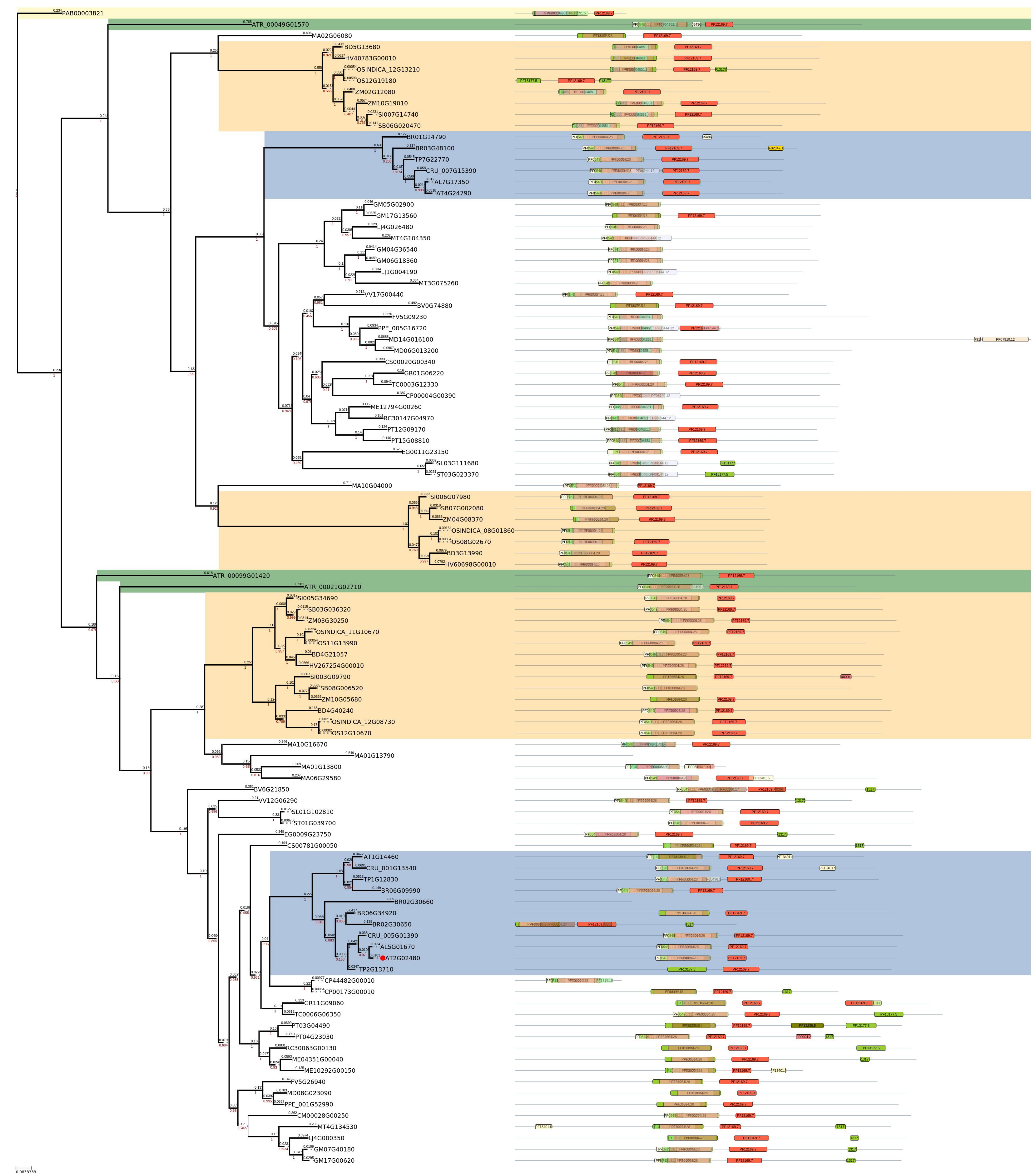
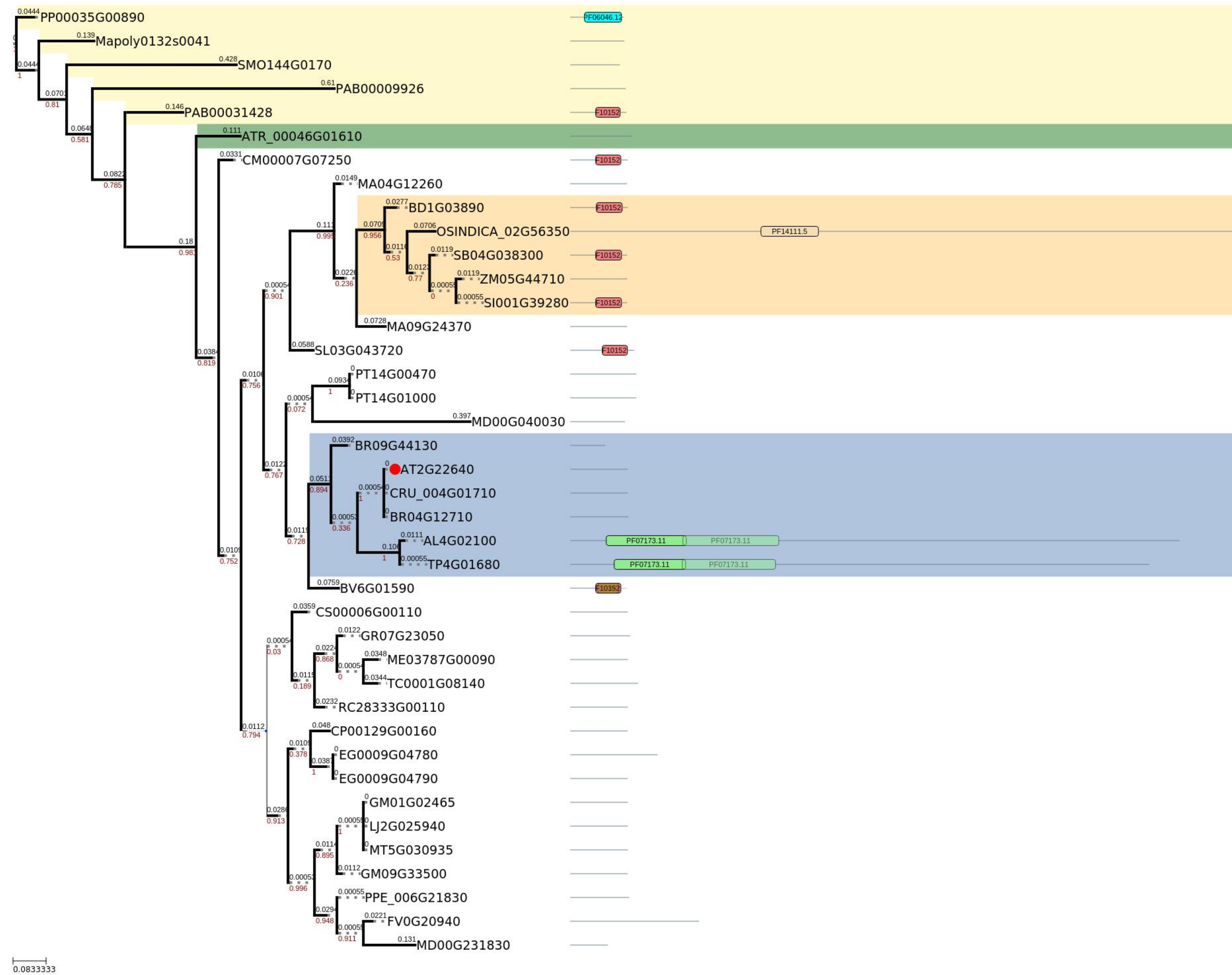


