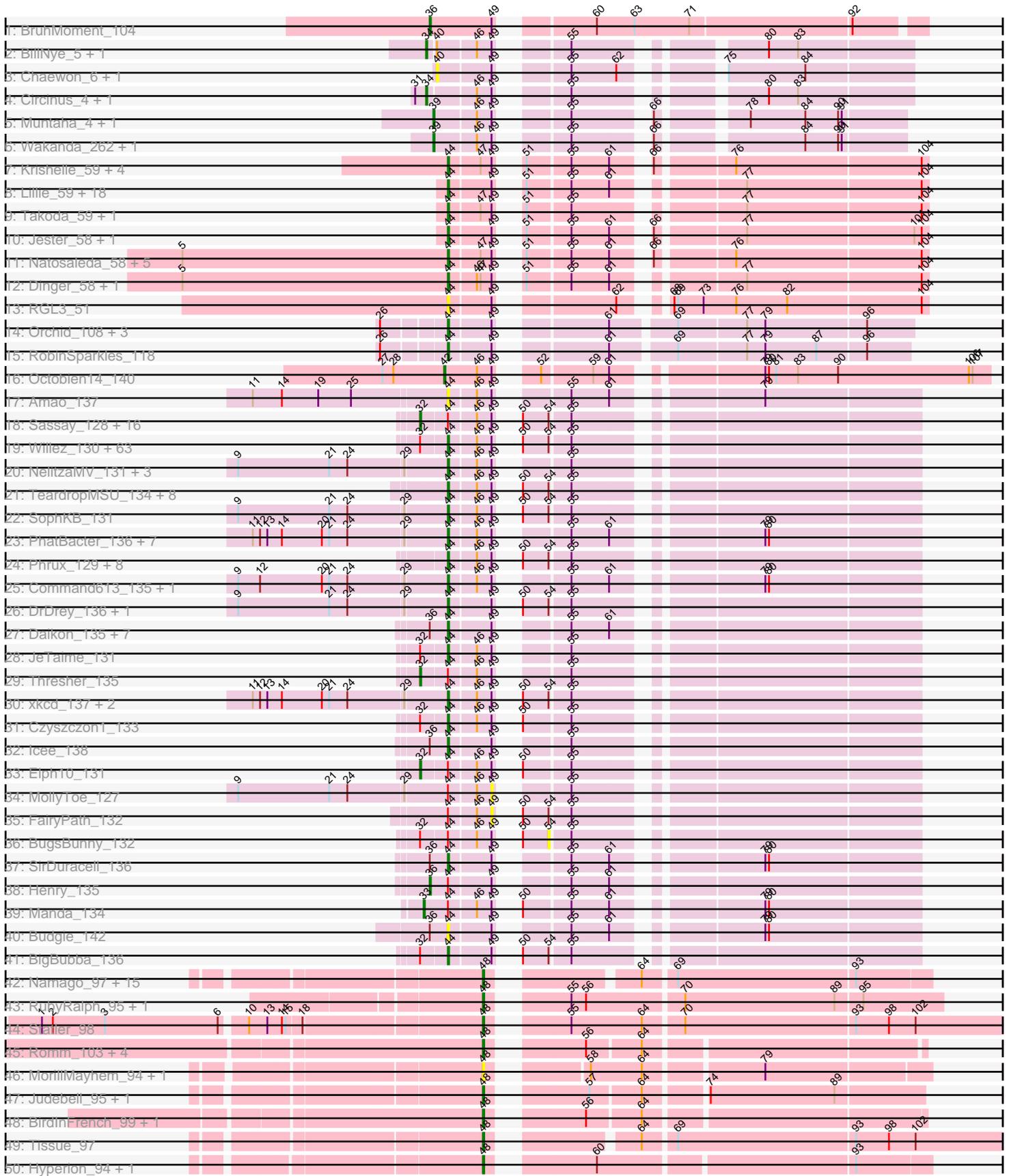
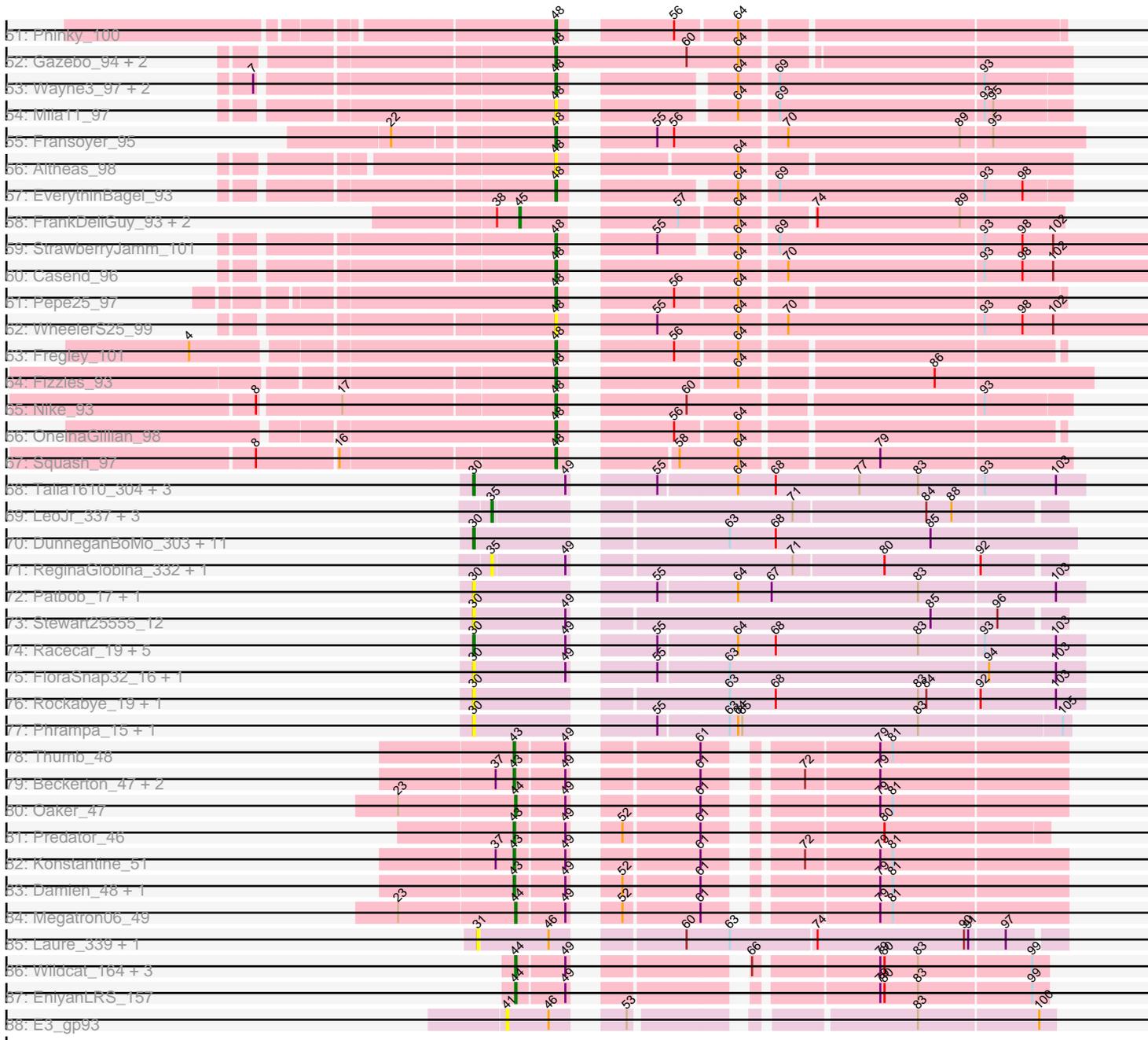


Pham 281902



Pham 281902



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 281902 Report

This analysis was run 02/23/26 on database version 636.

Pham number 281902 has 306 members, 58 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 : Muntaha\_4, Muntaha\_267
- Track 6 : Wakanda\_262, Wakanda\_3
- Track 7 : Krishelle\_59, Alatin\_58, StCroix\_58, Naiad\_58, Bradshaw\_59
- Track 8 : Lillie\_59, Gollum\_59, Nancinator\_58, Bryce\_58, Phrankenstein\_59, BobbyDazzler\_59, Rhodalysa\_59, Erik\_59, Hiro\_59, RER2\_53, CosmicSans\_59, Bonanza\_60, Rasputin\_59, Alpacados\_58, Yoncess\_58, Swann\_59, Yogi\_60, TWAMP\_59, Shuman\_60
- Track 9 : Takoda\_59, AngryOrchard\_56
- Track 10 : Jester\_58, Harlequin\_59
- Track 11 : Natosaleda\_58, Belenaria\_60, Espica\_60, AppleCloud\_56, RexFury\_58, UhSalsa\_59
- Track 12 : Dinger\_58, Partridge\_58
- Track 13 : RGL3\_51
- Track 14 : Orchid\_108, Kampe\_109, PatrickStar\_109, Gibbles\_111
- Track 15 : RobinSparkles\_118
- Track 16 : Octobien14\_140
- Track 17 : Amao\_137
- Track 18 : Sassay\_128, MISSy\_135, Tomaszewski\_127, Dumbo\_134, Kimchi\_139, Petra64142\_135, Rimmer\_130, Bogg\_134, TeamEdward\_132, PaddyBaddy\_130, Goldilocks\_139, Porky\_135, Ukulele\_128, Cactus\_141, Goku\_132, Bruin\_130, Bask21\_138
- Track 19 : Willez\_130, NoSleep\_133, Maxxinista\_135, Emmina\_134, StolenFromERC\_136, Cjw1\_131, IHOP\_137, Stank\_137, GoldenSpark\_138, FoghornLeghorn\_131, OrionPax\_129, Paperbeatsrock\_132, MadamMonkfish\_133, Sotrice96\_138, Nala\_135, ShereKhan\_133, 244\_134, Adnama\_138, Buck\_134, GooberAzure\_136, Eureka\_133, Lilac\_131, Contagion\_129, Marshmallow\_134, Phaja\_137, Wiggin\_136, Misfit\_133, Bench\_135, Mosby\_130, NonchalantPear\_132, ChosenOne\_134, TBrady12\_138, Lilpickle\_133, BaboJay\_132, Palpatine\_133, Elite2014\_133, Pharsalus\_131, Inca\_132, Cookies\_134, Tarkin\_132, StellaBean\_131, Terminus\_136, Argent26\_138, Hopey\_132, Toto\_131, RiverMonster\_132, ShamWow\_133, Kanye\_130, StormChicken\_135, Xandras\_134, ChotaBhai\_137, Miniwave\_127, MPhalcon\_134, Moldemort\_136, HanKaySha\_133, Gemini\_139, Easy2Say\_135, Stark\_131, AmericanBeauty\_137, Quallification\_134,

Lilizi\_134, Greep\_137, Nimrod\_133, Pumpkin\_133

- Track 20 : NelitzaMV\_131, Mindy\_136, Rakim\_134, Brewer\_125
- Track 21 : TeardropMSU\_134, ABCat\_134, Harella\_139, Pat3\_133, BadStone\_134, Gator\_135, Tuco\_139, Dusk\_134, Glexan\_137
- Track 22 : SophKB\_131
- Track 23 : PhatBacter\_136, FireRed\_136, HufflyPuff\_135, Phaux\_135, Murica\_137, YassJohnny\_129, Holt\_139, Policronamos\_134
- Track 24 : Phrux\_129, DoctorDiddles\_131, Filch\_135, Highbury\_129, Saints25\_129, Simpliphy\_132, Murphy\_132, Ptowny\_127, Hoonter\_136
- Track 25 : Command613\_135, Kostya\_134
- Track 26 : DrDrey\_136, Myrale\_134
- Track 27 : Daikon\_135, Asriel\_130, CrystalP\_133, Balomoji\_133, Barbarian\_133, BilboSwaggins\_131, Flypotenuse\_128, Traaww1\_129
- Track 28 : JeTaime\_131
- Track 29 : Thresher\_135
- Track 30 : xkcd\_137, Becksu\_131, Youngblood\_137
- Track 31 : Czyszczonek\_133
- Track 32 : lcee\_138
- Track 33 : Elph10\_131
- Track 34 : MollyToe\_127
- Track 35 : FairyPath\_132
- Track 36 : BugsBunny\_132
- Track 37 : SirDuracell\_136
- Track 38 : Henry\_135
- Track 39 : Manda\_134
- Track 40 : Budgie\_142
- Track 41 : BigBubba\_136
- Track 42 : Namago\_97, Kyva\_100, Rudy\_93, Teehee\_96, Mentos\_99, Lonelysoil\_93, Grassboy\_100, Jehoshaphat\_97, Quammi\_95, Llemily\_95, Viceroy\_94, DonaldDuck\_95, SallyK\_97, Zagie\_97, Zhafia\_98, Sillytadpoles\_96
- Track 43 : RubyRalph\_95, SadLad\_96
- Track 44 : Statler\_98
- Track 45 : Romm\_103, Kelcole\_100, RobinRose\_103, Tempo\_102, KillerQueen\_103
- Track 46 : MorillMayhem\_94, BaconCheese\_98
- Track 47 : Judebell\_95, BabyDotz\_93
- Track 48 : BirdInFrench\_99, Wilca\_99
- Track 49 : Tissue\_97
- Track 50 : Hyperion\_94, Mashley\_94
- Track 51 : Phinky\_100
- Track 52 : Gazebo\_94, AluminumJesus\_92, Blab\_92
- Track 53 : Wayne3\_97, Phabia\_95, Wheelie\_95
- Track 54 : Mila11\_97
- Track 55 : Fransoyer\_95
- Track 56 : Altheas\_98
- Track 57 : EverythinBagel\_93
- Track 58 : FrankDeliGuy\_93, Rowlf\_92, SlySloth\_97
- Track 59 : StrawberryJamm\_101
- Track 60 : Casend\_96
- Track 61 : Pepe25\_97
- Track 62 : WheelerS25\_99
- Track 63 : Fregley\_101
- Track 64 : Fizzles\_93

