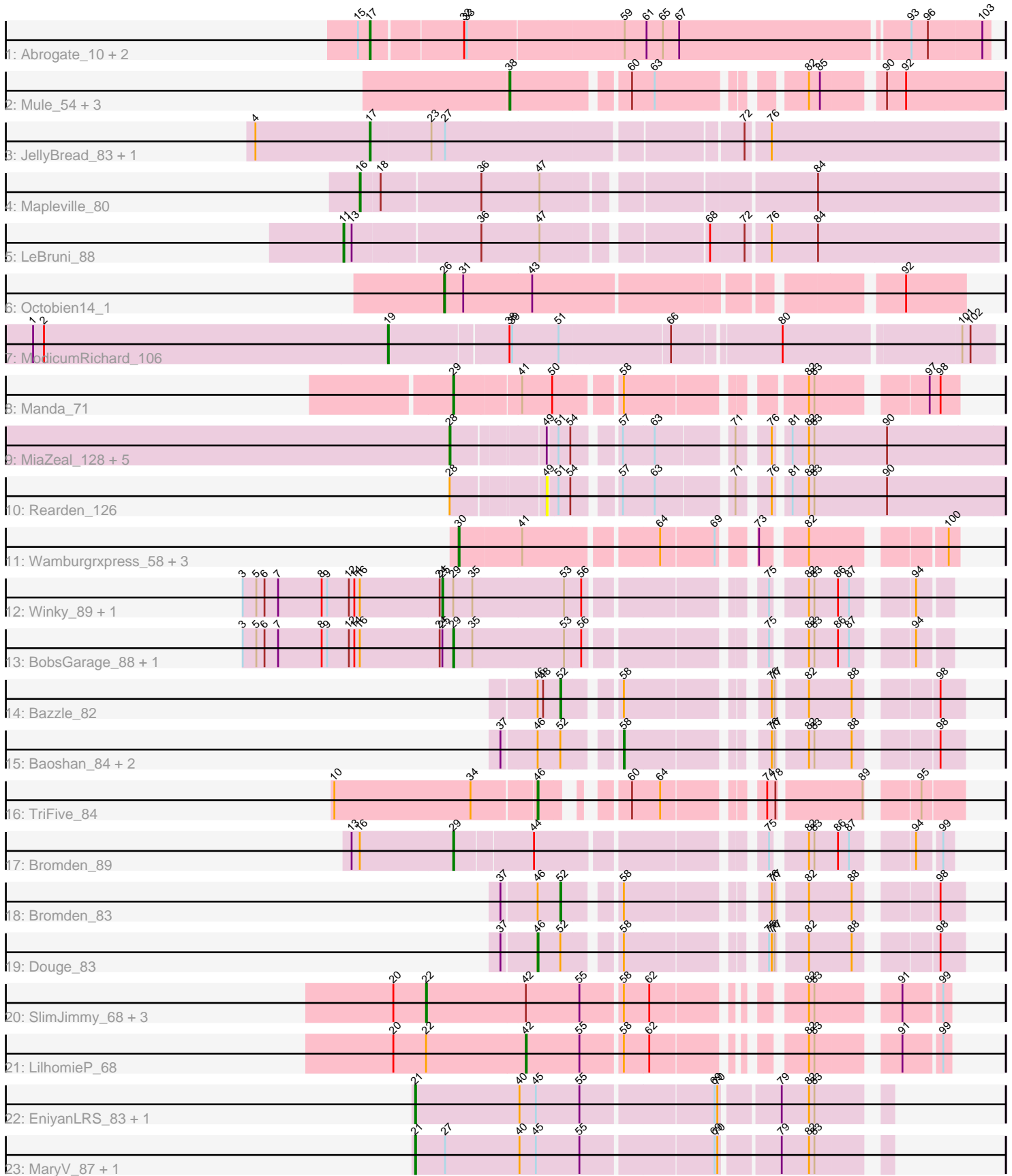


Pham 311731



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 311731 Report

This analysis was run 06/27/26 on database version 652.

Pham number 311731 has 46 members, 9 are drafts.

