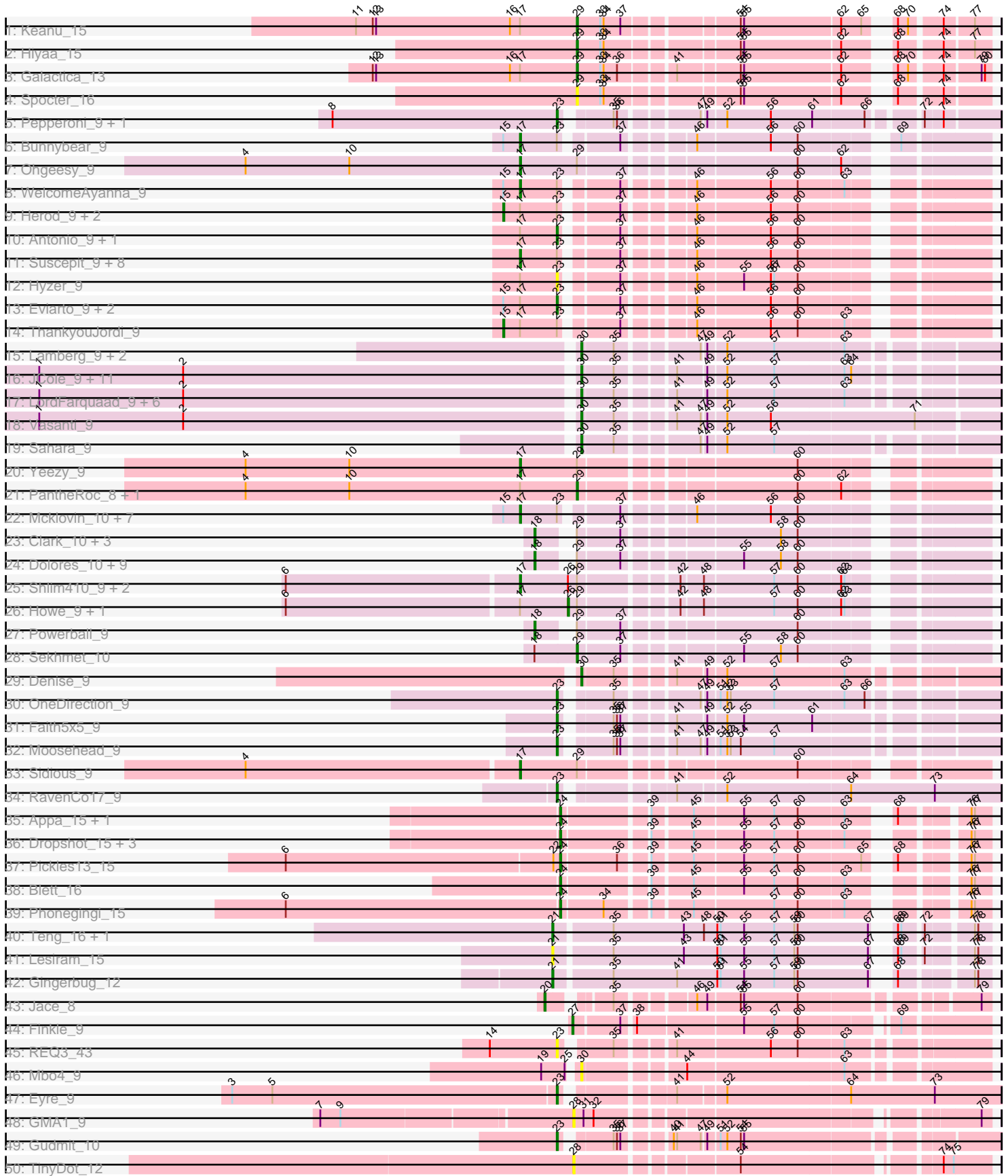


Pham 163467



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 163467 Report

This analysis was run 04/28/24 on database version 559.

Pham number 163467 has 111 members, 17 are drafts.

Phages represented in each track:

- Track 1 : Keanu_15
- Track 2 : Hiya_15
- Track 3 : Galactica_13
- Track 4 : Spocter_16
- Track 5 : Pepperoni_9, Lton_9
- Track 6 : Bunnybear_9
- Track 7 : Ohgeesy_9
- Track 8 : WelcomeAyanna_9
- Track 9 : Herod_9, BatStarr_9, Zirinka_9
- Track 10 : Antonio_9, Maridalia_9
- Track 11 : Suscepit_9, Polly_9, Manasvini_9, Trumpet_9, Kita_9, Zameen_9, Eudoria_9, Tayonia_9, Neobush_9
- Track 12 : Hyzer_9
- Track 13 : Eviarto_9, Hugley_9, TimTam_9
- Track 14 : ThankyouJordi_9
- Track 15 : Lamberg_9, EdnaMode_9, Nettuno_9
- Track 16 : JCole_9, Cynthia_9, Clap_9, GemG_9, Whiteclaw_9, Sproutie_9, Gizermo_9, Ebert_9, Savage_9, Mocha12_9, Haley23_9, TuertoX_9
- Track 17 : LordFarquaad_9, Yeet412_9, Attis_9, SoilAssassin_9, Matteo_9, Bjanes7_9, Pickett_9
- Track 18 : Vasanti_9
- Track 19 : Sahara_9
- Track 20 : Yeezy_9
- Track 21 : PantheRoc_8, BaxterFox_9
- Track 22 : Mcklovin_10, Agueybana_9, Nymphadora_9, AlumE_9, Bialota_9, BoyNamedSue_9, Madeline_9, Bosnia_9
- Track 23 : Clark_10, Annalisa_10, Dorito_9, PhriskyACE_9
- Track 24 : Dolores_10, MichaelScott_10, DobbysSock_9, Suerte_9, WinkNick_10, Easley_10, Oregano_10, Samman98_10, Beenie_10, Thimann_10
- Track 25 : Shlim410_9, Hortense_9, Adora_9
- Track 26 : Howe_9, Twinkle_9
- Track 27 : Powerball_9
- Track 28 : Sekhmet_10
- Track 29 : Denise_9
- Track 30 : OneDirection_9
- Track 31 : Faith5x5_9
- Track 32 : Moosehead_9

- Track 33 : Sidious_9
- Track 34 : RavenCo17_9
- Track 35 : Appa_15, Warren_16
- Track 36 : Dropshot_15, MenE_19, Antuna_16, Bush_17
- Track 37 : Pickles13_15
- Track 38 : Blett_16
- Track 39 : Phonegingi_15
- Track 40 : Teng_16, DelaGarza_15
- Track 41 : Lesiram_15
- Track 42 : Gingerbug_12
- Track 43 : Jace_8
- Track 44 : Finkle_9
- Track 45 : REQ3_43
- Track 46 : Mbo4_9
- Track 47 : Eyre_9
- Track 48 : GMA1_9
- Track 49 : Gudmit_10
- Track 50 : TinyDot_12

