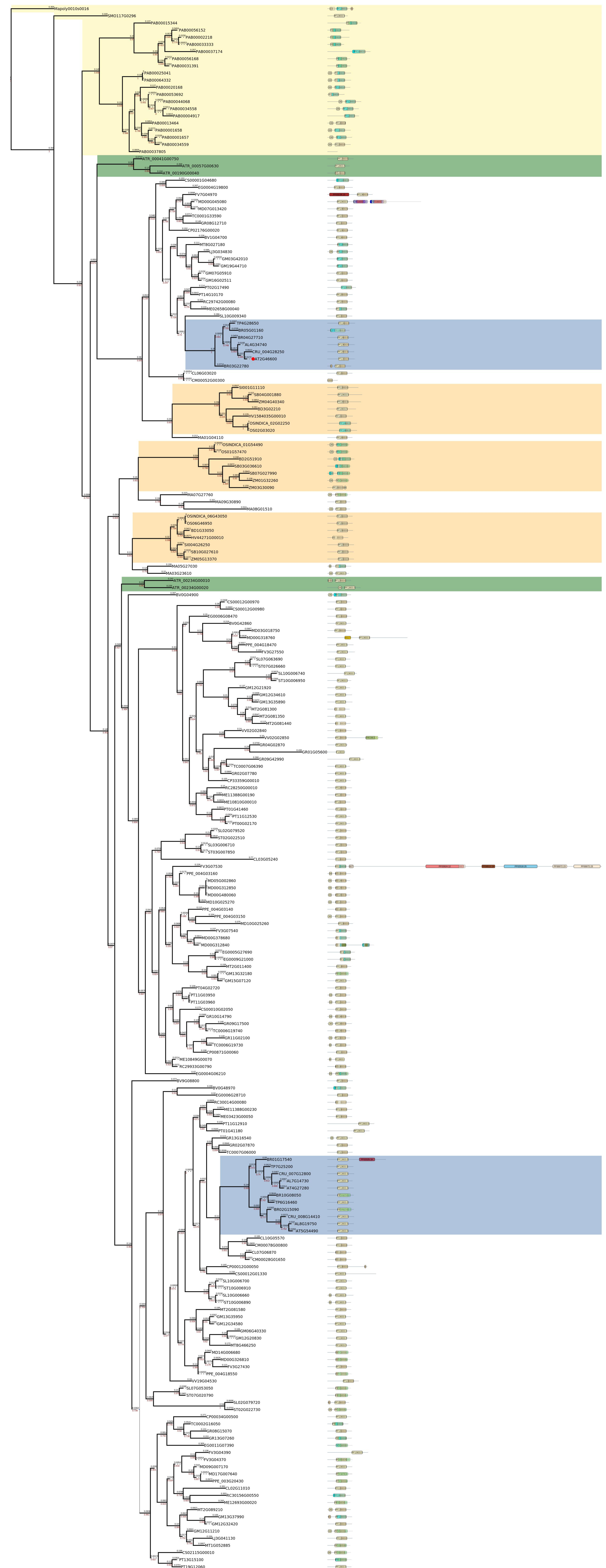


Figure S35. PhyML phylogenetic relations and composition of domains for AT2G46600 homologues of representative plant species. The color legends of species and domains is given below



0.000333

taxonomic identity of protein

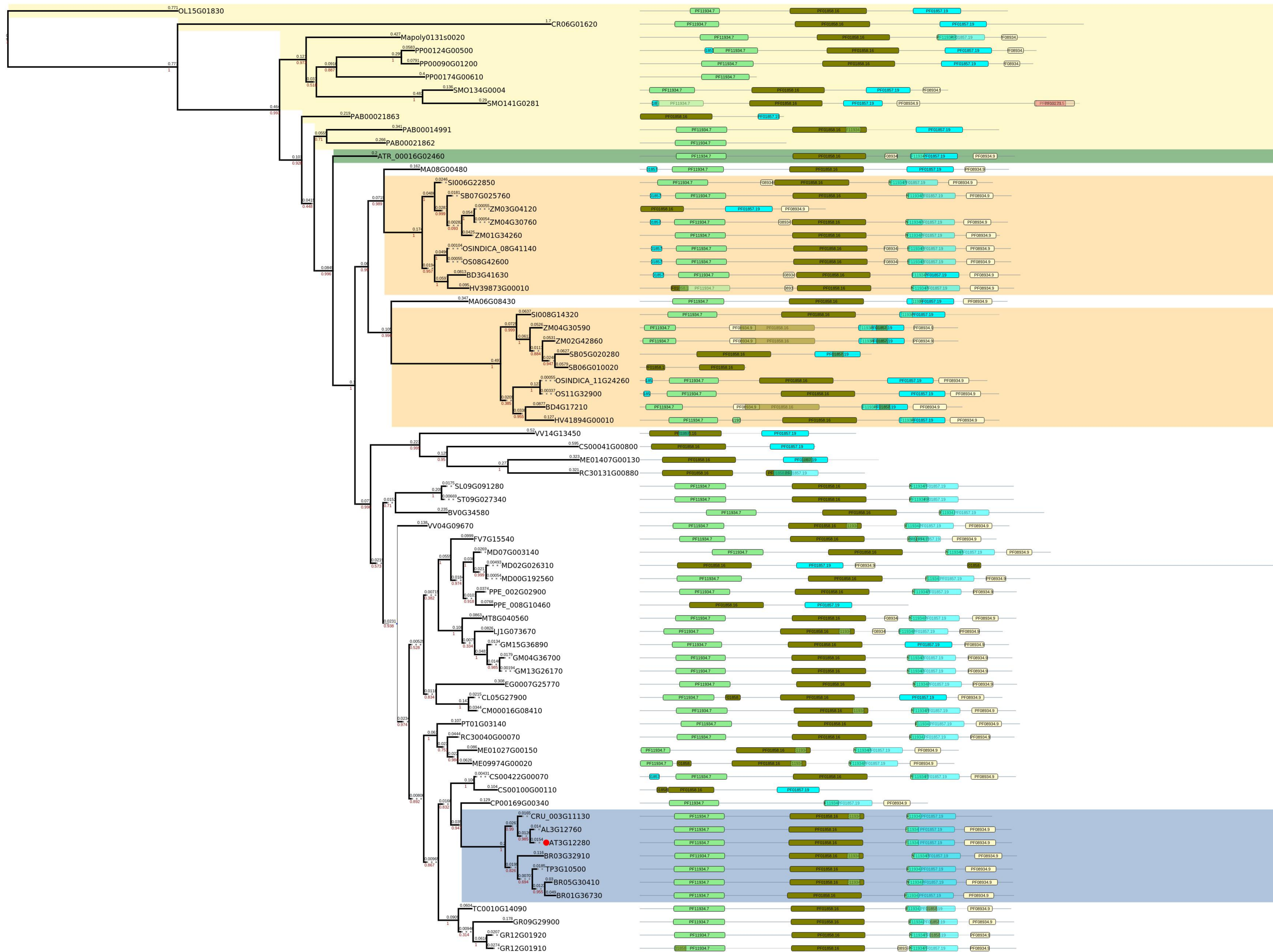
- Poaceae EF_hand_FF00036_31
- Brassicales EF_hand_domain_pair_FF13499_5
- Out group EF_hand_domain_pair_FF13833_5
- Amborella trichopoda Cytoskeletal_regulatory_complex_EF_hand_FF12763_6
- Yippee_zinc_binding_DNA_binding_Mis18_centromere_assembly_FF03226_13
- Nup53_35_40_type_RNA_recognition_motif_FF14605_5
- RNA_recognition_motif_FF08675_10
- RNA_recognition_motif_a_k_a_RRM_RBD_or_RNP_domain_FF00076_21

