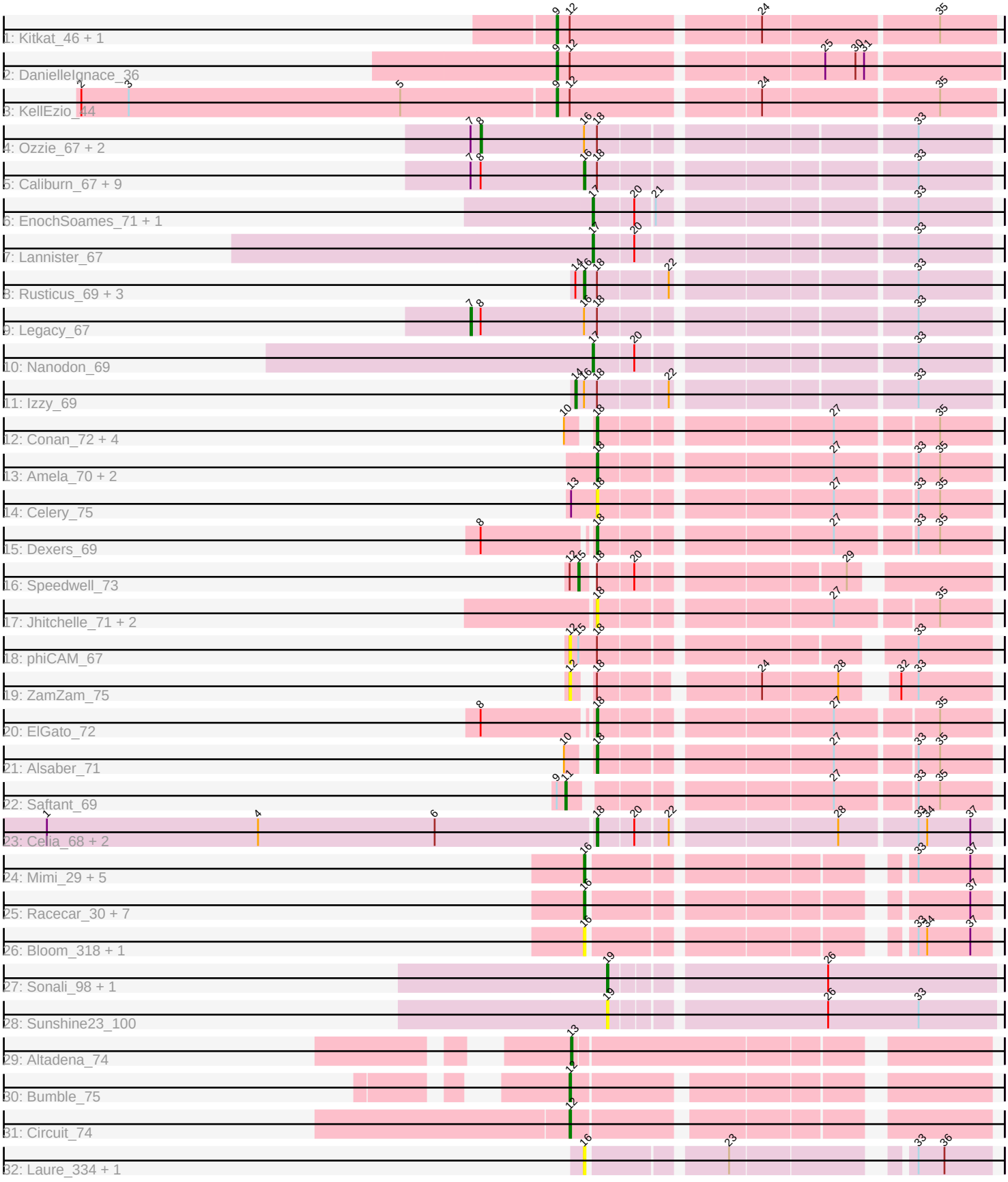
Pham 289358


1: Kitkat_46 + 1
2: DanielleIgnace_36
3: KellEzio_44
4: Ozzie_67 + 2
5: Caliburn_67 + 9
6: EnochSoames_71 + 1
7: Lannister_67
8: Rusticus_69 + 3
9: Legacy_67
10: Nanodon_69
11: Izzy_69
12: Conan_72 + 4
13: Amela_70 + 2
14: Celery_75
15: Dexers_69
16: Speedwell_73
17: Jhitchelle_71 + 2
18: phiCAM_67
19: ZamZam_75
20: ElGato_72
21: Alsaber_71
22: Saftant_69
23: Celia_68 + 2
24: Mimi_29 + 5
25: Racecar_30 + 7
26: Bloom_318 + 1
27: Sonali_98 + 1
28: Sunshine23_100
29: Altadena_74
30: Bumble_75
31: Circuit_74
32: Laure_334 + 1

