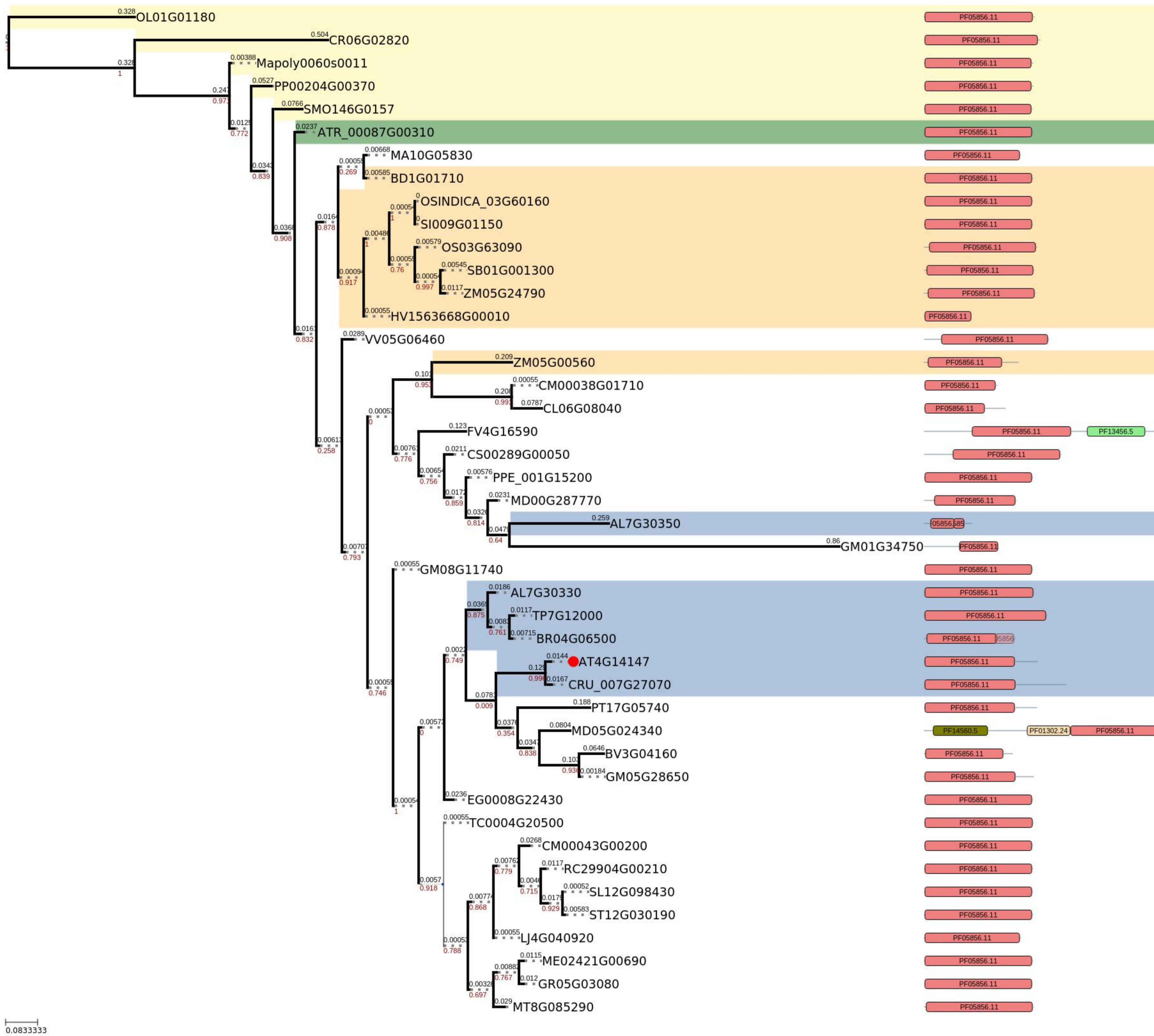


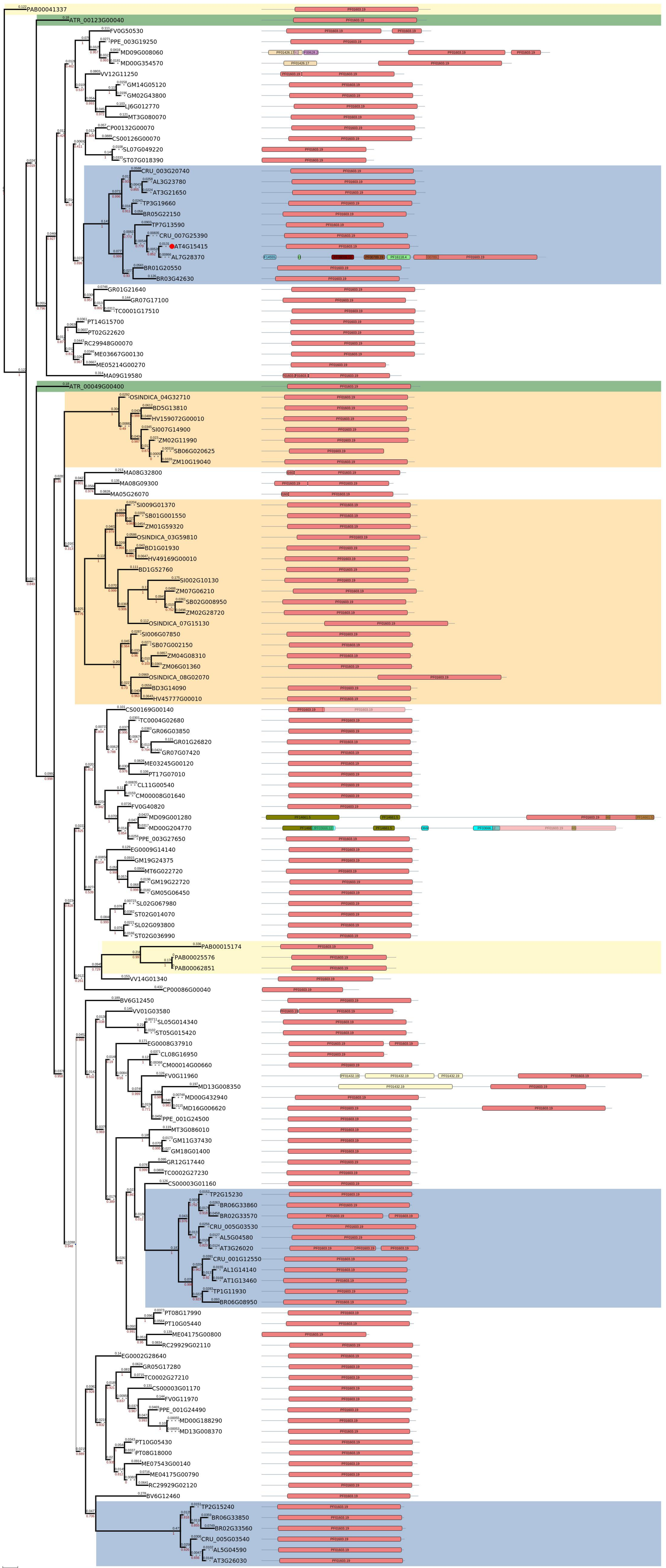
Figure S45. PhyML phylogenetic relations and composition of domains for AT4G14147 homologues of representative plant species. The color legends of species and domains is given below



