Supplementary Information for

Microevolution in the pan-secondary metabolome of *Aspergillus flavus* and its potential macroevolutionary implications for filamentous fungi

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Supplemental methods

Validation of biosynthetic gene clusters:

To minimize the impact of genome fragmentation, cutoff values for network construction were optimized by generating sets of biosynthetic gene cluster (BGC) networks between 0.3 (default cutoff) and 0.6 at intervals of 0.05. The set of networks that contained the highest number of BGCs but did not result in associations between networks that were distinct at the 0.3 cutoff was selected (optimized cutoff was 0.5). For each network we compared the number of backbone genes identified by antiSMASH. Backbone genes that were not incorporated into BGCs because of assembly fragmentation were identified using reciprocal best-hit BLAST. In a single instance when the absence of such genes from antiSMASH-identified clusters could not be explained by genome fragmentation, we assumed that differences in protein domains were meaningful and did interpret the BGC as present (see BGC 8 in results, Fig. 1 and Fig. S2). We determined the percent identity of backbone genes relative to the NRRL3357 reference genome using a global alignment implemented in EMBOSS (1).

To identify BGCs that differed between populations in presence/absence or in the protein sequence identity of backbone genes, we visually identified patterns from a series of heatmaps in R using 'ggplot2' (2) (Fig. S2). To confirm patterns observed in heatmaps, we obtained BGC-representative sequence data from the reference genome when present or, if not, from an isolate with a high-quality assembly (as determined by overall genome-quality metrics and corresponding contig-size). Using representative sequences, we perform BLASTN and BLASTP of backbone-gene sequences against all other isolates using the BLAST+ suite v2.8.1 (3). When BLAST analyses returned high-quality nucleotide hits but only low-identity or no protein hits, we confirmed that this result reflected pseudogenization of genes by checking the protein domains present in neighboring genes (as can occur by annotation error) in three isolates from each affected population using the NCBI Conserved Domains tool (4). We only interpreted population-specific differences in proteins when impacted domains could not be found in neighboring genes, assuming that our validation indicates that such differences are not caused by annotation error. For BGCs present in the reference genome, we confirmed all apparent deletions in other isolates by aligning raw-reads to the reference assembly using BWA MEM (5). However, it was computationally prohibitive to align all raw reads to all isolates. Thus, in cases where a BGC was novel relative to the reference genome, we relied on BLASTN to indicate deletions, and only aligned raw reads to a representative isolate's genome (as mentioned above) in rare cases where BLASTN results returned any hit ≥ 20% the length of the query.

Site-frequency estimates of dN/dS ratios in backbone genes:

We suggest that our assessments of protein-domain and chemical differentiation associated with population-specific differences in BGCs give important ecological and evolutionary context, as selection acts upon phenotypes. While such inferences can be bolstered by site-frequency estimates of the ratio of non-synonymous (dN) and synonymous (dS) mutations found in a gene in some circumstances, we emphasize that this method is not easily applied to our data set as this analysis was originally developed to compare deeply divergent species. Within species, dN/dS estimates are relatively insensitive to selection, and may not conform to classic interpretations of these estimates (reviewed by (6)). Despite this, we provide these estimates to further support our suggestion of the ecological and evolutionary importance of the population-specific patterns we identify. Given problems associated with these estimates, we urge caution when interpreting these results.

To determine dN/dS ratios, we aligned nucleotide sequences of backbone-gene coding regions using MAFFT (7) with the setting "—auto". Resulting alignments were used to construct maximum likelihood trees with IQ-TREE (8) after testing for the best-fitting model using the "-mset" parameter, constrained within RAXML-compatible models for computational reasons. Sequence alignments were reformatted using Pal2Nal (9). We then estimated a single dN/dS ratio across entire phylogenies using PAML (10). We did not perform these analyses on BGCs 1 or 3 because so few isolates were found to have these clusters. Similarly, for the idiomorphic BGC (BGC 14), we only performed analyses on the two most common backbone genes.

Metabolite identification and chemical analyses:

Acquisition and processing of UHPLC-MS data was done using the open-source software program, Maven version 2011.6.17 and the Thermo Scientific Xcalibur software version 4.3. Files were later converted to .mzXML using MassMatrix MS Data File Conversion grouped by condition, and run in the XCMS open-source package (https://xcmsonline.scripps.edu/) (11, 12). The latter allows a pairwise comparison of two populations using parameter ID 3110 (UPLC/Q-Exactive). Differential masses found via XCMS were filtered by having a maximum intensity greater than $5x10^4$ as done in Pfannenstiel et al., (13) and Tannous et al. (14). PubChem (https://pubchem.ncbi.nlm.nih.gov/) was used to get an exact mass spectrometry profile from computed analysis, and Maven (15) was used to obtaining high-resolution full-scan mass spectrometry data. Differences of *m*/*z* values between PubChem and Maven were below 1 ppm. While an accuracy of <1 ppm to the unfragmented parent ion and its molecular formula is sufficient for a putative match (16), a standard is necessary to exclude candidates with complex element compositions (17) (see next paragraph). Identified masses that had a maximum intensity lower than $5x10^4$ were considered background. Volcano plots showing the $-\log_{10}$ (*P*-values) versus the $\log_2$ (fold change) were then constructed on GraphPad Prism version 8.3.0 to display

metabolites with statistically significant mean differences in abundance among populations in positive ionization mode. Consistent with previous work (13), we have assumed that ions that show significant differences between groups are metabolites. Metabolites were filtered based on a *P*-value lower than 0.05 and a fold change higher than 1.0. We only interpret positive ionization samples because an initial screening of a subsample of extracts in negative ionization mode did not prove more sensitive for target SMs. Additionally, because of small sample size for S-type isolates (*N*=2), we do not draw comparisons between these isolates and L-type *A. flavus* populations that are the focus of this article.

The identification of putative SMs was further confirmed using the fragmentation patterns produced in tandem mass spectra (MS/MS) to annotate major identifiable peaks (Table S3, Figs. S5-S29). A Q Exactive Plus mass spectrometer operating in ES^+ mode with a normalized HCD collision energy of 30% was utilized for this task. Both Aflatoxin B1 (AC000018; https://mona.fiehnlab.ucdavis.edu/spectra/display/AC000018) and cyclopiazonic acid (AC000052; https://mona.fiehnlab.ucdavis.edu/spectra/display/AC000052) were confirmed by comparison to molecular standards qualified in the MassBank of North America Database (MoNA). Aflatrem and ditryptophenaline fragmentation patterns matched to spectra available on the Mass Spectrometry Search Tool (MASST) database (community match to soils and fungal SM collection; MS000084355 [aflatrem] and MSV000079098 [aflatrem and ditryptophenaline]). The metabolites, 14-deacetyl astellolide A, 14-deacetyl astellolide B, astellolide A, astellolide B, aflavarin, asparasone A, leporin B, and ustiloxin B had measured monoisotopic masses/chemical formulas that matched available PubChem data, but could not be confirmed via fragmentationpattern analysis as chemical standards were not available at this time; therefore these are considered putative identifications (Table S3). The fragmentation spectra for confirmed and putative SMs are provided in Figs. S5-S29.

In order to determine if populations were differentiated based on their metabolomes, we performed principle component analysis (PCA) on data that was generated by XCMS multigroup analysis (11, 18). The abundances of all ions for each medium was analyzed separately using 'FactoMineR' (19). Confidence intervals were drawn at the 0.95 confidence level using 'Tidyverse' (20) based on population structure identified here, and on the aflatoxin producing ability of isolates which was determine previously. Aflatoxin production was identified on several different media types, including PDA (21, 22) but not GMM as aflatoxin production on the latter is typically low or absent.

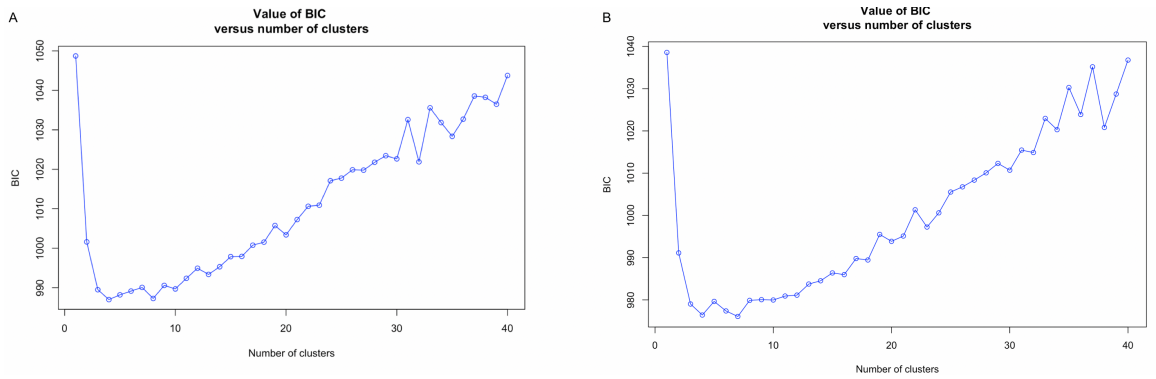

Fig. S1. Plot of Bayesian information criterion (BIC) versus the number of possible clusters representing SNP data from 94 isolates of *Aspergillus flavus* from the United States using all data (A) and data with biosynthetic gene clusters (BGCs) removed (B). BIC is a goodness-of-fit measure, whereas clusters represent potential populations. The lowest point indicates the optimal number of populations. We inferred three populations of L-type *A. flavus*, with a fourth population comprising two S-type isolates, which was not well supported. S-type isolates were not included in subsequent population-level analyses.

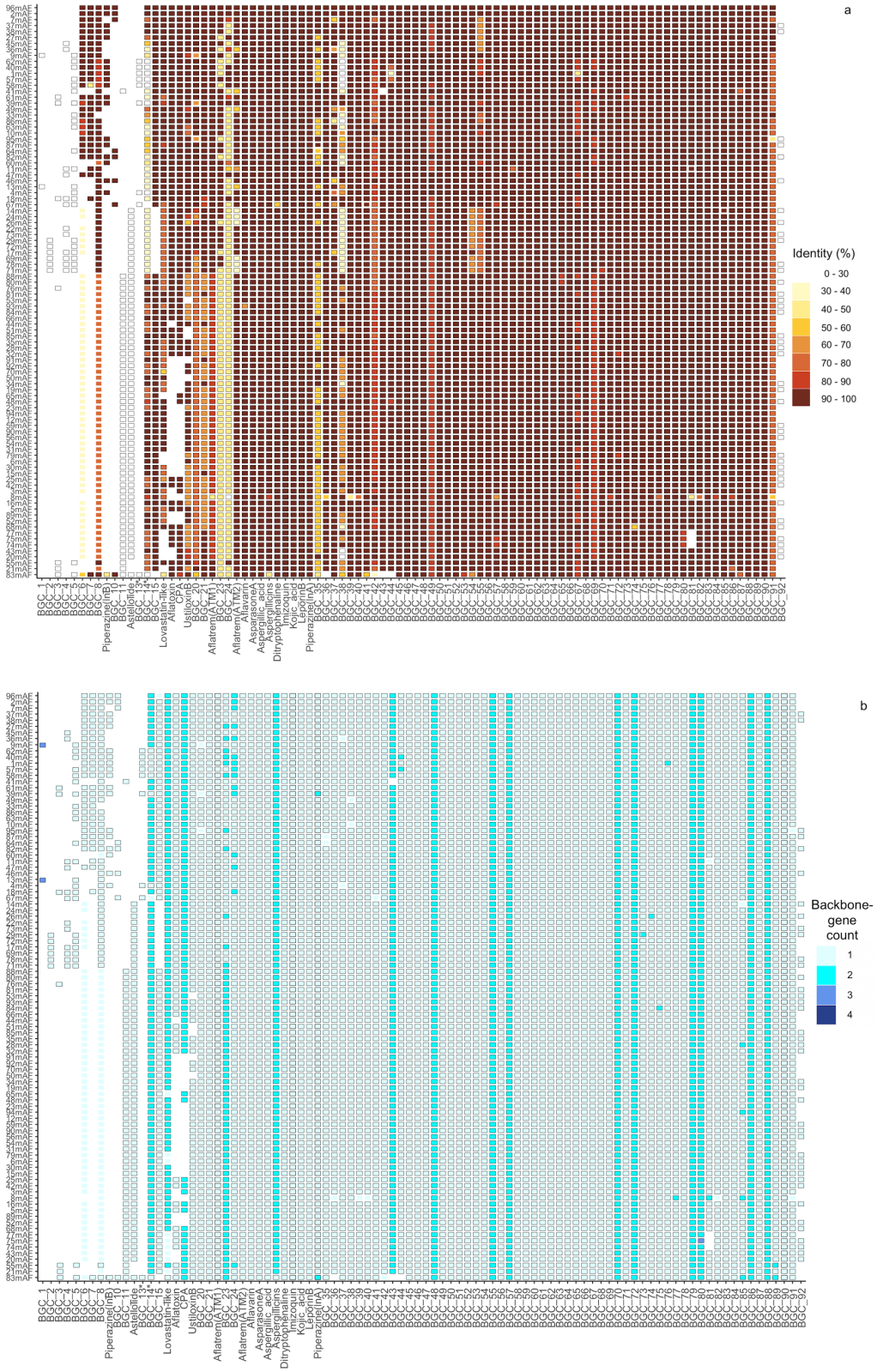

Fig. S2. Distribution of 92 biosynthetic gene clusters (BGCs) analyzed in this study from 92 L-type *Aspergillus flavus* strains, two S-strain (55mAF and 21mAF, third and second from bottom)

and one *Aspergillus minisclerotigenes* isolate (83mAF, bottom -- – formerly identified as *Aspergillus texensis* (see methods)). Coloration indicates the protein sequence identity (a) and total count (b) of backbone genes (core biosynthetic genes (e.g., polyketide synthases and nonribosomal peptide synthetases) found in BGCs. We confirmed population-specific patterns of variation evident in the first 24 BGCs (as shown in Fig. 1), but did not identify, or were unable to validate, differences in the remaining 68 BGCs. The presence of a BGC, as indicated with a black-bordered box, was determined through network analysis of antiSMASH results that uses total gene content of BGCs, or by previous studies (see methods). The protein sequence identity of backbone genes was determined relative to the NRRL3357 reference genome (assemblies of this genome are represented by the first two isolates listed: 2mAF and 96mAF); when a BGC is not present in the reference genome, all boxes corresponding to protein sequence identity are left white (BGCs 1-5 and 11-13). A colored box without a black border indicates that reciprocal best-hit BLAST determined that a homologous backbone gene was present in an isolate, but the BGC was not found by antiSMASH (see methods for interpretation).
*These BGCs are physically overlapping but were distinguished by antiSMASH based on differences in gene content (see main text).

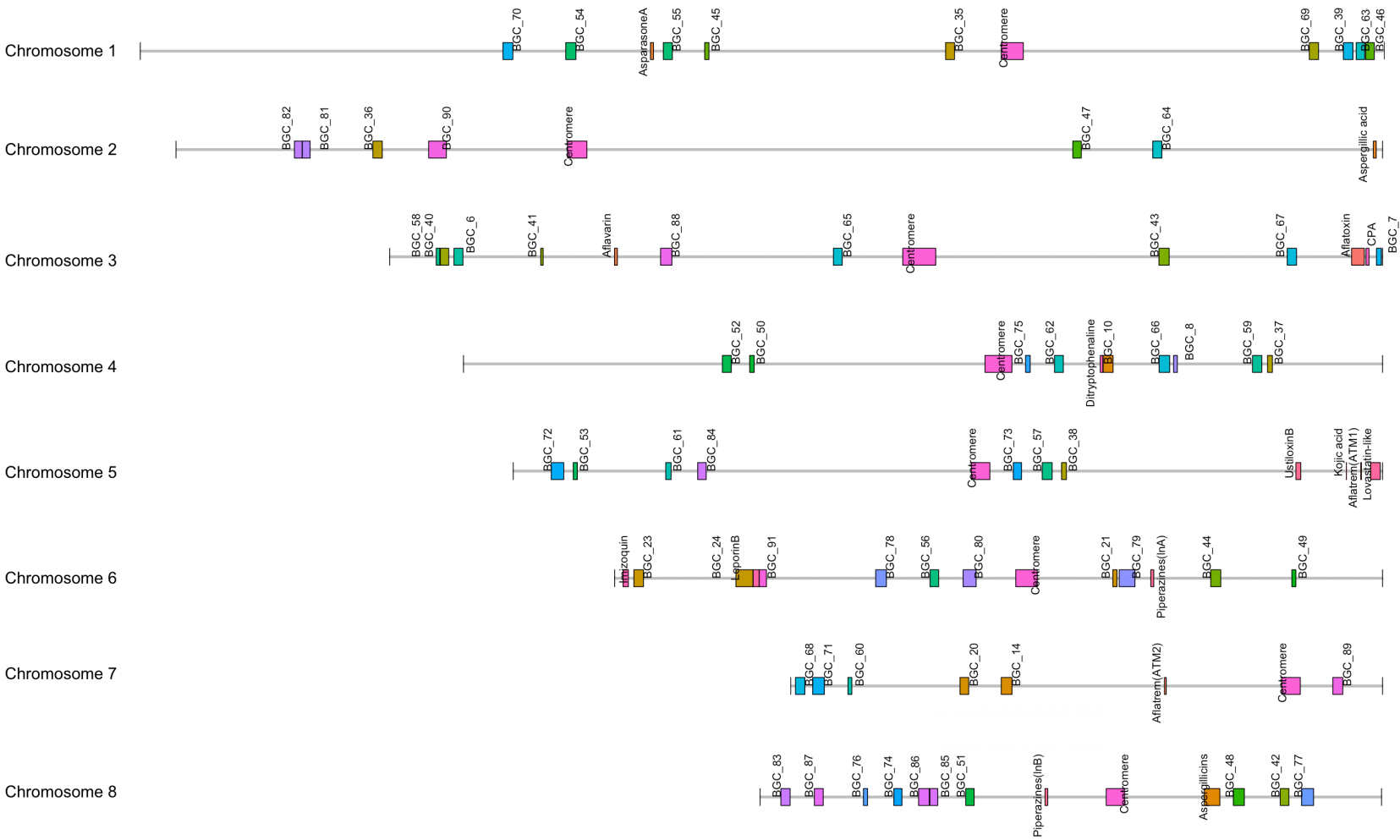

Fig S3. Chromosome map indicating the physical location of biosynthetic gene clusters (BGCs) in the NRRL3357 reference genome of *Aspergillus flavus*. BGCs were identified in this study by antiSMASH or by previous studies (see methods). Chromosome numbers correspond to contig names used in annotation files (see Drott et al. (21)) and Table S2 from one through eight: tig00000001_arrow_pilon, tig00101497_arrow_pilon, tig00000023_arrow_pilon, tig00000029_arrow_pilon, tig00000037_arrow_pilon, tig00000050_arrow_pilon, tig00101499_arrow_pilon, and tig00000095_arrow_pilon.

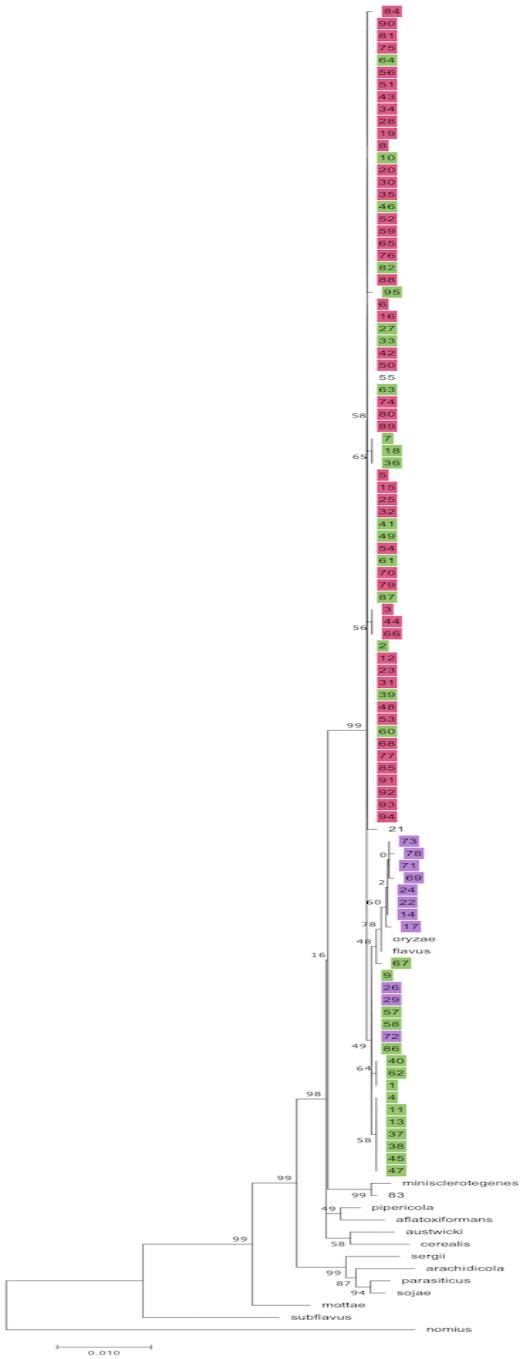

Fig S4. Maximum likelihood tree of concatenated nucleotide sequences of CaM, BenA, RPB2, and the ITS rDNA region from 94 *Aspergillus flavus* isolates sampled across the United States. Data from other species in section Flavi of *Aspergillus* were obtained from Frisvad et al. (23). A. flavus isolates from this study have been color-coded to reflect populations A (green), B (red), C (purple) determined from whole-genome sequences. Isolates 21, 55 and 83 are S-strain isolates and were not included in population-level analyses. Isolate 83 was originally determined in this study to be *Aspergillus texensis* (24), but the taxonomy of this species has recently been clarified as *Aspergillus minisclerotigenes* (25). Branch tip labels refer to isolate numbers that are defined in Table S1. Reproduced from Drott et al. (21) with permission.

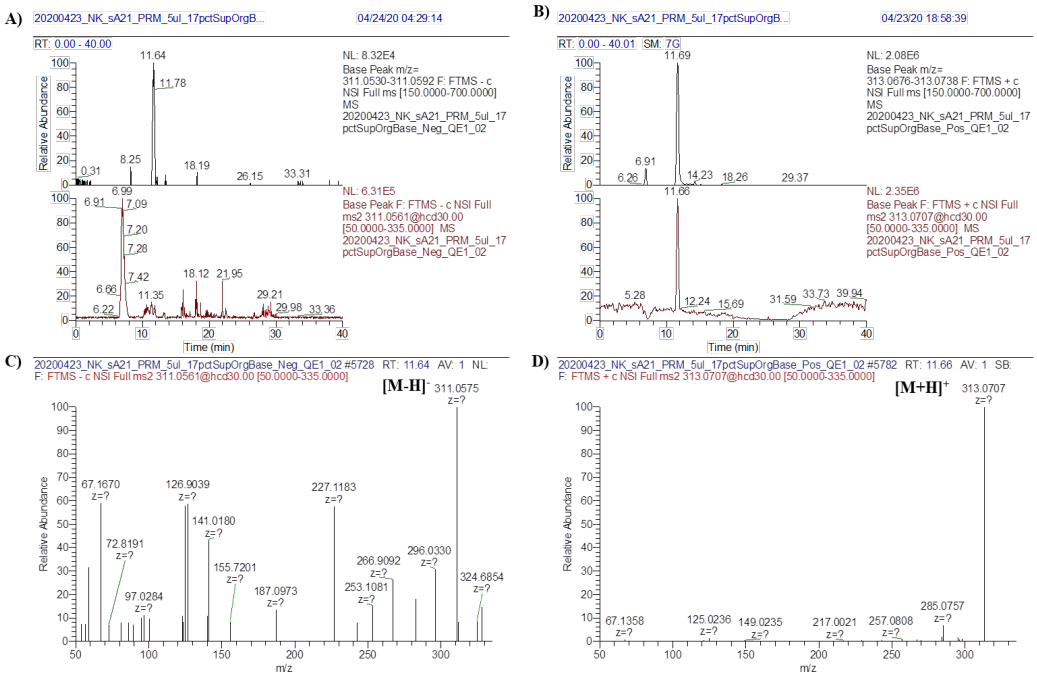

Fig S5. Aflatoxin B1 HRMS data; **(A)** ion extract base peak trace from full MS (above) and MS fragmentation (below) negative mode. **(B)** ion extract base peak trace from full MS (above) and MS fragmentation (below) positive mode. Negative fragmentation mass spectrum **(C)** and positive fragmentation mass spectrum **(D)** of aflatoxin B1.

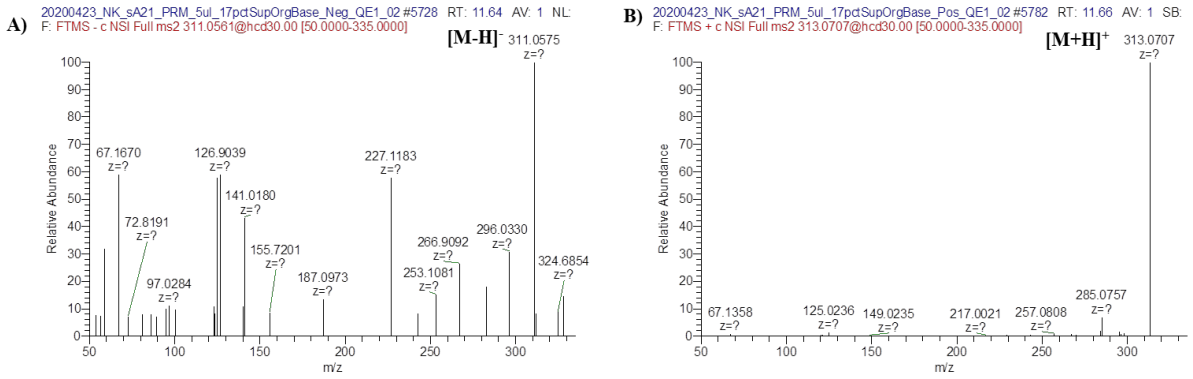

Fig S6. Negative **(A)** and positive **(B)** fragmentation mass spectra of aflatoxin B1.

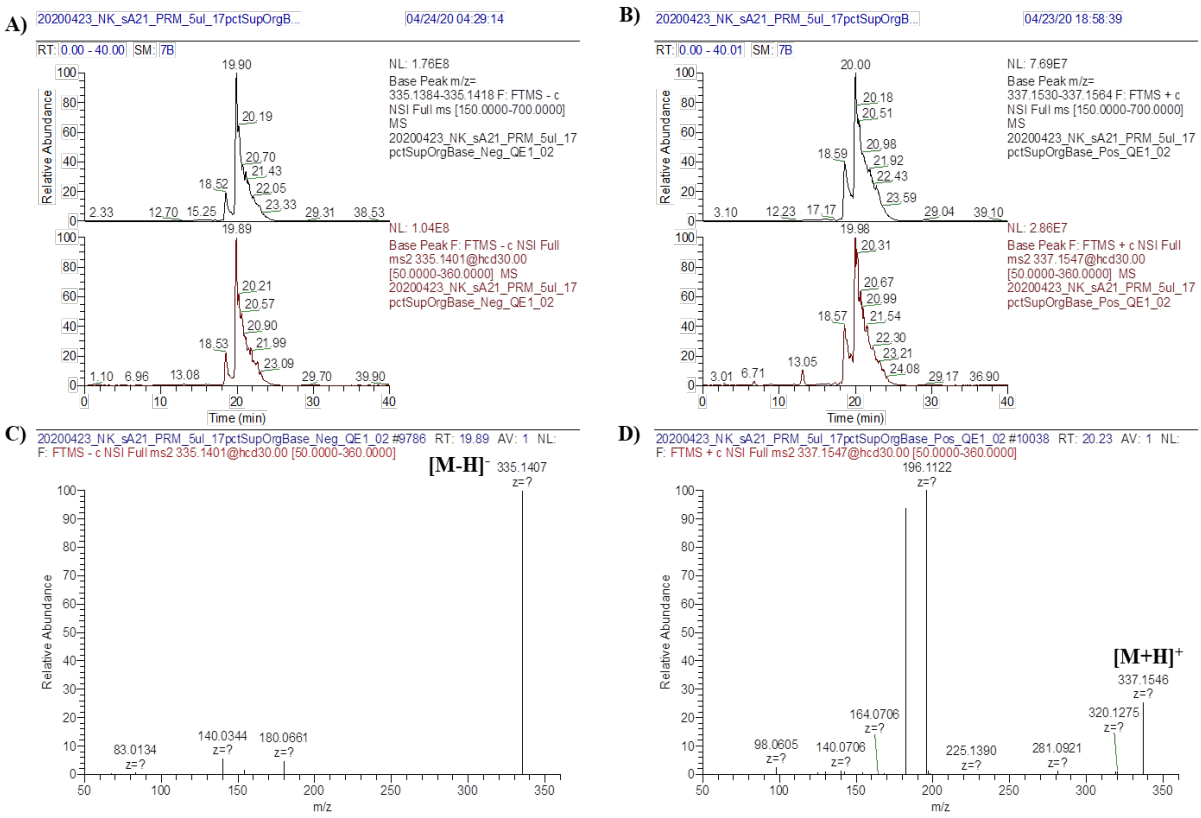

Fig S7. Cyclopiazonic acid HRMS data; **(A)** ion extract base peak trace from full MS (above) and MS fragmentation (below) negative mode. **(B)** ion extract base peak trace from full MS (above) and MS fragmentation (below) positive mode. Negative fragmentation mass spectrum **(C)** and positive fragmentation mass spectrum **(D)** of cyclopiazonic acid.