domain architecture

- PF00088 RNA_recognition_motif_FF08777_10
- PF00088 RNA_recognition_motif_a_k_a_RRM_RBD_or_RNP_domain_FF13893_5
- PF00088 Histone_lysine_methyltransferase_SET_associated_FF11767_7
- PF00088 Proteasome_subunit_FF00227_25
- PF00088 Myb_like_DNA_binding_domain_FF0249_30
- PF00088 Myb_like_DNA_binding_domain_FF13921_5
- PF00088 CHASE_domain_FF03924_12
- PF00088 Histidine_kinase_DNA_gyrase_B_and_HSP90_like_ATPase_FF02518_25

- PF00088 His_Kinase_A_phospho_acceptor_domain_FF00512_24
- PF00088 Response_regulator_receiver_domain_FF00072_23
- PF00088 EF_hand_FF13202_5
- PF00088 Flavodoxin_like_fold_FF02525_16
- PF00088 NADPH_dependent_FMN_reductase_FF03358_14

Figure S36. PhyML phylogenetic relations and composition of domains for AT3G12280 homologues of representative plant species.
The color legends of species and domains is given below

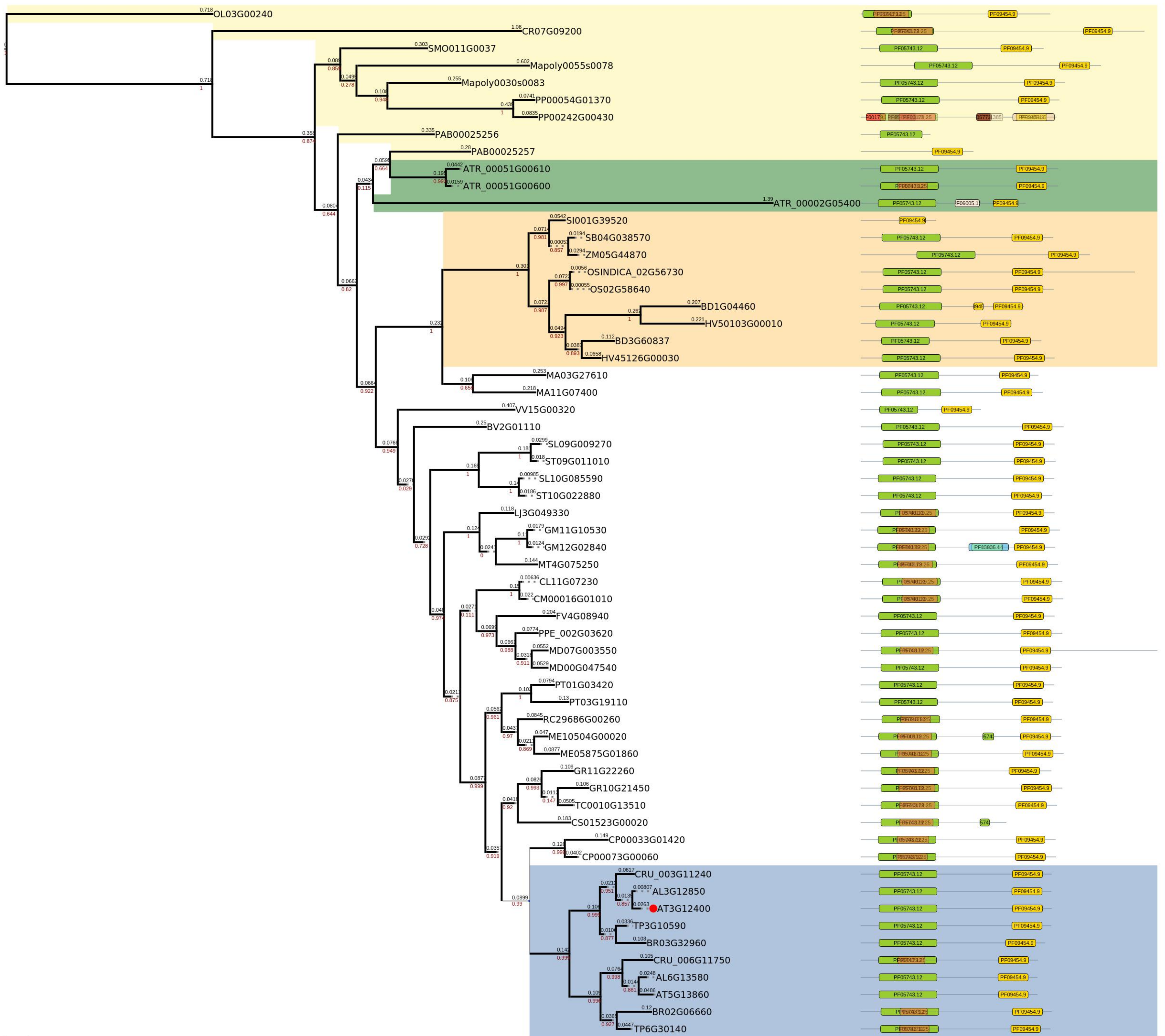


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taxonpmic identity of protein domain architecture

Poaceae	Domain_of_unknown_function_DUF3452_Pf11934_7	PF11934.7
Brassicales	Retinoblastoma_associated_protein_A_domain_Pf01858_16	PF01858.16
	Retinoblastoma_associated_protein_B_domain_Pf01857_19	PF01857.19
	Rb_C_terminal_domain_Pf08934_9	PF08934.9
Out group	Thioesterase_superfamily_Pf03061_21	PF03061.21
	Thioesterase_like_superfamily_Pf13279_5	PF13279.5
Amborella trichopoda		

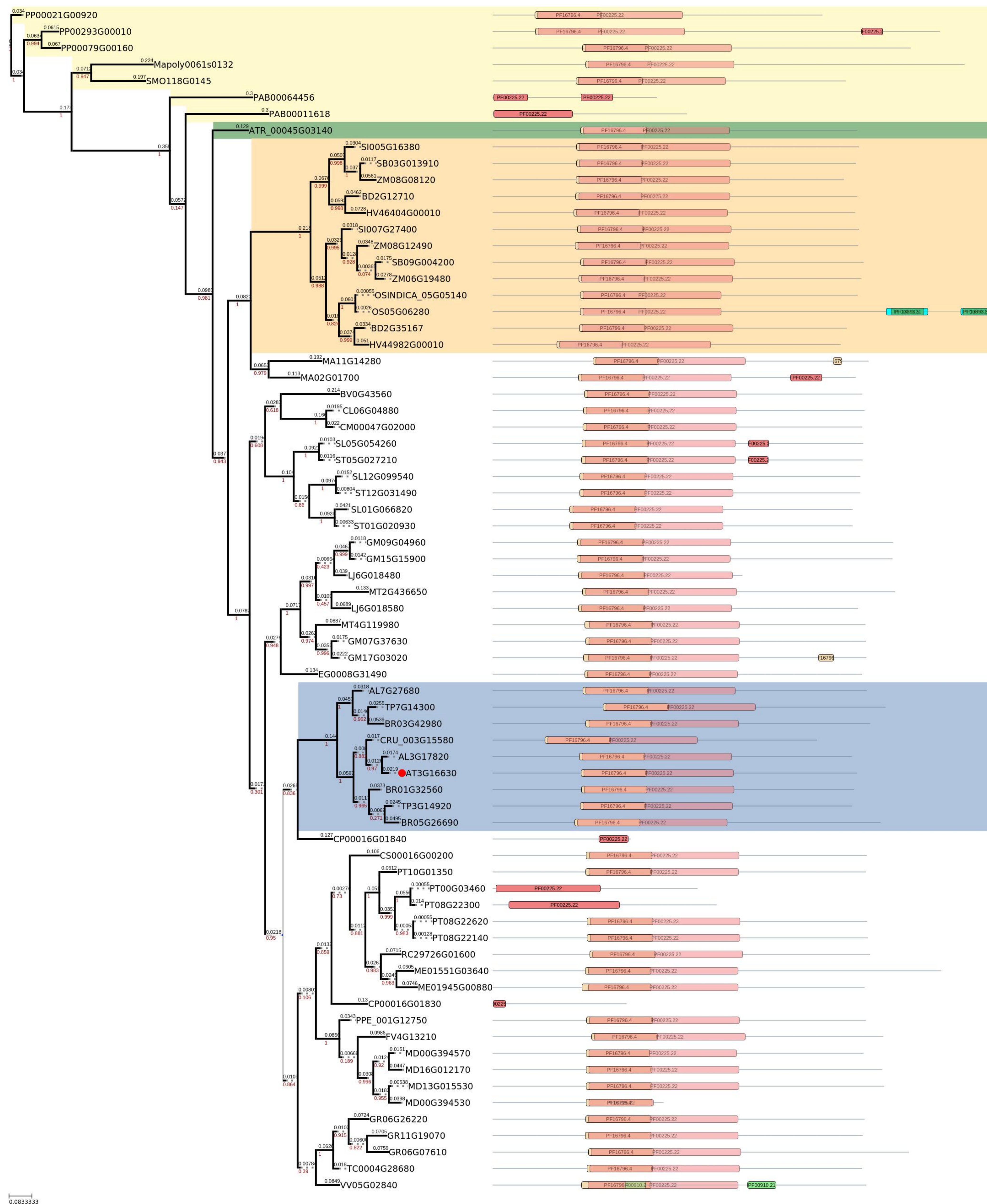
Figure S37. PhyML phylogenetic relations and composition of domains for AT3G12400 homologues of representative plant species. The color legends of species and domains is given below



