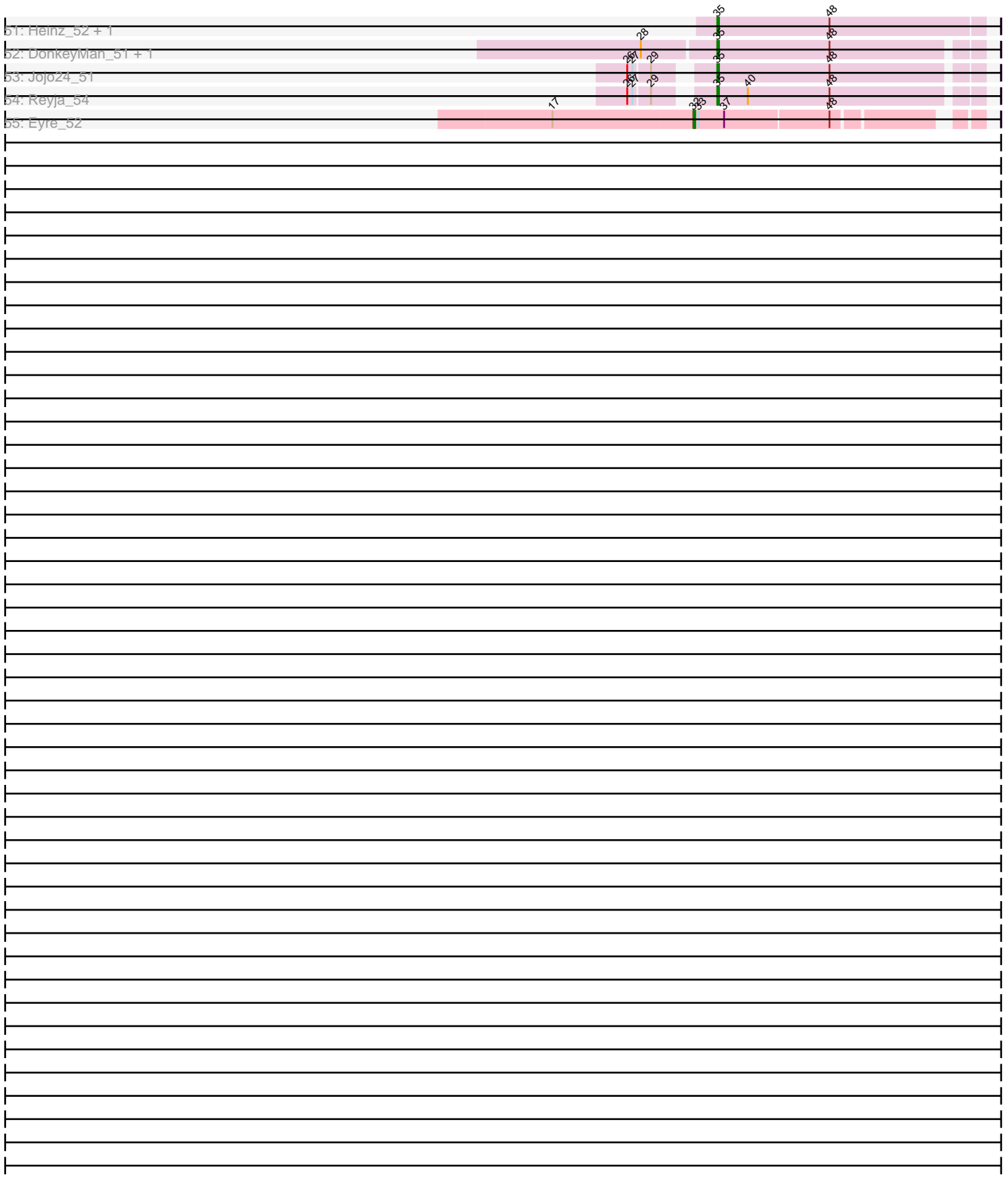


Pham 163420



# Pham 163420



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 163420 Report

This analysis was run 04/28/24 on database version 559.

Pham number 163420 has 139 members, 12 are drafts.

Phages represented in each track:

- Track 1 : Jablanski\_66, Pytheas\_66
- Track 2 : Posh\_65, Wrigley\_67
- Track 3 : LonelyBoi\_61
- Track 4 : Cashline\_61
- Track 5 : Angelique\_58
- Track 6 : EnalisNailo\_58, Lilas\_60
- Track 7 : Floral\_63, EMsquaredA\_62, Pollux\_65, Marteena\_61
- Track 8 : Confidence\_63
- Track 9 : Bradissa\_58
- Track 10 : Pepperoni\_57, BENtherdunthat\_83, Lucky10\_59, Lutum\_84, Frickyeah\_86, Holliday\_83, Kenna\_78, ODay\_88
- Track 11 : Ohgeesy\_63
- Track 12 : Lton\_58
- Track 13 : Nymphadora\_65, Eviarto\_65, TimTam\_65
- Track 14 : Antonio\_62, EdnaMode\_56, Trumpet\_62, Eudoria\_62, Pickett\_55, Polly\_59, Kita\_63, Suscepit\_62, Tayonia\_62, Zirinka\_59, Manasvini\_63, Zameen\_62, Bialota\_60
- Track 15 : AlumE\_64, BoyNamedSue\_64
- Track 16 : Bosnia\_62, Herod\_65, Hugley\_63
- Track 17 : Neobush\_63
- Track 18 : Agueybana\_66, LordFarquaad\_60, Attis\_58, SoilAssassin\_58
- Track 19 : BatStarr\_64
- Track 20 : WelcomeAyanna\_64, ThankyouJordi\_64
- Track 21 : Vasanti\_58
- Track 22 : JCole\_56, Yeet412\_57, BeeGee\_68
- Track 23 : Cynthia\_60, Bjanes7\_57, TuertoX\_60, Ebert\_64, Sproutie\_60, Nettuno\_56, Whiteclaw\_60, Clap\_60, Gizermo\_60, Mocha12\_60, Lamberg\_56, Sahara\_59, GemG\_60, Savage\_60, Haley23\_60
- Track 24 : Matteo\_52
- Track 25 : PantheRoc\_67, RavenCo17\_60
- Track 26 : BaxterFox\_64
- Track 27 : Moosehead\_63
- Track 28 : OneDirection\_56
- Track 29 : Sidious\_62
- Track 30 : Fireball\_9, Wizard\_9, Gezellig\_9, PullumCavea\_9, Phlop\_9
- Track 31 : Portcullis\_9, Savbucketdawg\_9, Evamon\_9, Togo\_9, SmokingBunny\_9, Salvador\_9, TillyBobJoe\_9, Jambalaya\_9

