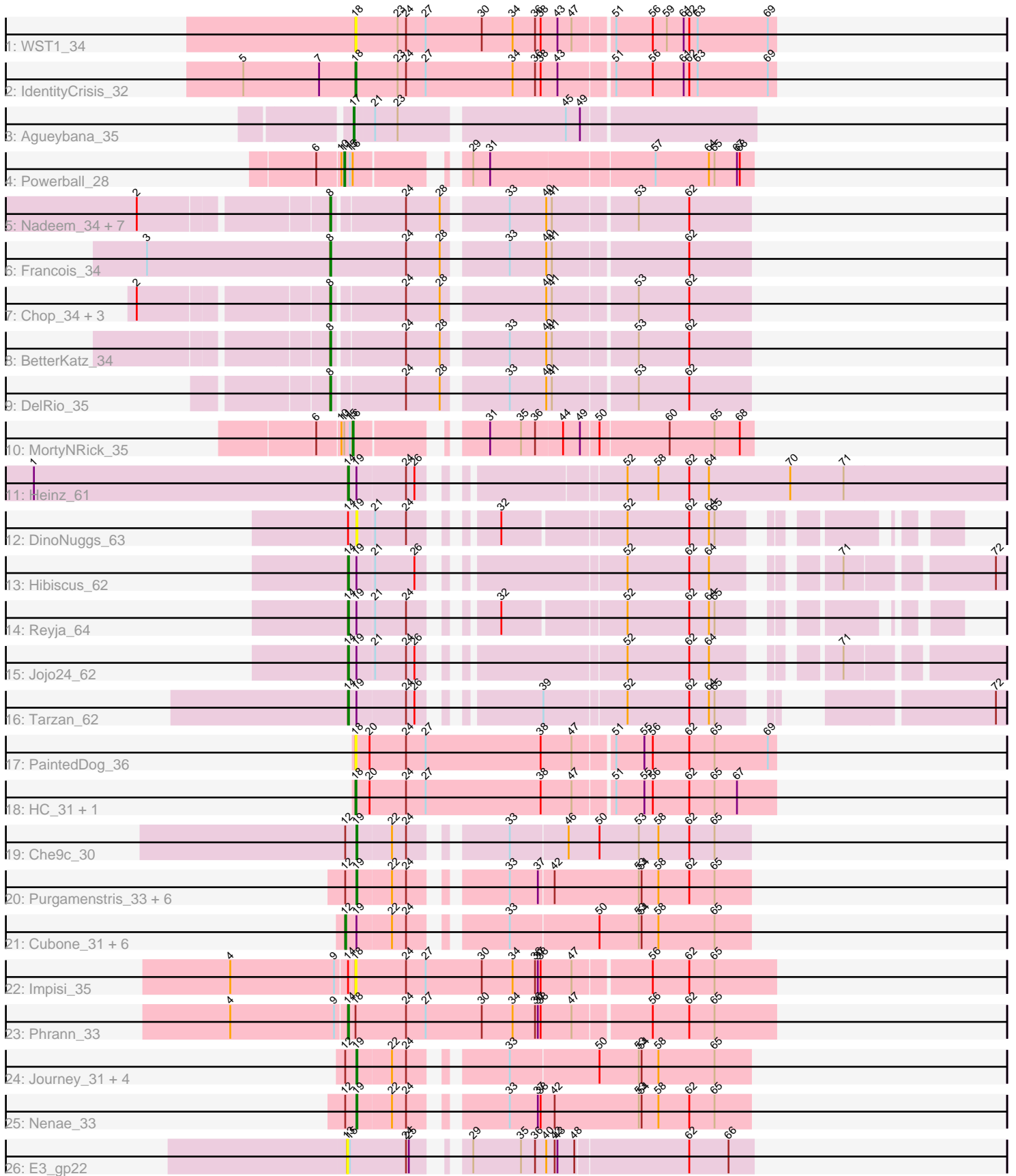


Pham 296635



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 296635 Report

This analysis was run 04/25/26 on database version 644.

Pham number 296635 has 53 members, 7 are drafts.

