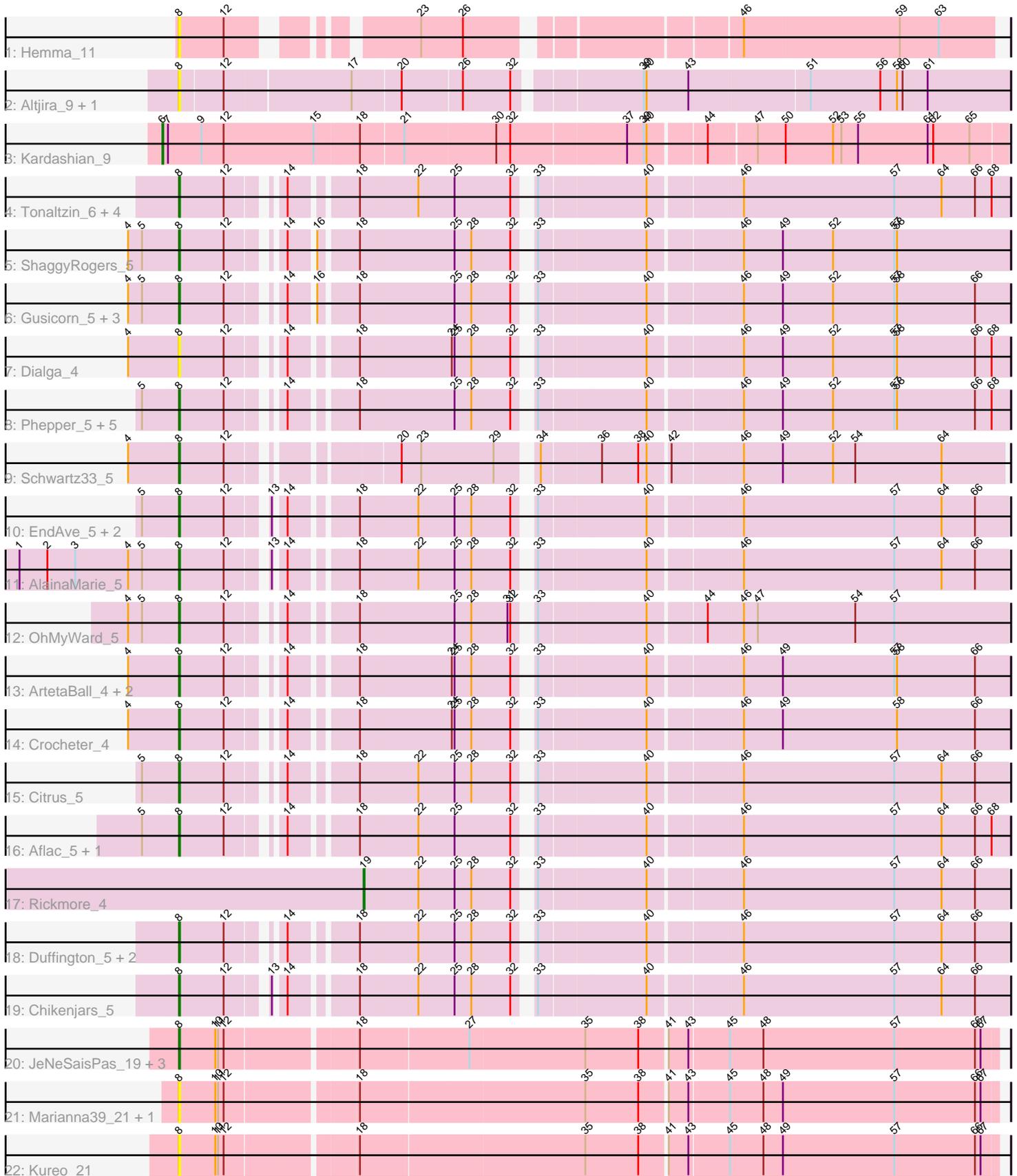


Pham 291283



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 291283 Report

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

Pham number 291283 has 46 members, 15 are drafts.

