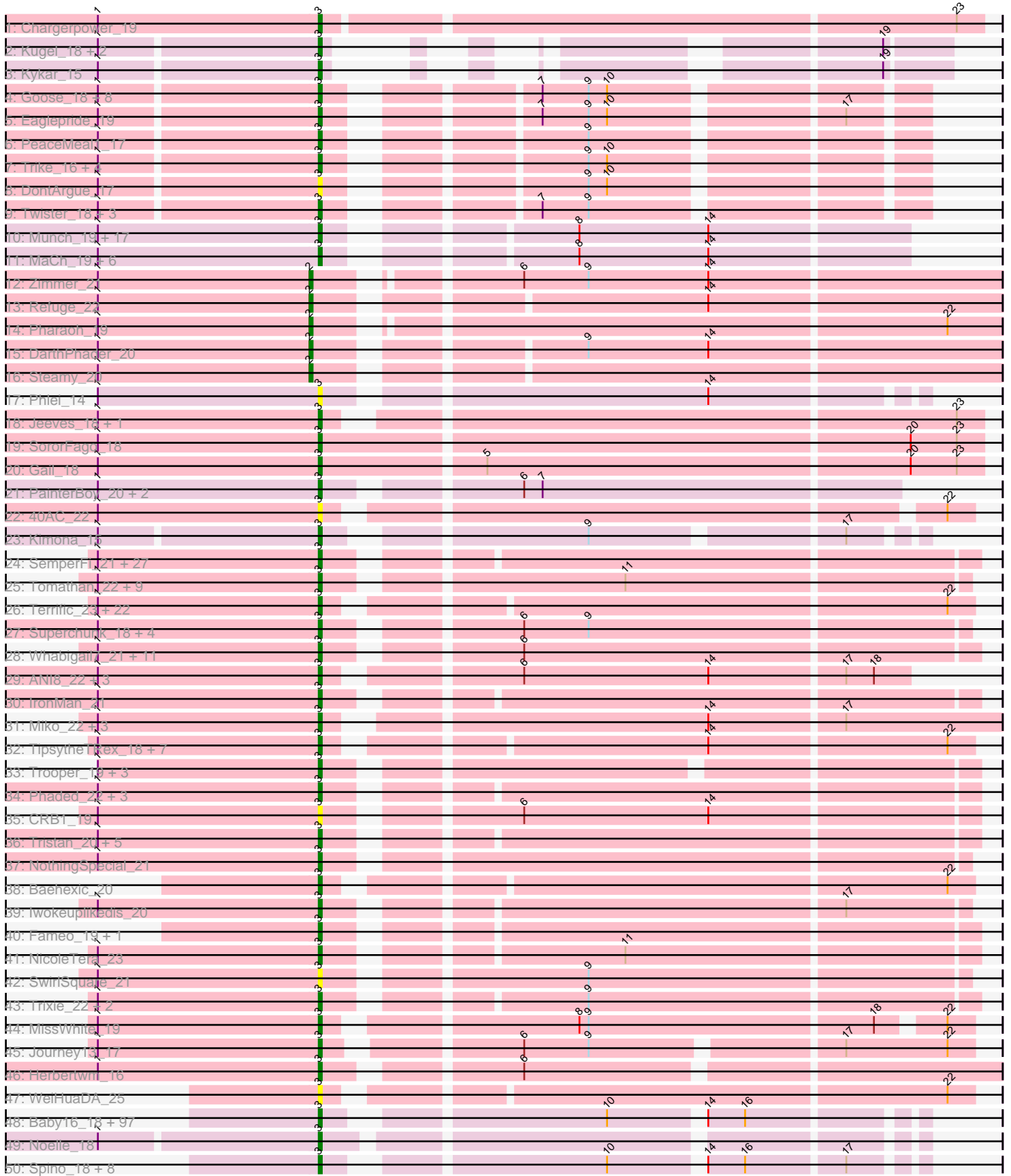
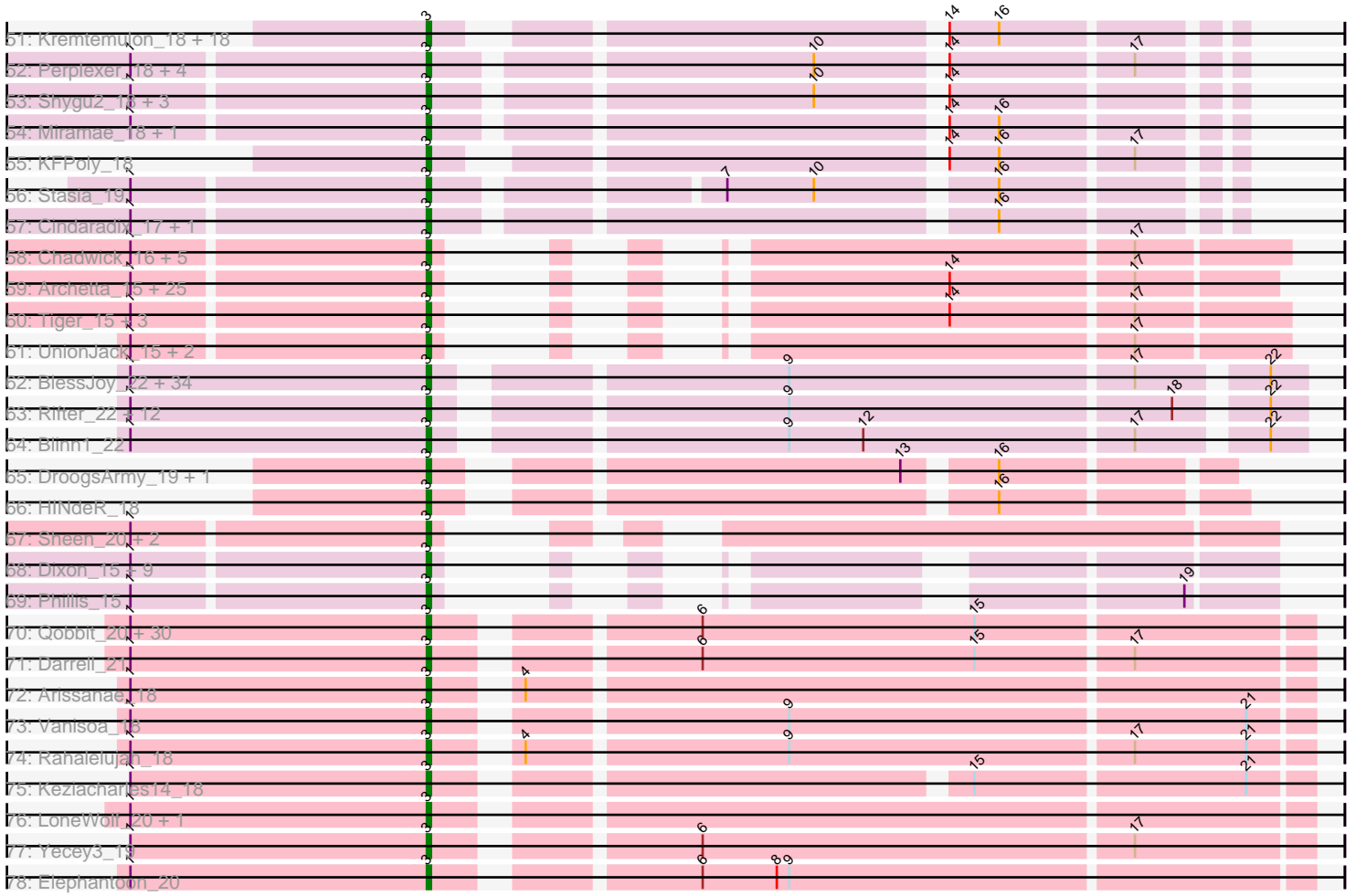


Pham 212188





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 212188 Report

This analysis was run 02/22/25 on database version 588.

Pham number 212188 has 477 members, 50 are drafts.

Phages represented in each track:

- Track 1 : Chargerpower\_19
- Track 2 : Kugel\_18, Target\_19, BillKnuckles\_18
- Track 3 : Kykar\_15
- Track 4 : Goose\_18, RhynO\_19, Rebeuca\_19, OKCentral2016\_18, Shapes\_21, Rowdy\_21, DustyMartin\_21, Chupacabra\_18, Kristoff\_19
- Track 5 : Eaglepride\_19
- Track 6 : PeaceMeal1\_17
- Track 7 : Trike\_16, Severus\_17, Drake94\_17, KittenMittens\_17, Poompha\_17
- Track 8 : DontArgue\_17
- Track 9 : Twister\_18, Topanga\_18, WalterMcMickey\_18, Edison31\_18
- Track 10 : Munch\_19, Salz\_19, Lucivia\_19, Orange\_19, Insomnia\_19, Jabith\_19, Et2Brutus\_18, Flaverint\_19, Bowtie\_19, Sham4\_19, Petersenfast\_18, Timothy\_19, Joselito\_19, Aneem\_19, Mulciber\_19, Bud\_19, Hutc2\_19, Snape\_19
- Track 11 : MaCh\_19, TinyTimmy\_19, Bachome\_19, Ebony\_19, Fibonacci\_19, Gilberta\_19, Mabel\_19
- Track 12 : Zimmer\_21
- Track 13 : Refuge\_22
- Track 14 : Pharaoh\_19
- Track 15 : DARTHPhader\_20
- Track 16 : Steamy\_20
- Track 17 : Phlei\_14
- Track 18 : Jeeves\_18, Luchador\_20
- Track 19 : SororFago\_18
- Track 20 : Gail\_18
- Track 21 : PainterBoy\_20, Lucyedi\_20, EagleEye\_21
- Track 22 : 40AC\_22
- Track 23 : Kimona\_15
- Track 24 : SemperFi\_21, QueenBeesly\_19, Anselm\_19, AN3\_19, Colin\_23, Georgie2\_20, SweetiePie\_19, Power\_19, VA6\_19, Pukovnik\_21, KingCyrus\_21, Deloris\_20, LionsBait\_20, Dalmatian\_19, 20ES\_19, BengiVuitton\_20, SnapTap\_19, First\_0019, LadyBird\_19, Benvolio\_19, EvilGenius\_21, DudeLittle\_19, Echild\_19, Crucio\_19, Heffalump\_21, FiringLine\_19, ChipMunk\_21, ArcherNM\_21
- Track 25 : Tomathan\_22, D29\_19.1, StarStuff\_22, Travvers\_22, Duplo\_22, Kerberos\_22, DBQu4n\_22, Naji\_22, D32\_22, Pomar16\_22
- Track 26 : Terrific\_23, Equemioh13\_21, Malec\_20, NaSiaTalie\_19, AnnaL29\_22, Loser\_22, Flare16\_19, Sknot\_20, EZMoney23\_23, Gratitude\_20, HarryHoudini\_21, Updawg\_21, Drake55\_21, RedRock\_22, MiculUcigas\_19, BabyBack\_21,

GaugeLDP\_21, Kalpine\_22, Centaur\_21, Changeling\_22, Larenn\_20, WideWale\_21, Piro94\_20

- Track 27 : Superchunk\_18, Che12\_21, Odin\_18, Ph8s\_20, Adzzy\_20
- Track 28 : Whabigail7\_21, Jerm\_21, Dignity\_21, Agape74\_21, AbbyPaige\_21, Buggy\_21, TarsusIV\_19, Leviathan\_21, LilTurb\_21, Smeagan\_21, Turbido\_21, SheaKeira\_19
- Track 29 : ANI8\_22, AN9\_22, VC3\_22, C3\_17
- Track 30 : IronMan\_21
- Track 31 : Miko\_22, BobSwaget\_22, Rachaly\_22, Lokk\_22
- Track 32 : TipsytheTRex\_18, Bradman\_18, L5\_19.1, Quokka\_17, Koduck\_19, Serenity\_18, MajorMajor\_18, Jsquared\_18
- Track 33 : Trooper\_19, Retro23\_19, Maminiaina\_20, BogosyJay\_20
- Track 34 : Phaded\_22, Landor\_20, Bactobuster\_20, Jaan\_22
- Track 35 : CRB1\_19
- Track 36 : Tristan\_20, Sunhee\_17, Kinmap\_18, Leogania\_21, Toaka\_18, BiancaTri92\_21
- Track 37 : NothingSpecial\_21
- Track 38 : Baehexic\_20
- Track 39 : Iwokeuplikedis\_20
- Track 40 : Fameo\_19, QueenB2\_19
- Track 41 : NicoleTera\_23
- Track 42 : SwirlSquare\_21
- Track 43 : Trixie\_22, JoshKayV\_21, XianYue\_19
- Track 44 : MissWhite\_19
- Track 45 : Journey13\_17
- Track 46 : Herbertwm\_16
- Track 47 : WeiHuaDA\_25
- Track 48 : Baby16\_18, BubbleTrouble\_18, Eurydice\_18, Backyardigan\_18, Roosevelt\_18, Scamp\_18, Nyxis\_18, Taquarus\_18, Pipcraft\_18, NorthStar\_18, JetBlade\_18, Cocoaberry\_18, Maverick\_18, Eagle\_17, Commander\_18, Rosa24\_17, BellusTerra\_18, Chaph\_18, SenorClean\_17, Connomayer\_18, LHTSCC\_19, BangNhom\_18, Iceman\_19, Phacado\_18, Peaches\_18, Citius\_18, Wizard007\_18, Badger\_18, LittleGuy\_18, Deano\_18, Ohfah\_18, Annyong\_18, LeoAvram\_18, Florean\_18, ICleared\_18, Jaykayelowell\_18, Polymorphads\_18, Cerulean\_19, Obama12\_19, Dhanush\_18, Gadost\_18, Lunsford\_19, NotAPhaseMom\_18, Nebs\_18, Xena\_18, Medusa\_18, Datway\_18, HamSlice\_17, Bartimeaus\_18, Morrow\_18, Blackmoor\_18, Bruiser\_18, Arturo\_17, Eros\_18, Burger\_17, Wile\_18, Albee\_18, Iracema64\_19, Clarenza\_18, Houdini22\_18, Flux\_18, Palestino\_18, Phontbonne\_18, TiroTheta9\_18, Sparxx\_18, OKaNui\_19, JoongJeon\_18, Melvin\_18, TygerBlood\_18, PeterPeter\_18, Bombshell\_18, Avle17\_18, Mazhar510\_18, Phelipe\_18, Sabertooth\_18, ChampagnePapi\_19, Tinybot\_17, Alberto7\_19, Camperdownii\_17, Abdiel\_18, Maxo\_18, TroyPia\_18, Ruin\_18, Achebe\_18, Broseidon\_18, Druantia\_18, Lorenzo\_18, Holli\_18, SheldonCooper\_19, Kingmustik0402\_18, Relief\_18, Kamy\_18, CentreCat\_18, Nemo27\_18, Lemur\_18, LittleB\_18, Wander\_18, Caelakin\_18
- Track 49 : Noelle\_18
- Track 50 : Spino\_18, Romney\_18, Mayonnaise\_18, MeeZee\_18, YoSam321\_18, Wilbur\_18, Eapen\_18, TinaFeyge\_18, Skipitt\_18
- Track 51 : Kremtemulon\_18, Ulysses\_17, Millski\_18, Koan\_17, Funston\_18, Happiness\_18, Pumbaa\_18, Shaka\_18, LochMonster\_18, Koreni\_17, Kyee\_18, Thanksgivukkah\_18, LappelDuVide\_18, Huxley\_18, Cintron\_18, Eris\_18, Kratark\_18, Phighter1804\_18, DirtyDunning\_18

- Track 52 : Perplexer\_18, Bumblebee11\_18, PetiteSangsue\_18, Katalie136\_18, Morpher26\_18
- Track 53 : Shygu2\_18, Cici\_18, AbbysRanger\_18, Mundrea\_18
- Track 54 : Miramae\_18, AvatarAhPeg\_19
- Track 55 : KFPoly\_18
- Track 56 : Stasia\_19
- Track 57 : Cindaradix\_17, Stink\_19
- Track 58 : Chadwick\_16, PetterN\_16, Jabiru\_15, Naca\_15, Scorpia\_16, Airmid\_15
- Track 59 : Archetta\_15, SydNat\_15, Jovo\_15, Phlorence\_15, Milcery\_15, MarysWell\_14, Cuco\_15, Twigg\_15, Midas2\_15, Dublin\_14, Tarynearal\_14, HuhtaEnerson15\_15, PickleBack\_15, Prinash11\_16, Lev2\_15, Swirley\_15, Coog\_15, Bluefalcon\_14, George\_14, LittleCherry\_15, Ghouboy\_15, AgentM\_15, Bonamassa\_15, Zolita\_14, Micasa\_15, Aragog\_15
- Track 60 : Tiger\_15, ForGetIt\_15, Discoknowium\_15, Conspiracy\_15
- Track 61 : UnionJack\_15, Benedict\_15, EITiger69\_15
- Track 62 : BlessJoy\_22, Garak\_23, Cookiedough\_22, Isiphiwo\_22, Wiks\_22, SuperCallie99\_22, JewelBug\_22, VohminGhazi\_22, Pmask\_22, Helmet\_23, Jordennis\_22, SmellyB\_22, Neeharika16\_22, Newrala\_22, Dorothea\_22, Chartreuse\_22, DaVinci\_22, Yokurt\_22, Candra\_22, ToneTone\_20, Priamo\_22, WunderPhul\_22, EricB\_22, Kazan\_22, Zulu\_22, Lilbunny\_22, Hoot\_22, Temprado\_23, McFly\_22, BABullseye\_22, Polyphemus\_21, SuperAwesome\_22, GreedyLawyer\_22, Zaka\_22, Kipper29\_22
- Track 63 : Rifter\_22, Koko\_22, Tucker\_22, Hammer\_22, CloudWang3\_22, Gladiator\_22, Blue7\_22, Roksolana\_22, Artemis2UCLA\_22, Indra\_22, Hexamo\_22, Gruunaga\_22, Jeffabunny\_22
- Track 64 : Blinn1\_22
- Track 65 : DroogsArmy\_19, Timshel\_19
- Track 66 : HINdeR\_18
- Track 67 : Sheen\_20, Toro\_21, FlyCatcher\_22
- Track 68 : Dixon\_15, Smeadley\_15, Danforth\_14, Expelliarmus\_14, NearlyHeadless\_15, Saintus\_15, Groundhog\_14, Roary\_15, Astro\_15, Stephig9\_15
- Track 69 : Phillis\_15
- Track 70 : Qobbit\_20, Ugenie5\_17, Tubs\_20, Phaeder\_20, DreamTeam1\_19, Scherzo\_20, RyeScarlet\_21, Priya\_20, ExplosioNervosa\_20, Aliter\_20, Fayely\_20, Phonnegut\_20, Pioneer\_20, EmyBug\_20, Sachima\_18, Eidsmoe\_20, Lilleskat\_18, Myxus\_20, Hanray\_19, EdogawaKiddo\_18, Onglai\_19, Halex\_19, HortumSL17\_20, Alma\_20, Conquerage\_20, Catalina\_20, Jiawan\_19, Spouty\_20, Beemo\_20, PackMan\_20, Charm\_19
- Track 71 : Darrell\_21
- Track 72 : Arissanae\_18
- Track 73 : Vanisoa\_18
- Track 74 : Rahalelujah\_18
- Track 75 : Keziacharles14\_18
- Track 76 : LoneWolf\_20, Acolyte\_19
- Track 77 : Yecey3\_19
- Track 78 : Elephantoon\_20

