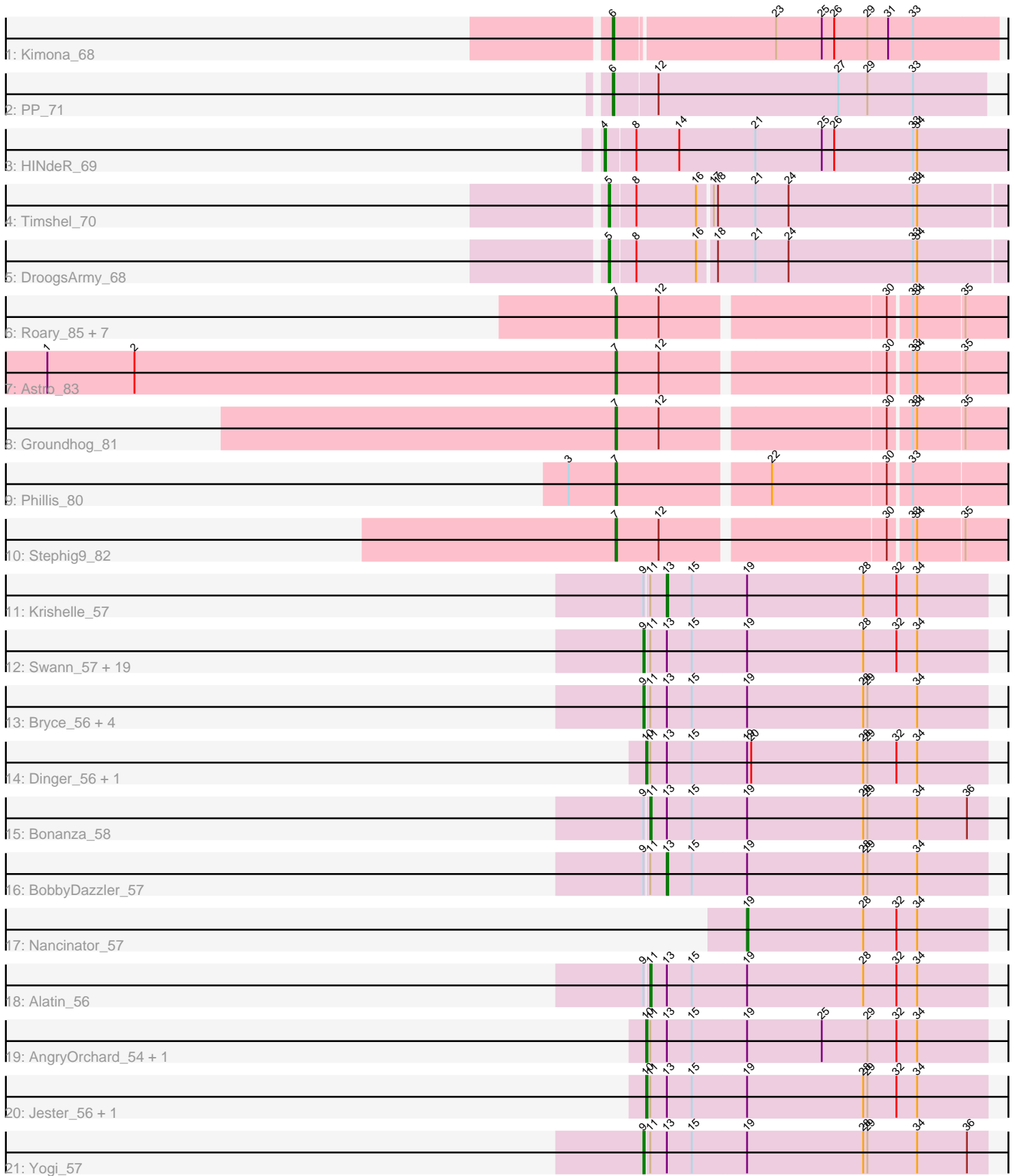


Pham 305066



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 305066 Report

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

Pham number 305066 has 54 members, 2 are drafts.

