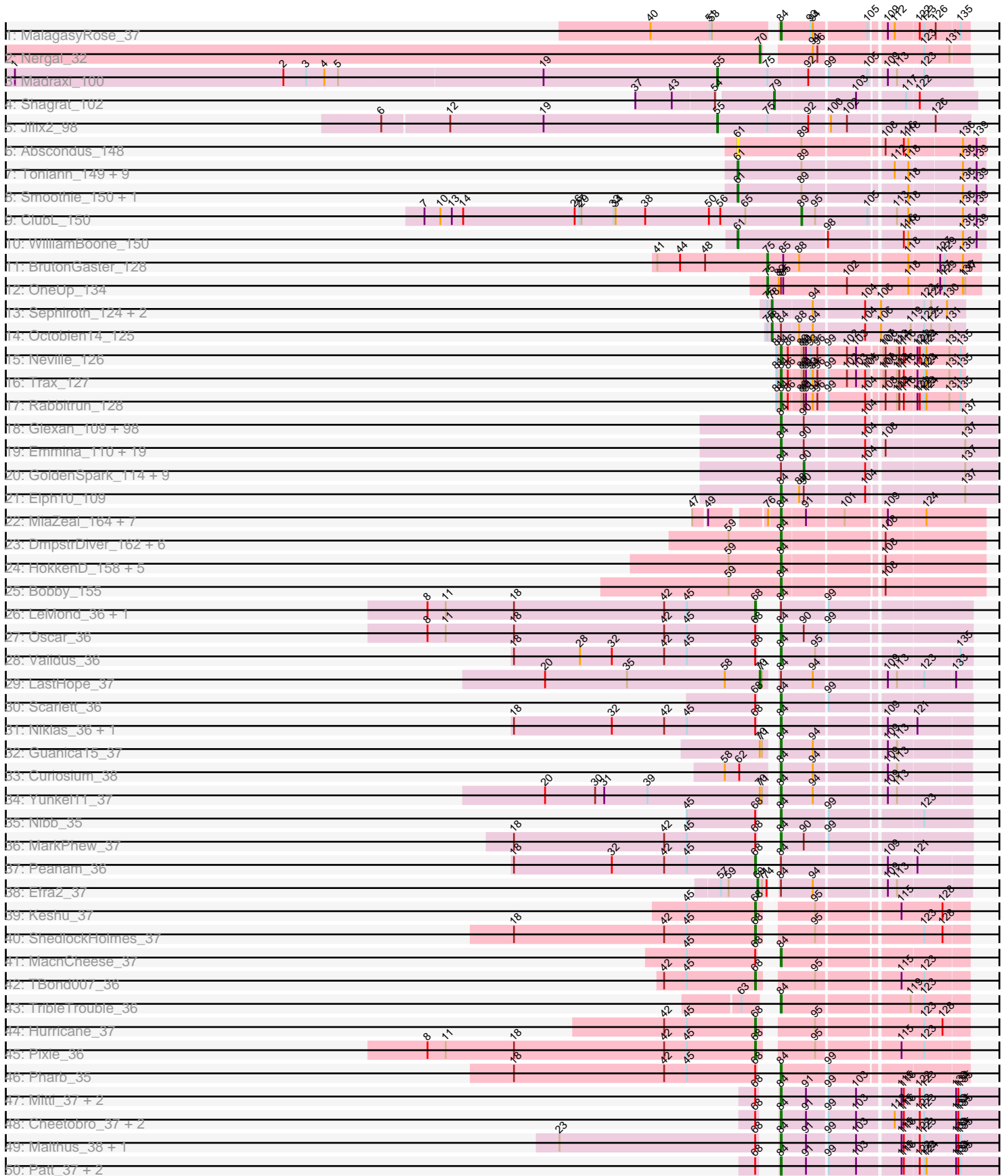
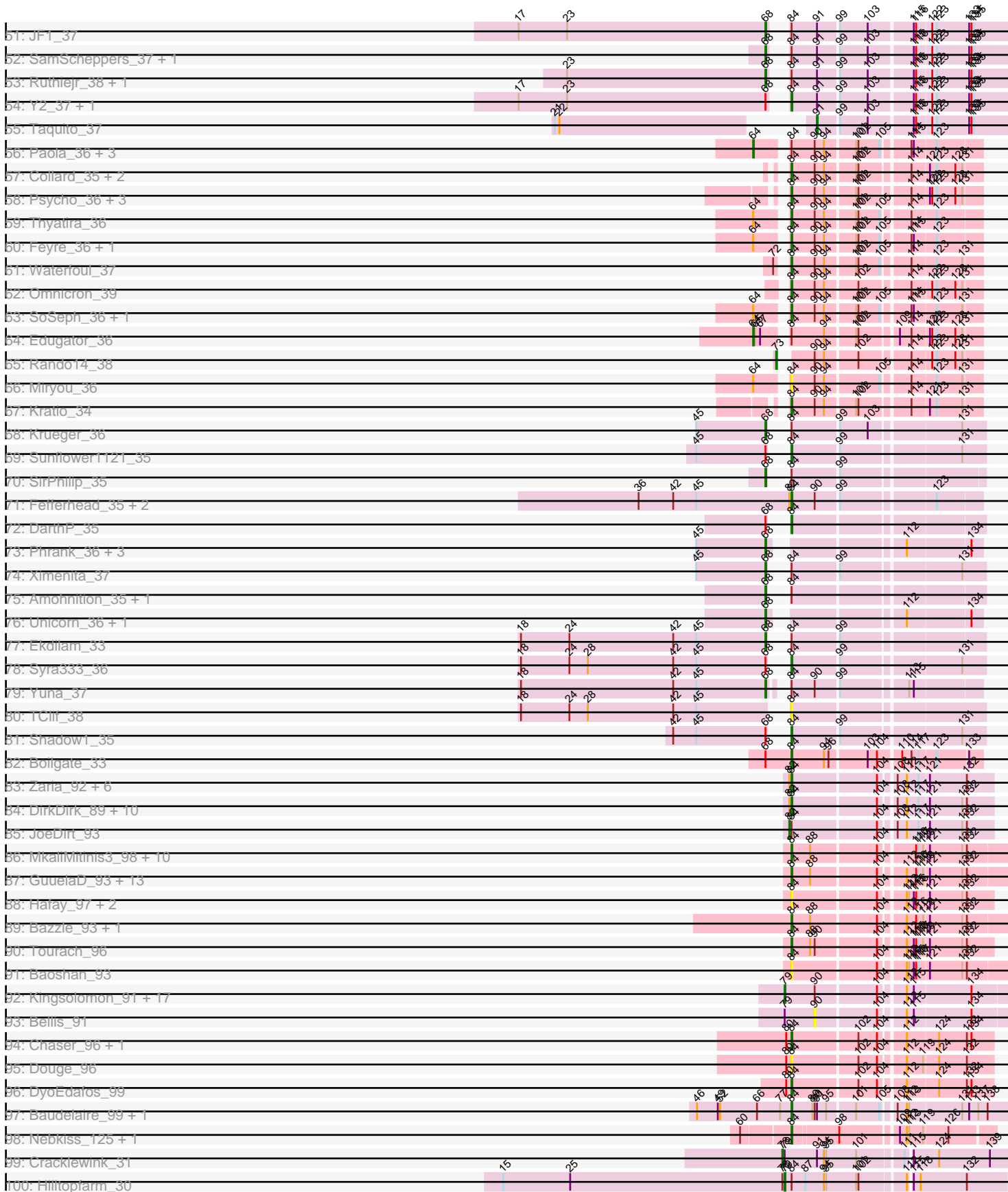


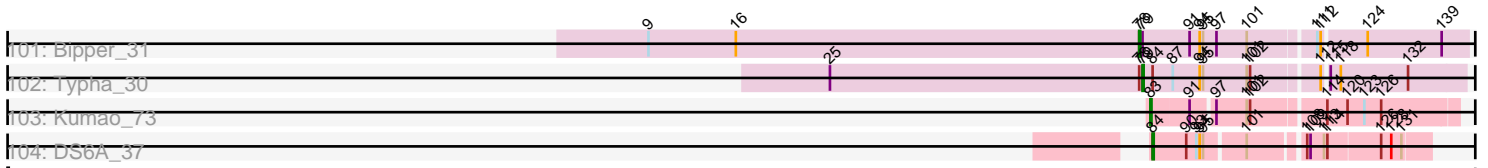
Pham 171135



Pham 171135



# Pham 171135



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 171135 Report

This analysis was run 07/10/24 on database version 566.

Pham number 171135 has 351 members, 25 are drafts.

Phages represented in each track:

- Track 1 : MalagasyRose\_37
- Track 2 : Nergal\_32
- Track 3 : Madraxi\_100
- Track 4 : Shagrat\_102
- Track 5 : Jflix2\_98
- Track 6 : Abscondus\_148
- Track 7 : Toniann\_149, PhinkBoden\_147, Lozinak\_149, Dusty\_145, Miskis\_147, Engineer\_151, Bachita\_152, Cucurbita\_148, Aphelion\_148, Norvs\_147
- Track 8 : Smoothie\_150, Culver\_149
- Track 9 : ClubL\_150
- Track 10 : WilliamBoone\_150
- Track 11 : BrutonGaster\_128
- Track 12 : OneUp\_134
- Track 13 : Sephiroth\_124, Kudefre\_129, Syleon\_129
- Track 14 : Octobien14\_125
- Track 15 : Neville\_126
- Track 16 : Trax\_127
- Track 17 : Rabbitrun\_128
- Track 18 : Glexan\_109, Lilizi\_110, Nimrod\_110, ShamWow\_110, RiverMonster\_109, Adnama\_114, Contagion\_107, Inca\_107, Misfit\_111, SirDuracell\_110, Bruin\_107, Harella\_111, NelitzaMV\_107, Thresher\_111, Gator\_108, DoctorDiddles\_109, Flypotenuse\_106, Wiggin\_112, Sotrice96\_111, Dusk\_107, Balomoji\_110, Tuco\_111, StellaBean\_108, Pharsalus\_107, Daikon\_111, Gage\_112, Hopey\_110, Traaww1\_106, Phaja\_108, Cookies\_107, Mosby\_107, Buck\_111, Miniwave\_105, StolenFromERC\_112, Mindy\_109, Pumpkin\_111, ChotaBhai\_110, Barbarian\_109, ABCat\_107, Hoonter\_113, Cactus\_114, FireRed\_113, Icee\_111, Gemini\_115, MPhalcon\_111, Rimmer\_108, Willez\_105, ShereKhan\_108, Bench\_112, Tomaszewski\_105, Phrux\_106, GooberAzure\_113, Paperbeatsrock\_109, Stark\_110, PhatBacter\_113, Teaspoon\_110, Tarkin\_109, Elite2014\_109, xkcd\_114, CrystalP\_110, Stank\_112, Ukulele\_104, Quallification\_111, Lilac\_111, Youngblood\_114, Goldilocks\_113, BugsBunny\_109, Pat3\_107, HufflyPuff\_112, Cjw1\_110, NoSleep\_110, Kanye\_107, IHOP\_108, JeTaime\_108, Lilpickle\_109, DrDrey\_110, Kimchi\_114, Murica\_114, TBrady12\_113, Bask21\_110, Kostya\_110, ChosenOne\_110, Dumbo\_110, TeardropMSU\_106, YassJohnny\_107, BadStone\_107, Asriel\_108, Filch\_112, Argent26\_114, Terminus\_113, Czyszczon1\_110, Myrale\_110, Maxxinsta\_112, BigBubba\_111, Xandras\_109, Holt\_115, Rakim\_111, Toto\_108, Nala\_112

- Track 19 : Emmina\_110, Phaux\_112, 244\_111, Easy2Say\_110, SophKB\_108, Eureka\_110, Porky\_108, Simpliphy\_108, Moldemort\_112, Manda\_111, Murphy\_109, HanKaySha\_110, Saints25\_106, Highbury\_106, OrionPax\_108, Goku\_109, Henry\_108, Marshmallow\_108, BaboJay\_109, MadamMonkfish\_109
- Track 20 : GoldenSpark\_114, Policronamos\_114, Palpatine\_111, Amao\_110, Petra64142\_114, Sassay\_105, AmericanBeauty\_117, Command613\_112, BilboSwaggins\_109, MISSy\_111
- Track 21 : Elph10\_109
- Track 22 : MiaZeal\_164, Squint\_155, Ariel\_161, Hannaconda\_156, KashFlow\_161, Superphikiman\_159, Porcelain\_161, LittleE\_169
- Track 23 : DmpstrDiver\_162, Dallas\_163, Zelink\_156, Yeet\_155, Bagrid\_172, Minerva\_163, Odette\_167
- Track 24 : HokkenD\_158, Bombitas\_150, JuicyJay\_158, Dove\_158, NihilNomen\_165, Pound\_156
- Track 25 : Bobby\_155
- Track 26 : LeMond\_36, KiSi\_36
- Track 27 : Oscar\_36
- Track 28 : Validus\_36
- Track 29 : LastHope\_37
- Track 30 : Scarlett\_36
- Track 31 : Niklas\_36, Shaobing\_36
- Track 32 : Guanica15\_37
- Track 33 : Curiosium\_38
- Track 34 : Yunkel11\_37
- Track 35 : Nibb\_35
- Track 36 : MarkPhew\_37
- Track 37 : Peanam\_36
- Track 38 : Efra2\_37
- Track 39 : Keshu\_37
- Track 40 : ShedlockHolmes\_37
- Track 41 : MacnCheese\_37
- Track 42 : TBond007\_36
- Track 43 : TribbleTrouble\_36
- Track 44 : Hurricane\_37
- Track 45 : Pixie\_36
- Track 46 : Pharb\_35
- Track 47 : Mitti\_37, Wintermute\_37, Eponine\_39
- Track 48 : Cheetobro\_37, Chancellor\_37, Slarp\_37
- Track 49 : Malthus\_38, Fionnbharth\_37
- Track 50 : Patt\_37, MissDaisy\_37, Reptar3000\_37
- Track 51 : JF1\_37
- Track 52 : SamScheppers\_37, OmniCritical\_37
- Track 53 : Ruthiejr\_38, Juliette\_39
- Track 54 : Y2\_37, Y10\_37
- Track 55 : Taquito\_37
- Track 56 : Paola\_36, Leston\_36, Gengar\_36, Guillsminger\_36
- Track 57 : Collard\_35, InvictusManeo\_35, Agent47\_36
- Track 58 : Psycho\_36, Larva\_36, Dadosky\_36, AlleyCat\_36
- Track 59 : Thyatira\_36
- Track 60 : Feyre\_36, OkiRoe\_36
- Track 61 : Waterfoul\_37
- Track 62 : Omnicron\_39
- Track 63 : SoSeph\_36, Heftyboy\_36

- Track 64 : Edugator\_36
- Track 65 : Rando14\_38
- Track 66 : Miryou\_36
- Track 67 : Kratio\_34
- Track 68 : Krueger\_36
- Track 69 : Sunflower1121\_35
- Track 70 : SirPhilip\_35
- Track 71 : Fefferhead\_35, Amgine\_34, Ellie\_33
- Track 72 : DARTH\_35
- Track 73 : Phrank\_36, Bryler\_36, Tierra\_36, Cain\_36
- Track 74 : Ximenita\_37
- Track 75 : Amohnition\_35, Hammy\_35
- Track 76 : Unicorn\_36, PhelpsODU\_36
- Track 77 : Ekdilam\_33
- Track 78 : Syra333\_36
- Track 79 : Yuna\_37
- Track 80 : TClif\_38
- Track 81 : Shadow1\_35
- Track 82 : Boilgate\_33
- Track 83 : Zaria\_92, Tyson\_93, LeBron\_91, Calm\_93, AvadaKedavra\_92, Silverleaf\_91, Acquire49\_92
- Track 84 : DirkDirk\_89, Enceladus\_89, MAckerman\_88, OhShagHennessy\_88, Wamburgrxpress\_91, Wyatt2\_93, Rose5\_93, Appletree2\_91, UPIE\_91, Halena\_89, CicholasNage\_89
- Track 85 : JoeDirt\_93
- Track 86 : MkaliMitinis3\_98, Miley16\_96, Netyap\_95, Faith1\_96, DrSeegs\_95, Breezona\_96, Winky\_96, Gabriela\_96, Lewan\_97, Wigglewiggles\_96, Itos\_96
- Track 87 : GuuelaD\_93, BobsGarage\_95, LilDestine\_94, Wilder\_97, Rumpelstiltskin\_92, Finemlucis\_97, Loadrie\_95, BigCheese\_96, Nicholasp3\_96, Vetric\_94, Kahlid\_95, Zakai\_97, Crossroads\_96, Gardann\_96
- Track 88 : Hafay\_97, Claus\_95, ZhongYanYuan\_93
- Track 89 : Bazzle\_93, Archie\_93
- Track 90 : Tourach\_96
- Track 91 : Baoshan\_93
- Track 92 : Kingsolomon\_91, Jubie\_92, Nicholas\_91, Whirlwind\_94, MiniLon\_97, Snenia\_92, Finnry\_93, Jobypre\_94, Lumos\_93, MsGreen\_93, Ellson\_92, Samty\_92, Krypton555\_95, DuncansLeg\_93, MiniMac\_97, Moostard\_90, Lolly9\_92, Clautastrophe\_91
- Track 93 : Bellis\_91
- Track 94 : Chaser\_96, Bromden\_97
- Track 95 : Douge\_96
- Track 96 : DyoEdafos\_99
- Track 97 : Baudelaire\_99, Aegeus\_99
- Track 98 : Nebkiss\_125, Gaia\_124
- Track 99 : Cracklewink\_31
- Track 100 : Hilltopfarm\_30
- Track 101 : Bipper\_31
- Track 102 : Typha\_30
- Track 103 : Kumao\_73
- Track 104 : DS6A\_37

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

The start number called the most often in the published annotations is 84, it was called in 243 of the 326 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

