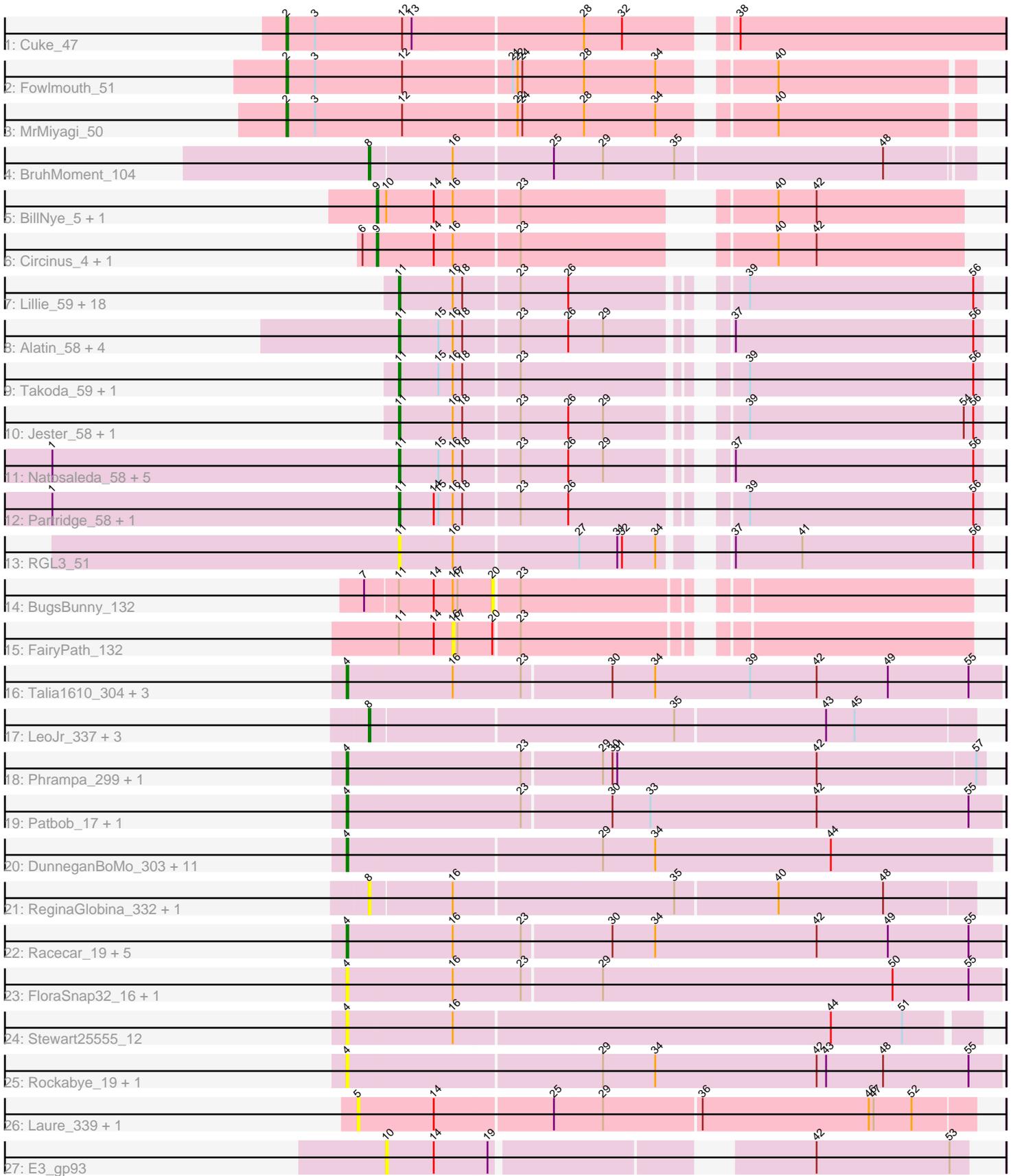


Pham 291056



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 291056 Report

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

Pham number 291056 has 87 members, 28 are drafts.

