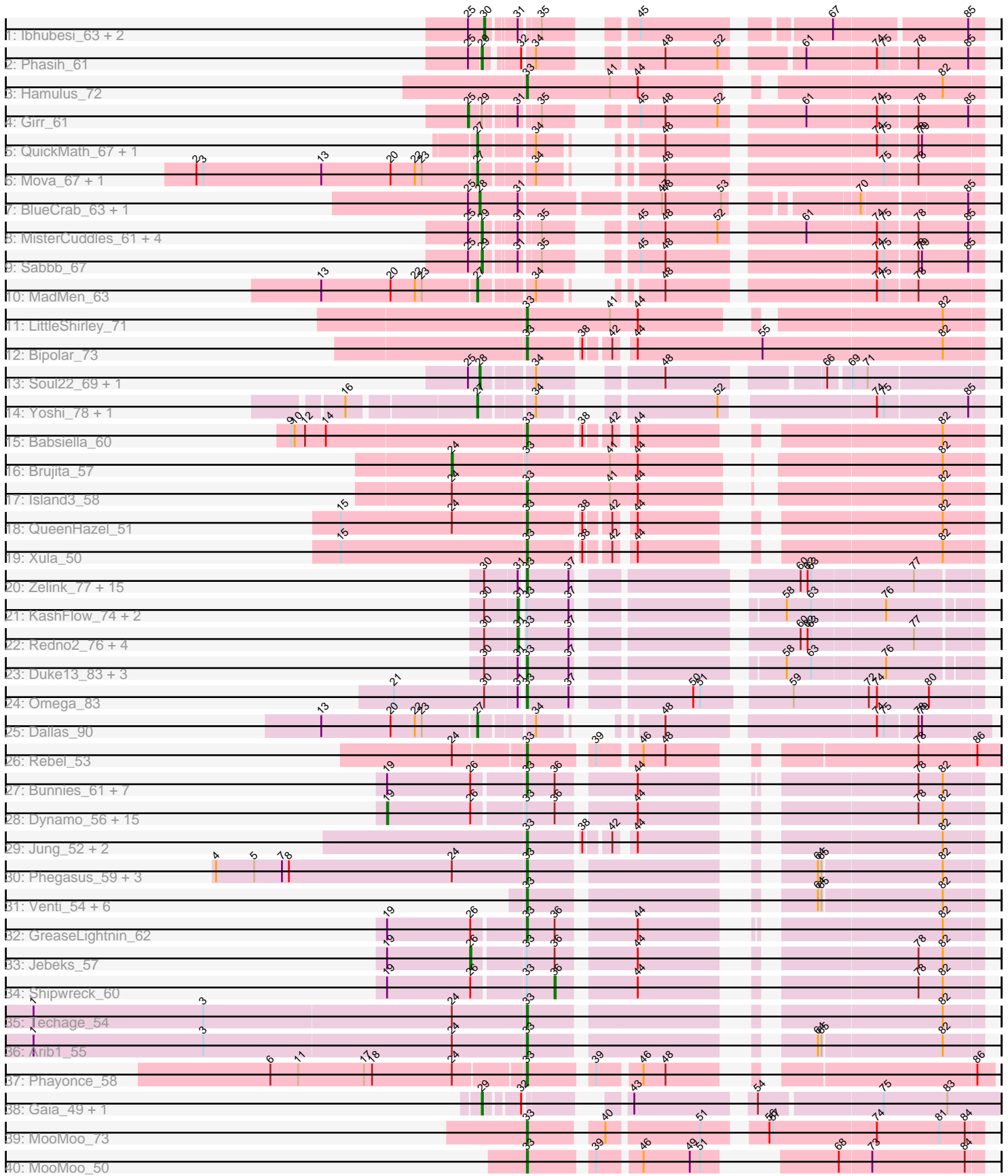


Pham 171329



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 171329 Report

This analysis was run 07/10/24 on database version 566.

Pham number 171329 has 109 members, 6 are drafts.

Phages represented in each track:

- Track 1 : lbhubes_i_63, LunaBlu_65, Galactic_62
- Track 2 : Phasih_61
- Track 3 : Hamulus_72
- Track 4 : Girr_61
- Track 5 : QuickMath_67, Kimberlium_68
- Track 6 : Mova_67, Madiba_64
- Track 7 : BlueCrab_63, ByChance_55
- Track 8 : MisterCuddles_61, RockyHorror_64, Zerg_63, Ruby_59, Doug_65
- Track 9 : Sabbb_67
- Track 10 : MadMen_63
- Track 11 : LittleShirley_71
- Track 12 : Bipolar_73
- Track 13 : Soul22_69, GigiOuiOui_59
- Track 14 : Yoshi_78, ThetaBob_70
- Track 15 : Babsiella_60
- Track 16 : Brujita_57
- Track 17 : Island3_58
- Track 18 : QueenHazel_51
- Track 19 : Xula_50
- Track 20 : Zelink_77, Kalah2_74, NihilNomen_80, Ejimix_79, Dove_67, Phoebus_82, JuicyJay_77, DmpstrDiver_80, Bombitas_69, EricMillard_78, Dallas_78, ThreeRngTarjay_77, Beem_79, Bagrid_80, Odette_78, Hughesyang_79
- Track 21 : KashFlow_74, BAKA_84, Minerva_82
- Track 22 : Redno2_76, Yeet_74, HokkenD_71, Halley_81, Schatzie_75
- Track 23 : Duke13_83, Thibault_67, Pound_80, Constella_66
- Track 24 : Omega_83
- Track 25 : Dallas_90
- Track 26 : Rebel_53
- Track 27 : Bunnies_61, CactusJack_56, Thespis_58, Vidya_55, Phineas_58, Camster_58, Pygmy_61, Ksquard_59
- Track 28 : Dynamo_56, StevieRay_61, Malithi_57, Glaske_55, Willsammy_56, Brusacoram_58, Atcoo_58, Megiddo_56, KilKor_56, Bobi_76, Phalm_56, HUHilltop_59, Necropolis_55, StressBall_56, Sonah_57, Bogie_60
- Track 29 : Jung_52, Xeno_56, HC_52
- Track 30 : Phegasus_59, Zilizebeth_59, Mangethe_59, Majeke_59
- Track 31 : Venti_54, Kari_53, FirstPlacePfu_55, Langerak_54, Fishburne_53, Polkaroo_56, Bartholomew_53

- Track 32 : GreaseLightnin_62
- Track 33 : Jebeks_57
- Track 34 : Shipwreck_60
- Track 35 : Techage_54
- Track 36 : Arib1_55
- Track 37 : Phayonce_58
- Track 38 : Gaia_49, Nebkiss_53
- Track 39 : MooMoo_73
- Track 40 : MooMoo_50

