

Pham 177517



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 177517 Report

This analysis was run 11/02/24 on database version 579.

Pham number 177517 has 154 members, 10 are drafts.

Phages represented in each track:

- Track 1 : Shagrat\_103
- Track 2 : Cardigan\_121
- Track 3 : Sitar\_58, Barsten\_58, Geodirt\_57, Kamashten\_56, Nordenberg\_54
- Track 4 : Gustavo\_56, Saronaya\_56
- Track 5 : Baddon\_56, Kwobi\_57, Bibwit\_57, JKSyngboy\_54, Tangerine\_55
- Track 6 : APunk\_59, Zipp\_59, Sampson\_58, Delrey21\_58, Tardus\_60, ViaConlectus\_58, DoctorFroggo\_58, Verity\_58
- Track 7 : Holt\_68, OrionPax\_62, StolenFromERC\_66, Kimchi\_67, NelitzaMV\_61, Pumpkin\_66, NoSleep\_65, BilboSwaggins\_63, StellaBean\_62, Stank\_67, Adnama\_68, Henry\_62, TeardropMSU\_60, Mindy\_63, Hoonter\_66, Dumbo\_63, Manda\_64, BigBubba\_64, TBrady12\_67, GoldenSpark\_67, IHOP\_62, ShamWow\_64, Easy2Say\_65, AmericanBeauty\_67, Teaspoon\_65, Porky\_63, Kostya\_64, SophKB\_61, Toto\_62, Eureka\_62, CrystalP\_63, 244\_64, Elite2014\_63, GooberAzure\_66, Thresher\_66, ChosenOne\_64, Goldilocks\_66, Gage\_65, Goku\_62, Pharsalus\_61, Inca\_61, Dusk\_61, BadStone\_61, Gator\_62, Asriel\_63, Gemini\_68, DoctorDiddles\_62, Phaja\_62, Tuco\_65, JeTaime\_63, Miniwave\_59, Rakim\_65, Traaww1\_60, Moldemort\_67, Emmina\_64, Tarkin\_63, Paperbeatsrock\_63, Simpliphy\_63, Barbarian\_63, ABCat\_61, Lilpickle\_63, Argent26\_67, Wiggin\_66, Filch\_65, Xandras\_63
- Track 8 : BaboJay\_60, YassJohnny\_60, Qualification\_64, Pat3\_61, SirDuracell\_62, Sassay\_58, ChotaBhai\_62, Glexan\_62, MadamMonkfish\_64, Kanye\_60, Willez\_58, Flypotenuse\_59, Cookies\_60, Harella\_63, Balomoji\_63, Command613\_65, Stark\_64, Bask21\_63, HanKaySha\_63, Ukulele\_59, Myrale\_63, Daikon\_65, ShereKhan\_62
- Track 9 : Optimus\_138, Bagrid\_148, ThreeRngTarjay\_142, Halley\_149, Duke13\_143, BAKA\_147, Hughesyang\_146, Constella\_141, JuicyJay\_143, EricMillard\_139, Ejimix\_140, DmpstrDiver\_148, Dallas\_148, Pound\_139, Beem\_149, Klein\_145, Schatzie\_143, Phoebus\_147, Bombitas\_135
- Track 10 : Kalah2\_138, Porcelain\_143, MiaZeal\_146, Lucky2013\_139, Yeet\_141, HokkenD\_140, Dove\_133, NihilNomen\_149, Redno2\_142, KashFlow\_146
- Track 11 : Hannaconda\_137, Courthouse\_139, Superphikiman\_141, Ariel\_143, Omega\_151
- Track 12 : Wanda\_146, Zelink\_141, Minerva\_146
- Track 13 : Squint\_138
- Track 14 : Gonephishing\_138, LittleE\_147
- Track 15 : Thibault\_129
- Track 16 : Odette\_151
- Track 17 : Bobby\_137

- Track 18 : Jace\_41

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

The start number called the most often in the published annotations is 15, it was called in 86 of the 144 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 244\_64, ABCat\_61, Adnama\_68, AmericanBeauty\_67, Argent26\_67, Asriel\_63, BaboJay\_60, BadStone\_61, Balomoji\_63, Barbarian\_63, Bask21\_63, BigBubba\_64, BilboSwaggins\_63, ChosenOne\_64, ChotaBhai\_62, Command613\_65, Cookies\_60, CrystalP\_63, Daikon\_65, DoctorDiddles\_62, Dumbo\_63, Dusk\_61, Easy2Say\_65, Elite2014\_63, Emmina\_64, Eureka\_62, Filch\_65, Flypotenuse\_59, Gage\_65, Gator\_62, Gemini\_68, Glexan\_62, Goku\_62, GoldenSpark\_67, Goldilocks\_66, GooberAzure\_66, HanKaySha\_63, Harella\_63, Henry\_62, Holt\_68, Hoonter\_66, IHOP\_62, Inca\_61, JeTaime\_63, Kanye\_60, Kimchi\_67, Kostya\_64, Lilpickle\_63, MadamMonkfish\_64, Manda\_64, Mindy\_63, Miniwave\_59, Moldemort\_67, Myrale\_63, NelitzaMV\_61, NoSleep\_65, OrionPax\_62, Paperbeatsrock\_63, Pat3\_61, Phaja\_62, Pharsalus\_61, Porky\_63, Pumpkin\_66, Quallification\_64, Rakim\_65, Sassay\_58, ShamWow\_64, ShereKhan\_62, Simpliphy\_63, SirDuracell\_62, SophKB\_61, Stank\_67, Stark\_64, StellaBean\_62, StolenFromERC\_66, TBrady12\_67, Tarkin\_63, TeardropMSU\_60, Teaspoon\_65, Thresher\_66, Toto\_62, Traaww1\_60, Tuco\_65, Ukulele\_59, Wiggin\_66, Willez\_58, Xandras\_63, YassJohnny\_60,

