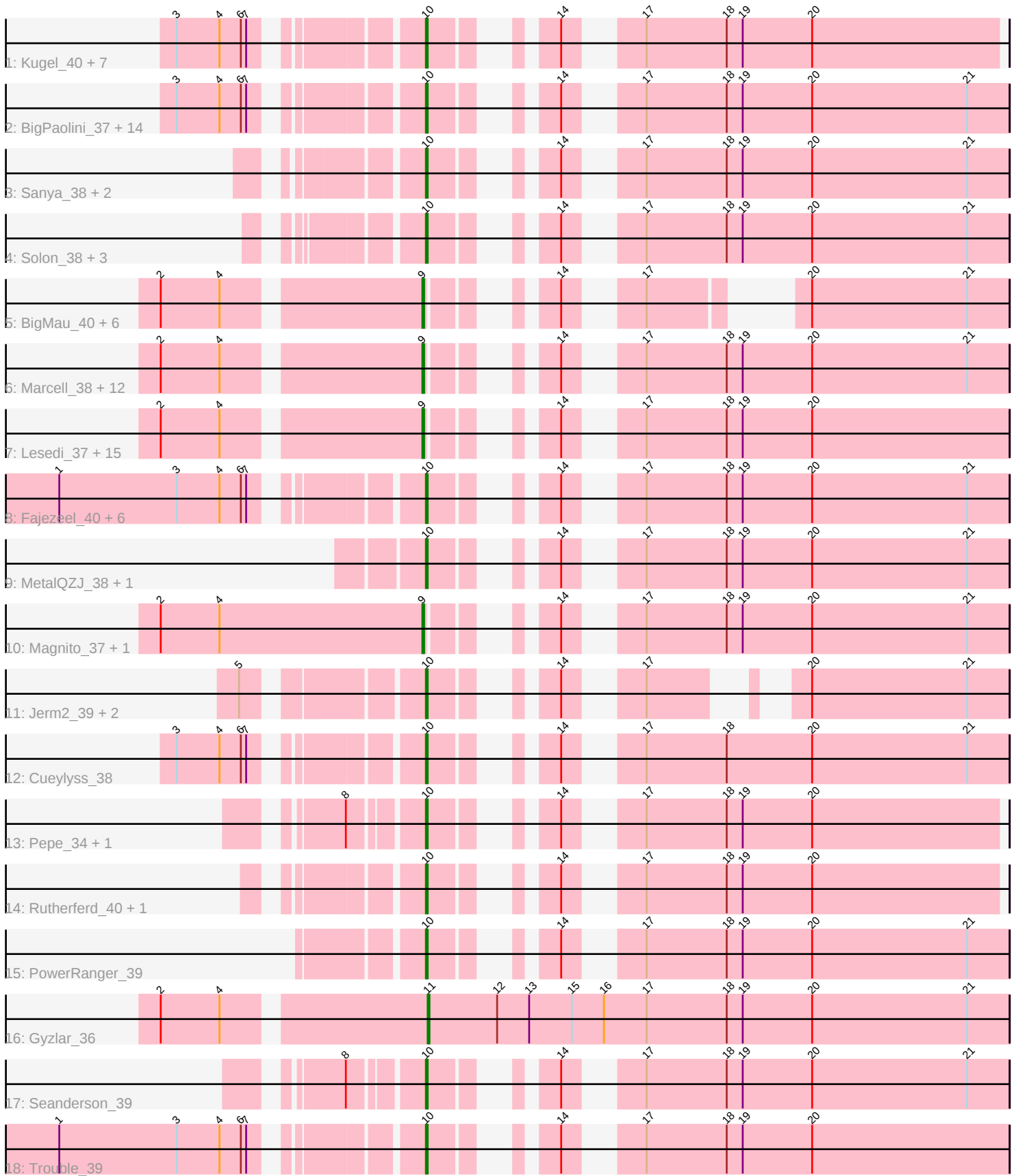


Pham 330722



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 330722 Report

This analysis was run 09/05/26 on database version 662.

Pham number 330722 has 89 members, 4 are drafts.

Phages represented in each track:

- Track 1 : Kugel_40, Bigfoot_36, Scowl_38, Bircsak_38, Bones_38, Gompeii16_38, Espresso_38, Doom_38
- Track 2 : BigPaolini_37, Eyeball_38, Agaliana_36, Graduation_40, KBG_39, Wilkins_37, PacerPaul_39, LunarLander_39, ChristmasHams_36, Topgun_37, Phlippers_36, Puppet_38, Francis47_38, Smairt_39, Licorice_40
- Track 3 : Sanya_38, Pippin_40, Ciao_38
- Track 4 : Solon_38, Lamina13_38, Sumter_37, Tasp14_39
- Track 5 : BigMau_40, Museum_40, Burton_39, Bob3_37, Molly_40, TwoPeat_39, Petp2012_40
- Track 6 : Marcell_38, Euphoria_38, Snazzy_37, Switzer_39, SpikeBT_40, Norz_40, U2_38, Anglerfish_40, Pari_39, NEHalo_38, AFIS_38, GageAP_40, BillKnuckles_39
- Track 7 : Lesedi_37, PinkPlastic_37, Petruccio_39, DreamCatcher_41, Buttons_38, Seabiscuit_40, Treddle_41, BeesKnees_39, Oogway_37, Bigchunggi_38, Edtherson_40, Zephyr_39, Aeneas_41, Whitspit_37, Adahisdi_39, Mule_37
- Track 8 : Fajezeel_40, Greg_40, Acme_41, JC27_39, Ashballer_40, Fascinus_37, Wheeler_39
- Track 9 : MetalQZJ_38, MaryBeth_38
- Track 10 : Magnito_37, Turj99_37
- Track 11 : Jerm2_39, Rohr_39, HermioneGrange_38
- Track 12 : Cueylyss_38
- Track 13 : Pepe_34, Monet_41
- Track 14 : Rutherford_40, Dulcie_37
- Track 15 : PowerRanger_39
- Track 16 : Gyzlar_36
- Track 17 : Seanderson_39
- Track 18 : Trouble_39

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

The start number called the most often in the published annotations is 10, it was called in 47 of the 85 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Acme_41, Agaliana_36, Ashballer_40, BigPaolini_37, Bigfoot_36, Bircsak_38, Bones_38, ChristmasHams_36, Ciao_38, Cueylyss_38, Doom_38, Dulcie_37, Espresso_38, Eyeball_38, Fajezeel_40, Fascinus_37, Francis47_38, Gompeii16_38, Graduation_40, Greg_40, HermioneGrange_38, JC27_39, Jerm2_39, KBG_39, Kugel_40, Lamina13_38, Licorice_40, LunarLander_39, MaryBeth_38, MetalQZJ_38, Monet_41, PacerPaul_39, Pepe_34, Phlippers_36, Pippin_40, PowerRanger_39, Puppet_38, Rohr_39, Rutherferd_40, Sanya_38, Scowl_38, Seanderson_39, Smairt_39, Solon_38, Sumter_37, Tasp14_39, Topgun_37, Trouble_39, Wheeler_39, Wilkins_37,

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

-

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

- AFIS_38, Adahisdi_39, Aeneas_41, Anglerfish_40, BeesKnees_39, BigMau_40, Bigchung_38, BillKnuckles_39, Bob3_37, Burton_39, Buttons_38, DreamCatcher_41, Edtherson_40, Euphoria_38, GageAP_40, Gyzlar_36, Lesedi_37, Magnito_37, Marcell_38, Molly_40, Mule_37, Museum_40, NEHalo_38, Norz_40, Oogway_37, Pari_39, Petp2012_40, Petruchio_39, PinkPlastic_37, Seabiscuit_40, Snazzy_37, SpikeBT_40, Switzer_39, Treddle_41, Turj99_37, TwoPeat_39, U2_38, Whitspit_37, Zephyr_39,

Summary by start number:

Start 9:

- Found in 38 of 89 (42.7%) of genes in pham
- Manual Annotations of this start: 37 of 85
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AFIS_38 (A1), Adahisdi_39 (A1), Aeneas_41 (A1), Anglerfish_40 (A1), BeesKnees_39 (A1), BigMau_40 (A1), Bigchung_38 (A1), BillKnuckles_39 (A1), Bob3_37 (A1), Burton_39 (A1), Buttons_38 (A1), DreamCatcher_41 (A1), Edtherson_40 (A1), Euphoria_38 (A1), GageAP_40 (A1), Lesedi_37 (A1), Magnito_37 (A1), Marcell_38 (A1), Molly_40 (A1), Mule_37 (A1), Museum_40 (A1), NEHalo_38 (A1), Norz_40 (A1), Oogway_37 (A1), Pari_39 (A1), Petp2012_40 (A1), Petruchio_39 (A1), PinkPlastic_37 (A1), Seabiscuit_40 (A1), Snazzy_37 (A1), SpikeBT_40 (A1), Switzer_39 (A1), Treddle_41 (A1), Turj99_37 (A1), TwoPeat_39 (A1), U2_38 (A1), Whitspit_37 (A1), Zephyr_39 (A1),

Start 10:

