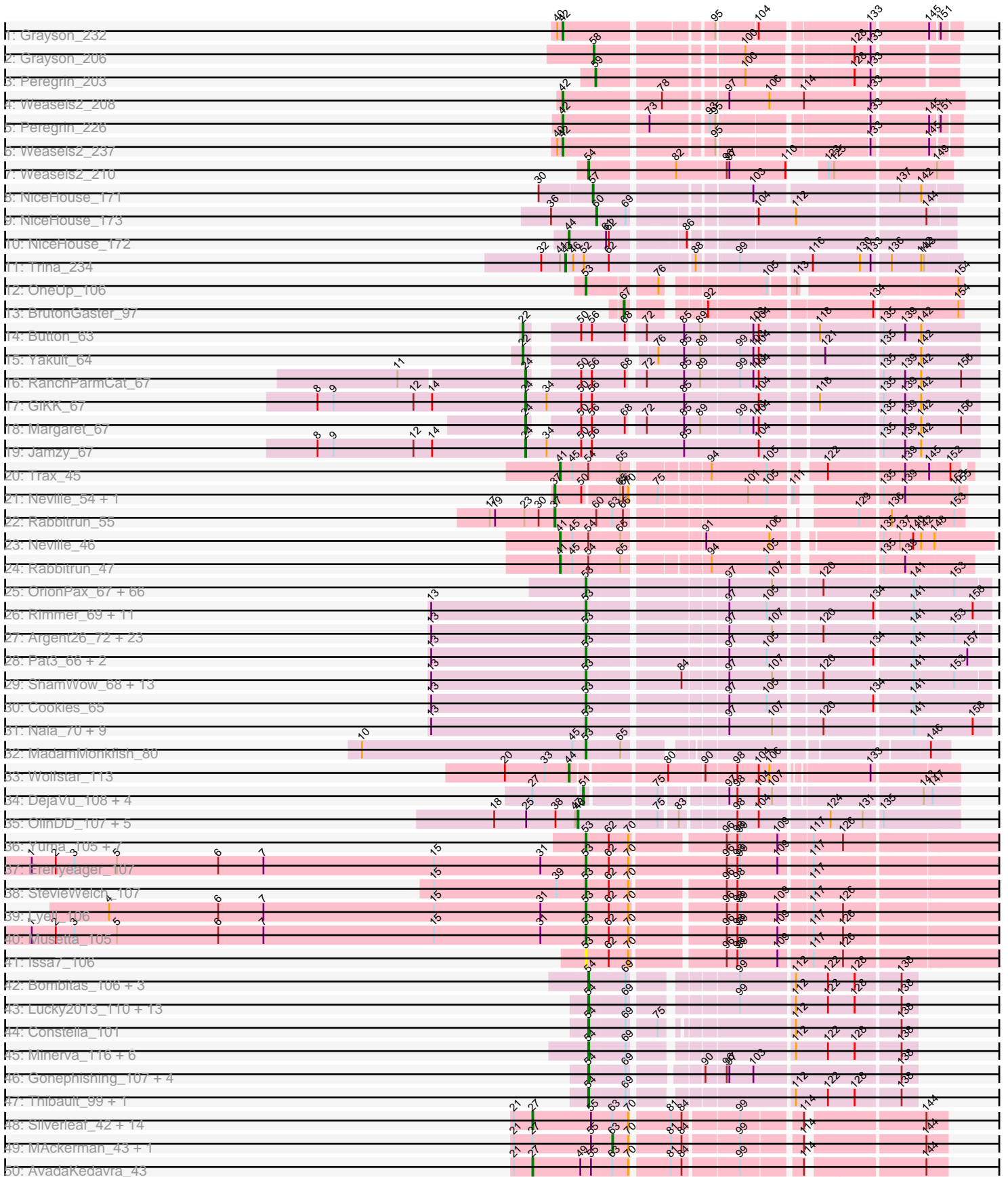


Pham 202614





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 202614 Report

This analysis was run 01/18/25 on database version 583.

Pham number 202614 has 309 members, 36 are drafts.

Phages represented in each track:

- Track 1 : Grayson\_232
- Track 2 : Grayson\_206
- Track 3 : Peregrin\_203
- Track 4 : Weasels2\_208
- Track 5 : Peregrin\_226
- Track 6 : Weasels2\_237
- Track 7 : Weasels2\_210
- Track 8 : NiceHouse\_171
- Track 9 : NiceHouse\_173
- Track 10 : NiceHouse\_172
- Track 11 : Trina\_234
- Track 12 : OneUp\_106
- Track 13 : BrutonGaster\_97
- Track 14 : Button\_63
- Track 15 : Yakult\_64
- Track 16 : RanchParmCat\_67
- Track 17 : GiKK\_67
- Track 18 : Margaret\_67
- Track 19 : Jamzy\_67
- Track 20 : Trax\_45
- Track 21 : Neville\_54, Trax\_53
- Track 22 : Rabbitrun\_55
- Track 23 : Neville\_46
- Track 24 : Rabbitrun\_47
- Track 25 : OrionPax\_67, Gator\_66, NelitzaMV\_66, Lilac\_70, Eureka\_66, Daikon\_70, Czyszczonek\_69, Marshmallow\_66, Miniwave\_63, TeardropMSU\_64, Tuco\_69, Dumbo\_68, Manda\_68, Phaux\_70, Pumpkin\_71, Ukulele\_63, Cactus\_71, BigBubba\_68, IHOP\_66, xkcd\_71, Filch\_69, Kostya\_68, Qualification\_69, SophKB\_65, Thresher\_70, Kanye\_65, Palpatine\_70, Highbury\_67, Cjw1\_68, Murica\_71, 244\_69, Elite2014\_67, Hopey\_68, ChosenOne\_68, Dusk\_65, Murphy\_68, PhatBacter\_72, Goku\_66, Balomoji\_68, Pharsalus\_65, Maxxinista\_70, BadStone\_65, Icee\_69, HufflyPuff\_71, Elph10\_68, Phrux\_65, Phaja\_66, HanKaySha\_68, Sotrice96\_69, Myrale\_68, DrDrey\_68, Tarkin\_67, BugsBunny\_68, Rakim\_69, Stark\_69, Paperbeatsrock\_67, Simpliphy\_67, Policronamos\_72, NoSleep\_69, Saints25\_67, StellaBean\_66, RiverMonster\_68, Lilpickle\_67, ABCat\_65, Flypotenuse\_64, Xandras\_67, ShereKhan\_67

- Track 26 : Rimmer\_69, YassJohnny\_65, Glexan\_67, Tomaszewski\_63, Buck\_69, Harella\_68, Sassay\_63, Bask21\_68, Petra64142\_72, SirDuracell\_67, DoctorDiddles\_67, Willez\_63
- Track 27 : Argent26\_72, Hoonter\_71, GoldenSpark\_72, Teaspoon\_69, Goldilocks\_71, GooberAzure\_71, Youngblood\_71, AmericanBeauty\_72, TBrady12\_71, Lilizi\_69, FairyPath\_68, Bench\_71, Command613\_70, Gemini\_73, BaboJay\_65, Inca\_65, Porky\_67, MadamMonkfish\_68, Gage\_70, Kimchi\_72, Emmina\_68, JeTaime\_68, StolenFromERC\_71, Holt\_73
- Track 28 : Pat3\_66, Amao\_68, ChotaBhai\_68
- Track 29 : ShamWow\_68, BilboSwaggins\_67, Mindy\_67, Easy2Say\_69, Adnama\_72, Barbarian\_67, CrystalP\_67, Asriel\_67, Moldemort\_71, Traaww1\_64, Toto\_66, Henry\_66, Wiggin\_70, Stank\_71
- Track 30 : Cookies\_65
- Track 31 : Nala\_70, MPhalcon\_69, Misfit\_69, Terminus\_71, Contagion\_64, Bruin\_65, MISSy\_69, FireRed\_72, Nimrod\_69, Mosby\_64
- Track 32 : MadamMonkfish\_80
- Track 33 : Wolfstar\_113
- Track 34 : DejaVu\_108, Pavlo\_108, Roman\_109, PhillyPhilly\_105, Hubbs\_107
- Track 35 : OlinDD\_107, Alleb\_103, Tandem\_107, Hortus1\_107, Pioneer3\_107, Platte\_106
- Track 36 : Yuma\_105, DustyDino\_110, HollowPurple\_107, Fork\_103, Welcome\_109, Necrophoxinus\_109, ASegato\_105, RunningBrook\_108
- Track 37 : Erenyeager\_107
- Track 38 : StevieWelch\_107
- Track 39 : Lyell\_106
- Track 40 : Musetta\_105
- Track 41 : Issa7\_106
- Track 42 : Bombitas\_106, Yeet\_109, Schatzie\_113, Odette\_120
- Track 43 : Lucky2013\_110, Courthouse\_108, NihilNomen\_120, Ariel\_113, Phoebus\_119, Redno2\_112, Beem\_120, Porcelain\_113, HokkenD\_108, Squint\_111, Superphikiman\_110, Dove\_104, MiaZeal\_113, JuicyJay\_115
- Track 44 : Constella\_101
- Track 45 : Minerva\_116, DmpstrDiver\_119, Pound\_108, Bagrid\_119, Hughesyang\_118, Halley\_121, Ejimix\_113
- Track 46 : Gonephishing\_107, LittleE\_118, Hannaconda\_104, KashFlow\_110, Omega\_124
- Track 47 : Thibault\_99, Dallas\_119
- Track 48 : Silverleaf\_42, Halena\_42, DirkDirk\_42, Wamburggrxpress\_43, Appletree2\_42, Wyatt2\_43, Calm\_43, LeBron\_43, Zaria\_43, Rose5\_42, Acquire49\_43, OhShagHennessy\_42, Enceladus\_42, UPIE\_43, JoeDirt\_42
- Track 49 : MAckerman\_43, CicholasNage\_43
- Track 50 : AvadaKedavra\_43
- Track 51 : Tyson\_42
- Track 52 : Vetric\_45, Lewan\_45, Kahlid\_45, BigCheese\_45, DrSeegs\_45, Gabriela\_45, Netyap\_45, Wilder\_45, MkaliMitinis3\_45, LilDestine\_45
- Track 53 : GuuelaD\_44, Nicholasp3\_45, Loadrie\_44, Wigglewiggle\_45
- Track 54 : Sarshaun\_45, Hafay\_45, Soap141\_45
- Track 55 : Breezona\_45, Winky\_45, Finemlucis\_45, Itos\_44, Miley16\_45, Faith1\_45
- Track 56 : Claus\_45, DHan\_46, ZhongYanYuan\_43, Baoshan\_43, DanBing\_44
- Track 57 : Bazzle\_45, Archie\_45
- Track 58 : Rumpelstiltskin\_45
- Track 59 : Crossroads\_45, Gardann\_45, Zakai\_45
- Track 60 : BobsGarage\_45

- Track 61 : Underpass\_45
- Track 62 : Tourach\_44
- Track 63 : LiyuLake\_42, BourbonZero\_41, KirDoubleO7\_40, DuncansLeg\_42, Ellson\_42
- Track 64 : Jubie\_42, Lumos\_42, Whirlwind\_43
- Track 65 : MsGreen\_42, Clautastrophe\_42
- Track 66 : Jobypre\_42, Samty\_42, Kingsolomon\_42, Bellis\_42, Finnry\_42, TriFive\_42, Nicholas\_42, Snenia\_42, Moostard\_42
- Track 67 : MiniLon\_42, MiniMac\_42
- Track 68 : Krypton555\_42
- Track 69 : Lolly9\_42
- Track 70 : Douzhi\_42, FarmResident\_43
- Track 71 : Chaser\_42, Douge\_42
- Track 72 : BrainDrainer\_43
- Track 73 : PYPDinur\_41, Sheng711\_43
- Track 74 : Kropertea\_42
- Track 75 : DyoEdafos\_44
- Track 76 : Bromden\_45
- Track 77 : Quby\_43
- Track 78 : Aegeus\_65, Baudelaire\_65
- Track 79 : VanLee\_135
- Track 80 : Yappy\_107

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

The start number called the most often in the published annotations is 53, it was called in 136 of the 273 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 244\_69, ABCat\_65, ASegato\_105, Adnama\_72, Amao\_68, AmericanBeauty\_72, Argent26\_72, Asriel\_67, BaboJay\_65, BadStone\_65, Balomoji\_68, Barbarian\_67, Bask21\_68, Bench\_71, BigBubba\_68, BilboSwaggins\_67, Bruin\_65, Buck\_69, BugsBunny\_68, Cactus\_71, ChosenOne\_68, ChotaBhai\_68, Cjw1\_68, Command613\_70, Contagion\_64, Cookies\_65, CrystalP\_67, Czyszczone1\_69, Daikon\_70, DoctorDiddles\_67, DrDrey\_68, Dumbo\_68, Dusk\_65, DustyDino\_110, Easy2Say\_69, Elite2014\_67, Elph10\_68, Emmina\_68, Erenyeager\_107, Eureka\_66, FairyPath\_68, Filch\_69, FireRed\_72, Flypotenuse\_64, Fork\_103, Gage\_70, Gator\_66, Gemini\_73, Glexan\_67, Goku\_66, GoldenSpark\_72, Goldilocks\_71, GooberAzure\_71, HanKaySha\_68, Harella\_68, Henry\_66, Highbury\_67, HollowPurple\_107, Holt\_73, Hoonter\_71, Hopey\_68, HufflyPuff\_71, IHOP\_66, Icee\_69, Inca\_65, Issa7\_106, JeTaime\_68, Kanye\_65, Kimchi\_72, Kostya\_68, Lilac\_70, Lilizi\_69, Lilpickle\_67, Lyell\_106, MISSy\_69, MPhalcon\_69, MadamMonkfish\_68, MadamMonkfish\_80, Manda\_68, Marshmallow\_66, Maxxinista\_70, Mindy\_67, Miniwave\_63, Misfit\_69, Moldemort\_71, Mosby\_64, Murica\_71, Murphy\_68, Musetta\_105, Myrale\_68, Nala\_70, Necrophoxinus\_109, NelitzaMV\_66, Nimrod\_69, NoSleep\_69, OneUp\_106, OrionPax\_67, Palpatine\_70, Paperbeatsrock\_67, Pat3\_66, Petra64142\_72, Phaja\_66, Pharsalus\_65, PhatBacter\_72, Phaux\_70, Phrux\_65, Policronamos\_72, Porky\_67, Pumpkin\_71, Quallification\_69, Rakim\_69, Rimmer\_69, RiverMonster\_68, RunningBrook\_108, Saints25\_67, Sassay\_63, ShamWow\_68, ShereKhan\_67, Simpliphy\_67,

SirDuracell\_67, SophKB\_65, Sotrice96\_69, Stank\_71, Stark\_69, StellaBean\_66, StevieWelch\_107, StolenFromERC\_71, TBrady12\_71, Tarkin\_67, TeardropMSU\_64, Teaspoon\_69, Terminus\_71, Thresher\_70, Tomaszewski\_63, Toto\_66, Traaww1\_64, Tuco\_69, Ukulele\_63, Welcome\_109, Wiggin\_70, Willez\_63, Xandras\_67, YassJohnny\_65, Youngblood\_71, Yuma\_105, xkcd\_71,