- Track 65 : Nike\_93
- Track 66 : OneinaGillian\_98
- Track 67 : Squash\_97
- Track 68 : Talia1610\_304, Mimi\_18, Talia1610\_18, Mimi\_303
- Track 69 : LeoJr\_337, LeoJr\_24, Atuin\_20, Atuin\_320
- Track 70 : DunneganBoMo\_303, Emmetator\_8, Emmetator\_302, Artu\_298, KSunshine22\_11, WaddleDee\_8, BooTeria\_309, Artu\_11, WaddleDee\_299, KSunshine22\_303, BooTeria\_10, DunneganBoMo\_8
- Track 71 : ReginaGlobina\_332, ReginaGlobina\_21
- Track 72 : Patbob\_17, Patbob\_307
- Track 73 : Stewart25555\_12
- Track 74 : Racecar\_19, Racecar\_308, Bloom\_20, Bloom\_307, FrostedClock\_19, FrostedClock\_304
- Track 75 : FloraSnap32\_16, FloraSnap32\_301
- Track 76 : Rockabye\_19, Rockabye\_318
- Track 77 : Phrampa\_15, Phrampa\_300
- Track 78 : Thumb\_48
- Track 79 : Beckerton\_47, BobtimousPrime\_46, Phreeze\_46
- Track 80 : Oaker\_47
- Track 81 : Predator\_46
- Track 82 : Konstantine\_51
- Track 83 : Damien\_48, Cborch11\_49
- Track 84 : Megatron06\_49
- Track 85 : Laure\_339, Laure\_21
- Track 86 : Wildcat\_164, Azrael100\_156, MaryV\_150, Cosmo\_165
- Track 87 : EniyanLRS\_157
- Track 88 : 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 44, it was called in 154 of the 248 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 244\_134, ABCat\_134, Adnama\_138, Alatin\_58, Alpacados\_58, Amao\_137, 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, 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, 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, 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, Nala\_135, Nancinator\_58, Natosaleda\_58, NelitzaMV\_131, Nimrod\_133, NoSleep\_133, NonchalantPear\_132, Oaker\_47, Orchid\_108, OrionPax\_129, Palpatine\_133, Paperbeatsrock\_132, Partridge\_58, 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, RGL3\_51, Rakim\_134, Rasputin\_59, RexFury\_58, Rhodalysa\_59, RiverMonster\_132, RobinSparkles\_118, Saints25\_129, ShamWow\_133, ShereKhan\_133, Shuman\_60, Simpliphy\_132, SirDuracell\_136, SophKB\_131, Sotrice96\_138, StCroix\_58, Stank\_137, Stark\_131, StellaBean\_131, StolenFromERC\_136, StormChicken\_135, Swann\_59, TBrady12\_138, TWAMP\_59, Takoda\_59, Tarkin\_132, TeardropMSU\_134, Terminus\_136, Toto\_131, Traaww1\_129, Tuco\_139, UhSalsa\_59, Wiggin\_136, Wildcat\_164, Willez\_130, Xandras\_134, YassJohnny\_129, Yogi\_60, Yoncess\_58, Youngblood\_137, xkcd\_137,

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

- Bask21\_138, Bogg\_134, Bruin\_130, BugsBunny\_132, Cactus\_141, Dumbo\_134, Elph10\_131, FairyPath\_132, Goku\_132, Goldilocks\_139, Henry\_135, Kimchi\_139, MISSy\_135, Manda\_134, MollyToe\_127, PaddyBaddy\_130, Petra64142\_135, Porky\_135, Rimmer\_130, Sassay\_128, TeamEdward\_132, Thresher\_135, Tomaszewski\_127, Ukulele\_128,

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

- Altheas\_98, AluminumJesus\_92, Artu\_11, Artu\_298, Atuin\_20, Atuin\_320, BabyDotz\_93, BaconCheese\_98, Beckerton\_47, BillNye\_251, BillNye\_5, BirdInFrench\_99, Blab\_92, Bloom\_20, Bloom\_307, BobtimousPrime\_46, BooTeria\_10, BooTeria\_309, BruhMoment\_104, Casend\_96, Cborch11\_49, Chaewon\_255, Chaewon\_6, Circinus\_249, Circinus\_4, Damien\_48, DonaldDuck\_95, DunneganBoMo\_303, DunneganBoMo\_8, E3\_gp93, Emmetator\_302, Emmetator\_8, EverythinBagel\_93, Fizzles\_93, FloraSnap32\_16, FloraSnap32\_301, FrankDeliGuy\_93, Fransoyer\_95, Fregley\_101, FrostedClock\_19, FrostedClock\_304, Gazebo\_94, Grassboy\_100, Hyperion\_94, Jehoshaphat\_97, Judebell\_95, KSunshine22\_11, KSunshine22\_303, Kelcole\_100, KillerQueen\_103, Konstantine\_51, Kyva\_100, Laure\_21, Laure\_339, LeoJr\_24, LeoJr\_337, Llemily\_95, Lonelysoil\_93, Mashley\_94, Mentos\_99, Mila11\_97, Mimi\_18, Mimi\_303, MorillMayhem\_94, Muntaha\_267, Muntaha\_4, Namago\_97, Nike\_93, Octobien14\_140, OneinaGillian\_98, Patbob\_17, Patbob\_307, Pepe25\_97, Phabia\_95, Phinky\_100, Phrampa\_15, Phrampa\_300, Phreeze\_46, Predator\_46, Quammi\_95, Racecar\_19, Racecar\_308, ReginaGlobina\_21, ReginaGlobina\_332, RobinRose\_103, Rockabye\_19, Rockabye\_318, Romm\_103, Rowlf\_92, RubyRalph\_95, Rudy\_93, SadLad\_96, SallyK\_97, Sillytadpoles\_96, SlySloth\_97, Squash\_97, Statler\_98, Stewart25555\_12, StrawberryJamm\_101, Talia1610\_18, Talia1610\_304, Teehee\_96, Tempo\_102, Thumb\_48, Tissue\_97, Viceroy\_94, WaddleDee\_299, WaddleDee\_8, Wakanda\_262, Wakanda\_3, Wayne3\_97, WheelerS25\_99, Wheelie\_95, Wilca\_99, Zagie\_97, Zhafia\_98,

### Summary by start number:

Start 30:

- Found in 31 of 306 ( 10.1% ) of genes in pham
- Manual Annotations of this start: 10 of 248
- 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\_307 (FC), Phrampa\_15 (FC), Phrampa\_300 (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 31:

- Found in 4 of 306 ( 1.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Laure\_21 (UNK), Laure\_339 (UNK),

#### Start 32:

- Found in 87 of 306 ( 28.4% ) of genes in pham
- Manual Annotations of this start: 15 of 248
- Called 21.8% 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 33:

- Found in 1 of 306 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 248
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Manda\_134 (E),

#### Start 34:

- Found in 4 of 306 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 4 of 248
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BillNye\_251 (BK2), BillNye\_5 (BK2), Circinus\_249 (BK2), Circinus\_4 (BK2),

#### Start 35:

- Found in 6 of 306 ( 2.0% ) of genes in pham
- Manual Annotations of this start: 2 of 248
- 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 36:

- Found in 13 of 306 ( 4.2% ) of genes in pham
- Manual Annotations of this start: 2 of 248
- Called 15.4% of time when present
- Phage (with cluster) where this start called: BruhMoment\_104 (AP3), Henry\_135 (E),

#### Start 39:

- Found in 4 of 306 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 4 of 248
- 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 40:

- Found in 4 of 306 ( 1.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Chaewon\_255 (BK2), Chaewon\_6 (BK2),

#### Start 41:

- Found in 1 of 306 ( 0.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: E3\_gp93 (singleton),

#### Start 42:

- Found in 1 of 306 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 248
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Octobien14\_140 (DU1),

#### Start 43:

- Found in 8 of 306 ( 2.6% ) of genes in pham
- Manual Annotations of this start: 7 of 248
- 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 44:

- Found in 190 of 306 ( 62.1% ) of genes in pham
- Manual Annotations of this start: 154 of 248
- Called 87.4% of time when present
- Phage (with cluster) where this start called: 244\_134 (E), ABCat\_134 (E), Adnama\_138 (E), Alatin\_58 (CA), Alpacados\_58 (CA), Amao\_137 (E), 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), 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), Cosmo\_165 (V), CrystalP\_133 (E), Czyszczonek\_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), HuffyPuff\_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), 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), Nala\_135 (E), Nancinator\_58 (CA), Natosaleda\_58 (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), Pat3\_133 (E), PatrickStar\_109 (CX), Phaja\_137 (E), Pharsalus\_131 (E), PhatBacter\_136 (E), Phaux\_135 (E), Phrankenstein\_59 (CA), Phrux\_129 (E), Policronamos\_134 (E), Ptowny\_127 (E), Pumpkin\_133 (E), Qualification\_134 (E), RER2\_53 (CA), RGL3\_51 (CA), Rakim\_134 (E), Rasputin\_59 (CA), RexFury\_58 (CA), Rhodalysa\_59 (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), Stank\_137 (E), Stark\_131 (E), StellaBean\_131 (E), StolenFromERC\_136 (E), StormChicken\_135 (E), Swann\_59 (CA), TBrady12\_138 (E), TWAMP\_59 (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), Yoncess\_58 (CA), Youngblood\_137 (E), xkcd\_137 (E),

#### Start 45:

- Found in 3 of 306 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 2 of 248
- Called 100.0% of time when present
- Phage (with cluster) where this start called: FrankDeliGuy\_93 (EG), Rowlf\_92 (EG), SlySloth\_97 (EG),

#### Start 48:

- Found in 53 of 306 ( 17.3% ) of genes in pham
- Manual Annotations of this start: 46 of 248
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Altheas\_98 (EG), AluminumJesus\_92 (EG), BabyDotz\_93 (EG), BaconCheese\_98 (EG), BirdInFrench\_99 (EG), Blab\_92 (EG), Casend\_96 (EG), DonaldDuck\_95 (EG), EverythinBagel\_93 (EG), Fizzles\_93 (EG), Fransoyer\_95 (EG), Fregley\_101 (EG), Gazebo\_94 (EG), Grassboy\_100 (EG), Hyperion\_94 (EG), Jehoshaphat\_97 (EG), Judebell\_95 (EG), Kelcole\_100 (EG), KillerQueen\_103 (EG), Kyva\_100 (EG), Llemily\_95 (EG), Lonelysoil\_93 (EG), Mashley\_94 (EG), Mentos\_99 (EG), Mila11\_97 (EG), MorillMayhem\_94 (EG), Namago\_97 (EG), Nike\_93 (EG), OneinaGillian\_98 (EG), Pepe25\_97 (EG), Phabia\_95 (EG), Phinky\_100 (EG), Quammi\_95 (EG), RobinRose\_103 (EG), Romm\_103 (EG), RubyRalph\_95 (EG), Rudy\_93 (EG), SadLad\_96 (EG), SallyK\_97 (EG), Sillytadpoles\_96 (EG), Squash\_97 (EG), Statler\_98 (EG), StrawberryJamm\_101 (EG), Teehee\_96 (EG), Tempo\_102 (EG), Tissue\_97 (EG), Viceroy\_94 (EG), Wayne3\_97 (EG), WheelerS25\_99 (EG), Wheelie\_95 (EG), Wilca\_99 (EG), Zagie\_97 (EG), Zhafia\_98 (EG),

#### Start 49:

- Found in 225 of 306 ( 73.5% ) of genes in pham

- No Manual Annotations of this start.
- Called 0.9% of time when present
- Phage (with cluster) where this start called: FairyPath\_132 (E), MollyToe\_127 (E),

Start 54:

- Found in 108 of 306 ( 35.3% ) 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 12 clusters represented in this pham: singleton, E, AP3, EG, H1, CX, FC, BK2, V, DU1, UNK, CA,

Info for manual annotations of cluster AP3:

- Start number 36 was manually annotated 1 time for cluster AP3.

Info for manual annotations of cluster BK2:

- Start number 34 was manually annotated 4 times for cluster BK2.
- Start number 39 was manually annotated 4 times for cluster BK2.

Info for manual annotations of cluster CA:

- Start number 44 was manually annotated 35 times for cluster CA.

Info for manual annotations of cluster CX:

- Start number 44 was manually annotated 5 times for cluster CX.

Info for manual annotations of cluster DU1:

- Start number 42 was manually annotated 1 time for cluster DU1.

Info for manual annotations of cluster E:

- Start number 32 was manually annotated 15 times for cluster E.
- Start number 33 was manually annotated 1 time for cluster E.
- Start number 36 was manually annotated 1 time for cluster E.
- Start number 44 was manually annotated 107 times for cluster E.

Info for manual annotations of cluster EG:

- Start number 45 was manually annotated 2 times for cluster EG.
- Start number 48 was manually annotated 46 times for cluster EG.

Info for manual annotations of cluster FC:

- Start number 30 was manually annotated 10 times for cluster FC.
- Start number 35 was manually annotated 2 times for cluster FC.

Info for manual annotations of cluster H1:

- Start number 43 was manually annotated 7 times for cluster H1.
- Start number 44 was manually annotated 2 times for cluster H1.

Info for manual annotations of cluster V:

- Start number 44 was manually annotated 5 times for cluster V.

