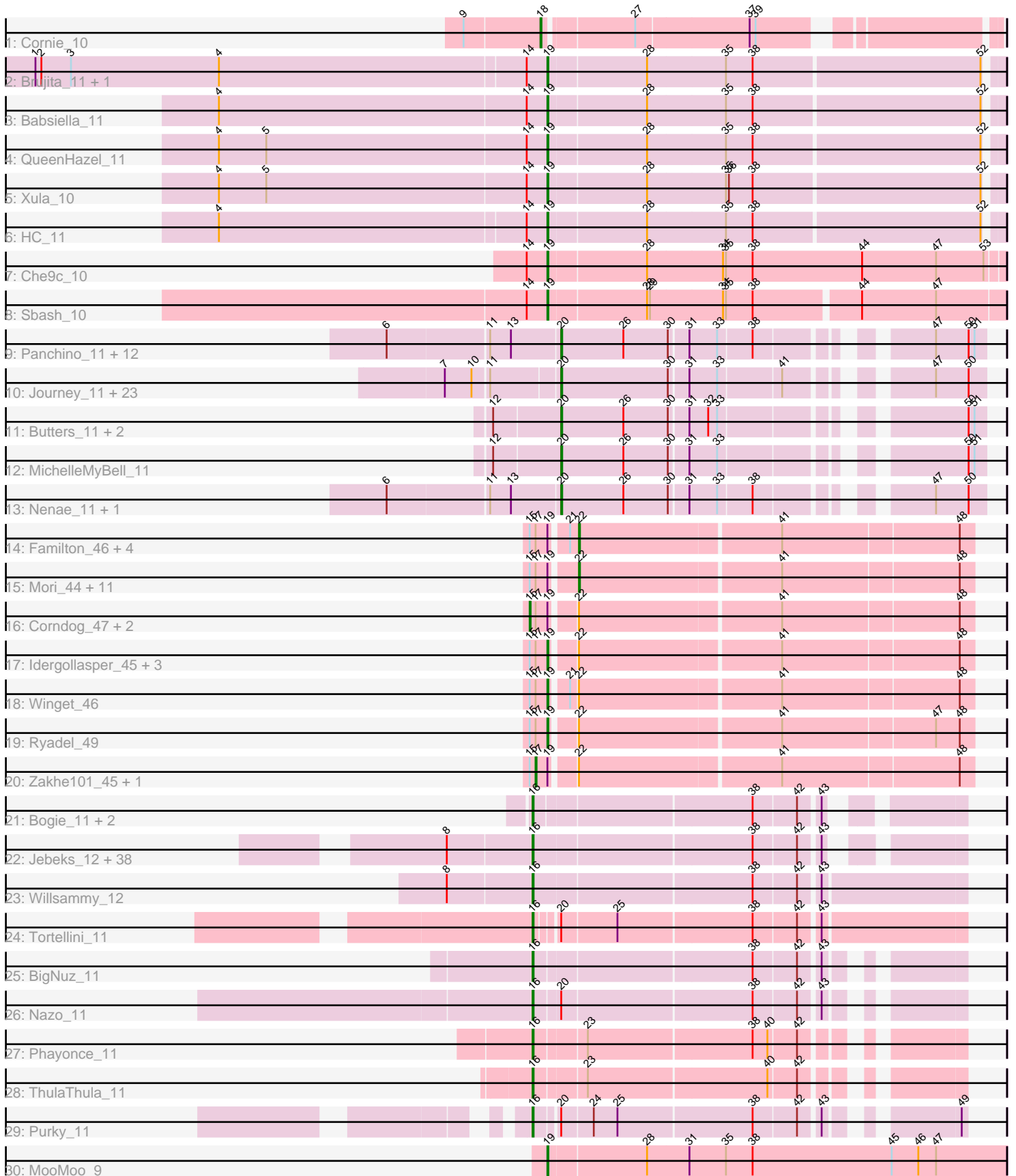


Pham 163438



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 163438 Report

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

Pham number 163438 has 130 members, 15 are drafts.

Phages represented in each track:

- Track 1 : Cornie_10
- Track 2 : Brujita_11, Island3_11
- Track 3 : Babsiella_11
- Track 4 : QueenHazel_11
- Track 5 : Xula_10
- Track 6 : HC_11
- Track 7 : Che9c_10
- Track 8 : Sbash_10
- Track 9 : Panchino_11, PhancyPhin_11, Snekmaggedon_11, Phrann_11, Shweta_11, SkinnyPete_11, ShrimpFriedEgg_11, Raymond7_11, Jamie19_11, Rebel_11, BabeRuth_11, SpongeBob_11, Redi_11
- Track 10 : Journey_11, Andies_11, Smurph_11, Silvafighter_11, Tapioca_11, Gex_11, Aggie_11, Xerxes_11, Chewbacca_11, Philonius_11, Pipsqueaks_11, Carcharodon_11, Fulbright_11, Bosection6_11, Silvy_11, Charlie_11, Parmesanjohn_11, Melville_11, Xeno_11, Schnauzer_11, Phloss_11, Magsby_11, Scitech_11, Duplicity_11
- Track 11 : Butters_11, Kevin1_11, Rubeelu_11
- Track 12 : MichelleMyBell_11
- Track 13 : Nenae_11, Purgamenstris_11
- Track 14 : Familton_46, SchoolBus_45, Blessica_46, JangDynasty_45, TelAviv_42
- Track 15 : Mori_44, Krili_44, YungJamal_48, Wildflower_43, Dylan_44, Smooch_47, NiebruSaylor_44, MadKillah_46, Shida_45, Vorrps_44, FoulBall_42, Murai_45
- Track 16 : Corndog_47, Catdawg_45, Firecracker_45
- Track 17 : Idergollasper_45, Alkhayr_43, Schuy_43, Bora_42
- Track 18 : Winget_46
- Track 19 : Ryadel_49
- Track 20 : Zakhe101_45, Ashwin_44
- Track 21 : Bogie_11, Shipwreck_11, Pygmy_11
- Track 22 : Jebeks_12, KilKor_12, Langerak_12, Phalm_12, Donovan_12, Mangethe_12, Sonah_12, Majeke_12, HUHilltop_12, StressBall_12, Megiddo_12, Polkaroo_12, Fishburne_12, Zilizebeth_12, Necropolis_12, Ksquared_12, Techage_12, Camster_12, Bunnies_12, Bartholomew_12, Arib1_12, Dynamo_12, CactusJack_12, Malithi_12, Thespis_12, Vidya_12, Glaske_12, Phegasus_12, Venti_12, Brusacoram_12, Xavia_12, FirstPlacePfu_12, GreaseLightnin_12, Jung_12, Phineas_12, StevieRay_12, Atcoo_12, Kari_12, Juniormint_12
- Track 23 : Willsammy_12
- Track 24 : Tortellini_11

- Track 25 : BigNuz_11
- Track 26 : Nazo_11
- Track 27 : Phayonce_11
- Track 28 : ThulaThula_11
- Track 29 : Purky_11
- Track 30 : MooMoo_9