Note: Tracks are now grouped by subcluster and scaled. Switching in subcluster is indicated by changes in track color. Track scale is now set by default to display the region 30 bp upstream of start 1 to 30 bp downstream of the last possible start. If this default region is judged to be packed too tightly with annotated starts, the track will be further scaled to only show that region of the ORF with annotated starts. This action will be indicated by adding "Zoomed" to the title. For starts, yellow indicates the location of called starts comprised solely of Glimmer/GeneMark auto-annotations, green indicates the location of called starts with at least 1 manual gene annotation.

Pham 289358 Report

This analysis was run 03/28/26 on database version 641.

Pham number 289358 has 73 members, 18 are drafts.

Phages represented in each track:
- Track 1 : Kitkat_46, BeatusComedenti_45
- Track 2 : DanielleIgnace_36
- Track 3 : KellEzio_44
- Track 4 : Ozzie_67, BeardedLady_68, Aaronocolus_67
- Track 5 : Caliburn_67, Phettuccine_67, Unstoppable_67, Indigo_66, Bovely_67, Hydra_70, Nerdos_66, Esperer_68, SunsetPointe_67, Leviticus_68
- Track 6 : EnochSoames_71, Oliynyk_69
- Track 7 : Lannister_67
- Track 8 : Rusticus_69, Eddasa_70, BryanRecycles_69, Jash_69
- Track 9 : Legacy_67
- Track 10 : Nanodon_69
- Track 11 : Izzy_69
- Track 12 : Conan_72, Pavo_72, Kaine_71, Provolone_72, Sudan_73
- Track 13 : Amela_70, SunkenRoot_72, Verse_71
- Track 14 : Celery_75
- Track 15 : Dexers_69
- Track 16 : Speedwell_73
- Track 17 : Jhitchelle_71, Verabelle_73, Vanseggelen_76
- Track 18 : phiCAM_67
- Track 19 : ZamZam_75
- Track 20 : ElGato_72
- Track 21 : Alsaber_71
- Track 22 : Saftant_69
- Track 23 : Celia_68, Itza_71, Urza_70
- Track 24 : Mimi_29, Mimi_314, FloraSnap32_311, Patbob_28, Patbob_314, FloraSnap32_26
- Track 25 : Racecar_30, GoldenEssence_15, Racecar_319, Talia1610_315, FrostedClock_31, Talia1610_29, GoldenEssence_296, FrostedClock_316
- Track 26 : Bloom_318, Bloom_31
- Track 27 : Sonali_98, Maruru_98
- Track 28 : Sunshine23_100
- Track 29 : Altadena_74
- Track 30 : Bumble_75
- Track 31 : Circuit_74
- Track 32 : Laure_334, Laure_16

Summary of Final Annotations (See graph section above for start numbers):

The start number called the most often in the published annotations is 16, it was called in 24 of the 55 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Bloom_31, Bloom_318, Bovely_67, BryanRecycles_69, Caliburn_67, Eddasa_70, Esperer_68, FloraSnap32_26, FloraSnap32_311, FrostedClock_31, FrostedClock_316, GoldenEssence_15, GoldenEssence_296, Hydra_70, Indigo_66, Jash_69, Laure_16, Laure_334, Leviticus_68, Mimi_29, Mimi_314, Nerdos_66, Patbob_28, Patbob_314, Phettuccine_67, Racecar_30, Racecar_319, Rusticus_69, SunsetPointe_67, Talia1610_29, Talia1610_315, Unstoppable_67,

Genes that have the "Most Annotated" start but do not call it:
• Aaronocolus_67, BeardedLady_68, Izzy_69, Legacy_67, Ozzie_67,

