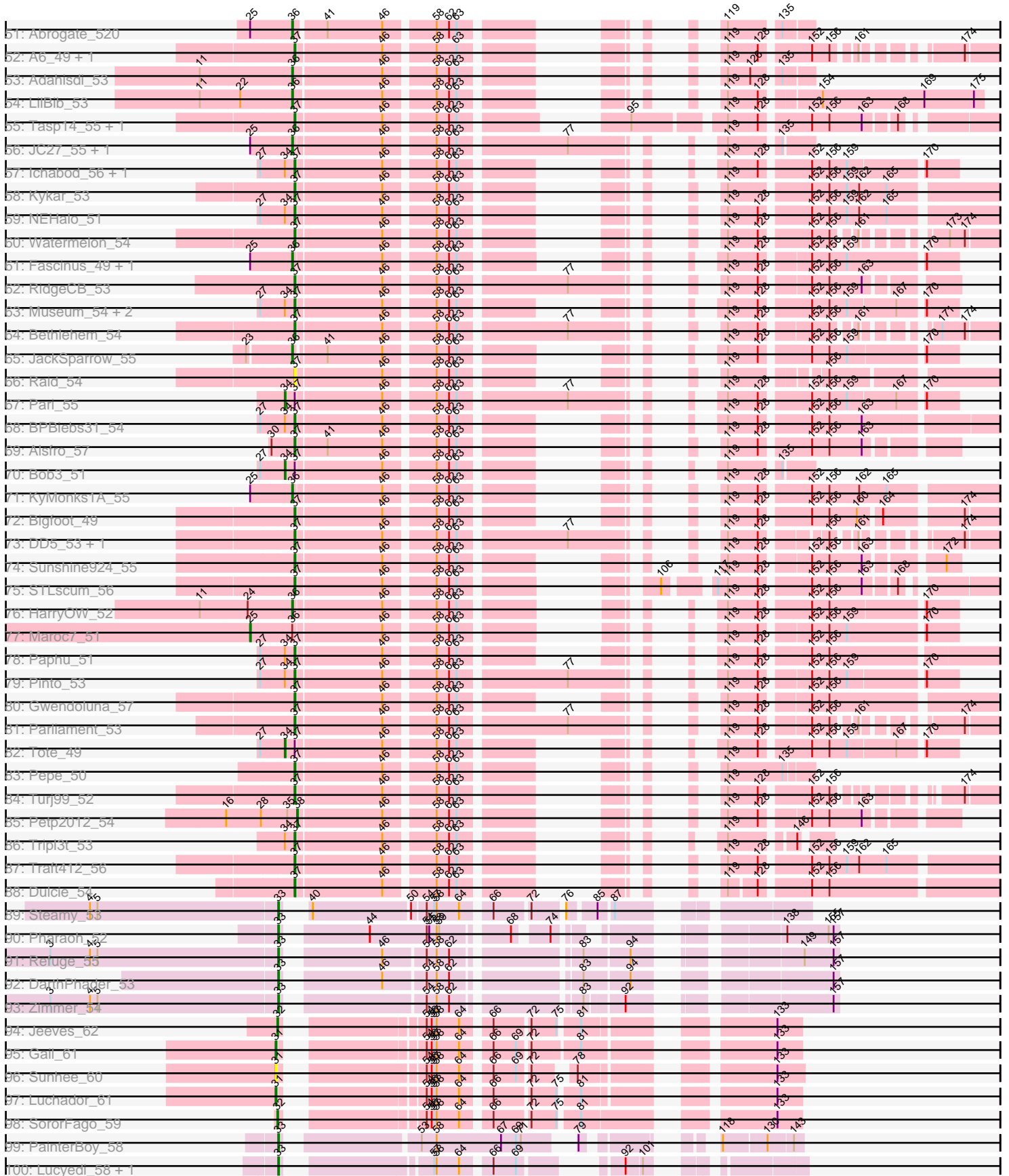
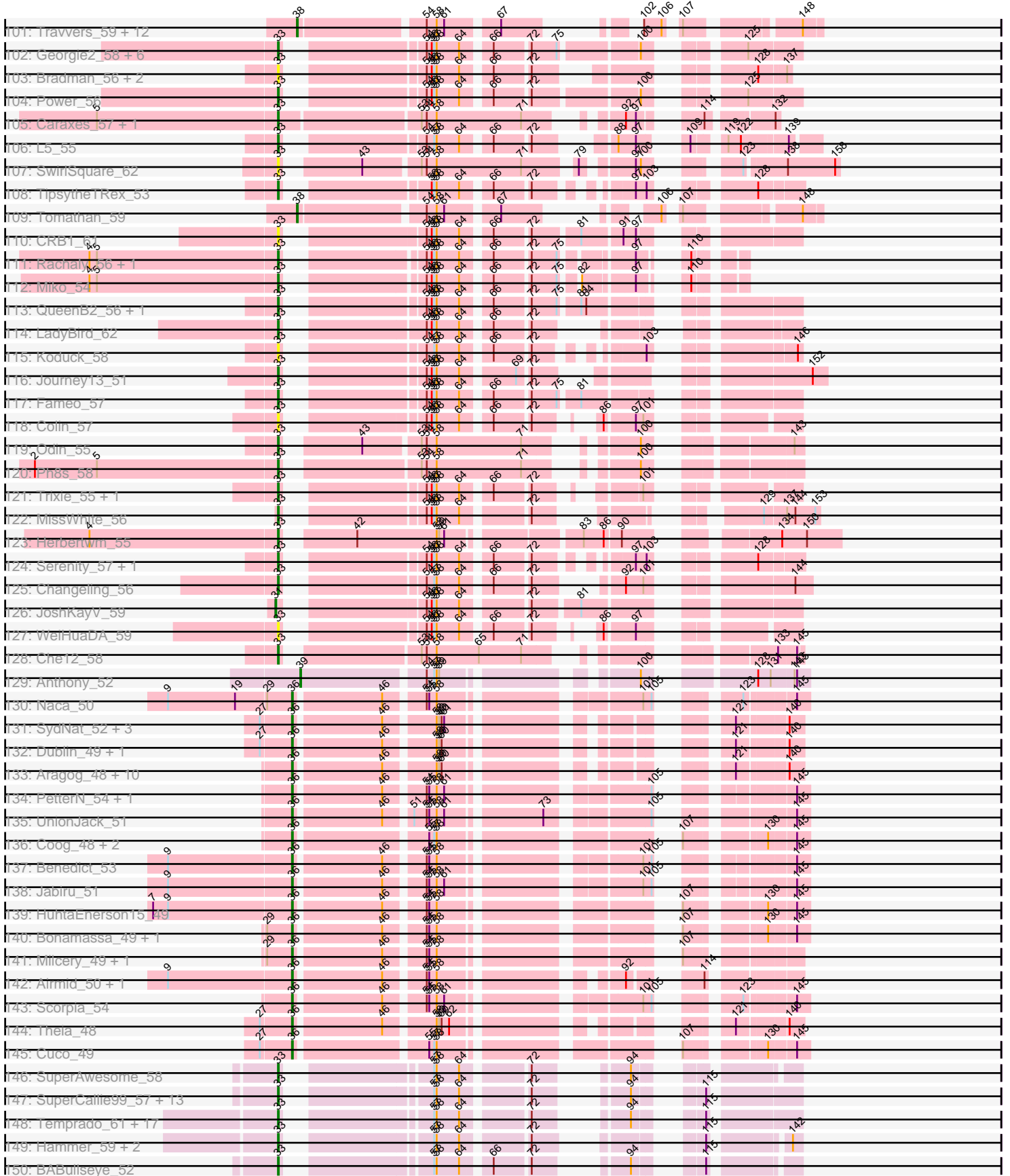


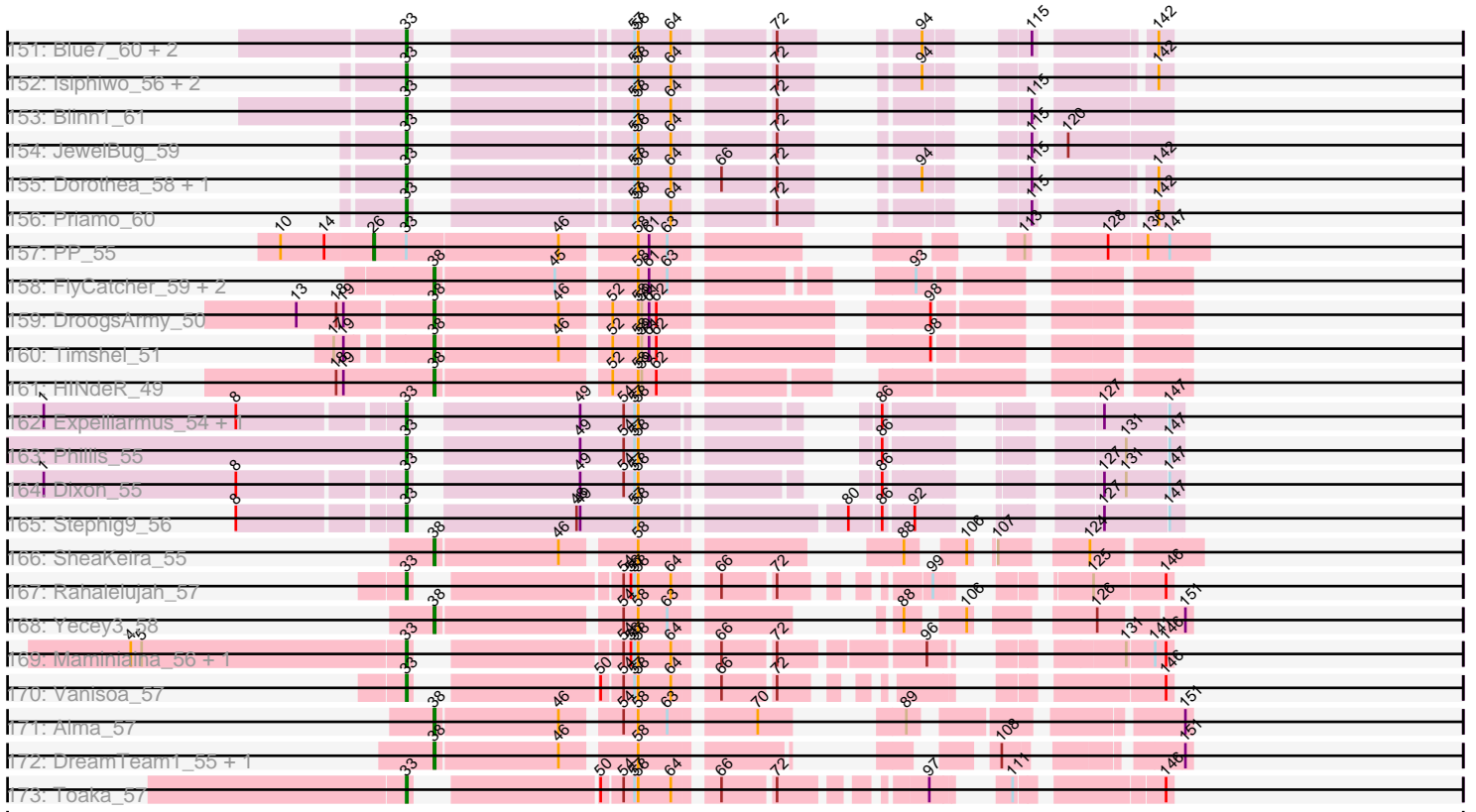
Pham 202589



Pham 202589



Pham 202589



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 202589 Report

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

Pham number 202589 has 378 members, 29 are drafts.

Phages represented in each track:

- Track 1 : Ruotula\_56
- Track 2 : Jerm2\_54, PSullivan\_53, Rohr\_54, Pita2\_56, HermioneGrange\_53, BigMau\_54
- Track 3 : Greg\_55, Buttons\_52, Marge\_53, Ciao\_53, Pippin\_55, Hermia\_54, Fajezeel\_55, Ohno789\_55
- Track 4 : Licorice\_56, StewieG\_52, Homines\_46, HanShotFirst\_54, Sanya\_51
- Track 5 : Bxb1\_49
- Track 6 : MrGordo\_53, Rutherferd\_55, Big3\_53
- Track 7 : Smairt\_55, Makemake\_53, Violet\_51, Mule\_50, Perseus\_53, Aeneas\_55, Pelly\_53, PhrostyMug\_52, Zeeculate\_51
- Track 8 : Jasper\_55, PherrisBueller\_53, Dreamboat\_55, Petruchio\_53
- Track 9 : Seabiscuit\_56, DreamCatcher\_57, Briton15\_57
- Track 10 : Conceptll\_55
- Track 11 : Gandalf20\_56
- Track 12 : SarFire\_51, Thor\_51
- Track 13 : Dussy\_55, Abbyshoes\_56, Kenmech\_57, Espresso\_53
- Track 14 : SwissCheese\_55, Papez\_56, Corvo\_54, PascalRango\_54, Moose\_53, Killigrew\_54, McGuire\_55, Forsytheast\_53, KSSJEB\_53
- Track 15 : Wheeler\_54, Marchy\_48, Niza\_56, Euphoria\_51, Carlyle\_52, Chanagan\_50, Payneful\_53, Zeuska\_52, Rhynn\_52, Teodoridan\_52, Manatee\_55, Anglerfish\_55
- Track 16 : MaryBeth\_53, MetalQZJ\_52, ILeeKay\_57, Rajelicia\_54, Sagefire\_56
- Track 17 : Norz\_54, Atkinbua\_56
- Track 18 : Fushigi\_52, Francis47\_52, Trouble\_56, Gompeii16\_52, PacerPaul\_53, Bircsak\_52, Alvin\_53, MPlant7149\_52, DrFeelGood\_51, Froghopper\_51, IgnatiusPatJac\_54, Bones\_54, Inyanga\_50, Hami1\_47, BluSpix\_52, Ajay\_55, Applejack\_48, Agaliana\_49, Acme\_55
- Track 19 : Solon\_52, Target\_54, U2\_53
- Track 20 : Marcell\_51
- Track 21 : Oogway\_52
- Track 22 : Dexes\_54
- Track 23 : PinkPlastic\_54
- Track 24 : Sumter\_50
- Track 25 : Snazzy\_52, ShortQueendom\_47
- Track 26 : Magnito\_52, GrecoEtereo\_54
- Track 27 : GMonster\_50
- Track 28 : Altman\_56, Kanely\_55

- Track 29 : Barriga\_54, Scowl\_54
- Track 30 : Monet\_56, Graduation\_57, Edtherson\_53, Mkhuseleli\_52, Treddle\_54, Eyeball\_55, Cueylyss\_55
- Track 31 : Dynamix\_55, BeesKnees\_56
- Track 32 : Michley\_53
- Track 33 : Bruns\_52, Rufus\_54, Arlo\_51, Sibs6\_55, TwoPeat\_54
- Track 34 : Sorpresa\_52, Sandaddy\_52, Ringer\_54
- Track 35 : Wilkins\_53, Topgun\_53
- Track 36 : Marsha\_53
- Track 37 : Smeagol\_55
- Track 38 : Mryolo\_51
- Track 39 : Beatrix\_53
- Track 40 : SkiPole\_58
- Track 41 : Kugel\_54
- Track 42 : Seanderson\_55
- Track 43 : BigPaolini\_53
- Track 44 : Blue\_53, Magnar\_53
- Track 45 : Lesedi\_50, Crispicous1\_51, GageAP\_54, AFIS\_51, SpikeBT\_53
- Track 46 : Zephyr\_53
- Track 47 : TheloniousMonk\_54, Peterson\_58, Paraselene\_51
- Track 48 : Burton\_53
- Track 49 : Switzer\_55, Naira\_56, Fenn\_56, Squee\_54
- Track 50 : Arcanine\_54, Slagathor\_55, Molly\_54
- Track 51 : Abrogate\_520
- Track 52 : A6\_49, BK1\_49
- Track 53 : Adahisdi\_53
- Track 54 : LilBib\_53
- Track 55 : Tasp14\_55, Lamina13\_54
- Track 56 : JC27\_55, Ashballer\_55
- Track 57 : Ichabod\_56, Rubeus\_53
- Track 58 : Kykar\_53
- Track 59 : NEHalo\_51
- Track 60 : Watermelon\_54
- Track 61 : Fascinus\_49, Gyzlar\_49
- Track 62 : RidgeCB\_53
- Track 63 : Museum\_54, Swole\_54, JuliaChild\_54
- Track 64 : Bethlehem\_54
- Track 65 : JackSparrow\_55
- Track 66 : Raid\_54
- Track 67 : Pari\_55
- Track 68 : BPBiebs31\_54
- Track 69 : Alsfro\_57
- Track 70 : Bob3\_51
- Track 71 : KyMonks1A\_55
- Track 72 : Bigfoot\_49
- Track 73 : DD5\_53, Lockley\_52
- Track 74 : Sunshine924\_55
- Track 75 : STLscum\_56
- Track 76 : HarryOW\_52
- Track 77 : Maroc7\_51
- Track 78 : Paphu\_51
- Track 79 : Pinto\_53
- Track 80 : Gwendoluna\_57

- Track 81 : Parliament\_53
- Track 82 : Tote\_49
- Track 83 : Pepe\_50
- Track 84 : Turj99\_52
- Track 85 : Petp2012\_54
- Track 86 : Tripl3t\_53
- Track 87 : Traft412\_56
- Track 88 : Dulcie\_54
- Track 89 : Steamy\_53
- Track 90 : Pharaoh\_52
- Track 91 : Refuge\_55
- Track 92 : DARTHPhader\_53
- Track 93 : Zimmer\_54
- Track 94 : Jeeves\_62
- Track 95 : Gail\_61
- Track 96 : Sunhee\_60
- Track 97 : Luchador\_61
- Track 98 : SororFago\_59
- Track 99 : PainterBoy\_58
- Track 100 : Lucyedi\_58, EagleEye\_59
- Track 101 : Travvers\_59, Duplo\_59, StarStuff\_59, Kerberos\_59, DBQu4n\_59, Pomar16\_59, C3\_55, D32\_58, Naji\_59, VC3\_60, AN9\_60, D29\_55, ANI8\_60
- Track 102 : Georgie2\_58, FiringLine\_57, SemperFi\_58, SweetiePie\_57, Crucio\_57, SnapTap\_57, QueenBeesly\_57
- Track 103 : Bradman\_56, Quokka\_55, MajorMajor\_56
- Track 104 : Power\_56
- Track 105 : Caraxes\_57, Superchunk\_55
- Track 106 : L5\_55
- Track 107 : SwirlSquare\_62
- Track 108 : TopsytheTRex\_53
- Track 109 : Tomathan\_59
- Track 110 : CRB1\_61
- Track 111 : Rachaly\_56, Lokk\_54
- Track 112 : Miko\_54
- Track 113 : QueenB2\_56, Heffalump\_56
- Track 114 : LadyBird\_62
- Track 115 : Koduck\_58
- Track 116 : Journey13\_51
- Track 117 : Fameo\_57
- Track 118 : Colin\_57
- Track 119 : Odin\_55
- Track 120 : Ph8s\_58
- Track 121 : Trixie\_55, Kalpine\_55
- Track 122 : MissWhite\_56
- Track 123 : Herbertwm\_55
- Track 124 : Serenity\_57, Jsquared\_55
- Track 125 : Changeling\_56
- Track 126 : JoshKayV\_59
- Track 127 : WeiHuaDA\_59
- Track 128 : Che12\_58
- Track 129 : Anthony\_52
- Track 130 : Naca\_50
- Track 131 : SydNat\_52, Ghoulboy\_52, Zolita\_51, Bluefalcon\_48

- Track 132 : Dublin\_49, MarysWell\_49
- Track 133 : Aragog\_48, Conspiracy\_49, Discoknowium\_47, Tiger\_48, AgentM\_48, Jovo\_49, Phlorence\_47, PickleBack\_49, Lev2\_49, Archetta\_48, ForGetIt\_49
- Track 134 : PetterN\_54, Chadwick\_53
- Track 135 : UnionJack\_51
- Track 136 : Coog\_48, Midas2\_48, Micasa\_50
- Track 137 : Benedict\_53
- Track 138 : Jabiru\_51
- Track 139 : HuhtaEnerson15\_49
- Track 140 : Bonamassa\_49, LittleCherry\_49
- Track 141 : Milcery\_49, George\_47
- Track 142 : Airmid\_50, ElTiger69\_52
- Track 143 : Scorpia\_54
- Track 144 : Theia\_48
- Track 145 : Cuco\_49
- Track 146 : SuperAwesome\_58
- Track 147 : SuperCallie99\_57, McFly\_58, Candra\_58, VohminGhazi\_58, Pmask\_58, Cookiedough\_58, Newrala\_58, SmellyB\_58, Kazan\_59, EricB\_58, Neeharika16\_57, Hoot\_53, GreedyLawyer\_58, Kipper29\_58
- Track 148 : Temprado\_61, Wiks\_58, Koko\_60, Tucker\_59, CloudWang3\_59, Yokurt\_59, ToneTone\_56, Indra\_62, Zulu\_60, Lilbunny\_58, Jeffabunny\_59, Artemis2UCLA\_59, Helmet\_61, WunderPhul\_59, Garak\_61, Zaka\_59, BlessJoy\_59, Hexamo\_59
- Track 149 : Hammer\_59, Rifter\_59, Roksolana\_60
- Track 150 : BABullseye\_52
- Track 151 : Blue7\_60, Gruunaga\_59, Gladiator\_56
- Track 152 : Isiphiwo\_56, Chartreuse\_57, DaVinci\_57
- Track 153 : Blinn1\_61
- Track 154 : JewelBug\_59
- Track 155 : Dorothea\_58, Jordennis\_58
- Track 156 : Priamo\_60
- Track 157 : PP\_55
- Track 158 : FlyCatcher\_59, Toro\_57, Sheen\_55
- Track 159 : DroogsArmy\_50
- Track 160 : Timshel\_51
- Track 161 : HINdeR\_49
- Track 162 : Expelliarmus\_54, Smeadley\_56
- Track 163 : Phillis\_55
- Track 164 : Dixon\_55
- Track 165 : Stephig9\_56
- Track 166 : SheaKeira\_55
- Track 167 : Rahalelujah\_57
- Track 168 : Yecey3\_58
- Track 169 : Maminiaina\_56, BogosyJay\_56
- Track 170 : Vanisoa\_57
- Track 171 : Alma\_57
- Track 172 : DreamTeam1\_55, Charm\_55
- Track 173 : Toaka\_57

