

Table S5. Predicted gene clusters involved in secondary metabolism in *Aspergillus fumigatus*, and orthologous clusters in other *Aspergilli*. X indicates that the corresponding gene is absent.

Cluster	Locus ID	5' end	3' end	Gene Name [function]	<i>A. oryzae</i>	<i>A. nidulans</i>
1	Afu1g10350	419083	420498	phosphoglycerate kinase PgkA, putative	20060.m00025	10017.m00173
	Afu1g10360	422521	425058	conserved hypothetical protein	20060.m00022	10017.m00171
	Afu1g10370	426122	428041	MSF drug transporter, putative	20060.m00021	10017.m00170
	Afu1g10380	447716	428528	nonribosomal peptide synthase Afpes1	20060.m00020	10017.m00169
	Afu1g10390	453260	458484	ABC multidrug transporter, putative	X	10017.m00167
2	Afu1g17640	2591155	2593873	melanin biosynthesis transcription factor RegA	20146.m00216	10055.m00282
	Afu1g17650	2594952	2594257	short chain dehydrogenase, putative	20146.m00215	X
	Afu1g17660	2595320	2596783	histidinol dehydrogenase, putative	20146.m00214	X
	Afu1g17670	2597568	2599888	salicylate hydroxylase, putative	20146.m00213	10055.m00283
	Afu1g17680	2600595	2602397	MFS transporter, putative	X	10055.m00289
	Afu1g17690	2603506	2605006	FAD binding oxidoreductase, putative	20146.m00211	10055.m00290
	Afu1g17700	2605307	2606328	short chain dehydrogenase, putative	20146.m00212	10055.m00291
	Afu1g17710	2647077	2648454	C6 transcription factor, putative	X	X
	Afu1g17720	2648896	2649639	oxidoreductase, putative	X	X
	Afu1g17725	2653002	2651209	cytochrome P450 oxidoreductase, putative	X	X
	Afu1g17730	2654592	2653441	zinc binding enoyl reductase, putative	X	X
	Afu1g17740	2655126	2663085	polyketide synthase, putative	X	X
3	Afu2g01100	258038	258963	pirin domain protein, putative	20157.m00250	10108.m00155
	Afu2g01110	260850	259375	conserved hypothetical protein	20105.m00074	10130.m00145
	Afu2g01120	262678	261380	DNA repair protein, putative	X	X
	Afu2g01130	263087	263724	ubiquitin conjugating enzyme (UbcJ), putative	X	X
	Afu2g01140	265169	264333	GPI anchored protein, putative	X	X
	Afu2g01150	267817	267182	conserved hypothetical protein	X	X
	Afu2g01160	268557	269294	C-4 methyl sterol oxidase, putative	X	X

Afu2g01170	272509	273928	1,3-beta-glucanosyltransferase Gell	X	X
Afu2g01180	275159	277696	cellobiose dehydrogenase	X	X
Afu2g01190	279094	278074	Cu-dependent DNA-binding protein	X	X
Afu2g01200	283232	281077	SH3 domain protein	X	X
Afu2g01210	284424	286208	ATP dependent RNA helicase (Dbp5), putative	X	X
Afu2g01220	286849	288494	GTP cyclohydrolase II, putative	X	X
Afu2g01230	288906	289901	dihydrodipicolinate synthetase family protein	X	X
Afu2g01240	290755	292349	beta-D-fructofuranoside fructohydrolase	X	X
Afu2g01250	293643	295622	serine peptidase, family S28, putative	X	X
Afu2g01260	296897	299863	HLH transcription factor, putative	20105.m00096	10130.m00153
Afu2g01270	302148	304277	metalloreductase, putative	20105.m00097	10130.m00154
Afu2g01280	305859	304748	D-mandelate dehydrogenase, putative	20105.m00098	10130.m00155
Afu2g01290	314706	306145	polyketide synthase, putative	X	X
Afu2g01300	315161	316044	conserved hypothetical protein	X	X
Afu2g01310	316971	316120	EF-hand domain protein	20105.m00100	10130.m00156
Afu2g01320	320995	317537	P-type ATPase, putative	20105.m00101	10130.m00156
Afu2g01330	322550	323380	exosome complex subunit Rrp46, putative	20105.m00115	10130.m00157
Afu2g01340	324294	323929	hypothetical protein	X	X
Afu2g01350	324469	326498	NAD+ kinase Utr1, putative	20105.m00115	10130.m00158
Afu2g01360	328352	326803	nucleotide-binding GAF domain protein	20105.m00116	10130.m00160
Afu2g01370	330962	329174	GABA permease, putative	20105.m00118	X
Afu2g01380	333432	332887	GNAT family acetyltransferase, putative	X	X
Afu2g01390	334449	333820	S-adenosylmethionine-dependent methyltransferase, putative	X	X
Afu2g01400	335414	336258	short chain dehydrogenase/oxidoreductase, putative	X	X
Afu2g01410	337491	338525	aldo-keto reductase, putative	20162.m00231	X
Afu2g01420	339809	341479	Fot5 family transposase, putative	X	X
Afu2g01430	343487	344969	conserved hypothetical protein	X	10130.m00162
Afu2g01440	345988	347285	mitochondrial carrier protein, putative	20162.m00240	10130.m00163
Afu2g01450	347989	349182	alpha-1,6 mannosyltransferase subunit (Mnn9), putative	20162.m00241	10130.m00164

