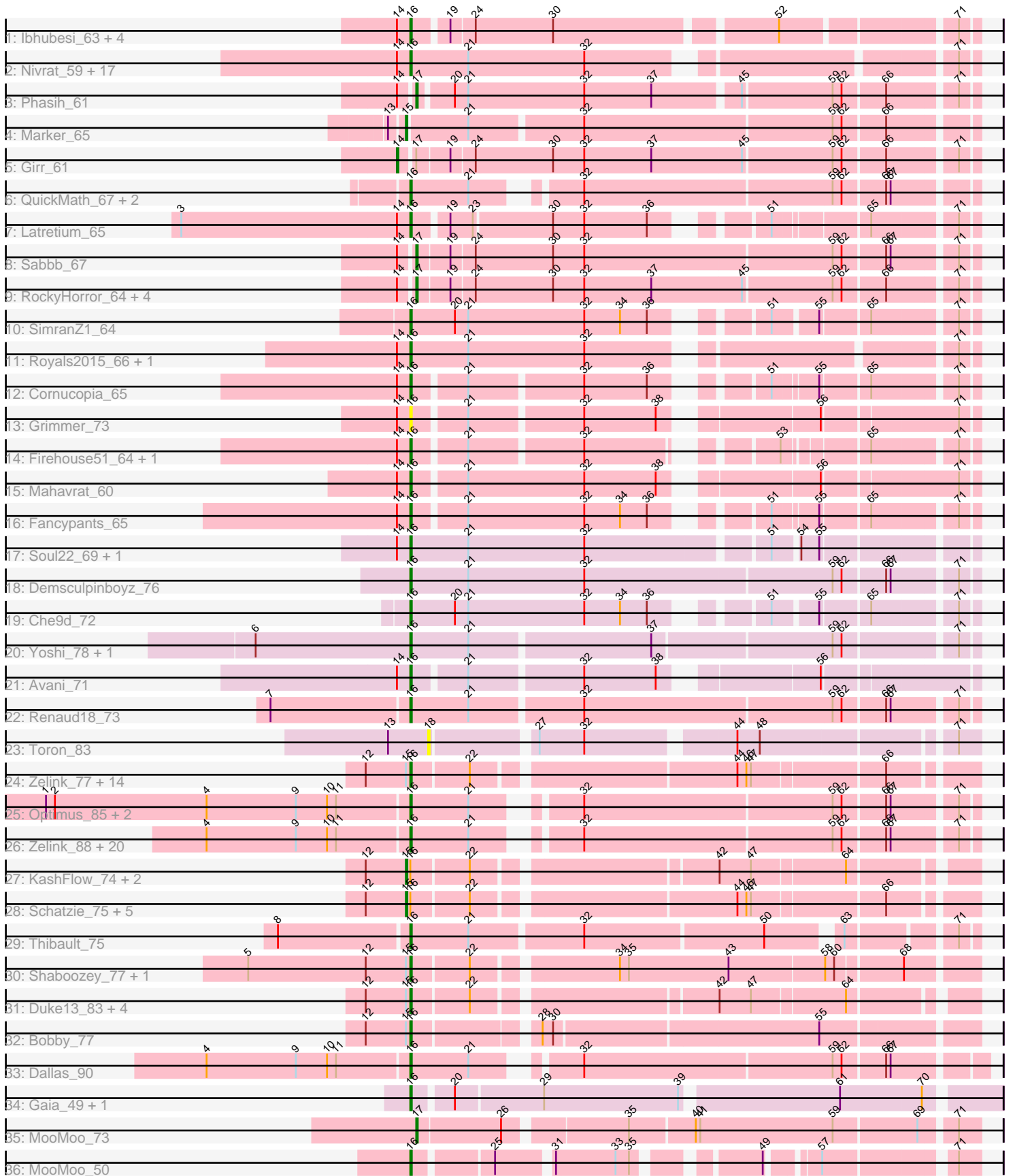


Pham 224419



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 224419 Report

This analysis was run 03/28/25 on database version 593.

Pham number 224419 has 116 members, 12 are drafts.

Phages represented in each track:

- Track 1 : Ibhubesi_63, NewHope4_66, LunaBlu_65, Galactic_62, Polo2Bam_69
- Track 2 : Nivrat_59, GUmble_61, DRBy19_66, Eradicator_56, Yorick_62, Lizziana_69, LilMoolah_61, Che8_68, Saal_65, BuzzLyseyear_69, Guppsters_63, Gorge_67, OlympiaSaint_65, Job42_65, James_67, Mattes_67, Philus_66, Tchotchke_62
- Track 3 : Phasih_61
- Track 4 : Marker_65
- Track 5 : Girr_61
- Track 6 : QuickMath_67, Kimberlium_68, MulchExplorer_71
- Track 7 : Latretium_65
- Track 8 : Sabbb_67
- Track 9 : RockyHorror_64, MisterCuddles_61, Zerg_63, Ruby_59, Doug_65
- Track 10 : SimranZ1_64
- Track 11 : Royals2015_66, Pollywog_64
- Track 12 : Cornucopia_65
- Track 13 : Grimmer_73
- Track 14 : Firehouse51_64, Mutaforma13_67
- Track 15 : Mahavrat_60
- Track 16 : Fancypants_65
- Track 17 : Soul22_69, GigiOuiOui_59
- Track 18 : Demsculpinboyz_76
- Track 19 : Che9d_72
- Track 20 : Yoshi_78, ThetaBob_70
- Track 21 : Avani_71
- Track 22 : Renaud18_73
- Track 23 : Toron_83
- Track 24 : Zelink_77, Kalah2_74, NihilNomen_80, Odette_78, Ejimix_79, Phoebus_82, JuicyJay_77, DmpstrDiver_80, Bombitas_69, EricMillard_78, Dallas_78, ThreeRngTarjay_77, Beem_79, Bagrid_80, Hughesyang_79
- Track 25 : Optimus_85, BAKA_92, EricMillard_84
- Track 26 : Zelink_88, Bombitas_79, Dove_76, Phoebus_93, Minerva_90, Beem_91, JuicyJay_88, DmpstrDiver_91, Odette_89, Klein_91, Schatzie_86, Constella_76, Hughesyang_91, Bagrid_90, Halley_92, Wanda_95, Yeet_84, Kalah2_85, ThreeRngTarjay_88, NihilNomen_92, HokkenD_80
- Track 27 : KashFlow_74, BAKA_84, Minerva_82
- Track 28 : Schatzie_75, Dove_65, Redno2_76, Yeet_74, HokkenD_71, Halley_81
- Track 29 : Thibault_75