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

The start number called the most often in the published annotations is 3, it was called in 422 of the 427 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 20ES\_19, 40AC\_22, AN3\_19, AN9\_22, ANI8\_22, AbbyPaige\_21, AbbysRanger\_18, Abdiel\_18, Achebe\_18, Acolyte\_19, Adzzy\_20, Agape74\_21, AgentM\_15, Airmid\_15, Albee\_18, Alberto7\_19, Aliter\_20, Alma\_20, Aneem\_19, AnnaL29\_22, Annyong\_18, Anselm\_19, Aragog\_15, ArcherNM\_21, Archetta\_15, Arissanæ\_18, Artemis2UCLA\_22, Arturo\_17, Astro\_15, AvatarAhPeg\_19, Avle17\_18, BABullseye\_22, Baby16\_18, BabyBack\_21, Bachome\_19, Backyardigan\_18, Bactobuster\_20, Badger\_18, Baehexic\_20, BangNhom\_18, Bartimeaus\_18, Beemo\_20, BellusTerra\_18, Benedict\_15, BengiVuitton\_20, Benvolio\_19, BiancaTri92\_21, BillKnuckles\_18, Blackmoor\_18, BlessJoy\_22, Blinn1\_22, Blue7\_22, Bluefalcon\_14, BobSwaget\_22, BogosyJay\_20, Bombshell\_18, Bonamassa\_15, Bowtie\_19, Bradman\_18, Broseidon\_18, Bruiser\_18, BubbleTrouble\_18, Bud\_19, Buggy\_21, Bumblebee11\_18, Burger\_17, C3\_17, CRB1\_19, Caelakin\_18, Camperdownii\_17, Candra\_22, Catalina\_20, Centaur\_21, CentreCat\_18, Cerulean\_19, Chadwick\_16, ChampagnePapi\_19, Changeling\_22, Chaph\_18, Chargerpower\_19, Charm\_19, Chartreuse\_22, Che12\_21, ChipMunk\_21, Chupacabra\_18, Cici\_18, Cindaradix\_17, Cintron\_18, Citius\_18, Clarenza\_18, CloudWang3\_22, Cocoaberry\_18, Colin\_23, Commander\_18, Connomayer\_18, Conquerage\_20, Conspiracy\_15, Coog\_15, Cookiedough\_22, Crucio\_19, Cuco\_15, D29\_19.1, D32\_22, DBQu4n\_22, DaVinci\_22, Dalmatian\_19, Danforth\_14, Darrell\_21, Datway\_18, Deano\_18, Deloris\_20, Dhanush\_18, Dignity\_21, DirtyDunning\_18, Discoknowium\_15, Dixon\_15, DontArgue\_17, Dorothea\_22, Drake55\_21, Drake94\_17, DreamTeam1\_19, DroogsArmy\_19, Druantia\_18, Dublin\_14, DudeLittle\_19, Duplo\_22, DustyMartin\_21, EZMoney23\_23, EagleEye\_21, Eagle\_17, Eaglepride\_19, Eapen\_18, Ebony\_19, Echild\_19, Edison31\_18, EdogawaKiddo\_18, Eidsmoe\_20, EITiger69\_15, Elephantoon\_20, EmyBug\_20, Equemioh13\_21, EricB\_22, Eris\_18, Eros\_18, Et2Brutus\_18, Eurydice\_18, EvilGenius\_21, Expelliarmus\_14, ExplosioNervosa\_20, Fameo\_19, Fayely\_20, Fibonacci\_19, FiringLine\_19, First\_0019, Flare16\_19, Flaverint\_19, Florean\_18, Flux\_18, FlyCatcher\_22, ForGetIt\_15, Funston\_18, Gadost\_18, Gail\_18, Garak\_23, GaugeLDP\_21, George\_14, Georgie2\_20, Ghoulboy\_15, Gilberta\_19, Gladiator\_22, Goose\_18, Gratitude\_20, GreedyLawyer\_22, Groundhog\_14, Gruunaga\_22, HINdeR\_18, HamSlice\_17, Hammer\_22, Hanray\_19, Happiness\_18, HarryHoudini\_21, Heffalump\_21, Helmet\_23, Herbertwm\_16, Hexamo\_22, Holes\_19, Holli\_18, Hoot\_22, HortumSL17\_20, Houdini22\_18, HuhtaEnerson15\_15, Hutc2\_19, Huxley\_18, ICleared\_18, Iceman\_19, Indra\_22, Insomnia\_19, Iracema64\_19, IronMan\_21, Isiphiwo\_22, Iwokeuplikedis\_20, Jaan\_22, Jabiru\_15, Jabith\_19, Jaykayelowell\_18, Jeeves\_18, Jeffabunny\_22, Jerm\_21, JetBlade\_18, JewelBug\_22, Jiawan\_19, JoongJeon\_18, Jordennis\_22, Joselito\_19, JoshKayV\_21, Journey13\_17, Jovo\_15, Jsquared\_18, KFPoly\_18, Kalpine\_22, Kamy\_18, Katalie136\_18, Kazan\_22, Kerberos\_22, Keziacharles14\_18, Kimona\_15, KingCyrus\_21, Kingmustik0402\_18, Kinmap\_18, Kipper29\_22, KittenMittens\_17, Koan\_17, Koduck\_19, Koko\_22, Koreni\_17, Kratark\_18, Kremtemulon\_18, Kristoff\_19, Kugel\_18, Kyee\_18, Kykar\_15, L5\_19.1, LHTSCC\_19, LadyBird\_19, Landor\_20, LappelDuVide\_18, Larenn\_20, Lemur\_18, LeoAvram\_18, Leogania\_21, Lev2\_15, Leviathan\_21, LilTurb\_21, Lilbunny\_22, Lilleskat\_18, LionsBait\_20, LittleB\_18, LittleCherry\_15, LittleGuy\_18, LochMonster\_18, Lokk\_22, LoneWolf\_20, Lorenzo\_18, Loser\_22, Luchador\_20, Lucivia\_19, Lucyedi\_20, Lunsford\_19, MaCh\_19, Mabel\_19, MajorMajor\_18, Malec\_20, Maminiaina\_20, MarysWell\_14, Maverick\_18, Maxo\_18, Mayonnaise\_18, Mazhar510\_18, McFly\_22, Medusa\_18, MeeZee\_18, Melvin\_18,

Micasa\_15, MiculUcigas\_19, Midas2\_15, Miko\_22, Milcery\_15, Millski\_18, Miramae\_18, MissWhite\_19, Morpher26\_18, Morrow\_18, Mulciber\_19, Munch\_19, Mundrea\_18, Myxus\_20, NaSiaTalie\_19, Naca\_15, Naji\_22, NearlyHeadless\_15, Nebs\_18, Neeharika16\_22, Nemo27\_18, Newrala\_22, NicoleTera\_23, Noelle\_18, NorthStar\_18, NotAPhaseMom\_18, NothingSpecial\_21, Nyxis\_18, OKCentral2016\_18, OKaNui\_19, Obama12\_19, Odin\_18, Ohfah\_18, Onglai\_19, Orange\_19, PackMan\_20, PainterBoy\_20, Palestino\_18, PeaceMeal1\_17, Peaches\_18, Perplexer\_18, PeterPeter\_18, Petersenfast\_18, PetiteSangsue\_18, PetterN\_16, Ph8s\_20, Phacado\_18, Phaded\_22, Phaeder\_20, Phelipe\_18, Phighter1804\_18, Phillis\_15, Phlei\_14, Phlorence\_15, Phonnegut\_20, Phontbonne\_18, PickleBack\_15, Pioneer\_20, Pipcraft\_18, Piro94\_20, Pmask\_22, Polymorphads\_18, Polyphemus\_21, Pomar16\_22, Poompha\_17, Power\_19, Priamo\_22, Prinash11\_16, Priya\_20, Pukovnik\_21, Pumbaa\_18, Qobbit\_20, QueenB2\_19, QueenBeesly\_19, Quokka\_17, Rachaly\_22, Rahalelujah\_18, Rebeuca\_19, RedRock\_22, Relief\_18, Retro23\_19, RhynO\_19, Rifter\_22, Roary\_15, Roksolana\_22, Romney\_18, Roosevelt\_18, Rosa24\_17, Rowdy\_21, Ruin\_18, RyeScarlet\_21, Sabertooth\_18, Sachima\_18, Saintus\_15, Salz\_19, Scamp\_18, Scherzo\_20, Scorpia\_16, SemperFi\_21, SenorClean\_17, Serenity\_18, Severus\_17, Shaka\_18, Sham4\_19, Shapes\_21, SheaKeira\_19, Sheen\_20, SheldonCooper\_19, Shygu2\_18, Skipitt\_18, Sknot\_20, Smeadley\_15, Smeagan\_21, SmellyB\_22, SnapTap\_19, Snape\_19, SororFago\_18, Sparxx\_18, Spino\_18, Spouty\_20, StarStuff\_22, Stasia\_19, Stephig9\_15, Stink\_19, Sunhee\_17, SuperAwesome\_22, SuperCallie99\_22, Superchunk\_18, SweetiePie\_19, SwirlSquare\_21, Swirley\_15, SydNat\_15, Taquarus\_18, Target\_19, TarsusIV\_19, Tarynearal\_14, Temprado\_23, Terrific\_23, Thanksgivukkah\_18, Tiger\_15, Timothy\_19, Timshel\_19, TinaFeyge\_18, TinyTimmy\_19, Tinybot\_17, TopsytheTRex\_18, TiroTheta9\_18, Toaka\_18, Tomathan\_22, ToneTone\_20, Topanga\_18, Toro\_21, Travvers\_22, Trike\_16, Tristan\_20, Trixie\_22, Trooper\_19, TroyPia\_18, Tubs\_20, Tucker\_22, Turbido\_21, Twigg\_15, Twister\_18, TygerBlood\_18, Ugenie5\_17, Ulysses\_17, UnionJack\_15, Updawg\_21, VA6\_19, VC3\_22, Vanisoa\_18, VohminGhazi\_22, WalterMcMickey\_18, Wander\_18, WeiHuaDA\_25, Whabigail7\_21, WideWale\_21, Wiks\_22, Wilbur\_18, Wile\_18, Wizard007\_18, WunderPhul\_22, Xena\_18, XianYue\_19, Yecey3\_19, YoSam321\_18, Yokurt\_22, Zaka\_22, Zolita\_14, Zulu\_22,

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

- 

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

- DarthPhader\_20, Pharaoh\_19, Refuge\_22, Steamy\_20, Zimmer\_21,

### Summary by start number:

Start 2:

- Found in 5 of 477 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 5 of 427
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DarthPhader\_20 (A12), Pharaoh\_19 (A12), Refuge\_22 (A12), Steamy\_20 (A12), Zimmer\_21 (A12),

Start 3:

- Found in 472 of 477 ( 99.0% ) of genes in pham
- Manual Annotations of this start: 422 of 427
- Called 100.0% of time when present

• Phage (with cluster) where this start called: 20ES\_19 (A2), 40AC\_22 (A17), AN3\_19 (A2), AN9\_22 (A2), ANI8\_22 (A2), AbbyPaige\_21 (A2), AbbysRanger\_18 (A4), Abdiel\_18 (A4), Achebe\_18 (A4), Acolyte\_19 (A2), Adzzy\_20 (A2), Agape74\_21 (A2), AgentM\_15 (A5), Airmid\_15 (A5), Albee\_18 (A4), Alberto7\_19 (A4), Aliter\_20 (A9), Alma\_20 (A9), Aneem\_19 (A11), AnnaL29\_22 (A2), Annyong\_18 (A4), Anselm\_19 (A2), Aragog\_15 (A5), ArcherNM\_21 (A2), Archetta\_15 (A5), Arissanae\_18 (A9), Artemis2UCLA\_22 (A6), Arturo\_17 (A4), Astro\_15 (A8), AvatarAhPeg\_19 (A4), Avle17\_18 (A4), BABullseye\_22 (A6), Baby16\_18 (A4), BabyBack\_21 (A2), Bachome\_19 (A11), Backyardigan\_18 (A4), Bactobuster\_20 (A2), Badger\_18 (A4), Baehexic\_20 (A2), BangNhom\_18 (A4), Bartimeaus\_18 (A4), Beemo\_20 (A9), BellusTerra\_18 (A4), Benedict\_15 (A5), BengiVuitton\_20 (A2), Benvolio\_19 (A2), BiancaTri92\_21 (A2), BillKnuckles\_18 (A1), Blackmoor\_18 (A4), BlessJoy\_22 (A6), Blinn1\_22 (A6), Blue7\_22 (A6), Bluefalcon\_14 (A5), BobSwaget\_22 (A2), BogosyJay\_20 (A9), Bombshell\_18 (A4), Bonamassa\_15 (A5), Bowtie\_19 (A11), Bradman\_18 (A2), Broseidon\_18 (A4), Bruiser\_18 (A4), BubbleTrouble\_18 (A4), Bud\_19 (A11), Buggy\_21 (A2), Bumblebee11\_18 (A4), Burger\_17 (A4), C3\_17 (A2), CRB1\_19 (A2), Caelakin\_18 (A4), Camperdownii\_17 (A4), Candra\_22 (A6), Catalina\_20 (A9), Centaur\_21 (A2), CentreCat\_18 (A4), Cerulean\_19 (A4), Chadwick\_16 (A5), ChampagnePapi\_19 (A4), Changeling\_22 (A2), Chaph\_18 (A4), Chargerpower\_19 (A), Charm\_19 (A9), Chartreuse\_22 (A6), Che12\_21 (A2), ChipMunk\_21 (A2), Chupacabra\_18 (A10), Cici\_18 (A4), Cindaradix\_17 (A4), Cintron\_18 (A4), Citius\_18 (A4), Clarenza\_18 (A4), CloudWang3\_22 (A6), Cocoaberry\_18 (A4), Colin\_23 (A2), Commander\_18 (A4), Connomayer\_18 (A4), Conquerage\_20 (A9), Conspiracy\_15 (A5), Coog\_15 (A5), Cookiedough\_22 (A6), Crucio\_19 (A2), Cuco\_15 (A5), D29\_19.1 (A2), D32\_22 (A2), DBQu4n\_22 (A2), DaVinci\_22 (A6), Dalmatian\_19 (A2), Danforth\_14 (A8), Darrell\_21 (A9), Datway\_18 (A4), Deano\_18 (A4), Deloris\_20 (A2), Dhanush\_18 (A4), Dignity\_21 (A2), DirtyDunning\_18 (A4), Discoknowium\_15 (A5), Dixon\_15 (A8), DontArgue\_17 (A10), Dorothea\_22 (A6), Drake55\_21 (A2), Drake94\_17 (A10), DreamTeam1\_19 (A9), DroogsArmy\_19 (A7), Druantia\_18 (A4), Dublin\_14 (A5), DudeLittle\_19 (A2), Duplo\_22 (A2), DustyMartin\_21 (A10), EZMoney23\_23 (A2), EagleEye\_21 (A16), Eagle\_17 (A4), Eaglepride\_19 (A10), Eapen\_18 (A4), Ebony\_19 (A11), Echild\_19 (A2), Edison31\_18 (A10), EdogawaKiddo\_18 (A9), Eidsmoe\_20 (A9), ElTiger69\_15 (A5), Elephantoon\_20 (A9), EmyBug\_20 (A9), Equemioh13\_21 (A2), EricB\_22 (A6), Eris\_18 (A4), Eros\_18 (A4), Et2Brutus\_18 (A11), Eurydice\_18 (A4), EvilGenius\_21 (A2), Expelliarmus\_14 (A8), ExplosioNervosa\_20 (A9), Fameo\_19 (A2), Fayely\_20 (A9), Fibonacci\_19 (A11), FiringLine\_19 (A2), First\_0019 (A2), Flare16\_19 (A2), Flaverint\_19 (A11), Florean\_18 (A4), Flux\_18 (A4), FlyCatcher\_22 (A7), ForGetIt\_15 (A5), Funston\_18 (A4), Gadost\_18 (A4), Gail\_18 (A14), Garak\_23 (A6), GaugeLDP\_21 (A2), George\_14 (A5), Georgie2\_20 (A2), Ghoulyboy\_15 (A5), Gilberta\_19 (A11), Gladiator\_22 (A6), Goose\_18 (A10), Gratitude\_20 (A2), GreedyLawyer\_22 (A6), Groundhog\_14 (A8), Gruunaga\_22 (A6), HINdeR\_18 (A7), HamSlice\_17 (A4), Hammer\_22 (A6), Hanray\_19 (A9), Happiness\_18 (A4), HarryHoudini\_21 (A2), Heffalump\_21 (A2), Helmet\_23 (A6), Herbertwm\_16 (A2), Hexamo\_22 (A6), Holes\_19 (A9), Holli\_18 (A4), Hoot\_22 (A6), HortumSL17\_20 (A9), Houdini22\_18 (A4), HuhtaEnerson15\_15 (A5), Hutc2\_19 (A11), Huxley\_18 (A4), ICleared\_18 (A4), Iceman\_19 (A4), Indra\_22 (A6), Insomnia\_19 (A11), Iracema64\_19 (A4), IronMan\_21 (A2), Isiphiwo\_22 (A6), Iwokeuplikedis\_20 (A2), Jaan\_22 (A2), Jabiru\_15 (A5), Jabith\_19 (A11), Jaykayelowell\_18 (A4), Jeeves\_18 (A14), Jeffabunny\_22 (A6), Jerm\_21 (A2), JetBlade\_18 (A4), JewelBug\_22 (A6), Jiawan\_19 (A9), JoongJeon\_18 (A4), Jordennis\_22 (A6), Joselito\_19 (A11), JoshKayV\_21 (A2), Journey13\_17 (A2), Jovo\_15 (A5), Jsquared\_18 (A2), KFPoly\_18 (A4), Kalpine\_22 (A2), Kamy\_18 (A4), Katalie136\_18 (A4), Kazan\_22 (A6), Kerberos\_22 (A2),