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

- 

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

- Acquire49\_43, Aegeus\_65, Alleb\_103, Appletree2\_42, Archie\_45, Ariel\_113, AvadaKedavra\_43, Bagrid\_119, Baoshan\_43, Baudelaire\_65, Bazzle\_45, Beem\_120, Bellis\_42, BigCheese\_45, BobsGarage\_45, Bombitas\_106, BourbonZero\_41, BrainDrainer\_43, Breezona\_45, Bromden\_45, BrutonGaster\_97, Button\_63, Calm\_43, Chaser\_42, CicholasNage\_43, Claus\_45, Clautastrophe\_42, Constella\_101, Courthouse\_108, Crossroads\_45, DHan\_46, Dallas\_119, DanBing\_44, DejaVu\_108, DirkDirk\_42, DmpstrDiver\_119, Douge\_42, Douzhi\_42, Dove\_104, DrSeegs\_45, DuncansLeg\_42, DyoEdafos\_44, Ejimix\_113, Ellson\_42, Enceladus\_42, Faith1\_45, FarmResident\_43, Finemlucis\_45, Finnry\_42, Gabriela\_45, Gardann\_45, GiKK\_67, Gonephishing\_107, Grayson\_206, Grayson\_232, GuuelaD\_44, Hafay\_45, Halena\_42, Halley\_121, Hannaconda\_104, HokkenD\_108, Hortus1\_107, Hubbs\_107, Hughesyang\_118, Itos\_44, Jamzy\_67, Jobypre\_42, JoeDirt\_42, Jubie\_42, JuicyJay\_115, Kahlid\_45, KashFlow\_110, Kingsolomon\_42, KirDoubleO7\_40, Kropertea\_42, Krypton555\_42, LeBron\_43, Lewan\_45, LilDestine\_45, LittleE\_118, LiyuLake\_42, Loadrie\_44, Lolly9\_42, Lucky2013\_110, Lumos\_42, MAckerman\_43, Margaret\_67, MiaZeal\_113, Miley16\_45, Minerva\_116, MiniLon\_42, MiniMac\_42, MkaliMitinis3\_45, Moostard\_42, MsGreen\_42, Netyap\_45, Neville\_46, Neville\_54, NiceHouse\_171, NiceHouse\_172, NiceHouse\_173, Nicholas\_42, Nicholasp3\_45, NihilNomen\_120, Odette\_120, OhShagHennessy\_42, OlinDD\_107, Omega\_124, PYPDinur\_41, Pavlo\_108, Peregrin\_203, Peregrin\_226, PhillyPhilly\_105, Phoebus\_119, Pioneer3\_107, Platte\_106, Porcelain\_113, Pound\_108, Quby\_43, Rabbitrun\_47, Rabbitrun\_55, RanchParmCat\_67, Redno2\_112, Roman\_109, Rose5\_42, Rumpelstiltskin\_45, Samty\_42, Sarshaun\_45, Schatzie\_113, Sheng711\_43, Silverleaf\_42, Snenia\_42, Soap141\_45, Squint\_111, Superphikiman\_110, Tandem\_107, Thibault\_99, Tourach\_44, Trax\_45, Trax\_53, TriFive\_42, Trina\_234, Tyson\_42, UPIE\_43, Underpass\_45, VanLee\_135, Vetrix\_45, Wamburggrxpress\_43, Weasels2\_208, Weasels2\_210, Weasels2\_237, Whirlwind\_43, Wigglewiggle\_45, Wilder\_45, Winky\_45, Wolfstar\_113, Wyatt2\_43, Yakult\_64, Yappy\_107, Yeet\_109, Zakai\_45, Zaria\_43, ZhongYanYuan\_43,

### Summary by start number:

Start 21:

- Found in 53 of 309 ( 17.2% ) of genes in pham
- Manual Annotations of this start: 3 of 273
- Called 5.7% of time when present
- Phage (with cluster) where this start called: Clautastrophe\_42 (L3), Krypton555\_42 (L3), MsGreen\_42 (L3),

Start 22:

- Found in 2 of 309 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 2 of 273

- Called 100.0% of time when present
- Phage (with cluster) where this start called: Button\_63 (CT), Yakult\_64 (CT),

#### Start 23:

- Found in 69 of 309 ( 22.3% ) of genes in pham
- Manual Annotations of this start: 10 of 273
- Called 14.5% of time when present
- Phage (with cluster) where this start called: Breezona\_45 (L2), Faith1\_45 (L2), Finemlucis\_45 (L2), GuuelaD\_44 (L2), Itos\_44 (L2), Loadrie\_44 (L2), Miley16\_45 (L2), Nicholasp3\_45 (L2), Wigglewiggles\_45 (L2), Winky\_45 (L2),

#### Start 24:

- Found in 4 of 309 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 4 of 273
- Called 100.0% of time when present
- Phage (with cluster) where this start called: GiKK\_67 (CT), Jamzy\_67 (CT), Margaret\_67 (CT), RanchParmCat\_67 (CT),

#### Start 26:

- Found in 11 of 309 ( 3.6% ) of genes in pham
- Manual Annotations of this start: 4 of 273
- Called 36.4% of time when present
- Phage (with cluster) where this start called: Bromden\_45 (L4), Chaser\_42 (L4), Douge\_42 (L4), DyoEdafos\_44 (L4),

#### Start 27:

- Found in 85 of 309 ( 27.5% ) of genes in pham
- Manual Annotations of this start: 39 of 273
- Called 45.9% of time when present
- Phage (with cluster) where this start called: Acquire49\_43 (L1), Appletree2\_42 (L1), Archie\_45 (L2), AvadaKedavra\_43 (L1), Bazzle\_45 (L2), BigCheese\_45 (L2), Calm\_43 (L1), Crossroads\_45 (L2), DirkDirk\_42 (L1), DrSeegs\_45 (L2), Enceladus\_42 (L1), Gabriela\_45 (L2), Gardann\_45 (L2), Halena\_42 (L1), JoeDirt\_42 (L1), Jubie\_42 (L3), Kahlid\_45 (L2), LeBron\_43 (L1), Lewan\_45 (L2), LilDestine\_45 (L2), Lumos\_42 (L3), MiniLon\_42 (L3), MiniMac\_42 (L3), MkaliMitinis3\_45 (L2), Netyap\_45 (L2), OhShagHennessy\_42 (L1), Rose5\_42 (L1), Rumpelstiltskin\_45 (L2), Silverleaf\_42 (L1), Tourach\_44 (L2), Tyson\_42 (L1), UPIE\_43 (L1), Vetrrix\_45 (L2), Wamburggrxpress\_43 (L1), Whirlwind\_43 (L3), Wilder\_45 (L2), Wyatt2\_43 (L1), Zakai\_45 (L2), Zaria\_43 (L1),

#### Start 29:

- Found in 1 of 309 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 273
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Yappy\_107 (singleton),

#### Start 35:

- Found in 1 of 309 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 273
- Called 100.0% of time when present
- Phage (with cluster) where this start called: VanLee\_135 (singleton),

#### Start 37:

- Found in 3 of 309 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 3 of 273
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Neville\_54 (DU2), Rabbitrun\_55 (DU2), Trax\_53 (DU2),

Start 41:

- Found in 4 of 309 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 3 of 273
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Neville\_46 (DU2), Rabbitrun\_47 (DU2), Trax\_45 (DU2),

Start 42:

- Found in 4 of 309 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 4 of 273
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Grayson\_232 (CB), Peregrin\_226 (CB), Weasels2\_208 (CB), Weasels2\_237 (CB),

Start 43:

- Found in 1 of 309 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 273
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Trina\_234 (CE),

Start 44:

- Found in 2 of 309 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 2 of 273
- Called 100.0% of time when present
- Phage (with cluster) where this start called: NiceHouse\_172 (CE), Wolfstar\_113 (ED),

Start 48:

- Found in 6 of 309 ( 1.9% ) of genes in pham
- Manual Annotations of this start: 6 of 273
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alleb\_103 (ED1), Hortus1\_107 (ED1), OlinDD\_107 (ED1), Pioneer3\_107 (ED1), Platte\_106 (ED1), Tandem\_107 (ED1),

Start 51:

- Found in 5 of 309 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 5 of 273
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DejaVu\_108 (ED1), Hubbs\_107 (ED1), Pavlo\_108 (ED1), PhillyPhilly\_105 (ED1), Roman\_109 (ED1),

Start 53:

- Found in 146 of 309 ( 47.2% ) of genes in pham
- Manual Annotations of this start: 136 of 273
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 244\_69 (E), ABCat\_65 (E), ASegato\_105 (ED2), Adnama\_72 (E), Amao\_68 (E), AmericanBeauty\_72 (E),



Argent26\_72 (E), Asriel\_67 (E), BaboJay\_65 (E), BadStone\_65 (E), Balomoji\_68 (E), Barbarian\_67 (E), Bask21\_68 (E), Bench\_71 (E), BigBubba\_68 (E), BilboSwaggins\_67 (E), Bruin\_65 (E), Buck\_69 (E), BugsBunny\_68 (E), Cactus\_71 (E), ChosenOne\_68 (E), ChotaBhai\_68 (E), Cjw1\_68 (E), Command613\_70 (E), Contagion\_64 (E), Cookies\_65 (E), CrystalP\_67 (E), Czyszczonek\_69 (E), Daikon\_70 (E), DoctorDiddles\_67 (E), DrDrey\_68 (E), Dumbo\_68 (E), Dusk\_65 (E), DustyDino\_110 (ED2), Easy2Say\_69 (E), Elite2014\_67 (E), Elph10\_68 (E), Emmina\_68 (E), Erenyeager\_107 (ED2), Eureka\_66 (E), FairyPath\_68 (E), Filch\_69 (E), FireRed\_72 (E), Flypotenuse\_64 (E), Fork\_103 (ED2), Gage\_70 (E), Gator\_66 (E), Gemini\_73 (E), Glexan\_67 (E), Goku\_66 (E), GoldenSpark\_72 (E), Goldilocks\_71 (E), GooberAzure\_71 (E), HanKaySha\_68 (E), Harella\_68 (E), Henry\_66 (E), Highbury\_67 (E), HollowPurple\_107 (ED2), Holt\_73 (E), Hoonter\_71 (E), Hopey\_68 (E), HufflyPuff\_71 (E), IHOP\_66 (E), Icee\_69 (E), Inca\_65 (E), Issa7\_106 (ED2), JeTaimie\_68 (E), Kanye\_65 (E), Kimchi\_72 (E), Kostya\_68 (E), Lilac\_70 (E), Lilizi\_69 (E), Lilpickle\_67 (E), Lyell\_106 (ED2), MISSy\_69 (E), MPhalcon\_69 (E), MadamMonkfish\_68 (E), MadamMonkfish\_80 (E), Manda\_68 (E), Marshmallow\_66 (E), Maxxinsta\_70 (E), Mindy\_67 (E), Miniwave\_63 (E), Misfit\_69 (E), Moldemort\_71 (E), Mosby\_64 (E), Murica\_71 (E), Murphy\_68 (E), Musetta\_105 (ED2), Myrale\_68 (E), Nala\_70 (E), Necrophoxinus\_109 (ED2), NelitzaMV\_66 (E), Nimrod\_69 (E), NoSleep\_69 (E), OneUp\_106 (CQ2), OrionPax\_67 (E), Palpatine\_70 (E), Paperbeatsrock\_67 (E), Pat3\_66 (E), Petra64142\_72 (E), Phaja\_66 (E), Pharsalus\_65 (E), PhatBacter\_72 (E), Phaux\_70 (E), Phrux\_65 (E), Policronamos\_72 (E), Porky\_67 (E), Pumpkin\_71 (E), Qualification\_69 (E), Rakim\_69 (E), Rimmer\_69 (E), RiverMonster\_68 (E), RunningBrook\_108 (ED2), Saints25\_67 (E), Sassay\_63 (E), ShamWow\_68 (E), ShereKhan\_67 (E), Simpliphy\_67 (E), SirDuracell\_67 (E), SophKB\_65 (E), Sotrice96\_69 (E), Stank\_71 (E), Stark\_69 (E), StellaBean\_66 (E), StevieWelch\_107 (ED2), StolenFromERC\_71 (E), TBrady12\_71 (E), Tarkin\_67 (E), TeardropMSU\_64 (E), Teaspoon\_69 (E), Terminus\_71 (E), Thresher\_70 (E), Tomaszewski\_63 (E), Toto\_66 (E), Traaww1\_64 (E), Tuco\_69 (E), Ukulele\_63 (E), Welcome\_109 (ED2), Wiggin\_70 (E), Willez\_63 (E), Xandras\_67 (E), YassJohnny\_65 (E), Youngblood\_71 (E), Yuma\_105 (ED2), xkcd\_71 (E),

#### Start 54:

- Found in 39 of 309 ( 12.6% ) of genes in pham
- Manual Annotations of this start: 33 of 273
- Called 92.3% of time when present
- Phage (with cluster) where this start called: Aegeus\_65 (L5), Ariel\_113 (J), Bagrid\_119 (J), Baudelaire\_65 (L5), Beem\_120 (J), Bombitas\_106 (J), Constella\_101 (J), Courthouse\_108 (J), Dallas\_119 (J), DmpstrDiver\_119 (J), Dove\_104 (J), Ejimix\_113 (J), Gonephishing\_107 (J), Halley\_121 (J), Hannaconda\_104 (J), HokkenD\_108 (J), Hughesyang\_118 (J), JuicyJay\_115 (J), KashFlow\_110 (J), LittleE\_118 (J), Lucky2013\_110 (J), MiaZeal\_113 (J), Minerva\_116 (J), NihilNomen\_120 (J), Odette\_120 (J), Omega\_124 (J), Phoebus\_119 (J), Porcelain\_113 (J), Pound\_108 (J), Redno2\_112 (J), Schatzie\_113 (J), Squint\_111 (J), Superphikiman\_110 (J), Thibault\_99 (J), Weasels2\_210 (CB), Yeet\_109 (J),

#### Start 57:

- Found in 1 of 309 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 273
- Called 100.0% of time when present
- Phage (with cluster) where this start called: NiceHouse\_171 (CE),

#### Start 58:

- Found in 1 of 309 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 273
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Grayson\_206 (CB),

Start 59:

- Found in 1 of 309 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 273
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Peregrin\_203 (CB),

Start 60:

- Found in 2 of 309 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 273
- Called 50.0% of time when present
- Phage (with cluster) where this start called: NiceHouse\_173 (CE),

Start 63:

- Found in 91 of 309 ( 29.4% ) of genes in pham
- Manual Annotations of this start: 11 of 273
- Called 34.1% of time when present
- Phage (with cluster) where this start called: Baoshan\_43 (L2), Bellis\_42 (L3), BobsGarage\_45 (L2), BourbonZero\_41 (L3), CicholasNage\_43 (L1), Claus\_45 (L2), DHan\_46 (L2), DanBing\_44 (L2), Douzhi\_42 (L4), DuncansLeg\_42 (L3), Ellson\_42 (L3), FarmResident\_43 (L4), Finnry\_42 (L3), Hafay\_45 (L2), Jobypre\_42 (L3), Kingsolomon\_42 (L3), KirDoubleO7\_40 (L3), LiyuLake\_42 (L3), Lolly9\_42 (L3), MAckerman\_43 (L1), Moostard\_42 (L3), Nicholas\_42 (L3), PYPDinur\_41 (L4), Quby\_43 (L4), Samty\_42 (L3), Sarshaun\_45 (L2), Sheng711\_43 (L4), Snenia\_42 (L3), Soap141\_45 (L2), TriFive\_42 (L3), ZhongYanYuan\_43 (L2),

Start 67:

- Found in 1 of 309 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 273
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BrutonGaster\_97 (CQ2),

Start 70:

- Found in 105 of 309 ( 34.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 1.9% of time when present
- Phage (with cluster) where this start called: BrainDrainer\_43 (L4), Underpass\_45 (L2),

Start 77:

- Found in 71 of 309 ( 23.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 1.4% of time when present
- Phage (with cluster) where this start called: Kropertea\_42 (L4),

### Summary by clusters:

There are 16 clusters represented in this pham: singleton, E, L5, CB, ED, J, CE, ED2, L4, ED1, L2, L3, L1, CQ2, DU2, CT,

Info for manual annotations of cluster CB:

- Start number 42 was manually annotated 4 times for cluster CB.
- Start number 54 was manually annotated 1 time for cluster CB.
- Start number 58 was manually annotated 1 time for cluster CB.
- Start number 59 was manually annotated 1 time for cluster CB.

Info for manual annotations of cluster CE:

- Start number 43 was manually annotated 1 time for cluster CE.
- Start number 44 was manually annotated 1 time for cluster CE.
- Start number 57 was manually annotated 1 time for cluster CE.
- Start number 60 was manually annotated 1 time for cluster CE.

Info for manual annotations of cluster CQ2:

- Start number 53 was manually annotated 1 time for cluster CQ2.
- Start number 67 was manually annotated 1 time for cluster CQ2.

Info for manual annotations of cluster CT:

- Start number 22 was manually annotated 2 times for cluster CT.
- Start number 24 was manually annotated 4 times for cluster CT.

Info for manual annotations of cluster DU2:

- Start number 37 was manually annotated 3 times for cluster DU2.
- Start number 41 was manually annotated 3 times for cluster DU2.

Info for manual annotations of cluster E:

- Start number 53 was manually annotated 124 times for cluster E.

Info for manual annotations of cluster ED:

- Start number 44 was manually annotated 1 time for cluster ED.

Info for manual annotations of cluster ED1:

- Start number 48 was manually annotated 6 times for cluster ED1.
- Start number 51 was manually annotated 5 times for cluster ED1.

Info for manual annotations of cluster ED2:

- Start number 53 was manually annotated 11 times for cluster ED2.

Info for manual annotations of cluster J:

- Start number 54 was manually annotated 30 times for cluster J.

Info for manual annotations of cluster L1:

- Start number 27 was manually annotated 17 times for cluster L1.
- Start number 63 was manually annotated 2 times for cluster L1.