Phages represented in each track:

- Track 1 : Cuke_47
- Track 2 : Fowlmouth_51
- Track 3 : MrMiyagi_50
- Track 4 : BruhMoment_104
- Track 5 : BillNye_5, BillNye_251
- Track 6 : Circinus_4, Circinus_249
- Track 7 : Lillie_59, Yogi_60, Shuman_60, Gollum_59, Nancinator_58, Bryce_58, Phrankenstein_59, BobbyDazzler_59, Rhodalysa_59, Erik_59, Hiro_59, Yoncess_58, Rasputin_59, Bonanza_60, RER2_53, Alpacados_58, Swann_59, CosmicSans_59, TWAMP_59
- Track 8 : Alatin_58, StCroix_58, Naiad_58, Krishelle_59, Bradshaw_59
- Track 9 : Takoda_59, AngryOrchard_56
- Track 10 : Jester_58, Harlequin_59
- Track 11 : Natosaleda_58, Belenaria_60, Espica_60, AppleCloud_56, RexFury_58, UhSalsa_59
- Track 12 : Partridge_58, Dinger_58
- Track 13 : RGL3_51
- Track 14 : BugsBunny_132
- Track 15 : FairyPath_132
- Track 16 : Talia1610_304, Mimi_303, Mimi_18, Talia1610_18
- Track 17 : LeoJr_337, Atuin_20, LeoJr_24, Atuin_320
- Track 18 : Phrampa_299, Phrampa_15
- Track 19 : Patbob_17, Patbob_303
- Track 20 : DunneganBoMo_303, WaddleDee_8, Emmetator_8, Emmetator_302, KSunshine22_11, BooTeria_309, WaddleDee_299, DunneganBoMo_8, Artu_298, BooTeria_10, Artu_11, KSunshine22_303
- Track 21 : ReginaGlobina_332, ReginaGlobina_21
- Track 22 : Racecar_19, Racecar_308, Bloom_20, Bloom_307, FrostedClock_19, FrostedClock_304
- Track 23 : FloraSnap32_16, FloraSnap32_301
- Track 24 : Stewart25555_12
- Track 25 : Rockabye_19, Rockabye_318
- Track 26 : Laure_339, Laure_21
- Track 27 : E3_gp93

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

The start number called the most often in the published annotations is 11, it was called in 35 of the 59 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Alatin_58, Alpacados_58, AngryOrchard_56, AppleCloud_56, Belenaria_60, BobbyDazzler_59, Bonanza_60, Bradshaw_59, Bryce_58, CosmicSans_59, Dinger_58, Erik_59, Espica_60, Gollum_59, Harlequin_59, Hiro_59, Jester_58, Krishelle_59, Lillie_59, Naiad_58, Nancinator_58, Natosaleda_58, Partridge_58, Phrankenstein_59, RER2_53, RGL3_51, Rasputin_59, RexFury_58, Rhodalysa_59, Shuman_60, StCroix_58, Swann_59, TWAMP_59, Takoda_59, UhSalsa_59, Yogi_60, Yoncess_58,

Genes that have the "Most Annotated" start but do not call it:

- BugsBunny_132, FairyPath_132,

Genes that do not have the "Most Annotated" start:

- Artu_11, Artu_298, Atuin_20, Atuin_320, BillNye_251, BillNye_5, Bloom_20, Bloom_307, BooTeria_10, BooTeria_309, BruhMoment_104, Circinus_249, Circinus_4, Cuke_47, DunneganBoMo_303, DunneganBoMo_8, E3_gp93, Emmetator_302, Emmetator_8, FloraSnap32_16, FloraSnap32_301, Fowlmouth_51, FrostedClock_19, FrostedClock_304, KSunshine22_11, KSunshine22_303, Laure_21, Laure_339, LeoJr_24, LeoJr_337, Mimi_18, Mimi_303, MrMiyagi_50, Patbob_17, Patbob_303, Phrampa_15, Phrampa_299, Racecar_19, Racecar_308, ReginaGlobina_21, ReginaGlobina_332, Rockabye_19, Rockabye_318, Stewart25555_12, Talia1610_18, Talia1610_304, WaddleDee_299, WaddleDee_8,

Summary by start number:

Start 2:

- Found in 3 of 87 (3.4%) of genes in pham
- Manual Annotations of this start: 3 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cuke_47 (AC), Fowlmouth_51 (AC), MrMiyagi_50 (AC),

Start 4:

- Found in 31 of 87 (35.6%) of genes in pham
- Manual Annotations of this start: 14 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Artu_11 (FC), Artu_298 (FC), Bloom_20 (FC), Bloom_307 (FC), BooTeria_10 (FC), BooTeria_309 (FC), DunneganBoMo_303 (FC), DunneganBoMo_8 (FC), Emmetator_302 (FC), Emmetator_8 (FC), FloraSnap32_16 (FC), FloraSnap32_301 (FC), FrostedClock_19 (FC), FrostedClock_304 (FC), KSunshine22_11 (FC), KSunshine22_303 (FC), Mimi_18 (FC), Mimi_303 (FC), Patbob_17 (FC), Patbob_303 (FC), Phrampa_15 (FC), Phrampa_299 (FC), Racecar_19 (FC), Racecar_308 (FC), Rockabye_19 (FC), Rockabye_318 (FC), Stewart25555_12 (FC), Talia1610_18 (FC), Talia1610_304 (FC), WaddleDee_299 (FC), WaddleDee_8 (FC),

