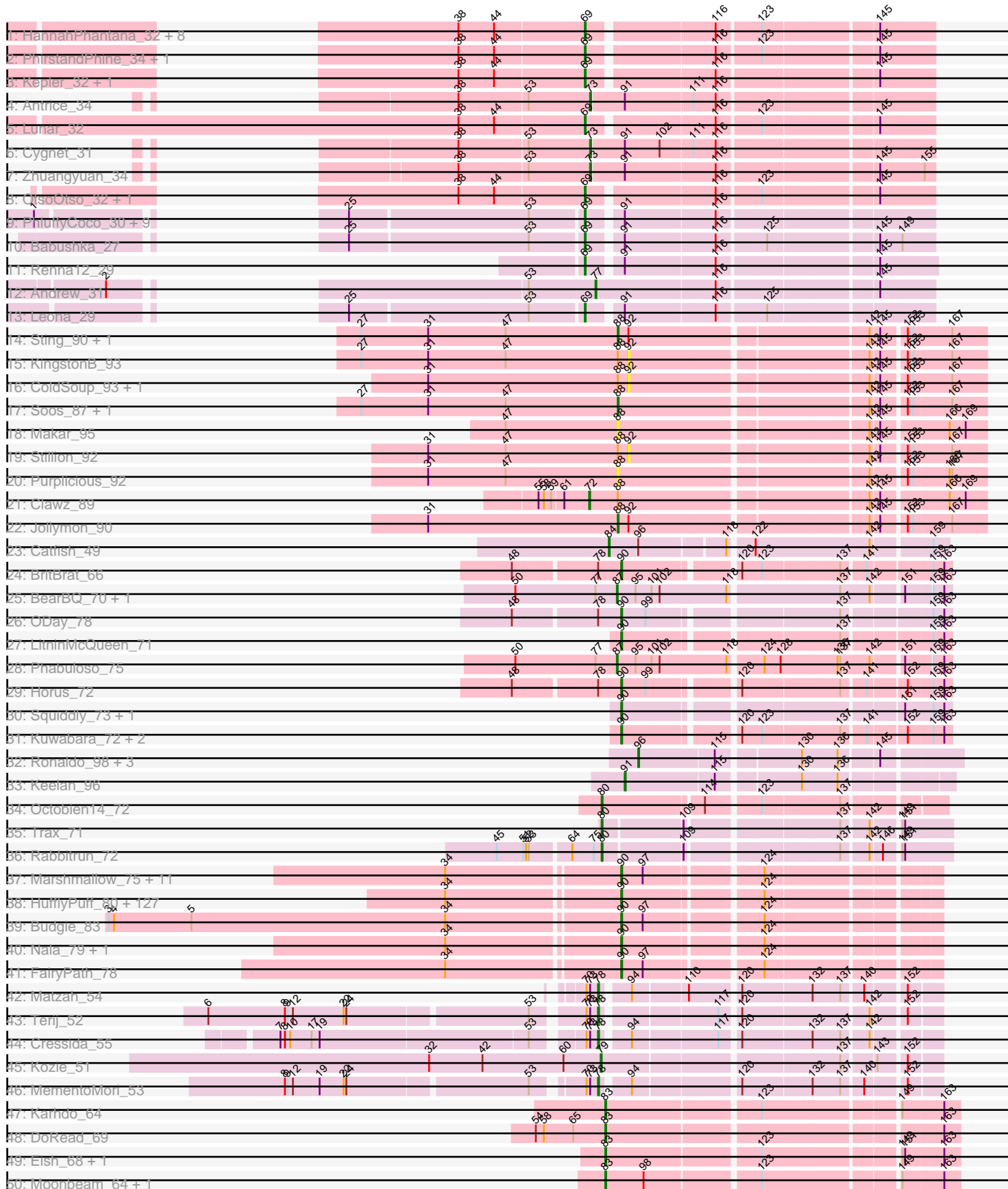
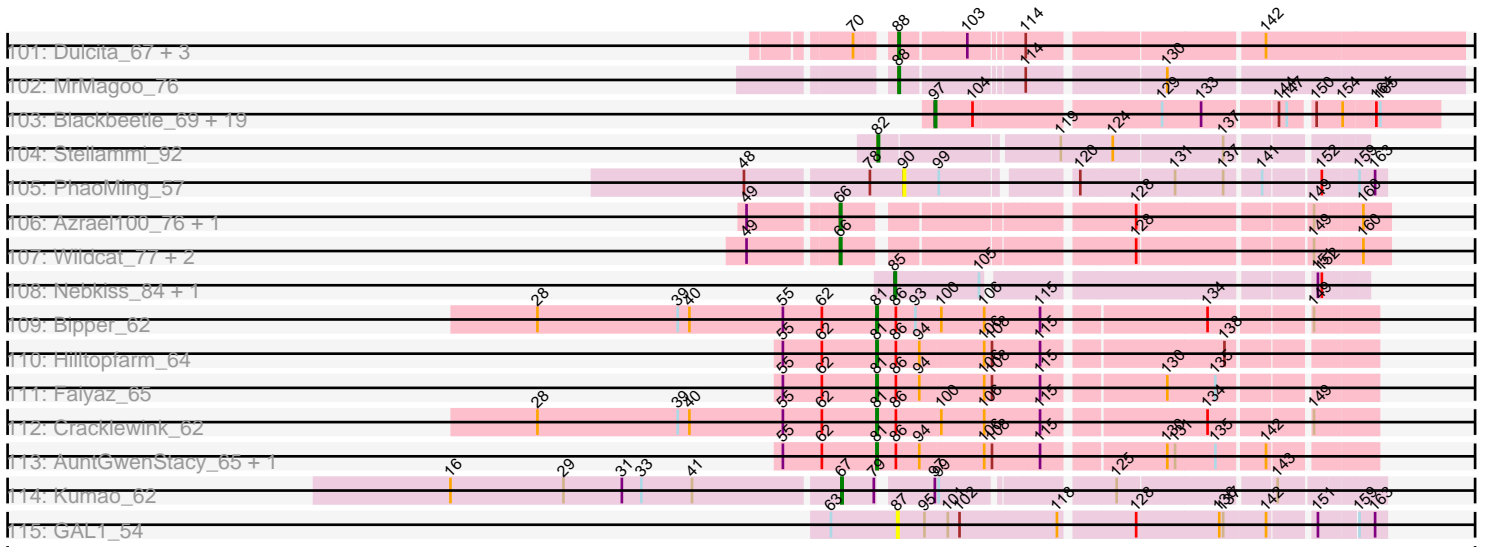


Pham 302987





Pham 302987



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 302987 Report

This analysis was run 06/08/26 on database version 649.

Pham number 302987 has 383 members, 46 are drafts.

Phages represented in each track:

- Track 1 : HannahPhantana\_32, Bedetta\_34, Amelia\_32, Cote\_33, Coral\_31, GramZayde\_32, Pineda\_33, Colusalem\_32, Jerole\_32
- Track 2 : PhirstandPhine\_34, Melons\_32
- Track 3 : Kepler\_32, Daob\_33
- Track 4 : Antrice\_34
- Track 5 : Lunar\_32
- Track 6 : Cygnet\_31
- Track 7 : Zhuangyuan\_34
- Track 8 : OtsoOtso\_32, Polka\_31
- Track 9 : PhluffyCoco\_30, Atlantica\_30, RedFox\_30, Juno112\_29, Amphitrite\_30, DanHam62\_30, Fingolfin\_30, HamCheese\_30, Glotell\_31, AmiCi24\_29
- Track 10 : Babushka\_27
- Track 11 : Renna12\_29
- Track 12 : Andrew\_31
- Track 13 : Leona\_29
- Track 14 : Sting\_90, DonTron\_91
- Track 15 : KingstonB\_93
- Track 16 : ColdSoup\_93, Amo99\_93
- Track 17 : Soos\_87, Grumio\_93
- Track 18 : Makar\_95
- Track 19 : Stillion\_92
- Track 20 : Purplicious\_92
- Track 21 : Clawz\_89
- Track 22 : Jollymon\_90
- Track 23 : Catfish\_49
- Track 24 : BritBrat\_66
- Track 25 : BearBQ\_70, BotCity\_75
- Track 26 : ODay\_78
- Track 27 : LitninMcQueen\_71
- Track 28 : Phabuloso\_75
- Track 29 : Horus\_72
- Track 30 : Squiddly\_73, Spooky\_68
- Track 31 : Kuwabara\_72, Ecliptus\_75, CheeseTouch\_74
- Track 32 : Ronaldo\_98, Guey18\_100, Volt\_99, Fryberger\_95
- Track 33 : Keelan\_96
- Track 34 : Octobien14\_72
- Track 35 : Trax\_71

- Track 36 : Rabbitrun\_72
- Track 37 : Marshmallow\_75, Cookies\_74, ChotaBhai\_77, SirDuracell\_76, Bask21\_77, TeamEdward\_79, YassJohnny\_74, Pat3\_75, Tomaszewski\_72, OrionPax\_76, Amao\_77, DoctorDiddles\_76
- Track 38 : HufflyPuff\_80, PaddyBaddy\_77, Goku\_75, Bogg\_77, Teaspoon\_78, Moldemort\_80, Buck\_78, Petra64142\_81, NoSleep\_78, Highbury\_76, Glexan\_76, TeardropMSU\_73, Lilizi\_78, Thresher\_79, Inca\_74, 244\_78, MISSy\_78, Nimrod\_78, Stank\_80, Gage\_79, Phaja\_75, Becksu\_76, BilboSwaggins\_75, Bench\_80, AmericanBeauty\_81, Myrale\_77, Manda\_78, Ukulele\_72, Rimmer\_78, Kostya\_77, SophKB\_74, FoghornLeghorn\_71, HanKaySha\_77, Pumpkin\_80, Terminus\_80, Stark\_78, IHOP\_75, Icee\_78, Sassay\_72, MPhalcon\_78, Balomoji\_77, Dusk\_74, Kanye\_74, Saints25\_76, Cactus\_80, JeTaime\_77, Simpliphy\_76, Liveloughbron\_79, BadStone\_74, GooberAzure\_80, PhatBacter\_81, Palpatine\_79, xkcd\_80, Lilpickle\_76, Holt\_82, Murica\_80, StellaBean\_75, Rakim\_78, Adnama\_81, Gemini\_82, MadamMonkfish\_77, Greep\_81, Mindy\_76, Mosby\_73, Dumbo\_77, Lilac\_79, Kimchi\_81, Phaux\_79, NelitzaMV\_75, Eureka\_75, TBrady12\_80, BigBubba\_77, Hopey\_77, Brewer\_73, CrystalP\_76, Phrux\_74, BugsBunny\_77, Cjw1\_77, Hoonter\_80, Willez\_72, BaboJay\_74, Asriel\_76, Henry\_75, Barbarian\_76, Bruin\_74, Xandras\_76, Tuco\_78, Contagion\_73, NonchalantPear\_77, Quallification\_78, Goldilocks\_80, StolenFromERC\_80, GoldenSpark\_81, Traaww1\_73, Flypotenuse\_73, Daikon\_79, Easy2Say\_78, Filch\_78, ShamWow\_77, Porky\_76, Czyszczon1\_78, RiverMonster\_77, Sotrice96\_78, Harella\_77, Elph10\_77, Policronamos\_80, Youngblood\_80, Toto\_75, Murphy\_77, Pharsalus\_74, Command613\_79, Gator\_75, StormChicken\_79, Miniwave\_72, Elite2014\_76, Misfit\_78, Maxxinista\_79, ChosenOne\_77, Emmina\_77, Tarkin\_76, Argent26\_81, ABCat\_74, Wiggin\_79, Ptowny\_74, DrDrey\_77, MollyToe\_72, Paperbeatsrock\_76, Thimble\_78
- Track 39 : Budgie\_83
- Track 40 : Nala\_79, FireRed\_81
- Track 41 : FairyPath\_78
- Track 42 : Matzah\_54
- Track 43 : Terij\_52
- Track 44 : Cressida\_55
- Track 45 : Kozie\_51
- Track 46 : MementoMori\_53
- Track 47 : Karhdo\_64
- Track 48 : DoRead\_69
- Track 49 : Eish\_68, DosHalletts\_67
- Track 50 : Moonbeam\_64, Emma\_67
- Track 51 : Fancypants\_68, Mozy\_75
- Track 52 : Whouxphf\_62
- Track 53 : Estave1\_70
- Track 54 : Mutaforma13\_71
- Track 55 : Yorick\_64
- Track 56 : DillTech15\_63
- Track 57 : DaWorst\_65
- Track 58 : Wachhund\_66
- Track 59 : Demsculpinboyz\_78
- Track 60 : Skitty\_47, MrSmee\_53, Merpity\_54
- Track 61 : Hum25\_55
- Track 62 : Pitbull\_53
- Track 63 : Khuang\_54
- Track 64 : Altostratus\_54

- Track 65 : Hughesyang\_122, Zelink\_117, Minerva\_120, ThreeRngTarjay\_118
- Track 66 : Constella\_107, JuicyJay\_120, Phoebus\_124, Thibault\_106, Dallas\_124, Beem\_125, NihilNomen\_125, Dove\_109
- Track 67 : Ariel\_118, Squint\_116, Courthouse\_113, Superphikiman\_115
- Track 68 : Kalah2\_114, Bagrid\_123, DmpstrDiver\_123
- Track 69 : EricMillard\_114, Duke13\_117, Optimus\_113, BAKA\_122
- Track 70 : Gonephishing\_112, LittleE\_122
- Track 71 : Redno2\_116, Halley\_125, Ejimix\_117
- Track 72 : Lucky2013\_115
- Track 73 : Klein\_119, Bobby\_115
- Track 74 : Pound\_112
- Track 75 : MiaZeal\_118
- Track 76 : HokkenD\_113
- Track 77 : Wanda\_122
- Track 78 : Wyatt2\_67, AvadaKedavra\_66, Tyson\_67
- Track 79 : Rose5\_66, Wamburggrxpress\_66
- Track 80 : BigCheese\_67, Vetrrix\_67, Lewan\_68, BobsGarage\_67, Nicholasp3\_67, Underpass\_58
- Track 81 : Finemlucis\_67, GuuelaD\_66, Itos\_66, Rumpelstiltskin\_66, Winky\_67, Wigglewiggles\_67, Zakai\_68, Lynnae\_69, Gardann\_68, Breezona\_67, Sarshaun\_68, LilDestine\_67, Wilder\_68, Kahlid\_67, Miley16\_67, MkaliMitinis3\_68, Loadrie\_66, Gabriela\_64, OverPar\_69, Rossetti\_69, Hafay\_69
- Track 82 : Archie\_67
- Track 83 : Crossroads\_67
- Track 84 : Tourach\_66
- Track 85 : DanBing\_68, Claus\_67, ZhongYanYuan\_66
- Track 86 : DHan\_68
- Track 87 : Bazzle\_67
- Track 88 : Baoshan\_66
- Track 89 : Bellis\_66, MsGreen\_66, Snenia\_65, Jubie\_65, TriFive\_67, Lumos\_67, Krypton555\_67, Clautastrophe\_65, Jobypre\_66, Whirlwind\_66, Red305\_66
- Track 90 : BourbonZero\_66
- Track 91 : Finnry\_66, Samty\_66
- Track 92 : MiniMac\_69
- Track 93 : MiniLon\_69, Lolly9\_65
- Track 94 : DuncansLeg\_66
- Track 95 : Douge\_65
- Track 96 : ChutneyChips\_65
- Track 97 : Douzhi\_65
- Track 98 : Bromden\_67
- Track 99 : FarmResident\_67, Quby\_65, PYPDinur\_63
- Track 100 : Aegeus\_71, Baudelaire\_71
- Track 101 : Dulcita\_67, Glaske16\_67, FreakyGoo\_67, Izel\_67
- Track 102 : MrMagoo\_76
- Track 103 : Blackbeetle\_69, Pringar\_68, VasuNzinga\_68, MosMoris\_66, Clarkson\_70, Tesla\_66, JoieB\_70, FeliMaine\_71, Poise\_69, Gattaca\_67, Raela\_69, Beelzebub\_73, Caprice\_64, LittleLaf\_69, Corazon\_67, Marvin\_65, RedRaider77\_68, GoongGoong\_68, Huphlepuuff\_71, Lilbit\_67
- Track 104 : Stellammi\_92
- Track 105 : PhaoMing\_57
- Track 106 : Azrael100\_76, Cosmo\_77
- Track 107 : Wildcat\_77, MaryV\_77, EniyanLRS\_168
- Track 108 : Nebkiss\_84, Gaia\_85

- Track 109 : Bipper\_62
- Track 110 : Hilltopfarm\_64
- Track 111 : Faiyaz\_65
- Track 112 : Cracklewink\_62
- Track 113 : AuntGwenStacy\_65, Typha\_64
- Track 114 : Kumao\_62
- Track 115 : GAL1\_54

