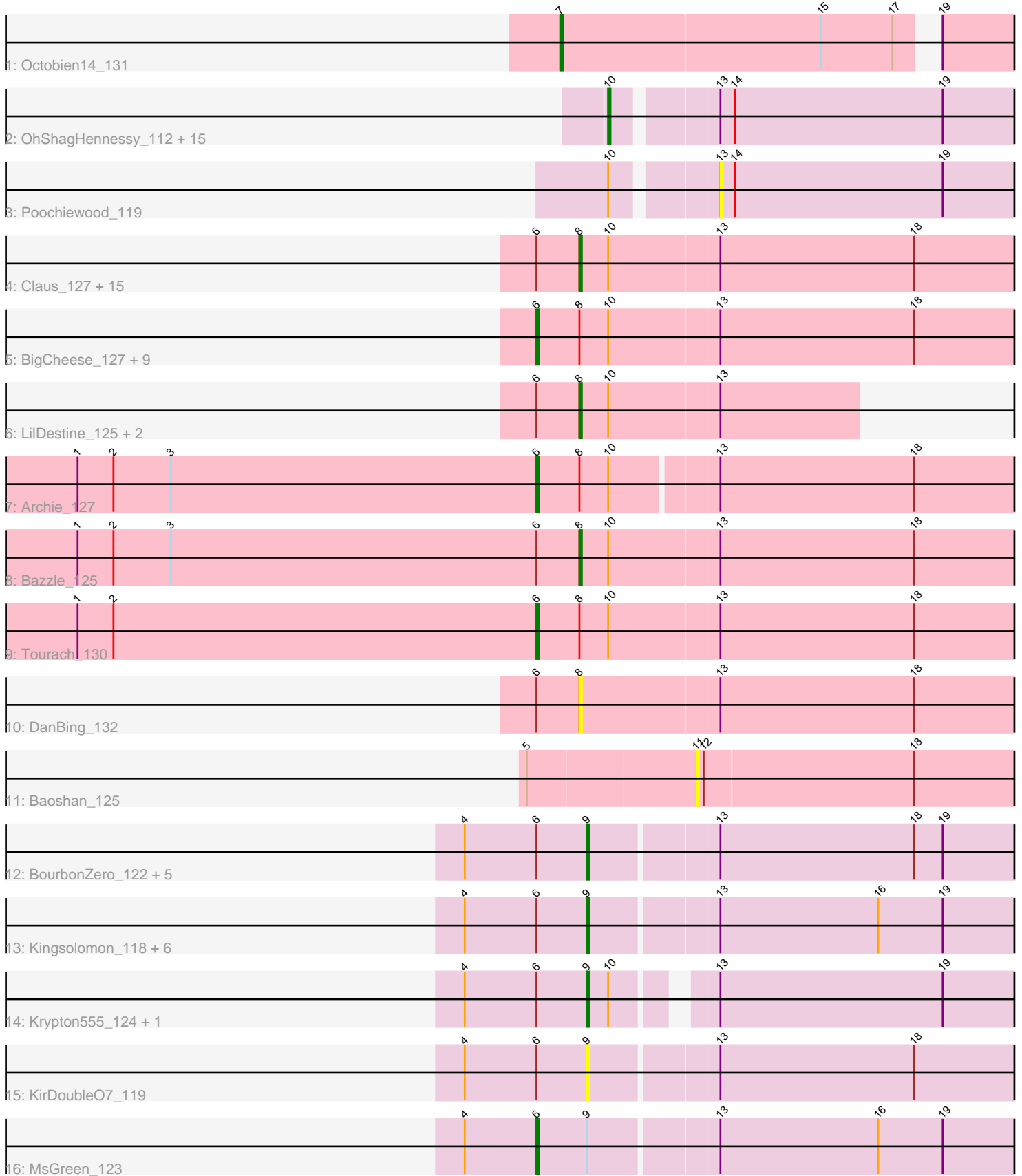


Pham 202915



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 202915 Report

This analysis was run 01/18/25 on database version 583.

