

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 216025 Report

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

Pham number 216025 has 103 members, 15 are drafts.

Phages represented in each track:

- Track 1 : Galaxy_26
- Track 2 : Abidatro_27
- Track 3 : Vulpecula_25
- Track 4 : TaylorSipht_26
- Track 5 : Orcanus_26
- Track 6 : Basilisk_26
- Track 7 : Jamun_25
- Track 8 : Brynnie_25
- Track 9 : Kuleana_27
- Track 10 : Antrice_26
- Track 11 : StuartMinion_25
- Track 12 : Andrew_28
- Track 13 : Qyrzula_41, Arbiter_43, Rosebush_43
- Track 14 : Hosp_035
- Track 15 : KayaCho_37
- Track 16 : ForDig_38, Jolie1_037
- Track 17 : 40BC_037, 39HC_037
- Track 18 : Catfish_31
- Track 19 : BeeGee_38, RavenCo17_36
- Track 20 : LonelyBoi_35
- Track 21 : Herod_34, Eviarto_34, BatStarr_34, Nymphadora_34, TimTam_34, Bosnia_34
- Track 22 : Hugley_32
- Track 23 : Manasvini_35, Polly_32, Suscepit_35, Zameen_35, Neobush_35, Eudoria_35, Trumpet_35, Tayonia_35, Antonio_35, Kita_36, Maridalia_34
- Track 24 : Whiteclaw_30, Clap_30, Sproutie_30, Sahara_29, Haley23_30, GemG_30, Savage_30, Mocha12_30, Cynthia_30, TuertoX_30, Ebert_31, Gizermo_30
- Track 25 : JCole_32
- Track 26 : RayTheFireFly_38
- Track 27 : Getalong_40, Horus_39, Phabuloso_36, Lutum_39, Kenna_38, BearBQ_38, ShawBrad_38, ODay_42, Leroy_39, CheeseTouch_37, Asapag_39, Holliday_38, Ecliptus_40, Budski_39, Whitney_42, Periwinkle_42
- Track 28 : Phistory_39, BENtherdunthat_38, Frickyeah_39, Apricot_38
- Track 29 : Squiddly_40, Spooky_39
- Track 30 : Crater_36
- Track 31 : ShroomBoi_22, Avani_28

- Track 32 : Madiba_23, ThetaBob_24
- Track 33 : Che9d_28, Ogoopogo_25, Bipolar_22, Kenuha5_22, Demsculpinboyz_28, Kersh_23, Pollywog_25, Yoshi_28
- Track 34 : Maruru_95
- Track 35 : Stuck_40
- Track 36 : Sbash_32
- Track 37 : Purky_30
- Track 38 : Purky_36
- Track 39 : Rem711_6
- Track 40 : 32HC_7
- Track 41 : Sleepyhead_33
- Track 42 : Whack_33
- Track 43 : Lukepolites_69
- Track 44 : Shambre1_30

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

The start number called the most often in the published annotations is 29, it was called in 37 of the 88 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 32HC_7, Antonio_35, Asapag_39, BatStarr_34, BearBQ_38, BeeGee_38, Bosnia_34, Budski_39, CheeseTouch_37, Ecliptus_40, Eudoria_35, Eviarto_34, Getalong_40, Herod_34, Holliday_38, Horus_39, Kenna_38, Kita_36, Leroy_39, Lutum_39, Manasvini_35, Maridalia_34, Neobush_35, Nymphadora_34, ODay_42, Periwinkle_42, Phabuloso_36, Polly_32, RavenCo17_36, Rem711_6, ShawBrad_38, Sleepyhead_33, Suscepit_35, Tayonia_35, TimTam_34, Trumpet_35, Whack_33, Whitney_42, Zameen_35,

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

- Apricot_38, Arbiter_43, BENtherdunthat_38, Crater_36, Frickyeah_39, Hugley_32, JCole_32, Phistory_39, Purky_30, Purky_36, Qyrzula_41, RayTheFireFly_38, Rosebush_43, Sbash_32, Stuck_40,

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

- 39HC_037, 40BC_037, Abidatro_27, Andrew_28, Antrice_26, Avani_28, Basilisk_26, Bipolar_22, Brynnie_25, Catfish_31, Che9d_28, Clap_30, Cynthia_30, Demsculpinboyz_28, Ebert_31, ForDig_38, Galaxy_26, GemG_30, Gizermo_30, Haley23_30, Hosp_035, Jamun_25, Jolie1_037, KayaCho_37, Kenuha5_22, Kersh_23, Kuleana_27, LonelyBoi_35, Lukepolites_69, Madiba_23, Maruru_95, Mocha12_30, Ogoopogo_25, Orcanus_26, Pollywog_25, Sahara_29, Savage_30, Shambre1_30, ShroomBoi_22, Spooky_39, Sproutie_30, Squiddly_40, StuartMinion_25, TaylorSipht_26, ThetaBob_24, TuertoX_30, Vulpecula_25, Whiteclaw_30, Yoshi_28,

Summary by start number:

Start 25:

- Found in 2 of 103 (1.9%) of genes in pham
- No Manual Annotations of this start.