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

The start number called the most often in the published annotations is 90, it was called in 175 of the 337 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 244\_78, ABCat\_74, Adnama\_81, Amao\_77, AmericanBeauty\_81, Argent26\_81, Asriel\_76, AvadaKedavra\_66, BaboJay\_74, BadStone\_74, Balomoji\_77, Baoshan\_66, Barbarian\_76, Bask21\_77, Becksu\_76, Beem\_125, Bench\_80, BigBubba\_77, BilboSwaggins\_75, Bogg\_77, Breezona\_67, Brewer\_73, BritBrat\_66, Bruin\_74, Buck\_78, Budgie\_83, BugsBunny\_77, Cactus\_80, CheeseTouch\_74, ChosenOne\_77, ChotaBhai\_77, ChutneyChips\_65, Cjw1\_77, Claus\_67, Command613\_79, Constella\_107, Contagion\_73, Cookies\_74, Crossroads\_67, CrystalP\_76, Czyszczonek\_78, Daikon\_79, Dallas\_124, DanBing\_68, DoctorDiddles\_76, Dove\_109, DrDrey\_77, Dumbo\_77, Dusk\_74, Easy2Say\_78, Ecliptus\_75, Elite2014\_76, Elph10\_77, Emmina\_77, Eureka\_75, FairyPath\_78, Filch\_78, Finemlucis\_67, FireRed\_81, Flypotenuse\_73, FoghornLeghorn\_71, Gabriela\_64, Gage\_79, Gardann\_68, Gator\_75, Gemini\_82, Glexan\_76, Goku\_75, GoldenSpark\_81, Goldilocks\_80, GooberAzure\_80, Greep\_81, GuuelaD\_66, Hafay\_69, HanKaySha\_77, Harella\_77, Henry\_75, Highbury\_76, Holt\_82, Hoonter\_80, Hopey\_77, Horus\_72, HufflyPuff\_80, IHOP\_75, Icee\_78, Inca\_74, Itos\_66, JeTaime\_77, JuicyJay\_120, Kahlid\_67, Kanye\_74, Kimchi\_81, Kostya\_77, Kuwabara\_72, LilDestine\_67, Lilac\_79, Lilizi\_78, Lilpickle\_76, LitninMcQueen\_71, Liveloughbron\_79, Loadrie\_66, Lynnae\_69, MISSy\_78, MPhalcon\_78, MadamMonkfish\_77, Manda\_78, Marshmallow\_75, Maxxinista\_79, MiaZeal\_118, Miley16\_67, Mindy\_76, Miniwave\_72, Misfit\_78, MkaliMitinis3\_68, Moldemort\_80, MollyToe\_72, Mosby\_73, Murica\_80, Murphy\_77, Myrale\_77, Nala\_79, NelitzaMV\_75, NihilNomen\_125, Nimrod\_78, NoSleep\_78, NonchalantPear\_77, ODay\_78, OrionPax\_76, OverPar\_69, PaddyBaddy\_77, Palpatine\_79, Paperbeatsrock\_76, Pat3\_75, Petra64142\_81, Phaja\_75, PhaoMing\_57, Pharsalus\_74, PhatBacter\_81, Phaux\_79, Phoebus\_124, Phrux\_74, Policronamos\_80, Porky\_76, Ptowny\_74, Pumpkin\_80, Quallification\_78, Rakim\_78, Rimmer\_78, RiverMonster\_77, Rose5\_66, Rossetti\_69, Rumpelstiltskin\_66, Saints25\_76, Sarshaun\_68, Sassay\_72, ShamWow\_77, Simpliphy\_76, SirDuracell\_76, SophKB\_74, Sotrice96\_78, Spooky\_68, Squiddly\_73, Stank\_80, Stark\_78, StellaBean\_75, StolenFromERC\_80, StormChicken\_79, TBrady12\_80, Tarkin\_76, TeamEdward\_79, TeardropMSU\_73, Teaspoon\_78, Terminus\_80, Thibault\_106, Thimble\_78, Thresher\_79, Tomaszewski\_72, Toto\_75, Tourach\_66, Traaww1\_73, Tuco\_78, Tyson\_67, Ukulele\_72, Wamburggrxpress\_66, Wigginn\_79, Wigglewiggles\_67, Wilder\_68, Willez\_72, Winky\_67, Wyatt2\_67, Xandras\_76, YassJohnny\_74, Youngblood\_80, Zakai\_68, ZhongYanYuan\_66, xkcd\_80,

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

- BigCheese\_67, BobsGarage\_67, DHan\_68, Lewan\_68, Nicholasp3\_67, Underpass\_58, Vetrix\_67,

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

- Aegeus\_71, Altostratus\_54, Amelia\_32, AmiCi24\_29, Amo99\_93, Amphitrite\_30, Andrew\_31, Antrice\_34, Archie\_67, Ariel\_118, Atlantica\_30, AuntGwenStacy\_65, Azrael100\_76, BAKA\_122, Babushka\_27, Bagrid\_123, Baudelaire\_71, Bazzle\_67, BearBQ\_70, Bedetta\_34, Beelzebub\_73, Bellis\_66, Bipper\_62, Blackbeetle\_69, Bobby\_115, BotCity\_75, BourbonZero\_66, Bromden\_67, Caprice\_64, Catfish\_49, Clarkson\_70, Clautastrophe\_65, Clawz\_89, ColdSoup\_93, Colusalem\_32, Coral\_31, Corazon\_67, Cosmo\_77, Cote\_33, Courthouse\_113, Cracklewink\_62, Cressida\_55, Cygnet\_31, DaWorst\_65, DanHam62\_30, Daob\_33, Demsculpinboyz\_78, DillTech15\_63, DmpstrDiver\_123, DoRead\_69, DonTron\_91, DosHalletts\_67, Douge\_65, Douzhi\_65, Duke13\_117, Dulcita\_67, DuncansLeg\_66, Eish\_68, Ejimix\_117, Emma\_67, EniyanLRS\_168, EricMillard\_114, Estave1\_70, Faiyaz\_65, Fancypants\_68, FarmResident\_67, FeliMaine\_71, Fingolfin\_30, Finnry\_66, FreakyGoo\_67, Fryberger\_95, GAL1\_54, Gaia\_85, Gattaca\_67, Glaske16\_67, Glotell\_31, Gonephishing\_112, GoongGoong\_68, GramZayde\_32, Grumio\_93, Guey18\_100, Halley\_125, HamCheese\_30, HannahPhantana\_32, Hilltopfarm\_64, HokkenD\_113, Hughesyang\_122, Hum25\_55, Huphlepuuff\_71, Izel\_67, Jerole\_32, Jobypre\_66, JoieB\_70, Jollymon\_90, Jubie\_65, Juno112\_29, Kalah2\_114, Karhdo\_64, Keelan\_96, Kepler\_32, Khuang\_54, KingstonB\_93, Klein\_119, Kozie\_51, Krypton555\_67, Kumao\_62, Leona\_29, Lilbit\_67, LittleE\_122, LittleLaf\_69, Lolly9\_65, Lucky2013\_115, Lumos\_67, Lunar\_32, Makar\_95, Marvin\_65, MaryV\_77, Matzah\_54, Melons\_32, MementoMori\_53, Merpity\_54, Minerva\_120, MiniLon\_69, MiniMac\_69, Moonbeam\_64, MosMoris\_66, Mozy\_75, MrMagoo\_76, MrSmee\_53, MsGreen\_66, Mutaforma13\_71, Nebkiss\_84, Octobien14\_72, Optimus\_113, OtsoOtso\_32, PYPDinur\_63, Phabuloso\_75, PhirstandPhine\_34, PhluffyCoco\_30, Pineda\_33, Pitbull\_53, Poise\_69, Polka\_31, Pound\_112, Pringar\_68, Purplicious\_92, Quby\_65, Rabbitrun\_72, Raela\_69, Red305\_66, RedFox\_30, RedRaider77\_68, Redno2\_116, Renna12\_29, Ronaldo\_98, Samty\_66, Skitty\_47, Snenia\_65, Soos\_87, Squint\_116, Stellammi\_92, Stillion\_92, Sting\_90, Superphikiman\_115, Terij\_52, Tesla\_66, ThreeRngTarjay\_118, Trax\_71, TriFive\_67, Typha\_64, VasuNzinga\_68, Volt\_99, Wachhund\_66, Wanda\_122, Whirlwind\_66, Whouxphf\_62, Wildcat\_77, Yorick\_64, Zelink\_117, Zhuangyuan\_34,

### Summary by start number:

Start 56:

- Found in 20 of 383 ( 5.2% ) of genes in pham
- Manual Annotations of this start: 17 of 337
- Called 95.0% of time when present
- Phage (with cluster) where this start called: Archie\_67 (L2), Bellis\_66 (L3), BourbonZero\_66 (L3), Bromden\_67 (L4), Clautastrophe\_65 (L3), DuncansLeg\_66 (L3), Finnry\_66 (L3), Jobypre\_66 (L3), Jubie\_65 (L3), Krypton555\_67 (L3), Lolly9\_65 (L3), Lumos\_67 (L3), MiniLon\_69 (L3), MsGreen\_66 (L3), Red305\_66 (L3), Samty\_66 (L3), Snenia\_65 (L3), TriFive\_67 (L3), Whirlwind\_66 (L3),

Start 57:

- Found in 5 of 383 ( 1.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 20.0% of time when present

- Phage (with cluster) where this start called: DHan\_68 (L2),

Start 65:

- Found in 3 of 383 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 337
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Lucky2013\_115 (J),

Start 66:

- Found in 5 of 383 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 5 of 337
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Azrael100\_76 (V), Cosmo\_77 (V), EniyanLRS\_168 (V), MaryV\_77 (V), Wildcat\_77 (V),

Start 67:

- Found in 1 of 383 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 337
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kumao\_62 (singleton),

Start 68:

- Found in 2 of 383 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 337
- Called 50.0% of time when present
- Phage (with cluster) where this start called: HokkenD\_113 (J),

Start 69:

- Found in 29 of 383 ( 7.6% ) of genes in pham
- Manual Annotations of this start: 25 of 337
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amelia\_32 (AS2), AmiCi24\_29 (AS3), Amphitrite\_30 (AS3), Atlantica\_30 (AS3), Babushka\_27 (AS3), Bedetta\_34 (AS2), Colusalem\_32 (AS2), Coral\_31 (AS2), Cote\_33 (AS2), DanHam62\_30 (AS3), Daob\_33 (AS2), Fingolfin\_30 (AS3), Glotell\_31 (AS3), GramZayde\_32 (AS2), HamCheese\_30 (AS3), HannahPhantana\_32 (AS2), Jerole\_32 (AS2), Juno112\_29 (AS3), Kepler\_32 (AS2), Leona\_29 (AS3), Lunar\_32 (AS2), Melons\_32 (AS2), OtsoOtso\_32 (AS2), PhirstandPhine\_34 (AS2), PhluffyCoco\_30 (AS3), Pineda\_33 (AS2), Polka\_31 (AS2), RedFox\_30 (AS3), Renna12\_29 (AS3),

Start 71:

- Found in 34 of 383 ( 8.9% ) of genes in pham
- Manual Annotations of this start: 6 of 337
- Called 17.6% of time when present
- Phage (with cluster) where this start called: BigCheese\_67 (L2), BobsGarage\_67 (L2), Lewan\_68 (L2), Nicholasp3\_67 (L2), Underpass\_58 (L2), Vetrix\_67 (L2),

Start 72:

- Found in 4 of 383 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 337
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Clawz\_89 (CP),

Start 73:

- Found in 8 of 383 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 3 of 337
- Called 37.5% of time when present
- Phage (with cluster) where this start called: Antrice\_34 (AS2), Cygnet\_31 (AS2), Zhuangyuan\_34 (AS2),

Start 74:

- Found in 7 of 383 ( 1.8% ) of genes in pham
- Manual Annotations of this start: 5 of 337
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Altostratus\_54 (FS), Hum25\_55 (FQ), Khuang\_54 (FS), Merpity\_54 (FQ), MrSmee\_53 (FQ), Pitbull\_53 (FQ), Skitty\_47 (FQ),

Start 77:

- Found in 4 of 383 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 337
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Andrew\_31 (AS3),

Start 78:

- Found in 8 of 383 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 4 of 337
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Cressida\_55 (EI), Matzah\_54 (EI), MementoMori\_53 (EI), Terij\_52 (EI),

Start 79:

- Found in 2 of 383 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 337
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Kozie\_51 (EI),

Start 80:

- Found in 3 of 383 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 3 of 337
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Octobien14\_72 (DU1), Rabbitrun\_72 (DU2), Trax\_71 (DU2),

Start 81:

- Found in 6 of 383 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 5 of 337
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AuntGwenStacy\_65 (Y), Bipper\_62 (Y), Cracklewink\_62 (Y), Faiyaz\_65 (Y), Hilltopfarm\_64 (Y), Typha\_64 (Y),

Start 82:

- Found in 1 of 383 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 337
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Stellammi\_92 (UNK),

Start 83:

- Found in 16 of 383 ( 4.2% ) of genes in pham
- Manual Annotations of this start: 16 of 337
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DaWorst\_65 (F1), Demsculpinboyz\_78 (F2), DillTech15\_63 (F1), DoRead\_69 (F1), DosHalletts\_67 (F1), Eish\_68 (F1), Emma\_67 (F1), Estave1\_70 (F1), Fancypants\_68 (F1), Karhdo\_64 (F1), Moonbeam\_64 (F1), Mozy\_75 (F1), Mutaforma13\_71 (F1), Wachhund\_66 (F1), Whouxphf\_62 (F1), Yorick\_64 (F1),

Start 84:

- Found in 1 of 383 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 337
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Catfish\_49 (CU5),

Start 85:

- Found in 2 of 383 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 2 of 337
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gaia\_85 (X), Nebkiss\_84 (X),

Start 87:

- Found in 28 of 383 ( 7.3% ) of genes in pham
- Manual Annotations of this start: 25 of 337
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ariel\_118 (J), BAKA\_122 (J), Bagrid\_123 (J), BearBQ\_70 (DN), Bobby\_115 (J), BotCity\_75 (DN), Courthouse\_113 (J), DmpstrDiver\_123 (J), Duke13\_117 (J), Ejimix\_117 (J), EricMillard\_114 (J), GAL1\_54 (singleton), Gonephishing\_112 (J), Halley\_125 (J), Hughesyang\_122 (J), Kalah2\_114 (J), Klein\_119 (J), LittleE\_122 (J), Minerva\_120 (J), Optimus\_113 (J), Phabuloso\_75 (DN1), Pound\_112 (J), Redno2\_116 (J), Squint\_116 (J), Superphikiman\_115 (J), ThreeRngTarjay\_118 (J), Wanda\_122 (J), Zelink\_117 (J),

Start 88:

- Found in 19 of 383 ( 5.0% ) of genes in pham
- Manual Annotations of this start: 11 of 337
- Called 73.7% of time when present
- Phage (with cluster) where this start called: Aegeus\_71 (L5), Baudelaire\_71 (L5), DonTron\_91 (CP), Dulcita\_67 (M1), FreakyGoo\_67 (M1), Glaske16\_67 (M1), Grumio\_93 (CP), Izel\_67 (M1), Jollymon\_90 (CP), Makar\_95 (CP), MrMagoo\_76 (M2), Purplicious\_92 (CP), Soos\_87 (CP), Sting\_90 (CP),

Start 89:

- Found in 6 of 383 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 2 of 337
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bazzle\_67 (L2), Douge\_65 (L4), Douzhi\_65 (L4), FarmResident\_67 (L4), PYPDinur\_63 (L4), Quby\_65 (L4),

Start 90:

- Found in 203 of 383 ( 53.0% ) of genes in pham
- Manual Annotations of this start: 175 of 337

- Called 96.6% of time when present
- Phage (with cluster) where this start called: 244\_78 (E), ABCat\_74 (E), Adnama\_81 (E), Amao\_77 (E), AmericanBeauty\_81 (E), Argent26\_81 (E), Asriel\_76 (E), AvadaKedavra\_66 (L1), BaboJay\_74 (E), BadStone\_74 (E), Balomoji\_77 (E), Baoshan\_66 (L2), Barbarian\_76 (E), Bask21\_77 (E), Becksu\_76 (E), Beem\_125 (J), Bench\_80 (E), BigBubba\_77 (E), BilboSwaggins\_75 (E), Bogg\_77 (E), Breezona\_67 (L2), Brewer\_73 (E), BritBrat\_66 (CY2), Bruin\_74 (E), Buck\_78 (E), Budgie\_83 (E), BugsBunny\_77 (E), Cactus\_80 (E), CheeseTouch\_74 (DN1), ChosenOne\_77 (E), ChotaBhai\_77 (E), ChutneyChips\_65 (L4), Cjw1\_77 (E), Claus\_67 (L2), Command613\_79 (E), Constella\_107 (J), Contagion\_73 (E), Cookies\_74 (E), Crossroads\_67 (L2), CrystalP\_76 (E), Czystoczon1\_78 (E), Daikon\_79 (E), Dallas\_124 (J), DanBing\_68 (L2), DoctorDiddles\_76 (E), Dove\_109 (J), DrDrey\_77 (E), Dumbo\_77 (E), Dusk\_74 (E), Easy2Say\_78 (E), Ecliptus\_75 (DN), Elite2014\_76 (E), Elph10\_77 (E), Emmina\_77 (E), Eureka\_75 (E), FairyPath\_78 (E), Filch\_78 (E), Finemlucis\_67 (L2), FireRed\_81 (E), Flypotenuse\_73 (E), FoghornLeghorn\_71 (E), Gabriela\_64 (L2), Gage\_79 (E), Gardann\_68 (L2), Gator\_75 (E), Gemini\_82 (E), Glexan\_76 (E), Goku\_75 (E), GoldenSpark\_81 (E), Goldilocks\_80 (E), GooberAzure\_80 (E), Greep\_81 (E), GuuelaD\_66 (L2), Hafay\_69 (L2), HanKaySha\_77 (E), Harella\_77 (E), Henry\_75 (E), Highbury\_76 (E), Holt\_82 (E), Hoonter\_80 (E), Hopey\_77 (E), Horus\_72 (DN1), HufflyPuff\_80 (E), IHOP\_75 (E), Icee\_78 (E), Inca\_74 (E), Itos\_66 (L2), JeTaime\_77 (E), JuicyJay\_120 (J), Kahlid\_67 (L2), Kanye\_74 (E), Kimchi\_81 (E), Kostya\_77 (E), Kuwabara\_72 (DN4), LilDestine\_67 (L2), Lilac\_79 (E), Lilizi\_78 (E), Lilpickle\_76 (E), LitninMcQueen\_71 (DN1), Liveloughbron\_79 (E), Loadrie\_66 (L2), Lynnae\_69 (L2), MISSy\_78 (E), MPhalcon\_78 (E), MadamMonkfish\_77 (E), Manda\_78 (E), Marshmallow\_75 (E), Maxxinista\_79 (E), MiaZeal\_118 (J), Miley16\_67 (L2), Mindy\_76 (E), Miniwave\_72 (E), Misfit\_78 (E), MkaliMitinis3\_68 (L2), Moldemort\_80 (E), MollyToe\_72 (E), Mosby\_73 (E), Murica\_80 (E), Murphy\_77 (E), Myrale\_77 (E), Nala\_79 (E), NelitzaMV\_75 (E), NihilNomen\_125 (J), Nimrod\_78 (E), NoSleep\_78 (E), NonchalantPear\_77 (E), ODay\_78 (DN), OrionPax\_76 (E), OverPar\_69 (L2), PaddyBaddy\_77 (E), Palpatine\_79 (E), Paperbeatsrock\_76 (E), Pat3\_75 (E), Petra64142\_81 (E), Phaja\_75 (E), PhaoMing\_57 (UNK), Pharsalus\_74 (E), PhatBacter\_81 (E), Phaux\_79 (E), Phoebus\_124 (J), Phrux\_74 (E), Policronamos\_80 (E), Porky\_76 (E), Ptowny\_74 (E), Pumpkin\_80 (E), Quallification\_78 (E), Rakim\_78 (E), Rimmer\_78 (E), RiverMonster\_77 (E), Rose5\_66 (L1), Rossetti\_69 (L2), Rumpelstiltskin\_66 (L2), Saints25\_76 (E), Sarshaun\_68 (L2), Sassay\_72 (E), ShamWow\_77 (E), Simpliphy\_76 (E), SirDuracell\_76 (E), SophKB\_74 (E), Sotrice96\_78 (E), Spooky\_68 (DN2), Squiddly\_73 (DN2), Stank\_80 (E), Stark\_78 (E), StellaBean\_75 (E), StolenFromERC\_80 (E), StormChicken\_79 (E), TBrady12\_80 (E), Tarkin\_76 (E), TeamEdward\_79 (E), TeardropMSU\_73 (E), Teaspoon\_78 (E), Terminus\_80 (E), Thibault\_106 (J), Thimble\_78 (E), Thresher\_79 (E), Tomaszewski\_72 (E), Toto\_75 (E), Tourach\_66 (L2), Traaww1\_73 (E), Tuco\_78 (E), Tyson\_67 (L1), Ukulele\_72 (E), Wamburggrxpress\_66 (L1), Wiggin\_79 (E), Wigglewiggles\_67 (L2), Wilder\_68 (L2), Willez\_72 (E), Winky\_67 (L2), Wyatt2\_67 (L1), Xandras\_76 (E), YassJohnny\_74 (E), Youngblood\_80 (E), Zakai\_68 (L2), ZhongYanYuan\_66 (L2), xkcd\_80 (E),