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

The start number called the most often in the published annotations is 16, it was called in 45 of the 115 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Arib1_12, Atcoo_12, Bartholomew_12, BigNuz_11, Bogie_11, Brusacoram_12, Bunnies_12, CactusJack_12, Camster_12, Donovan_12, Dynamo_12, FirstPlacePfu_12, Fishburne_12, Glaske_12, GreaseLightnin_12, HUHilltop_12, Jebeks_12, Jung_12, Juniormint_12, Kari_12, KilKor_12, Ksquared_12, Langerak_12, Majeke_12, Malithi_12, Mangethe_12, Megiddo_12, Nazo_11, Necropolis_12, Phalm_12, Phayonce_11, Phegasus_12, Phineas_12, Polkaroo_12, Purky_11, Pygmy_11, Shipwreck_11, Sonah_12, StevieRay_12, StressBall_12, Techage_12, Thespis_12, ThulaThula_11, Tortellini_11, Venti_12, Vidya_12, Willsammy_12, Xavia_12, Zilizebeth_12,

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

-

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

- Aggie_11, Alkhayr_43, Andies_11, Ashwin_44, BabeRuth_11, Babsiella_11, Blessica_46, Bora_42, Bosection6_11, Brujita_11, Butters_11, Carcharodon_11, Catdawg_45, Charlie_11, Che9c_10, Chewbacca_11, Corndog_47, Cornie_10, Duplicity_11, Dylan_44, Familton_46, Firecracker_45, FoulBall_42, Fulbright_11, Gex_11, HC_11, Idergollasper_45, Island3_11, Jamie19_11, JangDynasty_45, Journey_11, Kevin1_11, Krili_44, MadKillah_46, Magsby_11, Melville_11, MichelleMyBell_11, MooMoo_9, Mori_44, Murai_45, Nenae_11, NiebruSaylor_44, Panchino_11, Parmesanjohn_11, PhancyPhin_11, Philonius_11, Phloss_11, Phrann_11, Pipsqueaks_11, Purgamenstris_11, QueenHazel_11, Raymond7_11, Rebel_11, Redi_11, Rubeelu_11, Ryadel_49, Sbash_10, Schnauzer_11, SchoolBus_45, Schuy_43, Scitech_11, Shida_45, ShrimpFriedEgg_11, Shweta_11, Silvafighter_11, Silvy_11, SkinnyPete_11, Smooch_47, Smurph_11, Snekmaggon_11, SpongeBob_11, Tapioca_11, TelAviv_42, Vorrps_44, Wildflower_43, Winget_46, Xeno_11, Xerxes_11, Xula_10, YungJamal_48, Zakhe101_45,

Summary by start number:

Start 15:

- Found in 28 of 130 (21.5%) of genes in pham
- Manual Annotations of this start: 3 of 115
- Called 10.7% of time when present

- Phage (with cluster) where this start called: Catdawg_45 (O), Corndog_47 (O), Firecracker_45 (O),

Start 16:

- Found in 49 of 130 (37.7%) of genes in pham
- Manual Annotations of this start: 45 of 115
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Arib1_12 (P1), Atcoo_12 (P1), Bartholomew_12 (P1), BigNuz_11 (P4), Bogie_11 (P1), Brusacoram_12 (P1), Bunnies_12 (P1), CactusJack_12 (P1), Camster_12 (P1), Donovan_12 (P1), Dynamo_12 (P1), FirstPlacePfu_12 (P1), Fishburne_12 (P1), Glaske_12 (P1), GreaseLightnin_12 (P1), HUHilltop_12 (P1), Jebeks_12 (P1), Jung_12 (P1), Juniormint_12 (P1), Kari_12 (P1), KilKor_12 (P1), Ksquared_12 (P1), Langerak_12 (P1), Majeke_12 (P1), Malithi_12 (P1), Mangethe_12 (P1), Megiddo_12 (P1), Nazo_11 (P4), Necropolis_12 (P1), Phalm_12 (P1), Phayonce_11 (P5), Phegasus_12 (P1), Phineas_12 (P1), Polkaroo_12 (P1), Purky_11 (P6), Pygmy_11 (P1), Shipwreck_11 (P1), Sonah_12 (P1), StevieRay_12 (P1), StressBall_12 (P1), Techage_12 (P1), Thespis_12 (P1), ThulaThula_11 (P5), Tortellini_11 (P2), Venti_12 (P1), Vidya_12 (P1), Willsammy_12 (P1), Xavia_12 (P3), Zilizebeth_12 (P1),

Start 17:

- Found in 28 of 130 (21.5%) of genes in pham
- Manual Annotations of this start: 1 of 115
- Called 7.1% of time when present
- Phage (with cluster) where this start called: Ashwin_44 (O), Zakhe101_45 (O),

Start 18:

- Found in 1 of 130 (0.8%) of genes in pham
- Manual Annotations of this start: 1 of 115
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cornie_10 (F5),

Start 19:

- Found in 37 of 130 (28.5%) of genes in pham
- Manual Annotations of this start: 12 of 115
- Called 40.5% of time when present
- Phage (with cluster) where this start called: Alkhayr_43 (O), Babsiella_11 (I1), Bora_42 (O), Brujita_11 (I1), Che9c_10 (I2), HC_11 (I1), Idergollasper_45 (O), Island3_11 (I1), MooMoo_9 (singleton), QueenHazel_11 (I1), Ryadel_49 (O), Sbash_10 (I2), Schuy_43 (O), Winget_46 (O), Xula_10 (I1),

Start 20:

- Found in 46 of 130 (35.4%) of genes in pham
- Manual Annotations of this start: 38 of 115
- Called 93.5% of time when present
- Phage (with cluster) where this start called: Aggie_11 (N), Andies_11 (N), BabeRuth_11 (N), Bosection6_11 (N), Butters_11 (N), Carcharodon_11 (N), Charlie_11 (N), Chewbacca_11 (N), Duplicity_11 (N), Fulbright_11 (N), Gex_11 (N), Jamie19_11 (N), Journey_11 (N), Kevin1_11 (N), Magsby_11 (N), Melville_11 (N), MichelleMyBell_11 (N), Nenae_11 (N), Panchino_11 (N), Parmesanjohn_11 (N), PhancyPhin_11 (N), Philonius_11 (N), Phloss_11 (N), Phrann_11 (N), Pipsqueaks_11 (N), Purgamenstris_11 (N), Raymond7_11 (N), Rebel_11 (N), Redi_11 (N), Rubeelu_11 (N), Schnauzer_11 (N), Scitech_11 (N),

ShrimpFriedEgg_11 (N), Shweta_11 (N), Silvafighter_11 (N), Silvy_11 (N), SkinnyPete_11 (N), Smurph_11 (N), Snekmaggedon_11 (N), SpongeBob_11 (N), Tapioca_11 (N), Xeno_11 (N), Xerxes_11 (N),

Start 22:

- Found in 28 of 130 (21.5%) of genes in pham
- Manual Annotations of this start: 15 of 115
- Called 60.7% of time when present
- Phage (with cluster) where this start called: Blessica_46 (O), Dylan_44 (O), Familton_46 (O), FoulBall_42 (O), JangDynasty_45 (O), Krili_44 (O), MadKillah_46 (O), Mori_44 (O), Murai_45 (O), NiebruSaylor_44 (O), SchoolBus_45 (O), Shida_45 (O), Smooch_47 (O), TelAviv_42 (O), Vorrrps_44 (O), Wildflower_43 (O), YungJamal_48 (O),

Summary by clusters:

There are 12 clusters represented in this pham: P2, P3, singleton, P1, P6, F5, P4, P5, I1, I2, O, N,

Info for manual annotations of cluster F5:

- Start number 18 was manually annotated 1 time for cluster F5.