• 244\_111, ABCat\_107, Acquire49\_92, Adnama\_114, Aegeus\_99, Agent47\_36, AlleyCat\_36, Amgine\_34, Appletree2\_91, Archie\_93, Argent26\_114, Ariel\_161, Asriel\_108, AvadaKedavra\_92, BaboJay\_109, BadStone\_107, Bagrid\_172, Balomoji\_110, Baoshan\_93, Barbarian\_109, Bask21\_110, Baudelaire\_99, Bazzle\_93, Bench\_112, BigBubba\_111, BigCheese\_96, Bobby\_155, BobsGarage\_95, Boilgate\_33, Bombitas\_150, Breezona\_96, Bromden\_97, Bruin\_107, Buck\_111, BugsBunny\_109, Cactus\_114, Calm\_93, Chancellor\_37, Chaser\_96, Cheetobro\_37, ChosenOne\_110, ChotaBhai\_110, CicholasNage\_89, Cjw1\_110, Claus\_95, Collard\_35, Contagion\_107, Cookies\_107, Crossroads\_96, CrystalP\_110, Curiosium\_38, Czystoczon1\_110, DS6A\_37, Dadosky\_36, Daikon\_111, Dallas\_163, DarthP\_35, DirkDirk\_89, DmpstrDiver\_162, DoctorDiddles\_109, Douge\_96, Dove\_158, DrDrey\_110, DrSeegs\_95, Dumbo\_110, Dusk\_107, DyoEdafos\_99, Easy2Say\_110, Elite2014\_109, Ellie\_33, Elph10\_109, Emmina\_110, Enceladus\_89, Eponine\_39, Eureka\_110, Faith1\_96, Fefferhead\_35, Feyre\_36, Filch\_112, Finemlucis\_97, Fionnbharth\_37, FireRed\_113, Flypotenuse\_106, Gabriela\_96, Gage\_112, Gaia\_124, Gardann\_96, Gator\_108, Gemini\_115, Glexan\_109, Goku\_109, Goldilocks\_113, GooberAzure\_113, Guanica15\_37, GuuelaD\_93, Hafay\_97, Halena\_89, HanKaySha\_110, Hannaconda\_156, Harella\_111, Heftyboy\_36, Henry\_108, Highbury\_106, HokkenD\_158, Holt\_115, Hoonter\_113, Hopey\_110, HufflyPuff\_112, IHOP\_108, Icee\_111, Inca\_107, InvictusManeo\_35, Itos\_96, JeTaime\_108, JuicyJay\_158, Kahlid\_95, Kanye\_107, KashFlow\_161, Kimchi\_114, Kostya\_110, Kratio\_34, Larva\_36, LeBron\_91, Lewan\_97, LilDestine\_94, Lilac\_111, Lilizi\_110, Lilpickle\_109, LittleE\_169, Loadrie\_95, MAckerman\_88, MPhalcon\_111, MacnCheese\_37, MadamMonkfish\_109, MalagasyRose\_37, Malthus\_38, Manda\_111, MarkPhew\_37, Marshmallow\_108, Maxxinista\_112, MiaZeal\_164, Miley16\_96, Mindy\_109, Minerva\_163, Miniwave\_105, Miryou\_36, Misfit\_111, MissDaisy\_37, Mitti\_37, MkaliMitinis3\_98, Moldemort\_112, Mosby\_107, Murica\_114, Murphy\_109, Myrale\_110, Nala\_112, Nebkiss\_125, NelitzaMV\_107, Netyap\_95, Neville\_126, Nibb\_35, Nicholasp3\_96, NihilNomen\_165, Niklas\_36, Nimrod\_110, NoSleep\_110, Odette\_167, OhShagHennessy\_88, OkiRoe\_36, Omnicron\_39, OrionPax\_108, Oscar\_36, Paperbeatsrock\_109, Pat3\_107, Patt\_37, Phaja\_108, Pharb\_35, Pharsalus\_107, PhatBacter\_113, Phaux\_112, Phrux\_106, Porcelain\_161, Porky\_108, Pound\_156, Psycho\_36, Pumpkin\_111, Quallification\_111, Rabbitrun\_128, Rakim\_111, Reptar3000\_37, Rimmer\_108, RiverMonster\_109, Rose5\_93, Rumpelstiltskin\_92, Saints25\_106, Scarlett\_36, Shadow1\_35, ShamWow\_110, Shaobing\_36, ShereKhan\_108, Silverleaf\_91, Simpliphy\_108, SirDuracell\_110, Slarp\_37, SoSeph\_36, SophKB\_108, Sotrice96\_111, Squint\_155, Stank\_112, Stark\_110, StellaBean\_108, StolenFromERC\_112, Sunflower1121\_35, Superphikiman\_159, Syra333\_36, TBrady12\_113, TClif\_38, Tarkin\_109, TeardropMSU\_106, Teaspoon\_110, Terminus\_113, Thresher\_111, Thyatira\_36, Tomaszewski\_105, Toto\_108, Tourach\_96, Traaww1\_106, Trax\_127, TribbleTrouble\_36, Tuco\_111, Tyson\_93, UPIE\_91, Ukulele\_104, Validus\_36, Vetrix\_94, Wamburgxpress\_91, Waterfoul\_37, Wiggin\_112, Wigglewiggles\_96, Wilder\_97, Willez\_105, Winky\_96, Wintermute\_37, Wyatt2\_93, Xandras\_109, Y10\_37, Y2\_37, YassJohnny\_107, Yeet\_155, Youngblood\_114, Yunkel11\_37, Zakai\_97, Zaria\_92, Zelink\_156,

ZhongYanYuan\_93, xkcd\_114,

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

- Amao\_110, AmericanBeauty\_117, Amohnton\_35, BilboSwaggins\_109, Command613\_112, Edugator\_36, Efra2\_37, Ekdilam\_33, Gengar\_36, GoldenSpark\_114, Guillsminger\_36, Hammy\_35, Hilltopfarm\_30, JF1\_37, JoeDirt\_93, Juliette\_39, KiSi\_36, Krueger\_36, LastHope\_37, LeMond\_36, Leston\_36, MISSy\_111, Octobien14\_125, OmniCritical\_37, OneUp\_134, Palpatine\_111, Paola\_36, Peanam\_36, Petra64142\_114, Policronamos\_114, Ruthiejr\_38, SamScheppers\_37, Sassay\_105, SirPhilip\_35, Typha\_30, Ximenita\_37, Yuna\_37,

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

- Abscondus\_148, Aphelion\_148, Bachita\_152, Bellis\_91, Bipper\_31, BrutonGaster\_128, Bryler\_36, Cain\_36, Clautastrophe\_91, ClubL\_150, Cracklewink\_31, Cucurbita\_148, Culver\_149, DuncansLeg\_93, Dusty\_145, Ellson\_92, Engineer\_151, Finnry\_93, Hurricane\_37, Jflix2\_98, Jobypre\_94, Jubie\_92, Keshu\_37, Kingsolomon\_91, Krypton555\_95, Kudefre\_129, Kumao\_73, Lolly9\_92, Lozinak\_149, Lumos\_93, Madraxi\_100, MiniLon\_97, MiniMac\_97, Miskis\_147, Moostard\_90, MsGreen\_93, Nergal\_32, Nicholas\_91, Norvs\_147, PhelpsODU\_36, PhinkBoden\_147, Phrank\_36, Pixie\_36, Rando14\_38, Samty\_92, Sephiroth\_124, Shagrat\_102, ShedlockHolmes\_37, Smoothie\_150, Snenia\_92, Syleon\_129, TBond007\_36, Taquito\_37, Tierra\_36, Toniann\_149, Unicorn\_36, Whirlwind\_94, WilliamBoone\_150,

### Summary by start number:

Start 55:

- Found in 2 of 351 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 2 of 326
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jflix2\_98 (CF), Madraxi\_100 (CF),

Start 61:

- Found in 14 of 351 ( 4.0% ) of genes in pham
- Manual Annotations of this start: 11 of 326
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abscondus\_148 (CQ), Aphelion\_148 (CQ1), Bachita\_152 (CQ1), Cucurbita\_148 (CQ1), Culver\_149 (CQ1), Dusty\_145 (CQ), Engineer\_151 (CQ1), Lozinak\_149 (CQ1), Miskis\_147 (CQ), Norvs\_147 (CQ), PhinkBoden\_147 (CQ1), Smoothie\_150 (CQ1), Toniann\_149 (CQ1), WilliamBoone\_150 (CQ1),

Start 64:

- Found in 11 of 351 ( 3.1% ) of genes in pham
- Manual Annotations of this start: 5 of 326
- Called 45.5% of time when present
- Phage (with cluster) where this start called: Edugator\_36 (K5), Gengar\_36 (K5), Guillsminger\_36 (K5), Leston\_36 (K5), Paola\_36 (K5),

Start 68:

- Found in 53 of 351 ( 15.1% ) of genes in pham
- Manual Annotations of this start: 26 of 326
- Called 49.1% of time when present



- Phage (with cluster) where this start called: Amohnition\_35 (K6), Bryler\_36 (K6), Cain\_36 (K6), Ekdilam\_33 (K6), Hammy\_35 (K6), Hurricane\_37 (K3), JF1\_37 (K4), Juliette\_39 (K4), Keshu\_37 (K3), KiSi\_36 (K1), Krueger\_36 (K6), LeMond\_36 (K1), OmniCritical\_37 (K4), Peanam\_36 (K1), PhelpsODU\_36 (K6), Phrank\_36 (K6), Pixie\_36 (K3), Ruthiejr\_38 (K4), SamScheppers\_37 (K4), ShedlockHolmes\_37 (K3), SirPhilip\_35 (K6), TBond007\_36 (K3), Tierra\_36 (K6), Unicorn\_36 (K6), Ximenita\_37 (K6), Yuna\_37 (K6),

#### Start 69:

- Found in 1 of 351 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 326
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Efra2\_37 (K1),

#### Start 70:

- Found in 4 of 351 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 2 of 326
- Called 50.0% of time when present
- Phage (with cluster) where this start called: LastHope\_37 (K1), Nergal\_32 (AG),

#### Start 73:

- Found in 1 of 351 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 326
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Rando14\_38 (K5),

#### Start 75:

- Found in 8 of 351 ( 2.3% ) of genes in pham
- Manual Annotations of this start: 2 of 326
- Called 25.0% of time when present
- Phage (with cluster) where this start called: BrutonGaster\_128 (CQ2), OneUp\_134 (CQ2),

#### Start 78:

- Found in 8 of 351 ( 2.3% ) of genes in pham
- Manual Annotations of this start: 6 of 326
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Bipper\_31 (Y), Cracklewink\_31 (Y), Kudofre\_129 (DU1), Octobien14\_125 (DU1), Sephiroth\_124 (DU1), Syleon\_129 (DU1),

#### Start 79:

- Found in 24 of 351 ( 6.8% ) of genes in pham
- Manual Annotations of this start: 19 of 326
- Called 87.5% of time when present
- Phage (with cluster) where this start called: Clautastrophe\_91 (L3), DuncansLeg\_93 (L3), Ellson\_92 (L3), Finnry\_93 (L3), Hilltopfarm\_30 (Y), Jobypre\_94 (L3), Jubie\_92 (L3), Kingsolomon\_91 (L3), Krypton555\_95 (L3), Lolly9\_92 (L3), Lumos\_93 (L3), MiniLon\_97 (L3), MiniMac\_97 (L3), Moostard\_90 (L3), MsGreen\_93 (L3), Nicholas\_91 (L3), Samty\_92 (L3), Shagrat\_102 (CF), Snenia\_92 (L3), Typha\_30 (Y), Whirlwind\_94 (L3),

#### Start 82:

- Found in 23 of 351 ( 6.6% ) of genes in pham
- Manual Annotations of this start: 1 of 326
- Called 4.3% of time when present
- Phage (with cluster) where this start called: JoeDirt\_93 (L1),

#### Start 83:

- Found in 1 of 351 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 326
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kumao\_73 (singleton),

#### Start 84:

- Found in 293 of 351 ( 83.5% ) of genes in pham
- Manual Annotations of this start: 243 of 326
- Called 87.4% of time when present
- Phage (with cluster) where this start called: 244\_111 (E), ABCat\_107 (E), Acquire49\_92 (L1), Adnama\_114 (E), Aegeus\_99 (L5), Agent47\_36 (K5), AlleyCat\_36 (K5), Amgine\_34 (K6), Appletree2\_91 (L1), Archie\_93 (L2), Argent26\_114 (E), Ariel\_161 (J), Asriel\_108 (E), AvadaKedavra\_92 (L1), BaboJay\_109 (E), BadStone\_107 (E), Bagrid\_172 (J), Balomoji\_110 (E), Baoshan\_93 (L2), Barbarian\_109 (E), Bask21\_110 (E), Baudelaire\_99 (L5), Bazzle\_93 (L2), Bench\_112 (E), BigBubba\_111 (E), BigCheese\_96 (L2), Bobby\_155 (J), BobsGarage\_95 (L2), Boilgate\_33 (K8), Bombitas\_150 (J), Breezona\_96 (L2), Bromden\_97 (L4), Bruin\_107 (E), Buck\_111 (E), BugsBunny\_109 (E), Cactus\_114 (E), Calm\_93 (L1), Chancellor\_37 (K4), Chaser\_96 (L4), Cheetobro\_37 (K4), ChosenOne\_110 (E), ChotaBhai\_110 (E), CicholasNage\_89 (L1), Cjw1\_110 (E), Claus\_95 (L2), Collard\_35 (K5), Contagion\_107 (E), Cookies\_107 (E), Crossroads\_96 (L2), CrystalP\_110 (E), Curiosium\_38 (K1), Czyszczonek\_110 (E), DS6A\_37 (singleton), Dadosky\_36 (K5), Daikon\_111 (E), Dallas\_163 (J), DarthP\_35 (K6), DirkDirk\_89 (L1), DmpstrDiver\_162 (J), DoctorDiddles\_109 (E), Douge\_96 (L4), Dove\_158 (J), DrDrey\_110 (E), DrSeegs\_95 (L2), Dumbo\_110 (E), Dusk\_107 (E), DyoEdafos\_99 (L4), Easy2Say\_110 (E), Elite2014\_109 (E), Ellie\_33 (K6), Elph10\_109 (E), Emmina\_110 (E), Enceladus\_89 (L1), Eponine\_39 (K4), Eureka\_110 (E), Faith1\_96 (L2), Fefferhead\_35 (K6), Feyre\_36 (K5), Filch\_112 (E), Finemlucis\_97 (L2), Fionnbharth\_37 (K4), FireRed\_113 (E), Flypotenuse\_106 (E), Gabriela\_96 (L2), Gage\_112 (E), Gaia\_124 (X), Gardann\_96 (L2), Gator\_108 (E), Gemini\_115 (E), Glexan\_109 (E), Goku\_109 (E), Goldilocks\_113 (E), GooberAzure\_113 (E), Guanica15\_37 (K1), GuuelaD\_93 (L2), Hafay\_97 (L2), Halena\_89 (L1), HankKaySha\_110 (E), Hannaconda\_156 (J), Harella\_111 (E), Heftyboy\_36 (K5), Henry\_108 (E), Highbury\_106 (E), HokkenD\_158 (J), Holt\_115 (E), Hoonter\_113 (E), Hopey\_110 (E), HufflyPuff\_112 (E), IHOP\_108 (E), Icee\_111 (E), Inca\_107 (E), InvictusManeo\_35 (K5), Itos\_96 (L2), JeTaimie\_108 (E), JuicyJay\_158 (J), Kahlid\_95 (L2), Kanye\_107 (E), KashFlow\_161 (J), Kimchi\_114 (E), Kostya\_110 (E), Kratio\_34 (K5), Larva\_36 (K5), LeBron\_91 (L1), Lewan\_97 (L2), LilDestine\_94 (L2), Lilac\_111 (E), Lilizi\_110 (E), Lilpickle\_109 (E), LittleE\_169 (J), Loadrie\_95 (L2), MAckerman\_88 (L1), MPhalcon\_111 (E), MacnCheese\_37 (K3), MadamMonkfish\_109 (E), MalagasyRose\_37 (AG), Malthus\_38 (K4), Manda\_111 (E), MarkPhew\_37 (K1), Marshmallow\_108 (E), Maxxinista\_112 (E), MiaZeal\_164 (J), Miley16\_96 (L2), Mindy\_109 (E), Minerva\_163 (J), Miniwave\_105 (E), Miryou\_36 (K5), Misfit\_111 (E), MissDaisy\_37 (K4), Mitti\_37 (K4), MkaliMitinis3\_98 (L2), Moldemort\_112 (E), Mosby\_107 (E), Murica\_114 (E), Murphy\_109 (E), Myrale\_110 (E), Nala\_112 (E), Nebkiss\_125 (X), NelitzaMV\_107 (E), Netyap\_95 (L2), Neville\_126 (DU2), Nibb\_35 (K1), Nicholasp3\_96 (L2), NihilNomen\_165 (J), Niklas\_36 (K1),

Nimrod\_110 (E), NoSleep\_110 (E), Odette\_167 (J), OhShagHennessy\_88 (L1), OkiRoe\_36 (K5), Omnicron\_39 (K5), OrionPax\_108 (E), Oscar\_36 (K1), Paperbeatsrock\_109 (E), Pat3\_107 (E), Patt\_37 (K4), Phaja\_108 (E), Pharb\_35 (K3), Pharsalus\_107 (E), PhatBacter\_113 (E), Phaux\_112 (E), Phrux\_106 (E), Porcelain\_161 (J), Porky\_108 (E), Pound\_156 (J), Psycho\_36 (K5), Pumpkin\_111 (E), Quallification\_111 (E), Rabbitrun\_128 (DU2), Rakim\_111 (E), Reptar3000\_37 (K4), Rimmer\_108 (E), RiverMonster\_109 (E), Rose5\_93 (L1), Rumpelstiltskin\_92 (L2), Saints25\_106 (E), Scarlett\_36 (K1), Shadow1\_35 (K6), ShamWow\_110 (E), Shaobing\_36 (K1), ShereKhan\_108 (E), Silverleaf\_91 (L1), Simpliphy\_108 (E), SirDuracell\_110 (E), Slarp\_37 (K4), SoSeph\_36 (K5), SophKB\_108 (E), Sotrice96\_111 (E), Squint\_155 (J), Stank\_112 (E), Stark\_110 (E), StellaBean\_108 (E), StolenFromERC\_112 (E), Sunflower1121\_35 (K6), Superphikiman\_159 (J), Syra333\_36 (K6), TBrady12\_113 (E), TClif\_38 (K6), Tarkin\_109 (E), TeardropMSU\_106 (E), Teaspoon\_110 (E), Terminus\_113 (E), Thresher\_111 (E), Thyatira\_36 (K5), Tomaszewski\_105 (E), Toto\_108 (E), Tourach\_96 (L2), Traaww1\_106 (E), Trax\_127 (DU2), TribbleTrouble\_36 (K3), Tuco\_111 (E), Tyson\_93 (L1), UPIE\_91 (L1), Ukulele\_104 (E), Validus\_36 (K1), Vetrix\_94 (L2), Wamburgexpress\_91 (L1), Waterfoul\_37 (K5), Wiggin\_112 (E), Wigglewobble\_96 (L2), Wilder\_97 (L2), Willez\_105 (E), Winky\_96 (L2), Wintermute\_37 (K4), Wyatt2\_93 (L1), Xandras\_109 (E), Y10\_37 (K4), Y2\_37 (K4), YassJohnny\_107 (E), Yeet\_155 (J), Youngblood\_114 (E), Yunkel11\_37 (K1), Zakai\_97 (L2), Zaria\_92 (L1), Zelink\_156 (J), ZhongYanYuan\_93 (L2), xkcd\_114 (E),

Start 89:

- Found in 19 of 351 ( 5.4% ) of genes in pham
- Manual Annotations of this start: 1 of 326
- Called 5.3% of time when present
- Phage (with cluster) where this start called: ClubL\_150 (CQ1),

Start 90:

- Found in 183 of 351 ( 52.1% ) of genes in pham
- Manual Annotations of this start: 4 of 326
- Called 6.0% of time when present
- Phage (with cluster) where this start called: Amao\_110 (E), AmericanBeauty\_117 (E), Bellis\_91 (L3), BilboSwaggins\_109 (E), Command613\_112 (E), GoldenSpark\_114 (E), MISSy\_111 (E), Palpatine\_111 (E), Petra64142\_114 (E), Policronamos\_114 (E), Sassay\_105 (E),

Start 91:

- Found in 35 of 351 ( 10.0% ) of genes in pham
- Manual Annotations of this start: 1 of 326
- Called 2.9% of time when present
- Phage (with cluster) where this start called: Taquito\_37 (K4),

### Summary by clusters:

There are 23 clusters represented in this pham: singleton, DU1, K3, K1, K6, K5, K4, K8, CQ2, DU2, E, AG, J, CF, L4, L5, L2, L3, L1, Y, X, CQ, CQ1,

Info for manual annotations of cluster AG:

- Start number 70 was manually annotated 1 time for cluster AG.
- Start number 84 was manually annotated 1 time for cluster AG.