Info for manual annotations of cluster L2:

- Start number 23 was manually annotated 10 times for cluster L2.
- Start number 27 was manually annotated 17 times for cluster L2.
- Start number 63 was manually annotated 1 time for cluster L2.

Info for manual annotations of cluster L3:

- Start number 21 was manually annotated 3 times for cluster L3.
- Start number 27 was manually annotated 5 times for cluster L3.

- Start number 63 was manually annotated 8 times for cluster L3.

Info for manual annotations of cluster L4:

- Start number 26 was manually annotated 4 times for cluster L4.

Info for manual annotations of cluster L5:

- Start number 54 was manually annotated 2 times for cluster L5.

### **Gene Information:**

Gene: 244\_69 Start: 45158, Stop: 45568, Start Num: 53

Candidate Starts for 244\_69:

(Start: 53 @45158 has 136 MA's), (97, 45299), (107, 45347), (120, 45395), (141, 45488), (153, 45530),

Gene: ABCat\_65 Start: 45505, Stop: 45915, Start Num: 53

Candidate Starts for ABCat\_65:

(Start: 53 @45505 has 136 MA's), (97, 45646), (107, 45694), (120, 45742), (141, 45835), (153, 45877),

Gene: ASegato\_105 Start: 56034, Stop: 55597, Start Num: 53

Candidate Starts for ASegato\_105:

(Start: 53 @56034 has 136 MA's), (62, 56010), (70, 55989), (96, 55893), (98, 55881), (99, 55878), (109, 55836), (117, 55806), (126, 55773),

Gene: Acquire49\_43 Start: 34025, Stop: 34441, Start Num: 27

Candidate Starts for Acquire49\_43:

(Start: 21 @34004 has 3 MA's), (Start: 27 @34025 has 39 MA's), (55, 34091), (Start: 63 @34112 has 11 MA's), (70, 34130), (81, 34169), (84, 34181), (99, 34238), (114, 34298), (144, 34418),

Gene: Adnama\_72 Start: 45528, Stop: 45938, Start Num: 53

Candidate Starts for Adnama\_72:

(13, 45354), (Start: 53 @45528 has 136 MA's), (84, 45624), (97, 45669), (107, 45717), (120, 45765), (141, 45858), (153, 45900),

Gene: Aegeus\_65 Start: 44400, Stop: 44765, Start Num: 54

Candidate Starts for Aegeus\_65:

(Start: 54 @44400 has 33 MA's), (64, 44430), (87, 44502), (89, 44508), (115, 44622), (127, 44664), (147, 44751),

Gene: Alleb\_103 Start: 57500, Stop: 57114, Start Num: 48

Candidate Starts for Alleb\_103:

(18, 57593), (25, 57557), (38, 57524), (47, 57503), (Start: 48 @57500 has 6 MA's), (75, 57419), (83, 57401), (98, 57347), (104, 57323), (124, 57251), (131, 57215), (135, 57197),

Gene: Amao\_68 Start: 44913, Stop: 45326, Start Num: 53

Candidate Starts for Amao\_68:

(13, 44739), (Start: 53 @44913 has 136 MA's), (97, 45054), (105, 45096), (134, 45204), (141, 45243), (157, 45300),

Gene: AmericanBeauty\_72 Start: 45671, Stop: 46081, Start Num: 53

Candidate Starts for AmericanBeauty\_72:

(13, 45497), (Start: 53 @45671 has 136 MA's), (97, 45812), (107, 45860), (120, 45908), (141, 46001), (153, 46043),

Gene: Appletree2\_42 Start: 33952, Stop: 34368, Start Num: 27

Candidate Starts for Appletree2\_42:

(Start: 21 @33931 has 3 MA's), (Start: 27 @33952 has 39 MA's), (55, 34018), (Start: 63 @34039 has 11 MA's), (70, 34057), (81, 34096), (84, 34108), (99, 34165), (114, 34225), (144, 34345),

Gene: Archie\_45 Start: 35560, Stop: 35976, Start Num: 27

Candidate Starts for Archie\_45:

(Start: 23 @35551 has 10 MA's), (Start: 27 @35560 has 39 MA's), (Start: 63 @35647 has 11 MA's), (70, 35665), (77, 35692), (79, 35695), (99, 35770), (102, 35782), (119, 35842), (132, 35890), (144, 35953),

Gene: Argent26\_72 Start: 45309, Stop: 45719, Start Num: 53

Candidate Starts for Argent26\_72:

(13, 45135), (Start: 53 @45309 has 136 MA's), (97, 45450), (107, 45498), (120, 45546), (141, 45639), (153, 45681),

Gene: Ariel\_113 Start: 61833, Stop: 62153, Start Num: 54

Candidate Starts for Ariel\_113:

(Start: 54 @61833 has 33 MA's), (69, 61872), (99, 61971), (112, 62028), (122, 62064), (128, 62094), (138, 62139),

Gene: Asriel\_67 Start: 43865, Stop: 44275, Start Num: 53

Candidate Starts for Asriel\_67:

(13, 43691), (Start: 53 @43865 has 136 MA's), (84, 43961), (97, 44006), (107, 44054), (120, 44102), (141, 44195), (153, 44237),

Gene: AvadaKedavra\_43 Start: 34034, Stop: 34450, Start Num: 27

Candidate Starts for AvadaKedavra\_43:

(Start: 21 @34013 has 3 MA's), (Start: 27 @34034 has 39 MA's), (49, 34088), (55, 34100), (Start: 63 @34121 has 11 MA's), (70, 34139), (81, 34178), (84, 34190), (99, 34247), (114, 34307), (144, 34427),

Gene: BaboJay\_65 Start: 44702, Stop: 45112, Start Num: 53

Candidate Starts for BaboJay\_65:

(13, 44528), (Start: 53 @44702 has 136 MA's), (97, 44843), (107, 44891), (120, 44939), (141, 45032), (153, 45074),

Gene: BadStone\_65 Start: 45074, Stop: 45484, Start Num: 53

Candidate Starts for BadStone\_65:

(Start: 53 @45074 has 136 MA's), (97, 45215), (107, 45263), (120, 45311), (141, 45404), (153, 45446),

Gene: Bagrid\_119 Start: 66108, Stop: 66428, Start Num: 54

Candidate Starts for Bagrid\_119:

(Start: 54 @66108 has 33 MA's), (69, 66147), (112, 66303), (122, 66339), (128, 66369), (138, 66414),

Gene: Balomoji\_68 Start: 45635, Stop: 46045, Start Num: 53

Candidate Starts for Balomoji\_68:

(Start: 53 @45635 has 136 MA's), (97, 45776), (107, 45824), (120, 45872), (141, 45965), (153, 46007),

Gene: Baoshan\_43 Start: 35304, Stop: 35633, Start Num: 63

Candidate Starts for Baoshan\_43:

(Start: 23 @35208 has 10 MA's), (Start: 27 @35217 has 39 MA's), (Start: 63 @35304 has 11 MA's), (70, 35322), (77, 35349), (79, 35352), (99, 35430), (132, 35547), (144, 35610),

Gene: Barbarian\_67 Start: 43865, Stop: 44275, Start Num: 53

Candidate Starts for Barbarian\_67:

(13, 43691), (Start: 53 @43865 has 136 MA's), (84, 43961), (97, 44006), (107, 44054), (120, 44102), (141, 44195), (153, 44237),

Gene: Bask21\_68 Start: 44476, Stop: 44889, Start Num: 53

Candidate Starts for Bask21\_68:

(13, 44302), (Start: 53 @44476 has 136 MA's), (97, 44617), (105, 44659), (134, 44767), (141, 44806), (158, 44869),

Gene: Baudelaire\_65 Start: 44400, Stop: 44765, Start Num: 54

Candidate Starts for Baudelaire\_65:

(Start: 54 @44400 has 33 MA's), (64, 44430), (87, 44502), (89, 44508), (115, 44622), (127, 44664), (147, 44751),

Gene: Bazzle\_45 Start: 35592, Stop: 36008, Start Num: 27

Candidate Starts for Bazzle\_45:

(Start: 23 @35583 has 10 MA's), (Start: 27 @35592 has 39 MA's), (Start: 63 @35679 has 11 MA's), (70, 35697), (77, 35724), (79, 35727), (99, 35802), (102, 35814), (119, 35874), (132, 35922), (144, 35985),

Gene: Beem\_120 Start: 67476, Stop: 67796, Start Num: 54

Candidate Starts for Beem\_120:

(Start: 54 @67476 has 33 MA's), (69, 67515), (99, 67614), (112, 67671), (122, 67707), (128, 67737), (138, 67782),

Gene: Bellis\_42 Start: 35732, Stop: 36055, Start Num: 63

Candidate Starts for Bellis\_42:

(Start: 21 @35627 has 3 MA's), (Start: 23 @35639 has 10 MA's), (Start: 27 @35648 has 39 MA's), (Start: 63 @35732 has 11 MA's), (70, 35750), (74, 35768), (77, 35777), (108, 35894), (144, 36032),

Gene: Bench\_71 Start: 45175, Stop: 45585, Start Num: 53

Candidate Starts for Bench\_71:

(13, 45001), (Start: 53 @45175 has 136 MA's), (97, 45316), (107, 45364), (120, 45412), (141, 45505), (153, 45547),

Gene: BigBubba\_68 Start: 44884, Stop: 45294, Start Num: 53

Candidate Starts for BigBubba\_68:

(Start: 53 @44884 has 136 MA's), (97, 45025), (107, 45073), (120, 45121), (141, 45214), (153, 45256),

Gene: BigCheese\_45 Start: 35356, Stop: 35772, Start Num: 27

Candidate Starts for BigCheese\_45:

(Start: 23 @35347 has 10 MA's), (Start: 27 @35356 has 39 MA's), (Start: 63 @35443 has 11 MA's), (70, 35461), (77, 35488), (79, 35491), (99, 35566), (102, 35578), (132, 35686), (144, 35749),

Gene: BilboSwaggins\_67 Start: 45513, Stop: 45923, Start Num: 53

Candidate Starts for BilboSwaggins\_67:

(13, 45339), (Start: 53 @45513 has 136 MA's), (84, 45609), (97, 45654), (107, 45702), (120, 45750), (141, 45843), (153, 45885),

Gene: BobsGarage\_45 Start: 35443, Stop: 35772, Start Num: 63  
Candidate Starts for BobsGarage\_45:  
(Start: 23 @35347 has 10 MA's), (Start: 27 @35356 has 39 MA's), (Start: 63 @35443 has 11 MA's),  
(70, 35461), (77, 35488), (79, 35491), (99, 35566), (102, 35578), (132, 35686), (144, 35749),

Gene: Bombitas\_106 Start: 63398, Stop: 63718, Start Num: 54  
Candidate Starts for Bombitas\_106:  
(Start: 54 @63398 has 33 MA's), (69, 63437), (99, 63536), (112, 63593), (122, 63629), (128, 63659),  
(138, 63704),

Gene: BourbonZero\_41 Start: 35717, Stop: 36040, Start Num: 63  
Candidate Starts for BourbonZero\_41:  
(Start: 21 @35609 has 3 MA's), (Start: 23 @35621 has 10 MA's), (Start: 27 @35630 has 39 MA's), (28,  
35633), (Start: 63 @35717 has 11 MA's), (70, 35735), (74, 35753), (77, 35762), (108, 35879), (144,  
36017),

Gene: BrainDrainer\_43 Start: 34388, Stop: 34699, Start Num: 70  
Candidate Starts for BrainDrainer\_43:  
(Start: 21 @34265 has 3 MA's), (Start: 23 @34277 has 10 MA's), (Start: 26 @34280 has 4 MA's),  
(Start: 63 @34370 has 11 MA's), (70, 34388), (77, 34415), (79, 34418), (99, 34493), (102, 34505),  
(132, 34613), (144, 34676), (150, 34691),

Gene: Breezona\_45 Start: 35347, Stop: 35772, Start Num: 23  
Candidate Starts for Breezona\_45:  
(Start: 23 @35347 has 10 MA's), (Start: 27 @35356 has 39 MA's), (Start: 63 @35443 has 11 MA's),  
(70, 35461), (77, 35488), (79, 35491), (99, 35566), (102, 35578), (132, 35686), (144, 35749),

Gene: Bromden\_45 Start: 35106, Stop: 35519, Start Num: 26  
Candidate Starts for Bromden\_45:  
(Start: 21 @35091 has 3 MA's), (Start: 23 @35103 has 10 MA's), (Start: 26 @35106 has 4 MA's),  
(Start: 27 @35112 has 39 MA's), (Start: 63 @35196 has 11 MA's), (70, 35214), (75, 35238), (77,  
35241), (99, 35322), (144, 35496),

Gene: Bruin\_65 Start: 44048, Stop: 44461, Start Num: 53  
Candidate Starts for Bruin\_65:  
(13, 43874), (Start: 53 @44048 has 136 MA's), (97, 44189), (107, 44237), (120, 44285), (141, 44378),  
(158, 44441),

Gene: BrutonGaster\_97 Start: 63227, Stop: 63556, Start Num: 67  
Candidate Starts for BrutonGaster\_97:  
(Start: 67 @63227 has 1 MA's), (92, 63293), (134, 63464), (154, 63551),

Gene: Buck\_69 Start: 45756, Stop: 46169, Start Num: 53  
Candidate Starts for Buck\_69:  
(13, 45582), (Start: 53 @45756 has 136 MA's), (97, 45897), (105, 45939), (134, 46047), (141, 46086),  
(158, 46149),

Gene: BugsBunny\_68 Start: 45583, Stop: 45993, Start Num: 53  
Candidate Starts for BugsBunny\_68:  
(Start: 53 @45583 has 136 MA's), (97, 45724), (107, 45772), (120, 45820), (141, 45913), (153, 45955),

Gene: Button\_63 Start: 43199, Stop: 43654, Start Num: 22  
Candidate Starts for Button\_63:

(Start: 22 @43199 has 2 MA's), (50, 43241), (56, 43253), (68, 43289), (72, 43304), (85, 43346), (89, 43364), (103, 43421), (104, 43427), (118, 43484), (135, 43547), (139, 43571), (142, 43589),

Gene: Cactus\_71 Start: 44529, Stop: 44939, Start Num: 53

Candidate Starts for Cactus\_71:

(Start: 53 @44529 has 136 MA's), (97, 44670), (107, 44718), (120, 44766), (141, 44859), (153, 44901),

Gene: Calm\_43 Start: 34040, Stop: 34456, Start Num: 27

Candidate Starts for Calm\_43:

(Start: 21 @34019 has 3 MA's), (Start: 27 @34040 has 39 MA's), (55, 34106), (Start: 63 @34127 has 11 MA's), (70, 34145), (81, 34184), (84, 34196), (99, 34253), (114, 34313), (144, 34433),

Gene: Chaser\_42 Start: 34097, Stop: 34510, Start Num: 26

Candidate Starts for Chaser\_42:

(Start: 21 @34082 has 3 MA's), (Start: 23 @34094 has 10 MA's), (Start: 26 @34097 has 4 MA's), (Start: 63 @34187 has 11 MA's), (70, 34205), (77, 34232), (79, 34235), (99, 34313), (119, 34376), (135, 34439), (144, 34487),

Gene: ChosenOne\_68 Start: 44532, Stop: 44942, Start Num: 53

Candidate Starts for ChosenOne\_68:

(Start: 53 @44532 has 136 MA's), (97, 44673), (107, 44721), (120, 44769), (141, 44862), (153, 44904),

Gene: ChotaBhai\_68 Start: 44844, Stop: 45257, Start Num: 53

Candidate Starts for ChotaBhai\_68:

(13, 44670), (Start: 53 @44844 has 136 MA's), (97, 44985), (105, 45027), (134, 45135), (141, 45174), (157, 45231),

Gene: CicholasNage\_43 Start: 34148, Stop: 34477, Start Num: 63

Candidate Starts for CicholasNage\_43:

(Start: 21 @34040 has 3 MA's), (Start: 27 @34061 has 39 MA's), (55, 34127), (Start: 63 @34148 has 11 MA's), (70, 34166), (81, 34205), (84, 34217), (99, 34274), (114, 34334), (144, 34454),

Gene: Cjw1\_68 Start: 46229, Stop: 46639, Start Num: 53

Candidate Starts for Cjw1\_68:

(Start: 53 @46229 has 136 MA's), (97, 46370), (107, 46418), (120, 46466), (141, 46559), (153, 46601),

Gene: Claus\_45 Start: 35462, Stop: 35791, Start Num: 63

Candidate Starts for Claus\_45:

(Start: 23 @35366 has 10 MA's), (Start: 27 @35375 has 39 MA's), (Start: 63 @35462 has 11 MA's), (70, 35480), (77, 35507), (79, 35510), (99, 35588), (132, 35705), (144, 35768),

