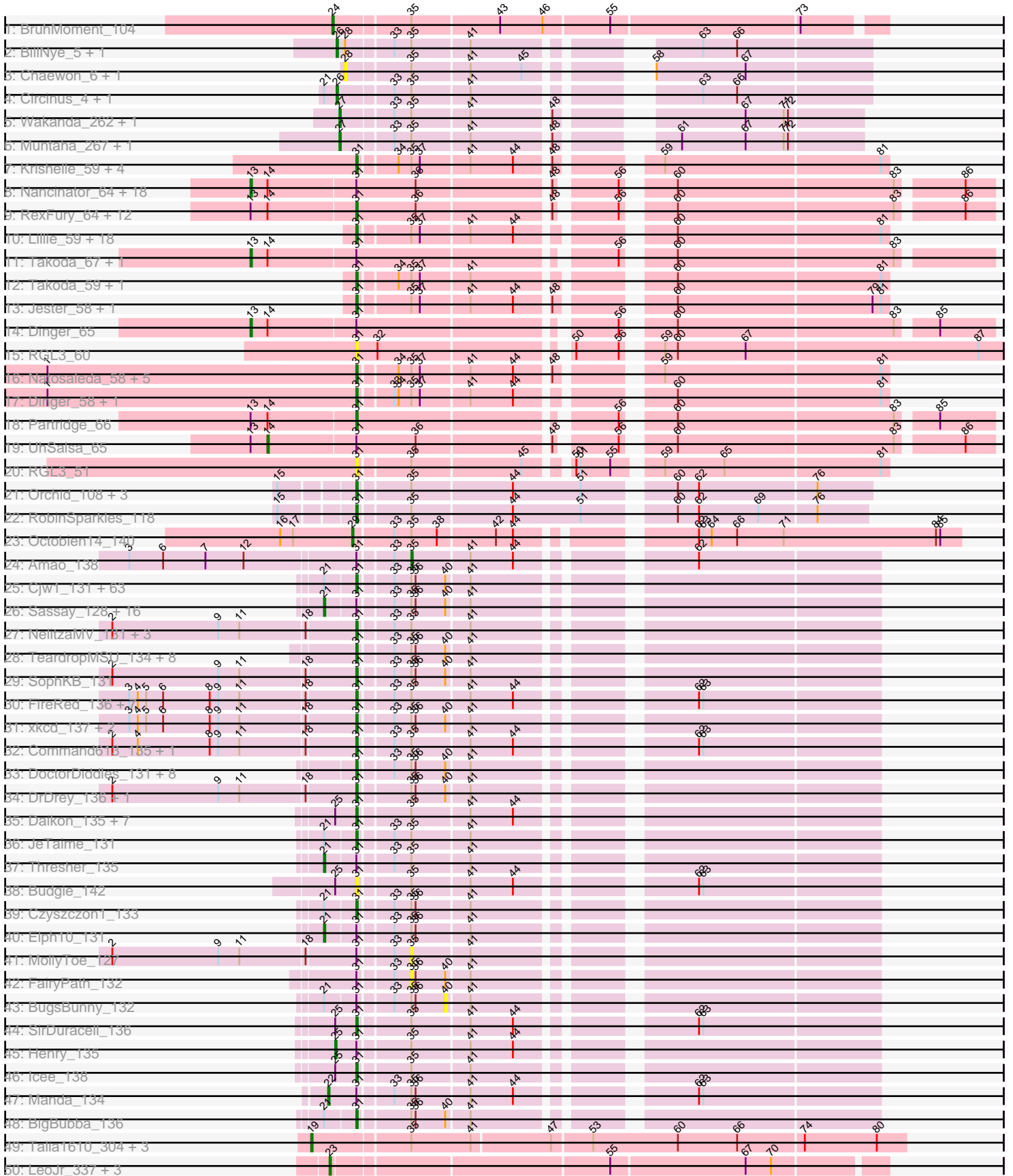
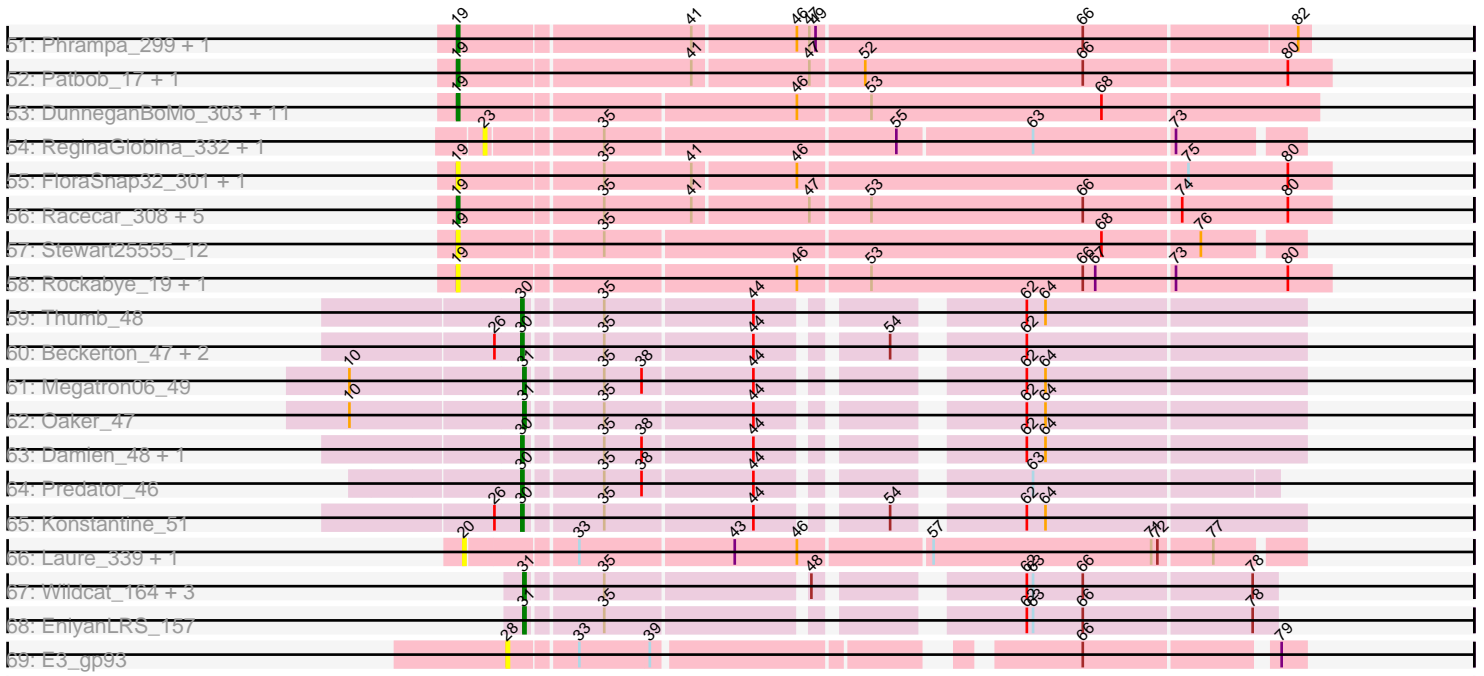


Pham 292438



# Pham 292438



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 292438 Report

This analysis was run 04/18/26 on database version 643.

Pham number 292438 has 288 members, 47 are drafts.

Phages represented in each track:

- Track 1 : BruhMoment\_104
- Track 2 : BillNye\_5, BillNye\_251
- Track 3 : Chaewon\_6, Chaewon\_255
- Track 4 : Circinus\_4, Circinus\_249
- Track 5 : Wakanda\_262, Wakanda\_3
- Track 6 : Muntaha\_267, Muntaha\_4
- Track 7 : Krishelle\_59, Alatin\_58, StCroix\_58, Naiad\_58, Bradshaw\_59
- Track 8 : Nancinator\_64, Espica\_66, Erik\_65, Jester\_64, Gollum\_65, Bonanza\_66, Belenaria\_66, Shuman\_66, Bradshaw\_65, Harlequin\_65, Rasputin\_65, AppleCloud\_62, Bryce\_64, Swann\_65, Hiro\_65, Krishelle\_65, PhailMary\_62, Alpacados\_64, Phrankenstein\_65
- Track 9 : RexFury\_64, CosmicSans\_65, Naiad\_64, StCroix\_64, BobbyDazzler\_65, Natosaleda\_64, Alatin\_64, Rhodalysa\_65, Yogi\_66, TWAMP\_65, Yoncess\_64, Lillie\_65, RER2\_59
- Track 10 : Lillie\_59, Gollum\_59, Nancinator\_58, Bryce\_58, Phrankenstein\_59, BobbyDazzler\_59, Erik\_59, Hiro\_59, RER2\_53, CosmicSans\_59, Bonanza\_60, Alpacados\_58, Yoncess\_58, Swann\_59, Yogi\_60, TWAMP\_59, Shuman\_60, Rasputin\_59, Rhodalysa\_59
- Track 11 : Takoda\_67, AngryOrchard\_63
- Track 12 : Takoda\_59, AngryOrchard\_56
- Track 13 : Jester\_58, Harlequin\_59
- Track 14 : Dinger\_65
- Track 15 : RGL3\_60
- Track 16 : Natosaleda\_58, Belenaria\_60, AppleCloud\_56, Espica\_60, RexFury\_58, UhSalsa\_59
- Track 17 : Dinger\_58, Partridge\_58
- Track 18 : Partridge\_66
- Track 19 : UhSalsa\_65
- Track 20 : RGL3\_51
- Track 21 : Orchid\_108, Kampe\_109, PatrickStar\_109, Gibbles\_111
- Track 22 : RobinSparkles\_118
- Track 23 : Octobien14\_140
- Track 24 : Amao\_138
- Track 25 : Cjw1\_131, Willez\_130, NoSleep\_133, Maxxinista\_135, StolenFromERC\_136, Stank\_137, IHOP\_137, Paperbeatsrock\_132, FoghornLeghorn\_131, OrionPax\_129, Sotrice96\_138, Nala\_135, ShereKhan\_133, Adnama\_138, GooberAzure\_136, Eureka\_133, Lilac\_131, Contagion\_129,

Marshmallow\_134, Phaja\_137, Wiggin\_136, ShamWow\_133, Bench\_135,  
 Mosby\_130, NonchalantPear\_132, ChosenOne\_134, Lilpickle\_133, BaboJay\_132,  
 Buck\_134, Palpatine\_133, Elite2014\_133, Pharsalus\_131, GoldenSpark\_138,  
 Inca\_132, 244\_134, Miniwave\_127, Cookies\_134, Tarkin\_132, StellaBean\_131,  
 Argent26\_138, TBrady12\_138, Toto\_131, Misfit\_133, RiverMonster\_132, Kanye\_130,  
 Terminus\_136, StormChicken\_135, Xandras\_134, ChotaBhai\_137, MPhalcon\_134,  
 Moldemort\_136, Qualification\_134, Gemini\_139, Easy2Say\_135, Stark\_131,  
 AmericanBeauty\_137, MadamMonkfish\_133, Lilizi\_134, Greep\_137, Nimrod\_133,  
 HanKaySha\_133, Hopey\_132, Emmina\_134, Pumpkin\_133  
 • Track 26 : Sassay\_128, Cactus\_141, MISSy\_135, Tomaszewski\_127, Dumbo\_134,  
 Kimchi\_139, Bask21\_138, Petra64142\_135, Rimmer\_130, Bogg\_134,  
 TeamEdward\_132, PaddyBaddy\_130, Porky\_135, Ukulele\_128, Goku\_132,  
 Bruin\_130, Goldilocks\_139  
 • Track 27 : NelitzaMV\_131, Mindy\_136, Rakim\_134, Brewer\_125  
 • Track 28 : TeardropMSU\_134, ABCat\_134, Harella\_139, Pat3\_133, BadStone\_134,  
 Gator\_135, Tuco\_139, Dusk\_134, Glexan\_137  
 • Track 29 : SophKB\_131  
 • Track 30 : FireRed\_136, HufflyPuff\_135, Phaux\_135, Murica\_137,  
 YassJohnny\_129, Holt\_139, PhatBacter\_136, Policronamos\_134  
 • Track 31 : xkcd\_137, Becksu\_131, Youngblood\_137  
 • Track 32 : Command613\_135, Kostya\_134  
 • Track 33 : DoctorDiddles\_131, Murphy\_132, Filch\_135, Phrux\_129, Highbury\_129,  
 Saints25\_129, Simpliphy\_132, Ptowny\_127, Hoonter\_136  
 • Track 34 : DrDrey\_136, Myrale\_134  
 • Track 35 : Daikon\_135, Asriel\_130, Balomoji\_133, Barbarian\_133,  
 BilboSwaggins\_131, Flypotenuse\_128, CrystalP\_133, Traaww1\_129  
 • Track 36 : JeTaime\_131  
 • Track 37 : Thresher\_135  
 • Track 38 : Budgie\_142  
 • Track 39 : Czyszczon1\_133  
 • Track 40 : Elph10\_131  
 • Track 41 : MollyToe\_127  
 • Track 42 : FairyPath\_132  
 • Track 43 : BugsBunny\_132  
 • Track 44 : SirDuracell\_136  
 • Track 45 : Henry\_135  
 • Track 46 : Icee\_138  
 • Track 47 : Manda\_134  
 • Track 48 : BigBubba\_136  
 • Track 49 : Talia1610\_304, Mimi\_18, Talia1610\_18, Mimi\_303  
 • Track 50 : LeoJr\_337, LeoJr\_24, Atuin\_20, Atuin\_320  
 • Track 51 : Phrampa\_299, Phrampa\_15  
 • Track 52 : Patbob\_17, Patbob\_303  
 • Track 53 : DunneganBoMo\_303, Emmetator\_8, Emmetator\_302, Artu\_298,  
 KSunshine22\_11, WaddleDee\_8, BooTeria\_309, Artu\_11, WaddleDee\_299,  
 DunneganBoMo\_8, KSunshine22\_303, BooTeria\_10  
 • Track 54 : ReginaGlobina\_332, ReginaGlobina\_21  
 • Track 55 : FloraSnap32\_301, FloraSnap32\_16  
 • Track 56 : Racecar\_308, Bloom\_20, Racecar\_19, Bloom\_307, FrostedClock\_19,  
 FrostedClock\_304  
 • Track 57 : Stewart25555\_12  
 • Track 58 : Rockabye\_19, Rockabye\_318  
 • Track 59 : Thumb\_48

- Track 60 : Beckerton\_47, BobtimousPrime\_46, Phreeze\_46
- Track 61 : Megatron06\_49
- Track 62 : Oaker\_47
- Track 63 : Damien\_48, Cborch11\_49
- Track 64 : Predator\_46
- Track 65 : Konstantine\_51
- Track 66 : Laure\_339, Laure\_21
- Track 67 : Wildcat\_164, Azrael100\_156, MaryV\_150, Cosmo\_165
- Track 68 : EniyanLRS\_157
- Track 69 : E3\_gp93

