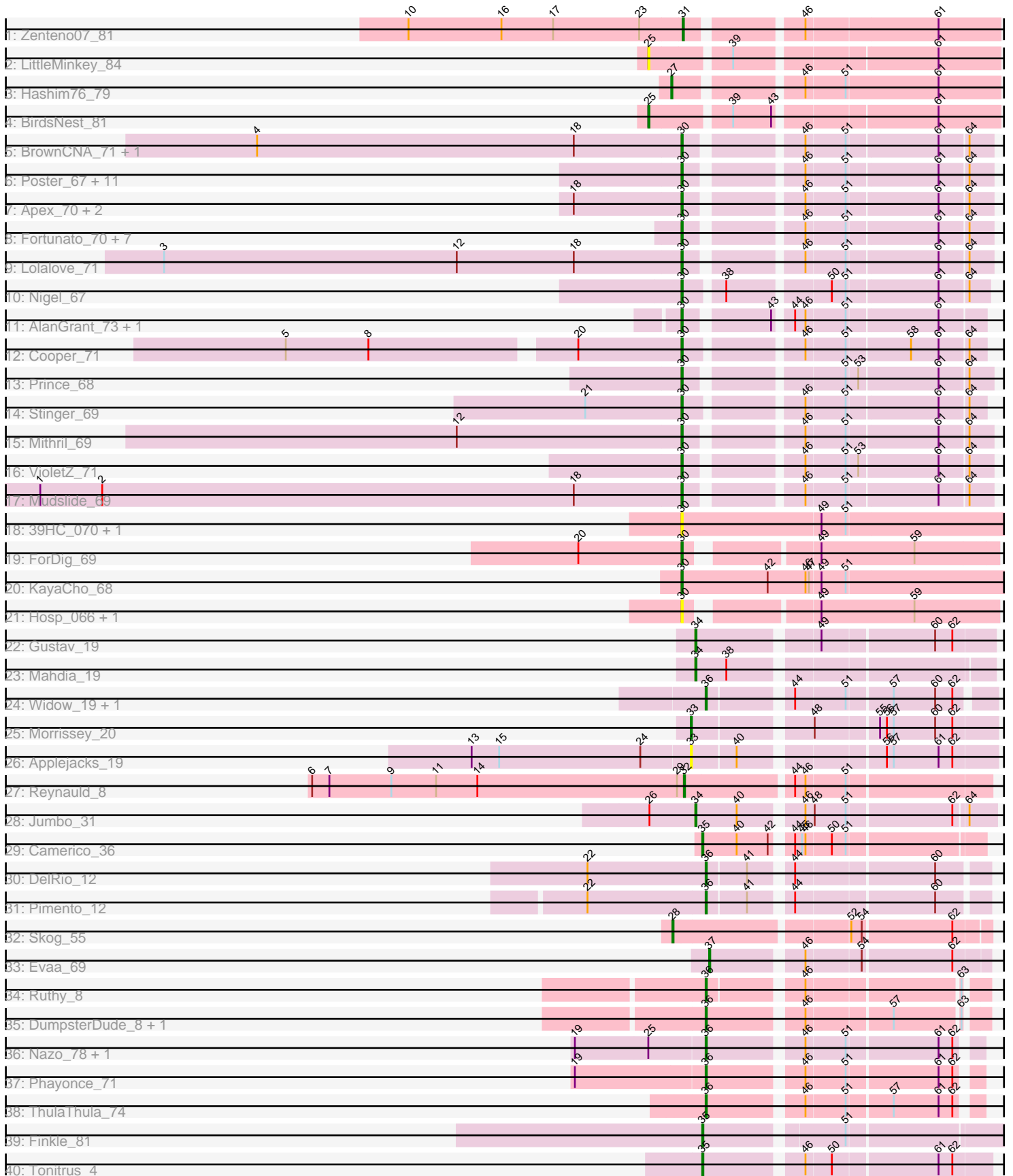


Pham 304998



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 304998 Report

This analysis was run 06/08/26 on database version 649.

Pham number 304998 has 67 members, 18 are drafts.

