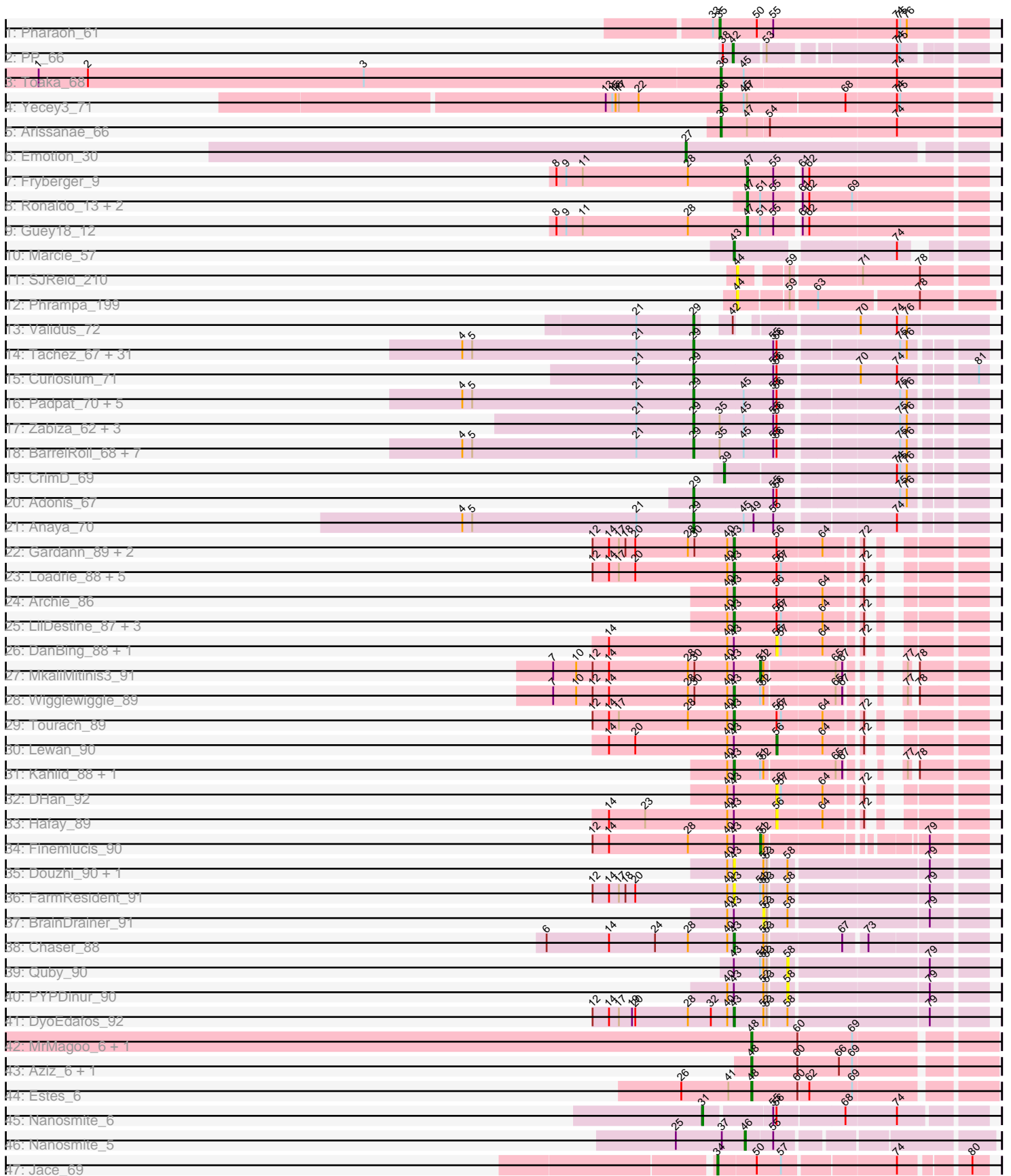


Pham 193866



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 193866 Report

This analysis was run 11/02/24 on database version 579.

Pham number 193866 has 110 members, 13 are drafts.

Phages represented in each track:

- Track 1 : Pharaoh_61
- Track 2 : PP_66
- Track 3 : Toaka_68
- Track 4 : Yecey3_71
- Track 5 : Arissanae_66
- Track 6 : Emotion_30
- Track 7 : Fryberger_9
- Track 8 : Ronaldo_13, Ziko_14, Volt_13
- Track 9 : Guey18_12
- Track 10 : Marcie_57
- Track 11 : SJReid_210
- Track 12 : Phrampa_199
- Track 13 : Validus_72
- Track 14 : Tachez_67, BGlluviae_67, Jarvi_67, Twitch_67, Blizzard_67, Atiba_68, Llorens_67, Adephagia_67, Hyperbowlee_67, CaseJules_69, Homura_67, Spock_67, Rosmarinus_67, ShiaSurprise_68, Joy99_67, Boiii_67, Durfee_67, Piatt_67, Capricorn_67, Peel_67, Belladonna_67, Padfoot_67, Topper_67, Dalmuri_67, Inky_67, Asayake_67, Jeckyll_67, Lunahalos_67, AlishaPH_67, CREW_67, BEEST_67, Geraldini_70
- Track 15 : Curiosium_71
- Track 16 : Padpat_70, Emerson_69, Pokerus_67, QuincyRose_65, Beezoo_69, Ganymede_67
- Track 17 : Zabiza_62, Ramen_68, ActinUp_67, HedwigODU_67
- Track 18 : BarrelRoll_68, Rapunzel97_69, TruffulaTree_68, Slimphazie_68, Zavala_70, Mynx_69, Jayhawk_69, MeaningOfLife_68
- Track 19 : CrimD_69
- Track 20 : Adonis_67
- Track 21 : Anaya_70
- Track 22 : Gardann_89, Nicholasp3_89, Rumpelstiltskin_85
- Track 23 : Loadrie_88, Faith1_89, Zakai_90, Itos_89, Crossroads_89, Gabriela_89
- Track 24 : Archie_86
- Track 25 : LilDestine_87, GuuelaD_86, Douge_90, ZhongYanYuan_86
- Track 26 : DanBing_88, Baoshan_86
- Track 27 : MkaliMitinis3_91
- Track 28 : Wigglewiggle_89
- Track 29 : Tourach_89
- Track 30 : Lewan_90

