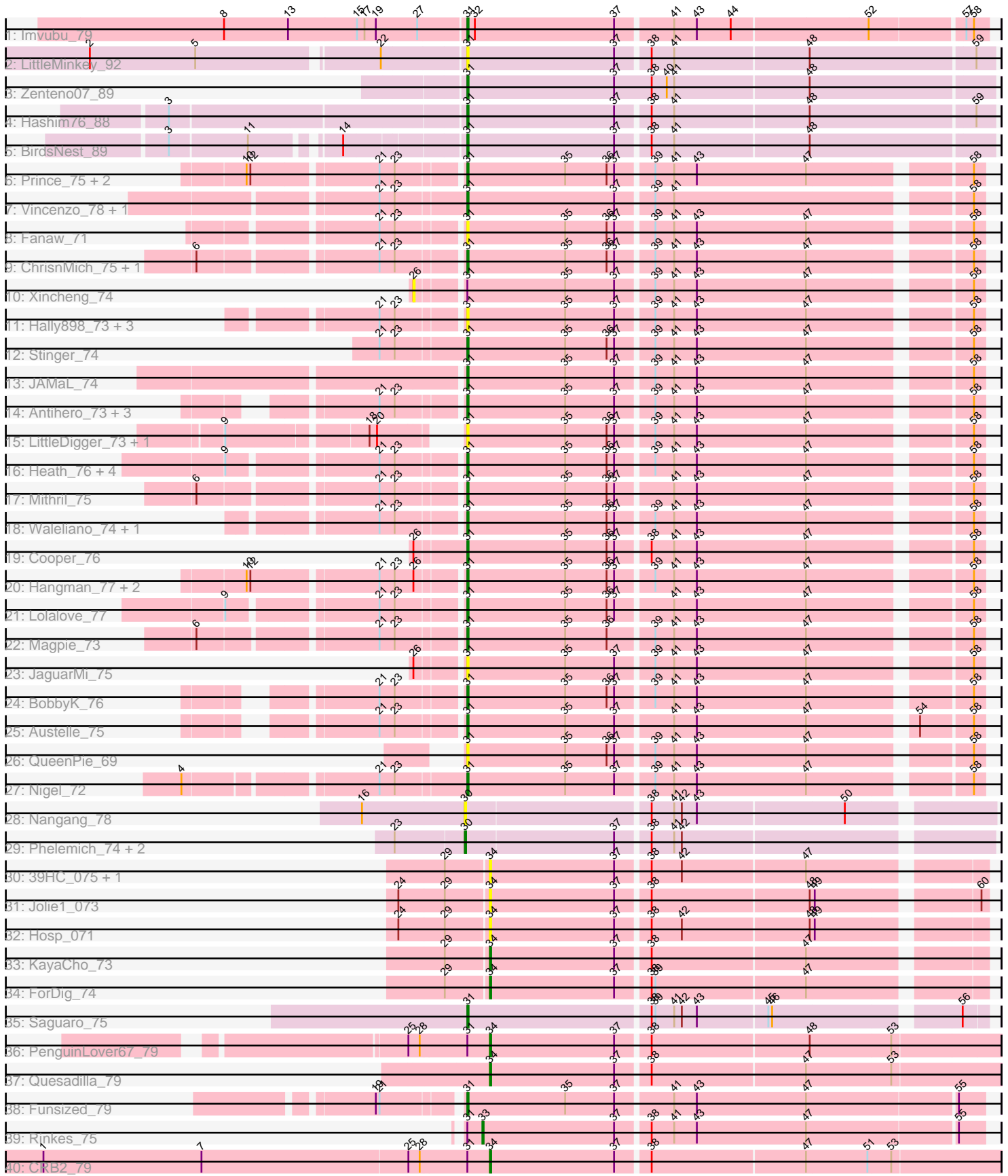


Pham 292819



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 292819 Report

This analysis was run 04/18/26 on database version 643.

Pham number 292819 has 61 members, 20 are drafts.

