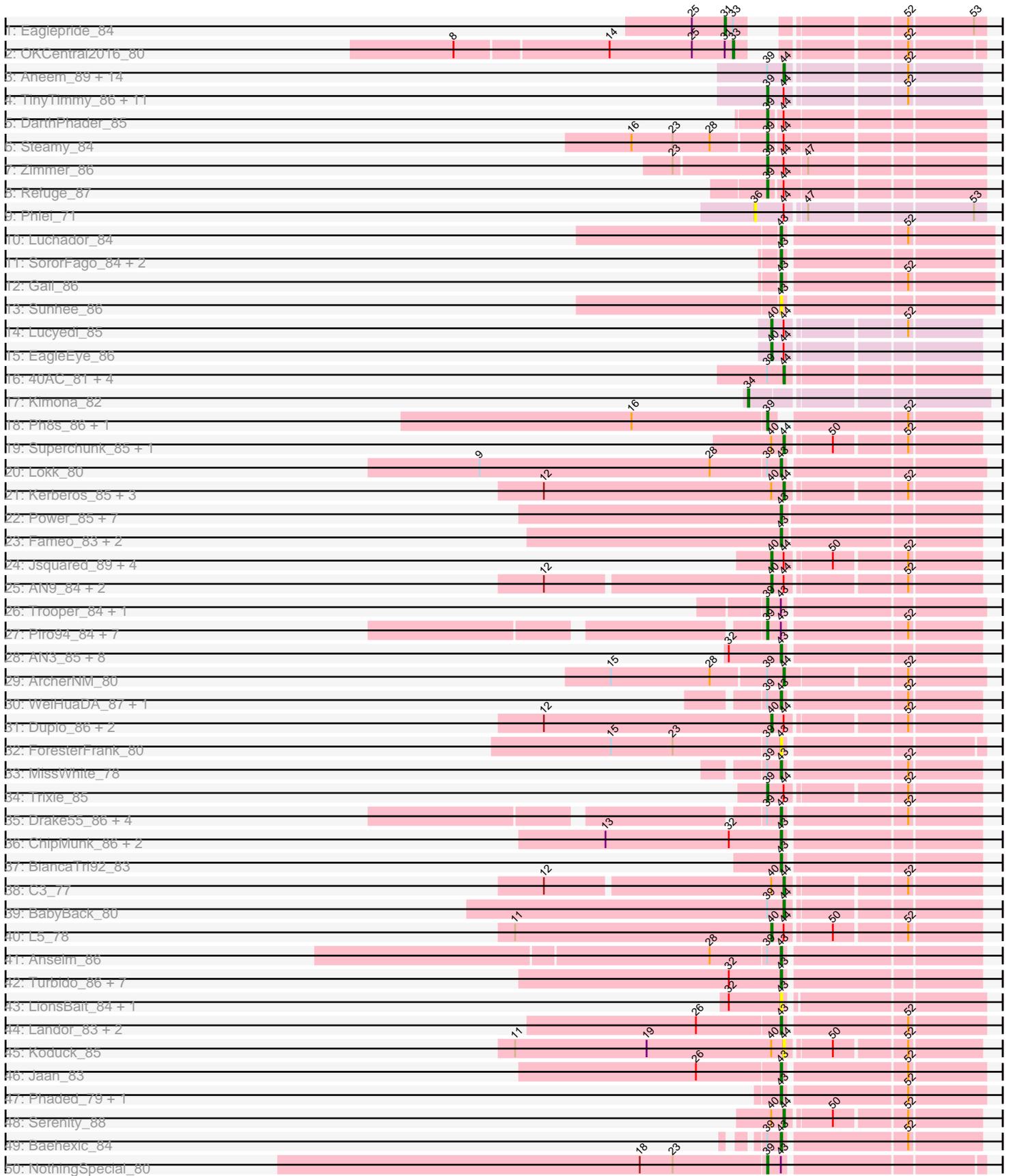
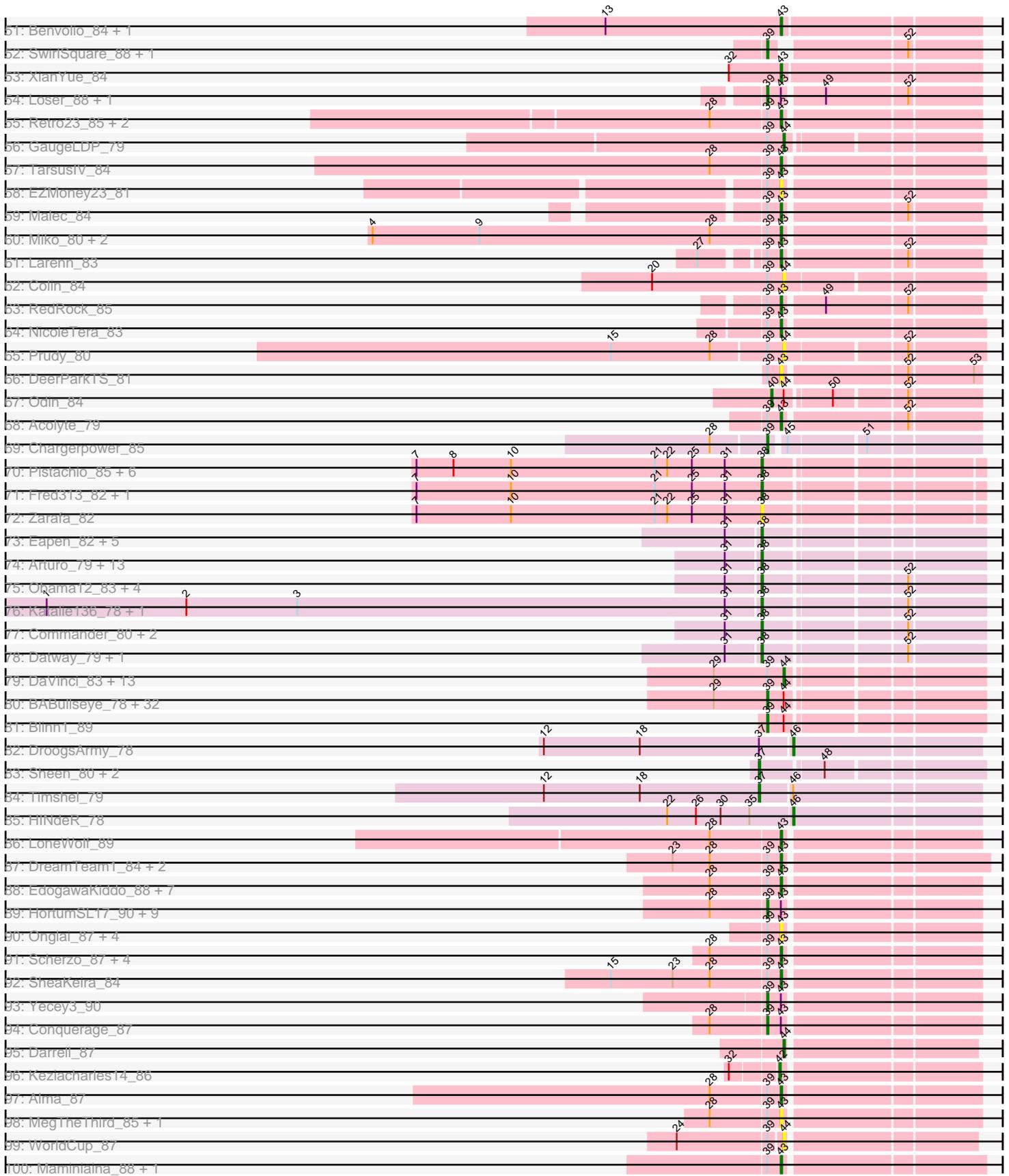


Pham 283414



Pham 283414



Pham 283414



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 283414 Report

This analysis was run 02/23/26 on database version 636.

Pham number 283414 has 313 members, 60 are drafts.

Phages represented in each track:

- Track 1 : Eaglepride\_84
- Track 2 : OKCentral2016\_80
- Track 3 : Aneem\_89, Timothy\_88, Joselito\_86, Salz\_84, Munch\_87, Bowtie\_84, Kimba\_85, Et2Brutus\_88, Lucivia\_89, Bachome\_86, Insomnia\_88, Wolpertinger\_88, Petersenfast\_82, Saskia\_85, Ebony\_87
- Track 4 : TinyTimmy\_86, Sham4\_85, MaCh\_88, Jabith\_88, Mulciber\_87, Orange\_88, Gilberta\_86, Hutc2\_85, Fibonacci\_88, Flaverint\_89, Snape\_88, Mabel\_88
- Track 5 : DarthPhader\_85
- Track 6 : Steamy\_84
- Track 7 : Zimmer\_86
- Track 8 : Refuge\_87
- Track 9 : Phlei\_71
- Track 10 : Luchador\_84
- Track 11 : SororFago\_84, Iwokeuplikedis\_89, Jeeves\_86
- Track 12 : Gail\_86
- Track 13 : Sunhee\_86
- Track 14 : Lucyedi\_85
- Track 15 : EagleEye\_86
- Track 16 : 40AC\_81, Minispark\_86, Bellris\_86, CogOmlette\_86, Rahalelujah\_88
- Track 17 : Kimona\_82
- Track 18 : Ph8s\_86, Adzzy\_86
- Track 19 : Superchunk\_85, Caraxes\_86
- Track 20 : Lokk\_80
- Track 21 : Kerberos\_85, DBQu4n\_85, Pomar16\_85, Tomathan\_85
- Track 22 : Power\_85, SweetiePie\_85, SnapTap\_85, QueenBeesly\_85, Georgie2\_87, FiringLine\_85, Crucio\_85, SemperFi\_85
- Track 23 : Fameo\_83, QueenB2\_82, Heffalump\_82
- Track 24 : Jsquared\_89, Quokka\_87, MajorMajor\_82, Bradman\_88, TipsytheTRex\_84
- Track 25 : AN9\_84, VC3\_83, ANI8\_84
- Track 26 : Trooper\_84, Pukovnik\_80
- Track 27 : Piro94\_84, Sknot\_85, Equemioh13\_85, NaSiaTalie\_86, Flare16\_85, MiculUcigas\_85, HarryHoudini\_85, WideWale\_86
- Track 28 : AN3\_85, First\_0086, CRB1\_86, VA6\_85, LadyBird\_89, Deloris\_87, BengiVuitton\_87, 20ES\_87, JoshKayV\_87
- Track 29 : ArcherNM\_80

- Track 30 : WeiHuaDA\_87, Kalpine\_87
- Track 31 : Duplo\_86, StarStuff\_85, Travvers\_85
- Track 32 : ForesterFrank\_80
- Track 33 : MissWhite\_78
- Track 34 : Trixie\_85
- Track 35 : Drake55\_86, Updawg\_86, Terrific\_86, Gratitude\_83, Centaur\_85
- Track 36 : ChipMunk\_86, KingCyrus\_84, EvilGenius\_85
- Track 37 : BiancaTri92\_83
- Track 38 : C3\_77
- Track 39 : BabyBack\_80
- Track 40 : L5\_78
- Track 41 : Anselm\_86
- Track 42 : Turbido\_86, LilTurb\_86, Dignity\_87, Agape74\_87, Smeagan\_88, AbbyPaige\_87, Leviathan\_87, Jerm\_87
- Track 43 : LionsBait\_84, HippoHollow\_82
- Track 44 : Landor\_83, Bactobuster\_77, IronMan\_82
- Track 45 : Koduck\_85
- Track 46 : Jaan\_83
- Track 47 : Phaded\_79, Tristan\_81
- Track 48 : Serenity\_88
- Track 49 : Baehexic\_84
- Track 50 : NothingSpecial\_80
- Track 51 : Benvolio\_84, Echild\_88
- Track 52 : SwirlSquare\_88, Che12\_87
- Track 53 : XianYue\_84
- Track 54 : Loser\_88, AnnaL29\_87
- Track 55 : Retro23\_85, DudeLittle\_83, Dalmatian\_85
- Track 56 : GaugeLDP\_79
- Track 57 : TarsusIV\_84
- Track 58 : EZMoney23\_81
- Track 59 : Malec\_84
- Track 60 : Miko\_80, Rachaly\_82, BobSwaget\_79
- Track 61 : Larenn\_83
- Track 62 : Colin\_84
- Track 63 : RedRock\_85
- Track 64 : NicoleTera\_83
- Track 65 : Prudy\_80
- Track 66 : DeerParkTS\_81
- Track 67 : Odin\_84
- Track 68 : Acolyte\_79
- Track 69 : Chargerpower\_85
- Track 70 : Pistachio\_85, SaturnRing\_86, Clammy\_86, Puppy\_86, BlueBird\_87, Giroux\_88, Bugatti\_86
- Track 71 : Fred313\_82, Marchesa\_84
- Track 72 : Zarafa\_82
- Track 73 : Eapen\_82, KekoraPapaka\_79, NorthStar\_79, SheldonCooper\_82, Relief\_81, Skipitt\_81
- Track 74 : Arturo\_79, Huxley\_71, Eagle\_81, MeeZee\_81, Gadost\_82, Nemo27\_81, Kingmustik0402\_82, NotAPhaseMom\_81, Sultana\_82, Cocoaberry\_82, TygerBlood\_82, SteMason\_78, Houdini22\_81, Avle17\_82
- Track 75 : Obama12\_83, Deano\_79, Stink\_82, Rosa24\_78, AvatarAhPeg\_82
- Track 76 : Katalie136\_78, Badger\_77
- Track 77 : Commander\_80, Eros\_82, RockieBear\_79

