



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 292605 Report

This analysis was run 04/18/26 on database version 643.

Pham number 292605 has 132 members, 35 are drafts.

Phages represented in each track:

- Track 1 : Gordon_8, AreFloNak_8, Tatanka_7, Westerlin_8, Darby_8, Nivinsha_8, Synopsis_7
- Track 2 : Dinallo_9, Tenno_9, CapnMurica_8, MiniBagel_8
- Track 3 : ElephantMan_7, Niktson_7, Acai_8, Teacup_8, Brunswick_8
- Track 4 : Issa_8, LucySwiss_8, Breylor17_8
- Track 5 : CastorTray_9, Trustiboi_8
- Track 6 : ScienceWizSam_9
- Track 7 : DevitoJr_8
- Track 8 : Nightmare_9
- Track 9 : Hemma_9
- Track 10 : Chlochlo_9
- Track 11 : Tokki_9, Tipton_9
- Track 12 : Bouchard_8
- Track 13 : LilHuddy_8, Phaby_8
- Track 14 : Giantsbane_8
- Track 15 : Shepard_8
- Track 16 : Loretta_8, Ingrid_8
- Track 17 : Anandi_11
- Track 18 : Caterpillar_9, MediumFry_9
- Track 19 : Makai_8
- Track 20 : Truckee_8
- Track 21 : Zippen_9, Inked_9
- Track 22 : PerroGrande22_20
- Track 23 : PerroGrande22_19
- Track 24 : Poco6_019
- Track 25 : Pepy6_017
- Track 26 : Pepy6_018
- Track 27 : Schwartz33_20
- Track 28 : BetterYeti_18, ShaggyRogers_18, PestoPenguin_20, Gusicorn_18, Aloe25_20
- Track 29 : Dancer_15, FortCran_15, ChickyNuggy_16, Bugg_17, Avazak_15, Artorias_15, JulesRay_15, Trufflozitus_18, Captrips_15
- Track 30 : Mossy_16
- Track 31 : Eddiemania_19
- Track 32 : Roney_15, Capybara_15, NoPickles_15, Magel_15, Kerry_15, Gravy_15, Odesza_15
- Track 33 : Eddiemania_18

- Track 34 : Nithya_18, Luthien_19, EndAve_18, AlainaMarie_18
- Track 35 : Arataki_16, Demure_16, Hydrus_18, Zeph_18
- Track 36 : Untouchable_17, ArtetaBall_18, Nadmeg_18, Vardy_18, Crocheter_17, Runhaar_18, Burley_18, Madvan_18, Phepper_18
- Track 37 : Tanis_15, Gill_15
- Track 38 : Kenosha_16
- Track 39 : MajinBuu_18, Aflac_18, Jodelie19_18, BluerMoon_18, Figliar_18, Tonaltzin_20, Rickmore_17, TenaciousP_18
- Track 40 : Petite_16
- Track 41 : Mysticmoon_18, Pherobrine_17
- Track 42 : Glintora_17
- Track 43 : Fazel_16
- Track 44 : Blanky_15
- Track 45 : Blanky_18, Mossy_19
- Track 46 : Secretariat_17
- Track 47 : Zeph_19, Hydrus_19
- Track 48 : Chikenjars_18, Duffington_18, Citrus_17
- Track 49 : Tairn4Wing_17
- Track 50 : SweetCrkHerbs_17, Talon44_16, Perkunas_17
- Track 51 : Football_16
- Track 52 : Kenosha_17, Arataki_17, Demure_17
- Track 53 : Conley_15
- Track 54 : Hortihabitatio_18
- Track 55 : Dialga_18
- Track 56 : Qui_18, JeNeSaisPas_17, Gandionco_17, Paella_18, Marianna39_18, Kureo_19
- Track 57 : Elver_18

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 34 of the 97 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Acai_8, Anandi_11, AreFloNak_8, Bouchard_8, Breylor17_8, Brunswick_8, CapnMurica_8, CastorTray_9, Caterpillar_9, Darby_8, DevitoJr_8, Dinallo_9, ElephantMan_7, Elver_18, Gandionco_17, Giantsbane_8, Gordon_8, Hemma_9, Ingrid_8, Inked_9, Issa_8, JeNeSaisPas_17, Kureo_19, LilHuddy_8, Loretta_8, LucySwiss_8, Makai_8, Marianna39_18, MediumFry_9, MiniBagel_8, Niktson_7, Nivinsha_8, Paella_18, Pepy6_018, PerroGrande22_20, Phaby_8, Qui_18, ScienceWizSam_9, Shepard_8, Synopsis_7, Tatanka_7, Teacup_8, Tenno_9, Truckee_8, Trustiboi_8, Westerlin_8, Zippen_9,

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

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

- Aflac_18, AlainaMarie_18, Aloe25_20, Arataki_16, Arataki_17, ArtetaBall_18, Artorias_15, Avazak_15, BetterYeti_18, Blanky_15, Blanky_18, BluerMoon_18, Bugg_17, Burley_18, Captrips_15, Copybara_15, ChickyNugget_16, Chikenjars_18,

Chlochlo_9, Citrus_17, Conley_15, Crocheter_17, Dancer_15, Demure_16, Demure_17, Dialga_18, Duffington_18, Eddiemania_18, Eddiemania_19, EndAve_18, Fazel_16, Figliar_18, Football_16, FortCran_15, Gill_15, Glintora_17, Gravy_15, Gusicorn_18, Hortihabitatio_18, Hydrus_18, Hydrus_19, Jodelie19_18, JulesRay_15, Kenosha_16, Kenosha_17, Kerry_15, Luthien_19, Madvan_18, Magel_15, MajinBuu_18, Mossy_16, Mossy_19, Mysticmoon_18, Nadmeg_18, Nightmare_9, Nithya_18, NoPickles_15, Odesza_15, Pepy6_017, Perkunas_17, PerroGrande22_19, PestoPenguin_20, Petito_16, Phepper_18, Pherobrine_17, Poco6_019, Rickmore_17, Roney_15, Runhaar_18, Schwartz33_20, Secretariat_17, ShaggyRogers_18, SweetCrkHerbs_17, Tairn4Wing_17, Talon44_16, Tanis_15, TenaciousP_18, Tipton_9, Tokki_9, Tonaltzin_20, Trufflozitus_18, Untouchable_17, Vardy_18, Zeph_18, Zeph_19,

Summary by start number:

Start 3:

- Found in 6 of 132 (4.5%) of genes in pham
- Manual Annotations of this start: 1 of 97
- Called 16.7% of time when present
- Phage (with cluster) where this start called: Hortihabitatio_18 (DJ),

Start 5:

- Found in 31 of 132 (23.5%) of genes in pham
- Manual Annotations of this start: 24 of 97
- Called 96.8% of time when present
- Phage (with cluster) where this start called: Aflac_18 (DJ), AlainaMarie_18 (DJ), Aloe25_20 (DJ), ArtetaBall_18 (DJ), BetterYeti_18 (DJ), BluerMoon_18 (DJ), Burley_18 (DJ), Chikenjars_18 (DJ), Citrus_17 (DJ), Crocheter_17 (DJ), Dialga_18 (DJ), Duffington_18 (DJ), EndAve_18 (DJ), Figliar_18 (DJ), Gusicorn_18 (DJ), Jodelie19_18 (DJ), Luthien_19 (DJ), Madvan_18 (DJ), MajinBuu_18 (DJ), Nadmeg_18 (DJ), Nithya_18 (DJ), PestoPenguin_20 (DJ), Phepper_18 (DJ), Rickmore_17 (DJ), Runhaar_18 (DJ), ShaggyRogers_18 (DJ), TenaciousP_18 (DJ), Tonaltzin_20 (DJ), Untouchable_17 (DJ), Vardy_18 (DJ),

Start 6:

- Found in 6 of 132 (4.5%) of genes in pham
- Manual Annotations of this start: 2 of 97
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Hydrus_19 (DJ), Zeph_19 (DJ),

Start 7:

- Found in 1 of 132 (0.8%) of genes in pham
- Manual Annotations of this start: 1 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Schwartz33_20 (DJ),

Start 8:

- Found in 25 of 132 (18.9%) of genes in pham
- Manual Annotations of this start: 19 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Artorias_15 (DJ), Avazak_15 (DJ), Bugg_17 (DJ), Captrips_15 (DJ), Copybara_15 (DJ), ChickyNuggy_16 (DJ), Conley_15 (DJ), Dancer_15 (DJ), Football_16 (DJ), FortCran_15 (DJ), Gill_15 (DJ),

Gravy_15 (DJ), JulesRay_15 (DJ), Kerry_15 (DJ), Magel_15 (DJ), NoPickles_15 (DJ), Odesza_15 (DJ), Perkunas_17 (DJ), Petite_16 (DJ), Roney_15 (DJ), SweetCrkHerbs_17 (DJ), Tairn4Wing_17 (DJ), Talon44_16 (DJ), Tanis_15 (DJ), Trufflozitus_18 (DJ),

Start 10:

- Found in 23 of 132 (17.4%) of genes in pham
- Manual Annotations of this start: 13 of 97
- Called 87.0% of time when present
- Phage (with cluster) where this start called: Arataki_16 (DJ), Arataki_17 (DJ), Blanky_18 (DJ), Demure_16 (DJ), Demure_17 (DJ), Eddiemania_18 (DJ), Eddiemania_19 (DJ), Fazel_16 (DJ), Hydrus_18 (DJ), Kenosha_16 (DJ), Kenosha_17 (DJ), Mossy_19 (DJ), Mysticmoon_18 (DJ), Nightmare_9 (AU1), Pepy6_017 (CC), PerroGrande22_19 (CC), Pherobrine_17 (DJ), Poco6_019 (CC), Secretariat_17 (DJ), Zeph_18 (DJ),

Start 11:

- Found in 47 of 132 (35.6%) of genes in pham
- Manual Annotations of this start: 34 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Acai_8 (AU1), Anandi_11 (AU4), AreFloNak_8 (AU1), Bouchard_8 (AU2), Breylor17_8 (AU1), Brunswick_8 (AU1), CapnMurica_8 (AU1), CastorTray_9 (AU1), Caterpillar_9 (AU4), Darby_8 (AU1), DevitoJr_8 (AU1), Dinallo_9 (AU1), ElephantMan_7 (AU1), Elver_18 (FK), Gandionco_17 (FK), Giantsbane_8 (AU2), Gordon_8 (AU1), Hemma_9 (AU1), Ingrid_8 (AU3), Inked_9 (AU7), Issa_8 (AU1), JeNeSaisPas_17 (FK), Kureo_19 (FK), LilHuddy_8 (AU2), Loretta_8 (AU3), LucySwiss_8 (AU1), Makai_8 (AU5), Marianna39_18 (FK), MediumFry_9 (AU4), MiniBagel_8 (AU1), Niktson_7 (AU1), Nivinsha_8 (AU1), Paella_18 (FK), Pepy6_018 (CC), PerroGrande22_20 (CC), Phaby_8 (AU2), Qui_18 (FK), ScienceWizSam_9 (AU1), Shepard_8 (AU2), Synopsis_7 (AU1), Tatanka_7 (AU1), Teacup_8 (AU1), Tenno_9 (AU1), Truckee_8 (AU5), Trustiboi_8 (AU1), Westerlin_8 (AU1), Zippen_9 (AU7),

Start 12:

- Found in 5 of 132 (3.8%) of genes in pham
- Manual Annotations of this start: 3 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Blanky_15 (DJ), Chlochlo_9 (AU2), Mossy_16 (DJ), Tipton_9 (AU2), Tokki_9 (AU2),

Start 20:

- Found in 48 of 132 (36.4%) of genes in pham
- No Manual Annotations of this start.
- Called 2.1% of time when present
- Phage (with cluster) where this start called: Glintora_17 (DJ),

Summary by clusters:

There are 9 clusters represented in this pham: DJ, CC, AU1, AU3, AU2, AU5, AU4, AU7, FK,

Info for manual annotations of cluster AU1:

- Start number 10 was manually annotated 1 time for cluster AU1.

- Start number 11 was manually annotated 18 times for cluster AU1.

Info for manual annotations of cluster AU2:

- Start number 11 was manually annotated 5 times for cluster AU2.
- Start number 12 was manually annotated 2 times for cluster AU2.

Info for manual annotations of cluster AU3:

- Start number 11 was manually annotated 2 times for cluster AU3.

Info for manual annotations of cluster AU4:

- Start number 11 was manually annotated 2 times for cluster AU4.

Info for manual annotations of cluster AU5:

- Start number 11 was manually annotated 2 times for cluster AU5.

Info for manual annotations of cluster AU7:

- Start number 11 was manually annotated 2 times for cluster AU7.

Info for manual annotations of cluster DJ:

- Start number 3 was manually annotated 1 time for cluster DJ.
- Start number 5 was manually annotated 24 times for cluster DJ.
- Start number 6 was manually annotated 2 times for cluster DJ.
- Start number 7 was manually annotated 1 time for cluster DJ.
- Start number 8 was manually annotated 19 times for cluster DJ.
- Start number 10 was manually annotated 12 times for cluster DJ.
- Start number 12 was manually annotated 1 time for cluster DJ.

Info for manual annotations of cluster FK:

- Start number 11 was manually annotated 3 times for cluster FK.

Gene Information:

Gene: Acai_8 Start: 5443, Stop: 6294, Start Num: 11

Candidate Starts for Acai_8:

(Start: 11 @5443 has 34 MA's), (15, 5479), (17, 5488), (22, 5575), (24, 5590), (25, 5602), (31, 5710), (37, 5752), (39, 5767), (40, 5785), (46, 5866), (47, 5884), (48, 5890), (69, 6115), (84, 6244), (85, 6247), (87, 6280),

Gene: Aflac_18 Start: 12253, Stop: 13095, Start Num: 5

Candidate Starts for Aflac_18:

(Start: 5 @12253 has 24 MA's), (17, 12301), (20, 12370), (24, 12400), (40, 12592), (46, 12673), (47, 12691), (48, 12697), (56, 12766), (70, 12964),

Gene: AlainaMarie_18 Start: 12243, Stop: 13085, Start Num: 5

Candidate Starts for AlainaMarie_18:

(Start: 5 @12243 has 24 MA's), (17, 12291), (20, 12360), (24, 12390), (38, 12555), (40, 12582), (46, 12663), (47, 12681), (48, 12687), (56, 12756), (70, 12954), (72, 12963),

Gene: Aloe25_20 Start: 12043, Stop: 12885, Start Num: 5

Candidate Starts for Aloe25_20:

(Start: 5 @12043 has 24 MA's), (17, 12091), (20, 12160), (24, 12190), (40, 12382), (47, 12481), (48, 12487), (56, 12556), (70, 12754), (76, 12781),

Gene: Anandi_11 Start: 5512, Stop: 6351, Start Num: 11

Candidate Starts for Anandi_11:

(Start: 11 @5512 has 34 MA's), (15, 5551), (17, 5560), (22, 5647), (24, 5662), (25, 5674), (37, 5821), (38, 5827), (40, 5854), (47, 5953), (48, 5959), (56, 6028), (85, 6316),

Gene: Arataki_16 Start: 10224, Stop: 11393, Start Num: 10

Candidate Starts for Arataki_16:

(1, 10194), (Start: 10 @10224 has 13 MA's), (17, 10275), (42, 10650), (44, 10662), (59, 10809), (72, 10995), (73, 11001), (83, 11064), (91, 11163), (98, 11301),

Gene: Arataki_17 Start: 11412, Stop: 12251, Start Num: 10

Candidate Starts for Arataki_17:

(Start: 6 @11406 has 2 MA's), (Start: 10 @11412 has 13 MA's), (17, 11457), (20, 11526), (24, 11556), (40, 11748), (47, 11847), (48, 11853), (56, 11922), (70, 12120), (84, 12207),

