PAL1.(At2g37040): global tree
File name: PAL1.njtree1.svg
418 aa residues 136 OTU included.
Results of 1partial trees included. Ppa PAL1_2_1,Ppa PAL1_3_1,Ppa PAL1_8_1.
Assemble Job Id: 0Bw4zQ, SelectN assemble Job Id: tPQBx6(200)
Tree job id: 537sRB
BP values out of 100
Analyzed by ku-bo@nibb.ac.jp
Date: Tue Oct 03 11:58:47 JST 2006

BAD94354.1¦ phenylalanine ammonia lyase [Arabidopsis thaliana] (identical to At2g37040)
CAA44609.1¦ phenylalanine ammonia-lyase [Arabidopsis thaliana] (identical to At2g37040)
AAC18870.1¦phenylalanine ammonia-lyase [Arabidopsis thaliana] (identical to At2g37040)
AAC18871.1¦phenylalanine ammonia-lyase [Arabidopsis thaliana] (identical to At3g53260)
AAD45384.1¦ phenylalanine ammonia-lyase [Vigna unguiculata]
P31426¦PAL2 SOLTU Phenylalanine ammonia-lyase 2
CAA89007.1¦ phenylalanine ammonia-lyase [Hordeum vulgare subsp. vulgare]
CAC81822.1¦ phenylalanine ammonia-lyase [Beta vulgaris]
AAG22550.1¦ phenylalanine ammonia-lyase 2 [Rubus idaeus]
AAG22549.1¦ phenylalanine ammonia-lyase 1 [Rubus idaeus]
CAA53581.1¦ phenylalanine ammonium lyase [Vitis vinifera]
JQ1070 phenylalanine ammonia-lyase (EC 4.3.1.5) - soybean (fragment)
AAD47085.1¦ phenylalanine ammonia lyase [Eucalyptus globulus]
AAL84767.1¦ phenylalanine ammonia lyase 1 [Cucumis sativus]
AAF17247.1¦ phenylalanine ammonia lyase [Prunus persica]
BAC10907.1¦ phenylalanine ammonia-lyase 1 [Zinnia elegans]
AAK60273.1¦ phenylalanine ammonia-lyase 3 [Manihot esculenta]
AAZ79663.1¦ putative phenylalanine ammonia-lyase [Fagus sylvatica]
CAA68064.1¦ phenylalanine ammonia-lyase [Triticum aestivum]
AAX18624.1¦ phenylalanine ammonia-lyase [Juglans regia]
AAX18626.1¦ phenylalanine ammonia-lyase [Pittosporum tobira]
CAA89005.1¦ phenylalanine ammonia-lyase [Hordeum vulgare subsp. vulgare]
CAA89006.1¦ phenylalanine ammonia-lyase [Hordeum vulgare subsp. vulgare]
A24727 phenylalanine ammonia-lyase (EC 4.3.1.5) - kidney bean (fragment)
P07218¦PAL1 PHAVU Phenylalanine ammonia-lyase class I
AAC33966.1¦ phenylalanine ammonia-lyase [Capsicum chinense]
AAY82485.1¦ phenylalanine ammonia-lyase [Ulmus americana]
AAM28276.1¦ phenylalanine ammonia-lyase [Ananas comosus]
AAX18752.1¦ phenylalanine ammonia-lyase [Styphnolobium japonicum]
AAX18625.1¦ phenylalanine ammonia-lyase [Nerium oleander]
AAT65681.1¦ phenylalanine ammonia-lyase [Ginkgo biloba]
BAA31258.1¦ phenylalanine ammonia-lyase [Vitis vinifera]
AAL14120.1¦ phenylalanine ammonia-lyase [Brassica rapa subsp. pekinensis]
CAB97358.1¦ phenylalanine ammonia-lyase [Juglans nigra]
AAU85591.1¦ phenylalanine ammonia-lyase [Olea europaea]
CAA48231.1¦ phenylalanine ammonia-lyase [Malus sp.]
AAY82899.1¦ phenylalanine ammonia lyase [Citrus sinensis]
AAX96880.1¦ putative phenylalanine ammonia lyase [Linum usitatissimum]
CAB93138.1¦ phenylalanine ammonia-lyase [Betula pendula]
CAB93139.1¦ phenylalanine ammonia-lyase [Betula pendula]
AAF27654.1¦ phenylalanine ammonia lyase [Coffea arabica]
AAO73468.1¦ phenylalanine ammonia-lyase [Ginkgo biloba]
AAW51924.1¦ phenylalanine ammonia-lyase [Rhizophora mangle]
CAG27616.1¦ putative phenylalanine ammonia-lyase [Populus euramericana]
AAY34565.1¦ phenylalanine ammonia-lyase [Populus trichocarpa]
AAQ09563.1¦ phenylalanine ammonia lyase 1 [Cucumis sativus]

were removed from this tree.