Info for manual annotations of cluster CF:

- Start number 55 was manually annotated 2 times for cluster CF.
- Start number 79 was manually annotated 1 time for cluster CF.

Info for manual annotations of cluster CQ:

- Start number 61 was manually annotated 1 time for cluster CQ.

Info for manual annotations of cluster CQ1:

- Start number 61 was manually annotated 10 times for cluster CQ1.
- Start number 89 was manually annotated 1 time for cluster CQ1.

Info for manual annotations of cluster CQ2:

- Start number 75 was manually annotated 2 times for cluster CQ2.

Info for manual annotations of cluster DU1:

- Start number 78 was manually annotated 4 times for cluster DU1.

Info for manual annotations of cluster DU2:

- Start number 84 was manually annotated 3 times for cluster DU2.

Info for manual annotations of cluster E:

- Start number 84 was manually annotated 118 times for cluster E.
- Start number 90 was manually annotated 4 times for cluster E.

Info for manual annotations of cluster J:

- Start number 84 was manually annotated 19 times for cluster J.

Info for manual annotations of cluster K1:

- Start number 68 was manually annotated 3 times for cluster K1.
- Start number 69 was manually annotated 1 time for cluster K1.
- Start number 70 was manually annotated 1 time for cluster K1.
- Start number 84 was manually annotated 10 times for cluster K1.

Info for manual annotations of cluster K3:

- Start number 68 was manually annotated 5 times for cluster K3.
- Start number 84 was manually annotated 3 times for cluster K3.

Info for manual annotations of cluster K4:

- Start number 68 was manually annotated 5 times for cluster K4.
- Start number 84 was manually annotated 13 times for cluster K4.
- Start number 91 was manually annotated 1 time for cluster K4.

Info for manual annotations of cluster K5:

- Start number 64 was manually annotated 5 times for cluster K5.
- Start number 73 was manually annotated 1 time for cluster K5.
- Start number 84 was manually annotated 15 times for cluster K5.

Info for manual annotations of cluster K6:

- Start number 68 was manually annotated 13 times for cluster K6.
- Start number 84 was manually annotated 7 times for cluster K6.

Info for manual annotations of cluster K8:

- Start number 84 was manually annotated 1 time for cluster K8.

Info for manual annotations of cluster L1:

- Start number 82 was manually annotated 1 time for cluster L1.
- Start number 84 was manually annotated 17 times for cluster L1.

Info for manual annotations of cluster L2:

- Start number 84 was manually annotated 28 times for cluster L2.

Info for manual annotations of cluster L3:

- Start number 79 was manually annotated 16 times for cluster L3.

Info for manual annotations of cluster L4:

- Start number 84 was manually annotated 3 times for cluster L4.

Info for manual annotations of cluster L5:

- Start number 84 was manually annotated 2 times for cluster L5.

Info for manual annotations of cluster X:

- Start number 84 was manually annotated 2 times for cluster X.

Info for manual annotations of cluster Y:

- Start number 78 was manually annotated 2 times for cluster Y.
- Start number 79 was manually annotated 2 times for cluster Y.

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

Gene: 244\_111 Start: 62553, Stop: 62816, Start Num: 84

Candidate Starts for 244\_111:

(Start: 84 @62553 has 243 MA's), (Start: 90 @62583 has 4 MA's), (104, 62658), (108, 62673), (137, 62775),

Gene: ABCat\_107 Start: 63757, Stop: 64020, Start Num: 84

Candidate Starts for ABCat\_107:

(Start: 84 @63757 has 243 MA's), (Start: 90 @63787 has 4 MA's), (104, 63862), (137, 63979),

Gene: Abscondus\_148 Start: 80394, Stop: 80693, Start Num: 61

Candidate Starts for Abscondus\_148:

(Start: 61 @80394 has 11 MA's), (Start: 89 @80475 has 1 MA's), (108, 80568), (116, 80592), (118, 80598), (136, 80664), (139, 80682),

Gene: Acquire49\_92 Start: 57880, Stop: 58119, Start Num: 84

Candidate Starts for Acquire49\_92:

(Start: 82 @57877 has 1 MA's), (Start: 84 @57880 has 243 MA's), (104, 57985), (108, 58000), (112, 58012), (117, 58027), (121, 58039), (132, 58087),

Gene: Adnama\_114 Start: 63046, Stop: 63309, Start Num: 84

Candidate Starts for Adnama\_114:

(Start: 84 @63046 has 243 MA's), (Start: 90 @63076 has 4 MA's), (104, 63151), (137, 63268),

Gene: Aegeus\_99 Start: 60382, Stop: 60651, Start Num: 84

Candidate Starts for Aegeus\_99:

(46, 60259), (49, 60286), (52, 60289), (66, 60337), (77, 60367), (Start: 84 @60382 has 243 MA's), (Start: 89 @60409 has 1 MA's), (Start: 90 @60412 has 4 MA's), (Start: 91 @60415 has 1 MA's), (95, 60427), (101, 60460), (105, 60490), (108, 60502), (112, 60514), (113, 60517), (131, 60583), (133, 60592), (137, 60604), (138, 60616),

Gene: Agent47\_36 Start: 30297, Stop: 30521, Start Num: 84

Candidate Starts for Agent47\_36:

(Start: 84 @30297 has 243 MA's), (Start: 90 @30327 has 4 MA's), (94, 30339), (101, 30375), (102, 30378), (114, 30435), (121, 30456), (123, 30465), (128, 30489), (131, 30498),

Gene: AlleyCat\_36 Start: 30143, Stop: 30367, Start Num: 84

Candidate Starts for AlleyCat\_36:

(Start: 84 @30143 has 243 MA's), (Start: 90 @30173 has 4 MA's), (94, 30185), (101, 30221), (102, 30224), (114, 30281), (121, 30302), (122, 30305), (123, 30311), (128, 30335), (131, 30344),

Gene: Amao\_110 Start: 63350, Stop: 63583, Start Num: 90

Candidate Starts for Amao\_110:

(Start: 84 @63320 has 243 MA's), (Start: 90 @63350 has 4 MA's), (104, 63425), (137, 63542),

Gene: AmericanBeauty\_117 Start: 63118, Stop: 63351, Start Num: 90

Candidate Starts for AmericanBeauty\_117:

(Start: 84 @63088 has 243 MA's), (Start: 90 @63118 has 4 MA's), (104, 63193), (137, 63310),

Gene: Amgine\_34 Start: 29490, Stop: 29714, Start Num: 84

Candidate Starts for Amgine\_34:

(36, 29292), (42, 29337), (45, 29367), (Start: 82 @29487 has 1 MA's), (Start: 84 @29490 has 243 MA's), (Start: 90 @29520 has 4 MA's), (99, 29547), (123, 29658),

Gene: Amohndition\_35 Start: 29885, Stop: 30115, Start Num: 68

Candidate Starts for Amohndition\_35:

(Start: 68 @29885 has 26 MA's), (Start: 84 @29888 has 243 MA's),

Gene: Aphelion\_148 Start: 81287, Stop: 81586, Start Num: 61

Candidate Starts for Aphelion\_148:

(Start: 61 @81287 has 11 MA's), (Start: 89 @81368 has 1 MA's), (112, 81473), (118, 81491), (136, 81557), (139, 81575),

Gene: Appletree2\_91 Start: 57640, Stop: 57879, Start Num: 84

Candidate Starts for Appletree2\_91:

(Start: 82 @57637 has 1 MA's), (Start: 84 @57640 has 243 MA's), (104, 57745), (108, 57760), (112, 57772), (117, 57787), (121, 57799), (131, 57841), (132, 57847),

Gene: Archie\_93 Start: 59561, Stop: 59821, Start Num: 84

Candidate Starts for Archie\_93:

(Start: 84 @59561 has 243 MA's), (88, 59585), (104, 59666), (112, 59693), (116, 59705), (119, 59714), (121, 59720), (131, 59762), (132, 59768),

Gene: Argent26\_114 Start: 62970, Stop: 63233, Start Num: 84

Candidate Starts for Argent26\_114:

(Start: 84 @62970 has 243 MA's), (Start: 90 @63000 has 4 MA's), (104, 63075), (137, 63192),

Gene: Ariel\_161 Start: 83041, Stop: 83286, Start Num: 84

Candidate Starts for Ariel\_161:

(47, 82951), (49, 82966), (76, 83029), (Start: 84 @83041 has 243 MA's), (Start: 91 @83071 has 1 MA's), (101, 83116), (109, 83161), (124, 83209),

Gene: Asriel\_108 Start: 61503, Stop: 61766, Start Num: 84

Candidate Starts for Asriel\_108:

(Start: 84 @61503 has 243 MA's), (Start: 90 @61533 has 4 MA's), (104, 61608), (137, 61725),

Gene: AvadaKedavra\_92 Start: 57992, Stop: 58231, Start Num: 84

Candidate Starts for AvadaKedavra\_92:

(Start: 82 @57989 has 1 MA's), (Start: 84 @57992 has 243 MA's), (104, 58097), (108, 58112), (112, 58124), (117, 58139), (121, 58151), (132, 58199),

Gene: BaboJay\_109 Start: 63726, Stop: 63989, Start Num: 84

Candidate Starts for BaboJay\_109:

(Start: 84 @63726 has 243 MA's), (Start: 90 @63756 has 4 MA's), (104, 63831), (108, 63846), (137, 63948),

Gene: Bachita\_152 Start: 81434, Stop: 81733, Start Num: 61

Candidate Starts for Bachita\_152:

(Start: 61 @81434 has 11 MA's), (Start: 89 @81515 has 1 MA's), (112, 81620), (118, 81638), (136, 81704), (139, 81722),

Gene: BadStone\_107 Start: 63305, Stop: 63568, Start Num: 84

Candidate Starts for BadStone\_107:

(Start: 84 @63305 has 243 MA's), (Start: 90 @63335 has 4 MA's), (104, 63410), (137, 63527),

Gene: Bagrid\_172 Start: 89184, Stop: 89429, Start Num: 84

Candidate Starts for Bagrid\_172:

(59, 89115), (Start: 84 @89184 has 243 MA's), (108, 89301),

Gene: Balomoji\_110 Start: 63286, Stop: 63549, Start Num: 84

Candidate Starts for Balomoji\_110:

(Start: 84 @63286 has 243 MA's), (Start: 90 @63316 has 4 MA's), (104, 63391), (137, 63508),

Gene: Baoshan\_93 Start: 60216, Stop: 60476, Start Num: 84

Candidate Starts for Baoshan\_93:

(Start: 84 @60216 has 243 MA's), (104, 60321), (112, 60348), (113, 60351), (115, 60357), (116, 60360), (117, 60363), (121, 60375), (131, 60417), (132, 60423),

Gene: Barbarian\_109 Start: 61503, Stop: 61766, Start Num: 84

Candidate Starts for Barbarian\_109:

(Start: 84 @61503 has 243 MA's), (Start: 90 @61533 has 4 MA's), (104, 61608), (137, 61725),

Gene: Bask21\_110 Start: 62122, Stop: 62385, Start Num: 84

Candidate Starts for Bask21\_110:

(Start: 84 @62122 has 243 MA's), (Start: 90 @62152 has 4 MA's), (104, 62227), (137, 62344),

Gene: Baudelaire\_99 Start: 60382, Stop: 60651, Start Num: 84

Candidate Starts for Baudelaire\_99:

(46, 60259), (49, 60286), (52, 60289), (66, 60337), (77, 60367), (Start: 84 @60382 has 243 MA's), (Start: 89 @60409 has 1 MA's), (Start: 90 @60412 has 4 MA's), (Start: 91 @60415 has 1 MA's), (95, 60427), (101, 60460), (105, 60490), (108, 60502), (112, 60514), (113, 60517), (131, 60583), (133, 60592), (137, 60604), (138, 60616),

Gene: Bazzle\_93 Start: 60117, Stop: 60377, Start Num: 84

Candidate Starts for Bazzle\_93:

(Start: 84 @60117 has 243 MA's), (88, 60141), (104, 60222), (112, 60249), (116, 60261), (119, 60270), (121, 60276), (131, 60318), (132, 60324),

Gene: Bellis\_91 Start: 59773, Stop: 60003, Start Num: 90

Candidate Starts for Bellis\_91:

(Start: 79 @59734 has 19 MA's), (Start: 90 @59773 has 4 MA's), (104, 59848), (112, 59875), (115, 59884), (134, 59956),

Gene: Bench\_112 Start: 63727, Stop: 63990, Start Num: 84

Candidate Starts for Bench\_112:

(Start: 84 @63727 has 243 MA's), (Start: 90 @63757 has 4 MA's), (104, 63832), (137, 63949),

Gene: BigBubba\_111 Start: 62199, Stop: 62462, Start Num: 84

Candidate Starts for BigBubba\_111:

(Start: 84 @62199 has 243 MA's), (Start: 90 @62229 has 4 MA's), (104, 62304), (137, 62421),

Gene: BigCheese\_96 Start: 60326, Stop: 60586, Start Num: 84

Candidate Starts for BigCheese\_96:

(Start: 84 @60326 has 243 MA's), (88, 60350), (104, 60431), (112, 60458), (116, 60470), (117, 60473), (119, 60479), (121, 60485), (131, 60527), (132, 60533),

Gene: BilboSwaggins\_109 Start: 63813, Stop: 64046, Start Num: 90

Candidate Starts for BilboSwaggins\_109:

(Start: 84 @63783 has 243 MA's), (Start: 90 @63813 has 4 MA's), (104, 63888), (137, 64005),

Gene: Bipper\_31 Start: 28074, Stop: 28352, Start Num: 78

Candidate Starts for Bipper\_31:

(9, 27636), (16, 27714), (Start: 78 @28074 has 6 MA's), (Start: 79 @28077 has 19 MA's), (Start: 91 @28119 has 1 MA's), (94, 28128), (95, 28131), (97, 28143), (101, 28170), (111, 28224), (112, 28227), (124, 28263), (139, 28329),

Gene: Bobby\_155 Start: 88907, Stop: 89152, Start Num: 84

Candidate Starts for Bobby\_155:

(59, 88838), (Start: 84 @88907 has 243 MA's), (108, 89024),

Gene: BobsGarage\_95 Start: 60326, Stop: 60586, Start Num: 84

Candidate Starts for BobsGarage\_95:

(Start: 84 @60326 has 243 MA's), (88, 60350), (104, 60431), (112, 60458), (116, 60470), (117, 60473), (119, 60479), (121, 60485), (131, 60527), (132, 60533),

Gene: Boilgate\_33 Start: 31436, Stop: 31663, Start Num: 84

Candidate Starts for Boilgate\_33:

(Start: 68 @31433 has 26 MA's), (Start: 84 @31436 has 243 MA's), (94, 31478), (96, 31484), (103, 31529), (104, 31541), (110, 31565), (114, 31577), (117, 31586), (123, 31607), (133, 31646),

Gene: Bombitas\_150 Start: 84182, Stop: 84427, Start Num: 84

Candidate Starts for Bombitas\_150:

(59, 84113), (Start: 84 @84182 has 243 MA's), (108, 84299),

Gene: Breezona\_96 Start: 60332, Stop: 60592, Start Num: 84



Candidate Starts for Breezona\_96:

(Start: 84 @60332 has 243 MA's), (88, 60356), (104, 60437), (116, 60476), (117, 60479), (119, 60485), (121, 60491), (131, 60533), (132, 60539),

Gene: Bromden\_97 Start: 60914, Stop: 61153, Start Num: 84

Candidate Starts for Bromden\_97:

(80, 60908), (Start: 84 @60914 has 243 MA's), (102, 60995), (104, 61019), (112, 61046), (124, 61085), (132, 61121), (134, 61127),

Gene: Bruin\_107 Start: 62411, Stop: 62674, Start Num: 84

Candidate Starts for Bruin\_107:

(Start: 84 @62411 has 243 MA's), (Start: 90 @62441 has 4 MA's), (104, 62516), (137, 62633),

Gene: BrutonGaster\_128 Start: 76649, Stop: 76906, Start Num: 75

Candidate Starts for BrutonGaster\_128:

(41, 76505), (44, 76535), (48, 76568), (Start: 75 @76649 has 2 MA's), (85, 76670), (88, 76691), (118, 76817), (127, 76853), (129, 76859), (136, 76883),

Gene: Bryler\_36 Start: 28890, Stop: 29123, Start Num: 68

Candidate Starts for Bryler\_36:

(45, 28800), (Start: 68 @28890 has 26 MA's), (112, 29031), (134, 29109),

Gene: Buck\_111 Start: 64227, Stop: 64490, Start Num: 84

Candidate Starts for Buck\_111:

(Start: 84 @64227 has 243 MA's), (Start: 90 @64257 has 4 MA's), (104, 64332), (137, 64449),

Gene: BugsBunny\_109 Start: 63725, Stop: 63988, Start Num: 84

Candidate Starts for BugsBunny\_109:

(Start: 84 @63725 has 243 MA's), (Start: 90 @63755 has 4 MA's), (104, 63830), (137, 63947),

Gene: Cactus\_114 Start: 62665, Stop: 62928, Start Num: 84

Candidate Starts for Cactus\_114:

(Start: 84 @62665 has 243 MA's), (Start: 90 @62695 has 4 MA's), (104, 62770), (137, 62887),

