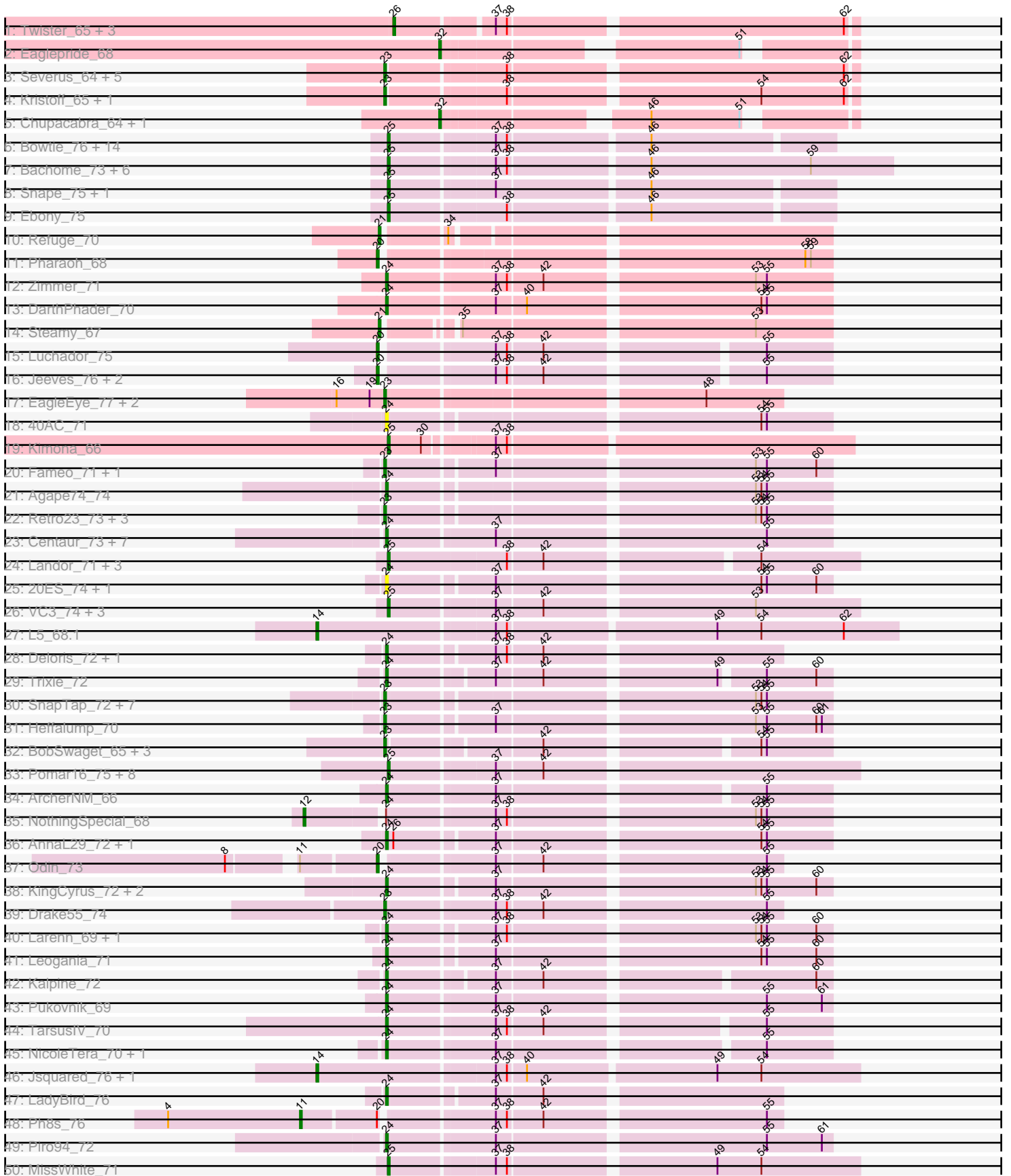


# Pham 171128



Pham 171128



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 171128 Report

This analysis was run 07/09/24 on database version 566.

Pham number 171128 has 375 members, 24 are drafts.

Phages represented in each track:

- Track 1 : Twister\_65, Topanga\_63, Edison31\_63, WalterMcMickey\_65
- Track 2 : Eaglepride\_68
- Track 3 : Severus\_64, Poompha\_63, Trike\_63, KittenMittens\_63, PeaceMeal1\_64, Drake94\_64
- Track 4 : Kristoff\_65, Rebeuca\_67
- Track 5 : Chupacabra\_64, Goose\_67
- Track 6 : Bowtie\_76, Et2Brutus\_74, Flaverint\_76, Joselito\_74, Fibonacci\_74, Mabel\_75, Timothy\_75, Lucivia\_76, Munch\_75, Aneem\_76, MaCh\_75, Jabith\_74, Orange\_74, TinyTimmy\_71, Insomnia\_74
- Track 7 : Bachome\_73, Sham4\_71, Gilberta\_72, Salz\_70, Hutc2\_70, Bud\_70, Petersenfast\_69
- Track 8 : Snape\_75, Mulciber\_73
- Track 9 : Ebony\_75
- Track 10 : Refuge\_70
- Track 11 : Pharaoh\_68
- Track 12 : Zimmer\_71
- Track 13 : DarthPhader\_70
- Track 14 : Steamy\_67
- Track 15 : Luchador\_75
- Track 16 : Jeeves\_76, SororFago\_74, Gail\_74
- Track 17 : EagleEye\_77, PainterBoy\_75, Lucyedi\_76
- Track 18 : 40AC\_71
- Track 19 : Kimona\_66
- Track 20 : Fameo\_71, QueenB2\_70
- Track 21 : Agape74\_74
- Track 22 : Retro23\_73, Dalmatian\_73, DudeLittle\_71, Anselm\_74
- Track 23 : Centaur\_73, Baehexic\_71, WideWale\_73, NaSiaTalie\_73, Flare16\_73, Updawn\_73, Equemioh13\_72, MiculUcigas\_73
- Track 24 : Landor\_71, IronMan\_70, Phaded\_68, Jaan\_71
- Track 25 : 20ES\_74, First\_0073
- Track 26 : VC3\_74, AN9\_75, ANI8\_75, C3\_68
- Track 27 : L5\_68.1
- Track 28 : Deloris\_72, BengiVuitton\_72
- Track 29 : Trixie\_72
- Track 30 : SnapTap\_72, FiringLine\_73, Crucio\_73, QueenBeesly\_73, Georgie2\_74, Power\_72, SemperFi\_73, SweetiePie\_72
- Track 31 : Heffalump\_70

- Track 32 : BobSwaget\_65, Rachaly\_68, Miko\_66, Loka\_66
- Track 33 : Pomar16\_75, Naji\_75, D32\_74, Tomathan\_75, D29\_68.1, StarStuff\_75, Duplo\_75, Kerberos\_75, DBQu4n\_75
- Track 34 : ArcherNM\_66
- Track 35 : NothingSpecial\_68
- Track 36 : AnnaL29\_72, RedRock\_71
- Track 37 : Odin\_73
- Track 38 : KingCyrus\_72, ChipMunk\_73, EvilGenius\_72
- Track 39 : Drake55\_74
- Track 40 : Larenn\_69, Malec\_70
- Track 41 : Leogania\_71
- Track 42 : Kalpine\_72
- Track 43 : Pukovnik\_69
- Track 44 : TarsusIV\_70
- Track 45 : NicoleTera\_70, Changeling\_71
- Track 46 : Jsquared\_76, Serenity\_76
- Track 47 : LadyBird\_76
- Track 48 : Ph8s\_76
- Track 49 : Piro94\_72
- Track 50 : MissWhite\_71
- Track 51 : WeiHuaDA\_73
- Track 52 : JoshKayV\_73
- Track 53 : BiancaTri92\_71
- Track 54 : Turbido\_73, Buggy\_74, Dignity\_74, Jerm\_74, Leviathan\_74, Smeagan\_75, LilTurb\_73, Whabigail7\_73
- Track 55 : Che12\_76
- Track 56 : Benvolio\_70, Echild\_73
- Track 57 : XianYue\_68
- Track 58 : Superchunk\_74
- Track 59 : Acolyte\_63
- Track 60 : EZMoney23\_69
- Track 61 : Adzzy\_76
- Track 62 : CRB1\_74, HarryHoudini\_73
- Track 63 : GaugeLDP\_68
- Track 64 : Caraxes\_75
- Track 65 : BabyBack\_69
- Track 66 : TopsytheTRex\_72
- Track 67 : SwirlSquare\_79
- Track 68 : Loser\_74
- Track 69 : Trooper\_72
- Track 70 : Colin\_72
- Track 71 : Anthony\_69
- Track 72 : LochMonster\_68, Kingmustik0402\_67, Sparxx\_68, Romney\_66, MeeZee\_66, PeterPeter\_67, Peaches\_65, NorthStar\_65, Eapen\_67, Deano\_64, Alberto7\_68, Kyee\_67, KFPoly\_66, NotAPhaseMom\_66, Connomayer\_67, Scamp\_67, Camperdownii\_65, LittleB\_67, Phighter1804\_67, Arturo\_64, Druantia\_66, Eros\_67, LittleGuy\_67, Ulysses\_66, Holli\_66, TygerBlood\_67, Citius\_67, Caelakin\_66, Chaph\_67, Skipitt\_66, Lunsford\_67, Phontbonne\_67, Kampy\_66, Phacado\_67, Funston\_66, OKaNui\_66, Clarenza\_66, Sabertooth\_67, Mazhar510\_67, JoongJeon\_66, Burger\_65, TinaFeyge\_65, Millski\_66, Taquarus\_66, Commander\_65, Nyxis\_66, YoSam321\_67, Bartimeaus\_67, Relief\_66, Wander\_67, Albee\_67, Maxo\_68, Flux\_67, Maverick\_66, Eris\_66, Lorenzo\_67, Blackmoor\_66, TiroTheta9\_66, Shaka\_65, Melvin\_69, Medusa\_67, HamSlice\_63, Jaykayelowell\_64,

