----
Chlamydomonas_reinhardtii_8	NFVALVIAFFGAVIGGQE-----PLNVQLLWVNLIMDTMGALALATEDPNPELLLMKPY	-----
Volvox_carteri_6	NFVALVIAFFGAVIDGHE-----PLNVQLLWVNLIMDTMGALALATEDPNPELLLMKPY	-----
Ostreococcus_lucimarinus_3	NVVALVSLNLIAAIAIGIKE-----LPLAAVPLLWVNMIMDSMGALALATEPPSPPELMKRPKPF	-----
Micromonas_sp_4	NVVALVSLNFISSAAGITE-----LPLAAVPLLWVNMIMDSMGALALATEPPSPPHLMERKPF	-----
Selaginella_moellendorffii_5	NLAALSTNLVAAAGRSQENV-----PLNTVQLLWVNLIMDTLGAALALATEPPTTEEMMERAPI	-----
A.thaliana_AT3G21180.1	NVAALIINVVAAMSSGDV-----PLKAVQLLWVNLIMDTLGAALALATEPPTDHLMHRTPV	-----
Aquilegia_caerulea_5	NVAALIINVVAAVTGEV-----PLNAVQLLWVNLIMDTLGAALALATEPPTDHLMHRSPV	-----
A.thaliana_AT5G57110.2	NVAALVINVVAAISSGDV-----PLTAVQLLWVNLIMDTLGAALALATEPPTDHLMGPPV	-----
Oryza_sativa_3	NVAALIINVVAAVSSGNV-----PLNAVQLLWVNLIMDTLGAALALATEPPTDHLMQRPV	-----
Zea_mays_2	NVAALIINVVAAVSSGNV-----PLNAVQLLWVNLIMDTLGAALALATEPPTNHLMERPPV	-----
Zea_mays_3	NVAALVINVIAAVSSGDV-----PLNAVELLWVNLIMDTLGAALALATEPPTDNLMKRHPV	-----
Zea_mays_4	NVAALVINVVAAVSSGDV-----PLNAVELLWVNLIMDTLGAALALATEPPTDNLMKRNPV	-----
Selaginella_moellendorffii_6	NVVALVNLNVAAAKSSQV-----PLTAVQLLWVNLIMDTLGAALALATEPPTDDLMDRPPV	-----
Selaginella_moellendorffii_7	NAVALMLNFISALSEGAA-----PLTAVQLLWVNLIMDTLGAALALATEPPNDAVMYRPI	-----
Aquilegia_caerulea_6	NVVALIVNFSSACLTGSA-----PLTAVQLLWVNMIMDTLGAALALATEPPNDELMKRTPV	-----
Medicago_truncatula_3	NIVALIVNFSSACLTGTA-----PLTAVQLLWVNMIMDTLGAALALATEPPNDDLKRAPV	-----
A.thaliana_AT2G22950.1	NVVALIVNFSSACLTGSA-----PLTAVQLLWVNMIMDTLGAALALATEPPNDELKRPV	-----
A.thaliana_AT4G37640.1	NVVALVNFSSACLTGSA-----PLTAVQLLWVNMIMDTLGAALALATEPPNDELKRLPV	-----
Oryza_sativa_4	NVVALIVNFSSACLTGSA-----PLTAVQLLWVNMIMDTLGAALALATEPPNDELKRTPV	-----
Zea_mays_5	NVVALVNFSSACLTGSA-----PLTAVQLLWVNMIMDTLGAALALATEPPNDELKRTPV	-----
Oryza_sativa_5	NVVALVNFSSACFTGNA-----PLTAVQLLWVNMIMDTLGAALALATEPPNDDLKREP	-----
A.thaliana_AT1G27770.1	NVVALIVNFSSACLTGNA-----PLTAVQLLWVNMIMDTLGAALALATEPPNDDLKRSVP	-----
Oryza_sativa_6	NVVALVNFSSACFTGDA-----PLTAVQLLWVNMIMDTLGAALALATEPPNNLKKAPV	-----
Zea_mays_6	NVVALVNFSSACFTGDA-----PLTAVQLLWVNMIMDTLGAALALATEPPDDNLMKSPV	-----
Aquilegia_caerulea_7	NVVALMLNFVSACLSGSA-----PLTAVQLLWVNMIMDTLGAALALATEPPNDRMLQKPPV	-----
Oryza_sativa_7	NIVALIVNFVSACIIGSA-----PLTAVQLLWVNMIMDTLGAALALATEPPNDEMCKRPV	-----
Selaginella_moellendorffii_8	NLVALVNFSSACITGTA-----PLTAVQLLWVNLIMDTLGAALALATEPPTDDLKRTPV	-----
Selaginella_moellendorffii_9	NLVALALNFSSACSTGDV-----PLTVIQLLWVNLIMDTLGAALALATESPHAGLMKRPV	-----
Oryza_sativa_8	NVAALVNFVSACITGRM-----PLTTVQLLWVNLIMDTMGALALATEDTPTAGLMRRPPI	-----
Fragilariopsis_cylindrus_13	NVVALTITFLSALVGYDP-----PLNAIMMLWVNLIMDTMGALALGTEPPKLELLDRPPY	-----
Pseudo-nitzschia_multiseriis_4	NVVALTITFLSALVGYDP-----PLNAVMMMLWVNLIMDTMGALALGTEPPKLELLDRPPY	-----
Phaeodactylum_tricornutum_4	NVVALTITFLAAVVGYP-----PLNAVMMMLWVNLIMDTMGALALGTEPPIKLELLDRPPY	-----
Thalassiosira_pseudonana_6	NIAAVVTALVGSFAYAKS-----PLAAIQLLWVNLIMDSLASLALASEPPTTEELLKQPV	-----
Phaeodactylum_tricornutum_5	NISAVVTALVGSFAYQKS-----PLAAIQLLWVNLIMDSLASLALASEPPTVDDLKRPV	-----
Phaeodactylum_tricornutum_6	NISAVATALVGSFAYQAS-----PLAAIQLLWVNLIMDSLASLALASEPPTVDSLLQRPV	-----

Skeletonema_marinoi_ABC	-----	PSDEP
Thalassiosira_pseudonana_1	-----	PSNEP
Thalassiosira_oceanica_1	-----	PSNEP
Phaeodactylum_tricornutum_1	-----	PSDEP
Fragilariopsis_cylindrus_1	-----	SSSEP
Fragilariopsis_cylindrus_2	-----	SSSEP
Fragilariopsis_cylindrus_3	-----	SSSEP
Fragilariopsis_cylindrus_4	-----	SSSEP
Fragilariopsis_cylindrus_5	-----	SSSEP
Fragilariopsis_cylindrus_6	-----	SSSEP
Fragilariopsis_cylindrus_7	-----	SSSEP
Fragilariopsis_cylindrus_8	-----	SSSEP
Pseudo-nitzschia_multiseriis_1	-----	PSNEP
Thalassiosira_pseudonana_2	-----	PTSEE
Ostreococcus_lucimarinus_1	-----	RKDED
Zea_mays_1	-----	RSDDS
Oryza_sativa_1	-----	RSDDS
Aquilegia_caerulea_1	-----	RSDDS
A.thaliana_AT1G07810.1	-----	RSDDS
A.thaliana_AT1G07670.1	-----	RSDDS
Medicago_truncatula_1	-----	RSDDS
Glycine_max_1	-----	HSDDS
Glycine_max_2	-----	HSDDS
Aquilegia_caerulea_2	-----	RSDDS
Selaginella_moellendorffii_1	-----	RSDDK
Physcomitella_patens_1	-----	KSDDV
Physcomitella_patens_2	-----	KSNDV
Physcomitella_patens_3	-----	KSTDV
Selaginella_moellendorffii_2	-----	KSNDK
Glycine_max_3	-----	RSDDP
Glycine_max_4	-----	RNDDP
Aquilegia_caerulea_3	-----	KSNDK
A.thaliana_AT4G00900.1	-----	KSDDC
Chlamydomonas_reinhardtii_1	-----	RANDQ
Volvox_carteri_1	-----	RANDQ
Micromonas_pusilla_1	-----	KKDED
Micromonas_sp_1	-----	RKDED
Selaginella_moellendorffii_3	-----	LPTEG
Thalassiosira_oceanica_2	-----	RTDDS
Thalassiosira_pseudonana_3	-----	RADDN
Pseudo-nitzschia_multiseriis_2	-----	GKDDS
Fragilariopsis_cylindrus_9	-----	GKNDA
Fragilariopsis_cylindrus_10	-----	GKNDA
Aquilegia_caerulea_4	-----	KVNEA
Glycine_max_5	-----	KVNEA
Medicago_truncatula_2	-----	KVNEA
A.thaliana_AT1G10130.1	-----	KVNEA
Oryza_sativa_2	QCEHGLLCRLDGGGISSDEDVSAIQKIWHCLVQQTAAALTNPLRHCLRLVQCIAAAVSPFTLKLPIGWTAACASPSLLCEGDTVLAYQQLVLLLI	EVNEA
Selaginella_moellendorffii_4	-----	KMDEA
Micromonas_pusilla_2	-----	RPDES
Micromonas_sp_2	-----	RSDEP
Volvox_carteri_2	-----	RLDEP
Chlamydomonas_reinhardtii_2	-----	RLDEP
Dunaliella_salina_1	-----	--DDP
Ostreococcus_lucimarinus_2	-----	SPREQ
Phaeodactylum_tricornutum_2	-----	KADEP
Chlamydomonas_reinhardtii_3	-----	RRGKR