Gene: AreFloNak_8 Start: 5330, Stop: 6178, Start Num: 11

Candidate Starts for AreFloNak_8:

(Start: 11 @5330 has 34 MA's), (15, 5366), (17, 5375), (22, 5462), (24, 5477), (25, 5489), (37, 5636), (39, 5651), (40, 5669), (48, 5774), (61, 5900), (69, 5999), (84, 6128), (85, 6131), (87, 6164),

Gene: ArtetaBall_18 Start: 10971, Stop: 11813, Start Num: 5

Candidate Starts for ArtetaBall_18:

(Start: 5 @10971 has 24 MA's), (17, 11019), (20, 11088), (24, 11118), (40, 11310), (47, 11409), (48, 11415), (56, 11484), (70, 11682),

Gene: Artorias_15 Start: 9651, Stop: 10493, Start Num: 8

Candidate Starts for Artorias_15:

(Start: 8 @9651 has 19 MA's), (17, 9699), (24, 9798), (30, 9909), (33, 9930), (40, 9990), (47, 10089), (48, 10095), (56, 10164), (70, 10362),

Gene: Avazak_15 Start: 9658, Stop: 10500, Start Num: 8

Candidate Starts for Avazak_15:

(Start: 8 @9658 has 19 MA's), (17, 9706), (24, 9805), (30, 9916), (33, 9937), (40, 9997), (47, 10096), (48, 10102), (56, 10171), (70, 10369),

Gene: BetterYeti_18 Start: 12043, Stop: 12885, Start Num: 5

Candidate Starts for BetterYeti_18:

(Start: 5 @12043 has 24 MA's), (17, 12091), (20, 12160), (24, 12190), (40, 12382), (47, 12481), (48, 12487), (56, 12556), (70, 12754), (76, 12781),

Gene: Blanky_15 Start: 10313, Stop: 11437, Start Num: 12

Candidate Starts for Blanky_15:

(Start: 12 @10313 has 3 MA's), (13, 10322), (17, 10358), (19, 10391), (26, 10511), (52, 10838), (53, 10853), (66, 11024), (78, 11144), (82, 11177), (86, 11213), (89, 11252), (92, 11300), (97, 11402), (98, 11417),

Gene: Blanky_18 Start: 13246, Stop: 14085, Start Num: 10

Candidate Starts for Blanky_18:

(Start: 10 @13246 has 13 MA's), (17, 13291), (20, 13360), (24, 13390), (40, 13582), (47, 13681), (48, 13687), (56, 13756), (70, 13954), (76, 13981), (84, 14041),

Gene: BluerMoon_18 Start: 12247, Stop: 13089, Start Num: 5

Candidate Starts for BluerMoon_18:

(Start: 5 @12247 has 24 MA's), (17, 12295), (20, 12364), (24, 12394), (40, 12586), (46, 12667), (47, 12685), (48, 12691), (56, 12760), (70, 12958),

Gene: Bouchard_8 Start: 5260, Stop: 6111, Start Num: 11

Candidate Starts for Bouchard_8:

(Start: 11 @5260 has 34 MA's), (17, 5308), (22, 5395), (24, 5410), (25, 5422), (35, 5557), (37, 5569), (39, 5584), (40, 5602), (46, 5683), (47, 5701), (48, 5707), (56, 5776), (85, 6064), (87, 6097),

Gene: Breylor17_8 Start: 5455, Stop: 6303, Start Num: 11

Candidate Starts for Breylor17_8:

(Start: 11 @5455 has 34 MA's), (15, 5491), (17, 5500), (22, 5587), (24, 5602), (25, 5614), (37, 5761), (40, 5794), (46, 5875), (48, 5899), (61, 6025), (69, 6124), (84, 6253), (85, 6256), (87, 6289),

Gene: Brunswick_8 Start: 5440, Stop: 6291, Start Num: 11

Candidate Starts for Brunswick_8:

(Start: 11 @5440 has 34 MA's), (15, 5476), (17, 5485), (22, 5572), (24, 5587), (25, 5599), (31, 5707), (37, 5749), (39, 5764), (40, 5782), (46, 5863), (47, 5881), (48, 5887), (69, 6112), (84, 6241), (85, 6244), (87, 6277),

Gene: Bugg_17 Start: 9664, Stop: 10506, Start Num: 8

Candidate Starts for Bugg_17:

(Start: 8 @9664 has 19 MA's), (17, 9712), (24, 9811), (30, 9922), (33, 9943), (40, 10003), (47, 10102), (48, 10108), (56, 10177), (70, 10375),

Gene: Burley_18 Start: 12011, Stop: 12853, Start Num: 5

Candidate Starts for Burley_18:

(Start: 5 @12011 has 24 MA's), (17, 12059), (20, 12128), (24, 12158), (40, 12350), (47, 12449), (48, 12455), (56, 12524), (70, 12722),

Gene: CapnMurica_8 Start: 6536, Stop: 7387, Start Num: 11

Candidate Starts for CapnMurica_8:

(Start: 11 @6536 has 34 MA's), (15, 6572), (17, 6581), (22, 6668), (24, 6683), (25, 6695), (31, 6803), (37, 6845), (39, 6860), (40, 6878), (46, 6959), (48, 6983), (69, 7208), (84, 7337), (85, 7340), (87, 7373),

Gene: Captrips_15 Start: 9658, Stop: 10500, Start Num: 8

Candidate Starts for Captrips_15:

(Start: 8 @9658 has 19 MA's), (17, 9706), (24, 9805), (30, 9916), (33, 9937), (40, 9997), (47, 10096), (48, 10102), (56, 10171), (70, 10369),

Gene: Capybara_15 Start: 9377, Stop: 10219, Start Num: 8

Candidate Starts for Capybara_15:

(Start: 8 @9377 has 19 MA's), (17, 9425), (24, 9524), (30, 9635), (35, 9671), (40, 9716), (48, 9821), (56, 9890), (70, 10088),

Gene: CastorTray_9 Start: 5309, Stop: 6157, Start Num: 11

Candidate Starts for CastorTray_9:

(Start: 11 @5309 has 34 MA's), (15, 5345), (17, 5354), (22, 5441), (24, 5456), (25, 5468), (37, 5615), (40, 5648), (48, 5753), (61, 5879), (69, 5978), (84, 6107), (85, 6110), (87, 6143),

Gene: Caterpillar_9 Start: 5548, Stop: 6399, Start Num: 11

Candidate Starts for Caterpillar_9:

(Start: 11 @5548 has 34 MA's), (15, 5584), (17, 5593), (22, 5680), (24, 5695), (25, 5707), (34, 5833), (37, 5857), (38, 5863), (40, 5890), (46, 5971), (48, 5995), (59, 6100), (69, 6220), (84, 6349), (85, 6352), (87, 6385),

Gene: ChickyNuggy_16 Start: 9369, Stop: 10211, Start Num: 8

Candidate Starts for ChickyNuggy_16:

(Start: 8 @9369 has 19 MA's), (17, 9417), (24, 9516), (30, 9627), (33, 9648), (40, 9708), (47, 9807), (48, 9813), (56, 9882), (70, 10080),

Gene: Chikenjars_18 Start: 12243, Stop: 13085, Start Num: 5

Candidate Starts for Chikenjars_18:

(Start: 5 @12243 has 24 MA's), (17, 12291), (20, 12360), (24, 12390), (38, 12555), (40, 12582), (46, 12663), (47, 12681), (48, 12687), (56, 12756), (70, 12954),

Gene: Chlochlo_9 Start: 5868, Stop: 6716, Start Num: 12

Candidate Starts for Chlochlo_9:

(2, 5838), (Start: 3 @5850 has 1 MA's), (Start: 12 @5868 has 3 MA's), (17, 5913), (22, 6000), (24, 6015), (25, 6027), (35, 6162), (37, 6174), (38, 6180), (39, 6189), (40, 6207), (46, 6288), (47, 6306), (48, 6312), (56, 6381), (85, 6669), (87, 6702),