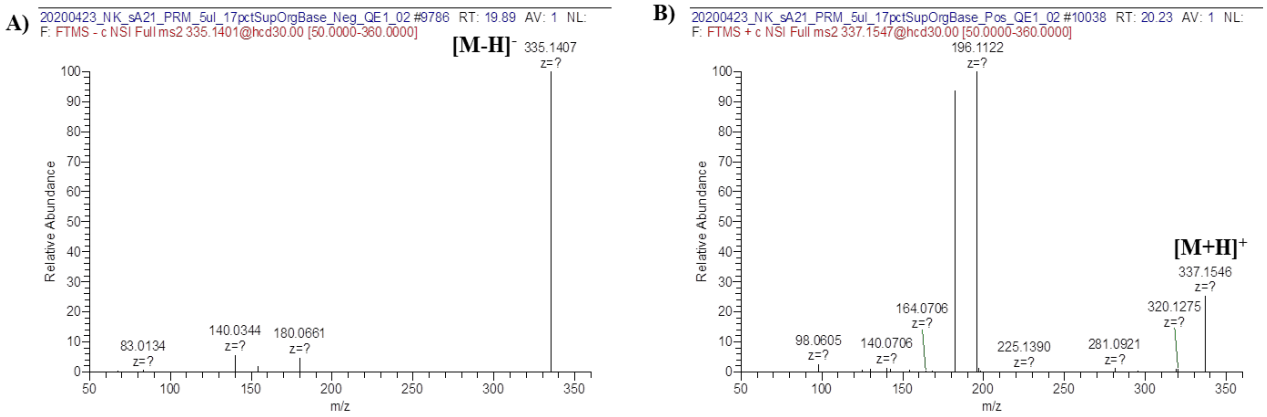

Fig S8. Negative (A) and positive (B) fragmentation mass spectra of cyclopiazonic acid.

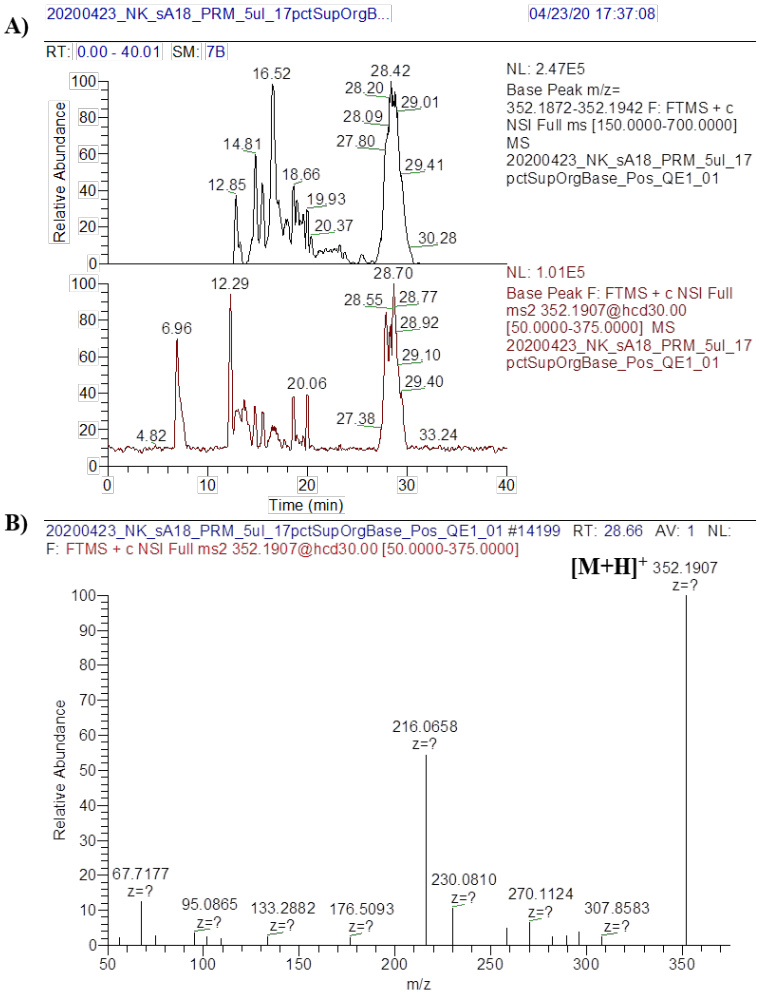

Fig S9. Leporin B HRMS data; **(A)** ion extract base peak trace from full MS (above) and MS fragmentation (below) positive mode. **(B)** Positive fragmentation mass spectrum leporin B.

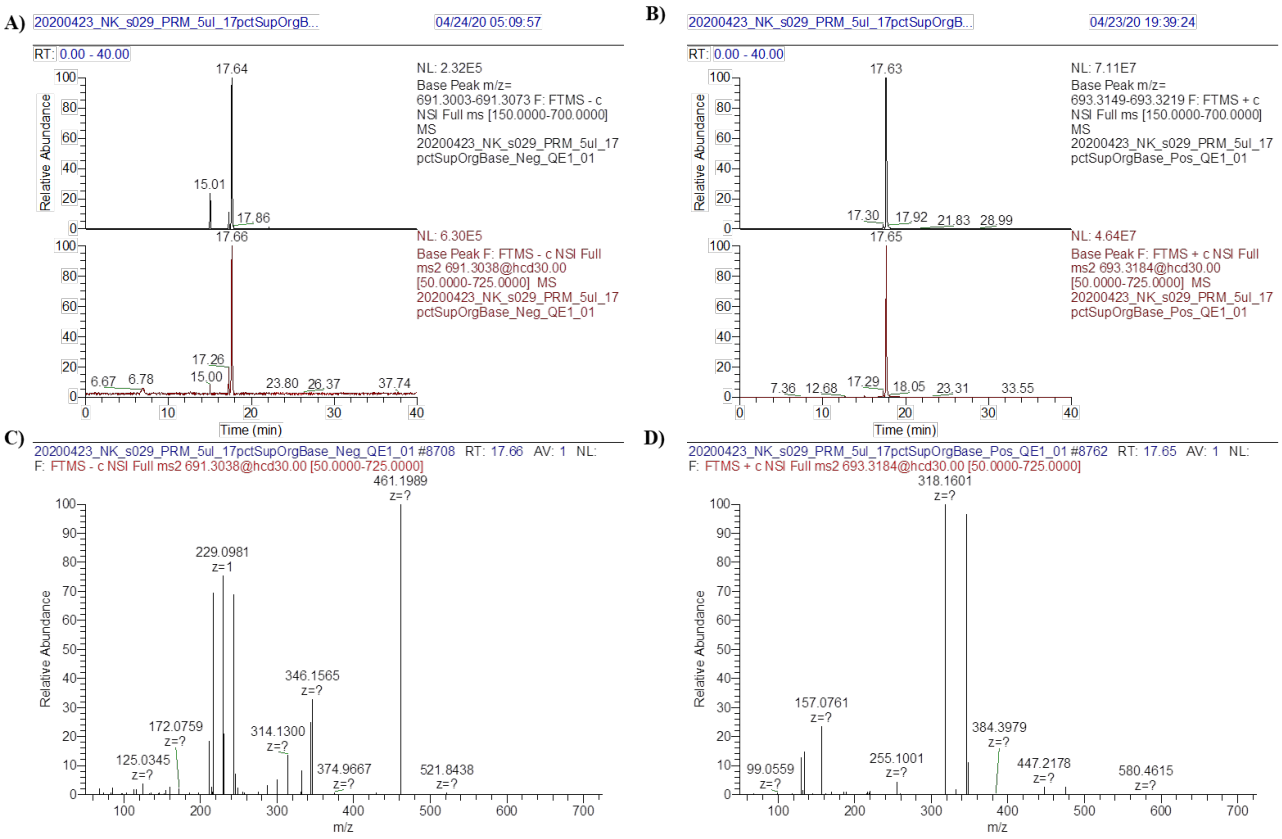

Fig S10. Ditryptophenaline HRMS data; (A) ion extract base peak trace from full MS (above) and MS fragmentation (below) negative mode. (B) ion extract base peak trace from full MS (above) and MS fragmentation (below) positive mode. Negative fragmentation mass spectrum (C) and positive fragmentation mass spectrum (D) of ditryptophenaline.

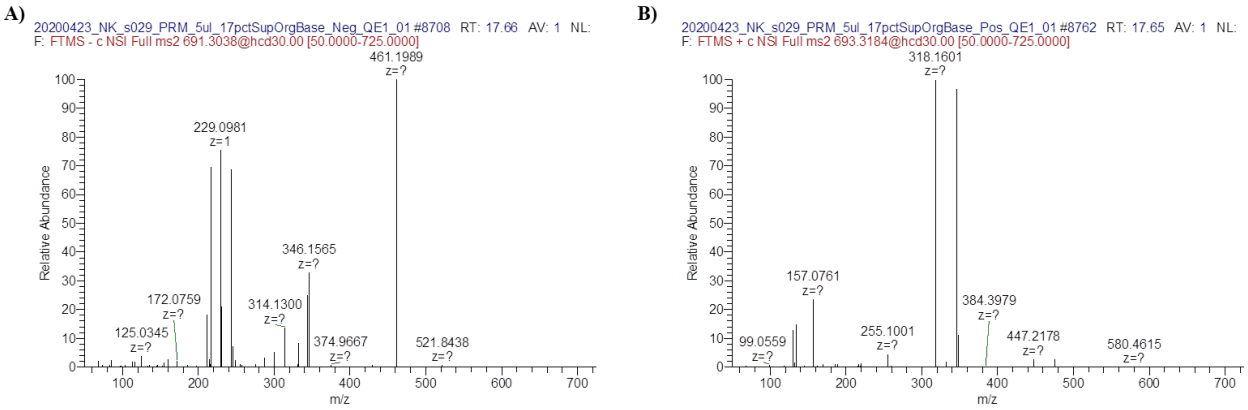

Fig S11. Negative (A) and positive (B) fragmentation mass spectra of ditryptophenaline.

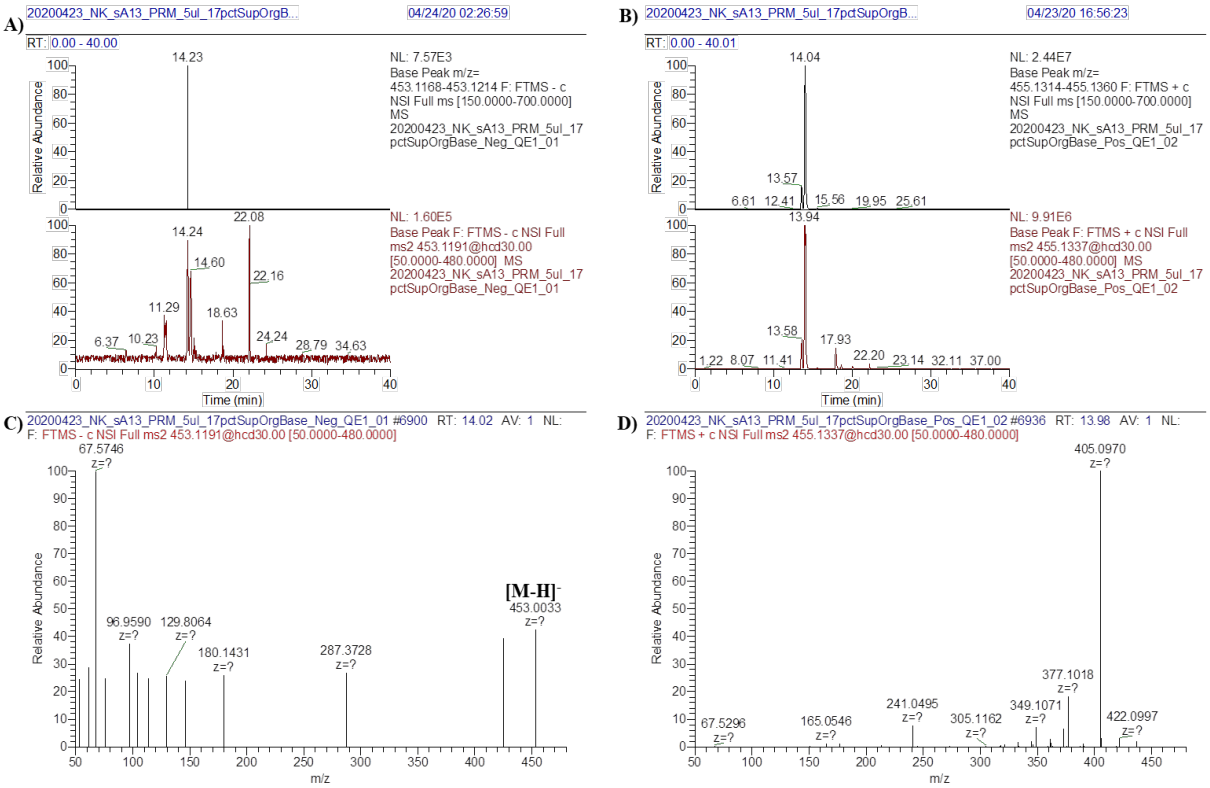

Fig S12. Aflavarin HRMS data; (A) ion extract base peak trace from full MS (above) and MS fragmentation (below) negative mode. (B) ion extract base peak trace from full MS (above) and MS fragmentation (below) positive mode. Negative fragmentation mass spectrum (C) and positive fragmentation mass spectrum (D) of aflavarin.

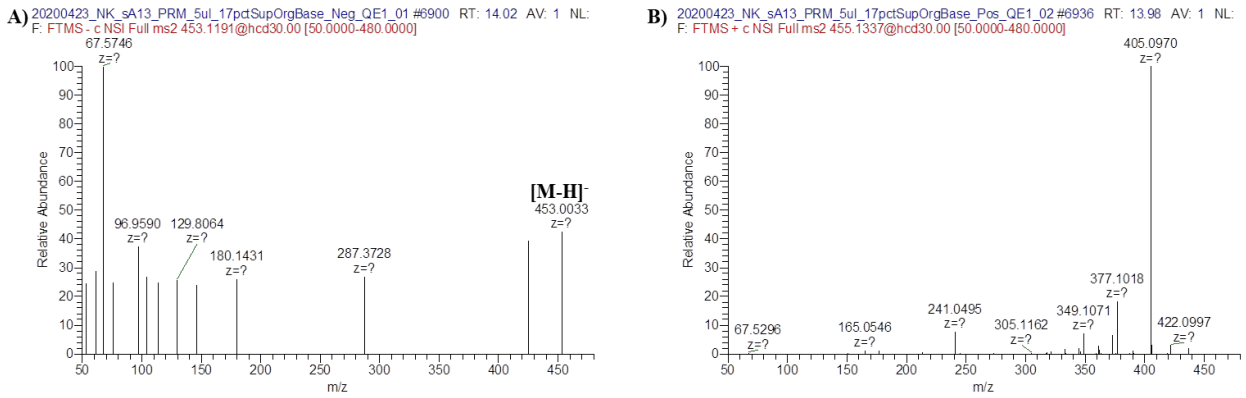

Fig S13. Negative (A) and positive (B) fragmentation mass spectra of aflavarin.

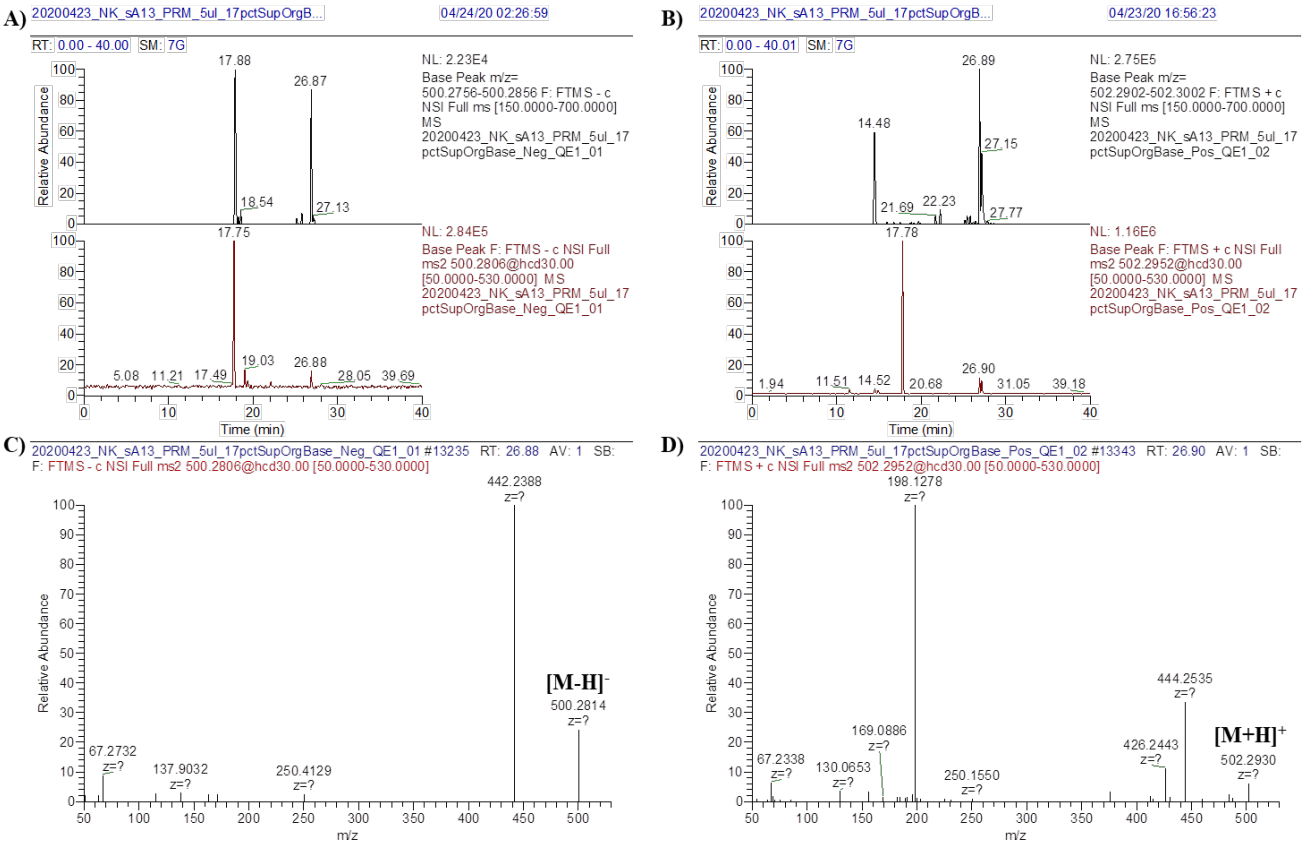

Fig S14. Aflatrem HRMS data; (A) ion extract base peak trace from full MS (above) and MS fragmentation (below) negative mode. (B) ion extract base peak trace from full MS (above) and MS fragmentation (below) positive mode. Negative fragmentation mass spectrum (C) and positive fragmentation mass spectrum (D) of aflatrem.

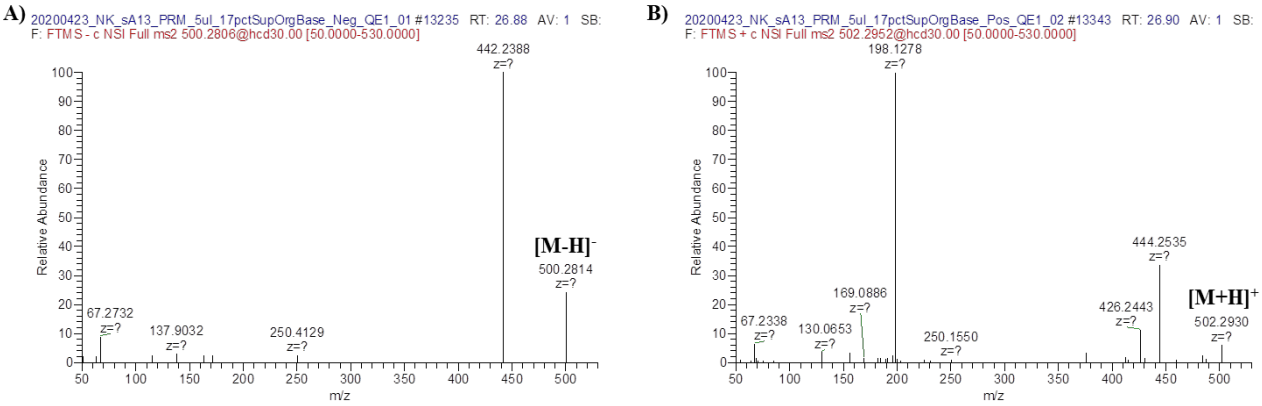

Fig S15. Negative (A) and positive (B) fragmentation mass spectra of aflatrem.

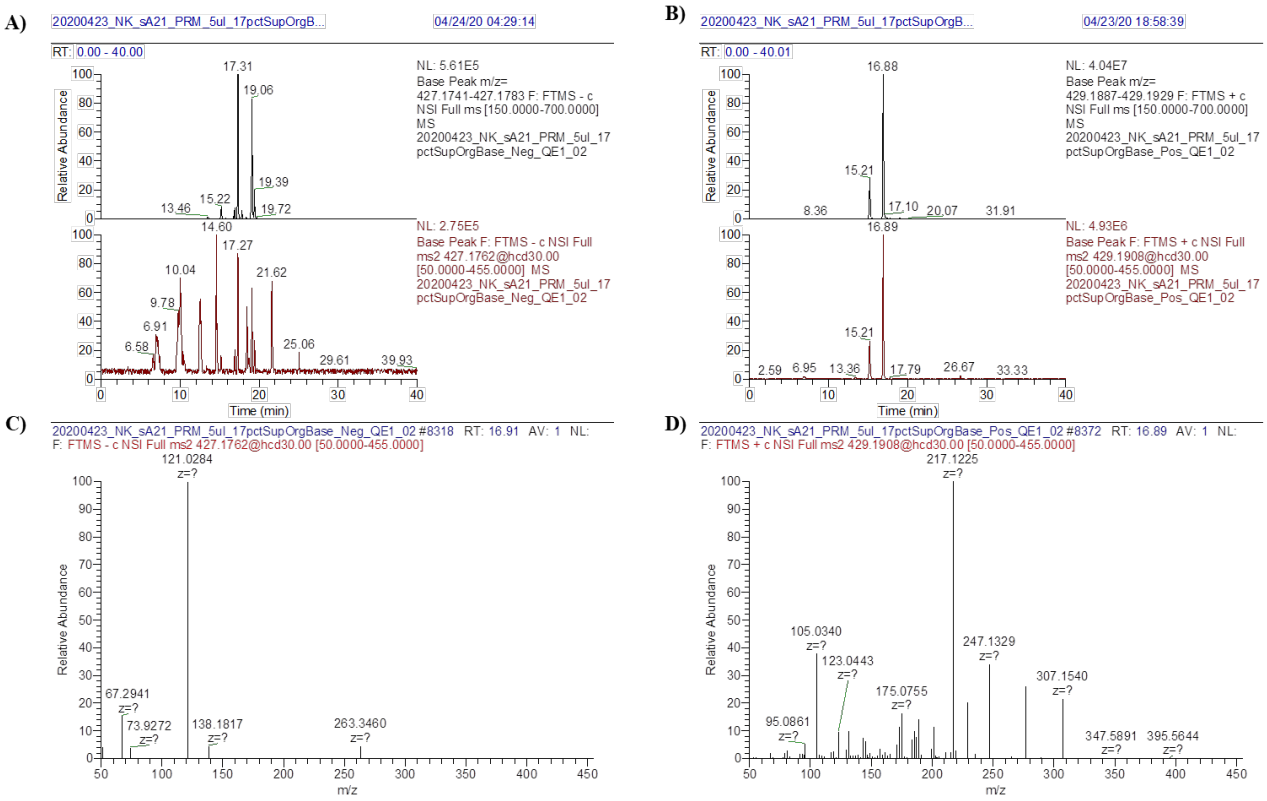

Fig S16. 14-Deacetyl astellolide A HRMS data; (A) ion extract base peak trace from full MS (above) and MS fragmentation (below) negative mode. (B) ion extract base peak trace from full MS (above) and MS fragmentation (below) positive mode. Negative fragmentation mass spectrum (C) and positive fragmentation mass spectrum (D) of 14-deacetyl astellolide A.

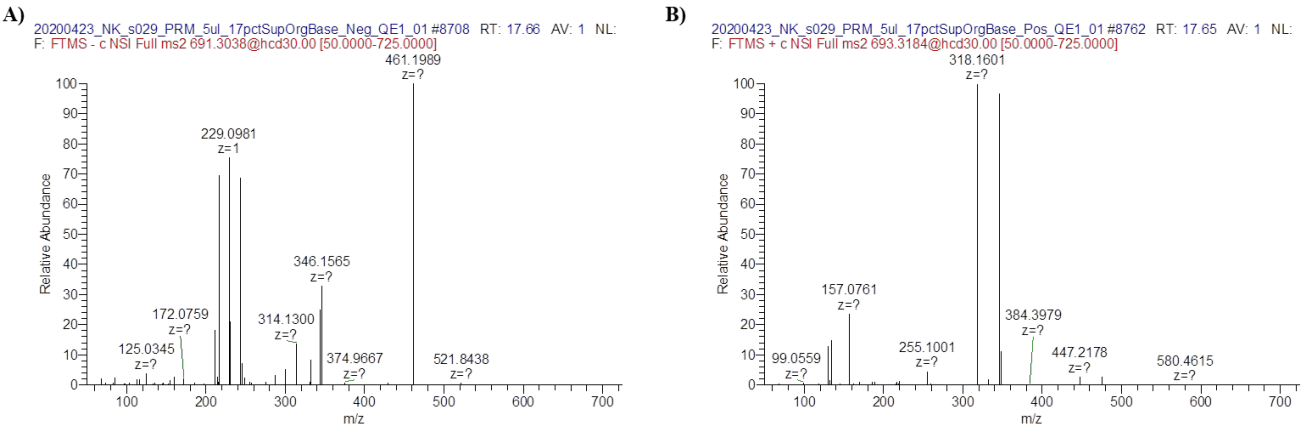

Fig S17. Negative (A) and positive (B) fragmentation mass spectra of 14-deacetyl astellolide A.

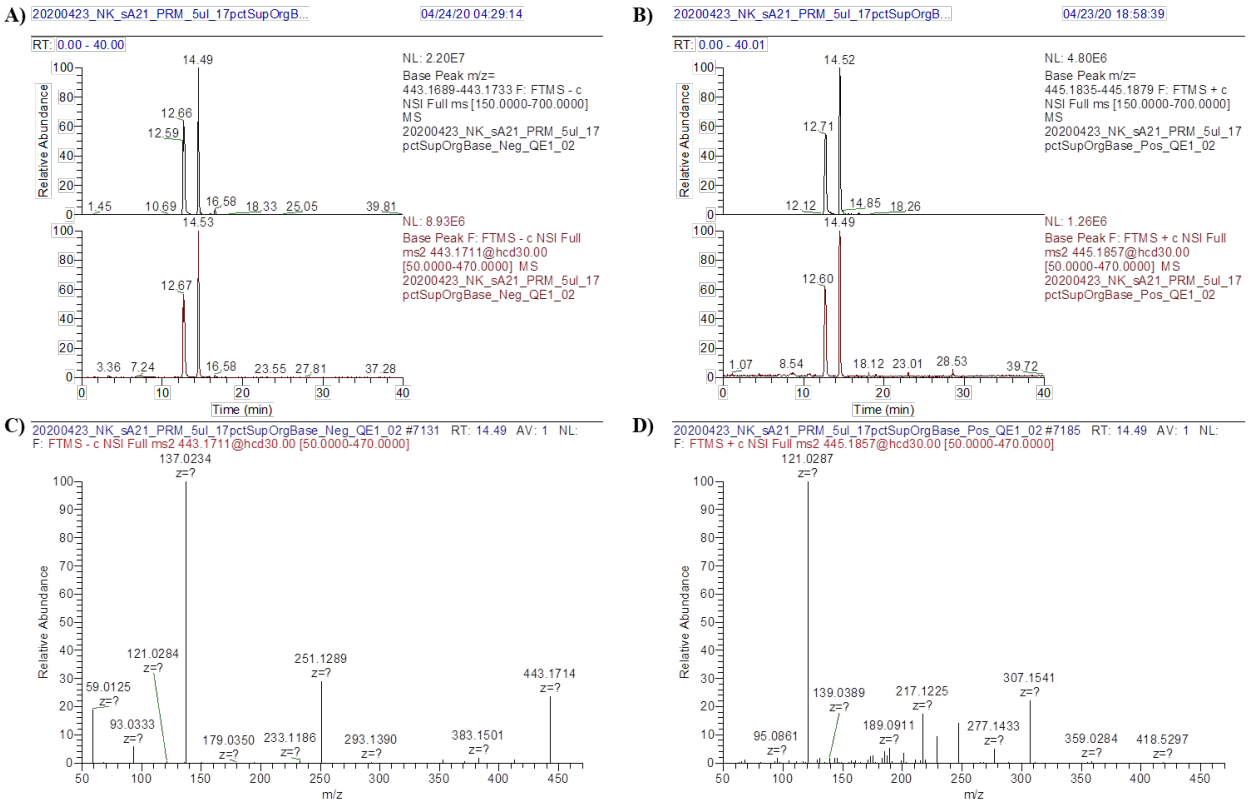

Fig S18. 14-Deacetyl astellolide B HRMS data; (A) ion extract base peak trace from full MS (above) and MS fragmentation (below) negative mode. (B) ion extract base peak trace from full MS (above) and MS fragmentation (below) positive mode. Negative fragmentation mass spectrum (C) and positive fragmentation mass spectrum (D) of 14-deacetyl astellolide B.