- Track 31 : Kahlid_88, Wilder_90
- Track 32 : DHan_92
- Track 33 : Hafay_89
- Track 34 : Finemlucis_90
- Track 35 : Douzhi_90, Sheng711_91
- Track 36 : FarmResident_91
- Track 37 : BrainDrainer_91
- Track 38 : Chaser_88
- Track 39 : Quby_90
- Track 40 : PYPDinur_90
- Track 41 : DyoEdafos_92
- Track 42 : MrMagoo_6, GardenSalsa_6
- Track 43 : Aziz_6, GenevaB15_6
- Track 44 : Estes_6
- Track 45 : Nanosmite_6
- Track 46 : Nanosmite_5
- Track 47 : Jace_69

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

The start number called the most often in the published annotations is 29, it was called in 54 of the 97 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ActinUp_67, Adephegia_67, Adonis_67, AlishaPH_67, Anaya_70, Asayake_67, Atiba_68, BEEST_67, BGIluviae_67, BarrelRoll_68, Beezoo_69, Belladonna_67, Blizzard_67, Boiiii_67, CREW_67, Capricorn_67, CaseJules_69, Curiosium_71, Dalmuri_67, Durfee_67, Emerson_69, Ganymede_67, Geraldini_70, HedwigODU_67, Homura_67, Hyperbowlee_67, Inky_67, Jarvi_67, Jayhawk_69, Jeckyll_67, Joy99_67, Llorens_67, Lunahalos_67, MeaningOfLife_68, Mynx_69, Padfoot_67, Padpat_70, Peel_67, Piatt_67, Pokerus_67, QuincyRose_65, Ramen_68, Rapunzel97_69, Rosmarinus_67, ShiaSurprise_68, Slimphazie_68, Spock_67, Tachez_67, Topper_67, TruffulaTree_68, Twitch_67, Validus_72, Zabiza_62, Zavala_70,

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

-

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

- Archie_86, Arissanae_66, Aziz_6, Baoshan_86, BrainDrainer_91, Chaser_88, CrimD_69, Crossroads_89, DHan_92, DanBing_88, Douge_90, Douzhi_90, DyoEdafos_92, Emotion_30, Estes_6, Faith1_89, FarmResident_91, Finemlucis_90, Fryberger_9, Gabriela_89, Gardann_89, GardenSalsa_6, GenevaB15_6, Guey18_12, GuuelaD_86, Hafay_89, Itos_89, Jace_69, Kahlid_88, Lewan_90, LilDestine_87, Loadrie_88, Marcie_57, MkaliMitinis3_91, MrMagoo_6, Nanosmite_5, Nanosmite_6, Nicholasp3_89, PP_66, PYPDinur_90, Pharaoh_61, Phrampa_199, Quby_90, Ronaldo_13, Rumpelstiltskin_85, SJReid_210, Sheng711_91, Toaka_68, Tourach_89, Volt_13, Wigglewiggle_89, Wilder_90, Yecey3_71, Zakai_90, ZhongYanYuan_86, Ziko_14,

Summary by start number:

Start 27:

- Found in 1 of 110 (0.9%) of genes in pham
- Manual Annotations of this start: 1 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Emotion_30 (AZ4),

Start 29:

- Found in 54 of 110 (49.1%) of genes in pham
- Manual Annotations of this start: 54 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ActinUp_67 (K1), Adephagia_67 (K1), Adonis_67 (K1), AlishaPH_67 (K1), Anaya_70 (K1), Asayake_67 (K1), Atiba_68 (K1), BEEST_67 (K1), BGlluviae_67 (K1), BarrelRoll_68 (K1), Beezoo_69 (K1), Belladonna_67 (K1), Blizzard_67 (K1), Boiiii_67 (K1), CREW_67 (K1), Capricorn_67 (K1), CaseJules_69 (K1), Curiosium_71 (K1), Dalmuri_67 (K1), Durfee_67 (K1), Emerson_69 (K1), Ganymede_67 (K1), Geraldini_70 (K1), HedwigODU_67 (K1), Homura_67 (K1), Hyperbowlee_67 (K1), Inky_67 (K1), Jarvi_67 (K1), Jayhawk_69 (K1), Jeckyll_67 (K1), Joy99_67 (K1), Llorens_67 (K1), Lunahalos_67 (K1), MeaningOfLife_68 (K1), Mynx_69 (K1), Padfoot_67 (K1), Padpat_70 (K1), Peel_67 (K1), Piatt_67 (K1), Pokerus_67 (K1), QuincyRose_65 (K1), Ramen_68 (K1), Rapunzel97_69 (K1), Rosmarinus_67 (K1), ShiaSurprise_68 (K1), Slimphazie_68 (K1), Spock_67 (K1), Tachez_67 (K1), Topper_67 (K1), TruffulaTree_68 (K1), Twitch_67 (K1), Validus_72 (K1), Zabiza_62 (K1), Zavala_70 (K1),

Start 31:

- Found in 1 of 110 (0.9%) of genes in pham
- Manual Annotations of this start: 1 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Nanosmite_6 (M3),

Start 34:

- Found in 1 of 110 (0.9%) of genes in pham
- Manual Annotations of this start: 1 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jace_69 (singleton),

Start 35:

- Found in 13 of 110 (11.8%) of genes in pham
- Manual Annotations of this start: 1 of 97
- Called 7.7% of time when present
- Phage (with cluster) where this start called: Pharaoh_61 (A12),

Start 36:

- Found in 3 of 110 (2.7%) of genes in pham
- Manual Annotations of this start: 3 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Arissanae_66 (A9), Toaka_68 (A9), Yecey3_71 (A9),

Start 39:

- Found in 1 of 110 (0.9%) of genes in pham

- Manual Annotations of this start: 1 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CrimD_69 (K1),

Start 42:

- Found in 2 of 110 (1.8%) of genes in pham
- Manual Annotations of this start: 1 of 97
- Called 50.0% of time when present
- Phage (with cluster) where this start called: PP_66 (A7),

Start 43:

- Found in 34 of 110 (30.9%) of genes in pham
- Manual Annotations of this start: 20 of 97
- Called 70.6% of time when present
- Phage (with cluster) where this start called: Archie_86 (L2), Chaser_88 (L4), Crossroads_89 (L2), Douge_90 (L4), Douzhi_90 (L4), DyoEdafos_92 (L4), Faith1_89 (L2), FarmResident_91 (L4), Gabriela_89 (L2), Gardann_89 (L2), GuuelaD_86 (L2), Itos_89 (L2), Kahlid_88 (L2), LilDestine_87 (L2), Loadrie_88 (L2), Marcie_57 (EG), Nicholasp3_89 (L2), Rumpelstiltskin_85 (L2), Sheng711_91 (L4), Tourach_89 (L2), Wigglewiggles_89 (L2), Wilder_90 (L2), Zakai_90 (L2), ZhongYanYuan_86 (L2),

