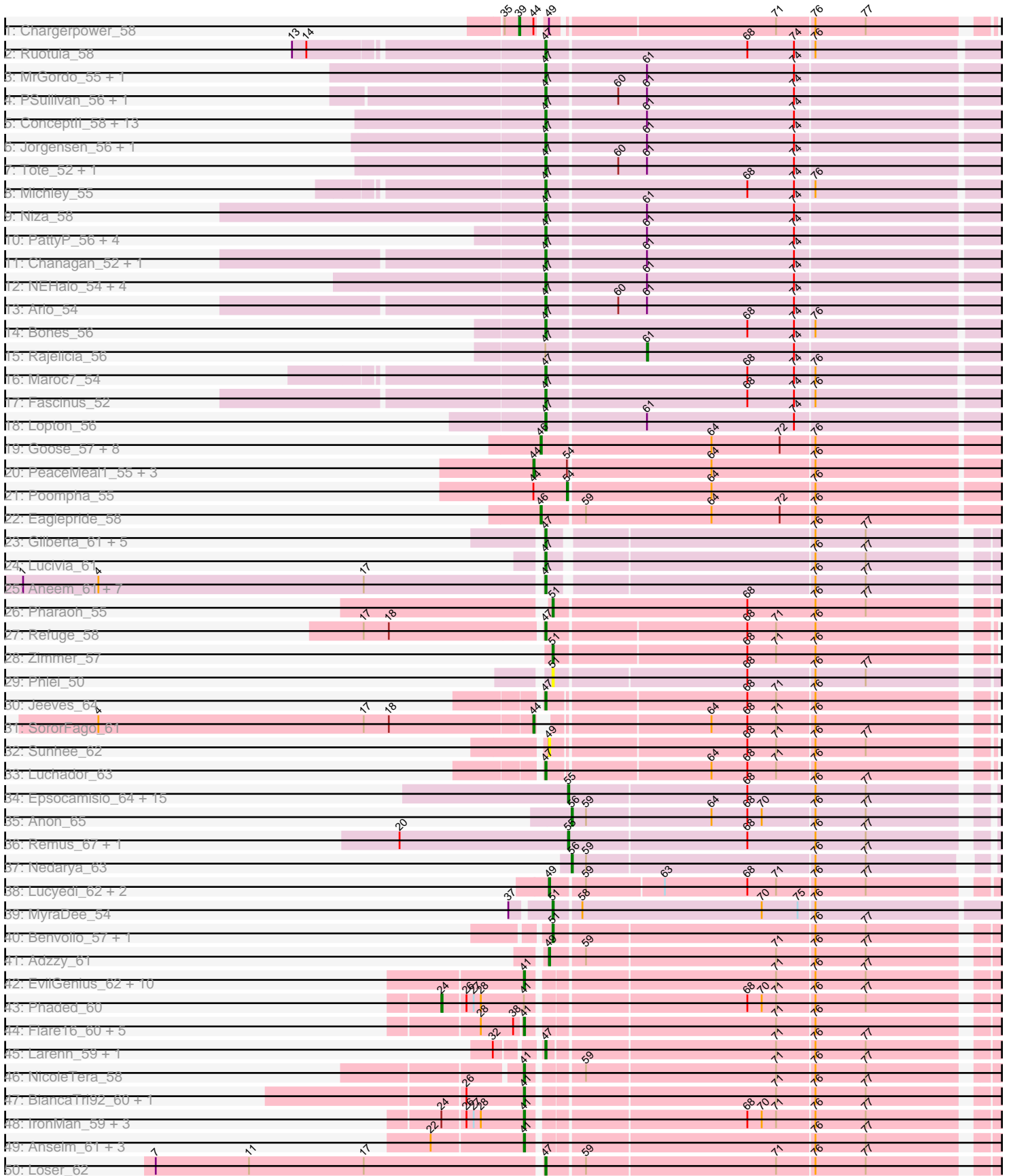
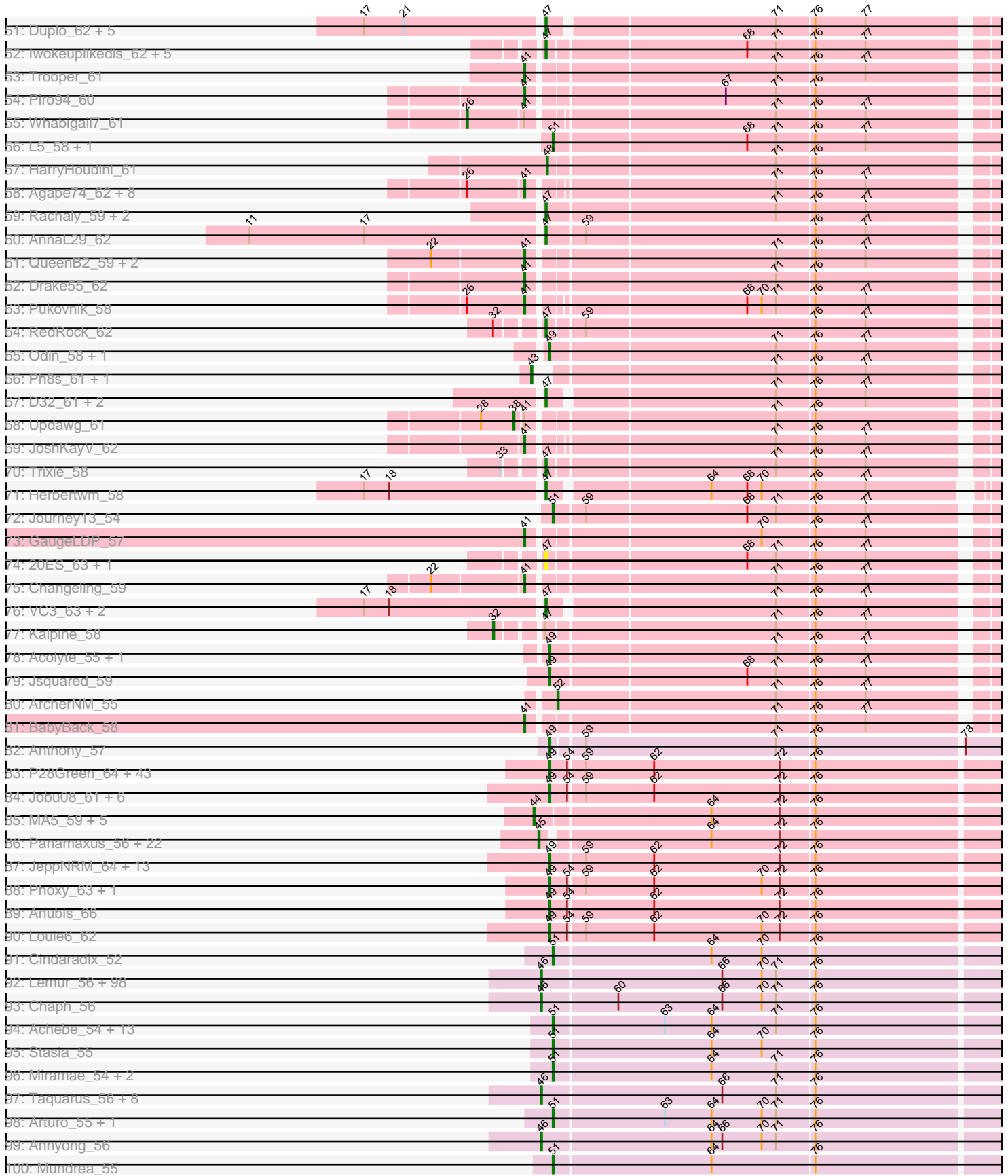


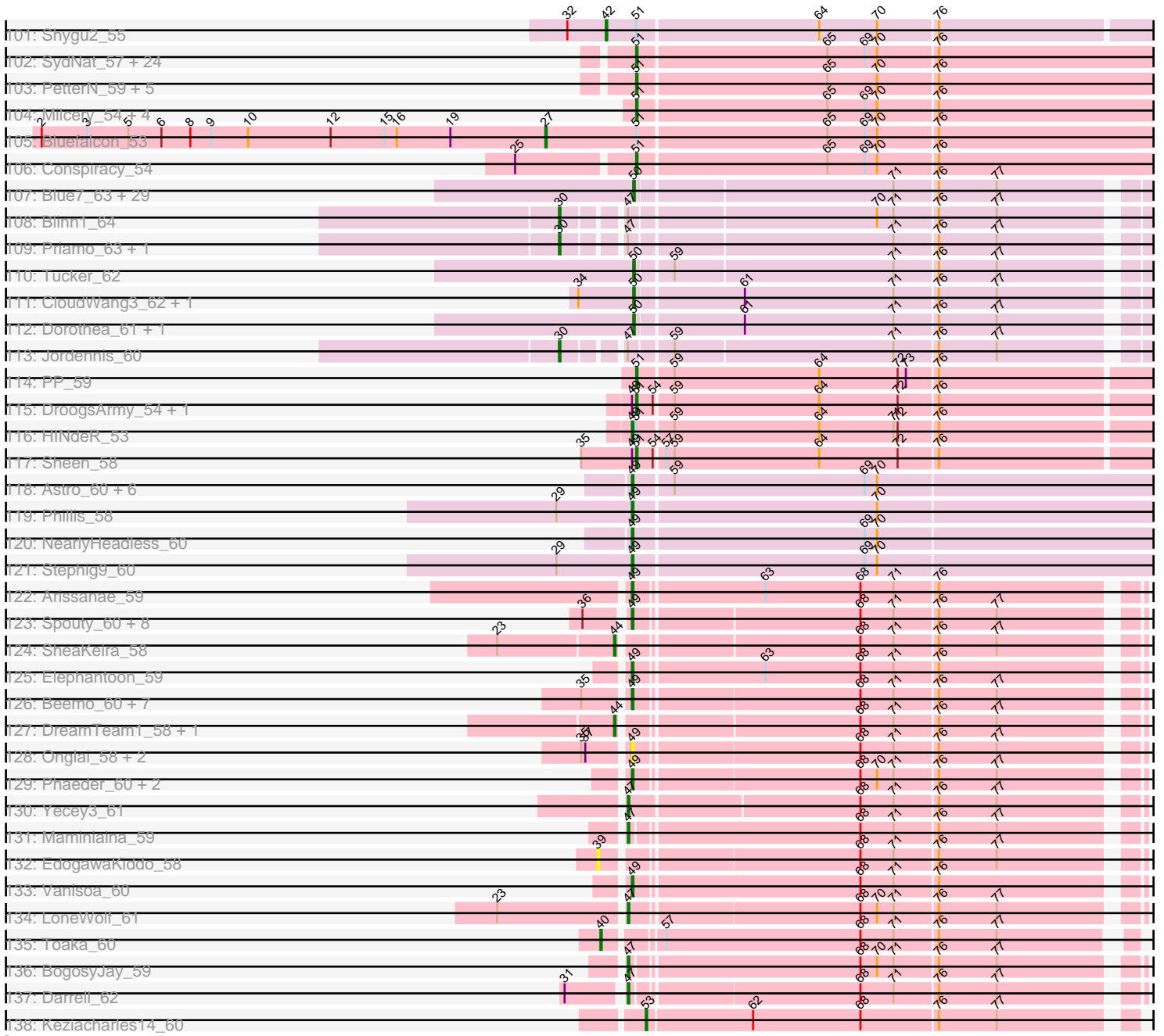
# Pham 192177



# Pham 192177



Pham 192177



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 192177 Report

This analysis was run 11/02/24 on database version 579.

Pham number 192177 has 564 members, 8 are drafts.

Phages represented in each track:

- Track 1 : Chargerpower\_58
- Track 2 : Ruotula\_58
- Track 3 : MrGordo\_55, Bethlehem\_56
- Track 4 : PSullivan\_56, Pita2\_59
- Track 5 : ConceptII\_58, Burton\_56, Euphoria\_53, Rohr\_57, Jerm2\_57, HermioneGrange\_56, Gandalf20\_58, Watermelon\_56, Museum\_57, Atkinbua\_59, Slagathor\_58, BigMau\_57, Manatee\_57, Espresso\_55
- Track 6 : Jorgensen\_56, Ohno789\_57
- Track 7 : Tote\_52, JuliaChild\_57
- Track 8 : Michley\_55
- Track 9 : Niza\_58
- Track 10 : PattyP\_56, Killigrew\_56, KBG\_56, Anglerfish\_57, TwoPeat\_57
- Track 11 : Chanagan\_52, Ringer\_56
- Track 12 : NEHalo\_54, GageAP\_56, AFIS\_53, SpikeBT\_55, KSSJEB\_55
- Track 13 : Arlo\_54
- Track 14 : Bones\_56
- Track 15 : Rajelicia\_56
- Track 16 : Maroc7\_54
- Track 17 : Fascinus\_52
- Track 18 : Lopton\_56
- Track 19 : Goose\_57, OKCentral2016\_56, Chupacabra\_55, Twister\_55, Topanga\_54, WalterMcMickey\_55, RhynO\_57, Kristoff\_56, Rebeuca\_57
- Track 20 : PeaceMeal1\_55, Severus\_55, Drake94\_55, KittenMittens\_54
- Track 21 : Poompha\_55
- Track 22 : Eaglepride\_58
- Track 23 : Gilberta\_61, Insomnia\_61, Sham4\_60, Bowtie\_61, Snape\_60, Timothy\_60
- Track 24 : Lucivia\_61
- Track 25 : Aneem\_61, Flaverint\_61, Joselito\_61, TinyTimmy\_60, Bachome\_62, Jabith\_61, Ebony\_60, Fibonacci\_60
- Track 26 : Pharaoh\_55
- Track 27 : Refuge\_58
- Track 28 : Zimmer\_57
- Track 29 : Phlei\_50
- Track 30 : Jeeves\_64
- Track 31 : SororFago\_61
- Track 32 : Sunhee\_62

- Track 33 : Luchador\_63
- Track 34 : Epsocamisio\_64, Anaysia\_67, Boohoo\_67, Rosalind\_65, Battleship\_69, DekHockey33\_68, Looper\_66, Waits\_67, MinecraftSteve\_67, JSwag\_66, Nebulosus\_65, ShayRa\_67, Soups\_67, Switzerland\_66, KatherineG\_67, LastResort\_65
- Track 35 : Anon\_65
- Track 36 : Remus\_67, Strosahl\_67
- Track 37 : Nedarya\_63
- Track 38 : Lucyedi\_62, EagleEye\_63, PainterBoy\_62
- Track 39 : MyraDee\_54
- Track 40 : Benvolio\_57, Echild\_60
- Track 41 : Adzzy\_61
- Track 42 : EvilGenius\_62, Power\_59, SemperFi\_61, QueenBeesly\_60, Georgie2\_61, SnapTap\_60, Crucio\_60, SweetiePie\_60, XianYue\_58, ChipMunk\_62, FiringLine\_60
- Track 43 : Phaded\_60
- Track 44 : Flare16\_60, MiculUcigas\_60, Baehexic\_59, Centaur\_61, WideWale\_61, NaSiaTalie\_60
- Track 45 : Larenn\_59, Malec\_60
- Track 46 : NicoleTera\_58
- Track 47 : BiancaTri92\_60, Leogania\_60
- Track 48 : IronMan\_59, Jaan\_60, Bactobuster\_58, Landor\_60
- Track 49 : Anselm\_61, DudeLittle\_59, Retro23\_61, Dalmatian\_61
- Track 50 : Loser\_62
- Track 51 : Duplo\_62, StarStuff\_62, Kerberos\_62, DBQu4n\_62, Tomathan\_62, Pomar16\_99
- Track 52 : Iwokeuplikedis\_62, AN3\_63, LadyBird\_65, VA6\_61, Deloris\_61, BengiVuitton\_61
- Track 53 : Trooper\_61
- Track 54 : Piro94\_60
- Track 55 : Whabigail7\_61
- Track 56 : L5\_58, TipsytheTRex\_57
- Track 57 : HarryHoudini\_61
- Track 58 : Agape74\_62, AbbyPaige\_62, Buggy\_62, LilTurb\_61, Dignity\_62, Jerm\_62, Leviathan\_62, Smeagan\_63, Turbido\_61
- Track 59 : Rachaly\_59, Lokk\_57, BobSwaget\_56
- Track 60 : AnnaL29\_62
- Track 61 : QueenB2\_59, Heffalump\_59, Fameo\_60
- Track 62 : Drake55\_62
- Track 63 : Pukovnik\_58
- Track 64 : RedRock\_62
- Track 65 : Odin\_58, Superchunk\_58
- Track 66 : Ph8s\_61, Che12\_61
- Track 67 : D32\_61, Naji\_62, D29\_58
- Track 68 : Updawg\_61
- Track 69 : JoshKayV\_62
- Track 70 : Trixie\_58
- Track 71 : Herbertwm\_58
- Track 72 : Journey13\_54
- Track 73 : GaugeLDP\_57
- Track 74 : 20ES\_63, First\_0062
- Track 75 : Changeling\_59
- Track 76 : VC3\_63, AN9\_63, ANI8\_63

- Track 77 : Kalpine\_58
- Track 78 : Acolyte\_55, NothingSpecial\_58
- Track 79 : Jsquared\_59
- Track 80 : ArcherNM\_55
- Track 81 : BabyBack\_58
- Track 82 : Anthony\_57
- Track 83 : P28Green\_64, GtownJaz\_63, Penny1\_64, HashRod\_64, Sabinator\_62, Malinsilva\_65, Wooldri\_65, Bxz2\_58, LBerry\_64, KADY\_63, Mainiac\_63, Phoebe\_64, Grub\_63, Cullens\_63, Beauxregard13\_63, AgronaGT15\_62, LarryKay\_63, LugYA\_66, Sabia\_63, Lilith\_63, Hercules11\_63, Methuselah\_58, PGHhamlin\_65, BuzzBuzz\_60, EpicPhail\_64, Dieselweasel\_64, MarQuardt\_63, SoYo\_63, Daishi\_62, GingkoMaracino\_63, BreSam8\_63, Pembroke\_63, Soshari\_65, Misomonster\_64, MuchMore\_66, Farber\_63, JenCasNa\_64, Grif\_63, Taurus\_64, Fernando\_63, Tiffany\_62, Aglet\_64, Grum1\_63, AugsMagnumOpus\_66
- Track 84 : Jobu08\_61, Stagni\_63, Ollie\_63, SoilDragon\_63, Zetzy\_62, MadMarie\_63, Rummer\_62
- Track 85 : MA5\_59, JF4\_57, Phantastic\_60, JF2\_57, MK4\_59, Isca\_58
- Track 86 : Panamaxus\_56, Lambert1\_58, Caviar\_58, Noella\_58, Popcicle\_58, ResDef\_58, BabyRay\_59, HelDan\_59, Idleandcovert\_59, Hookmount\_58, Pistachio\_60, Puppy\_60, Fred313\_58, Scout\_59, Pocahontas\_58, Texage\_57, TNguyen7\_60, Heathen\_59, Margo\_58, Todacoro\_58, QuinnKiro\_57, Veracruz\_57, BlueBird\_61
- Track 87 : JeppNRM\_64, Phranny\_64, Kalnok\_64, Kalb97\_64, OlanP\_62, Heliosoles\_62, Manu\_63, PhishRPhriends\_61, HaveUMetTed\_64, Groupthink\_64, Reba\_63, Gemma\_62, Marius\_64, PurpleHaze\_63
- Track 88 : Phoxy\_63, Spike509\_63
- Track 89 : Anubis\_66
- Track 90 : Louie6\_62
- Track 91 : Cindaradix\_52
- Track 92 : Lemur\_56, Koreni\_55, Ulysses\_55, Phighter1804\_56, JetBlade\_56, TroyPia\_57, Caelakin\_56, LittleB\_56, Iceman\_56, DirtyDunning\_55, Phacado\_56, Wizard007\_56, BubbleTrouble\_55, Skipitt\_55, Eurydice\_57, Kremtemulon\_56, MeeZee\_56, Florean\_56, Roosevelt\_55, Avle17\_56, Spino\_55, Pipcraft\_54, Dhanush\_56, Medusa\_56, Eagle\_56, NorthStar\_55, Commander\_56, BellusTerra\_57, Connomayer\_56, KFPoly\_55, Eros\_56, HamSlice\_54, Blackmoor\_56, Peaches\_55, LittleGuy\_56, Clarenza\_55, Eapen\_56, Deano\_55, Citius\_56, Ohfah\_57, Palestino\_55, Funston\_55, OKaNui\_56, ICleared\_56, Wilbur\_56, Phontbonne\_56, JoongJeon\_55, Mazhar510\_56, TygerBlood\_56, Polymorphads\_57, Millski\_55, Gadost\_56, Nebs\_57, NotAPhaseMom\_56, Sabertooth\_56, Abdiel\_56, Lunsford\_57, Bartimeaus\_56, Morrow\_57, Bruiser\_55, Burger\_54, Baby16\_56, Albee\_56, Iracema64\_57, Maxo\_57, Flux\_56, Houdini22\_56, Cintron\_55, Eris\_55, Sparxx\_57, TiroTheta9\_56, Pumbaa\_56, Lorenzo\_56, YoSam321\_56, Kingmustik0402\_56, LochMonster\_57, Jaykayelowell\_54, Relief\_55, TinaFeyge\_55, Melvin\_58, Wander\_56, Nemo27\_56, PeterPeter\_56, Bombshell\_56, Phelipe\_57, Alberto7\_57, Thanksgivukkah\_55, Camperdownii\_54, Scamp\_56, LappelDuVide\_56, Nyxis\_56, Tinybot\_55, Druantia\_56, Broseidon\_56, Cocoaberry\_56, Holli\_55, CentreCat\_56, Kyee\_56, Kampy\_55
- Track 93 : Chaph\_56
- Track 94 : Achebe\_54, Badger\_54, Bumblebee11\_54, Cici\_55, Xena\_54, Datway\_55, PetiteSangsue\_55, Wile\_55, Katalie136\_55, Morpher26\_55, AbbysRanger\_55, Noelle\_56, Backyardigan\_53, Perplexer\_55
- Track 95 : Stasia\_55
- Track 96 : Miramae\_54, AvatarAhPeg\_54, Stink\_54

- Track 97 : Taquarus\_56, LHTSCC\_58, BangNhom\_56, Obama12\_57, Cerulean\_57, Happiness\_55, Ruin\_56, SheldonCooper\_57, ChampagnePapi\_58
- Track 98 : Arturo\_55, Kratak\_56
- Track 99 : Annyong\_56
- Track 100 : Mundrea\_55
- Track 101 : Shygu2\_55
- Track 102 : SydNat\_57, Jovo\_54, UnionJack\_88, Aragog\_53, Cuco\_54, Archetta\_53, Tiger\_53, Benedict\_58, ForGetIt\_54, Tarynearal\_52, Dublin\_54, Coog\_53, MarysWell\_54, Discoknowium\_52, Midas2\_53, Jabiru\_56, PickleBack\_54, Ghoulyboy\_57, Swirley\_56, Phlorence\_52, Theia\_53, Zolita\_56, Lev2\_54, AgentM\_53, Micasa\_55
- Track 103 : PetterN\_59, Chadwick\_58, Scorpia\_59, Airmid\_55, Naca\_55, EITiger69\_57
- Track 104 : Milcery\_54, George\_52, LittleCherry\_54, HuhtaEnerson15\_54, Bonamassa\_54
- Track 105 : Bluefalcon\_53
- Track 106 : Conspiracy\_54
- Track 107 : Blue7\_63, Kipper29\_61, GreedyLawyer\_60, SuperAwesome\_61, McFly\_61, Gruunaga\_62, Hammer\_62, Pmask\_60, VohminGhazi\_61, Rifter\_62, Isiphiwo\_59, Wiks\_61, Cookiedough\_61, Newrala\_61, SmellyB\_61, Gladiator\_59, Kazan\_62, EricB\_60, Neeharika16\_60, Hoot\_56, ToneTone\_59, Lilbunny\_61, Jeffabunny\_62, Artemis2UCLA\_62, WunderPhul\_62, Zaka\_62, Zulu\_63, Roksolana\_63, Indra\_65, Hexamo\_62
- Track 108 : Blinn1\_64
- Track 109 : Priamo\_63, JewelBug\_62
- Track 110 : Tucker\_62
- Track 111 : CloudWang3\_62, Koko\_63
- Track 112 : Dorothea\_61, BABullseye\_54
- Track 113 : Jordennis\_60
- Track 114 : PP\_59
- Track 115 : DroogsArmy\_54, Timshel\_55
- Track 116 : HINdeR\_53
- Track 117 : Sheen\_58
- Track 118 : Astro\_60, Danforth\_60, Groundhog\_59, Dixon\_59, Roary\_61, Saintus\_55, Smeadley\_60
- Track 119 : Phillis\_58
- Track 120 : NearlyHeadless\_60
- Track 121 : Stephig9\_60
- Track 122 : Arissanae\_59
- Track 123 : Spouty\_60, Qobbit\_60, ExplosioNervosa\_60, Fayely\_60, Priya\_60, Eidsmoe\_60, Conquerage\_60, Alma\_60, EmyBug\_59
- Track 124 : SheaKeira\_58
- Track 125 : Elephantoon\_59
- Track 126 : Beemo\_60, Scherzo\_60, Catalina\_61, Myxus\_60, Aliter\_60, Phonnegut\_60, Pioneer\_60, HortumSL17\_60
- Track 127 : DreamTeam1\_58, Charm\_58
- Track 128 : Onglai\_58, RyeScarlet\_61, Hanray\_58
- Track 129 : Phaeder\_60, PackMan\_59, Tubs\_60
- Track 130 : Yecey3\_61
- Track 131 : Maminiaina\_59
- Track 132 : EdogawaKiddo\_58
- Track 133 : Vanisoa\_60
- Track 134 : LoneWolf\_61

- Track 135 : Toaka\_60
- Track 136 : BogosyJay\_59
- Track 137 : Darrell\_62
- Track 138 : Keziacharles14\_60

