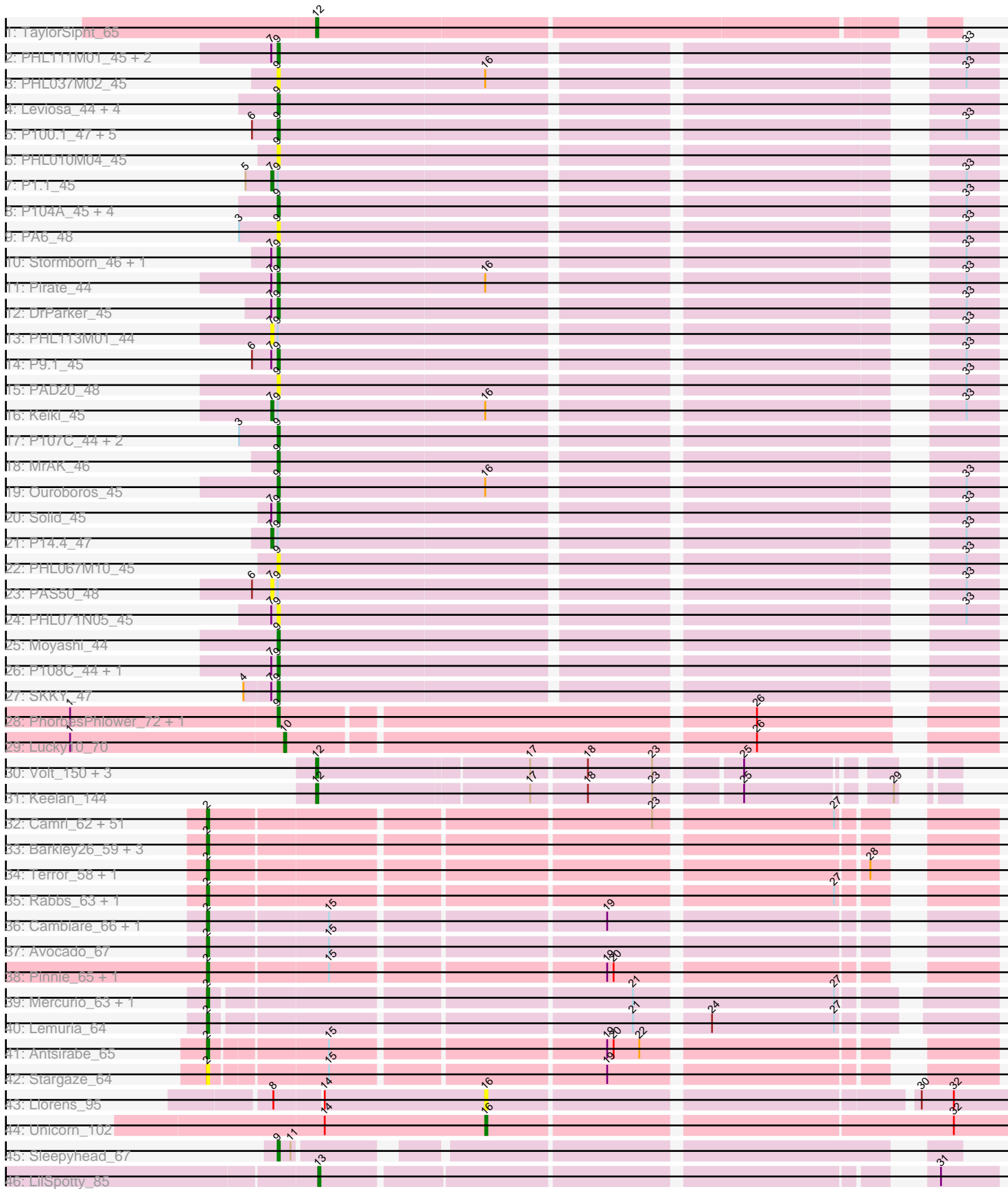


Pham 157694



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 157694 Report

This analysis was run 04/13/24 on database version 558.

Pham number 157694 has 128 members, 16 are drafts.

Phages represented in each track:

- Track 1 : TaylorSipht\_65
- Track 2 : PHL111M01\_45, Supernova\_45, Wizzo\_44
- Track 3 : PHL037M02\_45
- Track 4 : Leviosa\_44, PHL112N00\_46, Aquarius\_48, P101A\_47, PHL060L00\_46
- Track 5 : P100.1\_47, P106C\_46, P106A\_45, P106M\_45, P106L\_45, P106I\_46
- Track 6 : PHL010M04\_45
- Track 7 : P1.1\_45
- Track 8 : P104A\_45, P104B\_44, LilBandit\_45, Kubed\_44, Enoki\_45
- Track 9 : PA6\_48
- Track 10 : Stormborn\_46, QueenBey\_43
- Track 11 : Pirate\_44
- Track 12 : DrParker\_45
- Track 13 : PHL113M01\_44
- Track 14 : P9.1\_45
- Track 15 : PAD20\_48
- Track 16 : Keiki\_45
- Track 17 : P107C\_44, ATCC29399BC\_46, ATCC29399BT\_46
- Track 18 : MrAK\_46
- Track 19 : Ouroboros\_45
- Track 20 : Solid\_45
- Track 21 : P14.4\_47
- Track 22 : PHL067M10\_45
- Track 23 : PAS50\_48
- Track 24 : PHL071N05\_45
- Track 25 : Moyashi\_44
- Track 26 : P108C\_44, P105\_45
- Track 27 : SKKY\_47
- Track 28 : PhorbesPhlower\_72, Morkie\_74
- Track 29 : Lucky10\_70
- Track 30 : Volt\_150, Guey18\_149, Fryberger\_144, Ronaldo\_147
- Track 31 : Keelan\_144
- Track 32 : Camri\_62, Renaissance\_61, LouisV14\_64, Gideon\_62, Aroostook\_62, ShaboiShabazz\_61, Cedasite\_62, BPs\_62, Jonghyun\_60, Marmie\_62, Kasen3\_63, Sizemore\_63, Darionha\_62, PinkYoshi\_62, ECartman\_60, Gomashi\_61, Grizzly\_61, JorRay\_63, Frosty24\_62, Phish\_61, Phreak\_62, Hotshotbaby7\_62, Mowgli\_62, CassieYates\_62, Remy19\_62, BQuat\_61, CLED96\_61, Coleslaw\_61, Avrafan\_61, ZoMa\_61, Schiebel\_60, Jolene\_62, Halo\_63, Kareem\_63, Crespo\_61, BruceB\_62,