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

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

- APunk\_59, Ariel\_143, BAKA\_147, Baddon\_56, Bagrid\_148, Barsten\_58, Beem\_149, Bibwit\_57, Bobby\_137, Bombitas\_135, Cardigan\_121, Constella\_141, Courthouse\_139, Dallas\_148, Delrey21\_58, DmpstrDiver\_148, DoctorFroggo\_58, Dove\_133, Duke13\_143, Ejimix\_140, EricMillard\_139, Geodirt\_57, Gonephishing\_138, Gustavo\_56, Halley\_149, Hannaconda\_137, HokkenD\_140, Hughesyang\_146, JKSyngboy\_54, Jace\_41, JuicyJay\_143, Kalah2\_138, Kamashten\_56, KashFlow\_146, Klein\_145, Kwobi\_57, LittleE\_147, Lucky2013\_139, MiaZeal\_146, Minerva\_146, NihilNomen\_149, Nordenberg\_54, Odette\_151, Omega\_151, Optimus\_138, Phoebus\_147, Porcelain\_143, Pound\_139, Redno2\_142, Sampson\_58, Saronaya\_56, Schatzie\_143, Shagrat\_103, Sitar\_58, Squint\_138, Superphikiman\_141, Tangerine\_55, Tardus\_60, Thibault\_129, ThreeRngTarjay\_142, Verity\_58, ViaConlectus\_58, Wanda\_146, Yeet\_141, Zelink\_141, Zipp\_59,

### **Summary by start number:**

Start 12:

- Found in 8 of 154 ( 5.2% ) of genes in pham
- Manual Annotations of this start: 8 of 144
- Called 100.0% of time when present
- Phage (with cluster) where this start called: APunk\_59 (DE4), Delrey21\_58 (DE4), DoctorFroggo\_58 (DE4), Sampson\_58 (DE4), Tardus\_60 (DE4), Verity\_58 (DE4),

ViaConlectus\_58 (DE4), Zipp\_59 (DE4),

Start 13:

- Found in 1 of 154 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 144
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Shagrat\_103 (CF),

Start 14:

- Found in 1 of 154 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 144
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Squint\_138 (J),

Start 15:

- Found in 88 of 154 ( 57.1% ) of genes in pham
- Manual Annotations of this start: 86 of 144
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 244\_64 (E), ABCat\_61 (E), Adnama\_68 (E), AmericanBeauty\_67 (E), Argent26\_67 (E), Asriel\_63 (E), BaboJay\_60 (E), BadStone\_61 (E), Balomoji\_63 (E), Barbarian\_63 (E), Bask21\_63 (E), BigBubba\_64 (E), BilboSwaggins\_63 (E), ChosenOne\_64 (E), ChotaBhai\_62 (E), Command613\_65 (E), Cookies\_60 (E), CrystalP\_63 (E), Daikon\_65 (E), DoctorDiddles\_62 (E), Dumbo\_63 (E), Dusk\_61 (E), Easy2Say\_65 (E), Elite2014\_63 (E), Emmina\_64 (E), Eureka\_62 (E), Filch\_65 (E), Flypotenuse\_59 (E), Gage\_65 (E), Gator\_62 (E), Gemini\_68 (E), Glexan\_62 (E), Goku\_62 (E), GoldenSpark\_67 (E), Goldilocks\_66 (E), GooberAzure\_66 (E), HanKaySha\_63 (E), Harella\_63 (E), Henry\_62 (E), Holt\_68 (E), Hoonter\_66 (E), IHOP\_62 (E), Inca\_61 (E), JeTaime\_63 (E), Kanye\_60 (E), Kimchi\_67 (E), Kostya\_64 (E), Lilpickle\_63 (E), MadamMonkfish\_64 (E), Manda\_64 (E), Mindy\_63 (E), Miniwave\_59 (E), Moldemort\_67 (E), Myrale\_63 (E), NelitzaMV\_61 (E), NoSleep\_65 (E), OrionPax\_62 (E), Paperbeatsrock\_63 (E), Pat3\_61 (E), Phaja\_62 (E), Pharsalus\_61 (E), Porky\_63 (E), Pumpkin\_66 (E), Quallification\_64 (E), Rakim\_65 (E), Sassay\_58 (E), ShamWow\_64 (E), ShereKhan\_62 (E), Simpliphy\_63 (E), SirDuracell\_62 (E), SophKB\_61 (E), Stank\_67 (E), Stark\_64 (E), StellaBean\_62 (E), StolenFromERC\_66 (E), TBrady12\_67 (E), Tarkin\_63 (E), TeardropMSU\_60 (E), Teaspoon\_65 (E), Thresher\_66 (E), Toto\_62 (E), Traaww1\_60 (E), Tuco\_65 (E), Ukulele\_59 (E), Wiggin\_66 (E), Willez\_58 (E), Xandras\_63 (E), YassJohnny\_60 (E),

Start 16:

- Found in 12 of 154 ( 7.8% ) of genes in pham
- Manual Annotations of this start: 8 of 144
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Baddon\_56 (DE1), Barsten\_58 (DE1), Bibwit\_57 (DE1), Geodirt\_57 (DE1), Gustavo\_56 (DE1), JKSyngboy\_54 (DE1), Kamashten\_56 (DE1), Kwobi\_57 (DE1), Nordenberg\_54 (DE1), Saronaya\_56 (DE1), Sitar\_58 (DE1), Tangerine\_55 (DE1),

Start 18:

- Found in 31 of 154 ( 20.1% ) of genes in pham
- Manual Annotations of this start: 29 of 144
- Called 100.0% of time when present