- Found in 50 of 89 (56.2%) of genes in pham
- Manual Annotations of this start: 47 of 85
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Acme_41 (A1), Agaliana_36 (A1), Ashballer_40 (A1), BigPaolini_37 (A1), Bigfoot_36 (A1), Bircsak_38 (A1), Bones_38 (A1), ChristmasHams_36 (A1), Ciao_38 (A1), Cueylyss_38 (A1), Doom_38 (A1), Dulcie_37 (A1), Espresso_38 (A1), Eyeball_38 (A1), Fajezeel_40 (A1), Fascinus_37 (A1), Francis47_38 (A1), Gompeii16_38 (A1), Graduation_40 (A1), Greg_40 (A1), HermioneGrange_38 (A1), JC27_39 (A1), Jerm2_39 (A1), KBG_39 (A1), Kugel_40 (A1), Lamina13_38 (A1), Licorice_40 (A1), LunarLander_39 (A1), MaryBeth_38 (A1), MetalQZJ_38 (A1), Monet_41 (A1), PacerPaul_39 (A1), Pepe_34 (A1), Phlippers_36 (A1), Pippin_40 (A1), PowerRanger_39 (A1), Puppet_38 (A1), Rohr_39 (A1), Rutherferd_40 (A1), Sanya_38 (A1), Scowl_38 (A1), Seanderson_39 (A1), Smairt_39 (A1), Solon_38 (A1), Sumter_37 (A1), Tasp14_39 (A1), Topgun_37 (A1), Trouble_39

(A1), Wheeler_39 (A1), Wilkins_37 (A1),

Start 11:

- Found in 1 of 89 (1.1%) of genes in pham
- Manual Annotations of this start: 1 of 85
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gyzlar_36 (A1),

Summary by clusters:

There is one cluster represented in this pham: A1

Info for manual annotations of cluster A1:

- Start number 9 was manually annotated 37 times for cluster A1.
- Start number 10 was manually annotated 47 times for cluster A1.
- Start number 11 was manually annotated 1 time for cluster A1.

Gene Information:

Gene: AFIS_38 Start: 31598, Stop: 31326, Start Num: 9

Candidate Starts for AFIS_38:

(2, 31733), (4, 31700), (Start: 9 @31598 has 37 MA's), (14, 31556), (17, 31529), (18, 31484), (19, 31475), (20, 31436), (21, 31349),

Gene: Acme_41 Start: 31739, Stop: 31467, Start Num: 10

Candidate Starts for Acme_41:

(1, 31919), (3, 31853), (4, 31829), (6, 31817), (7, 31814), (Start: 10 @31739 has 47 MA's), (14, 31697), (17, 31670), (18, 31625), (19, 31616), (20, 31577), (21, 31490),

Gene: Adahisdi_39 Start: 31648, Stop: 31376, Start Num: 9

Candidate Starts for Adahisdi_39:

(2, 31783), (4, 31750), (Start: 9 @31648 has 37 MA's), (14, 31606), (17, 31579), (18, 31534), (19, 31525), (20, 31486),

Gene: Aeneas_41 Start: 31799, Stop: 31530, Start Num: 9

Candidate Starts for Aeneas_41:

(2, 31934), (4, 31901), (Start: 9 @31799 has 37 MA's), (14, 31760), (17, 31733), (18, 31688), (19, 31679), (20, 31640),

Gene: Agaliana_36 Start: 28180, Stop: 27908, Start Num: 10

Candidate Starts for Agaliana_36:

(3, 28294), (4, 28270), (6, 28258), (7, 28255), (Start: 10 @28180 has 47 MA's), (14, 28138), (17, 28111), (18, 28066), (19, 28057), (20, 28018), (21, 27931),

Gene: Anglerfish_40 Start: 31701, Stop: 31429, Start Num: 9

Candidate Starts for Anglerfish_40:

(2, 31836), (4, 31803), (Start: 9 @31701 has 37 MA's), (14, 31659), (17, 31632), (18, 31587), (19, 31578), (20, 31539), (21, 31452),

Gene: Ashballer_40 Start: 32195, Stop: 31923, Start Num: 10

Candidate Starts for Ashballer_40:

(1, 32375), (3, 32309), (4, 32285), (6, 32273), (7, 32270), (Start: 10 @32195 has 47 MA's), (14, 32153), (17, 32126), (18, 32081), (19, 32072), (20, 32033), (21, 31946),

Gene: BeesKnees_39 Start: 31359, Stop: 31087, Start Num: 9

Candidate Starts for BeesKnees_39:

(2, 31494), (4, 31461), (Start: 9 @31359 has 37 MA's), (14, 31317), (17, 31290), (18, 31245), (19, 31236), (20, 31197),

Gene: BigMau_40 Start: 31436, Stop: 31206, Start Num: 9

Candidate Starts for BigMau_40:

(2, 31571), (4, 31538), (Start: 9 @31436 has 37 MA's), (14, 31394), (17, 31367), (20, 31316), (21, 31229),

Gene: BigPaolini_37 Start: 29684, Stop: 29412, Start Num: 10

Candidate Starts for BigPaolini_37:

(3, 29798), (4, 29774), (6, 29762), (7, 29759), (Start: 10 @29684 has 47 MA's), (14, 29642), (17, 29615), (18, 29570), (19, 29561), (20, 29522), (21, 29435),

Gene: Bigchungi_38 Start: 31052, Stop: 30780, Start Num: 9

Candidate Starts for Bigchungi_38:

(2, 31187), (4, 31154), (Start: 9 @31052 has 37 MA's), (14, 31010), (17, 30983), (18, 30938), (19, 30929), (20, 30890),