Gene: Clautastrophe\_42 Start: 35625, Stop: 36053, Start Num: 21

Candidate Starts for Clautastrophe\_42:

(Start: 21 @35625 has 3 MA's), (Start: 23 @35637 has 10 MA's), (Start: 27 @35646 has 39 MA's), (Start: 63 @35730 has 11 MA's), (70, 35748), (74, 35766), (77, 35775), (108, 35892), (144, 36030),

Gene: Command613\_70 Start: 45568, Stop: 45978, Start Num: 53

Candidate Starts for Command613\_70:

(13, 45394), (Start: 53 @45568 has 136 MA's), (97, 45709), (107, 45757), (120, 45805), (141, 45898), (153, 45940),

Gene: Constella\_101 Start: 60252, Stop: 60566, Start Num: 54

Candidate Starts for Constella\_101:



(Start: 54 @60252 has 33 MA's), (69, 60291), (75, 60318), (112, 60441), (138, 60552),

Gene: Contagion\_64 Start: 44329, Stop: 44742, Start Num: 53

Candidate Starts for Contagion\_64:

(13, 44155), (Start: 53 @44329 has 136 MA's), (97, 44470), (107, 44518), (120, 44566), (141, 44659), (158, 44722),

Gene: Cookies\_65 Start: 44698, Stop: 45111, Start Num: 53

Candidate Starts for Cookies\_65:

(13, 44524), (Start: 53 @44698 has 136 MA's), (97, 44839), (105, 44881), (134, 44989), (141, 45028),

Gene: Courthouse\_108 Start: 61433, Stop: 61753, Start Num: 54

Candidate Starts for Courthouse\_108:

(Start: 54 @61433 has 33 MA's), (69, 61472), (99, 61571), (112, 61628), (122, 61664), (128, 61694), (138, 61739),

Gene: Crossroads\_45 Start: 35358, Stop: 35774, Start Num: 27

Candidate Starts for Crossroads\_45:

(Start: 23 @35349 has 10 MA's), (Start: 27 @35358 has 39 MA's), (Start: 63 @35445 has 11 MA's), (70, 35463), (77, 35490), (79, 35493), (99, 35568), (102, 35580), (132, 35688), (144, 35751),

Gene: CrystalP\_67 Start: 45513, Stop: 45923, Start Num: 53

Candidate Starts for CrystalP\_67:

(13, 45339), (Start: 53 @45513 has 136 MA's), (84, 45609), (97, 45654), (107, 45702), (120, 45750), (141, 45843), (153, 45885),

Gene: Czyszczone1\_69 Start: 45038, Stop: 45448, Start Num: 53

Candidate Starts for Czyszczone1\_69:

(Start: 53 @45038 has 136 MA's), (97, 45179), (107, 45227), (120, 45275), (141, 45368), (153, 45410),

Gene: DHan\_46 Start: 35403, Stop: 35732, Start Num: 63

Candidate Starts for DHan\_46:

(Start: 23 @35307 has 10 MA's), (Start: 27 @35316 has 39 MA's), (Start: 63 @35403 has 11 MA's), (70, 35421), (77, 35448), (79, 35451), (99, 35529), (132, 35646), (144, 35709),

Gene: Daikon\_70 Start: 45656, Stop: 46066, Start Num: 53

Candidate Starts for Daikon\_70:

(Start: 53 @45656 has 136 MA's), (97, 45797), (107, 45845), (120, 45893), (141, 45986), (153, 46028),

Gene: Dallas\_119 Start: 66991, Stop: 67311, Start Num: 54

Candidate Starts for Dallas\_119:

(Start: 54 @66991 has 33 MA's), (69, 67030), (112, 67186), (122, 67222), (128, 67252), (138, 67297),

Gene: DanBing\_44 Start: 35295, Stop: 35624, Start Num: 63

Candidate Starts for DanBing\_44:

(Start: 23 @35199 has 10 MA's), (Start: 27 @35208 has 39 MA's), (Start: 63 @35295 has 11 MA's), (70, 35313), (77, 35340), (79, 35343), (99, 35421), (132, 35538), (144, 35601),

Gene: DejaVu\_108 Start: 57205, Stop: 56840, Start Num: 51

Candidate Starts for DejaVu\_108:

(Start: 27 @57256 has 39 MA's), (Start: 51 @57205 has 5 MA's), (75, 57136), (97, 57076), (98, 57067), (104, 57043), (107, 57028), (143, 56878), (147, 56869),

Gene: DirkDirk\_42 Start: 34012, Stop: 34428, Start Num: 27

Candidate Starts for DirkDirk\_42:

(Start: 21 @33991 has 3 MA's), (Start: 27 @34012 has 39 MA's), (55, 34078), (Start: 63 @34099 has 11 MA's), (70, 34117), (81, 34156), (84, 34168), (99, 34225), (114, 34285), (144, 34405),

Gene: DmpstrDiver\_119 Start: 66397, Stop: 66717, Start Num: 54

Candidate Starts for DmpstrDiver\_119:

(Start: 54 @66397 has 33 MA's), (69, 66436), (112, 66592), (122, 66628), (128, 66658), (138, 66703),

Gene: DoctorDiddles\_67 Start: 44888, Stop: 45301, Start Num: 53

Candidate Starts for DoctorDiddles\_67:

(13, 44714), (Start: 53 @44888 has 136 MA's), (97, 45029), (105, 45071), (134, 45179), (141, 45218), (158, 45281),

Gene: Douge\_42 Start: 34035, Stop: 34448, Start Num: 26

Candidate Starts for Douge\_42:

(Start: 21 @34020 has 3 MA's), (Start: 23 @34032 has 10 MA's), (Start: 26 @34035 has 4 MA's), (Start: 63 @34125 has 11 MA's), (70, 34143), (77, 34170), (79, 34173), (99, 34251), (119, 34314), (135, 34377), (144, 34425),

Gene: Douzhi\_42 Start: 34231, Stop: 34554, Start Num: 63

Candidate Starts for Douzhi\_42:

(Start: 21 @34126 has 3 MA's), (Start: 23 @34138 has 10 MA's), (Start: 26 @34141 has 4 MA's), (Start: 63 @34231 has 11 MA's), (70, 34249), (77, 34276), (79, 34279), (99, 34357), (119, 34420), (135, 34483), (144, 34531),

Gene: Dove\_104 Start: 61905, Stop: 62225, Start Num: 54

Candidate Starts for Dove\_104:

(Start: 54 @61905 has 33 MA's), (69, 61944), (99, 62043), (112, 62100), (122, 62136), (128, 62166), (138, 62211),

Gene: DrDrey\_68 Start: 45954, Stop: 46364, Start Num: 53

Candidate Starts for DrDrey\_68:

(Start: 53 @45954 has 136 MA's), (97, 46095), (107, 46143), (120, 46191), (141, 46284), (153, 46326),

Gene: DrSeegs\_45 Start: 35356, Stop: 35772, Start Num: 27

Candidate Starts for DrSeegs\_45:

(Start: 23 @35347 has 10 MA's), (Start: 27 @35356 has 39 MA's), (Start: 63 @35443 has 11 MA's), (70, 35461), (77, 35488), (79, 35491), (99, 35566), (102, 35578), (132, 35686), (144, 35749),

Gene: Dumbo\_68 Start: 44437, Stop: 44847, Start Num: 53

Candidate Starts for Dumbo\_68:

(Start: 53 @44437 has 136 MA's), (97, 44578), (107, 44626), (120, 44674), (141, 44767), (153, 44809),

Gene: DuncansLeg\_42 Start: 35754, Stop: 36077, Start Num: 63

Candidate Starts for DuncansLeg\_42:

(Start: 21 @35646 has 3 MA's), (Start: 23 @35658 has 10 MA's), (Start: 27 @35667 has 39 MA's), (28, 35670), (Start: 63 @35754 has 11 MA's), (70, 35772), (74, 35790), (77, 35799), (108, 35916), (144, 36054),

Gene: Dusk\_65 Start: 44734, Stop: 45144, Start Num: 53

Candidate Starts for Dusk\_65:

(Start: 53 @44734 has 136 MA's), (97, 44875), (107, 44923), (120, 44971), (141, 45064), (153, 45106),

Gene: DustyDino\_110 Start: 56887, Stop: 56450, Start Num: 53

Candidate Starts for DustyDino\_110:

(Start: 53 @56887 has 136 MA's), (62, 56863), (70, 56842), (96, 56746), (98, 56734), (99, 56731), (109, 56689), (117, 56659), (126, 56626),

Gene: DyoEdafos\_44 Start: 34357, Stop: 34776, Start Num: 26

Candidate Starts for DyoEdafos\_44:

(Start: 21 @34342 has 3 MA's), (Start: 23 @34354 has 10 MA's), (Start: 26 @34357 has 4 MA's), (Start: 63 @34447 has 11 MA's), (70, 34465), (77, 34492), (99, 34570), (119, 34642), (144, 34753),

Gene: Easy2Say\_69 Start: 45975, Stop: 46385, Start Num: 53

Candidate Starts for Easy2Say\_69:

(13, 45801), (Start: 53 @45975 has 136 MA's), (84, 46071), (97, 46116), (107, 46164), (120, 46212), (141, 46305), (153, 46347),

Gene: Ejimix\_113 Start: 67525, Stop: 67845, Start Num: 54

Candidate Starts for Ejimix\_113:

(Start: 54 @67525 has 33 MA's), (69, 67564), (112, 67720), (122, 67756), (128, 67786), (138, 67831),

Gene: Elite2014\_67 Start: 44531, Stop: 44941, Start Num: 53

Candidate Starts for Elite2014\_67:

(Start: 53 @44531 has 136 MA's), (97, 44672), (107, 44720), (120, 44768), (141, 44861), (153, 44903),

Gene: Ellson\_42 Start: 35730, Stop: 36053, Start Num: 63

Candidate Starts for Ellson\_42:

(Start: 21 @35622 has 3 MA's), (Start: 23 @35634 has 10 MA's), (Start: 27 @35643 has 39 MA's), (28, 35646), (Start: 63 @35730 has 11 MA's), (70, 35748), (74, 35766), (77, 35775), (108, 35892), (144, 36030),

Gene: Elph10\_68 Start: 44536, Stop: 44946, Start Num: 53

Candidate Starts for Elph10\_68:

(Start: 53 @44536 has 136 MA's), (97, 44677), (107, 44725), (120, 44773), (141, 44866), (153, 44908),

Gene: Emmina\_68 Start: 44438, Stop: 44848, Start Num: 53

Candidate Starts for Emmina\_68:

(13, 44264), (Start: 53 @44438 has 136 MA's), (97, 44579), (107, 44627), (120, 44675), (141, 44768), (153, 44810),

Gene: Enceladus\_42 Start: 33995, Stop: 34411, Start Num: 27

Candidate Starts for Enceladus\_42:

(Start: 21 @33974 has 3 MA's), (Start: 27 @33995 has 39 MA's), (55, 34061), (Start: 63 @34082 has 11 MA's), (70, 34100), (81, 34139), (84, 34151), (99, 34208), (114, 34268), (144, 34388),

Gene: Erenyeager\_107 Start: 55997, Stop: 55551, Start Num: 53

Candidate Starts for Erenyeager\_107:

(1, 56621), (2, 56594), (3, 56573), (5, 56525), (6, 56411), (7, 56360), (15, 56168), (31, 56048), (Start: 53 @55997 has 136 MA's), (62, 55973), (70, 55952), (96, 55847), (98, 55835), (99, 55832), (109, 55790), (117, 55760),

Gene: Eureka\_66 Start: 45002, Stop: 45412, Start Num: 53

Candidate Starts for Eureka\_66:

(Start: 53 @45002 has 136 MA's), (97, 45143), (107, 45191), (120, 45239), (141, 45332), (153, 45374),

Gene: FairyPath\_68 Start: 45647, Stop: 46057, Start Num: 53

Candidate Starts for FairyPath\_68:

(13, 45473), (Start: 53 @45647 has 136 MA's), (97, 45788), (107, 45836), (120, 45884), (141, 45977), (153, 46019),

Gene: Faith1\_45 Start: 35347, Stop: 35772, Start Num: 23

Candidate Starts for Faith1\_45:

(Start: 23 @35347 has 10 MA's), (Start: 27 @35356 has 39 MA's), (Start: 63 @35443 has 11 MA's), (70, 35461), (77, 35488), (79, 35491), (99, 35566), (102, 35578), (132, 35686), (144, 35749),

Gene: FarmResident\_43 Start: 34169, Stop: 34492, Start Num: 63

Candidate Starts for FarmResident\_43:

(Start: 21 @34064 has 3 MA's), (Start: 23 @34076 has 10 MA's), (Start: 26 @34079 has 4 MA's), (Start: 63 @34169 has 11 MA's), (70, 34187), (77, 34214), (79, 34217), (99, 34295), (119, 34358), (135, 34421), (144, 34469),

Gene: Filch\_69 Start: 44463, Stop: 44873, Start Num: 53

Candidate Starts for Filch\_69:

(Start: 53 @44463 has 136 MA's), (97, 44604), (107, 44652), (120, 44700), (141, 44793), (153, 44835),

Gene: Finemlucis\_45 Start: 35623, Stop: 36048, Start Num: 23

Candidate Starts for Finemlucis\_45:

(Start: 23 @35623 has 10 MA's), (Start: 27 @35632 has 39 MA's), (Start: 63 @35719 has 11 MA's), (70, 35737), (77, 35764), (79, 35767), (99, 35842), (102, 35854), (132, 35962), (144, 36025),

Gene: Finnry\_42 Start: 35733, Stop: 36056, Start Num: 63

Candidate Starts for Finnry\_42:

(Start: 21 @35628 has 3 MA's), (Start: 23 @35640 has 10 MA's), (Start: 27 @35649 has 39 MA's), (Start: 63 @35733 has 11 MA's), (70, 35751), (74, 35769), (77, 35778), (108, 35895), (144, 36033),

Gene: FireRed\_72 Start: 46025, Stop: 46438, Start Num: 53

Candidate Starts for FireRed\_72:

(13, 45851), (Start: 53 @46025 has 136 MA's), (97, 46166), (107, 46214), (120, 46262), (141, 46355), (158, 46418),

Gene: Flypotenuse\_64 Start: 44519, Stop: 44929, Start Num: 53

Candidate Starts for Flypotenuse\_64:

(Start: 53 @44519 has 136 MA's), (97, 44660), (107, 44708), (120, 44756), (141, 44849), (153, 44891),

Gene: Fork\_103 Start: 55912, Stop: 55475, Start Num: 53

Candidate Starts for Fork\_103:

(Start: 53 @55912 has 136 MA's), (62, 55888), (70, 55867), (96, 55771), (98, 55759), (99, 55756), (109, 55714), (117, 55684), (126, 55651),

Gene: Gabriela\_45 Start: 35618, Stop: 36034, Start Num: 27

Candidate Starts for Gabriela\_45:

(Start: 23 @35609 has 10 MA's), (Start: 27 @35618 has 39 MA's), (Start: 63 @35705 has 11 MA's), (70, 35723), (77, 35750), (79, 35753), (99, 35828), (102, 35840), (132, 35948), (144, 36011),

Gene: Gage\_70 Start: 45309, Stop: 45719, Start Num: 53

Candidate Starts for Gage\_70:

(13, 45135), (Start: 53 @45309 has 136 MA's), (97, 45450), (107, 45498), (120, 45546), (141, 45639), (153, 45681),

Gene: Gardann\_45 Start: 35357, Stop: 35773, Start Num: 27

Candidate Starts for Gardann\_45:

(Start: 23 @35348 has 10 MA's), (Start: 27 @35357 has 39 MA's), (Start: 63 @35444 has 11 MA's), (70, 35462), (77, 35489), (79, 35492), (99, 35567), (102, 35579), (132, 35687), (144, 35750),

Gene: Gator\_66 Start: 45365, Stop: 45775, Start Num: 53

Candidate Starts for Gator\_66:

(Start: 53 @45365 has 136 MA's), (97, 45506), (107, 45554), (120, 45602), (141, 45695), (153, 45737),

Gene: Gemini\_73 Start: 45826, Stop: 46236, Start Num: 53

Candidate Starts for Gemini\_73:

(13, 45652), (Start: 53 @45826 has 136 MA's), (97, 45967), (107, 46015), (120, 46063), (141, 46156), (153, 46198),

Gene: GiKK\_67 Start: 44458, Stop: 44943, Start Num: 24

Candidate Starts for GiKK\_67:

(8, 44224), (9, 44242), (12, 44332), (14, 44353), (Start: 24 @44458 has 4 MA's), (34, 44482), (50, 44521), (56, 44533), (85, 44635), (104, 44716), (118, 44773), (135, 44836), (139, 44860), (142, 44878),