taxonomic identity of protein domain architecture

Species Group	Protein Domain	Domain ID
Poaceae	UEV_domain	PF05743.12
Poaceae	Ubiquitin_conjugating_enzyme	PF00179.25
Brassicales	Vps23_core_domain	PF09454.9
Brassicales	Growth_arrest_specific_micro_tubule_binding	PF13851.5
Out group	RWD_domain	PF05773.21
Amborella trichopoda	Cell_division_protein_ZapB	PF06005.11
Amborella trichopoda	Hyaluronan_mediated_motility_receptor_N_terminal	PF15905.4
Amborella trichopoda	RasGAP_C_terminus	PF03836.14

Figure S38. PhyML phylogenetic relations and composition of domains of AT3G16630 homologues of representative plant species. The color legends of species and domains is given below

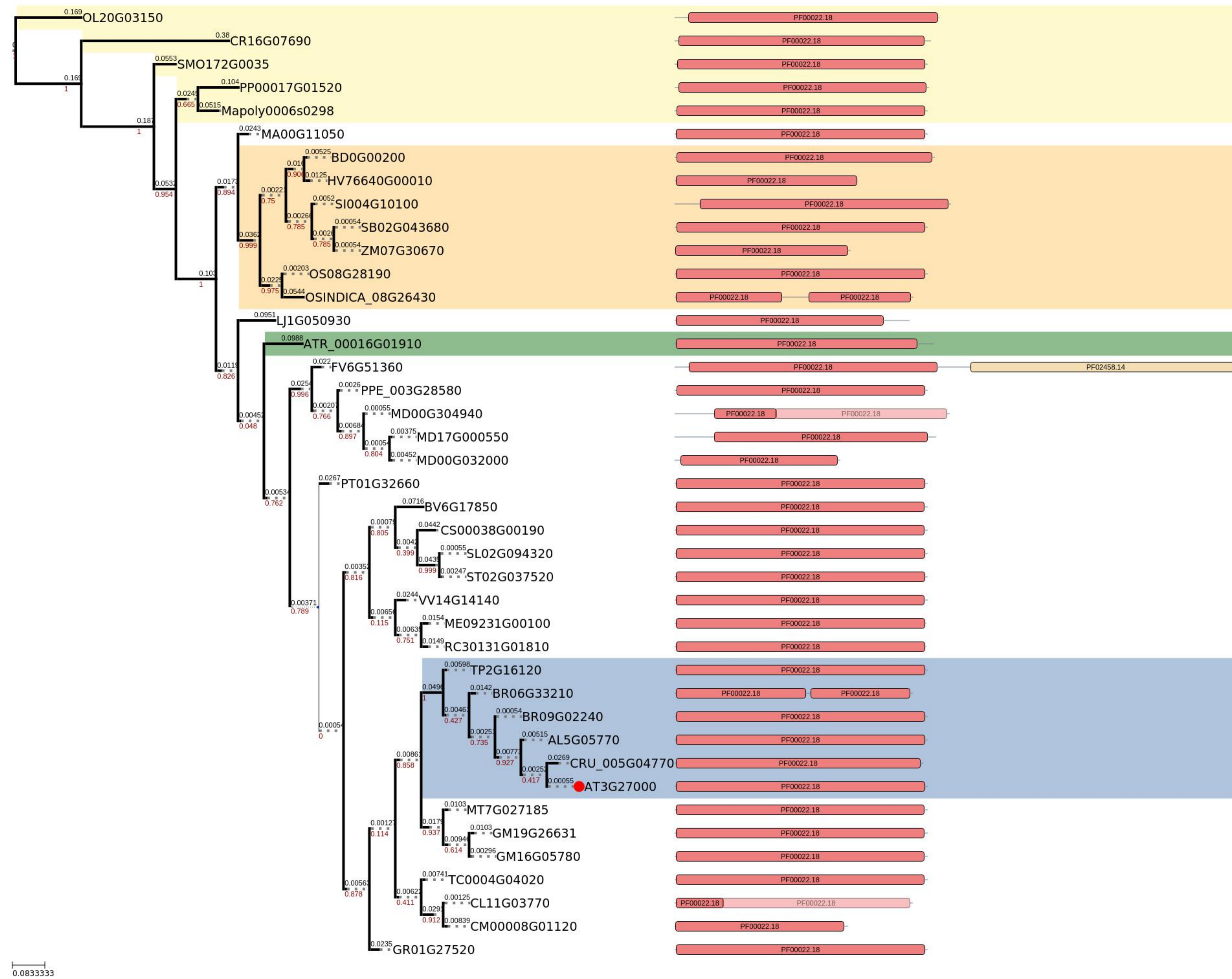


taxonpmic identity of protein domain architecture

Species Group	Domain Architecture
Poaceae	Kinesin_motor_domain_PF00225_22 Microtubule_binding_PF16796_4
Brassicales	RNA_recognition_motif_a_k_a_RRM_RBD_or_RNP_domain_PF00076_21
Out group	RNA_recognition_motif_a_k_a_RRM_RBD_or_RNP_domain_PF13893_5
Amborella trichopoda	RNA_helicase_PF00910_21