Broseidon\_67, Koreni\_66, Cocoaberry\_67, Gadost\_67, Annyong\_66, Baby16\_67, Tinybot\_66, LappelDuVide\_63, Iracema64\_67, DirtyDunning\_66, Houdini22\_66, Avle17\_67, Iceman\_66, Pumbaa\_67, Wilbur\_67, Spino\_66, Bruiser\_66, Roosevelt\_65, Abdiel\_67, Ruin\_67, Florean\_67, Palestino\_66, Nemo27\_66, Bombshell\_67, Dhanush\_67, Pipcraft\_64

- Track 73 : BellusTerra\_68, Kremtemulon\_63, Obama12\_68, LHTSCC\_69, ChampagnePapi\_69, ICleared\_66, Kratark\_66, Cerulean\_68, Shygu2\_66, TroyPia\_68, Cintron\_67, Eurydice\_68, Eagle\_66, Ohfah\_68, Phelipe\_68, SheldonCooper\_67, BangNhom\_65, Nebs\_68, CentreCat\_67, Morrow\_68, JetBlade\_67, LeoAvram\_66, Polymorphads\_67, Happiness\_66
- Track 74 : Bumblebee11\_65, AbbysRanger\_66, Mundrea\_66, Backyardigan\_64, PetiteSangsue\_66, Wizard007\_66, Morpher26\_66, Xena\_65, Wile\_65, Katalie136\_66, Cici\_66, Datway\_66, Perplexer\_66, Cindaradix\_63, Achebe\_65, BubbleTrouble\_66, Badger\_65
- Track 75 : Stasia\_66
- Track 76 : Stink\_66, Miramae\_66, AvatarAhPeg\_66
- Track 77 : Noelle\_67
- Track 78 : Thanksgivukkah\_66
- Track 79 : Lemur\_67
- Track 80 : Tarynearal\_65, Micasa\_64, LittleCherry\_65, Bonamassa\_66, Swirley\_66, Dublin\_66, MarysWell\_66, HuhtaEnerson15\_64, Milcery\_66
- Track 81 : Tiger\_66, AgentM\_66, Phlorence\_65, PickleBack\_67, Jovo\_67, Lev2\_67, Conspiracy\_67, Aragog\_66, ForGetIt\_67, Discoknowium\_64
- Track 82 : Bluefalcon\_62, Theia\_65, Cuco\_65, Ghoulboy\_66, Archetta\_64, Zolita\_65, Coog\_63, Midas2\_63, SydNat\_66
- Track 83 : UnionJack\_70, Jabiru\_68, ElTiger69\_72, Airmid\_69, MyraDee\_70
- Track 84 : Scorpia\_70, Chadwick\_70, Benedict\_70, PetterN\_74, Naca\_69
- Track 85 : Blinn1\_78
- Track 86 : HINdeR\_67
- Track 87 : Fayely\_72
- Track 88 : Myxus\_74, Priya\_72, Catalina\_76, ExplosioNervosa\_72, Aliter\_75, EmyBug\_71, Phonnegut\_74, Conquerage\_72, Alma\_72, Spouty\_69, Pioneer\_74, HortumSL17\_75, PackMan\_73, Tubs\_74, Qobbit\_72, Beemo\_74, Phaeder\_74, Scherzo\_73, Ugenie5\_69, Eidsmoe\_72
- Track 89 : Darrell\_75
- Track 90 : Keziacharles14\_71, LoneWolf\_75
- Track 91 : Rahalelujah\_74
- Track 92 : SheaKeira\_68
- Track 93 : Yecey3\_76
- Track 94 : Kabocha\_84, Chidiebere\_83, Oogie\_82, Gray\_83, Schomber\_81, Aloki\_78, Pakusa\_79, Hanem\_82
- Track 95 : GMA6\_66
- Track 96 : ChisanaKitsune\_80
- Track 97 : ScarletRaider\_83
- Track 98 : UBSmoodge\_86
- Track 99 : FlyingTortilla\_84

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

The start number called the most often in the published annotations is 31, it was called in 135 of the 351 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AbbysRanger\_66, Abdiel\_67, Achebe\_65, Albee\_67, Alberto7\_68, Annyong\_66, Arturo\_64, AvatarAhPeg\_66, Avle17\_67, Baby16\_67, Backyardigan\_64, Badger\_65, BangNhom\_65, Bartimeaus\_67, BellusTerra\_68, Blackmoor\_66, Bombshell\_67, Broseidon\_67, Bruiser\_66, BubbleTrouble\_66, Bumblebee11\_65, Burger\_65, Caelakin\_66, Camperdownii\_65, CentreCat\_67, Cerulean\_68, ChampagnePapi\_69, Chaph\_67, Cici\_66, Cindaradix\_63, Cintron\_67, Citius\_67, Clarenza\_66, Cocoaberry\_67, Commander\_65, Connomayer\_67, Datway\_66, Deano\_64, Dhanush\_67, DirtyDunning\_66, Druantia\_66, Eagle\_66, Eapen\_67, Eris\_66, Eros\_67, Eurydice\_68, Florean\_67, Flux\_67, Funston\_66, Gadost\_67, HamSlice\_63, Happiness\_66, Holli\_66, Houdini22\_66, ICleared\_66, Iceman\_66, Iracema64\_67, Jaykayelowell\_64, JetBlade\_67, JoongJeon\_66, KFPoly\_66, Kampy\_66, Katalie136\_66, Kingmustik0402\_67, Koreni\_66, Kratak\_66, Kremtemulon\_63, Kyee\_67, LHTSCC\_69, LappelDuVide\_63, Lemur\_67, LeoAvram\_66, LittleB\_67, LittleGuy\_67, LochMonster\_68, Lorenzo\_67, Lunsford\_67, Maverick\_66, Maxo\_68, Mazhar510\_67, Medusa\_67, MeeZee\_66, Melvin\_69, Millski\_66, Miramae\_66, Morpher26\_66, Morrow\_68, Mundrea\_66, Nebs\_68, Nemo27\_66, Noelle\_67, NorthStar\_65, NotAPhaseMom\_66, Nyxis\_66, OKaNui\_66, Obama12\_68, Ohfah\_68, Palestino\_66, Peaches\_65, Perplexer\_66, PeterPeter\_67, PetiteSangsue\_66, Phacado\_67, Phelipe\_68, Phighter1804\_67, Phontbonne\_67, Pipcraft\_64, Polymorphads\_67, Pumbaa\_67, Relief\_66, Romney\_66, Roosevelt\_65, Ruin\_67, Sabertooth\_67, Scamp\_67, Shaka\_65, SheldonCooper\_67, Shygu2\_66, Skipitt\_66, Sparxx\_68, Spino\_66, Stasia\_66, Stink\_66, Taquarus\_66, Thanksgivukkah\_66, TinaFeyge\_65, Tinybot\_66, TiroTheta9\_66, TroyPia\_68, TygerBlood\_67, Ulysses\_66, Wander\_67, Wilbur\_67, Wile\_65, Wizard007\_66, Xena\_65, YoSam321\_67,

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

- 

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

- 20ES\_74, 40AC\_71, AN9\_75, ANI8\_75, Acolyte\_63, Adzzy\_76, Agape74\_74, AgentM\_66, Airmid\_69, Aliter\_75, Alma\_72, Aloki\_78, Aneem\_76, AnnaL29\_72, Anselm\_74, Anthony\_69, Aragog\_66, ArcherNM\_66, Archetta\_64, BabyBack\_69, Bachome\_73, Baehexic\_71, Beemo\_74, Benedict\_70, BengiVuitton\_72, Benvolio\_70, BiancaTri92\_71, Blinn1\_78, Bluefalcon\_62, BobSwaget\_65, Bonamassa\_66, Bowtie\_76, Bud\_70, Buggy\_74, C3\_68, CRB1\_74, Caraxes\_75, Catalina\_76, Centaur\_73, Chadwick\_70, Changeling\_71, Che12\_76, Chidiebere\_83, ChipMunk\_73, ChisanaKitsune\_80, Chupacabra\_64, Colin\_72, Conquerage\_72, Conspiracy\_67, Coog\_63, Crucio\_73, Cuco\_65, D29\_68.1, D32\_74, DBQu4n\_75, Dalmatian\_73, Darrell\_75, DarthPhader\_70, Deloris\_72, Dignity\_74, Discoknowium\_64, Drake55\_74, Drake94\_64, Dublin\_66, DudeLittle\_71, Duplo\_75, EZMoney23\_69, EagleEye\_77, Eaglepride\_68, Ebony\_75, Echild\_73, Edison31\_63, Eidsmoe\_72, EITiger69\_72, EmyBug\_71, Equemioh13\_72, Et2Brutus\_74, EvilGenius\_72, ExplosioNervosa\_72, Fameo\_71, Fayely\_72, Fibonacci\_74, FiringLine\_73, First\_0073, Flare16\_73, Flaverint\_76, FlyingTortilla\_84, ForGetIt\_67, GMA6\_66, Gail\_74, GaugeLDP\_68, Georgie2\_74, Ghoulyboy\_66, Gilberta\_72, Goose\_67, Gray\_83, HINdeR\_67, Hanem\_82, HarryHoudini\_73, Heffalump\_70, HortumSL17\_75, HuhtaEnerson15\_64, Hutc2\_70, Insomnia\_74, IronMan\_70, Jaan\_71, Jabiru\_68, Jabith\_74, Jeeves\_76, Jerm\_74, Joselito\_74, JoshKayV\_73, Jovo\_67, Jsquared\_76, Kabocha\_84, Kalpine\_72, Kerberos\_75, Keziacharles14\_71,