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

The start number called the most often in the published annotations is 17, it was called in 25 of the 94 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Adora_9, Agueybana_9, AlumE_9, Bialota_9, Bosnia_9, BoyNamedSue_9, Bunnybear_9, Eudoria_9, Hortense_9, Kita_9, Madeline_9, Manasvini_9, Mcklovin_10, Neobush_9, Nymphadora_9, Ohgeesy_9, Polly_9, Shlim410_9, Sidious_9, Suscepit_9, Tayonia_9, Trumpet_9, WelcomeAyanna_9, Yeezy_9, Zameen_9,

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

- Antonio_9, BatStarr_9, BaxterFox_9, Eviarto_9, Galactica_13, Herod_9, Howe_9, Hugley_9, Hyzer_9, Keanu_15, Maridalia_9, PantheRoc_8, ThankyouJordi_9, TimTam_9, Twinkle_9, Zirinka_9,

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

- Annalisa_10, Antuna_16, Appa_15, Attis_9, Beenie_10, Bjanes7_9, Blett_16, Bush_17, Clap_9, Clark_10, Cynthia_9, DelaGarza_15, Denise_9, DobbysSock_9, Dolores_10, Dorito_9, Dropshot_15, Easley_10, Ebert_9, EdnaMode_9, Eyre_9, Faith5x5_9, Finkle_9, GMA1_9, GemG_9, Gingerbug_12, Gizermo_9, Gudmit_10, Haley23_9, Hiya_15, JCole_9, Jace_8, Lamberg_9, Lesiram_15, LordFarquaad_9, Lton_9, Matteo_9, Mbo4_9, MenE_19, MichaelScott_10, Mocha12_9, Moosehead_9, Nettuno_9, OneDirection_9, Oregano_10, Pepperoni_9, Phonegingi_15, PhriskyACE_9, Pickett_9, Pickles13_15, Powerball_9, REQ3_43, RavenCo17_9, Sahara_9, Samman98_10, Savage_9, Sekhmet_10, SoilAssassin_9, Spocter_16, Sproutie_9, Suerte_9, Teng_16, Thimann_10, TinyDot_12, TuertoX_9, Vasanti_9, Warren_16, Whiteclaw_9, WinkNick_10, Yeet412_9,

Summary by start number:

Start 15:

- Found in 17 of 111 (15.3%) of genes in pham
- Manual Annotations of this start: 4 of 94
- Called 23.5% of time when present
- Phage (with cluster) where this start called: BatStarr_9 (CZ1), Herod_9 (CZ1), ThankyouJordi_9 (CZ1), Zirinka_9 (CZ1),

Start 17:

- Found in 41 of 111 (36.9%) of genes in pham
- Manual Annotations of this start: 25 of 94
- Called 61.0% of time when present
- Phage (with cluster) where this start called: Adora_9 (CZ4), Agueybana_9 (CZ1), AlumE_9 (CZ1), Bialota_9 (CZ1), Bosnia_9 (CZ1), BoyNamedSue_9 (CZ1), Bunnybear_9 (CZ), Eudoria_9 (CZ1), Hortense_9 (CZ4), Kita_9 (CZ1), Madeline_9 (CZ1), Manasvini_9 (CZ1), Mcklovin_10 (CZ4), Neobush_9 (CZ1), Nymphadora_9 (CZ1), Ohgeesy_9 (CZ), Polly_9 (CZ1), Shlim410_9 (CZ4), Sidious_9 (CZ7), Suscepit_9 (CZ1), Tayonia_9 (CZ1), Trumpet_9 (CZ1), WelcomeAyanna_9 (CZ1), Yeezy_9 (CZ3), Zameen_9 (CZ1),

Start 18:

- Found in 16 of 111 (14.4%) of genes in pham
- Manual Annotations of this start: 13 of 94
- Called 93.8% of time when present
- Phage (with cluster) where this start called: Annalisa_10 (CZ4), Beenie_10 (CZ4), Clark_10 (CZ4), DobbysSock_9 (CZ4), Dolores_10 (CZ4), Dorito_9 (CZ4), Easley_10 (CZ4), MichaelScott_10 (CZ4), Oregano_10 (CZ4), PhriskyACE_9 (CZ4), Powerball_9 (CZ4), Samman98_10 (CZ4), Suerte_9 (CZ4), Thimann_10 (CZ4), WinkNick_10 (CZ4),

Start 20:

- Found in 1 of 111 (0.9%) of genes in pham
- Manual Annotations of this start: 1 of 94
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jace_8 (singleton),

Start 21:

- Found in 4 of 111 (3.6%) of genes in pham
- Manual Annotations of this start: 2 of 94
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DelaGarza_15 (GF), Gingerbug_12 (GF), Lesiram_15 (GF), Teng_16 (GF),

Start 23:

- Found in 38 of 111 (34.2%) of genes in pham
- Manual Annotations of this start: 11 of 94
- Called 39.5% of time when present
- Phage (with cluster) where this start called: Antonio_9 (CZ1), Eviarto_9 (CZ1), Eyre_9 (singleton), Faith5x5_9 (CZ6), Gudmit_10 (singleton), Hugley_9 (CZ1), Hyzer_9 (CZ1), Lton_9 (CZ), Maridalia_9 (CZ1), Moosehead_9 (CZ6), OneDirection_9 (CZ6), Pepperoni_9 (CZ), REQ3_43 (singleton), RavenCo17_9 (CZ8), TimTam_9 (CZ1),

Start 24:

- Found in 9 of 111 (8.1%) of genes in pham
- Manual Annotations of this start: 7 of 94
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Antuna_16 (GA), Appa_15 (GA), Blett_16 (GA), Bush_17 (GA), Dropshot_15 (GA), MenE_19 (GA), Phonegingi_15 (GA), Pickles13_15 (GA), Warren_16 (GA),

Start 26:

- Found in 5 of 111 (4.5%) of genes in pham
- Manual Annotations of this start: 2 of 94
- Called 40.0% of time when present
- Phage (with cluster) where this start called: Howe_9 (CZ4), Twinkle_9 (CZ4),

Start 27:

- Found in 1 of 111 (0.9%) of genes in pham
- Manual Annotations of this start: 1 of 94
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Finkle_9 (singleton),