- Track 78 : Datway\_79, Cindaradix\_77
- Track 79 : DaVinci\_83, Pmask\_84, McFly\_85, DelvinSonDorr\_80, Yokurt\_86, Zaka\_87, Isiphiwo\_81, Candra\_83, SuperCallie99\_81, Artemis2UCLA\_86, Priamo\_86, ToneTone\_84, Tucker\_87, Garak\_88
- Track 80 : BABullseye\_78, Chartreuse\_84, CloudWang3\_87, Indra\_90, Hammer\_87, Roksolana\_87, Hexamo\_86, Kazan\_86, EricB\_83, Rifter\_87, Zulu\_88, Neeharika16\_84, BlessJoy\_87, SuperAwesome\_85, Jordennis\_83, Koko\_88, Gruunaga\_86, Hoot\_80, Dorothea\_85, Wiks\_86, SmellyB\_85, Blue7\_88, Lilbunny\_86, Kipper29\_85, BennyP\_86, Gladiator\_83, Cookiedough\_85, JewelBug\_77, Helmet\_89, Temprado\_88, Newrala\_84, VohminGhazi\_85, WunderPhul\_87
- Track 81 : Blinn1\_89
- Track 82 : DroogsArmy\_78
- Track 83 : Sheen\_80, FlyCatcher\_83, Toro\_81
- Track 84 : Timshel\_79
- Track 85 : HINdeR\_78
- Track 86 : LoneWolf\_89
- Track 87 : DreamTeam1\_84, Klodlith\_85, Charm\_84
- Track 88 : EdogawaKiddo\_88, Qobbit\_87, Priya\_87, ExplosioNervosa\_87, Phaeder\_89, Sachima\_85, Lilleskat\_86, Ayanochan\_87
- Track 89 : HortumSL17\_90, Fayely\_87, Tubs\_89, Aliter\_82, Eidsmoe\_87, Myxus\_89, EmyBug\_86, PackMan\_84, Catalina\_91, Spouty\_87
- Track 90 : Onglai\_87, Jiawan\_87, RyeScarlet\_90, Hanray\_87, Halex\_88
- Track 91 : Scherzo\_87, Phonnegut\_89, Pioneer\_89, Beemo\_89, Ugenie5\_76
- Track 92 : SheaKeira\_84
- Track 93 : Yecey3\_90
- Track 94 : Conquerage\_87
- Track 95 : Darrell\_87
- Track 96 : Keziacharles14\_86
- Track 97 : Alma\_87
- Track 98 : MegTheThird\_85, Celestiallunch\_84
- Track 99 : WorldCup\_87
- Track 100 : Maminiaina\_88, BogosyJay\_88
- Track 101 : Vanisoa\_84
- Track 102 : Arissanae\_84
- Track 103 : Toaka\_87
- Track 104 : Elephantoon\_89
- Track 105 : Thonko\_95
- Track 106 : Phabba\_146
- Track 107 : Greely\_145
- Track 108 : Pupper\_190, CherryTomatoes\_192, SCentae\_189
- Track 109 : Skog\_22

***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 80 of the 253 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

• 20ES\_87, AN3\_85, AbbyPaige\_87, Acolyte\_79, Agape74\_87, Alma\_87, Anselm\_86, Ayanochan\_87, Bactobuster\_77, Baehexic\_84, Beemo\_89, BengiVuitton\_87, Benvolio\_84, BiancaTri92\_83, BobSwaget\_79, BogosyJay\_88, CRB1\_86, Celestiallunch\_84, Centaur\_85, Charm\_84, ChipMunk\_86, Crucio\_85, Dalmatian\_85, DeerParkTS\_81, Deloris\_87, Dignity\_87, Drake55\_86, DreamTeam1\_84, DudeLittle\_83, EZMoney23\_81, Echid\_88, EdogawaKiddo\_88, EvilGenius\_85, ExplosioNervosa\_87, Fameo\_83, FiringLine\_85, First\_0086, ForesterFrank\_80, Gail\_86, Georgie2\_87, Gratitude\_83, Hanray\_87, Heffalump\_82, HippoHollow\_82, Horex\_88, IronMan\_82, Iwokeuplikedis\_89, Jaan\_83, Jeeves\_86, Jerm\_87, Jiawan\_87, JoshKayV\_87, Kalpine\_87, KingCyrus\_84, Klodlith\_85, LadyBird\_89, Landor\_83, Larenn\_83, Leviathan\_87, LilTurb\_86, Lilleskat\_86, LionsBait\_84, Lokk\_80, LoneWolf\_89, Luchador\_84, Malec\_84, Maminiaina\_88, MegTheThird\_85, Miko\_80, MissWhite\_78, NicoleTera\_83, Onglai\_87, Phaded\_79, Phaeder\_89, Phonnegut\_89, Pioneer\_89, Power\_85, Priya\_87, Qobbit\_87, QueenB2\_82, QueenBeesly\_85, Rachaly\_82, RedRock\_85, Retro23\_85, RyeScarlet\_90, Sachima\_85, Scherzo\_87, SemperFi\_85, SheaKeira\_84, Smeagan\_88, SnapTap\_85, SororFago\_84, Sunhee\_86, SweetiePie\_85, TarsusIV\_84, Terrific\_86, Tristan\_81, Turbido\_86, Ugenie5\_76, Updawg\_86, VA6\_85, Vanisoa\_84, WeiHuaDA\_87, XianYue\_84,

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

• Aliter\_82, AnnaL29\_87, Catalina\_91, Conquerage\_87, Eidsmoe\_87, EmyBug\_86, Equemioh13\_85, Fayely\_87, Flare16\_85, HarryHoudini\_85, HortumSL17\_90, Loser\_88, MiculUcigas\_85, Myxus\_89, NaSiaTalie\_86, NothingSpecial\_80, PackMan\_84, Piro94\_84, Pukovnik\_80, Sknot\_85, Spouty\_87, Trooper\_84, Tubs\_89, WideWale\_86, Yecey3\_90,

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

• 40AC\_81, AN9\_84, ANI8\_84, Adzzy\_86, Aneem\_89, ArcherNM\_80, Arissanee\_84, Artemis2UCLA\_86, Arturo\_79, AvatarAhPeg\_82, Avle17\_82, BABullseye\_78, BabyBack\_80, Bachome\_86, Badger\_77, Bellris\_86, BennyP\_86, BlessJoy\_87, Blinn1\_89, Blue7\_88, BlueBird\_87, Bowtie\_84, Bradman\_88, Bugatti\_86, C3\_77, Candra\_83, Caraxes\_86, Chargerpower\_85, Chartreuse\_84, Che12\_87, CherryTomatoes\_192, Cindaradix\_77, Clammy\_86, CloudWang3\_87, Cocoaberry\_82, CogOmlette\_86, Colin\_84, Commander\_80, Cookiedough\_85, DBQu4n\_85, DaVinci\_83, Darrell\_87, DarthPhader\_85, Datway\_79, Deano\_79, DelvinSonDorr\_80, Dorothea\_85, DroogsArmy\_78, Duplo\_86, EagleEye\_86, Eagle\_81, Eaglepride\_84, Eapen\_82, Ebony\_87, Elephantoon\_89, EricB\_83, Eros\_82, Et2Brutus\_88, Fibonacci\_88, Flaverint\_89, FlyCatcher\_83, Fred313\_82, Gadost\_82, Garak\_88, GaugeLDP\_79, Gilberta\_86, Giroux\_88, Gladiator\_83, Greely\_145, Gruunaga\_86, HINdeR\_78, Hammer\_87, Helmet\_89, Hexamo\_86, Hoot\_80, Houdini22\_81, Hutc2\_85, Huxley\_71, Indra\_90, Insomnia\_88, Isiphiwo\_81, Jabith\_88, JewelBug\_77, Jordennis\_83, Joselito\_86, Jsquared\_89, Katalie136\_78, Kazan\_86, KekoraPapaka\_79, Kerberos\_85, Keziacharles14\_86, Kimba\_85, Kimona\_82, Kingmustik0402\_82, Kipper29\_85, Koduck\_85, Koko\_88, L5\_78, Lilbunny\_86, Lucivia\_89, Lucyedi\_85, MaCh\_88, Mabel\_88, MajorMajor\_82, Marchesa\_84, McFly\_85, MeeZee\_81, Minispark\_86, Mulciber\_87, Munch\_87, Neeharika16\_84, Nemo27\_81, Newrala\_84, NorthStar\_79, NotAPhaseMom\_81, OKCentral2016\_80, Obama12\_83, Odin\_84, Orange\_88, Petersenfast\_82, Ph8s\_86, Phabba\_146, Phlei\_71, Pistachio\_85, Pmask\_84, Pomar16\_85, Priamo\_86, Prudy\_80, Pupper\_190, Puppy\_86, Quokka\_87, Rahalelujah\_88, Refuge\_87, Relief\_81, Rifter\_87, RockieBear\_79, Roksolana\_87, Rosa24\_78, SCentae\_189, Salz\_84, Saskia\_85, SaturnRing\_86, Serenity\_88, Sham4\_85, Sheen\_80,

SheldonCooper\_82, Skipitt\_81, Skog\_22, SmellyB\_85, Snape\_88, StarStuff\_85, SteMason\_78, Steamy\_84, Stink\_82, Sultana\_82, SuperAwesome\_85, SuperCallie99\_81, Superchunk\_85, SwirlSquare\_88, Temprado\_88, Thonko\_95, Timothy\_88, Timshel\_79, TinyTimmy\_86, TopsytheTRex\_84, Toaka\_87, Tomathan\_85, ToneTone\_84, Toro\_81, Travvers\_85, Trixie\_85, Tucker\_87, TygerBlood\_82, VC3\_83, VohminGhazi\_85, Wiks\_86, Wolpertinger\_88, WorldCup\_87, WunderPhul\_87, Yokurt\_86, Zaka\_87, Zarafa\_82, Zimmer\_86, Zulu\_88,

### Summary by start number:

#### Start 31:

- Found in 44 of 313 ( 14.1% ) of genes in pham
- Manual Annotations of this start: 1 of 253
- Called 2.3% of time when present
- Phage (with cluster) where this start called: Eaglepride\_84 (A10),

#### Start 33:

- Found in 2 of 313 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 253
- Called 50.0% of time when present
- Phage (with cluster) where this start called: OKCentral2016\_80 (A10),

#### Start 34:

- Found in 1 of 313 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 253
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kimona\_82 (A19),

#### Start 36:

- Found in 1 of 313 ( 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: Phlei\_71 (A13),

#### Start 37:

- Found in 5 of 313 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 2 of 253
- Called 80.0% of time when present
- Phage (with cluster) where this start called: FlyCatcher\_83 (A7), Sheen\_80 (A7), Timshel\_79 (A7), Toro\_81 (A7),

#### Start 38:

- Found in 46 of 313 ( 14.7% ) of genes in pham
- Manual Annotations of this start: 36 of 253
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Arturo\_79 (A4), AvatarAhPeg\_82 (A4), Avle17\_82 (A4), Badger\_77 (A4), BlueBird\_87 (A3), Bugatti\_86 (A3), CherryTomatoes\_192 (DO), Cindaradix\_77 (A4), Clammy\_86 (A3), Cocoaberry\_82 (A4), Commander\_80 (A4), Datway\_79 (A4), Deano\_79 (A4), Eagle\_81 (A4), Eapen\_82 (A4), Eros\_82 (A4), Fred313\_82 (A3), Gadost\_82 (A4), Giroux\_88 (A3), Houdini22\_81 (A4), Huxley\_71 (A4), Katalie136\_78 (A4), KekoraPapaka\_79 (A4), Kingmustik0402\_82 (A4), Marchesa\_84 (A3), MeeZee\_81 (A4), Nemo27\_81 (A4),

NorthStar\_79 (A4), NotAPhaseMom\_81 (A4), Obama12\_83 (A4), Pistachio\_85 (A3), Pupper\_190 (DO), Puppy\_86 (A3), Relief\_81 (A4), RockieBear\_79 (A4), Rosa24\_78 (A4), SCentae\_189 (DO), SaturnRing\_86 (A3), SheldonCooper\_82 (A4), Skipitt\_81 (A4), Skog\_22 (DO), SteMason\_78 (A4), Stink\_82 (A4), Sultana\_82 (A4), TygerBlood\_82 (A4), Zarafa\_82 (A3),

Start 39:

- Found in 175 of 313 ( 55.9% ) of genes in pham
- Manual Annotations of this start: 79 of 253
- Called 46.3% of time when present
- Phage (with cluster) where this start called: Adzzy\_86 (A2), Aliter\_82 (A9), AnnaL29\_87 (A2), BABullseye\_78 (A6), BennyP\_86 (A6), BlessJoy\_87 (A6), Blinn1\_89 (A6), Blue7\_88 (A6), Catalina\_91 (A9), Chargerpower\_85 (A22), Chartreuse\_84 (A6), Che12\_87 (A2), CloudWang3\_87 (A6), Conquerage\_87 (A9), Cookiedough\_85 (A6), DarthPhader\_85 (A12), Dorothea\_85 (A6), Eidsmoe\_87 (A9), EmyBug\_86 (A9), Equemioh13\_85 (A2), EricB\_83 (A6), Fayely\_87 (A9), Fibonacci\_88 (A11), Flare16\_85 (A2), Flaverint\_89 (A11), Gilberta\_86 (A11), Gladiator\_83 (A6), Gruunaga\_86 (A6), Hammer\_87 (A6), HarryHoudini\_85 (A2), Helmet\_89 (A6), Hexamo\_86 (A6), Hoot\_80 (A6), HortumSL17\_90 (A9), Hutc2\_85 (A11), Indra\_90 (A6), Jabith\_88 (A11), JewelBug\_77 (A6), Jordennis\_83 (A6), Kazan\_86 (A6), Kipper29\_85 (A6), Koko\_88 (A6), Lilbunny\_86 (A6), Loser\_88 (A2), MaCh\_88 (A11), Mabel\_88 (A11), MiculUcigas\_85 (A2), Mulciber\_87 (A11), Myxus\_89 (A9), NaSiaTalie\_86 (A2), Neeharika16\_84 (A6), Newrala\_84 (A6), NothingSpecial\_80 (A2), Orange\_88 (A11), PackMan\_84 (A9), Ph8s\_86 (A2), Piro94\_84 (A2), Pukovnik\_80 (A2), Refuge\_87 (A12), Rifter\_87 (A6), Roksolana\_87 (A6), Sham4\_85 (A11), Sknot\_85 (A2), SmellyB\_85 (A6), Snape\_88 (A11), Spouty\_87 (A9), Steamy\_84 (A12), SuperAwesome\_85 (A6), SwirlSquare\_88 (A2), Temprado\_88 (A6), TinyTimmy\_86 (A11), Trixie\_85 (A2), Trooper\_84 (A2), Tubs\_89 (A9), VohminGhazi\_85 (A6), WideWale\_86 (A2), Wiks\_86 (A6), WunderPhul\_87 (A6), Yecey3\_90 (A9), Zimmer\_86 (A12), Zulu\_88 (A6),