Pham number 202915 has 69 members, 12 are drafts.

Phages represented in each track:

- Track 1 : Octobien14\_131
- Track 2 : OhShagHennessy\_112, Rose5\_121, Appletree2\_119, CicholasNage\_114, Acquire49\_120, MAckerman\_121, Calm\_127, AvadaKedavra\_120, UPIE\_119, JoeDirt\_122, LeBron\_119, Zaria\_124, Halena\_120, Tyson\_121, Wamburgrxpress\_122, Wyatt2\_120
- Track 3 : Poochiewood\_119
- Track 4 : Claus\_127, Gardann\_128, GuuelaD\_126, MkaliMitinis3\_130, ZhongYanYuan\_125, Loadrie\_129, Soap141\_129, Vetrix\_128, Miley16\_128, DHan\_130, Netyap\_126, Sarshaun\_130, Underpass\_118, Finemlucis\_128, Lewan\_130, Zakai\_130
- Track 5 : BigCheese\_127, Breezona\_128, Faith1\_126, Winky\_128, Gabriela\_128, Crossroads\_131, Itos\_128, Nicholasp3\_129, DrSeegs\_126, Wigglewiggles\_129
- Track 6 : LilDestine\_125, Kahlid\_128, Wilder\_129
- Track 7 : Archie\_127
- Track 8 : Bazzle\_125
- Track 9 : Tourach\_130
- Track 10 : DanBing\_132
- Track 11 : Baoshan\_125
- Track 12 : BourbonZero\_122, MiniMac\_126, Ellson\_120, DuncansLeg\_122, Lolly9\_122, MiniLon\_126
- Track 13 : Kingsolomon\_118, Clautastrophe\_121, Finnry\_120, Nicholas\_118, Samty\_120, Jubie\_122, Lumos\_122
- Track 14 : Krypton555\_124, Whirlwind\_122
- Track 15 : KirDoubleO7\_119
- Track 16 : MsGreen\_123

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

The start number called the most often in the published annotations is 10, it was called in 16 of the 57 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Acquire49\_120, Appletree2\_119, AvadaKedavra\_120, Calm\_127, CicholasNage\_114, Halena\_120, JoeDirt\_122, LeBron\_119, MAckerman\_121,

OhShagHennessey\_112, Rose5\_121, Tyson\_121, UPIE\_119, Wamburgxpress\_122, Wyatt2\_120, Zaria\_124,

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

- Archie\_127, Bazzle\_125, BigCheese\_127, Breezona\_128, Claus\_127, Crossroads\_131, DHan\_130, DrSeegs\_126, Faith1\_126, Finemlucis\_128, Gabriela\_128, Gardann\_128, GuuelaD\_126, Itos\_128, Kahlid\_128, Krypton555\_124, Lewan\_130, LilDestine\_125, Loadrie\_129, Miley16\_128, MkaliMitinis3\_130, Netyap\_126, Nicholasp3\_129, Poochiewood\_119, Sarshaun\_130, Soap141\_129, Tourach\_130, Underpass\_118, Vetrix\_128, Whirlwind\_122, Wigglewiggles\_129, Wilder\_129, Winky\_128, Zakai\_130, ZhongYanYuan\_125,

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

- Baoshan\_125, BourbonZero\_122, Clautastrophe\_121, DanBing\_132, DuncansLeg\_122, Ellson\_120, Finnry\_120, Jubie\_122, Kingsolomon\_118, KirDoubleO7\_119, Lolly9\_122, Lumos\_122, MiniLon\_126, MiniMac\_126, MsGreen\_123, Nicholas\_118, Octobien14\_131, Samty\_120,

### Summary by start number:

Start 6:

- Found in 50 of 69 ( 72.5% ) of genes in pham
- Manual Annotations of this start: 13 of 57
- Called 26.0% of time when present
- Phage (with cluster) where this start called: Archie\_127 (L2), BigCheese\_127 (L2), Breezona\_128 (L2), Crossroads\_131 (L2), DrSeegs\_126 (L2), Faith1\_126 (L2), Gabriela\_128 (L2), Itos\_128 (L2), MsGreen\_123 (L3), Nicholasp3\_129 (L2), Tourach\_130 (L2), Wigglewiggles\_129 (L2), Winky\_128 (L2),