- Phage (with cluster) where this start called: BAKA\_147 (J), Bagrid\_148 (J), Beem\_149 (J), Bobby\_137 (J), Bombitas\_135 (J), Constella\_141 (J), Dallas\_148 (J), DmpstrDiver\_148 (J), Dove\_133 (J), Duke13\_143 (J), Ejimix\_140 (J), EricMillard\_139 (J), Halley\_149 (J), HokkenD\_140 (J), Hughesyang\_146 (J), JuicyJay\_143 (J), Kalah2\_138 (J), KashFlow\_146 (J), Klein\_145 (J), Lucky2013\_139 (J), MiaZeal\_146 (J), NihilNomen\_149 (J), Odette\_151 (J), Optimus\_138 (J), Phoebus\_147 (J), Porcelain\_143 (J), Pound\_139 (J), Redno2\_142 (J), Schatzie\_143 (J), ThreeRngTarjay\_142 (J), Yeet\_141 (J),

Start 19:

- Found in 4 of 154 ( 2.6% ) of genes in pham
- Manual Annotations of this start: 4 of 144
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Minerva\_146 (J), Thibault\_129 (J), Wanda\_146 (J), Zelink\_141 (J),

Start 20:

- Found in 9 of 154 ( 5.8% ) of genes in pham
- Manual Annotations of this start: 7 of 144
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ariel\_143 (J), Cardigan\_121 (DD), Courthouse\_139 (J), Gonephishing\_138 (J), Hannaconda\_137 (J), Jace\_41 (singleton), LittleE\_147 (J), Omega\_151 (J), Superphikiman\_141 (J),

### **Summary by clusters:**

There are 7 clusters represented in this pham: singleton, E, DE1, DD, J, DE4, CF,

Info for manual annotations of cluster CF:

- Start number 13 was manually annotated 1 time for cluster CF.

Info for manual annotations of cluster DE1:

- Start number 16 was manually annotated 8 times for cluster DE1.

Info for manual annotations of cluster DE4:

- Start number 12 was manually annotated 8 times for cluster DE4.

Info for manual annotations of cluster E:

- Start number 15 was manually annotated 86 times for cluster E.

Info for manual annotations of cluster J:

- Start number 14 was manually annotated 1 time for cluster J.
- Start number 18 was manually annotated 29 times for cluster J.
- Start number 19 was manually annotated 4 times for cluster J.
- Start number 20 was manually annotated 6 times for cluster J.

### **Gene Information:**

Gene: 244\_64 Start: 42954, Stop: 43187, Start Num: 15

Candidate Starts for 244\_64:

(Start: 15 @42954 has 86 MA's),

Gene: ABCat\_61 Start: 43599, Stop: 43832, Start Num: 15

Candidate Starts for ABCat\_61:

(Start: 15 @43599 has 86 MA's),

Gene: APunk\_59 Start: 46515, Stop: 46763, Start Num: 12

Candidate Starts for APunk\_59:

(Start: 12 @46515 has 8 MA's),

Gene: Adnama\_68 Start: 43622, Stop: 43855, Start Num: 15

Candidate Starts for Adnama\_68:

(Start: 15 @43622 has 86 MA's),

Gene: AmericanBeauty\_67 Start: 43467, Stop: 43700, Start Num: 15

Candidate Starts for AmericanBeauty\_67:

(Start: 15 @43467 has 86 MA's),

Gene: Argent26\_67 Start: 43105, Stop: 43338, Start Num: 15

Candidate Starts for Argent26\_67:

(Start: 15 @43105 has 86 MA's),

Gene: Ariel\_143 Start: 73283, Stop: 73555, Start Num: 20

Candidate Starts for Ariel\_143:

(Start: 20 @73283 has 7 MA's), (21, 73325), (25, 73439), (28, 73478), (32, 73529),

Gene: Asriel\_63 Start: 41959, Stop: 42192, Start Num: 15

Candidate Starts for Asriel\_63:

(Start: 15 @41959 has 86 MA's),

Gene: BAKA\_147 Start: 76909, Stop: 77187, Start Num: 18

Candidate Starts for BAKA\_147:

(8, 76852), (17, 76900), (Start: 18 @76909 has 29 MA's), (22, 76999), (31, 77149), (32, 77161),

Gene: BaboJay\_60 Start: 42499, Stop: 42732, Start Num: 15

Candidate Starts for BaboJay\_60:

(4, 42421), (Start: 15 @42499 has 86 MA's),

Gene: BadStone\_61 Start: 43168, Stop: 43401, Start Num: 15

Candidate Starts for BadStone\_61:

(Start: 15 @43168 has 86 MA's),

Gene: Baddon\_56 Start: 46941, Stop: 47180, Start Num: 16

Candidate Starts for Baddon\_56:

(Start: 16 @46941 has 8 MA's),

Gene: Bagrid\_148 Start: 77604, Stop: 77882, Start Num: 18

Candidate Starts for Bagrid\_148:

(8, 77547), (17, 77595), (Start: 18 @77604 has 29 MA's), (22, 77694), (31, 77844), (32, 77856),

Gene: Balomoji\_63 Start: 43431, Stop: 43664, Start Num: 15

Candidate Starts for Balomoji\_63:

(4, 43353), (Start: 15 @43431 has 86 MA's),

Gene: Barbarian\_63 Start: 41959, Stop: 42192, Start Num: 15  
Candidate Starts for Barbarian\_63:  
(Start: 15 @41959 has 86 MA's),

Gene: Barsten\_58 Start: 46874, Stop: 47104, Start Num: 16  
Candidate Starts for Barsten\_58:  
(3, 46757), (Start: 16 @46874 has 8 MA's),

Gene: Bask21\_63 Start: 42272, Stop: 42505, Start Num: 15  
Candidate Starts for Bask21\_63:  
(4, 42194), (Start: 15 @42272 has 86 MA's),

Gene: Beem\_149 Start: 78507, Stop: 78785, Start Num: 18  
Candidate Starts for Beem\_149:  
(8, 78450), (17, 78498), (Start: 18 @78507 has 29 MA's), (22, 78597), (31, 78747), (32, 78759),

