

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 157828 Report

This analysis was run 04/13/24 on database version 558.

WARNING: Pham size does not match number of genes in report. Either unphamerated genes have been added (by you) or starterator has removed genes due to invalid start codon.

Pham number 157828 has 73 members, 12 are drafts.

Phages represented in each track:

- Track 1 : VWB_49
- Track 2 : SPB78_57
- Track 3 : DinoDaryn_53, Huffy_53
- Track 4 : Schmidt_46
- Track 5 : Belphegor_52
- Track 6 : Derg_51, Flatwoods_54, Bizzy_54
- Track 7 : Gustavo_54, Saronaya_54, Tangerine_53
- Track 8 : Bibwit_55, Ashertheman_56
- Track 9 : Ribeye_54
- Track 10 : YorkOnyx_55, SchottB_52, Kwobi_55, Kroos_54
- Track 11 : JKSyngboy_52
- Track 12 : Baddon_54
- Track 13 : Gaea_55
- Track 14 : BrayBeast_60, Shoya_60
- Track 15 : Bauer_75
- Track 16 : Zucker_78
- Track 17 : Sonah_63, Pygmy_65, Juniormint_60, Jung_63, Atcoo_64, Zilizebeth_68, Malithi_62, Vidya_61, Shipwreck_65, StevieRay_67, HUHilltop_65, Jebeks_63, Bogie_65, Dynamo_62, Brusacoram_64, Polkaroo_64, Thespis_64, Camster_63, Phineas_63, Necropolis_60
- Track 18 : Techage_63, Xula_58
- Track 19 : Arib1_61, Venti_60, Bartholomew_58, QueenHazel_59
- Track 20 : FirstPlacePfu_66, GreaseLightnin_67
- Track 21 : Megiddo_62
- Track 22 : MosMoris_72, Raela_76, Tesla_72, Beelzebub_79, JoieB_76, Corazon_72, RedRaider77_75, Marvin_71, Poise_76, Clarkson_76, Caprice_69, Pringar_73, Huphlepuuff_77, VasuNzinga_74, Blackbeetle_76, Gattaca_73
- Track 23 : LittleLaf_75, Lilbit_75

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

The start number called the most often in the published annotations is 13, it was called in 40 of the 61 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Arib1_61, Atcoo_64, Baddon_54, Bartholomew_58, Bauer_75, Belphegor_52, Bizzy_54, Bogie_65, BrayBeast_60, Brusacoram_64, Camster_63, Derg_51, Dynamo_62, FirstPlacePfu_66, Flatwoods_54, GreaseLightnin_67, Gustavo_54, HUHilltop_65, JKSyngboy_52, Jebeks_63, Jung_63, Juniormint_60, Kroos_54, Kwobi_55, Malithi_62, Megiddo_62, Necropolis_60, Phineas_63, Polkaroo_64, Pygmy_65, QueenHazel_59, Ribeye_54, SPB78_57, Saronaya_54, Schmidt_46, SchottB_52, Shipwreck_65, Shoya_60, Sonah_63, StevieRay_67, Tangerine_53, Techage_63, Thespis_64, VWB_49, Venti_60, Vidya_61, Xula_58, YorkOnyx_55, Zilizabeth_68, Zucker_78,

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

- DinoDaryn_53, Huffy_53,

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

- Ashertheman_56, Beelzebub_79, Bibwit_55, Blackbeetle_76, Caprice_69, Clarkson_76, Corazon_72, Gaea_55, Gattaca_73, Huphlepuuff_77, JoieB_76, Lilbit_75, LittleLaf_75, Marvin_71, MosMoris_72, Poise_76, Pringar_73, Raela_76, RedRaider77_75, Tesla_72, VasuNzinga_74,

Summary by start number:

Start 12:

- Found in 3 of 73 (4.1%) of genes in pham
- Manual Annotations of this start: 3 of 61
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ashertheman_56 (DE1), Bibwit_55 (DE1), Gaea_55 (DE1),

Start 13:

- Found in 52 of 73 (71.2%) of genes in pham
- Manual Annotations of this start: 40 of 61
- Called 96.2% of time when present
- Phage (with cluster) where this start called: Arib1_61 (P1), Atcoo_64 (P1), Baddon_54 (DE1), Bartholomew_58 (P1), Bauer_75 (FN), Belphegor_52 (DE), Bizzy_54 (DE1), Bogie_65 (P1), BrayBeast_60 (FB), Brusacoram_64 (P1), Camster_63 (P1), Derg_51 (DE1), Dynamo_62 (P1), FirstPlacePfu_66 (P1), Flatwoods_54 (DE1), GreaseLightnin_67 (P1), Gustavo_54 (DE1), HUHilltop_65 (P1), JKSyngboy_52 (DE1), Jebeks_63 (P1), Jung_63 (P1), Juniormint_60 (P1), Kroos_54 (DE1), Kwobi_55 (DE1), Malithi_62 (P1), Megiddo_62 (P1), Necropolis_60 (P1), Phineas_63 (P1), Polkaroo_64 (P1), Pygmy_65 (P1), QueenHazel_59 (I1), Ribeye_54 (DE1), SPB78_57 (BA), Saronaya_54 (DE1), Schmidt_46 (CU4), SchottB_52 (DE1), Shipwreck_65 (P1), Shoya_60 (FB), Sonah_63 (P1), StevieRay_67 (P1), Tangerine_53 (DE1), Techage_63 (P1), Thespis_64 (P1), VWB_49 (BA), Venti_60 (P1), Vidya_61 (P1), Xula_58 (I1), YorkOnyx_55 (DE1), Zilizabeth_68 (P1), Zucker_78 (FN),

Start 14:

- Found in 18 of 73 (24.7%) of genes in pham

- Manual Annotations of this start: 1 of 61
- Called 11.1% of time when present
- Phage (with cluster) where this start called: Lilbit_75 (S), LittleLaf_75 (S),

Start 15:

- Found in 18 of 73 (24.7%) of genes in pham
- Manual Annotations of this start: 15 of 61
- Called 88.9% of time when present
- Phage (with cluster) where this start called: Beelzebub_79 (S), Blackbeetle_76 (S), Caprice_69 (S), Clarkson_76 (S), Corazon_72 (S), Gattaca_73 (S), Huphlepuuff_77 (S), JoieB_76 (S), Marvin_71 (S), MosMoris_72 (S), Poise_76 (S), Pringar_73 (S), Raela_76 (S), RedRaider77_75 (S), Tesla_72 (S), VasuNzinga_74 (S),

Start 16:

- Found in 2 of 73 (2.7%) of genes in pham
- Manual Annotations of this start: 2 of 61
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DinoDaryn_53 (CU1), Huffy_53 (CU1),

Summary by clusters:

There are 10 clusters represented in this pham: P1, BA, CU1, I1, DE1, DE, FB, S, CU4, FN,

Info for manual annotations of cluster CU1:

- Start number 16 was manually annotated 2 times for cluster CU1.

Info for manual annotations of cluster CU4:

- Start number 13 was manually annotated 1 time for cluster CU4.

Info for manual annotations of cluster DE1:

- Start number 12 was manually annotated 3 times for cluster DE1.
- Start number 13 was manually annotated 9 times for cluster DE1.

Info for manual annotations of cluster FB:

- Start number 13 was manually annotated 2 times for cluster FB.

Info for manual annotations of cluster FN:

- Start number 13 was manually annotated 2 times for cluster FN.

Info for manual annotations of cluster I1:

- Start number 13 was manually annotated 2 times for cluster I1.

Info for manual annotations of cluster P1:

- Start number 13 was manually annotated 24 times for cluster P1.

Info for manual annotations of cluster S:

- Start number 14 was manually annotated 1 time for cluster S.
- Start number 15 was manually annotated 15 times for cluster S.

Gene Information:

Gene: Arib1_61 Start: 39295, Stop: 40290, Start Num: 13

Candidate Starts for Arib1_61:

(Start: 13 @39295 has 40 MA's), (18, 39340), (37, 39490), (45, 39571), (50, 39661), (55, 39694), (58, 39733), (61, 39781), (62, 39790), (70, 39922), (75, 39997), (79, 40024), (81, 40045),

Gene: Ashertheman_56 Start: 44845, Stop: 45732, Start Num: 12

Candidate Starts for Ashertheman_56:

(11, 44833), (Start: 12 @44845 has 3 MA's), (17, 44881), (33, 45001), (34, 45016), (39, 45046), (45, 45118), (51, 45205), (54, 45229), (66, 45391), (72, 45460), (76, 45541), (80, 45577),

Gene: Atcoo_64 Start: 42672, Stop: 43670, Start Num: 13

Candidate Starts for Atcoo_64:

(Start: 13 @42672 has 40 MA's), (18, 42717), (37, 42867), (50, 43038), (55, 43071), (61, 43158), (62, 43167), (70, 43299), (75, 43374), (79, 43401), (91, 43659),

Gene: Baddon_54 Start: 45452, Stop: 46342, Start Num: 13

Candidate Starts for Baddon_54:

(1, 45062), (Start: 13 @45452 has 40 MA's), (20, 45512), (23, 45533), (34, 45617), (35, 45623), (38, 45647), (40, 45656), (42, 45683), (43, 45704), (52, 45827), (57, 45866), (72, 46076), (76, 46157), (80, 46193),

Gene: Bartholomew_58 Start: 38622, Stop: 39617, Start Num: 13

Candidate Starts for Bartholomew_58:

(Start: 13 @38622 has 40 MA's), (18, 38667), (37, 38817), (45, 38898), (50, 38988), (55, 39021), (58, 39060), (61, 39108), (62, 39117), (70, 39249), (75, 39324), (79, 39351), (81, 39372),

Gene: Bauer_75 Start: 42042, Stop: 42833, Start Num: 13

Candidate Starts for Bauer_75:

(Start: 13 @42042 has 40 MA's), (19, 42090), (22, 42129), (30, 42192), (32, 42201), (36, 42234), (37, 42237), (49, 42351), (53, 42414), (65, 42564), (73, 42645), (82, 42765), (83, 42777),

Gene: Beelzebub_79 Start: 42080, Stop: 43006, Start Num: 15

Candidate Starts for Beelzebub_79:

(Start: 14 @42077 has 1 MA's), (Start: 15 @42080 has 15 MA's), (36, 42260), (38, 42275), (39, 42278), (43, 42320), (46, 42338), (69, 42635), (74, 42710), (79, 42752), (84, 42845), (85, 42881), (89, 42995), (90, 43001),

Gene: Belphegor_52 Start: 45051, Stop: 45884, Start Num: 13

Candidate Starts for Belphegor_52:

(2, 44676), (5, 44853), (Start: 13 @45051 has 40 MA's), (18, 45096), (20, 45111), (35, 45222), (36, 45231), (38, 45246), (40, 45255), (42, 45282), (43, 45303), (56, 45450), (60, 45507),

Gene: Bibwit_55 Start: 44359, Stop: 45243, Start Num: 12

Candidate Starts for Bibwit_55:

(11, 44347), (Start: 12 @44359 has 3 MA's), (17, 44395), (33, 44515), (34, 44530), (39, 44560), (45, 44632), (51, 44719), (54, 44743), (66, 44905), (72, 44974), (76, 45055), (80, 45091),

Gene: Bizzy_54 Start: 44167, Stop: 45060, Start Num: 13

Candidate Starts for Bizzy_54:

(1, 43777), (Start: 13 @44167 has 40 MA's), (20, 44227), (23, 44248), (34, 44332), (35, 44338), (38, 44362), (40, 44371), (42, 44398), (43, 44419), (52, 44542), (57, 44581), (66, 44722), (72, 44791), (76,

44872), (80, 44908),

Gene: Blackbeetle_76 Start: 41429, Stop: 42367, Start Num: 15

Candidate Starts for Blackbeetle_76:

(Start: 14 @41426 has 1 MA's), (Start: 15 @41429 has 15 MA's), (36, 41609), (38, 41624), (39, 41627), (43, 41669), (46, 41687), (69, 41996), (74, 42071), (79, 42113), (84, 42206), (85, 42242), (89, 42356), (90, 42362),

Gene: Bogie_65 Start: 41654, Stop: 42652, Start Num: 13

Candidate Starts for Bogie_65:

(Start: 13 @41654 has 40 MA's), (18, 41699), (37, 41849), (50, 42020), (55, 42053), (61, 42140), (62, 42149), (70, 42281), (75, 42356), (79, 42383), (91, 42641),

Gene: BrayBeast_60 Start: 34355, Stop: 35161, Start Num: 13

Candidate Starts for BrayBeast_60:

(Start: 13 @34355 has 40 MA's), (22, 34442), (30, 34505), (37, 34550), (49, 34664), (53, 34727), (65, 34877), (82, 35078),

Gene: Brusacoram_64 Start: 41215, Stop: 42213, Start Num: 13

Candidate Starts for Brusacoram_64:

(Start: 13 @41215 has 40 MA's), (18, 41260), (37, 41410), (50, 41581), (55, 41614), (61, 41701), (62, 41710), (70, 41842), (75, 41917), (79, 41944), (91, 42202),

Gene: Camster_63 Start: 40115, Stop: 41113, Start Num: 13

Candidate Starts for Camster_63:

(Start: 13 @40115 has 40 MA's), (18, 40160), (37, 40310), (50, 40481), (55, 40514), (61, 40601), (62, 40610), (70, 40742), (75, 40817), (79, 40844), (91, 41102),

Gene: Caprice_69 Start: 41379, Stop: 42305, Start Num: 15

Candidate Starts for Caprice_69:

(Start: 14 @41376 has 1 MA's), (Start: 15 @41379 has 15 MA's), (36, 41559), (38, 41574), (39, 41577), (43, 41619), (46, 41637), (69, 41934), (74, 42009), (79, 42051), (84, 42144), (85, 42180), (89, 42294), (90, 42300),

Gene: Clarkson_76 Start: 41760, Stop: 42686, Start Num: 15

Candidate Starts for Clarkson_76:

(Start: 14 @41757 has 1 MA's), (Start: 15 @41760 has 15 MA's), (36, 41940), (38, 41955), (39, 41958), (43, 42000), (46, 42018), (69, 42315), (74, 42390), (79, 42432), (84, 42525), (85, 42561), (89, 42675), (90, 42681),

Gene: Corazon_72 Start: 41954, Stop: 42880, Start Num: 15

Candidate Starts for Corazon_72:

(Start: 14 @41951 has 1 MA's), (Start: 15 @41954 has 15 MA's), (36, 42134), (38, 42149), (39, 42152), (43, 42194), (46, 42212), (69, 42509), (74, 42584), (79, 42626), (84, 42719), (85, 42755), (89, 42869), (90, 42875),

Gene: Derg_51 Start: 43759, Stop: 44652, Start Num: 13

Candidate Starts for Derg_51:

(1, 43369), (Start: 13 @43759 has 40 MA's), (20, 43819), (23, 43840), (34, 43924), (35, 43930), (38, 43954), (40, 43963), (42, 43990), (43, 44011), (52, 44134), (57, 44173), (66, 44314), (72, 44383), (76, 44464), (80, 44500),

Gene: DinoDaryn_53 Start: 33407, Stop: 34255, Start Num: 16

Candidate Starts for DinoDaryn_53:

(Start: 13 @33380 has 40 MA's), (Start: 16 @33407 has 2 MA's), (22, 33467), (24, 33476), (26, 33503), (28, 33518), (30, 33530), (33, 33542), (49, 33689), (64, 33881), (77, 34058), (81, 34088), (86, 34223),

Gene: Dynamo_62 Start: 39688, Stop: 40686, Start Num: 13

Candidate Starts for Dynamo_62:

(Start: 13 @39688 has 40 MA's), (18, 39733), (37, 39883), (50, 40054), (55, 40087), (61, 40174), (62, 40183), (70, 40315), (75, 40390), (79, 40417), (91, 40675),

Gene: FirstPlacePfu_66 Start: 39281, Stop: 40279, Start Num: 13

Candidate Starts for FirstPlacePfu_66:

(Start: 13 @39281 has 40 MA's), (18, 39326), (37, 39476), (50, 39647), (55, 39680), (58, 39719), (61, 39767), (62, 39776), (70, 39908), (75, 39983), (79, 40010), (87, 40193), (91, 40268),

Gene: Flatwoods_54 Start: 44108, Stop: 44998, Start Num: 13

Candidate Starts for Flatwoods_54:

(1, 43718), (Start: 13 @44108 has 40 MA's), (20, 44168), (23, 44189), (34, 44273), (35, 44279), (38, 44303), (40, 44312), (42, 44339), (43, 44360), (52, 44483), (57, 44522), (66, 44663), (72, 44732), (76, 44813), (80, 44849),

Gene: Gaea_55 Start: 44145, Stop: 45029, Start Num: 12

Candidate Starts for Gaea_55:

(11, 44133), (Start: 12 @44145 has 3 MA's), (17, 44181), (33, 44301), (34, 44316), (39, 44346), (45, 44418), (51, 44505), (54, 44529), (72, 44760), (76, 44841), (80, 44877),

Gene: Gattaca_73 Start: 41533, Stop: 42465, Start Num: 15

Candidate Starts for Gattaca_73:

(Start: 14 @41530 has 1 MA's), (Start: 15 @41533 has 15 MA's), (36, 41713), (38, 41728), (39, 41731), (43, 41773), (46, 41791), (69, 42094), (74, 42169), (79, 42211), (84, 42304), (85, 42340), (89, 42454), (90, 42460),

Gene: GreaseLightnin_67 Start: 42069, Stop: 43067, Start Num: 13

Candidate Starts for GreaseLightnin_67:

(Start: 13 @42069 has 40 MA's), (18, 42114), (37, 42264), (50, 42435), (55, 42468), (58, 42507), (61, 42555), (62, 42564), (70, 42696), (75, 42771), (79, 42798), (87, 42981), (91, 43056),

Gene: Gustavo_54 Start: 44390, Stop: 45280, Start Num: 13

Candidate Starts for Gustavo_54:

(1, 44000), (4, 44093), (Start: 13 @44390 has 40 MA's), (20, 44450), (23, 44471), (34, 44555), (35, 44561), (38, 44585), (40, 44594), (42, 44621), (43, 44642), (52, 44765), (57, 44804), (72, 45014), (76, 45095), (80, 45131),

Gene: HUHilltop_65 Start: 39911, Stop: 40909, Start Num: 13

Candidate Starts for HUHilltop_65:

(Start: 13 @39911 has 40 MA's), (18, 39956), (37, 40106), (50, 40277), (55, 40310), (61, 40397), (62, 40406), (70, 40538), (75, 40613), (79, 40640), (91, 40898),

Gene: Huffy_53 Start: 33407, Stop: 34255, Start Num: 16

Candidate Starts for Huffy_53:

(Start: 13 @33380 has 40 MA's), (Start: 16 @33407 has 2 MA's), (22, 33467), (24, 33476), (26, 33503), (28, 33518), (30, 33530), (33, 33542), (49, 33689), (64, 33881), (77, 34058), (81, 34088), (86, 34223),

Gene: Huphlebuff_77 Start: 41565, Stop: 42491, Start Num: 15

Candidate Starts for Huphlebuff_77:

(Start: 14 @41562 has 1 MA's), (Start: 15 @41565 has 15 MA's), (36, 41745), (38, 41760), (39, 41763), (43, 41805), (46, 41823), (69, 42120), (74, 42195), (79, 42237), (84, 42330), (85, 42366), (89, 42480), (90, 42486),

Gene: JKSyngboy_52 Start: 44983, Stop: 45873, Start Num: 13

Candidate Starts for JKSyngboy_52:

(1, 44593), (Start: 13 @44983 has 40 MA's), (20, 45043), (23, 45064), (34, 45148), (35, 45154), (36, 45163), (38, 45178), (40, 45187), (42, 45214), (43, 45235), (52, 45358), (57, 45397), (72, 45607), (76, 45688), (80, 45724),

Gene: Jebeks_63 Start: 39208, Stop: 40206, Start Num: 13

Candidate Starts for Jebeks_63:

(Start: 13 @39208 has 40 MA's), (18, 39253), (37, 39403), (50, 39574), (55, 39607), (61, 39694), (62, 39703), (70, 39835), (75, 39910), (79, 39937), (91, 40195),

Gene: JoieB_76 Start: 42016, Stop: 42954, Start Num: 15

Candidate Starts for JoieB_76:

(Start: 14 @42013 has 1 MA's), (Start: 15 @42016 has 15 MA's), (36, 42196), (38, 42211), (39, 42214), (43, 42256), (46, 42274), (69, 42583), (74, 42658), (79, 42700), (84, 42793), (85, 42829), (89, 42943), (90, 42949),

Gene: Jung_63 Start: 40211, Stop: 41209, Start Num: 13

Candidate Starts for Jung_63:

(Start: 13 @40211 has 40 MA's), (18, 40256), (37, 40406), (50, 40577), (55, 40610), (61, 40697), (62, 40706), (70, 40838), (75, 40913), (79, 40940), (91, 41198),

Gene: Juniormint_60 Start: 38664, Stop: 39662, Start Num: 13

Candidate Starts for Juniormint_60:

(Start: 13 @38664 has 40 MA's), (18, 38709), (37, 38859), (50, 39030), (55, 39063), (61, 39150), (62, 39159), (70, 39291), (75, 39366), (79, 39393), (91, 39651),

Gene: Kroos_54 Start: 44667, Stop: 45560, Start Num: 13

Candidate Starts for Kroos_54:

(1, 44277), (Start: 13 @44667 has 40 MA's), (20, 44727), (23, 44748), (26, 44778), (34, 44832), (35, 44838), (36, 44847), (38, 44862), (40, 44871), (42, 44898), (43, 44919), (52, 45042), (57, 45081), (72, 45291), (76, 45372), (80, 45408),

Gene: Kwobi_55 Start: 45093, Stop: 45986, Start Num: 13

Candidate Starts for Kwobi_55:

(1, 44703), (Start: 13 @45093 has 40 MA's), (20, 45153), (23, 45174), (26, 45204), (34, 45258), (35, 45264), (36, 45273), (38, 45288), (40, 45297), (42, 45324), (43, 45345), (52, 45468), (57, 45507), (72, 45717), (76, 45798), (80, 45834),

Gene: Lilbit_75 Start: 42110, Stop: 43051, Start Num: 14

Candidate Starts for Lilbit_75:

(Start: 14 @42110 has 1 MA's), (Start: 15 @42113 has 15 MA's), (36, 42293), (38, 42308), (39, 42311), (43, 42353), (46, 42371), (69, 42680), (74, 42755), (79, 42797), (84, 42890), (85, 42926), (89, 43040), (90, 43046),

