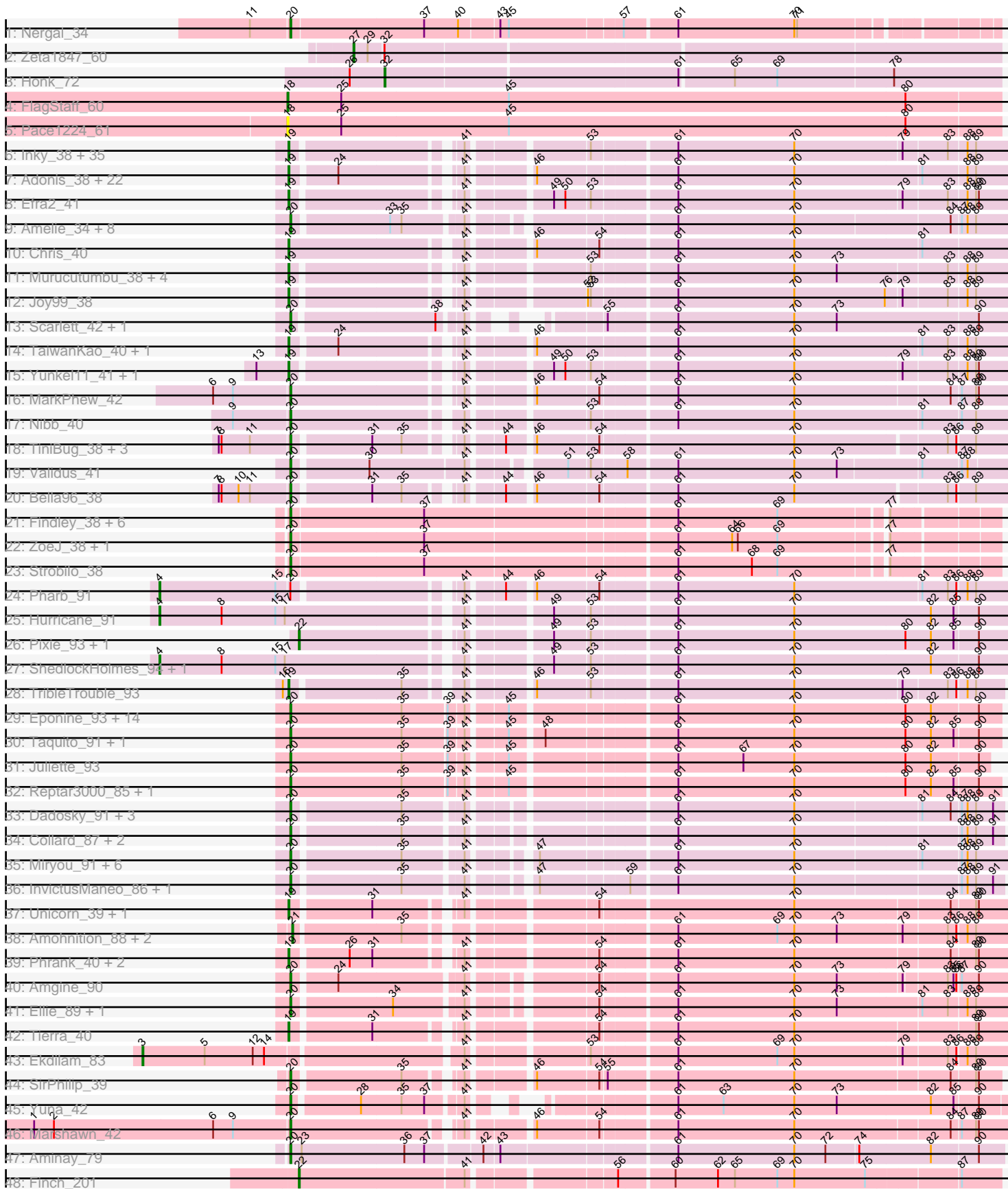


Pham 196328



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 196328 Report

This analysis was run 12/09/24 on database version 580.

Pham number 196328 has 166 members, 4 are drafts.

Phages represented in each track:

- Track 1 : Nergal_34
- Track 2 : Zeta1847_60
- Track 3 : Honk_72
- Track 4 : FlagStaff_60
- Track 5 : Pace1224_61
- Track 6 : Inky_38, Sunflower1121_41, Spock_38, BarrelRoll_38, Jayhawk_39, Slimphazie_38, Tiri_39, Belladonna_38, Peel_38, Capricorn_38, BGlluviae_38, CREW_38, Tachez_38, Topper_38, Krueger_42, Dalmuri_38, Syra333_42, Jeckyll_38, Twitch_38, HedwigODU_38, Beezoo_38, Emerson_39, ActinUp_38, Veliki_38, Atiba_38, Rosmarinus_38, Rapunzel97_38, Padpat_39, TruffulaTree_38, Ximenita_43, Lunahalos_38, Llorens_38, Shadow1_41, Jarvi_38, Homura_38, Adephagia_38
- Track 7 : Adonis_38, QuincyRose_37, Deby_38, Piatt_38, Padfoot_38, Sulley_38, Asayake_38, JAWS_38, Apocalypse_39, Geraldini_38, BEEST_38, ShiaSurprise_39, Angelica_38, Boiiii_38, Ganymede_39, AlishaPH_38, MeaningOfLife_38, CaseJules_39, Ramen_38, Pokerus_37, Blizzard_38, Durfee_38, Hyperbowlee_38
- Track 8 : Efra2_41
- Track 9 : Amelie_34, Enkosi_34, Biglebops_34, SgtBeansprout_34, Nikao_34, Torres_34, LilPharaoh_34, Mdavu_34, Nutello_34
- Track 10 : Chris_40
- Track 11 : Murucutumbu_38, LaterM_38, Stinson_39, Ageofdapage_39, CrimD_38
- Track 12 : Joy99_38
- Track 13 : Scarlett_42, Oscar_42
- Track 14 : TaiwanKao_40, Megsy_39
- Track 15 : Yunkel11_41, Guanica15_41
- Track 16 : MarkPhew_42
- Track 17 : Nibb_40
- Track 18 : TiniBug_38, SamuelLPlaqson_38, DrHayes_38, Urkel_38
- Track 19 : Validus_41
- Track 20 : Bella96_38
- Track 21 : Findley_38, DismalStressor_38, Mufasa_39, Milly_38, DismalFunk_38, Marcoliusprime_38, BoostSeason_39
- Track 22 : ZoeJ_38, TM4_40
- Track 23 : Strobilo_38
- Track 24 : Pharb_91
- Track 25 : Hurricane_91
- Track 26 : Pixie_93, TBond007_90

- Track 27 : ShedlockHolmes_94, Keshu_95
- Track 28 : TribbleTrouble_93
- Track 29 : Eponine_93, JF1_91, OmniCritical_91, Wintermute_91, Slarp_89, Mitti_91, Ruthiejr_93, Y2_87, Chancellor_91, Malthus_92, Kraw_92, SamScheppers_90, Cheetobro_89, Fionnbharth_91, Y10_87
- Track 30 : Taquito_91, MissDaisy_85
- Track 31 : Juliette_93
- Track 32 : Reptar3000_85, Patt_84
- Track 33 : Dadosky_91, Psycho_89, Larva_90, AlleyCat_91
- Track 34 : Collard_87, Kratio_91, Edugator_85
- Track 35 : Miryou_91, SoSeph_90, Heftyboy_90, OkiRoe_89, Gengar_88, Leston_88, Waterfoul_88
- Track 36 : InvictusManeo_86, Agent47_88
- Track 37 : Unicorn_39, PhelpsODU_39
- Track 38 : Amohnition_88, DarthP_88, Hammy_88
- Track 39 : Phrank_40, Bryler_40, Cain_40
- Track 40 : Amgine_90
- Track 41 : Ellie_89, Fefferhead_91
- Track 42 : Tierra_40
- Track 43 : Ekdilam_83
- Track 44 : SirPhilip_39
- Track 45 : Yuna_42
- Track 46 : Marshawn_42
- Track 47 : Aminay_79
- Track 48 : Finch_201

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

The start number called the most often in the published annotations is 19, it was called in 77 of the 162 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ActinUp_38, Adephegia_38, Adonis_38, Ageofdapage_39, AlishaPH_38, Angelica_38, Apocalypse_39, Asayake_38, Atiba_38, BEEST_38, BGIlluvia_38, BarrelRoll_38, Beezoo_38, Belladonna_38, Blizzard_38, Boiiii_38, Bryler_40, CREW_38, Cain_40, Capricorn_38, CaseJules_39, Chris_40, CrimD_38, Dalmuri_38, Deby_38, Durfee_38, Efra2_41, Emerson_39, Ganymede_39, Geraldini_38, Guanica15_41, HedwigODU_38, Homura_38, Hyperbowlee_38, Inky_38, JAWS_38, Jarvi_38, Jayhawk_39, Jeckyll_38, Joy99_38, Krueger_42, LaterM_38, Llorens_38, Lunahalos_38, MeaningOfLife_38, Megsy_39, Murucutumbu_38, Padfoot_38, Padpat_39, Peel_38, PhelpsODU_39, Phrank_40, Piatt_38, Pokerus_37, QuincyRose_37, Ramen_38, Rapunzel97_38, Rosmarinus_38, Shadow1_41, ShiaSurprise_39, Slimphazie_38, Spock_38, Stinson_39, Sulley_38, Sunflower1121_41, Syra333_42, Tachez_38, TaiwanKao_40, Tierra_40, Tiri_39, Topper_38, TribbleTrouble_93, TruffulaTree_38, Twitch_38, Unicorn_39, Veliki_38, Ximenita_43, Yunkel11_41,