Start 28:

- Found in 2 of 111 (1.8%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: GMA1_9 (singleton), TinyDot_12 (singleton),

Start 29:

- Found in 30 of 111 (27.0%) of genes in pham
- Manual Annotations of this start: 5 of 94
- Called 23.3% of time when present
- Phage (with cluster) where this start called: BaxterFox_9 (CZ3), Galactica_13 (BQ), Hiyaa_15 (BQ), Keanu_15 (BQ), PantheRoc_8 (CZ3), Sekhmet_10 (CZ4), Spocter_16 (BQ),

Start 30:

- Found in 26 of 111 (23.4%) of genes in pham
- Manual Annotations of this start: 23 of 94
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Attis_9 (CZ2), Bjaner7_9 (CZ2), Clap_9 (CZ2), Cynthia_9 (CZ2), Denise_9 (CZ5), Ebert_9 (CZ2), EdnaMode_9 (CZ2), GemG_9 (CZ2), Gizermo_9 (CZ2), Haley23_9 (CZ2), JCole_9 (CZ2), Lamberg_9 (CZ2), LordFarquaad_9 (CZ2), Matteo_9 (CZ2), Mbo4_9 (singleton), Mocha12_9 (CZ2), Nettuno_9 (CZ2), Pickett_9 (CZ2), Sahara_9 (CZ2), Savage_9 (CZ2), SoilAssassin_9 (CZ2), Sproutie_9 (CZ2), TuertoX_9 (CZ2), Vasanti_9 (CZ2), Whiteclaw_9 (CZ2), Yeet412_9 (CZ2),

Summary by clusters:

There are 13 clusters represented in this pham: singleton, CZ, CZ2, CZ3, CZ1, CZ6, CZ7, CZ4, CZ5, GF, BQ, GA, CZ8,

Info for manual annotations of cluster BQ:

- Start number 29 was manually annotated 3 times for cluster BQ.

Info for manual annotations of cluster CZ:

- Start number 17 was manually annotated 2 times for cluster CZ.
- Start number 23 was manually annotated 1 time for cluster CZ.

Info for manual annotations of cluster CZ1:

- Start number 15 was manually annotated 4 times for cluster CZ1.
- Start number 17 was manually annotated 17 times for cluster CZ1.
- Start number 23 was manually annotated 4 times for cluster CZ1.

Info for manual annotations of cluster CZ2:

- Start number 30 was manually annotated 22 times for cluster CZ2.

Info for manual annotations of cluster CZ3:

- Start number 17 was manually annotated 1 time for cluster CZ3.
- Start number 29 was manually annotated 1 time for cluster CZ3.

Info for manual annotations of cluster CZ4:

- Start number 17 was manually annotated 4 times for cluster CZ4.
- Start number 18 was manually annotated 13 times for cluster CZ4.
- Start number 26 was manually annotated 2 times for cluster CZ4.
- Start number 29 was manually annotated 1 time for cluster CZ4.

Info for manual annotations of cluster CZ5:

- Start number 30 was manually annotated 1 time for cluster CZ5.

Info for manual annotations of cluster CZ6:

- Start number 23 was manually annotated 3 times for cluster CZ6.

Info for manual annotations of cluster CZ7:

- Start number 17 was manually annotated 1 time for cluster CZ7.

Info for manual annotations of cluster CZ8:

- Start number 23 was manually annotated 1 time for cluster CZ8.

Info for manual annotations of cluster GA:

- Start number 24 was manually annotated 7 times for cluster GA.

Info for manual annotations of cluster GF:

- Start number 21 was manually annotated 2 times for cluster GF.

Gene Information:

Gene: Adora_9 Start: 6677, Stop: 7039, Start Num: 17

Candidate Starts for Adora_9:

(6, 6473), (Start: 17 @6677 has 25 MA's), (Start: 26 @6719 has 2 MA's), (Start: 29 @6725 has 5 MA's), (42, 6800), (48, 6818), (57, 6878), (60, 6899), (62, 6935), (63, 6938),

Gene: Agueybana_9 Start: 7344, Stop: 7697, Start Num: 17

Candidate Starts for Agueybana_9:

(Start: 15 @7329 has 4 MA's), (Start: 17 @7344 has 25 MA's), (Start: 23 @7377 has 11 MA's), (37, 7419), (46, 7470), (56, 7533), (60, 7557),

Gene: AlumE_9 Start: 7344, Stop: 7697, Start Num: 17

Candidate Starts for AlumE_9:

(Start: 15 @7329 has 4 MA's), (Start: 17 @7344 has 25 MA's), (Start: 23 @7377 has 11 MA's), (37, 7419), (46, 7470), (56, 7533), (60, 7557),

Gene: Annalisa_10 Start: 7010, Stop: 7345, Start Num: 18

Candidate Starts for Annalisa_10:

(Start: 18 @7010 has 13 MA's), (Start: 29 @7031 has 5 MA's), (37, 7067), (58, 7190), (60, 7205),

Gene: Antonio_9 Start: 7377, Stop: 7697, Start Num: 23

Candidate Starts for Antonio_9:

(Start: 17 @7344 has 25 MA's), (Start: 23 @7377 has 11 MA's), (37, 7419), (46, 7470), (56, 7533), (60, 7557),

Gene: Antuna_16 Start: 8983, Stop: 9306, Start Num: 24

Candidate Starts for Antuna_16:

(Start: 24 @8983 has 7 MA's), (39, 9052), (45, 9085), (55, 9127), (57, 9154), (60, 9175), (63, 9214), (76, 9289), (77, 9292),

Gene: Appa_15 Start: 8845, Stop: 9168, Start Num: 24

Candidate Starts for Appa_15:

(Start: 24 @8845 has 7 MA's), (39, 8914), (45, 8947), (55, 8989), (57, 9016), (60, 9037), (63, 9076), (68, 9103), (76, 9151), (77, 9154),

Gene: Attis_9 Start: 6508, Stop: 6834, Start Num: 30

Candidate Starts for Attis_9:

(1, 6034), (2, 6163), (Start: 30 @6508 has 23 MA's), (35, 6535), (41, 6577), (49, 6601), (52, 6616), (57, 6658), (63, 6718),

Gene: BatStarr_9 Start: 7329, Stop: 7697, Start Num: 15

Candidate Starts for BatStarr_9:

(Start: 15 @7329 has 4 MA's), (Start: 17 @7344 has 25 MA's), (Start: 23 @7377 has 11 MA's), (37, 7419), (46, 7470), (56, 7533), (60, 7557),

Gene: BaxterFox_9 Start: 6731, Stop: 7045, Start Num: 29

Candidate Starts for BaxterFox_9:

(4, 6434), (10, 6527), (Start: 17 @6680 has 25 MA's), (Start: 29 @6731 has 5 MA's), (60, 6905), (62, 6941),

Gene: Beenie_10 Start: 7004, Stop: 7339, Start Num: 18

Candidate Starts for Beenie_10:

(Start: 18 @7004 has 13 MA's), (Start: 29 @7025 has 5 MA's), (37, 7061), (55, 7151), (58, 7184), (60, 7199),

Gene: Bialota_9 Start: 7344, Stop: 7697, Start Num: 17

Candidate Starts for Bialota_9:

(Start: 15 @7329 has 4 MA's), (Start: 17 @7344 has 25 MA's), (Start: 23 @7377 has 11 MA's), (37, 7419), (46, 7470), (56, 7533), (60, 7557),

Gene: Bjaner7_9 Start: 6508, Stop: 6834, Start Num: 30

Candidate Starts for Bjanes7_9:

(1, 6034), (2, 6163), (Start: 30 @6508 has 23 MA's), (35, 6535), (41, 6577), (49, 6601), (52, 6616), (57, 6658), (63, 6718),

Gene: Blett_16 Start: 8998, Stop: 9321, Start Num: 24

Candidate Starts for Blett_16:

(Start: 24 @8998 has 7 MA's), (39, 9067), (45, 9100), (55, 9142), (57, 9169), (60, 9190), (63, 9229), (76, 9304), (77, 9307),

Gene: Bosnia_9 Start: 7344, Stop: 7697, Start Num: 17

Candidate Starts for Bosnia_9:

(Start: 15 @7329 has 4 MA's), (Start: 17 @7344 has 25 MA's), (Start: 23 @7377 has 11 MA's), (37, 7419), (46, 7470), (56, 7533), (60, 7557),

Gene: BoyNamedSue_9 Start: 7344, Stop: 7697, Start Num: 17

Candidate Starts for BoyNamedSue_9:

(Start: 15 @7329 has 4 MA's), (Start: 17 @7344 has 25 MA's), (Start: 23 @7377 has 11 MA's), (37, 7419), (46, 7470), (56, 7533), (60, 7557),

Gene: Bunnybear_9 Start: 7335, Stop: 7688, Start Num: 17

Candidate Starts for Bunnybear_9:

(Start: 15 @7320 has 4 MA's), (Start: 17 @7335 has 25 MA's), (Start: 23 @7368 has 11 MA's), (37, 7410), (46, 7461), (56, 7524), (60, 7548), (69, 7617),

Gene: Bush_17 Start: 8979, Stop: 9302, Start Num: 24

Candidate Starts for Bush_17:

(Start: 24 @8979 has 7 MA's), (39, 9048), (45, 9081), (55, 9123), (57, 9150), (60, 9171), (63, 9210), (76, 9285), (77, 9288),

Gene: Clap_9 Start: 6508, Stop: 6834, Start Num: 30

Candidate Starts for Clap_9:

(1, 6034), (2, 6163), (Start: 30 @6508 has 23 MA's), (35, 6535), (41, 6577), (49, 6601), (52, 6616), (57, 6658), (63, 6718), (64, 6724),

Gene: Clark_10 Start: 7010, Stop: 7345, Start Num: 18

Candidate Starts for Clark_10:

(Start: 18 @7010 has 13 MA's), (Start: 29 @7031 has 5 MA's), (37, 7067), (58, 7190), (60, 7205),

Gene: Cynthia_9 Start: 6508, Stop: 6834, Start Num: 30

Candidate Starts for Cynthia_9:

(1, 6034), (2, 6163), (Start: 30 @6508 has 23 MA's), (35, 6535), (41, 6577), (49, 6601), (52, 6616), (57, 6658), (63, 6718), (64, 6724),

Gene: DelaGarza_15 Start: 9604, Stop: 9954, Start Num: 21

Candidate Starts for DelaGarza_15:

(Start: 21 @9604 has 2 MA's), (35, 9652), (43, 9715), (48, 9733), (50, 9745), (51, 9748), (55, 9769), (57, 9796), (59, 9814), (60, 9817), (67, 9880), (68, 9886), (69, 9889), (72, 9904), (77, 9940), (78, 9943),

Gene: Denise_9 Start: 6517, Stop: 6843, Start Num: 30

Candidate Starts for Denise_9:

(Start: 30 @6517 has 23 MA's), (35, 6544), (41, 6586), (49, 6610), (52, 6625), (57, 6667), (63, 6727),

Gene: DobbysSock_9 Start: 6502, Stop: 6837, Start Num: 18

Candidate Starts for DobbysSock_9:

(Start: 18 @6502 has 13 MA's), (Start: 29 @6523 has 5 MA's), (37, 6559), (55, 6649), (58, 6682), (60, 6697),

Gene: Dolores_10 Start: 7004, Stop: 7339, Start Num: 18

Candidate Starts for Dolores_10:

(Start: 18 @7004 has 13 MA's), (Start: 29 @7025 has 5 MA's), (37, 7061), (55, 7151), (58, 7184), (60, 7199),

Gene: Dorito_9 Start: 6508, Stop: 6843, Start Num: 18

Candidate Starts for Dorito_9:

(Start: 18 @6508 has 13 MA's), (Start: 29 @6529 has 5 MA's), (37, 6565), (58, 6688), (60, 6703),

Gene: Dropshot_15 Start: 8845, Stop: 9168, Start Num: 24

Candidate Starts for Dropshot_15:

(Start: 24 @8845 has 7 MA's), (39, 8914), (45, 8947), (55, 8989), (57, 9016), (60, 9037), (63, 9076), (76, 9151), (77, 9154),

Gene: Easley_10 Start: 7004, Stop: 7339, Start Num: 18

Candidate Starts for Easley_10:

(Start: 18 @7004 has 13 MA's), (Start: 29 @7025 has 5 MA's), (37, 7061), (55, 7151), (58, 7184), (60, 7199),

Gene: Ebert_9 Start: 6508, Stop: 6834, Start Num: 30

Candidate Starts for Ebert_9:

(1, 6034), (2, 6163), (Start: 30 @6508 has 23 MA's), (35, 6535), (41, 6577), (49, 6601), (52, 6616), (57, 6658), (63, 6718), (64, 6724),

Gene: EdnaMode_9 Start: 6508, Stop: 6834, Start Num: 30

Candidate Starts for EdnaMode_9:

(Start: 30 @6508 has 23 MA's), (35, 6535), (47, 6598), (49, 6601), (52, 6616), (57, 6658), (63, 6718),