Gene: Cain\_36 Start: 28878, Stop: 29111, Start Num: 68

Candidate Starts for Cain\_36:

(45, 28788), (Start: 68 @28878 has 26 MA's), (112, 29019), (134, 29097),

Gene: Calm\_93 Start: 57891, Stop: 58130, Start Num: 84

Candidate Starts for Calm\_93:

(Start: 82 @57888 has 1 MA's), (Start: 84 @57891 has 243 MA's), (104, 57996), (108, 58011), (112, 58023), (117, 58038), (121, 58050), (132, 58098),

Gene: Chancellor\_37 Start: 30638, Stop: 30919, Start Num: 84

Candidate Starts for Chancellor\_37:

(Start: 68 @30632 has 26 MA's), (Start: 84 @30638 has 243 MA's), (Start: 91 @30671 has 1 MA's), (99, 30695), (103, 30731), (112, 30773), (115, 30782), (116, 30785), (122, 30803), (123, 30809), (133, 30851), (134, 30854), (135, 30857),

Gene: Chaser\_96 Start: 59337, Stop: 59576, Start Num: 84

Candidate Starts for Chaser\_96:

(80, 59331), (Start: 84 @59337 has 243 MA's), (102, 59418), (104, 59442), (112, 59469), (124, 59508), (132, 59544), (134, 59550),

Gene: Cheetobro\_37 Start: 30635, Stop: 30916, Start Num: 84

Candidate Starts for Cheetobro\_37:

(Start: 68 @30629 has 26 MA's), (Start: 84 @30635 has 243 MA's), (Start: 91 @30668 has 1 MA's), (99, 30692), (103, 30728), (112, 30770), (115, 30779), (116, 30782), (122, 30800), (123, 30806), (133, 30848), (134, 30851), (135, 30854),

Gene: ChosenOne\_110 Start: 62611, Stop: 62874, Start Num: 84

Candidate Starts for ChosenOne\_110:

(Start: 84 @62611 has 243 MA's), (Start: 90 @62641 has 4 MA's), (104, 62716), (137, 62833),

Gene: ChotaBhai\_110 Start: 63064, Stop: 63327, Start Num: 84

Candidate Starts for ChotaBhai\_110:

(Start: 84 @63064 has 243 MA's), (Start: 90 @63094 has 4 MA's), (104, 63169), (137, 63286),

Gene: CicholasNage\_89 Start: 57544, Stop: 57783, Start Num: 84

Candidate Starts for CicholasNage\_89:

(Start: 82 @57541 has 1 MA's), (Start: 84 @57544 has 243 MA's), (104, 57649), (108, 57664), (112, 57676), (117, 57691), (121, 57703), (131, 57745), (132, 57751),

Gene: Cjw1\_110 Start: 64420, Stop: 64683, Start Num: 84

Candidate Starts for Cjw1\_110:

(Start: 84 @64420 has 243 MA's), (Start: 90 @64450 has 4 MA's), (104, 64525), (137, 64642),

Gene: Claus\_95 Start: 60040, Stop: 60279, Start Num: 84

Candidate Starts for Claus\_95:

(Start: 84 @60040 has 243 MA's), (104, 60145), (112, 60172), (113, 60175), (115, 60181), (116, 60184), (121, 60199), (131, 60241), (132, 60247),

Gene: Clautastrophe\_91 Start: 59729, Stop: 59998, Start Num: 79

Candidate Starts for Clautastrophe\_91:

(Start: 79 @59729 has 19 MA's), (Start: 90 @59768 has 4 MA's), (104, 59843), (112, 59870), (115, 59879), (134, 59951),

Gene: ClubL\_150 Start: 80767, Stop: 80985, Start Num: 89

Candidate Starts for ClubL\_150:

(7, 80272), (10, 80293), (13, 80308), (14, 80323), (26, 80470), (27, 80476), (29, 80479), (33, 80521), (34, 80524), (38, 80563), (50, 80647), (56, 80662), (65, 80695), (Start: 89 @80767 has 1 MA's), (95, 80785), (105, 80848), (113, 80875), (118, 80890), (136, 80956), (139, 80974),

Gene: Collard\_35 Start: 30258, Stop: 30482, Start Num: 84

Candidate Starts for Collard\_35:

(Start: 84 @30258 has 243 MA's), (Start: 90 @30288 has 4 MA's), (94, 30300), (101, 30336), (102, 30339), (114, 30396), (121, 30417), (123, 30426), (128, 30450), (131, 30459),

Gene: Command613\_112 Start: 63309, Stop: 63542, Start Num: 90

Candidate Starts for Command613\_112:

(Start: 84 @63279 has 243 MA's), (Start: 90 @63309 has 4 MA's), (104, 63384), (137, 63501),

Gene: Contagion\_107 Start: 62773, Stop: 63036, Start Num: 84

Candidate Starts for Contagion\_107:

(Start: 84 @62773 has 243 MA's), (Start: 90 @62803 has 4 MA's), (104, 62878), (137, 62995),

Gene: Cookies\_107 Start: 63050, Stop: 63313, Start Num: 84  
Candidate Starts for Cookies\_107:  
(Start: 84 @63050 has 243 MA's), (Start: 90 @63080 has 4 MA's), (104, 63155), (137, 63272),

Gene: Cracklewink\_31 Start: 28074, Stop: 28352, Start Num: 78  
Candidate Starts for Cracklewink\_31:  
(Start: 78 @28074 has 6 MA's), (Start: 79 @28077 has 19 MA's), (Start: 91 @28119 has 1 MA's), (94, 28128), (95, 28131), (101, 28170), (111, 28224), (115, 28230), (124, 28263), (139, 28329),

Gene: Crossroads\_96 Start: 60044, Stop: 60304, Start Num: 84  
Candidate Starts for Crossroads\_96:  
(Start: 84 @60044 has 243 MA's), (88, 60068), (104, 60149), (112, 60176), (116, 60188), (117, 60191), (119, 60197), (121, 60203), (131, 60245), (132, 60251),

Gene: CrystalP\_110 Start: 63783, Stop: 64046, Start Num: 84  
Candidate Starts for CrystalP\_110:  
(Start: 84 @63783 has 243 MA's), (Start: 90 @63813 has 4 MA's), (104, 63888), (137, 64005),

Gene: Cucurbita\_148 Start: 81747, Stop: 82046, Start Num: 61  
Candidate Starts for Cucurbita\_148:  
(Start: 61 @81747 has 11 MA's), (Start: 89 @81828 has 1 MA's), (112, 81933), (118, 81951), (136, 82017), (139, 82035),

Gene: Culver\_149 Start: 80011, Stop: 80310, Start Num: 61  
Candidate Starts for Culver\_149:  
(Start: 61 @80011 has 11 MA's), (Start: 89 @80092 has 1 MA's), (118, 80215), (136, 80281), (139, 80299),

Gene: Curiosium\_38 Start: 29582, Stop: 29809, Start Num: 84  
Candidate Starts for Curiosium\_38:  
(58, 29525), (62, 29543), (Start: 84 @29582 has 243 MA's), (94, 29624), (109, 29705), (113, 29717),

Gene: Czyszczone1\_110 Start: 62766, Stop: 63029, Start Num: 84  
Candidate Starts for Czyszczone1\_110:  
(Start: 84 @62766 has 243 MA's), (Start: 90 @62796 has 4 MA's), (104, 62871), (137, 62988),

Gene: DS6A\_37 Start: 31428, Stop: 31652, Start Num: 84  
Candidate Starts for DS6A\_37:  
(Start: 84 @31428 has 243 MA's), (Start: 90 @31458 has 4 MA's), (93, 31467), (94, 31470), (95, 31473), (101, 31506), (108, 31548), (109, 31551), (113, 31563), (114, 31566), (126, 31611), (128, 31620), (131, 31629),

Gene: Dadosky\_36 Start: 30144, Stop: 30368, Start Num: 84  
Candidate Starts for Dadosky\_36:  
(Start: 84 @30144 has 243 MA's), (Start: 90 @30174 has 4 MA's), (94, 30186), (101, 30222), (102, 30225), (114, 30282), (121, 30303), (122, 30306), (123, 30312), (128, 30336), (131, 30345),

Gene: Daikon\_111 Start: 62582, Stop: 62845, Start Num: 84  
Candidate Starts for Daikon\_111:  
(Start: 84 @62582 has 243 MA's), (Start: 90 @62612 has 4 MA's), (104, 62687), (137, 62804),

Gene: Dallas\_163 Start: 87175, Stop: 87420, Start Num: 84  
Candidate Starts for Dallas\_163:

(59, 87106), (Start: 84 @87175 has 243 MA's), (108, 87292),

Gene: DarthP\_35 Start: 29810, Stop: 30037, Start Num: 84

Candidate Starts for DarthP\_35:

(Start: 68 @29807 has 26 MA's), (Start: 84 @29810 has 243 MA's),

Gene: DirkDirk\_89 Start: 57220, Stop: 57459, Start Num: 84

Candidate Starts for DirkDirk\_89:

(Start: 82 @57217 has 1 MA's), (Start: 84 @57220 has 243 MA's), (104, 57325), (108, 57340), (112, 57352), (117, 57367), (121, 57379), (131, 57421), (132, 57427),

Gene: DmpstrDiver\_162 Start: 85902, Stop: 86147, Start Num: 84

Candidate Starts for DmpstrDiver\_162:

(59, 85833), (Start: 84 @85902 has 243 MA's), (108, 86019),

Gene: DoctorDiddles\_109 Start: 62552, Stop: 62815, Start Num: 84

Candidate Starts for DoctorDiddles\_109:

(Start: 84 @62552 has 243 MA's), (Start: 90 @62582 has 4 MA's), (104, 62657), (137, 62774),

Gene: Douge\_96 Start: 59456, Stop: 59695, Start Num: 84

Candidate Starts for Douge\_96:

(80, 59450), (Start: 84 @59456 has 243 MA's), (102, 59537), (104, 59561), (112, 59588), (119, 59609), (124, 59627), (132, 59663),

Gene: Dove\_158 Start: 82538, Stop: 82783, Start Num: 84

Candidate Starts for Dove\_158:

(59, 82469), (Start: 84 @82538 has 243 MA's), (108, 82655),

Gene: DrDrey\_110 Start: 64443, Stop: 64706, Start Num: 84

Candidate Starts for DrDrey\_110:

(Start: 84 @64443 has 243 MA's), (Start: 90 @64473 has 4 MA's), (104, 64548), (137, 64665),

Gene: DrSeegs\_95 Start: 60332, Stop: 60592, Start Num: 84

Candidate Starts for DrSeegs\_95:

(Start: 84 @60332 has 243 MA's), (88, 60356), (104, 60437), (116, 60476), (117, 60479), (119, 60485), (121, 60491), (131, 60533), (132, 60539),

Gene: Dumbo\_110 Start: 62803, Stop: 63066, Start Num: 84

Candidate Starts for Dumbo\_110:

(Start: 84 @62803 has 243 MA's), (Start: 90 @62833 has 4 MA's), (104, 62908), (137, 63025),

Gene: DuncansLeg\_93 Start: 59748, Stop: 60017, Start Num: 79

Candidate Starts for DuncansLeg\_93:

(Start: 79 @59748 has 19 MA's), (Start: 90 @59787 has 4 MA's), (104, 59862), (112, 59889), (115, 59898), (134, 59970),

Gene: Dusk\_107 Start: 62965, Stop: 63228, Start Num: 84

Candidate Starts for Dusk\_107:

(Start: 84 @62965 has 243 MA's), (Start: 90 @62995 has 4 MA's), (104, 63070), (137, 63187),

Gene: Dusty\_145 Start: 80222, Stop: 80521, Start Num: 61

Candidate Starts for Dusty\_145:

(Start: 61 @80222 has 11 MA's), (Start: 89 @80303 has 1 MA's), (112, 80408), (118, 80426), (136, 80492), (139, 80510),

Gene: DyoEdafos\_99 Start: 60045, Stop: 60284, Start Num: 84

Candidate Starts for DyoEdafos\_99:

(80, 60039), (Start: 84 @60045 has 243 MA's), (102, 60126), (104, 60150), (112, 60177), (124, 60216), (132, 60252), (134, 60258),

Gene: Easy2Say\_110 Start: 63437, Stop: 63700, Start Num: 84

Candidate Starts for Easy2Say\_110:

(Start: 84 @63437 has 243 MA's), (Start: 90 @63467 has 4 MA's), (104, 63542), (108, 63557), (137, 63659),

Gene: Edugator\_36 Start: 30537, Stop: 30794, Start Num: 64

Candidate Starts for Edugator\_36:

(Start: 64 @30537 has 5 MA's), (65, 30540), (67, 30546), (Start: 84 @30570 has 243 MA's), (94, 30612), (101, 30648), (102, 30651), (109, 30693), (114, 30708), (121, 30729), (122, 30732), (123, 30738), (128, 30762), (131, 30771),

Gene: Efra2\_37 Start: 29012, Stop: 29254, Start Num: 69

Candidate Starts for Efra2\_37:

(57, 28967), (59, 28976), (Start: 69 @29012 has 1 MA's), (71, 29018), (74, 29024), (Start: 84 @29027 has 243 MA's), (94, 29069), (109, 29150), (113, 29162),

Gene: Ekdilam\_33 Start: 29562, Stop: 29792, Start Num: 68

Candidate Starts for Ekdilam\_33:

(18, 29244), (24, 29307), (42, 29442), (45, 29472), (Start: 68 @29562 has 26 MA's), (Start: 84 @29565 has 243 MA's), (99, 29622),

Gene: Elite2014\_109 Start: 62610, Stop: 62873, Start Num: 84

Candidate Starts for Elite2014\_109:

(Start: 84 @62610 has 243 MA's), (Start: 90 @62640 has 4 MA's), (104, 62715), (137, 62832),

Gene: Ellie\_33 Start: 29603, Stop: 29827, Start Num: 84

Candidate Starts for Ellie\_33:

(36, 29405), (42, 29450), (45, 29480), (Start: 82 @29600 has 1 MA's), (Start: 84 @29603 has 243 MA's), (Start: 90 @29633 has 4 MA's), (99, 29660), (123, 29771),

Gene: Ellson\_92 Start: 60063, Stop: 60332, Start Num: 79

Candidate Starts for Ellson\_92:

(Start: 79 @60063 has 19 MA's), (Start: 90 @60102 has 4 MA's), (104, 60177), (112, 60204), (115, 60213), (134, 60285),

Gene: Elph10\_109 Start: 62449, Stop: 62712, Start Num: 84

Candidate Starts for Elph10\_109:

(Start: 84 @62449 has 243 MA's), (88, 62473), (Start: 90 @62479 has 4 MA's), (104, 62554), (137, 62671),

Gene: Emmina\_110 Start: 62388, Stop: 62651, Start Num: 84

Candidate Starts for Emmina\_110:

(Start: 84 @62388 has 243 MA's), (Start: 90 @62418 has 4 MA's), (104, 62493), (108, 62508), (137, 62610),

Gene: Enceladus\_89 Start: 57921, Stop: 58160, Start Num: 84  
Candidate Starts for Enceladus\_89:  
(Start: 82 @57918 has 1 MA's), (Start: 84 @57921 has 243 MA's), (104, 58026), (108, 58041), (112, 58053), (117, 58068), (121, 58080), (131, 58122), (132, 58128),

Gene: Engineer\_151 Start: 81270, Stop: 81569, Start Num: 61  
Candidate Starts for Engineer\_151:  
(Start: 61 @81270 has 11 MA's), (Start: 89 @81351 has 1 MA's), (112, 81456), (118, 81474), (136, 81540), (139, 81558),

Gene: Eponine\_39 Start: 31391, Stop: 31672, Start Num: 84  
Candidate Starts for Eponine\_39:  
(Start: 68 @31385 has 26 MA's), (Start: 84 @31391 has 243 MA's), (Start: 91 @31424 has 1 MA's), (99, 31448), (103, 31484), (115, 31535), (116, 31538), (122, 31556), (123, 31562), (133, 31604), (134, 31607), (135, 31610),

Gene: Eureka\_110 Start: 63576, Stop: 63839, Start Num: 84  
Candidate Starts for Eureka\_110:  
(Start: 84 @63576 has 243 MA's), (Start: 90 @63606 has 4 MA's), (104, 63681), (108, 63696), (137, 63798),

Gene: Faith1\_96 Start: 59969, Stop: 60229, Start Num: 84  
Candidate Starts for Faith1\_96:  
(Start: 84 @59969 has 243 MA's), (88, 59993), (104, 60074), (116, 60113), (117, 60116), (119, 60122), (121, 60128), (131, 60170), (132, 60176),

Gene: Fefferhead\_35 Start: 29803, Stop: 30027, Start Num: 84  
Candidate Starts for Fefferhead\_35:  
(36, 29605), (42, 29650), (45, 29680), (Start: 82 @29800 has 1 MA's), (Start: 84 @29803 has 243 MA's), (Start: 90 @29833 has 4 MA's), (99, 29860), (123, 29971),

Gene: Feyre\_36 Start: 30208, Stop: 30432, Start Num: 84  
Candidate Starts for Feyre\_36:  
(Start: 64 @30175 has 5 MA's), (Start: 84 @30208 has 243 MA's), (Start: 90 @30238 has 4 MA's), (94, 30250), (101, 30286), (102, 30289), (105, 30316), (114, 30346), (115, 30349), (123, 30376),

Gene: Filch\_112 Start: 62762, Stop: 63025, Start Num: 84  
Candidate Starts for Filch\_112:  
(Start: 84 @62762 has 243 MA's), (Start: 90 @62792 has 4 MA's), (104, 62867), (137, 62984),

Gene: Finemlucis\_97 Start: 61077, Stop: 61337, Start Num: 84  
Candidate Starts for Finemlucis\_97:  
(Start: 84 @61077 has 243 MA's), (88, 61101), (104, 61182), (112, 61209), (116, 61221), (117, 61224), (119, 61230), (121, 61236), (131, 61278), (132, 61284),

Gene: Finnry\_93 Start: 60082, Stop: 60351, Start Num: 79  
Candidate Starts for Finnry\_93:  
(Start: 79 @60082 has 19 MA's), (Start: 90 @60121 has 4 MA's), (104, 60196), (112, 60223), (115, 60232), (134, 60304),

Gene: Fionnbharth\_37 Start: 30626, Stop: 30907, Start Num: 84  
Candidate Starts for Fionnbharth\_37:

(23, 30362), (Start: 68 @30620 has 26 MA's), (Start: 84 @30626 has 243 MA's), (Start: 91 @30659 has 1 MA's), (99, 30683), (103, 30719), (115, 30770), (116, 30773), (122, 30791), (123, 30797), (133, 30839), (134, 30842), (135, 30845),

Gene: FireRed\_113 Start: 63852, Stop: 64115, Start Num: 84

Candidate Starts for FireRed\_113:

(Start: 84 @63852 has 243 MA's), (Start: 90 @63882 has 4 MA's), (104, 63957), (137, 64074),

Gene: Flypotenuse\_106 Start: 62157, Stop: 62420, Start Num: 84

Candidate Starts for Flypotenuse\_106:

(Start: 84 @62157 has 243 MA's), (Start: 90 @62187 has 4 MA's), (104, 62262), (137, 62379),

Gene: Gabriela\_96 Start: 59315, Stop: 59575, Start Num: 84

Candidate Starts for Gabriela\_96:

(Start: 84 @59315 has 243 MA's), (88, 59339), (104, 59420), (116, 59459), (117, 59462), (119, 59468), (121, 59474), (131, 59516), (132, 59522),

Gene: Gage\_112 Start: 63108, Stop: 63371, Start Num: 84

Candidate Starts for Gage\_112:

(Start: 84 @63108 has 243 MA's), (Start: 90 @63138 has 4 MA's), (104, 63213), (137, 63330),

Gene: Gaia\_124 Start: 69033, Stop: 69269, Start Num: 84

Candidate Starts for Gaia\_124:

(60, 68973), (Start: 84 @69033 has 243 MA's), (98, 69087), (109, 69153), (112, 69162), (113, 69165), (119, 69183), (126, 69213),

Gene: Gardann\_96 Start: 59810, Stop: 60070, Start Num: 84

Candidate Starts for Gardann\_96:

(Start: 84 @59810 has 243 MA's), (88, 59834), (104, 59915), (112, 59942), (116, 59954), (117, 59957), (119, 59963), (121, 59969), (131, 60011), (132, 60017),

Gene: Gator\_108 Start: 63017, Stop: 63280, Start Num: 84

Candidate Starts for Gator\_108:

(Start: 84 @63017 has 243 MA's), (Start: 90 @63047 has 4 MA's), (104, 63122), (137, 63239),

Gene: Gemini\_115 Start: 63487, Stop: 63750, Start Num: 84

Candidate Starts for Gemini\_115:

(Start: 84 @63487 has 243 MA's), (Start: 90 @63517 has 4 MA's), (104, 63592), (137, 63709),

Gene: Gengar\_36 Start: 30285, Stop: 30542, Start Num: 64

Candidate Starts for Gengar\_36:

(Start: 64 @30285 has 5 MA's), (Start: 84 @30318 has 243 MA's), (Start: 90 @30348 has 4 MA's), (94, 30360), (101, 30396), (102, 30399), (105, 30426), (114, 30456), (115, 30459), (123, 30486),

Gene: Glexan\_109 Start: 63167, Stop: 63430, Start Num: 84

Candidate Starts for Glexan\_109:

(Start: 84 @63167 has 243 MA's), (Start: 90 @63197 has 4 MA's), (104, 63272), (137, 63389),

Gene: Goku\_109 Start: 63305, Stop: 63568, Start Num: 84

Candidate Starts for Goku\_109:

(Start: 84 @63305 has 243 MA's), (Start: 90 @63335 has 4 MA's), (104, 63410), (108, 63425), (137, 63527),

Gene: GoldenSpark\_114 Start: 63000, Stop: 63233, Start Num: 90  
Candidate Starts for GoldenSpark\_114:  
(Start: 84 @62970 has 243 MA's), (Start: 90 @63000 has 4 MA's), (104, 63075), (137, 63192),

Gene: Goldilocks\_113 Start: 62986, Stop: 63249, Start Num: 84  
Candidate Starts for Goldilocks\_113:  
(Start: 84 @62986 has 243 MA's), (Start: 90 @63016 has 4 MA's), (104, 63091), (137, 63208),

Gene: GooberAzure\_113 Start: 62970, Stop: 63233, Start Num: 84  
Candidate Starts for GooberAzure\_113:  
(Start: 84 @62970 has 243 MA's), (Start: 90 @63000 has 4 MA's), (104, 63075), (137, 63192),

Gene: Guanica15\_37 Start: 28984, Stop: 29211, Start Num: 84  
Candidate Starts for Guanica15\_37:  
(Start: 70 @28972 has 2 MA's), (71, 28975), (Start: 84 @28984 has 243 MA's), (94, 29026), (109, 29107), (113, 29119),

Gene: Guillsminger\_36 Start: 30256, Stop: 30513, Start Num: 64  
Candidate Starts for Guillsminger\_36:  
(Start: 64 @30256 has 5 MA's), (Start: 84 @30289 has 243 MA's), (Start: 90 @30319 has 4 MA's), (94, 30331), (101, 30367), (102, 30370), (105, 30397), (114, 30427), (115, 30430), (123, 30457),

Gene: GuuelaD\_93 Start: 59928, Stop: 60188, Start Num: 84  
Candidate Starts for GuuelaD\_93:  
(Start: 84 @59928 has 243 MA's), (88, 59952), (104, 60033), (112, 60060), (116, 60072), (117, 60075), (119, 60081), (121, 60087), (131, 60129), (132, 60135),

Gene: Hafay\_97 Start: 60035, Stop: 60274, Start Num: 84  
Candidate Starts for Hafay\_97:  
(Start: 84 @60035 has 243 MA's), (104, 60140), (112, 60167), (113, 60170), (115, 60176), (116, 60179), (121, 60194), (131, 60236), (132, 60242),

Gene: Halena\_89 Start: 56807, Stop: 57046, Start Num: 84  
Candidate Starts for Halena\_89:  
(Start: 82 @56804 has 1 MA's), (Start: 84 @56807 has 243 MA's), (104, 56912), (108, 56927), (112, 56939), (117, 56954), (121, 56966), (131, 57008), (132, 57014),

Gene: Hammy\_35 Start: 29798, Stop: 30028, Start Num: 68  
Candidate Starts for Hammy\_35:  
(Start: 68 @29798 has 26 MA's), (Start: 84 @29801 has 243 MA's),

Gene: HanKaySha\_110 Start: 63158, Stop: 63421, Start Num: 84  
Candidate Starts for HanKaySha\_110:  
(Start: 84 @63158 has 243 MA's), (Start: 90 @63188 has 4 MA's), (104, 63263), (108, 63278), (137, 63380),

Gene: Hannaconda\_156 Start: 86966, Stop: 87211, Start Num: 84  
Candidate Starts for Hannaconda\_156:  
(47, 86876), (49, 86891), (76, 86954), (Start: 84 @86966 has 243 MA's), (Start: 91 @86996 has 1 MA's), (101, 87041), (109, 87086), (124, 87134),

Gene: Harella\_111 Start: 63683, Stop: 63946, Start Num: 84  
Candidate Starts for Harella\_111:



(Start: 84 @63683 has 243 MA's), (Start: 90 @63713 has 4 MA's), (104, 63788), (137, 63905),

Gene: Heftyboy\_36 Start: 30435, Stop: 30659, Start Num: 84

Candidate Starts for Heftyboy\_36:

(Start: 64 @30402 has 5 MA's), (Start: 84 @30435 has 243 MA's), (Start: 90 @30465 has 4 MA's), (94, 30477), (101, 30513), (102, 30516), (105, 30543), (114, 30573), (115, 30576), (123, 30603), (131, 30636),

Gene: Henry\_108 Start: 62968, Stop: 63231, Start Num: 84

Candidate Starts for Henry\_108:

(Start: 84 @62968 has 243 MA's), (Start: 90 @62998 has 4 MA's), (104, 63073), (108, 63088), (137, 63190),

Gene: Highbury\_106 Start: 61315, Stop: 61578, Start Num: 84

Candidate Starts for Highbury\_106:

(Start: 84 @61315 has 243 MA's), (Start: 90 @61345 has 4 MA's), (104, 61420), (108, 61435), (137, 61537),

Gene: Hilltopfarm\_30 Start: 27540, Stop: 27812, Start Num: 79

Candidate Starts for Hilltopfarm\_30:

(15, 27174), (25, 27261), (Start: 78 @27537 has 6 MA's), (Start: 79 @27540 has 19 MA's), (Start: 84 @27549 has 243 MA's), (87, 27567), (94, 27591), (95, 27594), (101, 27633), (102, 27636), (112, 27690), (115, 27693), (118, 27702), (132, 27762),

Gene: HokkenD\_158 Start: 88260, Stop: 88505, Start Num: 84

Candidate Starts for HokkenD\_158:

(59, 88191), (Start: 84 @88260 has 243 MA's), (108, 88377),

Gene: Holt\_115 Start: 63384, Stop: 63647, Start Num: 84

Candidate Starts for Holt\_115:

(Start: 84 @63384 has 243 MA's), (Start: 90 @63414 has 4 MA's), (104, 63489), (137, 63606),

Gene: Hoonter\_113 Start: 63463, Stop: 63726, Start Num: 84

Candidate Starts for Hoonter\_113:

(Start: 84 @63463 has 243 MA's), (Start: 90 @63493 has 4 MA's), (104, 63568), (137, 63685),

Gene: Hopey\_110 Start: 63769, Stop: 64032, Start Num: 84

Candidate Starts for Hopey\_110:

(Start: 84 @63769 has 243 MA's), (Start: 90 @63799 has 4 MA's), (104, 63874), (137, 63991),

Gene: HufflyPuff\_112 Start: 64078, Stop: 64341, Start Num: 84

Candidate Starts for HufflyPuff\_112:

(Start: 84 @64078 has 243 MA's), (Start: 90 @64108 has 4 MA's), (104, 64183), (137, 64300),

Gene: Hurricane\_37 Start: 30347, Stop: 30586, Start Num: 68

Candidate Starts for Hurricane\_37:

(42, 30227), (45, 30257), (Start: 68 @30347 has 26 MA's), (95, 30404), (123, 30530), (128, 30554),

Gene: IHOP\_108 Start: 62686, Stop: 62949, Start Num: 84

Candidate Starts for IHOP\_108:

(Start: 84 @62686 has 243 MA's), (Start: 90 @62716 has 4 MA's), (104, 62791), (137, 62908),

Gene: Icee\_111 Start: 62494, Stop: 62757, Start Num: 84

Candidate Starts for Icee\_111:

(Start: 84 @62494 has 243 MA's), (Start: 90 @62524 has 4 MA's), (104, 62599), (137, 62716),

Gene: Inca\_107 Start: 61175, Stop: 61438, Start Num: 84

Candidate Starts for Inca\_107:

(Start: 84 @61175 has 243 MA's), (Start: 90 @61205 has 4 MA's), (104, 61280), (137, 61397),

Gene: InvictusManeo\_35 Start: 30301, Stop: 30525, Start Num: 84

Candidate Starts for InvictusManeo\_35:

(Start: 84 @30301 has 243 MA's), (Start: 90 @30331 has 4 MA's), (94, 30343), (101, 30379), (102, 30382), (114, 30439), (121, 30460), (123, 30469), (128, 30493), (131, 30502),

Gene: Itos\_96 Start: 58875, Stop: 59135, Start Num: 84

Candidate Starts for Itos\_96:

(Start: 84 @58875 has 243 MA's), (88, 58899), (104, 58980), (116, 59019), (117, 59022), (119, 59028), (121, 59034), (131, 59076), (132, 59082),

Gene: JF1\_37 Start: 30619, Stop: 30906, Start Num: 68

Candidate Starts for JF1\_37:

(17, 30298), (23, 30361), (Start: 68 @30619 has 26 MA's), (Start: 84 @30625 has 243 MA's), (Start: 91 @30658 has 1 MA's), (99, 30682), (103, 30718), (115, 30769), (116, 30772), (122, 30790), (123, 30796), (133, 30838), (134, 30841), (135, 30844),

Gene: JeTaime\_108 Start: 62594, Stop: 62857, Start Num: 84

Candidate Starts for JeTaime\_108:

(Start: 84 @62594 has 243 MA's), (Start: 90 @62624 has 4 MA's), (104, 62699), (137, 62816),

Gene: Jflix2\_98 Start: 56001, Stop: 56309, Start Num: 55

Candidate Starts for Jflix2\_98:

(6, 55566), (12, 55650), (19, 55773), (Start: 55 @56001 has 2 MA's), (Start: 75 @56067 has 2 MA's), (92, 56118), (100, 56142), (102, 56163), (126, 56265),

Gene: Jobypre\_94 Start: 59729, Stop: 59998, Start Num: 79

Candidate Starts for Jobypre\_94:

(Start: 79 @59729 has 19 MA's), (Start: 90 @59768 has 4 MA's), (104, 59843), (112, 59870), (115, 59879), (134, 59951),

Gene: JoeDirt\_93 Start: 58479, Stop: 58721, Start Num: 82

Candidate Starts for JoeDirt\_93:

(Start: 82 @58479 has 1 MA's), (Start: 84 @58482 has 243 MA's), (104, 58587), (108, 58602), (112, 58614), (117, 58629), (121, 58641), (131, 58683), (132, 58689),

Gene: Jubie\_92 Start: 59864, Stop: 60133, Start Num: 79

Candidate Starts for Jubie\_92:

(Start: 79 @59864 has 19 MA's), (Start: 90 @59903 has 4 MA's), (104, 59978), (112, 60005), (115, 60014), (134, 60086),

Gene: JuicyJay\_158 Start: 87907, Stop: 88152, Start Num: 84

Candidate Starts for JuicyJay\_158:

(59, 87838), (Start: 84 @87907 has 243 MA's), (108, 88024),

Gene: Juliette\_39 Start: 30778, Stop: 31065, Start Num: 68

Candidate Starts for Juliette\_39:

(23, 30520), (Start: 68 @30778 has 26 MA's), (Start: 84 @30784 has 243 MA's), (Start: 91 @30817 has 1 MA's), (99, 30841), (103, 30877), (115, 30928), (116, 30931), (122, 30949), (123, 30955), (133, 30997), (134, 31000), (135, 31003),

Gene: Kahlid\_95 Start: 59728, Stop: 59988, Start Num: 84

Candidate Starts for Kahlid\_95:

(Start: 84 @59728 has 243 MA's), (88, 59752), (104, 59833), (112, 59860), (116, 59872), (117, 59875), (119, 59881), (121, 59887), (131, 59929), (132, 59935),

Gene: Kanye\_107 Start: 63219, Stop: 63482, Start Num: 84

Candidate Starts for Kanye\_107:

(Start: 84 @63219 has 243 MA's), (Start: 90 @63249 has 4 MA's), (104, 63324), (137, 63441),

Gene: KashFlow\_161 Start: 86779, Stop: 87024, Start Num: 84

Candidate Starts for KashFlow\_161:

(47, 86689), (49, 86704), (76, 86767), (Start: 84 @86779 has 243 MA's), (Start: 91 @86809 has 1 MA's), (101, 86854), (109, 86899), (124, 86947),

Gene: Keshu\_37 Start: 30338, Stop: 30577, Start Num: 68

Candidate Starts for Keshu\_37:

(45, 30248), (Start: 68 @30338 has 26 MA's), (95, 30395), (115, 30491), (128, 30545),

Gene: KiSi\_36 Start: 29106, Stop: 29339, Start Num: 68

Candidate Starts for KiSi\_36:

(8, 28674), (11, 28698), (18, 28788), (42, 28986), (45, 29016), (Start: 68 @29106 has 26 MA's), (Start: 84 @29109 has 243 MA's), (99, 29166),

Gene: Kimchi\_114 Start: 63111, Stop: 63374, Start Num: 84

Candidate Starts for Kimchi\_114:

(Start: 84 @63111 has 243 MA's), (Start: 90 @63141 has 4 MA's), (104, 63216), (137, 63333),

Gene: Kingsolomon\_91 Start: 59838, Stop: 60107, Start Num: 79

Candidate Starts for Kingsolomon\_91:

(Start: 79 @59838 has 19 MA's), (Start: 90 @59877 has 4 MA's), (104, 59952), (112, 59979), (115, 59988), (134, 60060),

Gene: Kostya\_110 Start: 62788, Stop: 63051, Start Num: 84

Candidate Starts for Kostya\_110:

(Start: 84 @62788 has 243 MA's), (Start: 90 @62818 has 4 MA's), (104, 62893), (137, 63010),

Gene: Kratio\_34 Start: 29847, Stop: 30071, Start Num: 84

Candidate Starts for Kratio\_34:

(Start: 84 @29847 has 243 MA's), (Start: 90 @29877 has 4 MA's), (94, 29889), (101, 29925), (102, 29928), (114, 29985), (121, 30006), (123, 30015), (131, 30048),

Gene: Krueger\_36 Start: 28751, Stop: 28984, Start Num: 68

Candidate Starts for Krueger\_36:

(45, 28661), (Start: 68 @28751 has 26 MA's), (Start: 84 @28754 has 243 MA's), (99, 28811), (103, 28847), (131, 28955),

Gene: Krypton555\_95 Start: 60241, Stop: 60510, Start Num: 79

Candidate Starts for Krypton555\_95:

(Start: 79 @60241 has 19 MA's), (Start: 90 @60280 has 4 MA's), (104, 60355), (112, 60382), (115, 60391), (134, 60463),

Gene: Kudefre\_129 Start: 69576, Stop: 69818, Start Num: 78

Candidate Starts for Kudefre\_129:

(Start: 75 @69570 has 2 MA's), (Start: 78 @69576 has 6 MA's), (94, 69627), (104, 69690), (106, 69711), (123, 69765), (125, 69774), (130, 69795),

Gene: Kumao\_73 Start: 50178, Stop: 50432, Start Num: 83

Candidate Starts for Kumao\_73:

(Start: 83 @50178 has 1 MA's), (Start: 91 @50211 has 1 MA's), (97, 50229), (101, 50256), (102, 50259), (114, 50319), (120, 50337), (123, 50352), (126, 50367),

Gene: Larva\_36 Start: 30011, Stop: 30235, Start Num: 84

Candidate Starts for Larva\_36:

(Start: 84 @30011 has 243 MA's), (Start: 90 @30041 has 4 MA's), (94, 30053), (101, 30089), (102, 30092), (114, 30149), (121, 30170), (122, 30173), (123, 30179), (128, 30203), (131, 30212),

Gene: LastHope\_37 Start: 28857, Stop: 29096, Start Num: 70

Candidate Starts for LastHope\_37:

(20, 28575), (35, 28683), (58, 28812), (Start: 70 @28857 has 2 MA's), (71, 28860), (Start: 84 @28869 has 243 MA's), (94, 28911), (109, 28992), (113, 29004), (123, 29037), (133, 29076),

Gene: LeBron\_91 Start: 57114, Stop: 57353, Start Num: 84

Candidate Starts for LeBron\_91:

(Start: 82 @57111 has 1 MA's), (Start: 84 @57114 has 243 MA's), (104, 57219), (108, 57234), (112, 57246), (117, 57261), (121, 57273), (132, 57321),