Figure S39. PhyML phylogenetic relations and composition of domains for AT3G27000 homologues of representative plant species. The color legends of species and domains is given below



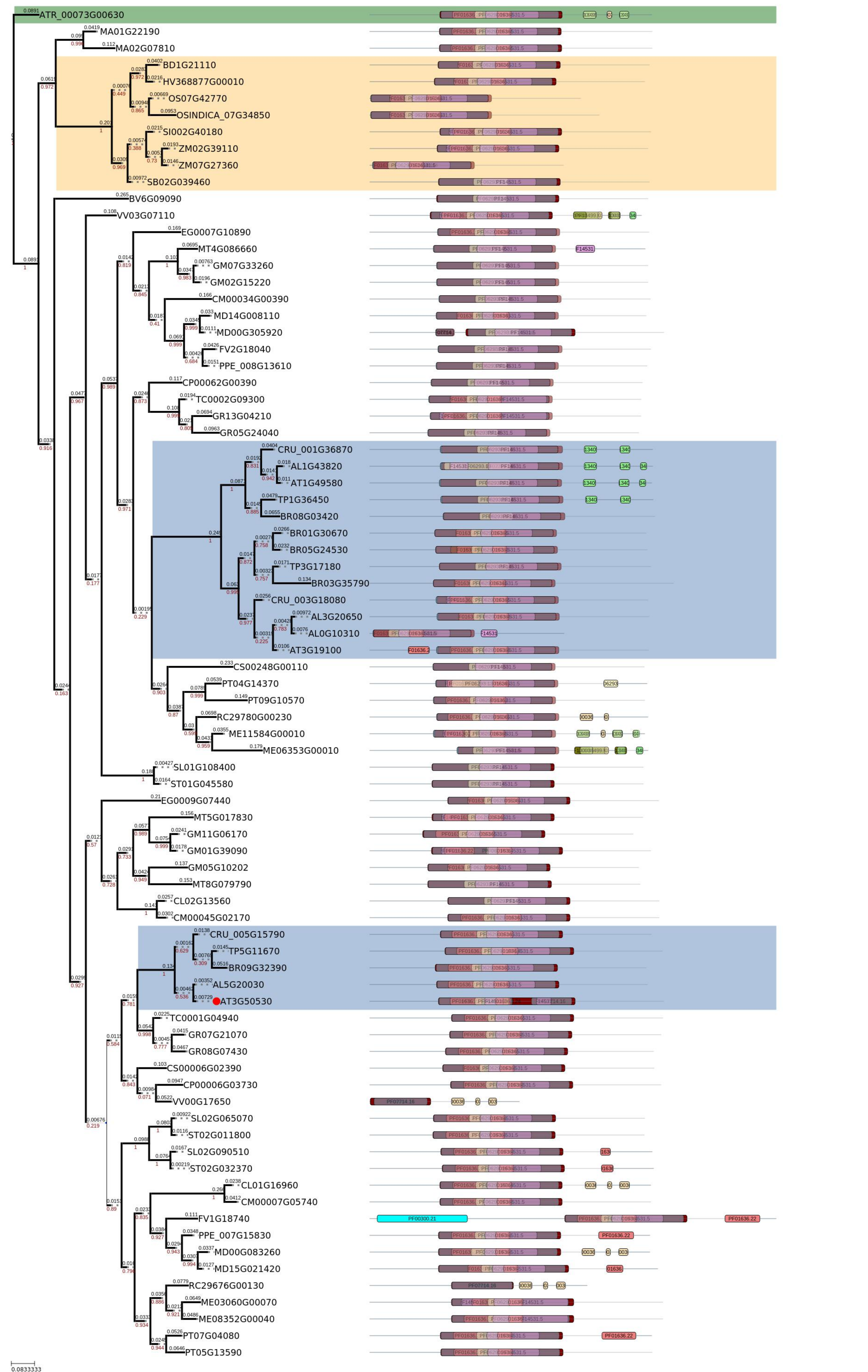
0.0833333

taxonpmic identity of protein domain architecture

- Poaceae
- Brassicales
- Out group
- Amborella trichopoda

- Actin_PF00022_18
- Transferase_family_PF02458_14

Figure S40. PhyML phylogenetic relations and composition of domains for AT3G50530 homologues of representative plant species. The color legends of species and domains is given below