Start 91:

- Found in 17 of 383 ( 4.4% ) of genes in pham
- Manual Annotations of this start: 1 of 337
- Called 5.9% of time when present
- Phage (with cluster) where this start called: Keelan\_96 (DP),

#### Start 92:

- Found in 7 of 383 ( 1.8% ) of genes in pham
- No Manual Annotations of this start.
- Called 57.1% of time when present
- Phage (with cluster) where this start called: Amo99\_93 (CP), ColdSoup\_93 (CP), KingstonB\_93 (CP), Stillion\_92 (CP),

#### Start 96:

- Found in 5 of 383 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 4 of 337
- Called 80.0% of time when present
- Phage (with cluster) where this start called: Fryberger\_95 (DP), Guey18\_100 (DP), Ronaldo\_98 (DP), Volt\_99 (DP),

#### Start 97:

- Found in 38 of 383 ( 9.9% ) of genes in pham
- Manual Annotations of this start: 20 of 337
- Called 55.3% of time when present
- Phage (with cluster) where this start called: Beelzebub\_73 (S), Blackbeetle\_69 (S), Caprice\_64 (S), Clarkson\_70 (S), Corazon\_67 (S), FeliMaine\_71 (S), Gattaca\_67 (S), GoongGoong\_68 (S), Huphlepuuff\_71 (S), JoieB\_70 (S), Lilbit\_67 (S), LittleLaf\_69 (S), Marvin\_65 (S), MiniMac\_69 (L3), MosMoris\_66 (S), Poise\_69 (S), Pringar\_68 (S), Raela\_69 (S), RedRaider77\_68 (S), Tesla\_66 (S), VasuNzinga\_68 (S),

### **Summary by clusters:**

There are 32 clusters represented in this pham: DN, FQ, singleton, FS, CY2, V, M1, M2, EI, DP, CU5, UNK, DN4, DN1, DN2, DU1, DU2, AS3, AS2, E, J, L4, L5, L2, L3, L1, Y, X, CP, F1, F2, S,

#### Info for manual annotations of cluster AS2:

- Start number 69 was manually annotated 12 times for cluster AS2.
- Start number 73 was manually annotated 3 times for cluster AS2.

#### Info for manual annotations of cluster AS3:

- Start number 69 was manually annotated 13 times for cluster AS3.
- Start number 77 was manually annotated 1 time for cluster AS3.

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

- Start number 72 was manually annotated 1 time for cluster CP.
- Start number 88 was manually annotated 4 times for cluster CP.

#### Info for manual annotations of cluster CU5:

- Start number 84 was manually annotated 1 time for cluster CU5.

#### Info for manual annotations of cluster CY2:

- Start number 90 was manually annotated 1 time for cluster CY2.

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

- Start number 87 was manually annotated 2 times for cluster DN.
- Start number 90 was manually annotated 2 times for cluster DN.

#### Info for manual annotations of cluster DN1:

- Start number 87 was manually annotated 1 time for cluster DN1.
- Start number 90 was manually annotated 3 times for cluster DN1.

Info for manual annotations of cluster DN2:

- Start number 90 was manually annotated 2 times for cluster DN2.

Info for manual annotations of cluster DN4:

- Start number 90 was manually annotated 1 time for cluster DN4.

Info for manual annotations of cluster DP:

- Start number 91 was manually annotated 1 time for cluster DP.
- Start number 96 was manually annotated 4 times for cluster DP.

Info for manual annotations of cluster DU1:

- Start number 80 was manually annotated 1 time for cluster DU1.

Info for manual annotations of cluster DU2:

- Start number 80 was manually annotated 2 times for cluster DU2.

Info for manual annotations of cluster E:

- Start number 90 was manually annotated 131 times for cluster E.

Info for manual annotations of cluster EI:

- Start number 78 was manually annotated 4 times for cluster EI.
- Start number 79 was manually annotated 1 time for cluster EI.

Info for manual annotations of cluster F1:

- Start number 83 was manually annotated 15 times for cluster F1.

Info for manual annotations of cluster F2:

- Start number 83 was manually annotated 1 time for cluster F2.

Info for manual annotations of cluster FQ:

- Start number 74 was manually annotated 4 times for cluster FQ.

Info for manual annotations of cluster FS:

- Start number 74 was manually annotated 1 time for cluster FS.

Info for manual annotations of cluster J:

- Start number 65 was manually annotated 1 time for cluster J.
- Start number 68 was manually annotated 1 time for cluster J.
- Start number 87 was manually annotated 22 times for cluster J.
- Start number 90 was manually annotated 9 times for cluster J.

Info for manual annotations of cluster L1:

- Start number 90 was manually annotated 5 times for cluster L1.

Info for manual annotations of cluster L2:

- Start number 56 was manually annotated 1 time for cluster L2.
- Start number 71 was manually annotated 6 times for cluster L2.
- Start number 89 was manually annotated 1 time for cluster L2.
- Start number 90 was manually annotated 20 times for cluster L2.

Info for manual annotations of cluster L3:

- Start number 56 was manually annotated 15 times for cluster L3.
- Start number 97 was manually annotated 1 time for cluster L3.

Info for manual annotations of cluster L4:

- Start number 56 was manually annotated 1 time for cluster L4.
- Start number 89 was manually annotated 1 time for cluster L4.
- Start number 90 was manually annotated 1 time for cluster L4.

Info for manual annotations of cluster L5:

- Start number 88 was manually annotated 2 times for cluster L5.

Info for manual annotations of cluster M1:

- Start number 88 was manually annotated 4 times for cluster M1.

Info for manual annotations of cluster M2:

- Start number 88 was manually annotated 1 time for cluster M2.

Info for manual annotations of cluster S:

- Start number 97 was manually annotated 19 times for cluster S.

Info for manual annotations of cluster UNK:

- Start number 82 was manually annotated 1 time for cluster UNK.

Info for manual annotations of cluster V:

- Start number 66 was manually annotated 5 times for cluster V.

Info for manual annotations of cluster X:

- Start number 85 was manually annotated 2 times for cluster X.

Info for manual annotations of cluster Y:

- Start number 81 was manually annotated 5 times for cluster Y.

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

Gene: 244\_78 Start: 48609, Stop: 48926, Start Num: 90

Candidate Starts for 244\_78:

(34, 48426), (Start: 90 @48609 has 175 MA's), (124, 48750),

Gene: ABCat\_74 Start: 48962, Stop: 49279, Start Num: 90

Candidate Starts for ABCat\_74:

(34, 48779), (Start: 90 @48962 has 175 MA's), (124, 49103),

Gene: Adnama\_81 Start: 48988, Stop: 49305, Start Num: 90

Candidate Starts for Adnama\_81:

(34, 48805), (Start: 90 @48988 has 175 MA's), (124, 49129),

Gene: Aegeus\_71 Start: 46495, Stop: 46824, Start Num: 88

Candidate Starts for Aegeus\_71:

(Start: 88 @46495 has 11 MA's), (114, 46579), (137, 46717), (142, 46744), (143, 46750), (149, 46774), (161, 46813),

Gene: Altostratus\_54 Start: 31416, Stop: 31790, Start Num: 74  
Candidate Starts for Altostratus\_54:  
(Start: 74 @31416 has 5 MA's), (125, 31569), (162, 31749), (168, 31761),

Gene: Amao\_77 Start: 48382, Stop: 48699, Start Num: 90  
Candidate Starts for Amao\_77:  
(34, 48199), (Start: 90 @48382 has 175 MA's), (Start: 97 @48406 has 20 MA's), (124, 48523),

Gene: Amelia\_32 Start: 21518, Stop: 21165, Start Num: 69  
Candidate Starts for Amelia\_32:  
(38, 21644), (44, 21605), (Start: 69 @21518 has 25 MA's), (116, 21389), (123, 21344), (145, 21224),

Gene: AmericanBeauty\_81 Start: 49131, Stop: 49448, Start Num: 90  
Candidate Starts for AmericanBeauty\_81:  
(34, 48948), (Start: 90 @49131 has 175 MA's), (124, 49272),

Gene: AmiCi24\_29 Start: 20870, Stop: 20517, Start Num: 69  
Candidate Starts for AmiCi24\_29:  
(1, 21272), (25, 21122), (53, 20927), (Start: 69 @20870 has 25 MA's), (Start: 91 @20837 has 1 MA's),  
(116, 20741),

Gene: Amo99\_93 Start: 57523, Stop: 57891, Start Num: 92  
Candidate Starts for Amo99\_93:  
(31, 57298), (Start: 88 @57511 has 11 MA's), (92, 57523), (142, 57772), (145, 57781), (152, 57805),  
(153, 57811), (167, 57853),

Gene: Amphitrite\_30 Start: 20869, Stop: 20516, Start Num: 69  
Candidate Starts for Amphitrite\_30:  
(1, 21271), (25, 21121), (53, 20926), (Start: 69 @20869 has 25 MA's), (Start: 91 @20836 has 1 MA's),  
(116, 20740),

Gene: Andrew\_31 Start: 20815, Stop: 20462, Start Num: 77  
Candidate Starts for Andrew\_31:  
(2, 21166), (53, 20890), (Start: 77 @20815 has 1 MA's), (116, 20686), (145, 20521),

Gene: Antrice\_34 Start: 22599, Stop: 22243, Start Num: 73  
Candidate Starts for Antrice\_34:  
(38, 22743), (53, 22668), (Start: 73 @22599 has 3 MA's), (Start: 91 @22563 has 1 MA's), (111, 22491),  
(116, 22467),

Gene: Archie\_67 Start: 46551, Stop: 46892, Start Num: 56  
Candidate Starts for Archie\_67:  
(Start: 56 @46551 has 17 MA's), (123, 46698),

Gene: Argent26\_81 Start: 48769, Stop: 49086, Start Num: 90  
Candidate Starts for Argent26\_81:  
(34, 48586), (Start: 90 @48769 has 175 MA's), (124, 48910),

Gene: Ariel\_118 Start: 64179, Stop: 64499, Start Num: 87  
Candidate Starts for Ariel\_118:  
(Start: 87 @64179 has 25 MA's), (107, 64248), (118, 64290), (137, 64407),

Gene: Asriel\_76 Start: 47325, Stop: 47642, Start Num: 90  
Candidate Starts for Asriel\_76:  
(34, 47142), (Start: 90 @47325 has 175 MA's), (124, 47466),

Gene: Atlantica\_30 Start: 20871, Stop: 20518, Start Num: 69  
Candidate Starts for Atlantica\_30:  
(1, 21273), (25, 21123), (53, 20928), (Start: 69 @20871 has 25 MA's), (Start: 91 @20838 has 1 MA's),  
(116, 20742),

Gene: AuntGwenStacy\_65 Start: 45161, Stop: 45511, Start Num: 81  
Candidate Starts for AuntGwenStacy\_65:  
(55, 45089), (62, 45119), (Start: 81 @45161 has 5 MA's), (86, 45176), (94, 45194), (106, 45242), (108,  
45248), (115, 45284), (130, 45368), (131, 45374), (135, 45404), (142, 45437),

Gene: AvadaKedavra\_66 Start: 45153, Stop: 45521, Start Num: 90  
Candidate Starts for AvadaKedavra\_66:  
(Start: 90 @45153 has 175 MA's), (99, 45180), (116, 45249), (120, 45270), (124, 45294), (137, 45375),  
(152, 45438), (170, 45513),

Gene: Azrael100\_76 Start: 48787, Stop: 49152, Start Num: 66  
Candidate Starts for Azrael100\_76:  
(49, 48724), (Start: 66 @48787 has 5 MA's), (128, 48979), (149, 49099), (160, 49132),

Gene: BAKA\_122 Start: 67774, Stop: 68106, Start Num: 87  
Candidate Starts for BAKA\_122:  
(Start: 87 @67774 has 25 MA's), (107, 67843), (127, 67933), (128, 67936), (137, 68002),

Gene: BaboJay\_74 Start: 48162, Stop: 48479, Start Num: 90  
Candidate Starts for BaboJay\_74:  
(34, 47979), (Start: 90 @48162 has 175 MA's), (124, 48303),

Gene: Babushka\_27 Start: 20785, Stop: 20432, Start Num: 69  
Candidate Starts for Babushka\_27:  
(25, 21037), (53, 20842), (Start: 69 @20785 has 25 MA's), (Start: 91 @20752 has 1 MA's), (116,  
20656), (125, 20605), (145, 20491), (149, 20467),

Gene: BadStone\_74 Start: 48531, Stop: 48848, Start Num: 90  
Candidate Starts for BadStone\_74:  
(34, 48348), (Start: 90 @48531 has 175 MA's), (124, 48672),

Gene: Bagrid\_123 Start: 67735, Stop: 68064, Start Num: 87  
Candidate Starts for Bagrid\_123:  
(Start: 87 @67735 has 25 MA's), (107, 67804), (137, 67963), (157, 68047),

Gene: Balomoji\_77 Start: 49092, Stop: 49409, Start Num: 90  
Candidate Starts for Balomoji\_77:  
(34, 48909), (Start: 90 @49092 has 175 MA's), (124, 49233),

Gene: Baoshan\_66 Start: 46306, Stop: 46692, Start Num: 90  
Candidate Starts for Baoshan\_66:  
(31, 46120), (37, 46153), (57, 46249), (Start: 71 @46288 has 6 MA's), (Start: 90 @46306 has 175  
MA's), (120, 46423), (125, 46450), (137, 46528), (171, 46675),

Gene: Barbarian\_76 Start: 47325, Stop: 47642, Start Num: 90  
Candidate Starts for Barbarian\_76:  
(34, 47142), (Start: 90 @47325 has 175 MA's), (124, 47466),

Gene: Bask21\_77 Start: 47945, Stop: 48262, Start Num: 90  
Candidate Starts for Bask21\_77:  
(34, 47762), (Start: 90 @47945 has 175 MA's), (Start: 97 @47969 has 20 MA's), (124, 48086),

Gene: Baudelaire\_71 Start: 46495, Stop: 46824, Start Num: 88  
Candidate Starts for Baudelaire\_71:  
(Start: 88 @46495 has 11 MA's), (114, 46579), (137, 46717), (142, 46744), (143, 46750), (149, 46774),  
(161, 46813),

Gene: Bazzle\_67 Start: 46701, Stop: 47099, Start Num: 89  
Candidate Starts for Bazzle\_67:  
(Start: 89 @46701 has 2 MA's), (120, 46818), (125, 46845), (137, 46923), (143, 46956), (171, 47070),

Gene: BearBQ\_70 Start: 44365, Stop: 44712, Start Num: 87  
Candidate Starts for BearBQ\_70:  
(50, 44251), (Start: 77 @44341 has 1 MA's), (Start: 87 @44365 has 25 MA's), (95, 44386), (101, 44404),  
(102, 44413), (118, 44488), (137, 44605), (142, 44635), (151, 44665), (159, 44692), (163, 44704),

Gene: Becksu\_76 Start: 49161, Stop: 49478, Start Num: 90  
Candidate Starts for Becksu\_76:  
(34, 48978), (Start: 90 @49161 has 175 MA's), (124, 49302),

Gene: Bedetta\_34 Start: 21656, Stop: 21303, Start Num: 69  
Candidate Starts for Bedetta\_34:  
(38, 21782), (44, 21743), (Start: 69 @21656 has 25 MA's), (116, 21527), (123, 21482), (145, 21362),

Gene: Beelzebub\_73 Start: 40109, Stop: 40462, Start Num: 97  
Candidate Starts for Beelzebub\_73:  
(Start: 97 @40109 has 20 MA's), (104, 40136), (129, 40271), (133, 40301), (144, 40352), (147, 40358),  
(150, 40373), (154, 40391), (164, 40415), (165, 40418),

Gene: Beem\_125 Start: 69590, Stop: 69922, Start Num: 90  
Candidate Starts for Beem\_125:  
(Start: 90 @69590 has 175 MA's), (119, 69701), (121, 69725), (158, 69905),

Gene: Bellis\_66 Start: 46470, Stop: 46802, Start Num: 56  
Candidate Starts for Bellis\_66:  
(13, 46194), (14, 46206), (18, 46215), (21, 46239), (30, 46317), (35, 46365), (Start: 56 @46470 has 17 MA's),  
(123, 46614), (137, 46698), (143, 46731),

Gene: Bench\_80 Start: 48629, Stop: 48946, Start Num: 90  
Candidate Starts for Bench\_80:  
(34, 48446), (Start: 90 @48629 has 175 MA's), (124, 48770),

Gene: BigBubba\_77 Start: 48341, Stop: 48658, Start Num: 90  
Candidate Starts for BigBubba\_77:  
(34, 48158), (Start: 90 @48341 has 175 MA's), (124, 48482),