Conidial Pigment Biosynthesis Cluster

4	Afu2g17510	2802200	2804231	hypothetical protein	X	X
	Afu2g17520	2805912	2805250	GNAT family N-acetyltransferase, putative	X	X

	Afu2g17530	2807384	2809550	conidial pigment biosynthesis oxidase Arb2/brown2	20147.m00258	X
	Afu2g17540	2810056	2812149	pigment biosynthesis oxidase Abr1/brown 1	X	X
	Afu2g17550	2813989	2812570	pigment biosynthesis protein Ayg1	X	X
	Afu2g17560	2815647	2814826	1,3,6,8-tetrahydroxynaphthalene reductase	X	X
	Afu2g17570	2815979	2815763	hypothetical protein	X	X
	Afu2g17580	2816111	2816719	conidial pigment biosynthesis scytalone dehydratase Arp1	X	X
	Afu2g17590	2817164	2817430	conserved hypothetical protein	X	X
	Afu2g17600	2817817	2824478	polyketide synthetase PksP	20147.m00259	X
5	Afu2g17960	2908142	2907012	NADPH dehydrogenase, putative	X	X
	Afu2g17970	2908930	2909913	conserved hypothetical protein	X	X
	Afu2g17980	2911958	2910619	cytochrome P450 pisatin demethylase, putative	X	X
	Afu2g17990	2913852	2912488	dimethylallyl tryptophan synthase, putative	X	X
	Afu2g18000	2914582	2915434	short chain dehydrogenase, putative	X	X
	Afu2g18010	2916087	2917978	cytochrome P450 monooxygenase, putative	X	X
	Afu2g18020	2918826	2920310	transferase family protein	X	X
	Afu2g18030	2922606	2920987	catalase, putative	X	X
	Afu2g18040	2925193	2923639	dimethylallyl tryptophan synthase, putative	X	X
	Afu2g18050	2925694	2927815	FAD binding oxidoreductase, putative	X	X
	Afu2g18060	2928072	2929163	conserved hypothetical protein	X	X
	Afu2g18070	2930832	2930164	metalloproteinase, putative	X	X
6	Afu3g01290	316915	318063	AMID-like mitochondrial oxidoreductase, putative	X	X
	Afu3g01300	321038	319812	hypothetical protein	X	X
	Afu3g01310	322936	323296	hypothetical protein	X	X
	Afu3g01320	323988	324929	homocysteine S-methyltransferase, putative	X	X
	Afu3g01330	326023	325057	class II aldolase/adducin domain protein	20179.m00857	X
	Afu3g01340	326992	326485	DUF636 domain protein	X	10153.m00250
	Afu3g01350	331897	329544	proteinase, putative	X	10153.m00251
	Afu3g01360	333213	335443	siderochrome-iron transporter, putative	20179.m00859	10153.m00252
	Afu3g01370	339241	337589	MFS transporter, putative	20179.m00871	10153.m00255

	Afu3g01380	342911	342747	hypothetical protein	X	X
	Afu3g01390	344659	344085	hypothetical protein	X	X
	Afu3g01400	347964	352621	ABC multidrug transporter, putative	20179.m00865	10153.m00242
	Afu3g01410	360985	352856	polyketide synthase, putative	20179.m00868	X
	Afu3g01420	362051	361276	DUF341 domain oxidoreductase, putative	20179.m00869	X
	Afu3g01430	362767	363398	benzodiazepine receptor family protein	X	X
	Afu3g01440	364216	367670	DUF1212 domain membrane protein	20179.m00870	X
	Afu3g01450	370038	368845	3-methyl-2-oxobutanoate dehydrogenase, putative	X	X
	Afu3g01460	371772	370426	salicylate hydroxylase, putative	X	X
	Afu3g01470	372686	373698	conserved hypothetical protein	X	X
	Afu3g01480	375819	373921	conserved hypothetical protein	X	X
	Afu3g01490	380404	379234	alcohol dehydrogenase, putative	X	X
	Afu3g01500	381071	381876	integral membrane protein	X	X
	Afu3g01510	385884	383456	C6 transcription factor, putative	20112.m00082	X
	Afu3g01520	385999	387805	MFS toxin efflux pump, putative	X	X
	Afu3g01530	388213	389691	phosphatidylglycerol specific phospholipase, putative	X	X
	Afu3g01540	391333	392842	MFS monocarboxylate transporter, putative	X	X
	Afu3g01560	394802	393032	amino acid permease, putative	X	X
	Afu3g01580	397771	395356	GMC oxidoreductase, putative	X	X
	Afu3g01590	399965	401381	hypothetical protein	X	X
	Afu3g01600	405413	402521	monooxygenase, putative	X	X
7	Afu3g02520	632001	629945	MSF multidrug transporter, putative	X	X
	Afu3g02530	634289	632049	polyketide synthase, putative	X	X
	Afu3g02540	635156	635727	hypothetical protein	X	X
	Afu3g02550	639573	642088	conserved hypothetical protein	X	X
	Afu3g02560	645824	646419	hypothetical protein	X	X
	Afu3g02570	653701	646906	polyketide synthase, putative	X	X
	Afu3g02580	654900	653899	short-chain dehydrogenase/reductase family protein, putative	X	X
	Afu3g02590	658708	656191	C6 transcription factor, putative	X	X
	Afu3g02600	661873	661031	hypothetical protein	X	X
	Afu3g02610	662970	664268	MFS transporter, putative	X	X

