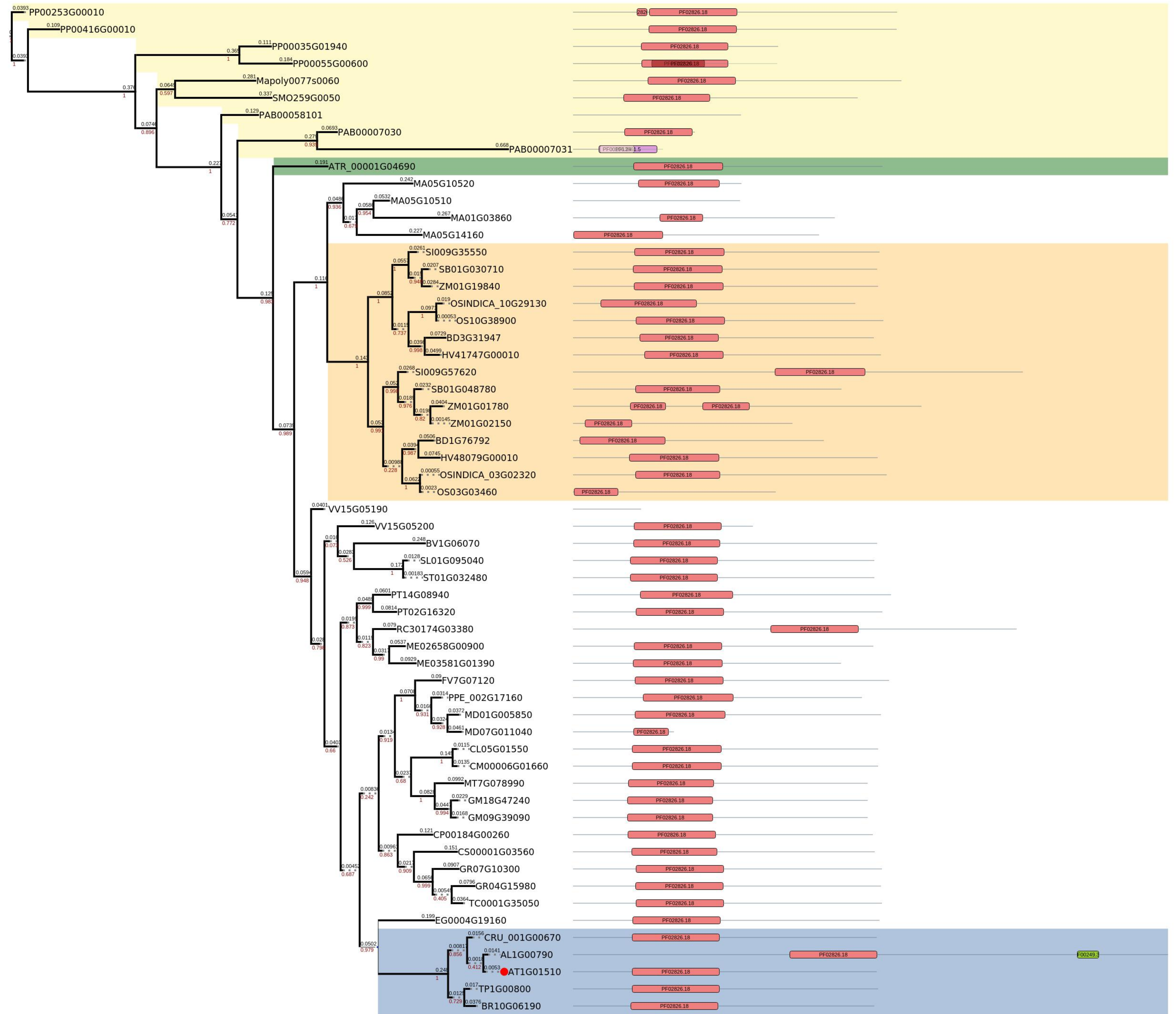


Figure S5. PhyML phylogenetic relations and composition of domains for AT1G01510 homologues of representative plant species. The color legends of species and domains is given below