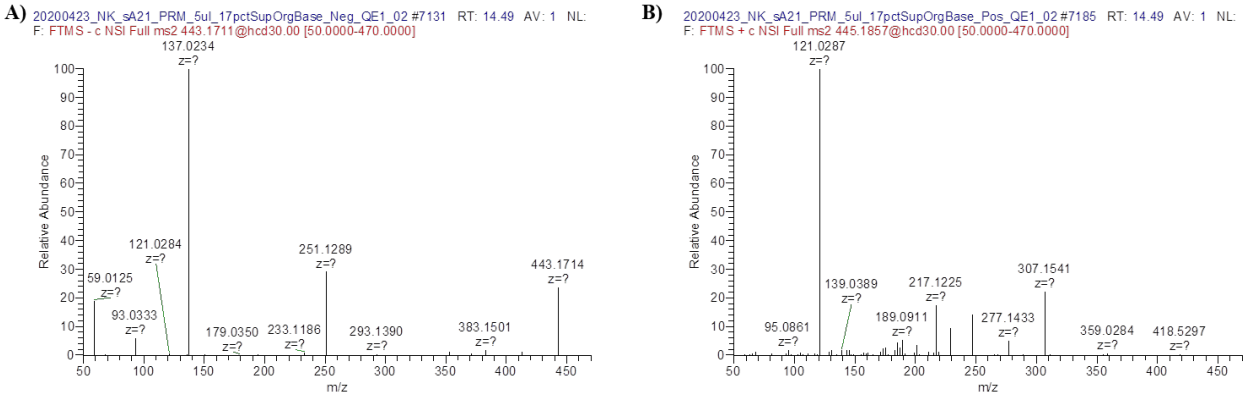

Fig S19. Negative (A) and positive (B) fragmentation mass spectra of 14-deacetyl astellolide B.

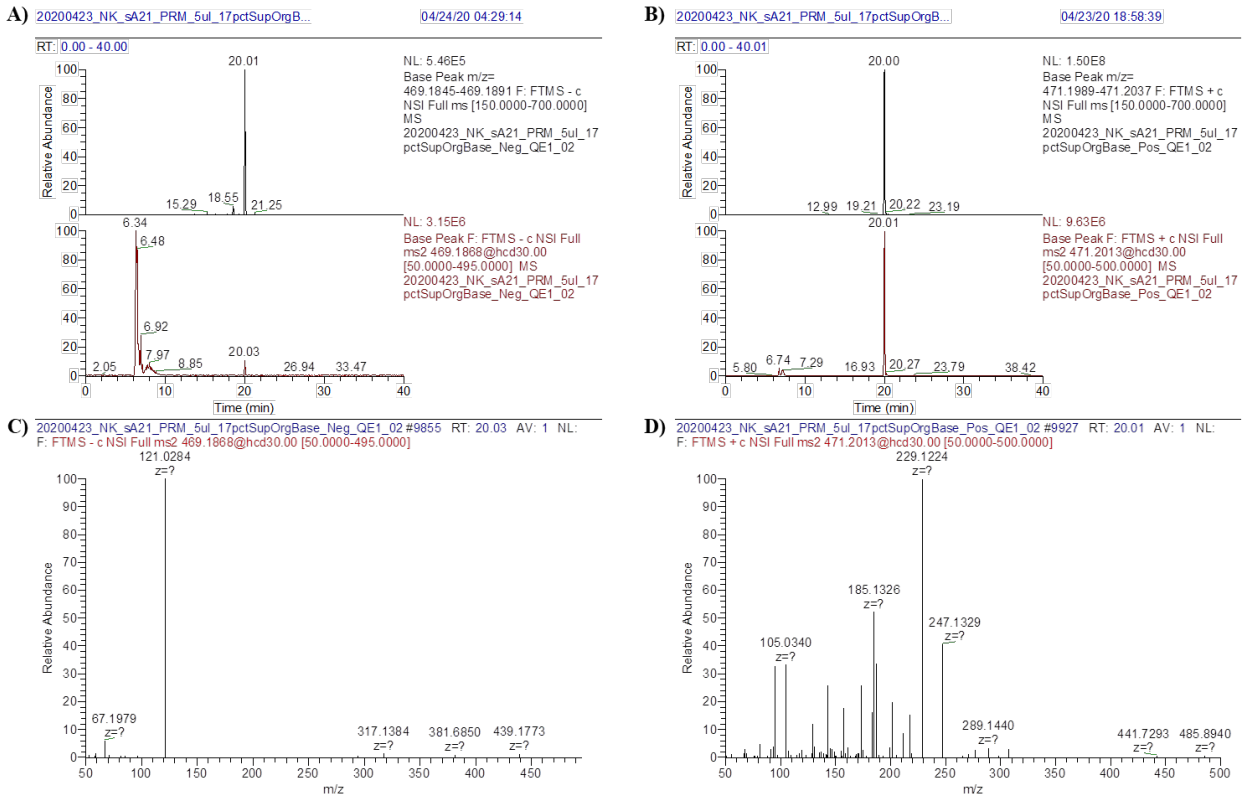

Fig S20. Astellolide A HRMS data; (A) ion extract base peak trace from full MS (above) and MS fragmentation (below) negative mode. (B) ion extract base peak trace from full MS (above) and MS fragmentation (below) positive mode. Negative fragmentation mass spectrum (C) and positive fragmentation mass spectrum (D) of astellolide A.

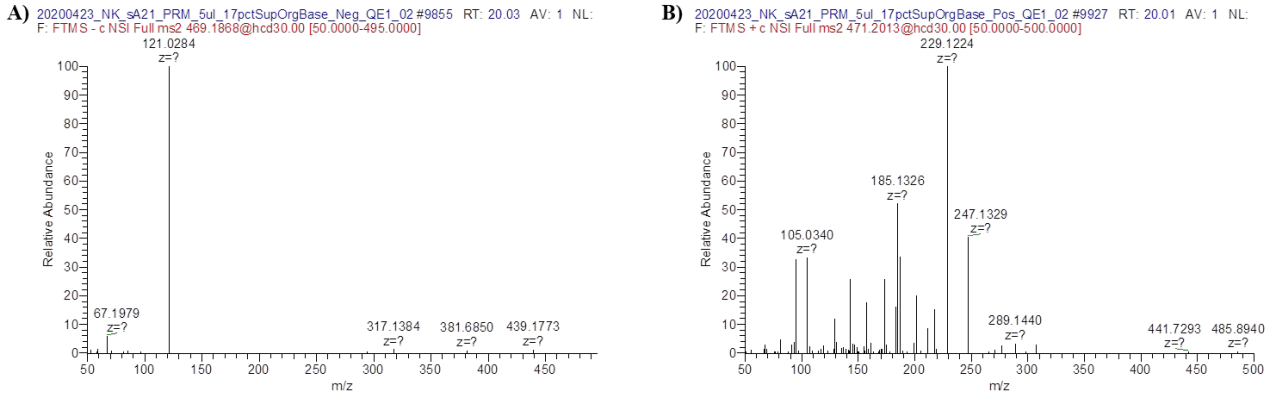

Fig S21. Negative (A) and positive (B) fragmentation mass spectra of astellolide A.

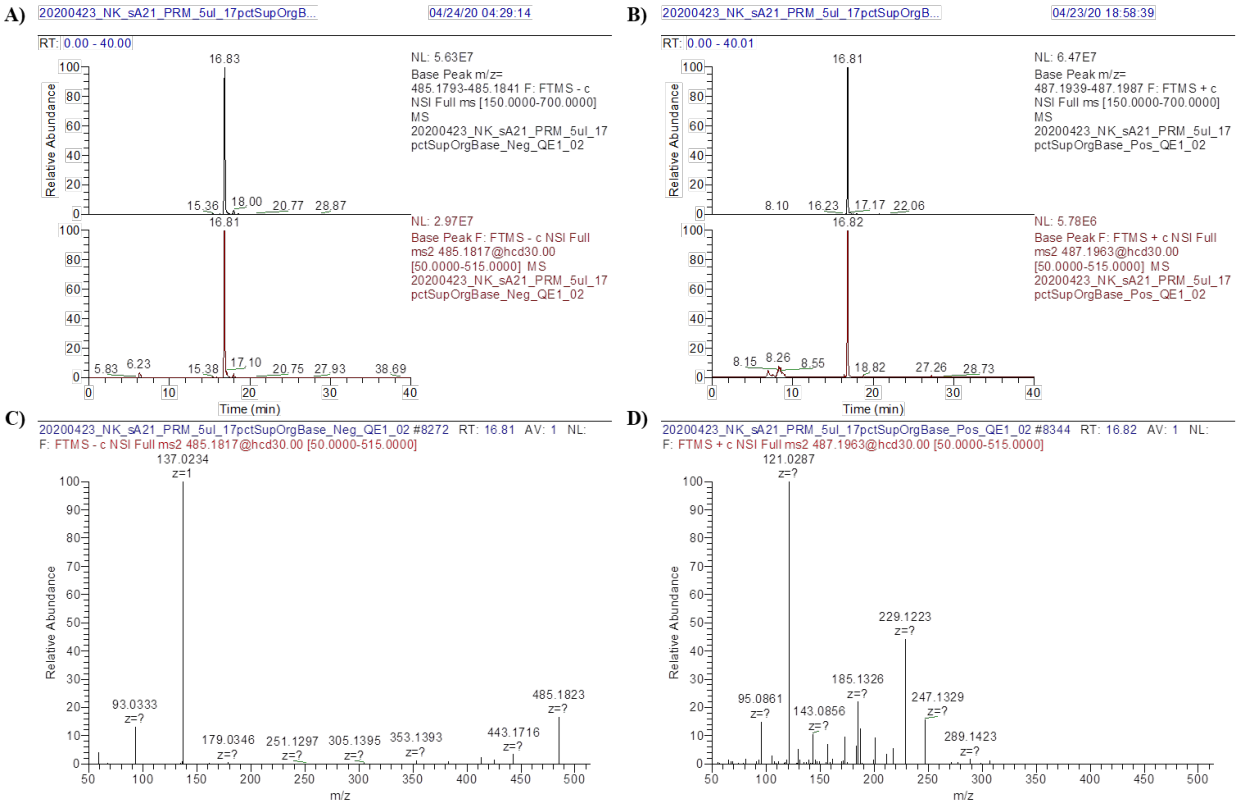

Fig S22. Astellolide B HRMS data; (A) ion extract base peak trace from full MS (above) and MS fragmentation (below) negative mode. (B) ion extract base peak trace from full MS (above) and MS fragmentation (below) positive mode. Negative fragmentation mass spectrum (C) and positive fragmentation mass spectrum (D) of astellolide B.

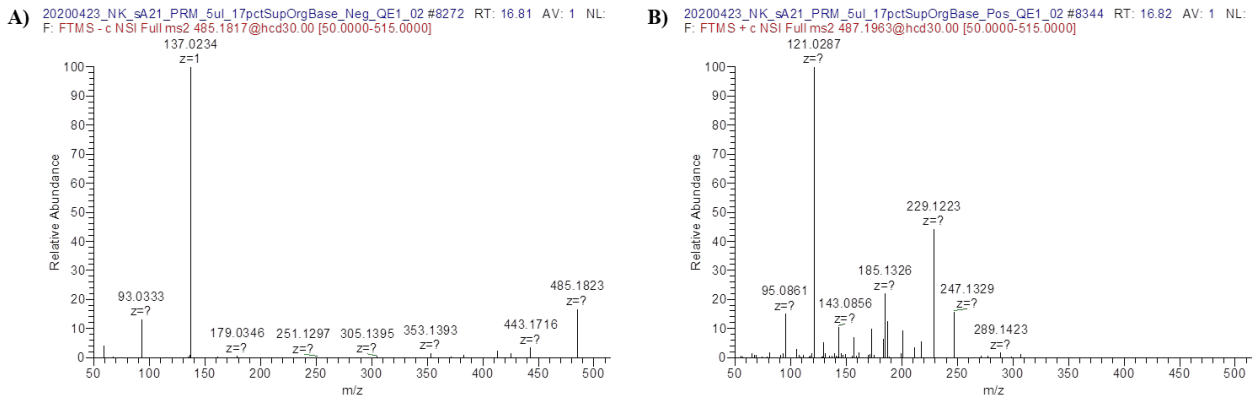

Fig S23. Negative (A) and positive (B) fragmentation mass spectra of astellolide B.

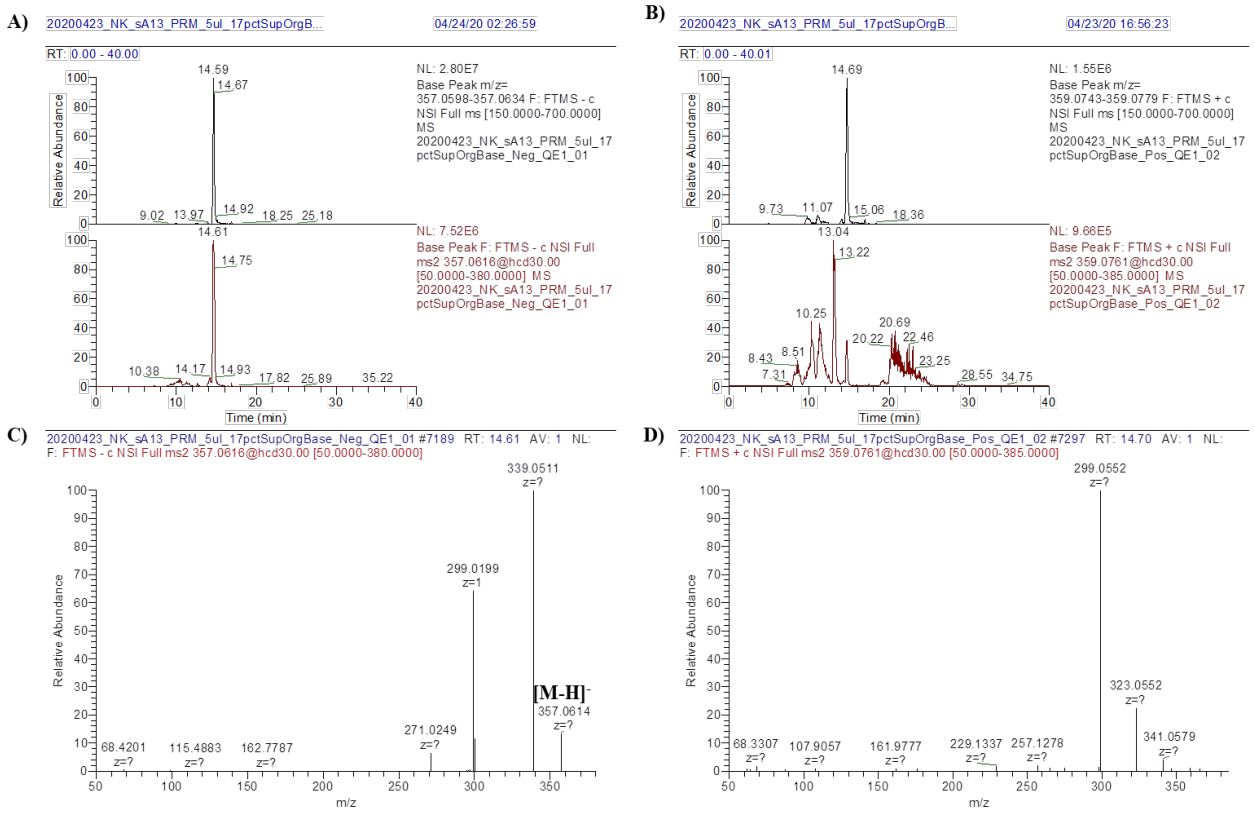

Fig S24. Asparasone A HRMS data; (A) ion extract base peak trace from full MS (above) and MS fragmentation (below) negative mode. (B) ion extract base peak trace from full MS (above) and MS fragmentation (below) positive mode. Negative fragmentation mass spectrum (C) and positive fragmentation mass spectrum (D) of asparasone A.

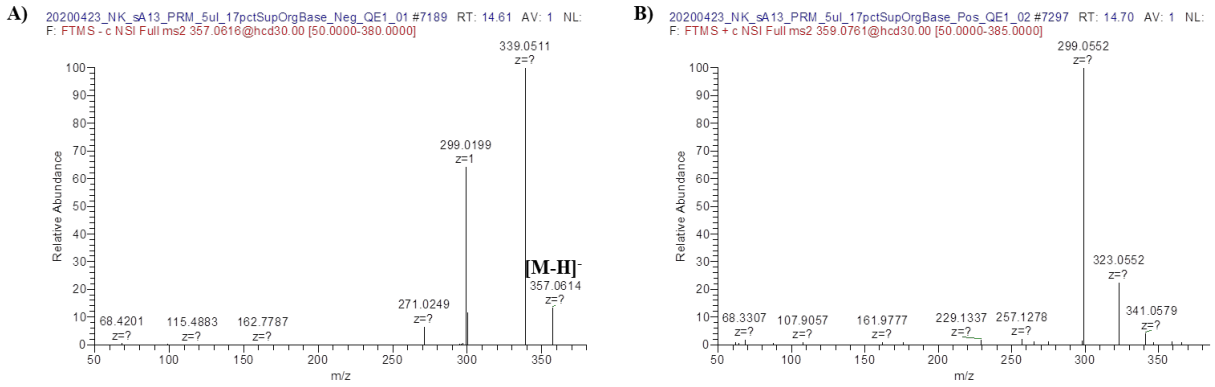

Fig S25. Negative (A) and positive (B) fragmentation mass spectra of asparasone A.

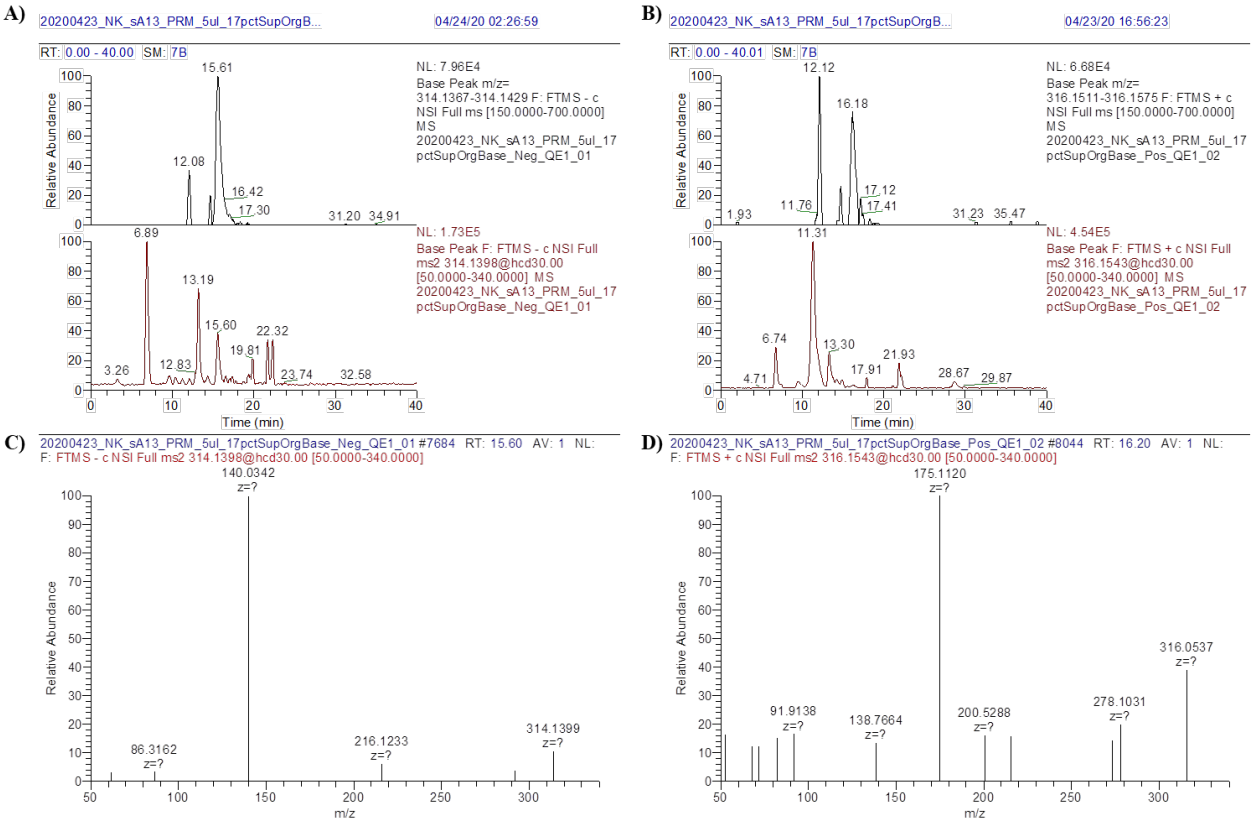

Fig S26. Piperizine HRMS data; (A) ion extract base peak trace from full MS (above) and MS fragmentation (below) negative mode. (B) ion extract base peak trace from full MS (above) and MS fragmentation (below) positive mode. Negative fragmentation mass spectrum (C) and positive fragmentation mass spectrum (D) of piperizine.

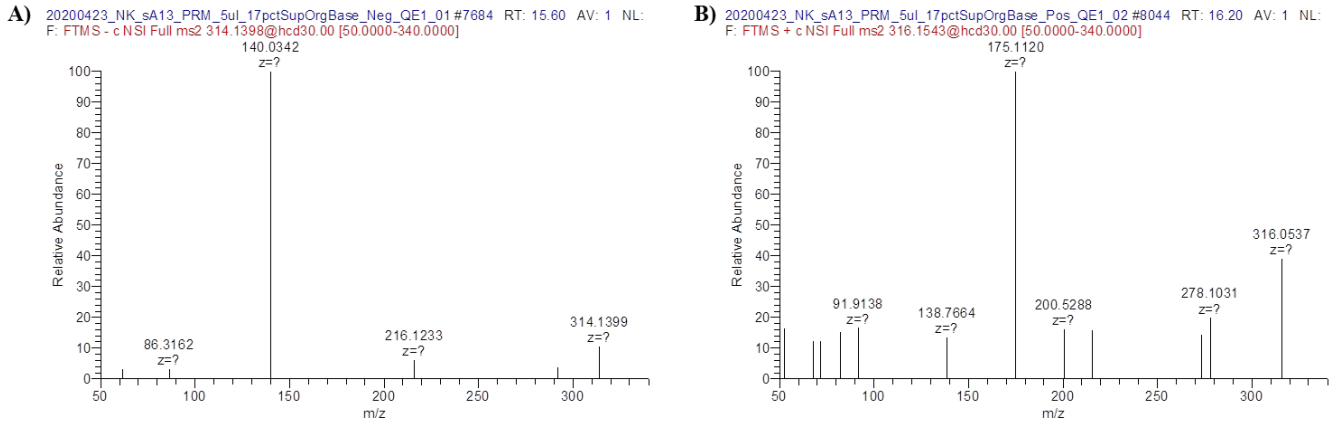

Fig S27. Negative (A) and positive (B) fragmentation mass spectra of piperizine.

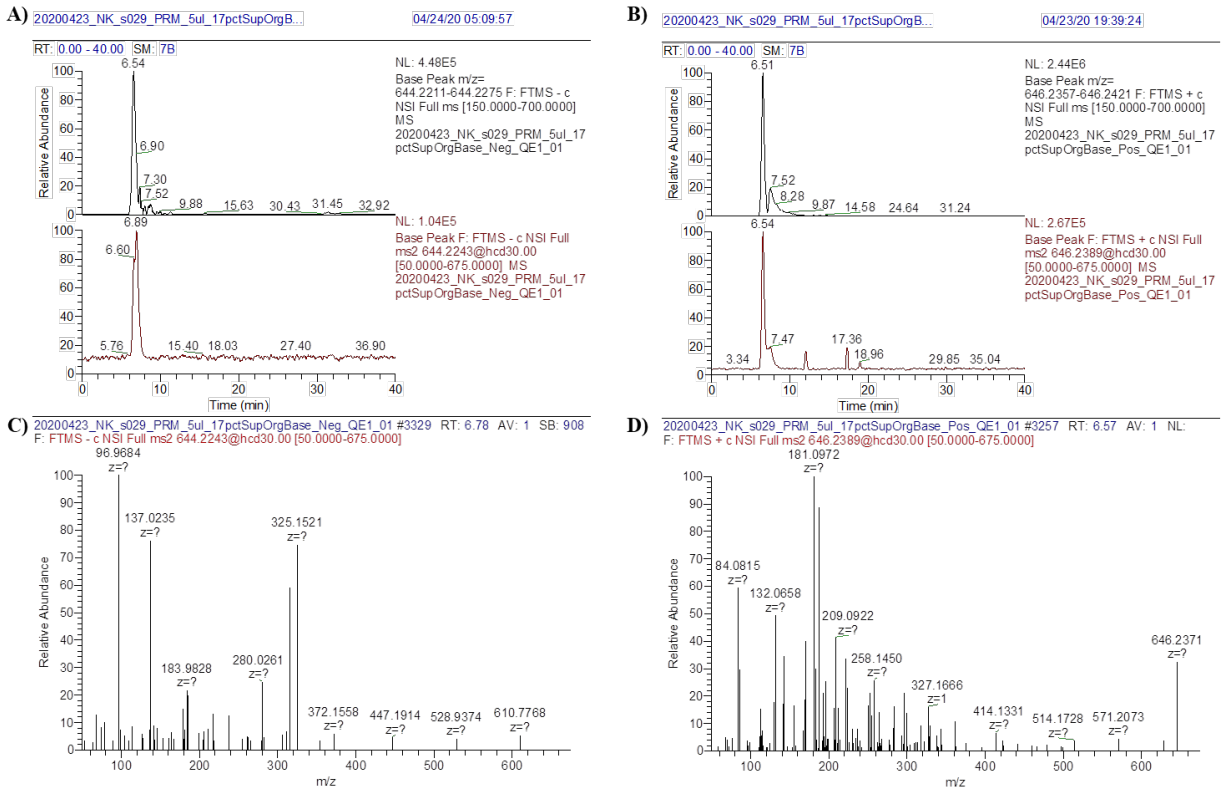

Fig S28. Ustiloxin B HRMS data; (A) ion extract base peak trace from full MS (above) and MS fragmentation (below) negative mode. (B) ion extract base peak trace from full MS (above) and MS fragmentation (below) positive mode. Negative fragmentation mass spectrum (C) and positive fragmentation mass spectrum (D) of ustiloxin B.

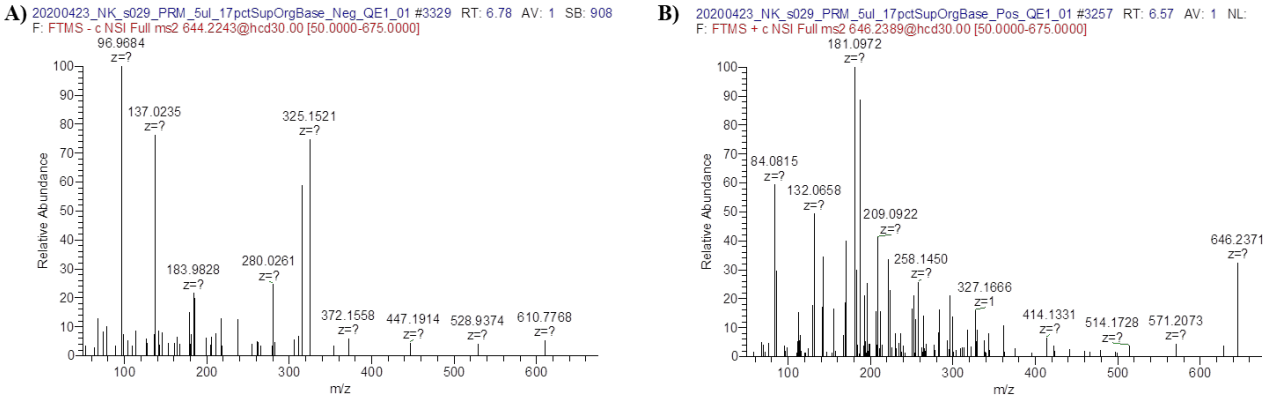

Fig S29. Negative (A) and positive (B) fragmentation mass spectra of ustiloxin B.

