GapB FCHS Deparia lobato-crenata
GapB WQML Cryptogramma_acrostichoides
Athal_AT1G42970.1_GAPB
Athal_AT1G12900.1_GAPA2
Athal_AT3G26650.1_GAPA1
GapA1_NOKI_Lindsaea_linearis
GapA_YIXP_Lindsaea_microphylla

gap_myst_copy_CQPW Anemia tomentosa
gap_myst_copy_SKYV Vittaria lineata
gap_myst_copy_YCKE Notholaena montieliae
gap_myst_copy_DCDT Gaga arizonica
gap_myst_copy_ZXJO Parahemionitis arifolia
gap_myst_copy_POPJ Pteris vittata
gap_myst_copy_NOKI Lindsaea linearis
gap_myst_copy_YIXP Lindsaea microphylla
gap_myst_copy_OCZL Homalosorus pycnocarpos
gap_myst_copy_UFJN Diplazium wichurae
gap_myst_copy_RFRB Didymochlaena truncatula
gap_myst_copy_XXHP Cystopteris sp
gap_myst_copy_CJNT Polypodium glycyrrhiza
gap_myst_copy_UJWU Pleopeltis polypodioides
gap_myst_copy_KJZG Asplenium platyneuron
gap_myst_copy_PSKY Asplenium nidus
Athal_AT1G13440_GAPC2_cds
Athal_AT3G04120_GAPC1_cds
gpC_QHVS_Ophioglossum_sp
gpC_EEAQ_Sceptridium_dissectum
gpC_ALVQ_Tmesipteris_parva
gpC QVMR Psilotum nudum_1
gpC QVMR Psilotum nudum_2
gpC_KIIX_Pilularia_globulifera
gpCweird_XDDT_Argyrochosma_nivea
gpCweird_POPJ_Pteris_vittata
gpCweird_UJTT_Pityrogramma_trifoliata
gpC_CVEG_Azolla_cf_caroliniana
gpC NOKI Lindsaea linearis_1
gpC NOKI Lindsaea linearis_2
gpC_POPJ_Pteris_vittata
gpC_PNZO_Culcita_macrocarpa
gpC_UJTT_Pityrogramma_trifoliata
gpC_WQML_Cryptogramma_acrostichoides
gpC_WCLG_Adiantum_aleuticum
gpC_BMJR_Adiantum_raddianum
gpC_GSXD_Cheilanthes_eatonii
gpC_XDDT_Argyrochosma_nivea
gpC_YCKE_Notholaena_montieliae
gpC_DCDT_Gaga_arizonica
gpC_ZXJO_Parahemionitis_arifolia
gpC_SRS072938_Pteridium_aquilinum
gpC_MTGC_Dennstaedtia_davallioides
gpC_JBLI_Bolbitis_sp
gpC NWWI Nephrolepis exaltata_1
gpC NWWI Nephrolepis exaltata_2
gpC_FQGQ_Polystichum_acrostichoides
gpC_CJNT_Polypodium_glycyrrhiza
gpC_GYFU_Polypodium_hesperium
gpC_ZQYU_Phlebodium_sp
gpC_UJWU_Pleopeltis_polypodioides
gpC_IXLH_Polypodium_hesperium
gpC_YLJA_Polypodium_amorphum
gpC OCZL Homalosorus pycnocarpos_2
gpC URCP Athyrium filix-femina
gpC_HTFH_Onoclea_sensibilis
gpC_MROH_Thelypteris_acuminata
gpC_UFJN_Diplazium_wichurae
gpC OCZL Homalosorus pycnocarpos_1
gpC YQEC Woodsia_ilvensis
gpC_YJJY_Woodsia_scopulina
gpC_KJZG_Asplenium_platyneuron
gpC LHLE Cystopteris fragilis_1
gpC YOWV Cystopteris protrusa_2
gpC LHLE Cystopteris fragilis_2
gpC_RICC_Cystopteris_reevesiana
gpC_HNDZ_Cystopteris_utahensis
gpC_XXHP_Cystopteris_sp
gpC YOWV Cystopteris protrusa_1