Gene: Citrus_17 Start: 12250, Stop: 13092, Start Num: 5

Candidate Starts for Citrus_17:

(Start: 5 @12250 has 24 MA's), (17, 12298), (20, 12367), (24, 12397), (38, 12562), (40, 12589), (46, 12670), (47, 12688), (48, 12694), (56, 12763), (70, 12961),

Gene: Conley_15 Start: 9685, Stop: 10524, Start Num: 8

Candidate Starts for Conley_15:

(Start: 8 @9685 has 19 MA's), (17, 9730), (24, 9829), (30, 9940), (32, 9952), (38, 9994), (40, 10021), (41, 10033), (47, 10120), (48, 10126), (56, 10195), (70, 10393), (71, 10399), (88, 10516),

Gene: Crocheter_17 Start: 10971, Stop: 11813, Start Num: 5

Candidate Starts for Crocheter_17:

(Start: 5 @10971 has 24 MA's), (17, 11019), (20, 11088), (24, 11118), (40, 11310), (47, 11409), (48, 11415), (56, 11484), (70, 11682),

Gene: Dancer_15 Start: 9357, Stop: 10199, Start Num: 8

Candidate Starts for Dancer_15:

(Start: 8 @9357 has 19 MA's), (17, 9405), (24, 9504), (30, 9615), (33, 9636), (40, 9696), (47, 9795), (48, 9801), (56, 9870), (70, 10068),

Gene: Darby_8 Start: 5312, Stop: 6160, Start Num: 11

Candidate Starts for Darby_8:

(Start: 11 @5312 has 34 MA's), (15, 5348), (17, 5357), (22, 5444), (24, 5459), (25, 5471), (37, 5618), (39, 5633), (40, 5651), (48, 5756), (61, 5882), (69, 5981), (84, 6110), (85, 6113), (87, 6146),

Gene: Demure_16 Start: 10224, Stop: 11393, Start Num: 10

Candidate Starts for Demure_16:

(1, 10194), (Start: 10 @10224 has 13 MA's), (17, 10275), (42, 10650), (44, 10662), (59, 10809), (72, 10995), (73, 11001), (83, 11064), (91, 11163), (98, 11301),

Gene: Demure_17 Start: 11412, Stop: 12251, Start Num: 10

Candidate Starts for Demure_17:

(Start: 6 @11406 has 2 MA's), (Start: 10 @11412 has 13 MA's), (17, 11457), (20, 11526), (24, 11556), (40, 11748), (47, 11847), (48, 11853), (56, 11922), (70, 12120), (84, 12207),

Gene: DevitoJr_8 Start: 5454, Stop: 6302, Start Num: 11

Candidate Starts for DevitoJr_8:

(Start: 11 @5454 has 34 MA's), (15, 5490), (17, 5499), (22, 5586), (24, 5601), (25, 5613), (37, 5760), (39, 5775), (40, 5793), (47, 5892), (48, 5898), (61, 6024), (69, 6123), (84, 6252), (85, 6255), (87, 6288),

Gene: Dialga_18 Start: 10990, Stop: 11835, Start Num: 5

Candidate Starts for Dialga_18:

(Start: 5 @10990 has 24 MA's), (17, 11041), (20, 11110), (24, 11140), (40, 11332), (47, 11431), (48, 11437), (56, 11506), (70, 11704),

Gene: Dinallo_9 Start: 6536, Stop: 7387, Start Num: 11

Candidate Starts for Dinallo_9:

(Start: 11 @6536 has 34 MA's), (15, 6572), (17, 6581), (22, 6668), (24, 6683), (25, 6695), (31, 6803), (37, 6845), (39, 6860), (40, 6878), (46, 6959), (48, 6983), (69, 7208), (84, 7337), (85, 7340), (87, 7373),

Gene: Duffington_18 Start: 12228, Stop: 13070, Start Num: 5

Candidate Starts for Duffington_18:

(Start: 5 @12228 has 24 MA's), (17, 12276), (20, 12345), (24, 12375), (38, 12540), (40, 12567), (46, 12648), (47, 12666), (48, 12672), (56, 12741), (70, 12939),

Gene: Eddiemania_19 Start: 13011, Stop: 13850, Start Num: 10

Candidate Starts for Eddiemania_19:

(Start: 6 @13005 has 2 MA's), (Start: 10 @13011 has 13 MA's), (17, 13056), (20, 13125), (24, 13155), (40, 13347), (43, 13413), (47, 13446), (48, 13452), (56, 13521), (70, 13719), (84, 13806),

Gene: Eddiemania_18 Start: 11823, Stop: 12992, Start Num: 10

Candidate Starts for Eddiemania_18:

(Start: 10 @11823 has 13 MA's), (17, 11874), (31, 12111), (36, 12141), (42, 12249), (44, 12261), (59, 12408), (61, 12429), (62, 12456), (72, 12594), (73, 12600), (83, 12663), (90, 12756), (91, 12762), (94, 12813), (98, 12900),

Gene: ElephantMan_7 Start: 5470, Stop: 6321, Start Num: 11

Candidate Starts for ElephantMan_7:

(Start: 11 @5470 has 34 MA's), (15, 5506), (17, 5515), (22, 5602), (24, 5617), (25, 5629), (31, 5737), (37, 5779), (39, 5794), (40, 5812), (46, 5893), (47, 5911), (48, 5917), (69, 6142), (84, 6271), (85, 6274), (87, 6307),

Gene: Elver_18 Start: 9747, Stop: 10661, Start Num: 11

Candidate Starts for Elver_18:

(Start: 11 @9747 has 34 MA's), (16, 9789), (17, 9795), (28, 9990), (40, 10110), (55, 10260), (57, 10290), (64, 10386), (68, 10434), (74, 10509), (81, 10554),

Gene: EndAve_18 Start: 12243, Stop: 13085, Start Num: 5

Candidate Starts for EndAve_18:

(Start: 5 @12243 has 24 MA's), (17, 12291), (20, 12360), (24, 12390), (38, 12555), (40, 12582), (46, 12663), (47, 12681), (48, 12687), (56, 12756), (70, 12954), (72, 12963),

Gene: Fazel_16 Start: 11367, Stop: 12203, Start Num: 10

Candidate Starts for Fazel_16:

(Start: 3 @11355 has 1 MA's), (Start: 10 @11367 has 13 MA's), (17, 11409), (18, 11421), (20, 11478), (24, 11508), (38, 11673), (40, 11700), (47, 11799), (48, 11805), (56, 11874), (70, 12072), (76, 12099), (80, 12123),

Gene: Figliar_18 Start: 12253, Stop: 13095, Start Num: 5

Candidate Starts for Figliar_18:

(Start: 5 @12253 has 24 MA's), (17, 12301), (20, 12370), (24, 12400), (40, 12592), (46, 12673), (47, 12691), (48, 12697), (56, 12766), (70, 12964),

Gene: Football_16 Start: 9369, Stop: 10211, Start Num: 8

Candidate Starts for Football_16:

(Start: 8 @9369 has 19 MA's), (17, 9417), (24, 9516), (30, 9627), (40, 9708), (47, 9807), (48, 9813), (56, 9882), (70, 10080),

Gene: FortCran_15 Start: 9651, Stop: 10493, Start Num: 8

Candidate Starts for FortCran_15:

(Start: 8 @9651 has 19 MA's), (17, 9699), (24, 9798), (30, 9909), (33, 9930), (40, 9990), (47, 10089), (48, 10095), (56, 10164), (70, 10362),

Gene: Gandionco_17 Start: 9707, Stop: 10621, Start Num: 11

Candidate Starts for Gandionco_17:

(Start: 11 @9707 has 34 MA's), (16, 9749), (17, 9755), (28, 9950), (40, 10070), (55, 10220), (57, 10250), (58, 10265), (64, 10346), (68, 10394), (74, 10469), (81, 10514),