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



The start number called the most often in the published annotations is 37, it was called in 160 of the 349 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- A6\_49, AFIS\_51, Abbyshoes\_56, Acme\_55, Agaliana\_49, Ajay\_55, Alsfro\_57, Alvin\_53, Anglerfish\_55, Applejack\_48, Arlo\_51, BK1\_49, BPBiebs31\_54, Barriga\_54, Beatrix\_53, BeesKnees\_56, Bethlehem\_54, Big3\_53, BigMau\_54, BigPaolini\_53, Bigfoot\_49, Bircsak\_52, BluSpix\_52, Blue\_53, Bones\_54, Briton15\_57, Bruns\_52, Burton\_53, Buttons\_52, Bxb1\_49, Carlyle\_52, Chanagan\_50, Ciao\_53, Corvo\_54, Crispicous1\_51, Cueylyss\_55, DD5\_53, Dexes\_54, DrFeelGood\_51, DreamCatcher\_57, Dreamboat\_55, Dulcie\_54, Dussy\_55, Dynamix\_55, Edtherson\_53, Espresso\_53, Euphoria\_51, Eyeball\_55, Fajezeel\_55, Fenn\_56, Forsytheast\_53, Francis47\_52, Froghopper\_51, Fushigi\_52, GMonster\_50, GageAP\_54, Gandalf20\_56, Gompeii16\_52, Graduation\_57, GrecoEtereo\_54, Greg\_55, Gwendoluna\_57, Hami1\_47, HanShotFirst\_54, Hermia\_54, HermioneGrange\_53, Homines\_46, ILeeKay\_57, Ichabod\_56, IgnatiusPatJac\_54, Inyanga\_50, Jasper\_55, Jerm2\_54, JuliaChild\_54, KSSJEB\_53, Kenmech\_57, Killigrew\_54, Kugel\_54, Kykar\_53, Lamina13\_54, Lesedi\_50, Licorice\_56, Lockley\_52, MPlant7149\_52, Magnar\_53, Magnito\_52, Manatee\_55, Marcell\_51, Marchy\_48, Marge\_53, Marsha\_53, MaryBeth\_53, McGuire\_55, MetalQZJ\_52, Michley\_53, Mkhuseleli\_52, Monet\_56, Moose\_53, MrGordo\_53, Mryolo\_51, Museum\_54, NEHalo\_51, Naira\_56, Niza\_56, Ohno789\_55, PSullivan\_53, PacerPaul\_53, Papez\_56, Paphu\_51, Paraselene\_51, Parliament\_53, PascalRango\_54, Payneful\_53, Pepe\_50, Peterson\_58, Petruccio\_53, PherrisBueller\_53, PinkPlastic\_54, Pinto\_53, Pippin\_55, Pita2\_56, Raid\_54, Rajelicia\_54, Rhynn\_52, RidgeCB\_53, Ringer\_54, Rohr\_54, Rubeus\_53, Rufus\_54, Ruotula\_56, Rutherford\_55, STLscum\_56, Sagefire\_56, Sandaddy\_52, Sanya\_51, SarFire\_51, Scowl\_54, Seabiscuit\_56, Seanderson\_55, Sibs6\_55, SkiPole\_58, Solon\_52, Sorpresa\_52, SpikeBT\_53, Squee\_54, StewieG\_52, Sumter\_50, Sunshine924\_55, SwissCheese\_55, Switzer\_55, Swole\_54, Target\_54, Tasp14\_55, Teodoridan\_52, TheloniousMonk\_54, Thor\_51, Topgun\_53, Traft412\_56, Treddle\_54, Tripl3t\_53, Trouble\_56, Turj99\_52, TwoPeat\_54, U2\_53, Watermelon\_54, Wheeler\_54, Wilkins\_53, Zephyr\_53, Zeuska\_52,

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

- Bob3\_51, Pari\_55, Smeagol\_55, Tote\_49,

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

- AN9\_60, ANI8\_60, Abrogate\_520, Adahisdi\_53, Aeneas\_55, AgentM\_48, Airmid\_50, Alma\_57, Altman\_56, Anthony\_52, Aragog\_48, Arcanine\_54, Archetta\_48, Artemis2UCLA\_59, Ashballer\_55, Atkinbua\_56, BABullseye\_52, Benedict\_53, BlessJoy\_59, Blinn1\_61, Blue7\_60, Bluefalcon\_48, BogosyJay\_56, Bonamassa\_49, Bradman\_56, C3\_55, CRB1\_61, Candra\_58, Caraxes\_57, Chadwick\_53, Changeling\_56, Charm\_55, Chartreuse\_57, Che12\_58, CloudWang3\_59, Colin\_57, Conceptll\_55, Conspiracy\_49, Coog\_48, Cookiedough\_58, Crucio\_57, Cuco\_49, D29\_55, D32\_58, DBQu4n\_59, DaVinci\_57, DARTHPhader\_53, Discoknowium\_47, Dixon\_55, Dorothea\_58, DreamTeam1\_55, DroogsArmy\_50, Dublin\_49, Duplo\_59, EagleEye\_59, ElTiger69\_52, EricB\_58, Expelliarmus\_54, Fameo\_57, Fascinus\_49, FiringLine\_57, FlyCatcher\_59, ForGetIt\_49, Gail\_61, Garak\_61, George\_47, Georgie2\_58, Ghoulyboy\_52, Gladiator\_56, GreedyLawyer\_58, Gruunaga\_59, Gyzlar\_49, HINdeR\_49, Hammer\_59, HarryOW\_52, Heffalump\_56, Helmet\_61, Herbertwm\_55, Hexamo\_59,

Hoot\_53, HuhtaEnerson15\_49, Indra\_62, Isiphiwo\_56, JC27\_55, Jabiru\_51, JackSparrow\_55, Jeeves\_62, Jeffabunny\_59, JewelBug\_59, Jordennis\_58, JoshKayV\_59, Journey13\_51, Jovo\_49, Jsquared\_55, Kalpine\_55, Kanely\_55, Kazan\_59, Kerberos\_59, Kipper29\_58, Koduck\_58, Koko\_60, KyMonks1A\_55, L5\_55, LadyBird\_62, Lev2\_49, LilBib\_53, Lilbunny\_58, LittleCherry\_49, Lokk\_54, Luchador\_61, Lucyedi\_58, MajorMajor\_56, Makemake\_53, Maminaiaina\_56, Maroc7\_51, MarysWell\_49, McFly\_58, Micasa\_50, Midas2\_48, Miko\_54, Milcery\_49, MissWhite\_56, Molly\_54, Mule\_50, Naca\_50, Najj\_59, Neeharika16\_57, Newrala\_58, Norz\_54, Odin\_55, Oogway\_52, PP\_55, PainterBoy\_58, Pelly\_53, Perseus\_53, Petp2012\_54, PetterN\_54, Ph8s\_58, Pharaoh\_52, Phillis\_55, Phlorence\_47, PhrostyMug\_52, PickleBack\_49, Pmask\_58, Pomar16\_59, Power\_56, Priamo\_60, QueenB2\_56, QueenBeesly\_57, Quokka\_55, Rachaly\_56, Rahalelujah\_57, Refuge\_55, Rifter\_59, Roksolana\_60, Scorpia\_54, SemperFi\_58, Serenity\_57, SheaKeira\_55, Sheen\_55, ShortQueendom\_47, Slagathor\_55, Smairt\_55, Smeadley\_56, SmellyB\_58, SnapTap\_57, Snazzy\_52, SororFago\_59, StarStuff\_59, Steamy\_53, Stephig9\_56, Sunhee\_60, SuperAwesome\_58, SuperCallie99\_57, Superchunk\_55, SweetiePie\_57, SwirlSquare\_62, SydNat\_52, Temprado\_61, Theia\_48, Tiger\_48, Timshel\_51, TipsytheTRex\_53, Toaka\_57, Tomathan\_59, ToneTone\_56, Toro\_57, Travvers\_59, Trixie\_55, Tucker\_59, UnionJack\_51, VC3\_60, Vanisoa\_57, Violet\_51, VohminGhazi\_58, WeiHuaDA\_59, Wiks\_58, WunderPhul\_59, Yecey3\_58, Yokurt\_59, Zaka\_59, Zeeculate\_51, Zimmer\_54, Zolita\_51, Zulu\_60,

### Summary by start number:

#### Start 25:

- Found in 18 of 378 ( 4.8% ) of genes in pham
- Manual Annotations of this start: 1 of 349
- Called 5.6% of time when present
- Phage (with cluster) where this start called: Maroc7\_51 (A1),

#### Start 26:

- Found in 1 of 378 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 349
- Called 100.0% of time when present
- Phage (with cluster) where this start called: PP\_55 (A7),

#### Start 31:

- Found in 4 of 378 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 3 of 349
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gail\_61 (A14), JoshKayV\_59 (A2), Luchador\_61 (A14), Sunhee\_60 (A14),

#### Start 32:

- Found in 2 of 378 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 2 of 349
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jeeves\_62 (A14), SororFago\_59 (A14),

#### Start 33:

- Found in 105 of 378 ( 27.8% ) of genes in pham
- Manual Annotations of this start: 89 of 349
- Called 99.0% of time when present

- Phage (with cluster) where this start called: Artemis2UCLA\_59 (A6), BABullseye\_52 (A6), BlessJoy\_59 (A6), Blinn1\_61 (A6), Blue7\_60 (A6), BogosyJay\_56 (A9), Bradman\_56 (A2), CRB1\_61 (A2), Candra\_58 (A6), Caraxes\_57 (A2), Changeling\_56 (A2), Chartreuse\_57 (A6), Che12\_58 (A2), CloudWang3\_59 (A6), Colin\_57 (A2), Cookiedough\_58 (A6), Crucio\_57 (A2), DaVinci\_57 (A6), DarthPhader\_53 (A12), Dixon\_55 (A8), Dorothea\_58 (A6), EagleEye\_59 (A16), EricB\_58 (A6), Expelliarmus\_54 (A8), Fameo\_57 (A2), FiringLine\_57 (A2), Garak\_61 (A6), Georgie2\_58 (A2), Gladiator\_56 (A6), GreedyLawyer\_58 (A6), Gruunaga\_59 (A6), Hammer\_59 (A6), Heffalump\_56 (A2), Helmet\_61 (A6), Herbertwm\_55 (A2), Hexamo\_59 (A6), Hoot\_53 (A6), Indra\_62 (A6), Isiphiwo\_56 (A6), Jeffabunny\_59 (A6), JewelBug\_59 (A6), Jordennis\_58 (A6), Journey13\_51 (A2), Jsquared\_55 (A2), Kalpine\_55 (A2), Kazan\_59 (A6), Kipper29\_58 (A6), Koduck\_58 (A2), Koko\_60 (A6), L5\_55 (A2), LadyBird\_62 (A2), Lilbunny\_58 (A6), Lokk\_54 (A2), Lucyedi\_58 (A16), MajorMajor\_56 (A2), Maminaiaina\_56 (A9), McFly\_58 (A6), Miko\_54 (A2), MissWhite\_56 (A2), Neeharika16\_57 (A6), Newrala\_58 (A6), Odin\_55 (A2), PainterBoy\_58 (A16), Ph8s\_58 (A2), Pharaoh\_52 (A12), Phillis\_55 (A8), Pmask\_58 (A6), Power\_56 (A2), Priamo\_60 (A6), QueenB2\_56 (A2), QueenBeesly\_57 (A2), Quokka\_55 (A2), Rachaly\_56 (A2), Rahalelujah\_57 (A9), Refuge\_55 (A12), Rifter\_59 (A6), Roksolana\_60 (A6), SemperFi\_58 (A2), Serenity\_57 (A2), Smeadley\_56 (A8), SmellyB\_58 (A6), SnapTap\_57 (A2), Steamy\_53 (A12), Stephig9\_56 (A8), SuperAwesome\_58 (A6), SuperCallie99\_57 (A6), Superchunk\_55 (A2), SweetiePie\_57 (A2), SwirlSquare\_62 (A2), Temprado\_61 (A6), TipsytheTRex\_53 (A2), Toaka\_57 (A9), ToneTone\_56 (A6), Trixie\_55 (A2), Tucker\_59 (A6), Vanisoa\_57 (A9), VohminGhazi\_58 (A6), WeiHuaDA\_59 (A2), Wiks\_58 (A6), WunderPhul\_59 (A6), Yokurt\_59 (A6), Zaka\_59 (A6), Zimmer\_54 (A12), Zulu\_60 (A6),

#### Start 34:

- Found in 27 of 378 ( 7.1% ) of genes in pham
- Manual Annotations of this start: 4 of 349
- Called 14.8% of time when present
- Phage (with cluster) where this start called: Bob3\_51 (A1), Pari\_55 (A1), Smeagol\_55 (A1), Tote\_49 (A1),

#### Start 36:

- Found in 64 of 378 ( 16.9% ) of genes in pham
- Manual Annotations of this start: 62 of 349
- Called 98.4% of time when present
- Phage (with cluster) where this start called: Abrogate\_520 (A1), Adahisdi\_53 (A1), Aeneas\_55 (A1), AgentM\_48 (A5), Airmid\_50 (A5), Altman\_56 (A1), Aragog\_48 (A5), Archetta\_48 (A5), Ashballer\_55 (A1), Atkinbua\_56 (A1), Benedict\_53 (A5), Bluefalcon\_48 (A5), Bonamassa\_49 (A5), Chadwick\_53 (A5), Conceptll\_55 (A1), Conspiracy\_49 (A5), Coog\_48 (A5), Cuco\_49 (A5), Discoknowium\_47 (A5), Dublin\_49 (A5), ElTiger69\_52 (A5), Fascinus\_49 (A1), ForGetIt\_49 (A5), George\_47 (A5), Ghoulboy\_52 (A5), Gyzzlar\_49 (A1), HarryOW\_52 (A1), HuhtaEnerson15\_49 (A5), JC27\_55 (A1), Jabiru\_51 (A5), JackSparrow\_55 (A1), Jovo\_49 (A5), Kanely\_55 (A1), KyMonks1A\_55 (A1), Lev2\_49 (A5), LilBib\_53 (A1), LittleCherry\_49 (A5), Makemake\_53 (A1), MarysWell\_49 (A5), Micasa\_50 (A5), Midas2\_48 (A5), Milcery\_49 (A5), Mule\_50 (A1), Naca\_50 (A5), Norz\_54 (A1), Oogway\_52 (A1), Pelly\_53 (A1), Perseus\_53 (A1), PetterN\_54 (A5), Phlorence\_47 (A5), PhrostyMug\_52 (A1), PickleBack\_49 (A5), Scorpia\_54 (A5), ShortQueendom\_47 (A1), Smairt\_55 (A1), Snazzy\_52 (A1), SydNat\_52 (A5), Theia\_48 (A5), Tiger\_48 (A5), UnionJack\_51 (A5), Violet\_51 (A1), Zeeculate\_51 (A1), Zolita\_51 (A5),

Start 37:

- Found in 173 of 378 ( 45.8% ) of genes in pham
- Manual Annotations of this start: 160 of 349
- Called 97.7% of time when present
- Phage (with cluster) where this start called: A6\_49 (A1), AFIS\_51 (A1), Abbysshoes\_56 (A1), Acme\_55 (A1), Agaliana\_49 (A1), Ajay\_55 (A1), Alsfro\_57 (A1), Alvin\_53 (A1), Anglerfish\_55 (A1), Applejack\_48 (A1), Arlo\_51 (A1), BK1\_49 (A1), BPBiabs31\_54 (A1), Barriga\_54 (A1), Beatrix\_53 (A1), BeesKnees\_56 (A1), Bethlehem\_54 (A1), Big3\_53 (A1), BigMau\_54 (A1), BigPaolini\_53 (A1), Bigfoot\_49 (A1), Bircsak\_52 (A1), BluSpix\_52 (A1), Blue\_53 (A1), Bones\_54 (A1), Briton15\_57 (A1), Bruns\_52 (A1), Burton\_53 (A1), Buttons\_52 (A1), Bxb1\_49 (A1), Carlyle\_52 (A1), Chanagan\_50 (A1), Ciao\_53 (A1), Corvo\_54 (A1), Crispicous1\_51 (A1), Cueyllyss\_55 (A1), DD5\_53 (A1), Dexes\_54 (A1), DrFeelGood\_51 (A1), DreamCatcher\_57 (A1), Dreamboat\_55 (A1), Dulcie\_54 (A1), Dussy\_55 (A1), Dynamix\_55 (A1), Edtherson\_53 (A1), Espresso\_53 (A1), Euphoria\_51 (A1), Eyeball\_55 (A1), Fajezeel\_55 (A1), Fenn\_56 (A1), Forsytheast\_53 (A1), Francis47\_52 (A1), Froghopper\_51 (A1), Fushigi\_52 (A1), GMonster\_50 (A1), GageAP\_54 (A1), Gandalf20\_56 (A1), Gompeii16\_52 (A1), Graduation\_57 (A1), GrecoEtereo\_54 (A1), Greg\_55 (A1), Gwendoluna\_57 (A1), Hami1\_47 (A1), HanShotFirst\_54 (A1), Hermia\_54 (A1), HermioneGrange\_53 (A1), Homines\_46 (A1), ILeeKay\_57 (A1), Ichabod\_56 (A1), IgnatiusPatJac\_54 (A1), Inyanga\_50 (A1), Jasper\_55 (A1), Jerm2\_54 (A1), JuliaChild\_54 (A1), KSSJEB\_53 (A1), Kenmech\_57 (A1), Killigrew\_54 (A1), Kugel\_54 (A1), Kykar\_53 (A1), Lamina13\_54 (A1), Lesedi\_50 (A1), Licorice\_56 (A1), Lockley\_52 (A1), MPlant7149\_52 (A1), Magnar\_53 (A1), Magnito\_52 (A1), Manatee\_55 (A1), Marcell\_51 (A1), Marchy\_48 (A1), Marge\_53 (A1), Marsha\_53 (A1), MaryBeth\_53 (A1), McGuire\_55 (A1), MetalQZJ\_52 (A1), Michley\_53 (A1), Mkhusei\_52 (A1), Monet\_56 (A1), Moose\_53 (A1), MrGordo\_53 (A1), Mryolo\_51 (A1), Museum\_54 (A1), NEHalo\_51 (A1), Naira\_56 (A1), Niza\_56 (A1), Ohno789\_55 (A1), PSullivan\_53 (A1), PacerPaul\_53 (A1), Papez\_56 (A1), Paphu\_51 (A1), Paraselene\_51 (A1), Parliament\_53 (A1), PascalRango\_54 (A1), Payneful\_53 (A1), Pepe\_50 (A1), Peterson\_58 (A1), Petruccio\_53 (A1), PherrisBueller\_53 (A1), PinkPlastic\_54 (A1), Pinto\_53 (A1), Pippin\_55 (A1), Pita2\_56 (A1), Raid\_54 (A1), Rajelicia\_54 (A1), Rhynn\_52 (A1), RidgeCB\_53 (A1), Ringer\_54 (A1), Rohr\_54 (A1), Rubeus\_53 (A1), Rufus\_54 (A1), Ruotula\_56 (A1), Rutherford\_55 (A1), STLscum\_56 (A1), Sagefire\_56 (A1), Sandaddy\_52 (A1), Sanya\_51 (A1), SarFire\_51 (A1), Scowl\_54 (A1), Seabiscuit\_56 (A1), Seanderson\_55 (A1), Sibs6\_55 (A1), SkiPole\_58 (A1), Solon\_52 (A1), Sorpresa\_52 (A1), SpikeBT\_53 (A1), Squee\_54 (A1), StewieG\_52 (A1), Sumter\_50 (A1), Sunshine924\_55 (A1), SwissCheese\_55 (A1), Switzer\_55 (A1), Swole\_54 (A1), Target\_54 (A1), Tasp14\_55 (A1), Teodoridan\_52 (A1), TheloniousMonk\_54 (A1), Thor\_51 (A1), Topgun\_53 (A1), Traft412\_56 (A1), Treddle\_54 (A1), Tripl3t\_53 (A1), Trouble\_56 (A1), Turj99\_52 (A1), TwoPeat\_54 (A1), U2\_53 (A1), Watermelon\_54 (A1), Wheeler\_54 (A1), Wilkins\_53 (A1), Zephyr\_53 (A1), Zeuska\_52 (A1),

Start 38:

- Found in 29 of 378 ( 7.7% ) of genes in pham
- Manual Annotations of this start: 26 of 349
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AN9\_60 (A2), ANI8\_60 (A2), Alma\_57 (A9), Arcanine\_54 (A1), C3\_55 (A2), Charm\_55 (A9), D29\_55 (A2), D32\_58 (A2), DBQu4n\_59 (A2), DreamTeam1\_55 (A9), DroogsArmy\_50 (A7), Duplo\_59 (A2), FlyCatcher\_59 (A7), HINdeR\_49 (A7), Kerberos\_59 (A2), Molly\_54 (A1), Naji\_59

(A2), Petp2012\_54 (A1), Pomar16\_59 (A2), SheaKeira\_55 (A9), Sheen\_55 (A7), Slagathor\_55 (A1), StarStuff\_59 (A2), Timshel\_51 (A7), Tomathan\_59 (A2), Toro\_57 (A7), Travvers\_59 (A2), VC3\_60 (A2), Yecey3\_58 (A9),

Start 39:

- Found in 1 of 378 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 349
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Anthony\_52 (A20),

### **Summary by clusters:**

There are 11 clusters represented in this pham: A20, A14, A16, A12, A1, A2, A5, A7, A6, A9, A8,

Info for manual annotations of cluster A1:

- Start number 25 was manually annotated 1 time for cluster A1.
- Start number 34 was manually annotated 4 times for cluster A1.
- Start number 36 was manually annotated 26 times for cluster A1.
- Start number 37 was manually annotated 160 times for cluster A1.
- Start number 38 was manually annotated 4 times for cluster A1.