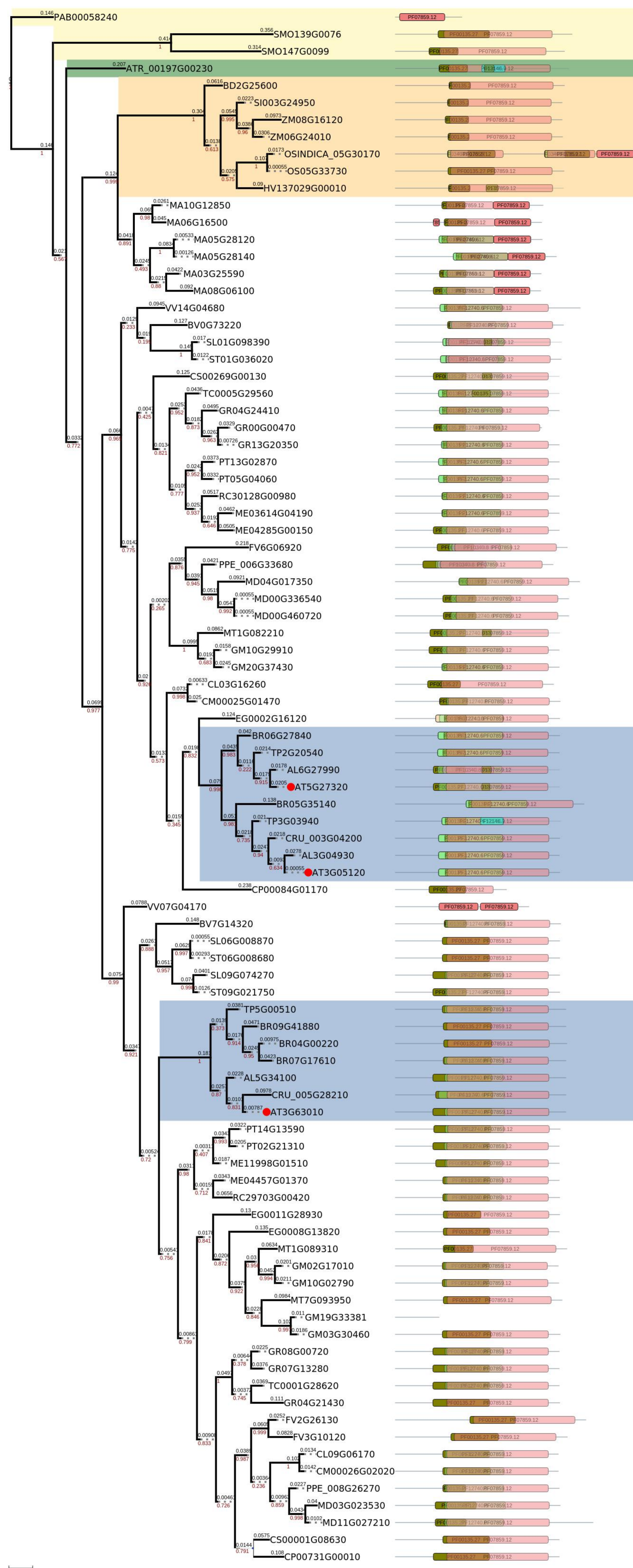
taxonpmic identity of protein

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

domain architecture

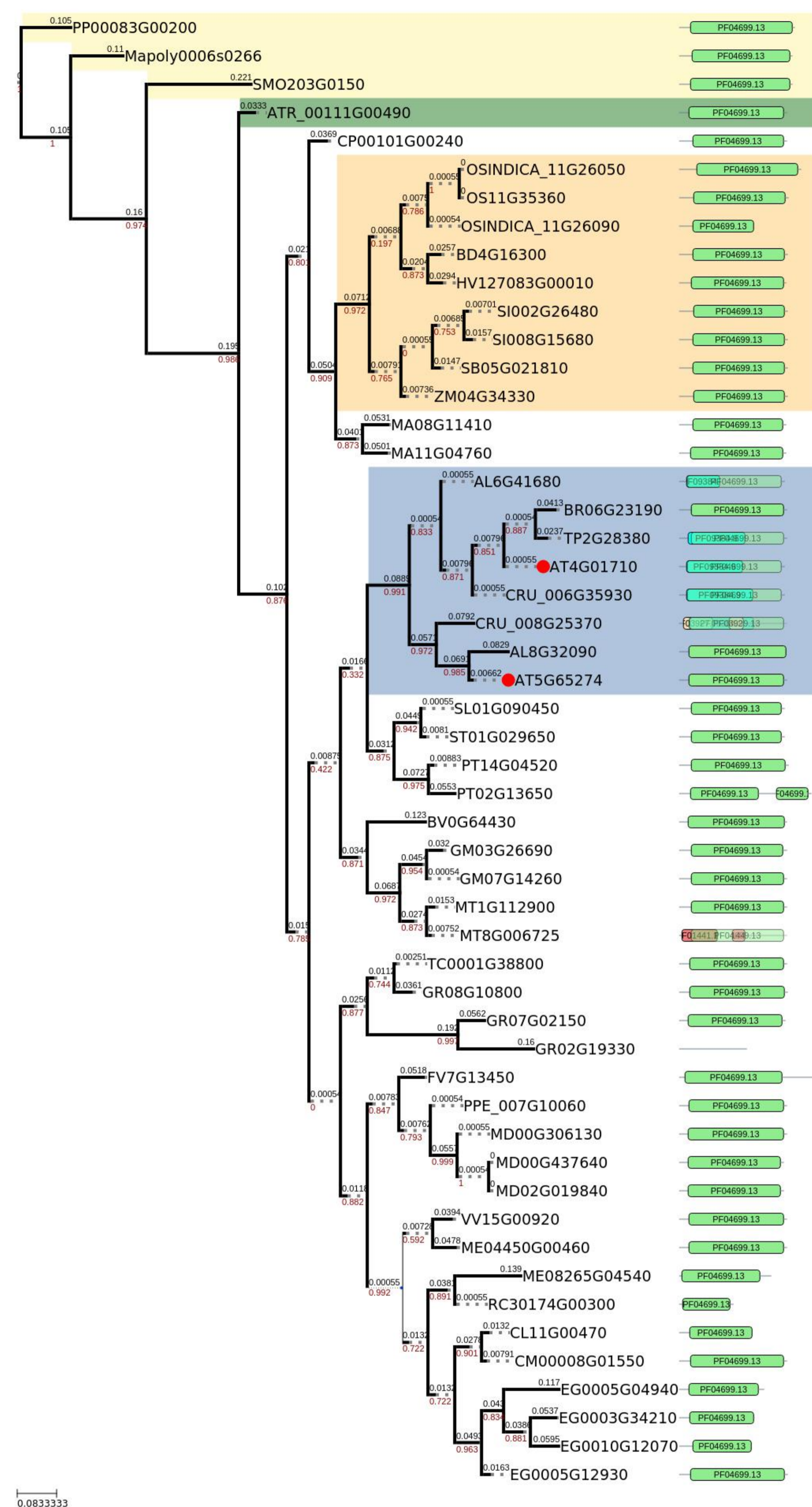
- Phosphotransferase_enzyme_family_PF01636_22
- EF_hand_PF00036_31
- EF_hand_domain_PF13405_5
- Lipopolysaccharide_kinase_Kdo_WaaP_family_PF06293_13
- Kinase_like_PF14531_5
- Protein_kinase_domain_PF00069_24
- Protein_tyrosine_kinase_PF07714_16
- EF_hand_domain_pair_PF13499_5
- RIO1_family_PF01163_21
- Histidine_phosphatase_superfamily_branch_1_PF00300_21
- PF01636_22
- PF00036_31
- PF13405_5
- PF06293_13
- PF14531_5
- PF07714_16
- PF13499_5
- PF00300_21
- PF01636_22