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

The start number called the most often in the published annotations is 33, it was called in 51 of the 103 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Arib1_55, Babsiella_60, Bagrid_80, Bartholomew_53, Beem_79, Bipolar_73, Bombitas_69, Bunnies_61, CactusJack_56, Camster_58, Constella_66, Dallas_78, DmpstrDiver_80, Dove_67, Duke13_83, Ejimix_79, EricMillard_78, FirstPlacePfu_55, Fishburne_53, GreaseLightnin_62, HC_52, Hamulus_72, Hughesyang_79, Island3_58, JuicyJay_77, Jung_52, Kalah2_74, Kari_53, Ksquared_59, Langerak_54, LittleShirley_71, Majeke_59, Mangethe_59, MooMoo_50, MooMoo_73, NihilNomen_80, Odette_78, Omega_83, Phayonce_58, Pegasus_59, Phineas_58, Phoebus_82, Polkaroo_56, Pound_80, Pygmy_61, QueenHazel_51, Rebel_53, Techage_54, Thespis_58, Thibault_67, ThreeRngTarjay_77, Venti_54, Vidya_55, Xeno_56, Xula_50, Zelink_77, Zilizebeth_59,

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

- Atcoo_58, BAKA_84, Bobi_76, Bogie_60, Brujita_57, Brusacoram_58, Dynamo_56, Glaske_55, HUHilltop_59, Halley_81, HokkenD_71, Jebeks_57, KashFlow_74, KilKor_56, Malithi_57, Megiddo_56, Minerva_82, Necropolis_55, Phalm_56, Redno2_76, Schatzie_75, Shipwreck_60, Sonah_57, StevieRay_61, StressBall_56, Willsammy_56, Yeet_74,

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

- BlueCrab_63, ByChance_55, Dallas_90, Doug_65, Gaia_49, Galactic_62, GigiOuiOui_59, Girr_61, Ibhuesi_63, Kimberlium_68, LunaBlu_65, MadMen_63, Madiba_64, MisterCuddles_61, Mova_67, Nebkiss_53, Phasih_61, QuickMath_67, RockyHorror_64, Ruby_59, Sabbb_67, Soul22_69, ThetaBob_70, Yoshi_78, Zerg_63,

Summary by start number:

Start 19:

- Found in 27 of 109 (24.8%) of genes in pham
- Manual Annotations of this start: 16 of 103
- Called 59.3% of time when present
- Phage (with cluster) where this start called: Atcoo_58 (P1), Bobi_76 (F1), Bogie_60 (P1), Brusacoram_58 (P1), Dynamo_56 (P1), Glaske_55 (P1), HUHilltop_59 (P1), KilKor_56 (P1), Malithi_57 (P1), Megiddo_56 (P1), Necropolis_55 (P1), Phalm_56

(P1), Sonah_57 (P1), StevieRay_61 (P1), StressBall_56 (P1), Willsammy_56 (P1),

Start 24:

- Found in 11 of 109 (10.1%) of genes in pham
- Manual Annotations of this start: 1 of 103
- Called 9.1% of time when present
- Phage (with cluster) where this start called: Brujita_57 (I1),

Start 25:

- Found in 15 of 109 (13.8%) of genes in pham
- Manual Annotations of this start: 1 of 103
- Called 6.7% of time when present
- Phage (with cluster) where this start called: Girr_61 (F1),

Start 26:

- Found in 27 of 109 (24.8%) of genes in pham
- Manual Annotations of this start: 1 of 103
- Called 3.7% of time when present
- Phage (with cluster) where this start called: Jebeks_57 (P1),

Start 27:

- Found in 8 of 109 (7.3%) of genes in pham
- Manual Annotations of this start: 8 of 103
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Dallas_90 (J), Kimberlium_68 (F1), MadMen_63 (F1), Madiba_64 (F1), Mova_67 (F1), QuickMath_67 (F1), ThetaBob_70 (F4), Yoshi_78 (F2),

Start 28:

- Found in 4 of 109 (3.7%) of genes in pham
- Manual Annotations of this start: 4 of 103
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BlueCrab_63 (F1), ByChance_55 (F1), GigiOuiOui_59 (F1), Soul22_69 (F2),

Start 29:

- Found in 10 of 109 (9.2%) of genes in pham
- Manual Annotations of this start: 9 of 103
- Called 90.0% of time when present
- Phage (with cluster) where this start called: Doug_65 (F1), Gaia_49 (X), MisterCuddles_61 (F1), Nebkiss_53 (X), Phasih_61 (F1), RockyHorror_64 (F1), Ruby_59 (F1), Sabbb_67 (F1), Zerg_63 (F1),

Start 30:

- Found in 32 of 109 (29.4%) of genes in pham
- Manual Annotations of this start: 3 of 103
- Called 9.4% of time when present
- Phage (with cluster) where this start called: Galactic_62 (F1), Ibhubesi_63 (F1), LunaBlu_65 (F1),

Start 31:

- Found in 41 of 109 (37.6%) of genes in pham
- Manual Annotations of this start: 8 of 103

- Called 19.5% of time when present
- Phage (with cluster) where this start called: BAKA_84 (J), Halley_81 (J), HokkenD_71 (J), KashFlow_74 (J), Minerva_82 (J), Redno2_76 (J), Schatzie_75 (J), Yeet_74 (J),

Start 33:

- Found in 84 of 109 (77.1%) of genes in pham
- Manual Annotations of this start: 51 of 103
- Called 67.9% of time when present
- Phage (with cluster) where this start called: Arib1_55 (P1), Babsiella_60 (I1), Bagrid_80 (J), Bartholomew_53 (P1), Beem_79 (J), Bipolar_73 (F1), Bombitas_69 (J), Bunnies_61 (P1), CactusJack_56 (P1), Camster_58 (P1), Constella_66 (J), Dallas_78 (J), DmpstrDiver_80 (J), Dove_67 (J), Duke13_83 (J), Ejimix_79 (J), EricMillard_78 (J), FirstPlacePfu_55 (P1), Fishburne_53 (P1), GreaseLightnin_62 (P1), HC_52 (I1), Hamulus_72 (F1), Hughesyang_79 (J), Island3_58 (I1), JuicyJay_77 (J), Jung_52 (P1), Kalah2_74 (J), Kari_53 (P1), Ksquared_59 (P1), Langerak_54 (P1), LittleShirley_71 (F1), Majeke_59 (P1), Mangethe_59 (P1), MooMoo_50 (singleton), MooMoo_73 (singleton), NihilNomen_80 (J), Odette_78 (J), Omega_83 (J), Phayonce_58 (P5), Phegasus_59 (P1), Phineas_58 (P1), Phoebus_82 (J), Polkaroo_56 (P1), Pound_80 (J), Pygmy_61 (P1), QueenHazel_51 (I1), Rebel_53 (N), Techage_54 (P1), Thespis_58 (P1), Thibault_67 (J), ThreeRngTarjay_77 (J), Venti_54 (P1), Vidya_55 (P1), Xeno_56 (N), Xula_50 (I1), Zelink_77 (J), Zilizebeth_59 (P1),