Gene: LeMond\_36 Start: 29177, Stop: 29410, Start Num: 68

Candidate Starts for LeMond\_36:

(8, 28745), (11, 28769), (18, 28859), (42, 29057), (45, 29087), (Start: 68 @29177 has 26 MA's), (Start: 84 @29180 has 243 MA's), (99, 29237),

Gene: Leston\_36 Start: 30386, Stop: 30643, Start Num: 64

Candidate Starts for Leston\_36:

(Start: 64 @30386 has 5 MA's), (Start: 84 @30419 has 243 MA's), (Start: 90 @30449 has 4 MA's), (94, 30461), (101, 30497), (102, 30500), (105, 30527), (114, 30557), (115, 30560), (123, 30587),

Gene: Lewan\_97 Start: 59968, Stop: 60228, Start Num: 84

Candidate Starts for Lewan\_97:

(Start: 84 @59968 has 243 MA's), (88, 59992), (104, 60073), (116, 60112), (117, 60115), (119, 60121), (121, 60127), (131, 60169), (132, 60175),

Gene: LilDestine\_94 Start: 59639, Stop: 59899, Start Num: 84

Candidate Starts for LilDestine\_94:

(Start: 84 @59639 has 243 MA's), (88, 59663), (104, 59744), (112, 59771), (116, 59783), (117, 59786), (119, 59792), (121, 59798), (131, 59840), (132, 59846),

Gene: Lilac\_111 Start: 63912, Stop: 64175, Start Num: 84

Candidate Starts for Lilac\_111:

(Start: 84 @63912 has 243 MA's), (Start: 90 @63942 has 4 MA's), (104, 64017), (137, 64134),

Gene: Lilizi\_110 Start: 63198, Stop: 63461, Start Num: 84

Candidate Starts for Lilizi\_110:

(Start: 84 @63198 has 243 MA's), (Start: 90 @63228 has 4 MA's), (104, 63303), (137, 63420),

Gene: Lilpickle\_109 Start: 62610, Stop: 62873, Start Num: 84

Candidate Starts for Lilpickle\_109:

(Start: 84 @62610 has 243 MA's), (Start: 90 @62640 has 4 MA's), (104, 62715), (137, 62832),

Gene: LittleE\_169 Start: 87841, Stop: 88086, Start Num: 84

Candidate Starts for LittleE\_169:

(47, 87751), (49, 87766), (76, 87829), (Start: 84 @87841 has 243 MA's), (Start: 91 @87871 has 1 MA's), (101, 87916), (109, 87961), (124, 88009),

Gene: Loadrie\_95 Start: 60130, Stop: 60390, Start Num: 84

Candidate Starts for Loadrie\_95:

(Start: 84 @60130 has 243 MA's), (88, 60154), (104, 60235), (112, 60262), (116, 60274), (117, 60277), (119, 60283), (121, 60289), (131, 60331), (132, 60337),

Gene: Lolly9\_92 Start: 59914, Stop: 60183, Start Num: 79

Candidate Starts for Lolly9\_92:

(Start: 79 @59914 has 19 MA's), (Start: 90 @59953 has 4 MA's), (104, 60028), (112, 60055), (115, 60064), (134, 60136),

Gene: Lozinak\_149 Start: 81275, Stop: 81574, Start Num: 61

Candidate Starts for Lozinak\_149:

(Start: 61 @81275 has 11 MA's), (Start: 89 @81356 has 1 MA's), (112, 81461), (118, 81479), (136, 81545), (139, 81563),

Gene: Lumos\_93 Start: 59726, Stop: 59995, Start Num: 79

Candidate Starts for Lumos\_93:

(Start: 79 @59726 has 19 MA's), (Start: 90 @59765 has 4 MA's), (104, 59840), (112, 59867), (115, 59876), (134, 59948),

Gene: MAckerman\_88 Start: 56800, Stop: 57039, Start Num: 84

Candidate Starts for MAckerman\_88:

(Start: 82 @56797 has 1 MA's), (Start: 84 @56800 has 243 MA's), (104, 56905), (108, 56920), (112, 56932), (117, 56947), (121, 56959), (131, 57001), (132, 57007),

Gene: MISSy\_111 Start: 63925, Stop: 64158, Start Num: 90

Candidate Starts for MISSy\_111:

(Start: 84 @63895 has 243 MA's), (Start: 90 @63925 has 4 MA's), (104, 64000), (137, 64117),

Gene: MPhalcon\_111 Start: 63313, Stop: 63576, Start Num: 84

Candidate Starts for MPhalcon\_111:

(Start: 84 @63313 has 243 MA's), (Start: 90 @63343 has 4 MA's), (104, 63418), (137, 63535),

Gene: MacnCheese\_37 Start: 30394, Stop: 30618, Start Num: 84

Candidate Starts for MacnCheese\_37:

(45, 30301), (Start: 68 @30391 has 26 MA's), (Start: 84 @30394 has 243 MA's),

Gene: MadamMonkfish\_109 Start: 62620, Stop: 62883, Start Num: 84

Candidate Starts for MadamMonkfish\_109:

(Start: 84 @62620 has 243 MA's), (Start: 90 @62650 has 4 MA's), (104, 62725), (108, 62740), (137, 62842),

Gene: Madraxi\_100 Start: 58159, Stop: 58470, Start Num: 55

Candidate Starts for Madraxi\_100:

(1, 57238), (2, 57592), (3, 57622), (4, 57646), (5, 57664), (19, 57931), (Start: 55 @58159 has 2 MA's), (Start: 75 @58225 has 2 MA's), (92, 58276), (99, 58297), (105, 58348), (109, 58363), (113, 58375), (123, 58408),

Gene: MalagasyRose\_37 Start: 29428, Stop: 29652, Start Num: 84

Candidate Starts for MalagasyRose\_37:

(40, 29272), (51, 29350), (53, 29353), (Start: 84 @29428 has 243 MA's), (93, 29467), (94, 29470), (105, 29536), (109, 29551), (112, 29560), (122, 29590), (123, 29596), (126, 29611), (135, 29641),

Gene: Malthus\_38 Start: 30550, Stop: 30831, Start Num: 84

Candidate Starts for Malthus\_38:

(23, 30286), (Start: 68 @30544 has 26 MA's), (Start: 84 @30550 has 243 MA's), (Start: 91 @30583 has 1 MA's), (99, 30607), (103, 30643), (115, 30694), (116, 30697), (122, 30715), (123, 30721), (133, 30763), (134, 30766), (135, 30769),

Gene: Manda\_111 Start: 63350, Stop: 63613, Start Num: 84

Candidate Starts for Manda\_111:

(Start: 84 @63350 has 243 MA's), (Start: 90 @63380 has 4 MA's), (104, 63455), (108, 63470), (137, 63572),

Gene: MarkPhew\_37 Start: 29081, Stop: 29311, Start Num: 84

Candidate Starts for MarkPhew\_37:

(18, 28760), (42, 28958), (45, 28988), (Start: 68 @29078 has 26 MA's), (Start: 84 @29081 has 243 MA's), (Start: 90 @29111 has 4 MA's), (99, 29138),

Gene: Marshmallow\_108 Start: 63308, Stop: 63571, Start Num: 84

Candidate Starts for Marshmallow\_108:

(Start: 84 @63308 has 243 MA's), (Start: 90 @63338 has 4 MA's), (104, 63413), (108, 63428), (137, 63530),

Gene: Maxxinista\_112 Start: 63097, Stop: 63360, Start Num: 84

Candidate Starts for Maxxinista\_112:

(Start: 84 @63097 has 243 MA's), (Start: 90 @63127 has 4 MA's), (104, 63202), (137, 63319),

Gene: MiaZeal\_164 Start: 83595, Stop: 83840, Start Num: 84

Candidate Starts for MiaZeal\_164:

(47, 83505), (49, 83520), (76, 83583), (Start: 84 @83595 has 243 MA's), (Start: 91 @83625 has 1 MA's), (101, 83670), (109, 83715), (124, 83763),

Gene: Miley16\_96 Start: 60332, Stop: 60592, Start Num: 84

Candidate Starts for Miley16\_96:

(Start: 84 @60332 has 243 MA's), (88, 60356), (104, 60437), (116, 60476), (117, 60479), (119, 60485), (121, 60491), (131, 60533), (132, 60539),

Gene: Mindy\_109 Start: 62629, Stop: 62892, Start Num: 84

Candidate Starts for Mindy\_109:

(Start: 84 @62629 has 243 MA's), (Start: 90 @62659 has 4 MA's), (104, 62734), (137, 62851),

Gene: Minerva\_163 Start: 86325, Stop: 86570, Start Num: 84

Candidate Starts for Minerva\_163:

(59, 86256), (Start: 84 @86325 has 243 MA's), (108, 86442),

Gene: MiniLon\_97 Start: 59915, Stop: 60184, Start Num: 79

Candidate Starts for MiniLon\_97:

(Start: 79 @59915 has 19 MA's), (Start: 90 @59954 has 4 MA's), (104, 60029), (112, 60056), (115, 60065), (134, 60137),

Gene: MiniMac\_97 Start: 59910, Stop: 60179, Start Num: 79

Candidate Starts for MiniMac\_97:

(Start: 79 @59910 has 19 MA's), (Start: 90 @59949 has 4 MA's), (104, 60024), (112, 60051), (115, 60060), (134, 60132),

Gene: Miniwave\_105 Start: 62806, Stop: 63069, Start Num: 84

Candidate Starts for Miniwave\_105:

(Start: 84 @62806 has 243 MA's), (Start: 90 @62836 has 4 MA's), (104, 62911), (137, 63028),

Gene: Miryou\_36 Start: 30274, Stop: 30498, Start Num: 84

Candidate Starts for Miryou\_36:

(Start: 64 @30241 has 5 MA's), (Start: 84 @30274 has 243 MA's), (Start: 90 @30304 has 4 MA's), (94, 30316), (105, 30382), (114, 30412), (123, 30442), (131, 30475),

Gene: Misfit\_111 Start: 64409, Stop: 64672, Start Num: 84

Candidate Starts for Misfit\_111:

(Start: 84 @64409 has 243 MA's), (Start: 90 @64439 has 4 MA's), (104, 64514), (137, 64631),

Gene: Miskis\_147 Start: 80036, Stop: 80335, Start Num: 61

Candidate Starts for Miskis\_147:

(Start: 61 @80036 has 11 MA's), (Start: 89 @80117 has 1 MA's), (112, 80222), (118, 80240), (136, 80306), (139, 80324),

Gene: MissDaisy\_37 Start: 30393, Stop: 30674, Start Num: 84

Candidate Starts for MissDaisy\_37:

(Start: 68 @30387 has 26 MA's), (Start: 84 @30393 has 243 MA's), (Start: 91 @30426 has 1 MA's), (99, 30450), (103, 30486), (115, 30537), (116, 30540), (122, 30558), (123, 30564), (124, 30567), (133, 30606), (134, 30609), (135, 30612),

Gene: Mitti\_37 Start: 30551, Stop: 30832, Start Num: 84

Candidate Starts for Mitti\_37:

(Start: 68 @30545 has 26 MA's), (Start: 84 @30551 has 243 MA's), (Start: 91 @30584 has 1 MA's), (99, 30608), (103, 30644), (115, 30695), (116, 30698), (122, 30716), (123, 30722), (133, 30764), (134, 30767), (135, 30770),

Gene: MkaliMitinis3\_98 Start: 60094, Stop: 60354, Start Num: 84

Candidate Starts for MkaliMitinis3\_98:

(Start: 84 @60094 has 243 MA's), (88, 60118), (104, 60199), (116, 60238), (117, 60241), (119, 60247), (121, 60253), (131, 60295), (132, 60301),

Gene: Moldemort\_112 Start: 63078, Stop: 63341, Start Num: 84

Candidate Starts for Moldemort\_112:

(Start: 84 @63078 has 243 MA's), (Start: 90 @63108 has 4 MA's), (104, 63183), (108, 63198), (137, 63300),

Gene: Moostard\_90 Start: 59833, Stop: 60102, Start Num: 79

Candidate Starts for Moostard\_90:

(Start: 79 @59833 has 19 MA's), (Start: 90 @59872 has 4 MA's), (104, 59947), (112, 59974), (115, 59983), (134, 60055),

Gene: Mosby\_107 Start: 62773, Stop: 63036, Start Num: 84

Candidate Starts for Mosby\_107:

(Start: 84 @62773 has 243 MA's), (Start: 90 @62803 has 4 MA's), (104, 62878), (137, 62995),

Gene: MsGreen\_93 Start: 59728, Stop: 59997, Start Num: 79

Candidate Starts for MsGreen\_93:

(Start: 79 @59728 has 19 MA's), (Start: 90 @59767 has 4 MA's), (104, 59842), (112, 59869), (115, 59878), (134, 59950),

Gene: Murica\_114 Start: 65112, Stop: 65375, Start Num: 84

Candidate Starts for Murica\_114:

(Start: 84 @65112 has 243 MA's), (Start: 90 @65142 has 4 MA's), (104, 65217), (137, 65334),

Gene: Murphy\_109 Start: 63470, Stop: 63733, Start Num: 84

Candidate Starts for Murphy\_109:

(Start: 84 @63470 has 243 MA's), (Start: 90 @63500 has 4 MA's), (104, 63575), (108, 63590), (137, 63692),

Gene: Myrale\_110 Start: 63567, Stop: 63830, Start Num: 84

Candidate Starts for Myrale\_110:

(Start: 84 @63567 has 243 MA's), (Start: 90 @63597 has 4 MA's), (104, 63672), (137, 63789),

Gene: Nala\_112 Start: 63822, Stop: 64085, Start Num: 84

Candidate Starts for Nala\_112:

(Start: 84 @63822 has 243 MA's), (Start: 90 @63852 has 4 MA's), (104, 63927), (137, 64044),

Gene: Nebkiss\_125 Start: 67959, Stop: 68195, Start Num: 84

Candidate Starts for Nebkiss\_125:

(60, 67899), (Start: 84 @67959 has 243 MA's), (98, 68013), (109, 68079), (112, 68088), (113, 68091), (119, 68109), (126, 68139),

Gene: NelitzaMV\_107 Start: 61795, Stop: 62058, Start Num: 84

Candidate Starts for NelitzaMV\_107:

(Start: 84 @61795 has 243 MA's), (Start: 90 @61825 has 4 MA's), (104, 61900), (137, 62017),

Gene: Nergal\_32 Start: 27271, Stop: 27504, Start Num: 70

Candidate Starts for Nergal\_32:

(Start: 70 @27271 has 2 MA's), (94, 27319), (96, 27325), (123, 27448), (131, 27481),

Gene: Netyap\_95 Start: 59970, Stop: 60230, Start Num: 84

Candidate Starts for Netyap\_95:

(Start: 84 @59970 has 243 MA's), (88, 59994), (104, 60075), (116, 60114), (117, 60117), (119, 60123), (121, 60129), (131, 60171), (132, 60177),

Gene: Neville\_126 Start: 70558, Stop: 70776, Start Num: 84

Candidate Starts for Neville\_126:

(81, 70552), (Start: 84 @70558 has 243 MA's), (86, 70567), (Start: 89 @70582 has 1 MA's), (Start: 90 @70585 has 4 MA's), (Start: 91 @70588 has 1 MA's), (93, 70594), (96, 70603), (99, 70612), (102, 70636), (103, 70648), (107, 70675), (108, 70678), (113, 70693), (114, 70696), (116, 70699), (121,



70714), (122, 70717), (123, 70723), (124, 70726), (131, 70756), (135, 70771),

Gene: Nibb\_35 Start: 28648, Stop: 28878, Start Num: 84

Candidate Starts for Nibb\_35:

(45, 28555), (Start: 68 @28645 has 26 MA's), (Start: 84 @28648 has 243 MA's), (99, 28705), (123, 28816),

Gene: Nicholas\_91 Start: 59838, Stop: 60107, Start Num: 79

Candidate Starts for Nicholas\_91:

(Start: 79 @59838 has 19 MA's), (Start: 90 @59877 has 4 MA's), (104, 59952), (112, 59979), (115, 59988), (134, 60060),

Gene: Nicholasp3\_96 Start: 59810, Stop: 60070, Start Num: 84

Candidate Starts for Nicholasp3\_96:

(Start: 84 @59810 has 243 MA's), (88, 59834), (104, 59915), (112, 59942), (116, 59954), (117, 59957), (119, 59963), (121, 59969), (131, 60011), (132, 60017),

Gene: NihilNomen\_165 Start: 86033, Stop: 86278, Start Num: 84

Candidate Starts for NihilNomen\_165:

(59, 85964), (Start: 84 @86033 has 243 MA's), (108, 86150),

Gene: Niklas\_36 Start: 28813, Stop: 29040, Start Num: 84

Candidate Starts for Niklas\_36:

(18, 28492), (32, 28621), (42, 28690), (45, 28720), (Start: 68 @28810 has 26 MA's), (Start: 84 @28813 has 243 MA's), (109, 28936), (121, 28972),

Gene: Nimrod\_110 Start: 63456, Stop: 63719, Start Num: 84

Candidate Starts for Nimrod\_110:

(Start: 84 @63456 has 243 MA's), (Start: 90 @63486 has 4 MA's), (104, 63561), (137, 63678),

Gene: NoSleep\_110 Start: 62630, Stop: 62893, Start Num: 84

Candidate Starts for NoSleep\_110:

(Start: 84 @62630 has 243 MA's), (Start: 90 @62660 has 4 MA's), (104, 62735), (137, 62852),

Gene: Norvs\_147 Start: 80466, Stop: 80765, Start Num: 61

Candidate Starts for Norvs\_147:

(Start: 61 @80466 has 11 MA's), (Start: 89 @80547 has 1 MA's), (112, 80652), (118, 80670), (136, 80736), (139, 80754),

Gene: Octobien14\_125 Start: 68110, Stop: 68352, Start Num: 78

Candidate Starts for Octobien14\_125:

(Start: 75 @68104 has 2 MA's), (Start: 78 @68110 has 6 MA's), (Start: 84 @68122 has 243 MA's), (88, 68143), (94, 68161), (104, 68224), (106, 68245), (119, 68284), (123, 68299), (125, 68308), (131, 68332),

Gene: Odette\_167 Start: 88739, Stop: 88984, Start Num: 84

Candidate Starts for Odette\_167:

(59, 88670), (Start: 84 @88739 has 243 MA's), (108, 88856),

Gene: OhShagHennessy\_88 Start: 57057, Stop: 57296, Start Num: 84

Candidate Starts for OhShagHennessy\_88:

(Start: 82 @57054 has 1 MA's), (Start: 84 @57057 has 243 MA's), (104, 57162), (108, 57177), (112, 57189), (117, 57204), (121, 57216), (131, 57258), (132, 57264),

