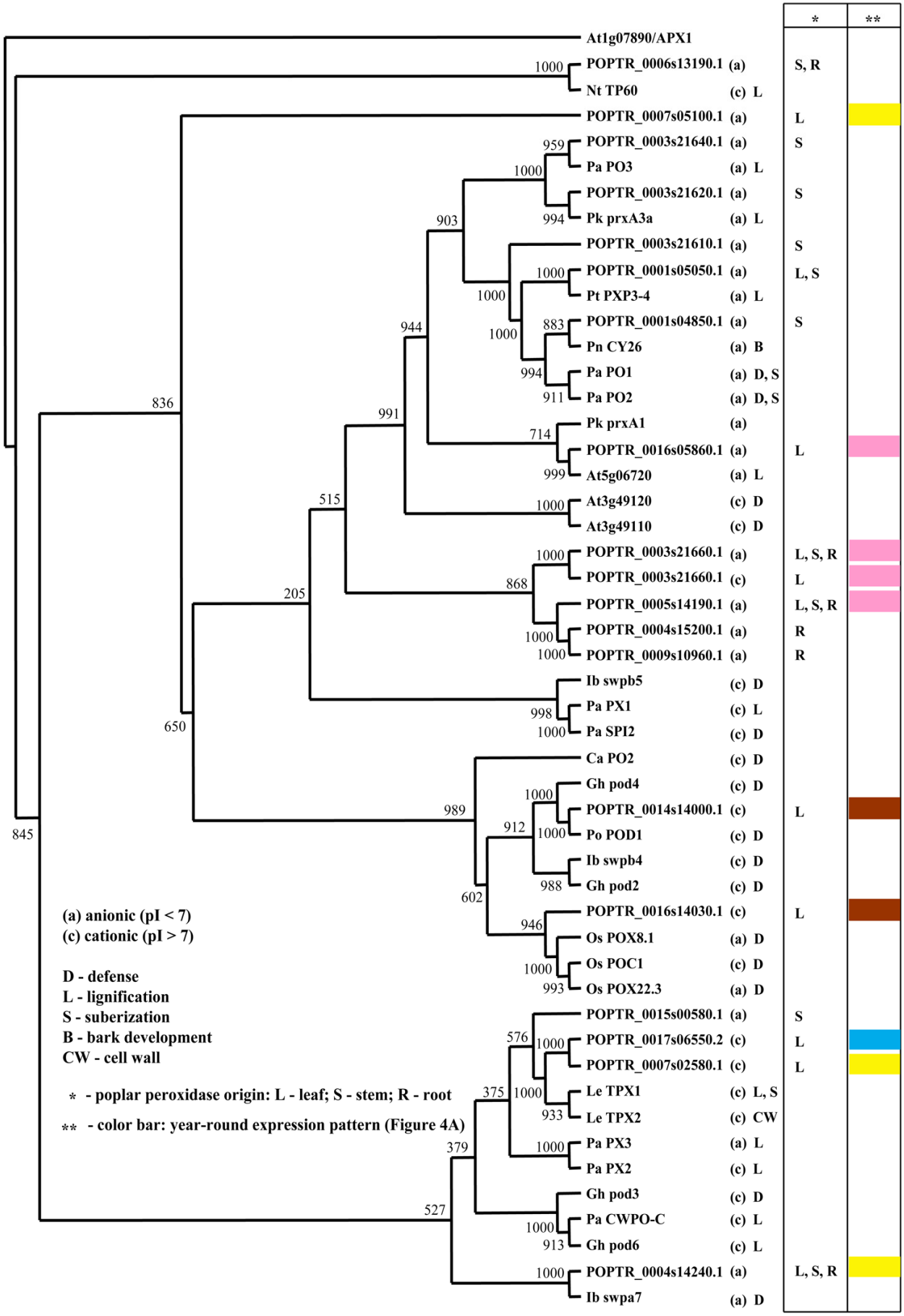
Additional file 13

File format: PDF

Title: Supplementary Figure S6

Description:
Figure S6. Phylogenetic analysis of peroxidases from various plant species, including the poplar apoplast peroxidases. Protein sequences of 18 poplar apoplastic POXs and 30 deduced amino acid sequences for the following POXs from other species were used for phylogenetic analysis: *Arabidopsis* At5g06720 (*A. thaliana* AtPA2; Q42578), *Arabidopsis* At3g49120 (*A. thaliana* AtPCb; Q9SMU8), *Arabidopsis* At3g49110 (*A. thaliana* AtPCa; P24101), tobacco TP60 (*Nicotiana tabacum*; Q9XFL2), tomato TPX1 (*Lycopersicon esculentum*; Q07446), tomato TPX2 (*L. esculentum*; Q07445), cotton pod2 (*Gossypium hirsutum*; Q8RVW0), cotton pod3 (*G. hirsutum*; Q8RVP7), cotton pod4 (*G. hirsutum*; Q9XGV6), cotton pod6 (*G. hirsutum*; Q8RVP4), rice POX8.1 (*Oryza sativa*; O22439), rice POX22.3 (*O. sativa*; O22438), rice POC1 (*O. sativa*; Q9LKY9), Norway spruce SPI2 (*Picea abies*; Q9SC55), Norway spruce PX1 (*P. abies*; Q5W5I3), Norway spruce PX2 (*P. abies*; Q5W5I4), Norway spruce PX3 (*P. abies*; Q5W5I2), sweet potato swpa4 (*Ipomoea batatas*; B3SHI1), sweet potato swpb5 (*I. batatas*; B3SHI2), sweet potato swpb7 (*I. batatas*; B3SHI0), bell pepper PO2 (*Capsicum annuum*; A4ZCI6), poplar POD1 (*Populus alba x Populus tremula* var. *glandulosa*; Q58GF4), lombardy poplar CY26 (*P. nigra*; Q40949), western balsam poplar PXP3-4 (*P. trichocarpa*; Q43101), white poplar CWPO-C (*P. alba*; Q4ADU9), white poplar PO1 (*P. alba*: Q50KB0), white poplar PO2 (*P. alba*; Q08IT5), white poplar PO3 (*P. alba*; Q08IT6), aspen prxA1 (*P. kitakamiensis*; Q43055), aspen prxA3a (*P. kitakamiensis*; Q43049). *A. thaliana* L-ascorbate peroxidase 1, cytosolic (At1g07890/APX1; Q05431) was used to root the tree.