Phages represented in each track:

- Track 1 : WST1_34
- Track 2 : IdentityCrisis_32
- Track 3 : Agueybana_35
- Track 4 : Powerball_28
- Track 5 : Nadeem_34, Bock_34, Brylie_34, Parada_34, Pimento_34, Mulch_34, NancyRae_34, WheatThin_34
- Track 6 : Francois_34
- Track 7 : Chop_34, Hamood_34, Ayotoya_34, GrandSlam_34
- Track 8 : BetterKatz_34
- Track 9 : DelRio_35
- Track 10 : MortyNRick_35
- Track 11 : Heinz_61
- Track 12 : DinoNuggs_63
- Track 13 : Hibiscus_62
- Track 14 : Reyja_64
- Track 15 : Jojo24_62
- Track 16 : Tarzan_62
- Track 17 : PaintedDog_36
- Track 18 : HC_31, Babsiella_30
- Track 19 : Che9c_30
- Track 20 : Purgamenstris_33, Hanako_33, BabeRuth_34, PhancyPhin_33, Spinach_33, ShrimpFriedEgg_33, Redi_33
- Track 21 : Cubone_31, Bosection6_31, Aggie_31, Xeno_30, Tortoise12_31, Philonius_31, SkinnyPete_28
- Track 22 : Impisi_35
- Track 23 : Phrann_33
- Track 24 : Journey_31, Silvy_31, Charlie_31, EGUnicorn_31, Scitech_28
- Track 25 : Nенаe_33
- Track 26 : E3_gp22

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

The start number called the most often in the published annotations is 8, it was called in 15 of the 46 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Ayotoya_34, BetterKatz_34, Bock_34, Brylie_34, Chop_34, DelRio_35, Francois_34, GrandSlam_34, Hamood_34, Mulch_34, Nadeem_34, NancyRae_34, Parada_34, Pimento_34, WheatThin_34,

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

-

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

- Aggie_31, Agueybana_35, BabeRuth_34, Babsiella_30, Bosection6_31, Charlie_31, Che9c_30, Cubone_31, DinoNuggs_63, E3_gp22, EGUnicorn_31, HC_31, Hanako_33, Heinz_61, Hibiscus_62, IdentityCrisis_32, Impisi_35, Jojo24_62, Journey_31, MortyNRick_35, Nenae_33, PaintedDog_36, PhancyPhin_33, Philonius_31, Phrann_33, Powerball_28, Purgamenstris_33, Redi_33, Reyja_64, Scitech_28, ShrimpFriedEgg_33, Silvy_31, SkinnyPete_28, Spinach_33, Tarzan_62, Tortoise12_31, WST1_34, Xeno_30,

Summary by start number:

Start 8:

- Found in 15 of 53 (28.3%) of genes in pham
- Manual Annotations of this start: 15 of 46
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ayotoya_34 (DI), BetterKatz_34 (DI), Bock_34 (DI), Brylie_34 (DI), Chop_34 (DI), DelRio_35 (DI), Francois_34 (DI), GrandSlam_34 (DI), Hamood_34 (DI), Mulch_34 (DI), Nadeem_34 (DI), NancyRae_34 (DI), Parada_34 (DI), Pimento_34 (DI), WheatThin_34 (DI),

Start 11:

- Found in 2 of 53 (3.8%) of genes in pham
- Manual Annotations of this start: 1 of 46
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Powerball_28 (CZ4),

Start 12:

- Found in 21 of 53 (39.6%) of genes in pham
- Manual Annotations of this start: 6 of 46
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Aggie_31 (N), Bosection6_31 (N), Cubone_31 (N), Philonius_31 (N), SkinnyPete_28 (N), Tortoise12_31 (N), Xeno_30 (N),

Start 13:

- Found in 1 of 53 (1.9%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: E3_gp22 (singleton),

Start 14:

- Found in 8 of 53 (15.1%) of genes in pham
- Manual Annotations of this start: 6 of 46
- Called 75.0% of time when present

- Phage (with cluster) where this start called: Heinz_61 (DY), Hibiscus_62 (DY), Jojo24_62 (DY), Phrann_33 (N), Reyja_64 (DY), Tarzan_62 (DY),

Start 16:

- Found in 2 of 53 (3.8%) of genes in pham
- Manual Annotations of this start: 1 of 46
- Called 50.0% of time when present
- Phage (with cluster) where this start called: MortyNRick_35 (DN),

Start 17:

- Found in 1 of 53 (1.9%) of genes in pham
- Manual Annotations of this start: 1 of 46
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Agueybana_35 (CZ1),