Figure S25. PhyML phylogenetic relations and composition of domains for AT2G02480 homologues of representative plant species. The color legends of species and domains is given below



taxonomic identity of protein	domain architecture
Poaceae	ATPase_family_associated_with_various_cellular_activities__AAA__PF00004_28
Brassicales	AAA_ATPase_domain_PF13191_5
Out group	AAA_domain_PF13401_5
Amborella trichopoda	AAA_domain_dynein_related_subfamily_PF07728_13
	DNA_polymerase_III_delta_subunit_PF13177_5
	DNA_polymerase_III_subunits_gamma_and_tau_domain_III_PF12169_7
	Type_III_restriction_enzyme_res_subunit_PF04851_14
	Holliday_junction_DNA_helicase_ruvB_N_terminus_PF05496_11
	MA3_domain_PF02847_16
	DNA_polymerase_III_delta_subunit_PF06144_12
	Peptidase_family_C78_PF07910_12
	AAA_domain_PF13671_5
	AAA_domain_PF13173_5
	Bacterial_dnaA_protein_PF00308_17
	AAA_domain_PF13238_5

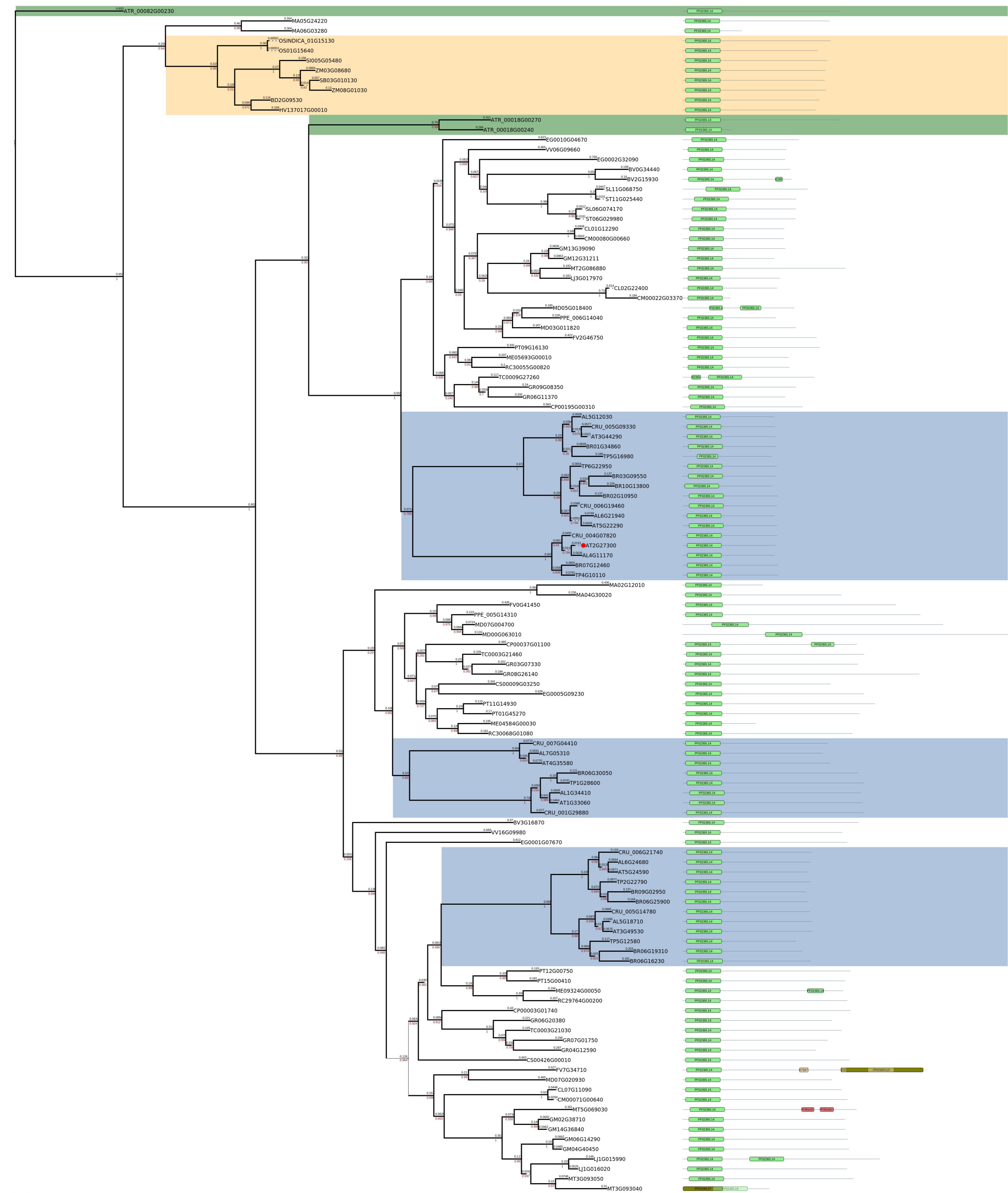
Figure S26. PhyML phylogenetic relations and composition of domains for AT2G22640 homologues of representative plant species. The color legends of species and domains is given below