Start 36:

- Found in 27 of 109 (24.8%) of genes in pham
- Manual Annotations of this start: 1 of 103
- Called 3.7% of time when present
- Phage (with cluster) where this start called: Shipwreck_60 (P1),

Summary by clusters:

There are 10 clusters represented in this pham: F1, singleton, P1, F4, P5, I1, J, F2, N, X,

Info for manual annotations of cluster F1:

- Start number 19 was manually annotated 1 time for cluster F1.
- Start number 25 was manually annotated 1 time for cluster F1.
- Start number 27 was manually annotated 5 times for cluster F1.
- Start number 28 was manually annotated 3 times for cluster F1.
- Start number 29 was manually annotated 7 times for cluster F1.
- Start number 30 was manually annotated 3 times for cluster F1.
- Start number 33 was manually annotated 3 times for cluster F1.

Info for manual annotations of cluster F2:

- Start number 27 was manually annotated 1 time for cluster F2.
- Start number 28 was manually annotated 1 time for cluster F2.

Info for manual annotations of cluster F4:

- Start number 27 was manually annotated 1 time for cluster F4.

Info for manual annotations of cluster I1:

- Start number 24 was manually annotated 1 time for cluster I1.

- Start number 33 was manually annotated 5 times for cluster I1.

Info for manual annotations of cluster J:

- Start number 27 was manually annotated 1 time for cluster J.
- Start number 31 was manually annotated 8 times for cluster J.
- Start number 33 was manually annotated 18 times for cluster J.

Info for manual annotations of cluster N:

- Start number 33 was manually annotated 2 times for cluster N.

Info for manual annotations of cluster P1:

- Start number 19 was manually annotated 15 times for cluster P1.
- Start number 26 was manually annotated 1 time for cluster P1.
- Start number 33 was manually annotated 20 times for cluster P1.
- Start number 36 was manually annotated 1 time for cluster P1.

Info for manual annotations of cluster P5:

- Start number 33 was manually annotated 1 time for cluster P5.

Info for manual annotations of cluster X:

- Start number 29 was manually annotated 2 times for cluster X.

Gene Information:

Gene: Arib1_55 Start: 36318, Stop: 36641, Start Num: 33

Candidate Starts for Arib1_55:

(1, 35895), (3, 36042), (Start: 24 @36255 has 1 MA's), (Start: 33 @36318 has 51 MA's), (64, 36507), (65, 36510), (82, 36609),

Gene: Atcoo_58 Start: 40217, Stop: 40654, Start Num: 19

Candidate Starts for Atcoo_58:

(Start: 19 @40217 has 16 MA's), (Start: 26 @40289 has 1 MA's), (Start: 33 @40331 has 51 MA's), (Start: 36 @40355 has 1 MA's), (44, 40412), (78, 40601), (82, 40622),

Gene: BAKA_84 Start: 53281, Stop: 52940, Start Num: 31

Candidate Starts for BAKA_84:

(Start: 30 @53308 has 3 MA's), (Start: 31 @53281 has 8 MA's), (Start: 33 @53278 has 51 MA's), (37, 53242), (58, 53095), (63, 53074), (76, 53014),

Gene: Babsiella_60 Start: 39552, Stop: 39869, Start Num: 33

Candidate Starts for Babsiella_60:

(9, 39354), (10, 39357), (12, 39366), (14, 39384), (Start: 33 @39552 has 51 MA's), (38, 39594), (42, 39612), (44, 39624), (82, 39837),

Gene: Bagrid_80 Start: 51928, Stop: 51584, Start Num: 33

Candidate Starts for Bagrid_80:

(Start: 30 @51958 has 3 MA's), (Start: 31 @51931 has 8 MA's), (Start: 33 @51928 has 51 MA's), (37, 51892), (60, 51730), (62, 51724), (63, 51721), (77, 51637),

Gene: Bartholomew_53 Start: 36260, Stop: 36583, Start Num: 33

Candidate Starts for Bartholomew_53:

(Start: 33 @36260 has 51 MA's), (64, 36449), (65, 36452), (82, 36551),

Gene: Beem_79 Start: 52789, Stop: 52445, Start Num: 33

Candidate Starts for Beem_79:

(Start: 30 @52819 has 3 MA's), (Start: 31 @52792 has 8 MA's), (Start: 33 @52789 has 51 MA's), (37, 52753), (60, 52591), (62, 52585), (63, 52582), (77, 52498),

Gene: Bipolar_73 Start: 45463, Stop: 45828, Start Num: 33

Candidate Starts for Bipolar_73:

(Start: 33 @45463 has 51 MA's), (38, 45505), (42, 45523), (44, 45535), (55, 45643), (82, 45796),

Gene: BlueCrab_63 Start: 41722, Stop: 42096, Start Num: 28

Candidate Starts for BlueCrab_63:

(Start: 25 @41713 has 1 MA's), (Start: 28 @41722 has 4 MA's), (Start: 31 @41755 has 8 MA's), (47, 41863), (48, 41866), (53, 41914), (70, 42001), (85, 42085),

Gene: Bobi_76 Start: 47153, Stop: 47593, Start Num: 19

Candidate Starts for Bobi_76:

(Start: 19 @47153 has 16 MA's), (Start: 26 @47225 has 1 MA's), (Start: 33 @47267 has 51 MA's), (Start: 36 @47291 has 1 MA's), (44, 47348), (78, 47540), (82, 47561),

Gene: Bogie_60 Start: 39977, Stop: 40417, Start Num: 19

Candidate Starts for Bogie_60:

(Start: 19 @39977 has 16 MA's), (Start: 26 @40049 has 1 MA's), (Start: 33 @40091 has 51 MA's), (Start: 36 @40115 has 1 MA's), (44, 40172), (78, 40364), (82, 40385),

Gene: Bombitas_69 Start: 49952, Stop: 49608, Start Num: 33

Candidate Starts for Bombitas_69:

(Start: 30 @49982 has 3 MA's), (Start: 31 @49955 has 8 MA's), (Start: 33 @49952 has 51 MA's), (37, 49916), (60, 49754), (62, 49748), (63, 49745), (77, 49661),

