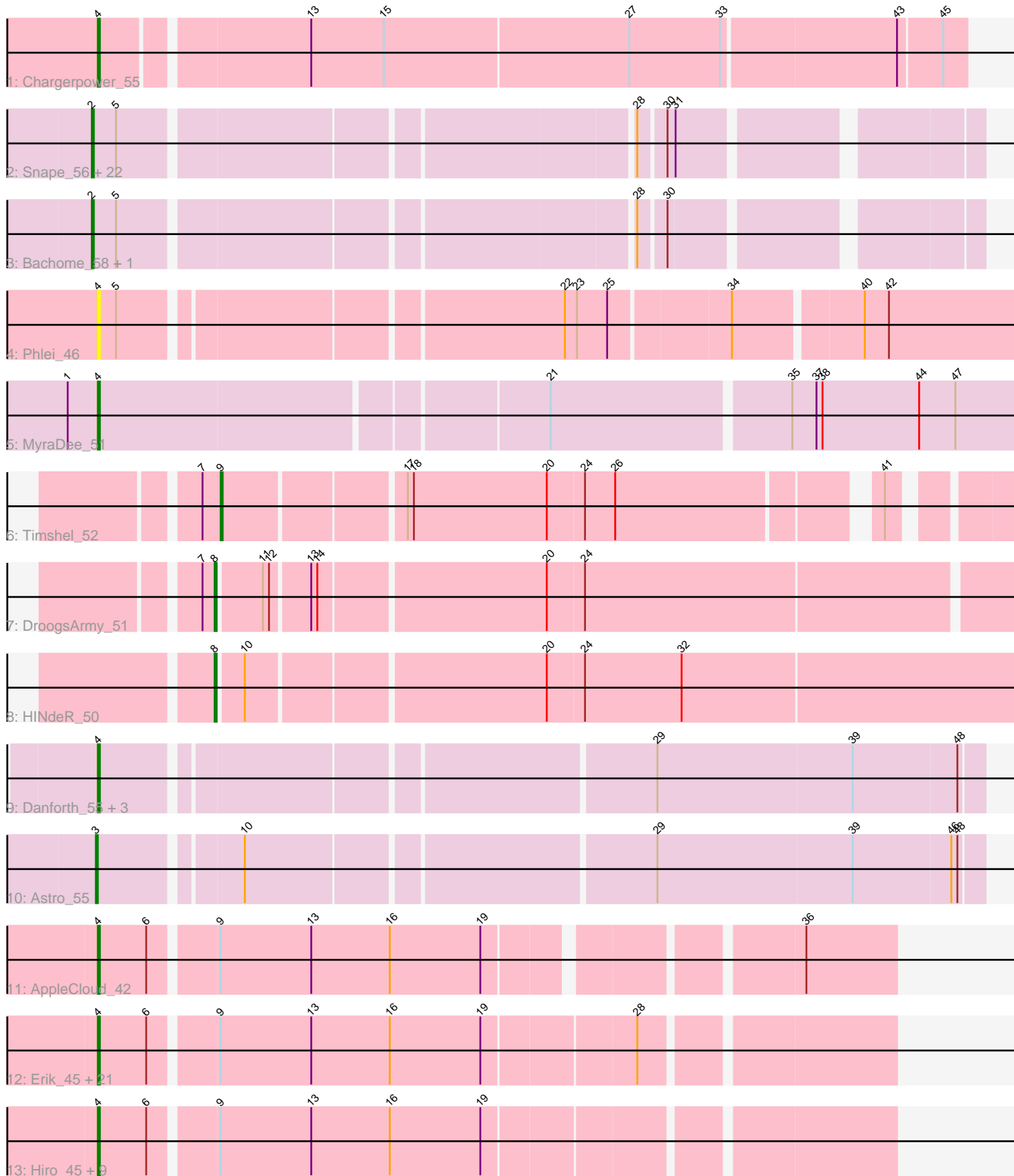


# Pham 163589



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 163589 Report

This analysis was run 05/04/24 on database version 560.