- Track 30 : Shaboozey_77, Omega_83
- Track 31 : Duke13_83, Thibault_67, Pound_80, Marleymoo_69, Constella_66
- Track 32 : Bobby_77
- Track 33 : Dallas_90
- Track 34 : Gaia_49, Nebkiss_53
- Track 35 : MooMoo_73
- Track 36 : 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 16, it was called in 85 of the 104 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Avani_71, BAKA_92, Bagrid_80, Bagrid_90, Beem_79, Beem_91, Bobby_77, Bombitas_69, Bombitas_79, BuzzLyseyear_69, Che8_68, Che9d_72, Constella_66, Constella_76, Cornucopia_65, DRBy19_66, Dallas_78, Dallas_90, Demsculpinboyz_76, DmpstrDiver_80, DmpstrDiver_91, Dove_76, Duke13_83, Ejimix_79, Eradicator_56, EricMillard_78, EricMillard_84, Fancypants_65, Firehouse51_64, GUmbe_61, Gaia_49, Galactic_62, GigiOuiOui_59, Gorge_67, Grimmer_73, Guppsters_63, Halley_92, HokkenD_80, Hughesyang_79, Hughesyang_91, Ibhubes_63, James_67, Job42_65, JuicyJay_77, JuicyJay_88, Kalah2_74, Kalah2_85, Kimberlium_68, Klein_91, Latretium_65, LilMoolah_61, Lizziana_69, LunaBlu_65, Mahavrat_60, Marleymoo_69, Mattes_67, Minerva_90, MooMoo_50, MulchExplorer_71, Mutaforma13_67, Nebkiss_53, NewHope4_66, NihilNomen_80, NihilNomen_92, Nivrat_59, Odette_78, Odette_89, OlympiaSaint_65, Omega_83, Optimus_85, Philus_66, Phoebus_82, Phoebus_93, Pollywog_64, Polo2Bam_69, Pound_80, QuickMath_67, Renaud18_73, Royals2015_66, Saal_65, Schatzie_86, Shaboozey_77, SimranZ1_64, Soul22_69, Tchotchke_62, ThetaBob_70, Thibault_67, Thibault_75, ThreeRngTarjay_77, ThreeRngTarjay_88, Wanda_95, Yeet_84, Yorick_62, Yoshi_78, Zelink_77, Zelink_88,

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

- BAKA_84, Dove_65, Halley_81, HokkenD_71, KashFlow_74, Minerva_82, Redno2_76, Schatzie_75, Yeet_74,

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

- Doug_65, Girr_61, Marker_65, MisterCuddles_61, MooMoo_73, Phasih_61, RockyHorror_64, Ruby_59, Sabbb_67, Toron_83, Zerg_63,

Summary by start number:

Start 14:

- Found in 43 of 116 (37.1%) of genes in pham
- Manual Annotations of this start: 1 of 104
- Called 2.3% of time when present
- Phage (with cluster) where this start called: Girr_61 (F1),

Start 15:

- Found in 33 of 116 (28.4%) of genes in pham

- Manual Annotations of this start: 10 of 104
- Called 30.3% of time when present
- Phage (with cluster) where this start called: BAKA_84 (J), Dove_65 (J), Halley_81 (J), HokkenD_71 (J), KashFlow_74 (J), Marker_65 (F1), Minerva_82 (J), Redno2_76 (J), Schatzie_75 (J), Yeet_74 (J),

Start 16:

- Found in 105 of 116 (90.5%) of genes in pham
- Manual Annotations of this start: 85 of 104
- Called 91.4% of time when present
- Phage (with cluster) where this start called: Avani_71 (F2), BAKA_92 (J), Bagrid_80 (J), Bagrid_90 (J), Beem_79 (J), Beem_91 (J), Bobby_77 (J), Bombitas_69 (J), Bombitas_79 (J), BuzzLyseyear_69 (F1), Che8_68 (F1), Che9d_72 (F2), Constella_66 (J), Constella_76 (J), Cornucopia_65 (F1), DRBy19_66 (F1), Dallas_78 (J), Dallas_90 (J), Demsculpinboyz_76 (F2), DmpstrDiver_80 (J), DmpstrDiver_91 (J), Dove_76 (J), Duke13_83 (J), Ejimix_79 (J), Eradicator_56 (F1), EricMillard_78 (J), EricMillard_84 (J), Fancypants_65 (F1), Firehouse51_64 (F1), GUmbie_61 (F1), Gaia_49 (X), Galactic_62 (F1), GigiOuiOui_59 (F1), Gorge_67 (F1), Grimmer_73 (F1), Guppsters_63 (F1), Halley_92 (J), HokkenD_80 (J), Hughesyang_79 (J), Hughesyang_91 (J), Ibhubesi_63 (F1), James_67 (F1), Job42_65 (F1), JuicyJay_77 (J), JuicyJay_88 (J), Kalah2_74 (J), Kalah2_85 (J), Kimberlium_68 (F1), Klein_91 (J), Latretium_65 (F1), LilMoolah_61 (F1), Lizziana_69 (F1), LunaBlu_65 (F1), Mahavrat_60 (F1), Marleymoo_69 (J), Mattes_67 (F1), Minerva_90 (J), MooMoo_50 (singleton), MulchExplorer_71 (F1), Mutaforma13_67 (F1), Nebkiss_53 (X), NewHope4_66 (F1), NihilNomen_80 (J), NihilNomen_92 (J), Nivrat_59 (F1), Odette_78 (J), Odette_89 (J), OlympiaSaint_65 (F1), Omega_83 (J), Optimus_85 (J), Philus_66 (F1), Phoebus_82 (J), Phoebus_93 (J), Pollywog_64 (F1), Polo2Bam_69 (F1), Pound_80 (J), QuickMath_67 (F1), Renaud18_73 (F4), Royals2015_66 (F1), Saal_65 (F1), Schatzie_86 (J), Shaboozey_77 (J), SimranZ1_64 (F1), Soul22_69 (F2), Tchotchke_62 (F1), ThetaBob_70 (F4), Thibault_67 (J), Thibault_75 (J), ThreeRngTarjay_77 (J), ThreeRngTarjay_88 (J), Wanda_95 (J), Yeet_84 (J), Yorick_62 (F1), Yoshi_78 (F2), Zelink_77 (J), Zelink_88 (J),

Start 17:

- Found in 9 of 116 (7.8%) of genes in pham
- Manual Annotations of this start: 8 of 104
- Called 88.9% of time when present
- Phage (with cluster) where this start called: Doug_65 (F1), MisterCuddles_61 (F1), MooMoo_73 (singleton), Phasih_61 (F1), RockyHorror_64 (F1), Ruby_59 (F1), Sabbb_67 (F1), Zerg_63 (F1),

Start 18:

- Found in 1 of 116 (0.9%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Toron_83 (F6),

Summary by clusters:

There are 7 clusters represented in this pham: F1, singleton, F4, F6, J, F2, X,

Info for manual annotations of cluster F1:

- Start number 14 was manually annotated 1 time for cluster F1.

