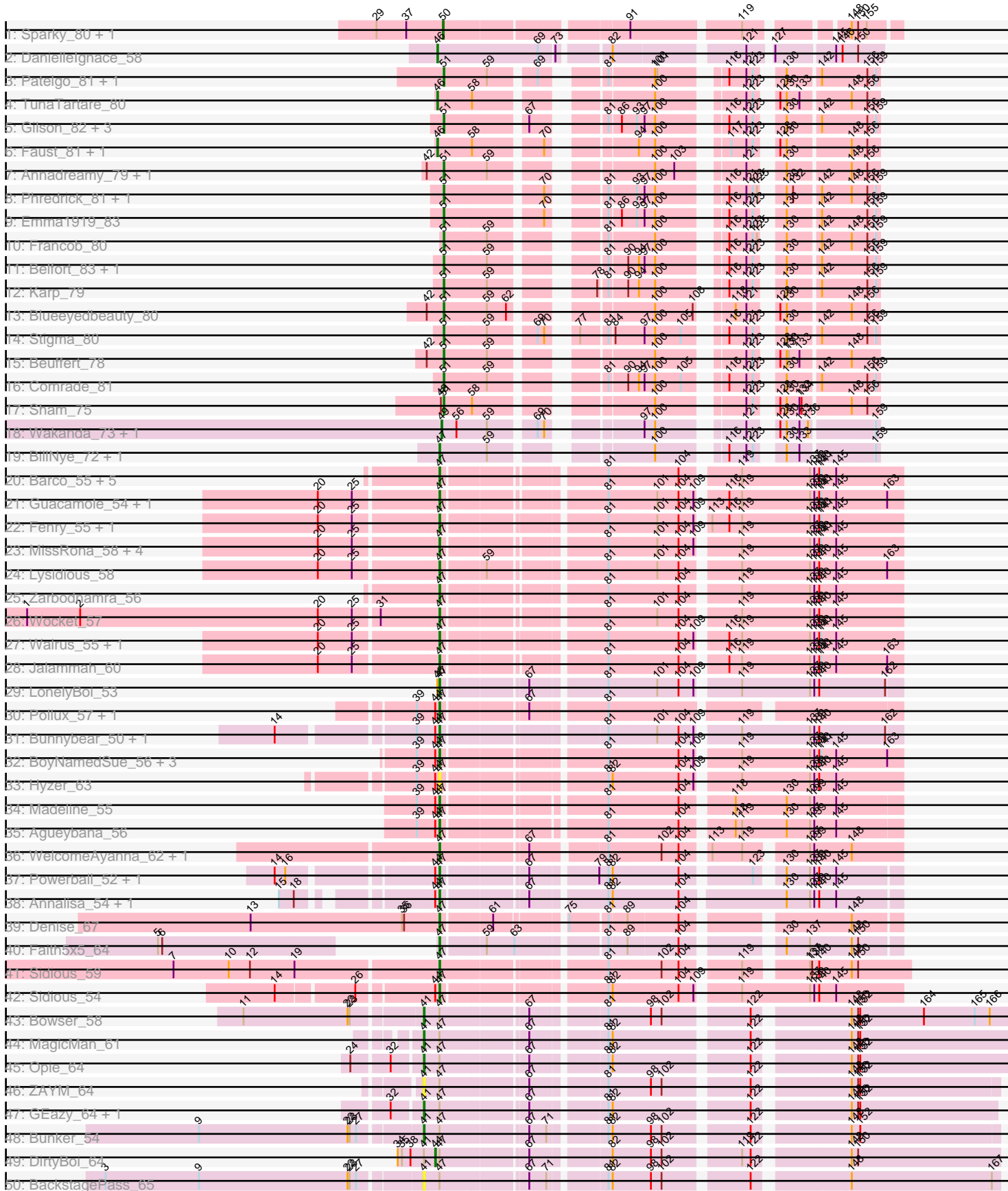
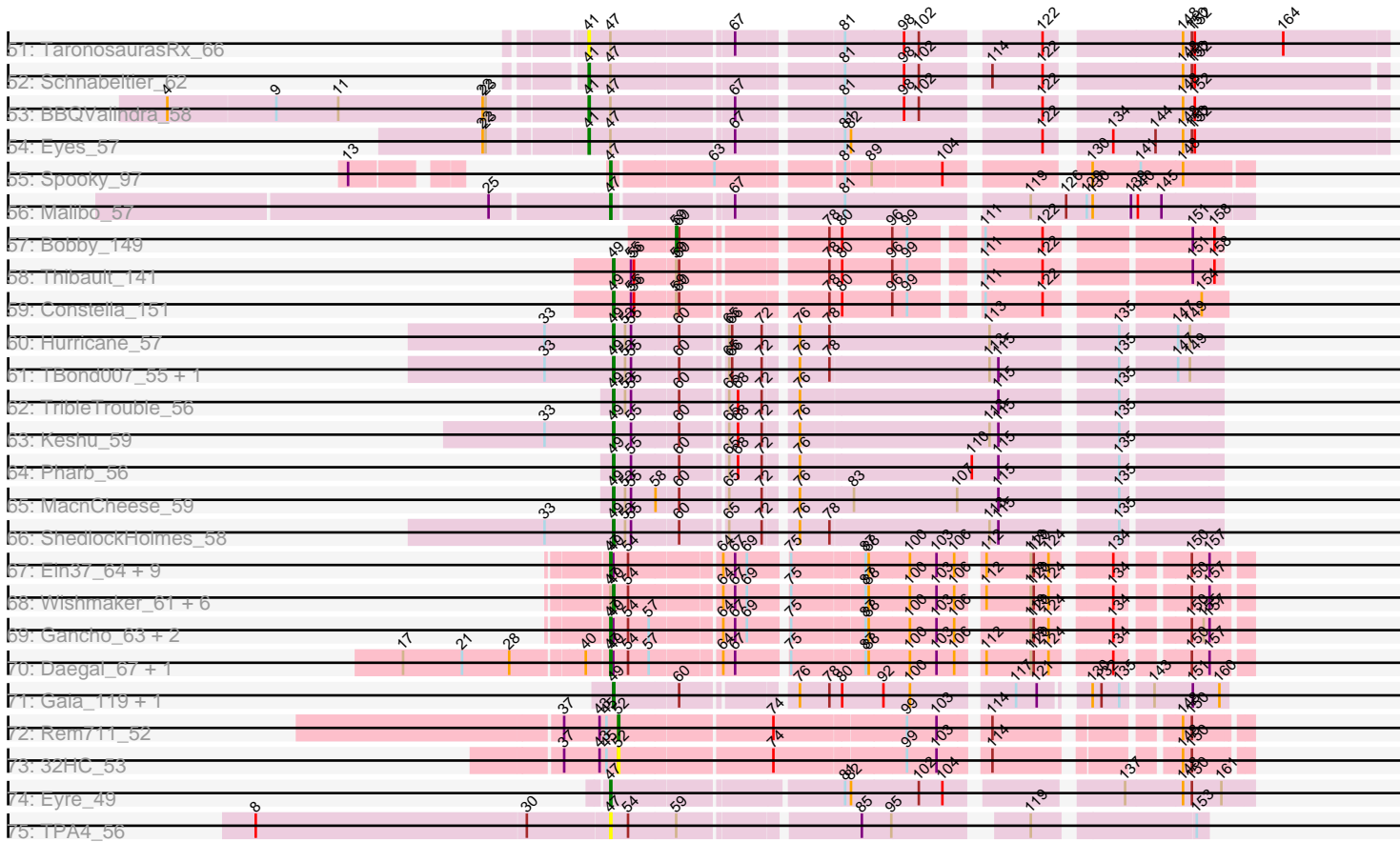


Pham 171292



Pham 171292



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 171292 Report

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

Pham number 171292 has 127 members, 9 are drafts.

Phages represented in each track:

- Track 1 : Sparky_80, Farewell_81
- Track 2 : DanielleIgnace_58
- Track 3 : Patelgo_81, Moab_81
- Track 4 : TunaTartare_80
- Track 5 : Gilson_82, Forrest_84, MeganTheeKilla_80, Jada_82
- Track 6 : Faust_81, SeresaTree_81
- Track 7 : Annadreamy_79, Limpid_78
- Track 8 : Phredrick_81, Kenrey_83
- Track 9 : Emma1919_83
- Track 10 : Francob_80
- Track 11 : Belfort_83, SparkleGoddess_81
- Track 12 : Karp_79
- Track 13 : Blueeyedbeauty_80
- Track 14 : Stigma_80
- Track 15 : Beuffert_78
- Track 16 : Comrade_81
- Track 17 : Sham_75
- Track 18 : Wakanda_73, Muntaha_74
- Track 19 : BillNye_72, Circinus_73
- Track 20 : Barco_55, Hitter_57, Delian_60, CaptainKirk2_57, MintFen_57, Samba_56
- Track 21 : Guacamole_54, JasperJr_54
- Track 22 : Fenry_55, Petra_53
- Track 23 : MissRona_58, Gambino_60, Mellie_55, Azula_58, Blueberry_57
- Track 24 : Lysidious_58
- Track 25 : Zarbodnamra_56
- Track 26 : Wocket_57
- Track 27 : Walrus_55, Pipp_59
- Track 28 : Jalammah_60
- Track 29 : LonelyBoi_53
- Track 30 : Pollux_57, Floral_55
- Track 31 : Bunnybear_50, Maridalia_58
- Track 32 : BoyNamedSue_56, Marteena_53, AlumE_56, EMSquaredA_54
- Track 33 : Hyzer_63
- Track 34 : Madeline_55
- Track 35 : Agueybana_56
- Track 36 : WelcomeAyanna_62, ThankyouJordi_62

