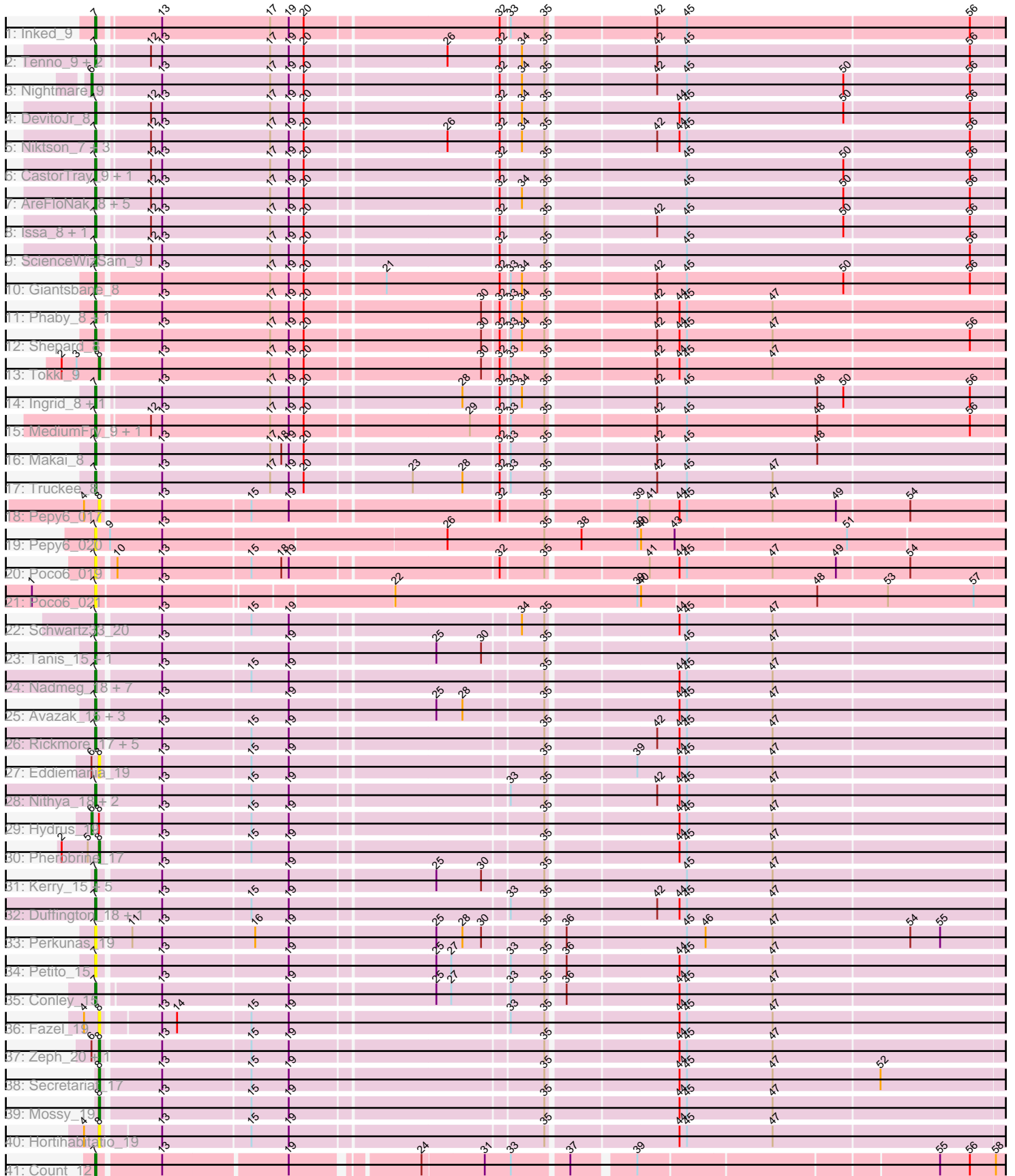


Zoomed Pham 161811



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 161811 Report

This analysis was run 04/28/24 on database version 559.

Pham number 161811 has 81 members, 22 are drafts.

Phages represented in each track:

- Track 1 : Inked_9
- Track 2 : Tenno_9, MiniBagel_8, CapnMurica_8
- Track 3 : Nightmare_9
- Track 4 : DevitoJr_8
- Track 5 : Niktson_7, ElephantMan_7, Brunswick_8, Teacup_8
- Track 6 : CastorTray_9, Trustiboi_8
- Track 7 : AreFloNak_8, Nivinsha_8, Darby_8, Gordon_8, Tatanka_7, Synepsis_7
- Track 8 : Issa_8, Breylor17_8
- Track 9 : ScienceWizSam_9
- Track 10 : Giantsbane_8
- Track 11 : Phaby_8, LilHuddy_8
- Track 12 : Shepard_8
- Track 13 : Tokki_9
- Track 14 : Ingrid_8, Loretta_8
- Track 15 : MediumFry_9, Caterpillar_9
- Track 16 : Makai_8
- Track 17 : Truckee_8
- Track 18 : Pepy6_017
- Track 19 : Pepy6_020
- Track 20 : Poco6_019
- Track 21 : Poco6_021
- Track 22 : Schwartz33_20
- Track 23 : Tanis_15, Gill_15
- Track 24 : Nadmeg_18, Madvan_19, Burley_18, Phepper_18, Crocheter_17, Untouchable_17, Runhaar_18, Vardy_18
- Track 25 : Avazak_15, Captrips_17, Artorias_15, FortCran_19
- Track 26 : Rickmore_17, Jodelie19_18, BluerMoon_20, Figliar_18, Aflac_18, TenaciousP_20
- Track 27 : Eddiemania_19
- Track 28 : Nithya_18, EndAve_18, AlainaMarie_18
- Track 29 : Hydrus_19
- Track 30 : Pherobrine_17
- Track 31 : Kerry_15, Roney_15, Odesza_15, Capybara_15, Gravy_15, Magel_15
- Track 32 : Duffington_18, Chikenjars_18
- Track 33 : Perkunas_19
- Track 34 : Petite_15
- Track 35 : Conley_15