Info for manual annotations of cluster I1:

- Start number 19 was manually annotated 6 times for cluster I1.

Info for manual annotations of cluster I2:

- Start number 19 was manually annotated 2 times for cluster I2.

Info for manual annotations of cluster N:

- Start number 20 was manually annotated 38 times for cluster N.

Info for manual annotations of cluster O:

- Start number 15 was manually annotated 3 times for cluster O.
- Start number 17 was manually annotated 1 time for cluster O.
- Start number 19 was manually annotated 3 times for cluster O.
- Start number 22 was manually annotated 15 times for cluster O.

Info for manual annotations of cluster P1:

- Start number 16 was manually annotated 38 times for cluster P1.

Info for manual annotations of cluster P2:

- Start number 16 was manually annotated 1 time for cluster P2.

Info for manual annotations of cluster P3:

- Start number 16 was manually annotated 1 time for cluster P3.

Info for manual annotations of cluster P4:

- Start number 16 was manually annotated 2 times for cluster P4.

Info for manual annotations of cluster P5:

- Start number 16 was manually annotated 2 times for cluster P5.

Info for manual annotations of cluster P6:

- Start number 16 was manually annotated 1 time for cluster P6.

Gene Information:

Gene: Aggie_11 Start: 6975, Stop: 7346, Start Num: 20

Candidate Starts for Aggie_11:

(7, 6867), (10, 6894), (11, 6909), (Start: 20 @6975 has 38 MA's), (30, 7083), (31, 7101), (33, 7128), (41, 7188), (47, 7296), (50, 7329),

Gene: Alkhayr_43 Start: 22887, Stop: 23294, Start Num: 19

Candidate Starts for Alkhayr_43:

(Start: 15 @22869 has 3 MA's), (Start: 17 @22875 has 1 MA's), (Start: 19 @22887 has 12 MA's), (Start: 22 @22908 has 15 MA's), (41, 23106), (48, 23280),

Gene: Andies_11 Start: 6975, Stop: 7346, Start Num: 20

Candidate Starts for Andies_11:

(7, 6867), (10, 6894), (11, 6909), (Start: 20 @6975 has 38 MA's), (30, 7083), (31, 7101), (33, 7128), (41, 7188), (47, 7296), (50, 7329),

Gene: Arib1_12 Start: 7913, Stop: 8290, Start Num: 16

Candidate Starts for Arib1_12:

(8, 7829), (Start: 16 @7913 has 45 MA's), (38, 8126), (42, 8168), (43, 8186),

Gene: Ashwin_44 Start: 22873, Stop: 23292, Start Num: 17

Candidate Starts for Ashwin_44:

(Start: 15 @22867 has 3 MA's), (Start: 17 @22873 has 1 MA's), (Start: 19 @22885 has 12 MA's), (Start: 22 @22906 has 15 MA's), (41, 23104), (48, 23278),

Gene: Atcoo_12 Start: 7900, Stop: 8313, Start Num: 16

Candidate Starts for Atcoo_12:

(8, 7816), (Start: 16 @7900 has 45 MA's), (38, 8113), (42, 8155), (43, 8173),

Gene: BabeRuth_11 Start: 7020, Stop: 7391, Start Num: 20

Candidate Starts for BabeRuth_11:

(6, 6852), (11, 6951), (13, 6972), (Start: 20 @7020 has 38 MA's), (26, 7083), (30, 7128), (31, 7146), (33, 7173), (38, 7206), (47, 7341), (50, 7374), (51, 7380),

Gene: Babsiella_11 Start: 7921, Stop: 8361, Start Num: 19

Candidate Starts for Babsiella_11:

(4, 7591), (14, 7900), (Start: 19 @7921 has 12 MA's), (28, 8017), (35, 8095), (38, 8122), (52, 8347),

Gene: Bartholomew_12 Start: 7932, Stop: 8309, Start Num: 16

Candidate Starts for Bartholomew_12:

(8, 7848), (Start: 16 @7932 has 45 MA's), (38, 8145), (42, 8187), (43, 8205),

Gene: BigNuz_11 Start: 7647, Stop: 8021, Start Num: 16

Candidate Starts for BigNuz_11:

(Start: 16 @7647 has 45 MA's), (38, 7857), (42, 7899), (43, 7917),

Gene: Blessica_46 Start: 23309, Stop: 23695, Start Num: 22

Candidate Starts for Blessica_46:

(Start: 15 @23270 has 3 MA's), (Start: 17 @23276 has 1 MA's), (Start: 19 @23288 has 12 MA's), (21, 23303), (Start: 22 @23309 has 15 MA's), (41, 23507), (48, 23681),

Gene: Bogie_11 Start: 7652, Stop: 8026, Start Num: 16
Candidate Starts for Bogie_11:
(Start: 16 @7652 has 45 MA's), (38, 7862), (42, 7904), (43, 7922),

Gene: Bora_42 Start: 22338, Stop: 22745, Start Num: 19
Candidate Starts for Bora_42:
(Start: 15 @22320 has 3 MA's), (Start: 17 @22326 has 1 MA's), (Start: 19 @22338 has 12 MA's),
(Start: 22 @22359 has 15 MA's), (41, 22557), (48, 22731),

Gene: Bosection6_11 Start: 6975, Stop: 7346, Start Num: 20
Candidate Starts for Bosection6_11:
(7, 6867), (10, 6894), (11, 6909), (Start: 20 @6975 has 38 MA's), (30, 7083), (31, 7101), (33, 7128),
(41, 7188), (47, 7296), (50, 7329),

Gene: Brujita_11 Start: 7922, Stop: 8362, Start Num: 19
Candidate Starts for Brujita_11:
(1, 7409), (2, 7415), (3, 7445), (4, 7595), (14, 7901), (Start: 19 @7922 has 12 MA's), (28, 8018), (35, 8096), (38, 8123), (52, 8348),

Gene: Brusacoram_12 Start: 7899, Stop: 8312, Start Num: 16
Candidate Starts for Brusacoram_12:
(8, 7815), (Start: 16 @7899 has 45 MA's), (38, 8112), (42, 8154), (43, 8172),

Gene: Bunnies_12 Start: 7912, Stop: 8325, Start Num: 16
Candidate Starts for Bunnies_12:
(8, 7828), (Start: 16 @7912 has 45 MA's), (38, 8125), (42, 8167), (43, 8185),