Phages represented in each track:

- Track 1 : Kimona\_68
- Track 2 : PP\_71
- Track 3 : HINdeR\_69
- Track 4 : Timshel\_70
- Track 5 : DroogsArmy\_68
- Track 6 : Roary\_85, Saintus\_79, NearlyHeadless\_84, Dixon\_82, Danforth\_84, Caitlin\_81, Expelliarmus\_80, Smeadley\_83
- Track 7 : Astro\_83
- Track 8 : Groundhog\_81
- Track 9 : Phillis\_80
- Track 10 : Stephig9\_82
- Track 11 : Krishelle\_57
- Track 12 : Swann\_57, Bradshaw\_57, Phrankenstein\_57, RER2\_50, RexFury\_56, Lillie\_57, Naiad\_56, Natosaleda\_56, Belenaria\_58, CosmicSans\_57, Erik\_57, Shuman\_58, Gollum\_57, Espica\_58, TWAMP\_57, UhSalsa\_57, Rhodalysa\_57, StCroix\_56, Rasputin\_57, AppleCloud\_54
- Track 13 : Bryce\_56, PhailMary\_56, Hiro\_57, Alpacados\_56, Yoncess\_56
- Track 14 : Dinger\_56, Partridge\_56
- Track 15 : Bonanza\_58
- Track 16 : BobbyDazzler\_57
- Track 17 : Nancinator\_57
- Track 18 : Alatin\_56
- Track 19 : AngryOrchard\_54, Takoda\_57
- Track 20 : Jester\_56, Harlequin\_56
- Track 21 : Yogi\_57

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

The start number called the most often in the published annotations is 9, it was called in 25 of the 52 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Alpacados\_56, AppleCloud\_54, Belenaria\_58, Bradshaw\_57, Bryce\_56, CosmicSans\_57, Erik\_57, Espica\_58, Gollum\_57, Hiro\_57, Lillie\_57, Naiad\_56,

Natosaleda\_56, PhailMary\_56, Phrankenstein\_57, RER2\_50, Rasputin\_57, RexFury\_56, Rhodalysa\_57, Shuman\_58, StCroix\_56, Swann\_57, TWAMP\_57, UhSalsa\_57, Yogi\_57, Yoncess\_56,

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

- Alatin\_56, BobbyDazzler\_57, Bonanza\_58, Krishelle\_57,

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

- AngryOrchard\_54, Astro\_83, Caitlin\_81, Danforth\_84, Dinger\_56, Dixon\_82, DroogsArmy\_68, Expelliarmus\_80, Groundhog\_81, HINdeR\_69, Harlequin\_56, Jester\_56, Kimona\_68, Nancinator\_57, NearlyHeadless\_84, PP\_71, Partridge\_56, Phillis\_80, Roary\_85, Saintus\_79, Smeadley\_83, Stephig9\_82, Takoda\_57, Timshel\_70,

### Summary by start number:

Start 4:

- Found in 1 of 54 ( 1.9% ) of genes in pham
- Manual Annotations of this start: 1 of 52
- Called 100.0% of time when present
- Phage (with cluster) where this start called: HINdeR\_69 (A7),

Start 5:

- Found in 2 of 54 ( 3.7% ) of genes in pham
- Manual Annotations of this start: 2 of 52
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DroogsArmy\_68 (A7), Timshel\_70 (A7),

Start 6:

- Found in 2 of 54 ( 3.7% ) of genes in pham
- Manual Annotations of this start: 2 of 52
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kimona\_68 (A19), PP\_71 (A7),

Start 7:

- Found in 12 of 54 ( 22.2% ) of genes in pham
- Manual Annotations of this start: 11 of 52
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Astro\_83 (A8), Caitlin\_81 (A8), Danforth\_84 (A8), Dixon\_82 (A8), Expelliarmus\_80 (A8), Groundhog\_81 (A8), NearlyHeadless\_84 (A8), Phillis\_80 (A8), Roary\_85 (A8), Saintus\_79 (A8), Smeadley\_83 (A8), Stephig9\_82 (A8),

Start 9:

- Found in 30 of 54 ( 55.6% ) of genes in pham
- Manual Annotations of this start: 25 of 52
- Called 86.7% of time when present
- Phage (with cluster) where this start called: Alpacados\_56 (CA), AppleCloud\_54 (CA), Belenaria\_58 (CA), Bradshaw\_57 (CA), Bryce\_56 (CA), CosmicSans\_57 (CA), Erik\_57 (CA), Espica\_58 (CA), Gollum\_57 (CA), Hiro\_57 (CA), Lillie\_57 (CA), Naiad\_56 (CA), Natosaleda\_56 (CA), PhailMary\_56 (CA), Phrankenstein\_57 (CA), RER2\_50 (CA), Rasputin\_57 (CA), RexFury\_56 (CA), Rhodalysa\_57 (CA), Shuman\_58 (CA), StCroix\_56 (CA), Swann\_57 (CA), TWAMP\_57 (CA), UhSalsa\_57