taxonpmic identity of protein domain architecture

Poaceae	Exocyst_complex_component_Sec6_PF06046_12	PF06046.12
	Subunit_CCDC53_of_WASH_complex_PF10152_8	PF10152.8
Brassicales	Domain_of_unknown_function_DUF4283_PF14111_5	PF14111.5
	Glycine_rich_domain_containing_protein_like_PF07173_11	PF07173.11
Out group	Trimeric_coiled_coil_oligomerisation_domain_of_matrilin_PF10393_8	PF10393.8
Amborella trichopoda		

Figure S27. PhyML phylogenetic relations and composition of domains for AT2G27300 homologues of representative plant species. The color legends of species and domains is given below

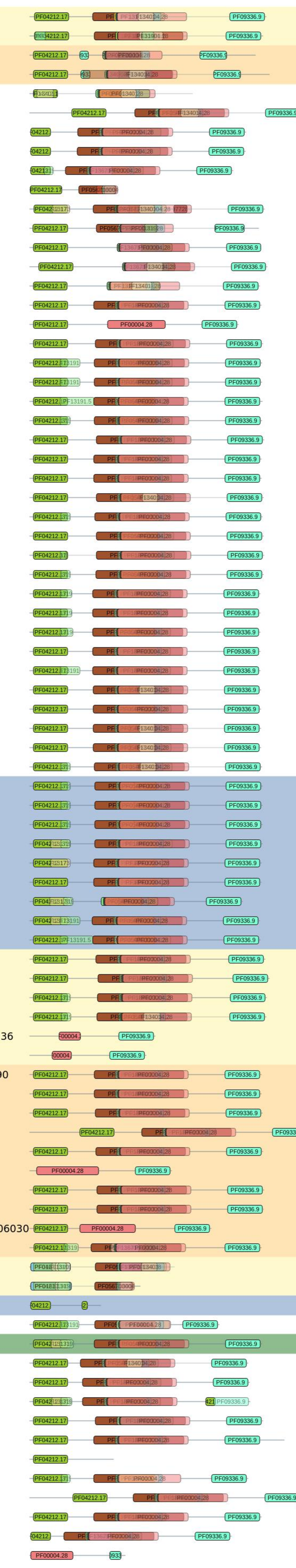
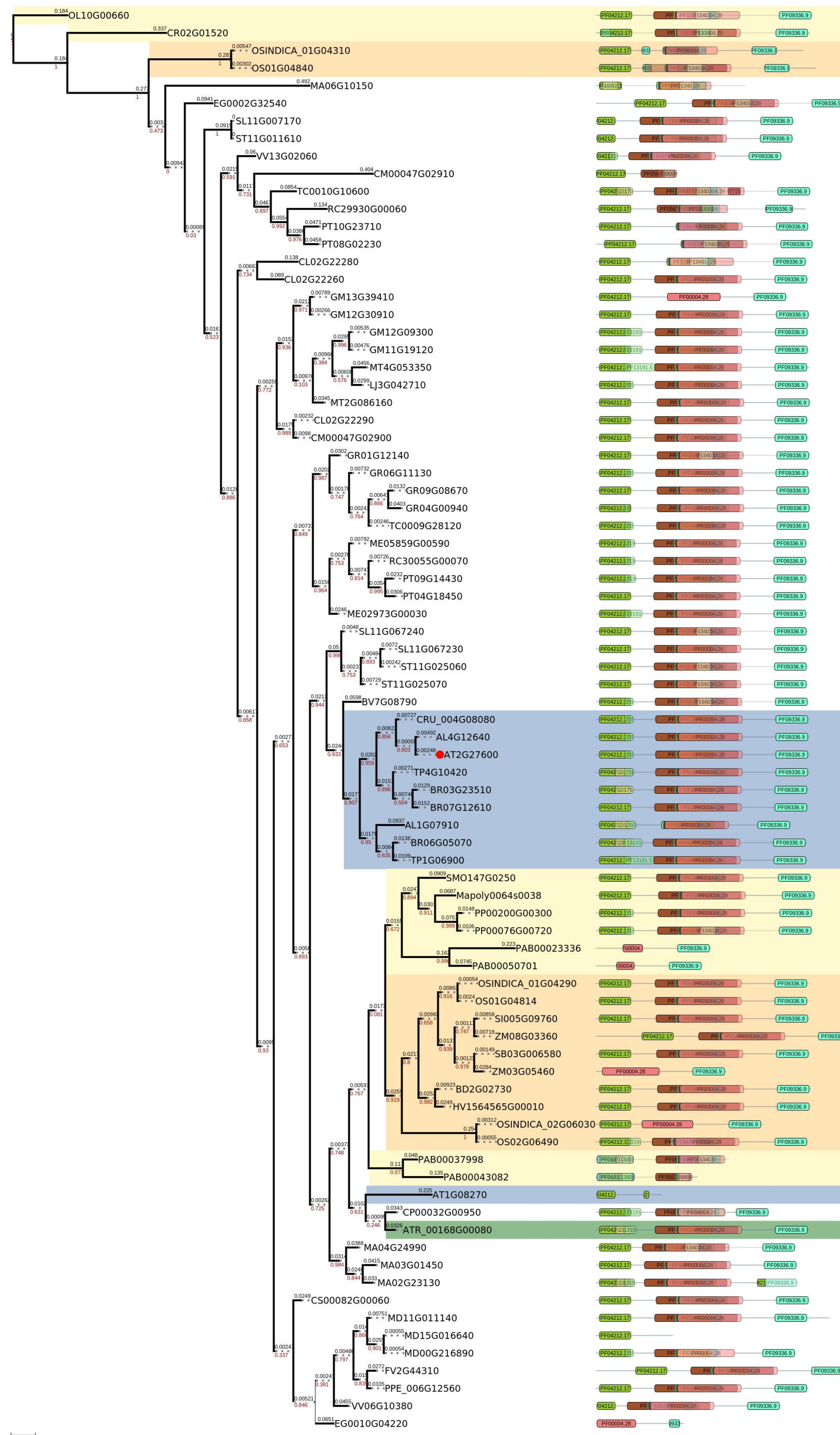


