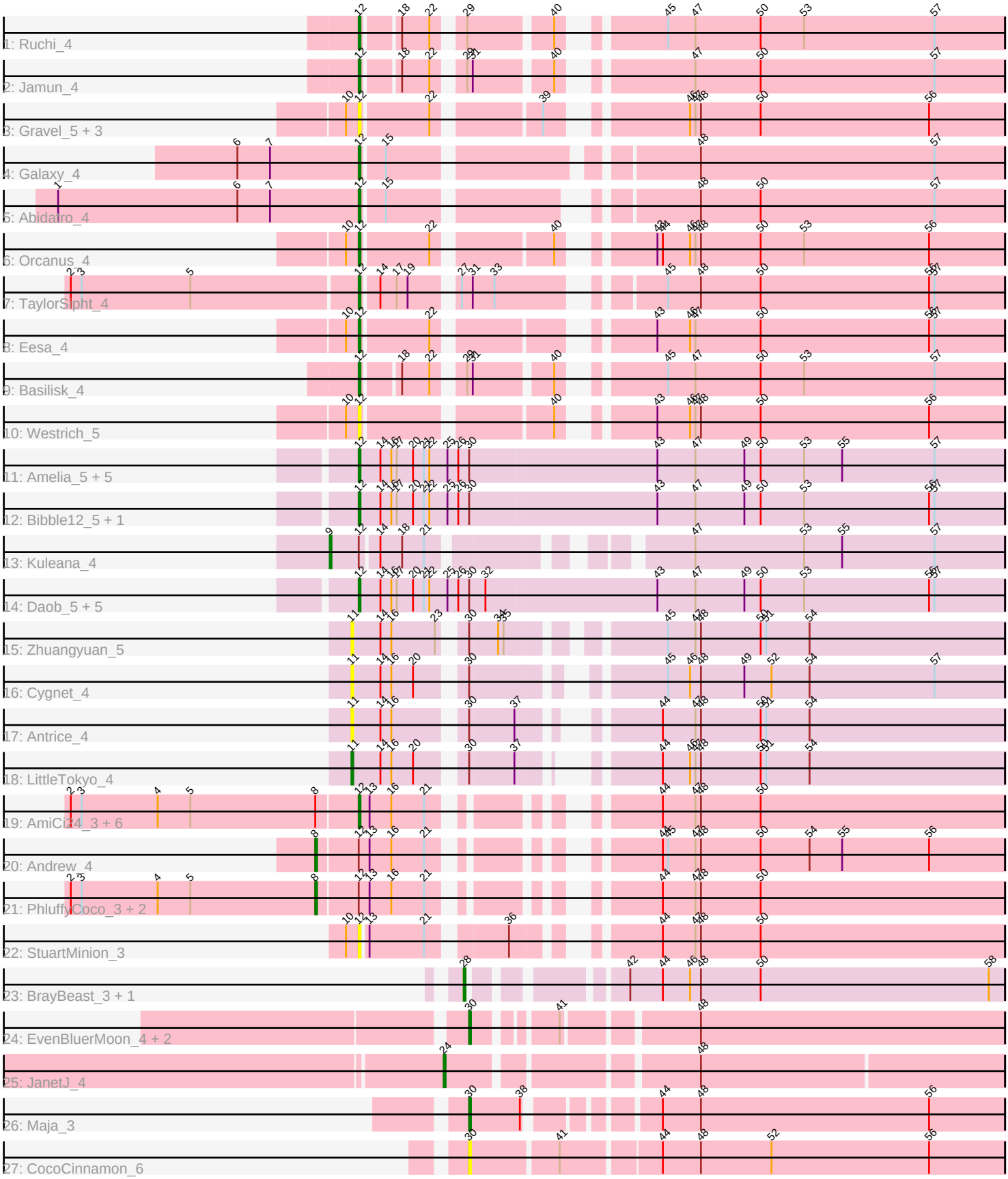
Pham 216237


1: Ruchi_4
2: Jamun_4
3: Gravel_5 + 3
4: Galaxy_4
5: Abidairo_4
6: Orcanus_4
7: TaylorSipht_4
8: Eesa_4
9: Basilisk_4
10: Westrich_5
11: Amelia_5 + 5
12: Bibble12_5 + 1
13: Kuleana_4
14: Daob_5 + 5
15: Zhuangyuan_5
16: Cygnet_4
17: Antrice_4
18: LittleTokyo_4
19: AmiCi24_3 + 6
20: Andrew_4
21: PhluffyCoco_3 + 2
22: StuartMinion_3
23: BrayBeast_3 + 1
24: EvenBluerMoon_4 + 2
25: JanetJ_4
26: Maja_3
27: CocoCinnamon_6

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 216237 Report

This analysis was run 02/22/25 on database version 588.

Pham number 216237 has 52 members, 23 are drafts.

Phages represented in each track:
- Track 1 : Ruchi_4
- Track 2 : Jamun_4
- Track 3 : Gravel_5, KendraB23_5, Pelletreau_5, Toad24_5
- Track 4 : Galaxy_4
- Track 5 : Abidatro_4
- Track 6 : Orcanus_4
- Track 7 : TaylorSipht_4
- Track 8 : Eesa_4
- Track 9 : Basilisk_4
- Track 10 : Westrich_5
- Track 11 : Amelia_5, Cote_5, Lunar_5, Melons_5, Jerole_5, Bedetta_5
- Track 12 : Bibble12_5, HannahPhantana_5
- Track 13 : Kuleana_4
- Track 14 : Daob_5, Kepler_4, Polka_4, Colusalem_4, Coral_4, OtsoOtso_4
- Track 15 : Zhuangyuan_5
- Track 16 : Cygnet_4
- Track 17 : Antrice_4
- Track 18 : LittleTokyo_4
- Track 19 : AmiCi24_3, DanHam62_3, KHumphrey_3, Atlantica_3, Camara_3, Glotell_3, HamCheese_3
- Track 20 : Andrew_4
- Track 21 : PhluffyCoco_3, RedFox_3, Juno112_3
