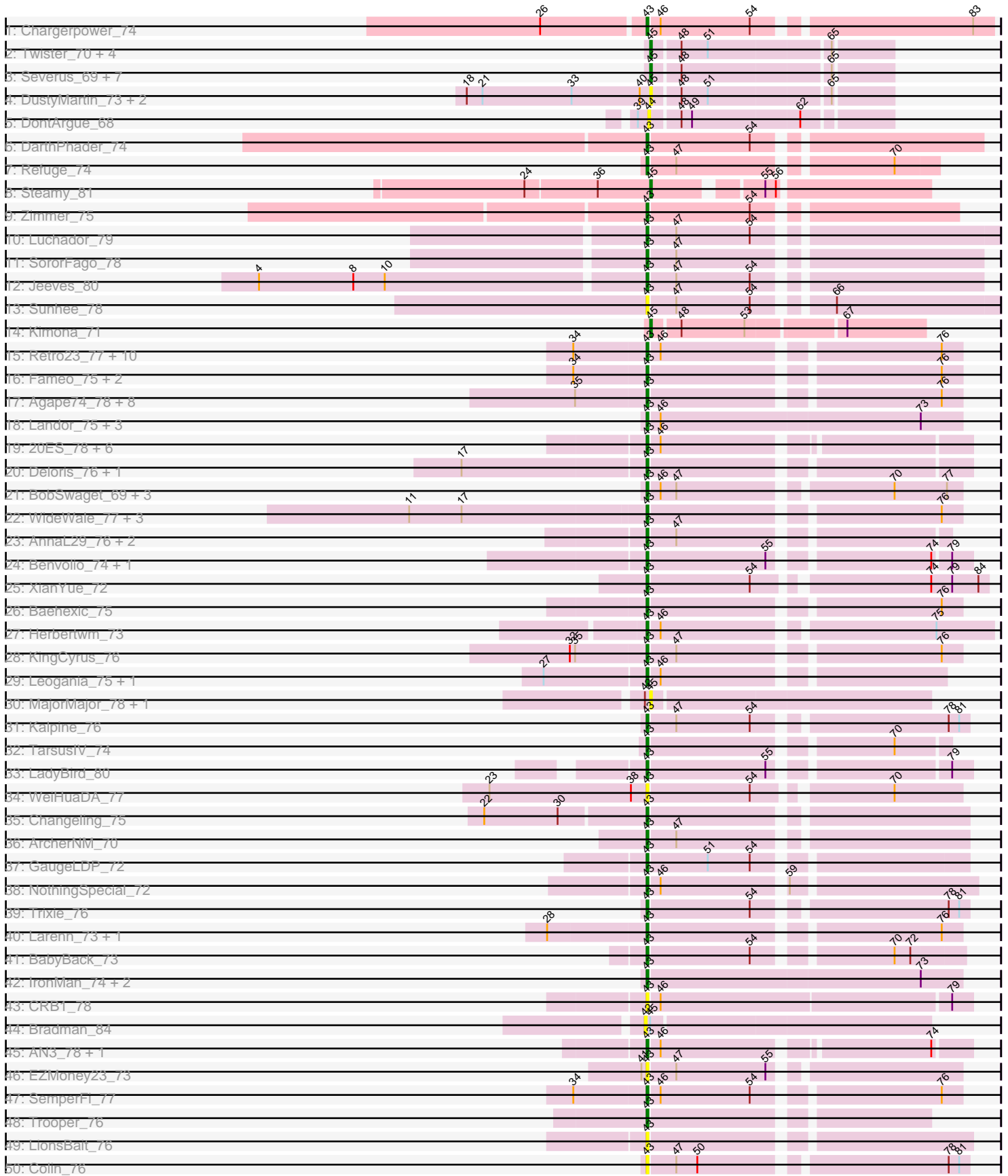
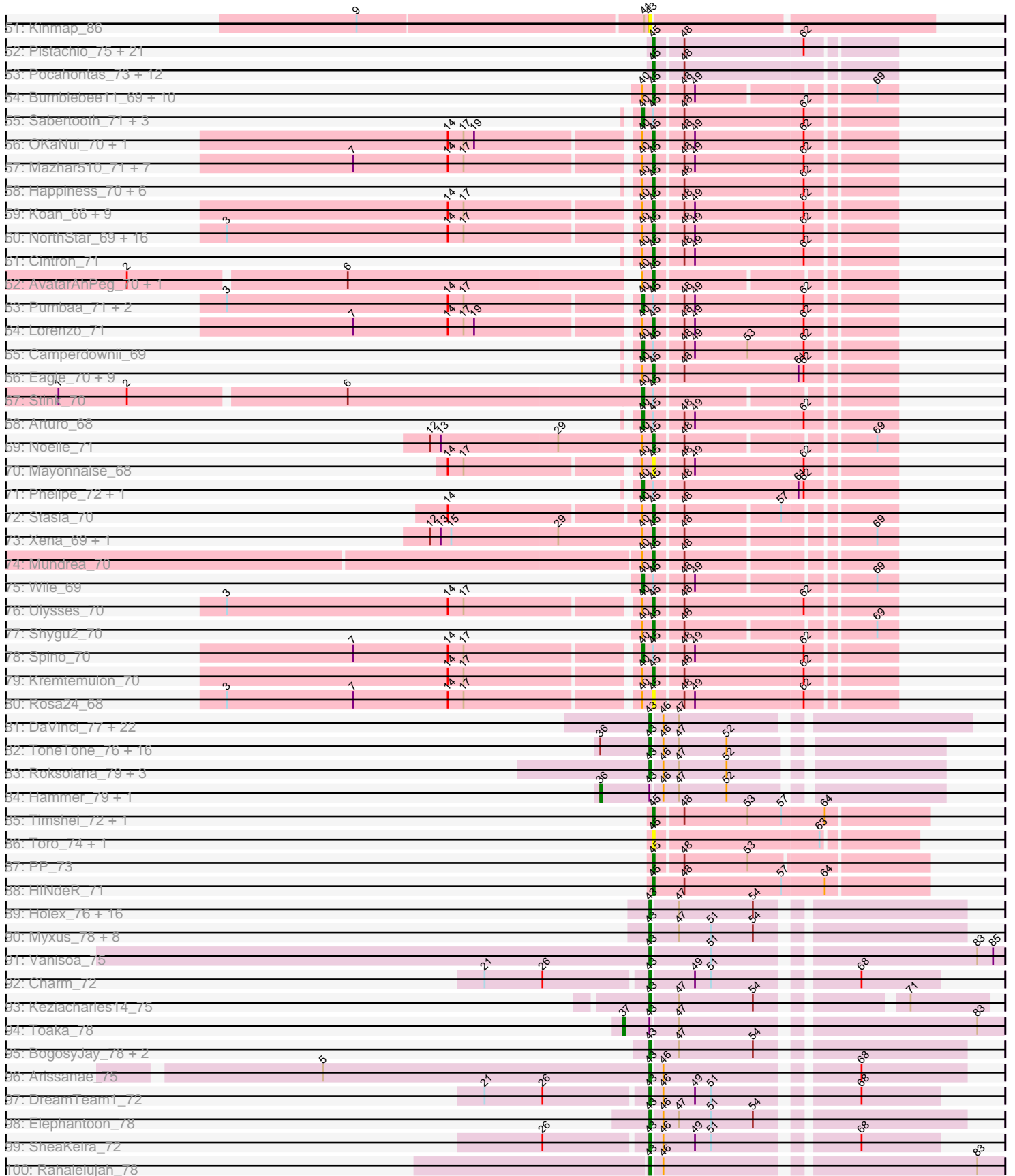


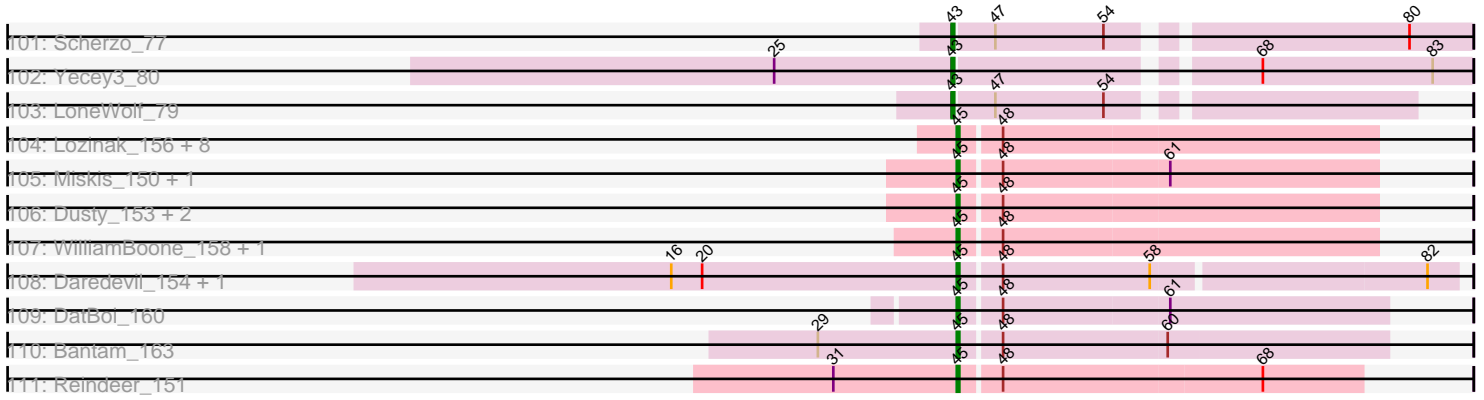
Pham 217521



Pham 217521



Pham 217521



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 217521 Report

This analysis was run 03/28/25 on database version 593.

Pham number 217521 has 351 members, 47 are drafts.

Phages represented in each track:

- Track 1 : Chargerpower\_74
- Track 2 : Twister\_70, Kristoff\_70, Rebeuca\_72, Edison31\_68, WalterMcMickey\_70
- Track 3 : Severus\_69, Poompha\_68, KittenMittens\_68, PeaceMeal1\_69, OKCentral2016\_69, Goose\_72, Drake94\_69, Chupacabra\_69
- Track 4 : DustyMartin\_73, Rowdy\_73, Shapes\_73
- Track 5 : DontArgue\_68
- Track 6 : DarthPhader\_74
- Track 7 : Refuge\_74
- Track 8 : Steamy\_81
- Track 9 : Zimmer\_75
- Track 10 : Luchador\_79
- Track 11 : SororFago\_78
- Track 12 : Jeeves\_80
- Track 13 : Sunhee\_78
- Track 14 : Kimona\_71
- Track 15 : Retro23\_77, SnapTap\_76, Dalmatian\_77, Crucio\_77, QueenBeesly\_77, Anselm\_78, Georgie2\_78, FiringLine\_77, Power\_76, DudeLittle\_75, SweetiePie\_76
- Track 16 : Fameo\_75, Heffalump\_74, QueenB2\_74
- Track 17 : Agape74\_78, LilTurb\_77, Buggy\_78, Turbido\_77, AbbyPaige\_78, Dignity\_78, Jerm\_78, Leviathan\_78, Smeagan\_79
- Track 18 : Landor\_75, Phaded\_72, Tristan\_73, Bactobuster\_69
- Track 19 : 20ES\_78, First\_0077, Drake55\_78, Piro94\_76, JoshKayV\_77, HarryHoudini\_77, Iwokeuplikedis\_78
- Track 20 : Deloris\_76, BengiVuitton\_76
- Track 21 : BobSwaget\_69, Miko\_70, Lokk\_70, Rachaly\_72
- Track 22 : WideWale\_77, Gratitude\_74, Updawg\_77, Equemioh13\_76
- Track 23 : AnnaL29\_76, RedRock\_75, Loser\_78
- Track 24 : Benvolio\_74, Echild\_77
- Track 25 : XianYue\_72
- Track 26 : Baehexic\_75
- Track 27 : Herbertwm\_73
- Track 28 : KingCyrus\_76
- Track 29 : Leogania\_75, BiancaTri92\_75
- Track 30 : MajorMajor\_78, Quokka\_83
- Track 31 : Kalpine\_76
- Track 32 : TarsusIV\_74
- Track 33 : LadyBird\_80

- Track 34 : WeiHuaDA\_77
- Track 35 : Changeling\_75
- Track 36 : ArcherNM\_70
- Track 37 : GaugeLDP\_72
- Track 38 : NothingSpecial\_72
- Track 39 : Trixie\_76
- Track 40 : Larenn\_73, Malec\_74
- Track 41 : BabyBack\_73
- Track 42 : IronMan\_74, Pukovnik\_73, Jaan\_75
- Track 43 : CRB1\_78
- Track 44 : Bradman\_84
- Track 45 : AN3\_78, VA6\_76
- Track 46 : EZMoney23\_73
- Track 47 : SemperFi\_77
- Track 48 : Trooper\_76
- Track 49 : LionsBait\_76
- Track 50 : Colin\_76
- Track 51 : Kinmap\_86
- Track 52 : Pistachio\_75, JF4\_72, Heathen\_74, TNguyen7\_75, JF2\_72, SaturnRing\_74, B1\_66, DropBear\_72, MA5\_74, Fred313\_72, BlueBird\_77, Marchesa\_73, Isca\_72, Bugatti\_74, Kachowdy\_72, BabyRay\_75, Giroux\_73, Idleandcovert\_75, HelDan\_74, Phantastic\_76, Puppy\_75, Scout\_73
- Track 53 : Pocahontas\_73, Veracruz\_71, Texage\_72, Norbert\_70, Margo\_74, Todacoro\_74, QuinnKiro\_73, Panamaxus\_72, Noella\_75, ResDef\_72, Lambert1\_74, Popcicle\_74, Hookmount\_74
- Track 54 : Bumblebee11\_69, Achebe\_69, Morpher26\_70, Backyardigan\_68, Katalie136\_70, Wizard007\_70, AbbysRanger\_70, Perplexer\_70, Cici\_70, PetiteSangsue\_70, Badger\_69
- Track 55 : Sabertooth\_71, ChampagnePapi\_73, BangNhom\_69, LHTSCC\_73
- Track 56 : OKaNui\_70, Phontbonne\_71
- Track 57 : Mazhar510\_71, Nemo27\_70, LochMonster\_72, PeterPeter\_71, Kyee\_71, Tinybot\_70, Phighter1804\_71, DirtyDunning\_70
- Track 58 : Happiness\_70, SheldonCooper\_71, Shaka\_69, JetBlade\_71, Cindaradix\_67, Obama12\_72, Cerulean\_72
- Track 59 : Koan\_66, Deano\_68, TiroTheta9\_70, Alberto7\_72, Baby16\_71, Kingmustik0402\_71, Holli\_70, Floean\_71, Roosevelt\_69, Citius\_71
- Track 60 : NorthStar\_69, Albee\_71, Flux\_71, SenorClean\_66, Scamp\_71, LittleB\_71, Chaph\_71, Skipitt\_70, Iceman\_70, Jaykayelowell\_68, Taquarus\_70, Eros\_71, Connomayer\_71, TygerBlood\_71, Koreni\_70, Pipcraft\_68, Lunsford\_71
- Track 61 : Cintron\_71
- Track 62 : AvatarAhPeg\_70, Miramae\_70
- Track 63 : Pumbaa\_71, YoSam321\_71, Relief\_70
- Track 64 : Lorenzo\_71
- Track 65 : Camperdownii\_69
- Track 66 : Eagle\_70, Maxo\_73, CentreCat\_71, Kampy\_70, TroyPia\_72, LeoAvram\_70, Eurydice\_72, Ohfah\_72, Polymorphads\_71, Nebs\_72
- Track 67 : Stink\_70
- Track 68 : Arturo\_68
- Track 69 : Noelle\_71
- Track 70 : Mayonnaise\_68
- Track 71 : Phelipe\_72, BellusTerra\_72
- Track 72 : Stasia\_70
- Track 73 : Xena\_69, Datway\_70