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

The start number called the most often in the published annotations is 31, it was called in 167 of the 241 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 244\_134, ABCat\_134, Adnama\_138, Alatin\_58, Alatin\_64, Alpacados\_58, AmericanBeauty\_137, AngryOrchard\_56, AppleCloud\_56, Argent26\_138, Asriel\_130, Azrael100\_156, BaboJay\_132, BadStone\_134, Balomoji\_133, Barbarian\_133, Becksu\_131, Belenaria\_60, Bench\_135, BigBubba\_136, BilboSwaggins\_131, BobbyDazzler\_59, BobbyDazzler\_65, Bonanza\_60, Bradshaw\_59, Brewer\_125, Bryce\_58, Buck\_134, Budgie\_142, ChosenOne\_134, ChotaBhai\_137, Cjw1\_131, Command613\_135, Contagion\_129, Cookies\_134, CosmicSans\_59, CosmicSans\_65, Cosmo\_165, CrystalP\_133, Czyszczonek\_133, Daikon\_135, Dinger\_58, DoctorDiddles\_131, DrDrey\_136, Dusk\_134, Easy2Say\_135, Elite2014\_133, Emmina\_134, EniyanLRS\_157, Erik\_59, Espica\_60, Eureka\_133, Filch\_135, FireRed\_136, Flypotenuse\_128, FoghornLeghorn\_131, Gator\_135, Gemini\_139, Gibbles\_111, Glexan\_137, GoldenSpark\_138, Gollum\_59, GooberAzure\_136, Greep\_137, HanKaySha\_133, Harella\_139, Harlequin\_59, Highbury\_129, Hiro\_59, Holt\_139, Hoonter\_136, Hopey\_132, HuffyPuff\_135, IHOP\_137, Icee\_138, Inca\_132, JeTaime\_131, Jester\_58, Kampe\_109, Kanye\_130, Kostya\_134, Krishelle\_59, Lilac\_131, Lilizi\_134, Lillie\_59, Lillie\_65, Lilpickle\_133, MPhalcon\_134, MadamMonkfish\_133, Marshmallow\_134, MaryV\_150, Maxxinista\_135, Megatron06\_49, Mindy\_136, Miniwave\_127, Misfit\_133, Moldemort\_136, Mosby\_130, Murica\_137, Murphy\_132, Myrale\_134, Naiad\_58, Naiad\_64, Nala\_135, Nancinator\_58, Natosaleda\_58, Natosaleda\_64, NelitzaMV\_131, Nimrod\_133, NoSleep\_133, NonchalantPear\_132, Oaker\_47, Orchid\_108, OrionPax\_129, Palpatine\_133, Paperbeatsrock\_132, Partridge\_58, Partridge\_66, Pat3\_133, PatrickStar\_109, Phaja\_137, Pharsalus\_131, PhatBacter\_136, Phaux\_135, Phrankenstein\_59, Phrux\_129, Policronamos\_134, Ptowny\_127, Pumpkin\_133, Quallification\_134, RER2\_53, RER2\_59, RGL3\_51, RGL3\_60, Rakim\_134, Rasputin\_59, RexFury\_58, RexFury\_64, Rhodalysa\_59, Rhodalysa\_65, RiverMonster\_132, RobinSparkles\_118, Saints25\_129, ShamWow\_133, ShereKhan\_133, Shuman\_60, Simpliphy\_132, SirDuracell\_136, SophKB\_131, Sotrice96\_138, StCroix\_58, StCroix\_64, Stank\_137, Stark\_131, StellaBean\_131, StolenFromERC\_136, StormChicken\_135, Swann\_59, TBrady12\_138, TWAMP\_59, TWAMP\_65, Takoda\_59, Tarkin\_132, TeardropMSU\_134, Terminus\_136, Toto\_131, Traaww1\_129, Tuco\_139, UhSalsa\_59, Wiggins\_136, Wildcat\_164, Willez\_130, Xandras\_134, YassJohnny\_129,

Yogi\_60, Yogi\_66, Yoncess\_58, Yoncess\_64, Youngblood\_137, xkcd\_137,

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

- Alpacados\_64, Amao\_138, AngryOrchard\_63, AppleCloud\_62, Bask21\_138, Belenaria\_66, Bogg\_134, Bonanza\_66, Bradshaw\_65, Bruin\_130, Bryce\_64, BugsBunny\_132, Cactus\_141, Dinger\_65, Dumbo\_134, Elph10\_131, Erik\_65, Espica\_66, FairyPath\_132, Goku\_132, Goldilocks\_139, Gollum\_65, Harlequin\_65, Henry\_135, Hiro\_65, Jester\_64, Kimchi\_139, Krishelle\_65, MISSy\_135, Manda\_134, MollyToe\_127, Nancinator\_64, PaddyBaddy\_130, Petra64142\_135, PhailMary\_62, Phrankenstien\_65, Porky\_135, Rasputin\_65, Rimmer\_130, Sassay\_128, Shuman\_66, Swann\_65, Takoda\_67, TeamEdward\_132, Thresher\_135, Tomaszewski\_127, UhSalsa\_65, Ukulele\_128,

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

- Artu\_11, Artu\_298, Atuin\_20, Atuin\_320, Beckerton\_47, BillNye\_251, BillNye\_5, Bloom\_20, Bloom\_307, BobtimousPrime\_46, BooTeria\_10, BooTeria\_309, BruhMoment\_104, Cborch11\_49, Chaewon\_255, Chaewon\_6, Circinus\_249, Circinus\_4, Damien\_48, DunneganBoMo\_303, DunneganBoMo\_8, E3\_gp93, Emmetator\_302, Emmetator\_8, FloraSnap32\_16, FloraSnap32\_301, FrostedClock\_19, FrostedClock\_304, KSunshine22\_11, KSunshine22\_303, Konstantine\_51, Laure\_21, Laure\_339, LeoJr\_24, LeoJr\_337, Mimi\_18, Mimi\_303, Muntaha\_267, Muntaha\_4, Octobien14\_140, Patbob\_17, Patbob\_303, Phrampa\_15, Phrampa\_299, Phreeze\_46, Predator\_46, Racecar\_19, Racecar\_308, ReginaGlobina\_21, ReginaGlobina\_332, Rockabye\_19, Rockabye\_318, Stewart25555\_12, Talia1610\_18, Talia1610\_304, Thumb\_48, WaddleDee\_299, WaddleDee\_8, Wakanda\_262, Wakanda\_3,

### Summary by start number:

Start 13:

- Found in 37 of 288 ( 12.8% ) of genes in pham
- Manual Annotations of this start: 22 of 241
- Called 59.5% of time when present
- Phage (with cluster) where this start called: Alpacados\_64 (CA), AngryOrchard\_63 (CA), AppleCloud\_62 (CA), Belenaria\_66 (CA), Bonanza\_66 (CA), Bradshaw\_65 (CA), Bryce\_64 (CA), Dinger\_65 (CA), Erik\_65 (CA), Espica\_66 (CA), Gollum\_65 (CA), Harlequin\_65 (CA), Hiro\_65 (CA), Jester\_64 (CA), Krishelle\_65 (CA), Nancinator\_64 (CA), PhailMary\_62 (CA), Phrankenstien\_65 (CA), Rasputin\_65 (CA), Shuman\_66 (CA), Swann\_65 (CA), Takoda\_67 (CA),

Start 14:

- Found in 37 of 288 ( 12.8% ) of genes in pham
- Manual Annotations of this start: 1 of 241
- Called 2.7% of time when present
- Phage (with cluster) where this start called: UhSalsa\_65 (CA),

Start 19:

- Found in 31 of 288 ( 10.8% ) of genes in pham
- Manual Annotations of this start: 14 of 241
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Artu\_11 (FC), Artu\_298 (FC), Bloom\_20 (FC), Bloom\_307 (FC), BooTeria\_10 (FC), BooTeria\_309 (FC), DunneganBoMo\_303 (FC), DunneganBoMo\_8 (FC), Emmetator\_302 (FC), Emmetator\_8 (FC),

FloraSnap32\_16 (FC), FloraSnap32\_301 (FC), FrostedClock\_19 (FC),  
FrostedClock\_304 (FC), KSunshine22\_11 (FC), KSunshine22\_303 (FC), Mimi\_18  
(FC), Mimi\_303 (FC), Patbob\_17 (FC), Patbob\_303 (FC), Phrampa\_15 (FC),  
Phrampa\_299 (FC), Racecar\_19 (FC), Racecar\_308 (FC), Rockabye\_19 (FC),  
Rockabye\_318 (FC), Stewart25555\_12 (FC), Talia1610\_18 (FC), Talia1610\_304  
(FC), WaddleDee\_299 (FC), WaddleDee\_8 (FC),

Start 20:

- Found in 2 of 288 ( 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: Laure\_21 (UNK), Laure\_339 (UNK),

Start 21:

- Found in 89 of 288 ( 30.9% ) of genes in pham
- Manual Annotations of this start: 15 of 241
- Called 21.3% of time when present
- Phage (with cluster) where this start called: Bask21\_138 (E), Bogg\_134 (E),  
Bruin\_130 (E), Cactus\_141 (E), Dumbo\_134 (E), Elph10\_131 (E), Goku\_132 (E),  
Goldilocks\_139 (E), Kimchi\_139 (E), MISSy\_135 (E), PaddyBaddy\_130 (E),  
Petra64142\_135 (E), Porky\_135 (E), Rimmer\_130 (E), Sassay\_128 (E),  
TeamEdward\_132 (E), Thresher\_135 (E), Tomaszewski\_127 (E), Ukulele\_128 (E),

Start 22:

- Found in 1 of 288 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 241
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Manda\_134 (E),

Start 23:

- Found in 6 of 288 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 2 of 241
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Atuin\_20 (FC), Atuin\_320 (FC),  
LeoJr\_24 (FC), LeoJr\_337 (FC), ReginaGlobina\_21 (FC), ReginaGlobina\_332 (FC),

Start 24:

- Found in 1 of 288 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 241
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BruhMoment\_104 (AP3),

Start 25:

- Found in 12 of 288 ( 4.2% ) of genes in pham
- Manual Annotations of this start: 1 of 241
- Called 8.3% of time when present
- Phage (with cluster) where this start called: Henry\_135 (E),

Start 26:

- Found in 8 of 288 ( 2.8% ) of genes in pham
- Manual Annotations of this start: 4 of 241
- Called 50.0% of time when present

- Phage (with cluster) where this start called: BillNye\_251 (BK2), BillNye\_5 (BK2), Circinus\_249 (BK2), Circinus\_4 (BK2),

#### Start 27:

- Found in 4 of 288 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 4 of 241
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Muntaha\_267 (BK2), Muntaha\_4 (BK2), Wakanda\_262 (BK2), Wakanda\_3 (BK2),

#### Start 28:

- Found in 5 of 288 ( 1.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 60.0% of time when present
- Phage (with cluster) where this start called: Chaewon\_255 (BK2), Chaewon\_6 (BK2), E3\_gp93 (singleton),

#### Start 29:

- Found in 1 of 288 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 241
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Octobien14\_140 (DU1),

#### Start 30:

- Found in 8 of 288 ( 2.8% ) of genes in pham
- Manual Annotations of this start: 7 of 241
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Beckerton\_47 (H1), BobtimousPrime\_46 (H1), Cborch11\_49 (H1), Damien\_48 (H1), Konstantine\_51 (H1), Phreeze\_46 (H1), Predator\_46 (H1), Thumb\_48 (H1),

#### Start 31:

- Found in 228 of 288 ( 79.2% ) of genes in pham
- Manual Annotations of this start: 167 of 241
- Called 78.9% of time when present
- Phage (with cluster) where this start called: 244\_134 (E), ABCat\_134 (E), Adnama\_138 (E), Alatin\_58 (CA), Alatin\_64 (CA), Alpacados\_58 (CA), AmericanBeauty\_137 (E), AngryOrchard\_56 (CA), AppleCloud\_56 (CA), Argent26\_138 (E), Asriel\_130 (E), Azrael100\_156 (V), BaboJay\_132 (E), BadStone\_134 (E), Balomoji\_133 (E), Barbarian\_133 (E), Becksu\_131 (E), Belenaria\_60 (CA), Bench\_135 (E), BigBubba\_136 (E), BilboSwaggins\_131 (E), BobbyDazzler\_59 (CA), BobbyDazzler\_65 (CA), Bonanza\_60 (CA), Bradshaw\_59 (CA), Brewer\_125 (E), Bryce\_58 (CA), Buck\_134 (E), Budgie\_142 (E), ChosenOne\_134 (E), ChotaBhai\_137 (E), Cjw1\_131 (E), Command613\_135 (E), Contagion\_129 (E), Cookies\_134 (E), CosmicSans\_59 (CA), CosmicSans\_65 (CA), Cosmo\_165 (V), CrystalP\_133 (E), Czystczon1\_133 (E), Daikon\_135 (E), Dinger\_58 (CA), DoctorDiddles\_131 (E), DrDrey\_136 (E), Dusk\_134 (E), Easy2Say\_135 (E), Elite2014\_133 (E), Emmina\_134 (E), EniyanLRS\_157 (V), Erik\_59 (CA), Espica\_60 (CA), Eureka\_133 (E), Filch\_135 (E), FireRed\_136 (E), Flypotenuse\_128 (E), FoghornLeghorn\_131 (E), Gator\_135 (E), Gemini\_139 (E), Gibbles\_111 (CX), Glexan\_137 (E), GoldenSpark\_138 (E), Gollum\_59 (CA), GooberAzure\_136 (E), Greep\_137 (E), HanKaySha\_133 (E), Harella\_139 (E), Harlequin\_59 (CA), Highbury\_129 (E), Hiro\_59 (CA), Holt\_139 (E), Hoonter\_136 (E), Hopey\_132 (E),

HufflyPuff\_135 (E), IHOP\_137 (E), Icee\_138 (E), Inca\_132 (E), JeTaime\_131 (E), Jester\_58 (CA), Kampe\_109 (CX), Kanye\_130 (E), Kostya\_134 (E), Krishelle\_59 (CA), Lilac\_131 (E), Lilizi\_134 (E), Lillie\_59 (CA), Lillie\_65 (CA), Lilpickle\_133 (E), MPhalcon\_134 (E), MadamMonkfish\_133 (E), Marshmallow\_134 (E), MaryV\_150 (V), Maxxinista\_135 (E), Megatron06\_49 (H1), Mindy\_136 (E), Miniwave\_127 (E), Misfit\_133 (E), Moldemort\_136 (E), Mosby\_130 (E), Murica\_137 (E), Murphy\_132 (E), Myrale\_134 (E), Naiad\_58 (CA), Naiad\_64 (CA), Nala\_135 (E), Nancinator\_58 (CA), Natosaleda\_58 (CA), Natosaleda\_64 (CA), NelitzaMV\_131 (E), Nimrod\_133 (E), NoSleep\_133 (E), NonchalantPear\_132 (E), Oaker\_47 (H1), Orchid\_108 (CX), OrionPax\_129 (E), Palpatine\_133 (E), Paperbeatsrock\_132 (E), Partridge\_58 (CA), Partridge\_66 (CA), Pat3\_133 (E), PatrickStar\_109 (CX), Phaja\_137 (E), Pharsalus\_131 (E), PhatBacter\_136 (E), Phaux\_135 (E), Phrankenstien\_59 (CA), Phrux\_129 (E), Policronamos\_134 (E), Ptowny\_127 (E), Pumpkin\_133 (E), Quallification\_134 (E), RER2\_53 (CA), RER2\_59 (CA), RGL3\_51 (CA), RGL3\_60 (CA), Rakim\_134 (E), Rasputin\_59 (CA), RexFury\_58 (CA), RexFury\_64 (CA), Rhodalysa\_59 (CA), Rhodalysa\_65 (CA), RiverMonster\_132 (E), RobinSparkles\_118 (CX), Saints25\_129 (E), ShamWow\_133 (E), ShereKhan\_133 (E), Shuman\_60 (CA), Simpliphy\_132 (E), SirDuracell\_136 (E), SophKB\_131 (E), Sotrice96\_138 (E), StCroix\_58 (CA), StCroix\_64 (CA), Stank\_137 (E), Stark\_131 (E), StellaBean\_131 (E), StolenFromERC\_136 (E), StormChicken\_135 (E), Swann\_59 (CA), TBrady12\_138 (E), TWAMP\_59 (CA), TWAMP\_65 (CA), Takoda\_59 (CA), Tarkin\_132 (E), TeardropMSU\_134 (E), Terminus\_136 (E), Toto\_131 (E), Traaww1\_129 (E), Tuco\_139 (E), UhSalsa\_59 (CA), Wiggin\_136 (E), Wildcat\_164 (V), Willez\_130 (E), Xandras\_134 (E), YassJohnny\_129 (E), Yogi\_60 (CA), Yogi\_66 (CA), Yoncess\_58 (CA), Yoncess\_64 (CA), Youngblood\_137 (E), xkcd\_137 (E),

Start 35:

- Found in 225 of 288 ( 78.1% ) of genes in pham
- Manual Annotations of this start: 1 of 241
- Called 1.3% of time when present
- Phage (with cluster) where this start called: Amao\_138 (E), FairyPath\_132 (E), MollyToe\_127 (E),

Start 40:

- Found in 108 of 288 ( 37.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 0.9% of time when present
- Phage (with cluster) where this start called: BugsBunny\_132 (E),

### Summary by clusters:

There are 11 clusters represented in this pham: singleton, E, AP3, CA, H1, CX, FC, BK2, V, DU1, UNK,

Info for manual annotations of cluster AP3:

- Start number 24 was manually annotated 1 time for cluster AP3.