- Track 22 : StuartMinion_3
- Track 23 : BrayBeast_3, Sarge_3
- Track 24 : EvenBluerMoon_4, Aoka_4, PrairieDogTown_5
- Track 25 : JanetJ_4
- Track 26 : Maja_3
- Track 27 : CocoCinnamon_6

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

The start number called the most often in the published annotations is 12, it was called in 18 of the 29 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Abidatro_4, Amelia_5, AmiCi24_3, Atlantica_3, Basilisk_4, Bedetta_5, Bibble12_5, Camara_3, Colusalem_4, Coral_4, Cote_5, DanHam62_3, Daob_5, Eesa_4, Galaxy_4, Glotell_3, Gravel_5, HamCheese_3, HannahPhantana_5, Jamun_4, Jerole_5, KHumphrey_3, KendraB23_5, Kepler_4, Lunar_5, Melons_5, Orcanus_4, OtsoOtso_4, Pelletreau_5, Polka_4, Ruchi_4, StuartMinion_3, TaylorSipht_4, Toad24_5, Westrich_5,

Genes that have the "Most Annotated" start but do not call it:
• Andrew_4, Juno112_3, Kuleana_4, PhluffyCoco_3, RedFox_3,

Genes that do not have the "Most Annotated" start:
• Antrice_4, Aoka_4, BrayBeast_3, CocoCinnamon_6, Cygnet_4, EvenBluerMoon_4, JanetJ_4, LittleTokyo_4, Maja_3, PrairieDogTown_5, Sarge_3, Zhuangyuan_5,

Summary by start number:

Start 8:
• Found in 11 of 52 (21.2%) of genes in pham
• Manual Annotations of this start: 4 of 29
• Called 36.4% of time when present
• Phage (with cluster) where this start called: Andrew_4 (AS3), Juno112_3 (AS3), PhluffyCoco_3 (AS3), RedFox_3 (AS3),

