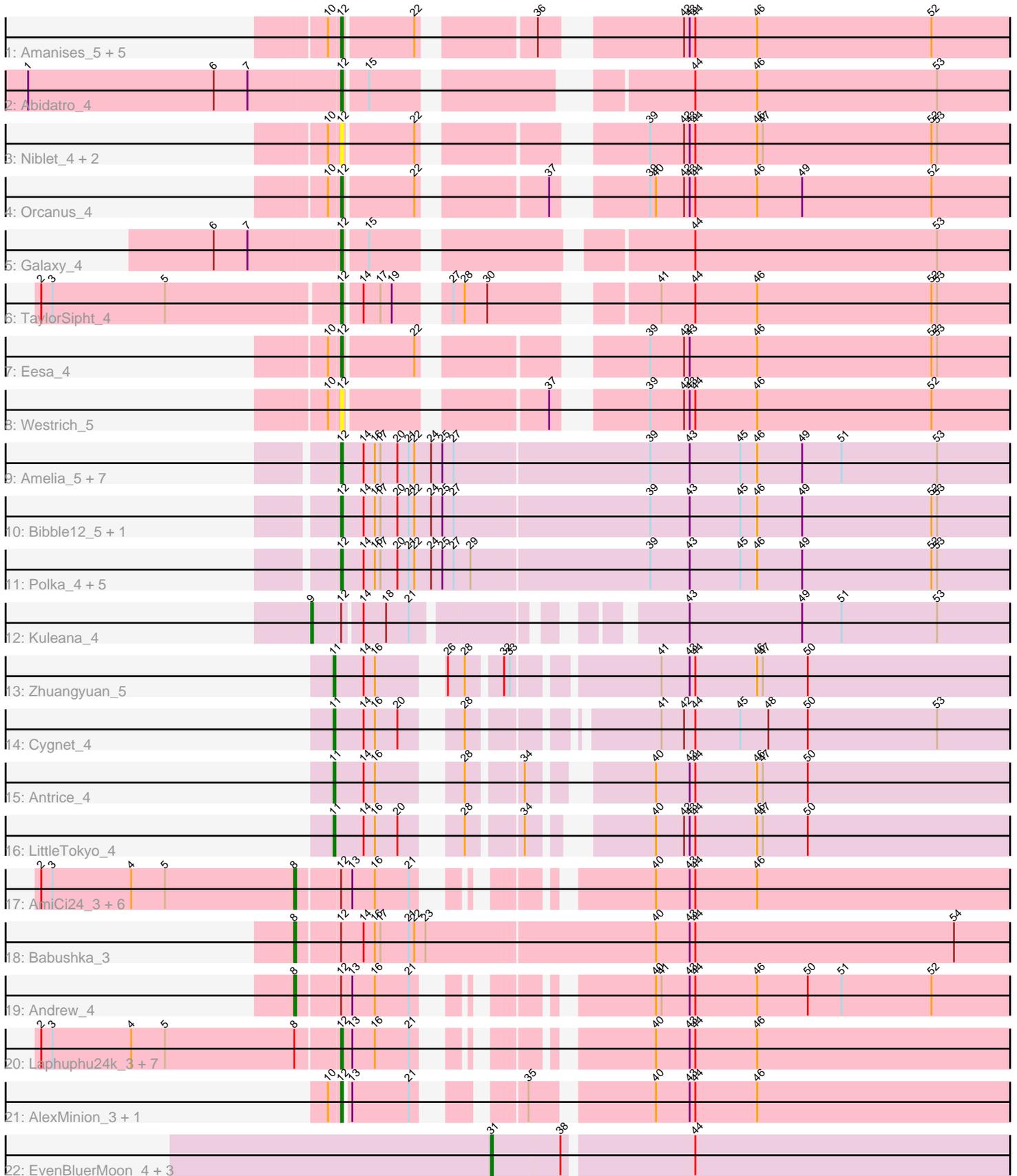


Pham 291186



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 291186 Report

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

Pham number 291186 has 59 members, 21 are drafts.

