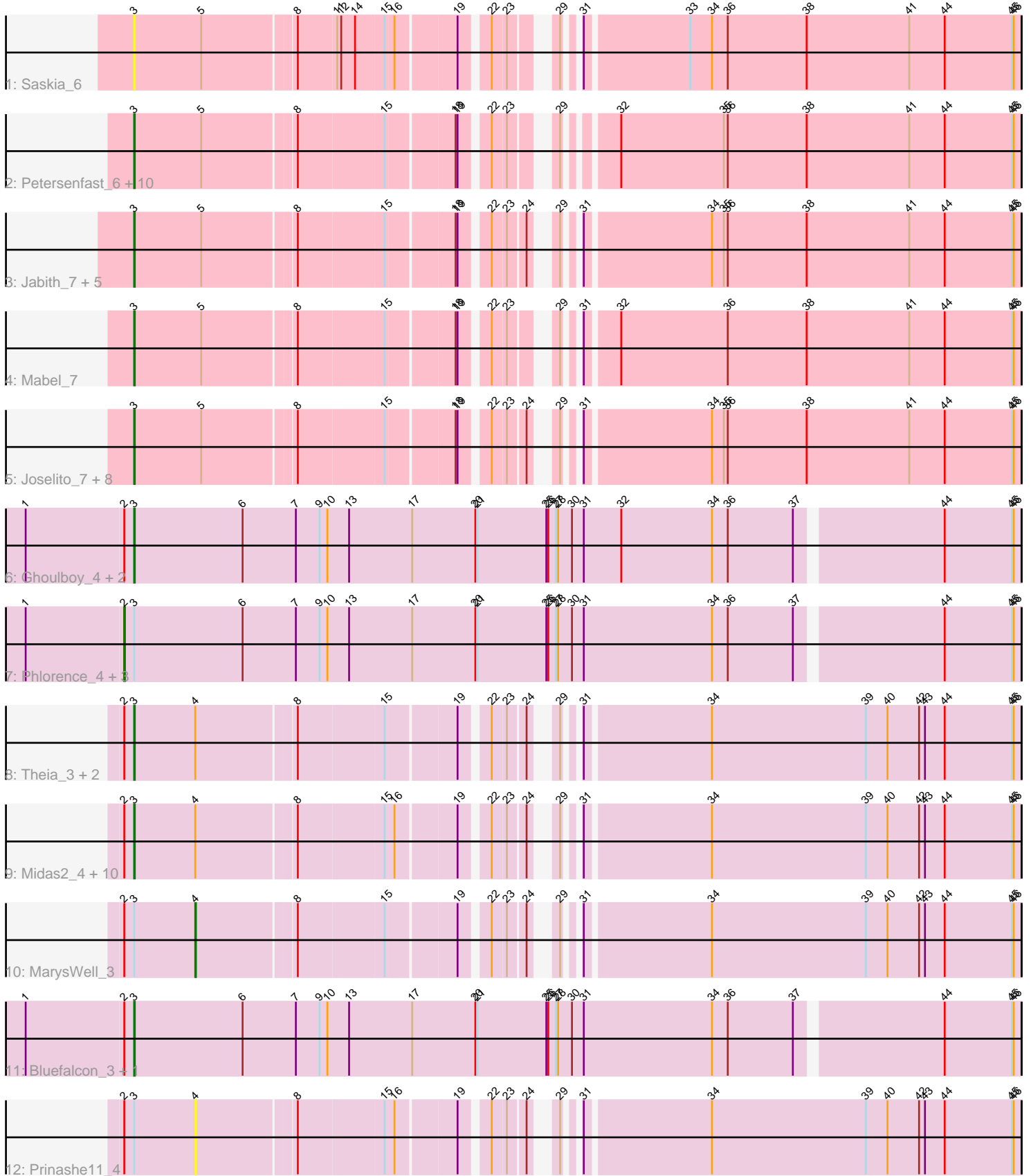


Pham 305074



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 305074 Report

This analysis was run 06/08/26 on database version 649.

Pham number 305074 has 53 members, 5 are drafts.