Table S1. Isolates used in this study from Drott et al. (21): their geographic origins, aflatoxin chemotypes, population assignment and sclerotial morphotype.

Isolate Number (mAF)	Isolate name	Geographic Origin	Chemotype	Population	Sclerotial Morphotype	Species
1	AF36[1,2]	Arizona	Non-Aflatoxigenic	A	L-type	*A. flavus*
2	NRRL3357[2,3]	Unknown	Aflatoxigenic	A	L-type	*A. flavus*
3	FL-A-11-1	Florida	Non-Aflatoxigenic	B	L-type	*A. flavus*
4	FL-A-12-3	Florida	Aflatoxigenic	A	L-type	*A. flavus*
5	FL-A-15-3	Florida	Aflatoxigenic	B	L-type	*A. flavus*
6	FL-A-22-1	Florida	Non-Aflatoxigenic	B	L-type	*A. flavus*
7	FL-A-22-2	Florida	Non-Aflatoxigenic	A	L-type	*A. flavus*
8	FL-A-24-1	Florida	Non-Aflatoxigenic	B	L-type	*A. flavus*
9	FL-B-1-1	Florida	Aflatoxigenic	A	L-type	*A. flavus*
10	FL-B-11-1	Florida	Aflatoxigenic	A	L-type	*A. flavus*
11	FL-B-14-1	Florida	Aflatoxigenic	A	L-type	*A. flavus*
12	FL-B-17-1-S[4]	Florida	Aflatoxigenic	n/a	S-type	*A. flavus*
13	FL-B-21-1	Florida	Aflatoxigenic	A	L-type	*A. flavus*
14	FL-B-25-1	Florida	Non-Aflatoxigenic	C	L-type	*A. flavus*
15	FL-C-1-2	Florida	Non-Aflatoxigenic	B	L-type	*A. flavus*
16	FL-C-4-1	Florida	Aflatoxigenic	B	L-type	*A. flavus*
17	FL-C-13-1	Florida	Non-Aflatoxigenic	C	L-type	*A. flavus*
18	FL-C-15-1[4]	Florida	Aflatoxigenic	A	L-type	*A. flavus*
19	FL-C-18-1	Florida	Non-Aflatoxigenic	B	L-type	*A. flavus*
20	FL-C-24-1[4]	Florida	Non-Aflatoxigenic	B	L-type	*A. flavus*
21	IA-B-14-1	Iowa	Non-Aflatoxigenic	B	L-type	*A. flavus*
22	IA-C-8-1	Iowa	Non-Aflatoxigenic	C	L-type	*A. flavus*
23	IA-C-9-1	Iowa	Non-Aflatoxigenic	B	L-type	*A. flavus*
24	IA-C-15-1[4]	Iowa	Non-Aflatoxigenic	C	L-type	*A. flavus*
25	IA-C-20-1	Iowa	Aflatoxigenic	B	L-type	*A. flavus*
26	IN-B-12-1	Iowa	Non-Aflatoxigenic	C	L-type	*A. flavus*
27	IN-B-19-1	Iowa	Aflatoxigenic	A	L-type	*A. flavus*
28	IN-C-14-1	Iowa	Aflatoxigenic	B	L-type	*A. flavus*
29	IN-C-14-2[4]	Iowa	Aflatoxigenic	C	L-type	*A. flavus*
30	NC-A-1-3-1	North Carolina	Non-Aflatoxigenic	B	L-type	*A. flavus*
31	NC-A-1-8B-1	North Carolina	Non-Aflatoxigenic	B	L-type	*A. flavus*
32	NC-A-2-3-2	North Carolina	Non-Aflatoxigenic	B	L-type	*A. flavus*
33	NC-A-3-5-1[4]	North Carolina	Non-Aflatoxigenic	A	L-type	*A. flavus*
34	NC-A-4-6B-2	North Carolina	Non-Aflatoxigenic	B	L-type	*A. flavus*
35	NC-B-1-3-1	North Carolina	Aflatoxigenic	B	L-type	*A. flavus*
36	NC-D-1-5-1	North Carolina	Non-Aflatoxigenic	A	L-type	*A. flavus*
37	NC-D-2-2-2	North Carolina	Non-Aflatoxigenic	A	L-type	*A. flavus*
38	NC-D-2-6-1	North Carolina	Non-Aflatoxigenic	A	L-type	*A. flavus*
39	NC-D-2-1B-1	North Carolina	Non-Aflatoxigenic	A	L-type	*A. flavus*
40	NC-D-4-4-1	North Carolina	Aflatoxigenic	A	L-type	*A. flavus*
41	NC-D-4-8-1	North Carolina	Aflatoxigenic	A	L-type	*A. flavus*
42	NC-E-2-1	North Carolina	Aflatoxigenic	B	L-type	*A. flavus*
43	NC-E-5-1	North Carolina	Non-Aflatoxigenic	B	L-type	*A. flavus*
44	NC-E-5-3	North Carolina	Non-Aflatoxigenic	B	L-type	*A. flavus*
45	NC-E-6-1	North Carolina	Non-Aflatoxigenic	A	L-type	*A. flavus*
46	NC-E-6-3	North Carolina	Aflatoxigenic	A	L-type	*A. flavus*
47	NC-E-7-1	North Carolina	Aflatoxigenic	A	L-type	*A. flavus*
48	NC-E-14-2	North Carolina	Non-Aflatoxigenic	B	L-type	*A. flavus*
49	NC-E-14-3	North Carolina	Aflatoxigenic	A	L-type	*A. flavus*
50	NC-E-16-1	North Carolina	Non-Aflatoxigenic	B	L-type	*A. flavus*
51	NC-E-17-3	North Carolina	Aflatoxigenic	B	L-type	*A. flavus*
52	NC-E-25-1	North Carolina	Non-Aflatoxigenic	B	L-type	*A. flavus*
53	NC-E-25-3	North Carolina	Aflatoxigenic	B	L-type	*A. flavus*
54	IA-B-14-1	Iowa	Non-Aflatoxigenic	B	L-type	*A. flavus*
55	OK-A-8-1-S[4]	Oklahoma	Aflatoxigenic	n/a	S-type	*A. flavus*

56	OK-A-15-2	Oklahoma	Non-Aflatoxigenic	B	L-type	*A. flavus*
57	OK-A-17-1	Oklahoma	Aflatoxigenic	A	L-type	*A. flavus*
58	OK-B-4-1-1	Oklahoma	Aflatoxigenic	A	L-type	*A. flavus*
59	FL-B-18-3	Florida	Non-Aflatoxigenic	B	L-type	*A. flavus*
60	OK-B-6-1[4]	Oklahoma	Aflatoxigenic	A	L-type	*A. flavus*
61	OK-B-7-1	Oklahoma	Aflatoxigenic	A	L-type	*A. flavus*
62	OK-B-13-1	Oklahoma	Aflatoxigenic	A	L-type	*A. flavus*
63	OK-B-14-2	Oklahoma	Aflatoxigenic	A	L-type	*A. flavus*
64	OK-B-17-1	Oklahoma	Aflatoxigenic	A	L-type	*A. flavus*
65	PA-A-6-1	Pennsylvania	Non-Aflatoxigenic	B	L-type	*A. flavus*
66	PA-B-1-1	Pennsylvania	Aflatoxigenic	B	L-type	*A. flavus*
67	PA-B-1-2	Pennsylvania	Non-Aflatoxigenic	A	L-type	*A. flavus*
68	PA-B-4-1[4]	Pennsylvania	Aflatoxigenic	B	L-type	*A. flavus*
69	PA-B-11-1	Pennsylvania	Non-Aflatoxigenic	C	L-type	*A. flavus*
70	PA-B-12-1	Pennsylvania	Non-Aflatoxigenic	B	L-type	*A. flavus*
71	PA-B-14-2[4]	Pennsylvania	Non-Aflatoxigenic	C	L-type	*A. flavus*
72	PA-B-16-2	Pennsylvania	Aflatoxigenic	C	L-type	*A. flavus*
73	PA-B-16-3	Pennsylvania	Non-Aflatoxigenic	C	L-type	*A. flavus*
74	PA-B-20-1	Pennsylvania	Non-Aflatoxigenic	B	L-type	*A. flavus*
75	PA-B-20-3	Pennsylvania	Aflatoxigenic	B	L-type	*A. flavus*
76	TX-A-15-1	Texas	Aflatoxigenic	B	L-type	*A. flavus*
77	PA-B-23-1	Pennsylvania	Aflatoxigenic	B	L-type	*A. flavus*
78	PA-B-23-2	Pennsylvania	Non-Aflatoxigenic	C	L-type	*A. flavus*
79	PA-B-24-1	Pennsylvania	Non-Aflatoxigenic	B	L-type	*A. flavus*
80	PA-C-1-1	Pennsylvania	Aflatoxigenic	B	L-type	*A. flavus*
81	TX-A-1-1	Texas	Aflatoxigenic	B	L-type	*A. flavus*
82	TX-A-2-1	Texas	Aflatoxigenic	A	L-type	*A. flavus*
83	TX-A-6-1-S[4]	Texas	Aflatoxigenic	n/a	S-type	*A. minisclerotigenes*[5]
84	TX-A-13-1	Texas	Aflatoxigenic	B	L-type	*A. flavus*
85	TX-A-20-1[4]	Texas	Aflatoxigenic	B	L-type	*A. flavus*
86	TX-B-1-1	Texas	Aflatoxigenic	A	L-type	*A. flavus*
87	TX-B-2-1	Texas	Aflatoxigenic	A	L-type	*A. flavus*
88	NC-E-3-2	North Carolina	Aflatoxigenic	B	L-type	*A. flavus*
89	TX-B-7-1	Texas	Non-Aflatoxigenic	B	L-type	*A. flavus*
90	TX-B-9-1	Texas	Non-Aflatoxigenic	B	L-type	*A. flavus*
91	TX-B-17-1	Texas	Non-Aflatoxigenic	B	L-type	*A. flavus*
92	TX-B-20-1	Texas	Non-Aflatoxigenic	B	L-type	*A. flavus*
93	TX-B-24-1	Texas	Aflatoxigenic	B	L-type	*A. flavus*
94	TX-C-17-1	Texas	Non-Aflatoxigenic	B	L-type	*A. flavus*
95	TX-C-19-1	Texas	Aflatoxigenic	A	L-type	*A. flavus*
96	NRRL3357[3]	Unknown	Aflatoxigenic	A	L-type	*A. flavus*

[1] This isolate is also known as NRRL118543

[2] These isolates were obtained from Agricultural Research Service Culture Collection (Peoria, IL) because of their use in previous literature and biocontrol efforts.

[3] The first assembly of this genome (2mAF) results from methodology used for all other isolates while the second (96mAF) represents a high-quality assembly used as the reference genome in this study.

[4] These isolates have been submitted to the Agricultural Research Service Culture Collection (Peoria, IL): 18mAF (NRRL66969), 33mAF (NRRL66970), 60mAF (NRRL66971), 68mAF (NRRL66972), 20mAF (NRRL66973), 85mAF (NRRL66974), 29mAF (NRRL66975), 71mAF (NRRL66976), 24mAF (NRRL66977), 12mAF (NRRL66978), 55mAF (NRRL66979), 83mAF (NRRL66980).

[5] This isolate was previously identified as *Aspergillus texensis*. However, the taxonomy of *A. texensis* has since been resolved and is now thought to fall within the diversity of *Aspergillus minisclerotigenese* (25). Thus, we have updated the species-level identification.

Table S2. List of all genes found in biosynthetic gene clusters (BGCs) of the NRRL3357 reference genome.

Cluster_name	Contig[1]	Gene_Name[1]	Start	End	Orientation
Aflatoxin	tig00000023_arrow_pilon	tig00000023_arrow-g5478-AFLA_139150	5034533	5036133	+
Aflatoxin	tig00000023_arrow_pilon	tig00000023_arrow-g5479-AFLA_139160	5036416	5037288	+
Aflatoxin	tig00000023_arrow_pilon	tig00000023_arrow-g5480-AFLA_139170	5037389	5039366	-
Aflatoxin	tig00000023_arrow_pilon	tig00000023_arrow-g5481-AFLA_139180	5039913	5041561	+
Aflatoxin	tig00000023_arrow_pilon	tig00000023_arrow-g5482-AFLA_139190	5042103	5044089	-
Aflatoxin	tig00000023_arrow_pilon	tig00000023_arrow-g5483-AFLA_139200	5044604	5046554	-
Aflatoxin	tig00000023_arrow_pilon	tig00000023_arrow-g5484-AFLA_139210	5047801	5049287	+
Aflatoxin	tig00000023_arrow_pilon	tig00000023_arrow-g5485-AFLA_139220	5050332	5051901	+
Aflatoxin	tig00000023_arrow_pilon	tig00000023_arrow-g5486-AFLA_139230	5052075	5052923	+
Aflatoxin	tig00000023_arrow_pilon	tig00000023_arrow-g5487-AFLA_139240	5053106	5053647	+
Aflatoxin	tig00000023_arrow_pilon	tig00000023_arrow-g5488-AFLA_139250	5053941	5057456	+
Aflatoxin	tig00000023_arrow_pilon	tig00000023_arrow-g5489-AFLA_139270	5057685	5058074	-
Aflatoxin	tig00000023_arrow_pilon	tig00000023_arrow-g5490-AFLA_139280	5058511	5060214	-
Aflatoxin	tig00000023_arrow_pilon	tig00000023_arrow-g5491-AFLA_139290	5060460	5060965	+
Aflatoxin	tig00000023_arrow_pilon	tig00000023_arrow-g5492-AFLA_139310	5061073	5065877	-
Aflatoxin	tig00000023_arrow_pilon	tig00000023_arrow-g5493-AFLA_139330	5066146	5067120	-
Aflatoxin	tig00000023_arrow_pilon	tig00000023_arrow-g5494-AFLA_139340	5067688	5069139	-
Aflatoxin	tig00000023_arrow_pilon	tig00000023_arrow-g5495-AFLA_139360	5069878	5071212	+
Aflatoxin	tig00000023_arrow_pilon	tig00000023_arrow-g5496-AFLA_139370	5072482	5078328	-
Aflatoxin	tig00000023_arrow_pilon	tig00000023_arrow-g5497-AFLA_139380	5078704	5084162	+
Aflatoxin	tig00000023_arrow_pilon	tig00000023_arrow-g5498-AFLA_139390	5085473	5086462	-
Aflatoxin	tig00000023_arrow_pilon	tig00000023_arrow-g5499-AFLA_139400	5086969	5087510	-
Aflatoxin	tig00000023_arrow_pilon	tig00000023_arrow-g5500-AFLA_139410	5088152	5094775	+
Aflatoxin	tig00000023_arrow_pilon	tig00000023_arrow-g5501-AFLA_139420	5096434	5101070	-
Aflatrem(ATM1)	tig00000037_arrow_pilon	tig00000037_arrow-g8357-AFLA_096390	4432590	4435625	-
Aflatrem(ATM1)	tig00000037_arrow_pilon	tig00000037_arrow-g8358-AFLA_096400	4437895	4439539	+
Aflatrem(ATM2)	tig00101499_arrow_pilon	tig00101499_arrow-g10249-AFLA_045500	1958271	1961891	-
Aflatrem(ATM2)	tig00101499_arrow_pilon	tig00101499_arrow-g10250-AFLA_045540	1962254	1965738	+
Aflavarin	tig00000023_arrow_pilon	tig00000023_arrow-g4308-AFLA_108540	1176675	1177916	-
Aflavarin	tig00000023_arrow_pilon	tig00000023_arrow-g4309-AFLA_108550	1179276	1184721	-
Aflavarin	tig00000023_arrow_pilon	tig00000023_arrow-g4310-AFLA_108560	1186272	1187739	+
Aflavarin	tig00000023_arrow_pilon	tig00000023_arrow-g4311-AFLA_108580	1188323	1191951	-
AsparasoneA	tig00101497_arrow_pilon	tig00101497_arrow-g843-AFLA_082150	2674263	2680807	+
AsparasoneA	tig00101497_arrow_pilon	tig00101497_arrow-g844-AFLA_082160	2681343	2683344	-
AsparasoneA	tig00101497_arrow_pilon	tig00101497_arrow-g845-AFLA_082170	2684803	2686393	-
Aspergillicins	tig00000095_arrow_pilon	tig00000095_arrow-g11276-AFLA_010680	2324920	2326179	+
Aspergillicins	tig00000095_arrow_pilon	tig00000095_arrow-g11277-AFLA_010670	2326987	2327637	-
Aspergillicins	tig00000095_arrow_pilon	tig00000095_arrow-g11278-AFLA_010660	2330131	2331160	+
Aspergillicins	tig00000095_arrow_pilon	tig00000095_arrow-g11279-AFLA_010650	2331784	2332863	-
Aspergillicins	tig00000095_arrow_pilon	tig00000095_arrow-g11280-AFLA_010640	2337150	2339093	-
Aspergillicins	tig00000095_arrow_pilon	tig00000095_arrow-g11281-AFLA_010630	2340101	2344084	+
Aspergillicins	tig00000095_arrow_pilon	tig00000095_arrow-g11282-AFLA_010620	2344911	2353519	-
Aspergillicins	tig00000095_arrow_pilon	tig00000095_arrow-g11283-AFLA_010600	2353887	2355311	+
Aspergillicins	tig00000095_arrow_pilon	tig00000095_arrow-g11284	2358156	2359277	+
Aspergillicins	tig00000095_arrow_pilon	tig00000095_arrow-g11285-AFLA_010580	2361596	2384969	-
Aspergillicins	tig00000095_arrow_pilon	tig00000095_arrow-g11286-AFLA_010550	2388021	2389553	+
Aspergillicins	tig00000095_arrow_pilon	tig00000095_arrow-g11287-AFLA_010540	2390900	2392243	-
Aspergillicins	tig00000095_arrow_pilon	tig00000095_arrow-g11288-AFLA_010520	2394069	2395082	+
Aspergillicins	tig00000095_arrow_pilon	tig00000095_arrow-g11289-AFLA_010510	2395158	2395890	+
Aspergillicins	tig00000095_arrow_pilon	tig00000095_arrow-g11290-AFLA_010500	2397071	2398844	-
Aspergillicins	tig00000095_arrow_pilon	tig00000095_arrow-g11291-AFLA_010480	2400334	2401866	+
Aspergillicins	tig00000095_arrow_pilon	tig00000095_arrow-g11292-AFLA_010470	2402155	2402862	-

Aspergillicins	tig00000095_arrow_pilon	tig00000095_arrow-g11293-AFLA_010460	2403580	2406068	+
BGC_10	tig00000029_arrow_pilon	tig00000029_arrow-g6549-AFLA_005430	3348055	3351550	-
BGC_10	tig00000029_arrow_pilon	tig00000029_arrow-g6550-AFLA_005410	3351833	3356736	+
BGC_10	tig00000029_arrow_pilon	tig00000029_arrow-g6551-AFLA_005390	3358998	3360400	+
BGC_10	tig00000029_arrow_pilon	tig00000029_arrow-g6552	3360602	3362277	-
BGC_10	tig00000029_arrow_pilon	tig00000029_arrow-g6553-AFLA_005370	3364000	3364824	+
BGC_10	tig00000029_arrow_pilon	tig00000029_arrow-g6554-AFLA_005360	3364910	3366622	-
BGC_10	tig00000029_arrow_pilon	tig00000029_arrow-g6555-AFLA_005350	3368704	3369881	-
BGC_10	tig00000029_arrow_pilon	tig00000029_arrow-g6556-AFLA_005340	3371120	3372155	+
BGC_10	tig00000029_arrow_pilon	tig00000029_arrow-g6557-AFLA_005330	3373452	3374334	-
BGC_10	tig00000029_arrow_pilon	tig00000029_arrow-g6558-AFLA_005320	3374907	3383103	+
BGC_10	tig00000029_arrow_pilon	tig00000029_arrow-g6559-AFLA_005300	3384175	3391393	+
BGC_10	tig00000029_arrow_pilon	tig00000029_arrow-g6560-AFLA_005290	3392170	3393865	-
BGC_10	tig00000029_arrow_pilon	tig00000029_arrow-g6561-AFLA_005280	3394864	3396481	+
BGC_10	tig00000029_arrow_pilon	tig00000029_arrow-g6562-AFLA_005270	3397380	3399895	+
BGC_14	tig00101499_arrow_pilon	tig00101499_arrow-g9975-AFLA_042280	1101852	1103407	-
BGC_14	tig00101499_arrow_pilon	tig00101499_arrow-g9976-AFLA_042300	1104587	1106479	-
BGC_14	tig00101499_arrow_pilon	tig00101499_arrow-g9977-AFLA_042310	1109328	1111526	-
BGC_14	tig00101499_arrow_pilon	tig00101499_arrow-g9978-AFLA_042320	1112912	1114458	+
BGC_14	tig00101499_arrow_pilon	tig00101499_arrow-g9979-AFLA_042330	1114462	1115252	-
BGC_14	tig00101499_arrow_pilon	tig00101499_arrow-g9980-AFLA_042340	1116617	1118006	-
BGC_14	tig00101499_arrow_pilon	tig00101499_arrow-g9981-AFLA_042350	1118561	1122417	+
BGC_14	tig00101499_arrow_pilon	tig00101499_arrow-g9982-AFLA_042380	1122434	1126332	-
BGC_14	tig00101499_arrow_pilon	tig00101499_arrow-g9983-AFLA_042390	1131403	1132523	-
BGC_14	tig00101499_arrow_pilon	tig00101499_arrow-g9984-AFLA_042400	1133329	1136890	-
BGC_14	tig00101499_arrow_pilon	tig00101499_arrow-g9985-AFLA_042410	1137381	1138112	-
BGC_14	tig00101499_arrow_pilon	tig00101499_arrow-g9986-AFLA_042440	1138867	1143570	+
BGC_14	tig00101499_arrow_pilon	tig00101499_arrow-g9987-AFLA_042460	1143707	1144933	-
BGC_14	tig00101499_arrow_pilon	tig00101499_arrow-g9988-AFLA_042470	1145026	1146685	+
BGC_14	tig00101499_arrow_pilon	tig00101499_arrow-g9989-AFLA_042480	1147029	1148112	+
BGC_14	tig00101499_arrow_pilon	tig00101499_arrow-g9990-AFLA_042490	1148708	1150450	-
BGC_14	tig00101499_arrow_pilon	tig00101499_arrow-g9991-AFLA_042500	1151134	1152192	+
BGC_14	tig00101499_arrow_pilon	tig00101499_arrow-g9992-AFLA_042510	1153786	1155375	+
BGC_14	tig00101499_arrow_pilon	tig00101499_arrow-g9993-AFLA_042520	1155847	1156302	-
BGC_14	tig00101499_arrow_pilon	tig00101499_arrow-g9994-AFLA_042530	1156798	1158114	+
BGC_15	tig00000001_arrow_pilon	tig00000001_arrow-g2305-AFLA_126640	924103	925511	+
BGC_15	tig00000001_arrow_pilon	tig00000001_arrow-g2306-AFLA_126650	925828	927540	-
BGC_15	tig00000001_arrow_pilon	tig00000001_arrow-g2307	930122	930550	+
BGC_15	tig00000001_arrow_pilon	tig00000001_arrow-g2308-AFLA_126660	931475	933268	+
BGC_15	tig00000001_arrow_pilon	tig00000001_arrow-g2309-AFLA_126680	933961	935592	-
BGC_15	tig00000001_arrow_pilon	tig00000001_arrow-g2310-AFLA_126690	936995	937876	-
BGC_15	tig00000001_arrow_pilon	tig00000001_arrow-g2311	943784	944246	+
BGC_15	tig00000001_arrow_pilon	tig00000001_arrow-g2312-AFLA_126710	945204	953542	-
BGC_15	tig00000001_arrow_pilon	tig00000001_arrow-g2313	954818	955657	+
BGC_15	tig00000001_arrow_pilon	tig00000001_arrow-g2314-AFLA_126730	956086	956681	-
BGC_15	tig00000001_arrow_pilon	tig00000001_arrow-g2315	957455	959094	+
BGC_15	tig00000001_arrow_pilon	tig00000001_arrow-g2316-AFLA_126740	961231	965084	-
BGC_15	tig00000001_arrow_pilon	tig00000001_arrow-g2317-AFLA_126750	966179	966892	+
BGC_15	tig00000001_arrow_pilon	tig00000001_arrow-g2318-AFLA_126760	968785	969966	+
BGC_15	tig00000001_arrow_pilon	tig00000001_arrow-g2319-AFLA_126770	971709	972907	+
BGC_20	tig00101499_arrow_pilon	tig00101499_arrow-g9909-AFLA_041530	886279	889691	+
BGC_20	tig00101499_arrow_pilon	tig00101499_arrow-g9910-AFLA_041540	893503	896162	+
BGC_20	tig00101499_arrow_pilon	tig00101499_arrow-g9911-AFLA_041550	896687	898157	+
BGC_20	tig00101499_arrow_pilon	tig00101499_arrow-g9912-AFLA_041560	898787	899783	+
BGC_20	tig00101499_arrow_pilon	tig00101499_arrow-g9913-AFLA_041570	900224	901507	-
BGC_20	tig00101499_arrow_pilon	tig00101499_arrow-g9914-AFLA_041590	902533	905464	+

BGC_20	tig00101499_arrow_pilon	tig00101499_arrow-g9915-AFLA_041600	906141	908288	+
BGC_20	tig00101499_arrow_pilon	tig00101499_arrow-g9916-AFLA_041610	908783	912163	-
BGC_20	tig00101499_arrow_pilon	tig00101499_arrow-g9917-AFLA_041620	913704	914886	-
BGC_20	tig00101499_arrow_pilon	tig00101499_arrow-g9918-AFLA_041630	916701	917333	-
BGC_20	tig00101499_arrow_pilon	tig00101499_arrow-g9919-AFLA_041640	921525	923141	+
BGC_20	tig00101499_arrow_pilon	tig00101499_arrow-g9920-AFLA_041650	924666	926573	+
BGC_20	tig00101499_arrow_pilon	tig00101499_arrow-g9921-AFLA_041660	927349	929415	+
BGC_20	tig00101499_arrow_pilon	tig00101499_arrow-g9922-AFLA_041670	930391	931395	+
BGC_21	tig00000050_arrow_pilon	tig00000050_arrow-g9155-AFLA_102560	2607178	2609300	+
BGC_21	tig00000050_arrow_pilon	tig00000050_arrow-g9156-AFLA_102550	2609483	2612036	-
BGC_21	tig00000050_arrow_pilon	tig00000050_arrow-g9157	2612617	2613869	+
BGC_21	tig00000050_arrow_pilon	tig00000050_arrow-g9158-AFLA_102520	2614411	2616195	+
BGC_21	tig00000050_arrow_pilon	tig00000050_arrow-g9159-AFLA_102510	2616319	2618340	-
BGC_21	tig00000050_arrow_pilon	tig00000050_arrow-g9160-AFLA_102500	2618820	2620713	+
BGC_21	tig00000050_arrow_pilon	tig00000050_arrow-g9161-AFLA_102490	2621286	2622660	-
BGC_21	tig00000050_arrow_pilon	tig00000050_arrow-g9162-AFLA_102480	2624070	2626074	+
BGC_21	tig00000050_arrow_pilon	tig00000050_arrow-g9163-AFLA_102460	2626319	2628935	-
BGC_23	tig00000050_arrow_pilon	tig00000050_arrow-g8414-AFLA_064440	100245	103039	-
BGC_23	tig00000050_arrow_pilon	tig00000050_arrow-g8415-AFLA_064460	103278	106216	+
BGC_23	tig00000050_arrow_pilon	tig00000050_arrow-g8416-AFLA_064470	106411	109504	-
BGC_23	tig00000050_arrow_pilon	tig00000050_arrow-g8417-AFLA_064490	109780	110850	+
BGC_23	tig00000050_arrow_pilon	tig00000050_arrow-g8418-AFLA_064500	111277	112274	-
BGC_23	tig00000050_arrow_pilon	tig00000050_arrow-g8419-AFLA_064510	113238	114295	-
BGC_23	tig00000050_arrow_pilon	tig00000050_arrow-g8420-AFLA_064520	114559	115915	+
BGC_23	tig00000050_arrow_pilon	tig00000050_arrow-g8421-AFLA_064530	116056	116963	+
BGC_23	tig00000050_arrow_pilon	tig00000050_arrow-g8422-AFLA_064540	117094	118717	-
BGC_23	tig00000050_arrow_pilon	tig00000050_arrow-g8423-AFLA_064550	118973	120343	+
BGC_23	tig00000050_arrow_pilon	tig00000050_arrow-g8424-AFLA_064560	120646	125428	-
BGC_23	tig00000050_arrow_pilon	tig00000050_arrow-g8425-AFLA_064570	126376	128235	-
BGC_23	tig00000050_arrow_pilon	tig00000050_arrow-g8426-AFLA_064580	128483	129701	+
BGC_23	tig00000050_arrow_pilon	tig00000050_arrow-g8427-AFLA_064590	129964	131320	-
BGC_23	tig00000050_arrow_pilon	tig00000050_arrow-g8428-AFLA_064600	131555	132996	+
BGC_23	tig00000050_arrow_pilon	tig00000050_arrow-g8429-AFLA_064610	133794	134767	-
BGC_23	tig00000050_arrow_pilon	tig00000050_arrow-g8430	136536	137459	+
BGC_23	tig00000050_arrow_pilon	tig00000050_arrow-g8431-AFLA_064630	139323	144054	+
BGC_23	tig00000050_arrow_pilon	tig00000050_arrow-g8432-AFLA_064660	145229	150592	-
BGC_24	tig00000050_arrow_pilon	tig00000050_arrow-g8589-AFLA_066530	634695	635881	-
BGC_24	tig00000050_arrow_pilon	tig00000050_arrow-g8590-AFLA_066550	637188	638412	-
BGC_24	tig00000050_arrow_pilon	tig00000050_arrow-g8591-AFLA_066570	642525	643881	+
BGC_24	tig00000050_arrow_pilon	tig00000050_arrow-g8592-AFLA_066580	644888	645840	-
BGC_24	tig00000050_arrow_pilon	tig00000050_arrow-g8593-AFLA_066590	646168	647458	-
BGC_24	tig00000050_arrow_pilon	tig00000050_arrow-g8594-AFLA_066600	648751	649428	+
BGC_24	tig00000050_arrow_pilon	tig00000050_arrow-g8595	651260	651889	+
BGC_24	tig00000050_arrow_pilon	tig00000050_arrow-g8596-AFLA_066630	653218	657438	+
BGC_24	tig00000050_arrow_pilon	tig00000050_arrow-g8597-AFLA_066640	658072	658879	+
BGC_24	tig00000050_arrow_pilon	tig00000050_arrow-g8598-AFLA_066650	659186	660538	-
BGC_24	tig00000050_arrow_pilon	tig00000050_arrow-g8599-AFLA_066660	661969	663712	+
BGC_24	tig00000050_arrow_pilon	tig00000050_arrow-g8600-AFLA_066670	664751	665846	+
BGC_24	tig00000050_arrow_pilon	tig00000050_arrow-g8601-AFLA_066680	666659	670012	+
BGC_24	tig00000050_arrow_pilon	tig00000050_arrow-g8602-AFLA_066690	670436	671414	-
BGC_24	tig00000050_arrow_pilon	tig00000050_arrow-g8603-AFLA_066700	672177	673673	-
BGC_24	tig00000050_arrow_pilon	tig00000050_arrow-g8604-AFLA_066710	674022	675152	-
BGC_24	tig00000050_arrow_pilon	tig00000050_arrow-g8605-AFLA_066720	675503	691845	+
BGC_24	tig00000050_arrow_pilon	tig00000050_arrow-g8606-AFLA_066730	693360	695280	+
BGC_24	tig00000050_arrow_pilon	tig00000050_arrow-g8607-AFLA_066760	696186	705175	+
BGC_24	tig00000050_arrow_pilon	tig00000050_arrow-g8608-AFLA_066770	706577	708117	-