Angel\_60, Sweets\_62, Olga\_63, Plagueis\_62, Chance64\_62, Jane\_63, Cherrybomb426\_61, Peeb\_61, Zombie\_62, Annihilator\_61, Hope\_62, DNAIII\_0059, TomBrady\_62, OctaviousRex\_61, GoldenAsh\_60, DMoney\_61

- Track 33 : Barkley26\_59, Periodt\_62, Liefie\_59, Paito\_63
- Track 34 : Terror\_58, Taheera\_58
- Track 35 : Rabbs\_63, Sneeze\_62
- Track 36 : Cambiare\_66, FlagStaff\_64
- Track 37 : Avocado\_67
- Track 38 : Pinnie\_65, MOOREtheMARYer\_66
- Track 39 : Mercurio\_63, Jolie2\_61
- Track 40 : Lemuria\_64
- Track 41 : Antsirabe\_65
- Track 42 : Stargaze\_64
- Track 43 : Llorens\_95
- Track 44 : Unicorn\_102
- Track 45 : Sleepyhead\_67
- Track 46 : LilSpotty\_85

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

The start number called the most often in the published annotations is 2, it was called in 66 of the 112 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Angel\_60, Annihilator\_61, Antsirabe\_65, Aroostook\_62, Avocado\_67, Avrafan\_61, BPs\_62, BQuat\_61, Barkley26\_59, BruceB\_62, CLED96\_61, Cambiare\_66, Camri\_62, CassieYates\_62, Cedasite\_62, Chance64\_62, Cherrybomb426\_61, Coleslaw\_61, Crespo\_61, DMoney\_61, DNAIII\_0059, Darionha\_62, ECartman\_60, FlagStaff\_64, Frosty24\_62, Gideon\_62, GoldenAsh\_60, Gomashi\_61, Grizzly\_61, Halo\_63, Hope\_62, Hotshotbaby7\_62, Jane\_63, Jolene\_62, Jolie2\_61, Jonghyun\_60, JorRay\_63, Kareem\_63, Kasen3\_63, Lemuria\_64, Liefie\_59, LouisV14\_64, MOOREtheMARYer\_66, Marmie\_62, Mercurio\_63, Mowgli\_62, OctaviousRex\_61, Olga\_63, Paito\_63, Peeb\_61, Periodt\_62, Phish\_61, Phreak\_62, PinkYoshi\_62, Pinnie\_65, Plagueis\_62, Rabbs\_63, Remy19\_62, Renaissance\_61, Schiebel\_60, ShaboiShabazz\_61, Sizemore\_63, Sneeze\_62, Stargaze\_64, Sweets\_62, Taheera\_58, Terror\_58, TomBrady\_62, ZoMa\_61, Zombie\_62,

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

- 

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

- ATCC29399BC\_46, ATCC29399BT\_46, Aquarius\_48, DrParker\_45, Enoki\_45, Fryberger\_144, Guey18\_149, Keelan\_144, Keiki\_45, Kubed\_44, Leviosa\_44, LilBandit\_45, LilSpotty\_85, Llorens\_95, Lucky10\_70, Morkie\_74, Moyashi\_44, MrAK\_46, Ouroboros\_45, P1.1\_45, P100.1\_47, P101A\_47, P104A\_45, P104B\_44, P105\_45, P106A\_45, P106C\_46, P106I\_46, P106L\_45, P106M\_45, P107C\_44, P108C\_44, P14.4\_47, P9.1\_45, PA6\_48, PAD20\_48, PAS50\_48, PHL010M04\_45, PHL037M02\_45, PHL060L00\_46, PHL067M10\_45, PHL071N05\_45, PHL111M01\_45, PHL112N00\_46, PHL113M01\_44, PhorbPhlower\_72, Pirate\_44, QueenBey\_43, Ronaldo\_147, SKKY\_47, Sleepyhead\_67, Solid\_45, Stormborn\_46,