Gene: Bigfoot_36 Start: 30710, Stop: 30438, Start Num: 10

Candidate Starts for Bigfoot_36:

(3, 30824), (4, 30800), (6, 30788), (7, 30785), (Start: 10 @30710 has 47 MA's), (14, 30668), (17, 30641), (18, 30596), (19, 30587), (20, 30548),

Gene: BillKnuckles_39 Start: 32162, Stop: 31890, Start Num: 9

Candidate Starts for BillKnuckles_39:

(2, 32297), (4, 32264), (Start: 9 @32162 has 37 MA's), (14, 32120), (17, 32093), (18, 32048), (19, 32039), (20, 32000), (21, 31913),

Gene: Bircsak_38 Start: 31775, Stop: 31503, Start Num: 10

Candidate Starts for Bircsak_38:

(3, 31889), (4, 31865), (6, 31853), (7, 31850), (Start: 10 @31775 has 47 MA's), (14, 31733), (17, 31706), (18, 31661), (19, 31652), (20, 31613),

Gene: Bob3_37 Start: 30786, Stop: 30556, Start Num: 9

Candidate Starts for Bob3_37:

(2, 30921), (4, 30888), (Start: 9 @30786 has 37 MA's), (14, 30744), (17, 30717), (20, 30666), (21, 30579),

Gene: Bones_38 Start: 31179, Stop: 30907, Start Num: 10

Candidate Starts for Bones_38:

(3, 31293), (4, 31269), (6, 31257), (7, 31254), (Start: 10 @31179 has 47 MA's), (14, 31137), (17, 31110), (18, 31065), (19, 31056), (20, 31017),

Gene: Burton_39 Start: 31356, Stop: 31126, Start Num: 9

Candidate Starts for Burton_39:

(2, 31491), (4, 31458), (Start: 9 @31356 has 37 MA's), (14, 31314), (17, 31287), (20, 31236), (21, 31149),

Gene: Buttons_38 Start: 30324, Stop: 30052, Start Num: 9

Candidate Starts for Buttons_38:

(2, 30459), (4, 30426), (Start: 9 @30324 has 37 MA's), (14, 30282), (17, 30255), (18, 30210), (19, 30201), (20, 30162),

Gene: ChristmasHams_36 Start: 28576, Stop: 28304, Start Num: 10

Candidate Starts for ChristmasHams_36:

(3, 28690), (4, 28666), (6, 28654), (7, 28651), (Start: 10 @28576 has 47 MA's), (14, 28534), (17, 28507), (18, 28462), (19, 28453), (20, 28414), (21, 28327),

Gene: Ciao_38 Start: 31210, Stop: 30938, Start Num: 10

Candidate Starts for Ciao_38:

(Start: 10 @31210 has 47 MA's), (14, 31168), (17, 31141), (18, 31096), (19, 31087), (20, 31048), (21, 30961),

Gene: Cueylyss_38 Start: 31412, Stop: 31140, Start Num: 10

Candidate Starts for Cueylyss_38:

(3, 31526), (4, 31502), (6, 31490), (7, 31487), (Start: 10 @31412 has 47 MA's), (14, 31370), (17, 31343), (18, 31298), (20, 31250), (21, 31163),

Gene: Doom_38 Start: 31605, Stop: 31333, Start Num: 10

Candidate Starts for Doom_38:

(3, 31719), (4, 31695), (6, 31683), (7, 31680), (Start: 10 @31605 has 47 MA's), (14, 31563), (17, 31536), (18, 31491), (19, 31482), (20, 31443),

Gene: DreamCatcher_41 Start: 32660, Stop: 32388, Start Num: 9

Candidate Starts for DreamCatcher_41:

(2, 32795), (4, 32762), (Start: 9 @32660 has 37 MA's), (14, 32618), (17, 32591), (18, 32546), (19, 32537), (20, 32498),

Gene: Dulcie_37 Start: 30943, Stop: 30671, Start Num: 10

Candidate Starts for Dulcie_37:

(Start: 10 @30943 has 47 MA's), (14, 30901), (17, 30874), (18, 30829), (19, 30820), (20, 30781),

Gene: Edtherson_40 Start: 32538, Stop: 32272, Start Num: 9

Candidate Starts for Edtherson_40:

(2, 32673), (4, 32640), (Start: 9 @32538 has 37 MA's), (14, 32496), (17, 32469), (18, 32424), (19, 32415), (20, 32376),

Gene: Espresso_38 Start: 31529, Stop: 31257, Start Num: 10

Candidate Starts for Espresso_38:

(3, 31643), (4, 31619), (6, 31607), (7, 31604), (Start: 10 @31529 has 47 MA's), (14, 31487), (17, 31460), (18, 31415), (19, 31406), (20, 31367),

Gene: Euphoria_38 Start: 31379, Stop: 31107, Start Num: 9

Candidate Starts for Euphoria_38:

(2, 31514), (4, 31481), (Start: 9 @31379 has 37 MA's), (14, 31337), (17, 31310), (18, 31265), (19, 31256), (20, 31217), (21, 31130),

Gene: Eyeball_38 Start: 31085, Stop: 30813, Start Num: 10

Candidate Starts for Eyeball_38:

(3, 31199), (4, 31175), (6, 31163), (7, 31160), (Start: 10 @31085 has 47 MA's), (14, 31043), (17, 31016), (18, 30971), (19, 30962), (20, 30923), (21, 30836),

Gene: Fajezeel_40 Start: 31568, Stop: 31296, Start Num: 10

Candidate Starts for Fajezeel_40:

(1, 31748), (3, 31682), (4, 31658), (6, 31646), (7, 31643), (Start: 10 @31568 has 47 MA's), (14, 31526), (17, 31499), (18, 31454), (19, 31445), (20, 31406), (21, 31319),

Gene: Fascinus_37 Start: 30859, Stop: 30587, Start Num: 10

Candidate Starts for Fascinus_37:

(1, 31039), (3, 30973), (4, 30949), (6, 30937), (7, 30934), (Start: 10 @30859 has 47 MA's), (14, 30817), (17, 30790), (18, 30745), (19, 30736), (20, 30697), (21, 30610),

Gene: Francis47_38 Start: 31946, Stop: 31674, Start Num: 10

Candidate Starts for Francis47_38:

(3, 32060), (4, 32036), (6, 32024), (7, 32021), (Start: 10 @31946 has 47 MA's), (14, 31904), (17, 31877), (18, 31832), (19, 31823), (20, 31784), (21, 31697),

Gene: GageAP_40 Start: 31664, Stop: 31392, Start Num: 9

Candidate Starts for GageAP_40:

(2, 31799), (4, 31766), (Start: 9 @31664 has 37 MA's), (14, 31622), (17, 31595), (18, 31550), (19, 31541), (20, 31502), (21, 31415),

Gene: Gompeii16_38 Start: 31776, Stop: 31504, Start Num: 10

Candidate Starts for Gompeii16_38:

(3, 31890), (4, 31866), (6, 31854), (7, 31851), (Start: 10 @31776 has 47 MA's), (14, 31734), (17, 31707), (18, 31662), (19, 31653), (20, 31614),

Gene: Graduation_40 Start: 31999, Stop: 31727, Start Num: 10

Candidate Starts for Graduation_40:

(3, 32113), (4, 32089), (6, 32077), (7, 32074), (Start: 10 @31999 has 47 MA's), (14, 31957), (17, 31930), (18, 31885), (19, 31876), (20, 31837), (21, 31750),

Gene: Greg_40 Start: 31568, Stop: 31296, Start Num: 10

Candidate Starts for Greg_40:

(1, 31748), (3, 31682), (4, 31658), (6, 31646), (7, 31643), (Start: 10 @31568 has 47 MA's), (14, 31526), (17, 31499), (18, 31454), (19, 31445), (20, 31406), (21, 31319),

Gene: Gyzlar_36 Start: 30052, Stop: 29726, Start Num: 11

Candidate Starts for Gyzlar_36:

(2, 30190), (4, 30157), (Start: 11 @30052 has 1 MA's), (12, 30013), (13, 29995), (15, 29971), (16, 29953), (17, 29929), (18, 29884), (19, 29875), (20, 29836), (21, 29749),

Gene: HermioneGrange_38 Start: 31174, Stop: 30944, Start Num: 10

Candidate Starts for HermioneGrange_38:

(5, 31258), (Start: 10 @31174 has 47 MA's), (14, 31132), (17, 31105), (20, 31054), (21, 30967),

Gene: JC27_39 Start: 31765, Stop: 31493, Start Num: 10

Candidate Starts for JC27_39:

(1, 31945), (3, 31879), (4, 31855), (6, 31843), (7, 31840), (Start: 10 @31765 has 47 MA's), (14, 31723), (17, 31696), (18, 31651), (19, 31642), (20, 31603), (21, 31516),

Gene: Jerm2_39 Start: 31429, Stop: 31199, Start Num: 10

Candidate Starts for Jerm2_39:

(5, 31513), (Start: 10 @31429 has 47 MA's), (14, 31387), (17, 31360), (20, 31309), (21, 31222),

Gene: KBG_39 Start: 32392, Stop: 32120, Start Num: 10

Candidate Starts for KBG_39:

(3, 32506), (4, 32482), (6, 32470), (7, 32467), (Start: 10 @32392 has 47 MA's), (14, 32350), (17, 32323), (18, 32278), (19, 32269), (20, 32230), (21, 32143),

Gene: Kugel_40 Start: 31983, Stop: 31717, Start Num: 10

Candidate Starts for Kugel_40:

(3, 32097), (4, 32073), (6, 32061), (7, 32058), (Start: 10 @31983 has 47 MA's), (14, 31941), (17, 31914), (18, 31869), (19, 31860), (20, 31821),