Gene: Giantsbane_8 Start: 5270, Stop: 6124, Start Num: 11

Candidate Starts for Giantsbane_8:

(Start: 11 @5270 has 34 MA's), (17, 5318), (22, 5405), (24, 5420), (25, 5432), (27, 5492), (37, 5582), (38, 5588), (39, 5597), (40, 5615), (46, 5696), (48, 5720), (61, 5846), (69, 5945), (85, 6077), (87, 6110),

Gene: Gill_15 Start: 9377, Stop: 10219, Start Num: 8

Candidate Starts for Gill_15:

(Start: 8 @9377 has 19 MA's), (17, 9425), (24, 9524), (30, 9635), (35, 9671), (40, 9716), (48, 9821), (56, 9890), (70, 10088),

Gene: Glintora_17 Start: 12336, Stop: 13061, Start Num: 20

Candidate Starts for Glintora_17:

(Start: 5 @12219 has 24 MA's), (17, 12267), (20, 12336), (24, 12366), (38, 12531), (40, 12558), (46, 12639), (47, 12657), (48, 12663), (56, 12732), (70, 12930),

Gene: Gordon_8 Start: 6578, Stop: 7426, Start Num: 11

Candidate Starts for Gordon_8:

(Start: 11 @6578 has 34 MA's), (15, 6614), (17, 6623), (22, 6710), (24, 6725), (25, 6737), (37, 6884), (39, 6899), (40, 6917), (48, 7022), (61, 7148), (69, 7247), (84, 7376), (85, 7379), (87, 7412),

Gene: Gravy_15 Start: 9377, Stop: 10219, Start Num: 8

Candidate Starts for Gravy_15:

(Start: 8 @9377 has 19 MA's), (17, 9425), (24, 9524), (30, 9635), (35, 9671), (40, 9716), (48, 9821), (56, 9890), (70, 10088),

Gene: Gusicorn_18 Start: 12043, Stop: 12885, Start Num: 5

Candidate Starts for Gusicorn_18:

(Start: 5 @12043 has 24 MA's), (17, 12091), (20, 12160), (24, 12190), (40, 12382), (47, 12481), (48, 12487), (56, 12556), (70, 12754), (76, 12781),

Gene: Hemma_9 Start: 5090, Stop: 5932, Start Num: 11

Candidate Starts for Hemma_9:

(Start: 11 @5090 has 34 MA's), (17, 5138), (22, 5225), (24, 5240), (25, 5252), (27, 5312), (35, 5387), (37, 5402), (46, 5516), (48, 5540), (50, 5561), (56, 5609), (67, 5741), (85, 5897),

Gene: Hortihabitatio_18 Start: 11726, Stop: 12574, Start Num: 3

Candidate Starts for Hortihabitatio_18:

(Start: 3 @11726 has 1 MA's), (Start: 10 @11738 has 13 MA's), (17, 11780), (20, 11849), (24, 11879), (40, 12071), (47, 12170), (48, 12176), (56, 12245), (70, 12443), (76, 12470),

Gene: Hydrus_19 Start: 12821, Stop: 13666, Start Num: 6

Candidate Starts for Hydrus_19:

(Start: 6 @12821 has 2 MA's), (Start: 10 @12827 has 13 MA's), (17, 12872), (20, 12941), (24, 12971), (40, 13163), (47, 13262), (48, 13268), (56, 13337), (70, 13535), (84, 13622),

Gene: Hydrus_18 Start: 11639, Stop: 12808, Start Num: 10

Candidate Starts for Hydrus_18:

(1, 11609), (Start: 10 @11639 has 13 MA's), (17, 11690), (42, 12065), (44, 12077), (59, 12224), (72, 12410), (73, 12416), (83, 12479), (91, 12578), (98, 12716),

Gene: Ingrid_8 Start: 5356, Stop: 6204, Start Num: 11

Candidate Starts for Ingrid_8:

(Start: 11 @5356 has 34 MA's), (17, 5401), (22, 5488), (24, 5503), (25, 5515), (33, 5635), (37, 5662), (38, 5668), (39, 5677), (40, 5695), (46, 5776), (48, 5800), (59, 5905), (61, 5926), (69, 6025), (85, 6157), (87, 6190),

Gene: Inked_9 Start: 5530, Stop: 6381, Start Num: 11

Candidate Starts for Inked_9:

(Start: 11 @5530 has 34 MA's), (17, 5575), (22, 5662), (24, 5677), (25, 5689), (37, 5839), (38, 5845), (40, 5872), (46, 5953), (48, 5977), (69, 6202), (85, 6334), (87, 6367),

Gene: Issa_8 Start: 5285, Stop: 6133, Start Num: 11

Candidate Starts for Issa_8:

(Start: 11 @5285 has 34 MA's), (15, 5321), (17, 5330), (22, 5417), (24, 5432), (25, 5444), (37, 5591), (40, 5624), (46, 5705), (48, 5729), (61, 5855), (69, 5954), (84, 6083), (85, 6086), (87, 6119),

Gene: JeNeSaisPas_17 Start: 10279, Stop: 11193, Start Num: 11

Candidate Starts for JeNeSaisPas_17:

(Start: 11 @10279 has 34 MA's), (16, 10321), (17, 10327), (28, 10522), (40, 10642), (55, 10792), (57, 10822), (58, 10837), (64, 10918), (68, 10966), (74, 11041), (81, 11086),

Gene: Jodelie19_18 Start: 12247, Stop: 13089, Start Num: 5

Candidate Starts for Jodelie19_18:

(Start: 5 @12247 has 24 MA's), (17, 12295), (20, 12364), (24, 12394), (40, 12586), (46, 12667), (47, 12685), (48, 12691), (56, 12760), (70, 12958),

Gene: JulesRay_15 Start: 9651, Stop: 10493, Start Num: 8

Candidate Starts for JulesRay_15:

(Start: 8 @9651 has 19 MA's), (17, 9699), (24, 9798), (30, 9909), (33, 9930), (40, 9990), (47, 10089), (48, 10095), (56, 10164), (70, 10362),

Gene: Kenosha_16 Start: 10240, Stop: 11409, Start Num: 10

Candidate Starts for Kenosha_16:

(1, 10210), (Start: 10 @10240 has 13 MA's), (17, 10291), (42, 10666), (44, 10678), (59, 10825), (62, 10873), (72, 11011), (73, 11017), (83, 11080), (90, 11173), (91, 11179), (98, 11317),

Gene: Kenosha_17 Start: 11428, Stop: 12267, Start Num: 10

Candidate Starts for Kenosha_17:

(Start: 6 @11422 has 2 MA's), (Start: 10 @11428 has 13 MA's), (17, 11473), (20, 11542), (24, 11572), (40, 11764), (47, 11863), (48, 11869), (56, 11938), (70, 12136), (84, 12223),

Gene: Kerry_15 Start: 9377, Stop: 10219, Start Num: 8

Candidate Starts for Kerry_15:

(Start: 8 @9377 has 19 MA's), (17, 9425), (24, 9524), (30, 9635), (35, 9671), (40, 9716), (48, 9821), (56, 9890), (70, 10088),

Gene: Kureo_19 Start: 10111, Stop: 11025, Start Num: 11

Candidate Starts for Kureo_19:

(Start: 11 @10111 has 34 MA's), (16, 10153), (17, 10159), (28, 10354), (40, 10474), (55, 10624), (57, 10654), (58, 10669), (64, 10750), (68, 10798), (74, 10873), (81, 10918),

Gene: LilHuddy_8 Start: 5267, Stop: 6118, Start Num: 11

Candidate Starts for LilHuddy_8:

(Start: 11 @5267 has 34 MA's), (17, 5315), (22, 5402), (24, 5417), (25, 5429), (35, 5564), (37, 5576), (38, 5582), (39, 5591), (40, 5609), (46, 5690), (47, 5708), (48, 5714), (56, 5783), (85, 6071), (87, 6104),

Gene: Loretta_8 Start: 5356, Stop: 6204, Start Num: 11

Candidate Starts for Loretta_8:

(Start: 11 @5356 has 34 MA's), (17, 5401), (22, 5488), (24, 5503), (25, 5515), (33, 5635), (37, 5662), (38, 5668), (39, 5677), (40, 5695), (46, 5776), (48, 5800), (59, 5905), (61, 5926), (69, 6025), (85, 6157), (87, 6190),

Gene: LucySwiss_8 Start: 5304, Stop: 6152, Start Num: 11

Candidate Starts for LucySwiss_8:

(Start: 11 @5304 has 34 MA's), (15, 5340), (17, 5349), (22, 5436), (24, 5451), (25, 5463), (37, 5610), (40, 5643), (46, 5724), (48, 5748), (61, 5874), (69, 5973), (84, 6102), (85, 6105), (87, 6138),

Gene: Luthien_19 Start: 12244, Stop: 13086, Start Num: 5

Candidate Starts for Luthien_19:

(Start: 5 @12244 has 24 MA's), (17, 12292), (20, 12361), (24, 12391), (38, 12556), (40, 12583), (46, 12664), (47, 12682), (48, 12688), (56, 12757), (70, 12955), (72, 12964),

Gene: Madvan_18 Start: 12044, Stop: 12886, Start Num: 5

Candidate Starts for Madvan_18:

(Start: 5 @12044 has 24 MA's), (17, 12092), (20, 12161), (24, 12191), (40, 12383), (47, 12482), (48, 12488), (56, 12557), (70, 12755),

Gene: Magel_15 Start: 9377, Stop: 10219, Start Num: 8

Candidate Starts for Magel_15:

(Start: 8 @9377 has 19 MA's), (17, 9425), (24, 9524), (30, 9635), (35, 9671), (40, 9716), (48, 9821), (56, 9890), (70, 10088),

Gene: MajinBuu_18 Start: 12248, Stop: 13090, Start Num: 5

Candidate Starts for MajinBuu_18:

(Start: 5 @12248 has 24 MA's), (17, 12296), (20, 12365), (24, 12395), (40, 12587), (46, 12668), (47, 12686), (48, 12692), (56, 12761), (70, 12959),

Gene: Makai_8 Start: 5396, Stop: 6247, Start Num: 11

Candidate Starts for Makai_8:

(Start: 11 @5396 has 34 MA's), (17, 5444), (22, 5531), (23, 5540), (24, 5546), (25, 5558), (37, 5705), (38, 5711), (40, 5738), (46, 5819), (48, 5843), (59, 5948), (76, 6137), (85, 6200), (87, 6233),

Gene: Marianna39_18 Start: 9707, Stop: 10621, Start Num: 11

Candidate Starts for Marianna39_18:

(Start: 11 @9707 has 34 MA's), (16, 9749), (17, 9755), (28, 9950), (40, 10070), (55, 10220), (57, 10250), (58, 10265), (64, 10346), (68, 10394), (74, 10469), (81, 10514),

Gene: MediumFry_9 Start: 5577, Stop: 6428, Start Num: 11

Candidate Starts for MediumFry_9:

(Start: 11 @5577 has 34 MA's), (15, 5613), (17, 5622), (22, 5709), (24, 5724), (25, 5736), (34, 5862), (37, 5886), (38, 5892), (40, 5919), (46, 6000), (48, 6024), (59, 6129), (69, 6249), (84, 6378), (85, 6381), (87, 6414),

Gene: MiniBagel_8 Start: 6536, Stop: 7387, Start Num: 11

Candidate Starts for MiniBagel_8:

(Start: 11 @6536 has 34 MA's), (15, 6572), (17, 6581), (22, 6668), (24, 6683), (25, 6695), (31, 6803), (37, 6845), (39, 6860), (40, 6878), (46, 6959), (48, 6983), (69, 7208), (84, 7337), (85, 7340), (87, 7373),

Gene: Mossy_16 Start: 10528, Stop: 11652, Start Num: 12

Candidate Starts for Mossy_16:

(Start: 12 @10528 has 3 MA's), (13, 10537), (17, 10573), (19, 10606), (26, 10726), (52, 11053), (53, 11068), (66, 11239), (78, 11359), (82, 11392), (86, 11428), (89, 11467), (92, 11515), (98, 11632),

Gene: Mossy_19 Start: 13461, Stop: 14300, Start Num: 10

Candidate Starts for Mossy_19:

(Start: 10 @13461 has 13 MA's), (17, 13506), (20, 13575), (24, 13605), (40, 13797), (47, 13896), (48, 13902), (56, 13971), (70, 14169), (76, 14196), (84, 14256),

Gene: Mysticmoon_18 Start: 12102, Stop: 12941, Start Num: 10

Candidate Starts for Mysticmoon_18:

(1, 12072), (4, 12093), (Start: 10 @12102 has 13 MA's), (17, 12147), (20, 12216), (24, 12246), (40, 12438), (47, 12537), (48, 12543), (56, 12612), (70, 12810), (76, 12837), (84, 12897),

Gene: Nadmeg_18 Start: 12045, Stop: 12887, Start Num: 5

Candidate Starts for Nadmeg_18:

(Start: 5 @12045 has 24 MA's), (17, 12093), (20, 12162), (24, 12192), (40, 12384), (47, 12483), (48, 12489), (56, 12558), (70, 12756),

Gene: Nightmare_9 Start: 5909, Stop: 6760, Start Num: 10

Candidate Starts for Nightmare_9:

(Start: 10 @5909 has 13 MA's), (17, 5957), (22, 6044), (24, 6059), (25, 6071), (37, 6218), (39, 6233), (40, 6251), (46, 6332), (48, 6356), (61, 6482), (69, 6581), (84, 6710), (85, 6713), (87, 6746),

Gene: Niktson_7 Start: 5470, Stop: 6321, Start Num: 11

Candidate Starts for Niktson_7:

(Start: 11 @5470 has 34 MA's), (15, 5506), (17, 5515), (22, 5602), (24, 5617), (25, 5629), (31, 5737), (37, 5779), (39, 5794), (40, 5812), (46, 5893), (47, 5911), (48, 5917), (69, 6142), (84, 6271), (85, 6274),

(87, 6307),

Gene: Nithya_18 Start: 12243, Stop: 13085, Start Num: 5

Candidate Starts for Nithya_18:

(Start: 5 @12243 has 24 MA's), (17, 12291), (20, 12360), (24, 12390), (38, 12555), (40, 12582), (46, 12663), (47, 12681), (48, 12687), (56, 12756), (70, 12954), (72, 12963),

Gene: Nivinsha_8 Start: 5330, Stop: 6178, Start Num: 11

Candidate Starts for Nivinsha_8:

(Start: 11 @5330 has 34 MA's), (15, 5366), (17, 5375), (22, 5462), (24, 5477), (25, 5489), (37, 5636), (39, 5651), (40, 5669), (48, 5774), (61, 5900), (69, 5999), (84, 6128), (85, 6131), (87, 6164),

Gene: NoPickles_15 Start: 9377, Stop: 10219, Start Num: 8

Candidate Starts for NoPickles_15:

(Start: 8 @9377 has 19 MA's), (17, 9425), (24, 9524), (30, 9635), (35, 9671), (40, 9716), (48, 9821), (56, 9890), (70, 10088),

Gene: Odesza_15 Start: 9377, Stop: 10219, Start Num: 8

Candidate Starts for Odesza_15:

(Start: 8 @9377 has 19 MA's), (17, 9425), (24, 9524), (30, 9635), (35, 9671), (40, 9716), (48, 9821), (56, 9890), (70, 10088),

Gene: Paella_18 Start: 9746, Stop: 10660, Start Num: 11

Candidate Starts for Paella_18:

(Start: 11 @9746 has 34 MA's), (16, 9788), (17, 9794), (28, 9989), (40, 10109), (55, 10259), (57, 10289), (58, 10304), (64, 10385), (68, 10433), (74, 10508), (81, 10553),