Phages represented in each track:

- Track 1 : Abrogate_10, DreamCatcher_1, Ruotula_1
- Track 2 : Mule_54, Smairt_59, PhrostyMug_55, Aeneas_59
- Track 3 : JellyBread_83, BlackSpider_75
- Track 4 : Mapleville_80
- Track 5 : LeBruni_88
- Track 6 : Octobien14_1
- Track 7 : ModicumRichard_106
- Track 8 : Manda_71
- Track 9 : MiaZeal_128, Nibley_125, Gonephishing_122, Nekros_131, Shaboozey_129, Squint_126
- Track 10 : Rearden_126
- Track 11 : Wamburgexpress_58, OhShagHennessy_56, Calm_59, Zaria_59
- Track 12 : Winky_89, Sarshaun_90
- Track 13 : BobsGarage_88, Soap141_89
- Track 14 : Bazzle_82
- Track 15 : Baoshan_84, ZhongYanYuan_82, DHan_88
- Track 16 : TriFive_84
- Track 17 : Bromden_89
- Track 18 : Bromden_83
- Track 19 : Douge_83
- Track 20 : SlimJimmy_68, Glaske16_70, FreakyGoo_70, Skinny_71
- Track 21 : LilhomieP_68
- Track 22 : EniyanLRS_83, Cosmo_87
- Track 23 : MaryV_87, Wildcat_87

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

The start number called the most often in the published annotations is 17, it was called in 5 of the 37 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Abrogate_10, BlackSpider_75, DreamCatcher_1, JellyBread_83, Ruotula_1,

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

-

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

- Aeneas_59, Baoshan_84, Bazzle_82, BobsGarage_88, Bromden_83, Bromden_89, Calm_59, Cosmo_87, DHan_88, Douge_83, EniyanLRS_83, FreakyGoo_70, Glaske16_70, Gonephishing_122, LeBruni_88, LilhomieP_68, Manda_71, Mapleville_80, MaryV_87, MiaZeal_128, ModicumRichard_106, Mule_54, Nekros_131, Nibley_125, Octobien14_1, OhShagHennessy_56, PhrostyMug_55, Rearden_126, Sarshaun_90, Shaboozey_129, Skinny_71, SlimJimmy_68, Smairt_59, Soap141_89, Squint_126, TriFive_84, Wamburgxpress_58, Wildcat_87, Winky_89, Zaria_59, ZhongYanYuan_82,

Summary by start number:

Start 11:

- Found in 1 of 46 (2.2%) of genes in pham
- Manual Annotations of this start: 1 of 37
- Called 100.0% of time when present
- Phage (with cluster) where this start called: LeBruni_88 (AY),

Start 16:

- Found in 6 of 46 (13.0%) of genes in pham
- Manual Annotations of this start: 1 of 37
- Called 16.7% of time when present
- Phage (with cluster) where this start called: Mapleville_80 (AY),

Start 17:

- Found in 5 of 46 (10.9%) of genes in pham
- Manual Annotations of this start: 5 of 37
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abrogate_10 (A1), BlackSpider_75 (FN), DreamCatcher_1 (A1), JellyBread_83 (AY), Ruotula_1 (A1),

Start 19:

- Found in 1 of 46 (2.2%) of genes in pham
- Manual Annotations of this start: 1 of 37
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ModicumRichard_106 (DZ),

Start 21:

- Found in 4 of 46 (8.7%) of genes in pham
- Manual Annotations of this start: 4 of 37
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cosmo_87 (V), EniyanLRS_83 (V), MaryV_87 (V), Wildcat_87 (V),

Start 22:

- Found in 5 of 46 (10.9%) of genes in pham
- Manual Annotations of this start: 4 of 37
- Called 80.0% of time when present
- Phage (with cluster) where this start called: FreakyGoo_70 (M1), Glaske16_70 (M1), Skinny_71 (M1), SlimJimmy_68 (M1),

Start 25:

- Found in 4 of 46 (8.7%) of genes in pham
- Manual Annotations of this start: 1 of 37
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Sarshaun_90 (L2), Winky_89 (L2),

Start 26:

- Found in 1 of 46 (2.2%) of genes in pham
- Manual Annotations of this start: 1 of 37
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Octobien14_1 (DU1),

Start 28:

- Found in 7 of 46 (15.2%) of genes in pham
- Manual Annotations of this start: 2 of 37
- Called 85.7% of time when present
- Phage (with cluster) where this start called: Gonephishing_122 (J), MiaZeal_128 (J), Nekros_131 (J), Nibley_125 (J), Shaboozey_129 (J), Squint_126 (J),

Start 29:

- Found in 6 of 46 (13.0%) of genes in pham
- Manual Annotations of this start: 3 of 37
- Called 66.7% of time when present
- Phage (with cluster) where this start called: BobsGarage_88 (L2), Bromden_89 (L4), Manda_71 (E), Soap141_89 (L2),

Start 30:

- Found in 4 of 46 (8.7%) of genes in pham
- Manual Annotations of this start: 4 of 37
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Calm_59 (L1), OhShagHennessy_56 (L1), Wamburgrxpress_58 (L1), Zaria_59 (L1),

Start 38:

- Found in 5 of 46 (10.9%) of genes in pham
- Manual Annotations of this start: 4 of 37
- Called 80.0% of time when present
- Phage (with cluster) where this start called: Aeneas_59 (A1), Mule_54 (A1), PhrostyMug_55 (A1), Smairt_59 (A1),

Start 42:

- Found in 5 of 46 (10.9%) of genes in pham
- Manual Annotations of this start: 1 of 37
- Called 20.0% of time when present
- Phage (with cluster) where this start called: LilhomieP_68 (M1),

Start 46:

- Found in 7 of 46 (15.2%) of genes in pham
- Manual Annotations of this start: 2 of 37
- Called 28.6% of time when present
- Phage (with cluster) where this start called: Douge_83 (L4), TriFive_84 (L3),

Start 49:

- Found in 7 of 46 (15.2%) of genes in pham
- No Manual Annotations of this start.
- Called 14.3% of time when present
- Phage (with cluster) where this start called: Rearden_126 (J),

Start 52:

- Found in 6 of 46 (13.0%) of genes in pham
- Manual Annotations of this start: 2 of 37
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Bazzle_82 (L2), Bromden_83 (L4),

Start 58:

- Found in 12 of 46 (26.1%) of genes in pham
- Manual Annotations of this start: 1 of 37
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Baoshan_84 (L2), DHan_88 (L2), ZhongYanYuan_82 (L2),

Summary by clusters:

There are 13 clusters represented in this pham: J, E, L1, DU1, A1, L4, L2, L3, V, AY, M1, DZ, FN,

Info for manual annotations of cluster A1:

- Start number 17 was manually annotated 3 times for cluster A1.
- Start number 38 was manually annotated 4 times for cluster A1.

Info for manual annotations of cluster AY:

- Start number 11 was manually annotated 1 time for cluster AY.
- Start number 16 was manually annotated 1 time for cluster AY.
- Start number 17 was manually annotated 1 time for cluster AY.

Info for manual annotations of cluster DU1:

- Start number 26 was manually annotated 1 time for cluster DU1.

Info for manual annotations of cluster DZ:

- Start number 19 was manually annotated 1 time for cluster DZ.

Info for manual annotations of cluster E:

- Start number 29 was manually annotated 1 time for cluster E.

Info for manual annotations of cluster FN:

- Start number 17 was manually annotated 1 time for cluster FN.

Info for manual annotations of cluster J:

- Start number 28 was manually annotated 2 times for cluster J.

Info for manual annotations of cluster L1:

- Start number 30 was manually annotated 4 times for cluster L1.

Info for manual annotations of cluster L2:

- Start number 25 was manually annotated 1 time for cluster L2.
- Start number 29 was manually annotated 1 time for cluster L2.

- Start number 52 was manually annotated 1 time for cluster L2.
- Start number 58 was manually annotated 1 time for cluster L2.

Info for manual annotations of cluster L3:

- Start number 46 was manually annotated 1 time for cluster L3.

Info for manual annotations of cluster L4:

- Start number 29 was manually annotated 1 time for cluster L4.
- Start number 46 was manually annotated 1 time for cluster L4.
- Start number 52 was manually annotated 1 time for cluster L4.

Info for manual annotations of cluster M1:

- Start number 22 was manually annotated 4 times for cluster M1.
- Start number 42 was manually annotated 1 time for cluster M1.