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

-

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

- Agent47_88, AlleyCat_91, Amelie_34, Amgine_90, Aminay_79, Amohnition_88, Bella96_38, Binglebops_34, BoostSeason_39, Chancellor_91, Cheetobro_89, Collard_87, Dadosky_91, DarthP_88, DismalFunk_38, DismalStressor_38, DrHayes_38, Edugator_85, Ekdilam_83, Ellie_89, Enkosi_34, Eponine_93, Fefferhead_91, Finch_201, Findley_38, Fionnbharth_91, FlagStaff_60, Gengar_88, Hammy_88, Heftyboy_90, Honk_72, Hurricane_91, InvictusManeo_86, JF1_91, Juliette_93, Keshu_95, Kratio_91, Kraw_92, Larva_90, Leston_88, LilPharaoh_34, Malthus_92, Marcoliusprime_38, MarkPhew_42, Marshawn_42, Mdavu_34, Milly_38, Miryou_91, MissDaisy_85, Mitti_91, Mufasa_39, Nergal_34, Nibb_40, Nikao_34, Nutello_34, OkiRoe_89, OmniCritical_91, Oscar_42, Pace1224_61, Patt_84, Pharb_91, Pixie_93, Psycho_89, Reptar3000_85, Ruthiejr_93, SamScheppers_90, SamuelLPlaqson_38, Scarlett_42, SgtBeansprout_34, ShedlockHolmes_94, SirPhilip_39, Slarp_89, SoSeph_90, Strobilo_38, TBond007_90, TM4_40, Taquito_91, TiniBug_38, Torres_34, Urkel_38, Validus_41, Waterfoul_88, Wintermute_91, Y10_87, Y2_87, Yuna_42, Zeta1847_60, ZoeJ_38,

Summary by start number:

Start 3:

- Found in 1 of 166 (0.6%) of genes in pham
- Manual Annotations of this start: 1 of 162
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ekdilam_83 (K6),

Start 4:

- Found in 4 of 166 (2.4%) of genes in pham
- Manual Annotations of this start: 4 of 162
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Hurricane_91 (K3), Keshu_95 (K3), Pharb_91 (K3), ShedlockHolmes_94 (K3),

Start 18:

- Found in 2 of 166 (1.2%) of genes in pham
- Manual Annotations of this start: 1 of 162
- Called 100.0% of time when present
- Phage (with cluster) where this start called: FlagStaff_60 (G2), Pace1224_61 (G2),

Start 19:

- Found in 78 of 166 (47.0%) of genes in pham
- Manual Annotations of this start: 77 of 162
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ActinUp_38 (K1), Adephegia_38 (K1), Adonis_38 (K1), Ageofdapage_39 (K1), AlishaPH_38 (K1), Angelica_38 (K1), Apocalypse_39 (K1), Asayake_38 (K1), Atiba_38 (K1), BEEST_38 (K1), BGIlluvia_38 (K1), BarrelRoll_38 (K1), Beezoo_38 (K1), Belladonna_38 (K1), Blizzard_38 (K1), Boiiii_38 (K1), Bryler_40 (K6), CREW_38 (K1), Cain_40 (K6), Capricorn_38 (K1), CaseJules_39 (K1), Chris_40 (K1), CrimD_38 (K1), Dalmuri_38 (K1), Deby_38 (K1), Durfee_38 (K1), Efra2_41 (K1), Emerson_39 (K1), Ganymede_39 (K1), Geraldini_38 (K1), Guanica15_41 (K1), HedwigODU_38 (K1), Homura_38 (K1), Hyperbowlee_38 (K1), Inky_38 (K1), JAWS_38 (K1), Jarvi_38 (K1), Jayhawk_39 (K1), Jeckyll_38 (K1), Joy99_38 (K1), Krueger_42 (K6), LaterM_38 (K1), Llorens_38 (K1), Lunahalos_38 (K1), MeaningOfLife_38 (K1), Megsy_39 (K1),

Murucutumbu_38 (K1), Padfoot_38 (K1), Padpat_39 (K1), Peel_38 (K1), PhelpsODU_39 (K6), Phrank_40 (K6), Piatt_38 (K1), Pokerus_37 (K1), QuincyRose_37 (K1), Ramen_38 (K1), Rapunzel97_38 (K1), Rosmarinus_38 (K1), Shadow1_41 (K6), ShiaSurprise_39 (K1), Slimphazie_38 (K1), Spock_38 (K1), Stinson_39 (K1), Sulley_38 (K1), Sunflower1121_41 (K6), Syra333_42 (K6), Tachez_38 (K1), TaiwanKao_40 (K1), Tierra_40 (K6), Tiri_39 (K1), Topper_38 (K1), TribbleTrouble_93 (K3), TruffulaTree_38 (K1), Twitch_38 (K1), Unicorn_39 (K6), Veliki_38 (K1), Ximenita_43 (K6), Yunkel11_41 (K1),

Start 20:

- Found in 74 of 166 (44.6%) of genes in pham
- Manual Annotations of this start: 71 of 162
- Called 98.6% of time when present
- Phage (with cluster) where this start called: Agent47_88 (K5), AlleyCat_91 (K5), Amelie_34 (K1), Amgine_90 (K6), Aminay_79 (K7), Bella96_38 (K1), Binglebops_34 (K1), BoostSeason_39 (K2), Chancellor_91 (K4), Cheetobro_89 (K4), Collard_87 (K5), Dadosky_91 (K5), DismalFunk_38 (K2), DismalStressor_38 (K2), DrHayes_38 (K1), Edugator_85 (K5), Ellie_89 (K6), Enkosi_34 (K1), Eponine_93 (K4), Fefferhead_91 (K6), Findley_38 (K2), Fionnbharth_91 (K4), Gengar_88 (K5), Heftyboy_90 (K5), InvictusManeo_86 (K5), JF1_91 (K4), Juliette_93 (K4), Kratio_91 (K5), Kraw_92 (K4), Larva_90 (K5), Leston_88 (K5), LilPharaoh_34 (K1), Malthus_92 (K4), Marcoliusprime_38 (K2), MarkPheW_42 (K1), Marshawn_42 (K6), Mdavu_34 (K1), Milly_38 (K2), Miryou_91 (K5), MissDaisy_85 (K4), Mitti_91 (K4), Mufasa_39 (K2), Nergal_34 (AG), Nibb_40 (K1), Nikao_34 (K1), Nutello_34 (K1), OkiRoe_89 (K5), OmniCritical_91 (K4), Oscar_42 (K1), Patt_84 (K4), Psycho_89 (K5), Reptar3000_85 (K4), Ruthiejr_93 (K4), SamScheppers_90 (K4), SamuelLPlaqson_38 (K1), Scarlett_42 (K1), SgtBeansprout_34 (K1), SirPhilip_39 (K6), Slarp_89 (K4), SoSeph_90 (K5), Strobilo_38 (K2), TM4_40 (K2), Taquito_91 (K4), TiniBug_38 (K1), Torres_34 (K1), Urkel_38 (K1), Validus_41 (K1), Waterfoul_88 (K5), Wintermute_91 (K4), Y10_87 (K4), Y2_87 (K4), Yuna_42 (K6), ZoeJ_38 (K2),

Start 21:

- Found in 3 of 166 (1.8%) of genes in pham
- Manual Annotations of this start: 3 of 162
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amohnition_88 (K6), DARTH_P_88 (K6), Hammy_88 (K6),

Start 22:

- Found in 3 of 166 (1.8%) of genes in pham
- Manual Annotations of this start: 3 of 162
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Finch_201 (singleton), Pixie_93 (K3), TBond007_90 (K3),

Start 27:

- Found in 1 of 166 (0.6%) of genes in pham
- Manual Annotations of this start: 1 of 162
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Zeta1847_60 (EH),

Start 32:

- Found in 2 of 166 (1.2%) of genes in pham

- Manual Annotations of this start: 1 of 162
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Honk_72 (EH),

Summary by clusters:

There are 11 clusters represented in this pham: singleton, EH, AG, K3, K2, K1, K7, K6, K5, K4, G2,

Info for manual annotations of cluster AG:

- Start number 20 was manually annotated 1 time for cluster AG.

Info for manual annotations of cluster EH:

- Start number 27 was manually annotated 1 time for cluster EH.
- Start number 32 was manually annotated 1 time for cluster EH.

Info for manual annotations of cluster G2:

- Start number 18 was manually annotated 1 time for cluster G2.

Info for manual annotations of cluster K1:

- Start number 19 was manually annotated 65 times for cluster K1.
- Start number 20 was manually annotated 18 times for cluster K1.

Info for manual annotations of cluster K2:

- Start number 20 was manually annotated 10 times for cluster K2.