Gene: Pepy6_017 Start: 15271, Stop: 16104, Start Num: 10

Candidate Starts for Pepy6_017:

(Start: 3 @15259 has 1 MA's), (Start: 10 @15271 has 13 MA's), (17, 15316), (20, 15385), (24, 15415), (37, 15574), (40, 15607), (43, 15673), (45, 15682), (47, 15706), (48, 15712), (56, 15781), (60, 15832), (65, 15889), (70, 15979), (77, 16012),

Gene: Pepy6_018 Start: 16104, Stop: 17147, Start Num: 11

Candidate Starts for Pepy6_018:

(9, 16101), (Start: 11 @16104 has 34 MA's), (17, 16152), (51, 16536), (66, 16728), (75, 16836), (79, 16860), (82, 16884), (85, 16905), (86, 16923), (89, 16962), (92, 17010), (95, 17088), (96, 17103),

Gene: Perkunas_17 Start: 10170, Stop: 11000, Start Num: 8

Candidate Starts for Perkunas_17:

(Start: 8 @10170 has 19 MA's), (14, 10194), (17, 10218), (21, 10290), (24, 10317), (30, 10428), (33, 10449), (35, 10464), (40, 10509), (41, 10521), (48, 10614), (49, 10629), (56, 10683), (65, 10791), (67, 10815), (71, 10887),

Gene: PerroGrande22_20 Start: 17035, Stop: 18111, Start Num: 11

Candidate Starts for PerroGrande22_20:

(9, 17032), (Start: 11 @17035 has 34 MA's), (17, 17083), (51, 17500), (54, 17521), (66, 17692), (78, 17812), (79, 17824), (85, 17869), (92, 17974), (93, 18004), (95, 18052), (96, 18067), (98, 18091),

Gene: PerroGrande22_19 Start: 16196, Stop: 17035, Start Num: 10

Candidate Starts for PerroGrande22_19:

(Start: 10 @16196 has 13 MA's), (17, 16247), (20, 16316), (23, 16340), (24, 16346), (37, 16505), (40, 16538), (45, 16613), (48, 16643), (56, 16712), (60, 16763), (65, 16820), (70, 16910),

Gene: PestoPenguin_20 Start: 12043, Stop: 12885, Start Num: 5

Candidate Starts for PestoPenguin_20:

(Start: 5 @12043 has 24 MA's), (17, 12091), (20, 12160), (24, 12190), (40, 12382), (47, 12481), (48, 12487), (56, 12556), (70, 12754), (76, 12781),

Gene: Petito_16 Start: 9875, Stop: 10717, Start Num: 8

Candidate Starts for Petito_16:

(Start: 8 @9875 has 19 MA's), (17, 9923), (24, 10022), (30, 10133), (32, 10145), (38, 10187), (40, 10214), (41, 10226), (47, 10313), (48, 10319), (56, 10388), (70, 10586), (71, 10592),

Gene: Phaby_8 Start: 5257, Stop: 6108, Start Num: 11

Candidate Starts for Phaby_8:

(Start: 11 @5257 has 34 MA's), (17, 5305), (22, 5392), (24, 5407), (25, 5419), (35, 5554), (37, 5566), (38, 5572), (39, 5581), (40, 5599), (46, 5680), (47, 5698), (48, 5704), (56, 5773), (85, 6061), (87, 6094),

Gene: Phepper_18 Start: 12043, Stop: 12885, Start Num: 5

Candidate Starts for Phepper_18:

(Start: 5 @12043 has 24 MA's), (17, 12091), (20, 12160), (24, 12190), (40, 12382), (47, 12481), (48, 12487), (56, 12556), (70, 12754),

Gene: Pherobrine_17 Start: 12100, Stop: 12939, Start Num: 10

Candidate Starts for Pherobrine_17:

(1, 12070), (4, 12091), (Start: 10 @12100 has 13 MA's), (17, 12145), (20, 12214), (24, 12244), (40, 12436), (47, 12535), (48, 12541), (56, 12610), (70, 12808), (76, 12835), (84, 12895),

Gene: Poco6_019 Start: 18028, Stop: 18864, Start Num: 10

Candidate Starts for Poco6_019:

(Start: 10 @18028 has 13 MA's), (13, 18040), (17, 18076), (20, 18145), (23, 18169), (24, 18175), (37, 18334), (40, 18367), (45, 18442), (47, 18466), (48, 18472), (56, 18541), (60, 18592), (65, 18649), (70, 18739),

Gene: Qui_18 Start: 9746, Stop: 10660, Start Num: 11

Candidate Starts for Qui_18:

(Start: 11 @9746 has 34 MA's), (16, 9788), (17, 9794), (28, 9989), (40, 10109), (55, 10259), (57, 10289), (58, 10304), (64, 10385), (68, 10433), (74, 10508), (81, 10553),

Gene: Rickmore_17 Start: 10813, Stop: 11655, Start Num: 5

Candidate Starts for Rickmore_17:

(Start: 5 @10813 has 24 MA's), (17, 10861), (20, 10930), (24, 10960), (40, 11152), (46, 11233), (47, 11251), (48, 11257), (56, 11326), (70, 11524),

Gene: Roney_15 Start: 9377, Stop: 10219, Start Num: 8

Candidate Starts for Roney_15:

(Start: 8 @9377 has 19 MA's), (17, 9425), (24, 9524), (30, 9635), (35, 9671), (40, 9716), (48, 9821), (56, 9890), (70, 10088),

Gene: Runhaar_18 Start: 12045, Stop: 12887, Start Num: 5

Candidate Starts for Runhaar_18:

(Start: 5 @12045 has 24 MA's), (17, 12093), (20, 12162), (24, 12192), (40, 12384), (47, 12483), (48, 12489), (56, 12558), (70, 12756),

Gene: Schwartz33_20 Start: 12921, Stop: 13763, Start Num: 7

Candidate Starts for Schwartz33_20:

(Start: 7 @12921 has 1 MA's), (17, 12969), (20, 13038), (24, 13068), (39, 13242), (40, 13260), (47, 13359), (48, 13365), (56, 13434), (70, 13632), (76, 13659), (84, 13719),

Gene: ScienceWizSam_9 Start: 5285, Stop: 6133, Start Num: 11

Candidate Starts for ScienceWizSam_9:

(Start: 11 @5285 has 34 MA's), (15, 5321), (17, 5330), (22, 5417), (24, 5432), (25, 5444), (37, 5591), (40, 5624), (48, 5729), (69, 5954), (84, 6083), (85, 6086), (87, 6119),

Gene: Secretariat_17 Start: 11631, Stop: 12470, Start Num: 10

Candidate Starts for Secretariat_17:

(Start: 10 @11631 has 13 MA's), (17, 11676), (20, 11745), (24, 11775), (40, 11967), (47, 12066), (48, 12072), (56, 12141), (63, 12225), (70, 12339), (76, 12366), (77, 12372),

Gene: ShaggyRogers_18 Start: 12042, Stop: 12884, Start Num: 5

Candidate Starts for ShaggyRogers_18:

(Start: 5 @12042 has 24 MA's), (17, 12090), (20, 12159), (24, 12189), (40, 12381), (47, 12480), (48, 12486), (56, 12555), (70, 12753), (76, 12780),

Gene: Shepard_8 Start: 5267, Stop: 6118, Start Num: 11

Candidate Starts for Shepard_8:

(Start: 11 @5267 has 34 MA's), (17, 5315), (22, 5402), (24, 5417), (25, 5429), (35, 5564), (37, 5576), (38, 5582), (39, 5591), (40, 5609), (46, 5690), (47, 5708), (48, 5714), (56, 5783), (69, 5939), (85, 6071), (87, 6104),

Gene: SweetCrkHerbs_17 Start: 9846, Stop: 10676, Start Num: 8

Candidate Starts for SweetCrkHerbs_17:

(Start: 8 @9846 has 19 MA's), (14, 9870), (17, 9894), (21, 9966), (24, 9993), (30, 10104), (33, 10125), (35, 10140), (40, 10185), (41, 10197), (48, 10290), (49, 10305), (56, 10359), (65, 10467), (67, 10491), (71, 10563),