Start 18:

- Found in 7 of 53 (13.2%) of genes in pham
- Manual Annotations of this start: 3 of 46
- Called 85.7% of time when present
- Phage (with cluster) where this start called: Babsiella_30 (I1), HC_31 (I1), IdentityCrisis_32 (AJ), Impisi_35 (N), PaintedDog_36 (I1), WST1_34 (AJ),

Start 19:

- Found in 27 of 53 (50.9%) of genes in pham
- Manual Annotations of this start: 13 of 46
- Called 55.6% of time when present
- Phage (with cluster) where this start called: BabeRuth_34 (N), Charlie_31 (N), Che9c_30 (I2), DinoNuggs_63 (DY), EGUnicorn_31 (N), Hanako_33 (N), Journey_31 (N), Nenae_33 (N), PhancyPhin_33 (N), Purgamenstris_33 (N), Redi_33 (N), Scitech_28 (N), ShrimpFriedEgg_33 (N), Silvy_31 (N), Spinach_33 (N),

Summary by clusters:

There are 10 clusters represented in this pham: DN, singleton, AJ, CZ1, DI, I1, I2, CZ4, N, DY,

Info for manual annotations of cluster AJ:

- Start number 18 was manually annotated 1 time for cluster AJ.

Info for manual annotations of cluster CZ1:

- Start number 17 was manually annotated 1 time for cluster CZ1.

Info for manual annotations of cluster CZ4:

- Start number 11 was manually annotated 1 time for cluster CZ4.

Info for manual annotations of cluster DI:

- Start number 8 was manually annotated 15 times for cluster DI.

Info for manual annotations of cluster DN:

- Start number 16 was manually annotated 1 time for cluster DN.

Info for manual annotations of cluster DY:

- Start number 14 was manually annotated 5 times for cluster DY.

Info for manual annotations of cluster I1:

- Start number 18 was manually annotated 2 times for cluster I1.

Info for manual annotations of cluster I2:

- Start number 19 was manually annotated 1 time for cluster I2.

Info for manual annotations of cluster N:

- Start number 12 was manually annotated 6 times for cluster N.
- Start number 14 was manually annotated 1 time for cluster N.
- Start number 19 was manually annotated 12 times for cluster N.

Gene Information:

Gene: Aggie_31 Start: 25578, Stop: 25183, Start Num: 12

Candidate Starts for Aggie_31:

(Start: 12 @25578 has 6 MA's), (Start: 19 @25566 has 13 MA's), (22, 25530), (24, 25515), (33, 25437), (50, 25344), (53, 25302), (54, 25299), (58, 25281), (65, 25221),

Gene: Agueybana_35 Start: 29277, Stop: 28873, Start Num: 17

Candidate Starts for Agueybana_35:

(Start: 17 @29277 has 1 MA's), (21, 29256), (23, 29232), (45, 29067), (49, 29052),

Gene: Ayotoya_34 Start: 28865, Stop: 28449, Start Num: 8

Candidate Starts for Ayotoya_34:

(2, 29051), (Start: 8 @28865 has 15 MA's), (24, 28793), (28, 28757), (40, 28658), (41, 28652), (53, 28568), (62, 28514),

Gene: BabeRuth_34 Start: 27217, Stop: 26834, Start Num: 19

Candidate Starts for BabeRuth_34:

(Start: 12 @27229 has 6 MA's), (Start: 19 @27217 has 13 MA's), (22, 27181), (24, 27166), (33, 27088), (37, 27058), (42, 27043), (53, 26953), (54, 26950), (58, 26932), (62, 26899), (65, 26872),

Gene: Babsiella_30 Start: 26423, Stop: 25983, Start Num: 18

Candidate Starts for Babsiella_30:

(Start: 18 @26423 has 3 MA's), (20, 26408), (24, 26369), (27, 26348), (38, 26225), (47, 26192), (51, 26153), (55, 26123), (56, 26114), (62, 26075), (65, 26048), (67, 26024),

Gene: BetterKatz_34 Start: 28336, Stop: 27920, Start Num: 8

Candidate Starts for BetterKatz_34:

(Start: 8 @28336 has 15 MA's), (24, 28264), (28, 28228), (33, 28168), (40, 28129), (41, 28123), (53, 28039), (62, 27985),

