

Comparative Transcriptome Analysis to Reveal Differentially Expressed Cytochrome P450 in Response to Imidacloprid in Aphid Lion, *Chrysoperla zastrowi sillemi* (Esben-Petersen)

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Table S1 Differentially expressed CYP genes, primers used for real-time validation experiments and fold changes as obtained from EdgeR and qRT-PCR in imidacloprid-resistant populations.

CYP_Gene	Protein_ID	Fold Change in Transcritome	Fold Change in qRT-PCR	Forward and Reverse Primer Used for qRT-PCR	Primer_Length
CYP4419A1	TRINITY_DN45829_c1_g2_i1 m.24448	-1.75351	-1.62	TGCTAATTCACGACCGGAT TC -F TGCCCTGTTTACTCATAGC TTC -R	21 22
CYP4XK1	TRINITY_DN48411_c1_g2_i5 m.39401	-3.18927	-1.93	TAATACCAGGACCCCAAG GAC -F CCAATGTTCACCAGCACTT G -R	21 20
CYP4416A10	TRINITY_DN52793_c3_g3_i2 m.62079	-1.87088	-3.9	AGTTGTTGGTGACACAAA TG -F CCAATATTCTGGATTTCGA TGG -R	20 22
CYP4416A-fragment8	TRINITY_DN52793_c3_g2_i3 m.62076	-2.75892	-3.05	GATAGGCCACACCTCAAG AAG -F AGGAGGAGGTGAAGAAGA GG -R	21 22
CYP6YL1	TRINITY_DN52759_c6_g1_i5 m.61630	-12.6133	-5.66	CACAATGAGCTATGAAGC TGTG -F CGTGGTGAAGCGATAACA ATG -R	22 21
CYP6YH6	TRINITY_DN47883_c2_g1_i1 m.36192	-2.15479	-2.05	AGGTGATTTGGGTACTG -F CACCGTTTCGTACAATG -R	17 17
CYP9GK-fragment16	TRINITY_DN51061_c2_g1_i5 m.53627	-3.09926	-3.93	ATTTGCCGTAGTGGAAGA GG -F GAAGCAACAGACCATTTT CG -R	20 20
CYP9GN2	TRINITY_DN51723_c1_g4_i1 m.57100	-1.58947	-1.51	GGAATTTGAACACCCATA CCAG -F GCTGCTTACGAATTAGCTG TC -R	22 21
CYP9GK6	TRINITY_DN45934_c4_g3_i2 m.25022	-7.41136	-8.23	GTGACTTCTGCATTGGGAT TTC -F TGCTACTGAAGGGAAAGT TGG -R	22 21
CYP9GK3	TRINITY_DN51572_c0_g2_i2 m.56121	1.643084	3.31	AAATGGCGTGACATGAGA GC -F TTACGATCGCGCAACGAA TC -R	20 20
28S				TGTTTCATGGGCCCGTATTG ATG -F ATGCAGCGGAAAGAGCTT CTAC -R	22 22

Table S2 Total number of genes from different families from the four CYP P450 clans identified in CZS.

CYP Clan	Families	Subfamilies	No. of Genes
CYP2 clan	18, 304, 305, 4414	18A	1
		304V	1
		304W	1
		305W	3
		4414A	1
Total in CYP2 clan	4	5	7
CYP3 clan	6, 9, 4418, 4420, 4421, 4422	6YH	9
		6YJ	1
		6YK	1
		6YL	1
		9AG	1
		9GK	6
		9GL	1
		9GM	1
		9GN	5
		9GP	4
		4418A,	1
		4418B	2
		4420A	1
		4421A	1

		4422A	2
Total in CYP3 6		15	37
clan			
CYP4 clan	4, 4236, 4413, 4C		2
	4415, 4416, 4G		3
	4417, 4419		
	4AA		1
	4XD		2
	4XE		3
	4XF		4
	4XG		1
	4XH		1
	4XJ		1
	4XK		1
	4XL		2
	4XM		1
	4236B		1
	4413A		1
	4415A		1
	4416A		11
	4416B		2
	4416C		2
	4416D		2
	4416E		1
	4417A		1

		4419A	1
Total in CYP4	7	22	45
clan			
Mitochondrial	12, 301, 315,	12AR	1
clan	334	12AS	1
		301A	1
		301B	1
		315A	1
		334Q	1
Total	in 4	6	6
Mitochondrial			
clan			
Total	21 families	48 Subfamilies	95 Genes

Table S3 A comparison of CYP gene numbers in 22 insects including CZS.

CYP Clan		CYP2	CYP3	CYP4	Mitochondrial CYP	Total
<i>Chrysoperla</i>	<i>zastrowii</i>	7	37	45	6	95
<i>silemii</i>						
<i>Drosophila melanogaster</i>		7	36	32	12	87
<i>Anopheles gambiae</i>		10	38	43	9	100
<i>Tribolium castaneum</i>		8	68	43	9	128
<i>Bombyx mori</i>		7	29	35	11	82
<i>Helicoverpa armigera</i>		8	45	49	10	112
<i>Apis mellifera</i>		8	31	4	6	49
<i>Nasonia vitripennis</i>		6	46	31	7	90
<i>Tetranychus urticae</i>		38	9	26	5	78
<i>Metaseiulus occidentalis</i>		16	23	19	5	63
<i>Rhynchophorus ferrugineus</i>		3	43	23	8	77
<i>Acyrtosiphon pisum</i>		10	23	23	8	64
<i>Myzus persicae</i>		10	25	23	7	65
<i>Agasicles hydrophila</i>		7	39	30	6	82
<i>Leptinotarsa decemlineata</i>		4	39	20	11	74
<i>Culex quinquefasciatus</i>		16	89	82	12	204
<i>Aedes aegypti</i>		11	84	59	10	164
<i>Cnaphalocrocis medinalis</i>		5	16	9	6	36
<i>Trialeurodes Vaporariorum</i>		5	49	15	9	78
<i>Pogonomyrmex barbatus</i>		8	61	40	6	115
<i>Danaus plexippus</i>		8	36	30	12	86
<i>Plutella xylostella</i>		10	26	36	13	85

*Data are derived from Feyereisen, (2012), Antony *et al.*, (2019), Zhang *et al.*, (2018), Dermauw *et al.*, (2020) and current study.

File S1. CZS 160 CYP protein sequences along with their GenBank accession number.

>ON646299 CYP4416Bfragment2 [369 AA] TRINITY_DN25400_c0_g1_i1|m.3176

MFLKYIESNIVQILLTSVFLIVYKFSNYIRIFYVSKLPGPPAYPIIGNALHFIGKNKDSSQKFL
KIFEDYNSFFRLWIGLIPGVCISNPDIQKLLNNKNGLEKSFLMKYFGKEAMGDSIILSDVVKW
KQNRGIVARGFTPLILKSYFKIFVEKSLMLVEKLDEKLNDGESFDIYEYLSKTTLEAVCGSTM
GVNIDISNSYSALESFHLGMHRIYHFWEIPNCTYRWDNYKKFNESIKTVREFTHNVFLQK
KKYYNSKNNENVDEIKSNLKNEFKQPLLEYLIDFAAVNLDFTEGDIEIEANLAIMAGYETLST
TLSYVILNLALHKYIQNKVCEELFEVLGNDLDRITIAVEDLSKLKYMENV

>ON646300 CYP4AA1 [379 AA] TRINITY_DN33298_c0_g1_i1|m.4873

NFLGEGELITNTGAKWKQHRKLIQPIFTNNILESFDITFSDSAQSLLTKLSAHSGQDINITSYINNC
VLDILNEAVLGPINNNCAEDIGESPFKGEIVAPYRLVRPWLLFNWIYELTEVARRELEQKQ
NLNNFTKKMIEYNKNIDKTKCSGRKSLAMFQEIAERHPNFTHEHDIVQEIRTFMLAGQDSVGS
ALAFCLYSLAKHQEHQDIVIKELDTIFKDSNRSPNARDLDEMCYLEQCICKETLRLYPSVPLVA
RKISEDIKLNDKYTIPKNCTVFISPYFTQRLPDIYDPDNFIPSRFSREEILKRHPYSFIPFSAGPR
NCIGYKFSIMEMKTVISTILRHYRITLSPGKENLTLSWRITIRAGGIWLRRLIPRTS

>ON646301 CYP9AG9 [508 AA] TRINITY_DN39190_c0_g1_i1|m.7559

MELTTWLLIGAVLYAIWAFLNRRLQYFESLNLPHYVPGVPFFGSMASAVFRVCHISDTVKNIYR
YNPEAKYIGAFDFMRPVIVLRDLVDIKNVTIKNFDNFPDHQAFIDDSVDPLFGGGLFNIAGER
WKEARALLSPAFTSSKMKGMFELMVVCGKNFVDYLSKLPEKERKAIATKDMFGKLTNDVIG
TCAFGININSLNPKNDDFILGKEATTFDGIMSLKFFIARSFPNVMKWFNIFVSDRVERFFTSI
VSTTIATRDEQGISRPDMLQMMMDARGKEGKNFKLDITSMTAQAFIFFGGFDTTSTQMCHIAH
ELAINPDIQKRLQDEIDDLERSKGLTYEALNSMLYLDALFNESMRHPQAGFLDRLCVKAF
ELPPALPGLKPFVVQPGMNWVWIPAVAIHRDPEYHDEPDTFNPDRYYQKKVTINDTQNLGFGI
GPRSCIGNRFAIMETKLLFFFLSKFNLVPNDKTCSPVYSKKTFSLIPPGGYSLAIEPRTDASA
YA

>ON646302 CYP4414A1 [499 AA] TRINITY_DN41144_c0_g1_i1|m.9305

KMISPLLFGILSTLFIYDIFYFINGRPKNFPPGPIRIPFFGSYLFLIFKTLKDVPIELAEWSKKYKS
NVTSLFLGPYKNIILHDYQTIQILTRNEFDGRPDGFIKLRAGFKRLGIFFTDGDFWLEQRRFAL
RHMRDFGFGRRSEKLENIIEFEMKEMIKHIENNHYMFKAPHFFAPGFVNLLVSILTGATLDQN
QRNYLEEIGFHSLLFQKNASPLGGFIGIFPWVRRFAPNVSGYHGSKNNGNDKLIEFVQDLIENRK
KL RHKEETEGFIDVYLQELNREKANKSSFTPEQLILTCVDFLLPTSSCVEMSLSLLIQRLIHP
DVQDKMFDEIKSVVGTGRLPTLNDRPSLLYCEATLREGMRIDTPINLGVGRETTTNINVQGY
DIPKGTLVFANLWQMHHDEILWKDPFAFRPERFLTDDGKRLCKDMTLPFGLGRRVCAGETF
ARNGMFMFLVGLVQNFKFTVPPGALLPDLSDRANSALLTNCQEFIVQCEPRI

>ON646303 CYP4G281 [560 AA] TRINITY_DN41208_c0_g1_i1|m.9355

MSAAGPEMVTGTLATASATGAFSATSFFFTLLVPALVLYIYFRVTRRHMIELADKIPGPTGF
PLIGNALELLGSSDTIFKNVYKRSFEFDQVIKLWIGPKLVFLIDPRDVEVILSSHVYIDKSPEY
RFFQPWLGNGLLISTGQKWRAHRKLIAPTFLNLVLSFIDLFNANSNAVVEKLRKEGNREFDI
HDYMSETTVEILLETAMGVSKTTQDKSGFEYAMAVMKMCDILHLRHRVWLRPDWLFNL
KHGKEQVKLLDIIHGLTKKVARKKEDYKSGKRNFEVSKEQAKSTTVVEGLSFGQSSGLK
DDLVDVDDNDVGEKKRQAFDLLEASQNGVVLDEEMKEQVDTIMFEGHDTTAAGSSFFLS
MMGCHPDIEQKVIQEIDEIFGDSDRPATFQDTLEMKYLERCLMETLRMYPPVPIIAREVKTDL
KLASGDYTIPAGCTVVVATFKLHRQPHIYPNPVFNPDNLFPEKTANRHYYAFVPFSAGPRSC
VGRKYAMLKLLSTILRNYRVKSTVKEEDFRLQADIILKRAEGFKVKLEPRKRAGGVKA

>ON646304 CYP334Q1 [570 AA] TRINITY_DN41636_c0_g1_i1|m.9963

MVRPLLRLRRLPFYLQIRNQETSTKIKSIESVPPATTASLHSTDVGTVLGESTIQIKTPSLNEIRV
KEVDAATQTDSSLKLIQNFDEVPGPRVLKNVANILRYIPSLSTHVTATTIQYILSTGSQVLVGA
DSRFIKWLFDEYGPVVRLEAPLGGNIVILSRPEHVHAVFKNEGPYPIRSSLDCIEKYRLQYRKY
KQAGPYIMHGPEWIQLRSKIQTPLESMLDIHFQNLQSSCDRFVKIHKIRNQQEETPAEFHSEIY
KWSMDCLTIVSFNKGFLDAGGLRPTSEAMALFNALKDATAAIIHKCEGGLKLWKFFVTRD
WKLLLKQLDTIDNIVNKYIGSIQLAIEDKDSKLSIGPNSLVEALLVKEQLQPEDILTVLVDLMI
GVNTTSHAMAFLLYHLARNPKVQKKLYNEIRNANLYEINSYEKLPYLQACIKESLRLKPPMP
VLSRILQQDVIIHNYRIPKDTFVLMATHLASLRDENFENPTKYDPERWIDDTDSGTQSLASIPF
GFGPKSCLGQKLAMLQLSMMTAKIIKEFNIQYNYGDITAGTKILSNPNRPLKFRFIERN

>ON646305 CYP334Q1 [365 AA] TRINITY_DN41636_c0_g1_i4|m.9965

MIVNFGSVYQAYFLMEFEFYFLNLQSSCDRFVKIHKIRNQQEETPAEFHSEIYKWSMDCLTIV
SFNKGFLDAGGLRPTSEAMALFNALKDATAAIIHKCEGGLKLWKFFVTRDWKLLLKQLDT
IDNIVNKYIGSIQLAIEDKDSKLSIGPNSLVEALLVKEQLQPEDILTVLVDLMIIGVNTTSHAMA
FLYHLARNPKVQKKLYNEIRNANLYEINSYEKLPYLQACIKESLRLKPPMPVLSRILQQDVII
HNYRIPKDTFVLMATHLASLRDENFENPTKYDPERWIDDTDSGTQSLASIPFGFGPKSCLGQK
LAMLQLSMMTAKIIKEFNIQYNYGDITAGTKILSNPNRPLKFRFIERN

>ON646306 CYP4XM1 [385 AA] TRINITY_DN43093_c0_g2_i1|m.12447

SAGDYWRIRRKMLTPAFHFTILKQFANIFEENSKLAVQNLSKECEKLSLNVAEYINDYALHTLCDT
TLGCKFESTSAEFSNYKKALHRFGEIAVYRLSRPWVFPDFLNL SYLKYKTIQTIKTLRSFTSKIITS
RLETWDPNIVDNTTIETTSGRRLYSMLDLLILHMKTNNGIDYKGIEEVDTFVFEHDTTSVAIVN
MLMLLANHTEVQDNIVRELYSVVGEDISKISYNDLQSLKYLEMCIKETLRLYPSVPFIARTLTEPLE
LKDGVVLPKGLLCNVHIYDLHDAEYWPEPEKFIPERFTEENCAKRNPF CYVPFSAGPRNCIGQKF
AILQMKSIISNILFNYILEPIDTPESITLLCDLVIRTEKPVVRVKFRKVRNA

>ON646307 CYP301A1 [490 AA] TRINITY_DN43909_c7_g1_i2|m.14984

MKFNSKQLIFDCSKLLRTHQQYRLKSYVAQTSEIPATVKPYKDIPGPRPIPLLGN TWRLLP IIGQYQI
ADFANVCDILHKEYGKICKLSGLVGRPDLLFVYDANEIEKVYRHEGPTPYRPSMPCLVYYKSVVR
KDFFGDLPGVVG VHGE PWREFRTRVQKPVQLHTVRKYIEPIEVVTNDFI QRMNEMKDENDEMP
SDFDNEIHKWALECIGRVALDVRLGCLDPNLSPDSETQKIIDA AKYALRNVAILELKMPFWRYIPS
SLWTKYVKNMNYFIEICMKHIDAAMQRLKQKNVTS DKDSLIERILTSEKDPKIA YVLALDLILVG
IDTISMAVCSILYQLATRPEEQEKI HQELLKALPDPNTPLTSKHLEQVPY LKAFI KEVFRVYSTVIGN
GRTLQQDLEICGYHVPKGIQCVFPTIITGNMEDYVTNASTFMPERWLSKHSENSSNNTIHPFASLPY
GHGARMCLGRRFADLEMQILLAKVSF

>ON646308 CYP301A1 [523 AA] TRINITY_DN43909_c7_g1_i3|m.14985

MKFNSKQLIFDCSKLLRTHQQYRLKSYVAQTSEIPATVKPYKDIPGPRPIPLLGN TWRLLP IIGQYQI
ADFANVCDILHKEYGKICKLSGLVGRPDLLFVYDANEIEKVYRHEGPTPYRPSMPCLVYYKSVVR
KDFFGDLPGVVG VHGE PWREFRTRVQKPVQLHTVRKYIEPIEVVTNDFI QRMNEMKDENDEMP
SDFDNEIHKWALECIGRVALDVRLGCLDPNLSPDSETQKIIDA AKYALRNVAILELKMPFWRYIPS
SLWTKYVKNMNYFIEICMKHIDAAMQRLKQKNVTS DKDSLIERILTSEKDPKIA YVLALDLILVG
IDTISMAVCSILYQLATRPEEQEKI HQELLKALPDPNTPLTSKHLEQVPY LKAFI KEVFRVYSTVIGN
GRTLQQDLEICGYHVPKGIQCVFPTIITGNMEDYVTNASTFMPERWLSKHSENSSNNTIHPFASLPY
GHGARMCLGRRFADLEMQILLAKLIRSYKLEYHHEPLKYAVSFMYAPEGELKFKLTKRE

>ON646309 CYP4XE1 [513 AA] TRINITY_DN44034_c0_g1_i2|m.15326

MLWLIIQICVTLFIGLLVVLVLQQLQKS~~K~~KILLPSPPLIPLLGHALEFGSTAQDIHNNILRLVSTYGK
LFTIWVGPFNQYCHSDSDVTNKILSSTK~~L~~IEKSGDYDLIKPWLGDGLLISKGTKWFKRRKMLTPAF
HFTILEQSINTFTEASDRFIENLKKHVNGDTFDVYPYVTLLGLDII~~C~~KTAMGIDLNVQTQPDSEYVT
AVRDMCRIIFERVFS~~A~~VQQSDFIFYNLTANGKTFKNGLSILHSMTNKVIEERRQLLINDIKNNEVKD
NGPEKTKDDISFGEKKEKMFMDVLLKSTVDGKPLTNSDIQEEVDTFMFEGHDTVSSGISFTLYLL
ANHPEIQTRAFEEVRDICGDNLNDQPSLSDLNKMPYLEAIIKESMRLYPPVPVILRNLS~~E~~DLKLDNC
VLPKHTRATIVIYCIHRNPEYFSDPESFKPERFLEETQNKNYFSYVPFSAGSRNCIGQKFAMYEMKS
T~~L~~SKVLRHYELCSAGPEFDLKLAMAVILKSLNGVNIKVRPRIYK