Info for manual annotations of cluster A12:

- Start number 33 was manually annotated 5 times for cluster A12.

Info for manual annotations of cluster A14:

- Start number 31 was manually annotated 2 times for cluster A14.
- Start number 32 was manually annotated 2 times for cluster A14.

Info for manual annotations of cluster A16:

- Start number 33 was manually annotated 3 times for cluster A16.

Info for manual annotations of cluster A2:

- Start number 31 was manually annotated 1 time for cluster A2.
- Start number 33 was manually annotated 29 times for cluster A2.
- Start number 38 was manually annotated 13 times for cluster A2.

Info for manual annotations of cluster A20:

- Start number 39 was manually annotated 1 time for cluster A20.

Info for manual annotations of cluster A5:

- Start number 36 was manually annotated 36 times for cluster A5.

Info for manual annotations of cluster A6:

- Start number 33 was manually annotated 42 times for cluster A6.

Info for manual annotations of cluster A7:

- Start number 26 was manually annotated 1 time for cluster A7.
- Start number 38 was manually annotated 4 times for cluster A7.

Info for manual annotations of cluster A8:

- Start number 33 was manually annotated 5 times for cluster A8.

Info for manual annotations of cluster A9:

- Start number 33 was manually annotated 5 times for cluster A9.
- Start number 38 was manually annotated 5 times for cluster A9.

**Gene Information:**

Gene: A6\_49 Start: 36945, Stop: 36379, Start Num: 37

Candidate Starts for A6\_49:

(Start: 37 @36945 has 160 MA's), (46, 36846), (58, 36792), (63, 36768), (119, 36633), (128, 36597), (152, 36543), (156, 36522), (161, 36501), (174, 36417),

Gene: AFIS\_51 Start: 37581, Stop: 37183, Start Num: 37

Candidate Starts for AFIS\_51:

(Start: 37 @37581 has 160 MA's), (46, 37482), (58, 37428), (62, 37413), (63, 37404), (119, 37269), (126, 37242), (135, 37215),

Gene: AN9\_60 Start: 38397, Stop: 37942, Start Num: 38

Candidate Starts for AN9\_60:

(Start: 38 @38397 has 26 MA's), (54, 38256), (58, 38244), (61, 38235), (67, 38181), (102, 38106), (106, 38085), (107, 38076), (148, 37962),

Gene: ANI8\_60 Start: 38397, Stop: 37942, Start Num: 38

Candidate Starts for ANI8\_60:

(Start: 38 @38397 has 26 MA's), (54, 38256), (58, 38244), (61, 38235), (67, 38181), (102, 38106), (106, 38085), (107, 38076), (148, 37962),

Gene: Abbysshoes\_56 Start: 39189, Stop: 38779, Start Num: 37

Candidate Starts for Abbysshoes\_56:

(Start: 37 @39189 has 160 MA's), (46, 39090), (58, 39036), (62, 39021), (63, 39012), (119, 38877), (135, 38811),

Gene: Abrogate\_520 Start: 39189, Stop: 38791, Start Num: 36

Candidate Starts for Abrogate\_520:

(Start: 25 @39240 has 1 MA's), (Start: 36 @39189 has 62 MA's), (41, 39156), (46, 39090), (58, 39036), (62, 39021), (63, 39012), (119, 38877), (135, 38823),

Gene: Acme\_55 Start: 38115, Stop: 37717, Start Num: 37

Candidate Starts for Acme\_55:

(Start: 37 @38115 has 160 MA's), (46, 38016), (58, 37962), (62, 37947), (63, 37938), (119, 37803), (135, 37749),

Gene: Adahisdi\_53 Start: 38922, Stop: 38521, Start Num: 36

Candidate Starts for Adahisdi\_53:

(11, 39033), (Start: 36 @38922 has 62 MA's), (46, 38820), (58, 38766), (62, 38751), (63, 38742), (119, 38607), (126, 38580), (135, 38553),

Gene: Aeneas\_55 Start: 39139, Stop: 38738, Start Num: 36

Candidate Starts for Aeneas\_55:

(Start: 25 @39190 has 1 MA's), (Start: 36 @39139 has 62 MA's), (46, 39037), (58, 38983), (62, 38968), (63, 38959), (119, 38824), (135, 38770),

Gene: Agaliana\_49 Start: 35783, Stop: 35385, Start Num: 37

Candidate Starts for Agaliana\_49:

(Start: 37 @35783 has 160 MA's), (46, 35684), (58, 35630), (62, 35615), (63, 35606), (119, 35471), (135, 35417),

Gene: AgentM\_48 Start: 36508, Stop: 36041, Start Num: 36

Candidate Starts for AgentM\_48:

(Start: 36 @36508 has 62 MA's), (46, 36409), (58, 36355), (59, 36352), (60, 36349), (121, 36112), (140, 36058),

Gene: Airmid\_50 Start: 36667, Stop: 36200, Start Num: 36

Candidate Starts for Airmid\_50:

(9, 36814), (Start: 36 @36667 has 62 MA's), (46, 36568), (54, 36526), (55, 36523), (58, 36514), (92, 36343), (114, 36292),

Gene: Ajay\_55 Start: 39243, Stop: 38845, Start Num: 37

Candidate Starts for Ajay\_55:

(Start: 37 @39243 has 160 MA's), (46, 39144), (58, 39090), (62, 39075), (63, 39066), (119, 38931), (135, 38877),

Gene: Alma\_57 Start: 38259, Stop: 37786, Start Num: 38

Candidate Starts for Alma\_57:

(Start: 38 @38259 has 26 MA's), (46, 38160), (54, 38118), (58, 38106), (63, 38082), (70, 38022), (89, 37971), (151, 37791),

Gene: Alsfro\_57 Start: 38448, Stop: 37891, Start Num: 37

Candidate Starts for Alsfro\_57:

(30, 38475), (Start: 37 @38448 has 160 MA's), (41, 38415), (46, 38349), (58, 38295), (62, 38280), (63, 38271), (119, 38136), (128, 38100), (152, 38046), (156, 38025), (163, 37986),

Gene: Altman\_56 Start: 39112, Stop: 38498, Start Num: 36

Candidate Starts for Altman\_56:

(Start: 25 @39163 has 1 MA's), (Start: 36 @39112 has 62 MA's), (46, 39010), (58, 38956), (62, 38941), (63, 38932), (119, 38797), (128, 38761), (152, 38710), (156, 38689), (159, 38668), (162, 38653), (165, 38620),

Gene: Alvin\_53 Start: 38568, Stop: 38170, Start Num: 37

Candidate Starts for Alvin\_53:

(Start: 37 @38568 has 160 MA's), (46, 38469), (58, 38415), (62, 38400), (63, 38391), (119, 38256), (135, 38202),

Gene: Anglerfish\_55 Start: 39478, Stop: 38999, Start Num: 37

Candidate Starts for Anglerfish\_55:

(Start: 37 @39478 has 160 MA's), (46, 39379), (58, 39325), (62, 39310), (63, 39301), (119, 39085), (135, 39031),

Gene: Anthony\_52 Start: 35777, Stop: 35280, Start Num: 39

Candidate Starts for Anthony\_52:

(Start: 39 @35777 has 1 MA's), (54, 35636), (57, 35627), (58, 35624), (59, 35621), (100, 35435), (128, 35339), (131, 35324), (143, 35297), (145, 35294),

Gene: Applejack\_48 Start: 35405, Stop: 35007, Start Num: 37

Candidate Starts for Applejack\_48:

(Start: 37 @35405 has 160 MA's), (46, 35306), (58, 35252), (62, 35237), (63, 35228), (119, 35093), (135, 35039),

Gene: Aragog\_48 Start: 36528, Stop: 36061, Start Num: 36

Candidate Starts for Aragog\_48:

(Start: 36 @36528 has 62 MA's), (46, 36429), (58, 36375), (59, 36372), (60, 36369), (121, 36132), (140, 36078),

Gene: Arcanine\_54 Start: 38877, Stop: 38323, Start Num: 38

Candidate Starts for Arcanine\_54:

(28, 38919), (35, 38889), (Start: 38 @38877 has 26 MA's), (46, 38778), (58, 38724), (62, 38709), (63, 38700), (119, 38565), (128, 38529), (152, 38478), (156, 38457), (163, 38418),

Gene: Archetta\_48 Start: 36938, Stop: 36471, Start Num: 36

Candidate Starts for Archetta\_48:

(Start: 36 @36938 has 62 MA's), (46, 36839), (58, 36785), (59, 36782), (60, 36779), (121, 36542), (140, 36488),

Gene: Arlo\_51 Start: 37427, Stop: 37029, Start Num: 37

Candidate Starts for Arlo\_51:

(27, 37469), (Start: 34 @37439 has 4 MA's), (Start: 37 @37427 has 160 MA's), (46, 37328), (58, 37274), (62, 37259), (63, 37250), (119, 37115), (135, 37061),

Gene: Artemis2UCLA\_59 Start: 37105, Stop: 36662, Start Num: 33

Candidate Starts for Artemis2UCLA\_59:

(Start: 33 @37105 has 89 MA's), (57, 36961), (58, 36958), (64, 36931), (72, 36865), (94, 36805), (115, 36760),

Gene: Ashballer\_55 Start: 39002, Stop: 38520, Start Num: 36

Candidate Starts for Ashballer\_55:

(Start: 25 @39053 has 1 MA's), (Start: 36 @39002 has 62 MA's), (46, 38900), (58, 38846), (62, 38831), (63, 38822), (77, 38702), (119, 38606), (135, 38552),

Gene: Atkinbua\_56 Start: 38718, Stop: 38152, Start Num: 36

Candidate Starts for Atkinbua\_56:

(11, 38829), (24, 38772), (Start: 36 @38718 has 62 MA's), (46, 38616), (58, 38562), (62, 38547), (63, 38538), (119, 38403), (128, 38367), (152, 38316), (156, 38295), (159, 38274), (170, 38190),

Gene: BABullseye\_52 Start: 34678, Stop: 34244, Start Num: 33

Candidate Starts for BABullseye\_52:

(Start: 33 @34678 has 89 MA's), (57, 34534), (58, 34531), (64, 34504), (66, 34477), (72, 34438), (94, 34378), (115, 34333),

Gene: BK1\_49 Start: 36945, Stop: 36379, Start Num: 37

Candidate Starts for BK1\_49:

(Start: 37 @36945 has 160 MA's), (46, 36846), (58, 36792), (63, 36768), (119, 36633), (128, 36597), (152, 36543), (156, 36522), (161, 36501), (174, 36417),

Gene: BPBiebs31\_54 Start: 39309, Stop: 38695, Start Num: 37

Candidate Starts for BPBiebs31\_54:

(27, 39351), (Start: 34 @39321 has 4 MA's), (Start: 37 @39309 has 160 MA's), (46, 39210), (58, 39156), (62, 39141), (63, 39132), (119, 38997), (128, 38961), (152, 38907), (156, 38886), (163, 38847),



Gene: Barriga\_54 Start: 37755, Stop: 37276, Start Num: 37

Candidate Starts for Barriga\_54:

(Start: 37 @37755 has 160 MA's), (46, 37656), (58, 37602), (62, 37587), (63, 37578), (77, 37458), (119, 37362), (135, 37308),

Gene: Beatrix\_53 Start: 39461, Stop: 39000, Start Num: 37

Candidate Starts for Beatrix\_53:

(Start: 37 @39461 has 160 MA's), (46, 39362), (58, 39308), (62, 39293), (63, 39284), (106, 39155), (117, 39110), (119, 39098), (135, 39032),

Gene: BeesKnees\_56 Start: 38614, Stop: 38048, Start Num: 37

Candidate Starts for BeesKnees\_56:

(Start: 37 @38614 has 160 MA's), (46, 38515), (58, 38461), (62, 38446), (63, 38437), (119, 38302), (128, 38266), (152, 38212), (156, 38191), (161, 38170), (171, 38113), (174, 38086),

Gene: Benedict\_53 Start: 36915, Stop: 36427, Start Num: 36

Candidate Starts for Benedict\_53:

(9, 37062), (Start: 36 @36915 has 62 MA's), (46, 36816), (54, 36774), (55, 36771), (58, 36762), (101, 36558), (105, 36549), (145, 36441),

Gene: Bethlehem\_54 Start: 40112, Stop: 39468, Start Num: 37

Candidate Starts for Bethlehem\_54:

(Start: 37 @40112 has 160 MA's), (46, 40013), (58, 39959), (62, 39944), (63, 39935), (77, 39815), (119, 39719), (128, 39683), (152, 39632), (156, 39611), (161, 39590), (171, 39533), (174, 39506),

Gene: Big3\_53 Start: 39260, Stop: 38862, Start Num: 37

Candidate Starts for Big3\_53:

(Start: 37 @39260 has 160 MA's), (46, 39161), (58, 39107), (62, 39092), (63, 39083), (119, 38948), (126, 38921), (135, 38894),

Gene: BigMau\_54 Start: 37762, Stop: 37283, Start Num: 37

Candidate Starts for BigMau\_54:

(27, 37804), (Start: 34 @37774 has 4 MA's), (Start: 37 @37762 has 160 MA's), (46, 37663), (58, 37609), (62, 37594), (63, 37585), (77, 37465), (119, 37369), (135, 37315),

Gene: BigPaolini\_53 Start: 36840, Stop: 36442, Start Num: 37

Candidate Starts for BigPaolini\_53:

(Start: 37 @36840 has 160 MA's), (46, 36741), (58, 36687), (62, 36672), (63, 36663), (119, 36528), (126, 36501), (135, 36474),

Gene: Bigfoot\_49 Start: 37265, Stop: 36663, Start Num: 37

Candidate Starts for Bigfoot\_49:

(Start: 37 @37265 has 160 MA's), (46, 37166), (58, 37112), (62, 37097), (63, 37088), (119, 36953), (128, 36917), (152, 36863), (156, 36842), (160, 36809), (164, 36785), (174, 36701),

Gene: Bircsak\_52 Start: 39359, Stop: 38961, Start Num: 37

Candidate Starts for Bircsak\_52:

(Start: 37 @39359 has 160 MA's), (46, 39260), (58, 39206), (62, 39191), (63, 39182), (119, 39047), (135, 38993),

Gene: BlessJoy\_59 Start: 37531, Stop: 37088, Start Num: 33

Candidate Starts for BlessJoy\_59:

(Start: 33 @37531 has 89 MA's), (57, 37387), (58, 37384), (64, 37357), (72, 37291), (94, 37231), (115, 37186),

Gene: Blinn1\_61 Start: 37123, Stop: 36680, Start Num: 33

Candidate Starts for Blinn1\_61:

(Start: 33 @37123 has 89 MA's), (57, 36979), (58, 36976), (64, 36949), (72, 36883), (115, 36778),

Gene: BluSpix\_52 Start: 34621, Stop: 34223, Start Num: 37

Candidate Starts for BluSpix\_52:

(Start: 37 @34621 has 160 MA's), (46, 34522), (58, 34468), (62, 34453), (63, 34444), (119, 34309), (135, 34255),

Gene: Blue\_53 Start: 39272, Stop: 38880, Start Num: 37

Candidate Starts for Blue\_53:

(Start: 37 @39272 has 160 MA's), (46, 39173), (58, 39119), (62, 39104), (63, 39095), (119, 38960), (135, 38912),

Gene: Blue7\_60 Start: 37199, Stop: 36762, Start Num: 33

Candidate Starts for Blue7\_60:

(Start: 33 @37199 has 89 MA's), (57, 37055), (58, 37052), (64, 37025), (72, 36959), (94, 36896), (115, 36851), (142, 36773),

Gene: Bluefalcon\_48 Start: 37083, Stop: 36616, Start Num: 36

Candidate Starts for Bluefalcon\_48:

(27, 37119), (Start: 36 @37083 has 62 MA's), (46, 36984), (58, 36930), (59, 36927), (60, 36924), (61, 36921), (121, 36687), (140, 36633),

Gene: Bob3\_51 Start: 37043, Stop: 36633, Start Num: 34

Candidate Starts for Bob3\_51:

(27, 37073), (Start: 34 @37043 has 4 MA's), (Start: 37 @37031 has 160 MA's), (46, 36932), (58, 36878), (62, 36863), (63, 36854), (119, 36719), (135, 36665),

Gene: BogosyJay\_56 Start: 37976, Stop: 37491, Start Num: 33

Candidate Starts for BogosyJay\_56:

(4, 38201), (5, 38192), (Start: 33 @37976 has 89 MA's), (54, 37838), (56, 37832), (57, 37829), (58, 37826), (64, 37799), (66, 37772), (72, 37733), (96, 37628), (131, 37526), (141, 37505), (146, 37496),

Gene: Bonamassa\_49 Start: 36951, Stop: 36457, Start Num: 36

Candidate Starts for Bonamassa\_49:

(29, 36981), (Start: 36 @36951 has 62 MA's), (46, 36852), (54, 36810), (55, 36807), (58, 36798), (107, 36579), (130, 36501), (145, 36471),

Gene: Bones\_54 Start: 38722, Stop: 38324, Start Num: 37

Candidate Starts for Bones\_54:

(Start: 37 @38722 has 160 MA's), (46, 38623), (58, 38569), (62, 38554), (63, 38545), (119, 38410), (135, 38356),

Gene: Bradman\_56 Start: 37152, Stop: 36703, Start Num: 33

Candidate Starts for Bradman\_56:

(Start: 33 @37152 has 89 MA's), (54, 37014), (56, 37008), (57, 37005), (58, 37002), (64, 36975), (66, 36948), (72, 36909), (128, 36738), (137, 36708),

Gene: Briton15\_57 Start: 38936, Stop: 38289, Start Num: 37

Candidate Starts for Briton15\_57:

(Start: 37 @38936 has 160 MA's), (46, 38837), (58, 38783), (62, 38768), (63, 38759), (77, 38639), (119, 38543), (128, 38507), (152, 38453), (156, 38432), (161, 38411), (171, 38354), (174, 38327),

Gene: Bruns\_52 Start: 37599, Stop: 37201, Start Num: 37

Candidate Starts for Bruns\_52:

(27, 37641), (Start: 34 @37611 has 4 MA's), (Start: 37 @37599 has 160 MA's), (46, 37500), (58, 37446), (62, 37431), (63, 37422), (119, 37287), (135, 37233),

Gene: Burton\_53 Start: 38704, Stop: 38138, Start Num: 37

Candidate Starts for Burton\_53:

(15, 38788), (Start: 34 @38716 has 4 MA's), (Start: 37 @38704 has 160 MA's), (46, 38605), (58, 38551), (62, 38536), (63, 38527), (119, 38392), (128, 38356), (152, 38302), (156, 38281), (159, 38260), (167, 38203), (170, 38176),

Gene: Buttons\_52 Start: 36766, Stop: 36149, Start Num: 37

Candidate Starts for Buttons\_52:

(Start: 37 @36766 has 160 MA's), (46, 36667), (58, 36613), (62, 36598), (63, 36589), (119, 36454), (128, 36418), (152, 36364), (156, 36343),

Gene: Bxb1\_49 Start: 37514, Stop: 36960, Start Num: 37

Candidate Starts for Bxb1\_49:

(Start: 37 @37514 has 160 MA's), (46, 37415), (58, 37361), (62, 37346), (63, 37337), (119, 37202), (128, 37166), (152, 37115), (156, 37094), (163, 37055),

Gene: C3\_55 Start: 38397, Stop: 37942, Start Num: 38

Candidate Starts for C3\_55:

(Start: 38 @38397 has 26 MA's), (54, 38256), (58, 38244), (61, 38235), (67, 38181), (102, 38106), (106, 38085), (107, 38076), (148, 37962),

Gene: CRB1\_61 Start: 39164, Stop: 38667, Start Num: 33

Candidate Starts for CRB1\_61:

(Start: 33 @39164 has 89 MA's), (54, 39023), (56, 39017), (57, 39014), (58, 39011), (64, 38984), (66, 38957), (72, 38918), (81, 38867), (91, 38822), (97, 38807),

Gene: Candra\_58 Start: 37045, Stop: 36602, Start Num: 33

Candidate Starts for Candra\_58:

(Start: 33 @37045 has 89 MA's), (57, 36901), (58, 36898), (64, 36871), (72, 36805), (94, 36745), (115, 36700),

Gene: Caraxes\_57 Start: 36675, Stop: 36196, Start Num: 33

Candidate Starts for Caraxes\_57:

(5, 36891), (Start: 33 @36675 has 89 MA's), (53, 36513), (54, 36507), (58, 36495), (71, 36393), (92, 36324), (97, 36312), (114, 36270), (132, 36201),

Gene: Carlyle\_52 Start: 36053, Stop: 35655, Start Num: 37

Candidate Starts for Carlyle\_52:

(Start: 37 @36053 has 160 MA's), (46, 35954), (58, 35900), (62, 35885), (63, 35876), (119, 35741), (135, 35687),

Gene: Chadwick\_53 Start: 36756, Stop: 36268, Start Num: 36

Candidate Starts for Chadwick\_53:

(Start: 36 @36756 has 62 MA's), (46, 36657), (54, 36615), (55, 36612), (58, 36603), (61, 36594), (105, 36390), (145, 36282),

Gene: Chanagan\_50 Start: 36851, Stop: 36453, Start Num: 37

Candidate Starts for Chanagan\_50:

(Start: 37 @36851 has 160 MA's), (46, 36752), (58, 36698), (62, 36683), (63, 36674), (119, 36539), (135, 36485),

Gene: Changeling\_56 Start: 38803, Stop: 38336, Start Num: 33

Candidate Starts for Changeling\_56:

(Start: 33 @38803 has 89 MA's), (54, 38665), (57, 38656), (58, 38653), (64, 38626), (66, 38599), (72, 38560), (92, 38503), (101, 38482), (144, 38356),

Gene: Charm\_55 Start: 37821, Stop: 37384, Start Num: 38

Candidate Starts for Charm\_55:

(Start: 38 @37821 has 26 MA's), (46, 37722), (58, 37668), (108, 37500), (151, 37389),

Gene: Chartreuse\_57 Start: 36396, Stop: 35962, Start Num: 33

Candidate Starts for Chartreuse\_57:

(Start: 33 @36396 has 89 MA's), (57, 36252), (58, 36249), (64, 36222), (72, 36156), (94, 36096), (142, 35973),

Gene: Che12\_58 Start: 37116, Stop: 36628, Start Num: 33

Candidate Starts for Che12\_58:

(Start: 33 @37116 has 89 MA's), (53, 36975), (54, 36969), (58, 36957), (65, 36906), (71, 36855), (133, 36654), (145, 36633),

Gene: Ciao\_53 Start: 38224, Stop: 37607, Start Num: 37

Candidate Starts for Ciao\_53:

(Start: 37 @38224 has 160 MA's), (46, 38125), (58, 38071), (62, 38056), (63, 38047), (119, 37912), (128, 37876), (152, 37822), (156, 37801),

Gene: CloudWang3\_59 Start: 37193, Stop: 36750, Start Num: 33

Candidate Starts for CloudWang3\_59:

(Start: 33 @37193 has 89 MA's), (57, 37049), (58, 37046), (64, 37019), (72, 36953), (94, 36893), (115, 36848),

Gene: Colin\_57 Start: 38509, Stop: 38060, Start Num: 33

Candidate Starts for Colin\_57:

(Start: 33 @38509 has 89 MA's), (54, 38374), (56, 38368), (57, 38365), (58, 38362), (64, 38335), (66, 38308), (72, 38269), (86, 38230), (97, 38197), (101, 38188),

Gene: ConceptII\_55 Start: 39890, Stop: 39276, Start Num: 36

Candidate Starts for ConceptII\_55:

(12, 40001), (24, 39944), (Start: 36 @39890 has 62 MA's), (46, 39788), (58, 39734), (62, 39719), (63, 39710), (119, 39575), (128, 39539), (152, 39488), (156, 39467), (159, 39446), (162, 39431), (165, 39398),

Gene: Conspiracy\_49 Start: 36750, Stop: 36283, Start Num: 36

Candidate Starts for Conspiracy\_49:

(Start: 36 @36750 has 62 MA's), (46, 36651), (58, 36597), (59, 36594), (60, 36591), (121, 36354), (140, 36300),

Gene: Coog\_48 Start: 36935, Stop: 36441, Start Num: 36  
Candidate Starts for Coog\_48:  
(Start: 36 @36935 has 62 MA's), (55, 36791), (57, 36785), (58, 36782), (107, 36563), (130, 36485),  
(145, 36455),

Gene: Cookiedough\_58 Start: 37024, Stop: 36581, Start Num: 33  
Candidate Starts for Cookiedough\_58:  
(Start: 33 @37024 has 89 MA's), (57, 36880), (58, 36877), (64, 36850), (72, 36784), (94, 36724), (115,  
36679),

Gene: Corvo\_54 Start: 39669, Stop: 39103, Start Num: 37  
Candidate Starts for Corvo\_54:  
(Start: 37 @39669 has 160 MA's), (46, 39570), (58, 39516), (62, 39501), (63, 39492), (119, 39357),  
(128, 39321), (152, 39267), (156, 39246), (161, 39225), (171, 39168), (174, 39141),

Gene: Crispicious1\_51 Start: 37176, Stop: 36778, Start Num: 37  
Candidate Starts for Crispicious1\_51:  
(Start: 37 @37176 has 160 MA's), (46, 37077), (58, 37023), (62, 37008), (63, 36999), (119, 36864),  
(126, 36837), (135, 36810),

Gene: Crucio\_57 Start: 38174, Stop: 37680, Start Num: 33  
Candidate Starts for Crucio\_57:  
(Start: 33 @38174 has 89 MA's), (54, 38036), (56, 38030), (57, 38027), (58, 38024), (64, 37997), (66,  
37970), (72, 37931), (75, 37901), (100, 37817), (125, 37742),

Gene: Cuco\_49 Start: 36807, Stop: 36313, Start Num: 36  
Candidate Starts for Cuco\_49:  
(27, 36843), (Start: 36 @36807 has 62 MA's), (55, 36663), (57, 36657), (58, 36654), (107, 36435),  
(130, 36357), (145, 36327),

Gene: Cueyllyss\_55 Start: 39855, Stop: 39457, Start Num: 37  
Candidate Starts for Cueyllyss\_55:  
(Start: 37 @39855 has 160 MA's), (46, 39756), (58, 39702), (62, 39687), (63, 39678), (119, 39543),  
(135, 39489),

Gene: D29\_55 Start: 38000, Stop: 37545, Start Num: 38  
Candidate Starts for D29\_55:  
(Start: 38 @38000 has 26 MA's), (54, 37859), (58, 37847), (61, 37838), (67, 37784), (102, 37709),  
(106, 37688), (107, 37679), (148, 37565),

Gene: D32\_58 Start: 38000, Stop: 37545, Start Num: 38  
Candidate Starts for D32\_58:  
(Start: 38 @38000 has 26 MA's), (54, 37859), (58, 37847), (61, 37838), (67, 37784), (102, 37709),  
(106, 37688), (107, 37679), (148, 37565),

Gene: DBQu4n\_59 Start: 37981, Stop: 37526, Start Num: 38  
Candidate Starts for DBQu4n\_59:  
(Start: 38 @37981 has 26 MA's), (54, 37840), (58, 37828), (61, 37819), (67, 37765), (102, 37690),  
(106, 37669), (107, 37660), (148, 37546),

Gene: DD5\_53 Start: 39005, Stop: 38370, Start Num: 37  
Candidate Starts for DD5\_53:

(Start: 37 @39005 has 160 MA's), (46, 38906), (58, 38852), (62, 38837), (63, 38828), (77, 38708), (119, 38612), (128, 38576), (156, 38513), (161, 38492), (174, 38408),

Gene: DaVinci\_57 Start: 36450, Stop: 36016, Start Num: 33

Candidate Starts for DaVinci\_57:

(Start: 33 @36450 has 89 MA's), (57, 36306), (58, 36303), (64, 36276), (72, 36210), (94, 36150), (142, 36027),

Gene: DarthPhader\_53 Start: 38914, Stop: 38369, Start Num: 33

Candidate Starts for DarthPhader\_53:

(Start: 33 @38914 has 89 MA's), (46, 38815), (54, 38767), (58, 38755), (62, 38740), (83, 38608), (94, 38557), (157, 38374),

Gene: Dexes\_54 Start: 39125, Stop: 38514, Start Num: 37

Candidate Starts for Dexes\_54:

(Start: 37 @39125 has 160 MA's), (46, 39026), (58, 38972), (62, 38957), (63, 38948), (119, 38813), (128, 38777), (152, 38726), (156, 38705), (159, 38684), (160, 38672), (162, 38669), (165, 38636), (166, 38633), (176, 38525),

Gene: Discoknowium\_47 Start: 36417, Stop: 35950, Start Num: 36

Candidate Starts for Discoknowium\_47:

(Start: 36 @36417 has 62 MA's), (46, 36318), (58, 36264), (59, 36261), (60, 36258), (121, 36021), (140, 35967),

Gene: Dixon\_55 Start: 36492, Stop: 36022, Start Num: 33

Candidate Starts for Dixon\_55:

(1, 36777), (8, 36618), (Start: 33 @36492 has 89 MA's), (49, 36375), (54, 36339), (57, 36330), (58, 36327), (86, 36201), (127, 36084), (131, 36066), (147, 36033),

Gene: Dorothea\_58 Start: 37019, Stop: 36585, Start Num: 33

Candidate Starts for Dorothea\_58:

(Start: 33 @37019 has 89 MA's), (57, 36875), (58, 36872), (64, 36845), (66, 36818), (72, 36779), (94, 36719), (115, 36674), (142, 36596),

Gene: DrFeelGood\_51 Start: 38016, Stop: 37618, Start Num: 37

Candidate Starts for DrFeelGood\_51:

(Start: 37 @38016 has 160 MA's), (46, 37917), (58, 37863), (62, 37848), (63, 37839), (119, 37704), (135, 37650),

Gene: DreamCatcher\_57 Start: 39673, Stop: 39026, Start Num: 37

Candidate Starts for DreamCatcher\_57:

(Start: 37 @39673 has 160 MA's), (46, 39574), (58, 39520), (62, 39505), (63, 39496), (77, 39376), (119, 39280), (128, 39244), (152, 39190), (156, 39169), (161, 39148), (171, 39091), (174, 39064),

Gene: DreamTeam1\_55 Start: 37653, Stop: 37216, Start Num: 38

Candidate Starts for DreamTeam1\_55:

(Start: 38 @37653 has 26 MA's), (46, 37554), (58, 37500), (108, 37332), (151, 37221),

Gene: Dreamboat\_55 Start: 37826, Stop: 37371, Start Num: 37

Candidate Starts for Dreamboat\_55:

(Start: 37 @37826 has 160 MA's), (46, 37727), (58, 37673), (62, 37658), (63, 37649), (105, 37532), (110, 37502), (112, 37493), (116, 37481), (119, 37457), (135, 37403),

Gene: DroogsArmy\_50 Start: 38758, Stop: 38237, Start Num: 38  
Candidate Starts for DroogsArmy\_50:  
(13, 38866), (18, 38833), (19, 38827), (Start: 38 @38758 has 26 MA's), (46, 38659), (52, 38626), (58, 38605), (59, 38602), (61, 38596), (62, 38590), (98, 38407),

Gene: Dublin\_49 Start: 36919, Stop: 36452, Start Num: 36  
Candidate Starts for Dublin\_49:  
(27, 36955), (Start: 36 @36919 has 62 MA's), (46, 36820), (58, 36766), (59, 36763), (60, 36760), (121, 36523), (140, 36469),

Gene: Dulcie\_54 Start: 38438, Stop: 37827, Start Num: 37  
Candidate Starts for Dulcie\_54:  
(Start: 37 @38438 has 160 MA's), (46, 38339), (58, 38285), (62, 38270), (63, 38261), (119, 38126), (128, 38096), (152, 38042), (156, 38021),

Gene: Duplo\_59 Start: 38037, Stop: 37582, Start Num: 38  
Candidate Starts for Duplo\_59:  
(Start: 38 @38037 has 26 MA's), (54, 37896), (58, 37884), (61, 37875), (67, 37821), (102, 37746), (106, 37725), (107, 37716), (148, 37602),

Gene: Dussy\_55 Start: 39209, Stop: 38799, Start Num: 37  
Candidate Starts for Dussy\_55:  
(Start: 37 @39209 has 160 MA's), (46, 39110), (58, 39056), (62, 39041), (63, 39032), (119, 38897), (135, 38831),

Gene: Dynamix\_55 Start: 38412, Stop: 37846, Start Num: 37  
Candidate Starts for Dynamix\_55:  
(Start: 37 @38412 has 160 MA's), (46, 38313), (58, 38259), (62, 38244), (63, 38235), (119, 38100), (128, 38064), (152, 38010), (156, 37989), (161, 37968), (171, 37911), (174, 37884),

Gene: EagleEye\_59 Start: 37874, Stop: 37425, Start Num: 33  
Candidate Starts for EagleEye\_59:  
(Start: 33 @37874 has 89 MA's), (57, 37730), (58, 37727), (64, 37700), (66, 37673), (69, 37646), (92, 37577), (101, 37559),

Gene: Edtherson\_53 Start: 38507, Stop: 38109, Start Num: 37  
Candidate Starts for Edtherson\_53:  
(Start: 37 @38507 has 160 MA's), (46, 38408), (58, 38354), (62, 38339), (63, 38330), (119, 38195), (135, 38141),

Gene: EITiger69\_52 Start: 36876, Stop: 36409, Start Num: 36  
Candidate Starts for EITiger69\_52:  
(9, 37023), (Start: 36 @36876 has 62 MA's), (46, 36777), (54, 36735), (55, 36732), (58, 36723), (92, 36552), (114, 36501),

Gene: EricB\_58 Start: 37002, Stop: 36559, Start Num: 33  
Candidate Starts for EricB\_58:  
(Start: 33 @37002 has 89 MA's), (57, 36858), (58, 36855), (64, 36828), (72, 36762), (94, 36702), (115, 36657),

Gene: Espresso\_53 Start: 39063, Stop: 38665, Start Num: 37  
Candidate Starts for Espresso\_53:

(Start: 37 @39063 has 160 MA's), (46, 38964), (58, 38910), (62, 38895), (63, 38886), (119, 38751), (135, 38697),

Gene: Euphoria\_51 Start: 38314, Stop: 37916, Start Num: 37

Candidate Starts for Euphoria\_51:

(Start: 37 @38314 has 160 MA's), (46, 38215), (58, 38161), (62, 38146), (63, 38137), (119, 38002), (135, 37948),

Gene: Expelliarmus\_54 Start: 36696, Stop: 36226, Start Num: 33

Candidate Starts for Expelliarmus\_54:

(1, 36981), (8, 36822), (Start: 33 @36696 has 89 MA's), (49, 36579), (54, 36543), (57, 36534), (58, 36531), (86, 36405), (127, 36288), (147, 36237),

Gene: Eyeball\_55 Start: 38602, Stop: 38204, Start Num: 37

Candidate Starts for Eyeball\_55:

(Start: 37 @38602 has 160 MA's), (46, 38503), (58, 38449), (62, 38434), (63, 38425), (119, 38290), (135, 38236),

Gene: Fajezeel\_55 Start: 38573, Stop: 37956, Start Num: 37

Candidate Starts for Fajezeel\_55:

(Start: 37 @38573 has 160 MA's), (46, 38474), (58, 38420), (62, 38405), (63, 38396), (119, 38261), (128, 38225), (152, 38171), (156, 38150),

Gene: Fameo\_57 Start: 38505, Stop: 38011, Start Num: 33

Candidate Starts for Fameo\_57:

(Start: 33 @38505 has 89 MA's), (54, 38367), (56, 38361), (57, 38358), (58, 38355), (64, 38328), (66, 38301), (72, 38262), (75, 38232), (81, 38211),

Gene: Fascinus\_49 Start: 37456, Stop: 36887, Start Num: 36

Candidate Starts for Fascinus\_49:

(Start: 25 @37507 has 1 MA's), (Start: 36 @37456 has 62 MA's), (46, 37354), (58, 37300), (62, 37285), (63, 37276), (119, 37141), (128, 37105), (152, 37054), (156, 37033), (159, 37012), (170, 36925),

Gene: Fenn\_56 Start: 40358, Stop: 39792, Start Num: 37

Candidate Starts for Fenn\_56:

(Start: 37 @40358 has 160 MA's), (46, 40259), (58, 40205), (62, 40190), (63, 40181), (119, 40046), (128, 40010), (152, 39956), (156, 39935), (161, 39914), (171, 39857), (174, 39830),

Gene: FiringLine\_57 Start: 38155, Stop: 37661, Start Num: 33

Candidate Starts for FiringLine\_57:

(Start: 33 @38155 has 89 MA's), (54, 38017), (56, 38011), (57, 38008), (58, 38005), (64, 37978), (66, 37951), (72, 37912), (75, 37882), (100, 37798), (125, 37723),

Gene: FlyCatcher\_59 Start: 40134, Stop: 39640, Start Num: 38

Candidate Starts for FlyCatcher\_59:

(Start: 38 @40134 has 26 MA's), (45, 40038), (58, 39981), (61, 39972), (63, 39957), (93, 39819),

Gene: ForGetIt\_49 Start: 36775, Stop: 36308, Start Num: 36

Candidate Starts for ForGetIt\_49:

(Start: 36 @36775 has 62 MA's), (46, 36676), (58, 36622), (59, 36619), (60, 36616), (121, 36379), (140, 36325),

Gene: Forsytheast\_53 Start: 37985, Stop: 37419, Start Num: 37



Candidate Starts for Forsytheast\_53:

(Start: 37 @37985 has 160 MA's), (46, 37886), (58, 37832), (62, 37817), (63, 37808), (119, 37673), (128, 37637), (152, 37583), (156, 37562), (161, 37541), (171, 37484), (174, 37457),

Gene: Francis47\_52 Start: 39627, Stop: 39229, Start Num: 37

Candidate Starts for Francis47\_52:

(Start: 37 @39627 has 160 MA's), (46, 39528), (58, 39474), (62, 39459), (63, 39450), (119, 39315), (135, 39261),

Gene: Froghopper\_51 Start: 37352, Stop: 36957, Start Num: 37

Candidate Starts for Froghopper\_51:

(Start: 37 @37352 has 160 MA's), (46, 37253), (58, 37199), (62, 37184), (63, 37175), (119, 37040), (135, 36986),

Gene: Fushigi\_52 Start: 36313, Stop: 35915, Start Num: 37

Candidate Starts for Fushigi\_52:

(Start: 37 @36313 has 160 MA's), (46, 36214), (58, 36160), (62, 36145), (63, 36136), (119, 36001), (135, 35947),

Gene: GMonster\_50 Start: 36829, Stop: 36272, Start Num: 37

Candidate Starts for GMonster\_50:

(6, 37015), (21, 36895), (Start: 37 @36829 has 160 MA's), (41, 36796), (46, 36730), (58, 36676), (62, 36661), (63, 36652), (119, 36517), (128, 36481), (152, 36427), (156, 36406), (163, 36367),

Gene: GageAP\_54 Start: 39103, Stop: 38705, Start Num: 37

Candidate Starts for GageAP\_54:

(Start: 37 @39103 has 160 MA's), (46, 39004), (58, 38950), (62, 38935), (63, 38926), (119, 38791), (126, 38764), (135, 38737),

Gene: Gail\_61 Start: 39377, Stop: 38874, Start Num: 31

Candidate Starts for Gail\_61:

(Start: 31 @39377 has 3 MA's), (54, 39242), (56, 39236), (57, 39233), (58, 39230), (64, 39203), (66, 39176), (69, 39149), (72, 39137), (81, 39083), (133, 38903),

Gene: Gandalf20\_56 Start: 40348, Stop: 39758, Start Num: 37

Candidate Starts for Gandalf20\_56:

(Start: 37 @40348 has 160 MA's), (46, 40249), (58, 40195), (62, 40180), (63, 40171), (119, 40036), (128, 40000), (152, 39946), (156, 39925), (163, 39886), (168, 39853),