Gene: Glexan\_67 Start: 45646, Stop: 46059, Start Num: 53

Candidate Starts for Glexan\_67:

(13, 45472), (Start: 53 @45646 has 136 MA's), (97, 45787), (105, 45829), (134, 45937), (141, 45976), (158, 46039),

Gene: Goku\_66 Start: 44731, Stop: 45141, Start Num: 53

Candidate Starts for Goku\_66:

(Start: 53 @44731 has 136 MA's), (97, 44872), (107, 44920), (120, 44968), (141, 45061), (153, 45103),

Gene: GoldenSpark\_72 Start: 45309, Stop: 45719, Start Num: 53

Candidate Starts for GoldenSpark\_72:

(13, 45135), (Start: 53 @45309 has 136 MA's), (97, 45450), (107, 45498), (120, 45546), (141, 45639), (153, 45681),

Gene: Goldilocks\_71 Start: 44810, Stop: 45220, Start Num: 53

Candidate Starts for Goldilocks\_71:

(13, 44636), (Start: 53 @44810 has 136 MA's), (97, 44951), (107, 44999), (120, 45047), (141, 45140), (153, 45182),

Gene: Gonephishing\_107 Start: 60857, Stop: 61180, Start Num: 54

Candidate Starts for Gonephishing\_107:

(Start: 54 @60857 has 33 MA's), (69, 60896), (90, 60962), (96, 60983), (97, 60986), (103, 61013), (138, 61166),

Gene: GooberAzure\_71 Start: 45309, Stop: 45719, Start Num: 53

Candidate Starts for GooberAzure\_71:

(13, 45135), (Start: 53 @45309 has 136 MA's), (97, 45450), (107, 45498), (120, 45546), (141, 45639), (153, 45681),

Gene: Grayson\_232 Start: 113102, Stop: 113485, Start Num: 42

Candidate Starts for Grayson\_232:

(40, 113096), (Start: 42 @113102 has 4 MA's), (95, 113249), (104, 113288), (133, 113396), (145, 113456), (151, 113465),

Gene: Grayson\_206 Start: 104718, Stop: 105071, Start Num: 58

Candidate Starts for Grayson\_206:

(Start: 58 @104718 has 1 MA's), (100, 104859), (128, 104967), (133, 104985),

Gene: GuuelaD\_44 Start: 35386, Stop: 35811, Start Num: 23

Candidate Starts for GuuelaD\_44:

(Start: 23 @35386 has 10 MA's), (Start: 27 @35395 has 39 MA's), (Start: 63 @35482 has 11 MA's), (70, 35500), (77, 35527), (79, 35530), (99, 35605), (102, 35617), (132, 35725), (144, 35788),

Gene: Hafay\_45 Start: 35477, Stop: 35806, Start Num: 63

Candidate Starts for Hafay\_45:

(Start: 23 @35381 has 10 MA's), (Start: 27 @35390 has 39 MA's), (Start: 63 @35477 has 11 MA's), (70, 35495), (77, 35522), (79, 35525), (99, 35600), (102, 35612), (132, 35720), (144, 35783),

Gene: Halena\_42 Start: 34036, Stop: 34452, Start Num: 27

Candidate Starts for Halena\_42:

(Start: 21 @34015 has 3 MA's), (Start: 27 @34036 has 39 MA's), (55, 34102), (Start: 63 @34123 has 11 MA's), (70, 34141), (81, 34180), (84, 34192), (99, 34249), (114, 34309), (144, 34429),

Gene: Halley\_121 Start: 67841, Stop: 68161, Start Num: 54

Candidate Starts for Halley\_121:

(Start: 54 @67841 has 33 MA's), (69, 67880), (112, 68036), (122, 68072), (128, 68102), (138, 68147),

Gene: HanKaySha\_68 Start: 44616, Stop: 45026, Start Num: 53

Candidate Starts for HanKaySha\_68:

(Start: 53 @44616 has 136 MA's), (97, 44757), (107, 44805), (120, 44853), (141, 44946), (153, 44988),

Gene: Hannaconda\_104 Start: 59803, Stop: 60126, Start Num: 54

Candidate Starts for Hannaconda\_104:

(Start: 54 @59803 has 33 MA's), (69, 59842), (90, 59908), (96, 59929), (97, 59932), (103, 59959), (138, 60112),

Gene: Harella\_68 Start: 46162, Stop: 46575, Start Num: 53

Candidate Starts for Harella\_68:

(13, 45988), (Start: 53 @46162 has 136 MA's), (97, 46303), (105, 46345), (134, 46453), (141, 46492), (158, 46555),

Gene: Henry\_66 Start: 44953, Stop: 45363, Start Num: 53

Candidate Starts for Henry\_66:

(13, 44779), (Start: 53 @44953 has 136 MA's), (84, 45049), (97, 45094), (107, 45142), (120, 45190), (141, 45283), (153, 45325),

Gene: Highbury\_67 Start: 44604, Stop: 45014, Start Num: 53

Candidate Starts for Highbury\_67:

(Start: 53 @44604 has 136 MA's), (97, 44745), (107, 44793), (120, 44841), (141, 44934), (153, 44976),

Gene: HokkenD\_108 Start: 64913, Stop: 65233, Start Num: 54

Candidate Starts for HokkenD\_108:

(Start: 54 @64913 has 33 MA's), (69, 64952), (99, 65051), (112, 65108), (122, 65144), (128, 65174), (138, 65219),

Gene: HollowPurple\_107 Start: 56575, Stop: 56138, Start Num: 53

Candidate Starts for HollowPurple\_107:

(Start: 53 @56575 has 136 MA's), (62, 56551), (70, 56530), (96, 56434), (98, 56422), (99, 56419), (109, 56377), (117, 56347), (126, 56314),

Gene: Holt\_73 Start: 45723, Stop: 46133, Start Num: 53

Candidate Starts for Holt\_73:

(13, 45549), (Start: 53 @45723 has 136 MA's), (97, 45864), (107, 45912), (120, 45960), (141, 46053), (153, 46095),

Gene: Hoonter\_71 Start: 45309, Stop: 45719, Start Num: 53

Candidate Starts for Hoonter\_71:

(13, 45135), (Start: 53 @45309 has 136 MA's), (97, 45450), (107, 45498), (120, 45546), (141, 45639), (153, 45681),

Gene: Hokey\_68 Start: 45148, Stop: 45558, Start Num: 53

Candidate Starts for Hokey\_68:

(Start: 53 @45148 has 136 MA's), (97, 45289), (107, 45337), (120, 45385), (141, 45478), (153, 45520),

Gene: Hortus1\_107 Start: 58256, Stop: 57870, Start Num: 48

Candidate Starts for Hortus1\_107:

(18, 58349), (25, 58313), (38, 58280), (47, 58259), (Start: 48 @58256 has 6 MA's), (75, 58175), (83, 58157), (98, 58103), (104, 58079), (124, 58007), (131, 57971), (135, 57953),

Gene: Hubbs\_107 Start: 57469, Stop: 57104, Start Num: 51

Candidate Starts for Hubbs\_107:

(Start: 27 @57520 has 39 MA's), (Start: 51 @57469 has 5 MA's), (75, 57400), (97, 57340), (98, 57331), (104, 57307), (107, 57292), (143, 57142), (147, 57133),

Gene: HufflyPuff\_71 Start: 45981, Stop: 46391, Start Num: 53

Candidate Starts for HufflyPuff\_71:

(Start: 53 @45981 has 136 MA's), (97, 46122), (107, 46170), (120, 46218), (141, 46311), (153, 46353),

Gene: Hughesyang\_118 Start: 67297, Stop: 67617, Start Num: 54

Candidate Starts for Hughesyang\_118:

(Start: 54 @67297 has 33 MA's), (69, 67336), (112, 67492), (122, 67528), (128, 67558), (138, 67603),

Gene: IHOP\_66 Start: 45077, Stop: 45487, Start Num: 53

Candidate Starts for IHOP\_66:

(Start: 53 @45077 has 136 MA's), (97, 45218), (107, 45266), (120, 45314), (141, 45407), (153, 45449),

Gene: Icee\_69 Start: 44976, Stop: 45386, Start Num: 53

Candidate Starts for Icee\_69:

(Start: 53 @44976 has 136 MA's), (97, 45117), (107, 45165), (120, 45213), (141, 45306), (153, 45348),

Gene: Inca\_65 Start: 43602, Stop: 44012, Start Num: 53

Candidate Starts for Inca\_65:

(13, 43428), (Start: 53 @43602 has 136 MA's), (97, 43743), (107, 43791), (120, 43839), (141, 43932), (153, 43974),

Gene: Issa7\_106 Start: 55958, Stop: 55521, Start Num: 53

Candidate Starts for Issa7\_106:

(Start: 53 @55958 has 136 MA's), (62, 55934), (70, 55913), (96, 55817), (98, 55805), (99, 55802), (109, 55760), (117, 55730), (126, 55697),

Gene: Itos\_44 Start: 34253, Stop: 34678, Start Num: 23

Candidate Starts for Itos\_44:

(Start: 23 @34253 has 10 MA's), (Start: 27 @34262 has 39 MA's), (Start: 63 @34349 has 11 MA's), (70, 34367), (77, 34394), (79, 34397), (99, 34472), (102, 34484), (132, 34592), (144, 34655),

Gene: Jamzy\_67 Start: 44194, Stop: 44679, Start Num: 24

Candidate Starts for Jamzy\_67:

(8, 43960), (9, 43978), (12, 44068), (14, 44089), (Start: 24 @44194 has 4 MA's), (34, 44218), (50, 44257), (56, 44269), (85, 44371), (104, 44452), (135, 44572), (139, 44596), (142, 44614),

Gene: JeTaime\_68 Start: 45800, Stop: 46210, Start Num: 53

Candidate Starts for JeTaime\_68:

(13, 45626), (Start: 53 @45800 has 136 MA's), (97, 45941), (107, 45989), (120, 46037), (141, 46130), (153, 46172),

Gene: Jobypre\_42 Start: 35730, Stop: 36053, Start Num: 63

Candidate Starts for Jobypre\_42:

(Start: 21 @35625 has 3 MA's), (Start: 23 @35637 has 10 MA's), (Start: 27 @35646 has 39 MA's), (Start: 63 @35730 has 11 MA's), (70, 35748), (74, 35766), (77, 35775), (108, 35892), (144, 36030),

Gene: JoeDirt\_42 Start: 33993, Stop: 34409, Start Num: 27

Candidate Starts for JoeDirt\_42:

(Start: 21 @33972 has 3 MA's), (Start: 27 @33993 has 39 MA's), (55, 34059), (Start: 63 @34080 has 11 MA's), (70, 34098), (81, 34137), (84, 34149), (99, 34206), (114, 34266), (144, 34386),

Gene: Jubie\_42 Start: 35647, Stop: 36054, Start Num: 27

Candidate Starts for Jubie\_42:

(Start: 21 @35626 has 3 MA's), (Start: 23 @35638 has 10 MA's), (Start: 27 @35647 has 39 MA's), (Start: 63 @35731 has 11 MA's), (70, 35749), (74, 35767), (77, 35776), (108, 35893), (144, 36031),

Gene: JuicyJay\_115 Start: 68611, Stop: 68931, Start Num: 54

Candidate Starts for JuicyJay\_115:

(Start: 54 @68611 has 33 MA's), (69, 68650), (99, 68749), (112, 68806), (122, 68842), (128, 68872), (138, 68917),

Gene: Kahlid\_45 Start: 35362, Stop: 35778, Start Num: 27

Candidate Starts for Kahlid\_45:

(Start: 23 @35353 has 10 MA's), (Start: 27 @35362 has 39 MA's), (Start: 63 @35449 has 11 MA's), (70, 35467), (77, 35494), (79, 35497), (99, 35572), (102, 35584), (132, 35692), (144, 35755),

Gene: Kanye\_65 Start: 44658, Stop: 45068, Start Num: 53

Candidate Starts for Kanye\_65:

(Start: 53 @44658 has 136 MA's), (97, 44799), (107, 44847), (120, 44895), (141, 44988), (153, 45030),

Gene: KashFlow\_110 Start: 62308, Stop: 62631, Start Num: 54

Candidate Starts for KashFlow\_110:

(Start: 54 @62308 has 33 MA's), (69, 62347), (90, 62413), (96, 62434), (97, 62437), (103, 62464), (138, 62617),



Gene: Kimchi\_72 Start: 45312, Stop: 45722, Start Num: 53

Candidate Starts for Kimchi\_72:

(13, 45138), (Start: 53 @45312 has 136 MA's), (97, 45453), (107, 45501), (120, 45549), (141, 45642), (153, 45684),

Gene: Kingsolomon\_42 Start: 35730, Stop: 36053, Start Num: 63

Candidate Starts for Kingsolomon\_42:

(Start: 21 @35625 has 3 MA's), (Start: 23 @35637 has 10 MA's), (Start: 27 @35646 has 39 MA's), (Start: 63 @35730 has 11 MA's), (70, 35748), (74, 35766), (77, 35775), (108, 35892), (144, 36030),

Gene: KirDoubleO7\_40 Start: 35758, Stop: 36081, Start Num: 63

Candidate Starts for KirDoubleO7\_40:

(Start: 21 @35650 has 3 MA's), (Start: 23 @35662 has 10 MA's), (Start: 27 @35671 has 39 MA's), (28, 35674), (Start: 63 @35758 has 11 MA's), (70, 35776), (74, 35794), (77, 35803), (108, 35920), (144, 36058),

Gene: Kostya\_68 Start: 45176, Stop: 45586, Start Num: 53

Candidate Starts for Kostya\_68:

(Start: 53 @45176 has 136 MA's), (97, 45317), (107, 45365), (120, 45413), (141, 45506), (153, 45548),

Gene: Kropertea\_42 Start: 34315, Stop: 34599, Start Num: 77

Candidate Starts for Kropertea\_42:

(Start: 21 @34165 has 3 MA's), (Start: 23 @34177 has 10 MA's), (Start: 26 @34180 has 4 MA's), (Start: 63 @34270 has 11 MA's), (70, 34288), (77, 34315), (99, 34393), (119, 34465), (144, 34576),

Gene: Krypton555\_42 Start: 35542, Stop: 35970, Start Num: 21

Candidate Starts for Krypton555\_42:

(Start: 21 @35542 has 3 MA's), (Start: 23 @35554 has 10 MA's), (Start: 27 @35563 has 39 MA's), (Start: 63 @35647 has 11 MA's), (70, 35665), (74, 35683), (77, 35692), (108, 35809), (144, 35947),

Gene: LeBron\_43 Start: 34037, Stop: 34453, Start Num: 27

Candidate Starts for LeBron\_43:

(Start: 21 @34016 has 3 MA's), (Start: 27 @34037 has 39 MA's), (55, 34103), (Start: 63 @34124 has 11 MA's), (70, 34142), (81, 34181), (84, 34193), (99, 34250), (114, 34310), (144, 34430),

Gene: Lewan\_45 Start: 35349, Stop: 35765, Start Num: 27

Candidate Starts for Lewan\_45:

(Start: 23 @35340 has 10 MA's), (Start: 27 @35349 has 39 MA's), (Start: 63 @35436 has 11 MA's), (70, 35454), (77, 35481), (79, 35484), (99, 35559), (102, 35571), (132, 35679), (144, 35742),

Gene: LilDestine\_45 Start: 35354, Stop: 35770, Start Num: 27

Candidate Starts for LilDestine\_45:

(Start: 23 @35345 has 10 MA's), (Start: 27 @35354 has 39 MA's), (Start: 63 @35441 has 11 MA's), (70, 35459), (77, 35486), (79, 35489), (99, 35564), (102, 35576), (132, 35684), (144, 35747),

Gene: Lilac\_70 Start: 44933, Stop: 45343, Start Num: 53

Candidate Starts for Lilac\_70:

(Start: 53 @44933 has 136 MA's), (97, 45074), (107, 45122), (120, 45170), (141, 45263), (153, 45305),

Gene: Lilizi\_69 Start: 44646, Stop: 45056, Start Num: 53

Candidate Starts for Lilizi\_69:

(13, 44472), (Start: 53 @44646 has 136 MA's), (97, 44787), (107, 44835), (120, 44883), (141, 44976), (153, 45018),

Gene: Lilpickle\_67 Start: 44531, Stop: 44941, Start Num: 53

Candidate Starts for Lilpickle\_67:

(Start: 53 @44531 has 136 MA's), (97, 44672), (107, 44720), (120, 44768), (141, 44861), (153, 44903),

Gene: LittleE\_118 Start: 65723, Stop: 66046, Start Num: 54

Candidate Starts for LittleE\_118:

(Start: 54 @65723 has 33 MA's), (69, 65762), (90, 65828), (96, 65849), (97, 65852), (103, 65879), (138, 66032),

Gene: LiyuLake\_42 Start: 35720, Stop: 36043, Start Num: 63

Candidate Starts for LiyuLake\_42:

(Start: 21 @35612 has 3 MA's), (Start: 23 @35624 has 10 MA's), (Start: 27 @35633 has 39 MA's), (28, 35636), (Start: 63 @35720 has 11 MA's), (70, 35738), (74, 35756), (77, 35765), (108, 35882), (144, 36020),

Gene: Loadrie\_44 Start: 35379, Stop: 35804, Start Num: 23

Candidate Starts for Loadrie\_44:

(Start: 23 @35379 has 10 MA's), (Start: 27 @35388 has 39 MA's), (Start: 63 @35475 has 11 MA's), (70, 35493), (77, 35520), (79, 35523), (99, 35598), (102, 35610), (132, 35718), (144, 35781),

Gene: Lolly9\_42 Start: 35541, Stop: 35864, Start Num: 63

Candidate Starts for Lolly9\_42:

(Start: 21 @35436 has 3 MA's), (Start: 27 @35457 has 39 MA's), (Start: 63 @35541 has 11 MA's), (70, 35559), (74, 35577), (77, 35586), (108, 35703), (144, 35841),

Gene: Lucky2013\_110 Start: 61874, Stop: 62194, Start Num: 54

Candidate Starts for Lucky2013\_110:

(Start: 54 @61874 has 33 MA's), (69, 61913), (99, 62012), (112, 62069), (122, 62105), (128, 62135), (138, 62180),

Gene: Lumos\_42 Start: 35643, Stop: 36050, Start Num: 27

Candidate Starts for Lumos\_42:

(Start: 21 @35622 has 3 MA's), (Start: 23 @35634 has 10 MA's), (Start: 27 @35643 has 39 MA's), (Start: 63 @35727 has 11 MA's), (70, 35745), (74, 35763), (77, 35772), (108, 35889), (144, 36027),

Gene: Lyell\_106 Start: 55834, Stop: 55397, Start Num: 53

Candidate Starts for Lyell\_106:

(4, 56371), (6, 56248), (7, 56197), (15, 56005), (31, 55885), (Start: 53 @55834 has 136 MA's), (62, 55810), (70, 55789), (96, 55693), (98, 55681), (99, 55678), (109, 55636), (117, 55606), (126, 55573),

Gene: MAckerman\_43 Start: 34117, Stop: 34446, Start Num: 63

Candidate Starts for MAckerman\_43:

(Start: 21 @34009 has 3 MA's), (Start: 27 @34030 has 39 MA's), (55, 34096), (Start: 63 @34117 has 11 MA's), (70, 34135), (81, 34174), (84, 34186), (99, 34243), (114, 34303), (144, 34423),

Gene: MISSy\_69 Start: 45034, Stop: 45447, Start Num: 53

Candidate Starts for MISSy\_69:

(13, 44860), (Start: 53 @45034 has 136 MA's), (97, 45175), (107, 45223), (120, 45271), (141, 45364), (158, 45427),

Gene: MPhalcon\_69 Start: 45027, Stop: 45440, Start Num: 53

Candidate Starts for MPhalcon\_69:

(13, 44853), (Start: 53 @45027 has 136 MA's), (97, 45168), (107, 45216), (120, 45264), (141, 45357), (158, 45420),

Gene: MadamMonkfish\_68 Start: 44255, Stop: 44665, Start Num: 53

Candidate Starts for MadamMonkfish\_68:

(13, 44081), (Start: 53 @44255 has 136 MA's), (97, 44396), (107, 44444), (120, 44492), (141, 44585), (153, 44627),

Gene: MadamMonkfish\_80 Start: 48896, Stop: 49234, Start Num: 53

Candidate Starts for MadamMonkfish\_80:

(10, 48644), (45, 48881), (Start: 53 @48896 has 136 MA's), (65, 48932), (146, 49214),

Gene: Manda\_68 Start: 45536, Stop: 45946, Start Num: 53

Candidate Starts for Manda\_68:

(Start: 53 @45536 has 136 MA's), (97, 45677), (107, 45725), (120, 45773), (141, 45866), (153, 45908),

Gene: Margaret\_67 Start: 43929, Stop: 44381, Start Num: 24

Candidate Starts for Margaret\_67:

(Start: 24 @43929 has 4 MA's), (50, 43968), (56, 43980), (68, 44016), (72, 44031), (85, 44073), (89, 44091), (99, 44133), (103, 44148), (104, 44154), (135, 44274), (139, 44298), (142, 44316), (156, 44361),

Gene: Marshmallow\_66 Start: 45804, Stop: 46214, Start Num: 53

Candidate Starts for Marshmallow\_66:

(Start: 53 @45804 has 136 MA's), (97, 45945), (107, 45993), (120, 46041), (141, 46134), (153, 46176),

Gene: Maxxinista\_70 Start: 44906, Stop: 45316, Start Num: 53

Candidate Starts for Maxxinista\_70:

(Start: 53 @44906 has 136 MA's), (97, 45047), (107, 45095), (120, 45143), (141, 45236), (153, 45278),

Gene: MiaZeal\_113 Start: 62505, Stop: 62825, Start Num: 54

Candidate Starts for MiaZeal\_113:

(Start: 54 @62505 has 33 MA's), (69, 62544), (99, 62643), (112, 62700), (122, 62736), (128, 62766), (138, 62811),

Gene: Miley16\_45 Start: 35347, Stop: 35772, Start Num: 23

Candidate Starts for Miley16\_45:

(Start: 23 @35347 has 10 MA's), (Start: 27 @35356 has 39 MA's), (Start: 63 @35443 has 11 MA's), (70, 35461), (77, 35488), (79, 35491), (99, 35566), (102, 35578), (132, 35686), (144, 35749),

Gene: Mindy\_67 Start: 44119, Stop: 44529, Start Num: 53

Candidate Starts for Mindy\_67:

(13, 43945), (Start: 53 @44119 has 136 MA's), (84, 44215), (97, 44260), (107, 44308), (120, 44356), (141, 44449), (153, 44491),

Gene: Minerva\_116 Start: 65898, Stop: 66218, Start Num: 54

Candidate Starts for Minerva\_116:

(Start: 54 @65898 has 33 MA's), (69, 65937), (112, 66093), (122, 66129), (128, 66159), (138, 66204),

Gene: MiniLon\_42 Start: 35458, Stop: 35865, Start Num: 27

Candidate Starts for MiniLon\_42:

(Start: 21 @35437 has 3 MA's), (Start: 27 @35458 has 39 MA's), (Start: 63 @35542 has 11 MA's), (70, 35560), (74, 35578), (77, 35587), (108, 35704), (144, 35842),

Gene: MiniMac\_42 Start: 35455, Stop: 35862, Start Num: 27

Candidate Starts for MiniMac\_42:

(Start: 21 @35434 has 3 MA's), (Start: 27 @35455 has 39 MA's), (Start: 63 @35539 has 11 MA's), (70, 35557), (74, 35575), (77, 35584), (108, 35701), (144, 35839),

Gene: Miniwave\_63 Start: 44572, Stop: 44982, Start Num: 53

Candidate Starts for Miniwave\_63:

(Start: 53 @44572 has 136 MA's), (97, 44713), (107, 44761), (120, 44809), (141, 44902), (153, 44944),

Gene: Misfit\_69 Start: 46046, Stop: 46459, Start Num: 53

Candidate Starts for Misfit\_69:

(13, 45872), (Start: 53 @46046 has 136 MA's), (97, 46187), (107, 46235), (120, 46283), (141, 46376), (158, 46439),

Gene: MkaliMitinis3\_45 Start: 35358, Stop: 35774, Start Num: 27

Candidate Starts for MkaliMitinis3\_45:

(Start: 23 @35349 has 10 MA's), (Start: 27 @35358 has 39 MA's), (Start: 63 @35445 has 11 MA's), (70, 35463), (77, 35490), (79, 35493), (99, 35568), (102, 35580), (132, 35688), (144, 35751),

Gene: Moldemort\_71 Start: 45128, Stop: 45538, Start Num: 53

Candidate Starts for Moldemort\_71:

(13, 44954), (Start: 53 @45128 has 136 MA's), (84, 45224), (97, 45269), (107, 45317), (120, 45365), (141, 45458), (153, 45500),

Gene: Moostard\_42 Start: 35732, Stop: 36055, Start Num: 63

Candidate Starts for Moostard\_42:

(Start: 21 @35627 has 3 MA's), (Start: 23 @35639 has 10 MA's), (Start: 27 @35648 has 39 MA's), (Start: 63 @35732 has 11 MA's), (70, 35750), (74, 35768), (77, 35777), (108, 35894), (144, 36032),

Gene: Mosby\_64 Start: 44329, Stop: 44742, Start Num: 53

Candidate Starts for Mosby\_64:

(13, 44155), (Start: 53 @44329 has 136 MA's), (97, 44470), (107, 44518), (120, 44566), (141, 44659), (158, 44722),

Gene: MsGreen\_42 Start: 35625, Stop: 36053, Start Num: 21

Candidate Starts for MsGreen\_42:

(Start: 21 @35625 has 3 MA's), (Start: 23 @35637 has 10 MA's), (Start: 27 @35646 has 39 MA's), (Start: 63 @35730 has 11 MA's), (70, 35748), (74, 35766), (77, 35775), (108, 35892), (144, 36030),

Gene: Murica\_71 Start: 45981, Stop: 46391, Start Num: 53

Candidate Starts for Murica\_71:

(Start: 53 @45981 has 136 MA's), (97, 46122), (107, 46170), (120, 46218), (141, 46311), (153, 46353),

Gene: Murphy\_68 Start: 45418, Stop: 45828, Start Num: 53

Candidate Starts for Murphy\_68:

(Start: 53 @45418 has 136 MA's), (97, 45559), (107, 45607), (120, 45655), (141, 45748), (153, 45790),

Gene: Musetta\_105 Start: 56187, Stop: 55750, Start Num: 53

Candidate Starts for Musetta\_105:

(1, 56811), (2, 56784), (3, 56763), (5, 56715), (6, 56601), (7, 56550), (15, 56358), (31, 56238), (Start: 53 @56187 has 136 MA's), (62, 56163), (70, 56142), (96, 56046), (98, 56034), (99, 56031), (109, 55989), (117, 55959), (126, 55926),

Gene: Myrale\_68 Start: 45669, Stop: 46079, Start Num: 53

Candidate Starts for Myrale\_68:

(Start: 53 @45669 has 136 MA's), (97, 45810), (107, 45858), (120, 45906), (141, 45999), (153, 46041),

Gene: Nala\_70 Start: 45539, Stop: 45952, Start Num: 53

Candidate Starts for Nala\_70:

(13, 45365), (Start: 53 @45539 has 136 MA's), (97, 45680), (107, 45728), (120, 45776), (141, 45869), (158, 45932),

Gene: Necrophoxinus\_109 Start: 56843, Stop: 56406, Start Num: 53

Candidate Starts for Necrophoxinus\_109:

(Start: 53 @56843 has 136 MA's), (62, 56819), (70, 56798), (96, 56702), (98, 56690), (99, 56687), (109, 56645), (117, 56615), (126, 56582),

Gene: NelitzaMV\_66 Start: 44618, Stop: 45028, Start Num: 53

Candidate Starts for NelitzaMV\_66:

(Start: 53 @44618 has 136 MA's), (97, 44759), (107, 44807), (120, 44855), (141, 44948), (153, 44990),

Gene: Netyap\_45 Start: 35356, Stop: 35772, Start Num: 27

Candidate Starts for Netyap\_45:

(Start: 23 @35347 has 10 MA's), (Start: 27 @35356 has 39 MA's), (Start: 63 @35443 has 11 MA's), (70, 35461), (77, 35488), (79, 35491), (99, 35566), (102, 35578), (132, 35686), (144, 35749),

Gene: Neville\_54 Start: 37372, Stop: 37770, Start Num: 37

Candidate Starts for Neville\_54:

(Start: 37 @37372 has 3 MA's), (50, 37402), (65, 37438), (66, 37441), (70, 37447), (75, 37471), (101, 37558), (105, 37579), (111, 37603), (135, 37678), (139, 37702), (153, 37756), (155, 37762),

Gene: Neville\_46 Start: 34837, Stop: 35271, Start Num: 41

Candidate Starts for Neville\_46:

(Start: 41 @34837 has 3 MA's), (45, 34849), (Start: 54 @34867 has 33 MA's), (65, 34900), (91, 34981), (106, 35050), (135, 35149), (137, 35167), (140, 35182), (142, 35191), (148, 35206),

Gene: NiceHouse\_171 Start: 97963, Stop: 98331, Start Num: 57

Candidate Starts for NiceHouse\_171:

(30, 97906), (Start: 57 @97963 has 1 MA's), (103, 98119), (137, 98266), (142, 98290),

Gene: NiceHouse\_173 Start: 98723, Stop: 99082, Start Num: 60

Candidate Starts for NiceHouse\_173:

(36, 98672), (Start: 60 @98723 has 1 MA's), (69, 98753), (104, 98870), (112, 98912), (144, 99053),

Gene: NiceHouse\_172 Start: 98331, Stop: 98723, Start Num: 44

Candidate Starts for NiceHouse\_172:

(Start: 44 @98331 has 2 MA's), (61, 98373), (62, 98376), (86, 98448),

Gene: Nicholas\_42 Start: 35730, Stop: 36053, Start Num: 63

Candidate Starts for Nicholas\_42:

(Start: 21 @35625 has 3 MA's), (Start: 23 @35637 has 10 MA's), (Start: 27 @35646 has 39 MA's), (Start: 63 @35730 has 11 MA's), (70, 35748), (74, 35766), (77, 35775), (108, 35892), (144, 36030),

Gene: Nicholasp3\_45 Start: 35348, Stop: 35773, Start Num: 23

Candidate Starts for Nicholasp3\_45:

(Start: 23 @35348 has 10 MA's), (Start: 27 @35357 has 39 MA's), (Start: 63 @35444 has 11 MA's), (70, 35462), (77, 35489), (79, 35492), (99, 35567), (102, 35579), (132, 35687), (144, 35750),

Gene: NihilNomen\_120 Start: 66563, Stop: 66883, Start Num: 54

Candidate Starts for NihilNomen\_120:

(Start: 54 @66563 has 33 MA's), (69, 66602), (99, 66701), (112, 66758), (122, 66794), (128, 66824), (138, 66869),

Gene: Nimrod\_69 Start: 46236, Stop: 46649, Start Num: 53

Candidate Starts for Nimrod\_69:

(13, 46062), (Start: 53 @46236 has 136 MA's), (97, 46377), (107, 46425), (120, 46473), (141, 46566), (158, 46629),

Gene: NoSleep\_69 Start: 44876, Stop: 45286, Start Num: 53

Candidate Starts for NoSleep\_69:

(Start: 53 @44876 has 136 MA's), (97, 45017), (107, 45065), (120, 45113), (141, 45206), (153, 45248),

Gene: Odette\_120 Start: 66457, Stop: 66777, Start Num: 54

Candidate Starts for Odette\_120:

(Start: 54 @66457 has 33 MA's), (69, 66496), (99, 66595), (112, 66652), (122, 66688), (128, 66718), (138, 66763),

Gene: OhShagHennessy\_42 Start: 33983, Stop: 34399, Start Num: 27

Candidate Starts for OhShagHennessy\_42:

(Start: 21 @33962 has 3 MA's), (Start: 27 @33983 has 39 MA's), (55, 34049), (Start: 63 @34070 has 11 MA's), (70, 34088), (81, 34127), (84, 34139), (99, 34196), (114, 34256), (144, 34376),

Gene: OlinDD\_107 Start: 58261, Stop: 57875, Start Num: 48

Candidate Starts for OlinDD\_107:

(18, 58354), (25, 58318), (38, 58285), (47, 58264), (Start: 48 @58261 has 6 MA's), (75, 58180), (83, 58162), (98, 58108), (104, 58084), (124, 58012), (131, 57976), (135, 57958),

Gene: Omega\_124 Start: 66872, Stop: 67195, Start Num: 54

Candidate Starts for Omega\_124:

(Start: 54 @66872 has 33 MA's), (69, 66911), (90, 66977), (96, 66998), (97, 67001), (103, 67028), (138, 67181),

Gene: OneUp\_106 Start: 66594, Stop: 66947, Start Num: 53

Candidate Starts for OneUp\_106:

(Start: 53 @66594 has 136 MA's), (76, 66660), (105, 66759), (113, 66783), (154, 66942),