taxonomic identity of protein domain architecture

Poaceae	ARP2_3_complex_20_kDa_subunit_ARPC4_PF05856_11	
	Reverse_transcriptase_like_PF13456_5	
Brassicales	CAP_Gly_domain_PF01302_24	
Out group	Ubiquitin_like_domain_PF14560_5	

Figure S46. PhyML phylogenetic relations and composition of domains for AT4G15415 homologues of representative plant species. The color legends of species and domains is given below



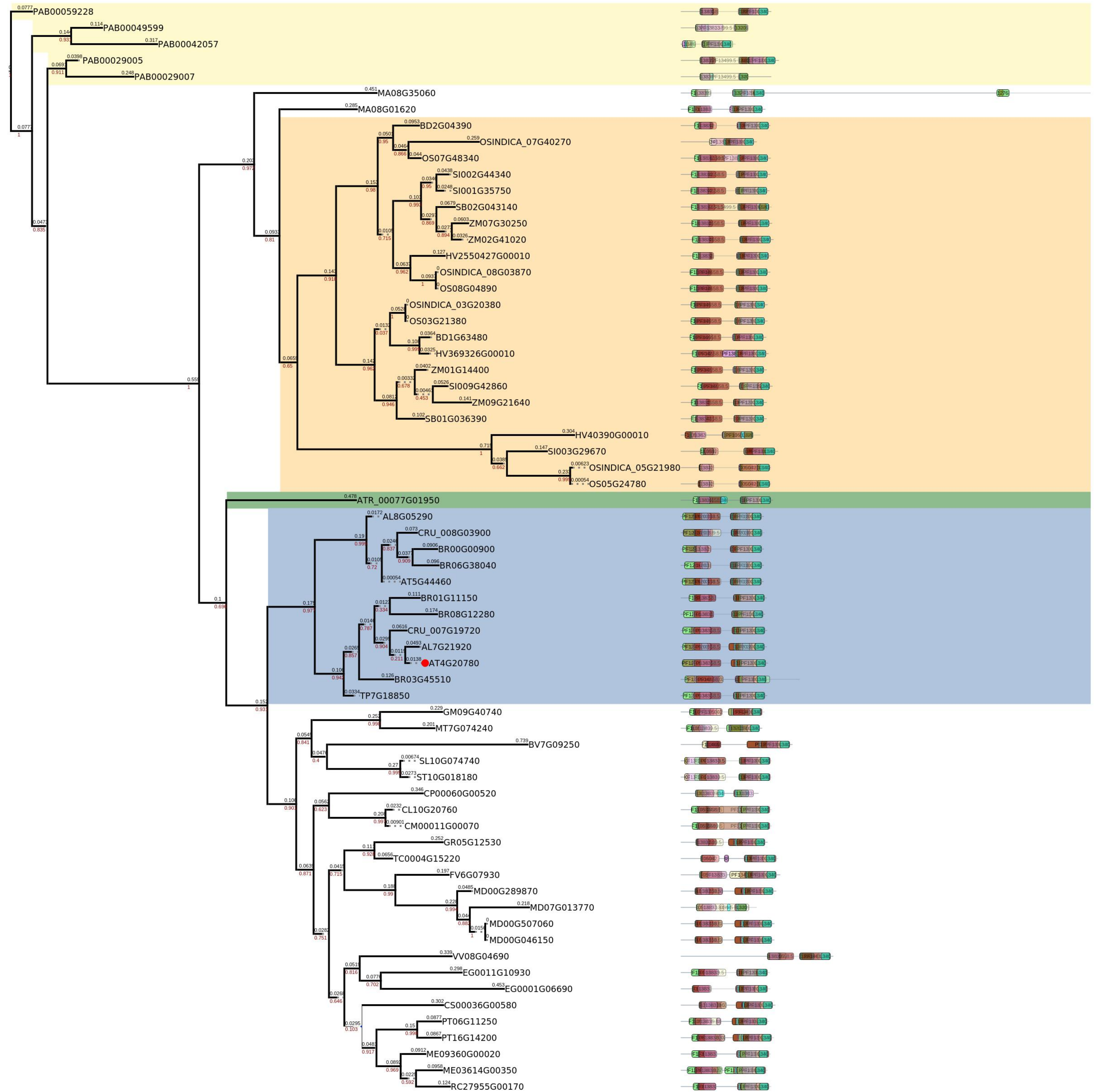
taxonpmic identity of protein

- Poaceae
- Brassicales
- Out group
- Amborella trichopoda

domain architecture

- Protein_phosphatase_2A_regulatory_B_subunit_B56_family_PF01603_19 PF01603_19
- BAH_domain_PF01426_17 PF01426_17
- PHD_finger_PF00628_28 PF00628_28
- Domain_of_unknown_function_DUF4834_FF16118_4 PF16118_4
- SEP_domain_PF08059_12 PF08059_12
- UBA_like_domain_PF14555_5 PF14555_5
- UBX_domain_PF00789_19 PF00789_19
- HAUS_augmin_like_complex_subunit_6_N_terminus_PF14661_5 PF14661_5
- Nitrogen_Permease_regulator_of_amino_acid_transport_activity_3_PF03666_12 PF03666_12
- Peptidase_family_M3_PF01432_19 PF01432_19