To Fig. S4b

0.6 substitutions per site

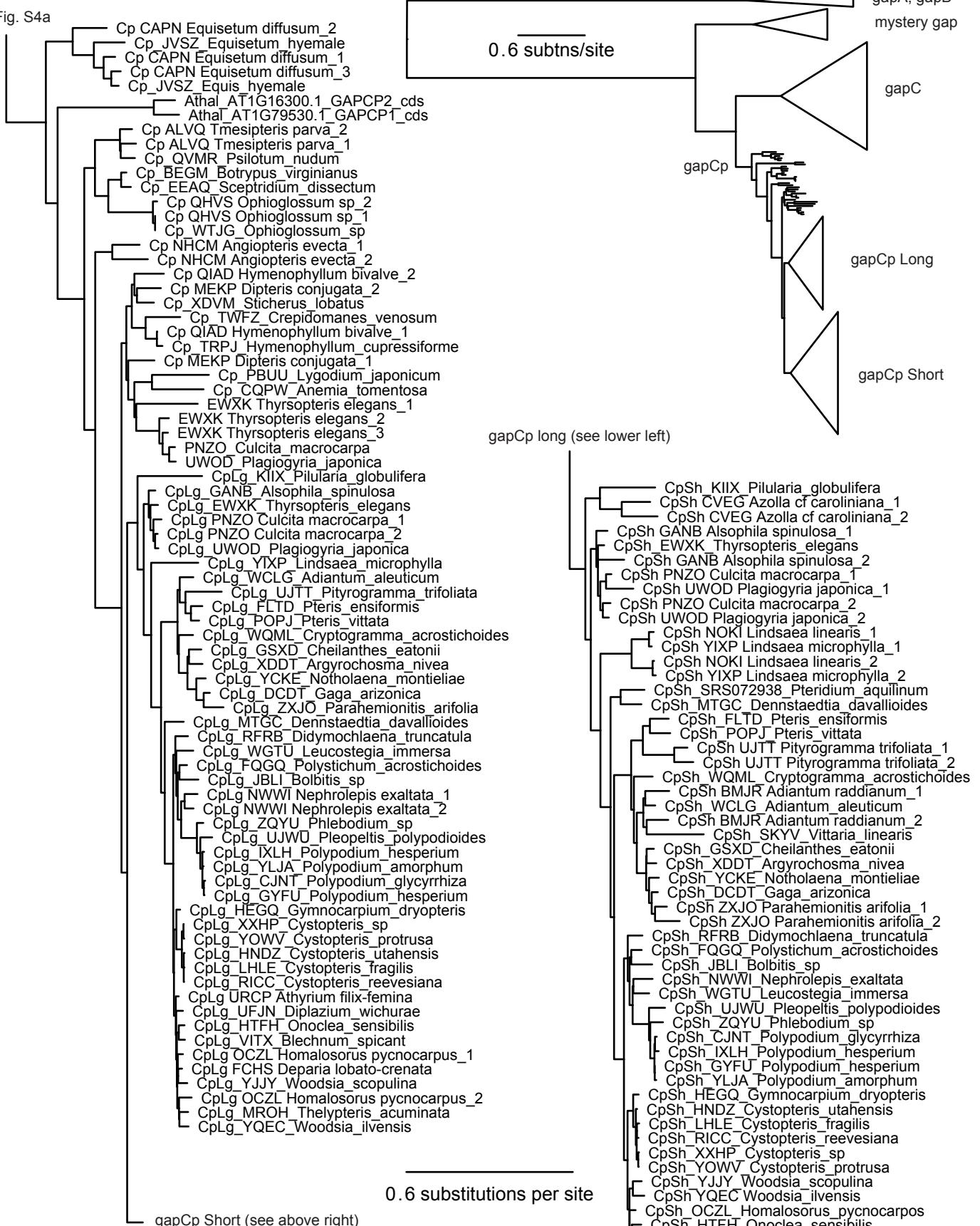Figure S4a: GAP all-in maximum likelihood transcriptome phylogeny: gapA, gapB, mystery gap, and gapC.