Start 7:

- Found in 1 of 69 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 57
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Octobien14\_131 (DU1),

Start 8:

- Found in 33 of 69 ( 47.8% ) of genes in pham
- Manual Annotations of this start: 14 of 57
- Called 63.6% of time when present
- Phage (with cluster) where this start called: Bazzle\_125 (L2), Claus\_127 (L2), DHan\_130 (L2), DanBing\_132 (L2), Finemlucis\_128 (L2), Gardann\_128 (L2), GuuelaD\_126 (L2), Kahlid\_128 (L2), Lewan\_130 (L2), LilDestine\_125 (L2), Loadrie\_129 (L2), Miley16\_128 (L2), MkaliMitinis3\_130 (L2), Netyap\_126 (L2), Sarshaun\_130 (L2), Soap141\_129 (L2), Underpass\_118 (L2), Vetrix\_128 (L2), Wilder\_129 (L2), Zakai\_130 (L2), ZhongYanYuan\_125 (L2),

Start 9:

- Found in 17 of 69 ( 24.6% ) of genes in pham
- Manual Annotations of this start: 13 of 57
- Called 94.1% of time when present
- Phage (with cluster) where this start called: BourbonZero\_122 (L3), Clautastrophe\_121 (L3), DuncansLeg\_122 (L3), Ellson\_120 (L3), Finnry\_120 (L3), Jubie\_122 (L3), Kingsolomon\_118 (L3), KirDoubleO7\_119 (L3), Krypton555\_124 (L3),

Lolly9\_122 (L3), Lumos\_122 (L3), MiniLon\_126 (L3), MiniMac\_126 (L3), Nicholas\_118 (L3), Samty\_120 (L3), Whirlwind\_122 (L3),

Start 10:

- Found in 51 of 69 ( 73.9% ) of genes in pham
- Manual Annotations of this start: 16 of 57
- Called 31.4% of time when present
- Phage (with cluster) where this start called: Acquire49\_120 (L1), Appletree2\_119 (L1), AvadaKedavra\_120 (L1), Calm\_127 (L1), CicholasNage\_114 (L1), Halena\_120 (L1), JoeDirt\_122 (L1), LeBron\_119 (L1), MAckerman\_121 (L1), OhShagHennessy\_112 (L1), Rose5\_121 (L1), Tyson\_121 (L1), UPIE\_119 (L1), Wamburgxpress\_122 (L1), Wyatt2\_120 (L1), Zaria\_124 (L1),

Start 11:

- Found in 1 of 69 ( 1.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Baoshan\_125 (L2),

Start 13:

- Found in 67 of 69 ( 97.1% ) of genes in pham
- No Manual Annotations of this start.
- Called 1.5% of time when present
- Phage (with cluster) where this start called: Poochiewood\_119 (L1),

### **Summary by clusters:**

There are 4 clusters represented in this pham: DU1, L2, L3, L1,

Info for manual annotations of cluster DU1:

- Start number 7 was manually annotated 1 time for cluster DU1.

Info for manual annotations of cluster L1:

- Start number 10 was manually annotated 16 times for cluster L1.

Info for manual annotations of cluster L2:

- Start number 6 was manually annotated 12 times for cluster L2.
- Start number 8 was manually annotated 14 times for cluster L2.

Info for manual annotations of cluster L3:

- Start number 6 was manually annotated 1 time for cluster L3.
- Start number 9 was manually annotated 13 times for cluster L3.