Info for manual annotations of cluster V:

- Start number 21 was manually annotated 4 times for cluster V.

Gene Information:

Gene: Abrogate_10 Start: 697, Stop: 1347, Start Num: 17

Candidate Starts for Abrogate_10:

(15, 685), (Start: 17 @697 has 5 MA's), (32, 793), (33, 796), (59, 961), (61, 985), (65, 1003), (67, 1021), (93, 1264), (96, 1282), (103, 1339),

Gene: Aeneas_59 Start: 40763, Stop: 40299, Start Num: 38

Candidate Starts for Aeneas_59:

(Start: 38 @40763 has 4 MA's), (60, 40649), (63, 40625), (82, 40493), (85, 40481), (90, 40424), (92, 40403),

Gene: Baoshan_84 Start: 55413, Stop: 55715, Start Num: 58

Candidate Starts for Baoshan_84:

(37, 55305), (Start: 46 @55341 has 2 MA's), (Start: 52 @55365 has 2 MA's), (Start: 58 @55413 has 1 MA's), (76, 55542), (77, 55545), (82, 55572), (83, 55578), (88, 55617), (98, 55689),

Gene: Bazzle_82 Start: 55265, Stop: 55615, Start Num: 52

Candidate Starts for Bazzle_82:

(Start: 46 @55241 has 2 MA's), (48, 55247), (Start: 52 @55265 has 2 MA's), (Start: 58 @55313 has 1 MA's), (76, 55442), (77, 55445), (82, 55472), (88, 55517), (98, 55589),

Gene: BlackSpider_75 Start: 46054, Stop: 46710, Start Num: 17

Candidate Starts for BlackSpider_75:

(4, 45928), (Start: 17 @46054 has 5 MA's), (23, 46120), (27, 46135), (72, 46438), (76, 46462),

Gene: BobsGarage_88 Start: 57587, Stop: 58045, Start Num: 29

Candidate Starts for BobsGarage_88:

(3, 57356), (5, 57371), (6, 57380), (7, 57395), (8, 57443), (9, 57449), (12, 57473), (14, 57479), (Start: 16 @57485 has 1 MA's), (24, 57572), (Start: 25 @57575 has 1 MA's), (Start: 29 @57587 has 3 MA's), (35, 57608), (53, 57707), (56, 57725), (75, 57887), (82, 57917), (83, 57923), (86, 57947), (87, 57959), (94, 58010),

Gene: Bromden_89 Start: 57826, Stop: 58278, Start Num: 29

Candidate Starts for Bromden_89:

(13, 57715), (Start: 16 @57724 has 1 MA's), (Start: 29 @57826 has 3 MA's), (44, 57907), (75, 58120), (82, 58150), (83, 58156), (86, 58180), (87, 58192), (94, 58243), (99, 58267),

Gene: Bromden_83 Start: 54891, Stop: 55241, Start Num: 52

Candidate Starts for Bromden_83:

(37, 54831), (Start: 46 @54867 has 2 MA's), (Start: 52 @54891 has 2 MA's), (Start: 58 @54939 has 1 MA's), (76, 55068), (77, 55071), (82, 55098), (88, 55143), (98, 55215),

Gene: Calm_59 Start: 41416, Stop: 41874, Start Num: 30

Candidate Starts for Calm_59:

(Start: 30 @41416 has 4 MA's), (41, 41482), (64, 41617), (69, 41674), (73, 41698), (82, 41740), (100, 41863),

Gene: Cosmo_87 Start: 53401, Stop: 53880, Start Num: 21

Candidate Starts for Cosmo_87:

(Start: 21 @53401 has 4 MA's), (40, 53515), (45, 53533), (55, 53581), (69, 53719), (70, 53722), (79, 53779), (82, 53809), (83, 53815),

Gene: DHan_88 Start: 55476, Stop: 55778, Start Num: 58

Candidate Starts for DHan_88:

(37, 55368), (Start: 46 @55404 has 2 MA's), (Start: 52 @55428 has 2 MA's), (Start: 58 @55476 has 1 MA's), (76, 55605), (77, 55608), (82, 55635), (83, 55641), (88, 55680), (98, 55752),

Gene: Douge_83 Start: 53819, Stop: 54193, Start Num: 46

Candidate Starts for Douge_83:

(37, 53783), (Start: 46 @53819 has 2 MA's), (Start: 52 @53843 has 2 MA's), (Start: 58 @53891 has 1 MA's), (75, 54017), (76, 54020), (77, 54023), (82, 54050), (88, 54095), (98, 54167),

Gene: DreamCatcher_1 Start: 695, Stop: 1345, Start Num: 17

Candidate Starts for DreamCatcher_1:

(15, 683), (Start: 17 @695 has 5 MA's), (32, 791), (33, 794), (59, 959), (61, 983), (65, 1001), (67, 1019), (93, 1262), (96, 1280), (103, 1337),

Gene: EniyanLRS_83 Start: 53140, Stop: 53619, Start Num: 21

Candidate Starts for EniyanLRS_83:

(Start: 21 @53140 has 4 MA's), (40, 53254), (45, 53272), (55, 53320), (69, 53458), (70, 53461), (79, 53518), (82, 53548), (83, 53554),

Gene: FreakyGoo_70 Start: 44854, Stop: 45342, Start Num: 22

Candidate Starts for FreakyGoo_70:

(20, 44818), (Start: 22 @44854 has 4 MA's), (Start: 42 @44962 has 1 MA's), (55, 45019), (Start: 58 @45061 has 1 MA's), (62, 45088), (82, 45214), (83, 45220), (91, 45295), (99, 45334),

Gene: Glaske16_70 Start: 44853, Stop: 45341, Start Num: 22

Candidate Starts for Glaske16_70:

(20, 44817), (Start: 22 @44853 has 4 MA's), (Start: 42 @44961 has 1 MA's), (55, 45018), (Start: 58 @45060 has 1 MA's), (62, 45087), (82, 45213), (83, 45219), (91, 45294), (99, 45333),

Gene: Gonephishing_122 Start: 66828, Stop: 67358, Start Num: 28

Candidate Starts for Gonephishing_122:

(Start: 28 @66828 has 2 MA's), (49, 66921), (51, 66930), (54, 66942), (57, 66981), (63, 67014), (71, 67089), (76, 67116), (81, 67128), (82, 67146), (83, 67152), (90, 67230),

Gene: JellyBread_83 Start: 48413, Stop: 49069, Start Num: 17

Candidate Starts for JellyBread_83:

(4, 48287), (Start: 17 @48413 has 5 MA's), (23, 48479), (27, 48494), (72, 48797), (76, 48821),

Gene: LeBruni_88 Start: 48740, Stop: 49414, Start Num: 11

Candidate Starts for LeBruni_88:

(Start: 11 @48740 has 1 MA's), (13, 48749), (36, 48884), (47, 48947), (68, 49106), (72, 49142), (76, 49166), (84, 49217),

Gene: LilhomieP_68 Start: 44966, Stop: 45346, Start Num: 42

Candidate Starts for LilhomieP_68:

(20, 44822), (Start: 22 @44858 has 4 MA's), (Start: 42 @44966 has 1 MA's), (55, 45023), (Start: 58 @45065 has 1 MA's), (62, 45092), (82, 45218), (83, 45224), (91, 45299), (99, 45338),

Gene: Manda_71 Start: 47070, Stop: 47540, Start Num: 29

Candidate Starts for Manda_71:

(Start: 29 @47070 has 3 MA's), (41, 47139), (50, 47172), (Start: 58 @47235 has 1 MA's), (82, 47400), (83, 47406), (97, 47508), (98, 47520),

Gene: Mapleville_80 Start: 47176, Stop: 47832, Start Num: 16

Candidate Starts for Mapleville_80:

(Start: 16 @47176 has 1 MA's), (18, 47197), (36, 47302), (47, 47365), (84, 47635),

Gene: MaryV_87 Start: 53222, Stop: 53701, Start Num: 21

Candidate Starts for MaryV_87:

(Start: 21 @53222 has 4 MA's), (27, 53255), (40, 53336), (45, 53354), (55, 53402), (69, 53540), (70, 53543), (79, 53600), (82, 53630), (83, 53636),

Gene: MiaZeal_128 Start: 68487, Stop: 69017, Start Num: 28

Candidate Starts for MiaZeal_128:

(Start: 28 @68487 has 2 MA's), (49, 68580), (51, 68589), (54, 68601), (57, 68640), (63, 68673), (71, 68748), (76, 68775), (81, 68787), (82, 68805), (83, 68811), (90, 68889),

Gene: ModicumRichard_106 Start: 60143, Stop: 60772, Start Num: 19

Candidate Starts for ModicumRichard_106:

(1, 59753), (2, 59765), (Start: 19 @60143 has 1 MA's), (Start: 38 @60269 has 4 MA's), (39, 60272), (51, 60323), (66, 60440), (80, 60551), (101, 60737), (102, 60746),

Gene: Mule_54 Start: 38049, Stop: 37585, Start Num: 38

Candidate Starts for Mule_54:

(Start: 38 @38049 has 4 MA's), (60, 37935), (63, 37911), (82, 37779), (85, 37767), (90, 37710), (92, 37689),

Gene: Nekros_131 Start: 71983, Stop: 72513, Start Num: 28

Candidate Starts for Nekros_131:

(Start: 28 @71983 has 2 MA's), (49, 72076), (51, 72085), (54, 72097), (57, 72136), (63, 72169), (71, 72244), (76, 72271), (81, 72283), (82, 72301), (83, 72307), (90, 72385),

Gene: Nibley_125 Start: 68366, Stop: 68896, Start Num: 28

Candidate Starts for Nibley_125:

(Start: 28 @68366 has 2 MA's), (49, 68459), (51, 68468), (54, 68480), (57, 68519), (63, 68552), (71, 68627), (76, 68654), (81, 68666), (82, 68684), (83, 68690), (90, 68768),

Gene: Octobien14_1 Start: 652, Stop: 131, Start Num: 26

Candidate Starts for Octobien14_1:

(Start: 26 @652 has 1 MA's), (31, 631), (43, 556), (92, 196),

Gene: OhShagHennessy_56 Start: 40304, Stop: 40762, Start Num: 30

Candidate Starts for OhShagHennessy_56:

(Start: 30 @40304 has 4 MA's), (41, 40370), (64, 40505), (69, 40562), (73, 40586), (82, 40628), (100, 40751),

Gene: PhrostyMug_55 Start: 40223, Stop: 39759, Start Num: 38

Candidate Starts for PhrostyMug_55:

(Start: 38 @40223 has 4 MA's), (60, 40109), (63, 40085), (82, 39953), (85, 39941), (90, 39884), (92, 39863),

Gene: Rearden_126 Start: 68479, Stop: 68916, Start Num: 49

Candidate Starts for Rearden_126:

(Start: 28 @68386 has 2 MA's), (49, 68479), (51, 68488), (54, 68500), (57, 68539), (63, 68572), (71, 68647), (76, 68674), (81, 68686), (82, 68704), (83, 68710), (90, 68788),

Gene: Ruotula_1 Start: 698, Stop: 1348, Start Num: 17

Candidate Starts for Ruotula_1:

(15, 686), (Start: 17 @698 has 5 MA's), (32, 794), (33, 797), (59, 962), (61, 986), (65, 1004), (67, 1022), (93, 1265), (96, 1283), (103, 1340),

Gene: Sarshaun_90 Start: 57970, Stop: 58440, Start Num: 25

Candidate Starts for Sarshaun_90:

(3, 57751), (5, 57766), (6, 57775), (7, 57790), (8, 57838), (9, 57844), (12, 57868), (14, 57874), (Start: 16 @57880 has 1 MA's), (24, 57967), (Start: 25 @57970 has 1 MA's), (Start: 29 @57982 has 3 MA's), (35, 58003), (53, 58102), (56, 58120), (75, 58282), (82, 58312), (83, 58318), (86, 58342), (87, 58354), (94, 58405),

Gene: Shaboozey_129 Start: 68810, Stop: 69340, Start Num: 28

Candidate Starts for Shaboozey_129:

(Start: 28 @68810 has 2 MA's), (49, 68903), (51, 68912), (54, 68924), (57, 68963), (63, 68996), (71, 69071), (76, 69098), (81, 69110), (82, 69128), (83, 69134), (90, 69212),

Gene: Skinny_71 Start: 45287, Stop: 45775, Start Num: 22

Candidate Starts for Skinny_71:

(20, 45251), (Start: 22 @45287 has 4 MA's), (Start: 42 @45395 has 1 MA's), (55, 45452), (Start: 58 @45494 has 1 MA's), (62, 45521), (82, 45647), (83, 45653), (91, 45728), (99, 45767),

Gene: SlimJimmy_68 Start: 44842, Stop: 45330, Start Num: 22

Candidate Starts for SlimJimmy_68:

(20, 44806), (Start: 22 @44842 has 4 MA's), (Start: 42 @44950 has 1 MA's), (55, 45007), (Start: 58 @45049 has 1 MA's), (62, 45076), (82, 45202), (83, 45208), (91, 45283), (99, 45322),

Gene: Smairt_59 Start: 41216, Stop: 40752, Start Num: 38

Candidate Starts for Smairt_59:

(Start: 38 @41216 has 4 MA's), (60, 41102), (63, 41078), (82, 40946), (85, 40934), (90, 40877), (92, 40856),

Gene: Soap141_89 Start: 57982, Stop: 58440, Start Num: 29

Candidate Starts for Soap141_89:

(3, 57751), (5, 57766), (6, 57775), (7, 57790), (8, 57838), (9, 57844), (12, 57868), (14, 57874), (Start: 16 @57880 has 1 MA's), (24, 57967), (Start: 25 @57970 has 1 MA's), (Start: 29 @57982 has 3 MA's), (35, 58003), (53, 58102), (56, 58120), (75, 58282), (82, 58312), (83, 58318), (86, 58342), (87, 58354), (94, 58405),

Gene: Squint_126 Start: 68600, Stop: 69130, Start Num: 28

Candidate Starts for Squint_126:

(Start: 28 @68600 has 2 MA's), (49, 68693), (51, 68702), (54, 68714), (57, 68753), (63, 68786), (71, 68861), (76, 68888), (81, 68900), (82, 68918), (83, 68924), (90, 69002),

Gene: TriFive_84 Start: 55170, Stop: 55526, Start Num: 46

Candidate Starts for TriFive_84:

(10, 54954), (34, 55104), (Start: 46 @55170 has 2 MA's), (60, 55230), (64, 55260), (74, 55347), (78, 55356), (89, 55440), (95, 55482),

Gene: Wamburgxpress_58 Start: 41304, Stop: 41762, Start Num: 30

Candidate Starts for Wamburgxpress_58:

(Start: 30 @41304 has 4 MA's), (41, 41370), (64, 41505), (69, 41562), (73, 41586), (82, 41628), (100, 41751),

Gene: Wildcat_87 Start: 53232, Stop: 53711, Start Num: 21

Candidate Starts for Wildcat_87:

(Start: 21 @53232 has 4 MA's), (27, 53265), (40, 53346), (45, 53364), (55, 53412), (69, 53550), (70, 53553), (79, 53610), (82, 53640), (83, 53646),

Gene: Winky_89 Start: 57575, Stop: 58045, Start Num: 25

Candidate Starts for Winky_89:

(3, 57356), (5, 57371), (6, 57380), (7, 57395), (8, 57443), (9, 57449), (12, 57473), (14, 57479), (Start: 16 @57485 has 1 MA's), (24, 57572), (Start: 25 @57575 has 1 MA's), (Start: 29 @57587 has 3 MA's), (35, 57608), (53, 57707), (56, 57725), (75, 57887), (82, 57917), (83, 57923), (86, 57947), (87, 57959), (94, 58010),

Gene: Zaria_59 Start: 41416, Stop: 41874, Start Num: 30

Candidate Starts for Zaria_59:

(Start: 30 @41416 has 4 MA's), (41, 41482), (64, 41617), (69, 41674), (73, 41698), (82, 41740), (100, 41863),

Gene: ZhongYanYuan_82 Start: 54996, Stop: 55298, Start Num: 58

Candidate Starts for ZhongYanYuan_82:

(37, 54888), (Start: 46 @54924 has 2 MA's), (Start: 52 @54948 has 2 MA's), (Start: 58 @54996 has 1 MA's), (76, 55125), (77, 55128), (82, 55155), (83, 55161), (88, 55200), (98, 55272),