AT2G37040 = NP_181241 P35510 AAK76593 AAL85094 AAM15324 AAO29949 AAP59438 PAL1; phenylalanine ammonia-lyase/PAL1_ARATH Phenylalanine ammonia-lyase 1/putative phenylalanine ammonia lyase PAL1 /putative phenylalanine ammonia lyase PAL1 /phenylalanine
~~AAC18870 *Arabidopsis thaliana* phenylalanine ammonia lyase~~
~~AAC18871 *Arabidopsis thaliana* phenylalanine ammonia lyase~~
AT3G53260 = NP_190894 P45724 CAB64229 AAK32895 AAM12956 AAM91425 AAN15354 AAP59439 PAL2; phenylalanine ammonia-lyase/PAL2_ARATH Phenylalanine ammonia-lyase 2/phenylalanine ammonia-lyase /AT3g53260/T4D2_190 /phenylalanine ammonia-lyase /AT3g53260/T4D
AAX22053 *Brassica napus* AAX22054 phenylalanine ammonia-lyase/phenylalanine ammonia-lyase
AAX22055 *Brassica napus* AAX22056 phenylalanine ammonia-lyase/phenylalanine ammonia-lyase
AAK60275 *Manihot esculenta* phenylalanine ammonia-lyase 2
BAA21643 *Populus kitakamiensis* phenylalanine ammonia-lyase
AAN52279 *Populus tremuloides* phenylalanine ammonia-lyase
JQ2265 *Populus trichocarpa* x *Populus deltoides* P45730 *Populus trichocarpa* AAA33805 *Populus trichocarpa* x *Populus deltoides* JQ2265 phenylalanine ammonia-lyase (EC 4.3.1.5) - western balsam poplar x cottonwood/PALY_POPTR Phenylalanine ammonia-ly
O49836 *Lithospermum erythrorhizon* BAA24929 PAL2_LITER Phenylalanine ammonia-lyase 2 (PAL-2)/phenylalanine ammonia-lyase
O49835 *Lithospermum erythrorhizon* BAA24928 PAL1_LITER Phenylalanine ammonia-lyase 1 (PAL-1)/phenylalanine ammonia-lyase
BAB19128 *Dianthus caryophyllus* phenylalanine ammonia-lyase
AAR19393 *Stellaria longipes* phenylalanine ammonia-lyase
CAH17686 *Beta vulgaris* phenylalanine ammonia lyase
AAV98199 *Petunia* x *hybrida* phenylalanine ammonialyase 1
O04058 *Helianthus annuus* CAA73065 PALY_HELAN Phenylalanine ammonia-lyase/phenylalanine ammonia lyase
AAO13347 *Lactuca sativa* phenylalanine ammonia-lyase2; PAL
AAL55242 *Lactuca sativa* phenylalanine ammonia-lyase
Q42667 *Citrus limon* AAB67733 PALY_CITLI Phenylalanine ammonia-lyase/phenylalanine ammonia-lyase
P35513 *Nicotiana tabacum* BAA22947 BAA22963 PAL2_TOBAC Phenylalanine ammonia-lyase/phenylalanine ammonia-lyase /phenylalanine ammonia-lyase
P45733 *Nicotiana tabacum* CAA55075 PAL3_TOBAC Phenylalanine ammonia-lyase/phenylalanine ammonia-lyase
Q42858 *Ipomoea batatas* BAA11459 PAL2_IPOBA Phenylalanine ammonia-lyase/Phenylalanine Ammonia-Lyase
P14166 *Ipomoea batatas* AAA33389 PAL1_IPOBA Phenylalanine ammonia-lyase/phenylalanine ammonia-lyase
AAG49585 *Ipomoea nil* phenylalanine ammonia-lyase
P35511 *Lycopersicon esculentum* AAA34179 PAL1_LYCES Phenylalanine ammonia-lyase (PAL)/phenylalanine ammonia lyase
P31425 *Solanum tuberosum* PAL1_SOLTU Phenylalanine ammonia-lyase 1
A44133 *Lycopersicon esculentum* A44133 phenylalanine ammonia-lyase (EC 4.3.1.5) - tomato
P26600 *Lycopersicon esculentum* AAA34176 PAL5_LYCES Phenylalanine ammonia-lyase (PAL)/phenylalanine ammonia-lyase
P25872 *Nicotiana tabacum* AAA34122 BAA22948 PAL1_TOBAC Phenylalanine ammonia-lyase/phenylalanine ammonia lyase /phenylalanine ammonia-lyase
BAA95629 *Catharanthus roseus* phenylalanine ammonia lyase
