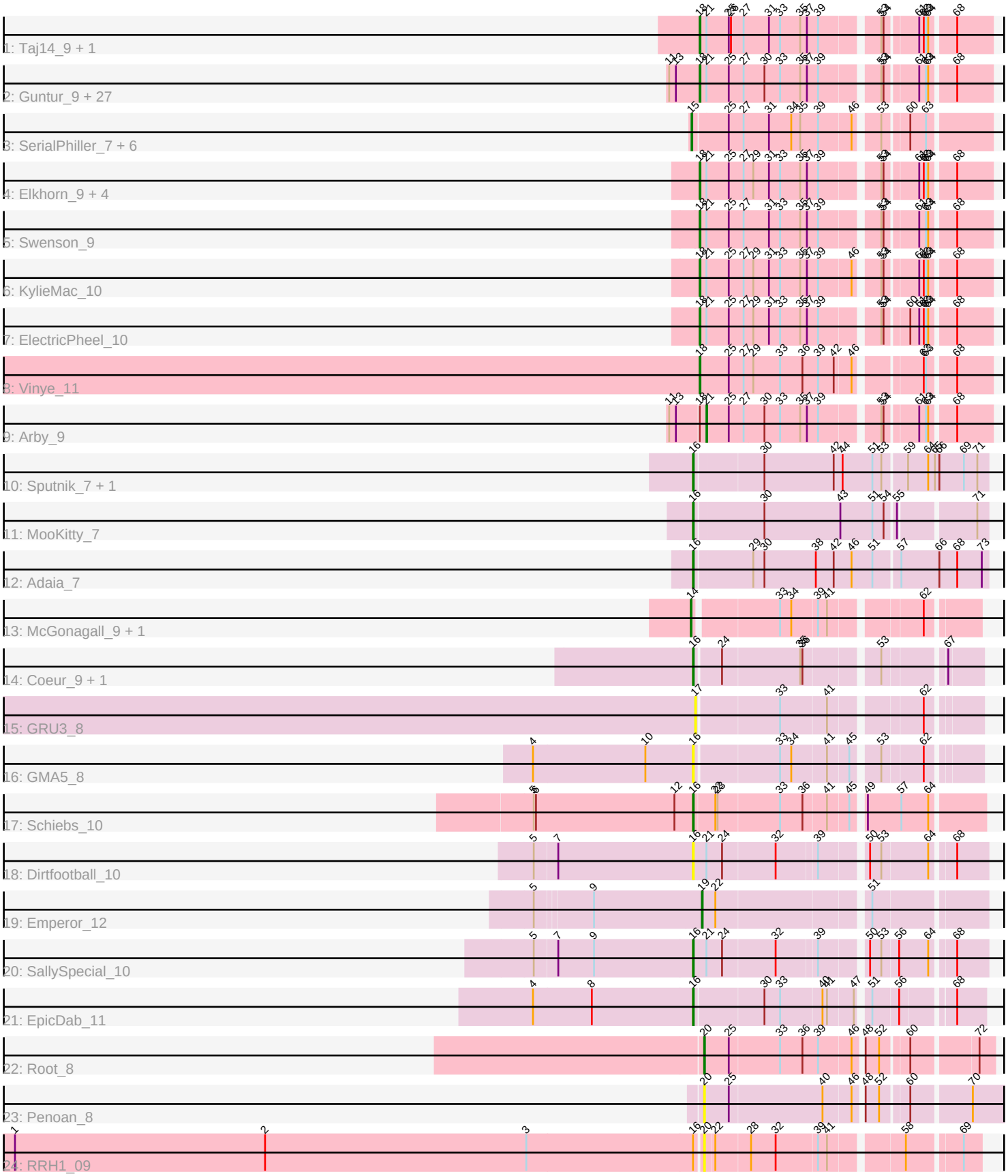
Pham 347604


1: Taj14_9 + 1
2: Guntur_9 + 27
3: SerialPhiller_7 + 6
4: Elkhorn_9 + 4
5: Swenson_9
6: KylieMac_10
7: ElectricPheel_10
8: Vinye_11
9: Arby_9
10: Sputnik_7 + 1
11: MooKitty_7
12: Adaia_7
13: McGonagall_9 + 1
14: Coeur_9 + 1
15: GRU3_8
16: GMA5_8
17: Schiebs_10
18: Dirtfootball_10
19: Emperor_12
20: SallySpecial_10
21: EpicDab_11
22: Root_8
23: Penoan_8
24: RRH1_09

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 347604 Report

This analysis was run 11/14/26 on database version 672.

Pham number 347604 has 65 members, 6 are drafts.

Phages represented in each track:
• Track 1 : Taj14_9, Saphira_9
• Track 2 : Guntur_9, Inspire2_9, Sandman_9, TinoCrisci_9, LouisXIV_9, Sourignavong_10, Muttlie_9, Moloch_9, Courtney3_9, Jessica_10, TymAbreu_9, Chestnut_9, Copper_9, Toulouse_8, Yank_9, Ronnie_9, Maggie_9, Stratus_9, Seume_9, Hunnie_9, CGermain_9, Massimo_9, Link_9, Decurro_9, Mariposa_9, Dewayne_9, Prospero_9, Azathoth_9
• Track 3 : SerialPhiller_7, Arielagos_7, Eyoseyas_7, FirePit_7, StrawberryLem_7, Ximeno_7, Kels_7
• Track 4 : Elkhorn_9, Blair_9, Laila_10, Lore_9, StewieGriff_9
• Track 5 : Swenson_9
• Track 6 : KylieMac_10
• Track 7 : ElectricPheel_10
• Track 8 : Vinye_11
• Track 9 : Arby_9
• Track 10 : Sputnik_7, Atraxa_7
• Track 11 : MooKitty_7
• Track 12 : Adaia_7
• Track 13 : McGonagall_9, Jeanie_9