### **Gene Information:**

Gene: Acquire49\_120 Start: 65386, Stop: 65159, Start Num: 10

Candidate Starts for Acquire49\_120:

(Start: 10 @65386 has 16 MA's), (13, 65347), (14, 65341), (19, 65254),

Gene: Appletree2\_119 Start: 65427, Stop: 65200, Start Num: 10

Candidate Starts for Appletree2\_119:

(Start: 10 @65427 has 16 MA's), (13, 65388), (14, 65382), (19, 65295),

Gene: Archie\_127 Start: 68037, Stop: 67777, Start Num: 6

Candidate Starts for Archie\_127:

(1, 68229), (2, 68214), (3, 68190), (Start: 6 @68037 has 13 MA's), (Start: 8 @68019 has 14 MA's), (Start: 10 @68007 has 16 MA's), (13, 67965), (18, 67884),

Gene: AvadaKedavra\_120 Start: 65500, Stop: 65273, Start Num: 10

Candidate Starts for AvadaKedavra\_120:

(Start: 10 @65500 has 16 MA's), (13, 65461), (14, 65455), (19, 65368),

Gene: Baoshan\_125 Start: 67732, Stop: 67535, Start Num: 11

Candidate Starts for Baoshan\_125:

(5, 67801), (11, 67732), (12, 67729), (18, 67642),

Gene: Bazzle\_125 Start: 68196, Stop: 67951, Start Num: 8

Candidate Starts for Bazzle\_125:

(1, 68406), (2, 68391), (3, 68367), (Start: 6 @68214 has 13 MA's), (Start: 8 @68196 has 14 MA's), (Start: 10 @68184 has 16 MA's), (13, 68139), (18, 68058),

Gene: BigCheese\_127 Start: 67971, Stop: 67708, Start Num: 6

Candidate Starts for BigCheese\_127:

(Start: 6 @67971 has 13 MA's), (Start: 8 @67953 has 14 MA's), (Start: 10 @67941 has 16 MA's), (13, 67896), (18, 67815),

Gene: BourbonZero\_122 Start: 67259, Stop: 67020, Start Num: 9

Candidate Starts for BourbonZero\_122:

(4, 67310), (Start: 6 @67280 has 13 MA's), (Start: 9 @67259 has 13 MA's), (13, 67208), (18, 67127), (19, 67115),

Gene: Breezona\_128 Start: 68306, Stop: 68043, Start Num: 6

Candidate Starts for Breezona\_128:

(Start: 6 @68306 has 13 MA's), (Start: 8 @68288 has 14 MA's), (Start: 10 @68276 has 16 MA's), (13, 68231), (18, 68150),

Gene: Calm\_127 Start: 66601, Stop: 66374, Start Num: 10

Candidate Starts for Calm\_127:

(Start: 10 @66601 has 16 MA's), (13, 66562), (14, 66556), (19, 66469),

Gene: CicholasNage\_114 Start: 65731, Stop: 65504, Start Num: 10

Candidate Starts for CicholasNage\_114:

(Start: 10 @65731 has 16 MA's), (13, 65692), (14, 65686), (19, 65599),

Gene: Claus\_127 Start: 67856, Stop: 67611, Start Num: 8

Candidate Starts for Claus\_127:

(Start: 6 @67874 has 13 MA's), (Start: 8 @67856 has 14 MA's), (Start: 10 @67844 has 16 MA's), (13, 67799), (18, 67718),

Gene: Clautastrophe\_121 Start: 67103, Stop: 66864, Start Num: 9

Candidate Starts for Clautastrophe\_121:

(4, 67154), (Start: 6 @67124 has 13 MA's), (Start: 9 @67103 has 13 MA's), (13, 67052), (16, 66986), (19, 66959),

Gene: Crossroads\_131 Start: 68238, Stop: 67975, Start Num: 6  
Candidate Starts for Crossroads\_131:  
(Start: 6 @68238 has 13 MA's), (Start: 8 @68220 has 14 MA's), (Start: 10 @68208 has 16 MA's), (13, 68163), (18, 68082),

Gene: DHan\_130 Start: 68359, Stop: 68114, Start Num: 8  
Candidate Starts for DHan\_130:  
(Start: 6 @68377 has 13 MA's), (Start: 8 @68359 has 14 MA's), (Start: 10 @68347 has 16 MA's), (13, 68302), (18, 68221),