- Track 37 : Powerball_52, PhriskyACE_51
- Track 38 : Annalisa_54, Oregano_55
- Track 39 : Denise_67
- Track 40 : Faith5x5_64
- Track 41 : Sidious_59
- Track 42 : Sidious_54
- Track 43 : Bowser_58
- Track 44 : MagicMan_61
- Track 45 : Opie_64
- Track 46 : ZAYM_64
- Track 47 : GEazy_64, HannahD_61
- Track 48 : Bunker_54
- Track 49 : DirtyBoi_64
- Track 50 : BackstagePass_65
- Track 51 : TaronosaurusRx_66
- Track 52 : Schnabeltier_62
- Track 53 : BBQValindra_58
- Track 54 : Eyes_57
- Track 55 : Spooky_97
- Track 56 : Malibo_57
- Track 57 : Bobby_149
- Track 58 : Thibault_141
- Track 59 : Constella_151
- Track 60 : Hurricane_57
- Track 61 : TBond007_55, Pixie_56
- Track 62 : TribbleTrouble_56
- Track 63 : Keshu_59
- Track 64 : Pharb_56
- Track 65 : MacnCheese_59
- Track 66 : ShedlockHolmes_58
- Track 67 : Ein37_64, HH92_63, Kinbote_63, DeepSoil15_64, Webster2_64, LilHazelnut_64, Giles_61, Dewey_61, Hadrien_63, Evanesce_63
- Track 68 : Wishmaker_61, Luna22_61, Luke_63, Hail_61, Ubuntu_64, Amymech_64, Forge_61
- Track 69 : Gancho_63, OBUpride_64, Gravaillia_62
- Track 70 : Daegal_67, Amochick_65
- Track 71 : Gaia_119, Nebkiss_120
- Track 72 : Rem711_52
- Track 73 : 32HC_53
- Track 74 : Eyre_49
- Track 75 : TPA4_56

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

The start number called the most often in the published annotations is 47, it was called in 60 of the 118 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Agueybana_56, AlumE_56, Amochick_65, Annalisa_54, Azula_58, Barco_55, BillNye_72, Blueberry_57, BoyNamedSue_56, Bunnybear_50, CaptainKirk2_57,

Circinus_73, Daegal_67, DeepSoil15_64, Delian_60, Denise_67, Dewey_61, EMSquaredA_54, Ein37_64, Evanesce_63, Eyre_49, Faith5x5_64, Fenry_55, Floral_55, Gambino_60, Gancho_63, Giles_61, Gravaillia_62, Guacamole_54, HH92_63, Hadrien_63, Hitter_57, Hyzer_63, Jalammah_60, JasperJr_54, Kinbote_63, LilHazelNut_64, LonelyBoi_53, Lysidious_58, Madeline_55, Malibo_57, Maridalia_58, Marteena_53, Mellie_55, MintFen_57, MissRona_58, OBUpride_64, Oregano_55, Petra_53, PhriskyACE_51, Pipp_59, Pollux_57, Powerball_52, Samba_56, Sidious_54, Sidious_59, Spooky_97, TPA4_56, ThankyouJordi_62, Walrus_55, Webster2_64, WelcomeAyanna_62, Wocket_57, Zarbodnamra_56,

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

- Amymech_64, BBQValindra_58, BackstagePass_65, Bowser_58, Bunker_54, DirtyBoi_64, Eyes_57, Forge_61, GEazy_64, Hail_61, HannahD_61, Luke_63, Luna22_61, MagicMan_61, Opie_64, Schnabeltier_62, TaronosaurusRx_66, Ubuntu_64, Wishmaker_61, ZAYM_64,

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

- 32HC_53, Annadreamy_79, Belfort_83, Beuffert_78, Blueeyedbeauty_80, Bobby_149, Comrade_81, Constella_151, DaniellIgnace_58, Emma1919_83, Farewell_81, Faust_81, Forrest_84, Francob_80, Gaia_119, Gilson_82, Hurricane_57, Jada_82, Karp_79, Kenrey_83, Keshu_59, Limpid_78, MacnCheese_59, MeganTheeKilla_80, Moab_81, Muntaha_74, Nebkiss_120, Patelgo_81, Pharb_56, Phredrick_81, Pixie_56, Rem711_52, SeresaTree_81, Sham_75, ShedlockHolmes_58, SparkleGoddess_81, Sparky_80, Stigma_80, TBond007_55, Thibault_141, TribbleTrouble_56, TunaTartare_80, Wakanda_73,

Summary by start number:

Start 41:

- Found in 13 of 127 (10.2%) of genes in pham
- Manual Annotations of this start: 9 of 118
- Called 92.3% of time when present
- Phage (with cluster) where this start called: BBQValindra_58 (DB), BackstagePass_65 (DB), Bowser_58 (DB), Bunker_54 (DB), Eyes_57 (DB), GEazy_64 (DB), HannahD_61 (DB), MagicMan_61 (DB), Opie_64 (DB), Schnabeltier_62 (DB), TaronosaurusRx_66 (DB), ZAYM_64 (DB),

Start 44:

- Found in 17 of 127 (13.4%) of genes in pham
- Manual Annotations of this start: 1 of 118
- Called 5.9% of time when present
- Phage (with cluster) where this start called: DirtyBoi_64 (DB),

Start 46:

- Found in 5 of 127 (3.9%) of genes in pham
- Manual Annotations of this start: 3 of 118
- Called 80.0% of time when present
- Phage (with cluster) where this start called: DaniellIgnace_58 (AT), Faust_81 (BK1), SeresaTree_81 (BK1), TunaTartare_80 (BK1),

Start 47:

- Found in 84 of 127 (66.1%) of genes in pham
- Manual Annotations of this start: 60 of 118

- Called 76.2% of time when present
- Phage (with cluster) where this start called: Agueybana_56 (CZ1), AlumE_56 (CZ1), Amochick_65 (Q), Annalisa_54 (CZ4), Azula_58 (CV), Barco_55 (CV), BillNye_72 (BK2), Blueberry_57 (CV), BoyNamedSue_56 (CZ1), Bunnybear_50 (CZ), CaptainKirk2_57 (CV), Circinus_73 (BK2), Daegal_67 (Q), DeepSoil15_64 (Q), Delian_60 (CV), Denise_67 (CZ5), Dewey_61 (Q), EMSquaredA_54 (CY1), Ein37_64 (Q), Evanesce_63 (Q), Eyre_49 (singleton), Faith5x5_64 (CZ6), Fenry_55 (CV), Floral_55 (CY1), Gambino_60 (CV), Gancho_63 (Q), Giles_61 (Q), Gravallia_62 (Q), Guacamole_54 (CV), HH92_63 (Q), Hadrien_63 (Q), Hitter_57 (CV), Hyzer_63 (CZ1), Jalammah_60 (CV), JasperJr_54 (CV), Kinbote_63 (Q), LilHazelnut_64 (Q), LonelyBoi_53 (CY), Lysidious_58 (CV), Madeline_55 (CZ1), Malibo_57 (DW), Maridalia_58 (CZ1), Marteenaa_53 (CY1), Mellie_55 (CV), MintFen_57 (CV), MissRona_58 (CV), OBUpride_64 (Q), Oregano_55 (CZ4), Petra_53 (CV), PhriskyACE_51 (CZ4), Pipp_59 (CV), Pollux_57 (CY1), Powerball_52 (CZ4), Samba_56 (CV), Sidious_54 (CZ7), Sidious_59 (CZ7), Spooky_97 (DN2), TPA4_56 (singleton), ThankyouJordi_62 (CZ1), Walrus_55 (CV), Webster2_64 (Q), WelcomeAyanna_62 (CZ1), Wocket_57 (CV), Zarbodnamra_56 (CV),

Start 49:

- Found in 36 of 127 (28.3%) of genes in pham
- Manual Annotations of this start: 21 of 118
- Called 58.3% of time when present
- Phage (with cluster) where this start called: Amymech_64 (Q), Constella_151 (J), Forge_61 (Q), Gaia_119 (X), Hail_61 (Q), Hurricane_57 (K3), Keshu_59 (K3), Luke_63 (Q), Luna22_61 (Q), MacnCheese_59 (K3), Muntaha_74 (BK2), Nebkiss_120 (X), Pharb_56 (K3), Pixie_56 (K3), ShedlockHolmes_58 (K3), TBond007_55 (K3), Thibault_141 (J), TripleTrouble_56 (K3), Ubuntu_64 (Q), Wakanda_73 (BK2), Wishmaker_61 (Q),

Start 50:

- Found in 2 of 127 (1.6%) of genes in pham
- Manual Annotations of this start: 2 of 118
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Farewell_81 (AF), Sparky_80 (AF),

Start 51:

- Found in 20 of 127 (15.7%) of genes in pham
- Manual Annotations of this start: 20 of 118
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Annadreamy_79 (BK1), Belfort_83 (BK1), Beuffert_78 (BK1), Blueeyedbeauty_80 (BK1), Comrade_81 (BK1), Emma1919_83 (BK1), Forrest_84 (BK1), Francob_80 (BK1), Gilson_82 (BK1), Jada_82 (BK1), Karp_79 (BK1), Kenrey_83 (BK1), Limpid_78 (BK1), MeganTheeKilla_80 (BK1), Moab_81 (BK1), Patelgo_81 (BK1), Phredrick_81 (BK1), Sham_75 (BK1), SparkleGoddess_81 (BK1), Stigma_80 (BK1),

Start 52:

- Found in 2 of 127 (1.6%) of genes in pham
- Manual Annotations of this start: 1 of 118
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 32HC_53 (Z), Rem711_52 (Z),

Start 59:

- Found in 22 of 127 (17.3%) of genes in pham
- Manual Annotations of this start: 1 of 118
- Called 4.5% of time when present
- Phage (with cluster) where this start called: Bobby_149 (J),

Summary by clusters:

There are 22 clusters represented in this pham: singleton, CZ1, CZ6, CZ7, CZ4, CZ5, K3, DW, DN2, CY1, AF, DB, J, Q, CZ, CY, BK1, BK2, X, Z, CV, AT,

Info for manual annotations of cluster AF:

- Start number 50 was manually annotated 2 times for cluster AF.