- Start number 15 was manually annotated 1 time for cluster F1.
- Start number 16 was manually annotated 32 times for cluster F1.
- Start number 17 was manually annotated 7 times for cluster F1.

Info for manual annotations of cluster F2:

- Start number 16 was manually annotated 5 times for cluster F2.

Info for manual annotations of cluster F4:

- Start number 16 was manually annotated 2 times for cluster F4.

Info for manual annotations of cluster J:

- Start number 15 was manually annotated 9 times for cluster J.
- Start number 16 was manually annotated 43 times for cluster J.

Info for manual annotations of cluster X:

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

Gene Information:

Gene: Avani_71 Start: 41759, Stop: 42094, Start Num: 16

Candidate Starts for Avani_71:

(Start: 14 @41750 has 1 MA's), (Start: 16 @41759 has 85 MA's), (21, 41792), (32, 41864), (38, 41912), (56, 41999),

Gene: BAKA_92 Start: 57196, Stop: 57537, Start Num: 16

Candidate Starts for BAKA_92:

(1, 56956), (2, 56962), (4, 57064), (9, 57124), (10, 57145), (11, 57151), (Start: 16 @57196 has 85 MA's), (21, 57235), (32, 57289), (59, 57451), (62, 57457), (66, 57484), (67, 57487), (71, 57526),

Gene: BAKA_84 Start: 53281, Stop: 52940, Start Num: 15

Candidate Starts for BAKA_84:

(12, 53308), (Start: 15 @53281 has 10 MA's), (Start: 16 @53278 has 85 MA's), (22, 53242), (42, 53095), (47, 53074), (64, 53014),

Gene: Bagrid_90 Start: 56063, Stop: 56404, Start Num: 16

Candidate Starts for Bagrid_90:

(4, 55931), (9, 55991), (10, 56012), (11, 56018), (Start: 16 @56063 has 85 MA's), (21, 56102), (32, 56156), (59, 56318), (62, 56324), (66, 56351), (67, 56354), (71, 56393),

Gene: Bagrid_80 Start: 51928, Stop: 51584, Start Num: 16

Candidate Starts for Bagrid_80:

(12, 51958), (Start: 15 @51931 has 10 MA's), (Start: 16 @51928 has 85 MA's), (22, 51892), (44, 51730), (46, 51724), (47, 51721), (66, 51637),

Gene: Beem_91 Start: 56924, Stop: 57265, Start Num: 16

Candidate Starts for Beem_91:

(4, 56792), (9, 56852), (10, 56873), (11, 56879), (Start: 16 @56924 has 85 MA's), (21, 56963), (32, 57017), (59, 57179), (62, 57185), (66, 57212), (67, 57215), (71, 57254),

Gene: Beem_79 Start: 52789, Stop: 52445, Start Num: 16

Candidate Starts for Beem_79:

(12, 52819), (Start: 15 @52792 has 10 MA's), (Start: 16 @52789 has 85 MA's), (22, 52753), (44, 52591), (46, 52585), (47, 52582), (66, 52498),

Gene: Bobby_77 Start: 51896, Stop: 51546, Start Num: 16

Candidate Starts for Bobby_77:

(12, 51926), (Start: 15 @51899 has 10 MA's), (Start: 16 @51896 has 85 MA's), (28, 51821), (30, 51815), (55, 51644),

Gene: Bombitas_79 Start: 54087, Stop: 54428, Start Num: 16

Candidate Starts for Bombitas_79:

(4, 53955), (9, 54015), (10, 54036), (11, 54042), (Start: 16 @54087 has 85 MA's), (21, 54126), (32, 54180), (59, 54342), (62, 54348), (66, 54375), (67, 54378), (71, 54417),

Gene: Bombitas_69 Start: 49952, Stop: 49608, Start Num: 16

Candidate Starts for Bombitas_69:

(12, 49982), (Start: 15 @49955 has 10 MA's), (Start: 16 @49952 has 85 MA's), (22, 49916), (44, 49754), (46, 49748), (47, 49745), (66, 49661),

Gene: BuzzLyseyear_69 Start: 42383, Stop: 42724, Start Num: 16

Candidate Starts for BuzzLyseyear_69:

(Start: 14 @42374 has 1 MA's), (Start: 16 @42383 has 85 MA's), (21, 42422), (32, 42500), (71, 42713),

Gene: Che8_68 Start: 43879, Stop: 44220, Start Num: 16

Candidate Starts for Che8_68:

(Start: 14 @43870 has 1 MA's), (Start: 16 @43879 has 85 MA's), (21, 43918), (32, 43996), (71, 44209),

Gene: Che9d_72 Start: 41100, Stop: 41432, Start Num: 16

Candidate Starts for Che9d_72:

(Start: 16 @41100 has 85 MA's), (20, 41130), (21, 41139), (32, 41217), (34, 41241), (36, 41259), (51, 41313), (55, 41340), (65, 41370), (71, 41421),

Gene: Constella_76 Start: 51061, Stop: 51402, Start Num: 16

Candidate Starts for Constella_76:

(4, 50929), (9, 50989), (10, 51010), (11, 51016), (Start: 16 @51061 has 85 MA's), (21, 51100), (32, 51154), (59, 51316), (62, 51322), (66, 51349), (67, 51352), (71, 51391),

Gene: Constella_66 Start: 46926, Stop: 46588, Start Num: 16

Candidate Starts for Constella_66:

(12, 46956), (Start: 15 @46929 has 10 MA's), (Start: 16 @46926 has 85 MA's), (22, 46890), (42, 46743), (47, 46722), (64, 46662),

Gene: Cornucopia_65 Start: 41687, Stop: 42007, Start Num: 16

Candidate Starts for Cornucopia_65:

(Start: 14 @41678 has 1 MA's), (Start: 16 @41687 has 85 MA's), (21, 41720), (32, 41792), (36, 41834), (51, 41888), (55, 41915), (65, 41945), (71, 41996),

Gene: DRBy19_66 Start: 42134, Stop: 42475, Start Num: 16

Candidate Starts for DRBy19_66:

(Start: 14 @42125 has 1 MA's), (Start: 16 @42134 has 85 MA's), (21, 42173), (32, 42251), (71, 42464),

Gene: Dallas_78 Start: 51710, Stop: 51366, Start Num: 16

Candidate Starts for Dallas_78:

(12, 51740), (Start: 15 @51713 has 10 MA's), (Start: 16 @51710 has 85 MA's), (22, 51674), (44, 51512), (46, 51506), (47, 51503), (66, 51419),

Gene: Dallas_90 Start: 55845, Stop: 56192, Start Num: 16

Candidate Starts for Dallas_90:

(4, 55713), (9, 55773), (10, 55794), (11, 55800), (Start: 16 @55845 has 85 MA's), (21, 55884), (32, 55938), (59, 56100), (62, 56106), (66, 56133), (67, 56136),

Gene: Demsculpinboyz_76 Start: 41371, Stop: 41736, Start Num: 16

Candidate Starts for Demsculpinboyz_76:

(Start: 16 @41371 has 85 MA's), (21, 41410), (32, 41488), (59, 41650), (62, 41656), (66, 41683), (67, 41686), (71, 41725),

Gene: DmpstrDiver_80 Start: 52136, Stop: 51792, Start Num: 16

Candidate Starts for DmpstrDiver_80:

(12, 52166), (Start: 15 @52139 has 10 MA's), (Start: 16 @52136 has 85 MA's), (22, 52100), (44, 51938), (46, 51932), (47, 51929), (66, 51845),

Gene: DmpstrDiver_91 Start: 56259, Stop: 56600, Start Num: 16

Candidate Starts for DmpstrDiver_91:

(4, 56127), (9, 56187), (10, 56208), (11, 56214), (Start: 16 @56259 has 85 MA's), (21, 56298), (32, 56352), (59, 56514), (62, 56520), (66, 56547), (67, 56550), (71, 56589),

Gene: Doug_65 Start: 41707, Stop: 42063, Start Num: 17

Candidate Starts for Doug_65:

(Start: 14 @41698 has 1 MA's), (Start: 17 @41707 has 8 MA's), (19, 41728), (24, 41743), (30, 41794), (32, 41815), (37, 41860), (45, 41920), (59, 41977), (62, 41983), (66, 42010), (71, 42052),

Gene: Dove_65 Start: 48221, Stop: 47874, Start Num: 15

Candidate Starts for Dove_65:

(12, 48248), (Start: 15 @48221 has 10 MA's), (Start: 16 @48218 has 85 MA's), (22, 48182), (44, 48020), (46, 48014), (47, 48011), (66, 47927),

Gene: Dove_76 Start: 52353, Stop: 52694, Start Num: 16

Candidate Starts for Dove_76:

(4, 52221), (9, 52281), (10, 52302), (11, 52308), (Start: 16 @52353 has 85 MA's), (21, 52392), (32, 52446), (59, 52608), (62, 52614), (66, 52641), (67, 52644), (71, 52683),

Gene: Duke13_83 Start: 52490, Stop: 52152, Start Num: 16

Candidate Starts for Duke13_83:

(12, 52520), (Start: 15 @52493 has 10 MA's), (Start: 16 @52490 has 85 MA's), (22, 52454), (42, 52307), (47, 52286), (64, 52226),

Gene: Ejimix_79 Start: 53578, Stop: 53234, Start Num: 16

Candidate Starts for Ejimix_79:

(12, 53608), (Start: 15 @53581 has 10 MA's), (Start: 16 @53578 has 85 MA's), (22, 53542), (44, 53380), (46, 53374), (47, 53371), (66, 53287),

Gene: Eradicator_56 Start: 39233, Stop: 39574, Start Num: 16

Candidate Starts for Eradicator_56:

(Start: 14 @39224 has 1 MA's), (Start: 16 @39233 has 85 MA's), (21, 39272), (32, 39350), (71, 39563),

Gene: EricMillard_84 Start: 55991, Stop: 56332, Start Num: 16

Candidate Starts for EricMillard_84:

(1, 55751), (2, 55757), (4, 55859), (9, 55919), (10, 55940), (11, 55946), (Start: 16 @55991 has 85 MA's), (21, 56030), (32, 56084), (59, 56246), (62, 56252), (66, 56279), (67, 56282), (71, 56321),

Gene: EricMillard_78 Start: 52781, Stop: 52437, Start Num: 16

Candidate Starts for EricMillard_78:

(12, 52811), (Start: 15 @52784 has 10 MA's), (Start: 16 @52781 has 85 MA's), (22, 52745), (44, 52583), (46, 52577), (47, 52574), (66, 52490),

Gene: Fancypants_65 Start: 41674, Stop: 42000, Start Num: 16

Candidate Starts for Fancypants_65:

(Start: 14 @41665 has 1 MA's), (Start: 16 @41674 has 85 MA's), (21, 41707), (32, 41785), (34, 41809), (36, 41827), (51, 41881), (55, 41908), (65, 41938), (71, 41989),

Gene: Firehouse51_64 Start: 44558, Stop: 44872, Start Num: 16

Candidate Starts for Firehouse51_64:

(Start: 14 @44549 has 1 MA's), (Start: 16 @44558 has 85 MA's), (21, 44591), (32, 44663), (53, 44762), (65, 44810), (71, 44861),

Gene: GUmbie_61 Start: 40460, Stop: 40801, Start Num: 16

Candidate Starts for GUmbie_61:

(Start: 14 @40451 has 1 MA's), (Start: 16 @40460 has 85 MA's), (21, 40499), (32, 40577), (71, 40790),

Gene: Gaia_49 Start: 36916, Stop: 36548, Start Num: 16

Candidate Starts for Gaia_49:

(Start: 16 @36916 has 85 MA's), (20, 36892), (29, 36835), (39, 36745), (61, 36646), (70, 36592),

Gene: Galactic_62 Start: 40920, Stop: 41261, Start Num: 16

Candidate Starts for Galactic_62:

(Start: 14 @40911 has 1 MA's), (Start: 16 @40920 has 85 MA's), (19, 40941), (24, 40956), (30, 41007), (52, 41145), (71, 41250),

Gene: GigiOuiOui_59 Start: 39900, Stop: 40250, Start Num: 16

Candidate Starts for GigiOuiOui_59:

(Start: 14 @39891 has 1 MA's), (Start: 16 @39900 has 85 MA's), (21, 39939), (32, 40017), (51, 40131), (54, 40146), (55, 40158),