Genes that do not have the "Most Annotated" start:
• Alsaber_71, Altadena_74, Amela_70, BeatusComedenti_45, Bumble_75, Celery_75, Celia_68, Circuit_74, Conan_72, DanielleIgnace_36, Dexers_69, ElGato_72, EnochSoames_71, Itza_71, Jhitchelle_71, Kaine_71, KellEzio_44, Kitkat_46, Lannister_67, Maruru_98, Nanodon_69, Oliynyk_69, Pavo_72, Provolone_72, Saftant_69, Sonali_98, Speedwell_73, Sudan_73, SunkenRoot_72, Sunshine23_100, Urza_70, Vanseggelen_76, Verabelle_73, Verse_71, ZamZam_75, phiCAM_67,

Summary by start number:

Start 7:
• Found in 14 of 73 (19.2%) of genes in pham
• Manual Annotations of this start: 1 of 55
• Called 7.1% of time when present
• Phage (with cluster) where this start called: Legacy_67 (BD1),

Start 8:
• Found in 16 of 73 (21.9%) of genes in pham
• Manual Annotations of this start: 3 of 55
• Called 18.8% of time when present
• Phage (with cluster) where this start called: Aaronocolus_67 (BD1), BeardedLady_68 (BD1), Ozzie_67 (BD1),

Start 9:
• Found in 5 of 73 (6.8%) of genes in pham
• Manual Annotations of this start: 4 of 55
• Called 80.0% of time when present
• Phage (with cluster) where this start called: BeatusComedenti_45 (AT), DanielleIgnace_36 (AT), KellEzio_44 (AT), Kitkat_46 (AT),

Start 11:
• Found in 1 of 73 (1.4%) of genes in pham
• Manual Annotations of this start: 1 of 55
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Saftant_69 (BD3),

Start 12:
• Found in 9 of 73 (12.3%) of genes in pham
• Manual Annotations of this start: 2 of 55
• Called 44.4% of time when present
• Phage (with cluster) where this start called: Bumble_75 (FH), Circuit_74 (FH), ZamZam_75 (BD3), phiCAM_67 (BD3),

Start 13:
• Found in 2 of 73 (2.7%) of genes in pham
• Manual Annotations of this start: 1 of 55
• Called 50.0% of time when present
• Phage (with cluster) where this start called: Altadena_74 (FH),

Start 14:
• Found in 5 of 73 (6.8%) of genes in pham
• Manual Annotations of this start: 1 of 55
• Called 20.0% of time when present
• Phage (with cluster) where this start called: Izzy_69 (BD1),

Start 15:
• Found in 2 of 73 (2.7%) of genes in pham
• Manual Annotations of this start: 1 of 55
• Called 50.0% of time when present
• Phage (with cluster) where this start called: Speedwell_73 (BD3),

Start 16:
• Found in 37 of 73 (50.7%) of genes in pham
• Manual Annotations of this start: 24 of 55
• Called 86.5% of time when present
• Phage (with cluster) where this start called: Bloom_31 (FC), Bloom_318 (FC), Bovely_67 (BD1), BryanRecycles_69 (BD1), Caliburn_67 (BD1), Eddasa_70 (BD1), Esperer_68 (BD1), FloraSnap32_26 (FC), FloraSnap32_311 (FC), FrostedClock_31 (FC), FrostedClock_316 (FC), GoldenEssence_15 (FC), GoldenEssence_296 (FC), Hydra_70 (BD1), Indigo_66 (BD1), Jash_69 (BD1), Laure_16 (UNK), Laure_334 (UNK), Leviticus_68 (BD1), Mimi_29 (FC), Mimi_314 (FC), Nerdos_66 (BD1), Patbob_28 (FC), Patbob_314 (FC), Phettuccine_67 (BD1), Racecar_30 (FC), Racecar_319 (FC), Rusticus_69 (BD1), SunsetPointe_67 (BD1), Talia1610_29 (FC), Talia1610_315 (FC), Unstoppable_67 (BD1),

Start 17:
• Found in 4 of 73 (5.5%) of genes in pham
• Manual Annotations of this start: 3 of 55
• Called 100.0% of time when present
• Phage (with cluster) where this start called: EnochSoames_71 (BD1), Lannister_67 (BD1), Nanodon_69 (BD1), Oliynyk_69 (BD1),