- Track 32 : Nubi\_9, Shinji\_9, Danyall\_9, Mutzi\_9, Twister6\_9
- Track 33 : Arri\_10
- Track 34 : PinkCoffee\_9, Fugax\_9, ClamChowder\_9, Bakery\_10, KimmyK\_9, Barb\_9
- Track 35 : VanDeWege\_10
- Track 36 : RogerDodger\_10
- Track 37 : Valary\_10
- Track 38 : YungMoney\_9
- Track 39 : Halo3\_10
- Track 40 : RiverRaider\_79
- Track 41 : PhorbesPhlower\_61
- Track 42 : Birdsong\_78, Asapag\_79, Phabuloso\_88, Budski\_86
- Track 43 : CheeseTouch\_87
- Track 44 : Kamaru\_77
- Track 45 : Whitney\_79, Getalong\_84
- Track 46 : Spooky\_84
- Track 47 : Apricot\_78, Ecliptus\_85, Leroy\_80, LitninMcQueen\_83, Horus\_81, Periwinkle\_90, Phistory\_78, Crater\_79
- Track 48 : Kuwabara\_81
- Track 49 : Malibo\_64
- Track 50 : DumpsterDude\_60
- Track 51 : Heinz\_52, Hibiscus\_52
- Track 52 : DonkeyMan\_51, Tarzan\_52
- Track 53 : Jojo24\_51
- Track 54 : Reyja\_54
- Track 55 : Eyre\_52

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

The start number called the most often in the published annotations is 35, it was called in 90 of the 127 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

• Agueybana\_66, AlumE\_64, Angelique\_58, Antonio\_62, Arri\_10, Attis\_58, Bakery\_10, Barb\_9, BaxterFox\_64, BeeGee\_68, Bialota\_60, Bjaner7\_57, Bosnia\_62, BoyNamedSue\_64, Bradissa\_58, ClamChowder\_9, Clap\_60, Cynthia\_60, Danyall\_9, DonkeyMan\_51, DumpsterDude\_60, EMSquaredA\_62, Ebert\_64, EdnaMode\_56, Eudoria\_62, Evamon\_9, Fireball\_9, Floral\_63, Fugax\_9, GemG\_60, Gezellig\_9, Gizermo\_60, Haley23\_60, Halo3\_10, Heinz\_52, Herod\_65, Hibiscus\_52, Hugley\_63, JCole\_56, Jablanski\_66, Jambalaya\_9, Jojo24\_51, KimmyK\_9, Kita\_63, Lamberg\_56, LonelyBoi\_61, LordFarquaad\_60, Malibo\_64, Manasvini\_63, Marteena\_61, Matteo\_52, Mocha12\_60, Mutzi\_9, Nettuno\_56, Nubi\_9, Ohgeesy\_63, PantheRoc\_67, Phlop\_9, Pickett\_55, PinkCoffee\_9, Pollux\_65, Polly\_59, Portcullis\_9, Posh\_65, PullumCavea\_9, Pytheas\_66, RavenCo17\_60, Reyja\_54, RogerDodger\_10, Sahara\_59, Salvador\_9, Savage\_60, Savbucketdawg\_9, Shinji\_9, Sidious\_62, SmokingBunny\_9, SoilAssassin\_58, Sproutie\_60, Suscepit\_62, Tarzan\_52, Tayonia\_62, ThankyouJordi\_64, TillyBobJoe\_9, Togo\_9, Trumpet\_62, TuertoX\_60, Twister6\_9, Valary\_10, VanDeWege\_10, Vasanti\_58, WelcomeAyanna\_64, Whiteclaw\_60, Wizard\_9, Wrigley\_67, Yeet412\_57, YungMoney\_9, Zameen\_62, Zirinka\_59,

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

- Confidence\_63,

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

- Apricot\_78, Asapag\_79, BENtherdunthat\_83, BatStarr\_64, Birdsong\_78, Budski\_86, Cashline\_61, CheeseTouch\_87, Crater\_79, Ecliptus\_85, EnalisNailo\_58, Eviarto\_65, Eyre\_52, Frickyeah\_86, Getalong\_84, Holliday\_83, Horus\_81, Kamaru\_77, Kenna\_78, Kuwabara\_81, Leroy\_80, Lilas\_60, LitninMcQueen\_83, Lton\_58, Lucky10\_59, Lutum\_84, Moosehead\_63, Neobush\_63, Nymphadora\_65, ODay\_88, OneDirection\_56, Pepperoni\_57, Periwinkle\_90, Phabuloso\_88, Phistory\_78, PhorbesPhlower\_61, RiverRaider\_79, Spooky\_84, TimTam\_65, Whitney\_79,

### Summary by start number:

Start 31:

- Found in 1 of 139 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 127
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Confidence\_63 (CY1),

Start 32:

- Found in 6 of 139 ( 4.3% ) of genes in pham
- Manual Annotations of this start: 5 of 127
- Called 83.3% of time when present
- Phage (with cluster) where this start called: Eviarto\_65 (CZ1), Eyre\_52 (singleton), Neobush\_63 (CZ1), Nymphadora\_65 (CZ1), TimTam\_65 (CZ1),

Start 33:

- Found in 6 of 139 ( 4.3% ) of genes in pham
- Manual Annotations of this start: 1 of 127
- Called 16.7% of time when present
- Phage (with cluster) where this start called: BatStarr\_64 (CZ1),

Start 35:

- Found in 99 of 139 ( 71.2% ) of genes in pham
- Manual Annotations of this start: 90 of 127
- Called 99.0% of time when present
- Phage (with cluster) where this start called: Agueybana\_66 (CZ1), AlumE\_64 (CZ1), Angelique\_58 (CY1), Antonio\_62 (CZ1), Arri\_10 (DC1), Attis\_58 (CZ2), Bakery\_10 (DC1), Barb\_9 (DC1), BaxterFox\_64 (CZ3), BeeGee\_68 (CY), Bialota\_60 (CZ1), Bjaness7\_57 (CZ2), Bosnia\_62 (CZ1), BoyNamedSue\_64 (CZ1), Bradissa\_58 (CY1), ClamChowder\_9 (DC1), Clap\_60 (CZ2), Cynthia\_60 (CZ2), Danyall\_9 (DC1), DonkeyMan\_51 (DY), DumpsterDude\_60 (DW), EMSquaredA\_62 (CY1), Ebert\_64 (CZ2), EdnaMode\_56 (CZ2), Eudoria\_62 (CZ1), Evamon\_9 (DC1), Fireball\_9 (DC1), Floral\_63 (CY1), Fugax\_9 (DC1), GemG\_60 (CZ2), Gezellig\_9 (DC1), Gizermo\_60 (CZ2), Haley23\_60 (CZ2), Halo3\_10 (DC1), Heinz\_52 (DY), Herod\_65 (CZ1), Hibiscus\_52 (DY), Hugley\_63 (CZ1), JCole\_56 (CZ2), Jablanski\_66 (CY), Jambalaya\_9 (DC1), Jojo24\_51 (DY), KimmyK\_9 (DC1), Kita\_63 (CZ1), Lamberg\_56 (CZ2), LonelyBoi\_61 (CY), LordFarquaad\_60 (CZ2), Malibo\_64 (DW), Manasvini\_63 (CZ1), Marteena\_61 (CY1), Matteo\_52 (CZ2), Mocha12\_60 (CZ2), Mutzi\_9 (DC1), Nettuno\_56 (CZ2), Nubi\_9 (DC1), Ohgeesy\_63 (CZ), PantheRoc\_67 (CZ3), Phlop\_9 (DC1), Pickett\_55 (CZ2), PinkCoffee\_9 (DC1), Pollux\_65 (CY1), Polly\_59 (CZ1),

Portcullis\_9 (DC1), Posh\_65 (CY), PullumCavea\_9 (DC1), Pytheas\_66 (CY), RavenCo17\_60 (CZ8), Reyja\_54 (DY), RogerDodger\_10 (DC1), Sahara\_59 (CZ2), Salvador\_9 (DC1), Savage\_60 (CZ2), Savbucketdawg\_9 (DC1), Shinji\_9 (DC1), Sidious\_62 (CZ7), SmokingBunny\_9 (DC1), SoilAssassin\_58 (CZ2), Sproutie\_60 (CZ2), Suscepit\_62 (CZ1), Tarzan\_52 (DY), Tayonia\_62 (CZ1), ThankyouJordi\_64 (CZ1), TillyBobJoe\_9 (DC1), Togo\_9 (DC1), Trumpet\_62 (CZ1), TuertoX\_60 (CZ2), Twister6\_9 (DC1), Valary\_10 (DC1), VanDeWege\_10 (DC1), Vasanti\_58 (CZ2), WelcomeAyanna\_64 (CZ1), Whiteclaw\_60 (CZ2), Wizard\_9 (DC1), Wrigley\_67 (CY), Yeet412\_57 (CZ2), YungMoney\_9 (DC1), Zameen\_62 (CZ1), Zirinka\_59 (CZ1),

#### Start 36:

- Found in 1 of 139 ( 0.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: RiverRaider\_79 (DE1),

#### Start 38:

- Found in 33 of 139 ( 23.7% ) of genes in pham
- Manual Annotations of this start: 30 of 127
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Apricot\_78 (DN3), Asapag\_79 (DN1), BENTherdunthat\_83 (DN1), Birdsong\_78 (DN), Budski\_86 (DN), Cashline\_61 (CY), CheeseTouch\_87 (DN1), Crater\_79 (DN3), Ecliptus\_85 (DN), EnalisNailo\_58 (CY1), Frickyeah\_86 (DN1), Getalong\_84 (DN1), Holliday\_83 (DN1), Horus\_81 (DN1), Kamaru\_77 (DN1), Kenna\_78 (DN1), Kuwabara\_81 (DN4), Leroy\_80 (DN1), Lilas\_60 (CY1), LitninMcQueen\_83 (DN1), Lton\_58 (CZ), Lucky10\_59 (DH), Lutum\_84 (DN1), Moosehead\_63 (CZ6), ODay\_88 (DN), OneDirection\_56 (CZ6), Pepperoni\_57 (CZ), Periwinkle\_90 (DN1), Phabuloso\_88 (DN1), Phistory\_78 (DN1), PhorbesPhlower\_61 (DH), Spooky\_84 (DN2), Whitney\_79 (DN1),

#### Summary by clusters:

There are 20 clusters represented in this pham: DN, CY1, DN4, DH, CZ, CZ2, CZ3, CZ1, CZ6, singleton, CZ7, DN2, CY, DN1, DN3, DY, CZ8, DW, DE1, DC1,

#### Info for manual annotations of cluster CY:

- Start number 35 was manually annotated 6 times for cluster CY.
- Start number 38 was manually annotated 1 time for cluster CY.

#### Info for manual annotations of cluster CY1:

- Start number 31 was manually annotated 1 time for cluster CY1.
- Start number 35 was manually annotated 6 times for cluster CY1.
- Start number 38 was manually annotated 2 times for cluster CY1.

#### Info for manual annotations of cluster CZ:

- Start number 35 was manually annotated 1 time for cluster CZ.
- Start number 38 was manually annotated 1 time for cluster CZ.

#### Info for manual annotations of cluster CZ1:

- Start number 32 was manually annotated 4 times for cluster CZ1.
- Start number 33 was manually annotated 1 time for cluster CZ1.
- Start number 35 was manually annotated 18 times for cluster CZ1.

Info for manual annotations of cluster CZ2:

- Start number 35 was manually annotated 22 times for cluster CZ2.

Info for manual annotations of cluster CZ3:

- Start number 35 was manually annotated 1 time for cluster CZ3.

Info for manual annotations of cluster CZ6:

- Start number 38 was manually annotated 2 times for cluster CZ6.

Info for manual annotations of cluster CZ7:

- Start number 35 was manually annotated 1 time for cluster CZ7.

Info for manual annotations of cluster CZ8:

- Start number 35 was manually annotated 1 time for cluster CZ8.

Info for manual annotations of cluster DC1:

- Start number 35 was manually annotated 28 times for cluster DC1.

Info for manual annotations of cluster DH:

- Start number 38 was manually annotated 2 times for cluster DH.

Info for manual annotations of cluster DN:

- Start number 38 was manually annotated 4 times for cluster DN.

Info for manual annotations of cluster DN1:

- Start number 38 was manually annotated 14 times for cluster DN1.

Info for manual annotations of cluster DN2:

- Start number 38 was manually annotated 1 time for cluster DN2.

Info for manual annotations of cluster DN3:

- Start number 38 was manually annotated 2 times for cluster DN3.

Info for manual annotations of cluster DN4:

- Start number 38 was manually annotated 1 time for cluster DN4.