Figure S47. PhyML phylogenetic relations and composition of domains for AT4G20780 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**

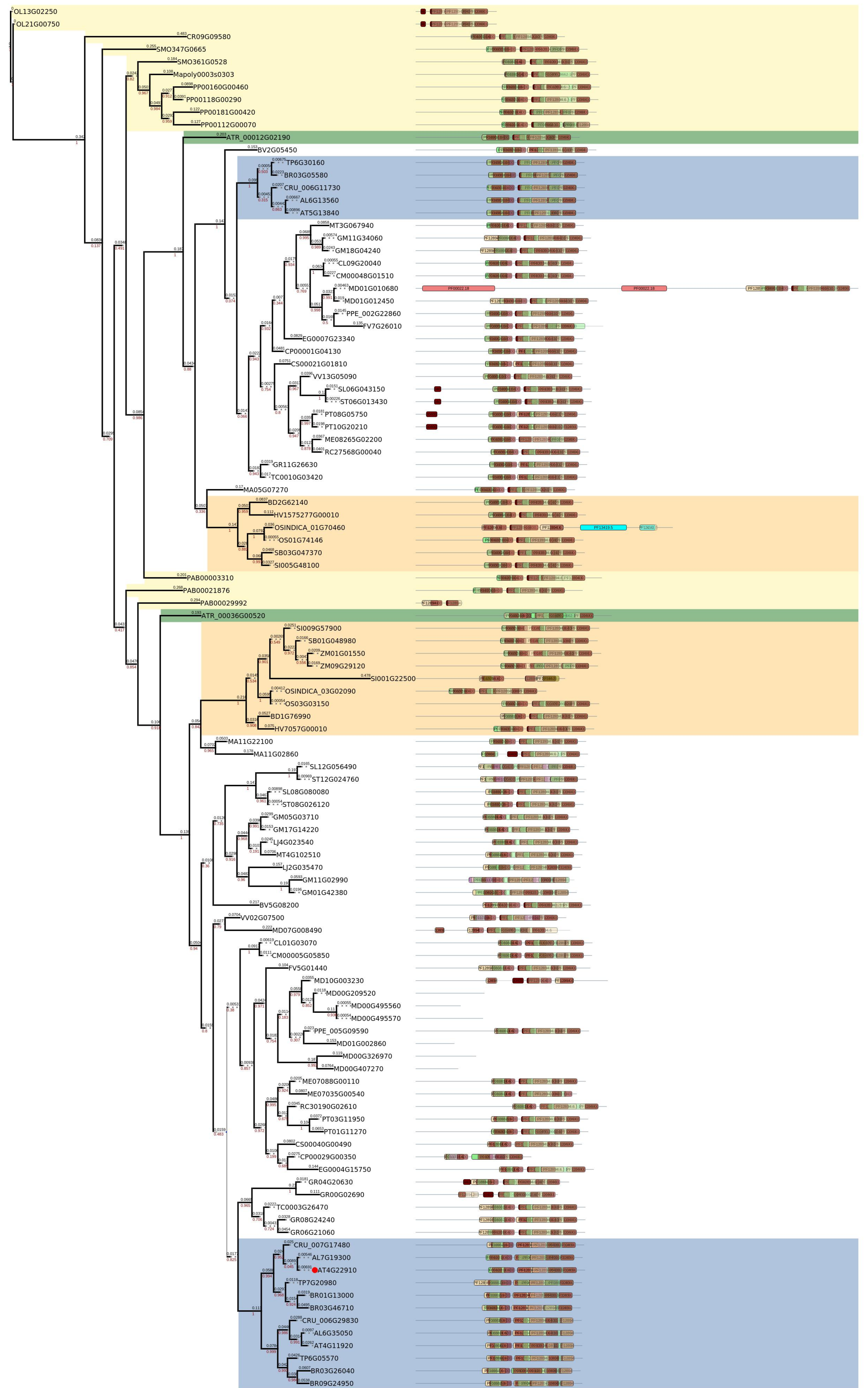
- EF_hand_Pf00036_31
- EF_hand_Pf13202_5
- EF_hand_domain_Pf13405_5
- EF_hand_domain_pair_Pf13499_5
- EF_hand_domain_pair_Pf13833_5
- EF_hand_domain_Pf14658_5
- Cytoskeletal_regulatory_complex_EF_hand_Pf12763_6
- Caleosin_related_protein_Pf05042_12

- PF00036_31
- PF13202_5
- PF13405_5
- PF13499_5
- PF13833_5
- PF14658_5
- PF12763_6
- PF05042_12

- Secreted_protein_acidic_and_rich_in_cysteine_Ca_binding_region_Pf10591_8
- SAP_domain_Pf02037_26