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

The start number called the most often in the published annotations is 46, it was called in 120 of the 556 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Abdiel\_56, Albee\_56, Alberto7\_57, Annyong\_56, Avle17\_56, Baby16\_56, BangNhom\_56, Bartimeaus\_56, BellusTerra\_57, Blackmoor\_56, Bombshell\_56, Broseidon\_56, Bruiser\_55, BubbleTrouble\_55, Burger\_54, Caelakin\_56, Camperdownii\_54, CentreCat\_56, Cerulean\_57, ChampagnePapi\_58, Chaph\_56, Chupacabra\_55, Cintron\_55, Citius\_56, Clarenza\_55, Cocoaberry\_56, Commander\_56, Connomayer\_56, Deano\_55, Dhanush\_56, DirtyDunning\_55, Druantia\_56, Eagle\_56, Eaglepride\_58, Eapen\_56, Eris\_55, Eros\_56, Eurydice\_57, Florean\_56, Flux\_56, Funston\_55, Gadost\_56, Goose\_57, HamSlice\_54, Happiness\_55, Holli\_55, Houdini22\_56, ICleared\_56, Iceman\_56, Iracema64\_57, Jaykayelowell\_54, JetBlade\_56, JoongJeon\_55, KFPoly\_55, Kampy\_55, Kingmustik0402\_56, Koreni\_55, Kremtemulon\_56, Kristoff\_56, Kyeey\_56, LHTSCC\_58, LappelDuVide\_56, Lemur\_56, LittleB\_56, LittleGuy\_56, LochMonster\_57, Lorenzo\_56, Lunsford\_57, Maxo\_57, Mazhar510\_56, Medusa\_56, MeeZee\_56, Melvin\_58, Millski\_55, Morrow\_57, Nebs\_57, Nemo27\_56, NorthStar\_55, NotAPhaseMom\_56, Nyxis\_56, OKCentral2016\_56, OKaNui\_56, Obama12\_57, Ohfah\_57, Palestino\_55, Peaches\_55, PeterPeter\_56, Phacado\_56, Phelipe\_57, Phighter1804\_56, Phontbonne\_56, Pipcraft\_54, Polymorphads\_57, Pumbaa\_56, Rebeuca\_57, Relief\_55, RhynO\_57, Roosevelt\_55, Ruin\_56, Sabertooth\_56, Scamp\_56, SheldonCooper\_57, Skipitt\_55, Sparxx\_57, Spino\_55, Taquarus\_56, Thanksgivukkah\_55, TinaFeyge\_55, Tinybot\_55, TiroTheta9\_56, Topanga\_54, TroyPia\_57, Twister\_55, TygerBlood\_56, Ulysses\_55, WalterMcMickey\_55, Wander\_56, Wilbur\_56, Wizard007\_56, YoSam321\_56,

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

- 

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

- 20ES\_63, AFIS\_53, AN3\_63, AN9\_63, ANI8\_63, AbbyPaige\_62, AbbysRanger\_55, Achebe\_54, Acolyte\_55, Adzzy\_61, Agape74\_62, AgentM\_53, Aglet\_64, AgronaGT15\_62, Airmid\_55, Aliter\_60, Alma\_60, Anaysia\_67, Aneem\_61, Anglerfish\_57, AnnaL29\_62, Anon\_65, Anselm\_61, Anthony\_57, Anubis\_66, Aragog\_53, ArcherNM\_55, Archetta\_53, Arissanae\_59, Arlo\_54, Artemis2UCLA\_62, Arturo\_55, Astro\_60, Atkinbua\_59, AugsMagnumOpus\_66, AvatarAhPeg\_54, BABullseye\_54, BabyBack\_58, BabyRay\_59, Bachome\_62, Backyardigan\_53, Bactobuster\_58, Badger\_54, Baehexic\_59, Battleship\_69, Beauxregard13\_63, Beemo\_60, Benedict\_58, BengiVuitton\_61, Benvolio\_57, Bethlehem\_56, BiancaTri92\_60, BigMau\_57, Blinn1\_64, Blue7\_63, BlueBird\_61, Bluefalcon\_53, BobSwaget\_56, BogosyJay\_59, Bonamassa\_54, Bones\_56, Boohoo\_67, Bowtie\_61, BreSam8\_63, Bugsy\_62, Bumblebee11\_54, Burton\_56, BuzzBuzz\_60, Bxz2\_58,



Catalina\_61, Caviar\_58, Centaur\_61, Chadwick\_58, Chanagan\_52, Changeling\_59, Chargerpower\_58, Charm\_58, Che12\_61, ChipMunk\_62, Cici\_55, Cindaradix\_52, CloudWang3\_62, ConceptII\_58, Conquerage\_60, Conspiracy\_54, Coog\_53, Cookiedough\_61, Crucio\_60, Cuco\_54, Cullens\_63, D29\_58, D32\_61, DBQu4n\_62, Daishi\_62, Dalmatian\_61, Danforth\_60, Darrell\_62, Datway\_55, DekHockey33\_68, Deloris\_61, Dieselweasel\_64, Dignity\_62, Discoknowium\_52, Dixon\_59, Dorothea\_61, Drake55\_62, Drake94\_55, DreamTeam1\_58, DroogsArmy\_54, Dublin\_54, DudeLittle\_59, Duplo\_62, EagleEye\_63, Ebony\_60, Echild\_60, EdogawaKiddo\_58, Eidsmoe\_60, EITiger69\_57, Elephantoan\_59, EmyBug\_59, EpicPhail\_64, Epsocamisio\_64, EricB\_60, Espresso\_55, Euphoria\_53, EvilGenius\_62, ExplosioNervosa\_60, Fameo\_60, Farber\_63, Fascinus\_52, Fayely\_60, Fernando\_63, Fibonacci\_60, FiringLine\_60, First\_0062, Flare16\_60, Flaverint\_61, ForGetIt\_54, Fred313\_58, GageAP\_56, Gandalf20\_58, GaugeLDP\_57, Gemma\_62, George\_52, Georgie2\_61, Ghoulyboy\_57, Gilberta\_61, GingkoMaracino\_63, Gladiator\_59, GreedyLawyer\_60, Grif\_63, Groundhog\_59, Groupthink\_64, Grub\_63, Grum1\_63, Gruunaga\_62, GtownJaz\_63, HINdeR\_53, Hammer\_62, Hanray\_58, HarryHoudini\_61, HashRod\_64, HaveUMetTed\_64, Heathen\_59, Heffalump\_59, HelDan\_59, Heliosoles\_62, Herbertwm\_58, Hercules11\_63, HermioneGrange\_56, Hexamo\_62, Hookmount\_58, Hoot\_56, HortumSL17\_60, HuhtaEnerson15\_54, Idleandcovert\_59, Indra\_65, Insomnia\_61, IronMan\_59, Isca\_58, Isiphiwo\_59, Iwokeuplikedis\_62, JF2\_57, JF4\_57, JSwag\_66, Jaan\_60, Jabiru\_56, Jabith\_61, Jeeves\_64, Jeffabunny\_62, JenCasNa\_64, JeppNRM\_64, Jerm2\_57, Jerm\_62, JewelBug\_62, Jobu08\_61, Jordennis\_60, Jorgensen\_56, Joselito\_61, JoshKayV\_62, Journey13\_54, Jovo\_54, Jsquared\_59, JuliaChild\_57, KADY\_63, KBG\_56, KSSJEB\_55, Kalb97\_64, Kalnoky\_64, Kalpine\_58, Katalie136\_55, KatherineG\_67, Kazan\_62, Kerberos\_62, Keziacharles14\_60, Killigrew\_56, Kipper29\_61, KittenMittens\_54, Koko\_63, Kratark\_56, L5\_58, LBerry\_64, LadyBird\_65, Lambert1\_58, Landor\_60, Larenn\_59, LarryKay\_63, LastResort\_65, Leogania\_60, Lev2\_54, Leviathan\_62, LilTurb\_61, Lilbunny\_61, Lilith\_63, LittleCherry\_54, Lokk\_57, LoneWolf\_61, Looper\_66, Lopton\_56, Loser\_62, Louie6\_62, Luchador\_63, Lucivia\_61, Lucyedi\_62, LugYA\_66, MA5\_59, MK4\_59, MadMarie\_63, Mainiac\_63, Malec\_60, Malinsilva\_65, Maminiaina\_59, Manatee\_57, Manu\_63, MarQuardt\_63, Margo\_58, Marius\_64, Maroc7\_54, MarysWell\_54, McFly\_61, Methuselah\_58, Micasa\_55, Michley\_55, MiculUcigas\_60, Midas2\_53, Milcery\_54, MinecraftSteve\_67, Miramae\_54, Misomonster\_64, Morpher26\_55, MrGordo\_55, MuchMore\_66, Mundrea\_55, Museum\_57, MyraDee\_54, Myxus\_60, NEHalo\_54, NaSiaTalie\_60, Naca\_55, Naji\_62, NearlyHeadless\_60, Nebulosus\_65, Nedarya\_63, Neeharika16\_60, Newrala\_61, NicoleTera\_58, Niza\_58, Noella\_58, Noelle\_56, NothingSpecial\_58, Odin\_58, Ohno789\_57, OlanP\_62, Ollie\_63, Onglai\_58, P28Green\_64, PGHhamlin\_65, PP\_59, PSullivan\_56, PackMan\_59, PainterBoy\_62, Panamaxus\_56, PattyP\_56, PeaceMeal1\_55, Pembroke\_63, Penny1\_64, Perplexer\_55, PetiteSangsue\_55, PetterN\_59, Ph8s\_61, Phaded\_60, Phaeder\_60, Phantastic\_60, Pharaoh\_55, Phillis\_58, PhishRPhriends\_61, Phlei\_50, Phlorence\_52, Phoebe\_64, Phonnegut\_60, Phoxy\_63, Phranny\_64, PickleBack\_54, Pioneer\_60, Piro94\_60, Pistachio\_60, Pita2\_59, Pmask\_60, Pocahontas\_58, Pomar16\_99, Poompha\_55, Popcicle\_58, Power\_59, Priamo\_63, Priya\_60, Pukovnik\_58, Puppy\_60, PurpleHaze\_63, Qobbit\_60, QueenB2\_59, QueenBeesly\_60, QuinnKiro\_57, Rachaly\_59, Rajelicia\_56, Reba\_63, RedRock\_62, Refuge\_58, Remus\_67, ResDef\_58, Retro23\_61, Rifter\_62, Ringer\_56, Roary\_61, Rohr\_57, Roksolana\_63, Rosalind\_65, Rummer\_62, Ruotula\_58, RyeScarlet\_61, Sabia\_63, Sabinator\_62, Saintus\_55, Scherzo\_60, Scorpia\_59, Scout\_59, SemperFi\_61, Severus\_55, Sham4\_60, ShayRa\_67, SheaKeira\_58, Sheen\_58,

Shygu2\_55, Slagathor\_58, Smeadley\_60, Smeagan\_63, SmellyB\_61, SnapTap\_60, Snape\_60, SoYo\_63, SoilDragon\_63, SororFago\_61, Soshari\_65, Soups\_67, Spike509\_63, SpikeBT\_55, Spouty\_60, Stagni\_63, StarStuff\_62, Stasia\_55, Stephig9\_60, Stink\_54, Strosahl\_67, Sunhee\_62, SuperAwesome\_61, Superchunk\_58, SweetiePie\_60, Swirley\_56, Switzerland\_66, SydNat\_57, TNguyen7\_60, Tarynearal\_52, Taurus\_64, Texage\_57, Theia\_53, Tiffany\_62, Tiger\_53, Timothy\_60, Timshel\_55, TinyTimmy\_60, TipsytheTRex\_57, Toaka\_60, Todacoro\_58, Tomathan\_62, ToneTone\_59, Tote\_52, Trixie\_58, Trooper\_61, Tubs\_60, Tucker\_62, Turbido\_61, TwoPeat\_57, UnionJack\_88, Updawg\_61, VA6\_61, VC3\_63, Vanisoa\_60, Veracruz\_57, VohminGhazi\_61, Waits\_67, Watermelon\_56, Whabigail7\_61, WideWale\_61, Wiks\_61, Wile\_55, Wooldri\_65, WunderPhul\_62, Xena\_54, XianYue\_58, Yecey3\_61, Zaka\_62, Zetsy\_62, Zimmer\_57, Zolita\_56, Zulu\_63,

### Summary by start number:

#### Start 24:

- Found in 5 of 564 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 556
- Called 20.0% of time when present
- Phage (with cluster) where this start called: Phaded\_60 (A2),

#### Start 26:

- Found in 18 of 564 ( 3.2% ) of genes in pham
- Manual Annotations of this start: 1 of 556
- Called 5.6% of time when present
- Phage (with cluster) where this start called: Whabigail7\_61 (A2),

#### Start 27:

- Found in 6 of 564 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 1 of 556
- Called 16.7% of time when present
- Phage (with cluster) where this start called: Bluefalcon\_53 (A5),

#### Start 30:

- Found in 4 of 564 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 4 of 556
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Blinn1\_64 (A6), JewelBug\_62 (A6), Jordennis\_60 (A6), Priamo\_63 (A6),

#### Start 32:

- Found in 5 of 564 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 556
- Called 20.0% of time when present
- Phage (with cluster) where this start called: Kalpine\_58 (A2),

#### Start 38:

- Found in 7 of 564 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 556
- Called 14.3% of time when present
- Phage (with cluster) where this start called: Updawg\_61 (A2),

Start 39:

- Found in 2 of 564 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 556
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Chargerpower\_58 (A), EdogawaKiddo\_58 (A9),

Start 40:

- Found in 1 of 564 ( 0.2% ) of genes in pham
- Manual Annotations of this start: 1 of 556
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Toaka\_60 (A9),

Start 41:

- Found in 51 of 564 ( 9.0% ) of genes in pham
- Manual Annotations of this start: 48 of 556
- Called 94.1% of time when present
- Phage (with cluster) where this start called: AbbyPaige\_62 (A2), Agape74\_62 (A2), Anselm\_61 (A2), BabyBack\_58 (A2), Bactobuster\_58 (A2), Baehexic\_59 (A2), BiancaTri92\_60 (A2), Buggy\_62 (A2), Centaur\_61 (A2), Changeling\_59 (A2), ChipMunk\_62 (A2), Crucio\_60 (A2), Dalmatian\_61 (A2), Dignity\_62 (A2), Drake55\_62 (A2), DudeLittle\_59 (A2), EvilGenius\_62 (A2), Fameo\_60 (A2), FiringLine\_60 (A2), Flare16\_60 (A2), GaugeLDP\_57 (A2), Georgie2\_61 (A2), Heffalump\_59 (A2), IronMan\_59 (A2), Jaan\_60 (A2), Jerm\_62 (A2), JoshKayV\_62 (A2), Landor\_60 (A2), Leogania\_60 (A2), Leviathan\_62 (A2), LilTurb\_61 (A2), MiculUcigas\_60 (A2), NaSiaTalie\_60 (A2), NicoleTera\_58 (A2), Piro94\_60 (A2), Power\_59 (A2), Pukovnik\_58 (A2), QueenB2\_59 (A2), QueenBeesly\_60 (A2), Retro23\_61 (A2), SemperFi\_61 (A2), Smeagan\_63 (A2), SnapTap\_60 (A2), SweetiePie\_60 (A2), Trooper\_61 (A2), Turbido\_61 (A2), WideWale\_61 (A2), XianYue\_58 (A2),

Start 42:

- Found in 1 of 564 ( 0.2% ) of genes in pham
- Manual Annotations of this start: 1 of 556
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Shygu2\_55 (A4),

Start 43:

- Found in 2 of 564 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 2 of 556
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Che12\_61 (A2), Ph8s\_61 (A2),

Start 44:

- Found in 16 of 564 ( 2.8% ) of genes in pham
- Manual Annotations of this start: 14 of 556
- Called 87.5% of time when present
- Phage (with cluster) where this start called: Charm\_58 (A9), Drake94\_55 (A10), DreamTeam1\_58 (A9), Isca\_58 (A3), JF2\_57 (A3), JF4\_57 (A3), KittenMittens\_54 (A10), MA5\_59 (A3), MK4\_59 (A3), PeaceMeal1\_55 (A10), Phantastic\_60 (A3), Severus\_55 (A10), SheaKeira\_58 (A9), SororFago\_61 (A14),

Start 45:

- Found in 23 of 564 ( 4.1% ) of genes in pham

- Manual Annotations of this start: 23 of 556
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BabyRay\_59 (A3), BlueBird\_61 (A3), Caviar\_58 (A3), Fred313\_58 (A3), Heathen\_59 (A3), HelDan\_59 (A3), Hookmount\_58 (A3), Idleandcovert\_59 (A3), Lambert1\_58 (A3), Margo\_58 (A3), Noella\_58 (A3), Panamaxus\_56 (A3), Pistachio\_60 (A3), Pocahontas\_58 (A3), Popcicle\_58 (A3), Puppy\_60 (A3), QuinnKiro\_57 (A3), ResDef\_58 (A3), Scout\_59 (A3), TNguyen7\_60 (A3), Texage\_57 (A3), Todacoro\_58 (A3), Veracruz\_57 (A3),

#### Start 46:

- Found in 120 of 564 ( 21.3% ) of genes in pham
- Manual Annotations of this start: 120 of 556
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abdiel\_56 (A4), Albee\_56 (A4), Alberto7\_57 (A4), Annyong\_56 (A4), Avle17\_56 (A4), Baby16\_56 (A4), BangNhom\_56 (A4), Bartimeaus\_56 (A4), BellusTerra\_57 (A4), Blackmoor\_56 (A4), Bombshell\_56 (A4), Broseidon\_56 (A4), Bruiser\_55 (A4), BubbleTrouble\_55 (A4), Burger\_54 (A4), Caelakin\_56 (A4), Camperdownii\_54 (A4), CentreCat\_56 (A4), Cerulean\_57 (A4), ChampagnePapi\_58 (A4), Chaph\_56 (A4), Chupacabra\_55 (A10), Cintron\_55 (A4), Citius\_56 (A4), Clarenza\_55 (A4), Cocoaberry\_56 (A4), Commander\_56 (A4), Connomayer\_56 (A4), Deano\_55 (A4), Dhanush\_56 (A4), DirtyDunning\_55 (A4), Druantia\_56 (A4), Eagle\_56 (A4), Eaglepride\_58 (A10), Eapen\_56 (A4), Eris\_55 (A4), Eros\_56 (A4), Eurydice\_57 (A4), Florean\_56 (A4), Flux\_56 (A4), Funston\_55 (A4), Gadost\_56 (A4), Goose\_57 (A10), HamSlice\_54 (A4), Happiness\_55 (A4), Holli\_55 (A4), Houdini22\_56 (A4), ICleared\_56 (A4), Iceman\_56 (A4), Iracema64\_57 (A4), Jaykayelowell\_54 (A4), JetBlade\_56 (A4), JoongJeon\_55 (A4), KFPoly\_55 (A4), Kampy\_55 (A4), Kingmustik0402\_56 (A4), Koreni\_55 (A4), Kremtemulon\_56 (A4), Kristoff\_56 (A10), Kye\_56 (A4), LHTSCC\_58 (A4), LappelDuVide\_56 (A4), Lemur\_56 (A4), LittleB\_56 (A4), LittleGuy\_56 (A4), LochMonster\_57 (A4), Lorenzo\_56 (A4), Lunsford\_57 (A4), Maxo\_57 (A4), Mazhar510\_56 (A4), Medusa\_56 (A4), MeeZee\_56 (A4), Melvin\_58 (A4), Millski\_55 (A4), Morrow\_57 (A4), Nebs\_57 (A4), Nemo27\_56 (A4), NorthStar\_55 (A4), NotAPhaseMom\_56 (A4), Nyxis\_56 (A4), OKCentral2016\_56 (A10), OKaNui\_56 (A4), Obama12\_57 (A4), Ohfah\_57 (A4), Palestino\_55 (A4), Peaches\_55 (A4), PeterPeter\_56 (A4), Phacado\_56 (A4), Phelipe\_57 (A4), Phighter1804\_56 (A4), Phontbonne\_56 (A4), Pipcraft\_54 (A4), Polymorphads\_57 (A4), Pumbaa\_56 (A4), Rebeuca\_57 (A10), Relief\_55 (A4), RhynO\_57 (A10), Roosevelt\_55 (A4), Ruin\_56 (A4), Sabertooth\_56 (A4), Scamp\_56 (A4), SheldonCooper\_57 (A4), Skipitt\_55 (A4), Sparxx\_57 (A4), Spino\_55 (A4), Taquarus\_56 (A4), Thanksgivukkah\_55 (A4), TinaFeyge\_55 (A4), Tinybot\_55 (A4), TiroTheta9\_56 (A4), Topanga\_54 (A10), TroyPia\_57 (A4), Twister\_55 (A10), TygerBlood\_56 (A4), Ulysses\_55 (A4), WalterMcMickey\_55 (A10), Wander\_56 (A4), Wilbur\_56 (A4), Wizard007\_56 (A4), YoSam321\_56 (A4),

#### Start 47:

- Found in 101 of 564 ( 17.9% ) of genes in pham
- Manual Annotations of this start: 93 of 556
- Called 94.1% of time when present
- Phage (with cluster) where this start called: 20ES\_63 (A2), AFIS\_53 (A1), AN3\_63 (A2), AN9\_63 (A2), ANI8\_63 (A2), Aneem\_61 (A11), Anglerfish\_57 (A1), AnnaL29\_62 (A2), Arlo\_54 (A1), Atkinbua\_59 (A1), Bachome\_62 (A11), BengiVuitton\_61 (A2), Bethlehem\_56 (A1), BigMau\_57 (A1), BobSwaget\_56 (A2), BogosyJay\_59 (A9), Bones\_56 (A1), Bowtie\_61 (A11), Burton\_56 (A1),

Chanagan\_52 (A1), ConceptII\_58 (A1), D29\_58 (A2), D32\_61 (A2), DBQu4n\_62 (A2), Darrell\_62 (A9), Deloris\_61 (A2), Duplo\_62 (A2), Ebony\_60 (A11), Espresso\_55 (A1), Euphoria\_53 (A1), Fascinus\_52 (A1), Fibonacci\_60 (A11), First\_0062 (A2), Flaverint\_61 (A11), GageAP\_56 (A1), Gandalf20\_58 (A1), Gilberta\_61 (A11), Herbertwm\_58 (A2), HermioneGrange\_56 (A1), Insomnia\_61 (A11), Iwokeuplikedis\_62 (A2), Jabith\_61 (A11), Jeeves\_64 (A14), Jerm2\_57 (A1), Jorgensen\_56 (A1), Joselito\_61 (A11), JuliaChild\_57 (A1), KBG\_56 (A1), KSSJEB\_55 (A1), Kerberos\_62 (A2), Killigrew\_56 (A1), LadyBird\_65 (A2), Larenn\_59 (A2), Lokk\_57 (A2), LoneWolf\_61 (A9), Lopton\_56 (A1), Loser\_62 (A2), Luchador\_63 (A14), Lucivia\_61 (A11), Malec\_60 (A2), Maminiaina\_59 (A9), Manatee\_57 (A1), Maroc7\_54 (A1), Michley\_55 (A1), MrGordo\_55 (A1), Museum\_57 (A1), NEHalo\_54 (A1), Naji\_62 (A2), Niza\_58 (A1), Ohno789\_57 (A1), PSullivan\_56 (A1), PattyP\_56 (A1), Pita2\_59 (A1), Pomar16\_99 (A2), Rachaly\_59 (A2), RedRock\_62 (A2), Refuge\_58 (A12), Ringer\_56 (A1), Rohr\_57 (A1), Ruotula\_58 (A1), Sham4\_60 (A11), Slagathor\_58 (A1), Snape\_60 (A11), SpikeBT\_55 (A1), StarStuff\_62 (A2), Timothy\_60 (A11), TinyTimmy\_60 (A11), Tomathan\_62 (A2), Tote\_52 (A1), Trixie\_58 (A2), TwoPeat\_57 (A1), VA6\_61 (A2), VC3\_63 (A2), Watermelon\_56 (A1), Yecey3\_61 (A9),

#### Start 48:

- Found in 1 of 564 ( 0.2% ) of genes in pham
- Manual Annotations of this start: 1 of 556
- Called 100.0% of time when present
- Phage (with cluster) where this start called: HarryHoudini\_61 (A2),