Start 44:

- Found in 2 of 110 (1.8%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Phrampa_199 (FC), SJReid_210 (FC),

Start 46:

- Found in 1 of 110 (0.9%) of genes in pham
- Manual Annotations of this start: 1 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Nanosmite_5 (M3),

Start 47:

- Found in 7 of 110 (6.4%) of genes in pham
- Manual Annotations of this start: 5 of 97
- Called 71.4% of time when present
- Phage (with cluster) where this start called: Fryberger_9 (DP), Guey18_12 (DP), Ronaldo_13 (DP), Volt_13 (DP), Ziko_14 (DP),

Start 48:

- Found in 5 of 110 (4.5%) of genes in pham
- Manual Annotations of this start: 5 of 97
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aziz_6 (M2), Estes_6 (M2), GardenSalsa_6 (M2), GenevaB15_6 (M2), MrMagoo_6 (M2),

Start 51:

- Found in 11 of 110 (10.0%) of genes in pham
- Manual Annotations of this start: 2 of 97
- Called 18.2% of time when present
- Phage (with cluster) where this start called: Finemlucis_90 (L2), MkaliMitinis3_91 (L2),

Start 52:

- Found in 13 of 110 (11.8%) of genes in pham
- No Manual Annotations of this start.
- Called 7.7% of time when present
- Phage (with cluster) where this start called: BrainDrainer_91 (L4),

Start 56:

- Found in 73 of 110 (66.4%) of genes in pham
- Manual Annotations of this start: 1 of 97
- Called 6.8% of time when present
- Phage (with cluster) where this start called: Baoshan_86 (L2), DHan_92 (L2), DanBing_88 (L2), Hafay_89 (L2), Lewan_90 (L2),

Start 58:

- Found in 7 of 110 (6.4%) of genes in pham
- No Manual Annotations of this start.
- Called 28.6% of time when present
- Phage (with cluster) where this start called: PYPDinur_90 (L4), Quby_90 (L4),

Summary by clusters:

There are 13 clusters represented in this pham: singleton, M3, A12, EG, L4, K1, FC, L2, A7, M2, A9, AZ4, DP,

Info for manual annotations of cluster A12:

- Start number 35 was manually annotated 1 time for cluster A12.

Info for manual annotations of cluster A7:

- Start number 42 was manually annotated 1 time for cluster A7.

Info for manual annotations of cluster A9:

- Start number 36 was manually annotated 3 times for cluster A9.

Info for manual annotations of cluster AZ4:

- Start number 27 was manually annotated 1 time for cluster AZ4.

Info for manual annotations of cluster DP:

- Start number 47 was manually annotated 5 times for cluster DP.

Info for manual annotations of cluster EG:

- Start number 43 was manually annotated 1 time for cluster EG.

Info for manual annotations of cluster K1:

- Start number 29 was manually annotated 54 times for cluster K1.
- Start number 39 was manually annotated 1 time for cluster K1.

Info for manual annotations of cluster L2:

- Start number 43 was manually annotated 16 times for cluster L2.
- Start number 51 was manually annotated 2 times for cluster L2.
- Start number 56 was manually annotated 1 time for cluster L2.

Info for manual annotations of cluster L4:

- Start number 43 was manually annotated 3 times for cluster L4.

Info for manual annotations of cluster M2:

- Start number 48 was manually annotated 5 times for cluster M2.

Info for manual annotations of cluster M3:

- Start number 31 was manually annotated 1 time for cluster M3.
- Start number 46 was manually annotated 1 time for cluster M3.

Gene Information:

Gene: ActinUp_67 Start: 43706, Stop: 43945, Start Num: 29

Candidate Starts for ActinUp_67:

(21, 43655), (Start: 29 @43706 has 54 MA's), (Start: 35 @43730 has 1 MA's), (45, 43751), (55, 43778), (Start: 56 @43781 has 1 MA's), (75, 43880), (76, 43886),

Gene: Adephagia_67 Start: 43743, Stop: 43982, Start Num: 29

Candidate Starts for Adephagia_67:

(4, 43533), (5, 43542), (21, 43692), (Start: 29 @43743 has 54 MA's), (55, 43815), (Start: 56 @43818 has 1 MA's), (75, 43917), (76, 43923),

Gene: Adonis_67 Start: 43978, Stop: 44217, Start Num: 29

Candidate Starts for Adonis_67:

(Start: 29 @43978 has 54 MA's), (55, 44050), (Start: 56 @44053 has 1 MA's), (75, 44152), (76, 44158),

Gene: AlishaPH_67 Start: 44004, Stop: 44243, Start Num: 29

Candidate Starts for AlishaPH_67:

(4, 43794), (5, 43803), (21, 43953), (Start: 29 @44004 has 54 MA's), (55, 44076), (Start: 56 @44079 has 1 MA's), (75, 44178), (76, 44184),

Gene: Anaya_70 Start: 44697, Stop: 44936, Start Num: 29

Candidate Starts for Anaya_70:

(4, 44487), (5, 44496), (21, 44646), (Start: 29 @44697 has 54 MA's), (45, 44742), (49, 44751), (55, 44769), (74, 44868),

Gene: Archie_86 Start: 57063, Stop: 57242, Start Num: 43

Candidate Starts for Archie_86:

(40, 57057), (Start: 43 @57063 has 20 MA's), (Start: 56 @57102 has 1 MA's), (64, 57141), (72, 57168),

Gene: Arissanae_66 Start: 41220, Stop: 40978, Start Num: 36

Candidate Starts for Arissanae_66:

(Start: 36 @41220 has 3 MA's), (Start: 47 @41196 has 5 MA's), (54, 41178), (74, 41067),

Gene: Asayake_67 Start: 44058, Stop: 44297, Start Num: 29

Candidate Starts for Asayake_67:

(4, 43848), (5, 43857), (21, 44007), (Start: 29 @44058 has 54 MA's), (55, 44130), (Start: 56 @44133 has 1 MA's), (75, 44232), (76, 44238),

Gene: Atiba_68 Start: 43706, Stop: 43945, Start Num: 29

Candidate Starts for Atiba_68:

(4, 43496), (5, 43505), (21, 43655), (Start: 29 @43706 has 54 MA's), (55, 43778), (Start: 56 @43781 has 1 MA's), (75, 43880), (76, 43886),