Gene: Eudoria_9 Start: 7344, Stop: 7697, Start Num: 17

Candidate Starts for Eudoria_9:

(Start: 17 @7344 has 25 MA's), (Start: 23 @7377 has 11 MA's), (37, 7419), (46, 7470), (56, 7533), (60, 7557),

Gene: Eviarto_9 Start: 7377, Stop: 7697, Start Num: 23

Candidate Starts for Eviarto_9:

(Start: 15 @7329 has 4 MA's), (Start: 17 @7344 has 25 MA's), (Start: 23 @7377 has 11 MA's), (37, 7419), (46, 7470), (56, 7533), (60, 7557),

Gene: Eyre_9 Start: 7136, Stop: 7498, Start Num: 23

Candidate Starts for Eyre_9:

(3, 6848), (5, 6884), (Start: 23 @7136 has 11 MA's), (41, 7217), (52, 7256), (64, 7364), (73, 7439),

Gene: Faith5x5_9 Start: 6467, Stop: 6802, Start Num: 23

Candidate Starts for Faith5x5_9:

(Start: 23 @6467 has 11 MA's), (35, 6503), (36, 6506), (37, 6509), (41, 6545), (49, 6569), (52, 6584), (55, 6599), (61, 6659),

Gene: Finkle_9 Start: 6638, Stop: 6967, Start Num: 27

Candidate Starts for Finkle_9:

(Start: 27 @6638 has 1 MA's), (37, 6677), (38, 6686), (55, 6776), (57, 6803), (60, 6824), (69, 6896),

Gene: GMA1_9 Start: 6867, Stop: 7187, Start Num: 28

Candidate Starts for GMA1_9:

(7, 6651), (9, 6669), (28, 6867), (31, 6876), (32, 6885), (79, 7179),

Gene: Galactica_13 Start: 12489, Stop: 12806, Start Num: 29

Candidate Starts for Galactica_13:

(12, 12306), (13, 12309), (16, 12429), (Start: 17 @12438 has 25 MA's), (Start: 29 @12489 has 5 MA's), (33, 12510), (34, 12513), (36, 12525), (41, 12567), (54, 12618), (55, 12621), (62, 12705), (68, 12735), (70, 12744), (74, 12768), (79, 12798), (80, 12801),

Gene: GemG_9 Start: 6508, Stop: 6834, Start Num: 30

Candidate Starts for GemG_9:

(1, 6034), (2, 6163), (Start: 30 @6508 has 23 MA's), (35, 6535), (41, 6577), (49, 6601), (52, 6616), (57, 6658), (63, 6718), (64, 6724),

Gene: Gingerbug_12 Start: 8787, Stop: 9137, Start Num: 21

Candidate Starts for Gingerbug_12:

(Start: 21 @8787 has 2 MA's), (35, 8835), (41, 8892), (50, 8928), (51, 8931), (55, 8952), (57, 8979), (59, 8997), (60, 9000), (67, 9063), (68, 9069), (77, 9123), (78, 9126),

Gene: Gizermo_9 Start: 6508, Stop: 6834, Start Num: 30

Candidate Starts for Gizermo_9:

(1, 6034), (2, 6163), (Start: 30 @6508 has 23 MA's), (35, 6535), (41, 6577), (49, 6601), (52, 6616), (57, 6658), (63, 6718), (64, 6724),

Gene: Gudmit_10 Start: 7283, Stop: 7618, Start Num: 23

Candidate Starts for Gudmit_10:

(Start: 23 @7283 has 11 MA's), (35, 7319), (36, 7322), (37, 7325), (40, 7358), (41, 7361), (47, 7382), (49, 7385), (51, 7394), (52, 7400), (54, 7412), (55, 7415),

Gene: Haley23_9 Start: 6508, Stop: 6834, Start Num: 30

Candidate Starts for Haley23_9:

(1, 6034), (2, 6163), (Start: 30 @6508 has 23 MA's), (35, 6535), (41, 6577), (49, 6601), (52, 6616), (57, 6658), (63, 6718), (64, 6724),

Gene: Herod_9 Start: 7329, Stop: 7697, Start Num: 15

Candidate Starts for Herod_9:

(Start: 15 @7329 has 4 MA's), (Start: 17 @7344 has 25 MA's), (Start: 23 @7377 has 11 MA's), (37, 7419), (46, 7470), (56, 7533), (60, 7557),

Gene: Hiyaa_15 Start: 13527, Stop: 13844, Start Num: 29

Candidate Starts for Hiyaa_15:

(Start: 29 @13527 has 5 MA's), (33, 13548), (34, 13551), (54, 13656), (55, 13659), (62, 13743), (68, 13773), (74, 13806), (77, 13830),

Gene: Hortense_9 Start: 6677, Stop: 7039, Start Num: 17

Candidate Starts for Hortense_9:

(6, 6473), (Start: 17 @6677 has 25 MA's), (Start: 26 @6719 has 2 MA's), (Start: 29 @6725 has 5 MA's), (42, 6800), (48, 6818), (57, 6878), (60, 6899), (62, 6935), (63, 6938),

Gene: Howe_9 Start: 6719, Stop: 7039, Start Num: 26

Candidate Starts for Howe_9:

(6, 6473), (Start: 17 @6677 has 25 MA's), (Start: 26 @6719 has 2 MA's), (Start: 29 @6725 has 5 MA's), (42, 6800), (48, 6818), (57, 6878), (60, 6899), (62, 6935), (63, 6938),

Gene: Hugley_9 Start: 7377, Stop: 7697, Start Num: 23

Candidate Starts for Hugley_9:

(Start: 15 @7329 has 4 MA's), (Start: 17 @7344 has 25 MA's), (Start: 23 @7377 has 11 MA's), (37, 7419), (46, 7470), (56, 7533), (60, 7557),

Gene: Hyzer_9 Start: 7378, Stop: 7698, Start Num: 23

Candidate Starts for Hyzer_9:

(Start: 17 @7345 has 25 MA's), (Start: 23 @7378 has 11 MA's), (37, 7420), (46, 7471), (55, 7510), (56, 7534), (57, 7537), (60, 7558),

Gene: JCole_9 Start: 6508, Stop: 6834, Start Num: 30

Candidate Starts for JCole_9:

(1, 6034), (2, 6163), (Start: 30 @6508 has 23 MA's), (35, 6535), (41, 6577), (49, 6601), (52, 6616), (57, 6658), (63, 6718), (64, 6724),

Gene: Jace_8 Start: 7053, Stop: 7382, Start Num: 20

Candidate Starts for Jace_8:

(Start: 20 @7053 has 1 MA's), (35, 7095), (46, 7152), (49, 7161), (54, 7188), (55, 7191), (60, 7239), (79, 7374),

Gene: Keanu_15 Start: 13576, Stop: 13893, Start Num: 29

Candidate Starts for Keanu_15:

(11, 13378), (12, 13393), (13, 13396), (16, 13516), (Start: 17 @13525 has 25 MA's), (Start: 29 @13576 has 5 MA's), (33, 13597), (34, 13600), (37, 13615), (54, 13705), (55, 13708), (62, 13792), (65, 13810), (68, 13822), (70, 13831), (74, 13855), (77, 13879),

Gene: Kita_9 Start: 7344, Stop: 7697, Start Num: 17

Candidate Starts for Kita_9:

(Start: 17 @7344 has 25 MA's), (Start: 23 @7377 has 11 MA's), (37, 7419), (46, 7470), (56, 7533), (60, 7557),

Gene: Lamberg_9 Start: 6508, Stop: 6834, Start Num: 30

Candidate Starts for Lamberg_9:

(Start: 30 @6508 has 23 MA's), (35, 6535), (47, 6598), (49, 6601), (52, 6616), (57, 6658), (63, 6718),

Gene: Lesiram_15 Start: 9580, Stop: 9930, Start Num: 21

Candidate Starts for Lesiram_15:

(Start: 21 @9580 has 2 MA's), (35, 9628), (43, 9691), (50, 9721), (51, 9724), (55, 9745), (57, 9772), (59, 9790), (60, 9793), (67, 9856), (68, 9862), (69, 9865), (72, 9880), (77, 9916), (78, 9919),

Gene: LordFarquaad_9 Start: 6508, Stop: 6834, Start Num: 30

Candidate Starts for LordFarquaad_9:

(1, 6034), (2, 6163), (Start: 30 @6508 has 23 MA's), (35, 6535), (41, 6577), (49, 6601), (52, 6616), (57, 6658), (63, 6718),

Gene: Lton_9 Start: 6521, Stop: 6856, Start Num: 23

Candidate Starts for Lton_9:

(8, 6320), (Start: 23 @6521 has 11 MA's), (35, 6557), (36, 6560), (47, 6620), (49, 6623), (52, 6638), (56, 6677), (61, 6713), (66, 6758), (72, 6794), (74, 6809),

Gene: Madeline_9 Start: 7344, Stop: 7697, Start Num: 17

Candidate Starts for Madeline_9:

(Start: 15 @7329 has 4 MA's), (Start: 17 @7344 has 25 MA's), (Start: 23 @7377 has 11 MA's), (37, 7419), (46, 7470), (56, 7533), (60, 7557),

Gene: Manasvini_9 Start: 7344, Stop: 7697, Start Num: 17

Candidate Starts for Manasvini_9:

(Start: 17 @7344 has 25 MA's), (Start: 23 @7377 has 11 MA's), (37, 7419), (46, 7470), (56, 7533), (60, 7557),

Gene: Maridalia_9 Start: 7377, Stop: 7697, Start Num: 23

Candidate Starts for Maridalia_9:

(Start: 17 @7344 has 25 MA's), (Start: 23 @7377 has 11 MA's), (37, 7419), (46, 7470), (56, 7533), (60, 7557),

Gene: Matteo_9 Start: 6508, Stop: 6834, Start Num: 30

Candidate Starts for Matteo_9:

(1, 6034), (2, 6163), (Start: 30 @6508 has 23 MA's), (35, 6535), (41, 6577), (49, 6601), (52, 6616), (57, 6658), (63, 6718),

Gene: Mbo4_9 Start: 7186, Stop: 7509, Start Num: 30

Candidate Starts for Mbo4_9:

(19, 7159), (25, 7180), (Start: 30 @7186 has 23 MA's), (44, 7264), (63, 7399),

Gene: Mcklovin_10 Start: 7803, Stop: 8156, Start Num: 17

Candidate Starts for Mcklovin_10:

(Start: 15 @7788 has 4 MA's), (Start: 17 @7803 has 25 MA's), (Start: 23 @7836 has 11 MA's), (37, 7878), (46, 7929), (56, 7992), (60, 8016),

Gene: MenE_19 Start: 9113, Stop: 9436, Start Num: 24

Candidate Starts for MenE_19:

(Start: 24 @9113 has 7 MA's), (39, 9182), (45, 9215), (55, 9257), (57, 9284), (60, 9305), (63, 9344), (76, 9419), (77, 9422),

Gene: MichaelScott_10 Start: 7004, Stop: 7339, Start Num: 18

Candidate Starts for MichaelScott_10:

(Start: 18 @7004 has 13 MA's), (Start: 29 @7025 has 5 MA's), (37, 7061), (55, 7151), (58, 7184), (60, 7199),

Gene: Mocha12_9 Start: 6508, Stop: 6834, Start Num: 30

Candidate Starts for Mocha12_9:

(1, 6034), (2, 6163), (Start: 30 @6508 has 23 MA's), (35, 6535), (41, 6577), (49, 6601), (52, 6616), (57, 6658), (63, 6718), (64, 6724),

Gene: Moosehead_9 Start: 6464, Stop: 6799, Start Num: 23

Candidate Starts for Moosehead_9:

(Start: 23 @6464 has 11 MA's), (35, 6500), (36, 6503), (37, 6506), (41, 6542), (47, 6563), (49, 6566), (51, 6575), (52, 6581), (53, 6584), (54, 6593), (57, 6623),

Gene: Neobush_9 Start: 7344, Stop: 7697, Start Num: 17

Candidate Starts for Neobush_9:

(Start: 17 @7344 has 25 MA's), (Start: 23 @7377 has 11 MA's), (37, 7419), (46, 7470), (56, 7533), (60, 7557),

Gene: Nettuno_9 Start: 6508, Stop: 6834, Start Num: 30

Candidate Starts for Nettuno_9:

(Start: 30 @6508 has 23 MA's), (35, 6535), (47, 6598), (49, 6601), (52, 6616), (57, 6658), (63, 6718),

Gene: Nymphadora_9 Start: 7344, Stop: 7697, Start Num: 17

Candidate Starts for Nymphadora_9:

(Start: 15 @7329 has 4 MA's), (Start: 17 @7344 has 25 MA's), (Start: 23 @7377 has 11 MA's), (37, 7419), (46, 7470), (56, 7533), (60, 7557),

Gene: Ohgeesy_9 Start: 6680, Stop: 7045, Start Num: 17

Candidate Starts for Ohgeesy_9:

(4, 6434), (10, 6527), (Start: 17 @6680 has 25 MA's), (Start: 29 @6731 has 5 MA's), (60, 6905), (62, 6941),

Gene: OneDirection_9 Start: 6465, Stop: 6800, Start Num: 23

Candidate Starts for OneDirection_9:

(Start: 23 @6465 has 11 MA's), (35, 6501), (47, 6564), (49, 6567), (51, 6576), (52, 6582), (53, 6585), (57, 6624), (63, 6684), (66, 6702),

Gene: Oregano_10 Start: 6675, Stop: 7010, Start Num: 18

Candidate Starts for Oregano_10:

(Start: 18 @6675 has 13 MA's), (Start: 29 @6696 has 5 MA's), (37, 6732), (55, 6822), (58, 6855), (60, 6870),

Gene: PantheRoc_8 Start: 6731, Stop: 7045, Start Num: 29

Candidate Starts for PantheRoc_8:

(4, 6434), (10, 6527), (Start: 17 @6680 has 25 MA's), (Start: 29 @6731 has 5 MA's), (60, 6905), (62, 6941),

Gene: Pepperoni_9 Start: 6815, Stop: 7150, Start Num: 23

Candidate Starts for Pepperoni_9:

(8, 6614), (Start: 23 @6815 has 11 MA's), (35, 6851), (36, 6854), (47, 6914), (49, 6917), (52, 6932), (56, 6971), (61, 7007), (66, 7052), (72, 7088), (74, 7103),

Gene: Phonegingi_15 Start: 8845, Stop: 9168, Start Num: 24

Candidate Starts for Phonegingi_15:

(6, 8602), (Start: 24 @8845 has 7 MA's), (34, 8881), (39, 8914), (45, 8947), (57, 9016), (60, 9037), (63, 9076), (76, 9151), (77, 9154),

Gene: PhriskyACE_9 Start: 6508, Stop: 6843, Start Num: 18

Candidate Starts for PhriskyACE_9:

(Start: 18 @6508 has 13 MA's), (Start: 29 @6529 has 5 MA's), (37, 6565), (58, 6688), (60, 6703),

Gene: Pickett_9 Start: 6508, Stop: 6834, Start Num: 30

Candidate Starts for Pickett_9:

(1, 6034), (2, 6163), (Start: 30 @6508 has 23 MA's), (35, 6535), (41, 6577), (49, 6601), (52, 6616), (57, 6658), (63, 6718),

Gene: Pickles13_15 Start: 9015, Stop: 9338, Start Num: 24

Candidate Starts for Pickles13_15:

(6, 8772), (22, 9009), (Start: 24 @9015 has 7 MA's), (36, 9063), (39, 9084), (45, 9117), (55, 9159), (57, 9186), (60, 9207), (65, 9261), (68, 9273), (76, 9321), (77, 9324),

Gene: Polly_9 Start: 7344, Stop: 7697, Start Num: 17

Candidate Starts for Polly_9:

(Start: 17 @7344 has 25 MA's), (Start: 23 @7377 has 11 MA's), (37, 7419), (46, 7470), (56, 7533), (60, 7557),

Gene: Powerball_9 Start: 6508, Stop: 6843, Start Num: 18

Candidate Starts for Powerball_9:

(Start: 18 @6508 has 13 MA's), (Start: 29 @6529 has 5 MA's), (37, 6565), (60, 6703),

Gene: REQ3_43 Start: 23906, Stop: 24238, Start Num: 23

Candidate Starts for REQ3_43:

(14, 23846), (Start: 23 @23906 has 11 MA's), (35, 23942), (41, 23984), (56, 24065), (60, 24089), (63, 24128),

Gene: RavenCo17_9 Start: 7317, Stop: 7679, Start Num: 23

Candidate Starts for RavenCo17_9:

(Start: 23 @7317 has 11 MA's), (41, 7398), (52, 7437), (64, 7545), (73, 7620),

Gene: Sahara_9 Start: 6524, Stop: 6850, Start Num: 30

Candidate Starts for Sahara_9:

(Start: 30 @6524 has 23 MA's), (35, 6551), (47, 6614), (49, 6617), (52, 6632), (57, 6674),

Gene: Samman98_10 Start: 7004, Stop: 7339, Start Num: 18

Candidate Starts for Samman98_10:

(Start: 18 @7004 has 13 MA's), (Start: 29 @7025 has 5 MA's), (37, 7061), (55, 7151), (58, 7184), (60, 7199),

Gene: Savage_9 Start: 6508, Stop: 6834, Start Num: 30

Candidate Starts for Savage_9:

(1, 6034), (2, 6163), (Start: 30 @6508 has 23 MA's), (35, 6535), (41, 6577), (49, 6601), (52, 6616), (57, 6658), (63, 6718), (64, 6724),

Gene: Sekhmet_10 Start: 7025, Stop: 7339, Start Num: 29

Candidate Starts for Sekhmet_10:

(Start: 18 @7004 has 13 MA's), (Start: 29 @7025 has 5 MA's), (37, 7061), (55, 7151), (58, 7184), (60, 7199),

Gene: Shlim410_9 Start: 6677, Stop: 7039, Start Num: 17

Candidate Starts for Shlim410_9:

(6, 6473), (Start: 17 @6677 has 25 MA's), (Start: 26 @6719 has 2 MA's), (Start: 29 @6725 has 5 MA's), (42, 6800), (48, 6818), (57, 6878), (60, 6899), (62, 6935), (63, 6938),

Gene: Sidious_9 Start: 6674, Stop: 7039, Start Num: 17

Candidate Starts for Sidious_9:

(4, 6434), (Start: 17 @6674 has 25 MA's), (Start: 29 @6725 has 5 MA's), (60, 6899),

Gene: SoilAssassin_9 Start: 6508, Stop: 6834, Start Num: 30

Candidate Starts for SoilAssassin_9:

(1, 6034), (2, 6163), (Start: 30 @6508 has 23 MA's), (35, 6535), (41, 6577), (49, 6601), (52, 6616), (57, 6658), (63, 6718),

Gene: Spocter_16 Start: 13515, Stop: 13832, Start Num: 29

Candidate Starts for Spocter_16:

(Start: 29 @13515 has 5 MA's), (33, 13536), (34, 13539), (54, 13644), (55, 13647), (62, 13731), (68, 13761), (74, 13794),

Gene: Sproutie_9 Start: 6508, Stop: 6834, Start Num: 30

Candidate Starts for Sproutie_9:

(1, 6034), (2, 6163), (Start: 30 @6508 has 23 MA's), (35, 6535), (41, 6577), (49, 6601), (52, 6616), (57, 6658), (63, 6718), (64, 6724),