Start 18:
• Found in 40 of 73 (54.8%) of genes in pham
• Manual Annotations of this start: 12 of 55
• Called 45.0% of time when present
• Phage (with cluster) where this start called: Alsaber_71 (BD3), Amela_70 (BD3), Celery_75 (BD3), Celia_68 (BD6), Conan_72 (BD3), Dexers_69 (BD3), ElGato_72

(BD3), Itza_71 (BD6), Jhitchelle_71 (BD3), Kaine_71 (BD3), Pavo_72 (BD3), Provolone_72 (BD3), Sudan_73 (BD3), SunkenRoot_72 (BD3), Urza_70 (BD6), Vanseggelen_76 (BD3), Verabelle_73 (BD3), Verse_71 (BD3),

Start 19:
• Found in 3 of 73 (4.1%) of genes in pham
• Manual Annotations of this start: 2 of 55
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Maruru_98 (FG), Sonali_98 (FG), Sunshine23_100 (FG),

Summary by clusters:

There are 8 clusters represented in this pham: FC, BD6, BD1, AT, BD3, FG, FH, UNK,

Info for manual annotations of cluster AT:
•Start number 9 was manually annotated 4 times for cluster AT.

Info for manual annotations of cluster BD1:
•Start number 7 was manually annotated 1 time for cluster BD1.
•Start number 8 was manually annotated 3 times for cluster BD1.
•Start number 14 was manually annotated 1 time for cluster BD1.
•Start number 16 was manually annotated 14 times for cluster BD1.
•Start number 17 was manually annotated 3 times for cluster BD1.

Info for manual annotations of cluster BD3:
•Start number 11 was manually annotated 1 time for cluster BD3.
•Start number 15 was manually annotated 1 time for cluster BD3.
•Start number 18 was manually annotated 9 times for cluster BD3.

Info for manual annotations of cluster BD6:
•Start number 18 was manually annotated 3 times for cluster BD6.

Info for manual annotations of cluster FC:
•Start number 16 was manually annotated 10 times for cluster FC.

Info for manual annotations of cluster FG:
•Start number 19 was manually annotated 2 times for cluster FG.

Info for manual annotations of cluster FH:
•Start number 12 was manually annotated 2 times for cluster FH.
•Start number 13 was manually annotated 1 time for cluster FH.

Gene Information:

Gene: Aaronocolus_67 Start: 45850, Stop: 45521, Start Num: 8
Candidate Starts for Aaronocolus_67:
(Start: 7 @45856 has 1 MA's), (Start: 8 @45850 has 3 MA's), (Start: 16 @45778 has 24 MA's), (Start: 18 @45769 has 12 MA's), (33, 45571),

Gene: Alsaber_71 Start: 45844, Stop: 45596, Start Num: 18
Candidate Starts for Alsaber_71:
(10, 45856), (Start: 18 @45844 has 12 MA's), (27, 45697), (33, 45646), (35, 45631),

Gene: Altadena_74 Start: 46046, Stop: 45783, Start Num: 13
Candidate Starts for Altadena_74:
(Start: 13 @46046 has 1 MA's),

Gene: Amela_70 Start: 46491, Stop: 46243, Start Num: 18
Candidate Starts for Amela_70:
(Start: 18 @46491 has 12 MA's), (27, 46344), (33, 46293), (35, 46278),

Gene: BeardedLady_68 Start: 46230, Stop: 45901, Start Num: 8
Candidate Starts for BeardedLady_68:
(Start: 7 @46236 has 1 MA's), (Start: 8 @46230 has 3 MA's), (Start: 16 @46158 has 24 MA's), (Start: 18 @46149 has 12 MA's), (33, 45951),

Gene: BeatusComedenti_45 Start: 32843, Stop: 33130, Start Num: 9
Candidate Starts for BeatusComedenti_45:
(Start: 9 @32843 has 4 MA's), (Start: 12 @32852 has 2 MA's), (24, 32975), (35, 33092),

Gene: Bloom_318 Start: 187214, Stop: 187450, Start Num: 16
Candidate Starts for Bloom_318:
(Start: 16 @187214 has 24 MA's), (33, 187400), (34, 187406), (37, 187436),

Gene: Bloom_31 Start: 13739, Stop: 13975, Start Num: 16
Candidate Starts for Bloom_31:
(Start: 16 @13739 has 24 MA's), (33, 13925), (34, 13931), (37, 13961),