Start 40:

- Found in 24 of 313 ( 7.7% ) of genes in pham
- Manual Annotations of this start: 11 of 253
- Called 62.5% of time when present
- Phage (with cluster) where this start called: AN9\_84 (A2), ANI8\_84 (A2), Bradman\_88 (A2), Duplo\_86 (A2), EagleEye\_86 (A16), Jsquared\_89 (A2), L5\_78 (A2), Lucyedi\_85 (A16), MajorMajor\_82 (A2), Odin\_84 (A2), Quokka\_87 (A2), StarStuff\_85 (A2), TipsytheTRex\_84 (A2), Travvers\_85 (A2), VC3\_83 (A2),

Start 41:

- Found in 3 of 313 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 2 of 253
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Greely\_145 (C2), Phabba\_146 (C2), Thonko\_95 (B8),

Start 42:

- Found in 2 of 313 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 2 of 253
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Keziacharles14\_86 (A9), Toaka\_87 (A9),

#### Start 43:

- Found in 129 of 313 ( 41.2% ) of genes in pham
- Manual Annotations of this start: 80 of 253
- Called 80.6% of time when present
- Phage (with cluster) where this start called: 20ES\_87 (A2), AN3\_85 (A2), AbbyPaige\_87 (A2), Acolyte\_79 (A2), Agape74\_87 (A2), Alma\_87 (A9), Anselm\_86 (A2), Ayanochan\_87 (A9), Bactobuster\_77 (A2), Baehexic\_84 (A2), Beemo\_89 (A9), BengiVuitton\_87 (A2), Benvolio\_84 (A2), BiancaTri92\_83 (A2), BobSwaget\_79 (A2), BogosyJay\_88 (A9), CRB1\_86 (A2), Celestialunch\_84 (A9), Centaur\_85 (A2), Charm\_84 (A9), ChipMunk\_86 (A2), Crucio\_85 (A2), Dalmatian\_85 (A2), DeerParkTS\_81 (A2), Deloris\_87 (A2), Dignity\_87 (A2), Drake55\_86 (A2), DreamTeam1\_84 (A9), DudeLittle\_83 (A2), EZMoney23\_81 (A2), Echild\_88 (A2), EdogawaKiddo\_88 (A9), EvilGenius\_85 (A2), ExplosioNervosa\_87 (A9), Fameo\_83 (A2), FiringLine\_85 (A2), First\_0086 (A2), ForesterFrank\_80 (A2), Gail\_86 (A14), Georgie2\_87 (A2), Gratitude\_83 (A2), Hanray\_87 (A9), Heffalump\_82 (A2), HippoHollow\_82 (A2), Horex\_88 (A9), IronMan\_82 (A2), Iwokeuplikedis\_89 (A2), Jaan\_83 (A2), Jeeves\_86 (A14), Jerm\_87 (A2), Jiawan\_87 (A9), JoshKayV\_87 (A2), Kalpine\_87 (A2), KingCyrus\_84 (A2), Klodlith\_85 (A9), LadyBird\_89 (A2), Landor\_83 (A2), Larenn\_83 (A2), Leviathan\_87 (A2), LilTurb\_86 (A2), Lilleskat\_86 (A9), LionsBait\_84 (A2), Lokk\_80 (A2), LoneWolf\_89 (A9), Luchador\_84 (A14), Malec\_84 (A2), Maminiaina\_88 (A9), MegTheThird\_85 (A9), Miko\_80 (A2), MissWhite\_78 (A2), NicoleTera\_83 (A2), Onglai\_87 (A9), Phaded\_79 (A2), Phaeder\_89 (A9), Phonnegut\_89 (A9), Pioneer\_89 (A9), Power\_85 (A2), Priya\_87 (A9), Qobbit\_87 (A9), QueenB2\_82 (A2), QueenBeesly\_85 (A2), Rachaly\_82 (A2), RedRock\_85 (A2), Retro23\_85 (A2), RyeScarlet\_90 (A9), Sachima\_85 (A9), Scherzo\_87 (A9), SemperFi\_85 (A2), SheaKeira\_84 (A9), Smeagan\_88 (A2), SnapTap\_85 (A2), SororFago\_84 (A14), Sunhee\_86 (A14), SweetiePie\_85 (A2), TarsusIV\_84 (A2), Terrific\_86 (A2), Tristan\_81 (A2), Turbido\_86 (A2), Ugenie5\_76 (A9), Updawg\_86 (A2), VA6\_85 (A2), Vanisoa\_84 (A9), WeiHuaDA\_87 (A2), XianYue\_84 (A2),

#### Start 44:

- Found in 119 of 313 ( 38.0% ) of genes in pham
- Manual Annotations of this start: 36 of 253
- Called 43.7% of time when present
- Phage (with cluster) where this start called: 40AC\_81 (A17), Aneem\_89 (A11), ArcherNM\_80 (A2), Arissanae\_84 (A9), Artemis2UCLA\_86 (A6), BabyBack\_80 (A2), Bachome\_86 (A11), Bellris\_86 (A9), Bowtie\_84 (A11), C3\_77 (A2), Candra\_83 (A6), Caraxes\_86 (A2), CogOmlette\_86 (A9), Colin\_84 (A2), DBQu4n\_85 (A2), DaVinci\_83 (A6), Darrell\_87 (A9), DelvinSonDorr\_80 (A6), Ebony\_87 (A11), Elephantoon\_89 (A9), Et2Brutus\_88 (A11), Garak\_88 (A6), GaugeLDP\_79 (A2), Insomnia\_88 (A11), Isiphiwo\_81 (A6), Joselito\_86 (A11), Kerberos\_85 (A2), Kimba\_85 (A11), Koduck\_85 (A2), Lucivia\_89 (A11), McFly\_85 (A6), Minispark\_86 (A9), Munch\_87 (A11), Petersenfast\_82 (A11), Pmask\_84 (A6), Pomar16\_85 (A2), Priamo\_86 (A6), Prudy\_80 (A2), Rahalelujah\_88 (A9), Salz\_84 (A11), Saskia\_85 (A11), Serenity\_88 (A2), SuperCallie99\_81 (A6), Superchunk\_85 (A2), Timothy\_88 (A11), Tomathan\_85 (A2), ToneTone\_84 (A6), Tucker\_87 (A6), Wolpertinger\_88 (A11), WorldCup\_87 (A9), Yokurt\_86 (A6), Zaka\_87 (A6),

#### Start 46:

- Found in 5 of 313 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 2 of 253
- Called 40.0% of time when present
- Phage (with cluster) where this start called: DroogsArmy\_78 (A7), HINdeR\_78 (A7),

## Summary by clusters:

There are 18 clusters represented in this pham: DO, A17, A16, A11, A10, A13, A14, A12, A19, A22, A3, A2, A4, A7, A6, A9, C2, B8,

Info for manual annotations of cluster A10:

- Start number 31 was manually annotated 1 time for cluster A10.
- Start number 33 was manually annotated 1 time for cluster A10.

Info for manual annotations of cluster A11:

- Start number 39 was manually annotated 12 times for cluster A11.
- Start number 44 was manually annotated 11 times for cluster A11.

Info for manual annotations of cluster A12:

- Start number 39 was manually annotated 4 times 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 A16:

- Start number 40 was manually annotated 2 times for cluster A16.

Info for manual annotations of cluster A19:

- Start number 34 was manually annotated 1 time for cluster A19.

Info for manual annotations of cluster A2:

- Start number 39 was manually annotated 17 times for cluster A2.
- Start number 40 was manually annotated 9 times for cluster A2.
- Start number 43 was manually annotated 59 times for cluster A2.
- Start number 44 was manually annotated 10 times for cluster A2.

Info for manual annotations of cluster A22:

- Start number 39 was manually annotated 1 time for cluster A22.

Info for manual annotations of cluster A3:

- Start number 38 was manually annotated 5 times for cluster A3.

Info for manual annotations of cluster A4:

- Start number 38 was manually annotated 27 times for cluster A4.

Info for manual annotations of cluster A6:

- Start number 39 was manually annotated 33 times for cluster A6.
- Start number 44 was manually annotated 11 times for cluster A6.

Info for manual annotations of cluster A7:

- Start number 37 was manually annotated 2 times for cluster A7.
- Start number 46 was manually annotated 2 times for cluster A7.

Info for manual annotations of cluster A9:

- Start number 39 was manually annotated 12 times for cluster A9.

- Start number 42 was manually annotated 2 times for cluster A9.
- Start number 43 was manually annotated 17 times for cluster A9.
- Start number 44 was manually annotated 4 times for cluster A9.

Info for manual annotations of cluster B8:

- Start number 41 was manually annotated 1 time for cluster B8.

Info for manual annotations of cluster C2:

- Start number 41 was manually annotated 1 time for cluster C2.

Info for manual annotations of cluster DO:

- Start number 38 was manually annotated 4 times for cluster DO.

### **Gene Information:**

Gene: 20ES\_87 Start: 48610, Stop: 48476, Start Num: 43

Candidate Starts for 20ES\_87:

(32, 48646), (Start: 43 @48610 has 80 MA's),

Gene: 40AC\_81 Start: 48267, Stop: 48139, Start Num: 44

Candidate Starts for 40AC\_81:

(Start: 39 @48279 has 79 MA's), (Start: 44 @48267 has 36 MA's),

Gene: AN3\_85 Start: 46868, Stop: 46734, Start Num: 43

Candidate Starts for AN3\_85:

(32, 46904), (Start: 43 @46868 has 80 MA's),

Gene: AN9\_84 Start: 47045, Stop: 46908, Start Num: 40

Candidate Starts for AN9\_84:

(12, 47204), (Start: 40 @47045 has 11 MA's), (Start: 44 @47036 has 36 MA's), (52, 46958),

Gene: ANI8\_84 Start: 47045, Stop: 46908, Start Num: 40

Candidate Starts for ANI8\_84:

(12, 47204), (Start: 40 @47045 has 11 MA's), (Start: 44 @47036 has 36 MA's), (52, 46958),

Gene: AbbyPaige\_87 Start: 48867, Stop: 48733, Start Num: 43

Candidate Starts for AbbyPaige\_87:

(32, 48903), (Start: 43 @48867 has 80 MA's),

Gene: Acolyte\_79 Start: 47568, Stop: 47434, Start Num: 43

Candidate Starts for Acolyte\_79:

(Start: 39 @47577 has 79 MA's), (Start: 43 @47568 has 80 MA's), (52, 47484),

Gene: Adzzy\_86 Start: 47386, Stop: 47249, Start Num: 39

Candidate Starts for Adzzy\_86:

(16, 47482), (Start: 39 @47386 has 79 MA's), (52, 47299),

Gene: Agape74\_87 Start: 48843, Stop: 48709, Start Num: 43

Candidate Starts for Agape74\_87:

(32, 48879), (Start: 43 @48843 has 80 MA's),

Gene: Aliter\_82 Start: 46009, Stop: 45866, Start Num: 39  
Candidate Starts for Aliter\_82:  
(28, 46048), (Start: 39 @46009 has 79 MA's), (Start: 43 @46000 has 80 MA's),

Gene: Alma\_87 Start: 48839, Stop: 48705, Start Num: 43  
Candidate Starts for Alma\_87:  
(28, 48887), (Start: 39 @48848 has 79 MA's), (Start: 43 @48839 has 80 MA's),

Gene: Aneem\_89 Start: 48093, Stop: 47965, Start Num: 44  
Candidate Starts for Aneem\_89:  
(Start: 39 @48105 has 79 MA's), (Start: 44 @48093 has 36 MA's), (52, 48015),

Gene: AnnaL29\_87 Start: 49009, Stop: 48866, Start Num: 39  
Candidate Starts for AnnaL29\_87:  
(Start: 39 @49009 has 79 MA's), (Start: 43 @49000 has 80 MA's), (49, 48973), (52, 48916),

Gene: Anselm\_86 Start: 48751, Stop: 48617, Start Num: 43  
Candidate Starts for Anselm\_86:  
(28, 48799), (Start: 39 @48760 has 79 MA's), (Start: 43 @48751 has 80 MA's),

Gene: ArcherNM\_80 Start: 48138, Stop: 48004, Start Num: 44  
Candidate Starts for ArcherNM\_80:  
(15, 48261), (28, 48189), (Start: 39 @48150 has 79 MA's), (Start: 44 @48138 has 36 MA's), (52, 48057),

Gene: Arissanae\_84 Start: 48711, Stop: 48583, Start Num: 44  
Candidate Starts for Arissanae\_84:  
(28, 48759), (Start: 44 @48711 has 36 MA's),

Gene: Artemis2UCLA\_86 Start: 46158, Stop: 46027, Start Num: 44  
Candidate Starts for Artemis2UCLA\_86:  
(29, 46209), (Start: 39 @46170 has 79 MA's), (Start: 44 @46158 has 36 MA's),

Gene: Arturo\_79 Start: 48170, Stop: 48024, Start Num: 38  
Candidate Starts for Arturo\_79:  
(Start: 31 @48194 has 1 MA's), (Start: 38 @48170 has 36 MA's),

Gene: AvatarAhPeg\_82 Start: 48295, Stop: 48149, Start Num: 38  
Candidate Starts for AvatarAhPeg\_82:  
(Start: 31 @48319 has 1 MA's), (Start: 38 @48295 has 36 MA's), (52, 48202),

Gene: Avle17\_82 Start: 48036, Stop: 47890, Start Num: 38  
Candidate Starts for Avle17\_82:  
(Start: 31 @48060 has 1 MA's), (Start: 38 @48036 has 36 MA's),