Info for manual annotations of cluster K3:

- Start number 4 was manually annotated 4 times for cluster K3.
- Start number 19 was manually annotated 1 time for cluster K3.
- Start number 22 was manually annotated 2 times for cluster K3.

Info for manual annotations of cluster K4:

- Start number 20 was manually annotated 19 times for cluster K4.

Info for manual annotations of cluster K5:

- Start number 20 was manually annotated 16 times for cluster K5.

Info for manual annotations of cluster K6:

- Start number 3 was manually annotated 1 time for cluster K6.
- Start number 19 was manually annotated 11 times for cluster K6.
- Start number 20 was manually annotated 6 times for cluster K6.
- Start number 21 was manually annotated 3 times for cluster K6.

Info for manual annotations of cluster K7:

- Start number 20 was manually annotated 1 time for cluster K7.

Gene Information:

Gene: ActinUp_38 Start: 30545, Stop: 31231, Start Num: 19

Candidate Starts for ActinUp_38:

(Start: 19 @30545 has 77 MA's), (41, 30698), (53, 30809), (61, 30890), (70, 31013), (79, 31124), (83, 31169), (88, 31187), (89, 31196),

Gene: Adephagia_38 Start: 30542, Stop: 31228, Start Num: 19

Candidate Starts for Adephagia_38:

(Start: 19 @30542 has 77 MA's), (41, 30695), (53, 30806), (61, 30887), (70, 31010), (79, 31121), (83, 31166), (88, 31184), (89, 31193),

Gene: Adonis_38 Start: 30557, Stop: 31246, Start Num: 19

Candidate Starts for Adonis_38:

(Start: 19 @30557 has 77 MA's), (24, 30599), (41, 30710), (46, 30767), (61, 30902), (70, 31025), (81, 31157), (88, 31202), (89, 31211),

Gene: Agent47_88 Start: 55865, Stop: 56548, Start Num: 20

Candidate Starts for Agent47_88:

(Start: 20 @55865 has 71 MA's), (35, 55973), (41, 56030), (47, 56081), (59, 56168), (61, 56213), (70, 56336), (87, 56504), (88, 56510), (89, 56519), (91, 56537),

Gene: Ageofdapage_39 Start: 30504, Stop: 31190, Start Num: 19

Candidate Starts for Ageofdapage_39:

(Start: 19 @30504 has 77 MA's), (41, 30657), (53, 30768), (61, 30849), (70, 30972), (73, 31017), (83, 31128), (88, 31146), (89, 31155),

Gene: AlishaPH_38 Start: 30535, Stop: 31224, Start Num: 19

Candidate Starts for AlishaPH_38:

(Start: 19 @30535 has 77 MA's), (24, 30577), (41, 30688), (46, 30745), (61, 30880), (70, 31003), (81, 31135), (88, 31180), (89, 31189),

Gene: AlleyCat_91 Start: 57150, Stop: 57836, Start Num: 20

Candidate Starts for AlleyCat_91:

(Start: 20 @57150 has 71 MA's), (35, 57258), (41, 57315), (61, 57501), (70, 57624), (81, 57753), (84, 57783), (87, 57792), (88, 57798), (89, 57807), (91, 57825),

Gene: Amelie_34 Start: 29822, Stop: 30511, Start Num: 20

Candidate Starts for Amelie_34:

(Start: 20 @29822 has 71 MA's), (33, 29918), (35, 29930), (41, 29987), (61, 30170), (70, 30293), (84, 30452), (87, 30461), (88, 30467), (89, 30476),

Gene: Amgine_90 Start: 58501, Stop: 59190, Start Num: 20

Candidate Starts for Amgine_90:

(Start: 20 @58501 has 71 MA's), (24, 58543), (41, 58666), (54, 58777), (61, 58849), (70, 58972), (73, 59017), (79, 59083), (83, 59125), (85, 59131), (86, 59134), (87, 59137), (90, 59155),

Gene: Aminay_79 Start: 50480, Stop: 51199, Start Num: 20

Candidate Starts for Aminay_79:

(Start: 20 @50480 has 71 MA's), (23, 50492), (36, 50600), (37, 50621), (42, 50675), (43, 50690), (61, 50861), (70, 50984), (72, 51017), (74, 51050), (82, 51125), (90, 51173),

Gene: Amohnition_88 Start: 57523, Stop: 58212, Start Num: 21

Candidate Starts for Amohnition_88:

(Start: 21 @57523 has 3 MA's), (35, 57631), (61, 57871), (69, 57976), (70, 57994), (73, 58039), (79, 58105), (83, 58150), (86, 58159), (88, 58168), (89, 58177),

Gene: Angelica_38 Start: 30492, Stop: 31181, Start Num: 19

Candidate Starts for Angelica_38:

(Start: 19 @30492 has 77 MA's), (24, 30534), (41, 30645), (46, 30702), (61, 30837), (70, 30960), (81, 31092), (88, 31137), (89, 31146),

Gene: Apocalypse_39 Start: 30512, Stop: 31201, Start Num: 19

Candidate Starts for Apocalypse_39:

(Start: 19 @30512 has 77 MA's), (24, 30554), (41, 30665), (46, 30722), (61, 30857), (70, 30980), (81, 31112), (88, 31157), (89, 31166),

Gene: Asayake_38 Start: 30576, Stop: 31265, Start Num: 19

Candidate Starts for Asayake_38:

(Start: 19 @30576 has 77 MA's), (24, 30618), (41, 30729), (46, 30786), (61, 30921), (70, 31044), (81, 31176), (88, 31221), (89, 31230),

Gene: Atiba_38 Start: 30505, Stop: 31191, Start Num: 19

Candidate Starts for Atiba_38:

(Start: 19 @30505 has 77 MA's), (41, 30658), (53, 30769), (61, 30850), (70, 30973), (79, 31084), (83, 31129), (88, 31147), (89, 31156),

Gene: BEEST_38 Start: 30576, Stop: 31265, Start Num: 19

Candidate Starts for BEEST_38:

(Start: 19 @30576 has 77 MA's), (24, 30618), (41, 30729), (46, 30786), (61, 30921), (70, 31044), (81, 31176), (88, 31221), (89, 31230),

Gene: BGlluviae_38 Start: 30661, Stop: 31347, Start Num: 19

Candidate Starts for BGlluviae_38:

(Start: 19 @30661 has 77 MA's), (41, 30814), (53, 30925), (61, 31006), (70, 31129), (79, 31240), (83, 31285), (88, 31303), (89, 31312),

Gene: BarrelRoll_38 Start: 30528, Stop: 31214, Start Num: 19

Candidate Starts for BarrelRoll_38:

(Start: 19 @30528 has 77 MA's), (41, 30681), (53, 30792), (61, 30873), (70, 30996), (79, 31107), (83, 31152), (88, 31170), (89, 31179),

Gene: Beezoo_38 Start: 30552, Stop: 31238, Start Num: 19

Candidate Starts for Beezoo_38:

(Start: 19 @30552 has 77 MA's), (41, 30705), (53, 30816), (61, 30897), (70, 31020), (79, 31131), (83, 31176), (88, 31194), (89, 31203),

Gene: Bella96_38 Start: 30448, Stop: 31131, Start Num: 20

Candidate Starts for Bella96_38:

(7, 30376), (8, 30379), (10, 30397), (11, 30409), (Start: 20 @30448 has 71 MA's), (31, 30526), (35, 30556), (41, 30601), (44, 30634), (46, 30658), (54, 30721), (61, 30793), (70, 30916), (83, 31069), (86, 31078), (89, 31096),

Gene: Belladonna_38 Start: 30661, Stop: 31347, Start Num: 19

Candidate Starts for Belladonna_38:

(Start: 19 @30661 has 77 MA's), (41, 30814), (53, 30925), (61, 31006), (70, 31129), (79, 31240), (83, 31285), (88, 31303), (89, 31312),

Gene: Biglebops_34 Start: 29822, Stop: 30511, Start Num: 20

Candidate Starts for Biglebops_34:

(Start: 20 @29822 has 71 MA's), (33, 29918), (35, 29930), (41, 29987), (61, 30170), (70, 30293), (84, 30452), (87, 30461), (88, 30467), (89, 30476),

Gene: Blizzard_38 Start: 30576, Stop: 31265, Start Num: 19

Candidate Starts for Blizzard_38:

(Start: 19 @30576 has 77 MA's), (24, 30618), (41, 30729), (46, 30786), (61, 30921), (70, 31044), (81, 31176), (88, 31221), (89, 31230),

Gene: Boiiii_38 Start: 30578, Stop: 31267, Start Num: 19

Candidate Starts for Boiiii_38:

(Start: 19 @30578 has 77 MA's), (24, 30620), (41, 30731), (46, 30788), (61, 30923), (70, 31046), (81, 31178), (88, 31223), (89, 31232),

Gene: BoostSeason_39 Start: 30244, Stop: 30951, Start Num: 20

Candidate Starts for BoostSeason_39:

(Start: 20 @30244 has 71 MA's), (37, 30385), (61, 30637), (69, 30742), (77, 30847),

Gene: Bryler_40 Start: 30409, Stop: 31095, Start Num: 19

Candidate Starts for Bryler_40:

(Start: 19 @30409 has 77 MA's), (26, 30463), (31, 30487), (41, 30562), (54, 30682), (61, 30754), (70, 30877), (84, 31036), (89, 31060), (90, 31063),

Gene: CREW_38 Start: 30661, Stop: 31347, Start Num: 19

Candidate Starts for CREW_38:

(Start: 19 @30661 has 77 MA's), (41, 30814), (53, 30925), (61, 31006), (70, 31129), (79, 31240), (83, 31285), (88, 31303), (89, 31312),

Gene: Cain_40 Start: 30397, Stop: 31083, Start Num: 19

Candidate Starts for Cain_40:

(Start: 19 @30397 has 77 MA's), (26, 30451), (31, 30475), (41, 30550), (54, 30670), (61, 30742), (70, 30865), (84, 31024), (89, 31048), (90, 31051),

Gene: Capricorn_38 Start: 30661, Stop: 31347, Start Num: 19

Candidate Starts for Capricorn_38:

(Start: 19 @30661 has 77 MA's), (41, 30814), (53, 30925), (61, 31006), (70, 31129), (79, 31240), (83, 31285), (88, 31303), (89, 31312),

Gene: CaseJules_39 Start: 30576, Stop: 31265, Start Num: 19

Candidate Starts for CaseJules_39:

(Start: 19 @30576 has 77 MA's), (24, 30618), (41, 30729), (46, 30786), (61, 30921), (70, 31044), (81, 31176), (88, 31221), (89, 31230),

Gene: Chancellor_91 Start: 54897, Stop: 55604, Start Num: 20

Candidate Starts for Chancellor_91:

(Start: 20 @54897 has 71 MA's), (35, 55014), (39, 55059), (41, 55074), (45, 55110), (61, 55266), (70, 55389), (80, 55506), (82, 55533), (90, 55581),

Gene: Cheetobro_89 Start: 54451, Stop: 55158, Start Num: 20

Candidate Starts for Cheetobro_89:

(Start: 20 @54451 has 71 MA's), (35, 54568), (39, 54613), (41, 54628), (45, 54664), (61, 54820), (70, 54943), (80, 55060), (82, 55087), (90, 55135),

Gene: Chris_40 Start: 30964, Stop: 31665, Start Num: 19

Candidate Starts for Chris_40:

(Start: 19 @30964 has 77 MA's), (41, 31129), (46, 31186), (54, 31249), (61, 31321), (70, 31444), (81, 31576),

Gene: Collard_87 Start: 56114, Stop: 56800, Start Num: 20

Candidate Starts for Collard_87:

(Start: 20 @56114 has 71 MA's), (35, 56222), (41, 56279), (61, 56465), (70, 56588), (87, 56756), (88, 56762), (89, 56771), (91, 56789),

Gene: CrimD_38 Start: 30512, Stop: 31198, Start Num: 19

Candidate Starts for CrimD_38:

(Start: 19 @30512 has 77 MA's), (41, 30665), (53, 30776), (61, 30857), (70, 30980), (73, 31025), (83, 31136), (88, 31154), (89, 31163),

Gene: Dadosky_91 Start: 57151, Stop: 57837, Start Num: 20

Candidate Starts for Dadosky_91:

(Start: 20 @57151 has 71 MA's), (35, 57259), (41, 57316), (61, 57502), (70, 57625), (81, 57754), (84, 57784), (87, 57793), (88, 57799), (89, 57808), (91, 57826),

Gene: Dalmuri_38 Start: 30661, Stop: 31347, Start Num: 19

Candidate Starts for Dalmuri_38:

(Start: 19 @30661 has 77 MA's), (41, 30814), (53, 30925), (61, 31006), (70, 31129), (79, 31240), (83, 31285), (88, 31303), (89, 31312),

Gene: DarthP_88 Start: 57376, Stop: 58065, Start Num: 21

Candidate Starts for DarthP_88:

(Start: 21 @57376 has 3 MA's), (35, 57484), (61, 57724), (69, 57829), (70, 57847), (73, 57892), (79, 57958), (83, 58003), (86, 58012), (88, 58021), (89, 58030),

Gene: Deby_38 Start: 30510, Stop: 31199, Start Num: 19

Candidate Starts for Deby_38:

(Start: 19 @30510 has 77 MA's), (24, 30552), (41, 30663), (46, 30720), (61, 30855), (70, 30978), (81, 31110), (88, 31155), (89, 31164),

Gene: DismalFunk_38 Start: 30342, Stop: 31046, Start Num: 20

Candidate Starts for DismalFunk_38:

(Start: 20 @30342 has 71 MA's), (37, 30480), (61, 30732), (69, 30837), (77, 30942),

Gene: DismalStressor_38 Start: 30342, Stop: 31046, Start Num: 20

Candidate Starts for DismalStressor_38:

(Start: 20 @30342 has 71 MA's), (37, 30480), (61, 30732), (69, 30837), (77, 30942),

Gene: DrHayes_38 Start: 30614, Stop: 31297, Start Num: 20

Candidate Starts for DrHayes_38:

(7, 30542), (8, 30545), (11, 30575), (Start: 20 @30614 has 71 MA's), (31, 30692), (35, 30722), (41, 30767), (44, 30800), (46, 30824), (54, 30887), (70, 31082), (83, 31235), (86, 31244), (89, 31262),

Gene: Durfee_38 Start: 30576, Stop: 31265, Start Num: 19

Candidate Starts for Durfee_38:

(Start: 19 @30576 has 77 MA's), (24, 30618), (41, 30729), (46, 30786), (61, 30921), (70, 31044), (81, 31176), (88, 31221), (89, 31230),

Gene: Edugator_85 Start: 58350, Stop: 59036, Start Num: 20

Candidate Starts for Edugator_85:

(Start: 20 @58350 has 71 MA's), (35, 58458), (41, 58515), (61, 58701), (70, 58824), (87, 58992), (88, 58998), (89, 59007), (91, 59025),

Gene: Efra2_41 Start: 30355, Stop: 31041, Start Num: 19

Candidate Starts for Efra2_41:

(Start: 19 @30355 has 77 MA's), (41, 30508), (49, 30583), (50, 30595), (53, 30619), (61, 30700), (70, 30823), (79, 30934), (83, 30979), (88, 30997), (89, 31006), (90, 31009),

Gene: Ekdilam_83 Start: 57075, Stop: 57926, Start Num: 3

Candidate Starts for Ekdilam_83:

(Start: 3 @57075 has 1 MA's), (5, 57141), (12, 57192), (14, 57204), (41, 57393), (53, 57504), (61, 57585), (69, 57690), (70, 57708), (79, 57819), (83, 57864), (86, 57873), (88, 57882), (89, 57891),

Gene: Ellie_89 Start: 57673, Stop: 58368, Start Num: 20

Candidate Starts for Ellie_89:

(Start: 20 @57673 has 71 MA's), (34, 57772), (41, 57838), (54, 57949), (61, 58021), (70, 58144), (73, 58189), (81, 58276), (83, 58303), (88, 58321), (89, 58330),

Gene: Emerson_39 Start: 30536, Stop: 31222, Start Num: 19

Candidate Starts for Emerson_39:

(Start: 19 @30536 has 77 MA's), (41, 30689), (53, 30800), (61, 30881), (70, 31004), (79, 31115), (83, 31160), (88, 31178), (89, 31187),

Gene: Enkosi_34 Start: 29822, Stop: 30511, Start Num: 20

Candidate Starts for Enkosi_34:

(Start: 20 @29822 has 71 MA's), (33, 29918), (35, 29930), (41, 29987), (61, 30170), (70, 30293), (84, 30452), (87, 30461), (88, 30467), (89, 30476),

Gene: Eponine_93 Start: 55877, Stop: 56584, Start Num: 20

Candidate Starts for Eponine_93:

(Start: 20 @55877 has 71 MA's), (35, 55994), (39, 56039), (41, 56054), (45, 56090), (61, 56246), (70, 56369), (80, 56486), (82, 56513), (90, 56561),

Gene: Fefferhead_91 Start: 57464, Stop: 58159, Start Num: 20

Candidate Starts for Fefferhead_91:

(Start: 20 @57464 has 71 MA's), (34, 57563), (41, 57629), (54, 57740), (61, 57812), (70, 57935), (73, 57980), (81, 58067), (83, 58094), (88, 58112), (89, 58121),

Gene: Finch_201 Start: 116833, Stop: 117528, Start Num: 22

Candidate Starts for Finch_201:

(Start: 22 @116833 has 3 MA's), (41, 117004), (56, 117139), (60, 117193), (62, 117238), (65, 117256), (69, 117301), (70, 117319), (75, 117394), (87, 117487),

Gene: Findley_38 Start: 30335, Stop: 31039, Start Num: 20

Candidate Starts for Findley_38:

(Start: 20 @30335 has 71 MA's), (37, 30473), (61, 30725), (69, 30830), (77, 30935),

Gene: Fionnbharth_91 Start: 55275, Stop: 55982, Start Num: 20

Candidate Starts for Fionnbharth_91:

(Start: 20 @55275 has 71 MA's), (35, 55392), (39, 55437), (41, 55452), (45, 55488), (61, 55644), (70, 55767), (80, 55884), (82, 55911), (90, 55959),