Gene: Lamina13_38 Start: 30935, Stop: 30663, Start Num: 10

Candidate Starts for Lamina13_38:

(Start: 10 @30935 has 47 MA's), (14, 30893), (17, 30866), (18, 30821), (19, 30812), (20, 30773), (21, 30686),

Gene: Lesedi_37 Start: 31210, Stop: 30938, Start Num: 9

Candidate Starts for Lesedi_37:

(2, 31345), (4, 31312), (Start: 9 @31210 has 37 MA's), (14, 31168), (17, 31141), (18, 31096), (19, 31087), (20, 31048),

Gene: Licorice_40 Start: 32280, Stop: 32008, Start Num: 10

Candidate Starts for Licorice_40:

(3, 32394), (4, 32370), (6, 32358), (7, 32355), (Start: 10 @32280 has 47 MA's), (14, 32238), (17, 32211), (18, 32166), (19, 32157), (20, 32118), (21, 32031),

Gene: LunarLander_39 Start: 31403, Stop: 31131, Start Num: 10

Candidate Starts for LunarLander_39:

(3, 31517), (4, 31493), (6, 31481), (7, 31478), (Start: 10 @31403 has 47 MA's), (14, 31361), (17, 31334), (18, 31289), (19, 31280), (20, 31241), (21, 31154),

Gene: Magnito_37 Start: 30988, Stop: 30716, Start Num: 9

Candidate Starts for Magnito_37:

(2, 31135), (4, 31102), (Start: 9 @30988 has 37 MA's), (14, 30946), (17, 30919), (18, 30874), (19, 30865), (20, 30826), (21, 30739),

Gene: Marcell_38 Start: 31685, Stop: 31413, Start Num: 9

Candidate Starts for Marcell_38:

(2, 31820), (4, 31787), (Start: 9 @31685 has 37 MA's), (14, 31643), (17, 31616), (18, 31571), (19, 31562), (20, 31523), (21, 31436),

Gene: MaryBeth_38 Start: 31490, Stop: 31218, Start Num: 10

Candidate Starts for MaryBeth_38:

(Start: 10 @31490 has 47 MA's), (14, 31448), (17, 31421), (18, 31376), (19, 31367), (20, 31328), (21, 31241),

Gene: MetalQZJ_38 Start: 31490, Stop: 31218, Start Num: 10

Candidate Starts for MetalQZJ_38:

(Start: 10 @31490 has 47 MA's), (14, 31448), (17, 31421), (18, 31376), (19, 31367), (20, 31328), (21, 31241),

Gene: Molly_40 Start: 31229, Stop: 30999, Start Num: 9

Candidate Starts for Molly_40:

(2, 31364), (4, 31331), (Start: 9 @31229 has 37 MA's), (14, 31187), (17, 31160), (20, 31109), (21, 31022),

Gene: Monet_41 Start: 33055, Stop: 32789, Start Num: 10

Candidate Starts for Monet_41:

(8, 33091), (Start: 10 @33055 has 47 MA's), (14, 33013), (17, 32986), (18, 32941), (19, 32932), (20, 32893),

Gene: Mule_37 Start: 29541, Stop: 29269, Start Num: 9

Candidate Starts for Mule_37:

(2, 29676), (4, 29643), (Start: 9 @29541 has 37 MA's), (14, 29499), (17, 29472), (18, 29427), (19, 29418), (20, 29379),

Gene: Museum_40 Start: 31295, Stop: 31065, Start Num: 9

Candidate Starts for Museum_40:

(2, 31430), (4, 31397), (Start: 9 @31295 has 37 MA's), (14, 31253), (17, 31226), (20, 31175), (21, 31088),

Gene: NEHalo_38 Start: 31254, Stop: 30982, Start Num: 9

Candidate Starts for NEHalo_38:

(2, 31389), (4, 31356), (Start: 9 @31254 has 37 MA's), (14, 31212), (17, 31185), (18, 31140), (19, 31131), (20, 31092), (21, 31005),

Gene: Norz_40 Start: 32172, Stop: 31900, Start Num: 9

Candidate Starts for Norz_40:

(2, 32307), (4, 32274), (Start: 9 @32172 has 37 MA's), (14, 32130), (17, 32103), (18, 32058), (19, 32049), (20, 32010), (21, 31923),

Gene: Oogway_37 Start: 30855, Stop: 30583, Start Num: 9

Candidate Starts for Oogway_37:

(2, 30990), (4, 30957), (Start: 9 @30855 has 37 MA's), (14, 30813), (17, 30786), (18, 30741), (19, 30732), (20, 30693),

Gene: PacerPaul_39 Start: 31313, Stop: 31041, Start Num: 10

Candidate Starts for PacerPaul_39:

(3, 31427), (4, 31403), (6, 31391), (7, 31388), (Start: 10 @31313 has 47 MA's), (14, 31271), (17, 31244), (18, 31199), (19, 31190), (20, 31151), (21, 31064),