- Track 36 : Fazel_19
- Track 37 : Zeph_20, Kenosha_17
- Track 38 : Secretariat_17
- Track 39 : Mossy_19
- Track 40 : Hortihabitatio_19
- Track 41 : Count_12

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

The start number called the most often in the published annotations is 7, it was called in 52 of the 59 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aflac_18, AlainaMarie_18, AreFloNak_8, Artorias_15, Avazak_15, BluerMoon_20, Breylor17_8, Brunswick_8, Burley_18, CapnMurica_8, Captrips_17, Copybara_15, CastorTray_9, Caterpillar_9, Chikenjars_18, Conley_15, Count_12, Crocheter_17, Darby_8, DevitoJr_8, Duffington_18, ElephantMan_7, EndAve_18, Figliar_18, FortCran_19, Giantsbane_8, Gill_15, Gordon_8, Gravy_15, Ingrid_8, Inked_9, Issa_8, Jodelie19_18, Kerry_15, LilHuddy_8, Loretta_8, Madvan_19, Magel_15, Makai_8, MediumFry_9, MiniBagel_8, Nadmeg_18, Niktson_7, Nithya_18, Nivinsha_8, Odesza_15, Pepy6_020, Perkunas_19, Petite_15, Phaby_8, Phepper_18, Poco6_019, Poco6_021, Rickmore_17, Roney_15, Runhaar_18, Schwartz33_20, ScienceWizSam_9, Shepard_8, Synepsis_7, Tanis_15, Tatanka_7, Teacup_8, TenaciousP_20, Tenno_9, Truckee_8, Trustiboi_8, Untouchable_17, Vardy_18,

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

-

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

- Eddiemania_19, Fazel_19, Hortihabitatio_19, Hydrus_19, Kenosha_17, Mossy_19, Nightmare_9, Pepy6_017, Pherobrine_17, Secretariat_17, Tokki_9, Zeph_20,

Summary by start number:

Start 6:

- Found in 5 of 81 (6.2%) of genes in pham
- Manual Annotations of this start: 2 of 59
- Called 40.0% of time when present
- Phage (with cluster) where this start called: Hydrus_19 (DJ), Nightmare_9 (AU1),

Start 7:

- Found in 69 of 81 (85.2%) of genes in pham
- Manual Annotations of this start: 52 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aflac_18 (DJ), AlainaMarie_18 (DJ), AreFloNak_8 (AU1), Artorias_15 (DJ), Avazak_15 (DJ), BluerMoon_20 (DJ), Breylor17_8 (AU1), Brunswick_8 (AU1), Burley_18 (DJ), CapnMurica_8 (AU1), Captrips_17 (DJ), Copybara_15 (DJ), CastorTray_9 (AU1), Caterpillar_9 (AU4), Chikenjars_18 (DJ), Conley_15 (DJ), Count_12 (EL), Crocheter_17 (DJ), Darby_8

(AU1), DevitoJr_8 (AU1), Duffington_18 (DJ), ElephantMan_7 (AU1), EndAve_18 (DJ), Figliar_18 (DJ), FortCran_19 (DJ), Giantsbane_8 (AU2), Gill_15 (DJ), Gordon_8 (AU1), Gravy_15 (DJ), Ingrid_8 (AU3), Inked_9 (AU), Issa_8 (AU1), Jodelie19_18 (DJ), Kerry_15 (DJ), LilHuddy_8 (AU2), Loretta_8 (AU3), Madvan_19 (DJ), Magel_15 (DJ), Makai_8 (AU5), MediumFry_9 (AU4), MiniBagel_8 (AU1), Nadmeg_18 (DJ), Niktson_7 (AU1), Nithya_18 (DJ), Nivinsha_8 (AU1), Odesza_15 (DJ), Pepy6_020 (CC), Perkunas_19 (DJ), Petite_15 (DJ), Phaby_8 (AU2), Phepper_18 (DJ), Poco6_019 (CC), Poco6_021 (CC), Rickmore_17 (DJ), Roney_15 (DJ), Runhaar_18 (DJ), Schwartz33_20 (DJ), ScienceWizSam_9 (AU1), Shepard_8 (AU2), Synopsis_7 (AU1), Tanis_15 (DJ), Tatanka_7 (AU1), Teacup_8 (AU1), TenaciousP_20 (DJ), Tenno_9 (AU1), Truckee_8 (AU5), Trustiboi_8 (AU1), Untouchable_17 (DJ), Vardy_18 (DJ),

Start 8:

- Found in 11 of 81 (13.6%) of genes in pham
- Manual Annotations of this start: 5 of 59
- Called 90.9% of time when present
- Phage (with cluster) where this start called: Eddiemania_19 (DJ), Fazel_19 (DJ), Hortihabitatio_19 (DJ), Kenosha_17 (DJ), Mossy_19 (DJ), Pepy6_017 (CC), Pherobrine_17 (DJ), Secretariat_17 (DJ), Tokki_9 (AU2), Zeph_20 (DJ),

Summary by clusters:

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

Info for manual annotations of cluster AU:

- Start number 7 was manually annotated 1 time for cluster AU.