Supernova\_45, TaylorSipt\_65, Unicorn\_102, Volt\_150, Wizzo\_44,

### Summary by start number:

#### Start 2:

- Found in 70 of 128 ( 54.7% ) of genes in pham
- Manual Annotations of this start: 66 of 112
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Angel\_60 (G1), Annihilator\_61 (G1), Antsirabe\_65 (G5), Aroostook\_62 (G1), Avocado\_67 (G2), Avrafan\_61 (G1), BPs\_62 (G1), BQuat\_61 (G1), Barkley26\_59 (G1), BruceB\_62 (G1), CLED96\_61 (G1), Cambiare\_66 (G2), Camri\_62 (G1), CassieYates\_62 (G1), Cedasite\_62 (G1), Chance64\_62 (G1), Cherrybomb426\_61 (G1), Coleslaw\_61 (G1), Crespo\_61 (G1), DMoney\_61 (G1), DNAllI\_0059 (G1), Darionha\_62 (G1), ECartman\_60 (G1), FlagStaff\_64 (G2), Frosty24\_62 (G1), Gideon\_62 (G1), GoldenAsh\_60 (G1), Gomashi\_61 (G1), Grizzly\_61 (G1), Halo\_63 (G1), Hope\_62 (G1), Hotshotbaby7\_62 (G1), Jane\_63 (G1), Jolene\_62 (G1), Jolie2\_61 (G4), Jonghyun\_60 (G1), JorRay\_63 (G1), Kareem\_63 (G1), Kasen3\_63 (G1), Lemuria\_64 (G4), Liefie\_59 (G1), LouisV14\_64 (G1), MOOREtheMARYer\_66 (G3), Marmie\_62 (G1), Mercurio\_63 (G4), Mowgli\_62 (G1), OctaviousRex\_61 (G1), Olga\_63 (G1), Paito\_63 (G1), Peeb\_61 (G1), Periodt\_62 (G1), Phish\_61 (G1), Phreak\_62 (G1), PinkYoshi\_62 (G1), Pinnie\_65 (G3), Plagueis\_62 (G1), Rabbs\_63 (G1), Remy19\_62 (G1), Renaissance\_61 (G1), Schiebel\_60 (G1), ShaboiShabazz\_61 (G1), Sizemore\_63 (G1), Sneeze\_62 (G1), Stargaze\_64 (G5), Sweets\_62 (G1), Taheera\_58 (G1), Terror\_58 (G1), TomBrady\_62 (G1), ZoMa\_61 (G1), Zombie\_62 (G1),

#### Start 7:

- Found in 18 of 128 ( 14.1% ) of genes in pham
- Manual Annotations of this start: 3 of 112
- Called 27.8% of time when present
- Phage (with cluster) where this start called: Keiki\_45 (BU), P1.1\_45 (BU), P14.4\_47 (BU), PAS50\_48 (BU), PHL113M01\_44 (BU),

#### Start 9:

- Found in 48 of 128 ( 37.5% ) of genes in pham
- Manual Annotations of this start: 34 of 112
- Called 89.6% of time when present
- Phage (with cluster) where this start called: ATCC29399BC\_46 (BU), ATCC29399BT\_46 (BU), Aquarius\_48 (BU), DrParker\_45 (BU), Enoki\_45 (BU), Kubed\_44 (BU), Leviosa\_44 (BU), LilBandit\_45 (BU), Morkie\_74 (DH), Moyashi\_44 (BU), MrAK\_46 (BU), Ouroboros\_45 (BU), P100.1\_47 (BU), P101A\_47 (BU), P104A\_45 (BU), P104B\_44 (BU), P105\_45 (BU), P106A\_45 (BU), P106C\_46 (BU), P106L\_46 (BU), P106L\_45 (BU), P106M\_45 (BU), P107C\_44 (BU), P108C\_44 (BU), P9.1\_45 (BU), PA6\_48 (BU), PAD20\_48 (BU), PHL010M04\_45 (BU), PHL037M02\_45 (BU), PHL060L00\_46 (BU), PHL067M10\_45 (BU), PHL071N05\_45 (BU), PHL111M01\_45 (BU), PHL112N00\_46 (BU), PhorbesPhlower\_72 (DH), Pirate\_44 (BU), QueenBey\_43 (BU), SKKY\_47 (BU), Sleepyhead\_67 (singleton), Solid\_45 (BU), Stormborn\_46 (BU), Supernova\_45 (BU), Wizzo\_44 (BU),

#### Start 10:

- Found in 1 of 128 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 112
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Lucky10\_70 (DH),

Start 12:

- Found in 6 of 128 ( 4.7% ) of genes in pham
- Manual Annotations of this start: 6 of 112
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Fryberger\_144 (DP), Guey18\_149 (DP), Keelan\_144 (DP), Ronaldo\_147 (DP), TaylorSipt\_65 (AS1), Volt\_150 (DP),

Start 13:

- Found in 1 of 128 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 112
- Called 100.0% of time when present
- Phage (with cluster) where this start called: LilSpotty\_85 (singleton),

Start 16:

- Found in 6 of 128 ( 4.7% ) of genes in pham
- Manual Annotations of this start: 1 of 112
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Llorens\_95 (K1), Unicorn\_102 (K6),

### **Summary by clusters:**

There are 12 clusters represented in this pham: singleton, G4, G3, G2, G1, G5, BU, K1, K6, DH, AS1, DP,

Info for manual annotations of cluster AS1:

- Start number 12 was manually annotated 1 time for cluster AS1.

Info for manual annotations of cluster BU:

- Start number 7 was manually annotated 3 times for cluster BU.
- Start number 9 was manually annotated 31 times for cluster BU.

Info for manual annotations of cluster DH:

- Start number 9 was manually annotated 2 times for cluster DH.
- Start number 10 was manually annotated 1 time for cluster DH.

Info for manual annotations of cluster DP:

- Start number 12 was manually annotated 5 times for cluster DP.

Info for manual annotations of cluster G1:

- Start number 2 was manually annotated 58 times for cluster G1.

Info for manual annotations of cluster G2:

- Start number 2 was manually annotated 3 times for cluster G2.

Info for manual annotations of cluster G3:

- Start number 2 was manually annotated 2 times for cluster G3.

Info for manual annotations of cluster G4:

- Start number 2 was manually annotated 2 times for cluster G4.

Info for manual annotations of cluster G5:

- Start number 2 was manually annotated 1 time for cluster G5.

Info for manual annotations of cluster K6:

- Start number 16 was manually annotated 1 time for cluster K6.