Start 5:

- Found in 2 of 87 (2.3%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Laure_21 (UNK), Laure_339 (UNK),

Start 8:

- Found in 7 of 87 (8.0%) of genes in pham
- Manual Annotations of this start: 3 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Atuin_20 (FC), Atuin_320 (FC), BruhMoment_104 (AP3), LeoJr_24 (FC), LeoJr_337 (FC), ReginaGlobina_21 (FC), ReginaGlobina_332 (FC),

Start 9:

- Found in 4 of 87 (4.6%) of genes in pham
- Manual Annotations of this start: 4 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BillNye_251 (BK2), BillNye_5 (BK2), Circinus_249 (BK2), Circinus_4 (BK2),

Start 10:

- Found in 3 of 87 (3.4%) of genes in pham
- No Manual Annotations of this start.
- Called 33.3% of time when present
- Phage (with cluster) where this start called: E3_gp93 (singleton),

Start 11:

- Found in 39 of 87 (44.8%) of genes in pham
- Manual Annotations of this start: 35 of 59
- Called 94.9% of time when present
- Phage (with cluster) where this start called: Alatin_58 (CA), Alpacados_58 (CA), AngryOrchard_56 (CA), AppleCloud_56 (CA), Belenaria_60 (CA), BobbyDazzler_59 (CA), Bonanza_60 (CA), Bradshaw_59 (CA), Bryce_58 (CA), CosmicSans_59 (CA), Dinger_58 (CA), Erik_59 (CA), Espica_60 (CA), Gollum_59 (CA), Harlequin_59 (CA), Hiro_59 (CA), Jester_58 (CA), Krishelle_59 (CA), Lillie_59 (CA), Naiad_58 (CA), Nancinator_58 (CA), Natosaleda_58 (CA), Partridge_58 (CA), Phrankenstein_59 (CA), RER2_53 (CA), RGL3_51 (CA), Rasputin_59 (CA), RexFury_58 (CA), Rhodalysa_59 (CA), Shuman_60 (CA), StCroix_58 (CA), Swann_59 (CA), TWAMP_59 (CA), Takoda_59 (CA), UhSalsa_59 (CA), Yogi_60 (CA), Yoncess_58 (CA),

Start 16:

- Found in 59 of 87 (67.8%) of genes in pham
- No Manual Annotations of this start.
- Called 1.7% of time when present
- Phage (with cluster) where this start called: FairyPath_132 (E),

Start 20:

- Found in 2 of 87 (2.3%) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: BugsBunny_132 (E),

Summary by clusters:

There are 8 clusters represented in this pham: AC, E, AP3, CA, singleton, FC, BK2, UNK,

Info for manual annotations of cluster AC:

- Start number 2 was manually annotated 3 times for cluster AC.

Info for manual annotations of cluster AP3:

- Start number 8 was manually annotated 1 time for cluster AP3.

Info for manual annotations of cluster BK2:

- Start number 9 was manually annotated 4 times for cluster BK2.

Info for manual annotations of cluster CA:

- Start number 11 was manually annotated 35 times for cluster CA.

Info for manual annotations of cluster FC:

- Start number 4 was manually annotated 14 times for cluster FC.
- Start number 8 was manually annotated 2 times for cluster FC.

Gene Information:

Gene: Alatin_58 Start: 41201, Stop: 40866, Start Num: 11

Candidate Starts for Alatin_58:

(Start: 11 @41201 has 35 MA's), (15, 41177), (16, 41168), (18, 41162), (23, 41129), (26, 41099), (29, 41078), (37, 41021), (56, 40871),

Gene: Alpacados_58 Start: 41024, Stop: 40689, Start Num: 11

Candidate Starts for Alpacados_58:

(Start: 11 @41024 has 35 MA's), (16, 40991), (18, 40985), (23, 40952), (26, 40922), (39, 40835), (56, 40694),

Gene: AngryOrchard_56 Start: 41255, Stop: 40920, Start Num: 11

Candidate Starts for AngryOrchard_56:

(Start: 11 @41255 has 35 MA's), (15, 41231), (16, 41222), (18, 41216), (23, 41183), (39, 41066), (56, 40925),

Gene: AppleCloud_56 Start: 40918, Stop: 40583, Start Num: 11

Candidate Starts for AppleCloud_56:

(1, 41137), (Start: 11 @40918 has 35 MA's), (15, 40894), (16, 40885), (18, 40879), (23, 40846), (26, 40816), (29, 40795), (37, 40738), (56, 40588),

Gene: Artu_298 Start: 183957, Stop: 184358, Start Num: 4

Candidate Starts for Artu_298:

(Start: 4 @183957 has 14 MA's), (29, 184113), (34, 184146), (44, 184257),

Gene: Artu_11 Start: 4803, Stop: 5204, Start Num: 4

Candidate Starts for Artu_11:

(Start: 4 @4803 has 14 MA's), (29, 4959), (34, 4992), (44, 5103),

Gene: Atuin_20 Start: 9989, Stop: 10360, Start Num: 8

Candidate Starts for Atuin_20:

(Start: 8 @9989 has 3 MA's), (35, 10175), (43, 10268), (45, 10286),

Gene: Atuin_320 Start: 186877, Stop: 187248, Start Num: 8

Candidate Starts for Atuin_320:

(Start: 8 @186877 has 3 MA's), (35, 187063), (43, 187156), (45, 187174),

Gene: Belenaria_60 Start: 41066, Stop: 40731, Start Num: 11

Candidate Starts for Belenaria_60:

(1, 41285), (Start: 11 @41066 has 35 MA's), (15, 41042), (16, 41033), (18, 41027), (23, 40994), (26, 40964), (29, 40943), (37, 40886), (56, 40736),

Gene: BillNye_5 Start: 1694, Stop: 2023, Start Num: 9

Candidate Starts for BillNye_5:

(Start: 9 @1694 has 4 MA's), (10, 1700), (14, 1730), (16, 1742), (23, 1781), (40, 1907), (42, 1931),

Gene: BillNye_251 Start: 126516, Stop: 126845, Start Num: 9

Candidate Starts for BillNye_251:

(Start: 9 @126516 has 4 MA's), (10, 126522), (14, 126552), (16, 126564), (23, 126603), (40, 126729), (42, 126753),

Gene: Bloom_20 Start: 9417, Stop: 9824, Start Num: 4

Candidate Starts for Bloom_20:

(Start: 4 @9417 has 14 MA's), (16, 9483), (23, 9525), (30, 9579), (34, 9606), (42, 9708), (49, 9753), (55, 9804),

Gene: Bloom_307 Start: 182892, Stop: 183299, Start Num: 4

Candidate Starts for Bloom_307:

(Start: 4 @182892 has 14 MA's), (16, 182958), (23, 183000), (30, 183054), (34, 183081), (42, 183183), (49, 183228), (55, 183279),

Gene: BobbyDazzler_59 Start: 41171, Stop: 40836, Start Num: 11

Candidate Starts for BobbyDazzler_59:

(Start: 11 @41171 has 35 MA's), (16, 41138), (18, 41132), (23, 41099), (26, 41069), (39, 40982), (56, 40841),

Gene: Bonanza_60 Start: 41476, Stop: 41141, Start Num: 11

Candidate Starts for Bonanza_60:

(Start: 11 @41476 has 35 MA's), (16, 41443), (18, 41437), (23, 41404), (26, 41374), (39, 41287), (56, 41146),

Gene: BooTeria_309 Start: 183468, Stop: 183869, Start Num: 4

Candidate Starts for BooTeria_309:

(Start: 4 @183468 has 14 MA's), (29, 183624), (34, 183657), (44, 183768),

Gene: BooTeria_10 Start: 4559, Stop: 4960, Start Num: 4

Candidate Starts for BooTeria_10:

(Start: 4 @4559 has 14 MA's), (29, 4715), (34, 4748), (44, 4859),

Gene: Bradshaw_59 Start: 41134, Stop: 40799, Start Num: 11

Candidate Starts for Bradshaw_59:

(Start: 11 @41134 has 35 MA's), (15, 41110), (16, 41101), (18, 41095), (23, 41062), (26, 41032), (29, 41011), (37, 40954), (56, 40804),

Gene: BruhMoment_104 Start: 63229, Stop: 62861, Start Num: 8

Candidate Starts for BruhMoment_104:

(Start: 8 @63229 has 3 MA's), (16, 63178), (25, 63118), (29, 63088), (35, 63043), (48, 62914),

Gene: Bryce_58 Start: 40879, Stop: 40544, Start Num: 11

Candidate Starts for Bryce_58:

(Start: 11 @40879 has 35 MA's), (16, 40846), (18, 40840), (23, 40807), (26, 40777), (39, 40690), (56, 40549),

Gene: BugsBunny_132 Start: 71452, Stop: 71180, Start Num: 20

Candidate Starts for BugsBunny_132:

(7, 71527), (Start: 11 @71509 has 35 MA's), (14, 71488), (16, 71476), (17, 71473), (20, 71452), (23, 71437),

Gene: Circinus_4 Start: 1488, Stop: 1817, Start Num: 9

Candidate Starts for Circinus_4:

(6, 1479), (Start: 9 @1488 has 4 MA's), (14, 1524), (16, 1536), (23, 1575), (40, 1701), (42, 1725),

Gene: Circinus_249 Start: 125815, Stop: 126144, Start Num: 9

Candidate Starts for Circinus_249:

(6, 125806), (Start: 9 @125815 has 4 MA's), (14, 125851), (16, 125863), (23, 125902), (40, 126028), (42, 126052),

Gene: CosmicSans_59 Start: 41125, Stop: 40790, Start Num: 11

Candidate Starts for CosmicSans_59:

(Start: 11 @41125 has 35 MA's), (16, 41092), (18, 41086), (23, 41053), (26, 41023), (39, 40936), (56, 40795),

Gene: Cuke_47 Start: 33557, Stop: 33988, Start Num: 2

Candidate Starts for Cuke_47:

(Start: 2 @33557 has 3 MA's), (3, 33575), (12, 33629), (13, 33635), (28, 33740), (32, 33764), (38, 33821),

Gene: Dinger_58 Start: 41269, Stop: 40934, Start Num: 11

Candidate Starts for Dinger_58:

(1, 41488), (Start: 11 @41269 has 35 MA's), (14, 41248), (15, 41245), (16, 41236), (18, 41230), (23, 41197), (26, 41167), (39, 41080), (56, 40939),

Gene: DunneganBoMo_303 Start: 183982, Stop: 184383, Start Num: 4

Candidate Starts for DunneganBoMo_303:

(Start: 4 @183982 has 14 MA's), (29, 184138), (34, 184171), (44, 184282),

Gene: DunneganBoMo_8 Start: 4570, Stop: 4971, Start Num: 4

Candidate Starts for DunneganBoMo_8:

(Start: 4 @4570 has 14 MA's), (29, 4726), (34, 4759), (44, 4870),

Gene: E3_gp93 Start: 53631, Stop: 53960, Start Num: 10

Candidate Starts for E3_gp93:

(10, 53631), (14, 53661), (19, 53694), (42, 53865), (53, 53949),

Gene: Emmetator_8 Start: 4730, Stop: 5131, Start Num: 4
Candidate Starts for Emmetator_8:
(Start: 4 @4730 has 14 MA's), (29, 4886), (34, 4919), (44, 5030),

Gene: Emmetator_302 Start: 183030, Stop: 183431, Start Num: 4
Candidate Starts for Emmetator_302:
(Start: 4 @183030 has 14 MA's), (29, 183186), (34, 183219), (44, 183330),

Gene: Erik_59 Start: 40956, Stop: 40621, Start Num: 11
Candidate Starts for Erik_59:
(Start: 11 @40956 has 35 MA's), (16, 40923), (18, 40917), (23, 40884), (26, 40854), (39, 40767), (56, 40626),

Gene: Espica_60 Start: 41066, Stop: 40731, Start Num: 11
Candidate Starts for Espica_60:
(1, 41285), (Start: 11 @41066 has 35 MA's), (15, 41042), (16, 41033), (18, 41027), (23, 40994), (26, 40964), (29, 40943), (37, 40886), (56, 40736),

Gene: FairyPath_132 Start: 71841, Stop: 71545, Start Num: 16
Candidate Starts for FairyPath_132:
(Start: 11 @71874 has 35 MA's), (14, 71853), (16, 71841), (17, 71838), (20, 71817), (23, 71802),

Gene: FloraSnap32_16 Start: 8176, Stop: 8583, Start Num: 4
Candidate Starts for FloraSnap32_16:
(Start: 4 @8176 has 14 MA's), (16, 8242), (23, 8284), (29, 8332), (50, 8515), (55, 8563),

Gene: FloraSnap32_301 Start: 182314, Stop: 182721, Start Num: 4
Candidate Starts for FloraSnap32_301:
(Start: 4 @182314 has 14 MA's), (16, 182380), (23, 182422), (29, 182470), (50, 182653), (55, 182701),

Gene: Fowlmouth_51 Start: 36978, Stop: 37385, Start Num: 2
Candidate Starts for Fowlmouth_51:
(Start: 2 @36978 has 3 MA's), (3, 36996), (12, 37050), (21, 37116), (22, 37119), (24, 37122), (28, 37161), (34, 37206), (40, 37266),

Gene: FrostedClock_19 Start: 8848, Stop: 9255, Start Num: 4
Candidate Starts for FrostedClock_19:
(Start: 4 @8848 has 14 MA's), (16, 8914), (23, 8956), (30, 9010), (34, 9037), (42, 9139), (49, 9184), (55, 9235),