Phages represented in each track:

- Track 1 : Amanises\_5, KendraB23\_5, Pelletreau\_5, Shen\_5, Gravel\_5, Toad24\_5
- Track 2 : Abidatro\_4
- Track 3 : Niblet\_4, Chicken\_4, Zixiang\_4
- Track 4 : Orcanus\_4
- Track 5 : Galaxy\_4
- Track 6 : TaylorSipht\_4
- Track 7 : Eesa\_4
- Track 8 : Westrich\_5
- Track 9 : Amelia\_5, Cote\_5, Lunar\_5, Pineda\_5, PhirstandPhine\_5, Jerole\_5, Bedetta\_5, Melons\_5
- Track 10 : Bibble12\_5, HannahPhantana\_5
- Track 11 : Polka\_4, Daob\_5, Kepler\_4, Colusalem\_4, Coral\_4, OtsoOtso\_4
- Track 12 : Kuleana\_4
- Track 13 : Zhuangyuan\_5
- Track 14 : Cygnet\_4
- Track 15 : Antrice\_4
- Track 16 : LittleTokyo\_4
- Track 17 : AmiCi24\_3, DanHam62\_3, PhluffyCoco\_3, Atlantica\_3, Glotell\_3, RedFox\_3, Juno112\_3
- Track 18 : Babushka\_3
- Track 19 : Andrew\_4
- Track 20 : Laphuphu24k\_3, Oppalora\_3, Amphitrite\_3, KHumphrey\_3, HamCheese\_3, AdoptaAdorbs\_3, Camara\_3, Fingolfin\_3
- Track 21 : AlexMinion\_3, StuartMinion\_3
- Track 22 : EvenBluerMoon\_4, Aoka\_4, Hereford\_7, PrairieDogTown\_4

### ***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 21 of the 38 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Abidatro\_4, AdoptaAdorbs\_3, AlexMinion\_3, Amanises\_5, Amelia\_5, Amphitrite\_3, Bedetta\_5, Bibble12\_5, Camara\_3, Chicken\_4, Colusalem\_4, Coral\_4, Cote\_5,

Daob\_5, Eesa\_4, Fingolfin\_3, Galaxy\_4, Gravel\_5, HamCheese\_3, HannahPhantana\_5, Jerole\_5, KHumphrey\_3, KendraB23\_5, Kepler\_4, Laphuphu24k\_3, Lunar\_5, Melons\_5, Niblet\_4, Oppalora\_3, Orcanus\_4, OtsoOtso\_4, Pelletreau\_5, PhirstandPhine\_5, Pineda\_5, Polka\_4, Shen\_5, StuartMinion\_3, TaylorSipt\_4, Toad24\_5, Westrich\_5, Zixiang\_4,

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

- AmiCi24\_3, Andrew\_4, Atlantica\_3, Babushka\_3, DanHam62\_3, Glotell\_3, Juno112\_3, Kuleana\_4, PhluffyCoco\_3, RedFox\_3,

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

- Antrice\_4, Aoka\_4, Cygnet\_4, EvenBluerMoon\_4, Hereford\_7, LittleTokyo\_4, PrairieDogTown\_4, Zhuangyuan\_5,

### Summary by start number:

Start 8:

- Found in 17 of 59 ( 28.8% ) of genes in pham
- Manual Annotations of this start: 9 of 38
- Called 52.9% of time when present
- Phage (with cluster) where this start called: AmiCi24\_3 (AS3), Andrew\_4 (AS3), Atlantica\_3 (AS3), Babushka\_3 (AS3), DanHam62\_3 (AS3), Glotell\_3 (AS3), Juno112\_3 (AS3), PhluffyCoco\_3 (AS3), RedFox\_3 (AS3),

Start 9:

- Found in 1 of 59 ( 1.7% ) of genes in pham
- Manual Annotations of this start: 1 of 38
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kuleana\_4 (AS2),

Start 11:

- Found in 4 of 59 ( 6.8% ) of genes in pham
- Manual Annotations of this start: 4 of 38
- 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 51 of 59 ( 86.4% ) of genes in pham
- Manual Annotations of this start: 21 of 38
- Called 80.4% of time when present
- Phage (with cluster) where this start called: Abidatro\_4 (AS1), AdoptaAdorbs\_3 (AS3), AlexMinion\_3 (AS3), Amanises\_5 (AS1), Amelia\_5 (AS2), Amphitrite\_3 (AS3), Bedetta\_5 (AS2), Bibble12\_5 (AS2), Camara\_3 (AS3), Chicken\_4 (AS1), Colusalem\_4 (AS2), Coral\_4 (AS2), Cote\_5 (AS2), Daob\_5 (AS2), Eesa\_4 (AS1), Fingolfin\_3 (AS3), Galaxy\_4 (AS1), Gravel\_5 (AS1), HamCheese\_3 (AS3), HannahPhantana\_5 (AS2), Jerole\_5 (AS2), KHumphrey\_3 (AS3), KendraB23\_5 (AS1), Kepler\_4 (AS2), Laphuphu24k\_3 (AS3), Lunar\_5 (AS2), Melons\_5 (AS2), Niblet\_4 (AS1), Oppalora\_3 (AS3), Orcanus\_4 (AS1), OtsoOtso\_4 (AS2), Pelletreau\_5 (AS1), PhirstandPhine\_5 (AS2), Pineda\_5 (AS2), Polka\_4 (AS2), Shen\_5 (AS1), StuartMinion\_3 (AS3), TaylorSipt\_4 (AS1), Toad24\_5 (AS1), Westrich\_5 (AS1), Zixiang\_4 (AS1),

Start 31:

- Found in 4 of 59 ( 6.8% ) of genes in pham
- Manual Annotations of this start: 3 of 38
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aoka\_4 (FO), EvenBluerMoon\_4 (FO), Hereford\_7 (FO), PrairieDogTown\_4 (FO),

### **Summary by clusters:**

There are 4 clusters represented in this pham: AS3, AS2, AS1, FO,

Info for manual annotations of cluster AS1:

- Start number 12 was manually annotated 6 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 4 times for cluster AS2.
- Start number 12 was manually annotated 12 times for cluster AS2.

Info for manual annotations of cluster AS3:

- Start number 8 was manually annotated 9 times for cluster AS3.
- Start number 12 was manually annotated 3 times for cluster AS3.

Info for manual annotations of cluster FO:

- Start number 31 was manually annotated 3 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 21 MA's), (15, 2370), (44, 2508), (46, 2541), (53, 2637),

Gene: AdoptaAdorbs\_3 Start: 2010, Stop: 2318, Start Num: 12

Candidate Starts for AdoptaAdorbs\_3:

(2, 1854), (3, 1860), (4, 1902), (5, 1920), (Start: 8 @1989 has 9 MA's), (Start: 12 @2010 has 21 MA's), (13, 2016), (16, 2028), (21, 2046), (40, 2130), (43, 2148), (44, 2151), (46, 2184),

Gene: AlexMinion\_3 Start: 2011, Stop: 2325, Start Num: 12

Candidate Starts for AlexMinion\_3:

(10, 2005), (Start: 12 @2011 has 21 MA's), (13, 2014), (21, 2044), (35, 2080), (40, 2137), (43, 2155), (44, 2158), (46, 2191),

Gene: Amanises\_5 Start: 2556, Stop: 2876, Start Num: 12

Candidate Starts for Amanises\_5:

(10, 2550), (Start: 12 @2556 has 21 MA's), (22, 2592), (36, 2643), (42, 2703), (43, 2706), (44, 2709), (46, 2742), (52, 2835),

Gene: Amelia\_5 Start: 2509, Stop: 2862, Start Num: 12

Candidate Starts for Amelia\_5:

(Start: 12 @2509 has 21 MA's), (14, 2521), (16, 2527), (17, 2530), (20, 2539), (21, 2545), (22, 2548), (24, 2557), (25, 2563), (27, 2569), (39, 2671), (43, 2692), (45, 2719), (46, 2728), (49, 2752), (51, 2773), (53, 2824),

Gene: AmiCi24\_3 Start: 1989, Stop: 2318, Start Num: 8

Candidate Starts for AmiCi24\_3:

(2, 1854), (3, 1860), (4, 1902), (5, 1920), (Start: 8 @1989 has 9 MA's), (Start: 12 @2010 has 21 MA's), (13, 2016), (16, 2028), (21, 2046), (40, 2130), (43, 2148), (44, 2151), (46, 2184),

Gene: Amphitrite\_3 Start: 2008, Stop: 2316, Start Num: 12

Candidate Starts for Amphitrite\_3:

(2, 1852), (3, 1858), (4, 1900), (5, 1918), (Start: 8 @1987 has 9 MA's), (Start: 12 @2008 has 21 MA's), (13, 2014), (16, 2026), (21, 2044), (40, 2128), (43, 2146), (44, 2149), (46, 2182),

Gene: Andrew\_4 Start: 2360, Stop: 2689, Start Num: 8

Candidate Starts for Andrew\_4:

(Start: 8 @2360 has 9 MA's), (Start: 12 @2381 has 21 MA's), (13, 2387), (16, 2399), (21, 2417), (40, 2501), (41, 2504), (43, 2519), (44, 2522), (46, 2555), (50, 2582), (51, 2600), (52, 2648),

Gene: Antrice\_4 Start: 2338, Stop: 2655, Start Num: 11

Candidate Starts for Antrice\_4:

(Start: 11 @2338 has 4 MA's), (14, 2353), (16, 2359), (28, 2392), (34, 2416), (40, 2467), (43, 2485), (44, 2488), (46, 2521), (47, 2524), (50, 2548),

Gene: Aoka\_4 Start: 2853, Stop: 3122, Start Num: 31

Candidate Starts for Aoka\_4:

(Start: 31 @2853 has 3 MA's), (38, 2889), (44, 2955),

Gene: Atlantica\_3 Start: 1989, Stop: 2318, Start Num: 8

Candidate Starts for Atlantica\_3:

(2, 1854), (3, 1860), (4, 1902), (5, 1920), (Start: 8 @1989 has 9 MA's), (Start: 12 @2010 has 21 MA's), (13, 2016), (16, 2028), (21, 2046), (40, 2130), (43, 2148), (44, 2151), (46, 2184),

Gene: Babushka\_3 Start: 1991, Stop: 2365, Start Num: 8

Candidate Starts for Babushka\_3:

(Start: 8 @1991 has 9 MA's), (Start: 12 @2012 has 21 MA's), (14, 2024), (16, 2030), (17, 2033), (21, 2048), (22, 2051), (23, 2057), (40, 2177), (43, 2195), (44, 2198), (54, 2336),

Gene: Bedetta\_5 Start: 2509, Stop: 2862, Start Num: 12

Candidate Starts for Bedetta\_5:

(Start: 12 @2509 has 21 MA's), (14, 2521), (16, 2527), (17, 2530), (20, 2539), (21, 2545), (22, 2548), (24, 2557), (25, 2563), (27, 2569), (39, 2671), (43, 2692), (45, 2719), (46, 2728), (49, 2752), (51, 2773), (53, 2824),

Gene: Bible12\_5 Start: 2509, Stop: 2862, Start Num: 12

Candidate Starts for Bible12\_5:

(Start: 12 @2509 has 21 MA's), (14, 2521), (16, 2527), (17, 2530), (20, 2539), (21, 2545), (22, 2548), (24, 2557), (25, 2563), (27, 2569), (39, 2671), (43, 2692), (45, 2719), (46, 2728), (49, 2752), (52, 2821), (53, 2824),

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 9 MA's), (Start: 12 @2011 has 21 MA's), (13, 2017), (16, 2029), (21, 2047), (40, 2131), (43, 2149), (44, 2152), (46, 2185),