Figure S41. PhyML phylogenetic relations and composition of domains for AT5G27320, AT3G05120, AT3G63010 homologues of representative plant species. The color legends of species and domains is given below



taxonpmic identity of protein	domain architecture
Poaceae	alpha_beta_hydrolase_fold_Pf07859_12
Brassicales	Carboxylesterase_family_Pf00135_27
Out group	Serine_aminopeptidase_S33_Pf12146_7
	Platelet_activating_factor_acetylhydrolase_isoform_II_Pf03403_12
Amborella trichopoda	Chlorophyllase_enzyme_Pf12740_6
	Steryl_acetyl_hydrolase_Pf10340_8
	Chlorophyllase_Pf07224_10

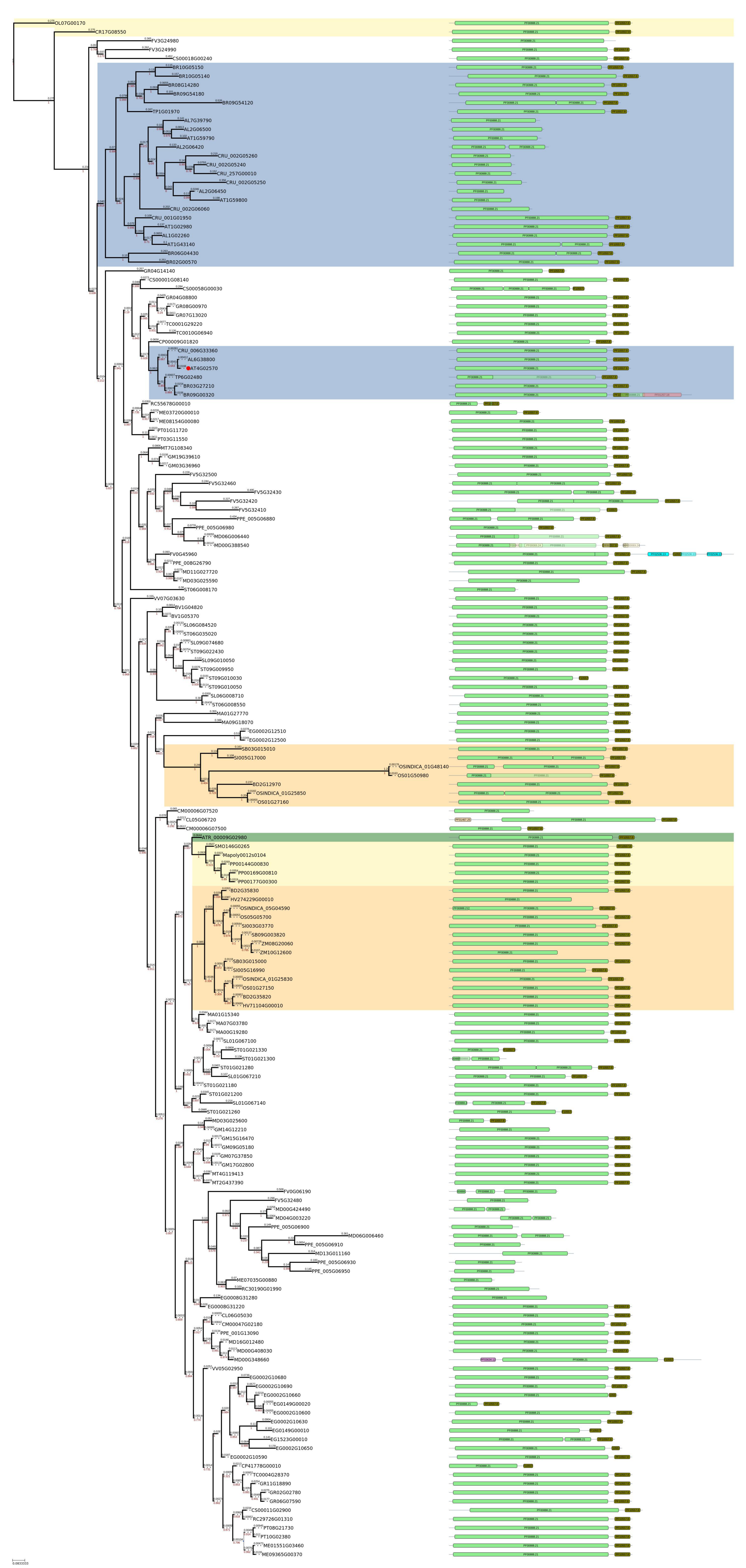
Figure S42. PhyML phylogenetic relations and composition of domains for AT4G01710, AT5G65274 homologues of representative plant species. The color legends of species and domains is given below