• Track 14 : Coeur_9, Rahul_9
• Track 15 : GRU3_8
• Track 16 : GMA5_8
• Track 17 : Schiebs_10
• Track 18 : Dirtfootball_10
• Track 19 : Emperor_12
• Track 20 : SallySpecial_10
• Track 21 : EpicDab_11
• Track 22 : Root_8
• Track 23 : Penoan_8
• Track 24 : RRH1_09

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

The start number called the most often in the published annotations is 18, it was called in 39 of the 59 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Azathoth_9, Blair_9, CGermain_9, Chestnut_9, Copper_9, Courtney3_9, Decurro_9, Dewayne_9, ElectricPheel_10, Elkhorn_9, Guntur_9, Hunnie_9, Inspire2_9, Jessica_10, KylieMac_10, Laila_10, Link_9, Lore_9, LouisXIV_9, Maggie_9, Mariposa_9, Massimo_9, Moloch_9, Muttlie_9, Prospero_9, Ronnie_9, Sandman_9, Saphira_9, Seume_9, Sourignavong_10, StewieGriff_9, Stratus_9, Swenson_9, Taj14_9, TinoCrisci_9, Toulouse_8, TymAbreu_9, Vinye_11, Yank_9,

Genes that have the "Most Annotated" start but do not call it:
• Arby_9,

Genes that do not have the "Most Annotated" start:
• Adaia_7, Arielagos_7, Atraxa_7, Coeur_9, Dirtfootball_10, Emperor_12, EpicDab_11, Eyoseyas_7, FirePit_7, GMA5_8, GRU3_8, Jeanie_9, Kels_7, McGonagall_9, MooKitty_7, Penoan_8, RRH1_09, Rahul_9, Root_8, SallySpecial_10, Schiebs_10, SerialPhiller_7, Sputnik_7, StrawberryLem_7, Ximeno_7,

Summary by start number:

Start 14:
• Found in 2 of 65 (3.1%) of genes in pham
• Manual Annotations of this start: 2 of 59
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Jeanie_9 (CW1), McGonagall_9 (CW1),

Start 15:
• Found in 7 of 65 (10.8%) of genes in pham
• Manual Annotations of this start: 6 of 59
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Arielagos_7 (AN), Eyoseyas_7 (AN), FirePit_7 (AN), Kels_7 (AN), SerialPhiller_7 (AN), StrawberryLem_7 (AN), Ximeno_7 (AN),

Start 16:
• Found in 12 of 65 (18.5%) of genes in pham
• Manual Annotations of this start: 9 of 59
• Called 91.7% of time when present
• Phage (with cluster) where this start called: Adaia_7 (AX), Atraxa_7 (AX), Coeur_9 (CW2), Dirtfootball_10 (DM), EpicDab_11 (DM), GMA5_8 (CW2), MooKitty_7 (AX), Rahul_9 (CW2), SallySpecial_10 (DM), Schiebs_10 (CW3), Sputnik_7 (AX),

Start 17:
• Found in 1 of 65 (1.5%) of genes in pham
• No Manual Annotations of this start.
• Called 100.0% of time when present
• Phage (with cluster) where this start called: GRU3_8 (CW2),

Start 18:
• Found in 40 of 65 (61.5%) of genes in pham
• Manual Annotations of this start: 39 of 59
• Called 97.5% of time when present

• Phage (with cluster) where this start called: Azathoth_9 (AN), Blair_9 (AN), CGermain_9 (AN), Chestnut_9 (AN), Copper_9 (AN), Courtney3_9 (AN), Decurro_9 (AN), Dewayne_9 (AN), ElectricPheel_10 (AN), Elkhorn_9 (AN), Guntur_9 (AN), Hunnie_9 (AN), Inspire2_9 (AN), Jessica_10 (AN), KylieMac_10 (AN), Laila_10 (AN), Link_9 (AN), Lore_9 (AN), LouisXIV_9 (AN), Maggie_9 (AN), Mariposa_9 (AN), Massimo_9 (AN), Moloch_9 (AN), Muttlie_9 (AN), Prospero_9 (AN), Ronnie_9 (AN), Sandman_9 (AN), Saphira_9 (AN), Seume_9 (AN), Sourignavong_10 (AN), StewieGriff_9 (AN), Stratus_9 (AN), Swenson_9 (AN), Taj14_9 (AN), TinoCrisci_9 (AN), Toulouse_8 (AN), TymAbreu_9 (AN), Vinye_11 (AN), Yank_9 (AN),

Start 19:
• Found in 1 of 65 (1.5%) of genes in pham
• Manual Annotations of this start: 1 of 59
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Emperor_12 (DM),

Start 20:
• Found in 3 of 65 (4.6%) of genes in pham
• Manual Annotations of this start: 1 of 59
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Penoan_8 (UNK), RRH1_09 (singleton), Root_8 (JC),

Start 21:
• Found in 41 of 65 (63.1%) of genes in pham
• Manual Annotations of this start: 1 of 59
• Called 2.4% of time when present
• Phage (with cluster) where this start called: Arby_9 (AN),

Summary by clusters:

There are 9 clusters represented in this pham: singleton, DM, CW1, CW3, CW2, AN, AX, UNK, JC,

Info for manual annotations of cluster AN:
•Start number 15 was manually annotated 6 times for cluster AN.
•Start number 18 was manually annotated 39 times for cluster AN.
•Start number 21 was manually annotated 1 time for cluster AN.

Info for manual annotations of cluster AX:
•Start number 16 was manually annotated 4 times for cluster AX.

Info for manual annotations of cluster CW1:
•Start number 14 was manually annotated 2 times for cluster CW1.

Info for manual annotations of cluster CW2:
•Start number 16 was manually annotated 2 times for cluster CW2.