Gene: Bovely_67 Start: 45781, Stop: 45524, Start Num: 16
Candidate Starts for Bovely_67:
(Start: 7 @45859 has 1 MA's), (Start: 8 @45853 has 3 MA's), (Start: 16 @45781 has 24 MA's), (Start: 18 @45772 has 12 MA's), (33, 45574),

Gene: BryanRecycles_69 Start: 46276, Stop: 46019, Start Num: 16
Candidate Starts for BryanRecycles_69:
(Start: 14 @46282 has 1 MA's), (Start: 16 @46276 has 24 MA's), (Start: 18 @46267 has 12 MA's), (22, 46222), (33, 46069),

Gene: Bumble_75 Start: 47160, Stop: 46906, Start Num: 12
Candidate Starts for Bumble_75:
(Start: 12 @47160 has 2 MA's),

Gene: Caliburn_67 Start: 46166, Stop: 45909, Start Num: 16
Candidate Starts for Caliburn_67:
(Start: 7 @46244 has 1 MA's), (Start: 8 @46238 has 3 MA's), (Start: 16 @46166 has 24 MA's), (Start: 18 @46157 has 12 MA's), (33, 45959),

Gene: Celery_75 Start: 45542, Stop: 45294, Start Num: 18
Candidate Starts for Celery_75:
(Start: 13 @45548 has 1 MA's), (Start: 18 @45542 has 12 MA's), (27, 45395), (33, 45344), (35, 45329),

Gene: Celia_68 Start: 45223, Stop: 44972, Start Num: 18

Candidate Starts for Celia_68:
(1, 45601), (4, 45454), (6, 45331), (Start: 18 @45223 has 12 MA's), (20, 45199), (22, 45178), (28, 45073), (33, 45022), (34, 45016), (37, 44986),

Gene: Circuit_74 Start: 47524, Stop: 47270, Start Num: 12
Candidate Starts for Circuit_74:
(Start: 12 @47524 has 2 MA's),

Gene: Conan_72 Start: 46096, Stop: 45848, Start Num: 18
Candidate Starts for Conan_72:
(10, 46108), (Start: 18 @46096 has 12 MA's), (27, 45949), (35, 45883),

Gene: DanielleIgnace_36 Start: 30716, Stop: 31006, Start Num: 9
Candidate Starts for DanielleIgnace_36:
(Start: 9 @30716 has 4 MA's), (Start: 12 @30725 has 2 MA's), (25, 30890), (30, 30911), (31, 30917),

Gene: Dexers_69 Start: 46070, Stop: 45822, Start Num: 18
Candidate Starts for Dexers_69:
(Start: 8 @46142 has 3 MA's), (Start: 18 @46070 has 12 MA's), (27, 45923), (33, 45872), (35, 45857),

Gene: Eddasa_70 Start: 46815, Stop: 46558, Start Num: 16
Candidate Starts for Eddasa_70:
(Start: 14 @46821 has 1 MA's), (Start: 16 @46815 has 24 MA's), (Start: 18 @46806 has 12 MA's), (22, 46761), (33, 46608),

Gene: ElGato_72 Start: 45973, Stop: 45725, Start Num: 18
Candidate Starts for ElGato_72:
(Start: 8 @46045 has 3 MA's), (Start: 18 @45973 has 12 MA's), (27, 45826), (35, 45760),

Gene: EnochSoames_71 Start: 46067, Stop: 45816, Start Num: 17
Candidate Starts for EnochSoames_71:
(Start: 17 @46067 has 3 MA's), (20, 46040), (21, 46028), (33, 45866),

Gene: Esperer_68 Start: 46124, Stop: 45867, Start Num: 16
Candidate Starts for Esperer_68:
(Start: 7 @46202 has 1 MA's), (Start: 8 @46196 has 3 MA's), (Start: 16 @46124 has 24 MA's), (Start: 18 @46115 has 12 MA's), (33, 45917),

Gene: FloraSnap32_311 Start: 186308, Stop: 186544, Start Num: 16
Candidate Starts for FloraSnap32_311:
(Start: 16 @186308 has 24 MA's), (33, 186494), (37, 186530),