Keziacharles14\_18 (A9), Kimona\_15 (A19), KingCyrus\_21 (A2), Kingmustik0402\_18 (A4), Kinmap\_18 (A21), Kipper29\_22 (A6), KittenMittens\_17 (A10), Koan\_17 (A4), Koduck\_19 (A2), Koko\_22 (A6), Koreni\_17 (A4), Kratark\_18 (A4), Kremtemulon\_18 (A4), Kristoff\_19 (A10), Kugel\_18 (A1), Kye\_18 (A4), Kykar\_15 (A1), L5\_19.1 (A2), LHTSCC\_19 (A4), LadyBird\_19 (A2), Landor\_20 (A2), LappelDuVide\_18 (A4), Larenn\_20 (A2), Lemur\_18 (A4), LeoAvram\_18 (A4), Leogania\_21 (A2), Lev2\_15 (A5), Leviathan\_21 (A2), LilTurb\_21 (A2), Lilbunny\_22 (A6), Lilleskat\_18 (A9), LionsBait\_20 (A2), LittleB\_18 (A4), LittleCherry\_15 (A5), LittleGuy\_18 (A4), LochMonster\_18 (A4), Lokk\_22 (A2), LoneWolf\_20 (A9), Lorenzo\_18 (A4), Loser\_22 (A2), Luchador\_20 (A14), Lucivia\_19 (A11), Lucyedi\_20 (A16), Lunsford\_19 (A4), MaCh\_19 (A11), Mabel\_19 (A11), MajorMajor\_18 (A2), Malec\_20 (A2), Maminiaina\_20 (A9), MarysWell\_14 (A5), Maverick\_18 (A4), Maxo\_18 (A4), Mayonnaise\_18 (A4), Mazhar510\_18 (A4), McFly\_22 (A6), Medusa\_18 (A4), MeeZee\_18 (A4), Melvin\_18 (A4), Micasa\_15 (A5), MiculUcigas\_19 (A2), Midas2\_15 (A5), Miko\_22 (A2), Milcery\_15 (A5), Millski\_18 (A4), Miramae\_18 (A4), MissWhite\_19 (A2), Morpher26\_18 (A4), Morrow\_18 (A4), Mulciber\_19 (A11), Munch\_19 (A11), Mundrea\_18 (A4), Myxus\_20 (A9), NaSiaTalie\_19 (A2), Naca\_15 (A5), Naji\_22 (A2), NearlyHeadless\_15 (A8), Nebs\_18 (A4), Neeharika16\_22 (A6), Nemo27\_18 (A4), Newrala\_22 (A6), NicoleTera\_23 (A2), Noelle\_18 (A4), NorthStar\_18 (A4), NotAPhaseMom\_18 (A4), NothingSpecial\_21 (A2), Nyxis\_18 (A4), OKCentral2016\_18 (A10), OKaNui\_19 (A4), Obama12\_19 (A4), Odin\_18 (A2), Ohfah\_18 (A4), Onglai\_19 (A9), Orange\_19 (A11), PackMan\_20 (A9), PainterBoy\_20 (A16), Palestino\_18 (A4), PeaceMeal1\_17 (A10), Peaches\_18 (A4), Perplexer\_18 (A4), PeterPeter\_18 (A4), Petersenfast\_18 (A11), PetiteSangsue\_18 (A4), PetterN\_16 (A5), Ph8s\_20 (A2), Phacado\_18 (A4), Phaded\_22 (A2), Phaeder\_20 (A9), Phelipe\_18 (A4), Phighter1804\_18 (A4), Phillis\_15 (A8), Phlei\_14 (A13), Phlorence\_15 (A5), Phonnegut\_20 (A9), Phontbonne\_18 (A4), PickleBack\_15 (A5), Pioneer\_20 (A9), Pipcraft\_18 (A4), Piro94\_20 (A2), Pmask\_22 (A6), Polymorphads\_18 (A4), Polyphemus\_21 (A6), Pomar16\_22 (A2), Poompha\_17 (A10), Power\_19 (A2), Priamo\_22 (A6), Prinash11\_16 (A5), Priya\_20 (A9), Pukovnik\_21 (A2), Pumbaa\_18 (A4), Qobbit\_20 (A9), QueenB2\_19 (A2), QueenBeesly\_19 (A2), Quokka\_17 (A2), Rachaly\_22 (A2), Rahalelujah\_18 (A9), Rebeuca\_19 (A10), RedRock\_22 (A2), Relief\_18 (A4), Retro23\_19 (A2), RhynO\_19 (A10), Rifter\_22 (A6), Roary\_15 (A8), Roksolana\_22 (A6), Romney\_18 (A4), Roosevelt\_18 (A4), Rosa24\_17 (A4), Rowdy\_21 (A10), Ruin\_18 (A4), RyeScarlet\_21 (A9), Sabertooth\_18 (A4), Sachima\_18 (A9), Saintus\_15 (A8), Salz\_19 (A11), Scamp\_18 (A4), Scherzo\_20 (A9), Scorpia\_16 (A5), SemperFi\_21 (A2), SenorClean\_17 (A4), Serenity\_18 (A2), Severus\_17 (A10), Shaka\_18 (A4), Sham4\_19 (A11), Shapes\_21 (A10), SheaKeira\_19 (A9), Sheen\_20 (A7), SheldonCooper\_19 (A4), Shygu2\_18 (A4), Skipitt\_18 (A4), Sknot\_20 (A2), Smeadley\_15 (A8), Smeagan\_21 (A2), SmellyB\_22 (A6), SnapTap\_19 (A2), Snape\_19 (A11), SororFago\_18 (A14), Sparxx\_18 (A4), Spino\_18 (A4), Spouty\_20 (A9), StarStuff\_22 (A2), Stasia\_19 (A4), Stephig9\_15 (A8), Stink\_19 (A4), Sunhee\_17 (A14), SuperAwesome\_22 (A6), SuperCallie99\_22 (A6), Superchunk\_18 (A2), SweetiePie\_19 (A2), SwirlSquare\_21 (A2), Swirley\_15 (A5), SydNat\_15 (A5), Taquarus\_18 (A4), Target\_19 (A1), TarsusIV\_19 (A2), Tarynearal\_14 (A5), Temprado\_23 (A6), Terrific\_23 (A2), Thanksgivukkah\_18 (A4), Tiger\_15 (A5), Timothy\_19 (A11), Timshel\_19 (A7), TinaFeyge\_18 (A4), TinyTimmy\_19 (A11), Tinybot\_17 (A4), TopsytheTRex\_18 (A2), TiroTheta9\_18 (A4), Toaka\_18 (A9), Tomathan\_22 (A2), ToneTone\_20 (A6), Topanga\_18 (A10), Toro\_21 (A7), Travvers\_22 (A2), Trike\_16 (A10), Tristan\_20 (A2), Trixie\_22 (A2), Trooper\_19 (A2), TroyPia\_18 (A4), Tubs\_20 (A9), Tucker\_22 (A6), Turbido\_21 (A2), Twigg\_15 (A5), Twister\_18 (A10), TygerBlood\_18 (A4), Ugenie5\_17 (A9), Ulysses\_17 (A4), UnionJack\_15 (A5), Updawg\_21 (A2), VA6\_19 (A2), VC3\_22

(A2), Vanisoa\_18 (A9), VohminGhazi\_22 (A6), WalterMcMickey\_18 (A10), Wander\_18 (A4), WeiHuaDA\_25 (A2), Whabigail7\_21 (A2), WideWale\_21 (A2), Wiks\_22 (A6), Wilbur\_18 (A4), Wile\_18 (A4), Wizard007\_18 (A4), WunderPhul\_22 (A6), Xena\_18 (A4), XianYue\_19 (A2), Yecey3\_19 (A9), YoSam321\_18 (A4), Yokurt\_22 (A6), Zaka\_22 (A6), Zolita\_14 (A5), Zulu\_22 (A6),

### **Summary by clusters:**

There are 18 clusters represented in this pham: A, A14, A17, A16, A11, A10, A13, A12, A19, A21, A1, A2, A5, A4, A7, A6, A9, A8,

Info for manual annotations of cluster A:

- Start number 3 was manually annotated 1 time for cluster A.

Info for manual annotations of cluster A1:

- Start number 3 was manually annotated 4 times for cluster A1.

Info for manual annotations of cluster A10:

- Start number 3 was manually annotated 17 times for cluster A10.

Info for manual annotations of cluster A11:

- Start number 3 was manually annotated 24 times for cluster A11.

Info for manual annotations of cluster A12:

- Start number 2 was manually annotated 5 times for cluster A12.

Info for manual annotations of cluster A14:

- Start number 3 was manually annotated 4 times for cluster A14.

Info for manual annotations of cluster A16:

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

Info for manual annotations of cluster A19:

- Start number 3 was manually annotated 1 time for cluster A19.

Info for manual annotations of cluster A2:

- Start number 3 was manually annotated 102 times for cluster A2.

Info for manual annotations of cluster A4:

- Start number 3 was manually annotated 137 times for cluster A4.

Info for manual annotations of cluster A5:

- Start number 3 was manually annotated 37 times for cluster A5.

Info for manual annotations of cluster A6:

- Start number 3 was manually annotated 42 times for cluster A6.

Info for manual annotations of cluster A7:

- Start number 3 was manually annotated 4 times for cluster A7.

Info for manual annotations of cluster A8:

- Start number 3 was manually annotated 11 times for cluster A8.

Info for manual annotations of cluster A9:

- Start number 3 was manually annotated 35 times for cluster A9.

**Gene Information:**

Gene: 20ES\_19 Start: 13760, Stop: 13954, Start Num: 3

Candidate Starts for 20ES\_19:

(1, 13691), (Start: 3 @13760 has 422 MA's),

Gene: 40AC\_22 Start: 15786, Stop: 15977, Start Num: 3

Candidate Starts for 40AC\_22:

(1, 15717), (Start: 3 @15786 has 422 MA's), (22, 15969),

Gene: AN3\_19 Start: 13750, Stop: 13944, Start Num: 3

Candidate Starts for AN3\_19:

(1, 13681), (Start: 3 @13750 has 422 MA's),

Gene: AN9\_22 Start: 13755, Stop: 13931, Start Num: 3

Candidate Starts for AN9\_22:

(1, 13686), (Start: 3 @13755 has 422 MA's), (6, 13809), (14, 13869), (17, 13911), (18, 13920),

Gene: ANI8\_22 Start: 13755, Stop: 13931, Start Num: 3

Candidate Starts for ANI8\_22:

(1, 13686), (Start: 3 @13755 has 422 MA's), (6, 13809), (14, 13869), (17, 13911), (18, 13920),

Gene: AbbyPaige\_21 Start: 14210, Stop: 14407, Start Num: 3

Candidate Starts for AbbyPaige\_21:

(1, 14141), (Start: 3 @14210 has 422 MA's), (6, 14264),

Gene: AbbysRanger\_18 Start: 13061, Stop: 13234, Start Num: 3

Candidate Starts for AbbysRanger\_18:

(1, 12995), (Start: 3 @13061 has 422 MA's), (10, 13145), (14, 13172),

Gene: Abdiel\_18 Start: 13038, Stop: 13205, Start Num: 3

Candidate Starts for Abdiel\_18:

(Start: 3 @13038 has 422 MA's), (10, 13116), (14, 13143), (16, 13155),

Gene: Achebe\_18 Start: 13040, Stop: 13213, Start Num: 3

Candidate Starts for Achebe\_18:

(Start: 3 @13040 has 422 MA's), (10, 13124), (14, 13151), (16, 13163),

Gene: Acolyte\_19 Start: 13878, Stop: 14072, Start Num: 3

Candidate Starts for Acolyte\_19:

(1, 13809), (Start: 3 @13878 has 422 MA's),

Gene: Adzzy\_20 Start: 12493, Stop: 12687, Start Num: 3

Candidate Starts for Adzzy\_20:

(1, 12424), (Start: 3 @12493 has 422 MA's), (6, 12547), (9, 12568),

Gene: Agape74\_21 Start: 14210, Stop: 14407, Start Num: 3

Candidate Starts for Agape74\_21:

(1, 14141), (Start: 3 @14210 has 422 MA's), (6, 14264),

Gene: AgentM\_15 Start: 12249, Stop: 12389, Start Num: 3

Candidate Starts for AgentM\_15:

(1, 12183), (Start: 3 @12249 has 422 MA's), (14, 12315), (17, 12357),

Gene: Airmid\_15 Start: 12009, Stop: 12152, Start Num: 3

Candidate Starts for Airmid\_15:

(1, 11943), (Start: 3 @12009 has 422 MA's), (17, 12117),

Gene: Albee\_18 Start: 13041, Stop: 13208, Start Num: 3

Candidate Starts for Albee\_18:

(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: Alberto7\_19 Start: 13343, Stop: 13510, Start Num: 3

Candidate Starts for Alberto7\_19:

(Start: 3 @13343 has 422 MA's), (10, 13421), (14, 13448), (16, 13460),

Gene: Aliter\_20 Start: 14442, Stop: 14639, Start Num: 3

Candidate Starts for Aliter\_20:

(1, 14373), (Start: 3 @14442 has 422 MA's), (6, 14496), (15, 14562),

Gene: Alma\_20 Start: 14521, Stop: 14718, Start Num: 3

Candidate Starts for Alma\_20:

(1, 14452), (Start: 3 @14521 has 422 MA's), (6, 14575), (15, 14641),

Gene: Aneem\_19 Start: 14302, Stop: 14472, Start Num: 3

Candidate Starts for Aneem\_19:

(1, 14233), (Start: 3 @14302 has 422 MA's), (8, 14368), (14, 14410),

Gene: AnnaL29\_22 Start: 15599, Stop: 15799, Start Num: 3

Candidate Starts for AnnaL29\_22:

(1, 15530), (Start: 3 @15599 has 422 MA's), (22, 15791),

Gene: Annyong\_18 Start: 13042, Stop: 13209, Start Num: 3

Candidate Starts for Annyong\_18:

(Start: 3 @13042 has 422 MA's), (10, 13120), (14, 13147), (16, 13159),

Gene: Anselm\_19 Start: 13857, Stop: 14051, Start Num: 3

Candidate Starts for Anselm\_19:

(1, 13788), (Start: 3 @13857 has 422 MA's),

Gene: Aragog\_15 Start: 12279, Stop: 12419, Start Num: 3

Candidate Starts for Aragog\_15:

(1, 12213), (Start: 3 @12279 has 422 MA's), (14, 12345), (17, 12387),

Gene: ArcherNM\_21 Start: 15551, Stop: 15745, Start Num: 3

Candidate Starts for ArcherNM\_21:

(1, 15482), (Start: 3 @15551 has 422 MA's),

Gene: Archetta\_15 Start: 11992, Stop: 12132, Start Num: 3  
Candidate Starts for Archetta\_15:  
(1, 11926), (Start: 3 @11992 has 422 MA's), (14, 12058), (17, 12100),

Gene: Arissanae\_18 Start: 12614, Stop: 12811, Start Num: 3  
Candidate Starts for Arissanae\_18:  
(1, 12545), (Start: 3 @12614 has 422 MA's), (4, 12629),

Gene: Artemis2UCLA\_22 Start: 13736, Stop: 13927, Start Num: 3  
Candidate Starts for Artemis2UCLA\_22:  
(1, 13667), (Start: 3 @13736 has 422 MA's), (9, 13811), (18, 13901), (22, 13919),

Gene: Arturo\_17 Start: 13152, Stop: 13319, Start Num: 3  
Candidate Starts for Arturo\_17:  
(Start: 3 @13152 has 422 MA's), (10, 13230), (14, 13257), (16, 13269),

Gene: Astro\_15 Start: 11769, Stop: 11897, Start Num: 3  
Candidate Starts for Astro\_15:  
(1, 11703), (Start: 3 @11769 has 422 MA's),

Gene: AvatarAhPeg\_19 Start: 13325, Stop: 13498, Start Num: 3  
Candidate Starts for AvatarAhPeg\_19:  
(1, 13259), (Start: 3 @13325 has 422 MA's), (14, 13436), (16, 13448),

Gene: Avle17\_18 Start: 13041, Stop: 13208, Start Num: 3  
Candidate Starts for Avle17\_18:  
(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: BABullseye\_22 Start: 13849, Stop: 14040, Start Num: 3  
Candidate Starts for BABullseye\_22:  
(1, 13780), (Start: 3 @13849 has 422 MA's), (9, 13924), (17, 14005), (22, 14032),

Gene: Baby16\_18 Start: 13050, Stop: 13217, Start Num: 3  
Candidate Starts for Baby16\_18:  
(Start: 3 @13050 has 422 MA's), (10, 13128), (14, 13155), (16, 13167),

Gene: BabyBack\_21 Start: 15390, Stop: 15581, Start Num: 3  
Candidate Starts for BabyBack\_21:  
(1, 15321), (Start: 3 @15390 has 422 MA's), (22, 15573),

Gene: Bachome\_19 Start: 14299, Stop: 14469, Start Num: 3  
Candidate Starts for Bachome\_19:  
(1, 14230), (Start: 3 @14299 has 422 MA's), (8, 14365), (14, 14407),

Gene: Backyardigan\_18 Start: 13052, Stop: 13225, Start Num: 3  
Candidate Starts for Backyardigan\_18:  
(Start: 3 @13052 has 422 MA's), (10, 13136), (14, 13163), (16, 13175),

Gene: Bactobuster\_20 Start: 15482, Stop: 15676, Start Num: 3  
Candidate Starts for Bactobuster\_20:  
(1, 15413), (Start: 3 @15482 has 422 MA's),

Gene: Badger\_18 Start: 13041, Stop: 13214, Start Num: 3

Candidate Starts for Badger\_18:  
(Start: 3 @13041 has 422 MA's), (10, 13125), (14, 13152), (16, 13164),

Gene: Baehexic\_20 Start: 14257, Stop: 14451, Start Num: 3  
Candidate Starts for Baehexic\_20:  
(Start: 3 @14257 has 422 MA's), (22, 14443),

Gene: BangNhom\_18 Start: 13353, Stop: 13520, Start Num: 3  
Candidate Starts for BangNhom\_18:  
(Start: 3 @13353 has 422 MA's), (10, 13431), (14, 13458), (16, 13470),

Gene: Bartimeaus\_18 Start: 13041, Stop: 13208, Start Num: 3  
Candidate Starts for Bartimeaus\_18:  
(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: Beemo\_20 Start: 14548, Stop: 14745, Start Num: 3  
Candidate Starts for Beemo\_20:  
(1, 14479), (Start: 3 @14548 has 422 MA's), (6, 14602), (15, 14668),

Gene: BellusTerra\_18 Start: 13038, Stop: 13205, Start Num: 3  
Candidate Starts for BellusTerra\_18:  
(Start: 3 @13038 has 422 MA's), (10, 13116), (14, 13143), (16, 13155),

Gene: Benedict\_15 Start: 12011, Stop: 12154, Start Num: 3  
Candidate Starts for Benedict\_15:  
(1, 11945), (Start: 3 @12011 has 422 MA's), (17, 12119),

Gene: BengiVuitton\_20 Start: 14173, Stop: 14367, Start Num: 3  
Candidate Starts for BengiVuitton\_20:  
(1, 14104), (Start: 3 @14173 has 422 MA's),

Gene: Benvolio\_19 Start: 13847, Stop: 14041, Start Num: 3  
Candidate Starts for Benvolio\_19:  
(1, 13778), (Start: 3 @13847 has 422 MA's),

Gene: BiancaTri92\_21 Start: 15535, Stop: 15729, Start Num: 3  
Candidate Starts for BiancaTri92\_21:  
(1, 15466), (Start: 3 @15535 has 422 MA's),

Gene: BillKnuckles\_18 Start: 13921, Stop: 14049, Start Num: 3  
Candidate Starts for BillKnuckles\_18:  
(1, 13855), (Start: 3 @13921 has 422 MA's), (19, 14029),