Chlamydomonas_reinhardtii_4	-----	RRGKR
Thalassiosira_pseudonana_4	-----	RVGKR
Thalassiosira_pseudonana_5	-----	RVGKR

Fragilariopsis_cylindrus_11	-----	RVGKR
Fragilariopsis_cylindrus_12	-----	RVGKR
Pseudo-nitzschia_multiseriata_3	-----	RVGKR
Phaeodactylum_tricornutum_3	-----	RVGKR
Micromonas_pusilla_3	-----	PKTQP
Micromonas_sp_3	-----	PKTQP
Chlamydomonas_reinhardtii_5	-----	GRSEA
Chlamydomonas_reinhardtii_6	-----	GRSEP
Volvox_carteri_3	-----	GRTEP
Volvox_carteri_4	-----	GRTEP
Volvox_carteri_5	-----	GRTEH
Chlamydomonas_reinhardtii_7	-----	GRTEQ
Chlamydomonas_reinhardtii_8	-----	GRNEN
Volvox_carteri_6	-----	GRNEN
Ostreococcus_lucimarinus_3	-----	GRTAP
Micromonas_sp_4	-----	GRSAP
Selaginella_moellendorffii_5	-----	GLSEP
A.thaliana_AT3G21180.1	-----	GRREP
Aquilegia_caerulea_5	-----	GRREP
A.thaliana_AT5G57110.2	-----	GRKEP
Oryza_sativa_3	-----	GRREP
Zea_mays_2	-----	GRREP
Zea_mays_3	-----	GRREP
Zea_mays_4	-----	GRREP
Selaginella_moellendorffii_6	-----	GRREP
Selaginella_moellendorffii_7	-----	SKEAP
Aquilegia_caerulea_6	-----	GRKGN
Medicago_truncatula_3	-----	GRKGN
A.thaliana_AT2G22950.1	-----	GRRGN
A.thaliana_AT4G37640.1	-----	GRRGN
Oryza_sativa_4	-----	GRKGN
Zea_mays_5	-----	GRKGN
Oryza_sativa_5	-----	GRTGK
A.thaliana_AT1G27770.1	-----	GRKGN
Oryza_sativa_6	-----	GRKGN
Zea_mays_6	-----	GRTGR
Aquilegia_caerulea_7	-----	GKSVN
Oryza_sativa_7	-----	RRGDN
Selaginella_moellendorffii_8	-----	GRKGS
Selaginella_moellendorffii_9	-----	RRKEN
Oryza_sativa_8	-----	GRAAP
Fragilariopsis_cylindrus_13	-----	KRNSS
Pseudo-nitzschia_multiseriata_4	-----	TRNSS
Phaeodactylum_tricornutum_4	-----	RRDSS
Thalassiosira_pseudonana_6	-----	NRSKS
Phaeodactylum_tricornutum_5	-----	NRTES
Phaeodactylum_tricornutum_6	-----	NRTDS

Skeletonema_marinoi_ABC	IMTNWMLFRYLVTGLYVG	-----	FATVGSFVGHYLS	-----	-----
Thalassiosira_pseudonana_1	IMTKFMACRYLVTGLYVG	-----	IATVGSFVGHYRS	-----	-----
Thalassiosira_oceanica_1	IMTKWMAFRYLITGLYVG	-----	IATVGSFVSYLLD	-----	-----
Phaeodactylum_tricornutum_1	IMTRWLLTRYCITGLYVG	-----	LATIGIFAQHYLS	-----	-----
Fragilariopsis_cylindrus_1	IMTKWLLIRYMLTGLYVG	-----	IATIGVFAQHYIK	-----	-----
Fragilariopsis_cylindrus_2	IMTRWLLIRYMLTGLYVG	-----	IATIGVFAQHYIK	-----	-----
Fragilariopsis_cylindrus_3	IMTKWLLIRYMLTGLYVG	-----	IATIGVFAQHYIK	-----	-----
Fragilariopsis_cylindrus_4	IMTRWLLIRYMLTGLYVG	-----	IATIGVFAQHYIK	-----	-----
Fragilariopsis_cylindrus_5	IMTKWLLIRYMLTGLYVG	-----	IATIGVFAQHYIK	-----	-----
Fragilariopsis_cylindrus_6	IMTRWLLIRYMLTGLYVG	-----	IATIGVFAQHYIK	-----	-----
Fragilariopsis_cylindrus_7	IMTKWLLIRYMLTGLYVG	-----	IATIGVFAQHYIK	-----	-----
Fragilariopsis_cylindrus_8	IMTRWLLIRYMLTGLYVG	-----	IATIGVFAQHYIK	-----	-----
Pseudo-nitzschia_multiseriata_1	IMTKWLLIRYMLTGLYVG	-----	VATIGIFAQHYLO	-----	-----
Thalassiosira_pseudonana_2	ILTPSLLLRYSTAGLYIG	-----	IATVGIYASYFVD	-----	-----
Ostreococcus_lucimarinus_1	LLSNWVMFRYAVVGLYVG	-----	VATVGAFAIWFTR	TSFMGIDL	SQD
Zea_mays_1	LITPWILFRYMLVGLYVG	-----	VATVGFIIWYTH	DSFLGIDL	ASD
Oryza_sativa_1	LITPWILFRYMLVGLYVG	-----	IATVGVFIIWYTH	GSFLGIDL	AGD
Aquilegia_caerulea_1	LISPWILFRYLVI GLYVG	-----	VATVGVFIIWYTH	ASFLGIDL	SGD
A.thaliana_AT1G07810.1	LITAWILFRYMLVGLYVG	-----	VATVGVFIIWYTH	SSFMGIDL	SQD
A.thaliana_AT1G07670.1	LITAWILFRYMLVGLYVG	-----	VATVGVFIIWYTH	NSFMGIDL	SQD
Medicago_truncatula_1	LINLWILFRYLVI GIYVG	-----	LATVGVFIIWYTH	GSFMGIDL	SSD
Glycine_max_1	LINLWILFRYLVI GIYVG	-----	LATVGFIIWYTH	GSFFGIDL	SGD
Glycine_max_2	LINLWILFRYLVI GIYVG	-----	LATVGFIIWYTH	GSFFGIDL	SGD
Aquilegia_caerulea_2	LISAWILFRYLVI GLYVG	-----	IATVGVFIIWYTH	SSFLGIDL	SGD
Selaginella_moellendorffii_1	LINSWVFFRYMVI GLYVG	-----	LATVGFIFALWYTH	GSFLGLDI	SGD
Physcomitella_patens_1	LINAWVFFRYLVI GLYVG	-----	VATVGAFAIWFTR	ASFLGINL	AAD
Physcomitella_patens_2	LINGWVFFRYLVI GLYVG	-----	IATVGAFAIWFTR	ASFLGINL	AAD
Physcomitella_patens_3	LINSWVLLRYLVI GLYVG	-----	IATVGAFAIWFTR	FSFLGIDL	SSD
Selaginella_moellendorffii_2	LINAWVLLRYMVI GLYVG	-----	VATVGFIFALWYTH	DSFLGIDL	SSD
Glycine_max_3	LISWVLFRLVIGSYVG	-----	LATVGFIFVLWYTH	ASFLGINL	VSD
Glycine_max_4	LISWVLFRLVIGSYVG	-----	LATVGFIFVLWYTH	ASFLGINL	VSD
Aquilegia_caerulea_3	LIDSWVLFRLVIGSYVG	-----	IATVGVFIIWYTH	GSFLGINL	AED
A.thaliana_AT4G00900.1	LIDSWVLFRLVIGSYVG	-----	VATVGFIFVLWYTH	ASFLGISI	ISD
Chlamydomonas_reinhardtii_1	LITPWVFFRYMVI GGYVG	-----	VATVGAFAVSWYMY	DRFMGIDL	SRD
Volvox_carteri_1	LITPWVFFRYMVI GGYVG	-----	VATVGAFAVSWYMY	DHFVGLDI	SRD
Micromonas_pusilla_1	LISAWALVRYLVVGLYVG	-----	AATVGVFAVWYTR	SSFLGIDL	SGD
Micromonas_sp_1	LITWAMVRYLVVGLYVG	-----	AATVGFIFAVWYTK	TEFLGIDL	AKD
Selaginella_moellendorffii_3	FISGWTLFRFLTI GLYVG	-----	LATIGIFGLWYLN	DSFLGIDL	SRD
Thalassiosira_oceanica_2	LITPWVFFRYMVI GYIVG	-----	FACVAVFAYWYIY	-----	HEG
Thalassiosira_pseudonana_3	LITPWVFFRYMVI GYIVG	-----	FACVGVFAVWYMY	-----	YES
Pseudo-nitzschia_multiseriata_2	LITNWVFFRYMVI GLYVG	-----	FATVGFIFVFWYTEYES	FVSFLGPSLMEITLG	ATFD
Fragilariopsis_cylindrus_9	LINNWVFFRYMVI GLYVG	-----	FATVGFIFFWYIGYEP	FVNYLGPDLMNTLG	STYD
Fragilariopsis_cylindrus_10	LINNWVFFRYMVI GLYVG	-----	FATVGFIFFWYIGYEP	FVNYLGPDLMNTLG	STYD
Aquilegia_caerulea_4	VVSGWLFRRYLVI GAYVG	-----	LATVAGFIWWFVYSEN	-----	-----
Glycine_max_5	VVTGWLFRRYLVI GAYVG	-----	LATVAGFIWWFVYSDS	-----	-----