Gene: Girr_61 Start: 40755, Stop: 41120, Start Num: 14

Candidate Starts for Girr_61:

(Start: 14 @40755 has 1 MA's), (Start: 17 @40764 has 8 MA's), (19, 40785), (24, 40800), (30, 40851), (32, 40872), (37, 40917), (45, 40977), (59, 41034), (62, 41040), (66, 41067), (71, 41109),

Gene: Gorge_67 Start: 42402, Stop: 42743, Start Num: 16

Candidate Starts for Gorge_67:

(Start: 14 @42393 has 1 MA's), (Start: 16 @42402 has 85 MA's), (21, 42441), (32, 42519), (71, 42732),

Gene: Grimmer_73 Start: 42556, Stop: 42891, Start Num: 16

Candidate Starts for Grimmer_73:

(Start: 14 @42547 has 1 MA's), (Start: 16 @42556 has 85 MA's), (21, 42589), (32, 42661), (38, 42709), (56, 42796), (71, 42880),

Gene: Guppsters_63 Start: 40585, Stop: 40926, Start Num: 16

Candidate Starts for Guppsters_63:

(Start: 14 @40576 has 1 MA's), (Start: 16 @40585 has 85 MA's), (21, 40624), (32, 40702), (71, 40915),

Gene: Halley_92 Start: 56924, Stop: 57265, Start Num: 16

Candidate Starts for Halley_92:

(4, 56792), (9, 56852), (10, 56873), (11, 56879), (Start: 16 @56924 has 85 MA's), (21, 56963), (32, 57017), (59, 57179), (62, 57185), (66, 57212), (67, 57215), (71, 57254),

Gene: Halley_81 Start: 52792, Stop: 52445, Start Num: 15

Candidate Starts for Halley_81:

(12, 52819), (Start: 15 @52792 has 10 MA's), (Start: 16 @52789 has 85 MA's), (22, 52753), (44, 52591), (46, 52585), (47, 52582), (66, 52498),

Gene: HokkenD_71 Start: 51061, Stop: 50714, Start Num: 15

Candidate Starts for HokkenD_71:

(12, 51088), (Start: 15 @51061 has 10 MA's), (Start: 16 @51058 has 85 MA's), (22, 51022), (44, 50860), (46, 50854), (47, 50851), (66, 50767),

Gene: HokkenD_80 Start: 55193, Stop: 55534, Start Num: 16

Candidate Starts for HokkenD_80:

(4, 55061), (9, 55121), (10, 55142), (11, 55148), (Start: 16 @55193 has 85 MA's), (21, 55232), (32, 55286), (59, 55448), (62, 55454), (66, 55481), (67, 55484), (71, 55523),

Gene: Hughesyang_91 Start: 56882, Stop: 57223, Start Num: 16

Candidate Starts for Hughesyang_91:

(4, 56750), (9, 56810), (10, 56831), (11, 56837), (Start: 16 @56882 has 85 MA's), (21, 56921), (32, 56975), (59, 57137), (62, 57143), (66, 57170), (67, 57173), (71, 57212),

Gene: Hughesyang_79 Start: 52747, Stop: 52403, Start Num: 16

Candidate Starts for Hughesyang_79:

(12, 52777), (Start: 15 @52750 has 10 MA's), (Start: 16 @52747 has 85 MA's), (22, 52711), (44, 52549), (46, 52543), (47, 52540), (66, 52456),

Gene: Ibhubesi_63 Start: 41044, Stop: 41385, Start Num: 16

Candidate Starts for Ibhubesi_63:

(Start: 14 @41035 has 1 MA's), (Start: 16 @41044 has 85 MA's), (19, 41065), (24, 41080), (30, 41131), (52, 41269), (71, 41374),

Gene: James_67 Start: 42527, Stop: 42868, Start Num: 16

Candidate Starts for James_67:

(Start: 14 @42518 has 1 MA's), (Start: 16 @42527 has 85 MA's), (21, 42566), (32, 42644), (71, 42857),

Gene: Job42_65 Start: 42942, Stop: 43283, Start Num: 16

Candidate Starts for Job42_65:

(Start: 14 @42933 has 1 MA's), (Start: 16 @42942 has 85 MA's), (21, 42981), (32, 43059), (71, 43272),

Gene: JuicyJay_77 Start: 53923, Stop: 53579, Start Num: 16

Candidate Starts for JuicyJay_77:

(12, 53953), (Start: 15 @53926 has 10 MA's), (Start: 16 @53923 has 85 MA's), (22, 53887), (44, 53725), (46, 53719), (47, 53716), (66, 53632),

Gene: JuicyJay_88 Start: 58058, Stop: 58399, Start Num: 16

Candidate Starts for JuicyJay_88:

(4, 57926), (9, 57986), (10, 58007), (11, 58013), (Start: 16 @58058 has 85 MA's), (21, 58097), (32, 58151), (59, 58313), (62, 58319), (66, 58346), (67, 58349), (71, 58388),

Gene: Kalah2_74 Start: 52082, Stop: 51738, Start Num: 16

Candidate Starts for Kalah2_74:

(12, 52112), (Start: 15 @52085 has 10 MA's), (Start: 16 @52082 has 85 MA's), (22, 52046), (44, 51884), (46, 51878), (47, 51875), (66, 51791),

Gene: Kalah2_85 Start: 56217, Stop: 56558, Start Num: 16

Candidate Starts for Kalah2_85:

(4, 56085), (9, 56145), (10, 56166), (11, 56172), (Start: 16 @56217 has 85 MA's), (21, 56256), (32, 56310), (59, 56472), (62, 56478), (66, 56505), (67, 56508), (71, 56547),

Gene: KashFlow_74 Start: 47820, Stop: 47479, Start Num: 15

Candidate Starts for KashFlow_74:

(12, 47847), (Start: 15 @47820 has 10 MA's), (Start: 16 @47817 has 85 MA's), (22, 47781), (42, 47634), (47, 47613), (64, 47553),

Gene: Kimberlium_68 Start: 43340, Stop: 43681, Start Num: 16

Candidate Starts for Kimberlium_68:

(Start: 16 @43340 has 85 MA's), (21, 43379), (32, 43433), (59, 43595), (62, 43601), (66, 43628), (67, 43631),

Gene: Klein_91 Start: 55893, Stop: 56234, Start Num: 16

Candidate Starts for Klein_91:

(4, 55761), (9, 55821), (10, 55842), (11, 55848), (Start: 16 @55893 has 85 MA's), (21, 55932), (32, 55986), (59, 56148), (62, 56154), (66, 56181), (67, 56184), (71, 56223),

