

Pham 156278



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 156278 Report

This analysis was run 04/12/24 on database version 558.

Pham number 156278 has 98 members, 7 are drafts.

Phages represented in each track:

- Track 1 : Chupacabra\_16, OKCentral2016\_16, Goose\_16, Eaglepride\_17, Trike\_14
- Track 2 : Drake94\_15, PeaceMeal1\_15, KittenMittens\_15, Poompha\_15, Severus\_15
- Track 3 : Jabith\_17, Sham4\_17, Salz\_17, Mulciber\_17, Flaverint\_17, Petersenfast\_16, Hutc2\_17, Insomnia\_16, Snape\_17
- Track 4 : TNguyen7\_16, HelDan\_16, Bugatti\_16, Pistachio\_17, Heathen\_16, Puppy\_17, BlueBird\_17, Scout\_16, Giroux\_16, SaturnRing\_16, Idleandcovert\_16
- Track 5 : Veracruz\_16, Panamaxus\_17
- Track 6 : B1\_14, MK4\_16, JF4\_16, JF2\_16, Fred313\_16
- Track 7 : BabyRay\_16
- Track 8 : Rockstar\_16, Isca\_16
- Track 9 : Phantastic\_16
- Track 10 : PetiteSangsue\_16, Wile\_16, Katalie136\_16, Badger\_16, AbbysRanger\_16, Backyardigan\_16, Achebe\_16, Morpher26\_16, Perplexer\_16, Shygu2\_16, Datway\_16, Bumblebee11\_16, Xena\_16, Cici\_16
- Track 11 : Stink\_15, AvatarAhPeg\_16
- Track 12 : Sheen\_18
- Track 13 : PP\_26
- Track 14 : Yoncess\_13, Bonanza\_13, Yogi\_13, AppleCloud\_11, Krishelle\_13, Rasputin\_13, Bryce\_13, BobbyDazzler\_13, Hiro\_13
- Track 15 : Gollum\_13, Espica\_13, CosmicSans\_13, RexFury\_13, RER2\_6, UhSalsa\_13, TWAMP\_13, Swann\_13, Lillie\_13, Nancinator\_13, Alatin\_13, StCroix\_13, Rhodalysa\_13, Naiad\_13, Bradshaw\_13, Belenaria\_13, Phrankenstein\_13
- Track 16 : Erik\_13
- Track 17 : Alpacados\_12
- Track 18 : Harlequin\_13, AngryOrchard\_12, Dinger\_13, Partridge\_13, Jester\_13, Takoda\_13
- Track 19 : Natosaleda\_13, Shuman\_13
- Track 20 : PhorbesPhlower\_7, Morkie\_7
- Track 21 : Lucky10\_7

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

The start number called the most often in the published annotations is 7, it was called in 86 of the 91 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AbbysRanger\_16, Achebe\_16, Alatin\_13, Alpacados\_12, AngryOrchard\_12, AppleCloud\_11, AvatarAhPeg\_16, B1\_14, BabyRay\_16, Backyardigan\_16, Badger\_16, Belenaria\_13, BlueBird\_17, BobbyDazzler\_13, Bonanza\_13, Bradshaw\_13, Bryce\_13, Bugatti\_16, Bumblebee11\_16, Chupacabra\_16, Cici\_16, CosmicSans\_13, Datway\_16, Dinger\_13, Drake94\_15, Eaglepride\_17, Erik\_13, Espica\_13, Flaverint\_17, Fred313\_16, Giroux\_16, Gollum\_13, Goose\_16, Harlequin\_13, Heathen\_16, HelDan\_16, Hiro\_13, Hutc2\_17, Idleandcovert\_16, Insomnia\_16, Isca\_16, JF2\_16, JF4\_16, Jabith\_17, Jester\_13, Katalie136\_16, KittenMittens\_15, Krishelle\_13, Lillie\_13, MK4\_16, Morpher26\_16, Mulciber\_17, Naiad\_13, Nancinator\_13, Natosaleda\_13, OKCentral2016\_16, PP\_26, Partridge\_13, PeaceMeal1\_15, Perplexer\_16, Petersenfast\_16, PetiteSangsue\_16, Phantastic\_16, Phrankenstein\_13, Pistachio\_17, Poompha\_15, Puppy\_17, RER2\_6, Rasputin\_13, RexFury\_13, Rhodalysa\_13, Rockstar\_16, Salz\_17, SaturnRing\_16, Scout\_16, Severus\_15, Sham4\_17, Sheen\_18, Shuman\_13, Shygu2\_16, Snape\_17, StCroix\_13, Stink\_15, Swann\_13, TNguyen7\_16, TWAMP\_13, Takoda\_13, Trike\_14, UhSalsa\_13, Wile\_16, Xena\_16, Yogi\_13, Yoncess\_13,