Q9SMK9 *Cicer arietinum* CAB60719 PAL2_CICAR Phenylalanine ammonia-lyase 2/phenylalanine ammonia-lyase
AAR31107 *Quercus suber* phenylalanine ammonia-lyase
Q40910 *Populus kitakamiensis* BAA07861 PAL4_POPKI Phenylalanine ammonia-lyase G4/phenylalanine ammonia-lyase
S60043 *Populus sieboldii* x *Populus grandidentata* S60043 phenylalanine ammonia-lyase (EC 4.3.1.5) 4 - Japanese aspen x large-toothed aspen (fragment)
AAN52280 *Populus tremuloides* phenylalanine ammonia-lyase
P45731 *Populus kitakamiensis* BAA06337 PAL1_POPKI Phenylalanine ammonia-lyase G1/phenylalanine ammonia-lyase
Q43052 *Populus kitakamiensis* S60042 *Populus sieboldii* x *Populus grandidentata* BAA07860 *Populus kitakamiensis* PAL2_POPKI Phenylalanine ammonia-lyase G2B/S60042 phenylalanine ammonia-lyase (EC 4.3.1.5) 2b - Japanese aspen x large-toothed aspen /ph
AAQ74878 *Populus trichocarpa* x *Populus deltoides* phenylalanine ammonia lyase
AAK60274 *Manihot esculenta* AAK62030 phenylalanine ammonia-lyase 1/phenylalanine ammonia-lyase 1
AAY82486 *Ulmus pumila* phenylalanine ammonia-lyase
CAA53733 *Cucumis melo* phenylanaline ammonia-lyase
P45727 *Persea americana* AAA51873 PALY_PERAE Phenylalanine ammonia-lyase/phenylalanine ammonia lyase
CAB42794 *Citrus clementina* x *Citrus reticulata* phenylalanine-ammonia lyase
CAB42793 *Citrus clementina* x *Citrus reticulata* phenylalanine-ammonia lyase
AAN32866 *Coffea canephora* AAN32867 AAZ04477 phenylalanine ammonia-lyase 1/phenylalanine ammonia-lyase 2 /phenylalanine ammonia-lyase
1807329B *Phaseolus vulgaris* P19143 1807329B Phe ammonia lyase/PAL3_PHAVU Phenylalanine ammonia-lyase class III
P45732 *Stylosanthes humilis* AAA99500 PALY_STYHU Phenylalanine ammonia-lyase/phenylalanine ammonia lyase
P19142 *Phaseolus vulgaris* 1807329A PAL2_PHAVU Phenylalanine ammonia-lyase class II/1807329A Phe ammonia lyase
AAX84839 *Astragalus membranaceus var. mongholicus* phenylalanine ammonia-lyase
BAE71252 *Trifolium pratense* putative phenylalanine ammonia lyase
Q04593 *Pisum sativum* BAA00887 PAL2_PEA Phenylalanine ammonia-lyase 2/phenylalanine ammonia-lyase
Q01861 *Pisum sativum* 2001451A BAA00885 BAA00886 PAL1_PEA Phenylalanine ammonia-lyase 1/2001451A Phe ammonia lyase/phenylalanine ammonia-lyase /phenylalanine ammonia-lyase
P27990 *Medicago sativa* CAA41169 PALY_MEDSA Phenylalanine ammonia-lyase/phenylalanine ammonia-lyase
2006271A *Trifolium subterraneum* 2006271A Phe ammonia lyase
P45734 *Trifolium subterraneum* AAA17993 PALY_TRISU Phenylalanine ammonia-lyase/phenylalanine ammonia-lyase
P27991 *Glycine max* CAA37129 PAL1_SOYBN Phenylalanine ammonia-lyase 1/phenylalanine ammonia-lyase
AAU08174 *Camellia sinensis* phenylalanine ammonia-lyase
P45726 *Camellia sinensis* BAA05643 PALY_CAMSI Phenylalanine ammonia-lyase/phenylalanine ammonia-lyase
AAF40224 *Rubus idaeus* phenylalanine ammonia-lyase 2
O64963 *Prunus avium* AAC78457 PAL1_PRUAV Phenylalanine ammonia-lyase 1/phenylalanine ammonia-lyase; PAL1
Q9M568 *Rubus idaeus* AAF40223 PAL1_RUBID Phenylalanine ammonia-lyase 1 (RiPAL1)/phenylalanine ammonia-lyase 1
