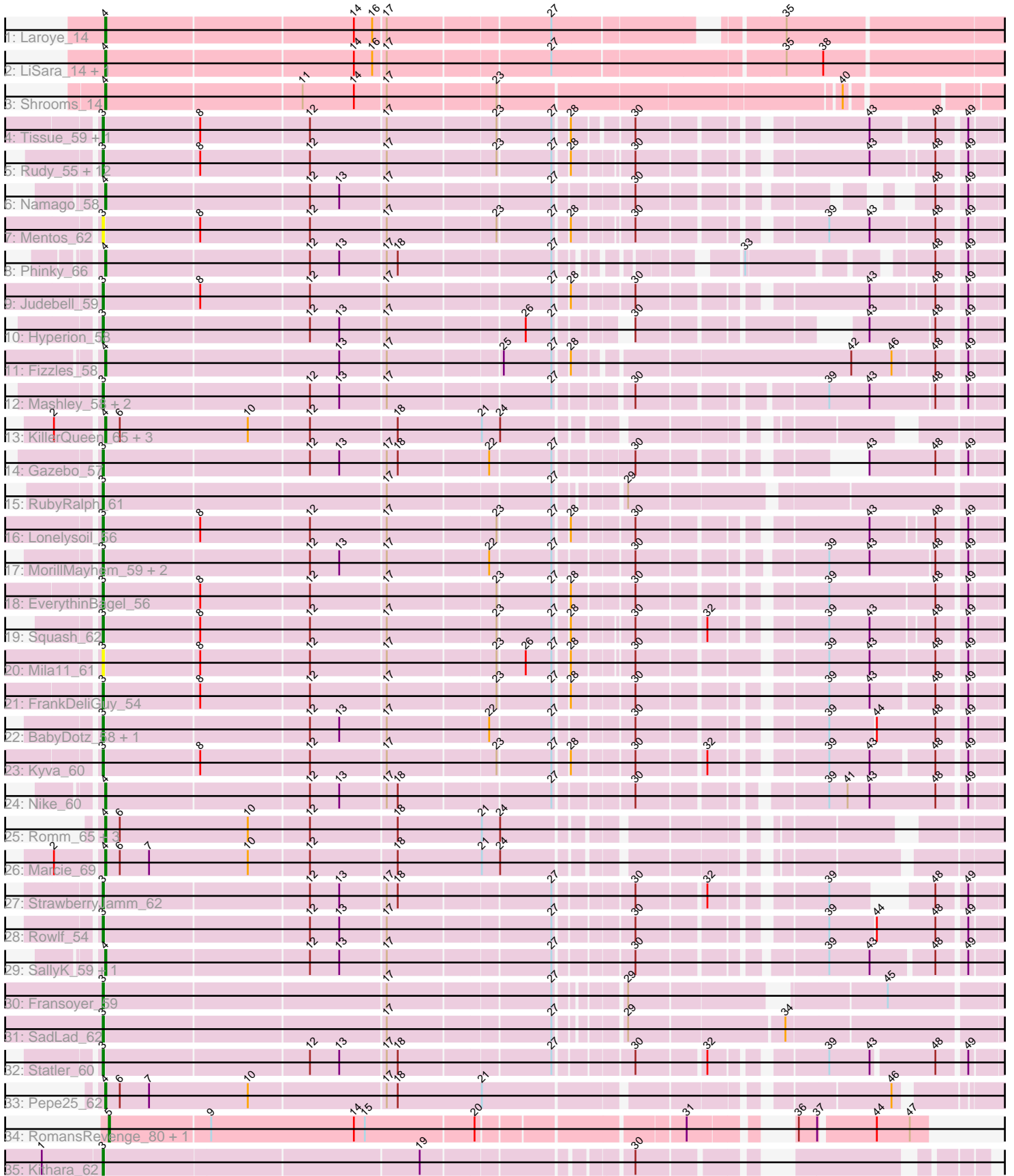


# Pham 311609



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 311609 Report

This analysis was run 06/27/26 on database version 652.