Gene: FrostedClock_304 Start: 182648, Stop: 183055, Start Num: 4
Candidate Starts for FrostedClock_304:
(Start: 4 @182648 has 14 MA's), (16, 182714), (23, 182756), (30, 182810), (34, 182837), (42, 182939), (49, 182984), (55, 183035),

Gene: Gollum_59 Start: 41067, Stop: 40732, Start Num: 11
Candidate Starts for Gollum_59:
(Start: 11 @41067 has 35 MA's), (16, 41034), (18, 41028), (23, 40995), (26, 40965), (39, 40878), (56, 40737),

Gene: Harlequin_59 Start: 40914, Stop: 40579, Start Num: 11
Candidate Starts for Harlequin_59:

(Start: 11 @40914 has 35 MA's), (16, 40881), (18, 40875), (23, 40842), (26, 40812), (29, 40791), (39, 40725), (54, 40590), (56, 40584),

Gene: Hiro_59 Start: 41385, Stop: 41050, Start Num: 11

Candidate Starts for Hiro_59:

(Start: 11 @41385 has 35 MA's), (16, 41352), (18, 41346), (23, 41313), (26, 41283), (39, 41196), (56, 41055),

Gene: Jester_58 Start: 40845, Stop: 40510, Start Num: 11

Candidate Starts for Jester_58:

(Start: 11 @40845 has 35 MA's), (16, 40812), (18, 40806), (23, 40773), (26, 40743), (29, 40722), (39, 40656), (54, 40521), (56, 40515),

Gene: KSunshine22_11 Start: 5160, Stop: 5561, Start Num: 4

Candidate Starts for KSunshine22_11:

(Start: 4 @5160 has 14 MA's), (29, 5316), (34, 5349), (44, 5460),

Gene: KSunshine22_303 Start: 182061, Stop: 182462, Start Num: 4

Candidate Starts for KSunshine22_303:

(Start: 4 @182061 has 14 MA's), (29, 182217), (34, 182250), (44, 182361),

Gene: Krishelle_59 Start: 41494, Stop: 41159, Start Num: 11

Candidate Starts for Krishelle_59:

(Start: 11 @41494 has 35 MA's), (15, 41470), (16, 41461), (18, 41455), (23, 41422), (26, 41392), (29, 41371), (37, 41314), (56, 41164),

Gene: Laure_339 Start: 177636, Stop: 178016, Start Num: 5

Candidate Starts for Laure_339:

(5, 177636), (14, 177684), (25, 177756), (29, 177786), (36, 177846), (46, 177951), (47, 177954), (52, 177978),

Gene: Laure_21 Start: 9288, Stop: 9668, Start Num: 5

Candidate Starts for Laure_21:

(5, 9288), (14, 9336), (25, 9408), (29, 9438), (36, 9498), (46, 9603), (47, 9606), (52, 9630),

Gene: LeoJr_337 Start: 187594, Stop: 187965, Start Num: 8

Candidate Starts for LeoJr_337:

(Start: 8 @187594 has 3 MA's), (35, 187780), (43, 187873), (45, 187891),

Gene: LeoJr_24 Start: 10291, Stop: 10662, Start Num: 8

Candidate Starts for LeoJr_24:

(Start: 8 @10291 has 3 MA's), (35, 10477), (43, 10570), (45, 10588),

Gene: Lillie_59 Start: 41125, Stop: 40790, Start Num: 11

Candidate Starts for Lillie_59:

(Start: 11 @41125 has 35 MA's), (16, 41092), (18, 41086), (23, 41053), (26, 41023), (39, 40936), (56, 40795),

Gene: Mimi_303 Start: 181514, Stop: 181921, Start Num: 4

Candidate Starts for Mimi_303:

(Start: 4 @181514 has 14 MA's), (16, 181580), (23, 181622), (30, 181676), (34, 181703), (39, 181763), (42, 181805), (49, 181850), (55, 181901),

Gene: Mimi_18 Start: 8854, Stop: 9261, Start Num: 4
Candidate Starts for Mimi_18:
(Start: 4 @8854 has 14 MA's), (16, 8920), (23, 8962), (30, 9016), (34, 9043), (39, 9103), (42, 9145),
(49, 9190), (55, 9241),

Gene: MrMiyagi_50 Start: 37362, Stop: 37769, Start Num: 2
Candidate Starts for MrMiyagi_50:
(Start: 2 @37362 has 3 MA's), (3, 37380), (12, 37434), (22, 37503), (24, 37506), (28, 37545), (34,
37590), (40, 37650),

Gene: Naiad_58 Start: 41147, Stop: 40812, Start Num: 11
Candidate Starts for Naiad_58:
(Start: 11 @41147 has 35 MA's), (15, 41123), (16, 41114), (18, 41108), (23, 41075), (26, 41045), (29,
41024), (37, 40967), (56, 40817),