Gene: Chicken\_4 Start: 2347, Stop: 2667, Start Num: 12

Candidate Starts for Chicken\_4:

(10, 2341), (Start: 12 @2347 has 21 MA's), (22, 2383), (39, 2476), (42, 2494), (43, 2497), (44, 2500), (46, 2533), (47, 2536), (52, 2626), (53, 2629),

Gene: Colusalem\_4 Start: 2345, Stop: 2698, Start Num: 12

Candidate Starts for Colusalem\_4:

(Start: 12 @2345 has 21 MA's), (14, 2357), (16, 2363), (17, 2366), (20, 2375), (21, 2381), (22, 2384), (24, 2393), (25, 2399), (27, 2405), (29, 2414), (39, 2507), (43, 2528), (45, 2555), (46, 2564), (49, 2588), (52, 2657), (53, 2660),

Gene: Coral\_4 Start: 2345, Stop: 2698, Start Num: 12

Candidate Starts for Coral\_4:

(Start: 12 @2345 has 21 MA's), (14, 2357), (16, 2363), (17, 2366), (20, 2375), (21, 2381), (22, 2384), (24, 2393), (25, 2399), (27, 2405), (29, 2414), (39, 2507), (43, 2528), (45, 2555), (46, 2564), (49, 2588), (52, 2657), (53, 2660),

Gene: Cote\_5 Start: 2509, Stop: 2862, Start Num: 12

Candidate Starts for Cote\_5:

(Start: 12 @2509 has 21 MA's), (14, 2521), (16, 2527), (17, 2530), (20, 2539), (21, 2545), (22, 2548), (24, 2557), (25, 2563), (27, 2569), (39, 2671), (43, 2692), (45, 2719), (46, 2728), (49, 2752), (51, 2773), (53, 2824),

Gene: Cygnet\_4 Start: 2338, Stop: 2658, Start Num: 11

Candidate Starts for Cygnet\_4:

(Start: 11 @2338 has 4 MA's), (14, 2353), (16, 2359), (20, 2371), (28, 2392), (41, 2473), (42, 2485), (44, 2491), (45, 2515), (48, 2530), (50, 2551), (53, 2620),

Gene: DanHam62\_3 Start: 1989, Stop: 2318, Start Num: 8

Candidate Starts for DanHam62\_3:

(2, 1854), (3, 1860), (4, 1902), (5, 1920), (Start: 8 @1989 has 9 MA's), (Start: 12 @2010 has 21 MA's), (13, 2016), (16, 2028), (21, 2046), (40, 2130), (43, 2148), (44, 2151), (46, 2184),

Gene: Daob\_5 Start: 2509, Stop: 2862, Start Num: 12

Candidate Starts for Daob\_5:

(Start: 12 @2509 has 21 MA's), (14, 2521), (16, 2527), (17, 2530), (20, 2539), (21, 2545), (22, 2548), (24, 2557), (25, 2563), (27, 2569), (29, 2578), (39, 2671), (43, 2692), (45, 2719), (46, 2728), (49, 2752), (52, 2821), (53, 2824),

Gene: Eesa\_4 Start: 2556, Stop: 2876, Start Num: 12

Candidate Starts for Eesa\_4:

(10, 2550), (Start: 12 @2556 has 21 MA's), (22, 2592), (39, 2685), (42, 2703), (43, 2706), (46, 2742), (52, 2835), (53, 2838),

Gene: EvenBluerMoon\_4 Start: 2851, Stop: 3120, Start Num: 31

Candidate Starts for EvenBluerMoon\_4:

(Start: 31 @2851 has 3 MA's), (38, 2887), (44, 2953),

Gene: Fingolfin\_3 Start: 2011, Stop: 2319, Start Num: 12

Candidate Starts for Fingolfin\_3:

(2, 1855), (3, 1861), (4, 1903), (5, 1921), (Start: 8 @1990 has 9 MA's), (Start: 12 @2011 has 21 MA's), (13, 2017), (16, 2029), (21, 2047), (40, 2131), (43, 2149), (44, 2152), (46, 2185),

Gene: Galaxy\_4 Start: 2358, Stop: 2684, Start Num: 12

Candidate Starts for Galaxy\_4:

(6, 2292), (7, 2310), (Start: 12 @2358 has 21 MA's), (15, 2370), (44, 2517), (53, 2646),

Gene: Glotell\_3 Start: 1989, Stop: 2318, Start Num: 8

Candidate Starts for Glotell\_3:

(2, 1854), (3, 1860), (4, 1902), (5, 1920), (Start: 8 @1989 has 9 MA's), (Start: 12 @2010 has 21 MA's), (13, 2016), (16, 2028), (21, 2046), (40, 2130), (43, 2148), (44, 2151), (46, 2184),

Gene: Gravel\_5 Start: 2556, Stop: 2876, Start Num: 12

Candidate Starts for Gravel\_5:

(10, 2550), (Start: 12 @2556 has 21 MA's), (22, 2592), (36, 2643), (42, 2703), (43, 2706), (44, 2709), (46, 2742), (52, 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 9 MA's), (Start: 12 @2010 has 21 MA's), (13, 2016), (16, 2028), (21, 2046), (40, 2130), (43, 2148), (44, 2151), (46, 2184),

Gene: HannahPhantana\_5 Start: 2509, Stop: 2862, Start Num: 12

Candidate Starts for HannahPhantana\_5:

(Start: 12 @2509 has 21 MA's), (14, 2521), (16, 2527), (17, 2530), (20, 2539), (21, 2545), (22, 2548), (24, 2557), (25, 2563), (27, 2569), (39, 2671), (43, 2692), (45, 2719), (46, 2728), (49, 2752), (52, 2821), (53, 2824),

Gene: Hereford\_7 Start: 3032, Stop: 3301, Start Num: 31

Candidate Starts for Hereford\_7:

(Start: 31 @3032 has 3 MA's), (38, 3068), (44, 3134),

Gene: Jerole\_5 Start: 2509, Stop: 2862, Start Num: 12

Candidate Starts for Jerole\_5:

(Start: 12 @2509 has 21 MA's), (14, 2521), (16, 2527), (17, 2530), (20, 2539), (21, 2545), (22, 2548), (24, 2557), (25, 2563), (27, 2569), (39, 2671), (43, 2692), (45, 2719), (46, 2728), (49, 2752), (51, 2773), (53, 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 9 MA's), (Start: 12 @2010 has 21 MA's), (13, 2016), (16, 2028), (21, 2046), (40, 2130), (43, 2148), (44, 2151), (46, 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 9 MA's), (Start: 12 @2010 has 21 MA's), (13, 2016), (16, 2028), (21, 2046), (40, 2130), (43, 2148), (44, 2151), (46, 2184),

Gene: KendraB23\_5 Start: 2556, Stop: 2876, Start Num: 12

Candidate Starts for KendraB23\_5:

(10, 2550), (Start: 12 @2556 has 21 MA's), (22, 2592), (36, 2643), (42, 2703), (43, 2706), (44, 2709), (46, 2742), (52, 2835),

Gene: Kepler\_4 Start: 2344, Stop: 2697, Start Num: 12

Candidate Starts for Kepler\_4:

(Start: 12 @2344 has 21 MA's), (14, 2356), (16, 2362), (17, 2365), (20, 2374), (21, 2380), (22, 2383), (24, 2392), (25, 2398), (27, 2404), (29, 2413), (39, 2506), (43, 2527), (45, 2554), (46, 2563), (49, 2587), (52, 2656), (53, 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 21 MA's), (14, 2366), (18, 2378), (21, 2390), (43, 2501), (49, 2561), (51, 2582), (53, 2633),

Gene: Laphuphu24k\_3 Start: 2010, Stop: 2318, Start Num: 12

Candidate Starts for Laphuphu24k\_3:

(2, 1854), (3, 1860), (4, 1902), (5, 1920), (Start: 8 @1989 has 9 MA's), (Start: 12 @2010 has 21 MA's), (13, 2016), (16, 2028), (21, 2046), (40, 2130), (43, 2148), (44, 2151), (46, 2184),

Gene: LittleTokyo\_4 Start: 2335, Stop: 2649, Start Num: 11

Candidate Starts for LittleTokyo\_4:

(Start: 11 @2335 has 4 MA's), (14, 2350), (16, 2356), (20, 2368), (28, 2389), (34, 2413), (40, 2461), (42, 2476), (43, 2479), (44, 2482), (46, 2515), (47, 2518), (50, 2542),

Gene: Lunar\_5 Start: 2509, Stop: 2862, Start Num: 12

Candidate Starts for Lunar\_5:

(Start: 12 @2509 has 21 MA's), (14, 2521), (16, 2527), (17, 2530), (20, 2539), (21, 2545), (22, 2548), (24, 2557), (25, 2563), (27, 2569), (39, 2671), (43, 2692), (45, 2719), (46, 2728), (49, 2752), (51, 2773), (53, 2824),

Gene: Melons\_5 Start: 2509, Stop: 2862, Start Num: 12

Candidate Starts for Melons\_5:

(Start: 12 @2509 has 21 MA's), (14, 2521), (16, 2527), (17, 2530), (20, 2539), (21, 2545), (22, 2548), (24, 2557), (25, 2563), (27, 2569), (39, 2671), (43, 2692), (45, 2719), (46, 2728), (49, 2752), (51, 2773), (53, 2824),

Gene: Niblet\_4 Start: 2347, Stop: 2667, Start Num: 12

Candidate Starts for Niblet\_4:

(10, 2341), (Start: 12 @2347 has 21 MA's), (22, 2383), (39, 2476), (42, 2494), (43, 2497), (44, 2500), (46, 2533), (47, 2536), (52, 2626), (53, 2629),

Gene: Oppalora\_3 Start: 2010, Stop: 2318, Start Num: 12

Candidate Starts for Oppalora\_3:

(2, 1854), (3, 1860), (4, 1902), (5, 1920), (Start: 8 @1989 has 9 MA's), (Start: 12 @2010 has 21 MA's), (13, 2016), (16, 2028), (21, 2046), (40, 2130), (43, 2148), (44, 2151), (46, 2184),

Gene: Orcanus\_4 Start: 2349, Stop: 2669, Start Num: 12

Candidate Starts for Orcanus\_4:

(10, 2343), (Start: 12 @2349 has 21 MA's), (22, 2385), (37, 2442), (39, 2478), (40, 2481), (42, 2496), (43, 2499), (44, 2502), (46, 2535), (49, 2559), (52, 2628),

Gene: OtsoOtso\_4 Start: 2345, Stop: 2698, Start Num: 12

Candidate Starts for OtsoOtso\_4:

(Start: 12 @2345 has 21 MA's), (14, 2357), (16, 2363), (17, 2366), (20, 2375), (21, 2381), (22, 2384), (24, 2393), (25, 2399), (27, 2405), (29, 2414), (39, 2507), (43, 2528), (45, 2555), (46, 2564), (49, 2588), (52, 2657), (53, 2660),

Gene: Pelletreau\_5 Start: 2556, Stop: 2876, Start Num: 12

Candidate Starts for Pelletreau\_5:

(10, 2550), (Start: 12 @2556 has 21 MA's), (22, 2592), (36, 2643), (42, 2703), (43, 2706), (44, 2709), (46, 2742), (52, 2835),

Gene: PhirstandPhine\_5 Start: 2509, Stop: 2862, Start Num: 12

Candidate Starts for PhirstandPhine\_5:

(Start: 12 @2509 has 21 MA's), (14, 2521), (16, 2527), (17, 2530), (20, 2539), (21, 2545), (22, 2548), (24, 2557), (25, 2563), (27, 2569), (39, 2671), (43, 2692), (45, 2719), (46, 2728), (49, 2752), (51, 2773), (53, 2824),