>ON646310 CYP4XE1 [476 AA] TRINITY_DN44034_c0_g2_i7|m.15331

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LFTIWVGPFNQYCHSDSDVTNKILSSTK~~L~~IEKSGDYDLIKPWLGDGLLISKGTKWFKRRKMLTPAF
HFTILEQSINTFTEASDRFIENLKKHVNGDTFDVYPYVTLLGLDII~~C~~KTAMGIDLNVQTQPDSEYVT
AVRDMCRIIFERVFS~~A~~VQQSDFIFYNLTANGKTFKNGLSILHSMTNKVIEERRQLLINDIKNNEVKD
NGPEKTKDDISFGEKKEKMFMDVLLKSTVDGKPLTNSDIQEEVDTFMFEGHDTVSSGISFTLYLL
ANHPEIQTRAFEEVRDICGDNLNDQPSLSDLNKMPYLEAIIKESMRLYPPVPVILRNLS~~E~~DLKLDNC
VLPKHTRATIVIYCIHRNPEYFSDPESFKPERFLEETQNKNYFSYVPFSAGSRNCIGLYNLSIVYSFY
YSIQNR

>ON646311 CYP4XJ1[493 AA] TRINITY_DN44036_c1_g1_i1|m.15597

MILVYALITFYIFWKYIKFYKLQKIFVNIPSPKGYPILGNYLDFINSSDSEIFKLTCDR~~C~~STYYPRLW
AVWIWMKPALILHKA~~E~~HIEAILKGVIP~~T~~KKSRVYKYVEPWLGQSL~~L~~TSAGMHWKTH~~R~~KLLTPAF
HFTILKEFQSVISEKADILVDR~~L~~KTAMENNQEIELLPYINQCTLDVICETSMGVSINAQSDSPPVYYE
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EDNRK~~L~~KPFLDIMLESDEPLTDKEIRDEVSTFLFAGHDTSS~~T~~NINWTLFLLGNYPHIQDRVYEELNS
IFNGSKRHATNDDLIEMKYLEMCIKESLRMYP~~S~~APRISR~~V~~ITEDTNIDGYFIPKNTSVCIHIYKVHHD
PEHFSQPETFNPDN~~F~~L~~P~~ENIAKRHPFSYIPFSAGARNCIGQKFAIQEI~~K~~LILSSILRNFKVISLTNQHDV
QIQSAFILTSKEGLKFRLV~~P~~RL

>ON646312 CYP4415A1 [529 AA] TRINITY_DN44522_c0_g1_i1|m.17308

MYSRIAGTLLNYKFFNKLTIYLG~~L~~VVVCIFLVKIKNTLLRQWKIYIQLRWLPGPEKTPVFLGNSY
MFFNCNTADIYNV~~F~~VKLINKYGRKSAFKFWVG~~N~~KVFIILTKPEDLRILYNSQYAMEKEHTLYQMF
SEWLGND~~S~~LLIAPVEKWK~~A~~HRRILAMTFSQRVLDNFVQIFSKNSVNLSNELQSYADNKEIFNVYN
VINKYTVKSICGTLMGVEIKDEHFVQKYLTAVQKEAEI~~I~~YLMCKFWLHFNIIYKFSKMYEDET~~K~~
YLKILHSFSKMVFMKKNISYSNENSFSSSSSKKFGINPKRKP~~F~~LELLLDLKRNCIHYDQ~~N~~QILDDMNI
FLAAGTETTSITSS~~F~~VLLMLGIHQNIQDKVYEELNRILNDDKNEHEKNKNRMITPDDIRQMFYLEM
VIKETLRLYPIVPIVARTITKDLMLPTSGTIPSGCCCIAAPIAVHYDPEIWTQPLLFNPDRFLSEEKIK
RHIYSFIPFSGGLRNCIGKKFAFMSLKVLIASIRDYQILTPLKMEDIQLKVEVTLSVNV~~T~~STFN

>ON646313 CYP4415A1 [533 AA] TRINITY_DN44522_c0_g1_i3|m.17311

MYSRIAGTLLNYKFFNKLTIYLG~~L~~VVVCIFLVKIKNTLLRQWKIYIQLRWLPGPEKTPVFLGNSY
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SEWLGND~~S~~LLIAPVEKWK~~A~~HRRILAMTFSQRVLDNFVQIFSKNSVNLSNELQSYADNKEIFNVYN
VINKYTVKSICGTLMGVEIKDEHFVQKYLTAVQKEAEI~~I~~YLMCKFWLHFNIIYKFSKMYEDET~~K~~
YLKILHSFSKMVFMKKNISYSNENSFSSSSSKKFGINPKRKP~~F~~LELLLDLKRNCIHYDQ~~N~~QILDDMNI
FLAAGTETTSITSS~~F~~VLLMLGIHQNIQDKVYEELNRILNDDKNEHEKNKNRMITPDDIRQMFYLEM
VIKETLRLYPIVPIVARTITKDLMLPTSGTIPSGCCCIAAPIAVHYDPEIWTQPLLFNPDRFLSEEKIK
RHIYSFIPFSGGLRNCIGKKFAFMSLKVLIASIRDYQILTPLKMEDIQLKVEVTLSVNGYPIQLV~~R~~
RR

>ON646314 CYP6YH4 [370 AA] TRINITY_DN44806_c1_g3_i1|m.18595

MRNMFTLLDGFGEDLNKYIKNHVNKTIEVKDACRKYTTD~~V~~IVSTAFGIQANSFSDEEAEFSAISK~~K~~
LFTFTLRRSVELICFFFVPELVTLFNFKLFSSFGTAFLRNAVSQAIEVREKNNINRPDLIDALIKLKNT

GTLEDSPDLNDKQDHNKATIKFEGDILAAQAAVFFTAGFETTSSAISFTLYFLSYNPDIQIRLRKEIQ
TVIAENSGKFTYDSLAEKMYLDLCIKETLRLYPSLGFLDREAMSTYTFPGTDLTIDKGTVPVILSTGL
HRDPQYFENPEVYDPERFNDENKSKFPPFAYIPFGEGPRNCVGARFGMVATKVGLVHILKDFEVV
TFKTAPTLEIDPRGFLTSPKHGINLNFVKGTVYV

>ON646315 CYP6YH4 [520 AA] TRINITY_DN44806_c1_g3_i2|m.18597

MALISSSWYTDLLTLTTGLLTILYFYLTSTYDYWKKRKVPYDPPVLLFGNFYNAFTFKRNISSYFY
DLYRKTNEKYFGFYIYRRPYLLLRDPELIKHVLVKDFNNFVPRTNADTTNKEDVLGRDNIFTIKDP
HNWRYLRAKFSPPFSTGKMRNMFLLDGFGEGLNKYIKNHVNKTIEVKDACRKYTTDVIVSTAF
GIQANSFSDEEAEFSAISKKLFTFTLRRSVELICFFVPELVTLFNFKLFSSFGTAFLRNAVSQAIEVR
EKNINRNPDLIDALIKLKNTGTLEDSPDLNDKQDHNKATIKFEGDILAAQAAVFFTAGFETTSSAIS
FTLYFLSYNPDIQIRLRKEIQTVIAENSGKFTYDSLAEKMYLDLCIKETLRLYPSLGFLDREAMSTY
TFPGTDLTIDKGTVPVILSTGLHRDPQYFENPEVYDPERFNDENKSKFPPFAYIPFGEGPRNCVGARF
GMVATKVGLVHILKDFEVVTFKTAPTLEIDPRGFLTSPKHGINLNFVKGTVYV

>ON646316 CYP304W1 [510 AA] TRINITY_DN45051_c0_g2_i5|m.20044

MVSPLIVVIAITYFAYWILEFLLARPKNFPPGPIRIPIFGSYLILLRDLVKHFYVETQRWCDKYNSK
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RYMRDFGFGRRMERLEYIIEDETKLMIKLIEEGTKNPYNAGLVKDGRLIYLPEFFAAPFINSYLA
TGHPLPEESRPILRKTQSSILFQLAADATGGIISILPSLRYIFPKLSGYHGITKGHEALMDLMRDIK
QRKNRGFTETEGFIDFYLNEMKARKEAGGYTTFSDQQLLIVADLLMPASSAVQSQLGMLVERLI
HNPEIQDKIYNEIKTVVSGRLPTLDDRPNLPCYCATLRESLRIDTLATLGVPHSTLVDTTLHGYSIP
KDTIVITNLWQMHHDKEVWGDPEFTRPERFVTEGDKGLAKDQSLPFGLGRRVCAGETFARNTMF
LIYTGLLQNYKLTVPGEHPLPDLNDRNLNGLVISPKDFWVKCIPRK

>ON646317 CYP4XH1 [461 AA] TRINITY_DN45641_c0_g1_i3|m.23169

TIILILSLIVGKYIEYRWKNRRFFKLAAKFNGPDPLPFIGNAHMFSGTSEDVFKQILDHFYNYNDKG
PSRFLWGNQLYVVITKPKQHMKAVALTNPNALQKSYVVSFINTWLGTGLFSAPVTIWKHHRKIIMPS
FNQKILDTFISIFQERSNVLAKKLECETGYFDIFPYVSRCTLDSICESALGITVNSLEDSNEKYVECA
TRVLDIVNTRMLKVWLHPDFIFKRTKLYRELQFHIQYLHNFTDSIIKQKRAEFKEIQESNRFSPDQ
TNDEPIFKRKAFIGLLMETSDFTEDEIRNEVDVTMTVAGNDTTATVNSFTLLLLAMYPDIEKLYNE
VYSIVGSDSKTIELEDLPKLKYTEMVIKESMRLFPPIGPILGRDALEDIQLDENYTIPKGSIALGIYY
THRDPEYWNEPDVFDPERFQPEELKTRDPYSYLPFSGGPRNCLGKILLFLCQKTGTSPV

>ON646318 CYP4XH1 [535 AA] TRINITY_DN45641_c0_g2_i1|m.23171

MVLPAFCSIFFATYDWVSDSKEHSTSANYHIFPTITILILSLIVGKYIEYRWKNRRFFKLAAKFNGPD
PLPFIGNAHMFSGTSEDVFKQILDHFYNYNDKGPSRFLWGNQLYVVITKPKQHMKAVALTNPNALQ
KSYVVSFINTWLGTGLFSAPVTIWKHHRKIIMPSFNQKILDTFISIFQERSNVLAKKLECETGYFDIF
PYVSRCTLDSICESALGITVNSLEDSNEKYVECATRVLDIVNTRMLKVWLHPDFIFKRTKLYRELQ
FHIQYLHNFTDSIIKQKRAEFKEIQESNRFSPDQTNDEPIFKRKAFIGLLMETSDFTEDEIRNEVD
MTVAGNDTTATVNSFTLLLLAMYPDIEKLYNEVYSIVGSDSKTIELEDLPKLKYTEMVIKESMR
LFPPIGPILGRDALEDIQLDENYTIPKGSIALGIYYTHRDPEYWNEPDVFDPERFQPEELKTRDPYSY
LPFSGGPRNCLGIKYAYMAMKILIATVIRHYKLSTDLKLDDILKTELTLKLSNAFLLRQKRQTM
Q

>ON646319 CYP4XH1 [372 AA] TRINITY_DN45641_c0_g1_i6|m.23173

MPSFNQKILDTFISIFQERSNVLAKKLECETGYFDIFPYVSRCTLDSICESALGITVNSLEDSNEKYV
ECATRVLDIVNTRMLKVWLHPDFIFKRTKLYRELQFHIQYLHNFTDSIIKQKRAEFKEIQESNRFSP
DQTNDEPIFKRKAFIGLLMETSDFTEDEIRNEVDVTMTVAGNDTTATVNSFTLLLLAMYPDIEKLY
NEVYSIVGSDSKTIELEDLPKLKYTEMVIKESMRLFPPIGPILGRDALEDIQLDENYTIPKGSIALG
IYYTHRDPEYWNEPDVFDPERFQPEELKTRDPYSYLPFSGGPRNCLGIKYAYMAMKILIATVIRHY
KLSTDLKLDDILKTELTLKLSNAFLLRQKRQTMMSQ

>ON646320 CYP6YH5 [528 AA] TRINITY_DN45681_c1_g1_i1|m.23301

MSFITSNWL TNCLPILTFVLT VLYIY LNSKYN YWKKRN VPYEKPNLIFGNFYETFTLKKNL TTFQEQYEKTNERVYGLYIFQRPYLLLRDPELAKYVLVKDFNNFIARSNSEAPNDSL GKNNL FSLKNIHHWRFMR TKMSPFSPSKMRNLFELFDEIGVQLTEHIKKHVNETMDVKDVSQKYTTD VIVSAAFGIQANSFTSDQAEFSGIAKIMFTYTLKRSIELFSFFFAPLLVKIFNFKFFGEEASQFLRKVVWHTIQVREENNIKR PDLIDALITLKTGT MEDSLVSEKNVGESGIKLQDSIELEGDVLVAQAAVFFTAGFGTSSLTMSFTLHSLSYNPEIQMKLRKEIQSVIARNGGKFTYDCLQEMKYLDACVKETLRLYPTLGMLDREAINTYTFPGTDITIDKGTAVVISLGGLHRDPQYFENPYVYDPERFNDDNKNRIKPFTYMPFGEGPRNCIGARFGSVATKVGLVHILKDFELETYEKPPPLEVNP RSVFLSPKNGIHLKLRTGT VYEQLNEVD

>ON646321 CYP6YH5 [448 AA] TRINITY_DN45681_c1_g1_i4|m.23306

IFQRPYLLLRDPELAKYVLVKDFNNFIARSNSEAPNDSL GKNNL FSLKNIHHWRFMR TKMSPFSPSKMRNLFELFDEIGVQLTEHIKKHVNETMDVKDVSQKYTTDLIVSAAFGIQANSFTSDQAEFSGIAKIMFTYTLKRSIELFSFFFAPLLVKIFNFKFFGEEASQFLRKVVWHTIQVREENNIKR PDLIDALITLKTGT MEDSLVSEKNVGESGIKLQDSIELEGDVLVAQAAVFFTAGFGTSSLTMSFTLHSLSYNPEIQMKLRKEIQSVIARNGGKFTYDCLQEMKYLDACVKETLRLYPTLGMLDREAINTYTFPGTDITIDKGTAVVISLGGLHRDPQYFENPYVYDPERFNEDNKNRIKPFTYMPFGEGPRNCIGARFGSVATKVLVHILKDFELETYEKPPPLEVNP RSVFLSPKNGIHLKLRTGT VYEQLNEVD

>ON646322 CYP4416C1 [467 AA] TRINITY_DN45691_c0_g1_i3|m.23335

MFLKLFLNCFQNN SQIGLVLLVLVIVLIYMYNTNYLRIVY YLSKIPGPKSYPIIGVAYLVIGKTHAEITQLVIDMINKFSPILKAYLGPIPLVCVSSPEYVREILTNNHGLEKPWLMTHIAVDVAGDSILSAQVPKWKHNR SKIVRGFTPNILKTYFKVMIESSLLLSKKLEDKLNDSKSF DILEYLSKAAMD SVARSTMGVNVNVQDSGSTFYGAMQSMFHIAFDRIYSPWKLLDVIFRLSQDFPRFSQDKKAVIELAEKIISEKRYQKTCINNNDNKSDNIETIDKELSEKSLLDILLEVTKN DPLFDDQQLKDEVIFMIIAGFETTANALGYVLLNLAVHQDIQNKVCEELFQVVDDFDRKIHLDDL PQLKYM MEMVIKESMRLHPTIPLIARKLTRDIKFDEYLVPDGT TVVPIICLHRNENIWDPLKFDPERFTPENSKNRHPY AFLPFSAGPRNCV GKG N

>ON646323 CYP4416C1 [518 AA] TRINITY_DN45691_c0_g1_i5|m.23337

MFLKLFLNCFQNN SQIGLVLLVLVIVLIYMYNTNYLRIVY YLSKIPGPKSYPIIGVAYLVIGKTHAEITQLVIDMINKFSPILKAYLGPIPLVCVSSPEYVREILTNNHGLEKPWLMTHIAVDVAGDSILSAQVPKWKHNR SKIVRGFTPNILKTYFKVMIESSLLLSKKLEDKLNDSKSF DILEYLSKAAMD SVARSTMGVNVNVQDSGSTFYGAMQSMFHIAFDRIYSPWKLLDVIFRLSQDFPRFSQDKKAVIELAEKIISEKRYQKTCINNNDNKSDNIETIDKELSEKSLLDILLEVTKN DPLFDDQQLKDEVIFMIIAGFETTANALGYVLLNLAVHQDIQNKVCEELFQVVDDFDRKIHLDDL PQLKYM MEMVIKESMRLHPTIPLIARKLTRDIKFDEYLVPDGT TVVPIICLHRNENIWDPLKFDPERFTPENSKNRHPY AFLPFSAGPRNCV GIRY AWMFMKVVLATLLSRYEFHTD VDVN KLEHEFALS KLLGGHQVRITPRRRN

>ON646324 CYP4416C1 [518 AA] TRINITY_DN45691_c0_g1_i11|m.23341

MFLKLFLNCFQNN SQIGLVLLVLVIVLIYMYNTNYLRIVY YLSKIPGPKSYPIIGVAYLVIGKTHAEITQLVIDLINKFSPILKAYLGPIPLVCVSSPEYVREILTNNHGLEKPWLMTHIAVDVAGDSILSAQVPKWKHNR SKIVRGFTPNILKTYFKVMIESSLLLSKKLEDKLNDSKSF DILEYLSKAAMD SVARSTMGVNVNVQDSGSTFYGAMQSMFHIAFDRIYSPWKLLDVIFRLSQDFQRF S QDKKAVIELAEKIISEKRYQKTCINNNDNKSDNIETIDKELSEKSLLDILLEVTKN DPLFDDQQLKDEVIFMIIAGFETTANALGYVLLNLAVHQDIQNKVCEELFQVVDDFDRKIHLDDL PQLKYM MEMVIKESMRLHPTIPLIARKLTRDIKFDEYLVPDGT TVVPIICLHRNENIWDPLKFDPERFTPENSKNRHPY AFLPFSAGPRNCV GIRY AWMFMKVVLATLLSRYEFHTD VDVN KLEHEFALS KLLGGHQVRITPRRRN

>ON646325 CYP4416C2 [495 AA] TRINITY_DN45691_c0_g1_i7|m.23338

MFLKLFLNCFQNN SQIGLVLLVLVIVLIYMYNTNYLRIVY YLSKIPGPKSYPIIGVAYLVIGKTHAEITQLVIDLINKFSPILKAYLGPIPLVCVSSPEYVREILTNNHGLEKPWLMTHIAVDVAGDSILSAQVPKWKHNR SKIVRGFTPNILKTYFKVMIESSLLLSKKLEDKLNDSKSF DILEYLSKAAMD SVARSTMGVNVNVQDSGSTFYGAMQSMFHIAFDRIYSPWKLLDVIFRLSQDFPRFSQDKKAVIELAEKIISEKRYQKTCINNNDNNSDNIESIDKELSGKSLLDILLEVTKN DPLFDDQQLKDEVIFMIIAGFETTANALGYILLNLAVHQDIQNKVCEELFQVLDDSDRKIELDDL PQLKYM MEMVIKESMRLHPTIPLIARKITRDIKFDEYLVPDGT TVVPIICLHRNENIWDPLKFDPERFTPENSKNRHPY AFLPFSAGPRNCV GIRY AWMFMKVVLATLLTRYEFHTDIDVN KLEH

>ON646326 CYP315A1 [486 AA] TRINITY_DN45615_c0_g2_i2|m.23475

MINRIVSRTISTANNKLINNNANATVQQLSQIPQPQTLPIIGSTLALLLSGGSAKLHEYIDKRHQQ
LGNIFIDQLGPTKCVFILDPNDMRKVFNNNEGKYPAHYPEAWKLYNQLKNCERGLFFMDGTEWL
VFRIMNKTLLREDLETIFYEPCRIVADNVTNIWLESQQTEVLNLHDILYRWSVESVTSILLGTHYM
KNHKKLQPSITKLVRVMQDVFETTSKISLIPANFAYKFKLPAWRRFETAVDLALERANALSSMILD
MHENGGGVLERLLENGISKKDSIRVMTDLLLAAGDTTAHTMEWLLYLLAKNPNIQNDIYRESLTV
PDMSDPPALLKGAVREALRLYPVAPFLNRILPNDINIQQYDIPAGTLLILSLYSSGRCEKYFNSPEKF
WPERWLRCDLGESMNYSNLRAAVAHASMPFAMGSRSCIGKKLAEAQMYVTIRMILNKFSLELLN
TNNIEMVMRLVGVPSEPIRIALHKR