#### Start 49:

- Found in 121 of 564 ( 21.5% ) of genes in pham
- Manual Annotations of this start: 113 of 556
- Called 96.7% of time when present
- Phage (with cluster) where this start called: Acolyte\_55 (A2), Adzzy\_61 (A2), Aglet\_64 (A3), AgronaGT15\_62 (A3), Aliter\_60 (A9), Alma\_60 (A9), Anthony\_57 (A20), Anubis\_66 (A3), Arissanae\_59 (A9), Astro\_60 (A8), AugsMagnumOpus\_66 (A3), Beauxregard13\_63 (A3), Beemo\_60 (A9), BreSam8\_63 (A3), BuzzBuzz\_60 (A3), Bxz2\_58 (A3), Catalina\_61 (A9), Conquerage\_60 (A9), Cullens\_63 (A3), Daishi\_62 (A3), Danforth\_60 (A8), Dieselweasel\_64 (A3), Dixon\_59 (A8), EagleEye\_63 (A16), Eidsmoe\_60 (A9), Elephantoon\_59 (A9), EmyBug\_59 (A9), EpicPhail\_64 (A3), ExplosioNervosa\_60 (A9), Farber\_63 (A3), Fayely\_60 (A9), Fernando\_63 (A3), Gemma\_62 (A3), GingkoMaracino\_63 (A3), Grif\_63 (A3), Groundhog\_59 (A8), Groupthink\_64 (A3), Grub\_63 (A3), Grum1\_63 (A3), GtownJaz\_63 (A3), HINdeR\_53 (A7), Hanray\_58 (A9), HashRod\_64 (A3), HaveUMetTed\_64 (A3), Heliosoles\_62 (A3), Hercules11\_63 (A3), HortumSL17\_60 (A9), JenCasNa\_64 (A3), JeppNRM\_64 (A3), Jobu08\_61 (A3), Jsquared\_59 (A2), KADY\_63 (A3), Kalb97\_64 (A3), Kainoky\_64 (A3), LBerry\_64 (A3), LarryKay\_63 (A3), Lilith\_63 (A3), Louie6\_62 (A3), Lucyedi\_62 (A16), LugYA\_66 (A3), MadMarie\_63 (A3), Mainiac\_63 (A3), Malinsilva\_65 (A3), Manu\_63 (A3), MarQuardt\_63 (A3), Marius\_64 (A3), Methuselah\_58 (A3), Misomonster\_64 (A3), MuchMore\_66 (A3), Myxus\_60 (A9), NearlyHeadless\_60 (A8), NothingSpecial\_58 (A2), Odin\_58 (A2), OlanP\_62 (A3), Ollie\_63 (A3), Onglai\_58 (A9), P28Green\_64 (A3), PGHhamlin\_65 (A3), PackMan\_59 (A9), PainterBoy\_62 (A16), Pembroke\_63 (A3), Penny1\_64 (A3), Phaeder\_60 (A9), Phillis\_58 (A8), PhishRPhriends\_61 (A3), Phoebe\_64 (A3), Phonnegut\_60 (A9), Phoxy\_63 (A3), Phranny\_64 (A3), Pioneer\_60 (A9), Priya\_60 (A9), PurpleHaze\_63 (A3), Qobbit\_60 (A9), Reba\_63 (A3), Roary\_61 (A8), Rummer\_62 (A3), RyeScarlet\_61 (A9), Sabia\_63 (A3), Sabinator\_62 (A3),

Saintus\_55 (A8), Scherzo\_60 (A9), Smeadley\_60 (A8), SoYo\_63 (A3), SoilDragon\_63 (A3), Soshari\_65 (A3), Spike509\_63 (A3), Spouty\_60 (A9), Stagni\_63 (A3), Stephig9\_60 (A8), Sunhee\_62 (A14), Superchunk\_58 (A2), Taurus\_64 (A3), Tiffany\_62 (A3), Tubs\_60 (A9), Vanisoa\_60 (A9), Wooldri\_65 (A3), Zetzy\_62 (A3),

Start 50:

- Found in 35 of 564 ( 6.2% ) of genes in pham
- Manual Annotations of this start: 35 of 556
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Artemis2UCLA\_62 (A6), BABullseye\_54 (A6), Blue7\_63 (A6), CloudWang3\_62 (A6), Cookiedough\_61 (A6), Dorothea\_61 (A6), EricB\_60 (A6), Gladiator\_59 (A6), GreedyLawyer\_60 (A6), Gruunaga\_62 (A6), Hammer\_62 (A6), Hexamo\_62 (A6), Hoot\_56 (A6), Indra\_65 (A6), Isiphiwo\_59 (A6), Jeffabunny\_62 (A6), Kazan\_62 (A6), Kipper29\_61 (A6), Koko\_63 (A6), Lilbunny\_61 (A6), McFly\_61 (A6), Neeharika16\_60 (A6), Newrala\_61 (A6), Pmask\_60 (A6), Rifter\_62 (A6), Roksolana\_63 (A6), SmellyB\_61 (A6), SuperAwesome\_61 (A6), ToneTone\_59 (A6), Tucker\_62 (A6), VohminGhazi\_61 (A6), Wiks\_61 (A6), WunderPhul\_62 (A6), Zaka\_62 (A6), Zulu\_63 (A6),

Start 51:

- Found in 75 of 564 ( 13.3% ) of genes in pham
- Manual Annotations of this start: 71 of 556
- Called 96.0% of time when present
- Phage (with cluster) where this start called: AbbysRanger\_55 (A4), Achebe\_54 (A4), AgentM\_53 (A5), Airmid\_55 (A5), Aragog\_53 (A5), Archetta\_53 (A5), Arturo\_55 (A4), AvatarAhPeg\_54 (A4), Backyardigan\_53 (A4), Badger\_54 (A4), Benedict\_58 (A5), Benvolio\_57 (A2), Bonamassa\_54 (A5), Bumblebee11\_54 (A4), Chadwick\_58 (A5), Cici\_55 (A4), Cindaradix\_52 (A4), Conspiracy\_54 (A5), Coog\_53 (A5), Cuco\_54 (A5), Datway\_55 (A4), Discoknowium\_52 (A5), DroogsArmy\_54 (A7), Dublin\_54 (A5), Echild\_60 (A2), EITiger69\_57 (A5), ForGetIt\_54 (A5), George\_52 (A5), Ghoulboy\_57 (A5), HuhtaEnerson15\_54 (A5), Jabiru\_56 (A5), Journey13\_54 (A2), Jovo\_54 (A5), Katalie136\_55 (A4), Kratark\_56 (A4), L5\_58 (A2), Lev2\_54 (A5), LittleCherry\_54 (A5), MarysWell\_54 (A5), Micasa\_55 (A5), Midas2\_53 (A5), Milcery\_54 (A5), Miramae\_54 (A4), Morpher26\_55 (A4), Mundrea\_55 (A4), MyraDee\_54 (A18), Naca\_55 (A5), Noelle\_56 (A4), PP\_59 (A7), Perplexer\_55 (A4), PetiteSangsue\_55 (A4), PetterN\_59 (A5), Pharaoh\_55 (A12), Phlei\_50 (A13), Phlorence\_52 (A5), PickleBack\_54 (A5), Scorpia\_59 (A5), Sheen\_58 (A7), Stasia\_55 (A4), Stink\_54 (A4), Swirley\_56 (A5), SydNat\_57 (A5), Tarynearal\_52 (A5), Theia\_53 (A5), Tiger\_53 (A5), Timshel\_55 (A7), TopsytheTRex\_57 (A2), UnionJack\_88 (A5), Wile\_55 (A4), Xena\_54 (A4), Zimmer\_57 (A12), Zolita\_56 (A5),

Start 52:

- Found in 1 of 564 ( 0.2% ) of genes in pham
- Manual Annotations of this start: 1 of 556
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ArcherNM\_55 (A2),

Start 53:

- Found in 1 of 564 ( 0.2% ) of genes in pham
- Manual Annotations of this start: 1 of 556
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Keziacharles14\_60 (A9),

Start 54:

- Found in 63 of 564 ( 11.2% ) of genes in pham
- Manual Annotations of this start: 1 of 556
- Called 1.6% of time when present
- Phage (with cluster) where this start called: Poompha\_55 (A10),

Start 55:

- Found in 18 of 564 ( 3.2% ) of genes in pham
- Manual Annotations of this start: 18 of 556
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Anaysia\_67 (A15), Battleship\_69 (A15), Boohoo\_67 (A15), DekHockey33\_68 (A15), Epsocamisio\_64 (A15), JSwag\_66 (A15), KatherineG\_67 (A15), LastResort\_65 (A15), Looper\_66 (A15), MinecraftSteve\_67 (A15), Nebulosus\_65 (A15), Remus\_67 (A15), Rosalind\_65 (A15), ShayRa\_67 (A15), Soups\_67 (A15), Strosahl\_67 (A15), Switzerland\_66 (A15), Waits\_67 (A15),

Start 56:

- Found in 2 of 564 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 2 of 556
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Anon\_65 (A15), Nedarya\_63 (A15),

Start 61:

- Found in 42 of 564 ( 7.4% ) of genes in pham
- Manual Annotations of this start: 1 of 556
- Called 2.4% of time when present
- Phage (with cluster) where this start called: Rajelicia\_56 (A1),

**Summary by clusters:**

There are 19 clusters represented in this pham: A15, A14, A13, A16, A11, A10, A, A12, A18, A1, A20, A3, A2, A5, A4, A7, A6, A9, A8,

Info for manual annotations of cluster A:

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

Info for manual annotations of cluster A1:

- Start number 47 was manually annotated 42 times for cluster A1.
- Start number 61 was manually annotated 1 time for cluster A1.

Info for manual annotations of cluster A10:

- Start number 44 was manually annotated 4 times for cluster A10.
- Start number 46 was manually annotated 10 times for cluster A10.
- Start number 54 was manually annotated 1 time for cluster A10.

Info for manual annotations of cluster A11:

- Start number 47 was manually annotated 15 times for cluster A11.

Info for manual annotations of cluster A12:

- Start number 47 was manually annotated 1 time for cluster A12.
- Start number 51 was manually annotated 2 times for cluster A12.

Info for manual annotations of cluster A14:

- Start number 44 was manually annotated 1 time for cluster A14.
- Start number 47 was manually annotated 2 times for cluster A14.

Info for manual annotations of cluster A15:

- Start number 55 was manually annotated 18 times for cluster A15.
- Start number 56 was manually annotated 2 times for cluster A15.

Info for manual annotations of cluster A16:

- Start number 49 was manually annotated 3 times for cluster A16.

Info for manual annotations of cluster A18:

- Start number 51 was manually annotated 1 time for cluster A18.

Info for manual annotations of cluster A2:

- Start number 24 was manually annotated 1 time for cluster A2.
- Start number 26 was manually annotated 1 time for cluster A2.
- Start number 32 was manually annotated 1 time for cluster A2.
- Start number 38 was manually annotated 1 time for cluster A2.
- Start number 41 was manually annotated 48 times for cluster A2.
- Start number 43 was manually annotated 2 times for cluster A2.
- Start number 47 was manually annotated 28 times for cluster A2.
- Start number 48 was manually annotated 1 time for cluster A2.
- Start number 49 was manually annotated 6 times for cluster A2.
- Start number 51 was manually annotated 5 times for cluster A2.
- Start number 52 was manually annotated 1 time for cluster A2.

Info for manual annotations of cluster A20:

- Start number 49 was manually annotated 1 time for cluster A20.

Info for manual annotations of cluster A3:

- Start number 44 was manually annotated 6 times for cluster A3.
- Start number 45 was manually annotated 23 times for cluster A3.
- Start number 49 was manually annotated 69 times for cluster A3.

Info for manual annotations of cluster A4:

- Start number 42 was manually annotated 1 time for cluster A4.
- Start number 46 was manually annotated 110 times for cluster A4.
- Start number 51 was manually annotated 22 times for cluster A4.

Info for manual annotations of cluster A5:

- Start number 27 was manually annotated 1 time for cluster A5.
- Start number 51 was manually annotated 37 times for cluster A5.

Info for manual annotations of cluster A6:

- Start number 30 was manually annotated 4 times for cluster A6.
- Start number 50 was manually annotated 35 times for cluster A6.

Info for manual annotations of cluster A7:

- Start number 49 was manually annotated 1 time for cluster A7.
- Start number 51 was manually annotated 4 times for cluster A7.

Info for manual annotations of cluster A8:



- Start number 49 was manually annotated 10 times for cluster A8.

Info for manual annotations of cluster A9:

- Start number 40 was manually annotated 1 time for cluster A9.
- Start number 44 was manually annotated 3 times for cluster A9.
- Start number 47 was manually annotated 5 times for cluster A9.
- Start number 49 was manually annotated 23 times for cluster A9.
- Start number 53 was manually annotated 1 time for cluster A9.

### **Gene Information:**

Gene: 20ES\_63 Start: 39573, Stop: 39181, Start Num: 47

Candidate Starts for 20ES\_63:

(Start: 47 @39573 has 93 MA's), (68, 39414), (71, 39390), (76, 39360), (77, 39318),

Gene: AFIS\_53 Start: 38460, Stop: 38050, Start Num: 47

Candidate Starts for AFIS\_53:

(Start: 47 @38460 has 93 MA's), (Start: 61 @38379 has 1 MA's), (74, 38256),

Gene: AN3\_63 Start: 38288, Stop: 37896, Start Num: 47

Candidate Starts for AN3\_63:

(Start: 47 @38288 has 93 MA's), (68, 38129), (71, 38105), (76, 38075), (77, 38033),

Gene: AN9\_63 Start: 39554, Stop: 39165, Start Num: 47

Candidate Starts for AN9\_63:

(17, 39698), (18, 39677), (Start: 47 @39554 has 93 MA's), (71, 39374), (76, 39344), (77, 39302),

Gene: ANI8\_63 Start: 39554, Stop: 39165, Start Num: 47

Candidate Starts for ANI8\_63:

(17, 39698), (18, 39677), (Start: 47 @39554 has 93 MA's), (71, 39374), (76, 39344), (77, 39302),

Gene: AbbyPaige\_62 Start: 39636, Stop: 39235, Start Num: 41

Candidate Starts for AbbyPaige\_62:

(Start: 26 @39681 has 1 MA's), (Start: 41 @39636 has 48 MA's), (71, 39444), (76, 39414), (77, 39372),

Gene: AbbysRanger\_55 Start: 38326, Stop: 37922, Start Num: 51

Candidate Starts for AbbysRanger\_55:

(Start: 51 @38326 has 71 MA's), (63, 38236), (64, 38197), (71, 38143), (76, 38113),

Gene: Abdiel\_56 Start: 38369, Stop: 37956, Start Num: 46

Candidate Starts for Abdiel\_56:

(Start: 46 @38369 has 120 MA's), (66, 38222), (70, 38189), (71, 38177), (76, 38147),

Gene: Achebe\_54 Start: 38309, Stop: 37905, Start Num: 51

Candidate Starts for Achebe\_54:

(Start: 51 @38309 has 71 MA's), (63, 38219), (64, 38180), (71, 38126), (76, 38096),

Gene: Acolyte\_55 Start: 38449, Stop: 38057, Start Num: 49

Candidate Starts for Acolyte\_55:

(Start: 49 @38449 has 113 MA's), (71, 38266), (76, 38236), (77, 38194),

Gene: Adzzy\_61 Start: 38099, Stop: 37707, Start Num: 49

Candidate Starts for Adzzy\_61:

(Start: 49 @38099 has 113 MA's), (59, 38072), (71, 37916), (76, 37886), (77, 37844),

Gene: Agape74\_62 Start: 39630, Stop: 39229, Start Num: 41

Candidate Starts for Agape74\_62:

(Start: 26 @39675 has 1 MA's), (Start: 41 @39630 has 48 MA's), (71, 39438), (76, 39408), (77, 39366),

Gene: AgentM\_53 Start: 38350, Stop: 37940, Start Num: 51

Candidate Starts for AgentM\_53:

(Start: 51 @38350 has 71 MA's), (65, 38215), (69, 38188), (70, 38179), (76, 38137),

Gene: Aglet\_64 Start: 39122, Stop: 38715, Start Num: 49

Candidate Starts for Aglet\_64:

(Start: 49 @39122 has 113 MA's), (Start: 54 @39107 has 1 MA's), (59, 39095), (62, 39038), (72, 38933), (76, 38906),

Gene: AgronaGT15\_62 Start: 38970, Stop: 38563, Start Num: 49

Candidate Starts for AgronaGT15\_62:

(Start: 49 @38970 has 113 MA's), (Start: 54 @38955 has 1 MA's), (59, 38943), (62, 38886), (72, 38781), (76, 38754),

Gene: Airmid\_55 Start: 38494, Stop: 38084, Start Num: 51

Candidate Starts for Airmid\_55:

(Start: 51 @38494 has 71 MA's), (65, 38359), (70, 38323), (76, 38281),

Gene: Albee\_56 Start: 38368, Stop: 37955, Start Num: 46

Candidate Starts for Albee\_56:

(Start: 46 @38368 has 120 MA's), (66, 38221), (70, 38188), (71, 38176), (76, 38146),

Gene: Alberto7\_57 Start: 38705, Stop: 38292, Start Num: 46

Candidate Starts for Alberto7\_57:

(Start: 46 @38705 has 120 MA's), (66, 38558), (70, 38525), (71, 38513), (76, 38483),

Gene: Aliter\_60 Start: 38999, Stop: 38616, Start Num: 49

Candidate Starts for Aliter\_60:

(35, 39029), (Start: 49 @38999 has 113 MA's), (68, 38843), (71, 38819), (76, 38789), (77, 38747),

Gene: Alma\_60 Start: 39374, Stop: 38991, Start Num: 49

Candidate Starts for Alma\_60:

(36, 39401), (Start: 49 @39374 has 113 MA's), (68, 39218), (71, 39194), (76, 39164), (77, 39122),

Gene: Anaysia\_67 Start: 38716, Stop: 38336, Start Num: 55

Candidate Starts for Anaysia\_67:

(Start: 55 @38716 has 18 MA's), (68, 38569), (76, 38512), (77, 38470),

Gene: Aneem\_61 Start: 38877, Stop: 38488, Start Num: 47

Candidate Starts for Aneem\_61:

(1, 39306), (4, 39243), (17, 39021), (Start: 47 @38877 has 93 MA's), (76, 38667), (77, 38625),

Gene: Anglerfish\_57 Start: 40357, Stop: 39947, Start Num: 47

Candidate Starts for Anglerfish\_57:

(Start: 47 @40357 has 93 MA's), (Start: 61 @40276 has 1 MA's), (74, 40153),

Gene: AnnaL29\_62 Start: 39988, Stop: 39593, Start Num: 47

Candidate Starts for AnnaL29\_62:

(11, 40228), (17, 40132), (Start: 47 @39988 has 93 MA's), (59, 39958), (76, 39772), (77, 39730),

Gene: Annyong\_56 Start: 38413, Stop: 38000, Start Num: 46

Candidate Starts for Annyong\_56:

(Start: 46 @38413 has 120 MA's), (64, 38275), (66, 38266), (70, 38233), (71, 38221), (76, 38191),

Gene: Anon\_65 Start: 38474, Stop: 38100, Start Num: 56

Candidate Starts for Anon\_65:

(Start: 56 @38474 has 2 MA's), (59, 38462), (64, 38360), (68, 38330), (70, 38318), (76, 38276), (77, 38234),

Gene: Anselm\_61 Start: 39540, Stop: 39136, Start Num: 41

Candidate Starts for Anselm\_61:

(22, 39615), (Start: 41 @39540 has 48 MA's), (76, 39315), (77, 39273),

Gene: Anthony\_57 Start: 37294, Stop: 36890, Start Num: 49

Candidate Starts for Anthony\_57:

(Start: 49 @37294 has 113 MA's), (59, 37270), (71, 37111), (76, 37081), (78, 36961),

Gene: Anubis\_66 Start: 39008, Stop: 38601, Start Num: 49

Candidate Starts for Anubis\_66:

(Start: 49 @39008 has 113 MA's), (Start: 54 @38993 has 1 MA's), (62, 38924), (72, 38819), (76, 38792),

Gene: Aragog\_53 Start: 38370, Stop: 37960, Start Num: 51

Candidate Starts for Aragog\_53:

(Start: 51 @38370 has 71 MA's), (65, 38235), (69, 38208), (70, 38199), (76, 38157),

Gene: ArcherNM\_55 Start: 38984, Stop: 38595, Start Num: 52

Candidate Starts for ArcherNM\_55:

(Start: 52 @38984 has 1 MA's), (71, 38804), (76, 38774), (77, 38732),

Gene: Archetta\_53 Start: 38780, Stop: 38370, Start Num: 51

Candidate Starts for Archetta\_53:

(Start: 51 @38780 has 71 MA's), (65, 38645), (69, 38618), (70, 38609), (76, 38567),

Gene: Arissanae\_59 Start: 39690, Stop: 39304, Start Num: 49

Candidate Starts for Arissanae\_59:

(Start: 49 @39690 has 113 MA's), (63, 39600), (68, 39531), (71, 39507), (76, 39477),

Gene: Arlo\_54 Start: 38524, Stop: 38114, Start Num: 47

Candidate Starts for Arlo\_54:

(Start: 47 @38524 has 93 MA's), (60, 38467), (Start: 61 @38443 has 1 MA's), (74, 38320),

Gene: Artemis2UCLA\_62 Start: 38052, Stop: 37663, Start Num: 50

Candidate Starts for Artemis2UCLA\_62:

(Start: 50 @38052 has 35 MA's), (71, 37872), (76, 37842), (77, 37800),

Gene: Arturo\_55 Start: 38598, Stop: 38194, Start Num: 51  
Candidate Starts for Arturo\_55:  
(Start: 51 @38598 has 71 MA's), (63, 38508), (64, 38469), (70, 38427), (71, 38415), (76, 38385),

Gene: Astro\_60 Start: 38374, Stop: 37961, Start Num: 49  
Candidate Starts for Astro\_60:  
(Start: 49 @38374 has 113 MA's), (59, 38347), (69, 38209), (70, 38200),

Gene: Atkinbua\_59 Start: 39920, Stop: 39510, Start Num: 47  
Candidate Starts for Atkinbua\_59:  
(Start: 47 @39920 has 93 MA's), (Start: 61 @39839 has 1 MA's), (74, 39716),

Gene: AugsMagnumOpus\_66 Start: 39113, Stop: 38706, Start Num: 49  
Candidate Starts for AugsMagnumOpus\_66:  
(Start: 49 @39113 has 113 MA's), (Start: 54 @39098 has 1 MA's), (59, 39086), (62, 39029), (72, 38924), (76, 38897),

Gene: AvatarAhPeg\_54 Start: 38111, Stop: 37707, Start Num: 51  
Candidate Starts for AvatarAhPeg\_54:  
(Start: 51 @38111 has 71 MA's), (64, 37982), (71, 37928), (76, 37898),

Gene: Avle17\_56 Start: 38365, Stop: 37952, Start Num: 46  
Candidate Starts for Avle17\_56:  
(Start: 46 @38365 has 120 MA's), (66, 38218), (70, 38185), (71, 38173), (76, 38143),

Gene: BABullseye\_54 Start: 35607, Stop: 35215, Start Num: 50  
Candidate Starts for BABullseye\_54:  
(Start: 50 @35607 has 35 MA's), (Start: 61 @35532 has 1 MA's), (71, 35424), (76, 35394), (77, 35352),

Gene: Baby16\_56 Start: 38379, Stop: 37966, Start Num: 46  
Candidate Starts for Baby16\_56:  
(Start: 46 @38379 has 120 MA's), (66, 38232), (70, 38199), (71, 38187), (76, 38157),

Gene: BabyBack\_58 Start: 39634, Stop: 39230, Start Num: 41  
Candidate Starts for BabyBack\_58:  
(Start: 41 @39634 has 48 MA's), (71, 39439), (76, 39409), (77, 39367),

Gene: BabyRay\_59 Start: 38728, Stop: 38321, Start Num: 45  
Candidate Starts for BabyRay\_59:  
(Start: 45 @38728 has 23 MA's), (64, 38596), (72, 38539), (76, 38512),

Gene: Bachome\_62 Start: 38857, Stop: 38468, Start Num: 47  
Candidate Starts for Bachome\_62:  
(1, 39286), (4, 39223), (17, 39001), (Start: 47 @38857 has 93 MA's), (76, 38647), (77, 38605),

Gene: Backyardigan\_53 Start: 38342, Stop: 37938, Start Num: 51  
Candidate Starts for Backyardigan\_53:  
(Start: 51 @38342 has 71 MA's), (63, 38252), (64, 38213), (71, 38159), (76, 38129),

Gene: Bactobuster\_58 Start: 39948, Stop: 39544, Start Num: 41  
Candidate Starts for Bactobuster\_58:

(Start: 24 @40014 has 1 MA's), (Start: 26 @39996 has 1 MA's), (Start: 27 @39990 has 1 MA's), (28, 39984), (Start: 41 @39948 has 48 MA's), (68, 39777), (70, 39765), (71, 39753), (76, 39723), (77, 39681),

Gene: Badger\_54 Start: 38310, Stop: 37906, Start Num: 51

Candidate Starts for Badger\_54:

(Start: 51 @38310 has 71 MA's), (63, 38220), (64, 38181), (71, 38127), (76, 38097),

Gene: Baehexic\_59 Start: 39111, Stop: 38707, Start Num: 41

Candidate Starts for Baehexic\_59:

(28, 39144), (Start: 38 @39117 has 1 MA's), (Start: 41 @39111 has 48 MA's), (71, 38916), (76, 38886),

Gene: BangNhom\_56 Start: 38771, Stop: 38358, Start Num: 46

Candidate Starts for BangNhom\_56:

(Start: 46 @38771 has 120 MA's), (66, 38624), (71, 38579), (76, 38549),

Gene: Bartimeaus\_56 Start: 38370, Stop: 37957, Start Num: 46

Candidate Starts for Bartimeaus\_56:

(Start: 46 @38370 has 120 MA's), (66, 38223), (70, 38190), (71, 38178), (76, 38148),

Gene: Battleship\_69 Start: 38922, Stop: 38542, Start Num: 55

Candidate Starts for Battleship\_69:

(Start: 55 @38922 has 18 MA's), (68, 38775), (76, 38718), (77, 38676),

Gene: Beauxregard13\_63 Start: 39125, Stop: 38718, Start Num: 49

Candidate Starts for Beauxregard13\_63:

(Start: 49 @39125 has 113 MA's), (Start: 54 @39110 has 1 MA's), (59, 39098), (62, 39041), (72, 38936), (76, 38909),

Gene: Beemo\_60 Start: 39169, Stop: 38786, Start Num: 49

Candidate Starts for Beemo\_60:

(35, 39199), (Start: 49 @39169 has 113 MA's), (68, 39013), (71, 38989), (76, 38959), (77, 38917),

Gene: BellusTerra\_57 Start: 38369, Stop: 37956, Start Num: 46

Candidate Starts for BellusTerra\_57:

(Start: 46 @38369 has 120 MA's), (66, 38222), (70, 38189), (71, 38177), (76, 38147),

Gene: Benedict\_58 Start: 38742, Stop: 38332, Start Num: 51

Candidate Starts for Benedict\_58:

(Start: 51 @38742 has 71 MA's), (65, 38607), (69, 38580), (70, 38571), (76, 38529),

