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      10      20      30      40      50      60      70
Ps TyrAT  ....|....| ....|....| ....|....| ....|....| ....|....| ....|....|
c1.10988  -----MEKGG KKWIIRGNDK LKVGTEITIR GLLEVMSNTL NVNDER-----ETIPLG HGDPSPPT--
c1.1232  -----MS KGLDHELTNE NVKNVQYAVR GELYLRASEL QKEGKK-----IIFTN VGNHALGQK
c1.1670  MANSIQSGSIS SSCNIPRSN RIGILDSEIP KSSVSFSQOL PNFSLKYLEK GRKGQSLRST ATVRAEMQVD
c1.8533  ----MLGLVK PSSNFRHGNE MLTLRTRALN IFTIPTTTTL NLSFRKSRFP SFMASAISTT SEETTKNVV
c1.615  -----MSFP NSVTIDSINP KVLQCEYAVR GAIVNQAQKL QEEIKENPGS HPFDEILYCN IENQSLGQQ
c1.5707  -----MGTYMKLA KRVLETESPV MVQIQE-----HFRS CKDAVSLAQG

      80      90      100      110      120      130      140
Ps TyrAT  ....|....| ....|....| ....|....| ....|....| ....|....| ....|....|
c1.10988  -----CFRTTHIVD DALNTAIOQA KFN-----SYPPPAQIP
c1.1232  -----CFRTTHIAE DAIVDSLRS KFN-----GYSPFVIGIL
c1.1670  PLSFPRQVVA LQAPFLDD PNVLGVFPAD AIAKAKHYLS -----LTSG-GL GAYSDSRCLP
c1.8533  ISLSPRVNSV KPSKTVVAITD QATALVQAGV PVIRLAAGEP DFDTPAVITE AGIKAIRREGH TRYSPNACTM
c1.615  QHPVQVAKRL EKFKTTITFTQ MSILAIKHGA INLGQGFNPF D--GPEFVKD AAIQAIKEKG NQVARGYGVF
c1.5707  PITFFREVLA LQDHPVILDK SETQGLFSAD SIERAWQILD -----QMPGRAT GAYSHSQGVK

      150      160      170      180      190      200      210
Ps TyrAT  ....|....| ....|....| ....|....| ....|....| ....|....| ....|....|
c1.10988  TARRSIAEHL SRDLPYKLST E-DVFLTSGC RDAIEIITTV LACPGGN-IT IKKPGYPHD ACAVFHNLEV
c1.1232  PARRSIADYL SRDLPYKLSP D-DVFLTIGC TDAIEIAMMV FACPGAN-IT LERPGFPYME ACAGFRNLEY
c1.1670  GIRKEVAEFI ERDGYPSDP E-LIFLTDCA SKGVMQMLNT MIRGEKDGIL VVVFQVPLYS AATALCQCSL
c1.8533  ELRTATCHKL QEENCLYTP D-QIVVSNCA KCTHAQALIA VCSFGDE-VI IPAPFVVSVP EMATLADAP
c1.615  DINSVAARF KKDSGLVVDP EKEVTITSGC TEATAATMLG LINPGDE-VI LFAPFVDSNE ATLSMACANI
c1.5707  ALREALTKKL QEENKLYKSS V---MVTAQA NQAFVNLVLA LCDAEDR-VV MFAPVYFNSY MSFQMTTITD

      220      230      240      250      260      270      280
Ps TyrAT  ....|....| ....|....| ....|....| ....|....| ....|....| ....|....|
c1.10988  RHFDLLPEKA WEVDLDAVEA LADEN-----TVVAIVINP GNPCGNVYTY EHLKKVAETA KRL-GIPVIA
c1.1232  RHFDLLPEKG WEVDLEAVEA LADEN-----TVGMVINP GNPCGSVYTY EHLKKIABTA KKL-GILVIS
c1.1670  VVYPYEEESAN WGLDVNNIRO SVAQARSNGI TVKAMVINP GNPTGQCLSI EDLQELLRFC SRE-KLVLLA
c1.8533  VIVPTIISDD FLLNPELTKA KITEK-----SRLLILCSP SNPTGSVYPR KLIEETAEIV AKHPRLLVIS
c1.615  KSITPRFP-N FSVPIDEFKS IISKN-----TRAILNTP HNPTCKMFSR ELETETASLC IEN-DVLVFS
c1.5707  ILVGPGRDKT LQPDADWLEK VLSTEP----VPKLVNIVNP GNPSCGYIPE PLLKRISDLK KKA-GSLWLV

