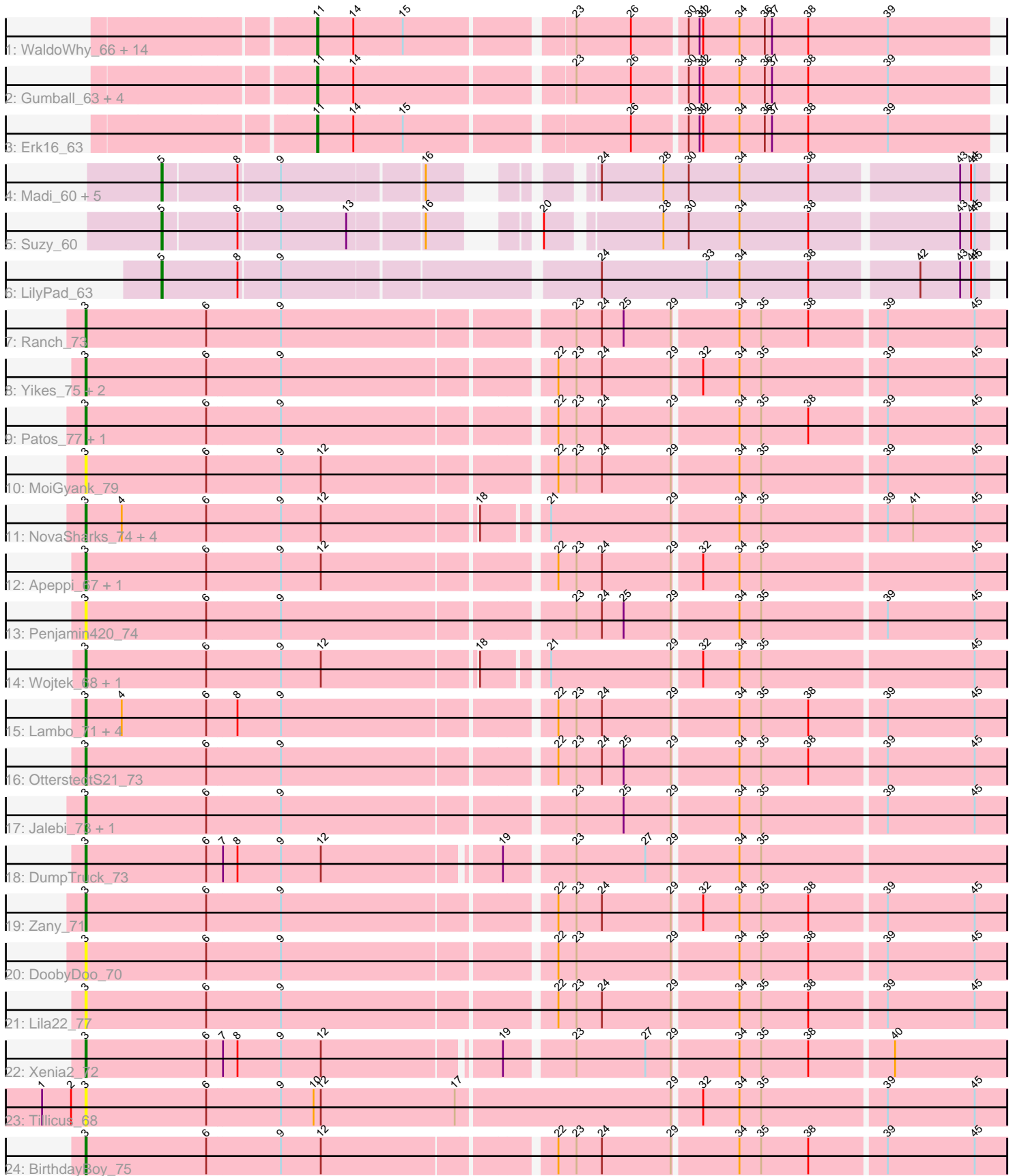


Pham 1877



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 1877 Report

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

Pham number 1877 has 61 members, 8 are drafts.