Gene: Nancinator_58 Start: 40464, Stop: 40129, Start Num: 11
Candidate Starts for Nancinator_58:
(Start: 11 @40464 has 35 MA's), (16, 40431), (18, 40425), (23, 40392), (26, 40362), (39, 40275), (56,
40134),

Gene: Natosaleda_58 Start: 41065, Stop: 40730, Start Num: 11
Candidate Starts for Natosaleda_58:
(1, 41284), (Start: 11 @41065 has 35 MA's), (15, 41041), (16, 41032), (18, 41026), (23, 40993), (26,
40963), (29, 40942), (37, 40885), (56, 40735),

Gene: Partridge_58 Start: 41426, Stop: 41091, Start Num: 11
Candidate Starts for Partridge_58:
(1, 41645), (Start: 11 @41426 has 35 MA's), (14, 41405), (15, 41402), (16, 41393), (18, 41387), (23,
41354), (26, 41324), (39, 41237), (56, 41096),

Gene: Patbob_17 Start: 8860, Stop: 9267, Start Num: 4
Candidate Starts for Patbob_17:
(Start: 4 @8860 has 14 MA's), (23, 8968), (30, 9022), (33, 9046), (42, 9151), (55, 9247),

Gene: Patbob_303 Start: 184319, Stop: 184726, Start Num: 4
Candidate Starts for Patbob_303:
(Start: 4 @184319 has 14 MA's), (23, 184427), (30, 184481), (33, 184505), (42, 184610), (55, 184706),

Gene: Phrampa_299 Start: 183572, Stop: 183967, Start Num: 4
Candidate Starts for Phrampa_299:
(Start: 4 @183572 has 14 MA's), (23, 183680), (29, 183728), (30, 183734), (31, 183737), (42, 183863),
(57, 183962),

Gene: Phrampa_15 Start: 7201, Stop: 7596, Start Num: 4
Candidate Starts for Phrampa_15:
(Start: 4 @7201 has 14 MA's), (23, 7309), (29, 7357), (30, 7363), (31, 7366), (42, 7492), (57, 7591),

Gene: Phrankenstein_59 Start: 41071, Stop: 40736, Start Num: 11
Candidate Starts for Phrankenstein_59:
(Start: 11 @41071 has 35 MA's), (16, 41038), (18, 41032), (23, 40999), (26, 40969), (39, 40882), (56,
40741),

Gene: RER2_53 Start: 37997, Stop: 37662, Start Num: 11

Candidate Starts for RER2_53:

(Start: 11 @37997 has 35 MA's), (16, 37964), (18, 37958), (23, 37925), (26, 37895), (39, 37808), (56, 37667),

Gene: RGL3_51 Start: 38672, Stop: 38334, Start Num: 11

Candidate Starts for RGL3_51:

(Start: 11 @38672 has 35 MA's), (16, 38639), (27, 38564), (31, 38540), (32, 38537), (34, 38516), (37, 38489), (41, 38447), (56, 38339),

Gene: Racecar_19 Start: 9417, Stop: 9824, Start Num: 4

Candidate Starts for Racecar_19:

(Start: 4 @9417 has 14 MA's), (16, 9483), (23, 9525), (30, 9579), (34, 9606), (42, 9708), (49, 9753), (55, 9804),

Gene: Racecar_308 Start: 183126, Stop: 183533, Start Num: 4

Candidate Starts for Racecar_308:

(Start: 4 @183126 has 14 MA's), (16, 183192), (23, 183234), (30, 183288), (34, 183315), (42, 183417), (49, 183462), (55, 183513),

Gene: Rasputin_59 Start: 41095, Stop: 40760, Start Num: 11

Candidate Starts for Rasputin_59:

(Start: 11 @41095 has 35 MA's), (16, 41062), (18, 41056), (23, 41023), (26, 40993), (39, 40906), (56, 40765),

Gene: ReginaGlobina_332 Start: 187589, Stop: 187960, Start Num: 8

Candidate Starts for ReginaGlobina_332:

(Start: 8 @187589 has 3 MA's), (16, 187640), (35, 187775), (40, 187838), (48, 187904),

Gene: ReginaGlobina_21 Start: 10142, Stop: 10513, Start Num: 8

Candidate Starts for ReginaGlobina_21:

(Start: 8 @10142 has 3 MA's), (16, 10193), (35, 10328), (40, 10391), (48, 10457),

Gene: RexFury_58 Start: 41155, Stop: 40820, Start Num: 11

Candidate Starts for RexFury_58:

(1, 41374), (Start: 11 @41155 has 35 MA's), (15, 41131), (16, 41122), (18, 41116), (23, 41083), (26, 41053), (29, 41032), (37, 40975), (56, 40825),