Start 9:
• Found in 1 of 52 (1.9%) of genes in pham
• Manual Annotations of this start: 1 of 29
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Kuleana_4 (AS2),

Start 11:
• Found in 4 of 52 (7.7%) of genes in pham
• Manual Annotations of this start: 1 of 29
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Antrice_4 (AS2), Cygnet_4 (AS2), LittleTokyo_4 (AS2), Zhuangyuan_5 (AS2),

Start 12:
• Found in 40 of 52 (76.9%) of genes in pham
• Manual Annotations of this start: 18 of 29
• Called 87.5% of time when present
• Phage (with cluster) where this start called: Abidatro_4 (AS1), Amelia_5 (AS2), AmiCi24_3 (AS3), Atlantica_3 (AS3), Basilisk_4 (AS1), Bedetta_5 (AS2), Bibble12_5 (AS2), Camara_3 (AS3), Colusalem_4 (AS2), Coral_4 (AS2), Cote_5 (AS2), DanHam62_3 (AS3), Daob_5 (AS2), Eesa_4 (AS1), Galaxy_4 (AS1), Glotell_3 (AS3), Gravel_5 (AS1), HamCheese_3 (AS3), HannahPhantana_5 (AS2), Jamun_4 (AS1), Jerole_5 (AS2), KHumphrey_3 (AS3), KendraB23_5 (AS1), Kepler_4 (AS2), Lunar_5 (AS2), Melons_5 (AS2), Orcanus_4 (AS1), OtsoOtso_4 (AS2), Pelletreau_5 (AS1), Polka_4 (AS2), Ruchi_4 (AS1), StuartMinion_3 (AS3), TaylorSipht_4 (AS1), Toad24_5 (AS1), Westrich_5 (AS1),

Start 24:
• Found in 1 of 52 (1.9%) of genes in pham

• Manual Annotations of this start: 1 of 29
• Called 100.0% of time when present
• Phage (with cluster) where this start called: JanetJ_4 (FO),

Start 28:
• Found in 2 of 52 (3.8%) of genes in pham
• Manual Annotations of this start: 2 of 29
• Called 100.0% of time when present
• Phage (with cluster) where this start called: BrayBeast_3 (FB), Sarge_3 (FB),

Start 30:
• Found in 23 of 52 (44.2%) of genes in pham
• Manual Annotations of this start: 2 of 29
• Called 21.7% of time when present
• Phage (with cluster) where this start called: Aoka_4 (FO), CocoCinnamon_6 (FO), EvenBluerMoon_4 (FO), Maja_3 (FO), PrairieDogTown_5 (FO),

Summary by clusters:

There are 5 clusters represented in this pham: AS3, AS2, AS1, FB, FO,

Info for manual annotations of cluster AS1:
•Start number 12 was manually annotated 8 times for cluster AS1.

Info for manual annotations of cluster AS2:
•Start number 9 was manually annotated 1 time for cluster AS2.
•Start number 11 was manually annotated 1 time for cluster AS2.
•Start number 12 was manually annotated 9 times for cluster AS2.

Info for manual annotations of cluster AS3:
•Start number 8 was manually annotated 4 times for cluster AS3.
•Start number 12 was manually annotated 1 time for cluster AS3.

Info for manual annotations of cluster FB:
•Start number 28 was manually annotated 2 times for cluster FB.

Info for manual annotations of cluster FO:
•Start number 24 was manually annotated 1 time for cluster FO.
•Start number 30 was manually annotated 2 times for cluster FO.