AT5G04230 = NP_196043 P45725 S52992 AAA69905 CAC05505 AAS18574 PAL3 (PHENYL ALANINE AMMONIA-LYASE 3); phenylalanine ammonia-lyase/PAL3_ARATH Phenylalanine ammonia-lyase 3/S52992 phenylalanine ammonia-lyase (EC 4.3.1.5) 3 - Arabidopsis thaliana /PAL3
AT3G10340 = NP_187645 Q9SS45 AAF02809 AAM20508 AAN15571 AAP59440 ammonia ligase/ammonia-lyase /PAL4_ARATH Phenylalanine ammonia-lyase 4/putative phenylalanine ammonia-lyase /putative phenylalanine ammonia-lyase /putative phenylalanine ammonia-lyase
AAW78932 *Rhodiola sachalinensis* phenylalanine-ammonia lyase
AAK15640 *Agastache rugosa* phenylalanine ammonia-lyase
AAK84225 *Rehmannia glutinosa* phenylalanine ammonia-lyase
O23924 *Digitalis lanata* CAA05251 PALY_DIGLA Phenylalanine ammonia-lyase/phenylalanine ammonia lyase
O23865 *Daucus carota* BAA23367 PAL1_DAUCA Phenylalanine ammonia-lyase 1/phenylalanine ammonia-lyase
P45728 *Petroselinum crispum* CAA57056 PAL2_PETCR Phenylalanine ammonia-lyase 2/phenylalanine ammonia-lyase 2
1W27 *Petroselinum crispum* P24481 1W27 CAA34715 CAA68938 B Chain B, Phenylalanine Ammonia-Lyase (Pal) From Petroselinum Crispum/PAL1_PETCR Phenylalanine ammonia-lyase 1/A Chain A, Phenylalanine Ammonia-Lyase (Pal) From Petroselinum Crispum/unnamed prot
P45729 *Petroselinum crispum* CAA57057 PAL3_PETCR Phenylalanine ammonia-lyase 3/phenylalanine ammonia-lyase 3
BAC56977 *Daucus carota* phenylalanine ammonia-lyase
AAS48415 *Allium cepa* phenylalanine lyase
AAP34199 *Phalaenopsis* x *Doritaenopsis hybrid cultivar* phenylalanine ammonia-lyase
Q42609 *Bromheadia finlaysoniana* CAA68256 PALY_BROFI Phenylalanine ammonia-lyase/phenylalanine ammonia-lyase
XP_473192 *Oryza sativa* (japonica cultivar-group) AAO72666 CAE05619 CAE05454 OSJNBa0073E02.14/phenylalanine ammonia-lyase /OSJNBb0061C13.1 /OSJNBa0073E02.14
AAL40137 *Zea mays* phenylalanine ammonia-lyase
S06475 *Oryza sativa* P14717 CAA34226 *Oryza sativa* (japonica cultivar-group) S06475 phenylalanine ammonia-lyase (EC 4.3.1.5) - rice/PAL1_ORYSA Phenylalanine ammonia-lyase/phenylalanine ammonia-lyase
AAX97448 *Bambusa ventricosa* putative phenylalanine ammonia-lyase
XP_466843 *Oryza sativa* (japonica cultivar-group) BAD23794 BAD23149 putative phenylalanine ammonia-lyase/putative phenylalanine ammonia-lyase /putative phenylalanine ammonia-lyase
AAX95429 *Oryza sativa* (japonica cultivar-group) ABA95540 phenylalanine ammonia-lyase/phenylalanine ammonia-lyase
ABA98757 *Oryza sativa* (japonica cultivar-group) phenylalanine ammonia-lyase
AAG02280 *Triticum aestivum* inducible phenylalanine ammonia-lyase
XP_466845 *Oryza sativa* (japonica cultivar-group) BAD23151 putative phenylalanine ammonia-lyase/putative phenylalanine ammonia-lyase
XP_466846 *Oryza sativa* (japonica cultivar-group) BAD23152 putative phenylalanine ammonia-lyase/putative phenylalanine ammonia-lyase
P53443 *Oryza sativa* CAA61198 *Oryza sativa* (indica cultivar-group) PAL2_ORYSA Phenylalanine ammonia-lyase/phenylalanine ammonia-lyase
XP_466849 *Oryza sativa* (japonica cultivar-group) BAD23155 putative phenylalanine ammonia-lyase/putative phenylalanine ammonia-lyase
XP_475254 *Oryza sativa* (japonica cultivar-group) AAS90660 AAV25018 putative phenylalanine ammonia-lyase (EC 4.3.1.5)/putative phenylalanine ammonia-lyase (EC 4.3.1.5) /putative phenylalanine ammonia-lyase