Afu3g02620	666282	664695	phenol hydroxylase, putative	X	X
Afu3g02630	668051	667105	conserved hypothetical protein	X	X
Afu3g02640	668464	669413	nucleoside-diphosphate-sugar epimerase family protein	X	X
Afu3g02650	671969	673246	MYB DNA binding domain protein	X	X
Afu3g02660	674779	676203	hypothetical protein	X	X
Afu3g02670	694320	697670	nonribosomal peptide synthetase, putative	X	X
Afu3g02680	698498	700326	conserved hypothetical protein	X	X
Afu3g02690	701773	702105	hypothetical protein	X	X
Afu3g02700	704476	702506	transcription factor, putative	X	X
Afu3g02710	704861	706090	zinc-binding oxidoreductase, putative	X	X
Afu3g02720	708220	706435	MFS transporter, putative	X	X

Toxin Biosynthesis Cluster

8	Afu3g03190	858799	857216	MFS transporter, putative	X	X
	Afu3g03200	859100	859801	cysteine hydrolase family protein	X	X
	Afu3g03210	861467	860517	hypothetical protein	X	X
	Afu3g03220	862739	862317	conserved hypothetical protein	X	X
	Afu3g03230	865463	864384	hypothetical protein	X	X
	Afu3g03240	868128	866768	MFS monocarboxylate transporter, putative	X	X
	Afu3g03250	870149	868558	aldehyde dehydrogenase family protein, putative	X	X
	Afu3g03260	872203	871910	hypothetical protein	X	X
	Afu3g03270	874449	875310	isochorismatase family hydrolase, putative	X	X
	Afu3g03280	876157	877704	FAD binding monooxygenase, putative	X	X
	Afu3g03290	878888	879295	hypothetical protein	X	X
	Afu3g03300	884161	881366	FAD binding domain protein	X	X
	Afu3g03310	884900	885849	RTA1 domain protein	X	X
	Afu3g03315	887323	886053	C6 transcription factor, putative	X	X
	Afu3g03320	889226	887789	MFS monocarboxylate transporter, putative	X	X
	Afu3g03330	891157	889931	mitochondrial enoyl reductase, putative	X	X
	Afu3g03340	891335	892127	hypothetical protein	X	X
	Afu3g03350	891335	898767	nonribosomal peptide synthase, putative	X	X
	Afu3g03360	899067	898769	hypothetical protein	X	X
	Afu3g03370	899885	899169	cell surface protein, putative	X	X

	Afu3g03380	901268	902011	maltose O-acetyltransferase, putative	X	X
	Siderophore Biosynthesis Cluster					
9	Afu3g03390	903326	902202	siderophore biosynthesis lipase/esterase, putative	20139.m00254	X
	Afu3g03400	906262	904874	siderophore biosynthesis acetylase AceI, putative	20139.m00253	X
	Afu3g03410	906574	907459	enoyl-CoA hydratase/isomerase family protein	20139.m00252	X
	Afu3g03420	908168	914474	hypothetical protein	20139.m00251	10107.m00150
	Afu3g03430	918596	914602	ABC multidrug transporter SitT, putative	20139.m00250	10107.m00151
	Afu3g03440	919017	921326	MFS family siderophore transporter, putative	20139.m00249	10107.m00152
	Afu3g03450	925123	923525	cytochrome P450 pisatin demethylase, putative	20139.m00216	10128.m00122
	Afu3g03460	927326	928000	HAD superfamily hydrolase, putative	X	X
	Afu3g03470	930109	929861	conserved hypothetical protein	X	X
	Afu3g03480	933890	932289	cytochrome P450 monooxygenase, putative	20097.m00055	X
	Afu3g03490	934429	935209	O-methyltransferase, putative	20154.m00164	X
	Afu3g03500	936148	937897	MFS multidrug transporter, putative	X	X
	Afu3g03510	937974	939266	4-hydroxyphenylpyruvate dioxygenase, putative	20168.m00384	X
	Afu3g03520	942883	944223	integral membrane protein	20172.m00479	10115.m00067
	Afu3g03530	946095	945409	nitroreductase family protein	X	10032.m00157
	Afu3g03540	947249	949912	polyketide synthase, putative	X	10032.m00162
	Afu3g03550	951016	950347	hypothetical protein	X	X
	Afu3g03560	956482	954740	pyridine nucleotide-disulfide oxidoreductase, putative	X	X
	Afu3g03570	957422	959086	67 kDa myosin-cross-reactive antigen family protein	X	X
	Afu3g03580	960918	959392	Transferase family superfamily	X	X
	Afu3g03590	963569	961701	F-box domain and ankyrin repeat protein	X	X
	Afu3g03600	965315	964392	carboxyl esterase A	X	X
	Afu3g03610	969866	968691	hypothetical protein	X	X
	Afu3g03620	971143	973488	glycosyl transferase, putative	X	X
	ETP Toxin Biosynthesis Cluster					
10	Afu3g12870	659061	656692	GTPase activating protein (Gyp3), putative	20140.m00124	10051.m00675
	Afu3g12880	655910	656104	hypothetical protein	X	X
	Afu3g12890	654015	655302	C6 transcription factor (GliZ), putative	X	X
	Afu3g12900	653575	651166	MFS monocarboxylate transporter (Mch4), putative	X	X