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

- Lucky10\_7, Panamaxus\_17, Veracruz\_16,

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

- Morkie\_7, PhorbesPhlower\_7,

### Summary by start number:

Start 5:

- Found in 2 of 98 ( 2.0% ) of genes in pham
- Manual Annotations of this start: 2 of 91
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Panamaxus\_17 (A3), Veracruz\_16 (A3),

Start 7:

- Found in 96 of 98 ( 98.0% ) of genes in pham
- Manual Annotations of this start: 86 of 91
- Called 96.9% of time when present
- Phage (with cluster) where this start called: AbbysRanger\_16 (A4), Achebe\_16 (A4), Alatin\_13 (CA), Alpacados\_12 (CA), AngryOrchard\_12 (CA), AppleCloud\_11 (CA), AvatarAhPeg\_16 (A4), B1\_14 (A3), BabyRay\_16 (A3), Backyardigan\_16 (A4), Badger\_16 (A4), Belenaria\_13 (CA), BlueBird\_17 (A3), BobbyDazzler\_13 (CA), Bonanza\_13 (CA), Bradshaw\_13 (CA), Bryce\_13 (CA), Bugatti\_16 (A3), Bumblebee11\_16 (A4), Chupacabra\_16 (A10), Cici\_16 (A4), CosmicSans\_13 (CA), Datway\_16 (A4), Dinger\_13 (CA), Drake94\_15 (A10), Eaglepride\_17 (A10), Erik\_13 (CA), Espica\_13 (CA), Flaverint\_17 (A11), Fred313\_16 (A3), Giroux\_16 (A3), Gollum\_13 (CA), Goose\_16 (A10), Harlequin\_13 (CA), Heathen\_16 (A3), HelDan\_16 (A3), Hiro\_13 (CA), Hutc2\_17 (A11), Idleandcovert\_16 (A3), Insomnia\_16 (A11), Isca\_16 (A3), JF2\_16 (A3), JF4\_16 (A3), Jabith\_17 (A11), Jester\_13 (CA), Katalie136\_16 (A4), KittenMittens\_15 (A10), Krishelle\_13 (CA), Lillie\_13 (CA), MK4\_16 (A3), Morpher26\_16 (A4), Mulciber\_17 (A11), Naiad\_13 (CA), Nancinator\_13 (CA), Natosaleda\_13 (CA), OKCentral2016\_16 (A10), PP\_26 (A7),

Partridge\_13 (CA), PeaceMeal1\_15 (A10), Perplexer\_16 (A4), Petersenfast\_16 (A11), PetiteSangsue\_16 (A4), Phantastic\_16 (A3), Phrankenstien\_13 (CA), Pistachio\_17 (A3), Poompha\_15 (A10), Puppy\_17 (A3), RER2\_6 (CA), Rasputin\_13 (CA), RexFury\_13 (CA), Rhodalysa\_13 (CA), Rockstar\_16 (A3), Salz\_17 (A11), SaturnRing\_16 (A3), Scout\_16 (A3), Severus\_15 (A10), Sham4\_17 (A11), Sheen\_18 (A7), Shuman\_13 (CA), Shygu2\_16 (A4), Snape\_17 (A11), StCroix\_13 (CA), Stink\_15 (A4), Swann\_13 (CA), TNguyen7\_16 (A3), TWAMP\_13 (CA), Takoda\_13 (CA), Trike\_14 (A10), UhSalsa\_13 (CA), Wile\_16 (A4), Xena\_16 (A4), Yogi\_13 (CA), Yoncess\_13 (CA),

Start 8:

- Found in 3 of 98 ( 3.1% ) of genes in pham
- Manual Annotations of this start: 3 of 91
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Lucky10\_7 (DH), Morkie\_7 (DH), PhorbesPhlower\_7 (DH),

### **Summary by clusters:**

There are 7 clusters represented in this pham: A11, A10, DH, CA, A3, A4, A7,

Info for manual annotations of cluster A10:

- Start number 7 was manually annotated 10 times for cluster A10.