Info for manual annotations of cluster AT:

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

Info for manual annotations of cluster BK1:

- Start number 46 was manually annotated 2 times for cluster BK1.
- Start number 51 was manually annotated 20 times for cluster BK1.

Info for manual annotations of cluster BK2:

- Start number 47 was manually annotated 2 times for cluster BK2.
- Start number 49 was manually annotated 2 times for cluster BK2.

Info for manual annotations of cluster CV:

- Start number 47 was manually annotated 21 times for cluster CV.

Info for manual annotations of cluster CY:

- Start number 47 was manually annotated 1 time for cluster CY.

Info for manual annotations of cluster CY1:

- Start number 47 was manually annotated 4 times for cluster CY1.

Info for manual annotations of cluster CZ:

- Start number 47 was manually annotated 1 time for cluster CZ.

Info for manual annotations of cluster CZ1:

- Start number 47 was manually annotated 7 times for cluster CZ1.

Info for manual annotations of cluster CZ4:

- Start number 47 was manually annotated 2 times for cluster CZ4.

Info for manual annotations of cluster CZ5:

- Start number 47 was manually annotated 1 time for cluster CZ5.

Info for manual annotations of cluster CZ6:

- Start number 47 was manually annotated 1 time for cluster CZ6.

Info for manual annotations of cluster CZ7:

- Start number 47 was manually annotated 2 times for cluster CZ7.

Info for manual annotations of cluster DB:

- Start number 41 was manually annotated 9 times for cluster DB.

- Start number 44 was manually annotated 1 time for cluster DB.

Info for manual annotations of cluster DN2:

- Start number 47 was manually annotated 1 time for cluster DN2.

Info for manual annotations of cluster DW:

- Start number 47 was manually annotated 1 time for cluster DW.

Info for manual annotations of cluster J:

- Start number 49 was manually annotated 2 times for cluster J.
- Start number 59 was manually annotated 1 time for cluster J.

Info for manual annotations of cluster K3:

- Start number 49 was manually annotated 8 times for cluster K3.

Info for manual annotations of cluster Q:

- Start number 47 was manually annotated 15 times for cluster Q.
- Start number 49 was manually annotated 7 times for cluster Q.

Info for manual annotations of cluster X:

- Start number 49 was manually annotated 2 times for cluster X.

Info for manual annotations of cluster Z:

- Start number 52 was manually annotated 1 time for cluster Z.

Gene Information:

Gene: 32HC_53 Start: 36136, Stop: 36690, Start Num: 52

Candidate Starts for 32HC_53:

(37, 36082), (43, 36118), (45, 36124), (Start: 52 @36136 has 1 MA's), (74, 36283), (99, 36409), (103, 36439), (114, 36478), (148, 36631), (150, 36640),

Gene: Agueybana_56 Start: 39653, Stop: 40237, Start Num: 47

Candidate Starts for Agueybana_56:

(39, 39623), (Start: 44 @39647 has 1 MA's), (Start: 47 @39653 has 60 MA's), (81, 39854), (104, 39950), (118, 40013), (119, 40022), (130, 40085), (137, 40118), (139, 40121), (145, 40151),

Gene: AlumE_56 Start: 39435, Stop: 40025, Start Num: 47

Candidate Starts for AlumE_56:

(39, 39405), (Start: 44 @39429 has 1 MA's), (Start: 47 @39435 has 60 MA's), (81, 39639), (104, 39735), (109, 39756), (119, 39807), (137, 39903), (139, 39906), (140, 39912), (141, 39915), (145, 39936), (163, 40005),

Gene: Amochick_65 Start: 44443, Stop: 44997, Start Num: 47

Candidate Starts for Amochick_65:

(17, 44248), (21, 44308), (28, 44356), (40, 44422), (Start: 47 @44443 has 60 MA's), (Start: 49 @44446 has 21 MA's), (54, 44461), (57, 44482), (64, 44545), (67, 44557), (75, 44602), (87, 44671), (88, 44674), (100, 44713), (103, 44740), (106, 44758), (112, 44776), (119, 44821), (120, 44824), (124, 44839), (134, 44884), (150, 44944), (157, 44962),

Gene: Amymech_64 Start: 43962, Stop: 44513, Start Num: 49

Candidate Starts for Amymech_64:

(Start: 47 @43959 has 60 MA's), (Start: 49 @43962 has 21 MA's), (54, 43977), (64, 44061), (67, 44073), (69, 44085), (75, 44118), (87, 44187), (88, 44190), (100, 44229), (103, 44256), (106, 44274), (112, 44292), (119, 44337), (120, 44340), (124, 44355), (134, 44400), (150, 44460), (157, 44478),

Gene: Annadreamy_79 Start: 59408, Stop: 59899, Start Num: 51

Candidate Starts for Annadreamy_79:

(42, 59384), (Start: 51 @59408 has 20 MA's), (Start: 59 @59468 has 1 MA's), (100, 59648), (103, 59675), (121, 59744), (130, 59777), (148, 59861), (156, 59882),

Gene: Annalisa_54 Start: 35792, Stop: 36379, Start Num: 47

Candidate Starts for Annalisa_54:

(15, 35615), (18, 35636), (Start: 44 @35786 has 1 MA's), (Start: 47 @35792 has 60 MA's), (67, 35900), (81, 35996), (82, 36002), (104, 36092), (130, 36230), (137, 36263), (139, 36266), (140, 36272), (145, 36296),

Gene: Azula_58 Start: 39149, Stop: 39736, Start Num: 47

Candidate Starts for Azula_58:

(20, 38987), (25, 39035), (Start: 47 @39149 has 60 MA's), (81, 39350), (101, 39416), (104, 39446), (109, 39467), (119, 39518), (137, 39614), (139, 39617), (140, 39623), (141, 39626), (145, 39647),

Gene: BBQValindra_58 Start: 41020, Stop: 41751, Start Num: 41

Candidate Starts for BBQValindra_58:

(4, 40606), (9, 40714), (11, 40777), (22, 40924), (23, 40927), (Start: 41 @41020 has 9 MA's), (Start: 47 @41038 has 60 MA's), (67, 41152), (81, 41245), (98, 41302), (102, 41317), (122, 41425), (148, 41545), (152, 41557),

Gene: BackstagePass_65 Start: 40434, Stop: 41168, Start Num: 41

Candidate Starts for BackstagePass_65:

(3, 39999), (9, 40131), (22, 40341), (23, 40344), (27, 40353), (Start: 41 @40434 has 9 MA's), (Start: 47 @40452 has 60 MA's), (67, 40566), (71, 40590), (81, 40659), (82, 40665), (98, 40716), (102, 40731), (122, 40839), (148, 40959), (167, 41157),

Gene: Barco_55 Start: 36423, Stop: 37010, Start Num: 47

Candidate Starts for Barco_55:

(Start: 47 @36423 has 60 MA's), (81, 36624), (104, 36720), (119, 36792), (137, 36888), (139, 36891), (140, 36897), (141, 36900), (145, 36921),

Gene: Belfort_83 Start: 61237, Stop: 61725, Start Num: 51

Candidate Starts for Belfort_83:

(Start: 51 @61237 has 20 MA's), (Start: 59 @61297 has 1 MA's), (81, 61417), (90, 61441), (94, 61456), (97, 61462), (100, 61477), (116, 61549), (121, 61573), (123, 61582), (130, 61606), (142, 61648), (156, 61711), (159, 61720),

Gene: Beuffert_78 Start: 59970, Stop: 60461, Start Num: 51

Candidate Starts for Beuffert_78:

(42, 59946), (Start: 51 @59970 has 20 MA's), (Start: 59 @60030 has 1 MA's), (100, 60210), (121, 60306), (123, 60315), (128, 60330), (130, 60339), (131, 60342), (133, 60357), (148, 60423),

Gene: BillNye_72 Start: 61063, Stop: 61557, Start Num: 47

Candidate Starts for BillNye_72:

(Start: 47 @61063 has 60 MA's), (Start: 59 @61129 has 1 MA's), (100, 61309), (116, 61381), (121, 61405), (123, 61414), (130, 61438), (133, 61456), (159, 61552),

Gene: Blueberry_57 Start: 39149, Stop: 39736, Start Num: 47

Candidate Starts for Blueberry_57:

(20, 38987), (25, 39035), (Start: 47 @39149 has 60 MA's), (81, 39350), (101, 39416), (104, 39446), (109, 39467), (119, 39518), (137, 39614), (139, 39617), (140, 39623), (141, 39626), (145, 39647),

Gene: Blueeyedbeauty_80 Start: 59360, Stop: 59851, Start Num: 51

Candidate Starts for Blueeyedbeauty_80:

(42, 59336), (Start: 51 @59360 has 20 MA's), (Start: 59 @59420 has 1 MA's), (62, 59447), (100, 59600), (108, 59651), (118, 59681), (121, 59696), (128, 59720), (130, 59729), (148, 59813), (156, 59834),

Gene: Bobby_149 Start: 86590, Stop: 87060, Start Num: 59

Candidate Starts for Bobby_149:

(Start: 59 @86590 has 1 MA's), (60, 86593), (78, 86719), (80, 86731), (96, 86782), (99, 86797), (111, 86848), (122, 86905), (151, 87031), (158, 87052),

Gene: Bowser_58 Start: 40743, Stop: 41495, Start Num: 41

Candidate Starts for Bowser_58:

(11, 40503), (22, 40650), (23, 40653), (Start: 41 @40743 has 9 MA's), (Start: 47 @40761 has 60 MA's), (67, 40875), (81, 40968), (98, 41025), (102, 41040), (122, 41148), (148, 41268), (150, 41277), (152, 41280), (164, 41370), (165, 41442), (166, 41463),

Gene: BoyNamedSue_56 Start: 39435, Stop: 40025, Start Num: 47

Candidate Starts for BoyNamedSue_56:

(39, 39405), (Start: 44 @39429 has 1 MA's), (Start: 47 @39435 has 60 MA's), (81, 39639), (104, 39735), (109, 39756), (119, 39807), (137, 39903), (139, 39906), (140, 39912), (141, 39915), (145, 39936), (163, 40005),

Gene: Bunker_54 Start: 39327, Stop: 40058, Start Num: 41

Candidate Starts for Bunker_54:

(9, 39024), (22, 39234), (23, 39237), (27, 39246), (Start: 41 @39327 has 9 MA's), (Start: 47 @39345 has 60 MA's), (67, 39459), (71, 39483), (81, 39552), (82, 39558), (98, 39609), (102, 39624), (122, 39732), (148, 39852), (152, 39864),

Gene: Bunnybear_50 Start: 37443, Stop: 38027, Start Num: 47

Candidate Starts for Bunnybear_50:

(14, 37239), (39, 37413), (Start: 44 @37437 has 1 MA's), (Start: 47 @37443 has 60 MA's), (81, 37644), (101, 37710), (104, 37740), (109, 37761), (119, 37812), (137, 37908), (139, 37911), (140, 37917), (162, 38007),

Gene: CaptainKirk2_57 Start: 36662, Stop: 37249, Start Num: 47

Candidate Starts for CaptainKirk2_57:

(Start: 47 @36662 has 60 MA's), (81, 36863), (104, 36959), (119, 37031), (137, 37127), (139, 37130), (140, 37136), (141, 37139), (145, 37160),

Gene: Circinus_73 Start: 61050, Stop: 61544, Start Num: 47

Candidate Starts for Circinus_73:

(Start: 47 @61050 has 60 MA's), (Start: 59 @61116 has 1 MA's), (100, 61296), (116, 61368), (121, 61392), (123, 61401), (130, 61425), (133, 61443), (159, 61539),

Gene: Comrade_81 Start: 60853, Stop: 61341, Start Num: 51

Candidate Starts for Comrade_81:

(Start: 51 @60853 has 20 MA's), (Start: 59 @60913 has 1 MA's), (81, 61033), (90, 61057), (94, 61072), (97, 61078), (100, 61093), (105, 61129), (116, 61165), (121, 61189), (123, 61198), (130, 61222), (142, 61264), (156, 61327), (159, 61336),

Gene: Constella_151 Start: 83218, Stop: 83754, Start Num: 49

Candidate Starts for Constella_151:

(Start: 49 @83218 has 21 MA's), (55, 83236), (56, 83239), (Start: 59 @83278 has 1 MA's), (60, 83281), (78, 83407), (80, 83419), (96, 83470), (99, 83485), (111, 83536), (122, 83593), (154, 83728),

Gene: Daegal_67 Start: 45005, Stop: 45559, Start Num: 47

Candidate Starts for Daegal_67:

(17, 44810), (21, 44870), (28, 44918), (40, 44984), (Start: 47 @45005 has 60 MA's), (Start: 49 @45008 has 21 MA's), (54, 45023), (57, 45044), (64, 45107), (67, 45119), (75, 45164), (87, 45233), (88, 45236), (100, 45275), (103, 45302), (106, 45320), (112, 45338), (119, 45383), (120, 45386), (124, 45401), (134, 45446), (150, 45506), (157, 45524),

Gene: DanielleIgnace_58 Start: 38690, Stop: 39253, Start Num: 46

Candidate Starts for DanielleIgnace_58:

(Start: 46 @38690 has 3 MA's), (69, 38831), (73, 38852), (82, 38915), (121, 39083), (127, 39110), (145, 39188), (146, 39197), (150, 39218),

Gene: DeepSoil15_64 Start: 43959, Stop: 44513, Start Num: 47

Candidate Starts for DeepSoil15_64:

(Start: 47 @43959 has 60 MA's), (Start: 49 @43962 has 21 MA's), (54, 43977), (64, 44061), (67, 44073), (69, 44085), (75, 44118), (87, 44187), (88, 44190), (100, 44229), (103, 44256), (106, 44274), (112, 44292), (119, 44337), (120, 44340), (124, 44355), (134, 44400), (150, 44460), (157, 44478),

Gene: Delian_60 Start: 36660, Stop: 37247, Start Num: 47

Candidate Starts for Delian_60:

(Start: 47 @36660 has 60 MA's), (81, 36861), (104, 36957), (119, 37029), (137, 37125), (139, 37128), (140, 37134), (141, 37137), (145, 37158),

Gene: Denise_67 Start: 40135, Stop: 40689, Start Num: 47

Candidate Starts for Denise_67:

(13, 39871), (35, 40084), (36, 40087), (Start: 47 @40135 has 60 MA's), (61, 40201), (75, 40285), (81, 40333), (89, 40357), (104, 40423), (148, 40627),

Gene: Dewey_61 Start: 43959, Stop: 44513, Start Num: 47

Candidate Starts for Dewey_61:

(Start: 47 @43959 has 60 MA's), (Start: 49 @43962 has 21 MA's), (54, 43977), (64, 44061), (67, 44073), (69, 44085), (75, 44118), (87, 44187), (88, 44190), (100, 44229), (103, 44256), (106, 44274), (112, 44292), (119, 44337), (120, 44340), (124, 44355), (134, 44400), (150, 44460), (157, 44478),

Gene: DirtyBoi_64 Start: 41042, Stop: 41764, Start Num: 44

Candidate Starts for DirtyBoi_64:

(34, 40991), (35, 40997), (38, 41009), (Start: 41 @41027 has 9 MA's), (Start: 44 @41042 has 1 MA's), (Start: 47 @41048 has 60 MA's), (67, 41162), (82, 41261), (98, 41312), (102, 41327), (119, 41423), (122, 41435), (148, 41555), (150, 41564),

Gene: EMsquaredA_54 Start: 38610, Stop: 39200, Start Num: 47

Candidate Starts for EMsquaredA_54:

(39, 38580), (Start: 44 @38604 has 1 MA's), (Start: 47 @38610 has 60 MA's), (81, 38814), (104, 38910), (109, 38931), (119, 38982), (137, 39078), (139, 39081), (140, 39087), (141, 39090), (145,

39111), (163, 39180),

Gene: Ein37_64 Start: 43959, Stop: 44513, Start Num: 47

Candidate Starts for Ein37_64:

(Start: 47 @43959 has 60 MA's), (Start: 49 @43962 has 21 MA's), (54, 43977), (64, 44061), (67, 44073), (69, 44085), (75, 44118), (87, 44187), (88, 44190), (100, 44229), (103, 44256), (106, 44274), (112, 44292), (119, 44337), (120, 44340), (124, 44355), (134, 44400), (150, 44460), (157, 44478),

Gene: Emma1919_83 Start: 59575, Stop: 60063, Start Num: 51

Candidate Starts for Emma1919_83:

(Start: 51 @59575 has 20 MA's), (70, 59701), (81, 59755), (86, 59770), (93, 59791), (97, 59800), (100, 59815), (116, 59887), (121, 59911), (123, 59920), (130, 59944), (142, 59986), (156, 60049), (159, 60058),

Gene: Evanesce_63 Start: 43959, Stop: 44513, Start Num: 47

Candidate Starts for Evanesce_63:

(Start: 47 @43959 has 60 MA's), (Start: 49 @43962 has 21 MA's), (54, 43977), (64, 44061), (67, 44073), (69, 44085), (75, 44118), (87, 44187), (88, 44190), (100, 44229), (103, 44256), (106, 44274), (112, 44292), (119, 44337), (120, 44340), (124, 44355), (134, 44400), (150, 44460), (157, 44478),

Gene: Eyes_57 Start: 40795, Stop: 41526, Start Num: 41

Candidate Starts for Eyes_57:

(22, 40702), (23, 40705), (Start: 41 @40795 has 9 MA's), (Start: 47 @40813 has 60 MA's), (67, 40927), (81, 41020), (82, 41026), (122, 41200), (134, 41251), (144, 41293), (148, 41320), (150, 41329), (152, 41332),

Gene: Eyre_49 Start: 34637, Stop: 35221, Start Num: 47

Candidate Starts for Eyre_49:

(Start: 47 @34637 has 60 MA's), (81, 34853), (82, 34859), (102, 34925), (104, 34949), (137, 35096), (148, 35153), (150, 35162), (161, 35192),

Gene: Faith5x5_64 Start: 38441, Stop: 39004, Start Num: 47

Candidate Starts for Faith5x5_64:

(5, 38189), (6, 38195), (Start: 47 @38441 has 60 MA's), (Start: 59 @38498 has 1 MA's), (63, 38537), (81, 38648), (89, 38672), (104, 38738), (130, 38852), (137, 38885), (148, 38942), (150, 38951),

Gene: Farewell_81 Start: 52822, Stop: 53370, Start Num: 50

Candidate Starts for Farewell_81:

(29, 52732), (37, 52771), (Start: 50 @52822 has 2 MA's), (91, 53056), (119, 53191), (148, 53308), (150, 53317), (155, 53329),

Gene: Faust_81 Start: 60777, Stop: 61277, Start Num: 46

Candidate Starts for Faust_81:

(Start: 46 @60777 has 3 MA's), (58, 60825), (70, 60912), (94, 61005), (100, 61026), (117, 61101), (121, 61122), (123, 61131), (128, 61146), (130, 61155), (148, 61239), (156, 61260),

Gene: Fenry_55 Start: 38167, Stop: 38757, Start Num: 47

Candidate Starts for Fenry_55:

(20, 38005), (25, 38053), (Start: 47 @38167 has 60 MA's), (81, 38371), (101, 38437), (104, 38467), (109, 38488), (113, 38497), (116, 38521), (119, 38539), (137, 38635), (139, 38638), (140, 38644), (141, 38647), (145, 38668),

Gene: Floral_55 Start: 40516, Stop: 41088, Start Num: 47

Candidate Starts for Floral_55:

(39, 40486), (Start: 44 @40510 has 1 MA's), (Start: 47 @40516 has 60 MA's), (67, 40624), (81, 40720),

Gene: Forge_61 Start: 43962, Stop: 44513, Start Num: 49

Candidate Starts for Forge_61:

(Start: 47 @43959 has 60 MA's), (Start: 49 @43962 has 21 MA's), (54, 43977), (64, 44061), (67, 44073), (69, 44085), (75, 44118), (87, 44187), (88, 44190), (100, 44229), (103, 44256), (106, 44274), (112, 44292), (119, 44337), (120, 44340), (124, 44355), (134, 44400), (150, 44460), (157, 44478),

Gene: Forrest_84 Start: 60868, Stop: 61356, Start Num: 51

Candidate Starts for Forrest_84:

(Start: 51 @60868 has 20 MA's), (67, 60973), (81, 61048), (86, 61063), (93, 61084), (97, 61093), (100, 61108), (116, 61180), (121, 61204), (123, 61213), (130, 61237), (142, 61279), (156, 61342), (159, 61351),

Gene: Francob_80 Start: 59594, Stop: 60082, Start Num: 51

Candidate Starts for Francob_80:

(Start: 51 @59594 has 20 MA's), (Start: 59 @59654 has 1 MA's), (81, 59774), (100, 59834), (116, 59906), (121, 59930), (123, 59939), (125, 59945), (130, 59963), (142, 60005), (148, 60047), (156, 60068), (159, 60077),

Gene: GEazy_64 Start: 40986, Stop: 41714, Start Num: 41

Candidate Starts for GEazy_64:

(32, 40947), (Start: 41 @40986 has 9 MA's), (Start: 47 @41004 has 60 MA's), (67, 41118), (81, 41211), (82, 41217), (122, 41391), (148, 41511), (150, 41520), (152, 41523),

Gene: Gaia_119 Start: 67024, Stop: 67569, Start Num: 49

Candidate Starts for Gaia_119:

(Start: 49 @67024 has 21 MA's), (60, 67087), (76, 67183), (78, 67213), (80, 67225), (92, 67267), (100, 67294), (117, 67387), (121, 67408), (130, 67441), (132, 67450), (135, 67468), (143, 67495), (151, 67534), (160, 67561),

Gene: Gambino_60 Start: 39149, Stop: 39736, Start Num: 47

Candidate Starts for Gambino_60:

(20, 38987), (25, 39035), (Start: 47 @39149 has 60 MA's), (81, 39350), (101, 39416), (104, 39446), (109, 39467), (119, 39518), (137, 39614), (139, 39617), (140, 39623), (141, 39626), (145, 39647),

Gene: Gancho_63 Start: 43686, Stop: 44240, Start Num: 47

Candidate Starts for Gancho_63:

(Start: 47 @43686 has 60 MA's), (Start: 49 @43689 has 21 MA's), (54, 43704), (57, 43725), (64, 43788), (67, 43800), (69, 43812), (75, 43845), (87, 43914), (88, 43917), (100, 43956), (103, 43983), (106, 44001), (119, 44064), (120, 44067), (124, 44082), (134, 44127), (150, 44187), (155, 44199), (157, 44205),

Gene: Giles_61 Start: 43959, Stop: 44513, Start Num: 47

Candidate Starts for Giles_61:

(Start: 47 @43959 has 60 MA's), (Start: 49 @43962 has 21 MA's), (54, 43977), (64, 44061), (67, 44073), (69, 44085), (75, 44118), (87, 44187), (88, 44190), (100, 44229), (103, 44256), (106, 44274), (112, 44292), (119, 44337), (120, 44340), (124, 44355), (134, 44400), (150, 44460), (157, 44478),

Gene: Gilson_82 Start: 59537, Stop: 60025, Start Num: 51

Candidate Starts for Gilson_82:

(Start: 51 @59537 has 20 MA's), (67, 59642), (81, 59717), (86, 59732), (93, 59753), (97, 59762), (100, 59777), (116, 59849), (121, 59873), (123, 59882), (130, 59906), (142, 59948), (156, 60011), (159, 60020),

Gene: Gravaillia_62 Start: 43967, Stop: 44521, Start Num: 47

Candidate Starts for Gravaillia_62:

(Start: 47 @43967 has 60 MA's), (Start: 49 @43970 has 21 MA's), (54, 43985), (57, 44006), (64, 44069), (67, 44081), (69, 44093), (75, 44126), (87, 44195), (88, 44198), (100, 44237), (103, 44264), (106, 44282), (119, 44345), (120, 44348), (124, 44363), (134, 44408), (150, 44468), (155, 44480), (157, 44486),

Gene: Guacamole_54 Start: 36889, Stop: 37476, Start Num: 47

Candidate Starts for Guacamole_54:

(20, 36727), (25, 36775), (Start: 47 @36889 has 60 MA's), (81, 37090), (101, 37156), (104, 37186), (109, 37207), (116, 37240), (119, 37258), (137, 37354), (139, 37357), (140, 37363), (141, 37366), (145, 37387), (163, 37456),

Gene: HH92_63 Start: 43959, Stop: 44513, Start Num: 47

Candidate Starts for HH92_63:

(Start: 47 @43959 has 60 MA's), (Start: 49 @43962 has 21 MA's), (54, 43977), (64, 44061), (67, 44073), (69, 44085), (75, 44118), (87, 44187), (88, 44190), (100, 44229), (103, 44256), (106, 44274), (112, 44292), (119, 44337), (120, 44340), (124, 44355), (134, 44400), (150, 44460), (157, 44478),

Gene: Hadrien_63 Start: 43959, Stop: 44513, Start Num: 47

Candidate Starts for Hadrien_63:

(Start: 47 @43959 has 60 MA's), (Start: 49 @43962 has 21 MA's), (54, 43977), (64, 44061), (67, 44073), (69, 44085), (75, 44118), (87, 44187), (88, 44190), (100, 44229), (103, 44256), (106, 44274), (112, 44292), (119, 44337), (120, 44340), (124, 44355), (134, 44400), (150, 44460), (157, 44478),

Gene: Hail_61 Start: 43962, Stop: 44513, Start Num: 49

Candidate Starts for Hail_61:

(Start: 47 @43959 has 60 MA's), (Start: 49 @43962 has 21 MA's), (54, 43977), (64, 44061), (67, 44073), (69, 44085), (75, 44118), (87, 44187), (88, 44190), (100, 44229), (103, 44256), (106, 44274), (112, 44292), (119, 44337), (120, 44340), (124, 44355), (134, 44400), (150, 44460), (157, 44478),

Gene: HannahD_61 Start: 40353, Stop: 41081, Start Num: 41

Candidate Starts for HannahD_61:

(32, 40314), (Start: 41 @40353 has 9 MA's), (Start: 47 @40371 has 60 MA's), (67, 40485), (81, 40578), (82, 40584), (122, 40758), (148, 40878), (150, 40887), (152, 40890),

Gene: Hitter_57 Start: 36465, Stop: 37052, Start Num: 47

Candidate Starts for Hitter_57:

(Start: 47 @36465 has 60 MA's), (81, 36666), (104, 36762), (119, 36834), (137, 36930), (139, 36933), (140, 36939), (141, 36942), (145, 36963),

Gene: Hurricane_57 Start: 40251, Stop: 40808, Start Num: 49

Candidate Starts for Hurricane_57:

(33, 40182), (Start: 49 @40251 has 21 MA's), (53, 40263), (55, 40269), (60, 40314), (65, 40353), (66, 40356), (72, 40386), (76, 40410), (78, 40440), (113, 40599), (135, 40713), (147, 40764), (149, 40776),

Gene: Hyzer_63 Start: 42350, Stop: 42940, Start Num: 47

Candidate Starts for Hyzer_63:

(39, 42320), (Start: 44 @42344 has 1 MA's), (Start: 47 @42350 has 60 MA's), (81, 42554), (82, 42560), (104, 42650), (109, 42671), (119, 42722), (137, 42818), (139, 42821), (140, 42827), (145, 42851),

Gene: Jada_82 Start: 60050, Stop: 60538, Start Num: 51

Candidate Starts for Jada_82:

(Start: 51 @60050 has 20 MA's), (67, 60155), (81, 60230), (86, 60245), (93, 60266), (97, 60275), (100, 60290), (116, 60362), (121, 60386), (123, 60395), (130, 60419), (142, 60461), (156, 60524), (159, 60533),

Gene: Jalammah_60 Start: 39468, Stop: 40055, Start Num: 47

Candidate Starts for Jalammah_60:

(20, 39306), (25, 39354), (Start: 47 @39468 has 60 MA's), (81, 39669), (104, 39765), (116, 39819), (119, 39837), (137, 39933), (139, 39936), (140, 39942), (141, 39945), (145, 39966), (163, 40035),

Gene: JasperJr_54 Start: 36889, Stop: 37476, Start Num: 47

Candidate Starts for JasperJr_54:

(20, 36727), (25, 36775), (Start: 47 @36889 has 60 MA's), (81, 37090), (101, 37156), (104, 37186), (109, 37207), (116, 37240), (119, 37258), (137, 37354), (139, 37357), (140, 37363), (141, 37366), (145, 37387), (163, 37456),

Gene: Karp_79 Start: 60446, Stop: 60934, Start Num: 51

Candidate Starts for Karp_79:

(Start: 51 @60446 has 20 MA's), (Start: 59 @60506 has 1 MA's), (78, 60617), (81, 60626), (90, 60650), (94, 60665), (100, 60686), (116, 60758), (121, 60782), (123, 60791), (130, 60815), (142, 60857), (156, 60920), (159, 60929),

Gene: Kenrey_83 Start: 59731, Stop: 60219, Start Num: 51

Candidate Starts for Kenrey_83:

(Start: 51 @59731 has 20 MA's), (70, 59857), (81, 59911), (93, 59947), (97, 59956), (100, 59971), (116, 60043), (121, 60067), (123, 60076), (125, 60082), (130, 60100), (132, 60109), (142, 60142), (148, 60184), (156, 60205), (159, 60214),

Gene: Keshu_59 Start: 40349, Stop: 40906, Start Num: 49

Candidate Starts for Keshu_59:

(33, 40280), (Start: 49 @40349 has 21 MA's), (55, 40367), (60, 40412), (65, 40451), (68, 40460), (72, 40484), (76, 40508), (113, 40697), (115, 40706), (135, 40811),

Gene: Kinbote_63 Start: 43959, Stop: 44513, Start Num: 47

Candidate Starts for Kinbote_63:

(Start: 47 @43959 has 60 MA's), (Start: 49 @43962 has 21 MA's), (54, 43977), (64, 44061), (67, 44073), (69, 44085), (75, 44118), (87, 44187), (88, 44190), (100, 44229), (103, 44256), (106, 44274), (112, 44292), (119, 44337), (120, 44340), (124, 44355), (134, 44400), (150, 44460), (157, 44478),

Gene: LilHazelNut_64 Start: 43959, Stop: 44513, Start Num: 47

Candidate Starts for LilHazelNut_64:

(Start: 47 @43959 has 60 MA's), (Start: 49 @43962 has 21 MA's), (54, 43977), (64, 44061), (67, 44073), (69, 44085), (75, 44118), (87, 44187), (88, 44190), (100, 44229), (103, 44256), (106, 44274), (112, 44292), (119, 44337), (120, 44340), (124, 44355), (134, 44400), (150, 44460), (157, 44478),

Gene: Limpid_78 Start: 59407, Stop: 59898, Start Num: 51

Candidate Starts for Limpid_78:

(42, 59383), (Start: 51 @59407 has 20 MA's), (Start: 59 @59467 has 1 MA's), (100, 59647), (103, 59674), (121, 59743), (130, 59776), (148, 59860), (156, 59881),

Gene: LonelyBoi_53 Start: 40470, Stop: 41057, Start Num: 47

Candidate Starts for LonelyBoi_53:

(Start: 46 @40467 has 3 MA's), (Start: 47 @40470 has 60 MA's), (67, 40578), (81, 40674), (101, 40740), (104, 40770), (109, 40791), (119, 40842), (137, 40938), (139, 40941), (140, 40947), (162, 41037),

Gene: Luke_63 Start: 43917, Stop: 44468, Start Num: 49

Candidate Starts for Luke_63:

(Start: 47 @43914 has 60 MA's), (Start: 49 @43917 has 21 MA's), (54, 43932), (64, 44016), (67, 44028), (69, 44040), (75, 44073), (87, 44142), (88, 44145), (100, 44184), (103, 44211), (106, 44229), (112, 44247), (119, 44292), (120, 44295), (124, 44310), (134, 44355), (150, 44415), (157, 44433),

Gene: Luna22_61 Start: 43946, Stop: 44497, Start Num: 49

Candidate Starts for Luna22_61:

(Start: 47 @43943 has 60 MA's), (Start: 49 @43946 has 21 MA's), (54, 43961), (64, 44045), (67, 44057), (69, 44069), (75, 44102), (87, 44171), (88, 44174), (100, 44213), (103, 44240), (106, 44258), (112, 44276), (119, 44321), (120, 44324), (124, 44339), (134, 44384), (150, 44444), (157, 44462),

Gene: Lysidious_58 Start: 38835, Stop: 39422, Start Num: 47

Candidate Starts for Lysidious_58:

(20, 38673), (25, 38721), (Start: 47 @38835 has 60 MA's), (Start: 59 @38892 has 1 MA's), (81, 39036), (101, 39102), (104, 39132), (119, 39204), (137, 39300), (139, 39303), (140, 39309), (145, 39333), (163, 39402),

Gene: MacnCheese_59 Start: 40831, Stop: 41388, Start Num: 49

Candidate Starts for MacnCheese_59:

(Start: 49 @40831 has 21 MA's), (53, 40843), (55, 40849), (58, 40873), (60, 40894), (65, 40933), (72, 40966), (76, 40990), (83, 41041), (107, 41146), (115, 41188), (135, 41293),

Gene: Madeline_55 Start: 39843, Stop: 40427, Start Num: 47

Candidate Starts for Madeline_55:

(39, 39813), (Start: 44 @39837 has 1 MA's), (Start: 47 @39843 has 60 MA's), (81, 40044), (104, 40140), (118, 40203), (130, 40275), (137, 40308), (139, 40311), (145, 40341),

Gene: MagicMan_61 Start: 41953, Stop: 42714, Start Num: 41

Candidate Starts for MagicMan_61:

(Start: 41 @41953 has 9 MA's), (Start: 47 @41971 has 60 MA's), (67, 42085), (81, 42178), (82, 42184), (122, 42358), (148, 42478), (150, 42487), (152, 42490),

Gene: Malibo_57 Start: 39555, Stop: 40142, Start Num: 47

Candidate Starts for Malibo_57:

(25, 39441), (Start: 47 @39555 has 60 MA's), (67, 39663), (81, 39759), (119, 39927), (126, 39963), (129, 39984), (130, 39990), (139, 40026), (140, 40032), (145, 40056),

Gene: Maridalia_58 Start: 39189, Stop: 39773, Start Num: 47

Candidate Starts for Maridalia_58:

(14, 38985), (39, 39159), (Start: 44 @39183 has 1 MA's), (Start: 47 @39189 has 60 MA's), (81, 39390), (101, 39456), (104, 39486), (109, 39507), (119, 39558), (137, 39654), (139, 39657), (140, 39663), (162, 39753),

Gene: Marteena_53 Start: 38610, Stop: 39200, Start Num: 47

Candidate Starts for Marteena_53:

(39, 38580), (Start: 44 @38604 has 1 MA's), (Start: 47 @38610 has 60 MA's), (81, 38814), (104, 38910), (109, 38931), (119, 38982), (137, 39078), (139, 39081), (140, 39087), (141, 39090), (145, 39111), (163, 39180),