Gene: Blackmoor\_18 Start: 13041, Stop: 13208, Start Num: 3  
Candidate Starts for Blackmoor\_18:  
(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: BlessJoy\_22 Start: 13834, Stop: 14025, Start Num: 3  
Candidate Starts for BlessJoy\_22:  
(1, 13765), (Start: 3 @13834 has 422 MA's), (9, 13909), (17, 13990), (22, 14017),

Gene: Blinn1\_22 Start: 13891, Stop: 14082, Start Num: 3  
Candidate Starts for Blinn1\_22:

(1, 13822), (Start: 3 @13891 has 422 MA's), (9, 13966), (12, 13984), (17, 14047), (22, 14074),

Gene: Blue7\_22 Start: 13826, Stop: 14017, Start Num: 3

Candidate Starts for Blue7\_22:

(1, 13757), (Start: 3 @13826 has 422 MA's), (9, 13901), (18, 13991), (22, 14009),

Gene: Bluefalcon\_14 Start: 12249, Stop: 12389, Start Num: 3

Candidate Starts for Bluefalcon\_14:

(1, 12183), (Start: 3 @12249 has 422 MA's), (14, 12315), (17, 12357),

Gene: BobSwaget\_22 Start: 15401, Stop: 15604, Start Num: 3

Candidate Starts for BobSwaget\_22:

(1, 15332), (Start: 3 @15401 has 422 MA's), (14, 15512), (17, 15554),

Gene: BogosyJay\_20 Start: 14268, Stop: 14465, Start Num: 3

Candidate Starts for BogosyJay\_20:

(1, 14199), (Start: 3 @14268 has 422 MA's),

Gene: Bombshell\_18 Start: 13041, Stop: 13208, Start Num: 3

Candidate Starts for Bombshell\_18:

(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: Bonamassa\_15 Start: 12171, Stop: 12314, Start Num: 3

Candidate Starts for Bonamassa\_15:

(1, 12105), (Start: 3 @12171 has 422 MA's), (14, 12237), (17, 12279),

Gene: Bowtie\_19 Start: 14302, Stop: 14472, Start Num: 3

Candidate Starts for Bowtie\_19:

(1, 14233), (Start: 3 @14302 has 422 MA's), (8, 14368), (14, 14410),

Gene: Bradman\_18 Start: 12667, Stop: 12861, Start Num: 3

Candidate Starts for Bradman\_18:

(1, 12598), (Start: 3 @12667 has 422 MA's), (14, 12778), (22, 12853),

Gene: Broseidon\_18 Start: 13041, Stop: 13208, Start Num: 3

Candidate Starts for Broseidon\_18:

(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: Bruiser\_18 Start: 13041, Stop: 13208, Start Num: 3

Candidate Starts for Bruiser\_18:

(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: BubbleTrouble\_18 Start: 13041, Stop: 13208, Start Num: 3

Candidate Starts for BubbleTrouble\_18:

(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: Bud\_19 Start: 14308, Stop: 14478, Start Num: 3

Candidate Starts for Bud\_19:

(1, 14239), (Start: 3 @14308 has 422 MA's), (8, 14374), (14, 14416),

Gene: Buggy\_21 Start: 14209, Stop: 14406, Start Num: 3

Candidate Starts for Buggy\_21:

(1, 14140), (Start: 3 @14209 has 422 MA's), (6, 14263),

Gene: Bumblebee11\_18 Start: 13043, Stop: 13216, Start Num: 3  
Candidate Starts for Bumblebee11\_18:  
(1, 12977), (Start: 3 @13043 has 422 MA's), (10, 13127), (14, 13154), (17, 13196),

Gene: Burger\_17 Start: 13041, Stop: 13208, Start Num: 3  
Candidate Starts for Burger\_17:  
(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: C3\_17 Start: 13755, Stop: 13931, Start Num: 3  
Candidate Starts for C3\_17:  
(1, 13686), (Start: 3 @13755 has 422 MA's), (6, 13809), (14, 13869), (17, 13911), (18, 13920),

Gene: CRB1\_19 Start: 13729, Stop: 13926, Start Num: 3  
Candidate Starts for CRB1\_19:  
(1, 13660), (Start: 3 @13729 has 422 MA's), (6, 13783), (14, 13843),

Gene: Caelakin\_18 Start: 13041, Stop: 13208, Start Num: 3  
Candidate Starts for Caelakin\_18:  
(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: Camperdownii\_17 Start: 12660, Stop: 12827, Start Num: 3  
Candidate Starts for Camperdownii\_17:  
(Start: 3 @12660 has 422 MA's), (10, 12738), (14, 12765), (16, 12777),

Gene: Candra\_22 Start: 13892, Stop: 14083, Start Num: 3  
Candidate Starts for Candra\_22:  
(1, 13823), (Start: 3 @13892 has 422 MA's), (9, 13967), (17, 14048), (22, 14075),

Gene: Catalina\_20 Start: 14515, Stop: 14712, Start Num: 3  
Candidate Starts for Catalina\_20:  
(1, 14446), (Start: 3 @14515 has 422 MA's), (6, 14569), (15, 14635),

Gene: Centaur\_21 Start: 14235, Stop: 14429, Start Num: 3  
Candidate Starts for Centaur\_21:  
(1, 14166), (Start: 3 @14235 has 422 MA's), (22, 14421),

Gene: CentreCat\_18 Start: 13042, Stop: 13209, Start Num: 3  
Candidate Starts for CentreCat\_18:  
(Start: 3 @13042 has 422 MA's), (10, 13120), (14, 13147), (16, 13159),

Gene: Cerulean\_19 Start: 13354, Stop: 13521, Start Num: 3  
Candidate Starts for Cerulean\_19:  
(Start: 3 @13354 has 422 MA's), (10, 13432), (14, 13459), (16, 13471),

Gene: Chadwick\_16 Start: 11979, Stop: 12122, Start Num: 3  
Candidate Starts for Chadwick\_16:  
(1, 11913), (Start: 3 @11979 has 422 MA's), (17, 12087),

Gene: ChampagnePapi\_19 Start: 13353, Stop: 13520, Start Num: 3  
Candidate Starts for ChampagnePapi\_19:  
(Start: 3 @13353 has 422 MA's), (10, 13431), (14, 13458), (16, 13470),



Gene: Changeling\_22 Start: 15600, Stop: 15794, Start Num: 3

Candidate Starts for Changeling\_22:

(1, 15531), (Start: 3 @15600 has 422 MA's), (22, 15786),

Gene: Chaph\_18 Start: 13050, Stop: 13217, Start Num: 3

Candidate Starts for Chaph\_18:

(Start: 3 @13050 has 422 MA's), (10, 13128), (14, 13155), (16, 13167),

Gene: Chargerpower\_19 Start: 12965, Stop: 13171, Start Num: 3

Candidate Starts for Chargerpower\_19:

(1, 12896), (Start: 3 @12965 has 422 MA's), (23, 13163),

Gene: Charm\_19 Start: 12696, Stop: 12893, Start Num: 3

Candidate Starts for Charm\_19:

(1, 12627), (Start: 3 @12696 has 422 MA's), (6, 12750), (15, 12816),

Gene: Chartreuse\_22 Start: 13805, Stop: 13996, Start Num: 3

Candidate Starts for Chartreuse\_22:

(1, 13736), (Start: 3 @13805 has 422 MA's), (9, 13880), (17, 13961), (22, 13988),

Gene: Che12\_21 Start: 12659, Stop: 12853, Start Num: 3

Candidate Starts for Che12\_21:

(1, 12590), (Start: 3 @12659 has 422 MA's), (6, 12713), (9, 12734),

Gene: ChipMunk\_21 Start: 14145, Stop: 14339, Start Num: 3

Candidate Starts for ChipMunk\_21:

(1, 14076), (Start: 3 @14145 has 422 MA's),

Gene: Chupacabra\_18 Start: 12820, Stop: 12987, Start Num: 3

Candidate Starts for Chupacabra\_18:

(1, 12754), (Start: 3 @12820 has 422 MA's), (7, 12874), (9, 12889), (10, 12895),

Gene: Cici\_18 Start: 13034, Stop: 13207, Start Num: 3

Candidate Starts for Cici\_18:

(1, 12968), (Start: 3 @13034 has 422 MA's), (10, 13118), (14, 13145),

Gene: Cindaradix\_17 Start: 12768, Stop: 12941, Start Num: 3

Candidate Starts for Cindaradix\_17:

(1, 12702), (Start: 3 @12768 has 422 MA's), (16, 12891),

Gene: Cintron\_18 Start: 13089, Stop: 13256, Start Num: 3

Candidate Starts for Cintron\_18:

(Start: 3 @13089 has 422 MA's), (14, 13194), (16, 13206),

Gene: Citius\_18 Start: 13041, Stop: 13208, Start Num: 3

Candidate Starts for Citius\_18:

(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: Clarenza\_18 Start: 13038, Stop: 13205, Start Num: 3

Candidate Starts for Clarenza\_18:

(Start: 3 @13038 has 422 MA's), (10, 13116), (14, 13143), (16, 13155),

Gene: CloudWang3\_22 Start: 13836, Stop: 14027, Start Num: 3

Candidate Starts for CloudWang3\_22:

(1, 13767), (Start: 3 @13836 has 422 MA's), (9, 13911), (18, 14001), (22, 14019),

Gene: Cocoaberry\_18 Start: 13045, Stop: 13212, Start Num: 3

Candidate Starts for Cocoaberry\_18:

(Start: 3 @13045 has 422 MA's), (10, 13123), (14, 13150), (16, 13162),

Gene: Colin\_23 Start: 15439, Stop: 15633, Start Num: 3

Candidate Starts for Colin\_23:

(1, 15370), (Start: 3 @15439 has 422 MA's),

Gene: Commander\_18 Start: 13041, Stop: 13208, Start Num: 3

Candidate Starts for Commander\_18:

(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: Connomayer\_18 Start: 13041, Stop: 13208, Start Num: 3

Candidate Starts for Connomayer\_18:

(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: Conquerage\_20 Start: 14544, Stop: 14741, Start Num: 3

Candidate Starts for Conquerage\_20:

(1, 14475), (Start: 3 @14544 has 422 MA's), (6, 14598), (15, 14664),

Gene: Conspiracy\_15 Start: 11995, Stop: 12138, Start Num: 3

Candidate Starts for Conspiracy\_15:

(1, 11929), (Start: 3 @11995 has 422 MA's), (14, 12061), (17, 12103),

Gene: Coog\_15 Start: 12139, Stop: 12282, Start Num: 3

Candidate Starts for Coog\_15:

(1, 12073), (Start: 3 @12139 has 422 MA's), (14, 12205), (17, 12247),

Gene: Cookiedough\_22 Start: 13849, Stop: 14040, Start Num: 3

Candidate Starts for Cookiedough\_22:

(1, 13780), (Start: 3 @13849 has 422 MA's), (9, 13924), (17, 14005), (22, 14032),

Gene: Crucio\_19 Start: 13692, Stop: 13886, Start Num: 3

Candidate Starts for Crucio\_19:

(1, 13623), (Start: 3 @13692 has 422 MA's),

Gene: Cuco\_15 Start: 12170, Stop: 12313, Start Num: 3

Candidate Starts for Cuco\_15:

(1, 12104), (Start: 3 @12170 has 422 MA's), (14, 12236), (17, 12278),

Gene: D29\_19.1 Start: 13643, Stop: 13837, Start Num: 3

Candidate Starts for D29\_19.1:

(1, 13574), (Start: 3 @13643 has 422 MA's), (11, 13730),

Gene: D32\_22 Start: 13643, Stop: 13837, Start Num: 3

Candidate Starts for D32\_22:

(1, 13574), (Start: 3 @13643 has 422 MA's), (11, 13730),

Gene: DBQu4n\_22 Start: 13643, Stop: 13837, Start Num: 3

Candidate Starts for DBQu4n\_22:

(1, 13574), (Start: 3 @13643 has 422 MA's), (11, 13730),

Gene: DaVinci\_22 Start: 13859, Stop: 14050, Start Num: 3

Candidate Starts for DaVinci\_22:

(1, 13790), (Start: 3 @13859 has 422 MA's), (9, 13934), (17, 14015), (22, 14042),

Gene: Dalmatian\_19 Start: 13842, Stop: 14036, Start Num: 3

Candidate Starts for Dalmatian\_19:

(1, 13773), (Start: 3 @13842 has 422 MA's),

Gene: Danforth\_14 Start: 11748, Stop: 11876, Start Num: 3

Candidate Starts for Danforth\_14:

(1, 11682), (Start: 3 @11748 has 422 MA's),

Gene: Darrell\_21 Start: 14706, Stop: 14903, Start Num: 3

Candidate Starts for Darrell\_21:

(1, 14637), (Start: 3 @14706 has 422 MA's), (6, 14760), (15, 14826), (17, 14862),

Gene: DARTHPhader\_20 Start: 14681, Stop: 14887, Start Num: 2

Candidate Starts for DARTHPhader\_20:

(1, 14612), (Start: 2 @14681 has 5 MA's), (9, 14756), (14, 14795),

Gene: Datway\_18 Start: 13052, Stop: 13225, Start Num: 3

Candidate Starts for Datway\_18:

(Start: 3 @13052 has 422 MA's), (10, 13136), (14, 13163), (16, 13175),

Gene: Deano\_18 Start: 13049, Stop: 13216, Start Num: 3

Candidate Starts for Deano\_18:

(Start: 3 @13049 has 422 MA's), (10, 13127), (14, 13154), (16, 13166),

Gene: Deloris\_20 Start: 14173, Stop: 14367, Start Num: 3

Candidate Starts for Deloris\_20:

(1, 14104), (Start: 3 @14173 has 422 MA's),

Gene: Dhanush\_18 Start: 13044, Stop: 13211, Start Num: 3

Candidate Starts for Dhanush\_18:

(Start: 3 @13044 has 422 MA's), (10, 13122), (14, 13149), (16, 13161),

Gene: Dignity\_21 Start: 14154, Stop: 14351, Start Num: 3

Candidate Starts for Dignity\_21:

(1, 14085), (Start: 3 @14154 has 422 MA's), (6, 14208),

Gene: DirtyDunning\_18 Start: 13037, Stop: 13204, Start Num: 3

Candidate Starts for DirtyDunning\_18:

(Start: 3 @13037 has 422 MA's), (14, 13142), (16, 13154),

Gene: Discoknowium\_15 Start: 12285, Stop: 12428, Start Num: 3

Candidate Starts for Discoknowium\_15:

(1, 12219), (Start: 3 @12285 has 422 MA's), (14, 12351), (17, 12393),

Gene: Dixon\_15 Start: 11767, Stop: 11895, Start Num: 3

Candidate Starts for Dixon\_15:

(1, 11701), (Start: 3 @11767 has 422 MA's),

Gene: DontArgue\_17 Start: 11078, Stop: 11245, Start Num: 3  
Candidate Starts for DontArgue\_17:  
(1, 11012), (Start: 3 @11078 has 422 MA's), (9, 11147), (10, 11153),

Gene: Dorothea\_22 Start: 13860, Stop: 14051, Start Num: 3  
Candidate Starts for Dorothea\_22:  
(1, 13791), (Start: 3 @13860 has 422 MA's), (9, 13935), (17, 14016), (22, 14043),

Gene: Drake55\_21 Start: 14253, Stop: 14447, Start Num: 3  
Candidate Starts for Drake55\_21:  
(1, 14184), (Start: 3 @14253 has 422 MA's), (22, 14439),

Gene: Drake94\_17 Start: 10911, Stop: 11078, Start Num: 3  
Candidate Starts for Drake94\_17:  
(1, 10845), (Start: 3 @10911 has 422 MA's), (9, 10980), (10, 10986),

Gene: DreamTeam1\_19 Start: 12696, Stop: 12893, Start Num: 3  
Candidate Starts for DreamTeam1\_19:  
(1, 12627), (Start: 3 @12696 has 422 MA's), (6, 12750), (15, 12816),

Gene: DroogsArmy\_19 Start: 14408, Stop: 14575, Start Num: 3  
Candidate Starts for DroogsArmy\_19:  
(Start: 3 @14408 has 422 MA's), (13, 14507), (16, 14525),

Gene: Druantia\_18 Start: 13042, Stop: 13209, Start Num: 3  
Candidate Starts for Druantia\_18:  
(Start: 3 @13042 has 422 MA's), (10, 13120), (14, 13147), (16, 13159),

Gene: Dublin\_14 Start: 12138, Stop: 12281, Start Num: 3  
Candidate Starts for Dublin\_14:  
(1, 12072), (Start: 3 @12138 has 422 MA's), (14, 12204), (17, 12246),

Gene: DudeLittle\_19 Start: 13844, Stop: 14038, Start Num: 3  
Candidate Starts for DudeLittle\_19:  
(1, 13775), (Start: 3 @13844 has 422 MA's),

Gene: Duplo\_22 Start: 13684, Stop: 13878, Start Num: 3  
Candidate Starts for Duplo\_22:  
(1, 13615), (Start: 3 @13684 has 422 MA's), (11, 13771),

Gene: DustyMartin\_21 Start: 12890, Stop: 13057, Start Num: 3  
Candidate Starts for DustyMartin\_21:  
(1, 12824), (Start: 3 @12890 has 422 MA's), (7, 12944), (9, 12959), (10, 12965),

Gene: EZMoney23\_23 Start: 15728, Stop: 15922, Start Num: 3  
Candidate Starts for EZMoney23\_23:  
(1, 15659), (Start: 3 @15728 has 422 MA's), (22, 15914),

Gene: Eagle\_17 Start: 13041, Stop: 13208, Start Num: 3  
Candidate Starts for Eagle\_17:  
(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: EagleEye\_21 Start: 13990, Stop: 14163, Start Num: 3  
Candidate Starts for EagleEye\_21:  
(1, 13921), (Start: 3 @13990 has 422 MA's), (6, 14044), (7, 14050),

Gene: Eaglepride\_19 Start: 12830, Stop: 12997, Start Num: 3  
Candidate Starts for Eaglepride\_19:  
(1, 12764), (Start: 3 @12830 has 422 MA's), (7, 12884), (9, 12899), (10, 12905), (17, 12974),

Gene: Eapen\_18 Start: 13040, Stop: 13207, Start Num: 3  
Candidate Starts for Eapen\_18:  
(Start: 3 @13040 has 422 MA's), (10, 13118), (14, 13145), (16, 13157), (17, 13187),

Gene: Ebony\_19 Start: 14351, Stop: 14521, Start Num: 3  
Candidate Starts for Ebony\_19:  
(1, 14282), (Start: 3 @14351 has 422 MA's), (8, 14417), (14, 14459),

Gene: Echild\_19 Start: 13847, Stop: 14041, Start Num: 3  
Candidate Starts for Echild\_19:  
(1, 13778), (Start: 3 @13847 has 422 MA's),