BGC_24	tig00000050_arrow_pilon	tig00000050_arrow-g8609-AFLA_066780	708728	713494	+
BGC_24	tig00000050_arrow_pilon	tig00000050_arrow-g8610	714510	715939	-
BGC_24	tig00000050_arrow_pilon	tig00000050_arrow-g8611-AFLA_066810	716369	717991	+
BGC_24	tig00000050_arrow_pilon	tig00000050_arrow-g8612-AFLA_066820	718476	721432	+
BGC_24	tig00000050_arrow_pilon	tig00000050_arrow-g8613-AFLA_066830	721653	724015	-
BGC_35	tig00101497_arrow_pilon	tig00101497_arrow-g1324-AFLA_087790	4215204	4218198	-
BGC_35	tig00101497_arrow_pilon	tig00101497_arrow-g1325-AFLA_087810	4223023	4224586	+
BGC_35	tig00101497_arrow_pilon	tig00101497_arrow-g1326-AFLA_087820	4227039	4228323	-
BGC_35	tig00101497_arrow_pilon	tig00101497_arrow-g1327-AFLA_087830	4229436	4232843	-
BGC_35	tig00101497_arrow_pilon	tig00101497_arrow-g1328-AFLA_087840	4233279	4236872	+
BGC_35	tig00101497_arrow_pilon	tig00101497_arrow-g1329-AFLA_087850	4237067	4240481	+
BGC_35	tig00101497_arrow_pilon	tig00101497_arrow-g1330-AFLA_087870	4241415	4242788	+
BGC_35	tig00101497_arrow_pilon	tig00101497_arrow-g1331-AFLA_087880	4244296	4245325	+
BGC_35	tig00101497_arrow_pilon	tig00101497_arrow-g1332-AFLA_087890	4246093	4249822	-
BGC_35	tig00101497_arrow_pilon	tig00101497_arrow-g1333	4250537	4258151	+
BGC_35	tig00101497_arrow_pilon	tig00101497_arrow-g1334-AFLA_087900	4259606	4261672	-
BGC_36	tig00000001_arrow_pilon	tig00000001_arrow-g2336-AFLA_126970	1030423	1032240	+
BGC_36	tig00000001_arrow_pilon	tig00000001_arrow-g2337-AFLA_127000	1033523	1038074	+
BGC_36	tig00000001_arrow_pilon	tig00000001_arrow-g2338-AFLA_127010	1038636	1039094	+
BGC_36	tig00000001_arrow_pilon	tig00000001_arrow-g2339-AFLA_127020	1039323	1040802	-
BGC_36	tig00000001_arrow_pilon	tig00000001_arrow-g2340-AFLA_127030	1041428	1042231	-
BGC_36	tig00000001_arrow_pilon	tig00000001_arrow-g2341-AFLA_127040	1043109	1044410	+
BGC_36	tig00000001_arrow_pilon	tig00000001_arrow-g2342-AFLA_127050	1044729	1045058	-
BGC_36	tig00000001_arrow_pilon	tig00000001_arrow-g2343-AFLA_127060	1045772	1046878	+
BGC_36	tig00000001_arrow_pilon	tig00000001_arrow-g2344-AFLA_127070	1047328	1048235	-
BGC_36	tig00000001_arrow_pilon	tig00000001_arrow-g2345-AFLA_127080	1048501	1049517	+
BGC_36	tig00000001_arrow_pilon	tig00000001_arrow-g2346-AFLA_127090	1050220	1058091	+
BGC_36	tig00000001_arrow_pilon	tig00000001_arrow-g2347-AFLA_127100	1058748	1059673	+
BGC_36	tig00000001_arrow_pilon	tig00000001_arrow-g2348-AFLA_127110	1060043	1061551	-
BGC_36	tig00000001_arrow_pilon	tig00000001_arrow-g2349-AFLA_127130	1063214	1064725	-
BGC_36	tig00000001_arrow_pilon	tig00000001_arrow-g2350-AFLA_127140	1066418	1067491	+
BGC_36	tig00000001_arrow_pilon	tig00000001_arrow-g2351-AFLA_127160	1067731	1070963	-
BGC_36	tig00000001_arrow_pilon	tig00000001_arrow-g2352-AFLA_127170	1074217	1075791	+
BGC_36	tig00000001_arrow_pilon	tig00000001_arrow-g2353	1075874	1079541	-
BGC_37	tig00000029_arrow_pilon	tig00000029_arrow-g6792-AFLA_002690	4208231	4209778	+
BGC_37	tig00000029_arrow_pilon	tig00000029_arrow-g6793-AFLA_002680	4210559	4213242	-
BGC_37	tig00000029_arrow_pilon	tig00000029_arrow-g6794-AFLA_002670	4215969	4217699	-
BGC_37	tig00000029_arrow_pilon	tig00000029_arrow-g6795-AFLA_002640	4218716	4223327	-
BGC_37	tig00000029_arrow_pilon	tig00000029_arrow-g6796	4226776	4227797	+
BGC_37	tig00000029_arrow_pilon	tig00000029_arrow-g6797-AFLA_002620	4228840	4229811	+
BGC_37	tig00000029_arrow_pilon	tig00000029_arrow-g6798-AFLA_002610	4231158	4233682	+
BGC_38	tig00000037_arrow_pilon	tig00000037_arrow-g7865-AFLA_090590	2869876	2872521	+
BGC_38	tig00000037_arrow_pilon	tig00000037_arrow-g7866-AFLA_090600	2876126	2877802	-
BGC_38	tig00000037_arrow_pilon	tig00000037_arrow-g7867-AFLA_090620	2878687	2879426	+
BGC_38	tig00000037_arrow_pilon	tig00000037_arrow-g7868-AFLA_090640	2880152	2884423	-
BGC_38	tig00000037_arrow_pilon	tig00000037_arrow-g7869-AFLA_090660	2886231	2887209	-
BGC_38	tig00000037_arrow_pilon	tig00000037_arrow-g7870-AFLA_090680	2889849	2891889	+
BGC_38	tig00000037_arrow_pilon	tig00000037_arrow-g7871-AFLA_090690	2892870	2895343	-
BGC_39	tig00101497_arrow_pilon	tig00101497_arrow-g1869	6118650	6119686	-
BGC_39	tig00101497_arrow_pilon	tig00101497_arrow-g1870-AFLA_053160	6120725	6123070	-
BGC_39	tig00101497_arrow_pilon	tig00101497_arrow-g1871-AFLA_053170	6123846	6124900	+
BGC_39	tig00101497_arrow_pilon	tig00101497_arrow-g1872-AFLA_053180	6125224	6126480	-
BGC_39	tig00101497_arrow_pilon	tig00101497_arrow-g1873-AFLA_053190	6127877	6128308	+
BGC_39	tig00101497_arrow_pilon	tig00101497_arrow-g1874-AFLA_053200	6128927	6130105	-
BGC_39	tig00101497_arrow_pilon	tig00101497_arrow-g1875-AFLA_053220	6130746	6134519	+
BGC_39	tig00101497_arrow_pilon	tig00101497_arrow-g1876-AFLA_053230	6135205	6136932	-

BGC_39	tig00101497_arrow_pilon	tig00101497_arrow-g1877-AFLA_053240	6137290	6138615	+
BGC_39	tig00101497_arrow_pilon	tig00101497_arrow-g1878	6139468	6147748	+
BGC_39	tig00101497_arrow_pilon	tig00101497_arrow-g1879-AFLA_053250	6149628	6150138	+
BGC_39	tig00101497_arrow_pilon	tig00101497_arrow-g1880-AFLA_053260	6151996	6153249	-
BGC_39	tig00101497_arrow_pilon	tig00101497_arrow-g1881-AFLA_053270	6155623	6161235	-
BGC_39	tig00101497_arrow_pilon	tig00101497_arrow-g1882-AFLA_053280	6162104	6163027	+
BGC_39	tig00101497_arrow_pilon	tig00101497_arrow-g1883-AFLA_053290	6163414	6166896	+
BGC_40	tig00000023_arrow_pilon	tig00000023_arrow-g4016	264793	266047	+
BGC_40	tig00000023_arrow_pilon	tig00000023_arrow-g4017-AFLA_105090	266070	268051	-
BGC_40	tig00000023_arrow_pilon	tig00000023_arrow-g4018-AFLA_105100	268746	270521	+
BGC_40	tig00000023_arrow_pilon	tig00000023_arrow-g4019-AFLA_105120	271583	272134	+
BGC_40	tig00000023_arrow_pilon	tig00000023_arrow-g4020-AFLA_105130	272849	273621	+
BGC_40	tig00000023_arrow_pilon	tig00000023_arrow-g4021-AFLA_105150	274499	277529	+
BGC_40	tig00000023_arrow_pilon	tig00000023_arrow-g4022-AFLA_105170	279526	280987	-
BGC_40	tig00000023_arrow_pilon	tig00000023_arrow-g4023-AFLA_105190	284426	287752	+
BGC_40	tig00000023_arrow_pilon	tig00000023_arrow-g4024-AFLA_105200	288350	290353	-
BGC_40	tig00000023_arrow_pilon	tig00000023_arrow-g4025-AFLA_105210	293019	294070	-
BGC_40	tig00000023_arrow_pilon	tig00000023_arrow-g4026-AFLA_105220	294232	295017	-
BGC_40	tig00000023_arrow_pilon	tig00000023_arrow-g4027-AFLA_105230	295464	297177	-
BGC_40	tig00000023_arrow_pilon	tig00000023_arrow-g4028-AFLA_105240	299308	299747	+
BGC_40	tig00000023_arrow_pilon	tig00000023_arrow-g4029-AFLA_105250	300141	302810	-
BGC_40	tig00000023_arrow_pilon	tig00000023_arrow-g4030-AFLA_105270	303698	304195	-
BGC_40	tig00000023_arrow_pilon	tig00000023_arrow-g4031-AFLA_105280	305887	307338	+
BGC_40	tig00000023_arrow_pilon	tig00000023_arrow-g4032-AFLA_105290	307707	308748	-
BGC_41	tig00000023_arrow_pilon	tig00000023_arrow-g4184-AFLA_107090	790374	794546	-
BGC_41	tig00000023_arrow_pilon	tig00000023_arrow-g4185-AFLA_107120	795131	798884	+
BGC_41	tig00000023_arrow_pilon	tig00000023_arrow-g4186-AFLA_107130	799410	800438	+
BGC_41	tig00000023_arrow_pilon	tig00000023_arrow-g4187-AFLA_107140	801373	801927	+
BGC_41	tig00000023_arrow_pilon	tig00000023_arrow-g4188-AFLA_107150	802101	803138	-
BGC_42	tig00000095_arrow_pilon	tig00000095_arrow-g11393-AFLA_009250	2722185	2725445	+
BGC_42	tig00000095_arrow_pilon	tig00000095_arrow-g11394	2727191	2727467	-
BGC_42	tig00000095_arrow_pilon	tig00000095_arrow-g11395-AFLA_009240	2728223	2729675	+
BGC_42	tig00000095_arrow_pilon	tig00000095_arrow-g11396-AFLA_009170	2733911	2743311	+
BGC_42	tig00000095_arrow_pilon	tig00000095_arrow-g11397-AFLA_009160	2743508	2744840	-
BGC_42	tig00000095_arrow_pilon	tig00000095_arrow-g11398-AFLA_009120	2745244	2751036	+
BGC_42	tig00000095_arrow_pilon	tig00000095_arrow-g11399-AFLA_009110	2752560	2754024	-
BGC_42	tig00000095_arrow_pilon	tig00000095_arrow-g11400-AFLA_009100	2756724	2760866	+
BGC_42	tig00000095_arrow_pilon	tig00000095_arrow-g11401-AFLA_009090	2761884	2767720	-
BGC_43	tig00000023_arrow_pilon	tig00000023_arrow-g5159-AFLA_135380	4026112	4028889	-
BGC_43	tig00000023_arrow_pilon	tig00000023_arrow-g5160-AFLA_135390	4031071	4031691	+
BGC_43	tig00000023_arrow_pilon	tig00000023_arrow-g5161-AFLA_135400	4032495	4034139	-
BGC_43	tig00000023_arrow_pilon	tig00000023_arrow-g5162-AFLA_135410	4037432	4039981	-
BGC_43	tig00000023_arrow_pilon	tig00000023_arrow-g5163-AFLA_135420	4040875	4041976	+
BGC_43	tig00000023_arrow_pilon	tig00000023_arrow-g5164-AFLA_135440	4042284	4046728	-
BGC_43	tig00000023_arrow_pilon	tig00000023_arrow-g5165-AFLA_135450	4047333	4048505	+
BGC_43	tig00000023_arrow_pilon	tig00000023_arrow-g5166-AFLA_135460	4049815	4053386	-
BGC_43	tig00000023_arrow_pilon	tig00000023_arrow-g5167-AFLA_135480	4054307	4054843	+
BGC_43	tig00000023_arrow_pilon	tig00000023_arrow-g5168-AFLA_135490	4055768	4058983	+
BGC_43	tig00000023_arrow_pilon	tig00000023_arrow-g5169-AFLA_135500	4060291	4061729	+
BGC_43	tig00000023_arrow_pilon	tig00000023_arrow-g5170-AFLA_135510	4062096	4063681	-
BGC_43	tig00000023_arrow_pilon	tig00000023_arrow-g5171-AFLA_135520	4064381	4065444	+
BGC_43	tig00000023_arrow_pilon	tig00000023_arrow-g5172-AFLA_135530	4067474	4071062	+
BGC_43	tig00000023_arrow_pilon	tig00000023_arrow-g5173-AFLA_135540	4072221	4073241	-
BGC_43	tig00000023_arrow_pilon	tig00000023_arrow-g5174-AFLA_135560	4073655	4078119	-
BGC_43	tig00000023_arrow_pilon	tig00000023_arrow-g5175-AFLA_135570	4078966	4079820	-
BGC_44	tig00000050_arrow_pilon	tig00000050_arrow-g9331-AFLA_100450	3119513	3127715	-

BGC_44	tig00000050_arrow_pilon	tig00000050_arrow-g9332-AFLA_100430	3128283	3129746	+
BGC_44	tig00000050_arrow_pilon	tig00000050_arrow-g9333-AFLA_100420	3129794	3131525	-
BGC_44	tig00000050_arrow_pilon	tig00000050_arrow-g9334-AFLA_100400	3131803	3133877	+
BGC_44	tig00000050_arrow_pilon	tig00000050_arrow-g9335-AFLA_100390	3133898	3135235	-
BGC_44	tig00000050_arrow_pilon	tig00000050_arrow-g9336-AFLA_100380	3135535	3136007	+
BGC_44	tig00000050_arrow_pilon	tig00000050_arrow-g9337-AFLA_100370	3136219	3137541	+
BGC_44	tig00000050_arrow_pilon	tig00000050_arrow-g9338-AFLA_100360	3137830	3139638	+
BGC_44	tig00000050_arrow_pilon	tig00000050_arrow-g9339-AFLA_100350	3139884	3141446	+
BGC_44	tig00000050_arrow_pilon	tig00000050_arrow-g9340	3143096	3154906	-
BGC_44	tig00000050_arrow_pilon	tig00000050_arrow-g9341-AFLA_100330	3158777	3160198	+
BGC_44	tig00000050_arrow_pilon	tig00000050_arrow-g9342-AFLA_100310	3161691	3162596	-
BGC_44	tig00000050_arrow_pilon	tig00000050_arrow-g9343-AFLA_100300	3164602	3166922	+
BGC_44	tig00000050_arrow_pilon	tig00000050_arrow-g9344-AFLA_100290	3166995	3168158	-
BGC_44	tig00000050_arrow_pilon	tig00000050_arrow-g9345-AFLA_100280	3168749	3170292	-
BGC_44	tig00000050_arrow_pilon	tig00000050_arrow-g9346-AFLA_100270	3171096	3172396	+
BGC_45	tig00101497_arrow_pilon	tig00101497_arrow-g936-AFLA_083210	2954118	2954876	+
BGC_45	tig00101497_arrow_pilon	tig00101497_arrow-g937-AFLA_083220	2954950	2957127	-
BGC_45	tig00101497_arrow_pilon	tig00101497_arrow-g938-AFLA_083230	2957794	2958625	-
BGC_45	tig00101497_arrow_pilon	tig00101497_arrow-g939-AFLA_083240	2961692	2962899	+
BGC_45	tig00101497_arrow_pilon	tig00101497_arrow-g940-AFLA_083250	2963822	2965290	-
BGC_45	tig00101497_arrow_pilon	tig00101497_arrow-g941-AFLA_083270	2969250	2971273	-
BGC_45	tig00101497_arrow_pilon	tig00101497_arrow-g942-AFLA_083290	2972183	2976395	-
BGC_46	tig00101497_arrow_pilon	tig00101497_arrow-g1955-AFLA_054180	6413337	6414830	+
BGC_46	tig00101497_arrow_pilon	tig00101497_arrow-g1956-AFLA_054190	6415670	6416684	-
BGC_46	tig00101497_arrow_pilon	tig00101497_arrow-g1957	6416925	6417797	-
BGC_46	tig00101497_arrow_pilon	tig00101497_arrow-g1958	6420492	6421580	+
BGC_46	tig00101497_arrow_pilon	tig00101497_arrow-g1959-AFLA_054210	6422257	6423657	+
BGC_46	tig00101497_arrow_pilon	tig00101497_arrow-g1960-AFLA_054220	6423883	6424948	-
BGC_46	tig00101497_arrow_pilon	tig00101497_arrow-g1961-AFLA_054230	6426357	6427163	+
BGC_46	tig00101497_arrow_pilon	tig00101497_arrow-g1962-AFLA_054240	6428399	6428986	-
BGC_46	tig00101497_arrow_pilon	tig00101497_arrow-g1963-AFLA_054250	6429995	6431463	+
BGC_46	tig00101497_arrow_pilon	tig00101497_arrow-g1964-AFLA_054260	6432524	6434296	+
BGC_46	tig00101497_arrow_pilon	tig00101497_arrow-g1965-AFLA_054270	6434758	6438568	-
BGC_46	tig00101497_arrow_pilon	tig00101497_arrow-g1966-AFLA_054280	6440428	6440893	+
BGC_46	tig00101497_arrow_pilon	tig00101497_arrow-g1967-AFLA_054290	6441098	6442134	-
BGC_46	tig00101497_arrow_pilon	tig00101497_arrow-g1968-AFLA_054300	6442941	6444668	+
BGC_46	tig00101497_arrow_pilon	tig00101497_arrow-g1969-AFLA_054310	6444977	6447175	-
BGC_46	tig00101497_arrow_pilon	tig00101497_arrow-g1970-AFLA_054320	6449242	6450019	+
BGC_46	tig00101497_arrow_pilon	tig00101497_arrow-g1971-AFLA_054330	6450478	6451190	+
BGC_46	tig00101497_arrow_pilon	tig00101497_arrow-g1972-AFLA_054340	6451623	6452727	+
BGC_46	tig00101497_arrow_pilon	tig00101497_arrow-g1973-AFLA_054350	6453370	6454560	+
BGC_46	tig00101497_arrow_pilon	tig00101497_arrow-g1974-AFLA_054360	6455274	6456353	-
BGC_46	tig00101497_arrow_pilon	tig00101497_arrow-g1975-AFLA_054370	6457701	6458736	+
BGC_47	tig00000001_arrow_pilon	tig00000001_arrow-g3424-AFLA_028820	4693675	4695730	-
BGC_47	tig00000001_arrow_pilon	tig00000001_arrow-g3425-AFLA_028800	4696424	4697189	-
BGC_47	tig00000001_arrow_pilon	tig00000001_arrow-g3426-AFLA_028790	4697774	4702992	+
BGC_47	tig00000001_arrow_pilon	tig00000001_arrow-g3427-AFLA_028760	4703400	4706310	-
BGC_47	tig00000001_arrow_pilon	tig00000001_arrow-g3428-AFLA_028750	4708408	4709920	+
BGC_47	tig00000001_arrow_pilon	tig00000001_arrow-g3429-AFLA_028740	4710779	4712517	+
BGC_47	tig00000001_arrow_pilon	tig00000001_arrow-g3430-AFLA_028720	4713795	4716830	+
BGC_47	tig00000001_arrow_pilon	tig00000001_arrow-g3431-AFLA_028710	4718074	4718832	-
BGC_47	tig00000001_arrow_pilon	tig00000001_arrow-g3432-AFLA_028700	4720886	4721777	+
BGC_47	tig00000001_arrow_pilon	tig00000001_arrow-g3433-AFLA_028690	4722155	4723252	-
BGC_47	tig00000001_arrow_pilon	tig00000001_arrow-g3434-AFLA_028680	4723586	4724952	-
BGC_47	tig00000001_arrow_pilon	tig00000001_arrow-g3435-AFLA_028670	4726216	4730285	+
BGC_47	tig00000001_arrow_pilon	tig00000001_arrow-g3436-AFLA_028660	4730902	4734260	+

BGC_47	tig00000001_arrow_pilon	tig00000001_arrow-g3437-AFLA_028650	4734955	4735735	-
BGC_47	tig00000001_arrow_pilon	tig00000001_arrow-g3438-AFLA_028640	4736444	4738277	-
BGC_48	tig00000095_arrow_pilon	tig00000095_arrow-g11318-AFLA_010110	2476666	2478568	+
BGC_48	tig00000095_arrow_pilon	tig00000095_arrow-g11319-AFLA_010100	2480593	2481456	+
BGC_48	tig00000095_arrow_pilon	tig00000095_arrow-g11320	2482641	2483698	-
BGC_48	tig00000095_arrow_pilon	tig00000095_arrow-g11321-AFLA_010080	2484626	2485693	-
BGC_48	tig00000095_arrow_pilon	tig00000095_arrow-g11322-AFLA_010060	2486168	2487789	-
BGC_48	tig00000095_arrow_pilon	tig00000095_arrow-g11323-AFLA_010050	2488030	2489166	-
BGC_48	tig00000095_arrow_pilon	tig00000095_arrow-g11324-AFLA_010040	2490067	2492334	+
BGC_48	tig00000095_arrow_pilon	tig00000095_arrow-g11325-AFLA_010030	2493554	2494689	-
BGC_48	tig00000095_arrow_pilon	tig00000095_arrow-g11326-AFLA_010020	2495243	2499353	+
BGC_48	tig00000095_arrow_pilon	tig00000095_arrow-g11327-AFLA_010000	2500097	2511797	-
BGC_48	tig00000095_arrow_pilon	tig00000095_arrow-g11328-AFLA_009990	2513163	2514405	+
BGC_48	tig00000095_arrow_pilon	tig00000095_arrow-g11329-AFLA_009980	2514792	2519012	-
BGC_48	tig00000095_arrow_pilon	tig00000095_arrow-g11330	2519996	2520691	-
BGC_48	tig00000095_arrow_pilon	tig00000095_arrow-g11331	2523030	2524081	-
BGC_48	tig00000095_arrow_pilon	tig00000095_arrow-g11332-AFLA_009960	2524732	2525277	+
BGC_48	tig00000095_arrow_pilon	tig00000095_arrow-g11333-AFLA_009950	2525292	2528451	-
BGC_48	tig00000095_arrow_pilon	tig00000095_arrow-g11334-AFLA_009930	2530355	2534194	+
BGC_49	tig00000050_arrow_pilon	tig00000050_arrow-g9457	3544227	3547097	+
BGC_49	tig00000050_arrow_pilon	tig00000050_arrow-g9458-AFLA_098990	3547692	3549127	+
BGC_49	tig00000050_arrow_pilon	tig00000050_arrow-g9459-AFLA_098980	3549614	3551347	-
BGC_49	tig00000050_arrow_pilon	tig00000050_arrow-g9460-AFLA_098960	3552215	3552787	+
BGC_49	tig00000050_arrow_pilon	tig00000050_arrow-g9461	3553837	3554964	-
BGC_49	tig00000050_arrow_pilon	tig00000050_arrow-g9462	3556467	3558343	-
BGC_49	tig00000050_arrow_pilon	tig00000050_arrow-g9463-AFLA_098940	3558955	3561890	-
BGC_49	tig00000050_arrow_pilon	tig00000050_arrow-g9464-AFLA_098930	3562259	3563750	-
BGC_49	tig00000050_arrow_pilon	tig00000050_arrow-g9465-AFLA_098920	3564507	3565412	+
BGC_50	tig00000029_arrow_pilon	tig00000029_arrow-g6000-AFLA_018250	1497732	1502298	-
BGC_50	tig00000029_arrow_pilon	tig00000029_arrow-g6001-AFLA_018260	1502629	1503138	+
BGC_50	tig00000029_arrow_pilon	tig00000029_arrow-g6002	1503789	1505507	-
BGC_50	tig00000029_arrow_pilon	tig00000029_arrow-g6003-AFLA_018280	1506254	1507273	+
BGC_50	tig00000029_arrow_pilon	tig00000029_arrow-g6004-AFLA_018290	1507380	1508296	-
BGC_50	tig00000029_arrow_pilon	tig00000029_arrow-g6005-AFLA_018300	1509148	1510104	-
BGC_50	tig00000029_arrow_pilon	tig00000029_arrow-g6006-AFLA_018310	1511148	1512382	+
BGC_50	tig00000029_arrow_pilon	tig00000029_arrow-g6007-AFLA_018320	1512802	1513761	-
BGC_50	tig00000029_arrow_pilon	tig00000029_arrow-g6008-AFLA_018340	1516972	1518212	+
BGC_50	tig00000029_arrow_pilon	tig00000029_arrow-g6009	1519034	1520285	-
BGC_50	tig00000029_arrow_pilon	tig00000029_arrow-g6010-AFLA_018350	1520914	1521633	-
BGC_51	tig00000095_arrow_pilon	tig00000095_arrow-g10896-AFLA_119750	1075832	1076619	-
BGC_51	tig00000095_arrow_pilon	tig00000095_arrow-g10897-AFLA_119760	1077737	1081159	+
BGC_51	tig00000095_arrow_pilon	tig00000095_arrow-g10898-AFLA_119770	1081447	1081935	-
BGC_51	tig00000095_arrow_pilon	tig00000095_arrow-g10899-AFLA_119780	1083032	1084206	+
BGC_51	tig00000095_arrow_pilon	tig00000095_arrow-g10900-AFLA_119790	1084504	1086400	-
BGC_51	tig00000095_arrow_pilon	tig00000095_arrow-g10901-AFLA_119800	1089831	1090608	+
BGC_51	tig00000095_arrow_pilon	tig00000095_arrow-g10902-AFLA_119810	1090956	1094439	-
BGC_51	tig00000095_arrow_pilon	tig00000095_arrow-g10903-AFLA_119820	1096425	1099526	-
BGC_51	tig00000095_arrow_pilon	tig00000095_arrow-g10904-AFLA_119830	1101936	1103724	+
BGC_51	tig00000095_arrow_pilon	tig00000095_arrow-g10905	1104761	1106272	+
BGC_51	tig00000095_arrow_pilon	tig00000095_arrow-g10906-AFLA_119850	1107871	1108996	+
BGC_51	tig00000095_arrow_pilon	tig00000095_arrow-g10907-AFLA_119860	1109832	1111030	-
BGC_51	tig00000095_arrow_pilon	tig00000095_arrow-g10908-AFLA_119870	1113908	1114939	+
BGC_51	tig00000095_arrow_pilon	tig00000095_arrow-g10909-AFLA_119890	1116188	1119746	-
BGC_52	tig00000029_arrow_pilon	tig00000029_arrow-g5953-AFLA_017760	1355037	1357266	+
BGC_52	tig00000029_arrow_pilon	tig00000029_arrow-g5954-AFLA_017770	1357680	1358769	+
BGC_52	tig00000029_arrow_pilon	tig00000029_arrow-g5955-AFLA_017780	1359135	1361582	+