Phages represented in each track:

- Track 1 : Zenteno07\_81
- Track 2 : LittleMinkey\_84
- Track 3 : Hashim76\_79
- Track 4 : BirdsNest\_81
- Track 5 : BrownCNA\_71, Waleliano\_69
- Track 6 : Poster\_67, Ahwei\_67, BobbyK\_70, Nanao\_68, Epah\_67, ChrisnMich\_69, Hally898\_67, JAMaL\_69, Lambano\_67, QueenPie\_64, Antihero\_67, GinPorsche\_69
- Track 7 : Apex\_70, Austelle\_69, JoyceMaria\_69
- Track 8 : Fortunato\_70, Renkei\_68, Xincheng\_69, Fanaw\_66, JaguarMi\_70, LittleDigger\_68, RawrgerThat\_70, Magpie\_67
- Track 9 : Lolalove\_71
- Track 10 : Nigel\_67
- Track 11 : AlanGrant\_73, Vincenzo\_72
- Track 12 : Cooper\_71
- Track 13 : Prince\_68
- Track 14 : Stinger\_69
- Track 15 : Mithril\_69
- Track 16 : VioletZ\_71
- Track 17 : Mudslide\_69
- Track 18 : 39HC\_070, 40BC\_070
- Track 19 : ForDig\_69
- Track 20 : KayaCho\_68
- Track 21 : Hosp\_066, Jolie1\_068
- Track 22 : Gustav\_19
- Track 23 : Mahdia\_19
- Track 24 : Widow\_19, Puppies\_19
- Track 25 : Morrissey\_20
- Track 26 : Applejacks\_19
- Track 27 : Reynauld\_8
- Track 28 : Jumbo\_31
- Track 29 : Camerico\_36
- Track 30 : DelRio\_12
- Track 31 : Pimento\_12
- Track 32 : Skog\_55
- Track 33 : Evaa\_69
- Track 34 : Ruthy\_8
- Track 35 : DumpsterDude\_8, ArchiDore\_8

- Track 36 : Nazo\_78, BigNuz\_77
- Track 37 : Phayonce\_71
- Track 38 : ThulaThula\_74
- Track 39 : Finkle\_81
- Track 40 : Tonitrus\_4

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

The start number called the most often in the published annotations is 30, it was called in 25 of the 49 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 39HC\_070, 40BC\_070, Ahwei\_67, AlanGrant\_73, Antihero\_67, Apex\_70, Austelle\_69, BobbyK\_70, BrownCNA\_71, ChrisnMich\_69, Cooper\_71, Epah\_67, Fanaw\_66, ForDig\_69, Fortunato\_70, GinPorsche\_69, Hally898\_67, Hosp\_066, JAMaL\_69, JaguarMi\_70, Jolie1\_068, JoyceMaria\_69, KayaCho\_68, Lambano\_67, LittleDigger\_68, Lolalove\_71, Magpie\_67, Mithril\_69, Mudslide\_69, Nanao\_68, Nigel\_67, Poster\_67, Prince\_68, QueenPie\_64, RawrgerThat\_70, Renkei\_68, Stinger\_69, Vincenzo\_72, VioletZ\_71, Waleliano\_69, Xincheng\_69,

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

- 

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

- Applejacks\_19, ArchiDore\_8, BigNuz\_77, BirdsNest\_81, Camerico\_36, DelRio\_12, DumpsterDude\_8, Evaa\_69, Finkle\_81, Gustav\_19, Hashim76\_79, Jumbo\_31, LittleMinkey\_84, Mahdia\_19, Morrissey\_20, Nazo\_78, Phayonce\_71, Pimento\_12, Puppies\_19, Reynauld\_8, Ruthy\_8, Skog\_55, ThulaThula\_74, Tonitrus\_4, Widow\_19, Zenteno07\_81,

**Summary by start number:**

Start 25:

- Found in 4 of 67 ( 6.0% ) of genes in pham
- Manual Annotations of this start: 1 of 49
- Called 50.0% of time when present
- Phage (with cluster) where this start called: BirdsNest\_81 (B13), LittleMinkey\_84 (B13),

Start 27:

- Found in 1 of 67 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 1 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Hashim76\_79 (B13),

Start 28:

- Found in 1 of 67 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 1 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Skog\_55 (DO),

Start 30:

- Found in 41 of 67 ( 61.2% ) of genes in pham
- Manual Annotations of this start: 25 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 39HC\_070 (B6), 40BC\_070 (B6), Ahwei\_67 (B4), AlanGrant\_73 (B4), Antihero\_67 (B4), Apex\_70 (B4), Austelle\_69 (B4), BobbyK\_70 (B4), BrownCNA\_71 (B4), ChrisnMich\_69 (B4), Cooper\_71 (B4), Epah\_67 (B4), Fanaw\_66 (B4), ForDig\_69 (B6), Fortunato\_70 (B4), GinPorsche\_69 (B4), Hally898\_67 (B4), Hosp\_066 (B6), JAMaL\_69 (B4), JaguarMi\_70 (B4), Jolie1\_068 (B6), JoyceMaria\_69 (B4), KayaCho\_68 (B6), Lambano\_67 (B4), LittleDigger\_68 (B4), Lolalove\_71 (B4), Magpie\_67 (B4), Mithril\_69 (B4), Mudslide\_69 (B4), Nanao\_68 (B4), Nigel\_67 (B4), Poster\_67 (B4), Prince\_68 (B4), QueenPie\_64 (B4), RawrgerThat\_70 (B4), Renkei\_68 (B4), Stinger\_69 (B4), Vincenzo\_72 (B4), VioletZ\_71 (B4), Waleliano\_69 (B4), Xincheng\_69 (B4),

Start 31:

- Found in 1 of 67 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 1 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Zenteno07\_81 (B13),

Start 32:

- Found in 1 of 67 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 1 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Reynauld\_8 (CH),

Start 33:

- Found in 2 of 67 ( 3.0% ) of genes in pham
- Manual Annotations of this start: 1 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Applejacks\_19 (CD), Morrissey\_20 (CD),

Start 34:

- Found in 3 of 67 ( 4.5% ) of genes in pham
- Manual Annotations of this start: 3 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gustav\_19 (CD), Jumbo\_31 (DF3), Mahdia\_19 (CD),

Start 35:

- Found in 3 of 67 ( 4.5% ) of genes in pham
- Manual Annotations of this start: 3 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Camerico\_36 (DF4), Finkle\_81 (singleton), Tonitrus\_4 (singleton),

Start 36:

- Found in 11 of 67 ( 16.4% ) of genes in pham
- Manual Annotations of this start: 11 of 49
- Called 100.0% of time when present

- Phage (with cluster) where this start called: ArchiDore\_8 (DW), BigNuz\_77 (P4), DelRio\_12 (DI), DumpsterDude\_8 (DW), Nazo\_78 (P4), Phayonce\_71 (P5), Pimento\_12 (DI), Puppets\_19 (CD), Ruthy\_8 (DW), ThulaThula\_74 (P5), Widow\_19 (CD),

Start 37:

- Found in 1 of 67 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 1 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Evaa\_69 (DR),

### **Summary by clusters:**

There are 14 clusters represented in this pham: DO, singleton, CH, P4, P5, DF4, DI, DF3, CD, B4, B6, B13, DW, DR,

Info for manual annotations of cluster B13:

- Start number 25 was manually annotated 1 time for cluster B13.
- Start number 27 was manually annotated 1 time for cluster B13.
- Start number 31 was manually annotated 1 time for cluster B13.

Info for manual annotations of cluster B4:

- Start number 30 was manually annotated 23 times for cluster B4.

Info for manual annotations of cluster B6:

- Start number 30 was manually annotated 2 times for cluster B6.

Info for manual annotations of cluster CD:

- Start number 33 was manually annotated 1 time for cluster CD.
- Start number 34 was manually annotated 2 times for cluster CD.
- Start number 36 was manually annotated 2 times for cluster CD.

Info for manual annotations of cluster CH:

- Start number 32 was manually annotated 1 time for cluster CH.

Info for manual annotations of cluster DF3:

- Start number 34 was manually annotated 1 time for cluster DF3.

Info for manual annotations of cluster DF4:

- Start number 35 was manually annotated 1 time for cluster DF4.

Info for manual annotations of cluster DI:

- Start number 36 was manually annotated 2 times for cluster DI.

Info for manual annotations of cluster DO:

- Start number 28 was manually annotated 1 time for cluster DO.

Info for manual annotations of cluster DR:

- Start number 37 was manually annotated 1 time for cluster DR.

Info for manual annotations of cluster DW:

- Start number 36 was manually annotated 3 times for cluster DW.

Info for manual annotations of cluster P4:

- Start number 36 was manually annotated 2 times for cluster P4.

Info for manual annotations of cluster P5:

- Start number 36 was manually annotated 2 times for cluster P5.