taxonomic identity of protein

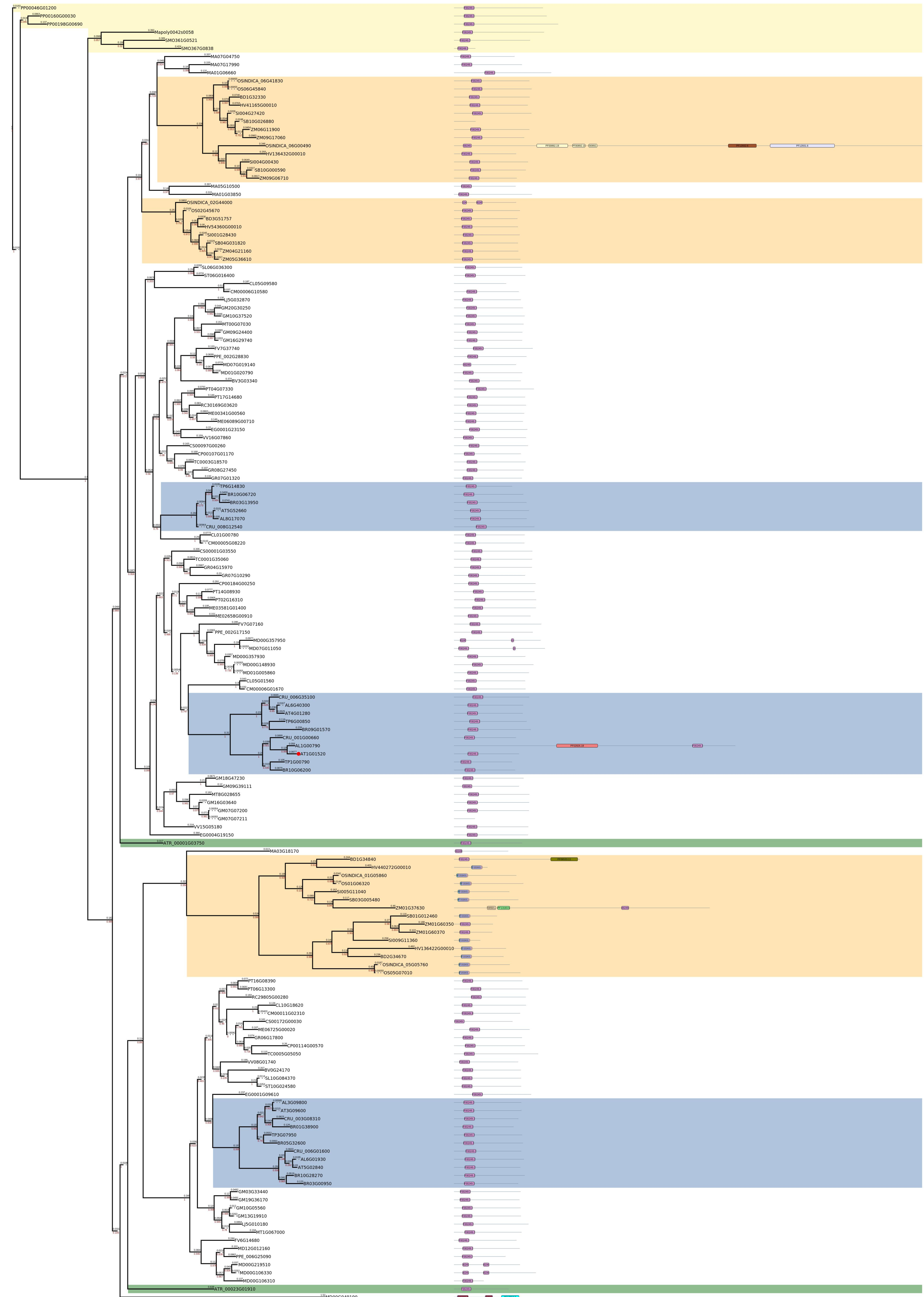
domain architecture

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

D_isomer_specific_2_hydroxyacid_dehydrogenase_NAD_binding_domain_PF02826_18
 Alanine_dehydrogenase_PNT_C_terminal_domain_PF01262_20
 short_chain_dehydrogenase_PF00106_24
 Enoyl_Acyl_carrier_protein_reductase_PF13561_5
 Myb_like_DNA_binding_domain_PF00249_30

- PF02826.18
- PF01262.20
- PF00106.24
- PF13561.5
- PF00249.30

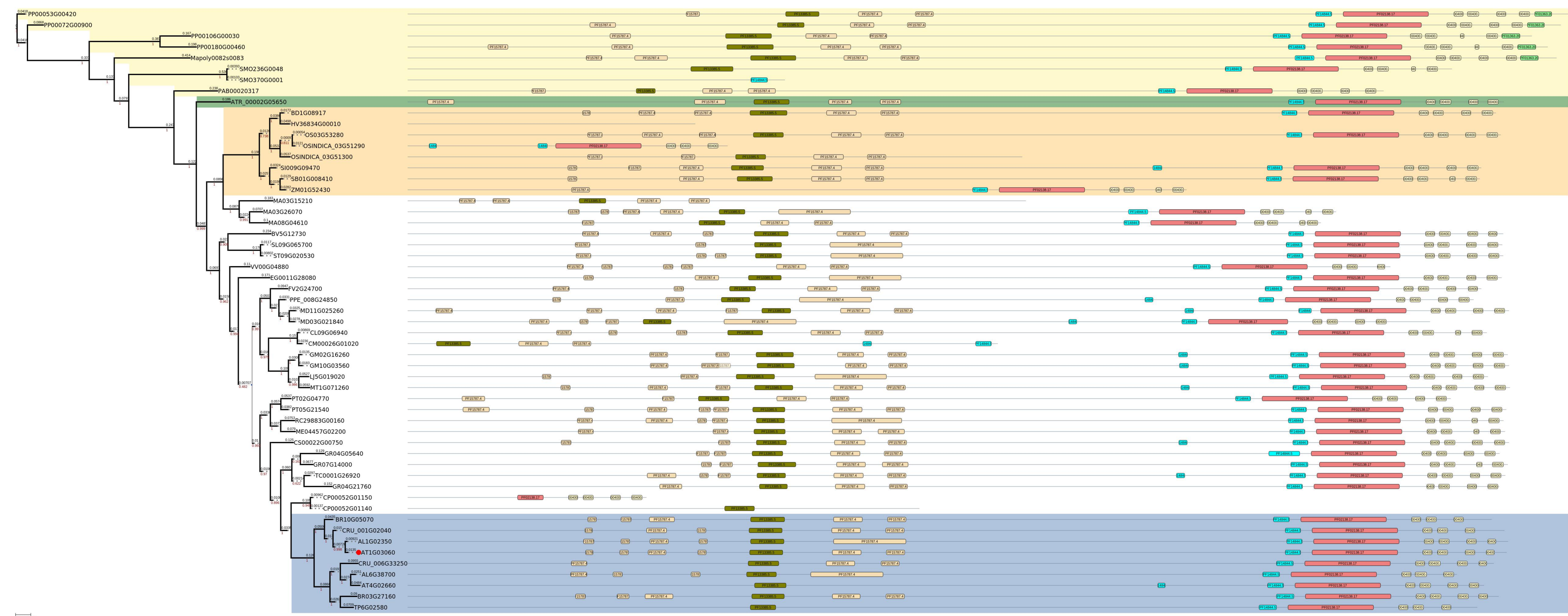
Figure S6. PhyML phylogenetic relations and composition of domains for AT1G01520 homologues of representative plant species. The color legends of species and domains is given below



taxonomic identity of protein	domain architecture
Poaceae	Myb_like_DNA_binding_domain_FF00249_30
Brassicales	EamA_like_transporter_family_FF00892_19
Out group	Vesicle_coat_trafficking_protein_Sec16_mid_region_PF12932_6
Amborella trichopoda	Sec23_binding_domain_of_Sec16_FF12931_6
	D_isomer_specific_2_hydroxyacid_dehydrogenase_NAD_binding_domain_FF02826_18
	Protein_of_unknown_function_DUF1110_FF06533_11
	Myb_DNA_binding_like_FF15963_4
	AMP_binding_enzyme_FF00501_27