Phages represented in each track:

- Track 1 : Imvubu\_79
- Track 2 : LittleMinkey\_92
- Track 3 : Zenteno07\_89
- Track 4 : Hashim76\_88
- Track 5 : BirdsNest\_89
- Track 6 : Prince\_75, Apex\_77, JoyceMaria\_76
- Track 7 : Vincenzo\_78, AlanGrant\_79
- Track 8 : Fanaw\_71
- Track 9 : ChrisnMich\_75, Fortunato\_75
- Track 10 : Xincheng\_74
- Track 11 : Hally898\_73, Poster\_73, Lambano\_73, Nanao\_74
- Track 12 : Stinger\_74
- Track 13 : JAMaL\_74
- Track 14 : Antihero\_73, GinPorsche\_75, Ahwei\_73, Epah\_73
- Track 15 : LittleDigger\_73, Renkei\_73
- Track 16 : Heath\_76, Zemanar\_75, Frederick\_77, RawrgerThat\_75, Hydro\_76
- Track 17 : Mithril\_75
- Track 18 : Waleliano\_74, BrownCNA\_76
- Track 19 : Cooper\_76
- Track 20 : Hangman\_77, VioletZ\_78, Mudslide\_75
- Track 21 : Lolalove\_77
- Track 22 : Magpie\_73
- Track 23 : JaguarMi\_75
- Track 24 : BobbyK\_76
- Track 25 : Austelle\_75
- Track 26 : QueenPie\_69
- Track 27 : Nigel\_72
- Track 28 : Nangang\_78
- Track 29 : Phelemich\_74, Mysterious\_75, Reprobate\_76
- Track 30 : 39HC\_075, 40BC\_075
- Track 31 : Jolie1\_073
- Track 32 : Hosp\_071
- Track 33 : KayaCho\_73
- Track 34 : ForDig\_74
- Track 35 : Saguaro\_75
- Track 36 : PenguinLover67\_79
- Track 37 : Quesadilla\_79

- Track 38 : Funsized\_79
- Track 39 : Rinkes\_75
- Track 40 : CRB2\_79

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

The start number called the most often in the published annotations is 31, it was called in 32 of the 41 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Ahwei\_73, AlanGrant\_79, Antihero\_73, Apex\_77, Austelle\_75, BirdsNest\_89, BobbyK\_76, BrownCNA\_76, ChrisnMich\_75, Cooper\_76, Epah\_73, Fanaw\_71, Fortunato\_75, Frederick\_77, Funsized\_79, GinPorsche\_75, Hally898\_73, Hangman\_77, Hashim76\_88, Heath\_76, Hydro\_76, Imvubu\_79, JAMaL\_74, JaguarMi\_75, JoyceMaria\_76, Lambano\_73, LittleDigger\_73, LittleMinkey\_92, Lolalove\_77, Magpie\_73, Mithril\_75, Mudslide\_75, Nanao\_74, Nigel\_72, Poster\_73, Prince\_75, QueenPie\_69, RawrgerThat\_75, Renkei\_73, Saguaro\_75, Stinger\_74, Vincenzo\_78, VioletZ\_78, Waleliano\_74, Zemanar\_75, Zenteno07\_89,

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

- CRB2\_79, PenguinLover67\_79, Rinkes\_75, Xincheng\_74,

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

- 39HC\_075, 40BC\_075, ForDig\_74, Hosp\_071, Jolie1\_073, KayaCho\_73, Mysterious\_75, Nangang\_78, Phelemich\_74, Quesadilla\_79, Reprobate\_76,

**Summary by start number:**

Start 26:

- Found in 6 of 61 ( 9.8% ) of genes in pham
- No Manual Annotations of this start.
- Called 16.7% of time when present
- Phage (with cluster) where this start called: Xincheng\_74 (B4),

Start 30:

- Found in 4 of 61 ( 6.6% ) of genes in pham
- Manual Annotations of this start: 3 of 41
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Mysterious\_75 (B5), Nangang\_78 (B5), Phelemich\_74 (B5), Reprobate\_76 (B5),

Start 31:

- Found in 50 of 61 ( 82.0% ) of genes in pham
- Manual Annotations of this start: 32 of 41
- Called 92.0% of time when present
- Phage (with cluster) where this start called: Ahwei\_73 (B4), AlanGrant\_79 (B4), Antihero\_73 (B4), Apex\_77 (B4), Austelle\_75 (B4), BirdsNest\_89 (B13), BobbyK\_76 (B4), BrownCNA\_76 (B4), ChrisnMich\_75 (B4), Cooper\_76 (B4), Epah\_73 (B4), Fanaw\_71 (B4), Fortunato\_75 (B4), Frederick\_77 (B4), Funsized\_79 (B9), GinPorsche\_75 (B4), Hally898\_73 (B4), Hangman\_77 (B4), Hashim76\_88 (B13),

Heath\_76 (B4), Hydro\_76 (B4), Imvubu\_79 (B10), JAMaL\_74 (B4), JaguarMi\_75 (B4), JoyceMaria\_76 (B4), Lambano\_73 (B4), LittleDigger\_73 (B4), LittleMinkey\_92 (B13), Lolalove\_77 (B4), Maggie\_73 (B4), Mithril\_75 (B4), Mudslide\_75 (B4), Nanao\_74 (B4), Nigel\_72 (B4), Poster\_73 (B4), Prince\_75 (B4), QueenPie\_69 (B4), RawrgerThat\_75 (B4), Renkei\_73 (B4), Saguaro\_75 (B7), Stinger\_74 (B4), Vincenzo\_78 (B4), VioletZ\_78 (B4), Waleliano\_74 (B4), Zemanar\_75 (B4), Zenteno07\_89 (B13),

**Start 33:**

- Found in 1 of 61 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 1 of 41
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Rinkes\_75 (B9),

**Start 34:**

- Found in 9 of 61 ( 14.8% ) of genes in pham
- Manual Annotations of this start: 5 of 41
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 39HC\_075 (B6), 40BC\_075 (B6), CRB2\_79 (B9), ForDig\_74 (B6), Hosp\_071 (B6), Jolie1\_073 (B6), KayaCho\_73 (B6), PenguinLover67\_79 (B9), Quesadilla\_79 (B9),

**Summary by clusters:**

There are 7 clusters represented in this pham: B4, B5, B6, B7, B13, B10, B9,

**Info for manual annotations of cluster B10:**

- Start number 31 was manually annotated 1 time for cluster B10.

**Info for manual annotations of cluster B13:**

- Start number 31 was manually annotated 3 times for cluster B13.

**Info for manual annotations of cluster B4:**

- Start number 31 was manually annotated 26 times for cluster B4.

**Info for manual annotations of cluster B5:**

- Start number 30 was manually annotated 3 times for cluster B5.

**Info for manual annotations of cluster B6:**

- Start number 34 was manually annotated 2 times for cluster B6.

**Info for manual annotations of cluster B7:**

- Start number 31 was manually annotated 1 time for cluster B7.

**Info for manual annotations of cluster B9:**

- Start number 31 was manually annotated 1 time for cluster B9.
- Start number 33 was manually annotated 1 time for cluster B9.
- Start number 34 was manually annotated 3 times for cluster B9.

**Gene Information:**

Gene: 39HC\_075 Start: 62227, Stop: 61859, Start Num: 34  
Candidate Starts for 39HC\_075:  
(29, 62260), (Start: 34 @62227 has 5 MA's), (37, 62128), (38, 62104), (42, 62080), (47, 61984),

Gene: 40BC\_075 Start: 62227, Stop: 61859, Start Num: 34  
Candidate Starts for 40BC\_075:  
(29, 62260), (Start: 34 @62227 has 5 MA's), (37, 62128), (38, 62104), (42, 62080), (47, 61984),

Gene: Ahwei\_73 Start: 62187, Stop: 61801, Start Num: 31  
Candidate Starts for Ahwei\_73:  
(21, 62247), (23, 62235), (Start: 31 @62187 has 32 MA's), (35, 62109), (37, 62070), (39, 62043), (41, 62028), (43, 62010), (47, 61923), (58, 61809),