Gene: Rhodalysa_59 Start: 41125, Stop: 40790, Start Num: 11

Candidate Starts for Rhodalysa_59:

(Start: 11 @41125 has 35 MA's), (16, 41092), (18, 41086), (23, 41053), (26, 41023), (39, 40936), (56, 40795),

Gene: Rockabye_19 Start: 9153, Stop: 9560, Start Num: 4

Candidate Starts for Rockabye_19:

(Start: 4 @9153 has 14 MA's), (29, 9309), (34, 9342), (42, 9444), (43, 9450), (48, 9486), (55, 9540),

Gene: Rockabye_318 Start: 181766, Stop: 182173, Start Num: 4

Candidate Starts for Rockabye_318:

(Start: 4 @181766 has 14 MA's), (29, 181922), (34, 181955), (42, 182057), (43, 182063), (48, 182099), (55, 182153),

Gene: Shuman_60 Start: 41076, Stop: 40741, Start Num: 11

Candidate Starts for Shuman_60:

(Start: 11 @41076 has 35 MA's), (16, 41043), (18, 41037), (23, 41004), (26, 40974), (39, 40887), (56, 40746),

Gene: StCroix_58 Start: 41147, Stop: 40812, Start Num: 11

Candidate Starts for StCroix_58:

(Start: 11 @41147 has 35 MA's), (15, 41123), (16, 41114), (18, 41108), (23, 41075), (26, 41045), (29, 41024), (37, 40967), (56, 40817),

Gene: Stewart25555_12 Start: 5769, Stop: 6158, Start Num: 4

Candidate Starts for Stewart25555_12:

(Start: 4 @5769 has 14 MA's), (16, 5835), (44, 6069), (51, 6114),

Gene: Swann_59 Start: 41123, Stop: 40788, Start Num: 11

Candidate Starts for Swann_59:

(Start: 11 @41123 has 35 MA's), (16, 41090), (18, 41084), (23, 41051), (26, 41021), (39, 40934), (56, 40793),

Gene: TWAMP_59 Start: 41125, Stop: 40790, Start Num: 11

Candidate Starts for TWAMP_59:

(Start: 11 @41125 has 35 MA's), (16, 41092), (18, 41086), (23, 41053), (26, 41023), (39, 40936), (56, 40795),

Gene: Takoda_59 Start: 41309, Stop: 40974, Start Num: 11

Candidate Starts for Takoda_59:

(Start: 11 @41309 has 35 MA's), (15, 41285), (16, 41276), (18, 41270), (23, 41237), (39, 41120), (56, 40979),

Gene: Talia1610_304 Start: 183328, Stop: 183735, Start Num: 4

Candidate Starts for Talia1610_304:

(Start: 4 @183328 has 14 MA's), (16, 183394), (23, 183436), (30, 183490), (34, 183517), (39, 183577), (42, 183619), (49, 183664), (55, 183715),

Gene: Talia1610_18 Start: 8856, Stop: 9263, Start Num: 4

Candidate Starts for Talia1610_18:

(Start: 4 @8856 has 14 MA's), (16, 8922), (23, 8964), (30, 9018), (34, 9045), (39, 9105), (42, 9147), (49, 9192), (55, 9243),

Gene: UhSalsa_59 Start: 41066, Stop: 40731, Start Num: 11

Candidate Starts for UhSalsa_59:

(1, 41285), (Start: 11 @41066 has 35 MA's), (15, 41042), (16, 41033), (18, 41027), (23, 40994), (26, 40964), (29, 40943), (37, 40886), (56, 40736),

Gene: WaddleDee_8 Start: 4570, Stop: 4971, Start Num: 4

Candidate Starts for WaddleDee_8:

(Start: 4 @4570 has 14 MA's), (29, 4726), (34, 4759), (44, 4870),

Gene: WaddleDee_299 Start: 182765, Stop: 183166, Start Num: 4

Candidate Starts for WaddleDee_299:

(Start: 4 @182765 has 14 MA's), (29, 182921), (34, 182954), (44, 183065),

Gene: Yogi_60 Start: 41476, Stop: 41141, Start Num: 11

Candidate Starts for Yogi_60:

(Start: 11 @41476 has 35 MA's), (16, 41443), (18, 41437), (23, 41404), (26, 41374), (39, 41287), (56, 41146),

Gene: Yoncess_58 Start: 40879, Stop: 40544, Start Num: 11

Candidate Starts for Yoncess_58:

(Start: 11 @40879 has 35 MA's), (16, 40846), (18, 40840), (23, 40807), (26, 40777), (39, 40690), (56, 40549),