Gene: Pari_39 Start: 31087, Stop: 30815, Start Num: 9

Candidate Starts for Pari_39:

(2, 31222), (4, 31189), (Start: 9 @31087 has 37 MA's), (14, 31045), (17, 31018), (18, 30973), (19, 30964), (20, 30925), (21, 30838),

Gene: Pepe_34 Start: 29170, Stop: 28904, Start Num: 10

Candidate Starts for Pepe_34:

(8, 29206), (Start: 10 @29170 has 47 MA's), (14, 29128), (17, 29101), (18, 29056), (19, 29047), (20, 29008),

Gene: Petp2012_40 Start: 32213, Stop: 31983, Start Num: 9

Candidate Starts for Petp2012_40:

(2, 32348), (4, 32315), (Start: 9 @32213 has 37 MA's), (14, 32171), (17, 32144), (20, 32093), (21, 32006),

Gene: Petruchio_39 Start: 31567, Stop: 31298, Start Num: 9

Candidate Starts for Petruchio_39:

(2, 31702), (4, 31669), (Start: 9 @31567 has 37 MA's), (14, 31528), (17, 31501), (18, 31456), (19, 31447), (20, 31408),

Gene: Phlippers_36 Start: 31867, Stop: 31595, Start Num: 10

Candidate Starts for Phlippers_36:

(3, 31981), (4, 31957), (6, 31945), (7, 31942), (Start: 10 @31867 has 47 MA's), (14, 31825), (17, 31798), (18, 31753), (19, 31744), (20, 31705), (21, 31618),

Gene: PinkPlastic_37 Start: 31097, Stop: 30825, Start Num: 9

Candidate Starts for PinkPlastic_37:

(2, 31232), (4, 31199), (Start: 9 @31097 has 37 MA's), (14, 31055), (17, 31028), (18, 30983), (19, 30974), (20, 30935),

Gene: Pippin_40 Start: 31627, Stop: 31355, Start Num: 10

Candidate Starts for Pippin_40:

(Start: 10 @31627 has 47 MA's), (14, 31585), (17, 31558), (18, 31513), (19, 31504), (20, 31465), (21, 31378),

Gene: PowerRanger_39 Start: 32378, Stop: 32106, Start Num: 10

Candidate Starts for PowerRanger_39:

(Start: 10 @32378 has 47 MA's), (14, 32336), (17, 32309), (18, 32264), (19, 32255), (20, 32216), (21, 32129),

Gene: Puppet_38 Start: 31352, Stop: 31080, Start Num: 10

Candidate Starts for Puppet_38:

(3, 31466), (4, 31442), (6, 31430), (7, 31427), (Start: 10 @31352 has 47 MA's), (14, 31310), (17, 31283), (18, 31238), (19, 31229), (20, 31190), (21, 31103),

Gene: Rohr_39 Start: 31475, Stop: 31245, Start Num: 10

Candidate Starts for Rohr_39:

(5, 31559), (Start: 10 @31475 has 47 MA's), (14, 31433), (17, 31406), (20, 31355), (21, 31268),

Gene: Rutherferd_40 Start: 32367, Stop: 32101, Start Num: 10

Candidate Starts for Rutherferd_40:

(Start: 10 @32367 has 47 MA's), (14, 32325), (17, 32298), (18, 32253), (19, 32244), (20, 32205),

Gene: Sanya_38 Start: 32063, Stop: 31791, Start Num: 10

Candidate Starts for Sanya_38:

(Start: 10 @32063 has 47 MA's), (14, 32021), (17, 31994), (18, 31949), (19, 31940), (20, 31901), (21, 31814),

Gene: Scowl_38 Start: 31823, Stop: 31551, Start Num: 10

Candidate Starts for Scowl_38:

(3, 31937), (4, 31913), (6, 31901), (7, 31898), (Start: 10 @31823 has 47 MA's), (14, 31781), (17, 31754), (18, 31709), (19, 31700), (20, 31661),

Gene: Seabiscuit_40 Start: 31328, Stop: 31056, Start Num: 9

Candidate Starts for Seabiscuit_40:

(2, 31463), (4, 31430), (Start: 9 @31328 has 37 MA's), (14, 31286), (17, 31259), (18, 31214), (19, 31205), (20, 31166),

Gene: Seanderson_39 Start: 31957, Stop: 31685, Start Num: 10

Candidate Starts for Seanderson_39:

(8, 31993), (Start: 10 @31957 has 47 MA's), (14, 31915), (17, 31888), (18, 31843), (19, 31834), (20, 31795), (21, 31708),

Gene: Smairt_39 Start: 31500, Stop: 31228, Start Num: 10

Candidate Starts for Smairt_39:

(3, 31614), (4, 31590), (6, 31578), (7, 31575), (Start: 10 @31500 has 47 MA's), (14, 31458), (17, 31431), (18, 31386), (19, 31377), (20, 31338), (21, 31251),

Gene: Snazzy_37 Start: 31284, Stop: 31012, Start Num: 9

Candidate Starts for Snazzy_37:

(2, 31419), (4, 31386), (Start: 9 @31284 has 37 MA's), (14, 31242), (17, 31215), (18, 31170), (19, 31161), (20, 31122), (21, 31035),

Gene: Solon_38 Start: 31615, Stop: 31343, Start Num: 10

Candidate Starts for Solon_38:

(Start: 10 @31615 has 47 MA's), (14, 31573), (17, 31546), (18, 31501), (19, 31492), (20, 31453), (21, 31366),

Gene: SpikeBT_40 Start: 32361, Stop: 32089, Start Num: 9

Candidate Starts for SpikeBT_40:

(2, 32496), (4, 32463), (Start: 9 @32361 has 37 MA's), (14, 32319), (17, 32292), (18, 32247), (19, 32238), (20, 32199), (21, 32112),

Gene: Sumter_37 Start: 31344, Stop: 31072, Start Num: 10

Candidate Starts for Sumter_37:

(Start: 10 @31344 has 47 MA's), (14, 31302), (17, 31275), (18, 31230), (19, 31221), (20, 31182), (21, 31095),

Gene: Switzer_39 Start: 31424, Stop: 31152, Start Num: 9

Candidate Starts for Switzer_39:

(2, 31559), (4, 31526), (Start: 9 @31424 has 37 MA's), (14, 31382), (17, 31355), (18, 31310), (19, 31301), (20, 31262), (21, 31175),

Gene: Tasp14_39 Start: 31559, Stop: 31287, Start Num: 10

Candidate Starts for Tasp14_39:

(Start: 10 @31559 has 47 MA's), (14, 31517), (17, 31490), (18, 31445), (19, 31436), (20, 31397), (21, 31310),

Gene: Topgun_37 Start: 30806, Stop: 30534, Start Num: 10

Candidate Starts for Topgun_37:

(3, 30920), (4, 30896), (6, 30884), (7, 30881), (Start: 10 @30806 has 47 MA's), (14, 30764), (17, 30737), (18, 30692), (19, 30683), (20, 30644), (21, 30557),

Gene: Treddle_41 Start: 33009, Stop: 32743, Start Num: 9

Candidate Starts for Treddle_41:

(2, 33144), (4, 33111), (Start: 9 @33009 has 37 MA's), (14, 32967), (17, 32940), (18, 32895), (19, 32886), (20, 32847),

Gene: Trouble_39 Start: 32267, Stop: 31995, Start Num: 10

Candidate Starts for Trouble_39:

(1, 32447), (3, 32381), (4, 32357), (6, 32345), (7, 32342), (Start: 10 @32267 has 47 MA's), (14, 32225), (17, 32198), (18, 32153), (19, 32144), (20, 32105),

Gene: Turj99_37 Start: 31258, Stop: 30986, Start Num: 9

Candidate Starts for Turj99_37:

(2, 31405), (4, 31372), (Start: 9 @31258 has 37 MA's), (14, 31216), (17, 31189), (18, 31144), (19, 31135), (20, 31096), (21, 31009),

Gene: TwoPeat_39 Start: 31714, Stop: 31484, Start Num: 9

Candidate Starts for TwoPeat_39:

(2, 31849), (4, 31816), (Start: 9 @31714 has 37 MA's), (14, 31672), (17, 31645), (20, 31594), (21, 31507),

Gene: U2_38 Start: 31407, Stop: 31135, Start Num: 9

Candidate Starts for U2_38:

(2, 31542), (4, 31509), (Start: 9 @31407 has 37 MA's), (14, 31365), (17, 31338), (18, 31293), (19, 31284), (20, 31245), (21, 31158),

Gene: Wheeler_39 Start: 31744, Stop: 31472, Start Num: 10

Candidate Starts for Wheeler_39:

(1, 31924), (3, 31858), (4, 31834), (6, 31822), (7, 31819), (Start: 10 @31744 has 47 MA's), (14, 31702), (17, 31675), (18, 31630), (19, 31621), (20, 31582), (21, 31495),

Gene: Whitspit_37 Start: 29864, Stop: 29595, Start Num: 9

Candidate Starts for Whitspit_37:

(2, 29999), (4, 29966), (Start: 9 @29864 has 37 MA's), (14, 29825), (17, 29798), (18, 29753), (19, 29744), (20, 29705),

Gene: Wilkins_37 Start: 30739, Stop: 30467, Start Num: 10

Candidate Starts for Wilkins_37:

(3, 30853), (4, 30829), (6, 30817), (7, 30814), (Start: 10 @30739 has 47 MA's), (14, 30697), (17, 30670), (18, 30625), (19, 30616), (20, 30577), (21, 30490),

Gene: Zephyr_39 Start: 31816, Stop: 31544, Start Num: 9

Candidate Starts for Zephyr_39:

(2, 31951), (4, 31918), (Start: 9 @31816 has 37 MA's), (14, 31774), (17, 31747), (18, 31702), (19, 31693), (20, 31654),