(CA), Yogi\_57 (CA), Yoncess\_56 (CA),

Start 10:

- Found in 6 of 54 ( 11.1% ) of genes in pham
- Manual Annotations of this start: 6 of 52
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AngryOrchard\_54 (CA), Dinger\_56 (CA), Harlequin\_56 (CA), Jester\_56 (CA), Partridge\_56 (CA), Takoda\_57 (CA),

Start 11:

- Found in 36 of 54 ( 66.7% ) of genes in pham
- Manual Annotations of this start: 2 of 52
- Called 5.6% of time when present
- Phage (with cluster) where this start called: Alatin\_56 (CA), Bonanza\_58 (CA),

Start 13:

- Found in 36 of 54 ( 66.7% ) of genes in pham
- Manual Annotations of this start: 2 of 52
- Called 5.6% of time when present
- Phage (with cluster) where this start called: BobbyDazzler\_57 (CA), Krishelle\_57 (CA),

Start 19:

- Found in 37 of 54 ( 68.5% ) of genes in pham
- Manual Annotations of this start: 1 of 52
- Called 2.7% of time when present
- Phage (with cluster) where this start called: Nancinator\_57 (CA),

### **Summary by clusters:**

There are 4 clusters represented in this pham: A8, CA, A19, A7,

Info for manual annotations of cluster A19:

- Start number 6 was manually annotated 1 time for cluster A19.

Info for manual annotations of cluster A7:

- Start number 4 was manually annotated 1 time for cluster A7.
- Start number 5 was manually annotated 2 times for cluster A7.
- Start number 6 was manually annotated 1 time for cluster A7.

Info for manual annotations of cluster A8:

- Start number 7 was manually annotated 11 times for cluster A8.

Info for manual annotations of cluster CA:

- Start number 9 was manually annotated 25 times for cluster CA.
- Start number 10 was manually annotated 6 times for cluster CA.
- Start number 11 was manually annotated 2 times for cluster CA.
- Start number 13 was manually annotated 2 times for cluster CA.
- Start number 19 was manually annotated 1 time for cluster CA.

### **Gene Information:**

Gene: Alatin\_56 Start: 39664, Stop: 39422, Start Num: 11

Candidate Starts for Alatin\_56:

(Start: 9 @39667 has 25 MA's), (Start: 11 @39664 has 2 MA's), (Start: 13 @39652 has 2 MA's), (15, 39634), (Start: 19 @39595 has 1 MA's), (28, 39511), (32, 39487), (34, 39472),

Gene: Alpacados\_56 Start: 39560, Stop: 39315, Start Num: 9

Candidate Starts for Alpacados\_56:

(Start: 9 @39560 has 25 MA's), (Start: 11 @39557 has 2 MA's), (Start: 13 @39545 has 2 MA's), (15, 39527), (Start: 19 @39488 has 1 MA's), (28, 39404), (29, 39401), (34, 39365),

Gene: AngryOrchard\_54 Start: 39720, Stop: 39475, Start Num: 10

Candidate Starts for AngryOrchard\_54:

(Start: 10 @39720 has 6 MA's), (Start: 11 @39717 has 2 MA's), (Start: 13 @39705 has 2 MA's), (15, 39687), (Start: 19 @39648 has 1 MA's), (25, 39594), (29, 39561), (32, 39540), (34, 39525),

Gene: AppleCloud\_54 Start: 39382, Stop: 39137, Start Num: 9

Candidate Starts for AppleCloud\_54:

(Start: 9 @39382 has 25 MA's), (Start: 11 @39379 has 2 MA's), (Start: 13 @39367 has 2 MA's), (15, 39349), (Start: 19 @39310 has 1 MA's), (28, 39226), (32, 39202), (34, 39187),

Gene: Astro\_83 Start: 45517, Stop: 45254, Start Num: 7

Candidate Starts for Astro\_83:

(1, 45928), (2, 45865), (Start: 7 @45517 has 11 MA's), (12, 45487), (30, 45334), (33, 45319), (34, 45316), (35, 45283),

Gene: Belenaria\_58 Start: 39530, Stop: 39285, Start Num: 9

Candidate Starts for Belenaria\_58:

(Start: 9 @39530 has 25 MA's), (Start: 11 @39527 has 2 MA's), (Start: 13 @39515 has 2 MA's), (15, 39497), (Start: 19 @39458 has 1 MA's), (28, 39374), (32, 39350), (34, 39335),

Gene: BobbyDazzler\_57 Start: 39622, Stop: 39392, Start Num: 13

Candidate Starts for BobbyDazzler\_57:

(Start: 9 @39637 has 25 MA's), (Start: 11 @39634 has 2 MA's), (Start: 13 @39622 has 2 MA's), (15, 39604), (Start: 19 @39565 has 1 MA's), (28, 39481), (29, 39478), (34, 39442),

Gene: Bonanza\_58 Start: 39939, Stop: 39697, Start Num: 11

Candidate Starts for Bonanza\_58:

(Start: 9 @39942 has 25 MA's), (Start: 11 @39939 has 2 MA's), (Start: 13 @39927 has 2 MA's), (15, 39909), (Start: 19 @39870 has 1 MA's), (28, 39786), (29, 39783), (34, 39747), (36, 39711),

Gene: Bradshaw\_57 Start: 39600, Stop: 39355, Start Num: 9

Candidate Starts for Bradshaw\_57:

(Start: 9 @39600 has 25 MA's), (Start: 11 @39597 has 2 MA's), (Start: 13 @39585 has 2 MA's), (15, 39567), (Start: 19 @39528 has 1 MA's), (28, 39444), (32, 39420), (34, 39405),

Gene: Bryce\_56 Start: 39345, Stop: 39100, Start Num: 9

Candidate Starts for Bryce\_56:

(Start: 9 @39345 has 25 MA's), (Start: 11 @39342 has 2 MA's), (Start: 13 @39330 has 2 MA's), (15, 39312), (Start: 19 @39273 has 1 MA's), (28, 39189), (29, 39186), (34, 39150),

Gene: Caitlin\_81 Start: 45209, Stop: 44946, Start Num: 7

Candidate Starts for Caitlin\_81:

(Start: 7 @45209 has 11 MA's), (12, 45179), (30, 45026), (33, 45011), (34, 45008), (35, 44975),

Gene: CosmicSans\_57 Start: 39591, Stop: 39346, Start Num: 9

Candidate Starts for CosmicSans\_57:

(Start: 9 @39591 has 25 MA's), (Start: 11 @39588 has 2 MA's), (Start: 13 @39576 has 2 MA's), (15, 39558), (Start: 19 @39519 has 1 MA's), (28, 39435), (32, 39411), (34, 39396),

Gene: Danforth\_84 Start: 45594, Stop: 45331, Start Num: 7

Candidate Starts for Danforth\_84:

(Start: 7 @45594 has 11 MA's), (12, 45564), (30, 45411), (33, 45396), (34, 45393), (35, 45360),

Gene: Dinger\_56 Start: 39733, Stop: 39488, Start Num: 10

Candidate Starts for Dinger\_56:

(Start: 10 @39733 has 6 MA's), (Start: 11 @39730 has 2 MA's), (Start: 13 @39718 has 2 MA's), (15, 39700), (Start: 19 @39661 has 1 MA's), (20, 39658), (28, 39577), (29, 39574), (32, 39553), (34, 39538),

Gene: Dixon\_82 Start: 45076, Stop: 44813, Start Num: 7

Candidate Starts for Dixon\_82:

(Start: 7 @45076 has 11 MA's), (12, 45046), (30, 44893), (33, 44878), (34, 44875), (35, 44842),

Gene: DroogsArmy\_68 Start: 46858, Stop: 46574, Start Num: 5

Candidate Starts for DroogsArmy\_68:

(Start: 5 @46858 has 2 MA's), (8, 46840), (16, 46798), (18, 46786), (21, 46759), (24, 46735), (33, 46645), (34, 46642),

Gene: Erik\_57 Start: 39523, Stop: 39278, Start Num: 9

Candidate Starts for Erik\_57:

(Start: 9 @39523 has 25 MA's), (Start: 11 @39520 has 2 MA's), (Start: 13 @39508 has 2 MA's), (15, 39490), (Start: 19 @39451 has 1 MA's), (28, 39367), (32, 39343), (34, 39328),

Gene: Espica\_58 Start: 39530, Stop: 39285, Start Num: 9

Candidate Starts for Espica\_58:

(Start: 9 @39530 has 25 MA's), (Start: 11 @39527 has 2 MA's), (Start: 13 @39515 has 2 MA's), (15, 39497), (Start: 19 @39458 has 1 MA's), (28, 39374), (32, 39350), (34, 39335),

Gene: Expelliarmus\_80 Start: 45290, Stop: 45027, Start Num: 7

Candidate Starts for Expelliarmus\_80:

(Start: 7 @45290 has 11 MA's), (12, 45260), (30, 45107), (33, 45092), (34, 45089), (35, 45056),

Gene: Gollum\_57 Start: 39586, Stop: 39341, Start Num: 9

Candidate Starts for Gollum\_57:

(Start: 9 @39586 has 25 MA's), (Start: 11 @39583 has 2 MA's), (Start: 13 @39571 has 2 MA's), (15, 39553), (Start: 19 @39514 has 1 MA's), (28, 39430), (32, 39406), (34, 39391),

Gene: Groundhog\_81 Start: 45346, Stop: 45083, Start Num: 7

Candidate Starts for Groundhog\_81:

(Start: 7 @45346 has 11 MA's), (12, 45316), (30, 45163), (33, 45148), (34, 45145), (35, 45112),

Gene: HINdeR\_69 Start: 46286, Stop: 45993, Start Num: 4

Candidate Starts for HINdeR\_69:

(Start: 4 @46286 has 1 MA's), (8, 46265), (14, 46235), (21, 46181), (25, 46133), (26, 46124), (33, 46067), (34, 46064),

Gene: Harlequin\_56 Start: 39375, Stop: 39130, Start Num: 10

Candidate Starts for Harlequin\_56:

(Start: 10 @39375 has 6 MA's), (Start: 11 @39372 has 2 MA's), (Start: 13 @39360 has 2 MA's), (15, 39342), (Start: 19 @39303 has 1 MA's), (28, 39219), (29, 39216), (32, 39195), (34, 39180),

Gene: Hiro\_57 Start: 39851, Stop: 39606, Start Num: 9

Candidate Starts for Hiro\_57:

(Start: 9 @39851 has 25 MA's), (Start: 11 @39848 has 2 MA's), (Start: 13 @39836 has 2 MA's), (15, 39818), (Start: 19 @39779 has 1 MA's), (28, 39695), (29, 39692), (34, 39656),

Gene: Jester\_56 Start: 39306, Stop: 39061, Start Num: 10

Candidate Starts for Jester\_56:

(Start: 10 @39306 has 6 MA's), (Start: 11 @39303 has 2 MA's), (Start: 13 @39291 has 2 MA's), (15, 39273), (Start: 19 @39234 has 1 MA's), (28, 39150), (29, 39147), (32, 39126), (34, 39111),

Gene: Kimona\_68 Start: 42650, Stop: 42381, Start Num: 6

Candidate Starts for Kimona\_68:

(Start: 6 @42650 has 2 MA's), (23, 42539), (25, 42506), (26, 42497), (29, 42473), (31, 42458), (33, 42440),

Gene: Krishelle\_57 Start: 39945, Stop: 39715, Start Num: 13

Candidate Starts for Krishelle\_57:

(Start: 9 @39960 has 25 MA's), (Start: 11 @39957 has 2 MA's), (Start: 13 @39945 has 2 MA's), (15, 39927), (Start: 19 @39888 has 1 MA's), (28, 39804), (32, 39780), (34, 39765),

Gene: Lillie\_57 Start: 39591, Stop: 39346, Start Num: 9

Candidate Starts for Lillie\_57:

(Start: 9 @39591 has 25 MA's), (Start: 11 @39588 has 2 MA's), (Start: 13 @39576 has 2 MA's), (15, 39558), (Start: 19 @39519 has 1 MA's), (28, 39435), (32, 39411), (34, 39396),

Gene: Naiad\_56 Start: 39613, Stop: 39368, Start Num: 9

Candidate Starts for Naiad\_56:

(Start: 9 @39613 has 25 MA's), (Start: 11 @39610 has 2 MA's), (Start: 13 @39598 has 2 MA's), (15, 39580), (Start: 19 @39541 has 1 MA's), (28, 39457), (32, 39433), (34, 39418),

Gene: Nancinator\_57 Start: 39458, Stop: 39285, Start Num: 19

Candidate Starts for Nancinator\_57:

(Start: 19 @39458 has 1 MA's), (28, 39374), (32, 39350), (34, 39335),

Gene: Natosaleda\_56 Start: 39529, Stop: 39284, Start Num: 9

Candidate Starts for Natosaleda\_56:

(Start: 9 @39529 has 25 MA's), (Start: 11 @39526 has 2 MA's), (Start: 13 @39514 has 2 MA's), (15, 39496), (Start: 19 @39457 has 1 MA's), (28, 39373), (32, 39349), (34, 39334),

Gene: NearlyHeadless\_84 Start: 45360, Stop: 45097, Start Num: 7

Candidate Starts for NearlyHeadless\_84:

(Start: 7 @45360 has 11 MA's), (12, 45330), (30, 45177), (33, 45162), (34, 45159), (35, 45126),

Gene: PP\_71 Start: 48071, Stop: 47808, Start Num: 6

Candidate Starts for PP\_71:

(Start: 6 @48071 has 2 MA's), (12, 48041), (27, 47912), (29, 47891), (33, 47858),

Gene: Partridge\_56 Start: 39890, Stop: 39645, Start Num: 10

Candidate Starts for Partridge\_56:

(Start: 10 @39890 has 6 MA's), (Start: 11 @39887 has 2 MA's), (Start: 13 @39875 has 2 MA's), (15, 39857), (Start: 19 @39818 has 1 MA's), (20, 39815), (28, 39734), (29, 39731), (32, 39710), (34, 39695),

Gene: PhailMary\_56 Start: 39913, Stop: 39668, Start Num: 9

Candidate Starts for PhailMary\_56:

(Start: 9 @39913 has 25 MA's), (Start: 11 @39910 has 2 MA's), (Start: 13 @39898 has 2 MA's), (15, 39880), (Start: 19 @39841 has 1 MA's), (28, 39757), (29, 39754), (34, 39718),

Gene: Phillis\_80 Start: 44378, Stop: 44115, Start Num: 7

Candidate Starts for Phillis\_80:

(3, 44411), (Start: 7 @44378 has 11 MA's), (22, 44276), (30, 44195), (33, 44180),

Gene: Phrankenstein\_57 Start: 39537, Stop: 39292, Start Num: 9

Candidate Starts for Phrankenstein\_57:

(Start: 9 @39537 has 25 MA's), (Start: 11 @39534 has 2 MA's), (Start: 13 @39522 has 2 MA's), (15, 39504), (Start: 19 @39465 has 1 MA's), (28, 39381), (32, 39357), (34, 39342),

Gene: RER2\_50 Start: 36463, Stop: 36218, Start Num: 9

Candidate Starts for RER2\_50:

(Start: 9 @36463 has 25 MA's), (Start: 11 @36460 has 2 MA's), (Start: 13 @36448 has 2 MA's), (15, 36430), (Start: 19 @36391 has 1 MA's), (28, 36307), (32, 36283), (34, 36268),

Gene: Rasputin\_57 Start: 39561, Stop: 39316, Start Num: 9

Candidate Starts for Rasputin\_57:

(Start: 9 @39561 has 25 MA's), (Start: 11 @39558 has 2 MA's), (Start: 13 @39546 has 2 MA's), (15, 39528), (Start: 19 @39489 has 1 MA's), (28, 39405), (32, 39381), (34, 39366),

Gene: RexFury\_56 Start: 39619, Stop: 39374, Start Num: 9

Candidate Starts for RexFury\_56:

(Start: 9 @39619 has 25 MA's), (Start: 11 @39616 has 2 MA's), (Start: 13 @39604 has 2 MA's), (15, 39586), (Start: 19 @39547 has 1 MA's), (28, 39463), (32, 39439), (34, 39424),

Gene: Rhodalysa\_57 Start: 39591, Stop: 39346, Start Num: 9

Candidate Starts for Rhodalysa\_57:

(Start: 9 @39591 has 25 MA's), (Start: 11 @39588 has 2 MA's), (Start: 13 @39576 has 2 MA's), (15, 39558), (Start: 19 @39519 has 1 MA's), (28, 39435), (32, 39411), (34, 39396),

Gene: Roary\_85 Start: 45548, Stop: 45285, Start Num: 7

Candidate Starts for Roary\_85:

(Start: 7 @45548 has 11 MA's), (12, 45518), (30, 45365), (33, 45350), (34, 45347), (35, 45314),