Pham number 163589 has 69 members, 5 are drafts.

Phages represented in each track:

- Track 1 : Chargerpower\_55
- Track 2 : Snape\_56, Ebony\_56, TinyTimmy\_55, Aneem\_57, Jabith\_57, Fibonacci\_56, Gilberta\_57, Bud\_56, Flaverint\_57, Joselito\_57, Salz\_55, Timothy\_56, Lucivia\_57, Insomnia\_56, Munch\_57, Orange\_56, Petersenfast\_55, Et2Brutus\_55, Bowtie\_57, Hutc2\_56, Mabel\_56, Sham4\_56, Mulciber\_56
- Track 3 : Bachome\_58, MaCh\_57
- Track 4 : Phlei\_46
- Track 5 : MyraDee\_51
- Track 6 : Timshel\_52
- Track 7 : DroogsArmy\_51
- Track 8 : HINdeR\_50
- Track 9 : Danforth\_55, Groundhog\_54, NearlyHeadless\_55, Roary\_56
- Track 10 : Astro\_55
- Track 11 : AppleCloud\_42
- Track 12 : Erik\_45, UhSalsa\_45, Gollum\_45, Nancinator\_45, Espica\_45, Shuman\_45, Alatin\_44, CosmicSans\_45, TWAMP\_45, Bradshaw\_45, Rasputin\_45, RexFury\_44, Krishelle\_45, Phrankenstein\_45, StCroix\_44, Naiad\_44, RER2\_38, Lillie\_45, Natosaleda\_44, Rhodalysa\_45, Belenaria\_45, Swann\_45
- Track 13 : Hiro\_45, Yogi\_44, Alpacados\_44, Jester\_44, Yoncess\_44, Harlequin\_44, PhailMary\_44, Bonanza\_45, Bryce\_44, BobbyDazzler\_45

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

The start number called the most often in the published annotations is 4, it was called in 38 of the 64 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Alatin\_44, Alpacados\_44, AppleCloud\_42, Belenaria\_45, BobbyDazzler\_45, Bonanza\_45, Bradshaw\_45, Bryce\_44, Chargerpower\_55, CosmicSans\_45, Danforth\_55, Erik\_45, Espica\_45, Gollum\_45, Groundhog\_54, Harlequin\_44, Hiro\_45, Jester\_44, Krishelle\_45, Lillie\_45, MyraDee\_51, Naiad\_44, Nancinator\_45, Natosaleda\_44, NearlyHeadless\_55, PhailMary\_44, Phlei\_46, Phrankenstein\_45, RER2\_38, Rasputin\_45, RexFury\_44, Rhodalysa\_45, Roary\_56, Shuman\_45, StCroix\_44, Swann\_45, TWAMP\_45, UhSalsa\_45, Yogi\_44, Yoncess\_44,

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

- 

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

- Aneem\_57, Astro\_55, Bachome\_58, Bowtie\_57, Bud\_56, DroogsArmy\_51, Ebony\_56, Et2Brutus\_55, Fibonacci\_56, Flaverint\_57, Gilberta\_57, HINdeR\_50, Hutc2\_56, Insomnia\_56, Jabith\_57, Joselito\_57, Lucivia\_57, MaCh\_57, Mabel\_56, Mulciber\_56, Munch\_57, Orange\_56, Petersenfast\_55, Salz\_55, Sham4\_56, Snape\_56, Timothy\_56, Timshel\_52, TinyTimmy\_55,

### Summary by start number:

Start 2:

- Found in 25 of 69 ( 36.2% ) of genes in pham
- Manual Annotations of this start: 22 of 64
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aneem\_57 (A11), Bachome\_58 (A11), Bowtie\_57 (A11), Bud\_56 (A11), Ebony\_56 (A11), Et2Brutus\_55 (A11), Fibonacci\_56 (A11), Flaverint\_57 (A11), Gilberta\_57 (A11), Hutc2\_56 (A11), Insomnia\_56 (A11), Jabith\_57 (A11), Joselito\_57 (A11), Lucivia\_57 (A11), MaCh\_57 (A11), Mabel\_56 (A11), Mulciber\_56 (A11), Munch\_57 (A11), Orange\_56 (A11), Petersenfast\_55 (A11), Salz\_55 (A11), Sham4\_56 (A11), Snape\_56 (A11), Timothy\_56 (A11), TinyTimmy\_55 (A11),

Start 3:

- Found in 1 of 69 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 64
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Astro\_55 (A8),

Start 4:

- Found in 40 of 69 ( 58.0% ) of genes in pham
- Manual Annotations of this start: 38 of 64
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alatin\_44 (CA), Alpacados\_44 (CA), AppleCloud\_42 (CA), Belenaria\_45 (CA), BobbyDazzler\_45 (CA), Bonanza\_45 (CA), Bradshaw\_45 (CA), Bryce\_44 (CA), Chargerpower\_55 (A), CosmicSans\_45 (CA), Danforth\_55 (A8), Erik\_45 (CA), Espica\_45 (CA), Gollum\_45 (CA), Groundhog\_54 (A8), Harlequin\_44 (CA), Hiro\_45 (CA), Jester\_44 (CA), Krishelle\_45 (CA), Lillie\_45 (CA), MyraDee\_51 (A18), Naiad\_44 (CA), Nancinator\_45 (CA), Natosaleda\_44 (CA), NearlyHeadless\_55 (A8), PhailMary\_44 (CA), Phlei\_46 (A13), Phrankensteen\_45 (CA), RER2\_38 (CA), Rasputin\_45 (CA), RexFury\_44 (CA), Rhodalysa\_45 (CA), Roary\_56 (A8), Shuman\_45 (CA), StCroix\_44 (CA), Swann\_45 (CA), TWAMP\_45 (CA), UhSalsa\_45 (CA), Yogi\_44 (CA), Yoncess\_44 (CA),

Start 8:

- Found in 2 of 69 ( 2.9% ) of genes in pham
- Manual Annotations of this start: 2 of 64
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DroogsArmy\_51 (A7), HINdeR\_50 (A7),

Start 9:

- Found in 34 of 69 ( 49.3% ) of genes in pham
- Manual Annotations of this start: 1 of 64
- Called 2.9% of time when present
- Phage (with cluster) where this start called: Timshel\_52 (A7),

### **Summary by clusters:**

There are 7 clusters represented in this pham: A, A11, A13, CA, A18, A7, A8,

Info for manual annotations of cluster A:

- Start number 4 was manually annotated 1 time for cluster A.

Info for manual annotations of cluster A11:

- Start number 2 was manually annotated 22 times for cluster A11.

Info for manual annotations of cluster A18:

- Start number 4 was manually annotated 1 time for cluster A18.

Info for manual annotations of cluster A7:

- Start number 8 was manually annotated 2 times for cluster A7.
- Start number 9 was manually annotated 1 time for cluster A7.

Info for manual annotations of cluster A8:

- Start number 3 was manually annotated 1 time for cluster A8.
- Start number 4 was manually annotated 4 times for cluster A8.

Info for manual annotations of cluster CA:

- Start number 4 was manually annotated 32 times for cluster CA.