Kimona\_66, KingCyrus\_72, KittenMittens\_63, Kristoff\_65, L5\_68.1, LadyBird\_76, Landor\_71, Larenn\_69, Leogania\_71, Lev2\_67, Leviathan\_74, LilTurb\_73, LittleCherry\_65, Lokk\_66, LoneWolf\_75, Loser\_74, Luchador\_75, Lucivia\_76, Lucyedi\_76, MaCh\_75, Mabel\_75, Malec\_70, MarysWell\_66, Micasa\_64, MiculUcigas\_73, Midas2\_63, Miko\_66, Milcery\_66, MissWhite\_71, Mulciber\_73, Munch\_75, MyraDee\_70, Myxus\_74, NaSiaTalie\_73, Naca\_69, Naji\_75, NicoleTera\_70, NothingSpecial\_68, Odin\_73, Oogie\_82, Orange\_74, PackMan\_73, PainterBoy\_75, Pakusa\_79, PeaceMeal1\_64, Petersenfast\_69, PetterN\_74, Ph8s\_76, Phaded\_68, Phaeder\_74, Pharaoh\_68, Phlorence\_65, Phonnegut\_74, PickleBack\_67, Pioneer\_74, Piro94\_72, Pomar16\_75, Poompha\_63, Power\_72, Priya\_72, Pukovnik\_69, Qobbit\_72, QueenB2\_70, QueenBeesly\_73, Rachaly\_68, Rahalelujah\_74, Rebeuca\_67, RedRock\_71, Refuge\_70, Retro23\_73, Salz\_70, ScarletRaider\_83, Scherzo\_73, Schomber\_81, Scorpia\_70, SemperFi\_73, Serenity\_76, Severus\_64, Sham4\_71, SheaKeira\_68, Smeagan\_75, SnapTap\_72, Snape\_75, SororFago\_74, Spouty\_69, StarStuff\_75, Steamy\_67, Superchunk\_74, SweetiePie\_72, SwirlSquare\_79, Swirley\_66, SydNat\_66, TarsusIV\_70, Tarynearal\_65, Theia\_65, Tiger\_66, Timothy\_75, TinyTimmy\_71, TopsytheTRex\_72, Tomathan\_75, Topanga\_63, Trike\_63, Trixie\_72, Trooper\_72, Tubs\_74, Turbido\_73, Twister\_65, UBSmoodge\_86, Ugenie5\_69, UnionJack\_70, Updawg\_73, VC3\_74, WalterMcMickey\_65, WeiHuaDA\_73, Whabigail7\_73, WideWale\_73, XianYue\_68, Yecey3\_76, Zimmer\_71, Zolita\_65,

### Summary by start number:

#### Start 11:

- Found in 6 of 375 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 4 of 351
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Adzzy\_76 (A2), Che12\_76 (A2), Ph8s\_76 (A2), Superchunk\_74 (A2),

#### Start 12:

- Found in 1 of 375 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 351
- Called 100.0% of time when present
- Phage (with cluster) where this start called: NothingSpecial\_68 (A2),

#### Start 13:

- Found in 2 of 375 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 351
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Blinn1\_78 (A6),

#### Start 14:

- Found in 4 of 375 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 4 of 351
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jsquared\_76 (A2), L5\_68.1 (A2), Serenity\_76 (A2), TopsytheTRex\_72 (A2),

#### Start 15:

- Found in 1 of 375 ( 0.3% ) of genes in pham
- No Manual Annotations of this start.

- Called 100.0% of time when present
- Phage (with cluster) where this start called: Darrell\_75 (A9),

#### Start 18:

- Found in 1 of 375 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 351
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Rahalelujah\_74 (A9),

#### Start 20:

- Found in 36 of 375 ( 9.6% ) of genes in pham
- Manual Annotations of this start: 29 of 351
- Called 88.9% of time when present
- Phage (with cluster) where this start called: Acolyte\_63 (A2), Aliter\_75 (A9), Alma\_72 (A9), Beemo\_74 (A9), Benvolio\_70 (A2), Caraxes\_75 (A2), Catalina\_76 (A9), Conquerage\_72 (A9), Echild\_73 (A2), Eidsmoe\_72 (A9), EmyBug\_71 (A9), ExplosioNervosa\_72 (A9), Fayely\_72 (A9), Gail\_74 (A14), HortumSL17\_75 (A9), Jeeves\_76 (A14), Luchador\_75 (A14), Myxus\_74 (A9), Odin\_73 (A2), PackMan\_73 (A9), Phaeder\_74 (A9), Pharaoh\_68 (A12), Phonnegut\_74 (A9), Pioneer\_74 (A9), Priya\_72 (A9), Qobbit\_72 (A9), Scherzo\_73 (A9), SororFago\_74 (A14), Spouty\_69 (A9), SwirlSquare\_79 (A2), Tubs\_74 (A9), Ugenie5\_69 (A9),

#### Start 21:

- Found in 2 of 375 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 2 of 351
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Refuge\_70 (A12), Steamy\_67 (A12),

#### Start 22:

- Found in 1 of 375 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 351
- Called 100.0% of time when present
- Phage (with cluster) where this start called: XianYue\_68 (A2),

#### Start 23:

- Found in 42 of 375 ( 11.2% ) of genes in pham
- Manual Annotations of this start: 41 of 351
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Anselm\_74 (A2), BobSwaget\_65 (A2), Buggy\_74 (A2), CRB1\_74 (A2), Crucio\_73 (A2), Dalmatian\_73 (A2), Dignity\_74 (A2), Drake55\_74 (A2), Drake94\_64 (A10), DudeLittle\_71 (A2), EagleEye\_77 (A16), Fameo\_71 (A2), FiringLine\_73 (A2), Georgie2\_74 (A2), HarryHoudini\_73 (A2), Heffalump\_70 (A2), Jerm\_74 (A2), JoshKayV\_73 (A2), KittenMittens\_63 (A10), Kristoff\_65 (A10), Leviathan\_74 (A2), LilTurb\_73 (A2), Lokk\_66 (A2), Lucyedi\_76 (A16), Miko\_66 (A2), PainterBoy\_75 (A16), PeaceMeal1\_64 (A10), Poompha\_63 (A10), Power\_72 (A2), QueenB2\_70 (A2), QueenBeesly\_73 (A2), Rachaly\_68 (A2), Rebeuca\_67 (A10), Retro23\_73 (A2), SemperFi\_73 (A2), Severus\_64 (A10), Smeagan\_75 (A2), SnapTap\_72 (A2), SweetiePie\_72 (A2), Trike\_63 (A10), Turbido\_73 (A2), Whabigail7\_73 (A2),

#### Start 24:

- Found in 43 of 375 ( 11.5% ) of genes in pham
- Manual Annotations of this start: 36 of 351



- Called 97.7% of time when present
- Phage (with cluster) where this start called: 20ES\_74 (A2), 40AC\_71 (A17), Agape74\_74 (A2), AnnaL29\_72 (A2), ArcherNM\_66 (A2), BabyBack\_69 (A2), Baehexic\_71 (A2), BengiVuitton\_72 (A2), BiancaTri92\_71 (A2), Centaur\_73 (A2), Changeling\_71 (A2), ChipMunk\_73 (A2), Colin\_72 (A2), DarthPhader\_70 (A12), Deloris\_72 (A2), EZMoney23\_69 (A2), Equemioh13\_72 (A2), EvilGenius\_72 (A2), First\_0073 (A2), Flare16\_73 (A2), GaugeLDP\_68 (A2), Kalpine\_72 (A2), KingCyrus\_72 (A2), LadyBird\_76 (A2), Larenn\_69 (A2), Leogania\_71 (A2), Loser\_74 (A2), Malec\_70 (A2), MiculUcigas\_73 (A2), NaSiaTalie\_73 (A2), NicoleTera\_70 (A2), Piro94\_72 (A2), Pukovnik\_69 (A2), RedRock\_71 (A2), TarsusIV\_70 (A2), Trixie\_72 (A2), Trooper\_72 (A2), Updawg\_73 (A2), WeiHuaDA\_73 (A2), WideWale\_73 (A2), Yecey3\_76 (A9), Zimmer\_71 (A12),

#### Start 25:

- Found in 47 of 375 ( 12.5% ) of genes in pham
- Manual Annotations of this start: 44 of 351
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AN9\_75 (A2), ANI8\_75 (A2), Aneem\_76 (A11), Bachome\_73 (A11), Bowtie\_76 (A11), Bud\_70 (A11), C3\_68 (A2), D29\_68.1 (A2), D32\_74 (A2), DBQu4n\_75 (A2), Duplo\_75 (A2), Ebony\_75 (A11), Et2Brutus\_74 (A11), Fibonacci\_74 (A11), Flaverint\_76 (A11), Gilberta\_72 (A11), Hutc2\_70 (A11), Insomnia\_74 (A11), IronMan\_70 (A2), Jaan\_71 (A2), Jabith\_74 (A11), Joselito\_74 (A11), Kerberos\_75 (A2), Keziacharles14\_71 (A9), Kimona\_66 (A19), Landor\_71 (A2), LoneWolf\_75 (A9), Lucivia\_76 (A11), MaCh\_75 (A11), Mabel\_75 (A11), MissWhite\_71 (A2), Mulciber\_73 (A11), Munch\_75 (A11), Naji\_75 (A2), Orange\_74 (A11), Petersenfast\_69 (A11), Phaded\_68 (A2), Pomar16\_75 (A2), Salz\_70 (A11), Sham4\_71 (A11), SheaKeira\_68 (A9), Snape\_75 (A11), StarStuff\_75 (A2), Timothy\_75 (A11), TinyTimmy\_71 (A11), Tomathan\_75 (A2), VC3\_74 (A2),