Gene: Garak\_61 Start: 37472, Stop: 37029, Start Num: 33

Candidate Starts for Garak\_61:

(Start: 33 @37472 has 89 MA's), (57, 37328), (58, 37325), (64, 37298), (72, 37232), (94, 37172), (115, 37127),

Gene: George\_47 Start: 36848, Stop: 36360, Start Num: 36

Candidate Starts for George\_47:

(29, 36878), (Start: 36 @36848 has 62 MA's), (46, 36749), (54, 36707), (55, 36704), (58, 36695), (107, 36476),

Gene: Georgie2\_58 Start: 38200, Stop: 37706, Start Num: 33

Candidate Starts for Georgie2\_58:

(Start: 33 @38200 has 89 MA's), (54, 38062), (56, 38056), (57, 38053), (58, 38050), (64, 38023), (66, 37996), (72, 37957), (75, 37927), (100, 37843), (125, 37768),

Gene: Ghoulboy\_52 Start: 37654, Stop: 37187, Start Num: 36

Candidate Starts for Ghoulboy\_52:

(27, 37690), (Start: 36 @37654 has 62 MA's), (46, 37555), (58, 37501), (59, 37498), (60, 37495), (61, 37492), (121, 37258), (140, 37204),

Gene: Gladiator\_56 Start: 36697, Stop: 36260, Start Num: 33

Candidate Starts for Gladiator\_56:

(Start: 33 @36697 has 89 MA's), (57, 36553), (58, 36550), (64, 36523), (72, 36457), (94, 36394), (115, 36349), (142, 36271),

Gene: Gompeii16\_52 Start: 39360, Stop: 38962, Start Num: 37

Candidate Starts for Gompeii16\_52:

(Start: 37 @39360 has 160 MA's), (46, 39261), (58, 39207), (62, 39192), (63, 39183), (119, 39048), (135, 38994),

Gene: Graduation\_57 Start: 39927, Stop: 39529, Start Num: 37

Candidate Starts for Graduation\_57:

(Start: 37 @39927 has 160 MA's), (46, 39828), (58, 39774), (62, 39759), (63, 39750), (119, 39615), (135, 39561),

Gene: GrecoEtereo\_54 Start: 38332, Stop: 37766, Start Num: 37

Candidate Starts for GrecoEtereo\_54:

(Start: 37 @38332 has 160 MA's), (46, 38233), (58, 38179), (62, 38164), (63, 38155), (119, 38020), (128, 37984), (152, 37930), (156, 37909), (174, 37804),

Gene: GreedyLawyer\_58 Start: 37009, Stop: 36566, Start Num: 33

Candidate Starts for GreedyLawyer\_58:

(Start: 33 @37009 has 89 MA's), (57, 36865), (58, 36862), (64, 36835), (72, 36769), (94, 36709), (115, 36664),

Gene: Greg\_55 Start: 38573, Stop: 37956, Start Num: 37

Candidate Starts for Greg\_55:

(Start: 37 @38573 has 160 MA's), (46, 38474), (58, 38420), (62, 38405), (63, 38396), (119, 38261), (128, 38225), (152, 38171), (156, 38150),

Gene: Gruunaga\_59 Start: 37396, Stop: 36959, Start Num: 33

Candidate Starts for Gruunaga\_59:

(Start: 33 @37396 has 89 MA's), (57, 37252), (58, 37249), (64, 37222), (72, 37156), (94, 37093), (115, 37048), (142, 36970),

Gene: Gwendoluna\_57 Start: 40576, Stop: 39968, Start Num: 37

Candidate Starts for Gwendoluna\_57:

(Start: 37 @40576 has 160 MA's), (46, 40477), (58, 40423), (62, 40408), (63, 40399), (119, 40264), (128, 40228), (152, 40177), (156, 40156),

Gene: Gyzlar\_49 Start: 36249, Stop: 35680, Start Num: 36

Candidate Starts for Gyzlar\_49:

(Start: 25 @36300 has 1 MA's), (Start: 36 @36249 has 62 MA's), (46, 36147), (58, 36093), (62, 36078), (63, 36069), (119, 35934), (128, 35898), (152, 35844), (156, 35823), (159, 35802), (170, 35718),

Gene: HINdeR\_49 Start: 38405, Stop: 37899, Start Num: 38

Candidate Starts for HINdeR\_49:

(18, 38486), (19, 38480), (Start: 38 @38405 has 26 MA's), (52, 38273), (58, 38252), (59, 38249), (62, 38237),

Gene: Hami1\_47 Start: 33410, Stop: 33012, Start Num: 37

Candidate Starts for Hami1\_47:

(Start: 37 @33410 has 160 MA's), (46, 33311), (58, 33257), (62, 33242), (63, 33233), (119, 33098), (135, 33044),

Gene: Hammer\_59 Start: 37003, Stop: 36566, Start Num: 33

Candidate Starts for Hammer\_59:

(Start: 33 @37003 has 89 MA's), (57, 36859), (58, 36856), (64, 36829), (72, 36763), (115, 36655), (142, 36577),

Gene: HanShotFirst\_54 Start: 38872, Stop: 38306, Start Num: 37

Candidate Starts for HanShotFirst\_54:

(Start: 37 @38872 has 160 MA's), (46, 38773), (58, 38719), (62, 38704), (63, 38695), (119, 38560), (128, 38524), (152, 38470), (156, 38449), (161, 38428), (174, 38344),

Gene: HarryOW\_52 Start: 37507, Stop: 36938, Start Num: 36

Candidate Starts for HarryOW\_52:

(11, 37618), (24, 37561), (Start: 36 @37507 has 62 MA's), (46, 37405), (58, 37351), (62, 37336), (63, 37327), (119, 37192), (128, 37156), (152, 37102), (156, 37081), (170, 36976),

Gene: Heffalump\_56 Start: 38973, Stop: 38479, Start Num: 33

Candidate Starts for Heffalump\_56:

(Start: 33 @38973 has 89 MA's), (54, 38835), (56, 38829), (57, 38826), (58, 38823), (64, 38796), (66, 38769), (72, 38730), (75, 38700), (81, 38679), (84, 38673),

Gene: Helmet\_61 Start: 37472, Stop: 37029, Start Num: 33

Candidate Starts for Helmet\_61:

(Start: 33 @37472 has 89 MA's), (57, 37328), (58, 37325), (64, 37298), (72, 37232), (94, 37172), (115, 37127),

Gene: Herbertwm\_55 Start: 37937, Stop: 37377, Start Num: 33

Candidate Starts for Herbertwm\_55:

(4, 38162), (Start: 33 @37937 has 89 MA's), (42, 37868), (58, 37772), (59, 37769), (61, 37763), (83, 37625), (86, 37601), (90, 37583), (134, 37448), (150, 37418),

Gene: Hermia\_54 Start: 39005, Stop: 38388, Start Num: 37

Candidate Starts for Hermia\_54:

(Start: 37 @39005 has 160 MA's), (46, 38906), (58, 38852), (62, 38837), (63, 38828), (119, 38693), (128, 38657), (152, 38603), (156, 38582),

Gene: HermioneGrange\_53 Start: 38256, Stop: 37777, Start Num: 37

Candidate Starts for HermioneGrange\_53:

(27, 38298), (Start: 34 @38268 has 4 MA's), (Start: 37 @38256 has 160 MA's), (46, 38157), (58, 38103), (62, 38088), (63, 38079), (77, 37959), (119, 37863), (135, 37809),

Gene: Hexamo\_59 Start: 37102, Stop: 36659, Start Num: 33

Candidate Starts for Hexamo\_59:

(Start: 33 @37102 has 89 MA's), (57, 36958), (58, 36955), (64, 36928), (72, 36862), (94, 36802), (115, 36757),

Gene: Homines\_46 Start: 34514, Stop: 33951, Start Num: 37

Candidate Starts for Homines\_46:

(Start: 37 @34514 has 160 MA's), (46, 34415), (58, 34361), (62, 34346), (63, 34337), (119, 34202), (128, 34166), (152, 34115), (156, 34094), (161, 34073), (174, 33989),

Gene: Hoot\_53 Start: 34860, Stop: 34417, Start Num: 33

Candidate Starts for Hoot\_53:

(Start: 33 @34860 has 89 MA's), (57, 34716), (58, 34713), (64, 34686), (72, 34620), (94, 34560), (115, 34515),

Gene: HuhtaEnerson15\_49 Start: 36845, Stop: 36351, Start Num: 36

Candidate Starts for HuhtaEnerson15\_49:

(7, 37010), (9, 36992), (Start: 36 @36845 has 62 MA's), (46, 36746), (54, 36704), (55, 36701), (58, 36692), (107, 36473), (130, 36395), (145, 36365),

Gene: ILeeKay\_57 Start: 39101, Stop: 38547, Start Num: 37

Candidate Starts for ILeeKay\_57:

(Start: 37 @39101 has 160 MA's), (46, 39002), (58, 38948), (62, 38933), (63, 38924), (119, 38789), (128, 38753), (152, 38702), (156, 38681), (163, 38642),

Gene: Ichabod\_56 Start: 39693, Stop: 39127, Start Num: 37

Candidate Starts for Ichabod\_56:

(27, 39735), (Start: 34 @39705 has 4 MA's), (Start: 37 @39693 has 160 MA's), (46, 39594), (58, 39540), (62, 39525), (63, 39516), (119, 39381), (128, 39345), (152, 39291), (156, 39270), (159, 39249), (170, 39165),

Gene: IgnatiusPatJac\_54 Start: 38566, Stop: 38168, Start Num: 37

Candidate Starts for IgnatiusPatJac\_54:

(Start: 37 @38566 has 160 MA's), (46, 38467), (58, 38413), (62, 38398), (63, 38389), (119, 38254), (135, 38200),

Gene: Indra\_62 Start: 37473, Stop: 37030, Start Num: 33

Candidate Starts for Indra\_62:

(Start: 33 @37473 has 89 MA's), (57, 37329), (58, 37326), (64, 37299), (72, 37233), (94, 37173), (115, 37128),

Gene: Inyanga\_50 Start: 36800, Stop: 36402, Start Num: 37

Candidate Starts for Inyanga\_50:

(Start: 37 @36800 has 160 MA's), (46, 36701), (58, 36647), (62, 36632), (63, 36623), (119, 36488), (135, 36434),

Gene: Isiphiwo\_56 Start: 36576, Stop: 36142, Start Num: 33

Candidate Starts for Isiphiwo\_56:

(Start: 33 @36576 has 89 MA's), (57, 36432), (58, 36429), (64, 36402), (72, 36336), (94, 36276), (142, 36153),

Gene: JC27\_55 Start: 38691, Stop: 38209, Start Num: 36

Candidate Starts for JC27\_55:

(Start: 25 @38742 has 1 MA's), (Start: 36 @38691 has 62 MA's), (46, 38589), (58, 38535), (62, 38520), (63, 38511), (77, 38391), (119, 38295), (135, 38241),

Gene: Jabiru\_51 Start: 36770, Stop: 36282, Start Num: 36

Candidate Starts for Jabiru\_51:

(9, 36917), (Start: 36 @36770 has 62 MA's), (46, 36671), (54, 36629), (55, 36626), (58, 36617), (61, 36608), (101, 36413), (105, 36404), (145, 36296),

Gene: JackSparrow\_55 Start: 38752, Stop: 38186, Start Num: 36

Candidate Starts for JackSparrow\_55:

(23, 38803), (Start: 36 @38752 has 62 MA's), (41, 38719), (46, 38653), (58, 38599), (62, 38584), (63, 38575), (119, 38440), (128, 38404), (152, 38350), (156, 38329), (159, 38308), (170, 38224),

Gene: Jasper\_55 Start: 37712, Stop: 37257, Start Num: 37

Candidate Starts for Jasper\_55:

(Start: 37 @37712 has 160 MA's), (46, 37613), (58, 37559), (62, 37544), (63, 37535), (105, 37418), (110, 37388), (112, 37379), (116, 37367), (119, 37343), (135, 37289),

Gene: Jeeves\_62 Start: 38354, Stop: 37857, Start Num: 32

Candidate Starts for Jeeves\_62:

(Start: 32 @38354 has 2 MA's), (54, 38219), (56, 38213), (57, 38210), (58, 38207), (64, 38180), (66, 38153), (72, 38114), (75, 38084), (81, 38063), (133, 37886),

Gene: Jeffabunny\_59 Start: 37099, Stop: 36656, Start Num: 33

Candidate Starts for Jeffabunny\_59:

(Start: 33 @37099 has 89 MA's), (57, 36955), (58, 36952), (64, 36925), (72, 36859), (94, 36799), (115, 36754),

Gene: Jerm2\_54 Start: 38511, Stop: 38032, Start Num: 37

Candidate Starts for Jerm2\_54:

(27, 38553), (Start: 34 @38523 has 4 MA's), (Start: 37 @38511 has 160 MA's), (46, 38412), (58, 38358), (62, 38343), (63, 38334), (77, 38214), (119, 38118), (135, 38064),

Gene: JewelBug\_59 Start: 37215, Stop: 36772, Start Num: 33

Candidate Starts for JewelBug\_59:

(Start: 33 @37215 has 89 MA's), (57, 37071), (58, 37068), (64, 37041), (72, 36975), (115, 36870), (120, 36855),

Gene: Jordennis\_58 Start: 36696, Stop: 36262, Start Num: 33

Candidate Starts for Jordennis\_58:

(Start: 33 @36696 has 89 MA's), (57, 36552), (58, 36549), (64, 36522), (66, 36495), (72, 36456), (94, 36396), (115, 36351), (142, 36273),

Gene: JoshKayV\_59 Start: 38828, Stop: 38325, Start Num: 31

Candidate Starts for JoshKayV\_59:

(Start: 31 @38828 has 3 MA's), (54, 38687), (56, 38681), (57, 38678), (58, 38675), (64, 38648), (72, 38582), (81, 38531),

Gene: Journey13\_51 Start: 36542, Stop: 36054, Start Num: 33

Candidate Starts for Journey13\_51:

(Start: 33 @36542 has 89 MA's), (54, 36404), (56, 36398), (57, 36395), (58, 36392), (64, 36365), (69, 36311), (72, 36299), (152, 36071),

Gene: Jovo\_49 Start: 37031, Stop: 36564, Start Num: 36

Candidate Starts for Jovo\_49:

(Start: 36 @37031 has 62 MA's), (46, 36932), (58, 36878), (59, 36875), (60, 36872), (121, 36635), (140, 36581),

Gene: Jsquared\_55 Start: 37136, Stop: 36672, Start Num: 33

Candidate Starts for Jsquared\_55:

(Start: 33 @37136 has 89 MA's), (54, 36998), (56, 36992), (57, 36989), (58, 36986), (64, 36959), (66, 36932), (72, 36893), (97, 36812), (103, 36800), (128, 36722),

Gene: JuliaChild\_54 Start: 38193, Stop: 37627, Start Num: 37

Candidate Starts for JuliaChild\_54:

(27, 38235), (Start: 34 @38205 has 4 MA's), (Start: 37 @38193 has 160 MA's), (46, 38094), (58, 38040), (62, 38025), (63, 38016), (119, 37881), (128, 37845), (152, 37791), (156, 37770), (159, 37749), (167, 37692), (170, 37665),

Gene: KSSJEB\_53 Start: 38192, Stop: 37626, Start Num: 37

Candidate Starts for KSSJEB\_53:

(Start: 37 @38192 has 160 MA's), (46, 38093), (58, 38039), (62, 38024), (63, 38015), (119, 37880), (128, 37844), (152, 37790), (156, 37769), (161, 37748), (171, 37691), (174, 37664),

Gene: Kalpine\_55 Start: 38383, Stop: 37931, Start Num: 33

Candidate Starts for Kalpine\_55:

(Start: 33 @38383 has 89 MA's), (54, 38245), (56, 38239), (57, 38236), (58, 38233), (64, 38206), (66, 38179), (72, 38140), (101, 38059),

Gene: Kanely\_55 Start: 38889, Stop: 38275, Start Num: 36

Candidate Starts for Kanely\_55:

(Start: 25 @38940 has 1 MA's), (Start: 36 @38889 has 62 MA's), (46, 38787), (58, 38733), (62, 38718), (63, 38709), (119, 38574), (128, 38538), (152, 38487), (156, 38466), (159, 38445), (162, 38430), (165, 38397),

Gene: Kazan\_59 Start: 37015, Stop: 36572, Start Num: 33

Candidate Starts for Kazan\_59:

(Start: 33 @37015 has 89 MA's), (57, 36871), (58, 36868), (64, 36841), (72, 36775), (94, 36715), (115, 36670),

Gene: Kenmech\_57 Start: 40335, Stop: 39925, Start Num: 37

Candidate Starts for Kenmech\_57:

(Start: 37 @40335 has 160 MA's), (46, 40236), (58, 40182), (62, 40167), (63, 40158), (119, 40023), (135, 39957),

Gene: Kerberos\_59 Start: 37999, Stop: 37544, Start Num: 38

Candidate Starts for Kerberos\_59:

(Start: 38 @37999 has 26 MA's), (54, 37858), (58, 37846), (61, 37837), (67, 37783), (102, 37708), (106, 37687), (107, 37678), (148, 37564),

Gene: Killigrew\_54 Start: 39392, Stop: 38826, Start Num: 37

Candidate Starts for Killigrew\_54:

(Start: 37 @39392 has 160 MA's), (46, 39293), (58, 39239), (62, 39224), (63, 39215), (119, 39080), (128, 39044), (152, 38990), (156, 38969), (161, 38948), (171, 38891), (174, 38864),

Gene: Kipper29\_58 Start: 37028, Stop: 36585, Start Num: 33

Candidate Starts for Kipper29\_58:

(Start: 33 @37028 has 89 MA's), (57, 36884), (58, 36881), (64, 36854), (72, 36788), (94, 36728), (115, 36683),

Gene: Koduck\_58 Start: 37415, Stop: 36957, Start Num: 33

Candidate Starts for Koduck\_58:

(Start: 33 @37415 has 89 MA's), (54, 37277), (57, 37268), (58, 37265), (64, 37238), (66, 37211), (72, 37172), (103, 37082), (146, 36962),

Gene: Koko\_60 Start: 37533, Stop: 37090, Start Num: 33

Candidate Starts for Koko\_60:

(Start: 33 @37533 has 89 MA's), (57, 37389), (58, 37386), (64, 37359), (72, 37293), (94, 37233), (115, 37188),

Gene: Kugel\_54 Start: 39457, Stop: 38903, Start Num: 37

Candidate Starts for Kugel\_54:

(Start: 37 @39457 has 160 MA's), (46, 39358), (58, 39304), (62, 39289), (63, 39280), (119, 39145), (128, 39109), (152, 39058), (156, 39037), (163, 38998),

Gene: KyMonks1A\_55 Start: 38450, Stop: 37833, Start Num: 36

Candidate Starts for KyMonks1A\_55:

(Start: 25 @38501 has 1 MA's), (Start: 36 @38450 has 62 MA's), (46, 38348), (58, 38294), (62, 38279), (63, 38270), (119, 38135), (128, 38099), (152, 38045), (156, 38024), (162, 37988), (165, 37955),

Gene: Kykar\_53 Start: 38219, Stop: 37605, Start Num: 37

Candidate Starts for Kykar\_53:

(Start: 37 @38219 has 160 MA's), (46, 38120), (58, 38066), (62, 38051), (63, 38042), (119, 37907), (152, 37817), (156, 37796), (159, 37775), (162, 37760), (165, 37727),

Gene: L5\_55 Start: 37502, Stop: 37032, Start Num: 33

Candidate Starts for L5\_55:

(Start: 33 @37502 has 89 MA's), (54, 37364), (57, 37355), (58, 37352), (64, 37325), (66, 37298), (72, 37259), (88, 37205), (97, 37184), (109, 37157), (119, 37130), (122, 37115), (139, 37064),

Gene: LadyBird\_62 Start: 39099, Stop: 38653, Start Num: 33

Candidate Starts for LadyBird\_62:

(Start: 33 @39099 has 89 MA's), (54, 38958), (56, 38952), (57, 38949), (58, 38946), (64, 38919), (66, 38892), (72, 38853),

Gene: Lamina13\_54 Start: 38247, Stop: 37576, Start Num: 37

Candidate Starts for Lamina13\_54:

(Start: 37 @38247 has 160 MA's), (46, 38148), (58, 38094), (62, 38079), (63, 38070), (95, 37950), (119, 37854), (128, 37818), (152, 37764), (156, 37743), (163, 37704), (168, 37671),

Gene: Lesedi\_50 Start: 37197, Stop: 36799, Start Num: 37

Candidate Starts for Lesedi\_50:

(Start: 37 @37197 has 160 MA's), (46, 37098), (58, 37044), (62, 37029), (63, 37020), (119, 36885), (126, 36858), (135, 36831),

Gene: Lev2\_49 Start: 36663, Stop: 36196, Start Num: 36

Candidate Starts for Lev2\_49:

(Start: 36 @36663 has 62 MA's), (46, 36564), (58, 36510), (59, 36507), (60, 36504), (121, 36267), (140, 36213),

Gene: Licorice\_56 Start: 40561, Stop: 39995, Start Num: 37

Candidate Starts for Licorice\_56:

(Start: 37 @40561 has 160 MA's), (46, 40462), (58, 40408), (62, 40393), (63, 40384), (119, 40249), (128, 40213), (152, 40159), (156, 40138), (161, 40117), (174, 40033),

Gene: LilBib\_53 Start: 39658, Stop: 39053, Start Num: 36

Candidate Starts for LilBib\_53:

(11, 39769), (22, 39721), (Start: 36 @39658 has 62 MA's), (46, 39556), (58, 39502), (62, 39487), (63, 39478), (119, 39343), (128, 39307), (154, 39247), (169, 39124), (175, 39064),

Gene: Lilbunny\_58 Start: 37103, Stop: 36660, Start Num: 33

Candidate Starts for Lilbunny\_58:

(Start: 33 @37103 has 89 MA's), (57, 36959), (58, 36956), (64, 36929), (72, 36863), (94, 36803), (115, 36758),

Gene: LittleCherry\_49 Start: 36865, Stop: 36371, Start Num: 36

Candidate Starts for LittleCherry\_49:

(29, 36895), (Start: 36 @36865 has 62 MA's), (46, 36766), (54, 36724), (55, 36721), (58, 36712), (107, 36493), (130, 36415), (145, 36385),

Gene: Lockley\_52 Start: 38167, Stop: 37532, Start Num: 37

Candidate Starts for Lockley\_52:

(Start: 37 @38167 has 160 MA's), (46, 38068), (58, 38014), (62, 37999), (63, 37990), (77, 37870), (119, 37774), (128, 37738), (156, 37675), (161, 37654), (174, 37570),

Gene: Lokk\_54 Start: 37531, Stop: 37127, Start Num: 33

Candidate Starts for Lokk\_54:

(4, 37756), (5, 37747), (Start: 33 @37531 has 89 MA's), (54, 37396), (56, 37390), (57, 37387), (58, 37384), (64, 37357), (66, 37330), (72, 37291), (75, 37261), (97, 37192), (110, 37168),

Gene: Luchador\_61 Start: 39939, Stop: 39442, Start Num: 31

Candidate Starts for Luchador\_61:

(Start: 31 @39939 has 3 MA's), (54, 39804), (56, 39798), (57, 39795), (58, 39792), (64, 39765), (66, 39738), (72, 39699), (75, 39669), (81, 39648), (133, 39471),

Gene: Lucyedi\_58 Start: 38070, Stop: 37621, Start Num: 33

Candidate Starts for Lucyedi\_58:

(Start: 33 @38070 has 89 MA's), (57, 37926), (58, 37923), (64, 37896), (66, 37869), (69, 37842), (92, 37773), (101, 37755),

Gene: MPlant7149\_52 Start: 37293, Stop: 36895, Start Num: 37

Candidate Starts for MPlant7149\_52:

(Start: 37 @37293 has 160 MA's), (46, 37194), (58, 37140), (62, 37125), (63, 37116), (119, 36981), (135, 36927),

Gene: Magnar\_53 Start: 38738, Stop: 38340, Start Num: 37

Candidate Starts for Magnar\_53:

(Start: 37 @38738 has 160 MA's), (46, 38639), (58, 38585), (62, 38570), (63, 38561), (119, 38426), (135, 38372),

Gene: Magnito\_52 Start: 38460, Stop: 37900, Start Num: 37

Candidate Starts for Magnito\_52:

(Start: 37 @38460 has 160 MA's), (46, 38361), (58, 38307), (62, 38292), (63, 38283), (119, 38148), (128, 38112), (152, 38058), (156, 38037), (174, 37938),

Gene: MajorMajor\_56 Start: 37152, Stop: 36703, Start Num: 33

Candidate Starts for MajorMajor\_56:



(Start: 33 @37152 has 89 MA's), (54, 37014), (56, 37008), (57, 37005), (58, 37002), (64, 36975), (66, 36948), (72, 36909), (128, 36738), (137, 36708),

Gene: Makemake\_53 Start: 38800, Stop: 38399, Start Num: 36

Candidate Starts for Makemake\_53:

(Start: 25 @38851 has 1 MA's), (Start: 36 @38800 has 62 MA's), (46, 38698), (58, 38644), (62, 38629), (63, 38620), (119, 38485), (135, 38431),

Gene: Maminiaina\_56 Start: 37958, Stop: 37473, Start Num: 33

Candidate Starts for Maminiaina\_56:

(4, 38183), (5, 38174), (Start: 33 @37958 has 89 MA's), (54, 37820), (56, 37814), (57, 37811), (58, 37808), (64, 37781), (66, 37754), (72, 37715), (96, 37610), (131, 37508), (141, 37487), (146, 37478),

Gene: Manatee\_55 Start: 38824, Stop: 38426, Start Num: 37

Candidate Starts for Manatee\_55:

(Start: 37 @38824 has 160 MA's), (46, 38725), (58, 38671), (62, 38656), (63, 38647), (119, 38512), (135, 38458),

Gene: Marcell\_51 Start: 37819, Stop: 37265, Start Num: 37

Candidate Starts for Marcell\_51:

(Start: 37 @37819 has 160 MA's), (46, 37720), (58, 37666), (62, 37651), (63, 37642), (119, 37507), (128, 37471), (152, 37420), (156, 37399), (163, 37360),

Gene: Marchy\_48 Start: 35728, Stop: 35330, Start Num: 37

Candidate Starts for Marchy\_48:

(Start: 37 @35728 has 160 MA's), (46, 35629), (58, 35575), (62, 35560), (63, 35551), (119, 35416), (135, 35362),

Gene: Marge\_53 Start: 38708, Stop: 38079, Start Num: 37

Candidate Starts for Marge\_53:

(Start: 37 @38708 has 160 MA's), (46, 38609), (58, 38555), (62, 38540), (63, 38531), (119, 38396), (128, 38360), (152, 38306), (156, 38285),

Gene: Maroc7\_51 Start: 37816, Stop: 37196, Start Num: 25

Candidate Starts for Maroc7\_51:

(Start: 25 @37816 has 1 MA's), (Start: 36 @37765 has 62 MA's), (46, 37663), (58, 37609), (62, 37594), (63, 37585), (119, 37450), (128, 37414), (152, 37363), (156, 37342), (159, 37321), (170, 37234),

Gene: Marsha\_53 Start: 39249, Stop: 38638, Start Num: 37

Candidate Starts for Marsha\_53:

(Start: 37 @39249 has 160 MA's), (46, 39150), (58, 39096), (62, 39081), (63, 39072), (119, 38937), (128, 38901), (152, 38850), (156, 38829), (162, 38793), (165, 38760),

Gene: MaryBeth\_53 Start: 39046, Stop: 38489, Start Num: 37

Candidate Starts for MaryBeth\_53:

(Start: 37 @39046 has 160 MA's), (46, 38947), (58, 38893), (62, 38878), (63, 38869), (119, 38734), (128, 38698), (152, 38644), (156, 38623), (163, 38584),

Gene: MarysWell\_49 Start: 37162, Stop: 36695, Start Num: 36

Candidate Starts for MarysWell\_49:

(27, 37198), (Start: 36 @37162 has 62 MA's), (46, 37063), (58, 37009), (59, 37006), (60, 37003), (121, 36766), (140, 36712),

Gene: McFly\_58 Start: 37009, Stop: 36566, Start Num: 33

Candidate Starts for McFly\_58:

(Start: 33 @37009 has 89 MA's), (57, 36865), (58, 36862), (64, 36835), (72, 36769), (94, 36709), (115, 36664),

Gene: McGuire\_55 Start: 38290, Stop: 37724, Start Num: 37

Candidate Starts for McGuire\_55:

(Start: 37 @38290 has 160 MA's), (46, 38191), (58, 38137), (62, 38122), (63, 38113), (119, 37978), (128, 37942), (152, 37888), (156, 37867), (161, 37846), (171, 37789), (174, 37762),

Gene: MetalQZJ\_52 Start: 39046, Stop: 38489, Start Num: 37

Candidate Starts for MetalQZJ\_52:

(Start: 37 @39046 has 160 MA's), (46, 38947), (58, 38893), (62, 38878), (63, 38869), (119, 38734), (128, 38698), (152, 38644), (156, 38623), (163, 38584),

Gene: Micasa\_50 Start: 37033, Stop: 36539, Start Num: 36

Candidate Starts for Micasa\_50:

(Start: 36 @37033 has 62 MA's), (55, 36889), (57, 36883), (58, 36880), (107, 36661), (130, 36583), (145, 36553),

Gene: Michley\_53 Start: 37767, Stop: 37369, Start Num: 37

Candidate Starts for Michley\_53:

(Start: 37 @37767 has 160 MA's), (46, 37668), (47, 37659), (58, 37614), (62, 37599), (63, 37590), (119, 37455), (135, 37401),

Gene: Midas2\_48 Start: 36935, Stop: 36441, Start Num: 36

Candidate Starts for Midas2\_48:

(Start: 36 @36935 has 62 MA's), (55, 36791), (57, 36785), (58, 36782), (107, 36563), (130, 36485), (145, 36455),

Gene: Miko\_54 Start: 38309, Stop: 37905, Start Num: 33

Candidate Starts for Miko\_54:

(4, 38534), (5, 38525), (Start: 33 @38309 has 89 MA's), (54, 38174), (56, 38168), (57, 38165), (58, 38162), (64, 38135), (66, 38108), (72, 38069), (75, 38039), (82, 38024), (97, 37970), (110, 37946),

Gene: Milcery\_49 Start: 36816, Stop: 36328, Start Num: 36

Candidate Starts for Milcery\_49:

(29, 36846), (Start: 36 @36816 has 62 MA's), (46, 36717), (54, 36675), (55, 36672), (58, 36663), (107, 36444),

Gene: MissWhite\_56 Start: 36656, Stop: 36198, Start Num: 33

Candidate Starts for MissWhite\_56:

(Start: 33 @36656 has 89 MA's), (54, 36518), (56, 36512), (57, 36509), (58, 36506), (64, 36479), (72, 36413), (129, 36260), (137, 36236), (144, 36227), (153, 36203),

Gene: Mkhuseleli\_52 Start: 37334, Stop: 36936, Start Num: 37

Candidate Starts for Mkhuseleli\_52:

(Start: 37 @37334 has 160 MA's), (46, 37235), (58, 37181), (62, 37166), (63, 37157), (119, 37022), (135, 36968),

Gene: Molly\_54 Start: 37493, Stop: 36939, Start Num: 38

Candidate Starts for Molly\_54:

(28, 37535), (35, 37505), (Start: 38 @37493 has 26 MA's), (46, 37394), (58, 37340), (62, 37325), (63, 37316), (119, 37181), (128, 37145), (152, 37094), (156, 37073), (163, 37034),

Gene: Monet\_56 Start: 39466, Stop: 39068, Start Num: 37

Candidate Starts for Monet\_56:

(Start: 37 @39466 has 160 MA's), (46, 39367), (58, 39313), (62, 39298), (63, 39289), (119, 39154), (135, 39100),

Gene: Moose\_53 Start: 37985, Stop: 37419, Start Num: 37

Candidate Starts for Moose\_53:

(Start: 37 @37985 has 160 MA's), (46, 37886), (58, 37832), (62, 37817), (63, 37808), (119, 37673), (128, 37637), (152, 37583), (156, 37562), (161, 37541), (171, 37484), (174, 37457),

Gene: MrGordo\_53 Start: 38500, Stop: 38102, Start Num: 37

Candidate Starts for MrGordo\_53:

(Start: 37 @38500 has 160 MA's), (46, 38401), (58, 38347), (62, 38332), (63, 38323), (119, 38188), (126, 38161), (135, 38134),

Gene: Mryolo\_51 Start: 38512, Stop: 37898, Start Num: 37

Candidate Starts for Mryolo\_51:

(Start: 37 @38512 has 160 MA's), (46, 38413), (58, 38359), (62, 38344), (63, 38335), (119, 38200), (128, 38164), (152, 38110), (156, 38089), (159, 38068), (162, 38053), (165, 38020),

Gene: Mule\_50 Start: 36434, Stop: 36033, Start Num: 36

Candidate Starts for Mule\_50:

(Start: 25 @36485 has 1 MA's), (Start: 36 @36434 has 62 MA's), (46, 36332), (58, 36278), (62, 36263), (63, 36254), (119, 36119), (135, 36065),

Gene: Museum\_54 Start: 38643, Stop: 38077, Start Num: 37

Candidate Starts for Museum\_54:

(27, 38685), (Start: 34 @38655 has 4 MA's), (Start: 37 @38643 has 160 MA's), (46, 38544), (58, 38490), (62, 38475), (63, 38466), (119, 38331), (128, 38295), (152, 38241), (156, 38220), (159, 38199), (167, 38142), (170, 38115),

Gene: NEHalo\_51 Start: 38428, Stop: 37814, Start Num: 37

Candidate Starts for NEHalo\_51:

(27, 38470), (Start: 34 @38440 has 4 MA's), (Start: 37 @38428 has 160 MA's), (46, 38329), (58, 38275), (62, 38260), (63, 38251), (119, 38116), (128, 38080), (152, 38026), (156, 38005), (159, 37984), (162, 37969), (165, 37936),

Gene: Naca\_50 Start: 37309, Stop: 36818, Start Num: 36

Candidate Starts for Naca\_50:

(9, 37456), (19, 37375), (29, 37339), (Start: 36 @37309 has 62 MA's), (46, 37210), (54, 37168), (55, 37165), (58, 37156), (101, 36952), (105, 36943), (123, 36886), (145, 36832),

Gene: Naira\_56 Start: 40405, Stop: 39839, Start Num: 37

Candidate Starts for Naira\_56:

(Start: 37 @40405 has 160 MA's), (46, 40306), (58, 40252), (62, 40237), (63, 40228), (119, 40093), (128, 40057), (152, 40003), (156, 39982), (161, 39961), (171, 39904), (174, 39877),

Gene: Naji\_59 Start: 38000, Stop: 37545, Start Num: 38

Candidate Starts for Naji\_59:

(Start: 38 @38000 has 26 MA's), (54, 37859), (58, 37847), (61, 37838), (67, 37784), (102, 37709), (106, 37688), (107, 37679), (148, 37565),

Gene: Neeharika16\_57 Start: 36469, Stop: 36026, Start Num: 33

Candidate Starts for Neeharika16\_57:

(Start: 33 @36469 has 89 MA's), (57, 36325), (58, 36322), (64, 36295), (72, 36229), (94, 36169), (115, 36124),

Gene: Newrala\_58 Start: 37011, Stop: 36568, Start Num: 33

Candidate Starts for Newrala\_58:

(Start: 33 @37011 has 89 MA's), (57, 36867), (58, 36864), (64, 36837), (72, 36771), (94, 36711), (115, 36666),

Gene: Niza\_56 Start: 40289, Stop: 39891, Start Num: 37

Candidate Starts for Niza\_56:

(Start: 37 @40289 has 160 MA's), (46, 40190), (58, 40136), (62, 40121), (63, 40112), (119, 39977), (135, 39923),

Gene: Norz\_54 Start: 39632, Stop: 39066, Start Num: 36

Candidate Starts for Norz\_54:

(11, 39743), (24, 39686), (Start: 36 @39632 has 62 MA's), (46, 39530), (58, 39476), (62, 39461), (63, 39452), (119, 39317), (128, 39281), (152, 39230), (156, 39209), (159, 39188), (170, 39104),

Gene: Odin\_55 Start: 37059, Stop: 36571, Start Num: 33

Candidate Starts for Odin\_55:

(Start: 33 @37059 has 89 MA's), (43, 36984), (53, 36921), (54, 36915), (58, 36903), (71, 36801), (100, 36714), (143, 36582),

Gene: Ohno789\_55 Start: 39227, Stop: 38613, Start Num: 37

Candidate Starts for Ohno789\_55:

(Start: 37 @39227 has 160 MA's), (46, 39128), (58, 39074), (62, 39059), (63, 39050), (119, 38915), (128, 38879), (152, 38828), (156, 38807),

Gene: Oogway\_52 Start: 38320, Stop: 37736, Start Num: 36

Candidate Starts for Oogway\_52:

(11, 38431), (Start: 36 @38320 has 62 MA's), (46, 38218), (58, 38164), (62, 38149), (63, 38140), (104, 38020), (128, 37957), (152, 37903), (156, 37882), (159, 37861), (170, 37774),

Gene: PP\_55 Start: 41225, Stop: 40698, Start Num: 26

Candidate Starts for PP\_55:

(10, 41300), (14, 41264), (Start: 26 @41225 has 1 MA's), (Start: 33 @41198 has 89 MA's), (46, 41075), (58, 41021), (61, 41012), (63, 40997), (113, 40829), (128, 40778), (136, 40748), (147, 40730),

Gene: PSullivan\_53 Start: 37380, Stop: 36901, Start Num: 37

Candidate Starts for PSullivan\_53:

(27, 37422), (Start: 34 @37392 has 4 MA's), (Start: 37 @37380 has 160 MA's), (46, 37281), (58, 37227), (62, 37212), (63, 37203), (77, 37083), (119, 36987), (135, 36933),

Gene: PacerPaul\_53 Start: 38994, Stop: 38596, Start Num: 37

Candidate Starts for PacerPaul\_53:

(Start: 37 @38994 has 160 MA's), (46, 38895), (58, 38841), (62, 38826), (63, 38817), (119, 38682), (135, 38628),

Gene: PainterBoy\_58 Start: 38029, Stop: 37562, Start Num: 33

Candidate Starts for PainterBoy\_58:

(Start: 33 @38029 has 89 MA's), (53, 37891), (58, 37873), (67, 37795), (69, 37777), (71, 37771), (79, 37735), (118, 37648), (130, 37600), (143, 37573),

Gene: Papez\_56 Start: 40588, Stop: 40022, Start Num: 37

Candidate Starts for Papez\_56:

(Start: 37 @40588 has 160 MA's), (46, 40489), (58, 40435), (62, 40420), (63, 40411), (119, 40276), (128, 40240), (152, 40186), (156, 40165), (161, 40144), (171, 40087), (174, 40060),

Gene: Paphu\_51 Start: 37777, Stop: 37160, Start Num: 37

Candidate Starts for Paphu\_51:

(27, 37819), (Start: 34 @37789 has 4 MA's), (Start: 37 @37777 has 160 MA's), (46, 37678), (58, 37624), (62, 37609), (63, 37600), (119, 37465), (128, 37429), (152, 37375), (156, 37354),

Gene: Paraselene\_51 Start: 39100, Stop: 38486, Start Num: 37

Candidate Starts for Paraselene\_51:

(Start: 37 @39100 has 160 MA's), (46, 39001), (58, 38947), (62, 38932), (63, 38923), (119, 38788), (128, 38752), (152, 38698), (156, 38677), (159, 38656), (162, 38641), (165, 38608),

Gene: Pari\_55 Start: 38216, Stop: 37557, Start Num: 34

Candidate Starts for Pari\_55:

(Start: 34 @38216 has 4 MA's), (Start: 37 @38204 has 160 MA's), (46, 38105), (58, 38051), (62, 38036), (63, 38027), (77, 37907), (119, 37811), (128, 37775), (152, 37721), (156, 37700), (159, 37679), (167, 37622), (170, 37595),

Gene: Parliament\_53 Start: 38723, Stop: 38079, Start Num: 37

Candidate Starts for Parliament\_53:

(Start: 37 @38723 has 160 MA's), (46, 38624), (58, 38570), (62, 38555), (63, 38546), (77, 38426), (119, 38330), (128, 38294), (152, 38243), (156, 38222), (161, 38201), (174, 38117),

Gene: PascalRango\_54 Start: 38941, Stop: 38375, Start Num: 37

Candidate Starts for PascalRango\_54:

(Start: 37 @38941 has 160 MA's), (46, 38842), (58, 38788), (62, 38773), (63, 38764), (119, 38629), (128, 38593), (152, 38539), (156, 38518), (161, 38497), (171, 38440), (174, 38413),

Gene: Payneful\_53 Start: 38445, Stop: 38047, Start Num: 37

Candidate Starts for Payneful\_53:

(Start: 37 @38445 has 160 MA's), (46, 38346), (58, 38292), (62, 38277), (63, 38268), (119, 38133), (135, 38079),

Gene: Pelly\_53 Start: 38399, Stop: 37998, Start Num: 36

Candidate Starts for Pelly\_53:

(Start: 25 @38450 has 1 MA's), (Start: 36 @38399 has 62 MA's), (46, 38297), (58, 38243), (62, 38228), (63, 38219), (119, 38084), (135, 38030),

Gene: Pepe\_50 Start: 37214, Stop: 36804, Start Num: 37

Candidate Starts for Pepe\_50:

(Start: 37 @37214 has 160 MA's), (46, 37115), (58, 37061), (62, 37046), (63, 37037), (119, 36902), (135, 36836),

Gene: Perseus\_53 Start: 39320, Stop: 38919, Start Num: 36

Candidate Starts for Perseus\_53:

(Start: 25 @39371 has 1 MA's), (Start: 36 @39320 has 62 MA's), (46, 39218), (58, 39164), (62, 39149), (63, 39140), (119, 39005), (135, 38951),