Medicago_truncatula_2	VVTGWLFRRYLVI GAYVG	-----	LATVAGFIWWFVYSDG	-----	-----
A.thaliana_AT1G10130.1	VVNGWLFRRYLVI GAYVG	-----	LATIAGFVWWFVYSED	-----	-----
Oryza_sativa_2	IVNGWLFRRYMLV GAYVG	-----	LATVGGFIWWFVYHEE	-----	-----
Selaginella_moellendorffii_4	IVDRWLFVRYLVVGMVYG	-----	FVTVGAFAVWYMSYLD	-----	-----
Micromonas_pusilla_2	IVDRWLFVRYLVVGMVYG	-----	FVTVGAFAVWYMSYLD	-----	-----
Micromonas_sp_2	IVDRWLFVRYLVVGMVYG	LELPDVVF	FTLIGGFVWVYMFHSG	-----	-----
Volvox_carteri_2	IVNGWLFIRYLVI GMYVG	-----	LVTVAGFLWWFLGYQG	-----	-----
Chlamydomonas_reinhardtii_2	IVNGWLFVRYLVVGMVYG	-----	LATVGGFLWWFLAHEG	-----	-----
Dunaliella_salina_1	IVNGWLFRLYLI GMYVG	-----	IVTVYGFVWVYISYPE	-----	-----
Ostreococcus_lucimarinus_2	IVDRWLLIRYLI GYVYG	-----	IATVGSFGVWVMSYPG	-----	-----
Phaeodactylum_tricornutum_2	IVTRALLLRATSSAALIV	-----	FLTLKVFS	-----	-----
Chlamydomonas_reinhardtii_3	LVGKLLLRCCFFVNVVV	-----	ALVGLMFYWGGE	-----	-----
Chlamydomonas_reinhardtii_4	LVGKLLLRMFFVCHVVV	-----	ALVGLMFYWGGRG	-----	-----
Thalassiosira_pseudonana_4	LIGRFLRLRIIVGTVLLT	-----	GCVVASAIIVDTII	PRYDY	-----
Thalassiosira_pseudonana_5	LIGRYLFLRIILGTVILT	-----	GCVVGGALIVD	-----	-----

Fragilariopsis_cylindrus_11	LIGRFLFLRIVLGTILLV	LVTVASSIWAEEYLENNYDY		
Fragilariopsis_cylindrus_12	LIGRFLFLRIVLGTILLV	LVTVASSIWAEEYLENNYDY		
Pseudo-nitzschia_multiseriis_3	LIGRFLFLRIALGTVVLV	FVTVGASLWAEHILKTEYGM		
Phaeodactylum_tricornutum_3	LIGRFLALRIAIGTITLV	GCTVGSVFWAK		
Micromonas_pusilla_3	VVQMMWVRGIVNGMILT	VCIFCTYLIALHAYAGAF		LTDDITDTSRSSCS
Micromonas_sp_3	IVMNMWVRGIVANGLILT	VCIFYTYMIALWAYAGAF		TSDEITDPTRTSCA
Chlamydomonas_reinhardtii_5	IITGLMYTHIVVAALY	KLFWLFAclyGLPR	VLP	AYATLTKGEYYQT MCP
Chlamydomonas_reinhardtii_6	IITGYMYMHILAGATY	KLIWLFAClyGLPR	AIS	AYAVLTPDEYYRE DCN
Volvox_carteri_3	IITGLMYMHIVAAALY	KLFWLFAclyGLPR	VID	RYSVLGKDEYYQD KCD
Volvox_carteri_4	IITGLMYMHIVAAALY	KLFWLFAclyGLPR	VID	RYSVLGKDEYYQD KCD
Volvox_carteri_5	LINWKMYSKHIFVQGCY	QMLWMMFLCLYLLPM	GPKRGRDA	VSYASSCRTVVMMLYSFCSSHAAQLLWQ RAVPLISGVSSR
Chlamydomonas_reinhardtii_7	LINAKMTKHHILVQGSY	QMIWMFLCLYLLPQ	GPPG	LEQYKVHNEAYMANQ DCV
Chlamydomonas_reinhardtii_8	LITRIMWKHILVQGFY	QIFWMFLILYGMPV	FLNGAKYNG	RYDIEGREDWWKR ECM
Volvox_carteri_6	LITRIMWKHILVQGCY	QLFWMFFILYGAPK	ILTDA	RYAIEPKEDFWMR ECS
Ostreococcus_lucimarinus_3	LINXHMWRNIIIGVSIV	QLTVCMVFMFDGKR	LLD	
Micromonas_sp_4	LVNKEMWRNIVVMSLY	QLIVCLVLLFAGQD	LLG	
Selaginella_moellendorffii_5	LVTNVMWRNIIFGQAA	QVAVLLVLYFRGDO	ILH	
A.thaliana_AT3G21180.1	LITNIMWRNLLVQSFY	QVAVLLVLFNFAGLS	ILG	
Aquilegia_caerulea_5	LITNIMWRNLLVQALY	QVIVLLVLFNFMGKN	ISF	
A.thaliana_AT5G57110.2	LITNIMWRNLLIQAIY	QVSVLLTLNFRGIS	ILG	
Oryza_sativa_3	LITNVMWRNLIIMALF	QVIVLLTLNFRGTS	LLC	
Zea_mays_2	LVTNIMWRNLIIMATF	QVSVLLSLNFKGIS	LLC	
Zea_mays_3	LVTNVMWRNLFVQALY	QIAVLLIFNFDGKR	ILR	
Zea_mays_4	LVTNIMWRNLFVQALY	QVAILLIFDFDQVR	ILR	
Selaginella_moellendorffii_6	LVTNIMWRNIIFQAIY	QLSVLFTLFFGGLK	ILK	
Selaginella_moellendorffii_7	LINNIMWRNLLGQSIY	QLGLLLVLFKFKGIE	ILN	
Aquilegia_caerulea_6	FISNVNWRNIIIGQSLY	QFVVIWYLOTRGKA	LFS	
Medicago_truncatula_3	FISNVNWRNIIIGQSLY	QFMVIWFLOSKGKT	IFS	
A.thaliana_AT2G22950.1	FITNAMWRNIIIGQAVY	QFIIIWILQAKGKS	MFG	
A.thaliana_AT4G37640.1	FITNAMWRNIIIGQAVY	QFIVIWILQAKGKA	MFG	
Oryza_sativa_4	FISNVNWRNIIIGQAFY	QFIVIWYLOTEGKW	LFG	
Zea_mays_5	FISNVNWRNIIIGQALY	QFLVIWSLQSRGKS	LFG	
Oryza_sativa_5	FITNVMWRNIIIGQSFY	QFIVMWYLOTOGKS	MFG	
A.thaliana_AT1G27770.1	FISNVNWRNIIIGQSLY	QLVIIWCLQTKGKT	MFG	
Oryza_sativa_6	FITNVMWRNIIIGQSLY	QFVMIWYLOTOGKH	LFG	
Zea_mays_6	FITNVMWRNIIIGQSIY	QFVVIWYLOTOGEY	LFG	
Aquilegia_caerulea_7	FITGIMWRNIIIGQSIY	QLAVLGVLKFDGKH	LLK	
Oryza_sativa_7	FITRIMWRNIIIGQGLY	QLLVLATLMVIGKK	LLS	
Selaginella_moellendorffii_8	FISVPMWRNIIAVQVY	QLVVLNVLKYKGD	ILG	
Selaginella_moellendorffii_9	FISVPMWRNIIAVQVY	QLVVLNVLQYRGL	IFG	
Oryza_sativa_8	LISNAMWRNIIAQAAY	QVAVLLALQYRFGF		
Fragilariopsis_cylindrus_13	LISLPMWRNIIIGQSTF	QLSLLVYLLKNGPK	LFN	
Pseudo-nitzschia_multiseriis_4	LISRPNWRNIIIGQSTY	QLTLLVYLLNKGPT	LYN	
Phaeodactylum_tricornutum_4	LISRPNWRNIIIGQAVF	QLSLLVFLNKGPA	MFE	
Thalassiosira_pseudonana_6	IATRMWANMLGQALY	QIAVMFLFGGAE	AFG	
Phaeodactylum_tricornutum_5	MITKHMWANMLGQAA	QITVIMVLLFAGPE	LLG	
Phaeodactylum_tricornutum_6	MITKHMWANMLGQATY	QITVVMVLLFPQPD	LLD	

Skeletonema_marinoi_ABC	OGVTLHQL	SSWGKC	NOVW
Thalassiosira_pseudonana_1	QGLTLRQL	SSWGKC	DQTW
Thalassiosira_oceanica_1	OGISLKQL	RSWGKC	DQSW
Phaeodactylum_tricornutum_1	OGITLAQL	ATWSQC	GEFW
Fragilariopsis_cylindrus_1	OGITLKQL	SNWSNC	
Fragilariopsis_cylindrus_2	OGITLKQL	SNWSNC	
Fragilariopsis_cylindrus_3	OGITLKQL	SNWSNC	GTTWM
Fragilariopsis_cylindrus_4	OGITLKQL	SNWSNC	GTTWM
Fragilariopsis_cylindrus_5	OGITLKQL	SNWSNC	GTTWM
Fragilariopsis_cylindrus_6	OGITLKQL	SNWSNC	GTTWM
Fragilariopsis_cylindrus_7	OGITLKQL	SNWSNC	GTTWM
Fragilariopsis_cylindrus_8	OGITLKQL	SNWSNC	GTTWM
Pseudo-nitzschia_multiseries_1	OGISLKQL	SNWSNC	GTDW
Thalassiosira_pseudonana_2	QGINVQEL	SSWSSC	
Ostreococcus_lucimarinus_1	GHTPVTFKQL	TNWGEC	ASW
Zea_mays_1	GHTLVSYSQL	SNWDKC	SSW
Oryza_sativa_1	GHSLVSYSQL	SNWGQC	SSW
Aquilegia_caerulea_1	GHTLVYSQL	SNWGQC	SSW
A.thaliana_AT1G07810.1	GHSLVSYSQL	AHWGQC	SSW
A.thaliana_AT1G07670.1	GHSLVSYSQL	AHWGQC	SSW
Medicago_truncatula_1	GHTLVYSQL	ANWGQC	SSW
Glycine_max_1	GHTLVYTQL	ANWGQC	SSW
Glycine_max_2	GHSLVYTQL	ANWGQC	SSW
Aquilegia_caerulea_2	GHTLVYSQL	SNWGQC	PSW