      290      300      310      320      330      340      350
Ps TyrAT  ....|....| ....|....| ....|....| ....|....| ....|....| ....|....|
c1.10988  DEVYAHILFG SN-PFVFP---MGVFC- STVPIFTLGS ISK-RWIVPG IRLGLWLT- DFCFLDLDE
c1.1232  DEVYGHITFA SN-PFVFP---MGVFC- STVPIVLTGS ISK-RWIVPG WRLGLWLT- DFCFLDLDE
c1.1670  DEVYQONVYQ DERPFITSRK VLMDMCTPIS KDVQLVSFHT VSKGYWEGCG QNGGYFEMTN IPAESVDEIY
c1.8533  DEIVYEHIVYA PA-THTS---FASLPG MWERTLVNNG FSK-AFAMTG WRLGVIAGP- ----RHFI
c1.615  DEVYQKLAFE ED-HIS---IASLPG MYERTVMNS LGR-TFSVIG WKIGWAIAP- ----PHLW
c1.5707  DEVYQENVVY EDKSFHSFKK VARSNGYGE- KDISLVSFOS VSKGYHGECC KRGGYMEVTG FSPVEREQIY
c1.5707  DNTVEYFMYD GL-----KHTCI EGDHILNVFS FSK-AYGMMG WRVGYIAYP- ----TETKG

      360      370      380      390      400      410      420
Ps TyrAT  ....|....| ....|....| ....|....| ....|....| ....|....| ....|....|
c1.10988  IVSLIKQCLN MSTSPACVIO GILPQILENT KEDFFEN--- IHSLLCQAID ICYEETIKETA CITLLPRPEG
c1.1232  VYDSIISCLN ISGDPAFTIQ AAIPOIIEKA TDDFFSK--- VITILRKSAE ILYDOIKED CITCPHPEG
c1.1670  KVASISLSPN VPGQIFLGLM VNPPKPGDIS YQKGVQESKT ILESIRKRAH IMTNGFNSCR NVVCN-PTG
c1.8533  ACNKLQSQIT SGASSISQKG GVAALGMGYA GGETVAN--- MVKAFRRERD FTVKNFREL P GAKIS-VPEG
c1.615  GYRQAHSYIT FATSTPMQFA ATEALRTSET YYEEMKK--- --DYMHKKE ITVEGLKDVG FVVHP--SSG
c1.5707  KVASYNLCSN ISGQILASLV MNPPKVGDES FESYSAEKNG ILSSIAARRAK ATEADAFNLE GVTGN-KAEG
c1.5707  LAEQLLKVD NIPICAPIVS QRLALFSLET GSDWVRN--- QVKDVKVKNRE ILLDALSPLG VGAVK-GGEG

      430      440      450      460      470      480      490
Ps TyrAT  ....|....| ....|....| ....|....| ....|....| ....|....| ....|....|
c1.1232  SMFVMVKLNT -----VLL EDISDDMDFC FKLAKESVI VLPQAVLCLE N-----WLR I TFSIDLA-SL
c1.1670  AMYSFPQIRL PPKAIEVAKM AGKVPVYYIC LKLLLEATCIS TVPGSGFGQK EG--VFHLRT TILPAEE-DM
c1.8533  AFYIFFDCCS YYG-SEAEGF GIIKDSSEL C RYLLDKGMVA LVPGDATGDD K-----CTM SYAASLS-TL
c1.10988  TYFVIVDHTP -----FGFENIVAPC EYLKKEVGVV AIPTSVSYLN PEDGKNLVF TFCDEDE-TL
c1.1670  SMFVMVKFNS -----TLM EDIKDMMEFC FKLAKESLI ILPGTAVGMK N-----WLR I TFAVEPT-SL
c1.615  AMYLFPRIHL SQKAIAAET AKTAPDAFYA KRLLEATCIV VVPGSGFGQV PG--TWHIR TILPQEE-KI
c1.5707  ATYVWAKLPD -----KHQDFEVV RWLAKRHGVV LIPGSASGCP G-----CVFV SEGGLKDGDC

      500      510
Ps TyrAT  ....|....| ....|....| ....|....|
c1.10988  KDGLORMKMF CRRHAKQO-----
c1.1232  ODGLRLRLAF CORYAK-----
c1.1670  PAIMDSFKKK NDAFMEQYED QRGYSRM
c1.8533  QAMENIKKA ILALRPAGAV
c1.615  RAVERMKAK LRK-----
c1.5707  PAITRLTDF HQAFMAEFRD
c1.5707  EFAALRLKKG LEELVKHGMV Q-----

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Supplemental Figure 1. Alignment of six homologs isolated from opium poppy transcriptome databases and encoding putative PLP-dependent aminotransferases.