Gene: Suerte_9 Start: 6502, Stop: 6837, Start Num: 18

Candidate Starts for Suerte_9:

(Start: 18 @6502 has 13 MA's), (Start: 29 @6523 has 5 MA's), (37, 6559), (55, 6649), (58, 6682), (60, 6697),

Gene: Suscepit_9 Start: 7344, Stop: 7697, Start Num: 17

Candidate Starts for Suscepit_9:

(Start: 17 @7344 has 25 MA's), (Start: 23 @7377 has 11 MA's), (37, 7419), (46, 7470), (56, 7533), (60, 7557),

Gene: Tayonia_9 Start: 7344, Stop: 7697, Start Num: 17

Candidate Starts for Tayonia_9:

(Start: 17 @7344 has 25 MA's), (Start: 23 @7377 has 11 MA's), (37, 7419), (46, 7470), (56, 7533), (60, 7557),

Gene: Teng_16 Start: 9601, Stop: 9951, Start Num: 21

Candidate Starts for Teng_16:

(Start: 21 @9601 has 2 MA's), (35, 9649), (43, 9712), (48, 9730), (50, 9742), (51, 9745), (55, 9766), (57, 9793), (59, 9811), (60, 9814), (67, 9877), (68, 9883), (69, 9886), (72, 9901), (77, 9937), (78, 9940),

Gene: ThankyouJordi_9 Start: 7327, Stop: 7695, Start Num: 15

Candidate Starts for ThankyouJordi_9:

(Start: 15 @7327 has 4 MA's), (Start: 17 @7342 has 25 MA's), (Start: 23 @7375 has 11 MA's), (37, 7417), (46, 7468), (56, 7531), (60, 7555), (63, 7594),

Gene: Thimann_10 Start: 7004, Stop: 7339, Start Num: 18

Candidate Starts for Thimann_10:

(Start: 18 @7004 has 13 MA's), (Start: 29 @7025 has 5 MA's), (37, 7061), (55, 7151), (58, 7184), (60, 7199),

Gene: TimTam_9 Start: 7377, Stop: 7697, Start Num: 23

Candidate Starts for TimTam_9:

(Start: 15 @7329 has 4 MA's), (Start: 17 @7344 has 25 MA's), (Start: 23 @7377 has 11 MA's), (37, 7419), (46, 7470), (56, 7533), (60, 7557),

Gene: TinyDot_12 Start: 7635, Stop: 7961, Start Num: 28

Candidate Starts for TinyDot_12:

(28, 7635), (54, 7764), (74, 7920), (75, 7929),

Gene: Trumpet_9 Start: 7344, Stop: 7697, Start Num: 17
Candidate Starts for Trumpet_9:
(Start: 17 @7344 has 25 MA's), (Start: 23 @7377 has 11 MA's), (37, 7419), (46, 7470), (56, 7533),
(60, 7557),

Gene: TuertoX_9 Start: 6508, Stop: 6834, Start Num: 30
Candidate Starts for TuertoX_9:
(1, 6034), (2, 6163), (Start: 30 @6508 has 23 MA's), (35, 6535), (41, 6577), (49, 6601), (52, 6616), (57,
6658), (63, 6718), (64, 6724),

Gene: Twinkle_9 Start: 6719, Stop: 7039, Start Num: 26
Candidate Starts for Twinkle_9:
(6, 6473), (Start: 17 @6677 has 25 MA's), (Start: 26 @6719 has 2 MA's), (Start: 29 @6725 has 5
MA's), (42, 6800), (48, 6818), (57, 6878), (60, 6899), (62, 6935), (63, 6938),

Gene: Vasanti_9 Start: 6512, Stop: 6853, Start Num: 30
Candidate Starts for Vasanti_9:
(1, 6038), (2, 6167), (Start: 30 @6512 has 23 MA's), (35, 6539), (41, 6581), (47, 6602), (49, 6605), (52,
6620), (56, 6659), (71, 6785),

Gene: Warren_16 Start: 9042, Stop: 9365, Start Num: 24
Candidate Starts for Warren_16:
(Start: 24 @9042 has 7 MA's), (39, 9111), (45, 9144), (55, 9186), (57, 9213), (60, 9234), (63, 9273),
(68, 9300), (76, 9348), (77, 9351),

Gene: WelcomeAyanna_9 Start: 7342, Stop: 7695, Start Num: 17
Candidate Starts for WelcomeAyanna_9:
(Start: 15 @7327 has 4 MA's), (Start: 17 @7342 has 25 MA's), (Start: 23 @7375 has 11 MA's), (37,
7417), (46, 7468), (56, 7531), (60, 7555), (63, 7594),

Gene: Whiteclaw_9 Start: 6508, Stop: 6834, Start Num: 30
Candidate Starts for Whiteclaw_9:
(1, 6034), (2, 6163), (Start: 30 @6508 has 23 MA's), (35, 6535), (41, 6577), (49, 6601), (52, 6616), (57,
6658), (63, 6718), (64, 6724),

Gene: WinkNick_10 Start: 7004, Stop: 7339, Start Num: 18
Candidate Starts for WinkNick_10:
(Start: 18 @7004 has 13 MA's), (Start: 29 @7025 has 5 MA's), (37, 7061), (55, 7151), (58, 7184), (60,
7199),

Gene: Yeet412_9 Start: 6508, Stop: 6834, Start Num: 30
Candidate Starts for Yeet412_9:
(1, 6034), (2, 6163), (Start: 30 @6508 has 23 MA's), (35, 6535), (41, 6577), (49, 6601), (52, 6616), (57,
6658), (63, 6718),

Gene: Yeezy_9 Start: 6677, Stop: 7042, Start Num: 17
Candidate Starts for Yeezy_9:
(4, 6431), (10, 6524), (Start: 17 @6677 has 25 MA's), (Start: 29 @6728 has 5 MA's), (60, 6902),

Gene: Zameen_9 Start: 7344, Stop: 7697, Start Num: 17
Candidate Starts for Zameen_9:
(Start: 17 @7344 has 25 MA's), (Start: 23 @7377 has 11 MA's), (37, 7419), (46, 7470), (56, 7533),
(60, 7557),

Gene: Zirinka_9 Start: 7329, Stop: 7697, Start Num: 15

Candidate Starts for Zirinka_9:

(Start: 15 @7329 has 4 MA's), (Start: 17 @7344 has 25 MA's), (Start: 23 @7377 has 11 MA's), (37, 7419), (46, 7470), (56, 7533), (60, 7557),