- Called 50.0% of time when present
- Phage (with cluster) where this start called: Maruru_95 (FG),

Start 26:

- Found in 13 of 103 (12.6%) of genes in pham
- Manual Annotations of this start: 1 of 88
- Called 7.7% of time when present
- Phage (with cluster) where this start called: Purky_36 (P6),

Start 27:

- Found in 1 of 103 (1.0%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Lukepolites_69 (singleton),

Start 29:

- Found in 54 of 103 (52.4%) of genes in pham
- Manual Annotations of this start: 37 of 88
- Called 72.2% of time when present
- Phage (with cluster) where this start called: 32HC_7 (Z), Antonio_35 (CZ1), Asapag_39 (DN1), BatStarr_34 (CZ1), BearBQ_38 (DN), BeeGee_38 (CY), Bosnia_34 (CZ1), Budski_39 (DN), CheeseTouch_37 (DN1), Ecliptus_40 (DN), Eudoria_35 (CZ1), Eviarto_34 (CZ1), Getalong_40 (DN1), Herod_34 (CZ1), Holliday_38 (DN1), Horus_39 (DN1), Kenna_38 (DN1), Kita_36 (CZ1), Leroy_39 (DN1), Lutum_39 (DN1), Manasvini_35 (CZ1), Maridalia_34 (CZ1), Neobush_35 (CZ1), Nymphadora_34 (CZ1), ODay_42 (DN), Periwinkle_42 (DN1), Phabuloso_36 (DN1), Polly_32 (CZ1), RavenCo17_36 (CZ8), Rem711_6 (Z), ShawBrad_38 (DN1), Sleepyhead_33 (singleton), Suscepit_35 (CZ1), Tayonia_35 (CZ1), TimTam_34 (CZ1), Trumpet_35 (CZ1), Whack_33 (singleton), Whitney_42 (DN1), Zameen_35 (CZ1),

Start 30:

- Found in 12 of 103 (11.7%) of genes in pham
- Manual Annotations of this start: 12 of 88
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Clap_30 (CZ2), Cynthia_30 (CZ2), Ebert_31 (CZ2), GemG_30 (CZ2), Gizermo_30 (CZ2), Haley23_30 (CZ2), Mocha12_30 (CZ2), Sahara_29 (CZ2), Savage_30 (CZ2), Sproutie_30 (CZ2), TuertoX_30 (CZ2), Whiteclaw_30 (CZ2),

Start 31:

- Found in 9 of 103 (8.7%) of genes in pham
- Manual Annotations of this start: 3 of 88
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 39HC_037 (B6), 40BC_037 (B6), ForDig_38 (B6), Hosp_035 (B6), Jolie1_037 (B6), KayaCho_37 (B6), Purky_30 (P6), Sbash_32 (I2), Stuck_40 (I2),

Start 32:

- Found in 12 of 103 (11.7%) of genes in pham
- Manual Annotations of this start: 10 of 88
- Called 83.3% of time when present

- Phage (with cluster) where this start called: Avani_28 (F2), Bipolar_22 (F1), Che9d_28 (F2), Demsculpinboyz_28 (F2), Kenuha5_22 (F1), Kersh_23 (F1), Ogopogo_25 (F1), Pollywog_25 (F1), ShroomBoi_22 (F1), Yoshi_28 (F2),

Start 34:

- Found in 1 of 103 (1.0%) of genes in pham
- Manual Annotations of this start: 1 of 88
- Called 100.0% of time when present
- Phage (with cluster) where this start called: LonelyBoi_35 (CY),

Start 35:

- Found in 3 of 103 (2.9%) of genes in pham
- Manual Annotations of this start: 3 of 88
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Brynnie_25 (AS1), Jamun_25 (AS1), Vulpecula_25 (AS1),

Start 38:

- Found in 1 of 103 (1.0%) of genes in pham
- Manual Annotations of this start: 1 of 88
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abidatro_27 (AS1),

Start 39:

- Found in 26 of 103 (25.2%) of genes in pham
- Manual Annotations of this start: 12 of 88
- Called 53.8% of time when present
- Phage (with cluster) where this start called: Andrew_28 (AS3), Antrice_26 (AS2), Basilisk_26 (AS1), Catfish_31 (CU5), Galaxy_26 (AS1), Kuleana_27 (AS2), Madiba_23 (F1), Orcanus_26 (AS1), Shambre1_30 (singleton), Spooky_39 (DN2), Squiddly_40 (DN2), StuartMinion_25 (AS3), TaylorSipht_26 (AS1), ThetaBob_24 (F4),

Start 40:

- Found in 4 of 103 (3.9%) of genes in pham
- Manual Annotations of this start: 3 of 88
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Arbiter_43 (B2), Qyrzula_41 (B2), Rosebush_43 (B2),

Start 45:

- Found in 3 of 103 (2.9%) of genes in pham
- Manual Annotations of this start: 1 of 88
- Called 33.3% of time when present
- Phage (with cluster) where this start called: RayTheFireFly_38 (DB),

Start 46:

- Found in 72 of 103 (69.9%) of genes in pham
- Manual Annotations of this start: 4 of 88
- Called 8.3% of time when present
- Phage (with cluster) where this start called: Apricot_38 (DN3), BENtherdunthat_38 (DN1), Crater_36 (DN3), Frickyeah_39 (DN1), Hugley_32 (CZ1), Phistory_39 (DN1),

Start 49:

- Found in 36 of 103 (35.0%) of genes in pham
- No Manual Annotations of this start.
- Called 2.8% of time when present
- Phage (with cluster) where this start called: JCole_32 (CZ2),

Summary by clusters:

There are 23 clusters represented in this pham: DN, singleton, CZ2, CZ1, DB, CZ8, FG, CU5, I2, DN1, DN3, DN2, AS3, AS2, AS1, P6, CY, Z, F1, F2, F4, B6, B2,

Info for manual annotations of cluster AS1:

- Start number 35 was manually annotated 3 times for cluster AS1.
- Start number 38 was manually annotated 1 time for cluster AS1.
- Start number 39 was manually annotated 4 times for cluster AS1.