Phages represented in each track:

- Track 1 : Saskia_6
- Track 2 : Petersenfast_6, Bud_7, Fibonacci_7, Et2Brutus_6, Mulciber_7, Salz_7, Wolpertinger_6, Hutc2_7, Bachome_7, Snape_7, Sham4_7
- Track 3 : Jabith_7, Gilberta_7, TinyTimmy_7, MaCh_7, Ebony_7, Kimba_7
- Track 4 : Mabel_7
- Track 5 : Joselito_7, Aneem_7, Timothy_7, Lucivia_7, Flaverint_7, Bowtie_7, Insomnia_7, Orange_7, Munch_7
- Track 6 : Ghoulboy_4, Zolita_3, SydNat_4
- Track 7 : Phlorence_4, Jovo_4, Aragog_4, AgentM_4
- Track 8 : Theia_3, Cuco_4, Dublin_3
- Track 9 : Midas2_4, Twigg_4, Milcery_4, Micasa_4, LittleCherry_4, Tarynearal_3, George_3, Coog_4, Swirley_4, Bonamassa_4, HuhtaEnerson15_4
- Track 10 : MarysWell_3
- Track 11 : Bluefalcon_3, Discoknowium_4
- Track 12 : Prinashe11_4

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

The start number called the most often in the published annotations is 3, it was called in 43 of the 48 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aneem_7, Bachome_7, Bluefalcon_3, Bonamassa_4, Bowtie_7, Bud_7, Coog_4, Cuco_4, Discoknowium_4, Dublin_3, Ebony_7, Et2Brutus_6, Fibonacci_7, Flaverint_7, George_3, Ghoulboy_4, Gilberta_7, HuhtaEnerson15_4, Hutc2_7, Insomnia_7, Jabith_7, Joselito_7, Kimba_7, LittleCherry_4, Lucivia_7, MaCh_7, Mabel_7, Micasa_4, Midas2_4, Milcery_4, Mulciber_7, Munch_7, Orange_7, Petersenfast_6, Salz_7, Saskia_6, Sham4_7, Snape_7, Swirley_4, SydNat_4, Tarynearal_3, Theia_3, Timothy_7, TinyTimmy_7, Twigg_4, Wolpertinger_6, Zolita_3,

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

- AgentM_4, Aragog_4, Jovo_4, MarysWell_3, Phlorence_4, Prinashe11_4,

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

-

Summary by start number:

Start 2:

- Found in 25 of 53 (47.2%) of genes in pham
- Manual Annotations of this start: 4 of 48
- Called 16.0% of time when present
- Phage (with cluster) where this start called: AgentM_4 (A5), Aragog_4 (A5), Jovo_4 (A5), Phlorence_4 (A5),

Start 3:

- Found in 53 of 53 (100.0%) of genes in pham
- Manual Annotations of this start: 43 of 48
- Called 88.7% of time when present
- Phage (with cluster) where this start called: Aneem_7 (A11), Bachome_7 (A11), Bluefalcon_3 (A5), Bonamassa_4 (A5), Bowtie_7 (A11), Bud_7 (A11), Coog_4 (A5), Cuco_4 (A5), Discoknowium_4 (A5), Dublin_3 (A5), Ebony_7 (A11), Et2Brutus_6 (A11), Fibonacci_7 (A11), Flaverint_7 (A11), George_3 (A5), Ghouboy_4 (A5), Gilberta_7 (A11), HuhtaEnerson15_4 (A5), Hutc2_7 (A11), Insomnia_7 (A11), Jabith_7 (A11), Joselito_7 (A11), Kimba_7 (A11), LittleCherry_4 (A5), Lucivia_7 (A11), MaCh_7 (A11), Mabel_7 (A11), Micasa_4 (A5), Midas2_4 (A5), Milcery_4 (A5), Mulciber_7 (A11), Munch_7 (A11), Orange_7 (A11), Petersenfast_6 (A11), Salz_7 (A11), Saskia_6 (A11), Sham4_7 (A11), Snape_7 (A11), Swirley_4 (A5), SydNat_4 (A5), Tarynearal_3 (A5), Theia_3 (A5), Timothy_7 (A11), TinyTimmy_7 (A11), Twigg_4 (A5), Wolpertinger_6 (A11), Zolita_3 (A5),

Start 4:

- Found in 16 of 53 (30.2%) of genes in pham
- Manual Annotations of this start: 1 of 48
- Called 12.5% of time when present
- Phage (with cluster) where this start called: MarysWell_3 (A5), Prinashe11_4 (A5),

Summary by clusters:

There are 2 clusters represented in this pham: A5, A11,

Info for manual annotations of cluster A11:

- Start number 3 was manually annotated 24 times for cluster A11.

Info for manual annotations of cluster A5:

- Start number 2 was manually annotated 4 times for cluster A5.
- Start number 3 was manually annotated 19 times for cluster A5.
- Start number 4 was manually annotated 1 time for cluster A5.