	Afu3g12910	649310	650671	O-methyltransferase (GliM), putative	X	X
	Afu3g12920	649187	641933	nonribosomal peptide synthase (GliP), putative	X	X
	Afu3g12930	641551	639889	dimethylallyl tryptophan synthase (GliD), putative	X	X
	Afu3g12940	637351	639832	C6 transcription factor, putative	X	X
	Afu3g12950	635308	636874	FAD binding domain protein	X	X
	Afu3g12960	633039	634964	cytochrome P450 monooxygenase (GliC), putative	X	X
	Afu3g12970	632076	630413	DUF580 domain protein	20140.m00123	10051.m00675
	Afu3g12980	628680	630258	extracellular serine rich protein	20140.m00122	X
	Afu3g12990	626024	628043	conserved proline-rich protein	20140.m00121	10051.m00677
	Afu3g13000	623547	625124	BCS1-like ATPase, putative	X	X
	Afu3g13010	622948	621486	conserved hypothetical protein	X	X
11	Afu3g13580	489962	492197	dynamain GTPase, putative	X	X
	Afu3g13590	488527	487895	conserved hypothetical protein	X	X
	Afu3g13600	486787	484805	C6 transcription factor, putative	X	X
	Afu3g13610	484317	483268	oxidoreductase, zinc-binding, putative	X	X
	Afu3g13620	482412	483065	conserved hypothetical protein	X	X
	Afu3g13630	480700	480032	conserved hypothetical protein	X	X
	Afu3g13640	477296	478176	extracellular serine-rich protein	X	X
	Afu3g13650	476329	475160	integral membrane protein	X	X
	Afu3g13660	474221	474930	Ctr copper transporter family protein	X	X
	Afu3g13670	473283	471441	siderochrome-iron transporter, putative	X	X
	Afu3g13680	469262	470650	conserved hypothetical protein	X	X
	Afu3g13690	468515	466792	pyoverdine chromophore biosynthetic protein, putative	X	X
	Afu3g13700	466595	463452	transferase family protein	X	X
	Afu3g13710	462090	462386	GTP cyclohydrolase I, putative	X	X
	Afu3g13720	460483	461658	oxidoreductase, 2OG-Fe(II) oxygenase family, putative	X	X
	Afu3g13730	459847	455975	nonribosomal peptide synthase, putative	X	X
	Afu3g13740	453094	455692	HSP70 family protein	X	X
	Afu3g13750	450942	452183	conserved hypothetical protein	20154.m00246	X

12	Afu3g14560	221510	223449	MFS transporter, putative	X	X
	Afu3g14570	217336	218826	histidine acid phosphatase, putative	X	X
	Afu3g14580	214861	215391	dUTPase, putative	X	X
	Afu3g14590	211936	209760	copper amine oxidase	X	X
	Afu3g14600	208977	206950	fungal specific transcription factor, putative	X	X
	Afu3g14610	204916	206842	cytochrome P450, putative	X	X
	Afu3g14620	202747	201515	extracellular endo-1,5-alpha-L-arabinase, putative	X	X
	Afu3g14630	199456	198353	extracellular dioxygenase, putative	X	X
	Afu3g14640	197792	196564	C4-dicarboxylate transporter/malic acid transport protein	X	X
	Afu3g14650	195852	193721	hypothetical protein	X	X
	Afu3g14660	193361	193635	hypothetical protein	X	X
	Afu3g14670	187934	186334	MFS transporter, putative	X	X
	Afu3g14680	185922	184030	lysophospholipase Plb3	X	X
	Afu3g14690	182237	183772	aminotransferase, putative	X	X
	Afu3g14700	181917	174183	polyketide synthase, putative	X	X
	Afu3g14710	173606	172515	toxin biosynthesis proten (Fum3), putative	X	10172.m00187
	Afu3g14720	170639	172440	MFS transporter, putative	X	X
	Afu3g14730	170034	168487	LysR family regulatory protein, putative	X	X
	Afu3g14740	166861	168366	conserved hypothetical protein	X	X
	Afu3g14750	165495	162655	fungal specific transcription factor, putative	X	X
Afu3g14760	162254	160502	cytochrome P450 monooxygenase (Fum15), putative	X	X	
13	Afu3g15200	80940	82573	conserved hypothetical protein	X	X
	Afu3g15210	79848	78705	endo-1,4-beta-xylanase, putative	X	X
	Afu3g15220	76387	75146	conserved hypothetical protein	X	X
	Afu3g15230	72973	74826	general amidase, putative	X	X
	Afu3g15240	71999	72685	conserved hypothetical protein	X	X
	Afu3g15250	71381	69681	MFS toxin efflux pump, putative	X	X
	Afu3g15260	68848	69360	hypothetical protein	X	X
	Afu3g15270	68646	61531	nonribosomal peptide synthetase, putative	X	X
	Afu3g15280	60018	61078	methyltransferase, putative	X	X
	Afu3g15290	57928	55700	C6 transcription factor, putative	X	X