Gene: Butters_11 Start: 6995, Stop: 7366, Start Num: 20
Candidate Starts for Butters_11:
(12, 6929), (Start: 20 @6995 has 38 MA's), (26, 7058), (30, 7103), (31, 7121), (32, 7139), (33, 7148),
(50, 7349), (51, 7355),

Gene: CactusJack_12 Start: 7899, Stop: 8312, Start Num: 16
Candidate Starts for CactusJack_12:
(8, 7815), (Start: 16 @7899 has 45 MA's), (38, 8112), (42, 8154), (43, 8172),

Gene: Camster_12 Start: 7932, Stop: 8309, Start Num: 16
Candidate Starts for Camster_12:
(8, 7848), (Start: 16 @7932 has 45 MA's), (38, 8145), (42, 8187), (43, 8205),

Gene: Carcharodon_11 Start: 6975, Stop: 7346, Start Num: 20
Candidate Starts for Carcharodon_11:
(7, 6867), (10, 6894), (11, 6909), (Start: 20 @6975 has 38 MA's), (30, 7083), (31, 7101), (33, 7128),
(41, 7188), (47, 7296), (50, 7329),

Gene: Catdawg_45 Start: 22959, Stop: 23384, Start Num: 15
Candidate Starts for Catdawg_45:
(Start: 15 @22959 has 3 MA's), (Start: 17 @22965 has 1 MA's), (Start: 19 @22977 has 12 MA's),
(Start: 22 @22998 has 15 MA's), (41, 23196), (48, 23370),

Gene: Charlie_11 Start: 6975, Stop: 7346, Start Num: 20

Candidate Starts for Charlie_11:

(7, 6867), (10, 6894), (11, 6909), (Start: 20 @6975 has 38 MA's), (30, 7083), (31, 7101), (33, 7128), (41, 7188), (47, 7296), (50, 7329),

Gene: Che9c_10 Start: 7526, Stop: 7978, Start Num: 19

Candidate Starts for Che9c_10:

(14, 7505), (Start: 19 @7526 has 12 MA's), (28, 7622), (34, 7697), (35, 7700), (38, 7727), (44, 7838), (47, 7913), (53, 7961),

Gene: Chewbacca_11 Start: 6975, Stop: 7346, Start Num: 20

Candidate Starts for Chewbacca_11:

(7, 6867), (10, 6894), (11, 6909), (Start: 20 @6975 has 38 MA's), (30, 7083), (31, 7101), (33, 7128), (41, 7188), (47, 7296), (50, 7329),

Gene: Corndog_47 Start: 23417, Stop: 23842, Start Num: 15

Candidate Starts for Corndog_47:

(Start: 15 @23417 has 3 MA's), (Start: 17 @23423 has 1 MA's), (Start: 19 @23435 has 12 MA's), (Start: 22 @23456 has 15 MA's), (41, 23654), (48, 23828),

Gene: Cornie_10 Start: 7003, Stop: 7410, Start Num: 18

Candidate Starts for Cornie_10:

(9, 6928), (Start: 18 @7003 has 1 MA's), (27, 7087), (37, 7198), (39, 7204),

Gene: Donovan_12 Start: 7914, Stop: 8291, Start Num: 16

Candidate Starts for Donovan_12:

(8, 7830), (Start: 16 @7914 has 45 MA's), (38, 8127), (42, 8169), (43, 8187),

Gene: Duplicity_11 Start: 6975, Stop: 7346, Start Num: 20

Candidate Starts for Duplicity_11:

(7, 6867), (10, 6894), (11, 6909), (Start: 20 @6975 has 38 MA's), (30, 7083), (31, 7101), (33, 7128), (41, 7188), (47, 7296), (50, 7329),

Gene: Dylan_44 Start: 22711, Stop: 23097, Start Num: 22

Candidate Starts for Dylan_44:

(Start: 15 @22672 has 3 MA's), (Start: 17 @22678 has 1 MA's), (Start: 19 @22690 has 12 MA's), (Start: 22 @22711 has 15 MA's), (41, 22909), (48, 23083),

Gene: Dynamo_12 Start: 7932, Stop: 8309, Start Num: 16

Candidate Starts for Dynamo_12:

(8, 7848), (Start: 16 @7932 has 45 MA's), (38, 8145), (42, 8187), (43, 8205),

Gene: Familton_46 Start: 23002, Stop: 23388, Start Num: 22

Candidate Starts for Familton_46:

(Start: 15 @22963 has 3 MA's), (Start: 17 @22969 has 1 MA's), (Start: 19 @22981 has 12 MA's), (21, 22996), (Start: 22 @23002 has 15 MA's), (41, 23200), (48, 23374),

Gene: Firecracker_45 Start: 22570, Stop: 22995, Start Num: 15

Candidate Starts for Firecracker_45:

(Start: 15 @22570 has 3 MA's), (Start: 17 @22576 has 1 MA's), (Start: 19 @22588 has 12 MA's), (Start: 22 @22609 has 15 MA's), (41, 22807), (48, 22981),

Gene: FirstPlacePfu_12 Start: 7932, Stop: 8309, Start Num: 16

Candidate Starts for FirstPlacePfu_12:
(8, 7848), (Start: 16 @7932 has 45 MA's), (38, 8145), (42, 8187), (43, 8205),

Gene: Fishburne_12 Start: 7932, Stop: 8309, Start Num: 16
Candidate Starts for Fishburne_12:
(8, 7848), (Start: 16 @7932 has 45 MA's), (38, 8145), (42, 8187), (43, 8205),

Gene: FoulBall_42 Start: 22996, Stop: 23382, Start Num: 22
Candidate Starts for FoulBall_42:
(Start: 15 @22957 has 3 MA's), (Start: 17 @22963 has 1 MA's), (Start: 19 @22975 has 12 MA's),
(Start: 22 @22996 has 15 MA's), (41, 23194), (48, 23368),

Gene: Fulbright_11 Start: 6975, Stop: 7346, Start Num: 20
Candidate Starts for Fulbright_11:
(7, 6867), (10, 6894), (11, 6909), (Start: 20 @6975 has 38 MA's), (30, 7083), (31, 7101), (33, 7128),
(41, 7188), (47, 7296), (50, 7329),

Gene: Gex_11 Start: 6975, Stop: 7346, Start Num: 20
Candidate Starts for Gex_11:
(7, 6867), (10, 6894), (11, 6909), (Start: 20 @6975 has 38 MA's), (30, 7083), (31, 7101), (33, 7128),
(41, 7188), (47, 7296), (50, 7329),

Gene: Glaske_12 Start: 7899, Stop: 8312, Start Num: 16
Candidate Starts for Glaske_12:
(8, 7815), (Start: 16 @7899 has 45 MA's), (38, 8112), (42, 8154), (43, 8172),

Gene: GreaseLightnin_12 Start: 7932, Stop: 8309, Start Num: 16
Candidate Starts for GreaseLightnin_12:
(8, 7848), (Start: 16 @7932 has 45 MA's), (38, 8145), (42, 8187), (43, 8205),