Gene: FlagStaff_60 Start: 41465, Stop: 42217, Start Num: 18
Candidate Starts for FlagStaff_60:
(Start: 18 @41465 has 1 MA's), (25, 41522), (45, 41699), (80, 42119),

Gene: Ganymede_39 Start: 30565, Stop: 31254, Start Num: 19
Candidate Starts for Ganymede_39:
(Start: 19 @30565 has 77 MA's), (24, 30607), (41, 30718), (46, 30775), (61, 30910), (70, 31033), (81, 31165), (88, 31210), (89, 31219),

Gene: Gengar_88 Start: 57248, Stop: 57934, Start Num: 20
Candidate Starts for Gengar_88:
(Start: 20 @57248 has 71 MA's), (35, 57356), (41, 57413), (47, 57464), (61, 57596), (70, 57719), (81, 57848), (87, 57887), (88, 57893), (89, 57902),

Gene: Geraldini_38 Start: 30636, Stop: 31325, Start Num: 19
Candidate Starts for Geraldini_38:
(Start: 19 @30636 has 77 MA's), (24, 30678), (41, 30789), (46, 30846), (61, 30981), (70, 31104), (81, 31236), (88, 31281), (89, 31290),

Gene: Guanica15_41 Start: 30311, Stop: 30997, Start Num: 19
Candidate Starts for Guanica15_41:
(13, 30281), (Start: 19 @30311 has 77 MA's), (41, 30464), (49, 30539), (50, 30551), (53, 30575), (61, 30656), (70, 30779), (79, 30890), (83, 30935), (88, 30953), (89, 30962), (90, 30965),

Gene: Hammy_88 Start: 57366, Stop: 58055, Start Num: 21
Candidate Starts for Hammy_88:
(Start: 21 @57366 has 3 MA's), (35, 57474), (61, 57714), (69, 57819), (70, 57837), (73, 57882), (79, 57948), (83, 57993), (86, 58002), (88, 58011), (89, 58020),

Gene: HedwigODU_38 Start: 30545, Stop: 31231, Start Num: 19
Candidate Starts for HedwigODU_38:
(Start: 19 @30545 has 77 MA's), (41, 30698), (53, 30809), (61, 30890), (70, 31013), (79, 31124), (83, 31169), (88, 31187), (89, 31196),

Gene: Heftyboy_90 Start: 58017, Stop: 58703, Start Num: 20
Candidate Starts for Heftyboy_90:
(Start: 20 @58017 has 71 MA's), (35, 58125), (41, 58182), (47, 58233), (61, 58365), (70, 58488), (81, 58617), (87, 58656), (88, 58662), (89, 58671),

Gene: Homura_38 Start: 30661, Stop: 31347, Start Num: 19
Candidate Starts for Homura_38:
(Start: 19 @30661 has 77 MA's), (41, 30814), (53, 30925), (61, 31006), (70, 31129), (79, 31240), (83, 31285), (88, 31303), (89, 31312),

Gene: Honk_72 Start: 45240, Stop: 45872, Start Num: 32
Candidate Starts for Honk_72:
(26, 45204), (Start: 32 @45240 has 1 MA's), (61, 45540), (65, 45594), (69, 45639), (78, 45759),

Gene: Hurricane_91 Start: 56971, Stop: 57810, Start Num: 4
Candidate Starts for Hurricane_91:
(Start: 4 @56971 has 4 MA's), (8, 57037), (15, 57094), (17, 57103), (41, 57274), (49, 57349), (53, 57385), (61, 57466), (70, 57589), (82, 57733), (85, 57757), (90, 57781),

Gene: Hyperbowlee_38 Start: 30576, Stop: 31265, Start Num: 19

Candidate Starts for Hyperbowlee_38:

(Start: 19 @30576 has 77 MA's), (24, 30618), (41, 30729), (46, 30786), (61, 30921), (70, 31044), (81, 31176), (88, 31221), (89, 31230),

Gene: Inky_38 Start: 30661, Stop: 31347, Start Num: 19

Candidate Starts for Inky_38:

(Start: 19 @30661 has 77 MA's), (41, 30814), (53, 30925), (61, 31006), (70, 31129), (79, 31240), (83, 31285), (88, 31303), (89, 31312),

Gene: InvictusManeo_86 Start: 55869, Stop: 56552, Start Num: 20

Candidate Starts for InvictusManeo_86:

(Start: 20 @55869 has 71 MA's), (35, 55977), (41, 56034), (47, 56085), (59, 56172), (61, 56217), (70, 56340), (87, 56508), (88, 56514), (89, 56523), (91, 56541),

Gene: JAWS_38 Start: 30529, Stop: 31218, Start Num: 19

Candidate Starts for JAWS_38:

(Start: 19 @30529 has 77 MA's), (24, 30571), (41, 30682), (46, 30739), (61, 30874), (70, 30997), (81, 31129), (88, 31174), (89, 31183),

Gene: JF1_91 Start: 55199, Stop: 55906, Start Num: 20

Candidate Starts for JF1_91:

(Start: 20 @55199 has 71 MA's), (35, 55316), (39, 55361), (41, 55376), (45, 55412), (61, 55568), (70, 55691), (80, 55808), (82, 55835), (90, 55883),

Gene: Jarvi_38 Start: 30661, Stop: 31347, Start Num: 19

Candidate Starts for Jarvi_38:

(Start: 19 @30661 has 77 MA's), (41, 30814), (53, 30925), (61, 31006), (70, 31129), (79, 31240), (83, 31285), (88, 31303), (89, 31312),

Gene: Jayhawk_39 Start: 30543, Stop: 31229, Start Num: 19

Candidate Starts for Jayhawk_39:

(Start: 19 @30543 has 77 MA's), (41, 30696), (53, 30807), (61, 30888), (70, 31011), (79, 31122), (83, 31167), (88, 31185), (89, 31194),

Gene: Jeckyll_38 Start: 30661, Stop: 31347, Start Num: 19

Candidate Starts for Jeckyll_38:

(Start: 19 @30661 has 77 MA's), (41, 30814), (53, 30925), (61, 31006), (70, 31129), (79, 31240), (83, 31285), (88, 31303), (89, 31312),

Gene: Joy99_38 Start: 30590, Stop: 31276, Start Num: 19

Candidate Starts for Joy99_38:

(Start: 19 @30590 has 77 MA's), (41, 30743), (52, 30851), (53, 30854), (61, 30935), (70, 31058), (76, 31154), (79, 31169), (83, 31214), (88, 31232), (89, 31241),

Gene: Juliette_93 Start: 55291, Stop: 55986, Start Num: 20

Candidate Starts for Juliette_93:

(Start: 20 @55291 has 71 MA's), (35, 55408), (39, 55453), (41, 55468), (45, 55504), (61, 55660), (67, 55729), (70, 55783), (80, 55900), (82, 55927), (90, 55975),

Gene: Keshu_95 Start: 57373, Stop: 58212, Start Num: 4

Candidate Starts for Keshu_95:

(Start: 4 @57373 has 4 MA's), (8, 57439), (15, 57496), (17, 57505), (41, 57676), (49, 57751), (53, 57787), (61, 57868), (70, 57991), (82, 58135), (90, 58183),

Gene: Kratio_91 Start: 57046, Stop: 57732, Start Num: 20

Candidate Starts for Kratio_91:

(Start: 20 @57046 has 71 MA's), (35, 57154), (41, 57211), (61, 57397), (70, 57520), (87, 57688), (88, 57694), (89, 57703), (91, 57721),

Gene: Kraw_92 Start: 55006, Stop: 55713, Start Num: 20

Candidate Starts for Kraw_92:

(Start: 20 @55006 has 71 MA's), (35, 55123), (39, 55168), (41, 55183), (45, 55219), (61, 55375), (70, 55498), (80, 55615), (82, 55642), (90, 55690),

Gene: Krueger_42 Start: 30580, Stop: 31269, Start Num: 19

Candidate Starts for Krueger_42:

(Start: 19 @30580 has 77 MA's), (41, 30736), (53, 30847), (61, 30928), (70, 31051), (79, 31162), (83, 31207), (88, 31225), (89, 31234),

Gene: Larva_90 Start: 58023, Stop: 58709, Start Num: 20

Candidate Starts for Larva_90:

(Start: 20 @58023 has 71 MA's), (35, 58131), (41, 58188), (61, 58374), (70, 58497), (81, 58626), (84, 58656), (87, 58665), (88, 58671), (89, 58680), (91, 58698),

Gene: LaterM_38 Start: 30491, Stop: 31177, Start Num: 19

Candidate Starts for LaterM_38:

(Start: 19 @30491 has 77 MA's), (41, 30644), (53, 30755), (61, 30836), (70, 30959), (73, 31004), (83, 31115), (88, 31133), (89, 31142),

Gene: Leston_88 Start: 57198, Stop: 57884, Start Num: 20

Candidate Starts for Leston_88:

(Start: 20 @57198 has 71 MA's), (35, 57306), (41, 57363), (47, 57414), (61, 57546), (70, 57669), (81, 57798), (87, 57837), (88, 57843), (89, 57852),