Phages represented in each track:

- Track 1 : Hemma_11
- Track 2 : Altjira_9, Mardi_11
- Track 3 : Kardashian_9
- Track 4 : Tonaltzin_6, MajinBuu_5, TenaciousP_5, BluerMoon_5, Jodelie19_5
- Track 5 : ShaggyRogers_5
- Track 6 : Gusicorn_5, BetterYeti_5, Aloe25_5, PestoPenguin_5
- Track 7 : Dialga_4
- Track 8 : Phepper_5, Burley_5, Madvan_5, Vardy_5, Nadmeg_5, Runhaar_5
- Track 9 : Schwartz33_5
- Track 10 : EndAve_5, Luthien_5, Glintora_4
- Track 11 : AlainaMarie_5
- Track 12 : OhMyWard_5
- Track 13 : ArtetaBall_4, CWormy_4, Untouchable_4
- Track 14 : Crocheter_4
- Track 15 : Citrus_5
- Track 16 : Aflac_5, Figliar_5
- Track 17 : Rickmore_4
- Track 18 : Duffington_5, Nithya_5, OlgasClover_5
- Track 19 : Chikenjars_5
- Track 20 : JeNeSaisPas_19, Elver_20, Paella_20, Qui_20
- Track 21 : Marianna39_21, Gandionco_20
- Track 22 : Kureo_21

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 29 of the 31 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aflac_5, AlainaMarie_5, Aloe25_5, Altjira_9, ArtetaBall_4, BetterYeti_5, BluerMoon_5, Burley_5, CWormy_4, Chikenjars_5, Citrus_5, Crocheter_4, Dialga_4, Duffington_5, Elver_20, EndAve_5, Figliar_5, Gandionco_20, Glintora_4, Gusicorn_5, Hemma_11, JeNeSaisPas_19, Jodelie19_5, Kureo_21, Luthien_5, Madvan_5, MajinBuu_5, Mardi_11, Marianna39_21, Nadmeg_5, Nithya_5, OhMyWard_5,

OlgasClover_5, Paella_20, PestoPenguin_5, Phepper_5, Qui_20, Runhaar_5, Schwartz33_5, ShaggyRogers_5, TenaciousP_5, Tonaltzin_6, Untouchable_4, Vardy_5,

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

-

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

- Kardashian_9, Rickmore_4,

Summary by start number:

Start 6:

- Found in 1 of 46 (2.2%) of genes in pham
- Manual Annotations of this start: 1 of 31
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kardashian_9 (BI6),

Start 8:

- Found in 44 of 46 (95.7%) of genes in pham
- Manual Annotations of this start: 29 of 31
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aflac_5 (DJ), AlainaMarie_5 (DJ), Aloe25_5 (DJ), Altjira_9 (AU6), ArtetaBall_4 (DJ), BetterYeti_5 (DJ), BluerMoon_5 (DJ), Burley_5 (DJ), CWormy_4 (DJ), Chikenjars_5 (DJ), Citrus_5 (DJ), Crocheter_4 (DJ), Dialga_4 (DJ), Duffington_5 (DJ), Elver_20 (FK), EndAve_5 (DJ), Figliar_5 (DJ), Gandionco_20 (FK), Glintora_4 (DJ), Gusicorn_5 (DJ), Hemma_11 (AU1), JeNeSaisPas_19 (FK), Jodelie19_5 (DJ), Kureo_21 (FK), Luthien_5 (DJ), Madvan_5 (DJ), MajinBuu_5 (DJ), Mardi_11 (AU6), Marianna39_21 (FK), Nadmeg_5 (DJ), Nithya_5 (DJ), OhMyWard_5 (DJ), OlgasClover_5 (DJ), Paella_20 (FK), PestoPenguin_5 (DJ), Phepper_5 (DJ), Qui_20 (FK), Runhaar_5 (DJ), Schwartz33_5 (DJ), ShaggyRogers_5 (DJ), TenaciousP_5 (DJ), Tonaltzin_6 (DJ), Untouchable_4 (DJ), Vardy_5 (DJ),

Start 19:

- Found in 1 of 46 (2.2%) of genes in pham
- Manual Annotations of this start: 1 of 31
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Rickmore_4 (DJ),

Summary by clusters:

There are 5 clusters represented in this pham: AU1, BI6, FK, DJ, AU6,

Info for manual annotations of cluster BI6:

- Start number 6 was manually annotated 1 time for cluster BI6.