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taxonpmc identity of protein domain architecture

Poaceae	No_apical_meristem_NAM_PF02365_14	
	Peptidase_dimerisation_domain_PF07687_13	
Brassicales	Peptidase_family_M20_M25_M40_PF01546_27	
Out group	BRCA2_helical_PF09169_9	
Amborella trichopoda		

Figure S28. PhyML phylogenetic relations and composition of domains for AT2G27600 homologues of representative plant species. The color legends of species and domains is given below



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taxonpmic identity of protein

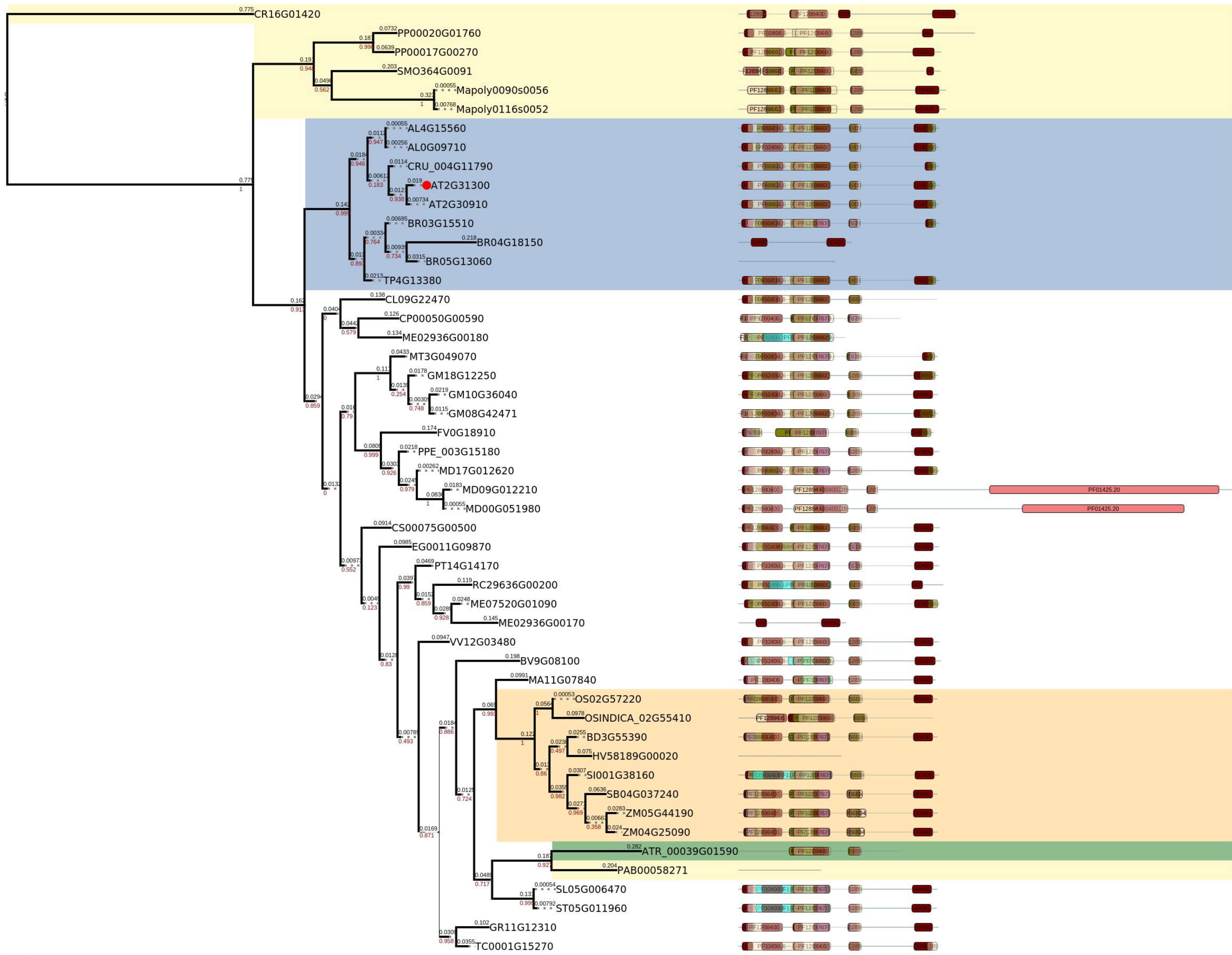
domain architecture

- Poaceae**
- Brassicales**
- Out group**
- Amborella trichopoda**

- ATPase_family_associated_with_various_cellular_activities_AAA_PF00004_28
- AAA_domain_PF13173_5
- AAA_ATPase_domain_PF13191_5
- AAA_domain_Cdc48_subfamily_PF07724_13
- AAA_domain_PF13401_5
- AAA_domain_PF13671_5
- AAA_domain_dynein_related_subfamily_PF07728_13
- Protein_of_unknown_function_DUF815_PF05673_12