Gene: BigCheese\_67 Start: 46345, Stop: 46764, Start Num: 71  
Candidate Starts for BigCheese\_67:  
(23, 46084), (31, 46177), (Start: 71 @46345 has 6 MA's), (Start: 90 @46363 has 175 MA's), (120, 46480), (125, 46507), (137, 46585), (171, 46732),

Gene: BilboSwaggins\_75 Start: 48970, Stop: 49287, Start Num: 90  
Candidate Starts for BilboSwaggins\_75:  
(34, 48787), (Start: 90 @48970 has 175 MA's), (124, 49111),

Gene: Bipper\_62 Start: 43632, Stop: 43982, Start Num: 81  
Candidate Starts for Bipper\_62:  
(28, 43371), (39, 43479), (40, 43488), (55, 43560), (62, 43590), (Start: 81 @43632 has 5 MA's), (86, 43647), (93, 43662), (100, 43680), (106, 43713), (115, 43755), (134, 43869), (149, 43935),

Gene: Blackbeetle\_69 Start: 39121, Stop: 39474, Start Num: 97  
Candidate Starts for Blackbeetle\_69:  
(Start: 97 @39121 has 20 MA's), (104, 39148), (129, 39283), (133, 39313), (144, 39364), (147, 39370), (150, 39385), (154, 39403), (164, 39427), (165, 39430),

Gene: Bobby\_115 Start: 69193, Stop: 69522, Start Num: 87  
Candidate Starts for Bobby\_115:  
(Start: 87 @69193 has 25 MA's), (107, 69262), (127, 69352), (128, 69355), (137, 69421), (157, 69505),

Gene: BobsGarage\_67 Start: 46345, Stop: 46764, Start Num: 71  
Candidate Starts for BobsGarage\_67:  
(23, 46084), (31, 46177), (Start: 71 @46345 has 6 MA's), (Start: 90 @46363 has 175 MA's), (120, 46480), (125, 46507), (137, 46585), (171, 46732),

Gene: Bogg\_77 Start: 47908, Stop: 48225, Start Num: 90  
Candidate Starts for Bogg\_77:  
(34, 47725), (Start: 90 @47908 has 175 MA's), (124, 48049),

Gene: BotCity\_75 Start: 44601, Stop: 44948, Start Num: 87  
Candidate Starts for BotCity\_75:  
(50, 44487), (Start: 77 @44577 has 1 MA's), (Start: 87 @44601 has 25 MA's), (95, 44622), (101, 44640), (102, 44649), (118, 44724), (137, 44841), (142, 44871), (151, 44901), (159, 44928), (163, 44940),

Gene: BourbonZero\_66 Start: 46515, Stop: 46847, Start Num: 56  
Candidate Starts for BourbonZero\_66:  
(35, 46410), (Start: 56 @46515 has 17 MA's), (120, 46638), (125, 46665), (137, 46743), (145, 46779), (156, 46824),

Gene: Breezona\_67 Start: 46363, Stop: 46764, Start Num: 90  
Candidate Starts for Breezona\_67:  
(23, 46084), (31, 46177), (Start: 71 @46345 has 6 MA's), (Start: 90 @46363 has 175 MA's), (120, 46480), (125, 46507), (137, 46585), (171, 46732),

Gene: Brewer\_73 Start: 47431, Stop: 47748, Start Num: 90  
Candidate Starts for Brewer\_73:  
(34, 47248), (Start: 90 @47431 has 175 MA's), (124, 47572),

Gene: BritBrat\_66 Start: 43849, Stop: 44178, Start Num: 90

Candidate Starts for BritBrat\_66:

(48, 43735), (Start: 78 @43825 has 4 MA's), (Start: 90 @43849 has 175 MA's), (120, 43963), (123, 43984), (137, 44068), (141, 44092), (159, 44158), (163, 44170),

Gene: Bromden\_67 Start: 46292, Stop: 46696, Start Num: 56

Candidate Starts for Bromden\_67:

(20, 46049), (21, 46061), (26, 46079), (30, 46139), (43, 46238), (Start: 56 @46292 has 17 MA's), (120, 46415), (125, 46442), (156, 46601),

Gene: Bruin\_74 Start: 47505, Stop: 47822, Start Num: 90

Candidate Starts for Bruin\_74:

(34, 47322), (Start: 90 @47505 has 175 MA's), (124, 47646),

Gene: Buck\_78 Start: 49210, Stop: 49527, Start Num: 90

Candidate Starts for Buck\_78:

(34, 49027), (Start: 90 @49210 has 175 MA's), (124, 49351),

Gene: Budgie\_83 Start: 49000, Stop: 49317, Start Num: 90

Candidate Starts for Budgie\_83:

(3, 48439), (4, 48445), (5, 48532), (34, 48817), (Start: 90 @49000 has 175 MA's), (Start: 97 @49024 has 20 MA's), (124, 49141),

Gene: BugsBunny\_77 Start: 49037, Stop: 49354, Start Num: 90

Candidate Starts for BugsBunny\_77:

(34, 48854), (Start: 90 @49037 has 175 MA's), (124, 49178),

Gene: Cactus\_80 Start: 47986, Stop: 48303, Start Num: 90

Candidate Starts for Cactus\_80:

(34, 47803), (Start: 90 @47986 has 175 MA's), (124, 48127),

Gene: Caprice\_64 Start: 39435, Stop: 39788, Start Num: 97

Candidate Starts for Caprice\_64:

(Start: 97 @39435 has 20 MA's), (104, 39462), (129, 39597), (133, 39627), (144, 39678), (147, 39684), (150, 39699), (154, 39717), (164, 39741), (165, 39744),

Gene: Catfish\_49 Start: 34051, Stop: 34401, Start Num: 84

Candidate Starts for Catfish\_49:

(Start: 84 @34051 has 1 MA's), (Start: 96 @34084 has 4 MA's), (118, 34174), (122, 34198), (142, 34324), (159, 34384),

Gene: CheeseTouch\_74 Start: 39429, Stop: 39758, Start Num: 90

Candidate Starts for CheeseTouch\_74:

(Start: 90 @39429 has 175 MA's), (120, 39543), (123, 39564), (137, 39648), (141, 39672), (152, 39711), (159, 39738), (163, 39750),

Gene: ChosenOne\_77 Start: 47986, Stop: 48303, Start Num: 90

Candidate Starts for ChosenOne\_77:

(34, 47803), (Start: 90 @47986 has 175 MA's), (124, 48127),

Gene: ChotaBhai\_77 Start: 48310, Stop: 48627, Start Num: 90

Candidate Starts for ChotaBhai\_77:

(34, 48127), (Start: 90 @48310 has 175 MA's), (Start: 97 @48334 has 20 MA's), (124, 48451),

Gene: ChutneyChips\_65 Start: 45296, Stop: 45694, Start Num: 90  
Candidate Starts for ChutneyChips\_65:  
(11, 44936), (15, 44954), (20, 44972), (26, 45002), (30, 45062), (Start: 73 @45263 has 3 MA's), (Start: 90 @45296 has 175 MA's), (120, 45413), (125, 45440), (156, 45599), (171, 45665),

Gene: Cjw1\_77 Start: 49683, Stop: 50000, Start Num: 90  
Candidate Starts for Cjw1\_77:  
(34, 49500), (Start: 90 @49683 has 175 MA's), (124, 49824),

Gene: Clarkson\_70 Start: 39837, Stop: 40190, Start Num: 97  
Candidate Starts for Clarkson\_70:  
(Start: 97 @39837 has 20 MA's), (104, 39864), (129, 39999), (133, 40029), (144, 40080), (147, 40086), (150, 40101), (154, 40119), (164, 40143), (165, 40146),

Gene: Claus\_67 Start: 46444, Stop: 46830, Start Num: 90  
Candidate Starts for Claus\_67:  
(31, 46258), (57, 46387), (Start: 71 @46426 has 6 MA's), (Start: 90 @46444 has 175 MA's), (120, 46561), (125, 46588), (137, 46666), (171, 46813),

Gene: Clautastrophe\_65 Start: 46467, Stop: 46799, Start Num: 56  
Candidate Starts for Clautastrophe\_65:  
(13, 46191), (14, 46203), (18, 46212), (21, 46236), (30, 46314), (35, 46362), (Start: 56 @46467 has 17 MA's), (123, 46611), (137, 46695), (143, 46728),

Gene: Clawz\_89 Start: 57153, Stop: 57563, Start Num: 72  
Candidate Starts for Clawz\_89:  
(55, 57102), (58, 57108), (59, 57114), (61, 57126), (Start: 72 @57153 has 1 MA's), (Start: 88 @57183 has 11 MA's), (142, 57444), (145, 57453), (166, 57522), (169, 57540),

Gene: ColdSoup\_93 Start: 57604, Stop: 57972, Start Num: 92  
Candidate Starts for ColdSoup\_93:  
(31, 57379), (Start: 88 @57592 has 11 MA's), (92, 57604), (142, 57853), (145, 57862), (152, 57886), (153, 57892), (167, 57934),

Gene: Colusalem\_32 Start: 21495, Stop: 21142, Start Num: 69  
Candidate Starts for Colusalem\_32:  
(38, 21621), (44, 21582), (Start: 69 @21495 has 25 MA's), (116, 21366), (123, 21321), (145, 21201),

Gene: Command613\_79 Start: 49025, Stop: 49342, Start Num: 90  
Candidate Starts for Command613\_79:  
(34, 48842), (Start: 90 @49025 has 175 MA's), (124, 49166),

Gene: Constella\_107 Start: 63055, Stop: 63387, Start Num: 90  
Candidate Starts for Constella\_107:  
(Start: 90 @63055 has 175 MA's), (119, 63166), (121, 63190), (158, 63370),

Gene: Contagion\_73 Start: 47786, Stop: 48103, Start Num: 90  
Candidate Starts for Contagion\_73:  
(34, 47603), (Start: 90 @47786 has 175 MA's), (124, 47927),

Gene: Cookies\_74 Start: 48167, Stop: 48484, Start Num: 90  
Candidate Starts for Cookies\_74:  
(34, 47984), (Start: 90 @48167 has 175 MA's), (Start: 97 @48191 has 20 MA's), (124, 48308),

Gene: Coral\_31 Start: 21357, Stop: 21004, Start Num: 69

Candidate Starts for Coral\_31:

(38, 21483), (44, 21444), (Start: 69 @21357 has 25 MA's), (116, 21228), (123, 21183), (145, 21063),

Gene: Corazon\_67 Start: 40031, Stop: 40384, Start Num: 97

Candidate Starts for Corazon\_67:

(Start: 97 @40031 has 20 MA's), (104, 40058), (129, 40193), (133, 40223), (144, 40274), (147, 40280), (150, 40295), (154, 40313), (164, 40337), (165, 40340),

Gene: Cosmo\_77 Start: 48788, Stop: 49153, Start Num: 66

Candidate Starts for Cosmo\_77:

(49, 48725), (Start: 66 @48788 has 5 MA's), (128, 48980), (149, 49100), (160, 49133),

Gene: Cote\_33 Start: 21834, Stop: 21481, Start Num: 69

Candidate Starts for Cote\_33:

(38, 21960), (44, 21921), (Start: 69 @21834 has 25 MA's), (116, 21705), (123, 21660), (145, 21540),

Gene: Courthouse\_113 Start: 63779, Stop: 64099, Start Num: 87

Candidate Starts for Courthouse\_113:

(Start: 87 @63779 has 25 MA's), (107, 63848), (118, 63890), (137, 64007),

Gene: Cracklewink\_62 Start: 43613, Stop: 43963, Start Num: 81

Candidate Starts for Cracklewink\_62:

(28, 43352), (39, 43460), (40, 43469), (55, 43541), (62, 43571), (Start: 81 @43613 has 5 MA's), (86, 43628), (100, 43661), (106, 43694), (115, 43736), (134, 43850), (149, 43916),

Gene: Cressida\_55 Start: 36599, Stop: 36934, Start Num: 78

Candidate Starts for Cressida\_55:

(7, 36272), (8, 36275), (10, 36281), (17, 36305), (19, 36314), (53, 36542), (70, 36587), (Start: 73 @36599 has 3 MA's), (Start: 78 @36599 has 4 MA's), (94, 36626), (117, 36716), (120, 36734), (132, 36809), (137, 36839), (142, 36866),

Gene: Crossroads\_67 Start: 46441, Stop: 46839, Start Num: 90

Candidate Starts for Crossroads\_67:

(23, 46162), (31, 46255), (Start: 71 @46423 has 6 MA's), (Start: 90 @46441 has 175 MA's), (125, 46585), (137, 46663), (171, 46810),

Gene: CrystalP\_76 Start: 48970, Stop: 49287, Start Num: 90

Candidate Starts for CrystalP\_76:

(34, 48787), (Start: 90 @48970 has 175 MA's), (124, 49111),

Gene: Cygnet\_31 Start: 22172, Stop: 21816, Start Num: 73

Candidate Starts for Cygnet\_31:

(38, 22316), (53, 22241), (Start: 73 @22172 has 3 MA's), (Start: 91 @22136 has 1 MA's), (102, 22097), (111, 22064), (116, 22040),

Gene: Czyszczone1\_78 Start: 48492, Stop: 48809, Start Num: 90

Candidate Starts for Czyszczone1\_78:

(34, 48309), (Start: 90 @48492 has 175 MA's), (124, 48633),

Gene: DHan\_68 Start: 46287, Stop: 46730, Start Num: 57

Candidate Starts for DHan\_68:

(31, 46158), (57, 46287), (Start: 71 @46326 has 6 MA's), (Start: 90 @46344 has 175 MA's), (120, 46461), (125, 46488), (137, 46566), (171, 46713),

Gene: DaWorst\_65 Start: 42022, Stop: 42384, Start Num: 83

Candidate Starts for DaWorst\_65:

(Start: 83 @42022 has 16 MA's), (123, 42181), (149, 42322), (163, 42367),

Gene: Daikon\_79 Start: 49113, Stop: 49430, Start Num: 90

Candidate Starts for Daikon\_79:

(34, 48930), (Start: 90 @49113 has 175 MA's), (124, 49254),

Gene: Dallas\_124 Start: 69105, Stop: 69437, Start Num: 90

Candidate Starts for Dallas\_124:

(Start: 90 @69105 has 175 MA's), (119, 69216), (121, 69240), (158, 69420),

Gene: DanBing\_68 Start: 46313, Stop: 46699, Start Num: 90

Candidate Starts for DanBing\_68:

(31, 46127), (57, 46256), (Start: 71 @46295 has 6 MA's), (Start: 90 @46313 has 175 MA's), (120, 46430), (125, 46457), (137, 46535), (171, 46682),

Gene: DanHam62\_30 Start: 20871, Stop: 20518, Start Num: 69

Candidate Starts for DanHam62\_30:

(1, 21273), (25, 21123), (53, 20928), (Start: 69 @20871 has 25 MA's), (Start: 91 @20838 has 1 MA's), (116, 20742),

Gene: Daob\_33 Start: 21852, Stop: 21499, Start Num: 69

Candidate Starts for Daob\_33:

(38, 21978), (44, 21939), (Start: 69 @21852 has 25 MA's), (116, 21723), (145, 21558),

Gene: Demsculpinboyz\_78 Start: 42611, Stop: 42973, Start Num: 83

Candidate Starts for Demsculpinboyz\_78:

(Start: 83 @42611 has 16 MA's), (130, 42815), (149, 42911), (163, 42956),

Gene: DillTech15\_63 Start: 40922, Stop: 41284, Start Num: 83

Candidate Starts for DillTech15\_63:

(Start: 72 @40907 has 1 MA's), (Start: 83 @40922 has 16 MA's), (149, 41222), (163, 41267),

Gene: DmpstrDiver\_123 Start: 68024, Stop: 68353, Start Num: 87

Candidate Starts for DmpstrDiver\_123:

(Start: 87 @68024 has 25 MA's), (107, 68093), (137, 68252), (157, 68336),

Gene: DoRead\_69 Start: 42341, Stop: 42703, Start Num: 83

Candidate Starts for DoRead\_69:

(54, 42263), (58, 42272), (Start: 65 @42305 has 1 MA's), (Start: 83 @42341 has 16 MA's), (163, 42686),

Gene: DoctorDiddles\_76 Start: 48354, Stop: 48671, Start Num: 90

Candidate Starts for DoctorDiddles\_76:

(34, 48171), (Start: 90 @48354 has 175 MA's), (Start: 97 @48378 has 20 MA's), (124, 48495),

Gene: DonTron\_91 Start: 57708, Stop: 58088, Start Num: 88

Candidate Starts for DonTron\_91:

(27, 57420), (31, 57495), (47, 57582), (Start: 88 @57708 has 11 MA's), (92, 57720), (142, 57969), (145, 57978), (152, 58002), (153, 58008), (167, 58050),

Gene: DosHalletts\_67 Start: 43303, Stop: 43665, Start Num: 83

Candidate Starts for DosHalletts\_67:

(Start: 83 @43303 has 16 MA's), (123, 43462), (149, 43603), (151, 43606), (163, 43648),

Gene: Douge\_65 Start: 45034, Stop: 45432, Start Num: 89

Candidate Starts for Douge\_65:

(62, 44974), (76, 45007), (Start: 89 @45034 has 2 MA's), (120, 45151), (125, 45178), (156, 45337),

Gene: Douzhi\_65 Start: 45087, Stop: 45485, Start Num: 89

Candidate Starts for Douzhi\_65:

(Start: 89 @45087 has 2 MA's), (125, 45231), (156, 45390),

Gene: Dove\_109 Start: 64018, Stop: 64350, Start Num: 90

Candidate Starts for Dove\_109:

(Start: 90 @64018 has 175 MA's), (119, 64129), (121, 64153), (158, 64333),

Gene: DrDrey\_77 Start: 49411, Stop: 49728, Start Num: 90

Candidate Starts for DrDrey\_77:

(34, 49228), (Start: 90 @49411 has 175 MA's), (124, 49552),

Gene: Duke13\_117 Start: 65442, Stop: 65774, Start Num: 87

Candidate Starts for Duke13\_117:

(Start: 87 @65442 has 25 MA's), (107, 65511), (127, 65601), (128, 65604), (137, 65670),

Gene: Dulcita\_67 Start: 43444, Stop: 43842, Start Num: 88

Candidate Starts for Dulcita\_67:

(70, 43423), (Start: 88 @43444 has 11 MA's), (103, 43492), (114, 43528), (142, 43693),

Gene: Dumbo\_77 Start: 47891, Stop: 48208, Start Num: 90

Candidate Starts for Dumbo\_77:

(34, 47708), (Start: 90 @47891 has 175 MA's), (124, 48032),

Gene: DuncansLeg\_66 Start: 46503, Stop: 46835, Start Num: 56

Candidate Starts for DuncansLeg\_66:

(35, 46398), (47, 46464), (Start: 56 @46503 has 17 MA's), (120, 46626), (125, 46653), (137, 46731), (145, 46767), (156, 46812),

Gene: Dusk\_74 Start: 48191, Stop: 48508, Start Num: 90

Candidate Starts for Dusk\_74:

(34, 48008), (Start: 90 @48191 has 175 MA's), (124, 48332),

Gene: Easy2Say\_78 Start: 49435, Stop: 49752, Start Num: 90

Candidate Starts for Easy2Say\_78:

(34, 49252), (Start: 90 @49435 has 175 MA's), (124, 49576),

Gene: Ecliptus\_75 Start: 44750, Stop: 45079, Start Num: 90

Candidate Starts for Ecliptus\_75:

(Start: 90 @44750 has 175 MA's), (120, 44864), (123, 44885), (137, 44969), (141, 44993), (152, 45032), (159, 45059), (163, 45071),

Gene: Eish\_68 Start: 42537, Stop: 42899, Start Num: 83

Candidate Starts for Eish\_68:

(Start: 83 @42537 has 16 MA's), (123, 42696), (149, 42837), (151, 42840), (163, 42882),

Gene: Ejimix\_117 Start: 69176, Stop: 69505, Start Num: 87

Candidate Starts for Ejimix\_117:

(Start: 87 @69176 has 25 MA's), (107, 69245), (127, 69335), (128, 69338), (137, 69404), (157, 69488),

Gene: Elite2014\_76 Start: 47985, Stop: 48302, Start Num: 90

Candidate Starts for Elite2014\_76:

(34, 47802), (Start: 90 @47985 has 175 MA's), (124, 48126),

Gene: Elph10\_77 Start: 47990, Stop: 48307, Start Num: 90

Candidate Starts for Elph10\_77:

(34, 47807), (Start: 90 @47990 has 175 MA's), (124, 48131),

Gene: Emma\_67 Start: 42045, Stop: 42407, Start Num: 83

Candidate Starts for Emma\_67:

(Start: 83 @42045 has 16 MA's), (98, 42087), (123, 42204), (149, 42345), (163, 42390),

Gene: Emmina\_77 Start: 47892, Stop: 48209, Start Num: 90

Candidate Starts for Emmina\_77:

(34, 47709), (Start: 90 @47892 has 175 MA's), (124, 48033),

Gene: EniyanLRS\_168 Start: 48527, Stop: 48892, Start Num: 66

Candidate Starts for EniyanLRS\_168:

(49, 48464), (Start: 66 @48527 has 5 MA's), (128, 48719), (149, 48839), (160, 48872),

Gene: EricMillard\_114 Start: 67411, Stop: 67743, Start Num: 87

Candidate Starts for EricMillard\_114:

(Start: 87 @67411 has 25 MA's), (107, 67480), (127, 67570), (128, 67573), (137, 67639),

Gene: Estave1\_70 Start: 44873, Stop: 45235, Start Num: 83

Candidate Starts for Estave1\_70:

(Start: 83 @44873 has 16 MA's), (123, 45032), (126, 45047), (149, 45173), (151, 45176), (163, 45218),

Gene: Eureka\_75 Start: 48456, Stop: 48773, Start Num: 90

Candidate Starts for Eureka\_75:

(34, 48273), (Start: 90 @48456 has 175 MA's), (124, 48597),

Gene: FairyPath\_78 Start: 49104, Stop: 49421, Start Num: 90

Candidate Starts for FairyPath\_78:

(34, 48921), (Start: 90 @49104 has 175 MA's), (Start: 97 @49128 has 20 MA's), (124, 49245),

Gene: Faiyaz\_65 Start: 45151, Stop: 45501, Start Num: 81

Candidate Starts for Faiyaz\_65:

(55, 45079), (62, 45109), (Start: 81 @45151 has 5 MA's), (86, 45166), (94, 45184), (106, 45232), (108, 45238), (115, 45274), (130, 45358), (135, 45394),

Gene: Fancypants\_68 Start: 43057, Stop: 43419, Start Num: 83

Candidate Starts for Fancypants\_68:

(Start: 72 @43042 has 1 MA's), (Start: 83 @43057 has 16 MA's), (123, 43216), (149, 43357), (163, 43402),

Gene: FarmResident\_67 Start: 45043, Stop: 45441, Start Num: 89  
Candidate Starts for FarmResident\_67:  
(Start: 89 @45043 has 2 MA's), (120, 45160), (125, 45187), (156, 45346),

Gene: FeliMaine\_71 Start: 40079, Stop: 40432, Start Num: 97  
Candidate Starts for FeliMaine\_71:  
(Start: 97 @40079 has 20 MA's), (104, 40106), (129, 40241), (133, 40271), (144, 40322), (147, 40328),  
(150, 40343), (154, 40361), (164, 40385), (165, 40388),

Gene: Filch\_78 Start: 47917, Stop: 48234, Start Num: 90  
Candidate Starts for Filch\_78:  
(34, 47734), (Start: 90 @47917 has 175 MA's), (124, 48058),

Gene: Finemlucis\_67 Start: 46684, Stop: 47085, Start Num: 90  
Candidate Starts for Finemlucis\_67:  
(23, 46405), (31, 46498), (Start: 71 @46666 has 6 MA's), (Start: 90 @46684 has 175 MA's), (120,  
46801), (125, 46828), (137, 46906), (171, 47053),

Gene: Fingolfin\_30 Start: 20872, Stop: 20519, Start Num: 69  
Candidate Starts for Fingolfin\_30:  
(1, 21274), (25, 21124), (53, 20929), (Start: 69 @20872 has 25 MA's), (Start: 91 @20839 has 1 MA's),  
(116, 20743),

Gene: Finnry\_66 Start: 46731, Stop: 47063, Start Num: 56  
Candidate Starts for Finnry\_66:  
(14, 46467), (18, 46476), (21, 46500), (30, 46578), (35, 46626), (Start: 56 @46731 has 17 MA's), (123,  
46875), (137, 46959), (143, 46992),

Gene: FireRed\_81 Start: 49479, Stop: 49796, Start Num: 90  
Candidate Starts for FireRed\_81:  
(34, 49296), (Start: 90 @49479 has 175 MA's), (124, 49620),

Gene: Flypotenuse\_73 Start: 47976, Stop: 48293, Start Num: 90  
Candidate Starts for Flypotenuse\_73:  
(34, 47793), (Start: 90 @47976 has 175 MA's), (124, 48117),

Gene: FoghornLeghorn\_71 Start: 46989, Stop: 47306, Start Num: 90  
Candidate Starts for FoghornLeghorn\_71:  
(34, 46806), (Start: 90 @46989 has 175 MA's), (124, 47130),

Gene: FreakyGoo\_67 Start: 43444, Stop: 43842, Start Num: 88  
Candidate Starts for FreakyGoo\_67:  
(70, 43423), (Start: 88 @43444 has 11 MA's), (103, 43492), (114, 43528), (142, 43693),

Gene: Fryberger\_95 Start: 48138, Stop: 48464, Start Num: 96  
Candidate Starts for Fryberger\_95:  
(Start: 96 @48138 has 4 MA's), (115, 48219), (130, 48303), (136, 48342), (145, 48381),

Gene: GAL1\_54 Start: 37553, Stop: 37900, Start Num: 87  
Candidate Starts for GAL1\_54:  
(63, 37502), (Start: 87 @37553 has 25 MA's), (95, 37574), (101, 37592), (102, 37601), (118, 37676),  
(128, 37727), (136, 37790), (137, 37793), (142, 37823), (151, 37853), (159, 37880), (163, 37892),

Gene: Gabriela\_64 Start: 44813, Stop: 45211, Start Num: 90  
Candidate Starts for Gabriela\_64:  
(23, 44534), (31, 44627), (Start: 71 @44795 has 6 MA's), (Start: 90 @44813 has 175 MA's), (120, 44930), (125, 44957), (137, 45035), (171, 45182),

Gene: Gage\_79 Start: 48769, Stop: 49086, Start Num: 90  
Candidate Starts for Gage\_79:  
(34, 48586), (Start: 90 @48769 has 175 MA's), (124, 48910),

Gene: Gaia\_85 Start: 50308, Stop: 50631, Start Num: 85  
Candidate Starts for Gaia\_85:  
(Start: 85 @50308 has 2 MA's), (105, 50371), (151, 50596), (152, 50599),

Gene: Gardann\_68 Start: 46399, Stop: 46797, Start Num: 90  
Candidate Starts for Gardann\_68:  
(23, 46120), (31, 46213), (Start: 71 @46381 has 6 MA's), (Start: 90 @46399 has 175 MA's), (120, 46516), (125, 46543), (137, 46621), (171, 46768),

Gene: Gator\_75 Start: 48822, Stop: 49139, Start Num: 90  
Candidate Starts for Gator\_75:  
(34, 48639), (Start: 90 @48822 has 175 MA's), (124, 48963),

Gene: Gattaca\_67 Start: 39225, Stop: 39578, Start Num: 97  
Candidate Starts for Gattaca\_67:  
(Start: 97 @39225 has 20 MA's), (104, 39252), (129, 39387), (133, 39417), (144, 39468), (147, 39474), (150, 39489), (154, 39507), (164, 39531), (165, 39534),

Gene: Gemini\_82 Start: 49286, Stop: 49603, Start Num: 90  
Candidate Starts for Gemini\_82:  
(34, 49103), (Start: 90 @49286 has 175 MA's), (124, 49427),

Gene: Glaske16\_67 Start: 43443, Stop: 43841, Start Num: 88  
Candidate Starts for Glaske16\_67:  
(70, 43422), (Start: 88 @43443 has 11 MA's), (103, 43491), (114, 43527), (142, 43692),

Gene: Glexan\_76 Start: 49106, Stop: 49423, Start Num: 90  
Candidate Starts for Glexan\_76:  
(34, 48923), (Start: 90 @49106 has 175 MA's), (124, 49247),

Gene: Glotell\_31 Start: 21028, Stop: 20675, Start Num: 69  
Candidate Starts for Glotell\_31:  
(1, 21430), (25, 21280), (53, 21085), (Start: 69 @21028 has 25 MA's), (Start: 91 @20995 has 1 MA's), (116, 20899),

Gene: Goku\_75 Start: 48185, Stop: 48502, Start Num: 90  
Candidate Starts for Goku\_75:  
(34, 48002), (Start: 90 @48185 has 175 MA's), (124, 48326),

Gene: GoldenSpark\_81 Start: 48769, Stop: 49086, Start Num: 90  
Candidate Starts for GoldenSpark\_81:  
(34, 48586), (Start: 90 @48769 has 175 MA's), (124, 48910),

Gene: Goldilocks\_80 Start: 48267, Stop: 48584, Start Num: 90  
Candidate Starts for Goldilocks\_80:  
(34, 48084), (Start: 90 @48267 has 175 MA's), (124, 48408),

Gene: Gonephishing\_112 Start: 63185, Stop: 63505, Start Num: 87  
Candidate Starts for Gonephishing\_112:  
(Start: 87 @63185 has 25 MA's), (107, 63254), (118, 63296), (137, 63413),

Gene: GooberAzure\_80 Start: 48769, Stop: 49086, Start Num: 90  
Candidate Starts for GooberAzure\_80:  
(34, 48586), (Start: 90 @48769 has 175 MA's), (124, 48910),

Gene: GoongGoong\_68 Start: 39024, Stop: 39377, Start Num: 97  
Candidate Starts for GoongGoong\_68:  
(Start: 97 @39024 has 20 MA's), (104, 39051), (129, 39186), (133, 39216), (144, 39267), (147, 39273),  
(150, 39288), (154, 39306), (164, 39330), (165, 39333),

Gene: GramZayde\_32 Start: 21670, Stop: 21317, Start Num: 69  
Candidate Starts for GramZayde\_32:  
(38, 21796), (44, 21757), (Start: 69 @21670 has 25 MA's), (116, 21541), (123, 21496), (145, 21376),

Gene: Greep\_81 Start: 49768, Stop: 50085, Start Num: 90  
Candidate Starts for Greep\_81:  
(34, 49585), (Start: 90 @49768 has 175 MA's), (124, 49909),

Gene: Grumio\_93 Start: 57321, Stop: 57701, Start Num: 88  
Candidate Starts for Grumio\_93:  
(27, 57033), (31, 57108), (47, 57195), (Start: 88 @57321 has 11 MA's), (142, 57582), (145, 57591),  
(152, 57615), (153, 57621), (167, 57663),

Gene: Guey18\_100 Start: 49458, Stop: 49784, Start Num: 96  
Candidate Starts for Guey18\_100:  
(Start: 96 @49458 has 4 MA's), (115, 49539), (130, 49623), (136, 49662), (145, 49701),

Gene: GuuelaD\_66 Start: 46478, Stop: 46879, Start Num: 90  
Candidate Starts for GuuelaD\_66:  
(23, 46199), (31, 46292), (Start: 71 @46460 has 6 MA's), (Start: 90 @46478 has 175 MA's), (120,  
46595), (125, 46622), (137, 46700), (171, 46847),

Gene: Hafay\_69 Start: 46467, Stop: 46868, Start Num: 90  
Candidate Starts for Hafay\_69:  
(23, 46188), (31, 46281), (Start: 71 @46449 has 6 MA's), (Start: 90 @46467 has 175 MA's), (120,  
46584), (125, 46611), (137, 46689), (171, 46836),

Gene: Halley\_125 Start: 69492, Stop: 69821, Start Num: 87  
Candidate Starts for Halley\_125:  
(Start: 87 @69492 has 25 MA's), (107, 69561), (127, 69651), (128, 69654), (137, 69720), (157, 69804),

Gene: HamCheese\_30 Start: 20856, Stop: 20503, Start Num: 69  
Candidate Starts for HamCheese\_30:  
(1, 21258), (25, 21108), (53, 20913), (Start: 69 @20856 has 25 MA's), (Start: 91 @20823 has 1 MA's),  
(116, 20727),

Gene: HanKaySha\_77 Start: 48070, Stop: 48387, Start Num: 90  
Candidate Starts for HanKaySha\_77:  
(34, 47887), (Start: 90 @48070 has 175 MA's), (124, 48211),

Gene: HannahPhantana\_32 Start: 21514, Stop: 21161, Start Num: 69  
Candidate Starts for HannahPhantana\_32:  
(38, 21640), (44, 21601), (Start: 69 @21514 has 25 MA's), (116, 21385), (123, 21340), (145, 21220),

Gene: Harella\_77 Start: 49622, Stop: 49939, Start Num: 90  
Candidate Starts for Harella\_77:  
(34, 49439), (Start: 90 @49622 has 175 MA's), (124, 49763),

Gene: Henry\_75 Start: 48410, Stop: 48727, Start Num: 90  
Candidate Starts for Henry\_75:  
(34, 48227), (Start: 90 @48410 has 175 MA's), (124, 48551),

Gene: Highbury\_76 Start: 48058, Stop: 48375, Start Num: 90  
Candidate Starts for Highbury\_76:  
(34, 47875), (Start: 90 @48058 has 175 MA's), (124, 48199),

Gene: Hilltopfarm\_64 Start: 44853, Stop: 45203, Start Num: 81  
Candidate Starts for Hilltopfarm\_64:  
(55, 44781), (62, 44811), (Start: 81 @44853 has 5 MA's), (86, 44868), (94, 44886), (106, 44934), (108, 44940), (115, 44976), (138, 45102),

Gene: HokkenD\_113 Start: 67777, Stop: 68151, Start Num: 68  
Candidate Starts for HokkenD\_113:  
(Start: 65 @67768 has 1 MA's), (Start: 68 @67777 has 1 MA's), (109, 67885), (119, 67930), (158, 68134),

Gene: Holt\_82 Start: 49183, Stop: 49500, Start Num: 90  
Candidate Starts for Holt\_82:  
(34, 49000), (Start: 90 @49183 has 175 MA's), (124, 49324),

Gene: Hoonter\_80 Start: 48769, Stop: 49086, Start Num: 90  
Candidate Starts for Hoonter\_80:  
(34, 48586), (Start: 90 @48769 has 175 MA's), (124, 48910),

Gene: Hokey\_77 Start: 48602, Stop: 48919, Start Num: 90  
Candidate Starts for Hokey\_77:  
(34, 48419), (Start: 90 @48602 has 175 MA's), (124, 48743),

Gene: Horus\_72 Start: 44321, Stop: 44650, Start Num: 90  
Candidate Starts for Horus\_72:  
(48, 44207), (Start: 78 @44297 has 4 MA's), (Start: 90 @44321 has 175 MA's), (99, 44348), (120, 44435), (137, 44540), (141, 44564), (152, 44603), (159, 44630), (163, 44642),

Gene: HufflyPuff\_80 Start: 49435, Stop: 49752, Start Num: 90  
Candidate Starts for HufflyPuff\_80:  
(34, 49252), (Start: 90 @49435 has 175 MA's), (124, 49576),

Gene: Hughesyang\_122 Start: 68948, Stop: 69280, Start Num: 87  
Candidate Starts for Hughesyang\_122:

(Start: 87 @68948 has 25 MA's), (107, 69017), (137, 69176),

Gene: Hum25\_55 Start: 30658, Stop: 30984, Start Num: 74

Candidate Starts for Hum25\_55:

(36, 30499), (Start: 74 @30658 has 5 MA's), (116, 30763), (139, 30895),

Gene: Huphleuff\_71 Start: 39642, Stop: 39995, Start Num: 97

Candidate Starts for Huphleuff\_71:

(Start: 97 @39642 has 20 MA's), (104, 39669), (129, 39804), (133, 39834), (144, 39885), (147, 39891), (150, 39906), (154, 39924), (164, 39948), (165, 39951),

Gene: IHOP\_75 Start: 48534, Stop: 48851, Start Num: 90

Candidate Starts for IHOP\_75:

(34, 48351), (Start: 90 @48534 has 175 MA's), (124, 48675),

Gene: Icee\_78 Start: 48433, Stop: 48750, Start Num: 90

Candidate Starts for Icee\_78:

(34, 48250), (Start: 90 @48433 has 175 MA's), (124, 48574),

Gene: Inca\_74 Start: 47059, Stop: 47376, Start Num: 90

Candidate Starts for Inca\_74:

(34, 46876), (Start: 90 @47059 has 175 MA's), (124, 47200),

Gene: Itos\_66 Start: 45269, Stop: 45670, Start Num: 90

Candidate Starts for Itos\_66:

(23, 44990), (31, 45083), (Start: 71 @45251 has 6 MA's), (Start: 90 @45269 has 175 MA's), (120, 45386), (125, 45413), (137, 45491), (171, 45638),

Gene: Izel\_67 Start: 43443, Stop: 43841, Start Num: 88

Candidate Starts for Izel\_67:

(70, 43422), (Start: 88 @43443 has 11 MA's), (103, 43491), (114, 43527), (142, 43692),

Gene: JeTaime\_77 Start: 49251, Stop: 49568, Start Num: 90

Candidate Starts for JeTaime\_77:

(34, 49068), (Start: 90 @49251 has 175 MA's), (124, 49392),

Gene: Jerole\_32 Start: 21637, Stop: 21284, Start Num: 69

Candidate Starts for Jerole\_32:

(38, 21763), (44, 21724), (Start: 69 @21637 has 25 MA's), (116, 21508), (123, 21463), (145, 21343),

Gene: Jobypre\_66 Start: 46467, Stop: 46799, Start Num: 56

Candidate Starts for Jobypre\_66:

(13, 46191), (14, 46203), (18, 46212), (21, 46236), (30, 46314), (35, 46362), (Start: 56 @46467 has 17 MA's), (123, 46611), (137, 46695), (143, 46728),

Gene: JoieB\_70 Start: 40075, Stop: 40428, Start Num: 97

Candidate Starts for JoieB\_70:

(Start: 97 @40075 has 20 MA's), (104, 40102), (129, 40237), (133, 40267), (144, 40318), (147, 40324), (150, 40339), (154, 40357), (164, 40381), (165, 40384),

Gene: Jollymon\_90 Start: 57592, Stop: 57972, Start Num: 88

Candidate Starts for Jollymon\_90:

(31, 57379), (Start: 88 @57592 has 11 MA's), (92, 57604), (142, 57853), (145, 57862), (152, 57886), (153, 57892), (167, 57934),

Gene: Jubie\_65 Start: 46602, Stop: 46934, Start Num: 56

Candidate Starts for Jubie\_65:

(13, 46326), (14, 46338), (18, 46347), (21, 46371), (30, 46449), (35, 46497), (Start: 56 @46602 has 17 MA's), (123, 46746), (137, 46830), (143, 46863),

Gene: JuicyJay\_120 Start: 70726, Stop: 71058, Start Num: 90

Candidate Starts for JuicyJay\_120:

(Start: 90 @70726 has 175 MA's), (119, 70837), (121, 70861), (158, 71041),

Gene: Juno112\_29 Start: 20872, Stop: 20519, Start Num: 69

Candidate Starts for Juno112\_29:

(1, 21274), (25, 21124), (53, 20929), (Start: 69 @20872 has 25 MA's), (Start: 91 @20839 has 1 MA's), (116, 20743),

Gene: Kahlid\_67 Start: 46369, Stop: 46770, Start Num: 90

Candidate Starts for Kahlid\_67:

(23, 46090), (31, 46183), (Start: 71 @46351 has 6 MA's), (Start: 90 @46369 has 175 MA's), (120, 46486), (125, 46513), (137, 46591), (171, 46738),

Gene: Kalah2\_114 Start: 67637, Stop: 67966, Start Num: 87

Candidate Starts for Kalah2\_114:

(Start: 87 @67637 has 25 MA's), (107, 67706), (137, 67865), (157, 67949),

Gene: Kanye\_74 Start: 48115, Stop: 48432, Start Num: 90

Candidate Starts for Kanye\_74:

(34, 47932), (Start: 90 @48115 has 175 MA's), (124, 48256),

Gene: Karhdo\_64 Start: 43305, Stop: 43667, Start Num: 83

Candidate Starts for Karhdo\_64:

(Start: 83 @43305 has 16 MA's), (123, 43464), (149, 43605), (163, 43650),

Gene: Keelan\_96 Start: 49018, Stop: 49347, Start Num: 91

Candidate Starts for Keelan\_96:

(Start: 91 @49018 has 1 MA's), (115, 49114), (130, 49198), (136, 49237),

Gene: Kepler\_32 Start: 21801, Stop: 21448, Start Num: 69

Candidate Starts for Kepler\_32:

(38, 21927), (44, 21888), (Start: 69 @21801 has 25 MA's), (116, 21672), (145, 21507),

Gene: Khuang\_54 Start: 31611, Stop: 31976, Start Num: 74

Candidate Starts for Khuang\_54:

(Start: 74 @31611 has 5 MA's), (124, 31761), (143, 31872), (148, 31887),

Gene: Kimchi\_81 Start: 48772, Stop: 49089, Start Num: 90

Candidate Starts for Kimchi\_81:

(34, 48589), (Start: 90 @48772 has 175 MA's), (124, 48913),

Gene: KingstonB\_93 Start: 57137, Stop: 57505, Start Num: 92

Candidate Starts for KingstonB\_93:

(27, 56837), (31, 56912), (47, 56999), (Start: 88 @57125 has 11 MA's), (92, 57137), (142, 57386), (145, 57395), (152, 57419), (153, 57425), (167, 57467),

Gene: Klein\_119 Start: 65994, Stop: 66323, Start Num: 87

Candidate Starts for Klein\_119:

(Start: 87 @65994 has 25 MA's), (107, 66063), (127, 66153), (128, 66156), (137, 66222), (157, 66306),

Gene: Kostya\_77 Start: 48633, Stop: 48950, Start Num: 90

Candidate Starts for Kostya\_77:

(34, 48450), (Start: 90 @48633 has 175 MA's), (124, 48774),

Gene: Kozie\_51 Start: 36191, Stop: 36532, Start Num: 79

Candidate Starts for Kozie\_51:

(32, 35999), (42, 36059), (60, 36149), (Start: 79 @36191 has 1 MA's), (137, 36437), (143, 36470), (152, 36497),

Gene: Krypton555\_67 Start: 46693, Stop: 47025, Start Num: 56

Candidate Starts for Krypton555\_67:

(13, 46417), (14, 46429), (18, 46438), (21, 46462), (30, 46540), (35, 46588), (Start: 56 @46693 has 17 MA's), (123, 46837), (137, 46921), (143, 46954),

Gene: Kumao\_62 Start: 44058, Stop: 44420, Start Num: 67

Candidate Starts for Kumao\_62:

(16, 43764), (29, 43851), (31, 43896), (33, 43911), (41, 43950), (Start: 67 @44058 has 1 MA's), (Start: 79 @44082 has 1 MA's), (Start: 97 @44118 has 20 MA's), (99, 44121), (125, 44235), (143, 44346),

Gene: Kuwabara\_72 Start: 44078, Stop: 44407, Start Num: 90

Candidate Starts for Kuwabara\_72:

(Start: 90 @44078 has 175 MA's), (120, 44192), (123, 44213), (137, 44297), (141, 44321), (152, 44360), (159, 44387), (163, 44399),

Gene: Leona\_29 Start: 20943, Stop: 20590, Start Num: 69

Candidate Starts for Leona\_29:

(25, 21195), (53, 21000), (Start: 69 @20943 has 25 MA's), (Start: 91 @20910 has 1 MA's), (116, 20814), (125, 20763),

Gene: Lewan\_68 Start: 46405, Stop: 46821, Start Num: 71

Candidate Starts for Lewan\_68:

(23, 46144), (31, 46237), (Start: 71 @46405 has 6 MA's), (Start: 90 @46423 has 175 MA's), (120, 46540), (125, 46567), (137, 46645), (171, 46792),

Gene: LilDestine\_67 Start: 46396, Stop: 46797, Start Num: 90

Candidate Starts for LilDestine\_67:

(23, 46117), (31, 46210), (Start: 71 @46378 has 6 MA's), (Start: 90 @46396 has 175 MA's), (120, 46513), (125, 46540), (137, 46618), (171, 46765),

Gene: Lilac\_79 Start: 48387, Stop: 48704, Start Num: 90

Candidate Starts for Lilac\_79:

(34, 48204), (Start: 90 @48387 has 175 MA's), (124, 48528),

Gene: Lilbit\_67 Start: 39805, Stop: 40158, Start Num: 97

Candidate Starts for Lilbit\_67:

(Start: 97 @39805 has 20 MA's), (104, 39832), (129, 39967), (133, 39997), (144, 40048), (147, 40054), (150, 40069), (154, 40087), (164, 40111), (165, 40114),

Gene: Lilizi\_78 Start: 48100, Stop: 48417, Start Num: 90

Candidate Starts for Lilizi\_78:

(34, 47917), (Start: 90 @48100 has 175 MA's), (124, 48241),

Gene: Lilpickle\_76 Start: 47985, Stop: 48302, Start Num: 90

Candidate Starts for Lilpickle\_76:

(34, 47802), (Start: 90 @47985 has 175 MA's), (124, 48126),

Gene: LitninMcQueen\_71 Start: 42944, Stop: 43273, Start Num: 90

Candidate Starts for LitninMcQueen\_71:

(Start: 90 @42944 has 175 MA's), (137, 43163), (159, 43253), (163, 43265),

Gene: LittleE\_122 Start: 67384, Stop: 67704, Start Num: 87

Candidate Starts for LittleE\_122:

(Start: 87 @67384 has 25 MA's), (107, 67453), (118, 67495), (137, 67612),

Gene: LittleLaf\_69 Start: 39534, Stop: 39887, Start Num: 97

Candidate Starts for LittleLaf\_69:

(Start: 97 @39534 has 20 MA's), (104, 39561), (129, 39696), (133, 39726), (144, 39777), (147, 39783), (150, 39798), (154, 39816), (164, 39840), (165, 39843),

Gene: Livilaughbron\_79 Start: 49563, Stop: 49880, Start Num: 90

Candidate Starts for Livilaughbron\_79:

(34, 49380), (Start: 90 @49563 has 175 MA's), (124, 49704),

Gene: Loadrie\_66 Start: 46451, Stop: 46849, Start Num: 90

Candidate Starts for Loadrie\_66:

(23, 46172), (31, 46265), (Start: 71 @46433 has 6 MA's), (Start: 90 @46451 has 175 MA's), (120, 46568), (125, 46595), (137, 46673), (171, 46820),

Gene: Lolly9\_65 Start: 46290, Stop: 46622, Start Num: 56

Candidate Starts for Lolly9\_65:

(Start: 56 @46290 has 17 MA's), (Start: 97 @46320 has 20 MA's), (120, 46413), (125, 46440), (137, 46518), (143, 46551), (156, 46599),

Gene: Lucky2013\_115 Start: 64045, Stop: 64419, Start Num: 65

Candidate Starts for Lucky2013\_115:

(Start: 65 @64045 has 1 MA's), (Start: 68 @64054 has 1 MA's), (109, 64162), (119, 64207), (137, 64327),

Gene: Lumos\_67 Start: 46464, Stop: 46796, Start Num: 56

Candidate Starts for Lumos\_67:

(13, 46188), (14, 46200), (18, 46209), (21, 46233), (30, 46311), (35, 46359), (Start: 56 @46464 has 17 MA's), (123, 46608), (137, 46692), (143, 46725),

Gene: Lunar\_32 Start: 21502, Stop: 21149, Start Num: 69

Candidate Starts for Lunar\_32:

(38, 21628), (44, 21589), (Start: 69 @21502 has 25 MA's), (116, 21373), (123, 21328), (145, 21208),

Gene: Lynnae\_69 Start: 46394, Stop: 46795, Start Num: 90

Candidate Starts for Lynnae\_69:  
(23, 46115), (31, 46208), (Start: 71 @46376 has 6 MA's), (Start: 90 @46394 has 175 MA's), (120, 46511), (125, 46538), (137, 46616), (171, 46763),

Gene: MISSy\_78 Start: 48491, Stop: 48808, Start Num: 90  
Candidate Starts for MISSy\_78:  
(34, 48308), (Start: 90 @48491 has 175 MA's), (124, 48632),

Gene: MPhalcon\_78 Start: 48484, Stop: 48801, Start Num: 90  
Candidate Starts for MPhalcon\_78:  
(34, 48301), (Start: 90 @48484 has 175 MA's), (124, 48625),

Gene: MadamMonkfish\_77 Start: 47709, Stop: 48026, Start Num: 90  
Candidate Starts for MadamMonkfish\_77:  
(34, 47526), (Start: 90 @47709 has 175 MA's), (124, 47850),

Gene: Makar\_95 Start: 57425, Stop: 57805, Start Num: 88  
Candidate Starts for Makar\_95:  
(47, 57299), (Start: 88 @57425 has 11 MA's), (142, 57686), (145, 57695), (166, 57764), (169, 57782),

Gene: Manda\_78 Start: 49571, Stop: 49888, Start Num: 90  
Candidate Starts for Manda\_78:  
(34, 49388), (Start: 90 @49571 has 175 MA's), (124, 49712),

Gene: Marshmallow\_75 Start: 49264, Stop: 49581, Start Num: 90  
Candidate Starts for Marshmallow\_75:  
(34, 49081), (Start: 90 @49264 has 175 MA's), (Start: 97 @49288 has 20 MA's), (124, 49405),

Gene: Marvin\_65 Start: 39295, Stop: 39648, Start Num: 97  
Candidate Starts for Marvin\_65:  
(Start: 97 @39295 has 20 MA's), (104, 39322), (129, 39457), (133, 39487), (144, 39538), (147, 39544), (150, 39559), (154, 39577), (164, 39601), (165, 39604),

Gene: MaryV\_77 Start: 48609, Stop: 48974, Start Num: 66  
Candidate Starts for MaryV\_77:  
(49, 48546), (Start: 66 @48609 has 5 MA's), (128, 48801), (149, 48921), (160, 48954),

Gene: Matzah\_54 Start: 37029, Stop: 37364, Start Num: 78  
Candidate Starts for Matzah\_54:  
(70, 37017), (Start: 73 @37020 has 3 MA's), (Start: 78 @37029 has 4 MA's), (94, 37056), (110, 37113), (120, 37164), (132, 37239), (137, 37269), (140, 37290), (152, 37329),

Gene: Maxxinista\_79 Start: 48360, Stop: 48677, Start Num: 90  
Candidate Starts for Maxxinista\_79:  
(34, 48177), (Start: 90 @48360 has 175 MA's), (124, 48501),

Gene: Melons\_32 Start: 21502, Stop: 21149, Start Num: 69  
Candidate Starts for Melons\_32:  
(38, 21628), (44, 21589), (Start: 69 @21502 has 25 MA's), (116, 21373), (123, 21328), (145, 21208),

Gene: MementoMori\_53 Start: 36606, Stop: 36941, Start Num: 78  
Candidate Starts for MementoMori\_53:

(8, 36288), (9, 36291), (12, 36297), (19, 36327), (22, 36354), (24, 36357), (53, 36549), (70, 36594), (Start: 73 @36597 has 3 MA's), (Start: 78 @36606 has 4 MA's), (94, 36633), (120, 36741), (132, 36816), (137, 36846), (140, 36867), (152, 36906),

Gene: Merpity\_54 Start: 31317, Stop: 31670, Start Num: 74  
Candidate Starts for Merpity\_54:  
(Start: 74 @31317 has 5 MA's), (116, 31422), (162, 31638),

Gene: MiaZeal\_118 Start: 64854, Stop: 65177, Start Num: 90  
Candidate Starts for MiaZeal\_118:  
(Start: 90 @64854 has 175 MA's), (119, 64965), (137, 65085),

Gene: Miley16\_67 Start: 46363, Stop: 46764, Start Num: 90  
Candidate Starts for Miley16\_67:  
(23, 46084), (31, 46177), (Start: 71 @46345 has 6 MA's), (Start: 90 @46363 has 175 MA's), (120, 46480), (125, 46507), (137, 46585), (171, 46732),

Gene: Mindy\_76 Start: 47576, Stop: 47893, Start Num: 90  
Candidate Starts for Mindy\_76:  
(34, 47393), (Start: 90 @47576 has 175 MA's), (124, 47717),

Gene: Minerva\_120 Start: 67549, Stop: 67881, Start Num: 87  
Candidate Starts for Minerva\_120:  
(Start: 87 @67549 has 25 MA's), (107, 67618), (137, 67777),

Gene: MiniLon\_69 Start: 46291, Stop: 46623, Start Num: 56  
Candidate Starts for MiniLon\_69:  
(Start: 56 @46291 has 17 MA's), (Start: 97 @46321 has 20 MA's), (120, 46414), (125, 46441), (137, 46519), (143, 46552), (156, 46600),

Gene: MiniMac\_69 Start: 46319, Stop: 46621, Start Num: 97  
Candidate Starts for MiniMac\_69:  
(Start: 56 @46289 has 17 MA's), (Start: 97 @46319 has 20 MA's), (120, 46412), (125, 46439), (137, 46517), (143, 46550), (156, 46598),

Gene: Miniwave\_72 Start: 48029, Stop: 48346, Start Num: 90  
Candidate Starts for Miniwave\_72:  
(34, 47846), (Start: 90 @48029 has 175 MA's), (124, 48170),

Gene: Misfit\_78 Start: 49503, Stop: 49820, Start Num: 90  
Candidate Starts for Misfit\_78:  
(34, 49320), (Start: 90 @49503 has 175 MA's), (124, 49644),

Gene: MkaliMitinis3\_68 Start: 46435, Stop: 46833, Start Num: 90  
Candidate Starts for MkaliMitinis3\_68:  
(23, 46156), (31, 46249), (Start: 71 @46417 has 6 MA's), (Start: 90 @46435 has 175 MA's), (120, 46552), (125, 46579), (137, 46657), (171, 46804),

Gene: Moldemort\_80 Start: 48588, Stop: 48905, Start Num: 90  
Candidate Starts for Moldemort\_80:  
(34, 48405), (Start: 90 @48588 has 175 MA's), (124, 48729),