Info for manual annotations of cluster BK2:

- Start number 26 was manually annotated 4 times for cluster BK2.
- Start number 27 was manually annotated 4 times for cluster BK2.

Info for manual annotations of cluster CA:

- Start number 13 was manually annotated 22 times for cluster CA.

- Start number 14 was manually annotated 1 time for cluster CA.
- Start number 31 was manually annotated 48 times for cluster CA.

Info for manual annotations of cluster CX:

- Start number 31 was manually annotated 5 times for cluster CX.

Info for manual annotations of cluster DU1:

- Start number 29 was manually annotated 1 time for cluster DU1.

Info for manual annotations of cluster E:

- Start number 21 was manually annotated 15 times for cluster E.
- Start number 22 was manually annotated 1 time for cluster E.
- Start number 25 was manually annotated 1 time for cluster E.
- Start number 31 was manually annotated 107 times for cluster E.
- Start number 35 was manually annotated 1 time for cluster E.

Info for manual annotations of cluster FC:

- Start number 19 was manually annotated 14 times for cluster FC.
- Start number 23 was manually annotated 2 times for cluster FC.

Info for manual annotations of cluster H1:

- Start number 30 was manually annotated 7 times for cluster H1.
- Start number 31 was manually annotated 2 times for cluster H1.

Info for manual annotations of cluster V:

- Start number 31 was manually annotated 5 times for cluster V.

### ***Gene Information:***

Gene: 244\_134 Start: 70917, Stop: 70588, Start Num: 31

Candidate Starts for 244\_134:

(Start: 21 @70935 has 15 MA's), (Start: 31 @70917 has 167 MA's), (33, 70896), (Start: 35 @70884 has 1 MA's), (36, 70881), (40, 70860), (41, 70845),

Gene: ABCat\_134 Start: 72465, Stop: 72136, Start Num: 31

Candidate Starts for ABCat\_134:

(Start: 31 @72465 has 167 MA's), (33, 72444), (Start: 35 @72432 has 1 MA's), (36, 72429), (40, 72408), (41, 72393),

Gene: Adnama\_138 Start: 71581, Stop: 71252, Start Num: 31

Candidate Starts for Adnama\_138:

(Start: 21 @71599 has 15 MA's), (Start: 31 @71581 has 167 MA's), (33, 71560), (Start: 35 @71548 has 1 MA's), (36, 71545), (40, 71524), (41, 71509),

Gene: Alatin\_58 Start: 41201, Stop: 40866, Start Num: 31

Candidate Starts for Alatin\_58:

(Start: 31 @41201 has 167 MA's), (34, 41177), (Start: 35 @41168 has 1 MA's), (37, 41162), (41, 41129), (44, 41099), (48, 41078), (59, 41021), (81, 40871),

Gene: Alatin\_64 Start: 43606, Stop: 43202, Start Num: 31

Candidate Starts for Alatin\_64:

(Start: 13 @43678 has 22 MA's), (Start: 14 @43666 has 1 MA's), (Start: 31 @43606 has 167 MA's), (36, 43564), (48, 43477), (56, 43441), (60, 43414), (83, 43264), (86, 43222),

Gene: Alpacados\_58 Start: 41024, Stop: 40689, Start Num: 31

Candidate Starts for Alpacados\_58:

(Start: 31 @41024 has 167 MA's), (Start: 35 @40991 has 1 MA's), (37, 40985), (41, 40952), (44, 40922), (60, 40835), (81, 40694),

Gene: Alpacados\_64 Start: 43501, Stop: 43025, Start Num: 13

Candidate Starts for Alpacados\_64:

(Start: 13 @43501 has 22 MA's), (Start: 14 @43489 has 1 MA's), (Start: 31 @43429 has 167 MA's), (36, 43387), (48, 43300), (56, 43264), (60, 43237), (83, 43087), (86, 43045),

Gene: Amao\_138 Start: 72256, Stop: 71960, Start Num: 35

Candidate Starts for Amao\_138:

(3, 72445), (6, 72421), (7, 72391), (12, 72364), (Start: 31 @72289 has 167 MA's), (33, 72268), (Start: 35 @72256 has 1 MA's), (41, 72217), (44, 72187), (62, 72085),

Gene: AmericanBeauty\_137 Start: 71623, Stop: 71294, Start Num: 31

Candidate Starts for AmericanBeauty\_137:

(Start: 21 @71641 has 15 MA's), (Start: 31 @71623 has 167 MA's), (33, 71602), (Start: 35 @71590 has 1 MA's), (36, 71587), (40, 71566), (41, 71551),

Gene: AngryOrchard\_63 Start: 43723, Stop: 43247, Start Num: 13

Candidate Starts for AngryOrchard\_63:

(Start: 13 @43723 has 22 MA's), (Start: 14 @43711 has 1 MA's), (Start: 31 @43651 has 167 MA's), (56, 43486), (60, 43459), (83, 43309),

Gene: AngryOrchard\_56 Start: 41255, Stop: 40920, Start Num: 31

Candidate Starts for AngryOrchard\_56:

(Start: 31 @41255 has 167 MA's), (34, 41231), (Start: 35 @41222 has 1 MA's), (37, 41216), (41, 41183), (60, 41066), (81, 40925),

Gene: AppleCloud\_62 Start: 43395, Stop: 42919, Start Num: 13

Candidate Starts for AppleCloud\_62:

(Start: 13 @43395 has 22 MA's), (Start: 14 @43383 has 1 MA's), (Start: 31 @43323 has 167 MA's), (36, 43281), (48, 43194), (56, 43158), (60, 43131), (83, 42981), (86, 42939),

Gene: AppleCloud\_56 Start: 40918, Stop: 40583, Start Num: 31

Candidate Starts for AppleCloud\_56:

(1, 41137), (Start: 31 @40918 has 167 MA's), (34, 40894), (Start: 35 @40885 has 1 MA's), (37, 40879), (41, 40846), (44, 40816), (48, 40795), (59, 40738), (81, 40588),

Gene: Argent26\_138 Start: 71505, Stop: 71176, Start Num: 31

Candidate Starts for Argent26\_138:

(Start: 21 @71523 has 15 MA's), (Start: 31 @71505 has 167 MA's), (33, 71484), (Start: 35 @71472 has 1 MA's), (36, 71469), (40, 71448), (41, 71433),

Gene: Artu\_298 Start: 183957, Stop: 184358, Start Num: 19

Candidate Starts for Artu\_298:

(Start: 19 @183957 has 14 MA's), (46, 184113), (53, 184146), (68, 184257),

Gene: Artu\_11 Start: 4803, Stop: 5204, Start Num: 19  
Candidate Starts for Artu\_11:  
(Start: 19 @4803 has 14 MA's), (46, 4959), (53, 4992), (68, 5103),

Gene: Asriel\_130 Start: 69770, Stop: 69441, Start Num: 31  
Candidate Starts for Asriel\_130:  
(Start: 25 @69785 has 1 MA's), (Start: 31 @69770 has 167 MA's), (Start: 35 @69737 has 1 MA's), (41, 69698), (44, 69668),

Gene: Atuin\_20 Start: 9989, Stop: 10360, Start Num: 23  
Candidate Starts for Atuin\_20:  
(Start: 23 @9989 has 2 MA's), (55, 10175), (67, 10268), (70, 10286),

Gene: Atuin\_320 Start: 186877, Stop: 187248, Start Num: 23  
Candidate Starts for Atuin\_320:  
(Start: 23 @186877 has 2 MA's), (55, 187063), (67, 187156), (70, 187174),

Gene: Azrael100\_156 Start: 73905, Stop: 73585, Start Num: 31  
Candidate Starts for Azrael100\_156:  
(Start: 31 @73905 has 167 MA's), (Start: 35 @73872 has 1 MA's), (48, 73782), (62, 73701), (63, 73698), (66, 73674), (78, 73596),

Gene: BaboJay\_132 Start: 72084, Stop: 71755, Start Num: 31  
Candidate Starts for BaboJay\_132:  
(Start: 21 @72102 has 15 MA's), (Start: 31 @72084 has 167 MA's), (33, 72063), (Start: 35 @72051 has 1 MA's), (36, 72048), (40, 72027), (41, 72012),

Gene: BadStone\_134 Start: 72013, Stop: 71684, Start Num: 31  
Candidate Starts for BadStone\_134:  
(Start: 31 @72013 has 167 MA's), (33, 71992), (Start: 35 @71980 has 1 MA's), (36, 71977), (40, 71956), (41, 71941),

Gene: Balomoji\_133 Start: 71559, Stop: 71230, Start Num: 31  
Candidate Starts for Balomoji\_133:  
(Start: 25 @71574 has 1 MA's), (Start: 31 @71559 has 167 MA's), (Start: 35 @71526 has 1 MA's), (41, 71487), (44, 71457),

Gene: Barbarian\_133 Start: 69770, Stop: 69441, Start Num: 31  
Candidate Starts for Barbarian\_133:  
(Start: 25 @69785 has 1 MA's), (Start: 31 @69770 has 167 MA's), (Start: 35 @69737 has 1 MA's), (41, 69698), (44, 69668),

Gene: Bask21\_138 Start: 70954, Stop: 70607, Start Num: 21  
Candidate Starts for Bask21\_138:  
(Start: 21 @70954 has 15 MA's), (Start: 31 @70936 has 167 MA's), (33, 70915), (Start: 35 @70903 has 1 MA's), (36, 70900), (40, 70879), (41, 70864),

Gene: Beckerton\_47 Start: 40622, Stop: 40957, Start Num: 30  
Candidate Starts for Beckerton\_47:  
(Start: 26 @40610 has 4 MA's), (Start: 30 @40622 has 7 MA's), (Start: 35 @40655 has 1 MA's), (44, 40724), (54, 40775), (62, 40826),

Gene: Becksu\_131 Start: 71737, Stop: 71408, Start Num: 31

Candidate Starts for Becksu\_131:

(3, 71893), (4, 71887), (5, 71881), (6, 71869), (8, 71836), (9, 71830), (11, 71815), (18, 71770), (Start: 31 @71737 has 167 MA's), (33, 71716), (Start: 35 @71704 has 1 MA's), (36, 71701), (40, 71680), (41, 71665),

Gene: Belenaria\_66 Start: 43543, Stop: 43067, Start Num: 13

Candidate Starts for Belenaria\_66:

(Start: 13 @43543 has 22 MA's), (Start: 14 @43531 has 1 MA's), (Start: 31 @43471 has 167 MA's), (36, 43429), (48, 43342), (56, 43306), (60, 43279), (83, 43129), (86, 43087),

Gene: Belenaria\_60 Start: 41066, Stop: 40731, Start Num: 31

Candidate Starts for Belenaria\_60:

(1, 41285), (Start: 31 @41066 has 167 MA's), (34, 41042), (Start: 35 @41033 has 1 MA's), (37, 41027), (41, 40994), (44, 40964), (48, 40943), (59, 40886), (81, 40736),

Gene: Bench\_135 Start: 71810, Stop: 71481, Start Num: 31

Candidate Starts for Bench\_135:

(Start: 21 @71828 has 15 MA's), (Start: 31 @71810 has 167 MA's), (33, 71789), (Start: 35 @71777 has 1 MA's), (36, 71774), (40, 71753), (41, 71738),

Gene: BigBubba\_136 Start: 71015, Stop: 70686, Start Num: 31

Candidate Starts for BigBubba\_136:

(Start: 21 @71033 has 15 MA's), (Start: 31 @71015 has 167 MA's), (Start: 35 @70982 has 1 MA's), (36, 70979), (40, 70958), (41, 70943),

Gene: BilboSwaggins\_131 Start: 72050, Stop: 71721, Start Num: 31

Candidate Starts for BilboSwaggins\_131:

(Start: 25 @72065 has 1 MA's), (Start: 31 @72050 has 167 MA's), (Start: 35 @72017 has 1 MA's), (41, 71978), (44, 71948),

Gene: BillNye\_5 Start: 1694, Stop: 2023, Start Num: 26

Candidate Starts for BillNye\_5:

(Start: 26 @1694 has 4 MA's), (28, 1700), (33, 1730), (Start: 35 @1742 has 1 MA's), (41, 1781), (63, 1907), (66, 1931),

Gene: BillNye\_251 Start: 126516, Stop: 126845, Start Num: 26

Candidate Starts for BillNye\_251:

(Start: 26 @126516 has 4 MA's), (28, 126522), (33, 126552), (Start: 35 @126564 has 1 MA's), (41, 126603), (63, 126729), (66, 126753),

Gene: Bloom\_20 Start: 9417, Stop: 9824, Start Num: 19

Candidate Starts for Bloom\_20:

(Start: 19 @9417 has 14 MA's), (Start: 35 @9483 has 1 MA's), (41, 9525), (47, 9579), (53, 9606), (66, 9708), (74, 9753), (80, 9804),

Gene: Bloom\_307 Start: 182892, Stop: 183299, Start Num: 19

Candidate Starts for Bloom\_307:

(Start: 19 @182892 has 14 MA's), (Start: 35 @182958 has 1 MA's), (41, 183000), (47, 183054), (53, 183081), (66, 183183), (74, 183228), (80, 183279),

Gene: BobbyDazzler\_59 Start: 41171, Stop: 40836, Start Num: 31

Candidate Starts for BobbyDazzler\_59:

(Start: 31 @41171 has 167 MA's), (Start: 35 @41138 has 1 MA's), (37, 41132), (41, 41099), (44, 41069), (60, 40982), (81, 40841),

Gene: BobbyDazzler\_65 Start: 43577, Stop: 43173, Start Num: 31

Candidate Starts for BobbyDazzler\_65:

(Start: 13 @43649 has 22 MA's), (Start: 14 @43637 has 1 MA's), (Start: 31 @43577 has 167 MA's), (36, 43535), (48, 43448), (56, 43412), (60, 43385), (83, 43235), (86, 43193),

Gene: BobtimousPrime\_46 Start: 40584, Stop: 40919, Start Num: 30

Candidate Starts for BobtimousPrime\_46:

(Start: 26 @40572 has 4 MA's), (Start: 30 @40584 has 7 MA's), (Start: 35 @40617 has 1 MA's), (44, 40686), (54, 40737), (62, 40788),

Gene: Bogg\_134 Start: 71566, Stop: 71219, Start Num: 21

Candidate Starts for Bogg\_134:

(Start: 21 @71566 has 15 MA's), (Start: 31 @71548 has 167 MA's), (33, 71527), (Start: 35 @71515 has 1 MA's), (36, 71512), (40, 71491), (41, 71476),

Gene: Bonanza\_66 Start: 43953, Stop: 43477, Start Num: 13

Candidate Starts for Bonanza\_66:

(Start: 13 @43953 has 22 MA's), (Start: 14 @43941 has 1 MA's), (Start: 31 @43881 has 167 MA's), (36, 43839), (48, 43752), (56, 43716), (60, 43689), (83, 43539), (86, 43497),

Gene: Bonanza\_60 Start: 41476, Stop: 41141, Start Num: 31

Candidate Starts for Bonanza\_60:

(Start: 31 @41476 has 167 MA's), (Start: 35 @41443 has 1 MA's), (37, 41437), (41, 41404), (44, 41374), (60, 41287), (81, 41146),

Gene: BooTeria\_309 Start: 183468, Stop: 183869, Start Num: 19

Candidate Starts for BooTeria\_309:

(Start: 19 @183468 has 14 MA's), (46, 183624), (53, 183657), (68, 183768),

Gene: BooTeria\_10 Start: 4559, Stop: 4960, Start Num: 19

Candidate Starts for BooTeria\_10:

(Start: 19 @4559 has 14 MA's), (46, 4715), (53, 4748), (68, 4859),

Gene: Bradshaw\_65 Start: 43611, Stop: 43135, Start Num: 13

Candidate Starts for Bradshaw\_65:

(Start: 13 @43611 has 22 MA's), (Start: 14 @43599 has 1 MA's), (Start: 31 @43539 has 167 MA's), (36, 43497), (48, 43410), (56, 43374), (60, 43347), (83, 43197), (86, 43155),

Gene: Bradshaw\_59 Start: 41134, Stop: 40799, Start Num: 31

Candidate Starts for Bradshaw\_59:

(Start: 31 @41134 has 167 MA's), (34, 41110), (Start: 35 @41101 has 1 MA's), (37, 41095), (41, 41062), (44, 41032), (48, 41011), (59, 40954), (81, 40804),

Gene: Brewer\_125 Start: 69738, Stop: 69409, Start Num: 31

Candidate Starts for Brewer\_125:

(2, 69906), (9, 69831), (11, 69816), (18, 69771), (Start: 31 @69738 has 167 MA's), (33, 69717), (Start: 35 @69705 has 1 MA's), (41, 69666),

Gene: BruhMoment\_104 Start: 63229, Stop: 62861, Start Num: 24

Candidate Starts for BruhMoment\_104:

(Start: 24 @63229 has 1 MA's), (Start: 35 @63178 has 1 MA's), (43, 63118), (46, 63088), (55, 63043), (73, 62914),

Gene: Bruin\_130 Start: 70212, Stop: 69865, Start Num: 21

Candidate Starts for Bruin\_130:

(Start: 21 @70212 has 15 MA's), (Start: 31 @70194 has 167 MA's), (33, 70173), (Start: 35 @70161 has 1 MA's), (36, 70158), (40, 70137), (41, 70122),

Gene: Bryce\_58 Start: 40879, Stop: 40544, Start Num: 31

Candidate Starts for Bryce\_58:

(Start: 31 @40879 has 167 MA's), (Start: 35 @40846 has 1 MA's), (37, 40840), (41, 40807), (44, 40777), (60, 40690), (81, 40549),

Gene: Bryce\_64 Start: 43357, Stop: 42881, Start Num: 13

Candidate Starts for Bryce\_64:

(Start: 13 @43357 has 22 MA's), (Start: 14 @43345 has 1 MA's), (Start: 31 @43285 has 167 MA's), (36, 43243), (48, 43156), (56, 43120), (60, 43093), (83, 42943), (86, 42901),

Gene: Buck\_134 Start: 72463, Stop: 72134, Start Num: 31

Candidate Starts for Buck\_134:

(Start: 21 @72481 has 15 MA's), (Start: 31 @72463 has 167 MA's), (33, 72442), (Start: 35 @72430 has 1 MA's), (36, 72427), (40, 72406), (41, 72391),

Gene: Budgie\_142 Start: 72650, Stop: 72321, Start Num: 31

Candidate Starts for Budgie\_142:

(Start: 25 @72665 has 1 MA's), (Start: 31 @72650 has 167 MA's), (Start: 35 @72617 has 1 MA's), (41, 72578), (44, 72548), (62, 72446), (63, 72443),

Gene: BugsBunny\_132 Start: 71452, Stop: 71180, Start Num: 40

Candidate Starts for BugsBunny\_132:

(Start: 21 @71527 has 15 MA's), (Start: 31 @71509 has 167 MA's), (33, 71488), (Start: 35 @71476 has 1 MA's), (36, 71473), (40, 71452), (41, 71437),

Gene: Cactus\_141 Start: 71625, Stop: 71278, Start Num: 21

Candidate Starts for Cactus\_141:

(Start: 21 @71625 has 15 MA's), (Start: 31 @71607 has 167 MA's), (33, 71586), (Start: 35 @71574 has 1 MA's), (36, 71571), (40, 71550), (41, 71535),

Gene: Cborch11\_49 Start: 40138, Stop: 40473, Start Num: 30

Candidate Starts for Cborch11\_49:

(Start: 30 @40138 has 7 MA's), (Start: 35 @40171 has 1 MA's), (38, 40189), (44, 40240), (62, 40342), (64, 40351),

Gene: Chaewon\_6 Start: 1449, Stop: 1772, Start Num: 28

Candidate Starts for Chaewon\_6:

(28, 1449), (Start: 35 @1491 has 1 MA's), (41, 1530), (45, 1566), (58, 1623), (67, 1686),

Gene: Chaewon\_255 Start: 127176, Stop: 127499, Start Num: 28

Candidate Starts for Chaewon\_255:

(28, 127176), (Start: 35 @127218 has 1 MA's), (41, 127257), (45, 127293), (58, 127350), (67, 127413),

Gene: ChosenOne\_134 Start: 70987, Stop: 70658, Start Num: 31

Candidate Starts for ChosenOne\_134:

(Start: 21 @71005 has 15 MA's), (Start: 31 @70987 has 167 MA's), (33, 70966), (Start: 35 @70954 has 1 MA's), (36, 70951), (40, 70930), (41, 70915),

Gene: ChotaBhai\_137 Start: 71772, Stop: 71443, Start Num: 31

Candidate Starts for ChotaBhai\_137:

(Start: 21 @71790 has 15 MA's), (Start: 31 @71772 has 167 MA's), (33, 71751), (Start: 35 @71739 has 1 MA's), (36, 71736), (40, 71715), (41, 71700),

Gene: Circinus\_4 Start: 1488, Stop: 1817, Start Num: 26

Candidate Starts for Circinus\_4:

(Start: 21 @1479 has 15 MA's), (Start: 26 @1488 has 4 MA's), (33, 1524), (Start: 35 @1536 has 1 MA's), (41, 1575), (63, 1701), (66, 1725),

Gene: Circinus\_249 Start: 125815, Stop: 126144, Start Num: 26

Candidate Starts for Circinus\_249:

(Start: 21 @125806 has 15 MA's), (Start: 26 @125815 has 4 MA's), (33, 125851), (Start: 35 @125863 has 1 MA's), (41, 125902), (63, 126028), (66, 126052),

Gene: Cjw1\_131 Start: 72188, Stop: 71859, Start Num: 31

Candidate Starts for Cjw1\_131:

(Start: 21 @72206 has 15 MA's), (Start: 31 @72188 has 167 MA's), (33, 72167), (Start: 35 @72155 has 1 MA's), (36, 72152), (40, 72131), (41, 72116),

Gene: Command613\_135 Start: 71551, Stop: 71222, Start Num: 31

Candidate Starts for Command613\_135:

(2, 71719), (4, 71701), (8, 71650), (9, 71644), (11, 71629), (18, 71584), (Start: 31 @71551 has 167 MA's), (33, 71530), (Start: 35 @71518 has 1 MA's), (41, 71479), (44, 71449), (62, 71347), (63, 71344),

Gene: Contagion\_129 Start: 70556, Stop: 70227, Start Num: 31

Candidate Starts for Contagion\_129:

(Start: 21 @70574 has 15 MA's), (Start: 31 @70556 has 167 MA's), (33, 70535), (Start: 35 @70523 has 1 MA's), (36, 70520), (40, 70499), (41, 70484),

Gene: Cookies\_134 Start: 72098, Stop: 71769, Start Num: 31

Candidate Starts for Cookies\_134:

(Start: 21 @72116 has 15 MA's), (Start: 31 @72098 has 167 MA's), (33, 72077), (Start: 35 @72065 has 1 MA's), (36, 72062), (40, 72041), (41, 72026),

Gene: CosmicSans\_65 Start: 43530, Stop: 43126, Start Num: 31

Candidate Starts for CosmicSans\_65:

(Start: 13 @43602 has 22 MA's), (Start: 14 @43590 has 1 MA's), (Start: 31 @43530 has 167 MA's), (36, 43488), (48, 43401), (56, 43365), (60, 43338), (83, 43188), (86, 43146),

Gene: CosmicSans\_59 Start: 41125, Stop: 40790, Start Num: 31

Candidate Starts for CosmicSans\_59:

(Start: 31 @41125 has 167 MA's), (Start: 35 @41092 has 1 MA's), (37, 41086), (41, 41053), (44, 41023), (60, 40936), (81, 40795),

Gene: Cosmo\_165 Start: 74069, Stop: 73749, Start Num: 31

Candidate Starts for Cosmo\_165:

(Start: 31 @74069 has 167 MA's), (Start: 35 @74036 has 1 MA's), (48, 73946), (62, 73865), (63, 73862), (66, 73838), (78, 73760),

Gene: CrystalP\_133 Start: 72050, Stop: 71721, Start Num: 31  
Candidate Starts for CrystalP\_133:  
(Start: 25 @72065 has 1 MA's), (Start: 31 @72050 has 167 MA's), (Start: 35 @72017 has 1 MA's), (41, 71978), (44, 71948),

Gene: Czyszczone1\_133 Start: 71002, Stop: 70673, Start Num: 31  
Candidate Starts for Czyszczone1\_133:  
(Start: 21 @71020 has 15 MA's), (Start: 31 @71002 has 167 MA's), (33, 70981), (Start: 35 @70969 has 1 MA's), (36, 70966), (41, 70930),

Gene: Daikon\_135 Start: 70855, Stop: 70526, Start Num: 31  
Candidate Starts for Daikon\_135:  
(Start: 25 @70870 has 1 MA's), (Start: 31 @70855 has 167 MA's), (Start: 35 @70822 has 1 MA's), (41, 70783), (44, 70753),

Gene: Damien\_48 Start: 40101, Stop: 40436, Start Num: 30  
Candidate Starts for Damien\_48:  
(Start: 30 @40101 has 7 MA's), (Start: 35 @40134 has 1 MA's), (38, 40152), (44, 40203), (62, 40305), (64, 40314),

Gene: Dinger\_65 Start: 43741, Stop: 43265, Start Num: 13  
Candidate Starts for Dinger\_65:  
(Start: 13 @43741 has 22 MA's), (Start: 14 @43729 has 1 MA's), (Start: 31 @43669 has 167 MA's), (56, 43504), (60, 43477), (83, 43327), (85, 43303),

Gene: Dinger\_58 Start: 41269, Stop: 40934, Start Num: 31  
Candidate Starts for Dinger\_58:  
(1, 41488), (Start: 31 @41269 has 167 MA's), (33, 41248), (34, 41245), (Start: 35 @41236 has 1 MA's), (37, 41230), (41, 41197), (44, 41167), (60, 41080), (81, 40939),

Gene: DoctorDiddles\_131 Start: 70509, Stop: 70180, Start Num: 31  
Candidate Starts for DoctorDiddles\_131:  
(Start: 31 @70509 has 167 MA's), (33, 70488), (Start: 35 @70476 has 1 MA's), (36, 70473), (40, 70452), (41, 70437),

Gene: DrDrey\_136 Start: 73246, Stop: 72917, Start Num: 31  
Candidate Starts for DrDrey\_136:  
(2, 73414), (9, 73339), (11, 73324), (18, 73279), (Start: 31 @73246 has 167 MA's), (Start: 35 @73213 has 1 MA's), (36, 73210), (40, 73189), (41, 73174),

Gene: Dumbo\_134 Start: 71215, Stop: 70868, Start Num: 21  
Candidate Starts for Dumbo\_134:  
(Start: 21 @71215 has 15 MA's), (Start: 31 @71197 has 167 MA's), (33, 71176), (Start: 35 @71164 has 1 MA's), (36, 71161), (40, 71140), (41, 71125),

Gene: DunneganBoMo\_303 Start: 183982, Stop: 184383, Start Num: 19  
Candidate Starts for DunneganBoMo\_303:  
(Start: 19 @183982 has 14 MA's), (46, 184138), (53, 184171), (68, 184282),

Gene: DunneganBoMo\_8 Start: 4570, Stop: 4971, Start Num: 19  
Candidate Starts for DunneganBoMo\_8:  
(Start: 19 @4570 has 14 MA's), (46, 4726), (53, 4759), (68, 4870),

Gene: Dusk\_134 Start: 71673, Stop: 71344, Start Num: 31

Candidate Starts for Dusk\_134:

(Start: 31 @71673 has 167 MA's), (33, 71652), (Start: 35 @71640 has 1 MA's), (36, 71637), (40, 71616), (41, 71601),

Gene: E3\_gp93 Start: 53631, Stop: 53960, Start Num: 28

Candidate Starts for E3\_gp93:

(28, 53631), (33, 53661), (39, 53694), (66, 53865), (79, 53949),

Gene: Easy2Say\_135 Start: 71971, Stop: 71642, Start Num: 31

Candidate Starts for Easy2Say\_135:

(Start: 21 @71989 has 15 MA's), (Start: 31 @71971 has 167 MA's), (33, 71950), (Start: 35 @71938 has 1 MA's), (36, 71935), (40, 71914), (41, 71899),

Gene: Elite2014\_133 Start: 70986, Stop: 70657, Start Num: 31

Candidate Starts for Elite2014\_133:

(Start: 21 @71004 has 15 MA's), (Start: 31 @70986 has 167 MA's), (33, 70965), (Start: 35 @70953 has 1 MA's), (36, 70950), (40, 70929), (41, 70914),

Gene: Elph10\_131 Start: 70322, Stop: 69975, Start Num: 21

Candidate Starts for Elph10\_131:

(Start: 21 @70322 has 15 MA's), (Start: 31 @70304 has 167 MA's), (33, 70283), (Start: 35 @70271 has 1 MA's), (36, 70268), (41, 70232),

Gene: Emmetator\_8 Start: 4730, Stop: 5131, Start Num: 19

Candidate Starts for Emmetator\_8:

(Start: 19 @4730 has 14 MA's), (46, 4886), (53, 4919), (68, 5030),

Gene: Emmetator\_302 Start: 183030, Stop: 183431, Start Num: 19

Candidate Starts for Emmetator\_302:

(Start: 19 @183030 has 14 MA's), (46, 183186), (53, 183219), (68, 183330),

Gene: Emmina\_134 Start: 70923, Stop: 70594, Start Num: 31

Candidate Starts for Emmina\_134:

(Start: 21 @70941 has 15 MA's), (Start: 31 @70923 has 167 MA's), (33, 70902), (Start: 35 @70890 has 1 MA's), (36, 70887), (40, 70866), (41, 70851),

Gene: EniyanLRS\_157 Start: 74396, Stop: 74076, Start Num: 31

Candidate Starts for EniyanLRS\_157:

(Start: 31 @74396 has 167 MA's), (Start: 35 @74363 has 1 MA's), (62, 74192), (63, 74189), (66, 74165), (78, 74087),

Gene: Erik\_65 Start: 43433, Stop: 42957, Start Num: 13

Candidate Starts for Erik\_65:

(Start: 13 @43433 has 22 MA's), (Start: 14 @43421 has 1 MA's), (Start: 31 @43361 has 167 MA's), (36, 43319), (48, 43232), (56, 43196), (60, 43169), (83, 43019), (86, 42977),

Gene: Erik\_59 Start: 40956, Stop: 40621, Start Num: 31

Candidate Starts for Erik\_59:

(Start: 31 @40956 has 167 MA's), (Start: 35 @40923 has 1 MA's), (37, 40917), (41, 40884), (44, 40854), (60, 40767), (81, 40626),

Gene: Espica\_66 Start: 43543, Stop: 43067, Start Num: 13

Candidate Starts for Espica\_66:

(Start: 13 @43543 has 22 MA's), (Start: 14 @43531 has 1 MA's), (Start: 31 @43471 has 167 MA's), (36, 43429), (48, 43342), (56, 43306), (60, 43279), (83, 43129), (86, 43087),

Gene: Espica\_60 Start: 41066, Stop: 40731, Start Num: 31

Candidate Starts for Espica\_60:

(1, 41285), (Start: 31 @41066 has 167 MA's), (34, 41042), (Start: 35 @41033 has 1 MA's), (37, 41027), (41, 40994), (44, 40964), (48, 40943), (59, 40886), (81, 40736),

Gene: Eureka\_133 Start: 71851, Stop: 71522, Start Num: 31

Candidate Starts for Eureka\_133:

(Start: 21 @71869 has 15 MA's), (Start: 31 @71851 has 167 MA's), (33, 71830), (Start: 35 @71818 has 1 MA's), (36, 71815), (40, 71794), (41, 71779),

Gene: FairyPath\_132 Start: 71841, Stop: 71545, Start Num: 35

Candidate Starts for FairyPath\_132:

(Start: 31 @71874 has 167 MA's), (33, 71853), (Start: 35 @71841 has 1 MA's), (36, 71838), (40, 71817), (41, 71802),

Gene: Filch\_135 Start: 71126, Stop: 70797, Start Num: 31

Candidate Starts for Filch\_135:

(Start: 31 @71126 has 167 MA's), (33, 71105), (Start: 35 @71093 has 1 MA's), (36, 71090), (40, 71069), (41, 71054),

Gene: FireRed\_136 Start: 71634, Stop: 71305, Start Num: 31

Candidate Starts for FireRed\_136:

(3, 71790), (4, 71784), (5, 71778), (6, 71766), (8, 71733), (9, 71727), (11, 71712), (18, 71667), (Start: 31 @71634 has 167 MA's), (33, 71613), (Start: 35 @71601 has 1 MA's), (41, 71562), (44, 71532), (62, 71430), (63, 71427),

Gene: FloraSnap32\_301 Start: 182314, Stop: 182721, Start Num: 19

Candidate Starts for FloraSnap32\_301:

(Start: 19 @182314 has 14 MA's), (Start: 35 @182380 has 1 MA's), (41, 182422), (46, 182470), (75, 182653), (80, 182701),

Gene: FloraSnap32\_16 Start: 8176, Stop: 8583, Start Num: 19

Candidate Starts for FloraSnap32\_16:

(Start: 19 @8176 has 14 MA's), (Start: 35 @8242 has 1 MA's), (41, 8284), (46, 8332), (75, 8515), (80, 8563),

Gene: Flypotenuse\_128 Start: 70424, Stop: 70095, Start Num: 31

Candidate Starts for Flypotenuse\_128:

(Start: 25 @70439 has 1 MA's), (Start: 31 @70424 has 167 MA's), (Start: 35 @70391 has 1 MA's), (41, 70352), (44, 70322),

Gene: FoghornLeghorn\_131 Start: 70074, Stop: 69745, Start Num: 31

Candidate Starts for FoghornLeghorn\_131:

(Start: 21 @70092 has 15 MA's), (Start: 31 @70074 has 167 MA's), (33, 70053), (Start: 35 @70041 has 1 MA's), (36, 70038), (40, 70017), (41, 70002),

Gene: FrostedClock\_19 Start: 8848, Stop: 9255, Start Num: 19

Candidate Starts for FrostedClock\_19:

(Start: 19 @8848 has 14 MA's), (Start: 35 @8914 has 1 MA's), (41, 8956), (47, 9010), (53, 9037), (66, 9139), (74, 9184), (80, 9235),

Gene: FrostedClock\_304 Start: 182648, Stop: 183055, Start Num: 19

Candidate Starts for FrostedClock\_304:

(Start: 19 @182648 has 14 MA's), (Start: 35 @182714 has 1 MA's), (41, 182756), (47, 182810), (53, 182837), (66, 182939), (74, 182984), (80, 183035),

Gene: Gator\_135 Start: 71964, Stop: 71635, Start Num: 31

Candidate Starts for Gator\_135:

(Start: 31 @71964 has 167 MA's), (33, 71943), (Start: 35 @71931 has 1 MA's), (36, 71928), (40, 71907), (41, 71892),

Gene: Gemini\_139 Start: 72022, Stop: 71693, Start Num: 31

Candidate Starts for Gemini\_139:

(Start: 21 @72040 has 15 MA's), (Start: 31 @72022 has 167 MA's), (33, 72001), (Start: 35 @71989 has 1 MA's), (36, 71986), (40, 71965), (41, 71950),

Gene: Gibbles\_111 Start: 76317, Stop: 75979, Start Num: 31

Candidate Starts for Gibbles\_111:

(15, 76365), (Start: 31 @76317 has 167 MA's), (Start: 35 @76284 has 1 MA's), (44, 76215), (51, 76167), (60, 76113), (62, 76098), (76, 76017),

Gene: Glexan\_137 Start: 72114, Stop: 71785, Start Num: 31

Candidate Starts for Glexan\_137:

(Start: 31 @72114 has 167 MA's), (33, 72093), (Start: 35 @72081 has 1 MA's), (36, 72078), (40, 72057), (41, 72042),

Gene: Goku\_132 Start: 72178, Stop: 71831, Start Num: 21

Candidate Starts for Goku\_132:

(Start: 21 @72178 has 15 MA's), (Start: 31 @72160 has 167 MA's), (33, 72139), (Start: 35 @72127 has 1 MA's), (36, 72124), (40, 72103), (41, 72088),

Gene: GoldenSpark\_138 Start: 71505, Stop: 71176, Start Num: 31

Candidate Starts for GoldenSpark\_138:

(Start: 21 @71523 has 15 MA's), (Start: 31 @71505 has 167 MA's), (33, 71484), (Start: 35 @71472 has 1 MA's), (36, 71469), (40, 71448), (41, 71433),

Gene: Goldilocks\_139 Start: 72119, Stop: 71772, Start Num: 21

Candidate Starts for Goldilocks\_139:

(Start: 21 @72119 has 15 MA's), (Start: 31 @72101 has 167 MA's), (33, 72080), (Start: 35 @72068 has 1 MA's), (36, 72065), (40, 72044), (41, 72029),

Gene: Gollum\_59 Start: 41067, Stop: 40732, Start Num: 31

Candidate Starts for Gollum\_59:

(Start: 31 @41067 has 167 MA's), (Start: 35 @41034 has 1 MA's), (37, 41028), (41, 40995), (44, 40965), (60, 40878), (81, 40737),

Gene: Gollum\_65 Start: 43544, Stop: 43068, Start Num: 13

Candidate Starts for Gollum\_65:

(Start: 13 @43544 has 22 MA's), (Start: 14 @43532 has 1 MA's), (Start: 31 @43472 has 167 MA's), (36, 43430), (48, 43343), (56, 43307), (60, 43280), (83, 43130), (86, 43088),

Gene: GooberAzure\_136 Start: 71505, Stop: 71176, Start Num: 31  
Candidate Starts for GooberAzure\_136:  
(Start: 21 @71523 has 15 MA's), (Start: 31 @71505 has 167 MA's), (33, 71484), (Start: 35 @71472 has 1 MA's), (36, 71469), (40, 71448), (41, 71433),

Gene: Greep\_137 Start: 72326, Stop: 71997, Start Num: 31  
Candidate Starts for Greep\_137:  
(Start: 21 @72344 has 15 MA's), (Start: 31 @72326 has 167 MA's), (33, 72305), (Start: 35 @72293 has 1 MA's), (36, 72290), (40, 72269), (41, 72254),

Gene: HanKaySha\_133 Start: 71459, Stop: 71130, Start Num: 31  
Candidate Starts for HanKaySha\_133:  
(Start: 21 @71477 has 15 MA's), (Start: 31 @71459 has 167 MA's), (33, 71438), (Start: 35 @71426 has 1 MA's), (36, 71423), (40, 71402), (41, 71387),

Gene: Harella\_139 Start: 72630, Stop: 72301, Start Num: 31  
Candidate Starts for Harella\_139:  
(Start: 31 @72630 has 167 MA's), (33, 72609), (Start: 35 @72597 has 1 MA's), (36, 72594), (40, 72573), (41, 72558),

Gene: Harlequin\_59 Start: 40914, Stop: 40579, Start Num: 31  
Candidate Starts for Harlequin\_59:  
(Start: 31 @40914 has 167 MA's), (Start: 35 @40881 has 1 MA's), (37, 40875), (41, 40842), (44, 40812), (48, 40791), (60, 40725), (79, 40590), (81, 40584),

Gene: Harlequin\_65 Start: 43392, Stop: 42916, Start Num: 13  
Candidate Starts for Harlequin\_65:  
(Start: 13 @43392 has 22 MA's), (Start: 14 @43380 has 1 MA's), (Start: 31 @43320 has 167 MA's), (36, 43278), (48, 43191), (56, 43155), (60, 43128), (83, 42978), (86, 42936),

Gene: Henry\_135 Start: 71930, Stop: 71586, Start Num: 25  
Candidate Starts for Henry\_135:  
(Start: 25 @71930 has 1 MA's), (Start: 31 @71915 has 167 MA's), (Start: 35 @71882 has 1 MA's), (41, 71843), (44, 71813),

Gene: Highbury\_129 Start: 69399, Stop: 69070, Start Num: 31  
Candidate Starts for Highbury\_129:  
(Start: 31 @69399 has 167 MA's), (33, 69378), (Start: 35 @69366 has 1 MA's), (36, 69363), (40, 69342), (41, 69327),

Gene: Hiro\_59 Start: 41385, Stop: 41050, Start Num: 31  
Candidate Starts for Hiro\_59:  
(Start: 31 @41385 has 167 MA's), (Start: 35 @41352 has 1 MA's), (37, 41346), (41, 41313), (44, 41283), (60, 41196), (81, 41055),

Gene: Hiro\_65 Start: 43863, Stop: 43387, Start Num: 13  
Candidate Starts for Hiro\_65:  
(Start: 13 @43863 has 22 MA's), (Start: 14 @43851 has 1 MA's), (Start: 31 @43791 has 167 MA's), (36, 43749), (48, 43662), (56, 43626), (60, 43599), (83, 43449), (86, 43407),

Gene: Holt\_139 Start: 72058, Stop: 71729, Start Num: 31  
Candidate Starts for Holt\_139:

(3, 72214), (4, 72208), (5, 72202), (6, 72190), (8, 72157), (9, 72151), (11, 72136), (18, 72091), (Start: 31 @72058 has 167 MA's), (33, 72037), (Start: 35 @72025 has 1 MA's), (41, 71986), (44, 71956), (62, 71854), (63, 71851),

Gene: Hoonter\_136 Start: 71546, Stop: 71217, Start Num: 31

Candidate Starts for Hoonter\_136:

(Start: 31 @71546 has 167 MA's), (33, 71525), (Start: 35 @71513 has 1 MA's), (36, 71510), (40, 71489), (41, 71474),

Gene: Hokey\_132 Start: 71553, Stop: 71224, Start Num: 31

Candidate Starts for Hokey\_132:

(Start: 21 @71571 has 15 MA's), (Start: 31 @71553 has 167 MA's), (33, 71532), (Start: 35 @71520 has 1 MA's), (36, 71517), (40, 71496), (41, 71481),

Gene: HufflyPuff\_135 Start: 71860, Stop: 71531, Start Num: 31

Candidate Starts for HufflyPuff\_135:

(3, 72016), (4, 72010), (5, 72004), (6, 71992), (8, 71959), (9, 71953), (11, 71938), (18, 71893), (Start: 31 @71860 has 167 MA's), (33, 71839), (Start: 35 @71827 has 1 MA's), (41, 71788), (44, 71758), (62, 71656), (63, 71653),

Gene: IHOP\_137 Start: 71489, Stop: 71160, Start Num: 31

Candidate Starts for IHOP\_137:

(Start: 21 @71507 has 15 MA's), (Start: 31 @71489 has 167 MA's), (33, 71468), (Start: 35 @71456 has 1 MA's), (36, 71453), (40, 71432), (41, 71417),

Gene: Icee\_138 Start: 71365, Stop: 71036, Start Num: 31

Candidate Starts for Icee\_138:

(Start: 25 @71380 has 1 MA's), (Start: 31 @71365 has 167 MA's), (Start: 35 @71332 has 1 MA's), (41, 71293),

Gene: Inca\_132 Start: 69509, Stop: 69180, Start Num: 31

Candidate Starts for Inca\_132:

(Start: 21 @69527 has 15 MA's), (Start: 31 @69509 has 167 MA's), (33, 69488), (Start: 35 @69476 has 1 MA's), (36, 69473), (40, 69452), (41, 69437),

Gene: JeTaime\_131 Start: 71025, Stop: 70696, Start Num: 31

Candidate Starts for JeTaime\_131:

(Start: 21 @71043 has 15 MA's), (Start: 31 @71025 has 167 MA's), (33, 71004), (Start: 35 @70992 has 1 MA's), (41, 70953),

Gene: Jester\_64 Start: 43323, Stop: 42847, Start Num: 13

Candidate Starts for Jester\_64:

(Start: 13 @43323 has 22 MA's), (Start: 14 @43311 has 1 MA's), (Start: 31 @43251 has 167 MA's), (36, 43209), (48, 43122), (56, 43086), (60, 43059), (83, 42909), (86, 42867),

Gene: Jester\_58 Start: 40845, Stop: 40510, Start Num: 31

Candidate Starts for Jester\_58:

(Start: 31 @40845 has 167 MA's), (Start: 35 @40812 has 1 MA's), (37, 40806), (41, 40773), (44, 40743), (48, 40722), (60, 40656), (79, 40521), (81, 40515),

Gene: KSunshine22\_11 Start: 5160, Stop: 5561, Start Num: 19

Candidate Starts for KSunshine22\_11:

(Start: 19 @5160 has 14 MA's), (46, 5316), (53, 5349), (68, 5460),

Gene: KSunshine22\_303 Start: 182061, Stop: 182462, Start Num: 19

Candidate Starts for KSunshine22\_303:

(Start: 19 @182061 has 14 MA's), (46, 182217), (53, 182250), (68, 182361),

Gene: Kampe\_109 Start: 75739, Stop: 75401, Start Num: 31

Candidate Starts for Kampe\_109:

(15, 75787), (Start: 31 @75739 has 167 MA's), (Start: 35 @75706 has 1 MA's), (44, 75637), (51, 75589), (60, 75535), (62, 75520), (76, 75439),

Gene: Kanye\_130 Start: 71520, Stop: 71191, Start Num: 31

Candidate Starts for Kanye\_130:

(Start: 21 @71538 has 15 MA's), (Start: 31 @71520 has 167 MA's), (33, 71499), (Start: 35 @71487 has 1 MA's), (36, 71484), (40, 71463), (41, 71448),

Gene: Kimchi\_139 Start: 72244, Stop: 71897, Start Num: 21

Candidate Starts for Kimchi\_139:

(Start: 21 @72244 has 15 MA's), (Start: 31 @72226 has 167 MA's), (33, 72205), (Start: 35 @72193 has 1 MA's), (36, 72190), (40, 72169), (41, 72154),

Gene: Konstantine\_51 Start: 40932, Stop: 41267, Start Num: 30

Candidate Starts for Konstantine\_51:

(Start: 26 @40920 has 4 MA's), (Start: 30 @40932 has 7 MA's), (Start: 35 @40965 has 1 MA's), (44, 41034), (54, 41085), (62, 41136), (64, 41145),

Gene: Kostya\_134 Start: 71590, Stop: 71261, Start Num: 31

Candidate Starts for Kostya\_134:

(2, 71758), (4, 71740), (8, 71689), (9, 71683), (11, 71668), (18, 71623), (Start: 31 @71590 has 167 MA's), (33, 71569), (Start: 35 @71557 has 1 MA's), (41, 71518), (44, 71488), (62, 71386), (63, 71383),

Gene: Krishelle\_59 Start: 41494, Stop: 41159, Start Num: 31

Candidate Starts for Krishelle\_59:

(Start: 31 @41494 has 167 MA's), (34, 41470), (Start: 35 @41461 has 1 MA's), (37, 41455), (41, 41422), (44, 41392), (48, 41371), (59, 41314), (81, 41164),

Gene: Krishelle\_65 Start: 43971, Stop: 43495, Start Num: 13

Candidate Starts for Krishelle\_65:

(Start: 13 @43971 has 22 MA's), (Start: 14 @43959 has 1 MA's), (Start: 31 @43899 has 167 MA's), (36, 43857), (48, 43770), (56, 43734), (60, 43707), (83, 43557), (86, 43515),

Gene: Laure\_339 Start: 177636, Stop: 178016, Start Num: 20

Candidate Starts for Laure\_339:

(20, 177636), (33, 177684), (43, 177756), (46, 177786), (57, 177846), (71, 177951), (72, 177954), (77, 177978),

Gene: Laure\_21 Start: 9288, Stop: 9668, Start Num: 20

Candidate Starts for Laure\_21:

(20, 9288), (33, 9336), (43, 9408), (46, 9438), (57, 9498), (71, 9603), (72, 9606), (77, 9630),

Gene: LeoJr\_337 Start: 187594, Stop: 187965, Start Num: 23

Candidate Starts for LeoJr\_337:

(Start: 23 @187594 has 2 MA's), (55, 187780), (67, 187873), (70, 187891),

Gene: LeoJr\_24 Start: 10291, Stop: 10662, Start Num: 23  
Candidate Starts for LeoJr\_24:  
(Start: 23 @10291 has 2 MA's), (55, 10477), (67, 10570), (70, 10588),