Gene: Brujita_57 Start: 38345, Stop: 38749, Start Num: 24

Candidate Starts for Brujita_57:

(Start: 24 @38345 has 1 MA's), (Start: 33 @38408 has 51 MA's), (41, 38480), (44, 38504), (82, 38717),

Gene: Brusacoram_58 Start: 38760, Stop: 39197, Start Num: 19

Candidate Starts for Brusacoram_58:

(Start: 19 @38760 has 16 MA's), (Start: 26 @38832 has 1 MA's), (Start: 33 @38874 has 51 MA's), (Start: 36 @38898 has 1 MA's), (44, 38955), (78, 39144), (82, 39165),

Gene: Bunnies_61 Start: 40221, Stop: 40544, Start Num: 33

Candidate Starts for Bunnies_61:

(Start: 19 @40107 has 16 MA's), (Start: 26 @40179 has 1 MA's), (Start: 33 @40221 has 51 MA's), (Start: 36 @40245 has 1 MA's), (44, 40302), (78, 40491), (82, 40512),

Gene: ByChance_55 Start: 36650, Stop: 37024, Start Num: 28

Candidate Starts for ByChance_55:

(Start: 25 @36641 has 1 MA's), (Start: 28 @36650 has 4 MA's), (Start: 31 @36683 has 8 MA's), (47, 36791), (48, 36794), (53, 36842), (70, 36929), (85, 37013),

Gene: CactusJack_56 Start: 39089, Stop: 39412, Start Num: 33

Candidate Starts for CactusJack_56:

(Start: 19 @38975 has 16 MA's), (Start: 26 @39047 has 1 MA's), (Start: 33 @39089 has 51 MA's),
(Start: 36 @39113 has 1 MA's), (44, 39170), (78, 39359), (82, 39380),

Gene: Camster_58 Start: 38552, Stop: 38878, Start Num: 33

Candidate Starts for Camster_58:

(Start: 19 @38438 has 16 MA's), (Start: 26 @38510 has 1 MA's), (Start: 33 @38552 has 51 MA's),
(Start: 36 @38576 has 1 MA's), (44, 38633), (78, 38825), (82, 38846),

Gene: Constella_66 Start: 46926, Stop: 46588, Start Num: 33

Candidate Starts for Constella_66:

(Start: 30 @46956 has 3 MA's), (Start: 31 @46929 has 8 MA's), (Start: 33 @46926 has 51 MA's), (37,
46890), (58, 46743), (63, 46722), (76, 46662),

Gene: Dallas_78 Start: 51710, Stop: 51366, Start Num: 33

Candidate Starts for Dallas_78:

(Start: 30 @51740 has 3 MA's), (Start: 31 @51713 has 8 MA's), (Start: 33 @51710 has 51 MA's), (37,
51674), (60, 51512), (62, 51506), (63, 51503), (77, 51419),

Gene: Dallas_90 Start: 55845, Stop: 56192, Start Num: 27

Candidate Starts for Dallas_90:

(13, 55713), (20, 55773), (22, 55794), (23, 55800), (Start: 27 @55845 has 8 MA's), (34, 55884), (48,
55938), (74, 56100), (75, 56106), (78, 56133), (79, 56136),

Gene: DmpstrDiver_80 Start: 52136, Stop: 51792, Start Num: 33

Candidate Starts for DmpstrDiver_80:

(Start: 30 @52166 has 3 MA's), (Start: 31 @52139 has 8 MA's), (Start: 33 @52136 has 51 MA's), (37,
52100), (60, 51938), (62, 51932), (63, 51929), (77, 51845),

Gene: Doug_65 Start: 41707, Stop: 42063, Start Num: 29

Candidate Starts for Doug_65:

(Start: 25 @41698 has 1 MA's), (Start: 29 @41707 has 9 MA's), (Start: 31 @41728 has 8 MA's), (35,
41743), (45, 41794), (48, 41815), (52, 41860), (61, 41920), (74, 41977), (75, 41983), (78, 42010), (85,
42052),

Gene: Dove_67 Start: 48218, Stop: 47874, Start Num: 33

Candidate Starts for Dove_67:

(Start: 30 @48248 has 3 MA's), (Start: 31 @48221 has 8 MA's), (Start: 33 @48218 has 51 MA's), (37,
48182), (60, 48020), (62, 48014), (63, 48011), (77, 47927),

Gene: Duke13_83 Start: 52490, Stop: 52152, Start Num: 33

Candidate Starts for Duke13_83:

(Start: 30 @52520 has 3 MA's), (Start: 31 @52493 has 8 MA's), (Start: 33 @52490 has 51 MA's), (37,
52454), (58, 52307), (63, 52286), (76, 52226),

Gene: Dynamo_56 Start: 38011, Stop: 38451, Start Num: 19

Candidate Starts for Dynamo_56:

(Start: 19 @38011 has 16 MA's), (Start: 26 @38083 has 1 MA's), (Start: 33 @38125 has 51 MA's),
(Start: 36 @38149 has 1 MA's), (44, 38206), (78, 38398), (82, 38419),

Gene: Ejimix_79 Start: 53578, Stop: 53234, Start Num: 33

Candidate Starts for Ejimix_79:

(Start: 30 @53608 has 3 MA's), (Start: 31 @53581 has 8 MA's), (Start: 33 @53578 has 51 MA's), (37,
53542), (60, 53380), (62, 53374), (63, 53371), (77, 53287),

Gene: EricMillard_78 Start: 52781, Stop: 52437, Start Num: 33

Candidate Starts for EricMillard_78:

(Start: 30 @52811 has 3 MA's), (Start: 31 @52784 has 8 MA's), (Start: 33 @52781 has 51 MA's), (37, 52745), (60, 52583), (62, 52577), (63, 52574), (77, 52490),

Gene: FirstPlacePfu_55 Start: 36292, Stop: 36615, Start Num: 33

Candidate Starts for FirstPlacePfu_55:

(Start: 33 @36292 has 51 MA's), (64, 36481), (65, 36484), (82, 36583),

Gene: Fishburne_53 Start: 36260, Stop: 36583, Start Num: 33

Candidate Starts for Fishburne_53:

(Start: 33 @36260 has 51 MA's), (64, 36449), (65, 36452), (82, 36551),

Gene: Gaia_49 Start: 36916, Stop: 36548, Start Num: 29

Candidate Starts for Gaia_49:

(Start: 29 @36916 has 9 MA's), (32, 36892), (43, 36835), (54, 36745), (75, 36646), (83, 36592),