- PF10591_8
- PF02037_26

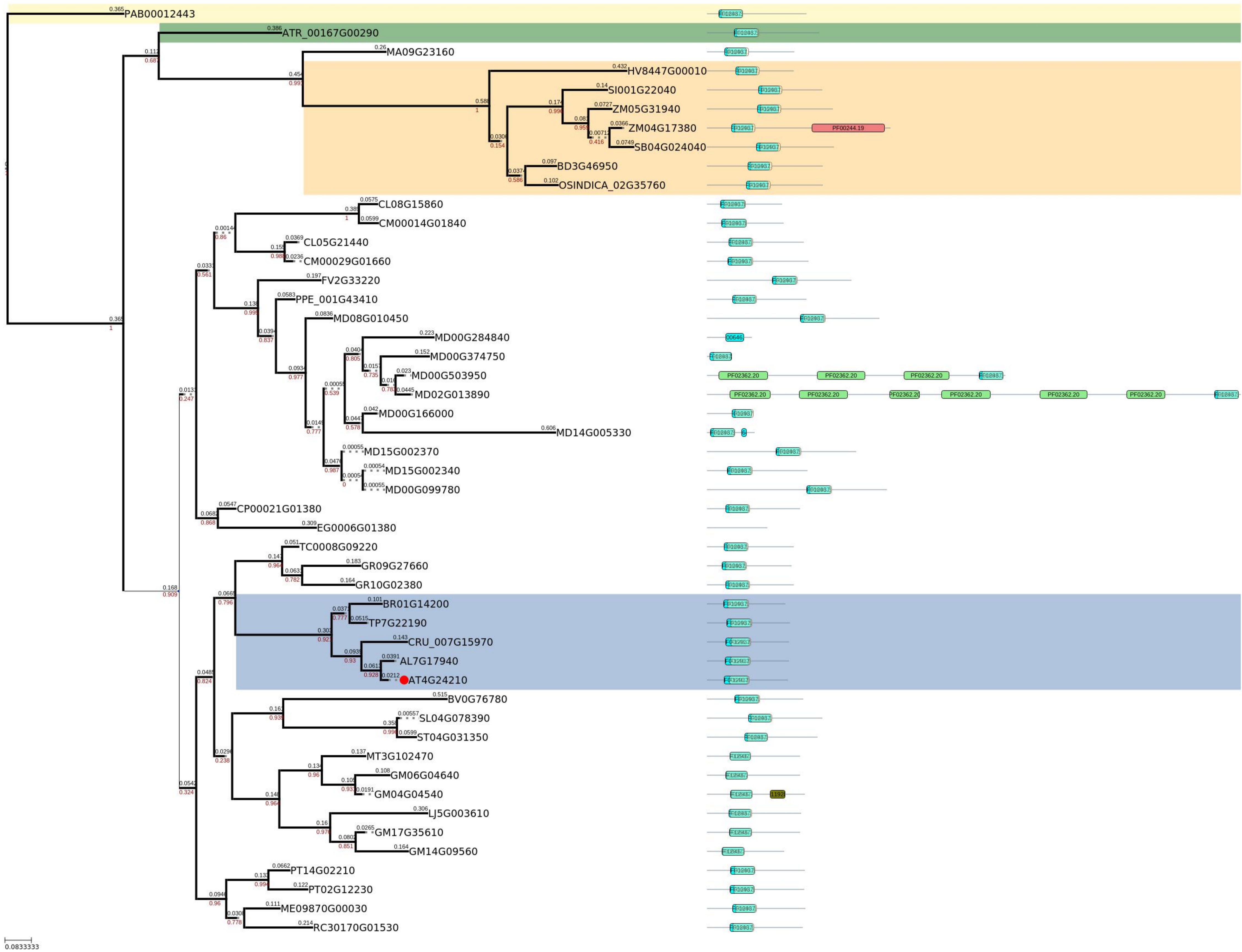
Figure S48. PhyML phylogenetic relations and composition of domains for AT4G22910 homologues of representative plant species. The color legends of species and domains is given below



taxonpmic identity of protein	domain architecture
Poaceae	Anaphase_promoting_complex_subunit_4_WD40_domain_PFI2894_6
	Eukaryotic_translation_initiation_factor_eIF2A_PFO8662_10
Brassicales	WD_domain_G_beta_repeat_PFO0400_31
	Actin_PFO0022_18
Out group	Haloacid_dehalogenase_like_hydrolase_PFI3419_5
	HAD_hydrolase_like_PFI3242_5
Amborella trichopoda	WD40_region_of_Ge1_enhancer_of_mRNA_decapping_protein_PFI6529_4
	Nucleoporin_Nup120_160_PFI1715_7



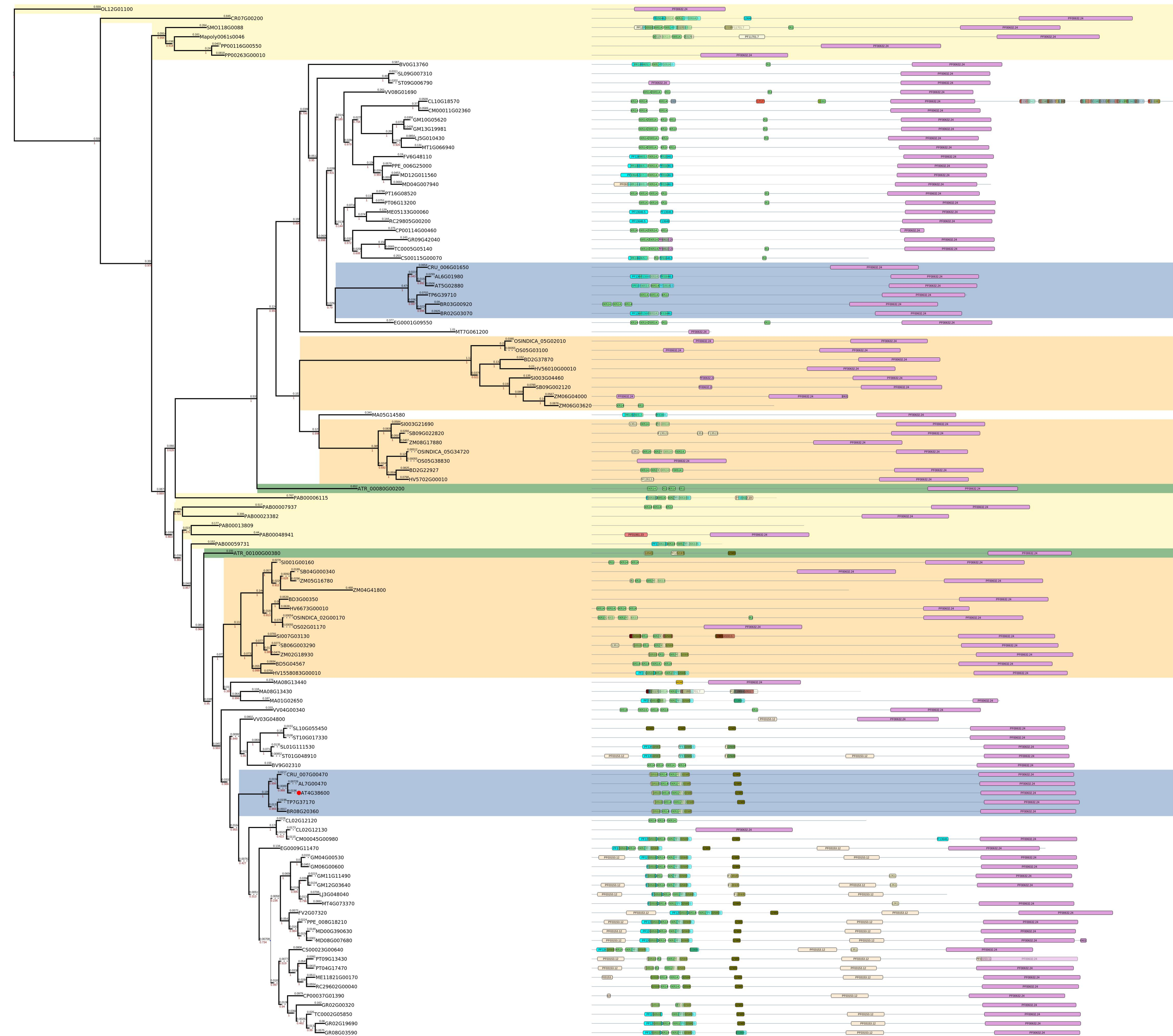
Figure S49. PhyML phylogenetic relations and composition of domains for AT4G24210 homologues of representative plant species. The color legends of species and domains is given below