Gene: MollyToe\_72 Start: 47330, Stop: 47647, Start Num: 90

Candidate Starts for MollyToe\_72:

(34, 47147), (Start: 90 @47330 has 175 MA's), (124, 47471),

Gene: Moonbeam\_64 Start: 41974, Stop: 42336, Start Num: 83

Candidate Starts for Moonbeam\_64:

(Start: 83 @41974 has 16 MA's), (98, 42016), (123, 42133), (149, 42274), (163, 42319),

Gene: MosMoris\_66 Start: 39225, Stop: 39578, Start Num: 97

Candidate Starts for MosMoris\_66:

(Start: 97 @39225 has 20 MA's), (104, 39252), (129, 39387), (133, 39417), (144, 39468), (147, 39474), (150, 39489), (154, 39507), (164, 39531), (165, 39534),

Gene: Mosby\_73 Start: 47786, Stop: 48103, Start Num: 90

Candidate Starts for Mosby\_73:

(34, 47603), (Start: 90 @47786 has 175 MA's), (124, 47927),

Gene: Mozy\_75 Start: 44841, Stop: 45203, Start Num: 83

Candidate Starts for Mozy\_75:

(Start: 72 @44826 has 1 MA's), (Start: 83 @44841 has 16 MA's), (123, 45000), (149, 45141), (163, 45186),

Gene: MrMagoo\_76 Start: 46031, Stop: 46429, Start Num: 88

Candidate Starts for MrMagoo\_76:

(Start: 88 @46031 has 11 MA's), (114, 46115), (130, 46211),

Gene: MrSmee\_53 Start: 31291, Stop: 31644, Start Num: 74

Candidate Starts for MrSmee\_53:

(Start: 74 @31291 has 5 MA's), (116, 31396), (162, 31612),

Gene: MsGreen\_66 Start: 46467, Stop: 46799, Start Num: 56

Candidate Starts for MsGreen\_66:

(13, 46191), (14, 46203), (18, 46212), (21, 46236), (30, 46314), (35, 46362), (Start: 56 @46467 has 17 MA's), (123, 46611), (137, 46695), (143, 46728),

Gene: Murica\_80 Start: 49435, Stop: 49752, Start Num: 90

Candidate Starts for Murica\_80:

(34, 49252), (Start: 90 @49435 has 175 MA's), (124, 49576),

Gene: Murphy\_77 Start: 48872, Stop: 49189, Start Num: 90

Candidate Starts for Murphy\_77:

(34, 48689), (Start: 90 @48872 has 175 MA's), (124, 49013),

Gene: Mutaforma13\_71 Start: 45673, Stop: 46035, Start Num: 83

Candidate Starts for Mutaforma13\_71:

(Start: 83 @45673 has 16 MA's), (149, 45973), (163, 46018),

Gene: Myrale\_77 Start: 49129, Stop: 49446, Start Num: 90

Candidate Starts for Myrale\_77:

(34, 48946), (Start: 90 @49129 has 175 MA's), (124, 49270),

Gene: Nala\_79 Start: 48993, Stop: 49310, Start Num: 90

Candidate Starts for Nala\_79:

(34, 48810), (Start: 90 @48993 has 175 MA's), (124, 49134),

Gene: Nebkiss\_84 Start: 48920, Stop: 49243, Start Num: 85  
Candidate Starts for Nebkiss\_84:  
(Start: 85 @48920 has 2 MA's), (105, 48983), (151, 49208), (152, 49211),

Gene: NelitzaMV\_75 Start: 48075, Stop: 48392, Start Num: 90  
Candidate Starts for NelitzaMV\_75:  
(34, 47892), (Start: 90 @48075 has 175 MA's), (124, 48216),

Gene: Nicholasp3\_67 Start: 46381, Stop: 46797, Start Num: 71  
Candidate Starts for Nicholasp3\_67:  
(23, 46120), (31, 46213), (Start: 71 @46381 has 6 MA's), (Start: 90 @46399 has 175 MA's), (120, 46516), (125, 46543), (137, 46621), (171, 46768),

Gene: NihilNomen\_125 Start: 68678, Stop: 69010, Start Num: 90  
Candidate Starts for NihilNomen\_125:  
(Start: 90 @68678 has 175 MA's), (119, 68789), (121, 68813), (158, 68993),

Gene: Nimrod\_78 Start: 49696, Stop: 50013, Start Num: 90  
Candidate Starts for Nimrod\_78:  
(34, 49513), (Start: 90 @49696 has 175 MA's), (124, 49837),

Gene: NoSleep\_78 Start: 48330, Stop: 48647, Start Num: 90  
Candidate Starts for NoSleep\_78:  
(34, 48147), (Start: 90 @48330 has 175 MA's), (124, 48471),

Gene: NonchalantPear\_77 Start: 48183, Stop: 48500, Start Num: 90  
Candidate Starts for NonchalantPear\_77:  
(34, 48000), (Start: 90 @48183 has 175 MA's), (124, 48324),

Gene: ODay\_78 Start: 45557, Stop: 45886, Start Num: 90  
Candidate Starts for ODay\_78:  
(48, 45443), (Start: 78 @45533 has 4 MA's), (Start: 90 @45557 has 175 MA's), (99, 45584), (137, 45776), (159, 45866), (163, 45878),

Gene: Octobien14\_72 Start: 45181, Stop: 45522, Start Num: 80  
Candidate Starts for Octobien14\_72:  
(Start: 80 @45181 has 3 MA's), (114, 45283), (123, 45337), (137, 45421),

Gene: Optimus\_113 Start: 65945, Stop: 66277, Start Num: 87  
Candidate Starts for Optimus\_113:  
(Start: 87 @65945 has 25 MA's), (107, 66014), (127, 66104), (128, 66107), (137, 66173),

Gene: OrionPax\_76 Start: 48081, Stop: 48398, Start Num: 90  
Candidate Starts for OrionPax\_76:  
(34, 47898), (Start: 90 @48081 has 175 MA's), (Start: 97 @48105 has 20 MA's), (124, 48222),

Gene: OtsoOtso\_32 Start: 21366, Stop: 21013, Start Num: 69  
Candidate Starts for OtsoOtso\_32:  
(38, 21492), (44, 21453), (Start: 69 @21366 has 25 MA's), (116, 21237), (123, 21192), (145, 21072),

Gene: OverPar\_69 Start: 46451, Stop: 46849, Start Num: 90  
Candidate Starts for OverPar\_69:

(23, 46172), (31, 46265), (Start: 71 @46433 has 6 MA's), (Start: 90 @46451 has 175 MA's), (120, 46568), (125, 46595), (137, 46673), (171, 46820),

Gene: PYPDinur\_63 Start: 45117, Stop: 45515, Start Num: 89  
Candidate Starts for PYPDinur\_63:  
(Start: 89 @45117 has 2 MA's), (120, 45234), (125, 45261), (156, 45420),

Gene: PaddyBaddy\_77 Start: 48084, Stop: 48401, Start Num: 90  
Candidate Starts for PaddyBaddy\_77:  
(34, 47901), (Start: 90 @48084 has 175 MA's), (124, 48225),

Gene: Palpatine\_79 Start: 49462, Stop: 49779, Start Num: 90  
Candidate Starts for Palpatine\_79:  
(34, 49279), (Start: 90 @49462 has 175 MA's), (124, 49603),

Gene: Paperbeatsrock\_76 Start: 48707, Stop: 49024, Start Num: 90  
Candidate Starts for Paperbeatsrock\_76:  
(34, 48524), (Start: 90 @48707 has 175 MA's), (124, 48848),

Gene: Pat3\_75 Start: 47239, Stop: 47556, Start Num: 90  
Candidate Starts for Pat3\_75:  
(34, 47056), (Start: 90 @47239 has 175 MA's), (Start: 97 @47263 has 20 MA's), (124, 47380),

Gene: Petra64142\_81 Start: 49926, Stop: 50243, Start Num: 90  
Candidate Starts for Petra64142\_81:  
(34, 49743), (Start: 90 @49926 has 175 MA's), (124, 50067),

Gene: Phabuloso\_75 Start: 43819, Stop: 44166, Start Num: 87  
Candidate Starts for Phabuloso\_75:  
(50, 43705), (Start: 77 @43795 has 1 MA's), (Start: 87 @43819 has 25 MA's), (95, 43840), (101, 43858), (102, 43867), (118, 43942), (124, 43975), (128, 43993), (136, 44056), (137, 44059), (142, 44089), (151, 44119), (159, 44146), (163, 44158),

Gene: Phaja\_75 Start: 48533, Stop: 48850, Start Num: 90  
Candidate Starts for Phaja\_75:  
(34, 48350), (Start: 90 @48533 has 175 MA's), (124, 48674),

Gene: PhaoMing\_57 Start: 39593, Stop: 39922, Start Num: 90  
Candidate Starts for PhaoMing\_57:  
(48, 39479), (Start: 78 @39569 has 4 MA's), (Start: 90 @39593 has 175 MA's), (99, 39620), (120, 39707), (131, 39776), (137, 39812), (141, 39836), (152, 39875), (159, 39902), (163, 39914),

Gene: Pharsalus\_74 Start: 48507, Stop: 48824, Start Num: 90  
Candidate Starts for Pharsalus\_74:  
(34, 48324), (Start: 90 @48507 has 175 MA's), (124, 48648),

Gene: PhatBacter\_81 Start: 49479, Stop: 49796, Start Num: 90  
Candidate Starts for PhatBacter\_81:  
(34, 49296), (Start: 90 @49479 has 175 MA's), (124, 49620),

Gene: Phaux\_79 Start: 49474, Stop: 49791, Start Num: 90  
Candidate Starts for Phaux\_79:  
(34, 49291), (Start: 90 @49474 has 175 MA's), (124, 49615),

Gene: PhirstandPhine\_34 Start: 21645, Stop: 21292, Start Num: 69

Candidate Starts for PhirstandPhine\_34:

(38, 21771), (44, 21732), (Start: 69 @21645 has 25 MA's), (116, 21516), (123, 21471), (145, 21351),

Gene: PhluffyCoco\_30 Start: 20856, Stop: 20503, Start Num: 69

Candidate Starts for PhluffyCoco\_30:

(1, 21258), (25, 21108), (53, 20913), (Start: 69 @20856 has 25 MA's), (Start: 91 @20823 has 1 MA's), (116, 20727),

Gene: Phoebus\_124 Start: 70535, Stop: 70867, Start Num: 90

Candidate Starts for Phoebus\_124:

(Start: 90 @70535 has 175 MA's), (119, 70646), (121, 70670), (158, 70850),

Gene: Phrux\_74 Start: 48070, Stop: 48387, Start Num: 90

Candidate Starts for Phrux\_74:

(34, 47887), (Start: 90 @48070 has 175 MA's), (124, 48211),

Gene: Pineda\_33 Start: 21654, Stop: 21301, Start Num: 69

Candidate Starts for Pineda\_33:

(38, 21780), (44, 21741), (Start: 69 @21654 has 25 MA's), (116, 21525), (123, 21480), (145, 21360),

Gene: Pitbull\_53 Start: 29779, Stop: 30105, Start Num: 74

Candidate Starts for Pitbull\_53:

(46, 29674), (Start: 74 @29779 has 5 MA's), (116, 29884), (139, 30016),

Gene: Poise\_69 Start: 39121, Stop: 39474, Start Num: 97

Candidate Starts for Poise\_69:

(Start: 97 @39121 has 20 MA's), (104, 39148), (129, 39283), (133, 39313), (144, 39364), (147, 39370), (150, 39385), (154, 39403), (164, 39427), (165, 39430),

Gene: Policronamos\_80 Start: 49474, Stop: 49791, Start Num: 90

Candidate Starts for Policronamos\_80:

(34, 49291), (Start: 90 @49474 has 175 MA's), (124, 49615),

Gene: Polka\_31 Start: 21366, Stop: 21013, Start Num: 69

Candidate Starts for Polka\_31:

(38, 21492), (44, 21453), (Start: 69 @21366 has 25 MA's), (116, 21237), (123, 21192), (145, 21072),

Gene: Porky\_76 Start: 47900, Stop: 48217, Start Num: 90

Candidate Starts for Porky\_76:

(34, 47717), (Start: 90 @47900 has 175 MA's), (124, 48041),

Gene: Pound\_112 Start: 66568, Stop: 66897, Start Num: 87

Candidate Starts for Pound\_112:

(Start: 87 @66568 has 25 MA's), (107, 66637), (137, 66796), (157, 66880),

Gene: Pringar\_68 Start: 39443, Stop: 39796, Start Num: 97

Candidate Starts for Pringar\_68:

(Start: 97 @39443 has 20 MA's), (104, 39470), (129, 39605), (133, 39635), (144, 39686), (147, 39692), (150, 39707), (154, 39725), (164, 39749), (165, 39752),

Gene: Ptowny\_74 Start: 47369, Stop: 47686, Start Num: 90

Candidate Starts for Ptowny\_74:  
(34, 47186), (Start: 90 @47369 has 175 MA's), (124, 47510),

Gene: Pumpkin\_80 Start: 49128, Stop: 49445, Start Num: 90  
Candidate Starts for Pumpkin\_80:  
(34, 48945), (Start: 90 @49128 has 175 MA's), (124, 49269),

Gene: Purpicious\_92 Start: 57086, Stop: 57466, Start Num: 88  
Candidate Starts for Purpicious\_92:  
(31, 56873), (47, 56960), (Start: 88 @57086 has 11 MA's), (142, 57347), (152, 57380), (153, 57386),  
(166, 57425), (167, 57428),

Gene: Quallification\_78 Start: 49115, Stop: 49432, Start Num: 90  
Candidate Starts for Quallification\_78:  
(34, 48932), (Start: 90 @49115 has 175 MA's), (124, 49256),

Gene: Quby\_65 Start: 45009, Stop: 45407, Start Num: 89  
Candidate Starts for Quby\_65:  
(Start: 89 @45009 has 2 MA's), (120, 45126), (125, 45153), (156, 45312),

Gene: Rabbitrun\_72 Start: 44571, Stop: 44918, Start Num: 80  
Candidate Starts for Rabbitrun\_72:  
(45, 44460), (51, 44490), (52, 44493), (53, 44496), (64, 44538), (75, 44562), (Start: 80 @44571 has 3  
MA's), (109, 44652), (137, 44808), (142, 44835), (146, 44847), (149, 44862), (151, 44865),

Gene: Raela\_69 Start: 39678, Stop: 40031, Start Num: 97  
Candidate Starts for Raela\_69:  
(Start: 97 @39678 has 20 MA's), (104, 39705), (129, 39840), (133, 39870), (144, 39921), (147, 39927),  
(150, 39942), (154, 39960), (164, 39984), (165, 39987),

Gene: Rakim\_78 Start: 48584, Stop: 48901, Start Num: 90  
Candidate Starts for Rakim\_78:  
(34, 48401), (Start: 90 @48584 has 175 MA's), (124, 48725),

Gene: Red305\_66 Start: 46467, Stop: 46799, Start Num: 56  
Candidate Starts for Red305\_66:  
(13, 46191), (14, 46203), (18, 46212), (21, 46236), (30, 46314), (35, 46362), (Start: 56 @46467 has 17  
MA's), (123, 46611), (137, 46695), (143, 46728),

Gene: RedFox\_30 Start: 20869, Stop: 20516, Start Num: 69  
Candidate Starts for RedFox\_30:  
(1, 21271), (25, 21121), (53, 20926), (Start: 69 @20869 has 25 MA's), (Start: 91 @20836 has 1 MA's),  
(116, 20740),

Gene: RedRaider77\_68 Start: 39066, Stop: 39419, Start Num: 97  
Candidate Starts for RedRaider77\_68:  
(Start: 97 @39066 has 20 MA's), (104, 39093), (129, 39228), (133, 39258), (144, 39309), (147, 39315),  
(150, 39330), (154, 39348), (164, 39372), (165, 39375),

Gene: Redno2\_116 Start: 66004, Stop: 66333, Start Num: 87  
Candidate Starts for Redno2\_116:  
(Start: 87 @66004 has 25 MA's), (107, 66073), (127, 66163), (128, 66166), (137, 66232), (157, 66316),

Gene: Renna12\_29 Start: 20890, Stop: 20534, Start Num: 69  
Candidate Starts for Renna12\_29:  
(Start: 69 @20890 has 25 MA's), (Start: 91 @20857 has 1 MA's), (116, 20761), (145, 20596),

Gene: Rimmer\_78 Start: 48820, Stop: 49137, Start Num: 90  
Candidate Starts for Rimmer\_78:  
(34, 48637), (Start: 90 @48820 has 175 MA's), (124, 48961),

Gene: RiverMonster\_77 Start: 48648, Stop: 48965, Start Num: 90  
Candidate Starts for RiverMonster\_77:  
(34, 48465), (Start: 90 @48648 has 175 MA's), (124, 48789),

Gene: Ronaldo\_98 Start: 49040, Stop: 49366, Start Num: 96  
Candidate Starts for Ronaldo\_98:  
(Start: 96 @49040 has 4 MA's), (115, 49121), (130, 49205), (136, 49244), (145, 49283),

Gene: Rose5\_66 Start: 45488, Stop: 45859, Start Num: 90  
Candidate Starts for Rose5\_66:  
(Start: 90 @45488 has 175 MA's), (112, 45566), (137, 45713), (152, 45776), (170, 45851),

Gene: Rossetti\_69 Start: 46945, Stop: 47343, Start Num: 90  
Candidate Starts for Rossetti\_69:  
(23, 46666), (31, 46759), (Start: 71 @46927 has 6 MA's), (Start: 90 @46945 has 175 MA's), (120, 47062), (125, 47089), (137, 47167), (171, 47314),

Gene: Rumpelstiltskin\_66 Start: 45792, Stop: 46190, Start Num: 90  
Candidate Starts for Rumpelstiltskin\_66:  
(23, 45513), (31, 45606), (Start: 71 @45774 has 6 MA's), (Start: 90 @45792 has 175 MA's), (120, 45909), (125, 45936), (137, 46014), (171, 46161),

Gene: Saints25\_76 Start: 48058, Stop: 48375, Start Num: 90  
Candidate Starts for Saints25\_76:  
(34, 47875), (Start: 90 @48058 has 175 MA's), (124, 48199),