Info for manual annotations of cluster AS2:

- Start number 39 was manually annotated 1 time for cluster AS2.

Info for manual annotations of cluster AS3:

- Start number 39 was manually annotated 1 time for cluster AS3.

Info for manual annotations of cluster B2:

- Start number 40 was manually annotated 3 times for cluster B2.

Info for manual annotations of cluster B6:

- Start number 31 was manually annotated 1 time for cluster B6.

Info for manual annotations of cluster CU5:

- Start number 39 was manually annotated 1 time for cluster CU5.

Info for manual annotations of cluster CY:

- Start number 29 was manually annotated 1 time for cluster CY.
- Start number 34 was manually annotated 1 time for cluster CY.

Info for manual annotations of cluster CZ1:

- Start number 29 was manually annotated 17 times for cluster CZ1.

Info for manual annotations of cluster CZ2:

- Start number 30 was manually annotated 12 times for cluster CZ2.

Info for manual annotations of cluster CZ8:

- Start number 29 was manually annotated 1 time for cluster CZ8.

Info for manual annotations of cluster DB:

- Start number 45 was manually annotated 1 time for cluster DB.

Info for manual annotations of cluster DN:

- Start number 29 was manually annotated 4 times for cluster DN.

Info for manual annotations of cluster DN1:

- Start number 29 was manually annotated 11 times for cluster DN1.
- Start number 46 was manually annotated 2 times for cluster DN1.

Info for manual annotations of cluster DN2:

- Start number 39 was manually annotated 2 times for cluster DN2.

Info for manual annotations of cluster DN3:

- Start number 46 was manually annotated 2 times for cluster DN3.

Info for manual annotations of cluster F1:

- Start number 32 was manually annotated 6 times for cluster F1.
- Start number 39 was manually annotated 1 time for cluster F1.

Info for manual annotations of cluster F2:

- Start number 32 was manually annotated 4 times for cluster F2.

Info for manual annotations of cluster F4:

- Start number 39 was manually annotated 1 time for cluster F4.

Info for manual annotations of cluster I2:

- Start number 31 was manually annotated 1 time for cluster I2.

Info for manual annotations of cluster P6:

- Start number 26 was manually annotated 1 time for cluster P6.
- Start number 31 was manually annotated 1 time for cluster P6.

Info for manual annotations of cluster Z:

- Start number 29 was manually annotated 1 time for cluster Z.

Gene Information:

Gene: 32HC_7 Start: 3414, Stop: 3172, Start Num: 29

Candidate Starts for 32HC_7:

(25, 3423), (Start: 29 @3414 has 37 MA's), (44, 3384), (57, 3291), (60, 3273),

Gene: 39HC_037 Start: 36987, Stop: 36790, Start Num: 31

Candidate Starts for 39HC_037:

(Start: 31 @36987 has 3 MA's), (37, 36975), (Start: 46 @36948 has 4 MA's), (48, 36930), (52, 36897),

Gene: 40BC_037 Start: 36987, Stop: 36790, Start Num: 31

Candidate Starts for 40BC_037:

(Start: 31 @36987 has 3 MA's), (37, 36975), (Start: 46 @36948 has 4 MA's), (48, 36930), (52, 36897),

Gene: Abidatro_27 Start: 19710, Stop: 19528, Start Num: 38

Candidate Starts for Abidatro_27:

(23, 19749), (Start: 38 @19710 has 1 MA's),

Gene: Andrew_28 Start: 19161, Stop: 18955, Start Num: 39

Candidate Starts for Andrew_28:

(Start: 39 @19161 has 12 MA's),

Gene: Antonio_35 Start: 29354, Stop: 29118, Start Num: 29

Candidate Starts for Antonio_35:

(Start: 29 @29354 has 37 MA's), (Start: 46 @29312 has 4 MA's), (49, 29291), (55, 29249), (61, 29201), (68, 29129),

Gene: Antrice_26 Start: 19359, Stop: 19168, Start Num: 39

Candidate Starts for Antrice_26:

(16, 19434), (17, 19431), (Start: 39 @19359 has 12 MA's),

Gene: Apricot_38 Start: 28904, Stop: 28710, Start Num: 46

Candidate Starts for Apricot_38:

(Start: 29 @28946 has 37 MA's), (Start: 46 @28904 has 4 MA's), (49, 28883), (55, 28841), (61, 28793),

Gene: Arbiter_43 Start: 39491, Stop: 39312, Start Num: 40

Candidate Starts for Arbiter_43:

(Start: 29 @39518 has 37 MA's), (Start: 40 @39491 has 3 MA's), (42, 39488), (51, 39434), (56, 39401),

Gene: Asapag_39 Start: 30538, Stop: 30302, Start Num: 29

Candidate Starts for Asapag_39:

(Start: 29 @30538 has 37 MA's), (Start: 46 @30496 has 4 MA's), (49, 30475), (55, 30433), (61, 30385),

Gene: Avani_28 Start: 24082, Stop: 23903, Start Num: 32

Candidate Starts for Avani_28:

(Start: 26 @24106 has 1 MA's), (Start: 32 @24082 has 10 MA's), (Start: 39 @24076 has 12 MA's), (44, 24064), (Start: 46 @24049 has 4 MA's), (50, 24016), (64, 23920),

Gene: BENtherdunthat_38 Start: 28707, Stop: 28513, Start Num: 46

Candidate Starts for BENtherdunthat_38:

(Start: 29 @28749 has 37 MA's), (Start: 46 @28707 has 4 MA's), (49, 28686), (55, 28644), (61, 28596),

Gene: Basilisk_26 Start: 20189, Stop: 19986, Start Num: 39

Candidate Starts for Basilisk_26:

(Start: 39 @20189 has 12 MA's),

Gene: BatStarr_34 Start: 29521, Stop: 29285, Start Num: 29

Candidate Starts for BatStarr_34:

(Start: 29 @29521 has 37 MA's), (Start: 46 @29479 has 4 MA's), (55, 29416), (61, 29368), (62, 29356),

Gene: BearBQ_38 Start: 30173, Stop: 29937, Start Num: 29

Candidate Starts for BearBQ_38:

(Start: 29 @30173 has 37 MA's), (Start: 46 @30131 has 4 MA's), (49, 30110), (55, 30068), (61, 30020),

Gene: BeeGee_38 Start: 30304, Stop: 30068, Start Num: 29

Candidate Starts for BeeGee_38:

(Start: 29 @30304 has 37 MA's), (Start: 46 @30262 has 4 MA's), (49, 30241), (55, 30199), (61, 30151),

Gene: Bipolar_22 Start: 24352, Stop: 24173, Start Num: 32

Candidate Starts for Bipolar_22:

(Start: 26 @24376 has 1 MA's), (Start: 32 @24352 has 10 MA's), (Start: 39 @24346 has 12 MA's), (Start: 46 @24319 has 4 MA's), (50, 24286), (64, 24190),

Gene: Bosnia_34 Start: 29521, Stop: 29285, Start Num: 29

Candidate Starts for Bosnia_34:

(Start: 29 @29521 has 37 MA's), (Start: 46 @29479 has 4 MA's), (55, 29416), (61, 29368), (62, 29356),

Gene: Brynnie_25 Start: 19788, Stop: 19591, Start Num: 35

Candidate Starts for Brynnie_25:

(Start: 35 @19788 has 3 MA's),

Gene: Budski_39 Start: 30500, Stop: 30264, Start Num: 29

Candidate Starts for Budski_39:

(Start: 29 @30500 has 37 MA's), (Start: 46 @30458 has 4 MA's), (49, 30437), (55, 30395), (61, 30347),

Gene: Catfish_31 Start: 25984, Stop: 25784, Start Num: 39

Candidate Starts for Catfish_31:

(5, 26254), (22, 26041), (Start: 39 @25984 has 12 MA's), (44, 25972), (54, 25897),

Gene: Che9d_28 Start: 24090, Stop: 23911, Start Num: 32

Candidate Starts for Che9d_28:

(Start: 26 @24114 has 1 MA's), (Start: 32 @24090 has 10 MA's), (Start: 39 @24084 has 12 MA's),

(Start: 46 @24057 has 4 MA's), (50, 24024), (64, 23928),

Gene: CheeseTouch_37 Start: 27100, Stop: 26864, Start Num: 29

Candidate Starts for CheeseTouch_37:

(Start: 29 @27100 has 37 MA's), (Start: 46 @27058 has 4 MA's), (49, 27037), (55, 26995), (61, 26947),

Gene: Clap_30 Start: 25663, Stop: 25463, Start Num: 30

Candidate Starts for Clap_30:

(Start: 30 @25663 has 12 MA's), (44, 25642), (Start: 46 @25627 has 4 MA's), (47, 25615), (52, 25579),

Gene: Crater_36 Start: 28423, Stop: 28229, Start Num: 46

Candidate Starts for Crater_36:

(Start: 29 @28465 has 37 MA's), (Start: 46 @28423 has 4 MA's), (48, 28405), (49, 28402), (55, 28360),

(61, 28312), (62, 28300), (68, 28240),

Gene: Cynthia_30 Start: 25663, Stop: 25463, Start Num: 30

Candidate Starts for Cynthia_30:

(Start: 30 @25663 has 12 MA's), (44, 25642), (Start: 46 @25627 has 4 MA's), (47, 25615), (52, 25579),

Gene: Demsculpinboyz_28 Start: 24075, Stop: 23896, Start Num: 32

Candidate Starts for Demsculpinboyz_28:

(Start: 26 @24099 has 1 MA's), (Start: 32 @24075 has 10 MA's), (Start: 39 @24069 has 12 MA's),

(Start: 46 @24042 has 4 MA's), (50, 24009), (64, 23913),

Gene: Ebert_31 Start: 25587, Stop: 25387, Start Num: 30

Candidate Starts for Ebert_31:

(Start: 30 @25587 has 12 MA's), (44, 25566), (Start: 46 @25551 has 4 MA's), (47, 25539), (52, 25503),