PF000490	AMP_binding_enzyme_C_terminal_domain_PF13193_5
PF000491	Domain_of_unknown_function_DUF4149_FF13664_5
PF000492	Myb_like_DNA_binding_domain_PF13921_5
PF000493	
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PF000696	
PF000697	
PF000698	
PF000699	
PF000700	

Figure S7. PhyML phylogenetic relations and composition of domains for AT1G03060 homologues of representative plant species. The color legends of species and domains is given below



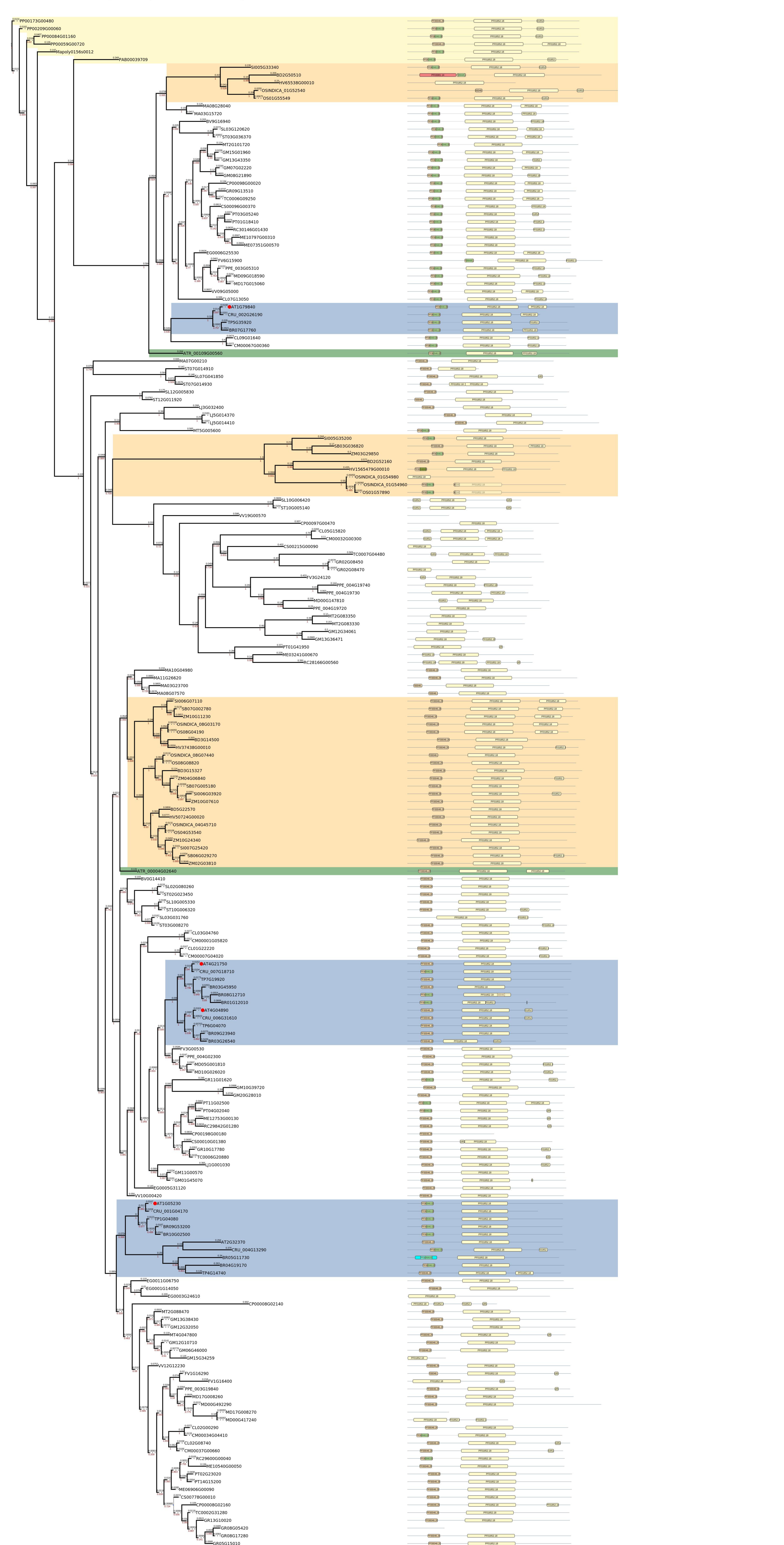
taxonpmic identity of protein

- Poaceae** (Yellow background): Beige_BEACH_domain_PFO2138_17
- Brassicales** (Blue background): Domain_of_unknown_function_DUF4704_PFI5787_4
- Out group** (Light Yellow background): FYVE_zinc_finger_PFO1363_20
- Amborella trichopoda** (Green background): Concanavalin_A_like_lectin_glucanases_superfamily_PFI3385_5

