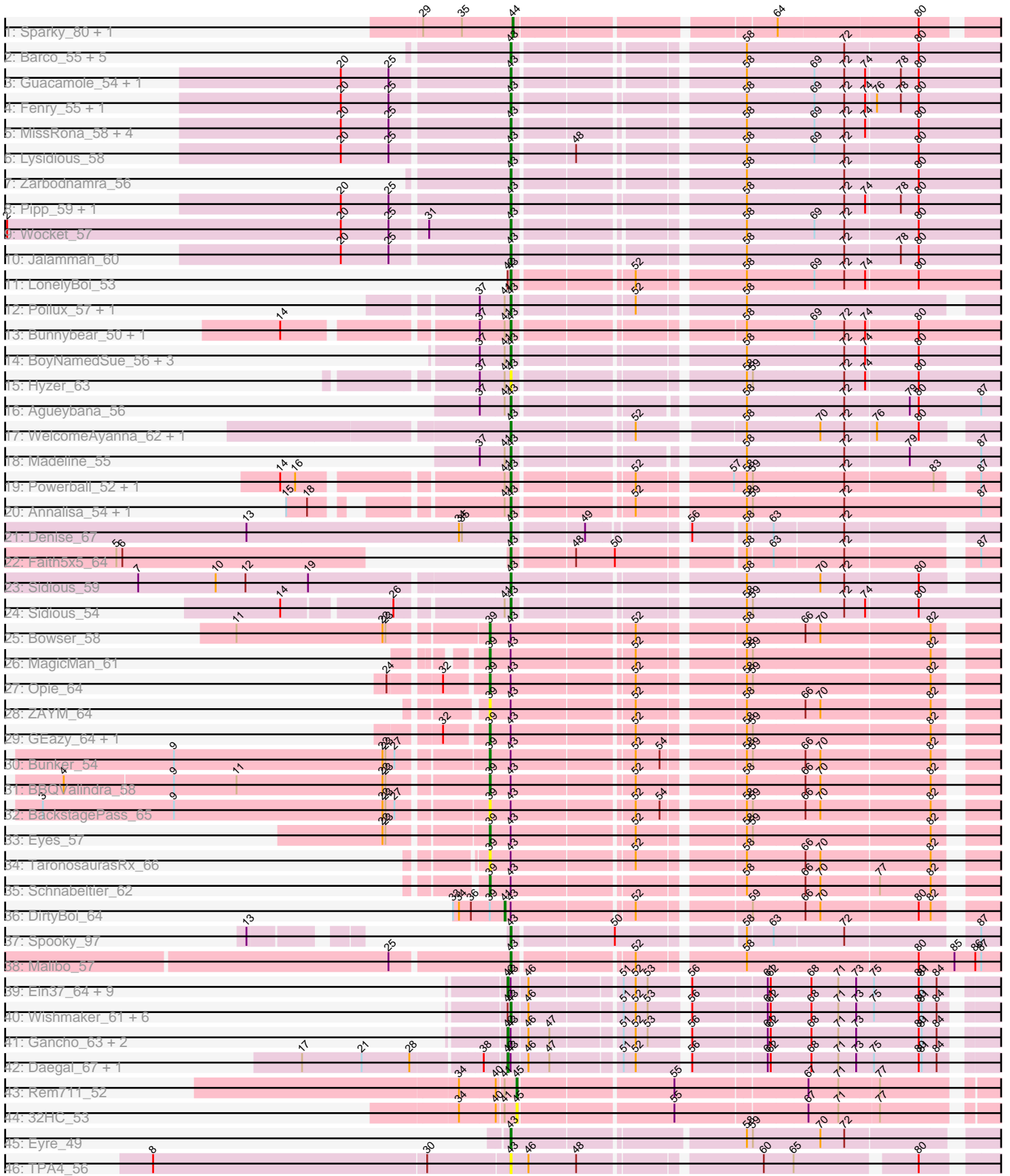


Zoomed Pham 163527



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 163527 Report

This analysis was run 04/28/24 on database version 559.

Pham number 163527 has 86 members, 8 are drafts.

Phages represented in each track:

- Track 1 : Sparky_80, Farewell_81
- Track 2 : Barco_55, Hitter_57, Delian_60, CaptainKirk2_57, MintFen_57, Samba_56
- Track 3 : Guacamole_54, JasperJr_54
- Track 4 : Fenry_55, Petra_53
- Track 5 : MissRona_58, Gambino_60, Mellie_55, Azula_58, Blueberry_57
- Track 6 : Lysidious_58
- Track 7 : Zarbodnamra_56
- Track 8 : Pipp_59, Walrus_55
- Track 9 : Wocket_57
- Track 10 : Jalammah_60
- Track 11 : LonelyBoi_53
- Track 12 : Pollux_57, Floral_55
- Track 13 : Bunnybear_50, Maridalia_58
- Track 14 : BoyNamedSue_56, Marteena_53, AlumE_56, EMSquaredA_54
- Track 15 : Hyzer_63
- Track 16 : Agueybana_56
- Track 17 : WelcomeAyanna_62, ThankyouJordi_62
- Track 18 : Madeline_55
- Track 19 : Powerball_52, PhriskyACE_51
- Track 20 : Annalisa_54, Oregano_55
- Track 21 : Denise_67
- Track 22 : Faith5x5_64
- Track 23 : Sidious_59
- Track 24 : Sidious_54
- Track 25 : Bowser_58
- Track 26 : MagicMan_61
- Track 27 : Opie_64
- Track 28 : ZAYM_64
- Track 29 : GEazy_64, HannahD_61
- Track 30 : Bunker_54
- Track 31 : BBQValindra_58
- Track 32 : BackstagePass_65
- Track 33 : Eyes_57
- Track 34 : TaronosaurusRx_66
- Track 35 : Schnabeltier_62
- Track 36 : DirtyBoi_64
- Track 37 : Spooky_97