Gene Information:

Gene: AgentM_4 Start: 2343, Stop: 3680, Start Num: 2

Candidate Starts for AgentM_4:

(1, 2196), (Start: 2 @2343 has 4 MA's), (Start: 3 @2355 has 43 MA's), (6, 2520), (7, 2601), (9, 2637), (10, 2649), (13, 2682), (17, 2778), (20, 2874), (21, 2877), (25, 2982), (26, 2985), (27, 2997), (28, 3000),

(30, 3021), (31, 3039), (34, 3234), (36, 3258), (37, 3357), (44, 3567), (45, 3669), (46, 3672),

Gene: Aneem_7 Start: 4196, Stop: 5410, Start Num: 3

Candidate Starts for Aneem_7:

(Start: 3 @4196 has 43 MA's), (5, 4298), (8, 4430), (15, 4556), (18, 4649), (19, 4652), (22, 4688), (23, 4706), (24, 4730), (29, 4748), (31, 4760), (34, 4943), (35, 4961), (36, 4967), (38, 5087), (41, 5243), (44, 5297), (45, 5399), (46, 5402),

Gene: Aragog_4 Start: 2373, Stop: 3710, Start Num: 2

Candidate Starts for Aragog_4:

(1, 2226), (Start: 2 @2373 has 4 MA's), (Start: 3 @2385 has 43 MA's), (6, 2550), (7, 2631), (9, 2667), (10, 2679), (13, 2712), (17, 2808), (20, 2904), (21, 2907), (25, 3012), (26, 3015), (27, 3027), (28, 3030), (30, 3051), (31, 3069), (34, 3264), (36, 3288), (37, 3387), (44, 3597), (45, 3699), (46, 3702),

Gene: Bachome_7 Start: 4193, Stop: 5407, Start Num: 3

Candidate Starts for Bachome_7:

(Start: 3 @4193 has 43 MA's), (5, 4295), (8, 4427), (15, 4553), (18, 4646), (19, 4649), (22, 4685), (23, 4703), (29, 4745), (32, 4802), (35, 4958), (36, 4964), (38, 5084), (41, 5240), (44, 5294), (45, 5396), (46, 5399),

Gene: Bluefalcon_3 Start: 2352, Stop: 3677, Start Num: 3

Candidate Starts for Bluefalcon_3:

(1, 2193), (Start: 2 @2340 has 4 MA's), (Start: 3 @2352 has 43 MA's), (6, 2517), (7, 2598), (9, 2634), (10, 2646), (13, 2679), (17, 2775), (20, 2871), (21, 2874), (25, 2979), (26, 2982), (27, 2994), (28, 2997), (30, 3018), (31, 3036), (34, 3231), (36, 3255), (37, 3354), (44, 3564), (45, 3666), (46, 3669),

Gene: Bonamassa_4 Start: 2386, Stop: 3603, Start Num: 3

Candidate Starts for Bonamassa_4:

(Start: 2 @2374 has 4 MA's), (Start: 3 @2386 has 43 MA's), (Start: 4 @2479 has 1 MA's), (8, 2620), (15, 2746), (16, 2758), (19, 2842), (22, 2878), (23, 2896), (24, 2920), (29, 2938), (31, 2950), (34, 3133), (39, 3367), (40, 3400), (42, 3448), (43, 3457), (44, 3487), (45, 3589), (46, 3592),

Gene: Bowtie_7 Start: 4196, Stop: 5410, Start Num: 3

Candidate Starts for Bowtie_7:

(Start: 3 @4196 has 43 MA's), (5, 4298), (8, 4430), (15, 4556), (18, 4649), (19, 4652), (22, 4688), (23, 4706), (24, 4730), (29, 4748), (31, 4760), (34, 4943), (35, 4961), (36, 4967), (38, 5087), (41, 5243), (44, 5297), (45, 5399), (46, 5402),

Gene: Bud_7 Start: 4202, Stop: 5416, Start Num: 3

Candidate Starts for Bud_7:

(Start: 3 @4202 has 43 MA's), (5, 4304), (8, 4436), (15, 4562), (18, 4655), (19, 4658), (22, 4694), (23, 4712), (29, 4754), (32, 4811), (35, 4967), (36, 4973), (38, 5093), (41, 5249), (44, 5303), (45, 5405), (46, 5408),

Gene: Coog_4 Start: 2354, Stop: 3571, Start Num: 3

Candidate Starts for Coog_4:

(Start: 2 @2342 has 4 MA's), (Start: 3 @2354 has 43 MA's), (Start: 4 @2447 has 1 MA's), (8, 2588), (15, 2714), (16, 2726), (19, 2810), (22, 2846), (23, 2864), (24, 2888), (29, 2906), (31, 2918), (34, 3101), (39, 3335), (40, 3368), (42, 3416), (43, 3425), (44, 3455), (45, 3557), (46, 3560),