Gene: Ayanochan\_87 Start: 48623, Stop: 48489, Start Num: 43  
Candidate Starts for Ayanochan\_87:  
(28, 48671), (Start: 39 @48632 has 79 MA's), (Start: 43 @48623 has 80 MA's),

Gene: BABullseye\_78 Start: 44490, Stop: 44347, Start Num: 39  
Candidate Starts for BABullseye\_78:  
(29, 44529), (Start: 39 @44490 has 79 MA's), (Start: 44 @44478 has 36 MA's),

Gene: BabyBack\_80 Start: 48059, Stop: 47931, Start Num: 44  
Candidate Starts for BabyBack\_80:  
(Start: 39 @48071 has 79 MA's), (Start: 44 @48059 has 36 MA's),

Gene: Bachome\_86 Start: 46976, Stop: 46848, Start Num: 44  
Candidate Starts for Bachome\_86:  
(Start: 39 @46988 has 79 MA's), (Start: 44 @46976 has 36 MA's), (52, 46898),

Gene: Bactobuster\_77 Start: 47335, Stop: 47198, Start Num: 43  
Candidate Starts for Bactobuster\_77:  
(26, 47392), (Start: 43 @47335 has 80 MA's), (52, 47251),

Gene: Badger\_77 Start: 47660, Stop: 47514, Start Num: 38  
Candidate Starts for Badger\_77:  
(1, 48179), (2, 48077), (3, 47996), (Start: 31 @47684 has 1 MA's), (Start: 38 @47660 has 36 MA's),  
(52, 47567),

Gene: Baehexic\_84 Start: 48234, Stop: 48100, Start Num: 43  
Candidate Starts for Baehexic\_84:  
(Start: 39 @48243 has 79 MA's), (Start: 43 @48234 has 80 MA's), (52, 48150),

Gene: Beemo\_89 Start: 48833, Stop: 48699, Start Num: 43  
Candidate Starts for Beemo\_89:  
(28, 48881), (Start: 39 @48842 has 79 MA's), (Start: 43 @48833 has 80 MA's),

Gene: Bellris\_86 Start: 48349, Stop: 48221, Start Num: 44  
Candidate Starts for Bellris\_86:  
(Start: 39 @48358 has 79 MA's), (Start: 44 @48349 has 36 MA's),

Gene: BengiVuitton\_87 Start: 48715, Stop: 48581, Start Num: 43  
Candidate Starts for BengiVuitton\_87:  
(32, 48751), (Start: 43 @48715 has 80 MA's),

Gene: BennyP\_86 Start: 46335, Stop: 46192, Start Num: 39  
Candidate Starts for BennyP\_86:  
(29, 46374), (Start: 39 @46335 has 79 MA's), (Start: 44 @46323 has 36 MA's),

Gene: Benvolio\_84 Start: 48484, Stop: 48347, Start Num: 43  
Candidate Starts for Benvolio\_84:  
(13, 48610), (Start: 43 @48484 has 80 MA's),

Gene: BiancaTri92\_83 Start: 48320, Stop: 48186, Start Num: 43  
Candidate Starts for BiancaTri92\_83:  
(Start: 43 @48320 has 80 MA's),

Gene: BlessJoy\_87 Start: 46691, Stop: 46548, Start Num: 39  
Candidate Starts for BlessJoy\_87:  
(29, 46730), (Start: 39 @46691 has 79 MA's), (Start: 44 @46679 has 36 MA's),

Gene: Blinn1\_89 Start: 47148, Stop: 47005, Start Num: 39  
Candidate Starts for Blinn1\_89:  
(Start: 39 @47148 has 79 MA's), (Start: 44 @47136 has 36 MA's),

Gene: Blue7\_88 Start: 46389, Stop: 46246, Start Num: 39  
Candidate Starts for Blue7\_88:  
(29, 46428), (Start: 39 @46389 has 79 MA's), (Start: 44 @46377 has 36 MA's),

Gene: BlueBird\_87 Start: 47517, Stop: 47374, Start Num: 38  
Candidate Starts for BlueBird\_87:  
(7, 47769), (8, 47742), (10, 47700), (21, 47595), (22, 47586), (25, 47568), (Start: 31 @47544 has 1 MA's), (Start: 38 @47517 has 36 MA's),

Gene: BobSwaget\_79 Start: 46253, Stop: 46116, Start Num: 43  
Candidate Starts for BobSwaget\_79:  
(4, 46547), (9, 46469), (28, 46301), (Start: 39 @46262 has 79 MA's), (Start: 43 @46253 has 80 MA's),

Gene: BogosyJay\_88 Start: 48878, Stop: 48741, Start Num: 43  
Candidate Starts for BogosyJay\_88:  
(Start: 39 @48887 has 79 MA's), (Start: 43 @48878 has 80 MA's),

Gene: Bowtie\_84 Start: 46700, Stop: 46572, Start Num: 44  
Candidate Starts for Bowtie\_84:  
(Start: 39 @46712 has 79 MA's), (Start: 44 @46700 has 36 MA's), (52, 46622),

Gene: Bradman\_88 Start: 47715, Stop: 47578, Start Num: 40  
Candidate Starts for Bradman\_88:  
(Start: 40 @47715 has 11 MA's), (Start: 44 @47706 has 36 MA's), (50, 47676), (52, 47628),

Gene: Bugatti\_86 Start: 47517, Stop: 47374, Start Num: 38  
Candidate Starts for Bugatti\_86:  
(7, 47769), (8, 47742), (10, 47700), (21, 47595), (22, 47586), (25, 47568), (Start: 31 @47544 has 1 MA's), (Start: 38 @47517 has 36 MA's),

Gene: C3\_77 Start: 47036, Stop: 46908, Start Num: 44  
Candidate Starts for C3\_77:  
(12, 47204), (Start: 40 @47045 has 11 MA's), (Start: 44 @47036 has 36 MA's), (52, 46958),

Gene: CRB1\_86 Start: 48863, Stop: 48729, Start Num: 43  
Candidate Starts for CRB1\_86:  
(32, 48899), (Start: 43 @48863 has 80 MA's),

Gene: Candra\_83 Start: 46183, Stop: 46052, Start Num: 44  
Candidate Starts for Candra\_83:  
(29, 46234), (Start: 39 @46195 has 79 MA's), (Start: 44 @46183 has 36 MA's),

Gene: Caraxes\_86 Start: 47335, Stop: 47207, Start Num: 44  
Candidate Starts for Caraxes\_86:  
(Start: 40 @47344 has 11 MA's), (Start: 44 @47335 has 36 MA's), (50, 47305), (52, 47257),

Gene: Catalina\_91 Start: 48956, Stop: 48813, Start Num: 39  
Candidate Starts for Catalina\_91:  
(28, 48995), (Start: 39 @48956 has 79 MA's), (Start: 43 @48947 has 80 MA's),

Gene: Celestiallunch\_84 Start: 48084, Stop: 47950, Start Num: 43  
Candidate Starts for Celestiallunch\_84:  
(28, 48132), (Start: 39 @48093 has 79 MA's), (Start: 43 @48084 has 80 MA's),

Gene: Centaur\_85 Start: 48112, Stop: 47978, Start Num: 43  
Candidate Starts for Centaur\_85:  
(Start: 39 @48121 has 79 MA's), (Start: 43 @48112 has 80 MA's), (52, 48028),

Gene: Chargerpower\_85 Start: 46897, Stop: 46760, Start Num: 39  
Candidate Starts for Chargerpower\_85:  
(28, 46936), (Start: 39 @46897 has 79 MA's), (45, 46888), (51, 46837),

Gene: Charm\_84 Start: 48231, Stop: 48091, Start Num: 43  
Candidate Starts for Charm\_84:  
(23, 48306), (28, 48279), (Start: 39 @48240 has 79 MA's), (Start: 43 @48231 has 80 MA's),

Gene: Chartreuse\_84 Start: 45496, Stop: 45353, Start Num: 39  
Candidate Starts for Chartreuse\_84:  
(29, 45535), (Start: 39 @45496 has 79 MA's), (Start: 44 @45484 has 36 MA's),

Gene: Che12\_87 Start: 47465, Stop: 47328, Start Num: 39  
Candidate Starts for Che12\_87:  
(Start: 39 @47465 has 79 MA's), (52, 47378),

Gene: CherryTomatoes\_192 Start: 134867, Stop: 135010, Start Num: 38  
Candidate Starts for CherryTomatoes\_192:  
(Start: 38 @134867 has 36 MA's),

Gene: ChipMunk\_86 Start: 49770, Stop: 49636, Start Num: 43  
Candidate Starts for ChipMunk\_86:  
(13, 49896), (32, 49806), (Start: 43 @49770 has 80 MA's),

Gene: Cindaradix\_77 Start: 48255, Stop: 48109, Start Num: 38  
Candidate Starts for Cindaradix\_77:  
(Start: 31 @48279 has 1 MA's), (Start: 38 @48255 has 36 MA's), (52, 48162),

Gene: Clammy\_86 Start: 47517, Stop: 47374, Start Num: 38  
Candidate Starts for Clammy\_86:  
(7, 47769), (8, 47742), (10, 47700), (21, 47595), (22, 47586), (25, 47568), (Start: 31 @47544 has 1 MA's), (Start: 38 @47517 has 36 MA's),

Gene: CloudWang3\_87 Start: 46699, Stop: 46556, Start Num: 39  
Candidate Starts for CloudWang3\_87:  
(29, 46738), (Start: 39 @46699 has 79 MA's), (Start: 44 @46687 has 36 MA's),

Gene: Cocoaberry\_82 Start: 48043, Stop: 47897, Start Num: 38  
Candidate Starts for Cocoaberry\_82:  
(Start: 31 @48067 has 1 MA's), (Start: 38 @48043 has 36 MA's),

Gene: CogOmlette\_86 Start: 48346, Stop: 48218, Start Num: 44  
Candidate Starts for CogOmlette\_86:  
(Start: 39 @48355 has 79 MA's), (Start: 44 @48346 has 36 MA's),

Gene: Colin\_84 Start: 49181, Stop: 49047, Start Num: 44  
Candidate Starts for Colin\_84:  
(20, 49277), (Start: 39 @49193 has 79 MA's), (Start: 44 @49181 has 36 MA's),

Gene: Commander\_80 Start: 48043, Stop: 47897, Start Num: 38  
Candidate Starts for Commander\_80:  
(Start: 31 @48070 has 1 MA's), (Start: 38 @48043 has 36 MA's), (52, 47950),

Gene: Conquerage\_87 Start: 48617, Stop: 48474, Start Num: 39  
Candidate Starts for Conquerage\_87:  
(28, 48656), (Start: 39 @48617 has 79 MA's), (Start: 43 @48608 has 80 MA's),

Gene: Cookiedough\_85 Start: 46803, Stop: 46660, Start Num: 39  
Candidate Starts for Cookiedough\_85:  
(29, 46842), (Start: 39 @46803 has 79 MA's), (Start: 44 @46791 has 36 MA's),

Gene: Crucio\_85 Start: 48717, Stop: 48580, Start Num: 43  
Candidate Starts for Crucio\_85:  
(Start: 43 @48717 has 80 MA's),

Gene: DBQu4n\_85 Start: 48081, Stop: 47953, Start Num: 44  
Candidate Starts for DBQu4n\_85:  
(12, 48255), (Start: 40 @48090 has 11 MA's), (Start: 44 @48081 has 36 MA's), (52, 48003),

Gene: DaVinci\_83 Start: 45538, Stop: 45407, Start Num: 44  
Candidate Starts for DaVinci\_83:  
(29, 45589), (Start: 39 @45550 has 79 MA's), (Start: 44 @45538 has 36 MA's),

Gene: Dalmatian\_85 Start: 48536, Stop: 48402, Start Num: 43  
Candidate Starts for Dalmatian\_85:  
(28, 48584), (Start: 39 @48545 has 79 MA's), (Start: 43 @48536 has 80 MA's),

Gene: Darrell\_87 Start: 48031, Stop: 47903, Start Num: 44  
Candidate Starts for Darrell\_87:  
(Start: 44 @48031 has 36 MA's),

Gene: DarthPhader\_85 Start: 49743, Stop: 49600, Start Num: 39  
Candidate Starts for DarthPhader\_85:  
(Start: 39 @49743 has 79 MA's), (Start: 44 @49734 has 36 MA's),

Gene: Datway\_79 Start: 47853, Stop: 47707, Start Num: 38  
Candidate Starts for Datway\_79:  
(Start: 31 @47877 has 1 MA's), (Start: 38 @47853 has 36 MA's), (52, 47760),

Gene: Deano\_79 Start: 48050, Stop: 47904, Start Num: 38  
Candidate Starts for Deano\_79:  
(Start: 31 @48074 has 1 MA's), (Start: 38 @48050 has 36 MA's), (52, 47957),

Gene: DeerParkTS\_81 Start: 47209, Stop: 47075, Start Num: 43  
Candidate Starts for DeerParkTS\_81:  
(Start: 39 @47218 has 79 MA's), (Start: 43 @47209 has 80 MA's), (52, 47125), (53, 47080),

Gene: Deloris\_87 Start: 48408, Stop: 48274, Start Num: 43  
Candidate Starts for Deloris\_87:  
(32, 48444), (Start: 43 @48408 has 80 MA's),

Gene: DelvinSonDorr\_80 Start: 45747, Stop: 45616, Start Num: 44  
Candidate Starts for DelvinSonDorr\_80:  
(29, 45798), (Start: 39 @45759 has 79 MA's), (Start: 44 @45747 has 36 MA's),

Gene: Dignity\_87 Start: 48950, Stop: 48816, Start Num: 43  
Candidate Starts for Dignity\_87:  
(32, 48986), (Start: 43 @48950 has 80 MA's),

Gene: Dorothea\_85 Start: 46796, Stop: 46653, Start Num: 39  
Candidate Starts for Dorothea\_85:  
(29, 46835), (Start: 39 @46796 has 79 MA's), (Start: 44 @46784 has 36 MA's),

Gene: Drake55\_86 Start: 48363, Stop: 48229, Start Num: 43  
Candidate Starts for Drake55\_86:  
(Start: 39 @48372 has 79 MA's), (Start: 43 @48363 has 80 MA's), (52, 48279),