#### Start 26:

- Found in 6 of 375 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 4 of 351
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Edison31\_63 (A10), Topanga\_63 (A10), Twister\_65 (A10), WalterMcMickey\_65 (A10),

#### Start 29:

- Found in 1 of 375 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 351
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Anthony\_69 (A20),

#### Start 31:

- Found in 137 of 375 ( 36.5% ) of genes in pham
- Manual Annotations of this start: 135 of 351
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AbbysRanger\_66 (A4), Abdiel\_67 (A4), Achebe\_65 (A4), Albee\_67 (A4), Alberto7\_68 (A4), Annyong\_66 (A4), Arturo\_64 (A4), AvatarAhPeg\_66 (A4), Avle17\_67 (A4), Baby16\_67 (A4), Backyardigan\_64 (A4), Badger\_65 (A4), BangNhom\_65 (A4), Bartimeaus\_67 (A4), BellusTerra\_68 (A4), Blackmoor\_66 (A4), Bombshell\_67 (A4), Broseidon\_67 (A4), Bruiser\_66 (A4), BubbleTrouble\_66 (A4), Bumblebee11\_65 (A4), Burger\_65 (A4), Caelakin\_66 (A4), Camperdownii\_65 (A4), CentreCat\_67 (A4), Cerulean\_68 (A4), ChampagnePapi\_69

(A4), Chaph\_67 (A4), Cici\_66 (A4), Cindaradix\_63 (A4), Cintron\_67 (A4), Citius\_67 (A4), Clarenza\_66 (A4), Cocoaberry\_67 (A4), Commander\_65 (A4), Connomayer\_67 (A4), Datway\_66 (A4), Deano\_64 (A4), Dhanush\_67 (A4), DirtyDunning\_66 (A4), Druantia\_66 (A4), Eagle\_66 (A4), Eapen\_67 (A4), Eris\_66 (A4), Eros\_67 (A4), Eurydice\_68 (A4), Florean\_67 (A4), Flux\_67 (A4), Funston\_66 (A4), Gadost\_67 (A4), HamSlice\_63 (A4), Happiness\_66 (A4), Holli\_66 (A4), Houdini22\_66 (A4), ICleared\_66 (A4), Iceman\_66 (A4), Iracema64\_67 (A4), Jaykayelowell\_64 (A4), JetBlade\_67 (A4), JoongJeon\_66 (A4), KFPoly\_66 (A4), Kampy\_66 (A4), Katalie136\_66 (A4), Kingmustik0402\_67 (A4), Koreni\_66 (A4), Kratark\_66 (A4), Kremtemulon\_63 (A4), Kyee\_67 (A4), LHTSCC\_69 (A4), LappelDuVide\_63 (A4), Lemur\_67 (A4), LeoAvram\_66 (A4), LittleB\_67 (A4), LittleGuy\_67 (A4), LochMonster\_68 (A4), Lorenzo\_67 (A4), Lunsford\_67 (A4), Maverick\_66 (A4), Maxo\_68 (A4), Mazhar510\_67 (A4), Medusa\_67 (A4), MeeZee\_66 (A4), Melvin\_69 (A4), Millski\_66 (A4), Miramae\_66 (A4), Morpher26\_66 (A4), Morrow\_68 (A4), Mundrea\_66 (A4), Nebs\_68 (A4), Nemo27\_66 (A4), Noelle\_67 (A4), NorthStar\_65 (A4), NotAPhaseMom\_66 (A4), Nyxis\_66 (A4), OKaNui\_66 (A4), Obama12\_68 (A4), Ohfah\_68 (A4), Palestino\_66 (A4), Peaches\_65 (A4), Perplexer\_66 (A4), PeterPeter\_67 (A4), PetiteSangsue\_66 (A4), Phacado\_67 (A4), Phelipe\_68 (A4), Phighter1804\_67 (A4), Phontbonne\_67 (A4), Pipcraft\_64 (A4), Polymorphads\_67 (A4), Pumbaa\_67 (A4), Relief\_66 (A4), Romney\_66 (A4), Roosevelt\_65 (A4), Ruin\_67 (A4), Sabertooth\_67 (A4), Scamp\_67 (A4), Shaka\_65 (A4), SheldonCooper\_67 (A4), Shygu2\_66 (A4), Skipitt\_66 (A4), Sparxx\_68 (A4), Spino\_66 (A4), Stasia\_66 (A4), Stink\_66 (A4), Taquarus\_66 (A4), Thanksgivukkah\_66 (A4), TinaFeyge\_65 (A4), Tinybot\_66 (A4), TiroTheta9\_66 (A4), TroyPia\_68 (A4), TygerBlood\_67 (A4), Ulysses\_66 (A4), Wander\_67 (A4), Wilbur\_67 (A4), Wile\_65 (A4), Wizard007\_66 (A4), Xena\_65 (A4), YoSam321\_67 (A4),

#### Start 32:

- Found in 41 of 375 ( 10.9% ) of genes in pham
- Manual Annotations of this start: 40 of 351
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AgentM\_66 (A5), Airmid\_69 (A5), Aragog\_66 (A5), Archetta\_64 (A5), Benedict\_70 (A5), Bluefalcon\_62 (A5), Bonamassa\_66 (A5), Chadwick\_70 (A5), Chupacabra\_64 (A10), Conspiracy\_67 (A5), Coog\_63 (A5), Cuco\_65 (A5), Discoknowium\_64 (A5), Dublin\_66 (A5), Eaglepride\_68 (A10), ElTiger69\_72 (A5), ForGetIt\_67 (A5), Ghouboy\_66 (A5), Goose\_67 (A10), HuhtaEnerson15\_64 (A5), Jabiru\_68 (A5), Jovo\_67 (A5), Lev2\_67 (A5), LittleCherry\_65 (A5), MarysWell\_66 (A5), Micasa\_64 (A5), Midas2\_63 (A5), Milcery\_66 (A5), MyraDee\_70 (A18), Naca\_69 (A5), PetterN\_74 (A5), Phlorence\_65 (A5), PickleBack\_67 (A5), Scorpia\_70 (A5), Swirley\_66 (A5), SydNat\_66 (A5), Tarynearal\_65 (A5), Theia\_65 (A5), Tiger\_66 (A5), UnionJack\_70 (A5), Zolita\_65 (A5),

#### Start 33:

- Found in 1 of 375 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 351
- Called 100.0% of time when present
- Phage (with cluster) where this start called: HINdeR\_67 (A7),

#### Start 38:

- Found in 91 of 375 ( 24.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 1.1% of time when present

- Phage (with cluster) where this start called: GMA6\_66 (DQ),

Start 39:

- Found in 12 of 375 ( 3.2% ) of genes in pham
- Manual Annotations of this start: 6 of 351
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alok\_i\_78 (DQ), Chidiebere\_83 (DQ), ChisanaKitsune\_80 (DQ), FlyingTortilla\_84 (DQ), Gray\_83 (DQ), Hanem\_82 (DQ), Kabocha\_84 (DQ), Oogie\_82 (DQ), Pakusa\_79 (DQ), ScarletRaider\_83 (DQ), Schomber\_81 (DQ), UBSmoodge\_86 (DQ),

### **Summary by clusters:**

There are 16 clusters represented in this pham: A20, A14, A17, A16, A11, A10, A12, A19, A18, A2, A5, A4, A7, A6, A9, DQ,

Info for manual annotations of cluster A10:

- Start number 23 was manually annotated 8 times for cluster A10.
- Start number 26 was manually annotated 4 times for cluster A10.
- Start number 32 was manually annotated 3 times for cluster A10.

Info for manual annotations of cluster A11:

- Start number 25 was manually annotated 23 times for cluster A11.

Info for manual annotations of cluster A12:

- Start number 20 was manually annotated 1 time for cluster A12.
- Start number 21 was manually annotated 2 times for cluster A12.
- Start number 24 was manually annotated 2 times for cluster A12.

Info for manual annotations of cluster A14:

- Start number 20 was manually annotated 4 times for cluster A14.

Info for manual annotations of cluster A16:

- Start number 23 was manually annotated 3 times for cluster A16.

Info for manual annotations of cluster A18:

- Start number 32 was manually annotated 1 time for cluster A18.

Info for manual annotations of cluster A19:

- Start number 25 was manually annotated 1 time for cluster A19.

Info for manual annotations of cluster A2:

- Start number 11 was manually annotated 4 times for cluster A2.
- Start number 12 was manually annotated 1 time for cluster A2.
- Start number 14 was manually annotated 4 times for cluster A2.
- Start number 20 was manually annotated 4 times for cluster A2.
- Start number 22 was manually annotated 1 time for cluster A2.
- Start number 23 was manually annotated 30 times for cluster A2.
- Start number 24 was manually annotated 33 times for cluster A2.
- Start number 25 was manually annotated 17 times for cluster A2.

Info for manual annotations of cluster A20:

- Start number 29 was manually annotated 1 time for cluster A20.

Info for manual annotations of cluster A4:

- Start number 31 was manually annotated 135 times for cluster A4.

Info for manual annotations of cluster A5:

- Start number 32 was manually annotated 36 times for cluster A5.

Info for manual annotations of cluster A6:

- Start number 13 was manually annotated 1 time for cluster A6.