Gene: Ecliptus_40 Start: 31004, Stop: 30768, Start Num: 29

Candidate Starts for Ecliptus_40:

(Start: 29 @31004 has 37 MA's), (Start: 46 @30962 has 4 MA's), (49, 30941), (55, 30899), (61, 30851),

Gene: Eudoria_35 Start: 29354, Stop: 29118, Start Num: 29

Candidate Starts for Eudoria_35:

(Start: 29 @29354 has 37 MA's), (Start: 46 @29312 has 4 MA's), (49, 29291), (55, 29249), (61, 29201),

(68, 29129),

Gene: Eviarto_34 Start: 29497, Stop: 29261, Start Num: 29
Candidate Starts for Eviarto_34:
(Start: 29 @29497 has 37 MA's), (Start: 46 @29455 has 4 MA's), (55, 29392), (61, 29344), (62, 29332),

Gene: ForDig_38 Start: 36976, Stop: 36779, Start Num: 31
Candidate Starts for ForDig_38:
(Start: 31 @36976 has 3 MA's), (37, 36964), (42, 36958), (Start: 46 @36937 has 4 MA's), (48, 36919),

Gene: Frickyeah_39 Start: 28597, Stop: 28403, Start Num: 46
Candidate Starts for Frickyeah_39:
(Start: 29 @28639 has 37 MA's), (Start: 46 @28597 has 4 MA's), (49, 28576), (55, 28534), (61, 28486),

Gene: Galaxy_26 Start: 19656, Stop: 19465, Start Num: 39
Candidate Starts for Galaxy_26:
(Start: 39 @19656 has 12 MA's),

Gene: GemG_30 Start: 25663, Stop: 25463, Start Num: 30
Candidate Starts for GemG_30:
(Start: 30 @25663 has 12 MA's), (44, 25642), (Start: 46 @25627 has 4 MA's), (47, 25615), (52, 25579),

Gene: Getalong_40 Start: 31359, Stop: 31123, Start Num: 29
Candidate Starts for Getalong_40:
(Start: 29 @31359 has 37 MA's), (Start: 46 @31317 has 4 MA's), (49, 31296), (55, 31254), (61, 31206),

Gene: Gizermo_30 Start: 25663, Stop: 25463, Start Num: 30
Candidate Starts for Gizermo_30:
(Start: 30 @25663 has 12 MA's), (44, 25642), (Start: 46 @25627 has 4 MA's), (47, 25615), (52, 25579),

Gene: Haley23_30 Start: 25663, Stop: 25463, Start Num: 30
Candidate Starts for Haley23_30:
(Start: 30 @25663 has 12 MA's), (44, 25642), (Start: 46 @25627 has 4 MA's), (47, 25615), (52, 25579),

Gene: Herod_34 Start: 29521, Stop: 29285, Start Num: 29
Candidate Starts for Herod_34:
(Start: 29 @29521 has 37 MA's), (Start: 46 @29479 has 4 MA's), (55, 29416), (61, 29368), (62, 29356),

Gene: Holliday_38 Start: 29214, Stop: 28978, Start Num: 29
Candidate Starts for Holliday_38:
(Start: 29 @29214 has 37 MA's), (Start: 46 @29172 has 4 MA's), (49, 29151), (55, 29109), (61, 29061),

Gene: Horus_39 Start: 30560, Stop: 30324, Start Num: 29
Candidate Starts for Horus_39:
(Start: 29 @30560 has 37 MA's), (Start: 46 @30518 has 4 MA's), (49, 30497), (55, 30455), (61, 30407),

Gene: Hosp_035 Start: 35180, Stop: 34983, Start Num: 31
Candidate Starts for Hosp_035:
(Start: 31 @35180 has 3 MA's), (37, 35168), (Start: 46 @35141 has 4 MA's), (48, 35123),

Gene: Hugley_32 Start: 29478, Stop: 29284, Start Num: 46
Candidate Starts for Hugley_32:
(Start: 29 @29520 has 37 MA's), (Start: 46 @29478 has 4 MA's), (55, 29415), (61, 29367), (62, 29355),

Gene: JCole_32 Start: 26114, Stop: 25941, Start Num: 49

Candidate Starts for JCole_32:

(Start: 29 @26177 has 37 MA's), (Start: 46 @26135 has 4 MA's), (48, 26117), (49, 26114), (51, 26102), (55, 26072), (61, 26024),

Gene: Jamun_25 Start: 19385, Stop: 19188, Start Num: 35

Candidate Starts for Jamun_25:

(1, 20447), (2, 20237), (3, 19964), (4, 19799), (Start: 35 @19385 has 3 MA's),

Gene: Jolie1_037 Start: 36967, Stop: 36770, Start Num: 31

Candidate Starts for Jolie1_037:

(Start: 31 @36967 has 3 MA's), (37, 36955), (42, 36949), (Start: 46 @36928 has 4 MA's), (48, 36910),

Gene: KayaCho_37 Start: 36966, Stop: 36766, Start Num: 31

Candidate Starts for KayaCho_37:

(Start: 31 @36966 has 3 MA's), (Start: 39 @36951 has 12 MA's), (Start: 46 @36924 has 4 MA's), (48, 36906),

Gene: Kenna_38 Start: 29550, Stop: 29314, Start Num: 29

Candidate Starts for Kenna_38:

(Start: 29 @29550 has 37 MA's), (Start: 46 @29508 has 4 MA's), (49, 29487), (55, 29445), (61, 29397),

Gene: Kenuha5_22 Start: 24468, Stop: 24289, Start Num: 32

Candidate Starts for Kenuha5_22:

(Start: 26 @24492 has 1 MA's), (Start: 32 @24468 has 10 MA's), (Start: 39 @24462 has 12 MA's), (Start: 46 @24435 has 4 MA's), (50, 24402), (64, 24306),

Gene: Kersh_23 Start: 24511, Stop: 24332, Start Num: 32

Candidate Starts for Kersh_23:

(Start: 26 @24535 has 1 MA's), (Start: 32 @24511 has 10 MA's), (Start: 39 @24505 has 12 MA's), (Start: 46 @24478 has 4 MA's), (50, 24445), (64, 24349),

Gene: Kita_36 Start: 29363, Stop: 29127, Start Num: 29

Candidate Starts for Kita_36:

(Start: 29 @29363 has 37 MA's), (Start: 46 @29321 has 4 MA's), (49, 29300), (55, 29258), (61, 29210), (68, 29138),

Gene: Kuleana_27 Start: 19065, Stop: 18880, Start Num: 39

Candidate Starts for Kuleana_27:

(33, 19077), (Start: 39 @19065 has 12 MA's),

Gene: Leroy_39 Start: 30561, Stop: 30325, Start Num: 29

Candidate Starts for Leroy_39:

(Start: 29 @30561 has 37 MA's), (Start: 46 @30519 has 4 MA's), (49, 30498), (55, 30456), (61, 30408),

Gene: LonelyBoi_35 Start: 30866, Stop: 30690, Start Num: 34

Candidate Starts for LonelyBoi_35:

(Start: 34 @30866 has 1 MA's), (44, 30851), (47, 30824),

Gene: Lukepolites_69 Start: 44405, Stop: 44190, Start Num: 27

Candidate Starts for Lukepolites_69:

(27, 44405),

Gene: Lutum_39 Start: 29550, Stop: 29314, Start Num: 29

Candidate Starts for Lutum_39:

(Start: 29 @29550 has 37 MA's), (Start: 46 @29508 has 4 MA's), (49, 29487), (55, 29445), (61, 29397),

Gene: Madiba_23 Start: 24209, Stop: 24036, Start Num: 39

Candidate Starts for Madiba_23:

(Start: 26 @24239 has 1 MA's), (Start: 32 @24215 has 10 MA's), (Start: 39 @24209 has 12 MA's),
(Start: 46 @24182 has 4 MA's), (50, 24149), (64, 24053),

Gene: Manasvini_35 Start: 29355, Stop: 29119, Start Num: 29

Candidate Starts for Manasvini_35:

(Start: 29 @29355 has 37 MA's), (Start: 46 @29313 has 4 MA's), (49, 29292), (55, 29250), (61, 29202),
(68, 29130),

Gene: Maridalia_34 Start: 29354, Stop: 29118, Start Num: 29

Candidate Starts for Maridalia_34:

(Start: 29 @29354 has 37 MA's), (Start: 46 @29312 has 4 MA's), (49, 29291), (55, 29249), (61, 29201),
(68, 29129),

Gene: Maruru_95 Start: 57307, Stop: 57080, Start Num: 25

Candidate Starts for Maruru_95:

(14, 57349), (16, 57343), (18, 57337), (21, 57325), (24, 57310), (25, 57307), (36, 57274), (43, 57259),

Gene: Mocha12_30 Start: 25663, Stop: 25463, Start Num: 30

Candidate Starts for Mocha12_30:

(Start: 30 @25663 has 12 MA's), (44, 25642), (Start: 46 @25627 has 4 MA's), (47, 25615), (52, 25579),

Gene: Neobush_35 Start: 29354, Stop: 29118, Start Num: 29

Candidate Starts for Neobush_35:

(Start: 29 @29354 has 37 MA's), (Start: 46 @29312 has 4 MA's), (49, 29291), (55, 29249), (61, 29201),
(68, 29129),

Gene: Nymphadora_34 Start: 29521, Stop: 29285, Start Num: 29

Candidate Starts for Nymphadora_34:

(Start: 29 @29521 has 37 MA's), (Start: 46 @29479 has 4 MA's), (55, 29416), (61, 29368), (62, 29356),

Gene: ODay_42 Start: 31024, Stop: 30788, Start Num: 29

Candidate Starts for ODay_42:

(Start: 29 @31024 has 37 MA's), (Start: 46 @30982 has 4 MA's), (49, 30961), (55, 30919), (61, 30871),

Gene: Ogopogo_25 Start: 24675, Stop: 24496, Start Num: 32

Candidate Starts for Ogopogo_25:

(Start: 26 @24699 has 1 MA's), (Start: 32 @24675 has 10 MA's), (Start: 39 @24669 has 12 MA's),
(Start: 46 @24642 has 4 MA's), (50, 24609), (64, 24513),

Gene: Orcanus_26 Start: 19951, Stop: 19748, Start Num: 39

Candidate Starts for Orcanus_26:

(Start: 39 @19951 has 12 MA's),

Gene: Periwinkle_42 Start: 31005, Stop: 30769, Start Num: 29

Candidate Starts for Periwinkle_42:

(Start: 29 @31005 has 37 MA's), (Start: 46 @30963 has 4 MA's), (49, 30942), (55, 30900), (61, 30852),

Gene: Phabuloso_36 Start: 29262, Stop: 29026, Start Num: 29

Candidate Starts for Phabuloso_36:

(Start: 29 @29262 has 37 MA's), (Start: 46 @29220 has 4 MA's), (49, 29199), (55, 29157), (61, 29109),

Gene: Phistory_39 Start: 29860, Stop: 29666, Start Num: 46

Candidate Starts for Phistory_39:

(Start: 29 @29902 has 37 MA's), (Start: 46 @29860 has 4 MA's), (49, 29839), (55, 29797), (61, 29749),

Gene: Polly_32 Start: 28797, Stop: 28561, Start Num: 29

Candidate Starts for Polly_32:

(Start: 29 @28797 has 37 MA's), (Start: 46 @28755 has 4 MA's), (49, 28734), (55, 28692), (61, 28644), (68, 28572),

Gene: Pollywog_25 Start: 25545, Stop: 25366, Start Num: 32

Candidate Starts for Pollywog_25:

(Start: 26 @25569 has 1 MA's), (Start: 32 @25545 has 10 MA's), (Start: 39 @25539 has 12 MA's), (Start: 46 @25512 has 4 MA's), (50, 25479), (64, 25383),

Gene: Purky_30 Start: 26584, Stop: 26351, Start Num: 31

Candidate Starts for Purky_30:

(12, 26659), (13, 26656), (15, 26650), (Start: 29 @26593 has 37 MA's), (Start: 31 @26584 has 3 MA's), (44, 26560), (51, 26512), (61, 26434), (63, 26419),

Gene: Purky_36 Start: 28450, Stop: 28653, Start Num: 26

Candidate Starts for Purky_36:

(Start: 26 @28450 has 1 MA's), (Start: 29 @28462 has 37 MA's), (Start: 39 @28480 has 12 MA's), (58, 28588), (59, 28600),

Gene: Qyrzula_41 Start: 39560, Stop: 39381, Start Num: 40

Candidate Starts for Qyrzula_41:

(Start: 29 @39587 has 37 MA's), (Start: 40 @39560 has 3 MA's), (42, 39557), (51, 39503), (56, 39470),

Gene: RavenCo17_36 Start: 30180, Stop: 29944, Start Num: 29

Candidate Starts for RavenCo17_36:

(Start: 29 @30180 has 37 MA's), (Start: 46 @30138 has 4 MA's), (49, 30117), (55, 30075), (61, 30027),

Gene: RayTheFireFly_38 Start: 29870, Stop: 29667, Start Num: 45

Candidate Starts for RayTheFireFly_38:

(Start: 29 @29903 has 37 MA's), (Start: 45 @29870 has 1 MA's), (49, 29840), (53, 29807), (55, 29798), (61, 29750),

Gene: Rem711_6 Start: 3521, Stop: 3279, Start Num: 29

Candidate Starts for Rem711_6:

(6, 3722), (10, 3584), (Start: 29 @3521 has 37 MA's), (51, 3443), (55, 3413), (57, 3398), (60, 3380),

Gene: Rosebush_43 Start: 39530, Stop: 39351, Start Num: 40

Candidate Starts for Rosebush_43:

(Start: 29 @39557 has 37 MA's), (Start: 40 @39530 has 3 MA's), (42, 39527), (51, 39473), (56, 39440),

Gene: Sahara_29 Start: 25333, Stop: 25133, Start Num: 30

Candidate Starts for Sahara_29:

(Start: 30 @25333 has 12 MA's), (44, 25312), (Start: 46 @25297 has 4 MA's), (47, 25285), (52, 25249),

Gene: Savage_30 Start: 25663, Stop: 25463, Start Num: 30

Candidate Starts for Savage_30:

(Start: 30 @25663 has 12 MA's), (44, 25642), (Start: 46 @25627 has 4 MA's), (47, 25615), (52, 25579),

Gene: Sbash_32 Start: 28849, Stop: 28601, Start Num: 31

Candidate Starts for Sbash_32:

(12, 28924), (13, 28921), (15, 28915), (Start: 29 @28858 has 37 MA's), (Start: 31 @28849 has 3 MA's), (44, 28825), (61, 28699), (63, 28684), (69, 28609),

Gene: Shambre1_30 Start: 22778, Stop: 22578, Start Num: 39

Candidate Starts for Shambre1_30:

(Start: 39 @22778 has 12 MA's), (67, 22595),

Gene: ShawBrad_38 Start: 29124, Stop: 28888, Start Num: 29

Candidate Starts for ShawBrad_38:

(Start: 29 @29124 has 37 MA's), (Start: 46 @29082 has 4 MA's), (49, 29061), (55, 29019), (61, 28971),

Gene: ShroomBoi_22 Start: 24354, Stop: 24175, Start Num: 32

Candidate Starts for ShroomBoi_22:

(Start: 26 @24378 has 1 MA's), (Start: 32 @24354 has 10 MA's), (Start: 39 @24348 has 12 MA's), (44, 24336), (Start: 46 @24321 has 4 MA's), (50, 24288), (64, 24192),

Gene: Sleepyhead_33 Start: 26741, Stop: 26493, Start Num: 29

Candidate Starts for Sleepyhead_33:

(11, 26798), (Start: 29 @26741 has 37 MA's), (Start: 40 @26723 has 3 MA's), (52, 26651), (55, 26636),

Gene: Spooky_39 Start: 29741, Stop: 29508, Start Num: 39

Candidate Starts for Spooky_39:

(20, 29801), (28, 29771), (Start: 39 @29741 has 12 MA's), (41, 29738), (Start: 45 @29723 has 1 MA's), (65, 29549), (66, 29543),

Gene: Sproutie_30 Start: 25663, Stop: 25463, Start Num: 30

Candidate Starts for Sproutie_30:

(Start: 30 @25663 has 12 MA's), (44, 25642), (Start: 46 @25627 has 4 MA's), (47, 25615), (52, 25579),

Gene: Squiddly_40 Start: 31125, Stop: 30892, Start Num: 39

Candidate Starts for Squiddly_40:

(20, 31185), (28, 31155), (Start: 39 @31125 has 12 MA's), (41, 31122), (Start: 45 @31107 has 1 MA's), (65, 30933), (66, 30927),

Gene: StuartMinion_25 Start: 18294, Stop: 18103, Start Num: 39

Candidate Starts for StuartMinion_25:

(7, 18519), (8, 18441), (9, 18429), (33, 18306), (Start: 39 @18294 has 12 MA's),

Gene: Stuck_40 Start: 31182, Stop: 30949, Start Num: 31

Candidate Starts for Stuck_40:

(12, 31257), (13, 31254), (15, 31248), (Start: 29 @31191 has 37 MA's), (Start: 31 @31182 has 3 MA's), (44, 31158), (51, 31110), (61, 31032),

Gene: Suscepit_35 Start: 29355, Stop: 29119, Start Num: 29

Candidate Starts for Suscepit_35:

(Start: 29 @29355 has 37 MA's), (Start: 46 @29313 has 4 MA's), (49, 29292), (55, 29250), (61, 29202), (68, 29130),

Gene: TaylorSipt_26 Start: 18969, Stop: 18775, Start Num: 39
Candidate Starts for TaylorSipt_26:
(Start: 39 @18969 has 12 MA's),

Gene: Tayonia_35 Start: 29354, Stop: 29118, Start Num: 29
Candidate Starts for Tayonia_35:
(Start: 29 @29354 has 37 MA's), (Start: 46 @29312 has 4 MA's), (49, 29291), (55, 29249), (61, 29201),
(68, 29129),

Gene: ThetaBob_24 Start: 24665, Stop: 24492, Start Num: 39
Candidate Starts for ThetaBob_24:
(Start: 26 @24695 has 1 MA's), (Start: 32 @24671 has 10 MA's), (Start: 39 @24665 has 12 MA's),
(Start: 46 @24638 has 4 MA's), (50, 24605), (64, 24509),

Gene: TimTam_34 Start: 29521, Stop: 29285, Start Num: 29
Candidate Starts for TimTam_34:
(Start: 29 @29521 has 37 MA's), (Start: 46 @29479 has 4 MA's), (55, 29416), (61, 29368), (62, 29356),

Gene: Trumpet_35 Start: 29355, Stop: 29119, Start Num: 29
Candidate Starts for Trumpet_35:
(Start: 29 @29355 has 37 MA's), (Start: 46 @29313 has 4 MA's), (49, 29292), (55, 29250), (61, 29202),
(68, 29130),

Gene: TuertoX_30 Start: 25663, Stop: 25463, Start Num: 30
Candidate Starts for TuertoX_30:
(Start: 30 @25663 has 12 MA's), (44, 25642), (Start: 46 @25627 has 4 MA's), (47, 25615), (52, 25579),

Gene: Vulpecula_25 Start: 19383, Stop: 19186, Start Num: 35
Candidate Starts for Vulpecula_25:
(Start: 35 @19383 has 3 MA's),

Gene: Whack_33 Start: 28160, Stop: 27924, Start Num: 29
Candidate Starts for Whack_33:
(19, 28187), (Start: 29 @28160 has 37 MA's), (57, 28040),

Gene: Whiteclaw_30 Start: 25663, Stop: 25463, Start Num: 30
Candidate Starts for Whiteclaw_30:
(Start: 30 @25663 has 12 MA's), (44, 25642), (Start: 46 @25627 has 4 MA's), (47, 25615), (52, 25579),

Gene: Whitney_42 Start: 32542, Stop: 32306, Start Num: 29
Candidate Starts for Whitney_42:
(Start: 29 @32542 has 37 MA's), (Start: 46 @32500 has 4 MA's), (49, 32479), (55, 32437), (61, 32389),

Gene: Yoshi_28 Start: 24080, Stop: 23901, Start Num: 32
Candidate Starts for Yoshi_28:
(Start: 26 @24104 has 1 MA's), (Start: 32 @24080 has 10 MA's), (Start: 39 @24074 has 12 MA's),
(Start: 46 @24047 has 4 MA's), (50, 24014), (64, 23918),

Gene: Zameen_35 Start: 29354, Stop: 29118, Start Num: 29
Candidate Starts for Zameen_35:
(Start: 29 @29354 has 37 MA's), (Start: 46 @29312 has 4 MA's), (49, 29291), (55, 29249), (61, 29201),
(68, 29129),