Neighbor joining tree of CYP540 Clan
EDP51746.1 Aspergillus fumigatus A1193
gi|159126630|gb|EDP51746.1| cytochrome P450 monooxygenase putative Aspergillus fumigatus A1163
Afu5g10050 Aspergillus fumigatus Af293
gi|70997810|ref|XP 753637.1| cytochrome P450 monooxygenase Aspergillus fumigatus Af293
NFIA 077230 Neosartorya fischeri
gi|119479317|ref|XP 001259687.1| cytochrome P450 monooxygenase putative Neosartorya fischeri NRRL 181
ACLA 013210 Aspergillus clavatus NRRL 1
gi|121713402|ref|XP 001274312.1| cytochrome P450 monooxygenase putative Aspergillus clavatus NRRL 1
ANID 10479 Aspergillus nidulans FGSC A4
TSTA 058630 Talaromyces stipitatus
ATEG 10264.1 Aspergillus terreus
fgenesh1 pg.C scaffold 3000327 Aspergillus niger ATCC 1015
estExt Genewise1Plus.C 80644 Aspergillus carbonarius
An08g09470 Aspergillus niger CBS 513.88
e gw1.32.18.1 Trichoderma virens Gv29-8
gi|358383631|gb|EHK21295.1| hypothetical protein TRIVIDRAFT 52077 Trichoderma virens Gv29-8
AFL2G 06859 Aspergillus flavus
AO090026000406 Aspergillus oryzae
CAP95424.1 Penicillium chrysogenum
gi|255953641|ref|XP 002567573.1| Pc21g05270 Penicillium chrysogenum Wisconsin 54-1255
CAP79469.1 Penicillium chrysogenum
fgenesh1 pm.C scaffold 18000118 Trichoderma virens Gv29-8
134328 Trichoderma atroviride
gi|358392810|gb|EHK42214.1| cytochrome P450 Trichoderma atroviride IMI 206040
e gw1.28.215.1 Fusarium solani f. batatas
gi|302889551|ref|XP 003043661.1| hypothetical protein NECHADRAFT 54651 Nectria haematococca mpVI 77-13-4
CAP74194.1 Penicillium chrysogenum
EDP53226.1 Aspergillus fumigatus A1193
gi|159128111|gb|EDP53226.1| cytochrome P450 monooxygenase putative Aspergillus fumigatus A1163
Afu3g03980 Aspergillus fumigatus Af293
gi|70986448|ref|XP 748718.1| cytochrome P450 monooxygenase Aspergillus fumigatus Af293
NFIA 006270 Neosartorya fischeri
gi|119474569|ref|XP 001259160.1| Cytochrome P450 oxidoreductase putative Neosartorya fischeri NRRL 181
fgenesh1 pm.C scaffold 1000635 Aspergillus niger ATCC 1015
gi|350637674|gb|EHA26030.1| hypothetical protein ASPNIDRAFT 46874 Aspergillus niger ATCC 1015
gi|358376168|dbj|GAA92735.1| cytochrome P450 monooxygenase Aspergillus kawachii IFO 4308
An01g00240 Aspergillus niger CBS 513.88
fgenesh isotigs kg.9 * 27 * isotig14281 Aspergillus carbonarius
gi|83772475|dbj|BAE62604.1| unnamed protein product Aspergillus oryzae RIB40
AO090124000055 Aspergillus oryzae
gi|293329783|dbj|BAJ04401.1| cytochrome P450 monooxygenase Aspergillus oryzae
AFL2G 07990 Aspergillus flavus
gi|238499069|ref|XP 002380769.1| cytochrome P450 monooxygenase putative Aspergillus flavus NRRL3357
CHG02003.1 Chaetomium globosum CBS 148.51
EEA25768.1 Penicillium marneffei
FVEG 13789 Fusarium verticillioides
FOXG 16987 Fusarium oxysporum
FGSG 03548.3 Fusarium graminearum
gi|322694921|gb|EFY86739.1| monooxygenase Metarhizium acridum CQMa 102
e gw1.18.49.1 Trichoderma virens Gv29-8
fgenesh1 pm.C scaffold 3000029 Trichoderma virens Gv29-8
gi|145616420|ref|XP 367094.2| hypothetical protein MGG 10724 Magnaporthe oryzae 70-15