Gene Information:

Gene: Abidatro_4 Start: 2358, Stop: 2675, Start Num: 12
Candidate Starts for Abidatro_4:
(1, 2193), (6, 2292), (7, 2310), (Start: 12 @2358 has 18 MA's), (15, 2370), (48, 2508), (50, 2541), (57, 2637),

Gene: Amelia_5 Start: 2509, Stop: 2862, Start Num: 12
Candidate Starts for Amelia_5:
(Start: 12 @2509 has 18 MA's), (14, 2521), (16, 2527), (17, 2530), (20, 2539), (21, 2545), (22, 2548), (25, 2557), (26, 2563), (Start: 30 @2569 has 2 MA's), (43, 2671), (47, 2692), (49, 2719), (50, 2728),

(53, 2752), (55, 2773), (57, 2824),

Gene: AmiCi24_3 Start: 2010, Stop: 2318, Start Num: 12
Candidate Starts for AmiCi24_3:
(2, 1854), (3, 1860), (4, 1902), (5, 1920), (Start: 8 @1989 has 4 MA's), (Start: 12 @2010 has 18 MA's), (13, 2016), (16, 2028), (21, 2046), (44, 2130), (47, 2148), (48, 2151), (50, 2184),

Gene: Andrew_4 Start: 2360, Stop: 2689, Start Num: 8
Candidate Starts for Andrew_4:
(Start: 8 @2360 has 4 MA's), (Start: 12 @2381 has 18 MA's), (13, 2387), (16, 2399), (21, 2417), (44, 2501), (45, 2504), (47, 2519), (48, 2522), (50, 2555), (54, 2582), (55, 2600), (56, 2648),

Gene: Antrice_4 Start: 2338, Stop: 2655, Start Num: 11
Candidate Starts for Antrice_4:
(Start: 11 @2338 has 1 MA's), (14, 2353), (16, 2359), (Start: 30 @2392 has 2 MA's), (37, 2416), (44, 2467), (47, 2485), (48, 2488), (50, 2521), (51, 2524), (54, 2548),

Gene: Aoka_4 Start: 2853, Stop: 3122, Start Num: 30
Candidate Starts for Aoka_4:
(Start: 30 @2853 has 2 MA's), (41, 2889), (48, 2955),

Gene: Atlantica_3 Start: 2010, Stop: 2318, Start Num: 12
Candidate Starts for Atlantica_3:
(2, 1854), (3, 1860), (4, 1902), (5, 1920), (Start: 8 @1989 has 4 MA's), (Start: 12 @2010 has 18 MA's), (13, 2016), (16, 2028), (21, 2046), (44, 2130), (47, 2148), (48, 2151), (50, 2184),

Gene: Basilisk_4 Start: 2627, Stop: 2941, Start Num: 12
Candidate Starts for Basilisk_4:
(Start: 12 @2627 has 18 MA's), (18, 2645), (22, 2660), (29, 2672), (31, 2675), (40, 2714), (45, 2756), (47, 2771), (50, 2807), (53, 2831), (57, 2903),

Gene: Bedetta_5 Start: 2509, Stop: 2862, Start Num: 12
Candidate Starts for Bedetta_5:
(Start: 12 @2509 has 18 MA's), (14, 2521), (16, 2527), (17, 2530), (20, 2539), (21, 2545), (22, 2548), (25, 2557), (26, 2563), (Start: 30 @2569 has 2 MA's), (43, 2671), (47, 2692), (49, 2719), (50, 2728), (53, 2752), (55, 2773), (57, 2824),

Gene: Bibble12_5 Start: 2509, Stop: 2862, Start Num: 12
Candidate Starts for Bibble12_5:
(Start: 12 @2509 has 18 MA's), (14, 2521), (16, 2527), (17, 2530), (20, 2539), (21, 2545), (22, 2548), (25, 2557), (26, 2563), (Start: 30 @2569 has 2 MA's), (43, 2671), (47, 2692), (49, 2719), (50, 2728), (53, 2752), (56, 2821), (57, 2824),

Gene: BrayBeast_3 Start: 1772, Stop: 2044, Start Num: 28
Candidate Starts for BrayBeast_3:
(Start: 28 @1772 has 2 MA's), (42, 1838), (44, 1856), (46, 1871), (48, 1877), (50, 1910), (58, 2036),