- Track 38 : Malibo_57
- Track 39 : Ein37_64, Kinbote_63, DeepSoil15_64, HH92_63, Webster2_64, LilHazelNut_64, Giles_61, Dewey_61, Hadrien_63, Evanesce_63
- Track 40 : Wishmaker_61, Ubuntu_64, Luna22_61, Luke_63, Hail_61, Amymech_64, Forge_61
- Track 41 : Gancho_63, OBUpride_64, Gravaillia_62
- Track 42 : Daegal_67, Amochick_65
- Track 43 : Rem711_52
- Track 44 : 32HC_53
- Track 45 : Eyre_49
- Track 46 : 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 43, it was called in 50 of the 78 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Agueybana_56, AlumE_56, Amymech_64, Annalisa_54, Azula_58, Barco_55, Blueberry_57, BoyNamedSue_56, Bunnybear_50, CaptainKirk2_57, Delian_60, Denise_67, EMSquaredA_54, Eyre_49, Faith5x5_64, Fenry_55, Floral_55, Forge_61, Gambino_60, Guacamole_54, Hail_61, Hitter_57, Hyzer_63, Jalammah_60, JasperJr_54, LonelyBoi_53, Luke_63, Luna22_61, Lysidious_58, Madeline_55, Malibo_57, Maridalia_58, Marteena_53, Mellie_55, MintFen_57, MissRona_58, Oregano_55, Petra_53, PhriskyACE_51, Pipp_59, Pollux_57, Powerball_52, Samba_56, Sidious_54, Sidious_59, Spooky_97, TPA4_56, ThankyouJordi_62, Ubuntu_64, Walrus_55, WelcomeAyanna_62, Wishmaker_61, Wocket_57, Zarbodnamra_56,

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

- Amochick_65, BBQValindra_58, BackstagePass_65, Bowser_58, Bunker_54, Daegal_67, DeepSoil15_64, Dewey_61, DirtyBoi_64, Ein37_64, Evanesce_63, Eyes_57, GEazy_64, Gancho_63, Giles_61, Gravaillia_62, HH92_63, Hadrien_63, HannahD_61, Kinbote_63, LilHazelNut_64, MagicMan_61, OBUpride_64, Opie_64, Schnabeltier_62, TaronosaurusRx_66, Webster2_64, ZAYM_64,

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

- 32HC_53, Farewell_81, Rem711_52, Sparky_80,

Summary by start number:

Start 39:

- Found in 13 of 86 (15.1%) of genes in pham
- Manual Annotations of this start: 9 of 78
- 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 41:

- Found in 19 of 86 (22.1%) of genes in pham
- Manual Annotations of this start: 1 of 78
- Called 5.3% of time when present
- Phage (with cluster) where this start called: DirtyBoi_64 (DB),

Start 42:

- Found in 23 of 86 (26.7%) of genes in pham
- Manual Annotations of this start: 15 of 78
- Called 65.2% of time when present
- Phage (with cluster) where this start called: Amochick_65 (Q), Daegal_67 (Q), DeepSoil15_64 (Q), Dewey_61 (Q), Ein37_64 (Q), Evanesce_63 (Q), Gancho_63 (Q), Giles_61 (Q), Gravaillia_62 (Q), HH92_63 (Q), Hadrien_63 (Q), Kinbote_63 (Q), LilHazelNut_64 (Q), OBUpride_64 (Q), Webster2_64 (Q),

Start 43:

- Found in 82 of 86 (95.3%) of genes in pham
- Manual Annotations of this start: 50 of 78
- Called 65.9% of time when present
- Phage (with cluster) where this start called: Agueybana_56 (CZ1), AlumE_56 (CZ1), Amymech_64 (Q), Annalisa_54 (CZ4), Azula_58 (CV), Barco_55 (CV), Blueberry_57 (CV), BoyNamedSue_56 (CZ1), Bunnybear_50 (CZ), CaptainKirk2_57 (CV), Delian_60 (CV), Denise_67 (CZ5), EMSquaredA_54 (CY1), Eyre_49 (singleton), Faith5x5_64 (CZ6), Fenry_55 (CV), Floral_55 (CY1), Forge_61 (Q), Gambino_60 (CV), Guacamole_54 (CV), Hail_61 (Q), Hitter_57 (CV), Hyzer_63 (CZ1), Jalammah_60 (CV), JasperJr_54 (CV), LonelyBoi_53 (CY), Luke_63 (Q), Luna22_61 (Q), Lysidious_58 (CV), Madeline_55 (CZ1), Malibo_57 (DW), Maridalia_58 (CZ1), Marteena_53 (CY1), Mellie_55 (CV), MintFen_57 (CV), MissRona_58 (CV), 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), Ubuntu_64 (Q), Walrus_55 (CV), WelcomeAyanna_62 (CZ1), Wishmaker_61 (Q), Wocket_57 (CV), Zarbodnamra_56 (CV),

Start 44:

- Found in 2 of 86 (2.3%) of genes in pham
- Manual Annotations of this start: 2 of 78
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Farewell_81 (AF), Sparky_80 (AF),

Start 45:

- Found in 2 of 86 (2.3%) of genes in pham
- Manual Annotations of this start: 1 of 78
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 32HC_53 (Z), Rem711_52 (Z),

Summary by clusters:

There are 16 clusters represented in this pham: CZ7, CY1, AF, CZ6, CZ1, DB, singleton, CZ4, CZ5, Q, CZ, CY, DN2, DW, Z, CV,

Info for manual annotations of cluster AF:

- Start number 44 was manually annotated 2 times for cluster AF.

Info for manual annotations of cluster CV:

- Start number 43 was manually annotated 21 times for cluster CV.

Info for manual annotations of cluster CY:

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

Info for manual annotations of cluster CY1:

- Start number 43 was manually annotated 4 times for cluster CY1.

Info for manual annotations of cluster CZ:

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

Info for manual annotations of cluster CZ1:

- Start number 43 was manually annotated 7 times for cluster CZ1.

Info for manual annotations of cluster CZ4:

- Start number 43 was manually annotated 2 times for cluster CZ4.

Info for manual annotations of cluster CZ5:

- Start number 43 was manually annotated 1 time for cluster CZ5.

Info for manual annotations of cluster CZ6:

- Start number 43 was manually annotated 1 time for cluster CZ6.