Info for manual annotations of cluster DJ:

- Start number 8 was manually annotated 26 times for cluster DJ.
- Start number 19 was manually annotated 1 time for cluster DJ.

Info for manual annotations of cluster FK:

•Start number 8 was manually annotated 3 times for cluster FK.

Gene Information:

Gene: Aflac_5 Start: 2074, Stop: 2889, Start Num: 8

Candidate Starts for Aflac_5:

(5, 2035), (Start: 8 @2074 has 29 MA's), (12, 2122), (14, 2167), (18, 2227), (22, 2287), (25, 2326), (32, 2386), (33, 2398), (40, 2509), (46, 2602), (57, 2764), (64, 2815), (66, 2851), (68, 2869),

Gene: AlainaMarie_5 Start: 2068, Stop: 2880, Start Num: 8

Candidate Starts for AlainaMarie_5:

(1, 1897), (2, 1927), (3, 1957), (4, 2014), (5, 2029), (Start: 8 @2068 has 29 MA's), (12, 2116), (13, 2152), (14, 2161), (18, 2221), (22, 2281), (25, 2320), (28, 2338), (32, 2380), (33, 2392), (40, 2503), (46, 2596), (57, 2758), (64, 2809), (66, 2845),

Gene: Aloe25_5 Start: 2068, Stop: 2883, Start Num: 8

Candidate Starts for Aloe25_5:

(4, 2014), (5, 2029), (Start: 8 @2068 has 29 MA's), (12, 2116), (14, 2161), (16, 2185), (18, 2221), (25, 2320), (28, 2338), (32, 2380), (33, 2392), (40, 2503), (46, 2596), (49, 2638), (52, 2692), (57, 2758), (58, 2761), (66, 2845),

Gene: Altjira_9 Start: 5994, Stop: 6848, Start Num: 8

Candidate Starts for Altjira_9:

(Start: 8 @5994 has 29 MA's), (12, 6039), (17, 6171), (20, 6222), (26, 6285), (32, 6336), (39, 6459), (40, 6462), (43, 6507), (51, 6633), (56, 6708), (58, 6726), (60, 6732), (61, 6759),

Gene: ArtetaBall_4 Start: 995, Stop: 1810, Start Num: 8

Candidate Starts for ArtetaBall_4:

(4, 941), (Start: 8 @995 has 29 MA's), (12, 1043), (14, 1088), (18, 1148), (24, 1244), (25, 1247), (28, 1265), (32, 1307), (33, 1319), (40, 1430), (46, 1523), (49, 1565), (57, 1685), (58, 1688), (66, 1772),

Gene: BetterYeti_5 Start: 2068, Stop: 2883, Start Num: 8

Candidate Starts for BetterYeti_5:

(4, 2014), (5, 2029), (Start: 8 @2068 has 29 MA's), (12, 2116), (14, 2161), (16, 2185), (18, 2221), (25, 2320), (28, 2338), (32, 2380), (33, 2392), (40, 2503), (46, 2596), (49, 2638), (52, 2692), (57, 2758), (58, 2761), (66, 2845),

Gene: BluerMoon_5 Start: 2068, Stop: 2883, Start Num: 8

Candidate Starts for BluerMoon_5:

(Start: 8 @2068 has 29 MA's), (12, 2116), (14, 2161), (18, 2221), (22, 2281), (25, 2320), (32, 2380), (33, 2392), (40, 2503), (46, 2596), (57, 2758), (64, 2809), (66, 2845), (68, 2863),

Gene: Burley_5 Start: 2068, Stop: 2883, Start Num: 8

Candidate Starts for Burley_5:

(5, 2029), (Start: 8 @2068 has 29 MA's), (12, 2116), (14, 2161), (18, 2221), (25, 2320), (28, 2338), (32, 2380), (33, 2392), (40, 2503), (46, 2596), (49, 2638), (52, 2692), (57, 2758), (58, 2761), (66, 2845), (68, 2863),