Gene: LittleLaf_75 Start: 41839, Stop: 42780, Start Num: 14

Candidate Starts for LittleLaf_75:

(Start: 14 @41839 has 1 MA's), (Start: 15 @41842 has 15 MA's), (36, 42022), (38, 42037), (39, 42040), (43, 42082), (46, 42100), (69, 42409), (74, 42484), (79, 42526), (84, 42619), (85, 42655), (89, 42769), (90, 42775),

Gene: Malithi_62 Start: 39826, Stop: 40836, Start Num: 13

Candidate Starts for Malithi_62:

(Start: 13 @39826 has 40 MA's), (18, 39871), (37, 40021), (50, 40192), (55, 40225), (61, 40312), (62, 40321), (70, 40465), (75, 40540), (79, 40567), (91, 40825),

Gene: Marvin_71 Start: 41650, Stop: 42576, Start Num: 15

Candidate Starts for Marvin_71:

(Start: 14 @41647 has 1 MA's), (Start: 15 @41650 has 15 MA's), (36, 41830), (38, 41845), (39, 41848), (43, 41890), (46, 41908), (69, 42205), (74, 42280), (79, 42322), (84, 42415), (85, 42451), (89, 42565), (90, 42571),

Gene: Megiddo_62 Start: 41848, Stop: 42846, Start Num: 13

Candidate Starts for Megiddo_62:

(Start: 13 @41848 has 40 MA's), (18, 41893), (37, 42043), (50, 42214), (55, 42247), (61, 42334), (62, 42343), (70, 42475), (75, 42550), (79, 42577), (87, 42760), (91, 42835),

Gene: MosMoris_72 Start: 41533, Stop: 42471, Start Num: 15

Candidate Starts for MosMoris_72:

(Start: 14 @41530 has 1 MA's), (Start: 15 @41533 has 15 MA's), (36, 41713), (38, 41728), (39, 41731), (43, 41773), (46, 41791), (69, 42100), (74, 42175), (79, 42217), (84, 42310), (85, 42346), (89, 42460), (90, 42466),

Gene: Necropolis_60 Start: 39277, Stop: 40275, Start Num: 13

Candidate Starts for Necropolis_60:

(Start: 13 @39277 has 40 MA's), (18, 39322), (37, 39472), (50, 39643), (55, 39676), (61, 39763), (62, 39772), (70, 39904), (75, 39979), (79, 40006), (91, 40264),

Gene: Phineas_63 Start: 40246, Stop: 41244, Start Num: 13

Candidate Starts for Phineas_63:

(Start: 13 @40246 has 40 MA's), (18, 40291), (37, 40441), (50, 40612), (55, 40645), (61, 40732), (62, 40741), (70, 40873), (75, 40948), (79, 40975), (91, 41233),

Gene: Poise_76 Start: 41429, Stop: 42367, Start Num: 15

Candidate Starts for Poise_76:

(Start: 14 @41426 has 1 MA's), (Start: 15 @41429 has 15 MA's), (36, 41609), (38, 41624), (39, 41627), (43, 41669), (46, 41687), (69, 41996), (74, 42071), (79, 42113), (84, 42206), (85, 42242), (89, 42356), (90, 42362),

Gene: Polkaroo_64 Start: 41992, Stop: 42990, Start Num: 13

Candidate Starts for Polkaroo_64:

(Start: 13 @41992 has 40 MA's), (18, 42037), (37, 42187), (50, 42358), (55, 42391), (61, 42478), (62, 42487), (70, 42619), (75, 42694), (79, 42721), (91, 42979),

Gene: Pringar_73 Start: 41366, Stop: 42292, Start Num: 15

Candidate Starts for Pringar_73:

(Start: 14 @41363 has 1 MA's), (Start: 15 @41366 has 15 MA's), (36, 41546), (38, 41561), (39, 41564), (43, 41606), (46, 41624), (69, 41921), (74, 41996), (79, 42038), (84, 42131), (85, 42167), (89, 42281), (90, 42287),

Gene: Pygmy_65 Start: 41710, Stop: 42708, Start Num: 13

Candidate Starts for Pygmy_65:

(Start: 13 @41710 has 40 MA's), (18, 41755), (37, 41905), (50, 42076), (55, 42109), (61, 42196), (62, 42205), (70, 42337), (75, 42412), (79, 42439), (91, 42697),

Gene: QueenHazel_59 Start: 39831, Stop: 40829, Start Num: 13

Candidate Starts for QueenHazel_59:

(Start: 13 @39831 has 40 MA's), (18, 39876), (37, 40026), (45, 40107), (50, 40197), (55, 40230), (58, 40269), (61, 40317), (62, 40326), (70, 40458), (75, 40536), (79, 40563), (81, 40584),

Gene: Raela_76 Start: 41986, Stop: 42918, Start Num: 15

Candidate Starts for Raela_76:

(Start: 14 @41983 has 1 MA's), (Start: 15 @41986 has 15 MA's), (36, 42166), (38, 42181), (39, 42184), (43, 42226), (46, 42244), (69, 42547), (74, 42622), (79, 42664), (84, 42757), (85, 42793), (89, 42907), (90, 42913),

Gene: RedRaider77_75 Start: 41374, Stop: 42312, Start Num: 15

Candidate Starts for RedRaider77_75:

(Start: 14 @41371 has 1 MA's), (Start: 15 @41374 has 15 MA's), (36, 41554), (38, 41569), (39, 41572), (43, 41614), (46, 41632), (69, 41941), (74, 42016), (79, 42058), (84, 42151), (85, 42187), (89, 42301), (90, 42307),

Gene: Ribeye_54 Start: 45091, Stop: 45984, Start Num: 13

Candidate Starts for Ribeye_54:

(1, 44701), (4, 44794), (Start: 13 @45091 has 40 MA's), (20, 45151), (23, 45172), (34, 45256), (35, 45262), (38, 45286), (40, 45295), (42, 45322), (43, 45343), (52, 45466), (57, 45505), (66, 45646), (72, 45715), (76, 45796), (80, 45832),

Gene: SPB78_57 Start: 38788, Stop: 39564, Start Num: 13

Candidate Starts for SPB78_57:

(Start: 13 @38788 has 40 MA's), (23, 38869), (25, 38887), (26, 38899), (27, 38914), (31, 38935), (36, 38965), (44, 39049), (48, 39088), (63, 39280), (67, 39349), (68, 39364), (76, 39475), (78, 39490),

Gene: Saronaya_54 Start: 44390, Stop: 45280, Start Num: 13

Candidate Starts for Saronaya_54:

(1, 44000), (4, 44093), (Start: 13 @44390 has 40 MA's), (20, 44450), (23, 44471), (34, 44555), (35, 44561), (38, 44585), (40, 44594), (42, 44621), (43, 44642), (52, 44765), (57, 44804), (72, 45014), (76, 45095), (80, 45131),

Gene: Schmidt_46 Start: 30686, Stop: 31453, Start Num: 13

Candidate Starts for Schmidt_46:

(Start: 13 @30686 has 40 MA's), (19, 30734), (28, 30824), (30, 30836), (37, 30881), (41, 30905), (59, 31073), (81, 31283), (82, 31313), (88, 31448),

Gene: SchottB_52 Start: 44927, Stop: 45820, Start Num: 13

Candidate Starts for SchottB_52:

(1, 44537), (Start: 13 @44927 has 40 MA's), (20, 44987), (23, 45008), (26, 45038), (34, 45092), (35, 45098), (36, 45107), (38, 45122), (40, 45131), (42, 45158), (43, 45179), (52, 45302), (57, 45341), (72, 45551), (76, 45632), (80, 45668),

Gene: Shipwreck_65 Start: 41685, Stop: 42683, Start Num: 13

Candidate Starts for Shipwreck_65:

(Start: 13 @41685 has 40 MA's), (18, 41730), (37, 41880), (50, 42051), (55, 42084), (61, 42171), (62, 42180), (70, 42312), (75, 42387), (79, 42414), (91, 42672),

Gene: Shoya_60 Start: 34184, Stop: 34990, Start Num: 13

Candidate Starts for Shoya_60:

(Start: 13 @34184 has 40 MA's), (22, 34271), (30, 34334), (37, 34379), (49, 34493), (53, 34556), (65, 34706), (82, 34907),

Gene: Sonah_63 Start: 39382, Stop: 40380, Start Num: 13

Candidate Starts for Sonah_63:

(Start: 13 @39382 has 40 MA's), (18, 39427), (37, 39577), (50, 39748), (55, 39781), (61, 39868), (62, 39877), (70, 40009), (75, 40084), (79, 40111), (91, 40369),

Gene: StevieRay_67 Start: 42449, Stop: 43447, Start Num: 13

Candidate Starts for StevieRay_67:

(Start: 13 @42449 has 40 MA's), (18, 42494), (37, 42644), (50, 42815), (55, 42848), (61, 42935), (62, 42944), (70, 43076), (75, 43151), (79, 43178), (91, 43436),

Gene: Tangerine_53 Start: 43802, Stop: 44692, Start Num: 13

Candidate Starts for Tangerine_53:

(1, 43412), (4, 43505), (Start: 13 @43802 has 40 MA's), (20, 43862), (23, 43883), (34, 43967), (35, 43973), (38, 43997), (40, 44006), (42, 44033), (43, 44054), (52, 44177), (57, 44216), (72, 44426), (76, 44507), (80, 44543),

Gene: Techage_63 Start: 40250, Stop: 41245, Start Num: 13

Candidate Starts for Techage_63:

(Start: 13 @40250 has 40 MA's), (18, 40295), (37, 40445), (45, 40526), (47, 40529), (50, 40616), (55, 40649), (58, 40688), (61, 40736), (62, 40745), (70, 40877), (75, 40952), (79, 40979), (81, 41000),

Gene: Tesla_72 Start: 41223, Stop: 42161, Start Num: 15

Candidate Starts for Tesla_72:

(Start: 14 @41220 has 1 MA's), (Start: 15 @41223 has 15 MA's), (36, 41403), (38, 41418), (39, 41421), (43, 41463), (46, 41481), (69, 41790), (74, 41865), (79, 41907), (84, 42000), (85, 42036), (89, 42150), (90, 42156),

Gene: Thespis_64 Start: 41215, Stop: 42213, Start Num: 13

Candidate Starts for Thespis_64:

(Start: 13 @41215 has 40 MA's), (18, 41260), (37, 41410), (50, 41581), (55, 41614), (61, 41701), (62, 41710), (70, 41842), (75, 41917), (79, 41944), (91, 42202),

Gene: VWB_49 Start: 36944, Stop: 37702, Start Num: 13

Candidate Starts for VWB_49:

(3, 36617), (6, 36746), (7, 36749), (8, 36785), (9, 36815), (Start: 13 @36944 has 40 MA's), (20, 37004), (27, 37070), (29, 37082), (31, 37091), (44, 37202), (71, 37529),

Gene: VasuNzinga_74 Start: 41324, Stop: 42250, Start Num: 15

Candidate Starts for VasuNzinga_74:

(Start: 14 @41321 has 1 MA's), (Start: 15 @41324 has 15 MA's), (36, 41504), (38, 41519), (39, 41522), (43, 41564), (46, 41582), (69, 41879), (74, 41954), (79, 41996), (84, 42089), (85, 42125), (89, 42239), (90, 42245),

Gene: Venti_60 Start: 38622, Stop: 39617, Start Num: 13

Candidate Starts for Venti_60:

(Start: 13 @38622 has 40 MA's), (18, 38667), (37, 38817), (45, 38898), (50, 38988), (55, 39021), (58, 39060), (61, 39108), (62, 39117), (70, 39249), (75, 39324), (79, 39351), (81, 39372),

Gene: Vidya_61 Start: 39503, Stop: 40501, Start Num: 13

Candidate Starts for Vidya_61:

(Start: 13 @39503 has 40 MA's), (18, 39548), (37, 39698), (50, 39869), (55, 39902), (61, 39989), (62, 39998), (70, 40130), (75, 40205), (79, 40232), (91, 40490),

Gene: Xula_58 Start: 39452, Stop: 40450, Start Num: 13

Candidate Starts for Xula_58:

(Start: 13 @39452 has 40 MA's), (18, 39497), (37, 39647), (45, 39728), (47, 39731), (50, 39818), (55, 39851), (58, 39890), (61, 39938), (62, 39947), (70, 40079), (75, 40157), (79, 40184), (81, 40205),

Gene: YorkOnyx_55 Start: 44582, Stop: 45475, Start Num: 13

Candidate Starts for YorkOnyx_55:

(1, 44192), (Start: 13 @44582 has 40 MA's), (20, 44642), (23, 44663), (26, 44693), (34, 44747), (35, 44753), (36, 44762), (38, 44777), (40, 44786), (42, 44813), (43, 44834), (52, 44957), (57, 44996), (72, 45206), (76, 45287), (80, 45323),

Gene: Zilizebeth_68 Start: 41024, Stop: 42022, Start Num: 13

Candidate Starts for Zilizebeth_68:

(Start: 13 @41024 has 40 MA's), (18, 41069), (37, 41219), (50, 41390), (55, 41423), (61, 41510), (62, 41519), (70, 41651), (75, 41726), (79, 41753), (91, 42011),

Gene: Zucker_78 Start: 46620, Stop: 47435, Start Num: 13

Candidate Starts for Zucker_78:

(10, 46542), (Start: 13 @46620 has 40 MA's), (21, 46689), (22, 46695), (37, 46803), (49, 46920), (65, 47166), (73, 47247), (82, 47367), (83, 47379),