**Gene Information:**

Gene: 244\_134 Start: 70917, Stop: 70588, Start Num: 44

Candidate Starts for 244\_134:

(Start: 32 @70935 has 15 MA's), (Start: 44 @70917 has 154 MA's), (46, 70896), (49, 70884), (50, 70881), (54, 70860), (55, 70845),

Gene: ABCat\_134 Start: 72465, Stop: 72136, Start Num: 44

Candidate Starts for ABCat\_134:

(Start: 44 @72465 has 154 MA's), (46, 72444), (49, 72432), (50, 72429), (54, 72408), (55, 72393),

Gene: Adnama\_138 Start: 71581, Stop: 71252, Start Num: 44

Candidate Starts for Adnama\_138:

(Start: 32 @71599 has 15 MA's), (Start: 44 @71581 has 154 MA's), (46, 71560), (49, 71548), (50, 71545), (54, 71524), (55, 71509),

Gene: Alatin\_58 Start: 41201, Stop: 40866, Start Num: 44

Candidate Starts for Alatin\_58:

(Start: 44 @41201 has 154 MA's), (47, 41177), (49, 41168), (51, 41162), (55, 41129), (61, 41099), (66, 41078), (76, 41021), (104, 40871),

Gene: Alpacados\_58 Start: 41024, Stop: 40689, Start Num: 44

Candidate Starts for Alpacados\_58:

(Start: 44 @41024 has 154 MA's), (49, 40991), (51, 40985), (55, 40952), (61, 40922), (77, 40835), (104, 40694),

Gene: Altheas\_98 Start: 58956, Stop: 58630, Start Num: 48

Candidate Starts for Altheas\_98:

(Start: 48 @58956 has 46 MA's), (64, 58854),

Gene: AluminumJesus\_92 Start: 57388, Stop: 57038, Start Num: 48

Candidate Starts for AluminumJesus\_92:

(Start: 48 @57388 has 46 MA's), (60, 57295), (64, 57259),

Gene: Amao\_137 Start: 72289, Stop: 71960, Start Num: 44

Candidate Starts for Amao\_137:

(11, 72445), (14, 72421), (19, 72391), (25, 72364), (Start: 44 @72289 has 154 MA's), (46, 72268), (49, 72256), (55, 72217), (61, 72187), (79, 72085),

Gene: AmericanBeauty\_137 Start: 71623, Stop: 71294, Start Num: 44

Candidate Starts for AmericanBeauty\_137:

(Start: 32 @71641 has 15 MA's), (Start: 44 @71623 has 154 MA's), (46, 71602), (49, 71590), (50, 71587), (54, 71566), (55, 71551),

Gene: AngryOrchard\_56 Start: 41255, Stop: 40920, Start Num: 44

Candidate Starts for AngryOrchard\_56:

(Start: 44 @41255 has 154 MA's), (47, 41231), (49, 41222), (51, 41216), (55, 41183), (77, 41066), (104, 40925),

Gene: AppleCloud\_56 Start: 40918, Stop: 40583, Start Num: 44

Candidate Starts for AppleCloud\_56:

(5, 41137), (Start: 44 @40918 has 154 MA's), (47, 40894), (49, 40885), (51, 40879), (55, 40846), (61, 40816), (66, 40795), (76, 40738), (104, 40588),

Gene: Argent26\_138 Start: 71505, Stop: 71176, Start Num: 44

Candidate Starts for Argent26\_138:

(Start: 32 @71523 has 15 MA's), (Start: 44 @71505 has 154 MA's), (46, 71484), (49, 71472), (50, 71469), (54, 71448), (55, 71433),

Gene: Artu\_298 Start: 183957, Stop: 184358, Start Num: 30

Candidate Starts for Artu\_298:

(Start: 30 @183957 has 10 MA's), (63, 184113), (68, 184146), (85, 184257),

Gene: Artu\_11 Start: 4803, Stop: 5204, Start Num: 30

Candidate Starts for Artu\_11:

(Start: 30 @4803 has 10 MA's), (63, 4959), (68, 4992), (85, 5103),

Gene: Asriel\_130 Start: 69770, Stop: 69441, Start Num: 44

Candidate Starts for Asriel\_130:

(Start: 36 @69785 has 2 MA's), (Start: 44 @69770 has 154 MA's), (49, 69737), (55, 69698), (61, 69668),

Gene: Atuin\_20 Start: 9989, Stop: 10360, Start Num: 35

Candidate Starts for Atuin\_20:

(Start: 35 @9989 has 2 MA's), (71, 10175), (84, 10268), (88, 10286),

Gene: Atuin\_320 Start: 186877, Stop: 187248, Start Num: 35

Candidate Starts for Atuin\_320:

(Start: 35 @186877 has 2 MA's), (71, 187063), (84, 187156), (88, 187174),

Gene: Azrael100\_156 Start: 73905, Stop: 73585, Start Num: 44

Candidate Starts for Azrael100\_156:

(Start: 44 @73905 has 154 MA's), (49, 73872), (66, 73782), (79, 73701), (80, 73698), (83, 73674), (99, 73596),

Gene: BaboJay\_132 Start: 72084, Stop: 71755, Start Num: 44

Candidate Starts for BaboJay\_132:

(Start: 32 @72102 has 15 MA's), (Start: 44 @72084 has 154 MA's), (46, 72063), (49, 72051), (50, 72048), (54, 72027), (55, 72012),

Gene: BabyDotz\_93 Start: 59232, Stop: 58912, Start Num: 48

Candidate Starts for BabyDotz\_93:

(Start: 48 @59232 has 46 MA's), (57, 59169), (64, 59130), (74, 59085), (89, 58983),

Gene: BaconCheese\_98 Start: 59330, Stop: 59007, Start Num: 48

Candidate Starts for BaconCheese\_98:

(Start: 48 @59330 has 46 MA's), (58, 59270), (64, 59228), (79, 59138),

Gene: BadStone\_134 Start: 72013, Stop: 71684, Start Num: 44

Candidate Starts for BadStone\_134:

(Start: 44 @72013 has 154 MA's), (46, 71992), (49, 71980), (50, 71977), (54, 71956), (55, 71941),

Gene: Balomoji\_133 Start: 71559, Stop: 71230, Start Num: 44

Candidate Starts for Balomoji\_133:

(Start: 36 @71574 has 2 MA's), (Start: 44 @71559 has 154 MA's), (49, 71526), (55, 71487), (61, 71457),

Gene: Barbarian\_133 Start: 69770, Stop: 69441, Start Num: 44

Candidate Starts for Barbarian\_133:

(Start: 36 @69785 has 2 MA's), (Start: 44 @69770 has 154 MA's), (49, 69737), (55, 69698), (61, 69668),

Gene: Bask21\_138 Start: 70954, Stop: 70607, Start Num: 32

Candidate Starts for Bask21\_138:

(Start: 32 @70954 has 15 MA's), (Start: 44 @70936 has 154 MA's), (46, 70915), (49, 70903), (50, 70900), (54, 70879), (55, 70864),

Gene: Beckerton\_47 Start: 40622, Stop: 40957, Start Num: 43

Candidate Starts for Beckerton\_47:

(37, 40610), (Start: 43 @40622 has 7 MA's), (49, 40655), (61, 40724), (72, 40775), (79, 40826),

Gene: Becksu\_131 Start: 71737, Stop: 71408, Start Num: 44

Candidate Starts for Becksu\_131:

(11, 71893), (12, 71887), (13, 71881), (14, 71869), (20, 71836), (21, 71830), (24, 71815), (29, 71770), (Start: 44 @71737 has 154 MA's), (46, 71716), (49, 71704), (50, 71701), (54, 71680), (55, 71665),

Gene: Belenaria\_60 Start: 41066, Stop: 40731, Start Num: 44

Candidate Starts for Belenaria\_60:

(5, 41285), (Start: 44 @41066 has 154 MA's), (47, 41042), (49, 41033), (51, 41027), (55, 40994), (61, 40964), (66, 40943), (76, 40886), (104, 40736),

Gene: Bench\_135 Start: 71810, Stop: 71481, Start Num: 44

Candidate Starts for Bench\_135:

(Start: 32 @71828 has 15 MA's), (Start: 44 @71810 has 154 MA's), (46, 71789), (49, 71777), (50, 71774), (54, 71753), (55, 71738),

Gene: BigBubba\_136 Start: 71015, Stop: 70686, Start Num: 44

Candidate Starts for BigBubba\_136:

(Start: 32 @71033 has 15 MA's), (Start: 44 @71015 has 154 MA's), (49, 70982), (50, 70979), (54, 70958), (55, 70943),

Gene: BilboSwaggins\_131 Start: 72050, Stop: 71721, Start Num: 44

Candidate Starts for BilboSwaggins\_131:

(Start: 36 @72065 has 2 MA's), (Start: 44 @72050 has 154 MA's), (49, 72017), (55, 71978), (61, 71948),

Gene: BillNye\_5 Start: 1694, Stop: 2023, Start Num: 34

Candidate Starts for BillNye\_5:

(Start: 34 @1694 has 4 MA's), (40, 1700), (46, 1730), (49, 1742), (55, 1781), (80, 1907), (83, 1931),

Gene: BillNye\_251 Start: 126516, Stop: 126845, Start Num: 34

Candidate Starts for BillNye\_251:

(Start: 34 @126516 has 4 MA's), (40, 126522), (46, 126552), (49, 126564), (55, 126603), (80, 126729), (83, 126753),

Gene: BirdInFrench\_99 Start: 59663, Stop: 59343, Start Num: 48

Candidate Starts for BirdInFrench\_99:

(Start: 48 @59663 has 46 MA's), (56, 59603), (64, 59561),

Gene: Blab\_92 Start: 57961, Stop: 57611, Start Num: 48

Candidate Starts for Blab\_92:

(Start: 48 @57961 has 46 MA's), (60, 57868), (64, 57832),

Gene: Bloom\_20 Start: 9417, Stop: 9824, Start Num: 30

Candidate Starts for Bloom\_20:

(Start: 30 @9417 has 10 MA's), (49, 9483), (55, 9525), (64, 9579), (68, 9606), (83, 9708), (93, 9753), (103, 9804),

Gene: Bloom\_307 Start: 182892, Stop: 183299, Start Num: 30

Candidate Starts for Bloom\_307:

(Start: 30 @182892 has 10 MA's), (49, 182958), (55, 183000), (64, 183054), (68, 183081), (83, 183183), (93, 183228), (103, 183279),

Gene: BobbyDazzler\_59 Start: 41171, Stop: 40836, Start Num: 44

Candidate Starts for BobbyDazzler\_59:

(Start: 44 @41171 has 154 MA's), (49, 41138), (51, 41132), (55, 41099), (61, 41069), (77, 40982), (104, 40841),

Gene: BobtimousPrime\_46 Start: 40584, Stop: 40919, Start Num: 43

Candidate Starts for BobtimousPrime\_46:

(37, 40572), (Start: 43 @40584 has 7 MA's), (49, 40617), (61, 40686), (72, 40737), (79, 40788),

Gene: Bogg\_134 Start: 71566, Stop: 71219, Start Num: 32

Candidate Starts for Bogg\_134:

(Start: 32 @71566 has 15 MA's), (Start: 44 @71548 has 154 MA's), (46, 71527), (49, 71515), (50, 71512), (54, 71491), (55, 71476),

Gene: Bonanza\_60 Start: 41476, Stop: 41141, Start Num: 44

Candidate Starts for Bonanza\_60:

(Start: 44 @41476 has 154 MA's), (49, 41443), (51, 41437), (55, 41404), (61, 41374), (77, 41287), (104, 41146),

Gene: BooTeria\_309 Start: 183468, Stop: 183869, Start Num: 30

Candidate Starts for BooTeria\_309:

(Start: 30 @183468 has 10 MA's), (63, 183624), (68, 183657), (85, 183768),

Gene: BooTeria\_10 Start: 4559, Stop: 4960, Start Num: 30

Candidate Starts for BooTeria\_10:

(Start: 30 @4559 has 10 MA's), (63, 4715), (68, 4748), (85, 4859),

Gene: Bradshaw\_59 Start: 41134, Stop: 40799, Start Num: 44

Candidate Starts for Bradshaw\_59:

(Start: 44 @41134 has 154 MA's), (47, 41110), (49, 41101), (51, 41095), (55, 41062), (61, 41032), (66, 41011), (76, 40954), (104, 40804),

Gene: Brewer\_125 Start: 69738, Stop: 69409, Start Num: 44

Candidate Starts for Brewer\_125:

(9, 69906), (21, 69831), (24, 69816), (29, 69771), (Start: 44 @69738 has 154 MA's), (46, 69717), (49, 69705), (55, 69666),

Gene: BruhMoment\_104 Start: 63229, Stop: 62861, Start Num: 36  
Candidate Starts for BruhMoment\_104:  
(Start: 36 @63229 has 2 MA's), (49, 63178), (60, 63118), (63, 63088), (71, 63043), (92, 62914),

Gene: Bruin\_130 Start: 70212, Stop: 69865, Start Num: 32  
Candidate Starts for Bruin\_130:  
(Start: 32 @70212 has 15 MA's), (Start: 44 @70194 has 154 MA's), (46, 70173), (49, 70161), (50, 70158), (54, 70137), (55, 70122),

Gene: Bryce\_58 Start: 40879, Stop: 40544, Start Num: 44  
Candidate Starts for Bryce\_58:  
(Start: 44 @40879 has 154 MA's), (49, 40846), (51, 40840), (55, 40807), (61, 40777), (77, 40690), (104, 40549),

Gene: Buck\_134 Start: 72463, Stop: 72134, Start Num: 44  
Candidate Starts for Buck\_134:  
(Start: 32 @72481 has 15 MA's), (Start: 44 @72463 has 154 MA's), (46, 72442), (49, 72430), (50, 72427), (54, 72406), (55, 72391),

Gene: Budgie\_142 Start: 72650, Stop: 72321, Start Num: 44  
Candidate Starts for Budgie\_142:  
(Start: 36 @72665 has 2 MA's), (Start: 44 @72650 has 154 MA's), (49, 72617), (55, 72578), (61, 72548), (79, 72446), (80, 72443),

Gene: BugsBunny\_132 Start: 71452, Stop: 71180, Start Num: 54  
Candidate Starts for BugsBunny\_132:  
(Start: 32 @71527 has 15 MA's), (Start: 44 @71509 has 154 MA's), (46, 71488), (49, 71476), (50, 71473), (54, 71452), (55, 71437),

Gene: Cactus\_141 Start: 71625, Stop: 71278, Start Num: 32  
Candidate Starts for Cactus\_141:  
(Start: 32 @71625 has 15 MA's), (Start: 44 @71607 has 154 MA's), (46, 71586), (49, 71574), (50, 71571), (54, 71550), (55, 71535),

Gene: Casend\_96 Start: 58580, Stop: 58188, Start Num: 48  
Candidate Starts for Casend\_96:  
(Start: 48 @58580 has 46 MA's), (64, 58475), (70, 58445), (93, 58307), (98, 58280), (102, 58259),

Gene: Cborch11\_49 Start: 40138, Stop: 40473, Start Num: 43  
Candidate Starts for Cborch11\_49:  
(Start: 43 @40138 has 7 MA's), (49, 40171), (52, 40189), (61, 40240), (79, 40342), (81, 40351),

Gene: Chaewon\_6 Start: 1449, Stop: 1772, Start Num: 40  
Candidate Starts for Chaewon\_6:  
(40, 1449), (49, 1491), (55, 1530), (62, 1566), (75, 1623), (84, 1686),

Gene: Chaewon\_255 Start: 127176, Stop: 127499, Start Num: 40  
Candidate Starts for Chaewon\_255:  
(40, 127176), (49, 127218), (55, 127257), (62, 127293), (75, 127350), (84, 127413),

Gene: ChosenOne\_134 Start: 70987, Stop: 70658, Start Num: 44  
Candidate Starts for ChosenOne\_134:

(Start: 32 @71005 has 15 MA's), (Start: 44 @70987 has 154 MA's), (46, 70966), (49, 70954), (50, 70951), (54, 70930), (55, 70915),

Gene: ChotaBhai\_137 Start: 71772, Stop: 71443, Start Num: 44

Candidate Starts for ChotaBhai\_137:

(Start: 32 @71790 has 15 MA's), (Start: 44 @71772 has 154 MA's), (46, 71751), (49, 71739), (50, 71736), (54, 71715), (55, 71700),

Gene: Circinus\_4 Start: 1488, Stop: 1817, Start Num: 34

Candidate Starts for Circinus\_4:

(31, 1479), (Start: 34 @1488 has 4 MA's), (46, 1524), (49, 1536), (55, 1575), (80, 1701), (83, 1725),

Gene: Circinus\_249 Start: 125815, Stop: 126144, Start Num: 34

Candidate Starts for Circinus\_249:

(31, 125806), (Start: 34 @125815 has 4 MA's), (46, 125851), (49, 125863), (55, 125902), (80, 126028), (83, 126052),

Gene: Cjw1\_131 Start: 72188, Stop: 71859, Start Num: 44

Candidate Starts for Cjw1\_131:

(Start: 32 @72206 has 15 MA's), (Start: 44 @72188 has 154 MA's), (46, 72167), (49, 72155), (50, 72152), (54, 72131), (55, 72116),

Gene: Command613\_135 Start: 71551, Stop: 71222, Start Num: 44

Candidate Starts for Command613\_135:

(9, 71719), (12, 71701), (20, 71650), (21, 71644), (24, 71629), (29, 71584), (Start: 44 @71551 has 154 MA's), (46, 71530), (49, 71518), (55, 71479), (61, 71449), (79, 71347), (80, 71344),

Gene: Contagion\_129 Start: 70556, Stop: 70227, Start Num: 44

Candidate Starts for Contagion\_129:

(Start: 32 @70574 has 15 MA's), (Start: 44 @70556 has 154 MA's), (46, 70535), (49, 70523), (50, 70520), (54, 70499), (55, 70484),

Gene: Cookies\_134 Start: 72098, Stop: 71769, Start Num: 44

Candidate Starts for Cookies\_134:

(Start: 32 @72116 has 15 MA's), (Start: 44 @72098 has 154 MA's), (46, 72077), (49, 72065), (50, 72062), (54, 72041), (55, 72026),

Gene: CosmicSans\_59 Start: 41125, Stop: 40790, Start Num: 44

Candidate Starts for CosmicSans\_59:

(Start: 44 @41125 has 154 MA's), (49, 41092), (51, 41086), (55, 41053), (61, 41023), (77, 40936), (104, 40795),

Gene: Cosmo\_165 Start: 74069, Stop: 73749, Start Num: 44

Candidate Starts for Cosmo\_165:

(Start: 44 @74069 has 154 MA's), (49, 74036), (66, 73946), (79, 73865), (80, 73862), (83, 73838), (99, 73760),

Gene: CrystalP\_133 Start: 72050, Stop: 71721, Start Num: 44

Candidate Starts for CrystalP\_133:

(Start: 36 @72065 has 2 MA's), (Start: 44 @72050 has 154 MA's), (49, 72017), (55, 71978), (61, 71948),

Gene: Czyszczonek1\_133 Start: 71002, Stop: 70673, Start Num: 44

Candidate Starts for Czyszczone1\_133:

(Start: 32 @71020 has 15 MA's), (Start: 44 @71002 has 154 MA's), (46, 70981), (49, 70969), (50, 70966), (55, 70930),

Gene: Daikon\_135 Start: 70855, Stop: 70526, Start Num: 44

Candidate Starts for Daikon\_135:

(Start: 36 @70870 has 2 MA's), (Start: 44 @70855 has 154 MA's), (49, 70822), (55, 70783), (61, 70753),

Gene: Damien\_48 Start: 40101, Stop: 40436, Start Num: 43

Candidate Starts for Damien\_48:

(Start: 43 @40101 has 7 MA's), (49, 40134), (52, 40152), (61, 40203), (79, 40305), (81, 40314),

Gene: Dinger\_58 Start: 41269, Stop: 40934, Start Num: 44

Candidate Starts for Dinger\_58:

(5, 41488), (Start: 44 @41269 has 154 MA's), (46, 41248), (47, 41245), (49, 41236), (51, 41230), (55, 41197), (61, 41167), (77, 41080), (104, 40939),

Gene: DoctorDiddles\_131 Start: 70509, Stop: 70180, Start Num: 44

Candidate Starts for DoctorDiddles\_131:

(Start: 44 @70509 has 154 MA's), (46, 70488), (49, 70476), (50, 70473), (54, 70452), (55, 70437),

Gene: DonaldDuck\_95 Start: 57965, Stop: 57642, Start Num: 48

Candidate Starts for DonaldDuck\_95:

(Start: 48 @57965 has 46 MA's), (64, 57869), (69, 57845), (93, 57701),

Gene: DrDrey\_136 Start: 73246, Stop: 72917, Start Num: 44

Candidate Starts for DrDrey\_136:

(9, 73414), (21, 73339), (24, 73324), (29, 73279), (Start: 44 @73246 has 154 MA's), (49, 73213), (50, 73210), (54, 73189), (55, 73174),

Gene: Dumbo\_134 Start: 71215, Stop: 70868, Start Num: 32

Candidate Starts for Dumbo\_134:

(Start: 32 @71215 has 15 MA's), (Start: 44 @71197 has 154 MA's), (46, 71176), (49, 71164), (50, 71161), (54, 71140), (55, 71125),

Gene: DunneganBoMo\_303 Start: 183982, Stop: 184383, Start Num: 30

Candidate Starts for DunneganBoMo\_303:

(Start: 30 @183982 has 10 MA's), (63, 184138), (68, 184171), (85, 184282),

Gene: DunneganBoMo\_8 Start: 4570, Stop: 4971, Start Num: 30

Candidate Starts for DunneganBoMo\_8:

(Start: 30 @4570 has 10 MA's), (63, 4726), (68, 4759), (85, 4870),

Gene: Dusk\_134 Start: 71673, Stop: 71344, Start Num: 44

Candidate Starts for Dusk\_134:

(Start: 44 @71673 has 154 MA's), (46, 71652), (49, 71640), (50, 71637), (54, 71616), (55, 71601),

Gene: E3\_gp93 Start: 53631, Stop: 53960, Start Num: 41

Candidate Starts for E3\_gp93:

(41, 53631), (46, 53661), (53, 53694), (83, 53865), (100, 53949),

Gene: Easy2Say\_135 Start: 71971, Stop: 71642, Start Num: 44

Candidate Starts for Easy2Say\_135:

(Start: 32 @71989 has 15 MA's), (Start: 44 @71971 has 154 MA's), (46, 71950), (49, 71938), (50, 71935), (54, 71914), (55, 71899),

Gene: Elite2014\_133 Start: 70986, Stop: 70657, Start Num: 44

Candidate Starts for Elite2014\_133:

(Start: 32 @71004 has 15 MA's), (Start: 44 @70986 has 154 MA's), (46, 70965), (49, 70953), (50, 70950), (54, 70929), (55, 70914),

Gene: Elph10\_131 Start: 70322, Stop: 69975, Start Num: 32

Candidate Starts for Elph10\_131:

(Start: 32 @70322 has 15 MA's), (Start: 44 @70304 has 154 MA's), (46, 70283), (49, 70271), (50, 70268), (55, 70232),

Gene: Emmetator\_8 Start: 4730, Stop: 5131, Start Num: 30

Candidate Starts for Emmetator\_8:

(Start: 30 @4730 has 10 MA's), (63, 4886), (68, 4919), (85, 5030),

Gene: Emmetator\_302 Start: 183030, Stop: 183431, Start Num: 30

Candidate Starts for Emmetator\_302:

(Start: 30 @183030 has 10 MA's), (63, 183186), (68, 183219), (85, 183330),

Gene: Emmina\_134 Start: 70923, Stop: 70594, Start Num: 44

Candidate Starts for Emmina\_134:

(Start: 32 @70941 has 15 MA's), (Start: 44 @70923 has 154 MA's), (46, 70902), (49, 70890), (50, 70887), (54, 70866), (55, 70851),

Gene: EniyanLRS\_157 Start: 74396, Stop: 74076, Start Num: 44

Candidate Starts for EniyanLRS\_157:

(Start: 44 @74396 has 154 MA's), (49, 74363), (79, 74192), (80, 74189), (83, 74165), (99, 74087),

Gene: Erik\_59 Start: 40956, Stop: 40621, Start Num: 44

Candidate Starts for Erik\_59:

(Start: 44 @40956 has 154 MA's), (49, 40923), (51, 40917), (55, 40884), (61, 40854), (77, 40767), (104, 40626),

Gene: Espica\_60 Start: 41066, Stop: 40731, Start Num: 44

Candidate Starts for Espica\_60:

(5, 41285), (Start: 44 @41066 has 154 MA's), (47, 41042), (49, 41033), (51, 41027), (55, 40994), (61, 40964), (66, 40943), (76, 40886), (104, 40736),

Gene: Eureka\_133 Start: 71851, Stop: 71522, Start Num: 44

Candidate Starts for Eureka\_133:

(Start: 32 @71869 has 15 MA's), (Start: 44 @71851 has 154 MA's), (46, 71830), (49, 71818), (50, 71815), (54, 71794), (55, 71779),

Gene: EverythinBagel\_93 Start: 57764, Stop: 57441, Start Num: 48

Candidate Starts for EverythinBagel\_93:

(Start: 48 @57764 has 46 MA's), (64, 57668), (69, 57644), (93, 57500), (98, 57473),

Gene: FairyPath\_132 Start: 71841, Stop: 71545, Start Num: 49

Candidate Starts for FairyPath\_132:

(Start: 44 @71874 has 154 MA's), (46, 71853), (49, 71841), (50, 71838), (54, 71817), (55, 71802),

Gene: Filch\_135 Start: 71126, Stop: 70797, Start Num: 44  
Candidate Starts for Filch\_135:  
(Start: 44 @71126 has 154 MA's), (46, 71105), (49, 71093), (50, 71090), (54, 71069), (55, 71054),

Gene: FireRed\_136 Start: 71634, Stop: 71305, Start Num: 44  
Candidate Starts for FireRed\_136:  
(11, 71790), (12, 71784), (13, 71778), (14, 71766), (20, 71733), (21, 71727), (24, 71712), (29, 71667),  
(Start: 44 @71634 has 154 MA's), (46, 71613), (49, 71601), (55, 71562), (61, 71532), (79, 71430), (80,  
71427),

Gene: Fizzles\_93 Start: 57979, Stop: 57638, Start Num: 48  
Candidate Starts for Fizzles\_93:  
(Start: 48 @57979 has 46 MA's), (64, 57877), (86, 57748),

Gene: FloraSnap32\_16 Start: 8176, Stop: 8583, Start Num: 30  
Candidate Starts for FloraSnap32\_16:  
(Start: 30 @8176 has 10 MA's), (49, 8242), (55, 8284), (63, 8332), (94, 8515), (103, 8563),

Gene: FloraSnap32\_301 Start: 182314, Stop: 182721, Start Num: 30  
Candidate Starts for FloraSnap32\_301:  
(Start: 30 @182314 has 10 MA's), (49, 182380), (55, 182422), (63, 182470), (94, 182653), (103,  
182701),

Gene: Flypotenuse\_128 Start: 70424, Stop: 70095, Start Num: 44  
Candidate Starts for Flypotenuse\_128:  
(Start: 36 @70439 has 2 MA's), (Start: 44 @70424 has 154 MA's), (49, 70391), (55, 70352), (61,  
70322),

Gene: FoghornLeghorn\_131 Start: 70074, Stop: 69745, Start Num: 44  
Candidate Starts for FoghornLeghorn\_131:  
(Start: 32 @70092 has 15 MA's), (Start: 44 @70074 has 154 MA's), (46, 70053), (49, 70041), (50,  
70038), (54, 70017), (55, 70002),

Gene: FrankDeliGuy\_93 Start: 58269, Stop: 57925, Start Num: 45  
Candidate Starts for FrankDeliGuy\_93:  
(38, 58284), (Start: 45 @58269 has 2 MA's), (57, 58182), (64, 58143), (74, 58098), (89, 57996),

Gene: Fransoyer\_95 Start: 59536, Stop: 59192, Start Num: 48  
Candidate Starts for Fransoyer\_95:  
(22, 59644), (Start: 48 @59536 has 46 MA's), (55, 59488), (56, 59476), (70, 59401), (89, 59278), (95,  
59257),

Gene: Fregley\_101 Start: 59890, Stop: 59573, Start Num: 48  
Candidate Starts for Fregley\_101:  
(4, 60133), (Start: 48 @59890 has 46 MA's), (56, 59830), (64, 59788),

Gene: FrostedClock\_19 Start: 8848, Stop: 9255, Start Num: 30  
Candidate Starts for FrostedClock\_19:  
(Start: 30 @8848 has 10 MA's), (49, 8914), (55, 8956), (64, 9010), (68, 9037), (83, 9139), (93, 9184),  
(103, 9235),

Gene: FrostedClock\_304 Start: 182648, Stop: 183055, Start Num: 30

Candidate Starts for FrostedClock\_304:

(Start: 30 @182648 has 10 MA's), (49, 182714), (55, 182756), (64, 182810), (68, 182837), (83, 182939), (93, 182984), (103, 183035),

Gene: Gator\_135 Start: 71964, Stop: 71635, Start Num: 44

Candidate Starts for Gator\_135:

(Start: 44 @71964 has 154 MA's), (46, 71943), (49, 71931), (50, 71928), (54, 71907), (55, 71892),

Gene: Gazebo\_94 Start: 57966, Stop: 57616, Start Num: 48

Candidate Starts for Gazebo\_94:

(Start: 48 @57966 has 46 MA's), (60, 57873), (64, 57837),

Gene: Gemini\_139 Start: 72022, Stop: 71693, Start Num: 44

Candidate Starts for Gemini\_139:

(Start: 32 @72040 has 15 MA's), (Start: 44 @72022 has 154 MA's), (46, 72001), (49, 71989), (50, 71986), (54, 71965), (55, 71950),

Gene: Gibbles\_111 Start: 76317, Stop: 75979, Start Num: 44

Candidate Starts for Gibbles\_111:

(26, 76365), (Start: 44 @76317 has 154 MA's), (49, 76284), (61, 76215), (69, 76167), (77, 76113), (79, 76098), (96, 76017),

Gene: Glexan\_137 Start: 72114, Stop: 71785, Start Num: 44

Candidate Starts for Glexan\_137:

(Start: 44 @72114 has 154 MA's), (46, 72093), (49, 72081), (50, 72078), (54, 72057), (55, 72042),