Gene: Bock_34 Start: 28086, Stop: 27670, Start Num: 8

Candidate Starts for Bock_34:

(2, 28272), (Start: 8 @28086 has 15 MA's), (24, 28014), (28, 27978), (33, 27918), (40, 27879), (41, 27873), (53, 27789), (62, 27735),

Gene: Bosection6_31 Start: 25577, Stop: 25182, Start Num: 12

Candidate Starts for Bosection6_31:

(Start: 12 @25577 has 6 MA's), (Start: 19 @25565 has 13 MA's), (22, 25529), (24, 25514), (33, 25436), (50, 25343), (53, 25301), (54, 25298), (58, 25280), (65, 25220),

Gene: Brylie_34 Start: 28074, Stop: 27658, Start Num: 8

Candidate Starts for Brylie_34:

(2, 28260), (Start: 8 @28074 has 15 MA's), (24, 28002), (28, 27966), (33, 27906), (40, 27867), (41, 27861), (53, 27777), (62, 27723),

Gene: Charlie_31 Start: 25565, Stop: 25182, Start Num: 19

Candidate Starts for Charlie_31:

(Start: 12 @25577 has 6 MA's), (Start: 19 @25565 has 13 MA's), (22, 25529), (24, 25514), (33, 25436), (50, 25343), (53, 25301), (54, 25298), (58, 25280), (65, 25220),

Gene: Che9c_30 Start: 27077, Stop: 26694, Start Num: 19

Candidate Starts for Che9c_30:

(Start: 12 @27089 has 6 MA's), (Start: 19 @27077 has 13 MA's), (22, 27041), (24, 27026), (33, 26948), (46, 26888), (50, 26855), (53, 26813), (58, 26792), (62, 26759), (65, 26732),

Gene: Chop_34 Start: 28613, Stop: 28197, Start Num: 8

Candidate Starts for Chop_34:

(2, 28799), (Start: 8 @28613 has 15 MA's), (24, 28541), (28, 28505), (40, 28406), (41, 28400), (53, 28316), (62, 28262),

Gene: Cubone_31 Start: 25599, Stop: 25204, Start Num: 12

Candidate Starts for Cubone_31:

(Start: 12 @25599 has 6 MA's), (Start: 19 @25587 has 13 MA's), (22, 25551), (24, 25536), (33, 25458), (50, 25365), (53, 25323), (54, 25320), (58, 25302), (65, 25242),

Gene: DelRio_35 Start: 29263, Stop: 28847, Start Num: 8

Candidate Starts for DelRio_35:

(Start: 8 @29263 has 15 MA's), (24, 29191), (28, 29155), (33, 29095), (40, 29056), (41, 29050), (53, 28966), (62, 28912),

Gene: DinoNuggs_63 Start: 40458, Stop: 40964, Start Num: 19

Candidate Starts for DinoNuggs_63:

(Start: 14 @40449 has 6 MA's), (Start: 19 @40458 has 13 MA's), (21, 40476), (24, 40509), (32, 40569), (52, 40692), (62, 40758), (64, 40779), (65, 40785),

Gene: E3_gp22 Start: 9420, Stop: 9812, Start Num: 13

Candidate Starts for E3_gp22:

(13, 9420), (15, 9423), (24, 9483), (25, 9486), (29, 9519), (35, 9570), (36, 9585), (40, 9597), (42, 9606), (43, 9609), (48, 9627), (62, 9744), (66, 9786),

Gene: EGUunicorn_31 Start: 25565, Stop: 25182, Start Num: 19

Candidate Starts for EGUunicorn_31:

(Start: 12 @25577 has 6 MA's), (Start: 19 @25565 has 13 MA's), (22, 25529), (24, 25514), (33, 25436), (50, 25343), (53, 25301), (54, 25298), (58, 25280), (65, 25220),

Gene: Francois_34 Start: 28109, Stop: 27684, Start Num: 8

Candidate Starts for Francois_34:

(3, 28304), (Start: 8 @28109 has 15 MA's), (24, 28028), (28, 27992), (33, 27932), (40, 27893), (41, 27887), (62, 27749),

Gene: GrandSlam_34 Start: 28613, Stop: 28197, Start Num: 8

Candidate Starts for GrandSlam_34:

(2, 28799), (Start: 8 @28613 has 15 MA's), (24, 28541), (28, 28505), (40, 28406), (41, 28400), (53, 28316), (62, 28262),