Phages represented in each track:

- Track 1 : WaldoWhy_66, Prager_64, Chill_66, Penelope2018_64, Visconti_65, Butterscotch_62, Helpful_67, Troll4_63, Giuseppe_65, Adjutor_62, BigMama_62, Mopey_65, Thoth_64, PBI1_60, Delton_64
- Track 2 : Gumball_63, KandZ_62, PLOT_63, SirHarley_66, Nova_63
- Track 3 : Erk16_63
- Track 4 : Madi_60, BiteSize_60, Beyoncage_60, Terapin_61, Djokovic_60, Sienna_60
- Track 5 : Suzy_60
- Track 6 : LilyPad_63
- Track 7 : Ranch_73
- Track 8 : Yikes_75, Sadboi_74, GretelLyn_73
- Track 9 : Patos_77, NorManre_77
- Track 10 : MoiGyank_79
- Track 11 : NovaSharks_74, Genamy16_75, Alyssamiracle_75, Avian_71, Rumi_73
- Track 12 : Apeppi_67, LuckyLeo_69
- Track 13 : Penjamin420_74
- Track 14 : Wojtek_68, Erutan_73
- Track 15 : Lambo_71, GOATification_73, Gibbin_75, ParvusTarda_72, Fulcrum_73
- Track 16 : OtterstedtS21_73
- Track 17 : Jalebi_73, Sampudon_74
- Track 18 : DumpTruck_73
- Track 19 : Zany_71
- Track 20 : DoobyDoo_70
- Track 21 : Lila22_77
- Track 22 : Xenia2_72
- Track 23 : Tillicus_68
- Track 24 : BirthdayBoy_75

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

The start number called the most often in the published annotations is 3, it was called in 25 of the 53 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Alyssamiracle_75, Apeppi_67, Avian_71, BirthdayBoy_75, DoobyDoo_70, DumpTruck_73, Erutan_73, Fulcrum_73, GOATification_73, Genamy16_75, Gibbin_75, Gretellyn_73, Jalebi_73, Lambo_71, Lila22_77, LuckyLeo_69, MoiGyank_79, NorManre_77, NovaSharks_74, OtterstedtS21_73, ParvusTarda_72, Patos_77, Penjamin420_74, Ranch_73, Rumi_73, Sadboi_74, Sampudon_74, Tillicus_68, Wojtek_68, Xenia2_72, Yikes_75, Zany_71,

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

-

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

- Adjutor_62, Beyoncage_60, BigMama_62, BiteSize_60, Butterscotch_62, Chill_66, Delton_64, Djokovic_60, Erk16_63, Giuseppe_65, Gumball_63, Helpful_67, KandZ_62, LilyPad_63, Madi_60, Mopey_65, Nova_63, PBI1_60, PLOT_63, Penelope2018_64, Prager_64, Sienna_60, SirHarley_66, Suzy_60, Terapin_61, Thoth_64, Troll4_63, Visconti_65, WaldoWhy_66,

Summary by start number:

Start 3:

- Found in 32 of 61 (52.5%) of genes in pham
- Manual Annotations of this start: 25 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alyssamiracle_75 (DV), Apeppi_67 (DV), Avian_71 (DV), BirthdayBoy_75 (DV), DoobyDoo_70 (DV), DumpTruck_73 (DV), Erutan_73 (DV), Fulcrum_73 (DV), GOATification_73 (DV), Genamy16_75 (DV), Gibbin_75 (DV), Gretellyn_73 (DV), Jalebi_73 (DV), Lambo_71 (DV), Lila22_77 (DV), LuckyLeo_69 (DV), MoiGyank_79 (DV), NorManre_77 (DV), NovaSharks_74 (DV), OtterstedtS21_73 (DV), ParvusTarda_72 (DV), Patos_77 (DV), Penjamin420_74 (DV), Ranch_73 (DV), Rumi_73 (DV), Sadboi_74 (DV), Sampudon_74 (DV), Tillicus_68 (DV), Wojtek_68 (DV), Xenia2_72 (DV), Yikes_75 (DV), Zany_71 (DV),

Start 5:

- Found in 8 of 61 (13.1%) of genes in pham
- Manual Annotations of this start: 8 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Beyoncage_60 (DG1), BiteSize_60 (DG1), Djokovic_60 (DG1), LilyPad_63 (DG1), Madi_60 (DG1), Sienna_60 (DG1), Suzy_60 (DG1), Terapin_61 (DG1),

Start 11:

- Found in 21 of 61 (34.4%) of genes in pham
- Manual Annotations of this start: 20 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Adjutor_62 (D1), BigMama_62 (D1), Butterscotch_62 (D1), Chill_66 (D1), Delton_64 (D1), Erk16_63 (D1), Giuseppe_65 (D1), Gumball_63 (D1), Helpful_67 (D1), KandZ_62 (D1), Mopey_65 (D1), Nova_63 (D1), PBI1_60 (D1), PLOT_63 (D1), Penelope2018_64 (D1), Prager_64 (D1), SirHarley_66 (D1), Thoth_64 (D1), Troll4_63 (D1), Visconti_65 (D1), WaldoWhy_66 (D1),

Summary by clusters:

There are 3 clusters represented in this pham: DV, DG1, D1,

Info for manual annotations of cluster D1:

- Start number 11 was manually annotated 20 times for cluster D1.

Info for manual annotations of cluster DG1:

- Start number 5 was manually annotated 8 times for cluster DG1.

Info for manual annotations of cluster DV:

- Start number 3 was manually annotated 25 times for cluster DV.

Gene Information:

Gene: Adjutor_62 Start: 47867, Stop: 48397, Start Num: 11

Candidate Starts for Adjutor_62:

(Start: 11 @47867 has 20 MA's), (14, 47897), (15, 47936), (23, 48062), (26, 48107), (30, 48149), (31, 48158), (32, 48161), (34, 48191), (36, 48212), (37, 48218), (38, 48248), (39, 48314),

Gene: Alyssamiracle_75 Start: 48381, Stop: 49100, Start Num: 3

Candidate Starts for Alyssamiracle_75:

(Start: 3 @48381 has 25 MA's), (4, 48411), (6, 48480), (9, 48540), (12, 48573), (18, 48693), (21, 48735), (29, 48834), (34, 48885), (35, 48903), (39, 49002), (41, 49023), (45, 49074),

Gene: Apeppi_67 Start: 48667, Stop: 49395, Start Num: 3

Candidate Starts for Apeppi_67:

(Start: 3 @48667 has 25 MA's), (6, 48766), (9, 48826), (12, 48859), (22, 49036), (23, 49051), (24, 49072), (29, 49129), (32, 49150), (34, 49180), (35, 49198), (45, 49369),

Gene: Avian_71 Start: 48109, Stop: 48828, Start Num: 3

Candidate Starts for Avian_71:

(Start: 3 @48109 has 25 MA's), (4, 48139), (6, 48208), (9, 48268), (12, 48301), (18, 48421), (21, 48463), (29, 48562), (34, 48613), (35, 48631), (39, 48730), (41, 48751), (45, 48802),

Gene: Beyoncage_60 Start: 44591, Stop: 45193, Start Num: 5

Candidate Starts for Beyoncage_60:

(Start: 5 @44591 has 8 MA's), (8, 44651), (9, 44684), (16, 44795), (24, 44882), (28, 44933), (30, 44954), (34, 44996), (38, 45053), (43, 45170), (44, 45179), (45, 45182),

Gene: BigMama_62 Start: 47940, Stop: 48470, Start Num: 11

Candidate Starts for BigMama_62:

(Start: 11 @47940 has 20 MA's), (14, 47970), (15, 48009), (23, 48135), (26, 48180), (30, 48222), (31, 48231), (32, 48234), (34, 48264), (36, 48285), (37, 48291), (38, 48321), (39, 48387),

Gene: BirthdayBoy_75 Start: 50008, Stop: 50736, Start Num: 3

Candidate Starts for BirthdayBoy_75:

(Start: 3 @50008 has 25 MA's), (6, 50107), (9, 50167), (12, 50200), (22, 50377), (23, 50392), (24, 50413), (29, 50470), (34, 50521), (35, 50539), (38, 50578), (39, 50638), (45, 50710),