Gene: Lilac\_131 Start: 72003, Stop: 71674, Start Num: 31  
Candidate Starts for Lilac\_131:  
(Start: 21 @72021 has 15 MA's), (Start: 31 @72003 has 167 MA's), (33, 71982), (Start: 35 @71970 has 1 MA's), (36, 71967), (40, 71946), (41, 71931),

Gene: Lilizi\_134 Start: 71733, Stop: 71404, Start Num: 31  
Candidate Starts for Lilizi\_134:  
(Start: 21 @71751 has 15 MA's), (Start: 31 @71733 has 167 MA's), (33, 71712), (Start: 35 @71700 has 1 MA's), (36, 71697), (40, 71676), (41, 71661),

Gene: Lillie\_59 Start: 41125, Stop: 40790, Start Num: 31  
Candidate Starts for Lillie\_59:  
(Start: 31 @41125 has 167 MA's), (Start: 35 @41092 has 1 MA's), (37, 41086), (41, 41053), (44, 41023), (60, 40936), (81, 40795),

Gene: Lillie\_65 Start: 43530, Stop: 43126, Start Num: 31  
Candidate Starts for Lillie\_65:  
(Start: 13 @43602 has 22 MA's), (Start: 14 @43590 has 1 MA's), (Start: 31 @43530 has 167 MA's), (36, 43488), (48, 43401), (56, 43365), (60, 43338), (83, 43188), (86, 43146),

Gene: Lilpickle\_133 Start: 70986, Stop: 70657, Start Num: 31  
Candidate Starts for Lilpickle\_133:  
(Start: 21 @71004 has 15 MA's), (Start: 31 @70986 has 167 MA's), (33, 70965), (Start: 35 @70953 has 1 MA's), (36, 70950), (40, 70929), (41, 70914),

Gene: MISSy\_135 Start: 71918, Stop: 71571, Start Num: 21  
Candidate Starts for MISSy\_135:  
(Start: 21 @71918 has 15 MA's), (Start: 31 @71900 has 167 MA's), (33, 71879), (Start: 35 @71867 has 1 MA's), (36, 71864), (40, 71843), (41, 71828),

Gene: MPhalcon\_134 Start: 71318, Stop: 70989, Start Num: 31  
Candidate Starts for MPhalcon\_134:  
(Start: 21 @71336 has 15 MA's), (Start: 31 @71318 has 167 MA's), (33, 71297), (Start: 35 @71285 has 1 MA's), (36, 71282), (40, 71261), (41, 71246),

Gene: MadamMonkfish\_133 Start: 70994, Stop: 70665, Start Num: 31  
Candidate Starts for MadamMonkfish\_133:  
(Start: 21 @71012 has 15 MA's), (Start: 31 @70994 has 167 MA's), (33, 70973), (Start: 35 @70961 has 1 MA's), (36, 70958), (40, 70937), (41, 70922),

Gene: Manda\_134 Start: 71452, Stop: 71105, Start Num: 22  
Candidate Starts for Manda\_134:  
(Start: 22 @71452 has 1 MA's), (Start: 31 @71434 has 167 MA's), (33, 71413), (Start: 35 @71401 has 1 MA's), (36, 71398), (41, 71362), (44, 71332), (62, 71230), (63, 71227),

Gene: Marshmallow\_134 Start: 72179, Stop: 71850, Start Num: 31  
Candidate Starts for Marshmallow\_134:  
(Start: 21 @72197 has 15 MA's), (Start: 31 @72179 has 167 MA's), (33, 72158), (Start: 35 @72146 has 1 MA's), (36, 72143), (40, 72122), (41, 72107),

Gene: MaryV\_150 Start: 72246, Stop: 71926, Start Num: 31

Candidate Starts for MaryV\_150:

(Start: 31 @72246 has 167 MA's), (Start: 35 @72213 has 1 MA's), (48, 72123), (62, 72042), (63, 72039), (66, 72015), (78, 71937),

Gene: Maxxinista\_135 Start: 70947, Stop: 70618, Start Num: 31

Candidate Starts for Maxxinista\_135:

(Start: 21 @70965 has 15 MA's), (Start: 31 @70947 has 167 MA's), (33, 70926), (Start: 35 @70914 has 1 MA's), (36, 70911), (40, 70890), (41, 70875),

Gene: Megatron06\_49 Start: 40677, Stop: 41012, Start Num: 31

Candidate Starts for Megatron06\_49:

(10, 40596), (Start: 31 @40677 has 167 MA's), (Start: 35 @40710 has 1 MA's), (38, 40728), (44, 40779), (62, 40881), (64, 40890),

Gene: Mimi\_18 Start: 8854, Stop: 9261, Start Num: 19

Candidate Starts for Mimi\_18:

(Start: 19 @8854 has 14 MA's), (Start: 35 @8920 has 1 MA's), (41, 8962), (47, 9016), (53, 9043), (60, 9103), (66, 9145), (74, 9190), (80, 9241),

Gene: Mimi\_303 Start: 181514, Stop: 181921, Start Num: 19

Candidate Starts for Mimi\_303:

(Start: 19 @181514 has 14 MA's), (Start: 35 @181580 has 1 MA's), (41, 181622), (47, 181676), (53, 181703), (60, 181763), (66, 181805), (74, 181850), (80, 181901),

Gene: Mindy\_136 Start: 71343, Stop: 71014, Start Num: 31

Candidate Starts for Mindy\_136:

(2, 71511), (9, 71436), (11, 71421), (18, 71376), (Start: 31 @71343 has 167 MA's), (33, 71322), (Start: 35 @71310 has 1 MA's), (41, 71271),

Gene: Miniwave\_127 Start: 71043, Stop: 70714, Start Num: 31

Candidate Starts for Miniwave\_127:

(Start: 21 @71061 has 15 MA's), (Start: 31 @71043 has 167 MA's), (33, 71022), (Start: 35 @71010 has 1 MA's), (36, 71007), (40, 70986), (41, 70971),

Gene: Misfit\_133 Start: 72192, Stop: 71863, Start Num: 31

Candidate Starts for Misfit\_133:

(Start: 21 @72210 has 15 MA's), (Start: 31 @72192 has 167 MA's), (33, 72171), (Start: 35 @72159 has 1 MA's), (36, 72156), (40, 72135), (41, 72120),

Gene: Moldemort\_136 Start: 71613, Stop: 71284, Start Num: 31

Candidate Starts for Moldemort\_136:

(Start: 21 @71631 has 15 MA's), (Start: 31 @71613 has 167 MA's), (33, 71592), (Start: 35 @71580 has 1 MA's), (36, 71577), (40, 71556), (41, 71541),

Gene: MollyToe\_127 Start: 68938, Stop: 68642, Start Num: 35

Candidate Starts for MollyToe\_127:

(2, 69139), (9, 69064), (11, 69049), (18, 69004), (Start: 31 @68971 has 167 MA's), (33, 68950), (Start: 35 @68938 has 1 MA's), (41, 68899),

Gene: Mosby\_130 Start: 70556, Stop: 70227, Start Num: 31

Candidate Starts for Mosby\_130:

(Start: 21 @70574 has 15 MA's), (Start: 31 @70556 has 167 MA's), (33, 70535), (Start: 35 @70523 has 1 MA's), (36, 70520), (40, 70499), (41, 70484),

Gene: Muntaha\_267 Start: 126982, Stop: 127302, Start Num: 27

Candidate Starts for Muntaha\_267:

(Start: 27 @126982 has 4 MA's), (33, 127015), (Start: 35 @127027 has 1 MA's), (41, 127066), (48, 127117), (61, 127177), (67, 127222), (71, 127249), (72, 127252),

Gene: Muntaha\_4 Start: 1305, Stop: 1625, Start Num: 27

Candidate Starts for Muntaha\_4:

(Start: 27 @1305 has 4 MA's), (33, 1338), (Start: 35 @1350 has 1 MA's), (41, 1389), (48, 1440), (61, 1500), (67, 1545), (71, 1572), (72, 1575),

Gene: Murica\_137 Start: 72894, Stop: 72565, Start Num: 31

Candidate Starts for Murica\_137:

(3, 73050), (4, 73044), (5, 73038), (6, 73026), (8, 72993), (9, 72987), (11, 72972), (18, 72927), (Start: 31 @72894 has 167 MA's), (33, 72873), (Start: 35 @72861 has 1 MA's), (41, 72822), (44, 72792), (62, 72690), (63, 72687),

Gene: Murphy\_132 Start: 71321, Stop: 70992, Start Num: 31

Candidate Starts for Murphy\_132:

(Start: 31 @71321 has 167 MA's), (33, 71300), (Start: 35 @71288 has 1 MA's), (36, 71285), (40, 71264), (41, 71249),

Gene: Myrale\_134 Start: 72286, Stop: 71957, Start Num: 31

Candidate Starts for Myrale\_134:

(2, 72454), (9, 72379), (11, 72364), (18, 72319), (Start: 31 @72286 has 167 MA's), (Start: 35 @72253 has 1 MA's), (36, 72250), (40, 72229), (41, 72214),

Gene: Naiad\_64 Start: 43552, Stop: 43148, Start Num: 31

Candidate Starts for Naiad\_64:

(Start: 13 @43624 has 22 MA's), (Start: 14 @43612 has 1 MA's), (Start: 31 @43552 has 167 MA's), (36, 43510), (48, 43423), (56, 43387), (60, 43360), (83, 43210), (86, 43168),

Gene: Naiad\_58 Start: 41147, Stop: 40812, Start Num: 31

Candidate Starts for Naiad\_58:

(Start: 31 @41147 has 167 MA's), (34, 41123), (Start: 35 @41114 has 1 MA's), (37, 41108), (41, 41075), (44, 41045), (48, 41024), (59, 40967), (81, 40817),

Gene: Nala\_135 Start: 71607, Stop: 71278, Start Num: 31

Candidate Starts for Nala\_135:

(Start: 21 @71625 has 15 MA's), (Start: 31 @71607 has 167 MA's), (33, 71586), (Start: 35 @71574 has 1 MA's), (36, 71571), (40, 71550), (41, 71535),

Gene: Nancinator\_64 Start: 42941, Stop: 42465, Start Num: 13

Candidate Starts for Nancinator\_64:

(Start: 13 @42941 has 22 MA's), (Start: 14 @42929 has 1 MA's), (Start: 31 @42869 has 167 MA's), (36, 42827), (48, 42740), (56, 42704), (60, 42677), (83, 42527), (86, 42485),

Gene: Nancinator\_58 Start: 40464, Stop: 40129, Start Num: 31

Candidate Starts for Nancinator\_58:

(Start: 31 @40464 has 167 MA's), (Start: 35 @40431 has 1 MA's), (37, 40425), (41, 40392), (44, 40362), (60, 40275), (81, 40134),

Gene: Natosaleda\_58 Start: 41065, Stop: 40730, Start Num: 31

Candidate Starts for Natosaleda\_58:

(1, 41284), (Start: 31 @41065 has 167 MA's), (34, 41041), (Start: 35 @41032 has 1 MA's), (37, 41026), (41, 40993), (44, 40963), (48, 40942), (59, 40885), (81, 40735),

Gene: Natosaleda\_64 Start: 43470, Stop: 43066, Start Num: 31

Candidate Starts for Natosaleda\_64:

(Start: 13 @43542 has 22 MA's), (Start: 14 @43530 has 1 MA's), (Start: 31 @43470 has 167 MA's), (36, 43428), (48, 43341), (56, 43305), (60, 43278), (83, 43128), (86, 43086),

Gene: NelitzaMV\_131 Start: 69650, Stop: 69321, Start Num: 31

Candidate Starts for NelitzaMV\_131:

(2, 69818), (9, 69743), (11, 69728), (18, 69683), (Start: 31 @69650 has 167 MA's), (33, 69629), (Start: 35 @69617 has 1 MA's), (41, 69578),

Gene: Nimrod\_133 Start: 72106, Stop: 71777, Start Num: 31

Candidate Starts for Nimrod\_133:

(Start: 21 @72124 has 15 MA's), (Start: 31 @72106 has 167 MA's), (33, 72085), (Start: 35 @72073 has 1 MA's), (36, 72070), (40, 72049), (41, 72034),

Gene: NoSleep\_133 Start: 70872, Stop: 70543, Start Num: 31

Candidate Starts for NoSleep\_133:

(Start: 21 @70890 has 15 MA's), (Start: 31 @70872 has 167 MA's), (33, 70851), (Start: 35 @70839 has 1 MA's), (36, 70836), (40, 70815), (41, 70800),

Gene: NonchalantPear\_132 Start: 70598, Stop: 70269, Start Num: 31

Candidate Starts for NonchalantPear\_132:

(Start: 21 @70616 has 15 MA's), (Start: 31 @70598 has 167 MA's), (33, 70577), (Start: 35 @70565 has 1 MA's), (36, 70562), (40, 70541), (41, 70526),

Gene: Oaker\_47 Start: 40392, Stop: 40727, Start Num: 31

Candidate Starts for Oaker\_47:

(10, 40311), (Start: 31 @40392 has 167 MA's), (Start: 35 @40425 has 1 MA's), (44, 40494), (62, 40596), (64, 40605),

Gene: Octobien14\_140 Start: 72798, Stop: 72403, Start Num: 29

Candidate Starts for Octobien14\_140:

(16, 72849), (17, 72840), (Start: 29 @72798 has 1 MA's), (33, 72771), (Start: 35 @72759 has 1 MA's), (38, 72741), (42, 72702), (44, 72690), (62, 72588), (63, 72585), (64, 72579), (66, 72561), (71, 72528), (84, 72420), (85, 72417),

Gene: Orchid\_108 Start: 75740, Stop: 75402, Start Num: 31

Candidate Starts for Orchid\_108:

(15, 75788), (Start: 31 @75740 has 167 MA's), (Start: 35 @75707 has 1 MA's), (44, 75638), (51, 75590), (60, 75536), (62, 75521), (76, 75440),

Gene: OrionPax\_129 Start: 70552, Stop: 70223, Start Num: 31

Candidate Starts for OrionPax\_129:

(Start: 21 @70570 has 15 MA's), (Start: 31 @70552 has 167 MA's), (33, 70531), (Start: 35 @70519 has 1 MA's), (36, 70516), (40, 70495), (41, 70480),

Gene: PaddyBaddy\_130 Start: 70607, Stop: 70260, Start Num: 21

Candidate Starts for PaddyBaddy\_130:

(Start: 21 @70607 has 15 MA's), (Start: 31 @70589 has 167 MA's), (33, 70568), (Start: 35 @70556 has 1 MA's), (36, 70553), (40, 70532), (41, 70517),

Gene: Palpatine\_133 Start: 72112, Stop: 71783, Start Num: 31

Candidate Starts for Palpatine\_133:

(Start: 21 @72130 has 15 MA's), (Start: 31 @72112 has 167 MA's), (33, 72091), (Start: 35 @72079 has 1 MA's), (36, 72076), (40, 72055), (41, 72040),

Gene: Paperbeatsrock\_132 Start: 71721, Stop: 71392, Start Num: 31

Candidate Starts for Paperbeatsrock\_132:

(Start: 21 @71739 has 15 MA's), (Start: 31 @71721 has 167 MA's), (33, 71700), (Start: 35 @71688 has 1 MA's), (36, 71685), (40, 71664), (41, 71649),

Gene: Partridge\_66 Start: 44015, Stop: 43611, Start Num: 31

Candidate Starts for Partridge\_66:

(Start: 13 @44087 has 22 MA's), (Start: 14 @44075 has 1 MA's), (Start: 31 @44015 has 167 MA's), (56, 43850), (60, 43823), (83, 43673), (85, 43649),

Gene: Partridge\_58 Start: 41426, Stop: 41091, Start Num: 31

Candidate Starts for Partridge\_58:

(1, 41645), (Start: 31 @41426 has 167 MA's), (33, 41405), (34, 41402), (Start: 35 @41393 has 1 MA's), (37, 41387), (41, 41354), (44, 41324), (60, 41237), (81, 41096),

Gene: Pat3\_133 Start: 71258, Stop: 70929, Start Num: 31

Candidate Starts for Pat3\_133:

(Start: 31 @71258 has 167 MA's), (33, 71237), (Start: 35 @71225 has 1 MA's), (36, 71222), (40, 71201), (41, 71186),

Gene: Patbob\_17 Start: 8860, Stop: 9267, Start Num: 19

Candidate Starts for Patbob\_17:

(Start: 19 @8860 has 14 MA's), (41, 8968), (47, 9022), (52, 9046), (66, 9151), (80, 9247),

Gene: Patbob\_303 Start: 184319, Stop: 184726, Start Num: 19

Candidate Starts for Patbob\_303:

(Start: 19 @184319 has 14 MA's), (41, 184427), (47, 184481), (52, 184505), (66, 184610), (80, 184706),

Gene: PatrickStar\_109 Start: 75819, Stop: 75481, Start Num: 31

Candidate Starts for PatrickStar\_109:

(15, 75867), (Start: 31 @75819 has 167 MA's), (Start: 35 @75786 has 1 MA's), (44, 75717), (51, 75669), (60, 75615), (62, 75600), (76, 75519),

Gene: Petra64142\_135 Start: 71754, Stop: 71407, Start Num: 21

Candidate Starts for Petra64142\_135:

(Start: 21 @71754 has 15 MA's), (Start: 31 @71736 has 167 MA's), (33, 71715), (Start: 35 @71703 has 1 MA's), (36, 71700), (40, 71679), (41, 71664),

Gene: PhailMary\_62 Start: 42619, Stop: 42143, Start Num: 13

Candidate Starts for PhailMary\_62:

(Start: 13 @42619 has 22 MA's), (Start: 14 @42607 has 1 MA's), (Start: 31 @42547 has 167 MA's), (36, 42505), (48, 42418), (56, 42382), (60, 42355), (83, 42205), (86, 42163),

Gene: Phaja\_137 Start: 71494, Stop: 71165, Start Num: 31  
Candidate Starts for Phaja\_137:  
(Start: 21 @71512 has 15 MA's), (Start: 31 @71494 has 167 MA's), (33, 71473), (Start: 35 @71461 has 1 MA's), (36, 71458), (40, 71437), (41, 71422),

Gene: Pharsalus\_131 Start: 71861, Stop: 71532, Start Num: 31  
Candidate Starts for Pharsalus\_131:  
(Start: 21 @71879 has 15 MA's), (Start: 31 @71861 has 167 MA's), (33, 71840), (Start: 35 @71828 has 1 MA's), (36, 71825), (40, 71804), (41, 71789),

Gene: PhatBacter\_136 Start: 71634, Stop: 71305, Start Num: 31  
Candidate Starts for PhatBacter\_136:  
(3, 71790), (4, 71784), (5, 71778), (6, 71766), (8, 71733), (9, 71727), (11, 71712), (18, 71667), (Start: 31 @71634 has 167 MA's), (33, 71613), (Start: 35 @71601 has 1 MA's), (41, 71562), (44, 71532), (62, 71430), (63, 71427),

Gene: Phaux\_135 Start: 72260, Stop: 71931, Start Num: 31  
Candidate Starts for Phaux\_135:  
(3, 72416), (4, 72410), (5, 72404), (6, 72392), (8, 72359), (9, 72353), (11, 72338), (18, 72293), (Start: 31 @72260 has 167 MA's), (33, 72239), (Start: 35 @72227 has 1 MA's), (41, 72188), (44, 72158), (62, 72056), (63, 72053),

Gene: Phrampa\_299 Start: 183572, Stop: 183967, Start Num: 19  
Candidate Starts for Phrampa\_299:  
(Start: 19 @183572 has 14 MA's), (41, 183680), (46, 183728), (47, 183734), (49, 183737), (66, 183863), (82, 183962),

Gene: Phrampa\_15 Start: 7201, Stop: 7596, Start Num: 19  
Candidate Starts for Phrampa\_15:  
(Start: 19 @7201 has 14 MA's), (41, 7309), (46, 7357), (47, 7363), (49, 7366), (66, 7492), (82, 7591),

Gene: Phrankenstein\_59 Start: 41071, Stop: 40736, Start Num: 31  
Candidate Starts for Phrankenstein\_59:  
(Start: 31 @41071 has 167 MA's), (Start: 35 @41038 has 1 MA's), (37, 41032), (41, 40999), (44, 40969), (60, 40882), (81, 40741),

Gene: Phrankenstein\_65 Start: 43548, Stop: 43072, Start Num: 13  
Candidate Starts for Phrankenstein\_65:  
(Start: 13 @43548 has 22 MA's), (Start: 14 @43536 has 1 MA's), (Start: 31 @43476 has 167 MA's), (36, 43434), (48, 43347), (56, 43311), (60, 43284), (83, 43134), (86, 43092),

Gene: Phreeze\_46 Start: 39698, Stop: 40033, Start Num: 30  
Candidate Starts for Phreeze\_46:  
(Start: 26 @39686 has 4 MA's), (Start: 30 @39698 has 7 MA's), (Start: 35 @39731 has 1 MA's), (44, 39800), (54, 39851), (62, 39902),

Gene: Phrux\_129 Start: 70339, Stop: 70010, Start Num: 31  
Candidate Starts for Phrux\_129:  
(Start: 31 @70339 has 167 MA's), (33, 70318), (Start: 35 @70306 has 1 MA's), (36, 70303), (40, 70282), (41, 70267),

Gene: Policronamos\_134 Start: 71964, Stop: 71635, Start Num: 31  
Candidate Starts for Policronamos\_134:

(3, 72120), (4, 72114), (5, 72108), (6, 72096), (8, 72063), (9, 72057), (11, 72042), (18, 71997), (Start: 31 @71964 has 167 MA's), (33, 71943), (Start: 35 @71931 has 1 MA's), (41, 71892), (44, 71862), (62, 71760), (63, 71757),

Gene: Porky\_135 Start: 71958, Stop: 71611, Start Num: 21

Candidate Starts for Porky\_135:

(Start: 21 @71958 has 15 MA's), (Start: 31 @71940 has 167 MA's), (33, 71919), (Start: 35 @71907 has 1 MA's), (36, 71904), (40, 71883), (41, 71868),

Gene: Predator\_46 Start: 37954, Stop: 38274, Start Num: 30

Candidate Starts for Predator\_46:

(Start: 30 @37954 has 7 MA's), (Start: 35 @37987 has 1 MA's), (38, 38005), (44, 38056), (63, 38161),

Gene: Ptowny\_127 Start: 69309, Stop: 68980, Start Num: 31

Candidate Starts for Ptowny\_127:

(Start: 31 @69309 has 167 MA's), (33, 69288), (Start: 35 @69276 has 1 MA's), (36, 69273), (40, 69252), (41, 69237),

Gene: Pumpkin\_133 Start: 70615, Stop: 70286, Start Num: 31

Candidate Starts for Pumpkin\_133:

(Start: 21 @70633 has 15 MA's), (Start: 31 @70615 has 167 MA's), (33, 70594), (Start: 35 @70582 has 1 MA's), (36, 70579), (40, 70558), (41, 70543),

Gene: Quallification\_134 Start: 72199, Stop: 71870, Start Num: 31

Candidate Starts for Quallification\_134:

(Start: 21 @72217 has 15 MA's), (Start: 31 @72199 has 167 MA's), (33, 72178), (Start: 35 @72166 has 1 MA's), (36, 72163), (40, 72142), (41, 72127),

Gene: RER2\_53 Start: 37997, Stop: 37662, Start Num: 31

Candidate Starts for RER2\_53:

(Start: 31 @37997 has 167 MA's), (Start: 35 @37964 has 1 MA's), (37, 37958), (41, 37925), (44, 37895), (60, 37808), (81, 37667),

Gene: RER2\_59 Start: 40402, Stop: 39998, Start Num: 31

Candidate Starts for RER2\_59:

(Start: 13 @40474 has 22 MA's), (Start: 14 @40462 has 1 MA's), (Start: 31 @40402 has 167 MA's), (36, 40360), (48, 40273), (56, 40237), (60, 40210), (83, 40060), (86, 40018),

Gene: RGL3\_60 Start: 42001, Stop: 41582, Start Num: 31

Candidate Starts for RGL3\_60:

(Start: 31 @42001 has 167 MA's), (32, 41986), (50, 41866), (56, 41836), (59, 41818), (60, 41809), (67, 41761), (87, 41599),

Gene: RGL3\_51 Start: 38672, Stop: 38334, Start Num: 31

Candidate Starts for RGL3\_51:

(Start: 31 @38672 has 167 MA's), (Start: 35 @38639 has 1 MA's), (45, 38564), (50, 38540), (51, 38537), (55, 38516), (59, 38489), (65, 38447), (81, 38339),

Gene: Racecar\_308 Start: 183126, Stop: 183533, Start Num: 19

Candidate Starts for Racecar\_308:

(Start: 19 @183126 has 14 MA's), (Start: 35 @183192 has 1 MA's), (41, 183234), (47, 183288), (53, 183315), (66, 183417), (74, 183462), (80, 183513),

Gene: Racecar\_19 Start: 9417, Stop: 9824, Start Num: 19

Candidate Starts for Racecar\_19:

(Start: 19 @9417 has 14 MA's), (Start: 35 @9483 has 1 MA's), (41, 9525), (47, 9579), (53, 9606), (66, 9708), (74, 9753), (80, 9804),

Gene: Rakim\_134 Start: 71173, Stop: 70844, Start Num: 31

Candidate Starts for Rakim\_134:

(2, 71341), (9, 71266), (11, 71251), (18, 71206), (Start: 31 @71173 has 167 MA's), (33, 71152), (Start: 35 @71140 has 1 MA's), (41, 71101),

Gene: Rasputin\_65 Start: 43572, Stop: 43096, Start Num: 13

Candidate Starts for Rasputin\_65:

(Start: 13 @43572 has 22 MA's), (Start: 14 @43560 has 1 MA's), (Start: 31 @43500 has 167 MA's), (36, 43458), (48, 43371), (56, 43335), (60, 43308), (83, 43158), (86, 43116),

Gene: Rasputin\_59 Start: 41095, Stop: 40760, Start Num: 31

Candidate Starts for Rasputin\_59:

(Start: 31 @41095 has 167 MA's), (Start: 35 @41062 has 1 MA's), (37, 41056), (41, 41023), (44, 40993), (60, 40906), (81, 40765),

Gene: ReginaGlobina\_332 Start: 187589, Stop: 187960, Start Num: 23

Candidate Starts for ReginaGlobina\_332:

(Start: 23 @187589 has 2 MA's), (Start: 35 @187640 has 1 MA's), (55, 187775), (63, 187838), (73, 187904),

Gene: ReginaGlobina\_21 Start: 10142, Stop: 10513, Start Num: 23

Candidate Starts for ReginaGlobina\_21:

(Start: 23 @10142 has 2 MA's), (Start: 35 @10193 has 1 MA's), (55, 10328), (63, 10391), (73, 10457),

Gene: RexFury\_64 Start: 43560, Stop: 43156, Start Num: 31

Candidate Starts for RexFury\_64:

(Start: 13 @43632 has 22 MA's), (Start: 14 @43620 has 1 MA's), (Start: 31 @43560 has 167 MA's), (36, 43518), (48, 43431), (56, 43395), (60, 43368), (83, 43218), (86, 43176),

Gene: RexFury\_58 Start: 41155, Stop: 40820, Start Num: 31

Candidate Starts for RexFury\_58:

(1, 41374), (Start: 31 @41155 has 167 MA's), (34, 41131), (Start: 35 @41122 has 1 MA's), (37, 41116), (41, 41083), (44, 41053), (48, 41032), (59, 40975), (81, 40825),

Gene: Rhodalysa\_65 Start: 43530, Stop: 43126, Start Num: 31

Candidate Starts for Rhodalysa\_65:

(Start: 13 @43602 has 22 MA's), (Start: 14 @43590 has 1 MA's), (Start: 31 @43530 has 167 MA's), (36, 43488), (48, 43401), (56, 43365), (60, 43338), (83, 43188), (86, 43146),

Gene: Rhodalysa\_59 Start: 41125, Stop: 40790, Start Num: 31

Candidate Starts for Rhodalysa\_59:

(Start: 31 @41125 has 167 MA's), (Start: 35 @41092 has 1 MA's), (37, 41086), (41, 41053), (44, 41023), (60, 40936), (81, 40795),

Gene: Rimmer\_130 Start: 71092, Stop: 70745, Start Num: 21

Candidate Starts for Rimmer\_130:

(Start: 21 @71092 has 15 MA's), (Start: 31 @71074 has 167 MA's), (33, 71053), (Start: 35 @71041 has 1 MA's), (36, 71038), (40, 71017), (41, 71002),

Gene: RiverMonster\_132 Start: 71234, Stop: 70905, Start Num: 31  
Candidate Starts for RiverMonster\_132:  
(Start: 21 @71252 has 15 MA's), (Start: 31 @71234 has 167 MA's), (33, 71213), (Start: 35 @71201 has 1 MA's), (36, 71198), (40, 71177), (41, 71162),

Gene: RobinSparkles\_118 Start: 76904, Stop: 76569, Start Num: 31  
Candidate Starts for RobinSparkles\_118:  
(15, 76952), (Start: 31 @76904 has 167 MA's), (Start: 35 @76871 has 1 MA's), (44, 76802), (51, 76754), (60, 76700), (62, 76685), (69, 76643), (76, 76604),

Gene: Rockabye\_19 Start: 9153, Stop: 9560, Start Num: 19  
Candidate Starts for Rockabye\_19:  
(Start: 19 @9153 has 14 MA's), (46, 9309), (53, 9342), (66, 9444), (67, 9450), (73, 9486), (80, 9540),

Gene: Rockabye\_318 Start: 181766, Stop: 182173, Start Num: 19  
Candidate Starts for Rockabye\_318:  
(Start: 19 @181766 has 14 MA's), (46, 181922), (53, 181955), (66, 182057), (67, 182063), (73, 182099), (80, 182153),

Gene: Saints25\_129 Start: 69399, Stop: 69070, Start Num: 31  
Candidate Starts for Saints25\_129:  
(Start: 31 @69399 has 167 MA's), (33, 69378), (Start: 35 @69366 has 1 MA's), (36, 69363), (40, 69342), (41, 69327),

Gene: Sassay\_128 Start: 69536, Stop: 69189, Start Num: 21  
Candidate Starts for Sassay\_128:  
(Start: 21 @69536 has 15 MA's), (Start: 31 @69518 has 167 MA's), (33, 69497), (Start: 35 @69485 has 1 MA's), (36, 69482), (40, 69461), (41, 69446),

Gene: ShamWow\_133 Start: 72051, Stop: 71722, Start Num: 31  
Candidate Starts for ShamWow\_133:  
(Start: 21 @72069 has 15 MA's), (Start: 31 @72051 has 167 MA's), (33, 72030), (Start: 35 @72018 has 1 MA's), (36, 72015), (40, 71994), (41, 71979),

Gene: ShereKhan\_133 Start: 72445, Stop: 72116, Start Num: 31  
Candidate Starts for ShereKhan\_133:  
(Start: 21 @72463 has 15 MA's), (Start: 31 @72445 has 167 MA's), (33, 72424), (Start: 35 @72412 has 1 MA's), (36, 72409), (40, 72388), (41, 72373),

Gene: Shuman\_66 Start: 43553, Stop: 43077, Start Num: 13  
Candidate Starts for Shuman\_66:  
(Start: 13 @43553 has 22 MA's), (Start: 14 @43541 has 1 MA's), (Start: 31 @43481 has 167 MA's), (36, 43439), (48, 43352), (56, 43316), (60, 43289), (83, 43139), (86, 43097),

Gene: Shuman\_60 Start: 41076, Stop: 40741, Start Num: 31  
Candidate Starts for Shuman\_60:  
(Start: 31 @41076 has 167 MA's), (Start: 35 @41043 has 1 MA's), (37, 41037), (41, 41004), (44, 40974), (60, 40887), (81, 40746),

Gene: Simpliphy\_132 Start: 70805, Stop: 70476, Start Num: 31  
Candidate Starts for Simpliphy\_132:

(Start: 31 @70805 has 167 MA's), (33, 70784), (Start: 35 @70772 has 1 MA's), (36, 70769), (40, 70748), (41, 70733),