Gene: DanBing\_132 Start: 68654, Stop: 68409, Start Num: 8  
Candidate Starts for DanBing\_132:  
(Start: 6 @68672 has 13 MA's), (Start: 8 @68654 has 14 MA's), (13, 68597), (18, 68516),

Gene: DrSeegs\_126 Start: 68306, Stop: 68043, Start Num: 6  
Candidate Starts for DrSeegs\_126:  
(Start: 6 @68306 has 13 MA's), (Start: 8 @68288 has 14 MA's), (Start: 10 @68276 has 16 MA's), (13, 68231), (18, 68150),

Gene: DuncansLeg\_122 Start: 67285, Stop: 67046, Start Num: 9  
Candidate Starts for DuncansLeg\_122:  
(4, 67336), (Start: 6 @67306 has 13 MA's), (Start: 9 @67285 has 13 MA's), (13, 67234), (18, 67153), (19, 67141),

Gene: Ellson\_120 Start: 67541, Stop: 67302, Start Num: 9  
Candidate Starts for Ellson\_120:  
(4, 67592), (Start: 6 @67562 has 13 MA's), (Start: 9 @67541 has 13 MA's), (13, 67490), (18, 67409), (19, 67397),

Gene: Faith1\_126 Start: 67614, Stop: 67351, Start Num: 6  
Candidate Starts for Faith1\_126:  
(Start: 6 @67614 has 13 MA's), (Start: 8 @67596 has 14 MA's), (Start: 10 @67584 has 16 MA's), (13, 67539), (18, 67458),

Gene: Finemlucis\_128 Start: 69047, Stop: 68802, Start Num: 8  
Candidate Starts for Finemlucis\_128:  
(Start: 6 @69065 has 13 MA's), (Start: 8 @69047 has 14 MA's), (Start: 10 @69035 has 16 MA's), (13, 68990), (18, 68909),

Gene: Finnry\_120 Start: 67341, Stop: 67102, Start Num: 9  
Candidate Starts for Finnry\_120:  
(4, 67392), (Start: 6 @67362 has 13 MA's), (Start: 9 @67341 has 13 MA's), (13, 67290), (16, 67224), (19, 67197),

Gene: Gabriela\_128 Start: 67402, Stop: 67139, Start Num: 6  
Candidate Starts for Gabriela\_128:  
(Start: 6 @67402 has 13 MA's), (Start: 8 @67384 has 14 MA's), (Start: 10 @67372 has 16 MA's), (13, 67327), (18, 67246),

Gene: Gardann\_128 Start: 68061, Stop: 67816, Start Num: 8  
Candidate Starts for Gardann\_128:  
(Start: 6 @68079 has 13 MA's), (Start: 8 @68061 has 14 MA's), (Start: 10 @68049 has 16 MA's), (13, 68004), (18, 67923),

Gene: GuuelaD\_126 Start: 67948, Stop: 67703, Start Num: 8  
Candidate Starts for GuuelaD\_126:  
(Start: 6 @67966 has 13 MA's), (Start: 8 @67948 has 14 MA's), (Start: 10 @67936 has 16 MA's), (13, 67891), (18, 67810),

Gene: Halena\_120 Start: 65374, Stop: 65147, Start Num: 10  
Candidate Starts for Halena\_120:  
(Start: 10 @65374 has 16 MA's), (13, 65335), (14, 65329), (19, 65242),

Gene: Itos\_128 Start: 66520, Stop: 66257, Start Num: 6  
Candidate Starts for Itos\_128:  
(Start: 6 @66520 has 13 MA's), (Start: 8 @66502 has 14 MA's), (Start: 10 @66490 has 16 MA's), (13, 66445), (18, 66364),

Gene: JoeDirt\_122 Start: 66605, Stop: 66378, Start Num: 10  
Candidate Starts for JoeDirt\_122:  
(Start: 10 @66605 has 16 MA's), (13, 66566), (14, 66560), (19, 66473),