Gene: Aziz_6 Start: 2394, Stop: 2188, Start Num: 48

Candidate Starts for Aziz_6:

(Start: 48 @2394 has 5 MA's), (60, 2352), (66, 2316), (69, 2304),

Gene: BEEST_67 Start: 44058, Stop: 44297, Start Num: 29

Candidate Starts for BEEST_67:

(4, 43848), (5, 43857), (21, 44007), (Start: 29 @44058 has 54 MA's), (55, 44130), (Start: 56 @44133 has 1 MA's), (75, 44232), (76, 44238),

Gene: BGlluviae_67 Start: 43861, Stop: 44100, Start Num: 29

Candidate Starts for BGlluviae_67:

(4, 43651), (5, 43660), (21, 43810), (Start: 29 @43861 has 54 MA's), (55, 43933), (Start: 56 @43936 has 1 MA's), (75, 44035), (76, 44041),

Gene: Baoshan_86 Start: 57756, Stop: 57896, Start Num: 56

Candidate Starts for Baoshan_86:

(14, 57603), (40, 57711), (Start: 43 @57717 has 20 MA's), (Start: 56 @57756 has 1 MA's), (57, 57759), (64, 57795), (72, 57822),

Gene: BarrelRoll_68 Start: 44144, Stop: 44383, Start Num: 29

Candidate Starts for BarrelRoll_68:

(4, 43934), (5, 43943), (21, 44093), (Start: 29 @44144 has 54 MA's), (Start: 35 @44168 has 1 MA's), (45, 44189), (55, 44216), (Start: 56 @44219 has 1 MA's), (75, 44318), (76, 44324),

Gene: Beezoo_69 Start: 44656, Stop: 44895, Start Num: 29

Candidate Starts for Beezoo_69:

(4, 44446), (5, 44455), (21, 44605), (Start: 29 @44656 has 54 MA's), (45, 44701), (55, 44728), (Start: 56 @44731 has 1 MA's), (75, 44830), (76, 44836),

Gene: Belladonna_67 Start: 43861, Stop: 44100, Start Num: 29

Candidate Starts for Belladonna_67:

(4, 43651), (5, 43660), (21, 43810), (Start: 29 @43861 has 54 MA's), (55, 43933), (Start: 56 @43936 has 1 MA's), (75, 44035), (76, 44041),

Gene: Blizzard_67 Start: 44058, Stop: 44297, Start Num: 29

Candidate Starts for Blizzard_67:

(4, 43848), (5, 43857), (21, 44007), (Start: 29 @44058 has 54 MA's), (55, 44130), (Start: 56 @44133 has 1 MA's), (75, 44232), (76, 44238),

Gene: Boiiii_67 Start: 44060, Stop: 44299, Start Num: 29

Candidate Starts for Boiiii_67:

(4, 43850), (5, 43859), (21, 44009), (Start: 29 @44060 has 54 MA's), (55, 44132), (Start: 56 @44135 has 1 MA's), (75, 44234), (76, 44240),

Gene: BrainDrainer_91 Start: 57339, Stop: 57524, Start Num: 52

Candidate Starts for BrainDrainer_91:

(40, 57306), (Start: 43 @57312 has 20 MA's), (52, 57339), (53, 57342), (58, 57357), (79, 57477),

Gene: CREW_67 Start: 43861, Stop: 44100, Start Num: 29

Candidate Starts for CREW_67:

(4, 43651), (5, 43660), (21, 43810), (Start: 29 @43861 has 54 MA's), (55, 43933), (Start: 56 @43936 has 1 MA's), (75, 44035), (76, 44041),

Gene: Capricorn_67 Start: 43861, Stop: 44100, Start Num: 29

Candidate Starts for Capricorn_67:

(4, 43651), (5, 43660), (21, 43810), (Start: 29 @43861 has 54 MA's), (55, 43933), (Start: 56 @43936 has 1 MA's), (75, 44035), (76, 44041),

Gene: CaseJules_69 Start: 44058, Stop: 44297, Start Num: 29

Candidate Starts for CaseJules_69:

(4, 43848), (5, 43857), (21, 44007), (Start: 29 @44058 has 54 MA's), (55, 44130), (Start: 56 @44133 has 1 MA's), (75, 44232), (76, 44238),

Gene: Chaser_88 Start: 56443, Stop: 56652, Start Num: 43

Candidate Starts for Chaser_88:

(6, 56272), (14, 56329), (24, 56371), (28, 56401), (40, 56437), (Start: 43 @56443 has 20 MA's), (52, 56470), (53, 56473), (67, 56536), (73, 56554),

Gene: CrimD_69 Start: 44683, Stop: 44892, Start Num: 39

Candidate Starts for CrimD_69:

(Start: 39 @44683 has 1 MA's), (74, 44824), (75, 44827), (76, 44833),

Gene: Crossroads_89 Start: 57560, Stop: 57739, Start Num: 43

Candidate Starts for Crossroads_89:

(12, 57431), (14, 57446), (17, 57455), (20, 57470), (40, 57554), (Start: 43 @57560 has 20 MA's), (Start: 56 @57599 has 1 MA's), (57, 57602), (72, 57665),

Gene: Curiosium_71 Start: 43377, Stop: 43622, Start Num: 29

Candidate Starts for Curiosium_71:

(21, 43326), (Start: 29 @43377 has 54 MA's), (55, 43449), (Start: 56 @43452 has 1 MA's), (70, 43521), (74, 43554), (81, 43614),

Gene: DHan_92 Start: 57819, Stop: 57959, Start Num: 56

Candidate Starts for DHan_92:

(40, 57774), (Start: 43 @57780 has 20 MA's), (Start: 56 @57819 has 1 MA's), (57, 57822), (64, 57858), (72, 57885),

Gene: Dalmuri_67 Start: 43861, Stop: 44100, Start Num: 29

Candidate Starts for Dalmuri_67:

(4, 43651), (5, 43660), (21, 43810), (Start: 29 @43861 has 54 MA's), (55, 43933), (Start: 56 @43936 has 1 MA's), (75, 44035), (76, 44041),

Gene: DanBing_88 Start: 57317, Stop: 57457, Start Num: 56

Candidate Starts for DanBing_88:

(14, 57164), (40, 57272), (Start: 43 @57278 has 20 MA's), (Start: 56 @57317 has 1 MA's), (57, 57320), (64, 57356), (72, 57383),

Gene: Douge_90 Start: 56768, Stop: 56947, Start Num: 43

Candidate Starts for Douge_90:

(40, 56762), (Start: 43 @56768 has 20 MA's), (Start: 56 @56807 has 1 MA's), (57, 56810), (64, 56846), (72, 56873),

Gene: Douzhi_90 Start: 57001, Stop: 57213, Start Num: 43

Candidate Starts for Douzhi_90:

(40, 56995), (Start: 43 @57001 has 20 MA's), (52, 57028), (53, 57031), (58, 57046), (79, 57166),

Gene: Durfee_67 Start: 44058, Stop: 44297, Start Num: 29

Candidate Starts for Durfee_67:

(4, 43848), (5, 43857), (21, 44007), (Start: 29 @44058 has 54 MA's), (55, 44130), (Start: 56 @44133 has 1 MA's), (75, 44232), (76, 44238),

Gene: DyoEdafos_92 Start: 57153, Stop: 57365, Start Num: 43

Candidate Starts for DyoEdafos_92:

(12, 57024), (14, 57039), (17, 57048), (19, 57060), (20, 57063), (28, 57111), (32, 57132), (40, 57147), (Start: 43 @57153 has 20 MA's), (52, 57180), (53, 57183), (58, 57198), (79, 57318),

Gene: Emerson_69 Start: 44178, Stop: 44417, Start Num: 29

Candidate Starts for Emerson_69:

(4, 43968), (5, 43977), (21, 44127), (Start: 29 @44178 has 54 MA's), (45, 44223), (55, 44250), (Start: 56 @44253 has 1 MA's), (75, 44352), (76, 44358),

Gene: Emotion_30 Start: 23341, Stop: 23598, Start Num: 27

Candidate Starts for Emotion_30:

(Start: 27 @23341 has 1 MA's),

Gene: Estes_6 Start: 2402, Stop: 2196, Start Num: 48

Candidate Starts for Estes_6:

(26, 2465), (41, 2423), (Start: 48 @2402 has 5 MA's), (60, 2360), (62, 2351), (69, 2312),

Gene: Faith1_89 Start: 57485, Stop: 57664, Start Num: 43

Candidate Starts for Faith1_89:

(12, 57356), (14, 57371), (17, 57380), (20, 57395), (40, 57479), (Start: 43 @57485 has 20 MA's), (Start: 56 @57524 has 1 MA's), (57, 57527), (72, 57590),

Gene: FarmResident_91 Start: 56713, Stop: 56925, Start Num: 43

Candidate Starts for FarmResident_91:

(12, 56584), (14, 56599), (17, 56608), (18, 56614), (20, 56623), (40, 56707), (Start: 43 @56713 has 20 MA's), (Start: 51 @56737 has 2 MA's), (52, 56740), (53, 56743), (58, 56758), (79, 56878),

Gene: Finemlucis_90 Start: 58613, Stop: 58783, Start Num: 51

Candidate Starts for Finemlucis_90:

(12, 58460), (14, 58475), (28, 58547), (40, 58583), (Start: 43 @58589 has 20 MA's), (Start: 51 @58613 has 2 MA's), (52, 58616), (79, 58736),

Gene: Fryberger_9 Start: 2013, Stop: 1810, Start Num: 47

Candidate Starts for Fryberger_9:

(8, 2187), (9, 2178), (11, 2163), (28, 2067), (Start: 47 @2013 has 5 MA's), (55, 1989), (61, 1971), (62, 1965),

Gene: Gabriela_89 Start: 56831, Stop: 57010, Start Num: 43

Candidate Starts for Gabriela_89:

(12, 56702), (14, 56717), (17, 56726), (20, 56741), (40, 56825), (Start: 43 @56831 has 20 MA's), (Start: 56 @56870 has 1 MA's), (57, 56873), (72, 56936),

Gene: Ganymede_67 Start: 44084, Stop: 44323, Start Num: 29

Candidate Starts for Ganymede_67:

(4, 43874), (5, 43883), (21, 44033), (Start: 29 @44084 has 54 MA's), (45, 44129), (55, 44156), (Start: 56 @44159 has 1 MA's), (75, 44258), (76, 44264),

Gene: Gardann_89 Start: 57320, Stop: 57499, Start Num: 43

Candidate Starts for Gardann_89:

(12, 57191), (14, 57206), (17, 57215), (18, 57221), (20, 57230), (28, 57278), (30, 57284), (40, 57314), (Start: 43 @57320 has 20 MA's), (Start: 56 @57359 has 1 MA's), (64, 57398), (72, 57425),

Gene: GardenSalsa_6 Start: 2415, Stop: 2209, Start Num: 48

Candidate Starts for GardenSalsa_6:

(Start: 48 @2415 has 5 MA's), (60, 2373), (69, 2325),

Gene: GenevaB15_6 Start: 2394, Stop: 2188, Start Num: 48

Candidate Starts for GenevaB15_6:

(Start: 48 @2394 has 5 MA's), (60, 2352), (66, 2316), (69, 2304),

Gene: Geraldini_70 Start: 44740, Stop: 44979, Start Num: 29

Candidate Starts for Geraldini_70:

(4, 44530), (5, 44539), (21, 44689), (Start: 29 @44740 has 54 MA's), (55, 44812), (Start: 56 @44815 has 1 MA's), (75, 44914), (76, 44920),

Gene: Guey18_12 Start: 2707, Stop: 2504, Start Num: 47

Candidate Starts for Guey18_12:

(8, 2881), (9, 2872), (11, 2857), (28, 2761), (Start: 47 @2707 has 5 MA's), (Start: 51 @2695 has 2 MA's), (55, 2683), (61, 2665), (62, 2659),

Gene: GuuelaD_86 Start: 57444, Stop: 57623, Start Num: 43

Candidate Starts for GuuelaD_86:

(40, 57438), (Start: 43 @57444 has 20 MA's), (Start: 56 @57483 has 1 MA's), (57, 57486), (64, 57522), (72, 57549),

Gene: Hafay_89 Start: 57435, Stop: 57575, Start Num: 56

Candidate Starts for Hafay_89:

(14, 57282), (23, 57315), (40, 57390), (Start: 43 @57396 has 20 MA's), (Start: 56 @57435 has 1 MA's), (64, 57474), (72, 57501),

Gene: HedwigODU_67 Start: 43706, Stop: 43945, Start Num: 29

Candidate Starts for HedwigODU_67:

(21, 43655), (Start: 29 @43706 has 54 MA's), (Start: 35 @43730 has 1 MA's), (45, 43751), (55, 43778), (Start: 56 @43781 has 1 MA's), (75, 43880), (76, 43886),

Gene: Homura_67 Start: 43861, Stop: 44100, Start Num: 29

Candidate Starts for Homura_67:

(4, 43651), (5, 43660), (21, 43810), (Start: 29 @43861 has 54 MA's), (55, 43933), (Start: 56 @43936 has 1 MA's), (75, 44035), (76, 44041),

Gene: Hyperbowlee_67 Start: 44058, Stop: 44297, Start Num: 29

Candidate Starts for Hyperbowlee_67:

(4, 43848), (5, 43857), (21, 44007), (Start: 29 @44058 has 54 MA's), (55, 44130), (Start: 56 @44133 has 1 MA's), (75, 44232), (76, 44238),

Gene: Inky_67 Start: 43861, Stop: 44100, Start Num: 29

Candidate Starts for Inky_67:

(4, 43651), (5, 43660), (21, 43810), (Start: 29 @43861 has 54 MA's), (55, 43933), (Start: 56 @43936 has 1 MA's), (75, 44035), (76, 44041),

Gene: Itos_89 Start: 56391, Stop: 56570, Start Num: 43

Candidate Starts for Itos_89:

(12, 56262), (14, 56277), (17, 56286), (20, 56301), (40, 56385), (Start: 43 @56391 has 20 MA's), (Start: 56 @56430 has 1 MA's), (57, 56433), (72, 56496),

Gene: Jace_69 Start: 40976, Stop: 41194, Start Num: 34

Candidate Starts for Jace_69:

(Start: 34 @40976 has 1 MA's), (50, 41009), (57, 41030), (74, 41126), (80, 41180),

Gene: Jarvi_67 Start: 43861, Stop: 44100, Start Num: 29

Candidate Starts for Jarvi_67:

(4, 43651), (5, 43660), (21, 43810), (Start: 29 @43861 has 54 MA's), (55, 43933), (Start: 56 @43936 has 1 MA's), (75, 44035), (76, 44041),

Gene: Jayhawk_69 Start: 44204, Stop: 44443, Start Num: 29

Candidate Starts for Jayhawk_69:

(4, 43994), (5, 44003), (21, 44153), (Start: 29 @44204 has 54 MA's), (Start: 35 @44228 has 1 MA's), (45, 44249), (55, 44276), (Start: 56 @44279 has 1 MA's), (75, 44378), (76, 44384),

Gene: Jeckyll_67 Start: 43861, Stop: 44100, Start Num: 29

Candidate Starts for Jeckyll_67:

(4, 43651), (5, 43660), (21, 43810), (Start: 29 @43861 has 54 MA's), (55, 43933), (Start: 56 @43936 has 1 MA's), (75, 44035), (76, 44041),

Gene: Joy99_67 Start: 43790, Stop: 44029, Start Num: 29

Candidate Starts for Joy99_67:

(4, 43580), (5, 43589), (21, 43739), (Start: 29 @43790 has 54 MA's), (55, 43862), (Start: 56 @43865 has 1 MA's), (75, 43964), (76, 43970),

Gene: Kahlid_88 Start: 57250, Stop: 57417, Start Num: 43

Candidate Starts for Kahlid_88:

(40, 57244), (Start: 43 @57250 has 20 MA's), (Start: 51 @57274 has 2 MA's), (52, 57277), (65, 57337), (67, 57343), (77, 57361), (78, 57364),

Gene: Lewan_90 Start: 57483, Stop: 57623, Start Num: 56

Candidate Starts for Lewan_90:

(14, 57330), (20, 57354), (40, 57438), (Start: 43 @57444 has 20 MA's), (Start: 56 @57483 has 1 MA's), (64, 57522), (72, 57549),

Gene: LilDestine_87 Start: 57157, Stop: 57336, Start Num: 43

Candidate Starts for LilDestine_87:

(40, 57151), (Start: 43 @57157 has 20 MA's), (Start: 56 @57196 has 1 MA's), (57, 57199), (64, 57235), (72, 57262),

Gene: Llorens_67 Start: 43861, Stop: 44100, Start Num: 29

Candidate Starts for Llorens_67:

(4, 43651), (5, 43660), (21, 43810), (Start: 29 @43861 has 54 MA's), (55, 43933), (Start: 56 @43936 has 1 MA's), (75, 44035), (76, 44041),

Gene: Loadrie_88 Start: 57652, Stop: 57831, Start Num: 43

Candidate Starts for Loadrie_88:

(12, 57523), (14, 57538), (17, 57547), (20, 57562), (40, 57646), (Start: 43 @57652 has 20 MA's), (Start: 56 @57691 has 1 MA's), (57, 57694), (72, 57757),

Gene: Lunahalos_67 Start: 43861, Stop: 44100, Start Num: 29

Candidate Starts for Lunahalos_67:

(4, 43651), (5, 43660), (21, 43810), (Start: 29 @43861 has 54 MA's), (55, 43933), (Start: 56 @43936 has 1 MA's), (75, 44035), (76, 44041),

Gene: Marcie_57 Start: 37372, Stop: 37181, Start Num: 43

Candidate Starts for Marcie_57:

(Start: 43 @37372 has 20 MA's), (74, 37240),

Gene: MeaningOfLife_68 Start: 44613, Stop: 44852, Start Num: 29

Candidate Starts for MeaningOfLife_68:

(4, 44403), (5, 44412), (21, 44562), (Start: 29 @44613 has 54 MA's), (Start: 35 @44637 has 1 MA's), (45, 44658), (55, 44685), (Start: 56 @44688 has 1 MA's), (75, 44787), (76, 44793),

Gene: MkaliMitinis3_91 Start: 57639, Stop: 57782, Start Num: 51

Candidate Starts for MkaliMitinis3_91:

(7, 57450), (10, 57471), (12, 57486), (14, 57501), (28, 57573), (30, 57579), (40, 57609), (Start: 43 @57615 has 20 MA's), (Start: 51 @57639 has 2 MA's), (52, 57642), (65, 57702), (67, 57708), (77, 57726), (78, 57729),

Gene: MrMagoo_6 Start: 2415, Stop: 2209, Start Num: 48

Candidate Starts for MrMagoo_6:

(Start: 48 @2415 has 5 MA's), (60, 2373), (69, 2325),

Gene: Mynx_69 Start: 44473, Stop: 44712, Start Num: 29

Candidate Starts for Mynx_69:

(4, 44263), (5, 44272), (21, 44422), (Start: 29 @44473 has 54 MA's), (Start: 35 @44497 has 1 MA's), (45, 44518), (55, 44545), (Start: 56 @44548 has 1 MA's), (75, 44647), (76, 44653),