Info for manual annotations of cluster A11:

- Start number 7 was manually annotated 7 times for cluster A11.

Info for manual annotations of cluster A3:

- Start number 5 was manually annotated 2 times for cluster A3.
- Start number 7 was manually annotated 17 times for cluster A3.

Info for manual annotations of cluster A4:

- Start number 7 was manually annotated 15 times for cluster A4.

Info for manual annotations of cluster A7:

- Start number 7 was manually annotated 2 times for cluster A7.

Info for manual annotations of cluster CA:

- Start number 7 was manually annotated 35 times for cluster CA.

Info for manual annotations of cluster DH:

- Start number 8 was manually annotated 3 times for cluster DH.

### **Gene Information:**

Gene: AbbysRanger\_16 Start: 12505, Stop: 12702, Start Num: 7

Candidate Starts for AbbysRanger\_16:

(Start: 7 @12505 has 86 MA's),

Gene: Achebe\_16 Start: 12484, Stop: 12681, Start Num: 7

Candidate Starts for Achebe\_16:

(Start: 7 @12484 has 86 MA's),

Gene: Alatin\_13 Start: 8707, Stop: 8913, Start Num: 7

Candidate Starts for Alatin\_13:

(Start: 7 @8707 has 86 MA's), (17, 8800), (20, 8890),

Gene: Alpacados\_12 Start: 8637, Stop: 8843, Start Num: 7

Candidate Starts for Alpacados\_12:

(3, 8589), (Start: 7 @8637 has 86 MA's),

Gene: AngryOrchard\_12 Start: 8620, Stop: 8826, Start Num: 7

Candidate Starts for AngryOrchard\_12:

(3, 8572), (Start: 7 @8620 has 86 MA's), (17, 8713),

Gene: AppleCloud\_11 Start: 8384, Stop: 8566, Start Num: 7

Candidate Starts for AppleCloud\_11:

(3, 8336), (Start: 7 @8384 has 86 MA's),

Gene: AvatarAhPeg\_16 Start: 12446, Stop: 12640, Start Num: 7

Candidate Starts for AvatarAhPeg\_16:

(Start: 7 @12446 has 86 MA's),

Gene: B1\_14 Start: 11811, Stop: 11987, Start Num: 7

Candidate Starts for B1\_14:

(Start: 7 @11811 has 86 MA's), (13, 11850), (14, 11862),

Gene: BabyRay\_16 Start: 12381, Stop: 12560, Start Num: 7

Candidate Starts for BabyRay\_16:

(Start: 7 @12381 has 86 MA's), (12, 12417), (13, 12420),

Gene: Backyardigan\_16 Start: 12496, Stop: 12693, Start Num: 7

Candidate Starts for Backyardigan\_16:

(Start: 7 @12496 has 86 MA's),

Gene: Badger\_16 Start: 12485, Stop: 12682, Start Num: 7

Candidate Starts for Badger\_16:

(Start: 7 @12485 has 86 MA's),

Gene: Belenaria\_13 Start: 8707, Stop: 8913, Start Num: 7

Candidate Starts for Belenaria\_13:

(Start: 7 @8707 has 86 MA's), (17, 8800), (20, 8890),

Gene: BlueBird\_17 Start: 12155, Stop: 12334, Start Num: 7

Candidate Starts for BlueBird\_17:

(Start: 7 @12155 has 86 MA's), (12, 12191), (13, 12194), (19, 12299),

Gene: BobbyDazzler\_13 Start: 8746, Stop: 8952, Start Num: 7

Candidate Starts for BobbyDazzler\_13:

(3, 8698), (Start: 7 @8746 has 86 MA's),

Gene: Bonanza\_13 Start: 8675, Stop: 8881, Start Num: 7

Candidate Starts for Bonanza\_13:

(3, 8627), (Start: 7 @8675 has 86 MA's),

Gene: Bradshaw\_13 Start: 8707, Stop: 8913, Start Num: 7  
Candidate Starts for Bradshaw\_13:  
(Start: 7 @8707 has 86 MA's), (17, 8800), (20, 8890),

Gene: Bryce\_13 Start: 8675, Stop: 8881, Start Num: 7  
Candidate Starts for Bryce\_13:  
(3, 8627), (Start: 7 @8675 has 86 MA's),