Gene: Edison31\_18 Start: 12854, Stop: 13021, Start Num: 3  
Candidate Starts for Edison31\_18:  
(1, 12788), (Start: 3 @12854 has 422 MA's), (7, 12908), (9, 12923),

Gene: EdogawaKiddo\_18 Start: 14514, Stop: 14711, Start Num: 3  
Candidate Starts for EdogawaKiddo\_18:  
(1, 14445), (Start: 3 @14514 has 422 MA's), (6, 14568), (15, 14634),

Gene: Eidsmoe\_20 Start: 14544, Stop: 14741, Start Num: 3  
Candidate Starts for Eidsmoe\_20:  
(1, 14475), (Start: 3 @14544 has 422 MA's), (6, 14598), (15, 14664),

Gene: EITiger69\_15 Start: 12009, Stop: 12152, Start Num: 3  
Candidate Starts for EITiger69\_15:  
(1, 11943), (Start: 3 @12009 has 422 MA's), (17, 12117),

Gene: Elephantoon\_20 Start: 14135, Stop: 14332, Start Num: 3  
Candidate Starts for Elephantoon\_20:  
(1, 14066), (Start: 3 @14135 has 422 MA's), (6, 14189), (8, 14207), (9, 14210),

Gene: EmyBug\_20 Start: 14544, Stop: 14741, Start Num: 3  
Candidate Starts for EmyBug\_20:  
(1, 14475), (Start: 3 @14544 has 422 MA's), (6, 14598), (15, 14664),

Gene: Equemioh13\_21 Start: 14238, Stop: 14432, Start Num: 3  
Candidate Starts for Equemioh13\_21:  
(1, 14169), (Start: 3 @14238 has 422 MA's), (22, 14424),

Gene: EricB\_22 Start: 13849, Stop: 14040, Start Num: 3  
Candidate Starts for EricB\_22:  
(1, 13780), (Start: 3 @13849 has 422 MA's), (9, 13924), (17, 14005), (22, 14032),

Gene: Eris\_18 Start: 13041, Stop: 13208, Start Num: 3

Candidate Starts for Eris\_18:  
(Start: 3 @13041 has 422 MA's), (14, 13146), (16, 13158),

Gene: Eros\_18 Start: 13041, Stop: 13208, Start Num: 3  
Candidate Starts for Eros\_18:  
(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: Et2Brutus\_18 Start: 14305, Stop: 14475, Start Num: 3  
Candidate Starts for Et2Brutus\_18:  
(1, 14236), (Start: 3 @14305 has 422 MA's), (8, 14371), (14, 14413),

Gene: Eurydice\_18 Start: 13038, Stop: 13205, Start Num: 3  
Candidate Starts for Eurydice\_18:  
(Start: 3 @13038 has 422 MA's), (10, 13116), (14, 13143), (16, 13155),

Gene: EvilGenius\_21 Start: 14155, Stop: 14349, Start Num: 3  
Candidate Starts for EvilGenius\_21:  
(1, 14086), (Start: 3 @14155 has 422 MA's),

Gene: Expelliarmus\_14 Start: 11734, Stop: 11862, Start Num: 3  
Candidate Starts for Expelliarmus\_14:  
(1, 11668), (Start: 3 @11734 has 422 MA's),

Gene: ExplosioNervosa\_20 Start: 14547, Stop: 14744, Start Num: 3  
Candidate Starts for ExplosioNervosa\_20:  
(1, 14478), (Start: 3 @14547 has 422 MA's), (6, 14601), (15, 14667),

Gene: Fameo\_19 Start: 13770, Stop: 13964, Start Num: 3  
Candidate Starts for Fameo\_19:  
(Start: 3 @13770 has 422 MA's),

Gene: Fayely\_20 Start: 14547, Stop: 14744, Start Num: 3  
Candidate Starts for Fayely\_20:  
(1, 14478), (Start: 3 @14547 has 422 MA's), (6, 14601), (15, 14667),

Gene: Fibonacci\_19 Start: 14305, Stop: 14475, Start Num: 3  
Candidate Starts for Fibonacci\_19:  
(1, 14236), (Start: 3 @14305 has 422 MA's), (8, 14371), (14, 14413),

Gene: FiringLine\_19 Start: 13692, Stop: 13886, Start Num: 3  
Candidate Starts for FiringLine\_19:  
(1, 13623), (Start: 3 @13692 has 422 MA's),

Gene: First\_0019 Start: 13760, Stop: 13954, Start Num: 3  
Candidate Starts for First\_0019:  
(1, 13691), (Start: 3 @13760 has 422 MA's),

Gene: Flare16\_19 Start: 13796, Stop: 13990, Start Num: 3  
Candidate Starts for Flare16\_19:  
(1, 13727), (Start: 3 @13796 has 422 MA's), (22, 13982),

Gene: Flaverint\_19 Start: 14302, Stop: 14472, Start Num: 3  
Candidate Starts for Flaverint\_19:

(1, 14233), (Start: 3 @14302 has 422 MA's), (8, 14368), (14, 14410),

Gene: Florean\_18 Start: 13038, Stop: 13205, Start Num: 3

Candidate Starts for Florean\_18:

(Start: 3 @13038 has 422 MA's), (10, 13116), (14, 13143), (16, 13155),

Gene: Flux\_18 Start: 13041, Stop: 13208, Start Num: 3

Candidate Starts for Flux\_18:

(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: FlyCatcher\_22 Start: 14707, Stop: 14862, Start Num: 3

Candidate Starts for FlyCatcher\_22:

(1, 14641), (Start: 3 @14707 has 422 MA's),

Gene: ForGetIt\_15 Start: 12021, Stop: 12164, Start Num: 3

Candidate Starts for ForGetIt\_15:

(1, 11955), (Start: 3 @12021 has 422 MA's), (14, 12087), (17, 12129),

Gene: Funston\_18 Start: 13041, Stop: 13208, Start Num: 3

Candidate Starts for Funston\_18:

(Start: 3 @13041 has 422 MA's), (14, 13146), (16, 13158),

Gene: Gadost\_18 Start: 13045, Stop: 13212, Start Num: 3

Candidate Starts for Gadost\_18:

(Start: 3 @13045 has 422 MA's), (10, 13123), (14, 13150), (16, 13162),

Gene: Gail\_18 Start: 12857, Stop: 13066, Start Num: 3

Candidate Starts for Gail\_18:

(1, 12788), (Start: 3 @12857 has 422 MA's), (5, 12908), (20, 13043), (23, 13058),

Gene: Garak\_23 Start: 13854, Stop: 14045, Start Num: 3

Candidate Starts for Garak\_23:

(1, 13785), (Start: 3 @13854 has 422 MA's), (9, 13929), (17, 14010), (22, 14037),

Gene: GaugeLDP\_21 Start: 15063, Stop: 15254, Start Num: 3

Candidate Starts for GaugeLDP\_21:

(1, 14994), (Start: 3 @15063 has 422 MA's), (22, 15246),

Gene: George\_14 Start: 12171, Stop: 12314, Start Num: 3

Candidate Starts for George\_14:

(1, 12105), (Start: 3 @12171 has 422 MA's), (14, 12237), (17, 12279),

Gene: Georgie2\_20 Start: 13693, Stop: 13887, Start Num: 3

Candidate Starts for Georgie2\_20:

(1, 13624), (Start: 3 @13693 has 422 MA's),

Gene: Ghouboy\_15 Start: 12248, Stop: 12388, Start Num: 3

Candidate Starts for Ghouboy\_15:

(1, 12182), (Start: 3 @12248 has 422 MA's), (14, 12314), (17, 12356),

Gene: Gilberta\_19 Start: 14299, Stop: 14469, Start Num: 3

Candidate Starts for Gilberta\_19:

(1, 14230), (Start: 3 @14299 has 422 MA's), (8, 14365), (14, 14407),

Gene: Gladiator\_22 Start: 13826, Stop: 14017, Start Num: 3  
Candidate Starts for Gladiator\_22:  
(1, 13757), (Start: 3 @13826 has 422 MA's), (9, 13901), (18, 13991), (22, 14009),

Gene: Goose\_18 Start: 12821, Stop: 12988, Start Num: 3  
Candidate Starts for Goose\_18:  
(1, 12755), (Start: 3 @12821 has 422 MA's), (7, 12875), (9, 12890), (10, 12896),

Gene: Gratitude\_20 Start: 14238, Stop: 14432, Start Num: 3  
Candidate Starts for Gratitude\_20:  
(1, 14169), (Start: 3 @14238 has 422 MA's), (22, 14424),

Gene: GreedyLawyer\_22 Start: 13858, Stop: 14049, Start Num: 3  
Candidate Starts for GreedyLawyer\_22:  
(1, 13789), (Start: 3 @13858 has 422 MA's), (9, 13933), (17, 14014), (22, 14041),

Gene: Groundhog\_14 Start: 11735, Stop: 11863, Start Num: 3  
Candidate Starts for Groundhog\_14:  
(1, 11669), (Start: 3 @11735 has 422 MA's),

Gene: Gruunaga\_22 Start: 13826, Stop: 14017, Start Num: 3  
Candidate Starts for Gruunaga\_22:  
(1, 13757), (Start: 3 @13826 has 422 MA's), (9, 13901), (18, 13991), (22, 14009),

Gene: HINdeR\_18 Start: 14513, Stop: 14683, Start Num: 3  
Candidate Starts for HINdeR\_18:  
(Start: 3 @14513 has 422 MA's), (16, 14630),

Gene: HamSlice\_17 Start: 13039, Stop: 13206, Start Num: 3  
Candidate Starts for HamSlice\_17:  
(Start: 3 @13039 has 422 MA's), (10, 13117), (14, 13144), (16, 13156),

Gene: Hammer\_22 Start: 13841, Stop: 14032, Start Num: 3  
Candidate Starts for Hammer\_22:  
(1, 13772), (Start: 3 @13841 has 422 MA's), (9, 13916), (18, 14006), (22, 14024),

Gene: Hanray\_19 Start: 14518, Stop: 14715, Start Num: 3  
Candidate Starts for Hanray\_19:  
(1, 14449), (Start: 3 @14518 has 422 MA's), (6, 14572), (15, 14638),

Gene: Happiness\_18 Start: 13047, Stop: 13214, Start Num: 3  
Candidate Starts for Happiness\_18:  
(Start: 3 @13047 has 422 MA's), (14, 13152), (16, 13164),

Gene: HarryHoudini\_21 Start: 14253, Stop: 14447, Start Num: 3  
Candidate Starts for HarryHoudini\_21:  
(1, 14184), (Start: 3 @14253 has 422 MA's), (22, 14439),

Gene: Heffalump\_21 Start: 15572, Stop: 15766, Start Num: 3  
Candidate Starts for Heffalump\_21:  
(1, 15503), (Start: 3 @15572 has 422 MA's),



Gene: Helmet\_23 Start: 13854, Stop: 14045, Start Num: 3  
Candidate Starts for Helmet\_23:  
(1, 13785), (Start: 3 @13854 has 422 MA's), (9, 13929), (17, 14010), (22, 14037),

Gene: Herbertwm\_16 Start: 12450, Stop: 12650, Start Num: 3  
Candidate Starts for Herbertwm\_16:  
(1, 12381), (Start: 3 @12450 has 422 MA's), (6, 12504),

Gene: Hexamo\_22 Start: 13808, Stop: 13999, Start Num: 3  
Candidate Starts for Hexamo\_22:  
(1, 13739), (Start: 3 @13808 has 422 MA's), (9, 13883), (18, 13973), (22, 13991),

Gene: Horex\_19 Start: 14518, Stop: 14715, Start Num: 3  
Candidate Starts for Horex\_19:  
(1, 14449), (Start: 3 @14518 has 422 MA's), (6, 14572), (15, 14638),

Gene: Holli\_18 Start: 12831, Stop: 12998, Start Num: 3  
Candidate Starts for Holli\_18:  
(Start: 3 @12831 has 422 MA's), (10, 12909), (14, 12936), (16, 12948),

Gene: Hoot\_22 Start: 13837, Stop: 14028, Start Num: 3  
Candidate Starts for Hoot\_22:  
(1, 13768), (Start: 3 @13837 has 422 MA's), (9, 13912), (17, 13993), (22, 14020),

Gene: HortumSL17\_20 Start: 14514, Stop: 14711, Start Num: 3  
Candidate Starts for HortumSL17\_20:  
(1, 14445), (Start: 3 @14514 has 422 MA's), (6, 14568), (15, 14634),

Gene: Houdini22\_18 Start: 13045, Stop: 13212, Start Num: 3  
Candidate Starts for Houdini22\_18:  
(Start: 3 @13045 has 422 MA's), (10, 13123), (14, 13150), (16, 13162),

Gene: HuhtaEnerson15\_15 Start: 12171, Stop: 12314, Start Num: 3  
Candidate Starts for HuhtaEnerson15\_15:  
(1, 12105), (Start: 3 @12171 has 422 MA's), (14, 12237), (17, 12279),

Gene: Hutc2\_19 Start: 14305, Stop: 14475, Start Num: 3  
Candidate Starts for Hutc2\_19:  
(1, 14236), (Start: 3 @14305 has 422 MA's), (8, 14371), (14, 14413),

Gene: Huxley\_18 Start: 13105, Stop: 13272, Start Num: 3  
Candidate Starts for Huxley\_18:  
(Start: 3 @13105 has 422 MA's), (14, 13210), (16, 13222),

Gene: ICleared\_18 Start: 13039, Stop: 13206, Start Num: 3  
Candidate Starts for ICleared\_18:  
(Start: 3 @13039 has 422 MA's), (10, 13117), (14, 13144), (16, 13156),

Gene: Iceman\_19 Start: 13330, Stop: 13497, Start Num: 3  
Candidate Starts for Iceman\_19:  
(Start: 3 @13330 has 422 MA's), (10, 13408), (14, 13435), (16, 13447),

Gene: Indra\_22 Start: 13853, Stop: 14044, Start Num: 3

Candidate Starts for Indra\_22:

(1, 13784), (Start: 3 @13853 has 422 MA's), (9, 13928), (18, 14018), (22, 14036),

Gene: Insomnia\_19 Start: 14354, Stop: 14524, Start Num: 3

Candidate Starts for Insomnia\_19:

(1, 14285), (Start: 3 @14354 has 422 MA's), (8, 14420), (14, 14462),

Gene: Iracema64\_19 Start: 13353, Stop: 13520, Start Num: 3

Candidate Starts for Iracema64\_19:

(Start: 3 @13353 has 422 MA's), (10, 13431), (14, 13458), (16, 13470),

Gene: IronMan\_21 Start: 15438, Stop: 15632, Start Num: 3

Candidate Starts for IronMan\_21:

(1, 15369), (Start: 3 @15438 has 422 MA's),

Gene: Isiphiwo\_22 Start: 13849, Stop: 14040, Start Num: 3

Candidate Starts for Isiphiwo\_22:

(1, 13780), (Start: 3 @13849 has 422 MA's), (9, 13924), (17, 14005), (22, 14032),

Gene: Iwokeuplikedis\_20 Start: 13723, Stop: 13914, Start Num: 3

Candidate Starts for Iwokeuplikedis\_20:

(1, 13654), (Start: 3 @13723 has 422 MA's), (17, 13876),

Gene: Jaan\_22 Start: 15836, Stop: 16030, Start Num: 3

Candidate Starts for Jaan\_22:

(1, 15767), (Start: 3 @15836 has 422 MA's),

Gene: Jabiru\_15 Start: 12060, Stop: 12203, Start Num: 3

Candidate Starts for Jabiru\_15:

(1, 11994), (Start: 3 @12060 has 422 MA's), (17, 12168),

Gene: Jabith\_19 Start: 14354, Stop: 14524, Start Num: 3

Candidate Starts for Jabith\_19:

(1, 14285), (Start: 3 @14354 has 422 MA's), (8, 14420), (14, 14462),

Gene: Jaykayelowell\_18 Start: 13037, Stop: 13204, Start Num: 3

Candidate Starts for Jaykayelowell\_18:

(Start: 3 @13037 has 422 MA's), (10, 13115), (14, 13142), (16, 13154),

Gene: Jeeves\_18 Start: 12900, Stop: 13097, Start Num: 3

Candidate Starts for Jeeves\_18:

(1, 12831), (Start: 3 @12900 has 422 MA's), (23, 13089),

Gene: Jeffabunny\_22 Start: 13860, Stop: 14051, Start Num: 3

Candidate Starts for Jeffabunny\_22:

(1, 13791), (Start: 3 @13860 has 422 MA's), (9, 13935), (18, 14025), (22, 14043),

Gene: Jerm\_21 Start: 14170, Stop: 14367, Start Num: 3

Candidate Starts for Jerm\_21:

(1, 14101), (Start: 3 @14170 has 422 MA's), (6, 14224),

Gene: JetBlade\_18 Start: 13038, Stop: 13205, Start Num: 3

Candidate Starts for JetBlade\_18:

(Start: 3 @13038 has 422 MA's), (10, 13116), (14, 13143), (16, 13155),

Gene: JewelBug\_22 Start: 13861, Stop: 14052, Start Num: 3

Candidate Starts for JewelBug\_22:

(1, 13792), (Start: 3 @13861 has 422 MA's), (9, 13936), (17, 14017), (22, 14044),

Gene: Jiawan\_19 Start: 14550, Stop: 14747, Start Num: 3

Candidate Starts for Jiawan\_19:

(1, 14481), (Start: 3 @14550 has 422 MA's), (6, 14604), (15, 14670),

Gene: JoongJeon\_18 Start: 13041, Stop: 13208, Start Num: 3

Candidate Starts for JoongJeon\_18:

(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: Jordennis\_22 Start: 13849, Stop: 14040, Start Num: 3

Candidate Starts for Jordennis\_22:

(1, 13780), (Start: 3 @13849 has 422 MA's), (9, 13924), (17, 14005), (22, 14032),

Gene: Joselito\_19 Start: 14302, Stop: 14472, Start Num: 3

Candidate Starts for Joselito\_19:

(1, 14233), (Start: 3 @14302 has 422 MA's), (8, 14368), (14, 14410),

Gene: JoshKayV\_21 Start: 14174, Stop: 14365, Start Num: 3

Candidate Starts for JoshKayV\_21:

(1, 14105), (Start: 3 @14174 has 422 MA's), (9, 14249),

Gene: Journey13\_17 Start: 12883, Stop: 13074, Start Num: 3

Candidate Starts for Journey13\_17:

(1, 12814), (Start: 3 @12883 has 422 MA's), (6, 12937), (9, 12958), (17, 13033), (22, 13066),

Gene: Jovo\_15 Start: 12280, Stop: 12420, Start Num: 3

Candidate Starts for Jovo\_15:

(1, 12214), (Start: 3 @12280 has 422 MA's), (14, 12346), (17, 12388),

Gene: Jsquared\_18 Start: 12584, Stop: 12778, Start Num: 3

Candidate Starts for Jsquared\_18:

(1, 12515), (Start: 3 @12584 has 422 MA's), (14, 12695), (22, 12770),

Gene: KFPoly\_18 Start: 13041, Stop: 13208, Start Num: 3

Candidate Starts for KFPoly\_18:

(Start: 3 @13041 has 422 MA's), (14, 13146), (16, 13158), (17, 13188),

Gene: Kalpine\_22 Start: 15533, Stop: 15727, Start Num: 3

Candidate Starts for Kalpine\_22:

(1, 15464), (Start: 3 @15533 has 422 MA's), (22, 15719),

Gene: Kampy\_18 Start: 13039, Stop: 13206, Start Num: 3

Candidate Starts for Kampy\_18:

(Start: 3 @13039 has 422 MA's), (10, 13117), (14, 13144), (16, 13156),

Gene: Katalie136\_18 Start: 13043, Stop: 13216, Start Num: 3

Candidate Starts for Katalie136\_18:

(1, 12977), (Start: 3 @13043 has 422 MA's), (10, 13127), (14, 13154), (17, 13196),

Gene: Kazan\_22 Start: 13864, Stop: 14055, Start Num: 3

Candidate Starts for Kazan\_22:

(1, 13795), (Start: 3 @13864 has 422 MA's), (9, 13939), (17, 14020), (22, 14047),

Gene: Kerberos\_22 Start: 13643, Stop: 13837, Start Num: 3

Candidate Starts for Kerberos\_22:

(1, 13574), (Start: 3 @13643 has 422 MA's), (11, 13730),

Gene: Keziacharles14\_18 Start: 12652, Stop: 12843, Start Num: 3

Candidate Starts for Keziacharles14\_18:

(1, 12583), (Start: 3 @12652 has 422 MA's), (15, 12766), (21, 12829),

Gene: Kimona\_15 Start: 10526, Stop: 10693, Start Num: 3

Candidate Starts for Kimona\_15:

(1, 10460), (Start: 3 @10526 has 422 MA's), (9, 10598), (17, 10673),

Gene: KingCyrus\_21 Start: 14145, Stop: 14339, Start Num: 3

Candidate Starts for KingCyrus\_21:

(1, 14076), (Start: 3 @14145 has 422 MA's),

Gene: Kingmustik0402\_18 Start: 13033, Stop: 13200, Start Num: 3

Candidate Starts for Kingmustik0402\_18:

(Start: 3 @13033 has 422 MA's), (10, 13111), (14, 13138), (16, 13150),

Gene: Kinmap\_18 Start: 13590, Stop: 13769, Start Num: 3

Candidate Starts for Kinmap\_18:

(1, 13521), (Start: 3 @13590 has 422 MA's),

Gene: Kipper29\_22 Start: 13858, Stop: 14049, Start Num: 3

Candidate Starts for Kipper29\_22:

(1, 13789), (Start: 3 @13858 has 422 MA's), (9, 13933), (17, 14014), (22, 14041),

Gene: KittenMittens\_17 Start: 10919, Stop: 11086, Start Num: 3

Candidate Starts for KittenMittens\_17:

(1, 10853), (Start: 3 @10919 has 422 MA's), (9, 10988), (10, 10994),

Gene: Koan\_17 Start: 13041, Stop: 13208, Start Num: 3

Candidate Starts for Koan\_17:

(Start: 3 @13041 has 422 MA's), (14, 13146), (16, 13158),

Gene: Koduck\_19 Start: 12925, Stop: 13116, Start Num: 3

Candidate Starts for Koduck\_19:

(1, 12856), (Start: 3 @12925 has 422 MA's), (14, 13033), (22, 13108),

Gene: Koko\_22 Start: 13852, Stop: 14043, Start Num: 3

Candidate Starts for Koko\_22:

(1, 13783), (Start: 3 @13852 has 422 MA's), (9, 13927), (18, 14017), (22, 14035),

Gene: Koreni\_17 Start: 12687, Stop: 12854, Start Num: 3

Candidate Starts for Koreni\_17:

(Start: 3 @12687 has 422 MA's), (14, 12792), (16, 12804),

Gene: Kratark\_18 Start: 13036, Stop: 13203, Start Num: 3  
Candidate Starts for Kratark\_18:  
(Start: 3 @13036 has 422 MA's), (14, 13141), (16, 13153),

Gene: Kremtemulon\_18 Start: 13089, Stop: 13256, Start Num: 3  
Candidate Starts for Kremtemulon\_18:  
(Start: 3 @13089 has 422 MA's), (14, 13194), (16, 13206),

Gene: Kristoff\_19 Start: 13002, Stop: 13169, Start Num: 3  
Candidate Starts for Kristoff\_19:  
(1, 12936), (Start: 3 @13002 has 422 MA's), (7, 13056), (9, 13071), (10, 13077),

Gene: Kugel\_18 Start: 13308, Stop: 13436, Start Num: 3  
Candidate Starts for Kugel\_18:  
(1, 13242), (Start: 3 @13308 has 422 MA's), (19, 13416),

Gene: Kyee\_18 Start: 13042, Stop: 13209, Start Num: 3  
Candidate Starts for Kyee\_18:  
(Start: 3 @13042 has 422 MA's), (14, 13147), (16, 13159),

Gene: Kykar\_15 Start: 12805, Stop: 12933, Start Num: 3  
Candidate Starts for Kykar\_15:  
(1, 12739), (Start: 3 @12805 has 422 MA's), (19, 12913),

Gene: L5\_19.1 Start: 12933, Stop: 13127, Start Num: 3  
Candidate Starts for L5\_19.1:  
(1, 12864), (Start: 3 @12933 has 422 MA's), (14, 13044), (22, 13119),

Gene: LHTSCC\_19 Start: 13353, Stop: 13520, Start Num: 3  
Candidate Starts for LHTSCC\_19:  
(Start: 3 @13353 has 422 MA's), (10, 13431), (14, 13458), (16, 13470),

Gene: LadyBird\_19 Start: 13715, Stop: 13909, Start Num: 3  
Candidate Starts for LadyBird\_19:  
(1, 13646), (Start: 3 @13715 has 422 MA's),

Gene: Landor\_20 Start: 15488, Stop: 15682, Start Num: 3  
Candidate Starts for Landor\_20:  
(1, 15419), (Start: 3 @15488 has 422 MA's),

Gene: LappelDuVide\_18 Start: 13038, Stop: 13205, Start Num: 3  
Candidate Starts for LappelDuVide\_18:  
(Start: 3 @13038 has 422 MA's), (14, 13143), (16, 13155),

Gene: Larenn\_20 Start: 14027, Stop: 14215, Start Num: 3  
Candidate Starts for Larenn\_20:  
(1, 13958), (Start: 3 @14027 has 422 MA's), (22, 14207),

Gene: Lemur\_18 Start: 13038, Stop: 13205, Start Num: 3  
Candidate Starts for Lemur\_18:  
(Start: 3 @13038 has 422 MA's), (10, 13116), (14, 13143), (16, 13155),

Gene: LeoAvram\_18 Start: 13038, Stop: 13205, Start Num: 3

Candidate Starts for LeoAvram\_18:  
(Start: 3 @13038 has 422 MA's), (10, 13116), (14, 13143), (16, 13155),

Gene: Leogania\_21 Start: 15892, Stop: 16086, Start Num: 3  
Candidate Starts for Leogania\_21:  
(1, 15823), (Start: 3 @15892 has 422 MA's),

Gene: Lev2\_15 Start: 11992, Stop: 12132, Start Num: 3  
Candidate Starts for Lev2\_15:  
(1, 11926), (Start: 3 @11992 has 422 MA's), (14, 12058), (17, 12100),

Gene: Leviathan\_21 Start: 14202, Stop: 14399, Start Num: 3  
Candidate Starts for Leviathan\_21:  
(1, 14133), (Start: 3 @14202 has 422 MA's), (6, 14256),

Gene: LilTurb\_21 Start: 14229, Stop: 14426, Start Num: 3  
Candidate Starts for LilTurb\_21:  
(1, 14160), (Start: 3 @14229 has 422 MA's), (6, 14283),

Gene: Lilbunny\_22 Start: 13834, Stop: 14025, Start Num: 3  
Candidate Starts for Lilbunny\_22:  
(1, 13765), (Start: 3 @13834 has 422 MA's), (9, 13909), (17, 13990), (22, 14017),

Gene: Lilleskat\_18 Start: 14514, Stop: 14711, Start Num: 3  
Candidate Starts for Lilleskat\_18:  
(1, 14445), (Start: 3 @14514 has 422 MA's), (6, 14568), (15, 14634),

Gene: LionsBait\_20 Start: 15506, Stop: 15700, Start Num: 3  
Candidate Starts for LionsBait\_20:  
(1, 15437), (Start: 3 @15506 has 422 MA's),

Gene: LittleB\_18 Start: 13041, Stop: 13208, Start Num: 3  
Candidate Starts for LittleB\_18:  
(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: LittleCherry\_15 Start: 12172, Stop: 12315, Start Num: 3  
Candidate Starts for LittleCherry\_15:  
(1, 12106), (Start: 3 @12172 has 422 MA's), (14, 12238), (17, 12280),

Gene: LittleGuy\_18 Start: 12984, Stop: 13151, Start Num: 3  
Candidate Starts for LittleGuy\_18:  
(Start: 3 @12984 has 422 MA's), (10, 13062), (14, 13089), (16, 13101),

Gene: LochMonster\_18 Start: 13016, Stop: 13183, Start Num: 3  
Candidate Starts for LochMonster\_18:  
(Start: 3 @13016 has 422 MA's), (14, 13121), (16, 13133),

Gene: Lokk\_22 Start: 15421, Stop: 15624, Start Num: 3  
Candidate Starts for Lokk\_22:  
(1, 15352), (Start: 3 @15421 has 422 MA's), (14, 15532), (17, 15574),

Gene: LoneWolf\_20 Start: 14323, Stop: 14520, Start Num: 3  
Candidate Starts for LoneWolf\_20:

(1, 14254), (Start: 3 @14323 has 422 MA's),

Gene: Lorenzo\_18 Start: 13041, Stop: 13208, Start Num: 3

Candidate Starts for Lorenzo\_18:

(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: Loser\_22 Start: 15523, Stop: 15723, Start Num: 3

Candidate Starts for Loser\_22:

(1, 15454), (Start: 3 @15523 has 422 MA's), (22, 15715),

Gene: Luchador\_20 Start: 14084, Stop: 14293, Start Num: 3

Candidate Starts for Luchador\_20:

(1, 14015), (Start: 3 @14084 has 422 MA's), (23, 14285),

Gene: Lucivia\_19 Start: 14351, Stop: 14521, Start Num: 3

Candidate Starts for Lucivia\_19:

(1, 14282), (Start: 3 @14351 has 422 MA's), (8, 14417), (14, 14459),

Gene: Lucyedi\_20 Start: 13927, Stop: 14100, Start Num: 3

Candidate Starts for Lucyedi\_20:

(1, 13858), (Start: 3 @13927 has 422 MA's), (6, 13981), (7, 13987),

Gene: Lunsford\_19 Start: 13038, Stop: 13205, Start Num: 3

Candidate Starts for Lunsford\_19:

(Start: 3 @13038 has 422 MA's), (10, 13116), (14, 13143), (16, 13155),

Gene: MaCh\_19 Start: 14299, Stop: 14469, Start Num: 3

Candidate Starts for MaCh\_19:

(1, 14230), (Start: 3 @14299 has 422 MA's), (8, 14365), (14, 14407),

Gene: Mabel\_19 Start: 14366, Stop: 14536, Start Num: 3

Candidate Starts for Mabel\_19:

(1, 14297), (Start: 3 @14366 has 422 MA's), (8, 14432), (14, 14474),

Gene: MajorMajor\_18 Start: 12667, Stop: 12861, Start Num: 3

Candidate Starts for MajorMajor\_18:

(1, 12598), (Start: 3 @12667 has 422 MA's), (14, 12778), (22, 12853),

Gene: Malec\_20 Start: 14032, Stop: 14220, Start Num: 3

Candidate Starts for Malec\_20:

(1, 13963), (Start: 3 @14032 has 422 MA's), (22, 14212),

Gene: Maminaiaina\_20 Start: 14247, Stop: 14444, Start Num: 3

Candidate Starts for Maminaiaina\_20:

(1, 14178), (Start: 3 @14247 has 422 MA's),

Gene: MarysWell\_14 Start: 12139, Stop: 12282, Start Num: 3

Candidate Starts for MarysWell\_14:

(1, 12073), (Start: 3 @12139 has 422 MA's), (14, 12205), (17, 12247),

Gene: Maverick\_18 Start: 13041, Stop: 13208, Start Num: 3

Candidate Starts for Maverick\_18:

(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: Maxo\_18 Start: 13039, Stop: 13206, Start Num: 3  
Candidate Starts for Maxo\_18:  
(Start: 3 @13039 has 422 MA's), (10, 13117), (14, 13144), (16, 13156),

Gene: Mayonnaise\_18 Start: 13041, Stop: 13208, Start Num: 3  
Candidate Starts for Mayonnaise\_18:  
(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158), (17, 13188),

Gene: Mazhar510\_18 Start: 13042, Stop: 13209, Start Num: 3  
Candidate Starts for Mazhar510\_18:  
(Start: 3 @13042 has 422 MA's), (10, 13120), (14, 13147), (16, 13159),

Gene: McFly\_22 Start: 13858, Stop: 14049, Start Num: 3  
Candidate Starts for McFly\_22:  
(1, 13789), (Start: 3 @13858 has 422 MA's), (9, 13933), (17, 14014), (22, 14041),

Gene: Medusa\_18 Start: 13042, Stop: 13209, Start Num: 3  
Candidate Starts for Medusa\_18:  
(Start: 3 @13042 has 422 MA's), (10, 13120), (14, 13147), (16, 13159),

Gene: MeeZee\_18 Start: 13041, Stop: 13208, Start Num: 3  
Candidate Starts for MeeZee\_18:  
(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158), (17, 13188),

Gene: Melvin\_18 Start: 13041, Stop: 13208, Start Num: 3  
Candidate Starts for Melvin\_18:  
(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: Micasa\_15 Start: 12140, Stop: 12283, Start Num: 3  
Candidate Starts for Micasa\_15:  
(1, 12074), (Start: 3 @12140 has 422 MA's), (14, 12206), (17, 12248),

Gene: MiculUcigas\_19 Start: 13796, Stop: 13990, Start Num: 3  
Candidate Starts for MiculUcigas\_19:  
(1, 13727), (Start: 3 @13796 has 422 MA's), (22, 13982),

Gene: Midas2\_15 Start: 12139, Stop: 12282, Start Num: 3  
Candidate Starts for Midas2\_15:  
(1, 12073), (Start: 3 @12139 has 422 MA's), (14, 12205), (17, 12247),

Gene: Miko\_22 Start: 15390, Stop: 15593, Start Num: 3  
Candidate Starts for Miko\_22:  
(1, 15321), (Start: 3 @15390 has 422 MA's), (14, 15501), (17, 15543),

Gene: Milcery\_15 Start: 12176, Stop: 12319, Start Num: 3  
Candidate Starts for Milcery\_15:  
(1, 12110), (Start: 3 @12176 has 422 MA's), (14, 12242), (17, 12284),

Gene: Millski\_18 Start: 13044, Stop: 13211, Start Num: 3  
Candidate Starts for Millski\_18:  
(Start: 3 @13044 has 422 MA's), (14, 13149), (16, 13161),



Gene: Miramae\_18 Start: 12989, Stop: 13162, Start Num: 3  
Candidate Starts for Miramae\_18:  
(1, 12923), (Start: 3 @12989 has 422 MA's), (14, 13100), (16, 13112),

Gene: MissWhite\_19 Start: 12831, Stop: 13022, Start Num: 3  
Candidate Starts for MissWhite\_19:  
(1, 12762), (Start: 3 @12831 has 422 MA's), (8, 12903), (9, 12906), (18, 12996), (22, 13014),

Gene: Morpher26\_18 Start: 13043, Stop: 13216, Start Num: 3  
Candidate Starts for Morpher26\_18:  
(1, 12977), (Start: 3 @13043 has 422 MA's), (10, 13127), (14, 13154), (17, 13196),

Gene: Morrow\_18 Start: 13044, Stop: 13211, Start Num: 3  
Candidate Starts for Morrow\_18:  
(Start: 3 @13044 has 422 MA's), (10, 13122), (14, 13149), (16, 13161),

Gene: Mulciber\_19 Start: 14302, Stop: 14472, Start Num: 3  
Candidate Starts for Mulciber\_19:  
(1, 14233), (Start: 3 @14302 has 422 MA's), (8, 14368), (14, 14410),

Gene: Munch\_19 Start: 14302, Stop: 14472, Start Num: 3  
Candidate Starts for Munch\_19:  
(1, 14233), (Start: 3 @14302 has 422 MA's), (8, 14368), (14, 14410),

Gene: Mundrea\_18 Start: 13009, Stop: 13182, Start Num: 3  
Candidate Starts for Mundrea\_18:  
(1, 12943), (Start: 3 @13009 has 422 MA's), (10, 13093), (14, 13120),

Gene: Myxus\_20 Start: 14514, Stop: 14711, Start Num: 3  
Candidate Starts for Myxus\_20:  
(1, 14445), (Start: 3 @14514 has 422 MA's), (6, 14568), (15, 14634),

Gene: NaSiaTalie\_19 Start: 13793, Stop: 13987, Start Num: 3  
Candidate Starts for NaSiaTalie\_19:  
(1, 13724), (Start: 3 @13793 has 422 MA's), (22, 13979),

Gene: Naca\_15 Start: 12093, Stop: 12236, Start Num: 3  
Candidate Starts for Naca\_15:  
(1, 12027), (Start: 3 @12093 has 422 MA's), (17, 12201),

Gene: Naji\_22 Start: 13643, Stop: 13837, Start Num: 3  
Candidate Starts for Naji\_22:  
(1, 13574), (Start: 3 @13643 has 422 MA's), (11, 13730),

Gene: NearlyHeadless\_15 Start: 11784, Stop: 11912, Start Num: 3  
Candidate Starts for NearlyHeadless\_15:  
(1, 11718), (Start: 3 @11784 has 422 MA's),

Gene: Nebs\_18 Start: 13038, Stop: 13205, Start Num: 3  
Candidate Starts for Nebs\_18:  
(Start: 3 @13038 has 422 MA's), (10, 13116), (14, 13143), (16, 13155),

Gene: Neeharika16\_22 Start: 13849, Stop: 14040, Start Num: 3

Candidate Starts for Neeharika16\_22:

(1, 13780), (Start: 3 @13849 has 422 MA's), (9, 13924), (17, 14005), (22, 14032),

Gene: Nemo27\_18 Start: 13040, Stop: 13207, Start Num: 3

Candidate Starts for Nemo27\_18:

(Start: 3 @13040 has 422 MA's), (10, 13118), (14, 13145), (16, 13157),

Gene: Newrala\_22 Start: 13849, Stop: 14040, Start Num: 3

Candidate Starts for Newrala\_22:

(1, 13780), (Start: 3 @13849 has 422 MA's), (9, 13924), (17, 14005), (22, 14032),

Gene: NicoleTera\_23 Start: 15507, Stop: 15701, Start Num: 3

Candidate Starts for NicoleTera\_23:

(1, 15438), (Start: 3 @15507 has 422 MA's), (11, 15591),

Gene: Noelle\_18 Start: 13095, Stop: 13268, Start Num: 3

Candidate Starts for Noelle\_18:

(1, 13029), (Start: 3 @13095 has 422 MA's),

Gene: NorthStar\_18 Start: 13041, Stop: 13208, Start Num: 3

Candidate Starts for NorthStar\_18:

(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: NotAPhaseMom\_18 Start: 13045, Stop: 13212, Start Num: 3

Candidate Starts for NotAPhaseMom\_18:

(Start: 3 @13045 has 422 MA's), (10, 13123), (14, 13150), (16, 13162),

Gene: NothingSpecial\_21 Start: 15763, Stop: 15957, Start Num: 3

Candidate Starts for NothingSpecial\_21:

(1, 15691), (Start: 3 @15763 has 422 MA's),

Gene: Nyxis\_18 Start: 12984, Stop: 13151, Start Num: 3

Candidate Starts for Nyxis\_18:

(Start: 3 @12984 has 422 MA's), (10, 13062), (14, 13089), (16, 13101),

Gene: OKCentral2016\_18 Start: 12521, Stop: 12688, Start Num: 3

Candidate Starts for OKCentral2016\_18:

(1, 12455), (Start: 3 @12521 has 422 MA's), (7, 12575), (9, 12590), (10, 12596),

Gene: OKaNui\_19 Start: 13094, Stop: 13261, Start Num: 3

Candidate Starts for OKaNui\_19:

(Start: 3 @13094 has 422 MA's), (10, 13172), (14, 13199), (16, 13211),

Gene: Obama12\_19 Start: 13355, Stop: 13522, Start Num: 3

Candidate Starts for Obama12\_19:

(Start: 3 @13355 has 422 MA's), (10, 13433), (14, 13460), (16, 13472),

Gene: Odin\_18 Start: 12535, Stop: 12729, Start Num: 3

Candidate Starts for Odin\_18:

(1, 12466), (Start: 3 @12535 has 422 MA's), (6, 12589), (9, 12610),

Gene: Ohfah\_18 Start: 13038, Stop: 13205, Start Num: 3

Candidate Starts for Ohfah\_18:

(Start: 3 @13038 has 422 MA's), (10, 13116), (14, 13143), (16, 13155),

Gene: Onglai\_19 Start: 12848, Stop: 13045, Start Num: 3

Candidate Starts for Onglai\_19:

(1, 12779), (Start: 3 @12848 has 422 MA's), (6, 12902), (15, 12968),

Gene: Orange\_19 Start: 14302, Stop: 14472, Start Num: 3

Candidate Starts for Orange\_19:

(1, 14233), (Start: 3 @14302 has 422 MA's), (8, 14368), (14, 14410),

Gene: PackMan\_20 Start: 14514, Stop: 14711, Start Num: 3

Candidate Starts for PackMan\_20:

(1, 14445), (Start: 3 @14514 has 422 MA's), (6, 14568), (15, 14634),

Gene: PainterBoy\_20 Start: 13927, Stop: 14100, Start Num: 3

Candidate Starts for PainterBoy\_20:

(1, 13858), (Start: 3 @13927 has 422 MA's), (6, 13981), (7, 13987),

Gene: Palestino\_18 Start: 13041, Stop: 13208, Start Num: 3

Candidate Starts for Palestino\_18:

(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: PeaceMeal1\_17 Start: 10920, Stop: 11087, Start Num: 3

Candidate Starts for PeaceMeal1\_17:

(1, 10854), (Start: 3 @10920 has 422 MA's), (9, 10989),

Gene: Peaches\_18 Start: 13040, Stop: 13207, Start Num: 3

Candidate Starts for Peaches\_18:

(Start: 3 @13040 has 422 MA's), (10, 13118), (14, 13145), (16, 13157),

Gene: Perplexer\_18 Start: 13037, Stop: 13210, Start Num: 3

Candidate Starts for Perplexer\_18:

(1, 12971), (Start: 3 @13037 has 422 MA's), (10, 13121), (14, 13148), (17, 13190),

Gene: PeterPeter\_18 Start: 13041, Stop: 13208, Start Num: 3

Candidate Starts for PeterPeter\_18:

(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: Petersenfast\_18 Start: 14305, Stop: 14475, Start Num: 3

Candidate Starts for Petersenfast\_18:

(1, 14236), (Start: 3 @14305 has 422 MA's), (8, 14371), (14, 14413),

Gene: PetiteSangsue\_18 Start: 13043, Stop: 13216, Start Num: 3

Candidate Starts for PetiteSangsue\_18:

(1, 12977), (Start: 3 @13043 has 422 MA's), (10, 13127), (14, 13154), (17, 13196),

Gene: PetterN\_16 Start: 11980, Stop: 12123, Start Num: 3

Candidate Starts for PetterN\_16:

(1, 11914), (Start: 3 @11980 has 422 MA's), (17, 12088),

Gene: Ph8s\_20 Start: 12494, Stop: 12688, Start Num: 3

Candidate Starts for Ph8s\_20:

(1, 12425), (Start: 3 @12494 has 422 MA's), (6, 12548), (9, 12569),

Gene: Phacado\_18 Start: 13040, Stop: 13207, Start Num: 3  
Candidate Starts for Phacado\_18:  
(Start: 3 @13040 has 422 MA's), (10, 13118), (14, 13145), (16, 13157),

Gene: Phaded\_22 Start: 15835, Stop: 16029, Start Num: 3  
Candidate Starts for Phaded\_22:  
(1, 15766), (Start: 3 @15835 has 422 MA's),

Gene: Phaeder\_20 Start: 14514, Stop: 14711, Start Num: 3  
Candidate Starts for Phaeder\_20:  
(1, 14445), (Start: 3 @14514 has 422 MA's), (6, 14568), (15, 14634),

Gene: Pharaoh\_19 Start: 14261, Stop: 14467, Start Num: 2  
Candidate Starts for Pharaoh\_19:  
(1, 14192), (Start: 2 @14261 has 5 MA's), (22, 14450),

Gene: Phelipe\_18 Start: 13041, Stop: 13208, Start Num: 3  
Candidate Starts for Phelipe\_18:  
(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: Phighter1804\_18 Start: 13019, Stop: 13186, Start Num: 3  
Candidate Starts for Phighter1804\_18:  
(Start: 3 @13019 has 422 MA's), (14, 13124), (16, 13136),

Gene: Phillis\_15 Start: 11742, Stop: 11870, Start Num: 3  
Candidate Starts for Phillis\_15:  
(1, 11676), (Start: 3 @11742 has 422 MA's), (19, 11850),

Gene: Phlei\_14 Start: 14366, Stop: 14542, Start Num: 3  
Candidate Starts for Phlei\_14:  
(1, 14297), (Start: 3 @14366 has 422 MA's), (14, 14480),

Gene: Phlorence\_15 Start: 12279, Stop: 12419, Start Num: 3  
Candidate Starts for Phlorence\_15:  
(1, 12213), (Start: 3 @12279 has 422 MA's), (14, 12345), (17, 12387),

Gene: Phonnegut\_20 Start: 14547, Stop: 14744, Start Num: 3  
Candidate Starts for Phonnegut\_20:  
(1, 14478), (Start: 3 @14547 has 422 MA's), (6, 14601), (15, 14667),

Gene: Phontbonne\_18 Start: 12985, Stop: 13152, Start Num: 3  
Candidate Starts for Phontbonne\_18:  
(Start: 3 @12985 has 422 MA's), (10, 13063), (14, 13090), (16, 13102),

Gene: PickleBack\_15 Start: 11993, Stop: 12133, Start Num: 3  
Candidate Starts for PickleBack\_15:  
(1, 11927), (Start: 3 @11993 has 422 MA's), (14, 12059), (17, 12101),

Gene: Pioneer\_20 Start: 14547, Stop: 14744, Start Num: 3  
Candidate Starts for Pioneer\_20:  
(1, 14478), (Start: 3 @14547 has 422 MA's), (6, 14601), (15, 14667),

Gene: Pipcraft\_18 Start: 13041, Stop: 13208, Start Num: 3  
Candidate Starts for Pipcraft\_18:  
(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: Piro94\_20 Start: 14254, Stop: 14448, Start Num: 3  
Candidate Starts for Piro94\_20:  
(1, 14185), (Start: 3 @14254 has 422 MA's), (22, 14440),

Gene: Pmask\_22 Start: 13850, Stop: 14041, Start Num: 3  
Candidate Starts for Pmask\_22:  
(1, 13781), (Start: 3 @13850 has 422 MA's), (9, 13925), (17, 14006), (22, 14033),

Gene: Polymorphads\_18 Start: 13038, Stop: 13205, Start Num: 3  
Candidate Starts for Polymorphads\_18:  
(Start: 3 @13038 has 422 MA's), (10, 13116), (14, 13143), (16, 13155),

Gene: Polyphemus\_21 Start: 13851, Stop: 14042, Start Num: 3  
Candidate Starts for Polyphemus\_21:  
(1, 13782), (Start: 3 @13851 has 422 MA's), (9, 13926), (17, 14007), (22, 14034),

Gene: Pomar16\_22 Start: 13684, Stop: 13878, Start Num: 3  
Candidate Starts for Pomar16\_22:  
(1, 13615), (Start: 3 @13684 has 422 MA's), (11, 13771),

Gene: Poompha\_17 Start: 10918, Stop: 11085, Start Num: 3  
Candidate Starts for Poompha\_17:  
(1, 10852), (Start: 3 @10918 has 422 MA's), (9, 10987), (10, 10993),

Gene: Power\_19 Start: 13692, Stop: 13886, Start Num: 3  
Candidate Starts for Power\_19:  
(1, 13623), (Start: 3 @13692 has 422 MA's),

Gene: Priamo\_22 Start: 13877, Stop: 14068, Start Num: 3  
Candidate Starts for Priamo\_22:  
(1, 13808), (Start: 3 @13877 has 422 MA's), (9, 13952), (17, 14033), (22, 14060),

Gene: Prinashe11\_16 Start: 12139, Stop: 12282, Start Num: 3  
Candidate Starts for Prinashe11\_16:  
(1, 12073), (Start: 3 @12139 has 422 MA's), (14, 12205), (17, 12247),

Gene: Priya\_20 Start: 14545, Stop: 14742, Start Num: 3  
Candidate Starts for Priya\_20:  
(1, 14476), (Start: 3 @14545 has 422 MA's), (6, 14599), (15, 14665),

Gene: Pukovnik\_21 Start: 15388, Stop: 15582, Start Num: 3  
Candidate Starts for Pukovnik\_21:  
(1, 15319), (Start: 3 @15388 has 422 MA's),

Gene: Pumbaa\_18 Start: 13016, Stop: 13183, Start Num: 3  
Candidate Starts for Pumbaa\_18:  
(Start: 3 @13016 has 422 MA's), (14, 13121), (16, 13133),

Gene: Qobbit\_20 Start: 14544, Stop: 14741, Start Num: 3

Candidate Starts for Qobbit\_20:

(1, 14475), (Start: 3 @14544 has 422 MA's), (6, 14598), (15, 14664),

Gene: QueenB2\_19 Start: 13770, Stop: 13964, Start Num: 3

Candidate Starts for QueenB2\_19:

(Start: 3 @13770 has 422 MA's),

Gene: QueenBeesly\_19 Start: 13692, Stop: 13886, Start Num: 3

Candidate Starts for QueenBeesly\_19:

(1, 13623), (Start: 3 @13692 has 422 MA's),

Gene: Quokka\_17 Start: 12667, Stop: 12861, Start Num: 3

Candidate Starts for Quokka\_17:

(1, 12598), (Start: 3 @12667 has 422 MA's), (14, 12778), (22, 12853),

Gene: Rachaly\_22 Start: 15418, Stop: 15621, Start Num: 3

Candidate Starts for Rachaly\_22:

(1, 15349), (Start: 3 @15418 has 422 MA's), (14, 15529), (17, 15571),

Gene: Rahalelujah\_18 Start: 12584, Stop: 12781, Start Num: 3

Candidate Starts for Rahalelujah\_18:

(1, 12515), (Start: 3 @12584 has 422 MA's), (4, 12599), (9, 12659), (17, 12740), (21, 12767),

Gene: Rebeuca\_19 Start: 13003, Stop: 13170, Start Num: 3

Candidate Starts for Rebeuca\_19:

(1, 12937), (Start: 3 @13003 has 422 MA's), (7, 13057), (9, 13072), (10, 13078),

Gene: RedRock\_22 Start: 15680, Stop: 15880, Start Num: 3

Candidate Starts for RedRock\_22:

(1, 15611), (Start: 3 @15680 has 422 MA's), (22, 15872),

Gene: Refuge\_22 Start: 16063, Stop: 16269, Start Num: 2

Candidate Starts for Refuge\_22:

(1, 15994), (Start: 2 @16063 has 5 MA's), (14, 16177),

Gene: Relief\_18 Start: 13039, Stop: 13206, Start Num: 3

Candidate Starts for Relief\_18:

(Start: 3 @13039 has 422 MA's), (10, 13117), (14, 13144), (16, 13156),

Gene: Retro23\_19 Start: 13843, Stop: 14037, Start Num: 3

Candidate Starts for Retro23\_19:

(1, 13774), (Start: 3 @13843 has 422 MA's),

Gene: RhynO\_19 Start: 12979, Stop: 13146, Start Num: 3

Candidate Starts for RhynO\_19:

(1, 12913), (Start: 3 @12979 has 422 MA's), (7, 13033), (9, 13048), (10, 13054),

Gene: Rifter\_22 Start: 13825, Stop: 14016, Start Num: 3

Candidate Starts for Rifter\_22:

(1, 13756), (Start: 3 @13825 has 422 MA's), (9, 13900), (18, 13990), (22, 14008),

Gene: Roary\_15 Start: 11733, Stop: 11861, Start Num: 3

Candidate Starts for Roary\_15:

(1, 11667), (Start: 3 @11733 has 422 MA's),

Gene: Roksolana\_22 Start: 13853, Stop: 14044, Start Num: 3

Candidate Starts for Roksolana\_22:

(1, 13784), (Start: 3 @13853 has 422 MA's), (9, 13928), (18, 14018), (22, 14036),

Gene: Romney\_18 Start: 13041, Stop: 13208, Start Num: 3

Candidate Starts for Romney\_18:

(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158), (17, 13188),

Gene: Roosevelt\_18 Start: 13041, Stop: 13208, Start Num: 3

Candidate Starts for Roosevelt\_18:

(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: Rosa24\_17 Start: 13014, Stop: 13181, Start Num: 3

Candidate Starts for Rosa24\_17:

(Start: 3 @13014 has 422 MA's), (10, 13092), (14, 13119), (16, 13131),

Gene: Rowdy\_21 Start: 12890, Stop: 13057, Start Num: 3

Candidate Starts for Rowdy\_21:

(1, 12824), (Start: 3 @12890 has 422 MA's), (7, 12944), (9, 12959), (10, 12965),

Gene: Ruin\_18 Start: 13037, Stop: 13204, Start Num: 3

Candidate Starts for Ruin\_18:

(Start: 3 @13037 has 422 MA's), (10, 13115), (14, 13142), (16, 13154),

Gene: RyeScarlet\_21 Start: 14518, Stop: 14715, Start Num: 3

Candidate Starts for RyeScarlet\_21:

(1, 14449), (Start: 3 @14518 has 422 MA's), (6, 14572), (15, 14638),

Gene: Sabertooth\_18 Start: 13038, Stop: 13205, Start Num: 3

Candidate Starts for Sabertooth\_18:

(Start: 3 @13038 has 422 MA's), (10, 13116), (14, 13143), (16, 13155),

Gene: Sachima\_18 Start: 14514, Stop: 14711, Start Num: 3

Candidate Starts for Sachima\_18:

(1, 14445), (Start: 3 @14514 has 422 MA's), (6, 14568), (15, 14634),

Gene: Saintus\_15 Start: 11748, Stop: 11876, Start Num: 3

Candidate Starts for Saintus\_15:

(1, 11682), (Start: 3 @11748 has 422 MA's),

Gene: Salz\_19 Start: 14299, Stop: 14469, Start Num: 3

Candidate Starts for Salz\_19:

(1, 14230), (Start: 3 @14299 has 422 MA's), (8, 14365), (14, 14407),

Gene: Scamp\_18 Start: 13041, Stop: 13208, Start Num: 3

Candidate Starts for Scamp\_18:

(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: Scherzo\_20 Start: 14547, Stop: 14744, Start Num: 3

Candidate Starts for Scherzo\_20:

(1, 14478), (Start: 3 @14547 has 422 MA's), (6, 14601), (15, 14667),

Gene: Scorpia\_16 Start: 11981, Stop: 12124, Start Num: 3

Candidate Starts for Scorpia\_16:

(1, 11915), (Start: 3 @11981 has 422 MA's), (17, 12089),

Gene: SemperFi\_21 Start: 14120, Stop: 14314, Start Num: 3

Candidate Starts for SemperFi\_21:

(1, 14051), (Start: 3 @14120 has 422 MA's),

Gene: SenorClean\_17 Start: 13041, Stop: 13208, Start Num: 3

Candidate Starts for SenorClean\_17:

(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: Serenity\_18 Start: 12667, Stop: 12861, Start Num: 3

Candidate Starts for Serenity\_18:

(1, 12598), (Start: 3 @12667 has 422 MA's), (14, 12778), (22, 12853),

Gene: Severus\_17 Start: 10918, Stop: 11085, Start Num: 3

Candidate Starts for Severus\_17:

(1, 10852), (Start: 3 @10918 has 422 MA's), (9, 10987), (10, 10993),

Gene: Shaka\_18 Start: 13041, Stop: 13208, Start Num: 3

Candidate Starts for Shaka\_18:

(Start: 3 @13041 has 422 MA's), (14, 13146), (16, 13158),

Gene: Sham4\_19 Start: 14305, Stop: 14475, Start Num: 3

Candidate Starts for Sham4\_19:

(1, 14236), (Start: 3 @14305 has 422 MA's), (8, 14371), (14, 14413),

Gene: Shapes\_21 Start: 12890, Stop: 13057, Start Num: 3

Candidate Starts for Shapes\_21:

(1, 12824), (Start: 3 @12890 has 422 MA's), (7, 12944), (9, 12959), (10, 12965),

Gene: SheaKeira\_19 Start: 12723, Stop: 12920, Start Num: 3

Candidate Starts for SheaKeira\_19:

(1, 12654), (Start: 3 @12723 has 422 MA's), (6, 12777),

Gene: Sheen\_20 Start: 14765, Stop: 14920, Start Num: 3

Candidate Starts for Sheen\_20:

(1, 14699), (Start: 3 @14765 has 422 MA's),

Gene: SheldonCooper\_19 Start: 13354, Stop: 13521, Start Num: 3

Candidate Starts for SheldonCooper\_19:

(Start: 3 @13354 has 422 MA's), (10, 13432), (14, 13459), (16, 13471),

Gene: Shygu2\_18 Start: 13038, Stop: 13211, Start Num: 3

Candidate Starts for Shygu2\_18:

(1, 12972), (Start: 3 @13038 has 422 MA's), (10, 13122), (14, 13149),

Gene: Skipitt\_18 Start: 13038, Stop: 13205, Start Num: 3

Candidate Starts for Skipitt\_18:

(Start: 3 @13038 has 422 MA's), (10, 13116), (14, 13143), (16, 13155), (17, 13185),



Gene: Sknot\_20 Start: 13796, Stop: 13990, Start Num: 3  
Candidate Starts for Sknot\_20:  
(1, 13727), (Start: 3 @13796 has 422 MA's), (22, 13982),

Gene: Smeadley\_15 Start: 11766, Stop: 11894, Start Num: 3  
Candidate Starts for Smeadley\_15:  
(1, 11700), (Start: 3 @11766 has 422 MA's),

Gene: Smeagan\_21 Start: 14205, Stop: 14402, Start Num: 3  
Candidate Starts for Smeagan\_21:  
(1, 14136), (Start: 3 @14205 has 422 MA's), (6, 14259),

Gene: SmellyB\_22 Start: 13858, Stop: 14049, Start Num: 3  
Candidate Starts for SmellyB\_22:  
(1, 13789), (Start: 3 @13858 has 422 MA's), (9, 13933), (17, 14014), (22, 14041),

Gene: SnapTap\_19 Start: 13692, Stop: 13886, Start Num: 3  
Candidate Starts for SnapTap\_19:  
(1, 13623), (Start: 3 @13692 has 422 MA's),

Gene: Snape\_19 Start: 14305, Stop: 14475, Start Num: 3  
Candidate Starts for Snape\_19:  
(1, 14236), (Start: 3 @14305 has 422 MA's), (8, 14371), (14, 14413),

Gene: SororFago\_18 Start: 12878, Stop: 13087, Start Num: 3  
Candidate Starts for SororFago\_18:  
(1, 12809), (Start: 3 @12878 has 422 MA's), (20, 13064), (23, 13079),

Gene: Sparxx\_18 Start: 13038, Stop: 13205, Start Num: 3  
Candidate Starts for Sparxx\_18:  
(Start: 3 @13038 has 422 MA's), (10, 13116), (14, 13143), (16, 13155),

Gene: Spino\_18 Start: 13041, Stop: 13208, Start Num: 3  
Candidate Starts for Spino\_18:  
(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158), (17, 13188),

Gene: Spouty\_20 Start: 14544, Stop: 14741, Start Num: 3  
Candidate Starts for Spouty\_20:  
(1, 14475), (Start: 3 @14544 has 422 MA's), (6, 14598), (15, 14664),

Gene: StarStuff\_22 Start: 13643, Stop: 13837, Start Num: 3  
Candidate Starts for StarStuff\_22:  
(1, 13574), (Start: 3 @13643 has 422 MA's), (11, 13730),

Gene: Stasia\_19 Start: 13477, Stop: 13647, Start Num: 3  
Candidate Starts for Stasia\_19:  
(1, 13411), (Start: 3 @13477 has 422 MA's), (7, 13537), (10, 13558), (16, 13597),

Gene: Steamy\_20 Start: 14293, Stop: 14499, Start Num: 2  
Candidate Starts for Steamy\_20:  
(1, 14224), (Start: 2 @14293 has 5 MA's),

Gene: Stephig9\_15 Start: 11747, Stop: 11875, Start Num: 3

Candidate Starts for Stephig9\_15:  
(1, 11681), (Start: 3 @11747 has 422 MA's),

Gene: Stink\_19 Start: 13326, Stop: 13499, Start Num: 3  
Candidate Starts for Stink\_19:  
(1, 13260), (Start: 3 @13326 has 422 MA's), (16, 13449),

Gene: Sunhee\_17 Start: 12912, Stop: 13121, Start Num: 3  
Candidate Starts for Sunhee\_17:  
(1, 12843), (Start: 3 @12912 has 422 MA's),

Gene: SuperAwesome\_22 Start: 13849, Stop: 14040, Start Num: 3  
Candidate Starts for SuperAwesome\_22:  
(1, 13780), (Start: 3 @13849 has 422 MA's), (9, 13924), (17, 14005), (22, 14032),

Gene: SuperCallie99\_22 Start: 13848, Stop: 14039, Start Num: 3  
Candidate Starts for SuperCallie99\_22:  
(1, 13779), (Start: 3 @13848 has 422 MA's), (9, 13923), (17, 14004), (22, 14031),

Gene: Superchunk\_18 Start: 12393, Stop: 12587, Start Num: 3  
Candidate Starts for Superchunk\_18:  
(1, 12324), (Start: 3 @12393 has 422 MA's), (6, 12447), (9, 12468),

Gene: SweetiePie\_19 Start: 13692, Stop: 13886, Start Num: 3  
Candidate Starts for SweetiePie\_19:  
(1, 13623), (Start: 3 @13692 has 422 MA's),

Gene: SwirlSquare\_21 Start: 12572, Stop: 12766, Start Num: 3  
Candidate Starts for SwirlSquare\_21:  
(1, 12503), (Start: 3 @12572 has 422 MA's), (9, 12647),

Gene: Swirley\_15 Start: 12141, Stop: 12284, Start Num: 3  
Candidate Starts for Swirley\_15:  
(1, 12075), (Start: 3 @12141 has 422 MA's), (14, 12207), (17, 12249),

Gene: SydNat\_15 Start: 12248, Stop: 12388, Start Num: 3  
Candidate Starts for SydNat\_15:  
(1, 12182), (Start: 3 @12248 has 422 MA's), (14, 12314), (17, 12356),

Gene: Taquarus\_18 Start: 13044, Stop: 13211, Start Num: 3  
Candidate Starts for Taquarus\_18:  
(Start: 3 @13044 has 422 MA's), (10, 13122), (14, 13149), (16, 13161),

Gene: Target\_19 Start: 14028, Stop: 14156, Start Num: 3  
Candidate Starts for Target\_19:  
(1, 13962), (Start: 3 @14028 has 422 MA's), (19, 14136),

Gene: TarsusIV\_19 Start: 13792, Stop: 13989, Start Num: 3  
Candidate Starts for TarsusIV\_19:  
(1, 13723), (Start: 3 @13792 has 422 MA's), (6, 13846),

Gene: Tarynearal\_14 Start: 12168, Stop: 12311, Start Num: 3  
Candidate Starts for Tarynearal\_14:

(1, 12102), (Start: 3 @12168 has 422 MA's), (14, 12234), (17, 12276),

Gene: Temprado\_23 Start: 13854, Stop: 14045, Start Num: 3

Candidate Starts for Temprado\_23:

(1, 13785), (Start: 3 @13854 has 422 MA's), (9, 13929), (17, 14010), (22, 14037),

Gene: Terrific\_23 Start: 14250, Stop: 14444, Start Num: 3

Candidate Starts for Terrific\_23:

(1, 14181), (Start: 3 @14250 has 422 MA's), (22, 14436),

Gene: Thanksgivukkah\_18 Start: 13045, Stop: 13212, Start Num: 3

Candidate Starts for Thanksgivukkah\_18:

(Start: 3 @13045 has 422 MA's), (14, 13150), (16, 13162),

Gene: Tiger\_15 Start: 11994, Stop: 12137, Start Num: 3

Candidate Starts for Tiger\_15:

(1, 11928), (Start: 3 @11994 has 422 MA's), (14, 12060), (17, 12102),

Gene: Timothy\_19 Start: 14302, Stop: 14472, Start Num: 3

Candidate Starts for Timothy\_19:

(1, 14233), (Start: 3 @14302 has 422 MA's), (8, 14368), (14, 14410),

Gene: Timshel\_19 Start: 14647, Stop: 14814, Start Num: 3

Candidate Starts for Timshel\_19:

(Start: 3 @14647 has 422 MA's), (13, 14746), (16, 14764),

Gene: TinaFeyge\_18 Start: 13038, Stop: 13205, Start Num: 3

Candidate Starts for TinaFeyge\_18:

(Start: 3 @13038 has 422 MA's), (10, 13116), (14, 13143), (16, 13155), (17, 13185),

Gene: TinyTimmy\_19 Start: 14345, Stop: 14515, Start Num: 3

Candidate Starts for TinyTimmy\_19:

(1, 14276), (Start: 3 @14345 has 422 MA's), (8, 14411), (14, 14453),

Gene: Tinybot\_17 Start: 13019, Stop: 13186, Start Num: 3

Candidate Starts for Tinybot\_17:

(Start: 3 @13019 has 422 MA's), (10, 13097), (14, 13124), (16, 13136),

Gene: TipsytheTRex\_18 Start: 12802, Stop: 12996, Start Num: 3

Candidate Starts for TipsytheTRex\_18:

(1, 12733), (Start: 3 @12802 has 422 MA's), (14, 12913), (22, 12988),

Gene: TiroTheta9\_18 Start: 13038, Stop: 13205, Start Num: 3

Candidate Starts for TiroTheta9\_18:

(Start: 3 @13038 has 422 MA's), (10, 13116), (14, 13143), (16, 13155),

Gene: Toaka\_18 Start: 12876, Stop: 13067, Start Num: 3

Candidate Starts for Toaka\_18:

(1, 12807), (Start: 3 @12876 has 422 MA's),

Gene: Tomathan\_22 Start: 13643, Stop: 13837, Start Num: 3

Candidate Starts for Tomathan\_22:

(1, 13574), (Start: 3 @13643 has 422 MA's), (11, 13730),

Gene: ToneTone\_20 Start: 13766, Stop: 13957, Start Num: 3  
Candidate Starts for ToneTone\_20:  
(1, 13697), (Start: 3 @13766 has 422 MA's), (9, 13841), (17, 13922), (22, 13949),

Gene: Topanga\_18 Start: 12956, Stop: 13123, Start Num: 3  
Candidate Starts for Topanga\_18:  
(1, 12890), (Start: 3 @12956 has 422 MA's), (7, 13010), (9, 13025),

Gene: Toro\_21 Start: 14707, Stop: 14862, Start Num: 3  
Candidate Starts for Toro\_21:  
(1, 14641), (Start: 3 @14707 has 422 MA's),

Gene: Travvers\_22 Start: 13643, Stop: 13837, Start Num: 3  
Candidate Starts for Travvers\_22:  
(1, 13574), (Start: 3 @13643 has 422 MA's), (11, 13730),

Gene: Trike\_16 Start: 10926, Stop: 11093, Start Num: 3  
Candidate Starts for Trike\_16:  
(1, 10860), (Start: 3 @10926 has 422 MA's), (9, 10995), (10, 11001),

Gene: Tristan\_20 Start: 15507, Stop: 15701, Start Num: 3  
Candidate Starts for Tristan\_20:  
(1, 15438), (Start: 3 @15507 has 422 MA's),

Gene: Trixie\_22 Start: 15405, Stop: 15599, Start Num: 3  
Candidate Starts for Trixie\_22:  
(1, 15336), (Start: 3 @15405 has 422 MA's), (9, 15477),

Gene: Trooper\_19 Start: 13583, Stop: 13774, Start Num: 3  
Candidate Starts for Trooper\_19:  
(1, 13514), (Start: 3 @13583 has 422 MA's),

Gene: TroyPia\_18 Start: 13041, Stop: 13208, Start Num: 3  
Candidate Starts for TroyPia\_18:  
(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: Tubs\_20 Start: 14514, Stop: 14711, Start Num: 3  
Candidate Starts for Tubs\_20:  
(1, 14445), (Start: 3 @14514 has 422 MA's), (6, 14568), (15, 14634),

Gene: Tucker\_22 Start: 13852, Stop: 14043, Start Num: 3  
Candidate Starts for Tucker\_22:  
(1, 13783), (Start: 3 @13852 has 422 MA's), (9, 13927), (18, 14017), (22, 14035),

Gene: Turbido\_21 Start: 14232, Stop: 14429, Start Num: 3  
Candidate Starts for Turbido\_21:  
(1, 14163), (Start: 3 @14232 has 422 MA's), (6, 14286),

Gene: Twigg\_15 Start: 12140, Stop: 12283, Start Num: 3  
Candidate Starts for Twigg\_15:  
(1, 12074), (Start: 3 @12140 has 422 MA's), (14, 12206), (17, 12248),

Gene: Twister\_18 Start: 12855, Stop: 13022, Start Num: 3  
Candidate Starts for Twister\_18:  
(1, 12789), (Start: 3 @12855 has 422 MA's), (7, 12909), (9, 12924),

Gene: TygerBlood\_18 Start: 13040, Stop: 13207, Start Num: 3  
Candidate Starts for TygerBlood\_18:  
(Start: 3 @13040 has 422 MA's), (10, 13118), (14, 13145), (16, 13157),

Gene: Ugenie5\_17 Start: 14547, Stop: 14744, Start Num: 3  
Candidate Starts for Ugenie5\_17:  
(1, 14478), (Start: 3 @14547 has 422 MA's), (6, 14601), (15, 14667),

Gene: Ulysses\_17 Start: 12762, Stop: 12929, Start Num: 3  
Candidate Starts for Ulysses\_17:  
(Start: 3 @12762 has 422 MA's), (14, 12867), (16, 12879),

Gene: UnionJack\_15 Start: 11720, Stop: 11863, Start Num: 3  
Candidate Starts for UnionJack\_15:  
(1, 11654), (Start: 3 @11720 has 422 MA's), (17, 11828),

Gene: Updawg\_21 Start: 14238, Stop: 14432, Start Num: 3  
Candidate Starts for Updawg\_21:  
(1, 14169), (Start: 3 @14238 has 422 MA's), (22, 14424),

Gene: VA6\_19 Start: 13750, Stop: 13944, Start Num: 3  
Candidate Starts for VA6\_19:  
(1, 13681), (Start: 3 @13750 has 422 MA's),

Gene: VC3\_22 Start: 13755, Stop: 13931, Start Num: 3  
Candidate Starts for VC3\_22:  
(1, 13686), (Start: 3 @13755 has 422 MA's), (6, 13809), (14, 13869), (17, 13911), (18, 13920),

Gene: Vanisoa\_18 Start: 12602, Stop: 12799, Start Num: 3  
Candidate Starts for Vanisoa\_18:  
(1, 12533), (Start: 3 @12602 has 422 MA's), (9, 12677), (21, 12785),

Gene: VohminGhazi\_22 Start: 13858, Stop: 14049, Start Num: 3  
Candidate Starts for VohminGhazi\_22:  
(1, 13789), (Start: 3 @13858 has 422 MA's), (9, 13933), (17, 14014), (22, 14041),

Gene: WalterMcMickey\_18 Start: 12855, Stop: 13022, Start Num: 3  
Candidate Starts for WalterMcMickey\_18:  
(1, 12789), (Start: 3 @12855 has 422 MA's), (7, 12909), (9, 12924),

Gene: Wander\_18 Start: 13041, Stop: 13208, Start Num: 3  
Candidate Starts for Wander\_18:  
(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158),

Gene: WeiHuaDA\_25 Start: 16007, Stop: 16201, Start Num: 3  
Candidate Starts for WeiHuaDA\_25:  
(Start: 3 @16007 has 422 MA's), (22, 16193),

Gene: Whabigail7\_21 Start: 14220, Stop: 14417, Start Num: 3

Candidate Starts for Whabigail7\_21:  
(1, 14151), (Start: 3 @14220 has 422 MA's), (6, 14274),

Gene: WideWale\_21 Start: 14238, Stop: 14432, Start Num: 3  
Candidate Starts for WideWale\_21:  
(1, 14169), (Start: 3 @14238 has 422 MA's), (22, 14424),

Gene: Wiks\_22 Start: 13834, Stop: 14025, Start Num: 3  
Candidate Starts for Wiks\_22:  
(1, 13765), (Start: 3 @13834 has 422 MA's), (9, 13909), (17, 13990), (22, 14017),

Gene: Wilbur\_18 Start: 13041, Stop: 13208, Start Num: 3  
Candidate Starts for Wilbur\_18:  
(Start: 3 @13041 has 422 MA's), (10, 13119), (14, 13146), (16, 13158), (17, 13188),

Gene: Wile\_18 Start: 13053, Stop: 13226, Start Num: 3  
Candidate Starts for Wile\_18:  
(Start: 3 @13053 has 422 MA's), (10, 13137), (14, 13164), (16, 13176),

Gene: Wizard007\_18 Start: 13043, Stop: 13210, Start Num: 3  
Candidate Starts for Wizard007\_18:  
(Start: 3 @13043 has 422 MA's), (10, 13121), (14, 13148), (16, 13160),

Gene: WunderPhul\_22 Start: 13834, Stop: 14025, Start Num: 3  
Candidate Starts for WunderPhul\_22:  
(1, 13765), (Start: 3 @13834 has 422 MA's), (9, 13909), (17, 13990), (22, 14017),

Gene: Xena\_18 Start: 13040, Stop: 13213, Start Num: 3  
Candidate Starts for Xena\_18:  
(Start: 3 @13040 has 422 MA's), (10, 13124), (14, 13151), (16, 13163),

Gene: XianYue\_19 Start: 13711, Stop: 13908, Start Num: 3  
Candidate Starts for XianYue\_19:  
(1, 13642), (Start: 3 @13711 has 422 MA's), (9, 13786),

Gene: Yecey3\_19 Start: 12638, Stop: 12835, Start Num: 3  
Candidate Starts for Yecey3\_19:  
(1, 12569), (Start: 3 @12638 has 422 MA's), (6, 12692), (17, 12794),

Gene: YoSam321\_18 Start: 13038, Stop: 13205, Start Num: 3  
Candidate Starts for YoSam321\_18:  
(Start: 3 @13038 has 422 MA's), (10, 13116), (14, 13143), (16, 13155), (17, 13185),

Gene: Yokurt\_22 Start: 13834, Stop: 14025, Start Num: 3  
Candidate Starts for Yokurt\_22:  
(1, 13765), (Start: 3 @13834 has 422 MA's), (9, 13909), (17, 13990), (22, 14017),

Gene: Zaka\_22 Start: 13834, Stop: 14025, Start Num: 3  
Candidate Starts for Zaka\_22:  
(1, 13765), (Start: 3 @13834 has 422 MA's), (9, 13909), (17, 13990), (22, 14017),

Gene: Zimmer\_21 Start: 15319, Stop: 15525, Start Num: 2  
Candidate Starts for Zimmer\_21:

(1, 15250), (Start: 2 @15319 has 5 MA's), (6, 15373), (9, 15394), (14, 15433),

Gene: Zolita\_14 Start: 12249, Stop: 12389, Start Num: 3

Candidate Starts for Zolita\_14:

(1, 12183), (Start: 3 @12249 has 422 MA's), (14, 12315), (17, 12357),

Gene: Zulu\_22 Start: 13833, Stop: 14024, Start Num: 3

Candidate Starts for Zulu\_22:

(1, 13764), (Start: 3 @13833 has 422 MA's), (9, 13908), (17, 13989), (22, 14016),