Info for manual annotations of cluster AU1:

- Start number 6 was manually annotated 1 time for cluster AU1.
- Start number 7 was manually annotated 14 times for cluster AU1.

Info for manual annotations of cluster AU2:

- Start number 7 was manually annotated 3 times for cluster AU2.
- Start number 8 was manually annotated 1 time for cluster AU2.

Info for manual annotations of cluster AU3:

- Start number 7 was manually annotated 2 times for cluster AU3.

Info for manual annotations of cluster AU4:

- Start number 7 was manually annotated 2 times for cluster AU4.

Info for manual annotations of cluster AU5:

- Start number 7 was manually annotated 2 times for cluster AU5.

Info for manual annotations of cluster DJ:

- Start number 6 was manually annotated 1 time for cluster DJ.
- Start number 7 was manually annotated 27 times for cluster DJ.
- Start number 8 was manually annotated 4 times for cluster DJ.

Info for manual annotations of cluster EL:

- Start number 7 was manually annotated 1 time for cluster EL.

Gene Information:

Gene: Aflac_18 Start: 12253, Stop: 13095, Start Num: 7

Candidate Starts for Aflac_18:

(Start: 7 @12253 has 52 MA's), (13, 12301), (15, 12370), (19, 12400), (35, 12592), (42, 12673), (44, 12691), (45, 12697), (47, 12766), (59, 12964),

Gene: AlainaMarie_18 Start: 12243, Stop: 13085, Start Num: 7

Candidate Starts for AlainaMarie_18:

(Start: 7 @12243 has 52 MA's), (13, 12291), (15, 12360), (19, 12390), (33, 12555), (35, 12582), (42, 12663), (44, 12681), (45, 12687), (47, 12756), (59, 12954), (61, 12963),

Gene: AreFloNak_8 Start: 5330, Stop: 6178, Start Num: 7

Candidate Starts for AreFloNak_8:

(Start: 7 @5330 has 52 MA's), (12, 5366), (13, 5375), (17, 5462), (19, 5477), (20, 5489), (32, 5636), (34, 5651), (35, 5669), (45, 5774), (50, 5900), (56, 5999), (70, 6128), (71, 6131), (75, 6164),

Gene: Artorias_15 Start: 9651, Stop: 10493, Start Num: 7

Candidate Starts for Artorias_15:

(Start: 7 @9651 has 52 MA's), (13, 9699), (19, 9798), (25, 9909), (28, 9930), (35, 9990), (44, 10089), (45, 10095), (47, 10164), (59, 10362),

Gene: Avazak_15 Start: 9658, Stop: 10500, Start Num: 7

Candidate Starts for Avazak_15:

(Start: 7 @9658 has 52 MA's), (13, 9706), (19, 9805), (25, 9916), (28, 9937), (35, 9997), (44, 10096), (45, 10102), (47, 10171), (59, 10369),

Gene: BluerMoon_20 Start: 12247, Stop: 13089, Start Num: 7

Candidate Starts for BluerMoon_20:

(Start: 7 @12247 has 52 MA's), (13, 12295), (15, 12364), (19, 12394), (35, 12586), (42, 12667), (44, 12685), (45, 12691), (47, 12760), (59, 12958),

Gene: Breylor17_8 Start: 5455, Stop: 6303, Start Num: 7

Candidate Starts for Breylor17_8:

(Start: 7 @5455 has 52 MA's), (12, 5491), (13, 5500), (17, 5587), (19, 5602), (20, 5614), (32, 5761), (35, 5794), (42, 5875), (45, 5899), (50, 6025), (56, 6124), (70, 6253), (71, 6256), (75, 6289),

Gene: Brunswick_8 Start: 5440, Stop: 6291, Start Num: 7

Candidate Starts for Brunswick_8:

(Start: 7 @5440 has 52 MA's), (12, 5476), (13, 5485), (17, 5572), (19, 5587), (20, 5599), (26, 5707), (32, 5749), (34, 5764), (35, 5782), (42, 5863), (44, 5881), (45, 5887), (56, 6112), (70, 6241), (71, 6244), (75, 6277),

Gene: Burley_18 Start: 12011, Stop: 12853, Start Num: 7

Candidate Starts for Burley_18:

(Start: 7 @12011 has 52 MA's), (13, 12059), (15, 12128), (19, 12158), (35, 12350), (44, 12449), (45, 12455), (47, 12524), (59, 12722),

Gene: CapnMurica_8 Start: 6536, Stop: 7387, Start Num: 7

Candidate Starts for CapnMurica_8:

(Start: 7 @6536 has 52 MA's), (12, 6572), (13, 6581), (17, 6668), (19, 6683), (20, 6695), (26, 6803), (32, 6845), (34, 6860), (35, 6878), (42, 6959), (45, 6983), (56, 7208), (70, 7337), (71, 7340), (75, 7373),

Gene: Captrips_17 Start: 9658, Stop: 10500, Start Num: 7

Candidate Starts for Captrips_17:

(Start: 7 @9658 has 52 MA's), (13, 9706), (19, 9805), (25, 9916), (28, 9937), (35, 9997), (44, 10096), (45, 10102), (47, 10171), (59, 10369),