Info for manual annotations of cluster CW3:
•Start number 16 was manually annotated 1 time for cluster CW3.

Info for manual annotations of cluster DM:
•Start number 16 was manually annotated 2 times for cluster DM.

•Start number 19 was manually annotated 1 time for cluster DM.

Info for manual annotations of cluster JC:
•Start number 20 was manually annotated 1 time for cluster JC.

Gene Information:

Gene: Adaia_7 Start: 5193, Stop: 5576, Start Num: 16
Candidate Starts for Adaia_7:
(Start: 16 @5193 has 9 MA's), (29, 5268), (30, 5283), (38, 5352), (42, 5376), (46, 5400), (51, 5427), (57, 5460), (66, 5511), (68, 5535), (73, 5568),

Gene: Arby_9 Start: 5661, Stop: 6008, Start Num: 21
Candidate Starts for Arby_9:
(11, 5616), (13, 5625), (Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (30, 5736), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (63, 5928), (64, 5931), (68, 5961),

Gene: Arielagos_7 Start: 5288, Stop: 5650, Start Num: 15
Candidate Starts for Arielagos_7:
(Start: 15 @5288 has 6 MA's), (25, 5333), (27, 5351), (31, 5384), (34, 5414), (35, 5426), (39, 5450), (46, 5492), (53, 5519), (60, 5549), (63, 5570),

Gene: Atraxa_7 Start: 5283, Stop: 5663, Start Num: 16
Candidate Starts for Atraxa_7:
(Start: 16 @5283 has 9 MA's), (30, 5370), (42, 5463), (44, 5475), (51, 5514), (53, 5526), (59, 5556), (64, 5583), (65, 5592), (66, 5598), (69, 5631), (71, 5649),

Gene: Azathoth_9 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for Azathoth_9:
(11, 5616), (13, 5625), (Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (30, 5736), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (63, 5928), (64, 5931), (68, 5961),

Gene: Blair_9 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for Blair_9:
(Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (29, 5721), (31, 5742), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (62, 5925), (63, 5928), (64, 5931), (68, 5961),

Gene: CGermain_9 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for CGermain_9:
(11, 5616), (13, 5625), (Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (30, 5736), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (63, 5928), (64, 5931), (68, 5961),

Gene: Chestnut_9 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for Chestnut_9:
(11, 5616), (13, 5625), (Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (30, 5736), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (63,

5928), (64, 5931), (68, 5961),

Gene: Coeur_9 Start: 6537, Stop: 6878, Start Num: 16
Candidate Starts for Coeur_9:
(Start: 16 @6537 has 9 MA's), (24, 6570), (35, 6672), (36, 6675), (53, 6762), (67, 6834),

Gene: Copper_9 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for Copper_9:
(11, 5616), (13, 5625), (Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (30, 5736), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (63, 5928), (64, 5931), (68, 5961),

Gene: Courtney3_9 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for Courtney3_9:
(11, 5616), (13, 5625), (Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (30, 5736), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (63, 5928), (64, 5931), (68, 5961),

Gene: Decurro_9 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for Decurro_9:
(11, 5616), (13, 5625), (Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (30, 5736), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (63, 5928), (64, 5931), (68, 5961),

Gene: Dewayne_9 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for Dewayne_9:
(11, 5616), (13, 5625), (Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (30, 5736), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (63, 5928), (64, 5931), (68, 5961),

Gene: Dirtfootball_10 Start: 6689, Stop: 7042, Start Num: 16
Candidate Starts for Dirtfootball_10:
(5, 6479), (7, 6509), (Start: 16 @6689 has 9 MA's), (Start: 21 @6704 has 1 MA's), (24, 6725), (32, 6794), (39, 6845), (50, 6899), (53, 6914), (64, 6974), (68, 7001),