Pham number 311609 has 62 members, 7 are drafts.

Phages represented in each track:

- Track 1 : Laroye\_14
- Track 2 : LiSara\_14, Salgado\_14
- Track 3 : Shrooms\_14
- Track 4 : Tissue\_59, Grassboy\_60
- Track 5 : Rudy\_55, Quammi\_55, DonaldDuck\_57, Wheelie\_57, Viceroy\_56, Casend\_58, Llemily\_57, Wayne3\_59, Phabia\_57, Jehoshaphat\_59, Zhafia\_60, Sillytadpoles\_58, Teehee\_58
- Track 6 : Namago\_58
- Track 7 : Mentos\_62
- Track 8 : Phinky\_66
- Track 9 : Judebell\_59
- Track 10 : Hyperion\_58
- Track 11 : Fizzles\_58
- Track 12 : Mashley\_58, AluminumJesus\_55, Blab\_56
- Track 13 : KillerQueen\_65, Tempo\_64, Kelcole\_62, Fregley\_64
- Track 14 : Gazebo\_57
- Track 15 : RubyRalph\_61
- Track 16 : Lonelysoil\_56
- Track 17 : MorillMayhem\_59, WheelerS25\_65, BaconCheese\_61
- Track 18 : EverythinBagel\_56
- Track 19 : Squash\_62
- Track 20 : Mila11\_61
- Track 21 : FrankDeliGuy\_54
- Track 22 : BabyDotz\_58, SlySloth\_60
- Track 23 : Kyva\_60
- Track 24 : Nike\_60
- Track 25 : Romm\_65, OneinaGillian\_63, RobinRose\_65, CandC\_62
- Track 26 : Marcie\_69
- Track 27 : StrawberryJamm\_62
- Track 28 : Rowlf\_54
- Track 29 : SallyK\_59, Zagie\_58
- Track 30 : Fransoyer\_59
- Track 31 : SadLad\_62
- Track 32 : Statler\_60
- Track 33 : Pepe25\_62
- Track 34 : RomansRevenge\_80, Boise\_78
- Track 35 : Kithara\_62

### **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 35 of the 55 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AluminumJesus\_55, BabyDotz\_58, BaconCheese\_61, Blab\_56, Casend\_58, DonaldDuck\_57, EverythinBagel\_56, FrankDeliGuy\_54, Fransoyer\_59, Gazebo\_57, Grassboy\_60, Hyperion\_58, Jehoshaphat\_59, Judebell\_59, Kithara\_62, Kyva\_60, Llemily\_57, Lonelysoil\_56, Mashley\_58, Mentos\_62, Mila11\_61, MorillMayhem\_59, Phabia\_57, Quammi\_55, Rowlf\_54, RubyRalph\_61, Rudy\_55, SadLad\_62, Sillytadpoles\_58, SlySloth\_60, Squash\_62, Statler\_60, StrawberryJamm\_62, Teehee\_58, Tissue\_59, Viceroy\_56, Wayne3\_59, WheelerS25\_65, Wheelie\_57, Zhafia\_60,

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

- 

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

- Boise\_78, CandC\_62, Fizzles\_58, Fregley\_64, Kelcole\_62, KillerQueen\_65, Laroye\_14, LiSara\_14, Marcie\_69, Namago\_58, Nike\_60, OneinaGillian\_63, Pepe25\_62, Phinky\_66, RobinRose\_65, RomansRevenge\_80, Romm\_65, Salgado\_14, SallyK\_59, Shrooms\_14, Tempo\_64, Zagie\_58,

### **Summary by start number:**

Start 3:

- Found in 40 of 62 ( 64.5% ) of genes in pham
- Manual Annotations of this start: 35 of 55
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AluminumJesus\_55 (EG), BabyDotz\_58 (EG), BaconCheese\_61 (EG), Blab\_56 (EG), Casend\_58 (EG), DonaldDuck\_57 (EG), EverythinBagel\_56 (EG), FrankDeliGuy\_54 (EG), Fransoyer\_59 (EG), Gazebo\_57 (EG), Grassboy\_60 (EG), Hyperion\_58 (EG), Jehoshaphat\_59 (EG), Judebell\_59 (EG), Kithara\_62 (singleton), Kyva\_60 (EG), Llemily\_57 (EG), Lonelysoil\_56 (EG), Mashley\_58 (EG), Mentos\_62 (EG), Mila11\_61 (EG), MorillMayhem\_59 (EG), Phabia\_57 (EG), Quammi\_55 (EG), Rowlf\_54 (EG), RubyRalph\_61 (EG), Rudy\_55 (EG), SadLad\_62 (EG), Sillytadpoles\_58 (EG), SlySloth\_60 (EG), Squash\_62 (EG), Statler\_60 (EG), StrawberryJamm\_62 (EG), Teehee\_58 (EG), Tissue\_59 (EG), Viceroy\_56 (EG), Wayne3\_59 (EG), WheelerS25\_65 (EG), Wheelie\_57 (EG), Zhafia\_60 (EG),

Start 4:

- Found in 20 of 62 ( 32.3% ) of genes in pham
- Manual Annotations of this start: 19 of 55
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CandC\_62 (EG), Fizzles\_58 (EG), Fregley\_64 (EG), Kelcole\_62 (EG), KillerQueen\_65 (EG), Laroye\_14 (AL), LiSara\_14 (AL), Marcie\_69 (EG), Namago\_58 (EG), Nike\_60 (EG), OneinaGillian\_63 (EG),

Pepe25\_62 (EG), Phinky\_66 (EG), RobinRose\_65 (EG), Romm\_65 (EG), Salgado\_14 (AL), SallyK\_59 (EG), Shrooms\_14 (AL), Tempo\_64 (EG), Zagie\_58 (EG),

Start 5:

- Found in 2 of 62 ( 3.2% ) of genes in pham
- Manual Annotations of this start: 1 of 55
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Boise\_78 (FT), RomansRevenge\_80 (FT),

### **Summary by clusters:**

There are 4 clusters represented in this pham: EG, FT, singleton, AL,

Info for manual annotations of cluster AL:

- Start number 4 was manually annotated 4 times for cluster AL.

Info for manual annotations of cluster EG:

- Start number 3 was manually annotated 34 times for cluster EG.
- Start number 4 was manually annotated 15 times for cluster EG.

Info for manual annotations of cluster FT:

- Start number 5 was manually annotated 1 time for cluster FT.

### **Gene Information:**

Gene: AluminumJesus\_55 Start: 42828, Stop: 42118, Start Num: 3

Candidate Starts for AluminumJesus\_55:

(Start: 3 @42828 has 35 MA's), (12, 42666), (13, 42642), (17, 42606), (27, 42480), (30, 42423), (39, 42297), (43, 42264), (48, 42210), (49, 42189),

Gene: BabyDotz\_58 Start: 44301, Stop: 43588, Start Num: 3

Candidate Starts for BabyDotz\_58:

(Start: 3 @44301 has 35 MA's), (12, 44139), (13, 44115), (17, 44079), (22, 44001), (27, 43953), (30, 43899), (39, 43773), (44, 43737), (48, 43689), (49, 43668),

Gene: BaconCheese\_61 Start: 44757, Stop: 44053, Start Num: 3

Candidate Starts for BaconCheese\_61:

(Start: 3 @44757 has 35 MA's), (12, 44595), (13, 44571), (17, 44535), (22, 44457), (27, 44409), (30, 44361), (39, 44229), (43, 44196), (48, 44145), (49, 44124),

Gene: Blab\_56 Start: 43444, Stop: 42740, Start Num: 3

Candidate Starts for Blab\_56:

(Start: 3 @43444 has 35 MA's), (12, 43282), (13, 43258), (17, 43222), (27, 43096), (30, 43042), (39, 42916), (43, 42883), (48, 42829), (49, 42808),

Gene: Boise\_78 Start: 53384, Stop: 52791, Start Num: 5

Candidate Starts for Boise\_78:

(Start: 5 @53384 has 1 MA's), (9, 53303), (14, 53186), (15, 53177), (20, 53090), (31, 52940), (36, 52889), (37, 52874), (44, 52832), (47, 52805),

Gene: CandC\_62 Start: 42994, Stop: 42269, Start Num: 4

Candidate Starts for CandC\_62:

(Start: 4 @42994 has 19 MA's), (6, 42982), (10, 42877), (12, 42829), (18, 42760), (21, 42691), (24, 42676),

Gene: Casend\_58 Start: 43670, Stop: 42972, Start Num: 3

Candidate Starts for Casend\_58:

(Start: 3 @43670 has 35 MA's), (8, 43595), (12, 43508), (17, 43448), (23, 43364), (27, 43322), (28, 43313), (30, 43271), (43, 43112), (48, 43064), (49, 43043),

Gene: DonaldDuck\_57 Start: 43019, Stop: 42321, Start Num: 3

Candidate Starts for DonaldDuck\_57:

(Start: 3 @43019 has 35 MA's), (8, 42944), (12, 42857), (17, 42797), (23, 42713), (27, 42671), (28, 42662), (30, 42620), (43, 42461), (48, 42413), (49, 42392),

Gene: EverythinBagel\_56 Start: 43393, Stop: 42680, Start Num: 3

Candidate Starts for EverythinBagel\_56:

(Start: 3 @43393 has 35 MA's), (8, 43318), (12, 43231), (17, 43171), (23, 43087), (27, 43045), (28, 43036), (30, 42991), (39, 42865), (48, 42781), (49, 42760),

Gene: Fizzles\_58 Start: 43354, Stop: 42620, Start Num: 4

Candidate Starts for Fizzles\_58:

(Start: 4 @43354 has 19 MA's), (13, 43168), (17, 43132), (25, 43045), (27, 43006), (28, 42997), (42, 42787), (46, 42754), (48, 42721), (49, 42700),

Gene: FrankDeliGuy\_54 Start: 43007, Stop: 42297, Start Num: 3

Candidate Starts for FrankDeliGuy\_54:

(Start: 3 @43007 has 35 MA's), (8, 42932), (12, 42845), (17, 42785), (23, 42701), (27, 42659), (28, 42650), (30, 42605), (39, 42479), (43, 42446), (48, 42398), (49, 42377),

Gene: Fransoyer\_59 Start: 45054, Stop: 44338, Start Num: 3

Candidate Starts for Fransoyer\_59:

(Start: 3 @45054 has 35 MA's), (17, 44832), (27, 44706), (29, 44664), (45, 44484),

Gene: Fregley\_64 Start: 43164, Stop: 42451, Start Num: 4

Candidate Starts for Fregley\_64:

(2, 43200), (Start: 4 @43164 has 19 MA's), (6, 43152), (10, 43047), (12, 42999), (18, 42930), (21, 42861), (24, 42846),

Gene: Gazebo\_57 Start: 43512, Stop: 42829, Start Num: 3

Candidate Starts for Gazebo\_57:

(Start: 3 @43512 has 35 MA's), (12, 43350), (13, 43326), (17, 43290), (18, 43281), (22, 43212), (27, 43164), (30, 43110), (43, 42984), (48, 42930), (49, 42909),

Gene: Grassboy\_60 Start: 43901, Stop: 43191, Start Num: 3

Candidate Starts for Grassboy\_60:

(Start: 3 @43901 has 35 MA's), (8, 43826), (12, 43739), (17, 43679), (23, 43595), (27, 43553), (28, 43544), (30, 43499), (43, 43340), (48, 43292), (49, 43271),