Gene: Cuco_4 Start: 2385, Stop: 3602, Start Num: 3

Candidate Starts for Cuco_4:

(Start: 2 @2373 has 4 MA's), (Start: 3 @2385 has 43 MA's), (Start: 4 @2478 has 1 MA's), (8, 2619), (15, 2745), (19, 2841), (22, 2877), (23, 2895), (24, 2919), (29, 2937), (31, 2949), (34, 3132), (39, 3366), (40, 3399), (42, 3447), (43, 3456), (44, 3486), (45, 3588), (46, 3591),

Gene: Discoknowium_4 Start: 2385, Stop: 3710, Start Num: 3

Candidate Starts for Discoknowium_4:

(1, 2226), (Start: 2 @2373 has 4 MA's), (Start: 3 @2385 has 43 MA's), (6, 2550), (7, 2631), (9, 2667), (10, 2679), (13, 2712), (17, 2808), (20, 2904), (21, 2907), (25, 3012), (26, 3015), (27, 3027), (28, 3030), (30, 3051), (31, 3069), (34, 3264), (36, 3288), (37, 3387), (44, 3597), (45, 3699), (46, 3702),

Gene: Dublin_3 Start: 2354, Stop: 3571, Start Num: 3

Candidate Starts for Dublin_3:

(Start: 2 @2342 has 4 MA's), (Start: 3 @2354 has 43 MA's), (Start: 4 @2447 has 1 MA's), (8, 2588), (15, 2714), (19, 2810), (22, 2846), (23, 2864), (24, 2888), (29, 2906), (31, 2918), (34, 3101), (39, 3335), (40, 3368), (42, 3416), (43, 3425), (44, 3455), (45, 3557), (46, 3560),

Gene: Ebony_7 Start: 4202, Stop: 5416, Start Num: 3

Candidate Starts for Ebony_7:

(Start: 3 @4202 has 43 MA's), (5, 4304), (8, 4436), (15, 4562), (18, 4655), (19, 4658), (22, 4694), (23, 4712), (24, 4736), (29, 4754), (31, 4766), (34, 4949), (35, 4967), (36, 4973), (38, 5093), (41, 5249), (44, 5303), (45, 5405), (46, 5408),

Gene: Et2Brutus_6 Start: 4199, Stop: 5413, Start Num: 3

Candidate Starts for Et2Brutus_6:

(Start: 3 @4199 has 43 MA's), (5, 4301), (8, 4433), (15, 4559), (18, 4652), (19, 4655), (22, 4691), (23, 4709), (29, 4751), (32, 4808), (35, 4964), (36, 4970), (38, 5090), (41, 5246), (44, 5300), (45, 5402), (46, 5405),

Gene: Fibonacci_7 Start: 4199, Stop: 5413, Start Num: 3

Candidate Starts for Fibonacci_7:

(Start: 3 @4199 has 43 MA's), (5, 4301), (8, 4433), (15, 4559), (18, 4652), (19, 4655), (22, 4691), (23, 4709), (29, 4751), (32, 4808), (35, 4964), (36, 4970), (38, 5090), (41, 5246), (44, 5300), (45, 5402), (46, 5405),

Gene: Flaverint_7 Start: 4196, Stop: 5410, Start Num: 3

Candidate Starts for Flaverint_7:

(Start: 3 @4196 has 43 MA's), (5, 4298), (8, 4430), (15, 4556), (18, 4649), (19, 4652), (22, 4688), (23, 4706), (24, 4730), (29, 4748), (31, 4760), (34, 4943), (35, 4961), (36, 4967), (38, 5087), (41, 5243), (44, 5297), (45, 5399), (46, 5402),

Gene: George_3 Start: 2385, Stop: 3602, Start Num: 3

Candidate Starts for George_3:

(Start: 2 @2373 has 4 MA's), (Start: 3 @2385 has 43 MA's), (Start: 4 @2478 has 1 MA's), (8, 2619), (15, 2745), (16, 2757), (19, 2841), (22, 2877), (23, 2895), (24, 2919), (29, 2937), (31, 2949), (34, 3132), (39, 3366), (40, 3399), (42, 3447), (43, 3456), (44, 3486), (45, 3588), (46, 3591),

Gene: Ghouboy_4 Start: 2354, Stop: 3679, Start Num: 3

Candidate Starts for Ghouboy_4:

(1, 2195), (Start: 2 @2342 has 4 MA's), (Start: 3 @2354 has 43 MA's), (6, 2519), (7, 2600), (9, 2636), (10, 2648), (13, 2681), (17, 2777), (20, 2873), (21, 2876), (25, 2981), (26, 2984), (27, 2996), (28, 2999), (30, 3020), (31, 3038), (32, 3095), (34, 3233), (36, 3257), (37, 3356), (44, 3566), (45, 3668), (46, 3671),