Gene: MeganTheeKilla_80 Start: 58898, Stop: 59386, Start Num: 51

Candidate Starts for MeganTheeKilla_80:

(Start: 51 @58898 has 20 MA's), (67, 59003), (81, 59078), (86, 59093), (93, 59114), (97, 59123), (100, 59138), (116, 59210), (121, 59234), (123, 59243), (130, 59267), (142, 59309), (156, 59372), (159, 59381),

Gene: Mellie_55 Start: 36842, Stop: 37432, Start Num: 47

Candidate Starts for Mellie_55:

(20, 36680), (25, 36728), (Start: 47 @36842 has 60 MA's), (81, 37046), (101, 37112), (104, 37142), (109, 37163), (119, 37214), (137, 37310), (139, 37313), (140, 37319), (141, 37322), (145, 37343),

Gene: MintFen_57 Start: 37276, Stop: 37863, Start Num: 47

Candidate Starts for MintFen_57:

(Start: 47 @37276 has 60 MA's), (81, 37477), (104, 37573), (119, 37645), (137, 37741), (139, 37744), (140, 37750), (141, 37753), (145, 37774),

Gene: MissRona_58 Start: 39150, Stop: 39737, Start Num: 47

Candidate Starts for MissRona_58:

(20, 38988), (25, 39036), (Start: 47 @39150 has 60 MA's), (81, 39351), (101, 39417), (104, 39447), (109, 39468), (119, 39519), (137, 39615), (139, 39618), (140, 39624), (141, 39627), (145, 39648),

Gene: Moab_81 Start: 60787, Stop: 61275, Start Num: 51

Candidate Starts for Moab_81:

(Start: 51 @60787 has 20 MA's), (Start: 59 @60847 has 1 MA's), (69, 60904), (81, 60967), (100, 61027), (101, 61030), (116, 61099), (121, 61123), (123, 61132), (130, 61156), (142, 61198), (156, 61261), (159, 61270),

Gene: Muntaha_74 Start: 59541, Stop: 60032, Start Num: 49

Candidate Starts for Muntaha_74:

(Start: 49 @59541 has 21 MA's), (56, 59562), (Start: 59 @59604 has 1 MA's), (69, 59661), (70, 59670), (97, 59769), (100, 59784), (121, 59880), (128, 59904), (130, 59913), (133, 59931), (136, 59943), (159, 60027),

Gene: Nebkiss_120 Start: 65950, Stop: 66495, Start Num: 49

Candidate Starts for Nebkiss_120:

(Start: 49 @65950 has 21 MA's), (60, 66013), (76, 66109), (78, 66139), (80, 66151), (92, 66193), (100, 66220), (117, 66313), (121, 66334), (130, 66367), (132, 66376), (135, 66394), (143, 66421), (151, 66460), (160, 66487),

Gene: OBUpride_64 Start: 43955, Stop: 44509, Start Num: 47

Candidate Starts for OBUpride_64:

(Start: 47 @43955 has 60 MA's), (Start: 49 @43958 has 21 MA's), (54, 43973), (57, 43994), (64, 44057), (67, 44069), (69, 44081), (75, 44114), (87, 44183), (88, 44186), (100, 44225), (103, 44252), (106, 44270), (119, 44333), (120, 44336), (124, 44351), (134, 44396), (150, 44456), (155, 44468), (157, 44474),

Gene: Opie_64 Start: 42071, Stop: 42832, Start Num: 41

Candidate Starts for Opie_64:

(24, 41987), (32, 42032), (Start: 41 @42071 has 9 MA's), (Start: 47 @42089 has 60 MA's), (67, 42203), (81, 42296), (82, 42302), (122, 42476), (148, 42596), (150, 42605), (152, 42608),

Gene: Oregano_55 Start: 36424, Stop: 37011, Start Num: 47

Candidate Starts for Oregano_55:

(15, 36247), (18, 36268), (Start: 44 @36418 has 1 MA's), (Start: 47 @36424 has 60 MA's), (67, 36532), (81, 36628), (82, 36634), (104, 36724), (130, 36862), (137, 36895), (139, 36898), (140, 36904), (145, 36928),

Gene: Patelgo_81 Start: 60950, Stop: 61438, Start Num: 51

Candidate Starts for Patelgo_81:

(Start: 51 @60950 has 20 MA's), (Start: 59 @61010 has 1 MA's), (69, 61067), (81, 61130), (100, 61190), (101, 61193), (116, 61262), (121, 61286), (123, 61295), (130, 61319), (142, 61361), (156, 61424), (159, 61433),

Gene: Petra_53 Start: 35617, Stop: 36207, Start Num: 47

Candidate Starts for Petra_53:

(20, 35455), (25, 35503), (Start: 47 @35617 has 60 MA's), (81, 35821), (101, 35887), (104, 35917), (109, 35938), (113, 35947), (116, 35971), (119, 35989), (137, 36085), (139, 36088), (140, 36094), (141, 36097), (145, 36118),

Gene: Pharb_56 Start: 39453, Stop: 40010, Start Num: 49

Candidate Starts for Pharb_56:

(Start: 49 @39453 has 21 MA's), (55, 39471), (60, 39516), (65, 39555), (68, 39564), (72, 39588), (76, 39612), (110, 39783), (115, 39810), (135, 39915),

Gene: Phredrick_81 Start: 58811, Stop: 59299, Start Num: 51

Candidate Starts for Phredrick_81:

(Start: 51 @58811 has 20 MA's), (70, 58937), (81, 58991), (93, 59027), (97, 59036), (100, 59051), (116, 59123), (121, 59147), (123, 59156), (125, 59162), (130, 59180), (132, 59189), (142, 59222), (148, 59264), (156, 59285), (159, 59294),

Gene: PhriskyACE_51 Start: 36416, Stop: 36979, Start Num: 47

Candidate Starts for PhriskyACE_51:

(14, 36212), (16, 36227), (Start: 44 @36410 has 1 MA's), (Start: 47 @36416 has 60 MA's), (67, 36524), (79, 36608), (81, 36620), (82, 36626), (104, 36716), (123, 36803), (130, 36830), (137, 36863), (139, 36866), (140, 36872), (145, 36896),

Gene: Pipp_59 Start: 37969, Stop: 38559, Start Num: 47

Candidate Starts for Pipp_59:

(20, 37807), (25, 37855), (Start: 47 @37969 has 60 MA's), (81, 38173), (104, 38269), (109, 38290), (116, 38323), (119, 38341), (137, 38437), (139, 38440), (140, 38446), (141, 38449), (145, 38470),

Gene: Pixie_56 Start: 39789, Stop: 40346, Start Num: 49

Candidate Starts for Pixie_56:

(33, 39720), (Start: 49 @39789 has 21 MA's), (53, 39801), (55, 39807), (60, 39852), (65, 39891), (66, 39894), (72, 39924), (76, 39948), (78, 39978), (113, 40137), (115, 40146), (135, 40251), (147, 40302), (149, 40314),

Gene: Pollux_57 Start: 40516, Stop: 41088, Start Num: 47

Candidate Starts for Pollux_57:

(39, 40486), (Start: 44 @40510 has 1 MA's), (Start: 47 @40516 has 60 MA's), (67, 40624), (81, 40720),

Gene: Powerball_52 Start: 36542, Stop: 37105, Start Num: 47

Candidate Starts for Powerball_52:

(14, 36338), (16, 36353), (Start: 44 @36536 has 1 MA's), (Start: 47 @36542 has 60 MA's), (67, 36650), (79, 36734), (81, 36746), (82, 36752), (104, 36842), (123, 36929), (130, 36956), (137, 36989), (139, 36992), (140, 36998), (145, 37022),

Gene: Rem711_52 Start: 36120, Stop: 36674, Start Num: 52

Candidate Starts for Rem711_52:

(37, 36066), (43, 36102), (45, 36108), (Start: 52 @36120 has 1 MA's), (74, 36267), (99, 36393), (103, 36423), (114, 36462), (148, 36615), (150, 36624),

Gene: Samba_56 Start: 39498, Stop: 40085, Start Num: 47

Candidate Starts for Samba_56:

(Start: 47 @39498 has 60 MA's), (81, 39699), (104, 39795), (119, 39867), (137, 39963), (139, 39966), (140, 39972), (141, 39975), (145, 39996),

Gene: Schnabeltier_62 Start: 41372, Stop: 42097, Start Num: 41

Candidate Starts for Schnabeltier_62:

(Start: 41 @41372 has 9 MA's), (Start: 47 @41390 has 60 MA's), (81, 41597), (98, 41654), (102, 41669), (114, 41726), (122, 41777), (148, 41897), (150, 41906), (152, 41909),

Gene: SeresaTree_81 Start: 60167, Stop: 60667, Start Num: 46

Candidate Starts for SeresaTree_81:

(Start: 46 @60167 has 3 MA's), (58, 60215), (70, 60302), (94, 60395), (100, 60416), (117, 60491), (121, 60512), (123, 60521), (128, 60536), (130, 60545), (148, 60629), (156, 60650),

Gene: Sham_75 Start: 59928, Stop: 60419, Start Num: 51

Candidate Starts for Sham_75:

(48, 59925), (Start: 51 @59928 has 20 MA's), (58, 59967), (100, 60168), (121, 60264), (123, 60273), (128, 60288), (130, 60297), (133, 60315), (134, 60318), (148, 60381), (156, 60402),

Gene: ShedlockHolmes_58 Start: 40308, Stop: 40865, Start Num: 49

Candidate Starts for ShedlockHolmes_58:

(33, 40239), (Start: 49 @40308 has 21 MA's), (53, 40320), (55, 40326), (60, 40371), (65, 40410), (72, 40443), (76, 40467), (78, 40497), (113, 40656), (115, 40665), (135, 40770),

Gene: Sidious_59 Start: 42258, Stop: 42845, Start Num: 47

Candidate Starts for Sidious_59:

(7, 41895), (10, 41973), (12, 42003), (19, 42066), (Start: 47 @42258 has 60 MA's), (81, 42468), (102, 42540), (104, 42564), (119, 42636), (137, 42711), (138, 42714), (140, 42720), (148, 42765), (150, 42774),

Gene: Sidious_54 Start: 38723, Stop: 39313, Start Num: 47

Candidate Starts for Sidious_54:

(14, 38519), (26, 38621), (Start: 44 @38717 has 1 MA's), (Start: 47 @38723 has 60 MA's), (81, 38927), (82, 38933), (104, 39023), (109, 39044), (119, 39095), (137, 39191), (139, 39194), (140, 39200), (145, 39224),

Gene: SparkleGoddess_81 Start: 60854, Stop: 61342, Start Num: 51

Candidate Starts for SparkleGoddess_81:

(Start: 51 @60854 has 20 MA's), (Start: 59 @60914 has 1 MA's), (81, 61034), (90, 61058), (94, 61073), (97, 61079), (100, 61094), (116, 61166), (121, 61190), (123, 61199), (130, 61223), (142, 61265), (156, 61328), (159, 61337),

Gene: Sparky_80 Start: 54416, Stop: 54964, Start Num: 50

Candidate Starts for Sparky_80:

(29, 54326), (37, 54365), (Start: 50 @54416 has 2 MA's), (91, 54650), (119, 54785), (148, 54902), (150, 54911), (155, 54923),

Gene: Spooky_97 Start: 52512, Stop: 53075, Start Num: 47

Candidate Starts for Spooky_97:

(13, 52416), (Start: 47 @52512 has 60 MA's), (63, 52608), (81, 52719), (89, 52743), (104, 52809), (130, 52923), (141, 52971), (148, 53013),

Gene: Stigma_80 Start: 60862, Stop: 61350, Start Num: 51

Candidate Starts for Stigma_80:

(Start: 51 @60862 has 20 MA's), (Start: 59 @60922 has 1 MA's), (69, 60979), (70, 60988), (77, 61009), (81, 61042), (84, 61048), (97, 61087), (100, 61102), (105, 61138), (116, 61174), (121, 61198), (123, 61207), (130, 61231), (142, 61273), (156, 61336), (159, 61345),

Gene: TBond007_55 Start: 39788, Stop: 40345, Start Num: 49

Candidate Starts for TBond007_55:

(33, 39719), (Start: 49 @39788 has 21 MA's), (53, 39800), (55, 39806), (60, 39851), (65, 39890), (66, 39893), (72, 39923), (76, 39947), (78, 39977), (113, 40136), (115, 40145), (135, 40250), (147, 40301), (149, 40313),

Gene: TPA4_56 Start: 40632, Stop: 41162, Start Num: 47

Candidate Starts for TPA4_56:

(8, 40278), (30, 40551), (Start: 47 @40632 has 60 MA's), (54, 40650), (Start: 59 @40698 has 1 MA's), (85, 40863), (95, 40893), (119, 41004), (153, 41151),

Gene: TaronosaurusRx_66 Start: 41369, Stop: 42100, Start Num: 41

Candidate Starts for TaronosaurusRx_66:

(Start: 41 @41369 has 9 MA's), (Start: 47 @41387 has 60 MA's), (67, 41501), (81, 41594), (98, 41651), (102, 41666), (122, 41774), (148, 41894), (150, 41903), (152, 41906), (164, 41996),

Gene: ThankyouJordi_62 Start: 43975, Stop: 44550, Start Num: 47

Candidate Starts for ThankyouJordi_62:

(Start: 47 @43975 has 60 MA's), (67, 44089), (81, 44182), (102, 44254), (104, 44278), (113, 44308), (119, 44350), (137, 44425), (139, 44431), (148, 44482),

Gene: Thibault_141 Start: 81109, Stop: 81639, Start Num: 49

Candidate Starts for Thibault_141:

(Start: 49 @81109 has 21 MA's), (55, 81127), (56, 81130), (Start: 59 @81169 has 1 MA's), (60, 81172), (78, 81298), (80, 81310), (96, 81361), (99, 81376), (111, 81427), (122, 81484), (151, 81610), (158, 81631),

Gene: TribbleTrouble_56 Start: 40264, Stop: 40821, Start Num: 49

Candidate Starts for TribbleTrouble_56:

(Start: 49 @40264 has 21 MA's), (53, 40276), (55, 40282), (60, 40327), (65, 40366), (68, 40375), (72, 40399), (76, 40423), (115, 40621), (135, 40726),

Gene: TunaTartare_80 Start: 61330, Stop: 61827, Start Num: 46

Candidate Starts for TunaTartare_80:

(Start: 46 @61330 has 3 MA's), (58, 61375), (100, 61576), (121, 61672), (123, 61681), (128, 61696), (130, 61705), (133, 61723), (148, 61789), (156, 61810),

Gene: Ubuntu_64 Start: 43962, Stop: 44513, Start Num: 49

Candidate Starts for Ubuntu_64:

(Start: 47 @43959 has 60 MA's), (Start: 49 @43962 has 21 MA's), (54, 43977), (64, 44061), (67, 44073), (69, 44085), (75, 44118), (87, 44187), (88, 44190), (100, 44229), (103, 44256), (106, 44274), (112, 44292), (119, 44337), (120, 44340), (124, 44355), (134, 44400), (150, 44460), (157, 44478),

Gene: Wakanda_73 Start: 59478, Stop: 59969, Start Num: 49

Candidate Starts for Wakanda_73:

(Start: 49 @59478 has 21 MA's), (56, 59499), (Start: 59 @59541 has 1 MA's), (69, 59598), (70, 59607), (97, 59706), (100, 59721), (121, 59817), (128, 59841), (130, 59850), (133, 59868), (136, 59880), (159, 59964),

Gene: Walrus_55 Start: 36777, Stop: 37367, Start Num: 47

Candidate Starts for Walrus_55:

(20, 36615), (25, 36663), (Start: 47 @36777 has 60 MA's), (81, 36981), (104, 37077), (109, 37098), (116, 37131), (119, 37149), (137, 37245), (139, 37248), (140, 37254), (141, 37257), (145, 37278),

Gene: Webster2_64 Start: 43959, Stop: 44513, Start Num: 47

Candidate Starts for Webster2_64:

(Start: 47 @43959 has 60 MA's), (Start: 49 @43962 has 21 MA's), (54, 43977), (64, 44061), (67, 44073), (69, 44085), (75, 44118), (87, 44187), (88, 44190), (100, 44229), (103, 44256), (106, 44274), (112, 44292), (119, 44337), (120, 44340), (124, 44355), (134, 44400), (150, 44460), (157, 44478),

Gene: WelcomeAyanna_62 Start: 44122, Stop: 44697, Start Num: 47

Candidate Starts for WelcomeAyanna_62:

(Start: 47 @44122 has 60 MA's), (67, 44236), (81, 44329), (102, 44401), (104, 44425), (113, 44455), (119, 44497), (137, 44572), (139, 44578), (148, 44629),

Gene: Wishmaker_61 Start: 43962, Stop: 44513, Start Num: 49

Candidate Starts for Wishmaker_61:

(Start: 47 @43959 has 60 MA's), (Start: 49 @43962 has 21 MA's), (54, 43977), (64, 44061), (67, 44073), (69, 44085), (75, 44118), (87, 44187), (88, 44190), (100, 44229), (103, 44256), (106, 44274), (112, 44292), (119, 44337), (120, 44340), (124, 44355), (134, 44400), (150, 44460), (157, 44478),

Gene: Wocket_57 Start: 37262, Stop: 37849, Start Num: 47

Candidate Starts for Wocket_57:

(1, 36689), (2, 36764), (20, 37100), (25, 37148), (31, 37181), (Start: 47 @37262 has 60 MA's), (81, 37463), (101, 37529), (104, 37559), (119, 37631), (137, 37727), (139, 37730), (140, 37736), (145, 37760),

Gene: ZAYM_64 Start: 41414, Stop: 42145, Start Num: 41

Candidate Starts for ZAYM_64:

(Start: 41 @41414 has 9 MA's), (Start: 47 @41432 has 60 MA's), (67, 41546), (81, 41639), (98, 41696), (102, 41711), (122, 41819), (148, 41939), (150, 41948), (152, 41951),

Gene: Zarbodnamra_56 Start: 36684, Stop: 37271, Start Num: 47

Candidate Starts for Zarbodnamra_56:

(Start: 47 @36684 has 60 MA's), (81, 36885), (104, 36981), (119, 37053), (137, 37149), (139, 37152), (140, 37158), (145, 37182),