Gene: Capybara_15 Start: 9377, Stop: 10219, Start Num: 7

Candidate Starts for Capybara_15:

(Start: 7 @9377 has 52 MA's), (13, 9425), (19, 9524), (25, 9635), (30, 9671), (35, 9716), (45, 9821), (47, 9890), (59, 10088),

Gene: CastorTray_9 Start: 5309, Stop: 6157, Start Num: 7

Candidate Starts for CastorTray_9:

(Start: 7 @5309 has 52 MA's), (12, 5345), (13, 5354), (17, 5441), (19, 5456), (20, 5468), (32, 5615), (35, 5648), (45, 5753), (50, 5879), (56, 5978), (70, 6107), (71, 6110), (75, 6143),

Gene: Caterpillar_9 Start: 5548, Stop: 6399, Start Num: 7

Candidate Starts for Caterpillar_9:

(Start: 7 @5548 has 52 MA's), (12, 5584), (13, 5593), (17, 5680), (19, 5695), (20, 5707), (29, 5833), (32, 5857), (33, 5863), (35, 5890), (42, 5971), (45, 5995), (48, 6100), (56, 6220), (70, 6349), (71, 6352), (75, 6385),

Gene: Chikenjars_18 Start: 12243, Stop: 13085, Start Num: 7

Candidate Starts for Chikenjars_18:

(Start: 7 @12243 has 52 MA's), (13, 12291), (15, 12360), (19, 12390), (33, 12555), (35, 12582), (42, 12663), (44, 12681), (45, 12687), (47, 12756), (59, 12954),

Gene: Conley_15 Start: 9685, Stop: 10524, Start Num: 7

Candidate Starts for Conley_15:

(Start: 7 @9685 has 52 MA's), (13, 9730), (19, 9829), (25, 9940), (27, 9952), (33, 9994), (35, 10021), (36, 10033), (44, 10120), (45, 10126), (47, 10195), (59, 10393), (60, 10399), (76, 10516),

Gene: Count_12 Start: 6180, Stop: 7169, Start Num: 7

Candidate Starts for Count_12:

(Start: 7 @6180 has 52 MA's), (13, 6228), (19, 6324), (24, 6414), (31, 6462), (33, 6483), (37, 6525), (39, 6570), (55, 6798), (56, 6822), (58, 6843), (64, 6912), (77, 7011), (78, 7026), (81, 7077), (83, 7146),

Gene: Crocheter_17 Start: 10971, Stop: 11813, Start Num: 7

Candidate Starts for Crocheter_17:

(Start: 7 @10971 has 52 MA's), (13, 11019), (15, 11088), (19, 11118), (35, 11310), (44, 11409), (45, 11415), (47, 11484), (59, 11682),

Gene: Darby_8 Start: 5312, Stop: 6160, Start Num: 7

Candidate Starts for Darby_8:

(Start: 7 @5312 has 52 MA's), (12, 5348), (13, 5357), (17, 5444), (19, 5459), (20, 5471), (32, 5618), (34, 5633), (35, 5651), (45, 5756), (50, 5882), (56, 5981), (70, 6110), (71, 6113), (75, 6146),

Gene: DevitoJr_8 Start: 5454, Stop: 6302, Start Num: 7

Candidate Starts for DevitoJr_8:

(Start: 7 @5454 has 52 MA's), (12, 5490), (13, 5499), (17, 5586), (19, 5601), (20, 5613), (32, 5760), (34, 5775), (35, 5793), (44, 5892), (45, 5898), (50, 6024), (56, 6123), (70, 6252), (71, 6255), (75, 6288),

Gene: Duffington_18 Start: 12228, Stop: 13070, Start Num: 7

Candidate Starts for Duffington_18:

(Start: 7 @12228 has 52 MA's), (13, 12276), (15, 12345), (19, 12375), (33, 12540), (35, 12567), (42, 12648), (44, 12666), (45, 12672), (47, 12741), (59, 12939),

Gene: Eddiemania_19 Start: 13011, Stop: 13850, Start Num: 8

Candidate Starts for Eddiemania_19:

(Start: 6 @13005 has 2 MA's), (Start: 8 @13011 has 5 MA's), (13, 13056), (15, 13125), (19, 13155), (35, 13347), (39, 13413), (44, 13446), (45, 13452), (47, 13521), (59, 13719), (70, 13806),

Gene: ElephantMan_7 Start: 5470, Stop: 6321, Start Num: 7

Candidate Starts for ElephantMan_7:

(Start: 7 @5470 has 52 MA's), (12, 5506), (13, 5515), (17, 5602), (19, 5617), (20, 5629), (26, 5737), (32, 5779), (34, 5794), (35, 5812), (42, 5893), (44, 5911), (45, 5917), (56, 6142), (70, 6271), (71, 6274), (75, 6307),

Gene: EndAve_18 Start: 12243, Stop: 13085, Start Num: 7

Candidate Starts for EndAve_18:

(Start: 7 @12243 has 52 MA's), (13, 12291), (15, 12360), (19, 12390), (33, 12555), (35, 12582), (42, 12663), (44, 12681), (45, 12687), (47, 12756), (59, 12954), (61, 12963),

Gene: Fazel_19 Start: 11367, Stop: 12203, Start Num: 8

Candidate Starts for Fazel_19:

(4, 11355), (Start: 8 @11367 has 5 MA's), (13, 11409), (14, 11421), (15, 11478), (19, 11508), (33, 11673), (35, 11700), (44, 11799), (45, 11805), (47, 11874), (59, 12072), (62, 12099), (67, 12123),