Gene: OkiRoe\_36 Start: 30291, Stop: 30515, Start Num: 84

Candidate Starts for OkiRoe\_36:

(Start: 64 @30258 has 5 MA's), (Start: 84 @30291 has 243 MA's), (Start: 90 @30321 has 4 MA's), (94, 30333), (101, 30369), (102, 30372), (105, 30399), (114, 30429), (115, 30432), (123, 30459),

Gene: OmniCritical\_37 Start: 30529, Stop: 30816, Start Num: 68

Candidate Starts for OmniCritical\_37:

(Start: 68 @30529 has 26 MA's), (Start: 84 @30535 has 243 MA's), (Start: 91 @30568 has 1 MA's), (99, 30592), (103, 30628), (115, 30679), (116, 30682), (122, 30700), (123, 30706), (133, 30748), (134, 30751), (135, 30754),

Gene: Omnicron\_39 Start: 29782, Stop: 30006, Start Num: 84

Candidate Starts for Omnicron\_39:

(Start: 84 @29782 has 243 MA's), (Start: 90 @29812 has 4 MA's), (94, 29824), (102, 29863), (114, 29920), (122, 29944), (123, 29950), (128, 29974), (131, 29983),

Gene: OneUp\_134 Start: 80067, Stop: 80324, Start Num: 75

Candidate Starts for OneUp\_134:

(Start: 75 @80067 has 2 MA's), (Start: 82 @80082 has 1 MA's), (Start: 84 @80085 has 243 MA's), (85, 80088), (102, 80166), (118, 80235), (127, 80271), (129, 80277), (136, 80301), (137, 80304),

Gene: OrionPax\_108 Start: 62703, Stop: 62966, Start Num: 84

Candidate Starts for OrionPax\_108:

(Start: 84 @62703 has 243 MA's), (Start: 90 @62733 has 4 MA's), (104, 62808), (108, 62823), (137, 62925),

Gene: Oscar\_36 Start: 29182, Stop: 29412, Start Num: 84

Candidate Starts for Oscar\_36:

(8, 28747), (11, 28771), (18, 28861), (42, 29059), (45, 29089), (Start: 68 @29179 has 26 MA's), (Start: 84 @29182 has 243 MA's), (Start: 90 @29212 has 4 MA's), (99, 29239),

Gene: Palpatine\_111 Start: 64137, Stop: 64370, Start Num: 90

Candidate Starts for Palpatine\_111:

(Start: 84 @64107 has 243 MA's), (Start: 90 @64137 has 4 MA's), (104, 64212), (137, 64329),

Gene: Paola\_36 Start: 30256, Stop: 30513, Start Num: 64

Candidate Starts for Paola\_36:

(Start: 64 @30256 has 5 MA's), (Start: 84 @30289 has 243 MA's), (Start: 90 @30319 has 4 MA's), (94, 30331), (101, 30367), (102, 30370), (105, 30397), (114, 30427), (115, 30430), (123, 30457),

Gene: Paperbeatsrock\_109 Start: 63484, Stop: 63747, Start Num: 84

Candidate Starts for Paperbeatsrock\_109:

(Start: 84 @63484 has 243 MA's), (Start: 90 @63514 has 4 MA's), (104, 63589), (137, 63706),

Gene: Pat3\_107 Start: 62123, Stop: 62386, Start Num: 84

Candidate Starts for Pat3\_107:

(Start: 84 @62123 has 243 MA's), (Start: 90 @62153 has 4 MA's), (104, 62228), (137, 62345),

Gene: Patt\_37 Start: 30369, Stop: 30650, Start Num: 84

Candidate Starts for Patt\_37:

(Start: 68 @30363 has 26 MA's), (Start: 84 @30369 has 243 MA's), (Start: 91 @30402 has 1 MA's), (99, 30426), (103, 30462), (115, 30513), (116, 30516), (122, 30534), (123, 30540), (124, 30543), (133,

30582), (134, 30585), (135, 30588),

Gene: Peanam\_36 Start: 28807, Stop: 29037, Start Num: 68

Candidate Starts for Peanam\_36:

(18, 28489), (32, 28618), (42, 28687), (45, 28717), (Start: 68 @28807 has 26 MA's), (Start: 84 @28810 has 243 MA's), (109, 28933), (121, 28969),

Gene: Petra64142\_114 Start: 63982, Stop: 64215, Start Num: 90

Candidate Starts for Petra64142\_114:

(Start: 84 @63952 has 243 MA's), (Start: 90 @63982 has 4 MA's), (104, 64057), (137, 64174),

Gene: Phaja\_108 Start: 62688, Stop: 62951, Start Num: 84

Candidate Starts for Phaja\_108:

(Start: 84 @62688 has 243 MA's), (Start: 90 @62718 has 4 MA's), (104, 62793), (137, 62910),

Gene: Pharb\_35 Start: 29653, Stop: 29877, Start Num: 84

Candidate Starts for Pharb\_35:

(18, 29332), (42, 29530), (45, 29560), (Start: 68 @29650 has 26 MA's), (Start: 84 @29653 has 243 MA's), (99, 29710),

Gene: Pharsalus\_107 Start: 63183, Stop: 63446, Start Num: 84

Candidate Starts for Pharsalus\_107:

(Start: 84 @63183 has 243 MA's), (Start: 90 @63213 has 4 MA's), (104, 63288), (137, 63405),

Gene: PhatBacter\_113 Start: 63852, Stop: 64115, Start Num: 84

Candidate Starts for PhatBacter\_113:

(Start: 84 @63852 has 243 MA's), (Start: 90 @63882 has 4 MA's), (104, 63957), (137, 64074),

Gene: Phaux\_112 Start: 64412, Stop: 64675, Start Num: 84

Candidate Starts for Phaux\_112:

(Start: 84 @64412 has 243 MA's), (Start: 90 @64442 has 4 MA's), (104, 64517), (108, 64532), (137, 64634),

Gene: PhelpsODU\_36 Start: 28916, Stop: 29149, Start Num: 68

Candidate Starts for PhelpsODU\_36:

(Start: 68 @28916 has 26 MA's), (112, 29057), (134, 29135),

Gene: PhinkBoden\_147 Start: 80864, Stop: 81163, Start Num: 61

Candidate Starts for PhinkBoden\_147:

(Start: 61 @80864 has 11 MA's), (Start: 89 @80945 has 1 MA's), (112, 81050), (118, 81068), (136, 81134), (139, 81152),

Gene: Phrank\_36 Start: 28866, Stop: 29099, Start Num: 68

Candidate Starts for Phrank\_36:

(45, 28776), (Start: 68 @28866 has 26 MA's), (112, 29007), (134, 29085),

Gene: Phrux\_106 Start: 62490, Stop: 62753, Start Num: 84

Candidate Starts for Phrux\_106:

(Start: 84 @62490 has 243 MA's), (Start: 90 @62520 has 4 MA's), (104, 62595), (137, 62712),

Gene: Pixie\_36 Start: 29889, Stop: 30128, Start Num: 68

Candidate Starts for Pixie\_36:

(8, 29457), (11, 29481), (18, 29571), (42, 29769), (45, 29799), (Start: 68 @29889 has 26 MA's), (95, 29946), (115, 30042), (123, 30072),

Gene: Policronamos\_114 Start: 64146, Stop: 64379, Start Num: 90

Candidate Starts for Policronamos\_114:

(Start: 84 @64116 has 243 MA's), (Start: 90 @64146 has 4 MA's), (104, 64221), (137, 64338),

Gene: Porcelain\_161 Start: 83394, Stop: 83639, Start Num: 84

Candidate Starts for Porcelain\_161:

(47, 83304), (49, 83319), (76, 83382), (Start: 84 @83394 has 243 MA's), (Start: 91 @83424 has 1 MA's), (101, 83469), (109, 83514), (124, 83562),

Gene: Porky\_108 Start: 62234, Stop: 62497, Start Num: 84

Candidate Starts for Porky\_108:

(Start: 84 @62234 has 243 MA's), (Start: 90 @62264 has 4 MA's), (104, 62339), (108, 62354), (137, 62456),

Gene: Pound\_156 Start: 84927, Stop: 85172, Start Num: 84

Candidate Starts for Pound\_156:

(59, 84858), (Start: 84 @84927 has 243 MA's), (108, 85044),

Gene: Psycho\_36 Start: 30141, Stop: 30365, Start Num: 84

Candidate Starts for Psycho\_36:

(Start: 84 @30141 has 243 MA's), (Start: 90 @30171 has 4 MA's), (94, 30183), (101, 30219), (102, 30222), (114, 30279), (121, 30300), (122, 30303), (123, 30309), (128, 30333), (131, 30342),

Gene: Pumpkin\_111 Start: 62830, Stop: 63093, Start Num: 84

Candidate Starts for Pumpkin\_111:

(Start: 84 @62830 has 243 MA's), (Start: 90 @62860 has 4 MA's), (104, 62935), (137, 63052),

Gene: Quallification\_111 Start: 63898, Stop: 64161, Start Num: 84

Candidate Starts for Quallification\_111:

(Start: 84 @63898 has 243 MA's), (Start: 90 @63928 has 4 MA's), (104, 64003), (137, 64120),

Gene: Rabbitrun\_128 Start: 72178, Stop: 72396, Start Num: 84

Candidate Starts for Rabbitrun\_128:

(81, 72172), (Start: 84 @72178 has 243 MA's), (86, 72187), (Start: 89 @72202 has 1 MA's), (Start: 90 @72205 has 4 MA's), (Start: 91 @72208 has 1 MA's), (94, 72217), (96, 72223), (99, 72232), (104, 72280), (108, 72298), (113, 72313), (114, 72316), (116, 72319), (121, 72334), (122, 72337), (123, 72343), (124, 72346), (131, 72376), (135, 72391),

Gene: Rakim\_111 Start: 62900, Stop: 63163, Start Num: 84

Candidate Starts for Rakim\_111:

(Start: 84 @62900 has 243 MA's), (Start: 90 @62930 has 4 MA's), (104, 63005), (137, 63122),

Gene: Rando14\_38 Start: 29354, Stop: 29578, Start Num: 73

Candidate Starts for Rando14\_38:

(Start: 73 @29354 has 1 MA's), (Start: 90 @29384 has 4 MA's), (94, 29396), (102, 29435), (114, 29492), (122, 29516), (123, 29522), (128, 29546), (131, 29555),

Gene: Reptar3000\_37 Start: 30360, Stop: 30641, Start Num: 84

Candidate Starts for Reptar3000\_37:

(Start: 68 @30354 has 26 MA's), (Start: 84 @30360 has 243 MA's), (Start: 91 @30393 has 1 MA's), (99, 30417), (103, 30453), (115, 30504), (116, 30507), (122, 30525), (123, 30531), (124, 30534), (133, 30573), (134, 30576), (135, 30579),

Gene: Rimmer\_108 Start: 63289, Stop: 63552, Start Num: 84

Candidate Starts for Rimmer\_108:

(Start: 84 @63289 has 243 MA's), (Start: 90 @63319 has 4 MA's), (104, 63394), (137, 63511),

Gene: RiverMonster\_109 Start: 63385, Stop: 63648, Start Num: 84

Candidate Starts for RiverMonster\_109:

(Start: 84 @63385 has 243 MA's), (Start: 90 @63415 has 4 MA's), (104, 63490), (137, 63607),

Gene: Rose5\_93 Start: 58324, Stop: 58563, Start Num: 84

Candidate Starts for Rose5\_93:

(Start: 82 @58321 has 1 MA's), (Start: 84 @58324 has 243 MA's), (104, 58429), (108, 58444), (112, 58456), (117, 58471), (121, 58483), (131, 58525), (132, 58531),

Gene: Rumpelstiltskin\_92 Start: 59603, Stop: 59863, Start Num: 84

Candidate Starts for Rumpelstiltskin\_92:

(Start: 84 @59603 has 243 MA's), (88, 59627), (104, 59708), (112, 59735), (116, 59747), (117, 59750), (119, 59756), (121, 59762), (131, 59804), (132, 59810),

Gene: Ruthiejr\_38 Start: 30510, Stop: 30797, Start Num: 68

Candidate Starts for Ruthiejr\_38:

(23, 30252), (Start: 68 @30510 has 26 MA's), (Start: 84 @30516 has 243 MA's), (Start: 91 @30549 has 1 MA's), (99, 30573), (103, 30609), (115, 30660), (116, 30663), (122, 30681), (123, 30687), (133, 30729), (134, 30732), (135, 30735),

Gene: Saints25\_106 Start: 61315, Stop: 61578, Start Num: 84

Candidate Starts for Saints25\_106:

(Start: 84 @61315 has 243 MA's), (Start: 90 @61345 has 4 MA's), (104, 61420), (108, 61435), (137, 61537),

Gene: SamScheppers\_37 Start: 31023, Stop: 31310, Start Num: 68

Candidate Starts for SamScheppers\_37:

(Start: 68 @31023 has 26 MA's), (Start: 84 @31029 has 243 MA's), (Start: 91 @31062 has 1 MA's), (99, 31086), (103, 31122), (115, 31173), (116, 31176), (122, 31194), (123, 31200), (133, 31242), (134, 31245), (135, 31248),

Gene: Samty\_92 Start: 59826, Stop: 60095, Start Num: 79

Candidate Starts for Samty\_92:

(Start: 79 @59826 has 19 MA's), (Start: 90 @59865 has 4 MA's), (104, 59940), (112, 59967), (115, 59976), (134, 60048),

Gene: Sassay\_105 Start: 61765, Stop: 61998, Start Num: 90

Candidate Starts for Sassay\_105:

(Start: 84 @61735 has 243 MA's), (Start: 90 @61765 has 4 MA's), (104, 61840), (137, 61957),

Gene: Scarlett\_36 Start: 29182, Stop: 29412, Start Num: 84

Candidate Starts for Scarlett\_36:

(Start: 68 @29179 has 26 MA's), (Start: 84 @29182 has 243 MA's), (99, 29239),

Gene: Sephiroth\_124 Start: 69346, Stop: 69588, Start Num: 78

Candidate Starts for Sephiroth\_124:

(Start: 75 @69340 has 2 MA's), (Start: 78 @69346 has 6 MA's), (94, 69397), (104, 69460), (106, 69481), (123, 69535), (125, 69544), (130, 69565),

Gene: Shadow1\_35 Start: 28661, Stop: 28891, Start Num: 84

Candidate Starts for Shadow1\_35:

(42, 28538), (45, 28568), (Start: 68 @28658 has 26 MA's), (Start: 84 @28661 has 243 MA's), (99, 28718), (131, 28862),

Gene: Shagrat\_102 Start: 54294, Stop: 54536, Start Num: 79

Candidate Starts for Shagrat\_102:

(37, 54126), (43, 54174), (54, 54228), (Start: 79 @54294 has 19 MA's), (103, 54393), (117, 54447), (122, 54462),

Gene: ShamWow\_110 Start: 63783, Stop: 64046, Start Num: 84

Candidate Starts for ShamWow\_110:

(Start: 84 @63783 has 243 MA's), (Start: 90 @63813 has 4 MA's), (104, 63888), (137, 64005),

Gene: Shaobing\_36 Start: 28810, Stop: 29037, Start Num: 84

Candidate Starts for Shaobing\_36:

(18, 28489), (32, 28618), (42, 28687), (45, 28717), (Start: 68 @28807 has 26 MA's), (Start: 84 @28810 has 243 MA's), (109, 28933), (121, 28969),

Gene: ShedlockHolmes\_37 Start: 30411, Stop: 30650, Start Num: 68

Candidate Starts for ShedlockHolmes\_37:

(18, 30093), (42, 30291), (45, 30321), (Start: 68 @30411 has 26 MA's), (95, 30468), (123, 30594), (128, 30618),

Gene: ShereKhan\_108 Start: 64144, Stop: 64407, Start Num: 84

Candidate Starts for ShereKhan\_108:

(Start: 84 @64144 has 243 MA's), (Start: 90 @64174 has 4 MA's), (104, 64249), (137, 64366),

Gene: Silverleaf\_91 Start: 57820, Stop: 58059, Start Num: 84

Candidate Starts for Silverleaf\_91:

(Start: 82 @57817 has 1 MA's), (Start: 84 @57820 has 243 MA's), (104, 57925), (108, 57940), (112, 57952), (117, 57967), (121, 57979), (132, 58027),

Gene: Simpliphy\_108 Start: 62956, Stop: 63219, Start Num: 84

Candidate Starts for Simpliphy\_108:

(Start: 84 @62956 has 243 MA's), (Start: 90 @62986 has 4 MA's), (104, 63061), (108, 63076), (137, 63178),

Gene: SirDuracell\_110 Start: 62622, Stop: 62885, Start Num: 84

Candidate Starts for SirDuracell\_110:

(Start: 84 @62622 has 243 MA's), (Start: 90 @62652 has 4 MA's), (104, 62727), (137, 62844),

Gene: SirPhilip\_35 Start: 28286, Stop: 28516, Start Num: 68

Candidate Starts for SirPhilip\_35:

(Start: 68 @28286 has 26 MA's), (Start: 84 @28289 has 243 MA's), (99, 28346),

Gene: Slarp\_37 Start: 30638, Stop: 30919, Start Num: 84

Candidate Starts for Slarp\_37:

(Start: 68 @30632 has 26 MA's), (Start: 84 @30638 has 243 MA's), (Start: 91 @30671 has 1 MA's), (99, 30695), (103, 30731), (112, 30773), (115, 30782), (116, 30785), (122, 30803), (123, 30809), (133, 30851), (134, 30854), (135, 30857),

Gene: Smoothie\_150 Start: 80851, Stop: 81150, Start Num: 61

Candidate Starts for Smoothie\_150:

(Start: 61 @80851 has 11 MA's), (Start: 89 @80932 has 1 MA's), (118, 81055), (136, 81121), (139, 81139),

Gene: Snenia\_92 Start: 59730, Stop: 59999, Start Num: 79

Candidate Starts for Snenia\_92:

(Start: 79 @59730 has 19 MA's), (Start: 90 @59769 has 4 MA's), (104, 59844), (112, 59871), (115, 59880), (134, 59952),

Gene: SoSeph\_36 Start: 30435, Stop: 30659, Start Num: 84

Candidate Starts for SoSeph\_36:

(Start: 64 @30402 has 5 MA's), (Start: 84 @30435 has 243 MA's), (Start: 90 @30465 has 4 MA's), (94, 30477), (101, 30513), (102, 30516), (105, 30543), (114, 30573), (115, 30576), (123, 30603), (131, 30636),

Gene: SophKB\_108 Start: 62945, Stop: 63208, Start Num: 84

Candidate Starts for SophKB\_108:

(Start: 84 @62945 has 243 MA's), (Start: 90 @62975 has 4 MA's), (104, 63050), (108, 63065), (137, 63167),