>ON646327 CYP4419A1 [493 AA] TRINITY_DN45829_c1_g2_i1|m.24448

MSPVLVFCIVLLVLYILIKYNWDRRDLYKLSWKLEGPFAPIIGNAFFFLFNSIEDTIPIAFDLLKKY
NGILRGWMGPQLWIFTANPNDIQHILSSQKITHKGAAYRFFNPFGQGLINNNGQLWRMHRKIIVK
SFSQDFLSEYMHIFHEQSKVMVANMQKEVGKPAFDMKYVQLCAMDIVGEAVMDVKLVQSE
HNMEVVSSLDNIYMLIHDRILKYWLHPDFIFENTAKGKLQHKVVNYLRNFIQKNVLRKQEEVSNN
NSIKCKSTLETILHTLNDNPEAMSKQGIIDEMITLFAAGEDSISLQFSWTLLLLALHPEIQDKVYNEI
QSVLGDNENFGRDDLKLYTTMVIKEVSRLFPVAPFVREVTEDFPIDKVVLPRGTSVFIGVMYV
HRDPSHWEYPNKFYPEHFLPEAVAKRHPFAFMPFSAGARGCIGKEFAMLCMKSMVLTLRNFQLQ
ADGTINDIKLKVDIARSMNGYNLRLVQRINTL

>ON646328 CYP9GK1 [384 AA] TRINITY_DN45823_c2_g2_i1|m.24474

IGLFYWKFVRPLSLWKDKLPYVKGYPIVGNYLGPVLGRLSFAEAIQVYYNATSEEKCAGIFVN
QPQLMIRDPQLIKQMFIDFDHFTDHTTVFFTEGFDITFDKNLFALKGNDWRDMRATLSPAFTGV
KMRGMFQVMNECGEQVYHHYSNELKALKDSSHLELDLKDLEFTRFTNDIIASTAFGVKCDSEKND
KNDDFFVMGRKATTISTLRFLLVNFMPAVMKLLRLSVIPIYVCDYFRNVVKETTEIRVRENIVRPM
LNLMEAKKGALKVEEQKEENRGFAVADEYNNHHGKIKILNDDDVAAQAFIFFFFAGFETVSTAM
CFLGYELALNPDIQERVYAEIQDVLESNNGKLSYDILNKMKYLDMCVSESLRKWPPAVLT

>ON646329 CYP4413A1 [407 AA] TRINITY_DN45909_c0_g1_i6|m.24917

MFLIFLAITFILFIVFDTIFRFQNRKLSLLAKQVPGPWGLPFLGMWYTVIDGPKGFLRLTSNLVKKY
GNICRAWMGYSLYLVVSKPEDIEAILTNSVEKDYYLKFTSIFAGDGLFIAPAQIWKHRRKLINPTFN
TKIVNSFHEKMVAKSNVLCKKLETRTSEDNYFDCYDSLFACTLDILFETNLDFSVDQNGQLPYYL
KYMKRITRLVVLWMGKFWLHTNITFNHNSNFGKKLMQETQYMKRISANIIQEKTVIRKKMSDEN
YTGNKVQKPFLEHIIYAKESGFPISETSVVNEVDTMIIAGSDTSAYVMSFALMTLGVLDIQDKVH
EEIISVFGNSDRECTLDDIKSMQYLEMVIKETMRLFAPTPLLARKVTTDVQLRKLSQFKTSKNKQL
TELIIEIPCIV

>ON646330 CYP4413A1 [494 AA] TRINITY_DN45909_c0_g3_i3|m.24923

MFLIFLAITFILFIVFDTIFRFQNRKLSLLAKQVPGPWGLPFLGMWYTVIDGPKGFLRLTSNLVKKY
GNICRAWMGYSLYLVVSKPEDIEAILTNSVEKDYYLKFTSIFAGDGLFIAPAQIWKHRRKLINPTFN
TKIVNSFHEKMVAKSNVLCKKLETRTSEDNYFDCYDSLFACTLDILFETNLDFSVDQNGQLPYYL
KYMKRITRLVVLWMGKFWLHTNITFNHNSNFGKKLMQETQYMKRISANIIQEKTVIRKKMSDEN
YTGNKVQKPFLEHIIYAKESGFPISETSVVNEVDTMIIAGSDTSAYVMSFALMTLGVLDIQDKVH
EEIISVFGNSDRECTLDDIKSMQYLEMVIKETMRLFAPTPLLARKVTTDVQLPNVVVPANTNCIICV
LELHRSSDIYSPLKFDPNRFLPEETAKRHPYAYIPFGGGARGCIGPKFAYLSMKIILTSILRKYKIYS
DVNLENMELKMELFLKPVNGFRIRLEKR

>ON646331 CYP4413A1 [423 AA] TRINITY_DN45909_c0_g3_i5|m.24926

MSYNSLRRCRIRADATLHMAILTNSVEKDYYLKFTSIFAGDGLFIAPAQIWKHRRKLINPTFNTKIVN
SFHEKMVAKSNVLCKKLETRTSEDNYFDCYDSLFACTLDILFETNLDFSVDQNGQLPYYLKYM
KRITRLVVLWMGKFWLHTNITFNHNSNFGKKLMQETQYMKRISANIIQEKTVIRKKMSDENYTGNK
VQKPFLEHIIYAKESGFPISETSVVNEVDTMIIAGSDTSAYVMSFALMTLGVLDIQDKVHEEIIISV
FGNSDRECTLDDIKSMQYLEMVIKETMRLFAPTPLLARKVTTDVQLPNVVVPANTNCIICVLELHRS
SDIYSPLKFDPNRFLPEETAKRHPYAYIPFGGGARGCIGPKFAYLSMKIILTSILRKYKIYSDVNLE
NMELKMELFLKPVNGFRIRLEKR

>ON646332 CYP9GK6 [525 AA] TRINITY_DN45934_c4_g3_i2|m.25022

MWLITFSLVGVFYFYWNFIRPLNTWKNYGIPYIKGWPLVGNFLKNALKRESFGDAVISMYKAFPN
EPYCGSFVFSAPRLLIRDANLLKDIGIKDFDHFTHDTKIFFGDGDFDPIFDKNLFSLDGQNWDRMRAT
LSPAFTGSKMRGIFVLMNECGNQLVNYLNDKIKTENNQKHLELELKDLFTRFTNDIIATTAFGIKV
DSLKEPENKFYLMGREVTYFSTFRLFLMNFIPITIMRLNIGILSKAACGYFRNLVFQTISMRETQKI
VRPDMLNILLQTKNGLLKNDDKGDDNGGFAAAATEGKVGGKIRKLTDEDVTAQAFIFFLAGFDTV
STAMCFTVYELALNPDIQQRLYSEINDALDGNPNAEVTYETLHRMKYLDMISESRLKWPPAVFID
RECTKPYRLKTDNGKEIMIPTDMGIVIPIMGIHRDPKYYPNPEKFDPERFSDENKSKINMNAYLPFG
VGPRVCIGSRFALMETKILIVHLIINFEVILTSKSTVPPRLSTQSSNMAIENGFNVLKPRNF

>ON646333 CYP304V1 [513 AA] DN46134_c0_g2_i1|m.26206

MSLIIFILLIILIFLIYLLIKNAYTRPENFPPGPPRLPIWGSYWILLALNYKFPHLALRELGKRYKTNV
LGFYLGQTPAVITLNYETTHEMLTRSEFTNRQVNFVIKKRAFGQENLGIFFSYGDFWKEQRRYSRLR
TMRDFGLGRRSPNLENNVADEVKKLMTMICNGSPNEIEKTVCKEKFHILLPHGLFSGFFNAFWYV
LTGDTYSDPYKSHKVFQNALKFQRSGEPLGGALVYTPWLRYIWPKNKSGHVPTFESHFELVDFFKD
YIKEIKENLSEDHSTGYIHEYLLLELKKQNPETYSTFSEDQLLLTLVDHLIPSIVANTTVLAFTFLRILH
NPHVQTKIQQEIDTVVGSGRYPTLDDRSKMIYTEATIKEGLRMDALNPLGIPRECNDQTYFQGYFI
PKGTFMVPGNHSSNMDTKLWGDPENFRPERFIDTNGHLVKKDYALLFGAGKRVCVGETFSRQN
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>ON646334 CYP4416D2 [515 AA] TRINITY_DN46460_c4_g2_i1|m.27900

MFLSLIINFIFNHILVTLIVLIILICVYFSNYFRICYVSKINGPRAYPIIGNSTLFRGTLEEATKVFFQL
SNEYAPITRFWIGPVPLVIVMDPKIIEILYNQNALEKAWFMKLIMKCVLGNTILISEVPKWKRNR
NIINQGFTLSILKSIFYKIFEGNIDTLSDILDNELNNERFFDIYGILSKTTLEAVCASSMRLDMKFQQD
QSNSSYFEAIHSSMHMMSARLMNPLKLPNIFYQFTQDYKKLMGYKNEVYAIARDAISTKRKEQIT
MDDTLIDFKSENNNEIKKPLLDYLIDFTKSNPDTDEEMADEINLTIIAAYETTARTVSMVLLILAL
YKDMQNKVCEELFQMLGESNENKINFDDLKLYMEMVIKEALRLFPAPLIARQLTEDVTMGN
YTIPKGTNIGIPIFALHRNEAYWEEPLKFDPERFTFENIKKQNPYAFIPFSAGPRNCLGVRYAWIFM
KLALSRLLSKYEFHTNIKDLSEIKFEFEISLKIINGYPIRITPRQR

>ON646335 CYP4C163 [501 AA] TRINITY_DN46558_c1_g1_i2|m.28640

MFCMYAVLFLIAAIIILLWHKNKNDRTVKLIEQFPGPKKLPIVGTSWTLLGVPVNKLFSYISSEYDR
YYPGPYRTWLGPPTAINIYKPEHIECIVNNQKHITKGLTYNFLHPWLGGQGLLTSSGEKWFKHRRMI
TPAFHFKILDQFVEVFFFEKCDIMTKRLERHSDGKYFDIYPYITRCALDIICETAMGVPINAQVDQDS
EYVTALYEVSDLTMKRSVLPWLQPDIIWNNVADGKRYQCLAILHGFTNSVIKGRRESRKSNNVAE
TVSKDDDIGSKKRMAFLDVLLEAQEKDPTLSDTDIREEVDTFMFEGHDTTTAAICWSLFLMLGLHP
EVQEKAYQEIQQIFQGSNRSLTKQDLLEMKYLEMVIKEALRLFPSVPIIGRVLKEDQEIDGKLVPE
TVIFVNIHKSQRDPAHFNNPNEFNPDNFFLENSSKRHPYAYMPFSAGPRNCIGQKFALLEEKTIISTI
LRNFKLKSMMQKMHEVNLVGSLVLRPEQGAIVSLEKRQ

>ON646336 CYP4C163 [372 AA] TRINITY_DN46558_c1_g1_i5|m.28641

MFCMYAVLFLIAAIFVLWHKNKNDRTVKLIEQFPGPKKLPIVGTSWTLLGVPVNKLFSYISSEYDR
YYPGPYRTWLGPPTAINIYKPEHIECIVNNQKHITKGLTYNFLHPWLGGQGLLTSSGEKWFKHRRMI
TPAFHFKILDQFVEVFFFEKCDIMTKRLERHSDGKYFDIYPYITRCALDIICETAMGVPINAQVDQDS
EYVTALYEVSDLTMKRSVLPWLQPDIIWNNVADVRYQCLAILHGFTNSVIKGRRESRKSNNVAE
TVSKDDDIGSKKRMAFLDVLLEAQEKDPTLSDTDIREEVDTFMFEGHDTTTAAICWSLFLMLGLHP
EVQEKAYQEIQQIFQGSNRSCPSNIKVSTSSRISVSLNVGSFS

>ON646337 CYP4C163 [396 AA] TRINITY_DN46558_c1_g1_i6|m.28643

MFCMYAVLFLIAAIIILLWHKNKNDRTVKLIEQFPGPKKLPIVGTSWTLLGVPVNKLFSYISSEYDR
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TPAFHFKILDQFVEVFFFEKCDIMTKRLERHSDGKYFDIYPYITRCALDIICETAMGVPINAQVDQDS
EYVTALYEVSDLTMKRSVLPWLQPDIIWNNVADGKRYQCLAILHGFTNSVIKGRRESRKSNNVAE
TVSKDDDIGSKKRMAFLDVLLEAQEKDPTLSDTDIREEVDTFMFEGHDTTTAAICWSLFLMLGLHP
EVQEKAYQEIQQIFQGSNRSLTKQDLLEMKYLEMVIKEALRLFPSVPIIGRVLKEDQEIGKIYDNKT

>ON646338 CYP4C163 [501 AA] TRINITY_DN46558_c1_g1_i7|m.28644

MFCMYAVLFLIAAIFVLWHKNKNDRTVKLIEQFPGPQKLPIVGTSWTLLGVPVKNLFSYISSEYDR
YYPGPYRTWLGPPTAINIYKPEHIECIVNNQKHITKGLTYNFLHPWLGGQLLTSSGEKWFKHRRMI
TPAFHFKILDQFVEVFEKCDIMTKRLERHSDGKYFDIYPYITRCALDIICETAMGVPINAQVDQDS
EYVTALYEVSDLTMKRSVLPWLQPDIIWNNVADGKRYQCLAILHGFTNSVIKGRRESRKSNSVAE
TVSKDDDIGSKKRMAFLDVLLEAQEKDPTLSDTDIREEVDTFMFEGHDTTTAAICWSLFMLGLHP
EVQEKAYQEIKQIFQGSNRSLTKQDLLEMKYLEMVIKEALRLFPSVPIIGRVLKEDQEIDGKLVPE
TVIFVNIHKSQRDPAHFNNPNEFNPDNFLLENSSKRHPYAYMPFSAGPRNCIGQKFALLEEKTIISTI
LRNFLKLSMQKMHEVNLVGSVLVRPEQGAIVSLEKRQ

>ON646339 CYP12AR1 [532 AA] TRINITY_DN46620_c3_g1_i1|m.28748

MNKKLVSFHEIPFKFQQLRNLTVDKNINNKLTTENKKYHDLEWNEALPFEFLPGPKPLPIIGNAWR
FFPFIGNYYGKNILELHKQLHKEYGNIVILKGIMGRPPFVITFSPEDCEKIFRNEGTRPYRNGIGSLA
YYQKVVRKNYKNNASLAVLQGDEWHKMRAQVNSALMQPRVVARYVNRIENVARDFILKIDFL
LKNSKNTDELPPDFLNEIYRWSLETAGEISLDTRLGCLELNVSNSEVQQIIDA VNDMFDLIFELNI
LPSMWRQISTPKYKKFVRTMDYLT SICRKYADRAQTKMLGSEHNNDTVPSVLEVLLKVDKVVAI
MAVDILLAGVDTTGKTA AAVMYFLSINQEKQDKLREELIELMPDPNTPLTRQILDKMTYLRGCIK
EAQRIASITPGQNRVLPKDITLSGYQIPKNT EVFTGNLLMCNL DENYPKSNQYIPERWLRNSAPELT
AKTPHPFVFLPFGHGPRACIGRRFAFCELEVLIATVFRKYKFEW HDEM KFNSRLFYGVDSPLKFK
LIPIY

>ON646340 CYP12AR1 [452 AA] TRINITY_DN46620_c3_g1_i2|m.28749

MYVCILHKEYGNIVILKGIMGRPPFVITFSPEDCEKIFRNEGTRPYRNGIGSLAYYQKVVRKNYKNN
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LNEIYRWSLETAGEISLDTRLGCLELNVSNSEVQQIIDA VNDMFDLIFELNILPSMWRQISTPKYK
KFVRTMDYLT SICRKYADRAQTKMLGSEHNNDTVPSVLEVLLKVDKVVAI MAVDILLAGVDTT
GKTA AAVMYFLSINQEKQDKLREELIELMPDPNTPLTRQILDKMTYLRGCIKEAQRIASITPGQNR
VLPKDITLSGYQIPKNT EVFTGNLLMCNL DENYPKSNQYIPERWLRNSAPELTAKTPHPFVFLPFG
HGPRACIGRRFAFCELEVLIATVFRKYKFEW HDEM KFNSRLFYGVDSPLKFKLIPIY

>ON646341 CYP12AR1 [371 AA] TRINITY_DN46620_c3_g1_i3|m.28750

MRAQVNSALMQPRVVARYVNRIENVARDFILKIDFL LKNSKNTDELPPDFLNEIYRWSLETAGEIS
LDTRLGCLELNVSNSEVQQIIDA VNDMFDLIFELNILPSMWRQISTPKYKKFVRTMDYLT SICRK
YADRAQTKMLGSEHNNDTVPSVLEVLLKVDKVVAI MAVDILLAGVDTTGKTA AAVMYFLSINQ
EKQDKLREELIELMPDPNTPLTRQILDKMTYLRGCIKEAQRIASITPGQNRVLPKDITLSGYQIPKNT
EVFTGNLLMCNL DENYPKSNQYIPERWLRNSAPELTAKTPHPFVFLPFGHGPRACIGRRFAFCELE
VLIATVFRKYKFEW HDEM KFNSRLFYGVDSPLKFKLIPIY

>ON646342 CYP12AR1 [520 AA] TRINITY_DN48207_c3_g1_i3|m.38225

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YYQKVVRKNYKNNASLAVLQGDEWHKMRAQVNSALMQPRVVARYVNRIENVARDFILKIDFL
LKNSKNTDELPPDFLNEIYRWSLETAGEISLDTRLGCLELNVSNSEVQQIIDA VNDMFDLIFELNI
LPSMWRQISTPKYKKFVRTMDYLT SICRKYADRAQTKMLGSEHNNDTVPSVLEVLLKVDKVVAI
MAVDILLAGVDTTGKTA AAVMYFLSINQEKQDKLREELIELMPDPNTPLTRQILDKMTYLRGCIK
EAQRIASITPGQNRVLPKDITLSGYQIPKNT EVFTGNLLMCNL DENYPKSNQYIPERWLRNSAPELT
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>ON646343 CYP4418B2 [368 AA] TRINITY_DN46696_c0_g1_i1|m.28800

MWVDLLL FVALLIGIFTIFYTWN YDYWNKRRLPYVKPIFPFGSLKDVILFKKTFSSLLDDWYYKY
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TRAHLTPGFTALKLKQMFPNMLSVSERLISYIQQNIDSSKNSIEAKDLSTNFTTEVFTLAALNMKSD
SFENPNSQFKTIAGDLLAGSHLKL FITWTLTIVDPALAVLLRIRILSKKGEMYFRKAISDVLAYREQ
NNLVINDFCNYLNNIHLKNSDFTRDDVVSNI VTIFLDGVETSSQIMRFLREVAAYPEVFKKLRNEI
DTIKSKYDDKITFDGLQEMTYLDSCLFETLRIYSALLT

>ON646344 CYP4422A1 [409 AA] TRINITY_DN46720_c0_g1_i4|m.29972

MFLILSLVLVIYSLIYYYYFRHKFSYWKRRGVETYPARFPFGHLGEFYLNKKSYYIEFTQYYDQSKSE
FCGIYQGIDPLLIVKNLEDIKYVLVKNFNCFMNRGVHTDFNSNVVSATLFRIEGDQWRNLRHKLTP
AFTSGKLLKAMFETINQCCNGLDYALNKAMDPKTGEINVKMLAQRYTVDVISSVGFVGVEANCLND
NYASPPFKLSQEILDRTALRTLLIKFQFFGPSYAKILYKFFSDRSKENQQSFFNMINSIVENRQKNKI
MRKDFLQLLIELKNHGTIDSSNDSIDNPNVFDKKDSLNFEDMKTFVSQVFIFYFAGFDTSALTLT
MMLYYLAENQDLQKRLRKDINDCLRKHNNKLTVDGVMEMEYLEMMLSETLLLNLNWASSILYY
ILETNAPVLAALNVMF