Gene: FloraSnap32_26 Start: 12170, Stop: 12406, Start Num: 16
Candidate Starts for FloraSnap32_26:
(Start: 16 @12170 has 24 MA's), (33, 12356), (37, 12392),

Gene: FrostedClock_31 Start: 13297, Stop: 13533, Start Num: 16
Candidate Starts for FrostedClock_31:
(Start: 16 @13297 has 24 MA's), (37, 13519),

Gene: FrostedClock_316 Start: 187097, Stop: 187333, Start Num: 16
Candidate Starts for FrostedClock_316:
(Start: 16 @187097 has 24 MA's), (37, 187319),

Gene: GoldenEssence_15 Start: 7548, Stop: 7784, Start Num: 16
Candidate Starts for GoldenEssence_15:
(Start: 16 @7548 has 24 MA's), (37, 7770),

Gene: GoldenEssence_296 Start: 178101, Stop: 178337, Start Num: 16
Candidate Starts for GoldenEssence_296:
(Start: 16 @178101 has 24 MA's), (37, 178323),

Gene: Hydra_70 Start: 46968, Stop: 46711, Start Num: 16
Candidate Starts for Hydra_70:
(Start: 7 @47046 has 1 MA's), (Start: 8 @47040 has 3 MA's), (Start: 16 @46968 has 24 MA's), (Start: 18 @46959 has 12 MA's), (33, 46761),

Gene: Indigo_66 Start: 45774, Stop: 45517, Start Num: 16
Candidate Starts for Indigo_66:
(Start: 7 @45852 has 1 MA's), (Start: 8 @45846 has 3 MA's), (Start: 16 @45774 has 24 MA's), (Start: 18 @45765 has 12 MA's), (33, 45567),

Gene: Itza_71 Start: 45156, Stop: 44905, Start Num: 18
Candidate Starts for Itza_71:
(1, 45534), (4, 45387), (6, 45264), (Start: 18 @45156 has 12 MA's), (20, 45132), (22, 45111), (28, 45006), (33, 44955), (34, 44949), (37, 44919),

Gene: Izzy_69 Start: 46329, Stop: 46066, Start Num: 14
Candidate Starts for Izzy_69:
(Start: 14 @46329 has 1 MA's), (Start: 16 @46323 has 24 MA's), (Start: 18 @46314 has 12 MA's), (22, 46269), (33, 46116),

Gene: Jash_69 Start: 46276, Stop: 46019, Start Num: 16
Candidate Starts for Jash_69:
(Start: 14 @46282 has 1 MA's), (Start: 16 @46276 has 24 MA's), (Start: 18 @46267 has 12 MA's), (22, 46222), (33, 46069),

Gene: Jhitchelle_71 Start: 45217, Stop: 44969, Start Num: 18
Candidate Starts for Jhitchelle_71:
(Start: 18 @45217 has 12 MA's), (27, 45070), (35, 45004),

Gene: Kaine_71 Start: 45868, Stop: 45620, Start Num: 18
Candidate Starts for Kaine_71:
(10, 45880), (Start: 18 @45868 has 12 MA's), (27, 45721), (35, 45655),

Gene: KellEzio_44 Start: 32637, Stop: 32924, Start Num: 9
Candidate Starts for KellEzio_44:
(2, 32310), (3, 32343), (5, 32532), (Start: 9 @32637 has 4 MA's), (Start: 12 @32646 has 2 MA's), (24, 32769), (35, 32886),

Gene: Kitkat_46 Start: 32939, Stop: 33226, Start Num: 9
Candidate Starts for Kitkat_46:
(Start: 9 @32939 has 4 MA's), (Start: 12 @32948 has 2 MA's), (24, 33071), (35, 33188),

Gene: Lannister_67 Start: 46592, Stop: 46341, Start Num: 17
Candidate Starts for Lannister_67:

(Start: 17 @46592 has 3 MA's), (20, 46565), (33, 46391),

Gene: Laure_334 Start: 175658, Stop: 175897, Start Num: 16
Candidate Starts for Laure_334:
(Start: 16 @175658 has 24 MA's), (23, 175742), (33, 175847), (36, 175865),

Gene: Laure_16 Start: 7310, Stop: 7549, Start Num: 16
Candidate Starts for Laure_16:
(Start: 16 @7310 has 24 MA's), (23, 7394), (33, 7499), (36, 7517),