Gene: Sotrice96\_111 Start: 63409, Stop: 63672, Start Num: 84

Candidate Starts for Sotrice96\_111:

(Start: 84 @63409 has 243 MA's), (Start: 90 @63439 has 4 MA's), (104, 63514), (137, 63631),

Gene: Squint\_155 Start: 83260, Stop: 83505, Start Num: 84

Candidate Starts for Squint\_155:

(47, 83170), (49, 83185), (76, 83248), (Start: 84 @83260 has 243 MA's), (Start: 91 @83290 has 1 MA's), (101, 83335), (109, 83380), (124, 83428),

Gene: Stank\_112 Start: 63183, Stop: 63446, Start Num: 84

Candidate Starts for Stank\_112:

(Start: 84 @63183 has 243 MA's), (Start: 90 @63213 has 4 MA's), (104, 63288), (137, 63405),

Gene: Stark\_110 Start: 63269, Stop: 63532, Start Num: 84

Candidate Starts for Stark\_110:

(Start: 84 @63269 has 243 MA's), (Start: 90 @63299 has 4 MA's), (104, 63374), (137, 63491),

Gene: StellaBean\_108 Start: 63566, Stop: 63829, Start Num: 84

Candidate Starts for StellaBean\_108:

(Start: 84 @63566 has 243 MA's), (Start: 90 @63596 has 4 MA's), (104, 63671), (137, 63788),

Gene: StolenFromERC\_112 Start: 63108, Stop: 63371, Start Num: 84

Candidate Starts for StolenFromERC\_112:

(Start: 84 @63108 has 243 MA's), (Start: 90 @63138 has 4 MA's), (104, 63213), (137, 63330),

Gene: Sunflower1121\_35 Start: 28754, Stop: 28984, Start Num: 84

Candidate Starts for Sunflower1121\_35:

(45, 28661), (Start: 68 @28751 has 26 MA's), (Start: 84 @28754 has 243 MA's), (99, 28811), (131, 28955),

Gene: Superphikiman\_159 Start: 83181, Stop: 83426, Start Num: 84

Candidate Starts for Superphikiman\_159:

(47, 83091), (49, 83106), (76, 83169), (Start: 84 @83181 has 243 MA's), (Start: 91 @83211 has 1 MA's), (101, 83256), (109, 83301), (124, 83349),

Gene: Syleon\_129 Start: 70097, Stop: 70339, Start Num: 78

Candidate Starts for Syleon\_129:

(Start: 75 @70091 has 2 MA's), (Start: 78 @70097 has 6 MA's), (94, 70148), (104, 70211), (106, 70232), (123, 70286), (125, 70295), (130, 70316),

Gene: Syra333\_36 Start: 28680, Stop: 28910, Start Num: 84

Candidate Starts for Syra333\_36:

(18, 28359), (24, 28422), (28, 28446), (42, 28557), (45, 28587), (Start: 68 @28677 has 26 MA's), (Start: 84 @28680 has 243 MA's), (99, 28737), (131, 28881),

Gene: TBond007\_36 Start: 29888, Stop: 30127, Start Num: 68

Candidate Starts for TBond007\_36:

(42, 29768), (45, 29798), (Start: 68 @29888 has 26 MA's), (95, 29945), (115, 30041), (123, 30071),

Gene: TBrady12\_113 Start: 62620, Stop: 62883, Start Num: 84

Candidate Starts for TBrady12\_113:

(Start: 84 @62620 has 243 MA's), (Start: 90 @62650 has 4 MA's), (104, 62725), (137, 62842),

Gene: TClif\_38 Start: 29261, Stop: 29491, Start Num: 84

Candidate Starts for TClif\_38:

(18, 28940), (24, 29003), (28, 29027), (42, 29138), (45, 29168), (Start: 84 @29261 has 243 MA's),

Gene: Taquito\_37 Start: 31057, Stop: 31305, Start Num: 91

Candidate Starts for Taquito\_37:

(21, 30796), (22, 30802), (Start: 91 @31057 has 1 MA's), (99, 31081), (103, 31117), (115, 31168), (116, 31171), (122, 31189), (123, 31195), (133, 31237), (134, 31240), (135, 31243),

Gene: Tarkin\_109 Start: 64009, Stop: 64272, Start Num: 84

Candidate Starts for Tarkin\_109:

(Start: 84 @64009 has 243 MA's), (Start: 90 @64039 has 4 MA's), (104, 64114), (137, 64231),

Gene: TeardropMSU\_106 Start: 62511, Stop: 62774, Start Num: 84

Candidate Starts for TeardropMSU\_106:

(Start: 84 @62511 has 243 MA's), (Start: 90 @62541 has 4 MA's), (104, 62616), (137, 62733),

Gene: Teaspoon\_110 Start: 63168, Stop: 63431, Start Num: 84

Candidate Starts for Teaspoon\_110:

(Start: 84 @63168 has 243 MA's), (Start: 90 @63198 has 4 MA's), (104, 63273), (137, 63390),

Gene: Terminus\_113 Start: 64409, Stop: 64672, Start Num: 84

Candidate Starts for Terminus\_113:

(Start: 84 @64409 has 243 MA's), (Start: 90 @64439 has 4 MA's), (104, 64514), (137, 64631),

Gene: Thresher\_111 Start: 64049, Stop: 64312, Start Num: 84

Candidate Starts for Thresher\_111:



(Start: 84 @64049 has 243 MA's), (Start: 90 @64079 has 4 MA's), (104, 64154), (137, 64271),

Gene: Thyatira\_36 Start: 30289, Stop: 30513, Start Num: 84

Candidate Starts for Thyatira\_36:

(Start: 64 @30256 has 5 MA's), (Start: 84 @30289 has 243 MA's), (Start: 90 @30319 has 4 MA's), (94, 30331), (101, 30367), (102, 30370), (105, 30397), (114, 30427), (123, 30457),

Gene: Tierra\_36 Start: 29587, Stop: 29820, Start Num: 68

Candidate Starts for Tierra\_36:

(45, 29497), (Start: 68 @29587 has 26 MA's), (112, 29728), (134, 29806),

Gene: Tomaszewski\_105 Start: 62947, Stop: 63210, Start Num: 84

Candidate Starts for Tomaszewski\_105:

(Start: 84 @62947 has 243 MA's), (Start: 90 @62977 has 4 MA's), (104, 63052), (137, 63169),

Gene: Toniann\_149 Start: 80607, Stop: 80906, Start Num: 61

Candidate Starts for Toniann\_149:

(Start: 61 @80607 has 11 MA's), (Start: 89 @80688 has 1 MA's), (112, 80793), (118, 80811), (136, 80877), (139, 80895),

Gene: Toto\_108 Start: 63783, Stop: 64046, Start Num: 84

Candidate Starts for Toto\_108:

(Start: 84 @63783 has 243 MA's), (Start: 90 @63813 has 4 MA's), (104, 63888), (137, 64005),

Gene: Tourach\_96 Start: 60701, Stop: 60940, Start Num: 84

Candidate Starts for Tourach\_96:

(Start: 84 @60701 has 243 MA's), (88, 60725), (Start: 90 @60731 has 4 MA's), (104, 60806), (112, 60833), (115, 60842), (116, 60845), (117, 60848), (119, 60854), (121, 60860), (131, 60902), (132, 60908),

Gene: Traaww1\_106 Start: 62332, Stop: 62595, Start Num: 84

Candidate Starts for Traaww1\_106:

(Start: 84 @62332 has 243 MA's), (Start: 90 @62362 has 4 MA's), (104, 62437), (137, 62554),

Gene: Trax\_127 Start: 71378, Stop: 71596, Start Num: 84

Candidate Starts for Trax\_127:

(81, 71372), (Start: 84 @71378 has 243 MA's), (86, 71387), (Start: 89 @71402 has 1 MA's), (Start: 90 @71405 has 4 MA's), (Start: 91 @71408 has 1 MA's), (93, 71414), (94, 71417), (96, 71423), (99, 71432), (102, 71456), (103, 71468), (104, 71480), (105, 71483), (107, 71495), (108, 71498), (113, 71513), (114, 71516), (116, 71519), (121, 71534), (123, 71543), (124, 71546), (131, 71576), (135, 71591),

Gene: TribelTrouble\_36 Start: 30199, Stop: 30423, Start Num: 84

Candidate Starts for TribelTrouble\_36:

(63, 30175), (Start: 84 @30199 has 243 MA's), (119, 30352), (123, 30367),

Gene: Tuco\_111 Start: 64570, Stop: 64833, Start Num: 84

Candidate Starts for Tuco\_111:

(Start: 84 @64570 has 243 MA's), (Start: 90 @64600 has 4 MA's), (104, 64675), (137, 64792),

Gene: Typha\_30 Start: 27510, Stop: 27782, Start Num: 79

Candidate Starts for Typha\_30:

(25, 27231), (Start: 78 @27507 has 6 MA's), (Start: 79 @27510 has 19 MA's), (Start: 84 @27519 has 243 MA's), (87, 27537), (94, 27561), (95, 27564), (101, 27603), (102, 27606), (112, 27660), (115, 27663), (118, 27672), (132, 27732),

Gene: Tyson\_93 Start: 58217, Stop: 58456, Start Num: 84

Candidate Starts for Tyson\_93:

(Start: 82 @58214 has 1 MA's), (Start: 84 @58217 has 243 MA's), (104, 58322), (108, 58337), (112, 58349), (117, 58364), (121, 58376), (132, 58424),

Gene: UPIE\_91 Start: 57813, Stop: 58052, Start Num: 84

Candidate Starts for UPIE\_91:

(Start: 82 @57810 has 1 MA's), (Start: 84 @57813 has 243 MA's), (104, 57918), (108, 57933), (112, 57945), (117, 57960), (121, 57972), (131, 58014), (132, 58020),

Gene: Ukulele\_104 Start: 62768, Stop: 63031, Start Num: 84

Candidate Starts for Ukulele\_104:

(Start: 84 @62768 has 243 MA's), (Start: 90 @62798 has 4 MA's), (104, 62873), (137, 62990),

Gene: Unicorn\_36 Start: 28916, Stop: 29149, Start Num: 68

Candidate Starts for Unicorn\_36:

(Start: 68 @28916 has 26 MA's), (112, 29057), (134, 29135),

Gene: Validus\_36 Start: 28742, Stop: 28969, Start Num: 84

Candidate Starts for Validus\_36:

(18, 28421), (28, 28508), (32, 28550), (42, 28619), (45, 28649), (Start: 68 @28739 has 26 MA's), (Start: 84 @28742 has 243 MA's), (95, 28787), (135, 28955),

Gene: Vetric\_94 Start: 59584, Stop: 59844, Start Num: 84

Candidate Starts for Vetric\_94:

(Start: 84 @59584 has 243 MA's), (88, 59608), (104, 59689), (112, 59716), (116, 59728), (117, 59731), (119, 59737), (121, 59743), (131, 59785), (132, 59791),

Gene: Wamburgexpress\_91 Start: 57941, Stop: 58180, Start Num: 84

Candidate Starts for Wamburgexpress\_91:

(Start: 82 @57938 has 1 MA's), (Start: 84 @57941 has 243 MA's), (104, 58046), (108, 58061), (112, 58073), (117, 58088), (121, 58100), (131, 58142), (132, 58148),

Gene: Waterfoul\_37 Start: 30530, Stop: 30754, Start Num: 84

Candidate Starts for Waterfoul\_37:

(72, 30524), (Start: 84 @30530 has 243 MA's), (Start: 90 @30560 has 4 MA's), (94, 30572), (101, 30608), (102, 30611), (105, 30638), (114, 30668), (123, 30698), (131, 30731),

Gene: Whirlwind\_94 Start: 60069, Stop: 60338, Start Num: 79

Candidate Starts for Whirlwind\_94:

(Start: 79 @60069 has 19 MA's), (Start: 90 @60108 has 4 MA's), (104, 60183), (112, 60210), (115, 60219), (134, 60291),

Gene: Wiggin\_112 Start: 62613, Stop: 62876, Start Num: 84

Candidate Starts for Wiggin\_112:

(Start: 84 @62613 has 243 MA's), (Start: 90 @62643 has 4 MA's), (104, 62718), (137, 62835),

Gene: Wigglewigg\_96 Start: 59892, Stop: 60152, Start Num: 84

Candidate Starts for Wigglewigg\_96:

(Start: 84 @59892 has 243 MA's), (88, 59916), (104, 59997), (116, 60036), (117, 60039), (119, 60045), (121, 60051), (131, 60093), (132, 60099),

Gene: Wilder\_97 Start: 59728, Stop: 59988, Start Num: 84

Candidate Starts for Wilder\_97:

(Start: 84 @59728 has 243 MA's), (88, 59752), (104, 59833), (112, 59860), (116, 59872), (117, 59875), (119, 59881), (121, 59887), (131, 59929), (132, 59935),

Gene: Willez\_105 Start: 61735, Stop: 61998, Start Num: 84

Candidate Starts for Willez\_105:

(Start: 84 @61735 has 243 MA's), (Start: 90 @61765 has 4 MA's), (104, 61840), (137, 61957),

Gene: WilliamBoone\_150 Start: 78865, Stop: 79164, Start Num: 61

Candidate Starts for WilliamBoone\_150:

(Start: 61 @78865 has 11 MA's), (98, 78976), (116, 79063), (118, 79069), (136, 79135), (139, 79153),

Gene: Winky\_96 Start: 60332, Stop: 60592, Start Num: 84

Candidate Starts for Winky\_96:

(Start: 84 @60332 has 243 MA's), (88, 60356), (104, 60437), (116, 60476), (117, 60479), (119, 60485), (121, 60491), (131, 60533), (132, 60539),

Gene: Wintermute\_37 Start: 30625, Stop: 30906, Start Num: 84

Candidate Starts for Wintermute\_37:

(Start: 68 @30619 has 26 MA's), (Start: 84 @30625 has 243 MA's), (Start: 91 @30658 has 1 MA's), (99, 30682), (103, 30718), (115, 30769), (116, 30772), (122, 30790), (123, 30796), (133, 30838), (134, 30841), (135, 30844),

Gene: Wyatt2\_93 Start: 58248, Stop: 58487, Start Num: 84

Candidate Starts for Wyatt2\_93:

(Start: 82 @58245 has 1 MA's), (Start: 84 @58248 has 243 MA's), (104, 58353), (108, 58368), (112, 58380), (117, 58395), (121, 58407), (131, 58449), (132, 58455),

Gene: Xandras\_109 Start: 62436, Stop: 62699, Start Num: 84

Candidate Starts for Xandras\_109:

(Start: 84 @62436 has 243 MA's), (Start: 90 @62466 has 4 MA's), (104, 62541), (137, 62658),

Gene: Ximenita\_37 Start: 28862, Stop: 29095, Start Num: 68

Candidate Starts for Ximenita\_37:

(45, 28772), (Start: 68 @28862 has 26 MA's), (Start: 84 @28865 has 243 MA's), (99, 28922), (131, 29066),

Gene: Y10\_37 Start: 30625, Stop: 30906, Start Num: 84

Candidate Starts for Y10\_37:

(17, 30298), (23, 30361), (Start: 68 @30619 has 26 MA's), (Start: 84 @30625 has 243 MA's), (Start: 91 @30658 has 1 MA's), (99, 30682), (103, 30718), (115, 30769), (116, 30772), (122, 30790), (123, 30796), (133, 30838), (134, 30841), (135, 30844),

Gene: Y2\_37 Start: 30625, Stop: 30906, Start Num: 84

Candidate Starts for Y2\_37:

(17, 30298), (23, 30361), (Start: 68 @30619 has 26 MA's), (Start: 84 @30625 has 243 MA's), (Start: 91 @30658 has 1 MA's), (99, 30682), (103, 30718), (115, 30769), (116, 30772), (122, 30790), (123, 30796), (133, 30838), (134, 30841), (135, 30844),

Gene: YassJohnny\_107 Start: 61756, Stop: 62019, Start Num: 84  
Candidate Starts for YassJohnny\_107:  
(Start: 84 @61756 has 243 MA's), (Start: 90 @61786 has 4 MA's), (104, 61861), (137, 61978),

Gene: Yeet\_155 Start: 85621, Stop: 85866, Start Num: 84  
Candidate Starts for Yeet\_155:  
(59, 85552), (Start: 84 @85621 has 243 MA's), (108, 85738),

Gene: Youngblood\_114 Start: 63905, Stop: 64168, Start Num: 84  
Candidate Starts for Youngblood\_114:  
(Start: 84 @63905 has 243 MA's), (Start: 90 @63935 has 4 MA's), (104, 64010), (137, 64127),

Gene: Yuna\_37 Start: 29330, Stop: 29563, Start Num: 68  
Candidate Starts for Yuna\_37:  
(18, 29012), (42, 29210), (45, 29240), (Start: 68 @29330 has 26 MA's), (Start: 84 @29339 has 243 MA's), (Start: 90 @29369 has 4 MA's), (99, 29396), (113, 29474), (115, 29480),

Gene: Yunkel11\_37 Start: 28983, Stop: 29210, Start Num: 84  
Candidate Starts for Yunkel11\_37:  
(20, 28689), (30, 28755), (31, 28767), (39, 28824), (Start: 70 @28971 has 2 MA's), (71, 28974), (Start: 84 @28983 has 243 MA's), (94, 29025), (109, 29106), (113, 29118),

Gene: Zakai\_97 Start: 60371, Stop: 60631, Start Num: 84  
Candidate Starts for Zakai\_97:  
(Start: 84 @60371 has 243 MA's), (88, 60395), (104, 60476), (112, 60503), (116, 60515), (117, 60518), (119, 60524), (121, 60530), (131, 60572), (132, 60578),

Gene: Zaria\_92 Start: 57356, Stop: 57595, Start Num: 84  
Candidate Starts for Zaria\_92:  
(Start: 82 @57353 has 1 MA's), (Start: 84 @57356 has 243 MA's), (104, 57461), (108, 57476), (112, 57488), (117, 57503), (121, 57515), (132, 57563),

Gene: Zelink\_156 Start: 85981, Stop: 86226, Start Num: 84  
Candidate Starts for Zelink\_156:  
(59, 85912), (Start: 84 @85981 has 243 MA's), (108, 86098),

Gene: ZhongYanYuan\_93 Start: 59783, Stop: 60043, Start Num: 84  
Candidate Starts for ZhongYanYuan\_93:  
(Start: 84 @59783 has 243 MA's), (104, 59888), (112, 59915), (113, 59918), (115, 59924), (116, 59927), (121, 59942), (131, 59984), (132, 59990),

Gene: xkcd\_114 Start: 64090, Stop: 64353, Start Num: 84  
Candidate Starts for xkcd\_114:  
(Start: 84 @64090 has 243 MA's), (Start: 90 @64120 has 4 MA's), (104, 64195), (137, 64312),