- Track 74 : Mundrea\_70
- Track 75 : Wile\_69
- Track 76 : Ulysses\_70
- Track 77 : Shygu2\_70
- Track 78 : Spino\_70
- Track 79 : Kremtemulon\_70
- Track 80 : Rosa24\_68
- Track 81 : DaVinci\_77, Kazan\_80, Neeharika16\_78, Jordennis\_77, SmellyB\_79, Hoot\_74, EricB\_78, Kipper29\_79, Priamo\_81, GreedyLawyer\_74, SuperAwesome\_79, Candra\_77, McFly\_80, VohminGhazi\_79, Blinn1\_83, SuperCallie99\_76, BABullseye\_72, Pmask\_78, Cookiedough\_79, Isiphiwo\_76, Newrala\_78, Dorothea\_79, Chartreuse\_76
- Track 82 : ToneTone\_76, Zulu\_80, Helmet\_80, Indra\_82, Garak\_80, Lilbunny\_78, Temprado\_80, Zaka\_79, WunderPhul\_79, BlessJoy\_78, Blue7\_80, Wiks\_78, Rifter\_79, Tucker\_79, Yokurt\_78, Gruunaga\_78, CloudWang3\_79
- Track 83 : Roksolana\_79, Artemis2UCLA\_78, Hexamo\_78, Koko\_80
- Track 84 : Hammer\_79, Gladiator\_76
- Track 85 : Timshel\_72, DroogsArmy\_71
- Track 86 : Toro\_74, FlyCatcher\_76
- Track 87 : PP\_73
- Track 88 : HINdeR\_71
- Track 89 : Holes\_76, Fayely\_76, Priya\_76, Pioneer\_78, EmyBug\_75, Phonnegut\_78, Conquerage\_76, Alma\_76, Jiawan\_75, Spouty\_76, Qobbit\_76, Beemo\_78, RyeScarlet\_79, Onglai\_76, ExplosioNervosa\_76, Hanray\_76, Eidsmoe\_76
- Track 90 : Myxus\_78, Sachima\_74, Catalina\_80, EdogawaKiddo\_76, HortumSL17\_79, PackMan\_77, Tubs\_78, Phaeder\_78, Lilleskat\_75
- Track 91 : Vanisoa\_75
- Track 92 : Charm\_72
- Track 93 : Keziacharles14\_75
- Track 94 : Toaka\_78
- Track 95 : BogosyJay\_78, Gail\_78, Maminiaina\_78
- Track 96 : Arissanae\_75
- Track 97 : DreamTeam1\_72
- Track 98 : Elephantoon\_78
- Track 99 : SheaKeira\_72
- Track 100 : Rahalelujah\_78
- Track 101 : Scherzo\_77
- Track 102 : Yecey3\_80
- Track 103 : LoneWolf\_79
- Track 104 : Lozinak\_156, Toniann\_156, Smoothie\_157, PhinkBoden\_154, Cucurbita\_155, Bachita\_159, Norvs\_154, Abscondus\_154, ClubL\_157
- Track 105 : Miskis\_150, Aphelion\_156
- Track 106 : Dusty\_153, Engineer\_158, Geeche\_156
- Track 107 : WilliamBoone\_158, Culver\_156
- Track 108 : Daredevil\_154, Towmatter\_155
- Track 109 : DatBoi\_160
- Track 110 : Bantam\_163
- Track 111 : Reindeer\_151

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

The start number called the most often in the published annotations is 43, it was called in 146 of the 304 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 20ES\_78, AN3\_78, AbbyPaige\_78, Agape74\_78, Alma\_76, AnnaL29\_76, Anselm\_78, ArcherNM\_70, Arissanae\_75, Artemis2UCLA\_78, BABullseye\_72, BabyBack\_73, Bactobuster\_69, Baehexic\_75, Beemo\_78, BengiVuitton\_76, Benvolio\_74, BiancaTri92\_75, BlessJoy\_78, Blinn1\_83, Blue7\_80, BobSwaget\_69, BogosyJay\_78, Buggy\_78, CRB1\_78, Candra\_77, Catalina\_80, Changeling\_75, Chargerpower\_74, Charm\_72, Chartreuse\_76, CloudWang3\_79, Colin\_76, Conquerage\_76, Cookiedough\_79, Crucio\_77, DaVinci\_77, Dalmatian\_77, DarthPhader\_74, Deloris\_76, Dignity\_78, Dorothea\_79, Drake55\_78, DreamTeam1\_72, DudeLittle\_75, EZMoney23\_73, Echild\_77, EdogawaKiddo\_76, Eidsmoe\_76, Elephantoon\_78, EmyBug\_75, Equemioh13\_76, EricB\_78, ExplosioNervosa\_76, Fameo\_75, Fayely\_76, FiringLine\_77, First\_0077, Gail\_78, Garak\_80, GaugeLDP\_72, Georgie2\_78, Gratitude\_74, GreedyLawyer\_74, Gruunaga\_78, Hanray\_76, HarryHoudini\_77, Heffalump\_74, Helmet\_80, Herbertwm\_73, Hexamo\_78, Horex\_76, Hoot\_74, HortumSL17\_79, Indra\_82, IronMan\_74, Isiphiwo\_76, Iwokeuplikedis\_78, Jaan\_75, Jeeves\_80, Jerm\_78, Jiawan\_75, Jordennis\_77, JoshKayV\_77, Kalpine\_76, Kazan\_80, Keziacharles14\_75, KingCyrus\_76, Kinmap\_86, Kipper29\_79, Koko\_80, LadyBird\_80, Landor\_75, Larenn\_73, Leogania\_75, Leviathan\_78, LilTurb\_77, Lilbunny\_78, Lilleskat\_75, LionsBait\_76, Lokk\_70, LoneWolf\_79, Loser\_78, Luchador\_79, Malec\_74, Maminiaina\_78, McFly\_80, Miko\_70, Myxus\_78, Neeharika16\_78, Newrala\_78, NothingSpecial\_72, Onglai\_76, PackMan\_77, Phaded\_72, Phaeder\_78, Phonnegut\_78, Pioneer\_78, Piro94\_76, Pmask\_78, Power\_76, Priamo\_81, Priya\_76, Pukovnik\_73, Qobbit\_76, QueenB2\_74, QueenBeesly\_77, Rachaly\_72, Rahalelujah\_78, RedRock\_75, Refuge\_74, Retro23\_77, Rifter\_79, Roksolana\_79, RyeScarlet\_79, Sachima\_74, Scherzo\_77, SemperFi\_77, SheaKeira\_72, Smeagan\_79, SmellyB\_79, SnapTap\_76, SororFago\_78, Spouty\_76, Sunhee\_78, SuperAwesome\_79, SuperCallie99\_76, SweetiePie\_76, TarsusIV\_74, Temprado\_80, ToneTone\_76, Tristan\_73, Trixie\_76, Trooper\_76, Tubs\_78, Tucker\_79, Turbido\_77, Updawg\_77, VA6\_76, Vanisoa\_75, VohminGhazi\_79, WeiHuaDA\_77, WideWale\_77, Wiks\_78, WunderPhul\_79, XianYue\_72, Yecey3\_80, Yokurt\_78, Zaka\_79, Zimmer\_75, Zulu\_80,

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

- Gladiator\_76, Hammer\_79, Toaka\_78,

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

- AbbysRanger\_70, Abscondus\_154, Achebe\_69, Albee\_71, Alberto7\_72, Aphelion\_156, Arturo\_68, AvatarAhPeg\_70, B1\_66, Baby16\_71, BabyRay\_75, Bachita\_159, Backyardigan\_68, Badger\_69, BangNhom\_69, Bantam\_163, BellusTerra\_72, BlueBird\_77, Bradman\_84, Bugatti\_74, Bumblebee11\_69, Camperdownii\_69, CentreCat\_71, Cerulean\_72, ChampagnePapi\_73, Chaph\_71, Chupacabra\_69, Cici\_70, Cindaradix\_67, Cintron\_71, Citius\_71, ClubL\_157, Connomayer\_71, Cucurbita\_155, Culver\_156, Daredevil\_154, DatBoi\_160, Datway\_70, Deano\_68, DirtyDunning\_70, DontArgue\_68, Drake94\_69, DroogsArmy\_71, DropBear\_72, DustyMartin\_73, Dusty\_153, Eagle\_70, Edison31\_68, Engineer\_158, Eros\_71, Eurydice\_72, Florean\_71, Flux\_71, FlyCatcher\_76, Fred313\_72, Geeche\_156, Giroux\_73, Goose\_72, HINdeR\_71, Happiness\_70, Heathen\_74, HelDan\_74, Holli\_70, Hookmount\_74, Iceman\_70,

Idleandcovert\_75, Isca\_72, JF2\_72, JF4\_72, Jaykayelowell\_68, JetBlade\_71, Kachowdy\_72, Kampy\_70, Katalie136\_70, Kimona\_71, Kingmustik0402\_71, KittenMittens\_68, Koan\_66, Koreni\_70, Kremtemulon\_70, Kristoff\_70, Kyee\_71, LHTSCC\_73, Lambert1\_74, LeoAvram\_70, LittleB\_71, LochMonster\_72, Lorenzo\_71, Lozinak\_156, Lunsford\_71, MA5\_74, MajorMajor\_78, Marchesa\_73, Margo\_74, Maxo\_73, Mayonnaise\_68, Mazhar510\_71, Miramae\_70, Miskis\_150, Morpher26\_70, Mundrea\_70, Nebs\_72, Nemo27\_70, Noella\_75, Noelle\_71, Norbert\_70, NorthStar\_69, Norvs\_154, OKCentral2016\_69, OKaNui\_70, Obama12\_72, Ohfah\_72, PP\_73, Panamaxus\_72, PeaceMeal1\_69, Perplexer\_70, PeterPeter\_71, PetiteSangsue\_70, Phantastic\_76, Phelipe\_72, Phighter1804\_71, PhinkBoden\_154, Phontbonne\_71, Pipcraft\_68, Pistachio\_75, Pocahontas\_73, Polymorphads\_71, Poompha\_68, Popcicle\_74, Pumbaa\_71, Puppy\_75, QuinnKiro\_73, Quokka\_83, Rebeuca\_72, Reindeer\_151, Relief\_70, ResDef\_72, Roosevelt\_69, Rosa24\_68, Rowdy\_73, Sabertooth\_71, SaturnRing\_74, Scamp\_71, Scout\_73, SenorClean\_66, Severus\_69, Shaka\_69, Shapes\_73, SheldonCooper\_71, Shygu2\_70, Skipitt\_70, Smoothie\_157, Spino\_70, Stasia\_70, Steamy\_81, Stink\_70, TNguyen7\_75, Taquarus\_70, Texage\_72, Timshel\_72, Tinybot\_70, TiroTheta9\_70, Todacoro\_74, Toniann\_156, Toro\_74, Towmatter\_155, TroyPia\_72, Twister\_70, TygerBlood\_71, Ulysses\_70, Veracruz\_71, WalterMcMickey\_70, Wile\_69, WilliamBoone\_158, Wizard007\_70, Xena\_69, YoSam321\_71,

### Summary by start number:

#### Start 36:

- Found in 20 of 351 ( 5.7% ) of genes in pham
- Manual Annotations of this start: 2 of 304
- Called 10.0% of time when present
- Phage (with cluster) where this start called: Gladiator\_76 (A6), Hammer\_79 (A6),

#### Start 37:

- Found in 1 of 351 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 304
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Toaka\_78 (A9),

#### Start 40:

- Found in 96 of 351 ( 27.4% ) of genes in pham
- Manual Annotations of this start: 14 of 304
- Called 14.6% of time when present
- Phage (with cluster) where this start called: Arturo\_68 (A4), BangNhom\_69 (A4), BellusTerra\_72 (A4), Camperdownii\_69 (A4), ChampagnePapi\_73 (A4), LHTSCC\_73 (A4), Phelipe\_72 (A4), Pumbaa\_71 (A4), Relief\_70 (A4), Sabertooth\_71 (A4), Spino\_70 (A4), Stink\_70 (A4), Wile\_69 (A4), YoSam321\_71 (A4),

#### Start 42:

- Found in 3 of 351 ( 0.9% ) of genes in pham
- No Manual Annotations of this start.
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Bradman\_84 (A2),

#### Start 43:

- Found in 174 of 351 ( 49.6% ) of genes in pham
- Manual Annotations of this start: 146 of 304



- Called 98.3% of time when present
- Phage (with cluster) where this start called: 20ES\_78 (A2), AN3\_78 (A2), AbbyPaige\_78 (A2), Agape74\_78 (A2), Alma\_76 (A9), AnnaL29\_76 (A2), Anselm\_78 (A2), ArcherNM\_70 (A2), Arissanae\_75 (A9), Artemis2UCLA\_78 (A6), BABullseye\_72 (A6), BabyBack\_73 (A2), Bactobuster\_69 (A2), Baehexic\_75 (A2), Beemo\_78 (A9), BengiVuitton\_76 (A2), Benvolio\_74 (A2), BiancaTri92\_75 (A2), BlessJoy\_78 (A6), Blinn1\_83 (A6), Blue7\_80 (A6), BobSwaget\_69 (A2), BogosyJay\_78 (A9), Bugsy\_78 (A2), CRB1\_78 (A2), Candra\_77 (A6), Catalina\_80 (A9), Changeling\_75 (A2), Chargerpower\_74 (A), Charm\_72 (A9), Chartreuse\_76 (A6), CloudWang3\_79 (A6), Colin\_76 (A2), Conquerage\_76 (A9), Cookiedough\_79 (A6), Crucio\_77 (A2), DaVinci\_77 (A6), Dalmatian\_77 (A2), DarthPhader\_74 (A12), Deloris\_76 (A2), Dignity\_78 (A2), Dorothea\_79 (A6), Drake55\_78 (A2), DreamTeam1\_72 (A9), DudeLittle\_75 (A2), EZMoney23\_73 (A2), Echild\_77 (A2), EdogawaKiddo\_76 (A9), Eidsmoe\_76 (A9), Elephantoon\_78 (A9), EmyBug\_75 (A9), Equemioh13\_76 (A2), EricB\_78 (A6), ExplosioNervosa\_76 (A9), Fameo\_75 (A2), Fayely\_76 (A9), FiringLine\_77 (A2), First\_0077 (A2), Gail\_78 (A14), Garak\_80 (A6), GaugeLDP\_72 (A2), Georgie2\_78 (A2), Gratitude\_74 (A2), GreedyLawyer\_74 (A6), Gruunaga\_78 (A6), Hanray\_76 (A9), HarryHoudini\_77 (A2), Heffalump\_74 (A2), Helmet\_80 (A6), Herbertwm\_73 (A2), Hexamo\_78 (A6), Holes\_76 (A9), Hoot\_74 (A6), HortumSL17\_79 (A9), Indra\_82 (A6), IronMan\_74 (A2), Isiphiwo\_76 (A6), Iwokeuplikedis\_78 (A2), Jaan\_75 (A2), Jeeves\_80 (A14), Jerm\_78 (A2), Jiawan\_75 (A9), Jordennis\_77 (A6), JoshKayV\_77 (A2), Kalpine\_76 (A2), Kazan\_80 (A6), Keziacharles14\_75 (A9), KingCyrus\_76 (A2), Kinmap\_86 (A21), Kipper29\_79 (A6), Koko\_80 (A6), LadyBird\_80 (A2), Landor\_75 (A2), Larenn\_73 (A2), Leogania\_75 (A2), Leviathan\_78 (A2), LilTurb\_77 (A2), Lilbunny\_78 (A6), Lilleskat\_75 (A9), LionsBait\_76 (A2), Lokk\_70 (A2), LoneWolf\_79 (A9), Loser\_78 (A2), Luchador\_79 (A14), Malec\_74 (A2), Maminina\_78 (A9), McFly\_80 (A6), Miko\_70 (A2), Myxus\_78 (A9), Neeharika16\_78 (A6), Newrala\_78 (A6), NothingSpecial\_72 (A2), Onglai\_76 (A9), PackMan\_77 (A9), Phaded\_72 (A2), Phaeder\_78 (A9), Phonnegut\_78 (A9), Pioneer\_78 (A9), Piro94\_76 (A2), Pmask\_78 (A6), Power\_76 (A2), Priamo\_81 (A6), Priya\_76 (A9), Pukovnik\_73 (A2), Qobbit\_76 (A9), QueenB2\_74 (A2), QueenBeesly\_77 (A2), Rachaly\_72 (A2), Rahalelujah\_78 (A9), RedRock\_75 (A2), Refuge\_74 (A12), Retro23\_77 (A2), Rifter\_79 (A6), Roksolana\_79 (A6), RyeScarlet\_79 (A9), Sachima\_74 (A9), Scherzo\_77 (A9), SemperFi\_77 (A2), SheaKeira\_72 (A9), Smeagan\_79 (A2), SmellyB\_79 (A6), SnapTap\_76 (A2), SororFago\_78 (A14), Spouty\_76 (A9), Sunhee\_78 (A14), SuperAwesome\_79 (A6), SuperCallie99\_76 (A6), SweetiePie\_76 (A2), TarsusIV\_74 (A2), Temprado\_80 (A6), ToneTone\_76 (A6), Tristan\_73 (A2), Trixie\_76 (A2), Trooper\_76 (A2), Tubs\_78 (A9), Tucker\_79 (A6), Turbido\_77 (A2), Updawg\_77 (A2), VA6\_76 (A2), Vanisoa\_75 (A9), VohminGhazi\_79 (A6), WeiHuaDA\_77 (A2), WideWale\_77 (A2), Wiks\_78 (A6), WunderPhul\_79 (A6), XianYue\_72 (A2), Yecey3\_80 (A9), Yokurt\_78 (A6), Zaka\_79 (A6), Zimmer\_75 (A12), Zulu\_80 (A6),