Gene: ElectricPheel_10 Start: 5726, Stop: 6082, Start Num: 18
Candidate Starts for ElectricPheel_10:
(Start: 18 @5726 has 39 MA's), (Start: 21 @5735 has 1 MA's), (25, 5765), (27, 5783), (29, 5795), (31, 5816), (33, 5831), (35, 5858), (37, 5867), (39, 5882), (53, 5951), (54, 5954), (60, 5981), (61, 5993), (62, 5999), (63, 6002), (64, 6005), (68, 6035),

Gene: Elkhorn_9 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for Elkhorn_9:
(Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (29, 5721), (31, 5742), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (62, 5925), (63, 5928), (64, 5931), (68, 5961),

Gene: Emperor_12 Start: 7759, Stop: 8106, Start Num: 19
Candidate Starts for Emperor_12:
(5, 7543), (9, 7615), (Start: 19 @7759 has 1 MA's), (22, 7777), (51, 7966),

Gene: EpicDab_11 Start: 7728, Stop: 8072, Start Num: 16
Candidate Starts for EpicDab_11:

(4, 7515), (8, 7593), (Start: 16 @7728 has 9 MA's), (30, 7815), (33, 7836), (40, 7890), (41, 7896), (47, 7929), (51, 7941), (56, 7974), (68, 8034),

Gene: Eyoseyas_7 Start: 5288, Stop: 5650, Start Num: 15
Candidate Starts for Eyoseyas_7:
(Start: 15 @5288 has 6 MA's), (25, 5333), (27, 5351), (31, 5384), (34, 5414), (35, 5426), (39, 5450), (46, 5492), (53, 5519), (60, 5549), (63, 5570),

Gene: FirePit_7 Start: 5288, Stop: 5650, Start Num: 15
Candidate Starts for FirePit_7:
(Start: 15 @5288 has 6 MA's), (25, 5333), (27, 5351), (31, 5384), (34, 5414), (35, 5426), (39, 5450), (46, 5492), (53, 5519), (60, 5549), (63, 5570),

Gene: GMA5_8 Start: 6391, Stop: 6732, Start Num: 16
Candidate Starts for GMA5_8:
(4, 6178), (10, 6328), (Start: 16 @6391 has 9 MA's), (33, 6499), (34, 6514), (41, 6559), (45, 6586), (53, 6616), (62, 6667),

Gene: GRU3_8 Start: 6449, Stop: 6787, Start Num: 17
Candidate Starts for GRU3_8:
(17, 6449), (33, 6554), (41, 6614), (62, 6722),

Gene: Guntur_9 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for Guntur_9:
(11, 5616), (13, 5625), (Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (30, 5736), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (63, 5928), (64, 5931), (68, 5961),

Gene: Hunnie_9 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for Hunnie_9:
(11, 5616), (13, 5625), (Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (30, 5736), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (63, 5928), (64, 5931), (68, 5961),

Gene: Inspire2_9 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for Inspire2_9:
(11, 5616), (13, 5625), (Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (30, 5736), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (63, 5928), (64, 5931), (68, 5961),

Gene: Jeanie_9 Start: 6346, Stop: 6684, Start Num: 14
Candidate Starts for Jeanie_9:
(Start: 14 @6346 has 2 MA's), (33, 6451), (34, 6466), (39, 6499), (41, 6511), (62, 6619),

Gene: Jessica_10 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for Jessica_10:
(11, 5616), (13, 5625), (Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (30, 5736), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (63, 5928), (64, 5931), (68, 5961),

Gene: Kels_7 Start: 5213, Stop: 5575, Start Num: 15
Candidate Starts for Kels_7:

(Start: 15 @5213 has 6 MA's), (25, 5258), (27, 5276), (31, 5309), (34, 5339), (35, 5351), (39, 5375), (46, 5417), (53, 5444), (60, 5474), (63, 5495),