Gene: DreamTeam1\_84 Start: 48079, Stop: 47939, Start Num: 43  
Candidate Starts for DreamTeam1\_84:  
(23, 48154), (28, 48127), (Start: 39 @48088 has 79 MA's), (Start: 43 @48079 has 80 MA's),

Gene: DroogsArmy\_78 Start: 50033, Stop: 49902, Start Num: 46  
Candidate Starts for DroogsArmy\_78:  
(12, 50210), (18, 50141), (Start: 37 @50054 has 2 MA's), (Start: 46 @50033 has 2 MA's),

Gene: DudeLittle\_83 Start: 48254, Stop: 48120, Start Num: 43  
Candidate Starts for DudeLittle\_83:  
(28, 48302), (Start: 39 @48263 has 79 MA's), (Start: 43 @48254 has 80 MA's),

Gene: Duplo\_86 Start: 48147, Stop: 48010, Start Num: 40  
Candidate Starts for Duplo\_86:  
(12, 48312), (Start: 40 @48147 has 11 MA's), (Start: 44 @48138 has 36 MA's), (52, 48060),

Gene: EZMoney23\_81 Start: 47816, Stop: 47679, Start Num: 43  
Candidate Starts for EZMoney23\_81:  
(Start: 39 @47825 has 79 MA's), (Start: 43 @47816 has 80 MA's),

Gene: Eagle\_81 Start: 48104, Stop: 47958, Start Num: 38  
Candidate Starts for Eagle\_81:  
(Start: 31 @48128 has 1 MA's), (Start: 38 @48104 has 36 MA's),

Gene: EagleEye\_86 Start: 47944, Stop: 47807, Start Num: 40  
Candidate Starts for EagleEye\_86:  
(Start: 40 @47944 has 11 MA's), (Start: 44 @47935 has 36 MA's),

Gene: Eaglepride\_84 Start: 47732, Stop: 47583, Start Num: 31  
Candidate Starts for Eaglepride\_84:  
(25, 47756), (Start: 31 @47732 has 1 MA's), (Start: 33 @47726 has 1 MA's), (52, 47636), (53, 47591),

Gene: Eapen\_82 Start: 48037, Stop: 47891, Start Num: 38  
Candidate Starts for Eapen\_82:  
(Start: 31 @48061 has 1 MA's), (Start: 38 @48037 has 36 MA's),

Gene: Ebony\_87 Start: 47664, Stop: 47536, Start Num: 44

Candidate Starts for Ebony\_87:  
(Start: 39 @47676 has 79 MA's), (Start: 44 @47664 has 36 MA's), (52, 47586),

Gene: Echild\_88 Start: 48508, Stop: 48371, Start Num: 43  
Candidate Starts for Echild\_88:  
(13, 48634), (Start: 43 @48508 has 80 MA's),

Gene: EdogawaKiddo\_88 Start: 48910, Stop: 48776, Start Num: 43  
Candidate Starts for EdogawaKiddo\_88:  
(28, 48958), (Start: 39 @48919 has 79 MA's), (Start: 43 @48910 has 80 MA's),

Gene: Eidsmoe\_87 Start: 48610, Stop: 48467, Start Num: 39  
Candidate Starts for Eidsmoe\_87:  
(28, 48649), (Start: 39 @48610 has 79 MA's), (Start: 43 @48601 has 80 MA's),

Gene: Elephantoon\_89 Start: 48757, Stop: 48626, Start Num: 44  
Candidate Starts for Elephantoon\_89:  
(32, 48790), (Start: 44 @48757 has 36 MA's),

Gene: EmyBug\_86 Start: 48612, Stop: 48469, Start Num: 39  
Candidate Starts for EmyBug\_86:  
(28, 48651), (Start: 39 @48612 has 79 MA's), (Start: 43 @48603 has 80 MA's),

Gene: Equemioh13\_85 Start: 48350, Stop: 48207, Start Num: 39  
Candidate Starts for Equemioh13\_85:  
(Start: 39 @48350 has 79 MA's), (Start: 43 @48341 has 80 MA's), (52, 48257),

Gene: EricB\_83 Start: 45693, Stop: 45550, Start Num: 39  
Candidate Starts for EricB\_83:  
(29, 45732), (Start: 39 @45693 has 79 MA's), (Start: 44 @45681 has 36 MA's),

Gene: Eros\_82 Start: 48047, Stop: 47901, Start Num: 38  
Candidate Starts for Eros\_82:  
(Start: 31 @48074 has 1 MA's), (Start: 38 @48047 has 36 MA's), (52, 47954),

Gene: Et2Brutus\_88 Start: 47941, Stop: 47813, Start Num: 44  
Candidate Starts for Et2Brutus\_88:  
(Start: 39 @47953 has 79 MA's), (Start: 44 @47941 has 36 MA's), (52, 47863),

Gene: EvilGenius\_85 Start: 49771, Stop: 49637, Start Num: 43  
Candidate Starts for EvilGenius\_85:  
(13, 49897), (32, 49807), (Start: 43 @49771 has 80 MA's),

Gene: ExplosioNervosa\_87 Start: 48669, Stop: 48535, Start Num: 43  
Candidate Starts for ExplosioNervosa\_87:  
(28, 48717), (Start: 39 @48678 has 79 MA's), (Start: 43 @48669 has 80 MA's),

Gene: Fameo\_83 Start: 48269, Stop: 48132, Start Num: 43  
Candidate Starts for Fameo\_83:  
(Start: 43 @48269 has 80 MA's),

Gene: Fayely\_87 Start: 48586, Stop: 48443, Start Num: 39  
Candidate Starts for Fayely\_87:

(28, 48625), (Start: 39 @48586 has 79 MA's), (Start: 43 @48577 has 80 MA's),

Gene: Fibonacci\_88 Start: 47959, Stop: 47819, Start Num: 39

Candidate Starts for Fibonacci\_88:

(Start: 39 @47959 has 79 MA's), (Start: 44 @47947 has 36 MA's), (52, 47869),

Gene: FiringLine\_85 Start: 48657, Stop: 48520, Start Num: 43

Candidate Starts for FiringLine\_85:

(Start: 43 @48657 has 80 MA's),

Gene: First\_0086 Start: 48510, Stop: 48376, Start Num: 43

Candidate Starts for First\_0086:

(32, 48546), (Start: 43 @48510 has 80 MA's),

Gene: Flare16\_85 Start: 48165, Stop: 48022, Start Num: 39

Candidate Starts for Flare16\_85:

(Start: 39 @48165 has 79 MA's), (Start: 43 @48156 has 80 MA's), (52, 48072),

Gene: Flaverint\_89 Start: 48103, Stop: 47963, Start Num: 39

Candidate Starts for Flaverint\_89:

(Start: 39 @48103 has 79 MA's), (Start: 44 @48091 has 36 MA's), (52, 48013),

Gene: FlyCatcher\_83 Start: 50768, Stop: 50619, Start Num: 37

Candidate Starts for FlyCatcher\_83:

(Start: 37 @50768 has 2 MA's), (48, 50726),

Gene: ForesterFrank\_80 Start: 48375, Stop: 48241, Start Num: 43

Candidate Starts for ForesterFrank\_80:

(15, 48495), (23, 48450), (Start: 39 @48384 has 79 MA's), (Start: 43 @48375 has 80 MA's),

Gene: Fred313\_82 Start: 47147, Stop: 47004, Start Num: 38

Candidate Starts for Fred313\_82:

(7, 47399), (10, 47330), (21, 47225), (25, 47198), (Start: 31 @47174 has 1 MA's), (Start: 38 @47147 has 36 MA's),

Gene: Gadost\_82 Start: 48043, Stop: 47897, Start Num: 38

Candidate Starts for Gadost\_82:

(Start: 31 @48067 has 1 MA's), (Start: 38 @48043 has 36 MA's),

Gene: Gail\_86 Start: 47979, Stop: 47836, Start Num: 43

Candidate Starts for Gail\_86:

(Start: 43 @47979 has 80 MA's), (52, 47895),

Gene: Garak\_88 Start: 46620, Stop: 46489, Start Num: 44

Candidate Starts for Garak\_88:

(29, 46671), (Start: 39 @46632 has 79 MA's), (Start: 44 @46620 has 36 MA's),

Gene: GaugeLDP\_79 Start: 47615, Stop: 47487, Start Num: 44

Candidate Starts for GaugeLDP\_79:

(Start: 39 @47627 has 79 MA's), (Start: 44 @47615 has 36 MA's),

Gene: Georgie2\_87 Start: 48861, Stop: 48724, Start Num: 43

Candidate Starts for Georgie2\_87:

(Start: 43 @48861 has 80 MA's),

Gene: Gilberta\_86 Start: 46979, Stop: 46839, Start Num: 39

Candidate Starts for Gilberta\_86:

(Start: 39 @46979 has 79 MA's), (Start: 44 @46967 has 36 MA's), (52, 46889),

Gene: Giroux\_88 Start: 47516, Stop: 47373, Start Num: 38

Candidate Starts for Giroux\_88:

(7, 47768), (8, 47741), (10, 47699), (21, 47594), (22, 47585), (25, 47567), (Start: 31 @47543 has 1 MA's), (Start: 38 @47516 has 36 MA's),

Gene: Gladiator\_83 Start: 46355, Stop: 46212, Start Num: 39

Candidate Starts for Gladiator\_83:

(29, 46394), (Start: 39 @46355 has 79 MA's), (Start: 44 @46343 has 36 MA's),

Gene: Gratitude\_83 Start: 48341, Stop: 48207, Start Num: 43

Candidate Starts for Gratitude\_83:

(Start: 39 @48350 has 79 MA's), (Start: 43 @48341 has 80 MA's), (52, 48257),

Gene: Greely\_145 Start: 89424, Stop: 89567, Start Num: 41

Candidate Starts for Greely\_145:

(Start: 41 @89424 has 2 MA's), (Start: 46 @89436 has 2 MA's),

Gene: Gruunaga\_86 Start: 46310, Stop: 46167, Start Num: 39

Candidate Starts for Gruunaga\_86:

(29, 46349), (Start: 39 @46310 has 79 MA's), (Start: 44 @46298 has 36 MA's),

Gene: HINdeR\_78 Start: 49444, Stop: 49313, Start Num: 46

Candidate Starts for HINdeR\_78:

(22, 49534), (26, 49513), (30, 49495), (35, 49474), (Start: 46 @49444 has 2 MA's),

Gene: Hammer\_87 Start: 46017, Stop: 45874, Start Num: 39

Candidate Starts for Hammer\_87:

(29, 46056), (Start: 39 @46017 has 79 MA's), (Start: 44 @46005 has 36 MA's),

Gene: Hanray\_87 Start: 48889, Stop: 48755, Start Num: 43

Candidate Starts for Hanray\_87:

(Start: 39 @48898 has 79 MA's), (Start: 43 @48889 has 80 MA's),

Gene: HarryHoudini\_85 Start: 48375, Stop: 48232, Start Num: 39

Candidate Starts for HarryHoudini\_85:

(Start: 39 @48375 has 79 MA's), (Start: 43 @48366 has 80 MA's), (52, 48282),

Gene: Heffalump\_82 Start: 48737, Stop: 48600, Start Num: 43

Candidate Starts for Heffalump\_82:

(Start: 43 @48737 has 80 MA's),

Gene: Helmet\_89 Start: 46632, Stop: 46489, Start Num: 39

Candidate Starts for Helmet\_89:

(29, 46671), (Start: 39 @46632 has 79 MA's), (Start: 44 @46620 has 36 MA's),

Gene: Hexamo\_86 Start: 46185, Stop: 46042, Start Num: 39

Candidate Starts for Hexamo\_86:

(29, 46224), (Start: 39 @46185 has 79 MA's), (Start: 44 @46173 has 36 MA's),

Gene: HippoHollow\_82 Start: 49369, Stop: 49235, Start Num: 43

Candidate Starts for HippoHollow\_82:

(32, 49405), (Start: 43 @49369 has 80 MA's),

Gene: Holecx\_88 Start: 48902, Stop: 48768, Start Num: 43

Candidate Starts for Holecx\_88:

(Start: 39 @48911 has 79 MA's), (Start: 43 @48902 has 80 MA's),

Gene: Hoot\_80 Start: 44010, Stop: 43867, Start Num: 39

Candidate Starts for Hoot\_80:

(29, 44049), (Start: 39 @44010 has 79 MA's), (Start: 44 @43998 has 36 MA's),

Gene: HortumSL17\_90 Start: 48954, Stop: 48811, Start Num: 39

Candidate Starts for HortumSL17\_90:

(28, 48993), (Start: 39 @48954 has 79 MA's), (Start: 43 @48945 has 80 MA's),

Gene: Houdini22\_81 Start: 48043, Stop: 47897, Start Num: 38

Candidate Starts for Houdini22\_81:

(Start: 31 @48067 has 1 MA's), (Start: 38 @48043 has 36 MA's),

Gene: Hutc2\_85 Start: 46843, Stop: 46703, Start Num: 39

Candidate Starts for Hutc2\_85:

(Start: 39 @46843 has 79 MA's), (Start: 44 @46831 has 36 MA's), (52, 46753),

Gene: Huxley\_71 Start: 45935, Stop: 45789, Start Num: 38

Candidate Starts for Huxley\_71:

(Start: 31 @45959 has 1 MA's), (Start: 38 @45935 has 36 MA's),

Gene: Indra\_90 Start: 46633, Stop: 46490, Start Num: 39

Candidate Starts for Indra\_90:

(29, 46672), (Start: 39 @46633 has 79 MA's), (Start: 44 @46621 has 36 MA's),

Gene: Insomnia\_88 Start: 48125, Stop: 47997, Start Num: 44

Candidate Starts for Insomnia\_88:

(Start: 39 @48137 has 79 MA's), (Start: 44 @48125 has 36 MA's), (52, 48047),

Gene: IronMan\_82 Start: 48859, Stop: 48722, Start Num: 43

Candidate Starts for IronMan\_82:

(26, 48916), (Start: 43 @48859 has 80 MA's), (52, 48775),

Gene: Isiphiwo\_81 Start: 45709, Stop: 45578, Start Num: 44

Candidate Starts for Isiphiwo\_81:

(29, 45760), (Start: 39 @45721 has 79 MA's), (Start: 44 @45709 has 36 MA's),

Gene: Iwokeuplikedis\_89 Start: 48834, Stop: 48700, Start Num: 43

Candidate Starts for Iwokeuplikedis\_89:

(Start: 43 @48834 has 80 MA's),

Gene: Jaan\_83 Start: 48967, Stop: 48830, Start Num: 43

Candidate Starts for Jaan\_83:

(26, 49024), (Start: 43 @48967 has 80 MA's), (52, 48883),

Gene: Jabith\_88 Start: 48151, Stop: 48011, Start Num: 39  
Candidate Starts for Jabith\_88:  
(Start: 39 @48151 has 79 MA's), (Start: 44 @48139 has 36 MA's), (52, 48061),

Gene: Jeeves\_86 Start: 46696, Stop: 46556, Start Num: 43  
Candidate Starts for Jeeves\_86:  
(Start: 43 @46696 has 80 MA's),

Gene: Jerm\_87 Start: 48918, Stop: 48784, Start Num: 43  
Candidate Starts for Jerm\_87:  
(32, 48954), (Start: 43 @48918 has 80 MA's),

Gene: JewelBug\_77 Start: 44488, Stop: 44333, Start Num: 39  
Candidate Starts for JewelBug\_77:  
(29, 44527), (Start: 39 @44488 has 79 MA's), (Start: 44 @44476 has 36 MA's),

Gene: Jiawan\_87 Start: 48919, Stop: 48785, Start Num: 43  
Candidate Starts for Jiawan\_87:  
(Start: 39 @48928 has 79 MA's), (Start: 43 @48919 has 80 MA's),

Gene: Jordennis\_83 Start: 46392, Stop: 46249, Start Num: 39  
Candidate Starts for Jordennis\_83:  
(29, 46431), (Start: 39 @46392 has 79 MA's), (Start: 44 @46380 has 36 MA's),

Gene: Joselito\_86 Start: 47845, Stop: 47717, Start Num: 44  
Candidate Starts for Joselito\_86:  
(Start: 39 @47857 has 79 MA's), (Start: 44 @47845 has 36 MA's), (52, 47767),

Gene: JoshKayV\_87 Start: 49086, Stop: 48952, Start Num: 43  
Candidate Starts for JoshKayV\_87:  
(32, 49122), (Start: 43 @49086 has 80 MA's),

Gene: Jsquared\_89 Start: 47958, Stop: 47821, Start Num: 40  
Candidate Starts for Jsquared\_89:  
(Start: 40 @47958 has 11 MA's), (Start: 44 @47949 has 36 MA's), (50, 47919), (52, 47871),

Gene: Kalpine\_87 Start: 49082, Stop: 48948, Start Num: 43  
Candidate Starts for Kalpine\_87:  
(Start: 39 @49091 has 79 MA's), (Start: 43 @49082 has 80 MA's), (52, 48998),

Gene: Katalie136\_78 Start: 47660, Stop: 47514, Start Num: 38  
Candidate Starts for Katalie136\_78:  
(1, 48179), (2, 48077), (3, 47996), (Start: 31 @47684 has 1 MA's), (Start: 38 @47660 has 36 MA's),  
(52, 47567),

Gene: Kazan\_86 Start: 46165, Stop: 46022, Start Num: 39  
Candidate Starts for Kazan\_86:  
(29, 46204), (Start: 39 @46165 has 79 MA's), (Start: 44 @46153 has 36 MA's),

Gene: KekoraPapaka\_79 Start: 48042, Stop: 47896, Start Num: 38  
Candidate Starts for KekoraPapaka\_79:  
(Start: 31 @48066 has 1 MA's), (Start: 38 @48042 has 36 MA's),

Gene: Kerberos\_85 Start: 48101, Stop: 47973, Start Num: 44  
Candidate Starts for Kerberos\_85:  
(12, 48275), (Start: 40 @48110 has 11 MA's), (Start: 44 @48101 has 36 MA's), (52, 48023),

Gene: Keziacharles14\_86 Start: 49418, Stop: 49284, Start Num: 42  
Candidate Starts for Keziacharles14\_86:  
(32, 49448), (Start: 42 @49418 has 2 MA's),

Gene: Kimba\_85 Start: 47148, Stop: 47020, Start Num: 44  
Candidate Starts for Kimba\_85:  
(Start: 39 @47160 has 79 MA's), (Start: 44 @47148 has 36 MA's), (52, 47070),

Gene: Kimona\_82 Start: 46840, Stop: 46682, Start Num: 34  
Candidate Starts for Kimona\_82:  
(Start: 34 @46840 has 1 MA's),

Gene: KingCyrus\_84 Start: 49784, Stop: 49650, Start Num: 43  
Candidate Starts for KingCyrus\_84:  
(13, 49910), (32, 49820), (Start: 43 @49784 has 80 MA's),

Gene: Kingmustik0402\_82 Start: 48031, Stop: 47885, Start Num: 38  
Candidate Starts for Kingmustik0402\_82:  
(Start: 31 @48055 has 1 MA's), (Start: 38 @48031 has 36 MA's),

Gene: Kipper29\_85 Start: 46168, Stop: 46025, Start Num: 39  
Candidate Starts for Kipper29\_85:  
(29, 46207), (Start: 39 @46168 has 79 MA's), (Start: 44 @46156 has 36 MA's),

Gene: Klodlith\_85 Start: 48301, Stop: 48161, Start Num: 43  
Candidate Starts for Klodlith\_85:  
(23, 48376), (28, 48349), (Start: 39 @48310 has 79 MA's), (Start: 43 @48301 has 80 MA's),

Gene: Koduck\_85 Start: 47288, Stop: 47160, Start Num: 44  
Candidate Starts for Koduck\_85:  
(11, 47483), (19, 47387), (Start: 40 @47297 has 11 MA's), (Start: 44 @47288 has 36 MA's), (50, 47258), (52, 47210),

Gene: Koko\_88 Start: 47022, Stop: 46879, Start Num: 39  
Candidate Starts for Koko\_88:  
(29, 47061), (Start: 39 @47022 has 79 MA's), (Start: 44 @47010 has 36 MA's),

Gene: L5\_78 Start: 47188, Stop: 47051, Start Num: 40  
Candidate Starts for L5\_78:  
(11, 47374), (Start: 40 @47188 has 11 MA's), (Start: 44 @47179 has 36 MA's), (50, 47149), (52, 47101),

Gene: LadyBird\_89 Start: 49008, Stop: 48874, Start Num: 43  
Candidate Starts for LadyBird\_89:  
(32, 49044), (Start: 43 @49008 has 80 MA's),

Gene: Landor\_83 Start: 48892, Stop: 48755, Start Num: 43  
Candidate Starts for Landor\_83:

(26, 48949), (Start: 43 @48892 has 80 MA's), (52, 48808),

Gene: Larenn\_83 Start: 48362, Stop: 48228, Start Num: 43

Candidate Starts for Larenn\_83:

(27, 48407), (Start: 39 @48371 has 79 MA's), (Start: 43 @48362 has 80 MA's), (52, 48278),

Gene: Leviathan\_87 Start: 48999, Stop: 48865, Start Num: 43

Candidate Starts for Leviathan\_87:

(32, 49035), (Start: 43 @48999 has 80 MA's),

Gene: LilTurb\_86 Start: 48795, Stop: 48661, Start Num: 43

Candidate Starts for LilTurb\_86:

(32, 48831), (Start: 43 @48795 has 80 MA's),

Gene: Lilbunny\_86 Start: 46264, Stop: 46121, Start Num: 39

Candidate Starts for Lilbunny\_86:

(29, 46303), (Start: 39 @46264 has 79 MA's), (Start: 44 @46252 has 36 MA's),

Gene: Lilleskat\_86 Start: 48899, Stop: 48765, Start Num: 43

Candidate Starts for Lilleskat\_86:

(28, 48947), (Start: 39 @48908 has 79 MA's), (Start: 43 @48899 has 80 MA's),

Gene: LionsBait\_84 Start: 49309, Stop: 49175, Start Num: 43

Candidate Starts for LionsBait\_84:

(32, 49345), (Start: 43 @49309 has 80 MA's),

Gene: Lokk\_80 Start: 46874, Stop: 46737, Start Num: 43

Candidate Starts for Lokk\_80:

(9, 47090), (28, 46922), (Start: 39 @46883 has 79 MA's), (Start: 43 @46874 has 80 MA's),

Gene: LoneWolf\_89 Start: 48940, Stop: 48806, Start Num: 43

Candidate Starts for LoneWolf\_89:

(28, 48988), (Start: 43 @48940 has 80 MA's),

Gene: Loser\_88 Start: 49259, Stop: 49116, Start Num: 39

Candidate Starts for Loser\_88:

(Start: 39 @49259 has 79 MA's), (Start: 43 @49250 has 80 MA's), (49, 49223), (52, 49166),

Gene: Luchador\_84 Start: 47960, Stop: 47817, Start Num: 43

Candidate Starts for Luchador\_84:

(Start: 43 @47960 has 80 MA's), (52, 47876),

Gene: Lucivia\_89 Start: 48124, Stop: 47996, Start Num: 44

Candidate Starts for Lucivia\_89:

(Start: 39 @48136 has 79 MA's), (Start: 44 @48124 has 36 MA's), (52, 48046),

Gene: Lucyedi\_85 Start: 48143, Stop: 48006, Start Num: 40

Candidate Starts for Lucyedi\_85:

(Start: 40 @48143 has 11 MA's), (Start: 44 @48134 has 36 MA's), (52, 48056),

Gene: MaCh\_88 Start: 48100, Stop: 47960, Start Num: 39

Candidate Starts for MaCh\_88:

(Start: 39 @48100 has 79 MA's), (Start: 44 @48088 has 36 MA's), (52, 48010),

Gene: Mabel\_88 Start: 48101, Stop: 47961, Start Num: 39  
Candidate Starts for Mabel\_88:  
(Start: 39 @48101 has 79 MA's), (Start: 44 @48089 has 36 MA's), (52, 48011),

Gene: MajorMajor\_82 Start: 46007, Stop: 45870, Start Num: 40  
Candidate Starts for MajorMajor\_82:  
(Start: 40 @46007 has 11 MA's), (Start: 44 @45998 has 36 MA's), (50, 45968), (52, 45920),

Gene: Malec\_84 Start: 48932, Stop: 48798, Start Num: 43  
Candidate Starts for Malec\_84:  
(Start: 39 @48941 has 79 MA's), (Start: 43 @48932 has 80 MA's), (52, 48848),

Gene: Maminiaina\_88 Start: 48860, Stop: 48723, Start Num: 43  
Candidate Starts for Maminiaina\_88:  
(Start: 39 @48869 has 79 MA's), (Start: 43 @48860 has 80 MA's),

Gene: Marchesa\_84 Start: 47349, Stop: 47203, Start Num: 38  
Candidate Starts for Marchesa\_84:  
(7, 47601), (10, 47532), (21, 47427), (25, 47400), (Start: 31 @47376 has 1 MA's), (Start: 38 @47349 has 36 MA's),

Gene: McFly\_85 Start: 46492, Stop: 46361, Start Num: 44  
Candidate Starts for McFly\_85:  
(29, 46543), (Start: 39 @46504 has 79 MA's), (Start: 44 @46492 has 36 MA's),

Gene: MeeZee\_81 Start: 48036, Stop: 47890, Start Num: 38  
Candidate Starts for MeeZee\_81:  
(Start: 31 @48060 has 1 MA's), (Start: 38 @48036 has 36 MA's),

Gene: MegTheThird\_85 Start: 48302, Stop: 48168, Start Num: 43  
Candidate Starts for MegTheThird\_85:  
(28, 48350), (Start: 39 @48311 has 79 MA's), (Start: 43 @48302 has 80 MA's),

Gene: MiculUcigas\_85 Start: 48068, Stop: 47925, Start Num: 39  
Candidate Starts for MiculUcigas\_85:  
(Start: 39 @48068 has 79 MA's), (Start: 43 @48059 has 80 MA's), (52, 47975),

Gene: Miko\_80 Start: 47639, Stop: 47502, Start Num: 43  
Candidate Starts for Miko\_80:  
(4, 47933), (9, 47855), (28, 47687), (Start: 39 @47648 has 79 MA's), (Start: 43 @47639 has 80 MA's),

Gene: Minispark\_86 Start: 48343, Stop: 48215, Start Num: 44  
Candidate Starts for Minispark\_86:  
(Start: 39 @48352 has 79 MA's), (Start: 44 @48343 has 36 MA's),

Gene: MissWhite\_78 Start: 44927, Stop: 44793, Start Num: 43  
Candidate Starts for MissWhite\_78:  
(Start: 39 @44936 has 79 MA's), (Start: 43 @44927 has 80 MA's), (52, 44843),

Gene: Mulciber\_87 Start: 47956, Stop: 47816, Start Num: 39  
Candidate Starts for Mulciber\_87:  
(Start: 39 @47956 has 79 MA's), (Start: 44 @47944 has 36 MA's), (52, 47866),

Gene: Munch\_87 Start: 48093, Stop: 47965, Start Num: 44

Candidate Starts for Munch\_87:

(Start: 39 @48105 has 79 MA's), (Start: 44 @48093 has 36 MA's), (52, 48015),

Gene: Myxus\_89 Start: 48954, Stop: 48811, Start Num: 39

Candidate Starts for Myxus\_89:

(28, 48993), (Start: 39 @48954 has 79 MA's), (Start: 43 @48945 has 80 MA's),

Gene: NaSiaTalie\_86 Start: 48355, Stop: 48212, Start Num: 39

Candidate Starts for NaSiaTalie\_86:

(Start: 39 @48355 has 79 MA's), (Start: 43 @48346 has 80 MA's), (52, 48262),

Gene: Neeharika16\_84 Start: 46254, Stop: 46111, Start Num: 39

Candidate Starts for Neeharika16\_84:

(29, 46293), (Start: 39 @46254 has 79 MA's), (Start: 44 @46242 has 36 MA's),

Gene: Nemo27\_81 Start: 48038, Stop: 47892, Start Num: 38

Candidate Starts for Nemo27\_81:

(Start: 31 @48062 has 1 MA's), (Start: 38 @48038 has 36 MA's),

Gene: Newrala\_84 Start: 46600, Stop: 46457, Start Num: 39

Candidate Starts for Newrala\_84:

(29, 46639), (Start: 39 @46600 has 79 MA's), (Start: 44 @46588 has 36 MA's),

Gene: NicoleTera\_83 Start: 48277, Stop: 48140, Start Num: 43

Candidate Starts for NicoleTera\_83:

(Start: 39 @48286 has 79 MA's), (Start: 43 @48277 has 80 MA's),

Gene: NorthStar\_79 Start: 48042, Stop: 47896, Start Num: 38

Candidate Starts for NorthStar\_79:

(Start: 31 @48066 has 1 MA's), (Start: 38 @48042 has 36 MA's),

Gene: NotAPhaseMom\_81 Start: 48043, Stop: 47897, Start Num: 38

Candidate Starts for NotAPhaseMom\_81:

(Start: 31 @48067 has 1 MA's), (Start: 38 @48043 has 36 MA's),

Gene: NothingSpecial\_80 Start: 48222, Stop: 48079, Start Num: 39

Candidate Starts for NothingSpecial\_80:

(18, 48312), (23, 48288), (Start: 39 @48222 has 79 MA's), (Start: 43 @48213 has 80 MA's),

Gene: OKCentral2016\_80 Start: 46884, Stop: 46744, Start Num: 33

Candidate Starts for OKCentral2016\_80:

(8, 47082), (14, 46974), (25, 46914), (Start: 31 @46890 has 1 MA's), (Start: 33 @46884 has 1 MA's),  
(52, 46794),

Gene: Obama12\_83 Start: 48466, Stop: 48320, Start Num: 38

Candidate Starts for Obama12\_83:

(Start: 31 @48490 has 1 MA's), (Start: 38 @48466 has 36 MA's), (52, 48373),

Gene: Odin\_84 Start: 47817, Stop: 47680, Start Num: 40

Candidate Starts for Odin\_84:

(Start: 40 @47817 has 11 MA's), (Start: 44 @47808 has 36 MA's), (50, 47778), (52, 47730),

Gene: Onglai\_87 Start: 47091, Stop: 46957, Start Num: 43  
Candidate Starts for Onglai\_87:  
(Start: 39 @47100 has 79 MA's), (Start: 43 @47091 has 80 MA's),

Gene: Orange\_88 Start: 47655, Stop: 47515, Start Num: 39  
Candidate Starts for Orange\_88:  
(Start: 39 @47655 has 79 MA's), (Start: 44 @47643 has 36 MA's), (52, 47565),

Gene: PackMan\_84 Start: 46868, Stop: 46725, Start Num: 39  
Candidate Starts for PackMan\_84:  
(28, 46907), (Start: 39 @46868 has 79 MA's), (Start: 43 @46859 has 80 MA's),

Gene: Petersenfast\_82 Start: 46524, Stop: 46396, Start Num: 44  
Candidate Starts for Petersenfast\_82:  
(Start: 39 @46536 has 79 MA's), (Start: 44 @46524 has 36 MA's), (52, 46446),

Gene: Ph8s\_86 Start: 47599, Stop: 47462, Start Num: 39  
Candidate Starts for Ph8s\_86:  
(16, 47695), (Start: 39 @47599 has 79 MA's), (52, 47512),

Gene: Phabba\_146 Start: 88539, Stop: 88682, Start Num: 41  
Candidate Starts for Phabba\_146:  
(Start: 41 @88539 has 2 MA's), (Start: 46 @88551 has 2 MA's),

Gene: Phaded\_79 Start: 48851, Stop: 48714, Start Num: 43  
Candidate Starts for Phaded\_79:  
(Start: 43 @48851 has 80 MA's), (52, 48767),

Gene: Phaeder\_89 Start: 48820, Stop: 48686, Start Num: 43  
Candidate Starts for Phaeder\_89:  
(28, 48868), (Start: 39 @48829 has 79 MA's), (Start: 43 @48820 has 80 MA's),

Gene: Phlei\_71 Start: 45865, Stop: 45713, Start Num: 36  
Candidate Starts for Phlei\_71:  
(36, 45865), (Start: 44 @45844 has 36 MA's), (47, 45832), (53, 45721),

Gene: Phonnegut\_89 Start: 48832, Stop: 48698, Start Num: 43  
Candidate Starts for Phonnegut\_89:  
(28, 48880), (Start: 39 @48841 has 79 MA's), (Start: 43 @48832 has 80 MA's),

Gene: Pioneer\_89 Start: 48832, Stop: 48698, Start Num: 43  
Candidate Starts for Pioneer\_89:  
(28, 48880), (Start: 39 @48841 has 79 MA's), (Start: 43 @48832 has 80 MA's),

Gene: Piro94\_84 Start: 48303, Stop: 48160, Start Num: 39  
Candidate Starts for Piro94\_84:  
(Start: 39 @48303 has 79 MA's), (Start: 43 @48294 has 80 MA's), (52, 48210),

Gene: Pistachio\_85 Start: 47064, Stop: 46921, Start Num: 38  
Candidate Starts for Pistachio\_85:  
(7, 47316), (8, 47289), (10, 47247), (21, 47142), (22, 47133), (25, 47115), (Start: 31 @47091 has 1 MA's), (Start: 38 @47064 has 36 MA's),

Gene: Pmask\_84 Start: 46789, Stop: 46658, Start Num: 44  
Candidate Starts for Pmask\_84:  
(29, 46840), (Start: 39 @46801 has 79 MA's), (Start: 44 @46789 has 36 MA's),

Gene: Pomar16\_85 Start: 48174, Stop: 48046, Start Num: 44  
Candidate Starts for Pomar16\_85:  
(12, 48348), (Start: 40 @48183 has 11 MA's), (Start: 44 @48174 has 36 MA's), (52, 48096),

Gene: Power\_85 Start: 48860, Stop: 48723, Start Num: 43  
Candidate Starts for Power\_85:  
(Start: 43 @48860 has 80 MA's),

Gene: Priamo\_86 Start: 46033, Stop: 45902, Start Num: 44  
Candidate Starts for Priamo\_86:  
(29, 46084), (Start: 39 @46045 has 79 MA's), (Start: 44 @46033 has 36 MA's),

Gene: Priya\_87 Start: 48604, Stop: 48470, Start Num: 43  
Candidate Starts for Priya\_87:  
(28, 48652), (Start: 39 @48613 has 79 MA's), (Start: 43 @48604 has 80 MA's),

Gene: Prudy\_80 Start: 48638, Stop: 48504, Start Num: 44  
Candidate Starts for Prudy\_80:  
(15, 48761), (28, 48689), (Start: 39 @48650 has 79 MA's), (Start: 44 @48638 has 36 MA's), (52, 48557),

Gene: Pukovnik\_80 Start: 48328, Stop: 48182, Start Num: 39  
Candidate Starts for Pukovnik\_80:  
(Start: 39 @48328 has 79 MA's), (Start: 43 @48319 has 80 MA's),

Gene: Pupper\_190 Start: 134729, Stop: 134872, Start Num: 38  
Candidate Starts for Pupper\_190:  
(Start: 38 @134729 has 36 MA's),

Gene: Puppy\_86 Start: 47134, Stop: 46991, Start Num: 38  
Candidate Starts for Puppy\_86:  
(7, 47386), (8, 47359), (10, 47317), (21, 47212), (22, 47203), (25, 47185), (Start: 31 @47161 has 1 MA's), (Start: 38 @47134 has 36 MA's),

Gene: Qobbit\_87 Start: 48566, Stop: 48432, Start Num: 43  
Candidate Starts for Qobbit\_87:  
(28, 48614), (Start: 39 @48575 has 79 MA's), (Start: 43 @48566 has 80 MA's),

Gene: QueenB2\_82 Start: 47950, Stop: 47813, Start Num: 43  
Candidate Starts for QueenB2\_82:  
(Start: 43 @47950 has 80 MA's),

Gene: QueenBeesly\_85 Start: 48657, Stop: 48520, Start Num: 43  
Candidate Starts for QueenBeesly\_85:  
(Start: 43 @48657 has 80 MA's),

Gene: Quokka\_87 Start: 47716, Stop: 47579, Start Num: 40  
Candidate Starts for Quokka\_87:

(Start: 40 @47716 has 11 MA's), (Start: 44 @47707 has 36 MA's), (50, 47677), (52, 47629),

Gene: Rachaly\_82 Start: 47782, Stop: 47645, Start Num: 43

Candidate Starts for Rachaly\_82:

(4, 48076), (9, 47998), (28, 47830), (Start: 39 @47791 has 79 MA's), (Start: 43 @47782 has 80 MA's),

Gene: Rahalelujah\_88 Start: 48358, Stop: 48230, Start Num: 44

Candidate Starts for Rahalelujah\_88:

(Start: 39 @48367 has 79 MA's), (Start: 44 @48358 has 36 MA's),

Gene: RedRock\_85 Start: 48903, Stop: 48769, Start Num: 43

Candidate Starts for RedRock\_85:

(Start: 39 @48912 has 79 MA's), (Start: 43 @48903 has 80 MA's), (49, 48876), (52, 48819),

Gene: Refuge\_87 Start: 50587, Stop: 50444, Start Num: 39

Candidate Starts for Refuge\_87:

(Start: 39 @50587 has 79 MA's), (Start: 44 @50578 has 36 MA's),

Gene: Relief\_81 Start: 48039, Stop: 47893, Start Num: 38

Candidate Starts for Relief\_81:

(Start: 31 @48063 has 1 MA's), (Start: 38 @48039 has 36 MA's),

Gene: Retro23\_85 Start: 48378, Stop: 48244, Start Num: 43

Candidate Starts for Retro23\_85:

(28, 48426), (Start: 39 @48387 has 79 MA's), (Start: 43 @48378 has 80 MA's),

Gene: Rifter\_87 Start: 45812, Stop: 45669, Start Num: 39

Candidate Starts for Rifter\_87:

(29, 45851), (Start: 39 @45812 has 79 MA's), (Start: 44 @45800 has 36 MA's),

Gene: RockieBear\_79 Start: 48044, Stop: 47898, Start Num: 38

Candidate Starts for RockieBear\_79:

(Start: 31 @48071 has 1 MA's), (Start: 38 @48044 has 36 MA's), (52, 47951),

Gene: Roksolana\_87 Start: 46528, Stop: 46385, Start Num: 39

Candidate Starts for Roksolana\_87:

(29, 46567), (Start: 39 @46528 has 79 MA's), (Start: 44 @46516 has 36 MA's),

Gene: Rosa24\_78 Start: 48070, Stop: 47924, Start Num: 38

Candidate Starts for Rosa24\_78:

(Start: 31 @48094 has 1 MA's), (Start: 38 @48070 has 36 MA's), (52, 47977),

Gene: RyeScarlet\_90 Start: 48809, Stop: 48675, Start Num: 43

Candidate Starts for RyeScarlet\_90:

(Start: 39 @48818 has 79 MA's), (Start: 43 @48809 has 80 MA's),

Gene: SCentae\_189 Start: 134921, Stop: 135064, Start Num: 38

Candidate Starts for SCentae\_189:

(Start: 38 @134921 has 36 MA's),

Gene: Sachima\_85 Start: 48847, Stop: 48713, Start Num: 43

Candidate Starts for Sachima\_85:

(28, 48895), (Start: 39 @48856 has 79 MA's), (Start: 43 @48847 has 80 MA's),

Gene: Salz\_84 Start: 46753, Stop: 46625, Start Num: 44

Candidate Starts for Salz\_84:

(Start: 39 @46765 has 79 MA's), (Start: 44 @46753 has 36 MA's), (52, 46675),

Gene: Saskia\_85 Start: 46990, Stop: 46862, Start Num: 44

Candidate Starts for Saskia\_85:

(Start: 39 @47002 has 79 MA's), (Start: 44 @46990 has 36 MA's), (52, 46912),

Gene: SaturnRing\_86 Start: 47517, Stop: 47374, Start Num: 38

Candidate Starts for SaturnRing\_86:

(7, 47769), (8, 47742), (10, 47700), (21, 47595), (22, 47586), (25, 47568), (Start: 31 @47544 has 1 MA's), (Start: 38 @47517 has 36 MA's),

Gene: Scherzo\_87 Start: 48864, Stop: 48730, Start Num: 43

Candidate Starts for Scherzo\_87:

(28, 48912), (Start: 39 @48873 has 79 MA's), (Start: 43 @48864 has 80 MA's),

Gene: SemperFi\_85 Start: 48545, Stop: 48408, Start Num: 43

Candidate Starts for SemperFi\_85:

(Start: 43 @48545 has 80 MA's),

Gene: Serenity\_88 Start: 47747, Stop: 47619, Start Num: 44

Candidate Starts for Serenity\_88:

(Start: 40 @47756 has 11 MA's), (Start: 44 @47747 has 36 MA's), (50, 47717), (52, 47669),

Gene: Sham4\_85 Start: 46851, Stop: 46711, Start Num: 39

Candidate Starts for Sham4\_85:

(Start: 39 @46851 has 79 MA's), (Start: 44 @46839 has 36 MA's), (52, 46761),

Gene: SheaKeira\_84 Start: 48104, Stop: 47970, Start Num: 43

Candidate Starts for SheaKeira\_84:

(15, 48224), (23, 48179), (28, 48152), (Start: 39 @48113 has 79 MA's), (Start: 43 @48104 has 80 MA's),

Gene: Sheen\_80 Start: 50105, Stop: 49956, Start Num: 37

Candidate Starts for Sheen\_80:

(Start: 37 @50105 has 2 MA's), (48, 50063),

Gene: SheldonCooper\_82 Start: 48480, Stop: 48334, Start Num: 38

Candidate Starts for SheldonCooper\_82:

(Start: 31 @48504 has 1 MA's), (Start: 38 @48480 has 36 MA's),

Gene: Skipitt\_81 Start: 48036, Stop: 47890, Start Num: 38

Candidate Starts for Skipitt\_81:

(Start: 31 @48060 has 1 MA's), (Start: 38 @48036 has 36 MA's),

Gene: Sknot\_85 Start: 48162, Stop: 48019, Start Num: 39

Candidate Starts for Sknot\_85:

(Start: 39 @48162 has 79 MA's), (Start: 43 @48153 has 80 MA's), (52, 48069),

Gene: Skog\_22 Start: 10918, Stop: 11064, Start Num: 38

Candidate Starts for Skog\_22:

(5, 10645), (6, 10654), (Start: 38 @10918 has 36 MA's),

Gene: Smeagan\_88 Start: 49090, Stop: 48956, Start Num: 43

Candidate Starts for Smeagan\_88:

(32, 49126), (Start: 43 @49090 has 80 MA's),

Gene: SmellyB\_85 Start: 46159, Stop: 46016, Start Num: 39

Candidate Starts for SmellyB\_85:

(29, 46198), (Start: 39 @46159 has 79 MA's), (Start: 44 @46147 has 36 MA's),

Gene: SnapTap\_85 Start: 48516, Stop: 48379, Start Num: 43

Candidate Starts for SnapTap\_85:

(Start: 43 @48516 has 80 MA's),

Gene: Snape\_88 Start: 47644, Stop: 47504, Start Num: 39

Candidate Starts for Snape\_88:

(Start: 39 @47644 has 79 MA's), (Start: 44 @47632 has 36 MA's), (52, 47554),

Gene: SororFago\_84 Start: 47898, Stop: 47755, Start Num: 43

Candidate Starts for SororFago\_84:

(Start: 43 @47898 has 80 MA's),

Gene: Spouty\_87 Start: 48612, Stop: 48469, Start Num: 39

Candidate Starts for Spouty\_87:

(28, 48651), (Start: 39 @48612 has 79 MA's), (Start: 43 @48603 has 80 MA's),

Gene: StarStuff\_85 Start: 48145, Stop: 48008, Start Num: 40

Candidate Starts for StarStuff\_85:

(12, 48310), (Start: 40 @48145 has 11 MA's), (Start: 44 @48136 has 36 MA's), (52, 48058),

Gene: SteMason\_78 Start: 48039, Stop: 47893, Start Num: 38

Candidate Starts for SteMason\_78:

(Start: 31 @48063 has 1 MA's), (Start: 38 @48039 has 36 MA's),

Gene: Steamy\_84 Start: 49557, Stop: 49414, Start Num: 39

Candidate Starts for Steamy\_84:

(16, 49653), (23, 49623), (28, 49596), (Start: 39 @49557 has 79 MA's), (Start: 44 @49548 has 36 MA's),

Gene: Stink\_82 Start: 48266, Stop: 48120, Start Num: 38

Candidate Starts for Stink\_82:

(Start: 31 @48290 has 1 MA's), (Start: 38 @48266 has 36 MA's), (52, 48173),

Gene: Sultana\_82 Start: 48039, Stop: 47893, Start Num: 38

Candidate Starts for Sultana\_82:

(Start: 31 @48063 has 1 MA's), (Start: 38 @48039 has 36 MA's),

Gene: Sunhee\_86 Start: 46322, Stop: 46179, Start Num: 43

Candidate Starts for Sunhee\_86:

(Start: 43 @46322 has 80 MA's),

Gene: SuperAwesome\_85 Start: 46840, Stop: 46697, Start Num: 39

Candidate Starts for SuperAwesome\_85:

(29, 46879), (Start: 39 @46840 has 79 MA's), (Start: 44 @46828 has 36 MA's),

Gene: SuperCallie99\_81 Start: 46210, Stop: 46079, Start Num: 44

Candidate Starts for SuperCallie99\_81:

(29, 46261), (Start: 39 @46222 has 79 MA's), (Start: 44 @46210 has 36 MA's),

Gene: Superchunk\_85 Start: 47335, Stop: 47207, Start Num: 44

Candidate Starts for Superchunk\_85:

(Start: 40 @47344 has 11 MA's), (Start: 44 @47335 has 36 MA's), (50, 47305), (52, 47257),

Gene: SweetiePie\_85 Start: 48649, Stop: 48512, Start Num: 43

Candidate Starts for SweetiePie\_85:

(Start: 43 @48649 has 80 MA's),

Gene: SwirlSquare\_88 Start: 47074, Stop: 46937, Start Num: 39

Candidate Starts for SwirlSquare\_88:

(Start: 39 @47074 has 79 MA's), (52, 46987),

Gene: TarsusIV\_84 Start: 48539, Stop: 48402, Start Num: 43

Candidate Starts for TarsusIV\_84:

(28, 48587), (Start: 39 @48548 has 79 MA's), (Start: 43 @48539 has 80 MA's),

Gene: Temprado\_88 Start: 46632, Stop: 46489, Start Num: 39

Candidate Starts for Temprado\_88:

(29, 46671), (Start: 39 @46632 has 79 MA's), (Start: 44 @46620 has 36 MA's),

Gene: Terrific\_86 Start: 48127, Stop: 47993, Start Num: 43

Candidate Starts for Terrific\_86:

(Start: 39 @48136 has 79 MA's), (Start: 43 @48127 has 80 MA's), (52, 48043),

Gene: Thonko\_95 Start: 65603, Stop: 65454, Start Num: 41

Candidate Starts for Thonko\_95:

(Start: 41 @65603 has 2 MA's),

Gene: Timothy\_88 Start: 47609, Stop: 47481, Start Num: 44

Candidate Starts for Timothy\_88:

(Start: 39 @47621 has 79 MA's), (Start: 44 @47609 has 36 MA's), (52, 47531),

Gene: Timshel\_79 Start: 49897, Stop: 49745, Start Num: 37

Candidate Starts for Timshel\_79:

(12, 50053), (18, 49984), (Start: 37 @49897 has 2 MA's), (Start: 46 @49876 has 2 MA's),

Gene: TinyTimmy\_86 Start: 47350, Stop: 47210, Start Num: 39

Candidate Starts for TinyTimmy\_86:

(Start: 39 @47350 has 79 MA's), (Start: 44 @47338 has 36 MA's), (52, 47260),

Gene: TipsytheTRex\_84 Start: 47758, Stop: 47621, Start Num: 40

Candidate Starts for TipsytheTRex\_84:

(Start: 40 @47758 has 11 MA's), (Start: 44 @47749 has 36 MA's), (50, 47719), (52, 47671),

Gene: Toaka\_87 Start: 48704, Stop: 48573, Start Num: 42

Candidate Starts for Toaka\_87:

(17, 48803), (Start: 42 @48704 has 2 MA's),

Gene: Tomathan\_85 Start: 48214, Stop: 48086, Start Num: 44  
Candidate Starts for Tomathan\_85:  
(12, 48388), (Start: 40 @48223 has 11 MA's), (Start: 44 @48214 has 36 MA's), (52, 48136),

Gene: ToneTone\_84 Start: 46180, Stop: 46049, Start Num: 44  
Candidate Starts for ToneTone\_84:  
(29, 46231), (Start: 39 @46192 has 79 MA's), (Start: 44 @46180 has 36 MA's),

Gene: Toro\_81 Start: 50768, Stop: 50619, Start Num: 37  
Candidate Starts for Toro\_81:  
(Start: 37 @50768 has 2 MA's), (48, 50726),

Gene: Travvers\_85 Start: 48140, Stop: 48003, Start Num: 40  
Candidate Starts for Travvers\_85:  
(12, 48305), (Start: 40 @48140 has 11 MA's), (Start: 44 @48131 has 36 MA's), (52, 48053),

Gene: Tristan\_81 Start: 48683, Stop: 48546, Start Num: 43  
Candidate Starts for Tristan\_81:  
(Start: 43 @48683 has 80 MA's), (52, 48599),

Gene: Trixie\_85 Start: 49116, Stop: 48976, Start Num: 39  
Candidate Starts for Trixie\_85:  
(Start: 39 @49116 has 79 MA's), (Start: 44 @49104 has 36 MA's), (52, 49026),

Gene: Trooper\_84 Start: 48107, Stop: 47961, Start Num: 39  
Candidate Starts for Trooper\_84:  
(Start: 39 @48107 has 79 MA's), (Start: 43 @48098 has 80 MA's),

Gene: Tubs\_89 Start: 48829, Stop: 48686, Start Num: 39  
Candidate Starts for Tubs\_89:  
(28, 48868), (Start: 39 @48829 has 79 MA's), (Start: 43 @48820 has 80 MA's),

Gene: Tucker\_87 Start: 46383, Stop: 46252, Start Num: 44  
Candidate Starts for Tucker\_87:  
(29, 46434), (Start: 39 @46395 has 79 MA's), (Start: 44 @46383 has 36 MA's),

Gene: Turbido\_86 Start: 48811, Stop: 48677, Start Num: 43  
Candidate Starts for Turbido\_86:  
(32, 48847), (Start: 43 @48811 has 80 MA's),

Gene: TygerBlood\_82 Start: 48042, Stop: 47896, Start Num: 38  
Candidate Starts for TygerBlood\_82:  
(Start: 31 @48066 has 1 MA's), (Start: 38 @48042 has 36 MA's),

Gene: Ugenie5\_76 Start: 46308, Stop: 46174, Start Num: 43  
Candidate Starts for Ugenie5\_76:  
(28, 46356), (Start: 39 @46317 has 79 MA's), (Start: 43 @46308 has 80 MA's),

Gene: Updawg\_86 Start: 48341, Stop: 48207, Start Num: 43  
Candidate Starts for Updawg\_86:  
(Start: 39 @48350 has 79 MA's), (Start: 43 @48341 has 80 MA's), (52, 48257),

Gene: VA6\_85 Start: 48439, Stop: 48305, Start Num: 43

Candidate Starts for VA6\_85:

(32, 48475), (Start: 43 @48439 has 80 MA's),

Gene: VC3\_83 Start: 47045, Stop: 46908, Start Num: 40

Candidate Starts for VC3\_83:

(12, 47204), (Start: 40 @47045 has 11 MA's), (Start: 44 @47036 has 36 MA's), (52, 46958),

Gene: Vanisoa\_84 Start: 49036, Stop: 48905, Start Num: 43

Candidate Starts for Vanisoa\_84:

(16, 49141), (23, 49111), (Start: 39 @49045 has 79 MA's), (Start: 43 @49036 has 80 MA's),

Gene: VohminGhazi\_85 Start: 46160, Stop: 46017, Start Num: 39

Candidate Starts for VohminGhazi\_85:

(29, 46199), (Start: 39 @46160 has 79 MA's), (Start: 44 @46148 has 36 MA's),

Gene: WeiHuaDA\_87 Start: 49366, Stop: 49232, Start Num: 43

Candidate Starts for WeiHuaDA\_87:

(Start: 39 @49375 has 79 MA's), (Start: 43 @49366 has 80 MA's), (52, 49282),

Gene: WideWale\_86 Start: 48350, Stop: 48207, Start Num: 39

Candidate Starts for WideWale\_86:

(Start: 39 @48350 has 79 MA's), (Start: 43 @48341 has 80 MA's), (52, 48257),

Gene: Wiks\_86 Start: 46263, Stop: 46120, Start Num: 39

Candidate Starts for Wiks\_86:

(29, 46302), (Start: 39 @46263 has 79 MA's), (Start: 44 @46251 has 36 MA's),

Gene: Wolpertinger\_88 Start: 47958, Stop: 47830, Start Num: 44

Candidate Starts for Wolpertinger\_88:

(Start: 39 @47970 has 79 MA's), (Start: 44 @47958 has 36 MA's), (52, 47880),

Gene: WorldCup\_87 Start: 48497, Stop: 48369, Start Num: 44

Candidate Starts for WorldCup\_87:

(24, 48569), (Start: 39 @48506 has 79 MA's), (Start: 44 @48497 has 36 MA's),

Gene: WunderPhul\_87 Start: 46261, Stop: 46118, Start Num: 39

Candidate Starts for WunderPhul\_87:

(29, 46300), (Start: 39 @46261 has 79 MA's), (Start: 44 @46249 has 36 MA's),

Gene: XianYue\_84 Start: 48596, Stop: 48459, Start Num: 43

Candidate Starts for XianYue\_84:

(32, 48632), (Start: 43 @48596 has 80 MA's),

Gene: Yecey3\_90 Start: 48586, Stop: 48443, Start Num: 39

Candidate Starts for Yecey3\_90:

(Start: 39 @48586 has 79 MA's), (Start: 43 @48577 has 80 MA's),

Gene: Yokurt\_86 Start: 46251, Stop: 46120, Start Num: 44

Candidate Starts for Yokurt\_86:

(29, 46302), (Start: 39 @46263 has 79 MA's), (Start: 44 @46251 has 36 MA's),

Gene: Zaka\_87 Start: 46251, Stop: 46120, Start Num: 44

Candidate Starts for Zaka\_87:

(29, 46302), (Start: 39 @46263 has 79 MA's), (Start: 44 @46251 has 36 MA's),

Gene: Zarafa\_82 Start: 47363, Stop: 47220, Start Num: 38

Candidate Starts for Zarafa\_82:

(7, 47615), (10, 47546), (21, 47441), (22, 47432), (25, 47414), (Start: 31 @47390 has 1 MA's), (Start: 38 @47363 has 36 MA's),

Gene: Zimmer\_86 Start: 50022, Stop: 49876, Start Num: 39

Candidate Starts for Zimmer\_86:

(23, 50088), (Start: 39 @50022 has 79 MA's), (Start: 44 @50010 has 36 MA's), (47, 49995),

Gene: Zulu\_88 Start: 46641, Stop: 46498, Start Num: 39

Candidate Starts for Zulu\_88:

(29, 46680), (Start: 39 @46641 has 79 MA's), (Start: 44 @46629 has 36 MA's),