taxonpmc identity of protein domain architecture

Poaceae	F_box_domain_PF00646_32	
	F_box_like_PF12937_6	
Brassicales	14_3_3_protein_PF00244_19	
	B3_DNA_binding_domain_PF02362_20	
Out group	Domain_of_unknown_function_DUF3446_PF11928_7	
Amborella trichopoda		

Figure S50. PhyML phylogenetic relations and composition of domains for AT4G38600 homologues of representative plant species. The color legends of species and domains is given below



0.0833333

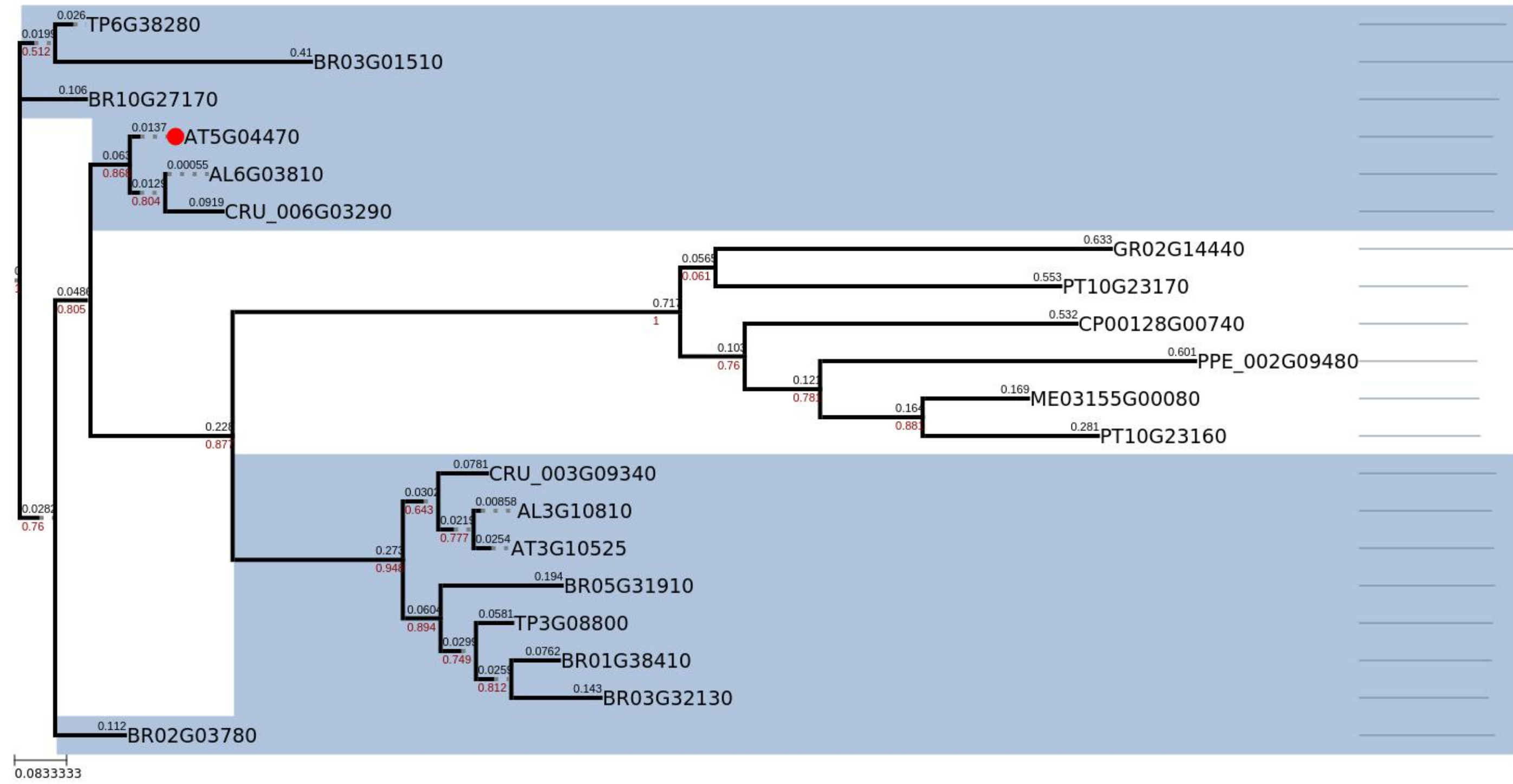
taxonomic identity of protein

Poaceae	HECT_domain_ubiquitin_transferase_PF00632_24
Brassicales	Armadillo_beta_catenin_like_repeat_PF00514_22
Out group	HEAT_repeats_PF13646_5
	HEAT_repeat_PF02985_21
Amborella trichopoda	Myosin_binding_striated_muscle_assembly_central_PF11701_7
	PPR_repeat_PF01535_19
	PPR_repeat_PF12854_6
	PPR_repeat_family_PF13041_5