**Gene Information:**

Gene: 39HC\_070 Start: 59406, Stop: 59684, Start Num: 30

Candidate Starts for 39HC\_070:

(Start: 30 @59406 has 25 MA's), (49, 59526), (51, 59547),

Gene: 40BC\_070 Start: 59406, Stop: 59684, Start Num: 30

Candidate Starts for 40BC\_070:

(Start: 30 @59406 has 25 MA's), (49, 59526), (51, 59547),

Gene: Ahwei\_67 Start: 59642, Stop: 59881, Start Num: 30

Candidate Starts for Ahwei\_67:

(Start: 30 @59642 has 25 MA's), (46, 59729), (51, 59762), (61, 59837), (64, 59861),

Gene: AlanGrant\_73 Start: 61944, Stop: 62177, Start Num: 30

Candidate Starts for AlanGrant\_73:

(Start: 30 @61944 has 25 MA's), (43, 62010), (44, 62022), (46, 62031), (51, 62064), (61, 62139),

Gene: Antihero\_67 Start: 59640, Stop: 59879, Start Num: 30

Candidate Starts for Antihero\_67:

(Start: 30 @59640 has 25 MA's), (46, 59727), (51, 59760), (61, 59835), (64, 59859),

Gene: Apex\_70 Start: 60745, Stop: 60984, Start Num: 30

Candidate Starts for Apex\_70:

(18, 60652), (Start: 30 @60745 has 25 MA's), (46, 60832), (51, 60865), (61, 60940), (64, 60964),

Gene: Applejacks\_19 Start: 16734, Stop: 16973, Start Num: 33

Candidate Starts for Applejacks\_19:

(13, 16545), (15, 16569), (24, 16692), (Start: 33 @16734 has 1 MA's), (40, 16770), (56, 16881), (57, 16887), (61, 16926), (62, 16938),

Gene: ArchiDore\_8 Start: 6746, Stop: 6958, Start Num: 36

Candidate Starts for ArchiDore\_8:

(Start: 36 @6746 has 11 MA's), (46, 6818), (57, 6887), (63, 6941),

Gene: Austelle\_69 Start: 61262, Stop: 61501, Start Num: 30

Candidate Starts for Austelle\_69:

(18, 61169), (Start: 30 @61262 has 25 MA's), (46, 61349), (51, 61382), (61, 61457), (64, 61481),

Gene: BigNuz\_77 Start: 46845, Stop: 47057, Start Num: 36

Candidate Starts for BigNuz\_77:

(19, 46734), (Start: 25 @46797 has 1 MA's), (Start: 36 @46845 has 11 MA's), (46, 46920), (51, 46953), (61, 47028), (62, 47040),

Gene: BirdsNest\_81 Start: 62019, Stop: 62297, Start Num: 25

Candidate Starts for BirdsNest\_81:

(Start: 25 @62019 has 1 MA's), (39, 62082), (43, 62115), (61, 62244),

Gene: BobbyK\_70 Start: 60522, Stop: 60761, Start Num: 30

Candidate Starts for BobbyK\_70:

(Start: 30 @60522 has 25 MA's), (46, 60609), (51, 60642), (61, 60717), (64, 60741),

Gene: BrownCNA\_71 Start: 60896, Stop: 61135, Start Num: 30

Candidate Starts for BrownCNA\_71:

(4, 60527), (18, 60803), (Start: 30 @60896 has 25 MA's), (46, 60983), (51, 61016), (61, 61091), (64, 61115),

Gene: Camerico\_36 Start: 41696, Stop: 41917, Start Num: 35

Candidate Starts for Camerico\_36:

(Start: 35 @41696 has 3 MA's), (40, 41726), (42, 41753), (44, 41765), (45, 41771), (46, 41774), (50, 41795), (51, 41807),

Gene: ChrisnMich\_69 Start: 59624, Stop: 59863, Start Num: 30

Candidate Starts for ChrisnMich\_69:

(Start: 30 @59624 has 25 MA's), (46, 59711), (51, 59744), (61, 59819), (64, 59843),

Gene: Cooper\_71 Start: 60295, Stop: 60531, Start Num: 30

Candidate Starts for Cooper\_71:

(5, 59968), (8, 60040), (20, 60205), (Start: 30 @60295 has 25 MA's), (46, 60385), (51, 60418), (58, 60469), (61, 60493), (64, 60517),

Gene: DelRio\_12 Start: 8531, Stop: 8749, Start Num: 36

Candidate Starts for DelRio\_12:

(22, 8429), (Start: 36 @8531 has 11 MA's), (41, 8564), (44, 8594), (60, 8708),

Gene: DumpsterDude\_8 Start: 6756, Stop: 6971, Start Num: 36

Candidate Starts for DumpsterDude\_8:

(Start: 36 @6756 has 11 MA's), (46, 6831), (57, 6900), (63, 6954),

Gene: Epah\_67 Start: 59640, Stop: 59879, Start Num: 30

Candidate Starts for Epah\_67:

(Start: 30 @59640 has 25 MA's), (46, 59727), (51, 59760), (61, 59835), (64, 59859),

Gene: Evaa\_69 Start: 52488, Stop: 52709, Start Num: 37

Candidate Starts for Evaa\_69:

(Start: 37 @52488 has 1 MA's), (46, 52560), (54, 52605), (62, 52680),

Gene: Fanaw\_66 Start: 60675, Stop: 60914, Start Num: 30

Candidate Starts for Fanaw\_66:

(Start: 30 @60675 has 25 MA's), (46, 60762), (51, 60795), (61, 60870), (64, 60894),

Gene: Finkle\_81 Start: 46764, Stop: 47003, Start Num: 35

Candidate Starts for Finkle\_81:

(Start: 35 @46764 has 3 MA's), (51, 46875),

Gene: ForDig\_69 Start: 59354, Stop: 59602, Start Num: 30

Candidate Starts for ForDig\_69:

(20, 59264), (Start: 30 @59354 has 25 MA's), (49, 59450), (59, 59531),

Gene: Fortunato\_70 Start: 60674, Stop: 60913, Start Num: 30

Candidate Starts for Fortunato\_70:

(Start: 30 @60674 has 25 MA's), (46, 60761), (51, 60794), (61, 60869), (64, 60893),

Gene: GinPorsche\_69 Start: 59640, Stop: 59879, Start Num: 30

Candidate Starts for GinPorsche\_69:

(Start: 30 @59640 has 25 MA's), (46, 59727), (51, 59760), (61, 59835), (64, 59859),

Gene: Gustav\_19 Start: 16757, Stop: 16996, Start Num: 34

Candidate Starts for Gustav\_19:

(Start: 34 @16757 has 3 MA's), (49, 16853), (60, 16946), (62, 16961),

Gene: Hally898\_67 Start: 59655, Stop: 59894, Start Num: 30

Candidate Starts for Hally898\_67:

(Start: 30 @59655 has 25 MA's), (46, 59742), (51, 59775), (61, 59850), (64, 59874),

Gene: Hashim76\_79 Start: 61848, Stop: 62108, Start Num: 27

Candidate Starts for Hashim76\_79:

(Start: 27 @61848 has 1 MA's), (46, 61944), (51, 61977), (61, 62055),

Gene: Hosp\_066 Start: 57234, Stop: 57482, Start Num: 30

Candidate Starts for Hosp\_066:

(Start: 30 @57234 has 25 MA's), (49, 57330), (59, 57411),

Gene: JAMaL\_69 Start: 60649, Stop: 60888, Start Num: 30

Candidate Starts for JAMaL\_69:

(Start: 30 @60649 has 25 MA's), (46, 60736), (51, 60769), (61, 60844), (64, 60868),

Gene: JaguarMi\_70 Start: 61911, Stop: 62150, Start Num: 30

Candidate Starts for JaguarMi\_70:

(Start: 30 @61911 has 25 MA's), (46, 61998), (51, 62031), (61, 62106), (64, 62130),

Gene: Jolie1\_068 Start: 59362, Stop: 59610, Start Num: 30

Candidate Starts for Jolie1\_068:

(Start: 30 @59362 has 25 MA's), (49, 59458), (59, 59539),

Gene: JoyceMaria\_69 Start: 60785, Stop: 61024, Start Num: 30

Candidate Starts for JoyceMaria\_69:

(18, 60692), (Start: 30 @60785 has 25 MA's), (46, 60872), (51, 60905), (61, 60980), (64, 61004),

Gene: Jumbo\_31 Start: 39920, Stop: 40156, Start Num: 34

Candidate Starts for Jumbo\_31:

(26, 39881), (Start: 34 @39920 has 3 MA's), (40, 39956), (46, 40004), (48, 40010), (51, 40037), (62, 40124), (64, 40133),

Gene: KayaCho\_68 Start: 59314, Stop: 59592, Start Num: 30

Candidate Starts for KayaCho\_68:

(Start: 30 @59314 has 25 MA's), (42, 59389), (46, 59422), (47, 59425), (49, 59434), (51, 59455),

Gene: Lambano\_67 Start: 59655, Stop: 59894, Start Num: 30

Candidate Starts for Lambano\_67:

(Start: 30 @59655 has 25 MA's), (46, 59742), (51, 59775), (61, 59850), (64, 59874),

Gene: LittleDigger\_68 Start: 59580, Stop: 59819, Start Num: 30  
Candidate Starts for LittleDigger\_68:  
(Start: 30 @59580 has 25 MA's), (46, 59667), (51, 59700), (61, 59775), (64, 59799),

Gene: LittleMinkey\_84 Start: 61633, Stop: 61911, Start Num: 25  
Candidate Starts for LittleMinkey\_84:  
(Start: 25 @61633 has 1 MA's), (39, 61696), (61, 61858),

Gene: Lolalove\_71 Start: 60827, Stop: 61066, Start Num: 30  
Candidate Starts for Lolalove\_71:  
(3, 60377), (12, 60632), (18, 60734), (Start: 30 @60827 has 25 MA's), (46, 60914), (51, 60947), (61, 61022), (64, 61046),

Gene: Magpie\_67 Start: 60514, Stop: 60753, Start Num: 30  
Candidate Starts for Magpie\_67:  
(Start: 30 @60514 has 25 MA's), (46, 60601), (51, 60634), (61, 60709), (64, 60733),

Gene: Mahdia\_19 Start: 16436, Stop: 16672, Start Num: 34  
Candidate Starts for Mahdia\_19:  
(Start: 34 @16436 has 3 MA's), (38, 16463),

Gene: Mithril\_69 Start: 60826, Stop: 61065, Start Num: 30  
Candidate Starts for Mithril\_69:  
(12, 60631), (Start: 30 @60826 has 25 MA's), (46, 60913), (51, 60946), (61, 61021), (64, 61045),

Gene: Morrissey\_20 Start: 17653, Stop: 17892, Start Num: 33  
Candidate Starts for Morrissey\_20:  
(Start: 33 @17653 has 1 MA's), (48, 17743), (55, 17794), (56, 17800), (57, 17806), (60, 17842), (62, 17857),

Gene: Mudslide\_69 Start: 60847, Stop: 61086, Start Num: 30  
Candidate Starts for Mudslide\_69:  
(1, 60289), (2, 60343), (18, 60754), (Start: 30 @60847 has 25 MA's), (46, 60934), (51, 60967), (61, 61042), (64, 61066),

Gene: Nanao\_68 Start: 59645, Stop: 59884, Start Num: 30  
Candidate Starts for Nanao\_68:  
(Start: 30 @59645 has 25 MA's), (46, 59732), (51, 59765), (61, 59840), (64, 59864),

Gene: Nazo\_78 Start: 46731, Stop: 46943, Start Num: 36  
Candidate Starts for Nazo\_78:  
(19, 46620), (Start: 25 @46683 has 1 MA's), (Start: 36 @46731 has 11 MA's), (46, 46806), (51, 46839), (61, 46914), (62, 46926),

Gene: Nigel\_67 Start: 59465, Stop: 59704, Start Num: 30  
Candidate Starts for Nigel\_67:  
(Start: 30 @59465 has 25 MA's), (38, 59495), (50, 59576), (51, 59588), (61, 59663), (64, 59687),

Gene: Phayonce\_71 Start: 46893, Stop: 47105, Start Num: 36  
Candidate Starts for Phayonce\_71:  
(19, 46782), (Start: 36 @46893 has 11 MA's), (46, 46968), (51, 47001), (61, 47076), (62, 47088),

Gene: Pimento\_12 Start: 8225, Stop: 8443, Start Num: 36  
Candidate Starts for Pimento\_12:  
(22, 8123), (Start: 36 @8225 has 11 MA's), (41, 8258), (44, 8288), (60, 8402),

Gene: Poster\_67 Start: 59646, Stop: 59885, Start Num: 30  
Candidate Starts for Poster\_67:  
(Start: 30 @59646 has 25 MA's), (46, 59733), (51, 59766), (61, 59841), (64, 59865),

Gene: Prince\_68 Start: 60748, Stop: 60987, Start Num: 30  
Candidate Starts for Prince\_68:  
(Start: 30 @60748 has 25 MA's), (51, 60868), (53, 60877), (61, 60943), (64, 60967),