Gene: Bugatti\_16 Start: 12155, Stop: 12334, Start Num: 7  
Candidate Starts for Bugatti\_16:  
(Start: 7 @12155 has 86 MA's), (12, 12191), (13, 12194), (19, 12299),

Gene: Bumblebee11\_16 Start: 12487, Stop: 12684, Start Num: 7  
Candidate Starts for Bumblebee11\_16:  
(Start: 7 @12487 has 86 MA's),

Gene: Chupacabra\_16 Start: 12256, Stop: 12441, Start Num: 7  
Candidate Starts for Chupacabra\_16:  
(Start: 7 @12256 has 86 MA's),

Gene: Cici\_16 Start: 12478, Stop: 12675, Start Num: 7  
Candidate Starts for Cici\_16:  
(Start: 7 @12478 has 86 MA's),

Gene: CosmicSans\_13 Start: 8707, Stop: 8913, Start Num: 7  
Candidate Starts for CosmicSans\_13:  
(Start: 7 @8707 has 86 MA's), (17, 8800), (20, 8890),

Gene: Datway\_16 Start: 12496, Stop: 12693, Start Num: 7  
Candidate Starts for Datway\_16:  
(Start: 7 @12496 has 86 MA's),

Gene: Dinger\_13 Start: 8671, Stop: 8877, Start Num: 7  
Candidate Starts for Dinger\_13:  
(3, 8623), (Start: 7 @8671 has 86 MA's), (17, 8764),

Gene: Drake94\_15 Start: 10353, Stop: 10532, Start Num: 7  
Candidate Starts for Drake94\_15:  
(Start: 7 @10353 has 86 MA's),

Gene: Eaglepride\_17 Start: 12258, Stop: 12449, Start Num: 7  
Candidate Starts for Eaglepride\_17:  
(Start: 7 @12258 has 86 MA's),

Gene: Erik\_13 Start: 8706, Stop: 8912, Start Num: 7  
Candidate Starts for Erik\_13:  
(4, 8685), (Start: 7 @8706 has 86 MA's), (17, 8799), (20, 8889),

Gene: Espica\_13 Start: 8707, Stop: 8913, Start Num: 7  
Candidate Starts for Espica\_13:  
(Start: 7 @8707 has 86 MA's), (17, 8800), (20, 8890),

Gene: Flaverint\_17 Start: 13757, Stop: 13924, Start Num: 7  
Candidate Starts for Flaverint\_17:  
(6, 13739), (Start: 7 @13757 has 86 MA's), (12, 13793), (16, 13841),

Gene: Fred313\_16 Start: 11876, Stop: 12052, Start Num: 7  
Candidate Starts for Fred313\_16:  
(Start: 7 @11876 has 86 MA's), (13, 11915), (14, 11927),

Gene: Giroux\_16 Start: 12155, Stop: 12334, Start Num: 7  
Candidate Starts for Giroux\_16:  
(Start: 7 @12155 has 86 MA's), (12, 12191), (13, 12194), (19, 12299),

Gene: Gollum\_13 Start: 8707, Stop: 8913, Start Num: 7  
Candidate Starts for Gollum\_13:  
(Start: 7 @8707 has 86 MA's), (17, 8800), (20, 8890),

Gene: Goose\_16 Start: 12257, Stop: 12442, Start Num: 7  
Candidate Starts for Goose\_16:  
(Start: 7 @12257 has 86 MA's),

Gene: Harlequin\_13 Start: 8675, Stop: 8857, Start Num: 7  
Candidate Starts for Harlequin\_13:  
(3, 8627), (Start: 7 @8675 has 86 MA's), (17, 8768),

Gene: Heathen\_16 Start: 11956, Stop: 12135, Start Num: 7  
Candidate Starts for Heathen\_16:  
(Start: 7 @11956 has 86 MA's), (12, 11992), (13, 11995), (19, 12100),

Gene: HelDan\_16 Start: 12208, Stop: 12387, Start Num: 7  
Candidate Starts for HelDan\_16:  
(Start: 7 @12208 has 86 MA's), (12, 12244), (13, 12247), (19, 12352),

Gene: Hiro\_13 Start: 8675, Stop: 8857, Start Num: 7  
Candidate Starts for Hiro\_13:  
(3, 8627), (Start: 7 @8675 has 86 MA's),

Gene: Hutc2\_17 Start: 13760, Stop: 13927, Start Num: 7  
Candidate Starts for Hutc2\_17:  
(6, 13742), (Start: 7 @13760 has 86 MA's), (12, 13796), (16, 13844),