Gene: HC_31 Start: 26479, Stop: 26039, Start Num: 18

Candidate Starts for HC_31:

(Start: 18 @26479 has 3 MA's), (20, 26464), (24, 26425), (27, 26404), (38, 26281), (47, 26248), (51, 26209), (55, 26179), (56, 26170), (62, 26131), (65, 26104), (67, 26080),

Gene: Hamood_34 Start: 28613, Stop: 28197, Start Num: 8

Candidate Starts for Hamood_34:

(2, 28799), (Start: 8 @28613 has 15 MA's), (24, 28541), (28, 28505), (40, 28406), (41, 28400), (53, 28316), (62, 28262),

Gene: Hanako_33 Start: 27216, Stop: 26833, Start Num: 19

Candidate Starts for Hanako_33:

(Start: 12 @27228 has 6 MA's), (Start: 19 @27216 has 13 MA's), (22, 27180), (24, 27165), (33, 27087), (37, 27057), (42, 27042), (53, 26952), (54, 26949), (58, 26931), (62, 26898), (65, 26871),

Gene: Heinz_61 Start: 38941, Stop: 39591, Start Num: 14

Candidate Starts for Heinz_61:

(1, 38605), (Start: 14 @38941 has 6 MA's), (Start: 19 @38950 has 13 MA's), (24, 39001), (26, 39010), (52, 39187), (58, 39220), (62, 39253), (64, 39274), (70, 39361), (71, 39418),

Gene: Hibiscus_62 Start: 38817, Stop: 39401, Start Num: 14

Candidate Starts for Hibiscus_62:

(Start: 14 @38817 has 6 MA's), (Start: 19 @38826 has 13 MA's), (21, 38844), (26, 38886), (52, 39066), (62, 39132), (64, 39153), (71, 39249), (72, 39390),

Gene: IdentityCrisis_32 Start: 25735, Stop: 25295, Start Num: 18

Candidate Starts for IdentityCrisis_32:

(5, 25855), (7, 25774), (Start: 18 @25735 has 3 MA's), (23, 25690), (24, 25681), (27, 25660), (34, 25567), (36, 25543), (38, 25537), (43, 25519), (51, 25465), (56, 25426), (61, 25393), (62, 25387), (63, 25378), (69, 25303),

Gene: Impisi_35 Start: 27571, Stop: 27131, Start Num: 18

Candidate Starts for Impisi_35:

(4, 27700), (9, 27589), (Start: 14 @27577 has 6 MA's), (Start: 18 @27571 has 3 MA's), (24, 27517), (27, 27496), (30, 27436), (34, 27403), (36, 27379), (37, 27376), (38, 27373), (47, 27340), (56, 27262), (62, 27223), (65, 27196),

Gene: Jojo24_62 Start: 39500, Stop: 40084, Start Num: 14

Candidate Starts for Jojo24_62:

(Start: 14 @39500 has 6 MA's), (Start: 19 @39509 has 13 MA's), (21, 39527), (24, 39560), (26, 39569), (52, 39749), (62, 39815), (64, 39836), (71, 39932),

Gene: Journey_31 Start: 25565, Stop: 25182, Start Num: 19

Candidate Starts for Journey_31:

(Start: 12 @25577 has 6 MA's), (Start: 19 @25565 has 13 MA's), (22, 25529), (24, 25514), (33, 25436), (50, 25343), (53, 25301), (54, 25298), (58, 25280), (65, 25220),

Gene: MortyNRick_35 Start: 28914, Stop: 28537, Start Num: 16

Candidate Starts for MortyNRick_35:

(6, 28950), (10, 28926), (Start: 11 @28923 has 1 MA's), (15, 28917), (Start: 16 @28914 has 1 MA's), (31, 28809), (35, 28776), (36, 28761), (44, 28734), (49, 28716), (50, 28698), (60, 28626), (65, 28578), (68, 28551),

Gene: Mulch_34 Start: 28074, Stop: 27658, Start Num: 8

Candidate Starts for Mulch_34:

(2, 28260), (Start: 8 @28074 has 15 MA's), (24, 28002), (28, 27966), (33, 27906), (40, 27867), (41, 27861), (53, 27777), (62, 27723),

Gene: Nadeem_34 Start: 28074, Stop: 27658, Start Num: 8

Candidate Starts for Nadeem_34:

(2, 28260), (Start: 8 @28074 has 15 MA's), (24, 28002), (28, 27966), (33, 27906), (40, 27867), (41, 27861), (53, 27777), (62, 27723),

Gene: NancyRae_34 Start: 28084, Stop: 27668, Start Num: 8

Candidate Starts for NancyRae_34:

(2, 28270), (Start: 8 @28084 has 15 MA's), (24, 28012), (28, 27976), (33, 27916), (40, 27877), (41, 27871), (53, 27787), (62, 27733),

Gene: Nенаe_33 Start: 27219, Stop: 26833, Start Num: 19

Candidate Starts for Nенаe_33:

(Start: 12 @27231 has 6 MA's), (Start: 19 @27219 has 13 MA's), (22, 27183), (24, 27168), (33, 27090), (37, 27060), (38, 27057), (42, 27042), (53, 26952), (54, 26949), (58, 26931), (62, 26898), (65, 26871),

Gene: PaintedDog_36 Start: 28967, Stop: 28527, Start Num: 18

Candidate Starts for PaintedDog_36:

(Start: 18 @28967 has 3 MA's), (20, 28952), (24, 28913), (27, 28892), (38, 28769), (47, 28736), (51, 28697), (55, 28667), (56, 28658), (62, 28619), (65, 28592), (69, 28535),

Gene: Parada_34 Start: 28074, Stop: 27658, Start Num: 8

Candidate Starts for Parada_34:

(2, 28260), (Start: 8 @28074 has 15 MA's), (24, 28002), (28, 27966), (33, 27906), (40, 27867), (41, 27861), (53, 27777), (62, 27723),

Gene: PhancyPhin_33 Start: 27213, Stop: 26830, Start Num: 19

Candidate Starts for PhancyPhin_33:

(Start: 12 @27225 has 6 MA's), (Start: 19 @27213 has 13 MA's), (22, 27177), (24, 27162), (33, 27084), (37, 27054), (42, 27039), (53, 26949), (54, 26946), (58, 26928), (62, 26895), (65, 26868),

Gene: Philonius_31 Start: 25568, Stop: 25173, Start Num: 12

Candidate Starts for Philonius_31:

(Start: 12 @25568 has 6 MA's), (Start: 19 @25556 has 13 MA's), (22, 25520), (24, 25505), (33, 25427), (50, 25334), (53, 25292), (54, 25289), (58, 25271), (65, 25211),

Gene: Phrann_33 Start: 27801, Stop: 27355, Start Num: 14

Candidate Starts for Phrann_33:

(4, 27924), (9, 27813), (Start: 14 @27801 has 6 MA's), (Start: 18 @27795 has 3 MA's), (24, 27741), (27, 27720), (30, 27660), (34, 27627), (36, 27603), (37, 27600), (38, 27597), (47, 27564), (56, 27486), (62, 27447), (65, 27420),

Gene: Pimento_34 Start: 27733, Stop: 27317, Start Num: 8

Candidate Starts for Pimento_34:

(2, 27919), (Start: 8 @27733 has 15 MA's), (24, 27661), (28, 27625), (33, 27565), (40, 27526), (41, 27520), (53, 27436), (62, 27382),

Gene: Powerball_28 Start: 25728, Stop: 25342, Start Num: 11

Candidate Starts for Powerball_28:

(6, 25755), (10, 25731), (Start: 11 @25728 has 1 MA's), (15, 25722), (Start: 16 @25719 has 1 MA's), (29, 25632), (31, 25614), (57, 25446), (64, 25389), (65, 25383), (67, 25359), (68, 25356),

Gene: Purgamenstris_33 Start: 27216, Stop: 26833, Start Num: 19

Candidate Starts for Purgamenstris_33:

(Start: 12 @27228 has 6 MA's), (Start: 19 @27216 has 13 MA's), (22, 27180), (24, 27165), (33, 27087), (37, 27057), (42, 27042), (53, 26952), (54, 26949), (58, 26931), (62, 26898), (65, 26871),

Gene: Redi_33 Start: 27216, Stop: 26833, Start Num: 19

Candidate Starts for Redi_33:

(Start: 12 @27228 has 6 MA's), (Start: 19 @27216 has 13 MA's), (22, 27180), (24, 27165), (33, 27087), (37, 27057), (42, 27042), (53, 26952), (54, 26949), (58, 26931), (62, 26898), (65, 26871),

Gene: Reyja_64 Start: 40449, Stop: 40964, Start Num: 14

Candidate Starts for Reyja_64:

(Start: 14 @40449 has 6 MA's), (Start: 19 @40458 has 13 MA's), (21, 40476), (24, 40509), (32, 40569), (52, 40692), (62, 40758), (64, 40779), (65, 40785),

Gene: Scitech_28 Start: 24742, Stop: 24359, Start Num: 19

Candidate Starts for Scitech_28:

(Start: 12 @24754 has 6 MA's), (Start: 19 @24742 has 13 MA's), (22, 24706), (24, 24691), (33, 24613), (50, 24520), (53, 24478), (54, 24475), (58, 24457), (65, 24397),

Gene: ShrimpFriedEgg_33 Start: 27216, Stop: 26833, Start Num: 19

Candidate Starts for ShrimpFriedEgg_33:

(Start: 12 @27228 has 6 MA's), (Start: 19 @27216 has 13 MA's), (22, 27180), (24, 27165), (33, 27087), (37, 27057), (42, 27042), (53, 26952), (54, 26949), (58, 26931), (62, 26898), (65, 26871),

Gene: Silvy_31 Start: 25566, Stop: 25183, Start Num: 19

Candidate Starts for Silvy_31:

(Start: 12 @25578 has 6 MA's), (Start: 19 @25566 has 13 MA's), (22, 25530), (24, 25515), (33, 25437), (50, 25344), (53, 25302), (54, 25299), (58, 25281), (65, 25221),

Gene: SkinnyPete_28 Start: 24617, Stop: 24222, Start Num: 12

Candidate Starts for SkinnyPete_28:

(Start: 12 @24617 has 6 MA's), (Start: 19 @24605 has 13 MA's), (22, 24569), (24, 24554), (33, 24476), (50, 24383), (53, 24341), (54, 24338), (58, 24320), (65, 24260),

Gene: Spinach_33 Start: 27216, Stop: 26833, Start Num: 19

Candidate Starts for Spinach_33:

(Start: 12 @27228 has 6 MA's), (Start: 19 @27216 has 13 MA's), (22, 27180), (24, 27165), (33, 27087), (37, 27057), (42, 27042), (53, 26952), (54, 26949), (58, 26931), (62, 26898), (65, 26871),

Gene: Tarzan_62 Start: 39111, Stop: 39680, Start Num: 14

Candidate Starts for Tarzan_62:

(Start: 14 @39111 has 6 MA's), (Start: 19 @39120 has 13 MA's), (24, 39171), (26, 39180), (39, 39276), (52, 39360), (62, 39426), (64, 39447), (65, 39453), (72, 39669),

Gene: Tortoise12_31 Start: 25589, Stop: 25194, Start Num: 12

Candidate Starts for Tortoise12_31:

(Start: 12 @25589 has 6 MA's), (Start: 19 @25577 has 13 MA's), (22, 25541), (24, 25526), (33, 25448), (50, 25355), (53, 25313), (54, 25310), (58, 25292), (65, 25232),

Gene: WST1_34 Start: 25595, Stop: 25155, Start Num: 18

Candidate Starts for WST1_34:

(Start: 18 @25595 has 3 MA's), (23, 25550), (24, 25541), (27, 25520), (30, 25460), (34, 25427), (36, 25403), (38, 25397), (43, 25379), (47, 25364), (51, 25325), (56, 25286), (59, 25271), (61, 25253), (62, 25247), (63, 25238), (69, 25163),

Gene: WheatThin_34 Start: 28074, Stop: 27658, Start Num: 8

Candidate Starts for WheatThin_34:

(2, 28260), (Start: 8 @28074 has 15 MA's), (24, 28002), (28, 27966), (33, 27906), (40, 27867), (41, 27861), (53, 27777), (62, 27723),

Gene: Xeno_30 Start: 25343, Stop: 24948, Start Num: 12

Candidate Starts for Xeno_30:

(Start: 12 @25343 has 6 MA's), (Start: 19 @25331 has 13 MA's), (22, 25295), (24, 25280), (33, 25202), (50, 25109), (53, 25067), (54, 25064), (58, 25046), (65, 24986),