Gene: Nanosmite_6 Start: 2681, Stop: 2448, Start Num: 31

Candidate Starts for Nanosmite_6:

(Start: 31 @2681 has 1 MA's), (55, 2624), (Start: 56 @2621 has 1 MA's), (68, 2564), (74, 2519),

Gene: Nanosmite_5 Start: 2451, Stop: 2248, Start Num: 46

Candidate Starts for Nanosmite_5:

(25, 2514), (37, 2472), (Start: 46 @2451 has 1 MA's), (55, 2427),

Gene: Nicholasp3_89 Start: 57320, Stop: 57499, Start Num: 43

Candidate Starts for Nicholasp3_89:

(12, 57191), (14, 57206), (17, 57215), (18, 57221), (20, 57230), (28, 57278), (30, 57284), (40, 57314), (Start: 43 @57320 has 20 MA's), (Start: 56 @57359 has 1 MA's), (64, 57398), (72, 57425),

Gene: PP_66 Start: 45311, Stop: 45114, Start Num: 42

Candidate Starts for PP_66:

(38, 45320), (Start: 42 @45311 has 1 MA's), (53, 45284), (74, 45182), (75, 45179),

Gene: PYPDinur_90 Start: 57609, Stop: 57776, Start Num: 58

Candidate Starts for PYPDinur_90:

(40, 57558), (Start: 43 @57564 has 20 MA's), (52, 57591), (53, 57594), (58, 57609), (79, 57729),

Gene: Padfoot_67 Start: 44058, Stop: 44297, Start Num: 29

Candidate Starts for Padfoot_67:

(4, 43848), (5, 43857), (21, 44007), (Start: 29 @44058 has 54 MA's), (55, 44130), (Start: 56 @44133 has 1 MA's), (75, 44232), (76, 44238),

Gene: Padpat_70 Start: 44178, Stop: 44417, Start Num: 29

Candidate Starts for Padpat_70:

(4, 43968), (5, 43977), (21, 44127), (Start: 29 @44178 has 54 MA's), (45, 44223), (55, 44250), (Start: 56 @44253 has 1 MA's), (75, 44352), (76, 44358),

Gene: Peel_67 Start: 43863, Stop: 44102, Start Num: 29

Candidate Starts for Peel_67:

(4, 43653), (5, 43662), (21, 43812), (Start: 29 @43863 has 54 MA's), (55, 43935), (Start: 56 @43938 has 1 MA's), (75, 44037), (76, 44043),

Gene: Pharaoh_61 Start: 40405, Stop: 40172, Start Num: 35

Candidate Starts for Pharaoh_61:

(33, 40411), (Start: 35 @40405 has 1 MA's), (50, 40372), (55, 40357), (74, 40249), (75, 40246), (76, 40240),

Gene: Phrampa_199 Start: 141698, Stop: 141910, Start Num: 44

Candidate Starts for Phrampa_199:

(44, 141698), (59, 141740), (63, 141761), (78, 141848),

Gene: Piatt_67 Start: 44058, Stop: 44297, Start Num: 29

Candidate Starts for Piatt_67:

(4, 43848), (5, 43857), (21, 44007), (Start: 29 @44058 has 54 MA's), (55, 44130), (Start: 56 @44133 has 1 MA's), (75, 44232), (76, 44238),

Gene: Pokerus_67 Start: 44203, Stop: 44442, Start Num: 29

Candidate Starts for Pokerus_67:

(4, 43993), (5, 44002), (21, 44152), (Start: 29 @44203 has 54 MA's), (45, 44248), (55, 44275), (Start: 56 @44278 has 1 MA's), (75, 44377), (76, 44383),

Gene: Quby_90 Start: 56844, Stop: 57011, Start Num: 58

Candidate Starts for Quby_90:

(Start: 43 @56799 has 20 MA's), (Start: 51 @56823 has 2 MA's), (52, 56826), (53, 56829), (58, 56844), (79, 56964),

Gene: QuincyRose_65 Start: 44084, Stop: 44323, Start Num: 29

Candidate Starts for QuincyRose_65:

(4, 43874), (5, 43883), (21, 44033), (Start: 29 @44084 has 54 MA's), (45, 44129), (55, 44156), (Start: 56 @44159 has 1 MA's), (75, 44258), (76, 44264),

Gene: Ramen_68 Start: 43708, Stop: 43947, Start Num: 29

Candidate Starts for Ramen_68:

(21, 43657), (Start: 29 @43708 has 54 MA's), (Start: 35 @43732 has 1 MA's), (45, 43753), (55, 43780), (Start: 56 @43783 has 1 MA's), (75, 43882), (76, 43888),

Gene: Rapunzel97_69 Start: 44159, Stop: 44398, Start Num: 29

Candidate Starts for Rapunzel97_69:

(4, 43949), (5, 43958), (21, 44108), (Start: 29 @44159 has 54 MA's), (Start: 35 @44183 has 1 MA's), (45, 44204), (55, 44231), (Start: 56 @44234 has 1 MA's), (75, 44333), (76, 44339),

Gene: Ronaldo_13 Start: 3139, Stop: 2936, Start Num: 47

Candidate Starts for Ronaldo_13:

(Start: 47 @3139 has 5 MA's), (Start: 51 @3127 has 2 MA's), (55, 3115), (61, 3097), (62, 3091), (69, 3052),

Gene: Rosmarinus_67 Start: 43849, Stop: 44088, Start Num: 29

Candidate Starts for Rosmarinus_67:

(4, 43639), (5, 43648), (21, 43798), (Start: 29 @43849 has 54 MA's), (55, 43921), (Start: 56 @43924 has 1 MA's), (75, 44023), (76, 44029),

Gene: Rumpelstiltskin_85 Start: 57113, Stop: 57292, Start Num: 43

Candidate Starts for Rumpelstiltskin_85:

(12, 56984), (14, 56999), (17, 57008), (18, 57014), (20, 57023), (28, 57071), (30, 57077), (40, 57107), (Start: 43 @57113 has 20 MA's), (Start: 56 @57152 has 1 MA's), (64, 57191), (72, 57218),

Gene: SJReid_210 Start: 135453, Stop: 135656, Start Num: 44

Candidate Starts for SJReid_210:

(44, 135453), (59, 135489), (71, 135549), (78, 135600),

Gene: Sheng711_91 Start: 57040, Stop: 57252, Start Num: 43

Candidate Starts for Sheng711_91:

(40, 57034), (Start: 43 @57040 has 20 MA's), (52, 57067), (53, 57070), (58, 57085), (79, 57205),