#### Start 44:

- Found in 1 of 351 ( 0.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DontArgue\_68 (A10),

#### Start 45:

- Found in 176 of 351 ( 50.1% ) of genes in pham
- Manual Annotations of this start: 141 of 304
- Called 91.5% of time when present

- Phage (with cluster) where this start called: AbbysRanger\_70 (A4), Abscondus\_154 (CQ1), Achebe\_69 (A4), Albee\_71 (A4), Alberto7\_72 (A4), Aphelion\_156 (CQ1), AvatarAhPeg\_70 (A4), B1\_66 (A3), Baby16\_71 (A4), BabyRay\_75 (A3), Bachita\_159 (CQ1), Backyardigan\_68 (A4), Badger\_69 (A4), Bantam\_163 (DL), BlueBird\_77 (A3), Bugatti\_74 (A3), Bumblebee11\_69 (A4), CentreCat\_71 (A4), Cerulean\_72 (A4), Chaph\_71 (A4), Chupacabra\_69 (A10), Cici\_70 (A4), Cindaradix\_67 (A4), Cintron\_71 (A4), Citius\_71 (A4), ClubL\_157 (CQ1), Connomayer\_71 (A4), Cucurbita\_155 (CQ1), Culver\_156 (CQ1), Daredevil\_154 (DL), DatBoi\_160 (DL), Datway\_70 (A4), Deano\_68 (A4), DirtyDunning\_70 (A4), Drake94\_69 (A10), DroogsArmy\_71 (A7), DropBear\_72 (A3), DustyMartin\_73 (A10), Dusty\_153 (CQ1), Eagle\_70 (A4), Edison31\_68 (A10), Engineer\_158 (CQ1), Eros\_71 (A4), Eurydice\_72 (A4), Florean\_71 (A4), Flux\_71 (A4), FlyCatcher\_76 (A7), Fred313\_72 (A3), Geeche\_156 (CQ1), Giroux\_73 (A3), Goose\_72 (A10), HINdeR\_71 (A7), Happiness\_70 (A4), Heathen\_74 (A3), HelDan\_74 (A3), Holli\_70 (A4), Hookmount\_74 (A3), Iceman\_70 (A4), Idleandcovert\_75 (A3), Isca\_72 (A3), JF2\_72 (A3), JF4\_72 (A3), Jaykayelowell\_68 (A4), JetBlade\_71 (A4), Kachowdy\_72 (A3), Kamy\_70 (A4), Katalie136\_70 (A4), Kimona\_71 (A19), Kingmustik0402\_71 (A4), KittenMittens\_68 (A10), Koan\_66 (A4), Koreni\_70 (A4), Kremtemulon\_70 (A4), Kristoff\_70 (A10), Kyee\_71 (A4), Lambert1\_74 (A3), LeoAvram\_70 (A4), LittleB\_71 (A4), LochMonster\_72 (A4), Lorenzo\_71 (A4), Lozinak\_156 (CQ1), Lunsford\_71 (A4), MA5\_74 (A3), MajorMajor\_78 (A2), Marchesa\_73 (A3), Margo\_74 (A3), Maxo\_73 (A4), Mayonnaise\_68 (A4), Mazhar510\_71 (A4), Miramae\_70 (A4), Miskis\_150 (CQ1), Morpher26\_70 (A4), Mundrea\_70 (A4), Nebs\_72 (A4), Nemo27\_70 (A4), Noella\_75 (A3), Noelle\_71 (A4), Norbert\_70 (A3), NorthStar\_69 (A4), Norvs\_154 (CQ1), OKCentral2016\_69 (A10), OKaNui\_70 (A4), Obama12\_72 (A4), Ohfah\_72 (A4), PP\_73 (A7), Panamaxus\_72 (A3), PeaceMeal1\_69 (A10), Perplexer\_70 (A4), PeterPeter\_71 (A4), PetiteSangsue\_70 (A4), Phantastic\_76 (A3), Phighter1804\_71 (A4), PhinkBoden\_154 (CQ1), Phontbonne\_71 (A4), Pipcraft\_68 (A4), Pistachio\_75 (A3), Pocahontas\_73 (A3), Polymorphads\_71 (A4), Poompha\_68 (A10), Popcicle\_74 (A3), Puppy\_75 (A3), QuinnKiro\_73 (A3), Quokka\_83 (A2), Rebeuca\_72 (A10), Reindeer\_151 (M1), ResDef\_72 (A3), Roosevelt\_69 (A4), Rosa24\_68 (A4), Rowdy\_73 (A10), SaturnRing\_74 (A3), Scamp\_71 (A4), Scout\_73 (A3), SenorClean\_66 (A4), Severus\_69 (A10), Shaka\_69 (A4), Shapes\_73 (A10), SheldonCooper\_71 (A4), Shygu2\_70 (A4), Skipitt\_70 (A4), Smoothie\_157 (CQ1), Stasia\_70 (A4), Steamy\_81 (A12), TNguyen7\_75 (A3), Taquarus\_70 (A4), Texage\_72 (A3), Timshel\_72 (A7), Tinybot\_70 (A4), TiroTheta9\_70 (A4), Todacoro\_74 (A3), Toniann\_156 (CQ1), Toro\_74 (A7), Towmatter\_155 (DL), TroyPia\_72 (A4), Twister\_70 (A10), TygerBlood\_71 (A4), Ulysses\_70 (A4), Veracruz\_71 (A3), WalterMcMickey\_70 (A10), WilliamBoone\_158 (CQ1), Wizard007\_70 (A4), Xena\_69 (A4),

### Summary by clusters:

There are 15 clusters represented in this pham: A, A14, DL, A10, A21, A12, A19, A3, A2, M1, A4, A7, A6, A9, CQ1,

Info for manual annotations of cluster A:

- Start number 43 was manually annotated 1 time for cluster A.

Info for manual annotations of cluster A10:

- Start number 45 was manually annotated 13 times for cluster A10.

Info for manual annotations of cluster A12:

- Start number 43 was manually annotated 3 times for cluster A12.
- Start number 45 was manually annotated 1 time for cluster A12.

Info for manual annotations of cluster A14:

- Start number 43 was manually annotated 4 times for cluster A14.

Info for manual annotations of cluster A19:

- Start number 45 was manually annotated 1 time for cluster A19.

Info for manual annotations of cluster A2:

- Start number 43 was manually annotated 69 times for cluster A2.

Info for manual annotations of cluster A3:

- Start number 45 was manually annotated 29 times for cluster A3.

Info for manual annotations of cluster A4:

- Start number 40 was manually annotated 14 times for cluster A4.
- Start number 45 was manually annotated 75 times for cluster A4.

Info for manual annotations of cluster A6:

- Start number 36 was manually annotated 2 times for cluster A6.
- Start number 43 was manually annotated 38 times for cluster A6.

Info for manual annotations of cluster A7:

- Start number 45 was manually annotated 4 times for cluster A7.

Info for manual annotations of cluster A9:

- Start number 37 was manually annotated 1 time for cluster A9.
- Start number 43 was manually annotated 31 times for cluster A9.

Info for manual annotations of cluster CQ1:

- Start number 45 was manually annotated 14 times for cluster CQ1.

Info for manual annotations of cluster DL:

- Start number 45 was manually annotated 3 times for cluster DL.

Info for manual annotations of cluster M1:

- Start number 45 was manually annotated 1 time for cluster M1.

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

Gene: 20ES\_78 Start: 45905, Stop: 45738, Start Num: 43

Candidate Starts for 20ES\_78:

(Start: 43 @45905 has 146 MA's), (46, 45899),

Gene: AN3\_78 Start: 44672, Stop: 44505, Start Num: 43

Candidate Starts for AN3\_78:

(Start: 43 @44672 has 146 MA's), (46, 44666), (74, 44525),

Gene: AbbyPaige\_78 Start: 46176, Stop: 46012, Start Num: 43

Candidate Starts for AbbyPaige\_78:  
(35, 46215), (Start: 43 @46176 has 146 MA's), (76, 46023),

Gene: AbbysRanger\_70 Start: 44685, Stop: 44563, Start Num: 45  
Candidate Starts for AbbysRanger\_70:  
(Start: 40 @44691 has 14 MA's), (Start: 45 @44685 has 141 MA's), (48, 44670), (49, 44664), (69, 44574),

Gene: Abscondus\_154 Start: 82793, Stop: 82635, Start Num: 45  
Candidate Starts for Abscondus\_154:  
(Start: 45 @82793 has 141 MA's), (48, 82778),

Gene: Achebe\_69 Start: 44668, Stop: 44546, Start Num: 45  
Candidate Starts for Achebe\_69:  
(Start: 40 @44674 has 14 MA's), (Start: 45 @44668 has 141 MA's), (48, 44653), (49, 44647), (69, 44557),

Gene: Agape74\_78 Start: 46171, Stop: 46007, Start Num: 43  
Candidate Starts for Agape74\_78:  
(35, 46210), (Start: 43 @46171 has 146 MA's), (76, 46018),

Gene: Albee\_71 Start: 44510, Stop: 44382, Start Num: 45  
Candidate Starts for Albee\_71:  
(3, 44744), (14, 44618), (17, 44609), (Start: 40 @44516 has 14 MA's), (Start: 45 @44510 has 141 MA's), (48, 44495), (49, 44489), (62, 44429),

Gene: Alberto7\_72 Start: 44847, Stop: 44719, Start Num: 45  
Candidate Starts for Alberto7\_72:  
(14, 44955), (17, 44946), (Start: 40 @44853 has 14 MA's), (Start: 45 @44847 has 141 MA's), (48, 44832), (49, 44826), (62, 44766),

Gene: Alma\_76 Start: 45089, Stop: 44925, Start Num: 43  
Candidate Starts for Alma\_76:  
(Start: 43 @45089 has 146 MA's), (47, 45074), (54, 45032),

Gene: AnnaL29\_76 Start: 46109, Stop: 45954, Start Num: 43  
Candidate Starts for AnnaL29\_76:  
(Start: 43 @46109 has 146 MA's), (47, 46094),

Gene: Anselm\_78 Start: 46243, Stop: 46079, Start Num: 43  
Candidate Starts for Anselm\_78:  
(34, 46282), (Start: 43 @46243 has 146 MA's), (46, 46237), (76, 46090),

Gene: Aphelion\_156 Start: 83954, Stop: 83796, Start Num: 45  
Candidate Starts for Aphelion\_156:  
(Start: 45 @83954 has 141 MA's), (48, 83939), (61, 83876),

Gene: ArcherNM\_70 Start: 45375, Stop: 45208, Start Num: 43  
Candidate Starts for ArcherNM\_70:  
(Start: 43 @45375 has 146 MA's), (47, 45360),

Gene: Arissanae\_75 Start: 45413, Stop: 45249, Start Num: 43  
Candidate Starts for Arissanae\_75:

(5, 45599), (Start: 43 @45413 has 146 MA's), (46, 45407), (68, 45308),

Gene: Artemis2UCLA\_78 Start: 44266, Stop: 44114, Start Num: 43

Candidate Starts for Artemis2UCLA\_78:

(Start: 43 @44266 has 146 MA's), (46, 44260), (47, 44251), (52, 44224),

Gene: Arturo\_68 Start: 44641, Stop: 44507, Start Num: 40

Candidate Starts for Arturo\_68:

(Start: 40 @44641 has 14 MA's), (Start: 45 @44635 has 141 MA's), (48, 44620), (49, 44614), (62, 44554),

Gene: AvatarAhPeg\_70 Start: 44568, Stop: 44446, Start Num: 45

Candidate Starts for AvatarAhPeg\_70:

(2, 44850), (6, 44730), (Start: 40 @44574 has 14 MA's), (Start: 45 @44568 has 141 MA's),

Gene: B1\_66 Start: 43265, Stop: 43137, Start Num: 45

Candidate Starts for B1\_66:

(Start: 45 @43265 has 141 MA's), (48, 43250), (62, 43184),

Gene: BABullseye\_72 Start: 42895, Stop: 42728, Start Num: 43

Candidate Starts for BABullseye\_72:

(Start: 43 @42895 has 146 MA's), (46, 42889), (47, 42880),

Gene: Baby16\_71 Start: 44521, Stop: 44393, Start Num: 45

Candidate Starts for Baby16\_71:

(14, 44629), (17, 44620), (Start: 40 @44527 has 14 MA's), (Start: 45 @44521 has 141 MA's), (48, 44506), (49, 44500), (62, 44440),

Gene: BabyBack\_73 Start: 45797, Stop: 45633, Start Num: 43

Candidate Starts for BabyBack\_73:

(Start: 43 @45797 has 146 MA's), (54, 45740), (70, 45671), (72, 45662),

Gene: BabyRay\_75 Start: 45018, Stop: 44890, Start Num: 45

Candidate Starts for BabyRay\_75:

(Start: 45 @45018 has 141 MA's), (48, 45003), (62, 44937),

Gene: Bachita\_159 Start: 83833, Stop: 83675, Start Num: 45

Candidate Starts for Bachita\_159:

(Start: 45 @83833 has 141 MA's), (48, 83818),

Gene: Backyardigan\_68 Start: 44701, Stop: 44579, Start Num: 45

Candidate Starts for Backyardigan\_68:

(Start: 40 @44707 has 14 MA's), (Start: 45 @44701 has 141 MA's), (48, 44686), (49, 44680), (69, 44590),

Gene: Bactobuster\_69 Start: 45446, Stop: 45270, Start Num: 43

Candidate Starts for Bactobuster\_69:

(Start: 43 @45446 has 146 MA's), (46, 45440), (73, 45293),

Gene: Badger\_69 Start: 44669, Stop: 44547, Start Num: 45

Candidate Starts for Badger\_69:

(Start: 40 @44675 has 14 MA's), (Start: 45 @44669 has 141 MA's), (48, 44654), (49, 44648), (69, 44558),

Gene: Baehexic\_75 Start: 45567, Stop: 45403, Start Num: 43

Candidate Starts for Baehexic\_75:

(Start: 43 @45567 has 146 MA's), (76, 45414),

Gene: BangNhom\_69 Start: 44950, Stop: 44816, Start Num: 40

Candidate Starts for BangNhom\_69:

(Start: 40 @44950 has 14 MA's), (Start: 45 @44944 has 141 MA's), (48, 44929), (62, 44863),

Gene: Bantam\_163 Start: 88026, Stop: 87865, Start Num: 45

Candidate Starts for Bantam\_163:

(29, 88080), (Start: 45 @88026 has 141 MA's), (48, 88011), (60, 87948),

Gene: Beemo\_78 Start: 45129, Stop: 44965, Start Num: 43

Candidate Starts for Beemo\_78:

(Start: 43 @45129 has 146 MA's), (47, 45114), (54, 45072),

Gene: BellusTerra\_72 Start: 44554, Stop: 44420, Start Num: 40

Candidate Starts for BellusTerra\_72:

(Start: 40 @44554 has 14 MA's), (Start: 45 @44548 has 141 MA's), (48, 44533), (61, 44470), (62, 44467),

Gene: BengiVuitton\_76 Start: 45866, Stop: 45699, Start Num: 43

Candidate Starts for BengiVuitton\_76:

(17, 45968), (Start: 43 @45866 has 146 MA's),

Gene: Benvolio\_74 Start: 45472, Stop: 45305, Start Num: 43

Candidate Starts for Benvolio\_74:

(Start: 43 @45472 has 146 MA's), (55, 45406), (74, 45325), (79, 45316),

Gene: BiancaTri92\_75 Start: 45806, Stop: 45651, Start Num: 43

Candidate Starts for BiancaTri92\_75:

(27, 45863), (Start: 43 @45806 has 146 MA's), (46, 45800),

Gene: BlessJoy\_78 Start: 44788, Stop: 44636, Start Num: 43

Candidate Starts for BlessJoy\_78:

(Start: 36 @44815 has 2 MA's), (Start: 43 @44788 has 146 MA's), (46, 44782), (47, 44773), (52, 44746),

Gene: Blinn1\_83 Start: 45509, Stop: 45342, Start Num: 43

Candidate Starts for Blinn1\_83:

(Start: 43 @45509 has 146 MA's), (46, 45503), (47, 45494),

Gene: Blue7\_80 Start: 44486, Stop: 44334, Start Num: 43

Candidate Starts for Blue7\_80:

(Start: 36 @44513 has 2 MA's), (Start: 43 @44486 has 146 MA's), (46, 44480), (47, 44471), (52, 44444),

Gene: BlueBird\_77 Start: 45089, Stop: 44961, Start Num: 45

Candidate Starts for BlueBird\_77:

(Start: 45 @45089 has 141 MA's), (48, 45074), (62, 45008),

Gene: BobSwaget\_69 Start: 43679, Stop: 43515, Start Num: 43

Candidate Starts for BobSwaget\_69:

(Start: 43 @43679 has 146 MA's), (46, 43673), (47, 43664), (70, 43553), (77, 43523),

Gene: BogosyJay\_78 Start: 45362, Stop: 45198, Start Num: 43

Candidate Starts for BogosyJay\_78:

(Start: 43 @45362 has 146 MA's), (47, 45347), (54, 45305),

Gene: Bradman\_84 Start: 46414, Stop: 46256, Start Num: 42

Candidate Starts for Bradman\_84:

(42, 46414), (Start: 45 @46411 has 141 MA's),

Gene: Bugatti\_74 Start: 45089, Stop: 44961, Start Num: 45

Candidate Starts for Bugatti\_74:

(Start: 45 @45089 has 141 MA's), (48, 45074), (62, 45008),

Gene: Buggy\_78 Start: 46221, Stop: 46057, Start Num: 43

Candidate Starts for Buggy\_78:

(35, 46260), (Start: 43 @46221 has 146 MA's), (76, 46068),

Gene: Bumblebee11\_69 Start: 44671, Stop: 44549, Start Num: 45

Candidate Starts for Bumblebee11\_69:

(Start: 40 @44677 has 14 MA's), (Start: 45 @44671 has 141 MA's), (48, 44656), (49, 44650), (69, 44560),

Gene: CRB1\_78 Start: 46424, Stop: 46245, Start Num: 43

Candidate Starts for CRB1\_78:

(Start: 43 @46424 has 146 MA's), (46, 46418), (79, 46256),

Gene: Camperdownii\_69 Start: 44185, Stop: 44051, Start Num: 40

Candidate Starts for Camperdownii\_69:

(Start: 40 @44185 has 14 MA's), (Start: 45 @44179 has 141 MA's), (48, 44164), (49, 44158), (53, 44128), (62, 44098),

Gene: Candra\_77 Start: 44590, Stop: 44423, Start Num: 43

Candidate Starts for Candra\_77:

(Start: 43 @44590 has 146 MA's), (46, 44584), (47, 44575),

Gene: Catalina\_80 Start: 45183, Stop: 45019, Start Num: 43

Candidate Starts for Catalina\_80:

(Start: 43 @45183 has 146 MA's), (47, 45168), (51, 45150), (54, 45126),

Gene: CentreCat\_71 Start: 44547, Stop: 44419, Start Num: 45

Candidate Starts for CentreCat\_71:

(Start: 40 @44553 has 14 MA's), (Start: 45 @44547 has 141 MA's), (48, 44532), (61, 44469), (62, 44466),

Gene: Cerulean\_72 Start: 44945, Stop: 44817, Start Num: 45

Candidate Starts for Cerulean\_72:

(Start: 40 @44951 has 14 MA's), (Start: 45 @44945 has 141 MA's), (48, 44930), (62, 44864),

Gene: ChampagnePapi\_73 Start: 44950, Stop: 44816, Start Num: 40

Candidate Starts for ChampagnePapi\_73:

(Start: 40 @44950 has 14 MA's), (Start: 45 @44944 has 141 MA's), (48, 44929), (62, 44863),

Gene: Changeling\_75 Start: 46099, Stop: 45932, Start Num: 43

Candidate Starts for Changeling\_75:

(22, 46189), (30, 46147), (Start: 43 @46099 has 146 MA's),

Gene: Chaph\_71 Start: 44521, Stop: 44393, Start Num: 45

Candidate Starts for Chaph\_71:

(3, 44755), (14, 44629), (17, 44620), (Start: 40 @44527 has 14 MA's), (Start: 45 @44521 has 141 MA's), (48, 44506), (49, 44500), (62, 44440),

Gene: Chargerpower\_74 Start: 44306, Stop: 44124, Start Num: 43

Candidate Starts for Chargerpower\_74:

(26, 44363), (Start: 43 @44306 has 146 MA's), (46, 44300), (54, 44249), (83, 44135),

Gene: Charm\_72 Start: 44293, Stop: 44144, Start Num: 43

Candidate Starts for Charm\_72:

(21, 44383), (26, 44350), (Start: 43 @44293 has 146 MA's), (49, 44269), (51, 44260), (68, 44188),

Gene: Chartreuse\_76 Start: 43901, Stop: 43734, Start Num: 43

Candidate Starts for Chartreuse\_76:

(Start: 43 @43901 has 146 MA's), (46, 43895), (47, 43886),

Gene: Chupacabra\_69 Start: 44351, Stop: 44223, Start Num: 45

Candidate Starts for Chupacabra\_69:

(Start: 45 @44351 has 141 MA's), (48, 44336), (65, 44255),

Gene: Cici\_70 Start: 44686, Stop: 44564, Start Num: 45

Candidate Starts for Cici\_70:

(Start: 40 @44692 has 14 MA's), (Start: 45 @44686 has 141 MA's), (48, 44671), (49, 44665), (69, 44575),

Gene: Cindaradix\_67 Start: 44408, Stop: 44280, Start Num: 45

Candidate Starts for Cindaradix\_67:

(Start: 40 @44414 has 14 MA's), (Start: 45 @44408 has 141 MA's), (48, 44393), (62, 44327),

Gene: Cintron\_71 Start: 44658, Stop: 44530, Start Num: 45

Candidate Starts for Cintron\_71:

(Start: 40 @44664 has 14 MA's), (Start: 45 @44658 has 141 MA's), (48, 44643), (49, 44637), (62, 44577),

Gene: Citius\_71 Start: 44531, Stop: 44403, Start Num: 45

Candidate Starts for Citius\_71:

(14, 44639), (17, 44630), (Start: 40 @44537 has 14 MA's), (Start: 45 @44531 has 141 MA's), (48, 44516), (49, 44510), (62, 44450),

Gene: CloudWang3\_79 Start: 44778, Stop: 44626, Start Num: 43

Candidate Starts for CloudWang3\_79:

(Start: 36 @44805 has 2 MA's), (Start: 43 @44778 has 146 MA's), (46, 44772), (47, 44763), (52, 44736),

Gene: ClubL\_157 Start: 83085, Stop: 82927, Start Num: 45

Candidate Starts for ClubL\_157:

(Start: 45 @83085 has 141 MA's), (48, 83070),



Gene: Colin\_76 Start: 46817, Stop: 46650, Start Num: 43

Candidate Starts for Colin\_76:

(Start: 43 @46817 has 146 MA's), (47, 46802), (50, 46790), (78, 46661), (81, 46655),

Gene: Connomayer\_71 Start: 44510, Stop: 44382, Start Num: 45

Candidate Starts for Connomayer\_71:

(3, 44744), (14, 44618), (17, 44609), (Start: 40 @44516 has 14 MA's), (Start: 45 @44510 has 141 MA's), (48, 44495), (49, 44489), (62, 44429),

Gene: Conquerage\_76 Start: 44858, Stop: 44694, Start Num: 43

Candidate Starts for Conquerage\_76:

(Start: 43 @44858 has 146 MA's), (47, 44843), (54, 44801),

Gene: Cookiedough\_79 Start: 45205, Stop: 45038, Start Num: 43

Candidate Starts for Cookiedough\_79:

(Start: 43 @45205 has 146 MA's), (46, 45199), (47, 45190),

Gene: Crucio\_77 Start: 46142, Stop: 45978, Start Num: 43

Candidate Starts for Crucio\_77:

(34, 46181), (Start: 43 @46142 has 146 MA's), (46, 46136), (76, 45989),

Gene: Cucurbita\_155 Start: 84146, Stop: 83988, Start Num: 45

Candidate Starts for Cucurbita\_155:

(Start: 45 @84146 has 141 MA's), (48, 84131),

Gene: Culver\_156 Start: 82350, Stop: 82192, Start Num: 45

Candidate Starts for Culver\_156:

(Start: 45 @82350 has 141 MA's), (48, 82335),

Gene: DaVinci\_77 Start: 43955, Stop: 43788, Start Num: 43

Candidate Starts for DaVinci\_77:

(Start: 43 @43955 has 146 MA's), (46, 43949), (47, 43940),

Gene: Dalmatian\_77 Start: 45962, Stop: 45798, Start Num: 43

Candidate Starts for Dalmatian\_77:

(34, 46001), (Start: 43 @45962 has 146 MA's), (46, 45956), (76, 45809),

Gene: Daredevil\_154 Start: 84151, Stop: 83966, Start Num: 45

Candidate Starts for Daredevil\_154:

(16, 84262), (20, 84250), (Start: 45 @84151 has 141 MA's), (48, 84136), (58, 84079), (82, 83977),

Gene: DarthPhader\_74 Start: 46216, Stop: 46040, Start Num: 43

Candidate Starts for DarthPhader\_74:

(Start: 43 @46216 has 146 MA's), (54, 46159),

Gene: DatBoi\_160 Start: 87295, Stop: 87134, Start Num: 45

Candidate Starts for DatBoi\_160:

(Start: 45 @87295 has 141 MA's), (48, 87280), (61, 87217),

Gene: Datway\_70 Start: 44680, Stop: 44558, Start Num: 45

Candidate Starts for Datway\_70:

(12, 44806), (13, 44800), (15, 44794), (29, 44734), (Start: 40 @44686 has 14 MA's), (Start: 45 @44680 has 141 MA's), (48, 44665), (69, 44569),

Gene: Deano\_68 Start: 44518, Stop: 44390, Start Num: 45

Candidate Starts for Deano\_68:

(14, 44626), (17, 44617), (Start: 40 @44524 has 14 MA's), (Start: 45 @44518 has 141 MA's), (48, 44503), (49, 44497), (62, 44437),

Gene: Deloris\_76 Start: 45562, Stop: 45395, Start Num: 43

Candidate Starts for Deloris\_76:

(17, 45664), (Start: 43 @45562 has 146 MA's),

Gene: Dignity\_78 Start: 46259, Stop: 46095, Start Num: 43

Candidate Starts for Dignity\_78:

(35, 46298), (Start: 43 @46259 has 146 MA's), (76, 46106),

Gene: DirtyDunning\_70 Start: 44522, Stop: 44394, Start Num: 45

Candidate Starts for DirtyDunning\_70:

(7, 44684), (14, 44630), (17, 44621), (Start: 40 @44528 has 14 MA's), (Start: 45 @44522 has 141 MA's), (48, 44507), (49, 44501), (62, 44441),

Gene: DontArgue\_68 Start: 43342, Stop: 43214, Start Num: 44

Candidate Starts for DontArgue\_68:

(39, 43348), (44, 43342), (48, 43327), (49, 43321), (62, 43261),

Gene: Dorothea\_79 Start: 45201, Stop: 45034, Start Num: 43

Candidate Starts for Dorothea\_79:

(Start: 43 @45201 has 146 MA's), (46, 45195), (47, 45186),

Gene: Drake55\_78 Start: 45846, Stop: 45691, Start Num: 43

Candidate Starts for Drake55\_78:

(Start: 43 @45846 has 146 MA's), (46, 45840),

Gene: Drake94\_69 Start: 43482, Stop: 43354, Start Num: 45

Candidate Starts for Drake94\_69:

(Start: 45 @43482 has 141 MA's), (48, 43467), (65, 43386),

Gene: DreamTeam1\_72 Start: 44140, Stop: 43991, Start Num: 43

Candidate Starts for DreamTeam1\_72:

(21, 44230), (26, 44197), (Start: 43 @44140 has 146 MA's), (46, 44134), (49, 44116), (51, 44107), (68, 44035),

Gene: DroogsArmy\_71 Start: 47818, Stop: 47669, Start Num: 45

Candidate Starts for DroogsArmy\_71:

(Start: 45 @47818 has 141 MA's), (48, 47803), (53, 47767), (57, 47749), (64, 47725),

Gene: DropBear\_72 Start: 45013, Stop: 44885, Start Num: 45

Candidate Starts for DropBear\_72:

(Start: 45 @45013 has 141 MA's), (48, 44998), (62, 44932),

Gene: DudeLittle\_75 Start: 45728, Stop: 45564, Start Num: 43

Candidate Starts for DudeLittle\_75:

(34, 45767), (Start: 43 @45728 has 146 MA's), (46, 45722), (76, 45575),

Gene: DustyMartin\_73 Start: 44495, Stop: 44367, Start Num: 45  
Candidate Starts for DustyMartin\_73:  
(18, 44600), (21, 44591), (33, 44540), (Start: 40 @44501 has 14 MA's), (Start: 45 @44495 has 141 MA's), (48, 44480), (51, 44465), (65, 44399),

Gene: Dusty\_153 Start: 82822, Stop: 82664, Start Num: 45  
Candidate Starts for Dusty\_153:  
(Start: 45 @82822 has 141 MA's), (48, 82807),

Gene: EZMoney23\_73 Start: 45628, Stop: 45464, Start Num: 43  
Candidate Starts for EZMoney23\_73:  
(41, 45631), (Start: 43 @45628 has 146 MA's), (47, 45613), (55, 45562),

Gene: Eagle\_70 Start: 44569, Stop: 44441, Start Num: 45  
Candidate Starts for Eagle\_70:  
(Start: 40 @44575 has 14 MA's), (Start: 45 @44569 has 141 MA's), (48, 44554), (61, 44491), (62, 44488),