Info for manual annotations of cluster DW:

- Start number 35 was manually annotated 2 times for cluster DW.

Info for manual annotations of cluster DY:

- Start number 35 was manually annotated 4 times for cluster DY.

**Gene Information:**

Gene: Agueybana\_66 Start: 44544, Stop: 44684, Start Num: 35

Candidate Starts for Agueybana\_66:

(Start: 35 @44544 has 90 MA's), (48, 44610),

Gene: AlumE\_64 Start: 44204, Stop: 44347, Start Num: 35

Candidate Starts for AlumE\_64:

(1, 43820), (Start: 35 @44204 has 90 MA's), (48, 44270),

Gene: Angelique\_58 Start: 42751, Stop: 42891, Start Num: 35

Candidate Starts for Angelique\_58:

(Start: 35 @42751 has 90 MA's), (43, 42793), (47, 42814), (48, 42817),

Gene: Antonio\_62 Start: 42026, Stop: 42166, Start Num: 35

Candidate Starts for Antonio\_62:

(Start: 35 @42026 has 90 MA's), (43, 42068), (48, 42092),

Gene: Apricot\_78 Start: 44909, Stop: 45034, Start Num: 38

Candidate Starts for Apricot\_78:

(Start: 38 @44909 has 30 MA's), (44, 44942), (46, 44954), (53, 45011),

Gene: Arri\_10 Start: 4536, Stop: 4679, Start Num: 35

Candidate Starts for Arri\_10:

(Start: 35 @4536 has 90 MA's), (49, 4608),

Gene: Asapag\_79 Start: 45783, Stop: 45908, Start Num: 38

Candidate Starts for Asapag\_79:

(Start: 38 @45783 has 30 MA's), (44, 45816),

Gene: Attis\_58 Start: 40273, Stop: 40416, Start Num: 35

Candidate Starts for Attis\_58:

(Start: 35 @40273 has 90 MA's), (48, 40339),

Gene: BENtherdunthat\_83 Start: 46733, Stop: 46858, Start Num: 38

Candidate Starts for BENtherdunthat\_83:

(Start: 38 @46733 has 30 MA's), (44, 46766), (46, 46778),

Gene: Bakery\_10 Start: 4597, Stop: 4740, Start Num: 35

Candidate Starts for Bakery\_10:

(Start: 35 @4597 has 90 MA's), (45, 4651), (49, 4669),

Gene: Barb\_9 Start: 4492, Stop: 4635, Start Num: 35

Candidate Starts for Barb\_9:

(Start: 35 @4492 has 90 MA's), (45, 4546), (49, 4564),

Gene: BatStarr\_64 Start: 44581, Stop: 44727, Start Num: 33

Candidate Starts for BatStarr\_64:

(Start: 32 @44578 has 5 MA's), (Start: 33 @44581 has 1 MA's), (37, 44596),

Gene: BaxterFox\_64 Start: 44136, Stop: 44279, Start Num: 35

Candidate Starts for BaxterFox\_64:

(1, 43752), (Start: 35 @44136 has 90 MA's),

Gene: BeeGee\_68 Start: 44042, Stop: 44182, Start Num: 35

Candidate Starts for BeeGee\_68:

(Start: 35 @44042 has 90 MA's), (43, 44084), (48, 44108),

Gene: Bialota\_60 Start: 42658, Stop: 42798, Start Num: 35

Candidate Starts for Bialota\_60:

(Start: 35 @42658 has 90 MA's), (43, 42700), (48, 42724),



Gene: Birdsong\_78 Start: 45519, Stop: 45644, Start Num: 38

Candidate Starts for Birdsong\_78:

(Start: 38 @45519 has 30 MA's), (44, 45552),

Gene: Bjaner7\_57 Start: 38405, Stop: 38545, Start Num: 35

Candidate Starts for Bjaner7\_57:

(18, 38321), (Start: 35 @38405 has 90 MA's), (43, 38447), (48, 38471),

Gene: Bosnia\_62 Start: 44730, Stop: 44873, Start Num: 35

Candidate Starts for Bosnia\_62:

(Start: 35 @44730 has 90 MA's), (48, 44796),

Gene: BoyNamedSue\_64 Start: 44204, Stop: 44347, Start Num: 35

Candidate Starts for BoyNamedSue\_64:

(1, 43820), (Start: 35 @44204 has 90 MA's), (48, 44270),

Gene: Bradissa\_58 Start: 43290, Stop: 43433, Start Num: 35

Candidate Starts for Bradissa\_58:

(1, 42906), (Start: 35 @43290 has 90 MA's), (48, 43356),

Gene: Budski\_86 Start: 47711, Stop: 47848, Start Num: 38

Candidate Starts for Budski\_86:

(Start: 38 @47711 has 30 MA's), (44, 47753),

Gene: Cashline\_61 Start: 43921, Stop: 44046, Start Num: 38

Candidate Starts for Cashline\_61:

(10, 43693), (16, 43810), (Start: 38 @43921 has 30 MA's), (48, 43969),

Gene: CheeseTouch\_87 Start: 43339, Stop: 43476, Start Num: 38

Candidate Starts for CheeseTouch\_87:

(Start: 38 @43339 has 30 MA's), (44, 43381), (46, 43393), (52, 43447),

Gene: ClamChowder\_9 Start: 4492, Stop: 4635, Start Num: 35

Candidate Starts for ClamChowder\_9:

(Start: 35 @4492 has 90 MA's), (45, 4546), (49, 4564),

Gene: Clap\_60 Start: 38584, Stop: 38724, Start Num: 35

Candidate Starts for Clap\_60:

(18, 38500), (Start: 35 @38584 has 90 MA's), (43, 38626), (48, 38650),

Gene: Confidence\_63 Start: 42119, Stop: 42277, Start Num: 31

Candidate Starts for Confidence\_63:

(Start: 31 @42119 has 1 MA's), (34, 42125), (Start: 35 @42134 has 90 MA's), (48, 42200),

Gene: Crater\_79 Start: 45646, Stop: 45771, Start Num: 38

Candidate Starts for Crater\_79:

(Start: 38 @45646 has 30 MA's), (44, 45679), (46, 45691), (53, 45748),

Gene: Cynthia\_60 Start: 38582, Stop: 38722, Start Num: 35

Candidate Starts for Cynthia\_60:

(18, 38498), (Start: 35 @38582 has 90 MA's), (43, 38624), (48, 38648),

Gene: Danyall\_9 Start: 4364, Stop: 4507, Start Num: 35  
Candidate Starts for Danyall\_9:  
(11, 4178), (22, 4304), (Start: 35 @4364 has 90 MA's), (45, 4418), (49, 4436),