domain architecture

PF00632_24	Pentatricopeptide_repeat_domain_PF13812_5	PF03153_12	PSP_PF04046_15	PF00632_24
PF00632_24	Pentatricopeptide_repeat_region_of_PRORP_PF1717_3	PF03153_12	Transcription_factor_IIA_alpha_beta_subunit_PF03153_12	PF00632_24
PF13646_5	Tetratricopeptide_repeat_PF13428_5	PF00632_24		PF00632_24
PF00632_24	UTP15_C_terminal_PF09384_9	PF00632_24		PF00632_24
PF11701_7	HEAT_like_repeat_PF13513_5	PF00632_24		PF00632_24
PF00632_24	Adaptin_N_terminal_region_PF01602_19	PF00632_24		PF00632_24
PF00632_24	ABC_2_type_transporter_PF01061_23	PF00632_24		PF00632_24
PF13812_5	Dos2_interacting_transcription_regulator_of_RNA_Pol_II_PF14500_5	PF00632_24		PF00632_24

Figure S51. PhyML phylogenetic relations and composition of domains for AT5G04470 homologues of representative plant species. The color legends of species and domains is given below



taxonpmic identity of protein domain architecture

Poaceae

Brassicales

Out group

Amborella trichopoda

Figure S52. PhyML phylogenetic relations and composition of domains for AT5G06650, AT2G41940, AT3G58070 homologues of representative plant species. The color legends of species and domains is given below