Gene: Galactic_62 Start: 40920, Stop: 41261, Start Num: 30

Candidate Starts for Galactic_62:

(Start: 25 @40911 has 1 MA's), (Start: 30 @40920 has 3 MA's), (Start: 31 @40941 has 8 MA's), (35, 40956), (45, 41007), (67, 41145), (85, 41250),

Gene: GigiOuiOui_59 Start: 39900, Stop: 40250, Start Num: 28

Candidate Starts for GigiOuiOui_59:

(Start: 25 @39891 has 1 MA's), (Start: 28 @39900 has 4 MA's), (34, 39939), (48, 40017), (66, 40131), (69, 40146), (71, 40158),

Gene: Girr_61 Start: 40755, Stop: 41120, Start Num: 25

Candidate Starts for Girr_61:

(Start: 25 @40755 has 1 MA's), (Start: 29 @40764 has 9 MA's), (Start: 31 @40785 has 8 MA's), (35, 40800), (45, 40851), (48, 40872), (52, 40917), (61, 40977), (74, 41034), (75, 41040), (78, 41067), (85, 41109),

Gene: Glaske_55 Start: 38975, Stop: 39412, Start Num: 19

Candidate Starts for Glaske_55:

(Start: 19 @38975 has 16 MA's), (Start: 26 @39047 has 1 MA's), (Start: 33 @39089 has 51 MA's), (Start: 36 @39113 has 1 MA's), (44, 39170), (78, 39359), (82, 39380),

Gene: GreaseLightnin_62 Start: 40455, Stop: 40778, Start Num: 33

Candidate Starts for GreaseLightnin_62:

(Start: 19 @40341 has 16 MA's), (Start: 26 @40413 has 1 MA's), (Start: 33 @40455 has 51 MA's), (Start: 36 @40479 has 1 MA's), (44, 40536), (82, 40746),

Gene: HC_52 Start: 35682, Stop: 35999, Start Num: 33

Candidate Starts for HC_52:

(Start: 33 @35682 has 51 MA's), (38, 35724), (42, 35742), (44, 35754), (82, 35967),

Gene: HUHilltop_59 Start: 38234, Stop: 38674, Start Num: 19

Candidate Starts for HUHilltop_59:

(Start: 19 @38234 has 16 MA's), (Start: 26 @38306 has 1 MA's), (Start: 33 @38348 has 51 MA's), (Start: 36 @38372 has 1 MA's), (44, 38429), (78, 38621), (82, 38642),

Gene: Halley_81 Start: 52792, Stop: 52445, Start Num: 31

Candidate Starts for Halley_81:

(Start: 30 @52819 has 3 MA's), (Start: 31 @52792 has 8 MA's), (Start: 33 @52789 has 51 MA's), (37, 52753), (60, 52591), (62, 52585), (63, 52582), (77, 52498),

Gene: Hamulus_72 Start: 45640, Stop: 45987, Start Num: 33

Candidate Starts for Hamulus_72:

(Start: 33 @45640 has 51 MA's), (41, 45712), (44, 45736), (82, 45955),

Gene: HokkenD_71 Start: 51061, Stop: 50714, Start Num: 31

Candidate Starts for HokkenD_71:

(Start: 30 @51088 has 3 MA's), (Start: 31 @51061 has 8 MA's), (Start: 33 @51058 has 51 MA's), (37, 51022), (60, 50860), (62, 50854), (63, 50851), (77, 50767),

Gene: Hughesyang_79 Start: 52747, Stop: 52403, Start Num: 33

Candidate Starts for Hughesyang_79:

(Start: 30 @52777 has 3 MA's), (Start: 31 @52750 has 8 MA's), (Start: 33 @52747 has 51 MA's), (37, 52711), (60, 52549), (62, 52543), (63, 52540), (77, 52456),

Gene: Ibhubesi_63 Start: 41044, Stop: 41385, Start Num: 30

Candidate Starts for Ibhubesi_63:

(Start: 25 @41035 has 1 MA's), (Start: 30 @41044 has 3 MA's), (Start: 31 @41065 has 8 MA's), (35, 41080), (45, 41131), (67, 41269), (85, 41374),

Gene: Island3_58 Start: 38408, Stop: 38749, Start Num: 33

Candidate Starts for Island3_58:

(Start: 24 @38345 has 1 MA's), (Start: 33 @38408 has 51 MA's), (41, 38480), (44, 38504), (82, 38717),

Gene: Jebeks_57 Start: 37603, Stop: 37971, Start Num: 26

Candidate Starts for Jebeks_57:

(Start: 19 @37531 has 16 MA's), (Start: 26 @37603 has 1 MA's), (Start: 33 @37645 has 51 MA's), (Start: 36 @37669 has 1 MA's), (44, 37726), (78, 37918), (82, 37939),

Gene: JuicyJay_77 Start: 53923, Stop: 53579, Start Num: 33

Candidate Starts for JuicyJay_77:

(Start: 30 @53953 has 3 MA's), (Start: 31 @53926 has 8 MA's), (Start: 33 @53923 has 51 MA's), (37, 53887), (60, 53725), (62, 53719), (63, 53716), (77, 53632),

Gene: Jung_52 Start: 35997, Stop: 36314, Start Num: 33

Candidate Starts for Jung_52:

(Start: 33 @35997 has 51 MA's), (38, 36039), (42, 36057), (44, 36069), (82, 36282),

Gene: Kalah2_74 Start: 52082, Stop: 51738, Start Num: 33

Candidate Starts for Kalah2_74:

(Start: 30 @52112 has 3 MA's), (Start: 31 @52085 has 8 MA's), (Start: 33 @52082 has 51 MA's), (37, 52046), (60, 51884), (62, 51878), (63, 51875), (77, 51791),

Gene: Kari_53 Start: 36257, Stop: 36580, Start Num: 33

Candidate Starts for Kari_53:

(Start: 33 @36257 has 51 MA's), (64, 36446), (65, 36449), (82, 36548),

Gene: KashFlow_74 Start: 47820, Stop: 47479, Start Num: 31

Candidate Starts for KashFlow_74:

(Start: 30 @47847 has 3 MA's), (Start: 31 @47820 has 8 MA's), (Start: 33 @47817 has 51 MA's), (37, 47781), (58, 47634), (63, 47613), (76, 47553),

Gene: KilKor_56 Start: 39668, Stop: 40105, Start Num: 19

Candidate Starts for KilKor_56:

(Start: 19 @39668 has 16 MA's), (Start: 26 @39740 has 1 MA's), (Start: 33 @39782 has 51 MA's), (Start: 36 @39806 has 1 MA's), (44, 39863), (78, 40052), (82, 40073),