- IstB_like_ATP_binding_protein_PF01695_16
- MIT_microtubule_interacting_and_transport_domain_PF04212_17
- Holliday_junction_DNA_helicase_ruvB_N_terminus_PF05496_11
- TIP49_C_terminus_PF06068_12
- Vps4_C_terminal_oligomerisation_domain_PF09336_9
- AAA_domain_PF13238_5
- Parvovirus_non_structural_protein_NS1_PF01057_16
- ATPase_domain_predominantly_from_Archaea_PF01637_17

Figure S29. PhyML phylogenetic relations and composition of domains for AT2G31300 homologues of representative plant species. The color legends of species and domains is given below



taxonomic identity of protein

domain architecture

Poaceae

Anaphase_promoting_complex_subunit_4_WD40_domain_PF12894_6

PF12894.6

WD_domain_G_beta_repeat_PF00400_31

PF00400.31

Brassicales

Eukaryotic_translation_initiation_factor_eIF2A_PF08662_10

PF08662.10

WD40_like_Beta_Propeller_Repeat_PF07676_11

PF07676.11

Out group

WD40_region_of_Ge1_enhancer_of_mRNA_decapping_protein_PF16529_4

PF16529.4

WD_repeat_containing_and_planar_cell_polarity_effector_protein_Fritz_PF11768_7

PF11768.7

Amidase_PF01425_20

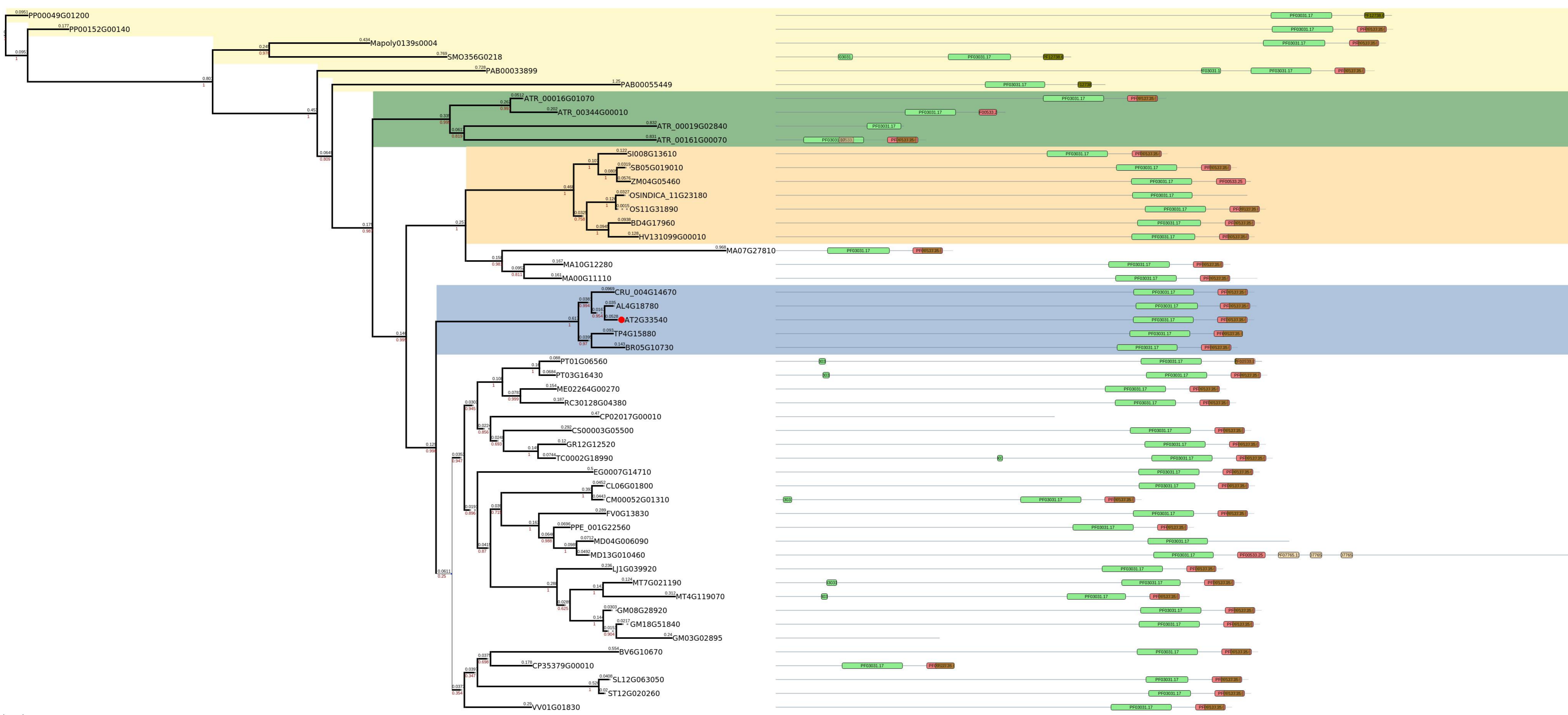
PF01425.20

BNR_repeat_like_domain_PF13859_5

PF13859.5

Amborella trichopoda

Figure S30. Phylogenetic relations and composition of domains for AT2G33540 homologues of representative plant species.
The color legends of species and domains is given below