Selaginella_moellendorffii_1	GHTLVTFSQL	TSWGEC	PSW
Physcomitella_patens_1	GHTLVSFSQL	THWGEC	STW
Physcomitella_patens_2	GHTLVSFSQL	THWGEC	STW
Physcomitella_patens_3	GHTLVSFSQL	RNWGDC	PNW
Selaginella_moellendorffii_2	GHSLVTFSQL	THWGEC	PTW
Glycine_max_3	GHTIIELSQL	RNWGEC	PSW
Glycine_max_4	GHTIIELSQL	RNWGEC	PSW
Aquilegia_caerulea_3	GHTLVTLYQL	RTWGQC	PSW
A.thaliana_AT4G00900.1	GHTLVSFSQL	QNWSEC	SSWG
Chlamydomonas_reinhardtii_1	GHSTVTWEQL	TNWQSC	REW
Volvox_carteri_1	GHTTVTWEQL	TNWQSC	REW
Micromonas_pusilla_1	GHTTVTWHQL	SHWGDC	ASWG
Micromonas_sp_1	GHTPVTWLQL	THWGEC	ETW
Selaginella_moellendorffii_3	GHTAVSFQQL	SHWGEC	PLW
Thalassiosira_oceanica_2	DHTNITWEQL	SNWGHC	STW
Thalassiosira_pseudonana_3	DHTNISWEQL	TGWGHC	STW
Pseudo-nitzschia_multiseries_2	GHSMTYQQL	TRWGQC	RTGE
Fragilariopsis_cylindrus_9	GHSMTSYAQL	THWGQC	RTGS
Fragilariopsis_cylindrus_10	GHSMTSYAQL	THWGQC	RTGS
Aquilegia_caerulea_4	GPKLPPYEL	INFDTC	PARE
Glycine_max_5	GPKLPPYEL	MNFDTC	PTRE
Medicago_truncatula_2	GPKLPPYEL	MNFDTC	PTRE
A.thaliana_AT1G10130.1	GPKLTYSEL	MNFETC	ALRE
Oryza_sativa_2	GPRLPYSELARKPLLHALLLARKWDKMMWSNNHTSSYQOK	PNVFDSC	STRO
Selaginella_moellendorffii_4	GPRLTWKEL	VSNFNEC	KDGT
Micromonas_pusilla_2	GPMLTWSEL	TSFESC	EEGK
Micromonas_sp_2	GPLMTWHQL	TSFTEC	VEGV
Volvox_carteri_2	GGNLTWSQL	TAFQKCT	EPSAKA
Chlamydomonas_reinhardtii_2	GGGLTWGQL	TSFQKCT	EASAKA
Dunaliella_salina_1	GGNMTWSQL	THFQSC	ASQP
Ostreococcus_lucimarinus_2	GPQMTWAEEL	TSASRCT	
Phaeodactylum_tricornutum_2	NEL		
Chlamydomonas_reinhardtii_3			
Chlamydomonas_reinhardtii_4			
Thalassiosira_pseudonana_4			
Thalassiosira_pseudonana_5			

Skeletonema_marinoi_ABC		NPP		D		GVTCE	SLFQ
Thalassiosira_pseudonana_1		SPP		D		GVTCD	SLFQ
Thalassiosira_oceanica_1		SPP		D		GVTCD	SLFQ
Phaeodactylum_tricornutum_1		TPPT		E		SASCT	DLFQ
Fragilariopsis_cylindrus_1		ATVVG		TSSTD	SS	SI-Q	QNACSILFR
Fragilariopsis_cylindrus_2		ATVVG		TSSTD	SS	SI-Q	QNACSILFR
Fragilariopsis_cylindrus_3	PP	PVAAAATVVG		TSSTD	SS	SI-Q	QNACSILFR
Fragilariopsis_cylindrus_4	PP	PVAAAATVVG		TSSTD	SS	SI-Q	QNACSILFR
Fragilariopsis_cylindrus_5	PP	PVAAAATVVG		TSSTD	SS	SI-Q	QNACSILFR
Fragilariopsis_cylindrus_6	PP	PVAAAATVVG		TSSTD	SS	SI-Q	QNACSILFR
Fragilariopsis_cylindrus_7	PP	PVAAAATVVG		TSSTD	SS	SI-Q	QNACSILFR
Fragilariopsis_cylindrus_8	PP	VAAAATVVG		TSSTD	SS	SI-Q	QNACSILFR
Pseudo-nitzschia_multiseries_1		TPAGG		SSWLTG		SI-Q	QNACSILFR
Thalassiosira_pseudonana_2				D		AIACS	VYIT
Ostreococcus_lucimarinus_1		KNFKGGKFT-AGG		VAYS		YTG	KHACDYFE
Zea_mays_1		EGFKVSPFT-AGA		RTFS		F-D	ANPCDYFQ
Oryza_sativa_1		EGFKVSPFT-AGA		RTFN		F-D	VNPCDYFQ
Aquilegia_caerulea_1		ENFTVSPFT-AGS		QTFS		F-D	NPCDYFQ
A.thaliana_AT1G07810.1		EGFKVSPFT-AGS		QTFS		F-D	SNPCDYFQ
A.thaliana_AT1G07670.1		EGFKVSPFT-AGS		QTFS		F-D	SNPCDYFQ
Medicago_truncatula_1		NNFTAAPFT-AGS		RIIS		F-D	ADPCDYFT
Glycine_max_1		QNFTASPFT-AGA		KTIT		F-D	NPCDYFS
Glycine_max_2		QNFTASPFT-AGA		KTIT		F-D	NPCDYFS
Aquilegia_caerulea_2		EGFTVSPFT-AGG		QVFS		F-D	ANPCDYFQ
Selaginella_moellendorffii_1		QGFVAPFA-AGS		QVFS		F-D	KNPCDYFT
Physcomitella_patens_1		KDFKVPFT-AGD		LTL		F-D	DNPCDYFT
Physcomitella_patens_2		KDFKVPFT-AGN		QTL		F-D	DNPCDYFT
Physcomitella_patens_3		QDFKVPFT-AGN		LTL		F-E	DNPCDYFT
Selaginella_moellendorffii_2		EGFTVAPFT-VGS		RIYS		F-D	SNPCDYFA
Glycine_max_3		SNFTVAPFEVAGG		RLIT		F	SNPCDYFS
Glycine_max_4		SNFTIAPFEVAGG		RLIT		F	SNPCDYFS
Aquilegia_caerulea_3		SNFSVSPFTVSGG		RVIS		F	SNPCDYFS
A.thaliana_AT4G00900.1		INFTATPYTVAGG		LRTIA		F-E	NNPCDYFT
Chlamydomonas_reinhardtii_1		GNFTAKPYLLQGG		GVVS		F	PHPCDYFT
Volvox_carteri_1		GNFTAAPYKLAGG		QVVS		I	AHPCEYFS
Micromonas_pusilla_1		SSFKGGKYS-AGG		ATFD		YTSP	ANKCDYFT
Micromonas_sp_1		KGFAGGKFT-AGG		VTYS		YTG	SDACDYFH
Selaginella_moellendorffii_3		PEFHANPVTIAGN		EVMS		F	ASSCDYFT
Thalassiosira_oceanica_2		TDFKVNDFDG		LD		M-Q	TDPCKYFT
Thalassiosira_pseudonana_3		TDFKVNDFDG		LD		M-Q	TDPCKYFT
Pseudo-nitzschia_multiseries_2	DALGTI	FEGFSVNDFDHTGQ		GTIE		DF-S	SDPCSIFT
Fragilariopsis_cylindrus_9	EAVGTI	FEGFSVNDFDNTGD		GFIE		DF-T	SEPCTYFT
Fragilariopsis_cylindrus_10	EAVGTI	FEGFSVNDFDNTGD		GFIE		DF-T	SEPCTYFT
Aquilegia_caerulea_4				T			TYPCSI
Glycine_max_5				T			TYPCSI
Medicago_truncatula_2				T			TYPCSI
A.thaliana_AT1G10130.1				T			TYPCSI
Oryza_sativa_2				T			SYPCSI
Selaginella_moellendorffii_4				M			RYS
Micromonas_pusilla_2				Q			RYS
Micromonas_sp_2				E			KYSCDIFW
Volvox_carteri_2				A			GYTCAV
Chlamydomonas_reinhardtii_2				A			GYSCDV
Dunaliella_salina_1				GG			AKDCEV
Ostreococcus_lucimarinus_2							GDACE
Phaeodactylum_tricornutum_2				D			
Chlamydomonas_reinhardtii_3				S			STP-G
Chlamydomonas_reinhardtii_4				S			DTP-G
Thalassiosira_pseudonana_4							LN
Thalassiosira_pseudonana_5							R

Fragilariopsis_cylindrus_11	-----	D	-----		
Fragilariopsis_cylindrus_12	-----	D	-----		
Pseudo-nitzschia_multiseriata_3	-----	D	-----PT		
Phaeodactylum_tricornutum_3	-----	D	-----		
Micromonas_pusilla_3	-----	D	-----CKRCI		
Micromonas_sp_3	-----	D	-----CAVCI		
Chlamydomonas_reinhardtii_5	AI-N	TTVPSLQQDAVCSNGQFSPTANFSGVVAPGEA	CVRNTNLESAQRAMDDEWDRE		
Chlamydomonas_reinhardtii_6	RY-NG	SAVPPNQONAVCIPLGFPO	GTN	CPRNEGLTSAQKDMDEWDRE	
Volvox_carteri_3	PL-S	KPVVNDQLIACVGN	STN	CAKNOELIRAQTAMDDEWDRE	
Volvox_carteri_4	PL-S	KPVVNDQLIACVGN	STN	CAKNOELIRAQTAMDDEWDRE	