BGC_52	tig00000029_arrow_pilon	tig00000029_arrow-g5956-AFLA_017800	1362407	1364485	-
BGC_52	tig00000029_arrow_pilon	tig00000029_arrow-g5957-AFLA_017810	1366495	1367943	-
BGC_52	tig00000029_arrow_pilon	tig00000029_arrow-g5958-AFLA_017820	1368469	1371536	+
BGC_52	tig00000029_arrow_pilon	tig00000029_arrow-g5959	1372334	1374649	-
BGC_52	tig00000029_arrow_pilon	tig00000029_arrow-g5960-AFLA_017830	1375124	1375996	+
BGC_52	tig00000029_arrow_pilon	tig00000029_arrow-g5961-AFLA_017840	1377044	1380397	+
BGC_52	tig00000029_arrow_pilon	tig00000029_arrow-g5962-AFLA_017850	1381280	1382085	-
BGC_52	tig00000029_arrow_pilon	tig00000029_arrow-g5963-AFLA_017860	1383286	1383770	-
BGC_52	tig00000029_arrow_pilon	tig00000029_arrow-g5964-AFLA_017870	1386485	1388378	+
BGC_52	tig00000029_arrow_pilon	tig00000029_arrow-g5965-AFLA_017880	1388501	1389033	-
BGC_52	tig00000029_arrow_pilon	tig00000029_arrow-g5966-AFLA_017890	1389400	1391114	+
BGC_52	tig00000029_arrow_pilon	tig00000029_arrow-g5967-AFLA_017900	1394208	1397030	+
BGC_52	tig00000029_arrow_pilon	tig00000029_arrow-g5968-AFLA_017910	1399216	1401829	+
BGC_53	tig00000037_arrow_pilon	tig00000037_arrow-g7078-AFLA_062520	314066	315432	+
BGC_53	tig00000037_arrow_pilon	tig00000037_arrow-g7079-AFLA_062510	315760	317897	-
BGC_53	tig00000037_arrow_pilon	tig00000037_arrow-g7080-AFLA_062480	318578	323938	-
BGC_53	tig00000037_arrow_pilon	tig00000037_arrow-g7081-AFLA_062470	325060	326699	+
BGC_53	tig00000037_arrow_pilon	tig00000037_arrow-g7082-AFLA_062460	327454	328173	-
BGC_53	tig00000037_arrow_pilon	tig00000037_arrow-g7083-AFLA_062450	329561	331794	-
BGC_53	tig00000037_arrow_pilon	tig00000037_arrow-g7084-AFLA_062440	333381	333899	+
BGC_53	tig00000037_arrow_pilon	tig00000037_arrow-g7085-AFLA_062430	334570	335401	-
BGC_54	tig00101497_arrow_pilon	tig00101497_arrow-g694-AFLA_080410	2226912	2231932	+
BGC_54	tig00101497_arrow_pilon	tig00101497_arrow-g695-AFLA_080430	2234019	2234423	+
BGC_54	tig00101497_arrow_pilon	tig00101497_arrow-g696-AFLA_080440	2235809	2237494	+
BGC_54	tig00101497_arrow_pilon	tig00101497_arrow-g697-AFLA_080450	2237839	2240503	-
BGC_54	tig00101497_arrow_pilon	tig00101497_arrow-g698-AFLA_080460	2240773	2241159	+
BGC_54	tig00101497_arrow_pilon	tig00101497_arrow-g699-AFLA_080470	2242854	2246186	+
BGC_54	tig00101497_arrow_pilon	tig00101497_arrow-g700-AFLA_080480	2246596	2247363	-
BGC_54	tig00101497_arrow_pilon	tig00101497_arrow-g701-AFLA_080490	2247943	2260555	-
BGC_54	tig00101497_arrow_pilon	tig00101497_arrow-g702-AFLA_080510	2263041	2264576	+
BGC_54	tig00101497_arrow_pilon	tig00101497_arrow-g703-AFLA_080520	2265129	2266387	+
BGC_54	tig00101497_arrow_pilon	tig00101497_arrow-g704-AFLA_080530	2267132	2267856	-
BGC_54	tig00101497_arrow_pilon	tig00101497_arrow-g705-AFLA_080540	2269076	2272465	+
BGC_54	tig00101497_arrow_pilon	tig00101497_arrow-g706-AFLA_080550	2272999	2274192	+
BGC_54	tig00101497_arrow_pilon	tig00101497_arrow-g707-AFLA_080560	2275539	2277897	+
BGC_54	tig00101497_arrow_pilon	tig00101497_arrow-g708-AFLA_080570	2278992	2280120	+
BGC_55	tig00101497_arrow_pilon	tig00101497_arrow-g866-AFLA_082390	2737652	2740045	+
BGC_55	tig00101497_arrow_pilon	tig00101497_arrow-g867-AFLA_082400	2740249	2744963	-
BGC_55	tig00101497_arrow_pilon	tig00101497_arrow-g868-AFLA_082410	2745489	2746908	-
BGC_55	tig00101497_arrow_pilon	tig00101497_arrow-g869-AFLA_082430	2749629	2750882	+
BGC_55	tig00101497_arrow_pilon	tig00101497_arrow-g870-AFLA_082440	2751245	2752169	+
BGC_55	tig00101497_arrow_pilon	tig00101497_arrow-g871-AFLA_082450	2752434	2754302	-
BGC_55	tig00101497_arrow_pilon	tig00101497_arrow-g872-AFLA_082460	2755266	2755823	+
BGC_55	tig00101497_arrow_pilon	tig00101497_arrow-g873-AFLA_082470	2756556	2758587	-
BGC_55	tig00101497_arrow_pilon	tig00101497_arrow-g874-AFLA_082490	2758993	2766773	+
BGC_55	tig00101497_arrow_pilon	tig00101497_arrow-g875-AFLA_082500	2767295	2768635	-
BGC_55	tig00101497_arrow_pilon	tig00101497_arrow-g876-AFLA_082510	2769773	2770571	+
BGC_55	tig00101497_arrow_pilon	tig00101497_arrow-g877-AFLA_082520	2771128	2774749	-
BGC_55	tig00101497_arrow_pilon	tig00101497_arrow-g878-AFLA_082530	2775475	2776382	-
BGC_55	tig00101497_arrow_pilon	tig00101497_arrow-g879-AFLA_082540	2777507	2779071	+
BGC_55	tig00101497_arrow_pilon	tig00101497_arrow-g880-AFLA_082550	2779288	2782394	-
BGC_55	tig00101497_arrow_pilon	tig00101497_arrow-g881-AFLA_082560	2783048	2784790	+
BGC_56	tig00000050_arrow_pilon	tig00000050_arrow-g8900-AFLA_070200	1650406	1652721	-
BGC_56	tig00000050_arrow_pilon	tig00000050_arrow-g8901-AFLA_070220	1653496	1654458	+
BGC_56	tig00000050_arrow_pilon	tig00000050_arrow-g8902-AFLA_070230	1655199	1657221	-
BGC_56	tig00000050_arrow_pilon	tig00000050_arrow-g8903-AFLA_070240	1660120	1662633	+

BGC_56	tig00000050_arrow_pilon	tig00000050_arrow-g8904-AFLA_070250	1663284	1664131	-
BGC_56	tig00000050_arrow_pilon	tig00000050_arrow-g8905-AFLA_070270	1665934	1668001	-
BGC_56	tig00000050_arrow_pilon	tig00000050_arrow-g8906-AFLA_070280	1668807	1669778	+
BGC_56	tig00000050_arrow_pilon	tig00000050_arrow-g8907-AFLA_070290	1669861	1671823	-
BGC_56	tig00000050_arrow_pilon	tig00000050_arrow-g8908-AFLA_070310	1672316	1675372	+
BGC_56	tig00000050_arrow_pilon	tig00000050_arrow-g8909-AFLA_070320	1676900	1678784	-
BGC_56	tig00000050_arrow_pilon	tig00000050_arrow-g8910	1679570	1680784	-
BGC_56	tig00000050_arrow_pilon	tig00000050_arrow-g8911-AFLA_070330	1683653	1685017	-
BGC_56	tig00000050_arrow_pilon	tig00000050_arrow-g8912-AFLA_070340	1686263	1687790	-
BGC_56	tig00000050_arrow_pilon	tig00000050_arrow-g8913-AFLA_070350	1689277	1690362	+
BGC_56	tig00000050_arrow_pilon	tig00000050_arrow-g8914-AFLA_070360	1690920	1695638	-
BGC_57	tig00000037_arrow_pilon	tig00000037_arrow-g7824-AFLA_090110	2768581	2772876	+
BGC_57	tig00000037_arrow_pilon	tig00000037_arrow-g7825	2773184	2774596	+
BGC_57	tig00000037_arrow_pilon	tig00000037_arrow-g7826-AFLA_090120	2775102	2778596	-
BGC_57	tig00000037_arrow_pilon	tig00000037_arrow-g7827-AFLA_090140	2780959	2782163	+
BGC_57	tig00000037_arrow_pilon	tig00000037_arrow-g7828-AFLA_090150	2783312	2783932	-
BGC_57	tig00000037_arrow_pilon	tig00000037_arrow-g7829-AFLA_090160	2784588	2786653	-
BGC_57	tig00000037_arrow_pilon	tig00000037_arrow-g7830-AFLA_090170	2787167	2788871	+
BGC_57	tig00000037_arrow_pilon	tig00000037_arrow-g7831-AFLA_090180	2790312	2791202	-
BGC_57	tig00000037_arrow_pilon	tig00000037_arrow-g7832-AFLA_090190	2791715	2793062	-
BGC_57	tig00000037_arrow_pilon	tig00000037_arrow-g7833-AFLA_090200	2794716	2800694	+
BGC_57	tig00000037_arrow_pilon	tig00000037_arrow-g7834-AFLA_090210	2800934	2802812	-
BGC_57	tig00000037_arrow_pilon	tig00000037_arrow-g7835-AFLA_090220	2803257	2805982	+
BGC_57	tig00000037_arrow_pilon	tig00000037_arrow-g7836-AFLA_090240	2807077	2807834	-
BGC_57	tig00000037_arrow_pilon	tig00000037_arrow-g7837-AFLA_090250	2808759	2810042	-
BGC_57	tig00000037_arrow_pilon	tig00000037_arrow-g7838-AFLA_090260	2810819	2813042	-
BGC_57	tig00000037_arrow_pilon	tig00000037_arrow-g7839-AFLA_090300	2813883	2816606	-
BGC_57	tig00000037_arrow_pilon	tig00000037_arrow-g7840-AFLA_090320	2819338	2820459	-
BGC_58	tig00000023_arrow_pilon	tig00000023_arrow-g4007-AFLA_105000	243409	244062	-
BGC_58	tig00000023_arrow_pilon	tig00000023_arrow-g4008-AFLA_105010	245036	245797	-
BGC_58	tig00000023_arrow_pilon	tig00000023_arrow-g4009-AFLA_105020	246003	247147	-
BGC_58	tig00000023_arrow_pilon	tig00000023_arrow-g4010-AFLA_105030	247804	248292	-
BGC_58	tig00000023_arrow_pilon	tig00000023_arrow-g4011-AFLA_105040	250337	251755	+
BGC_58	tig00000023_arrow_pilon	tig00000023_arrow-g4012-AFLA_105050	253085	254220	-
BGC_58	tig00000023_arrow_pilon	tig00000023_arrow-g4013-AFLA_105060	255081	255890	-
BGC_58	tig00000023_arrow_pilon	tig00000023_arrow-g4014-AFLA_105070	256993	258760	-
BGC_58	tig00000023_arrow_pilon	tig00000023_arrow-g4015-AFLA_105080	259444	262405	+
BGC_59	tig00000029_arrow_pilon	tig00000029_arrow-g6766-AFLA_002980	4129813	4131003	-
BGC_59	tig00000029_arrow_pilon	tig00000029_arrow-g6767-AFLA_002970	4132014	4134236	+
BGC_59	tig00000029_arrow_pilon	tig00000029_arrow-g6768	4134618	4136104	+
BGC_59	tig00000029_arrow_pilon	tig00000029_arrow-g6769-AFLA_002950	4136527	4137479	-
BGC_59	tig00000029_arrow_pilon	tig00000029_arrow-g6770-AFLA_002940	4139065	4140608	+
BGC_59	tig00000029_arrow_pilon	tig00000029_arrow-g6771-AFLA_002920	4141621	4150236	-
BGC_59	tig00000029_arrow_pilon	tig00000029_arrow-g6772-AFLA_002900	4150881	4158170	+
BGC_59	tig00000029_arrow_pilon	tig00000029_arrow-g6773-AFLA_002890	4158623	4160415	+
BGC_59	tig00000029_arrow_pilon	tig00000029_arrow-g6774-AFLA_002880	4161555	4164575	+
BGC_59	tig00000029_arrow_pilon	tig00000029_arrow-g6775-AFLA_002870	4164749	4168522	-
BGC_59	tig00000029_arrow_pilon	tig00000029_arrow-g6776-AFLA_002850	4168907	4170012	+
BGC_59	tig00000029_arrow_pilon	tig00000029_arrow-g6777-AFLA_002840	4170433	4171066	-
BGC_59	tig00000029_arrow_pilon	tig00000029_arrow-g6778-AFLA_002830	4172867	4174476	+
BGC_59	tig00000029_arrow_pilon	tig00000029_arrow-g6779-AFLA_002820	4174958	4176160	-
BGC_59	tig00000029_arrow_pilon	tig00000029_arrow-g6780-AFLA_002810	4176541	4178259	-
BGC_6	tig00000023_arrow_pilon	tig00000023_arrow-g4040-AFLA_105370	336259	339550	+
BGC_6	tig00000023_arrow_pilon	tig00000023_arrow-g4041-AFLA_105380	340375	343563	-
BGC_6	tig00000023_arrow_pilon	tig00000023_arrow-g4042-AFLA_105400	344100	346517	+
BGC_6	tig00000023_arrow_pilon	tig00000023_arrow-g4043-AFLA_105410	347467	348747	-

BGC_6	tig00000023_arrow_pilon	tig00000023_arrow-g4044-AFLA_105420	349225	349817	+
BGC_6	tig00000023_arrow_pilon	tig00000023_arrow-g4045-AFLA_105430	350177	351485	-
BGC_6	tig00000023_arrow_pilon	tig00000023_arrow-g4046-AFLA_105440	351932	353278	-
BGC_6	tig00000023_arrow_pilon	tig00000023_arrow-g4047-AFLA_105450	354381	362612	+
BGC_6	tig00000023_arrow_pilon	tig00000023_arrow-g4048	363957	364566	+
BGC_6	tig00000023_arrow_pilon	tig00000023_arrow-g4049-AFLA_105470	365382	367063	-
BGC_6	tig00000023_arrow_pilon	tig00000023_arrow-g4050-AFLA_105480	367636	368227	+
BGC_6	tig00000023_arrow_pilon	tig00000023_arrow-g4051-AFLA_105490	368310	372691	-
BGC_6	tig00000023_arrow_pilon	tig00000023_arrow-g4052-AFLA_105500	374501	375561	-
BGC_6	tig00000023_arrow_pilon	tig00000023_arrow-g4053-AFLA_105510	376923	377843	+
BGC_6	tig00000023_arrow_pilon	tig00000023_arrow-g4054-AFLA_105520	377968	378840	-
BGC_6	tig00000023_arrow_pilon	tig00000023_arrow-g4055-AFLA_105530	379167	381424	-
BGC_6	tig00000023_arrow_pilon	tig00000023_arrow-g4056-AFLA_105540	381639	383506	+
BGC_60	tig00101499_arrow_pilon	tig00101499_arrow-g9716	299499	300593	+
BGC_60	tig00101499_arrow_pilon	tig00101499_arrow-g9717-AFLA_039200	300995	302524	-
BGC_60	tig00101499_arrow_pilon	tig00101499_arrow-g9718-AFLA_039210	302873	304663	+
BGC_60	tig00101499_arrow_pilon	tig00101499_arrow-g9719-AFLA_039220	304966	307054	-
BGC_60	tig00101499_arrow_pilon	tig00101499_arrow-g9720-AFLA_039230	307367	308451	+
BGC_60	tig00101499_arrow_pilon	tig00101499_arrow-g9721-AFLA_039240	308793	309949	+
BGC_60	tig00101499_arrow_pilon	tig00101499_arrow-g9722-AFLA_039250	310655	312059	-
BGC_60	tig00101499_arrow_pilon	tig00101499_arrow-g9723-AFLA_039270	312622	316819	+
BGC_60	tig00101499_arrow_pilon	tig00101499_arrow-g9724-AFLA_039290	318811	319845	+
BGC_61	tig00000037_arrow_pilon	tig00000037_arrow-g7216-AFLA_060730	798116	801573	+
BGC_61	tig00000037_arrow_pilon	tig00000037_arrow-g7217-AFLA_060720	802105	803536	-
BGC_61	tig00000037_arrow_pilon	tig00000037_arrow-g7218-AFLA_060710	804184	805579	-
BGC_61	tig00000037_arrow_pilon	tig00000037_arrow-g7219-AFLA_060700	806065	808317	-
BGC_61	tig00000037_arrow_pilon	tig00000037_arrow-g7220-AFLA_060690	808878	810645	-
BGC_61	tig00000037_arrow_pilon	tig00000037_arrow-g7221-AFLA_060680	810815	812255	+
BGC_61	tig00000037_arrow_pilon	tig00000037_arrow-g7222-AFLA_060660	813309	816696	+
BGC_61	tig00000037_arrow_pilon	tig00000037_arrow-g7223-AFLA_060650	817139	819279	+
BGC_61	tig00000037_arrow_pilon	tig00000037_arrow-g7224-AFLA_060640	819928	826087	+
BGC_62	tig00000029_arrow_pilon	tig00000029_arrow-g6481-AFLA_006240	3093403	3098907	+
BGC_62	tig00000029_arrow_pilon	tig00000029_arrow-g6482-AFLA_006230	3099695	3100900	-
BGC_62	tig00000029_arrow_pilon	tig00000029_arrow-g6483-AFLA_006220	3101358	3102746	+
BGC_62	tig00000029_arrow_pilon	tig00000029_arrow-g6484-AFLA_006210	3103358	3107176	-
BGC_62	tig00000029_arrow_pilon	tig00000029_arrow-g6485-AFLA_006180	3109174	3111297	+
BGC_62	tig00000029_arrow_pilon	tig00000029_arrow-g6486-AFLA_006170	3112759	3119409	+
BGC_62	tig00000029_arrow_pilon	tig00000029_arrow-g6487-AFLA_006160	3120016	3123579	-
BGC_62	tig00000029_arrow_pilon	tig00000029_arrow-g6488-AFLA_006150	3124046	3125573	-
BGC_62	tig00000029_arrow_pilon	tig00000029_arrow-g6489-AFLA_006140	3126195	3130521	+
BGC_62	tig00000029_arrow_pilon	tig00000029_arrow-g6490-AFLA_006130	3130793	3132147	-
BGC_62	tig00000029_arrow_pilon	tig00000029_arrow-g6491-AFLA_006120	3132611	3135532	+
BGC_62	tig00000029_arrow_pilon	tig00000029_arrow-g6492-AFLA_006110	3135927	3139565	-
BGC_63	tig00101497_arrow_pilon	tig00101497_arrow-g1943-AFLA_054050	6364029	6372365	-
BGC_63	tig00101497_arrow_pilon	tig00101497_arrow-g1944-AFLA_054060	6375114	6376061	-
BGC_63	tig00101497_arrow_pilon	tig00101497_arrow-g1945-AFLA_054070	6376658	6377176	+
BGC_63	tig00101497_arrow_pilon	tig00101497_arrow-g1946-AFLA_054080	6377952	6379367	+
BGC_63	tig00101497_arrow_pilon	tig00101497_arrow-g1947-AFLA_054090	6379819	6387913	-
BGC_63	tig00101497_arrow_pilon	tig00101497_arrow-g1948-AFLA_054100	6388213	6388812	-
BGC_63	tig00101497_arrow_pilon	tig00101497_arrow-g1949	6391802	6392629	-
BGC_63	tig00101497_arrow_pilon	tig00101497_arrow-g1950-AFLA_054120	6395799	6398315	+
BGC_63	tig00101497_arrow_pilon	tig00101497_arrow-g1951-AFLA_054130	6399914	6401513	+
BGC_63	tig00101497_arrow_pilon	tig00101497_arrow-g1952-AFLA_054140	6402593	6403107	+
BGC_63	tig00101497_arrow_pilon	tig00101497_arrow-g1953	6404536	6405449	+
BGC_63	tig00101497_arrow_pilon	tig00101497_arrow-g1954-AFLA_054150	6405896	6408592	-
BGC_64	tig00000001_arrow_pilon	tig00000001_arrow-g3546-AFLA_027300	5112202	5114972	-

BGC_64	tig00000001_arrow_pilon	tig00000001_arrow-g3547-AFLA_027290	5115537	5123746	-
BGC_64	tig00000001_arrow_pilon	tig00000001_arrow-g3548-AFLA_027260	5127138	5128856	+
BGC_64	tig00000001_arrow_pilon	tig00000001_arrow-g3549-AFLA_027250	5129379	5132487	-
BGC_64	tig00000001_arrow_pilon	tig00000001_arrow-g3550-AFLA_027240	5132972	5133823	-
BGC_64	tig00000001_arrow_pilon	tig00000001_arrow-g3551-AFLA_027230	5134852	5139303	-
BGC_64	tig00000001_arrow_pilon	tig00000001_arrow-g3552-AFLA_027210	5139999	5141873	+
BGC_64	tig00000001_arrow_pilon	tig00000001_arrow-g3553-AFLA_027200	5142493	5146748	+
BGC_64	tig00000001_arrow_pilon	tig00000001_arrow-g3554-AFLA_027190	5147197	5149365	-
BGC_64	tig00000001_arrow_pilon	tig00000001_arrow-g3555-AFLA_027180	5151294	5154063	+
BGC_64	tig00000001_arrow_pilon	tig00000001_arrow-g3556-AFLA_027170	5154443	5156192	-
BGC_64	tig00000001_arrow_pilon	tig00000001_arrow-g3557-AFLA_027160	5156673	5158256	+
BGC_64	tig00000001_arrow_pilon	tig00000001_arrow-g3558-AFLA_027150	5159099	5159938	+
BGC_65	tig00000023_arrow_pilon	tig00000023_arrow-g4665-AFLA_112780	2322285	2323115	-
BGC_65	tig00000023_arrow_pilon	tig00000023_arrow-g4666-AFLA_112790	2323494	2325110	-
BGC_65	tig00000023_arrow_pilon	tig00000023_arrow-g4667-AFLA_112800	2325745	2327182	+
BGC_65	tig00000023_arrow_pilon	tig00000023_arrow-g4668	2328218	2329639	-
BGC_65	tig00000023_arrow_pilon	tig00000023_arrow-g4669-AFLA_112810	2331908	2334173	-
BGC_65	tig00000023_arrow_pilon	tig00000023_arrow-g4670-AFLA_112820	2334893	2335824	-
BGC_65	tig00000023_arrow_pilon	tig00000023_arrow-g4671-AFLA_112830	2339530	2341827	+
BGC_65	tig00000023_arrow_pilon	tig00000023_arrow-g4672-AFLA_112840	2342756	2349780	+
BGC_65	tig00000023_arrow_pilon	tig00000023_arrow-g4673-AFLA_112850	2350267	2351673	-
BGC_65	tig00000023_arrow_pilon	tig00000023_arrow-g4674-AFLA_112860	2352425	2353508	-
BGC_65	tig00000023_arrow_pilon	tig00000023_arrow-g4675-AFLA_112870	2353874	2355390	+
BGC_65	tig00000023_arrow_pilon	tig00000023_arrow-g4676-AFLA_112880	2355826	2357940	-
BGC_65	tig00000023_arrow_pilon	tig00000023_arrow-g4677-AFLA_112890	2358480	2360009	+
BGC_65	tig00000023_arrow_pilon	tig00000023_arrow-g4678-AFLA_112900	2360427	2361287	-
BGC_65	tig00000023_arrow_pilon	tig00000023_arrow-g4679-AFLA_112910	2363398	2364305	-
BGC_65	tig00000023_arrow_pilon	tig00000023_arrow-g4680-AFLA_112920	2367075	2368738	-
BGC_66	tig00000029_arrow_pilon	tig00000029_arrow-g6633-AFLA_004520	3640895	3642087	+
BGC_66	tig00000029_arrow_pilon	tig00000029_arrow-g6634-AFLA_004510	3642465	3643214	+
BGC_66	tig00000029_arrow_pilon	tig00000029_arrow-g6635-AFLA_004500	3645103	3647565	+
BGC_66	tig00000029_arrow_pilon	tig00000029_arrow-g6636-AFLA_004480	3650073	3652791	+
BGC_66	tig00000029_arrow_pilon	tig00000029_arrow-g6637	3654341	3655463	-
BGC_66	tig00000029_arrow_pilon	tig00000029_arrow-g6638-AFLA_004470	3656228	3656636	-
BGC_66	tig00000029_arrow_pilon	tig00000029_arrow-g6639-AFLA_004460	3657867	3659325	-
BGC_66	tig00000029_arrow_pilon	tig00000029_arrow-g6640-AFLA_004450	3660524	3676847	-
BGC_66	tig00000029_arrow_pilon	tig00000029_arrow-g6641-AFLA_004440	3677921	3682350	+
BGC_66	tig00000029_arrow_pilon	tig00000029_arrow-g6642-AFLA_004430	3683276	3689653	+
BGC_66	tig00000029_arrow_pilon	tig00000029_arrow-g6643-AFLA_004410	3692019	3692384	+
BGC_66	tig00000029_arrow_pilon	tig00000029_arrow-g6644-AFLA_004390	3694616	3696286	-
BGC_67	tig00000023_arrow_pilon	tig00000023_arrow-g5357-AFLA_137780	4697664	4699940	+
BGC_67	tig00000023_arrow_pilon	tig00000023_arrow-g5358-AFLA_137790	4700527	4701097	+
BGC_67	tig00000023_arrow_pilon	tig00000023_arrow-g5359-AFLA_137800	4701946	4702397	+
BGC_67	tig00000023_arrow_pilon	tig00000023_arrow-g5360-AFLA_137810	4703164	4704757	-
BGC_67	tig00000023_arrow_pilon	tig00000023_arrow-g5361-AFLA_137820	4705310	4707136	+
BGC_67	tig00000023_arrow_pilon	tig00000023_arrow-g5362-AFLA_137840	4707356	4709918	-
BGC_67	tig00000023_arrow_pilon	tig00000023_arrow-g5363-AFLA_137850	4710941	4712103	-
BGC_67	tig00000023_arrow_pilon	tig00000023_arrow-g5364-AFLA_137860	4713351	4714682	+
BGC_67	tig00000023_arrow_pilon	tig00000023_arrow-g5365-AFLA_137870	4715622	4725508	+
BGC_67	tig00000023_arrow_pilon	tig00000023_arrow-g5366-AFLA_137890	4727244	4727960	+
BGC_67	tig00000023_arrow_pilon	tig00000023_arrow-g5367-AFLA_137900	4729387	4729825	+
BGC_67	tig00000023_arrow_pilon	tig00000023_arrow-g5368-AFLA_137910	4732179	4733383	+
BGC_67	tig00000023_arrow_pilon	tig00000023_arrow-g5369-AFLA_137920	4733627	4735424	-
BGC_67	tig00000023_arrow_pilon	tig00000023_arrow-g5370-AFLA_137930	4737353	4739047	+
BGC_67	tig00000023_arrow_pilon	tig00000023_arrow-g5371-AFLA_137940	4740546	4741079	-
BGC_67	tig00000023_arrow_pilon	tig00000023_arrow-g5372-AFLA_137950	4742114	4743837	-