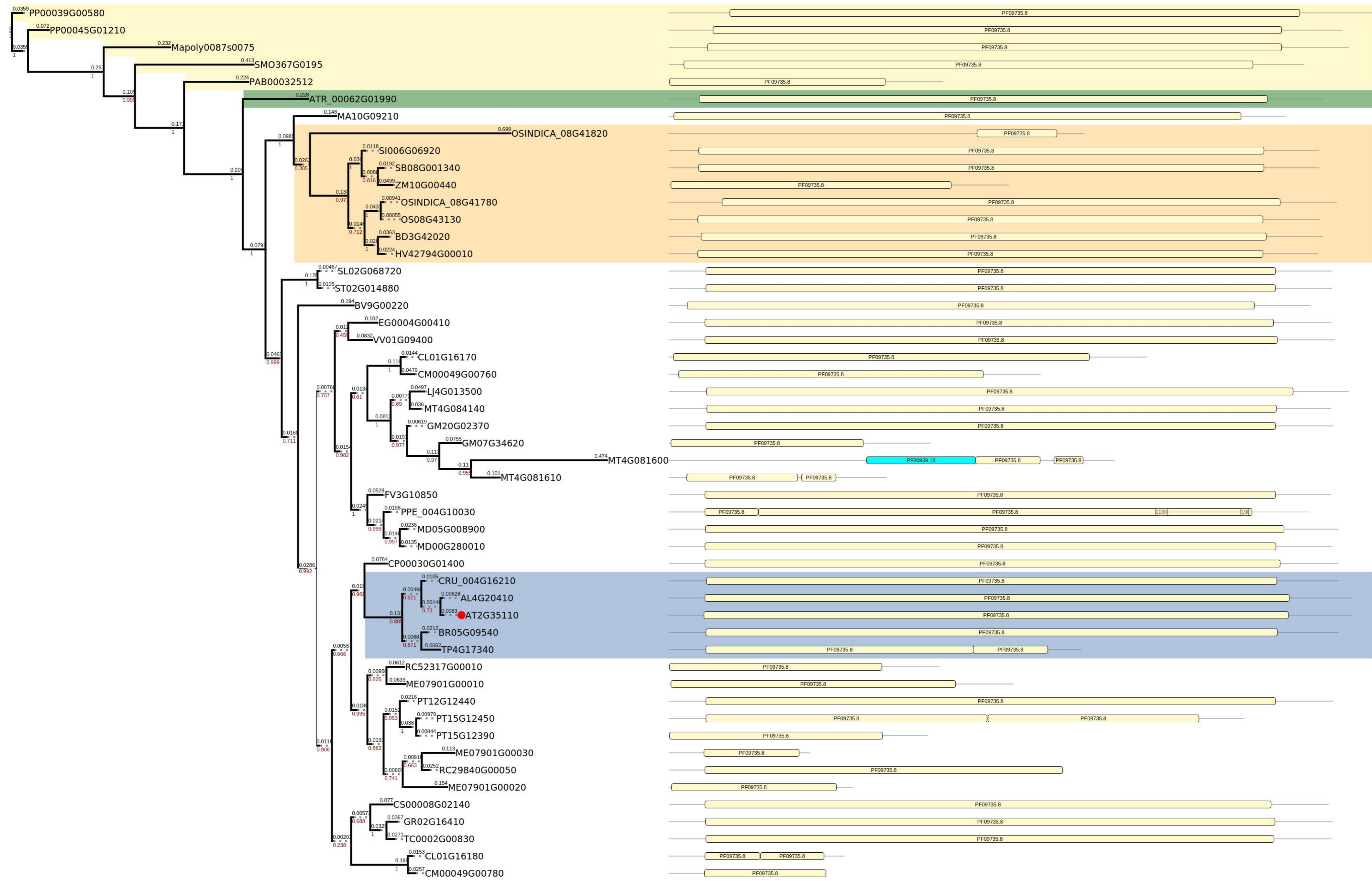
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taxonpmic identity of protein domain architecture

Poaceae	NLI_interacting_factor_like_phosphatase_PF03031_17	
	twin_BRCT_domain_PF12738_6	
Brassicales	BRCA1_C_Terminus_BRCT_domain_PF00533_25	
	KIP1_like_protein_PF07765_11	
Out group		
Amborella trichopoda		

Figure S31. PhyML phylogenetic relations and composition of domains for AT2G35110 homologues of representative plant species.