Volvox_carteri_5	P	AAVPTDMGTALCKGAYGRN	TTD	CDRFQWVKAVDGYMDDEYKDY	
Chlamydomonas_reinhardtii_7	P	QPVPADRATALCTNPAYPRN	GTDA	SVCDYESWAETVQGLDDEFMDY	
Chlamydomonas_reinhardtii_8	NS-SST	IKTVPEDEPTAMCDYDRPNPG	ATGN	PGCVVHWSQYQDADTRMKRDYETH	
Volvox_carteri_6	NV-N	RTVPSDARTAMCDFSVTAGG	VRSE	CDLYKAWOSAKKTMNDEYATH	
Ostreococcus_lucimarinus_3	-----	KYVAAS	GS	VAAH	YD
Micromonas_sp_4	-----	D	-----	ESD	GD
Selaginella_moellendorffii_5	-----	K	-----	GSP	A
A.thaliana_AT3G21180.1	-----	N	-----	HEN	-----
Aquilegia_caerulea_5	-----	E	-----	LKT	-----
A.thaliana_AT5G57110.2	-----	E	-----	HEV	-----
Oryza_sativa_3	-----	K	-----	NDN	-----
Zea_mays_2	-----	K	-----	NDD	-----
Zea_mays_3	-----	C	-----	NGS	-----
Zea_mays_4	-----	C	-----	NES	-----
Selaginella_moellendorffii_6	-----	H	-----	GPD	-----
Selaginella_moellendorffii_7	-----	K	-----	DDP	-----P
Aquilegia_caerulea_6	-----	D	-----	GPG	-----
Medicago_truncatula_3	-----	D	-----	GPN	-----
A.thaliana_AT2G22950.1	-----	V	-----	GSD	-----
A.thaliana_AT4G37640.1	-----	D	-----	GPD	-----
Oryza_sativa_4	-----	K	-----	GEN	-----
Zea_mays_5	-----	E	-----	RRAD	-----
Oryza_sativa_5	-----	D	-----	GPD	-----
A.thaliana_AT1G27770.1	-----	D	-----	GPD	-----
Oryza_sativa_6	-----	E	-----	GYH	-----
Zea_mays_6	-----	E	-----	SSE	-----
Aquilegia_caerulea_7	-----	S	-----	GSD	-----
Oryza_sativa_7	-----	E	-----	GPO	-----
Selaginella_moellendorffii_8	-----	-----	-----	-----	-----
Selaginella_moellendorffii_9	-----	VDA	-----	GDH	-----
Oryza_sativa_8	-----	-----	-----	-----	-----G
Fragilariopsis_cylindrus_13	-----	E	-----	-----	-----D
Pseudo-nitzschia_multiseriata_4	-----	E	-----	-----	-----D
Phaeodactylum_tricornutum_4	-----	E	-----	-----	-----D
Thalassiosira_pseudonana_6	-----	E	-----	EGHL	-----
Phaeodactylum_tricornutum_5	-----	E	-----	AGHIV	-----EK
Phaeodactylum_tricornutum_6	-----	E	-----	AGH	-----K

Skeletonema_marinoi_ABC	-GVGRELPTQLSLTLVLMF	-----	LLKALS	AV	SVN	SSIF	---	TVGPNQNPWL	VAGVAL	PFALHLAVV
Thalassiosira_pseudonana_1	-GAGRELPTQLSLTLVLCME	-----	LFKALS	AV	SVD	SSLL	---	SVGPNQNPWL	MIGVAV	PFLLHIAVV
Thalassiosira_oceanica_1	-GVGRELPTQLSLTLVLCME	-----	LFKALS	AV	SVD	SSLL	---	AVGPNQNPWL	VAGVAL	PFLLHVAVI
Phaeodactylum_tricornutum_1	-GSARMLPTQLALTLVLCME	-----	MLKALS	AV	SMD	DSIF	---	RVGPQENKWL	ILGVSG	GPFLHLMLVL
Fragilariopsis_cylindrus_1	-NNGRILPTQLSLTLVVME	-----	MLKALS	AV	SVN	DSLL	---	KVPPWKNKYLL	VGVS	GPFLHLHLVL
Fragilariopsis_cylindrus_2	-NNGRILPTQLSLTLVVME	-----	MLKALS	AV	SVN	DSLL	---	KVPPWKNKYLL	VGVS	GPFLHLHLVL
Fragilariopsis_cylindrus_3	-NNGRILPTQLSLTLVVME	-----	MLKALS	AV	SVN	DSLL	---	KVPPWKNKYLL	VGVS	GPFLHLHLVL
Fragilariopsis_cylindrus_4	-NNGRILPTQLSLTLVVME	-----	MLKALS	AV	SVN	DSLL	---	KVPPWKNKYLL	VGVS	GPFLHLHLVL
Fragilariopsis_cylindrus_5	-NNGRILPTQLSLTLVVME	-----	MLKALS	AV	SVN	DSLL	---	KVPPWKNKYLL	VGVS	GPFLHLHLVL
Fragilariopsis_cylindrus_6	-NNGRILPTQLSLTLVVME	-----	MLKALS	AV	SVN	DSLL	---	KVPPWKNKYLL	VGVS	GPFLHLHLVL
Fragilariopsis_cylindrus_7	-NNGRILPTQLSLTLVVME	-----	MLKALS	AV	SVN	DSLL	---	KVPPWKNKYLL	VGVS	GPFLHLHLVL
Fragilariopsis_cylindrus_8	-NNGRILPTQLSLTLVVME	-----	MLKALS	AV	SVN	DSLL	---	KVPPWKNKYLL	VGVS	GPFLHLHLVL
Pseudo-nitzschia_multiseriata_1	-EAGRTLPTQLSLTLVLCME	-----	MLKALS	AV	SMN	DSLF	---	KVAPWQNKWLL	MGVAG	GPFLHLHLSVL
Thalassiosira_pseudonana_2	---DLATPOTLALTLVTTTE	-----	LLKALC	TV	SVD	SSIL	---	TVPPQKNPWL	ILGVAV	PFALNLGII
Ostreococcus_lucimarinus_1	--AGKVKASTLSLTLVLAIE	-----	MFNALN	AI	SED	GSLV	---	TMPPWRNPYLL	IAMLV	SFGLSHFLIM
Zea_mays_1	--GGKIKATTLSSLVLAIE	-----	MFNSLN	AI	SED	GSLV	---	SMPPWVNPWLL	LAMSV	SFGLHFLIL
Oryza_sativa_1	--GGKIKATTLSSLVLAIE	-----	MFNSLN	AI	SED	GSLV	---	SMPPWVNPWLL	LAMSV	SFGLHFLIL
Aquilegia_caerulea_1	--TGKVKAMTLLSLSVLAIE	-----	MFNSLN	AI	SED	GSLV	---	VMPPWVNPWLL	LAMSV	SFGLHFLIL
A.thaliana_AT1G07810.1	--QGKIKASTLSLSSLVLAIE	-----	MFNSLN	AI	SED	GSLV	---	TMPPWVNPWLL	LAMAV	SFGLHFVIL
A.thaliana_AT1G07670.1	--QGKIKASTLSLSSLVLAIE	-----	MFNSLN	AI	SED	GSLV	---	TMPPWVNPWLL	LAMAV	SFGLHFVIL
Medicago_truncatula_1	--TGKVKAMTLLSLSVLAIE	-----	MFNSLN	AI	SED	GSLV	---	TMPPWVNPWLL	LAMSV	SFGLHFLIL
Glycine_max_1	--TGKVKAMTLLSLSVLAIE	-----	MFNSLN	AI	SED	GSLV	---	TMPPWVNPWLL	LAMSV	SFGLHFLIL
Glycine_max_2	--TGKVKAMTLLSLSVLAIE	-----	MFNSLN	AI	SED	GSLV	---	TMPPWVNPWLL	LAMSV	SFGLHFLIL
Aquilegia_caerulea_2	--AGKVKAMTLLSLSVLSIE	-----	MFNSLN	AI	SED	GSLV	---	VMPPWVNPWLL	LAMSV	SFGLHFLIL
Selaginella_moellendorffii_1	--DGKVKASTLSLSSLVLAIE	-----	MFNSLN	AI	SED	GSLV	---	VMPPWVNPWLL	LAMSV	SFGLHFLIL
Physcomitella_patens_1	--TGKVKATTLSSLVLAIE	-----	MFNSLN	AI	SED	GSLV	---	SMPPWVNPWLL	LAMGL	SFGLHFLIL
Physcomitella_patens_2	--TGKVKATTLSSLVLAIE	-----	MFNSLN	AI	SED	GSLV	---	SMPPWVNPWLL	LAMAV	SFGLHFLIL
Physcomitella_patens_3	--TGKVKATTLSSLVLAIE	-----	MFNSLN	AI	SED	GSLV	---	QIPPPWMNPWLL	IAMLS	SFGLHFVLV
Selaginella_moellendorffii_2	--AGKVKATTLSSLVLAIE	-----	MFNSLN	AI	SED	GSLV	---	VMPPWRNPWLL	VAMAASI	GLHFIIIL
Glycine_max_3	--VGKIKAMTLLSLSVLAIE	-----	MFNSLN	AI	SEE	NSLR	---	KLPPWRNPWLL	VAMSI	SFGLHCLIL
Glycine_max_4	--VGKIKAMTLLSLSVLAIE	-----	MFNSLN	AI	SEE	NSLR	---	KLPPWRNPWLL	VAMSI	SFGLHCLIL
Aquilegia_caerulea_3	--VGKVKAMTLLSLSVLAIE	-----	MFNSLN	AI	SED	NSLV	---	TMPPWRNPWLL	LAMSI	SFGLHCLIL
A.thaliana_AT4G00900.1	--LGKVKPMTLSLTLVLAIE	-----	MFNSLN	AI	SED	NSLL	---	TMPPWRNPWLL	VAMTV	SFALHCVIL