Gene: Peterson\_58 Start: 40881, Stop: 40273, Start Num: 37

Candidate Starts for Peterson\_58:

(Start: 37 @40881 has 160 MA's), (46, 40782), (58, 40728), (62, 40713), (63, 40704), (119, 40569), (128, 40539), (152, 40485), (156, 40464), (159, 40443), (162, 40428), (165, 40395),

Gene: Petp2012\_54 Start: 38452, Stop: 37898, Start Num: 38

Candidate Starts for Petp2012\_54:

(16, 38536), (28, 38494), (35, 38464), (Start: 38 @38452 has 26 MA's), (46, 38353), (58, 38299), (62, 38284), (63, 38275), (119, 38140), (128, 38104), (152, 38053), (156, 38032), (163, 37993),

Gene: Petruccio\_53 Start: 38090, Stop: 37635, Start Num: 37

Candidate Starts for Petruccio\_53:

(Start: 37 @38090 has 160 MA's), (46, 37991), (58, 37937), (62, 37922), (63, 37913), (105, 37796), (110, 37766), (112, 37757), (116, 37745), (119, 37721), (135, 37667),

Gene: PetterN\_54 Start: 36924, Stop: 36436, Start Num: 36

Candidate Starts for PetterN\_54:

(Start: 36 @36924 has 62 MA's), (46, 36825), (54, 36783), (55, 36780), (58, 36771), (61, 36762), (105, 36558), (145, 36450),

Gene: Ph8s\_58 Start: 37416, Stop: 36925, Start Num: 33

Candidate Starts for Ph8s\_58:

(2, 37707), (5, 37632), (Start: 33 @37416 has 89 MA's), (53, 37275), (54, 37269), (58, 37257), (71, 37155), (100, 37068),

Gene: Pharaoh\_52 Start: 38002, Stop: 37490, Start Num: 33

Candidate Starts for Pharaoh\_52:

(Start: 33 @38002 has 89 MA's), (44, 37918), (54, 37849), (55, 37846), (58, 37837), (59, 37834), (68, 37765), (74, 37732), (138, 37549), (155, 37501), (157, 37495),

Gene: PherrisBueller\_53 Start: 37363, Stop: 36890, Start Num: 37

Candidate Starts for PherrisBueller\_53:

(Start: 37 @37363 has 160 MA's), (46, 37264), (58, 37210), (62, 37195), (63, 37186), (105, 37069), (110, 37021), (112, 37012), (116, 37000), (119, 36976), (135, 36922),

Gene: Phillis\_55 Start: 36641, Stop: 36165, Start Num: 33

Candidate Starts for Phillis\_55:

(Start: 33 @36641 has 89 MA's), (49, 36524), (54, 36488), (57, 36479), (58, 36476), (86, 36344), (131, 36209), (147, 36176),

Gene: Phlorence\_47 Start: 36408, Stop: 35941, Start Num: 36

Candidate Starts for Phlorence\_47:

(Start: 36 @36408 has 62 MA's), (46, 36309), (58, 36255), (59, 36252), (60, 36249), (121, 36012), (140, 35958),

Gene: PhrostyMug\_52 Start: 38599, Stop: 38198, Start Num: 36

Candidate Starts for PhrostyMug\_52:

(Start: 25 @38650 has 1 MA's), (Start: 36 @38599 has 62 MA's), (46, 38497), (58, 38443), (62, 38428), (63, 38419), (119, 38284), (135, 38230),

Gene: PickleBack\_49 Start: 36655, Stop: 36188, Start Num: 36  
Candidate Starts for PickleBack\_49:  
(Start: 36 @36655 has 62 MA's), (46, 36556), (58, 36502), (59, 36499), (60, 36496), (121, 36259),  
(140, 36205),

Gene: PinkPlastic\_54 Start: 38325, Stop: 37675, Start Num: 37  
Candidate Starts for PinkPlastic\_54:  
(Start: 37 @38325 has 160 MA's), (46, 38226), (58, 38172), (62, 38157), (63, 38148), (77, 38028),  
(119, 37932), (128, 37896), (152, 37842), (156, 37821), (161, 37800), (174, 37713),

Gene: Pinto\_53 Start: 38711, Stop: 38067, Start Num: 37  
Candidate Starts for Pinto\_53:  
(27, 38753), (Start: 34 @38723 has 4 MA's), (Start: 37 @38711 has 160 MA's), (46, 38612), (58,  
38558), (62, 38543), (63, 38534), (77, 38414), (119, 38318), (128, 38282), (152, 38231), (156, 38210),  
(159, 38189), (170, 38105),

Gene: Pippin\_55 Start: 38617, Stop: 38000, Start Num: 37  
Candidate Starts for Pippin\_55:  
(Start: 37 @38617 has 160 MA's), (46, 38518), (58, 38464), (62, 38449), (63, 38440), (119, 38305),  
(128, 38269), (152, 38215), (156, 38194),

Gene: Pita2\_56 Start: 38877, Stop: 38398, Start Num: 37  
Candidate Starts for Pita2\_56:  
(27, 38919), (Start: 34 @38889 has 4 MA's), (Start: 37 @38877 has 160 MA's), (46, 38778), (58,  
38724), (62, 38709), (63, 38700), (77, 38580), (119, 38484), (135, 38430),

Gene: Pmask\_58 Start: 37012, Stop: 36569, Start Num: 33  
Candidate Starts for Pmask\_58:  
(Start: 33 @37012 has 89 MA's), (57, 36868), (58, 36865), (64, 36838), (72, 36772), (94, 36712), (115,  
36667),

Gene: Pomar16\_59 Start: 38040, Stop: 37585, Start Num: 38  
Candidate Starts for Pomar16\_59:  
(Start: 38 @38040 has 26 MA's), (54, 37899), (58, 37887), (61, 37878), (67, 37824), (102, 37749),  
(106, 37728), (107, 37719), (148, 37605),

Gene: Power\_56 Start: 38208, Stop: 37714, Start Num: 33  
Candidate Starts for Power\_56:  
(Start: 33 @38208 has 89 MA's), (54, 38070), (56, 38064), (57, 38061), (58, 38058), (64, 38031), (66,  
38004), (72, 37965), (100, 37851), (125, 37776),

Gene: Priamo\_60 Start: 36762, Stop: 36328, Start Num: 33  
Candidate Starts for Priamo\_60:  
(Start: 33 @36762 has 89 MA's), (57, 36618), (58, 36615), (64, 36588), (72, 36522), (115, 36417),  
(142, 36339),

Gene: QueenB2\_56 Start: 38186, Stop: 37692, Start Num: 33  
Candidate Starts for QueenB2\_56:  
(Start: 33 @38186 has 89 MA's), (54, 38048), (56, 38042), (57, 38039), (58, 38036), (64, 38009), (66,  
37982), (72, 37943), (75, 37913), (81, 37892), (84, 37886),

Gene: QueenBeesly\_57 Start: 38155, Stop: 37661, Start Num: 33  
Candidate Starts for QueenBeesly\_57:

(Start: 33 @38155 has 89 MA's), (54, 38017), (56, 38011), (57, 38008), (58, 38005), (64, 37978), (66, 37951), (72, 37912), (75, 37882), (100, 37798), (125, 37723),

Gene: Quokka\_55 Start: 37152, Stop: 36703, Start Num: 33

Candidate Starts for Quokka\_55:

(Start: 33 @37152 has 89 MA's), (54, 37014), (56, 37008), (57, 37005), (58, 37002), (64, 36975), (66, 36948), (72, 36909), (128, 36738), (137, 36708),

Gene: Rachaly\_56 Start: 38454, Stop: 38050, Start Num: 33

Candidate Starts for Rachaly\_56:

(4, 38679), (5, 38670), (Start: 33 @38454 has 89 MA's), (54, 38319), (56, 38313), (57, 38310), (58, 38307), (64, 38280), (66, 38253), (72, 38214), (75, 38184), (97, 38115), (110, 38091),

Gene: Rahalelujah\_57 Start: 37729, Stop: 37271, Start Num: 33

Candidate Starts for Rahalelujah\_57:

(Start: 33 @37729 has 89 MA's), (54, 37591), (56, 37585), (57, 37582), (58, 37579), (64, 37552), (66, 37525), (72, 37486), (99, 37405), (125, 37333), (146, 37276),

Gene: Raid\_54 Start: 38288, Stop: 37695, Start Num: 37

Candidate Starts for Raid\_54:

(Start: 37 @38288 has 160 MA's), (46, 38189), (58, 38135), (62, 38120), (63, 38111), (119, 37976), (156, 37880),

Gene: Rajelicia\_54 Start: 39566, Stop: 39009, Start Num: 37

Candidate Starts for Rajelicia\_54:

(Start: 37 @39566 has 160 MA's), (46, 39467), (58, 39413), (62, 39398), (63, 39389), (119, 39254), (128, 39218), (152, 39164), (156, 39143), (163, 39104),

Gene: Refuge\_55 Start: 39270, Stop: 38728, Start Num: 33

Candidate Starts for Refuge\_55:

(3, 39543), (4, 39495), (5, 39486), (Start: 33 @39270 has 89 MA's), (46, 39171), (54, 39123), (58, 39111), (62, 39096), (83, 38964), (94, 38913), (149, 38766), (157, 38733),

Gene: Rhynn\_52 Start: 37733, Stop: 37335, Start Num: 37

Candidate Starts for Rhynn\_52:

(Start: 37 @37733 has 160 MA's), (46, 37634), (58, 37580), (62, 37565), (63, 37556), (119, 37421), (135, 37367),

Gene: RidgeCB\_53 Start: 38830, Stop: 38195, Start Num: 37

Candidate Starts for RidgeCB\_53:

(Start: 37 @38830 has 160 MA's), (46, 38731), (58, 38677), (62, 38662), (63, 38653), (77, 38533), (119, 38437), (128, 38401), (152, 38350), (156, 38329), (163, 38290),

Gene: Rifter\_59 Start: 36599, Stop: 36162, Start Num: 33

Candidate Starts for Rifter\_59:

(Start: 33 @36599 has 89 MA's), (57, 36455), (58, 36452), (64, 36425), (72, 36359), (115, 36251), (142, 36173),

Gene: Ringer\_54 Start: 39883, Stop: 39317, Start Num: 37

Candidate Starts for Ringer\_54:

(Start: 37 @39883 has 160 MA's), (46, 39784), (58, 39730), (62, 39715), (63, 39706), (119, 39571), (128, 39535), (152, 39481), (156, 39460), (161, 39439), (174, 39355),



Gene: Rohr\_54 Start: 38557, Stop: 38078, Start Num: 37

Candidate Starts for Rohr\_54:

(27, 38599), (Start: 34 @38569 has 4 MA's), (Start: 37 @38557 has 160 MA's), (46, 38458), (58, 38404), (62, 38389), (63, 38380), (77, 38260), (119, 38164), (135, 38110),

Gene: Roksolana\_60 Start: 37433, Stop: 36996, Start Num: 33

Candidate Starts for Roksolana\_60:

(Start: 33 @37433 has 89 MA's), (57, 37289), (58, 37286), (64, 37259), (72, 37193), (115, 37085), (142, 37007),

Gene: Rubeus\_53 Start: 36498, Stop: 35935, Start Num: 37

Candidate Starts for Rubeus\_53:

(27, 36540), (Start: 34 @36510 has 4 MA's), (Start: 37 @36498 has 160 MA's), (46, 36399), (58, 36345), (62, 36330), (63, 36321), (119, 36186), (128, 36150), (152, 36099), (156, 36078), (159, 36057), (170, 35973),

Gene: Rufus\_54 Start: 38103, Stop: 37705, Start Num: 37

Candidate Starts for Rufus\_54:

(27, 38145), (Start: 34 @38115 has 4 MA's), (Start: 37 @38103 has 160 MA's), (46, 38004), (58, 37950), (62, 37935), (63, 37926), (119, 37791), (135, 37737),

Gene: Ruotula\_56 Start: 39803, Stop: 39174, Start Num: 37

Candidate Starts for Ruotula\_56:

(Start: 37 @39803 has 160 MA's), (46, 39704), (58, 39650), (62, 39635), (63, 39626), (119, 39491), (128, 39455), (152, 39401), (156, 39380),

Gene: Rutherferd\_55 Start: 38949, Stop: 38551, Start Num: 37

Candidate Starts for Rutherferd\_55:

(Start: 37 @38949 has 160 MA's), (46, 38850), (58, 38796), (62, 38781), (63, 38772), (119, 38637), (126, 38610), (135, 38583),

Gene: STLscum\_56 Start: 39588, Stop: 38947, Start Num: 37

Candidate Starts for STLscum\_56:

(Start: 37 @39588 has 160 MA's), (46, 39489), (58, 39435), (62, 39420), (63, 39411), (106, 39282), (117, 39237), (119, 39225), (128, 39189), (152, 39135), (156, 39114), (163, 39075), (168, 39042),

Gene: Sagefire\_56 Start: 39529, Stop: 38915, Start Num: 37

Candidate Starts for Sagefire\_56:

(Start: 37 @39529 has 160 MA's), (46, 39430), (58, 39376), (62, 39361), (63, 39352), (119, 39217), (128, 39181), (152, 39127), (156, 39106), (163, 39067),

Gene: Sandaddy\_52 Start: 38282, Stop: 37716, Start Num: 37

Candidate Starts for Sandaddy\_52:

(Start: 37 @38282 has 160 MA's), (46, 38183), (58, 38129), (62, 38114), (63, 38105), (119, 37970), (128, 37934), (152, 37880), (156, 37859), (161, 37838), (174, 37754),

Gene: Sanya\_51 Start: 38572, Stop: 38009, Start Num: 37

Candidate Starts for Sanya\_51:

(Start: 37 @38572 has 160 MA's), (46, 38473), (58, 38419), (62, 38404), (63, 38395), (119, 38260), (128, 38224), (152, 38173), (156, 38152), (161, 38131), (174, 38047),

Gene: SarFire\_51 Start: 37844, Stop: 37278, Start Num: 37

Candidate Starts for SarFire\_51:

(Start: 37 @37844 has 160 MA's), (46, 37745), (58, 37691), (62, 37676), (63, 37667), (119, 37532), (152, 37442), (156, 37421), (161, 37400), (174, 37316),

Gene: Scorpia\_54 Start: 36983, Stop: 36492, Start Num: 36

Candidate Starts for Scorpia\_54:

(Start: 36 @36983 has 62 MA's), (46, 36884), (54, 36842), (55, 36839), (58, 36830), (61, 36821), (101, 36626), (105, 36617), (123, 36560), (145, 36506),

Gene: Scowl\_54 Start: 38673, Stop: 38194, Start Num: 37

Candidate Starts for Scowl\_54:

(Start: 37 @38673 has 160 MA's), (46, 38574), (58, 38520), (62, 38505), (63, 38496), (77, 38376), (119, 38280), (135, 38226),

Gene: Seabiscuit\_56 Start: 38458, Stop: 37811, Start Num: 37

Candidate Starts for Seabiscuit\_56:

(Start: 37 @38458 has 160 MA's), (46, 38359), (58, 38305), (62, 38290), (63, 38281), (77, 38161), (119, 38065), (128, 38029), (152, 37975), (156, 37954), (161, 37933), (171, 37876), (174, 37849),

Gene: Seanderson\_55 Start: 40050, Stop: 39571, Start Num: 37

Candidate Starts for Seanderson\_55:

(Start: 37 @40050 has 160 MA's), (46, 39951), (58, 39897), (62, 39882), (63, 39873), (77, 39753), (119, 39657), (135, 39603),

Gene: SemperFi\_58 Start: 38423, Stop: 37929, Start Num: 33

Candidate Starts for SemperFi\_58:

(Start: 33 @38423 has 89 MA's), (54, 38285), (56, 38279), (57, 38276), (58, 38273), (64, 38246), (66, 38219), (72, 38180), (75, 38150), (100, 38066), (125, 37991),

Gene: Serenity\_57 Start: 37359, Stop: 36895, Start Num: 33

Candidate Starts for Serenity\_57:

(Start: 33 @37359 has 89 MA's), (54, 37221), (56, 37215), (57, 37212), (58, 37209), (64, 37182), (66, 37155), (72, 37116), (97, 37035), (103, 37023), (128, 36945),

Gene: SheaKeira\_55 Start: 37666, Stop: 37181, Start Num: 38

Candidate Starts for SheaKeira\_55:

(Start: 38 @37666 has 26 MA's), (46, 37567), (58, 37513), (88, 37360), (106, 37327), (107, 37321), (124, 37264),

Gene: Sheen\_55 Start: 40022, Stop: 39528, Start Num: 38

Candidate Starts for Sheen\_55:

(Start: 38 @40022 has 26 MA's), (45, 39926), (58, 39869), (61, 39860), (63, 39845), (93, 39707),

Gene: ShortQueendom\_47 Start: 35302, Stop: 34736, Start Num: 36

Candidate Starts for ShortQueendom\_47:

(6, 35488), (20, 35368), (Start: 36 @35302 has 62 MA's), (41, 35269), (46, 35203), (58, 35149), (62, 35134), (63, 35125), (119, 34990), (128, 34954), (152, 34900), (156, 34879), (159, 34858), (170, 34774),

Gene: Sibs6\_55 Start: 37137, Stop: 36739, Start Num: 37

Candidate Starts for Sibs6\_55:

(27, 37179), (Start: 34 @37149 has 4 MA's), (Start: 37 @37137 has 160 MA's), (46, 37038), (58, 36984), (62, 36969), (63, 36960), (119, 36825), (135, 36771),

Gene: SkiPole\_58 Start: 39258, Stop: 38668, Start Num: 37

Candidate Starts for SkiPole\_58:

(Start: 37 @39258 has 160 MA's), (46, 39159), (58, 39105), (62, 39090), (63, 39081), (119, 38946), (128, 38910), (152, 38856), (156, 38835), (163, 38796), (168, 38763),

Gene: Slagathor\_55 Start: 39464, Stop: 38910, Start Num: 38

Candidate Starts for Slagathor\_55:

(28, 39506), (35, 39476), (Start: 38 @39464 has 26 MA's), (46, 39365), (58, 39311), (62, 39296), (63, 39287), (119, 39152), (128, 39116), (152, 39065), (156, 39044), (163, 39005),

Gene: Smairt\_55 Start: 39592, Stop: 39191, Start Num: 36

Candidate Starts for Smairt\_55:

(Start: 25 @39643 has 1 MA's), (Start: 36 @39592 has 62 MA's), (46, 39490), (58, 39436), (62, 39421), (63, 39412), (119, 39277), (135, 39223),

Gene: Smeadley\_56 Start: 36818, Stop: 36348, Start Num: 33

Candidate Starts for Smeadley\_56:

(1, 37103), (8, 36944), (Start: 33 @36818 has 89 MA's), (49, 36701), (54, 36665), (57, 36656), (58, 36653), (86, 36527), (127, 36410), (147, 36359),

Gene: Smeagol\_55 Start: 39706, Stop: 39155, Start Num: 34

Candidate Starts for Smeagol\_55:

(Start: 34 @39706 has 4 MA's), (Start: 37 @39694 has 160 MA's), (46, 39595), (58, 39541), (62, 39526), (63, 39517), (119, 39382), (128, 39346), (152, 39322), (156, 39301), (159, 39280), (170, 39193),

Gene: SmellyB\_58 Start: 37009, Stop: 36566, Start Num: 33

Candidate Starts for SmellyB\_58:

(Start: 33 @37009 has 89 MA's), (57, 36865), (58, 36862), (64, 36835), (72, 36769), (94, 36709), (115, 36664),

Gene: SnapTap\_57 Start: 38234, Stop: 37740, Start Num: 33

Candidate Starts for SnapTap\_57:

(Start: 33 @38234 has 89 MA's), (54, 38096), (56, 38090), (57, 38087), (58, 38084), (64, 38057), (66, 38030), (72, 37991), (75, 37961), (100, 37877), (125, 37802),

Gene: Snazzy\_52 Start: 37911, Stop: 37345, Start Num: 36

Candidate Starts for Snazzy\_52:

(6, 38097), (20, 37977), (Start: 36 @37911 has 62 MA's), (41, 37878), (46, 37812), (58, 37758), (62, 37743), (63, 37734), (119, 37599), (128, 37563), (152, 37509), (156, 37488), (159, 37467), (170, 37383),

Gene: Solon\_52 Start: 38166, Stop: 37603, Start Num: 37

Candidate Starts for Solon\_52:

(Start: 37 @38166 has 160 MA's), (46, 38067), (58, 38013), (62, 37998), (63, 37989), (119, 37854), (128, 37818), (152, 37767), (156, 37746), (161, 37725), (174, 37641),

Gene: SororFago\_59 Start: 39270, Stop: 38767, Start Num: 32

Candidate Starts for SororFago\_59:

(Start: 32 @39270 has 2 MA's), (54, 39135), (56, 39129), (57, 39126), (58, 39123), (64, 39096), (66, 39069), (72, 39030), (75, 39000), (81, 38979), (133, 38796),

Gene: Sorpresa\_52 Start: 38284, Stop: 37718, Start Num: 37

Candidate Starts for Sorpresa\_52:

(Start: 37 @38284 has 160 MA's), (46, 38185), (58, 38131), (62, 38116), (63, 38107), (119, 37972), (128, 37936), (152, 37882), (156, 37861), (161, 37840), (174, 37756),

Gene: SpikeBT\_53 Start: 38361, Stop: 37963, Start Num: 37

Candidate Starts for SpikeBT\_53:

(Start: 37 @38361 has 160 MA's), (46, 38262), (58, 38208), (62, 38193), (63, 38184), (119, 38049), (126, 38022), (135, 37995),

Gene: Squee\_54 Start: 38872, Stop: 38306, Start Num: 37

Candidate Starts for Squee\_54:

(Start: 37 @38872 has 160 MA's), (46, 38773), (58, 38719), (62, 38704), (63, 38695), (119, 38560), (128, 38524), (152, 38470), (156, 38449), (161, 38428), (171, 38371), (174, 38344),

Gene: StarStuff\_59 Start: 38002, Stop: 37547, Start Num: 38

Candidate Starts for StarStuff\_59:

(Start: 38 @38002 has 26 MA's), (54, 37861), (58, 37849), (61, 37840), (67, 37786), (102, 37711), (106, 37690), (107, 37681), (148, 37567),

Gene: Steamy\_53 Start: 37734, Stop: 37234, Start Num: 33

Candidate Starts for Steamy\_53:

(4, 37959), (5, 37950), (Start: 33 @37734 has 89 MA's), (40, 37725), (50, 37611), (54, 37596), (57, 37587), (58, 37584), (64, 37557), (66, 37530), (72, 37491), (76, 37458), (85, 37428), (87, 37413),

Gene: Stephig9\_56 Start: 36929, Stop: 36414, Start Num: 33

Candidate Starts for Stephig9\_56:

(8, 37055), (Start: 33 @36929 has 89 MA's), (48, 36815), (49, 36812), (57, 36767), (58, 36764), (80, 36617), (86, 36593), (92, 36572), (127, 36476), (147, 36425),

Gene: StewieG\_52 Start: 35689, Stop: 35123, Start Num: 37

Candidate Starts for StewieG\_52:

(Start: 37 @35689 has 160 MA's), (46, 35590), (58, 35536), (62, 35521), (63, 35512), (119, 35377), (128, 35341), (152, 35290), (156, 35269), (161, 35248), (174, 35161),

Gene: Sumter\_50 Start: 38825, Stop: 38259, Start Num: 37

Candidate Starts for Sumter\_50:

(Start: 37 @38825 has 160 MA's), (46, 38726), (58, 38672), (62, 38657), (63, 38648), (119, 38513), (128, 38477), (152, 38423), (156, 38402), (161, 38381), (171, 38324), (174, 38297),

Gene: Sunhee\_60 Start: 37715, Stop: 37224, Start Num: 31

Candidate Starts for Sunhee\_60:

(Start: 31 @37715 has 3 MA's), (54, 37577), (56, 37571), (57, 37568), (58, 37565), (64, 37538), (66, 37511), (69, 37484), (72, 37472), (78, 37436), (133, 37256),

Gene: Sunshine924\_55 Start: 37963, Stop: 37409, Start Num: 37

Candidate Starts for Sunshine924\_55:

(Start: 37 @37963 has 160 MA's), (46, 37864), (58, 37810), (62, 37795), (63, 37786), (119, 37651), (128, 37615), (152, 37564), (156, 37543), (163, 37504), (172, 37426),

Gene: SuperAwesome\_58 Start: 37014, Stop: 36580, Start Num: 33

Candidate Starts for SuperAwesome\_58:

(Start: 33 @37014 has 89 MA's), (57, 36870), (58, 36867), (64, 36840), (72, 36774), (94, 36714),

Gene: SuperCallie99\_57 Start: 36896, Stop: 36453, Start Num: 33  
Candidate Starts for SuperCallie99\_57:  
(Start: 33 @36896 has 89 MA's), (57, 36752), (58, 36749), (64, 36722), (72, 36656), (94, 36596), (115, 36551),

Gene: Superchunk\_55 Start: 36675, Stop: 36196, Start Num: 33  
Candidate Starts for Superchunk\_55:  
(5, 36891), (Start: 33 @36675 has 89 MA's), (53, 36513), (54, 36507), (58, 36495), (71, 36393), (92, 36324), (97, 36312), (114, 36270), (132, 36201),

Gene: SweetiePie\_57 Start: 38366, Stop: 37872, Start Num: 33  
Candidate Starts for SweetiePie\_57:  
(Start: 33 @38366 has 89 MA's), (54, 38228), (56, 38222), (57, 38219), (58, 38216), (64, 38189), (66, 38162), (72, 38123), (75, 38093), (100, 38009), (125, 37934),

Gene: SwirlSquare\_62 Start: 37597, Stop: 37061, Start Num: 33  
Candidate Starts for SwirlSquare\_62:  
(Start: 33 @37597 has 89 MA's), (43, 37522), (53, 37459), (54, 37453), (58, 37441), (71, 37339), (79, 37288), (97, 37240), (100, 37234), (123, 37168), (138, 37123), (158, 37066),

Gene: SwissCheese\_55 Start: 38485, Stop: 37919, Start Num: 37  
Candidate Starts for SwissCheese\_55:  
(Start: 37 @38485 has 160 MA's), (46, 38386), (58, 38332), (62, 38317), (63, 38308), (119, 38173), (128, 38137), (152, 38083), (156, 38062), (161, 38041), (171, 37984), (174, 37957),

Gene: Switzer\_55 Start: 39397, Stop: 38831, Start Num: 37  
Candidate Starts for Switzer\_55:  
(Start: 37 @39397 has 160 MA's), (46, 39298), (58, 39244), (62, 39229), (63, 39220), (119, 39085), (128, 39049), (152, 38995), (156, 38974), (161, 38953), (171, 38896), (174, 38869),

Gene: Swole\_54 Start: 37668, Stop: 37102, Start Num: 37  
Candidate Starts for Swole\_54:  
(27, 37710), (Start: 34 @37680 has 4 MA's), (Start: 37 @37668 has 160 MA's), (46, 37569), (58, 37515), (62, 37500), (63, 37491), (119, 37356), (128, 37320), (152, 37266), (156, 37245), (159, 37224), (167, 37167), (170, 37140),

Gene: SydNat\_52 Start: 37663, Stop: 37196, Start Num: 36  
Candidate Starts for SydNat\_52:  
(27, 37699), (Start: 36 @37663 has 62 MA's), (46, 37564), (58, 37510), (59, 37507), (60, 37504), (61, 37501), (121, 37267), (140, 37213),

Gene: Target\_54 Start: 37073, Stop: 36507, Start Num: 37  
Candidate Starts for Target\_54:  
(Start: 37 @37073 has 160 MA's), (46, 36974), (58, 36920), (62, 36905), (63, 36896), (119, 36761), (128, 36725), (152, 36671), (156, 36650), (161, 36629), (174, 36545),

Gene: Tasp14\_55 Start: 38871, Stop: 38200, Start Num: 37  
Candidate Starts for Tasp14\_55:  
(Start: 37 @38871 has 160 MA's), (46, 38772), (58, 38718), (62, 38703), (63, 38694), (95, 38574), (119, 38478), (128, 38442), (152, 38388), (156, 38367), (163, 38328), (168, 38295),

Gene: Temprado\_61 Start: 37472, Stop: 37029, Start Num: 33  
Candidate Starts for Temprado\_61:

(Start: 33 @37472 has 89 MA's), (57, 37328), (58, 37325), (64, 37298), (72, 37232), (94, 37172), (115, 37127),

Gene: Teodoridan\_52 Start: 37810, Stop: 37400, Start Num: 37

Candidate Starts for Teodoridan\_52:

(Start: 37 @37810 has 160 MA's), (46, 37711), (58, 37657), (62, 37642), (63, 37633), (119, 37498), (135, 37432),

Gene: Theia\_48 Start: 37140, Stop: 36673, Start Num: 36

Candidate Starts for Theia\_48:

(27, 37176), (Start: 36 @37140 has 62 MA's), (46, 37041), (58, 36987), (59, 36984), (60, 36981), (62, 36972), (121, 36744), (140, 36690),

Gene: TheloniousMonk\_54 Start: 40538, Stop: 39924, Start Num: 37

Candidate Starts for TheloniousMonk\_54:

(Start: 37 @40538 has 160 MA's), (46, 40439), (58, 40385), (62, 40370), (63, 40361), (119, 40226), (128, 40190), (152, 40136), (156, 40115), (159, 40094), (162, 40079), (165, 40046),

Gene: Thor\_51 Start: 37202, Stop: 36636, Start Num: 37

Candidate Starts for Thor\_51:

(Start: 37 @37202 has 160 MA's), (46, 37103), (58, 37049), (62, 37034), (63, 37025), (119, 36890), (152, 36800), (156, 36779), (161, 36758), (174, 36674),

Gene: Tiger\_48 Start: 36329, Stop: 35862, Start Num: 36

Candidate Starts for Tiger\_48:

(Start: 36 @36329 has 62 MA's), (46, 36230), (58, 36176), (59, 36173), (60, 36170), (121, 35933), (140, 35879),

Gene: Timshel\_51 Start: 38839, Stop: 38318, Start Num: 38

Candidate Starts for Timshel\_51:

(17, 38905), (19, 38899), (Start: 38 @38839 has 26 MA's), (46, 38740), (52, 38707), (58, 38686), (59, 38683), (61, 38677), (62, 38671), (98, 38488),

Gene: TipsytheTRex\_53 Start: 37429, Stop: 36965, Start Num: 33

Candidate Starts for TipsytheTRex\_53:

(Start: 33 @37429 has 89 MA's), (56, 37285), (57, 37282), (58, 37279), (64, 37252), (66, 37225), (72, 37186), (97, 37105), (103, 37093), (128, 37015),

Gene: Toaka\_57 Start: 37937, Stop: 37467, Start Num: 33

Candidate Starts for Toaka\_57:

(Start: 33 @37937 has 89 MA's), (50, 37814), (54, 37799), (57, 37790), (58, 37787), (64, 37760), (66, 37733), (72, 37694), (97, 37604), (111, 37574), (146, 37472),

Gene: Tomathan\_59 Start: 38049, Stop: 37594, Start Num: 38

Candidate Starts for Tomathan\_59:

(Start: 38 @38049 has 26 MA's), (54, 37908), (58, 37896), (61, 37887), (67, 37833), (106, 37737), (107, 37728), (148, 37614),

Gene: ToneTone\_56 Start: 37032, Stop: 36589, Start Num: 33

Candidate Starts for ToneTone\_56:

(Start: 33 @37032 has 89 MA's), (57, 36888), (58, 36885), (64, 36858), (72, 36792), (94, 36732), (115, 36687),

Gene: Topgun\_53 Start: 38055, Stop: 37489, Start Num: 37

Candidate Starts for Topgun\_53:

(Start: 37 @38055 has 160 MA's), (46, 37956), (58, 37902), (62, 37887), (63, 37878), (119, 37743), (128, 37707), (152, 37656), (156, 37635), (161, 37614), (174, 37527),

Gene: Toro\_57 Start: 40134, Stop: 39640, Start Num: 38

Candidate Starts for Toro\_57:

(Start: 38 @40134 has 26 MA's), (45, 40038), (58, 39981), (61, 39972), (63, 39957), (93, 39819),

Gene: Tote\_49 Start: 34947, Stop: 34369, Start Num: 34

Candidate Starts for Tote\_49:

(27, 34977), (Start: 34 @34947 has 4 MA's), (Start: 37 @34935 has 160 MA's), (46, 34836), (58, 34782), (62, 34767), (63, 34758), (119, 34623), (128, 34587), (152, 34533), (156, 34512), (159, 34491), (167, 34434), (170, 34407),

Gene: Traft412\_56 Start: 39446, Stop: 38832, Start Num: 37

Candidate Starts for Traft412\_56:

(Start: 37 @39446 has 160 MA's), (46, 39347), (58, 39293), (62, 39278), (63, 39269), (119, 39134), (128, 39098), (152, 39044), (156, 39023), (159, 39002), (162, 38987), (165, 38954),

Gene: Travvers\_59 Start: 37999, Stop: 37544, Start Num: 38

Candidate Starts for Travvers\_59:

(Start: 38 @37999 has 26 MA's), (54, 37858), (58, 37846), (61, 37837), (67, 37783), (102, 37708), (106, 37687), (107, 37678), (148, 37564),

Gene: Treddle\_54 Start: 38978, Stop: 38580, Start Num: 37

Candidate Starts for Treddle\_54:

(Start: 37 @38978 has 160 MA's), (46, 38879), (58, 38825), (62, 38810), (63, 38801), (119, 38666), (135, 38612),

Gene: Tripl3t\_53 Start: 39615, Stop: 39205, Start Num: 37

Candidate Starts for Tripl3t\_53:

(Start: 34 @39627 has 4 MA's), (Start: 37 @39615 has 160 MA's), (46, 39516), (58, 39462), (62, 39447), (63, 39438), (119, 39303), (146, 39237),

Gene: Trixie\_55 Start: 38251, Stop: 37799, Start Num: 33

Candidate Starts for Trixie\_55:

(Start: 33 @38251 has 89 MA's), (54, 38113), (56, 38107), (57, 38104), (58, 38101), (64, 38074), (66, 38047), (72, 38008), (101, 37927),

Gene: Trouble\_56 Start: 39709, Stop: 39311, Start Num: 37

Candidate Starts for Trouble\_56:

(Start: 37 @39709 has 160 MA's), (46, 39610), (58, 39556), (62, 39541), (63, 39532), (119, 39397), (135, 39343),

Gene: Tucker\_59 Start: 37201, Stop: 36758, Start Num: 33

Candidate Starts for Tucker\_59:

(Start: 33 @37201 has 89 MA's), (57, 37057), (58, 37054), (64, 37027), (72, 36961), (94, 36901), (115, 36856),

Gene: Turj99\_52 Start: 38730, Stop: 38170, Start Num: 37

Candidate Starts for Turj99\_52:

(Start: 37 @38730 has 160 MA's), (46, 38631), (58, 38577), (62, 38562), (63, 38553), (119, 38418), (128, 38382), (152, 38328), (156, 38307), (174, 38208),

Gene: TwoPeat\_54 Start: 38091, Stop: 37693, Start Num: 37

Candidate Starts for TwoPeat\_54:

(27, 38133), (Start: 34 @38103 has 4 MA's), (Start: 37 @38091 has 160 MA's), (46, 37992), (58, 37938), (62, 37923), (63, 37914), (119, 37779), (135, 37725),

Gene: U2\_53 Start: 39377, Stop: 38811, Start Num: 37

Candidate Starts for U2\_53:

(Start: 37 @39377 has 160 MA's), (46, 39278), (58, 39224), (62, 39209), (63, 39200), (119, 39065), (128, 39029), (152, 38975), (156, 38954), (161, 38933), (174, 38849),

Gene: UnionJack\_51 Start: 36473, Stop: 35982, Start Num: 36

Candidate Starts for UnionJack\_51:

(Start: 36 @36473 has 62 MA's), (46, 36374), (51, 36347), (54, 36332), (55, 36329), (58, 36320), (61, 36311), (73, 36209), (105, 36107), (145, 35996),

Gene: VC3\_60 Start: 38397, Stop: 37942, Start Num: 38

Candidate Starts for VC3\_60:

(Start: 38 @38397 has 26 MA's), (54, 38256), (58, 38244), (61, 38235), (67, 38181), (102, 38106), (106, 38085), (107, 38076), (148, 37962),

Gene: Vanisoa\_57 Start: 39057, Stop: 38596, Start Num: 33

Candidate Starts for Vanisoa\_57:

(Start: 33 @39057 has 89 MA's), (50, 38934), (54, 38919), (57, 38910), (58, 38907), (64, 38880), (66, 38853), (72, 38814), (146, 38601),

Gene: Violet\_51 Start: 38989, Stop: 38588, Start Num: 36

Candidate Starts for Violet\_51:

(Start: 25 @39040 has 1 MA's), (Start: 36 @38989 has 62 MA's), (46, 38887), (58, 38833), (62, 38818), (63, 38809), (119, 38674), (135, 38620),

Gene: VohminGhazi\_58 Start: 37010, Stop: 36567, Start Num: 33

Candidate Starts for VohminGhazi\_58:

(Start: 33 @37010 has 89 MA's), (57, 36866), (58, 36863), (64, 36836), (72, 36770), (94, 36710), (115, 36665),

Gene: Watermelon\_54 Start: 38595, Stop: 38029, Start Num: 37

Candidate Starts for Watermelon\_54:

(Start: 37 @38595 has 160 MA's), (46, 38496), (58, 38442), (62, 38427), (63, 38418), (119, 38283), (128, 38247), (152, 38193), (156, 38172), (161, 38151), (173, 38085), (174, 38067),

Gene: WeiHuaDA\_59 Start: 39056, Stop: 38604, Start Num: 33

Candidate Starts for WeiHuaDA\_59:

(Start: 33 @39056 has 89 MA's), (54, 38918), (56, 38912), (57, 38909), (58, 38906), (64, 38879), (66, 38852), (72, 38813), (86, 38774), (97, 38741),

Gene: Wheeler\_54 Start: 38471, Stop: 38073, Start Num: 37

Candidate Starts for Wheeler\_54:

(Start: 37 @38471 has 160 MA's), (46, 38372), (58, 38318), (62, 38303), (63, 38294), (119, 38159), (135, 38105),



Gene: Wiks\_58 Start: 37103, Stop: 36660, Start Num: 33

Candidate Starts for Wiks\_58:

(Start: 33 @37103 has 89 MA's), (57, 36959), (58, 36956), (64, 36929), (72, 36863), (94, 36803), (115, 36758),

Gene: Wilkins\_53 Start: 37985, Stop: 37419, Start Num: 37

Candidate Starts for Wilkins\_53:

(Start: 37 @37985 has 160 MA's), (46, 37886), (58, 37832), (62, 37817), (63, 37808), (119, 37673), (128, 37637), (152, 37586), (156, 37565), (161, 37544), (174, 37457),

Gene: WunderPhul\_59 Start: 37101, Stop: 36658, Start Num: 33

Candidate Starts for WunderPhul\_59:

(Start: 33 @37101 has 89 MA's), (57, 36957), (58, 36954), (64, 36927), (72, 36861), (94, 36801), (115, 36756),

Gene: Yecey3\_58 Start: 37824, Stop: 37375, Start Num: 38

Candidate Starts for Yecey3\_58:

(Start: 38 @37824 has 26 MA's), (54, 37683), (58, 37671), (63, 37647), (88, 37545), (106, 37509), (126, 37437), (151, 37380),

Gene: Yokurt\_59 Start: 37103, Stop: 36660, Start Num: 33

Candidate Starts for Yokurt\_59:

(Start: 33 @37103 has 89 MA's), (57, 36959), (58, 36956), (64, 36929), (72, 36863), (94, 36803), (115, 36758),

Gene: Zaka\_59 Start: 37103, Stop: 36660, Start Num: 33

Candidate Starts for Zaka\_59:

(Start: 33 @37103 has 89 MA's), (57, 36959), (58, 36956), (64, 36929), (72, 36863), (94, 36803), (115, 36758),

Gene: Zeeculate\_51 Start: 39028, Stop: 38627, Start Num: 36

Candidate Starts for Zeeculate\_51:

(Start: 25 @39079 has 1 MA's), (Start: 36 @39028 has 62 MA's), (46, 38926), (58, 38872), (62, 38857), (63, 38848), (119, 38713), (135, 38659),

Gene: Zephyr\_53 Start: 38133, Stop: 37516, Start Num: 37

Candidate Starts for Zephyr\_53:

(15, 38217), (Start: 34 @38145 has 4 MA's), (Start: 37 @38133 has 160 MA's), (46, 38034), (58, 37980), (62, 37965), (63, 37956), (119, 37821), (128, 37785), (152, 37731), (156, 37710),

Gene: Zeuska\_52 Start: 38962, Stop: 38564, Start Num: 37

Candidate Starts for Zeuska\_52:

(Start: 37 @38962 has 160 MA's), (46, 38863), (58, 38809), (62, 38794), (63, 38785), (119, 38650), (135, 38596),

Gene: Zimmer\_54 Start: 38954, Stop: 38418, Start Num: 33

Candidate Starts for Zimmer\_54:

(3, 39227), (4, 39179), (5, 39170), (Start: 33 @38954 has 89 MA's), (54, 38807), (58, 38795), (62, 38780), (83, 38648), (92, 38609), (157, 38423),

Gene: Zolita\_51 Start: 37667, Stop: 37200, Start Num: 36

Candidate Starts for Zolita\_51:

(27, 37703), (Start: 36 @37667 has 62 MA's), (46, 37568), (58, 37514), (59, 37511), (60, 37508), (61, 37505), (121, 37271), (140, 37217),

Gene: Zulu\_60 Start: 37481, Stop: 37038, Start Num: 33

Candidate Starts for Zulu\_60:

(Start: 33 @37481 has 89 MA's), (57, 37337), (58, 37334), (64, 37307), (72, 37241), (94, 37181), (115, 37136),