Info for manual annotations of cluster CZ7:

- Start number 43 was manually annotated 2 times for cluster CZ7.

Info for manual annotations of cluster DB:

- Start number 39 was manually annotated 9 times for cluster DB.
- Start number 41 was manually annotated 1 time for cluster DB.

Info for manual annotations of cluster DN2:

- Start number 43 was manually annotated 1 time for cluster DN2.

Info for manual annotations of cluster DW:

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

Info for manual annotations of cluster Q:

- Start number 42 was manually annotated 15 times for cluster Q.
- Start number 43 was manually annotated 7 times for cluster Q.

Info for manual annotations of cluster Z:

- Start number 45 was manually annotated 1 time for cluster Z.

Gene Information:

Gene: 32HC_53 Start: 36136, Stop: 36690, Start Num: 45

Candidate Starts for 32HC_53:

(34, 36082), (40, 36118), (Start: 41 @36124 has 1 MA's), (Start: 45 @36136 has 1 MA's), (55, 36283), (67, 36409), (71, 36439), (77, 36478), (96, 36631), (97, 36640),

Gene: Agueybana_56 Start: 39653, Stop: 40237, Start Num: 43

Candidate Starts for Agueybana_56:

(37, 39623), (Start: 41 @39647 has 1 MA's), (Start: 43 @39653 has 50 MA's), (58, 39854), (72, 39950), (79, 40013), (80, 40022), (87, 40085), (89, 40118), (91, 40121), (95, 40151),

Gene: AlumE_56 Start: 39435, Stop: 40025, Start Num: 43

Candidate Starts for AlumE_56:

(37, 39405), (Start: 41 @39429 has 1 MA's), (Start: 43 @39435 has 50 MA's), (58, 39639), (72, 39735), (74, 39756), (80, 39807), (89, 39903), (91, 39906), (92, 39912), (93, 39915), (95, 39936), (104, 40005),

Gene: Amochick_65 Start: 44443, Stop: 44997, Start Num: 42

Candidate Starts for Amochick_65:

(17, 44248), (21, 44308), (28, 44356), (38, 44422), (Start: 42 @44443 has 15 MA's), (Start: 43 @44446 has 50 MA's), (46, 44461), (47, 44482), (51, 44545), (52, 44557), (56, 44602), (61, 44671), (62, 44674), (68, 44713), (71, 44740), (73, 44758), (75, 44776), (80, 44821), (81, 44824), (84, 44839), (88, 44884), (97, 44944), (101, 44962),

Gene: Amymech_64 Start: 43962, Stop: 44513, Start Num: 43

Candidate Starts for Amymech_64:

(Start: 42 @43959 has 15 MA's), (Start: 43 @43962 has 50 MA's), (46, 43977), (51, 44061), (52, 44073), (53, 44085), (56, 44118), (61, 44187), (62, 44190), (68, 44229), (71, 44256), (73, 44274), (75, 44292), (80, 44337), (81, 44340), (84, 44355), (88, 44400), (97, 44460), (101, 44478),

Gene: Annalisa_54 Start: 35792, Stop: 36379, Start Num: 43

Candidate Starts for Annalisa_54:

(15, 35615), (18, 35636), (Start: 41 @35786 has 1 MA's), (Start: 43 @35792 has 50 MA's), (52, 35900), (58, 35996), (59, 36002), (72, 36092), (87, 36230), (89, 36263), (91, 36266), (92, 36272), (95, 36296),

Gene: Azula_58 Start: 39149, Stop: 39736, Start Num: 43

Candidate Starts for Azula_58:

(20, 38987), (25, 39035), (Start: 43 @39149 has 50 MA's), (58, 39350), (69, 39416), (72, 39446), (74, 39467), (80, 39518), (89, 39614), (91, 39617), (92, 39623), (93, 39626), (95, 39647),

Gene: BBQValindra_58 Start: 41020, Stop: 41751, Start Num: 39

Candidate Starts for BBQValindra_58:

(4, 40606), (9, 40714), (11, 40777), (22, 40924), (23, 40927), (Start: 39 @41020 has 9 MA's), (Start: 43 @41038 has 50 MA's), (52, 41152), (58, 41245), (66, 41302), (70, 41317), (82, 41425), (96, 41545), (98, 41557),

Gene: BackstagePass_65 Start: 40434, Stop: 41168, Start Num: 39

Candidate Starts for BackstagePass_65:

(3, 39999), (9, 40131), (22, 40341), (23, 40344), (27, 40353), (Start: 39 @40434 has 9 MA's), (Start: 43 @40452 has 50 MA's), (52, 40566), (54, 40590), (58, 40659), (59, 40665), (66, 40716), (70, 40731), (82, 40839), (96, 40959), (108, 41157),

Gene: Barco_55 Start: 36423, Stop: 37010, Start Num: 43

Candidate Starts for Barco_55:

(Start: 43 @36423 has 50 MA's), (58, 36624), (72, 36720), (80, 36792), (89, 36888), (91, 36891), (92, 36897), (93, 36900), (95, 36921),

Gene: Blueberry_57 Start: 39149, Stop: 39736, Start Num: 43

Candidate Starts for Blueberry_57:

(20, 38987), (25, 39035), (Start: 43 @39149 has 50 MA's), (58, 39350), (69, 39416), (72, 39446), (74, 39467), (80, 39518), (89, 39614), (91, 39617), (92, 39623), (93, 39626), (95, 39647),

Gene: Bowser_58 Start: 40743, Stop: 41495, Start Num: 39

Candidate Starts for Bowser_58:

(11, 40503), (22, 40650), (23, 40653), (Start: 39 @40743 has 9 MA's), (Start: 43 @40761 has 50 MA's), (52, 40875), (58, 40968), (66, 41025), (70, 41040), (82, 41148), (96, 41268), (97, 41277), (98, 41280), (105, 41370), (106, 41442), (107, 41463),

Gene: BoyNamedSue_56 Start: 39435, Stop: 40025, Start Num: 43

Candidate Starts for BoyNamedSue_56:

(37, 39405), (Start: 41 @39429 has 1 MA's), (Start: 43 @39435 has 50 MA's), (58, 39639), (72, 39735), (74, 39756), (80, 39807), (89, 39903), (91, 39906), (92, 39912), (93, 39915), (95, 39936), (104, 40005),

Gene: Bunker_54 Start: 39327, Stop: 40058, Start Num: 39

Candidate Starts for Bunker_54:

(9, 39024), (22, 39234), (23, 39237), (27, 39246), (Start: 39 @39327 has 9 MA's), (Start: 43 @39345 has 50 MA's), (52, 39459), (54, 39483), (58, 39552), (59, 39558), (66, 39609), (70, 39624), (82, 39732), (96, 39852), (98, 39864),

Gene: Bunnybear_50 Start: 37443, Stop: 38027, Start Num: 43

Candidate Starts for Bunnybear_50:

(14, 37239), (37, 37413), (Start: 41 @37437 has 1 MA's), (Start: 43 @37443 has 50 MA's), (58, 37644), (69, 37710), (72, 37740), (74, 37761), (80, 37812), (89, 37908), (91, 37911), (92, 37917), (103, 38007),

Gene: CaptainKirk2_57 Start: 36662, Stop: 37249, Start Num: 43

Candidate Starts for CaptainKirk2_57:

(Start: 43 @36662 has 50 MA's), (58, 36863), (72, 36959), (80, 37031), (89, 37127), (91, 37130), (92, 37136), (93, 37139), (95, 37160),

Gene: Daegal_67 Start: 45005, Stop: 45559, Start Num: 42

Candidate Starts for Daegal_67:

(17, 44810), (21, 44870), (28, 44918), (38, 44984), (Start: 42 @45005 has 15 MA's), (Start: 43 @45008 has 50 MA's), (46, 45023), (47, 45044), (51, 45107), (52, 45119), (56, 45164), (61, 45233), (62, 45236), (68, 45275), (71, 45302), (73, 45320), (75, 45338), (80, 45383), (81, 45386), (84, 45401), (88, 45446), (97, 45506), (101, 45524),

Gene: DeepSoil15_64 Start: 43959, Stop: 44513, Start Num: 42

Candidate Starts for DeepSoil15_64:

(Start: 42 @43959 has 15 MA's), (Start: 43 @43962 has 50 MA's), (46, 43977), (51, 44061), (52, 44073), (53, 44085), (56, 44118), (61, 44187), (62, 44190), (68, 44229), (71, 44256), (73, 44274), (75, 44292), (80, 44337), (81, 44340), (84, 44355), (88, 44400), (97, 44460), (101, 44478),

Gene: Delian_60 Start: 36660, Stop: 37247, Start Num: 43

Candidate Starts for Delian_60:

(Start: 43 @36660 has 50 MA's), (58, 36861), (72, 36957), (80, 37029), (89, 37125), (91, 37128), (92, 37134), (93, 37137), (95, 37158),

Gene: Denise_67 Start: 40135, Stop: 40689, Start Num: 43

Candidate Starts for Denise_67:

(13, 39871), (34, 40084), (35, 40087), (Start: 43 @40135 has 50 MA's), (49, 40201), (56, 40285), (58, 40333), (63, 40357), (72, 40423), (96, 40627),

Gene: Dewey_61 Start: 43959, Stop: 44513, Start Num: 42

Candidate Starts for Dewey_61:

(Start: 42 @43959 has 15 MA's), (Start: 43 @43962 has 50 MA's), (46, 43977), (51, 44061), (52, 44073), (53, 44085), (56, 44118), (61, 44187), (62, 44190), (68, 44229), (71, 44256), (73, 44274), (75, 44292), (80, 44337), (81, 44340), (84, 44355), (88, 44400), (97, 44460), (101, 44478),

Gene: DirtyBoi_64 Start: 41042, Stop: 41764, Start Num: 41

Candidate Starts for DirtyBoi_64:

(33, 40991), (34, 40997), (36, 41009), (Start: 39 @41027 has 9 MA's), (Start: 41 @41042 has 1 MA's), (Start: 43 @41048 has 50 MA's), (52, 41162), (59, 41261), (66, 41312), (70, 41327), (80, 41423), (82, 41435), (96, 41555), (97, 41564),

Gene: EMSquaredA_54 Start: 38610, Stop: 39200, Start Num: 43

Candidate Starts for EMSquaredA_54:

(37, 38580), (Start: 41 @38604 has 1 MA's), (Start: 43 @38610 has 50 MA's), (58, 38814), (72, 38910), (74, 38931), (80, 38982), (89, 39078), (91, 39081), (92, 39087), (93, 39090), (95, 39111), (104, 39180),

Gene: Ein37_64 Start: 43959, Stop: 44513, Start Num: 42

Candidate Starts for Ein37_64:

(Start: 42 @43959 has 15 MA's), (Start: 43 @43962 has 50 MA's), (46, 43977), (51, 44061), (52, 44073), (53, 44085), (56, 44118), (61, 44187), (62, 44190), (68, 44229), (71, 44256), (73, 44274), (75, 44292), (80, 44337), (81, 44340), (84, 44355), (88, 44400), (97, 44460), (101, 44478),

Gene: Evanesce_63 Start: 43959, Stop: 44513, Start Num: 42

Candidate Starts for Evanesce_63:

(Start: 42 @43959 has 15 MA's), (Start: 43 @43962 has 50 MA's), (46, 43977), (51, 44061), (52, 44073), (53, 44085), (56, 44118), (61, 44187), (62, 44190), (68, 44229), (71, 44256), (73, 44274), (75, 44292), (80, 44337), (81, 44340), (84, 44355), (88, 44400), (97, 44460), (101, 44478),

Gene: Eyes_57 Start: 40795, Stop: 41526, Start Num: 39

Candidate Starts for Eyes_57:

(22, 40702), (23, 40705), (Start: 39 @40795 has 9 MA's), (Start: 43 @40813 has 50 MA's), (52, 40927), (58, 41020), (59, 41026), (82, 41200), (88, 41251), (94, 41293), (96, 41320), (97, 41329), (98, 41332),

Gene: Eyre_49 Start: 34637, Stop: 35221, Start Num: 43

Candidate Starts for Eyre_49:

(Start: 43 @34637 has 50 MA's), (58, 34853), (59, 34859), (70, 34925), (72, 34949), (89, 35096), (96, 35153), (97, 35162), (102, 35192),

Gene: Faith5x5_64 Start: 38441, Stop: 39004, Start Num: 43

Candidate Starts for Faith5x5_64:

(5, 38189), (6, 38195), (Start: 43 @38441 has 50 MA's), (48, 38498), (50, 38537), (58, 38648), (63, 38672), (72, 38738), (87, 38852), (89, 38885), (96, 38942), (97, 38951),

Gene: Farewell_81 Start: 52822, Stop: 53370, Start Num: 44

Candidate Starts for Farewell_81:

(29, 52732), (35, 52771), (Start: 44 @52822 has 2 MA's), (64, 53056), (80, 53191), (96, 53308), (97, 53317), (100, 53329),

Gene: Fenry_55 Start: 38167, Stop: 38757, Start Num: 43

Candidate Starts for Fenry_55:

(20, 38005), (25, 38053), (Start: 43 @38167 has 50 MA's), (58, 38371), (69, 38437), (72, 38467), (74, 38488), (76, 38497), (78, 38521), (80, 38539), (89, 38635), (91, 38638), (92, 38644), (93, 38647), (95, 38668),

Gene: Floral_55 Start: 40516, Stop: 41088, Start Num: 43

Candidate Starts for Floral_55:

(37, 40486), (Start: 41 @40510 has 1 MA's), (Start: 43 @40516 has 50 MA's), (52, 40624), (58, 40720),

Gene: Forge_61 Start: 43962, Stop: 44513, Start Num: 43

Candidate Starts for Forge_61:

(Start: 42 @43959 has 15 MA's), (Start: 43 @43962 has 50 MA's), (46, 43977), (51, 44061), (52, 44073), (53, 44085), (56, 44118), (61, 44187), (62, 44190), (68, 44229), (71, 44256), (73, 44274), (75, 44292), (80, 44337), (81, 44340), (84, 44355), (88, 44400), (97, 44460), (101, 44478),

Gene: GEazy_64 Start: 40986, Stop: 41714, Start Num: 39

Candidate Starts for GEazy_64:

(32, 40947), (Start: 39 @40986 has 9 MA's), (Start: 43 @41004 has 50 MA's), (52, 41118), (58, 41211), (59, 41217), (82, 41391), (96, 41511), (97, 41520), (98, 41523),

Gene: Gambino_60 Start: 39149, Stop: 39736, Start Num: 43

Candidate Starts for Gambino_60:

(20, 38987), (25, 39035), (Start: 43 @39149 has 50 MA's), (58, 39350), (69, 39416), (72, 39446), (74, 39467), (80, 39518), (89, 39614), (91, 39617), (92, 39623), (93, 39626), (95, 39647),

Gene: Gancho_63 Start: 43686, Stop: 44240, Start Num: 42

Candidate Starts for Gancho_63:

(Start: 42 @43686 has 15 MA's), (Start: 43 @43689 has 50 MA's), (46, 43704), (47, 43725), (51, 43788), (52, 43800), (53, 43812), (56, 43845), (61, 43914), (62, 43917), (68, 43956), (71, 43983), (73, 44001), (80, 44064), (81, 44067), (84, 44082), (88, 44127), (97, 44187), (100, 44199), (101, 44205),

Gene: Giles_61 Start: 43959, Stop: 44513, Start Num: 42

Candidate Starts for Giles_61:

(Start: 42 @43959 has 15 MA's), (Start: 43 @43962 has 50 MA's), (46, 43977), (51, 44061), (52, 44073), (53, 44085), (56, 44118), (61, 44187), (62, 44190), (68, 44229), (71, 44256), (73, 44274), (75, 44292), (80, 44337), (81, 44340), (84, 44355), (88, 44400), (97, 44460), (101, 44478),

Gene: Gravaillia_62 Start: 43967, Stop: 44521, Start Num: 42

Candidate Starts for Gravaillia_62:

(Start: 42 @43967 has 15 MA's), (Start: 43 @43970 has 50 MA's), (46, 43985), (47, 44006), (51, 44069), (52, 44081), (53, 44093), (56, 44126), (61, 44195), (62, 44198), (68, 44237), (71, 44264), (73, 44282), (80, 44345), (81, 44348), (84, 44363), (88, 44408), (97, 44468), (100, 44480), (101, 44486),

Gene: Guacamole_54 Start: 36889, Stop: 37476, Start Num: 43

Candidate Starts for Guacamole_54:

(20, 36727), (25, 36775), (Start: 43 @36889 has 50 MA's), (58, 37090), (69, 37156), (72, 37186), (74, 37207), (78, 37240), (80, 37258), (89, 37354), (91, 37357), (92, 37363), (93, 37366), (95, 37387), (104, 37456),

Gene: HH92_63 Start: 43959, Stop: 44513, Start Num: 42

Candidate Starts for HH92_63:

(Start: 42 @43959 has 15 MA's), (Start: 43 @43962 has 50 MA's), (46, 43977), (51, 44061), (52, 44073), (53, 44085), (56, 44118), (61, 44187), (62, 44190), (68, 44229), (71, 44256), (73, 44274), (75, 44292), (80, 44337), (81, 44340), (84, 44355), (88, 44400), (97, 44460), (101, 44478),

Gene: Hadrien_63 Start: 43959, Stop: 44513, Start Num: 42

Candidate Starts for Hadrien_63:

(Start: 42 @43959 has 15 MA's), (Start: 43 @43962 has 50 MA's), (46, 43977), (51, 44061), (52, 44073), (53, 44085), (56, 44118), (61, 44187), (62, 44190), (68, 44229), (71, 44256), (73, 44274), (75, 44292), (80, 44337), (81, 44340), (84, 44355), (88, 44400), (97, 44460), (101, 44478),

Gene: Hail_61 Start: 43962, Stop: 44513, Start Num: 43

Candidate Starts for Hail_61:

(Start: 42 @43959 has 15 MA's), (Start: 43 @43962 has 50 MA's), (46, 43977), (51, 44061), (52, 44073), (53, 44085), (56, 44118), (61, 44187), (62, 44190), (68, 44229), (71, 44256), (73, 44274), (75, 44292), (80, 44337), (81, 44340), (84, 44355), (88, 44400), (97, 44460), (101, 44478),

Gene: HannahD_61 Start: 40353, Stop: 41081, Start Num: 39

Candidate Starts for HannahD_61:

(32, 40314), (Start: 39 @40353 has 9 MA's), (Start: 43 @40371 has 50 MA's), (52, 40485), (58, 40578), (59, 40584), (82, 40758), (96, 40878), (97, 40887), (98, 40890),

Gene: Hitter_57 Start: 36465, Stop: 37052, Start Num: 43

Candidate Starts for Hitter_57:

(Start: 43 @36465 has 50 MA's), (58, 36666), (72, 36762), (80, 36834), (89, 36930), (91, 36933), (92, 36939), (93, 36942), (95, 36963),

Gene: Hyzer_63 Start: 42350, Stop: 42940, Start Num: 43

Candidate Starts for Hyzer_63:

(37, 42320), (Start: 41 @42344 has 1 MA's), (Start: 43 @42350 has 50 MA's), (58, 42554), (59, 42560), (72, 42650), (74, 42671), (80, 42722), (89, 42818), (91, 42821), (92, 42827), (95, 42851),

Gene: Jalammah_60 Start: 39468, Stop: 40055, Start Num: 43

Candidate Starts for Jalammah_60:

(20, 39306), (25, 39354), (Start: 43 @39468 has 50 MA's), (58, 39669), (72, 39765), (78, 39819), (80, 39837), (89, 39933), (91, 39936), (92, 39942), (93, 39945), (95, 39966), (104, 40035),

Gene: JasperJr_54 Start: 36889, Stop: 37476, Start Num: 43

Candidate Starts for JasperJr_54:

(20, 36727), (25, 36775), (Start: 43 @36889 has 50 MA's), (58, 37090), (69, 37156), (72, 37186), (74, 37207), (78, 37240), (80, 37258), (89, 37354), (91, 37357), (92, 37363), (93, 37366), (95, 37387), (104, 37456),

Gene: Kinbote_63 Start: 43959, Stop: 44513, Start Num: 42

Candidate Starts for Kinbote_63:

(Start: 42 @43959 has 15 MA's), (Start: 43 @43962 has 50 MA's), (46, 43977), (51, 44061), (52, 44073), (53, 44085), (56, 44118), (61, 44187), (62, 44190), (68, 44229), (71, 44256), (73, 44274), (75, 44292), (80, 44337), (81, 44340), (84, 44355), (88, 44400), (97, 44460), (101, 44478),

Gene: LilHazelNut_64 Start: 43959, Stop: 44513, Start Num: 42

Candidate Starts for LilHazelNut_64:

(Start: 42 @43959 has 15 MA's), (Start: 43 @43962 has 50 MA's), (46, 43977), (51, 44061), (52, 44073), (53, 44085), (56, 44118), (61, 44187), (62, 44190), (68, 44229), (71, 44256), (73, 44274), (75, 44292), (80, 44337), (81, 44340), (84, 44355), (88, 44400), (97, 44460), (101, 44478),

Gene: LonelyBoi_53 Start: 40470, Stop: 41057, Start Num: 43

Candidate Starts for LonelyBoi_53:

(Start: 42 @40467 has 15 MA's), (Start: 43 @40470 has 50 MA's), (52, 40578), (58, 40674), (69, 40740), (72, 40770), (74, 40791), (80, 40842), (89, 40938), (91, 40941), (92, 40947), (103, 41037),

Gene: Luke_63 Start: 43917, Stop: 44468, Start Num: 43

Candidate Starts for Luke_63:

(Start: 42 @43914 has 15 MA's), (Start: 43 @43917 has 50 MA's), (46, 43932), (51, 44016), (52, 44028), (53, 44040), (56, 44073), (61, 44142), (62, 44145), (68, 44184), (71, 44211), (73, 44229), (75, 44247), (80, 44292), (81, 44295), (84, 44310), (88, 44355), (97, 44415), (101, 44433),

Gene: Luna22_61 Start: 43946, Stop: 44497, Start Num: 43

Candidate Starts for Luna22_61:

(Start: 42 @43943 has 15 MA's), (Start: 43 @43946 has 50 MA's), (46, 43961), (51, 44045), (52, 44057), (53, 44069), (56, 44102), (61, 44171), (62, 44174), (68, 44213), (71, 44240), (73, 44258), (75, 44276), (80, 44321), (81, 44324), (84, 44339), (88, 44384), (97, 44444), (101, 44462),

Gene: Lysidious_58 Start: 38835, Stop: 39422, Start Num: 43

Candidate Starts for Lysidious_58:

(20, 38673), (25, 38721), (Start: 43 @38835 has 50 MA's), (48, 38892), (58, 39036), (69, 39102), (72, 39132), (80, 39204), (89, 39300), (91, 39303), (92, 39309), (95, 39333), (104, 39402),

Gene: Madeline_55 Start: 39843, Stop: 40427, Start Num: 43

Candidate Starts for Madeline_55:

(37, 39813), (Start: 41 @39837 has 1 MA's), (Start: 43 @39843 has 50 MA's), (58, 40044), (72, 40140), (79, 40203), (87, 40275), (89, 40308), (91, 40311), (95, 40341),

Gene: MagicMan_61 Start: 41953, Stop: 42714, Start Num: 39

Candidate Starts for MagicMan_61:

(Start: 39 @41953 has 9 MA's), (Start: 43 @41971 has 50 MA's), (52, 42085), (58, 42178), (59, 42184), (82, 42358), (96, 42478), (97, 42487), (98, 42490),

Gene: Malibo_57 Start: 39555, Stop: 40142, Start Num: 43

Candidate Starts for Malibo_57:

(25, 39441), (Start: 43 @39555 has 50 MA's), (52, 39663), (58, 39759), (80, 39927), (85, 39963), (86, 39984), (87, 39990), (91, 40026), (92, 40032), (95, 40056),