Gene: Gilberta_7 Start: 4193, Stop: 5407, Start Num: 3

Candidate Starts for Gilberta_7:

(Start: 3 @4193 has 43 MA's), (5, 4295), (8, 4427), (15, 4553), (18, 4646), (19, 4649), (22, 4685), (23, 4703), (24, 4727), (29, 4745), (31, 4757), (34, 4940), (35, 4958), (36, 4964), (38, 5084), (41, 5240), (44, 5294), (45, 5396), (46, 5399),

Gene: HuhtaEnerson15_4 Start: 2386, Stop: 3603, Start Num: 3

Candidate Starts for HuhtaEnerson15_4:

(Start: 2 @2374 has 4 MA's), (Start: 3 @2386 has 43 MA's), (Start: 4 @2479 has 1 MA's), (8, 2620), (15, 2746), (16, 2758), (19, 2842), (22, 2878), (23, 2896), (24, 2920), (29, 2938), (31, 2950), (34, 3133), (39, 3367), (40, 3400), (42, 3448), (43, 3457), (44, 3487), (45, 3589), (46, 3592),

Gene: Hutc2_7 Start: 4199, Stop: 5413, Start Num: 3

Candidate Starts for Hutc2_7:

(Start: 3 @4199 has 43 MA's), (5, 4301), (8, 4433), (15, 4559), (18, 4652), (19, 4655), (22, 4691), (23, 4709), (29, 4751), (32, 4808), (35, 4964), (36, 4970), (38, 5090), (41, 5246), (44, 5300), (45, 5402), (46, 5405),

Gene: Insomnia_7 Start: 4196, Stop: 5410, Start Num: 3

Candidate Starts for Insomnia_7:

(Start: 3 @4196 has 43 MA's), (5, 4298), (8, 4430), (15, 4556), (18, 4649), (19, 4652), (22, 4688), (23, 4706), (24, 4730), (29, 4748), (31, 4760), (34, 4943), (35, 4961), (36, 4967), (38, 5087), (41, 5243), (44, 5297), (45, 5399), (46, 5402),

Gene: Jabith_7 Start: 4196, Stop: 5410, Start Num: 3

Candidate Starts for Jabith_7:

(Start: 3 @4196 has 43 MA's), (5, 4298), (8, 4430), (15, 4556), (18, 4649), (19, 4652), (22, 4688), (23, 4706), (24, 4730), (29, 4748), (31, 4760), (34, 4943), (35, 4961), (36, 4967), (38, 5087), (41, 5243), (44, 5297), (45, 5399), (46, 5402),

Gene: Joselito_7 Start: 4196, Stop: 5410, Start Num: 3

Candidate Starts for Joselito_7:

(Start: 3 @4196 has 43 MA's), (5, 4298), (8, 4430), (15, 4556), (18, 4649), (19, 4652), (22, 4688), (23, 4706), (24, 4730), (29, 4748), (31, 4760), (34, 4943), (35, 4961), (36, 4967), (38, 5087), (41, 5243), (44, 5297), (45, 5399), (46, 5402),

Gene: Jovo_4 Start: 2374, Stop: 3711, Start Num: 2

Candidate Starts for Jovo_4:

(1, 2227), (Start: 2 @2374 has 4 MA's), (Start: 3 @2386 has 43 MA's), (6, 2551), (7, 2632), (9, 2668), (10, 2680), (13, 2713), (17, 2809), (20, 2905), (21, 2908), (25, 3013), (26, 3016), (27, 3028), (28, 3031), (30, 3052), (31, 3070), (34, 3265), (36, 3289), (37, 3388), (44, 3598), (45, 3700), (46, 3703),

Gene: Kimba_7 Start: 4196, Stop: 5410, Start Num: 3

Candidate Starts for Kimba_7:

(Start: 3 @4196 has 43 MA's), (5, 4298), (8, 4430), (15, 4556), (18, 4649), (19, 4652), (22, 4688), (23, 4706), (24, 4730), (29, 4748), (31, 4760), (34, 4943), (35, 4961), (36, 4967), (38, 5087), (41, 5243), (44, 5297), (45, 5399), (46, 5402),

Gene: LittleCherry_4 Start: 2387, Stop: 3604, Start Num: 3

Candidate Starts for LittleCherry_4:

(Start: 2 @2375 has 4 MA's), (Start: 3 @2387 has 43 MA's), (Start: 4 @2480 has 1 MA's), (8, 2621), (15, 2747), (16, 2759), (19, 2843), (22, 2879), (23, 2897), (24, 2921), (29, 2939), (31, 2951), (34, 3134), (39, 3368), (40, 3401), (42, 3449), (43, 3458), (44, 3488), (45, 3590), (46, 3593),

Gene: Lucivia_7 Start: 4193, Stop: 5407, Start Num: 3

Candidate Starts for Lucivia_7:

(Start: 3 @4193 has 43 MA's), (5, 4295), (8, 4427), (15, 4553), (18, 4646), (19, 4649), (22, 4685), (23, 4703), (24, 4727), (29, 4745), (31, 4757), (34, 4940), (35, 4958), (36, 4964), (38, 5084), (41, 5240), (44, 5294), (45, 5396), (46, 5399),

Gene: MaCh_7 Start: 4193, Stop: 5407, Start Num: 3

Candidate Starts for MaCh_7:

(Start: 3 @4193 has 43 MA's), (5, 4295), (8, 4427), (15, 4553), (18, 4646), (19, 4649), (22, 4685), (23, 4703), (24, 4727), (29, 4745), (31, 4757), (34, 4940), (35, 4958), (36, 4964), (38, 5084), (41, 5240), (44, 5294), (45, 5396), (46, 5399),

Gene: Mabel_7 Start: 4208, Stop: 5422, Start Num: 3

Candidate Starts for Mabel_7:

(Start: 3 @4208 has 43 MA's), (5, 4310), (8, 4442), (15, 4568), (18, 4661), (19, 4664), (22, 4700), (23, 4718), (29, 4760), (31, 4772), (32, 4817), (36, 4979), (38, 5099), (41, 5255), (44, 5309), (45, 5411), (46, 5414),

Gene: MarysWell_3 Start: 2448, Stop: 3572, Start Num: 4

Candidate Starts for MarysWell_3:

(Start: 2 @2343 has 4 MA's), (Start: 3 @2355 has 43 MA's), (Start: 4 @2448 has 1 MA's), (8, 2589), (15, 2715), (19, 2811), (22, 2847), (23, 2865), (24, 2889), (29, 2907), (31, 2919), (34, 3102), (39, 3336), (40, 3369), (42, 3417), (43, 3426), (44, 3456), (45, 3558), (46, 3561),

Gene: Micasa_4 Start: 2355, Stop: 3572, Start Num: 3

Candidate Starts for Micasa_4:

(Start: 2 @2343 has 4 MA's), (Start: 3 @2355 has 43 MA's), (Start: 4 @2448 has 1 MA's), (8, 2589), (15, 2715), (16, 2727), (19, 2811), (22, 2847), (23, 2865), (24, 2889), (29, 2907), (31, 2919), (34, 3102), (39, 3336), (40, 3369), (42, 3417), (43, 3426), (44, 3456), (45, 3558), (46, 3561),

Gene: Midas2_4 Start: 2354, Stop: 3571, Start Num: 3

Candidate Starts for Midas2_4:

(Start: 2 @2342 has 4 MA's), (Start: 3 @2354 has 43 MA's), (Start: 4 @2447 has 1 MA's), (8, 2588), (15, 2714), (16, 2726), (19, 2810), (22, 2846), (23, 2864), (24, 2888), (29, 2906), (31, 2918), (34, 3101), (39, 3335), (40, 3368), (42, 3416), (43, 3425), (44, 3455), (45, 3557), (46, 3560),

Gene: Milcery_4 Start: 2385, Stop: 3602, Start Num: 3

Candidate Starts for Milcery_4:

(Start: 2 @2373 has 4 MA's), (Start: 3 @2385 has 43 MA's), (Start: 4 @2478 has 1 MA's), (8, 2619), (15, 2745), (16, 2757), (19, 2841), (22, 2877), (23, 2895), (24, 2919), (29, 2937), (31, 2949), (34, 3132), (39, 3366), (40, 3399), (42, 3447), (43, 3456), (44, 3486), (45, 3588), (46, 3591),

Gene: Mulciber_7 Start: 4199, Stop: 5413, Start Num: 3

Candidate Starts for Mulciber_7:

(Start: 3 @4199 has 43 MA's), (5, 4301), (8, 4433), (15, 4559), (18, 4652), (19, 4655), (22, 4691), (23, 4709), (29, 4751), (32, 4808), (35, 4964), (36, 4970), (38, 5090), (41, 5246), (44, 5300), (45, 5402), (46, 5405),

Gene: Munch_7 Start: 4196, Stop: 5410, Start Num: 3

Candidate Starts for Munch_7:

(Start: 3 @4196 has 43 MA's), (5, 4298), (8, 4430), (15, 4556), (18, 4649), (19, 4652), (22, 4688), (23, 4706), (24, 4730), (29, 4748), (31, 4760), (34, 4943), (35, 4961), (36, 4967), (38, 5087), (41, 5243), (44, 5297), (45, 5399), (46, 5402),

Gene: Orange_7 Start: 4196, Stop: 5410, Start Num: 3

Candidate Starts for Orange_7:

(Start: 3 @4196 has 43 MA's), (5, 4298), (8, 4430), (15, 4556), (18, 4649), (19, 4652), (22, 4688), (23, 4706), (24, 4730), (29, 4748), (31, 4760), (34, 4943), (35, 4961), (36, 4967), (38, 5087), (41, 5243), (44, 5297), (45, 5399), (46, 5402),

Gene: Petersenfast_6 Start: 4199, Stop: 5413, Start Num: 3

Candidate Starts for Petersenfast_6:

(Start: 3 @4199 has 43 MA's), (5, 4301), (8, 4433), (15, 4559), (18, 4652), (19, 4655), (22, 4691), (23, 4709), (29, 4751), (32, 4808), (35, 4964), (36, 4970), (38, 5090), (41, 5246), (44, 5300), (45, 5402), (46, 5405),

Gene: Phlorence_4 Start: 2373, Stop: 3710, Start Num: 2

Candidate Starts for Phlorence_4:

(1, 2226), (Start: 2 @2373 has 4 MA's), (Start: 3 @2385 has 43 MA's), (6, 2550), (7, 2631), (9, 2667), (10, 2679), (13, 2712), (17, 2808), (20, 2904), (21, 2907), (25, 3012), (26, 3015), (27, 3027), (28, 3030), (30, 3051), (31, 3069), (34, 3264), (36, 3288), (37, 3387), (44, 3597), (45, 3699), (46, 3702),

Gene: Prin Ashe11_4 Start: 2447, Stop: 3571, Start Num: 4

Candidate Starts for Prin Ashe11_4:

(Start: 2 @2342 has 4 MA's), (Start: 3 @2354 has 43 MA's), (Start: 4 @2447 has 1 MA's), (8, 2588), (15, 2714), (16, 2726), (19, 2810), (22, 2846), (23, 2864), (24, 2888), (29, 2906), (31, 2918), (34, 3101), (39, 3335), (40, 3368), (42, 3416), (43, 3425), (44, 3455), (45, 3557), (46, 3560),

Gene: Salz_7 Start: 4196, Stop: 5410, Start Num: 3

Candidate Starts for Salz_7:

(Start: 3 @4196 has 43 MA's), (5, 4298), (8, 4430), (15, 4556), (18, 4649), (19, 4652), (22, 4688), (23, 4706), (29, 4748), (32, 4805), (35, 4961), (36, 4967), (38, 5087), (41, 5243), (44, 5297), (45, 5399), (46, 5402),

Gene: Saskia_6 Start: 4199, Stop: 5413, Start Num: 3

Candidate Starts for Saskia_6:

(Start: 3 @4199 has 43 MA's), (5, 4301), (8, 4433), (11, 4490), (12, 4496), (14, 4517), (15, 4559), (16, 4571), (19, 4655), (22, 4691), (23, 4709), (29, 4751), (31, 4763), (33, 4913), (34, 4946), (36, 4970), (38, 5090), (41, 5246), (44, 5300), (45, 5402), (46, 5405),

Gene: Sham4_7 Start: 4199, Stop: 5413, Start Num: 3

Candidate Starts for Sham4_7:

(Start: 3 @4199 has 43 MA's), (5, 4301), (8, 4433), (15, 4559), (18, 4652), (19, 4655), (22, 4691), (23, 4709), (29, 4751), (32, 4808), (35, 4964), (36, 4970), (38, 5090), (41, 5246), (44, 5300), (45, 5402), (46, 5405),

Gene: Snape_7 Start: 4202, Stop: 5416, Start Num: 3

Candidate Starts for Snape_7:

(Start: 3 @4202 has 43 MA's), (5, 4304), (8, 4436), (15, 4562), (18, 4655), (19, 4658), (22, 4694), (23, 4712), (29, 4754), (32, 4811), (35, 4967), (36, 4973), (38, 5093), (41, 5249), (44, 5303), (45, 5405), (46, 5408),

Gene: Swirley_4 Start: 2354, Stop: 3571, Start Num: 3

Candidate Starts for Swirley_4:

(Start: 2 @2342 has 4 MA's), (Start: 3 @2354 has 43 MA's), (Start: 4 @2447 has 1 MA's), (8, 2588), (15, 2714), (16, 2726), (19, 2810), (22, 2846), (23, 2864), (24, 2888), (29, 2906), (31, 2918), (34, 3101),