Gene: KylieMac_10 Start: 5639, Stop: 5995, Start Num: 18
Candidate Starts for KylieMac_10:
(Start: 18 @5639 has 39 MA's), (Start: 21 @5648 has 1 MA's), (25, 5678), (27, 5696), (29, 5708), (31, 5729), (33, 5744), (35, 5771), (37, 5780), (39, 5795), (46, 5837), (53, 5864), (54, 5867), (61, 5906), (62, 5912), (63, 5915), (64, 5918), (68, 5948),

Gene: Laila_10 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for Laila_10:
(Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (29, 5721), (31, 5742), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (62, 5925), (63, 5928), (64, 5931), (68, 5961),

Gene: Link_9 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for Link_9:
(11, 5616), (13, 5625), (Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (30, 5736), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (63, 5928), (64, 5931), (68, 5961),

Gene: Lore_9 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for Lore_9:
(Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (29, 5721), (31, 5742), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (62, 5925), (63, 5928), (64, 5931), (68, 5961),

Gene: LouisXIV_9 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for LouisXIV_9:
(11, 5616), (13, 5625), (Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (30, 5736), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (63, 5928), (64, 5931), (68, 5961),

Gene: Maggie_9 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for Maggie_9:
(11, 5616), (13, 5625), (Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (30, 5736), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (63, 5928), (64, 5931), (68, 5961),

Gene: Mariposa_9 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for Mariposa_9:
(11, 5616), (13, 5625), (Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (30, 5736), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (63, 5928), (64, 5931), (68, 5961),

Gene: Massimo_9 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for Massimo_9:
(11, 5616), (13, 5625), (Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (30, 5736), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (63, 5928), (64, 5931), (68, 5961),

Gene: McGonagall_9 Start: 6346, Stop: 6684, Start Num: 14
Candidate Starts for McGonagall_9:

(Start: 14 @6346 has 2 MA's), (33, 6451), (34, 6466), (39, 6499), (41, 6511), (62, 6619),

Gene: Moloch_9 Start: 5726, Stop: 6082, Start Num: 18
Candidate Starts for Moloch_9:
(11, 5690), (13, 5699), (Start: 18 @5726 has 39 MA's), (Start: 21 @5735 has 1 MA's), (25, 5765), (27, 5783), (30, 5810), (33, 5831), (35, 5858), (37, 5867), (39, 5882), (53, 5951), (54, 5954), (61, 5993), (63, 6002), (64, 6005), (68, 6035),

Gene: MooKitty_7 Start: 5193, Stop: 5561, Start Num: 16
Candidate Starts for MooKitty_7:
(Start: 16 @5193 has 9 MA's), (30, 5283), (43, 5385), (51, 5427), (54, 5442), (55, 5454), (71, 5547),

Gene: Muttlie_9 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for Muttlie_9:
(11, 5616), (13, 5625), (Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (30, 5736), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (63, 5928), (64, 5931), (68, 5961),

Gene: Penoan_8 Start: 5992, Stop: 6363, Start Num: 20
Candidate Starts for Penoan_8:
(Start: 20 @5992 has 1 MA's), (25, 6025), (40, 6148), (46, 6184), (48, 6193), (52, 6211), (60, 6244), (70, 6319),

Gene: Prospero_9 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for Prospero_9:
(11, 5616), (13, 5625), (Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (30, 5736), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (63, 5928), (64, 5931), (68, 5961),

Gene: RRH1_09 Start: 6793, Stop: 7125, Start Num: 20
Candidate Starts for RRH1_09:
(1, 5875), (2, 6211), (3, 6562), (Start: 16 @6784 has 9 MA's), (Start: 20 @6793 has 1 MA's), (22, 6805), (28, 6850), (32, 6883), (39, 6937), (41, 6949), (58, 7036), (69, 7102),

Gene: Rahul_9 Start: 6552, Stop: 6893, Start Num: 16
Candidate Starts for Rahul_9:
(Start: 16 @6552 has 9 MA's), (24, 6585), (35, 6687), (36, 6690), (53, 6777), (67, 6849),