VDBG 03562 Verticillium albo-atrum VaMs. 102
gi|302415555|ref|XP 003005609.1| cytochrome P450 monooxygenase Verticillium albo-atrum VaMs.102
VDAG 10486 Verticillium dahliae VdLs. 17
gw1.14.504.1 Fusarium solani f. batatas
FGSG 02138.3 Fusarium graminearum
FGG02935.1 Fusarium graminearum
FOXG 04494 Fusarium oxysporum
FVEG 07621 Fusarium verticillioides
estExt Genewise1.C 22164 Cryphonectria parasitica
estExt fgenesh2 pm.C 50052 Mycosphaerella graminicola
gi|339473420|gb|EGP88514.1| putative P450 monooxygenase Mycosphaerella graminicola IPO323
BC1G 11928 Botrytis cinerea
BC1G 11928.1 Botrytis cinerea
SS1G 04539.1 Sclerotinia sclerotiorum
estExt Genewise1.C 90790 Cochliobolus heterostrophus
SNOG 16507 Stagonospora nodorum
PTRG 06796 Pyrenophora tritici-repentis
31375 Trichoderma atroviride
NCU08062T0 Neurospora crassa
scaffold 46-snap.15.1 Neurospora tetrasperma
estExt fgenesh3 pm.C 20016 Neurospora discreta
ANID 08919 Aspergillus nidulans FGSC A4
An01g09760 Aspergillus niger CBS 513.88
fgenesh1 pg.C scaffold 1000410 Aspergillus niger ATCC 1015
AO090001000631 Aspergillus oryzae
AFL2G 09274 Aspergillus flavus
ATEG 06722.1 Aspergillus terreus
ANID 09218 Aspergillus nidulans FGSC A4
MCYG 04543 Microsporum canis
e gw1.29.111.1 Cochliobolus heterostrophus
ACLA 003960 Aspergillus clavatus NRRL 1
Pa 5 2130 Podospora anserina
EfO2.103660.1 Epichloe festucae
MGG 09598.6 Magnaporthe oryzae 70-15
fgenesh25 Magnaporthe oryzae 70-15
Pezizomycotina
e gw1.15.208.1 Phycomyces blakesleeanus
e gw1.15.206.1 Phycomyces blakesleeanus
e gw1.3.316.1 Mucor circinelloides
e gw1.3.736.1 Phycomyces blakesleeanus
gw1.6.261.1 Mucor circinelloides
Mucoromycotina
gi|290982958|ref|XP 002674196.1| cytochrome p450 Naegleria gruberi
gi|374574192|ref|ZP 09647288.1| sulfite reductase alpha subunit (flavoprotein) Bradyrhizobium sp. WSM471
gi|381361498|dbj|BAL78328.1| probable P-450/NADPH-P450 reductase Bradyrhizobium sp. S23321
gi|354955456|dbj|BAL12135.1| hypothetical protein BJ6T 68860 Bradyrhizobium japonicum USDA 6
gi|27377993|ref|NP 769522.1| unnamed protein product Bradyrhizobium japonicum USDA 110
gi|365888923|ref|ZP 09427654.1| putative bifunctional P-450/NADPH-P450 reductase 1 (Includes: Cytochrome P450 102 NADPH--cytochrome P450 reductase) Bradyrhizobium sp. STM 3809
gi|89994019|gb|ABD83817.1| P450 hydroxylase uncultured soil bacterium
gi|338973784|ref|ZP 08629147.1| cytochrome P450 Bradyrhizobiaceae bacterium SG-6C
gi|86750755|ref|YP 487251.1| FAD-binding oxidoreductase Rhodopseudomonas palustris HaA2
gi|91976298|ref|YP 568957.1| cytochrome P450 Rhodopseudomonas palustris BisB5
gi|304393878|ref|ZP 07375803.1| bifunctional P-450:nadph-p450 reductase Ahrensia sp. R2A130
gi|298251885|ref|ZP 06975688.1| cytochrome P450 Ktedonobacter racemifer DSM 44963
gi|373479985|ref|ZP 09570797.1| cytochrome P450 Singulisphaera acidiphila DSM 18658
gi|258652797|ref|YP 003201953.1| cytochrome P450 Nakamurella multipartita DSM 44233