Gene: Puppies\_19 Start: 16767, Stop: 16988, Start Num: 36  
Candidate Starts for Puppies\_19:  
(Start: 36 @16767 has 11 MA's), (44, 16830), (51, 16872), (57, 16908), (60, 16944), (62, 16959),

Gene: QueenPie\_64 Start: 59748, Stop: 59987, Start Num: 30  
Candidate Starts for QueenPie\_64:  
(Start: 30 @59748 has 25 MA's), (46, 59835), (51, 59868), (61, 59943), (64, 59967),

Gene: RawrgerThat\_70 Start: 60652, Stop: 60891, Start Num: 30  
Candidate Starts for RawrgerThat\_70:  
(Start: 30 @60652 has 25 MA's), (46, 60739), (51, 60772), (61, 60847), (64, 60871),

Gene: Renkei\_68 Start: 59574, Stop: 59813, Start Num: 30  
Candidate Starts for Renkei\_68:  
(Start: 30 @59574 has 25 MA's), (46, 59661), (51, 59694), (61, 59769), (64, 59793),

Gene: Reynauld\_8 Start: 5314, Stop: 5066, Start Num: 32  
Candidate Starts for Reynauld\_8:  
(6, 5638), (7, 5623), (9, 5569), (11, 5530), (14, 5494), (29, 5320), (Start: 32 @5314 has 1 MA's), (44, 5227), (46, 5218), (51, 5185),

Gene: Ruthy\_8 Start: 6830, Stop: 7042, Start Num: 36  
Candidate Starts for Ruthy\_8:  
(Start: 36 @6830 has 11 MA's), (46, 6902), (63, 7025),

Gene: Skog\_55 Start: 23233, Stop: 23487, Start Num: 28  
Candidate Starts for Skog\_55:  
(Start: 28 @23233 has 1 MA's), (52, 23374), (54, 23383), (62, 23458),

Gene: Stinger\_69 Start: 59592, Stop: 59828, Start Num: 30  
Candidate Starts for Stinger\_69:  
(21, 59508), (Start: 30 @59592 has 25 MA's), (46, 59682), (51, 59715), (61, 59790), (64, 59814),

Gene: ThulaThula\_74 Start: 48102, Stop: 48314, Start Num: 36  
Candidate Starts for ThulaThula\_74:  
(Start: 36 @48102 has 11 MA's), (46, 48177), (51, 48210), (57, 48246), (61, 48285), (62, 48297),

Gene: Tonitrus\_4 Start: 2043, Stop: 2273, Start Num: 35  
Candidate Starts for Tonitrus\_4:  
(Start: 35 @2043 has 3 MA's), (46, 2121), (50, 2142), (61, 2229), (62, 2241),

Gene: Vincenzo\_72 Start: 61974, Stop: 62207, Start Num: 30

Candidate Starts for Vincenzo\_72:

(Start: 30 @61974 has 25 MA's), (43, 62040), (44, 62052), (46, 62061), (51, 62094), (61, 62169),

Gene: VioletZ\_71 Start: 60742, Stop: 60981, Start Num: 30

Candidate Starts for VioletZ\_71:

(Start: 30 @60742 has 25 MA's), (46, 60829), (51, 60862), (53, 60871), (61, 60937), (64, 60961),

Gene: Waleliano\_69 Start: 60649, Stop: 60888, Start Num: 30

Candidate Starts for Waleliano\_69:

(4, 60280), (18, 60556), (Start: 30 @60649 has 25 MA's), (46, 60736), (51, 60769), (61, 60844), (64, 60868),

Gene: Widow\_19 Start: 16758, Stop: 16979, Start Num: 36

Candidate Starts for Widow\_19:

(Start: 36 @16758 has 11 MA's), (44, 16821), (51, 16863), (57, 16899), (60, 16935), (62, 16950),

Gene: Xincheng\_69 Start: 61862, Stop: 62101, Start Num: 30

Candidate Starts for Xincheng\_69:

(Start: 30 @61862 has 25 MA's), (46, 61949), (51, 61982), (61, 62057), (64, 62081),

Gene: Zenteno07\_81 Start: 61739, Stop: 61990, Start Num: 31

Candidate Starts for Zenteno07\_81:

(10, 61502), (16, 61583), (17, 61628), (23, 61703), (Start: 31 @61739 has 1 MA's), (46, 61826), (61, 61937),