The color legends of species and domains is given below

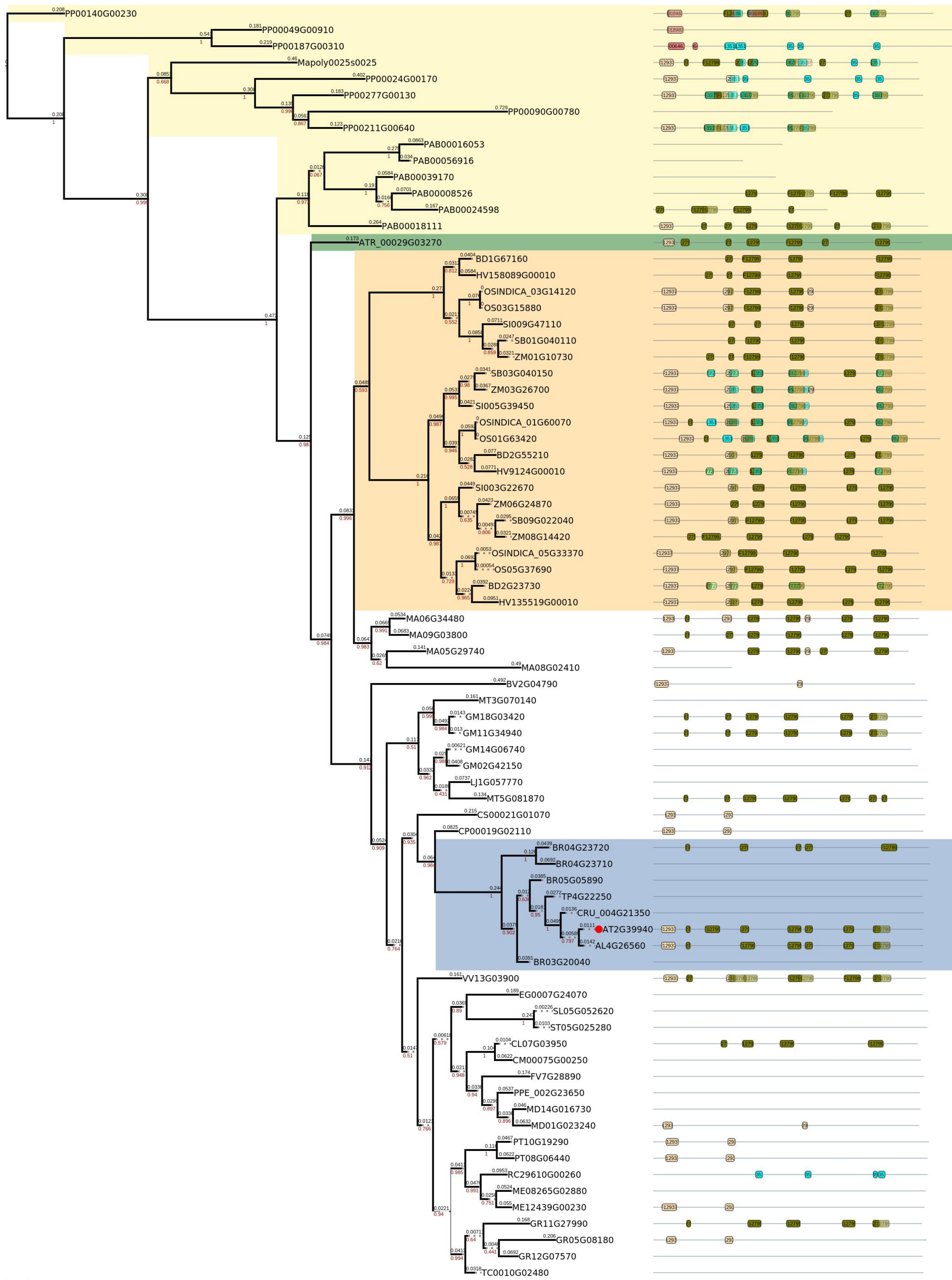


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taxonpmic identity of protein domain architecture

Poaceae	Membrane_associated_apoptosis_protein_PF09735_8	PF09735.8
Brassicales	Sodium_sulfate_symporter_transmembrane_region_PF00939_18	PF00939.18
Out group	Domain_of_unknown_function_DUF3420_PF11900_7	PF11900.7
Amborella trichopoda		

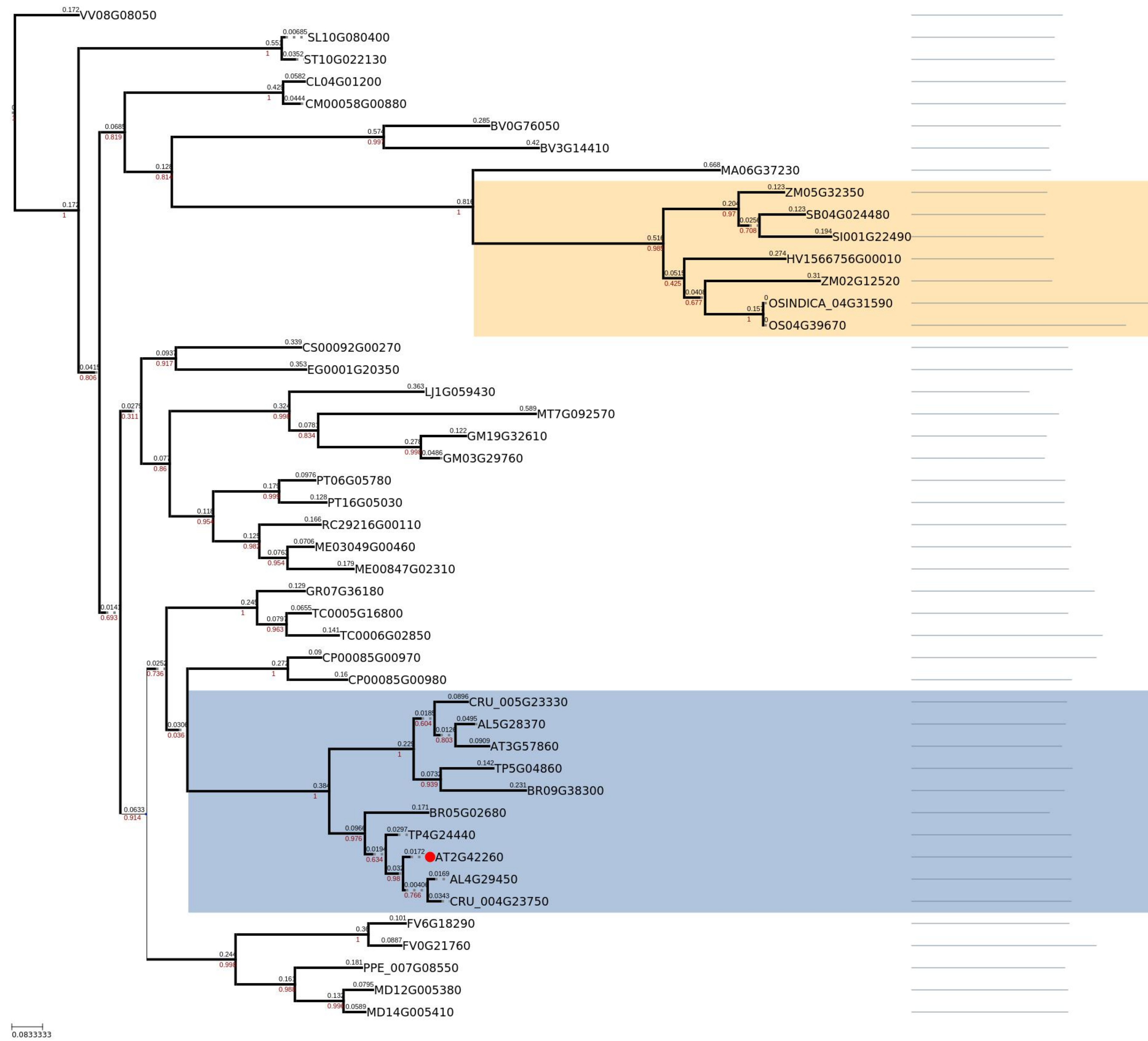
Figure S32. PhyML phylogenetic relations and composition of domains for AT2G39940 homologues of representative plant species. The color legends of species and domains is given below



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taxonpmic identity of protein domain architecture