Gene: LilPharaoh_34 Start: 29822, Stop: 30511, Start Num: 20

Candidate Starts for LilPharaoh_34:

(Start: 20 @29822 has 71 MA's), (33, 29918), (35, 29930), (41, 29987), (61, 30170), (70, 30293), (84, 30452), (87, 30461), (88, 30467), (89, 30476),

Gene: Llorens_38 Start: 30661, Stop: 31347, Start Num: 19

Candidate Starts for Llorens_38:

(Start: 19 @30661 has 77 MA's), (41, 30814), (53, 30925), (61, 31006), (70, 31129), (79, 31240), (83, 31285), (88, 31303), (89, 31312),

Gene: Lunahalos_38 Start: 30661, Stop: 31347, Start Num: 19

Candidate Starts for Lunahalos_38:

(Start: 19 @30661 has 77 MA's), (41, 30814), (53, 30925), (61, 31006), (70, 31129), (79, 31240), (83, 31285), (88, 31303), (89, 31312),

Gene: Malthus_92 Start: 55000, Stop: 55707, Start Num: 20

Candidate Starts for Malthus_92:

(Start: 20 @55000 has 71 MA's), (35, 55117), (39, 55162), (41, 55177), (45, 55213), (61, 55369), (70, 55492), (80, 55609), (82, 55636), (90, 55684),

Gene: Marcoliusprime_38 Start: 30342, Stop: 31046, Start Num: 20
Candidate Starts for Marcoliusprime_38:
(Start: 20 @30342 has 71 MA's), (37, 30480), (61, 30732), (69, 30837), (77, 30942),

Gene: MarkPhew_42 Start: 31094, Stop: 31789, Start Num: 20
Candidate Starts for MarkPhew_42:
(6, 31016), (9, 31037), (Start: 20 @31094 has 71 MA's), (41, 31256), (46, 31313), (54, 31376), (61, 31448), (70, 31571), (84, 31730), (87, 31739), (89, 31754), (90, 31757),

Gene: Marshawn_42 Start: 31382, Stop: 32077, Start Num: 20
Candidate Starts for Marshawn_42:
(1, 31115), (2, 31136), (6, 31304), (9, 31325), (Start: 20 @31382 has 71 MA's), (41, 31544), (46, 31601), (54, 31664), (61, 31736), (70, 31859), (84, 32018), (87, 32027), (89, 32042), (90, 32045),

Gene: Mdavu_34 Start: 29810, Stop: 30499, Start Num: 20
Candidate Starts for Mdavu_34:
(Start: 20 @29810 has 71 MA's), (33, 29906), (35, 29918), (41, 29975), (61, 30158), (70, 30281), (84, 30440), (87, 30449), (88, 30455), (89, 30464),

Gene: MeaningOfLife_38 Start: 30521, Stop: 31210, Start Num: 19
Candidate Starts for MeaningOfLife_38:
(Start: 19 @30521 has 77 MA's), (24, 30563), (41, 30674), (46, 30731), (61, 30866), (70, 30989), (81, 31121), (88, 31166), (89, 31175),

Gene: Megsy_39 Start: 30509, Stop: 31198, Start Num: 19
Candidate Starts for Megsy_39:
(Start: 19 @30509 has 77 MA's), (24, 30551), (41, 30662), (46, 30719), (61, 30854), (70, 30977), (81, 31109), (83, 31136), (88, 31154), (89, 31163),

Gene: Milly_38 Start: 30315, Stop: 31019, Start Num: 20
Candidate Starts for Milly_38:
(Start: 20 @30315 has 71 MA's), (37, 30453), (61, 30705), (69, 30810), (77, 30915),

Gene: Miryou_91 Start: 59258, Stop: 59944, Start Num: 20
Candidate Starts for Miryou_91:
(Start: 20 @59258 has 71 MA's), (35, 59366), (41, 59423), (47, 59474), (61, 59606), (70, 59729), (81, 59858), (87, 59897), (88, 59903), (89, 59912),

Gene: MissDaisy_85 Start: 51594, Stop: 52301, Start Num: 20
Candidate Starts for MissDaisy_85:
(Start: 20 @51594 has 71 MA's), (35, 51711), (39, 51756), (41, 51771), (45, 51807), (48, 51837), (61, 51963), (70, 52086), (80, 52203), (82, 52230), (85, 52254), (90, 52278),

Gene: Mitti_91 Start: 55093, Stop: 55800, Start Num: 20
Candidate Starts for Mitti_91:
(Start: 20 @55093 has 71 MA's), (35, 55210), (39, 55255), (41, 55270), (45, 55306), (61, 55462), (70, 55585), (80, 55702), (82, 55729), (90, 55777),

Gene: Mufasa_39 Start: 30236, Stop: 30940, Start Num: 20
Candidate Starts for Mufasa_39:
(Start: 20 @30236 has 71 MA's), (37, 30374), (61, 30626), (69, 30731), (77, 30836),

Gene: Murucutumbu_38 Start: 30585, Stop: 31271, Start Num: 19

Candidate Starts for Murucutumbu_38:

(Start: 19 @30585 has 77 MA's), (41, 30738), (53, 30849), (61, 30930), (70, 31053), (73, 31098), (83, 31209), (88, 31227), (89, 31236),

Gene: Nergal_34 Start: 28204, Stop: 28902, Start Num: 20

Candidate Starts for Nergal_34:

(11, 28165), (Start: 20 @28204 has 71 MA's), (37, 28342), (40, 28378), (43, 28417), (45, 28426), (57, 28540), (61, 28591), (70, 28714), (71, 28717),

Gene: Nibb_40 Start: 30496, Stop: 31197, Start Num: 20

Candidate Starts for Nibb_40:

(9, 30439), (Start: 20 @30496 has 71 MA's), (41, 30661), (53, 30772), (61, 30853), (70, 30976), (81, 31108), (87, 31147), (89, 31162),

Gene: Nikao_34 Start: 29822, Stop: 30511, Start Num: 20

Candidate Starts for Nikao_34:

(Start: 20 @29822 has 71 MA's), (33, 29918), (35, 29930), (41, 29987), (61, 30170), (70, 30293), (84, 30452), (87, 30461), (88, 30467), (89, 30476),

Gene: Nutello_34 Start: 29822, Stop: 30511, Start Num: 20

Candidate Starts for Nutello_34:

(Start: 20 @29822 has 71 MA's), (33, 29918), (35, 29930), (41, 29987), (61, 30170), (70, 30293), (84, 30452), (87, 30461), (88, 30467), (89, 30476),

Gene: OkiRoe_89 Start: 58212, Stop: 58898, Start Num: 20

Candidate Starts for OkiRoe_89:

(Start: 20 @58212 has 71 MA's), (35, 58320), (41, 58377), (47, 58428), (61, 58560), (70, 58683), (81, 58812), (87, 58851), (88, 58857), (89, 58866),

Gene: OmniCritical_91 Start: 55173, Stop: 55880, Start Num: 20

Candidate Starts for OmniCritical_91:

(Start: 20 @55173 has 71 MA's), (35, 55290), (39, 55335), (41, 55350), (45, 55386), (61, 55542), (70, 55665), (80, 55782), (82, 55809), (90, 55857),

Gene: Oscar_42 Start: 31235, Stop: 31894, Start Num: 20

Candidate Starts for Oscar_42:

(Start: 20 @31235 has 71 MA's), (38, 31379), (41, 31400), (55, 31481), (61, 31547), (70, 31670), (73, 31715), (90, 31862),

Gene: Pace1224_61 Start: 41491, Stop: 42243, Start Num: 18

Candidate Starts for Pace1224_61:

(Start: 18 @41491 has 1 MA's), (25, 41548), (45, 41725), (80, 42145),

Gene: Padfoot_38 Start: 30576, Stop: 31265, Start Num: 19

Candidate Starts for Padfoot_38:

(Start: 19 @30576 has 77 MA's), (24, 30618), (41, 30729), (46, 30786), (61, 30921), (70, 31044), (81, 31176), (88, 31221), (89, 31230),

Gene: Padpat_39 Start: 30536, Stop: 31222, Start Num: 19

Candidate Starts for Padpat_39:

(Start: 19 @30536 has 77 MA's), (41, 30689), (53, 30800), (61, 30881), (70, 31004), (79, 31115), (83, 31160), (88, 31178), (89, 31187),

Gene: Patt_84 Start: 51741, Stop: 52448, Start Num: 20

Candidate Starts for Patt_84:

(Start: 20 @51741 has 71 MA's), (35, 51858), (39, 51903), (41, 51918), (45, 51954), (61, 52110), (70, 52233), (80, 52350), (82, 52377), (85, 52401), (90, 52425),

Gene: Peel_38 Start: 30663, Stop: 31349, Start Num: 19

Candidate Starts for Peel_38:

(Start: 19 @30663 has 77 MA's), (41, 30816), (53, 30927), (61, 31008), (70, 31131), (79, 31242), (83, 31287), (88, 31305), (89, 31314),

Gene: Pharb_91 Start: 56993, Stop: 57817, Start Num: 4

Candidate Starts for Pharb_91:

(Start: 4 @56993 has 4 MA's), (15, 57116), (Start: 20 @57128 has 71 MA's), (41, 57281), (44, 57314), (46, 57338), (54, 57401), (61, 57473), (70, 57596), (81, 57728), (83, 57755), (86, 57764), (88, 57773), (89, 57782),

Gene: PhelpsODU_39 Start: 30435, Stop: 31121, Start Num: 19

Candidate Starts for PhelpsODU_39:

(Start: 19 @30435 has 77 MA's), (31, 30513), (41, 30588), (54, 30708), (70, 30903), (84, 31062), (89, 31086), (90, 31089),

Gene: Phrank_40 Start: 30386, Stop: 31072, Start Num: 19

Candidate Starts for Phrank_40:

(Start: 19 @30386 has 77 MA's), (26, 30440), (31, 30464), (41, 30539), (54, 30659), (61, 30731), (70, 30854), (84, 31013), (89, 31037), (90, 31040),

Gene: Piatt_38 Start: 30576, Stop: 31265, Start Num: 19

Candidate Starts for Piatt_38:

(Start: 19 @30576 has 77 MA's), (24, 30618), (41, 30729), (46, 30786), (61, 30921), (70, 31044), (81, 31176), (88, 31221), (89, 31230),

Gene: Pixie_93 Start: 57420, Stop: 58109, Start Num: 22

Candidate Starts for Pixie_93:

(Start: 22 @57420 has 3 MA's), (41, 57573), (49, 57648), (53, 57684), (61, 57765), (70, 57888), (80, 58005), (82, 58032), (85, 58056), (90, 58080),

Gene: Pokerus_37 Start: 30576, Stop: 31265, Start Num: 19

Candidate Starts for Pokerus_37:

(Start: 19 @30576 has 77 MA's), (24, 30618), (41, 30729), (46, 30786), (61, 30921), (70, 31044), (81, 31176), (88, 31221), (89, 31230),

Gene: Psycho_89 Start: 57148, Stop: 57834, Start Num: 20

Candidate Starts for Psycho_89:

(Start: 20 @57148 has 71 MA's), (35, 57256), (41, 57313), (61, 57499), (70, 57622), (81, 57751), (84, 57781), (87, 57790), (88, 57796), (89, 57805), (91, 57823),

Gene: QuincyRose_37 Start: 30565, Stop: 31254, Start Num: 19

Candidate Starts for QuincyRose_37:

(Start: 19 @30565 has 77 MA's), (24, 30607), (41, 30718), (46, 30775), (61, 30910), (70, 31033), (81, 31165), (88, 31210), (89, 31219),

Gene: Ramen_38 Start: 30541, Stop: 31230, Start Num: 19

Candidate Starts for Ramen_38:

(Start: 19 @30541 has 77 MA's), (24, 30583), (41, 30694), (46, 30751), (61, 30886), (70, 31009), (81, 31141), (88, 31186), (89, 31195),

Gene: Rapunzel97_38 Start: 30543, Stop: 31229, Start Num: 19

Candidate Starts for Rapunzel97_38:

(Start: 19 @30543 has 77 MA's), (41, 30696), (53, 30807), (61, 30888), (70, 31011), (79, 31122), (83, 31167), (88, 31185), (89, 31194),

Gene: Reptar3000_85 Start: 51731, Stop: 52438, Start Num: 20

Candidate Starts for Reptar3000_85:

(Start: 20 @51731 has 71 MA's), (35, 51848), (39, 51893), (41, 51908), (45, 51944), (61, 52100), (70, 52223), (80, 52340), (82, 52367), (85, 52391), (90, 52415),

Gene: Rosmarinus_38 Start: 30649, Stop: 31335, Start Num: 19

Candidate Starts for Rosmarinus_38:

(Start: 19 @30649 has 77 MA's), (41, 30802), (53, 30913), (61, 30994), (70, 31117), (79, 31228), (83, 31273), (88, 31291), (89, 31300),

Gene: Ruthiejr_93 Start: 55066, Stop: 55773, Start Num: 20

Candidate Starts for Ruthiejr_93:

(Start: 20 @55066 has 71 MA's), (35, 55183), (39, 55228), (41, 55243), (45, 55279), (61, 55435), (70, 55558), (80, 55675), (82, 55702), (90, 55750),

Gene: SamScheppers_90 Start: 55551, Stop: 56258, Start Num: 20

Candidate Starts for SamScheppers_90:

(Start: 20 @55551 has 71 MA's), (35, 55668), (39, 55713), (41, 55728), (45, 55764), (61, 55920), (70, 56043), (80, 56160), (82, 56187), (90, 56235),

Gene: SamuelLPlaqson_38 Start: 30614, Stop: 31297, Start Num: 20

Candidate Starts for SamuelLPlaqson_38:

(7, 30542), (8, 30545), (11, 30575), (Start: 20 @30614 has 71 MA's), (31, 30692), (35, 30722), (41, 30767), (44, 30800), (46, 30824), (54, 30887), (70, 31082), (83, 31235), (86, 31244), (89, 31262),

Gene: Scarlett_42 Start: 31226, Stop: 31885, Start Num: 20

Candidate Starts for Scarlett_42:

(Start: 20 @31226 has 71 MA's), (38, 31370), (41, 31391), (55, 31472), (61, 31538), (70, 31661), (73, 31706), (90, 31853),

Gene: SgtBeansprout_34 Start: 29822, Stop: 30511, Start Num: 20

Candidate Starts for SgtBeansprout_34:

(Start: 20 @29822 has 71 MA's), (33, 29918), (35, 29930), (41, 29987), (61, 30170), (70, 30293), (84, 30452), (87, 30461), (88, 30467), (89, 30476),

Gene: Shadow1_41 Start: 30489, Stop: 31178, Start Num: 19

Candidate Starts for Shadow1_41:

(Start: 19 @30489 has 77 MA's), (41, 30645), (53, 30756), (61, 30837), (70, 30960), (79, 31071), (83, 31116), (88, 31134), (89, 31143),

Gene: ShedlockHolmes_94 Start: 57204, Stop: 58043, Start Num: 4

Candidate Starts for ShedlockHolmes_94:

(Start: 4 @57204 has 4 MA's), (8, 57270), (15, 57327), (17, 57336), (41, 57507), (49, 57582), (53, 57618), (61, 57699), (70, 57822), (82, 57966), (90, 58014),

Gene: ShiaSurprise_39 Start: 30576, Stop: 31265, Start Num: 19

Candidate Starts for ShiaSurprise_39:

(Start: 19 @30576 has 77 MA's), (24, 30618), (41, 30729), (46, 30786), (61, 30921), (70, 31044), (81, 31176), (88, 31221), (89, 31230),

Gene: SirPhilip_39 Start: 29794, Stop: 30471, Start Num: 20

Candidate Starts for SirPhilip_39:

(Start: 20 @29794 has 71 MA's), (35, 29902), (41, 29947), (46, 30004), (54, 30067), (55, 30073), (61, 30139), (70, 30262), (84, 30421), (89, 30445), (90, 30448),

Gene: Slarp_89 Start: 54454, Stop: 55161, Start Num: 20

Candidate Starts for Slarp_89:

(Start: 20 @54454 has 71 MA's), (35, 54571), (39, 54616), (41, 54631), (45, 54667), (61, 54823), (70, 54946), (80, 55063), (82, 55090), (90, 55138),

Gene: Slimphazie_38 Start: 30543, Stop: 31229, Start Num: 19

Candidate Starts for Slimphazie_38:

(Start: 19 @30543 has 77 MA's), (41, 30696), (53, 30807), (61, 30888), (70, 31011), (79, 31122), (83, 31167), (88, 31185), (89, 31194),

Gene: SoSeph_90 Start: 58017, Stop: 58703, Start Num: 20

Candidate Starts for SoSeph_90:

(Start: 20 @58017 has 71 MA's), (35, 58125), (41, 58182), (47, 58233), (61, 58365), (70, 58488), (81, 58617), (87, 58656), (88, 58662), (89, 58671),

Gene: Spock_38 Start: 30661, Stop: 31347, Start Num: 19

Candidate Starts for Spock_38:

(Start: 19 @30661 has 77 MA's), (41, 30814), (53, 30925), (61, 31006), (70, 31129), (79, 31240), (83, 31285), (88, 31303), (89, 31312),

Gene: Stinson_39 Start: 30779, Stop: 31465, Start Num: 19

Candidate Starts for Stinson_39:

(Start: 19 @30779 has 77 MA's), (41, 30932), (53, 31043), (61, 31124), (70, 31247), (73, 31292), (83, 31403), (88, 31421), (89, 31430),

Gene: Strobilo_38 Start: 30316, Stop: 31020, Start Num: 20

Candidate Starts for Strobilo_38:

(Start: 20 @30316 has 71 MA's), (37, 30454), (61, 30706), (68, 30784), (69, 30811), (77, 30916),

Gene: Sulley_38 Start: 30509, Stop: 31198, Start Num: 19

Candidate Starts for Sulley_38:

(Start: 19 @30509 has 77 MA's), (24, 30551), (41, 30662), (46, 30719), (61, 30854), (70, 30977), (81, 31109), (88, 31154), (89, 31163),