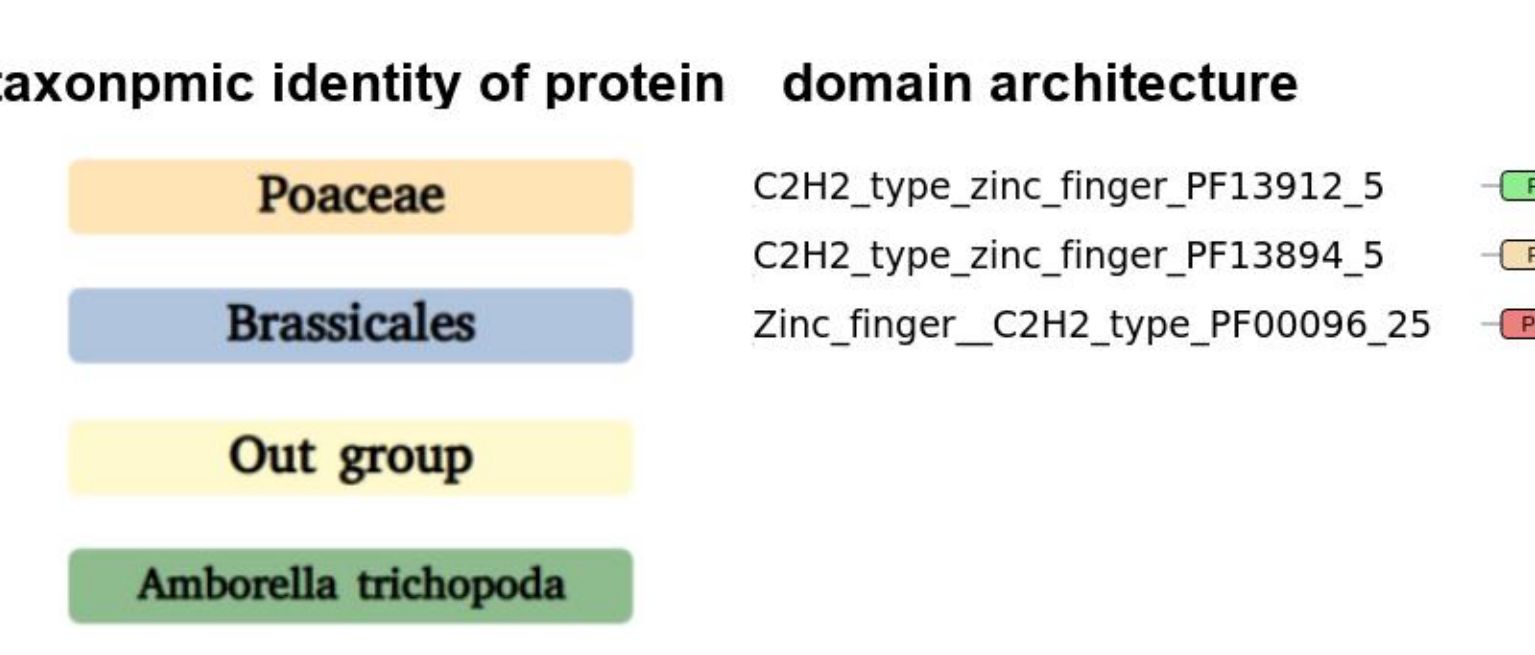
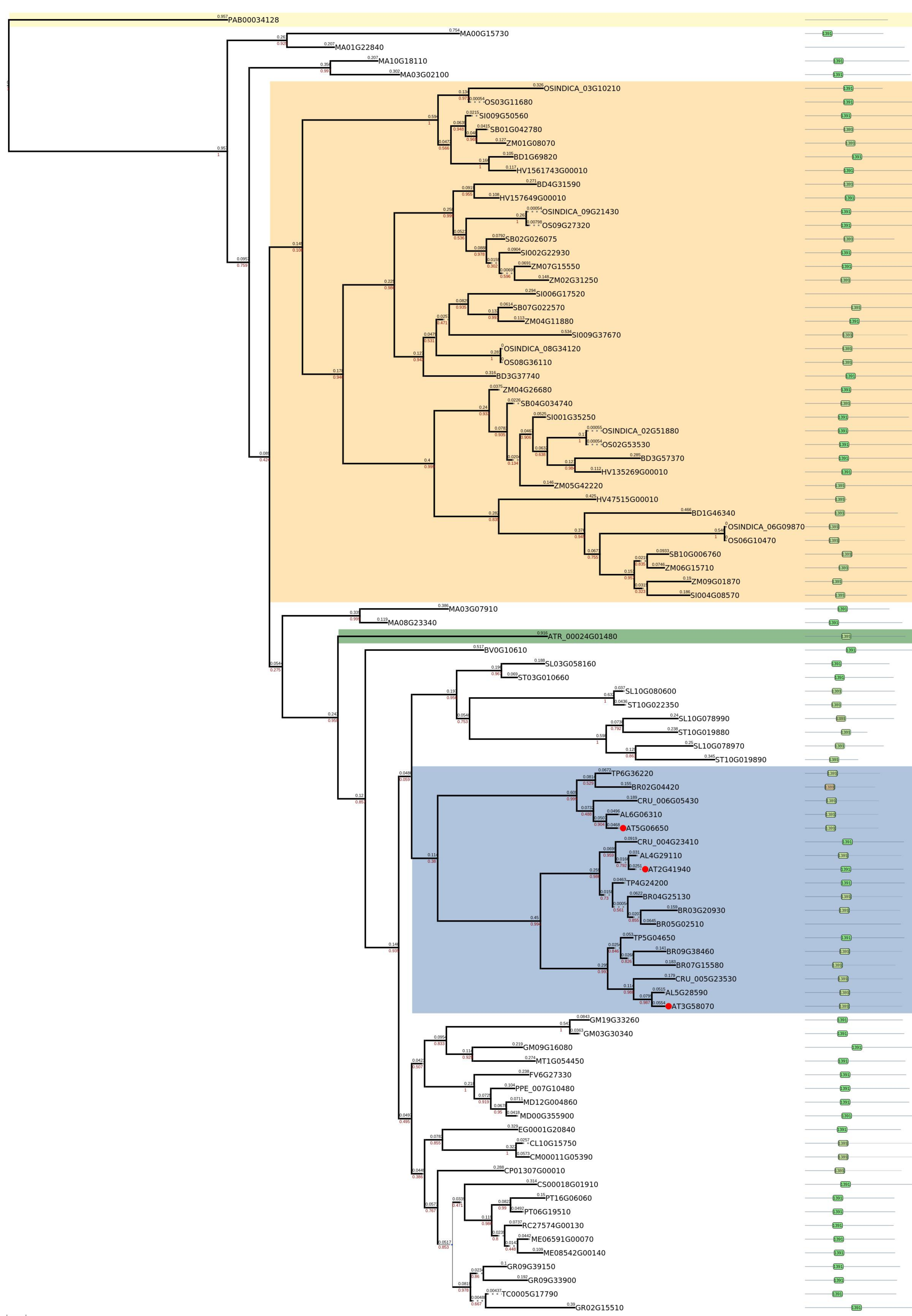
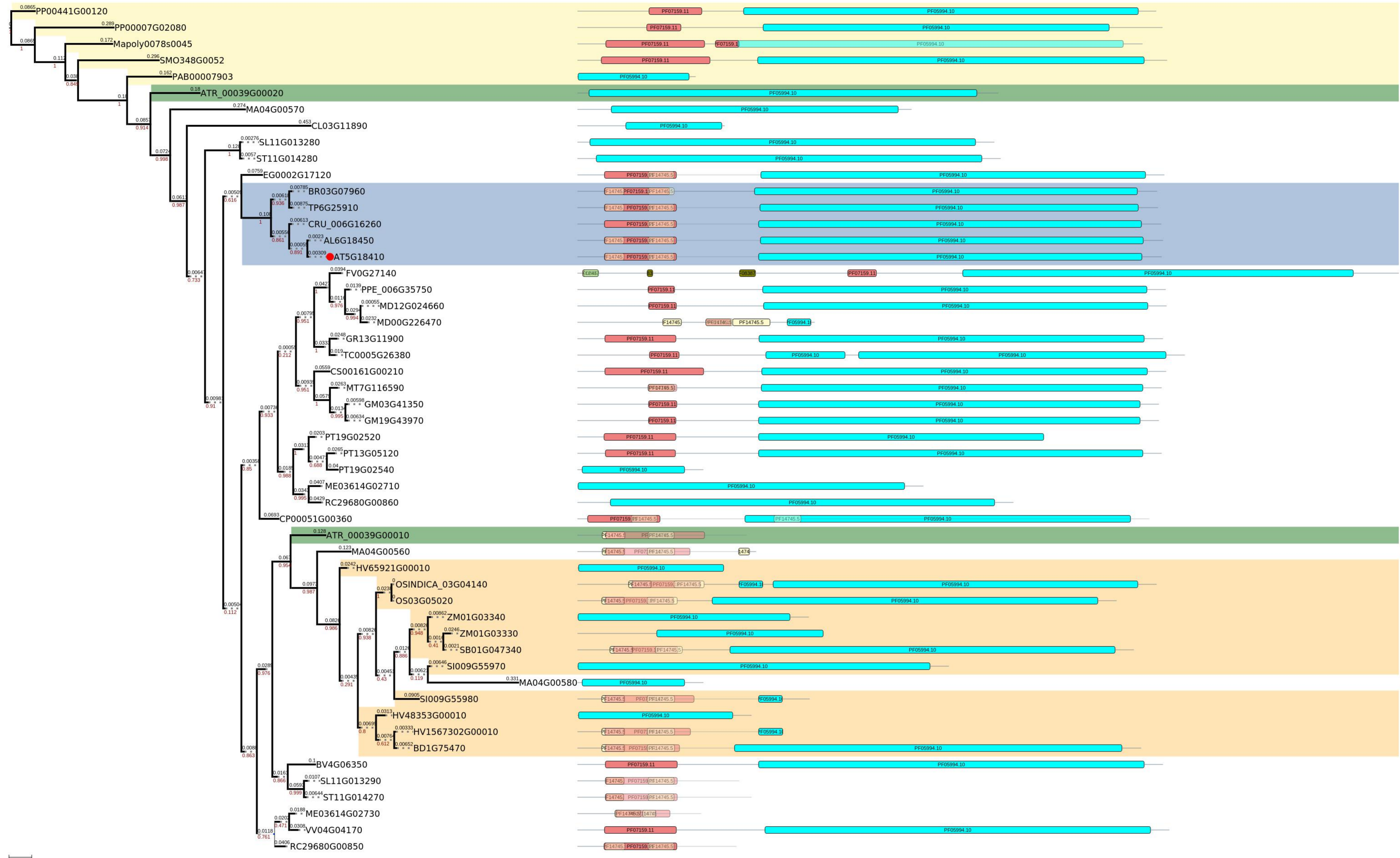
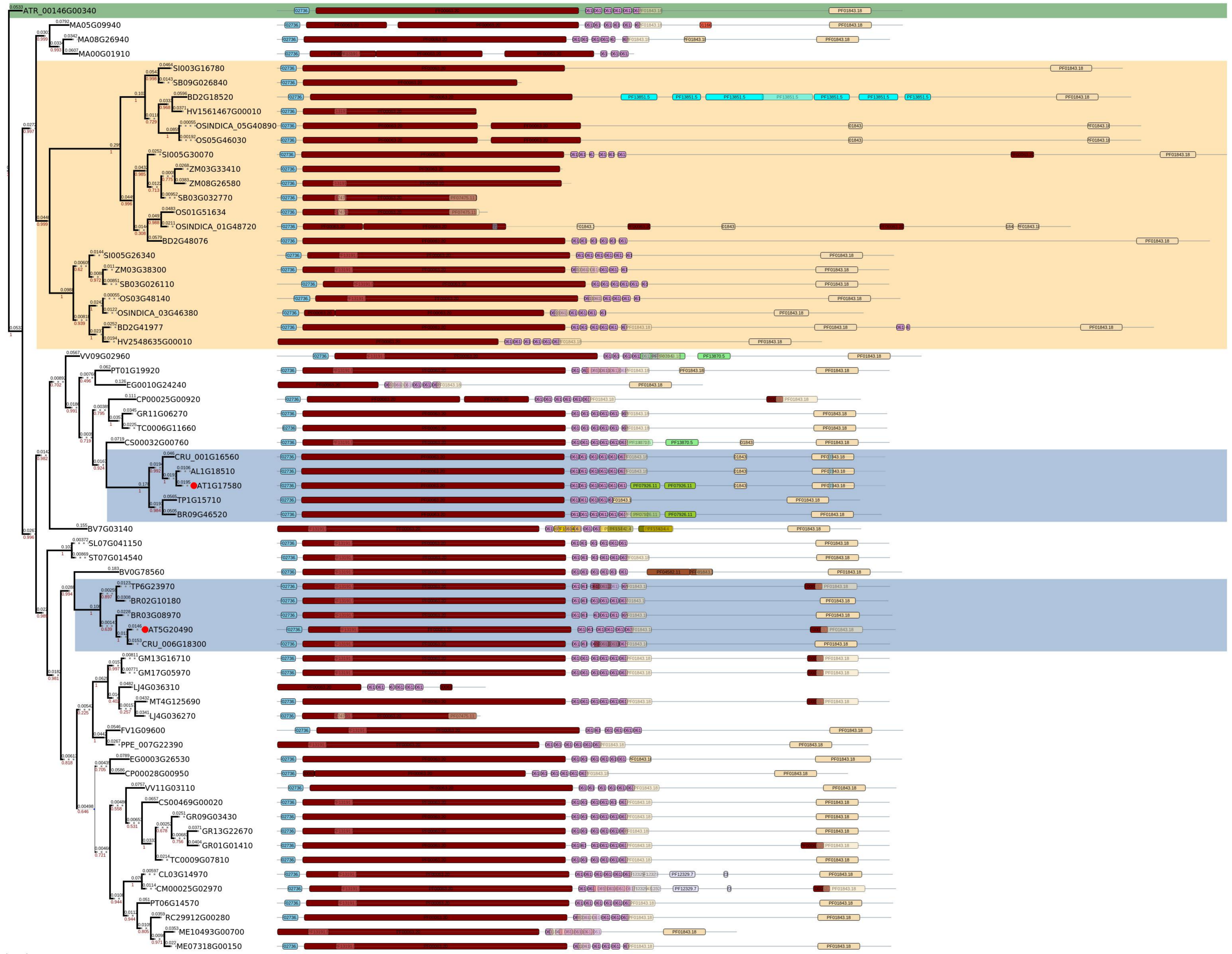