Gene: Legacy_67 Start: 46235, Stop: 45900, Start Num: 7
Candidate Starts for Legacy_67:
(Start: 7 @46235 has 1 MA's), (Start: 8 @46229 has 3 MA's), (Start: 16 @46157 has 24 MA's), (Start: 18 @46148 has 12 MA's), (33, 45950),

Gene: Leviticus_68 Start: 46311, Stop: 46054, Start Num: 16
Candidate Starts for Leviticus_68:
(Start: 7 @46389 has 1 MA's), (Start: 8 @46383 has 3 MA's), (Start: 16 @46311 has 24 MA's), (Start: 18 @46302 has 12 MA's), (33, 46104),

Gene: Maruru_98 Start: 59257, Stop: 58997, Start Num: 19
Candidate Starts for Maruru_98:
(Start: 19 @59257 has 2 MA's), (26, 59119),

Gene: Mimi_29 Start: 13192, Stop: 13428, Start Num: 16
Candidate Starts for Mimi_29:
(Start: 16 @13192 has 24 MA's), (33, 13378), (37, 13414),

Gene: Mimi_314 Start: 185852, Stop: 186088, Start Num: 16
Candidate Starts for Mimi_314:
(Start: 16 @185852 has 24 MA's), (33, 186038), (37, 186074),

Gene: Nanodon_69 Start: 46521, Stop: 46270, Start Num: 17
Candidate Starts for Nanodon_69:
(Start: 17 @46521 has 3 MA's), (20, 46494), (33, 46320),

Gene: Nerdos_66 Start: 45773, Stop: 45516, Start Num: 16
Candidate Starts for Nerdos_66:
(Start: 7 @45851 has 1 MA's), (Start: 8 @45845 has 3 MA's), (Start: 16 @45773 has 24 MA's), (Start: 18 @45764 has 12 MA's), (33, 45566),

Gene: Oliynyk_69 Start: 46270, Stop: 46019, Start Num: 17
Candidate Starts for Oliynyk_69:
(Start: 17 @46270 has 3 MA's), (20, 46243), (21, 46231), (33, 46069),

Gene: Ozzie_67 Start: 46238, Stop: 45909, Start Num: 8
Candidate Starts for Ozzie_67:
(Start: 7 @46244 has 1 MA's), (Start: 8 @46238 has 3 MA's), (Start: 16 @46166 has 24 MA's), (Start: 18 @46157 has 12 MA's), (33, 45959),

Gene: Patbob_28 Start: 13355, Stop: 13591, Start Num: 16
Candidate Starts for Patbob_28:
(Start: 16 @13355 has 24 MA's), (33, 13541), (37, 13577),

Gene: Patbob_314 Start: 188814, Stop: 189050, Start Num: 16
Candidate Starts for Patbob_314:
(Start: 16 @188814 has 24 MA's), (33, 189000), (37, 189036),

Gene: Pavo_72 Start: 46044, Stop: 45796, Start Num: 18
Candidate Starts for Pavo_72:
(10, 46056), (Start: 18 @46044 has 12 MA's), (27, 45897), (35, 45831),

Gene: Phettuccine_67 Start: 45774, Stop: 45517, Start Num: 16
Candidate Starts for Phettuccine_67:
(Start: 7 @45852 has 1 MA's), (Start: 8 @45846 has 3 MA's), (Start: 16 @45774 has 24 MA's), (Start: 18 @45765 has 12 MA's), (33, 45567),

Gene: Provolone_72 Start: 46185, Stop: 45937, Start Num: 18
Candidate Starts for Provolone_72:
(10, 46197), (Start: 18 @46185 has 12 MA's), (27, 46038), (35, 45972),

Gene: Racecar_30 Start: 13783, Stop: 14019, Start Num: 16
Candidate Starts for Racecar_30:
(Start: 16 @13783 has 24 MA's), (37, 14005),

Gene: Racecar_319 Start: 187492, Stop: 187728, Start Num: 16
Candidate Starts for Racecar_319:
(Start: 16 @187492 has 24 MA's), (37, 187714),

Gene: Rusticus_69 Start: 46276, Stop: 46019, Start Num: 16
Candidate Starts for Rusticus_69:
(Start: 14 @46282 has 1 MA's), (Start: 16 @46276 has 24 MA's), (Start: 18 @46267 has 12 MA's), (22, 46222), (33, 46069),