Gene: BengiVuitton\_61 Start: 39544, Stop: 39152, Start Num: 47

Candidate Starts for BengiVuitton\_61:

(Start: 47 @39544 has 93 MA's), (68, 39385), (71, 39361), (76, 39331), (77, 39289),

Gene: Benvolio\_57 Start: 38549, Stop: 38160, Start Num: 51

Candidate Starts for Benvolio\_57:

(Start: 51 @38549 has 71 MA's), (76, 38339), (77, 38297),

Gene: Bethlehem\_56 Start: 40991, Stop: 40581, Start Num: 47

Candidate Starts for Bethlehem\_56:

(Start: 47 @40991 has 93 MA's), (Start: 61 @40910 has 1 MA's), (74, 40787),

Gene: BiancaTri92\_60 Start: 39704, Stop: 39300, Start Num: 41  
Candidate Starts for BiancaTri92\_60:  
(Start: 26 @39752 has 1 MA's), (Start: 41 @39704 has 48 MA's), (71, 39509), (76, 39479), (77, 39437),

Gene: BigMau\_57 Start: 38862, Stop: 38452, Start Num: 47  
Candidate Starts for BigMau\_57:  
(Start: 47 @38862 has 93 MA's), (Start: 61 @38781 has 1 MA's), (74, 38658),

Gene: Blackmoor\_56 Start: 38370, Stop: 37957, Start Num: 46  
Candidate Starts for Blackmoor\_56:  
(Start: 46 @38370 has 120 MA's), (66, 38223), (70, 38190), (71, 38178), (76, 38148),

Gene: Blinn1\_64 Start: 38109, Stop: 37681, Start Num: 30  
Candidate Starts for Blinn1\_64:  
(Start: 30 @38109 has 4 MA's), (Start: 47 @38073 has 93 MA's), (70, 37902), (71, 37890), (76, 37860), (77, 37818),

Gene: Blue7\_63 Start: 38146, Stop: 37757, Start Num: 50  
Candidate Starts for Blue7\_63:  
(Start: 50 @38146 has 35 MA's), (71, 37966), (76, 37936), (77, 37894),

Gene: BlueBird\_61 Start: 38772, Stop: 38365, Start Num: 45  
Candidate Starts for BlueBird\_61:  
(Start: 45 @38772 has 23 MA's), (64, 38640), (72, 38583), (76, 38556),

Gene: Bluefalcon\_53 Start: 38991, Stop: 38515, Start Num: 27  
Candidate Starts for Bluefalcon\_53:  
(2, 39357), (3, 39324), (5, 39294), (6, 39270), (8, 39249), (9, 39234), (10, 39207), (12, 39147), (15, 39108), (16, 39099), (19, 39060), (Start: 27 @38991 has 1 MA's), (Start: 51 @38925 has 71 MA's), (65, 38790), (69, 38763), (70, 38754), (76, 38712),

Gene: BobSwaget\_56 Start: 38031, Stop: 37636, Start Num: 47  
Candidate Starts for BobSwaget\_56:  
(Start: 47 @38031 has 93 MA's), (71, 37845), (76, 37815), (77, 37773),

Gene: BogosyJay\_59 Start: 39091, Stop: 38705, Start Num: 47  
Candidate Starts for BogosyJay\_59:  
(Start: 47 @39091 has 93 MA's), (68, 38932), (70, 38920), (71, 38908), (76, 38878), (77, 38836),

Gene: Bombshell\_56 Start: 38365, Stop: 37952, Start Num: 46  
Candidate Starts for Bombshell\_56:  
(Start: 46 @38365 has 120 MA's), (66, 38218), (70, 38185), (71, 38173), (76, 38143),

Gene: Bonamassa\_54 Start: 38799, Stop: 38389, Start Num: 51  
Candidate Starts for Bonamassa\_54:  
(Start: 51 @38799 has 71 MA's), (65, 38664), (69, 38637), (70, 38628), (76, 38586),

Gene: Bones\_56 Start: 40534, Stop: 40118, Start Num: 47  
Candidate Starts for Bones\_56:  
(Start: 47 @40534 has 93 MA's), (68, 40369), (74, 40330), (76, 40315),

Gene: Boohoo\_67 Start: 38716, Stop: 38336, Start Num: 55  
Candidate Starts for Boohoo\_67:  
(Start: 55 @38716 has 18 MA's), (68, 38569), (76, 38512), (77, 38470),

Gene: Bowtie\_61 Start: 38884, Stop: 38495, Start Num: 47  
Candidate Starts for Bowtie\_61:  
(Start: 47 @38884 has 93 MA's), (76, 38674), (77, 38632),

Gene: BreSam8\_63 Start: 39115, Stop: 38708, Start Num: 49  
Candidate Starts for BreSam8\_63:  
(Start: 49 @39115 has 113 MA's), (Start: 54 @39100 has 1 MA's), (59, 39088), (62, 39031), (72, 38926), (76, 38899),

Gene: Broseidon\_56 Start: 38370, Stop: 37957, Start Num: 46  
Candidate Starts for Broseidon\_56:  
(Start: 46 @38370 has 120 MA's), (66, 38223), (70, 38190), (71, 38178), (76, 38148),

Gene: Bruiser\_55 Start: 38368, Stop: 37955, Start Num: 46  
Candidate Starts for Bruiser\_55:  
(Start: 46 @38368 has 120 MA's), (66, 38221), (70, 38188), (71, 38176), (76, 38146),

Gene: BubbleTrouble\_55 Start: 38368, Stop: 37955, Start Num: 46  
Candidate Starts for BubbleTrouble\_55:  
(Start: 46 @38368 has 120 MA's), (66, 38221), (70, 38188), (71, 38176), (76, 38146),

Gene: Buggy\_62 Start: 39687, Stop: 39286, Start Num: 41  
Candidate Starts for Buggy\_62:  
(Start: 26 @39732 has 1 MA's), (Start: 41 @39687 has 48 MA's), (71, 39495), (76, 39465), (77, 39423),

Gene: Bumblebee11\_54 Start: 38312, Stop: 37908, Start Num: 51  
Candidate Starts for Bumblebee11\_54:  
(Start: 51 @38312 has 71 MA's), (63, 38222), (64, 38183), (71, 38129), (76, 38099),

Gene: Burger\_54 Start: 38368, Stop: 37955, Start Num: 46  
Candidate Starts for Burger\_54:  
(Start: 46 @38368 has 120 MA's), (66, 38221), (70, 38188), (71, 38176), (76, 38146),

Gene: Burton\_56 Start: 39801, Stop: 39391, Start Num: 47  
Candidate Starts for Burton\_56:  
(Start: 47 @39801 has 93 MA's), (Start: 61 @39720 has 1 MA's), (74, 39597),

Gene: BuzzBuzz\_60 Start: 39149, Stop: 38742, Start Num: 49  
Candidate Starts for BuzzBuzz\_60:  
(Start: 49 @39149 has 113 MA's), (Start: 54 @39134 has 1 MA's), (59, 39122), (62, 39065), (72, 38960), (76, 38933),

Gene: Bxz2\_58 Start: 39156, Stop: 38749, Start Num: 49  
Candidate Starts for Bxz2\_58:  
(Start: 49 @39156 has 113 MA's), (Start: 54 @39141 has 1 MA's), (59, 39129), (62, 39072), (72, 38967), (76, 38940),

Gene: Caelakin\_56 Start: 38368, Stop: 37955, Start Num: 46

Candidate Starts for Caelakin\_56:

(Start: 46 @38368 has 120 MA's), (66, 38221), (70, 38188), (71, 38176), (76, 38146),

Gene: Camperdownii\_54 Start: 38042, Stop: 37629, Start Num: 46

Candidate Starts for Camperdownii\_54:

(Start: 46 @38042 has 120 MA's), (66, 37895), (70, 37862), (71, 37850), (76, 37820),

Gene: Catalina\_61 Start: 39072, Stop: 38689, Start Num: 49

Candidate Starts for Catalina\_61:

(35, 39102), (Start: 49 @39072 has 113 MA's), (68, 38916), (71, 38892), (76, 38862), (77, 38820),

Gene: Caviar\_58 Start: 38737, Stop: 38330, Start Num: 45

Candidate Starts for Caviar\_58:

(Start: 45 @38737 has 23 MA's), (64, 38605), (72, 38548), (76, 38521),

Gene: Centaur\_61 Start: 39325, Stop: 38921, Start Num: 41

Candidate Starts for Centaur\_61:

(28, 39358), (Start: 38 @39331 has 1 MA's), (Start: 41 @39325 has 48 MA's), (71, 39130), (76, 39100),

Gene: CentreCat\_56 Start: 38371, Stop: 37958, Start Num: 46

Candidate Starts for CentreCat\_56:

(Start: 46 @38371 has 120 MA's), (66, 38224), (70, 38191), (71, 38179), (76, 38149),

Gene: Cerulean\_57 Start: 38772, Stop: 38359, Start Num: 46

Candidate Starts for Cerulean\_57:

(Start: 46 @38772 has 120 MA's), (66, 38625), (71, 38580), (76, 38550),

Gene: Chadwick\_58 Start: 38583, Stop: 38173, Start Num: 51

Candidate Starts for Chadwick\_58:

(Start: 51 @38583 has 71 MA's), (65, 38448), (70, 38412), (76, 38370),

Gene: ChampagnePapi\_58 Start: 38771, Stop: 38358, Start Num: 46

Candidate Starts for ChampagnePapi\_58:

(Start: 46 @38771 has 120 MA's), (66, 38624), (71, 38579), (76, 38549),

Gene: Chanagan\_52 Start: 37730, Stop: 37320, Start Num: 47

Candidate Starts for Chanagan\_52:

(Start: 47 @37730 has 93 MA's), (Start: 61 @37649 has 1 MA's), (74, 37526),

Gene: Changeling\_59 Start: 39741, Stop: 39337, Start Num: 41

Candidate Starts for Changeling\_59:

(22, 39813), (Start: 41 @39741 has 48 MA's), (71, 39546), (76, 39516), (77, 39474),

Gene: Chaph\_56 Start: 38379, Stop: 37966, Start Num: 46

Candidate Starts for Chaph\_56:

(Start: 46 @38379 has 120 MA's), (60, 38319), (66, 38232), (70, 38199), (71, 38187), (76, 38157),

Gene: Chargerpower\_58 Start: 37793, Stop: 37395, Start Num: 39

Candidate Starts for Chargerpower\_58:

(35, 37805), (Start: 39 @37793 has 1 MA's), (Start: 44 @37781 has 14 MA's), (Start: 49 @37775 has 113 MA's), (71, 37598), (76, 37568), (77, 37526),



Gene: Charm\_58 Start: 38939, Stop: 38550, Start Num: 44

Candidate Starts for Charm\_58:

(Start: 44 @38939 has 14 MA's), (68, 38777), (71, 38753), (76, 38723), (77, 38681),

Gene: Che12\_61 Start: 38234, Stop: 37845, Start Num: 43

Candidate Starts for Che12\_61:

(Start: 43 @38234 has 2 MA's), (71, 38054), (76, 38024), (77, 37982),

Gene: ChipMunk\_62 Start: 40890, Stop: 40486, Start Num: 41

Candidate Starts for ChipMunk\_62:

(Start: 41 @40890 has 48 MA's), (71, 40695), (76, 40665), (77, 40623),

Gene: Chupacabra\_55 Start: 38257, Stop: 37844, Start Num: 46

Candidate Starts for Chupacabra\_55:

(Start: 46 @38257 has 120 MA's), (64, 38119), (72, 38062), (76, 38035),

Gene: Cici\_55 Start: 38327, Stop: 37923, Start Num: 51

Candidate Starts for Cici\_55:

(Start: 51 @38327 has 71 MA's), (63, 38237), (64, 38198), (71, 38144), (76, 38114),

Gene: Cindaradix\_52 Start: 37956, Stop: 37552, Start Num: 51

Candidate Starts for Cindaradix\_52:

(Start: 51 @37956 has 71 MA's), (64, 37827), (70, 37785), (76, 37743),

Gene: Cintron\_55 Start: 38345, Stop: 37932, Start Num: 46

Candidate Starts for Cintron\_55:

(Start: 46 @38345 has 120 MA's), (66, 38198), (70, 38165), (71, 38153), (76, 38123),

Gene: Citius\_56 Start: 38389, Stop: 37976, Start Num: 46

Candidate Starts for Citius\_56:

(Start: 46 @38389 has 120 MA's), (66, 38242), (70, 38209), (71, 38197), (76, 38167),

Gene: Clarenza\_55 Start: 38365, Stop: 37952, Start Num: 46

Candidate Starts for Clarenza\_55:

(Start: 46 @38365 has 120 MA's), (66, 38218), (70, 38185), (71, 38173), (76, 38143),

Gene: CloudWang3\_62 Start: 38143, Stop: 37751, Start Num: 50

Candidate Starts for CloudWang3\_62:

(34, 38173), (Start: 50 @38143 has 35 MA's), (Start: 61 @38068 has 1 MA's), (71, 37960), (76, 37930), (77, 37888),

Gene: Cocoaberry\_56 Start: 38372, Stop: 37959, Start Num: 46

Candidate Starts for Cocoaberry\_56:

(Start: 46 @38372 has 120 MA's), (66, 38225), (70, 38192), (71, 38180), (76, 38150),

Gene: Commander\_56 Start: 38367, Stop: 37954, Start Num: 46

Candidate Starts for Commander\_56:

(Start: 46 @38367 has 120 MA's), (66, 38220), (70, 38187), (71, 38175), (76, 38145),

Gene: ConceptII\_58 Start: 41092, Stop: 40682, Start Num: 47

Candidate Starts for ConceptII\_58:

(Start: 47 @41092 has 93 MA's), (Start: 61 @41011 has 1 MA's), (74, 40888),

Gene: Connomayer\_56 Start: 38368, Stop: 37955, Start Num: 46  
Candidate Starts for Connomayer\_56:  
(Start: 46 @38368 has 120 MA's), (66, 38221), (70, 38188), (71, 38176), (76, 38146),

Gene: Conquerage\_60 Start: 39143, Stop: 38760, Start Num: 49  
Candidate Starts for Conquerage\_60:  
(36, 39170), (Start: 49 @39143 has 113 MA's), (68, 38987), (71, 38963), (76, 38933), (77, 38891),

Gene: Conspiracy\_54 Start: 38592, Stop: 38182, Start Num: 51  
Candidate Starts for Conspiracy\_54:  
(25, 38673), (Start: 51 @38592 has 71 MA's), (65, 38457), (69, 38430), (70, 38421), (76, 38379),

Gene: Coog\_53 Start: 38786, Stop: 38376, Start Num: 51  
Candidate Starts for Coog\_53:  
(Start: 51 @38786 has 71 MA's), (65, 38651), (69, 38624), (70, 38615), (76, 38573),

Gene: Cookiedough\_61 Start: 37950, Stop: 37561, Start Num: 50  
Candidate Starts for Cookiedough\_61:  
(Start: 50 @37950 has 35 MA's), (71, 37770), (76, 37740), (77, 37698),

Gene: Crucio\_60 Start: 39307, Stop: 38903, Start Num: 41  
Candidate Starts for Crucio\_60:  
(Start: 41 @39307 has 48 MA's), (71, 39112), (76, 39082), (77, 39040),

Gene: Cuco\_54 Start: 38646, Stop: 38236, Start Num: 51  
Candidate Starts for Cuco\_54:  
(Start: 51 @38646 has 71 MA's), (65, 38511), (69, 38484), (70, 38475), (76, 38433),

Gene: Cullens\_63 Start: 39121, Stop: 38714, Start Num: 49  
Candidate Starts for Cullens\_63:  
(Start: 49 @39121 has 113 MA's), (Start: 54 @39106 has 1 MA's), (59, 39094), (62, 39037), (72, 38932), (76, 38905),

Gene: D29\_58 Start: 39118, Stop: 38729, Start Num: 47  
Candidate Starts for D29\_58:  
(Start: 47 @39118 has 93 MA's), (71, 38938), (76, 38908), (77, 38866),

Gene: D32\_61 Start: 39118, Stop: 38729, Start Num: 47  
Candidate Starts for D32\_61:  
(Start: 47 @39118 has 93 MA's), (71, 38938), (76, 38908), (77, 38866),

Gene: DBQu4n\_62 Start: 39099, Stop: 38710, Start Num: 47  
Candidate Starts for DBQu4n\_62:  
(17, 39243), (21, 39210), (Start: 47 @39099 has 93 MA's), (71, 38919), (76, 38889), (77, 38847),

Gene: Daishi\_62 Start: 37990, Stop: 37583, Start Num: 49  
Candidate Starts for Daishi\_62:  
(Start: 49 @37990 has 113 MA's), (Start: 54 @37975 has 1 MA's), (59, 37963), (62, 37906), (72, 37801), (76, 37774),

Gene: Dalmatian\_61 Start: 39513, Stop: 39109, Start Num: 41  
Candidate Starts for Dalmatian\_61:  
(22, 39588), (Start: 41 @39513 has 48 MA's), (76, 39288), (77, 39246),

Gene: Danforth\_60 Start: 38437, Stop: 38024, Start Num: 49  
Candidate Starts for Danforth\_60:  
(Start: 49 @38437 has 113 MA's), (59, 38410), (69, 38272), (70, 38263),

Gene: Darrell\_62 Start: 39765, Stop: 39382, Start Num: 47  
Candidate Starts for Darrell\_62:  
(31, 39801), (Start: 47 @39765 has 93 MA's), (68, 39609), (71, 39585), (76, 39555), (77, 39513),

Gene: Datway\_55 Start: 38298, Stop: 37894, Start Num: 51  
Candidate Starts for Datway\_55:  
(Start: 51 @38298 has 71 MA's), (63, 38208), (64, 38169), (71, 38115), (76, 38085),

Gene: Deano\_55 Start: 38376, Stop: 37963, Start Num: 46  
Candidate Starts for Deano\_55:  
(Start: 46 @38376 has 120 MA's), (66, 38229), (70, 38196), (71, 38184), (76, 38154),

Gene: DekHockey33\_68 Start: 39008, Stop: 38628, Start Num: 55  
Candidate Starts for DekHockey33\_68:  
(Start: 55 @39008 has 18 MA's), (68, 38861), (76, 38804), (77, 38762),

Gene: Deloris\_61 Start: 39240, Stop: 38848, Start Num: 47  
Candidate Starts for Deloris\_61:  
(Start: 47 @39240 has 93 MA's), (68, 39081), (71, 39057), (76, 39027), (77, 38985),

Gene: Dhanush\_56 Start: 38371, Stop: 37958, Start Num: 46  
Candidate Starts for Dhanush\_56:  
(Start: 46 @38371 has 120 MA's), (66, 38224), (70, 38191), (71, 38179), (76, 38149),

Gene: Dieselweasel\_64 Start: 39124, Stop: 38717, Start Num: 49  
Candidate Starts for Dieselweasel\_64:  
(Start: 49 @39124 has 113 MA's), (Start: 54 @39109 has 1 MA's), (59, 39097), (62, 39040), (72, 38935), (76, 38908),

Gene: Dignity\_62 Start: 39710, Stop: 39309, Start Num: 41  
Candidate Starts for Dignity\_62:  
(Start: 26 @39755 has 1 MA's), (Start: 41 @39710 has 48 MA's), (71, 39518), (76, 39488), (77, 39446),

Gene: DirtyDunning\_55 Start: 38380, Stop: 37967, Start Num: 46  
Candidate Starts for DirtyDunning\_55:  
(Start: 46 @38380 has 120 MA's), (66, 38233), (70, 38200), (71, 38188), (76, 38158),

Gene: Discoknowium\_52 Start: 38259, Stop: 37849, Start Num: 51  
Candidate Starts for Discoknowium\_52:  
(Start: 51 @38259 has 71 MA's), (65, 38124), (69, 38097), (70, 38088), (76, 38046),

Gene: Dixon\_59 Start: 37957, Stop: 37544, Start Num: 49  
Candidate Starts for Dixon\_59:  
(Start: 49 @37957 has 113 MA's), (59, 37930), (69, 37792), (70, 37783),

Gene: Dorothea\_61 Start: 37948, Stop: 37556, Start Num: 50  
Candidate Starts for Dorothea\_61:

(Start: 50 @37948 has 35 MA's), (Start: 61 @37873 has 1 MA's), (71, 37765), (76, 37735), (77, 37693),

Gene: Drake55\_62 Start: 39407, Stop: 39003, Start Num: 41

Candidate Starts for Drake55\_62:

(Start: 41 @39407 has 48 MA's), (71, 39212), (76, 39182),

Gene: Drake94\_55 Start: 37501, Stop: 37082, Start Num: 44

Candidate Starts for Drake94\_55:

(Start: 44 @37501 has 14 MA's), (Start: 54 @37474 has 1 MA's), (64, 37357), (76, 37273),

Gene: DreamTeam1\_58 Start: 38771, Stop: 38382, Start Num: 44

Candidate Starts for DreamTeam1\_58:

(Start: 44 @38771 has 14 MA's), (68, 38609), (71, 38585), (76, 38555), (77, 38513),

Gene: DroogsArmy\_54 Start: 40276, Stop: 39872, Start Num: 51

Candidate Starts for DroogsArmy\_54:

(Start: 49 @40279 has 113 MA's), (Start: 51 @40276 has 71 MA's), (Start: 54 @40264 has 1 MA's), (59, 40252), (64, 40147), (72, 40090), (76, 40063),

Gene: Druantia\_56 Start: 38371, Stop: 37958, Start Num: 46

Candidate Starts for Druantia\_56:

(Start: 46 @38371 has 120 MA's), (66, 38224), (70, 38191), (71, 38179), (76, 38149),

Gene: Dublin\_54 Start: 38761, Stop: 38351, Start Num: 51

Candidate Starts for Dublin\_54:

(Start: 51 @38761 has 71 MA's), (65, 38626), (69, 38599), (70, 38590), (76, 38548),

Gene: DudeLittle\_59 Start: 39279, Stop: 38875, Start Num: 41

Candidate Starts for DudeLittle\_59:

(22, 39354), (Start: 41 @39279 has 48 MA's), (76, 39054), (77, 39012),

Gene: Duplo\_62 Start: 39155, Stop: 38766, Start Num: 47

Candidate Starts for Duplo\_62:

(17, 39299), (21, 39266), (Start: 47 @39155 has 93 MA's), (71, 38975), (76, 38945), (77, 38903),

Gene: Eagle\_56 Start: 38393, Stop: 37980, Start Num: 46

Candidate Starts for Eagle\_56:

(Start: 46 @38393 has 120 MA's), (66, 38246), (70, 38213), (71, 38201), (76, 38171),

Gene: EagleEye\_63 Start: 39240, Stop: 38848, Start Num: 49

Candidate Starts for EagleEye\_63:

(Start: 49 @39240 has 113 MA's), (59, 39213), (63, 39150), (68, 39081), (71, 39057), (76, 39027), (77, 38985),

Gene: Eaglepride\_58 Start: 38447, Stop: 38034, Start Num: 46

Candidate Starts for Eaglepride\_58:

(Start: 46 @38447 has 120 MA's), (59, 38414), (64, 38309), (72, 38252), (76, 38225),

Gene: Eapen\_56 Start: 38363, Stop: 37950, Start Num: 46

Candidate Starts for Eapen\_56:

(Start: 46 @38363 has 120 MA's), (66, 38216), (70, 38183), (71, 38171), (76, 38141),

Gene: Ebony\_60 Start: 38448, Stop: 38059, Start Num: 47  
Candidate Starts for Ebony\_60:  
(1, 38877), (4, 38814), (17, 38592), (Start: 47 @38448 has 93 MA's), (76, 38238), (77, 38196),

Gene: Echild\_60 Start: 38573, Stop: 38184, Start Num: 51  
Candidate Starts for Echild\_60:  
(Start: 51 @38573 has 71 MA's), (76, 38363), (77, 38321),

Gene: EdogawaKiddo\_58 Start: 39138, Stop: 38737, Start Num: 39  
Candidate Starts for EdogawaKiddo\_58:  
(Start: 39 @39138 has 1 MA's), (68, 38964), (71, 38940), (76, 38910), (77, 38868),

Gene: Eidsmoe\_60 Start: 39135, Stop: 38752, Start Num: 49  
Candidate Starts for Eidsmoe\_60:  
(36, 39162), (Start: 49 @39135 has 113 MA's), (68, 38979), (71, 38955), (76, 38925), (77, 38883),

Gene: EITiger69\_57 Start: 38718, Stop: 38308, Start Num: 51  
Candidate Starts for EITiger69\_57:  
(Start: 51 @38718 has 71 MA's), (65, 38583), (70, 38547), (76, 38505),

Gene: Elephantoon\_59 Start: 38510, Stop: 38124, Start Num: 49  
Candidate Starts for Elephantoon\_59:  
(Start: 49 @38510 has 113 MA's), (63, 38420), (68, 38351), (71, 38327), (76, 38297),

Gene: EmyBug\_59 Start: 39137, Stop: 38754, Start Num: 49  
Candidate Starts for EmyBug\_59:  
(36, 39164), (Start: 49 @39137 has 113 MA's), (68, 38981), (71, 38957), (76, 38927), (77, 38885),

Gene: EpicPhail\_64 Start: 39125, Stop: 38718, Start Num: 49  
Candidate Starts for EpicPhail\_64:  
(Start: 49 @39125 has 113 MA's), (Start: 54 @39110 has 1 MA's), (59, 39098), (62, 39041), (72, 38936), (76, 38909),

Gene: Epsocamisio\_64 Start: 38251, Stop: 37871, Start Num: 55  
Candidate Starts for Epsocamisio\_64:  
(Start: 55 @38251 has 18 MA's), (68, 38104), (76, 38047), (77, 38005),

Gene: EricB\_60 Start: 37928, Stop: 37539, Start Num: 50  
Candidate Starts for EricB\_60:  
(Start: 50 @37928 has 35 MA's), (71, 37748), (76, 37718), (77, 37676),