	Afu3g15300	50842	51669	amine transporter, putative	X	X
	Afu3g15310	48953	49712	polyketide synthase, putative	X	X
	Afu3g15330	47497	47856	hypothetical protein	X	X
	Afu3g15340	43498	44679	hypothetical protein	X	X
	Afu3g15350	41456	42187	short chain dehydrogenase family protein, putative	X	X
14	Afu4g00110	418391	419541	TfdA family taurine dioxygenase, putative	X	X
	Afu4g00120	416589	418250	MFS transporter, putative	X	X
	Afu4g00130	416107	416486	hypothetical protein	X	X
	Afu4g00140	414904	413866	RTA1 domain protein, putative	X	X
	Afu4g00150	408532	410300	MFS maltose transporter, putative	X	X
	Afu4g00160	403226	402154	short-chain dehydrogenase, putative	X	X
	Afu4g00170	400887	401276	conserved hypothetical protein	X	X
	Afu4g00180	400326	397521	fatty acid oxygenase, putative	X	X
	Afu4g00190	396226	396700	conserved hypothetical protein	X	X
	Afu4g00200	391882	390483	F-box domain protein	X	X
	Afu4g00210	384731	390228	polyketide synthase, putative	10005.m00157	X
	Afu4g00220	383360	384366	metallo-beta-lactamase domain protein	10005.m00156	X
	Afu4g00230	380042	382115	oxidoreductase, 2OG-Fe(II) oxygenase family, putative	X	X
	Afu4g00240	377489	379528	amino acid transporter, putative	X	X
	Afu4g00250	374936	372955	WD40 repeat protein	X	X
	Afu4g00260	371327	372400	hypothetical protein	X	X
	Afu4g00270	368420	370090	Fot5 family transposase, putative	X	X
	Afu4g00280	366953	366186	conserved hypothetical protein	10065.m00177	20162.m00211
15	Afu4g14380	123980	124854	conserved hypothetical protein	X	X
	Afu4g14390	121772	123463	Fot5 transposase, putative	X	X
	Afu4g14400	120879	118430	C2H2 finger domain protein, putative	X	X
	Afu4g14410	114091	113207	hypothetical protein	X	X
	Afu4g14420	108547	109358	secreted glycosyl hydrolase, putative	X	X
	Afu4g14440	105948	108015	NRPS-like enzyme, putative	X	X

Afu4g14450	103508	102000	D-mannonate oxidoreductase	X	X
Afu4g14460	100642	101601	conserved hypothetical protein	X	X
Afu4g14470	99478	98952	hypothetical protein	X	X
Afu4g14480	99432	100288	hypothetical protein	X	X
Afu4g14490	98709	96582	dihydrogeodin oxidase	X	X
Afu4g14500	96092	94755	conserved hypothetical protein	X	X
Afu4g14510	93469	94594	hypothetical protein	X	X
Afu4g14520	92984	92193	toxin biosynthesis protein, putative	X	X
Afu4g14530	91775	91098	glutathione S-transferase, putative	X	X
Afu4g14540	89818	91219	C6 transcription factor (AflR), putative	X	X
Afu4g14550	87081	88446	toxin biosynthesis regulatory protein, putative	X	X
Afu4g14560	81245	86775	polyketide synthase, putative	X	X
Afu4g14570	81106	79841	metallo-beta-lactamase domain protein, putative	X	X
Afu4g14580	79440	77804	O-methyltransferase, putative	X	X
Afu4g14590	75310	77562	C6 transcription factor, putative	X	X
Afu4g14600	73306	74769	UPF0075 domain protein	X	X
Afu4g14610	72681	70832	MFS sugar transporter, putative	X	X
Afu4g14620	69305	68404	RING finger protein	X	X
Afu4g14630	68215	66857	FAD binding domain protein	X	X
Afu4g14640	64722	66791	low affinity iron transporter, putative	X	X
Afu4g14650	62500	61448	ribokinase	X	X
Afu4g14660	59522	61417	conserved hypothetical protein	X	X
Afu4g14670	57037	58934	MFS quinate transporter, putative	X	X
Afu4g14680	54761	56209	C6 transcription factor, putative	X	X
Afu4g14690	53465	54409	hypothetical protein	X	X
Afu4g14700	51588	52733	GDSL-like Lipase/Acylhydrolase family protein	X	X
Afu4g14710	46778	46303	MFS transporter, putative	X	X
Afu4g14720	47230	49422	C6 transcription factor, putative	X	X
Afu4g14730	44916	44323	GNAT family acetyltransferase, putative	X	X
Afu4g14740	38334	37020	serine/threonine protein kinase (Ark1), putative	X	X
Afu4g14750	33095	34612	hypothetical protein	X	X
Afu4g14760	33010	32134	ABC multidrug transporter, putative	X	X
Afu4g14770	29433	31640	squalene-hopene-cyclase, putative	X	X