gi|325001341|ref|ZP 08122453.1| cytochrome P450 Pseudonocardia sp. P1
gi|325674920|ref|ZP 08154607.1| bifunctional P-450/NADPH-P450 reductase Rhodococcus equi ATCC 33707
gi|312138176|ref|YP 004005512.1| cytochrome p450 monooxygenase Rhodococcus equi 103S
gi|111021599|ref|YP 704571.1| cytochrome P450 Rhodococcus jostii RHA1
gi|226364134|ref|YP 002781916.1| cytochrome P450 Rhodococcus opacus B4
gi|159899041|ref|YP 001545288.1| unnamed protein product Herpetosiphon aurantiacus DSM 785
gi|271967682|ref|YP 003341878.1| unnamed protein product Streptosporangium roseum DSM 43021
gi|29827116|ref|NP 821750.1| cytochrome P450 Streptomyces avermitilis MA-4680
gi|116694954|ref|YP 729165.1| bifunctional P-450:NADPH-P450 reductase Ralstonia eutropha H16
gi|187926437|ref|YP 001892782.1| cytochrome P450 Ralstonia pickettii 12J
gi|309778759|ref|ZP 07673532.1| P-450/NADPH-P450 reductase Ralstonia sp. 5 7 47FAA
gi|229030891|ref|ZP 04186910.1| NADPH--cytochrome P450 reductase Bacillus cereus AH1271
gi|229164837|ref|ZP 04292660.1| NADPH--cytochrome P450 reductase Bacillus cereus R309803
gi|229145799|ref|ZP 04274179.1| NADPH--cytochrome P450 reductase Bacillus cereus BDRD-ST24
gi|296503728|ref|YP 003665428.1| NADPH-cytochrome P450 reductase Bacillus thuringiensis BMB171
gi|30021321|ref|NP 832952.1| NADPH-cytochrome P450 reductase Bacillus cereus ATCC 14579
gi|229128496|ref|ZP 04257475.1| NADPH--cytochrome P450 reductase Bacillus cereus BDRD-Cer4
gi|227121390|gb|ACP19384.1| NADPH-cytochrome reductase Bacillus cereus
gi|229151391|ref|ZP 04279594.1| NADPH--cytochrome P450 reductase Bacillus cereus m1550
gi|228953505|ref|ZP 04115550.1| NADPH--cytochrome P450 reductase Bacillus thuringiensis serovar kurstaki str. T03a001
gi|302340967|gb|ADL27534.1| bifunctional CYP450 monooxygenase CYP102A5 Bacillus cereus
gi|229070688|ref|ZP 04203924.1| NADPH--cytochrome P450 reductase Bacillus cereus F65185
gi|229179487|ref|ZP 04306840.1| NADPH--cytochrome P450 reductase Bacillus cereus 172560W
gi|206968895|ref|ZP 03229850.1| bifunctional P-450:NADPH-P450 reductase 1 Bacillus cereus AH1134
gi|228921957|ref|ZP 04085268.1| NADPH--cytochrome P450 reductase Bacillus thuringiensis serovar huazhongensis BGSC 4BD1
gi|229191291|ref|ZP 04318278.1| NADPH--cytochrome P450 reductase Bacillus cereus ATCC 10876
gi|218898288|ref|YP 002446699.1| cypD gene product Bacillus cereus G9842
gi|228901724|ref|ZP 04065896.1| NADPH--cytochrome P450 reductase Bacillus thuringiensis IBL 4222
gi|228969216|ref|ZP 04130104.1| NADPH--cytochrome P450 reductase Bacillus thuringiensis serovar sotto str. T04001
gi|229075197|ref|ZP 04208191.1| NADPH--cytochrome P450 reductase Bacillus cereus Rock4-18
gi|229097686|ref|ZP 04228643.1| NADPH--cytochrome P450 reductase Bacillus cereus Rock3-29
gi|229103752|ref|ZP 04234432.1| NADPH--cytochrome P450 reductase Bacillus cereus Rock3-28
gi|229173855|ref|ZP 04301394.1| NADPH--cytochrome P450 reductase Bacillus cereus MM3
gi|229018450|ref|ZP 04175312.1| NADPH--cytochrome P450 reductase Bacillus cereus AH1273