domain architecture

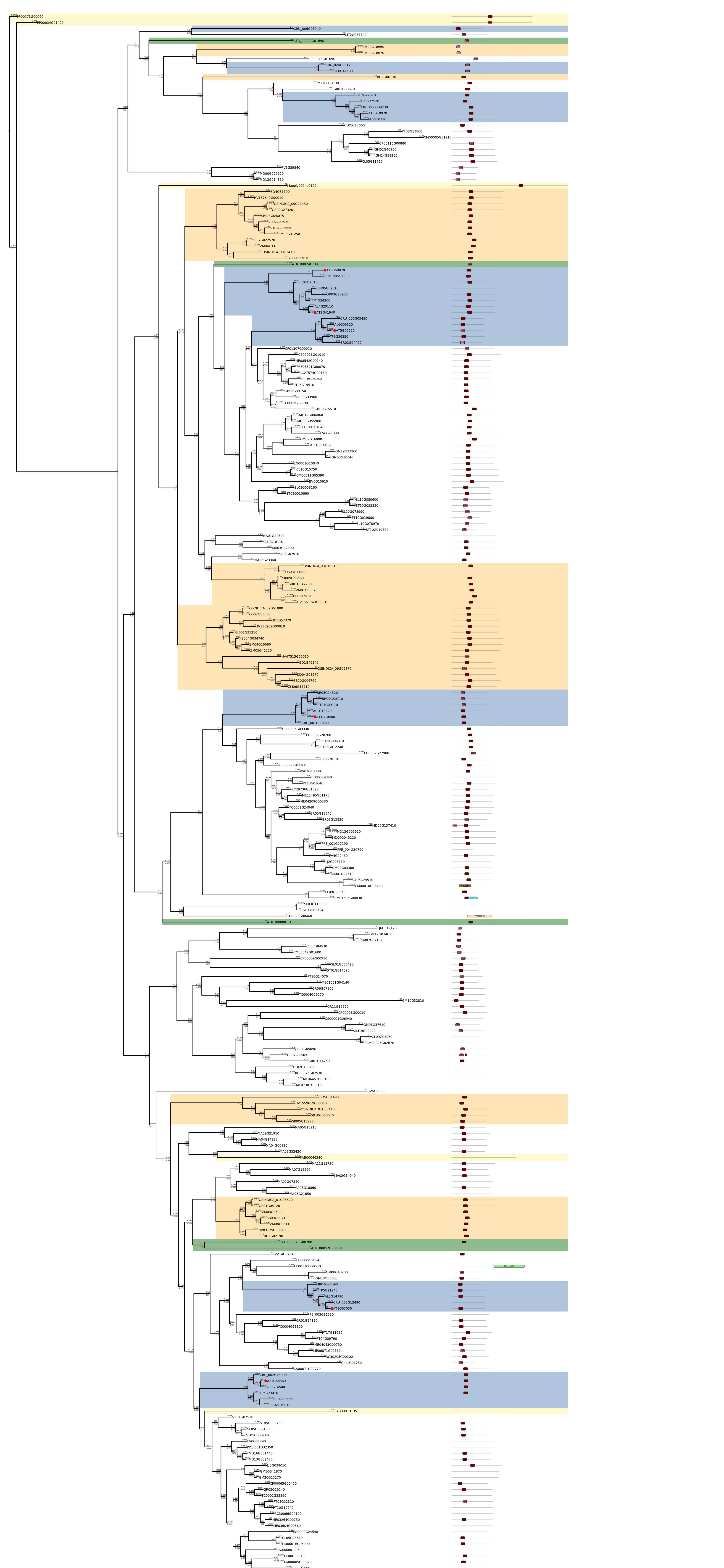
- PF02138_17** (Red box)
- PF15787_4** (Yellow box)
- PF01363_20** (Green box)
- PF13385_5** (Green box)
- PF14844_5** (Cyan box)
- PF0400_31** (Light Yellow box)

Figure S8. PhyML phylogenetic relations and composition of domains for AT1G05230, AT4G21750, AT4G04890, AT1G79840 homologues of representative plant species. The color legends of species and domains is given below



taxonomic identity of protein	domain architecture
Poaceae	Homeobox_domain_Pf00046_28 START_domain_Pf01852_18
Brassicales	Homeobox_KN_domain_Pf05920_10
Out group	Exo70_exocyst_complex_subunit_Pf03081_14 Homeodomain_leucine_zipper_encoding_Homez_Pf11569_7
Amborella trichopoda	Mitochondrial_ribosomal_protein_subunit_L20_Pf12824_6

Figure S9. PhyML phylogenetic relations and composition of domains for AT1G67030, AT3G58070, AT2G41940, AT5G06650, AT1G10480, AT1G68360 homologues of representative plant species. The color legends of species and domains is given below



5993330

Figure S10. PhyML phylogenetic relations and composition of domains for AT1G13180 homologues of representative plant species. The color legends of species and domains is given below