Chlamydomonas_reinhardtii_1	--AGKAKASTLSLSSLVLAIE	-----	MFNALN	AI	SED	GSLV	---	TMPPWANPWLL	LAIASI	SFGLHCVIL
Volvox_carteri_1	--VGKAKASTLSLSSLVLAIE	-----	MFNALN	AI	SED	GSLV	---	AMPPWSNPWLL	TAISV	SVALHCVIL
Micromonas_pusilla_1	--EGKAKASTLSLTLVVIE	-----	MFNACN	AI	SED	ISLF	---	VMPPWINPWL	MVAMSV	SFGLHFLIL
Micromonas_sp_1	--AGKIKASTLSLTLVVIE	-----	MFNACN	AI	SED	ISLV	---	IMPPWINPWL	ILAMF	SFGLHFLIL
Selaginella_moellendorffii_3	--VGKIKPSTLAMSTLVMIE	-----	MFNALN	AI	SET	NSLL	---	KVRPWANKWLL	VAVASL	GLHGTTIL
Thalassiosira_oceanica_2	--DGKAKASTLSLSSLVLAIE	-----	MFNALN	AI	SED	GSLV	---	TMPPWANPYLL	LAMVSV	GMHFVIL
Thalassiosira_pseudonana_3	--DGKVKASTMSSLVLAIE	-----	MFNALN	AI	SED	GSLV	---	TMPPWSNPYLL	LAMVSV	GMHFVIL
Pseudo-nitzschia_multiseriata_2	--KGKMKASTLSLSSLVLTIE	-----	MFNALN	AV	SED	GSLV	---	TIPPWVNPYLL	LAMASS	SFILHFMIL
Fragilariopsis_cylindrus_9	--KGKMKASTLSLSSLVLTIE	-----	MFNALN	AV	SED	GSLV	---	TIPPWVNPYLL	LAMASS	SFILHFMIL
Fragilariopsis_cylindrus_10	--KGKMKASTLSLSSLVLTIE	-----	MFNALN	AV	SED	GSLV	---	TIPPWVNPYLL	LAMASS	SFILHFMIL
Aquilegia_caerulea_4	---DDRRPSTVSMTLVVVVE	-----	MFNALNN	L	SEN	QSLV	---	VIAPWSNLWL	VGSII	LTMLLHILIL
Glycine_max_5	---DDRHPSTVSMTLVVVVE	-----	MFNALNN	L	SEN	QSLV	---	VIPPWSNLWL	VASII	LTMLLHMLIL
Medicago_truncatula_2	---EDRHPSTVAMTLVVVVE	-----	MFNALNN	L	SEN	QSLV	---	VIPPWSNLWL	VGSIVL	LTMLLHILIL
A.thaliana_AT1G10130.1	---EDRHPSTVAMTLVVVVE	-----	MFNALNN	L	SEN	QSLV	---	VITPRSNLWL	VGSII	LTMLLHVLIL
Oryza_sativa_2	---EDRHPSTVSMTLVVVVE	-----	MFNALNN	L	SEN	QSLV	---	AIHPWSNLWL	VGSIVL	LTMLLHSIVL
Selaginella_moellendorffii_4	---RDRHPSTISMSVLVVVE	-----	MFNAMNN	L	SEN	QSLV	---	VLPWWSNMWLM	ASIGV	SMLLHFLIL
Micromonas_pusilla_2	---KNRSPSTMSMSVLVVVE	-----	MFNALN	L	SEN	GSLV	---	THPPWSNYWLL	CAICV	SMLLHCVIL
Micromonas_sp_2	---KNRGPSTVSMITLVVVE	-----	MFNALN	L	SEN	ESLL	---	SQSPSSNPWL	VGAIVS	LMLLHVAIL
Volvox_carteri_2	---ESQHPRTIAMSVLVVVE	-----	MFNALNN	L	SEN	SSLL	---	VIPPWDNRWLL	CAIATSM	LHFFIL
Chlamydomonas_reinhardtii_2	---GSRHPRTIAMSVLVVVE	-----	MFNALNN	L	SED	ASLL	---	TIPPWDNRWLL	CAIATSL	GLHALIIL
Dunaliella_salina_1	---HSKHPTTISMSVLVVVE	-----	MFNALNN	L	SED	SSLL	---	RIPPWDNRWLL	VGAIATSM	LHFGIIL
Ostreococcus_lucimarinus_2	---KDRRPSTMMAMSTLVVIE	-----	MFNALNS	L	SEN	KSLF	---	SHPPTTNVWLL	VSI	SMLLHFIIM
Phaeodactylum_tricornutum_2	DGAVNRRDITMTFMFCNCD	-----	LFNAYVC	R	SAD	KPFY	---	KINLYSNPAFL	WAI	IGGSVVGQFLVV
Chlamydomonas_reinhardtii_3	GGYNLKQRRSEAFNVLVGAQ	-----	IAYFVNC	R	FIK	SCFH	---	PRVFFGNPIV	YISIAL	VAGIMVFTV
Chlamydomonas_reinhardtii_4	GGYPLKQORAEAFNTLVGAQ	-----	VAYFVSC	R	FLK	SSFH	---	PRVFFGNPIA	YVSIS	IVAALMVFTV
Thalassiosira_pseudonana_4	AEDRLAMIRAVSFNVLDFGA	-----	MSVMMSAR	F	SYN	SSFH	---	PRVFKGNPAAL	ASCAI	IVTLQIALT
Thalassiosira_pseudonana_5	SDDKMMMRRAVSFNILDFGA	-----	ISVTLAR	F	FAYN	SSMT	---	LNILRGNPAVL	FVS	VTVTLVQVFLT

Fragilariopsis_cylindrus_11	YKTVTHMVHSQASNTLTFGA	CFVTF SARFNLL SSFH	PRLFRGNVFTWYSFAIVTVLQLCIT
Fragilariopsis_cylindrus_12	YKTVTHMVHSQASNTLTFGA	CFVTF SARFNLL SSFH	PRLFRGNVFTWYSFAIVTVLQLCIT
Pseudo-nitzschia_multiseriis_3	SKDSINRVHSQASNTLTFGA	CFVTL SARFSYQ NSLH	PRAFQDNVFTYSLIYAVLQLAIT
Phaeodactylum_tricornutum_3	LGTYLLEETRSQALNTLSFGA	ISVTMSARFSRK SAFH	ARTFQGNPIAWWSYIMVMLQVFIIT
Micromonas_pusilla_3	TTTSIRRARTTAFIALVYAE	NFRAYCSR SFE	NGVWVKPFSNMTMNKAIIFAQLALYFAL
Micromonas_sp_3	EESIRRARTATFISLVWAE	GVRAYCSR SFE	NPIWVNMFSNMSMNKAVLLAQVTLIAL
Chlamydomonas_reinhardtii_5	YLLSYKPAHSVLFNAFILAQ	VANAFVSR RIGLELNF	FKGLAHSPIFNNGIMVLITLQVLM
Chlamydomonas_reinhardtii_6	YLKSYKPAHSVLFNAFILAQ	VANAFVSR RIOLEYNF	FKGLANSHIFNAIMVLITLQAIM
Volvox_carteri_3	LLKSYKPAHSVLFNAFILAQ	VANAFVSR RIGLELNF	FKGLPRSYIFNVIMVLITLQVVM
Volvox_carteri_4	LLKSYKPAHSVLFNAFILAQ	VANAFVSR RIGLELNF	FKGLPRSYIFNVIMVLITLQVVM
Volvox_carteri_5	NEDEYKRPLSLLFNIFICTQ	VANEINAR RINDEYNV	FEGLFGNWIFLAVITITMGLQAI
Chlamydomonas_reinhardtii_7	EIDEYKRPLSLLFNIFICTQ	VANEINAR RINDEYDI	FSGLFTNWIFMAVLAITMGAQAI
Chlamydomonas_reinhardtii_8	MHDEYIHVLSCLFNAFIFCQ	IFNEINAR RINDEYTI	FVGLFTNPIFCVIAITVVFQV
Volvox_carteri_6	TDDEYRPVLSILFNAFIFCQ	IFNEINAR RINDEYTI	FTGLFTNPIFVTVIAVTAVFQ
Ostreococcus_lucimarinus_3	CHHQTLLELNGFIFNAFVFMQ	VFSEINSR RIA DVNV	FANIHNSPIFCGIIALTVGVQV
Micromonas_sp_4	GHYRTL RVNSVIFNAFVFMQ	IFSEINSR KIS EWNV	FEGLGNSPIFCFIIFLTIQTAAFI
Selaginella_moellendorffii_5	C--KNVLRNTIIFNSFVLCQ	VFNEINAR KLO KLVN	LKGVFQSFLFCVIGVIVLQIV
A.thaliana_AT3G21180.1	HAHAVEVKNTMIFNAFVMCQ	IFNEFNAR KPD EMNV	FRGVNKNPLFVAIVGVTFILO
Aquilegia_caerulea_5	---DQAANTLIFNAFVLCQ	IFNEFNAR KPD EMNV	FGGITKNRFLMAIVGVTLVQL
A.thaliana_AT5G57110.2	HEHATRVKNTIIFNAFVLCQ	AFNEFNAR KPD EKNV	FKGVIKNRLFMGIIVITLVLQ
Oryza_sativa_3	QAHADKVKNTFIFNTFVLCQ	VFNEFNAR KPD ELNI	FKGITGNHLFMAIVATVVFQ
Zea_mays_2	PAHADKVKNTFIFNTFVLCQ	VFNEFNAR KPD ELNI	FKGISGNHLFGIIVITVILQ
Zea_mays_3	WEHAEKTKNTFVFNAFVFCQ	IFNEFNAR KPE EKNV	FKGVANNHLFVAIVGATTVL
Zea_mays_4	RSDAEKINTFIFNTFVFCQ	IFNEFNAR KPE EKNV	FKGVTKNHLFMGIIGITTVFQ
Selaginella_moellendorffii_6	---GNRKLNTIIFNSFVLCQ	LFNEVNSR KPD KLVN	FSGFFRNPLFCGVVSVTAVLQ
Selaginella_moellendorffii_7	EGVAHEKLVCIIFNAFVFCQ	VFNEFNAR NPE KLVN	FKGFTSNRFLMGVILFTAIVQ
Aquilegia_caerulea_6	---SDLILNNTLIFNSFVFCQ	VFNEISSR EME KIDV	FEGLDNNVVFVTVLSATCIFQ
Medicago_truncatula_3	---SDLVLNNTLIFNAFVFCQ	VFNEISSR EME KINV	FKGILDNYVVFVGVISATIFFQ
A.thaliana_AT2G22950.1	---STLVLNNTLIFNCFVFCQ	VFNEVSSR EME EIDV	FKGILDNYVVFVVIGATVFFQ