**Gene Information:**

Gene: ATCC29399BC\_46 Start: 29152, Stop: 29454, Start Num: 9

Candidate Starts for ATCC29399BC\_46:

(3, 29134), (Start: 9 @29152 has 34 MA's),

Gene: ATCC29399BT\_46 Start: 29152, Stop: 29454, Start Num: 9

Candidate Starts for ATCC29399BT\_46:

(3, 29134), (Start: 9 @29152 has 34 MA's),

Gene: Angel\_60 Start: 40665, Stop: 40991, Start Num: 2

Candidate Starts for Angel\_60:

(Start: 2 @40665 has 66 MA's), (23, 40860), (27, 40938),

Gene: Annihilator\_61 Start: 41117, Stop: 41443, Start Num: 2

Candidate Starts for Annihilator\_61:

(Start: 2 @41117 has 66 MA's), (23, 41312), (27, 41390),

Gene: Antsirabe\_65 Start: 44050, Stop: 44373, Start Num: 2

Candidate Starts for Antsirabe\_65:

(Start: 2 @44050 has 66 MA's), (15, 44101), (19, 44221), (20, 44224), (22, 44236),

Gene: Aquarius\_48 Start: 29747, Stop: 30049, Start Num: 9

Candidate Starts for Aquarius\_48:

(Start: 9 @29747 has 34 MA's),

Gene: Aroostook\_62 Start: 41127, Stop: 41453, Start Num: 2

Candidate Starts for Aroostook\_62:

(Start: 2 @41127 has 66 MA's), (23, 41322), (27, 41400),

Gene: Avocado\_67 Start: 44700, Stop: 45026, Start Num: 2

Candidate Starts for Avocado\_67:

(Start: 2 @44700 has 66 MA's), (15, 44754),

Gene: Avrafan\_61 Start: 41125, Stop: 41451, Start Num: 2

Candidate Starts for Avrafan\_61:

(Start: 2 @41125 has 66 MA's), (23, 41320), (27, 41398),

Gene: BPs\_62 Start: 41125, Stop: 41451, Start Num: 2

Candidate Starts for BPs\_62:

(Start: 2 @41125 has 66 MA's), (23, 41320), (27, 41398),

Gene: BQuat\_61 Start: 41117, Stop: 41443, Start Num: 2

Candidate Starts for BQuat\_61:

(Start: 2 @41117 has 66 MA's), (23, 41312), (27, 41390),

Gene: Barkley26\_59 Start: 40570, Stop: 40896, Start Num: 2  
Candidate Starts for Barkley26\_59:  
(Start: 2 @40570 has 66 MA's),

Gene: BruceB\_62 Start: 41125, Stop: 41451, Start Num: 2  
Candidate Starts for BruceB\_62:  
(Start: 2 @41125 has 66 MA's), (23, 41320), (27, 41398),

Gene: CLED96\_61 Start: 40680, Stop: 41006, Start Num: 2  
Candidate Starts for CLED96\_61:  
(Start: 2 @40680 has 66 MA's), (23, 40875), (27, 40953),

Gene: Cambiare\_66 Start: 44472, Stop: 44798, Start Num: 2  
Candidate Starts for Cambiare\_66:  
(Start: 2 @44472 has 66 MA's), (15, 44526), (19, 44646),

Gene: Camri\_62 Start: 41125, Stop: 41451, Start Num: 2  
Candidate Starts for Camri\_62:  
(Start: 2 @41125 has 66 MA's), (23, 41320), (27, 41398),

Gene: CassieYates\_62 Start: 41125, Stop: 41451, Start Num: 2  
Candidate Starts for CassieYates\_62:  
(Start: 2 @41125 has 66 MA's), (23, 41320), (27, 41398),

Gene: Cedasite\_62 Start: 41125, Stop: 41451, Start Num: 2  
Candidate Starts for Cedasite\_62:  
(Start: 2 @41125 has 66 MA's), (23, 41320), (27, 41398),

Gene: Chance64\_62 Start: 41127, Stop: 41453, Start Num: 2  
Candidate Starts for Chance64\_62:  
(Start: 2 @41127 has 66 MA's), (23, 41322), (27, 41400),

Gene: Cherrybomb426\_61 Start: 40680, Stop: 41006, Start Num: 2  
Candidate Starts for Cherrybomb426\_61:  
(Start: 2 @40680 has 66 MA's), (23, 40875), (27, 40953),

Gene: Coleslaw\_61 Start: 41117, Stop: 41443, Start Num: 2  
Candidate Starts for Coleslaw\_61:  
(Start: 2 @41117 has 66 MA's), (23, 41312), (27, 41390),

Gene: Crespo\_61 Start: 41126, Stop: 41452, Start Num: 2  
Candidate Starts for Crespo\_61:  
(Start: 2 @41126 has 66 MA's), (23, 41321), (27, 41399),

Gene: DMoney\_61 Start: 41104, Stop: 41430, Start Num: 2  
Candidate Starts for DMoney\_61:  
(Start: 2 @41104 has 66 MA's), (23, 41299), (27, 41377),

Gene: DNAIII\_0059 Start: 38754, Stop: 39080, Start Num: 2  
Candidate Starts for DNAIII\_0059:  
(Start: 2 @38754 has 66 MA's), (23, 38949), (27, 39027),

Gene: Darionha\_62 Start: 41125, Stop: 41451, Start Num: 2

Candidate Starts for Darionha\_62:

(Start: 2 @41125 has 66 MA's), (23, 41320), (27, 41398),

Gene: DrParker\_45 Start: 29378, Stop: 29680, Start Num: 9

Candidate Starts for DrParker\_45:

(Start: 7 @29375 has 3 MA's), (Start: 9 @29378 has 34 MA's), (33, 29666),

Gene: ECartman\_60 Start: 41125, Stop: 41451, Start Num: 2

Candidate Starts for ECartman\_60:

(Start: 2 @41125 has 66 MA's), (23, 41320), (27, 41398),

Gene: Enoki\_45 Start: 28982, Stop: 29284, Start Num: 9

Candidate Starts for Enoki\_45:

(Start: 9 @28982 has 34 MA's), (33, 29270),

Gene: FlagStaff\_64 Start: 43887, Stop: 44213, Start Num: 2

Candidate Starts for FlagStaff\_64:

(Start: 2 @43887 has 66 MA's), (15, 43941), (19, 44061),

Gene: Frosty24\_62 Start: 41125, Stop: 41451, Start Num: 2

Candidate Starts for Frosty24\_62:

(Start: 2 @41125 has 66 MA's), (23, 41320), (27, 41398),

Gene: Fryberger\_144 Start: 66223, Stop: 66480, Start Num: 12

Candidate Starts for Fryberger\_144:

(Start: 12 @66223 has 6 MA's), (17, 66319), (18, 66343), (23, 66373), (25, 66406),

Gene: Gideon\_62 Start: 41127, Stop: 41453, Start Num: 2

Candidate Starts for Gideon\_62:

(Start: 2 @41127 has 66 MA's), (23, 41322), (27, 41400),

Gene: GoldenAsh\_60 Start: 40665, Stop: 40991, Start Num: 2

Candidate Starts for GoldenAsh\_60:

(Start: 2 @40665 has 66 MA's), (23, 40860), (27, 40938),

Gene: Gomashi\_61 Start: 41127, Stop: 41453, Start Num: 2

Candidate Starts for Gomashi\_61:

(Start: 2 @41127 has 66 MA's), (23, 41322), (27, 41400),

Gene: Grizzly\_61 Start: 40976, Stop: 41302, Start Num: 2

Candidate Starts for Grizzly\_61:

(Start: 2 @40976 has 66 MA's), (23, 41171), (27, 41249),

Gene: Guey18\_149 Start: 67884, Stop: 68141, Start Num: 12

Candidate Starts for Guey18\_149:

(Start: 12 @67884 has 6 MA's), (17, 67980), (18, 68004), (23, 68034), (25, 68067),

Gene: Halo\_63 Start: 41673, Stop: 41999, Start Num: 2

Candidate Starts for Halo\_63:

(Start: 2 @41673 has 66 MA's), (23, 41868), (27, 41946),

Gene: Hope\_62 Start: 41125, Stop: 41451, Start Num: 2



Candidate Starts for Hope\_62:

(Start: 2 @41125 has 66 MA's), (23, 41320), (27, 41398),

Gene: Hotshotbaby7\_62 Start: 41127, Stop: 41453, Start Num: 2

Candidate Starts for Hotshotbaby7\_62:

(Start: 2 @41127 has 66 MA's), (23, 41322), (27, 41400),

Gene: Jane\_63 Start: 41125, Stop: 41451, Start Num: 2

Candidate Starts for Jane\_63:

(Start: 2 @41125 has 66 MA's), (23, 41320), (27, 41398),

Gene: Jolene\_62 Start: 41529, Stop: 41855, Start Num: 2

Candidate Starts for Jolene\_62:

(Start: 2 @41529 has 66 MA's), (23, 41724), (27, 41802),

Gene: Jolie2\_61 Start: 43385, Stop: 43714, Start Num: 2

Candidate Starts for Jolie2\_61:

(Start: 2 @43385 has 66 MA's), (21, 43568), (27, 43655),

Gene: Jonghyun\_60 Start: 41128, Stop: 41454, Start Num: 2

Candidate Starts for Jonghyun\_60:

(Start: 2 @41128 has 66 MA's), (23, 41323), (27, 41401),

Gene: JorRay\_63 Start: 41125, Stop: 41451, Start Num: 2

Candidate Starts for JorRay\_63:

(Start: 2 @41125 has 66 MA's), (23, 41320), (27, 41398),

Gene: Kareem\_63 Start: 41125, Stop: 41451, Start Num: 2

Candidate Starts for Kareem\_63:

(Start: 2 @41125 has 66 MA's), (23, 41320), (27, 41398),

Gene: Kasen3\_63 Start: 41114, Stop: 41440, Start Num: 2

Candidate Starts for Kasen3\_63:

(Start: 2 @41114 has 66 MA's), (23, 41309), (27, 41387),

Gene: Keelan\_144 Start: 66560, Stop: 66817, Start Num: 12

Candidate Starts for Keelan\_144:

(Start: 12 @66560 has 6 MA's), (17, 66656), (18, 66680), (23, 66710), (25, 66743), (29, 66803),

Gene: Keiki\_45 Start: 28972, Stop: 29277, Start Num: 7

Candidate Starts for Keiki\_45:

(Start: 7 @28972 has 3 MA's), (Start: 9 @28975 has 34 MA's), (Start: 16 @29071 has 1 MA's), (33, 29263),

Gene: Kubed\_44 Start: 29097, Stop: 29399, Start Num: 9

Candidate Starts for Kubed\_44:

(Start: 9 @29097 has 34 MA's), (33, 29385),

Gene: Lemuria\_64 Start: 44074, Stop: 44403, Start Num: 2

Candidate Starts for Lemuria\_64:

(Start: 2 @44074 has 66 MA's), (21, 44257), (24, 44287), (27, 44344),

Gene: Leviosa\_44 Start: 29089, Stop: 29391, Start Num: 9

Candidate Starts for Leviosa\_44:  
(Start: 9 @29089 has 34 MA's),

Gene: Liefie\_59 Start: 40764, Stop: 41090, Start Num: 2  
Candidate Starts for Liefie\_59:  
(Start: 2 @40764 has 66 MA's),