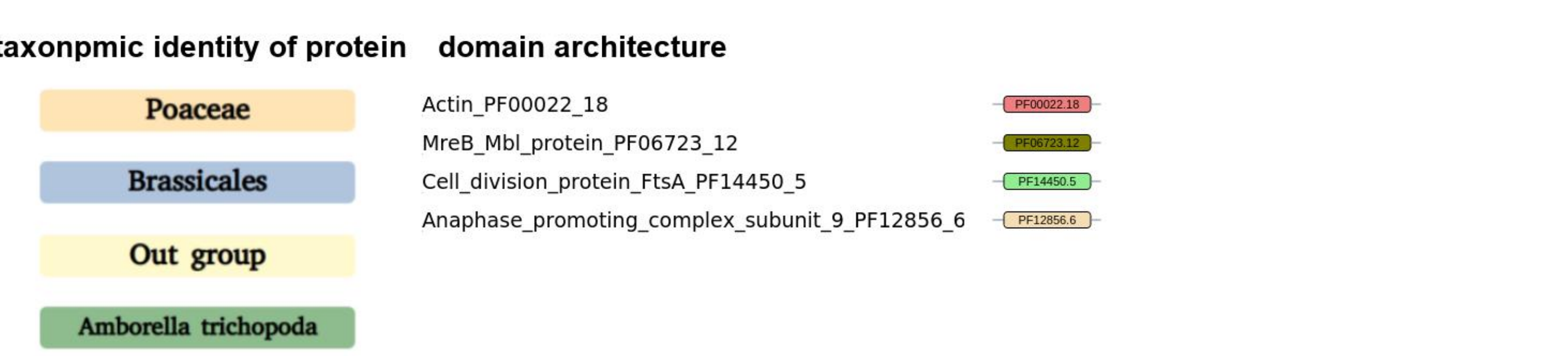
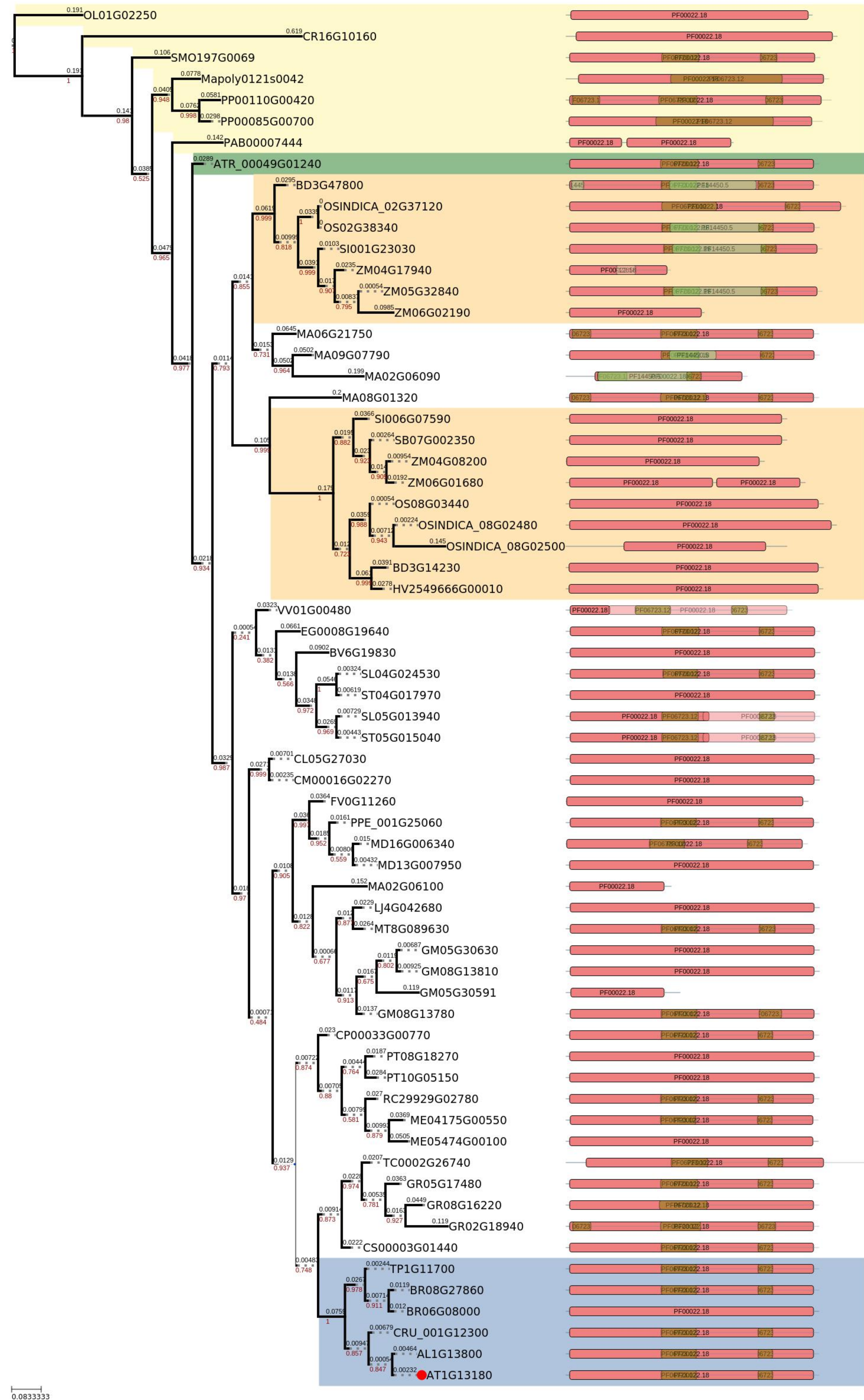
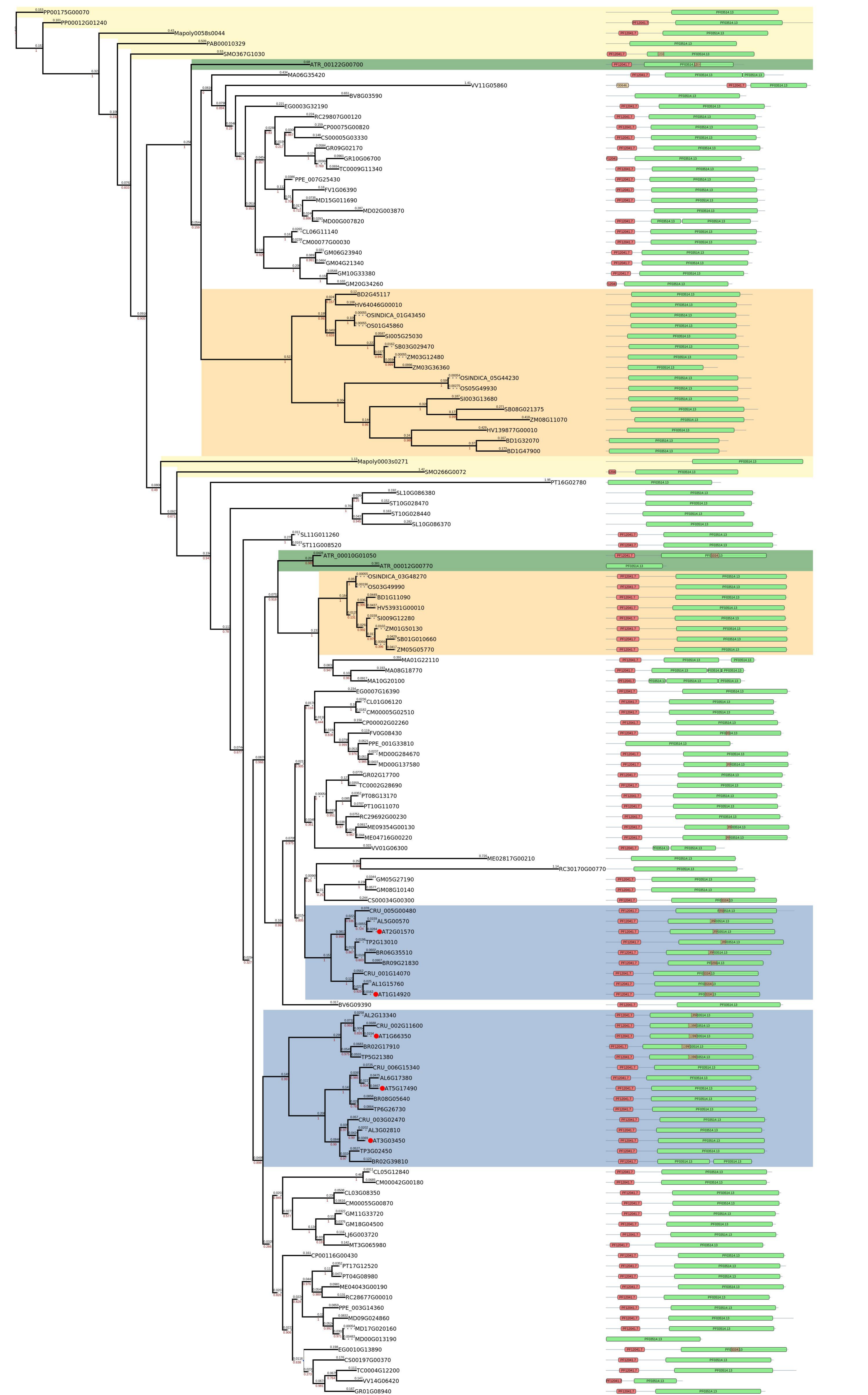