Info for manual annotations of cluster A7:

- Start number 33 was manually annotated 1 time for cluster A7.

Info for manual annotations of cluster A9:

- Start number 18 was manually annotated 1 time for cluster A9.
- Start number 20 was manually annotated 20 times for cluster A9.
- Start number 24 was manually annotated 1 time for cluster A9.
- Start number 25 was manually annotated 3 times for cluster A9.

Info for manual annotations of cluster DQ:

- Start number 39 was manually annotated 6 times for cluster DQ.

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

Gene: 20ES\_74 Start: 43517, Stop: 43293, Start Num: 24

Candidate Starts for 20ES\_74:

(Start: 24 @43517 has 36 MA's), (37, 43466), (54, 43331), (55, 43328), (60, 43301),

Gene: 40AC\_71 Start: 44020, Stop: 43796, Start Num: 24

Candidate Starts for 40AC\_71:

(Start: 24 @44020 has 36 MA's), (54, 43834), (55, 43831),

Gene: AN9\_75 Start: 43459, Stop: 43217, Start Num: 25

Candidate Starts for AN9\_75:

(Start: 25 @43459 has 44 MA's), (37, 43405), (42, 43381), (53, 43273),

Gene: ANI8\_75 Start: 43459, Stop: 43217, Start Num: 25

Candidate Starts for ANI8\_75:

(Start: 25 @43459 has 44 MA's), (37, 43405), (42, 43381), (53, 43273),

Gene: AbbysRanger\_66 Start: 42647, Stop: 42423, Start Num: 31

Candidate Starts for AbbysRanger\_66:

(Start: 31 @42647 has 135 MA's), (43, 42590), (44, 42584), (46, 42533), (62, 42428),

Gene: Abdiel\_67 Start: 42370, Stop: 42173, Start Num: 31

Candidate Starts for Abdiel\_67:

(Start: 31 @42370 has 135 MA's), (43, 42313), (62, 42178),

Gene: Achebe\_65 Start: 42630, Stop: 42406, Start Num: 31

Candidate Starts for Achebe\_65:

(Start: 31 @42630 has 135 MA's), (43, 42573), (44, 42567), (46, 42516), (62, 42411),

Gene: Acolyte\_63 Start: 41528, Stop: 41301, Start Num: 20

Candidate Starts for Acolyte\_63:

(Start: 20 @41528 has 29 MA's), (37, 41474), (38, 41468), (54, 41339),

Gene: Adzzy\_76 Start: 42404, Stop: 42165, Start Num: 11

Candidate Starts for Adzzy\_76:

(4, 42464), (Start: 11 @42404 has 4 MA's), (Start: 20 @42365 has 29 MA's), (37, 42311), (38, 42305), (42, 42287), (55, 42173),

Gene: Agape74\_74 Start: 43761, Stop: 43537, Start Num: 24

Candidate Starts for Agape74\_74:

(Start: 24 @43761 has 36 MA's), (53, 43578), (54, 43575), (55, 43572),

Gene: AgentM\_66 Start: 41898, Stop: 41596, Start Num: 32

Candidate Starts for AgentM\_66:

(Start: 32 @41898 has 40 MA's), (43, 41844), (44, 41838), (54, 41727), (56, 41721),

Gene: Airmid\_69 Start: 42731, Stop: 42429, Start Num: 32

Candidate Starts for Airmid\_69:

(Start: 32 @42731 has 40 MA's), (44, 42671),

Gene: Albee\_67 Start: 42357, Stop: 42160, Start Num: 31

Candidate Starts for Albee\_67:

(Start: 31 @42357 has 135 MA's), (43, 42300), (62, 42165),

Gene: Alberto7\_68 Start: 42694, Stop: 42497, Start Num: 31

Candidate Starts for Alberto7\_68:

(Start: 31 @42694 has 135 MA's), (43, 42637), (62, 42502),

Gene: Aliter\_75 Start: 42851, Stop: 42633, Start Num: 20

Candidate Starts for Aliter\_75:

(Start: 20 @42851 has 29 MA's), (38, 42794), (42, 42776),

Gene: Alma\_72 Start: 42828, Stop: 42610, Start Num: 20

Candidate Starts for Alma\_72:

(Start: 20 @42828 has 29 MA's), (38, 42771), (42, 42753),

Gene: Alok\_78 Start: 63735, Stop: 63947, Start Num: 39

Candidate Starts for Alok\_78:

(Start: 39 @63735 has 6 MA's), (50, 63849),

Gene: Aneem\_76 Start: 43515, Stop: 43288, Start Num: 25

Candidate Starts for Aneem\_76:

(Start: 25 @43515 has 44 MA's), (37, 43461), (38, 43455), (46, 43383),

Gene: AnnaL29\_72 Start: 43717, Stop: 43493, Start Num: 24

Candidate Starts for AnnaL29\_72:

(Start: 24 @43717 has 36 MA's), (Start: 26 @43714 has 4 MA's), (37, 43666), (54, 43531), (55, 43528),

Gene: Annyong\_66 Start: 42402, Stop: 42205, Start Num: 31

Candidate Starts for Annyong\_66:

(Start: 31 @42402 has 135 MA's), (43, 42345), (62, 42210),

Gene: Anselm\_74 Start: 43911, Stop: 43687, Start Num: 23

Candidate Starts for Anselm\_74:

(Start: 23 @43911 has 41 MA's), (53, 43728), (54, 43725), (55, 43722),

Gene: Anthony\_69 Start: 41982, Stop: 41797, Start Num: 29

Candidate Starts for Anthony\_69:

(28, 41985), (Start: 29 @41982 has 1 MA's), (45, 41889), (55, 41805),

Gene: Aragog\_66 Start: 41918, Stop: 41616, Start Num: 32

Candidate Starts for Aragog\_66:

(Start: 32 @41918 has 40 MA's), (43, 41864), (44, 41858), (54, 41747), (56, 41741),

Gene: ArcherNM\_66 Start: 42985, Stop: 42764, Start Num: 24

Candidate Starts for ArcherNM\_66:

(Start: 24 @42985 has 36 MA's), (37, 42931), (55, 42799),

Gene: Archetta\_64 Start: 41864, Stop: 41562, Start Num: 32

Candidate Starts for Archetta\_64:

(Start: 32 @41864 has 40 MA's), (43, 41810), (44, 41804), (64, 41621),

Gene: Arturo\_64 Start: 42484, Stop: 42287, Start Num: 31

Candidate Starts for Arturo\_64:

(Start: 31 @42484 has 135 MA's), (43, 42427), (62, 42292),

Gene: AvatarAhPeg\_66 Start: 42517, Stop: 42293, Start Num: 31

Candidate Starts for AvatarAhPeg\_66:

(Start: 31 @42517 has 135 MA's), (43, 42460), (44, 42454), (62, 42298),

Gene: Avle17\_67 Start: 42354, Stop: 42157, Start Num: 31

Candidate Starts for Avle17\_67:

(Start: 31 @42354 has 135 MA's), (43, 42297), (62, 42162),

Gene: Baby16\_67 Start: 42368, Stop: 42171, Start Num: 31

Candidate Starts for Baby16\_67:

(Start: 31 @42368 has 135 MA's), (43, 42311), (62, 42176),

Gene: BabyBack\_69 Start: 43490, Stop: 43272, Start Num: 24

Candidate Starts for BabyBack\_69:

(Start: 24 @43490 has 36 MA's), (37, 43439), (42, 43415), (54, 43310),

Gene: Bachome\_73 Start: 42394, Stop: 42131, Start Num: 25

Candidate Starts for Bachome\_73:

(Start: 25 @42394 has 44 MA's), (37, 42340), (38, 42334), (46, 42262), (59, 42175),

Gene: Backyardigan\_64 Start: 42663, Stop: 42439, Start Num: 31

Candidate Starts for Backyardigan\_64:

(Start: 31 @42663 has 135 MA's), (43, 42606), (44, 42600), (46, 42549), (62, 42444),

Gene: Badger\_65 Start: 42631, Stop: 42407, Start Num: 31

Candidate Starts for Badger\_65:

(Start: 31 @42631 has 135 MA's), (43, 42574), (44, 42568), (46, 42517), (62, 42412),

Gene: Baehexic\_71 Start: 43242, Stop: 43015, Start Num: 24

Candidate Starts for Baehexic\_71:

(Start: 24 @43242 has 36 MA's), (37, 43188), (55, 43050),

Gene: BangNhom\_65 Start: 42796, Stop: 42572, Start Num: 31

Candidate Starts for BangNhom\_65:

(Start: 31 @42796 has 135 MA's), (43, 42739), (44, 42733), (62, 42577),

Gene: Bartimeaus\_67 Start: 42359, Stop: 42162, Start Num: 31

Candidate Starts for Bartimeaus\_67:

(Start: 31 @42359 has 135 MA's), (43, 42302), (62, 42167),

Gene: Beemo\_74 Start: 42869, Stop: 42651, Start Num: 20

Candidate Starts for Beemo\_74:

(Start: 20 @42869 has 29 MA's), (38, 42812), (42, 42794),

Gene: BellusTerra\_68 Start: 42397, Stop: 42173, Start Num: 31

Candidate Starts for BellusTerra\_68:

(Start: 31 @42397 has 135 MA's), (43, 42340), (44, 42334), (62, 42178),

Gene: Benedict\_70 Start: 42463, Stop: 42161, Start Num: 32

Candidate Starts for Benedict\_70:

(Start: 32 @42463 has 40 MA's), (44, 42403), (52, 42298),

Gene: BengiVuitton\_72 Start: 43467, Stop: 43270, Start Num: 24

Candidate Starts for BengiVuitton\_72:

(Start: 24 @43467 has 36 MA's), (37, 43416), (38, 43410), (42, 43392),

Gene: Benvolio\_70 Start: 43151, Stop: 42927, Start Num: 20

Candidate Starts for Benvolio\_70:

(Start: 20 @43151 has 29 MA's), (37, 43100), (53, 42968), (54, 42965), (55, 42962),

Gene: BiancaTri92\_71 Start: 43505, Stop: 43281, Start Num: 24

Candidate Starts for BiancaTri92\_71:

(Start: 24 @43505 has 36 MA's), (37, 43454), (54, 43319), (60, 43289),

Gene: Blackmoor\_66 Start: 42359, Stop: 42162, Start Num: 31

Candidate Starts for Blackmoor\_66:

(Start: 31 @42359 has 135 MA's), (43, 42302), (62, 42167),

Gene: Blinn1\_78 Start: 42893, Stop: 42633, Start Num: 13

Candidate Starts for Blinn1\_78:

(Start: 13 @42893 has 1 MA's), (42, 42776), (55, 42668),

Gene: Bluefalcon\_62 Start: 41884, Stop: 41582, Start Num: 32

Candidate Starts for Bluefalcon\_62:

(Start: 32 @41884 has 40 MA's), (43, 41830), (44, 41824), (64, 41641),

Gene: BobSwaget\_65 Start: 41376, Stop: 41158, Start Num: 23

Candidate Starts for BobSwaget\_65:

(Start: 23 @41376 has 41 MA's), (42, 41301), (54, 41196), (55, 41193),

Gene: Bombshell\_67 Start: 42354, Stop: 42157, Start Num: 31

Candidate Starts for Bombshell\_67:

(Start: 31 @42354 has 135 MA's), (43, 42297), (62, 42162),

Gene: Bonamassa\_66 Start: 42093, Stop: 41791, Start Num: 32

Candidate Starts for Bonamassa\_66:

(Start: 32 @42093 has 40 MA's), (43, 42039), (44, 42033), (54, 41922), (56, 41916), (63, 41874),

Gene: Bowtie\_76 Start: 43522, Stop: 43295, Start Num: 25

Candidate Starts for Bowtie\_76:

(Start: 25 @43522 has 44 MA's), (37, 43468), (38, 43462), (46, 43390),

Gene: Broseidon\_67 Start: 42359, Stop: 42162, Start Num: 31

Candidate Starts for Broseidon\_67:

(Start: 31 @42359 has 135 MA's), (43, 42302), (62, 42167),

Gene: Bruiser\_66 Start: 42357, Stop: 42160, Start Num: 31

Candidate Starts for Bruiser\_66:

(Start: 31 @42357 has 135 MA's), (43, 42300), (62, 42165),

Gene: BubbleTrouble\_66 Start: 42384, Stop: 42160, Start Num: 31

Candidate Starts for BubbleTrouble\_66:

(Start: 31 @42384 has 135 MA's), (43, 42327), (44, 42321), (46, 42270), (62, 42165),

Gene: Bud\_70 Start: 41952, Stop: 41689, Start Num: 25

Candidate Starts for Bud\_70:

(Start: 25 @41952 has 44 MA's), (37, 41898), (38, 41892), (46, 41820), (59, 41733),

Gene: Buggy\_74 Start: 43814, Stop: 43590, Start Num: 23

Candidate Starts for Buggy\_74:

(Start: 23 @43814 has 41 MA's), (37, 43763), (53, 43631), (54, 43628), (55, 43625),

Gene: Bumblebee11\_65 Start: 42633, Stop: 42409, Start Num: 31

Candidate Starts for Bumblebee11\_65:

(Start: 31 @42633 has 135 MA's), (43, 42576), (44, 42570), (46, 42519), (62, 42414),

Gene: Burger\_65 Start: 42357, Stop: 42160, Start Num: 31

Candidate Starts for Burger\_65:

(Start: 31 @42357 has 135 MA's), (43, 42300), (62, 42165),

Gene: C3\_68 Start: 43459, Stop: 43217, Start Num: 25

Candidate Starts for C3\_68:

(Start: 25 @43459 has 44 MA's), (37, 43405), (42, 43381), (53, 43273),

Gene: CRB1\_74 Start: 44013, Stop: 43816, Start Num: 23

Candidate Starts for CRB1\_74:

(Start: 23 @44013 has 41 MA's), (37, 43962), (42, 43938), (55, 43824),

Gene: Caelakin\_66 Start: 42357, Stop: 42160, Start Num: 31

Candidate Starts for Caelakin\_66:

(Start: 31 @42357 has 135 MA's), (43, 42300), (62, 42165),



Gene: Camperdownii\_65 Start: 42031, Stop: 41834, Start Num: 31

Candidate Starts for Camperdownii\_65:

(Start: 31 @42031 has 135 MA's), (43, 41974), (62, 41839),

Gene: Caraxes\_75 Start: 42129, Stop: 41929, Start Num: 20

Candidate Starts for Caraxes\_75:

(4, 42240), (6, 42222), (Start: 11 @42168 has 4 MA's), (Start: 20 @42129 has 29 MA's), (37, 42075), (42, 42051), (55, 41937),

Gene: Catalina\_76 Start: 42925, Stop: 42707, Start Num: 20

Candidate Starts for Catalina\_76:

(Start: 20 @42925 has 29 MA's), (38, 42868), (42, 42850),

Gene: Centaur\_73 Start: 43457, Stop: 43230, Start Num: 24

Candidate Starts for Centaur\_73:

(Start: 24 @43457 has 36 MA's), (37, 43403), (55, 43265),

Gene: CentreCat\_67 Start: 42396, Stop: 42172, Start Num: 31

Candidate Starts for CentreCat\_67:

(Start: 31 @42396 has 135 MA's), (43, 42339), (44, 42333), (62, 42177),

Gene: Cerulean\_68 Start: 42797, Stop: 42573, Start Num: 31

Candidate Starts for Cerulean\_68:

(Start: 31 @42797 has 135 MA's), (43, 42740), (44, 42734), (62, 42578),

Gene: Chadwick\_70 Start: 42207, Stop: 41905, Start Num: 32

Candidate Starts for Chadwick\_70:

(Start: 32 @42207 has 40 MA's), (44, 42147), (52, 42042),

Gene: ChampagnePapi\_69 Start: 42796, Stop: 42572, Start Num: 31

Candidate Starts for ChampagnePapi\_69:

(Start: 31 @42796 has 135 MA's), (43, 42739), (44, 42733), (62, 42577),

Gene: Changeling\_71 Start: 43693, Stop: 43472, Start Num: 24

Candidate Starts for Changeling\_71:

(Start: 24 @43693 has 36 MA's), (37, 43639), (55, 43507),

Gene: Chaph\_67 Start: 42368, Stop: 42171, Start Num: 31

Candidate Starts for Chaph\_67:

(Start: 31 @42368 has 135 MA's), (43, 42311), (62, 42176),

Gene: Che12\_76 Start: 42288, Stop: 42049, Start Num: 11

Candidate Starts for Che12\_76:

(4, 42348), (Start: 11 @42288 has 4 MA's), (Start: 20 @42249 has 29 MA's), (37, 42195), (38, 42189), (40, 42180), (42, 42171), (55, 42057),

Gene: Chidiebere\_83 Start: 64268, Stop: 64480, Start Num: 39

Candidate Starts for Chidiebere\_83:

(Start: 39 @64268 has 6 MA's), (50, 64382),

Gene: ChipMunk\_73 Start: 44854, Stop: 44630, Start Num: 24

Candidate Starts for ChipMunk\_73:

(Start: 24 @44854 has 36 MA's), (37, 44803), (53, 44671), (54, 44668), (55, 44665), (60, 44638),

Gene: ChisanaKitsune\_80 Start: 63445, Stop: 63657, Start Num: 39  
Candidate Starts for ChisanaKitsune\_80:  
(Start: 39 @63445 has 6 MA's), (50, 63559), (52, 63574),

Gene: Chupacabra\_64 Start: 41694, Stop: 41500, Start Num: 32  
Candidate Starts for Chupacabra\_64:  
(Start: 32 @41694 has 40 MA's), (46, 41598), (51, 41550),

Gene: Cici\_66 Start: 42648, Stop: 42424, Start Num: 31  
Candidate Starts for Cici\_66:  
(Start: 31 @42648 has 135 MA's), (43, 42591), (44, 42585), (46, 42534), (62, 42429),

Gene: Cindaradix\_63 Start: 42259, Stop: 42035, Start Num: 31  
Candidate Starts for Cindaradix\_63:  
(Start: 31 @42259 has 135 MA's), (43, 42202), (44, 42196), (46, 42145), (62, 42040),

Gene: Cintron\_67 Start: 42507, Stop: 42283, Start Num: 31  
Candidate Starts for Cintron\_67:  
(Start: 31 @42507 has 135 MA's), (43, 42450), (44, 42444), (62, 42288),

Gene: Citius\_67 Start: 42378, Stop: 42181, Start Num: 31  
Candidate Starts for Citius\_67:  
(Start: 31 @42378 has 135 MA's), (43, 42321), (62, 42186),

Gene: Clarenza\_66 Start: 42354, Stop: 42157, Start Num: 31  
Candidate Starts for Clarenza\_66:  
(Start: 31 @42354 has 135 MA's), (43, 42297), (62, 42162),

Gene: Cocoaberry\_67 Start: 42361, Stop: 42164, Start Num: 31  
Candidate Starts for Cocoaberry\_67:  
(Start: 31 @42361 has 135 MA's), (43, 42304), (62, 42169),