Gene: Camara_3 Start: 2011, Stop: 2319, Start Num: 12
Candidate Starts for Camara_3:
(2, 1855), (3, 1861), (4, 1903), (5, 1921), (Start: 8 @1990 has 4 MA's), (Start: 12 @2011 has 18 MA's), (13, 2017), (16, 2029), (21, 2047), (44, 2131), (47, 2149), (48, 2152), (50, 2185),

Gene: CocoCinnamon_6 Start: 2894, Stop: 3178, Start Num: 30

Candidate Starts for CocoCinnamon_6:
(Start: 30 @2894 has 2 MA's), (41, 2939), (44, 2990), (48, 3011), (52, 3050), (56, 3137),

Gene: Colusalem_4 Start: 2345, Stop: 2698, Start Num: 12
Candidate Starts for Colusalem_4:
(Start: 12 @2345 has 18 MA's), (14, 2357), (16, 2363), (17, 2366), (20, 2375), (21, 2381), (22, 2384), (25, 2393), (26, 2399), (Start: 30 @2405 has 2 MA's), (32, 2414), (43, 2507), (47, 2528), (49, 2555), (50, 2564), (53, 2588), (56, 2657), (57, 2660),

Gene: Coral_4 Start: 2345, Stop: 2698, Start Num: 12
Candidate Starts for Coral_4:
(Start: 12 @2345 has 18 MA's), (14, 2357), (16, 2363), (17, 2366), (20, 2375), (21, 2381), (22, 2384), (25, 2393), (26, 2399), (Start: 30 @2405 has 2 MA's), (32, 2414), (43, 2507), (47, 2528), (49, 2555), (50, 2564), (53, 2588), (56, 2657), (57, 2660),

Gene: Cote_5 Start: 2509, Stop: 2862, Start Num: 12
Candidate Starts for Cote_5:
(Start: 12 @2509 has 18 MA's), (14, 2521), (16, 2527), (17, 2530), (20, 2539), (21, 2545), (22, 2548), (25, 2557), (26, 2563), (Start: 30 @2569 has 2 MA's), (43, 2671), (47, 2692), (49, 2719), (50, 2728), (53, 2752), (55, 2773), (57, 2824),

Gene: Cygnet_4 Start: 2338, Stop: 2658, Start Num: 11
Candidate Starts for Cygnet_4:
(Start: 11 @2338 has 1 MA's), (14, 2353), (16, 2359), (20, 2371), (Start: 30 @2392 has 2 MA's), (45, 2473), (46, 2485), (48, 2491), (49, 2515), (52, 2530), (54, 2551), (57, 2620),

Gene: DanHam62_3 Start: 2010, Stop: 2318, Start Num: 12
Candidate Starts for DanHam62_3:
(2, 1854), (3, 1860), (4, 1902), (5, 1920), (Start: 8 @1989 has 4 MA's), (Start: 12 @2010 has 18 MA's), (13, 2016), (16, 2028), (21, 2046), (44, 2130), (47, 2148), (48, 2151), (50, 2184),

Gene: Daob_5 Start: 2509, Stop: 2862, Start Num: 12
Candidate Starts for Daob_5:
(Start: 12 @2509 has 18 MA's), (14, 2521), (16, 2527), (17, 2530), (20, 2539), (21, 2545), (22, 2548), (25, 2557), (26, 2563), (Start: 30 @2569 has 2 MA's), (32, 2578), (43, 2671), (47, 2692), (49, 2719), (50, 2728), (53, 2752), (56, 2821), (57, 2824),

Gene: Eesa_4 Start: 2556, Stop: 2876, Start Num: 12
Candidate Starts for Eesa_4:
(10, 2550), (Start: 12 @2556 has 18 MA's), (22, 2592), (43, 2685), (46, 2703), (47, 2706), (50, 2742), (56, 2835), (57, 2838),

Gene: EvenBluerMoon_4 Start: 2851, Stop: 3120, Start Num: 30
Candidate Starts for EvenBluerMoon_4:
(Start: 30 @2851 has 2 MA's), (41, 2887), (48, 2953),