>ON646345 CYP4422A1 [439 AA] TRINITY_DN46720_c0_g1_i16|m.29980

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AFTSGKLLKAMFETINQCCNGLDYALNKAMDPKTGEINVKMLAQRYTVDVISSVGFVGVEANCLND
NYASPPFKLSQEILDRTALRTLLIKFQFFGPSYAKILYKFFSDRSKENQQSFFNMINSIVENRQKNKI
MRKDFLQLLIELKNHGTIDSSNDSIDNPNVFDKKDSLNFEDMKTFVSQVFIFYFAGFDTSALTLT
MMLYYLAENQDLQKRLRKDINDCLRKHNNKLTVDGVMEMEYLEMMLSETLRLRPVLGHLFRVC
NKECYLPSSNLKVDVGTNICIPVYNIQRDEKYFPNPNKFDPERFS

>ON646346 CYP4422A2 [379 AA] TRINITY_DN46720_c0_g1_i7|m.29973

MFETINQCGNGLEYALNKAMDPKTGDINVQMLVQRYTVDVISSVGFVGVEANSLKDNYASPIFNLS
QEIVVRKSLHSFLIKLAFFGPSYAKILYNFFSEGSKETRQSFLSMVNNIVESREKNKITRKDFLQLLI
ELKNHGKIDSSNDSLDNADVFDKKDSLNFESMKTFSQVFVIFYFAGFDTSALTLTMMMLYYLAE
NQNIQKRLRKEIDECLKKHNNELTYDGVMEMEYLEMVLSETLRLRPVLGHLVRVCNKECYLPSS
NLKIDVGTIGIPIYNIQRDEKYFPNPNKFDPERFSKENISKIPNFAYLPFGDGPRFCIGLRLGKLQTK
MGLISILRNHTVHLSKSKISNYAPENVILKPKEPVILSFQKFISTDSE

>ON646347 CYP4422A2 [521 AA] TRINITY_DN46720_c0_g1_i8|m.29974

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AFTSGKLLKAMFETINQCGNGLEYALNKAMDPKTGDINVQMLVQRYTVDVISSVGFVGVEANSLKD
NYASPIFNLSQEIVVRKSLHSFLIKLAFFGPSYAKILYNFFSEGSKETRQSFLSMVNNIVESREKNKIT
RKDFLQLLIELKNHGKIDSSNDSLDNADVFDKKDSLNFESMKTFSQVFVIFYFAGFDTSALTLTMM
MLYYLAENQNIQKRLRKEIDECLKKHNNELTYDGVMEMEYLEMVLSETLRLRPVLGHLVRVCN
KECYLPSSNLKIDVGTNICIPVYNIQRDEKYFPNPNKFDPERFSKENILKIPNFAYLPFGDGPRFCIGL
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>ON646348 CYP4422A2 [521 AA] TRINITY_DN46720_c0_g1_i14|m.29979

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AFTSGKLLKAMFETINQCGNGLEYALNKAMDPKTGDINVQMLVQRYTVDVISSVGFVGVEANSLKD
NYASPIFNLSQEIVVRKSLHSFLIKLAFFGPSYAKILYNFFSEGSKETRQSFLSMVNNIVESREKNKIT
RKDFLQLLIELKNHGKIDSSNDSLDNADVFDKKDSLNFESMKTFSQVFVIFYFAGFDTSALTLTMM
MLYYLAENQNIQKRLRKEIDECLKKHNNELTYDGVMEMEYLEMVLSETLRLRPVLGHLVRVCN
KECYLPSSNLKIDVGTNICIPVYNIQRDEKYFPNPNKFDPERFSKENILKIPNFAYLPFGDGPRFCIGL
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>ON646349 CYP4416B2 [504 AA] TRINITY_DN46945_c0_g1_i1|m.30581

MFLIILVFLILFLSYFSNYLRVFYVSKLPGPTAYPIIGNALLILGTNEDALSKVLKLFKDYSPPFRA
WLGVPVIVCTSNPDFVQRLLTGKYSMEKSFLMKYIGKEVVGNSIISEVPKWKHNRNIIAQGFTP
LQSYFEIFLEKSLMLCDNLDVKLNDVKSFDIFQYLSQTSLDTICASTMGVNSNDENNKAIFYSAIE
NVLHLSVERSRYFWNIPKFIYCWSKSYKKHNESMKTIQEFANNVILQKKNYCKSYNNLDICTDRS
KNEFKKPLLEFLIDLQATNLDFTTEKDLGDEANLVIIAGYETSATALSSVLLNLAVYKDVQNKVYEE
LFQVLGSDLNRTINFDDLPLKTYMEMVMKESMRLFPIAPFIIRELTDDIQLGDCLIPRGVSCAVSIY
ALHCDEKIWENPLKFDPERFTPENSIGRHPYAYIPFSGGPRNCIGMRYAWMFMKTVLATLLSRYEF
HTDLNTSEFKFEFAVTMKLIGGYQIQITPRKNDFLDHSR

>ON646350 CYP4416E1 [509 AA] TRINITY_DN46945_c0_g3_i2|m.30583

MLLEYIKNYLLVILLSLIVSLILCSYSKYLRIFYYTTLKPGPTALPIIGNILMLVGNHEEITTIVLNKV
QEYSPIFRAWLGPVPLIFTVKPEYIQEILNHGLEKAWIMKQAGYQLSGDSIMSSKVS KWKRNRRIV
VRGFSPILLKSYFKVFVEKNVILNIENLNKKLNDDKPFDFEYISKTTMDAVCGSTLG YDVNAQNSN
SSYYNAVQNLFFLMFERIFHPWKLPDIYYKFTEDGKQSEKSRDVILGLASKIITERRKIQYENAMQ
NHTLEIQDIKKNVFNKPLLDYLIDITENNQEFDNEQLRDEINIVILGGYETSANALSYVLLNLAAHK
DIQERVCKELFEVLGDGDLNRPIEIDDLPKLKYMDMVLKESMRLYSTVPIIAREITKDIQMGDFFIPK
GSTCVIPILSLHRDHNLWKDPLKFDPERFTPENMKGRHPYAYIPFGGGPRNCIGIRYAWMFMKTLL
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>ON646351 CYP6YJ1 [516 AA] TRINITY_DN47041_c1_g2_i1|m.31304

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ILVCRKSYTSVFTEIYK KINGAYAGIYFGLFPVLFVKDPEIHKDVLIKKFDHFQNRGVHFDEKHEPLS
AHLFRIEGEKWKTMRRLTPAFSSGKLKWMTDIIFDCGNNLRSLNDVYDGDNINFSIICHKYATD
VIASVGFGEANSKDDQSVFYHFASDIKSLNPLKKFVQQCVLFPPELLRLIPMRQQSKESSEVFFL
KTIDETVKYREENNKTNRNDFMQLLINMKNQENEITMRELAQAQYVFYIAGLETSNHTLSYTLYYL
AKYPEIQAKLLEEIDATFDTDEKFTYENINGMTYLEMVLLESRLRPTLSMLNRVCNKPYTIPNTNI
TIDVGTKILISIIDLQTPKYFPNPDKFDPERFSPANKSKIPSYCYMPFGGPRKCIGERQGKFQTKIG
LISILRDHSVRICSYTKEPSEWLPGALLTVPKDPHILKLVKRKKS

>ON646352 CYP9GK4 [350 AA] TRINITY_DN47405_c0_g2_i1|m.33522

RFTNDVIANATFGVKCNSFQDKNNEFYLMGRAAIKFKAWRIILLSLIPAVLNKVLKFTAIPYVCD
YFRNLVKHTTTIRKLQNIIRKMDLHLLMEAQKSTLKYENYIEYKEFAAVDESINSYGKARTLDDE
DVAAQAFIFFLTSFESTSTAMCFVAYELALNPDIQQRCYDEIHEILELTDGKLSYDAVQKIKYLD
MVISETLRKWPPAVATDRVCTKSYTLNVDGKDIFLEKGTNIEIPIYGIHHPQFYFPNPDKFDPERFSD
ENRHNIDPMTYLPFGVGPRNCIGSRFALMEIKVAMFHILKNFEIILTNTKSTVPPKLTSTSCLGIVGG
FNVGLRPRPIDHTSTYLI

>ON646353 CYP9GK4 [364 AA] TRINITY_DN47405_c0_g2_i6|m.33525

EIKKLGDSKHIELELKDSFTRFTNDVIANATFGVKCNSFQDKNNEFYLMGRAAIKFKAWRIILL
LIPAVLNKVLKFTAIPYVCDYFRNLVKHTTTIRKLQNIIRKMDLHLLMEAQKSTLKYENYIEYKEF
AAVDESINSYGKARTLDDEDVAAQAFIFFLTSFESTSTAMCFVAYELALNPDIQQRCYDEIHEILEL
TDGKLSYDAVQKIKYLD MVISETLRKWPPAVATDRVCTKSYTLNVDGKDIFLEKGTNIEIPIYGIH
HDPQFYFPNPDKFDPERFSDENRHSIDPMTYLPFGVGPRNCIGSRFALMEV K VAMFHILKNFEIILT
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>ON646354 CYP9GK4 [404 AA] TRINITY_DN50479_c1_g2_i2|m.50193

MFFILLCLLGVVLVFLYREKHYSYNYWENKGKISFKALWLTDKVIRLVFQRVSLAETILSYYN
AVPNEKCVGFVAFNNATLIIRDTELKQITVKDFDYFTDHPKTFVVEGVDGLLDKNL FALDGD
TWREMRATLSPAFTGAKIRGMFQV VNECGDQMAAFYLN EIKKLGDSKHIELELKDSFTRFTND
VIANATFGVKCNSFQDKNNEFYLMGRAAIKFKAWRIILLSLIPAVLNKVLKFTAIPYVCDYFRNL
VKHTTTIRKLQNIIRKMDLHLLMEAQKSTLKYENYIEYKEFAAVDESINSYGKARTLDDEDVAAQAFIF
FLTSFESTSTAMCFVAYELALNPDIQQRCYDEIHEILELTDGKLSYDAVQKIKYLD MVISETLR
KWPPAVATDRVCTK

>ON646355 CYP4416D1 [515 AA] TRINITY_DN47476_c1_g3_i1|m.33831

MILMIASSFTINYVLLVTLTVLIGLLTFVYFSNYFRICYFVLKIRGPRAYPIIGNGLLFRGSLEEMSKV
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KRMRSITRAFTTSILKPYSNIFVDKMDILIEILDKELNKENTFDISKILSKAALDSVYASSMGVNMN
VQKGDSRFVDAMHRSCDLMIGRGLNPLKYPETIYRFTQDYKELMQCRDVVYSLTNK VISEKRNN
YKNGINNNQKDLKAVNTNAFKKPLLDYLIDFTENNPDFTDEQLADEINFITLEAMDTTAKQLSWV
LLIMAIHKDEQKKVYDELFEVLSNSNPDKIVFDDLSSLKYM MEMVIKEAMRLFPVAPLIGRELTKDI
HFENYTI PKGTNIAIPIFSVHRNEDYWENPLKFDPERFSS ENIKKHPY AFLAFSAGPRNCIGMRYA
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>ON646356 CYP6YH6 [454 AA] TRINITY_DN47883_c2_g1_i1|m.36192

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YRKTNDKVFGLYVFQRPFLLLRDPELIKHVLVKDFNNFIPRSNSKSSNDPIGNKNLFS LKNVHHWR

FMRSKMSPFFSSGKMRNVFGLLDTIGDQLTEHIKKHLNKTIDIKDVSQKYTIDVIVSAAYGIEANSF
TNEKAAPSSIGKVIFTYSLKRSVELISYFFAPLLVKLFNFKFFGDEATQFFRSVFWAAIKERELNYV
KRPDLIETLIALKNKGTLSDPAVGDLGTVNNSKKLSSNKDTIKLEGDILVAQAAVFFAAGFETSSL
AISFTLYFLSYNPEIQIKLRKEIQTIVVRNGGKFTYDCLQDMKFLDACIKETLRMYPTLGFLDREAI
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>ON646357 CYP6YH7 [421 AA] TRINITY_DN47883_c3_g2_i1|m.36193

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YLKNHVFETLEGKSVQCQNYTTDAIVSTVMGLSVNSFKDEETEFDRISKGLFTVTLRRATELMFFFF
VPFLSRLRLKVFSEMGSGFYRNLFWSAVKMRQDNNIKRPDLIDALITLKNYGTIEDADSKEQKK
EVVSNPSQLKLDGDVLVAQIALFYAAGLNTSSAAMSFTCYSLSYNPEIQIKLRKEIQTVLARNGGK
LTYESVFEMKYLDCCFKETLRLYPSLGYLDREALDITYTFPGTNLTIEKGTPTVIISLAGMQKDPQYF
KNPDVYDPERFNDENKDKIPPYVFMFPGDGRNCIGARLGQLITKVGLINILKDYEVVTVASKPLL
ELNPKAFFTEAKGGISLQFKPGTVYV

>ON646358 CYP6YH7 [380 AA] TRINITY_DN47883_c3_g2_i2|m.36198

KDFNNFIPRTSAPTYKDDPLGEYNLFSMKSTHDWRFIRSKLSPIFSSGKLRNMFPLVNENGENLNG
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VPFLSRLRLKVFSEMGSGFYRNLFWSAVKMRQDNNIKRPDLIDALITLKNYGTIEDADSKEQKK
EVVSNPSQLKLDGDVLVAQIALFYAAGLNTSSAAMSFTCYSLSYNPEIQIKLRKEIQTVLARNGGK
LTYESVFEMKYLDCCFKETLRLYPSLGYLDREALDITYTFPGTNLTIEKGTPTVIISLAGMQKDPQYF
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>ON646359 CYP6YH8 [389 AA] TRINITY_DN47883_c3_g5_i3|m.36196

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QYRKTKEKFFGLYIFRRPYLLIRDPELAKHVLIKDFNNFVPRTTAPTHKDDPMGQYNLFSMKNNN
DWRFIRSKLSPIFSSGKLRNTFPLINEIGENLNGYLKNHVFETLEGKSVCRKYTSDVIVSTVFGISTN
SFTDEETEFELSKTVFTTLRRAYELMFFFFVPTVSRLFRLKVFSEEGTEFFRNIFWSAVKMRDEH
NIKRPDLIDALITLKNYGTIEDPDNKENSKKEVVSNSQLKLDGDVLVAQIALFYAAGLDTSSNAMS
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>ON646360 CYP4421A1 [498 AA] TRINITY_DN47910_c3_g2_i3|m.36888

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YVGFIYFNKPYLLIKDPKIIQSILVKDFTKFNNRSTASVIENDFIGTYSLFALKDTEWKVLRSKVLPF
FSTKQMKLMFELITDVGEHLNEEIKQIYNKKTNIFETKDTAGKFASDIIAACVYGIPPPNEFLQISKSI
FEPSVIRNFELNSFFFMKIFASIFKFTFIGRKATNYLRMLFWNIINTREMEVQHNSKMKQDNFLNFI
ELRKNKEISLTHDKLVAQAIFFTAGIEGPATAISQGLYHIALNSNIQRRRLKEIKQALADNNNELTF
ENIKELPYLDACVRESFRMAIALPFLDRQASEDYKVPGTDLIEKGGMGIFISLYGMHYDPKYFPNPN
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RGFFYTLANGYDLRFKDDDDIND

>ON646361 CYP4421A1 [446 AA] TRINITY_DN47910_c3_g3_i5|m.36892

MITIILLILIAISIRYYKENFNFDYWKIRNVKFLKPLPIFGNYLPAFLMQMSTGKLLKIHRRHYENEP
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FSTKQMKLMFELITDVGEHLNEEIKQIYNKKTNIFETKDTAGKFASDIIAACVYGIPPPNEFLQISKSI
FEPSVIRNFELNSFFFMKIFASIFKFTFIGRKATNYLRMLFWNIINTREMEVQHNSKMKQDNFLNFI
ELRKNKEISLTHDKLVAQAIFFTAGIEGPATAISQGLYHIALNSNIQRRRLKEIKQALADNNNELTF
ENIKELPYLDACVRESFRMAIALPFLDRQASEDYKVPGTDLIEKGGMGIFISLYGMHYDPKYFPNPN
KFDPERFLTNSKLNQFAYLPFGAGPRNCIGKYIICK

>ON646362 CYP4XF3 [470 AA] TRINITY_DN48043_c3_g2_i1|m.37118

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RTTNCNLDDRMSTTSKDDLYGCSSMTTTYSSMSDHDQDIIDHGSLLLEDDVLDLNLHKVEQLQQQV
NILTSTTIEQQQHNNNNINNNNNNNIIDDNSNVCLGSKKRIFLDLLQSTHLSGEPLTDKEIID
EVTNFMFAGHDTTSVQLSLLMYLLCEHPEIQNELYKEQCAILTDINGDPSFKQIQEMNYLERTIKES
QRILPCVISFSRKMTADIQLKTNNLLLPGGCTASIFVYDVHHPKIYENPEKFDPRFLPENIRGRHP

YAYIPFSAGPRNCLGQKFALLEMKTVMSNIIRNFKILPAYEDNGDKFKPIFRRYMLLTSLNGIQIRL
ESRR

>ON646363 CYP6YK1 [499 AA] TRINITY_DN48154_c0_g1_i1|m.37978

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LTPAFSSGKLKAMDVLQRCGEQMSQHLLERKNPDEELEMKQFFGLFTLDVISNCAFGIESNPWKE
TDPELITAFRNFDSTTLTRMRLASLVLMPHYFRRFVTVWIFNKKTAIFYANIIRNTREYRLKNN
QRRNDFLQLLDISAQEEEEKPEHRLMDVDHVISQSILFMIAGFETSSTLLGFAAYELALNPEVQNT
LRAEIKSVLEKHNNVCNYDAVQDMHYLEMVLLLETLRKHSPVARIDRCCVKEYKIRGTDIVMEKG
MNVSVPVVGFHYDPTYFPNPEKFDPLRFQENRNPDGFLSFGIGPRNCIGKRFALISTKFAMVYLIK
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>ON646364 CYP6YK1 [374 AA] TRINITY_DN48154_c0_g1_i3|m.37980

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LTPAFSSGKLKAMDVLQRCGEQMSQHLLERKNPDEELEMKQFFGLFTLDVISNCAFGIESNPWKE
TDPELITAFRNFDSTTLTRMRLASLVLMPHYFRRFVTVWIFNKKTAIFYANIIRNTREYRLKNN
QRRNDFLQLLDISAQEEEEKPEHRLMDVDHVISQSILFMIAGFETSSTLLGFAAYELALNPEVQNT
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>ON646365 CYP4418A1 [509 AA] TRINITY_DN48169_c1_g1_i10|m.38105

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YFGIFFGRHPVLFIRDPELFBKMTVKNFNDFQDNTASMSEKSDILGALNPFILKGERWKISRTHITP
AFTSLKIKQNMYPNMVDVSRERLKMVITKNLDFNSNGIKIQNLARDFASEIFTLGLAIKTDAFEDS
KNPFKIIAHEMFETESFTGILKFILMIVDPAVSLLLRTALMSKTAVEYFRKVIRDVRLQRKINNINTN
DYFSYLDKLQIDNADFSEDDLASHIVTLFIDGVETTASTIKLTMAEIAANPRVFVKLREEIDRIMVK
YDNKLTIDALRDMTYLDHCISEALRLHPLFMFFMRNCTAGSFQFPYKDGVNVDVKIDKGFSVL
LPVYALQHDENLHANPETFYPERFSEDETKVQSKANYFGFGDGPRICLGMKYAQLVTKIGIWAMI
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>ON646366 CYP4418A1 [366 AA] TRINITY_DN48169_c1_g1_i9|m.38103