Gene: Saintus\_79 Start: 42196, Stop: 41933, Start Num: 7

Candidate Starts for Saintus\_79:

(Start: 7 @42196 has 11 MA's), (12, 42166), (30, 42013), (33, 41998), (34, 41995), (35, 41962),

Gene: Shuman\_58 Start: 39542, Stop: 39297, Start Num: 9

Candidate Starts for Shuman\_58:

(Start: 9 @39542 has 25 MA's), (Start: 11 @39539 has 2 MA's), (Start: 13 @39527 has 2 MA's), (15, 39509), (Start: 19 @39470 has 1 MA's), (28, 39386), (32, 39362), (34, 39347),

Gene: Smeadley\_83 Start: 45412, Stop: 45149, Start Num: 7

Candidate Starts for Smeadley\_83:

(Start: 7 @45412 has 11 MA's), (12, 45382), (30, 45229), (33, 45214), (34, 45211), (35, 45178),

Gene: StCroix\_56 Start: 39613, Stop: 39368, Start Num: 9

Candidate Starts for StCroix\_56:

(Start: 9 @39613 has 25 MA's), (Start: 11 @39610 has 2 MA's), (Start: 13 @39598 has 2 MA's), (15, 39580), (Start: 19 @39541 has 1 MA's), (28, 39457), (32, 39433), (34, 39418),

Gene: Stephig9\_82 Start: 45351, Stop: 45088, Start Num: 7

Candidate Starts for Stephig9\_82:

(Start: 7 @45351 has 11 MA's), (12, 45321), (30, 45168), (33, 45153), (34, 45150), (35, 45117),

Gene: Swann\_57 Start: 39589, Stop: 39344, Start Num: 9

Candidate Starts for Swann\_57:

(Start: 9 @39589 has 25 MA's), (Start: 11 @39586 has 2 MA's), (Start: 13 @39574 has 2 MA's), (15, 39556), (Start: 19 @39517 has 1 MA's), (28, 39433), (32, 39409), (34, 39394),

Gene: TWAMP\_57 Start: 39591, Stop: 39346, Start Num: 9

Candidate Starts for TWAMP\_57:

(Start: 9 @39591 has 25 MA's), (Start: 11 @39588 has 2 MA's), (Start: 13 @39576 has 2 MA's), (15, 39558), (Start: 19 @39519 has 1 MA's), (28, 39435), (32, 39411), (34, 39396),

Gene: Takoda\_57 Start: 39774, Stop: 39529, Start Num: 10

Candidate Starts for Takoda\_57:

(Start: 10 @39774 has 6 MA's), (Start: 11 @39771 has 2 MA's), (Start: 13 @39759 has 2 MA's), (15, 39741), (Start: 19 @39702 has 1 MA's), (25, 39648), (29, 39615), (32, 39594), (34, 39579),

Gene: Timshel\_70 Start: 46669, Stop: 46385, Start Num: 5

Candidate Starts for Timshel\_70:

(Start: 5 @46669 has 2 MA's), (8, 46651), (16, 46609), (17, 46600), (18, 46597), (21, 46570), (24, 46546), (33, 46456), (34, 46453),

Gene: UhSalsa\_57 Start: 39530, Stop: 39285, Start Num: 9

Candidate Starts for UhSalsa\_57:

(Start: 9 @39530 has 25 MA's), (Start: 11 @39527 has 2 MA's), (Start: 13 @39515 has 2 MA's), (15, 39497), (Start: 19 @39458 has 1 MA's), (28, 39374), (32, 39350), (34, 39335),

Gene: Yogi\_57 Start: 39942, Stop: 39697, Start Num: 9

Candidate Starts for Yogi\_57:

(Start: 9 @39942 has 25 MA's), (Start: 11 @39939 has 2 MA's), (Start: 13 @39927 has 2 MA's), (15, 39909), (Start: 19 @39870 has 1 MA's), (28, 39786), (29, 39783), (34, 39747), (36, 39711),

Gene: Yoncess\_56 Start: 39345, Stop: 39100, Start Num: 9

Candidate Starts for Yoncess\_56:

(Start: 9 @39345 has 25 MA's), (Start: 11 @39342 has 2 MA's), (Start: 13 @39330 has 2 MA's), (15, 39312), (Start: 19 @39273 has 1 MA's), (28, 39189), (29, 39186), (34, 39150),