AAR24505 *Dendrocalamopsis oldhamii* phenylalanine ammonia-lyase
Q43210 *Triticum aestivum* CAA68036 PALY_WHEAT Phenylalanine ammonia-lyase/phenylalanine ammonia-lyase
XP_473196 *Oryza sativa* (japonica cultivar-group) CAE05623 CAE05458 OSJNBa0073E02.18/OSJNBb0061C13.5 /OSJNBa0073E02.18
AAW80644 *Pteridium aquilinum* phenylalanine ammonia lyase
AAW80637 *Isoetes lacustris* phenylalanine ammonia lyase
AAP85250 *Pinus pinaster* phenylalanine ammonia-lyase
AAP85251 *Pinus pinaster* phenylalanine ammonia-lyase
AAT66434 *Pinus pinaster* phenylalanine ammonia lyase
AAL74331 *Pinus sylvestris* phenylalanine ammonia-lyase
AAL74327 *Pinus sylvestris* phenylalanine ammonia-lyase
AAL74317 *Pinus sylvestris* AAL74318 AAL74319 AAL74320 AAL74321 AAL74322 AAL74323 AAL74324 AAL74325 AAL74326 AAL74328 AAL74329 AAL74330 AAL74332 AAL74333 AAL74334 AAL74335 AAL74336 phenylalanine ammonia-lyase/phenylalanine ammonia-lyase /phenylalanine
P52777 *Pinus taeda* AAA84889 PALY_PINTA Phenylalanine ammonia-lyase/phenylalanine ammonia-lyase
AAW80635 *Huperzia lucidula* phenylalanine ammonia lyase
AAW80636 *Lycopodium tristachyum* phenylalanine ammonia lyase
AAW80638 *Selaginella kraussiana* phenylalanine ammonia lyase
Smo_PAL1_9_1
Smo_PAL1_11_1
Smo_PAL1_12_1
Ppa_PAL1_14_1
Ppa_PAL1_9_1
Ppa_PAL1_11_1
Ppa_PAL1_13_1 →Ppa_PAL1_2_1
Ppa_PAL1_10_1 ~~→Ppa_PAL1_3_1~~ putative pseudo gene having stop codons in conserved region
Ppa_PAL1_7_1 →Ppa_PAL1_8_1
Ppa_PAL1_5_1
Ppa_PAL1_1_1
Ppa_PAL1_6_1
AAW80643 *Blechnum spicant* phenylalanine ammonia lyase
AAW80639 *Equisetum arvense* phenylalanine ammonia lyase
AAW80645 *Pellia epiphylla* phenylalanine ammonia lyase
AAW80642 *Ophioglossum reticulatum* phenylalanine ammonia lyase
AAW80641 *Botrychium virginianum* phenylalanine ammonia lyase
AAW80640 *Psilotum nudum* phenylalanine ammonia lyase
Smo_PAL1_5_1
AAT47186 *Taxus canadensis* phenylalanine aminomutase
AAX20146 *Taxus* x *media* phenylalanine aminomutase
AAU01184 *Taxus* x *media* phenylalanine aminomutase
AAU01185 *Taxus canadensis* phenylalanine aminomutase
AAU01182 *Taxus wallichiana var. chinensis* AAU01183 phenylalanine aminomutase/phenylalanine aminomutase
BAE60014 *Aspergillus oryzae* unnamed protein product
XP_663679 *Aspergillus nidulans FGSC A4* EAA58050 hypothetical protein AN6075.2/hypothetical protein AN6075.2
BAE65233 *Aspergillus oryzae* unnamed protein product
XP_755245 *Aspergillus fumigatus Af293* EAL93207 phenylalanine ammonia-lyase/phenylalanine ammonia-lyase
XP_958734 *Neurospora crassa N150* XP_332083 *Neurospora crassa* EAA29498 hypothetical protein/hypothetical protein /hypothetical protein
BAE55583 *Aspergillus oryzae* unnamed protein product
1Y2M *Rhodosporidium toruloides* 1Y2M P11544 1Y2M 1Y2M 1314202A CAA35886 AAA33883 CAA31209 A Chain A, Crystal Structure Of Phenylalanine Ammonia-Lyase From Yeast Rhododporidium Toruloides/B Chain B, Crystal Structure Of Phenylalanine Ammonia-Lyase From
P10248 *Rhodotorula mucilaginosa* CAA31486 PALY_RHORB Phenylalanine ammonia-lyase/phenylalanine ammonia-lyase

0.100