Gene: Echild\_77 Start: 45496, Stop: 45329, Start Num: 43  
Candidate Starts for Echild\_77:  
(Start: 43 @45496 has 146 MA's), (55, 45430), (74, 45349), (79, 45340),

Gene: Edison31\_68 Start: 44218, Stop: 44090, Start Num: 45  
Candidate Starts for Edison31\_68:  
(Start: 45 @44218 has 141 MA's), (48, 44203), (51, 44188), (65, 44122),

Gene: EdogawaKiddo\_76 Start: 45151, Stop: 44987, Start Num: 43  
Candidate Starts for EdogawaKiddo\_76:  
(Start: 43 @45151 has 146 MA's), (47, 45136), (51, 45118), (54, 45094),

Gene: Eidsmoe\_76 Start: 44850, Stop: 44686, Start Num: 43  
Candidate Starts for Eidsmoe\_76:  
(Start: 43 @44850 has 146 MA's), (47, 44835), (54, 44793),

Gene: Elephantoon\_78 Start: 45016, Stop: 44852, Start Num: 43  
Candidate Starts for Elephantoon\_78:  
(Start: 43 @45016 has 146 MA's), (46, 45010), (47, 45001), (51, 44983), (54, 44959),

Gene: EmyBug\_75 Start: 44852, Stop: 44688, Start Num: 43  
Candidate Starts for EmyBug\_75:  
(Start: 43 @44852 has 146 MA's), (47, 44837), (54, 44795),

Gene: Engineer\_158 Start: 83672, Stop: 83514, Start Num: 45  
Candidate Starts for Engineer\_158:  
(Start: 45 @83672 has 141 MA's), (48, 83657),

Gene: Equemioh13\_76 Start: 45675, Stop: 45511, Start Num: 43  
Candidate Starts for Equemioh13\_76:  
(11, 45807), (17, 45777), (Start: 43 @45675 has 146 MA's), (76, 45522),

Gene: EricB\_78 Start: 44547, Stop: 44380, Start Num: 43  
Candidate Starts for EricB\_78:

(Start: 43 @44547 has 146 MA's), (46, 44541), (47, 44532),

Gene: Eros\_71 Start: 44512, Stop: 44384, Start Num: 45

Candidate Starts for Eros\_71:

(3, 44746), (14, 44620), (17, 44611), (Start: 40 @44518 has 14 MA's), (Start: 45 @44512 has 141 MA's), (48, 44497), (49, 44491), (62, 44431),

Gene: Eurydice\_72 Start: 44544, Stop: 44416, Start Num: 45

Candidate Starts for Eurydice\_72:

(Start: 40 @44550 has 14 MA's), (Start: 45 @44544 has 141 MA's), (48, 44529), (61, 44466), (62, 44463),

Gene: ExplosioNervosa\_76 Start: 44918, Stop: 44754, Start Num: 43

Candidate Starts for ExplosioNervosa\_76:

(Start: 43 @44918 has 146 MA's), (47, 44903), (54, 44861),

Gene: Fameo\_75 Start: 45770, Stop: 45606, Start Num: 43

Candidate Starts for Fameo\_75:

(34, 45809), (Start: 43 @45770 has 146 MA's), (76, 45617),

Gene: Fayely\_76 Start: 44819, Stop: 44655, Start Num: 43

Candidate Starts for Fayely\_76:

(Start: 43 @44819 has 146 MA's), (47, 44804), (54, 44762),

Gene: FiringLine\_77 Start: 46124, Stop: 45960, Start Num: 43

Candidate Starts for FiringLine\_77:

(34, 46163), (Start: 43 @46124 has 146 MA's), (46, 46118), (76, 45971),

Gene: First\_0077 Start: 45805, Stop: 45638, Start Num: 43

Candidate Starts for First\_0077:

(Start: 43 @45805 has 146 MA's), (46, 45799),

Gene: Florean\_71 Start: 44509, Stop: 44381, Start Num: 45

Candidate Starts for Florean\_71:

(14, 44617), (17, 44608), (Start: 40 @44515 has 14 MA's), (Start: 45 @44509 has 141 MA's), (48, 44494), (49, 44488), (62, 44428),

Gene: Flux\_71 Start: 44508, Stop: 44380, Start Num: 45

Candidate Starts for Flux\_71:

(3, 44742), (14, 44616), (17, 44607), (Start: 40 @44514 has 14 MA's), (Start: 45 @44508 has 141 MA's), (48, 44493), (49, 44487), (62, 44427),

Gene: FlyCatcher\_76 Start: 48604, Stop: 48464, Start Num: 45

Candidate Starts for FlyCatcher\_76:

(Start: 45 @48604 has 141 MA's), (63, 48514),

Gene: Fred313\_72 Start: 44707, Stop: 44579, Start Num: 45

Candidate Starts for Fred313\_72:

(Start: 45 @44707 has 141 MA's), (48, 44692), (62, 44626),

Gene: Gail\_78 Start: 46233, Stop: 46051, Start Num: 43

Candidate Starts for Gail\_78:

(Start: 43 @46233 has 146 MA's), (47, 46218), (54, 46176),

Gene: Garak\_80 Start: 44729, Stop: 44577, Start Num: 43  
Candidate Starts for Garak\_80:  
(Start: 36 @44756 has 2 MA's), (Start: 43 @44729 has 146 MA's), (46, 44723), (47, 44714), (52, 44687),

Gene: GaugeLDP\_72 Start: 45357, Stop: 45190, Start Num: 43  
Candidate Starts for GaugeLDP\_72:  
(Start: 43 @45357 has 146 MA's), (51, 45324), (54, 45300),

Gene: Geeche\_156 Start: 83046, Stop: 82888, Start Num: 45  
Candidate Starts for Geeche\_156:  
(Start: 45 @83046 has 141 MA's), (48, 83031),

Gene: Georgie2\_78 Start: 46168, Stop: 46004, Start Num: 43  
Candidate Starts for Georgie2\_78:  
(34, 46207), (Start: 43 @46168 has 146 MA's), (46, 46162), (76, 46015),

Gene: Giroux\_73 Start: 45088, Stop: 44960, Start Num: 45  
Candidate Starts for Giroux\_73:  
(Start: 45 @45088 has 141 MA's), (48, 45073), (62, 45007),

Gene: Gladiator\_76 Start: 44659, Stop: 44480, Start Num: 36  
Candidate Starts for Gladiator\_76:  
(Start: 36 @44659 has 2 MA's), (Start: 43 @44632 has 146 MA's), (46, 44626), (47, 44617), (52, 44590),

Gene: Goose\_72 Start: 44162, Stop: 44034, Start Num: 45  
Candidate Starts for Goose\_72:  
(Start: 45 @44162 has 141 MA's), (48, 44147), (65, 44066),

Gene: Gratitude\_74 Start: 45675, Stop: 45511, Start Num: 43  
Candidate Starts for Gratitude\_74:  
(11, 45807), (17, 45777), (Start: 43 @45675 has 146 MA's), (76, 45522),

Gene: GreedyLawyer\_74 Start: 44520, Stop: 44353, Start Num: 43  
Candidate Starts for GreedyLawyer\_74:  
(Start: 43 @44520 has 146 MA's), (46, 44514), (47, 44505),

Gene: Gruunaga\_78 Start: 44587, Stop: 44435, Start Num: 43  
Candidate Starts for Gruunaga\_78:  
(Start: 36 @44614 has 2 MA's), (Start: 43 @44587 has 146 MA's), (46, 44581), (47, 44572), (52, 44545),

Gene: HINdeR\_71 Start: 47193, Stop: 47041, Start Num: 45  
Candidate Starts for HINdeR\_71:  
(Start: 45 @47193 has 141 MA's), (48, 47175), (57, 47121), (64, 47097),

Gene: Hammer\_79 Start: 44321, Stop: 44142, Start Num: 36  
Candidate Starts for Hammer\_79:  
(Start: 36 @44321 has 2 MA's), (Start: 43 @44294 has 146 MA's), (46, 44288), (47, 44279), (52, 44252),

Gene: Hanray\_76 Start: 45183, Stop: 45019, Start Num: 43  
Candidate Starts for Hanray\_76:  
(Start: 43 @45183 has 146 MA's), (47, 45168), (54, 45126),

Gene: Happiness\_70 Start: 44527, Stop: 44399, Start Num: 45  
Candidate Starts for Happiness\_70:  
(Start: 40 @44533 has 14 MA's), (Start: 45 @44527 has 141 MA's), (48, 44512), (62, 44446),

Gene: HarryHoudini\_77 Start: 45843, Stop: 45688, Start Num: 43  
Candidate Starts for HarryHoudini\_77:  
(Start: 43 @45843 has 146 MA's), (46, 45837),

Gene: Heathen\_74 Start: 44802, Stop: 44674, Start Num: 45  
Candidate Starts for Heathen\_74:  
(Start: 45 @44802 has 141 MA's), (48, 44787), (62, 44721),

Gene: Heffalump\_74 Start: 46238, Stop: 46074, Start Num: 43  
Candidate Starts for Heffalump\_74:  
(34, 46277), (Start: 43 @46238 has 146 MA's), (76, 46085),

Gene: HelDan\_74 Start: 45018, Stop: 44890, Start Num: 45  
Candidate Starts for HelDan\_74:  
(Start: 45 @45018 has 141 MA's), (48, 45003), (62, 44937),

Gene: Helmet\_80 Start: 44729, Stop: 44577, Start Num: 43  
Candidate Starts for Helmet\_80:  
(Start: 36 @44756 has 2 MA's), (Start: 43 @44729 has 146 MA's), (46, 44723), (47, 44714), (52, 44687),

Gene: Herbertwm\_73 Start: 45474, Stop: 45292, Start Num: 43  
Candidate Starts for Herbertwm\_73:  
(Start: 43 @45474 has 146 MA's), (46, 45468), (75, 45324),

Gene: Hexamo\_78 Start: 44263, Stop: 44111, Start Num: 43  
Candidate Starts for Hexamo\_78:  
(Start: 43 @44263 has 146 MA's), (46, 44257), (47, 44248), (52, 44221),

Gene: Horex\_76 Start: 45199, Stop: 45035, Start Num: 43  
Candidate Starts for Horex\_76:  
(Start: 43 @45199 has 146 MA's), (47, 45184), (54, 45142),

Gene: Holli\_70 Start: 44300, Stop: 44172, Start Num: 45  
Candidate Starts for Holli\_70:  
(14, 44408), (17, 44399), (Start: 40 @44306 has 14 MA's), (Start: 45 @44300 has 141 MA's), (48, 44285), (49, 44279), (62, 44219),

Gene: Hookmount\_74 Start: 45042, Stop: 44914, Start Num: 45  
Candidate Starts for Hookmount\_74:  
(Start: 45 @45042 has 141 MA's), (48, 45027),

Gene: Hoot\_74 Start: 42405, Stop: 42238, Start Num: 43  
Candidate Starts for Hoot\_74:  
(Start: 43 @42405 has 146 MA's), (46, 42399), (47, 42390),

Gene: HortumSL17\_79 Start: 45181, Stop: 45017, Start Num: 43  
Candidate Starts for HortumSL17\_79:  
(Start: 43 @45181 has 146 MA's), (47, 45166), (51, 45148), (54, 45124),

Gene: Iceman\_70 Start: 44800, Stop: 44672, Start Num: 45  
Candidate Starts for Iceman\_70:  
(3, 45034), (14, 44908), (17, 44899), (Start: 40 @44806 has 14 MA's), (Start: 45 @44800 has 141 MA's), (48, 44785), (49, 44779), (62, 44719),

Gene: Idleandcovert\_75 Start: 45089, Stop: 44961, Start Num: 45  
Candidate Starts for Idleandcovert\_75:  
(Start: 45 @45089 has 141 MA's), (48, 45074), (62, 45008),

Gene: Indra\_82 Start: 44730, Stop: 44578, Start Num: 43  
Candidate Starts for Indra\_82:  
(Start: 36 @44757 has 2 MA's), (Start: 43 @44730 has 146 MA's), (46, 44724), (47, 44715), (52, 44688),

Gene: IronMan\_74 Start: 46915, Stop: 46739, Start Num: 43  
Candidate Starts for IronMan\_74:  
(Start: 43 @46915 has 146 MA's), (73, 46762),

Gene: Isca\_72 Start: 44569, Stop: 44441, Start Num: 45  
Candidate Starts for Isca\_72:  
(Start: 45 @44569 has 141 MA's), (48, 44554), (62, 44488),

Gene: Isiphiwo\_76 Start: 44572, Stop: 44405, Start Num: 43  
Candidate Starts for Isiphiwo\_76:  
(Start: 43 @44572 has 146 MA's), (46, 44566), (47, 44557),

Gene: Iwokeuplikedis\_78 Start: 46300, Stop: 46124, Start Num: 43  
Candidate Starts for Iwokeuplikedis\_78:  
(Start: 43 @46300 has 146 MA's), (46, 46294),

Gene: JF2\_72 Start: 43265, Stop: 43137, Start Num: 45  
Candidate Starts for JF2\_72:  
(Start: 45 @43265 has 141 MA's), (48, 43250), (62, 43184),

Gene: JF4\_72 Start: 43265, Stop: 43137, Start Num: 45  
Candidate Starts for JF4\_72:  
(Start: 45 @43265 has 141 MA's), (48, 43250), (62, 43184),

Gene: Jaan\_75 Start: 47076, Stop: 46900, Start Num: 43  
Candidate Starts for Jaan\_75:  
(Start: 43 @47076 has 146 MA's), (73, 46923),

Gene: Jaykayelowell\_68 Start: 44503, Stop: 44375, Start Num: 45  
Candidate Starts for Jaykayelowell\_68:  
(3, 44737), (14, 44611), (17, 44602), (Start: 40 @44509 has 14 MA's), (Start: 45 @44503 has 141 MA's), (48, 44488), (49, 44482), (62, 44422),

Gene: Jeeves\_80 Start: 45143, Stop: 44967, Start Num: 43

Candidate Starts for Jeeves\_80:  
(4, 45359), (8, 45305), (10, 45287), (Start: 43 @45143 has 146 MA's), (47, 45128), (54, 45086),

Gene: Jerm\_78 Start: 46242, Stop: 46078, Start Num: 43  
Candidate Starts for Jerm\_78:  
(35, 46281), (Start: 43 @46242 has 146 MA's), (76, 46089),

Gene: JetBlade\_71 Start: 44535, Stop: 44407, Start Num: 45  
Candidate Starts for JetBlade\_71:  
(Start: 40 @44541 has 14 MA's), (Start: 45 @44535 has 141 MA's), (48, 44520), (62, 44454),

Gene: Jiawan\_75 Start: 45215, Stop: 45051, Start Num: 43  
Candidate Starts for Jiawan\_75:  
(Start: 43 @45215 has 146 MA's), (47, 45200), (54, 45158),

Gene: Jordennis\_77 Start: 44787, Stop: 44620, Start Num: 43  
Candidate Starts for Jordennis\_77:  
(Start: 43 @44787 has 146 MA's), (46, 44781), (47, 44772),

Gene: JoshKayV\_77 Start: 46282, Stop: 46115, Start Num: 43  
Candidate Starts for JoshKayV\_77:  
(Start: 43 @46282 has 146 MA's), (46, 46276),

Gene: Kachowdy\_72 Start: 45054, Stop: 44926, Start Num: 45  
Candidate Starts for Kachowdy\_72:  
(Start: 45 @45054 has 141 MA's), (48, 45039), (62, 44973),

Gene: Kalpine\_76 Start: 46163, Stop: 45996, Start Num: 43  
Candidate Starts for Kalpine\_76:  
(Start: 43 @46163 has 146 MA's), (47, 46148), (54, 46106), (78, 46007), (81, 46001),

Gene: Kampy\_70 Start: 44510, Stop: 44382, Start Num: 45  
Candidate Starts for Kampy\_70:  
(Start: 40 @44516 has 14 MA's), (Start: 45 @44510 has 141 MA's), (48, 44495), (61, 44432), (62, 44429),