	Afu4g14780	27256	28998	cytochrome P450 monooxygenase, putative	X	X
	Afu4g14790	26677	25154	cytochrome P450 monooxygenase, putative	X	X
	Afu4g14800	24345	25118	short chain dehydrogenase, putative	X	X
	Afu4g14810	24235	22541	cytochrome P450 monooxygenase, putative	X	X
	Afu4g14820	22116	20680	transferase family protein	X	X
	Afu4g14830	20490	18976	cytochrome P450 monooxygenase, putative	X	X
	Afu4g14840	18574	17183	transferase family protein	X	X
	Afu4g14850	15364	17154	extracellular 3-ketosteroid 1-dehydrogenase, putative	X	X
16	Afu5g00110	1199221	1201005	squalene-hopene-cyclase, putative	X	X
	Afu5g00120	1198318	1196878	cytochrome P450 oxidoreductase/alkane hydroxylase, putative	X	X
	Afu5g00130	1196112	1194937	capsule polysaccharide biosynthesis protein, putative	X	X
	Afu5g00140	1190708	1191637	transposase, putative	X	X
	Afu5g00150	1186398	1185545	nonribosomal peptide synthetase, putative	X	X
	Afu5g00160	1179668	1178210	MFS polyamine transporter, putative	X	X
17	Afu5g00340	1105985	1110616	ABC multidrug transporter, putative	X	X
	Afu5g00350	1105790	1103641	nonribosomal peptide synthetase, putative	X	X
	Afu5g00370	1101783	1100328	amino acid permease, putative	X	X
	Afu5g00380	1096715	1098466	TPR domain protein	X	X
	Afu5g00390	1092296	1092060	hypothetical protein	X	X
	Afu5g00400	1089258	1090635	aminotransferase, classes I and II family, putative	X	X
18	Afu5g12700	645637	645131	hypothetical protein	X	X
	Afu5g12710	643594	641247	TPR domain protein	X	X
	Afu5g12720	635720	640633	ABC drug transporter, putative	X	X
	Afu5g12730	633905	608358	nonribosomal peptide synthase, putative	X	X
	Afu5g12740	607205	605650	MFS drug transporter, putative	X	X

19	Afu6g03290	591439	593151	isochorismatase family hydrolase, putative	X	X
	Afu6g03300	590983	590090	hypothetical protein	X	X
	Afu6g03310	589582	588944	hypothetical protein	X	X
	Afu6g03320	585647	587493	MFS drug transporter, putative	X	X
	Afu6g03330	583885	583183	conserved hypothetical protein	X	X
	Afu6g03340	582862	582103	conserved hypothetical protein	X	X
	Afu6g03350	580384	579839	acetyltransferase, GNAT family, putative	X	X
	Afu6g03360	578113	579189	oxidoreductase, zinc-binding	X	X
	Afu6g03370	576502	577399	oxidoreductase, short-chain dehydrogenase/reductase family	X	X
	Afu6g03380	572129	570303	conserved hypothetical protein	X	X
	Afu6g03390	568080	567717	glutathione S-transferase family protein	X	X
	Afu6g03400	564528	564759	hypothetical protein	X	X
	Afu6g03420	561984	562984	trehalose synthase, putative	X	X
	Afu6g03430	558637	557060	C6 finger domain protein, putative	X	X
	Afu6g03440	555282	556843	fructosyl amino acid oxidase, putative	X	20173.m00567
	Afu6g03450	554705	553531	conserved hypothetical protein	X	X
	Afu6g03460	552453	550729	hypothetical protein	X	X
	Afu6g03470	550057	545953	ABC multidrug transporter, putative	X	X
	Afu6g03480	545229	540113	nonribosomal peptide synthetase, putative	X	X
	Afu6g03490	539443	537438	phenol 2-monooxygenase, putative	X	X
	Glotoxin Biosynthesis Cluster					
20	Afu6g09580	1016433	1017635	hypothetical protein	X	X
	Afu6g09590	1017795	1018808	zinc-containing alcohol dehydrogenase, putative	X	X
	Afu6g09600	1020203	1018892	peptidase, putative	X	X
	Afu6g09610	1024733	1020915	nonribosomal peptide synthase, putative	X	X
	Afu6g09620	1024774	1025473	hypothetical protein	X	X
	Afu6g09630	1028363	1029832	C6 finger domain protein GliZ	X	X
	Afu6g09640	1031979	1030552	aminotransferase GliI	X	X
	Afu6g09650	1032322	1033642	membrane dipeptidase GliJ	X	X
	Afu6g09660	1040501	1033997	nonribosomal peptide synthase GliP	X	X
	Afu6g09670	1040906	1042756	cytochrome P450 oxidoreductase GliC	X	X
	Afu6g09680	1044391	1043040	O-methyltransferase GliM	X	X