Gene: Bibwit\_57 Start: 45842, Stop: 46075, Start Num: 16  
Candidate Starts for Bibwit\_57:  
(Start: 16 @45842 has 8 MA's),

Gene: BigBubba\_64 Start: 42978, Stop: 43211, Start Num: 15  
Candidate Starts for BigBubba\_64:  
(Start: 15 @42978 has 86 MA's),

Gene: BilboSwaggins\_63 Start: 43607, Stop: 43840, Start Num: 15  
Candidate Starts for BilboSwaggins\_63:  
(Start: 15 @43607 has 86 MA's),

Gene: Bobby\_137 Start: 78377, Stop: 78655, Start Num: 18  
Candidate Starts for Bobby\_137:  
(8, 78320), (17, 78368), (Start: 18 @78377 has 29 MA's), (30, 78593), (31, 78617), (32, 78629),

Gene: Bombitas\_135 Start: 75918, Stop: 76196, Start Num: 18  
Candidate Starts for Bombitas\_135:  
(8, 75861), (17, 75909), (Start: 18 @75918 has 29 MA's), (22, 76008), (31, 76158), (32, 76170),

Gene: Cardigan\_121 Start: 69125, Stop: 69379, Start Num: 20  
Candidate Starts for Cardigan\_121:  
(2, 68960), (11, 69089), (Start: 20 @69125 has 7 MA's), (21, 69167), (24, 69287), (26, 69296), (27, 69299),

Gene: ChosenOne\_64 Start: 42626, Stop: 42859, Start Num: 15  
Candidate Starts for ChosenOne\_64:  
(Start: 15 @42626 has 86 MA's),

Gene: ChotaBhai\_62 Start: 42643, Stop: 42876, Start Num: 15  
Candidate Starts for ChotaBhai\_62:  
(4, 42565), (Start: 15 @42643 has 86 MA's),

Gene: Command613\_65 Start: 43365, Stop: 43598, Start Num: 15  
Candidate Starts for Command613\_65:  
(4, 43287), (Start: 15 @43365 has 86 MA's),

Gene: Constella\_141 Start: 77160, Stop: 77438, Start Num: 18  
Candidate Starts for Constella\_141:  
(8, 77103), (17, 77151), (Start: 18 @77160 has 29 MA's), (22, 77250), (31, 77400), (32, 77412),

Gene: Cookies\_60 Start: 42494, Stop: 42727, Start Num: 15  
Candidate Starts for Cookies\_60:  
(4, 42416), (Start: 15 @42494 has 86 MA's),

Gene: Courthouse\_139 Start: 73141, Stop: 73413, Start Num: 20  
Candidate Starts for Courthouse\_139:  
(Start: 20 @73141 has 7 MA's), (21, 73183), (25, 73297), (28, 73336), (32, 73387),

Gene: CrystalP\_63 Start: 43607, Stop: 43840, Start Num: 15  
Candidate Starts for CrystalP\_63:  
(Start: 15 @43607 has 86 MA's),

Gene: Daikon\_65 Start: 43452, Stop: 43685, Start Num: 15  
Candidate Starts for Daikon\_65:  
(4, 43374), (Start: 15 @43452 has 86 MA's),

Gene: Dallas\_148 Start: 77974, Stop: 78252, Start Num: 18  
Candidate Starts for Dallas\_148:  
(8, 77917), (17, 77965), (Start: 18 @77974 has 29 MA's), (22, 78064), (31, 78214), (32, 78226),

Gene: Delrey21\_58 Start: 47732, Stop: 47980, Start Num: 12  
Candidate Starts for Delrey21\_58:  
(Start: 12 @47732 has 8 MA's),

Gene: DmpstrDiver\_148 Start: 77893, Stop: 78171, Start Num: 18  
Candidate Starts for DmpstrDiver\_148:  
(8, 77836), (17, 77884), (Start: 18 @77893 has 29 MA's), (22, 77983), (31, 78133), (32, 78145),

Gene: DoctorDiddles\_62 Start: 42684, Stop: 42917, Start Num: 15  
Candidate Starts for DoctorDiddles\_62:  
(Start: 15 @42684 has 86 MA's),

Gene: DoctorFroggo\_58 Start: 47732, Stop: 47980, Start Num: 12  
Candidate Starts for DoctorFroggo\_58:  
(Start: 12 @47732 has 8 MA's),

Gene: Dove\_133 Start: 73492, Stop: 73770, Start Num: 18  
Candidate Starts for Dove\_133:  
(8, 73435), (17, 73483), (Start: 18 @73492 has 29 MA's), (31, 73732), (32, 73744),

Gene: Duke13\_143 Start: 75194, Stop: 75472, Start Num: 18  
Candidate Starts for Duke13\_143:  
(8, 75137), (17, 75185), (Start: 18 @75194 has 29 MA's), (22, 75284), (31, 75434), (32, 75446),

Gene: Dumbo\_63 Start: 42531, Stop: 42764, Start Num: 15  
Candidate Starts for Dumbo\_63:  
(Start: 15 @42531 has 86 MA's),



Gene: Dusk\_61 Start: 42828, Stop: 43061, Start Num: 15

Candidate Starts for Dusk\_61:

(Start: 15 @42828 has 86 MA's),

Gene: Easy2Say\_65 Start: 44069, Stop: 44302, Start Num: 15

Candidate Starts for Easy2Say\_65:

(Start: 15 @44069 has 86 MA's),

Gene: Ejimix\_140 Start: 78042, Stop: 78320, Start Num: 18

Candidate Starts for Ejimix\_140:

(8, 77985), (17, 78033), (Start: 18 @78042 has 29 MA's), (22, 78132), (31, 78282), (32, 78294),