Gene: BiteSize_60 Start: 44677, Stop: 45279, Start Num: 5

Candidate Starts for BiteSize_60:

(Start: 5 @44677 has 8 MA's), (8, 44737), (9, 44770), (16, 44881), (24, 44968), (28, 45019), (30, 45040), (34, 45082), (38, 45139), (43, 45256), (44, 45265), (45, 45268),

Gene: Butterscotch_62 Start: 47918, Stop: 48448, Start Num: 11

Candidate Starts for Butterscotch_62:

(Start: 11 @47918 has 20 MA's), (14, 47948), (15, 47987), (23, 48113), (26, 48158), (30, 48200), (31, 48209), (32, 48212), (34, 48242), (36, 48263), (37, 48269), (38, 48299), (39, 48365),

Gene: Chill_66 Start: 47951, Stop: 48481, Start Num: 11

Candidate Starts for Chill_66:

(Start: 11 @47951 has 20 MA's), (14, 47981), (15, 48020), (23, 48146), (26, 48191), (30, 48233), (31, 48242), (32, 48245), (34, 48275), (36, 48296), (37, 48302), (38, 48332), (39, 48398),

Gene: Delton_64 Start: 48316, Stop: 48846, Start Num: 11

Candidate Starts for Delton_64:

(Start: 11 @48316 has 20 MA's), (14, 48346), (15, 48385), (23, 48511), (26, 48556), (30, 48598), (31, 48607), (32, 48610), (34, 48640), (36, 48661), (37, 48667), (38, 48697), (39, 48763),

Gene: Djokovic_60 Start: 44590, Stop: 45192, Start Num: 5

Candidate Starts for Djokovic_60:

(Start: 5 @44590 has 8 MA's), (8, 44650), (9, 44683), (16, 44794), (24, 44881), (28, 44932), (30, 44953), (34, 44995), (38, 45052), (43, 45169), (44, 45178), (45, 45181),

Gene: DoobyDoo_70 Start: 48356, Stop: 49084, Start Num: 3

Candidate Starts for DoobyDoo_70:

(Start: 3 @48356 has 25 MA's), (6, 48455), (9, 48515), (22, 48725), (23, 48740), (29, 48818), (34, 48869), (35, 48887), (38, 48926), (39, 48986), (45, 49058),

Gene: DumpTruck_73 Start: 48672, Stop: 49394, Start Num: 3

Candidate Starts for DumpTruck_73:

(Start: 3 @48672 has 25 MA's), (6, 48771), (7, 48783), (8, 48795), (9, 48831), (12, 48864), (19, 48999), (23, 49050), (27, 49107), (29, 49128), (34, 49179), (35, 49197),

Gene: Erk16_63 Start: 47982, Stop: 48512, Start Num: 11

Candidate Starts for Erk16_63:

(Start: 11 @47982 has 20 MA's), (14, 48012), (15, 48051), (26, 48222), (30, 48264), (31, 48273), (32, 48276), (34, 48306), (36, 48327), (37, 48333), (38, 48363), (39, 48429),

Gene: Erutan_73 Start: 49132, Stop: 49851, Start Num: 3

Candidate Starts for Erutan_73:

(Start: 3 @49132 has 25 MA's), (6, 49231), (9, 49291), (12, 49324), (18, 49444), (21, 49486), (29, 49585), (32, 49606), (34, 49636), (35, 49654), (45, 49825),

Gene: Fulcrum_73 Start: 49361, Stop: 50089, Start Num: 3

Candidate Starts for Fulcrum_73:

(Start: 3 @49361 has 25 MA's), (4, 49391), (6, 49460), (8, 49484), (9, 49520), (22, 49730), (23, 49745), (24, 49766), (29, 49823), (34, 49874), (35, 49892), (38, 49931), (39, 49991), (45, 50063),

Gene: GOATification_73 Start: 49361, Stop: 50089, Start Num: 3

Candidate Starts for GOATification_73:

(Start: 3 @49361 has 25 MA's), (4, 49391), (6, 49460), (8, 49484), (9, 49520), (22, 49730), (23, 49745), (24, 49766), (29, 49823), (34, 49874), (35, 49892), (38, 49931), (39, 49991), (45, 50063),