Gene: Idleandcovert\_16 Start: 12155, Stop: 12334, Start Num: 7  
Candidate Starts for Idleandcovert\_16:  
(Start: 7 @12155 has 86 MA's), (12, 12191), (13, 12194), (19, 12299),

Gene: Insomnia\_16 Start: 13809, Stop: 13976, Start Num: 7  
Candidate Starts for Insomnia\_16:  
(6, 13791), (Start: 7 @13809 has 86 MA's), (12, 13845), (16, 13893),

Gene: Isca\_16 Start: 12055, Stop: 12222, Start Num: 7  
Candidate Starts for Isca\_16:  
(Start: 7 @12055 has 86 MA's), (13, 12094),

Gene: JF2\_16 Start: 11811, Stop: 11987, Start Num: 7

Candidate Starts for JF2\_16:  
(Start: 7 @11811 has 86 MA's), (13, 11850), (14, 11862),

Gene: JF4\_16 Start: 11811, Stop: 11987, Start Num: 7  
Candidate Starts for JF4\_16:  
(Start: 7 @11811 has 86 MA's), (13, 11850), (14, 11862),

Gene: Jabith\_17 Start: 13809, Stop: 13976, Start Num: 7  
Candidate Starts for Jabith\_17:  
(6, 13791), (Start: 7 @13809 has 86 MA's), (12, 13845), (16, 13893),

Gene: Jester\_13 Start: 8675, Stop: 8857, Start Num: 7  
Candidate Starts for Jester\_13:  
(3, 8627), (Start: 7 @8675 has 86 MA's), (17, 8768),

Gene: Katalie136\_16 Start: 12487, Stop: 12684, Start Num: 7  
Candidate Starts for Katalie136\_16:  
(Start: 7 @12487 has 86 MA's),

Gene: KittenMittens\_15 Start: 10361, Stop: 10540, Start Num: 7  
Candidate Starts for KittenMittens\_15:  
(Start: 7 @10361 has 86 MA's),

Gene: Krishelle\_13 Start: 8690, Stop: 8872, Start Num: 7  
Candidate Starts for Krishelle\_13:  
(3, 8642), (Start: 7 @8690 has 86 MA's),

Gene: Lillie\_13 Start: 8707, Stop: 8913, Start Num: 7  
Candidate Starts for Lillie\_13:  
(Start: 7 @8707 has 86 MA's), (17, 8800), (20, 8890),

Gene: Lucky10\_7 Start: 5390, Stop: 5542, Start Num: 8  
Candidate Starts for Lucky10\_7:  
(Start: 7 @5387 has 86 MA's), (Start: 8 @5390 has 3 MA's), (10, 5417),

Gene: MK4\_16 Start: 12045, Stop: 12221, Start Num: 7  
Candidate Starts for MK4\_16:  
(Start: 7 @12045 has 86 MA's), (13, 12084), (14, 12096),

Gene: Morkie\_7 Start: 5358, Stop: 5504, Start Num: 8  
Candidate Starts for Morkie\_7:  
(Start: 8 @5358 has 3 MA's), (9, 5379),

Gene: Morpher26\_16 Start: 12487, Stop: 12684, Start Num: 7  
Candidate Starts for Morpher26\_16:  
(Start: 7 @12487 has 86 MA's),

Gene: Mulciber\_17 Start: 13757, Stop: 13924, Start Num: 7  
Candidate Starts for Mulciber\_17:  
(6, 13739), (Start: 7 @13757 has 86 MA's), (12, 13793), (16, 13841),

Gene: Naiad\_13 Start: 8707, Stop: 8913, Start Num: 7  
Candidate Starts for Naiad\_13:



(Start: 7 @8707 has 86 MA's), (17, 8800), (20, 8890),

Gene: Nancinator\_13 Start: 8707, Stop: 8913, Start Num: 7

Candidate Starts for Nancinator\_13:

(Start: 7 @8707 has 86 MA's), (17, 8800), (20, 8890),

Gene: Natosaleda\_13 Start: 8707, Stop: 8913, Start Num: 7

Candidate Starts for Natosaleda\_13:

(Start: 7 @8707 has 86 MA's), (17, 8800),

Gene: OKCentral2016\_16 Start: 11957, Stop: 12142, Start Num: 7

Candidate Starts for OKCentral2016\_16:

(Start: 7 @11957 has 86 MA's),

Gene: PP\_26 Start: 18359, Stop: 18544, Start Num: 7

Candidate Starts for PP\_26:

(1, 18167), (2, 18194), (Start: 7 @18359 has 86 MA's), (13, 18398),

Gene: Panamaxus\_17 Start: 12681, Stop: 12875, Start Num: 5

Candidate Starts for Panamaxus\_17:

(Start: 5 @12681 has 2 MA's), (Start: 7 @12696 has 86 MA's),

Gene: Partridge\_13 Start: 8734, Stop: 8940, Start Num: 7

Candidate Starts for Partridge\_13:

(3, 8686), (Start: 7 @8734 has 86 MA's), (17, 8827),

Gene: PeaceMeal1\_15 Start: 10362, Stop: 10541, Start Num: 7

Candidate Starts for PeaceMeal1\_15:

(Start: 7 @10362 has 86 MA's),

Gene: Perplexer\_16 Start: 12481, Stop: 12678, Start Num: 7

Candidate Starts for Perplexer\_16:

(Start: 7 @12481 has 86 MA's),

Gene: Petersenfast\_16 Start: 13760, Stop: 13927, Start Num: 7

Candidate Starts for Petersenfast\_16:

(6, 13742), (Start: 7 @13760 has 86 MA's), (12, 13796), (16, 13844),

Gene: PetiteSangsue\_16 Start: 12487, Stop: 12684, Start Num: 7

Candidate Starts for PetiteSangsue\_16:

(Start: 7 @12487 has 86 MA's),

Gene: Phantastic\_16 Start: 12115, Stop: 12300, Start Num: 7

Candidate Starts for Phantastic\_16:

(Start: 7 @12115 has 86 MA's), (11, 12148), (18, 12229),

Gene: PhorbesPhlower\_7 Start: 5358, Stop: 5504, Start Num: 8

Candidate Starts for PhorbesPhlower\_7:

(Start: 8 @5358 has 3 MA's), (9, 5379),

Gene: Phrankenstein\_13 Start: 8707, Stop: 8913, Start Num: 7

Candidate Starts for Phrankenstein\_13:

(Start: 7 @8707 has 86 MA's), (17, 8800), (20, 8890),

Gene: Pistachio\_17 Start: 11702, Stop: 11881, Start Num: 7  
Candidate Starts for Pistachio\_17:  
(Start: 7 @11702 has 86 MA's), (12, 11738), (13, 11741), (19, 11846),

Gene: Poompha\_15 Start: 10360, Stop: 10539, Start Num: 7  
Candidate Starts for Poompha\_15:  
(Start: 7 @10360 has 86 MA's),

Gene: Puppy\_17 Start: 11774, Stop: 11953, Start Num: 7  
Candidate Starts for Puppy\_17:  
(Start: 7 @11774 has 86 MA's), (12, 11810), (13, 11813), (19, 11918),

Gene: RER2\_6 Start: 5579, Stop: 5785, Start Num: 7  
Candidate Starts for RER2\_6:  
(Start: 7 @5579 has 86 MA's), (17, 5672), (20, 5762),

Gene: Rasputin\_13 Start: 8675, Stop: 8881, Start Num: 7  
Candidate Starts for Rasputin\_13:  
(3, 8627), (Start: 7 @8675 has 86 MA's),

Gene: RexFury\_13 Start: 8738, Stop: 8944, Start Num: 7  
Candidate Starts for RexFury\_13:  
(Start: 7 @8738 has 86 MA's), (17, 8831), (20, 8921),

Gene: Rhodalysa\_13 Start: 8707, Stop: 8913, Start Num: 7  
Candidate Starts for Rhodalysa\_13:  
(Start: 7 @8707 has 86 MA's), (17, 8800), (20, 8890),

Gene: Rockstar\_16 Start: 12051, Stop: 12227, Start Num: 7  
Candidate Starts for Rockstar\_16:  
(Start: 7 @12051 has 86 MA's), (13, 12090),

Gene: Salz\_17 Start: 13754, Stop: 13921, Start Num: 7  
Candidate Starts for Salz\_17:  
(6, 13736), (Start: 7 @13754 has 86 MA's), (12, 13790), (16, 13838),

Gene: SaturnRing\_16 Start: 12155, Stop: 12334, Start Num: 7  
Candidate Starts for SaturnRing\_16:  
(Start: 7 @12155 has 86 MA's), (12, 12191), (13, 12194), (19, 12299),