Gene: LilBandit\_45 Start: 28677, Stop: 28979, Start Num: 9  
Candidate Starts for LilBandit\_45:  
(Start: 9 @28677 has 34 MA's), (33, 28965),

Gene: LilSpotty\_85 Start: 49411, Stop: 49689, Start Num: 13  
Candidate Starts for LilSpotty\_85:  
(Start: 13 @49411 has 1 MA's), (31, 49663),

Gene: Llorens\_95 Start: 59422, Stop: 59649, Start Num: 16  
Candidate Starts for Llorens\_95:  
(8, 59326), (14, 59347), (Start: 16 @59422 has 1 MA's), (30, 59608), (32, 59623),

Gene: LouisV14\_64 Start: 43369, Stop: 43695, Start Num: 2  
Candidate Starts for LouisV14\_64:  
(Start: 2 @43369 has 66 MA's), (23, 43564), (27, 43642),

Gene: Lucky10\_70 Start: 42595, Stop: 42897, Start Num: 10  
Candidate Starts for Lucky10\_70:  
(1, 42496), (Start: 10 @42595 has 1 MA's), (26, 42802),

Gene: MOOREtheMARYer\_66 Start: 43647, Stop: 43973, Start Num: 2  
Candidate Starts for MOOREtheMARYer\_66:  
(Start: 2 @43647 has 66 MA's), (15, 43701), (19, 43821), (20, 43824),

Gene: Marmie\_62 Start: 41126, Stop: 41452, Start Num: 2  
Candidate Starts for Marmie\_62:  
(Start: 2 @41126 has 66 MA's), (23, 41321), (27, 41399),

Gene: Mercurio\_63 Start: 43953, Stop: 44282, Start Num: 2  
Candidate Starts for Mercurio\_63:  
(Start: 2 @43953 has 66 MA's), (21, 44136), (27, 44223),

Gene: Morkie\_74 Start: 41703, Stop: 42008, Start Num: 9  
Candidate Starts for Morkie\_74:  
(1, 41607), (Start: 9 @41703 has 34 MA's), (26, 41913),

Gene: Mowgli\_62 Start: 41126, Stop: 41452, Start Num: 2  
Candidate Starts for Mowgli\_62:  
(Start: 2 @41126 has 66 MA's), (23, 41321), (27, 41399),

Gene: Moyashi\_44 Start: 28889, Stop: 29191, Start Num: 9  
Candidate Starts for Moyashi\_44:  
(Start: 9 @28889 has 34 MA's),

Gene: MrAK\_46 Start: 29362, Stop: 29664, Start Num: 9  
Candidate Starts for MrAK\_46:

(Start: 9 @29362 has 34 MA's),

Gene: OctaviousRex\_61 Start: 41104, Stop: 41430, Start Num: 2

Candidate Starts for OctaviousRex\_61:

(Start: 2 @41104 has 66 MA's), (23, 41299), (27, 41377),

Gene: Olga\_63 Start: 41126, Stop: 41452, Start Num: 2

Candidate Starts for Olga\_63:

(Start: 2 @41126 has 66 MA's), (23, 41321), (27, 41399),

Gene: Ouroboros\_45 Start: 29142, Stop: 29444, Start Num: 9

Candidate Starts for Ouroboros\_45:

(Start: 9 @29142 has 34 MA's), (Start: 16 @29238 has 1 MA's), (33, 29430),

Gene: P1.1\_45 Start: 28981, Stop: 29286, Start Num: 7

Candidate Starts for P1.1\_45:

(5, 28969), (Start: 7 @28981 has 3 MA's), (Start: 9 @28984 has 34 MA's), (33, 29272),

Gene: P100.1\_47 Start: 29248, Stop: 29550, Start Num: 9

Candidate Starts for P100.1\_47:

(6, 29236), (Start: 9 @29248 has 34 MA's), (33, 29536),

Gene: P101A\_47 Start: 29210, Stop: 29512, Start Num: 9

Candidate Starts for P101A\_47:

(Start: 9 @29210 has 34 MA's),

Gene: P104A\_45 Start: 29007, Stop: 29309, Start Num: 9

Candidate Starts for P104A\_45:

(Start: 9 @29007 has 34 MA's), (33, 29295),

Gene: P104B\_44 Start: 28966, Stop: 29268, Start Num: 9

Candidate Starts for P104B\_44:

(Start: 9 @28966 has 34 MA's), (33, 29254),

Gene: P105\_45 Start: 28838, Stop: 29140, Start Num: 9

Candidate Starts for P105\_45:

(Start: 7 @28835 has 3 MA's), (Start: 9 @28838 has 34 MA's),

Gene: P106A\_45 Start: 29190, Stop: 29492, Start Num: 9

Candidate Starts for P106A\_45:

(6, 29178), (Start: 9 @29190 has 34 MA's), (33, 29478),

Gene: P106C\_46 Start: 29277, Stop: 29579, Start Num: 9

Candidate Starts for P106C\_46:

(6, 29265), (Start: 9 @29277 has 34 MA's), (33, 29565),

Gene: P106I\_46 Start: 29106, Stop: 29408, Start Num: 9

Candidate Starts for P106I\_46:

(6, 29094), (Start: 9 @29106 has 34 MA's), (33, 29394),

Gene: P106L\_45 Start: 29277, Stop: 29579, Start Num: 9

Candidate Starts for P106L\_45:

(6, 29265), (Start: 9 @29277 has 34 MA's), (33, 29565),

Gene: P106M\_45 Start: 29277, Stop: 29579, Start Num: 9  
Candidate Starts for P106M\_45:  
(6, 29265), (Start: 9 @29277 has 34 MA's), (33, 29565),