Gene: Ronnie_9 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for Ronnie_9:
(11, 5616), (13, 5625), (Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (30, 5736), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (63, 5928), (64, 5931), (68, 5961),

Gene: Root_8 Start: 6064, Stop: 6417, Start Num: 20
Candidate Starts for Root_8:
(Start: 20 @6064 has 1 MA's), (25, 6097), (33, 6163), (36, 6193), (39, 6214), (46, 6256), (48, 6265), (52, 6283), (60, 6316), (72, 6397),

Gene: SallySpecial_10 Start: 6686, Stop: 7039, Start Num: 16
Candidate Starts for SallySpecial_10:
(5, 6476), (7, 6506), (9, 6554), (Start: 16 @6686 has 9 MA's), (Start: 21 @6701 has 1 MA's), (24, 6722), (32, 6791), (39, 6842), (50, 6896), (53, 6911), (56, 6932), (64, 6971), (68, 6998),

Gene: Sandman_9 Start: 5726, Stop: 6082, Start Num: 18
Candidate Starts for Sandman_9:
(11, 5690), (13, 5699), (Start: 18 @5726 has 39 MA's), (Start: 21 @5735 has 1 MA's), (25, 5765), (27, 5783), (30, 5810), (33, 5831), (35, 5858), (37, 5867), (39, 5882), (53, 5951), (54, 5954), (61, 5993), (63, 6002), (64, 6005), (68, 6035),

Gene: Saphira_9 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for Saphira_9:
(Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (26, 5694), (27, 5709), (31, 5742), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (62, 5925), (63, 5928), (64, 5931), (68, 5961),

Gene: Schiebs_10 Start: 6128, Stop: 6487, Start Num: 16
Candidate Starts for Schiebs_10:
(5, 5915), (6, 5918), (12, 6104), (Start: 16 @6128 has 9 MA's), (22, 6155), (23, 6158), (33, 6239), (36, 6269), (41, 6299), (45, 6326), (49, 6338), (57, 6383), (64, 6419),

Gene: SerialPhiller_7 Start: 5288, Stop: 5650, Start Num: 15
Candidate Starts for SerialPhiller_7:
(Start: 15 @5288 has 6 MA's), (25, 5333), (27, 5351), (31, 5384), (34, 5414), (35, 5426), (39, 5450), (46, 5492), (53, 5519), (60, 5549), (63, 5570),

Gene: Seume_9 Start: 5448, Stop: 5804, Start Num: 18
Candidate Starts for Seume_9:
(11, 5412), (13, 5421), (Start: 18 @5448 has 39 MA's), (Start: 21 @5457 has 1 MA's), (25, 5487), (27, 5505), (30, 5532), (33, 5553), (35, 5580), (37, 5589), (39, 5604), (53, 5673), (54, 5676), (61, 5715), (63, 5724), (64, 5727), (68, 5757),

Gene: Sourignavong_10 Start: 5753, Stop: 6109, Start Num: 18
Candidate Starts for Sourignavong_10:
(11, 5717), (13, 5726), (Start: 18 @5753 has 39 MA's), (Start: 21 @5762 has 1 MA's), (25, 5792), (27, 5810), (30, 5837), (33, 5858), (35, 5885), (37, 5894), (39, 5909), (53, 5978), (54, 5981), (61, 6020), (63, 6029), (64, 6032), (68, 6062),

Gene: Sputnik_7 Start: 5283, Stop: 5663, Start Num: 16
Candidate Starts for Sputnik_7:
(Start: 16 @5283 has 9 MA's), (30, 5370), (42, 5463), (44, 5475), (51, 5514), (53, 5526), (59, 5556), (64, 5583), (65, 5592), (66, 5598), (69, 5631), (71, 5649),

Gene: StewieGriff_9 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for StewieGriff_9:
(Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (29, 5721), (31, 5742), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (62, 5925), (63, 5928), (64, 5931), (68, 5961),