Gene: Jubie\_122 Start: 67236, Stop: 66997, Start Num: 9  
Candidate Starts for Jubie\_122:  
(4, 67287), (Start: 6 @67257 has 13 MA's), (Start: 9 @67236 has 13 MA's), (13, 67185), (16, 67119), (19, 67092),

Gene: Kahlid\_128 Start: 67898, Stop: 67728, Start Num: 8  
Candidate Starts for Kahlid\_128:  
(Start: 6 @67916 has 13 MA's), (Start: 8 @67898 has 14 MA's), (Start: 10 @67886 has 16 MA's), (13, 67841),

Gene: Kingsolomon\_118 Start: 67097, Stop: 66858, Start Num: 9  
Candidate Starts for Kingsolomon\_118:  
(4, 67148), (Start: 6 @67118 has 13 MA's), (Start: 9 @67097 has 13 MA's), (13, 67046), (16, 66980), (19, 66953),

Gene: KirDoubleO7\_119 Start: 67232, Stop: 66993, Start Num: 9  
Candidate Starts for KirDoubleO7\_119:  
(4, 67283), (Start: 6 @67253 has 13 MA's), (Start: 9 @67232 has 13 MA's), (13, 67181), (18, 67100),

Gene: Krypton555\_124 Start: 67480, Stop: 67250, Start Num: 9  
Candidate Starts for Krypton555\_124:  
(4, 67531), (Start: 6 @67501 has 13 MA's), (Start: 9 @67480 has 13 MA's), (Start: 10 @67471 has 16 MA's), (13, 67438), (19, 67345),

Gene: LeBron\_119 Start: 64990, Stop: 64763, Start Num: 10  
Candidate Starts for LeBron\_119:  
(Start: 10 @64990 has 16 MA's), (13, 64951), (14, 64945), (19, 64858),

Gene: Lewan\_130 Start: 68579, Stop: 68334, Start Num: 8  
Candidate Starts for Lewan\_130:  
(Start: 6 @68597 has 13 MA's), (Start: 8 @68579 has 14 MA's), (Start: 10 @68567 has 16 MA's), (13, 68522), (18, 68441),

Gene: LilDestine\_125 Start: 67068, Stop: 66898, Start Num: 8

Candidate Starts for LilDestine\_125:

(Start: 6 @67086 has 13 MA's), (Start: 8 @67068 has 14 MA's), (Start: 10 @67056 has 16 MA's), (13, 67011),

Gene: Loadrie\_129 Start: 68611, Stop: 68366, Start Num: 8

Candidate Starts for Loadrie\_129:

(Start: 6 @68629 has 13 MA's), (Start: 8 @68611 has 14 MA's), (Start: 10 @68599 has 16 MA's), (13, 68554), (18, 68473),

Gene: Lolly9\_122 Start: 67634, Stop: 67395, Start Num: 9

Candidate Starts for Lolly9\_122:

(4, 67685), (Start: 6 @67655 has 13 MA's), (Start: 9 @67634 has 13 MA's), (13, 67583), (18, 67502), (19, 67490),

Gene: Lumos\_122 Start: 67098, Stop: 66859, Start Num: 9

Candidate Starts for Lumos\_122:

(4, 67149), (Start: 6 @67119 has 13 MA's), (Start: 9 @67098 has 13 MA's), (13, 67047), (16, 66981), (19, 66954),

Gene: MAckerman\_121 Start: 65367, Stop: 65140, Start Num: 10

Candidate Starts for MAckerman\_121:

(Start: 10 @65367 has 16 MA's), (13, 65328), (14, 65322), (19, 65235),

Gene: Miley16\_128 Start: 68288, Stop: 68043, Start Num: 8

Candidate Starts for Miley16\_128:

(Start: 6 @68306 has 13 MA's), (Start: 8 @68288 has 14 MA's), (Start: 10 @68276 has 16 MA's), (13, 68231), (18, 68150),

Gene: MiniLon\_126 Start: 67635, Stop: 67396, Start Num: 9

Candidate Starts for MiniLon\_126:

(4, 67686), (Start: 6 @67656 has 13 MA's), (Start: 9 @67635 has 13 MA's), (13, 67584), (18, 67503), (19, 67491),