Gene: Galaxy_4 Start: 2358, Stop: 2684, Start Num: 12
Candidate Starts for Galaxy_4:
(6, 2292), (7, 2310), (Start: 12 @2358 has 18 MA's), (15, 2370), (48, 2517), (57, 2646),

Gene: Glotell_3 Start: 2010, Stop: 2318, Start Num: 12
Candidate Starts for Glotell_3:

(2, 1854), (3, 1860), (4, 1902), (5, 1920), (Start: 8 @1989 has 4 MA's), (Start: 12 @2010 has 18 MA's), (13, 2016), (16, 2028), (21, 2046), (44, 2130), (47, 2148), (48, 2151), (50, 2184),

Gene: Gravel_5 Start: 2556, Stop: 2876, Start Num: 12
Candidate Starts for Gravel_5:
(10, 2550), (Start: 12 @2556 has 18 MA's), (22, 2592), (39, 2643), (46, 2703), (47, 2706), (48, 2709), (50, 2742), (56, 2835),

Gene: HamCheese_3 Start: 2010, Stop: 2318, Start Num: 12
Candidate Starts for HamCheese_3:
(2, 1854), (3, 1860), (4, 1902), (5, 1920), (Start: 8 @1989 has 4 MA's), (Start: 12 @2010 has 18 MA's), (13, 2016), (16, 2028), (21, 2046), (44, 2130), (47, 2148), (48, 2151), (50, 2184),

Gene: HannahPhantana_5 Start: 2509, Stop: 2862, Start Num: 12
Candidate Starts for HannahPhantana_5:
(Start: 12 @2509 has 18 MA's), (14, 2521), (16, 2527), (17, 2530), (20, 2539), (21, 2545), (22, 2548), (25, 2557), (26, 2563), (Start: 30 @2569 has 2 MA's), (43, 2671), (47, 2692), (49, 2719), (50, 2728), (53, 2752), (56, 2821), (57, 2824),

Gene: Jamun_4 Start: 2627, Stop: 2941, Start Num: 12
Candidate Starts for Jamun_4:
(Start: 12 @2627 has 18 MA's), (18, 2645), (22, 2660), (29, 2672), (31, 2675), (40, 2714), (47, 2771), (50, 2807), (57, 2903),

Gene: JanetJ_4 Start: 2612, Stop: 2899, Start Num: 24
Candidate Starts for JanetJ_4:
(Start: 24 @2612 has 1 MA's), (48, 2735),

Gene: Jerole_5 Start: 2509, Stop: 2862, Start Num: 12
Candidate Starts for Jerole_5:
(Start: 12 @2509 has 18 MA's), (14, 2521), (16, 2527), (17, 2530), (20, 2539), (21, 2545), (22, 2548), (25, 2557), (26, 2563), (Start: 30 @2569 has 2 MA's), (43, 2671), (47, 2692), (49, 2719), (50, 2728), (53, 2752), (55, 2773), (57, 2824),

Gene: Juno112_3 Start: 1989, Stop: 2318, Start Num: 8
Candidate Starts for Juno112_3:
(2, 1854), (3, 1860), (4, 1902), (5, 1920), (Start: 8 @1989 has 4 MA's), (Start: 12 @2010 has 18 MA's), (13, 2016), (16, 2028), (21, 2046), (44, 2130), (47, 2148), (48, 2151), (50, 2184),

Gene: KHumphrey_3 Start: 2010, Stop: 2318, Start Num: 12
Candidate Starts for KHumphrey_3:
(2, 1854), (3, 1860), (4, 1902), (5, 1920), (Start: 8 @1989 has 4 MA's), (Start: 12 @2010 has 18 MA's), (13, 2016), (16, 2028), (21, 2046), (44, 2130), (47, 2148), (48, 2151), (50, 2184),

Gene: KendraB23_5 Start: 2556, Stop: 2876, Start Num: 12
Candidate Starts for KendraB23_5:
(10, 2550), (Start: 12 @2556 has 18 MA's), (22, 2592), (39, 2643), (46, 2703), (47, 2706), (48, 2709), (50, 2742), (56, 2835),