*
**
At1g07890/APX1
POPTR_0006s13190.1 (a) S, R
Nt TP60 (c) L
POPTR_0007s05100.1 (a) L
POPTR_0003s21640.1 (a) S
Pa PO3 (a) L
POPTR_0003s21620.1 (a) S
Pk prxA3a (a) L
POPTR_0003s21610.1 (a) S
POPTR_0001s05050.1 (a) L, S
Pt PXP3-4 (a) L
POPTR_0001s04850.1 (a) S
Pn CY26 (a) B
Pa PO1 (a) D, S
Pa PO2 (a) D, S
Pk prxA1 (a)
POPTR_0016s05860.1 (a) L
At5g06720 (a) L
At3g49120 (c) D
At3g49110 (c) D
POPTR_0003s21660.1 (a) L, S, R
POPTR_0003s21660.1 (c) L
POPTR_0005s14190.1 (a) L, S, R
POPTR_0004s15200.1 (a) R
POPTR_0009s10960.1 (a) R
Ib swpb5 (c) D
Pa PX1 (c) L
Pa SPI2 (c) D
Ca PO2 (c) D
Gh pod4 (c) D
POPTR_0014s14000.1 (c) L
Po POD1 (c) D
Ib swpb4 (c) D
Gh pod2 (c) D
POPTR_0016s14030.1 (c) L
Os POX8.1 (a) D
Os POC1 (c) D
Os POX22.3 (a) D
POPTR_0015s00580.1 (a) S
POPTR_0017s06550.2 (c) L
POPTR_0007s02580.1 (c) L
Le TPX1 (c) L, S
Le TPX2 (c) CW
Pa PX3 (a) L
Pa PX2 (c) L
Gh pod3 (c) D
Pa CWPO-C (c) L
Gh pod6 (c) L
POPTR_0004s14240.1 (a) L, S, R
Ib swpa7 (a) D
1000
959
1000
994
903
1000
1000
883
994
911
944
836
991
714
999
515
1000
1000
868
205
1000
1000
650
998
1000
989
845
1000
912
1000
988
602
946
1000
993
576
1000
375
1000
933
379
1000
527
1000
913
1000
(a) anionic (pI < 7)
(c) cationic (pI > 7)
D - defense
L - lignification
S - suberization
B - bark development
CW - cell wall
* - poplar peroxidase origin: L - leaf; S - stem; R - root
** - color bar: year-round expression pattern (Figure 4A)