Gene: ShiaSurprise_68 Start: 44058, Stop: 44297, Start Num: 29

Candidate Starts for ShiaSurprise_68:

(4, 43848), (5, 43857), (21, 44007), (Start: 29 @44058 has 54 MA's), (55, 44130), (Start: 56 @44133 has 1 MA's), (75, 44232), (76, 44238),

Gene: Slimphazie_68 Start: 44159, Stop: 44398, Start Num: 29

Candidate Starts for Slimphazie_68:

(4, 43949), (5, 43958), (21, 44108), (Start: 29 @44159 has 54 MA's), (Start: 35 @44183 has 1 MA's), (45, 44204), (55, 44231), (Start: 56 @44234 has 1 MA's), (75, 44333), (76, 44339),

Gene: Spock_67 Start: 43862, Stop: 44101, Start Num: 29

Candidate Starts for Spock_67:

(4, 43652), (5, 43661), (21, 43811), (Start: 29 @43862 has 54 MA's), (55, 43934), (Start: 56 @43937 has 1 MA's), (75, 44036), (76, 44042),

Gene: Tachez_67 Start: 43706, Stop: 43945, Start Num: 29

Candidate Starts for Tachez_67:

(4, 43496), (5, 43505), (21, 43655), (Start: 29 @43706 has 54 MA's), (55, 43778), (Start: 56 @43781 has 1 MA's), (75, 43880), (76, 43886),

Gene: Toaka_68 Start: 40924, Stop: 40682, Start Num: 36

Candidate Starts for Toaka_68:

(1, 41545), (2, 41500), (3, 41248), (Start: 36 @40924 has 3 MA's), (45, 40903), (74, 40771),

Gene: Topper_67 Start: 43861, Stop: 44100, Start Num: 29

Candidate Starts for Topper_67:

(4, 43651), (5, 43660), (21, 43810), (Start: 29 @43861 has 54 MA's), (55, 43933), (Start: 56 @43936 has 1 MA's), (75, 44035), (76, 44041),

Gene: Tourach_89 Start: 58025, Stop: 58204, Start Num: 43

Candidate Starts for Tourach_89:

(12, 57896), (14, 57911), (17, 57920), (28, 57983), (40, 58019), (Start: 43 @58025 has 20 MA's), (Start: 56 @58064 has 1 MA's), (57, 58067), (64, 58103), (72, 58130),

Gene: TruffulaTree_68 Start: 44155, Stop: 44394, Start Num: 29

Candidate Starts for TruffulaTree_68:

(4, 43945), (5, 43954), (21, 44104), (Start: 29 @44155 has 54 MA's), (Start: 35 @44179 has 1 MA's), (45, 44200), (55, 44227), (Start: 56 @44230 has 1 MA's), (75, 44329), (76, 44335),

Gene: Twitch_67 Start: 43863, Stop: 44102, Start Num: 29

Candidate Starts for Twitch_67:

(4, 43653), (5, 43662), (21, 43812), (Start: 29 @43863 has 54 MA's), (55, 43935), (Start: 56 @43938 has 1 MA's), (75, 44037), (76, 44043),

Gene: Validus_72 Start: 44730, Stop: 44951, Start Num: 29

Candidate Starts for Validus_72:

(21, 44679), (Start: 29 @44730 has 54 MA's), (Start: 42 @44748 has 1 MA's), (70, 44838), (74, 44871), (76, 44880),

Gene: Volt_13 Start: 3139, Stop: 2936, Start Num: 47

Candidate Starts for Volt_13:

(Start: 47 @3139 has 5 MA's), (Start: 51 @3127 has 2 MA's), (55, 3115), (61, 3097), (62, 3091), (69, 3052),

Gene: Wigglewiggles_89 Start: 57408, Stop: 57575, Start Num: 43

Candidate Starts for Wigglewiggles_89:

(7, 57243), (10, 57264), (12, 57279), (14, 57294), (28, 57366), (30, 57372), (40, 57402), (Start: 43 @57408 has 20 MA's), (Start: 51 @57432 has 2 MA's), (52, 57435), (65, 57495), (67, 57501), (77, 57519), (78, 57522),

Gene: Wilder_90 Start: 57250, Stop: 57417, Start Num: 43

Candidate Starts for Wilder_90:

(40, 57244), (Start: 43 @57250 has 20 MA's), (Start: 51 @57274 has 2 MA's), (52, 57277), (65, 57337), (67, 57343), (77, 57361), (78, 57364),

Gene: Yecey3_71 Start: 41130, Stop: 40897, Start Num: 36

Candidate Starts for Yecey3_71:

(13, 41235), (15, 41229), (16, 41226), (17, 41223), (22, 41205), (Start: 36 @41130 has 3 MA's), (45, 41109), (Start: 47 @41106 has 5 MA's), (68, 41022), (74, 40977), (75, 40974),

Gene: Zabiza_62 Start: 40011, Stop: 40250, Start Num: 29

Candidate Starts for Zabiza_62:

(21, 39960), (Start: 29 @40011 has 54 MA's), (Start: 35 @40035 has 1 MA's), (45, 40056), (55, 40083), (Start: 56 @40086 has 1 MA's), (75, 40185), (76, 40191),

Gene: Zakai_90 Start: 57893, Stop: 58072, Start Num: 43

Candidate Starts for Zakai_90:

(12, 57764), (14, 57779), (17, 57788), (20, 57803), (40, 57887), (Start: 43 @57893 has 20 MA's), (Start: 56 @57932 has 1 MA's), (57, 57935), (72, 57998),

Gene: Zavala_70 Start: 44433, Stop: 44672, Start Num: 29

Candidate Starts for Zavala_70:

(4, 44223), (5, 44232), (21, 44382), (Start: 29 @44433 has 54 MA's), (Start: 35 @44457 has 1 MA's), (45, 44478), (55, 44505), (Start: 56 @44508 has 1 MA's), (75, 44607), (76, 44613),

Gene: ZhongYanYuan_86 Start: 57300, Stop: 57479, Start Num: 43

Candidate Starts for ZhongYanYuan_86:

(40, 57294), (Start: 43 @57300 has 20 MA's), (Start: 56 @57339 has 1 MA's), (57, 57342), (64, 57378), (72, 57405),

Gene: Ziko_14 Start: 3153, Stop: 2950, Start Num: 47

Candidate Starts for Ziko_14:

(Start: 47 @3153 has 5 MA's), (Start: 51 @3141 has 2 MA's), (55, 3129), (61, 3111), (62, 3105), (69, 3066),