Gene: MiniMac\_126 Start: 67637, Stop: 67398, Start Num: 9

Candidate Starts for MiniMac\_126:

(4, 67688), (Start: 6 @67658 has 13 MA's), (Start: 9 @67637 has 13 MA's), (13, 67586), (18, 67505), (19, 67493),

Gene: MkaliMitinis3\_130 Start: 67984, Stop: 67739, Start Num: 8

Candidate Starts for MkaliMitinis3\_130:

(Start: 6 @68002 has 13 MA's), (Start: 8 @67984 has 14 MA's), (Start: 10 @67972 has 16 MA's), (13, 67927), (18, 67846),

Gene: MsGreen\_123 Start: 67121, Stop: 66861, Start Num: 6

Candidate Starts for MsGreen\_123:

(4, 67151), (Start: 6 @67121 has 13 MA's), (Start: 9 @67100 has 13 MA's), (13, 67049), (16, 66983), (19, 66956),

Gene: Netyap\_126 Start: 68002, Stop: 67757, Start Num: 8

Candidate Starts for Netyap\_126:

(Start: 6 @68020 has 13 MA's), (Start: 8 @68002 has 14 MA's), (Start: 10 @67990 has 16 MA's), (13, 67945), (18, 67864),



Gene: Nicholas\_118 Start: 67097, Stop: 66858, Start Num: 9  
Candidate Starts for Nicholas\_118:  
(4, 67148), (Start: 6 @67118 has 13 MA's), (Start: 9 @67097 has 13 MA's), (13, 67046), (16, 66980),  
(19, 66953),

Gene: Nicholasp3\_129 Start: 68079, Stop: 67816, Start Num: 6  
Candidate Starts for Nicholasp3\_129:  
(Start: 6 @68079 has 13 MA's), (Start: 8 @68061 has 14 MA's), (Start: 10 @68049 has 16 MA's), (13,  
68004), (18, 67923),

Gene: Octobien14\_131 Start: 69849, Stop: 69610, Start Num: 7  
Candidate Starts for Octobien14\_131:  
(Start: 7 @69849 has 1 MA's), (15, 69741), (17, 69711), (19, 69702),

Gene: OhShagHennessy\_112 Start: 64152, Stop: 63925, Start Num: 10  
Candidate Starts for OhShagHennessy\_112:  
(Start: 10 @64152 has 16 MA's), (13, 64113), (14, 64107), (19, 64020),

Gene: Poochiewood\_119 Start: 66784, Stop: 66596, Start Num: 13  
Candidate Starts for Poochiewood\_119:  
(Start: 10 @66823 has 16 MA's), (13, 66784), (14, 66778), (19, 66691),

Gene: Rose5\_121 Start: 65664, Stop: 65437, Start Num: 10  
Candidate Starts for Rose5\_121:  
(Start: 10 @65664 has 16 MA's), (13, 65625), (14, 65619), (19, 65532),

Gene: Samty\_120 Start: 67084, Stop: 66845, Start Num: 9  
Candidate Starts for Samty\_120:  
(4, 67135), (Start: 6 @67105 has 13 MA's), (Start: 9 @67084 has 13 MA's), (13, 67033), (16, 66967),  
(19, 66940),

Gene: Sarshaun\_130 Start: 68955, Stop: 68710, Start Num: 8  
Candidate Starts for Sarshaun\_130:  
(Start: 6 @68973 has 13 MA's), (Start: 8 @68955 has 14 MA's), (Start: 10 @68943 has 16 MA's), (13,  
68898), (18, 68817),

Gene: Soap141\_129 Start: 68955, Stop: 68710, Start Num: 8  
Candidate Starts for Soap141\_129:  
(Start: 6 @68973 has 13 MA's), (Start: 8 @68955 has 14 MA's), (Start: 10 @68943 has 16 MA's), (13,  
68898), (18, 68817),