Gene: Scout\_16 Start: 11455, Stop: 11634, Start Num: 7  
Candidate Starts for Scout\_16:  
(Start: 7 @11455 has 86 MA's), (12, 11491), (13, 11494), (19, 11599),

Gene: Severus\_15 Start: 10360, Stop: 10539, Start Num: 7  
Candidate Starts for Severus\_15:  
(Start: 7 @10360 has 86 MA's),

Gene: Sham4\_17 Start: 13760, Stop: 13927, Start Num: 7  
Candidate Starts for Sham4\_17:  
(6, 13742), (Start: 7 @13760 has 86 MA's), (12, 13796), (16, 13844),

Gene: Sheen\_18 Start: 14229, Stop: 14390, Start Num: 7  
Candidate Starts for Sheen\_18:  
(Start: 7 @14229 has 86 MA's), (11, 14262), (13, 14268), (15, 14301),

Gene: Shuman\_13 Start: 8707, Stop: 8913, Start Num: 7  
Candidate Starts for Shuman\_13:  
(Start: 7 @8707 has 86 MA's), (17, 8800),

Gene: Shygu2\_16 Start: 12482, Stop: 12679, Start Num: 7  
Candidate Starts for Shygu2\_16:  
(Start: 7 @12482 has 86 MA's),

Gene: Snape\_17 Start: 13760, Stop: 13927, Start Num: 7  
Candidate Starts for Snape\_17:  
(6, 13742), (Start: 7 @13760 has 86 MA's), (12, 13796), (16, 13844),

Gene: StCroix\_13 Start: 8707, Stop: 8913, Start Num: 7  
Candidate Starts for StCroix\_13:  
(Start: 7 @8707 has 86 MA's), (17, 8800), (20, 8890),

Gene: Stink\_15 Start: 12447, Stop: 12641, Start Num: 7  
Candidate Starts for Stink\_15:  
(Start: 7 @12447 has 86 MA's),

Gene: Swann\_13 Start: 8707, Stop: 8913, Start Num: 7  
Candidate Starts for Swann\_13:  
(Start: 7 @8707 has 86 MA's), (17, 8800), (20, 8890),

Gene: TNguyen7\_16 Start: 12125, Stop: 12304, Start Num: 7  
Candidate Starts for TNguyen7\_16:  
(Start: 7 @12125 has 86 MA's), (12, 12161), (13, 12164), (19, 12269),

Gene: TWAMP\_13 Start: 8707, Stop: 8913, Start Num: 7  
Candidate Starts for TWAMP\_13:  
(Start: 7 @8707 has 86 MA's), (17, 8800), (20, 8890),

Gene: Takoda\_13 Start: 8667, Stop: 8873, Start Num: 7  
Candidate Starts for Takoda\_13:  
(3, 8619), (Start: 7 @8667 has 86 MA's), (17, 8760),

Gene: Trike\_14 Start: 10362, Stop: 10547, Start Num: 7  
Candidate Starts for Trike\_14:  
(Start: 7 @10362 has 86 MA's),

Gene: UhSalsa\_13 Start: 8707, Stop: 8913, Start Num: 7  
Candidate Starts for UhSalsa\_13:  
(Start: 7 @8707 has 86 MA's), (17, 8800), (20, 8890),

Gene: Veracruz\_16 Start: 12681, Stop: 12875, Start Num: 5  
Candidate Starts for Veracruz\_16:  
(Start: 5 @12681 has 2 MA's), (Start: 7 @12696 has 86 MA's),

Gene: Wile\_16 Start: 12497, Stop: 12694, Start Num: 7

Candidate Starts for Wile\_16:  
(Start: 7 @12497 has 86 MA's),

Gene: Xena\_16 Start: 12484, Stop: 12681, Start Num: 7  
Candidate Starts for Xena\_16:  
(Start: 7 @12484 has 86 MA's),

Gene: Yogi\_13 Start: 8675, Stop: 8881, Start Num: 7  
Candidate Starts for Yogi\_13:  
(3, 8627), (Start: 7 @8675 has 86 MA's),

Gene: Yoncess\_13 Start: 8675, Stop: 8881, Start Num: 7  
Candidate Starts for Yoncess\_13:  
(3, 8627), (Start: 7 @8675 has 86 MA's),