Gene: SirDuracell\_136 Start: 71666, Stop: 71337, Start Num: 31

Candidate Starts for SirDuracell\_136:

(Start: 25 @71681 has 1 MA's), (Start: 31 @71666 has 167 MA's), (Start: 35 @71633 has 1 MA's), (41, 71594), (44, 71564), (62, 71462), (63, 71459),

Gene: SophKB\_131 Start: 71150, Stop: 70821, Start Num: 31

Candidate Starts for SophKB\_131:

(2, 71318), (9, 71243), (11, 71228), (18, 71183), (Start: 31 @71150 has 167 MA's), (33, 71129), (Start: 35 @71117 has 1 MA's), (36, 71114), (40, 71093), (41, 71078),

Gene: Sotrice96\_138 Start: 72351, Stop: 72022, Start Num: 31

Candidate Starts for Sotrice96\_138:

(Start: 21 @72369 has 15 MA's), (Start: 31 @72351 has 167 MA's), (33, 72330), (Start: 35 @72318 has 1 MA's), (36, 72315), (40, 72294), (41, 72279),

Gene: StCroix\_58 Start: 41147, Stop: 40812, Start Num: 31

Candidate Starts for StCroix\_58:

(Start: 31 @41147 has 167 MA's), (34, 41123), (Start: 35 @41114 has 1 MA's), (37, 41108), (41, 41075), (44, 41045), (48, 41024), (59, 40967), (81, 40817),

Gene: StCroix\_64 Start: 43552, Stop: 43148, Start Num: 31

Candidate Starts for StCroix\_64:

(Start: 13 @43624 has 22 MA's), (Start: 14 @43612 has 1 MA's), (Start: 31 @43552 has 167 MA's), (36, 43510), (48, 43423), (56, 43387), (60, 43360), (83, 43210), (86, 43168),

Gene: Stank\_137 Start: 72298, Stop: 71969, Start Num: 31

Candidate Starts for Stank\_137:

(Start: 21 @72316 has 15 MA's), (Start: 31 @72298 has 167 MA's), (33, 72277), (Start: 35 @72265 has 1 MA's), (36, 72262), (40, 72241), (41, 72226),

Gene: Stark\_131 Start: 71053, Stop: 70724, Start Num: 31

Candidate Starts for Stark\_131:

(Start: 21 @71071 has 15 MA's), (Start: 31 @71053 has 167 MA's), (33, 71032), (Start: 35 @71020 has 1 MA's), (36, 71017), (40, 70996), (41, 70981),

Gene: StellaBean\_131 Start: 71803, Stop: 71474, Start Num: 31

Candidate Starts for StellaBean\_131:

(Start: 21 @71821 has 15 MA's), (Start: 31 @71803 has 167 MA's), (33, 71782), (Start: 35 @71770 has 1 MA's), (36, 71767), (40, 71746), (41, 71731),

Gene: Stewart25555\_12 Start: 5769, Stop: 6158, Start Num: 19

Candidate Starts for Stewart25555\_12:

(Start: 19 @5769 has 14 MA's), (Start: 35 @5835 has 1 MA's), (68, 6069), (76, 6114),

Gene: StolenFromERC\_136 Start: 71643, Stop: 71314, Start Num: 31

Candidate Starts for StolenFromERC\_136:

(Start: 21 @71661 has 15 MA's), (Start: 31 @71643 has 167 MA's), (33, 71622), (Start: 35 @71610 has 1 MA's), (36, 71607), (40, 71586), (41, 71571),

Gene: StormChicken\_135 Start: 72268, Stop: 71939, Start Num: 31

Candidate Starts for StormChicken\_135:

(Start: 21 @72286 has 15 MA's), (Start: 31 @72268 has 167 MA's), (33, 72247), (Start: 35 @72235 has 1 MA's), (36, 72232), (40, 72211), (41, 72196),

Gene: Swann\_65 Start: 43600, Stop: 43124, Start Num: 13

Candidate Starts for Swann\_65:

(Start: 13 @43600 has 22 MA's), (Start: 14 @43588 has 1 MA's), (Start: 31 @43528 has 167 MA's), (36, 43486), (48, 43399), (56, 43363), (60, 43336), (83, 43186), (86, 43144),

Gene: Swann\_59 Start: 41123, Stop: 40788, Start Num: 31

Candidate Starts for Swann\_59:

(Start: 31 @41123 has 167 MA's), (Start: 35 @41090 has 1 MA's), (37, 41084), (41, 41051), (44, 41021), (60, 40934), (81, 40793),

Gene: TBrady12\_138 Start: 71735, Stop: 71406, Start Num: 31

Candidate Starts for TBrady12\_138:

(Start: 21 @71753 has 15 MA's), (Start: 31 @71735 has 167 MA's), (33, 71714), (Start: 35 @71702 has 1 MA's), (36, 71699), (40, 71678), (41, 71663),

Gene: TWAMP\_65 Start: 43530, Stop: 43126, Start Num: 31

Candidate Starts for TWAMP\_65:

(Start: 13 @43602 has 22 MA's), (Start: 14 @43590 has 1 MA's), (Start: 31 @43530 has 167 MA's), (36, 43488), (48, 43401), (56, 43365), (60, 43338), (83, 43188), (86, 43146),

Gene: TWAMP\_59 Start: 41125, Stop: 40790, Start Num: 31

Candidate Starts for TWAMP\_59:

(Start: 31 @41125 has 167 MA's), (Start: 35 @41092 has 1 MA's), (37, 41086), (41, 41053), (44, 41023), (60, 40936), (81, 40795),

Gene: Takoda\_67 Start: 43931, Stop: 43455, Start Num: 13

Candidate Starts for Takoda\_67:

(Start: 13 @43931 has 22 MA's), (Start: 14 @43919 has 1 MA's), (Start: 31 @43859 has 167 MA's), (56, 43694), (60, 43667), (83, 43517),

Gene: Takoda\_59 Start: 41309, Stop: 40974, Start Num: 31

Candidate Starts for Takoda\_59:

(Start: 31 @41309 has 167 MA's), (34, 41285), (Start: 35 @41276 has 1 MA's), (37, 41270), (41, 41237), (60, 41120), (81, 40979),

Gene: Talia1610\_304 Start: 183328, Stop: 183735, Start Num: 19

Candidate Starts for Talia1610\_304:

(Start: 19 @183328 has 14 MA's), (Start: 35 @183394 has 1 MA's), (41, 183436), (47, 183490), (53, 183517), (60, 183577), (66, 183619), (74, 183664), (80, 183715),

Gene: Talia1610\_18 Start: 8856, Stop: 9263, Start Num: 19

Candidate Starts for Talia1610\_18:

(Start: 19 @8856 has 14 MA's), (Start: 35 @8922 has 1 MA's), (41, 8964), (47, 9018), (53, 9045), (60, 9105), (66, 9147), (74, 9192), (80, 9243),

Gene: Tarkin\_132 Start: 72310, Stop: 71981, Start Num: 31

Candidate Starts for Tarkin\_132:

(Start: 21 @72328 has 15 MA's), (Start: 31 @72310 has 167 MA's), (33, 72289), (Start: 35 @72277 has 1 MA's), (36, 72274), (40, 72253), (41, 72238),

Gene: TeamEdward\_132 Start: 71904, Stop: 71557, Start Num: 21  
Candidate Starts for TeamEdward\_132:  
(Start: 21 @71904 has 15 MA's), (Start: 31 @71886 has 167 MA's), (33, 71865), (Start: 35 @71853 has 1 MA's), (36, 71850), (40, 71829), (41, 71814),

Gene: TeardropMSU\_134 Start: 71219, Stop: 70890, Start Num: 31  
Candidate Starts for TeardropMSU\_134:  
(Start: 31 @71219 has 167 MA's), (33, 71198), (Start: 35 @71186 has 1 MA's), (36, 71183), (40, 71162), (41, 71147),

Gene: Terminus\_136 Start: 72192, Stop: 71863, Start Num: 31  
Candidate Starts for Terminus\_136:  
(Start: 21 @72210 has 15 MA's), (Start: 31 @72192 has 167 MA's), (33, 72171), (Start: 35 @72159 has 1 MA's), (36, 72156), (40, 72135), (41, 72120),

Gene: Thresher\_135 Start: 72137, Stop: 71790, Start Num: 21  
Candidate Starts for Thresher\_135:  
(Start: 21 @72137 has 15 MA's), (Start: 31 @72119 has 167 MA's), (33, 72098), (Start: 35 @72086 has 1 MA's), (41, 72047),

Gene: Thumb\_48 Start: 40133, Stop: 40468, Start Num: 30  
Candidate Starts for Thumb\_48:  
(Start: 30 @40133 has 7 MA's), (Start: 35 @40166 has 1 MA's), (44, 40235), (62, 40337), (64, 40346),

Gene: Tomaszewski\_127 Start: 70748, Stop: 70401, Start Num: 21  
Candidate Starts for Tomaszewski\_127:  
(Start: 21 @70748 has 15 MA's), (Start: 31 @70730 has 167 MA's), (33, 70709), (Start: 35 @70697 has 1 MA's), (36, 70694), (40, 70673), (41, 70658),

Gene: Toto\_131 Start: 72051, Stop: 71722, Start Num: 31  
Candidate Starts for Toto\_131:  
(Start: 21 @72069 has 15 MA's), (Start: 31 @72051 has 167 MA's), (33, 72030), (Start: 35 @72018 has 1 MA's), (36, 72015), (40, 71994), (41, 71979),

Gene: Traaww1\_129 Start: 70599, Stop: 70270, Start Num: 31  
Candidate Starts for Traaww1\_129:  
(Start: 25 @70614 has 1 MA's), (Start: 31 @70599 has 167 MA's), (Start: 35 @70566 has 1 MA's), (41, 70527), (44, 70497),

Gene: Tuco\_139 Start: 73278, Stop: 72949, Start Num: 31  
Candidate Starts for Tuco\_139:  
(Start: 31 @73278 has 167 MA's), (33, 73257), (Start: 35 @73245 has 1 MA's), (36, 73242), (40, 73221), (41, 73206),

Gene: UhSalsa\_65 Start: 43531, Stop: 43067, Start Num: 14  
Candidate Starts for UhSalsa\_65:  
(Start: 13 @43543 has 22 MA's), (Start: 14 @43531 has 1 MA's), (Start: 31 @43471 has 167 MA's), (36, 43429), (48, 43342), (56, 43306), (60, 43279), (83, 43129), (86, 43087),

Gene: UhSalsa\_59 Start: 41066, Stop: 40731, Start Num: 31  
Candidate Starts for UhSalsa\_59:

(1, 41285), (Start: 31 @41066 has 167 MA's), (34, 41042), (Start: 35 @41033 has 1 MA's), (37, 41027), (41, 40994), (44, 40964), (48, 40943), (59, 40886), (81, 40736),

Gene: Ukulele\_128 Start: 70632, Stop: 70285, Start Num: 21

Candidate Starts for Ukulele\_128:

(Start: 21 @70632 has 15 MA's), (Start: 31 @70614 has 167 MA's), (33, 70593), (Start: 35 @70581 has 1 MA's), (36, 70578), (40, 70557), (41, 70542),

Gene: WaddleDee\_8 Start: 4570, Stop: 4971, Start Num: 19

Candidate Starts for WaddleDee\_8:

(Start: 19 @4570 has 14 MA's), (46, 4726), (53, 4759), (68, 4870),

Gene: WaddleDee\_299 Start: 182765, Stop: 183166, Start Num: 19

Candidate Starts for WaddleDee\_299:

(Start: 19 @182765 has 14 MA's), (46, 182921), (53, 182954), (68, 183065),

Gene: Wakanda\_262 Start: 126045, Stop: 126365, Start Num: 27

Candidate Starts for Wakanda\_262:

(Start: 27 @126045 has 4 MA's), (33, 126078), (Start: 35 @126090 has 1 MA's), (41, 126129), (48, 126180), (67, 126285), (71, 126312), (72, 126315),

Gene: Wakanda\_3 Start: 1204, Stop: 1524, Start Num: 27

Candidate Starts for Wakanda\_3:

(Start: 27 @1204 has 4 MA's), (33, 1237), (Start: 35 @1249 has 1 MA's), (41, 1288), (48, 1339), (67, 1444), (71, 1471), (72, 1474),

Gene: Wiggin\_136 Start: 71276, Stop: 70947, Start Num: 31

Candidate Starts for Wiggin\_136:

(Start: 21 @71294 has 15 MA's), (Start: 31 @71276 has 167 MA's), (33, 71255), (Start: 35 @71243 has 1 MA's), (36, 71240), (40, 71219), (41, 71204),

Gene: Wildcat\_164 Start: 74139, Stop: 73819, Start Num: 31

Candidate Starts for Wildcat\_164:

(Start: 31 @74139 has 167 MA's), (Start: 35 @74106 has 1 MA's), (48, 74016), (62, 73935), (63, 73932), (66, 73908), (78, 73830),

Gene: Willez\_130 Start: 70373, Stop: 70044, Start Num: 31

Candidate Starts for Willez\_130:

(Start: 21 @70391 has 15 MA's), (Start: 31 @70373 has 167 MA's), (33, 70352), (Start: 35 @70340 has 1 MA's), (36, 70337), (40, 70316), (41, 70301),

Gene: Xandras\_134 Start: 71552, Stop: 71223, Start Num: 31

Candidate Starts for Xandras\_134:

(Start: 21 @71570 has 15 MA's), (Start: 31 @71552 has 167 MA's), (33, 71531), (Start: 35 @71519 has 1 MA's), (36, 71516), (40, 71495), (41, 71480),

Gene: YassJohnny\_129 Start: 69538, Stop: 69209, Start Num: 31

Candidate Starts for YassJohnny\_129:

(3, 69694), (4, 69688), (5, 69682), (6, 69670), (8, 69637), (9, 69631), (11, 69616), (18, 69571), (Start: 31 @69538 has 167 MA's), (33, 69517), (Start: 35 @69505 has 1 MA's), (41, 69466), (44, 69436), (62, 69334), (63, 69331),

Gene: Yogi\_66 Start: 43881, Stop: 43477, Start Num: 31

Candidate Starts for Yogi\_66:

(Start: 13 @43953 has 22 MA's), (Start: 14 @43941 has 1 MA's), (Start: 31 @43881 has 167 MA's), (36, 43839), (48, 43752), (56, 43716), (60, 43689), (83, 43539), (86, 43497),

Gene: Yogi\_60 Start: 41476, Stop: 41141, Start Num: 31

Candidate Starts for Yogi\_60:

(Start: 31 @41476 has 167 MA's), (Start: 35 @41443 has 1 MA's), (37, 41437), (41, 41404), (44, 41374), (60, 41287), (81, 41146),

Gene: Yoncess\_58 Start: 40879, Stop: 40544, Start Num: 31

Candidate Starts for Yoncess\_58:

(Start: 31 @40879 has 167 MA's), (Start: 35 @40846 has 1 MA's), (37, 40840), (41, 40807), (44, 40777), (60, 40690), (81, 40549),

Gene: Yoncess\_64 Start: 43289, Stop: 42885, Start Num: 31

Candidate Starts for Yoncess\_64:

(Start: 13 @43361 has 22 MA's), (Start: 14 @43349 has 1 MA's), (Start: 31 @43289 has 167 MA's), (36, 43247), (48, 43160), (56, 43124), (60, 43097), (83, 42947), (86, 42905),

Gene: Youngblood\_137 Start: 71689, Stop: 71360, Start Num: 31

Candidate Starts for Youngblood\_137:

(3, 71845), (4, 71839), (5, 71833), (6, 71821), (8, 71788), (9, 71782), (11, 71767), (18, 71722), (Start: 31 @71689 has 167 MA's), (33, 71668), (Start: 35 @71656 has 1 MA's), (36, 71653), (40, 71632), (41, 71617),

Gene: xkcd\_137 Start: 72326, Stop: 71997, Start Num: 31

Candidate Starts for xkcd\_137:

(3, 72482), (4, 72476), (5, 72470), (6, 72458), (8, 72425), (9, 72419), (11, 72404), (18, 72359), (Start: 31 @72326 has 167 MA's), (33, 72305), (Start: 35 @72293 has 1 MA's), (36, 72290), (40, 72269), (41, 72254),