Gene: HC_11 Start: 7921, Stop: 8361, Start Num: 19
Candidate Starts for HC_11:
(4, 7594), (14, 7900), (Start: 19 @7921 has 12 MA's), (28, 8017), (35, 8095), (38, 8122), (52, 8347),

Gene: HUHilltop_12 Start: 7932, Stop: 8309, Start Num: 16
Candidate Starts for HUHilltop_12:
(8, 7848), (Start: 16 @7932 has 45 MA's), (38, 8145), (42, 8187), (43, 8205),

Gene: Idergollasper_45 Start: 22975, Stop: 23382, Start Num: 19
Candidate Starts for Idergollasper_45:
(Start: 15 @22957 has 3 MA's), (Start: 17 @22963 has 1 MA's), (Start: 19 @22975 has 12 MA's),
(Start: 22 @22996 has 15 MA's), (41, 23194), (48, 23368),

Gene: Island3_11 Start: 7922, Stop: 8362, Start Num: 19
Candidate Starts for Island3_11:
(1, 7409), (2, 7415), (3, 7445), (4, 7595), (14, 7901), (Start: 19 @7922 has 12 MA's), (28, 8018), (35,
8096), (38, 8123), (52, 8348),

Gene: Jamie19_11 Start: 7020, Stop: 7391, Start Num: 20
Candidate Starts for Jamie19_11:
(6, 6852), (11, 6951), (13, 6972), (Start: 20 @7020 has 38 MA's), (26, 7083), (30, 7128), (31, 7146),
(33, 7173), (38, 7206), (47, 7341), (50, 7374), (51, 7380),

Gene: JangDynasty_45 Start: 23091, Stop: 23477, Start Num: 22
Candidate Starts for JangDynasty_45:
(Start: 15 @23052 has 3 MA's), (Start: 17 @23058 has 1 MA's), (Start: 19 @23070 has 12 MA's), (21, 23085), (Start: 22 @23091 has 15 MA's), (41, 23289), (48, 23463),

Gene: Jebeks_12 Start: 7913, Stop: 8290, Start Num: 16
Candidate Starts for Jebeks_12:
(8, 7829), (Start: 16 @7913 has 45 MA's), (38, 8126), (42, 8168), (43, 8186),

Gene: Journey_11 Start: 6975, Stop: 7346, Start Num: 20
Candidate Starts for Journey_11:
(7, 6867), (10, 6894), (11, 6909), (Start: 20 @6975 has 38 MA's), (30, 7083), (31, 7101), (33, 7128), (41, 7188), (47, 7296), (50, 7329),

Gene: Jung_12 Start: 7923, Stop: 8336, Start Num: 16
Candidate Starts for Jung_12:
(8, 7839), (Start: 16 @7923 has 45 MA's), (38, 8136), (42, 8178), (43, 8196),

Gene: Juniormint_12 Start: 7916, Stop: 8329, Start Num: 16
Candidate Starts for Juniormint_12:
(8, 7832), (Start: 16 @7916 has 45 MA's), (38, 8129), (42, 8171), (43, 8189),

Gene: Kari_12 Start: 7932, Stop: 8309, Start Num: 16
Candidate Starts for Kari_12:
(8, 7848), (Start: 16 @7932 has 45 MA's), (38, 8145), (42, 8187), (43, 8205),

Gene: Kevin1_11 Start: 6995, Stop: 7366, Start Num: 20
Candidate Starts for Kevin1_11:
(12, 6929), (Start: 20 @6995 has 38 MA's), (26, 7058), (30, 7103), (31, 7121), (32, 7139), (33, 7148), (50, 7349), (51, 7355),

Gene: KilKor_12 Start: 7899, Stop: 8312, Start Num: 16
Candidate Starts for KilKor_12:
(8, 7815), (Start: 16 @7899 has 45 MA's), (38, 8112), (42, 8154), (43, 8172),

Gene: Krili_44 Start: 22713, Stop: 23099, Start Num: 22
Candidate Starts for Krili_44:
(Start: 15 @22674 has 3 MA's), (Start: 17 @22680 has 1 MA's), (Start: 19 @22692 has 12 MA's), (Start: 22 @22713 has 15 MA's), (41, 22911), (48, 23085),

Gene: Ksquared_12 Start: 7912, Stop: 8325, Start Num: 16
Candidate Starts for Ksquared_12:
(8, 7828), (Start: 16 @7912 has 45 MA's), (38, 8125), (42, 8167), (43, 8185),

Gene: Langerak_12 Start: 7913, Stop: 8290, Start Num: 16
Candidate Starts for Langerak_12:
(8, 7829), (Start: 16 @7913 has 45 MA's), (38, 8126), (42, 8168), (43, 8186),

Gene: MadKillah_46 Start: 22935, Stop: 23321, Start Num: 22
Candidate Starts for MadKillah_46:
(Start: 15 @22896 has 3 MA's), (Start: 17 @22902 has 1 MA's), (Start: 19 @22914 has 12 MA's), (Start: 22 @22935 has 15 MA's), (41, 23133), (48, 23307),

Gene: Magsby_11 Start: 6975, Stop: 7346, Start Num: 20

Candidate Starts for Magsby_11:

(7, 6867), (10, 6894), (11, 6909), (Start: 20 @6975 has 38 MA's), (30, 7083), (31, 7101), (33, 7128), (41, 7188), (47, 7296), (50, 7329),

Gene: Majeke_12 Start: 7913, Stop: 8290, Start Num: 16

Candidate Starts for Majeke_12:

(8, 7829), (Start: 16 @7913 has 45 MA's), (38, 8126), (42, 8168), (43, 8186),

Gene: Malithi_12 Start: 7935, Stop: 8348, Start Num: 16

Candidate Starts for Malithi_12:

(8, 7851), (Start: 16 @7935 has 45 MA's), (38, 8148), (42, 8190), (43, 8208),

Gene: Mangethe_12 Start: 7913, Stop: 8290, Start Num: 16

Candidate Starts for Mangethe_12:

(8, 7829), (Start: 16 @7913 has 45 MA's), (38, 8126), (42, 8168), (43, 8186),

Gene: Megiddo_12 Start: 7899, Stop: 8312, Start Num: 16

Candidate Starts for Megiddo_12:

(8, 7815), (Start: 16 @7899 has 45 MA's), (38, 8112), (42, 8154), (43, 8172),

Gene: Melville_11 Start: 6975, Stop: 7346, Start Num: 20

Candidate Starts for Melville_11:

(7, 6867), (10, 6894), (11, 6909), (Start: 20 @6975 has 38 MA's), (30, 7083), (31, 7101), (33, 7128), (41, 7188), (47, 7296), (50, 7329),

Gene: MichelleMyBell_11 Start: 7015, Stop: 7386, Start Num: 20

Candidate Starts for MichelleMyBell_11:

(12, 6949), (Start: 20 @7015 has 38 MA's), (26, 7078), (30, 7123), (31, 7141), (33, 7168), (50, 7369), (51, 7375),