taxonomic identity of protein domain architecture

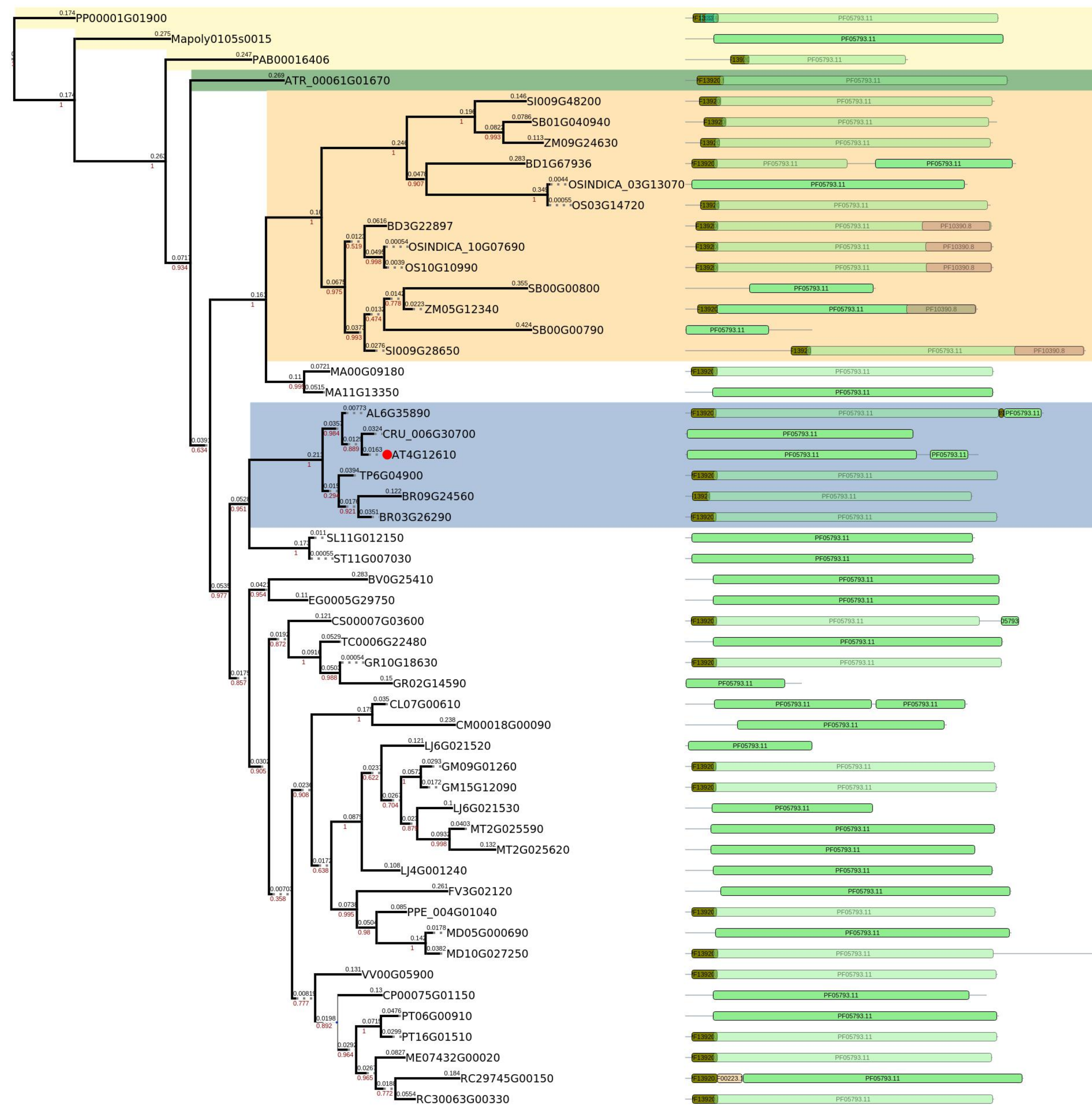
Taxonomic Group	Protein Domain Architecture	Domain ID
Poaceae	ARP2_3_complex_16_kDa_subunit_p16_Arc	PF04699.13
Poaceae	UTP15_C_terminal	PF09384.9
Brassicales	NapD_protein	PF03927.12
Brassicales	Lipoprotein	PF01441.18
Out group		
Amborella trichopoda		

Figure S43. PhyML phylogenetic relations and composition of domains for AT4G02570 homologues of representative plant species. The color legends of species and domains is given below



taxonomic identity of protein	domain architecture
Poaceae	Cullin_family_Pf00888_21
	Cullin_protein_neddylation_domain_Pf10557_8
Brassicales	Thioredoxin_like_2Fe_2S_2_ferredoxin_Pf01257_18
	Protein_kinase_domain_Pf00069_24
Out group	mTERF_Pf02536_13
	Cytidyllyltransferase_like_Pf01467_25
Amborella trichopoda	TCP_family_transcription_factor_Pf03634_12

Figure S44. PhyML phylogenetic relations and composition of domains for AT4G12610 homologues of representative plant species. The color legends of species and domains is given below



0.0833333

taxonpmic identity of protein domain architecture

- Poaceae
- Brassicales
- Out group
- Amborella trichopoda

- Transcription_initiation_factor_IIF_alpha_subunit_TFIIF_alpha_PF05793_11
- Zinc_finger_C3HC4_type_RING_finger_PF13920_5
- zinc_ribbon_domain_PF13240_5
- RNA_polymerase_II_elongation_factor_ELL_PF10390_8
- Photosystem_I_psaA_psaB_protein_PF00223_18

- PF05793.11
- PF13920.5
- PF13240.5
- PF10390.8
- PF00223.18