Gene: Samty\_66 Start: 46475, Stop: 46807, Start Num: 56  
Candidate Starts for Samty\_66:  
(14, 46211), (18, 46220), (21, 46244), (30, 46322), (35, 46370), (Start: 56 @46475 has 17 MA's), (123, 46619), (137, 46703), (143, 46736),

Gene: Sarshaun\_68 Start: 46459, Stop: 46857, Start Num: 90  
Candidate Starts for Sarshaun\_68:  
(23, 46180), (31, 46273), (Start: 71 @46441 has 6 MA's), (Start: 90 @46459 has 175 MA's), (120, 46576), (125, 46603), (137, 46681), (171, 46828),

Gene: Sassay\_72 Start: 46748, Stop: 47065, Start Num: 90  
Candidate Starts for Sassay\_72:  
(34, 46565), (Start: 90 @46748 has 175 MA's), (124, 46889),

Gene: ShamWow\_77 Start: 48970, Stop: 49287, Start Num: 90  
Candidate Starts for ShamWow\_77:  
(34, 48787), (Start: 90 @48970 has 175 MA's), (124, 49111),

Gene: Simpliphy\_76 Start: 48048, Stop: 48365, Start Num: 90

Candidate Starts for Simpliphy\_76:  
(34, 47865), (Start: 90 @48048 has 175 MA's), (124, 48189),

Gene: SirDuracell\_76 Start: 47334, Stop: 47651, Start Num: 90  
Candidate Starts for SirDuracell\_76:  
(34, 47151), (Start: 90 @47334 has 175 MA's), (Start: 97 @47358 has 20 MA's), (124, 47475),

Gene: Skitty\_47 Start: 29133, Stop: 29486, Start Num: 74  
Candidate Starts for Skitty\_47:  
(Start: 74 @29133 has 5 MA's), (116, 29238), (162, 29454),

Gene: Snenia\_65 Start: 46468, Stop: 46800, Start Num: 56  
Candidate Starts for Snenia\_65:  
(13, 46192), (14, 46204), (18, 46213), (21, 46237), (30, 46315), (35, 46363), (Start: 56 @46468 has 17 MA's), (123, 46612), (137, 46696), (143, 46729),

Gene: Soos\_87 Start: 57034, Stop: 57414, Start Num: 88  
Candidate Starts for Soos\_87:  
(27, 56746), (31, 56821), (47, 56908), (Start: 88 @57034 has 11 MA's), (142, 57295), (145, 57304), (152, 57328), (153, 57334), (167, 57376),

Gene: SophKB\_74 Start: 47726, Stop: 48043, Start Num: 90  
Candidate Starts for SophKB\_74:  
(34, 47543), (Start: 90 @47726 has 175 MA's), (124, 47867),

Gene: Sotrice96\_78 Start: 48729, Stop: 49046, Start Num: 90  
Candidate Starts for Sotrice96\_78:  
(34, 48546), (Start: 90 @48729 has 175 MA's), (124, 48870),

Gene: Spooky\_68 Start: 42098, Stop: 42427, Start Num: 90  
Candidate Starts for Spooky\_68:  
(Start: 90 @42098 has 175 MA's), (151, 42377), (159, 42407), (163, 42419),

Gene: Squiddly\_73 Start: 46416, Stop: 46745, Start Num: 90  
Candidate Starts for Squiddly\_73:  
(Start: 90 @46416 has 175 MA's), (151, 46695), (159, 46725), (163, 46737),

Gene: Squint\_116 Start: 64970, Stop: 65290, Start Num: 87  
Candidate Starts for Squint\_116:  
(Start: 87 @64970 has 25 MA's), (107, 65039), (118, 65081), (137, 65198),

Gene: Stank\_80 Start: 48987, Stop: 49304, Start Num: 90  
Candidate Starts for Stank\_80:  
(34, 48804), (Start: 90 @48987 has 175 MA's), (124, 49128),

Gene: Stark\_78 Start: 48531, Stop: 48848, Start Num: 90  
Candidate Starts for Stark\_78:  
(34, 48348), (Start: 90 @48531 has 175 MA's), (124, 48672),

Gene: StellaBean\_75 Start: 48294, Stop: 48611, Start Num: 90  
Candidate Starts for StellaBean\_75:  
(34, 48111), (Start: 90 @48294 has 175 MA's), (124, 48435),

Gene: Stellammi\_92 Start: 47049, Stop: 47387, Start Num: 82  
Candidate Starts for Stellammi\_92:  
(Start: 82 @47049 has 1 MA's), (119, 47175), (124, 47214), (137, 47295),

Gene: Stillion\_92 Start: 57704, Stop: 58072, Start Num: 92  
Candidate Starts for Stillion\_92:  
(31, 57479), (47, 57566), (Start: 88 @57692 has 11 MA's), (92, 57704), (142, 57953), (145, 57962),  
(152, 57986), (153, 57992), (167, 58034),

Gene: Sting\_90 Start: 57473, Stop: 57853, Start Num: 88  
Candidate Starts for Sting\_90:  
(27, 57185), (31, 57260), (47, 57347), (Start: 88 @57473 has 11 MA's), (92, 57485), (142, 57734),  
(145, 57743), (152, 57767), (153, 57773), (167, 57815),

Gene: StolenFromERC\_80 Start: 48769, Stop: 49086, Start Num: 90  
Candidate Starts for StolenFromERC\_80:  
(34, 48586), (Start: 90 @48769 has 175 MA's), (124, 48910),

Gene: StormChicken\_79 Start: 49427, Stop: 49744, Start Num: 90  
Candidate Starts for StormChicken\_79:  
(34, 49244), (Start: 90 @49427 has 175 MA's), (124, 49568),

Gene: Superphikiman\_115 Start: 64061, Stop: 64381, Start Num: 87  
Candidate Starts for Superphikiman\_115:  
(Start: 87 @64061 has 25 MA's), (107, 64130), (118, 64172), (137, 64289),

Gene: TBrady12\_80 Start: 48468, Stop: 48785, Start Num: 90  
Candidate Starts for TBrady12\_80:  
(34, 48285), (Start: 90 @48468 has 175 MA's), (124, 48609),

Gene: Tarkin\_76 Start: 48716, Stop: 49033, Start Num: 90  
Candidate Starts for Tarkin\_76:  
(34, 48533), (Start: 90 @48716 has 175 MA's), (124, 48857),

Gene: TeamEdward\_79 Start: 49421, Stop: 49738, Start Num: 90  
Candidate Starts for TeamEdward\_79:  
(34, 49238), (Start: 90 @49421 has 175 MA's), (Start: 97 @49445 has 20 MA's), (124, 49562),

Gene: TeardropMSU\_73 Start: 47716, Stop: 48033, Start Num: 90  
Candidate Starts for TeardropMSU\_73:  
(34, 47533), (Start: 90 @47716 has 175 MA's), (124, 47857),

Gene: Teaspoon\_78 Start: 48610, Stop: 48927, Start Num: 90  
Candidate Starts for Teaspoon\_78:  
(34, 48427), (Start: 90 @48610 has 175 MA's), (124, 48751),

Gene: Terij\_52 Start: 35668, Stop: 36003, Start Num: 78  
Candidate Starts for Terij\_52:  
(6, 35263), (8, 35347), (9, 35350), (12, 35356), (22, 35413), (24, 35416), (53, 35608), (70, 35656),  
(Start: 73 @35659 has 3 MA's), (Start: 78 @35668 has 4 MA's), (117, 35785), (120, 35803), (142,  
35935), (152, 35968),

Gene: Terminus\_80 Start: 49503, Stop: 49820, Start Num: 90

Candidate Starts for Terminus\_80:

(34, 49320), (Start: 90 @49503 has 175 MA's), (124, 49644),

Gene: Tesla\_66 Start: 38915, Stop: 39268, Start Num: 97

Candidate Starts for Tesla\_66:

(Start: 97 @38915 has 20 MA's), (104, 38942), (129, 39077), (133, 39107), (144, 39158), (147, 39164), (150, 39179), (154, 39197), (164, 39221), (165, 39224),

Gene: Thibault\_106 Start: 63336, Stop: 63668, Start Num: 90

Candidate Starts for Thibault\_106:

(Start: 90 @63336 has 175 MA's), (119, 63447), (121, 63471), (158, 63651),

Gene: Thimble\_78 Start: 47951, Stop: 48268, Start Num: 90

Candidate Starts for Thimble\_78:

(34, 47768), (Start: 90 @47951 has 175 MA's), (124, 48092),

Gene: ThreeRngTarjay\_118 Start: 68893, Stop: 69225, Start Num: 87

Candidate Starts for ThreeRngTarjay\_118:

(Start: 87 @68893 has 25 MA's), (107, 68962), (137, 69121),

Gene: Thresher\_79 Start: 49590, Stop: 49907, Start Num: 90

Candidate Starts for Thresher\_79:

(34, 49407), (Start: 90 @49590 has 175 MA's), (124, 49731),

Gene: Tomaszewski\_72 Start: 47879, Stop: 48196, Start Num: 90

Candidate Starts for Tomaszewski\_72:

(34, 47696), (Start: 90 @47879 has 175 MA's), (Start: 97 @47903 has 20 MA's), (124, 48020),

Gene: Toto\_75 Start: 48970, Stop: 49287, Start Num: 90

Candidate Starts for Toto\_75:

(34, 48787), (Start: 90 @48970 has 175 MA's), (124, 49111),

Gene: Tourach\_66 Start: 46445, Stop: 46831, Start Num: 90

Candidate Starts for Tourach\_66:

(31, 46259), (Start: 71 @46427 has 6 MA's), (Start: 90 @46445 has 175 MA's), (120, 46562), (125, 46589), (137, 46667), (171, 46814),

Gene: Traaww1\_73 Start: 48154, Stop: 48471, Start Num: 90

Candidate Starts for Traaww1\_73:

(34, 47971), (Start: 90 @48154 has 175 MA's), (124, 48295),

Gene: Trax\_71 Start: 44944, Stop: 45291, Start Num: 80

Candidate Starts for Trax\_71:

(Start: 80 @44944 has 3 MA's), (109, 45025), (137, 45181), (142, 45208), (149, 45235), (151, 45238),

Gene: TriFive\_67 Start: 46467, Stop: 46799, Start Num: 56

Candidate Starts for TriFive\_67:

(13, 46191), (14, 46203), (18, 46212), (21, 46236), (30, 46314), (35, 46362), (Start: 56 @46467 has 17 MA's), (123, 46611), (137, 46695), (143, 46728),

Gene: Tuco\_78 Start: 49478, Stop: 49795, Start Num: 90

Candidate Starts for Tuco\_78:

(34, 49295), (Start: 90 @49478 has 175 MA's), (124, 49619),

Gene: Typha\_64 Start: 45161, Stop: 45511, Start Num: 81

Candidate Starts for Typha\_64:

(55, 45089), (62, 45119), (Start: 81 @45161 has 5 MA's), (86, 45176), (94, 45194), (106, 45242), (108, 45248), (115, 45284), (130, 45368), (131, 45374), (135, 45404), (142, 45437),

Gene: Tyson\_67 Start: 45417, Stop: 45785, Start Num: 90

Candidate Starts for Tyson\_67:

(Start: 90 @45417 has 175 MA's), (99, 45444), (116, 45513), (120, 45534), (124, 45558), (137, 45639), (152, 45702), (170, 45777),

Gene: Ukulele\_72 Start: 47861, Stop: 48178, Start Num: 90

Candidate Starts for Ukulele\_72:

(34, 47678), (Start: 90 @47861 has 175 MA's), (124, 48002),

Gene: Underpass\_58 Start: 41417, Stop: 41833, Start Num: 71

Candidate Starts for Underpass\_58:

(23, 41156), (31, 41249), (Start: 71 @41417 has 6 MA's), (Start: 90 @41435 has 175 MA's), (120, 41552), (125, 41579), (137, 41657), (171, 41804),

Gene: VasuNzinga\_68 Start: 39017, Stop: 39370, Start Num: 97

Candidate Starts for VasuNzinga\_68:

(Start: 97 @39017 has 20 MA's), (104, 39044), (129, 39179), (133, 39209), (144, 39260), (147, 39266), (150, 39281), (154, 39299), (164, 39323), (165, 39326),

Gene: Vetric\_67 Start: 46385, Stop: 46804, Start Num: 71

Candidate Starts for Vetric\_67:

(23, 46124), (31, 46217), (Start: 71 @46385 has 6 MA's), (Start: 90 @46403 has 175 MA's), (120, 46520), (125, 46547), (137, 46625), (171, 46772),

Gene: Volt\_99 Start: 49204, Stop: 49530, Start Num: 96

Candidate Starts for Volt\_99:

(Start: 96 @49204 has 4 MA's), (115, 49285), (130, 49369), (136, 49408), (145, 49447),

Gene: Wachhund\_66 Start: 42028, Stop: 42390, Start Num: 83

Candidate Starts for Wachhund\_66:

(Start: 83 @42028 has 16 MA's), (149, 42328), (163, 42373),

Gene: Wamburgexpress\_66 Start: 45044, Stop: 45415, Start Num: 90

Candidate Starts for Wamburgexpress\_66:

(Start: 90 @45044 has 175 MA's), (112, 45122), (137, 45269), (152, 45332), (170, 45407),

Gene: Wanda\_122 Start: 66271, Stop: 66600, Start Num: 87

Candidate Starts for Wanda\_122:

(Start: 87 @66271 has 25 MA's), (107, 66340), (113, 66358), (127, 66430), (128, 66433), (137, 66499), (157, 66583),

Gene: Whirlwind\_66 Start: 46283, Stop: 46615, Start Num: 56

Candidate Starts for Whirlwind\_66:

(13, 46007), (14, 46019), (18, 46028), (21, 46052), (30, 46130), (35, 46178), (Start: 56 @46283 has 17 MA's), (123, 46427), (137, 46511), (143, 46544),

Gene: Whouxphf\_62 Start: 42311, Stop: 42673, Start Num: 83

Candidate Starts for Whouxphf\_62:  
(Start: 83 @42311 has 16 MA's), (149, 42611), (163, 42656),

Gene: Wiggin\_79 Start: 48555, Stop: 48872, Start Num: 90  
Candidate Starts for Wiggin\_79:  
(34, 48372), (Start: 90 @48555 has 175 MA's), (124, 48696),

Gene: Wigglewigggle\_67 Start: 46423, Stop: 46821, Start Num: 90  
Candidate Starts for Wigglewigggle\_67:  
(23, 46144), (31, 46237), (Start: 71 @46405 has 6 MA's), (Start: 90 @46423 has 175 MA's), (120, 46540), (125, 46567), (137, 46645), (171, 46792),

Gene: Wildcat\_77 Start: 48619, Stop: 48984, Start Num: 66  
Candidate Starts for Wildcat\_77:  
(49, 48556), (Start: 66 @48619 has 5 MA's), (128, 48811), (149, 48931), (160, 48964),

Gene: Wilder\_68 Start: 46369, Stop: 46770, Start Num: 90  
Candidate Starts for Wilder\_68:  
(23, 46090), (31, 46183), (Start: 71 @46351 has 6 MA's), (Start: 90 @46369 has 175 MA's), (120, 46486), (125, 46513), (137, 46591), (171, 46738),

Gene: Willez\_72 Start: 46748, Stop: 47065, Start Num: 90  
Candidate Starts for Willez\_72:  
(34, 46565), (Start: 90 @46748 has 175 MA's), (124, 46889),

Gene: Winky\_67 Start: 46363, Stop: 46764, Start Num: 90  
Candidate Starts for Winky\_67:  
(23, 46084), (31, 46177), (Start: 71 @46345 has 6 MA's), (Start: 90 @46363 has 175 MA's), (120, 46480), (125, 46507), (137, 46585), (171, 46732),

Gene: Wyatt2\_67 Start: 45415, Stop: 45783, Start Num: 90  
Candidate Starts for Wyatt2\_67:  
(Start: 90 @45415 has 175 MA's), (99, 45442), (116, 45511), (120, 45532), (124, 45556), (137, 45637), (152, 45700), (170, 45775),

Gene: Xandras\_76 Start: 47963, Stop: 48280, Start Num: 90  
Candidate Starts for Xandras\_76:  
(34, 47780), (Start: 90 @47963 has 175 MA's), (124, 48104),

Gene: YassJohnny\_74 Start: 47918, Stop: 48235, Start Num: 90  
Candidate Starts for YassJohnny\_74:  
(34, 47735), (Start: 90 @47918 has 175 MA's), (Start: 97 @47942 has 20 MA's), (124, 48059),

Gene: Yorick\_64 Start: 42551, Stop: 42913, Start Num: 83  
Candidate Starts for Yorick\_64:  
(Start: 83 @42551 has 16 MA's), (123, 42710), (149, 42851), (163, 42896),

Gene: Youngblood\_80 Start: 49430, Stop: 49747, Start Num: 90  
Candidate Starts for Youngblood\_80:  
(34, 49247), (Start: 90 @49430 has 175 MA's), (124, 49571),

Gene: Zakai\_68 Start: 46689, Stop: 47090, Start Num: 90  
Candidate Starts for Zakai\_68:

(23, 46410), (31, 46503), (Start: 71 @46671 has 6 MA's), (Start: 90 @46689 has 175 MA's), (120, 46806), (125, 46833), (137, 46911), (171, 47058),

Gene: Zelink\_117 Start: 68840, Stop: 69172, Start Num: 87

Candidate Starts for Zelink\_117:

(Start: 87 @68840 has 25 MA's), (107, 68909), (137, 69068),

Gene: ZhongYanYuan\_66 Start: 46258, Stop: 46644, Start Num: 90

Candidate Starts for ZhongYanYuan\_66:

(31, 46072), (57, 46201), (Start: 71 @46240 has 6 MA's), (Start: 90 @46258 has 175 MA's), (120, 46375), (125, 46402), (137, 46480), (171, 46627),

Gene: Zhuangyuan\_34 Start: 22580, Stop: 22224, Start Num: 73

Candidate Starts for Zhuangyuan\_34:

(38, 22724), (53, 22649), (Start: 73 @22580 has 3 MA's), (Start: 91 @22544 has 1 MA's), (116, 22448), (145, 22283), (155, 22235),

Gene: xkcd\_80 Start: 49620, Stop: 49937, Start Num: 90

Candidate Starts for xkcd\_80:

(34, 49437), (Start: 90 @49620 has 175 MA's), (124, 49761),