BGC_67	tig00000023_arrow_pilon	tig00000023_arrow-g5373-AFLA_137960	4744324	4746441	-
BGC_68	tig00101499_arrow_pilon	tig00101499_arrow-g9636-AFLA_038240	24970	27657	+
BGC_68	tig00101499_arrow_pilon	tig00101499_arrow-g9637-AFLA_038260	28432	29881	-
BGC_68	tig00101499_arrow_pilon	tig00101499_arrow-g9638-AFLA_038270	31489	32731	-
BGC_68	tig00101499_arrow_pilon	tig00101499_arrow-g9639-AFLA_038280	34366	36687	+
BGC_68	tig00101499_arrow_pilon	tig00101499_arrow-g9640-AFLA_038290	38127	42404	-
BGC_68	tig00101499_arrow_pilon	tig00101499_arrow-g9641-AFLA_038300	44460	46208	+
BGC_68	tig00101499_arrow_pilon	tig00101499_arrow-g9642-AFLA_038310	46880	54382	-
BGC_68	tig00101499_arrow_pilon	tig00101499_arrow-g9643-AFLA_038320	55053	60607	-
BGC_68	tig00101499_arrow_pilon	tig00101499_arrow-g9644-AFLA_038340	62391	64946	-
BGC_68	tig00101499_arrow_pilon	tig00101499_arrow-g9645-AFLA_038350	66496	68823	+
BGC_68	tig00101499_arrow_pilon	tig00101499_arrow-g9646-AFLA_038360	69509	70350	-
BGC_68	tig00101499_arrow_pilon	tig00101499_arrow-g9647-AFLA_038370	73156	74283	+
BGC_69	tig00101497_arrow_pilon	tig00101497_arrow-g1925-AFLA_053740	6297024	6302226	+
BGC_69	tig00101497_arrow_pilon	tig00101497_arrow-g1926-AFLA_053810	6303413	6309256	-
BGC_69	tig00101497_arrow_pilon	tig00101497_arrow-g1927-AFLA_053820	6309903	6311587	+
BGC_69	tig00101497_arrow_pilon	tig00101497_arrow-g1928-AFLA_053830	6312254	6314447	+
BGC_69	tig00101497_arrow_pilon	tig00101497_arrow-g1929-AFLA_053840	6314645	6317314	-
BGC_69	tig00101497_arrow_pilon	tig00101497_arrow-g1930-AFLA_053850	6318829	6319995	+
BGC_69	tig00101497_arrow_pilon	tig00101497_arrow-g1931-AFLA_053870	6321350	6330412	-
BGC_69	tig00101497_arrow_pilon	tig00101497_arrow-g1932-AFLA_053890	6331566	6333272	-
BGC_69	tig00101497_arrow_pilon	tig00101497_arrow-g1933-AFLA_053910	6334227	6338349	+
BGC_69	tig00101497_arrow_pilon	tig00101497_arrow-g1934-AFLA_053920	6338672	6339332	-
BGC_69	tig00101497_arrow_pilon	tig00101497_arrow-g1935-AFLA_053930	6340620	6342433	+
BGC_69	tig00101497_arrow_pilon	tig00101497_arrow-g1936-AFLA_053950	6344702	6345705	+
BGC_69	tig00101497_arrow_pilon	tig00101497_arrow-g1937-AFLA_053960	6346331	6347083	-
BGC_7	tig00000023_arrow_pilon	tig00000023_arrow-g5519-AFLA_139620	5164597	5166378	+
BGC_7	tig00000023_arrow_pilon	tig00000023_arrow-g5520-AFLA_139630	5174255	5178443	+
BGC_7	tig00000023_arrow_pilon	tig00000023_arrow-g5521	5178779	5180689	-
BGC_7	tig00000023_arrow_pilon	tig00000023_arrow-g5522-AFLA_139670	5182528	5190575	+
BGC_70	tig00101497_arrow_pilon	tig00101497_arrow-g599-AFLA_079270	1898181	1899605	-
BGC_70	tig00101497_arrow_pilon	tig00101497_arrow-g600-AFLA_079280	1900243	1900725	-
BGC_70	tig00101497_arrow_pilon	tig00101497_arrow-g601-AFLA_079290	1900920	1902531	-
BGC_70	tig00101497_arrow_pilon	tig00101497_arrow-g602-AFLA_079300	1902924	1904443	-
BGC_70	tig00101497_arrow_pilon	tig00101497_arrow-g603-AFLA_079310	1904573	1905330	+
BGC_70	tig00101497_arrow_pilon	tig00101497_arrow-g604-AFLA_079320	1905562	1910354	-
BGC_70	tig00101497_arrow_pilon	tig00101497_arrow-g605-AFLA_079340	1911477	1912467	+
BGC_70	tig00101497_arrow_pilon	tig00101497_arrow-g606-AFLA_079350	1913965	1918089	-
BGC_70	tig00101497_arrow_pilon	tig00101497_arrow-g607-AFLA_079380	1919391	1922746	+
BGC_70	tig00101497_arrow_pilon	tig00101497_arrow-g608-AFLA_079390	1923693	1924200	+
BGC_70	tig00101497_arrow_pilon	tig00101497_arrow-g609-AFLA_079400	1926316	1930152	+
BGC_70	tig00101497_arrow_pilon	tig00101497_arrow-g610-AFLA_079410	1930660	1932619	+
BGC_70	tig00101497_arrow_pilon	tig00101497_arrow-g611-AFLA_079420	1932837	1933460	-
BGC_70	tig00101497_arrow_pilon	tig00101497_arrow-g612-AFLA_079430	1934316	1936179	-
BGC_70	tig00101497_arrow_pilon	tig00101497_arrow-g613-AFLA_079440	1937217	1938635	+
BGC_70	tig00101497_arrow_pilon	tig00101497_arrow-g614-AFLA_079450	1938899	1939636	+
BGC_70	tig00101497_arrow_pilon	tig00101497_arrow-g615-AFLA_079460	1939815	1942850	-
BGC_70	tig00101497_arrow_pilon	tig00101497_arrow-g616-AFLA_079470	1943461	1950093	+
BGC_71	tig00101499_arrow_pilon	tig00101499_arrow-g9662-AFLA_038550	114999	120459	-
BGC_71	tig00101499_arrow_pilon	tig00101499_arrow-g9663-AFLA_038560	120861	121619	-
BGC_71	tig00101499_arrow_pilon	tig00101499_arrow-g9664-AFLA_038570	122122	128754	-
BGC_71	tig00101499_arrow_pilon	tig00101499_arrow-g9665-AFLA_038580	129267	130641	+
BGC_71	tig00101499_arrow_pilon	tig00101499_arrow-g9666-AFLA_038590	131028	132220	-
BGC_71	tig00101499_arrow_pilon	tig00101499_arrow-g9667-AFLA_038600	134801	155692	-
BGC_71	tig00101499_arrow_pilon	tig00101499_arrow-g9668-AFLA_038610	159092	159974	-
BGC_71	tig00101499_arrow_pilon	tig00101499_arrow-g9669-AFLA_038620	160709	162297	+

BGC_71	tig00101499_arrow_pilon	tig00101499_arrow-g9670-AFLA_038630	162716	164572	-
BGC_71	tig00101499_arrow_pilon	tig00101499_arrow-g9671-AFLA_038640	165280	170421	+
BGC_71	tig00101499_arrow_pilon	tig00101499_arrow-g9672-AFLA_038650	171459	172694	+
BGC_71	tig00101499_arrow_pilon	tig00101499_arrow-g9673	174348	175979	+
BGC_72	tig00000037_arrow_pilon	tig00000037_arrow-g7043-AFLA_062940	198787	203739	+
BGC_72	tig00000037_arrow_pilon	tig00000037_arrow-g7044-AFLA_062920	204786	205421	-
BGC_72	tig00000037_arrow_pilon	tig00000037_arrow-g7045-AFLA_062910	205779	207942	-
BGC_72	tig00000037_arrow_pilon	tig00000037_arrow-g7046-AFLA_062900	208593	210719	-
BGC_72	tig00000037_arrow_pilon	tig00000037_arrow-g7047-AFLA_062890	212842	213245	+
BGC_72	tig00000037_arrow_pilon	tig00000037_arrow-g7048-AFLA_062880	214880	215713	+
BGC_72	tig00000037_arrow_pilon	tig00000037_arrow-g7049-AFLA_062870	216342	217094	-
BGC_72	tig00000037_arrow_pilon	tig00000037_arrow-g7050-AFLA_062860	219632	226369	-
BGC_72	tig00000037_arrow_pilon	tig00000037_arrow-g7051-AFLA_062850	227443	229125	+
BGC_72	tig00000037_arrow_pilon	tig00000037_arrow-g7052-AFLA_062840	230133	230927	-
BGC_72	tig00000037_arrow_pilon	tig00000037_arrow-g7053-AFLA_062830	231980	233519	+
BGC_72	tig00000037_arrow_pilon	tig00000037_arrow-g7054-AFLA_062820	235289	243181	+
BGC_72	tig00000037_arrow_pilon	tig00000037_arrow-g7055-AFLA_062810	244004	244751	+
BGC_72	tig00000037_arrow_pilon	tig00000037_arrow-g7056-AFLA_062800	246372	247403	+
BGC_72	tig00000037_arrow_pilon	tig00000037_arrow-g7057	250386	251666	-
BGC_72	tig00000037_arrow_pilon	tig00000037_arrow-g7058-AFLA_062770	254371	255513	+
BGC_72	tig00000037_arrow_pilon	tig00000037_arrow-g7059-AFLA_062760	255877	257125	-
BGC_72	tig00000037_arrow_pilon	tig00000037_arrow-g7060-AFLA_062750	257669	258668	+
BGC_72	tig00000037_arrow_pilon	tig00000037_arrow-g7061-AFLA_062740	258694	259868	-
BGC_72	tig00000037_arrow_pilon	tig00000037_arrow-g7062-AFLA_062730	260410	261456	+
BGC_72	tig00000037_arrow_pilon	tig00000037_arrow-g7063-AFLA_062720	262370	264226	+
BGC_73	tig00000037_arrow_pilon	tig00000037_arrow-g7774-AFLA_089530	2617276	2618539	-
BGC_73	tig00000037_arrow_pilon	tig00000037_arrow-g7775-AFLA_089540	2618979	2620490	-
BGC_73	tig00000037_arrow_pilon	tig00000037_arrow-g7776-AFLA_089550	2622437	2623152	+
BGC_73	tig00000037_arrow_pilon	tig00000037_arrow-g7777-AFLA_089560	2623784	2625535	+
BGC_73	tig00000037_arrow_pilon	tig00000037_arrow-g7778-AFLA_089570	2626355	2627425	+
BGC_73	tig00000037_arrow_pilon	tig00000037_arrow-g7779-AFLA_089580	2628021	2629681	+
BGC_73	tig00000037_arrow_pilon	tig00000037_arrow-g7780-AFLA_089590	2630161	2630553	+
BGC_73	tig00000037_arrow_pilon	tig00000037_arrow-g7781	2631292	2631876	-
BGC_73	tig00000037_arrow_pilon	tig00000037_arrow-g7782-AFLA_089610	2635561	2636927	+
BGC_73	tig00000037_arrow_pilon	tig00000037_arrow-g7783-AFLA_089620	2637850	2639173	-
BGC_73	tig00000037_arrow_pilon	tig00000037_arrow-g7784-AFLA_089630	2641363	2643165	-
BGC_73	tig00000037_arrow_pilon	tig00000037_arrow-g7785-AFLA_089640	2644672	2645202	+
BGC_73	tig00000037_arrow_pilon	tig00000037_arrow-g7786-AFLA_089650	2645733	2647073	-
BGC_73	tig00000037_arrow_pilon	tig00000037_arrow-g7787-AFLA_089660	2647705	2649746	+
BGC_73	tig00000037_arrow_pilon	tig00000037_arrow-g7788-AFLA_089670	2651520	2656665	+
BGC_73	tig00000037_arrow_pilon	tig00000037_arrow-g7789	2657628	2658314	+
BGC_73	tig00000037_arrow_pilon	tig00000037_arrow-g7790-AFLA_089690	2658981	2660417	-
BGC_74	tig00000095_arrow_pilon	tig00000095_arrow-g10773-AFLA_118340	699695	701509	+
BGC_74	tig00000095_arrow_pilon	tig00000095_arrow-g10774-AFLA_118350	701941	703404	+
BGC_74	tig00000095_arrow_pilon	tig00000095_arrow-g10775-AFLA_118360	703787	704704	+
BGC_74	tig00000095_arrow_pilon	tig00000095_arrow-g10776	705877	706293	-
BGC_74	tig00000095_arrow_pilon	tig00000095_arrow-g10777-AFLA_118370	707081	707924	+
BGC_74	tig00000095_arrow_pilon	tig00000095_arrow-g10778-AFLA_118380	708858	709991	+
BGC_74	tig00000095_arrow_pilon	tig00000095_arrow-g10779-AFLA_118390	710676	712529	-
BGC_74	tig00000095_arrow_pilon	tig00000095_arrow-g10780-AFLA_118410	713331	714759	+
BGC_74	tig00000095_arrow_pilon	tig00000095_arrow-g10781-AFLA_118420	715776	718549	+
BGC_74	tig00000095_arrow_pilon	tig00000095_arrow-g10782-AFLA_118440	719052	722355	-
BGC_74	tig00000095_arrow_pilon	tig00000095_arrow-g10783-AFLA_118450	723797	725851	-
BGC_74	tig00000095_arrow_pilon	tig00000095_arrow-g10784-AFLA_118460	726208	730406	-
BGC_74	tig00000095_arrow_pilon	tig00000095_arrow-g10785	732896	733355	-
BGC_74	tig00000095_arrow_pilon	tig00000095_arrow-g10786-AFLA_118470	735170	736341	+

BGC_74	tig00000095_arrow_pilon	tig00000095_arrow-g10787	740029	740780	-
BGC_74	tig00000095_arrow_pilon	tig00000095_arrow-g10788-AFLA_118490	741746	741997	+
BGC_75	tig00000029_arrow_pilon	tig00000029_arrow-g6423-AFLA_006920	2941693	2943146	-
BGC_75	tig00000029_arrow_pilon	tig00000029_arrow-g6424-AFLA_006900	2945081	2946238	-
BGC_75	tig00000029_arrow_pilon	tig00000029_arrow-g6425-AFLA_006890	2946848	2947990	-
BGC_75	tig00000029_arrow_pilon	tig00000029_arrow-g6426-AFLA_006880	2948576	2949794	+
BGC_75	tig00000029_arrow_pilon	tig00000029_arrow-g6427-AFLA_006870	2950298	2951796	-
BGC_75	tig00000029_arrow_pilon	tig00000029_arrow-g6428-AFLA_006860	2952162	2954566	-
BGC_75	tig00000029_arrow_pilon	tig00000029_arrow-g6429-AFLA_006850	2954845	2956378	+
BGC_75	tig00000029_arrow_pilon	tig00000029_arrow-g6430-AFLA_006840	2956679	2957266	-
BGC_75	tig00000029_arrow_pilon	tig00000029_arrow-g6431-AFLA_006830	2957809	2960482	-
BGC_75	tig00000029_arrow_pilon	tig00000029_arrow-g6432-AFLA_006810	2960739	2961563	+
BGC_75	tig00000029_arrow_pilon	tig00000029_arrow-g6433-AFLA_006800	2961931	2966267	-
BGC_76	tig00000095_arrow_pilon	tig00000095_arrow-g10715-AFLA_117740	540406	542256	+
BGC_76	tig00000095_arrow_pilon	tig00000095_arrow-g10716-AFLA_117750	542835	543845	-
BGC_76	tig00000095_arrow_pilon	tig00000095_arrow-g10717-AFLA_117760	544346	546023	-
BGC_76	tig00000095_arrow_pilon	tig00000095_arrow-g10718-AFLA_117770	547169	548854	-
BGC_76	tig00000095_arrow_pilon	tig00000095_arrow-g10719-AFLA_117780	549682	551291	+
BGC_76	tig00000095_arrow_pilon	tig00000095_arrow-g10720-AFLA_117790	551847	552703	-
BGC_76	tig00000095_arrow_pilon	tig00000095_arrow-g10721-AFLA_117800	555075	556861	+
BGC_76	tig00000095_arrow_pilon	tig00000095_arrow-g10722-AFLA_117810	557564	558973	-
BGC_76	tig00000095_arrow_pilon	tig00000095_arrow-g10723-AFLA_117820	559535	562021	-
BGC_77	tig00000095_arrow_pilon	tig00000095_arrow-g11423-AFLA_008840	2833600	2838899	-
BGC_77	tig00000095_arrow_pilon	tig00000095_arrow-g11424-AFLA_008830	2841267	2844114	+
BGC_77	tig00000095_arrow_pilon	tig00000095_arrow-g11425-AFLA_008790	2851543	2852347	+
BGC_77	tig00000095_arrow_pilon	tig00000095_arrow-g11426-AFLA_008780	2852438	2854740	-
BGC_77	tig00000095_arrow_pilon	tig00000095_arrow-g11427-AFLA_008770	2856426	2877460	+
BGC_77	tig00000095_arrow_pilon	tig00000095_arrow-g11428-AFLA_008750	2878105	2878569	+
BGC_77	tig00000095_arrow_pilon	tig00000095_arrow-g11429-AFLA_008720	2880345	2883473	+
BGC_77	tig00000095_arrow_pilon	tig00000095_arrow-g11430-AFLA_008700	2885417	2888669	-
BGC_77	tig00000095_arrow_pilon	tig00000095_arrow-g11431-AFLA_008680	2889113	2890466	-
BGC_77	tig00000095_arrow_pilon	tig00000095_arrow-g11432-AFLA_008670	2891142	2892332	-
BGC_77	tig00000095_arrow_pilon	tig00000095_arrow-g11433-AFLA_008660	2893282	2895039	-
BGC_77	tig00000095_arrow_pilon	tig00000095_arrow-g11434-AFLA_008650	2895431	2896570	+
BGC_78	tig00000050_arrow_pilon	tig00000050_arrow-g8821-AFLA_069290	1365907	1366419	+
BGC_78	tig00000050_arrow_pilon	tig00000050_arrow-g8822	1367675	1368685	+
BGC_78	tig00000050_arrow_pilon	tig00000050_arrow-g8823-AFLA_069300	1369444	1370753	+
BGC_78	tig00000050_arrow_pilon	tig00000050_arrow-g8824-AFLA_069310	1371213	1375267	+
BGC_78	tig00000050_arrow_pilon	tig00000050_arrow-g8825-AFLA_069320	1376178	1381483	-
BGC_78	tig00000050_arrow_pilon	tig00000050_arrow-g8826-AFLA_069330	1385831	1401845	+
BGC_78	tig00000050_arrow_pilon	tig00000050_arrow-g8827-AFLA_069350	1402414	1407729	-
BGC_78	tig00000050_arrow_pilon	tig00000050_arrow-g8828-AFLA_069360	1408667	1409079	+
BGC_78	tig00000050_arrow_pilon	tig00000050_arrow-g8829-AFLA_069370	1409763	1411148	-
BGC_78	tig00000050_arrow_pilon	tig00000050_arrow-g8830-AFLA_069380	1411979	1413104	-
BGC_78	tig00000050_arrow_pilon	tig00000050_arrow-g8831-AFLA_069390	1413795	1415728	-
BGC_78	tig00000050_arrow_pilon	tig00000050_arrow-g8832-AFLA_069400	1416018	1418599	+
BGC_78	tig00000050_arrow_pilon	tig00000050_arrow-g8833-AFLA_069410	1419655	1422141	-
BGC_79	tig00000050_arrow_pilon	tig00000050_arrow-g9170-AFLA_102390	2640506	2646375	-
BGC_79	tig00000050_arrow_pilon	tig00000050_arrow-g9171-AFLA_102360	2647180	2649369	-
BGC_79	tig00000050_arrow_pilon	tig00000050_arrow-g9172-AFLA_102340	2649693	2651587	-
BGC_79	tig00000050_arrow_pilon	tig00000050_arrow-g9173-AFLA_102330	2652158	2653249	-
BGC_79	tig00000050_arrow_pilon	tig00000050_arrow-g9174-AFLA_102320	2653791	2655317	+
BGC_79	tig00000050_arrow_pilon	tig00000050_arrow-g9175-AFLA_102300	2655936	2656475	+
BGC_79	tig00000050_arrow_pilon	tig00000050_arrow-g9176-AFLA_102290	2656672	2657677	-
BGC_79	tig00000050_arrow_pilon	tig00000050_arrow-g9177-AFLA_102270	2659939	2661562	+
BGC_79	tig00000050_arrow_pilon	tig00000050_arrow-g9178-AFLA_102260	2664561	2665427	-

BGC_79	tig00000050_arrow_pilon	tig00000050_arrow-g9179-AFLA_102250	2666044	2674077	+
BGC_79	tig00000050_arrow_pilon	tig00000050_arrow-g9180-AFLA_102240	2675431	2678618	-
BGC_79	tig00000050_arrow_pilon	tig00000050_arrow-g9181-AFLA_102230	2682065	2683741	+
BGC_79	tig00000050_arrow_pilon	tig00000050_arrow-g9182-AFLA_102220	2685849	2686547	-
BGC_79	tig00000050_arrow_pilon	tig00000050_arrow-g9183-AFLA_102210	2686851	2688878	-
BGC_79	tig00000050_arrow_pilon	tig00000050_arrow-g9184-AFLA_102200	2692056	2692856	+
BGC_79	tig00000050_arrow_pilon	tig00000050_arrow-g9185-AFLA_102180	2694858	2699623	-
BGC_79	tig00000050_arrow_pilon	tig00000050_arrow-g9186-AFLA_102160	2700320	2702581	+
BGC_79	tig00000050_arrow_pilon	tig00000050_arrow-g9187-AFLA_102150	2703282	2704641	-
BGC_79	tig00000050_arrow_pilon	tig00000050_arrow-g9188-AFLA_102140	2705820	2706846	+
BGC_79	tig00000050_arrow_pilon	tig00000050_arrow-g9189-AFLA_102130	2707276	2708893	-
BGC_79	tig00000050_arrow_pilon	tig00000050_arrow-g9190-AFLA_102120	2709971	2710852	-
BGC_79	tig00000050_arrow_pilon	tig00000050_arrow-g9191-AFLA_102110	2711695	2713284	+
BGC_79	tig00000050_arrow_pilon	tig00000050_arrow-g9192-AFLA_102090	2714731	2716009	+
BGC_79	tig00000050_arrow_pilon	tig00000050_arrow-g9193-AFLA_102080	2716889	2718230	+
BGC_79	tig00000050_arrow_pilon	tig00000050_arrow-g9194-AFLA_102060	2718675	2720197	-
BGC_79	tig00000050_arrow_pilon	tig00000050_arrow-g9195-AFLA_102050	2720860	2723056	-
BGC_8	tig00000029_arrow_pilon	tig00000029_arrow-g6650	3716418	3719325	-
BGC_8	tig00000029_arrow_pilon	tig00000029_arrow-g6651-AFLA_004300	3724014	3725354	+
BGC_8	tig00000029_arrow_pilon	tig00000029_arrow-g6652-AFLA_004290	3726285	3727667	-
BGC_8	tig00000029_arrow_pilon	tig00000029_arrow-g6653-AFLA_004280	3732230	3732997	-
BGC_8	tig00000029_arrow_pilon	tig00000029_arrow-g6654	3734878	3736377	-
BGC_80	tig00000050_arrow_pilon	tig00000050_arrow-g8951-AFLA_070810	1823653	1825836	-
BGC_80	tig00000050_arrow_pilon	tig00000050_arrow-g8952-AFLA_070820	1829045	1830902	+
BGC_80	tig00000050_arrow_pilon	tig00000050_arrow-g8953-AFLA_070830	1831299	1841240	+
BGC_80	tig00000050_arrow_pilon	tig00000050_arrow-g8954-AFLA_070850	1841359	1842737	-
BGC_80	tig00000050_arrow_pilon	tig00000050_arrow-g8955-AFLA_070860	1843275	1854599	-
BGC_80	tig00000050_arrow_pilon	tig00000050_arrow-g8956-AFLA_070870	1855625	1856620	+
BGC_80	tig00000050_arrow_pilon	tig00000050_arrow-g8957-AFLA_070880	1857354	1858638	+
BGC_80	tig00000050_arrow_pilon	tig00000050_arrow-g8958-AFLA_070890	1860463	1861565	+
BGC_80	tig00000050_arrow_pilon	tig00000050_arrow-g8959-AFLA_070900	1862334	1863363	+
BGC_80	tig00000050_arrow_pilon	tig00000050_arrow-g8960-AFLA_070910	1864371	1865772	-
BGC_80	tig00000050_arrow_pilon	tig00000050_arrow-g8961-AFLA_070920	1867026	1870052	+
BGC_80	tig00000050_arrow_pilon	tig00000050_arrow-g8962-AFLA_070930	1871204	1872745	-
BGC_80	tig00000050_arrow_pilon	tig00000050_arrow-g8963-AFLA_070940	1873256	1874940	-
BGC_80	tig00000050_arrow_pilon	tig00000050_arrow-g8964-AFLA_070950	1876950	1878206	+
BGC_80	tig00000050_arrow_pilon	tig00000050_arrow-g8965-AFLA_070960	1879840	1882356	+
BGC_80	tig00000050_arrow_pilon	tig00000050_arrow-g8966-AFLA_070970	1883207	1885733	-
BGC_80	tig00000050_arrow_pilon	tig00000050_arrow-g8967-AFLA_070980	1886150	1888703	-
BGC_80	tig00000050_arrow_pilon	tig00000050_arrow-g8968-AFLA_070990	1889744	1891923	-
BGC_81	tig00000001_arrow_pilon	tig00000001_arrow-g2215-AFLA_125670	661165	662598	+
BGC_81	tig00000001_arrow_pilon	tig00000001_arrow-g2216-AFLA_125680	663005	664931	-
BGC_81	tig00000001_arrow_pilon	tig00000001_arrow-g2217-AFLA_125690	665901	667706	+
BGC_81	tig00000001_arrow_pilon	tig00000001_arrow-g2218-AFLA_125700	667764	668807	-
BGC_81	tig00000001_arrow_pilon	tig00000001_arrow-g2219-AFLA_125710	670408	670899	-
BGC_81	tig00000001_arrow_pilon	tig00000001_arrow-g2220-AFLA_125730	673866	674428	-
BGC_81	tig00000001_arrow_pilon	tig00000001_arrow-g2221-AFLA_125740	675216	676248	+
BGC_81	tig00000001_arrow_pilon	tig00000001_arrow-g2222-AFLA_125750	676443	678063	-
BGC_81	tig00000001_arrow_pilon	tig00000001_arrow-g2223-AFLA_125760	678576	680597	+
BGC_81	tig00000001_arrow_pilon	tig00000001_arrow-g2224-AFLA_125770	680930	682621	+
BGC_81	tig00000001_arrow_pilon	tig00000001_arrow-g2225-AFLA_125780	683068	687111	+
BGC_81	tig00000001_arrow_pilon	tig00000001_arrow-g2226-AFLA_125790	687629	688870	+
BGC_81	tig00000001_arrow_pilon	tig00000001_arrow-g2227-AFLA_125800	689092	690255	+
BGC_81	tig00000001_arrow_pilon	tig00000001_arrow-g2228-AFLA_125810	692026	693295	+
BGC_81	tig00000001_arrow_pilon	tig00000001_arrow-g2229-AFLA_125820	694296	694847	+
BGC_81	tig00000001_arrow_pilon	tig00000001_arrow-g2230-AFLA_125830	695493	696059	-