Gene: Figliar_18 Start: 12253, Stop: 13095, Start Num: 7

Candidate Starts for Figliar_18:

(Start: 7 @12253 has 52 MA's), (13, 12301), (15, 12370), (19, 12400), (35, 12592), (42, 12673), (44, 12691), (45, 12697), (47, 12766), (59, 12964),

Gene: FortCran_19 Start: 9651, Stop: 10493, Start Num: 7

Candidate Starts for FortCran_19:

(Start: 7 @9651 has 52 MA's), (13, 9699), (19, 9798), (25, 9909), (28, 9930), (35, 9990), (44, 10089), (45, 10095), (47, 10164), (59, 10362),

Gene: Giantsbane_8 Start: 5270, Stop: 6124, Start Num: 7

Candidate Starts for Giantsbane_8:

(Start: 7 @5270 has 52 MA's), (13, 5318), (17, 5405), (19, 5420), (20, 5432), (21, 5492), (32, 5582), (33, 5588), (34, 5597), (35, 5615), (42, 5696), (45, 5720), (50, 5846), (56, 5945), (71, 6077), (75, 6110),

Gene: Gill_15 Start: 9377, Stop: 10219, Start Num: 7

Candidate Starts for Gill_15:

(Start: 7 @9377 has 52 MA's), (13, 9425), (19, 9524), (25, 9635), (30, 9671), (35, 9716), (45, 9821), (47, 9890), (59, 10088),

Gene: Gordon_8 Start: 6578, Stop: 7426, Start Num: 7

Candidate Starts for Gordon_8:

(Start: 7 @6578 has 52 MA's), (12, 6614), (13, 6623), (17, 6710), (19, 6725), (20, 6737), (32, 6884), (34, 6899), (35, 6917), (45, 7022), (50, 7148), (56, 7247), (70, 7376), (71, 7379), (75, 7412),

Gene: Gravy_15 Start: 9377, Stop: 10219, Start Num: 7

Candidate Starts for Gravy_15:

(Start: 7 @9377 has 52 MA's), (13, 9425), (19, 9524), (25, 9635), (30, 9671), (35, 9716), (45, 9821), (47, 9890), (59, 10088),

Gene: Hortihabitatio_19 Start: 11738, Stop: 12574, Start Num: 8

Candidate Starts for Hortihabitatio_19:

(4, 11726), (Start: 8 @11738 has 5 MA's), (13, 11780), (15, 11849), (19, 11879), (35, 12071), (44, 12170), (45, 12176), (47, 12245), (59, 12443), (62, 12470),

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

Candidate Starts for Hydrus_19:

(Start: 6 @12821 has 2 MA's), (Start: 8 @12827 has 5 MA's), (13, 12872), (15, 12941), (19, 12971), (35, 13163), (44, 13262), (45, 13268), (47, 13337), (59, 13535), (70, 13622),

Gene: Ingrid_8 Start: 5356, Stop: 6204, Start Num: 7

Candidate Starts for Ingrid_8:

(Start: 7 @5356 has 52 MA's), (13, 5401), (17, 5488), (19, 5503), (20, 5515), (28, 5635), (32, 5662), (33, 5668), (34, 5677), (35, 5695), (42, 5776), (45, 5800), (48, 5905), (50, 5926), (56, 6025), (71, 6157), (75, 6190),

Gene: Inked_9 Start: 5530, Stop: 6381, Start Num: 7

Candidate Starts for Inked_9:

(Start: 7 @5530 has 52 MA's), (13, 5575), (17, 5662), (19, 5677), (20, 5689), (32, 5839), (33, 5845), (35, 5872), (42, 5953), (45, 5977), (56, 6202), (71, 6334), (75, 6367),

Gene: Issa_8 Start: 5285, Stop: 6133, Start Num: 7

Candidate Starts for Issa_8:

(Start: 7 @5285 has 52 MA's), (12, 5321), (13, 5330), (17, 5417), (19, 5432), (20, 5444), (32, 5591), (35, 5624), (42, 5705), (45, 5729), (50, 5855), (56, 5954), (70, 6083), (71, 6086), (75, 6119),

Gene: Jodelie19_18 Start: 12247, Stop: 13089, Start Num: 7

Candidate Starts for Jodelie19_18:

(Start: 7 @12247 has 52 MA's), (13, 12295), (15, 12364), (19, 12394), (35, 12586), (42, 12667), (44, 12685), (45, 12691), (47, 12760), (59, 12958),

Gene: Kenosha_17 Start: 11428, Stop: 12267, Start Num: 8

Candidate Starts for Kenosha_17:

(Start: 6 @11422 has 2 MA's), (Start: 8 @11428 has 5 MA's), (13, 11473), (15, 11542), (19, 11572), (35, 11764), (44, 11863), (45, 11869), (47, 11938), (59, 12136), (70, 12223),

Gene: Kerry_15 Start: 9377, Stop: 10219, Start Num: 7

Candidate Starts for Kerry_15:

(Start: 7 @9377 has 52 MA's), (13, 9425), (19, 9524), (25, 9635), (30, 9671), (35, 9716), (45, 9821), (47, 9890), (59, 10088),

Gene: LilHuddy_8 Start: 5267, Stop: 6118, Start Num: 7

Candidate Starts for LilHuddy_8:

(Start: 7 @5267 has 52 MA's), (13, 5315), (17, 5402), (19, 5417), (20, 5429), (30, 5564), (32, 5576), (33, 5582), (34, 5591), (35, 5609), (42, 5690), (44, 5708), (45, 5714), (47, 5783), (71, 6071), (75, 6104),

Gene: Loretta_8 Start: 5356, Stop: 6204, Start Num: 7

Candidate Starts for Loretta_8:

(Start: 7 @5356 has 52 MA's), (13, 5401), (17, 5488), (19, 5503), (20, 5515), (28, 5635), (32, 5662), (33, 5668), (34, 5677), (35, 5695), (42, 5776), (45, 5800), (48, 5905), (50, 5926), (56, 6025), (71, 6157), (75, 6190),

Gene: Madvan_19 Start: 12044, Stop: 12886, Start Num: 7

Candidate Starts for Madvan_19:

(Start: 7 @12044 has 52 MA's), (13, 12092), (15, 12161), (19, 12191), (35, 12383), (44, 12482), (45, 12488), (47, 12557), (59, 12755),

Gene: Magel_15 Start: 9377, Stop: 10219, Start Num: 7

Candidate Starts for Magel_15:

(Start: 7 @9377 has 52 MA's), (13, 9425), (19, 9524), (25, 9635), (30, 9671), (35, 9716), (45, 9821), (47, 9890), (59, 10088),

Gene: Makai_8 Start: 5396, Stop: 6247, Start Num: 7

Candidate Starts for Makai_8:

(Start: 7 @5396 has 52 MA's), (13, 5444), (17, 5531), (18, 5540), (19, 5546), (20, 5558), (32, 5705), (33, 5711), (35, 5738), (42, 5819), (45, 5843), (48, 5948), (62, 6137), (71, 6200), (75, 6233),

Gene: MediumFry_9 Start: 5577, Stop: 6428, Start Num: 7

Candidate Starts for MediumFry_9:

(Start: 7 @5577 has 52 MA's), (12, 5613), (13, 5622), (17, 5709), (19, 5724), (20, 5736), (29, 5862), (32, 5886), (33, 5892), (35, 5919), (42, 6000), (45, 6024), (48, 6129), (56, 6249), (70, 6378), (71, 6381), (75, 6414),

Gene: MiniBagel_8 Start: 6536, Stop: 7387, Start Num: 7

Candidate Starts for MiniBagel_8:

(Start: 7 @6536 has 52 MA's), (12, 6572), (13, 6581), (17, 6668), (19, 6683), (20, 6695), (26, 6803), (32, 6845), (34, 6860), (35, 6878), (42, 6959), (45, 6983), (56, 7208), (70, 7337), (71, 7340), (75, 7373),

Gene: Mossy_19 Start: 13461, Stop: 14300, Start Num: 8

Candidate Starts for Mossy_19:

(Start: 8 @13461 has 5 MA's), (13, 13506), (15, 13575), (19, 13605), (35, 13797), (44, 13896), (45, 13902), (47, 13971), (59, 14169), (62, 14196), (70, 14256),

Gene: Nadmeg_18 Start: 12045, Stop: 12887, Start Num: 7

Candidate Starts for Nadmeg_18:

(Start: 7 @12045 has 52 MA's), (13, 12093), (15, 12162), (19, 12192), (35, 12384), (44, 12483), (45, 12489), (47, 12558), (59, 12756),

Gene: Nightmare_9 Start: 5909, Stop: 6760, Start Num: 6

Candidate Starts for Nightmare_9:

(Start: 6 @5909 has 2 MA's), (13, 5957), (17, 6044), (19, 6059), (20, 6071), (32, 6218), (34, 6233), (35, 6251), (42, 6332), (45, 6356), (50, 6482), (56, 6581), (70, 6710), (71, 6713), (75, 6746),

Gene: Niktson_7 Start: 5470, Stop: 6321, Start Num: 7

Candidate Starts for Niktson_7:

(Start: 7 @5470 has 52 MA's), (12, 5506), (13, 5515), (17, 5602), (19, 5617), (20, 5629), (26, 5737), (32, 5779), (34, 5794), (35, 5812), (42, 5893), (44, 5911), (45, 5917), (56, 6142), (70, 6271), (71, 6274), (75, 6307),

Gene: Nithya_18 Start: 12243, Stop: 13085, Start Num: 7

Candidate Starts for Nithya_18:

(Start: 7 @12243 has 52 MA's), (13, 12291), (15, 12360), (19, 12390), (33, 12555), (35, 12582), (42, 12663), (44, 12681), (45, 12687), (47, 12756), (59, 12954), (61, 12963),

Gene: Nivinsha_8 Start: 5330, Stop: 6178, Start Num: 7

Candidate Starts for Nivinsha_8:

(Start: 7 @5330 has 52 MA's), (12, 5366), (13, 5375), (17, 5462), (19, 5477), (20, 5489), (32, 5636), (34, 5651), (35, 5669), (45, 5774), (50, 5900), (56, 5999), (70, 6128), (71, 6131), (75, 6164),

Gene: Odesza_15 Start: 9377, Stop: 10219, Start Num: 7

Candidate Starts for Odesza_15:

(Start: 7 @9377 has 52 MA's), (13, 9425), (19, 9524), (25, 9635), (30, 9671), (35, 9716), (45, 9821), (47, 9890), (59, 10088),

Gene: Pepy6_017 Start: 15271, Stop: 16104, Start Num: 8

Candidate Starts for Pepy6_017:

(4, 15259), (Start: 8 @15271 has 5 MA's), (13, 15316), (15, 15385), (19, 15415), (32, 15574), (35, 15607), (39, 15673), (41, 15682), (44, 15706), (45, 15712), (47, 15781), (49, 15832), (54, 15889), (59, 15979), (63, 16012),

Gene: Pepy6_020 Start: 18201, Stop: 19283, Start Num: 7

Candidate Starts for Pepy6_020:

(Start: 7 @18201 has 52 MA's), (9, 18213), (13, 18255), (26, 18477), (35, 18555), (38, 18585), (39, 18630), (40, 18633), (43, 18660), (51, 18795), (59, 18942), (62, 18972), (68, 19017), (72, 19044), (73, 19065), (79, 19134), (80, 19146), (82, 19203),

Gene: Perkunas_19 Start: 10170, Stop: 11000, Start Num: 7

Candidate Starts for Perkunas_19:

(Start: 7 @10170 has 52 MA's), (11, 10194), (13, 10218), (16, 10290), (19, 10317), (25, 10428), (28, 10449), (30, 10464), (35, 10509), (36, 10521), (45, 10614), (46, 10629), (47, 10683), (54, 10791), (55, 10815), (60, 10887),

Gene: Petite_15 Start: 9875, Stop: 10717, Start Num: 7

Candidate Starts for Petite_15:

(Start: 7 @9875 has 52 MA's), (13, 9923), (19, 10022), (25, 10133), (27, 10145), (33, 10187), (35, 10214), (36, 10226), (44, 10313), (45, 10319), (47, 10388), (59, 10586), (60, 10592),

Gene: Phaby_8 Start: 5257, Stop: 6108, Start Num: 7

Candidate Starts for Phaby_8:

(Start: 7 @5257 has 52 MA's), (13, 5305), (17, 5392), (19, 5407), (20, 5419), (30, 5554), (32, 5566), (33, 5572), (34, 5581), (35, 5599), (42, 5680), (44, 5698), (45, 5704), (47, 5773), (71, 6061), (75, 6094),

Gene: Phepper_18 Start: 12043, Stop: 12885, Start Num: 7

Candidate Starts for Phepper_18:

(Start: 7 @12043 has 52 MA's), (13, 12091), (15, 12160), (19, 12190), (35, 12382), (44, 12481), (45, 12487), (47, 12556), (59, 12754),

Gene: Pherobrine_17 Start: 12100, Stop: 12939, Start Num: 8

Candidate Starts for Pherobrine_17:

(2, 12070), (5, 12091), (Start: 8 @12100 has 5 MA's), (13, 12145), (15, 12214), (19, 12244), (35, 12436), (44, 12535), (45, 12541), (47, 12610), (59, 12808), (62, 12835), (70, 12895),

Gene: Poco6_019 Start: 18028, Stop: 18864, Start Num: 7

Candidate Starts for Poco6_019:

(Start: 7 @18028 has 52 MA's), (10, 18040), (13, 18076), (15, 18145), (18, 18169), (19, 18175), (32, 18334), (35, 18367), (41, 18442), (44, 18466), (45, 18472), (47, 18541), (49, 18592), (54, 18649), (59, 18739),

Gene: Poco6_021 Start: 19849, Stop: 20922, Start Num: 7

Candidate Starts for Poco6_021:

(1, 19798), (Start: 7 @19849 has 52 MA's), (13, 19900), (22, 20074), (39, 20269), (40, 20272), (48, 20407), (53, 20464), (57, 20533), (59, 20581), (65, 20629), (66, 20632), (68, 20656), (69, 20671), (72, 20683), (74, 20713), (80, 20785), (82, 20842),

Gene: Rickmore_17 Start: 10813, Stop: 11655, Start Num: 7

Candidate Starts for Rickmore_17:

(Start: 7 @10813 has 52 MA's), (13, 10861), (15, 10930), (19, 10960), (35, 11152), (42, 11233), (44, 11251), (45, 11257), (47, 11326), (59, 11524),

Gene: Roney_15 Start: 9377, Stop: 10219, Start Num: 7

Candidate Starts for Roney_15:

(Start: 7 @9377 has 52 MA's), (13, 9425), (19, 9524), (25, 9635), (30, 9671), (35, 9716), (45, 9821), (47, 9890), (59, 10088),

Gene: Runhaar_18 Start: 12045, Stop: 12887, Start Num: 7

Candidate Starts for Runhaar_18:

(Start: 7 @12045 has 52 MA's), (13, 12093), (15, 12162), (19, 12192), (35, 12384), (44, 12483), (45, 12489), (47, 12558), (59, 12756),

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

Candidate Starts for Schwartz33_20:

(Start: 7 @12921 has 52 MA's), (13, 12969), (15, 13038), (19, 13068), (34, 13242), (35, 13260), (44, 13359), (45, 13365), (47, 13434), (59, 13632), (62, 13659), (70, 13719),

Gene: ScienceWizSam_9 Start: 5285, Stop: 6133, Start Num: 7

Candidate Starts for ScienceWizSam_9:

(Start: 7 @5285 has 52 MA's), (12, 5321), (13, 5330), (17, 5417), (19, 5432), (20, 5444), (32, 5591), (35, 5624), (45, 5729), (56, 5954), (70, 6083), (71, 6086), (75, 6119),

Gene: Secretariat_17 Start: 11631, Stop: 12470, Start Num: 8

Candidate Starts for Secretariat_17:

(Start: 8 @11631 has 5 MA's), (13, 11676), (15, 11745), (19, 11775), (35, 11967), (44, 12066), (45, 12072), (47, 12141), (52, 12225), (59, 12339), (62, 12366), (63, 12372),

Gene: Shepard_8 Start: 5267, Stop: 6118, Start Num: 7

Candidate Starts for Shepard_8:

(Start: 7 @5267 has 52 MA's), (13, 5315), (17, 5402), (19, 5417), (20, 5429), (30, 5564), (32, 5576), (33, 5582), (34, 5591), (35, 5609), (42, 5690), (44, 5708), (45, 5714), (47, 5783), (56, 5939), (71, 6071), (75, 6104),

Gene: Synopsis_7 Start: 5450, Stop: 6298, Start Num: 7

Candidate Starts for Synopsis_7:

(Start: 7 @5450 has 52 MA's), (12, 5486), (13, 5495), (17, 5582), (19, 5597), (20, 5609), (32, 5756), (34, 5771), (35, 5789), (45, 5894), (50, 6020), (56, 6119), (70, 6248), (71, 6251), (75, 6284),

Gene: Tanis_15 Start: 9227, Stop: 10069, Start Num: 7

Candidate Starts for Tanis_15:

(Start: 7 @9227 has 52 MA's), (13, 9275), (19, 9374), (25, 9485), (30, 9521), (35, 9566), (45, 9671), (47, 9740), (59, 9938),

Gene: Tatanka_7 Start: 5390, Stop: 6238, Start Num: 7

Candidate Starts for Tatanka_7:

(Start: 7 @5390 has 52 MA's), (12, 5426), (13, 5435), (17, 5522), (19, 5537), (20, 5549), (32, 5696), (34, 5711), (35, 5729), (45, 5834), (50, 5960), (56, 6059), (70, 6188), (71, 6191), (75, 6224),

Gene: Teacup_8 Start: 5285, Stop: 6136, Start Num: 7

Candidate Starts for Teacup_8:

(Start: 7 @5285 has 52 MA's), (12, 5321), (13, 5330), (17, 5417), (19, 5432), (20, 5444), (26, 5552), (32, 5594), (34, 5609), (35, 5627), (42, 5708), (44, 5726), (45, 5732), (56, 5957), (70, 6086), (71, 6089), (75, 6122),

Gene: TenaciousP_20 Start: 12247, Stop: 13089, Start Num: 7

Candidate Starts for TenaciousP_20:

(Start: 7 @12247 has 52 MA's), (13, 12295), (15, 12364), (19, 12394), (35, 12586), (42, 12667), (44, 12685), (45, 12691), (47, 12760), (59, 12958),

Gene: Tenno_9 Start: 6536, Stop: 7387, Start Num: 7

Candidate Starts for Tenno_9:

(Start: 7 @6536 has 52 MA's), (12, 6572), (13, 6581), (17, 6668), (19, 6683), (20, 6695), (26, 6803), (32, 6845), (34, 6860), (35, 6878), (42, 6959), (45, 6983), (56, 7208), (70, 7337), (71, 7340), (75, 7373),

Gene: Tokki_9 Start: 5877, Stop: 6725, Start Num: 8

Candidate Starts for Tokki_9:

(2, 5847), (3, 5859), (Start: 8 @5877 has 5 MA's), (13, 5922), (17, 6009), (19, 6024), (20, 6036), (30, 6171), (32, 6183), (33, 6189), (35, 6216), (42, 6297), (44, 6315), (45, 6321), (47, 6390), (71, 6678), (75, 6711),

Gene: Truckee_8 Start: 5343, Stop: 6194, Start Num: 7

Candidate Starts for Truckee_8:

(Start: 7 @5343 has 52 MA's), (13, 5391), (17, 5478), (19, 5493), (20, 5505), (23, 5586), (28, 5625), (32, 5652), (33, 5658), (35, 5685), (42, 5766), (45, 5790), (47, 5859), (71, 6147), (75, 6180),

Gene: Trustiboi_8 Start: 5474, Stop: 6322, Start Num: 7

Candidate Starts for Trustiboi_8:

(Start: 7 @5474 has 52 MA's), (12, 5510), (13, 5519), (17, 5606), (19, 5621), (20, 5633), (32, 5780), (35, 5813), (45, 5918), (50, 6044), (56, 6143), (70, 6272), (71, 6275), (75, 6308),

Gene: Untouchable_17 Start: 10970, Stop: 11812, Start Num: 7

Candidate Starts for Untouchable_17:

(Start: 7 @10970 has 52 MA's), (13, 11018), (15, 11087), (19, 11117), (35, 11309), (44, 11408), (45, 11414), (47, 11483), (59, 11681),

Gene: Vardy_18 Start: 12010, Stop: 12852, Start Num: 7

Candidate Starts for Vardy_18:

(Start: 7 @12010 has 52 MA's), (13, 12058), (15, 12127), (19, 12157), (35, 12349), (44, 12448), (45, 12454), (47, 12523), (59, 12721),

Gene: Zeph_20 Start: 12809, Stop: 13648, Start Num: 8

Candidate Starts for Zeph_20:

(Start: 6 @12803 has 2 MA's), (Start: 8 @12809 has 5 MA's), (13, 12854), (15, 12923), (19, 12953), (35, 13145), (44, 13244), (45, 13250), (47, 13319), (59, 13517), (70, 13604),