Figure S11. PhyML phylogenetic relations and composition of domains for AT1G66350, AT5G17490, AT3G03450, AT2G01570, AT1G14920 homologues of representative plant species. The color legends of species and domains is given below



taxonpmic identity of protein domain architecture

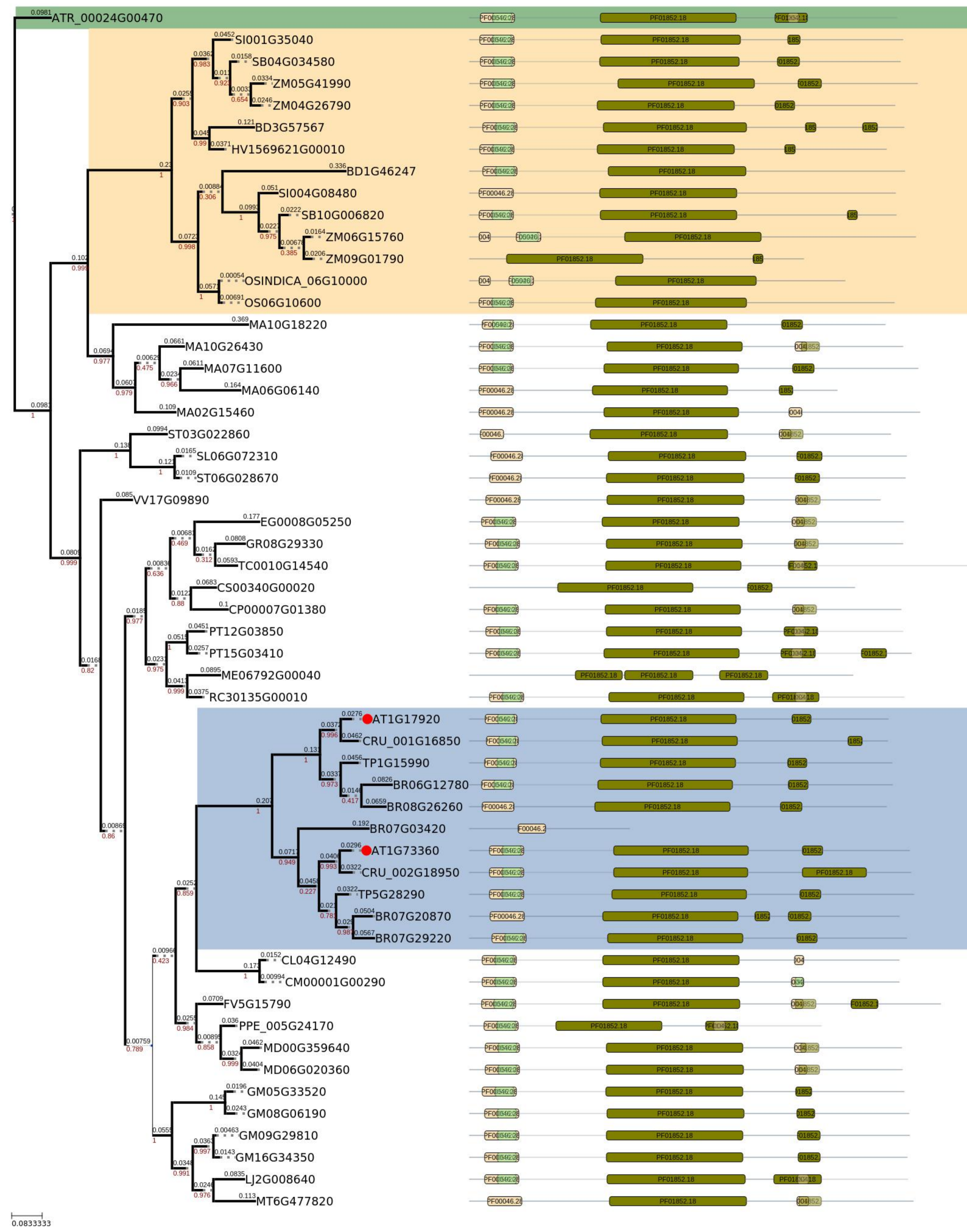
Poaceae GRAS_domain_family_Pf03514_13
Transcriptional_regulator_DELLA_protein_N_terminal_Pf12041_7