Gene: Saftant_69 Start: 45928, Stop: 45668, Start Num: 11
Candidate Starts for Saftant_69:
(Start: 9 @45934 has 4 MA's), (Start: 11 @45928 has 1 MA's), (27, 45769), (33, 45718), (35, 45703),

Gene: Sonali_98 Start: 60140, Stop: 59886, Start Num: 19
Candidate Starts for Sonali_98:
(Start: 19 @60140 has 2 MA's), (26, 60002),

Gene: Speedwell_73 Start: 46621, Stop: 46379, Start Num: 15
Candidate Starts for Speedwell_73:
(Start: 12 @46627 has 2 MA's), (Start: 15 @46621 has 1 MA's), (Start: 18 @46615 has 12 MA's), (20, 46591), (29, 46462),

Gene: Sudan_73 Start: 45851, Stop: 45603, Start Num: 18
Candidate Starts for Sudan_73:
(10, 45863), (Start: 18 @45851 has 12 MA's), (27, 45704), (35, 45638),

Gene: SunkenRoot_72 Start: 46218, Stop: 45970, Start Num: 18
Candidate Starts for SunkenRoot_72:
(Start: 18 @46218 has 12 MA's), (27, 46071), (33, 46020), (35, 46005),

Gene: SunsetPointe_67 Start: 46173, Stop: 45916, Start Num: 16

Candidate Starts for SunsetPointe_67:
(Start: 7 @46251 has 1 MA's), (Start: 8 @46245 has 3 MA's), (Start: 16 @46173 has 24 MA's), (Start: 18 @46164 has 12 MA's), (33, 45966),

Gene: Sunshine23_100 Start: 59946, Stop: 59692, Start Num: 19
Candidate Starts for Sunshine23_100:
(Start: 19 @59946 has 2 MA's), (26, 59808), (33, 59745),

Gene: Talia1610_315 Start: 187677, Stop: 187913, Start Num: 16
Candidate Starts for Talia1610_315:
(Start: 16 @187677 has 24 MA's), (37, 187899),

Gene: Talia1610_29 Start: 13205, Stop: 13441, Start Num: 16
Candidate Starts for Talia1610_29:
(Start: 16 @13205 has 24 MA's), (37, 13427),

Gene: Unstoppable_67 Start: 45772, Stop: 45515, Start Num: 16
Candidate Starts for Unstoppable_67:
(Start: 7 @45850 has 1 MA's), (Start: 8 @45844 has 3 MA's), (Start: 16 @45772 has 24 MA's), (Start: 18 @45763 has 12 MA's), (33, 45565),

Gene: Urza_70 Start: 45177, Stop: 44926, Start Num: 18
Candidate Starts for Urza_70:
(1, 45555), (4, 45408), (6, 45285), (Start: 18 @45177 has 12 MA's), (20, 45153), (22, 45132), (28, 45027), (33, 44976), (34, 44970), (37, 44940),

Gene: Vanseggelen_76 Start: 45785, Stop: 45537, Start Num: 18
Candidate Starts for Vanseggelen_76:
(Start: 18 @45785 has 12 MA's), (27, 45638), (35, 45572),

Gene: Verabelle_73 Start: 45224, Stop: 44976, Start Num: 18
Candidate Starts for Verabelle_73:
(Start: 18 @45224 has 12 MA's), (27, 45077), (35, 45011),

Gene: Verse_71 Start: 46482, Stop: 46234, Start Num: 18
Candidate Starts for Verse_71:
(Start: 18 @46482 has 12 MA's), (27, 46335), (33, 46284), (35, 46269),

Gene: ZamZam_75 Start: 46239, Stop: 45997, Start Num: 12
Candidate Starts for ZamZam_75:
(Start: 12 @46239 has 2 MA's), (Start: 18 @46230 has 12 MA's), (24, 46134), (28, 46083), (32, 46059), (33, 46047),

Gene: phiCAM_67 Start: 47310, Stop: 47056, Start Num: 12
Candidate Starts for phiCAM_67:
(Start: 12 @47310 has 2 MA's), (Start: 15 @47304 has 1 MA's), (Start: 18 @47292 has 12 MA's), (33, 47106),