Gene: Kimberlium_68 Start: 43340, Stop: 43681, Start Num: 27

Candidate Starts for Kimberlium_68:

(Start: 27 @43340 has 8 MA's), (34, 43379), (48, 43433), (74, 43595), (75, 43601), (78, 43628), (79, 43631),

Gene: Ksquared_59 Start: 40221, Stop: 40544, Start Num: 33

Candidate Starts for Ksquared_59:

(Start: 19 @40107 has 16 MA's), (Start: 26 @40179 has 1 MA's), (Start: 33 @40221 has 51 MA's), (Start: 36 @40245 has 1 MA's), (44, 40302), (78, 40491), (82, 40512),

Gene: Langerak_54 Start: 36276, Stop: 36599, Start Num: 33

Candidate Starts for Langerak_54:

(Start: 33 @36276 has 51 MA's), (64, 36465), (65, 36468), (82, 36567),

Gene: LittleShirley_71 Start: 44686, Stop: 45033, Start Num: 33

Candidate Starts for LittleShirley_71:

(Start: 33 @44686 has 51 MA's), (41, 44758), (44, 44782), (82, 45001),

Gene: LunaBlu_65 Start: 41579, Stop: 41920, Start Num: 30

Candidate Starts for LunaBlu_65:

(Start: 25 @41570 has 1 MA's), (Start: 30 @41579 has 3 MA's), (Start: 31 @41600 has 8 MA's), (35, 41615), (45, 41666), (67, 41804), (85, 41909),

Gene: MadMen_63 Start: 41307, Stop: 41648, Start Num: 27

Candidate Starts for MadMen_63:

(13, 41175), (20, 41235), (22, 41256), (23, 41262), (Start: 27 @41307 has 8 MA's), (34, 41346), (48, 41400), (74, 41562), (75, 41568), (78, 41595),

Gene: Madiba_64 Start: 40812, Stop: 41153, Start Num: 27

Candidate Starts for Madiba_64:

(2, 40572), (3, 40578), (13, 40680), (20, 40740), (22, 40761), (23, 40767), (Start: 27 @40812 has 8 MA's), (34, 40851), (48, 40905), (75, 41073), (78, 41100),

Gene: Majeke_59 Start: 37835, Stop: 38158, Start Num: 33

Candidate Starts for Majeke_59:

(4, 37568), (5, 37601), (7, 37625), (8, 37631), (Start: 24 @37772 has 1 MA's), (Start: 33 @37835 has 51 MA's), (64, 38024), (65, 38027), (82, 38126),

Gene: Malithi_57 Start: 38149, Stop: 38589, Start Num: 19

Candidate Starts for Malithi_57:

(Start: 19 @38149 has 16 MA's), (Start: 26 @38221 has 1 MA's), (Start: 33 @38263 has 51 MA's), (Start: 36 @38287 has 1 MA's), (44, 38344), (78, 38536), (82, 38557),

Gene: Mangethe_59 Start: 37835, Stop: 38158, Start Num: 33

Candidate Starts for Mangethe_59:

(4, 37568), (5, 37601), (7, 37625), (8, 37631), (Start: 24 @37772 has 1 MA's), (Start: 33 @37835 has 51 MA's), (64, 38024), (65, 38027), (82, 38126),

Gene: Megiddo_56 Start: 38999, Stop: 39439, Start Num: 19

Candidate Starts for Megiddo_56:

(Start: 19 @38999 has 16 MA's), (Start: 26 @39071 has 1 MA's), (Start: 33 @39113 has 51 MA's), (Start: 36 @39137 has 1 MA's), (44, 39194), (78, 39386), (82, 39407),

Gene: Minerva_82 Start: 52925, Stop: 52584, Start Num: 31

Candidate Starts for Minerva_82:

(Start: 30 @52952 has 3 MA's), (Start: 31 @52925 has 8 MA's), (Start: 33 @52922 has 51 MA's), (37, 52886), (58, 52739), (63, 52718), (76, 52658),

Gene: MisterCuddles_61 Start: 40764, Stop: 41120, Start Num: 29

Candidate Starts for MisterCuddles_61:

(Start: 25 @40755 has 1 MA's), (Start: 29 @40764 has 9 MA's), (Start: 31 @40785 has 8 MA's), (35, 40800), (45, 40851), (48, 40872), (52, 40917), (61, 40977), (74, 41034), (75, 41040), (78, 41067), (85, 41109),

Gene: MooMoo_73 Start: 46091, Stop: 46441, Start Num: 33

Candidate Starts for MooMoo_73:

(Start: 33 @46091 has 51 MA's), (40, 46145), (51, 46220), (56, 46262), (57, 46265), (74, 46352), (81, 46406), (84, 46427),

Gene: MooMoo_50 Start: 36541, Stop: 36855, Start Num: 33

Candidate Starts for MooMoo_50:

(Start: 33 @36541 has 51 MA's), (39, 36589), (46, 36622), (49, 36661), (51, 36670), (68, 36736), (73, 36763), (84, 36841),

Gene: Mova_67 Start: 41316, Stop: 41657, Start Num: 27

Candidate Starts for Mova_67:

(2, 41076), (3, 41082), (13, 41184), (20, 41244), (22, 41265), (23, 41271), (Start: 27 @41316 has 8 MA's), (34, 41355), (48, 41409), (75, 41577), (78, 41604),

Gene: Nebkiss_53 Start: 36617, Stop: 36249, Start Num: 29

Candidate Starts for Nebkiss_53:

(Start: 29 @36617 has 9 MA's), (32, 36593), (43, 36536), (54, 36446), (75, 36347), (83, 36293),

Gene: Necropolis_55 Start: 37600, Stop: 38040, Start Num: 19

Candidate Starts for Necropolis_55:

(Start: 19 @37600 has 16 MA's), (Start: 26 @37672 has 1 MA's), (Start: 33 @37714 has 51 MA's), (Start: 36 @37738 has 1 MA's), (44, 37795), (78, 37987), (82, 38008),

Gene: NihilNomen_80 Start: 52876, Stop: 52532, Start Num: 33

Candidate Starts for NihilNomen_80:

(Start: 30 @52906 has 3 MA's), (Start: 31 @52879 has 8 MA's), (Start: 33 @52876 has 51 MA's), (37, 52840), (60, 52678), (62, 52672), (63, 52669), (77, 52585),

Gene: Odette_78 Start: 51918, Stop: 51574, Start Num: 33

Candidate Starts for Odette_78:

(Start: 30 @51948 has 3 MA's), (Start: 31 @51921 has 8 MA's), (Start: 33 @51918 has 51 MA's), (37, 51882), (60, 51720), (62, 51714), (63, 51711), (77, 51627),