Gene: Genamy16_75 Start: 48367, Stop: 49086, Start Num: 3

Candidate Starts for Genamy16_75:

(Start: 3 @48367 has 25 MA's), (4, 48397), (6, 48466), (9, 48526), (12, 48559), (18, 48679), (21, 48721), (29, 48820), (34, 48871), (35, 48889), (39, 48988), (41, 49009), (45, 49060),

Gene: Gibbin_75 Start: 50166, Stop: 50894, Start Num: 3

Candidate Starts for Gibbin_75:

(Start: 3 @50166 has 25 MA's), (4, 50196), (6, 50265), (8, 50289), (9, 50325), (22, 50535), (23, 50550), (24, 50571), (29, 50628), (34, 50679), (35, 50697), (38, 50736), (39, 50796), (45, 50868),

Gene: Giuseppe_65 Start: 47866, Stop: 48396, Start Num: 11

Candidate Starts for Giuseppe_65:

(Start: 11 @47866 has 20 MA's), (14, 47896), (15, 47935), (23, 48061), (26, 48106), (30, 48148), (31, 48157), (32, 48160), (34, 48190), (36, 48211), (37, 48217), (38, 48247), (39, 48313),

Gene: Gretellyn_73 Start: 50001, Stop: 50729, Start Num: 3

Candidate Starts for Gretellyn_73:

(Start: 3 @50001 has 25 MA's), (6, 50100), (9, 50160), (22, 50370), (23, 50385), (24, 50406), (29, 50463), (32, 50484), (34, 50514), (35, 50532), (39, 50631), (45, 50703),

Gene: Gumball_63 Start: 48387, Stop: 48917, Start Num: 11

Candidate Starts for Gumball_63:

(Start: 11 @48387 has 20 MA's), (14, 48417), (23, 48582), (26, 48627), (30, 48669), (31, 48678), (32, 48681), (34, 48711), (36, 48732), (37, 48738), (38, 48768), (39, 48834),

Gene: Helpful_67 Start: 48227, Stop: 48757, Start Num: 11

Candidate Starts for Helpful_67:

(Start: 11 @48227 has 20 MA's), (14, 48257), (15, 48296), (23, 48422), (26, 48467), (30, 48509), (31, 48518), (32, 48521), (34, 48551), (36, 48572), (37, 48578), (38, 48608), (39, 48674),

Gene: Jalebi_73 Start: 50594, Stop: 51322, Start Num: 3

Candidate Starts for Jalebi_73:

(Start: 3 @50594 has 25 MA's), (6, 50693), (9, 50753), (23, 50978), (25, 51017), (29, 51056), (34, 51107), (35, 51125), (39, 51224), (45, 51296),

Gene: KandZ_62 Start: 48011, Stop: 48541, Start Num: 11

Candidate Starts for KandZ_62:

(Start: 11 @48011 has 20 MA's), (14, 48041), (23, 48206), (26, 48251), (30, 48293), (31, 48302), (32, 48305), (34, 48335), (36, 48356), (37, 48362), (38, 48392), (39, 48458),

Gene: Lambo_71 Start: 49158, Stop: 49886, Start Num: 3

Candidate Starts for Lambo_71:

(Start: 3 @49158 has 25 MA's), (4, 49188), (6, 49257), (8, 49281), (9, 49317), (22, 49527), (23, 49542), (24, 49563), (29, 49620), (34, 49671), (35, 49689), (38, 49728), (39, 49788), (45, 49860),

Gene: Lila22_77 Start: 50066, Stop: 50794, Start Num: 3

Candidate Starts for Lila22_77:

(Start: 3 @50066 has 25 MA's), (6, 50165), (9, 50225), (22, 50435), (23, 50450), (24, 50471), (29, 50528), (34, 50579), (35, 50597), (38, 50636), (39, 50696), (45, 50768),

Gene: LilyPad_63 Start: 46156, Stop: 46809, Start Num: 5

Candidate Starts for LilyPad_63:

(Start: 5 @46156 has 8 MA's), (8, 46219), (9, 46252), (24, 46498), (33, 46585), (34, 46612), (38, 46669), (42, 46753), (43, 46786), (44, 46795), (45, 46798),

Gene: LuckyLeo_69 Start: 48667, Stop: 49395, Start Num: 3

Candidate Starts for LuckyLeo_69:

(Start: 3 @48667 has 25 MA's), (6, 48766), (9, 48826), (12, 48859), (22, 49036), (23, 49051), (24, 49072), (29, 49129), (32, 49150), (34, 49180), (35, 49198), (45, 49369),

Gene: Madi_60 Start: 44668, Stop: 45270, Start Num: 5

Candidate Starts for Madi_60:

(Start: 5 @44668 has 8 MA's), (8, 44728), (9, 44761), (16, 44872), (24, 44959), (28, 45010), (30, 45031), (34, 45073), (38, 45130), (43, 45247), (44, 45256), (45, 45259),

Gene: MoiGyank_79 Start: 50148, Stop: 50876, Start Num: 3

Candidate Starts for MoiGyank_79:

(Start: 3 @50148 has 25 MA's), (6, 50247), (9, 50307), (12, 50340), (22, 50517), (23, 50532), (24, 50553), (29, 50610), (34, 50661), (35, 50679), (39, 50778), (45, 50850),

Gene: Mopey_65 Start: 47871, Stop: 48401, Start Num: 11

Candidate Starts for Mopey_65:

(Start: 11 @47871 has 20 MA's), (14, 47901), (15, 47940), (23, 48066), (26, 48111), (30, 48153), (31, 48162), (32, 48165), (34, 48195), (36, 48216), (37, 48222), (38, 48252), (39, 48318),

Gene: NorManre_77 Start: 50423, Stop: 51151, Start Num: 3

Candidate Starts for NorManre_77:

(Start: 3 @50423 has 25 MA's), (6, 50522), (9, 50582), (22, 50792), (23, 50807), (24, 50828), (29, 50885), (34, 50936), (35, 50954), (38, 50993), (39, 51053), (45, 51125),

Gene: Nova_63 Start: 48359, Stop: 48889, Start Num: 11

Candidate Starts for Nova_63:

(Start: 11 @48359 has 20 MA's), (14, 48389), (23, 48554), (26, 48599), (30, 48641), (31, 48650), (32, 48653), (34, 48683), (36, 48704), (37, 48710), (38, 48740), (39, 48806),

Gene: NovaSharks_74 Start: 47958, Stop: 48677, Start Num: 3

Candidate Starts for NovaSharks_74:

(Start: 3 @47958 has 25 MA's), (4, 47988), (6, 48057), (9, 48117), (12, 48150), (18, 48270), (21, 48312), (29, 48411), (34, 48462), (35, 48480), (39, 48579), (41, 48600), (45, 48651),

Gene: OtterstedtS21_73 Start: 49447, Stop: 50175, Start Num: 3

Candidate Starts for OtterstedtS21_73:

(Start: 3 @49447 has 25 MA's), (6, 49546), (9, 49606), (22, 49816), (23, 49831), (24, 49852), (25, 49870), (29, 49909), (34, 49960), (35, 49978), (38, 50017), (39, 50077), (45, 50149),

Gene: PBI1_60 Start: 47849, Stop: 48379, Start Num: 11

Candidate Starts for PBI1_60:

(Start: 11 @47849 has 20 MA's), (14, 47879), (15, 47918), (23, 48044), (26, 48089), (30, 48131), (31, 48140), (32, 48143), (34, 48173), (36, 48194), (37, 48200), (38, 48230), (39, 48296),

Gene: PLOT_63 Start: 47877, Stop: 48407, Start Num: 11

Candidate Starts for PLOT_63:

(Start: 11 @47877 has 20 MA's), (14, 47907), (23, 48072), (26, 48117), (30, 48159), (31, 48168), (32, 48171), (34, 48201), (36, 48222), (37, 48228), (38, 48258), (39, 48324),

Gene: ParvusTarda_72 Start: 48837, Stop: 49565, Start Num: 3

Candidate Starts for ParvusTarda_72:

(Start: 3 @48837 has 25 MA's), (4, 48867), (6, 48936), (8, 48960), (9, 48996), (22, 49206), (23, 49221), (24, 49242), (29, 49299), (34, 49350), (35, 49368), (38, 49407), (39, 49467), (45, 49539),

Gene: Patos_77 Start: 50422, Stop: 51150, Start Num: 3

Candidate Starts for Patos_77:

(Start: 3 @50422 has 25 MA's), (6, 50521), (9, 50581), (22, 50791), (23, 50806), (24, 50827), (29, 50884), (34, 50935), (35, 50953), (38, 50992), (39, 51052), (45, 51124),

Gene: Penelope2018_64 Start: 47905, Stop: 48435, Start Num: 11

Candidate Starts for Penelope2018_64:

(Start: 11 @47905 has 20 MA's), (14, 47935), (15, 47974), (23, 48100), (26, 48145), (30, 48187), (31, 48196), (32, 48199), (34, 48229), (36, 48250), (37, 48256), (38, 48286), (39, 48352),

Gene: Penjamin420_74 Start: 49598, Stop: 50326, Start Num: 3

Candidate Starts for Penjamin420_74:

(Start: 3 @49598 has 25 MA's), (6, 49697), (9, 49757), (23, 49982), (24, 50003), (25, 50021), (29, 50060), (34, 50111), (35, 50129), (39, 50228), (45, 50300),

Gene: Prager_64 Start: 47965, Stop: 48495, Start Num: 11

Candidate Starts for Prager_64:

(Start: 11 @47965 has 20 MA's), (14, 47995), (15, 48034), (23, 48160), (26, 48205), (30, 48247), (31, 48256), (32, 48259), (34, 48289), (36, 48310), (37, 48316), (38, 48346), (39, 48412),

Gene: Ranch_73 Start: 48175, Stop: 48903, Start Num: 3

Candidate Starts for Ranch_73:

(Start: 3 @48175 has 25 MA's), (6, 48274), (9, 48334), (23, 48559), (24, 48580), (25, 48598), (29, 48637), (34, 48688), (35, 48706), (38, 48745), (39, 48805), (45, 48877),

Gene: Rumi_73 Start: 47655, Stop: 48374, Start Num: 3

Candidate Starts for Rumi_73:

(Start: 3 @47655 has 25 MA's), (4, 47685), (6, 47754), (9, 47814), (12, 47847), (18, 47967), (21, 48009), (29, 48108), (34, 48159), (35, 48177), (39, 48276), (41, 48297), (45, 48348),

Gene: Sadboi_74 Start: 50002, Stop: 50730, Start Num: 3

Candidate Starts for Sadboi_74:

(Start: 3 @50002 has 25 MA's), (6, 50101), (9, 50161), (22, 50371), (23, 50386), (24, 50407), (29, 50464), (32, 50485), (34, 50515), (35, 50533), (39, 50632), (45, 50704),

Gene: Sampudon_74 Start: 50594, Stop: 51322, Start Num: 3

Candidate Starts for Sampudon_74:

(Start: 3 @50594 has 25 MA's), (6, 50693), (9, 50753), (23, 50978), (25, 51017), (29, 51056), (34, 51107), (35, 51125), (39, 51224), (45, 51296),

Gene: Sienna_60 Start: 44668, Stop: 45270, Start Num: 5

Candidate Starts for Sienna_60:

(Start: 5 @44668 has 8 MA's), (8, 44728), (9, 44761), (16, 44872), (24, 44959), (28, 45010), (30, 45031), (34, 45073), (38, 45130), (43, 45247), (44, 45256), (45, 45259),

Gene: SirHarley_66 Start: 48370, Stop: 48900, Start Num: 11

Candidate Starts for SirHarley_66:

(Start: 11 @48370 has 20 MA's), (14, 48400), (23, 48565), (26, 48610), (30, 48652), (31, 48661), (32, 48664), (34, 48694), (36, 48715), (37, 48721), (38, 48751), (39, 48817),

Gene: Suzy_60 Start: 45855, Stop: 46457, Start Num: 5

Candidate Starts for Suzy_60:

(Start: 5 @45855 has 8 MA's), (8, 45915), (9, 45948), (13, 46002), (16, 46059), (20, 46113), (28, 46197), (30, 46218), (34, 46260), (38, 46317), (43, 46434), (44, 46443), (45, 46446),

Gene: Terapin_61 Start: 44592, Stop: 45194, Start Num: 5

Candidate Starts for Terapin_61:

(Start: 5 @44592 has 8 MA's), (8, 44652), (9, 44685), (16, 44796), (24, 44883), (28, 44934), (30, 44955), (34, 44997), (38, 45054), (43, 45171), (44, 45180), (45, 45183),

Gene: Thoth_64 Start: 47959, Stop: 48489, Start Num: 11

Candidate Starts for Thoth_64:

(Start: 11 @47959 has 20 MA's), (14, 47989), (15, 48028), (23, 48154), (26, 48199), (30, 48241), (31, 48250), (32, 48253), (34, 48283), (36, 48304), (37, 48310), (38, 48340), (39, 48406),

Gene: Tillicus_68 Start: 48792, Stop: 49535, Start Num: 3

Candidate Starts for Tillicus_68:

(1, 48756), (2, 48780), (Start: 3 @48792 has 25 MA's), (6, 48891), (9, 48951), (10, 48978), (12, 48984), (17, 49095), (29, 49269), (32, 49290), (34, 49320), (35, 49338), (39, 49437), (45, 49509),

Gene: Troll4_63 Start: 48027, Stop: 48557, Start Num: 11

Candidate Starts for Troll4_63:

(Start: 11 @48027 has 20 MA's), (14, 48057), (15, 48096), (23, 48222), (26, 48267), (30, 48309), (31, 48318), (32, 48321), (34, 48351), (36, 48372), (37, 48378), (38, 48408), (39, 48474),

Gene: Visconti_65 Start: 47935, Stop: 48465, Start Num: 11

Candidate Starts for Visconti_65:

(Start: 11 @47935 has 20 MA's), (14, 47965), (15, 48004), (23, 48130), (26, 48175), (30, 48217), (31, 48226), (32, 48229), (34, 48259), (36, 48280), (37, 48286), (38, 48316), (39, 48382),

Gene: WaldoWhy_66 Start: 47951, Stop: 48481, Start Num: 11

Candidate Starts for WaldoWhy_66:

(Start: 11 @47951 has 20 MA's), (14, 47981), (15, 48020), (23, 48146), (26, 48191), (30, 48233), (31, 48242), (32, 48245), (34, 48275), (36, 48296), (37, 48302), (38, 48332), (39, 48398),

Gene: Wojtek_68 Start: 48598, Stop: 49317, Start Num: 3

Candidate Starts for Wojtek_68:

(Start: 3 @48598 has 25 MA's), (6, 48697), (9, 48757), (12, 48790), (18, 48910), (21, 48952), (29, 49051), (32, 49072), (34, 49102), (35, 49120), (45, 49291),

Gene: Xenia2_72 Start: 48556, Stop: 49278, Start Num: 3

Candidate Starts for Xenia2_72:

(Start: 3 @48556 has 25 MA's), (6, 48655), (7, 48667), (8, 48679), (9, 48715), (12, 48748), (19, 48883), (23, 48934), (27, 48991), (29, 49012), (34, 49063), (35, 49081), (38, 49120), (40, 49186),

Gene: Yikes_75 Start: 50448, Stop: 51176, Start Num: 3

Candidate Starts for Yikes_75:

(Start: 3 @50448 has 25 MA's), (6, 50547), (9, 50607), (22, 50817), (23, 50832), (24, 50853), (29, 50910), (32, 50931), (34, 50961), (35, 50979), (39, 51078), (45, 51150),

Gene: Zany_71 Start: 49907, Stop: 50635, Start Num: 3

Candidate Starts for Zany_71:

(Start: 3 @49907 has 25 MA's), (6, 50006), (9, 50066), (22, 50276), (23, 50291), (24, 50312), (29, 50369), (32, 50390), (34, 50420), (35, 50438), (38, 50477), (39, 50537), (45, 50609),