A.thaliana_AT4G37640.1	---STLMLNNTLIFNCFVFCQ	VFNEISSR EME EIDV	FKGILDNYVVFVVIGATVFFQ
Oryza_sativa_4	---SDLVLNNTLIFNCFVFCQ	VFNEVSSR EME RINV	FEGLDNNVVFVAVLGVSTVIFQ
Zea_mays_5	---SDLVLNNTIIFNCFVFCQ	VFNEVSSR EME RVNV	LRGILDNNVVFAMVLGVSTVVFQ
Oryza_sativa_5	---AEVVLNNTIIFNSFVFCQ	VFNEISSR EME KINV	LRGILKNYVFLGVLTSTVVFQ
A.thaliana_AT1G27770.1	---SDLTLNNTLIFNIFVFCQ	VFNEISSR EME KIDV	FKGILKNYVVFVAVLTCVTVFQ
Oryza_sativa_6	---ADIVLNNTIIFNTFVFCQ	VFNEISSR EME DINV	LRGMAGNSIFLGVLTGTIFFQ
Zea_mays_6	---ANTVLNNTIIFNTFVFCQ	VFNEISSR DME EINV	LKGLPQNSIFMSILGGTIFQ
Aquilegia_caerulea_7	---ADSVLNNTFIFNTFVFCQ	VFNEISSR DME KINV	FRGMFQSWVFIAVMIATVVFQ
Oryza_sativa_7	---SDKTINTLIFNSFVFCQ	ESVLYFNGNFTILEKVSGGTLRYFLKEGKISLILT	LOGIFRNWIFVGIILTATVIFQ
Selaginella_moellendorffii_8	---DTLTLNNTLIFNVFVFCQ	VFNELNAR DME KLVN	FKHTFNNTITFLLVILFTVVFQ
Selaginella_moellendorffii_9	---GKLVNNTIIFNTFVFFCQ	VFNEFNAR EMD KINV	FRHL-DNRFFLAIVTATVVFQ
Oryza_sativa_8	AGAGERANGTMIFNAFVLCQ	VFNEFNAR EIE RRNV	FAGVHRNRMFLGIVAVTVALQ
Fragilariopsis_cylindrus_13	---GSTHHFTILFNAFVFCQ	VFNEFNAR EIGDVFDP	VGSLEKSPMFLVIVFTVFSQ
Pseudo-nitzschia_multiseriis_4	---GSIHHFTIIFNAFVFCQ	IFNEFNAR EIGDVFDP	IGALGQSPMFLVIVFTVISQ
Phaeodactylum_tricornutum_4	---GSRHHFTILFNAFVFCQ	VFNEFNAR EIGDRFDP	LRSLSESPMFLVIVFTMVAQ
Thalassiosira_pseudonana_6	---ENSIIHYTLIFNTFVWMCQ	LFNEINSR NLEGEFNV	FRGIQRNPLFGILLTAMLV
Phaeodactylum_tricornutum_5	EREENS VHVTIIFNTFVWMCQ	LFNEINSR KLGESNV	FKGVLDNYIFCTILLTSCLO
Phaeodactylum_tricornutum_6	DRDVNTVHYTLIFNAFVWMCQ	LFNEINCR KLGEGINV	FEGLLNPMFCGILFTTAVLQ

Skeletonema_marinoi_ABC	YSAEL	-----	GFP	GLAKS	FGLVP	LSLHDWEIALKWSAPILIVEEILKFFG	---
Thalassiosira_pseudonana_1	YSSKL	-----	GLP	GLAKS	FGLVP	LSLHDWK TALKWSAPILIVEEMLKAAGRHR	
Thalassiosira_oceanica_1	YSSKL	-----	GLP	GLAKS	FGLVS	-----	HRCSQKRV
Phaeodactylum_tricornutum_1	YSSDL	-----	GIP	ALGES	FGMVP	LSIDDWALVLSWAAPILLVDEILKAIGRWV	
Fragilariopsis_cylindrus_1	YSSKLSLGLGGSNKYL	-----			VP	LTVEEWKT VLLWASPILLVDEILKCI GRRL	
Fragilariopsis_cylindrus_2	YSSKLSLGLGGSNKYL	-----			VP	LTVEEWKT VLLWASPILLVDEILKCI GRRL	
Fragilariopsis_cylindrus_3	YSSKLSLGLGGSNKYL	VGLS	GFGKA	FGMVP		LTVEEWKT VLLWASPILLVDEILKCI GRRL	
Fragilariopsis_cylindrus_4	YSSKLSLGLGGSNKYL	VGLS	GFGKA	FGMVP		LTVEEWKT VLLWASPILLVDEILKCI GRRL	
Fragilariopsis_cylindrus_5	YSSKLSLGLGGSNKYL	VGLS	GFGKA	FGMVP		LTVEEWKT VLLWASPILLVDEILKCI GRRL	
Fragilariopsis_cylindrus_6	YSSKLSLGLGGSNKYL	VGLS	GFGKA	FGMVP		LTVEEWKT VLLWASPILLVDEILKCI GRRL	
Fragilariopsis_cylindrus_7	YSSKLSLGLGGSNKYL	VGLS	GFGKA	FGMVP		LTVEEWKT VLLWASPILLVDEILKCI GRRL	
Fragilariopsis_cylindrus_8	YSSKLSLGLGGSNKYL	VGLS	GFGKA	FGMVP		LTVEEWKT VLLWASPILLVDEILKCI GRRL	
Pseudo-nitzschia_multiseriata_1	YSSRL	-----	GLP	GFGKA	FGMVS	LTKEHWKT VLFWSTPILLVDELLKFI GRRL	
Thalassiosira_pseudonana_2	YN	-----	P	ALSNS	FGLVP	LTVDWIHVMLWSSPVLIDEALKYASRQA	
Ostreococcus_lucimarinus_1	YV	-----	P	YFAEI	FSIVP	LD FNEWMLVLLCAAPVCLIDEVLKVFGRVS	
Zea_mays_1	YV	-----	P	FLAQV	FGIVP	LSLNEWLLVVAFAFPVVLIDEVLKVFGRCL	
Oryza_sativa_1	YV	-----	P	FLAQV	FGIVP	LSFNEWLLVIAVAFPPVVLIDEVLKVFGRCL	
Aquilegia_caerulea_1	YV	-----	P	FLAQV	FGIVP	LSLNEWLLVLAVALPVILIDEVLKVFGRCT	
A.thaliana_AT1G07810.1	YV	-----	P	FLAQV	FGIVP	LSLNEWLLVLAVALPVILIDEVLKVFGRCT	
A.thaliana_AT1G07670.1	YV	-----	P	FLAQV	FGIVP	LSLNEWLLVLAVALPVILIDEVLKVFGRCT	
Medicago_truncatula_1	YV	-----	P	FLAKV	FGIVP	LSFNEWLLVLAVALPVILIDEVLKVFGRCT	
Glycine_max_1	YV	-----	P	FLAQV	FGIVP	LSFNEWLLVLAVALPVILIDEVLKVFGRCT	
Glycine_max_2	YV	-----	P	FLAQV	FGIVP	LSFNEWLLVLAVALPVILIDEVLKVFGRCT	
Aquilegia_caerulea_2	YV	-----	P	FLAQV	FGIVP	LSLNEWFLVLAVALPVILIDEVLKVFGRCT	
Selaginella_moellendorffii_1	YV	-----	P	FLANI	FGIVP	LSFNEWLLVIVSFPVILIDEVLKVFGRKM	
Physcomitella_patens_1	YI	-----	P	FLAKI	FGIVP	LSLLEWLLVLAVALPVILIDEVLKFI GRRM	
Physcomitella_patens_2	YI	-----	P	FLATI	FGIVP	LSLNEWLLVLAVALPVILIDEGLKFI GRRM	
Physcomitella_patens_3	YV	-----	P	VLASI	FGIVP	LNSNEWLLVLAVALPVILIDEVLKFI GRRM	
Selaginella_moellendorffii_2	YV	-----	P	LLAQV	FGIVP	LSWREWLLVLAVALPVILIDEVLKFI GRRM	
Glycine_max_3	YT	-----	P	FLAEV	FGVVP	LSLNEWFMVLLISAPVILIDEVLKLVVRSQ	
Glycine_max_4	YT	-----	P	FLAEV	FGVVP	LSLNEWFMVLLISAPVILIDEVLKLVVRSQ	
Aquilegia_caerulea_3	YV	-----	P	FLADV	FGIVP	LT LKEWVVLVLSAPVVVILIDEVLKLVGRSR	
A.thaliana_AT4G00900.1	YV	-----	P	FLANV	FGIVP	LSFREWVVLVLSAPVVVILIDEALKFI GRCR	
Chlamydomonas_reinhardtii_1	YV	-----	P	FLADV	FAIVP	LSWPEWQLVLLWSAPVLLIDEVLKAVGRLL	
Volvox_carteri_1	YV	-----	P	FLADV	FAIVP	LSWPEWQLVLLWSAPVLLIDEVLKAVGRLL	
Micromonas_pusilla_1	YV	-----	P	ALATI	FSIVP	LDANEWALVCAAPVWVILIDEVLKFI GRNF	
Micromonas_sp_1	YV	-----	P	ALATI	FSIVP	LDLNEWLLVCAAPVWVILIDEVLKFI GRNF	
Selaginella_moellendorffii_3	YT	-----	P	WLAEV	FGVVP	LDWNDWLLVLAVALPVILIDEALKLAGRVF	
Thalassiosira_oceanica_2	YV	-----	D	SLADM	FNVTP	LDKDEWMLVLAVALPVIFIDEILKFI GRQM	
Thalassiosira_pseudonana_3	YV	-----	D	FLADM	FNVTP	LDWDEWMLVLAVALPVIFIDEILKFI GRKM	
Pseudo-nitzschia_multiseriata_2	YV	-----	P	WMATI	FSISP	HDAVDWILVFLSFPVILIDEMLKYVGRGM	
Fragilariopsis_cylindrus_9	YV	-----	P	AMATV	FSISP	HNTIDWILVFLSFPVILIDEILKYIGRRR	
Fragilariopsis_cylindrus_10	YV	-----	P	AMATV	FSISP	HNTIDWILVFLSFPVILIDEILKYIGRRR	
Aquilegia_caerulea_4	YV	-----	Q	PLSIL	FSVTP	LSWAEWTVVLYLSFPVILIDEILKFFSRNS	
Glycine_max_5	YV	-----	H	PLSVL	FSVTP	LSWTDWTVVLYLSFPVILIDEVLKFFSRNP	
Medicago_truncatula_2	YV	-----	R	PLSVL	FSVTP	LSWADWMAVLYLSFPVILIDEILKFFSRNP	