Gene: Omega_83 Start: 53053, Stop: 52703, Start Num: 33

Candidate Starts for Omega_83:

(21, 53161), (Start: 30 @53083 has 3 MA's), (Start: 31 @53056 has 8 MA's), (Start: 33 @53053 has 51 MA's), (37, 53017), (50, 52930), (51, 52924), (59, 52858), (72, 52795), (74, 52789), (80, 52747),

Gene: Phalm_56 Start: 38975, Stop: 39412, Start Num: 19

Candidate Starts for Phalm_56:

(Start: 19 @38975 has 16 MA's), (Start: 26 @39047 has 1 MA's), (Start: 33 @39089 has 51 MA's), (Start: 36 @39113 has 1 MA's), (44, 39170), (78, 39359), (82, 39380),

Gene: Phasih_61 Start: 41374, Stop: 41724, Start Num: 29

Candidate Starts for Phasih_61:

(Start: 25 @41365 has 1 MA's), (Start: 29 @41374 has 9 MA's), (32, 41395), (34, 41404), (48, 41482), (52, 41527), (61, 41581), (74, 41638), (75, 41644), (78, 41671), (85, 41713),

Gene: Phayonce_58 Start: 40466, Stop: 40795, Start Num: 33

Candidate Starts for Phayonce_58:

(6, 40253), (11, 40277), (17, 40334), (18, 40340), (Start: 24 @40409 has 1 MA's), (Start: 33 @40466 has 51 MA's), (39, 40514), (46, 40547), (48, 40565), (86, 40781),

Gene: Phegasus_59 Start: 37802, Stop: 38125, Start Num: 33

Candidate Starts for Phegasus_59:

(4, 37535), (5, 37568), (7, 37592), (8, 37598), (Start: 24 @37739 has 1 MA's), (Start: 33 @37802 has 51 MA's), (64, 37991), (65, 37994), (82, 38093),

Gene: Phineas_58 Start: 38683, Stop: 39009, Start Num: 33

Candidate Starts for Phineas_58:

(Start: 19 @38569 has 16 MA's), (Start: 26 @38641 has 1 MA's), (Start: 33 @38683 has 51 MA's), (Start: 36 @38707 has 1 MA's), (44, 38764), (78, 38956), (82, 38977),

Gene: Phoebus_82 Start: 54058, Stop: 53714, Start Num: 33

Candidate Starts for Phoebus_82:

(Start: 30 @54088 has 3 MA's), (Start: 31 @54061 has 8 MA's), (Start: 33 @54058 has 51 MA's), (37, 54022), (60, 53860), (62, 53854), (63, 53851), (77, 53767),

Gene: Polkaroo_56 Start: 37599, Stop: 37922, Start Num: 33

Candidate Starts for Polkaroo_56:

(Start: 33 @37599 has 51 MA's), (64, 37788), (65, 37791), (82, 37890),

Gene: Pound_80 Start: 54194, Stop: 53856, Start Num: 33

Candidate Starts for Pound_80:

(Start: 30 @54224 has 3 MA's), (Start: 31 @54197 has 8 MA's), (Start: 33 @54194 has 51 MA's), (37, 54158), (58, 54011), (63, 53990), (76, 53930),

Gene: Pygmy_61 Start: 40147, Stop: 40473, Start Num: 33

Candidate Starts for Pygmy_61:

(Start: 19 @40033 has 16 MA's), (Start: 26 @40105 has 1 MA's), (Start: 33 @40147 has 51 MA's), (Start: 36 @40171 has 1 MA's), (44, 40228), (78, 40420), (82, 40441),

Gene: QueenHazel_51 Start: 36206, Stop: 36523, Start Num: 33

Candidate Starts for QueenHazel_51:

(15, 36047), (Start: 24 @36143 has 1 MA's), (Start: 33 @36206 has 51 MA's), (38, 36248), (42, 36266), (44, 36278), (82, 36491),

Gene: QuickMath_67 Start: 43563, Stop: 43904, Start Num: 27

Candidate Starts for QuickMath_67:

(Start: 27 @43563 has 8 MA's), (34, 43602), (48, 43656), (74, 43818), (75, 43824), (78, 43851), (79, 43854),

Gene: Rebel_53 Start: 34876, Stop: 35211, Start Num: 33

Candidate Starts for Rebel_53:

(Start: 24 @34819 has 1 MA's), (Start: 33 @34876 has 51 MA's), (39, 34924), (46, 34957), (48, 34975), (78, 35143), (86, 35191),

Gene: Redno2_76 Start: 49675, Stop: 49328, Start Num: 31

Candidate Starts for Redno2_76:

(Start: 30 @49702 has 3 MA's), (Start: 31 @49675 has 8 MA's), (Start: 33 @49672 has 51 MA's), (37, 49636), (60, 49474), (62, 49468), (63, 49465), (77, 49381),

Gene: RockyHorror_64 Start: 40636, Stop: 40992, Start Num: 29

Candidate Starts for RockyHorror_64:

(Start: 25 @40627 has 1 MA's), (Start: 29 @40636 has 9 MA's), (Start: 31 @40657 has 8 MA's), (35, 40672), (45, 40723), (48, 40744), (52, 40789), (61, 40849), (74, 40906), (75, 40912), (78, 40939), (85, 40981),

Gene: Ruby_59 Start: 40765, Stop: 41121, Start Num: 29

Candidate Starts for Ruby_59:

(Start: 25 @40756 has 1 MA's), (Start: 29 @40765 has 9 MA's), (Start: 31 @40786 has 8 MA's), (35, 40801), (45, 40852), (48, 40873), (52, 40918), (61, 40978), (74, 41035), (75, 41041), (78, 41068), (85, 41110),

Gene: Sabbb_67 Start: 41906, Stop: 42262, Start Num: 29

Candidate Starts for Sabbb_67:

(Start: 25 @41897 has 1 MA's), (Start: 29 @41906 has 9 MA's), (Start: 31 @41927 has 8 MA's), (35, 41942), (45, 41993), (48, 42014), (74, 42176), (75, 42182), (78, 42209), (79, 42212), (85, 42251),

Gene: Schatzie_75 Start: 51668, Stop: 51321, Start Num: 31

Candidate Starts for Schatzie_75:

(Start: 30 @51695 has 3 MA's), (Start: 31 @51668 has 8 MA's), (Start: 33 @51665 has 51 MA's), (37, 51629), (60, 51467), (62, 51461), (63, 51458), (77, 51374),

Gene: Shipwreck_60 Start: 40146, Stop: 40448, Start Num: 36

Candidate Starts for Shipwreck_60:

(Start: 19 @40008 has 16 MA's), (Start: 26 @40080 has 1 MA's), (Start: 33 @40122 has 51 MA's), (Start: 36 @40146 has 1 MA's), (44, 40203), (78, 40395), (82, 40416),

Gene: Sonah_57 Start: 37705, Stop: 38145, Start Num: 19

Candidate Starts for Sonah_57:

(Start: 19 @37705 has 16 MA's), (Start: 26 @37777 has 1 MA's), (Start: 33 @37819 has 51 MA's), (Start: 36 @37843 has 1 MA's), (44, 37900), (78, 38092), (82, 38113),

Gene: Soul22_69 Start: 42555, Stop: 42905, Start Num: 28

Candidate Starts for Soul22_69:

(Start: 25 @42546 has 1 MA's), (Start: 28 @42555 has 4 MA's), (34, 42594), (48, 42672), (66, 42786), (69, 42801), (71, 42813),

Gene: StevieRay_61 Start: 40026, Stop: 40466, Start Num: 19

Candidate Starts for StevieRay_61:

(Start: 19 @40026 has 16 MA's), (Start: 26 @40098 has 1 MA's), (Start: 33 @40140 has 51 MA's), (Start: 36 @40164 has 1 MA's), (44, 40221), (78, 40413), (82, 40434),

Gene: StressBall_56 Start: 38975, Stop: 39412, Start Num: 19

Candidate Starts for StressBall_56:

(Start: 19 @38975 has 16 MA's), (Start: 26 @39047 has 1 MA's), (Start: 33 @39089 has 51 MA's), (Start: 36 @39113 has 1 MA's), (44, 39170), (78, 39359), (82, 39380),

Gene: Techage_54 Start: 36368, Stop: 36694, Start Num: 33

Candidate Starts for Techage_54:

(1, 35945), (3, 36092), (Start: 24 @36305 has 1 MA's), (Start: 33 @36368 has 51 MA's), (82, 36662),

Gene: Thespis_58 Start: 38874, Stop: 39197, Start Num: 33

Candidate Starts for Thespis_58:

(Start: 19 @38760 has 16 MA's), (Start: 26 @38832 has 1 MA's), (Start: 33 @38874 has 51 MA's), (Start: 36 @38898 has 1 MA's), (44, 38955), (78, 39144), (82, 39165),

Gene: ThetaBob_70 Start: 42862, Stop: 43218, Start Num: 27

Candidate Starts for ThetaBob_70:

(16, 42760), (Start: 27 @42862 has 8 MA's), (34, 42901), (52, 43018), (74, 43132), (75, 43138), (85, 43207),

Gene: Thibault_67 Start: 47871, Stop: 47533, Start Num: 33

Candidate Starts for Thibault_67:

(Start: 30 @47901 has 3 MA's), (Start: 31 @47874 has 8 MA's), (Start: 33 @47871 has 51 MA's), (37, 47835), (58, 47688), (63, 47667), (76, 47607),

Gene: ThreeRngTarjay_77 Start: 52950, Stop: 52606, Start Num: 33

Candidate Starts for ThreeRngTarjay_77:

(Start: 30 @52980 has 3 MA's), (Start: 31 @52953 has 8 MA's), (Start: 33 @52950 has 51 MA's), (37, 52914), (60, 52752), (62, 52746), (63, 52743), (77, 52659),

Gene: Venti_54 Start: 36260, Stop: 36583, Start Num: 33

Candidate Starts for Venti_54:

(Start: 33 @36260 has 51 MA's), (64, 36449), (65, 36452), (82, 36551),

Gene: Vidya_55 Start: 37618, Stop: 37944, Start Num: 33

Candidate Starts for Vidya_55:

(Start: 19 @37504 has 16 MA's), (Start: 26 @37576 has 1 MA's), (Start: 33 @37618 has 51 MA's), (Start: 36 @37642 has 1 MA's), (44, 37699), (78, 37891), (82, 37912),

Gene: Willsammy_56 Start: 39151, Stop: 39588, Start Num: 19

Candidate Starts for Willsammy_56:

(Start: 19 @39151 has 16 MA's), (Start: 26 @39223 has 1 MA's), (Start: 33 @39265 has 51 MA's), (Start: 36 @39289 has 1 MA's), (44, 39346), (78, 39535), (82, 39556),

Gene: Xeno_56 Start: 35652, Stop: 35969, Start Num: 33

Candidate Starts for Xeno_56:

(Start: 33 @35652 has 51 MA's), (38, 35694), (42, 35712), (44, 35724), (82, 35937),

Gene: Xula_50 Start: 35808, Stop: 36125, Start Num: 33

Candidate Starts for Xula_50:

(15, 35649), (Start: 33 @35808 has 51 MA's), (38, 35850), (42, 35868), (44, 35880), (82, 36093),

Gene: Yeet_74 Start: 51170, Stop: 50823, Start Num: 31

Candidate Starts for Yeet_74:

(Start: 30 @51197 has 3 MA's), (Start: 31 @51170 has 8 MA's), (Start: 33 @51167 has 51 MA's), (37, 51131), (60, 50969), (62, 50963), (63, 50960), (77, 50876),

Gene: Yoshi_78 Start: 43126, Stop: 43482, Start Num: 27

Candidate Starts for Yoshi_78:

(16, 43024), (Start: 27 @43126 has 8 MA's), (34, 43165), (52, 43282), (74, 43396), (75, 43402), (85, 43471),

Gene: Zelink_77 Start: 53262, Stop: 52918, Start Num: 33

Candidate Starts for Zelink_77:

(Start: 30 @53292 has 3 MA's), (Start: 31 @53265 has 8 MA's), (Start: 33 @53262 has 51 MA's), (37, 53226), (60, 53064), (62, 53058), (63, 53055), (77, 52971),

Gene: Zerg_63 Start: 40748, Stop: 41104, Start Num: 29

Candidate Starts for Zerg_63:

(Start: 25 @40739 has 1 MA's), (Start: 29 @40748 has 9 MA's), (Start: 31 @40769 has 8 MA's), (35, 40784), (45, 40835), (48, 40856), (52, 40901), (61, 40961), (74, 41018), (75, 41024), (78, 41051), (85, 41093),

Gene: Zilizebeth_59 Start: 37826, Stop: 38149, Start Num: 33

Candidate Starts for Zilizebeth_59:

(4, 37559), (5, 37592), (7, 37616), (8, 37622), (Start: 24 @37763 has 1 MA's), (Start: 33 @37826 has 51 MA's), (64, 38015), (65, 38018), (82, 38117),