Gene: Elite2014\_63 Start: 42625, Stop: 42858, Start Num: 15

Candidate Starts for Elite2014\_63:

(Start: 15 @42625 has 86 MA's),

Gene: Emmina\_64 Start: 42532, Stop: 42765, Start Num: 15

Candidate Starts for Emmina\_64:

(Start: 15 @42532 has 86 MA's),

Gene: EricMillard\_139 Start: 76546, Stop: 76824, Start Num: 18

Candidate Starts for EricMillard\_139:

(8, 76489), (17, 76537), (Start: 18 @76546 has 29 MA's), (22, 76636), (31, 76786), (32, 76798),

Gene: Eureka\_62 Start: 43096, Stop: 43329, Start Num: 15

Candidate Starts for Eureka\_62:

(Start: 15 @43096 has 86 MA's),

Gene: Filch\_65 Start: 42557, Stop: 42790, Start Num: 15

Candidate Starts for Filch\_65:

(Start: 15 @42557 has 86 MA's),

Gene: Flypotenuse\_59 Start: 42315, Stop: 42548, Start Num: 15

Candidate Starts for Flypotenuse\_59:

(4, 42237), (Start: 15 @42315 has 86 MA's),

Gene: Gage\_65 Start: 43105, Stop: 43338, Start Num: 15

Candidate Starts for Gage\_65:

(Start: 15 @43105 has 86 MA's),

Gene: Gator\_62 Start: 43459, Stop: 43692, Start Num: 15

Candidate Starts for Gator\_62:

(Start: 15 @43459 has 86 MA's),

Gene: Gemini\_68 Start: 43622, Stop: 43855, Start Num: 15

Candidate Starts for Gemini\_68:

(Start: 15 @43622 has 86 MA's),

Gene: Geodirt\_57 Start: 47622, Stop: 47852, Start Num: 16

Candidate Starts for Geodirt\_57:

(3, 47505), (Start: 16 @47622 has 8 MA's),

Gene: Glexan\_62 Start: 43442, Stop: 43675, Start Num: 15

Candidate Starts for Glexan\_62:  
(4, 43364), (Start: 15 @43442 has 86 MA's),

Gene: Goku\_62 Start: 42825, Stop: 43058, Start Num: 15  
Candidate Starts for Goku\_62:  
(Start: 15 @42825 has 86 MA's),

Gene: GoldenSpark\_67 Start: 43105, Stop: 43338, Start Num: 15  
Candidate Starts for GoldenSpark\_67:  
(Start: 15 @43105 has 86 MA's),

Gene: Goldilocks\_66 Start: 42607, Stop: 42840, Start Num: 15  
Candidate Starts for Goldilocks\_66:  
(Start: 15 @42607 has 86 MA's),

Gene: Gonephishing\_138 Start: 73676, Stop: 73948, Start Num: 20  
Candidate Starts for Gonephishing\_138:  
(Start: 20 @73676 has 7 MA's), (21, 73718), (25, 73832), (32, 73922),

Gene: GooberAzure\_66 Start: 43105, Stop: 43338, Start Num: 15  
Candidate Starts for GooberAzure\_66:  
(Start: 15 @43105 has 86 MA's),

Gene: Gustavo\_56 Start: 45880, Stop: 46119, Start Num: 16  
Candidate Starts for Gustavo\_56:  
(Start: 16 @45880 has 8 MA's),

Gene: Halley\_149 Start: 78358, Stop: 78636, Start Num: 18  
Candidate Starts for Halley\_149:  
(8, 78301), (17, 78349), (Start: 18 @78358 has 29 MA's), (22, 78448), (31, 78598), (32, 78610),

Gene: HanKaySha\_63 Start: 42415, Stop: 42648, Start Num: 15  
Candidate Starts for HanKaySha\_63:  
(4, 42337), (Start: 15 @42415 has 86 MA's),

Gene: Hannaconda\_137 Start: 73890, Stop: 74162, Start Num: 20  
Candidate Starts for Hannaconda\_137:  
(Start: 20 @73890 has 7 MA's), (21, 73932), (25, 74046), (28, 74085), (32, 74136),

Gene: Harella\_63 Start: 43958, Stop: 44191, Start Num: 15  
Candidate Starts for Harella\_63:  
(4, 43880), (Start: 15 @43958 has 86 MA's),

Gene: Henry\_62 Start: 43047, Stop: 43280, Start Num: 15  
Candidate Starts for Henry\_62:  
(Start: 15 @43047 has 86 MA's),

Gene: HokkenD\_140 Start: 77517, Stop: 77795, Start Num: 18  
Candidate Starts for HokkenD\_140:  
(8, 77460), (17, 77508), (Start: 18 @77517 has 29 MA's), (31, 77757), (32, 77769),

Gene: Holt\_68 Start: 43519, Stop: 43752, Start Num: 15  
Candidate Starts for Holt\_68:

(Start: 15 @43519 has 86 MA's),

Gene: Hoonter\_66 Start: 43105, Stop: 43338, Start Num: 15

Candidate Starts for Hoonter\_66:

(Start: 15 @43105 has 86 MA's),

Gene: Hughesyang\_146 Start: 78128, Stop: 78406, Start Num: 18

Candidate Starts for Hughesyang\_146:

(8, 78071), (17, 78119), (Start: 18 @78128 has 29 MA's), (22, 78218), (31, 78368), (32, 78380),

Gene: IHOP\_62 Start: 43171, Stop: 43404, Start Num: 15

Candidate Starts for IHOP\_62:

(Start: 15 @43171 has 86 MA's),

Gene: Inca\_61 Start: 41696, Stop: 41929, Start Num: 15

Candidate Starts for Inca\_61:

(Start: 15 @41696 has 86 MA's),

Gene: JKSyngboy\_54 Start: 46472, Stop: 46711, Start Num: 16

Candidate Starts for JKSyngboy\_54:

(Start: 16 @46472 has 8 MA's),

Gene: Jace\_41 Start: 29901, Stop: 30098, Start Num: 20

Candidate Starts for Jace\_41:

(1, 29718), (6, 29808), (10, 29853), (Start: 20 @29901 has 7 MA's), (21, 29943), (23, 30003), (26, 30054),

Gene: JeTaime\_63 Start: 43599, Stop: 43832, Start Num: 15

Candidate Starts for JeTaime\_63:

(Start: 15 @43599 has 86 MA's),

Gene: JuicyJay\_143 Start: 79643, Stop: 79921, Start Num: 18

Candidate Starts for JuicyJay\_143:

(8, 79586), (17, 79634), (Start: 18 @79643 has 29 MA's), (22, 79733), (31, 79883), (32, 79895),

Gene: Kalah2\_138 Start: 77249, Stop: 77527, Start Num: 18

Candidate Starts for Kalah2\_138:

(8, 77192), (17, 77240), (Start: 18 @77249 has 29 MA's), (31, 77489), (32, 77501),

Gene: Kamashten\_56 Start: 46214, Stop: 46444, Start Num: 16

Candidate Starts for Kamashten\_56:

(3, 46097), (Start: 16 @46214 has 8 MA's),

Gene: Kanye\_60 Start: 42454, Stop: 42687, Start Num: 15

Candidate Starts for Kanye\_60:

(4, 42376), (Start: 15 @42454 has 86 MA's),

Gene: KashFlow\_146 Start: 76549, Stop: 76827, Start Num: 18

Candidate Starts for KashFlow\_146:

(8, 76492), (17, 76540), (Start: 18 @76549 has 29 MA's), (31, 76789), (32, 76801),

Gene: Kimchi\_67 Start: 43108, Stop: 43341, Start Num: 15

Candidate Starts for Kimchi\_67:

(Start: 15 @43108 has 86 MA's),

Gene: Klein\_145 Start: 75851, Stop: 76129, Start Num: 18

Candidate Starts for Klein\_145:

(8, 75794), (17, 75842), (Start: 18 @75851 has 29 MA's), (22, 75941), (31, 76091), (32, 76103),

Gene: Kostya\_64 Start: 43270, Stop: 43503, Start Num: 15

Candidate Starts for Kostya\_64:

(Start: 15 @43270 has 86 MA's),

Gene: Kwobi\_57 Start: 46585, Stop: 46824, Start Num: 16

Candidate Starts for Kwobi\_57:

(Start: 16 @46585 has 8 MA's),

Gene: Lilpickle\_63 Start: 42625, Stop: 42858, Start Num: 15

Candidate Starts for Lilpickle\_63:

(Start: 15 @42625 has 86 MA's),

Gene: LittleE\_147 Start: 76532, Stop: 76804, Start Num: 20

Candidate Starts for LittleE\_147:

(Start: 20 @76532 has 7 MA's), (21, 76574), (25, 76688), (32, 76778),

Gene: Lucky2013\_139 Start: 73595, Stop: 73873, Start Num: 18

Candidate Starts for Lucky2013\_139:

(8, 73538), (17, 73586), (Start: 18 @73595 has 29 MA's), (31, 73835), (32, 73847),

Gene: MadamMonkfish\_64 Start: 42349, Stop: 42582, Start Num: 15

Candidate Starts for MadamMonkfish\_64:

(4, 42271), (Start: 15 @42349 has 86 MA's),

Gene: Manda\_64 Start: 43630, Stop: 43863, Start Num: 15

Candidate Starts for Manda\_64:

(Start: 15 @43630 has 86 MA's),

Gene: MiaZeal\_146 Start: 74742, Stop: 75020, Start Num: 18

Candidate Starts for MiaZeal\_146:

(8, 74685), (17, 74733), (Start: 18 @74742 has 29 MA's), (31, 74982), (32, 74994),

Gene: Mindy\_63 Start: 42213, Stop: 42446, Start Num: 15

Candidate Starts for Mindy\_63:

(Start: 15 @42213 has 86 MA's),

Gene: Minerva\_146 Start: 77113, Stop: 77388, Start Num: 19

Candidate Starts for Minerva\_146:

(9, 77062), (Start: 19 @77113 has 4 MA's), (28, 77311), (31, 77350), (32, 77362),

Gene: Miniwave\_59 Start: 42666, Stop: 42899, Start Num: 15

Candidate Starts for Miniwave\_59:

(Start: 15 @42666 has 86 MA's),

Gene: Moldemort\_67 Start: 43222, Stop: 43455, Start Num: 15

Candidate Starts for Moldemort\_67:

(Start: 15 @43222 has 86 MA's),

Gene: Myrale\_63 Start: 43465, Stop: 43698, Start Num: 15

Candidate Starts for Myrale\_63:

(4, 43387), (Start: 15 @43465 has 86 MA's),

Gene: NelitzaMV\_61 Start: 42414, Stop: 42647, Start Num: 15

Candidate Starts for NelitzaMV\_61:

(Start: 15 @42414 has 86 MA's),

Gene: NihilNomen\_149 Start: 77588, Stop: 77866, Start Num: 18

Candidate Starts for NihilNomen\_149:

(8, 77531), (17, 77579), (Start: 18 @77588 has 29 MA's), (31, 77828), (32, 77840),

Gene: NoSleep\_65 Start: 42970, Stop: 43203, Start Num: 15

Candidate Starts for NoSleep\_65:

(Start: 15 @42970 has 86 MA's),

Gene: Nordenberg\_54 Start: 46353, Stop: 46583, Start Num: 16

Candidate Starts for Nordenberg\_54:

(3, 46236), (Start: 16 @46353 has 8 MA's),

Gene: Odette\_151 Start: 79731, Stop: 80009, Start Num: 18

Candidate Starts for Odette\_151:

(8, 79674), (17, 79722), (Start: 18 @79731 has 29 MA's), (28, 79932), (31, 79971), (32, 79983),

Gene: Omega\_151 Start: 77610, Stop: 77882, Start Num: 20

Candidate Starts for Omega\_151:

(Start: 20 @77610 has 7 MA's), (21, 77652), (25, 77766), (28, 77805), (32, 77856),

Gene: Optimus\_138 Start: 74868, Stop: 75146, Start Num: 18

Candidate Starts for Optimus\_138:

(8, 74811), (17, 74859), (Start: 18 @74868 has 29 MA's), (22, 74958), (31, 75108), (32, 75120),

Gene: OrionPax\_62 Start: 42421, Stop: 42654, Start Num: 15

Candidate Starts for OrionPax\_62:

(Start: 15 @42421 has 86 MA's),

Gene: Paperbeatsrock\_63 Start: 43344, Stop: 43577, Start Num: 15

Candidate Starts for Paperbeatsrock\_63:

(Start: 15 @43344 has 86 MA's),

Gene: Pat3\_61 Start: 41569, Stop: 41802, Start Num: 15

Candidate Starts for Pat3\_61:

(4, 41491), (Start: 15 @41569 has 86 MA's),

Gene: Phaja\_62 Start: 43170, Stop: 43403, Start Num: 15

Candidate Starts for Phaja\_62:

(Start: 15 @43170 has 86 MA's),

Gene: Pharsalus\_61 Start: 43144, Stop: 43377, Start Num: 15

Candidate Starts for Pharsalus\_61:

(Start: 15 @43144 has 86 MA's),

Gene: Phoebus\_147 Start: 79482, Stop: 79760, Start Num: 18  
Candidate Starts for Phoebus\_147:  
(8, 79425), (17, 79473), (Start: 18 @79482 has 29 MA's), (22, 79572), (31, 79722), (32, 79734),

Gene: Porcelain\_143 Start: 74541, Stop: 74819, Start Num: 18  
Candidate Starts for Porcelain\_143:  
(8, 74484), (17, 74532), (Start: 18 @74541 has 29 MA's), (31, 74781), (32, 74793),

Gene: Porky\_63 Start: 42540, Stop: 42773, Start Num: 15  
Candidate Starts for Porky\_63:  
(Start: 15 @42540 has 86 MA's),

Gene: Pound\_139 Start: 77301, Stop: 77579, Start Num: 18  
Candidate Starts for Pound\_139:  
(8, 77244), (17, 77292), (Start: 18 @77301 has 29 MA's), (22, 77391), (31, 77541), (32, 77553),

Gene: Pumpkin\_66 Start: 43471, Stop: 43704, Start Num: 15  
Candidate Starts for Pumpkin\_66:  
(Start: 15 @43471 has 86 MA's),

Gene: Quallification\_64 Start: 43454, Stop: 43687, Start Num: 15  
Candidate Starts for Quallification\_64:  
(4, 43376), (Start: 15 @43454 has 86 MA's),

Gene: Rakim\_65 Start: 43221, Stop: 43454, Start Num: 15  
Candidate Starts for Rakim\_65:  
(Start: 15 @43221 has 86 MA's),

Gene: Redno2\_142 Start: 75590, Stop: 75868, Start Num: 18  
Candidate Starts for Redno2\_142:  
(8, 75533), (17, 75581), (Start: 18 @75590 has 29 MA's), (31, 75830), (32, 75842),

Gene: Sampson\_58 Start: 46948, Stop: 47196, Start Num: 12  
Candidate Starts for Sampson\_58:  
(Start: 12 @46948 has 8 MA's),

Gene: Saronaya\_56 Start: 45880, Stop: 46119, Start Num: 16  
Candidate Starts for Saronaya\_56:  
(Start: 16 @45880 has 8 MA's),

Gene: Sassay\_58 Start: 41087, Stop: 41320, Start Num: 15  
Candidate Starts for Sassay\_58:  
(4, 41009), (Start: 15 @41087 has 86 MA's),

Gene: Schatzie\_143 Start: 78150, Stop: 78428, Start Num: 18  
Candidate Starts for Schatzie\_143:  
(8, 78093), (17, 78141), (Start: 18 @78150 has 29 MA's), (22, 78240), (31, 78390), (32, 78402),

Gene: Shagrat\_103 Start: 54533, Stop: 54778, Start Num: 13  
Candidate Starts for Shagrat\_103:  
(5, 54452), (Start: 13 @54533 has 1 MA's), (29, 54749),

Gene: ShamWow\_64 Start: 43607, Stop: 43840, Start Num: 15

Candidate Starts for ShamWow\_64:  
(Start: 15 @43607 has 86 MA's),

Gene: ShereKhan\_62 Start: 43378, Stop: 43611, Start Num: 15  
Candidate Starts for ShereKhan\_62:  
(4, 43300), (Start: 15 @43378 has 86 MA's),

Gene: Simpliphy\_63 Start: 42688, Stop: 42921, Start Num: 15  
Candidate Starts for Simpliphy\_63:  
(Start: 15 @42688 has 86 MA's),

Gene: SirDuracell\_62 Start: 41661, Stop: 41894, Start Num: 15  
Candidate Starts for SirDuracell\_62:  
(4, 41583), (Start: 15 @41661 has 86 MA's),

Gene: Sitar\_58 Start: 48071, Stop: 48301, Start Num: 16  
Candidate Starts for Sitar\_58:  
(3, 47954), (Start: 16 @48071 has 8 MA's),

Gene: SophKB\_61 Start: 42363, Stop: 42596, Start Num: 15  
Candidate Starts for SophKB\_61:  
(Start: 15 @42363 has 86 MA's),

