

	+1		
OsEPSPS	-MASNAAAAAVSLDQAVAASAAFSSRKQLRLPAAARGGMRVVRVRARGRREAVVVASASS	59	
TaEPSPS-7A1	MAMAAAATVAASASSAVSLDRAAPAHPRRLRMPAARAAHARGAVRLWGPRGAARATS--	58	
TaEPSPS-7D1	-----		
TaEPSPS-4A1	-----		
			exon 2 start ↓
OsEPSPS	SSVAAPAAKAEIIVLQPIREISGAVQLPGSKSLSNRILLLSALSEGTTVVDNLLNSEDVH	119	
TaEPSPS-7A1	VAAPAAPAGAEVVLQPIREISGAVQLPGSKSLSNRILLLSALSEGTTVVDNLLNSEDVH	118	
TaEPSPS-7D1	-----GTTVVDNLLNSEDVH	15	
TaEPSPS-4A1	-----GTTVVDNLLNSEDVH	15	

OsEPSPS	YMLEALKALGLSVEADKVAKRAVVVGCGGKFPVEKDAKEEVQLFLGNAGTAMRPLTAAVT	179	
TaEPSPS-7A1	YMLEALEALGLSVEADKVAKRAVVVGCGGRFPVEKDAKEEVKLFLGNAGTAMRPLTAAVV	178	
TaEPSPS-7D1	YMLEALEALGLSVEADKVAKRAVVVGCGGRFPVEKDAKEEVKLFLGNAGTAMRPLTAAVV	75	
TaEPSPS-4A1	YMLEALEALGLSVEADKVAKRAVVVGCGGRFPVEKDAKEEVKLFLGNAGTAMRPLTAAVV	75	

OsEPSPS	AAGGNATYVLDGVPRMRERPIGDLVVGLKQLGADVDCFLGTCCPPVRVKIGIGLPGGKVK	239	
TaEPSPS-7A1	AAGGNATYVLDGVPRMRERPIGDLVVGLQQLGADVDCFLGTNCPVVRINGKGGLPGGKVK	238	
TaEPSPS-7D1	AAGGNATYVLDGVPRMRERPIGDLVVGLQQLGADADCFLTNCPVVRINGKGGLPGGKVK	135	
TaEPSPS-4A1	AAGGNATYVLDGVPRMRERPIGDLVVGLQQLGADADCFLTNCPVVRINGKGGLPGGKVK	135	

OsEPSPS	LSGSISSQYLSALLMAAPLALGDVEIEIIDKLISIPYVEMTLRLMERFGVKAHSDSWDR	299	
TaEPSPS-7A1	LSGSISSQYLSLLMAAPLALEDVEIEIIDKLISVPYVEMTLKLMEHFGVTAHSDSWDR	298	
TaEPSPS-7D1	LSGSISSQYLSLLMAAPLALEDVEIEIIDKLISVPYVEMTLKLMERFGVTAHSDSWDR	195	
TaEPSPS-4A1	LSGSISSQYLSLLMAAPLALEDVEIEIIDKLISVPYVEMTLKLMERFGVTAHSDSWDR	195	

OsEPSPS	FYIKGGQKYKSPGNAYVEGDASSASYFLAGAAITGGTVTVQCGTTSLQGDVKFAEVLEM	359	
TaEPSPS-7A1	FYIKGGQKYKSPGNAYVEGDASSASYFLAGAAITGGTVTVEGCGTTSLQGDVKFAEVLEM	358	
TaEPSPS-7D1	FYIKGGQKYKSPGNAYVEGDASSASYFLAGAAITGGTVTVEGCGTTSLQGDVKFAEVLEM	255	
TaEPSPS-4A1	FYIKGGQKYKSPGNAYVEGDASSASYFLAGAAITGGTVTVEGCGTTSLQGDVKFAEVLEM	255	

OsEPSPS	MGAKVTWTDTSVTVTGPPREPYPGKKHLKAVDVNMNKMMPDVAMTLAVVALFADGPTAIRDV	419	
TaEPSPS-7A1	MGAKVTWTDTSVTVTGPPRQPFGRKHLKAVDVNMNKMMPDVAMTLAVVALFADGPTAIRDV	418	
TaEPSPS-7D1	MGAKVTWTDTSVTVTGPPRQPFGRKHLKAVDVNMNKMMPDVAMTLAVVALFADGPTAIRDV	315	
TaEPSPS-4A1	MGAKVTWTDTSVTVTGPPRQPFGRKHLKAVDVNMNKMMPDVAMTLAVVALFADGPTAIRDV	315	

OsEPSPS	ASWRVKETERMVAIRTELTKLGASVEEGPDYCIITPPEKLNITAIDTYDDHRMAMAFSLA	479	
TaEPSPS-7A1	ASWRVKETERMVAIRTELTKLGATVEEGPDYCIITPPEKLNITAIDTYDDHRMAMAFSLA	478	
TaEPSPS-7D1	ASWRVKETERMVAIRTELTKLGATVEEGPDYCIITPPEKLNITAIDTYDDHRMAMAFSLA	375	
TaEPSPS-4A1	ASWRVKETERMVAIRTELTKLGATVEEGPDYCIITPPEKLNITAIDTYDDHRMAMAFSLA	375	

OsEPSPS	ACADVPTIRDPGCTRKTFFPNYFDVLSTFVRN	511	
TaEPSPS-7A1	ACAEVPVTIRDPGCTRKTFFPNYFDVLSTFVKN	510	
TaEPSPS-7D1	ACAEVPVTIRDPGCTRKTFFPNYFDVLSTFVKN	407	
TaEPSPS-4A1	ACAEVPVTIRDPGCTRKTFFPNYFDVLSTFVKN	407	

Additional file 5. Amino acid sequence alignment of wheat EPSPS. ClustalW was used to align the predicted protein sequences of *TaEPSPS-7A1* [KP411547], *TaEPSPS-7D1* [KP411548], and *TaEPSPS-4A1* [KP411549] from *T. aestivum* with OsEPSPS [AAL06593]. Asterisks indicate fully conserved amino acid residues. Plus one (+1) represents the first amino acid of the *TaEPSPS-7A1* protein. The arrow marks the first amino acid of exon 2.