gapA, gapB

mystery gap

0.6 subtns/site

gapC

gapCp

gapCp Long

gapCp Short

Cp CAPN Equisetum diffusum_2
Cp_JVSZ_Equisetum_hyemale
Cp CAPN Equisetum diffusum_1
Cp CAPN Equisetum diffusum_3
Cp_JVSZ_Equis_hyemale
Athal_AT1G16300.1_GAPCP2_cds
Athal_AT1G79530.1_GAPCP1_cds
Cp ALVQ Tmesipteris parva_2
Cp ALVQ Tmesipteris parva_1
Cp_QVMR_Psilotum_nudum
Cp_BEGM_Botrypus_virginianus
Cp_EEAQ_Sceptridium_dissectum
Cp QHVS Ophioglossum sp_2
Cp QHVS Ophioglossum sp_1
Cp_WTJG_Ophioglossum_sp
Cp NHCM Angiopteris evecta_1
Cp NHCM Angiopteris evecta_2
Cp QIAD Hymenophyllum bivalve_2
Cp MEKP Dipteris conjugata_2
Cp_XDVM_Sticherus_lobatus
Cp_TWFZ_Crepidomanes_venosum
Cp QIAD Hymenophyllum bivalve_1
Cp_TRPJ_Hymenophyllum_cupressiforme
Cp MEKP Dipteris conjugata_1
Cp_PBUU_Lygodium_japonicum
Cp_CQPW_Anemia_tomentosa
EWXK Thyrsopteris elegans_1
EWXK Thyrsopteris elegans_2
EWXK Thyrsopteris elegans_3
PNZO_Culcita_macrocarpa
UWOD_Plagiogyria_japonica
CpLg_KIIX_Pilularia_globulifera
CpLg_GANB_Alsophila_spinulosa
CpLg_EWXK_Thyrsopteris_elegans
CpLg PNZO Culcita macrocarpa_1
CpLg PNZO Culcita macrocarpa_2
CpLg_UWOD_Plagiogyria_japonica
CpLg_YIXP_Lindsaea_microphylla
CpLg_WCLG_Adiantum_aleuticum
CpLg_UJTT_Pityrogramma_trifoliata
CpLg_FLTD_Pteris_ensiformis
CpLg_POPJ_Pteris_vittata
CpLg_WQML_Cryptogramma_acrostichoides
CpLg_GSXD_Cheilanthes_eatonii
CpLg_XDDT_Argyrochosma_nivea
CpLg_YCKE_Notholaena_montieliae
CpLg_DCDT_Gaga_arizonica
CpLg_ZXJO_Parahemionitis_arifolia
CpLg_MTGC_Dennstaedtia_davallioides
CpLg_RFRB_Didymochlaena_truncatula
CpLg_WGTU_Leucostegia_immersa
CpLg_FQGQ_Polystichum_acrostichoides
CpLg_JBLI_Bolbitis_sp
CpLg NWWI Nephrolepis exaltata_1
CpLg NWWI Nephrolepis exaltata_2
CpLg_ZQYU_Phlebodium_sp
CpLg_UJWU_Pleopeltis_polypodioides
CpLg_IXLH_Polypodium_hesperium
CpLg_YLJA_Polypodium_amorphum
CpLg_CJNT_Polypodium_glycyrrhiza
CpLg_GYFU_Polypodium_hesperium
CpLg_HEGQ_Gymnocarpium_dryopteris
CpLg_XXHP_Cystopteris_sp
CpLg_YOWV_Cystopteris_protrusa
CpLg_HNDZ_Cystopteris_utahensis
CpLg_LHLE_Cystopteris_fragilis
CpLg_RICC_Cystopteris_reevesiana
CpLg URCP Athyrium filix-femina
CpLg_UFJN_Diplazium_wichurae
CpLg_HTFH_Onoclea_sensibilis
CpLg_VITX_Blechnum_spicant
CpLg OCZL Homalosorus pycnocarpus_1
CpLg FCHS Deparia lobato-crenata
CpLg_YJJY_Woodsia_scopulina
CpLg OCZL Homalosorus pycnocarpus_2
CpLg_MROH_Thelypteris_acuminata
CpLg_YQEC_Woodsia_ilvensis