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YFGIFFGRHPVLFIRDPELFBKMTVKNFNDFQDNTASMSEKSDILGALNPFILKGERWKISRTHITP
AFTSLKIKQNMYPNMVDVSRERLKMVITKNLDFNSNGIKIQNLARDFASEIFTLGLAIKTDAFEDS
KNPFKIIAHEMFETESFTGILKFILMIVDPAVSLLLRTALMSKTAVEYFRKVIRDVRLQRKINNINTN
DYFSYLDKLQIDNADFSEDDLASHIVTLFIDGVETTASTIKLTMAEIAANPRVFVKLREEIDRIMVK
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>ON646367 CYP4418A1 [366 AA] TRINITY_DN48169_c1_g1_i13|m.38111

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NPFKIIAHEMFETESFTGILKFILMIVDPAVSLLLRTALMSKTAVEYFRKVIRDVRLQRKINNINTND
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>ON646368 CYP4418A1 [509 AA] TRINITY_DN48169_c1_g1_i17|m.38118

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AFTSLKIKQNMYPNMVDVSRERLKMVITKNLDFNSNGIKIQNLARDFASEIFTLGLAIKTDAFEDS
KNPFKIIAHEMFETESFTGILKFILMIVDPAVSLLLRTALMSKTAVEYFRKVIRDVRLQRKINNINTN
DYFSYLDKLQIDNADFSEDDLASHIVTLFIDGVETTASTIKLTMAEIAANPRVFVKLREEIDRIMVK
YDNKLTIDALRDMTYLDHCISEALRLHPLFMFFMRNCTAGSFQFPYKDGVNVDVKIDKGFSVL
LPVYALQHDENLHANPETFYPERFSEDETKVQSKAIYYGFGDGPRICLGMKYAQLVTKIGIWAMI
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>ON646369 CYP4418A1 [509 AA] TRINITY_DN48169_c1_g1_i18|m.38120
MFFDILLILITITLCFVIFYTWNVDYWKRRIPYESPFPFGSIKDALLRKPLGSIHELYYKYKDYK
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FTSLKIKQNMYPNMVDVSRCLKMYITKNLDFNSNGIKIQNLARDFASEIFTLCGLAIKTDAFEDSK
NPFKIIAHEMFETESFTGILKFILMIVDPAVSLLLRTALMSKTAVEYFRKVIRDVRLQRKINNINTND
YFSYLDKLQIDNADFSEDDLASHIVTLFIDGVETTASTIKLTMAEIAANPRVFKKLREEIDRIMVKY
DNKLTYPDALRDMTYLDHCISEALRLHPLFMFFMRNCTAGSFQFPPYKDGVNRDVKIDKGFSVLLP
VYALQHNDENLHANPETFYPERFSEDETKVQSKAIYYGFGDGPRICLGMKYAQLVTKIGIWAMISN
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>ON646370 CYP4418A1 [419 AA] TRINITY_DN48169_c1_g1_i22|m.38125
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KFILMIVDPAVSLLLRTALMSKTAVEYFRKVIRDVRLQRKINNINTNDYFSYLDKLQIDNADFSED
DLASHIVTLFIDGVETTASTIKLTMAEIAANPRVFKKLREEIDRIMVKYDNKLTYPDALRDMTYLDH
CISEALRLHPLFMFFMRNCTAGSFQFPPYKDGVNRDVKIDKGFSVLLPVYALQHNDENLHANPETF
YPERFSEDETKVQSKAIYYGFGDGPRICLGMKYAQLVTKIGIWAMISNFDIVLNEKSKYPIKNAGP
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>ON646371 CYP4XK1 [519 AA] TRINITY_DN48411_c1_g2_i4|m.39396
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RKIITPTFHFNILEKFVETFNENAEILIKRLSDVQKENPTLDIHTFTLCALDIICETAMGTKINAQQS
GGLNDYVQAVNLAAVMVHRYYNLLHRFRFISKFTPLGKQYERCLQLLLNRTEIIRTRKAELKR
EKENKSVEVKKSEEDVGRKRRMAFLDLLLQTTHTNGSPLSDTEIRDEVNTFMVAGHETTSIGTST
CLYLLSINPEVQEKVVEELNDIFGNDTRAPSYEDLQKLSYLERTIKESQRLMPSIAEFQRYIKEDFPI
NNYVIPGGSTIGVMVYAMHIDPEIFPDPMPKFDPRFLPENSRRNHPFAYIPFSGGYRNCIGQKFAM
LEMKA VISSVLRNFKIEAAIDEKTGKVFKPIIEERVTTGSKNGIYVKLLPRQKS

>ON646372 CYP4XF1 [511 AA] TRINITY_DN48411_c1_g3_i5|m.39402
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PIFKIPSVGRLAINMTNPEDIEVLLKNNEILDKPYSTTKFFKPWLGNGLVFSAGPYWKQQRKLITPT
FHFNILEKFFEVEFNEQGDILIKLLKEKADGKTNDIFPYMQSFALDVICETAMGTKIHAQTSARSAY
VLAVQDMERIIVERFISVIQQIDFLFPFTENGQTQRKALQILKESTD KLIRKRRDDLIKESENKSDEN
QDDSFGTKKSLAFLDLMLQARNMDGTPLTNEQISDEVSTFTFAGHDTTSTQLAFLFYLLSKNPHIQ
EEIYKEQCDILMGEKRDPTFQEVQEMHYLERTIKEAQRLPSVPLFSRQVTKDLQLKTNNYVAPE
GSILTVFTFGLHRNPNIYPDPEKFDPRFLPENLRERNPYSFVPFSAGPRNCIGQKFAMLEMTSSS
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>ON646373 CYP4XF1 [405 AA] TRINITY_DN50017_c0_g1_i2|m.47968
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PIFKIPSVGRLAINMTNPEDIEVLLKNNEILDKPYSTTKFFKPWLGNGLVFSAGPYWKQQRKLITPT
FHFNILEKFFEVEFNEQGDILIKLLKEKADGKTNDIFPYMQSFALDVICETAMGTKIHAQTSARSAY
VLAVQDMERIIVERFISVIQQIDFLFPFTENGQTQRKALQILKESTD KLIRKRRDDLIKESENKSDEN
QDDSFGTKKRLAFLDLMLQARNMDGTPLTNEQISDEVSTFTFAGHDTTSTQLAFLFYLLSKNPHIQ
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QR

>ON646374 CYP4XF2 [367 AA] TRINITY_DN48411_c1_g3_i6|m.39403
IEIIIGALVAIVVALYVYFELPLKRIKRLTSGIPGPKGLPIVGILFDVRKEKAGTFGFLWNNTQKYGPI
FKIPSVGRLAINMTNPEDIEVLLKNNEILDKPYSTTKFFKPWLGNGLVFSAGPYWKQQRKLITPTFH
FNILEKFFEVEFNEQGDILIKLLKEKADGKTNDIFPYMQSFALDVICETAMGTKVHAQTKPRSAYVL
AVHNMARIIVERVLSAIQQIDFLFAFTENGRTQRKALKVLKESTD KLIRKRRNDLIKESENKSNESQ
ADTVGTTKRLAFLDLMLHARNMDGTPLTNEQISDEVSTFTAAGHDTTATQLALLFYLLSKNQHIQ
EEIYKEQCDILMGENRDPTFQEVQEMHYLERT

>ON646375 CYP4XFfragment1 [353 AA] TRINITY_DN48411_c1_g3_i15|m.39409

MIEIFIGLVGVILVVLRLRLEPLRRIKKLTSTIPGPKGLPLVGILFDITKDKDALGYLWKCTQTYGH
IFKIPIVGR LAINMSNPEDIEVLLKNEILEKPYTTAKFFRPWLGNGLLSRGSYWKHQKRLITPTFH
FNILEKFYEVFNEQGQILIEILKEKADGKTNIDIFPYMQSFALDVICETAMGTVHAQTKPRSAYVL
AVHNMARIIVERVLSAIQQIDFLFAFTENGRTQRKALKVLKESTDKLIRKRRNDLIKESENKSNESQ
ADTVGTTKRLAFLDLMLHARNMDGTPLTNEQISDEVSTFTAAGHDTTATQLALLFYLLSKNQHIQ
EEIYKEQCDILMGEKQES

>ON646376 CYP12AS1 [518 AA] TRINITY_DN48442_c4_g1_i3|m.39562

MLCSRFKITPNINKNYNLRCLLSTTNVAVVWDNAQPFETLPGPKPLPILGNAPRFLPPFGEYSKGN
FLQIYQQQLQKQYGNIMVLRGLPGREPIVVITYSVNDIETMYRNEGPRPYRPGLDLRYRKHVRND
VHKILGLALSQGGDDWDMRSKVNPMVMKTQSIRRYTKTVSSIADDLIKKIDILLSKSELPPDDL
LNELFRWSLETVCAIALDTRLGCLDPNMSHDSEAQK MIDASVEMFECIYELDILPSVWKVSTPTL
KKSIVNDFITSYVMKHLDAAEERMKNKPSNSDHEPSILERLIVIDKNVASAMVNDAMIAGIETTS
KTVATVMYFLATNPNAQDKLREEINTIWPDSSTDITSKQIDQMLYLRACIKEAQRIAPVTVGTVRK
LDVDVVLSGYQIPKGTDILSPNIVLCLSDKHFPQPEKYLPERWLRSSPSELSARNTNMFVYLPFGFG
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>ON646377 CYP18A1 [533 AA] TRINITY_DN48592_c0_g1_i2|m.39903

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KLWKDQRRFLHNRFRNFGVTYLGSGKNQIEKRIMGEVVEFLSVLKSFE GAPTDPSPILSVCISNVIC
EMMMSVRFTHNDPKFLRFMGLTQEGQLWGSMNYATCIPVLQYFPKFRVILKKLGENRDEM SAF
FQEQL EHRRTFDPENIRDLIDTYLLEIEKAKENGTD SNLFEGRNHDRQIRQVIADLFTAGMETIKN
TLQFAILYMIHHPESLRAVQDEL DQIVGRNRLPKLEDLPYLP TTESTLYEVMRISSIVPLGTEHSPIR
DVTVNGYRIPQNT HVHPFLHAVHMDPNLWDEPERFNPSRFINSAGNCVKPEYFLPFGVGRRMCL
GDVLARMELFLFFSSMLHTFNISVPEGEKLPSLKPNSGITLFPEAFKVCFKPRSLNTDTVHPRQEK N
IGVH

>ON646378 CYP4XG1 [516 AA] TRINITY_DN48583_c1_g1_i1|m.40225

MIDNKLNDINKNDNSLSTYFLLKYTLLTIIVISVIKFYWDRRRLYICALKFSGPTALPLLGNALLFA
VQPEDILSRIYEIVCKYSSPCRLWFGHKLMTHIYAPEDLEVVLSDTVNIKKDHTYSFIEPFLGQGLIS
NSGSLWKTHRRLIPTFTSKTLRYYVESFNTHAKTLVEKLQPIAERKETVNIIDPLNLCTVDIVLSTIL
GIEAGA QDHKIDEFVEHVELGYKMVAERMFKGWLHLDAIFRLSKCYRNTMKAQKVIHDFAKKQ
LTTLKAEFNQKYQDGLIDEHNVRTTLEHLLINKKGDDFFTDVELRDETYTLFTASQDTVATECAF
ILLMLAMHPEIQEKVYKEILEVSGETKDYYTEWETYPEFKYLEMVIKESLRLFPIGPTIMREVIQDI
KLKNDIVIPKGAGVMVVMYRTHRLPEYWTDPEKFIPERFLPELCEKRHPFAYVPFSFGPRSCIAPR
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>ON646379 CYP4XG1 [420 AA] TRINITY_DN48583_c1_g1_i3|m.40227

MTHIYAPEDLEVVLSDTVNIKKDHTYSFIEPFLGQGLISNSGSLWKTHRRLIPTFTSKTLRYYVESF
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RMFKGWLHLDAIFRLSKCYRNTMKAQKVIHDFAKKQLTTLKAEFNQKYQDGLIDEHNVRTTLEH
LLLINKKGDDFFTDVELRDETYTLFTASQDTVATECAFILLMLAMHPEIQEKVYKEILEVSGETKD
YYTEWETYPEFKYLEMVIKESLRLFPIGPTIMREVIQDIKLKNDIVIPKGAGVMVVMYRTHRLPEY
WTDPEKFIPERFLPELCEKRHPFAYVPFSFGPRSCIAPRYAMAAMKTIVTHVIRSYKLTCEDKFEDL
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>ON646380 CYP4XG1 [506 AA] TRINITY_DN48583_c1_g1_i4|m.40228

MIDNKLNDINKNDNSLSTYFLLKYTLLTIIVISVIKFYWDRRRLYICALKFSGPTALPLLGNALLFA
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NSGSLWKTHRRLIPTFTSKTLRYYVESFNTHAKTLVEKLQPIAERKETVNIIDPLNLCTVDIVLSTIL
GIEAGA QDHKIDEFVEHVELGYKMVAERMFKGWLHLDAIFRLSKCYRNTMKAQKVIHDFAKKQ
LTTLKAEFNQKYQDGLIDEHNVRTTLEHLLINKKGDDFFTDVELRDETYTLFTASQDTVATECAF
ILLMLAMHPEIQEKVYKEILEVSGETKDYYTEWETYPEFKYLEMVIKESLRLFPIGPTIMREVIQDI

KLKNDIVIPKGAGVMVVMYRTHRLPEYWTDPEKFIPERFLPELCEKRHPFAYVPFSFGPRSCIGTLF
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>ON646381 CYP4C164partial [357 AA] TRINITY_DN48799_c1_g2_i1|m.41074

KADGAEFDLYPYITRCALDIICETAMGVKIDAQRHIEANLGDKPEALDSSDSEYVKAIYDFSDLAL
RRGFVIWYHINFIWNNSSSGRRYNKCVEILHGFTNKVILERKEALKAKKPVPKEENEADSIGTKK
RMAFLDLLLEASLDGHHLTTEEIREEVDTFMFEGHDTTAAICWSLFLGNHMDVQKQCHEELDS
IFQDTRDITRQDLADMKYLEMVIKETLRMYPSPVPIISRELGEDIVLDGFTVPKKTFAVMHLHETH
RNEAHFKNPNTFNPENFNKDNCAKRHPYAYIPFSAGLRNCIGQKFAILEEKTVLASILRKFRIESIES
VEECKKV GALILRPLNGVQVFLHRRH

>ON646382 CYP9GN5 [512 AA] TRINITY_DN48771_c0_g2_i4|m.41099

MF AIIALIVILYLIHYAITNVYKYWESRGIPYYKPRNAYYDTYCTFLQKDNFSLEIAKAYNGFDPKQ
VYGSFLLRTPQLMVKDPDILRNICVKDFEHFTNHVDIFFKDDLLLGKSLFALKDKKWRDMRTILSP
IFTGSKLRGMVDLVSECSEQTMDYYAQLIKQKSDKTKVKVDILDATSRFTNDVIATSAFGIQVNSLA
DKTNVFFETGQEVSKFPFWRVVAAPKFVKKIFNLSLFPSKIYEFFRNIVEESIRIRKTQNIVRYDLI
HLLLEAKKEQINKINEKSDNDQKLELSKNLLDIDDITAQSFIFFIAGFINVALTISFAGYELAIQPEIQ
DKLRKEIRELLQKNNGKLDYDILKKMKYLDMMVVTEVLRKYPPAGMLDRVCTKAYTIKTATESID
LVPGM PINIPVMGLHYDPKYFPNPNKFDPERFNDENREKMN PYTYLPFGVGPRLCIASRFVLMEIK
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>ON646383 CYP9GN5 [512 AA] TRINITY_DN48771_c0_g2_i1|m.41097

MF AIIALIVILYLIHYAITNVYKYWESRGIPYYKPRNAYYDTYCTFLQKDNFSLEIAKAYNGFDPKQ
VYGSFLLRTPQLMVKDPDILRNICVKDFEHFTNHVDIFFKDDLLLGKSLFALKDKKWRDMRTILSP
IFTGSKLRGMVDLVSECSEQTMDYYAQLIKQKSDKTKVKVDILDATSRFTNDVIATSAFGIQVNSLA
DKTNVFFETGQEVSKFPFWRVVAAPKFVKKIFNLSLFPSKIYEFFRNIVEESIRIRKTQNIVRYDLI
HLLLEAKKEQINKINEKSDNDQKLELSKNLLDIDDITAQSFIFFIAGFINVALTISFAGYELAIQPEIQ
DKLRKEIRELLQKNNGKLDYDILKKMKYLDMMVVTEVLRKYPPAGMLDRVCTKAYTIKTATESID
LVPGM PINIPVMGLHYDPKYFPNPNKFDPERFNDENREKMN PYTYLPFGVGPRLCIASRFVLMEIK
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>ON646384 CYP9GN5 [458 AA] TRINITY_DN48771_c0_g2_i5|m.41100

MF AIIALIVILYLIHYAITNVYKYWESRGIPYYKPRNAYYDTYCTFLQKDNFSLEIAKAYNGFDPKQ
VYGSFLLRTPQLMVKDPDILRNICVKDFEHFTNHVDIFFKDDLLLGKSLFALKDKKWRDMRTILSP
IFTGSKLRGMVDLVSECSEQTMDYYAQLIKQKSDKTKVKVDILDATSRFTNDVIATSAFGIQVNSLA
DKTNVFFETGQEVSKFPFWRVVAAPKFVKKIFNLSLFPSKIYEFFRNIVEESIRIRKTQNIVRYDLI
HLLLEAKKEQINKINEKSDNDQKLELSKNLLDIDDITAQSFIFFIAGFINVALTISFAGYELAIQPEIQ
DKLRKEIRELLQKNNGKLDYDILKKMKYLDMMVVTEVLRKYPPAGMLDRVCTKAYTIKTATESID
LVPGM PINIPVMGLHYDPKYFPNPNKFDPERFNDENREKMN PYSYLPFGVGPRLCIG

>ON646385 CYP9GN5 [512 AA] TRINITY_DN48771_c0_g1_i1|m.41096

MF AIIALIVILYLIHYAITNVYKYWESRGIPYYKPRNAYYDTYCTFLQKDNFSLEIAKAYNGFDPKQ
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IFTGSKLRGMVDLVSECSEQTMDYYAQLIKQKSDKTKVKVDILDATSRFTNDVIATSAFGIQVNSLA
DKTNVFFETGQEVSKFPFWRVVAAPKFVKKIFNLSLFPSKIYEFFRNIVEESIRIRKTQNIVRYDLI
HLLLEAKKEQINKINEKSDNDQKLELSKNLLDIDDITAQSFIFFIAGFINVALTISFAGYELAIQPEIQ
DKLRKEIRELLQKNNGKLDYDILKKMKYLDMMVVTEVLRKYPPAGMLDRVCTKAYTIKTATESID
LVPGM PINIPVMGLHYDPKYFPNPNKFDPERFNDENREKMN PYTYLPFGVGPRLCIASRFVLMEIK
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>ON646386 CYP9GN5 [458 AA] TRINITY_DN48771_c0_g2_i3|m.41098

MF AIIALIVILYLIHYAITNVYKYWESRGIPYYKPRNAYYDTYCTFLQKDNFSLEIAKAYNGFDPKQ
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IFTGSKLRGMVDLVSECSEQTMDYYAQLIKQKSDKTKVKVDILDATSRFTNDVIATSAFGIQVNSLA
DKTNVFFETGQEVSKFPFWRVVAAPKFVKKIFNLSLFPSKIYEFFRNIVEESIRIRKTQNIVRYDLI
HLLLEAKKEQINKINEKSDNDQKLELSKNLLDIDDITAQSFIFFIAGFINVALTISFAGYELAIQPEIQ