Gene: Squint\_138 Start: 73681, Stop: 73953, Start Num: 14  
Candidate Starts for Squint\_138:  
(7, 73630), (Start: 14 @73681 has 1 MA's), (25, 73837), (28, 73876), (32, 73927),

Gene: Stank\_67 Start: 43621, Stop: 43854, Start Num: 15  
Candidate Starts for Stank\_67:  
(Start: 15 @43621 has 86 MA's),

Gene: Stark\_64 Start: 42876, Stop: 43109, Start Num: 15  
Candidate Starts for Stark\_64:  
(4, 42798), (Start: 15 @42876 has 86 MA's),

Gene: StellaBean\_62 Start: 42931, Stop: 43164, Start Num: 15  
Candidate Starts for StellaBean\_62:  
(Start: 15 @42931 has 86 MA's),

Gene: StolenFromERC\_66 Start: 43105, Stop: 43338, Start Num: 15  
Candidate Starts for StolenFromERC\_66:  
(Start: 15 @43105 has 86 MA's),

Gene: Superphikiman\_141 Start: 73423, Stop: 73695, Start Num: 20  
Candidate Starts for Superphikiman\_141:  
(Start: 20 @73423 has 7 MA's), (21, 73465), (25, 73579), (28, 73618), (32, 73669),

Gene: TBrady12\_67 Start: 43105, Stop: 43338, Start Num: 15  
Candidate Starts for TBrady12\_67:  
(Start: 15 @43105 has 86 MA's),

Gene: Tangerine\_55 Start: 45291, Stop: 45530, Start Num: 16  
Candidate Starts for Tangerine\_55:

(Start: 16 @45291 has 8 MA's),

Gene: Tardus\_60 Start: 46703, Stop: 46951, Start Num: 12

Candidate Starts for Tardus\_60:

(Start: 12 @46703 has 8 MA's),

Gene: Tarkin\_63 Start: 43353, Stop: 43586, Start Num: 15

Candidate Starts for Tarkin\_63:

(Start: 15 @43353 has 86 MA's),

Gene: TeardropMSU\_60 Start: 42353, Stop: 42586, Start Num: 15

Candidate Starts for TeardropMSU\_60:

(Start: 15 @42353 has 86 MA's),

Gene: Teaspoon\_65 Start: 43247, Stop: 43480, Start Num: 15

Candidate Starts for Teaspoon\_65:

(Start: 15 @43247 has 86 MA's),

Gene: Thibault\_129 Start: 74298, Stop: 74573, Start Num: 19

Candidate Starts for Thibault\_129:

(9, 74247), (Start: 19 @74298 has 4 MA's), (32, 74547),

Gene: ThreeRngTarjay\_142 Start: 78073, Stop: 78351, Start Num: 18

Candidate Starts for ThreeRngTarjay\_142:

(8, 78016), (17, 78064), (Start: 18 @78073 has 29 MA's), (22, 78163), (31, 78313), (32, 78325),

Gene: Thresher\_66 Start: 44230, Stop: 44463, Start Num: 15

Candidate Starts for Thresher\_66:

(Start: 15 @44230 has 86 MA's),

Gene: Toto\_62 Start: 43607, Stop: 43840, Start Num: 15

Candidate Starts for Toto\_62:

(Start: 15 @43607 has 86 MA's),

Gene: Traaww1\_60 Start: 42788, Stop: 43021, Start Num: 15

Candidate Starts for Traaww1\_60:

(Start: 15 @42788 has 86 MA's),

Gene: Tuco\_65 Start: 44115, Stop: 44348, Start Num: 15

Candidate Starts for Tuco\_65:

(Start: 15 @44115 has 86 MA's),

Gene: Ukulele\_59 Start: 42501, Stop: 42734, Start Num: 15

Candidate Starts for Ukulele\_59:

(4, 42423), (Start: 15 @42501 has 86 MA's),

Gene: Verity\_58 Start: 47732, Stop: 47980, Start Num: 12

Candidate Starts for Verity\_58:

(Start: 12 @47732 has 8 MA's),

Gene: ViaConlectus\_58 Start: 45658, Stop: 45906, Start Num: 12

Candidate Starts for ViaConlectus\_58:

(Start: 12 @45658 has 8 MA's),



Gene: Wanda\_146 Start: 75593, Stop: 75868, Start Num: 19  
Candidate Starts for Wanda\_146:  
(9, 75542), (Start: 19 @75593 has 4 MA's), (28, 75791), (31, 75830), (32, 75842),

Gene: Wiggin\_66 Start: 43189, Stop: 43422, Start Num: 15  
Candidate Starts for Wiggin\_66:  
(Start: 15 @43189 has 86 MA's),

Gene: Willez\_58 Start: 41087, Stop: 41320, Start Num: 15  
Candidate Starts for Willez\_58:  
(4, 41009), (Start: 15 @41087 has 86 MA's),

Gene: Xandras\_63 Start: 42600, Stop: 42833, Start Num: 15  
Candidate Starts for Xandras\_63:  
(Start: 15 @42600 has 86 MA's),

Gene: YassJohnny\_60 Start: 42261, Stop: 42494, Start Num: 15  
Candidate Starts for YassJohnny\_60:  
(4, 42183), (Start: 15 @42261 has 86 MA's),

Gene: Yeet\_141 Start: 77546, Stop: 77824, Start Num: 18  
Candidate Starts for Yeet\_141:  
(8, 77489), (17, 77537), (Start: 18 @77546 has 29 MA's), (31, 77786), (32, 77798),

Gene: Zelink\_141 Start: 78405, Stop: 78680, Start Num: 19  
Candidate Starts for Zelink\_141:  
(9, 78354), (Start: 19 @78405 has 4 MA's), (28, 78603), (31, 78642), (32, 78654),

Gene: Zipp\_59 Start: 47656, Stop: 47904, Start Num: 12  
Candidate Starts for Zipp\_59:  
(Start: 12 @47656 has 8 MA's),