0.6 substitutions per site

CpSh_KIIX_Pilularia_globulifera
CpSh CVEG Azolla cf caroliniana_1
CpSh CVEG Azolla cf caroliniana_2
CpSh GANB Alsophila spinulosa_1
CpSh_EWXK_Thyrsopteris_elegans
CpSh GANB Alsophila spinulosa_2
CpSh PNZO Culcita macrocarpa_1
CpSh UWOD Plagiogyria japonica_1
CpSh PNZO Culcita macrocarpa_2
CpSh UWOD Plagiogyria japonica_2
CpSh NOKI Lindsaea linearis_1
CpSh YIXP Lindsaea microphylla_1
CpSh NOKI Lindsaea linearis_2
CpSh YIXP Lindsaea microphylla_2
CpSh_SRS072938_Pteridium_aquilinum
CpSh_MTGC_Dennstaedtia_davallioides
CpSh_FLTD_Pteris_ensiformis
CpSh_POPJ_Pteris_vittata
CpSh UJTT Pityrogramma trifoliata_1
CpSh UJTT Pityrogramma trifoliata_2
CpSh_WQML_Cryptogramma_acrostichoides
CpSh BMJR Adiantum raddianum_1
CpSh_WCLG_Adiantum_aleuticum
CpSh BMJR Adiantum raddianum_2
CpSh_SKYV_Vittaria_linearis
CpSh_GSXD_Cheilanthes_eatonii
CpSh_XDDT_Argyrochosma_nivea
CpSh_YCKE_Notholaena_montieliae
CpSh_DCDT_Gaga_arizonica
CpSh ZXJO Parahemionitis arifolia_1
CpSh ZXJO Parahemionitis arifolia_2
CpSh_RFRB_Didymochlaena_truncatula
CpSh_FQGQ_Polystichum_acrostichoides
CpSh_JBLI_Bolbitis_sp
CpSh_NWWI_Nephrolepis_exaltata
CpSh_WGTU_Leucostegia_immersa
CpSh_UJWU_Pleopeltis_polypodioides
CpSh_ZQYU_Phlebodium_sp
CpSh_CJNT_Polypodium_glycyrrhiza
CpSh_IXLH_Polypodium_hesperium
CpSh_GYFU_Polypodium_hesperium
CpSh_YLJA_Polypodium_amorphum
CpSh_HEGQ_Gymnocarpium_dryopteris
CpSh_HNDZ_Cystopteris_utahensis
CpSh_LHLE_Cystopteris_fragilis
CpSh_RICC_Cystopteris_reevesiana
CpSh_XXHP_Cystopteris_sp
CpSh_YOWV_Cystopteris_protrusa
CpSh_YJJY_Woodsia_scopulina
CpSh YQEC Woodsia_ilvensis
CpSh_OCZL_Homalosorus_pycnocarpos
CpSh_HTFH_Onoclea_sensibilis
CpSh URCP Athyrium filix-femina
CpSh_VITX_Blechnum_spicant
CpSh_MROH_Thelypteris_acuminata
CpSh FCHS Deparia lobato-crenata
CpSh_UFJN_Diplazium_wichurae
CpSh PSKY Asplenium nidus_2
CpSh_KJZG_Asplenium_platyneuron
CpSh PSKY Asplenium nidus_1

Figure S4b: GAP all-in maximum likelihood transcriptome phylogeny: gapCp (including Cp Short and Cp Long), and a cartoon map of the GAP family phylogeny.