Gene: Colin\_72 Start: 44437, Stop: 44219, Start Num: 24  
Candidate Starts for Colin\_72:  
(Start: 24 @44437 has 36 MA's), (37, 44386), (42, 44362),

Gene: Commander\_65 Start: 42356, Stop: 42159, Start Num: 31  
Candidate Starts for Commander\_65:  
(Start: 31 @42356 has 135 MA's), (43, 42299), (62, 42164),

Gene: Connomayer\_67 Start: 42357, Stop: 42160, Start Num: 31  
Candidate Starts for Connomayer\_67:  
(Start: 31 @42357 has 135 MA's), (43, 42300), (62, 42165),

Gene: Conquerage\_72 Start: 42600, Stop: 42382, Start Num: 20  
Candidate Starts for Conquerage\_72:  
(Start: 20 @42600 has 29 MA's), (38, 42543), (42, 42525),

Gene: Conspiracy\_67 Start: 42140, Stop: 41838, Start Num: 32  
Candidate Starts for Conspiracy\_67:  
(Start: 32 @42140 has 40 MA's), (43, 42086), (44, 42080), (54, 41969), (56, 41963),

Gene: Coog\_63 Start: 41911, Stop: 41609, Start Num: 32  
Candidate Starts for Coog\_63:  
(Start: 32 @41911 has 40 MA's), (43, 41857), (44, 41851), (64, 41668),

Gene: Crucio\_73 Start: 43811, Stop: 43587, Start Num: 23  
Candidate Starts for Crucio\_73:  
(Start: 23 @43811 has 41 MA's), (53, 43628), (54, 43625), (55, 43622),

Gene: Cuco\_65 Start: 41771, Stop: 41469, Start Num: 32  
Candidate Starts for Cuco\_65:  
(Start: 32 @41771 has 40 MA's), (43, 41717), (44, 41711), (64, 41528),

Gene: D29\_68.1 Start: 44004, Stop: 43762, Start Num: 25  
Candidate Starts for D29\_68.1:  
(Start: 25 @44004 has 44 MA's), (37, 43950), (42, 43926),

Gene: D32\_74 Start: 44004, Stop: 43762, Start Num: 25  
Candidate Starts for D32\_74:  
(Start: 25 @44004 has 44 MA's), (37, 43950), (42, 43926),

Gene: DBQu4n\_75 Start: 43984, Stop: 43742, Start Num: 25  
Candidate Starts for DBQu4n\_75:  
(Start: 25 @43984 has 44 MA's), (37, 43930), (42, 43906),

Gene: Dalmatian\_73 Start: 43630, Stop: 43406, Start Num: 23  
Candidate Starts for Dalmatian\_73:  
(Start: 23 @43630 has 41 MA's), (53, 43447), (54, 43444), (55, 43441),

Gene: Darrell\_75 Start: 43444, Stop: 43193, Start Num: 15  
Candidate Starts for Darrell\_75:  
(10, 43462), (15, 43444), (17, 43432), (38, 43354), (42, 43336),

Gene: DARTHPhader\_70 Start: 44013, Stop: 43786, Start Num: 24  
Candidate Starts for DARTHPhader\_70:  
(Start: 24 @44013 has 36 MA's), (37, 43959), (40, 43944), (54, 43824), (55, 43821),

Gene: Datway\_66 Start: 42619, Stop: 42395, Start Num: 31  
Candidate Starts for Datway\_66:  
(Start: 31 @42619 has 135 MA's), (43, 42562), (44, 42556), (46, 42505), (62, 42400),

Gene: Deano\_64 Start: 42365, Stop: 42168, Start Num: 31  
Candidate Starts for Deano\_64:  
(Start: 31 @42365 has 135 MA's), (43, 42308), (62, 42173),

Gene: Deloris\_72 Start: 43163, Stop: 42966, Start Num: 24  
Candidate Starts for Deloris\_72:  
(Start: 24 @43163 has 36 MA's), (37, 43112), (38, 43106), (42, 43088),

Gene: Dhanush\_67 Start: 42360, Stop: 42163, Start Num: 31  
Candidate Starts for Dhanush\_67:  
(Start: 31 @42360 has 135 MA's), (43, 42303), (62, 42168),

Gene: Dignity\_74 Start: 43852, Stop: 43628, Start Num: 23

Candidate Starts for Dignity\_74:

(Start: 23 @43852 has 41 MA's), (37, 43801), (53, 43669), (54, 43666), (55, 43663),

Gene: DirtyDunning\_66 Start: 42372, Stop: 42175, Start Num: 31

Candidate Starts for DirtyDunning\_66:

(Start: 31 @42372 has 135 MA's), (43, 42315), (62, 42180),

Gene: Discoknowium\_64 Start: 41657, Stop: 41355, Start Num: 32

Candidate Starts for Discoknowium\_64:

(Start: 32 @41657 has 40 MA's), (43, 41603), (44, 41597), (54, 41486), (56, 41480),

Gene: Drake55\_74 Start: 43531, Stop: 43331, Start Num: 23

Candidate Starts for Drake55\_74:

(Start: 23 @43531 has 41 MA's), (37, 43477), (38, 43471), (42, 43453), (55, 43339),

Gene: Drake94\_64 Start: 40814, Stop: 40575, Start Num: 23

Candidate Starts for Drake94\_64:

(Start: 23 @40814 has 41 MA's), (38, 40754), (62, 40580),

Gene: Druantia\_66 Start: 42360, Stop: 42163, Start Num: 31

Candidate Starts for Druantia\_66:

(Start: 31 @42360 has 135 MA's), (43, 42303), (62, 42168),

Gene: Dublin\_66 Start: 42050, Stop: 41748, Start Num: 32

Candidate Starts for Dublin\_66:

(Start: 32 @42050 has 40 MA's), (43, 41996), (44, 41990), (54, 41879), (56, 41873), (63, 41831),

Gene: DudeLittle\_71 Start: 43396, Stop: 43172, Start Num: 23

Candidate Starts for DudeLittle\_71:

(Start: 23 @43396 has 41 MA's), (53, 43213), (54, 43210), (55, 43207),

Gene: Duplo\_75 Start: 44041, Stop: 43799, Start Num: 25

Candidate Starts for Duplo\_75:

(Start: 25 @44041 has 44 MA's), (37, 43987), (42, 43963),

Gene: EZMoney23\_69 Start: 43235, Stop: 43014, Start Num: 24

Candidate Starts for EZMoney23\_69:

(Start: 13 @43271 has 1 MA's), (Start: 24 @43235 has 36 MA's), (37, 43181), (42, 43157), (57, 43031),

Gene: Eagle\_66 Start: 42418, Stop: 42194, Start Num: 31

Candidate Starts for Eagle\_66:

(Start: 31 @42418 has 135 MA's), (43, 42361), (44, 42355), (62, 42199),

Gene: EagleEye\_77 Start: 43527, Stop: 43327, Start Num: 23

Candidate Starts for EagleEye\_77:

(16, 43551), (19, 43533), (Start: 23 @43527 has 41 MA's), (48, 43368),

Gene: Eaglepride\_68 Start: 41798, Stop: 41607, Start Num: 32

Candidate Starts for Eaglepride\_68:

(Start: 32 @41798 has 40 MA's), (51, 41657),

Gene: Eapen\_67 Start: 42352, Stop: 42155, Start Num: 31

Candidate Starts for Eapen\_67:  
(Start: 31 @42352 has 135 MA's), (43, 42295), (62, 42160),

Gene: Ebony\_75 Start: 43086, Stop: 42859, Start Num: 25  
Candidate Starts for Ebony\_75:  
(Start: 25 @43086 has 44 MA's), (38, 43026), (46, 42954),

Gene: Echild\_73 Start: 43175, Stop: 42951, Start Num: 20  
Candidate Starts for Echild\_73:  
(Start: 20 @43175 has 29 MA's), (37, 43124), (53, 42992), (54, 42989), (55, 42986),

Gene: Edison31\_63 Start: 41608, Stop: 41375, Start Num: 26  
Candidate Starts for Edison31\_63:  
(Start: 26 @41608 has 4 MA's), (37, 41560), (38, 41554), (62, 41380),

Gene: Eidsmoe\_72 Start: 42592, Stop: 42374, Start Num: 20  
Candidate Starts for Eidsmoe\_72:  
(Start: 20 @42592 has 29 MA's), (38, 42535), (42, 42517),

Gene: EITiger69\_72 Start: 43134, Stop: 42832, Start Num: 32  
Candidate Starts for EITiger69\_72:  
(Start: 32 @43134 has 40 MA's), (44, 43074),

Gene: EmyBug\_71 Start: 42594, Stop: 42376, Start Num: 20  
Candidate Starts for EmyBug\_71:  
(Start: 20 @42594 has 29 MA's), (38, 42537), (42, 42519),

Gene: Equemioh13\_72 Start: 43362, Stop: 43135, Start Num: 24  
Candidate Starts for Equemioh13\_72:  
(Start: 24 @43362 has 36 MA's), (37, 43308), (55, 43170),

Gene: Eris\_66 Start: 42372, Stop: 42175, Start Num: 31  
Candidate Starts for Eris\_66:  
(Start: 31 @42372 has 135 MA's), (43, 42315), (62, 42180),

Gene: Eros\_67 Start: 42359, Stop: 42162, Start Num: 31  
Candidate Starts for Eros\_67:  
(Start: 31 @42359 has 135 MA's), (43, 42302), (62, 42167),

Gene: Et2Brutus\_74 Start: 43049, Stop: 42822, Start Num: 25  
Candidate Starts for Et2Brutus\_74:  
(Start: 25 @43049 has 44 MA's), (37, 42995), (38, 42989), (46, 42917),