DKLRKEIRELLQKNNGKLDYDILKKMKYLDMVVTEVLRKYPPAGMLDRVCTKAYTIKTATESID
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>ON646387 CYP9GK5 [522 AA] TRINITY_DN48962_c0_g2_i10|m.41746

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GMFSFGTAPALLIRDPELLKQITIKDFNYFTDHTKSFFKDGFDLIDRNLFSLSGNEWDRMRATLSP
AFTGSKMRGLFNMMNDCSEQFVSYYSNKVKNKAKDSHLEVELKKSFTFRFTNDIIASAVFGVKCDS
LNNEQNEFYLMGCKAAYFATWRILLSNFCPWILKFLNLGGVPIEECKYFKNLVYETKAVREREN
IIRPDILHLLIQAQKGALKDDSVENKGFVGTESKTVGNIKKLDDDDIAAQAFLLGGFETTSILM
CFTIFELALNPDIQERLLNEIQNTLSESNGEFSYDVVHKMKYLDMIVTETLRKWPPAPITDRVTTKN
YKIQVGKKLITLEPGFPITVPIIGFHRDPQYYPNPEKFDPERFNDENKKNIKPLTFCPFAGAPRLCIGA
RFAVMNAKIIIFHMIKNFEVILVKNSTVPPVLSSKSGNTILENGFHVGLKLRKL

>ON646388 CYP9GK5 [409 AA] TRINITY_DN48962_c0_g2_i4|m.41738

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AFTGSKMRGLFNMMNDCSEQFVSYYSNKVKNKAKDSHLEVELKKSFTFRFTNDIIASAVFGVKCDS
LNNEQNEFYLMGCKAAYFATWRILLSNFCPWILKFLNLGGVPIEECKYFKNLVYETKAVREREN
IIRPDILHLLIQAQKGALKDDSVENKGFVGTESKTVGNIKKLDDDDIAAQAFLLGGFETTSILM
CFTIFELALNPDIQERLLNEIQNTLSESNGEFSYDVVHKMKYLDMIVTETLRKWPPAPITDRVTTKN
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>ON646389 CYP9GK5 [386 AA] TRINITY_DN48962_c0_g2_i5|m.41740

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AFTGSKMRGLFNMMNDCSEQFVSYYSNKVKNKAKDSHLEVELKKSFTFRFTNDIIASAVFGVKCDS
LNNEQNEFYLMGCKAAYFATWRILLSNFCPWILKFLNLGGVPIEECKYFKNLVYETKAVREREN
IIRPDILHLLIQAQKGALKDDSVENKGFVGTESKTVGNIKKLDDDDIAAQAFLLGGFETTSILM
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>ON646390 CYP9GK5 [522 AA] TRINITY_DN48962_c0_g2_i2|m.41737

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AFTGSKMRGLFNMMNDCSEQFVSYYSNKVKNKAKDSHLEVELKKSFTFRFTNDIIASAVFGVKCDS
LNNEQNEFYLMGCKAAYFATWRILLSNFCPWILKFLNLGGVPIEECKYFKNLVYETKAVREREN
IIRPDILHLLIQAQKGALKDDSVENKGFVGTESKTVGNIKKLDDDDIAAQAFLLGGFETTSILM
CFTIFELALNPDIQERLLNEIQNTLSESNGEFSYDVVHKMKYLDMIVTETLRKWPPAPITDRVTTKN
YKIQVGKKLITLEPGFPITVPIIGFHRDPQYYPNPEKFDPERFNDENKKNIKPLTFCPFAGAPRLCIGA
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>ON646391 CYP9GP3 [506 AA] TRINITY_DN48929_c0_g1_i3|m.42062

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TILSPVFTANKMRIIFSLMASCQDQIVAYFNKEYEKQGNKGKPLEIEFKSTTARFTNDVIATTSFGL
DSFKNPENEFIKTGRAIFDFSMIRFILLFKFPFIKIFNVKLMAPIVYEFFPKVIRETLKNRRENNIKRP
DMIQLMMEAKESLEKNPVKDLVLEDDDDIISQAFVFFGAGFETVSVAMSFAMYELAIHPEIQKRLQ
EECIENFKKGDGKITYELLQGMKYLDMVVSESFRKWPPATSLDRVCNKKYTLNVDDQEIIVIEPEM
FIICPVLGIHRDPKYYPNPKFDPERFNDENKASIHPTMYMPFGAGPRICIASRFAIMEVKLFLCYIL
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>ON646392 CYP9GP2 [444 AA] TRINITY_DN48929_c0_g1_i4|m.42063

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PVFTANKMRIIFSLMASCQDQIVAYFNKEYEKQGNKGKPLEIEFKSTTARFTNDVIATTSFGL
KNPENEFIKTGRAIFDFSMIRFILLFKFPFIKIFNVKLMAPIVYEFFPKVIRETLKNRRENNIKRPDM
QLMMEAKESLEKNPVKDLVLEDDDDIISQAFVFFGAGFETVSVAMSFAMYELAIHPEIQKRLQEECI

ENFKKGDGKITYELLQGMKYLDMVVSSEFRKWPPATALDRVCNKKYTLNVDDQEIVIEPEMLIN
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>ON646393 CYP9GP2 [431 AA] TRINITY_DN48929_c0_g2_i4|m.42067

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SPVFTANKMRIIFSLMASCQDQIVAYFNKEYEKQGNKGPLEIEFKSTTARFTNDVIATTSFGLEIDSF
KNPENEFIKTGRAIFDFSILRFILLHKFPTIAKIFNVKLMAPIVYDFFPKVIRDALKNRRENNIKRPDM
IQLMMEAKESLEKNPVKDLVLEDDDIISQAFVFFGAGFETVSVAMSFAMYELAIHPEIQKRLQEEC
IENFKKGDGKITYELLQGMKYLDMVVSSEFRKWPPATALDRVCNKKYTLNVNDQEIVIEPEMLIN
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>ON646394 CYP9GP2 [506 AA] TRINITY_DN48929_c0_g1_i5|m.42068

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SFKNPENEFIKTGRAIFDFSILRFILLHKFPTIAKIFNVKLMAPIVYDFFPKVIRDALKNRRENNIKRP
DMIQLMMEAKESLEKNPVKDLVLEDDDIISQAFVFFGAGFETVSVAMSFAMYELAIHPEIQKRLQ
EECIENFKKGDGKITYELLQGMKYLDMVVSSEFRKWPPATSLDRVCNKKYTLNVDDQEIVIEPEM
FIICPVLGIHRDPKYYPNPDKFDPERFNDENKASIHPMTYMPFGAGPRICIASRFAIMEVKLFLCYIL
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>ON646395 CYP9GP1 [367 AA] TRINITY_DN48929_c0_g3_i2|m.42065

MFWLIVSVLAVILLYKFHNYILSPFFYWKNKKIDYHLIRGPYADLLKFVTNTVNIFFEDLINYNAPK
DKKVYGTVTFRRLPSLLIKDPELLKQILKDFDHFTHNATLLSEADPLSDNLFIADKKWHNTRITIL
SPVFTANKMRITIDLMALCGEQMISYFKKEYEKQGNKGPLEIEFQSTTGLFSNDVIATTSFGIQCD
FKAPENEFIKTGRAIFNFSMLRFMLLHLTPSIKMFVDVKIMPPIVYEFFPRVIKEALKNRRENKVRP
DMIQLLMEAKESLEKNPVKDLALSDDIISQALVFFAAGFETVAATMTFAIYELTIHPEIQKRAQEE
CVEAFKKGGGKLTYEAINEMKYMDMVVSGKF

>ON646396 CYP9GP1 [524 AA] TRINITY_DN50686_c2_g1_i1|m.51542

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SPVFTANKMRITIDLMALCGEQMISYFKKEYEKQGNKGPLEIEFQSTTGLFSNDVIATTSFGIQCD
FKAPENEFIKTGRAIFNFSMLRFMLLHLTPSIKMFVDVKIMPPIVYEFFPRVIKEALKNRRENKVRP
DMIQLLMEAKESLEKNPVKDLALSDDIISQALVFFAAGFETVAATMTFAIYELTIHPEIQKRAQEE
CVEAFKKGGGKLTYEAINEMKYMDMVVSETLRKWPPGTNTDRVCNKKYSLKVDNQEIVIEPEM
LITVPVLGIHRDPKYYPNPDKFDPERFNDENKSSIHPQTYMPFGAGPRICIASRFAIMEVKLFLCYIL
ANFNLEVIEKTPIPLKLKMAGLTGYTAKDGFWIGLKPRQ

>ON646397 CYP9GP4 [378 AA] TRINITY_DN48929_c0_g2_i3|m.42066

MVSKRIGLIIMGCRIKKVYGVQFRNPALMIKDPDLLKQVLKDFDHFTHNSNVLGEEDSVLTRNL
FISKDKKWHNSRTILSPVFTANKMRIIFSLMASCQDQIVAYFNKEYEKQGNKGPLEIEFKSTTARFT
NDVIATTSFGLEIDSFKNPENEFIKTGRAIFDFSILRFILLHKFPTIAKIFNVKLMAPIVYDFFPKVIRD
ALKNRRENNIKRPDMIQLMMEAKESLEKNPVKDLVLEDDDIISQAFVFFGAGFETVSVAMSFAMY
ELAIHPEIQKRLQEECIENFKKGDGKITYELLQGMKYLDMVVSSEFRKWPPATALDRVCNKKYTL
NVNDQEIVIEPEMLINCPVLGIHRDPKYYPNPDKFDPERFNDENK

>ON646398 CYP301B1 [526 AA] TRINITY_DN49028_c0_g1_i2|m.42573

MKCINKNIYKQIDYLNKLFVCDYRLLSSVHHNVSNNSNITSSGTTTIVAGDATQTEWNNAPVYEL
MPGPKPLPLLGNTRWRFIPYIGNFEIEHIDQVSLRLYHQYGNIVKISGLLGRPDMVFVYDPDDIERVF
RIEDSIMPHRPSMPSLNYYKHVLRKDDFGEDAGVIAVHGKNWHNFRTKVQQSMLQPRIAKLYIKP
IEDTANAFVERVGLIRDQNNEMPDDFLNYVHKWSLESIAKVALDVRLGCLDEPSNAETQCMIDAV
NTFFINVPVLELKIPFWKLFNTPTWNKYIKALDTITEISLKHINKALDNLKQGNVGSEPSLVQRILQS
EKNPKIACILALDMFLVGIDTTSNAVASILYQLSLHPEKQENLFTLQKVLDPKNTNITSKHMEEM
PYLRACIKETLRMYPVVIGNGRCTVNDQVIRGYQVPKGVQIIFQHYVISNLEKYFYKPNFLPERW
LKTDKAECKAHPFASLPFGHGRRMCLGRRFADLEMQMIVAKVNSRKAFVHLLDPYTGKYLTF

>ON646399 CYP301B1 [542 AA] TRINITY_DN49028_c0_g1_i4|m.42575

MKCINKNIYKQIDYLNKLFVCDYRLLSSVHHNVSNNSNITSSGTTTIVAGDATQTEWNNAPVPEL
MPGPKPLPLLGNTWRFIPYIGNFEIEHIDQVSLRLYHQYGNIVKISGLLGRPDMVFVYDPDDIERVF
RIEDSIMPHRPSMPSLNYYKHVLRKDDFGEDAGVIAVHGKNWHNFRTKVQQSMLQPRIAKLYIKP
IEDTANAFVERVGLIRDQNNEMPDDFLNYVHKWSLESIAKVALDVRLGCLDEPSNAETQCMIDAV
NTFFINVPVLELKIPFWKLFNTPTWNKYIKALDTITEISLKHINKALDNLKQGNVGSEPSLVQRILQS
ENNPKIACILALDMFLVGIDTTSNAVASILYQLSLHPEKQENLFTLQKVLDPDKNTNITSKHMEEM
PYLRACIKETLRMYPVVIGNGRCVTNDVCIRGYQVPKGQVQIIFQHYVISNLEKYFYKPNFLPERW
LKTDAAECKAHPFASLPFGHGRRMCLGRRFADLEMQMIVAKMIRNYKIEYHYKKLDYFIHPM
YTPNGPLRLRLDRQS

>ON646400 CYP4420A1 [516 AA] TRINITY_DN49399_c0_g1_i1|m.43968

MPYFIIFNTLLLLLTILTFIILYLTWNYNWYKERNIPFVKPSLIFGNIKDQILMRKSFSDVFHEIYTN
FNDCKYVGFYLWRKPALVIRDPELIKMWWSKQFSNFYNNAWYLSEKVDPYFSKSPFFENDEKWK
ELRHQLTPTLSPGRIKSLFPVFLQGIDELHNFIIKKNAINDKNEIDLRLDLSKYTTEVSTQAFFGVKA
HAFDNENSDFLNVGKLIFRNSVRSSFESICMMCDKLFAHYFRVKIVNEKAFFDKKLAVEIMEYRK
TNNNCQYNDYFEHLLGLRETYKEYEDVNNIARQLITVFFDSADTTASGITIAMFQIIRHPEVYKKL
RNEIDTILLKYNGQLTVEAIQDMNYLDMCISEAFRLNVPLYFSLRDCTVPTEFPMPKEAQTGSSL
VEPGITIIVPMHEIHRDLKYFNDPDPVDPERFSDERKSTIQKGTYPFGDGPRMCLGKNFAIAAVKH
FIIALVQNYDIKFKPNSNYTLTPNVGIMLNVVLFKQKFMNLFAKRGEFYVE

>ON646401 CYP4418B1 [436 AA] TRINITY_DN49382_c1_g1_i1|m.44269

GVYFGRHPVLFVRDSQLARDVMVKYFNHFQDNTININDKSEPLVAKNPFVLKGEQWRSKRGHLT
PGFTALKLKQMFPHMVAVERLVAYLHQIDSSQNSIEAKEVASCFATEVFTLSALNITSDFSFP
KSSFKTIAKTMLEGSNLLAFITWTVAVDPGLSVLLRTKILKEGADYFRKAVNDVLVHRETNNIV
VNDIFNHFYTLYQKNADFTKDDLVSNNVTLFIDGVETSATTIRCILYEIAAQPRVYKKLRKEIDTIL
SKNNNKFTYDGIQEMTYLDSCISEGLRIYSAVLFAVRQCTLPFEFPSQKDGEPPGVKIDKGISVVLFP
YSIHHDENLYPNPEEYKPERFYDDETKVQAKANLFGFGDGPRICLGMRYGLMVTRLGIATHSKLD
VTVNEKSKERAKNTGPSFLFAPNVEPIVDFHKGRTIYKDN

>ON646402 CYP4XL1 [384 AA] TRINITY_DN49641_c3_g5_i1|m.45797

GLLTSTGDKWRTRRKILTPAFHFNLKGFIPFEGQSEHSMEDIDKECPKSESNNVPIIVKHSLSLCE
TTMGLNIESEQKGIQTYKSNIHEFGDIFTDRMAKPWFYSEITYAFTPQRWRLYTIKSLRTFTSNVIK
ERLTNWDLTQVQNTKNLDTGKYKLPMMDLLIKQMKLDNSLSYEDIREEVDTFMFEGHDTTSMG
LSLFLMLLANHPEIQNKIYEEMKTIFGDSKRQATYDDLMEPTYLERCIKESRLRYPAVPVVGRTLT
EDLVLKDYVLPAGIYVYVLIYDLHRNPYWPNNPKFDPDRFLPENSVKRNPFTYVPFSAGPRNCIG
QKFAILEMKSFSVKIIEYILEPVDTPQTVSLKTDVVIRPSKPVRVKFRKRQ

>ON646403 CYP4XL1 [507 AA] TRINITY_DN51971_c0_g4_i2|m.58098

MYLVIGLILFVLALILWANREHWQLRIYKHVKDIPGPPSIPFIGNILPYVGTLDVIWKHARNLAIEY
DGLYKIWAGNRCAIFISDPNYNEIILSSTKNIEKSEPNLLESWLGGLLISGGEKWKSRRKILTPAF
HFHILKQFINVFEEQSDRTVKMIQEECDKPYTNVIPLAAEHALCALCETTMGIKMDNYENLQDFN
RYKEAIYQFGHLFMDRVKNPLLYSEKIYSYTPMARVTKKLYGILKKFTLRVIDERLASWDDEQKK
IGMTSASGKQLFPMLDILITEMKNGGDINYGIREEVDTFMFEGHDTTSMGLSFLLMLLAQHPEV
QEKILEEQNQIFNGDNRIATYEDLQNMKYLEMVIKESRLRYPAVPVLGRKVTEDVQLGPYTIPAD
VQVYIVVFDTHHNPFWPDPYKFDPPDRFLPDNCAKRHPFAYIPFSAGSRNCIGQRFVMLEMKSFV
TKILREYILEPVDDLKVVMMKIDLVRPLNDNLRVKFRRRNDNNNTK

>ON646404 CYP4XL1 [392 AA] TRINITY_DN51971_c0_g4_i8|m.58109

GLLISGGEKWKSRRKILTPAFHFHILKQFINVFEEQSDRTVKMIREECDKPYTNVIPLAAEHALCAL
CETTMGIKMDNYENLQDFNRYKEAIYQFGHLFMDRVKNPLLYSEKIYSYTPMARVTKKLYGILK
KFTLRVIDERLASWDDEQKKIMTSASGKQLFPMLDILITEMKNGGDINYGIREEVDTFMFEGHDT
TSMGLSFLLMLLAQHPEVQEKILEEQNQIFNGDNRIATYEDLQNMKYLEMVIKESRLRYPAVPVL
GRKVTEDIQLGPYTIPADVQVYIVVFDTHHNPFWPDPYKFDPPDRFLPDNCAKRHPFAYIPFSAGS
RNCIGQRFVMLEMKSFVTKILREYVLEPVDDLKVVMMKIDLVRPLNDNLRVKFRRRNDNNNTK

>ON646405 CYP4XL2 [470 AA] TRINITY_DN49666_c2_g7_i2|m.45817
MYFIIQFLAQALLSVILVFIATILIIHWKYPIHWKYRIYKLGQDIPGPPSIPFIGNFIPFLGPLDHIWRIFR
KLSLHYNGIFKVWTLNRFVSFISEPDYVEVLLSSAKNLRKSEAYDFLELWLGSGLLISDGDKWKS
RKLLTPAFHFNILKQFVTVFEEQSERVTQIIRKECDKPFTNVIPISTEHALGALCETTMGIKMNFDD
NNSEFIKYKNAIYHFGEIFMERITKPIFYSQFLFELSSMGKITNKIITTLRNFTLNVIDERLNNWETR
QQMIKSASGKLLPMDILITEMKNGANIDYNGIVEEVDTFMFEGHDTTSMGISFMLMLLASEPE
VQDKILEEQNSIFNGSTRMATYEELQNMEYLERVIKESLRLCPPVPVIGRRLEEDLQMGQYIIPKES
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>ON646406 CYP9GM1 [446 AA] TRINITY_DN49864_c2_g1_i1|m.46606
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KKVHGINILKIPQVFVKDPDILRNICVKDFDHFNNHVDIFLQADPLFGKSLFVLKDKKWRDMRNIL
TPVFTGSKLRGLCELISECGTQTMHYSEMCRQKQNNVLKIDFLDACTRFTNDVIASVAFGIKVN
LTHPNNEFFHAGHEISKFATWRMFLIFKFPSLCKIFKIRFAPNYVYDFFTNITESTLRARKEQNIMRY
DIIYLLTEAQKEQIKNDPSSKNILTTEDITSQVVIFFLAGYANVAIIMAFAYELALQPDQLKRLQKE
IDTVLKENNGKLDYDVIKSMKFLDMIVTETLRKWPPSAALDRQCCKSFEIDTNNNETITVKPGMVI
NIPVMGLHYDPKYYPNPEKFDPERFNDENKAKLNPYTYLPFGYGPR