Gene: DonkeyMan\_51 Start: 34611, Stop: 34760, Start Num: 35  
Candidate Starts for DonkeyMan\_51:  
(28, 34569), (Start: 35 @34611 has 90 MA's), (48, 34677),

Gene: DumpsterDude\_60 Start: 45393, Stop: 45536, Start Num: 35  
Candidate Starts for DumpsterDude\_60:  
(12, 45243), (Start: 35 @45393 has 90 MA's), (48, 45459),

Gene: EMSquaredA\_62 Start: 42676, Stop: 42819, Start Num: 35  
Candidate Starts for EMSquaredA\_62:  
(Start: 35 @42676 has 90 MA's), (48, 42742),

Gene: Ebert\_64 Start: 39016, Stop: 39156, Start Num: 35  
Candidate Starts for Ebert\_64:  
(18, 38932), (Start: 35 @39016 has 90 MA's), (43, 39058), (48, 39082),

Gene: Ecliptus\_85 Start: 48615, Stop: 48740, Start Num: 38  
Candidate Starts for Ecliptus\_85:  
(Start: 38 @48615 has 30 MA's), (44, 48648), (46, 48660), (53, 48717),

Gene: EdnaMode\_56 Start: 37847, Stop: 37987, Start Num: 35  
Candidate Starts for EdnaMode\_56:  
(Start: 35 @37847 has 90 MA's), (43, 37889), (48, 37913),

Gene: EnalisNailo\_58 Start: 42500, Stop: 42625, Start Num: 38  
Candidate Starts for EnalisNailo\_58:  
(Start: 38 @42500 has 30 MA's), (48, 42548),

Gene: Eudoria\_62 Start: 42026, Stop: 42166, Start Num: 35  
Candidate Starts for Eudoria\_62:  
(Start: 35 @42026 has 90 MA's), (43, 42068), (48, 42092),

Gene: Evamon\_9 Start: 4345, Stop: 4488, Start Num: 35  
Candidate Starts for Evamon\_9:  
(11, 4159), (22, 4285), (Start: 35 @4345 has 90 MA's), (45, 4399), (49, 4417),

Gene: Eviarto\_65 Start: 44553, Stop: 44702, Start Num: 32  
Candidate Starts for Eviarto\_65:  
(Start: 32 @44553 has 5 MA's), (Start: 33 @44556 has 1 MA's), (37, 44571),

Gene: Eyre\_52 Start: 35630, Stop: 35779, Start Num: 32  
Candidate Starts for Eyre\_52:  
(17, 35549), (Start: 32 @35630 has 5 MA's), (Start: 33 @35633 has 1 MA's), (37, 35648), (48, 35708),

Gene: Fireball\_9 Start: 4263, Stop: 4406, Start Num: 35  
Candidate Starts for Fireball\_9:  
(22, 4203), (Start: 35 @4263 has 90 MA's), (45, 4317), (49, 4335), (50, 4338),

Gene: Floral\_63 Start: 44561, Stop: 44704, Start Num: 35

Candidate Starts for Floral\_63:  
(Start: 35 @44561 has 90 MA's), (48, 44627),

Gene: Frickyeah\_86 Start: 47022, Stop: 47147, Start Num: 38  
Candidate Starts for Frickyeah\_86:  
(Start: 38 @47022 has 30 MA's), (44, 47055), (46, 47067),

Gene: Fugax\_9 Start: 4492, Stop: 4635, Start Num: 35  
Candidate Starts for Fugax\_9:  
(Start: 35 @4492 has 90 MA's), (45, 4546), (49, 4564),

Gene: GemG\_60 Start: 38588, Stop: 38728, Start Num: 35  
Candidate Starts for GemG\_60:  
(18, 38504), (Start: 35 @38588 has 90 MA's), (43, 38630), (48, 38654),

Gene: Getalong\_84 Start: 48039, Stop: 48173, Start Num: 38  
Candidate Starts for Getalong\_84:  
(Start: 38 @48039 has 30 MA's), (44, 48081), (51, 48117), (53, 48150), (54, 48165),

Gene: Gezellig\_9 Start: 4263, Stop: 4406, Start Num: 35  
Candidate Starts for Gezellig\_9:  
(22, 4203), (Start: 35 @4263 has 90 MA's), (45, 4317), (49, 4335), (50, 4338),

Gene: Gizermo\_60 Start: 38584, Stop: 38724, Start Num: 35  
Candidate Starts for Gizermo\_60:  
(18, 38500), (Start: 35 @38584 has 90 MA's), (43, 38626), (48, 38650),

Gene: Haley23\_60 Start: 38584, Stop: 38724, Start Num: 35  
Candidate Starts for Haley23\_60:  
(18, 38500), (Start: 35 @38584 has 90 MA's), (43, 38626), (48, 38650),

Gene: Halo3\_10 Start: 4803, Stop: 4946, Start Num: 35  
Candidate Starts for Halo3\_10:  
(Start: 35 @4803 has 90 MA's), (45, 4857), (49, 4875),

Gene: Heinz\_52 Start: 33427, Stop: 33582, Start Num: 35  
Candidate Starts for Heinz\_52:  
(Start: 35 @33427 has 90 MA's), (48, 33493),

Gene: Herod\_65 Start: 45084, Stop: 45227, Start Num: 35  
Candidate Starts for Herod\_65:  
(Start: 35 @45084 has 90 MA's), (48, 45150),

Gene: Hibiscus\_52 Start: 33376, Stop: 33531, Start Num: 35  
Candidate Starts for Hibiscus\_52:  
(Start: 35 @33376 has 90 MA's), (48, 33442),

Gene: Holliday\_83 Start: 49327, Stop: 49452, Start Num: 38  
Candidate Starts for Holliday\_83:  
(Start: 38 @49327 has 30 MA's), (44, 49360), (46, 49372),

Gene: Horus\_81 Start: 47713, Stop: 47838, Start Num: 38  
Candidate Starts for Horus\_81:

(Start: 38 @47713 has 30 MA's), (44, 47746), (46, 47758), (53, 47815),

Gene: Hugley\_63 Start: 45064, Stop: 45207, Start Num: 35

Candidate Starts for Hugley\_63:

(Start: 35 @45064 has 90 MA's), (48, 45130),

Gene: JCole\_56 Start: 36913, Stop: 37053, Start Num: 35

Candidate Starts for JCole\_56:

(Start: 35 @36913 has 90 MA's), (43, 36955), (48, 36979),

Gene: Jablanski\_66 Start: 46418, Stop: 46561, Start Num: 35

Candidate Starts for Jablanski\_66:

(8, 46181), (14, 46274), (15, 46292), (20, 46346), (25, 46364), (Start: 35 @46418 has 90 MA's), (48, 46484),

Gene: Jambalaya\_9 Start: 4175, Stop: 4318, Start Num: 35

Candidate Starts for Jambalaya\_9:

(11, 3989), (22, 4115), (Start: 35 @4175 has 90 MA's), (45, 4229), (49, 4247),

Gene: Jojo24\_51 Start: 33913, Stop: 34062, Start Num: 35

Candidate Starts for Jojo24\_51:

(26, 33874), (27, 33877), (29, 33886), (Start: 35 @33913 has 90 MA's), (48, 33979),

Gene: Kamaru\_77 Start: 44811, Stop: 44936, Start Num: 38

Candidate Starts for Kamaru\_77:

(Start: 38 @44811 has 30 MA's), (44, 44844), (46, 44856), (51, 44880),

Gene: Kenna\_78 Start: 46006, Stop: 46131, Start Num: 38

Candidate Starts for Kenna\_78:

(Start: 38 @46006 has 30 MA's), (44, 46039), (46, 46051),

Gene: KimmyK\_9 Start: 4492, Stop: 4635, Start Num: 35

Candidate Starts for KimmyK\_9:

(Start: 35 @4492 has 90 MA's), (45, 4546), (49, 4564),

Gene: Kita\_63 Start: 42035, Stop: 42175, Start Num: 35

Candidate Starts for Kita\_63:

(Start: 35 @42035 has 90 MA's), (43, 42077), (48, 42101),

Gene: Kuwabara\_81 Start: 48077, Stop: 48205, Start Num: 38

Candidate Starts for Kuwabara\_81:

(Start: 38 @48077 has 30 MA's), (48, 48128),

Gene: Lamberg\_56 Start: 37093, Stop: 37233, Start Num: 35

Candidate Starts for Lamberg\_56:

(18, 37009), (Start: 35 @37093 has 90 MA's), (43, 37135), (48, 37159),

Gene: Leroy\_80 Start: 45908, Stop: 46033, Start Num: 38

Candidate Starts for Leroy\_80:

(Start: 38 @45908 has 30 MA's), (44, 45941), (46, 45953), (53, 46010),

Gene: Lilas\_60 Start: 44253, Stop: 44378, Start Num: 38

Candidate Starts for Lilas\_60:

(Start: 38 @44253 has 30 MA's), (48, 44301),

Gene: LitninMcQueen\_83 Start: 46751, Stop: 46876, Start Num: 38

Candidate Starts for LitninMcQueen\_83:

(Start: 38 @46751 has 30 MA's), (44, 46784), (46, 46796), (53, 46853),

Gene: LonelyBoi\_61 Start: 45136, Stop: 45279, Start Num: 35

Candidate Starts for LonelyBoi\_61:

(19, 45061), (30, 45115), (Start: 35 @45136 has 90 MA's), (43, 45178), (48, 45202),

Gene: LordFarquaad\_60 Start: 40254, Stop: 40397, Start Num: 35

Candidate Starts for LordFarquaad\_60:

(Start: 35 @40254 has 90 MA's), (48, 40320),

Gene: Lton\_58 Start: 34944, Stop: 35081, Start Num: 38

Candidate Starts for Lton\_58:

(Start: 38 @34944 has 30 MA's), (44, 34977), (46, 34989), (48, 34995), (52, 35043),

Gene: Lucky10\_59 Start: 37676, Stop: 37801, Start Num: 38

Candidate Starts for Lucky10\_59:

(Start: 38 @37676 has 30 MA's), (44, 37709), (46, 37718),

Gene: Lutum\_84 Start: 47168, Stop: 47293, Start Num: 38

Candidate Starts for Lutum\_84:

(Start: 38 @47168 has 30 MA's), (44, 47201), (46, 47213),

Gene: Malibo\_64 Start: 42931, Stop: 43074, Start Num: 35

Candidate Starts for Malibo\_64:

(Start: 35 @42931 has 90 MA's),

Gene: Manasvini\_63 Start: 42050, Stop: 42190, Start Num: 35

Candidate Starts for Manasvini\_63:

(Start: 35 @42050 has 90 MA's), (43, 42092), (48, 42116),

Gene: Marteena\_61 Start: 42676, Stop: 42819, Start Num: 35

Candidate Starts for Marteena\_61:

(Start: 35 @42676 has 90 MA's), (48, 42742),

Gene: Matteo\_52 Start: 35712, Stop: 35855, Start Num: 35

Candidate Starts for Matteo\_52:

(3, 35382), (6, 35421), (7, 35460), (9, 35484), (24, 35664), (Start: 35 @35712 has 90 MA's), (48, 35778),

Gene: Mocha12\_60 Start: 38584, Stop: 38724, Start Num: 35

Candidate Starts for Mocha12\_60:

(18, 38500), (Start: 35 @38584 has 90 MA's), (43, 38626), (48, 38650),

Gene: Moosehead\_63 Start: 36248, Stop: 36376, Start Num: 38

Candidate Starts for Moosehead\_63:

(Start: 38 @36248 has 30 MA's),

Gene: Mutzi\_9 Start: 4364, Stop: 4507, Start Num: 35

Candidate Starts for Mutzi\_9:

(11, 4178), (22, 4304), (Start: 35 @4364 has 90 MA's), (45, 4418), (49, 4436),

Gene: Neobush\_63 Start: 42127, Stop: 42276, Start Num: 32

Candidate Starts for Neobush\_63:

(Start: 32 @42127 has 5 MA's), (Start: 33 @42130 has 1 MA's), (37, 42145),

Gene: Nettuno\_56 Start: 37093, Stop: 37233, Start Num: 35

Candidate Starts for Nettuno\_56:

(18, 37009), (Start: 35 @37093 has 90 MA's), (43, 37135), (48, 37159),

Gene: Nubi\_9 Start: 4364, Stop: 4507, Start Num: 35

Candidate Starts for Nubi\_9:

(11, 4178), (22, 4304), (Start: 35 @4364 has 90 MA's), (45, 4418), (49, 4436),

Gene: Nymphadora\_65 Start: 44577, Stop: 44726, Start Num: 32

Candidate Starts for Nymphadora\_65:

(Start: 32 @44577 has 5 MA's), (Start: 33 @44580 has 1 MA's), (37, 44595),

Gene: ODay\_88 Start: 49002, Stop: 49139, Start Num: 38

Candidate Starts for ODay\_88:

(Start: 38 @49002 has 30 MA's), (44, 49044), (46, 49056),

Gene: Ohgeesy\_63 Start: 43522, Stop: 43665, Start Num: 35

Candidate Starts for Ohgeesy\_63:

(21, 43453), (30, 43501), (Start: 35 @43522 has 90 MA's), (43, 43564), (48, 43588),

Gene: OneDirection\_56 Start: 34748, Stop: 34876, Start Num: 38

Candidate Starts for OneDirection\_56:

(Start: 38 @34748 has 30 MA's), (44, 34781), (51, 34817), (52, 34847),

Gene: PantheRoc\_67 Start: 44266, Stop: 44409, Start Num: 35

Candidate Starts for PantheRoc\_67:

(Start: 35 @44266 has 90 MA's), (48, 44332),

Gene: Pepperoni\_57 Start: 36388, Stop: 36516, Start Num: 38

Candidate Starts for Pepperoni\_57:

(Start: 38 @36388 has 30 MA's), (44, 36421), (46, 36433),

Gene: Periwinkle\_90 Start: 48715, Stop: 48840, Start Num: 38

Candidate Starts for Periwinkle\_90:

(Start: 38 @48715 has 30 MA's), (44, 48748), (46, 48760), (53, 48817),

Gene: Phabuloso\_88 Start: 47735, Stop: 47860, Start Num: 38

Candidate Starts for Phabuloso\_88:

(Start: 38 @47735 has 30 MA's), (44, 47768),

Gene: Phistory\_78 Start: 44811, Stop: 44936, Start Num: 38

Candidate Starts for Phistory\_78:

(Start: 38 @44811 has 30 MA's), (44, 44844), (46, 44856), (53, 44913),

Gene: Phlop\_9 Start: 4263, Stop: 4406, Start Num: 35

Candidate Starts for Phlop\_9:

(22, 4203), (Start: 35 @4263 has 90 MA's), (45, 4317), (49, 4335), (50, 4338),

Gene: PhorbesPhlower\_61 Start: 36673, Stop: 36810, Start Num: 38  
Candidate Starts for PhorbesPhlower\_61:  
(5, 36355), (Start: 38 @36673 has 30 MA's), (51, 36751),

Gene: Pickett\_55 Start: 36323, Stop: 36463, Start Num: 35  
Candidate Starts for Pickett\_55:  
(Start: 35 @36323 has 90 MA's), (43, 36365), (48, 36389),

Gene: PinkCoffee\_9 Start: 4501, Stop: 4644, Start Num: 35  
Candidate Starts for PinkCoffee\_9:  
(Start: 35 @4501 has 90 MA's), (45, 4555), (49, 4573),

Gene: Pollux\_65 Start: 44561, Stop: 44704, Start Num: 35  
Candidate Starts for Pollux\_65:  
(Start: 35 @44561 has 90 MA's), (48, 44627),

Gene: Polly\_59 Start: 41469, Stop: 41609, Start Num: 35  
Candidate Starts for Polly\_59:  
(Start: 35 @41469 has 90 MA's), (43, 41511), (48, 41535),

Gene: Portcullis\_9 Start: 4423, Stop: 4566, Start Num: 35  
Candidate Starts for Portcullis\_9:  
(11, 4237), (22, 4363), (Start: 35 @4423 has 90 MA's), (45, 4477), (49, 4495),

Gene: Posh\_65 Start: 45063, Stop: 45206, Start Num: 35  
Candidate Starts for Posh\_65:  
(30, 45042), (Start: 35 @45063 has 90 MA's), (43, 45105), (48, 45129),

Gene: PullumCavea\_9 Start: 4263, Stop: 4406, Start Num: 35  
Candidate Starts for PullumCavea\_9:  
(22, 4203), (Start: 35 @4263 has 90 MA's), (45, 4317), (49, 4335), (50, 4338),

Gene: Pytheas\_66 Start: 46417, Stop: 46560, Start Num: 35  
Candidate Starts for Pytheas\_66:  
(8, 46180), (14, 46273), (15, 46291), (20, 46345), (25, 46363), (Start: 35 @46417 has 90 MA's), (48, 46483),

Gene: RavenCo17\_60 Start: 42838, Stop: 42981, Start Num: 35  
Candidate Starts for RavenCo17\_60:  
(Start: 35 @42838 has 90 MA's), (48, 42904),

Gene: Reyja\_54 Start: 35199, Stop: 35348, Start Num: 35  
Candidate Starts for Reyja\_54:  
(26, 35160), (27, 35163), (29, 35172), (Start: 35 @35199 has 90 MA's), (40, 35217), (48, 35265),

Gene: RiverRaider\_79 Start: 53776, Stop: 53904, Start Num: 36  
Candidate Starts for RiverRaider\_79:  
(36, 53776), (41, 53803), (50, 53839), (51, 53848),

Gene: RogerDodger\_10 Start: 4728, Stop: 4871, Start Num: 35  
Candidate Starts for RogerDodger\_10:  
(13, 4587), (Start: 35 @4728 has 90 MA's), (45, 4782), (49, 4800),

Gene: Sahara\_59 Start: 38331, Stop: 38471, Start Num: 35  
Candidate Starts for Sahara\_59:  
(18, 38247), (Start: 35 @38331 has 90 MA's), (43, 38373), (48, 38397),

Gene: Salvador\_9 Start: 4343, Stop: 4486, Start Num: 35  
Candidate Starts for Salvador\_9:  
(11, 4157), (22, 4283), (Start: 35 @4343 has 90 MA's), (45, 4397), (49, 4415),

Gene: Savage\_60 Start: 38584, Stop: 38724, Start Num: 35  
Candidate Starts for Savage\_60:  
(18, 38500), (Start: 35 @38584 has 90 MA's), (43, 38626), (48, 38650),

Gene: Savbucketdawg\_9 Start: 4175, Stop: 4318, Start Num: 35  
Candidate Starts for Savbucketdawg\_9:  
(11, 3989), (22, 4115), (Start: 35 @4175 has 90 MA's), (45, 4229), (49, 4247),

Gene: Shinji\_9 Start: 4364, Stop: 4507, Start Num: 35  
Candidate Starts for Shinji\_9:  
(11, 4178), (22, 4304), (Start: 35 @4364 has 90 MA's), (45, 4418), (49, 4436),