Gene: Katalie136\_70 Start: 44671, Stop: 44549, Start Num: 45  
Candidate Starts for Katalie136\_70:  
(Start: 40 @44677 has 14 MA's), (Start: 45 @44671 has 141 MA's), (48, 44656), (49, 44650), (69, 44560),

Gene: Kazan\_80 Start: 44560, Stop: 44393, Start Num: 43  
Candidate Starts for Kazan\_80:  
(Start: 43 @44560 has 146 MA's), (46, 44554), (47, 44545),

Gene: Keziacharles14\_75 Start: 45797, Stop: 45627, Start Num: 43  
Candidate Starts for Keziacharles14\_75:  
(Start: 43 @45797 has 146 MA's), (47, 45782), (54, 45740), (71, 45671),

Gene: Kimona\_71 Start: 43589, Stop: 43443, Start Num: 45  
Candidate Starts for Kimona\_71:  
(Start: 45 @43589 has 141 MA's), (48, 43574), (53, 43538), (67, 43487),



Gene: KingCyrus\_76 Start: 47256, Stop: 47092, Start Num: 43  
Candidate Starts for KingCyrus\_76:  
(32, 47298), (35, 47295), (Start: 43 @47256 has 146 MA's), (47, 47241), (76, 47103),

Gene: Kingmustik0402\_71 Start: 44499, Stop: 44371, Start Num: 45  
Candidate Starts for Kingmustik0402\_71:  
(14, 44607), (17, 44598), (Start: 40 @44505 has 14 MA's), (Start: 45 @44499 has 141 MA's), (48, 44484), (49, 44478), (62, 44418),

Gene: Kinmap\_86 Start: 46044, Stop: 45889, Start Num: 43  
Candidate Starts for Kinmap\_86:  
(9, 46206), (41, 46047), (Start: 43 @46044 has 146 MA's),

Gene: Kipper29\_79 Start: 44573, Stop: 44406, Start Num: 43  
Candidate Starts for Kipper29\_79:  
(Start: 43 @44573 has 146 MA's), (46, 44567), (47, 44558),

Gene: KittenMittens\_68 Start: 43490, Stop: 43362, Start Num: 45  
Candidate Starts for KittenMittens\_68:  
(Start: 45 @43490 has 141 MA's), (48, 43475), (65, 43394),

Gene: Koan\_66 Start: 44510, Stop: 44382, Start Num: 45  
Candidate Starts for Koan\_66:  
(14, 44618), (17, 44609), (Start: 40 @44516 has 14 MA's), (Start: 45 @44510 has 141 MA's), (48, 44495), (49, 44489), (62, 44429),

Gene: Koko\_80 Start: 45118, Stop: 44966, Start Num: 43  
Candidate Starts for Koko\_80:  
(Start: 43 @45118 has 146 MA's), (46, 45112), (47, 45103), (52, 45076),

Gene: Koreni\_70 Start: 44191, Stop: 44063, Start Num: 45  
Candidate Starts for Koreni\_70:  
(3, 44425), (14, 44299), (17, 44290), (Start: 40 @44197 has 14 MA's), (Start: 45 @44191 has 141 MA's), (48, 44176), (49, 44170), (62, 44110),

Gene: Kremtemulon\_70 Start: 44643, Stop: 44515, Start Num: 45  
Candidate Starts for Kremtemulon\_70:  
(14, 44751), (17, 44742), (Start: 40 @44649 has 14 MA's), (Start: 45 @44643 has 141 MA's), (48, 44628), (62, 44562),

Gene: Kristoff\_70 Start: 44796, Stop: 44668, Start Num: 45  
Candidate Starts for Kristoff\_70:  
(Start: 45 @44796 has 141 MA's), (48, 44781), (51, 44766), (65, 44700),

Gene: Kyee\_71 Start: 44505, Stop: 44377, Start Num: 45  
Candidate Starts for Kyee\_71:  
(7, 44667), (14, 44613), (17, 44604), (Start: 40 @44511 has 14 MA's), (Start: 45 @44505 has 141 MA's), (48, 44490), (49, 44484), (62, 44424),

Gene: LHTSCC\_73 Start: 44950, Stop: 44816, Start Num: 40  
Candidate Starts for LHTSCC\_73:  
(Start: 40 @44950 has 14 MA's), (Start: 45 @44944 has 141 MA's), (48, 44929), (62, 44863),

Gene: LadyBird\_80 Start: 46485, Stop: 46318, Start Num: 43  
Candidate Starts for LadyBird\_80:  
(Start: 43 @46485 has 146 MA's), (55, 46419), (79, 46329),

Gene: Lambert1\_74 Start: 45043, Stop: 44915, Start Num: 45  
Candidate Starts for Lambert1\_74:  
(Start: 45 @45043 has 141 MA's), (48, 45028),

Gene: Landor\_75 Start: 47003, Stop: 46827, Start Num: 43  
Candidate Starts for Landor\_75:  
(Start: 43 @47003 has 146 MA's), (46, 46997), (73, 46850),

Gene: Larenn\_73 Start: 45502, Stop: 45338, Start Num: 43  
Candidate Starts for Larenn\_73:  
(28, 45556), (Start: 43 @45502 has 146 MA's), (76, 45349),

Gene: LeoAvram\_70 Start: 44538, Stop: 44410, Start Num: 45  
Candidate Starts for LeoAvram\_70:  
(Start: 40 @44544 has 14 MA's), (Start: 45 @44538 has 141 MA's), (48, 44523), (61, 44460), (62, 44457),

Gene: Leogania\_75 Start: 46184, Stop: 46029, Start Num: 43  
Candidate Starts for Leogania\_75:  
(27, 46241), (Start: 43 @46184 has 146 MA's), (46, 46178),

Gene: Leviathan\_78 Start: 46308, Stop: 46144, Start Num: 43  
Candidate Starts for Leviathan\_78:  
(35, 46347), (Start: 43 @46308 has 146 MA's), (76, 46155),

Gene: LilTurb\_77 Start: 46122, Stop: 45958, Start Num: 43  
Candidate Starts for LilTurb\_77:  
(35, 46161), (Start: 43 @46122 has 146 MA's), (76, 45969),

Gene: Lilbunny\_78 Start: 44361, Stop: 44209, Start Num: 43  
Candidate Starts for Lilbunny\_78:  
(Start: 36 @44388 has 2 MA's), (Start: 43 @44361 has 146 MA's), (46, 44355), (47, 44346), (52, 44319),

Gene: Lilleskat\_75 Start: 45140, Stop: 44976, Start Num: 43  
Candidate Starts for Lilleskat\_75:  
(Start: 43 @45140 has 146 MA's), (47, 45125), (51, 45107), (54, 45083),

Gene: LionsBait\_76 Start: 46960, Stop: 46790, Start Num: 43  
Candidate Starts for LionsBait\_76:  
(Start: 43 @46960 has 146 MA's),

Gene: LittleB\_71 Start: 44511, Stop: 44383, Start Num: 45  
Candidate Starts for LittleB\_71:  
(3, 44745), (14, 44619), (17, 44610), (Start: 40 @44517 has 14 MA's), (Start: 45 @44511 has 141 MA's), (48, 44496), (49, 44490), (62, 44430),

Gene: LochMonster\_72 Start: 44746, Stop: 44618, Start Num: 45  
Candidate Starts for LochMonster\_72:

(7, 44908), (14, 44854), (17, 44845), (Start: 40 @44752 has 14 MA's), (Start: 45 @44746 has 141 MA's), (48, 44731), (49, 44725), (62, 44665),

Gene: Lökk\_70 Start: 44303, Stop: 44139, Start Num: 43

Candidate Starts for Lökk\_70:

(Start: 43 @44303 has 146 MA's), (46, 44297), (47, 44288), (70, 44177), (77, 44147),

Gene: LoneWolf\_79 Start: 45428, Stop: 45264, Start Num: 43

Candidate Starts for LoneWolf\_79:

(Start: 43 @45428 has 146 MA's), (47, 45413), (54, 45371),

Gene: Lorenzo\_71 Start: 44508, Stop: 44380, Start Num: 45

Candidate Starts for Lorenzo\_71:

(7, 44670), (14, 44616), (17, 44607), (19, 44601), (Start: 40 @44514 has 14 MA's), (Start: 45 @44508 has 141 MA's), (48, 44493), (49, 44487), (62, 44427),

Gene: Loser\_78 Start: 46367, Stop: 46212, Start Num: 43

Candidate Starts for Loser\_78:

(Start: 43 @46367 has 146 MA's), (47, 46352),

Gene: Lozinak\_156 Start: 83674, Stop: 83516, Start Num: 45

Candidate Starts for Lozinak\_156:

(Start: 45 @83674 has 141 MA's), (48, 83659),

Gene: Luchador\_79 Start: 46628, Stop: 46443, Start Num: 43

Candidate Starts for Luchador\_79:

(Start: 43 @46628 has 146 MA's), (47, 46613), (54, 46571),

Gene: Lunsford\_71 Start: 44503, Stop: 44375, Start Num: 45

Candidate Starts for Lunsford\_71:

(3, 44737), (14, 44611), (17, 44602), (Start: 40 @44509 has 14 MA's), (Start: 45 @44503 has 141 MA's), (48, 44488), (49, 44482), (62, 44422),

Gene: MA5\_74 Start: 44473, Stop: 44345, Start Num: 45

Candidate Starts for MA5\_74:

(Start: 45 @44473 has 141 MA's), (48, 44458), (62, 44392),

Gene: MajorMajor\_78 Start: 44703, Stop: 44548, Start Num: 45

Candidate Starts for MajorMajor\_78:

(42, 44706), (Start: 45 @44703 has 141 MA's),

Gene: Malec\_74 Start: 46069, Stop: 45905, Start Num: 43

Candidate Starts for Malec\_74:

(28, 46123), (Start: 43 @46069 has 146 MA's), (76, 45916),

Gene: Maminiaina\_78 Start: 45344, Stop: 45180, Start Num: 43

Candidate Starts for Maminiaina\_78:

(Start: 43 @45344 has 146 MA's), (47, 45329), (54, 45287),

Gene: Marchesa\_73 Start: 45006, Stop: 44878, Start Num: 45

Candidate Starts for Marchesa\_73:

(Start: 45 @45006 has 141 MA's), (48, 44991), (62, 44925),

Gene: Margo\_74 Start: 45068, Stop: 44940, Start Num: 45

Candidate Starts for Margo\_74:

(Start: 45 @45068 has 141 MA's), (48, 45053),

Gene: Maxo\_73 Start: 44510, Stop: 44382, Start Num: 45

Candidate Starts for Maxo\_73:

(Start: 40 @44516 has 14 MA's), (Start: 45 @44510 has 141 MA's), (48, 44495), (61, 44432), (62, 44429),

Gene: Mayonnaise\_68 Start: 44507, Stop: 44379, Start Num: 45

Candidate Starts for Mayonnaise\_68:

(14, 44615), (17, 44606), (Start: 40 @44513 has 14 MA's), (Start: 45 @44507 has 141 MA's), (48, 44492), (49, 44486), (62, 44426),

Gene: Mazhar510\_71 Start: 44508, Stop: 44380, Start Num: 45

Candidate Starts for Mazhar510\_71:

(7, 44670), (14, 44616), (17, 44607), (Start: 40 @44514 has 14 MA's), (Start: 45 @44508 has 141 MA's), (48, 44493), (49, 44487), (62, 44427),

Gene: McFly\_80 Start: 45189, Stop: 45022, Start Num: 43

Candidate Starts for McFly\_80:

(Start: 43 @45189 has 146 MA's), (46, 45183), (47, 45174),

Gene: Miko\_70 Start: 45080, Stop: 44916, Start Num: 43

Candidate Starts for Miko\_70:

(Start: 43 @45080 has 146 MA's), (46, 45074), (47, 45065), (70, 44954), (77, 44924),

Gene: Miramae\_70 Start: 44230, Stop: 44108, Start Num: 45

Candidate Starts for Miramae\_70:

(2, 44512), (6, 44392), (Start: 40 @44236 has 14 MA's), (Start: 45 @44230 has 141 MA's),

Gene: Miskis\_150 Start: 82703, Stop: 82545, Start Num: 45

Candidate Starts for Miskis\_150:

(Start: 45 @82703 has 141 MA's), (48, 82688), (61, 82625),

Gene: Morpher26\_70 Start: 44692, Stop: 44570, Start Num: 45

Candidate Starts for Morpher26\_70:

(Start: 40 @44698 has 14 MA's), (Start: 45 @44692 has 141 MA's), (48, 44677), (49, 44671), (69, 44581),

Gene: Mundrea\_70 Start: 44689, Stop: 44567, Start Num: 45

Candidate Starts for Mundrea\_70:

(Start: 40 @44695 has 14 MA's), (Start: 45 @44689 has 141 MA's), (48, 44674),

Gene: Myxus\_78 Start: 45181, Stop: 45017, Start Num: 43

Candidate Starts for Myxus\_78:

(Start: 43 @45181 has 146 MA's), (47, 45166), (51, 45148), (54, 45124),

Gene: Nebs\_72 Start: 44547, Stop: 44419, Start Num: 45

Candidate Starts for Nebs\_72:

(Start: 40 @44553 has 14 MA's), (Start: 45 @44547 has 141 MA's), (48, 44532), (61, 44469), (62, 44466),

Gene: Neeharika16\_78 Start: 44656, Stop: 44489, Start Num: 43

Candidate Starts for Neeharika16\_78:

(Start: 43 @44656 has 146 MA's), (46, 44650), (47, 44641),

Gene: Nemo27\_70 Start: 44506, Stop: 44378, Start Num: 45

Candidate Starts for Nemo27\_70:

(7, 44668), (14, 44614), (17, 44605), (Start: 40 @44512 has 14 MA's), (Start: 45 @44506 has 141 MA's), (48, 44491), (49, 44485), (62, 44425),

Gene: Newrala\_78 Start: 44995, Stop: 44828, Start Num: 43

Candidate Starts for Newrala\_78:

(Start: 43 @44995 has 146 MA's), (46, 44989), (47, 44980),

Gene: Noella\_75 Start: 45044, Stop: 44916, Start Num: 45

Candidate Starts for Noella\_75:

(Start: 45 @45044 has 141 MA's), (48, 45029),

Gene: Noelle\_71 Start: 45009, Stop: 44887, Start Num: 45

Candidate Starts for Noelle\_71:

(12, 45135), (13, 45129), (29, 45063), (Start: 40 @45015 has 14 MA's), (Start: 45 @45009 has 141 MA's), (48, 44994), (69, 44898),

Gene: Norbert\_70 Start: 45041, Stop: 44913, Start Num: 45

Candidate Starts for Norbert\_70:

(Start: 45 @45041 has 141 MA's), (48, 45026),

Gene: NorthStar\_69 Start: 44510, Stop: 44382, Start Num: 45

Candidate Starts for NorthStar\_69:

(3, 44744), (14, 44618), (17, 44609), (Start: 40 @44516 has 14 MA's), (Start: 45 @44510 has 141 MA's), (48, 44495), (49, 44489), (62, 44429),

Gene: Norvs\_154 Start: 82865, Stop: 82707, Start Num: 45

Candidate Starts for Norvs\_154:

(Start: 45 @82865 has 141 MA's), (48, 82850),

Gene: NothingSpecial\_72 Start: 45754, Stop: 45581, Start Num: 43

Candidate Starts for NothingSpecial\_72:

(Start: 43 @45754 has 146 MA's), (46, 45748), (59, 45682),

Gene: OKCentral2016\_69 Start: 43589, Stop: 43461, Start Num: 45

Candidate Starts for OKCentral2016\_69:

(Start: 45 @43589 has 141 MA's), (48, 43574), (65, 43493),

Gene: OKaNui\_70 Start: 44560, Stop: 44432, Start Num: 45

Candidate Starts for OKaNui\_70:

(14, 44668), (17, 44659), (19, 44653), (Start: 40 @44566 has 14 MA's), (Start: 45 @44560 has 141 MA's), (48, 44545), (49, 44539), (62, 44479),

Gene: Obama12\_72 Start: 44928, Stop: 44800, Start Num: 45

Candidate Starts for Obama12\_72:

(Start: 40 @44934 has 14 MA's), (Start: 45 @44928 has 141 MA's), (48, 44913), (62, 44847),

Gene: Ohfah\_72 Start: 44547, Stop: 44419, Start Num: 45

Candidate Starts for Ohfah\_72:

(Start: 40 @44553 has 14 MA's), (Start: 45 @44547 has 141 MA's), (48, 44532), (61, 44469), (62, 44466),

Gene: Onglai\_76 Start: 43387, Stop: 43223, Start Num: 43

Candidate Starts for Onglai\_76:

(Start: 43 @43387 has 146 MA's), (47, 43372), (54, 43330),

Gene: PP\_73 Start: 49011, Stop: 48865, Start Num: 45

Candidate Starts for PP\_73:

(Start: 45 @49011 has 141 MA's), (48, 48996), (53, 48960),

Gene: PackMan\_77 Start: 45056, Stop: 44892, Start Num: 43

Candidate Starts for PackMan\_77:

(Start: 43 @45056 has 146 MA's), (47, 45041), (51, 45023), (54, 44999),

Gene: Panamaxus\_72 Start: 45043, Stop: 44915, Start Num: 45

Candidate Starts for Panamaxus\_72:

(Start: 45 @45043 has 141 MA's), (48, 45028),

Gene: PeaceMeal1\_69 Start: 43491, Stop: 43363, Start Num: 45

Candidate Starts for PeaceMeal1\_69:

(Start: 45 @43491 has 141 MA's), (48, 43476), (65, 43395),

Gene: Perplexer\_70 Start: 44668, Stop: 44546, Start Num: 45

Candidate Starts for Perplexer\_70:

(Start: 40 @44674 has 14 MA's), (Start: 45 @44668 has 141 MA's), (48, 44653), (49, 44647), (69, 44557),

Gene: PeterPeter\_71 Start: 44504, Stop: 44376, Start Num: 45

Candidate Starts for PeterPeter\_71:

(7, 44666), (14, 44612), (17, 44603), (Start: 40 @44510 has 14 MA's), (Start: 45 @44504 has 141 MA's), (48, 44489), (49, 44483), (62, 44423),

Gene: PetiteSangsue\_70 Start: 44671, Stop: 44549, Start Num: 45

Candidate Starts for PetiteSangsue\_70:

(Start: 40 @44677 has 14 MA's), (Start: 45 @44671 has 141 MA's), (48, 44656), (49, 44650), (69, 44560),

Gene: Phaded\_72 Start: 46962, Stop: 46786, Start Num: 43

Candidate Starts for Phaded\_72:

(Start: 43 @46962 has 146 MA's), (46, 46956), (73, 46809),

Gene: Phaeder\_78 Start: 45056, Stop: 44892, Start Num: 43

Candidate Starts for Phaeder\_78:

(Start: 43 @45056 has 146 MA's), (47, 45041), (51, 45023), (54, 44999),

Gene: Phantastic\_76 Start: 44730, Stop: 44602, Start Num: 45

Candidate Starts for Phantastic\_76:

(Start: 45 @44730 has 141 MA's), (48, 44715), (62, 44649),

Gene: Phelipe\_72 Start: 44553, Stop: 44419, Start Num: 40

Candidate Starts for Phelipe\_72:

(Start: 40 @44553 has 14 MA's), (Start: 45 @44547 has 141 MA's), (48, 44532), (61, 44469), (62, 44466),

Gene: Phighter1804\_71 Start: 44571, Stop: 44443, Start Num: 45

Candidate Starts for Phighter1804\_71:

(7, 44733), (14, 44679), (17, 44670), (Start: 40 @44577 has 14 MA's), (Start: 45 @44571 has 141 MA's), (48, 44556), (49, 44550), (62, 44490),

Gene: PhinkBoden\_154 Start: 83263, Stop: 83105, Start Num: 45

Candidate Starts for PhinkBoden\_154:

(Start: 45 @83263 has 141 MA's), (48, 83248),

Gene: Phonnegut\_78 Start: 45128, Stop: 44964, Start Num: 43

Candidate Starts for Phonnegut\_78:

(Start: 43 @45128 has 146 MA's), (47, 45113), (54, 45071),

Gene: Phontbonne\_71 Start: 44405, Stop: 44277, Start Num: 45

Candidate Starts for Phontbonne\_71:

(14, 44513), (17, 44504), (19, 44498), (Start: 40 @44411 has 14 MA's), (Start: 45 @44405 has 141 MA's), (48, 44390), (49, 44384), (62, 44324),

Gene: Pioneer\_78 Start: 45128, Stop: 44964, Start Num: 43

Candidate Starts for Pioneer\_78:

(Start: 43 @45128 has 146 MA's), (47, 45113), (54, 45071),

Gene: Pipcraft\_68 Start: 44511, Stop: 44383, Start Num: 45

Candidate Starts for Pipcraft\_68:

(3, 44745), (14, 44619), (17, 44610), (Start: 40 @44517 has 14 MA's), (Start: 45 @44511 has 141 MA's), (48, 44496), (49, 44490), (62, 44430),

Gene: Piro94\_76 Start: 45778, Stop: 45623, Start Num: 43

Candidate Starts for Piro94\_76:

(Start: 43 @45778 has 146 MA's), (46, 45772),

Gene: Pistachio\_75 Start: 44636, Stop: 44508, Start Num: 45

Candidate Starts for Pistachio\_75:

(Start: 45 @44636 has 141 MA's), (48, 44621), (62, 44555),

Gene: Pmask\_78 Start: 45193, Stop: 45026, Start Num: 43

Candidate Starts for Pmask\_78:

(Start: 43 @45193 has 146 MA's), (46, 45187), (47, 45178),

Gene: Pocahontas\_73 Start: 45039, Stop: 44911, Start Num: 45

Candidate Starts for Pocahontas\_73:

(Start: 45 @45039 has 141 MA's), (48, 45024),

Gene: Polymorphads\_71 Start: 44528, Stop: 44400, Start Num: 45

Candidate Starts for Polymorphads\_71:

(Start: 40 @44534 has 14 MA's), (Start: 45 @44528 has 141 MA's), (48, 44513), (61, 44450), (62, 44447),

Gene: Poompha\_68 Start: 43489, Stop: 43361, Start Num: 45

Candidate Starts for Poompha\_68:

(Start: 45 @43489 has 141 MA's), (48, 43474), (65, 43393),

Gene: Popcicle\_74 Start: 45039, Stop: 44911, Start Num: 45

Candidate Starts for Popcicle\_74:

(Start: 45 @45039 has 141 MA's), (48, 45024),

Gene: Power\_76 Start: 46167, Stop: 46003, Start Num: 43

Candidate Starts for Power\_76:

(34, 46206), (Start: 43 @46167 has 146 MA's), (46, 46161), (76, 46014),

Gene: Priamo\_81 Start: 44855, Stop: 44688, Start Num: 43

Candidate Starts for Priamo\_81:

(Start: 43 @44855 has 146 MA's), (46, 44849), (47, 44840),

Gene: Priya\_76 Start: 44853, Stop: 44689, Start Num: 43

Candidate Starts for Priya\_76:

(Start: 43 @44853 has 146 MA's), (47, 44838), (54, 44796),

Gene: Pukovnik\_73 Start: 46577, Stop: 46401, Start Num: 43

Candidate Starts for Pukovnik\_73:

(Start: 43 @46577 has 146 MA's), (73, 46424),

Gene: Pumbaa\_71 Start: 44461, Stop: 44327, Start Num: 40

Candidate Starts for Pumbaa\_71:

(3, 44689), (14, 44563), (17, 44554), (Start: 40 @44461 has 14 MA's), (Start: 45 @44455 has 141 MA's), (48, 44440), (49, 44434), (62, 44374),

Gene: Puppy\_75 Start: 44706, Stop: 44578, Start Num: 45

Candidate Starts for Puppy\_75:

(Start: 45 @44706 has 141 MA's), (48, 44691), (62, 44625),

Gene: Qobbit\_76 Start: 44815, Stop: 44651, Start Num: 43

Candidate Starts for Qobbit\_76:

(Start: 43 @44815 has 146 MA's), (47, 44800), (54, 44758),

Gene: QueenB2\_74 Start: 45451, Stop: 45287, Start Num: 43

Candidate Starts for QueenB2\_74:

(34, 45490), (Start: 43 @45451 has 146 MA's), (76, 45298),

Gene: QueenBeesly\_77 Start: 46124, Stop: 45960, Start Num: 43

Candidate Starts for QueenBeesly\_77:

(34, 46163), (Start: 43 @46124 has 146 MA's), (46, 46118), (76, 45971),

Gene: QuinnKiro\_73 Start: 45042, Stop: 44914, Start Num: 45

Candidate Starts for QuinnKiro\_73:

(Start: 45 @45042 has 141 MA's), (48, 45027),

Gene: Quokka\_83 Start: 46412, Stop: 46257, Start Num: 45

Candidate Starts for Quokka\_83:

(42, 46415), (Start: 45 @46412 has 141 MA's),

Gene: Rachaly\_72 Start: 45226, Stop: 45062, Start Num: 43

Candidate Starts for Rachaly\_72:



(Start: 43 @45226 has 146 MA's), (46, 45220), (47, 45211), (70, 45100), (77, 45070),

Gene: Rahalelujah\_78 Start: 44992, Stop: 44807, Start Num: 43

Candidate Starts for Rahalelujah\_78:

(Start: 43 @44992 has 146 MA's), (46, 44986), (83, 44821),

Gene: Rebeuca\_72 Start: 44797, Stop: 44669, Start Num: 45

Candidate Starts for Rebeuca\_72:

(Start: 45 @44797 has 141 MA's), (48, 44782), (51, 44767), (65, 44701),

Gene: RedRock\_75 Start: 46134, Stop: 45979, Start Num: 43

Candidate Starts for RedRock\_75:

(Start: 43 @46134 has 146 MA's), (47, 46119),

Gene: Refuge\_74 Start: 46251, Stop: 46102, Start Num: 43

Candidate Starts for Refuge\_74:

(Start: 43 @46251 has 146 MA's), (47, 46236), (70, 46125),

Gene: Reindeer\_151 Start: 77820, Stop: 77668, Start Num: 45

Candidate Starts for Reindeer\_151:

(31, 77868), (Start: 45 @77820 has 141 MA's), (48, 77805), (68, 77706),

Gene: Relief\_70 Start: 44513, Stop: 44379, Start Num: 40

Candidate Starts for Relief\_70:

(3, 44741), (14, 44615), (17, 44606), (Start: 40 @44513 has 14 MA's), (Start: 45 @44507 has 141 MA's), (48, 44492), (49, 44486), (62, 44426),

Gene: ResDef\_72 Start: 45045, Stop: 44917, Start Num: 45

Candidate Starts for ResDef\_72:

(Start: 45 @45045 has 141 MA's), (48, 45030),

Gene: Retro23\_77 Start: 45856, Stop: 45692, Start Num: 43

Candidate Starts for Retro23\_77:

(34, 45895), (Start: 43 @45856 has 146 MA's), (46, 45850), (76, 45703),

Gene: Rifter\_79 Start: 43891, Stop: 43739, Start Num: 43

Candidate Starts for Rifter\_79:

(Start: 36 @43918 has 2 MA's), (Start: 43 @43891 has 146 MA's), (46, 43885), (47, 43876), (52, 43849),

Gene: Roksolana\_79 Start: 44624, Stop: 44472, Start Num: 43

Candidate Starts for Roksolana\_79:

(Start: 43 @44624 has 146 MA's), (46, 44618), (47, 44609), (52, 44582),

Gene: Roosevelt\_69 Start: 44512, Stop: 44384, Start Num: 45

Candidate Starts for Roosevelt\_69:

(14, 44620), (17, 44611), (Start: 40 @44518 has 14 MA's), (Start: 45 @44512 has 141 MA's), (48, 44497), (49, 44491), (62, 44431),

Gene: Rosa24\_68 Start: 44538, Stop: 44410, Start Num: 45

Candidate Starts for Rosa24\_68:

(3, 44772), (7, 44700), (14, 44646), (17, 44637), (Start: 40 @44544 has 14 MA's), (Start: 45 @44538 has 141 MA's), (48, 44523), (49, 44517), (62, 44457),

Gene: Rowdy\_73 Start: 44495, Stop: 44367, Start Num: 45  
Candidate Starts for Rowdy\_73:  
(18, 44600), (21, 44591), (33, 44540), (Start: 40 @44501 has 14 MA's), (Start: 45 @44495 has 141 MA's), (48, 44480), (51, 44465), (65, 44399),

Gene: RyeScarlet\_79 Start: 45103, Stop: 44939, Start Num: 43  
Candidate Starts for RyeScarlet\_79:  
(Start: 43 @45103 has 146 MA's), (47, 45088), (54, 45046),

Gene: Sabertooth\_71 Start: 44518, Stop: 44384, Start Num: 40  
Candidate Starts for Sabertooth\_71:  
(Start: 40 @44518 has 14 MA's), (Start: 45 @44512 has 141 MA's), (48, 44497), (62, 44431),

Gene: Sachima\_74 Start: 45084, Stop: 44920, Start Num: 43  
Candidate Starts for Sachima\_74:  
(Start: 43 @45084 has 146 MA's), (47, 45069), (51, 45051), (54, 45027),

Gene: SaturnRing\_74 Start: 45089, Stop: 44961, Start Num: 45  
Candidate Starts for SaturnRing\_74:  
(Start: 45 @45089 has 141 MA's), (48, 45074), (62, 45008),

Gene: Scamp\_71 Start: 44512, Stop: 44384, Start Num: 45  
Candidate Starts for Scamp\_71:  
(3, 44746), (14, 44620), (17, 44611), (Start: 40 @44518 has 14 MA's), (Start: 45 @44512 has 141 MA's), (48, 44497), (49, 44491), (62, 44431),

Gene: Scherzo\_77 Start: 45338, Stop: 45153, Start Num: 43  
Candidate Starts for Scherzo\_77:  
(Start: 43 @45338 has 146 MA's), (47, 45323), (54, 45281), (80, 45176),

Gene: Scout\_73 Start: 44265, Stop: 44137, Start Num: 45  
Candidate Starts for Scout\_73:  
(Start: 45 @44265 has 141 MA's), (48, 44250), (62, 44184),

Gene: SemperFi\_77 Start: 46012, Stop: 45848, Start Num: 43  
Candidate Starts for SemperFi\_77:  
(34, 46051), (Start: 43 @46012 has 146 MA's), (46, 46006), (54, 45955), (76, 45859),

Gene: SenorClean\_66 Start: 44510, Stop: 44382, Start Num: 45  
Candidate Starts for SenorClean\_66:  
(3, 44744), (14, 44618), (17, 44609), (Start: 40 @44516 has 14 MA's), (Start: 45 @44510 has 141 MA's), (48, 44495), (49, 44489), (62, 44429),

Gene: Severus\_69 Start: 43489, Stop: 43361, Start Num: 45  
Candidate Starts for Severus\_69:  
(Start: 45 @43489 has 141 MA's), (48, 43474), (65, 43393),

Gene: Shaka\_69 Start: 44505, Stop: 44377, Start Num: 45  
Candidate Starts for Shaka\_69:  
(Start: 40 @44511 has 14 MA's), (Start: 45 @44505 has 141 MA's), (48, 44490), (62, 44424),

Gene: Shapes\_73 Start: 44495, Stop: 44367, Start Num: 45

Candidate Starts for Shapes\_73:

(18, 44600), (21, 44591), (33, 44540), (Start: 40 @44501 has 14 MA's), (Start: 45 @44495 has 141 MA's), (48, 44480), (51, 44465), (65, 44399),

Gene: SheaKeira\_72 Start: 44164, Stop: 44015, Start Num: 43

Candidate Starts for SheaKeira\_72:

(26, 44221), (Start: 43 @44164 has 146 MA's), (46, 44158), (49, 44140), (51, 44131), (68, 44059),

Gene: SheldonCooper\_71 Start: 44945, Stop: 44817, Start Num: 45

Candidate Starts for SheldonCooper\_71:

(Start: 40 @44951 has 14 MA's), (Start: 45 @44945 has 141 MA's), (48, 44930), (62, 44864),

Gene: Shygu2\_70 Start: 44723, Stop: 44601, Start Num: 45

Candidate Starts for Shygu2\_70:

(Start: 40 @44729 has 14 MA's), (Start: 45 @44723 has 141 MA's), (48, 44708), (69, 44612),

Gene: Skipitt\_70 Start: 44504, Stop: 44376, Start Num: 45

Candidate Starts for Skipitt\_70:

(3, 44738), (14, 44612), (17, 44603), (Start: 40 @44510 has 14 MA's), (Start: 45 @44504 has 141 MA's), (48, 44489), (49, 44483), (62, 44423),

Gene: Smeagan\_79 Start: 46399, Stop: 46235, Start Num: 43

Candidate Starts for Smeagan\_79:

(35, 46438), (Start: 43 @46399 has 146 MA's), (76, 46246),

Gene: SmellyB\_79 Start: 44554, Stop: 44387, Start Num: 43

Candidate Starts for SmellyB\_79:

(Start: 43 @44554 has 146 MA's), (46, 44548), (47, 44539),

Gene: Smoothie\_157 Start: 83364, Stop: 83206, Start Num: 45

Candidate Starts for Smoothie\_157:

(Start: 45 @83364 has 141 MA's), (48, 83349),

Gene: SnapTap\_76 Start: 45823, Stop: 45659, Start Num: 43

Candidate Starts for SnapTap\_76:

(34, 45862), (Start: 43 @45823 has 146 MA's), (46, 45817), (76, 45670),

Gene: SororFago\_78 Start: 46342, Stop: 46166, Start Num: 43

Candidate Starts for SororFago\_78:

(Start: 43 @46342 has 146 MA's), (47, 46327),

Gene: Spino\_70 Start: 44516, Stop: 44382, Start Num: 40

Candidate Starts for Spino\_70:

(7, 44672), (14, 44618), (17, 44609), (Start: 40 @44516 has 14 MA's), (Start: 45 @44510 has 141 MA's), (48, 44495), (49, 44489), (62, 44429),

Gene: Spouty\_76 Start: 44852, Stop: 44688, Start Num: 43

Candidate Starts for Spouty\_76:

(Start: 43 @44852 has 146 MA's), (47, 44837), (54, 44795),

Gene: Stasia\_70 Start: 44731, Stop: 44609, Start Num: 45

Candidate Starts for Stasia\_70:

(14, 44842), (Start: 40 @44737 has 14 MA's), (Start: 45 @44731 has 141 MA's), (48, 44716), (57, 44665),

Gene: Steamy\_81 Start: 48438, Stop: 48295, Start Num: 45

Candidate Starts for Steamy\_81:

(24, 48507), (Start: 36 @48468 has 2 MA's), (Start: 45 @48438 has 141 MA's), (55, 48384), (56, 48378),

Gene: Stink\_70 Start: 44516, Stop: 44388, Start Num: 40

Candidate Starts for Stink\_70:

(1, 44831), (2, 44792), (6, 44672), (Start: 40 @44516 has 14 MA's), (Start: 45 @44510 has 141 MA's),

Gene: Sunhee\_78 Start: 44429, Stop: 44244, Start Num: 43

Candidate Starts for Sunhee\_78:

(Start: 43 @44429 has 146 MA's), (47, 44414), (54, 44372), (66, 44336),

Gene: SuperAwesome\_79 Start: 45232, Stop: 45065, Start Num: 43

Candidate Starts for SuperAwesome\_79:

(Start: 43 @45232 has 146 MA's), (46, 45226), (47, 45217),

Gene: SuperCallie99\_76 Start: 45076, Stop: 44909, Start Num: 43

Candidate Starts for SuperCallie99\_76:

(Start: 43 @45076 has 146 MA's), (46, 45070), (47, 45061),

Gene: SweetiePie\_76 Start: 45955, Stop: 45791, Start Num: 43

Candidate Starts for SweetiePie\_76:

(34, 45994), (Start: 43 @45955 has 146 MA's), (46, 45949), (76, 45802),

Gene: TNguyen7\_75 Start: 45047, Stop: 44919, Start Num: 45

Candidate Starts for TNguyen7\_75:

(Start: 45 @45047 has 141 MA's), (48, 45032), (62, 44966),

Gene: Taquarus\_70 Start: 44513, Stop: 44385, Start Num: 45

Candidate Starts for Taquarus\_70:

(3, 44747), (14, 44621), (17, 44612), (Start: 40 @44519 has 14 MA's), (Start: 45 @44513 has 141 MA's), (48, 44498), (49, 44492), (62, 44432),

Gene: TarsusIV\_74 Start: 45855, Stop: 45700, Start Num: 43

Candidate Starts for TarsusIV\_74:

(Start: 43 @45855 has 146 MA's), (70, 45729),

Gene: Temprado\_80 Start: 44729, Stop: 44577, Start Num: 43

Candidate Starts for Temprado\_80:

(Start: 36 @44756 has 2 MA's), (Start: 43 @44729 has 146 MA's), (46, 44723), (47, 44714), (52, 44687),

Gene: Texage\_72 Start: 45043, Stop: 44915, Start Num: 45

Candidate Starts for Texage\_72:

(Start: 45 @45043 has 141 MA's), (48, 45028),

Gene: Timshel\_72 Start: 47629, Stop: 47480, Start Num: 45

Candidate Starts for Timshel\_72:

(Start: 45 @47629 has 141 MA's), (48, 47614), (53, 47578), (57, 47560), (64, 47536),

Gene: Tinybot\_70 Start: 44537, Stop: 44409, Start Num: 45

Candidate Starts for Tinybot\_70:

(7, 44699), (14, 44645), (17, 44636), (Start: 40 @44543 has 14 MA's), (Start: 45 @44537 has 141 MA's), (48, 44522), (49, 44516), (62, 44456),

Gene: TiroTheta9\_70 Start: 44504, Stop: 44376, Start Num: 45

Candidate Starts for TiroTheta9\_70:

(14, 44612), (17, 44603), (Start: 40 @44510 has 14 MA's), (Start: 45 @44504 has 141 MA's), (48, 44489), (49, 44483), (62, 44423),

Gene: Toaka\_78 Start: 45406, Stop: 45206, Start Num: 37

Candidate Starts for Toaka\_78:

(Start: 37 @45406 has 1 MA's), (Start: 43 @45391 has 146 MA's), (47, 45376), (83, 45220),

Gene: Todacoro\_74 Start: 45042, Stop: 44914, Start Num: 45

Candidate Starts for Todacoro\_74:

(Start: 45 @45042 has 141 MA's), (48, 45027),

Gene: ToneTone\_76 Start: 44289, Stop: 44137, Start Num: 43

Candidate Starts for ToneTone\_76:

(Start: 36 @44316 has 2 MA's), (Start: 43 @44289 has 146 MA's), (46, 44283), (47, 44274), (52, 44247),

Gene: Toniann\_156 Start: 83006, Stop: 82848, Start Num: 45

Candidate Starts for Toniann\_156:

(Start: 45 @83006 has 141 MA's), (48, 82991),

Gene: Toro\_74 Start: 48604, Stop: 48464, Start Num: 45

Candidate Starts for Toro\_74:

(Start: 45 @48604 has 141 MA's), (63, 48514),

Gene: Towmatter\_155 Start: 84333, Stop: 84148, Start Num: 45

Candidate Starts for Towmatter\_155:

(16, 84444), (20, 84432), (Start: 45 @84333 has 141 MA's), (48, 84318), (58, 84261), (82, 84159),

Gene: Tristan\_73 Start: 46813, Stop: 46637, Start Num: 43

Candidate Starts for Tristan\_73:

(Start: 43 @46813 has 146 MA's), (46, 46807), (73, 46660),

Gene: Trixie\_76 Start: 46566, Stop: 46399, Start Num: 43

Candidate Starts for Trixie\_76:

(Start: 43 @46566 has 146 MA's), (54, 46509), (78, 46410), (81, 46404),

Gene: Trooper\_76 Start: 45821, Stop: 45675, Start Num: 43

Candidate Starts for Trooper\_76:

(Start: 43 @45821 has 146 MA's),

Gene: TroyPia\_72 Start: 44542, Stop: 44414, Start Num: 45

Candidate Starts for TroyPia\_72:

(Start: 40 @44548 has 14 MA's), (Start: 45 @44542 has 141 MA's), (48, 44527), (61, 44464), (62, 44461),

Gene: Tubs\_78 Start: 45056, Stop: 44892, Start Num: 43  
Candidate Starts for Tubs\_78:  
(Start: 43 @45056 has 146 MA's), (47, 45041), (51, 45023), (54, 44999),

Gene: Tucker\_79 Start: 44492, Stop: 44340, Start Num: 43  
Candidate Starts for Tucker\_79:  
(Start: 36 @44519 has 2 MA's), (Start: 43 @44492 has 146 MA's), (46, 44486), (47, 44477), (52, 44450),

Gene: Turbido\_77 Start: 46120, Stop: 45956, Start Num: 43  
Candidate Starts for Turbido\_77:  
(35, 46159), (Start: 43 @46120 has 146 MA's), (76, 45967),

Gene: Twister\_70 Start: 44343, Stop: 44215, Start Num: 45  
Candidate Starts for Twister\_70:  
(Start: 45 @44343 has 141 MA's), (48, 44328), (51, 44313), (65, 44247),

Gene: TygerBlood\_71 Start: 44510, Stop: 44382, Start Num: 45  
Candidate Starts for TygerBlood\_71:  
(3, 44744), (14, 44618), (17, 44609), (Start: 40 @44516 has 14 MA's), (Start: 45 @44510 has 141 MA's), (48, 44495), (49, 44489), (62, 44429),

Gene: Ulysses\_70 Start: 44193, Stop: 44065, Start Num: 45  
Candidate Starts for Ulysses\_70:  
(3, 44427), (14, 44301), (17, 44292), (Start: 40 @44199 has 14 MA's), (Start: 45 @44193 has 141 MA's), (48, 44178), (62, 44112),

Gene: Updawg\_77 Start: 45675, Stop: 45511, Start Num: 43  
Candidate Starts for Updawg\_77:  
(11, 45807), (17, 45777), (Start: 43 @45675 has 146 MA's), (76, 45522),

Gene: VA6\_76 Start: 45850, Stop: 45683, Start Num: 43  
Candidate Starts for VA6\_76:  
(Start: 43 @45850 has 146 MA's), (46, 45844), (74, 45703),

Gene: Vanisoa\_75 Start: 45726, Stop: 45541, Start Num: 43  
Candidate Starts for Vanisoa\_75:  
(Start: 43 @45726 has 146 MA's), (51, 45693), (83, 45555), (85, 45546),

Gene: Veracruz\_71 Start: 45043, Stop: 44915, Start Num: 45  
Candidate Starts for Veracruz\_71:  
(Start: 45 @45043 has 141 MA's), (48, 45028),

Gene: VohminGhazi\_79 Start: 44555, Stop: 44388, Start Num: 43  
Candidate Starts for VohminGhazi\_79:  
(Start: 43 @44555 has 146 MA's), (46, 44549), (47, 44540),

Gene: WalterMcMickey\_70 Start: 44343, Stop: 44215, Start Num: 45  
Candidate Starts for WalterMcMickey\_70:  
(Start: 45 @44343 has 141 MA's), (48, 44328), (51, 44313), (65, 44247),

Gene: WeiHuaDA\_77 Start: 46612, Stop: 46448, Start Num: 43  
Candidate Starts for WeiHuaDA\_77:

(23, 46702), (38, 46621), (Start: 43 @46612 has 146 MA's), (54, 46555), (70, 46486),

Gene: WideWale\_77 Start: 45675, Stop: 45511, Start Num: 43

Candidate Starts for WideWale\_77:

(11, 45807), (17, 45777), (Start: 43 @45675 has 146 MA's), (76, 45522),

Gene: Wiks\_78 Start: 44360, Stop: 44208, Start Num: 43

Candidate Starts for Wiks\_78:

(Start: 36 @44387 has 2 MA's), (Start: 43 @44360 has 146 MA's), (46, 44354), (47, 44345), (52, 44318),

Gene: Wile\_69 Start: 44707, Stop: 44579, Start Num: 40

Candidate Starts for Wile\_69:

(Start: 40 @44707 has 14 MA's), (Start: 45 @44701 has 141 MA's), (48, 44686), (49, 44680), (69, 44590),

Gene: WilliamBoone\_158 Start: 81466, Stop: 81308, Start Num: 45

Candidate Starts for WilliamBoone\_158:

(Start: 45 @81466 has 141 MA's), (48, 81451),

Gene: Wizard007\_70 Start: 44427, Stop: 44305, Start Num: 45

Candidate Starts for Wizard007\_70:

(Start: 40 @44433 has 14 MA's), (Start: 45 @44427 has 141 MA's), (48, 44412), (49, 44406), (69, 44316),

Gene: WunderPhul\_79 Start: 44358, Stop: 44206, Start Num: 43

Candidate Starts for WunderPhul\_79:

(Start: 36 @44385 has 2 MA's), (Start: 43 @44358 has 146 MA's), (46, 44352), (47, 44343), (52, 44316),

Gene: Xena\_69 Start: 44688, Stop: 44566, Start Num: 45

Candidate Starts for Xena\_69:

(12, 44814), (13, 44808), (15, 44802), (29, 44742), (Start: 40 @44694 has 14 MA's), (Start: 45 @44688 has 141 MA's), (48, 44673), (69, 44577),

Gene: XianYue\_72 Start: 45602, Stop: 45423, Start Num: 43

Candidate Starts for XianYue\_72:

(Start: 43 @45602 has 146 MA's), (54, 45545), (74, 45455), (79, 45443), (84, 45428),

Gene: Yecey3\_80 Start: 45152, Stop: 44967, Start Num: 43

Candidate Starts for Yecey3\_80:

(25, 45221), (Start: 43 @45152 has 146 MA's), (68, 45047), (83, 44981),

Gene: YoSam321\_71 Start: 44511, Stop: 44377, Start Num: 40

Candidate Starts for YoSam321\_71:

(3, 44739), (14, 44613), (17, 44604), (Start: 40 @44511 has 14 MA's), (Start: 45 @44505 has 141 MA's), (48, 44490), (49, 44484), (62, 44424),

Gene: Yokurt\_78 Start: 44360, Stop: 44208, Start Num: 43

Candidate Starts for Yokurt\_78:

(Start: 36 @44387 has 2 MA's), (Start: 43 @44360 has 146 MA's), (46, 44354), (47, 44345), (52, 44318),

Gene: Zaka\_79 Start: 44360, Stop: 44208, Start Num: 43

Candidate Starts for Zaka\_79:

(Start: 36 @44387 has 2 MA's), (Start: 43 @44360 has 146 MA's), (46, 44354), (47, 44345), (52, 44318),

Gene: Zimmer\_75 Start: 46180, Stop: 46019, Start Num: 43

Candidate Starts for Zimmer\_75:

(Start: 43 @46180 has 146 MA's), (54, 46123),

Gene: Zulu\_80 Start: 44738, Stop: 44586, Start Num: 43

Candidate Starts for Zulu\_80:

(Start: 36 @44765 has 2 MA's), (Start: 43 @44738 has 146 MA's), (46, 44732), (47, 44723), (52, 44696),