Gene: Synopsis_7 Start: 5450, Stop: 6298, Start Num: 11

Candidate Starts for Synopsis_7:

(Start: 11 @5450 has 34 MA's), (15, 5486), (17, 5495), (22, 5582), (24, 5597), (25, 5609), (37, 5756), (39, 5771), (40, 5789), (48, 5894), (61, 6020), (69, 6119), (84, 6248), (85, 6251), (87, 6284),

Gene: Tairn4Wing_17 Start: 9650, Stop: 10492, Start Num: 8

Candidate Starts for Tairn4Wing_17:

(Start: 8 @9650 has 19 MA's), (17, 9698), (24, 9797), (30, 9908), (33, 9929), (39, 9971), (40, 9989), (47, 10088), (48, 10094), (56, 10163), (70, 10361),

Gene: Talon44_16 Start: 9846, Stop: 10676, Start Num: 8

Candidate Starts for Talon44_16:

(Start: 8 @9846 has 19 MA's), (14, 9870), (17, 9894), (21, 9966), (24, 9993), (30, 10104), (33, 10125), (35, 10140), (40, 10185), (41, 10197), (48, 10290), (49, 10305), (56, 10359), (65, 10467), (67, 10491), (71, 10563),

Gene: Tanis_15 Start: 9227, Stop: 10069, Start Num: 8

Candidate Starts for Tanis_15:

(Start: 8 @9227 has 19 MA's), (17, 9275), (24, 9374), (30, 9485), (35, 9521), (40, 9566), (48, 9671), (56, 9740), (70, 9938),

Gene: Tatanka_7 Start: 5390, Stop: 6238, Start Num: 11

Candidate Starts for Tatanka_7:

(Start: 11 @5390 has 34 MA's), (15, 5426), (17, 5435), (22, 5522), (24, 5537), (25, 5549), (37, 5696), (39, 5711), (40, 5729), (48, 5834), (61, 5960), (69, 6059), (84, 6188), (85, 6191), (87, 6224),

Gene: Teacup_8 Start: 5285, Stop: 6136, Start Num: 11

Candidate Starts for Teacup_8:

(Start: 11 @5285 has 34 MA's), (15, 5321), (17, 5330), (22, 5417), (24, 5432), (25, 5444), (31, 5552), (37, 5594), (39, 5609), (40, 5627), (46, 5708), (47, 5726), (48, 5732), (69, 5957), (84, 6086), (85, 6089), (87, 6122),

Gene: TenaciousP_18 Start: 12247, Stop: 13089, Start Num: 5

Candidate Starts for TenaciousP_18:

(Start: 5 @12247 has 24 MA's), (17, 12295), (20, 12364), (24, 12394), (40, 12586), (46, 12667), (47, 12685), (48, 12691), (56, 12760), (70, 12958),

Gene: Tenno_9 Start: 6536, Stop: 7387, Start Num: 11

Candidate Starts for Tenno_9:

(Start: 11 @6536 has 34 MA's), (15, 6572), (17, 6581), (22, 6668), (24, 6683), (25, 6695), (31, 6803), (37, 6845), (39, 6860), (40, 6878), (46, 6959), (48, 6983), (69, 7208), (84, 7337), (85, 7340), (87, 7373),

Gene: Tipton_9 Start: 5868, Stop: 6716, Start Num: 12

Candidate Starts for Tipton_9:

(2, 5838), (Start: 3 @5850 has 1 MA's), (Start: 12 @5868 has 3 MA's), (17, 5913), (22, 6000), (24, 6015), (25, 6027), (35, 6162), (37, 6174), (38, 6180), (40, 6207), (46, 6288), (47, 6306), (48, 6312), (56, 6381), (85, 6669), (87, 6702),

Gene: Tokki_9 Start: 5877, Stop: 6725, Start Num: 12

Candidate Starts for Tokki_9:

(2, 5847), (Start: 3 @5859 has 1 MA's), (Start: 12 @5877 has 3 MA's), (17, 5922), (22, 6009), (24, 6024), (25, 6036), (35, 6171), (37, 6183), (38, 6189), (40, 6216), (46, 6297), (47, 6315), (48, 6321), (56, 6390), (85, 6678), (87, 6711),

Gene: Tonaltzin_20 Start: 12247, Stop: 13089, Start Num: 5

Candidate Starts for Tonaltzin_20:

(Start: 5 @12247 has 24 MA's), (17, 12295), (20, 12364), (24, 12394), (40, 12586), (46, 12667), (47, 12685), (48, 12691), (56, 12760), (70, 12958),

Gene: Truckee_8 Start: 5343, Stop: 6194, Start Num: 11

Candidate Starts for Truckee_8:

(Start: 11 @5343 has 34 MA's), (17, 5391), (22, 5478), (24, 5493), (25, 5505), (29, 5586), (33, 5625), (37, 5652), (38, 5658), (40, 5685), (46, 5766), (48, 5790), (56, 5859), (85, 6147), (87, 6180),

Gene: Trufflozitus_18 Start: 9651, Stop: 10493, Start Num: 8

Candidate Starts for Trufflozitus_18:

(Start: 8 @9651 has 19 MA's), (17, 9699), (24, 9798), (30, 9909), (33, 9930), (40, 9990), (47, 10089), (48, 10095), (56, 10164), (70, 10362),

Gene: Trustiboi_8 Start: 5474, Stop: 6322, Start Num: 11

Candidate Starts for Trustiboi_8:

(Start: 11 @5474 has 34 MA's), (15, 5510), (17, 5519), (22, 5606), (24, 5621), (25, 5633), (37, 5780), (40, 5813), (48, 5918), (61, 6044), (69, 6143), (84, 6272), (85, 6275), (87, 6308),

Gene: Untouchable_17 Start: 10970, Stop: 11812, Start Num: 5

Candidate Starts for Untouchable_17:

(Start: 5 @10970 has 24 MA's), (17, 11018), (20, 11087), (24, 11117), (40, 11309), (47, 11408), (48, 11414), (56, 11483), (70, 11681),

Gene: Vardy_18 Start: 12010, Stop: 12852, Start Num: 5

Candidate Starts for Vardy_18:

(Start: 5 @12010 has 24 MA's), (17, 12058), (20, 12127), (24, 12157), (40, 12349), (47, 12448), (48, 12454), (56, 12523), (70, 12721),

Gene: Westerlin_8 Start: 6536, Stop: 7384, Start Num: 11

Candidate Starts for Westerlin_8:

(Start: 11 @6536 has 34 MA's), (15, 6572), (17, 6581), (22, 6668), (24, 6683), (25, 6695), (37, 6842), (39, 6857), (40, 6875), (48, 6980), (61, 7106), (69, 7205), (84, 7334), (85, 7337), (87, 7370),

Gene: Zeph_19 Start: 12803, Stop: 13648, Start Num: 6

Candidate Starts for Zeph_19:

(Start: 6 @12803 has 2 MA's), (Start: 10 @12809 has 13 MA's), (17, 12854), (20, 12923), (24, 12953), (40, 13145), (47, 13244), (48, 13250), (56, 13319), (70, 13517), (84, 13604),

Gene: Zeph_18 Start: 11621, Stop: 12790, Start Num: 10

Candidate Starts for Zeph_18:

(1, 11591), (Start: 10 @11621 has 13 MA's), (17, 11672), (42, 12047), (44, 12059), (59, 12206), (72, 12392), (73, 12398), (83, 12461), (91, 12560), (98, 12698),

Gene: Zippen_9 Start: 5561, Stop: 6412, Start Num: 11

Candidate Starts for Zippen_9:

(Start: 11 @5561 has 34 MA's), (17, 5606), (22, 5693), (24, 5708), (25, 5720), (37, 5870), (38, 5876), (40, 5903), (46, 5984), (48, 6008), (69, 6233), (85, 6365), (87, 6398),