### **Gene Information:**

Gene: Alatin\_44 Start: 34028, Stop: 33657, Start Num: 4

Candidate Starts for Alatin\_44:

(Start: 4 @34028 has 38 MA's), (6, 34004), (Start: 9 @33974 has 1 MA's), (13, 33929), (16, 33890), (19, 33845), (28, 33773),

Gene: Alpacados\_44 Start: 33933, Stop: 33562, Start Num: 4

Candidate Starts for Alpacados\_44:

(Start: 4 @33933 has 38 MA's), (6, 33909), (Start: 9 @33879 has 1 MA's), (13, 33834), (16, 33795), (19, 33750),

Gene: Aneem\_57 Start: 37514, Stop: 37116, Start Num: 2

Candidate Starts for Aneem\_57:

(Start: 2 @37514 has 22 MA's), (5, 37502), (28, 37265), (30, 37253), (31, 37250),

Gene: AppleCloud\_42 Start: 33752, Stop: 33387, Start Num: 4

Candidate Starts for AppleCloud\_42:

(Start: 4 @33752 has 38 MA's), (6, 33728), (Start: 9 @33698 has 1 MA's), (13, 33653), (16, 33614), (19, 33569), (36, 33431),

Gene: Astro\_55 Start: 36581, Stop: 36168, Start Num: 3

Candidate Starts for Astro\_55:

(Start: 3 @36581 has 1 MA's), (10, 36518), (29, 36326), (39, 36230), (46, 36182), (48, 36179),

Gene: Bachome\_58 Start: 37494, Stop: 37096, Start Num: 2

Candidate Starts for Bachome\_58:

(Start: 2 @37494 has 22 MA's), (5, 37482), (28, 37245), (30, 37233),

Gene: Belenaria\_45 Start: 33894, Stop: 33523, Start Num: 4

Candidate Starts for Belenaria\_45:

(Start: 4 @33894 has 38 MA's), (6, 33870), (Start: 9 @33840 has 1 MA's), (13, 33795), (16, 33756), (19, 33711), (28, 33639),

Gene: BobbyDazzler\_45 Start: 34007, Stop: 33636, Start Num: 4

Candidate Starts for BobbyDazzler\_45:

(Start: 4 @34007 has 38 MA's), (6, 33983), (Start: 9 @33953 has 1 MA's), (13, 33908), (16, 33869), (19, 33824),

Gene: Bonanza\_45 Start: 33935, Stop: 33564, Start Num: 4

Candidate Starts for Bonanza\_45:

(Start: 4 @33935 has 38 MA's), (6, 33911), (Start: 9 @33881 has 1 MA's), (13, 33836), (16, 33797), (19, 33752),

Gene: Bowtie\_57 Start: 37521, Stop: 37123, Start Num: 2

Candidate Starts for Bowtie\_57:

(Start: 2 @37521 has 22 MA's), (5, 37509), (28, 37272), (30, 37260), (31, 37257),

Gene: Bradshaw\_45 Start: 33961, Stop: 33590, Start Num: 4

Candidate Starts for Bradshaw\_45:

(Start: 4 @33961 has 38 MA's), (6, 33937), (Start: 9 @33907 has 1 MA's), (13, 33862), (16, 33823), (19, 33778), (28, 33706),

Gene: Bryce\_44 Start: 33715, Stop: 33344, Start Num: 4

Candidate Starts for Bryce\_44:

(Start: 4 @33715 has 38 MA's), (6, 33691), (Start: 9 @33661 has 1 MA's), (13, 33616), (16, 33577), (19, 33532),

Gene: Bud\_56 Start: 37068, Stop: 36670, Start Num: 2

Candidate Starts for Bud\_56:

(Start: 2 @37068 has 22 MA's), (5, 37056), (28, 36819), (30, 36807), (31, 36804),

Gene: Chargerpower\_55 Start: 36865, Stop: 36452, Start Num: 4

Candidate Starts for Chargerpower\_55:

(Start: 4 @36865 has 38 MA's), (13, 36769), (15, 36733), (27, 36613), (33, 36568), (43, 36484), (45, 36463),

Gene: CosmicSans\_45 Start: 33961, Stop: 33590, Start Num: 4

Candidate Starts for CosmicSans\_45:

(Start: 4 @33961 has 38 MA's), (6, 33937), (Start: 9 @33907 has 1 MA's), (13, 33862), (16, 33823), (19, 33778), (28, 33706),

Gene: Danforth\_55 Start: 36610, Stop: 36197, Start Num: 4

Candidate Starts for Danforth\_55:

(Start: 4 @36610 has 38 MA's), (29, 36355), (39, 36259), (48, 36208),

Gene: DroogsArmy\_51 Start: 39147, Stop: 38755, Start Num: 8

Candidate Starts for DroogsArmy\_51:

(7, 39153), (Start: 8 @39147 has 2 MA's), (11, 39126), (12, 39123), (13, 39105), (14, 39102), (20, 38994), (24, 38976),

Gene: Ebony\_56 Start: 37085, Stop: 36687, Start Num: 2

Candidate Starts for Ebony\_56:

(Start: 2 @37085 has 22 MA's), (5, 37073), (28, 36836), (30, 36824), (31, 36821),

Gene: Erik\_45 Start: 33893, Stop: 33522, Start Num: 4

Candidate Starts for Erik\_45:

(Start: 4 @33893 has 38 MA's), (6, 33869), (Start: 9 @33839 has 1 MA's), (13, 33794), (16, 33755), (19, 33710), (28, 33638),

Gene: Espica\_45 Start: 33894, Stop: 33523, Start Num: 4

Candidate Starts for Espica\_45:

(Start: 4 @33894 has 38 MA's), (6, 33870), (Start: 9 @33840 has 1 MA's), (13, 33795), (16, 33756), (19, 33711), (28, 33639),

Gene: Et2Brutus\_55 Start: 37048, Stop: 36650, Start Num: 2

Candidate Starts for Et2Brutus\_55:

(Start: 2 @37048 has 22 MA's), (5, 37036), (28, 36799), (30, 36787), (31, 36784),

Gene: Fibonacci\_56 Start: 37054, Stop: 36656, Start Num: 2

Candidate Starts for Fibonacci\_56:

(Start: 2 @37054 has 22 MA's), (5, 37042), (28, 36805), (30, 36793), (31, 36790),

Gene: Flaverint\_57 Start: 37512, Stop: 37114, Start Num: 2

Candidate Starts for Flaverint\_57:

(Start: 2 @37512 has 22 MA's), (5, 37500), (28, 37263), (30, 37251), (31, 37248),

Gene: Gilberta\_57 Start: 37505, Stop: 37107, Start Num: 2

Candidate Starts for Gilberta\_57:

(Start: 2 @37505 has 22 MA's), (5, 37493), (28, 37256), (30, 37244), (31, 37241),

Gene: Gollum\_45 Start: 33959, Stop: 33588, Start Num: 4

Candidate Starts for Gollum\_45:

(Start: 4 @33959 has 38 MA's), (6, 33935), (Start: 9 @33905 has 1 MA's), (13, 33860), (16, 33821), (19, 33776), (28, 33704),

Gene: Groundhog\_54 Start: 36525, Stop: 36112, Start Num: 4

Candidate Starts for Groundhog\_54:

(Start: 4 @36525 has 38 MA's), (29, 36270), (39, 36174), (48, 36123),

Gene: HINdeR\_50 Start: 38800, Stop: 38402, Start Num: 8

Candidate Starts for HINdeR\_50:

(Start: 8 @38800 has 2 MA's), (10, 38788), (20, 38647), (24, 38629), (32, 38581),

Gene: Harlequin\_44 Start: 33745, Stop: 33374, Start Num: 4

Candidate Starts for Harlequin\_44:

(Start: 4 @33745 has 38 MA's), (6, 33721), (Start: 9 @33691 has 1 MA's), (13, 33646), (16, 33607), (19, 33562),

Gene: Hiro\_45 Start: 34221, Stop: 33850, Start Num: 4

Candidate Starts for Hiro\_45:

(Start: 4 @34221 has 38 MA's), (6, 34197), (Start: 9 @34167 has 1 MA's), (13, 34122), (16, 34083), (19, 34038),

Gene: Hutc2\_56 Start: 37054, Stop: 36656, Start Num: 2

Candidate Starts for Hutc2\_56:

(Start: 2 @37054 has 22 MA's), (5, 37042), (28, 36805), (30, 36793), (31, 36790),

Gene: Insomnia\_56 Start: 37565, Stop: 37167, Start Num: 2

Candidate Starts for Insomnia\_56:

(Start: 2 @37565 has 22 MA's), (5, 37553), (28, 37316), (30, 37304), (31, 37301),

Gene: Jabith\_57 Start: 37566, Stop: 37168, Start Num: 2

Candidate Starts for Jabith\_57:

(Start: 2 @37566 has 22 MA's), (5, 37554), (28, 37317), (30, 37305), (31, 37302),

Gene: Jester\_44 Start: 33676, Stop: 33305, Start Num: 4

Candidate Starts for Jester\_44:

(Start: 4 @33676 has 38 MA's), (6, 33652), (Start: 9 @33622 has 1 MA's), (13, 33577), (16, 33538), (19, 33493),

Gene: Joselito\_57 Start: 37514, Stop: 37116, Start Num: 2

Candidate Starts for Joselito\_57:

(Start: 2 @37514 has 22 MA's), (5, 37502), (28, 37265), (30, 37253), (31, 37250),

Gene: Krishelle\_45 Start: 34321, Stop: 33950, Start Num: 4

Candidate Starts for Krishelle\_45:

(Start: 4 @34321 has 38 MA's), (6, 34297), (Start: 9 @34267 has 1 MA's), (13, 34222), (16, 34183), (19, 34138), (28, 34066),

Gene: Lillie\_45 Start: 33961, Stop: 33590, Start Num: 4

Candidate Starts for Lillie\_45:

(Start: 4 @33961 has 38 MA's), (6, 33937), (Start: 9 @33907 has 1 MA's), (13, 33862), (16, 33823), (19, 33778), (28, 33706),

Gene: Lucivia\_57 Start: 37563, Stop: 37165, Start Num: 2

Candidate Starts for Lucivia\_57:

(Start: 2 @37563 has 22 MA's), (5, 37551), (28, 37314), (30, 37302), (31, 37299),

Gene: MaCh\_57 Start: 37493, Stop: 37095, Start Num: 2

Candidate Starts for MaCh\_57:

(Start: 2 @37493 has 22 MA's), (5, 37481), (28, 37244), (30, 37232),

Gene: Mabel\_56 Start: 37095, Stop: 36697, Start Num: 2

Candidate Starts for Mabel\_56:

(Start: 2 @37095 has 22 MA's), (5, 37083), (28, 36846), (30, 36834), (31, 36831),

Gene: Mulciber\_56 Start: 37051, Stop: 36653, Start Num: 2

Candidate Starts for Mulciber\_56:

(Start: 2 @37051 has 22 MA's), (5, 37039), (28, 36802), (30, 36790), (31, 36787),

Gene: Munch\_57 Start: 37514, Stop: 37116, Start Num: 2

Candidate Starts for Munch\_57:

(Start: 2 @37514 has 22 MA's), (5, 37502), (28, 37265), (30, 37253), (31, 37250),

Gene: MyraDee\_51 Start: 34558, Stop: 34052, Start Num: 4

Candidate Starts for MyraDee\_51:

(1, 34573), (Start: 4 @34558 has 38 MA's), (21, 34345), (35, 34231), (37, 34219), (38, 34216), (44, 34168), (47, 34150),

Gene: Naiad\_44 Start: 33974, Stop: 33603, Start Num: 4

Candidate Starts for Naiad\_44:

(Start: 4 @33974 has 38 MA's), (6, 33950), (Start: 9 @33920 has 1 MA's), (13, 33875), (16, 33836), (19, 33791), (28, 33719),

Gene: Nancinator\_45 Start: 33894, Stop: 33523, Start Num: 4

Candidate Starts for Nancinator\_45:

(Start: 4 @33894 has 38 MA's), (6, 33870), (Start: 9 @33840 has 1 MA's), (13, 33795), (16, 33756), (19, 33711), (28, 33639),

Gene: Natosaleda\_44 Start: 33893, Stop: 33522, Start Num: 4

Candidate Starts for Natosaleda\_44:

(Start: 4 @33893 has 38 MA's), (6, 33869), (Start: 9 @33839 has 1 MA's), (13, 33794), (16, 33755), (19, 33710), (28, 33638),

Gene: NearlyHeadless\_55 Start: 36376, Stop: 35963, Start Num: 4

Candidate Starts for NearlyHeadless\_55:

(Start: 4 @36376 has 38 MA's), (29, 36121), (39, 36025), (48, 35974),

Gene: Orange\_56 Start: 37063, Stop: 36665, Start Num: 2

Candidate Starts for Orange\_56:

(Start: 2 @37063 has 22 MA's), (5, 37051), (28, 36814), (30, 36802), (31, 36799),

Gene: Petersenfast\_55 Start: 37062, Stop: 36664, Start Num: 2

Candidate Starts for Petersenfast\_55:

(Start: 2 @37062 has 22 MA's), (5, 37050), (28, 36813), (30, 36801), (31, 36798),

Gene: PhailMary\_44 Start: 34283, Stop: 33912, Start Num: 4

Candidate Starts for PhailMary\_44:

(Start: 4 @34283 has 38 MA's), (6, 34259), (Start: 9 @34229 has 1 MA's), (13, 34184), (16, 34145), (19, 34100),

Gene: Phlei\_46 Start: 37634, Stop: 37167, Start Num: 4

Candidate Starts for Phlei\_46:

(Start: 4 @37634 has 38 MA's), (5, 37625), (22, 37421), (23, 37415), (25, 37400), (34, 37343), (40, 37283), (42, 37271),

Gene: Phrankenstein\_45 Start: 33907, Stop: 33536, Start Num: 4

Candidate Starts for Phrankenstein\_45:

(Start: 4 @33907 has 38 MA's), (6, 33883), (Start: 9 @33853 has 1 MA's), (13, 33808), (16, 33769), (19, 33724), (28, 33652),



Gene: RER2\_38 Start: 30833, Stop: 30462, Start Num: 4

Candidate Starts for RER2\_38:

(Start: 4 @30833 has 38 MA's), (6, 30809), (Start: 9 @30779 has 1 MA's), (13, 30734), (16, 30695), (19, 30650), (28, 30578),

Gene: Rasputin\_45 Start: 33931, Stop: 33560, Start Num: 4

Candidate Starts for Rasputin\_45:

(Start: 4 @33931 has 38 MA's), (6, 33907), (Start: 9 @33877 has 1 MA's), (13, 33832), (16, 33793), (19, 33748), (28, 33676),

Gene: RexFury\_44 Start: 33992, Stop: 33621, Start Num: 4

Candidate Starts for RexFury\_44:

(Start: 4 @33992 has 38 MA's), (6, 33968), (Start: 9 @33938 has 1 MA's), (13, 33893), (16, 33854), (19, 33809), (28, 33737),

Gene: Rhodalya\_45 Start: 33961, Stop: 33590, Start Num: 4

Candidate Starts for Rhodalya\_45:

(Start: 4 @33961 has 38 MA's), (6, 33937), (Start: 9 @33907 has 1 MA's), (13, 33862), (16, 33823), (19, 33778), (28, 33706),

Gene: Roary\_56 Start: 36595, Stop: 36182, Start Num: 4

Candidate Starts for Roary\_56:

(Start: 4 @36595 has 38 MA's), (29, 36340), (39, 36244), (48, 36193),

Gene: Salz\_55 Start: 37033, Stop: 36635, Start Num: 2

Candidate Starts for Salz\_55:

(Start: 2 @37033 has 22 MA's), (5, 37021), (28, 36784), (30, 36772), (31, 36769),

Gene: Sham4\_56 Start: 37061, Stop: 36663, Start Num: 2

Candidate Starts for Sham4\_56:

(Start: 2 @37061 has 22 MA's), (5, 37049), (28, 36812), (30, 36800), (31, 36797),

Gene: Shuman\_45 Start: 33906, Stop: 33535, Start Num: 4

Candidate Starts for Shuman\_45:

(Start: 4 @33906 has 38 MA's), (6, 33882), (Start: 9 @33852 has 1 MA's), (13, 33807), (16, 33768), (19, 33723), (28, 33651),

Gene: Snape\_56 Start: 37053, Stop: 36655, Start Num: 2

Candidate Starts for Snape\_56:

(Start: 2 @37053 has 22 MA's), (5, 37041), (28, 36804), (30, 36792), (31, 36789),

Gene: StCroix\_44 Start: 33974, Stop: 33603, Start Num: 4

Candidate Starts for StCroix\_44:

(Start: 4 @33974 has 38 MA's), (6, 33950), (Start: 9 @33920 has 1 MA's), (13, 33875), (16, 33836), (19, 33791), (28, 33719),

Gene: Swann\_45 Start: 33959, Stop: 33588, Start Num: 4

Candidate Starts for Swann\_45:

(Start: 4 @33959 has 38 MA's), (6, 33935), (Start: 9 @33905 has 1 MA's), (13, 33860), (16, 33821), (19, 33776), (28, 33704),

Gene: TWAMP\_45 Start: 33961, Stop: 33590, Start Num: 4

Candidate Starts for TWAMP\_45:

(Start: 4 @33961 has 38 MA's), (6, 33937), (Start: 9 @33907 has 1 MA's), (13, 33862), (16, 33823), (19, 33778), (28, 33706),

Gene: Timothy\_56 Start: 37030, Stop: 36632, Start Num: 2

Candidate Starts for Timothy\_56:

(Start: 2 @37030 has 22 MA's), (5, 37018), (28, 36781), (30, 36769), (31, 36766),

Gene: Timshel\_52 Start: 39204, Stop: 38836, Start Num: 9

Candidate Starts for Timshel\_52:

(7, 39213), (Start: 9 @39204 has 1 MA's), (17, 39120), (18, 39117), (20, 39051), (24, 39033), (26, 39018), (41, 38901),

Gene: TinyTimmy\_55 Start: 37079, Stop: 36681, Start Num: 2

Candidate Starts for TinyTimmy\_55:

(Start: 2 @37079 has 22 MA's), (5, 37067), (28, 36830), (30, 36818), (31, 36815),

Gene: UhSalsa\_45 Start: 33894, Stop: 33523, Start Num: 4

Candidate Starts for UhSalsa\_45:

(Start: 4 @33894 has 38 MA's), (6, 33870), (Start: 9 @33840 has 1 MA's), (13, 33795), (16, 33756), (19, 33711), (28, 33639),

Gene: Yogi\_44 Start: 33935, Stop: 33564, Start Num: 4

Candidate Starts for Yogi\_44:

(Start: 4 @33935 has 38 MA's), (6, 33911), (Start: 9 @33881 has 1 MA's), (13, 33836), (16, 33797), (19, 33752),

Gene: Yoncess\_44 Start: 33715, Stop: 33344, Start Num: 4

Candidate Starts for Yoncess\_44:

(Start: 4 @33715 has 38 MA's), (6, 33691), (Start: 9 @33661 has 1 MA's), (13, 33616), (16, 33577), (19, 33532),