Gene: Latretium_65 Start: 41581, Stop: 41904, Start Num: 16

Candidate Starts for Latretium_65:

(3, 41428), (Start: 14 @41572 has 1 MA's), (Start: 16 @41581 has 85 MA's), (19, 41602), (23, 41617), (30, 41668), (32, 41689), (36, 41731), (51, 41785), (65, 41842), (71, 41893),

Gene: LilMoolah_61 Start: 40447, Stop: 40788, Start Num: 16

Candidate Starts for LilMoolah_61:

(Start: 14 @40438 has 1 MA's), (Start: 16 @40447 has 85 MA's), (21, 40486), (32, 40564), (71, 40777),

Gene: Lizziana_69 Start: 42008, Stop: 42349, Start Num: 16

Candidate Starts for Lizziana_69:

(Start: 14 @41999 has 1 MA's), (Start: 16 @42008 has 85 MA's), (21, 42047), (32, 42125), (71, 42338),

Gene: LunaBlu_65 Start: 41579, Stop: 41920, Start Num: 16

Candidate Starts for LunaBlu_65:

(Start: 14 @41570 has 1 MA's), (Start: 16 @41579 has 85 MA's), (19, 41600), (24, 41615), (30, 41666), (52, 41804), (71, 41909),

Gene: Mahavrat_60 Start: 40518, Stop: 40859, Start Num: 16

Candidate Starts for Mahavrat_60:

(Start: 14 @40509 has 1 MA's), (Start: 16 @40518 has 85 MA's), (21, 40551), (32, 40629), (38, 40677), (56, 40764), (71, 40848),

Gene: Marker_65 Start: 41128, Stop: 41487, Start Num: 15

Candidate Starts for Marker_65:

(13, 41119), (Start: 15 @41128 has 10 MA's), (21, 41167), (32, 41239), (59, 41401), (62, 41407), (66, 41434),

Gene: Marleymoo_69 Start: 49698, Stop: 49360, Start Num: 16

Candidate Starts for Marleymoo_69:

(12, 49728), (Start: 15 @49701 has 10 MA's), (Start: 16 @49698 has 85 MA's), (22, 49662), (42, 49515), (47, 49494), (64, 49434),

Gene: Mattes_67 Start: 42527, Stop: 42868, Start Num: 16

Candidate Starts for Mattes_67:

(Start: 14 @42518 has 1 MA's), (Start: 16 @42527 has 85 MA's), (21, 42566), (32, 42644), (71, 42857),

Gene: Minerva_82 Start: 52925, Stop: 52584, Start Num: 15

Candidate Starts for Minerva_82:

(12, 52952), (Start: 15 @52925 has 10 MA's), (Start: 16 @52922 has 85 MA's), (22, 52886), (42, 52739), (47, 52718), (64, 52658),

Gene: Minerva_90 Start: 56841, Stop: 57182, Start Num: 16

Candidate Starts for Minerva_90:

(4, 56709), (9, 56769), (10, 56790), (11, 56796), (Start: 16 @56841 has 85 MA's), (21, 56880), (32, 56934), (59, 57096), (62, 57102), (66, 57129), (67, 57132), (71, 57171),

Gene: MisterCuddles_61 Start: 40764, Stop: 41120, Start Num: 17

Candidate Starts for MisterCuddles_61:

(Start: 14 @40755 has 1 MA's), (Start: 17 @40764 has 8 MA's), (19, 40785), (24, 40800), (30, 40851), (32, 40872), (37, 40917), (45, 40977), (59, 41034), (62, 41040), (66, 41067), (71, 41109),

Gene: MooMoo_73 Start: 46091, Stop: 46441, Start Num: 17

Candidate Starts for MooMoo_73:

(Start: 17 @46091 has 8 MA's), (26, 46145), (35, 46220), (40, 46262), (41, 46265), (59, 46352), (69, 46406), (71, 46427),

Gene: MooMoo_50 Start: 36541, Stop: 36855, Start Num: 16

Candidate Starts for MooMoo_50:

(Start: 16 @36541 has 85 MA's), (25, 36589), (31, 36622), (33, 36661), (35, 36670), (49, 36736), (57, 36763), (71, 36841),

Gene: MulchExplorer_71 Start: 43339, Stop: 43680, Start Num: 16

Candidate Starts for MulchExplorer_71:

(Start: 16 @43339 has 85 MA's), (21, 43378), (32, 43432), (59, 43594), (62, 43600), (66, 43627), (67, 43630),

Gene: Mutaforma13_67 Start: 43868, Stop: 44182, Start Num: 16

Candidate Starts for Mutaforma13_67:

(Start: 14 @43859 has 1 MA's), (Start: 16 @43868 has 85 MA's), (21, 43901), (32, 43973), (53, 44072), (65, 44120), (71, 44171),

Gene: Nebkiss_53 Start: 36617, Stop: 36249, Start Num: 16

Candidate Starts for Nebkiss_53:

(Start: 16 @36617 has 85 MA's), (20, 36593), (29, 36536), (39, 36446), (61, 36347), (70, 36293),

Gene: NewHope4_66 Start: 40950, Stop: 41291, Start Num: 16

Candidate Starts for NewHope4_66:

(Start: 14 @40941 has 1 MA's), (Start: 16 @40950 has 85 MA's), (19, 40971), (24, 40986), (30, 41037), (52, 41175), (71, 41280),

Gene: NihilNomen_80 Start: 52876, Stop: 52532, Start Num: 16

Candidate Starts for NihilNomen_80:

(12, 52906), (Start: 15 @52879 has 10 MA's), (Start: 16 @52876 has 85 MA's), (22, 52840), (44, 52678), (46, 52672), (47, 52669), (66, 52585),

Gene: NihilNomen_92 Start: 57011, Stop: 57352, Start Num: 16

Candidate Starts for NihilNomen_92:

(4, 56879), (9, 56939), (10, 56960), (11, 56966), (Start: 16 @57011 has 85 MA's), (21, 57050), (32, 57104), (59, 57266), (62, 57272), (66, 57299), (67, 57302), (71, 57341),

Gene: Nivrat_59 Start: 40320, Stop: 40661, Start Num: 16

Candidate Starts for Nivrat_59:

(Start: 14 @40311 has 1 MA's), (Start: 16 @40320 has 85 MA's), (21, 40359), (32, 40437), (71, 40650),

Gene: Odette_78 Start: 51918, Stop: 51574, Start Num: 16

Candidate Starts for Odette_78:

(12, 51948), (Start: 15 @51921 has 10 MA's), (Start: 16 @51918 has 85 MA's), (22, 51882), (44, 51720), (46, 51714), (47, 51711), (66, 51627),

Gene: Odette_89 Start: 56053, Stop: 56394, Start Num: 16

Candidate Starts for Odette_89:

(4, 55921), (9, 55981), (10, 56002), (11, 56008), (Start: 16 @56053 has 85 MA's), (21, 56092), (32, 56146), (59, 56308), (62, 56314), (66, 56341), (67, 56344), (71, 56383),

Gene: OlympiaSaint_65 Start: 41469, Stop: 41810, Start Num: 16

Candidate Starts for OlympiaSaint_65:

(Start: 14 @41460 has 1 MA's), (Start: 16 @41469 has 85 MA's), (21, 41508), (32, 41586), (71, 41799),

Gene: Omega_83 Start: 53053, Stop: 52703, Start Num: 16

Candidate Starts for Omega_83:

(5, 53161), (12, 53083), (Start: 15 @53056 has 10 MA's), (Start: 16 @53053 has 85 MA's), (22, 53017), (34, 52930), (35, 52924), (43, 52858), (58, 52795), (60, 52789), (68, 52747),

Gene: Optimus_85 Start: 55545, Stop: 55886, Start Num: 16

Candidate Starts for Optimus_85:

(1, 55305), (2, 55311), (4, 55413), (9, 55473), (10, 55494), (11, 55500), (Start: 16 @55545 has 85 MA's), (21, 55584), (32, 55638), (59, 55800), (62, 55806), (66, 55833), (67, 55836), (71, 55875),

Gene: Phasih_61 Start: 41374, Stop: 41724, Start Num: 17

Candidate Starts for Phasih_61:

(Start: 14 @41365 has 1 MA's), (Start: 17 @41374 has 8 MA's), (20, 41395), (21, 41404), (32, 41482), (37, 41527), (45, 41581), (59, 41638), (62, 41644), (66, 41671), (71, 41713),

Gene: Philus_66 Start: 42110, Stop: 42451, Start Num: 16

Candidate Starts for Philus_66:

(Start: 14 @42101 has 1 MA's), (Start: 16 @42110 has 85 MA's), (21, 42149), (32, 42227), (71, 42440),

Gene: Phoebus_82 Start: 54058, Stop: 53714, Start Num: 16

Candidate Starts for Phoebus_82:

(12, 54088), (Start: 15 @54061 has 10 MA's), (Start: 16 @54058 has 85 MA's), (22, 54022), (44, 53860), (46, 53854), (47, 53851), (66, 53767),

Gene: Phoebus_93 Start: 58193, Stop: 58534, Start Num: 16

Candidate Starts for Phoebus_93:

(4, 58061), (9, 58121), (10, 58142), (11, 58148), (Start: 16 @58193 has 85 MA's), (21, 58232), (32, 58286), (59, 58448), (62, 58454), (66, 58481), (67, 58484), (71, 58523),

Gene: Pollywog_64 Start: 41787, Stop: 42128, Start Num: 16

Candidate Starts for Pollywog_64:

(Start: 14 @41778 has 1 MA's), (Start: 16 @41787 has 85 MA's), (21, 41826), (32, 41904), (71, 42117),

Gene: Polo2Bam_69 Start: 40804, Stop: 41145, Start Num: 16

Candidate Starts for Polo2Bam_69:

(Start: 14 @40795 has 1 MA's), (Start: 16 @40804 has 85 MA's), (19, 40825), (24, 40840), (30, 40891), (52, 41029), (71, 41134),

Gene: Pound_80 Start: 54194, Stop: 53856, Start Num: 16

Candidate Starts for Pound_80:

(12, 54224), (Start: 15 @54197 has 10 MA's), (Start: 16 @54194 has 85 MA's), (22, 54158), (42, 54011), (47, 53990), (64, 53930),

Gene: QuickMath_67 Start: 43563, Stop: 43904, Start Num: 16

Candidate Starts for QuickMath_67:

(Start: 16 @43563 has 85 MA's), (21, 43602), (32, 43656), (59, 43818), (62, 43824), (66, 43851), (67, 43854),

Gene: Redno2_76 Start: 49675, Stop: 49328, Start Num: 15

Candidate Starts for Redno2_76:

(12, 49702), (Start: 15 @49675 has 10 MA's), (Start: 16 @49672 has 85 MA's), (22, 49636), (44, 49474), (46, 49468), (47, 49465), (66, 49381),

Gene: Renaud18_73 Start: 42883, Stop: 43242, Start Num: 16

Candidate Starts for Renaud18_73:

(7, 42793), (Start: 16 @42883 has 85 MA's), (21, 42922), (32, 42994), (59, 43156), (62, 43162), (66, 43189), (67, 43192), (71, 43231),

Gene: RockyHorror_64 Start: 40636, Stop: 40992, Start Num: 17

Candidate Starts for RockyHorror_64:

(Start: 14 @40627 has 1 MA's), (Start: 17 @40636 has 8 MA's), (19, 40657), (24, 40672), (30, 40723), (32, 40744), (37, 40789), (45, 40849), (59, 40906), (62, 40912), (66, 40939), (71, 40981),

Gene: Royals2015_66 Start: 41205, Stop: 41546, Start Num: 16

Candidate Starts for Royals2015_66:

(Start: 14 @41196 has 1 MA's), (Start: 16 @41205 has 85 MA's), (21, 41244), (32, 41322), (71, 41535),

Gene: Ruby_59 Start: 40765, Stop: 41121, Start Num: 17

Candidate Starts for Ruby_59:

(Start: 14 @40756 has 1 MA's), (Start: 17 @40765 has 8 MA's), (19, 40786), (24, 40801), (30, 40852), (32, 40873), (37, 40918), (45, 40978), (59, 41035), (62, 41041), (66, 41068), (71, 41110),

Gene: Saal_65 Start: 42221, Stop: 42562, Start Num: 16

Candidate Starts for Saal_65:

(Start: 14 @42212 has 1 MA's), (Start: 16 @42221 has 85 MA's), (21, 42260), (32, 42338), (71, 42551),

Gene: Sabbb_67 Start: 41906, Stop: 42262, Start Num: 17

Candidate Starts for Sabbb_67:

(Start: 14 @41897 has 1 MA's), (Start: 17 @41906 has 8 MA's), (19, 41927), (24, 41942), (30, 41993), (32, 42014), (59, 42176), (62, 42182), (66, 42209), (67, 42212), (71, 42251),