Gene: Sunflower1121_41 Start: 30582, Stop: 31271, Start Num: 19

Candidate Starts for Sunflower1121_41:

(Start: 19 @30582 has 77 MA's), (41, 30738), (53, 30849), (61, 30930), (70, 31053), (79, 31164), (83, 31209), (88, 31227), (89, 31236),

Gene: Syra333_42 Start: 30508, Stop: 31197, Start Num: 19

Candidate Starts for Syra333_42:

(Start: 19 @30508 has 77 MA's), (41, 30664), (53, 30775), (61, 30856), (70, 30979), (79, 31090), (83, 31135), (88, 31153), (89, 31162),

Gene: TBond007_90 Start: 57419, Stop: 58108, Start Num: 22

Candidate Starts for TBond007_90:

(Start: 22 @57419 has 3 MA's), (41, 57572), (49, 57647), (53, 57683), (61, 57764), (70, 57887), (80, 58004), (82, 58031), (85, 58055), (90, 58079),

Gene: TM4_40 Start: 29985, Stop: 30689, Start Num: 20

Candidate Starts for TM4_40:

(Start: 20 @29985 has 71 MA's), (37, 30123), (61, 30375), (64, 30432), (66, 30438), (69, 30480), (77, 30585),

Gene: Tachez_38 Start: 30505, Stop: 31191, Start Num: 19

Candidate Starts for Tachez_38:

(Start: 19 @30505 has 77 MA's), (41, 30658), (53, 30769), (61, 30850), (70, 30973), (79, 31084), (83, 31129), (88, 31147), (89, 31156),

Gene: TaiwanKao_40 Start: 30506, Stop: 31195, Start Num: 19

Candidate Starts for TaiwanKao_40:

(Start: 19 @30506 has 77 MA's), (24, 30548), (41, 30659), (46, 30716), (61, 30851), (70, 30974), (81, 31106), (83, 31133), (88, 31151), (89, 31160),

Gene: Taquito_91 Start: 55520, Stop: 56227, Start Num: 20

Candidate Starts for Taquito_91:

(Start: 20 @55520 has 71 MA's), (35, 55637), (39, 55682), (41, 55697), (45, 55733), (48, 55763), (61, 55889), (70, 56012), (80, 56129), (82, 56156), (85, 56180), (90, 56204),

Gene: Tierra_40 Start: 31106, Stop: 31792, Start Num: 19

Candidate Starts for Tierra_40:

(Start: 19 @31106 has 77 MA's), (31, 31184), (41, 31259), (54, 31379), (61, 31451), (70, 31574), (89, 31757), (90, 31760),

Gene: TiniBug_38 Start: 30610, Stop: 31293, Start Num: 20

Candidate Starts for TiniBug_38:

(7, 30538), (8, 30541), (11, 30571), (Start: 20 @30610 has 71 MA's), (31, 30688), (35, 30718), (41, 30763), (44, 30796), (46, 30820), (54, 30883), (70, 31078), (83, 31231), (86, 31240), (89, 31258),

Gene: Tiri_39 Start: 30557, Stop: 31243, Start Num: 19

Candidate Starts for Tiri_39:

(Start: 19 @30557 has 77 MA's), (41, 30710), (53, 30821), (61, 30902), (70, 31025), (79, 31136), (83, 31181), (88, 31199), (89, 31208),

Gene: Topper_38 Start: 30661, Stop: 31347, Start Num: 19

Candidate Starts for Topper_38:

(Start: 19 @30661 has 77 MA's), (41, 30814), (53, 30925), (61, 31006), (70, 31129), (79, 31240), (83, 31285), (88, 31303), (89, 31312),

Gene: Torres_34 Start: 29822, Stop: 30511, Start Num: 20

Candidate Starts for Torres_34:

(Start: 20 @29822 has 71 MA's), (33, 29918), (35, 29930), (41, 29987), (61, 30170), (70, 30293), (84, 30452), (87, 30461), (88, 30467), (89, 30476),

Gene: TribbleTrouble_93 Start: 58789, Stop: 59472, Start Num: 19

Candidate Starts for TribbleTrouble_93:

(16, 58786), (Start: 19 @58789 has 77 MA's), (35, 58897), (41, 58945), (46, 59002), (53, 59056), (61, 59137), (70, 59260), (79, 59371), (83, 59416), (86, 59425), (88, 59434), (89, 59443),

Gene: TruffulaTree_38 Start: 30539, Stop: 31225, Start Num: 19

Candidate Starts for TruffulaTree_38:

(Start: 19 @30539 has 77 MA's), (41, 30692), (53, 30803), (61, 30884), (70, 31007), (79, 31118), (83, 31163), (88, 31181), (89, 31190),

Gene: Twitch_38 Start: 30663, Stop: 31349, Start Num: 19

Candidate Starts for Twitch_38:

(Start: 19 @30663 has 77 MA's), (41, 30816), (53, 30927), (61, 31008), (70, 31131), (79, 31242), (83, 31287), (88, 31305), (89, 31314),

Gene: Unicorn_39 Start: 30435, Stop: 31121, Start Num: 19

Candidate Starts for Unicorn_39:

(Start: 19 @30435 has 77 MA's), (31, 30513), (41, 30588), (54, 30708), (70, 30903), (84, 31062), (89, 31086), (90, 31089),

Gene: Urkel_38 Start: 30614, Stop: 31297, Start Num: 20

Candidate Starts for Urkel_38:

(7, 30542), (8, 30545), (11, 30575), (Start: 20 @30614 has 71 MA's), (31, 30692), (35, 30722), (41, 30767), (44, 30800), (46, 30824), (54, 30887), (70, 31082), (83, 31235), (86, 31244), (89, 31262),

Gene: Validus_41 Start: 30418, Stop: 31113, Start Num: 20

Candidate Starts for Validus_41:

(Start: 20 @30418 has 71 MA's), (30, 30493), (41, 30589), (51, 30670), (53, 30691), (58, 30724), (61, 30772), (70, 30895), (73, 30940), (81, 31024), (87, 31063), (88, 31069),

Gene: Veliki_38 Start: 30579, Stop: 31265, Start Num: 19

Candidate Starts for Veliki_38:

(Start: 19 @30579 has 77 MA's), (41, 30732), (53, 30843), (61, 30924), (70, 31047), (79, 31158), (83, 31203), (88, 31221), (89, 31230),

Gene: Waterfoul_88 Start: 56866, Stop: 57552, Start Num: 20

Candidate Starts for Waterfoul_88:

(Start: 20 @56866 has 71 MA's), (35, 56974), (41, 57031), (47, 57082), (61, 57214), (70, 57337), (81, 57466), (87, 57505), (88, 57511), (89, 57520),

Gene: Wintermute_91 Start: 55255, Stop: 55962, Start Num: 20

Candidate Starts for Wintermute_91:

(Start: 20 @55255 has 71 MA's), (35, 55372), (39, 55417), (41, 55432), (45, 55468), (61, 55624), (70, 55747), (80, 55864), (82, 55891), (90, 55939),

Gene: Ximenita_43 Start: 30693, Stop: 31382, Start Num: 19

Candidate Starts for Ximenita_43:

(Start: 19 @30693 has 77 MA's), (41, 30849), (53, 30960), (61, 31041), (70, 31164), (79, 31275), (83, 31320), (88, 31338), (89, 31347),

Gene: Y10_87 Start: 55199, Stop: 55906, Start Num: 20

Candidate Starts for Y10_87:

(Start: 20 @55199 has 71 MA's), (35, 55316), (39, 55361), (41, 55376), (45, 55412), (61, 55568), (70, 55691), (80, 55808), (82, 55835), (90, 55883),

Gene: Y2_87 Start: 55199, Stop: 55906, Start Num: 20

Candidate Starts for Y2_87:

(Start: 20 @55199 has 71 MA's), (35, 55316), (39, 55361), (41, 55376), (45, 55412), (61, 55568), (70, 55691), (80, 55808), (82, 55835), (90, 55883),

Gene: Yuna_42 Start: 31344, Stop: 32000, Start Num: 20

Candidate Starts for Yuna_42:

(Start: 20 @31344 has 71 MA's), (28, 31410), (35, 31452), (37, 31476), (41, 31509), (61, 31656), (63, 31704), (70, 31779), (73, 31824), (82, 31923), (85, 31947), (90, 31971),

Gene: Yunkel11_41 Start: 30309, Stop: 30995, Start Num: 19

Candidate Starts for Yunkel11_41:

(13, 30279), (Start: 19 @30309 has 77 MA's), (41, 30462), (49, 30537), (50, 30549), (53, 30573), (61, 30654), (70, 30777), (79, 30888), (83, 30933), (88, 30951), (89, 30960), (90, 30963),

Gene: Zeta1847_60 Start: 41648, Stop: 42310, Start Num: 27

Candidate Starts for Zeta1847_60:

(Start: 27 @41648 has 1 MA's), (29, 41663), (Start: 32 @41678 has 1 MA's),

Gene: ZoeJ_38 Start: 30003, Stop: 30707, Start Num: 20

Candidate Starts for ZoeJ_38:

(Start: 20 @30003 has 71 MA's), (37, 30141), (61, 30393), (64, 30450), (66, 30456), (69, 30498), (77, 30603),