Gene: Goku\_132 Start: 72178, Stop: 71831, Start Num: 32

Candidate Starts for Goku\_132:

(Start: 32 @72178 has 15 MA's), (Start: 44 @72160 has 154 MA's), (46, 72139), (49, 72127), (50, 72124), (54, 72103), (55, 72088),

Gene: GoldenSpark\_138 Start: 71505, Stop: 71176, Start Num: 44

Candidate Starts for GoldenSpark\_138:

(Start: 32 @71523 has 15 MA's), (Start: 44 @71505 has 154 MA's), (46, 71484), (49, 71472), (50, 71469), (54, 71448), (55, 71433),

Gene: Goldilocks\_139 Start: 72119, Stop: 71772, Start Num: 32

Candidate Starts for Goldilocks\_139:

(Start: 32 @72119 has 15 MA's), (Start: 44 @72101 has 154 MA's), (46, 72080), (49, 72068), (50, 72065), (54, 72044), (55, 72029),

Gene: Gollum\_59 Start: 41067, Stop: 40732, Start Num: 44

Candidate Starts for Gollum\_59:

(Start: 44 @41067 has 154 MA's), (49, 41034), (51, 41028), (55, 40995), (61, 40965), (77, 40878), (104, 40737),

Gene: GooberAzure\_136 Start: 71505, Stop: 71176, Start Num: 44

Candidate Starts for GooberAzure\_136:

(Start: 32 @71523 has 15 MA's), (Start: 44 @71505 has 154 MA's), (46, 71484), (49, 71472), (50, 71469), (54, 71448), (55, 71433),

Gene: Grassboy\_100 Start: 58866, Stop: 58543, Start Num: 48

Candidate Starts for Grassboy\_100:

(Start: 48 @58866 has 46 MA's), (64, 58770), (69, 58746), (93, 58602),

Gene: Greep\_137 Start: 72326, Stop: 71997, Start Num: 44

Candidate Starts for Greep\_137:

(Start: 32 @72344 has 15 MA's), (Start: 44 @72326 has 154 MA's), (46, 72305), (49, 72293), (50, 72290), (54, 72269), (55, 72254),

Gene: HanKaySha\_133 Start: 71459, Stop: 71130, Start Num: 44

Candidate Starts for HanKaySha\_133:

(Start: 32 @71477 has 15 MA's), (Start: 44 @71459 has 154 MA's), (46, 71438), (49, 71426), (50, 71423), (54, 71402), (55, 71387),

Gene: Harella\_139 Start: 72630, Stop: 72301, Start Num: 44

Candidate Starts for Harella\_139:

(Start: 44 @72630 has 154 MA's), (46, 72609), (49, 72597), (50, 72594), (54, 72573), (55, 72558),

Gene: Harlequin\_59 Start: 40914, Stop: 40579, Start Num: 44

Candidate Starts for Harlequin\_59:

(Start: 44 @40914 has 154 MA's), (49, 40881), (51, 40875), (55, 40842), (61, 40812), (66, 40791), (77, 40725), (101, 40590), (104, 40584),

Gene: Henry\_135 Start: 71930, Stop: 71586, Start Num: 36

Candidate Starts for Henry\_135:

(Start: 36 @71930 has 2 MA's), (Start: 44 @71915 has 154 MA's), (49, 71882), (55, 71843), (61, 71813),

Gene: Highbury\_129 Start: 69399, Stop: 69070, Start Num: 44

Candidate Starts for Highbury\_129:

(Start: 44 @69399 has 154 MA's), (46, 69378), (49, 69366), (50, 69363), (54, 69342), (55, 69327),

Gene: Hiro\_59 Start: 41385, Stop: 41050, Start Num: 44

Candidate Starts for Hiro\_59:

(Start: 44 @41385 has 154 MA's), (49, 41352), (51, 41346), (55, 41313), (61, 41283), (77, 41196), (104, 41055),

Gene: Holt\_139 Start: 72058, Stop: 71729, Start Num: 44

Candidate Starts for Holt\_139:

(11, 72214), (12, 72208), (13, 72202), (14, 72190), (20, 72157), (21, 72151), (24, 72136), (29, 72091), (Start: 44 @72058 has 154 MA's), (46, 72037), (49, 72025), (55, 71986), (61, 71956), (79, 71854), (80, 71851),

Gene: Hoonter\_136 Start: 71546, Stop: 71217, Start Num: 44

Candidate Starts for Hoonter\_136:

(Start: 44 @71546 has 154 MA's), (46, 71525), (49, 71513), (50, 71510), (54, 71489), (55, 71474),

Gene: Hokey\_132 Start: 71553, Stop: 71224, Start Num: 44

Candidate Starts for Hokey\_132:

(Start: 32 @71571 has 15 MA's), (Start: 44 @71553 has 154 MA's), (46, 71532), (49, 71520), (50, 71517), (54, 71496), (55, 71481),

Gene: HuffyPuff\_135 Start: 71860, Stop: 71531, Start Num: 44

Candidate Starts for HuffyPuff\_135:

(11, 72016), (12, 72010), (13, 72004), (14, 71992), (20, 71959), (21, 71953), (24, 71938), (29, 71893), (Start: 44 @71860 has 154 MA's), (46, 71839), (49, 71827), (55, 71788), (61, 71758), (79, 71656), (80, 71653),

Gene: Hyperion\_94 Start: 58008, Stop: 57682, Start Num: 48

Candidate Starts for Hyperion\_94:

(Start: 48 @58008 has 46 MA's), (60, 57939), (93, 57741),

Gene: IHOP\_137 Start: 71489, Stop: 71160, Start Num: 44

Candidate Starts for IHOP\_137:

(Start: 32 @71507 has 15 MA's), (Start: 44 @71489 has 154 MA's), (46, 71468), (49, 71456), (50, 71453), (54, 71432), (55, 71417),

Gene: Icee\_138 Start: 71365, Stop: 71036, Start Num: 44

Candidate Starts for Icee\_138:

(Start: 36 @71380 has 2 MA's), (Start: 44 @71365 has 154 MA's), (49, 71332), (55, 71293),

Gene: Inca\_132 Start: 69509, Stop: 69180, Start Num: 44

Candidate Starts for Inca\_132:

(Start: 32 @69527 has 15 MA's), (Start: 44 @69509 has 154 MA's), (46, 69488), (49, 69476), (50, 69473), (54, 69452), (55, 69437),

Gene: JeTaime\_131 Start: 71025, Stop: 70696, Start Num: 44

Candidate Starts for JeTaime\_131:

(Start: 32 @71043 has 15 MA's), (Start: 44 @71025 has 154 MA's), (46, 71004), (49, 70992), (55, 70953),

Gene: Jehoshaphat\_97 Start: 58599, Stop: 58276, Start Num: 48

Candidate Starts for Jehoshaphat\_97:

(Start: 48 @58599 has 46 MA's), (64, 58503), (69, 58479), (93, 58335),

Gene: Jester\_58 Start: 40845, Stop: 40510, Start Num: 44

Candidate Starts for Jester\_58:

(Start: 44 @40845 has 154 MA's), (49, 40812), (51, 40806), (55, 40773), (61, 40743), (66, 40722), (77, 40656), (101, 40521), (104, 40515),

Gene: Judebell\_95 Start: 57999, Stop: 57679, Start Num: 48

Candidate Starts for Judebell\_95:

(Start: 48 @57999 has 46 MA's), (57, 57936), (64, 57897), (74, 57852), (89, 57750),

Gene: KSunshine22\_11 Start: 5160, Stop: 5561, Start Num: 30

Candidate Starts for KSunshine22\_11:

(Start: 30 @5160 has 10 MA's), (63, 5316), (68, 5349), (85, 5460),

Gene: KSunshine22\_303 Start: 182061, Stop: 182462, Start Num: 30

Candidate Starts for KSunshine22\_303:

(Start: 30 @182061 has 10 MA's), (63, 182217), (68, 182250), (85, 182361),

Gene: Kampe\_109 Start: 75739, Stop: 75401, Start Num: 44

Candidate Starts for Kampe\_109:

(26, 75787), (Start: 44 @75739 has 154 MA's), (49, 75706), (61, 75637), (69, 75589), (77, 75535), (79, 75520), (96, 75439),

Gene: Kanye\_130 Start: 71520, Stop: 71191, Start Num: 44  
Candidate Starts for Kanye\_130:  
(Start: 32 @71538 has 15 MA's), (Start: 44 @71520 has 154 MA's), (46, 71499), (49, 71487), (50, 71484), (54, 71463), (55, 71448),

Gene: Kelcole\_100 Start: 60397, Stop: 60080, Start Num: 48  
Candidate Starts for Kelcole\_100:  
(Start: 48 @60397 has 46 MA's), (56, 60337), (64, 60295),

Gene: KillerQueen\_103 Start: 60316, Stop: 59999, Start Num: 48  
Candidate Starts for KillerQueen\_103:  
(Start: 48 @60316 has 46 MA's), (56, 60256), (64, 60214),

Gene: Kimchi\_139 Start: 72244, Stop: 71897, Start Num: 32  
Candidate Starts for Kimchi\_139:  
(Start: 32 @72244 has 15 MA's), (Start: 44 @72226 has 154 MA's), (46, 72205), (49, 72193), (50, 72190), (54, 72169), (55, 72154),

Gene: Konstantine\_51 Start: 40932, Stop: 41267, Start Num: 43  
Candidate Starts for Konstantine\_51:  
(37, 40920), (Start: 43 @40932 has 7 MA's), (49, 40965), (61, 41034), (72, 41085), (79, 41136), (81, 41145),

Gene: Kostya\_134 Start: 71590, Stop: 71261, Start Num: 44  
Candidate Starts for Kostya\_134:  
(9, 71758), (12, 71740), (20, 71689), (21, 71683), (24, 71668), (29, 71623), (Start: 44 @71590 has 154 MA's), (46, 71569), (49, 71557), (55, 71518), (61, 71488), (79, 71386), (80, 71383),

Gene: Krishelle\_59 Start: 41494, Stop: 41159, Start Num: 44  
Candidate Starts for Krishelle\_59:  
(Start: 44 @41494 has 154 MA's), (47, 41470), (49, 41461), (51, 41455), (55, 41422), (61, 41392), (66, 41371), (76, 41314), (104, 41164),

Gene: Kyva\_100 Start: 58890, Stop: 58567, Start Num: 48  
Candidate Starts for Kyva\_100:  
(Start: 48 @58890 has 46 MA's), (64, 58794), (69, 58770), (93, 58626),

Gene: Laure\_339 Start: 177636, Stop: 178016, Start Num: 31  
Candidate Starts for Laure\_339:  
(31, 177636), (46, 177684), (60, 177756), (63, 177786), (74, 177846), (90, 177951), (91, 177954), (97, 177978),

Gene: Laure\_21 Start: 9288, Stop: 9668, Start Num: 31  
Candidate Starts for Laure\_21:  
(31, 9288), (46, 9336), (60, 9408), (63, 9438), (74, 9498), (90, 9603), (91, 9606), (97, 9630),

Gene: LeoJr\_337 Start: 187594, Stop: 187965, Start Num: 35  
Candidate Starts for LeoJr\_337:  
(Start: 35 @187594 has 2 MA's), (71, 187780), (84, 187873), (88, 187891),

Gene: LeoJr\_24 Start: 10291, Stop: 10662, Start Num: 35  
Candidate Starts for LeoJr\_24:  
(Start: 35 @10291 has 2 MA's), (71, 10477), (84, 10570), (88, 10588),

Gene: Lilac\_131 Start: 72003, Stop: 71674, Start Num: 44

Candidate Starts for Lilac\_131:

(Start: 32 @72021 has 15 MA's), (Start: 44 @72003 has 154 MA's), (46, 71982), (49, 71970), (50, 71967), (54, 71946), (55, 71931),

Gene: Lilizi\_134 Start: 71733, Stop: 71404, Start Num: 44

Candidate Starts for Lilizi\_134:

(Start: 32 @71751 has 15 MA's), (Start: 44 @71733 has 154 MA's), (46, 71712), (49, 71700), (50, 71697), (54, 71676), (55, 71661),

Gene: Lillie\_59 Start: 41125, Stop: 40790, Start Num: 44

Candidate Starts for Lillie\_59:

(Start: 44 @41125 has 154 MA's), (49, 41092), (51, 41086), (55, 41053), (61, 41023), (77, 40936), (104, 40795),

Gene: Lilpickle\_133 Start: 70986, Stop: 70657, Start Num: 44

Candidate Starts for Lilpickle\_133:

(Start: 32 @71004 has 15 MA's), (Start: 44 @70986 has 154 MA's), (46, 70965), (49, 70953), (50, 70950), (54, 70929), (55, 70914),

Gene: Llemily\_95 Start: 57660, Stop: 57337, Start Num: 48

Candidate Starts for Llemily\_95:

(Start: 48 @57660 has 46 MA's), (64, 57564), (69, 57540), (93, 57396),

Gene: Lonelysoil\_93 Start: 57421, Stop: 57098, Start Num: 48

Candidate Starts for Lonelysoil\_93:

(Start: 48 @57421 has 46 MA's), (64, 57325), (69, 57301), (93, 57157),

Gene: MISSy\_135 Start: 71918, Stop: 71571, Start Num: 32

Candidate Starts for MISSy\_135:

(Start: 32 @71918 has 15 MA's), (Start: 44 @71900 has 154 MA's), (46, 71879), (49, 71867), (50, 71864), (54, 71843), (55, 71828),

Gene: MPhalcon\_134 Start: 71318, Stop: 70989, Start Num: 44

Candidate Starts for MPhalcon\_134:

(Start: 32 @71336 has 15 MA's), (Start: 44 @71318 has 154 MA's), (46, 71297), (49, 71285), (50, 71282), (54, 71261), (55, 71246),

Gene: MadamMonkfish\_133 Start: 70994, Stop: 70665, Start Num: 44

Candidate Starts for MadamMonkfish\_133:

(Start: 32 @71012 has 15 MA's), (Start: 44 @70994 has 154 MA's), (46, 70973), (49, 70961), (50, 70958), (54, 70937), (55, 70922),

Gene: Manda\_134 Start: 71452, Stop: 71105, Start Num: 33

Candidate Starts for Manda\_134:

(Start: 33 @71452 has 1 MA's), (Start: 44 @71434 has 154 MA's), (46, 71413), (49, 71401), (50, 71398), (55, 71362), (61, 71332), (79, 71230), (80, 71227),

Gene: Marshmallow\_134 Start: 72179, Stop: 71850, Start Num: 44

Candidate Starts for Marshmallow\_134:

(Start: 32 @72197 has 15 MA's), (Start: 44 @72179 has 154 MA's), (46, 72158), (49, 72146), (50, 72143), (54, 72122), (55, 72107),

Gene: MaryV\_150 Start: 72246, Stop: 71926, Start Num: 44  
Candidate Starts for MaryV\_150:  
(Start: 44 @72246 has 154 MA's), (49, 72213), (66, 72123), (79, 72042), (80, 72039), (83, 72015), (99, 71937),

Gene: Mashley\_94 Start: 58097, Stop: 57771, Start Num: 48  
Candidate Starts for Mashley\_94:  
(Start: 48 @58097 has 46 MA's), (60, 58028), (93, 57830),

Gene: Maxxinista\_135 Start: 70947, Stop: 70618, Start Num: 44  
Candidate Starts for Maxxinista\_135:  
(Start: 32 @70965 has 15 MA's), (Start: 44 @70947 has 154 MA's), (46, 70926), (49, 70914), (50, 70911), (54, 70890), (55, 70875),

Gene: Megatron06\_49 Start: 40677, Stop: 41012, Start Num: 44  
Candidate Starts for Megatron06\_49:  
(23, 40596), (Start: 44 @40677 has 154 MA's), (49, 40710), (52, 40728), (61, 40779), (79, 40881), (81, 40890),

Gene: Mentos\_99 Start: 59051, Stop: 58728, Start Num: 48  
Candidate Starts for Mentos\_99:  
(Start: 48 @59051 has 46 MA's), (64, 58955), (69, 58931), (93, 58787),

Gene: Mila11\_97 Start: 59881, Stop: 59558, Start Num: 48  
Candidate Starts for Mila11\_97:  
(Start: 48 @59881 has 46 MA's), (64, 59785), (69, 59761), (93, 59617), (95, 59611),

Gene: Mimi\_18 Start: 8854, Stop: 9261, Start Num: 30  
Candidate Starts for Mimi\_18:  
(Start: 30 @8854 has 10 MA's), (49, 8920), (55, 8962), (64, 9016), (68, 9043), (77, 9103), (83, 9145), (93, 9190), (103, 9241),

Gene: Mimi\_303 Start: 181514, Stop: 181921, Start Num: 30  
Candidate Starts for Mimi\_303:  
(Start: 30 @181514 has 10 MA's), (49, 181580), (55, 181622), (64, 181676), (68, 181703), (77, 181763), (83, 181805), (93, 181850), (103, 181901),

Gene: Mindy\_136 Start: 71343, Stop: 71014, Start Num: 44  
Candidate Starts for Mindy\_136:  
(9, 71511), (21, 71436), (24, 71421), (29, 71376), (Start: 44 @71343 has 154 MA's), (46, 71322), (49, 71310), (55, 71271),

Gene: Miniwave\_127 Start: 71043, Stop: 70714, Start Num: 44  
Candidate Starts for Miniwave\_127:  
(Start: 32 @71061 has 15 MA's), (Start: 44 @71043 has 154 MA's), (46, 71022), (49, 71010), (50, 71007), (54, 70986), (55, 70971),

Gene: Misfit\_133 Start: 72192, Stop: 71863, Start Num: 44  
Candidate Starts for Misfit\_133:  
(Start: 32 @72210 has 15 MA's), (Start: 44 @72192 has 154 MA's), (46, 72171), (49, 72159), (50, 72156), (54, 72135), (55, 72120),

Gene: Moldemort\_136 Start: 71613, Stop: 71284, Start Num: 44

Candidate Starts for Moldemort\_136:

(Start: 32 @71631 has 15 MA's), (Start: 44 @71613 has 154 MA's), (46, 71592), (49, 71580), (50, 71577), (54, 71556), (55, 71541),

Gene: MollyToe\_127 Start: 68938, Stop: 68642, Start Num: 49

Candidate Starts for MollyToe\_127:

(9, 69139), (21, 69064), (24, 69049), (29, 69004), (Start: 44 @68971 has 154 MA's), (46, 68950), (49, 68938), (55, 68899),

Gene: MorillMayhem\_94 Start: 58220, Stop: 57897, Start Num: 48

Candidate Starts for MorillMayhem\_94:

(Start: 48 @58220 has 46 MA's), (58, 58160), (64, 58118), (79, 58028),

Gene: Mosby\_130 Start: 70556, Stop: 70227, Start Num: 44

Candidate Starts for Mosby\_130:

(Start: 32 @70574 has 15 MA's), (Start: 44 @70556 has 154 MA's), (46, 70535), (49, 70523), (50, 70520), (54, 70499), (55, 70484),

Gene: Muntaha\_4 Start: 1305, Stop: 1625, Start Num: 39

Candidate Starts for Muntaha\_4:

(Start: 39 @1305 has 4 MA's), (46, 1338), (49, 1350), (55, 1389), (66, 1440), (78, 1500), (84, 1545), (90, 1572), (91, 1575),

Gene: Muntaha\_267 Start: 126982, Stop: 127302, Start Num: 39

Candidate Starts for Muntaha\_267:

(Start: 39 @126982 has 4 MA's), (46, 127015), (49, 127027), (55, 127066), (66, 127117), (78, 127177), (84, 127222), (90, 127249), (91, 127252),

Gene: Murica\_137 Start: 72894, Stop: 72565, Start Num: 44

Candidate Starts for Murica\_137:

(11, 73050), (12, 73044), (13, 73038), (14, 73026), (20, 72993), (21, 72987), (24, 72972), (29, 72927), (Start: 44 @72894 has 154 MA's), (46, 72873), (49, 72861), (55, 72822), (61, 72792), (79, 72690), (80, 72687),

Gene: Murphy\_132 Start: 71321, Stop: 70992, Start Num: 44

Candidate Starts for Murphy\_132:

(Start: 44 @71321 has 154 MA's), (46, 71300), (49, 71288), (50, 71285), (54, 71264), (55, 71249),

Gene: Myrale\_134 Start: 72286, Stop: 71957, Start Num: 44

Candidate Starts for Myrale\_134:

(9, 72454), (21, 72379), (24, 72364), (29, 72319), (Start: 44 @72286 has 154 MA's), (49, 72253), (50, 72250), (54, 72229), (55, 72214),

Gene: Naiad\_58 Start: 41147, Stop: 40812, Start Num: 44

Candidate Starts for Naiad\_58:

(Start: 44 @41147 has 154 MA's), (47, 41123), (49, 41114), (51, 41108), (55, 41075), (61, 41045), (66, 41024), (76, 40967), (104, 40817),

Gene: Nala\_135 Start: 71607, Stop: 71278, Start Num: 44

Candidate Starts for Nala\_135:

(Start: 32 @71625 has 15 MA's), (Start: 44 @71607 has 154 MA's), (46, 71586), (49, 71574), (50, 71571), (54, 71550), (55, 71535),

Gene: Namago\_97 Start: 58147, Stop: 57824, Start Num: 48  
Candidate Starts for Namago\_97:  
(Start: 48 @58147 has 46 MA's), (64, 58051), (69, 58027), (93, 57883),

Gene: Nancinator\_58 Start: 40464, Stop: 40129, Start Num: 44  
Candidate Starts for Nancinator\_58:  
(Start: 44 @40464 has 154 MA's), (49, 40431), (51, 40425), (55, 40392), (61, 40362), (77, 40275),  
(104, 40134),

Gene: Natosaleda\_58 Start: 41065, Stop: 40730, Start Num: 44  
Candidate Starts for Natosaleda\_58:  
(5, 41284), (Start: 44 @41065 has 154 MA's), (47, 41041), (49, 41032), (51, 41026), (55, 40993), (61,  
40963), (66, 40942), (76, 40885), (104, 40735),

Gene: NelitzaMV\_131 Start: 69650, Stop: 69321, Start Num: 44  
Candidate Starts for NelitzaMV\_131:  
(9, 69818), (21, 69743), (24, 69728), (29, 69683), (Start: 44 @69650 has 154 MA's), (46, 69629), (49,  
69617), (55, 69578),

Gene: Nike\_93 Start: 58369, Stop: 58043, Start Num: 48  
Candidate Starts for Nike\_93:  
(8, 58570), (17, 58516), (Start: 48 @58369 has 46 MA's), (60, 58300), (93, 58102),

Gene: Nimrod\_133 Start: 72106, Stop: 71777, Start Num: 44  
Candidate Starts for Nimrod\_133:  
(Start: 32 @72124 has 15 MA's), (Start: 44 @72106 has 154 MA's), (46, 72085), (49, 72073), (50,  
72070), (54, 72049), (55, 72034),

Gene: NoSleep\_133 Start: 70872, Stop: 70543, Start Num: 44  
Candidate Starts for NoSleep\_133:  
(Start: 32 @70890 has 15 MA's), (Start: 44 @70872 has 154 MA's), (46, 70851), (49, 70839), (50,  
70836), (54, 70815), (55, 70800),

Gene: NonchalantPear\_132 Start: 70598, Stop: 70269, Start Num: 44  
Candidate Starts for NonchalantPear\_132:  
(Start: 32 @70616 has 15 MA's), (Start: 44 @70598 has 154 MA's), (46, 70577), (49, 70565), (50,  
70562), (54, 70541), (55, 70526),

Gene: Oaker\_47 Start: 40392, Stop: 40727, Start Num: 44  
Candidate Starts for Oaker\_47:  
(23, 40311), (Start: 44 @40392 has 154 MA's), (49, 40425), (61, 40494), (79, 40596), (81, 40605),

Gene: Octobien14\_140 Start: 72798, Stop: 72403, Start Num: 42  
Candidate Starts for Octobien14\_140:  
(27, 72849), (28, 72840), (Start: 42 @72798 has 1 MA's), (46, 72771), (49, 72759), (52, 72741), (59,  
72702), (61, 72690), (79, 72588), (80, 72585), (81, 72579), (83, 72561), (90, 72528), (106, 72420),  
(107, 72417),

Gene: OneinaGillian\_98 Start: 59292, Stop: 58975, Start Num: 48  
Candidate Starts for OneinaGillian\_98:  
(Start: 48 @59292 has 46 MA's), (56, 59232), (64, 59190),

Gene: Orchid\_108 Start: 75740, Stop: 75402, Start Num: 44  
Candidate Starts for Orchid\_108:  
(26, 75788), (Start: 44 @75740 has 154 MA's), (49, 75707), (61, 75638), (69, 75590), (77, 75536), (79, 75521), (96, 75440),

Gene: OrionPax\_129 Start: 70552, Stop: 70223, Start Num: 44  
Candidate Starts for OrionPax\_129:  
(Start: 32 @70570 has 15 MA's), (Start: 44 @70552 has 154 MA's), (46, 70531), (49, 70519), (50, 70516), (54, 70495), (55, 70480),

Gene: PaddyBaddy\_130 Start: 70607, Stop: 70260, Start Num: 32  
Candidate Starts for PaddyBaddy\_130:  
(Start: 32 @70607 has 15 MA's), (Start: 44 @70589 has 154 MA's), (46, 70568), (49, 70556), (50, 70553), (54, 70532), (55, 70517),

Gene: Palpatine\_133 Start: 72112, Stop: 71783, Start Num: 44  
Candidate Starts for Palpatine\_133:  
(Start: 32 @72130 has 15 MA's), (Start: 44 @72112 has 154 MA's), (46, 72091), (49, 72079), (50, 72076), (54, 72055), (55, 72040),

Gene: Paperbeatsrock\_132 Start: 71721, Stop: 71392, Start Num: 44  
Candidate Starts for Paperbeatsrock\_132:  
(Start: 32 @71739 has 15 MA's), (Start: 44 @71721 has 154 MA's), (46, 71700), (49, 71688), (50, 71685), (54, 71664), (55, 71649),

Gene: Partridge\_58 Start: 41426, Stop: 41091, Start Num: 44  
Candidate Starts for Partridge\_58:  
(5, 41645), (Start: 44 @41426 has 154 MA's), (46, 41405), (47, 41402), (49, 41393), (51, 41387), (55, 41354), (61, 41324), (77, 41237), (104, 41096),

Gene: Pat3\_133 Start: 71258, Stop: 70929, Start Num: 44  
Candidate Starts for Pat3\_133:  
(Start: 44 @71258 has 154 MA's), (46, 71237), (49, 71225), (50, 71222), (54, 71201), (55, 71186),

Gene: Patbob\_17 Start: 8860, Stop: 9267, Start Num: 30  
Candidate Starts for Patbob\_17:  
(Start: 30 @8860 has 10 MA's), (55, 8968), (64, 9022), (67, 9046), (83, 9151), (103, 9247),

Gene: Patbob\_307 Start: 184319, Stop: 184726, Start Num: 30  
Candidate Starts for Patbob\_307:  
(Start: 30 @184319 has 10 MA's), (55, 184427), (64, 184481), (67, 184505), (83, 184610), (103, 184706),

Gene: PatrickStar\_109 Start: 75819, Stop: 75481, Start Num: 44  
Candidate Starts for PatrickStar\_109:  
(26, 75867), (Start: 44 @75819 has 154 MA's), (49, 75786), (61, 75717), (69, 75669), (77, 75615), (79, 75600), (96, 75519),

Gene: Pepe25\_97 Start: 58582, Stop: 58262, Start Num: 48  
Candidate Starts for Pepe25\_97:  
(Start: 48 @58582 has 46 MA's), (56, 58522), (64, 58480),

Gene: Petra64142\_135 Start: 71754, Stop: 71407, Start Num: 32

Candidate Starts for Petra64142\_135:

(Start: 32 @71754 has 15 MA's), (Start: 44 @71736 has 154 MA's), (46, 71715), (49, 71703), (50, 71700), (54, 71679), (55, 71664),

Gene: Phabia\_95 Start: 57997, Stop: 57674, Start Num: 48

Candidate Starts for Phabia\_95:

(7, 58192), (Start: 48 @57997 has 46 MA's), (64, 57901), (69, 57877), (93, 57733),

Gene: Phaja\_137 Start: 71494, Stop: 71165, Start Num: 44

Candidate Starts for Phaja\_137:

(Start: 32 @71512 has 15 MA's), (Start: 44 @71494 has 154 MA's), (46, 71473), (49, 71461), (50, 71458), (54, 71437), (55, 71422),

Gene: Pharsalus\_131 Start: 71861, Stop: 71532, Start Num: 44

Candidate Starts for Pharsalus\_131:

(Start: 32 @71879 has 15 MA's), (Start: 44 @71861 has 154 MA's), (46, 71840), (49, 71828), (50, 71825), (54, 71804), (55, 71789),

Gene: PhatBacter\_136 Start: 71634, Stop: 71305, Start Num: 44

Candidate Starts for PhatBacter\_136:

(11, 71790), (12, 71784), (13, 71778), (14, 71766), (20, 71733), (21, 71727), (24, 71712), (29, 71667), (Start: 44 @71634 has 154 MA's), (46, 71613), (49, 71601), (55, 71562), (61, 71532), (79, 71430), (80, 71427),

Gene: Phaux\_135 Start: 72260, Stop: 71931, Start Num: 44

Candidate Starts for Phaux\_135:

(11, 72416), (12, 72410), (13, 72404), (14, 72392), (20, 72359), (21, 72353), (24, 72338), (29, 72293), (Start: 44 @72260 has 154 MA's), (46, 72239), (49, 72227), (55, 72188), (61, 72158), (79, 72056), (80, 72053),

Gene: Phinky\_100 Start: 59739, Stop: 59419, Start Num: 48

Candidate Starts for Phinky\_100:

(Start: 48 @59739 has 46 MA's), (56, 59679), (64, 59637),

Gene: Phrampa\_15 Start: 7201, Stop: 7596, Start Num: 30

Candidate Starts for Phrampa\_15:

(Start: 30 @7201 has 10 MA's), (55, 7309), (63, 7357), (64, 7363), (65, 7366), (83, 7492), (105, 7591),

Gene: Phrampa\_300 Start: 183572, Stop: 183967, Start Num: 30

Candidate Starts for Phrampa\_300:

(Start: 30 @183572 has 10 MA's), (55, 183680), (63, 183728), (64, 183734), (65, 183737), (83, 183863), (105, 183962),

Gene: Phrankenstein\_59 Start: 41071, Stop: 40736, Start Num: 44

Candidate Starts for Phrankenstein\_59:

(Start: 44 @41071 has 154 MA's), (49, 41038), (51, 41032), (55, 40999), (61, 40969), (77, 40882), (104, 40741),

Gene: Phreeze\_46 Start: 39698, Stop: 40033, Start Num: 43

Candidate Starts for Phreeze\_46:

(37, 39686), (Start: 43 @39698 has 7 MA's), (49, 39731), (61, 39800), (72, 39851), (79, 39902),

Gene: Phrux\_129 Start: 70339, Stop: 70010, Start Num: 44

Candidate Starts for Phrux\_129:

(Start: 44 @70339 has 154 MA's), (46, 70318), (49, 70306), (50, 70303), (54, 70282), (55, 70267),

Gene: Policronamos\_134 Start: 71964, Stop: 71635, Start Num: 44

Candidate Starts for Policronamos\_134:

(11, 72120), (12, 72114), (13, 72108), (14, 72096), (20, 72063), (21, 72057), (24, 72042), (29, 71997), (Start: 44 @71964 has 154 MA's), (46, 71943), (49, 71931), (55, 71892), (61, 71862), (79, 71760), (80, 71757),

Gene: Porky\_135 Start: 71958, Stop: 71611, Start Num: 32

Candidate Starts for Porky\_135:

(Start: 32 @71958 has 15 MA's), (Start: 44 @71940 has 154 MA's), (46, 71919), (49, 71907), (50, 71904), (54, 71883), (55, 71868),

Gene: Predator\_46 Start: 37954, Stop: 38274, Start Num: 43

Candidate Starts for Predator\_46:

(Start: 43 @37954 has 7 MA's), (49, 37987), (52, 38005), (61, 38056), (80, 38161),

Gene: Ptowny\_127 Start: 69309, Stop: 68980, Start Num: 44

Candidate Starts for Ptowny\_127:

(Start: 44 @69309 has 154 MA's), (46, 69288), (49, 69276), (50, 69273), (54, 69252), (55, 69237),

Gene: Pumpkin\_133 Start: 70615, Stop: 70286, Start Num: 44

Candidate Starts for Pumpkin\_133:

(Start: 32 @70633 has 15 MA's), (Start: 44 @70615 has 154 MA's), (46, 70594), (49, 70582), (50, 70579), (54, 70558), (55, 70543),

Gene: Quallification\_134 Start: 72199, Stop: 71870, Start Num: 44

Candidate Starts for Quallification\_134:

(Start: 32 @72217 has 15 MA's), (Start: 44 @72199 has 154 MA's), (46, 72178), (49, 72166), (50, 72163), (54, 72142), (55, 72127),

Gene: Quammi\_95 Start: 57942, Stop: 57619, Start Num: 48

Candidate Starts for Quammi\_95:

(Start: 48 @57942 has 46 MA's), (64, 57846), (69, 57822), (93, 57678),

Gene: RER2\_53 Start: 37997, Stop: 37662, Start Num: 44

Candidate Starts for RER2\_53:

(Start: 44 @37997 has 154 MA's), (49, 37964), (51, 37958), (55, 37925), (61, 37895), (77, 37808), (104, 37667),

Gene: RGL3\_51 Start: 38672, Stop: 38334, Start Num: 44

Candidate Starts for RGL3\_51:

(Start: 44 @38672 has 154 MA's), (49, 38639), (62, 38564), (68, 38540), (69, 38537), (73, 38516), (76, 38489), (82, 38447), (104, 38339),

Gene: Racecar\_19 Start: 9417, Stop: 9824, Start Num: 30

Candidate Starts for Racecar\_19:

(Start: 30 @9417 has 10 MA's), (49, 9483), (55, 9525), (64, 9579), (68, 9606), (83, 9708), (93, 9753), (103, 9804),

Gene: Racecar\_308 Start: 183126, Stop: 183533, Start Num: 30

Candidate Starts for Racecar\_308:

(Start: 30 @183126 has 10 MA's), (49, 183192), (55, 183234), (64, 183288), (68, 183315), (83, 183417), (93, 183462), (103, 183513),

Gene: Rakim\_134 Start: 71173, Stop: 70844, Start Num: 44

Candidate Starts for Rakim\_134:

(9, 71341), (21, 71266), (24, 71251), (29, 71206), (Start: 44 @71173 has 154 MA's), (46, 71152), (49, 71140), (55, 71101),

Gene: Rasputin\_59 Start: 41095, Stop: 40760, Start Num: 44

Candidate Starts for Rasputin\_59:

(Start: 44 @41095 has 154 MA's), (49, 41062), (51, 41056), (55, 41023), (61, 40993), (77, 40906), (104, 40765),

Gene: ReginaGlobina\_332 Start: 187589, Stop: 187960, Start Num: 35

Candidate Starts for ReginaGlobina\_332:

(Start: 35 @187589 has 2 MA's), (49, 187640), (71, 187775), (80, 187838), (92, 187904),

Gene: ReginaGlobina\_21 Start: 10142, Stop: 10513, Start Num: 35

Candidate Starts for ReginaGlobina\_21:

(Start: 35 @10142 has 2 MA's), (49, 10193), (71, 10328), (80, 10391), (92, 10457),

Gene: RexFury\_58 Start: 41155, Stop: 40820, Start Num: 44

Candidate Starts for RexFury\_58:

(5, 41374), (Start: 44 @41155 has 154 MA's), (47, 41131), (49, 41122), (51, 41116), (55, 41083), (61, 41053), (66, 41032), (76, 40975), (104, 40825),

Gene: Rhodalysa\_59 Start: 41125, Stop: 40790, Start Num: 44

Candidate Starts for Rhodalysa\_59:

(Start: 44 @41125 has 154 MA's), (49, 41092), (51, 41086), (55, 41053), (61, 41023), (77, 40936), (104, 40795),

Gene: Rimmer\_130 Start: 71092, Stop: 70745, Start Num: 32

Candidate Starts for Rimmer\_130:

(Start: 32 @71092 has 15 MA's), (Start: 44 @71074 has 154 MA's), (46, 71053), (49, 71041), (50, 71038), (54, 71017), (55, 71002),

Gene: RiverMonster\_132 Start: 71234, Stop: 70905, Start Num: 44

Candidate Starts for RiverMonster\_132:

(Start: 32 @71252 has 15 MA's), (Start: 44 @71234 has 154 MA's), (46, 71213), (49, 71201), (50, 71198), (54, 71177), (55, 71162),

Gene: RobinRose\_103 Start: 60420, Stop: 60103, Start Num: 48

Candidate Starts for RobinRose\_103:

(Start: 48 @60420 has 46 MA's), (56, 60360), (64, 60318),

Gene: RobinSparkles\_118 Start: 76904, Stop: 76569, Start Num: 44

Candidate Starts for RobinSparkles\_118:

(26, 76952), (Start: 44 @76904 has 154 MA's), (49, 76871), (61, 76802), (69, 76754), (77, 76700), (79, 76685), (87, 76643), (96, 76604),

Gene: Rockabye\_19 Start: 9153, Stop: 9560, Start Num: 30

Candidate Starts for Rockabye\_19:

(Start: 30 @9153 has 10 MA's), (63, 9309), (68, 9342), (83, 9444), (84, 9450), (92, 9486), (103, 9540),

Gene: Rockabye\_318 Start: 181766, Stop: 182173, Start Num: 30

Candidate Starts for Rockabye\_318:

(Start: 30 @181766 has 10 MA's), (63, 181922), (68, 181955), (83, 182057), (84, 182063), (92, 182099), (103, 182153),

Gene: Romm\_103 Start: 60417, Stop: 60100, Start Num: 48

Candidate Starts for Romm\_103:

(Start: 48 @60417 has 46 MA's), (56, 60357), (64, 60315),

Gene: Rowlf\_92 Start: 57836, Stop: 57492, Start Num: 45

Candidate Starts for Rowlf\_92:

(38, 57851), (Start: 45 @57836 has 2 MA's), (57, 57749), (64, 57710), (74, 57665), (89, 57563),

Gene: RubyRalph\_95 Start: 59140, Stop: 58796, Start Num: 48

Candidate Starts for RubyRalph\_95:

(Start: 48 @59140 has 46 MA's), (55, 59092), (56, 59080), (70, 59005), (89, 58882), (95, 58861),

Gene: Rudy\_93 Start: 57808, Stop: 57485, Start Num: 48

Candidate Starts for Rudy\_93:

(Start: 48 @57808 has 46 MA's), (64, 57712), (69, 57688), (93, 57544),

Gene: SadLad\_96 Start: 60059, Stop: 59715, Start Num: 48

Candidate Starts for SadLad\_96:

(Start: 48 @60059 has 46 MA's), (55, 60011), (56, 59999), (70, 59924), (89, 59801), (95, 59780),

Gene: Saints25\_129 Start: 69399, Stop: 69070, Start Num: 44

Candidate Starts for Saints25\_129:

(Start: 44 @69399 has 154 MA's), (46, 69378), (49, 69366), (50, 69363), (54, 69342), (55, 69327),

Gene: SallyK\_97 Start: 58963, Stop: 58640, Start Num: 48

Candidate Starts for SallyK\_97:

(Start: 48 @58963 has 46 MA's), (64, 58867), (69, 58843), (93, 58699),

Gene: Sassay\_128 Start: 69536, Stop: 69189, Start Num: 32

Candidate Starts for Sassay\_128:

(Start: 32 @69536 has 15 MA's), (Start: 44 @69518 has 154 MA's), (46, 69497), (49, 69485), (50, 69482), (54, 69461), (55, 69446),

Gene: ShamWow\_133 Start: 72051, Stop: 71722, Start Num: 44

Candidate Starts for ShamWow\_133:

(Start: 32 @72069 has 15 MA's), (Start: 44 @72051 has 154 MA's), (46, 72030), (49, 72018), (50, 72015), (54, 71994), (55, 71979),

Gene: ShereKhan\_133 Start: 72445, Stop: 72116, Start Num: 44

Candidate Starts for ShereKhan\_133:

(Start: 32 @72463 has 15 MA's), (Start: 44 @72445 has 154 MA's), (46, 72424), (49, 72412), (50, 72409), (54, 72388), (55, 72373),

Gene: Shuman\_60 Start: 41076, Stop: 40741, Start Num: 44

Candidate Starts for Shuman\_60:

(Start: 44 @41076 has 154 MA's), (49, 41043), (51, 41037), (55, 41004), (61, 40974), (77, 40887), (104, 40746),

Gene: Sillytadpoles\_96 Start: 57648, Stop: 57325, Start Num: 48  
Candidate Starts for Sillytadpoles\_96:  
(Start: 48 @57648 has 46 MA's), (64, 57552), (69, 57528), (93, 57384),

Gene: Simpliphy\_132 Start: 70805, Stop: 70476, Start Num: 44  
Candidate Starts for Simpliphy\_132:  
(Start: 44 @70805 has 154 MA's), (46, 70784), (49, 70772), (50, 70769), (54, 70748), (55, 70733),

Gene: SirDuracell\_136 Start: 71666, Stop: 71337, Start Num: 44  
Candidate Starts for SirDuracell\_136:  
(Start: 36 @71681 has 2 MA's), (Start: 44 @71666 has 154 MA's), (49, 71633), (55, 71594), (61, 71564), (79, 71462), (80, 71459),

Gene: SlySloth\_97 Start: 57790, Stop: 57446, Start Num: 45  
Candidate Starts for SlySloth\_97:  
(38, 57805), (Start: 45 @57790 has 2 MA's), (57, 57703), (64, 57664), (74, 57619), (89, 57517),

Gene: SophKB\_131 Start: 71150, Stop: 70821, Start Num: 44  
Candidate Starts for SophKB\_131:  
(9, 71318), (21, 71243), (24, 71228), (29, 71183), (Start: 44 @71150 has 154 MA's), (46, 71129), (49, 71117), (50, 71114), (54, 71093), (55, 71078),

Gene: Sotrice96\_138 Start: 72351, Stop: 72022, Start Num: 44  
Candidate Starts for Sotrice96\_138:  
(Start: 32 @72369 has 15 MA's), (Start: 44 @72351 has 154 MA's), (46, 72330), (49, 72318), (50, 72315), (54, 72294), (55, 72279),

Gene: Squash\_97 Start: 58351, Stop: 58025, Start Num: 48  
Candidate Starts for Squash\_97:  
(8, 58552), (16, 58498), (Start: 48 @58351 has 46 MA's), (58, 58291), (64, 58249), (79, 58159),

Gene: StCroix\_58 Start: 41147, Stop: 40812, Start Num: 44  
Candidate Starts for StCroix\_58:  
(Start: 44 @41147 has 154 MA's), (47, 41123), (49, 41114), (51, 41108), (55, 41075), (61, 41045), (66, 41024), (76, 40967), (104, 40817),