(39, 3335), (40, 3368), (42, 3416), (43, 3425), (44, 3455), (45, 3557), (46, 3560),

Gene: SydNat_4 Start: 2354, Stop: 3679, Start Num: 3

Candidate Starts for SydNat_4:

(1, 2195), (Start: 2 @2342 has 4 MA's), (Start: 3 @2354 has 43 MA's), (6, 2519), (7, 2600), (9, 2636), (10, 2648), (13, 2681), (17, 2777), (20, 2873), (21, 2876), (25, 2981), (26, 2984), (27, 2996), (28, 2999), (30, 3020), (31, 3038), (32, 3095), (34, 3233), (36, 3257), (37, 3356), (44, 3566), (45, 3668), (46, 3671),

Gene: Tarynearal_3 Start: 2383, Stop: 3600, Start Num: 3

Candidate Starts for Tarynearal_3:

(Start: 2 @2371 has 4 MA's), (Start: 3 @2383 has 43 MA's), (Start: 4 @2476 has 1 MA's), (8, 2617), (15, 2743), (16, 2755), (19, 2839), (22, 2875), (23, 2893), (24, 2917), (29, 2935), (31, 2947), (34, 3130), (39, 3364), (40, 3397), (42, 3445), (43, 3454), (44, 3484), (45, 3586), (46, 3589),

Gene: Theia_3 Start: 2355, Stop: 3572, Start Num: 3

Candidate Starts for Theia_3:

(Start: 2 @2343 has 4 MA's), (Start: 3 @2355 has 43 MA's), (Start: 4 @2448 has 1 MA's), (8, 2589), (15, 2715), (19, 2811), (22, 2847), (23, 2865), (24, 2889), (29, 2907), (31, 2919), (34, 3102), (39, 3336), (40, 3369), (42, 3417), (43, 3426), (44, 3456), (45, 3558), (46, 3561),

Gene: Timothy_7 Start: 4196, Stop: 5410, Start Num: 3

Candidate Starts for Timothy_7:

(Start: 3 @4196 has 43 MA's), (5, 4298), (8, 4430), (15, 4556), (18, 4649), (19, 4652), (22, 4688), (23, 4706), (24, 4730), (29, 4748), (31, 4760), (34, 4943), (35, 4961), (36, 4967), (38, 5087), (41, 5243), (44, 5297), (45, 5399), (46, 5402),

Gene: TinyTimmy_7 Start: 4196, Stop: 5410, Start Num: 3

Candidate Starts for TinyTimmy_7:

(Start: 3 @4196 has 43 MA's), (5, 4298), (8, 4430), (15, 4556), (18, 4649), (19, 4652), (22, 4688), (23, 4706), (24, 4730), (29, 4748), (31, 4760), (34, 4943), (35, 4961), (36, 4967), (38, 5087), (41, 5243), (44, 5297), (45, 5399), (46, 5402),

Gene: Twigg_4 Start: 2354, Stop: 3571, Start Num: 3

Candidate Starts for Twigg_4:

(Start: 2 @2342 has 4 MA's), (Start: 3 @2354 has 43 MA's), (Start: 4 @2447 has 1 MA's), (8, 2588), (15, 2714), (16, 2726), (19, 2810), (22, 2846), (23, 2864), (24, 2888), (29, 2906), (31, 2918), (34, 3101), (39, 3335), (40, 3368), (42, 3416), (43, 3425), (44, 3455), (45, 3557), (46, 3560),

Gene: Wolpertinger_6 Start: 4199, Stop: 5413, Start Num: 3

Candidate Starts for Wolpertinger_6:

(Start: 3 @4199 has 43 MA's), (5, 4301), (8, 4433), (15, 4559), (18, 4652), (19, 4655), (22, 4691), (23, 4709), (29, 4751), (32, 4808), (35, 4964), (36, 4970), (38, 5090), (41, 5246), (44, 5300), (45, 5402), (46, 5405),

Gene: Zolita_3 Start: 2354, Stop: 3679, Start Num: 3

Candidate Starts for Zolita_3:

(1, 2195), (Start: 2 @2342 has 4 MA's), (Start: 3 @2354 has 43 MA's), (6, 2519), (7, 2600), (9, 2636), (10, 2648), (13, 2681), (17, 2777), (20, 2873), (21, 2876), (25, 2981), (26, 2984), (27, 2996), (28, 2999), (30, 3020), (31, 3038), (32, 3095), (34, 3233), (36, 3257), (37, 3356), (44, 3566), (45, 3668), (46, 3671),