BGC_81	tig00000001_arrow_pilon	tig00000001_arrow-g2231-AFLA_125840	698561	699264	-
BGC_81	tig00000001_arrow_pilon	tig00000001_arrow-g2232-AFLA_125850	700281	702228	-
BGC_82	tig00000001_arrow_pilon	tig00000001_arrow-g2202	619745	624258	+
BGC_82	tig00000001_arrow_pilon	tig00000001_arrow-g2203-AFLA_125530	624467	624880	+
BGC_82	tig00000001_arrow_pilon	tig00000001_arrow-g2204-AFLA_125540	626922	628090	-
BGC_82	tig00000001_arrow_pilon	tig00000001_arrow-g2205-AFLA_125560	628409	630043	+
BGC_82	tig00000001_arrow_pilon	tig00000001_arrow-g2206	630275	632494	-
BGC_82	tig00000001_arrow_pilon	tig00000001_arrow-g2207-AFLA_125590	633343	635442	-
BGC_82	tig00000001_arrow_pilon	tig00000001_arrow-g2208-AFLA_125600	635822	637635	+
BGC_82	tig00000001_arrow_pilon	tig00000001_arrow-g2209-AFLA_125610	638180	639976	+
BGC_82	tig00000001_arrow_pilon	tig00000001_arrow-g2210-AFLA_125620	640074	640721	-
BGC_82	tig00000001_arrow_pilon	tig00000001_arrow-g2211	641445	649840	-
BGC_82	tig00000001_arrow_pilon	tig00000001_arrow-g2212	650519	651411	+
BGC_82	tig00000001_arrow_pilon	tig00000001_arrow-g2213-AFLA_125650	652996	653403	+
BGC_82	tig00000001_arrow_pilon	tig00000001_arrow-g2214-AFLA_125660	656474	660164	+
BGC_83	tig00000095_arrow_pilon	tig00000095_arrow-g10572-AFLA_116140	108406	109691	-
BGC_83	tig00000095_arrow_pilon	tig00000095_arrow-g10573-AFLA_116150	111075	111682	+
BGC_83	tig00000095_arrow_pilon	tig00000095_arrow-g10574-AFLA_116160	111993	113211	-
BGC_83	tig00000095_arrow_pilon	tig00000095_arrow-g10575-AFLA_116170	115474	115862	-
BGC_83	tig00000095_arrow_pilon	tig00000095_arrow-g10576-AFLA_116180	116296	116997	+
BGC_83	tig00000095_arrow_pilon	tig00000095_arrow-g10577-AFLA_116190	117925	124205	-
BGC_83	tig00000095_arrow_pilon	tig00000095_arrow-g10578-AFLA_116200	125501	126007	+
BGC_83	tig00000095_arrow_pilon	tig00000095_arrow-g10579-AFLA_116210	127222	128594	+
BGC_83	tig00000095_arrow_pilon	tig00000095_arrow-g10580-AFLA_116220	129333	135798	+
BGC_83	tig00000095_arrow_pilon	tig00000095_arrow-g10581-AFLA_116230	136812	137975	+
BGC_83	tig00000095_arrow_pilon	tig00000095_arrow-g10582-AFLA_116240	139069	140016	-
BGC_83	tig00000095_arrow_pilon	tig00000095_arrow-g10583-AFLA_116250	140791	141856	+
BGC_83	tig00000095_arrow_pilon	tig00000095_arrow-g10584-AFLA_116260	142280	143289	+
BGC_83	tig00000095_arrow_pilon	tig00000095_arrow-g10585-AFLA_116270	144064	145305	+
BGC_83	tig00000095_arrow_pilon	tig00000095_arrow-g10586-AFLA_116280	145624	147525	-
BGC_83	tig00000095_arrow_pilon	tig00000095_arrow-g10587	147930	148407	-
BGC_83	tig00000095_arrow_pilon	tig00000095_arrow-g10588-AFLA_116300	148840	149649	-
BGC_83	tig00000095_arrow_pilon	tig00000095_arrow-g10589-AFLA_116320	152972	154895	+
BGC_83	tig00000095_arrow_pilon	tig00000095_arrow-g10590-AFLA_116330	155461	156775	+
BGC_84	tig00000037_arrow_pilon	tig00000037_arrow-g7271-AFLA_060080	965318	970705	+
BGC_84	tig00000037_arrow_pilon	tig00000037_arrow-g7272-AFLA_060070	971785	973596	-
BGC_84	tig00000037_arrow_pilon	tig00000037_arrow-g7273-AFLA_060060	974536	976208	+
BGC_84	tig00000037_arrow_pilon	tig00000037_arrow-g7274-AFLA_060050	977600	979372	-
BGC_84	tig00000037_arrow_pilon	tig00000037_arrow-g7275-AFLA_060040	980065	981402	+
BGC_84	tig00000037_arrow_pilon	tig00000037_arrow-g7276	981655	982455	-
BGC_84	tig00000037_arrow_pilon	tig00000037_arrow-g7277-AFLA_060030	982964	983998	-
BGC_84	tig00000037_arrow_pilon	tig00000037_arrow-g7278-AFLA_060020	986714	992785	-
BGC_84	tig00000037_arrow_pilon	tig00000037_arrow-g7279-AFLA_060000	993561	994786	-
BGC_84	tig00000037_arrow_pilon	tig00000037_arrow-g7280-AFLA_059990	995228	998692	+
BGC_84	tig00000037_arrow_pilon	tig00000037_arrow-g7281-AFLA_059980	999165	1000848	-
BGC_84	tig00000037_arrow_pilon	tig00000037_arrow-g7282-AFLA_059970	1002339	1003333	+
BGC_84	tig00000037_arrow_pilon	tig00000037_arrow-g7283-AFLA_059960	1003688	1004701	-
BGC_84	tig00000037_arrow_pilon	tig00000037_arrow-g7284-AFLA_059950	1006271	1007846	-
BGC_84	tig00000037_arrow_pilon	tig00000037_arrow-g7285-AFLA_059940	1008834	1009778	-
BGC_85	tig00000095_arrow_pilon	tig00000095_arrow-g10834-AFLA_119040	888092	888684	+
BGC_85	tig00000095_arrow_pilon	tig00000095_arrow-g10835-AFLA_119050	892327	893220	-
BGC_85	tig00000095_arrow_pilon	tig00000095_arrow-g10836-AFLA_119060	894116	894563	+
BGC_85	tig00000095_arrow_pilon	tig00000095_arrow-g10837-AFLA_119070	894713	895907	+
BGC_85	tig00000095_arrow_pilon	tig00000095_arrow-g10838	898602	898869	+
BGC_85	tig00000095_arrow_pilon	tig00000095_arrow-g10839-AFLA_119080	900560	902691	-
BGC_85	tig00000095_arrow_pilon	tig00000095_arrow-g10840-AFLA_119090	903319	904417	-

BGC_85	tig00000095_arrow_pilon	tig00000095_arrow-g10841-AFLA_119110	905358	908671	+
BGC_85	tig00000095_arrow_pilon	tig00000095_arrow-g10842-AFLA_119120	909250	910654	+
BGC_85	tig00000095_arrow_pilon	tig00000095_arrow-g10843-AFLA_119130	911123	911850	+
BGC_85	tig00000095_arrow_pilon	tig00000095_arrow-g10844-AFLA_119140	914981	915875	+
BGC_85	tig00000095_arrow_pilon	tig00000095_arrow-g10845-AFLA_119150	916319	917131	-
BGC_85	tig00000095_arrow_pilon	tig00000095_arrow-g10846-AFLA_119160	917923	919706	-
BGC_85	tig00000095_arrow_pilon	tig00000095_arrow-g10847-AFLA_119180	919746	920838	+
BGC_85	tig00000095_arrow_pilon	tig00000095_arrow-g10848	921626	923586	-
BGC_85	tig00000095_arrow_pilon	tig00000095_arrow-g10849-AFLA_119200	924049	924447	+
BGC_85	tig00000095_arrow_pilon	tig00000095_arrow-g10850-AFLA_119210	928310	929326	+
BGC_86	tig00000095_arrow_pilon	tig00000095_arrow-g10817-AFLA_118820	829091	830113	-
BGC_86	tig00000095_arrow_pilon	tig00000095_arrow-g10818-AFLA_118830	831156	833264	+
BGC_86	tig00000095_arrow_pilon	tig00000095_arrow-g10819-AFLA_118840	833439	834953	-
BGC_86	tig00000095_arrow_pilon	tig00000095_arrow-g10820	835547	836362	+
BGC_86	tig00000095_arrow_pilon	tig00000095_arrow-g10821-AFLA_118870	836991	837478	-
BGC_86	tig00000095_arrow_pilon	tig00000095_arrow-g10822-AFLA_118880	838072	841207	+
BGC_86	tig00000095_arrow_pilon	tig00000095_arrow-g10823-AFLA_118900	842242	843738	+
BGC_86	tig00000095_arrow_pilon	tig00000095_arrow-g10824-AFLA_118910	844714	846834	+
BGC_86	tig00000095_arrow_pilon	tig00000095_arrow-g10825-AFLA_118940	848937	856576	-
BGC_86	tig00000095_arrow_pilon	tig00000095_arrow-g10826-AFLA_118950	857383	858174	-
BGC_86	tig00000095_arrow_pilon	tig00000095_arrow-g10827-AFLA_118960	858491	865252	-
BGC_86	tig00000095_arrow_pilon	tig00000095_arrow-g10828-AFLA_118970	865975	867498	+
BGC_86	tig00000095_arrow_pilon	tig00000095_arrow-g10829-AFLA_118980	867626	868459	-
BGC_86	tig00000095_arrow_pilon	tig00000095_arrow-g10830-AFLA_118990	869682	871566	+
BGC_86	tig00000095_arrow_pilon	tig00000095_arrow-g10831-AFLA_119000	873371	874811	+
BGC_86	tig00000095_arrow_pilon	tig00000095_arrow-g10832-AFLA_119020	876408	881335	-
BGC_86	tig00000095_arrow_pilon	tig00000095_arrow-g10833-AFLA_119030	883671	885086	-
BGC_87	tig00000095_arrow_pilon	tig00000095_arrow-g10635-AFLA_116830	283545	289899	+
BGC_87	tig00000095_arrow_pilon	tig00000095_arrow-g10636-AFLA_116840	290292	291781	-
BGC_87	tig00000095_arrow_pilon	tig00000095_arrow-g10637-AFLA_116860	293247	297265	-
BGC_87	tig00000095_arrow_pilon	tig00000095_arrow-g10638-AFLA_116870	297708	299072	-
BGC_87	tig00000095_arrow_pilon	tig00000095_arrow-g10639-AFLA_116880	301490	303310	+
BGC_87	tig00000095_arrow_pilon	tig00000095_arrow-g10640-AFLA_116890	304030	311793	+
BGC_87	tig00000095_arrow_pilon	tig00000095_arrow-g10641-AFLA_116900	312152	312864	-
BGC_87	tig00000095_arrow_pilon	tig00000095_arrow-g10642-AFLA_116920	317039	317984	+
BGC_87	tig00000095_arrow_pilon	tig00000095_arrow-g10643	318437	320443	+
BGC_87	tig00000095_arrow_pilon	tig00000095_arrow-g10644	320551	321124	-
BGC_87	tig00000095_arrow_pilon	tig00000095_arrow-g10645	321999	323657	-
BGC_87	tig00000095_arrow_pilon	tig00000095_arrow-g10646-AFLA_116930	324907	326955	-
BGC_87	tig00000095_arrow_pilon	tig00000095_arrow-g10647-AFLA_116950	328837	330095	+
BGC_88	tig00000023_arrow_pilon	tig00000023_arrow-g4375-AFLA_109360	1417564	1421238	+
BGC_88	tig00000023_arrow_pilon	tig00000023_arrow-g4376-AFLA_109370	1421632	1422186	-
BGC_88	tig00000023_arrow_pilon	tig00000023_arrow-g4377-AFLA_109380	1424061	1425423	+
BGC_88	tig00000023_arrow_pilon	tig00000023_arrow-g4378-AFLA_109390	1426444	1427303	+
BGC_88	tig00000023_arrow_pilon	tig00000023_arrow-g4379-AFLA_109400	1429086	1430126	-
BGC_88	tig00000023_arrow_pilon	tig00000023_arrow-g4380-AFLA_109420	1431479	1436768	+
BGC_88	tig00000023_arrow_pilon	tig00000023_arrow-g4381-AFLA_109430	1437228	1451568	-
BGC_88	tig00000023_arrow_pilon	tig00000023_arrow-g4382-AFLA_109440	1453971	1456041	+
BGC_88	tig00000023_arrow_pilon	tig00000023_arrow-g4383-AFLA_109450	1460004	1461508	+
BGC_88	tig00000023_arrow_pilon	tig00000023_arrow-g4384-AFLA_109460	1461852	1463162	-
BGC_88	tig00000023_arrow_pilon	tig00000023_arrow-g4385-AFLA_109480	1463920	1465367	-
BGC_88	tig00000023_arrow_pilon	tig00000023_arrow-g4386-AFLA_109490	1468824	1471865	+
BGC_88	tig00000023_arrow_pilon	tig00000023_arrow-g4387-AFLA_109500	1472398	1473294	-
BGC_88	tig00000023_arrow_pilon	tig00000023_arrow-g4388-AFLA_109510	1473706	1475330	+
BGC_88	tig00000023_arrow_pilon	tig00000023_arrow-g4389-AFLA_109520	1475953	1477026	-
BGC_89	tig00101499_arrow_pilon	tig00101499_arrow-g10474-AFLA_114890	2837371	2839072	-

BGC_89	tig00101499_arrow_pilon	tig00101499_arrow-g10475-AFLA_114880	2839925	2841851	+
BGC_89	tig00101499_arrow_pilon	tig00101499_arrow-g10476-AFLA_114860	2846380	2847657	-
BGC_89	tig00101499_arrow_pilon	tig00101499_arrow-g10477-AFLA_114840	2853129	2854459	-
BGC_89	tig00101499_arrow_pilon	tig00101499_arrow-g10478-AFLA_114830	2856417	2857695	+
BGC_89	tig00101499_arrow_pilon	tig00101499_arrow-g10479-AFLA_114820	2858237	2863583	-
BGC_89	tig00101499_arrow_pilon	tig00101499_arrow-g10480-AFLA_114810	2866013	2867475	+
BGC_89	tig00101499_arrow_pilon	tig00101499_arrow-g10481-AFLA_114790	2868124	2869182	+
BGC_89	tig00101499_arrow_pilon	tig00101499_arrow-g10482-AFLA_114780	2869981	2871081	+
BGC_89	tig00101499_arrow_pilon	tig00101499_arrow-g10483-AFLA_114760	2872213	2875890	+
BGC_89	tig00101499_arrow_pilon	tig00101499_arrow-g10484-AFLA_114750	2876129	2878163	-
BGC_89	tig00101499_arrow_pilon	tig00101499_arrow-g10485-AFLA_114740	2878581	2880468	-
BGC_89	tig00101499_arrow_pilon	tig00101499_arrow-g10486-AFLA_114720	2880957	2889442	+
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2427-AFLA_127970	1322232	1328729	-
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2428-AFLA_127980	1329571	1330063	-
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2429-AFLA_127990	1330138	1331109	+
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2430-AFLA_128000	1331681	1333612	-
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2431-AFLA_128010	1334068	1335625	-
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2432-AFLA_128020	1336641	1337390	+
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2433-AFLA_128040	1338068	1340030	-
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2434-AFLA_128050	1340345	1341251	-
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2435-AFLA_128060	1342275	1350857	+
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2436-AFLA_128070	1351969	1353318	-
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2437-AFLA_128080	1354108	1355557	+
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2438-AFLA_128090	1356175	1357920	+
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2439-AFLA_128100	1358198	1360213	-
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2440-AFLA_128110	1361982	1363116	+
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2441-AFLA_128120	1363952	1365668	-
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2442-AFLA_128130	1370417	1377408	+
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2443-AFLA_128140	1378370	1380662	+
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2444-AFLA_128150	1381901	1384092	+
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2445-AFLA_128160	1385924	1388410	+
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2446-AFLA_128170	1389454	1394898	+
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2447-AFLA_128190	1395998	1399502	-
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2448-AFLA_128200	1399968	1401564	+
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2449-AFLA_128210	1402271	1405215	+
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2450-AFLA_128220	1405597	1409329	-
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2451-AFLA_128230	1411238	1412139	-
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2452-AFLA_128240	1412417	1413600	+
BGC_90	tig00000001_arrow_pilon	tig00000001_arrow-g2453-AFLA_128250	1413953	1414838	-
BGC_91	tig00000050_arrow_pilon	tig00000050_arrow-g8624-AFLA_066950	756883	758954	+
BGC_91	tig00000050_arrow_pilon	tig00000050_arrow-g8625-AFLA_066970	759341	760372	-
BGC_91	tig00000050_arrow_pilon	tig00000050_arrow-g8626	760888	761707	-
BGC_91	tig00000050_arrow_pilon	tig00000050_arrow-g8627-AFLA_066980	762601	773128	+
BGC_91	tig00000050_arrow_pilon	tig00000050_arrow-g8628-AFLA_067000	777499	778552	+
BGC_91	tig00000050_arrow_pilon	tig00000050_arrow-g8629-AFLA_067010	780543	783135	+
BGC_91	tig00000050_arrow_pilon	tig00000050_arrow-g8630-AFLA_067020	786048	790527	+
BGC_91	tig00000050_arrow_pilon	tig00000050_arrow-g8631-AFLA_067040	792579	794281	+
CPA	tig00000023_arrow_pilon	tig00000023_arrow-g5504-AFLA_139470	5109935	5111302	+
CPA	tig00000023_arrow_pilon	tig00000023_arrow-g5505-AFLA_139480	5111801	5113170	-
CPA	tig00000023_arrow_pilon	tig00000023_arrow-g5506-AFLA_139490	5114149	5125869	+
Ditryptophenaline	tig00000029_arrow_pilon	tig00000029_arrow-g6547-AFLA_005460	3332752	3334293	+
Ditryptophenaline	tig00000029_arrow_pilon	tig00000029_arrow-g6548-AFLA_005440	3336086	3346421	+
Imizoquin	tig00000050_arrow_pilon	tig00000050_arrow-g8396-AFLA_064240	43861	54073	-
Imizoquin	tig00000050_arrow_pilon	tig00000050_arrow-g8397	54503	56771	+
Imizoquin	tig00000050_arrow_pilon	tig00000050_arrow-g8398-AFLA_064260	57264	59192	-
Imizoquin	tig00000050_arrow_pilon	tig00000050_arrow-g8399-AFLA_064270	59836	60996	+

Imizoquin	tig00000050_arrow_pilon	tig00000050_arrow-g8400-AFLA_064280	61536	62754	+
Imizoquin	tig00000050_arrow_pilon	tig00000050_arrow-g8401-AFLA_064290	63125	63868	-
Imizoquin	tig00000050_arrow_pilon	tig00000050_arrow-g8402-AFLA_064300	64135	65505	-
Imizoquin	tig00000050_arrow_pilon	tig00000050_arrow-g8403	66090	69673	+
Imizoquin	tig00000050_arrow_pilon	tig00000050_arrow-g8404-AFLA_064330	70100	71518	-
LeporinB	tig00000050_arrow_pilon	tig00000050_arrow-g8614-AFLA_066840	724736	736576	-
LeporinB	tig00000050_arrow_pilon	tig00000050_arrow-g8615-AFLA_066850	736861	737235	+
LeporinB	tig00000050_arrow_pilon	tig00000050_arrow-g8616-AFLA_066860	737669	739944	-
LeporinB	tig00000050_arrow_pilon	tig00000050_arrow-g8617-AFLA_066880	740577	742087	+
LeporinB	tig00000050_arrow_pilon	tig00000050_arrow-g8618-AFLA_066890	742686	744597	-
LeporinB	tig00000050_arrow_pilon	tig00000050_arrow-g8619-AFLA_066900	746873	749409	+
LeporinB	tig00000050_arrow_pilon	tig00000050_arrow-g8620-AFLA_066910	750124	751264	-
LeporinB	tig00000050_arrow_pilon	tig00000050_arrow-g8621-AFLA_066920	751624	752765	+
LeporinB	tig00000050_arrow_pilon	tig00000050_arrow-g8622-AFLA_066930	752977	754828	-
LeporinB	tig00000050_arrow_pilon	tig00000050_arrow-g8623-AFLA_066940	754962	756355	+
Lovastatin-like	tig00000037_arrow_pilon	tig00000037_arrow-g8373-AFLA_096580	4481241	4485628	-
Lovastatin-like	tig00000037_arrow_pilon	tig00000037_arrow-g8374-AFLA_096610	4486177	4488901	-
Lovastatin-like	tig00000037_arrow_pilon	tig00000037_arrow-g8375-AFLA_096620	4489707	4490858	+
Lovastatin-like	tig00000037_arrow_pilon	tig00000037_arrow-g8376-AFLA_096630	4491470	4492816	+
Lovastatin-like	tig00000037_arrow_pilon	tig00000037_arrow-g8377-AFLA_096640	4493224	4494711	-
Lovastatin-like	tig00000037_arrow_pilon	tig00000037_arrow-g8378-AFLA_096650	4495118	4495598	-
Lovastatin-like	tig00000037_arrow_pilon	tig00000037_arrow-g8379-AFLA_096660	4497021	4497393	+
Lovastatin-like	tig00000037_arrow_pilon	tig00000037_arrow-g8380-AFLA_096670	4498250	4498948	+
Lovastatin-like	tig00000037_arrow_pilon	tig00000037_arrow-g8381-AFLA_096680	4499915	4501570	+
Lovastatin-like	tig00000037_arrow_pilon	tig00000037_arrow-g8382-AFLA_096690	4501843	4503198	-
Lovastatin-like	tig00000037_arrow_pilon	tig00000037_arrow-g8383-AFLA_096710	4504708	4512112	+
Lovastatin-like	tig00000037_arrow_pilon	tig00000037_arrow-g8384-AFLA_096730	4513606	4515618	+
Lovastatin-like	tig00000037_arrow_pilon	tig00000037_arrow-g8385-AFLA_096740	4516009	4517524	-
Lovastatin-like	tig00000037_arrow_pilon	tig00000037_arrow-g8386-AFLA_096750	4518467	4520023	-
Lovastatin-like	tig00000037_arrow_pilon	tig00000037_arrow-g8387-AFLA_096770	4520579	4535297	+
Lovastatin-like	tig00000037_arrow_pilon	tig00000037_arrow-g8388-AFLA_096780	4536140	4537587	-
UstiloxinB	tig00000037_arrow_pilon	tig00000037_arrow-g8238	4097546	4099357	+
UstiloxinB	tig00000037_arrow_pilon	tig00000037_arrow-g8239-AFLA_094960	4099564	4101392	+
UstiloxinB	tig00000037_arrow_pilon	tig00000037_arrow-g8240-AFLA_094980	4102135	4102904	+
UstiloxinB	tig00000037_arrow_pilon	tig00000037_arrow-g8241-AFLA_094990	4103349	4104258	-
UstiloxinB	tig00000037_arrow_pilon	tig00000037_arrow-g8242-AFLA_095010	4104782	4106912	+
UstiloxinB	tig00000037_arrow_pilon	tig00000037_arrow-g8243-AFLA_095020	4107013	4107986	-
UstiloxinB	tig00000037_arrow_pilon	tig00000037_arrow-g8244-AFLA_095030	4108429	4110493	+
UstiloxinB	tig00000037_arrow_pilon	tig00000037_arrow-g8245-AFLA_095040	4110601	4112053	-
UstiloxinB	tig00000037_arrow_pilon	tig00000037_arrow-g8246-AFLA_095050	4112318	4113967	+
UstiloxinB	tig00000037_arrow_pilon	tig00000037_arrow-g8247-AFLA_095060	4114182	4115531	+
UstiloxinB	tig00000037_arrow_pilon	tig00000037_arrow-g8248-AFLA_095070	4115655	4117445	-
UstiloxinB	tig00000037_arrow_pilon	tig00000037_arrow-g8249-AFLA_095090	4119637	4121463	+
UstiloxinB	tig00000037_arrow_pilon	tig00000037_arrow-g8250-AFLA_095100	4121770	4122660	-

[1] Contig and gene names refer to names used in in annotation files (see Drott et al. (21)). Contig names correspond to chromosome names indicated in Fig. S3. When genes were identified by reciprocal best-hit blast as being the same as existing genes named on NCBI, the NCBI gene name was appended to the end of the gene name (indicated as AFLA_######).

Table S3. Within-population estimates of dN/dS ratios (ω) from the backbone genes of 22 biosynthetic gene clusters (BGCs) where population-specific patterns were identified. Note that dN/dS estimates generated within population must be interpreted cautiously as they may not follow patterns that are often interpreted between species (reviewed by (6)).

	Population A					Population B					Population C				
Cluster name	ω	dN	dS	Sample	SNPs	ω	dN	dS	Sample	SNPs	ω	dN	dS	Sample	SNPs
BGC_2				0	0				0	0				6	0
BGC_4	0.48209	0.0085	0.0175	6	23				0	0				6	0
BGC_5	0[1]	0	0	0	2				0	0				6	0
BGC_6	0.41948	0.0255	0.0607	25	243	0[1]	0	0	47	4				7	0
BGC_7	0.57366	0.0461	0.0803	27	177				0	0				0	0
BGC_8	0.75067	0.09	0.1199	32	47	0[1]	0	0	48	3	0[1]	0	0	11	2
Piperazine (lnB)	0.26354[2]	0.0019	0.0074	17	10				0	0				0	0
BGC_10	0.52364	0.0089	0.017	6	85				0	0				0	0
BGC_11				0	0	2.30471[2]	0.0085	0.0037	48	38				0	0
Astellolide				0	0	0[1]	0	0	48	2				11	0
BGC_13	0[1]	0	0	0	2				0	0				0	0
BGC_14 (AFLA_042400)	0.97319	0.0451	0.0463	25	61	0.29266[2]	0.0029	0.0098	48	16				11	0
BGC_14 (AFLA_042380)	0.34882	0.6301	1.8065	33	163	0.43781	0.0209	0.0478	48	41				11	0
BGC_15	0.35482	0.0151	0.0425	33	156	0.28905	0.0076	0.0264	48	90				0	0
Lovastatin-like (AFLA_096710)	0.67736	0.1268	0.1872	33	267	0.77471	0.1663	0.2147	48	288	0.41037	0.0114	0.0279	11	56
Lovastatin-like (AFLA_096770)	0.19164	0.0157	0.082	33	397	1.1805[2]	0.0017	0.0015	40	19	0.23328	0.0037	0.0159	11	93
Aflatoxin	0.55728	0.0106	0.019	33	79	0[1]	0	0	21	2	0.76605[2]	0.0027	0.0035	11	18
Cyclopiazonic acid (AFLA_139480)	0.16904	0.0407	0.2406	33	108	0.61345	0.0046	0.0075	27	7	0[1]	0	0	11	1
Cyclopiazonic acid (AFLA_139490)	0.24031	0.0391	0.1627	33	792	0.99971[2]	0.0044	0.0044	27	42	0.43445	0.0047	0.0108	11	73
Ustiloxin B	0.03446	0.0253	0.7334	33	76	0.01187	0.0026	0.2194	43	18	0.0001	0	0.2064	11	32
BGC_20	0.60561	0.0309	0.0511	33	107	0[1]	0	0	48	5	0.43705	0.006	0.0137	11	25
BGC_21	0.61364	0.0151	0.0246	33	29	0.61663	0.0185	0.03	48	39	0[1]	0	0	11	3
Aflatrem (ATM1)	0.21236	0.0173	0.0815	33	55	0.80365	0.0529	0.0659	48	62				11	0
BGC_23 (AFLA_064560)	0.27527	0.0116	0.042	33	67	0.61155[2]	0.0028	0.0046	48	15	0.31679	0.0053	0.0166	11	38
BGC_23 (not in ref)	0.17239	0.0062	0.0357	8	45	0[1]	0	0	48	4	0.10254	0.0027	0.0259	3	32
BGC_24 (AFLA_066720)	0.37579	0.0126	0.0335	33	248	0.4999	0.0035	0.0069	48	81	0.39837	0.0049	0.0122	11	112
BGC_24 (not in ref)	0.76484	0.0436	0.0571	13	20				0	0				0	0

[1] Estimates of omega (dN/dS) that arose from five or fewer SNPs have been set to zero

[2] When dS < 0.01 we suggest that there may be insufficient data to support estimates of omega

Table S4. High resolution mass data for secondary metabolites

			ES+				
Metabolite	**Chemical formula**	**Retention time (min)**	**Calculated *m/z***	**Measured *m/z***	**PubChem database[1]**	**MoNA database**	**MASST database**
Aflatoxin B1	$C_{17}H_{12}O_6$	11.6	313.0707	313.0702	-	Matched	-
Cyclopiazonic acid	$C_{20}H_{20}N_2O_3$	19.9	337.1546	337.1547	-	Matched	-
Leporin B	$C_{22}H_{25}NO_3$	28.7	352.1907	352.1907	Matched	-	-
Ditryptophenaline	$C_{42}H_{40}N_6O_4$	17.7	693.3184	693.3177	-	-	Matched
Aflavarin	$C_{24}H_{23}O_9$	14.0	455.1337	455.1329	Matched	-	-
Aflatrem	$C_{32}H_{39}NO_4$	26.9	502.2930	502.2917	-	-	Matched
14-Deacetyl astellolide A	$C_{24}H_{28}O_7$	16.9	429.1908	429.1913	Matched	-	-
14-Deacetyl astellolide B	$C_{24}H_{28}O_8$	14.5	445.1857	445.1862	Matched	-	-
Astellolide A	$C_{26}H_{30}O_8$	20.0	471.3013	471.2018	Matched	-	-
Astellolide B	$C_{26}H_{30}O_9$	16.8	487.1963	487.1968	Matched	-	-
Asparasone A	$C_{18}H_{14}O_8$	14.65	359.0761	359.0767	Matched	-	-
Piperizine[2]	$C_{18}H_{21}NO_4$	16.2	316.1543	316.1549	-	-	-
Ustiloxin B	$C_{26}H_{39}N_5O_{12}$	6.65	646.2389	646.2394	Matched	-	-

[1]Compounds were confirmed relative to PubChem based on monoisotopic masses/chemical formulas matches. However, these identifications could not be confirmed via fragmentation analysis as chemical standards were not available at this time; therefore these are considered putative identifications

[2]Matching of chemical formula was determined relative to piperazine compound 7 identified by Forseth et al. (26)

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