Gene: Kepler_4 Start: 2344, Stop: 2697, Start Num: 12
Candidate Starts for Kepler_4:
(Start: 12 @2344 has 18 MA's), (14, 2356), (16, 2362), (17, 2365), (20, 2374), (21, 2380), (22, 2383), (25, 2392), (26, 2398), (Start: 30 @2404 has 2 MA's), (32, 2413), (43, 2506), (47, 2527), (49, 2554),

(50, 2563), (53, 2587), (56, 2656), (57, 2659),

Gene: Kuleana_4 Start: 2342, Stop: 2671, Start Num: 9
Candidate Starts for Kuleana_4:
(Start: 9 @2342 has 1 MA's), (Start: 12 @2357 has 18 MA's), (14, 2366), (18, 2378), (21, 2390), (47, 2501), (53, 2561), (55, 2582), (57, 2633),

Gene: LittleTokyo_4 Start: 2335, Stop: 2649, Start Num: 11
Candidate Starts for LittleTokyo_4:
(Start: 11 @2335 has 1 MA's), (14, 2350), (16, 2356), (20, 2368), (Start: 30 @2389 has 2 MA's), (37, 2413), (44, 2461), (46, 2476), (47, 2479), (48, 2482), (50, 2515), (51, 2518), (54, 2542),

Gene: Lunar_5 Start: 2509, Stop: 2862, Start Num: 12
Candidate Starts for Lunar_5:
(Start: 12 @2509 has 18 MA's), (14, 2521), (16, 2527), (17, 2530), (20, 2539), (21, 2545), (22, 2548), (25, 2557), (26, 2563), (Start: 30 @2569 has 2 MA's), (43, 2671), (47, 2692), (49, 2719), (50, 2728), (53, 2752), (55, 2773), (57, 2824),

Gene: Maja_3 Start: 2197, Stop: 2469, Start Num: 30
Candidate Starts for Maja_3:
(Start: 30 @2197 has 2 MA's), (38, 2224), (44, 2281), (48, 2302), (56, 2428),

Gene: Melons_5 Start: 2509, Stop: 2862, Start Num: 12
Candidate Starts for Melons_5:
(Start: 12 @2509 has 18 MA's), (14, 2521), (16, 2527), (17, 2530), (20, 2539), (21, 2545), (22, 2548), (25, 2557), (26, 2563), (Start: 30 @2569 has 2 MA's), (43, 2671), (47, 2692), (49, 2719), (50, 2728), (53, 2752), (55, 2773), (57, 2824),

Gene: Orcanus_4 Start: 2349, Stop: 2669, Start Num: 12
Candidate Starts for Orcanus_4:
(10, 2343), (Start: 12 @2349 has 18 MA's), (22, 2385), (40, 2442), (43, 2478), (44, 2481), (46, 2496), (47, 2499), (48, 2502), (50, 2535), (53, 2559), (56, 2628),

Gene: OtsoOtso_4 Start: 2345, Stop: 2698, Start Num: 12
Candidate Starts for OtsoOtso_4:
(Start: 12 @2345 has 18 MA's), (14, 2357), (16, 2363), (17, 2366), (20, 2375), (21, 2381), (22, 2384), (25, 2393), (26, 2399), (Start: 30 @2405 has 2 MA's), (32, 2414), (43, 2507), (47, 2528), (49, 2555), (50, 2564), (53, 2588), (56, 2657), (57, 2660),

Gene: Pelletreau_5 Start: 2556, Stop: 2876, Start Num: 12
Candidate Starts for Pelletreau_5:
(10, 2550), (Start: 12 @2556 has 18 MA's), (22, 2592), (39, 2643), (46, 2703), (47, 2706), (48, 2709), (50, 2742), (56, 2835),