Gene: P107C\_44 Start: 29152, Stop: 29454, Start Num: 9  
Candidate Starts for P107C\_44:  
(3, 29134), (Start: 9 @29152 has 34 MA's),

Gene: P108C\_44 Start: 29130, Stop: 29432, Start Num: 9  
Candidate Starts for P108C\_44:  
(Start: 7 @29127 has 3 MA's), (Start: 9 @29130 has 34 MA's),

Gene: P14.4\_47 Start: 29362, Stop: 29667, Start Num: 7  
Candidate Starts for P14.4\_47:  
(Start: 7 @29362 has 3 MA's), (Start: 9 @29365 has 34 MA's), (33, 29653),

Gene: P9.1\_45 Start: 28850, Stop: 29152, Start Num: 9  
Candidate Starts for P9.1\_45:  
(6, 28838), (Start: 7 @28847 has 3 MA's), (Start: 9 @28850 has 34 MA's), (33, 29138),

Gene: PA6\_48 Start: 29388, Stop: 29690, Start Num: 9  
Candidate Starts for PA6\_48:  
(3, 29370), (Start: 9 @29388 has 34 MA's), (33, 29676),

Gene: PAD20\_48 Start: 28723, Stop: 29025, Start Num: 9  
Candidate Starts for PAD20\_48:  
(Start: 9 @28723 has 34 MA's), (33, 29011),

Gene: PAS50\_48 Start: 28663, Stop: 28968, Start Num: 7  
Candidate Starts for PAS50\_48:  
(6, 28654), (Start: 7 @28663 has 3 MA's), (Start: 9 @28666 has 34 MA's), (33, 28954),

Gene: PHL010M04\_45 Start: 29157, Stop: 29459, Start Num: 9  
Candidate Starts for PHL010M04\_45:  
(Start: 9 @29157 has 34 MA's),

Gene: PHL037M02\_45 Start: 29090, Stop: 29392, Start Num: 9  
Candidate Starts for PHL037M02\_45:  
(Start: 9 @29090 has 34 MA's), (Start: 16 @29186 has 1 MA's), (33, 29378),

Gene: PHL060L00\_46 Start: 29161, Stop: 29463, Start Num: 9  
Candidate Starts for PHL060L00\_46:  
(Start: 9 @29161 has 34 MA's),

Gene: PHL067M10\_45 Start: 29024, Stop: 29326, Start Num: 9  
Candidate Starts for PHL067M10\_45:  
(Start: 9 @29024 has 34 MA's), (33, 29312),

Gene: PHL071N05\_45 Start: 29114, Stop: 29416, Start Num: 9  
Candidate Starts for PHL071N05\_45:  
(Start: 7 @29111 has 3 MA's), (Start: 9 @29114 has 34 MA's), (33, 29402),

Gene: PHL111M01\_45 Start: 28787, Stop: 29089, Start Num: 9  
Candidate Starts for PHL111M01\_45:  
(Start: 7 @28784 has 3 MA's), (Start: 9 @28787 has 34 MA's), (33, 29075),

Gene: PHL112N00\_46 Start: 28913, Stop: 29215, Start Num: 9  
Candidate Starts for PHL112N00\_46:  
(Start: 9 @28913 has 34 MA's),

Gene: PHL113M01\_44 Start: 28844, Stop: 29149, Start Num: 7  
Candidate Starts for PHL113M01\_44:  
(Start: 7 @28844 has 3 MA's), (Start: 9 @28847 has 34 MA's), (33, 29135),

Gene: Paito\_63 Start: 40764, Stop: 41090, Start Num: 2  
Candidate Starts for Paito\_63:  
(Start: 2 @40764 has 66 MA's),

Gene: Peeb\_61 Start: 41100, Stop: 41426, Start Num: 2  
Candidate Starts for Peeb\_61:  
(Start: 2 @41100 has 66 MA's), (23, 41295), (27, 41373),

Gene: Periodt\_62 Start: 41518, Stop: 41844, Start Num: 2  
Candidate Starts for Periodt\_62:  
(Start: 2 @41518 has 66 MA's),

Gene: Phish\_61 Start: 41125, Stop: 41451, Start Num: 2  
Candidate Starts for Phish\_61:  
(Start: 2 @41125 has 66 MA's), (23, 41320), (27, 41398),

Gene: PhorbesPhlower\_72 Start: 41098, Stop: 41403, Start Num: 9  
Candidate Starts for PhorbesPhlower\_72:  
(1, 41002), (Start: 9 @41098 has 34 MA's), (26, 41308),

Gene: Phreak\_62 Start: 41125, Stop: 41451, Start Num: 2  
Candidate Starts for Phreak\_62:  
(Start: 2 @41125 has 66 MA's), (23, 41320), (27, 41398),

Gene: PinkYoshi\_62 Start: 41117, Stop: 41443, Start Num: 2  
Candidate Starts for PinkYoshi\_62:  
(Start: 2 @41117 has 66 MA's), (23, 41312), (27, 41390),

Gene: Pinnie\_65 Start: 44002, Stop: 44328, Start Num: 2  
Candidate Starts for Pinnie\_65:  
(Start: 2 @44002 has 66 MA's), (15, 44056), (19, 44176), (20, 44179),

Gene: Pirate\_44 Start: 28960, Stop: 29262, Start Num: 9  
Candidate Starts for Pirate\_44:  
(Start: 7 @28957 has 3 MA's), (Start: 9 @28960 has 34 MA's), (Start: 16 @29056 has 1 MA's), (33, 29248),

Gene: Plagueis\_62 Start: 40946, Stop: 41272, Start Num: 2  
Candidate Starts for Plagueis\_62:  
(Start: 2 @40946 has 66 MA's), (23, 41141), (27, 41219),