Gene: AlanGrant\_79 Start: 64544, Stop: 64158, Start Num: 31  
Candidate Starts for AlanGrant\_79:  
(21, 64610), (23, 64598), (Start: 31 @64544 has 32 MA's), (37, 64427), (39, 64400), (41, 64385), (58, 64166),

Gene: Antihero\_73 Start: 62122, Stop: 61736, Start Num: 31  
Candidate Starts for Antihero\_73:  
(21, 62182), (23, 62170), (Start: 31 @62122 has 32 MA's), (35, 62044), (37, 62005), (39, 61978), (41, 61963), (43, 61945), (47, 61858), (58, 61744),

Gene: Apex\_77 Start: 63483, Stop: 63097, Start Num: 31  
Candidate Starts for Apex\_77:  
(10, 63639), (12, 63636), (21, 63543), (23, 63531), (Start: 31 @63483 has 32 MA's), (35, 63405), (36, 63372), (37, 63366), (39, 63339), (41, 63324), (43, 63306), (47, 63219), (58, 63105),

Gene: Austelle\_75 Start: 63800, Stop: 63414, Start Num: 31  
Candidate Starts for Austelle\_75:  
(21, 63860), (23, 63848), (Start: 31 @63800 has 32 MA's), (35, 63722), (37, 63683), (41, 63641), (43, 63623), (47, 63536), (54, 63461), (58, 63422),

Gene: BirdsNest\_89 Start: 65386, Stop: 64982, Start Num: 31  
Candidate Starts for BirdsNest\_89:  
(3, 65590), (11, 65530), (14, 65473), (Start: 31 @65386 has 32 MA's), (37, 65269), (38, 65245), (41, 65227), (48, 65122),

Gene: BobbyK\_76 Start: 62954, Stop: 62568, Start Num: 31  
Candidate Starts for BobbyK\_76:  
(21, 63014), (23, 63002), (Start: 31 @62954 has 32 MA's), (35, 62876), (36, 62843), (37, 62837), (39, 62810), (41, 62795), (43, 62777), (47, 62690), (58, 62576),

Gene: BrownCNA\_76 Start: 63158, Stop: 62772, Start Num: 31  
Candidate Starts for BrownCNA\_76:  
(21, 63218), (23, 63206), (Start: 31 @63158 has 32 MA's), (35, 63080), (36, 63047), (37, 63041), (39, 63014), (41, 62999), (43, 62981), (47, 62894), (58, 62780),

Gene: CRB2\_79 Start: 65196, Stop: 64804, Start Num: 34  
Candidate Starts for CRB2\_79:  
(1, 65547), (7, 65421), (25, 65259), (28, 65250), (Start: 31 @65214 has 32 MA's), (Start: 34 @65196 has 5 MA's), (37, 65097), (38, 65073), (47, 64953), (51, 64905), (53, 64887),

Gene: ChrisnMich\_75 Start: 62154, Stop: 61768, Start Num: 31

Candidate Starts for ChrisnMich\_75:

(6, 62343), (21, 62214), (23, 62202), (Start: 31 @62154 has 32 MA's), (35, 62076), (36, 62043), (37, 62037), (39, 62010), (41, 61995), (43, 61977), (47, 61890), (58, 61776),

Gene: Cooper\_76 Start: 62632, Stop: 62246, Start Num: 31

Candidate Starts for Cooper\_76:

(26, 62671), (Start: 31 @62632 has 32 MA's), (35, 62554), (36, 62521), (37, 62515), (38, 62491), (41, 62473), (43, 62455), (47, 62368), (58, 62254),

Gene: Epah\_73 Start: 62122, Stop: 61736, Start Num: 31

Candidate Starts for Epah\_73:

(21, 62182), (23, 62170), (Start: 31 @62122 has 32 MA's), (35, 62044), (37, 62005), (39, 61978), (41, 61963), (43, 61945), (47, 61858), (58, 61744),