Gene: Hyperion\_58 Start: 43687, Stop: 43004, Start Num: 3

Candidate Starts for Hyperion\_58:

(Start: 3 @43687 has 35 MA's), (12, 43525), (13, 43501), (17, 43465), (26, 43360), (27, 43339), (30, 43297), (43, 43156), (48, 43105), (49, 43084),

Gene: Jehoshaphat\_59 Start: 43938, Stop: 43240, Start Num: 3

Candidate Starts for Jehoshaphat\_59:

(Start: 3 @43938 has 35 MA's), (8, 43863), (12, 43776), (17, 43716), (23, 43632), (27, 43590), (28, 43581), (30, 43539), (43, 43380), (48, 43332), (49, 43311),

Gene: Judebell\_59 Start: 43387, Stop: 42686, Start Num: 3

Candidate Starts for Judebell\_59:

(Start: 3 @43387 has 35 MA's), (8, 43312), (12, 43225), (17, 43165), (27, 43039), (28, 43030), (30, 42985), (43, 42826), (48, 42778), (49, 42757),

Gene: Kelcole\_62 Start: 43226, Stop: 42510, Start Num: 4

Candidate Starts for Kelcole\_62:

(2, 43262), (Start: 4 @43226 has 19 MA's), (6, 43214), (10, 43109), (12, 43061), (18, 42992), (21, 42923), (24, 42908),

Gene: KillerQueen\_65 Start: 43461, Stop: 42760, Start Num: 4

Candidate Starts for KillerQueen\_65:

(2, 43497), (Start: 4 @43461 has 19 MA's), (6, 43449), (10, 43344), (12, 43296), (18, 43227), (21, 43158), (24, 43143),

Gene: Kithara\_62 Start: 46071, Stop: 45460, Start Num: 3

Candidate Starts for Kithara\_62:

(1, 46119), (Start: 3 @46071 has 35 MA's), (19, 45822), (30, 45675),

Gene: Kyva\_60 Start: 43924, Stop: 43214, Start Num: 3

Candidate Starts for Kyva\_60:

(Start: 3 @43924 has 35 MA's), (8, 43849), (12, 43762), (17, 43702), (23, 43618), (27, 43576), (28, 43567), (30, 43522), (32, 43471), (39, 43396), (43, 43363), (48, 43315), (49, 43294),

Gene: Laroye\_14 Start: 9623, Stop: 10354, Start Num: 4

Candidate Starts for Laroye\_14:

(Start: 4 @9623 has 19 MA's), (14, 9821), (16, 9836), (17, 9845), (27, 9971), (35, 10127),

Gene: LiSara\_14 Start: 9657, Stop: 10409, Start Num: 4

Candidate Starts for LiSara\_14:

(Start: 4 @9657 has 19 MA's), (14, 9855), (16, 9870), (17, 9879), (27, 10005), (35, 10182), (38, 10212),

Gene: Llemily\_57 Start: 42714, Stop: 42016, Start Num: 3

Candidate Starts for Llemily\_57:

(Start: 3 @42714 has 35 MA's), (8, 42639), (12, 42552), (17, 42492), (23, 42408), (27, 42366), (28, 42357), (30, 42315), (43, 42156), (48, 42108), (49, 42087),

Gene: Lonelysoil\_56 Start: 42870, Stop: 42169, Start Num: 3

Candidate Starts for Lonelysoil\_56:

(Start: 3 @42870 has 35 MA's), (8, 42795), (12, 42708), (17, 42648), (23, 42564), (27, 42522), (28, 42513), (30, 42468), (43, 42309), (48, 42261), (49, 42240),

Gene: Marcie\_69 Start: 44119, Stop: 43409, Start Num: 4

Candidate Starts for Marcie\_69:

(2, 44155), (Start: 4 @44119 has 19 MA's), (6, 44107), (7, 44083), (10, 44002), (12, 43954), (18, 43885), (21, 43816), (24, 43801),

Gene: Mashley\_58 Start: 43499, Stop: 42783, Start Num: 3

Candidate Starts for Mashley\_58:

(Start: 3 @43499 has 35 MA's), (12, 43337), (13, 43313), (17, 43277), (27, 43151), (30, 43100), (39, 42968), (43, 42935), (48, 42884), (49, 42863),

Gene: Mentos\_62 Start: 44690, Stop: 43980, Start Num: 3

Candidate Starts for Mentos\_62:

(Start: 3 @44690 has 35 MA's), (8, 44615), (12, 44528), (17, 44468), (23, 44384), (27, 44342), (28, 44333), (30, 44291), (39, 44165), (43, 44132), (48, 44081), (49, 44060),

Gene: Mila11\_61 Start: 44949, Stop: 44242, Start Num: 3

Candidate Starts for Mila11\_61:

(Start: 3 @44949 has 35 MA's), (8, 44874), (12, 44787), (17, 44727), (23, 44643), (26, 44622), (27, 44601), (28, 44592), (30, 44550), (39, 44418), (43, 44385), (48, 44334), (49, 44313),

Gene: MorillMayhem\_59 Start: 43826, Stop: 43119, Start Num: 3

Candidate Starts for MorillMayhem\_59:

(Start: 3 @43826 has 35 MA's), (12, 43664), (13, 43640), (17, 43604), (22, 43526), (27, 43478), (30, 43424), (39, 43295), (43, 43262), (48, 43211), (49, 43190),

Gene: Namago\_58 Start: 42834, Stop: 42160, Start Num: 4

Candidate Starts for Namago\_58:

(Start: 4 @42834 has 19 MA's), (12, 42672), (13, 42648), (17, 42612), (27, 42486), (30, 42432), (48, 42261), (49, 42240),

Gene: Nike\_60 Start: 44258, Stop: 43542, Start Num: 4

Candidate Starts for Nike\_60:

(Start: 4 @44258 has 19 MA's), (12, 44096), (13, 44072), (17, 44036), (18, 44027), (27, 43910), (30, 43856), (39, 43730), (41, 43715), (43, 43697), (48, 43643), (49, 43622),

Gene: OneinaGillian\_63 Start: 43119, Stop: 42412, Start Num: 4

Candidate Starts for OneinaGillian\_63:

(Start: 4 @43119 has 19 MA's), (6, 43107), (10, 43002), (12, 42954), (18, 42885), (21, 42816), (24, 42801),

Gene: Pepe25\_62 Start: 42678, Stop: 41956, Start Num: 4

Candidate Starts for Pepe25\_62:

(Start: 4 @42678 has 19 MA's), (6, 42666), (7, 42642), (10, 42561), (17, 42453), (18, 42444), (21, 42375), (46, 42087),

Gene: Phabia\_57 Start: 43129, Stop: 42431, Start Num: 3

Candidate Starts for Phabia\_57:

(Start: 3 @43129 has 35 MA's), (8, 43054), (12, 42967), (17, 42907), (23, 42823), (27, 42781), (28, 42772), (30, 42730), (43, 42571), (48, 42523), (49, 42502),

Gene: Phinky\_66 Start: 45167, Stop: 44487, Start Num: 4

Candidate Starts for Phinky\_66:

(Start: 4 @45167 has 19 MA's), (12, 45005), (13, 44981), (17, 44945), (18, 44936), (27, 44819), (33, 44714), (48, 44588), (49, 44567),

Gene: Quammi\_55 Start: 42829, Stop: 42131, Start Num: 3

Candidate Starts for Quammi\_55:

(Start: 3 @42829 has 35 MA's), (8, 42754), (12, 42667), (17, 42607), (23, 42523), (27, 42481), (28, 42472), (30, 42430), (43, 42271), (48, 42223), (49, 42202),

Gene: RobinRose\_65 Start: 43625, Stop: 42924, Start Num: 4

Candidate Starts for RobinRose\_65:

(Start: 4 @43625 has 19 MA's), (6, 43613), (10, 43508), (12, 43460), (18, 43391), (21, 43322), (24, 43307),

Gene: RomansRevenge\_80 Start: 53660, Stop: 53067, Start Num: 5

Candidate Starts for RomansRevenge\_80:

(Start: 5 @53660 has 1 MA's), (9, 53579), (14, 53462), (15, 53453), (20, 53366), (31, 53216), (36, 53165), (37, 53150), (44, 53108), (47, 53081),

Gene: Romm\_65 Start: 43622, Stop: 42921, Start Num: 4

Candidate Starts for Romm\_65:

(Start: 4 @43622 has 19 MA's), (6, 43610), (10, 43505), (12, 43457), (18, 43388), (21, 43319), (24, 43304),

Gene: Rowlf\_54 Start: 42772, Stop: 42059, Start Num: 3

Candidate Starts for Rowlf\_54:

(Start: 3 @42772 has 35 MA's), (12, 42610), (13, 42586), (17, 42550), (27, 42424), (30, 42370), (39, 42244), (44, 42208), (48, 42160), (49, 42139),

Gene: RubyRalph\_61 Start: 45401, Stop: 44676, Start Num: 3

Candidate Starts for RubyRalph\_61:

(Start: 3 @45401 has 35 MA's), (17, 45179), (27, 45053), (29, 45011),

Gene: Rudy\_55 Start: 42865, Stop: 42167, Start Num: 3

Candidate Starts for Rudy\_55:

(Start: 3 @42865 has 35 MA's), (8, 42790), (12, 42703), (17, 42643), (23, 42559), (27, 42517), (28, 42508), (30, 42466), (43, 42307), (48, 42259), (49, 42238),

Gene: SadLad\_62 Start: 46174, Stop: 45440, Start Num: 3

Candidate Starts for SadLad\_62:

(Start: 3 @46174 has 35 MA's), (17, 45952), (27, 45826), (29, 45784), (34, 45664),

Gene: Salgado\_14 Start: 9631, Stop: 10362, Start Num: 4

Candidate Starts for Salgado\_14:

(Start: 4 @9631 has 19 MA's), (14, 9829), (16, 9844), (17, 9853), (27, 9979), (35, 10135), (38, 10165),

Gene: SallyK\_59 Start: 44086, Stop: 43373, Start Num: 4

Candidate Starts for SallyK\_59:

(Start: 4 @44086 has 19 MA's), (12, 43924), (13, 43900), (17, 43864), (27, 43738), (30, 43684), (39, 43555), (43, 43522), (48, 43474), (49, 43453),

Gene: Shrooms\_14 Start: 9704, Stop: 10450, Start Num: 4

Candidate Starts for Shrooms\_14:

(Start: 4 @9704 has 19 MA's), (11, 9860), (14, 9902), (17, 9926), (23, 10010), (40, 10271),

Gene: Sillytadpoles\_58 Start: 42702, Stop: 42004, Start Num: 3

Candidate Starts for Sillytadpoles\_58:

(Start: 3 @42702 has 35 MA's), (8, 42627), (12, 42540), (17, 42480), (23, 42396), (27, 42354), (28, 42345), (30, 42303), (43, 42144), (48, 42096), (49, 42075),

Gene: SlySloth\_60 Start: 43419, Stop: 42703, Start Num: 3

Candidate Starts for SlySloth\_60:

(Start: 3 @43419 has 35 MA's), (12, 43257), (13, 43233), (17, 43197), (22, 43119), (27, 43071), (30, 43017), (39, 42891), (44, 42852), (48, 42804), (49, 42783),

Gene: Squash\_62 Start: 44406, Stop: 43699, Start Num: 3

Candidate Starts for Squash\_62:

(Start: 3 @44406 has 35 MA's), (8, 44331), (12, 44244), (17, 44184), (23, 44100), (27, 44058), (28, 44049), (30, 44007), (32, 43956), (39, 43881), (43, 43848), (48, 43800), (49, 43779),