Gene: Stank\_137 Start: 72298, Stop: 71969, Start Num: 44  
Candidate Starts for Stank\_137:  
(Start: 32 @72316 has 15 MA's), (Start: 44 @72298 has 154 MA's), (46, 72277), (49, 72265), (50, 72262), (54, 72241), (55, 72226),

Gene: Stark\_131 Start: 71053, Stop: 70724, Start Num: 44  
Candidate Starts for Stark\_131:  
(Start: 32 @71071 has 15 MA's), (Start: 44 @71053 has 154 MA's), (46, 71032), (49, 71020), (50, 71017), (54, 70996), (55, 70981),

Gene: Statler\_98 Start: 58394, Stop: 58002, Start Num: 48  
Candidate Starts for Statler\_98:  
(1, 58739), (2, 58730), (3, 58688), (6, 58595), (10, 58577), (13, 58562), (14, 58550), (15, 58547), (18, 58535), (Start: 48 @58394 has 46 MA's), (55, 58346), (64, 58289), (70, 58259), (93, 58121), (98, 58094), (102, 58073),

Gene: StellaBean\_131 Start: 71803, Stop: 71474, Start Num: 44  
Candidate Starts for StellaBean\_131:  
(Start: 32 @71821 has 15 MA's), (Start: 44 @71803 has 154 MA's), (46, 71782), (49, 71770), (50, 71767), (54, 71746), (55, 71731),

Gene: Stewart25555\_12 Start: 5769, Stop: 6158, Start Num: 30  
Candidate Starts for Stewart25555\_12:  
(Start: 30 @5769 has 10 MA's), (49, 5835), (85, 6069), (96, 6114),

Gene: StolenFromERC\_136 Start: 71643, Stop: 71314, Start Num: 44  
Candidate Starts for StolenFromERC\_136:  
(Start: 32 @71661 has 15 MA's), (Start: 44 @71643 has 154 MA's), (46, 71622), (49, 71610), (50, 71607), (54, 71586), (55, 71571),

Gene: StormChicken\_135 Start: 72268, Stop: 71939, Start Num: 44  
Candidate Starts for StormChicken\_135:  
(Start: 32 @72286 has 15 MA's), (Start: 44 @72268 has 154 MA's), (46, 72247), (49, 72235), (50, 72232), (54, 72211), (55, 72196),

Gene: StrawberryJamm\_101 Start: 57923, Stop: 57540, Start Num: 48  
Candidate Starts for StrawberryJamm\_101:  
(Start: 48 @57923 has 46 MA's), (55, 57875), (64, 57827), (69, 57803), (93, 57659), (98, 57632), (102, 57611),

Gene: Swann\_59 Start: 41123, Stop: 40788, Start Num: 44  
Candidate Starts for Swann\_59:  
(Start: 44 @41123 has 154 MA's), (49, 41090), (51, 41084), (55, 41051), (61, 41021), (77, 40934), (104, 40793),

Gene: TBrady12\_138 Start: 71735, Stop: 71406, Start Num: 44  
Candidate Starts for TBrady12\_138:  
(Start: 32 @71753 has 15 MA's), (Start: 44 @71735 has 154 MA's), (46, 71714), (49, 71702), (50, 71699), (54, 71678), (55, 71663),

Gene: TWAMP\_59 Start: 41125, Stop: 40790, Start Num: 44  
Candidate Starts for TWAMP\_59:  
(Start: 44 @41125 has 154 MA's), (49, 41092), (51, 41086), (55, 41053), (61, 41023), (77, 40936), (104, 40795),

Gene: Takoda\_59 Start: 41309, Stop: 40974, Start Num: 44  
Candidate Starts for Takoda\_59:  
(Start: 44 @41309 has 154 MA's), (47, 41285), (49, 41276), (51, 41270), (55, 41237), (77, 41120), (104, 40979),

Gene: Talia1610\_304 Start: 183328, Stop: 183735, Start Num: 30  
Candidate Starts for Talia1610\_304:  
(Start: 30 @183328 has 10 MA's), (49, 183394), (55, 183436), (64, 183490), (68, 183517), (77, 183577), (83, 183619), (93, 183664), (103, 183715),

Gene: Talia1610\_18 Start: 8856, Stop: 9263, Start Num: 30  
Candidate Starts for Talia1610\_18:  
(Start: 30 @8856 has 10 MA's), (49, 8922), (55, 8964), (64, 9018), (68, 9045), (77, 9105), (83, 9147), (93, 9192), (103, 9243),

Gene: Tarkin\_132 Start: 72310, Stop: 71981, Start Num: 44

Candidate Starts for Tarkin\_132:

(Start: 32 @72328 has 15 MA's), (Start: 44 @72310 has 154 MA's), (46, 72289), (49, 72277), (50, 72274), (54, 72253), (55, 72238),

Gene: TeamEdward\_132 Start: 71904, Stop: 71557, Start Num: 32

Candidate Starts for TeamEdward\_132:

(Start: 32 @71904 has 15 MA's), (Start: 44 @71886 has 154 MA's), (46, 71865), (49, 71853), (50, 71850), (54, 71829), (55, 71814),

Gene: TeardropMSU\_134 Start: 71219, Stop: 70890, Start Num: 44

Candidate Starts for TeardropMSU\_134:

(Start: 44 @71219 has 154 MA's), (46, 71198), (49, 71186), (50, 71183), (54, 71162), (55, 71147),

Gene: Teehee\_96 Start: 58596, Stop: 58273, Start Num: 48

Candidate Starts for Teehee\_96:

(Start: 48 @58596 has 46 MA's), (64, 58500), (69, 58476), (93, 58332),

Gene: Tempo\_102 Start: 60454, Stop: 60137, Start Num: 48

Candidate Starts for Tempo\_102:

(Start: 48 @60454 has 46 MA's), (56, 60394), (64, 60352),

Gene: Terminus\_136 Start: 72192, Stop: 71863, Start Num: 44

Candidate Starts for Terminus\_136:

(Start: 32 @72210 has 15 MA's), (Start: 44 @72192 has 154 MA's), (46, 72171), (49, 72159), (50, 72156), (54, 72135), (55, 72120),

Gene: Thresher\_135 Start: 72137, Stop: 71790, Start Num: 32

Candidate Starts for Thresher\_135:

(Start: 32 @72137 has 15 MA's), (Start: 44 @72119 has 154 MA's), (46, 72098), (49, 72086), (55, 72047),

Gene: Thumb\_48 Start: 40133, Stop: 40468, Start Num: 43

Candidate Starts for Thumb\_48:

(Start: 43 @40133 has 7 MA's), (49, 40166), (61, 40235), (79, 40337), (81, 40346),

Gene: Tissue\_97 Start: 58587, Stop: 58204, Start Num: 48

Candidate Starts for Tissue\_97:

(Start: 48 @58587 has 46 MA's), (64, 58491), (69, 58467), (93, 58323), (98, 58296), (102, 58275),

Gene: Tomaszewski\_127 Start: 70748, Stop: 70401, Start Num: 32

Candidate Starts for Tomaszewski\_127:

(Start: 32 @70748 has 15 MA's), (Start: 44 @70730 has 154 MA's), (46, 70709), (49, 70697), (50, 70694), (54, 70673), (55, 70658),

Gene: Toto\_131 Start: 72051, Stop: 71722, Start Num: 44

Candidate Starts for Toto\_131:

(Start: 32 @72069 has 15 MA's), (Start: 44 @72051 has 154 MA's), (46, 72030), (49, 72018), (50, 72015), (54, 71994), (55, 71979),

Gene: Traaww1\_129 Start: 70599, Stop: 70270, Start Num: 44

Candidate Starts for Traaww1\_129:

(Start: 36 @70614 has 2 MA's), (Start: 44 @70599 has 154 MA's), (49, 70566), (55, 70527), (61, 70497),

Gene: Tuco\_139 Start: 73278, Stop: 72949, Start Num: 44

Candidate Starts for Tuco\_139:

(Start: 44 @73278 has 154 MA's), (46, 73257), (49, 73245), (50, 73242), (54, 73221), (55, 73206),

Gene: UhSalsa\_59 Start: 41066, Stop: 40731, Start Num: 44

Candidate Starts for UhSalsa\_59:

(5, 41285), (Start: 44 @41066 has 154 MA's), (47, 41042), (49, 41033), (51, 41027), (55, 40994), (61, 40964), (66, 40943), (76, 40886), (104, 40736),

Gene: Ukulele\_128 Start: 70632, Stop: 70285, Start Num: 32

Candidate Starts for Ukulele\_128:

(Start: 32 @70632 has 15 MA's), (Start: 44 @70614 has 154 MA's), (46, 70593), (49, 70581), (50, 70578), (54, 70557), (55, 70542),

Gene: Viceroy\_94 Start: 57763, Stop: 57440, Start Num: 48

Candidate Starts for Viceroy\_94:

(Start: 48 @57763 has 46 MA's), (64, 57667), (69, 57643), (93, 57499),

Gene: WaddleDee\_8 Start: 4570, Stop: 4971, Start Num: 30

Candidate Starts for WaddleDee\_8:

(Start: 30 @4570 has 10 MA's), (63, 4726), (68, 4759), (85, 4870),

Gene: WaddleDee\_299 Start: 182765, Stop: 183166, Start Num: 30

Candidate Starts for WaddleDee\_299:

(Start: 30 @182765 has 10 MA's), (63, 182921), (68, 182954), (85, 183065),

Gene: Wakanda\_262 Start: 126045, Stop: 126365, Start Num: 39

Candidate Starts for Wakanda\_262:

(Start: 39 @126045 has 4 MA's), (46, 126078), (49, 126090), (55, 126129), (66, 126180), (84, 126285), (90, 126312), (91, 126315),

Gene: Wakanda\_3 Start: 1204, Stop: 1524, Start Num: 39

Candidate Starts for Wakanda\_3:

(Start: 39 @1204 has 4 MA's), (46, 1237), (49, 1249), (55, 1288), (66, 1339), (84, 1444), (90, 1471), (91, 1474),

Gene: Wayne3\_97 Start: 58566, Stop: 58243, Start Num: 48

Candidate Starts for Wayne3\_97:

(7, 58761), (Start: 48 @58566 has 46 MA's), (64, 58470), (69, 58446), (93, 58302),

Gene: WheelerS25\_99 Start: 58674, Stop: 58282, Start Num: 48

Candidate Starts for WheelerS25\_99:

(Start: 48 @58674 has 46 MA's), (55, 58626), (64, 58569), (70, 58539), (93, 58401), (98, 58374), (102, 58353),

Gene: Wheelie\_95 Start: 57887, Stop: 57564, Start Num: 48

Candidate Starts for Wheelie\_95:

(7, 58082), (Start: 48 @57887 has 46 MA's), (64, 57791), (69, 57767), (93, 57623),

Gene: Wiggin\_136 Start: 71276, Stop: 70947, Start Num: 44

Candidate Starts for Wiggin\_136:

(Start: 32 @71294 has 15 MA's), (Start: 44 @71276 has 154 MA's), (46, 71255), (49, 71243), (50, 71240), (54, 71219), (55, 71204),

Gene: Wilca\_99 Start: 59663, Stop: 59343, Start Num: 48

Candidate Starts for Wilca\_99:

(Start: 48 @59663 has 46 MA's), (56, 59603), (64, 59561),

Gene: Wildcat\_164 Start: 74139, Stop: 73819, Start Num: 44

Candidate Starts for Wildcat\_164:

(Start: 44 @74139 has 154 MA's), (49, 74106), (66, 74016), (79, 73935), (80, 73932), (83, 73908), (99, 73830),

Gene: Willez\_130 Start: 70373, Stop: 70044, Start Num: 44

Candidate Starts for Willez\_130:

(Start: 32 @70391 has 15 MA's), (Start: 44 @70373 has 154 MA's), (46, 70352), (49, 70340), (50, 70337), (54, 70316), (55, 70301),

Gene: Xandras\_134 Start: 71552, Stop: 71223, Start Num: 44

Candidate Starts for Xandras\_134:

(Start: 32 @71570 has 15 MA's), (Start: 44 @71552 has 154 MA's), (46, 71531), (49, 71519), (50, 71516), (54, 71495), (55, 71480),

Gene: YassJohnny\_129 Start: 69538, Stop: 69209, Start Num: 44

Candidate Starts for YassJohnny\_129:

(11, 69694), (12, 69688), (13, 69682), (14, 69670), (20, 69637), (21, 69631), (24, 69616), (29, 69571), (Start: 44 @69538 has 154 MA's), (46, 69517), (49, 69505), (55, 69466), (61, 69436), (79, 69334), (80, 69331),

Gene: Yogi\_60 Start: 41476, Stop: 41141, Start Num: 44

Candidate Starts for Yogi\_60:

(Start: 44 @41476 has 154 MA's), (49, 41443), (51, 41437), (55, 41404), (61, 41374), (77, 41287), (104, 41146),

Gene: Yoncess\_58 Start: 40879, Stop: 40544, Start Num: 44

Candidate Starts for Yoncess\_58:

(Start: 44 @40879 has 154 MA's), (49, 40846), (51, 40840), (55, 40807), (61, 40777), (77, 40690), (104, 40549),

Gene: Youngblood\_137 Start: 71689, Stop: 71360, Start Num: 44

Candidate Starts for Youngblood\_137:

(11, 71845), (12, 71839), (13, 71833), (14, 71821), (20, 71788), (21, 71782), (24, 71767), (29, 71722), (Start: 44 @71689 has 154 MA's), (46, 71668), (49, 71656), (50, 71653), (54, 71632), (55, 71617),

Gene: Zagie\_97 Start: 58408, Stop: 58085, Start Num: 48

Candidate Starts for Zagie\_97:

(Start: 48 @58408 has 46 MA's), (64, 58312), (69, 58288), (93, 58144),

Gene: Zhafia\_98 Start: 58442, Stop: 58119, Start Num: 48

Candidate Starts for Zhafia\_98:

(Start: 48 @58442 has 46 MA's), (64, 58346), (69, 58322), (93, 58178),

Gene: xkcd\_137 Start: 72326, Stop: 71997, Start Num: 44

Candidate Starts for xkcd\_137:

(11, 72482), (12, 72476), (13, 72470), (14, 72458), (20, 72425), (21, 72419), (24, 72404), (29, 72359),  
(Start: 44 @72326 has 154 MA's), (46, 72305), (49, 72293), (50, 72290), (54, 72269), (55, 72254),