Gene: OrionPax\_67 Start: 44624, Stop: 45034, Start Num: 53

Candidate Starts for OrionPax\_67:

(Start: 53 @44624 has 136 MA's), (97, 44765), (107, 44813), (120, 44861), (141, 44954), (153, 44996),

Gene: PYPDinur\_41 Start: 34231, Stop: 34560, Start Num: 63

Candidate Starts for PYPDinur\_41:

(Start: 21 @34126 has 3 MA's), (Start: 23 @34138 has 10 MA's), (Start: 26 @34141 has 4 MA's), (Start: 63 @34231 has 11 MA's), (70, 34249), (77, 34276), (79, 34279), (99, 34354), (102, 34366), (132, 34474), (144, 34537), (150, 34552),

Gene: Palpatine\_70 Start: 46008, Stop: 46418, Start Num: 53

Candidate Starts for Palpatine\_70:

(Start: 53 @46008 has 136 MA's), (97, 46149), (107, 46197), (120, 46245), (141, 46338), (153, 46380),

Gene: Paperbeatsrock\_67 Start: 45250, Stop: 45660, Start Num: 53

Candidate Starts for Paperbeatsrock\_67:

(Start: 53 @45250 has 136 MA's), (97, 45391), (107, 45439), (120, 45487), (141, 45580), (153, 45622),

Gene: Pat3\_66 Start: 43773, Stop: 44186, Start Num: 53

Candidate Starts for Pat3\_66:

(13, 43599), (Start: 53 @43773 has 136 MA's), (97, 43914), (105, 43956), (134, 44064), (141, 44103), (157, 44160),

Gene: Pavlo\_108 Start: 57864, Stop: 57499, Start Num: 51

Candidate Starts for Pavlo\_108:

(Start: 27 @57915 has 39 MA's), (Start: 51 @57864 has 5 MA's), (75, 57795), (97, 57735), (98, 57726), (104, 57702), (107, 57687), (143, 57537), (147, 57528),

Gene: Peregrin\_203 Start: 105124, Stop: 105477, Start Num: 59

Candidate Starts for Peregrin\_203:

(Start: 59 @105124 has 1 MA's), (100, 105265), (128, 105373), (133, 105391),

Gene: Peregrin\_226 Start: 113095, Stop: 113481, Start Num: 42

Candidate Starts for Peregrin\_226:

(Start: 42 @113095 has 4 MA's), (73, 113182), (93, 113239), (95, 113245), (133, 113392), (145, 113452), (151, 113461),

Gene: Petra64142\_72 Start: 46472, Stop: 46885, Start Num: 53

Candidate Starts for Petra64142\_72:

(13, 46298), (Start: 53 @46472 has 136 MA's), (97, 46613), (105, 46655), (134, 46763), (141, 46802), (158, 46865),

Gene: Phaja\_66 Start: 45076, Stop: 45486, Start Num: 53

Candidate Starts for Phaja\_66:

(Start: 53 @45076 has 136 MA's), (97, 45217), (107, 45265), (120, 45313), (141, 45406), (153, 45448),

Gene: Pharsalus\_65 Start: 45050, Stop: 45460, Start Num: 53

Candidate Starts for Pharsalus\_65:

(Start: 53 @45050 has 136 MA's), (97, 45191), (107, 45239), (120, 45287), (141, 45380), (153, 45422),

Gene: PhatBacter\_72 Start: 46025, Stop: 46435, Start Num: 53

Candidate Starts for PhatBacter\_72:

(Start: 53 @46025 has 136 MA's), (97, 46166), (107, 46214), (120, 46262), (141, 46355), (153, 46397),

Gene: Phaux\_70 Start: 46020, Stop: 46430, Start Num: 53

Candidate Starts for Phaux\_70:

(Start: 53 @46020 has 136 MA's), (97, 46161), (107, 46209), (120, 46257), (141, 46350), (153, 46392),

Gene: PhillyPhilly\_105 Start: 56853, Stop: 56488, Start Num: 51

Candidate Starts for PhillyPhilly\_105:

(Start: 27 @56904 has 39 MA's), (Start: 51 @56853 has 5 MA's), (75, 56784), (97, 56724), (98, 56715), (104, 56691), (107, 56676), (143, 56526), (147, 56517),

Gene: Phoebus\_119 Start: 68421, Stop: 68741, Start Num: 54

Candidate Starts for Phoebus\_119:

(Start: 54 @68421 has 33 MA's), (69, 68460), (99, 68559), (112, 68616), (122, 68652), (128, 68682), (138, 68727),

Gene: Phrux\_65 Start: 44616, Stop: 45026, Start Num: 53

Candidate Starts for Phrux\_65:

(Start: 53 @44616 has 136 MA's), (97, 44757), (107, 44805), (120, 44853), (141, 44946), (153, 44988),

Gene: Pioneer3\_107 Start: 58059, Stop: 57673, Start Num: 48

Candidate Starts for Pioneer3\_107:

(18, 58152), (25, 58116), (38, 58083), (47, 58062), (Start: 48 @58059 has 6 MA's), (75, 57978), (83, 57960), (98, 57906), (104, 57882), (124, 57810), (131, 57774), (135, 57756),

Gene: Platte\_106 Start: 57843, Stop: 57457, Start Num: 48

Candidate Starts for Platte\_106:

(18, 57936), (25, 57900), (38, 57867), (47, 57846), (Start: 48 @57843 has 6 MA's), (75, 57762), (83, 57744), (98, 57690), (104, 57666), (124, 57594), (131, 57558), (135, 57540),

Gene: Policronamos\_72 Start: 46020, Stop: 46430, Start Num: 53

Candidate Starts for Policronamos\_72:

(Start: 53 @46020 has 136 MA's), (97, 46161), (107, 46209), (120, 46257), (141, 46350), (153, 46392),

Gene: Porcelain\_113 Start: 62820, Stop: 63140, Start Num: 54

Candidate Starts for Porcelain\_113:

(Start: 54 @62820 has 33 MA's), (69, 62859), (99, 62958), (112, 63015), (122, 63051), (128, 63081), (138, 63126),

Gene: Porky\_67 Start: 44446, Stop: 44856, Start Num: 53

Candidate Starts for Porky\_67:

(13, 44272), (Start: 53 @44446 has 136 MA's), (97, 44587), (107, 44635), (120, 44683), (141, 44776), (153, 44818),

Gene: Pound\_108 Start: 64917, Stop: 65237, Start Num: 54

Candidate Starts for Pound\_108:

(Start: 54 @64917 has 33 MA's), (69, 64956), (112, 65112), (122, 65148), (128, 65178), (138, 65223),

Gene: Pumpkin\_71 Start: 45674, Stop: 46084, Start Num: 53

Candidate Starts for Pumpkin\_71:

(Start: 53 @45674 has 136 MA's), (97, 45815), (107, 45863), (120, 45911), (141, 46004), (153, 46046),

Gene: Quallification\_69 Start: 45658, Stop: 46068, Start Num: 53

Candidate Starts for Quallification\_69:

(Start: 53 @45658 has 136 MA's), (97, 45799), (107, 45847), (120, 45895), (141, 45988), (153, 46030),

Gene: Quby\_43 Start: 34125, Stop: 34448, Start Num: 63

Candidate Starts for Quby\_43:

(Start: 21 @34020 has 3 MA's), (Start: 23 @34032 has 10 MA's), (Start: 26 @34035 has 4 MA's), (31, 34050), (Start: 63 @34125 has 11 MA's), (70, 34143), (77, 34170), (79, 34173), (99, 34251), (119, 34314), (135, 34377), (144, 34425),

Gene: Rabbitrun\_55 Start: 37898, Stop: 38293, Start Num: 37



Candidate Starts for Rabbitrun\_55:

(17, 37826), (19, 37832), (Start: 23 @37865 has 10 MA's), (30, 37880), (Start: 37 @37898 has 3 MA's), (Start: 60 @37943 has 1 MA's), (Start: 63 @37958 has 11 MA's), (66, 37970), (129, 38183), (136, 38213), (153, 38282),

Gene: Rabbitrun\_47 Start: 35261, Stop: 35668, Start Num: 41

Candidate Starts for Rabbitrun\_47:

(Start: 41 @35261 has 3 MA's), (45, 35273), (Start: 54 @35291 has 33 MA's), (65, 35324), (94, 35405), (105, 35465), (135, 35570), (139, 35594),

Gene: Rakim\_69 Start: 45127, Stop: 45537, Start Num: 53

Candidate Starts for Rakim\_69:

(Start: 53 @45127 has 136 MA's), (97, 45268), (107, 45316), (120, 45364), (141, 45457), (153, 45499),

Gene: RanchParmCat\_67 Start: 44221, Stop: 44673, Start Num: 24

Candidate Starts for RanchParmCat\_67:

(11, 44083), (Start: 24 @44221 has 4 MA's), (50, 44260), (56, 44272), (68, 44308), (72, 44323), (85, 44365), (89, 44383), (99, 44425), (103, 44440), (104, 44446), (135, 44566), (139, 44590), (142, 44608), (156, 44653),

Gene: Redno2\_112 Start: 64353, Stop: 64673, Start Num: 54

Candidate Starts for Redno2\_112:

(Start: 54 @64353 has 33 MA's), (69, 64392), (99, 64491), (112, 64548), (122, 64584), (128, 64614), (138, 64659),

Gene: Rimmer\_69 Start: 45366, Stop: 45779, Start Num: 53

Candidate Starts for Rimmer\_69:

(13, 45192), (Start: 53 @45366 has 136 MA's), (97, 45507), (105, 45549), (134, 45657), (141, 45696), (158, 45759),

Gene: RiverMonster\_68 Start: 45194, Stop: 45604, Start Num: 53

Candidate Starts for RiverMonster\_68:

(Start: 53 @45194 has 136 MA's), (97, 45335), (107, 45383), (120, 45431), (141, 45524), (153, 45566),

Gene: Roman\_109 Start: 57913, Stop: 57548, Start Num: 51

Candidate Starts for Roman\_109:

(Start: 27 @57964 has 39 MA's), (Start: 51 @57913 has 5 MA's), (75, 57844), (97, 57784), (98, 57775), (104, 57751), (107, 57736), (143, 57586), (147, 57577),

Gene: Rose5\_42 Start: 34025, Stop: 34441, Start Num: 27

Candidate Starts for Rose5\_42:

(Start: 21 @34004 has 3 MA's), (Start: 27 @34025 has 39 MA's), (55, 34091), (Start: 63 @34112 has 11 MA's), (70, 34130), (81, 34169), (84, 34181), (99, 34238), (114, 34298), (144, 34418),

Gene: Rumpelstiltskin\_45 Start: 35623, Stop: 36039, Start Num: 27

Candidate Starts for Rumpelstiltskin\_45:

(Start: 23 @35614 has 10 MA's), (Start: 27 @35623 has 39 MA's), (Start: 63 @35710 has 11 MA's), (70, 35728), (77, 35755), (79, 35758), (99, 35833), (102, 35845), (132, 35953), (135, 35968), (144, 36016),

Gene: RunningBrook\_108 Start: 56887, Stop: 56450, Start Num: 53

Candidate Starts for RunningBrook\_108:

(Start: 53 @56887 has 136 MA's), (62, 56863), (70, 56842), (96, 56746), (98, 56734), (99, 56731), (109, 56689), (117, 56659), (126, 56626),

Gene: Saints25\_67 Start: 44604, Stop: 45014, Start Num: 53

Candidate Starts for Saints25\_67:

(Start: 53 @44604 has 136 MA's), (97, 44745), (107, 44793), (120, 44841), (141, 44934), (153, 44976),

Gene: Samty\_42 Start: 35731, Stop: 36054, Start Num: 63

Candidate Starts for Samty\_42:

(Start: 21 @35626 has 3 MA's), (Start: 23 @35638 has 10 MA's), (Start: 27 @35647 has 39 MA's), (Start: 63 @35731 has 11 MA's), (70, 35749), (74, 35767), (77, 35776), (108, 35893), (144, 36031),

Gene: Sarshaun\_45 Start: 35477, Stop: 35806, Start Num: 63

Candidate Starts for Sarshaun\_45:

(Start: 23 @35381 has 10 MA's), (Start: 27 @35390 has 39 MA's), (Start: 63 @35477 has 11 MA's), (70, 35495), (77, 35522), (79, 35525), (99, 35600), (102, 35612), (132, 35720), (144, 35783),

Gene: Sassay\_63 Start: 43291, Stop: 43704, Start Num: 53

Candidate Starts for Sassay\_63:

(13, 43117), (Start: 53 @43291 has 136 MA's), (97, 43432), (105, 43474), (134, 43582), (141, 43621), (158, 43684),

Gene: Schatzie\_113 Start: 65339, Stop: 65659, Start Num: 54

Candidate Starts for Schatzie\_113:

(Start: 54 @65339 has 33 MA's), (69, 65378), (99, 65477), (112, 65534), (122, 65570), (128, 65600), (138, 65645),

Gene: ShamWow\_68 Start: 45513, Stop: 45923, Start Num: 53

Candidate Starts for ShamWow\_68:

(13, 45339), (Start: 53 @45513 has 136 MA's), (84, 45609), (97, 45654), (107, 45702), (120, 45750), (141, 45843), (153, 45885),

Gene: Sheng711\_43 Start: 34231, Stop: 34560, Start Num: 63

Candidate Starts for Sheng711\_43:

(Start: 21 @34126 has 3 MA's), (Start: 23 @34138 has 10 MA's), (Start: 26 @34141 has 4 MA's), (Start: 63 @34231 has 11 MA's), (70, 34249), (77, 34276), (79, 34279), (99, 34354), (102, 34366), (132, 34474), (144, 34537), (150, 34552),

Gene: ShereKhan\_67 Start: 45582, Stop: 45992, Start Num: 53

Candidate Starts for ShereKhan\_67:

(Start: 53 @45582 has 136 MA's), (97, 45723), (107, 45771), (120, 45819), (141, 45912), (153, 45954),

Gene: Silverleaf\_42 Start: 34025, Stop: 34441, Start Num: 27

Candidate Starts for Silverleaf\_42:

(Start: 21 @34004 has 3 MA's), (Start: 27 @34025 has 39 MA's), (55, 34091), (Start: 63 @34112 has 11 MA's), (70, 34130), (81, 34169), (84, 34181), (99, 34238), (114, 34298), (144, 34418),

Gene: Simpliphy\_67 Start: 44594, Stop: 45004, Start Num: 53

Candidate Starts for Simpliphy\_67:

(Start: 53 @44594 has 136 MA's), (97, 44735), (107, 44783), (120, 44831), (141, 44924), (153, 44966),

Gene: SirDuracell\_67 Start: 43865, Stop: 44278, Start Num: 53

Candidate Starts for SirDuracell\_67:

(13, 43691), (Start: 53 @43865 has 136 MA's), (97, 44006), (105, 44048), (134, 44156), (141, 44195), (158, 44258),

Gene: Snenia\_42 Start: 35731, Stop: 36054, Start Num: 63

Candidate Starts for Snenia\_42:

(Start: 21 @35626 has 3 MA's), (Start: 23 @35638 has 10 MA's), (Start: 27 @35647 has 39 MA's), (Start: 63 @35731 has 11 MA's), (70, 35749), (74, 35767), (77, 35776), (108, 35893), (144, 36031),

Gene: Soap141\_45 Start: 35477, Stop: 35806, Start Num: 63

Candidate Starts for Soap141\_45:

(Start: 23 @35381 has 10 MA's), (Start: 27 @35390 has 39 MA's), (Start: 63 @35477 has 11 MA's), (70, 35495), (77, 35522), (79, 35525), (99, 35600), (102, 35612), (132, 35720), (144, 35783),

Gene: SophKB\_65 Start: 44269, Stop: 44679, Start Num: 53

Candidate Starts for SophKB\_65:

(Start: 53 @44269 has 136 MA's), (97, 44410), (107, 44458), (120, 44506), (141, 44599), (153, 44641),

Gene: Sotrice96\_69 Start: 45272, Stop: 45682, Start Num: 53

Candidate Starts for Sotrice96\_69:

(Start: 53 @45272 has 136 MA's), (97, 45413), (107, 45461), (120, 45509), (141, 45602), (153, 45644),

Gene: Squint\_111 Start: 62624, Stop: 62944, Start Num: 54

Candidate Starts for Squint\_111:

(Start: 54 @62624 has 33 MA's), (69, 62663), (99, 62762), (112, 62819), (122, 62855), (128, 62885), (138, 62930),

Gene: Stank\_71 Start: 45527, Stop: 45937, Start Num: 53

Candidate Starts for Stank\_71:

(13, 45353), (Start: 53 @45527 has 136 MA's), (84, 45623), (97, 45668), (107, 45716), (120, 45764), (141, 45857), (153, 45899),