Gene: Tourach\_130 Start: 69507, Stop: 69244, Start Num: 6  
Candidate Starts for Tourach\_130:  
(1, 69699), (2, 69684), (Start: 6 @69507 has 13 MA's), (Start: 8 @69489 has 14 MA's), (Start: 10  
@69477 has 16 MA's), (13, 69432), (18, 69351),

Gene: Tyson\_121 Start: 66094, Stop: 65867, Start Num: 10  
Candidate Starts for Tyson\_121:  
(Start: 10 @66094 has 16 MA's), (13, 66055), (14, 66049), (19, 65962),

Gene: UPIE\_119 Start: 65331, Stop: 65104, Start Num: 10  
Candidate Starts for UPIE\_119:  
(Start: 10 @65331 has 16 MA's), (13, 65292), (14, 65286), (19, 65199),

Gene: Underpass\_118 Start: 63101, Stop: 62856, Start Num: 8  
Candidate Starts for Underpass\_118:  
(Start: 6 @63119 has 13 MA's), (Start: 8 @63101 has 14 MA's), (Start: 10 @63089 has 16 MA's), (13, 63044), (18, 62963),

Gene: Vetrix\_128 Start: 68598, Stop: 68353, Start Num: 8  
Candidate Starts for Vetrix\_128:  
(Start: 6 @68616 has 13 MA's), (Start: 8 @68598 has 14 MA's), (Start: 10 @68586 has 16 MA's), (13, 68541), (18, 68460),

Gene: Wamburgexpress\_122 Start: 65997, Stop: 65770, Start Num: 10  
Candidate Starts for Wamburgexpress\_122:  
(Start: 10 @65997 has 16 MA's), (13, 65958), (14, 65952), (19, 65865),

Gene: Whirlwind\_122 Start: 67361, Stop: 67131, Start Num: 9  
Candidate Starts for Whirlwind\_122:  
(4, 67412), (Start: 6 @67382 has 13 MA's), (Start: 9 @67361 has 13 MA's), (Start: 10 @67352 has 16 MA's), (13, 67319), (19, 67226),

Gene: Wigglewobble\_129 Start: 68212, Stop: 67949, Start Num: 6  
Candidate Starts for Wigglewobble\_129:  
(Start: 6 @68212 has 13 MA's), (Start: 8 @68194 has 14 MA's), (Start: 10 @68182 has 16 MA's), (13, 68137), (18, 68056),

Gene: Wilder\_129 Start: 67752, Stop: 67582, Start Num: 8  
Candidate Starts for Wilder\_129:  
(Start: 6 @67770 has 13 MA's), (Start: 8 @67752 has 14 MA's), (Start: 10 @67740 has 16 MA's), (13, 67695),

Gene: Winky\_128 Start: 68307, Stop: 68044, Start Num: 6  
Candidate Starts for Winky\_128:  
(Start: 6 @68307 has 13 MA's), (Start: 8 @68289 has 14 MA's), (Start: 10 @68277 has 16 MA's), (13, 68232), (18, 68151),

Gene: Wyatt2\_120 Start: 65757, Stop: 65530, Start Num: 10  
Candidate Starts for Wyatt2\_120:  
(Start: 10 @65757 has 16 MA's), (13, 65718), (14, 65712), (19, 65625),

Gene: Zakai\_130 Start: 67999, Stop: 67754, Start Num: 8  
Candidate Starts for Zakai\_130:  
(Start: 6 @68017 has 13 MA's), (Start: 8 @67999 has 14 MA's), (Start: 10 @67987 has 16 MA's), (13, 67942), (18, 67861),

Gene: Zaria\_124 Start: 66066, Stop: 65839, Start Num: 10  
Candidate Starts for Zaria\_124:  
(Start: 10 @66066 has 16 MA's), (13, 66027), (14, 66021), (19, 65934),

Gene: ZhongYanYuan\_125 Start: 67479, Stop: 67234, Start Num: 8  
Candidate Starts for ZhongYanYuan\_125:  
(Start: 6 @67497 has 13 MA's), (Start: 8 @67479 has 14 MA's), (Start: 10 @67467 has 16 MA's), (13, 67422), (18, 67341),