	Afu6g09690	1045595	1044767	glutathione S-transferase GliG	X	X
	Afu6g09700	1045847	1047155	gliotoxin biosynthesis protein GliK	X	X
	Afu6g09710	1047307	1048935	MFS gliotoxin efflux pump GliA	X	X
	Afu6g09720	1050289	1049325	methyltransferase GliN	X	X
	Afu6g09730	1052314	1050743	cytochrome P450 oxidoreductase GliF	X	X
	Afu6g09740	1052617	1053679	thioredoxin reductase GliT	X	X
	Afu6g09750	1054011	1068727	hypothetical protein	X	X
	Afu6g09760	1072603	1070978	toxin biosynthesis cytochrome P450 oxidoreductase, putative	X	X
	Afu6g09770	1073942	1076419	geranylgeranyl diphosphate synthase, putative	X	X
21	Afu6g12040	1691871	1693718	maltose permease, putative	X	X
	Afu6g12050	1694970	1698884	nonribosomal peptide synthase, putative	X	X
	Afu6g12060	1700651	1699285	MAK1-like monooxygenase, putative	X	X
	Afu6g12070	1701480	1703303	FAD binding domain protein	X	X
	Afu6g12080	1716682	1704693	nonribosomal peptide synthase, putative	X	X
22	Afu6g13920	2232241	2230440	adenylate-forming enzyme, putative	X	X
	Afu6g13930	2240314	2232481	lovastatin polyketide synthase, putative	X	X
	Afu6g13940	2240366	2242258	P450-monooxygenase, putative	X	X
	Afu6g13950	2245341	2246128	integral membrane protein	X	X
	Afu6g13970	2246494	2248129	FAD-dependent monooxygenase (PaxM), putative	X	X
	Afu6g13980	2248777	2249567	UbiA-like prenyltransferase, putative	X	X
	Afu6g13990	2251395	2249863	acetyltransferase (Tri16), putative	X	X
	Afu6g14000	2252146	2253518	Tri7-like toxin biosynthesis protein, putative	X	X
23	Afu7g00110	709476	710885	lipase, putative	X	X
	Afu7g00120	701989	703029	metallo-beta-lactamase domain protein	X	10102.m00085
	Afu7g00130	698930	701401	C6 transcription factor, putative	X	X
	Afu7g00150	695854	697133	FAD-dependent monooxygenase, putative	X	10102.m00086
	Afu7g00160	689233	694805	polyketide synthase, putative	X	10102.m00084

	Afu7g00170	688751	687390	dimethylallyl tryptophan synthase (GliD), putative	X	X
	Afu7g00180	685846	686793	NAD dependent epimerase/dehydratase, putative	X	X
	Afu7g00190	684341	685459	hypothetical protein	X	X
24	Afu8g00100	788864	790778	aspartate-tRNA ligase, putative	X	X
	Afu8g00110	787557	788663	oxidoreductase, 2OG-Fe(II) oxygenase family, putative	X	X
	Afu8g00120	785007	786587	hypothetical protein	X	X
	Afu8g00130	784636	783130	hypothetical protein	X	X
	Afu8g00140	782482	781030	MFS transporter, putative	X	X
	Afu8g00150	779542	777194	conserved hypothetical protein	X	X
	Afu8g00160	776393	777112	conserved hypothetical protein	X	X
	Afu8g00170	766250	772885	nonribosomal peptide synthetase, putative	X	X
	Afu8g00180	764554	765169	conserved hypothetical protein	X	X
	Afu8g00190	762752	764487	cytochrome P450, putative	X	X
	Afu8g00200	762001	760888	O-methyltransferase, putative	X	X
	Afu8g00210	760488	758705	dimethylallyl tryptophan synthase, putative	X	X
	Afu8g00220	756944	758524	cytochrome P450, putative	X	X
	Afu8g00230	755192	756067	phytanoyl-CoA dioxygenase family protein	X	X
	Afu8g00240	752285	754078	cytochrome P450 monooxygenase, putative	X	X
	Afu8g00250	751557	750209	dimethylallyl tryptophan synthase, putative	X	X
	Afu8g00260	747862	749904	F-box domain and ankyrin repeat protein	X	X
	Afu8g00270	745568	747072	polyketide synthase, putative	X	X
	Afu8g00280	745480	744329	short-chain dehydrogenase, putative	X	X
	Afu8g00290	742128	744179	conserved hypothetical protein	X	X
	Afu8g00300	740100	742011	conserved hypothetical protein	X	X
	Afu8g00310	738844	733533	LINE-1 class reverse transcriptase, RNaseH, putative	X	X
	Afu8g00320	732134	731979	reverse transcriptase, putative	X	X
	Afu8g00330	731229	727765	endonuclease/reverse transcriptase/RNaseH, putative	X	X
	Afu8g00340	719311	717742	conserved hypothetical protein	X	X
	Afu8g00350	717238	716351	conserved hypothetical protein	X	X
	Afu8g00360	715628	714736	NlpC/P60-like cell-wall peptidase, putative	X	X
	Afu8g00370	706852	714454	polyketide synthase, putative	X	X