Gene: Statler\_60 Start: 43488, Stop: 42778, Start Num: 3

Candidate Starts for Statler\_60:

(Start: 3 @43488 has 35 MA's), (12, 43326), (13, 43302), (17, 43266), (18, 43257), (27, 43140), (30, 43086), (32, 43035), (39, 42960), (43, 42927), (48, 42879), (49, 42858),

Gene: StrawberryJamm\_62 Start: 43175, Stop: 42492, Start Num: 3

Candidate Starts for StrawberryJamm\_62:

(Start: 3 @43175 has 35 MA's), (12, 43013), (13, 42989), (17, 42953), (18, 42944), (27, 42827), (30, 42773), (32, 42722), (39, 42647), (48, 42593), (49, 42572),

Gene: Teehee\_58 Start: 43935, Stop: 43237, Start Num: 3

Candidate Starts for Teehee\_58:

(Start: 3 @43935 has 35 MA's), (8, 43860), (12, 43773), (17, 43713), (23, 43629), (27, 43587), (28, 43578), (30, 43536), (43, 43377), (48, 43329), (49, 43308),

Gene: Tempo\_64 Start: 43508, Stop: 42789, Start Num: 4

Candidate Starts for Tempo\_64:

(2, 43544), (Start: 4 @43508 has 19 MA's), (6, 43496), (10, 43391), (12, 43343), (18, 43274), (21, 43205), (24, 43190),

Gene: Tissue\_59 Start: 43778, Stop: 43071, Start Num: 3

Candidate Starts for Tissue\_59:

(Start: 3 @43778 has 35 MA's), (8, 43703), (12, 43616), (17, 43556), (23, 43472), (27, 43430), (28, 43421), (30, 43379), (43, 43220), (48, 43172), (49, 43151),

Gene: Viceroy\_56 Start: 42835, Stop: 42137, Start Num: 3

Candidate Starts for Viceroy\_56:

(Start: 3 @42835 has 35 MA's), (8, 42760), (12, 42673), (17, 42613), (23, 42529), (27, 42487), (28, 42478), (30, 42436), (43, 42277), (48, 42229), (49, 42208),

Gene: Wayne3\_59 Start: 43698, Stop: 43000, Start Num: 3

Candidate Starts for Wayne3\_59:

(Start: 3 @43698 has 35 MA's), (8, 43623), (12, 43536), (17, 43476), (23, 43392), (27, 43350), (28, 43341), (30, 43299), (43, 43140), (48, 43092), (49, 43071),

Gene: WheelerS25\_65 Start: 44864, Stop: 44154, Start Num: 3

Candidate Starts for WheelerS25\_65:

(Start: 3 @44864 has 35 MA's), (12, 44702), (13, 44678), (17, 44642), (22, 44564), (27, 44516), (30, 44462), (39, 44336), (43, 44303), (48, 44255), (49, 44234),

Gene: Wheelie\_57 Start: 43019, Stop: 42321, Start Num: 3

Candidate Starts for Wheelie\_57:

(Start: 3 @43019 has 35 MA's), (8, 42944), (12, 42857), (17, 42797), (23, 42713), (27, 42671), (28, 42662), (30, 42620), (43, 42461), (48, 42413), (49, 42392),

Gene: Zagie\_58 Start: 43363, Stop: 42659, Start Num: 4

Candidate Starts for Zagie\_58:

(Start: 4 @43363 has 19 MA's), (12, 43201), (13, 43177), (17, 43141), (27, 43015), (30, 42961), (39, 42832), (43, 42799), (48, 42751), (49, 42730),

Gene: Zhafia\_60 Start: 43499, Stop: 42801, Start Num: 3

Candidate Starts for Zhafia\_60:

(Start: 3 @43499 has 35 MA's), (8, 43424), (12, 43337), (17, 43277), (23, 43193), (27, 43151), (28, 43142), (30, 43100), (43, 42941), (48, 42893), (49, 42872),