>ON646407 CYP9GM1 [459 AA] TRINITY_DN49864_c2_g1_i3|m.46609
MKIPIYLYFLIHKMILELIGVLIVIYLLHLYFMKGYDYWEKRGIPSYRRFHPYIEFLNMLFQRTTMY
DDIIGVYNGLPDKKVHGINILKIPQVFVKDPDILRNICVKDFDHFNNHVDIFLQADPLFGKSLFVLK
DKKWRDMRNILTPVFTGSKLRGLCELISECGTQTMHYSEMCRQKQNNVLKIDFLDACTRFTND
VIASVAFGIKVNLSLTHPNNEFFHAGHEISKFATWRMFLIFKFPSLCKIFKIRFAPNYVYDFFTNITEST
LRARKEQNIMRYDIIYLLTEAQKEQIKNDPSSKNILTTEDITSQVVIFFLAGYANVAIIMAFAYELAL
QPDQLKRLQKEIDTVLKENNGKLDYDVIKSMKFLDMIVTETLRKWPPSAALDRQCCKSFEIDTN
NNETITVKPGMVINIPVMGLHYDPKYYPNPEKFDPERFNDENKAKLNPYTYLPFGYGPR

>ON646408 CYP9GM1 [372 AA] CYP9GM1_TRINITY_DN49864_c2_g1_i5|m.46611
MILELIGVLIVIYLLHLYFMKGYDYWEKRGIPSYRRFHPYIEFLNMLFQRTTMYDDIIGVYNGLPD
KKVHGINILKIPQVFVKDPDILRNICVKDFDHFNNHVDIFLQADPLFGKSLFVLKDKKWRDMRNIL
TPVFTGSKLRGLCELISECGTQTMHYSEMCRQKQNNVLKIDFLDACTRFTNDVIASVAFGIKVN
LTHPNNEFFHAGHEISKFATWRMFLIFKFPSLCKIFKIRFAPNYVYDFFTNITESTLRARKEQNIMRY
DIIYLLTEAQKEQIKNDPSSKNILTTEDITSQVVIFFLAGYANVAIIMAFAYELALQPDQLKRLQKE
IDTVLKENNGKLDYDVIKSMKFLDMIVTGNKIITKPPF

>ON646409 CYP9GM1 [391 AA] TRINITY_DN51063_c0_g2_i1|m.53754
FGKSLFALKDKKWRDMRTILSPVFTGSKLRGLCELISECGTQTMHYSEMCRQKQNNVLKIDFLD
ACTRFTNDVIASVAFGIKVNLSLTHPNNEFFHAGHEISKFATWRMFLIFKFPSLCKIFKIRFAPNYVY
DFFTNITESTLRTRKEQNIMRYDIIYLLTEAQKEQIKNDPSSKNILTTEDITSQVVIFFLAGYANVAI
MAFAAYELALQPDQLKRLQKEIDTVLKENNGKLDYDVIKSMKFLDMIVTETLRKWPPSAALDRQ
CNKSFEINTNNNETITVKPGMVINIPIMGLHYDPKYYPNPEKFDPERFNDENKAKLNPYTYLPFGY
GPRVCIASRFVILETKTFLIHLLSKFNVVTEKTPPIRLVRGSILKPD TDFGLGLQLRQ

>ON646410 CYP4417A1 [447 AA] TRINITY_DN50148_c0_g1_i1|m.48533
YSNIFLDSKQFLFSYPNAVVLSESYNNGYSIDIFELLWRVVASGESKLLSSHKTQKMYAYDLVKYS
FGEGFLSSGAVYRNSHRLIQPTFHHDVLETYIQLFKKNGDFLVESLRENVGKEAFDIFRKVNLCII
KNVVDTLMDTKMTPEITDELYFSLNRLYNIHERLFKPWLHPEFIFKLT SIGKEERKS AKY LQNFIR
NVIKSKKMELSLASDDSEYASNSKRRSTLDFLLRKL NENPNVMSEELLVDNISTIFLAAQDATSIQY
SFAVLMFGMYPNFQDKIYEEIQVLGQESTFTISDLNQLVYLD MFLNECLRLLPPIFIGRKVTEDLQ
FENFVAPAGCSIIVNTYEIHRNPKYWEKPNEFYPEHFTPENVAKRHPMAFIPFSAGPRRCIGRQYAV
YVLKTLIISTLRSYKIEADGTLQDLNITGDLACRVKDG YKIRIKYRN

>ON646411 CYP4417A1 [495 AA] TRINITY_DN50148_c0_g3_i1|m.48534
MGVEILYPLVYSFLITFLIAYYWKRRHLYIASFKIDGPISFPLIGNSYLFFGSSQEDVFSKSMEMIQSY
SSTCRFWRGSQLLICIKNIKDIEKLLSSHKTQKMYAYDLVKYSFGEGFLSSGAVYRNSHRLIQPT

FHHDVLETYIQLFKKNGDFLVESLRENVGKEAFDIFRKVNLCIIKNVVDLMDTKMTPEITDELYF
SLNRLYNIIHERLFKPWLHPEFIFKLTSIGKEERKSAKYLQNFIRNVIKSKKMELSLASDDSEYASNS
KRRSTLDFLLRKLNENPNVMSEELLVDNISTIFLAAQDATSIQYSFAVLMFGMYPNFQDKIYEEIQ
KVLGQESTFTISDLNQLVYLDNFLNECLRLPIPIFIGRKVTEDLQFENFVAPAGCSIIVNTYIEHRNP
KYWEKPNEFYPEHFTPENVAKRHPMAFIPFSAGPRRCIGRQYAVYVLKTLIISTLRSYKIEADGTLQ
DLNITGDLACRVKDGKIRIKYRN

>ON646412 CYP4417A1 [384 AA] TRINITY_DN50148_c0_g1_i2|m.48535
MGVEILYPLVYSFLITFLIAYYWKRRHLYIASFKIDGPISFPLIGNSYLFFGSSQEDVFSKSMEMIQSY
SSTCRFWRGSQLLIKNIKDIEKLLSSHKTTQKMYAYDLVKYSFGEGFLSSGAVYRNSHRLIQPT
FHHDVLETYIQLFKKNGDFLVESLRENVGKEAFDIFRKVNLCIIKNVVDLMDTKMTPEITDELYF
SLNRLYNIIHERLFKPWLHPEFIFKLTSIGKEERKSAKYLQNFIRNVIKSKKMELSLASDDSEYASNS
KRRSTLDFLLRKLNENPNVMSEELLVDNISTIFLAAQDATSIQYSFAVLMFGMYPNFQDKIYEEIQ
KVLGQESTFTISDLNQLVYLDNFLNECLRLPIPIFIGRKVTEDLQFGN

>ON646413 CYP4417A1 [392 AA] TRINITY_DN50148_c0_g1_i5|m.48536
MYAYDLVKYSFGEGFLSSGAVYRNSHRLIQPTFHHDVLETYIQLFKKNGDFLVESLRENVGKEA
FDIFRKVNLCIIKNVVDLMDTKMTPEITDELYFSLNRLYNIIHERLFKPWLHPEFIFKLTSIGKEER
KSAKYLQNFIRNVIKSKKMELSLASDDSEYASNSKRRSTLDFLLRKLNENPNVMSEELLVDNISTIF
LAAQDATSIQYSFAVLMFGMYPNFQDKIYEEIQKVLGQESTFTISDLNQLVYLDNFLNECLRLPIPI
FIGRKVTEDLQFENFVAPAGCSIIVNTYIEHRNPKYWEKPNEFYPEHFTPENVAKRHPMAFIPFSAG
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>ON646414 CYP9GK2 [409 AA]
TRINITY_DN50479_c1_g1_i4|m.50192MFYILLGLAVVIFLYREIYRSLYYWEDKGIKQVRSIPVGN
FIWSILQRTPF AESSQLYYNALPNEKCGIMAFNKPTLVIRDKNLIKQIGIKDFDNFTDHQKLFF
KEGFDRLFDRNFLSLDGQPWRDMRATLSPAFTGAKMRGMFQIINECGEQMAAFYLNEIKKL
GGDSKHIELELKDSFTRFTNDVIATSAGVVKCDSFKDKNNEFYSNRGNATQFQTWRIVLVNF
PAVMKMLNIYTIPISVCDYFRNIVKETVTVRERENIVRPDMLHLLMQAQKGTCLKTENQIEDN
KGFAAVNESTNAHGKAKLLDDEDVAAQAFIFFLAGFETVSTAMCFTSYELALNPDIQQRCYE
EIQEIVESNDGKLSYDVIQKIKFLDMVISESLRKWPPAIFTDRVCTKPYTFNVNG

>ON646415 CYP9GK2 [372 AA] TRINITY_DN51063_c1_g3_i1|m.53766
EQMAAFYLNEIKKLGDSKHIELELKDSFTRFTNDVIATSAGVVKCDSFKDKNNEFYSNRGN
ATQFQTWRIVLVNFIPAVMKMLNIYTIPISVCDYFRNIVKETVTVRERENIVRPDMLHLLMQA
QKGTCLKTENQIEDNKGFAAVNESTNAHGKAKLLDDEDVAAQAFIFFLAGFETVSTAMCFTSY
ELALNPDIQQRCYEEIQEIVESNDGKLSYDVIQKIKFLDMVISESLRKWPPAIFTDRVCTKPYTF
NVNGKDVLLKGTNIQFPIYAIHRDPQNYPNPEKFDPERFSDENRHSIDPMTYLPFGVGPRICI
GSRFALMEVKIVIVHLVKNFEIILTKKSTVPPRMTRKSTNMTIEGGFNVGLKARTH

>ON646416 CYP9GN3 [441 AA] TRINITY_DN50416_c2_g2_i2|m.50480
VYAFGLPQFMKDPDIIRNICVKDFDHFVNHIDAFFKHDLRFGLSKSLFALKDKKWRDMRTIMTP
VFTGSKLRGLVQLLSECGEQINLHYAQKYKDQDDKVLKIDIMDISTRFTNDVIASAVFGIKVN
SLTDPENEFYLAGNEIIFPAWRFIMIMMLPSLSKLTGMGFASKHIYDFFIKLVEDTIRIRTERNI
IRYDIIHLLLEARKEQIKAIETKRASNENVDVLSKNLLTDEDITAQAFIFFLAGYSNVAILMSFA
AYELAVHPDVQVKLQKEIESLIKENGKLDYDVIKKMKYLDMMVSETLRKWPLPAIDREC
KAYKIETNNDIIEVKPGMIISIPVLGLHYDPKYFPNPNKFDPERFNDENKAKMNPYTYMPFGIG
PRICIANRFVILETKLFLINLLKFDILPTEKTPIPLVLAGGNVLKPKDDFSLGLKLRN

>ON646417 CYP9GN3 [366 AA] TRINITY_DN50852_c3_g1_i3|m.52316

MIFVILATHIALGLAHYYFTKQFKYWEEHGIHHIKCNRYMETYRFLFKKFVMYDDLMEADYN
VFPDKQVYGVYAFGLPQLMIKDPDIIRNICVKDFDHFVNHIDAFFKHDRFLFGKSLFALKDKK
WRDMRTIMTPVFTGSKLRGLVQLLSECGEQINLHYAQKYKDQDDKVLKIDIMDISTRFTNDV
IASAVFGIKVNSLTDPENEFYLAGNEIKFPAWRFIMIMMLPSLSKLTGMGFASKHIYDFFIKLV
EDTIRIRTERNIIRYDIIHLLLEARKEQIKAIETKRASNENVDLVSKNLLTDEDITAQAFIFFLAG
YSNVAILMSFAAYELAVHPDVQVKLQKEIESLIKENGKLDYDVIKMKY

>ON646418 CYP9GN4 [398 AA] TRINITY_DN50860_c2_g1_i3|m.52536

HQDVFFRNDEMLGKNLFALKDKKWRDMRTILSPVFTGSKLRGLCELMSECGSQTVTYVQK
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FNLPLFVKQAFNIKIFPEDVYKFFRQIVNETIRVRAEKNIIRHDMIHLLMEARKEQIKRTEASNG
KVDNISASNNVLTNDDITAQGVIFFIAGFSNVALAISMASYEMAVNPEIQKKAYAEITEVLKA
NNGKIDYDVIKQMKYLEMISETLRKWSPVVVGDRVCNKAFKIETPNDGVINVEPGMTINIPIS
GLHNDPKYFPNPKKFDPERFNDTNKSKMNPYTYIPFGLGPRICIGKYVIFVETHAWRKMCSL
WTHKNILSEVLNNSVHTINW

>ON646419 CYP9GN4 [410 AA] TRINITY_DN50860_c2_g1_i4|m.52538

HQDVFFRNDEMLGKNLFALKDKKWRDMRTILSPVFTGSKLRGLCELMSECGSQTVTYVQK
MKQQNNNNPLKVDIFDACTRFTNDVIASTAFGIKVNSLADKNNEFFGVGQKVSSFSSWRLWL
FNLPLFVKQAFNIKIFPEDVYKFFRQIVNETIRVRAEKNIIRHDMIHLLMEARKEQIKRTEASNG
KVDNISASNNVLTNDDITAQGVIFFIAGFSNVALAISMASYEMAVNPEIQKKAYAEITEVLKA
NNGKIDYDVIKQMKYLEMISETLRKWSPVVVGDRVCNKAFKIETPNDGVINVEPGMTMNIPI
SGLHNDPKYFPNPKKFDPERFNETNKLKINPYTYIPFGLGPRICIANRFVLIETKILLFHILKTFEI
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>ON646420 CYP305W3 [494 AA] TRINITY_DN50925_c0_g2_i2|m.52722

AVLFLILLSVFIILLIIRSIKKPYNYPPGPSWLPIVGCQPTFKKKLMKHGAMYLGLQELADEY
NTNILGLKLKGKDQIICVFGYERVKEVLTNDDFAGRPDGFLLRLRTFGMRKGITFTDGPVWHE
QRSFVMRHLRDVGFGKKSMELKIINECQDLIQFINENGPDINMEEFFAPSVLSVLWDLTAGRS
LDRNDDKLKELLALLKRRLKAFDLSGGLLGQMPWLRFIPEKSGFNLVTKLNEQMRNFFMEA
ILEHHATFTGDDSDLIYAFIQEMKIQQKEEKKDSTFTNDQLLAVCLDLFIAGSQTTNSLSGFLF
YNLLCYPDIKVKILNEIDANIPKSRMPELADRVKLPYLEAFIMETRRMQPVAGVAGPRRVLHD
YQMDKYNLEKDVTVLISIVSVHMDKEYWKDPEVFRPERFIGKDGLLYPNERILNFGLGKRRCL
LGEALGKDCIFLFFTGILQKFDVLPVSNIPPLKRAYAGITMTPDPFSIRFVNR

>ON646421 CYP305W2 [364 AA] TRINITY_DN50925_c0_g1_i2|m.52723

MAVLFLILLSVSVILLIIRSIKKPYNYPPGPSWLPIVGCQPIFKKRLMKHAGAMYLGLQELADE
YNTNILGLKLKGKDQIICVFGYERVKEVLTNDDFAGRPDGFLLRLRTFGMRKGITFTDGPVWH
EQRSFVMRHLRDVGFGKKSMELKIINECQDLIQFINENGPDINMEEFFAPSVLSVLWDLTAGR
SLDRNDDKLKELLALLKRRLKAFDLSGGLLGQMPWLRFIPEKSGFNLVTKLNEQMRNFFME
AILEHHATFTGDDSDLIYAFIQEMKIQQKEEKKDSTFTNDQLLAVCLDLFIAGSQTTNSLSGFL
FYNLLCFPDIKVKILKEIDANIPKSRMPELADRVKYVYFTKNFALIMYD

>ON646422 CYP305W2 [495 AA] TRINITY_DN50925_c0_g2_i5|m.52729

MAVLFLILLSVSVILLIIRSIKKPYNYPPGPSWLPIVGCQPIFKKRLMKHAGAMYLGLQELADE
YNTNILGLKLKGKDQIICVFGYERVKEVLTNDDFAGRPDGFLLRLRTFGMRKGITFTDGPVWH
EQRSFVMRHLRDVGFGKKSMELKIINECQDLIQFINENGPDINMEEFFAPSVLSVLWDLTAGR
SLDRNDDKLKELLALLKRRLKAFDLSGGLLGQMPWLRFIPEKSGFNLVTKLNEQMRNFFME
AILEHHATFTGDDSDLIYAFIQEMKIQQKEEKKDSTFTNDQLLAVCLDLFIAGSQTTNSLSGFL

FYNLLCFPDIKVKILKEIDANIPKSRMPELADRVKLPYLEAFIMETRRMQPIAGVAGPRRVLHN
YQMDKYLLAKDVTVLISIVSVHMDKEYWKDPEVFRPERFIGKDGLFY PNERILNFGLGKRRC
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>ON646423 CYP305W2 [448 AA] TRINITY_DN50925_c0_g2_i7|m.52731

MAVLFLILLSVSVILLIIRSIKKPYNYPGPSWLPVGCQPIFKKRLMKHAGAMYLGLQELADE
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EQRSFVMRHLRDVVGFGKSMELKIINECQDLIQFINENGPDINMEEFFAPSVLSVLWDLTAGR
SLDRNDDKLKELLALLKRRLKAFDLGGGLGQMPWLRFIPEKSGFNLVTKLNEQMRNFFME
AILEHHATFTGDDSDLIYAFIQEMKIQKKEEKDSTFTNDQLLAVCLDLFIAGSQTTNSLSGFL
FYNLLCFPDIKVKILKEIDANIPKSRMPELADRVKLPYLEAFIMETRRMQPIAGVAGPRRVLHN
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DKKDFS

>ON646424 CYP4G280 [567 AA] TRINITY_DN51045_c2_g1_i1|m.53567

MSTTFTSLDENTSSWSVAGATLYGLITSATLLVIYYWEQNKRFARLGNAIPGPPGVPFLGNA
LEIFLSTPEELLVKALEYSKHYGKVVGWLGPYLVFLIDPRDVEVILNSHVHIDKSDEYKFF
KPWLGEGLLISTGEKWRTHRKMIAPTFHMNILKSFMDVFNRLSLAVVKKMRKEIDREFDVH
DYMSGITVDILLETAMGVKRTHSDNAGFDYAVAVMKMCDILHQRHYKFWMRFEPLFKLTN
FAKKQLEYLGIIHGLTNKVIKTKKEEFLQNRVLGNENYFEQLDSDAAKIDQKEAKLSSQNN
QSSDPNKGTPLRDDLDEIDEQDVGEKKRLAFLDLMIETAHSTQNLTDDEEIKKEEVDTIMFEGHD
TTAAGSSFVLCLLGIYKDVQDKVYQELYDIFGNSDRPVTYLDTLEMKYLERVIMETLRLYPP
VPIARKMNQEVKLASGDYTLVVGCTVVIGTYKIHHPDYYKNPDTFDPDNFLPERTQNRHY
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RERVPV

>ON646425 CYP4416A7 [489 AA] TRINITY_DN51185_c2_g2_i9|m.54068

KIYIWNYYIRMCYYASKLPGPAYPIIGNGALLFGSHEEASHNLLDICLQYQKSLIRFWLGPIPV
AVILDPEDIQEVLTNSNALEKSFLYHLIWDTTMGKSIFTSEVLEWKHHRGIIVKGFSPILKSYF
KIFVEKINILTENLDLELNKETSFDIFKCLSRITLDSVCGSTMGVNINSHKHSESYFDAMHRLM
NLMIVRLFSVIKLPFLLYRFTEDYKIASKCSKIIREFTENIIEKRSKYETIDNNNLIDVKANKKN
EYKKPLLEYLMDFTKNDEEFTDTQLRDEVNTIIFAAAYETSANALSYVLLNLAHDKDIQTKVY
NEILEVLGENNESSINFDDLPKFKYMEMVIKESMRRYSTVPFGRKACQDIKIGNYTIPKGITIG
IMIMAAHLNENHWENPLKFYPERFTPENIKNRHPYSFIPFSAGSRNCIGIRYAWIVMKITLATL
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>ON646426 CYP4G282 [559 AA] TRINITY_DN51463_c0_g1_i2|m.55589