Gene: Maridalia_58 Start: 39189, Stop: 39773, Start Num: 43

Candidate Starts for Maridalia_58:

(14, 38985), (37, 39159), (Start: 41 @39183 has 1 MA's), (Start: 43 @39189 has 50 MA's), (58, 39390), (69, 39456), (72, 39486), (74, 39507), (80, 39558), (89, 39654), (91, 39657), (92, 39663), (103, 39753),

Gene: Marteena_53 Start: 38610, Stop: 39200, Start Num: 43

Candidate Starts for Marteena_53:

(37, 38580), (Start: 41 @38604 has 1 MA's), (Start: 43 @38610 has 50 MA's), (58, 38814), (72, 38910), (74, 38931), (80, 38982), (89, 39078), (91, 39081), (92, 39087), (93, 39090), (95, 39111), (104, 39180),

Gene: Mellie_55 Start: 36842, Stop: 37432, Start Num: 43

Candidate Starts for Mellie_55:

(20, 36680), (25, 36728), (Start: 43 @36842 has 50 MA's), (58, 37046), (69, 37112), (72, 37142), (74, 37163), (80, 37214), (89, 37310), (91, 37313), (92, 37319), (93, 37322), (95, 37343),

Gene: MintFen_57 Start: 37276, Stop: 37863, Start Num: 43

Candidate Starts for MintFen_57:

(Start: 43 @37276 has 50 MA's), (58, 37477), (72, 37573), (80, 37645), (89, 37741), (91, 37744), (92, 37750), (93, 37753), (95, 37774),

Gene: MissRona_58 Start: 39150, Stop: 39737, Start Num: 43

Candidate Starts for MissRona_58:

(20, 38988), (25, 39036), (Start: 43 @39150 has 50 MA's), (58, 39351), (69, 39417), (72, 39447), (74, 39468), (80, 39519), (89, 39615), (91, 39618), (92, 39624), (93, 39627), (95, 39648),

Gene: OBUpride_64 Start: 43955, Stop: 44509, Start Num: 42

Candidate Starts for OBUpride_64:

(Start: 42 @43955 has 15 MA's), (Start: 43 @43958 has 50 MA's), (46, 43973), (47, 43994), (51, 44057), (52, 44069), (53, 44081), (56, 44114), (61, 44183), (62, 44186), (68, 44225), (71, 44252), (73, 44270), (80, 44333), (81, 44336), (84, 44351), (88, 44396), (97, 44456), (100, 44468), (101, 44474),

Gene: Opie_64 Start: 42071, Stop: 42832, Start Num: 39

Candidate Starts for Opie_64:

(24, 41987), (32, 42032), (Start: 39 @42071 has 9 MA's), (Start: 43 @42089 has 50 MA's), (52, 42203), (58, 42296), (59, 42302), (82, 42476), (96, 42596), (97, 42605), (98, 42608),

Gene: Oregano_55 Start: 36424, Stop: 37011, Start Num: 43

Candidate Starts for Oregano_55:

(15, 36247), (18, 36268), (Start: 41 @36418 has 1 MA's), (Start: 43 @36424 has 50 MA's), (52, 36532), (58, 36628), (59, 36634), (72, 36724), (87, 36862), (89, 36895), (91, 36898), (92, 36904), (95, 36928),

Gene: Petra_53 Start: 35617, Stop: 36207, Start Num: 43

Candidate Starts for Petra_53:

(20, 35455), (25, 35503), (Start: 43 @35617 has 50 MA's), (58, 35821), (69, 35887), (72, 35917), (74, 35938), (76, 35947), (78, 35971), (80, 35989), (89, 36085), (91, 36088), (92, 36094), (93, 36097), (95, 36118),

Gene: PhriskyACE_51 Start: 36416, Stop: 36979, Start Num: 43

Candidate Starts for PhriskyACE_51:

(14, 36212), (16, 36227), (Start: 41 @36410 has 1 MA's), (Start: 43 @36416 has 50 MA's), (52, 36524), (57, 36608), (58, 36620), (59, 36626), (72, 36716), (83, 36803), (87, 36830), (89, 36863), (91, 36866), (92, 36872), (95, 36896),

Gene: Pipp_59 Start: 37969, Stop: 38559, Start Num: 43

Candidate Starts for Pipp_59:

(20, 37807), (25, 37855), (Start: 43 @37969 has 50 MA's), (58, 38173), (72, 38269), (74, 38290), (78, 38323), (80, 38341), (89, 38437), (91, 38440), (92, 38446), (93, 38449), (95, 38470),

Gene: Pollux_57 Start: 40516, Stop: 41088, Start Num: 43

Candidate Starts for Pollux_57:

(37, 40486), (Start: 41 @40510 has 1 MA's), (Start: 43 @40516 has 50 MA's), (52, 40624), (58, 40720),

Gene: Powerball_52 Start: 36542, Stop: 37105, Start Num: 43

Candidate Starts for Powerball_52:

(14, 36338), (16, 36353), (Start: 41 @36536 has 1 MA's), (Start: 43 @36542 has 50 MA's), (52, 36650), (57, 36734), (58, 36746), (59, 36752), (72, 36842), (83, 36929), (87, 36956), (89, 36989), (91, 36992), (92, 36998), (95, 37022),

Gene: Rem711_52 Start: 36120, Stop: 36674, Start Num: 45

Candidate Starts for Rem711_52:

(34, 36066), (40, 36102), (Start: 41 @36108 has 1 MA's), (Start: 45 @36120 has 1 MA's), (55, 36267), (67, 36393), (71, 36423), (77, 36462), (96, 36615), (97, 36624),

Gene: Samba_56 Start: 39498, Stop: 40085, Start Num: 43

Candidate Starts for Samba_56:

(Start: 43 @39498 has 50 MA's), (58, 39699), (72, 39795), (80, 39867), (89, 39963), (91, 39966), (92, 39972), (93, 39975), (95, 39996),

Gene: Schnabeltier_62 Start: 41372, Stop: 42097, Start Num: 39

Candidate Starts for Schnabeltier_62:

(Start: 39 @41372 has 9 MA's), (Start: 43 @41390 has 50 MA's), (58, 41597), (66, 41654), (70, 41669), (77, 41726), (82, 41777), (96, 41897), (97, 41906), (98, 41909),

Gene: Sidious_59 Start: 42258, Stop: 42845, Start Num: 43

Candidate Starts for Sidious_59:

(7, 41895), (10, 41973), (12, 42003), (19, 42066), (Start: 43 @42258 has 50 MA's), (58, 42468), (70, 42540), (72, 42564), (80, 42636), (89, 42711), (90, 42714), (92, 42720), (96, 42765), (97, 42774),

Gene: Sidious_54 Start: 38723, Stop: 39313, Start Num: 43

Candidate Starts for Sidious_54:

(14, 38519), (26, 38621), (Start: 41 @38717 has 1 MA's), (Start: 43 @38723 has 50 MA's), (58, 38927), (59, 38933), (72, 39023), (74, 39044), (80, 39095), (89, 39191), (91, 39194), (92, 39200), (95, 39224),

Gene: Sparky_80 Start: 54416, Stop: 54964, Start Num: 44

Candidate Starts for Sparky_80:

(29, 54326), (35, 54365), (Start: 44 @54416 has 2 MA's), (64, 54650), (80, 54785), (96, 54902), (97, 54911), (100, 54923),

Gene: Spooky_97 Start: 52512, Stop: 53075, Start Num: 43

Candidate Starts for Spooky_97:

(13, 52416), (Start: 43 @52512 has 50 MA's), (50, 52608), (58, 52719), (63, 52743), (72, 52809), (87, 52923), (93, 52971), (96, 53013),

Gene: TPA4_56 Start: 40632, Stop: 41162, Start Num: 43

Candidate Starts for TPA4_56:

(8, 40278), (30, 40551), (Start: 43 @40632 has 50 MA's), (46, 40650), (48, 40698), (60, 40863), (65, 40893), (80, 41004), (99, 41151),

Gene: TaronosaurusRx_66 Start: 41369, Stop: 42100, Start Num: 39

Candidate Starts for TaronosaurusRx_66:

(Start: 39 @41369 has 9 MA's), (Start: 43 @41387 has 50 MA's), (52, 41501), (58, 41594), (66, 41651), (70, 41666), (82, 41774), (96, 41894), (97, 41903), (98, 41906), (105, 41996),

Gene: ThankyouJordi_62 Start: 43975, Stop: 44550, Start Num: 43

Candidate Starts for ThankyouJordi_62:

(Start: 43 @43975 has 50 MA's), (52, 44089), (58, 44182), (70, 44254), (72, 44278), (76, 44308), (80, 44350), (89, 44425), (91, 44431), (96, 44482),

Gene: Ubuntu_64 Start: 43962, Stop: 44513, Start Num: 43

Candidate Starts for Ubuntu_64:

(Start: 42 @43959 has 15 MA's), (Start: 43 @43962 has 50 MA's), (46, 43977), (51, 44061), (52, 44073), (53, 44085), (56, 44118), (61, 44187), (62, 44190), (68, 44229), (71, 44256), (73, 44274), (75, 44292), (80, 44337), (81, 44340), (84, 44355), (88, 44400), (97, 44460), (101, 44478),

Gene: Walrus_55 Start: 36777, Stop: 37367, Start Num: 43

Candidate Starts for Walrus_55:

(20, 36615), (25, 36663), (Start: 43 @36777 has 50 MA's), (58, 36981), (72, 37077), (74, 37098), (78, 37131), (80, 37149), (89, 37245), (91, 37248), (92, 37254), (93, 37257), (95, 37278),

Gene: Webster2_64 Start: 43959, Stop: 44513, Start Num: 42

Candidate Starts for Webster2_64:

(Start: 42 @43959 has 15 MA's), (Start: 43 @43962 has 50 MA's), (46, 43977), (51, 44061), (52, 44073), (53, 44085), (56, 44118), (61, 44187), (62, 44190), (68, 44229), (71, 44256), (73, 44274), (75, 44292), (80, 44337), (81, 44340), (84, 44355), (88, 44400), (97, 44460), (101, 44478),

Gene: WelcomeAyanna_62 Start: 44122, Stop: 44697, Start Num: 43

Candidate Starts for WelcomeAyanna_62:

(Start: 43 @44122 has 50 MA's), (52, 44236), (58, 44329), (70, 44401), (72, 44425), (76, 44455), (80, 44497), (89, 44572), (91, 44578), (96, 44629),

Gene: Wishmaker_61 Start: 43962, Stop: 44513, Start Num: 43

Candidate Starts for Wishmaker_61:

(Start: 42 @43959 has 15 MA's), (Start: 43 @43962 has 50 MA's), (46, 43977), (51, 44061), (52, 44073), (53, 44085), (56, 44118), (61, 44187), (62, 44190), (68, 44229), (71, 44256), (73, 44274), (75, 44292), (80, 44337), (81, 44340), (84, 44355), (88, 44400), (97, 44460), (101, 44478),

Gene: Wocket_57 Start: 37262, Stop: 37849, Start Num: 43

Candidate Starts for Wocket_57:

(1, 36689), (2, 36764), (20, 37100), (25, 37148), (31, 37181), (Start: 43 @37262 has 50 MA's), (58, 37463), (69, 37529), (72, 37559), (80, 37631), (89, 37727), (91, 37730), (92, 37736), (95, 37760),

Gene: ZAYM_64 Start: 41414, Stop: 42145, Start Num: 39

Candidate Starts for ZAYM_64:

(Start: 39 @41414 has 9 MA's), (Start: 43 @41432 has 50 MA's), (52, 41546), (58, 41639), (66, 41696), (70, 41711), (82, 41819), (96, 41939), (97, 41948), (98, 41951),

Gene: Zarbodnamra_56 Start: 36684, Stop: 37271, Start Num: 43

Candidate Starts for Zarbodnamra_56:

(Start: 43 @36684 has 50 MA's), (58, 36885), (72, 36981), (80, 37053), (89, 37149), (91, 37152), (92, 37158), (95, 37182),