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 9 MA's), (Start: 12 @2010 has 21 MA's), (13, 2016), (16, 2028), (21, 2046), (40, 2130), (43, 2148), (44, 2151), (46, 2184),

Gene: Pineda\_5 Start: 2509, Stop: 2862, Start Num: 12

Candidate Starts for Pineda\_5:

(Start: 12 @2509 has 21 MA's), (14, 2521), (16, 2527), (17, 2530), (20, 2539), (21, 2545), (22, 2548), (24, 2557), (25, 2563), (27, 2569), (39, 2671), (43, 2692), (45, 2719), (46, 2728), (49, 2752), (51, 2773), (53, 2824),

Gene: Polka\_4 Start: 2345, Stop: 2698, Start Num: 12

Candidate Starts for Polka\_4:

(Start: 12 @2345 has 21 MA's), (14, 2357), (16, 2363), (17, 2366), (20, 2375), (21, 2381), (22, 2384), (24, 2393), (25, 2399), (27, 2405), (29, 2414), (39, 2507), (43, 2528), (45, 2555), (46, 2564), (49, 2588), (52, 2657), (53, 2660),

Gene: PrairieDogTown\_4 Start: 2853, Stop: 3122, Start Num: 31

Candidate Starts for PrairieDogTown\_4:

(Start: 31 @2853 has 3 MA's), (38, 2889), (44, 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 9 MA's), (Start: 12 @2010 has 21 MA's), (13, 2016), (16, 2028), (21, 2046), (40, 2130), (43, 2148), (44, 2151), (46, 2184),

Gene: Shen\_5 Start: 2556, Stop: 2876, Start Num: 12

Candidate Starts for Shen\_5:

(10, 2550), (Start: 12 @2556 has 21 MA's), (22, 2592), (36, 2643), (42, 2703), (43, 2706), (44, 2709), (46, 2742), (52, 2835),

Gene: StuartMinion\_3 Start: 2011, Stop: 2325, Start Num: 12

Candidate Starts for StuartMinion\_3:

(10, 2005), (Start: 12 @2011 has 21 MA's), (13, 2014), (21, 2044), (35, 2080), (40, 2137), (43, 2155), (44, 2158), (46, 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 21 MA's), (14, 2382), (17, 2391), (19, 2397), (27, 2418), (28, 2424), (30, 2436), (41, 2508), (44, 2526), (46, 2559), (52, 2652), (53, 2655),

Gene: Toad24\_5 Start: 2556, Stop: 2876, Start Num: 12

Candidate Starts for Toad24\_5:

(10, 2550), (Start: 12 @2556 has 21 MA's), (22, 2592), (36, 2643), (42, 2703), (43, 2706), (44, 2709), (46, 2742), (52, 2835),

Gene: Westrich\_5 Start: 2556, Stop: 2876, Start Num: 12

Candidate Starts for Westrich\_5:

(10, 2550), (Start: 12 @2556 has 21 MA's), (37, 2649), (39, 2685), (42, 2703), (43, 2706), (44, 2709), (46, 2742), (52, 2835),

Gene: Zhuangyuan\_5 Start: 2685, Stop: 3011, Start Num: 11

Candidate Starts for Zhuangyuan\_5:

(Start: 11 @2685 has 4 MA's), (14, 2700), (16, 2706), (26, 2730), (28, 2739), (32, 2754), (33, 2757), (41, 2826), (43, 2841), (44, 2844), (46, 2877), (47, 2880), (50, 2904),

Gene: Zixiang\_4 Start: 2347, Stop: 2667, Start Num: 12

Candidate Starts for Zixiang\_4:

(10, 2341), (Start: 12 @2347 has 21 MA's), (22, 2383), (39, 2476), (42, 2494), (43, 2497), (44, 2500), (46, 2533), (47, 2536), (52, 2626), (53, 2629),