Afu8g00380	706369	705444	DltD N-terminal domain protein	X	X
Afu8g00390	704443	705247	O-methyltransferase, putative	X	X
Afu8g00400	703869	704356	conserved hypothetical protein	X	X
Afu8g00410	701504	703440	methionine aminopeptidase, type II, putative	X	X
Afu8g00420	700626	698638	C6 finger transcription factor, putative	X	X
Afu8g00430	697932	698462	conserved hypothetical protein	X	X
Afu8g00440	694770	697487	steroid monooxygenase, putative	X	X
Afu8g00460	692822	691398	methionine aminopeptidase, type I, putative	X	X
Afu8g00470	690371	691265	conserved hypothetical protein	X	X
Afu8g00480	689974	688698	phytanoyl-CoA dioxygenase family protein	X	X
Afu8g00490	688644	685490	polyketide synthase, putative	X	X
Afu8g00500	683216	685442	acetate-CoA ligase, putative	X	X
Afu8g00510	681143	682807	O-methylsterigmatocystin oxidoreductase, putative	X	X
Afu8g00520	679995	679301	integral membrane protein	X	X
Afu8g00530	677184	678521	alpha/beta hydrolase, putative	X	X
Afu8g00540	676721	664416	hybrid polyketide synthase/nonribosomal peptide synthase, putative	X	X
Afu8g00550	663312	664181	SirN-like methyltransferase, putative	X	X
Afu8g00560	662895	661025	cytochrome P450, putative	X	X
Afu8g00570	659723	660936	alpha/beta hydrolase, putative	X	X
Afu8g00580	658076	658898	translation elongation factor eEF-1, gamma subunit, putative	X	X
Afu8g00590	656050	654368	fatty acid desaturase, putative	X	X
Afu8g00600	652099	650795	conserved hypothetical protein	X	X
Afu8g00610	649417	650567	cell surface protein Mas1, putative	X	X
Afu8g00620	645879	644082	dimethylallyl tryptophan synthase, putative	X	X
Afu8g00630	642440	643483	conserved hypothetical protein	X	X
Afu8g00640	640499	639381	glycosyl transferase, putative	X	X
Afu8g00650	637822	636479	LPS glycosyltransferase, putative	X	X
Afu8g00660	635037	636037	solute transporter, putative	X	X
Afu8g00670	633984	633060	integral membrane protein	X	X
Afu8g00680	630519	632501	glycosyl transferase, group 2 family protein	X	X
Afu8g00690	628941	629220	hypothetical protein	X	X
Afu8g00700	628928	627924	class III chitinase ChiA2	X	X
Afu8g00710	626941	626095	secreted antimicrobial peptide, putative	X	X

	Afu8g00720	624603	626393	amino acid transporter, putative	X	X
25	Afu8g02350	162279	156713	polyketide synthase, putative	X	X
	Afu8g02360	154404	156356	TRI7-like toxin biosynthesis protein, putative	X	X
	Afu8g02380	152585	154184	FAD-dependent monooxygenase, putative	X	X
	Afu8g02390	150901	151688	conserved hypothetical protein	X	X
	Afu8g02400	150002	148769	geranylgeranyl pyrophosphate synthetase, putative	X	X
	Afu8g02410	147560	146423	UbiA prenyltransferase family protein	X	X
	Afu8g02420	145512	144671	hypothetical protein	X	X
	Afu8g02430	143435	144627	zinc-binding alcohol dehydrogenase, putative	X	X
26	Afu8g07330	974576	975561	isoflavone reductase family protein (CipA), putative	X	X
	Afu8g07340	978401	980671	HET domain protein	X	X
	Afu8g07350	981394	982495	dioxygenase, putative	20162.m00278	X
	Afu8g07360	982725	984939	C6 transcription factor, putative	20162.m00279	X
	Afu8g07370	986488	988670	MFS transporter, putative	X	X
	Afu8g07380	991724	992941	polyketide synthase, putative	X	X
	Afu8g07390	995951	996103	hypothetical protein	X	X

Color code:

Polyketide synthase (PKS)
Nonribosomal peptide synthetase (NRPS)
Hybrid PKS/NRPS
Dimethylallyl tryptophan synthase (DMAT)
(Putative) transcription factor