Poaceae	F_box_domain_PF00646_32	PF00646_32
	F_box_like_PF12937_6	PF12937_6
Brassicales	Leucine_Rich_repeats_2_copies_PF12799_6	PF12799_6
	Leucine_Rich_repeat_PF13516_5	PF13516_5
Out group	Leucine_Rich_Repeat_PF07723_12	PF07723_12
Amborella trichopoda		

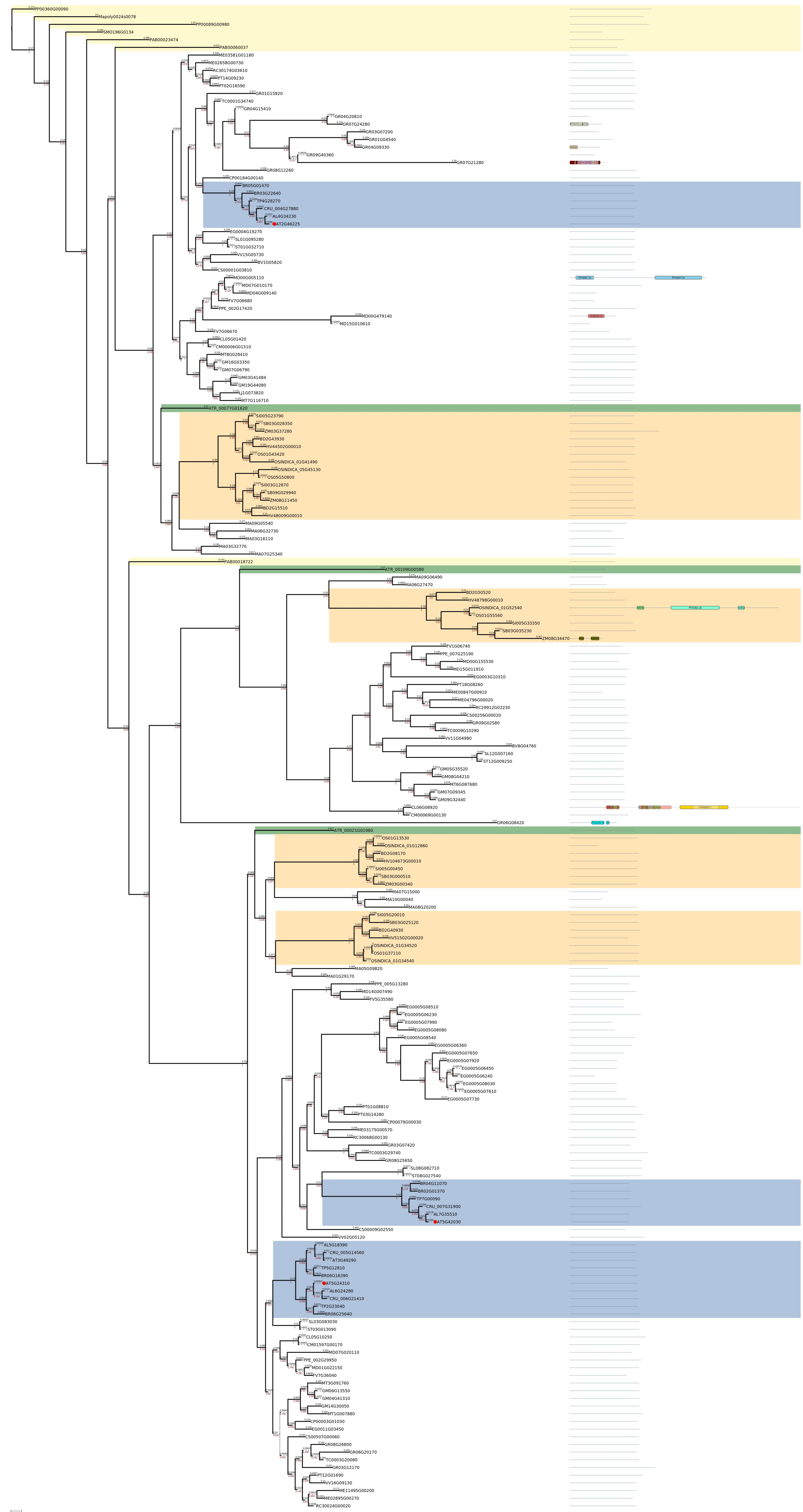
Figure S33. PhyML phylogenetic relations and composition of domains for AT2G42260 homologues of representative plant species. The color legends of species and domains is given below



taxonpmc identity of protein domain architecture

- Poaceae
- Brassicales
- Out group
- Amborella trichopoda

Figure S34. PhyML phylogenetic relations and composition of domains for AT2G46225, AT5G42030, AT5G24310 homologues of representative plant species. The color legends of species and domains is given below



taxonomic identity of protein

- Poaceae XPG_N_terminal_domain_FF00752_16
- Brassicales Dipeptidyl_peptidase_IV_DPP_IV_N_terminal_region_FF00930_20
- Out group Leucine_Rich_repeats_2_copies_FF12799_6
- Amborella trichopoda Leucine_rich_repeat_FF13855_5
- Nucleotide_diphospho_sugar_transferase_FF03407_15
- Bromodomain_FF00439_24
- Homeobox_domain_FF00046_28

domain architecture

- START START_domain_FF01852_18
- L27_2 L27_2_FF09045_9
- PPR PPR_repeat_FF01535_19
- PPR PPR_repeat_family_FF13041_5
- Pentatricopeptide Pentatricopeptide_repeat_domain_FF13812_5
- Pentatricopeptide Pentatricopeptide_repeat_region_of_PRORP_FF17177_3
- Protein Protein_only_RNase_P_FF16953_4
- Zc3h12a Zc3h12a_like_Ribonuclease_NYN_domain_FF11977_7

- ATP ATP_dependent_protease_La_LON_substrate_binding_domain_FF02190_15
- START
- PPR
- Pentatricopeptide
- Pentatricopeptide
- Protein
- Zc3h12a
- START