Gene: PhluffyCoco_3 Start: 1989, Stop: 2318, Start Num: 8
Candidate Starts for PhluffyCoco_3:
(2, 1854), (3, 1860), (4, 1902), (5, 1920), (Start: 8 @1989 has 4 MA's), (Start: 12 @2010 has 18 MA's), (13, 2016), (16, 2028), (21, 2046), (44, 2130), (47, 2148), (48, 2151), (50, 2184),

Gene: Polka_4 Start: 2345, Stop: 2698, Start Num: 12
Candidate Starts for Polka_4:
(Start: 12 @2345 has 18 MA's), (14, 2357), (16, 2363), (17, 2366), (20, 2375), (21, 2381), (22, 2384), (25, 2393), (26, 2399), (Start: 30 @2405 has 2 MA's), (32, 2414), (43, 2507), (47, 2528), (49, 2555),

(50, 2564), (53, 2588), (56, 2657), (57, 2660),

Gene: PrairieDogTown_5 Start: 2853, Stop: 3122, Start Num: 30
Candidate Starts for PrairieDogTown_5:
(Start: 30 @2853 has 2 MA's), (41, 2889), (48, 2955),

Gene: RedFox_3 Start: 1989, Stop: 2318, Start Num: 8
Candidate Starts for RedFox_3:
(2, 1854), (3, 1860), (4, 1902), (5, 1920), (Start: 8 @1989 has 4 MA's), (Start: 12 @2010 has 18 MA's), (13, 2016), (16, 2028), (21, 2046), (44, 2130), (47, 2148), (48, 2151), (50, 2184),

Gene: Ruchi_4 Start: 2627, Stop: 2941, Start Num: 12
Candidate Starts for Ruchi_4:
(Start: 12 @2627 has 18 MA's), (18, 2645), (22, 2660), (29, 2672), (40, 2714), (45, 2756), (47, 2771), (50, 2807), (53, 2831), (57, 2903),

Gene: Sarge_3 Start: 1772, Stop: 2044, Start Num: 28
Candidate Starts for Sarge_3:
(Start: 28 @1772 has 2 MA's), (42, 1838), (44, 1856), (46, 1871), (48, 1877), (50, 1910), (58, 2036),

Gene: StuartMinion_3 Start: 2011, Stop: 2325, Start Num: 12
Candidate Starts for StuartMinion_3:
(10, 2005), (Start: 12 @2011 has 18 MA's), (13, 2014), (21, 2044), (36, 2080), (44, 2137), (47, 2155), (48, 2158), (50, 2191),

Gene: TaylorSipht_4 Start: 2373, Stop: 2693, Start Num: 12
Candidate Starts for TaylorSipht_4:
(2, 2217), (3, 2223), (5, 2283), (Start: 12 @2373 has 18 MA's), (14, 2382), (17, 2391), (19, 2397), (27, 2418), (31, 2424), (33, 2436), (45, 2508), (48, 2526), (50, 2559), (56, 2652), (57, 2655),

Gene: Toad24_5 Start: 2556, Stop: 2876, Start Num: 12
Candidate Starts for Toad24_5:
(10, 2550), (Start: 12 @2556 has 18 MA's), (22, 2592), (39, 2643), (46, 2703), (47, 2706), (48, 2709), (50, 2742), (56, 2835),

Gene: Westrich_5 Start: 2556, Stop: 2876, Start Num: 12
Candidate Starts for Westrich_5:
(10, 2550), (Start: 12 @2556 has 18 MA's), (40, 2649), (43, 2685), (46, 2703), (47, 2706), (48, 2709), (50, 2742), (56, 2835),

Gene: Zhuangyuan_5 Start: 2685, Stop: 3011, Start Num: 11
Candidate Starts for Zhuangyuan_5:
(Start: 11 @2685 has 1 MA's), (14, 2700), (16, 2706), (23, 2730), (Start: 30 @2739 has 2 MA's), (34, 2754), (35, 2757), (45, 2826), (47, 2841), (48, 2844), (50, 2877), (51, 2880), (54, 2904),