Gene: Stark\_69 Start: 45077, Stop: 45487, Start Num: 53

Candidate Starts for Stark\_69:

(Start: 53 @45077 has 136 MA's), (97, 45218), (107, 45266), (120, 45314), (141, 45407), (153, 45449),

Gene: StellaBean\_66 Start: 44837, Stop: 45247, Start Num: 53

Candidate Starts for StellaBean\_66:

(Start: 53 @44837 has 136 MA's), (97, 44978), (107, 45026), (120, 45074), (141, 45167), (153, 45209),

Gene: StevieWelch\_107 Start: 56127, Stop: 55690, Start Num: 53

Candidate Starts for StevieWelch\_107:

(15, 56298), (39, 56160), (Start: 53 @56127 has 136 MA's), (62, 56103), (70, 56082), (96, 55986), (98, 55974), (117, 55899),

Gene: StolenFromERC\_71 Start: 45309, Stop: 45719, Start Num: 53

Candidate Starts for StolenFromERC\_71:

(13, 45135), (Start: 53 @45309 has 136 MA's), (97, 45450), (107, 45498), (120, 45546), (141, 45639), (153, 45681),

Gene: Superphikiman\_110 Start: 61715, Stop: 62035, Start Num: 54

Candidate Starts for Superphikiman\_110:

(Start: 54 @61715 has 33 MA's), (69, 61754), (99, 61853), (112, 61910), (122, 61946), (128, 61976), (138, 62021),

Gene: TBrady12\_71 Start: 45011, Stop: 45421, Start Num: 53

Candidate Starts for TBrady12\_71:

(13, 44837), (Start: 53 @45011 has 136 MA's), (97, 45152), (107, 45200), (120, 45248), (141, 45341), (153, 45383),

Gene: Tandem\_107 Start: 58139, Stop: 57753, Start Num: 48

Candidate Starts for Tandem\_107:

(18, 58232), (25, 58196), (38, 58163), (47, 58142), (Start: 48 @58139 has 6 MA's), (75, 58058), (83, 58040), (98, 57986), (104, 57962), (124, 57890), (131, 57854), (135, 57836),

Gene: Tarkin\_67 Start: 45259, Stop: 45669, Start Num: 53

Candidate Starts for Tarkin\_67:

(Start: 53 @45259 has 136 MA's), (97, 45400), (107, 45448), (120, 45496), (141, 45589), (153, 45631),

Gene: TeardropMSU\_64 Start: 44259, Stop: 44669, Start Num: 53

Candidate Starts for TeardropMSU\_64:

(Start: 53 @44259 has 136 MA's), (97, 44400), (107, 44448), (120, 44496), (141, 44589), (153, 44631),

Gene: Teaspoon\_69 Start: 45153, Stop: 45563, Start Num: 53

Candidate Starts for Teaspoon\_69:

(13, 44979), (Start: 53 @45153 has 136 MA's), (97, 45294), (107, 45342), (120, 45390), (141, 45483), (153, 45525),

Gene: Terminus\_71 Start: 46046, Stop: 46459, Start Num: 53

Candidate Starts for Terminus\_71:

(13, 45872), (Start: 53 @46046 has 136 MA's), (97, 46187), (107, 46235), (120, 46283), (141, 46376), (158, 46439),

Gene: Thibault\_99 Start: 60528, Stop: 60848, Start Num: 54

Candidate Starts for Thibault\_99:

(Start: 54 @60528 has 33 MA's), (69, 60567), (112, 60723), (122, 60759), (128, 60789), (138, 60834),

Gene: Thresher\_70 Start: 46136, Stop: 46546, Start Num: 53

Candidate Starts for Thresher\_70:

(Start: 53 @46136 has 136 MA's), (97, 46277), (107, 46325), (120, 46373), (141, 46466), (153, 46508),

Gene: Tomaszewski\_63 Start: 44425, Stop: 44838, Start Num: 53

Candidate Starts for Tomaszewski\_63:

(13, 44251), (Start: 53 @44425 has 136 MA's), (97, 44566), (105, 44608), (134, 44716), (141, 44755), (158, 44818),

Gene: Toto\_66 Start: 45513, Stop: 45923, Start Num: 53

Candidate Starts for Toto\_66:

(13, 45339), (Start: 53 @45513 has 136 MA's), (84, 45609), (97, 45654), (107, 45702), (120, 45750), (141, 45843), (153, 45885),

Gene: Tourach\_44 Start: 35371, Stop: 35784, Start Num: 27

Candidate Starts for Tourach\_44:

(Start: 23 @35362 has 10 MA's), (Start: 27 @35371 has 39 MA's), (Start: 63 @35458 has 11 MA's), (70, 35476), (77, 35503), (79, 35506), (99, 35581), (144, 35761),

Gene: Traaww1\_64 Start: 44694, Stop: 45104, Start Num: 53

Candidate Starts for Traaww1\_64:

(13, 44520), (Start: 53 @44694 has 136 MA's), (84, 44790), (97, 44835), (107, 44883), (120, 44931), (141, 45024), (153, 45066),

Gene: Trax\_45 Start: 35143, Stop: 35541, Start Num: 41

Candidate Starts for Trax\_45:

(Start: 41 @35143 has 3 MA's), (45, 35155), (Start: 54 @35173 has 33 MA's), (65, 35206), (94, 35287), (105, 35347), (122, 35398), (139, 35476), (145, 35503), (152, 35524),

Gene: Trax\_53 Start: 37657, Stop: 38055, Start Num: 37

Candidate Starts for Trax\_53:

(Start: 37 @37657 has 3 MA's), (50, 37687), (65, 37723), (66, 37726), (70, 37732), (75, 37756), (101, 37843), (105, 37864), (111, 37888), (135, 37963), (139, 37987), (153, 38041), (155, 38047),

Gene: TriFive\_42 Start: 35730, Stop: 36053, Start Num: 63

Candidate Starts for TriFive\_42:

(Start: 21 @35625 has 3 MA's), (Start: 23 @35637 has 10 MA's), (Start: 27 @35646 has 39 MA's), (Start: 63 @35730 has 11 MA's), (70, 35748), (74, 35766), (77, 35775), (108, 35892), (144, 36030),

Gene: Trina\_234 Start: 121206, Stop: 121604, Start Num: 43

Candidate Starts for Trina\_234:

(32, 121179), (Start: 41 @121200 has 3 MA's), (Start: 43 @121206 has 1 MA's), (46, 121215), (52, 121227), (62, 121254), (88, 121335), (99, 121374), (116, 121449), (130, 121500), (133, 121509), (136, 121527), (142, 121560), (143, 121563),

Gene: Tuco\_69 Start: 46021, Stop: 46431, Start Num: 53

Candidate Starts for Tuco\_69:

(Start: 53 @46021 has 136 MA's), (97, 46162), (107, 46210), (120, 46258), (141, 46351), (153, 46393),

Gene: Tyson\_42 Start: 34026, Stop: 34442, Start Num: 27

Candidate Starts for Tyson\_42:

(Start: 21 @34005 has 3 MA's), (Start: 27 @34026 has 39 MA's), (55, 34092), (Start: 63 @34113 has 11 MA's), (70, 34131), (81, 34170), (84, 34182), (99, 34239), (114, 34299), (134, 34365), (144, 34419),

Gene: UPIE\_43 Start: 34009, Stop: 34425, Start Num: 27

Candidate Starts for UPIE\_43:

(Start: 21 @33988 has 3 MA's), (Start: 27 @34009 has 39 MA's), (55, 34075), (Start: 63 @34096 has 11 MA's), (70, 34114), (81, 34153), (84, 34165), (99, 34222), (114, 34282), (144, 34402),

Gene: Ukulele\_63 Start: 44407, Stop: 44817, Start Num: 53

Candidate Starts for Ukulele\_63:

(Start: 53 @44407 has 136 MA's), (97, 44548), (107, 44596), (120, 44644), (141, 44737), (153, 44779),

Gene: Underpass\_45 Start: 35462, Stop: 35773, Start Num: 70

Candidate Starts for Underpass\_45:

(Start: 23 @35348 has 10 MA's), (Start: 27 @35357 has 39 MA's), (Start: 63 @35444 has 11 MA's), (70, 35462), (77, 35489), (79, 35492), (99, 35567), (102, 35579), (132, 35687), (144, 35750),

Gene: VanLee\_135 Start: 73104, Stop: 72706, Start Num: 35

Candidate Starts for VanLee\_135:

(Start: 35 @73104 has 1 MA's), (75, 73008), (124, 72846),

Gene: Vetrux\_45 Start: 35363, Stop: 35779, Start Num: 27

Candidate Starts for Vetricx\_45:

(Start: 23 @35354 has 10 MA's), (Start: 27 @35363 has 39 MA's), (Start: 63 @35450 has 11 MA's), (70, 35468), (77, 35495), (79, 35498), (99, 35573), (102, 35585), (132, 35693), (144, 35756),

Gene: Wamburgexpress\_43 Start: 34024, Stop: 34440, Start Num: 27

Candidate Starts for Wamburgexpress\_43:

(Start: 21 @34003 has 3 MA's), (Start: 27 @34024 has 39 MA's), (55, 34090), (Start: 63 @34111 has 11 MA's), (70, 34129), (81, 34168), (84, 34180), (99, 34237), (114, 34297), (144, 34417),

Gene: Weasels2\_208 Start: 107565, Stop: 107978, Start Num: 42

Candidate Starts for Weasels2\_208:

(Start: 42 @107565 has 4 MA's), (78, 107664), (97, 107721), (106, 107766), (114, 107805), (133, 107880),

Gene: Weasels2\_237 Start: 116136, Stop: 116522, Start Num: 42

Candidate Starts for Weasels2\_237:

(40, 116130), (Start: 42 @116136 has 4 MA's), (95, 116286), (133, 116433), (145, 116493),

Gene: Weasels2\_210 Start: 108355, Stop: 108705, Start Num: 54

Candidate Starts for Weasels2\_210:

(Start: 54 @108355 has 33 MA's), (82, 108442), (96, 108496), (97, 108499), (110, 108562), (123, 108574), (125, 108580), (149, 108688),

Gene: Welcome\_109 Start: 56727, Stop: 56290, Start Num: 53

Candidate Starts for Welcome\_109:

(Start: 53 @56727 has 136 MA's), (62, 56703), (70, 56682), (96, 56586), (98, 56574), (99, 56571), (109, 56529), (117, 56499), (126, 56466),

Gene: Whirlwind\_43 Start: 35405, Stop: 35812, Start Num: 27

Candidate Starts for Whirlwind\_43:

(Start: 21 @35384 has 3 MA's), (Start: 23 @35396 has 10 MA's), (Start: 27 @35405 has 39 MA's), (Start: 63 @35489 has 11 MA's), (70, 35507), (74, 35525), (77, 35534), (108, 35651), (144, 35789),

Gene: Wiggin\_70 Start: 45095, Stop: 45505, Start Num: 53

Candidate Starts for Wiggin\_70:

(13, 44921), (Start: 53 @45095 has 136 MA's), (84, 45191), (97, 45236), (107, 45284), (120, 45332), (141, 45425), (153, 45467),

Gene: Wigglewiggie\_45 Start: 35380, Stop: 35805, Start Num: 23

Candidate Starts for Wigglewiggie\_45:

(Start: 23 @35380 has 10 MA's), (Start: 27 @35389 has 39 MA's), (Start: 63 @35476 has 11 MA's), (70, 35494), (77, 35521), (79, 35524), (99, 35599), (102, 35611), (132, 35719), (144, 35782),

Gene: Wilder\_45 Start: 35362, Stop: 35778, Start Num: 27

Candidate Starts for Wilder\_45:

(Start: 23 @35353 has 10 MA's), (Start: 27 @35362 has 39 MA's), (Start: 63 @35449 has 11 MA's), (70, 35467), (77, 35494), (79, 35497), (99, 35572), (102, 35584), (132, 35692), (144, 35755),

Gene: Willez\_63 Start: 43291, Stop: 43704, Start Num: 53

Candidate Starts for Willez\_63:

(13, 43117), (Start: 53 @43291 has 136 MA's), (97, 43432), (105, 43474), (134, 43582), (141, 43621), (158, 43684),

Gene: Winky\_45 Start: 35347, Stop: 35772, Start Num: 23

Candidate Starts for Winky\_45:

(Start: 23 @35347 has 10 MA's), (Start: 27 @35356 has 39 MA's), (Start: 63 @35443 has 11 MA's), (70, 35461), (77, 35488), (79, 35491), (99, 35566), (102, 35578), (132, 35686), (144, 35749),

Gene: Wolfstar\_113 Start: 59574, Stop: 59188, Start Num: 44

Candidate Starts for Wolfstar\_113:

(20, 59646), (33, 59601), (Start: 44 @59574 has 2 MA's), (80, 59481), (90, 59442), (98, 59409), (104, 59385), (106, 59373), (133, 59277),

Gene: Wyatt2\_43 Start: 34025, Stop: 34441, Start Num: 27

Candidate Starts for Wyatt2\_43:

(Start: 21 @34004 has 3 MA's), (Start: 27 @34025 has 39 MA's), (55, 34091), (Start: 63 @34112 has 11 MA's), (70, 34130), (81, 34169), (84, 34181), (99, 34238), (114, 34298), (144, 34418),

Gene: Xandras\_67 Start: 44506, Stop: 44916, Start Num: 53

Candidate Starts for Xandras\_67:

(Start: 53 @44506 has 136 MA's), (97, 44647), (107, 44695), (120, 44743), (141, 44836), (153, 44878),

Gene: Yakult\_64 Start: 44046, Stop: 44489, Start Num: 22

Candidate Starts for Yakult\_64:

(Start: 22 @44046 has 2 MA's), (76, 44154), (85, 44181), (89, 44199), (99, 44241), (103, 44256), (104, 44262), (121, 44325), (135, 44382), (142, 44424),

Gene: Yappy\_107 Start: 55269, Stop: 54802, Start Num: 29

Candidate Starts for Yappy\_107:

(16, 55377), (Start: 29 @55269 has 1 MA's), (71, 55164), (133, 54900),

Gene: YassJohnny\_65 Start: 44464, Stop: 44877, Start Num: 53

Candidate Starts for YassJohnny\_65:

(13, 44290), (Start: 53 @44464 has 136 MA's), (97, 44605), (105, 44647), (134, 44755), (141, 44794), (158, 44857),

Gene: Yeet\_109 Start: 64277, Stop: 64597, Start Num: 54

Candidate Starts for Yeet\_109:

(Start: 54 @64277 has 33 MA's), (69, 64316), (99, 64415), (112, 64472), (122, 64508), (128, 64538), (138, 64583),

Gene: Youngblood\_71 Start: 45976, Stop: 46386, Start Num: 53

Candidate Starts for Youngblood\_71:

(13, 45802), (Start: 53 @45976 has 136 MA's), (97, 46117), (107, 46165), (120, 46213), (141, 46306), (153, 46348),

Gene: Yuma\_105 Start: 55848, Stop: 55411, Start Num: 53

Candidate Starts for Yuma\_105:

(Start: 53 @55848 has 136 MA's), (62, 55824), (70, 55803), (96, 55707), (98, 55695), (99, 55692), (109, 55650), (117, 55620), (126, 55587),

Gene: Zakai\_45 Start: 35614, Stop: 36030, Start Num: 27

Candidate Starts for Zakai\_45:

(Start: 23 @35605 has 10 MA's), (Start: 27 @35614 has 39 MA's), (Start: 63 @35701 has 11 MA's), (70, 35719), (77, 35746), (79, 35749), (99, 35824), (102, 35836), (132, 35944), (144, 36007),

Gene: Zaria\_43 Start: 34040, Stop: 34456, Start Num: 27

Candidate Starts for Zaria\_43:

(Start: 21 @34019 has 3 MA's), (Start: 27 @34040 has 39 MA's), (55, 34106), (Start: 63 @34127 has 11 MA's), (70, 34145), (81, 34184), (84, 34196), (99, 34253), (114, 34313), (144, 34433),

Gene: ZhongYanYuan\_43 Start: 35304, Stop: 35633, Start Num: 63

Candidate Starts for ZhongYanYuan\_43:

(Start: 23 @35208 has 10 MA's), (Start: 27 @35217 has 39 MA's), (Start: 63 @35304 has 11 MA's), (70, 35322), (77, 35349), (79, 35352), (99, 35430), (132, 35547), (144, 35610),

Gene: xkcd\_71 Start: 46166, Stop: 46576, Start Num: 53

Candidate Starts for xkcd\_71:

(Start: 53 @46166 has 136 MA's), (97, 46307), (107, 46355), (120, 46403), (141, 46496), (153, 46538),