gi|229134043|ref|ZP 04262863.1| NADPH--cytochrome P450 reductase Bacillus cereus BDRD-ST196
gi|163940866|ref|YP 001645750.1| cytochrome P450 Bacillus weihenstephanensis KBAB4
gi|228908971|ref|ZP 04072801.1| NADPH--cytochrome P450 reductase Bacillus thuringiensis IBL 200
gi|42782294|ref|NP 979541.1| cypD gene product Bacillus cereus ATCC 10987
gi|52142321|ref|YP 084508.1| unnamed protein product Bacillus cereus E33L
gi|229139837|ref|ZP 04268403.1| NADPH--cytochrome P450 reductase Bacillus cereus BDRD-ST26
gi|206974726|ref|ZP 03235642.1| bifunctional P-450:NADPH-P450 reductase 1 Bacillus cereus H3081.97
gi|375285141|ref|YP 005105580.1| unnamed protein product Bacillus cereus NC7401
gi|222096694|ref|YP 002530751.1| cypD gene product Bacillus cereus Q1
gi|229197332|ref|ZP 04324061.1| NADPH--cytochrome P450 reductase Bacillus cereus m1293
gi|324327153|gb|ADY22413.1| bifunctional P-450:NADPH-P450 reductase 1 Bacillus thuringiensis serovar finitimus YBT-020
gi|319918436|emb|CBY93692.1| cytochrome P450 Bacillus sp. C3
gi|228915795|ref|ZP 04079372.1| NADPH--cytochrome P450 reductase Bacillus thuringiensis serovar pulsiensis BGSC 4CC1
gi|301054711|ref|YP 003792922.1| unnamed protein product Bacillus cereus biovar anthracis str. CI
gi|228986293|ref|ZP 04146431.1| NADPH--cytochrome P450 reductase Bacillus thuringiensis serovar tochigiensis BGSC 4Y1
gi|229156806|ref|ZP 04284893.1| NADPH--cytochrome P450 reductase Bacillus cereus ATCC 4342
gi|47564356|ref|ZP 00235401.1| NADPH-cytochrome P450 reductase Bacillus cereus G9241
gi|49480099|ref|YP 037304.1| unnamed protein product Bacillus thuringiensis serovar konkukian str. 97-27
gi|196038093|ref|ZP 03105403.1| bifunctional P-450:NADPH-P450 reductase 1 Bacillus cereus NVH0597-99
gi|196042948|ref|ZP 03110187.1| bifunctional P-450:NADPH-P450 reductase 1 Bacillus cereus 03BB108
gi|118478495|ref|YP 895646.1| unnamed protein product Bacillus thuringiensis str. AI Hakam
gi|376267060|ref|YP 005119772.1| unnamed protein product Bacillus cereus F837/76
gi|229185414|ref|ZP 04312597.1| NADPH--cytochrome P450 reductase Bacillus cereus BGSC 6E1
gi|225865142|ref|YP 002750520.1| bifunctional P-450:NADPH-P450 reductase 1 Bacillus cereus 03BB102
gi|228934463|ref|ZP 04097298.1| NADPH--cytochrome P450 reductase Bacillus thuringiensis serovar andalousiensis BGSC 4AW1
gi|228928256|ref|ZP 04091297.1| NADPH--cytochrome P450 reductase Bacillus thuringiensis serovar pondicheriensis BGSC 4BA1
gi|218904345|ref|YP 002452179.1| cypD gene product Bacillus cereus AH820
gi|229092178|ref|ZP 04223359.1| NADPH--cytochrome P450 reductase Bacillus cereus Rock3-42
gi|254723163|ref|ZP 05184951.1| bifunctional P-450:NADPH-P450 reductase 1 Bacillus anthracis str. A1055
gi|30263151|ref|NP 845528.1| cypD gene product Bacillus anthracis str. Ames
gi|196032063|ref|ZP 03099477.1| bifunctional P-450:NADPH-P450 reductase 1 Bacillus cereus W
gi|228946820|ref|ZP 04109122.1| NADPH--cytochrome P450 reductase Bacillus thuringiensis serovar monterrey BGSC 4AJ1
Bacteria
0.2