Gene: CWormy_4 Start: 995, Stop: 1810, Start Num: 8

Candidate Starts for CWormy_4:

(4, 941), (Start: 8 @995 has 29 MA's), (12, 1043), (14, 1088), (18, 1148), (24, 1244), (25, 1247), (28, 1265), (32, 1307), (33, 1319), (40, 1430), (46, 1523), (49, 1565), (57, 1685), (58, 1688), (66, 1772),

Gene: Chikenjars_5 Start: 2068, Stop: 2880, Start Num: 8

Candidate Starts for Chikenjars_5:

(Start: 8 @2068 has 29 MA's), (12, 2116), (13, 2152), (14, 2161), (18, 2221), (22, 2281), (25, 2320), (28, 2338), (32, 2380), (33, 2392), (40, 2503), (46, 2596), (57, 2758), (64, 2809), (66, 2845),

Gene: Citrus_5 Start: 2074, Stop: 2886, Start Num: 8

Candidate Starts for Citrus_5:

(5, 2035), (Start: 8 @2074 has 29 MA's), (12, 2122), (14, 2167), (18, 2227), (22, 2287), (25, 2326), (28, 2344), (32, 2386), (33, 2398), (40, 2509), (46, 2602), (57, 2764), (64, 2815), (66, 2851),

Gene: Crocheter_4 Start: 995, Stop: 1810, Start Num: 8

Candidate Starts for Crocheter_4:

(4, 941), (Start: 8 @995 has 29 MA's), (12, 1043), (14, 1088), (18, 1148), (24, 1244), (25, 1247), (28, 1265), (32, 1307), (33, 1319), (40, 1430), (46, 1523), (49, 1565), (58, 1688), (66, 1772),

Gene: Dialga_4 Start: 995, Stop: 1810, Start Num: 8

Candidate Starts for Dialga_4:

(4, 941), (Start: 8 @995 has 29 MA's), (12, 1043), (14, 1088), (18, 1148), (24, 1244), (25, 1247), (28, 1265), (32, 1307), (33, 1319), (40, 1430), (46, 1523), (49, 1565), (52, 1619), (57, 1685), (58, 1688), (66, 1772), (68, 1790),

Gene: Duffington_5 Start: 2068, Stop: 2880, Start Num: 8

Candidate Starts for Duffington_5:

(Start: 8 @2068 has 29 MA's), (12, 2116), (14, 2161), (18, 2221), (22, 2281), (25, 2320), (28, 2338), (32, 2380), (33, 2392), (40, 2503), (46, 2596), (57, 2758), (64, 2809), (66, 2845),

Gene: Elver_20 Start: 11351, Stop: 12199, Start Num: 8

Candidate Starts for Elver_20:

(Start: 8 @11351 has 29 MA's), (10, 11390), (11, 11393), (12, 11399), (18, 11528), (27, 11642), (35, 11765), (38, 11822), (41, 11849), (43, 11870), (45, 11912), (48, 11948), (57, 12089), (66, 12176), (67, 12182),

Gene: EndAve_5 Start: 2068, Stop: 2880, Start Num: 8

Candidate Starts for EndAve_5:

(5, 2029), (Start: 8 @2068 has 29 MA's), (12, 2116), (13, 2152), (14, 2161), (18, 2221), (22, 2281), (25, 2320), (28, 2338), (32, 2380), (33, 2392), (40, 2503), (46, 2596), (57, 2758), (64, 2809), (66, 2845),

Gene: Figliar_5 Start: 2074, Stop: 2889, Start Num: 8

Candidate Starts for Figliar_5:

(5, 2035), (Start: 8 @2074 has 29 MA's), (12, 2122), (14, 2167), (18, 2227), (22, 2287), (25, 2326), (32, 2386), (33, 2398), (40, 2509), (46, 2602), (57, 2764), (64, 2815), (66, 2851), (68, 2869),

Gene: Gandionco_20 Start: 11868, Stop: 12716, Start Num: 8

Candidate Starts for Gandionco_20:

(Start: 8 @11868 has 29 MA's), (10, 11907), (11, 11910), (12, 11916), (18, 12045), (35, 12282), (38, 12339), (41, 12366), (43, 12387), (45, 12429), (48, 12465), (49, 12486), (57, 12606), (66, 12693), (67, 12699),

Gene: Glintora_4 Start: 2068, Stop: 2880, Start Num: 8

Candidate Starts for Glintora_4:

(5, 2029), (Start: 8 @2068 has 29 MA's), (12, 2116), (13, 2152), (14, 2161), (18, 2221), (22, 2281), (25, 2320), (28, 2338), (32, 2380), (33, 2392), (40, 2503), (46, 2596), (57, 2758), (64, 2809), (66, 2845),

Gene: Gusicorn_5 Start: 2068, Stop: 2883, Start Num: 8

Candidate Starts for Gusicorn_5:

(4, 2014), (5, 2029), (Start: 8 @2068 has 29 MA's), (12, 2116), (14, 2161), (16, 2185), (18, 2221), (25, 2320), (28, 2338), (32, 2380), (33, 2392), (40, 2503), (46, 2596), (49, 2638), (52, 2692), (57, 2758), (58, 2761), (66, 2845),

Gene: Hemma_11 Start: 6505, Stop: 7275, Start Num: 8

Candidate Starts for Hemma_11:

(Start: 8 @6505 has 29 MA's), (12, 6553), (23, 6706), (26, 6751), (46, 7009), (59, 7174), (63, 7216),

Gene: JeNeSaisPas_19 Start: 11886, Stop: 12734, Start Num: 8

Candidate Starts for JeNeSaisPas_19:

(Start: 8 @11886 has 29 MA's), (10, 11925), (11, 11928), (12, 11934), (18, 12063), (27, 12177), (35, 12300), (38, 12357), (41, 12384), (43, 12405), (45, 12447), (48, 12483), (57, 12624), (66, 12711), (67, 12717),

Gene: Jodelie19_5 Start: 2068, Stop: 2883, Start Num: 8

Candidate Starts for Jodelie19_5:

(Start: 8 @2068 has 29 MA's), (12, 2116), (14, 2161), (18, 2221), (22, 2281), (25, 2320), (32, 2380), (33, 2392), (40, 2503), (46, 2596), (57, 2758), (64, 2809), (66, 2845), (68, 2863),

Gene: Kardashian_9 Start: 5672, Stop: 6547, Start Num: 6

Candidate Starts for Kardashian_9:

(Start: 6 @5672 has 1 MA's), (7, 5678), (9, 5714), (12, 5738), (15, 5834), (18, 5879), (21, 5924), (30, 6020), (32, 6035), (37, 6155), (39, 6173), (40, 6176), (44, 6233), (47, 6281), (50, 6311), (52, 6362), (53, 6371), (55, 6389), (61, 6464), (62, 6470), (65, 6509),

Gene: Kureo_21 Start: 11718, Stop: 12566, Start Num: 8

Candidate Starts for Kureo_21:

(Start: 8 @11718 has 29 MA's), (10, 11757), (11, 11760), (12, 11766), (18, 11895), (35, 12132), (38, 12189), (41, 12216), (43, 12237), (45, 12279), (48, 12315), (49, 12336), (57, 12456), (66, 12543), (67, 12549),

Gene: Luthien_5 Start: 2068, Stop: 2880, Start Num: 8

Candidate Starts for Luthien_5:

(5, 2029), (Start: 8 @2068 has 29 MA's), (12, 2116), (13, 2152), (14, 2161), (18, 2221), (22, 2281), (25, 2320), (28, 2338), (32, 2380), (33, 2392), (40, 2503), (46, 2596), (57, 2758), (64, 2809), (66, 2845),

Gene: Madvan_5 Start: 2068, Stop: 2883, Start Num: 8

Candidate Starts for Madvan_5:

(5, 2029), (Start: 8 @2068 has 29 MA's), (12, 2116), (14, 2161), (18, 2221), (25, 2320), (28, 2338), (32, 2380), (33, 2392), (40, 2503), (46, 2596), (49, 2638), (52, 2692), (57, 2758), (58, 2761), (66, 2845), (68, 2863),