Gene: Eris\_55 Start: 38368, Stop: 37955, Start Num: 46  
Candidate Starts for Eris\_55:  
(Start: 46 @38368 has 120 MA's), (66, 38221), (70, 38188), (71, 38176), (76, 38146),

Gene: Eros\_56 Start: 38370, Stop: 37957, Start Num: 46  
Candidate Starts for Eros\_56:  
(Start: 46 @38370 has 120 MA's), (66, 38223), (70, 38190), (71, 38178), (76, 38148),

Gene: Espresso\_55 Start: 39945, Stop: 39535, Start Num: 47  
Candidate Starts for Espresso\_55:  
(Start: 47 @39945 has 93 MA's), (Start: 61 @39864 has 1 MA's), (74, 39741),

Gene: Euphoria\_53 Start: 39193, Stop: 38783, Start Num: 47  
Candidate Starts for Euphoria\_53:  
(Start: 47 @39193 has 93 MA's), (Start: 61 @39112 has 1 MA's), (74, 38989),

Gene: Eurydice\_57 Start: 38365, Stop: 37952, Start Num: 46  
Candidate Starts for Eurydice\_57:  
(Start: 46 @38365 has 120 MA's), (66, 38218), (70, 38185), (71, 38173), (76, 38143),

Gene: EvilGenius\_62 Start: 40891, Stop: 40487, Start Num: 41  
Candidate Starts for EvilGenius\_62:  
(Start: 41 @40891 has 48 MA's), (71, 40696), (76, 40666), (77, 40624),

Gene: ExplosioNervosa\_60 Start: 39203, Stop: 38820, Start Num: 49  
Candidate Starts for ExplosioNervosa\_60:  
(36, 39230), (Start: 49 @39203 has 113 MA's), (68, 39047), (71, 39023), (76, 38993), (77, 38951),

Gene: Fameo\_60 Start: 39638, Stop: 39234, Start Num: 41  
Candidate Starts for Fameo\_60:  
(22, 39713), (Start: 41 @39638 has 48 MA's), (71, 39443), (76, 39413), (77, 39371),

Gene: Farber\_63 Start: 39111, Stop: 38704, Start Num: 49  
Candidate Starts for Farber\_63:  
(Start: 49 @39111 has 113 MA's), (Start: 54 @39096 has 1 MA's), (59, 39084), (62, 39027), (72, 38922), (76, 38895),

Gene: Fascinus\_52 Start: 39591, Stop: 39175, Start Num: 47  
Candidate Starts for Fascinus\_52:  
(Start: 47 @39591 has 93 MA's), (68, 39426), (74, 39387), (76, 39372),

Gene: Fayely\_60 Start: 39104, Stop: 38721, Start Num: 49  
Candidate Starts for Fayely\_60:  
(36, 39131), (Start: 49 @39104 has 113 MA's), (68, 38948), (71, 38924), (76, 38894), (77, 38852),

Gene: Fernando\_63 Start: 39121, Stop: 38714, Start Num: 49  
Candidate Starts for Fernando\_63:  
(Start: 49 @39121 has 113 MA's), (Start: 54 @39106 has 1 MA's), (59, 39094), (62, 39037), (72, 38932), (76, 38905),

Gene: Fibonacci\_60 Start: 38417, Stop: 38028, Start Num: 47  
Candidate Starts for Fibonacci\_60:  
(1, 38846), (4, 38783), (17, 38561), (Start: 47 @38417 has 93 MA's), (76, 38207), (77, 38165),

Gene: FiringLine\_60 Start: 39288, Stop: 38884, Start Num: 41  
Candidate Starts for FiringLine\_60:  
(Start: 41 @39288 has 48 MA's), (71, 39093), (76, 39063), (77, 39021),

Gene: First\_0062 Start: 39473, Stop: 39081, Start Num: 47  
Candidate Starts for First\_0062:  
(Start: 47 @39473 has 93 MA's), (68, 39314), (71, 39290), (76, 39260), (77, 39218),

Gene: Flare16\_60 Start: 38986, Stop: 38582, Start Num: 41  
Candidate Starts for Flare16\_60:

(28, 39019), (Start: 38 @38992 has 1 MA's), (Start: 41 @38986 has 48 MA's), (71, 38791), (76, 38761),

Gene: Flaverint\_61 Start: 38875, Stop: 38486, Start Num: 47

Candidate Starts for Flaverint\_61:

(1, 39304), (4, 39241), (17, 39019), (Start: 47 @38875 has 93 MA's), (76, 38665), (77, 38623),

Gene: Florean\_56 Start: 38367, Stop: 37954, Start Num: 46

Candidate Starts for Florean\_56:

(Start: 46 @38367 has 120 MA's), (66, 38220), (70, 38187), (71, 38175), (76, 38145),

Gene: Flux\_56 Start: 38367, Stop: 37954, Start Num: 46

Candidate Starts for Flux\_56:

(Start: 46 @38367 has 120 MA's), (66, 38220), (70, 38187), (71, 38175), (76, 38145),

Gene: ForGetIt\_54 Start: 38617, Stop: 38207, Start Num: 51

Candidate Starts for ForGetIt\_54:

(Start: 51 @38617 has 71 MA's), (65, 38482), (69, 38455), (70, 38446), (76, 38404),

Gene: Fred313\_58 Start: 38365, Stop: 37958, Start Num: 45

Candidate Starts for Fred313\_58:

(Start: 45 @38365 has 23 MA's), (64, 38233), (72, 38176), (76, 38149),

Gene: Funston\_55 Start: 38368, Stop: 37955, Start Num: 46

Candidate Starts for Funston\_55:

(Start: 46 @38368 has 120 MA's), (66, 38221), (70, 38188), (71, 38176), (76, 38146),

Gene: Gadost\_56 Start: 38372, Stop: 37959, Start Num: 46

Candidate Starts for Gadost\_56:

(Start: 46 @38372 has 120 MA's), (66, 38225), (70, 38192), (71, 38180), (76, 38150),

Gene: GageAP\_56 Start: 39982, Stop: 39572, Start Num: 47

Candidate Starts for GageAP\_56:

(Start: 47 @39982 has 93 MA's), (Start: 61 @39901 has 1 MA's), (74, 39778),

Gene: Gandalf20\_58 Start: 41230, Stop: 40820, Start Num: 47

Candidate Starts for Gandalf20\_58:

(Start: 47 @41230 has 93 MA's), (Start: 61 @41149 has 1 MA's), (74, 41026),

Gene: GaugeLDP\_57 Start: 39187, Stop: 38783, Start Num: 41

Candidate Starts for GaugeLDP\_57:

(Start: 41 @39187 has 48 MA's), (70, 39004), (76, 38962), (77, 38920),

Gene: Gemma\_62 Start: 39003, Stop: 38596, Start Num: 49

Candidate Starts for Gemma\_62:

(Start: 49 @39003 has 113 MA's), (59, 38976), (62, 38919), (72, 38814), (76, 38787),

Gene: George\_52 Start: 38693, Stop: 38283, Start Num: 51

Candidate Starts for George\_52:

(Start: 51 @38693 has 71 MA's), (65, 38558), (69, 38531), (70, 38522), (76, 38480),

Gene: Georgie2\_61 Start: 39333, Stop: 38929, Start Num: 41

Candidate Starts for Georgie2\_61:

(Start: 41 @39333 has 48 MA's), (71, 39138), (76, 39108), (77, 39066),

Gene: Ghoulboy\_57 Start: 39496, Stop: 39086, Start Num: 51

Candidate Starts for Ghoulboy\_57:

(Start: 51 @39496 has 71 MA's), (65, 39361), (69, 39334), (70, 39325), (76, 39283),

Gene: Gilberta\_61 Start: 38868, Stop: 38479, Start Num: 47

Candidate Starts for Gilberta\_61:

(Start: 47 @38868 has 93 MA's), (76, 38658), (77, 38616),

Gene: GingkoMaracino\_63 Start: 39007, Stop: 38600, Start Num: 49

Candidate Starts for GingkoMaracino\_63:

(Start: 49 @39007 has 113 MA's), (Start: 54 @38992 has 1 MA's), (59, 38980), (62, 38923), (72, 38818), (76, 38791),

Gene: Gladiator\_59 Start: 37644, Stop: 37255, Start Num: 50

Candidate Starts for Gladiator\_59:

(Start: 50 @37644 has 35 MA's), (71, 37464), (76, 37434), (77, 37392),

Gene: Goose\_57 Start: 38073, Stop: 37660, Start Num: 46

Candidate Starts for Goose\_57:

(Start: 46 @38073 has 120 MA's), (64, 37935), (72, 37878), (76, 37851),

Gene: GreedyLawyer\_60 Start: 37935, Stop: 37546, Start Num: 50

Candidate Starts for GreedyLawyer\_60:

(Start: 50 @37935 has 35 MA's), (71, 37755), (76, 37725), (77, 37683),

Gene: Grif\_63 Start: 39196, Stop: 38789, Start Num: 49

Candidate Starts for Grif\_63:

(Start: 49 @39196 has 113 MA's), (Start: 54 @39181 has 1 MA's), (59, 39169), (62, 39112), (72, 39007), (76, 38980),

Gene: Groundhog\_59 Start: 38352, Stop: 37939, Start Num: 49

Candidate Starts for Groundhog\_59:

(Start: 49 @38352 has 113 MA's), (59, 38325), (69, 38187), (70, 38178),

Gene: Groupthink\_64 Start: 39007, Stop: 38600, Start Num: 49

Candidate Starts for Groupthink\_64:

(Start: 49 @39007 has 113 MA's), (59, 38980), (62, 38923), (72, 38818), (76, 38791),

Gene: Grub\_63 Start: 39113, Stop: 38706, Start Num: 49

Candidate Starts for Grub\_63:

(Start: 49 @39113 has 113 MA's), (Start: 54 @39098 has 1 MA's), (59, 39086), (62, 39029), (72, 38924), (76, 38897),

Gene: Grum1\_63 Start: 39121, Stop: 38714, Start Num: 49

Candidate Starts for Grum1\_63:

(Start: 49 @39121 has 113 MA's), (Start: 54 @39106 has 1 MA's), (59, 39094), (62, 39037), (72, 38932), (76, 38905),

Gene: Gruunaga\_62 Start: 38343, Stop: 37954, Start Num: 50

Candidate Starts for Gruunaga\_62:

(Start: 50 @38343 has 35 MA's), (71, 38163), (76, 38133), (77, 38091),



Gene: GtownJaz\_63 Start: 39123, Stop: 38716, Start Num: 49

Candidate Starts for GtownJaz\_63:

(Start: 49 @39123 has 113 MA's), (Start: 54 @39108 has 1 MA's), (59, 39096), (62, 39039), (72, 38934), (76, 38907),

Gene: HINdeR\_53 Start: 39941, Stop: 39534, Start Num: 49

Candidate Starts for HINdeR\_53:

(Start: 49 @39941 has 113 MA's), (Start: 51 @39938 has 71 MA's), (59, 39914), (64, 39809), (71, 39755), (72, 39752), (76, 39725),

Gene: HamSlice\_54 Start: 38366, Stop: 37953, Start Num: 46

Candidate Starts for HamSlice\_54:

(Start: 46 @38366 has 120 MA's), (66, 38219), (70, 38186), (71, 38174), (76, 38144),

Gene: Hammer\_62 Start: 37950, Stop: 37561, Start Num: 50

Candidate Starts for Hammer\_62:

(Start: 50 @37950 has 35 MA's), (71, 37770), (76, 37740), (77, 37698),

Gene: Hanray\_58 Start: 39124, Stop: 38741, Start Num: 49

Candidate Starts for Hanray\_58:

(35, 39154), (37, 39151), (Start: 49 @39124 has 113 MA's), (68, 38968), (71, 38944), (76, 38914), (77, 38872),

Gene: Happiness\_55 Start: 38354, Stop: 37941, Start Num: 46

Candidate Starts for Happiness\_55:

(Start: 46 @38354 has 120 MA's), (66, 38207), (71, 38162), (76, 38132),

Gene: HarryHoudini\_61 Start: 39404, Stop: 39012, Start Num: 48

Candidate Starts for HarryHoudini\_61:

(Start: 48 @39404 has 1 MA's), (71, 39221), (76, 39191),

Gene: HashRod\_64 Start: 39149, Stop: 38742, Start Num: 49

Candidate Starts for HashRod\_64:

(Start: 49 @39149 has 113 MA's), (Start: 54 @39134 has 1 MA's), (59, 39122), (62, 39065), (72, 38960), (76, 38933),

Gene: HaveUMetTed\_64 Start: 38992, Stop: 38585, Start Num: 49

Candidate Starts for HaveUMetTed\_64:

(Start: 49 @38992 has 113 MA's), (59, 38965), (62, 38908), (72, 38803), (76, 38776),

Gene: Heathen\_59 Start: 38463, Stop: 38056, Start Num: 45

Candidate Starts for Heathen\_59:

(Start: 45 @38463 has 23 MA's), (64, 38331), (72, 38274), (76, 38247),

Gene: Heffalump\_59 Start: 40106, Stop: 39702, Start Num: 41

Candidate Starts for Heffalump\_59:

(22, 40181), (Start: 41 @40106 has 48 MA's), (71, 39911), (76, 39881), (77, 39839),

Gene: HelDan\_59 Start: 38679, Stop: 38272, Start Num: 45

Candidate Starts for HelDan\_59:

(Start: 45 @38679 has 23 MA's), (64, 38547), (72, 38490), (76, 38463),

Gene: Heliosoles\_62 Start: 39010, Stop: 38603, Start Num: 49  
Candidate Starts for Heliosoles\_62:  
(Start: 49 @39010 has 113 MA's), (59, 38983), (62, 38926), (72, 38821), (76, 38794),

Gene: Herbertwm\_58 Start: 39049, Stop: 38666, Start Num: 47  
Candidate Starts for Herbertwm\_58:  
(17, 39193), (18, 39172), (Start: 47 @39049 has 93 MA's), (64, 38923), (68, 38893), (70, 38881), (76, 38839), (77, 38797),

Gene: Hercules11\_63 Start: 39130, Stop: 38723, Start Num: 49  
Candidate Starts for Hercules11\_63:  
(Start: 49 @39130 has 113 MA's), (Start: 54 @39115 has 1 MA's), (59, 39103), (62, 39046), (72, 38941), (76, 38914),

Gene: HermioneGrange\_56 Start: 39356, Stop: 38946, Start Num: 47  
Candidate Starts for HermioneGrange\_56:  
(Start: 47 @39356 has 93 MA's), (Start: 61 @39275 has 1 MA's), (74, 39152),

Gene: Hexamo\_62 Start: 38049, Stop: 37660, Start Num: 50  
Candidate Starts for Hexamo\_62:  
(Start: 50 @38049 has 35 MA's), (71, 37869), (76, 37839), (77, 37797),

Gene: Holli\_55 Start: 38158, Stop: 37745, Start Num: 46  
Candidate Starts for Holli\_55:  
(Start: 46 @38158 has 120 MA's), (66, 38011), (70, 37978), (71, 37966), (76, 37936),

Gene: Hookmount\_58 Start: 38738, Stop: 38331, Start Num: 45  
Candidate Starts for Hookmount\_58:  
(Start: 45 @38738 has 23 MA's), (64, 38606), (72, 38549), (76, 38522),

Gene: Hoot\_56 Start: 35786, Stop: 35397, Start Num: 50  
Candidate Starts for Hoot\_56:  
(Start: 50 @35786 has 35 MA's), (71, 35606), (76, 35576), (77, 35534),

Gene: HortumSL17\_60 Start: 39071, Stop: 38688, Start Num: 49  
Candidate Starts for HortumSL17\_60:  
(35, 39101), (Start: 49 @39071 has 113 MA's), (68, 38915), (71, 38891), (76, 38861), (77, 38819),

Gene: Houdini22\_56 Start: 38372, Stop: 37959, Start Num: 46  
Candidate Starts for Houdini22\_56:  
(Start: 46 @38372 has 120 MA's), (66, 38225), (70, 38192), (71, 38180), (76, 38150),

Gene: HuhtaEnerson15\_54 Start: 38693, Stop: 38283, Start Num: 51  
Candidate Starts for HuhtaEnerson15\_54:  
(Start: 51 @38693 has 71 MA's), (65, 38558), (69, 38531), (70, 38522), (76, 38480),

Gene: ICleared\_56 Start: 38397, Stop: 37984, Start Num: 46  
Candidate Starts for ICleared\_56:  
(Start: 46 @38397 has 120 MA's), (66, 38250), (70, 38217), (71, 38205), (76, 38175),

Gene: Iceman\_56 Start: 38654, Stop: 38241, Start Num: 46  
Candidate Starts for Iceman\_56:  
(Start: 46 @38654 has 120 MA's), (66, 38507), (70, 38474), (71, 38462), (76, 38432),

Gene: Idleandcovert\_59 Start: 38772, Stop: 38365, Start Num: 45  
Candidate Starts for Idleandcovert\_59:  
(Start: 45 @38772 has 23 MA's), (64, 38640), (72, 38583), (76, 38556),

Gene: Indra\_65 Start: 38420, Stop: 38031, Start Num: 50  
Candidate Starts for Indra\_65:  
(Start: 50 @38420 has 35 MA's), (71, 38240), (76, 38210), (77, 38168),

Gene: Insomnia\_61 Start: 38928, Stop: 38539, Start Num: 47  
Candidate Starts for Insomnia\_61:  
(Start: 47 @38928 has 93 MA's), (76, 38718), (77, 38676),

Gene: Iracema64\_57 Start: 38632, Stop: 38219, Start Num: 46  
Candidate Starts for Iracema64\_57:  
(Start: 46 @38632 has 120 MA's), (66, 38485), (70, 38452), (71, 38440), (76, 38410),

Gene: IronMan\_59 Start: 40131, Stop: 39727, Start Num: 41  
Candidate Starts for IronMan\_59:  
(Start: 24 @40197 has 1 MA's), (Start: 26 @40179 has 1 MA's), (Start: 27 @40173 has 1 MA's), (28, 40167), (Start: 41 @40131 has 48 MA's), (68, 39960), (70, 39948), (71, 39936), (76, 39906), (77, 39864),

Gene: Isca\_58 Start: 38257, Stop: 37841, Start Num: 44  
Candidate Starts for Isca\_58:  
(Start: 44 @38257 has 14 MA's), (64, 38116), (72, 38059), (76, 38032),

Gene: Isiphiwo\_59 Start: 37502, Stop: 37113, Start Num: 50  
Candidate Starts for Isiphiwo\_59:  
(Start: 50 @37502 has 35 MA's), (71, 37322), (76, 37292), (77, 37250),

Gene: Iwokeuplikedis\_62 Start: 39037, Stop: 38645, Start Num: 47  
Candidate Starts for Iwokeuplikedis\_62:  
(Start: 47 @39037 has 93 MA's), (68, 38878), (71, 38854), (76, 38824), (77, 38782),

Gene: JF2\_57 Start: 36958, Stop: 36542, Start Num: 44  
Candidate Starts for JF2\_57:  
(Start: 44 @36958 has 14 MA's), (64, 36817), (72, 36760), (76, 36733),

Gene: JF4\_57 Start: 36958, Stop: 36542, Start Num: 44  
Candidate Starts for JF4\_57:  
(Start: 44 @36958 has 14 MA's), (64, 36817), (72, 36760), (76, 36733),

Gene: JSwag\_66 Start: 38440, Stop: 38060, Start Num: 55  
Candidate Starts for JSwag\_66:  
(Start: 55 @38440 has 18 MA's), (68, 38293), (76, 38236), (77, 38194),

Gene: Jaan\_60 Start: 40291, Stop: 39887, Start Num: 41  
Candidate Starts for Jaan\_60:  
(Start: 24 @40357 has 1 MA's), (Start: 26 @40339 has 1 MA's), (Start: 27 @40333 has 1 MA's), (28, 40327), (Start: 41 @40291 has 48 MA's), (68, 40120), (70, 40108), (71, 40096), (76, 40066), (77, 40024),

Gene: Jabiru\_56 Start: 38597, Stop: 38187, Start Num: 51  
Candidate Starts for Jabiru\_56:  
(Start: 51 @38597 has 71 MA's), (65, 38462), (69, 38435), (70, 38426), (76, 38384),

Gene: Jabith\_61 Start: 38929, Stop: 38540, Start Num: 47  
Candidate Starts for Jabith\_61:  
(1, 39358), (4, 39295), (17, 39073), (Start: 47 @38929 has 93 MA's), (76, 38719), (77, 38677),

Gene: Jaykayelowell\_54 Start: 38361, Stop: 37948, Start Num: 46  
Candidate Starts for Jaykayelowell\_54:  
(Start: 46 @38361 has 120 MA's), (66, 38214), (70, 38181), (71, 38169), (76, 38139),

Gene: Jeeves\_64 Start: 39202, Stop: 38816, Start Num: 47  
Candidate Starts for Jeeves\_64:  
(Start: 47 @39202 has 93 MA's), (68, 39043), (71, 39019), (76, 38989),

Gene: Jeffabunny\_62 Start: 38046, Stop: 37657, Start Num: 50  
Candidate Starts for Jeffabunny\_62:  
(Start: 50 @38046 has 35 MA's), (71, 37866), (76, 37836), (77, 37794),

Gene: JenCasNa\_64 Start: 39121, Stop: 38714, Start Num: 49  
Candidate Starts for JenCasNa\_64:  
(Start: 49 @39121 has 113 MA's), (Start: 54 @39106 has 1 MA's), (59, 39094), (62, 39037), (72, 38932), (76, 38905),

Gene: JeppNRM\_64 Start: 39008, Stop: 38601, Start Num: 49  
Candidate Starts for JeppNRM\_64:  
(Start: 49 @39008 has 113 MA's), (59, 38981), (62, 38924), (72, 38819), (76, 38792),

Gene: Jerm\_62 Start: 39702, Stop: 39301, Start Num: 41  
Candidate Starts for Jerm\_62:  
(Start: 26 @39747 has 1 MA's), (Start: 41 @39702 has 48 MA's), (71, 39510), (76, 39480), (77, 39438),

Gene: Jerm2\_57 Start: 39611, Stop: 39201, Start Num: 47  
Candidate Starts for Jerm2\_57:  
(Start: 47 @39611 has 93 MA's), (Start: 61 @39530 has 1 MA's), (74, 39407),

Gene: JetBlade\_56 Start: 38362, Stop: 37949, Start Num: 46  
Candidate Starts for JetBlade\_56:  
(Start: 46 @38362 has 120 MA's), (66, 38215), (70, 38182), (71, 38170), (76, 38140),

Gene: JewelBug\_62 Start: 38180, Stop: 37752, Start Num: 30  
Candidate Starts for JewelBug\_62:  
(Start: 30 @38180 has 4 MA's), (Start: 47 @38144 has 93 MA's), (71, 37961), (76, 37931), (77, 37889),

Gene: Jobu08\_61 Start: 38953, Stop: 38546, Start Num: 49  
Candidate Starts for Jobu08\_61:  
(Start: 49 @38953 has 113 MA's), (Start: 54 @38938 has 1 MA's), (59, 38926), (62, 38869), (72, 38764), (76, 38737),

Gene: JoongJeon\_55 Start: 38365, Stop: 37952, Start Num: 46

Candidate Starts for JoongJeon\_55:

(Start: 46 @38365 has 120 MA's), (66, 38218), (70, 38185), (71, 38173), (76, 38143),

Gene: Jordennis\_60 Start: 37661, Stop: 37233, Start Num: 30

Candidate Starts for Jordennis\_60:

(Start: 30 @37661 has 4 MA's), (Start: 47 @37625 has 93 MA's), (59, 37598), (71, 37442), (76, 37412), (77, 37370),

Gene: Jorgensen\_56 Start: 39441, Stop: 39031, Start Num: 47

Candidate Starts for Jorgensen\_56:

(Start: 47 @39441 has 93 MA's), (Start: 61 @39360 has 1 MA's), (74, 39237),

Gene: Joselito\_61 Start: 38877, Stop: 38488, Start Num: 47

Candidate Starts for Joselito\_61:

(1, 39306), (4, 39243), (17, 39021), (Start: 47 @38877 has 93 MA's), (76, 38667), (77, 38625),

Gene: JoshKayV\_62 Start: 39766, Stop: 39365, Start Num: 41

Candidate Starts for JoshKayV\_62:

(Start: 41 @39766 has 48 MA's), (71, 39574), (76, 39544), (77, 39502),

Gene: Journey13\_54 Start: 37660, Stop: 37271, Start Num: 51

Candidate Starts for Journey13\_54:

(Start: 51 @37660 has 71 MA's), (59, 37636), (68, 37504), (71, 37480), (76, 37450), (77, 37408),

Gene: Jovo\_54 Start: 38873, Stop: 38463, Start Num: 51

Candidate Starts for Jovo\_54:

(Start: 51 @38873 has 71 MA's), (65, 38738), (69, 38711), (70, 38702), (76, 38660),

Gene: Jsquared\_59 Start: 38463, Stop: 38071, Start Num: 49

Candidate Starts for Jsquared\_59:

(Start: 49 @38463 has 113 MA's), (68, 38304), (71, 38280), (76, 38250), (77, 38208),

Gene: JuliaChild\_57 Start: 39293, Stop: 38883, Start Num: 47

Candidate Starts for JuliaChild\_57:

(Start: 47 @39293 has 93 MA's), (60, 39236), (Start: 61 @39212 has 1 MA's), (74, 39089),

Gene: KADY\_63 Start: 39149, Stop: 38742, Start Num: 49

Candidate Starts for KADY\_63:

(Start: 49 @39149 has 113 MA's), (Start: 54 @39134 has 1 MA's), (59, 39122), (62, 39065), (72, 38960), (76, 38933),

Gene: KBG\_56 Start: 41351, Stop: 40941, Start Num: 47

Candidate Starts for KBG\_56:

(Start: 47 @41351 has 93 MA's), (Start: 61 @41270 has 1 MA's), (74, 41147),

Gene: KFPoly\_55 Start: 38362, Stop: 37949, Start Num: 46

Candidate Starts for KFPoly\_55:

(Start: 46 @38362 has 120 MA's), (66, 38215), (70, 38182), (71, 38170), (76, 38140),

Gene: KSSJEB\_55 Start: 39071, Stop: 38661, Start Num: 47

Candidate Starts for KSSJEB\_55:

(Start: 47 @39071 has 93 MA's), (Start: 61 @38990 has 1 MA's), (74, 38867),

Gene: Kalb97\_64 Start: 39006, Stop: 38599, Start Num: 49  
Candidate Starts for Kalb97\_64:  
(Start: 49 @39006 has 113 MA's), (59, 38979), (62, 38922), (72, 38817), (76, 38790),

Gene: Kalnoky\_64 Start: 39004, Stop: 38597, Start Num: 49  
Candidate Starts for Kalnoky\_64:  
(Start: 49 @39004 has 113 MA's), (59, 38977), (62, 38920), (72, 38815), (76, 38788),

Gene: Kalpine\_58 Start: 39348, Stop: 38926, Start Num: 32  
Candidate Starts for Kalpine\_58:  
(Start: 32 @39348 has 1 MA's), (Start: 47 @39318 has 93 MA's), (71, 39135), (76, 39105), (77, 39063),

Gene: Kamy\_55 Start: 38370, Stop: 37957, Start Num: 46  
Candidate Starts for Kamy\_55:  
(Start: 46 @38370 has 120 MA's), (66, 38223), (70, 38190), (71, 38178), (76, 38148),

Gene: Katalie136\_55 Start: 38312, Stop: 37908, Start Num: 51  
Candidate Starts for Katalie136\_55:  
(Start: 51 @38312 has 71 MA's), (63, 38222), (64, 38183), (71, 38129), (76, 38099),

Gene: KatherineG\_67 Start: 38913, Stop: 38533, Start Num: 55  
Candidate Starts for KatherineG\_67:  
(Start: 55 @38913 has 18 MA's), (68, 38766), (76, 38709), (77, 38667),

Gene: Kazan\_62 Start: 37941, Stop: 37552, Start Num: 50  
Candidate Starts for Kazan\_62:  
(Start: 50 @37941 has 35 MA's), (71, 37761), (76, 37731), (77, 37689),

Gene: Kerberos\_62 Start: 39117, Stop: 38728, Start Num: 47  
Candidate Starts for Kerberos\_62:  
(17, 39261), (21, 39228), (Start: 47 @39117 has 93 MA's), (71, 38937), (76, 38907), (77, 38865),

Gene: Keziacharles14\_60 Start: 40209, Stop: 39829, Start Num: 53  
Candidate Starts for Keziacharles14\_60:  
(Start: 53 @40209 has 1 MA's), (62, 40134), (68, 40056), (76, 40002), (77, 39960),

Gene: Killigrew\_56 Start: 40271, Stop: 39861, Start Num: 47  
Candidate Starts for Killigrew\_56:  
(Start: 47 @40271 has 93 MA's), (Start: 61 @40190 has 1 MA's), (74, 40067),

Gene: Kingmustik0402\_56 Start: 38357, Stop: 37944, Start Num: 46  
Candidate Starts for Kingmustik0402\_56:  
(Start: 46 @38357 has 120 MA's), (66, 38210), (70, 38177), (71, 38165), (76, 38135),

Gene: Kipper29\_61 Start: 37954, Stop: 37565, Start Num: 50  
Candidate Starts for Kipper29\_61:  
(Start: 50 @37954 has 35 MA's), (71, 37774), (76, 37744), (77, 37702),

Gene: KittenMittens\_54 Start: 37509, Stop: 37090, Start Num: 44  
Candidate Starts for KittenMittens\_54:  
(Start: 44 @37509 has 14 MA's), (Start: 54 @37482 has 1 MA's), (64, 37365), (76, 37281),

Gene: Koko\_63 Start: 38483, Stop: 38091, Start Num: 50  
Candidate Starts for Koko\_63:  
(34, 38513), (Start: 50 @38483 has 35 MA's), (Start: 61 @38408 has 1 MA's), (71, 38300), (76, 38270), (77, 38228),

Gene: Koreni\_55 Start: 38049, Stop: 37636, Start Num: 46  
Candidate Starts for Koreni\_55:  
(Start: 46 @38049 has 120 MA's), (66, 37902), (70, 37869), (71, 37857), (76, 37827),

Gene: Kratak\_56 Start: 38481, Stop: 38077, Start Num: 51  
Candidate Starts for Kratak\_56:  
(Start: 51 @38481 has 71 MA's), (63, 38391), (64, 38352), (70, 38310), (71, 38298), (76, 38268),

Gene: Kremtemulon\_56 Start: 38316, Stop: 37903, Start Num: 46  
Candidate Starts for Kremtemulon\_56:  
(Start: 46 @38316 has 120 MA's), (66, 38169), (70, 38136), (71, 38124), (76, 38094),

Gene: Kristoff\_56 Start: 38648, Stop: 38235, Start Num: 46  
Candidate Starts for Kristoff\_56:  
(Start: 46 @38648 has 120 MA's), (64, 38510), (72, 38453), (76, 38426),

Gene: Kyee\_56 Start: 38366, Stop: 37953, Start Num: 46  
Candidate Starts for Kyee\_56:  
(Start: 46 @38366 has 120 MA's), (66, 38219), (70, 38186), (71, 38174), (76, 38144),

Gene: L5\_58 Start: 38662, Stop: 38270, Start Num: 51  
Candidate Starts for L5\_58:  
(Start: 51 @38662 has 71 MA's), (68, 38506), (71, 38482), (76, 38452), (77, 38410),

Gene: LBerry\_64 Start: 39125, Stop: 38718, Start Num: 49  
Candidate Starts for LBerry\_64:  
(Start: 49 @39125 has 113 MA's), (Start: 54 @39110 has 1 MA's), (59, 39098), (62, 39041), (72, 38936), (76, 38909),

Gene: LHTSCC\_58 Start: 38771, Stop: 38358, Start Num: 46  
Candidate Starts for LHTSCC\_58:  
(Start: 46 @38771 has 120 MA's), (66, 38624), (71, 38579), (76, 38549),

Gene: LadyBird\_65 Start: 40052, Stop: 39660, Start Num: 47  
Candidate Starts for LadyBird\_65:  
(Start: 47 @40052 has 93 MA's), (68, 39893), (71, 39869), (76, 39839), (77, 39797),

Gene: Lambert1\_58 Start: 38737, Stop: 38330, Start Num: 45  
Candidate Starts for Lambert1\_58:  
(Start: 45 @38737 has 23 MA's), (64, 38605), (72, 38548), (76, 38521),

Gene: Landor\_60 Start: 40209, Stop: 39805, Start Num: 41  
Candidate Starts for Landor\_60:  
(Start: 24 @40275 has 1 MA's), (Start: 26 @40257 has 1 MA's), (Start: 27 @40251 has 1 MA's), (28, 40245), (Start: 41 @40209 has 48 MA's), (68, 40038), (70, 40026), (71, 40014), (76, 39984), (77, 39942),

Gene: LappelDuVide\_56 Start: 38367, Stop: 37954, Start Num: 46

Candidate Starts for LappelDuVide\_56:

(Start: 46 @38367 has 120 MA's), (66, 38220), (70, 38187), (71, 38175), (76, 38145),

Gene: Larenn\_59 Start: 39283, Stop: 38891, Start Num: 47

Candidate Starts for Larenn\_59:

(Start: 32 @39313 has 1 MA's), (Start: 47 @39283 has 93 MA's), (71, 39100), (76, 39070), (77, 39028),

Gene: LarryKay\_63 Start: 39151, Stop: 38744, Start Num: 49

Candidate Starts for LarryKay\_63:

(Start: 49 @39151 has 113 MA's), (Start: 54 @39136 has 1 MA's), (59, 39124), (62, 39067), (72, 38962), (76, 38935),

Gene: LastResort\_65 Start: 38492, Stop: 38112, Start Num: 55

Candidate Starts for LastResort\_65:

(Start: 55 @38492 has 18 MA's), (68, 38345), (76, 38288), (77, 38246),

Gene: Lemur\_56 Start: 38365, Stop: 37952, Start Num: 46

Candidate Starts for Lemur\_56:

(Start: 46 @38365 has 120 MA's), (66, 38218), (70, 38185), (71, 38173), (76, 38143),

Gene: Leogania\_60 Start: 40082, Stop: 39678, Start Num: 41

Candidate Starts for Leogania\_60:

(Start: 26 @40130 has 1 MA's), (Start: 41 @40082 has 48 MA's), (71, 39887), (76, 39857), (77, 39815),

Gene: Lev2\_54 Start: 38505, Stop: 38095, Start Num: 51

Candidate Starts for Lev2\_54:

(Start: 51 @38505 has 71 MA's), (65, 38370), (69, 38343), (70, 38334), (76, 38292),

Gene: Leviathan\_62 Start: 39759, Stop: 39358, Start Num: 41

Candidate Starts for Leviathan\_62:

(Start: 26 @39804 has 1 MA's), (Start: 41 @39759 has 48 MA's), (71, 39567), (76, 39537), (77, 39495),

Gene: LilTurb\_61 Start: 39583, Stop: 39182, Start Num: 41

Candidate Starts for LilTurb\_61:

(Start: 26 @39628 has 1 MA's), (Start: 41 @39583 has 48 MA's), (71, 39391), (76, 39361), (77, 39319),

Gene: Lilbunny\_61 Start: 38050, Stop: 37661, Start Num: 50

Candidate Starts for Lilbunny\_61:

(Start: 50 @38050 has 35 MA's), (71, 37870), (76, 37840), (77, 37798),

Gene: Lilit\_63 Start: 39114, Stop: 38707, Start Num: 49

Candidate Starts for Lilit\_63:

(Start: 49 @39114 has 113 MA's), (Start: 54 @39099 has 1 MA's), (59, 39087), (62, 39030), (72, 38925), (76, 38898),

Gene: LittleB\_56 Start: 38369, Stop: 37956, Start Num: 46

Candidate Starts for LittleB\_56:

(Start: 46 @38369 has 120 MA's), (66, 38222), (70, 38189), (71, 38177), (76, 38147),



Gene: LittleCherry\_54 Start: 38713, Stop: 38303, Start Num: 51  
Candidate Starts for LittleCherry\_54:  
(Start: 51 @38713 has 71 MA's), (65, 38578), (69, 38551), (70, 38542), (76, 38500),

Gene: LittleGuy\_56 Start: 38264, Stop: 37851, Start Num: 46  
Candidate Starts for LittleGuy\_56:  
(Start: 46 @38264 has 120 MA's), (66, 38117), (70, 38084), (71, 38072), (76, 38042),

Gene: LochMonster\_57 Start: 38604, Stop: 38191, Start Num: 46  
Candidate Starts for LochMonster\_57:  
(Start: 46 @38604 has 120 MA's), (66, 38457), (70, 38424), (71, 38412), (76, 38382),

Gene: Lokk\_57 Start: 38655, Stop: 38260, Start Num: 47  
Candidate Starts for Lokk\_57:  
(Start: 47 @38655 has 93 MA's), (71, 38469), (76, 38439), (77, 38397),

Gene: LoneWolf\_61 Start: 39104, Stop: 38718, Start Num: 47  
Candidate Starts for LoneWolf\_61:  
(23, 39191), (Start: 47 @39104 has 93 MA's), (68, 38945), (70, 38933), (71, 38921), (76, 38891), (77, 38849),

Gene: Looper\_66 Start: 38404, Stop: 38024, Start Num: 55  
Candidate Starts for Looper\_66:  
(Start: 55 @38404 has 18 MA's), (68, 38257), (76, 38200), (77, 38158),

Gene: Lopton\_56 Start: 41544, Stop: 41134, Start Num: 47  
Candidate Starts for Lopton\_56:  
(Start: 47 @41544 has 93 MA's), (Start: 61 @41463 has 1 MA's), (74, 41340),

Gene: Lorenzo\_56 Start: 38368, Stop: 37955, Start Num: 46  
Candidate Starts for Lorenzo\_56:  
(Start: 46 @38368 has 120 MA's), (66, 38221), (70, 38188), (71, 38176), (76, 38146),

Gene: Loser\_62 Start: 39935, Stop: 39540, Start Num: 47  
Candidate Starts for Loser\_62:  
(7, 40253), (11, 40175), (17, 40079), (Start: 47 @39935 has 93 MA's), (59, 39905), (71, 39749), (76, 39719), (77, 39677),

Gene: Louie6\_62 Start: 39150, Stop: 38743, Start Num: 49  
Candidate Starts for Louie6\_62:  
(Start: 49 @39150 has 113 MA's), (Start: 54 @39135 has 1 MA's), (59, 39123), (62, 39066), (70, 38976), (72, 38961), (76, 38934),

Gene: Luchador\_63 Start: 40785, Stop: 40399, Start Num: 47  
Candidate Starts for Luchador\_63:  
(Start: 47 @40785 has 93 MA's), (64, 40656), (68, 40626), (71, 40602), (76, 40572),

Gene: Lucivia\_61 Start: 38926, Stop: 38537, Start Num: 47  
Candidate Starts for Lucivia\_61:  
(Start: 47 @38926 has 93 MA's), (76, 38716), (77, 38674),

Gene: Lucyedi\_62 Start: 39436, Stop: 39044, Start Num: 49  
Candidate Starts for Lucyedi\_62:

(Start: 49 @39436 has 113 MA's), (59, 39409), (63, 39346), (68, 39277), (71, 39253), (76, 39223), (77, 39181),

Gene: LugYA\_66 Start: 39122, Stop: 38715, Start Num: 49

Candidate Starts for LugYA\_66:

(Start: 49 @39122 has 113 MA's), (Start: 54 @39107 has 1 MA's), (59, 39095), (62, 39038), (72, 38933), (76, 38906),

Gene: Lunsford\_57 Start: 38362, Stop: 37949, Start Num: 46

Candidate Starts for Lunsford\_57:

(Start: 46 @38362 has 120 MA's), (66, 38215), (70, 38182), (71, 38170), (76, 38140),

Gene: MA5\_59 Start: 38158, Stop: 37742, Start Num: 44

Candidate Starts for MA5\_59:

(Start: 44 @38158 has 14 MA's), (64, 38017), (72, 37960), (76, 37933),

Gene: MK4\_59 Start: 38242, Stop: 37826, Start Num: 44

Candidate Starts for MK4\_59:

(Start: 44 @38242 has 14 MA's), (64, 38101), (72, 38044), (76, 38017),

Gene: MadMarie\_63 Start: 39123, Stop: 38716, Start Num: 49

Candidate Starts for MadMarie\_63:

(Start: 49 @39123 has 113 MA's), (Start: 54 @39108 has 1 MA's), (59, 39096), (62, 39039), (72, 38934), (76, 38907),

Gene: Mainiac\_63 Start: 39115, Stop: 38708, Start Num: 49

Candidate Starts for Mainiac\_63:

(Start: 49 @39115 has 113 MA's), (Start: 54 @39100 has 1 MA's), (59, 39088), (62, 39031), (72, 38926), (76, 38899),

Gene: Malec\_60 Start: 39850, Stop: 39458, Start Num: 47

Candidate Starts for Malec\_60:

(Start: 32 @39880 has 1 MA's), (Start: 47 @39850 has 93 MA's), (71, 39667), (76, 39637), (77, 39595),

Gene: Malinsilva\_65 Start: 39113, Stop: 38706, Start Num: 49

Candidate Starts for Malinsilva\_65:

(Start: 49 @39113 has 113 MA's), (Start: 54 @39098 has 1 MA's), (59, 39086), (62, 39029), (72, 38924), (76, 38897),

Gene: Maminiaina\_59 Start: 39073, Stop: 38687, Start Num: 47

Candidate Starts for Maminiaina\_59:

(Start: 47 @39073 has 93 MA's), (68, 38914), (71, 38890), (76, 38860), (77, 38818),

Gene: Manatee\_57 Start: 39703, Stop: 39293, Start Num: 47

Candidate Starts for Manatee\_57:

(Start: 47 @39703 has 93 MA's), (Start: 61 @39622 has 1 MA's), (74, 39499),

Gene: Manu\_63 Start: 39007, Stop: 38600, Start Num: 49

Candidate Starts for Manu\_63:

(Start: 49 @39007 has 113 MA's), (59, 38980), (62, 38923), (72, 38818), (76, 38791),

Gene: MarQuardt\_63 Start: 39123, Stop: 38716, Start Num: 49

Candidate Starts for MarQuardt\_63:

(Start: 49 @39123 has 113 MA's), (Start: 54 @39108 has 1 MA's), (59, 39096), (62, 39039), (72, 38934), (76, 38907),

Gene: Margo\_58 Start: 38763, Stop: 38356, Start Num: 45

Candidate Starts for Margo\_58:

(Start: 45 @38763 has 23 MA's), (64, 38631), (72, 38574), (76, 38547),

Gene: Marius\_64 Start: 39004, Stop: 38597, Start Num: 49

Candidate Starts for Marius\_64:

(Start: 49 @39004 has 113 MA's), (59, 38977), (62, 38920), (72, 38815), (76, 38788),

Gene: Maroc7\_54 Start: 39900, Stop: 39484, Start Num: 47

Candidate Starts for Maroc7\_54:

(Start: 47 @39900 has 93 MA's), (68, 39735), (74, 39696), (76, 39681),

Gene: MarysWell\_54 Start: 39004, Stop: 38594, Start Num: 51

Candidate Starts for MarysWell\_54:

(Start: 51 @39004 has 71 MA's), (65, 38869), (69, 38842), (70, 38833), (76, 38791),

Gene: Maxo\_57 Start: 38370, Stop: 37957, Start Num: 46

Candidate Starts for Maxo\_57:

(Start: 46 @38370 has 120 MA's), (66, 38223), (70, 38190), (71, 38178), (76, 38148),

Gene: Mazhar510\_56 Start: 38369, Stop: 37956, Start Num: 46

Candidate Starts for Mazhar510\_56:

(Start: 46 @38369 has 120 MA's), (66, 38222), (70, 38189), (71, 38177), (76, 38147),

Gene: McFly\_61 Start: 37935, Stop: 37546, Start Num: 50

Candidate Starts for McFly\_61:

(Start: 50 @37935 has 35 MA's), (71, 37755), (76, 37725), (77, 37683),

Gene: Medusa\_56 Start: 38367, Stop: 37954, Start Num: 46

Candidate Starts for Medusa\_56:

(Start: 46 @38367 has 120 MA's), (66, 38220), (70, 38187), (71, 38175), (76, 38145),

Gene: MeeZee\_56 Start: 38365, Stop: 37952, Start Num: 46

Candidate Starts for MeeZee\_56:

(Start: 46 @38365 has 120 MA's), (66, 38218), (70, 38185), (71, 38173), (76, 38143),

Gene: Melvin\_58 Start: 38363, Stop: 37950, Start Num: 46

Candidate Starts for Melvin\_58:

(Start: 46 @38363 has 120 MA's), (66, 38216), (70, 38183), (71, 38171), (76, 38141),

Gene: Methuselah\_58 Start: 39145, Stop: 38738, Start Num: 49

Candidate Starts for Methuselah\_58:

(Start: 49 @39145 has 113 MA's), (Start: 54 @39130 has 1 MA's), (59, 39118), (62, 39061), (72, 38956), (76, 38929),

Gene: Micasa\_55 Start: 38878, Stop: 38468, Start Num: 51

Candidate Starts for Micasa\_55:

(Start: 51 @38878 has 71 MA's), (65, 38743), (69, 38716), (70, 38707), (76, 38665),

Gene: Michley\_55 Start: 39579, Stop: 39163, Start Num: 47  
Candidate Starts for Michley\_55:  
(Start: 47 @39579 has 93 MA's), (68, 39414), (74, 39375), (76, 39360),

Gene: MiculUcigas\_60 Start: 38889, Stop: 38485, Start Num: 41  
Candidate Starts for MiculUcigas\_60:  
(28, 38922), (Start: 38 @38895 has 1 MA's), (Start: 41 @38889 has 48 MA's), (71, 38694), (76, 38664),

Gene: Midas2\_53 Start: 38786, Stop: 38376, Start Num: 51  
Candidate Starts for Midas2\_53:  
(Start: 51 @38786 has 71 MA's), (65, 38651), (69, 38624), (70, 38615), (76, 38573),

Gene: Milcery\_54 Start: 38661, Stop: 38251, Start Num: 51  
Candidate Starts for Milcery\_54:  
(Start: 51 @38661 has 71 MA's), (65, 38526), (69, 38499), (70, 38490), (76, 38448),

Gene: Millski\_55 Start: 38369, Stop: 37956, Start Num: 46  
Candidate Starts for Millski\_55:  
(Start: 46 @38369 has 120 MA's), (66, 38222), (70, 38189), (71, 38177), (76, 38147),

Gene: MinecraftSteve\_67 Start: 38728, Stop: 38348, Start Num: 55  
Candidate Starts for MinecraftSteve\_67:  
(Start: 55 @38728 has 18 MA's), (68, 38581), (76, 38524), (77, 38482),

Gene: Miramae\_54 Start: 37773, Stop: 37369, Start Num: 51  
Candidate Starts for Miramae\_54:  
(Start: 51 @37773 has 71 MA's), (64, 37644), (71, 37590), (76, 37560),

Gene: Misomonster\_64 Start: 39148, Stop: 38741, Start Num: 49  
Candidate Starts for Misomonster\_64:  
(Start: 49 @39148 has 113 MA's), (Start: 54 @39133 has 1 MA's), (59, 39121), (62, 39064), (72, 38959), (76, 38932),

Gene: Morpher26\_55 Start: 38333, Stop: 37929, Start Num: 51  
Candidate Starts for Morpher26\_55:  
(Start: 51 @38333 has 71 MA's), (63, 38243), (64, 38204), (71, 38150), (76, 38120),

Gene: Morrow\_57 Start: 38374, Stop: 37961, Start Num: 46  
Candidate Starts for Morrow\_57:  
(Start: 46 @38374 has 120 MA's), (66, 38227), (70, 38194), (71, 38182), (76, 38152),

Gene: MrGordo\_55 Start: 39382, Stop: 38972, Start Num: 47  
Candidate Starts for MrGordo\_55:  
(Start: 47 @39382 has 93 MA's), (Start: 61 @39301 has 1 MA's), (74, 39178),

Gene: MuchMore\_66 Start: 39113, Stop: 38706, Start Num: 49  
Candidate Starts for MuchMore\_66:  
(Start: 49 @39113 has 113 MA's), (Start: 54 @39098 has 1 MA's), (59, 39086), (62, 39029), (72, 38924), (76, 38897),

Gene: Mundrea\_55 Start: 38325, Stop: 37921, Start Num: 51  
Candidate Starts for Mundrea\_55:

(Start: 51 @38325 has 71 MA's), (64, 38196), (76, 38112),

Gene: Museum\_57 Start: 39740, Stop: 39330, Start Num: 47

Candidate Starts for Museum\_57:

(Start: 47 @39740 has 93 MA's), (Start: 61 @39659 has 1 MA's), (74, 39536),

Gene: MyraDee\_54 Start: 35736, Stop: 35332, Start Num: 51

Candidate Starts for MyraDee\_54:

(37, 35766), (Start: 51 @35736 has 71 MA's), (58, 35715), (70, 35565), (75, 35535), (76, 35523),

Gene: Myxus\_60 Start: 39071, Stop: 38688, Start Num: 49

Candidate Starts for Myxus\_60:

(35, 39101), (Start: 49 @39071 has 113 MA's), (68, 38915), (71, 38891), (76, 38861), (77, 38819),

Gene: NEHalo\_54 Start: 39528, Stop: 39118, Start Num: 47

Candidate Starts for NEHalo\_54:

(Start: 47 @39528 has 93 MA's), (Start: 61 @39447 has 1 MA's), (74, 39324),

Gene: NaSiaTalie\_60 Start: 38983, Stop: 38579, Start Num: 41

Candidate Starts for NaSiaTalie\_60:

(28, 39016), (Start: 38 @38989 has 1 MA's), (Start: 41 @38983 has 48 MA's), (71, 38788), (76, 38758),

Gene: Naca\_55 Start: 39136, Stop: 38726, Start Num: 51

Candidate Starts for Naca\_55:

(Start: 51 @39136 has 71 MA's), (65, 39001), (70, 38965), (76, 38923),

Gene: Naji\_62 Start: 39118, Stop: 38729, Start Num: 47

Candidate Starts for Naji\_62:

(Start: 47 @39118 has 93 MA's), (71, 38938), (76, 38908), (77, 38866),

Gene: NearlyHeadless\_60 Start: 38203, Stop: 37790, Start Num: 49

Candidate Starts for NearlyHeadless\_60:

(Start: 49 @38203 has 113 MA's), (69, 38038), (70, 38029),

Gene: Nebs\_57 Start: 38368, Stop: 37955, Start Num: 46

Candidate Starts for Nebs\_57:

(Start: 46 @38368 has 120 MA's), (66, 38221), (70, 38188), (71, 38176), (76, 38146),

Gene: Nebulosus\_65 Start: 38488, Stop: 38108, Start Num: 55

Candidate Starts for Nebulosus\_65:

(Start: 55 @38488 has 18 MA's), (68, 38341), (76, 38284), (77, 38242),

Gene: Nedarya\_63 Start: 38462, Stop: 38091, Start Num: 56

Candidate Starts for Nedarya\_63:

(Start: 56 @38462 has 2 MA's), (59, 38450), (76, 38264), (77, 38222),

Gene: Neeharika16\_60 Start: 37395, Stop: 37006, Start Num: 50

Candidate Starts for Neeharika16\_60:

(Start: 50 @37395 has 35 MA's), (71, 37215), (76, 37185), (77, 37143),

Gene: Nemo27\_56 Start: 38367, Stop: 37954, Start Num: 46

Candidate Starts for Nemo27\_56:

(Start: 46 @38367 has 120 MA's), (66, 38220), (70, 38187), (71, 38175), (76, 38145),

Gene: Newrala\_61 Start: 37937, Stop: 37548, Start Num: 50

Candidate Starts for Newrala\_61:

(Start: 50 @37937 has 35 MA's), (71, 37757), (76, 37727), (77, 37685),

Gene: NicoleTera\_58 Start: 39278, Stop: 38874, Start Num: 41

Candidate Starts for NicoleTera\_58:

(Start: 41 @39278 has 48 MA's), (59, 39239), (71, 39083), (76, 39053), (77, 39011),

Gene: Niza\_58 Start: 41168, Stop: 40758, Start Num: 47

Candidate Starts for Niza\_58:

(Start: 47 @41168 has 93 MA's), (Start: 61 @41087 has 1 MA's), (74, 40964),

Gene: Noella\_58 Start: 38738, Stop: 38331, Start Num: 45

Candidate Starts for Noella\_58:

(Start: 45 @38738 has 23 MA's), (64, 38606), (72, 38549), (76, 38522),

Gene: Noelle\_56 Start: 38634, Stop: 38230, Start Num: 51

Candidate Starts for Noelle\_56:

(Start: 51 @38634 has 71 MA's), (63, 38544), (64, 38505), (71, 38451), (76, 38421),

Gene: NorthStar\_55 Start: 38368, Stop: 37955, Start Num: 46

Candidate Starts for NorthStar\_55:

(Start: 46 @38368 has 120 MA's), (66, 38221), (70, 38188), (71, 38176), (76, 38146),

Gene: NotAPhaseMom\_56 Start: 38372, Stop: 37959, Start Num: 46

Candidate Starts for NotAPhaseMom\_56:

(Start: 46 @38372 has 120 MA's), (66, 38225), (70, 38192), (71, 38180), (76, 38150),

Gene: NothingSpecial\_58 Start: 39659, Stop: 39267, Start Num: 49

Candidate Starts for NothingSpecial\_58:

(Start: 49 @39659 has 113 MA's), (71, 39476), (76, 39446), (77, 39404),

Gene: Nyxis\_56 Start: 38258, Stop: 37845, Start Num: 46

Candidate Starts for Nyxis\_56:

(Start: 46 @38258 has 120 MA's), (66, 38111), (70, 38078), (71, 38066), (76, 38036),

Gene: OKCentral2016\_56 Start: 37976, Stop: 37563, Start Num: 46

Candidate Starts for OKCentral2016\_56:

(Start: 46 @37976 has 120 MA's), (64, 37838), (72, 37781), (76, 37754),

Gene: OKaNui\_56 Start: 38418, Stop: 38005, Start Num: 46

Candidate Starts for OKaNui\_56:

(Start: 46 @38418 has 120 MA's), (66, 38271), (70, 38238), (71, 38226), (76, 38196),

Gene: Obama12\_57 Start: 38755, Stop: 38342, Start Num: 46

Candidate Starts for Obama12\_57:

(Start: 46 @38755 has 120 MA's), (66, 38608), (71, 38563), (76, 38533),

Gene: Odin\_58 Start: 38180, Stop: 37788, Start Num: 49

Candidate Starts for Odin\_58:

(Start: 49 @38180 has 113 MA's), (71, 37997), (76, 37967), (77, 37925),

Gene: Ohfah\_57 Start: 38368, Stop: 37955, Start Num: 46  
Candidate Starts for Ohfah\_57:  
(Start: 46 @38368 has 120 MA's), (66, 38221), (70, 38188), (71, 38176), (76, 38146),

Gene: Ohno789\_57 Start: 40106, Stop: 39696, Start Num: 47  
Candidate Starts for Ohno789\_57:  
(Start: 47 @40106 has 93 MA's), (Start: 61 @40025 has 1 MA's), (74, 39902),

Gene: OlanP\_62 Start: 39180, Stop: 38773, Start Num: 49  
Candidate Starts for OlanP\_62:  
(Start: 49 @39180 has 113 MA's), (59, 39153), (62, 39096), (72, 38991), (76, 38964),

Gene: Ollie\_63 Start: 38992, Stop: 38585, Start Num: 49  
Candidate Starts for Ollie\_63:  
(Start: 49 @38992 has 113 MA's), (Start: 54 @38977 has 1 MA's), (59, 38965), (62, 38908), (72, 38803), (76, 38776),

Gene: Onglai\_58 Start: 37412, Stop: 37029, Start Num: 49  
Candidate Starts for Onglai\_58:  
(35, 37442), (37, 37439), (Start: 49 @37412 has 113 MA's), (68, 37256), (71, 37232), (76, 37202), (77, 37160),

Gene: P28Green\_64 Start: 39124, Stop: 38717, Start Num: 49  
Candidate Starts for P28Green\_64:  
(Start: 49 @39124 has 113 MA's), (Start: 54 @39109 has 1 MA's), (59, 39097), (62, 39040), (72, 38935), (76, 38908),

Gene: PGHhamlin\_65 Start: 39113, Stop: 38706, Start Num: 49  
Candidate Starts for PGHhamlin\_65:  
(Start: 49 @39113 has 113 MA's), (Start: 54 @39098 has 1 MA's), (59, 39086), (62, 39029), (72, 38924), (76, 38897),

Gene: PP\_59 Start: 42631, Stop: 42227, Start Num: 51  
Candidate Starts for PP\_59:  
(Start: 51 @42631 has 71 MA's), (59, 42607), (64, 42502), (72, 42445), (73, 42439), (76, 42418),

Gene: PSullivan\_56 Start: 38477, Stop: 38067, Start Num: 47  
Candidate Starts for PSullivan\_56:  
(Start: 47 @38477 has 93 MA's), (60, 38420), (Start: 61 @38396 has 1 MA's), (74, 38273),

Gene: PackMan\_59 Start: 39071, Stop: 38688, Start Num: 49  
Candidate Starts for PackMan\_59:  
(Start: 49 @39071 has 113 MA's), (68, 38915), (70, 38903), (71, 38891), (76, 38861), (77, 38819),

Gene: PainterBoy\_62 Start: 39395, Stop: 39003, Start Num: 49  
Candidate Starts for PainterBoy\_62:  
(Start: 49 @39395 has 113 MA's), (59, 39368), (63, 39305), (68, 39236), (71, 39212), (76, 39182), (77, 39140),

Gene: Palestino\_55 Start: 38368, Stop: 37955, Start Num: 46  
Candidate Starts for Palestino\_55:  
(Start: 46 @38368 has 120 MA's), (66, 38221), (70, 38188), (71, 38176), (76, 38146),

Gene: Panamaxus\_56 Start: 38737, Stop: 38330, Start Num: 45  
Candidate Starts for Panamaxus\_56:  
(Start: 45 @38737 has 23 MA's), (64, 38605), (72, 38548), (76, 38521),

Gene: PattyP\_56 Start: 39934, Stop: 39524, Start Num: 47  
Candidate Starts for PattyP\_56:  
(Start: 47 @39934 has 93 MA's), (Start: 61 @39853 has 1 MA's), (74, 39730),

Gene: PeaceMeal1\_55 Start: 37510, Stop: 37091, Start Num: 44  
Candidate Starts for PeaceMeal1\_55:  
(Start: 44 @37510 has 14 MA's), (Start: 54 @37483 has 1 MA's), (64, 37366), (76, 37282),

Gene: Peaches\_55 Start: 38367, Stop: 37954, Start Num: 46  
Candidate Starts for Peaches\_55:  
(Start: 46 @38367 has 120 MA's), (66, 38220), (70, 38187), (71, 38175), (76, 38145),

Gene: Pembroke\_63 Start: 39122, Stop: 38715, Start Num: 49  
Candidate Starts for Pembroke\_63:  
(Start: 49 @39122 has 113 MA's), (Start: 54 @39107 has 1 MA's), (59, 39095), (62, 39038), (72, 38933), (76, 38906),

Gene: Penny1\_64 Start: 39125, Stop: 38718, Start Num: 49  
Candidate Starts for Penny1\_64:  
(Start: 49 @39125 has 113 MA's), (Start: 54 @39110 has 1 MA's), (59, 39098), (62, 39041), (72, 38936), (76, 38909),

Gene: Perplexer\_55 Start: 38309, Stop: 37905, Start Num: 51  
Candidate Starts for Perplexer\_55:  
(Start: 51 @38309 has 71 MA's), (63, 38219), (64, 38180), (71, 38126), (76, 38096),

Gene: PeterPeter\_56 Start: 38365, Stop: 37952, Start Num: 46  
Candidate Starts for PeterPeter\_56:  
(Start: 46 @38365 has 120 MA's), (66, 38218), (70, 38185), (71, 38173), (76, 38143),

Gene: PetiteSangsue\_55 Start: 38312, Stop: 37908, Start Num: 51  
Candidate Starts for PetiteSangsue\_55:  
(Start: 51 @38312 has 71 MA's), (63, 38222), (64, 38183), (71, 38129), (76, 38099),

Gene: PetterN\_59 Start: 38751, Stop: 38341, Start Num: 51  
Candidate Starts for PetterN\_59:  
(Start: 51 @38751 has 71 MA's), (65, 38616), (70, 38580), (76, 38538),

Gene: Ph8s\_61 Start: 38534, Stop: 38145, Start Num: 43  
Candidate Starts for Ph8s\_61:  
(Start: 43 @38534 has 2 MA's), (71, 38354), (76, 38324), (77, 38282),

Gene: Phacado\_56 Start: 38367, Stop: 37954, Start Num: 46  
Candidate Starts for Phacado\_56:  
(Start: 46 @38367 has 120 MA's), (66, 38220), (70, 38187), (71, 38175), (76, 38145),

Gene: Phaded\_60 Start: 40254, Stop: 39784, Start Num: 24  
Candidate Starts for Phaded\_60:



(Start: 24 @40254 has 1 MA's), (Start: 26 @40236 has 1 MA's), (Start: 27 @40230 has 1 MA's), (28, 40224), (Start: 41 @40188 has 48 MA's), (68, 40017), (70, 40005), (71, 39993), (76, 39963), (77, 39921),

Gene: Phaeder\_60 Start: 39071, Stop: 38688, Start Num: 49

Candidate Starts for Phaeder\_60:

(Start: 49 @39071 has 113 MA's), (68, 38915), (70, 38903), (71, 38891), (76, 38861), (77, 38819),

Gene: Phantastic\_60 Start: 38419, Stop: 38003, Start Num: 44

Candidate Starts for Phantastic\_60:

(Start: 44 @38419 has 14 MA's), (64, 38278), (72, 38221), (76, 38194),

Gene: Pharaoh\_55 Start: 39123, Stop: 38731, Start Num: 51

Candidate Starts for Pharaoh\_55:

(Start: 51 @39123 has 71 MA's), (68, 38964), (76, 38907), (77, 38865),

Gene: Phelipe\_57 Start: 38368, Stop: 37955, Start Num: 46

Candidate Starts for Phelipe\_57:

(Start: 46 @38368 has 120 MA's), (66, 38221), (70, 38188), (71, 38176), (76, 38146),

Gene: Phighter1804\_56 Start: 38429, Stop: 38016, Start Num: 46

Candidate Starts for Phighter1804\_56:

(Start: 46 @38429 has 120 MA's), (66, 38282), (70, 38249), (71, 38237), (76, 38207),

Gene: Phillis\_58 Start: 37828, Stop: 37415, Start Num: 49

Candidate Starts for Phillis\_58:

(29, 37882), (Start: 49 @37828 has 113 MA's), (70, 37654),

Gene: PhishRPhriends\_61 Start: 38188, Stop: 37781, Start Num: 49

Candidate Starts for PhishRPhriends\_61:

(Start: 49 @38188 has 113 MA's), (59, 38161), (62, 38104), (72, 37999), (76, 37972),

Gene: Phlei\_50 Start: 38992, Stop: 38603, Start Num: 51

Candidate Starts for Phlei\_50:

(Start: 51 @38992 has 71 MA's), (68, 38836), (76, 38782), (77, 38740),

Gene: Phlorence\_52 Start: 38250, Stop: 37840, Start Num: 51

Candidate Starts for Phlorence\_52:

(Start: 51 @38250 has 71 MA's), (65, 38115), (69, 38088), (70, 38079), (76, 38037),

Gene: Phoebe\_64 Start: 39114, Stop: 38707, Start Num: 49

Candidate Starts for Phoebe\_64:

(Start: 49 @39114 has 113 MA's), (Start: 54 @39099 has 1 MA's), (59, 39087), (62, 39030), (72, 38925), (76, 38898),

Gene: Phonnegut\_60 Start: 39168, Stop: 38785, Start Num: 49

Candidate Starts for Phonnegut\_60:

(35, 39198), (Start: 49 @39168 has 113 MA's), (68, 39012), (71, 38988), (76, 38958), (77, 38916),

Gene: Phontbonne\_56 Start: 38259, Stop: 37846, Start Num: 46

Candidate Starts for Phontbonne\_56:

(Start: 46 @38259 has 120 MA's), (66, 38112), (70, 38079), (71, 38067), (76, 38037),

Gene: Phoxy\_63 Start: 39146, Stop: 38739, Start Num: 49

Candidate Starts for Phoxy\_63:

(Start: 49 @39146 has 113 MA's), (Start: 54 @39131 has 1 MA's), (59, 39119), (62, 39062), (70, 38972), (72, 38957), (76, 38930),

Gene: Phranny\_64 Start: 38993, Stop: 38586, Start Num: 49

Candidate Starts for Phranny\_64:

(Start: 49 @38993 has 113 MA's), (59, 38966), (62, 38909), (72, 38804), (76, 38777),

Gene: PickleBack\_54 Start: 38497, Stop: 38087, Start Num: 51

Candidate Starts for PickleBack\_54:

(Start: 51 @38497 has 71 MA's), (65, 38362), (69, 38335), (70, 38326), (76, 38284),

Gene: Pioneer\_60 Start: 39168, Stop: 38785, Start Num: 49

Candidate Starts for Pioneer\_60:

(35, 39198), (Start: 49 @39168 has 113 MA's), (68, 39012), (71, 38988), (76, 38958), (77, 38916),

Gene: Pipcraft\_54 Start: 38368, Stop: 37955, Start Num: 46

Candidate Starts for Pipcraft\_54:

(Start: 46 @38368 has 120 MA's), (66, 38221), (70, 38188), (71, 38176), (76, 38146),

Gene: Piro94\_60 Start: 39333, Stop: 38929, Start Num: 41

Candidate Starts for Piro94\_60:

(Start: 41 @39333 has 48 MA's), (67, 39180), (71, 39138), (76, 39108),

Gene: Pistachio\_60 Start: 38319, Stop: 37912, Start Num: 45

Candidate Starts for Pistachio\_60:

(Start: 45 @38319 has 23 MA's), (64, 38187), (72, 38130), (76, 38103),

Gene: Pita2\_59 Start: 39974, Stop: 39564, Start Num: 47

Candidate Starts for Pita2\_59:

(Start: 47 @39974 has 93 MA's), (60, 39917), (Start: 61 @39893 has 1 MA's), (74, 39770),

Gene: Pmask\_60 Start: 37938, Stop: 37549, Start Num: 50

Candidate Starts for Pmask\_60:

(Start: 50 @37938 has 35 MA's), (71, 37758), (76, 37728), (77, 37686),

Gene: Pocahontas\_58 Start: 38734, Stop: 38327, Start Num: 45

Candidate Starts for Pocahontas\_58:

(Start: 45 @38734 has 23 MA's), (64, 38602), (72, 38545), (76, 38518),

Gene: Polymorphads\_57 Start: 38361, Stop: 37948, Start Num: 46

Candidate Starts for Polymorphads\_57:

(Start: 46 @38361 has 120 MA's), (66, 38214), (70, 38181), (71, 38169), (76, 38139),

Gene: Pomar16\_99 Start: 39158, Stop: 38769, Start Num: 47

Candidate Starts for Pomar16\_99:

(17, 39302), (21, 39269), (Start: 47 @39158 has 93 MA's), (71, 38978), (76, 38948), (77, 38906),

Gene: Poompha\_55 Start: 37481, Stop: 37089, Start Num: 54

Candidate Starts for Poompha\_55:

(Start: 44 @37508 has 14 MA's), (Start: 54 @37481 has 1 MA's), (64, 37364), (76, 37280),

Gene: Popcicle\_58 Start: 38734, Stop: 38327, Start Num: 45  
Candidate Starts for Popcicle\_58:  
(Start: 45 @38734 has 23 MA's), (64, 38602), (72, 38545), (76, 38518),

Gene: Power\_59 Start: 39341, Stop: 38937, Start Num: 41  
Candidate Starts for Power\_59:  
(Start: 41 @39341 has 48 MA's), (71, 39146), (76, 39116), (77, 39074),

Gene: Priamo\_63 Start: 37727, Stop: 37299, Start Num: 30  
Candidate Starts for Priamo\_63:  
(Start: 30 @37727 has 4 MA's), (Start: 47 @37691 has 93 MA's), (71, 37508), (76, 37478), (77, 37436),

Gene: Priya\_60 Start: 39138, Stop: 38755, Start Num: 49  
Candidate Starts for Priya\_60:  
(36, 39165), (Start: 49 @39138 has 113 MA's), (68, 38982), (71, 38958), (76, 38928), (77, 38886),

Gene: Pukovnik\_58 Start: 39837, Stop: 39436, Start Num: 41  
Candidate Starts for Pukovnik\_58:  
(Start: 26 @39885 has 1 MA's), (Start: 41 @39837 has 48 MA's), (68, 39669), (70, 39657), (71, 39645), (76, 39615), (77, 39573),

Gene: Pumbaa\_56 Start: 38313, Stop: 37900, Start Num: 46  
Candidate Starts for Pumbaa\_56:  
(Start: 46 @38313 has 120 MA's), (66, 38166), (70, 38133), (71, 38121), (76, 38091),

Gene: Puppy\_60 Start: 38391, Stop: 37984, Start Num: 45  
Candidate Starts for Puppy\_60:  
(Start: 45 @38391 has 23 MA's), (64, 38259), (72, 38202), (76, 38175),

Gene: PurpleHaze\_63 Start: 39006, Stop: 38599, Start Num: 49  
Candidate Starts for PurpleHaze\_63:  
(Start: 49 @39006 has 113 MA's), (59, 38979), (62, 38922), (72, 38817), (76, 38790),

Gene: Qobbit\_60 Start: 39100, Stop: 38717, Start Num: 49  
Candidate Starts for Qobbit\_60:  
(36, 39127), (Start: 49 @39100 has 113 MA's), (68, 38944), (71, 38920), (76, 38890), (77, 38848),

Gene: QueenB2\_59 Start: 39319, Stop: 38915, Start Num: 41  
Candidate Starts for QueenB2\_59:  
(22, 39394), (Start: 41 @39319 has 48 MA's), (71, 39124), (76, 39094), (77, 39052),

Gene: QueenBeesly\_60 Start: 39288, Stop: 38884, Start Num: 41  
Candidate Starts for QueenBeesly\_60:  
(Start: 41 @39288 has 48 MA's), (71, 39093), (76, 39063), (77, 39021),

Gene: QuinnKiro\_57 Start: 38737, Stop: 38330, Start Num: 45  
Candidate Starts for QuinnKiro\_57:  
(Start: 45 @38737 has 23 MA's), (64, 38605), (72, 38548), (76, 38521),

Gene: Rachaly\_59 Start: 39578, Stop: 39183, Start Num: 47  
Candidate Starts for Rachaly\_59:  
(Start: 47 @39578 has 93 MA's), (71, 39392), (76, 39362), (77, 39320),

Gene: Rajelicia\_56 Start: 40364, Stop: 40035, Start Num: 61  
Candidate Starts for Rajelicia\_56:  
(Start: 47 @40445 has 93 MA's), (Start: 61 @40364 has 1 MA's), (74, 40241),

Gene: Reba\_63 Start: 38666, Stop: 38259, Start Num: 49  
Candidate Starts for Reba\_63:  
(Start: 49 @38666 has 113 MA's), (59, 38639), (62, 38582), (72, 38477), (76, 38450),

Gene: Rebeuca\_57 Start: 38649, Stop: 38236, Start Num: 46  
Candidate Starts for Rebeuca\_57:  
(Start: 46 @38649 has 120 MA's), (64, 38511), (72, 38454), (76, 38427),

Gene: RedRock\_62 Start: 40165, Stop: 39773, Start Num: 47  
Candidate Starts for RedRock\_62:  
(Start: 32 @40195 has 1 MA's), (Start: 47 @40165 has 93 MA's), (59, 40138), (76, 39952), (77, 39910),

Gene: Refuge\_58 Start: 40421, Stop: 40029, Start Num: 47  
Candidate Starts for Refuge\_58:  
(17, 40565), (18, 40544), (Start: 47 @40421 has 93 MA's), (68, 40259), (71, 40235), (76, 40202),

Gene: Relief\_55 Start: 38365, Stop: 37952, Start Num: 46  
Candidate Starts for Relief\_55:  
(Start: 46 @38365 has 120 MA's), (66, 38218), (70, 38185), (71, 38173), (76, 38143),

Gene: Remus\_67 Start: 38495, Stop: 38115, Start Num: 55  
Candidate Starts for Remus\_67:  
(20, 38636), (Start: 55 @38495 has 18 MA's), (68, 38348), (76, 38291), (77, 38249),

Gene: ResDef\_58 Start: 38737, Stop: 38330, Start Num: 45  
Candidate Starts for ResDef\_58:  
(Start: 45 @38737 has 23 MA's), (64, 38605), (72, 38548), (76, 38521),

Gene: Retro23\_61 Start: 39533, Stop: 39129, Start Num: 41  
Candidate Starts for Retro23\_61:  
(22, 39608), (Start: 41 @39533 has 48 MA's), (76, 39308), (77, 39266),

Gene: RhynO\_57 Start: 38451, Stop: 38038, Start Num: 46  
Candidate Starts for RhynO\_57:  
(Start: 46 @38451 has 120 MA's), (64, 38313), (72, 38256), (76, 38229),

Gene: Rifter\_62 Start: 37546, Stop: 37157, Start Num: 50  
Candidate Starts for Rifter\_62:  
(Start: 50 @37546 has 35 MA's), (71, 37366), (76, 37336), (77, 37294),

Gene: Ringer\_56 Start: 40762, Stop: 40352, Start Num: 47  
Candidate Starts for Ringer\_56:  
(Start: 47 @40762 has 93 MA's), (Start: 61 @40681 has 1 MA's), (74, 40558),

Gene: Roary\_61 Start: 38422, Stop: 38009, Start Num: 49  
Candidate Starts for Roary\_61:  
(Start: 49 @38422 has 113 MA's), (59, 38395), (69, 38257), (70, 38248),

Gene: Rohr\_57 Start: 39657, Stop: 39247, Start Num: 47  
Candidate Starts for Rohr\_57:  
(Start: 47 @39657 has 93 MA's), (Start: 61 @39576 has 1 MA's), (74, 39453),

Gene: Roksolana\_63 Start: 38380, Stop: 37991, Start Num: 50  
Candidate Starts for Roksolana\_63:  
(Start: 50 @38380 has 35 MA's), (71, 38200), (76, 38170), (77, 38128),

Gene: Roosevelt\_55 Start: 38370, Stop: 37957, Start Num: 46  
Candidate Starts for Roosevelt\_55:  
(Start: 46 @38370 has 120 MA's), (66, 38223), (70, 38190), (71, 38178), (76, 38148),

Gene: Rosalind\_65 Start: 38647, Stop: 38267, Start Num: 55  
Candidate Starts for Rosalind\_65:  
(Start: 55 @38647 has 18 MA's), (68, 38500), (76, 38443), (77, 38401),

Gene: Ruin\_56 Start: 38361, Stop: 37948, Start Num: 46  
Candidate Starts for Ruin\_56:  
(Start: 46 @38361 has 120 MA's), (66, 38214), (71, 38169), (76, 38139),

Gene: Rummer\_62 Start: 39149, Stop: 38742, Start Num: 49  
Candidate Starts for Rummer\_62:  
(Start: 49 @39149 has 113 MA's), (Start: 54 @39134 has 1 MA's), (59, 39122), (62, 39065), (72, 38960), (76, 38933),

Gene: Ruotula\_58 Start: 41618, Stop: 41202, Start Num: 47  
Candidate Starts for Ruotula\_58:  
(13, 41816), (14, 41804), (Start: 47 @41618 has 93 MA's), (68, 41453), (74, 41414), (76, 41399),

Gene: RyeScarlet\_61 Start: 39143, Stop: 38760, Start Num: 49  
Candidate Starts for RyeScarlet\_61:  
(35, 39173), (37, 39170), (Start: 49 @39143 has 113 MA's), (68, 38987), (71, 38963), (76, 38933), (77, 38891),

Gene: Sabertooth\_56 Start: 38370, Stop: 37957, Start Num: 46  
Candidate Starts for Sabertooth\_56:  
(Start: 46 @38370 has 120 MA's), (66, 38223), (70, 38190), (71, 38178), (76, 38148),

Gene: Sabia\_63 Start: 39130, Stop: 38723, Start Num: 49  
Candidate Starts for Sabia\_63:  
(Start: 49 @39130 has 113 MA's), (Start: 54 @39115 has 1 MA's), (59, 39103), (62, 39046), (72, 38941), (76, 38914),

Gene: Sabinator\_62 Start: 39120, Stop: 38713, Start Num: 49  
Candidate Starts for Sabinator\_62:  
(Start: 49 @39120 has 113 MA's), (Start: 54 @39105 has 1 MA's), (59, 39093), (62, 39036), (72, 38931), (76, 38904),