Gene: MooMoo_9 Start: 6202, Stop: 6660, Start Num: 19

Candidate Starts for MooMoo_9:

(Start: 19 @6202 has 12 MA's), (28, 6298), (31, 6340), (35, 6376), (38, 6403), (45, 6544), (46, 6571), (47, 6589),

Gene: Mori_44 Start: 22584, Stop: 22970, Start Num: 22

Candidate Starts for Mori_44:

(Start: 15 @22545 has 3 MA's), (Start: 17 @22551 has 1 MA's), (Start: 19 @22563 has 12 MA's), (Start: 22 @22584 has 15 MA's), (41, 22782), (48, 22956),

Gene: Murai_45 Start: 22774, Stop: 23160, Start Num: 22

Candidate Starts for Murai_45:

(Start: 15 @22735 has 3 MA's), (Start: 17 @22741 has 1 MA's), (Start: 19 @22753 has 12 MA's), (Start: 22 @22774 has 15 MA's), (41, 22972), (48, 23146),

Gene: Nazo_11 Start: 7647, Stop: 8021, Start Num: 16

Candidate Starts for Nazo_11:

(Start: 16 @7647 has 45 MA's), (Start: 20 @7671 has 38 MA's), (38, 7857), (42, 7899), (43, 7917),

Gene: Necropolis_12 Start: 7932, Stop: 8309, Start Num: 16

Candidate Starts for Necropolis_12:

(8, 7848), (Start: 16 @7932 has 45 MA's), (38, 8145), (42, 8187), (43, 8205),

Gene: Nenae_11 Start: 7020, Stop: 7391, Start Num: 20

Candidate Starts for Nenae_11:

(6, 6852), (11, 6951), (13, 6972), (Start: 20 @7020 has 38 MA's), (26, 7083), (30, 7128), (31, 7146), (33, 7173), (38, 7206), (47, 7341), (50, 7374),

Gene: NiebruSaylor_44 Start: 22585, Stop: 22971, Start Num: 22

Candidate Starts for NiebruSaylor_44:

(Start: 15 @22546 has 3 MA's), (Start: 17 @22552 has 1 MA's), (Start: 19 @22564 has 12 MA's), (Start: 22 @22585 has 15 MA's), (41, 22783), (48, 22957),

Gene: Panchino_11 Start: 6996, Stop: 7367, Start Num: 20

Candidate Starts for Panchino_11:

(6, 6828), (11, 6927), (13, 6948), (Start: 20 @6996 has 38 MA's), (26, 7059), (30, 7104), (31, 7122), (33, 7149), (38, 7182), (47, 7317), (50, 7350), (51, 7356),

Gene: Parmesanjohn_11 Start: 6975, Stop: 7346, Start Num: 20

Candidate Starts for Parmesanjohn_11:

(7, 6867), (10, 6894), (11, 6909), (Start: 20 @6975 has 38 MA's), (30, 7083), (31, 7101), (33, 7128), (41, 7188), (47, 7296), (50, 7329),

Gene: Phalm_12 Start: 7899, Stop: 8312, Start Num: 16

Candidate Starts for Phalm_12:

(8, 7815), (Start: 16 @7899 has 45 MA's), (38, 8112), (42, 8154), (43, 8172),

Gene: PhancyPhin_11 Start: 7020, Stop: 7391, Start Num: 20

Candidate Starts for PhancyPhin_11:

(6, 6852), (11, 6951), (13, 6972), (Start: 20 @7020 has 38 MA's), (26, 7083), (30, 7128), (31, 7146), (33, 7173), (38, 7206), (47, 7341), (50, 7374), (51, 7380),

Gene: Phayonce_11 Start: 7601, Stop: 7975, Start Num: 16

Candidate Starts for Phayonce_11:

(Start: 16 @7601 has 45 MA's), (23, 7649), (38, 7811), (40, 7826), (42, 7853),

Gene: Phegasus_12 Start: 7913, Stop: 8290, Start Num: 16

Candidate Starts for Phegasus_12:

(8, 7829), (Start: 16 @7913 has 45 MA's), (38, 8126), (42, 8168), (43, 8186),

Gene: Philonius_11 Start: 6975, Stop: 7346, Start Num: 20

Candidate Starts for Philonius_11:

(7, 6867), (10, 6894), (11, 6909), (Start: 20 @6975 has 38 MA's), (30, 7083), (31, 7101), (33, 7128), (41, 7188), (47, 7296), (50, 7329),

Gene: Phineas_12 Start: 7920, Stop: 8297, Start Num: 16

Candidate Starts for Phineas_12:

(8, 7836), (Start: 16 @7920 has 45 MA's), (38, 8133), (42, 8175), (43, 8193),

Gene: Phloss_11 Start: 6975, Stop: 7346, Start Num: 20

Candidate Starts for Phloss_11:

(7, 6867), (10, 6894), (11, 6909), (Start: 20 @6975 has 38 MA's), (30, 7083), (31, 7101), (33, 7128), (41, 7188), (47, 7296), (50, 7329),

Gene: Phrann_11 Start: 7020, Stop: 7391, Start Num: 20

Candidate Starts for Phrann_11:

(6, 6852), (11, 6951), (13, 6972), (Start: 20 @7020 has 38 MA's), (26, 7083), (30, 7128), (31, 7146), (33, 7173), (38, 7206), (47, 7341), (50, 7374), (51, 7380),

Gene: Pipsqueaks_11 Start: 6975, Stop: 7346, Start Num: 20

Candidate Starts for Pipsqueaks_11:

(7, 6867), (10, 6894), (11, 6909), (Start: 20 @6975 has 38 MA's), (30, 7083), (31, 7101), (33, 7128), (41, 7188), (47, 7296), (50, 7329),

Gene: Polkaroo_12 Start: 7912, Stop: 8325, Start Num: 16

Candidate Starts for Polkaroo_12:

(8, 7828), (Start: 16 @7912 has 45 MA's), (38, 8125), (42, 8167), (43, 8185),

Gene: Purgamenstris_11 Start: 7020, Stop: 7391, Start Num: 20

Candidate Starts for Purgamenstris_11:

(6, 6852), (11, 6951), (13, 6972), (Start: 20 @7020 has 38 MA's), (26, 7083), (30, 7128), (31, 7146), (33, 7173), (38, 7206), (47, 7341), (50, 7374),

Gene: Purky_11 Start: 7613, Stop: 7984, Start Num: 16

Candidate Starts for Purky_11:

(Start: 16 @7613 has 45 MA's), (Start: 20 @7634 has 38 MA's), (24, 7664), (25, 7688), (38, 7820), (42, 7862), (43, 7880), (49, 7979),

Gene: Pygmy_11 Start: 7652, Stop: 8026, Start Num: 16

Candidate Starts for Pygmy_11:

(Start: 16 @7652 has 45 MA's), (38, 7862), (42, 7904), (43, 7922),

Gene: QueenHazel_11 Start: 7927, Stop: 8367, Start Num: 19

Candidate Starts for QueenHazel_11:

(4, 7597), (5, 7645), (14, 7906), (Start: 19 @7927 has 12 MA's), (28, 8023), (35, 8101), (38, 8128), (52, 8353),

Gene: Raymond7_11 Start: 7020, Stop: 7391, Start Num: 20

Candidate Starts for Raymond7_11:

(6, 6852), (11, 6951), (13, 6972), (Start: 20 @7020 has 38 MA's), (26, 7083), (30, 7128), (31, 7146), (33, 7173), (38, 7206), (47, 7341), (50, 7374), (51, 7380),

Gene: Rebel_11 Start: 7020, Stop: 7391, Start Num: 20

Candidate Starts for Rebel_11:

(6, 6852), (11, 6951), (13, 6972), (Start: 20 @7020 has 38 MA's), (26, 7083), (30, 7128), (31, 7146), (33, 7173), (38, 7206), (47, 7341), (50, 7374), (51, 7380),

Gene: Redi_11 Start: 7020, Stop: 7391, Start Num: 20

Candidate Starts for Redi_11:

(6, 6852), (11, 6951), (13, 6972), (Start: 20 @7020 has 38 MA's), (26, 7083), (30, 7128), (31, 7146), (33, 7173), (38, 7206), (47, 7341), (50, 7374), (51, 7380),

Gene: Rubeelu_11 Start: 6995, Stop: 7366, Start Num: 20

Candidate Starts for Rubeelu_11:

(12, 6929), (Start: 20 @6995 has 38 MA's), (26, 7058), (30, 7103), (31, 7121), (32, 7139), (33, 7148), (50, 7349), (51, 7355),

Gene: Ryadel_49 Start: 24037, Stop: 24444, Start Num: 19

Candidate Starts for Ryadel_49:

(Start: 15 @24019 has 3 MA's), (Start: 17 @24025 has 1 MA's), (Start: 19 @24037 has 12 MA's),
(Start: 22 @24058 has 15 MA's), (41, 24256), (47, 24406), (48, 24430),

Gene: Sbash_10 Start: 7504, Stop: 7950, Start Num: 19

Candidate Starts for Sbash_10:

(14, 7483), (Start: 19 @7504 has 12 MA's), (28, 7600), (29, 7603), (34, 7675), (35, 7678), (38, 7705),
(44, 7807), (47, 7882),

Gene: Schnauzer_11 Start: 6975, Stop: 7346, Start Num: 20

Candidate Starts for Schnauzer_11:

(7, 6867), (10, 6894), (11, 6909), (Start: 20 @6975 has 38 MA's), (30, 7083), (31, 7101), (33, 7128),
(41, 7188), (47, 7296), (50, 7329),

Gene: SchoolBus_45 Start: 22999, Stop: 23385, Start Num: 22

Candidate Starts for SchoolBus_45:

(Start: 15 @22960 has 3 MA's), (Start: 17 @22966 has 1 MA's), (Start: 19 @22978 has 12 MA's), (21,
22993), (Start: 22 @22999 has 15 MA's), (41, 23197), (48, 23371),

Gene: Schuy_43 Start: 22911, Stop: 23318, Start Num: 19

Candidate Starts for Schuy_43:

(Start: 15 @22893 has 3 MA's), (Start: 17 @22899 has 1 MA's), (Start: 19 @22911 has 12 MA's),
(Start: 22 @22932 has 15 MA's), (41, 23130), (48, 23304),

Gene: Scitech_11 Start: 6975, Stop: 7346, Start Num: 20

Candidate Starts for Scitech_11:

(7, 6867), (10, 6894), (11, 6909), (Start: 20 @6975 has 38 MA's), (30, 7083), (31, 7101), (33, 7128),
(41, 7188), (47, 7296), (50, 7329),

Gene: Shida_45 Start: 22839, Stop: 23225, Start Num: 22

Candidate Starts for Shida_45:

(Start: 15 @22800 has 3 MA's), (Start: 17 @22806 has 1 MA's), (Start: 19 @22818 has 12 MA's),
(Start: 22 @22839 has 15 MA's), (41, 23037), (48, 23211),

Gene: Shipwreck_11 Start: 7630, Stop: 8004, Start Num: 16

Candidate Starts for Shipwreck_11:

(Start: 16 @7630 has 45 MA's), (38, 7840), (42, 7882), (43, 7900),

Gene: ShrimpFriedEgg_11 Start: 7020, Stop: 7391, Start Num: 20

Candidate Starts for ShrimpFriedEgg_11:

(6, 6852), (11, 6951), (13, 6972), (Start: 20 @7020 has 38 MA's), (26, 7083), (30, 7128), (31, 7146),
(33, 7173), (38, 7206), (47, 7341), (50, 7374), (51, 7380),

Gene: Shweta_11 Start: 7020, Stop: 7391, Start Num: 20

Candidate Starts for Shweta_11:

(6, 6852), (11, 6951), (13, 6972), (Start: 20 @7020 has 38 MA's), (26, 7083), (30, 7128), (31, 7146),
(33, 7173), (38, 7206), (47, 7341), (50, 7374), (51, 7380),

Gene: Silvafighter_11 Start: 6975, Stop: 7346, Start Num: 20

Candidate Starts for Silvafighter_11:

(7, 6867), (10, 6894), (11, 6909), (Start: 20 @6975 has 38 MA's), (30, 7083), (31, 7101), (33, 7128),
(41, 7188), (47, 7296), (50, 7329),

Gene: Silvy_11 Start: 6975, Stop: 7346, Start Num: 20

Candidate Starts for Silvy_11:

(7, 6867), (10, 6894), (11, 6909), (Start: 20 @6975 has 38 MA's), (30, 7083), (31, 7101), (33, 7128), (41, 7188), (47, 7296), (50, 7329),

Gene: SkinnyPete_11 Start: 7020, Stop: 7391, Start Num: 20

Candidate Starts for SkinnyPete_11:

(6, 6852), (11, 6951), (13, 6972), (Start: 20 @7020 has 38 MA's), (26, 7083), (30, 7128), (31, 7146), (33, 7173), (38, 7206), (47, 7341), (50, 7374), (51, 7380),

Gene: Smooch_47 Start: 24127, Stop: 24513, Start Num: 22

Candidate Starts for Smooch_47:

(Start: 15 @24088 has 3 MA's), (Start: 17 @24094 has 1 MA's), (Start: 19 @24106 has 12 MA's), (Start: 22 @24127 has 15 MA's), (41, 24325), (48, 24499),

Gene: Smurph_11 Start: 6975, Stop: 7346, Start Num: 20

Candidate Starts for Smurph_11:

(7, 6867), (10, 6894), (11, 6909), (Start: 20 @6975 has 38 MA's), (30, 7083), (31, 7101), (33, 7128), (41, 7188), (47, 7296), (50, 7329),

Gene: Snekmaggedon_11 Start: 7020, Stop: 7391, Start Num: 20

Candidate Starts for Snekmaggedon_11:

(6, 6852), (11, 6951), (13, 6972), (Start: 20 @7020 has 38 MA's), (26, 7083), (30, 7128), (31, 7146), (33, 7173), (38, 7206), (47, 7341), (50, 7374), (51, 7380),

Gene: Sonah_12 Start: 7915, Stop: 8292, Start Num: 16

Candidate Starts for Sonah_12:

(8, 7831), (Start: 16 @7915 has 45 MA's), (38, 8128), (42, 8170), (43, 8188),

Gene: SpongeBob_11 Start: 7020, Stop: 7391, Start Num: 20

Candidate Starts for SpongeBob_11:

(6, 6852), (11, 6951), (13, 6972), (Start: 20 @7020 has 38 MA's), (26, 7083), (30, 7128), (31, 7146), (33, 7173), (38, 7206), (47, 7341), (50, 7374), (51, 7380),

Gene: StevieRay_12 Start: 7923, Stop: 8300, Start Num: 16

Candidate Starts for StevieRay_12:

(8, 7839), (Start: 16 @7923 has 45 MA's), (38, 8136), (42, 8178), (43, 8196),

Gene: StressBall_12 Start: 7899, Stop: 8312, Start Num: 16

Candidate Starts for StressBall_12:

(8, 7815), (Start: 16 @7899 has 45 MA's), (38, 8112), (42, 8154), (43, 8172),

Gene: Tapioca_11 Start: 6975, Stop: 7346, Start Num: 20

Candidate Starts for Tapioca_11:

(7, 6867), (10, 6894), (11, 6909), (Start: 20 @6975 has 38 MA's), (30, 7083), (31, 7101), (33, 7128), (41, 7188), (47, 7296), (50, 7329),

Gene: Techage_12 Start: 7916, Stop: 8293, Start Num: 16

Candidate Starts for Techage_12:

(8, 7832), (Start: 16 @7916 has 45 MA's), (38, 8129), (42, 8171), (43, 8189),

Gene: TelAviv_42 Start: 22993, Stop: 23379, Start Num: 22

Candidate Starts for TelAviv_42:

(Start: 15 @22954 has 3 MA's), (Start: 17 @22960 has 1 MA's), (Start: 19 @22972 has 12 MA's), (21, 22987), (Start: 22 @22993 has 15 MA's), (41, 23191), (48, 23365),

Gene: Thespis_12 Start: 7899, Stop: 8312, Start Num: 16

Candidate Starts for Thespis_12:

(8, 7815), (Start: 16 @7899 has 45 MA's), (38, 8112), (42, 8154), (43, 8172),

Gene: ThulaThula_11 Start: 7607, Stop: 7981, Start Num: 16

Candidate Starts for ThulaThula_11:

(Start: 16 @7607 has 45 MA's), (23, 7655), (40, 7832), (42, 7859),

Gene: Tortellini_11 Start: 7594, Stop: 7998, Start Num: 16

Candidate Starts for Tortellini_11:

(Start: 16 @7594 has 45 MA's), (Start: 20 @7612 has 38 MA's), (25, 7666), (38, 7798), (42, 7840), (43, 7858),

Gene: Venti_12 Start: 7932, Stop: 8309, Start Num: 16

Candidate Starts for Venti_12:

(8, 7848), (Start: 16 @7932 has 45 MA's), (38, 8145), (42, 8187), (43, 8205),

Gene: Vidya_12 Start: 7932, Stop: 8309, Start Num: 16

Candidate Starts for Vidya_12:

(8, 7848), (Start: 16 @7932 has 45 MA's), (38, 8145), (42, 8187), (43, 8205),

Gene: Vorrps_44 Start: 22585, Stop: 22971, Start Num: 22

Candidate Starts for Vorrps_44:

(Start: 15 @22546 has 3 MA's), (Start: 17 @22552 has 1 MA's), (Start: 19 @22564 has 12 MA's), (Start: 22 @22585 has 15 MA's), (41, 22783), (48, 22957),

Gene: Wildflower_43 Start: 22571, Stop: 22957, Start Num: 22

Candidate Starts for Wildflower_43:

(Start: 15 @22532 has 3 MA's), (Start: 17 @22538 has 1 MA's), (Start: 19 @22550 has 12 MA's), (Start: 22 @22571 has 15 MA's), (41, 22769), (48, 22943),

Gene: Willsammy_12 Start: 7902, Stop: 8315, Start Num: 16

Candidate Starts for Willsammy_12:

(8, 7818), (Start: 16 @7902 has 45 MA's), (38, 8115), (42, 8157), (43, 8175),

Gene: Winget_46 Start: 23244, Stop: 23651, Start Num: 19

Candidate Starts for Winget_46:

(Start: 15 @23226 has 3 MA's), (Start: 17 @23232 has 1 MA's), (Start: 19 @23244 has 12 MA's), (21, 23259), (Start: 22 @23265 has 15 MA's), (41, 23463), (48, 23637),

Gene: Xavia_12 Start: 7936, Stop: 8313, Start Num: 16

Candidate Starts for Xavia_12:

(8, 7852), (Start: 16 @7936 has 45 MA's), (38, 8149), (42, 8191), (43, 8209),

Gene: Xeno_11 Start: 6975, Stop: 7346, Start Num: 20

Candidate Starts for Xeno_11:

(7, 6867), (10, 6894), (11, 6909), (Start: 20 @6975 has 38 MA's), (30, 7083), (31, 7101), (33, 7128), (41, 7188), (47, 7296), (50, 7329),

Gene: Xerxes_11 Start: 6975, Stop: 7346, Start Num: 20

Candidate Starts for Xerxes_11:

(7, 6867), (10, 6894), (11, 6909), (Start: 20 @6975 has 38 MA's), (30, 7083), (31, 7101), (33, 7128), (41, 7188), (47, 7296), (50, 7329),

Gene: Xula_10 Start: 7556, Stop: 7996, Start Num: 19

Candidate Starts for Xula_10:

(4, 7226), (5, 7274), (14, 7535), (Start: 19 @7556 has 12 MA's), (28, 7652), (35, 7730), (36, 7733), (38, 7757), (52, 7982),

Gene: YungJamal_48 Start: 23304, Stop: 23690, Start Num: 22

Candidate Starts for YungJamal_48:

(Start: 15 @23265 has 3 MA's), (Start: 17 @23271 has 1 MA's), (Start: 19 @23283 has 12 MA's), (Start: 22 @23304 has 15 MA's), (41, 23502), (48, 23676),

Gene: Zakhe101_45 Start: 22682, Stop: 23101, Start Num: 17

Candidate Starts for Zakhe101_45:

(Start: 15 @22676 has 3 MA's), (Start: 17 @22682 has 1 MA's), (Start: 19 @22694 has 12 MA's), (Start: 22 @22715 has 15 MA's), (41, 22913), (48, 23087),

Gene: Zilizebeth_12 Start: 7932, Stop: 8309, Start Num: 16

Candidate Starts for Zilizebeth_12:

(8, 7848), (Start: 16 @7932 has 45 MA's), (38, 8145), (42, 8187), (43, 8205),