A.thaliana_AT1G10130.1	YV	-----	H	PLAVL	FSVTP	LSWAEWTVVLYLSFPVILIDEILKFFSRNP	
Oryza_sativa_2	YI	-----	E	PLSAL	FS	-----	VILIDEVLKFFSRSS
Selaginella_moellendorffii_4	YL	-----	R	PLSLL	FSVTP	LSWAEWKAVLWFSFPVILIDEVLKVLRSQT	
Micromonas_pusilla_2	YV	-----	P	WLAST	FSVAP	LSTAEWNAVILKFSFPVILDEED	-----
Micromonas_sp_2	YV	-----	P	WLATI	FSVTP	LSSHEWCAVFWFSFPVILIDEILKFI TRSG	
Volvox_carteri_2	YV	-----	G	PAAAL	FGVTS	LNGAEWLAVLALSAPVLLDELMKWI SRRV	
Chlamydomonas_reinhardtii_2	YA	-----	P	PAAAL	FGVTG	LSGAEWAAVWVLSAPVLLDEVMMKALSRNV	
Dunaliella_salina_1	YT	-----		GASAM	FGVTG	LSFAEWAMVQLSAPVLLDEVMMKAW SRRR	
Ostreococcus_lucimarinus_2	YV	-----	P	SFAKT	FTITA	LN YEEWRVAFWFSIPVIFIDEVLKYVTRAH	
Phaeodactylum_tricornutum_2	YV	-----	L	PLOKV	FQTEA	LT FYDIAYIVLLSSMVLWLDALRKTFFPSV	
Chlamydomonas_reinhardtii_3	YV	-----	P	GVNGF	FHMTG	SMDGIQWARVVVCTAIVFVIVEVEKALVDPL	
Chlamydomonas_reinhardtii_4	YV	-----	P	GVNGF	FHMSG	MDGIQWARVVVATFVVYVIVEVEKALVDPL	
Thalassiosira_pseudonana_4	YI	-----	P	GLNSFVFSMNG		MDGFGWALVIASMVLVFVVMETEKAI RRR	---
Thalassiosira_pseudonana_5	YT	-----	P	GLNSFVFSMNG		MDGFGWALVIAAMVVVFAVME TEKAI RRRNL	

Fragilariopsis_cylindrus_11	YI	-----P	GLNNIIFSMAP	--M	VAFQWGLVALGGIIVFI	GLELEKAFRRFL
Fragilariopsis_cylindrus_12	YI	-----P	GLNNIIFSMAP	--M	VAFQWGLVALGGIIVFI	GLELEKAF----
Pseudo-nitzschia_multiseriis_3	YI	-----P	GLNDIVFAMAP	--M	KAFQWGIICFLGCIIVFI	ALELEKAFRRYL
Phaeodactylum_tricornutum_3	YT	-----P	GLNDTIFSMAG	--M	DGPQWGIIVALFMVVMLV	MEEAEKAVRNYL
Micromonas_pusilla_3	FC	-----P	GLNESVLGLVYVE	I	HGFGWFLAVMGS	LACLVGCEIYKKIAGQF
Micromonas_sp_3	YL	-----P	GLNHV-LGLYVDE	I	HGWGWFIAFQ	AVACGVGCCELYKYIAKQF
Chlamydomonas_reinhardtii_5	QT	-----	PISYI-FKVEP	--L	NGPEWGACIAIGIGAI	PFSWALRILLRWL
Chlamydomonas_reinhardtii_6	QT	-----	PINYI-FKVNA	--L	NGEEWGVTIAIGVGAIP	FSWLVRVVARLV
Volvox_carteri_3	QT	-----	PISFV-FKVKP	--L	NGAEWGACIAIGIGAI	PYSWAVRLLAQAV
Volvox_carteri_4	QT	-----	PISFV-FKVKP	--L	NGAEWGACIAIGIGAI	PYSWAVRLLAQAV
Volvox_carteri_5	N	-----	FLGLF-FKVEP	--L	WQEWLASIAIGTGAWP	VSFLTRLISRNI
Chlamydomonas_reinhardtii_7	N	-----	FLGMF-FKVEP	--L	WKEWLVSIAIGS	CAWPLSLITRFISRNI
Chlamydomonas_reinhardtii_8	NV	-----	PFINNKF-FKVN	--L	NQEWLATVAIGFGTI	PLSLLTRWLSKVL
Volvox_carteri_6	NV	-----	PFINSKF-FKVQ	--L	WQEWLVTVAIGLGAIP	LSLATRFITKVM
Ostreococcus_lucimarinus_3	QAVGGT	-----	VVGPA-IGFVE	--O	NKWEITAIILGVII	LPVGVVTRLPLKWL
Micromonas_sp_4	EGVGR	-----	VVGPA-IGFMN	--L	TGGEWAVCIVIGFCAL	PVGFARQLPLDI
Selaginella_moellendorffii_5	E	-----	FLGKY-FKTR	--L	ATQYWLICVIGFSLI	PLACLMLVHVPK
A.thaliana_AT3G21180.1	T	-----	FLGKF-AHTVR	--L	WQWLASIIIGLVS	WPLAIVGKLIIPVK
Aquilegia_caerulea_5	E	-----	FLGKF-TDTIK	--L	NWKQWLVSAIGAI	SWPLAAGKLIIPVE
A.thaliana_AT5G57110.2	E	-----	FLGKF-ASTTK	--L	NWKQWLVICVIGVIS	WPLALVGKFIIPVA
Oryza_sativa_3	E	-----	FLGKF-TSTTR	--L	TWQWLVSIGLAFFS	WPLAFVGGKLIIPVE
Zea_mays_2	E	-----	FLGKF-ASTVR	--L	WQWLVSIGLAFFS	WPLAFVGGKLIIPK
Zea_mays_3	E	-----	FLGKF-FDTAR	--L	WRLLWLSVAIGAVS	WPLAYLGGKFIIPVPV
Zea_mays_4	C	-----	FLGKF-FKIVR	--L	WRLLWLSVAIGLVS	WPLAYVGGKFIIPVPV
Selaginella_moellendorffii_6	F	-----	FLGKF-FKTR	--L	WNHWLVSIVVGF	SLVVGFFGKLIIPVK
Selaginella_moellendorffii_7	E	-----	YGGTI-VSTVH	--L	WNHWILCIILGAI	SLPLAALVKKLIIPD
Aquilegia_caerulea_6	E	-----	FLGTF-ANTHP	--L	SFSQWFLSVFLG	FLGMPIAAAVKMIPVGV
Medicago_truncatula_3	E	-----	YLGTF-ANTTP	--L	TLVQWFFCLFV	GFMGMPIAARLKKIPV--
A.thaliana_AT2G22950.1	E	-----	FLGTF-ASTTP	--L	TIVQWFFSIFV	GFLGMPAAAGLKKIPV--
A.thaliana_AT4G37640.1	E	-----	FLGTF-ASTTP	--L	TITQWIFSI	FIFGFLGMPAAAGLKTIPV--
Oryza_sativa_4	C	-----	FLGDF-ANTTP	--L	TLKQWFNCIF	IFGFIGMPIAAAVKLIIPVDE
Zea_mays_5	C	-----	CLGSF-ANTTP	--L	SVAQWACVAIGF	VGMPPVAVAVKMPVE-
Oryza_sativa_5	C	-----	FLGEF-ANTIP	--L	TRLQWIASVLLG	LIGMPIASAIKLLPVGS
A.thaliana_AT1G27770.1	E	-----	LLGTF-ADTTP	--L	LGQWLVSIILG	FLGMPVAAALKMIPVGS
Oryza_sativa_6	C	-----	FLGDF-ANTTP	--L	TQQWLVSIILF	GFLGMPIAAAIKLIAVEP
Zea_mays_6	C	-----	FLGDF-ANTTP	--L	THLQWLVSIILF	GLLGMPIAAAIKLIIPVEP
Aquilegia_caerulea_7	C	-----	FLGTF-ANTVP	--L	NWQWLVSVLIG	AVSMVIAVIKFIIPVKE
Oryza_sativa_7	E	-----	FLGTF-ANTVP	--L	SGELWLVSVVIG	SISMIISVILKCIIPVEF
Selaginella_moellendorffii_8	E	-----	FLGKL-ADTTP	--L	NAKQWLVSVLLG	AIQVPLAMLGKLIIPVA
Selaginella_moellendorffii_9	E	-----	WLGSV-ASTTP	--L	SPCQWLF	CVGVASLSLVVDVAVKAIHGLW
Oryza_sativa_8	E	-----	LLTKF-AGTER	--L	GWQWACVGI	AAVSWPIGWAVKCIIPVE
Fragilariopsis_cylindrus_13	E	-----	YGGDF-TQTQP	--L	SLDEWKITVGY	GAMSIPIGWLMRKIPVNE
Pseudo-nitzschia_multiseriis_4	E	-----	YGGDF-TQTTP	--L	SMEEWMTIAY	GALSIPIGFFMRLIPVSE
Phaeodactylum_tricornutum_4	E	-----	FGGDF-TQYTP	--L	SEEWKITVGL	GAIPLPVGFFMRLIPVSE
Thalassiosira_pseudonana_6	E	-----	FGGKA-MVHEDGL	D	GMVWVSI	ALGSGSLLVQVINIV---
Phaeodactylum_tricornutum_5	E	-----	FGSLA-FKVAES	G	LARSFWALSLIL	GAGSLPVQVINQLYRLG
Phaeodactylum_tricornutum_6	E	-----	FGSLA-FKVADD	G	LARSFWALSMIL	GFGSLPVQQLINQFYNVA

Supplementary figure 8.

Alignment of the ABC-transporter domains used in the phylogenetic analysis presented in supplementary figure 7. The length of the alignment has been adjusted to the length of the domain identified in *S. marinoi*. Numbers above the sequences indicate the positions in the alignment and the background color of the letters indicates size, shape, solubility, and ionization properties of the different amino acids.