Brassicales F_box_domain_Pf00646_32

Out group

Amborella trichopoda

Figure S12. PhyML phylogenetic relations and composition of domains for AT1G17920, AT1G73360 homologues of representative plant species. The color legends of species and domains is given below



taxonpmic identity of protein domain architecture

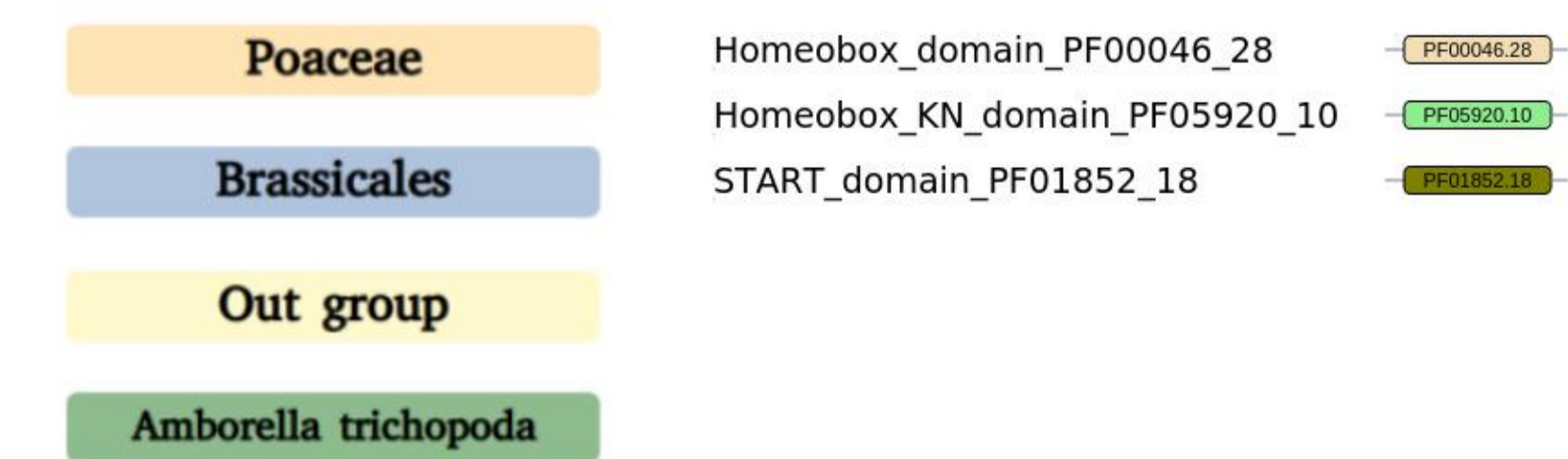
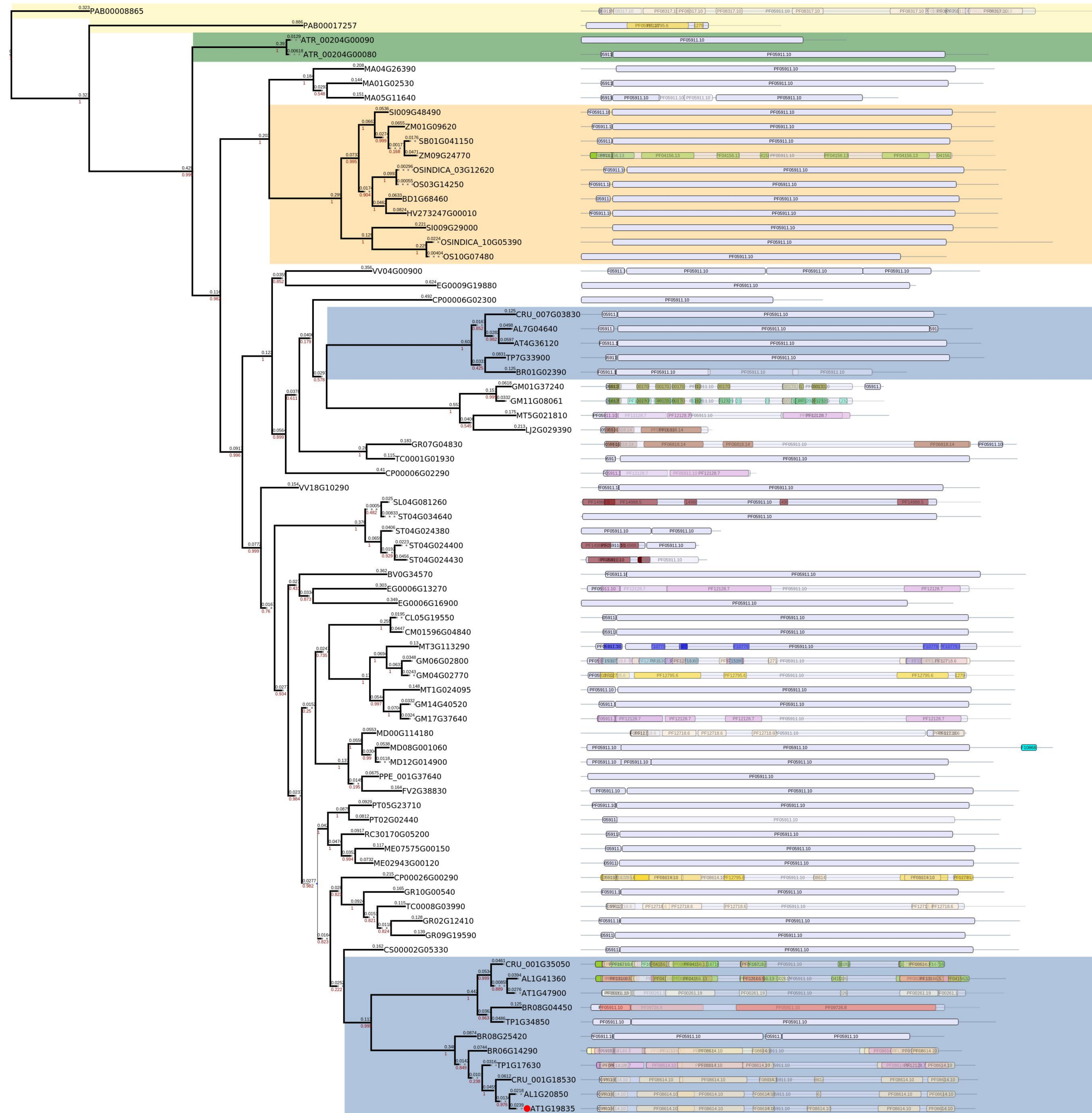