Gene: Schatzie_75 Start: 51668, Stop: 51321, Start Num: 15

Candidate Starts for Schatzie_75:

(12, 51695), (Start: 15 @51668 has 10 MA's), (Start: 16 @51665 has 85 MA's), (22, 51629), (44, 51467), (46, 51461), (47, 51458), (66, 51374),

Gene: Schatzie_86 Start: 55800, Stop: 56141, Start Num: 16

Candidate Starts for Schatzie_86:

(4, 55668), (9, 55728), (10, 55749), (11, 55755), (Start: 16 @55800 has 85 MA's), (21, 55839), (32, 55893), (59, 56055), (62, 56061), (66, 56088), (67, 56091), (71, 56130),

Gene: Shaboozey_77 Start: 48244, Stop: 47894, Start Num: 16

Candidate Starts for Shaboozey_77:

(5, 48352), (12, 48274), (Start: 15 @48247 has 10 MA's), (Start: 16 @48244 has 85 MA's), (22, 48208), (34, 48121), (35, 48115), (43, 48049), (58, 47986), (60, 47980), (68, 47938),

Gene: SimranZ1_64 Start: 41403, Stop: 41735, Start Num: 16

Candidate Starts for SimranZ1_64:

(Start: 16 @41403 has 85 MA's), (20, 41433), (21, 41442), (32, 41520), (34, 41544), (36, 41562), (51, 41616), (55, 41643), (65, 41673), (71, 41724),

Gene: Soul22_69 Start: 42555, Stop: 42905, Start Num: 16

Candidate Starts for Soul22_69:

(Start: 14 @42546 has 1 MA's), (Start: 16 @42555 has 85 MA's), (21, 42594), (32, 42672), (51, 42786), (54, 42801), (55, 42813),

Gene: Tchotchke_62 Start: 40712, Stop: 41053, Start Num: 16

Candidate Starts for Tchotchke_62:

(Start: 14 @40703 has 1 MA's), (Start: 16 @40712 has 85 MA's), (21, 40751), (32, 40829), (71, 41042),

Gene: ThetaBob_70 Start: 42862, Stop: 43218, Start Num: 16

Candidate Starts for ThetaBob_70:

(6, 42760), (Start: 16 @42862 has 85 MA's), (21, 42901), (37, 43018), (59, 43132), (62, 43138), (71, 43207),

Gene: Thibault_75 Start: 51674, Stop: 52018, Start Num: 16

Candidate Starts for Thibault_75:

(8, 51590), (Start: 16 @51674 has 85 MA's), (21, 51713), (32, 51785), (50, 51902), (63, 51944), (71, 52007),

Gene: Thibault_67 Start: 47871, Stop: 47533, Start Num: 16

Candidate Starts for Thibault_67:

(12, 47901), (Start: 15 @47874 has 10 MA's), (Start: 16 @47871 has 85 MA's), (22, 47835), (42, 47688), (47, 47667), (64, 47607),

Gene: ThreeRngTarjay_77 Start: 52950, Stop: 52606, Start Num: 16

Candidate Starts for ThreeRngTarjay_77:

(12, 52980), (Start: 15 @52953 has 10 MA's), (Start: 16 @52950 has 85 MA's), (22, 52914), (44, 52752), (46, 52746), (47, 52743), (66, 52659),

Gene: ThreeRngTarjay_88 Start: 57085, Stop: 57426, Start Num: 16

Candidate Starts for ThreeRngTarjay_88:

(4, 56953), (9, 57013), (10, 57034), (11, 57040), (Start: 16 @57085 has 85 MA's), (21, 57124), (32, 57178), (59, 57340), (62, 57346), (66, 57373), (67, 57376), (71, 57415),

Gene: Toron_83 Start: 50561, Stop: 50893, Start Num: 18

Candidate Starts for Toron_83:

(13, 50534), (18, 50561), (27, 50624), (32, 50654), (44, 50744), (48, 50759), (71, 50879),

Gene: Wanda_95 Start: 56202, Stop: 56543, Start Num: 16

Candidate Starts for Wanda_95:

(4, 56070), (9, 56130), (10, 56151), (11, 56157), (Start: 16 @56202 has 85 MA's), (21, 56241), (32, 56295), (59, 56457), (62, 56463), (66, 56490), (67, 56493), (71, 56532),

Gene: Yeet_74 Start: 51170, Stop: 50823, Start Num: 15

Candidate Starts for Yeet_74:

(12, 51197), (Start: 15 @51170 has 10 MA's), (Start: 16 @51167 has 85 MA's), (22, 51131), (44, 50969), (46, 50963), (47, 50960), (66, 50876),

Gene: Yeet_84 Start: 55302, Stop: 55643, Start Num: 16

Candidate Starts for Yeet_84:

(4, 55170), (9, 55230), (10, 55251), (11, 55257), (Start: 16 @55302 has 85 MA's), (21, 55341), (32, 55395), (59, 55557), (62, 55563), (66, 55590), (67, 55593), (71, 55632),

Gene: Yorick_62 Start: 41335, Stop: 41676, Start Num: 16

Candidate Starts for Yorick_62:

(Start: 14 @41326 has 1 MA's), (Start: 16 @41335 has 85 MA's), (21, 41374), (32, 41452), (71, 41665),

Gene: Yoshi_78 Start: 43126, Stop: 43482, Start Num: 16

Candidate Starts for Yoshi_78:

(6, 43024), (Start: 16 @43126 has 85 MA's), (21, 43165), (37, 43282), (59, 43396), (62, 43402), (71, 43471),

Gene: Zelink_77 Start: 53262, Stop: 52918, Start Num: 16

Candidate Starts for Zelink_77:

(12, 53292), (Start: 15 @53265 has 10 MA's), (Start: 16 @53262 has 85 MA's), (22, 53226), (44, 53064), (46, 53058), (47, 53055), (66, 52971),

Gene: Zelink_88 Start: 57397, Stop: 57738, Start Num: 16

Candidate Starts for Zelink_88:

(4, 57265), (9, 57325), (10, 57346), (11, 57352), (Start: 16 @57397 has 85 MA's), (21, 57436), (32, 57490), (59, 57652), (62, 57658), (66, 57685), (67, 57688), (71, 57727),

Gene: Zerg_63 Start: 40748, Stop: 41104, Start Num: 17

Candidate Starts for Zerg_63:

(Start: 14 @40739 has 1 MA's), (Start: 17 @40748 has 8 MA's), (19, 40769), (24, 40784), (30, 40835), (32, 40856), (37, 40901), (45, 40961), (59, 41018), (62, 41024), (66, 41051), (71, 41093),