MTLIDAAGAEFASGPSPVFSATSVLYFLLAPAIALYLLYWRLSRNHMIKLAEKIPGPTGYPIIG
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QPWLGNGLLISTGPKWRAHRKLIAPTFHLNVLKSFIDLFNANSRAVCAKMLKEAGKTFDCHD
YMSECTVEILLETAMGVSKNTQESGYDYAMAVMKMCDILHLRHTKFWLRPDWLFNLTRHG
KTQVALLDTIHSLTRKVIKRRKEDFKNKKITPVEIKKEVEEVTHSDTKGAVDGLSYGQSAGLR
DDLVDVDDNDVGEKKRMAFLDLMIASQNGVNITDEEIKEQVDTIMFEGHDTTAAGSSFFLSM
MGIHQHIQDKVIQELDGIFGSDRPATFADTLEMKYLERCLMETLRLYPPVPIARQLNEDLK
LASAPYVLPAGCTVVVGTVKLHRREEIYPNPDEFNPDNLFPEKTANRHYAFVFPFSAGPRSC
VGRKYAMLKLVLLSTILRNFVRVKSDDLKEKDFQLQADIILKRAEGFQVRLEPRKRTAKA

>ON646427 CYP4XE2 [484 AA] TRINITY_DN51460_c5_g2_i1|m.55692

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VIQLWIGPFDHYFISDIDITNKILSSTKLIKSHAYDLLAPWLGYGLLLSGGEKWHKRRKML
TPAFHFTILEQSINTFTIASDIFVKNLKKHVDGGNFDVYPYITLLGLDIICQTAMGIDINAQMOS
DSEYVTAVRDVCQIVFERIFSAIQSDFIFYNFTKNGKVFKKSLKILHNLTNKVIEERRQLLIDS
MKNNTTKPNKIINKEVIDDLEVQEKKEKMFMDVLLKSTIDGKPLTNSDIREEVDTFMFEGH
DTVSSGLSFTLYLLANHPEVQNQVFEEIREICGDDLKKHATLSDLNKMITYLEAVIKESMRIYP
PVPIVGRKLSEDLPLENGVLRKNTRPSIMIYSIHHNPEYFPDPEAFKPERFLTQAQNKHYFSYIP
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>ON646428 CYP9GK3 [487 AA] TRINITY_DN51572_c0_g2_i2|m.56121

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KNNGKPMNVELKDILTRFTNDVIASAAFGVKCDSLRDRNNEFYRMGAKVSNLSTWRMFINN
FCPKLAKFFRIGLIPNEVCDYLRNIVETIKMRERENIVRPDMLQLLLDAKNGTIKQDKQKIET
DNSFAAVEESNYTQIKKRIYLDEDDVAAQAFVFFMGGFDTVSIAMCFSVYELALHPQLERL
YLENEQVLSENNGLTYDVLNKMKYLDMVISETLRKYPPPIFLDRICDKPYTVQIDGKEITLE
KGTILTIPLYAMHTDPNYFPEPEKFDPHRFSDENADKIVPLTYIPFGSGPRNCIASRFALMEAKT
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>ON646429 CYP9GK3 [416 AA] TRINITY_DN51572_c0_g3_i1|m.56124

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RIGLIPNEVCDYLRNIVETIKMRERENIVRPDMLQLLLDAKNGTIKQDKQKIETDNSFAAVEE
SNYTQIKKRIYLDEDDVAAQAFVFFMGGFDTVSIAMCFSVYELALHPQLERLYLENEQVLS
ENNGLTYDVLNKMKYLDMVISETLRKYPPPIFLDRICDKPYTVQIDGKEITLEKGTILTIPLY
AMHTDPNYFPEPEKFDPHRFSDENADKIVPLTYIPFGSGPRNCIASRFALMEAKTAVYFMVKH
FEILPNEKSIIPPRITTKRINVTMEDGFHVTLKPRNQGFI

>ON646430 CYP9GK3 [530 AA] TRINITY_DN51572_c0_g2_i5|m.56126

MLIVVLVIFVIIAAYWLLITPLSHWEKRGIPYVKGLPIVGNFFWHTMKQTTFGDELVKIYNT
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WRDMRATLSPTFTGSKMRGMFQLINEVGEQFVDYFKNEIQTKNNGKPMNVELKDILTRFTN
DVIASAAFGVKCDSLRDRNNEFYRMGAKVSNLSTWRMFINNFCPKLAKFFRIGLIPNEVCDY
LRNIVETIKMRERENIVRPDMLQLLLDAKNGTIKQDKQKIETDNSFAAVEESNYTQIKKRIYL
DEDDVAAQAFVFFMGGFDTVSIAMCFSVYELALHPQLERLYLENEQVLSENNGLTYDVL
NKMKYLDMVISETLRKYPPPIFLDRICDKPYTVQIDGKEITLEKGTILTIPLYAMHTDPNYFPEP
EKFDPHRFSDENADKIVPLTYIPFGSGPRNCIASRFALMEAKTAVYFMVKHFEILPNEKSIIPPR
ITTKRINVTMEDGFHVTLKPRNQGFI

>ON646431 CYP9GL1 [374 AA] TRINITY_DN51572_c0_g1_i4|m.56125

MITHIVGIVTILVLFHYFTSTYEWKKRGIPYYQESNAYLESIRIFRKNAMNELIDQYNAFPDK
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LSPVFTGSKLRGLSELMSECGDQTAAYYVQKIKQQNDDKPLKVNIFDACARFTNDVIASAF
GIKVNSLEDKDNDFFKIGQRVSSFSSWKLWLLGLPAVIREYFKIKIFDNDIYDFFRNIGNETITA
RLEKNIRPDMIHLLLEARKEQIKRSEEGNGKIENLPQTNSILTNDIQAQGVIFVAGFTNVALT
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>ON646432 CYP9GL1 [391 AA] TRINITY_DN51572_c0_g1_i6|m.56131

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LSPVFTGSKLRGLSELMSECGDQTAAYYVQKIKQQNDDKPLKVNIFDACARFTNDVIASTAF
GIKVNSLEDKDNDFFKIGQRVSSFSSWKLWLLGLPAVIREYFKIKIFDNDIYDFFRNIGNETITA
RLEKNIIRPDMIHLLLEARKEQIKRSEEGNGKIENLPQTNSILTNDIHAQGVIFFVAGFTNVALT
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ICNKEFT

>ON646433 CYP4XD1 [414 AA] TRINITY_DN51514_c1_g2_i3|m.56406

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KWKARRKILTSAFHFNILNEFVNVFEDNSEKSANYIKNNCNKDLDAIAVDHTMHSLCETT
MGISVNMEDPDIKQYKDALHNFGSVFFNRLMRPWLTADEFIYNLSEIKRNQDRLIKAMHKFTL
SVIEGRLLNWSLEGKQPLYASGKQILPMDLLIGEMKRGGDIDFEGIREEVDTFMFEGHDTT
SAGLTFLMLLANHPEIQNRIYDEQLKIFNGSKRKATYDDLQNMAYLERCIKESRLRYPPVPII
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>ON646434 CYP4XD2 [463 AA] TRINITY_DN51514_c1_g2_i4|m.56409

LVNKFYNYDILIVMASITVLLLIVILFIIKLLWANRLHWDYRIYQCVKHIPGPYNIPLLGC
LPFIGTLEHLWDELRRATAKRFDPDIYKMWGGNRCGIFLLNADDIEMVLLSTKSLAKNDAYESIR
DWLGDGLLISGGSKWKSRRKILTPAFHFNILNQFVNVFESNSEKSTNFIKNNCNKDLNANDLA
VEHSLYSLCETTMGISIDMENPDIKQYKYALHNFGTTFYNRITRPWLYPDIFFNLSEIKRNQDR
LIKAMHKFTLNVIEERLQNWSLEGKQPLYASGKQILPMDLLIGEMKRGGDIDYEGIREEV
DTFMFEGHDTTSTGLTFLMLLANHPEIQNRIYEEQLTIFNDSKRKATYDDLQNMAYLERCV
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>ON646435 CYP9GN2 [398 AA] TRINITY_DN51723_c1_g4_i1|m.57100

LFVLKDKKWRDMRNILTPVFTGSKLRGLVQLISNCGEKTVNHLVEELKEKNTKLLKIDIMDT
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VYDFLFNIINETIRVREEKNIVRPDMVHLLIEARKEQKKVIQKQAQNEVDVSVLTKNLLTNEDI
VAQGFIFFAGYGNVAVILSFAAYELAVHPEIQKRLQDEISHVLNENNGQLDYDAIKKMKYL
DMVLSETLRKWPLPIIDRECTKAYQIKSDDLTLAPGMGVQIPIAGFHYDPKYYPNPEKFD
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>ON646436 CYP9GN2 [398 AA] TRINITY_DN51723_c1_g4_i2|m.57107

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VYDFLFNIINETIRVREEKNIRPDMVHLLIEARKEQKKVIQKQAQNEVDVSVLTKNLLTNEDI
VAQGFIFFAGYGNVAVILSFAAYELAVHPEIQKRLQDEISQVLNENNGQLDYDAIKKMKYL
DMVLSETLRKWPLPIIDRECTKAYQIKSDDLTLAPGMGVQIPIAGFHYDPKYYPNPEKFD
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>ON646437 CYP9GN2 [371 AA] TRINITY_DN51723_c1_g4_i3|m.57109

LFVLKDKKWRDMRNILTPVFTGSKLRGLVQLISNCGEKTVNHLVEELKEQNTKLLKVDIMDT
STRFTNDVIATSAFGIEVNSIKDPKNDFFMAGREIRFPMWRFFMMFFLPAVSKILDIRLAPRY
VYDFLFNIINETIRVREEKNIRPDMVHLLIEARKEQKKVIQKQAQNEVDVSVLTKNLLTNEDI
VAQGFIFFAGYGNVAVILSFAAYELAVHPEIQKRLQDEISQVLNENNGQLDYDAIKKMKYL

DMVLSETLRKWPPLPIIDRECTKAYQIKSDDL TIDLAPGMGVQIPIAGFHYDPKYYPNPEKFDPERFSDENKANMNPYVYMPFGLGPRVCVAVRFVMIETKILLIHLRQFDRNIKLSQ

>ON646438 CYP9GN2 [508 AA] TRINITY_DN51806_c0_g4_i1|m.57639

MKIPIYLYFLIHKMILELIGVLIVYLLHLYFMKGYDYWEKRGIPSYRRFHPYIEFLNMLFQRTTMYDDIIGVYNGLPDKKVHGINILKIPQVFVKDPDILRNICVKDFDHFNNHVDIFLQADPLFGKSLFVLKDKKWRDMRNILTPVFTGSKLRGLVQLISNCGEKTVNHLVEELKEQNTKLLKVDIMDTSTRFTNDVIATSAFGIEVNSIKDPKNDFFMAGREIIRFPMWRFMMFFLPAVSKILDIRLAPRYVYDFLFNIINETIRVREEKNIRPDMVHLLIEARKEQKKVIQKQKAQNEDVSVLTKNLLTNEDIVAQGGIFFFAGYGNVAVILSFAAYELAVHPEIQKRLQDEISHVLNENNGQIDYDAIKKMKYLDMVLSETLRKWPPLPIIDRECTKAYQIKSDDL TIDLAPGMGVQIPIAGFHYDPKYYPNPEKFDPERFSDENKANMNPYVYMPFGLGPRVCVAVRFVMIETKIFLIHLRQFDVVVTEKTPIMVLKS

>ON646439 CYP9GN2 [495 AA] TRINITY_DN51806_c0_g4_i2|m.57641

MILELIGVLIVYLLHLYFMKGYDYWEKRGIPSYRRFHPYIEFLNMLFQRTTMYDDIIGVYNGLPDKKVHGINILKIPQVFVKDPDILRNICVKDFDHFNNHVDIFLQADPLFGKSLFVLKDKKWRDMRNILTPVFTGSKLRGLVQLISNCGEKTVNHLVEELKEQNTKLLKVDIMDTSTRFTNDVIATSAFGIEVNSIKDPKNDFFMAGREIIRFPMWRFMMFFLPAVSKILDIRLAPRYVYDFLFNIINETIRVREEKNIRPDMVHLLIEARKEQKKVIQKQKAQNEDVSVLTKNLLTNEDIVAQGGIFFFAGYGNVAVILSFAAYELAVHPEIQKRLQDEISHVLNENNGQIDYDAIKKMKYLDMVLSETLRKWPPLPIIDRECTKAYQIKSDDL TIDLAPGMGVQIPIAGFHYDPKYYPNPEKFDPERFSDENKANMNPYVYMPFGLGPRVCVAVRFVMIETKIFLIHLRQFDVVVTEKTPIMVLKS

>ON646440 CYP9GN1 [414 AA] TRINITY_DN51806_c0_g2_i1|m.57636

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>ON646441 CYP9GN1 [458 AA] TRINITY_DN51806_c0_g2_i2|m.57637

MLFVIIIGILIALYLLHLYFMKGQDYWKKRGVPTYQRSHPYKEFIRLILQKTSIYEDFISLYNGFPDKKVYGVNAFNVPQLVVKDPEIKNICVKDFDHFVNHDVFFKADPLFGRSLFAIKDKKWRDMRNILSPVFTGSKLRGLVQLISNCGEQTVKYLTEKCKEQDNKLLKVDLLDMTTRFTNDVIATAAFGIEVNSIQPNNEFFEAGREIIFPAWRVLIMFFLPTIAKIFEIRLAPKYVYNFLYNIINETIRVREEKHIVRPDMVHLLVEGRKEQKRMVEEKSAKNEDMPSLTNSVLTNDDIVAQGGIFFLAGYGNVAIIMSFAAYELAVQPELQKRLQDEIAHTLKENNGKLDYDVIKKMKYLDMVIAETLRKWTPVTFIDRECTKAYQIKSDDL TVDVEPGMAITIPTVGFHYDPKYFPNPNKFDPERFSDENKERMNPYVYMPFGLGPRVC

>ON646442 CYP4XE3 [500 AA] TRINITY_DN52387_c0_g1_i2|m.60175

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LYLLANHPLVQDRLF AEI KEVLGTDPSKPATLNDLNNLN YIELVIKESLRLYPPVPLVGRTLTE
DLQWGDVSLSKGSQIVVVIHGAHRHEDYFPEPEVDFPERFLNNTSNKNAFAYVPFSAGPRNCI
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>ON646443 CYP4236B1 [359 AA] TRINITY_DN52543_c2_g3_i1|m.61016

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DKQSDTQKPFDTCLDRILKHDLTEKQQMDATYVIFTASQESITTIISFVILMLAIHPDIQQKAHE
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GVGIYAMHRDPNIWPEPDKFIPERFTREAVLNRHPYAYVPFSAGPMNCIGKIYADLLMKSV A
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>ON646444 CYP6YL1 [456 AA] TRINITY_DN52759_c6_g1_i2|m.61627

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NLRGKLTSAFISISRIKNMFYLVEQCAEPMNKILTKHAENNEPLDVKDFMARYTTDVISTCVFG
VTGNAINDPNWDFYHIGRSVFKTSPLDSVKSGLLIFAPWFKLFGIRMINDSIYDAIRKSIWTAI
DLRQKNNIIRNDFIDLLLQIREKSLAEDRRNDESVLFLDGDALVGQAFVFLGGYETSSTTMS
LALYEMALNPVIQKQVRREIDRVLA KHNTMSYEAVHEMTYLNQVVSETLRKYPALPFLDR
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>ON646445 CYP6YL1 [532 AA] TRINITY_DN52759_c6_g2_i2|m.61628

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NFAPDPEIEPLASHGLFCLTGDKWRNLRGKLTSAFISISRIKNMFYLVEQCAEPMNKILTKHAE
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WFKLFGIRMINDSIYDAIRKSIWTAIDL RQKNNIIRNDFIDLLLQIREKSLAEDRRNDESVLFL
DGDALVGQAFVFLGGYETSSTTMSLALYEMALNPVIQKQVRREIDRVLA KHNTMSYEAV
HEMTYLNQVVSETLRKYPALPFLDRNCVKDYIIPGTNVKIDCGTKVFISLLSLHHDPEIFPNPE
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>ON646446 CYP4416A4 [487 AA] TRINITY_DN52793_c3_g2_i4|m.62078

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VEKINILIQKLDLELNKETPFDIYK YLSRTTLD SVCGSTMGVNINSHDDDGSSSYFHAINSVTFE
ILARFLNPIKYPTIFYRFTQDYK MVS KSRDVTQEFT EKKI SEKRKSMATLTNNNELMDIKAINN
NAYKKPFLEYLMDFTKNNSNFTEEQLHNETNVLIFAGYETTAITLSFVLLHMAAYKDIQTKL
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ILIPINIHRNPEYWENPLKFNPERFTSENIKNRHPYAYLPFGAGPRSCLGRRYAWIFMKTALV
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>ON646447 CYP4416A2 [537 AA] TRINITY_DN52793_c3_g2_i6|m.62081

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FSQDYKMVLKNRDLTQEFTKKI SEKQKL MANVINNNELNNIKAINRN VYKKPFLEYLMDFT
KNNSNFTEEQLHNETNVLIFAGYETTAITLSFVLLHMAAYKDIQTKLYNEIIEVLGDKNVDSIN

VDDLPLKLYMEMVLKESLRLTPTVPLIPREASQDIKIDNYTIPKGANILIPINIHRNPEYWENP
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>ON646448 CYP4416A3 [536 AA] TRINITY_DN52793_c3_g2_i13|m.62083

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>ON646449 CYP6YH1 [523 AA] TRINITY_DN52853_c3_g1_i1|m.62169

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VVMNAMAEREANNIKRPDLIEALITLKNKGTLEDSENKTGDIVANGNNVKNDLPPFKLEGDIL
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CVKETLRLYPTLGFLDREAIDTYTFPGTNITIDKGTAVVISLEALHRDPQYFENPLVYDPERFM
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>ON646450 CYP6YH1 [406 AA] TRINITY_DN52853_c3_g1_i6|m.62170

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VVMNAMAEREANNIKRPDLIEALITLKNKGTLEDSENKTGDIVANGNNVKNDLPPFKLEGDIL
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>ON646451 CYP6YH3 [436 AA] TRINITY_DN52853_c3_g1_i7|m.62171

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>ON646452 CYP6YH2 [440 AA] TRINITY_DN52853_c3_g1_i10|m.62174

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>ON646453 CYP6YH2 [440 AA] TRINITY_DN52853_c3_g1_i15|m.62177

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>ON646454 CYP4416A5 [395 AA] TRINITY_DN52979_c0_g1_i5|m.62504

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KELMDIKAINSNLYKKPFLEYLMDFTENNSSFTEEQLRNETNFMIMAGYD TTALSLSYVLLHL
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>ON646455 CYP4416A5 [505 AA] TRINITY_DN52979_c0_g1_i6|m.62506

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KELMDIKAINSNLYKKPFLEYLMDFTENNSSFTEEQLRNETNFMIMAGYD TTALSLSYVLLHL
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>ON646456 CYP4416A5 [399 AA] TRINITY_DN52979_c0_g1_i13|m.62511

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>ON646457 CYP4416A5 [505 AA] TRINITY_DN52979_c0_g1_i22|m.62520

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AAYKDIQTKLYNEILEVVGDLINVDLINVDDLPLKLYMEMVLKESMRLTPTIPLIVREPSQDIKI
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>ON646458 CYP4416A6 [439 AA] TRINITY_DN52979_c0_g1_i14|m.62512

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RYAWIFMKATLVALLCRYEFHTDINLDTLKFEIGMALKLINGHQVQITPRY