Gene: Stratus_9 Start: 5726, Stop: 6082, Start Num: 18
Candidate Starts for Stratus_9:
(11, 5690), (13, 5699), (Start: 18 @5726 has 39 MA's), (Start: 21 @5735 has 1 MA's), (25, 5765), (27, 5783), (30, 5810), (33, 5831), (35, 5858), (37, 5867), (39, 5882), (53, 5951), (54, 5954), (61, 5993), (63, 6002), (64, 6005), (68, 6035),

Gene: StrawberryLem_7 Start: 5213, Stop: 5575, Start Num: 15

Candidate Starts for StrawberryLem_7:
(Start: 15 @5213 has 6 MA's), (25, 5258), (27, 5276), (31, 5309), (34, 5339), (35, 5351), (39, 5375), (46, 5417), (53, 5444), (60, 5474), (63, 5495),

Gene: Swenson_9 Start: 5775, Stop: 6131, Start Num: 18
Candidate Starts for Swenson_9:
(Start: 18 @5775 has 39 MA's), (Start: 21 @5784 has 1 MA's), (25, 5814), (27, 5832), (31, 5865), (33, 5880), (35, 5907), (37, 5916), (39, 5931), (53, 6000), (54, 6003), (61, 6042), (63, 6051), (64, 6054), (68, 6084),

Gene: Taj14_9 Start: 5631, Stop: 5987, Start Num: 18
Candidate Starts for Taj14_9:
(Start: 18 @5631 has 39 MA's), (Start: 21 @5640 has 1 MA's), (25, 5670), (26, 5673), (27, 5688), (31, 5721), (33, 5736), (35, 5763), (37, 5772), (39, 5787), (53, 5856), (54, 5859), (61, 5898), (62, 5904), (63, 5907), (64, 5910), (68, 5940),

Gene: TinoCrisci_9 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for TinoCrisci_9:
(11, 5616), (13, 5625), (Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (30, 5736), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (63, 5928), (64, 5931), (68, 5961),

Gene: Toulouse_8 Start: 5448, Stop: 5804, Start Num: 18
Candidate Starts for Toulouse_8:
(11, 5412), (13, 5421), (Start: 18 @5448 has 39 MA's), (Start: 21 @5457 has 1 MA's), (25, 5487), (27, 5505), (30, 5532), (33, 5553), (35, 5580), (37, 5589), (39, 5604), (53, 5673), (54, 5676), (61, 5715), (63, 5724), (64, 5727), (68, 5757),

Gene: TymAbreu_9 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for TymAbreu_9:
(11, 5616), (13, 5625), (Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (30, 5736), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (63, 5928), (64, 5931), (68, 5961),

Gene: Vinye_11 Start: 5958, Stop: 6314, Start Num: 18
Candidate Starts for Vinye_11:
(Start: 18 @5958 has 39 MA's), (25, 5997), (27, 6015), (29, 6027), (33, 6063), (36, 6093), (39, 6114), (42, 6135), (46, 6156), (62, 6231), (63, 6234), (68, 6267),

Gene: Ximeno_7 Start: 5288, Stop: 5650, Start Num: 15
Candidate Starts for Ximeno_7:
(Start: 15 @5288 has 6 MA's), (25, 5333), (27, 5351), (31, 5384), (34, 5414), (35, 5426), (39, 5450), (46, 5492), (53, 5519), (60, 5549), (63, 5570),

Gene: Yank_9 Start: 5652, Stop: 6008, Start Num: 18
Candidate Starts for Yank_9:
(11, 5616), (13, 5625), (Start: 18 @5652 has 39 MA's), (Start: 21 @5661 has 1 MA's), (25, 5691), (27, 5709), (30, 5736), (33, 5757), (35, 5784), (37, 5793), (39, 5808), (53, 5877), (54, 5880), (61, 5919), (63, 5928), (64, 5931), (68, 5961),