Figure S53. PhyML phylogenetic relations and composition of domains for AT5G18410 homologues of representative plant species.
The color legends of species and domains is given below



taxonpmic identity of protein	domain architecture
Poaceae	Protein_of_unknown_function_DUF1394_PF07159_11
Brassicales	Cytoplasmic_Fragile_X_interacting_family_PF05994_10
Out group	WASH_complex_subunit_7_N_terminal_PF14745_5
	F_box_domain_PF00646_32
Amborella trichopoda	F_box_like_PF12937_6
	FBD_PF08387_9

Figure S54. PhyML phylogenetic relations and composition of domains for AT1G17580, AT5G20490 homologues of representative plant species. The color legends of species and domains is given below



taxonomic identity of protein

- Poaceae**
 - DIL_domain_PF01843_18
 - IQ_calmodulin_binding_motif_PF00612_26
 - Myosin_head_motor_domain_PF00063_20
 - Myosin_N_terminal_SH3_like_domain_PF02736_18
- Brassicales**
 - TSC_22_dip_bun_family_PF01166_17
 - AAA_ATPase_domain_PF13191_5
 - Growth_arrest_specific_micro_tubule_binding_PF13851_5
 - HPr_Serine_kinase_C_terminal_domain_PF07475_11
- Out group**
- Amborella trichopoda**

domain architecture

- PF01843.18
- PF00612.26
- PF02736.18
- PF01166.17
- PF13191.5
- PF13851.5
- PF07475.11
- Domain_of_unknown_function_DUF4201_PF13870_5
- TPR_MLP1_MLP2_like_protein_PF07926_11
- Domain_of_unknown_function_DUF4686_PF15742_4
- Yuri_gagarin_PF15934_4
- Reovirus_sigma_C_capsid_protein_PF04582_11
- TATA_element_modulatory_factor_1_DNA_binding_PF12329_7

- PF13870.5
- PF07926.11
- PF15742.4
- PF15934.4
- PF04582.11
- PF12329.7