Gene: QueenBey\_43 Start: 28974, Stop: 29276, Start Num: 9  
Candidate Starts for QueenBey\_43:  
(Start: 7 @28971 has 3 MA's), (Start: 9 @28974 has 34 MA's), (33, 29262),

Gene: Rabbs\_63 Start: 41200, Stop: 41526, Start Num: 2  
Candidate Starts for Rabbs\_63:  
(Start: 2 @41200 has 66 MA's), (27, 41473),

Gene: Remy19\_62 Start: 41125, Stop: 41451, Start Num: 2  
Candidate Starts for Remy19\_62:  
(Start: 2 @41125 has 66 MA's), (23, 41320), (27, 41398),

Gene: Renaissance\_61 Start: 41103, Stop: 41429, Start Num: 2  
Candidate Starts for Renaissance\_61:  
(Start: 2 @41103 has 66 MA's), (23, 41298), (27, 41376),

Gene: Ronaldo\_147 Start: 67378, Stop: 67635, Start Num: 12  
Candidate Starts for Ronaldo\_147:  
(Start: 12 @67378 has 6 MA's), (17, 67474), (18, 67498), (23, 67528), (25, 67561),

Gene: SKKY\_47 Start: 29230, Stop: 29532, Start Num: 9  
Candidate Starts for SKKY\_47:  
(4, 29215), (Start: 7 @29227 has 3 MA's), (Start: 9 @29230 has 34 MA's),

Gene: Schiebel\_60 Start: 40665, Stop: 40991, Start Num: 2  
Candidate Starts for Schiebel\_60:  
(Start: 2 @40665 has 66 MA's), (23, 40860), (27, 40938),

Gene: ShaboiShabazz\_61 Start: 41125, Stop: 41451, Start Num: 2  
Candidate Starts for ShaboiShabazz\_61:  
(Start: 2 @41125 has 66 MA's), (23, 41320), (27, 41398),

Gene: Sizemore\_63 Start: 41114, Stop: 41440, Start Num: 2  
Candidate Starts for Sizemore\_63:  
(Start: 2 @41114 has 66 MA's), (23, 41309), (27, 41387),

Gene: Sleepyhead\_67 Start: 43516, Stop: 43788, Start Num: 9  
Candidate Starts for Sleepyhead\_67:  
(Start: 9 @43516 has 34 MA's), (11, 43522),

Gene: Sneeze\_62 Start: 41199, Stop: 41525, Start Num: 2  
Candidate Starts for Sneeze\_62:  
(Start: 2 @41199 has 66 MA's), (27, 41472),

Gene: Solid\_45 Start: 29077, Stop: 29379, Start Num: 9  
Candidate Starts for Solid\_45:  
(Start: 7 @29074 has 3 MA's), (Start: 9 @29077 has 34 MA's), (33, 29365),

Gene: Stargaze\_64 Start: 44492, Stop: 44815, Start Num: 2  
Candidate Starts for Stargaze\_64:  
(Start: 2 @44492 has 66 MA's), (15, 44543), (19, 44663),

Gene: Stormborn\_46 Start: 28966, Stop: 29268, Start Num: 9

Candidate Starts for Stormborn\_46:  
(Start: 7 @28963 has 3 MA's), (Start: 9 @28966 has 34 MA's), (33, 29254),

Gene: Supernova\_45 Start: 28853, Stop: 29155, Start Num: 9  
Candidate Starts for Supernova\_45:  
(Start: 7 @28850 has 3 MA's), (Start: 9 @28853 has 34 MA's), (33, 29141),

Gene: Sweets\_62 Start: 41120, Stop: 41446, Start Num: 2  
Candidate Starts for Sweets\_62:  
(Start: 2 @41120 has 66 MA's), (23, 41315), (27, 41393),

Gene: Taheera\_58 Start: 40097, Stop: 40423, Start Num: 2  
Candidate Starts for Taheera\_58:  
(Start: 2 @40097 has 66 MA's), (28, 40382),

Gene: TaylorSipht\_65 Start: 38681, Stop: 38959, Start Num: 12  
Candidate Starts for TaylorSipht\_65:  
(Start: 12 @38681 has 6 MA's),

Gene: Terror\_58 Start: 40097, Stop: 40423, Start Num: 2  
Candidate Starts for Terror\_58:  
(Start: 2 @40097 has 66 MA's), (28, 40382),

Gene: TomBrady\_62 Start: 41126, Stop: 41452, Start Num: 2  
Candidate Starts for TomBrady\_62:  
(Start: 2 @41126 has 66 MA's), (23, 41321), (27, 41399),

Gene: Unicorn\_102 Start: 60924, Stop: 61157, Start Num: 16  
Candidate Starts for Unicorn\_102:  
(14, 60849), (Start: 16 @60924 has 1 MA's), (32, 61131),

Gene: Volt\_150 Start: 67542, Stop: 67799, Start Num: 12  
Candidate Starts for Volt\_150:  
(Start: 12 @67542 has 6 MA's), (17, 67638), (18, 67662), (23, 67692), (25, 67725),

Gene: Wizzo\_44 Start: 29099, Stop: 29401, Start Num: 9  
Candidate Starts for Wizzo\_44:  
(Start: 7 @29096 has 3 MA's), (Start: 9 @29099 has 34 MA's), (33, 29387),

Gene: ZoMa\_61 Start: 41125, Stop: 41451, Start Num: 2  
Candidate Starts for ZoMa\_61:  
(Start: 2 @41125 has 66 MA's), (23, 41320), (27, 41398),

Gene: Zombie\_62 Start: 41125, Stop: 41451, Start Num: 2  
Candidate Starts for Zombie\_62:  
(Start: 2 @41125 has 66 MA's), (23, 41320), (27, 41398),