Figure S13. PhyML phylogenetic relations and composition of domains for AT1G19835 homologues of representative plant species. The color legends of species and domains is given below



taxonomic identity of protein

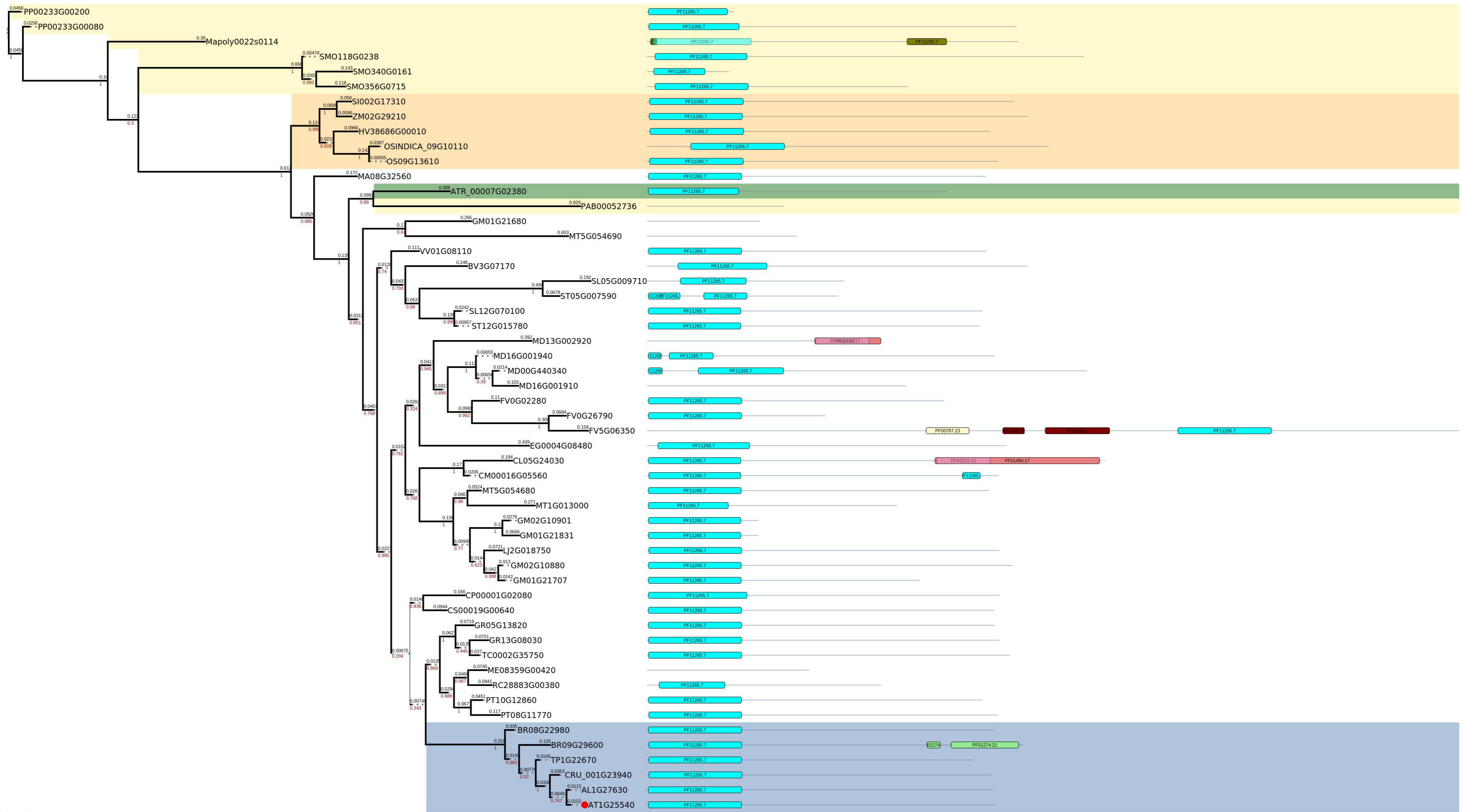
- Poaceae**
 - Filament_like_plant_protein_long_coiled_coil_PF05911_10
 - Spc7_kinetochore_protein_PF08317_10
- Brassicales**
 - Mechanosensitive_ion_channel_porin_domain_PF12795_6
 - InCa_protein_PF04156_13
- Out group**
 - bZIP_transcription_factor_PF00170_20
 - TATA_element_modulatory_factor_1_DNA_binding_PF12329_7
 - Protein_of_unknown_function_DUF3584_PF12128_7
 - Fez1_PF06818_14
- Amborella trichopoda**
 -

domain architecture

- Domain_of_unknown_function_DUF4515_PF14988_5
- Haemolysin_XhIA_PF10779_8
- Domain_of_unknown_function_DUF4618_PF15397_5
- Tropomyosin_like_PF12718_6
- Cysteine_rich_antifungal_protein_2_defensin_like_PF10868_7
- Autophagy_protein_16_ATG16_PF08614_10
- AAA_domain_PF13166_5
- Bone_marrow_stromal_antigen_2_PF16716_4
- Tropomyosin_PF00261_19
- Macoilin_family_PF09726_8
- Uncharacterized_coiled_coil_protein_DUF2353_PF09789_8

0.0833333

Figure S14. PhyML phylogenetic relations and composition of domains for AT1G25540 homologues of representative plant species.
The color legends of species and domains is given below



taxonpmic identity of protein domain architecture

Poaceae	Mediator_complex_subunit_25_von_Willebrand_factor_type_A_PF11265_7	PF11265.7
	Mediator_complex_subunit_25_PTOV_activation_and_synapsin_2_PF11232_7	PF11232.7
Brassicales	Transmembrane_amino_acid_transporter_protein_PF01490_17	PF01490.17
	Tryptophan_tyrosine_permease_family_PF03222_12	PF03222.12
Out group	PX_domain_PF00787_23	PF00787.23
	Putative_zinc_RING_and_or_ribbon_PF13901_5	PF13901.5
Amborella trichopoda	Malate_synthase_PF01274_21	PF01274.21