Gene: Fanaw\_71 Start: 62994, Stop: 62608, Start Num: 31

Candidate Starts for Fanaw\_71:

(21, 63054), (23, 63042), (Start: 31 @62994 has 32 MA's), (35, 62916), (36, 62883), (37, 62877), (39, 62850), (41, 62835), (43, 62817), (47, 62730), (58, 62616),

Gene: ForDig\_74 Start: 61622, Stop: 61254, Start Num: 34

Candidate Starts for ForDig\_74:

(29, 61655), (Start: 34 @61622 has 5 MA's), (37, 61523), (38, 61499), (39, 61496), (47, 61379),

Gene: Fortunato\_75 Start: 62924, Stop: 62538, Start Num: 31

Candidate Starts for Fortunato\_75:

(6, 63113), (21, 62984), (23, 62972), (Start: 31 @62924 has 32 MA's), (35, 62846), (36, 62813), (37, 62807), (39, 62780), (41, 62765), (43, 62747), (47, 62660), (58, 62546),

Gene: Frederick\_77 Start: 63228, Stop: 62842, Start Num: 31

Candidate Starts for Frederick\_77:

(9, 63393), (21, 63288), (23, 63276), (Start: 31 @63228 has 32 MA's), (35, 63150), (36, 63117), (37, 63111), (39, 63084), (41, 63069), (43, 63051), (47, 62964), (58, 62850),

Gene: Funsized\_79 Start: 65641, Stop: 65243, Start Num: 31

Candidate Starts for Funsized\_79:

(19, 65701), (21, 65698), (Start: 31 @65641 has 32 MA's), (35, 65563), (37, 65524), (41, 65482), (43, 65464), (47, 65377), (55, 65263),

Gene: GinPorsche\_75 Start: 62119, Stop: 61733, Start Num: 31

Candidate Starts for GinPorsche\_75:

(21, 62179), (23, 62167), (Start: 31 @62119 has 32 MA's), (35, 62041), (37, 62002), (39, 61975), (41, 61960), (43, 61942), (47, 61855), (58, 61741),

Gene: Hally898\_73 Start: 62200, Stop: 61814, Start Num: 31

Candidate Starts for Hally898\_73:

(21, 62260), (23, 62248), (Start: 31 @62200 has 32 MA's), (35, 62122), (37, 62083), (39, 62056), (41, 62041), (43, 62023), (47, 61936), (58, 61822),

Gene: Hangman\_77 Start: 63694, Stop: 63308, Start Num: 31

Candidate Starts for Hangman\_77:

(10, 63850), (12, 63847), (21, 63754), (23, 63742), (26, 63727), (Start: 31 @63694 has 32 MA's), (35, 63616), (36, 63583), (37, 63577), (39, 63550), (41, 63535), (43, 63517), (47, 63430), (58, 63316),

Gene: Hashim76\_88 Start: 65419, Stop: 65015, Start Num: 31

Candidate Starts for Hashim76\_88:

(3, 65641), (Start: 31 @65419 has 32 MA's), (37, 65302), (38, 65278), (41, 65260), (48, 65155), (59, 65029),

Gene: Heath\_76 Start: 63439, Stop: 63053, Start Num: 31

Candidate Starts for Heath\_76:

(9, 63604), (21, 63499), (23, 63487), (Start: 31 @63439 has 32 MA's), (35, 63361), (36, 63328), (37, 63322), (39, 63295), (41, 63280), (43, 63262), (47, 63175), (58, 63061),

Gene: Hosp\_071 Start: 59697, Stop: 59329, Start Num: 34

Candidate Starts for Hosp\_071:

(24, 59766), (29, 59730), (Start: 34 @59697 has 5 MA's), (37, 59598), (38, 59574), (42, 59550), (48, 59451), (49, 59448),

Gene: Hydro\_76 Start: 63357, Stop: 62971, Start Num: 31

Candidate Starts for Hydro\_76:

(9, 63522), (21, 63417), (23, 63405), (Start: 31 @63357 has 32 MA's), (35, 63279), (36, 63246), (37, 63240), (39, 63213), (41, 63198), (43, 63180), (47, 63093), (58, 62979),

Gene: Imvubu\_79 Start: 62691, Stop: 62296, Start Num: 31

Candidate Starts for Imvubu\_79:

(8, 62880), (13, 62829), (15, 62775), (17, 62769), (19, 62760), (27, 62727), (Start: 31 @62691 has 32 MA's), (32, 62685), (37, 62574), (41, 62532), (43, 62514), (44, 62487), (52, 62382), (57, 62313), (58, 62307),

Gene: JAMaL\_74 Start: 62677, Stop: 62291, Start Num: 31

Candidate Starts for JAMaL\_74:

(Start: 31 @62677 has 32 MA's), (35, 62599), (37, 62560), (39, 62533), (41, 62518), (43, 62500), (47, 62413), (58, 62299),

Gene: JaguarMi\_75 Start: 64365, Stop: 63979, Start Num: 31

Candidate Starts for JaguarMi\_75:

(26, 64398), (Start: 31 @64365 has 32 MA's), (35, 64287), (37, 64248), (39, 64221), (41, 64206), (43, 64188), (47, 64101), (58, 63987),

Gene: Jolie1\_073 Start: 61731, Stop: 61363, Start Num: 34

Candidate Starts for Jolie1\_073:

(24, 61800), (29, 61764), (Start: 34 @61731 has 5 MA's), (37, 61632), (38, 61608), (48, 61485), (49, 61482), (60, 61368),

Gene: JoyceMaria\_76 Start: 63520, Stop: 63134, Start Num: 31

Candidate Starts for JoyceMaria\_76:

(10, 63676), (12, 63673), (21, 63580), (23, 63568), (Start: 31 @63520 has 32 MA's), (35, 63442), (36, 63409), (37, 63403), (39, 63376), (41, 63361), (43, 63343), (47, 63256), (58, 63142),

Gene: KayaCho\_73 Start: 61898, Stop: 61530, Start Num: 34

Candidate Starts for KayaCho\_73:

(29, 61931), (Start: 34 @61898 has 5 MA's), (37, 61799), (38, 61775), (47, 61655),

Gene: Lambano\_73 Start: 62200, Stop: 61814, Start Num: 31

Candidate Starts for Lambano\_73:

(21, 62260), (23, 62248), (Start: 31 @62200 has 32 MA's), (35, 62122), (37, 62083), (39, 62056), (41, 62041), (43, 62023), (47, 61936), (58, 61822),

Gene: LittleDigger\_73 Start: 62053, Stop: 61667, Start Num: 31

Candidate Starts for LittleDigger\_73:

(9, 62200), (18, 62098), (20, 62092), (Start: 31 @62053 has 32 MA's), (35, 61975), (36, 61942), (37, 61936), (39, 61909), (41, 61894), (43, 61876), (47, 61789), (58, 61675),

Gene: LittleMinkey\_92 Start: 65026, Stop: 64622, Start Num: 31

Candidate Starts for LittleMinkey\_92:

(2, 65308), (5, 65224), (22, 65089), (Start: 31 @65026 has 32 MA's), (37, 64909), (38, 64885), (41, 64867), (48, 64762), (59, 64636),

Gene: Lolalove\_77 Start: 63280, Stop: 62894, Start Num: 31

Candidate Starts for Lolalove\_77:

(9, 63445), (21, 63340), (23, 63328), (Start: 31 @63280 has 32 MA's), (35, 63202), (36, 63169), (37, 63163), (41, 63121), (43, 63103), (47, 63016), (58, 62902),

Gene: Magpie\_73 Start: 62892, Stop: 62506, Start Num: 31

Candidate Starts for Magpie\_73:

(6, 63081), (21, 62952), (23, 62940), (Start: 31 @62892 has 32 MA's), (35, 62814), (36, 62781), (39, 62748), (41, 62733), (43, 62715), (47, 62628), (58, 62514),