Gene: Saintus\_55 Start: 35090, Stop: 34677, Start Num: 49  
Candidate Starts for Saintus\_55:  
(Start: 49 @35090 has 113 MA's), (59, 35063), (69, 34925), (70, 34916),

Gene: Scamp\_56 Start: 38370, Stop: 37957, Start Num: 46  
Candidate Starts for Scamp\_56:  
(Start: 46 @38370 has 120 MA's), (66, 38223), (70, 38190), (71, 38178), (76, 38148),

Gene: Scherzo\_60 Start: 39357, Stop: 38974, Start Num: 49  
Candidate Starts for Scherzo\_60:  
(35, 39387), (Start: 49 @39357 has 113 MA's), (68, 39201), (71, 39177), (76, 39147), (77, 39105),

Gene: Scorpia\_59 Start: 38810, Stop: 38400, Start Num: 51  
Candidate Starts for Scorpia\_59:  
(Start: 51 @38810 has 71 MA's), (65, 38675), (70, 38639), (76, 38597),

Gene: Scout\_59 Start: 37926, Stop: 37519, Start Num: 45  
Candidate Starts for Scout\_59:  
(Start: 45 @37926 has 23 MA's), (64, 37794), (72, 37737), (76, 37710),

Gene: SemperFi\_61 Start: 39556, Stop: 39152, Start Num: 41  
Candidate Starts for SemperFi\_61:  
(Start: 41 @39556 has 48 MA's), (71, 39361), (76, 39331), (77, 39289),

Gene: Severus\_55 Start: 37508, Stop: 37089, Start Num: 44  
Candidate Starts for Severus\_55:  
(Start: 44 @37508 has 14 MA's), (Start: 54 @37481 has 1 MA's), (64, 37364), (76, 37280),

Gene: Sham4\_60 Start: 38424, Stop: 38035, Start Num: 47  
Candidate Starts for Sham4\_60:  
(Start: 47 @38424 has 93 MA's), (76, 38214), (77, 38172),

Gene: ShayRa\_67 Start: 38676, Stop: 38296, Start Num: 55  
Candidate Starts for ShayRa\_67:  
(Start: 55 @38676 has 18 MA's), (68, 38529), (76, 38472), (77, 38430),

Gene: SheaKeira\_58 Start: 38784, Stop: 38395, Start Num: 44  
Candidate Starts for SheaKeira\_58:  
(23, 38865), (Start: 44 @38784 has 14 MA's), (68, 38622), (71, 38598), (76, 38568), (77, 38526),

Gene: Sheen\_58 Start: 41062, Stop: 40658, Start Num: 51  
Candidate Starts for Sheen\_58:  
(35, 41101), (Start: 49 @41065 has 113 MA's), (Start: 51 @41062 has 71 MA's), (Start: 54 @41050 has 1 MA's), (57, 41044), (59, 41038), (64, 40933), (72, 40876), (76, 40849),

Gene: SheldonCooper\_57 Start: 38772, Stop: 38359, Start Num: 46  
Candidate Starts for SheldonCooper\_57:  
(Start: 46 @38772 has 120 MA's), (66, 38625), (71, 38580), (76, 38550),

Gene: Shygu2\_55 Start: 38382, Stop: 37957, Start Num: 42  
Candidate Starts for Shygu2\_55:  
(Start: 32 @38409 has 1 MA's), (Start: 42 @38382 has 1 MA's), (Start: 51 @38361 has 71 MA's), (64, 38232), (70, 38190), (76, 38148),

Gene: Skipitt\_55 Start: 38362, Stop: 37949, Start Num: 46  
Candidate Starts for Skipitt\_55:  
(Start: 46 @38362 has 120 MA's), (66, 38215), (70, 38182), (71, 38170), (76, 38140),

Gene: Slagathor\_58 Start: 40564, Stop: 40154, Start Num: 47  
Candidate Starts for Slagathor\_58:  
(Start: 47 @40564 has 93 MA's), (Start: 61 @40483 has 1 MA's), (74, 40360),

Gene: Smeadley\_60 Start: 38283, Stop: 37870, Start Num: 49  
Candidate Starts for Smeadley\_60:  
(Start: 49 @38283 has 113 MA's), (59, 38256), (69, 38118), (70, 38109),

Gene: Smeagan\_63 Start: 39846, Stop: 39445, Start Num: 41  
Candidate Starts for Smeagan\_63:  
(Start: 26 @39891 has 1 MA's), (Start: 41 @39846 has 48 MA's), (71, 39654), (76, 39624), (77, 39582),

Gene: SmellyB\_61 Start: 37935, Stop: 37546, Start Num: 50  
Candidate Starts for SmellyB\_61:  
(Start: 50 @37935 has 35 MA's), (71, 37755), (76, 37725), (77, 37683),

Gene: SnapTap\_60 Start: 39367, Stop: 38963, Start Num: 41  
Candidate Starts for SnapTap\_60:  
(Start: 41 @39367 has 48 MA's), (71, 39172), (76, 39142), (77, 39100),

Gene: Snape\_60 Start: 38416, Stop: 38027, Start Num: 47  
Candidate Starts for Snape\_60:  
(Start: 47 @38416 has 93 MA's), (76, 38206), (77, 38164),

Gene: SoYo\_63 Start: 39033, Stop: 38626, Start Num: 49  
Candidate Starts for SoYo\_63:  
(Start: 49 @39033 has 113 MA's), (Start: 54 @39018 has 1 MA's), (59, 39006), (62, 38949), (72, 38844), (76, 38817),

Gene: SoilDragon\_63 Start: 38569, Stop: 38162, Start Num: 49  
Candidate Starts for SoilDragon\_63:  
(Start: 49 @38569 has 113 MA's), (Start: 54 @38554 has 1 MA's), (59, 38542), (62, 38485), (72, 38380), (76, 38353),

Gene: SororFago\_61 Start: 40117, Stop: 39734, Start Num: 44  
Candidate Starts for SororFago\_61:  
(4, 40477), (17, 40255), (18, 40234), (Start: 44 @40117 has 14 MA's), (64, 39991), (68, 39961), (71, 39937), (76, 39907),

Gene: Soshari\_65 Start: 39145, Stop: 38738, Start Num: 49  
Candidate Starts for Soshari\_65:  
(Start: 49 @39145 has 113 MA's), (Start: 54 @39130 has 1 MA's), (59, 39118), (62, 39061), (72, 38956), (76, 38929),

Gene: Soups\_67 Start: 38939, Stop: 38559, Start Num: 55  
Candidate Starts for Soups\_67:  
(Start: 55 @38939 has 18 MA's), (68, 38792), (76, 38735), (77, 38693),

Gene: Sparxx\_57 Start: 38363, Stop: 37950, Start Num: 46  
Candidate Starts for Sparxx\_57:  
(Start: 46 @38363 has 120 MA's), (66, 38216), (70, 38183), (71, 38171), (76, 38141),

Gene: Spike509\_63 Start: 39146, Stop: 38739, Start Num: 49

Candidate Starts for Spike509\_63:

(Start: 49 @39146 has 113 MA's), (Start: 54 @39131 has 1 MA's), (59, 39119), (62, 39062), (70, 38972), (72, 38957), (76, 38930),

Gene: SpikeBT\_55 Start: 39240, Stop: 38830, Start Num: 47

Candidate Starts for SpikeBT\_55:

(Start: 47 @39240 has 93 MA's), (Start: 61 @39159 has 1 MA's), (74, 39036),

Gene: Spino\_55 Start: 38368, Stop: 37955, Start Num: 46

Candidate Starts for Spino\_55:

(Start: 46 @38368 has 120 MA's), (66, 38221), (70, 38188), (71, 38176), (76, 38146),

Gene: Spouty\_60 Start: 39137, Stop: 38754, Start Num: 49

Candidate Starts for Spouty\_60:

(36, 39164), (Start: 49 @39137 has 113 MA's), (68, 38981), (71, 38957), (76, 38927), (77, 38885),

Gene: Stagni\_63 Start: 39124, Stop: 38717, Start Num: 49

Candidate Starts for Stagni\_63:

(Start: 49 @39124 has 113 MA's), (Start: 54 @39109 has 1 MA's), (59, 39097), (62, 39040), (72, 38935), (76, 38908),

Gene: StarStuff\_62 Start: 39120, Stop: 38731, Start Num: 47

Candidate Starts for StarStuff\_62:

(17, 39264), (21, 39231), (Start: 47 @39120 has 93 MA's), (71, 38940), (76, 38910), (77, 38868),

Gene: Stasia\_55 Start: 38237, Stop: 37833, Start Num: 51

Candidate Starts for Stasia\_55:

(Start: 51 @38237 has 71 MA's), (64, 38108), (70, 38066), (76, 38024),

Gene: Stephig9\_60 Start: 38391, Stop: 37978, Start Num: 49

Candidate Starts for Stephig9\_60:

(29, 38445), (Start: 49 @38391 has 113 MA's), (69, 38226), (70, 38217),

Gene: Stink\_54 Start: 38053, Stop: 37649, Start Num: 51

Candidate Starts for Stink\_54:

(Start: 51 @38053 has 71 MA's), (64, 37924), (71, 37870), (76, 37840),

Gene: Strosahl\_67 Start: 38495, Stop: 38115, Start Num: 55

Candidate Starts for Strosahl\_67:

(20, 38636), (Start: 55 @38495 has 18 MA's), (68, 38348), (76, 38291), (77, 38249),

Gene: Sunhee\_62 Start: 38558, Stop: 38175, Start Num: 49

Candidate Starts for Sunhee\_62:

(Start: 49 @38558 has 113 MA's), (68, 38402), (71, 38378), (76, 38348), (77, 38306),

Gene: SuperAwesome\_61 Start: 37940, Stop: 37551, Start Num: 50

Candidate Starts for SuperAwesome\_61:

(Start: 50 @37940 has 35 MA's), (71, 37760), (76, 37730), (77, 37688),

Gene: Superchunk\_58 Start: 37796, Stop: 37404, Start Num: 49

Candidate Starts for Superchunk\_58:



(Start: 49 @37796 has 113 MA's), (71, 37613), (76, 37583), (77, 37541),

Gene: SweetiePie\_60 Start: 39499, Stop: 39095, Start Num: 41

Candidate Starts for SweetiePie\_60:

(Start: 41 @39499 has 48 MA's), (71, 39304), (76, 39274), (77, 39232),

Gene: Swirley\_56 Start: 38866, Stop: 38456, Start Num: 51

Candidate Starts for Swirley\_56:

(Start: 51 @38866 has 71 MA's), (65, 38731), (69, 38704), (70, 38695), (76, 38653),

Gene: Switzerland\_66 Start: 38815, Stop: 38435, Start Num: 55

Candidate Starts for Switzerland\_66:

(Start: 55 @38815 has 18 MA's), (68, 38668), (76, 38611), (77, 38569),

Gene: SydNat\_57 Start: 39505, Stop: 39095, Start Num: 51

Candidate Starts for SydNat\_57:

(Start: 51 @39505 has 71 MA's), (65, 39370), (69, 39343), (70, 39334), (76, 39292),

Gene: TNguyen7\_60 Start: 38738, Stop: 38331, Start Num: 45

Candidate Starts for TNguyen7\_60:

(Start: 45 @38738 has 23 MA's), (64, 38606), (72, 38549), (76, 38522),

Gene: Taquarus\_56 Start: 38371, Stop: 37958, Start Num: 46

Candidate Starts for Taquarus\_56:

(Start: 46 @38371 has 120 MA's), (66, 38224), (71, 38179), (76, 38149),

Gene: Tarynearal\_52 Start: 38311, Stop: 37901, Start Num: 51

Candidate Starts for Tarynearal\_52:

(Start: 51 @38311 has 71 MA's), (65, 38176), (69, 38149), (70, 38140), (76, 38098),

Gene: Taurus\_64 Start: 39121, Stop: 38714, Start Num: 49

Candidate Starts for Taurus\_64:

(Start: 49 @39121 has 113 MA's), (Start: 54 @39106 has 1 MA's), (59, 39094), (62, 39037), (72, 38932), (76, 38905),

Gene: Texage\_57 Start: 38738, Stop: 38331, Start Num: 45

Candidate Starts for Texage\_57:

(Start: 45 @38738 has 23 MA's), (64, 38606), (72, 38549), (76, 38522),

Gene: Thanksgivukkah\_55 Start: 38366, Stop: 37953, Start Num: 46

Candidate Starts for Thanksgivukkah\_55:

(Start: 46 @38366 has 120 MA's), (66, 38219), (70, 38186), (71, 38174), (76, 38144),

Gene: Theia\_53 Start: 38985, Stop: 38575, Start Num: 51

Candidate Starts for Theia\_53:

(Start: 51 @38985 has 71 MA's), (65, 38850), (69, 38823), (70, 38814), (76, 38772),

Gene: Tiffany\_62 Start: 39007, Stop: 38600, Start Num: 49

Candidate Starts for Tiffany\_62:

(Start: 49 @39007 has 113 MA's), (Start: 54 @38992 has 1 MA's), (59, 38980), (62, 38923), (72, 38818), (76, 38791),

Gene: Tiger\_53 Start: 38171, Stop: 37761, Start Num: 51

Candidate Starts for Tiger\_53:

(Start: 51 @38171 has 71 MA's), (65, 38036), (69, 38009), (70, 38000), (76, 37958),

Gene: Timothy\_60 Start: 38393, Stop: 38004, Start Num: 47

Candidate Starts for Timothy\_60:

(Start: 47 @38393 has 93 MA's), (76, 38183), (77, 38141),

Gene: Timshel\_55 Start: 40336, Stop: 39932, Start Num: 51

Candidate Starts for Timshel\_55:

(Start: 49 @40339 has 113 MA's), (Start: 51 @40336 has 71 MA's), (Start: 54 @40324 has 1 MA's), (59, 40312), (64, 40207), (72, 40150), (76, 40123),

Gene: TinaFeyge\_55 Start: 38363, Stop: 37950, Start Num: 46

Candidate Starts for TinaFeyge\_55:

(Start: 46 @38363 has 120 MA's), (66, 38216), (70, 38183), (71, 38171), (76, 38141),

Gene: TinyTimmy\_60 Start: 38442, Stop: 38053, Start Num: 47

Candidate Starts for TinyTimmy\_60:

(1, 38871), (4, 38808), (17, 38586), (Start: 47 @38442 has 93 MA's), (76, 38232), (77, 38190),

Gene: Tinybot\_55 Start: 38395, Stop: 37982, Start Num: 46

Candidate Starts for Tinybot\_55:

(Start: 46 @38395 has 120 MA's), (66, 38248), (70, 38215), (71, 38203), (76, 38173),

Gene: TipsytheTRex\_57 Start: 38759, Stop: 38370, Start Num: 51

Candidate Starts for TipsytheTRex\_57:

(Start: 51 @38759 has 71 MA's), (68, 38603), (71, 38579), (76, 38549), (77, 38507),

Gene: TiroTheta9\_56 Start: 38362, Stop: 37949, Start Num: 46

Candidate Starts for TiroTheta9\_56:

(Start: 46 @38362 has 120 MA's), (66, 38215), (70, 38182), (71, 38170), (76, 38140),

Gene: Toaka\_60 Start: 39067, Stop: 38666, Start Num: 40

Candidate Starts for Toaka\_60:

(Start: 40 @39067 has 1 MA's), (57, 39031), (68, 38890), (71, 38866), (76, 38836), (77, 38794),

Gene: Todacoro\_58 Start: 38737, Stop: 38330, Start Num: 45

Candidate Starts for Todacoro\_58:

(Start: 45 @38737 has 23 MA's), (64, 38605), (72, 38548), (76, 38521),

Gene: Tomathan\_62 Start: 39167, Stop: 38778, Start Num: 47

Candidate Starts for Tomathan\_62:

(17, 39311), (21, 39278), (Start: 47 @39167 has 93 MA's), (71, 38987), (76, 38957), (77, 38915),

Gene: ToneTone\_59 Start: 37979, Stop: 37590, Start Num: 50

Candidate Starts for ToneTone\_59:

(Start: 50 @37979 has 35 MA's), (71, 37799), (76, 37769), (77, 37727),

Gene: Topanga\_54 Start: 38293, Stop: 37880, Start Num: 46

Candidate Starts for Topanga\_54:

(Start: 46 @38293 has 120 MA's), (64, 38155), (72, 38098), (76, 38071),

Gene: Tote\_52 Start: 36035, Stop: 35625, Start Num: 47

Candidate Starts for Tote\_52:

(Start: 47 @36035 has 93 MA's), (60, 35978), (Start: 61 @35954 has 1 MA's), (74, 35831),

Gene: Trixie\_58 Start: 39186, Stop: 38794, Start Num: 47

Candidate Starts for Trixie\_58:

(33, 39210), (Start: 47 @39186 has 93 MA's), (71, 39003), (76, 38973), (77, 38931),

Gene: Trooper\_61 Start: 39688, Stop: 39284, Start Num: 41

Candidate Starts for Trooper\_61:

(Start: 41 @39688 has 48 MA's), (71, 39493), (76, 39463), (77, 39421),

Gene: TroyPia\_57 Start: 38366, Stop: 37953, Start Num: 46

Candidate Starts for TroyPia\_57:

(Start: 46 @38366 has 120 MA's), (66, 38219), (70, 38186), (71, 38174), (76, 38144),

Gene: Tubs\_60 Start: 39071, Stop: 38688, Start Num: 49

Candidate Starts for Tubs\_60:

(Start: 49 @39071 has 113 MA's), (68, 38915), (70, 38903), (71, 38891), (76, 38861), (77, 38819),

Gene: Tucker\_62 Start: 38148, Stop: 37759, Start Num: 50

Candidate Starts for Tucker\_62:

(Start: 50 @38148 has 35 MA's), (59, 38124), (71, 37968), (76, 37938), (77, 37896),

Gene: Turbido\_61 Start: 39580, Stop: 39179, Start Num: 41

Candidate Starts for Turbido\_61:

(Start: 26 @39625 has 1 MA's), (Start: 41 @39580 has 48 MA's), (71, 39388), (76, 39358), (77, 39316),

Gene: Twister\_55 Start: 38210, Stop: 37797, Start Num: 46

Candidate Starts for Twister\_55:

(Start: 46 @38210 has 120 MA's), (64, 38072), (72, 38015), (76, 37988),

Gene: TwoPeat\_57 Start: 39188, Stop: 38778, Start Num: 47

Candidate Starts for TwoPeat\_57:

(Start: 47 @39188 has 93 MA's), (Start: 61 @39107 has 1 MA's), (74, 38984),

Gene: TygerBlood\_56 Start: 38368, Stop: 37955, Start Num: 46

Candidate Starts for TygerBlood\_56:

(Start: 46 @38368 has 120 MA's), (66, 38221), (70, 38188), (71, 38176), (76, 38146),

Gene: Ulysses\_55 Start: 38045, Stop: 37632, Start Num: 46

Candidate Starts for Ulysses\_55:

(Start: 46 @38045 has 120 MA's), (66, 37898), (70, 37865), (71, 37853), (76, 37823),

Gene: UnionJack\_88 Start: 38315, Stop: 37905, Start Num: 51

Candidate Starts for UnionJack\_88:

(Start: 51 @38315 has 71 MA's), (65, 38180), (69, 38153), (70, 38144), (76, 38102),

Gene: Updawg\_61 Start: 39236, Stop: 38826, Start Num: 38

Candidate Starts for Updawg\_61:

(28, 39263), (Start: 38 @39236 has 1 MA's), (Start: 41 @39230 has 48 MA's), (71, 39035), (76, 39005),

Gene: VA6\_61 Start: 39466, Stop: 39074, Start Num: 47  
Candidate Starts for VA6\_61:  
(Start: 47 @39466 has 93 MA's), (68, 39307), (71, 39283), (76, 39253), (77, 39211),

Gene: VC3\_63 Start: 39554, Stop: 39165, Start Num: 47  
Candidate Starts for VC3\_63:  
(17, 39698), (18, 39677), (Start: 47 @39554 has 93 MA's), (71, 39374), (76, 39344), (77, 39302),

Gene: Vanisoa\_60 Start: 40172, Stop: 39786, Start Num: 49  
Candidate Starts for Vanisoa\_60:  
(Start: 49 @40172 has 113 MA's), (68, 40013), (71, 39989), (76, 39959),

Gene: Veracruz\_57 Start: 38737, Stop: 38330, Start Num: 45  
Candidate Starts for Veracruz\_57:  
(Start: 45 @38737 has 23 MA's), (64, 38605), (72, 38548), (76, 38521),

Gene: VohminGhazi\_61 Start: 37936, Stop: 37547, Start Num: 50  
Candidate Starts for VohminGhazi\_61:  
(Start: 50 @37936 has 35 MA's), (71, 37756), (76, 37726), (77, 37684),

Gene: Waits\_67 Start: 38712, Stop: 38332, Start Num: 55  
Candidate Starts for Waits\_67:  
(Start: 55 @38712 has 18 MA's), (68, 38565), (76, 38508), (77, 38466),

Gene: WalterMcMickey\_55 Start: 38210, Stop: 37797, Start Num: 46  
Candidate Starts for WalterMcMickey\_55:  
(Start: 46 @38210 has 120 MA's), (64, 38072), (72, 38015), (76, 37988),

Gene: Wander\_56 Start: 38365, Stop: 37952, Start Num: 46  
Candidate Starts for Wander\_56:  
(Start: 46 @38365 has 120 MA's), (66, 38218), (70, 38185), (71, 38173), (76, 38143),

Gene: Watermelon\_56 Start: 39474, Stop: 39064, Start Num: 47  
Candidate Starts for Watermelon\_56:  
(Start: 47 @39474 has 93 MA's), (Start: 61 @39393 has 1 MA's), (74, 39270),

Gene: Whabigail7\_61 Start: 39610, Stop: 39164, Start Num: 26  
Candidate Starts for Whabigail7\_61:  
(Start: 26 @39610 has 1 MA's), (Start: 41 @39565 has 48 MA's), (71, 39373), (76, 39343), (77, 39301),

Gene: WideWale\_61 Start: 39230, Stop: 38826, Start Num: 41  
Candidate Starts for WideWale\_61:  
(28, 39263), (Start: 38 @39236 has 1 MA's), (Start: 41 @39230 has 48 MA's), (71, 39035), (76, 39005),

Gene: Wiks\_61 Start: 38050, Stop: 37661, Start Num: 50  
Candidate Starts for Wiks\_61:  
(Start: 50 @38050 has 35 MA's), (71, 37870), (76, 37840), (77, 37798),

Gene: Wilbur\_56 Start: 38365, Stop: 37952, Start Num: 46  
Candidate Starts for Wilbur\_56:  
(Start: 46 @38365 has 120 MA's), (66, 38218), (70, 38185), (71, 38173), (76, 38143),

Gene: Wile\_55 Start: 38343, Stop: 37939, Start Num: 51

Candidate Starts for Wile\_55:

(Start: 51 @38343 has 71 MA's), (63, 38253), (64, 38214), (71, 38160), (76, 38130),

Gene: Wizard007\_56 Start: 38373, Stop: 37960, Start Num: 46

Candidate Starts for Wizard007\_56:

(Start: 46 @38373 has 120 MA's), (66, 38226), (70, 38193), (71, 38181), (76, 38151),

Gene: Wooldri\_65 Start: 39033, Stop: 38626, Start Num: 49

Candidate Starts for Wooldri\_65:

(Start: 49 @39033 has 113 MA's), (Start: 54 @39018 has 1 MA's), (59, 39006), (62, 38949), (72, 38844), (76, 38817),

Gene: WunderPhul\_62 Start: 38048, Stop: 37659, Start Num: 50

Candidate Starts for WunderPhul\_62:

(Start: 50 @38048 has 35 MA's), (71, 37868), (76, 37838), (77, 37796),

Gene: Xena\_54 Start: 38309, Stop: 37905, Start Num: 51

Candidate Starts for Xena\_54:

(Start: 51 @38309 has 71 MA's), (63, 38219), (64, 38180), (71, 38126), (76, 38096),

Gene: XianYue\_58 Start: 38726, Stop: 38322, Start Num: 41

Candidate Starts for XianYue\_58:

(Start: 41 @38726 has 48 MA's), (71, 38531), (76, 38501), (77, 38459),

Gene: Yecey3\_61 Start: 38942, Stop: 38553, Start Num: 47

Candidate Starts for Yecey3\_61:

(Start: 47 @38942 has 93 MA's), (68, 38780), (71, 38756), (76, 38726), (77, 38684),

Gene: YoSam321\_56 Start: 38362, Stop: 37949, Start Num: 46

Candidate Starts for YoSam321\_56:

(Start: 46 @38362 has 120 MA's), (66, 38215), (70, 38182), (71, 38170), (76, 38140),

Gene: Zaka\_62 Start: 38050, Stop: 37661, Start Num: 50

Candidate Starts for Zaka\_62:

(Start: 50 @38050 has 35 MA's), (71, 37870), (76, 37840), (77, 37798),

Gene: Zetzy\_62 Start: 38684, Stop: 38277, Start Num: 49

Candidate Starts for Zetzy\_62:

(Start: 49 @38684 has 113 MA's), (Start: 54 @38669 has 1 MA's), (59, 38657), (62, 38600), (72, 38495), (76, 38468),

Gene: Zimmer\_57 Start: 40099, Stop: 39713, Start Num: 51

Candidate Starts for Zimmer\_57:

(Start: 51 @40099 has 71 MA's), (68, 39943), (71, 39919), (76, 39886),

Gene: Zolita\_56 Start: 39509, Stop: 39099, Start Num: 51

Candidate Starts for Zolita\_56:

(Start: 51 @39509 has 71 MA's), (65, 39374), (69, 39347), (70, 39338), (76, 39296),

Gene: Zulu\_63 Start: 38428, Stop: 38039, Start Num: 50

Candidate Starts for Zulu\_63:

(Start: 50 @38428 has 35 MA's), (71, 38248), (76, 38218), (77, 38176),