Gene: Sidious\_62 Start: 43734, Stop: 43877, Start Num: 35  
Candidate Starts for Sidious\_62:  
(13, 43593), (Start: 35 @43734 has 90 MA's), (48, 43800),

Gene: SmokingBunny\_9 Start: 4343, Stop: 4486, Start Num: 35  
Candidate Starts for SmokingBunny\_9:  
(11, 4157), (22, 4283), (Start: 35 @4343 has 90 MA's), (45, 4397), (49, 4415),

Gene: SoilAssassin\_58 Start: 40272, Stop: 40415, Start Num: 35  
Candidate Starts for SoilAssassin\_58:  
(Start: 35 @40272 has 90 MA's), (48, 40338),

Gene: Spooky\_84 Start: 47413, Stop: 47538, Start Num: 38  
Candidate Starts for Spooky\_84:  
(Start: 38 @47413 has 30 MA's), (48, 47461),

Gene: Sproutie\_60 Start: 38584, Stop: 38724, Start Num: 35  
Candidate Starts for Sproutie\_60:  
(18, 38500), (Start: 35 @38584 has 90 MA's), (43, 38626), (48, 38650),

Gene: Suscepit\_62 Start: 42027, Stop: 42167, Start Num: 35  
Candidate Starts for Suscepit\_62:  
(Start: 35 @42027 has 90 MA's), (43, 42069), (48, 42093),

Gene: Tarzan\_52 Start: 33866, Stop: 34015, Start Num: 35  
Candidate Starts for Tarzan\_52:  
(28, 33824), (Start: 35 @33866 has 90 MA's), (48, 33932),

Gene: Tayonia\_62 Start: 42026, Stop: 42166, Start Num: 35  
Candidate Starts for Tayonia\_62:  
(Start: 35 @42026 has 90 MA's), (43, 42068), (48, 42092),



Gene: ThankyouJordi\_64 Start: 45185, Stop: 45328, Start Num: 35  
Candidate Starts for ThankyouJordi\_64:  
(2, 44843), (4, 44861), (23, 45131), (Start: 35 @45185 has 90 MA's), (48, 45251),

Gene: TillyBobJoe\_9 Start: 4178, Stop: 4321, Start Num: 35  
Candidate Starts for TillyBobJoe\_9:  
(11, 3992), (22, 4118), (Start: 35 @4178 has 90 MA's), (45, 4232), (49, 4250),

Gene: TimTam\_65 Start: 44577, Stop: 44726, Start Num: 32  
Candidate Starts for TimTam\_65:  
(Start: 32 @44577 has 5 MA's), (Start: 33 @44580 has 1 MA's), (37, 44595),

Gene: Togo\_9 Start: 4343, Stop: 4486, Start Num: 35  
Candidate Starts for Togo\_9:  
(11, 4157), (22, 4283), (Start: 35 @4343 has 90 MA's), (45, 4397), (49, 4415),

Gene: Trumpet\_62 Start: 42027, Stop: 42167, Start Num: 35  
Candidate Starts for Trumpet\_62:  
(Start: 35 @42027 has 90 MA's), (43, 42069), (48, 42093),

Gene: TuertoX\_60 Start: 38584, Stop: 38724, Start Num: 35  
Candidate Starts for TuertoX\_60:  
(18, 38500), (Start: 35 @38584 has 90 MA's), (43, 38626), (48, 38650),

Gene: Twister6\_9 Start: 4275, Stop: 4418, Start Num: 35  
Candidate Starts for Twister6\_9:  
(11, 4089), (22, 4215), (Start: 35 @4275 has 90 MA's), (45, 4329), (49, 4347),

Gene: Valary\_10 Start: 4728, Stop: 4871, Start Num: 35  
Candidate Starts for Valary\_10:  
(Start: 35 @4728 has 90 MA's), (49, 4800),

Gene: VanDeWege\_10 Start: 4656, Stop: 4799, Start Num: 35  
Candidate Starts for VanDeWege\_10:  
(Start: 35 @4656 has 90 MA's), (45, 4710),

Gene: Vasanti\_58 Start: 38563, Stop: 38706, Start Num: 35  
Candidate Starts for Vasanti\_58:  
(23, 38509), (Start: 35 @38563 has 90 MA's), (42, 38596), (48, 38629),

Gene: WelcomeAyanna\_64 Start: 45332, Stop: 45475, Start Num: 35  
Candidate Starts for WelcomeAyanna\_64:  
(2, 44990), (4, 45008), (23, 45278), (Start: 35 @45332 has 90 MA's), (48, 45398),

Gene: Whiteclaw\_60 Start: 38584, Stop: 38724, Start Num: 35  
Candidate Starts for Whiteclaw\_60:  
(18, 38500), (Start: 35 @38584 has 90 MA's), (43, 38626), (48, 38650),

Gene: Whitney\_79 Start: 47360, Stop: 47494, Start Num: 38  
Candidate Starts for Whitney\_79:  
(Start: 38 @47360 has 30 MA's), (44, 47402), (51, 47438), (53, 47471), (54, 47486),

Gene: Wizard\_9 Start: 4263, Stop: 4406, Start Num: 35

Candidate Starts for Wizard\_9:

(22, 4203), (Start: 35 @4263 has 90 MA's), (45, 4317), (49, 4335), (50, 4338),

Gene: Wrigley\_67 Start: 44646, Stop: 44789, Start Num: 35

Candidate Starts for Wrigley\_67:

(30, 44625), (Start: 35 @44646 has 90 MA's), (43, 44688), (48, 44712),

Gene: Yeet412\_57 Start: 39130, Stop: 39270, Start Num: 35

Candidate Starts for Yeet412\_57:

(Start: 35 @39130 has 90 MA's), (43, 39172), (48, 39196),

Gene: YungMoney\_9 Start: 5428, Stop: 5571, Start Num: 35

Candidate Starts for YungMoney\_9:

(22, 5368), (Start: 35 @5428 has 90 MA's), (39, 5443), (45, 5482), (49, 5500), (50, 5503),

Gene: Zameen\_62 Start: 42026, Stop: 42166, Start Num: 35

Candidate Starts for Zameen\_62:

(Start: 35 @42026 has 90 MA's), (43, 42068), (48, 42092),

Gene: Zirinka\_59 Start: 42646, Stop: 42786, Start Num: 35

Candidate Starts for Zirinka\_59:

(Start: 35 @42646 has 90 MA's), (43, 42688), (48, 42712),