Gene: Mithril\_75 Start: 63279, Stop: 62893, Start Num: 31

Candidate Starts for Mithril\_75:

(6, 63468), (21, 63339), (23, 63327), (Start: 31 @63279 has 32 MA's), (35, 63201), (36, 63168), (37, 63162), (41, 63120), (43, 63102), (47, 63015), (58, 62901),

Gene: Mudslide\_75 Start: 63316, Stop: 62930, Start Num: 31

Candidate Starts for Mudslide\_75:

(10, 63472), (12, 63469), (21, 63376), (23, 63364), (26, 63349), (Start: 31 @63316 has 32 MA's), (35, 63238), (36, 63205), (37, 63199), (39, 63172), (41, 63157), (43, 63139), (47, 63052), (58, 62938),

Gene: Mysterious\_75 Start: 62158, Stop: 61763, Start Num: 30

Candidate Starts for Mysterious\_75:

(23, 62212), (Start: 30 @62158 has 3 MA's), (37, 62041), (38, 62017), (41, 61999), (42, 61993),

Gene: Nanao\_74 Start: 62190, Stop: 61804, Start Num: 31

Candidate Starts for Nanao\_74:

(21, 62250), (23, 62238), (Start: 31 @62190 has 32 MA's), (35, 62112), (37, 62073), (39, 62046), (41, 62031), (43, 62013), (47, 61926), (58, 61812),

Gene: Nangang\_78 Start: 62728, Stop: 62333, Start Num: 30

Candidate Starts for Nangang\_78:

(16, 62809), (Start: 30 @62728 has 3 MA's), (38, 62587), (41, 62569), (42, 62563), (43, 62551), (50, 62437),

Gene: Nigel\_72 Start: 61700, Stop: 61314, Start Num: 31

Candidate Starts for Nigel\_72:

(4, 61904), (21, 61766), (23, 61754), (Start: 31 @61700 has 32 MA's), (35, 61622), (37, 61583), (39, 61556), (41, 61541), (43, 61523), (47, 61436), (58, 61322),

Gene: PenguinLover67\_79 Start: 62948, Stop: 62556, Start Num: 34

Candidate Starts for PenguinLover67\_79:

(25, 63011), (28, 63002), (Start: 31 @62966 has 32 MA's), (Start: 34 @62948 has 5 MA's), (37, 62849), (38, 62825), (48, 62702), (53, 62639),

Gene: Phelemich\_74 Start: 62284, Stop: 61889, Start Num: 30

Candidate Starts for Phelemich\_74:

(23, 62338), (Start: 30 @62284 has 3 MA's), (37, 62167), (38, 62143), (41, 62125), (42, 62119),

Gene: Poster\_73 Start: 62191, Stop: 61805, Start Num: 31

Candidate Starts for Poster\_73:

(21, 62251), (23, 62239), (Start: 31 @62191 has 32 MA's), (35, 62113), (37, 62074), (39, 62047), (41, 62032), (43, 62014), (47, 61927), (58, 61813),

Gene: Prince\_75 Start: 63386, Stop: 63000, Start Num: 31

Candidate Starts for Prince\_75:

(10, 63542), (12, 63539), (21, 63446), (23, 63434), (Start: 31 @63386 has 32 MA's), (35, 63308), (36, 63275), (37, 63269), (39, 63242), (41, 63227), (43, 63209), (47, 63122), (58, 63008),

Gene: QueenPie\_69 Start: 61924, Stop: 61538, Start Num: 31

Candidate Starts for QueenPie\_69:

(Start: 31 @61924 has 32 MA's), (35, 61846), (36, 61813), (37, 61807), (39, 61780), (41, 61765), (43, 61747), (47, 61660), (58, 61546),

Gene: Quesadilla\_79 Start: 63413, Stop: 63021, Start Num: 34

Candidate Starts for Quesadilla\_79:

(Start: 34 @63413 has 5 MA's), (37, 63314), (38, 63290), (47, 63170), (53, 63104),

Gene: RawrgerThat\_75 Start: 62971, Stop: 62585, Start Num: 31

Candidate Starts for RawrgerThat\_75:

(9, 63136), (21, 63031), (23, 63019), (Start: 31 @62971 has 32 MA's), (35, 62893), (36, 62860), (37, 62854), (39, 62827), (41, 62812), (43, 62794), (47, 62707), (58, 62593),

Gene: Renkei\_73 Start: 62047, Stop: 61661, Start Num: 31

Candidate Starts for Renkei\_73:

(9, 62194), (18, 62092), (20, 62086), (Start: 31 @62047 has 32 MA's), (35, 61969), (36, 61936), (37, 61930), (39, 61903), (41, 61888), (43, 61870), (47, 61783), (58, 61669),

Gene: Reprobate\_76 Start: 62289, Stop: 61894, Start Num: 30

Candidate Starts for Reprobate\_76:

(23, 62343), (Start: 30 @62289 has 3 MA's), (37, 62172), (38, 62148), (41, 62130), (42, 62124),

Gene: Rinkes\_75 Start: 63331, Stop: 62945, Start Num: 33

Candidate Starts for Rinkes\_75:

(Start: 31 @63343 has 32 MA's), (Start: 33 @63331 has 1 MA's), (37, 63226), (38, 63202), (41, 63184), (43, 63166), (47, 63079), (55, 62965),

Gene: Saguaro\_75 Start: 62202, Stop: 61816, Start Num: 31

Candidate Starts for Saguaro\_75:

(Start: 31 @62202 has 32 MA's), (38, 62061), (39, 62058), (41, 62043), (42, 62037), (43, 62025), (45, 61971), (46, 61968), (56, 61833),

Gene: Stinger\_74 Start: 61821, Stop: 61435, Start Num: 31

Candidate Starts for Stinger\_74:

(21, 61887), (23, 61875), (Start: 31 @61821 has 32 MA's), (35, 61743), (36, 61710), (37, 61704), (39, 61677), (41, 61662), (43, 61644), (47, 61557), (58, 61443),

Gene: Vincenzo\_78 Start: 64574, Stop: 64188, Start Num: 31

Candidate Starts for Vincenzo\_78:

(21, 64640), (23, 64628), (Start: 31 @64574 has 32 MA's), (37, 64457), (39, 64430), (41, 64415), (58, 64196),

Gene: VioletZ\_78 Start: 63482, Stop: 63096, Start Num: 31

Candidate Starts for VioletZ\_78:

(10, 63638), (12, 63635), (21, 63542), (23, 63530), (26, 63515), (Start: 31 @63482 has 32 MA's), (35, 63404), (36, 63371), (37, 63365), (39, 63338), (41, 63323), (43, 63305), (47, 63218), (58, 63104),

Gene: Waleliano\_74 Start: 62911, Stop: 62525, Start Num: 31

Candidate Starts for Waleliano\_74:

(21, 62971), (23, 62959), (Start: 31 @62911 has 32 MA's), (35, 62833), (36, 62800), (37, 62794), (39, 62767), (41, 62752), (43, 62734), (47, 62647), (58, 62533),

Gene: Xincheng\_74 Start: 64349, Stop: 63930, Start Num: 26

Candidate Starts for Xincheng\_74:

(26, 64349), (Start: 31 @64316 has 32 MA's), (35, 64238), (37, 64199), (39, 64172), (41, 64157), (43, 64139), (47, 64052), (58, 63938),

Gene: Zemanar\_75 Start: 63148, Stop: 62762, Start Num: 31

Candidate Starts for Zemanar\_75:

(9, 63313), (21, 63208), (23, 63196), (Start: 31 @63148 has 32 MA's), (35, 63070), (36, 63037), (37, 63031), (39, 63004), (41, 62989), (43, 62971), (47, 62884), (58, 62770),

Gene: Zenteno07\_89 Start: 65034, Stop: 64624, Start Num: 31

Candidate Starts for Zenteno07\_89:

(Start: 31 @65034 has 32 MA's), (37, 64917), (38, 64887), (40, 64875), (41, 64869), (48, 64764),