Gene: MajinBuu_5 Start: 2068, Stop: 2883, Start Num: 8

Candidate Starts for MajinBuu_5:

(Start: 8 @2068 has 29 MA's), (12, 2116), (14, 2161), (18, 2221), (22, 2281), (25, 2320), (32, 2380), (33, 2392), (40, 2503), (46, 2596), (57, 2758), (64, 2809), (66, 2845), (68, 2863),

Gene: Mardi_11 Start: 6112, Stop: 6966, Start Num: 8

Candidate Starts for Mardi_11:

(Start: 8 @6112 has 29 MA's), (12, 6157), (17, 6289), (20, 6340), (26, 6403), (32, 6454), (39, 6577), (40, 6580), (43, 6625), (51, 6751), (56, 6826), (58, 6844), (60, 6850), (61, 6877),

Gene: Marianna39_21 Start: 11868, Stop: 12716, Start Num: 8

Candidate Starts for Marianna39_21:

(Start: 8 @11868 has 29 MA's), (10, 11907), (11, 11910), (12, 11916), (18, 12045), (35, 12282), (38, 12339), (41, 12366), (43, 12387), (45, 12429), (48, 12465), (49, 12486), (57, 12606), (66, 12693), (67, 12699),

Gene: Nadmeg_5 Start: 2069, Stop: 2884, Start Num: 8

Candidate Starts for Nadmeg_5:

(5, 2030), (Start: 8 @2069 has 29 MA's), (12, 2117), (14, 2162), (18, 2222), (25, 2321), (28, 2339), (32, 2381), (33, 2393), (40, 2504), (46, 2597), (49, 2639), (52, 2693), (57, 2759), (58, 2762), (66, 2846), (68, 2864),

Gene: Nithya_5 Start: 2068, Stop: 2880, Start Num: 8

Candidate Starts for Nithya_5:

(Start: 8 @2068 has 29 MA's), (12, 2116), (14, 2161), (18, 2221), (22, 2281), (25, 2320), (28, 2338), (32, 2380), (33, 2392), (40, 2503), (46, 2596), (57, 2758), (64, 2809), (66, 2845),

Gene: OhMyWard_5 Start: 2067, Stop: 2879, Start Num: 8

Candidate Starts for OhMyWard_5:

(4, 2013), (5, 2028), (Start: 8 @2067 has 29 MA's), (12, 2115), (14, 2160), (18, 2220), (25, 2319), (28, 2337), (31, 2376), (32, 2379), (33, 2391), (40, 2502), (44, 2559), (46, 2595), (47, 2610), (54, 2715), (57, 2757),

Gene: OlgasClover_5 Start: 2068, Stop: 2880, Start Num: 8

Candidate Starts for OlgasClover_5:

(Start: 8 @2068 has 29 MA's), (12, 2116), (14, 2161), (18, 2221), (22, 2281), (25, 2320), (28, 2338), (32, 2380), (33, 2392), (40, 2503), (46, 2596), (57, 2758), (64, 2809), (66, 2845),

Gene: Paella_20 Start: 11353, Stop: 12201, Start Num: 8

Candidate Starts for Paella_20:

(Start: 8 @11353 has 29 MA's), (10, 11392), (11, 11395), (12, 11401), (18, 11530), (27, 11644), (35, 11767), (38, 11824), (41, 11851), (43, 11872), (45, 11914), (48, 11950), (57, 12091), (66, 12178), (67, 12184),

Gene: PestoPenguin_5 Start: 2068, Stop: 2883, Start Num: 8

Candidate Starts for PestoPenguin_5:

(4, 2014), (5, 2029), (Start: 8 @2068 has 29 MA's), (12, 2116), (14, 2161), (16, 2185), (18, 2221), (25, 2320), (28, 2338), (32, 2380), (33, 2392), (40, 2503), (46, 2596), (49, 2638), (52, 2692), (57, 2758), (58, 2761), (66, 2845),

Gene: Phepper_5 Start: 2068, Stop: 2883, Start Num: 8

Candidate Starts for Phepper_5:

(5, 2029), (Start: 8 @2068 has 29 MA's), (12, 2116), (14, 2161), (18, 2221), (25, 2320), (28, 2338), (32, 2380), (33, 2392), (40, 2503), (46, 2596), (49, 2638), (52, 2692), (57, 2758), (58, 2761), (66, 2845), (68, 2863),

Gene: Qui_20 Start: 11353, Stop: 12201, Start Num: 8

Candidate Starts for Qui_20:

(Start: 8 @11353 has 29 MA's), (10, 11392), (11, 11395), (12, 11401), (18, 11530), (27, 11644), (35, 11767), (38, 11824), (41, 11851), (43, 11872), (45, 11914), (48, 11950), (57, 12091), (66, 12178), (67, 12184),

Gene: Rickmore_4 Start: 792, Stop: 1448, Start Num: 19

Candidate Starts for Rickmore_4:

(Start: 19 @792 has 1 MA's), (22, 849), (25, 888), (28, 906), (32, 948), (33, 960), (40, 1071), (46, 1164), (57, 1326), (64, 1377), (66, 1413),

Gene: Runhaar_5 Start: 2068, Stop: 2883, Start Num: 8

Candidate Starts for Runhaar_5:

(5, 2029), (Start: 8 @2068 has 29 MA's), (12, 2116), (14, 2161), (18, 2221), (25, 2320), (28, 2338), (32, 2380), (33, 2392), (40, 2503), (46, 2596), (49, 2638), (52, 2692), (57, 2758), (58, 2761), (66, 2845), (68, 2863),

Gene: Schwartz33_5 Start: 2080, Stop: 2886, Start Num: 8

Candidate Starts for Schwartz33_5:

(4, 2026), (Start: 8 @2080 has 29 MA's), (12, 2128), (20, 2275), (23, 2296), (29, 2374), (34, 2407), (36, 2467), (38, 2506), (40, 2515), (42, 2536), (46, 2608), (49, 2650), (52, 2704), (54, 2728), (64, 2821),

Gene: ShaggyRogers_5 Start: 2068, Stop: 2883, Start Num: 8

Candidate Starts for ShaggyRogers_5:

(4, 2014), (5, 2029), (Start: 8 @2068 has 29 MA's), (12, 2116), (14, 2161), (16, 2185), (18, 2221), (25, 2320), (28, 2338), (32, 2380), (33, 2392), (40, 2503), (46, 2596), (49, 2638), (52, 2692), (57, 2758), (58, 2761),

Gene: TenaciousP_5 Start: 2068, Stop: 2883, Start Num: 8

Candidate Starts for TenaciousP_5:

(Start: 8 @2068 has 29 MA's), (12, 2116), (14, 2161), (18, 2221), (22, 2281), (25, 2320), (32, 2380), (33, 2392), (40, 2503), (46, 2596), (57, 2758), (64, 2809), (66, 2845), (68, 2863),

Gene: Tonaltzin_6 Start: 2068, Stop: 2883, Start Num: 8

Candidate Starts for Tonaltzin_6:

(Start: 8 @2068 has 29 MA's), (12, 2116), (14, 2161), (18, 2221), (22, 2281), (25, 2320), (32, 2380), (33, 2392), (40, 2503), (46, 2596), (57, 2758), (64, 2809), (66, 2845), (68, 2863),

Gene: Untouchable_4 Start: 995, Stop: 1810, Start Num: 8

Candidate Starts for Untouchable_4:

(4, 941), (Start: 8 @995 has 29 MA's), (12, 1043), (14, 1088), (18, 1148), (24, 1244), (25, 1247), (28, 1265), (32, 1307), (33, 1319), (40, 1430), (46, 1523), (49, 1565), (57, 1685), (58, 1688), (66, 1772),

Gene: Vardy_5 Start: 2067, Stop: 2882, Start Num: 8

Candidate Starts for Vardy_5:

(5, 2028), (Start: 8 @2067 has 29 MA's), (12, 2115), (14, 2160), (18, 2220), (25, 2319), (28, 2337), (32, 2379), (33, 2391), (40, 2502), (46, 2595), (49, 2637), (52, 2691), (57, 2757), (58, 2760), (66, 2844), (68, 2862),