Gene: Eurydice\_68 Start: 42393, Stop: 42169, Start Num: 31  
Candidate Starts for Eurydice\_68:  
(Start: 31 @42393 has 135 MA's), (43, 42336), (44, 42330), (62, 42174),

Gene: EvilGenius\_72 Start: 44855, Stop: 44631, Start Num: 24  
Candidate Starts for EvilGenius\_72:  
(Start: 24 @44855 has 36 MA's), (37, 44804), (53, 44672), (54, 44669), (55, 44666), (60, 44639),

Gene: ExplosioNervosa\_72 Start: 42660, Stop: 42442, Start Num: 20  
Candidate Starts for ExplosioNervosa\_72:

(Start: 20 @42660 has 29 MA's), (38, 42603), (42, 42585),

Gene: Fameo\_71 Start: 43438, Stop: 43214, Start Num: 23

Candidate Starts for Fameo\_71:

(Start: 23 @43438 has 41 MA's), (37, 43387), (53, 43255), (55, 43249), (60, 43222),

Gene: Fayely\_72 Start: 42561, Stop: 42343, Start Num: 20

Candidate Starts for Fayely\_72:

(Start: 20 @42561 has 29 MA's), (38, 42504),

Gene: Fibonacci\_74 Start: 43055, Stop: 42828, Start Num: 25

Candidate Starts for Fibonacci\_74:

(Start: 25 @43055 has 44 MA's), (37, 43001), (38, 42995), (46, 42923),

Gene: FiringLine\_73 Start: 43793, Stop: 43569, Start Num: 23

Candidate Starts for FiringLine\_73:

(Start: 23 @43793 has 41 MA's), (53, 43610), (54, 43607), (55, 43604),

Gene: First\_0073 Start: 43417, Stop: 43193, Start Num: 24

Candidate Starts for First\_0073:

(Start: 24 @43417 has 36 MA's), (37, 43366), (54, 43231), (55, 43228), (60, 43201),

Gene: Flare16\_73 Start: 43501, Stop: 43274, Start Num: 24

Candidate Starts for Flare16\_73:

(Start: 24 @43501 has 36 MA's), (37, 43447), (55, 43309),

Gene: Flaverint\_76 Start: 43513, Stop: 43286, Start Num: 25

Candidate Starts for Flaverint\_76:

(Start: 25 @43513 has 44 MA's), (37, 43459), (38, 43453), (46, 43381),

Gene: Florean\_67 Start: 42356, Stop: 42159, Start Num: 31

Candidate Starts for Florean\_67:

(Start: 31 @42356 has 135 MA's), (43, 42299), (62, 42164),

Gene: Flux\_67 Start: 42356, Stop: 42159, Start Num: 31

Candidate Starts for Flux\_67:

(Start: 31 @42356 has 135 MA's), (43, 42299), (62, 42164),

Gene: FlyingTortilla\_84 Start: 67913, Stop: 68119, Start Num: 39

Candidate Starts for FlyingTortilla\_84:

(3, 67724), (5, 67745), (7, 67754), (Start: 39 @67913 has 6 MA's), (55, 68051),

Gene: ForGetIt\_67 Start: 42165, Stop: 41863, Start Num: 32

Candidate Starts for ForGetIt\_67:

(Start: 32 @42165 has 40 MA's), (43, 42111), (44, 42105), (54, 41994), (56, 41988),

Gene: Funston\_66 Start: 42357, Stop: 42160, Start Num: 31

Candidate Starts for Funston\_66:

(Start: 31 @42357 has 135 MA's), (43, 42300), (62, 42165),

Gene: GMA6\_66 Start: 54553, Stop: 54771, Start Num: 38

Candidate Starts for GMA6\_66:

(27, 54493), (38, 54553), (41, 54565), (44, 54580), (47, 54643), (55, 54694),

Gene: Gadost\_67 Start: 42361, Stop: 42164, Start Num: 31

Candidate Starts for Gadost\_67:

(Start: 31 @42361 has 135 MA's), (43, 42304), (62, 42169),

Gene: Gail\_74 Start: 43840, Stop: 43619, Start Num: 20

Candidate Starts for Gail\_74:

(Start: 20 @43840 has 29 MA's), (37, 43786), (38, 43780), (42, 43762), (55, 43654),

Gene: GaugeLDP\_68 Start: 43061, Stop: 42840, Start Num: 24

Candidate Starts for GaugeLDP\_68:

(Start: 24 @43061 has 36 MA's), (37, 43007), (42, 42983),

Gene: Georgie2\_74 Start: 43838, Stop: 43614, Start Num: 23

Candidate Starts for Georgie2\_74:

(Start: 23 @43838 has 41 MA's), (53, 43655), (54, 43652), (55, 43649),

Gene: Ghouboy\_66 Start: 42138, Stop: 41836, Start Num: 32

Candidate Starts for Ghouboy\_66:

(Start: 32 @42138 has 40 MA's), (43, 42084), (44, 42078), (64, 41895),

Gene: Gilberta\_72 Start: 42389, Stop: 42126, Start Num: 25

Candidate Starts for Gilberta\_72:

(Start: 25 @42389 has 44 MA's), (37, 42335), (38, 42329), (46, 42257), (59, 42170),

Gene: Goose\_67 Start: 41510, Stop: 41316, Start Num: 32

Candidate Starts for Goose\_67:

(Start: 32 @41510 has 40 MA's), (46, 41414), (51, 41366),

Gene: Gray\_83 Start: 64199, Stop: 64411, Start Num: 39

Candidate Starts for Gray\_83:

(Start: 39 @64199 has 6 MA's), (50, 64313),

Gene: HINdeR\_67 Start: 45176, Stop: 44895, Start Num: 33

Candidate Starts for HINdeR\_67:

(Start: 33 @45176 has 1 MA's), (36, 45158), (43, 45128), (50, 45032), (65, 44924), (66, 44918),

Gene: HamSlice\_63 Start: 42355, Stop: 42158, Start Num: 31

Candidate Starts for HamSlice\_63:

(Start: 31 @42355 has 135 MA's), (43, 42298), (62, 42163),

Gene: Hanem\_82 Start: 63735, Stop: 63947, Start Num: 39

Candidate Starts for Hanem\_82:

(Start: 39 @63735 has 6 MA's), (50, 63849),

Gene: Happiness\_66 Start: 42379, Stop: 42155, Start Num: 31

Candidate Starts for Happiness\_66:

(Start: 31 @42379 has 135 MA's), (43, 42322), (44, 42316), (62, 42160),

Gene: HarryHoudini\_73 Start: 43532, Stop: 43332, Start Num: 23

Candidate Starts for HarryHoudini\_73:

(Start: 23 @43532 has 41 MA's), (37, 43478), (42, 43454), (55, 43340),

Gene: Heffalump\_70 Start: 43906, Stop: 43682, Start Num: 23  
Candidate Starts for Heffalump\_70:  
(Start: 23 @43906 has 41 MA's), (37, 43855), (53, 43723), (55, 43717), (60, 43690), (61, 43687),

Gene: Holli\_66 Start: 42147, Stop: 41950, Start Num: 31  
Candidate Starts for Holli\_66:  
(Start: 31 @42147 has 135 MA's), (43, 42090), (62, 41955),

Gene: HortumSL17\_75 Start: 42923, Stop: 42705, Start Num: 20  
Candidate Starts for HortumSL17\_75:  
(Start: 20 @42923 has 29 MA's), (38, 42866), (42, 42848),

Gene: Houdini22\_66 Start: 42361, Stop: 42164, Start Num: 31  
Candidate Starts for Houdini22\_66:  
(Start: 31 @42361 has 135 MA's), (43, 42304), (62, 42169),

Gene: HuhtaEnerson15\_64 Start: 41746, Stop: 41444, Start Num: 32  
Candidate Starts for HuhtaEnerson15\_64:  
(Start: 32 @41746 has 40 MA's), (43, 41692), (44, 41686), (54, 41575), (56, 41569), (63, 41527),

Gene: Hutc2\_70 Start: 41938, Stop: 41675, Start Num: 25  
Candidate Starts for Hutc2\_70:  
(Start: 25 @41938 has 44 MA's), (37, 41884), (38, 41878), (46, 41806), (59, 41719),

Gene: ICleared\_66 Start: 42425, Stop: 42201, Start Num: 31  
Candidate Starts for ICleared\_66:  
(Start: 31 @42425 has 135 MA's), (43, 42368), (44, 42362), (62, 42206),

Gene: Iceman\_66 Start: 42646, Stop: 42449, Start Num: 31  
Candidate Starts for Iceman\_66:  
(Start: 31 @42646 has 135 MA's), (43, 42589), (62, 42454),

Gene: Insomnia\_74 Start: 43230, Stop: 43003, Start Num: 25  
Candidate Starts for Insomnia\_74:  
(Start: 25 @43230 has 44 MA's), (37, 43176), (38, 43170), (46, 43098),

Gene: Iracema64\_67 Start: 42624, Stop: 42427, Start Num: 31  
Candidate Starts for Iracema64\_67:  
(Start: 31 @42624 has 135 MA's), (43, 42567), (62, 42432),

Gene: IronMan\_70 Start: 44663, Stop: 44424, Start Num: 25  
Candidate Starts for IronMan\_70:  
(Start: 25 @44663 has 44 MA's), (38, 44600), (42, 44582), (54, 44477),

Gene: Jaan\_71 Start: 44833, Stop: 44594, Start Num: 25  
Candidate Starts for Jaan\_71:  
(Start: 25 @44833 has 44 MA's), (38, 44770), (42, 44752), (54, 44647),

Gene: Jabiru\_68 Start: 42318, Stop: 42016, Start Num: 32  
Candidate Starts for Jabiru\_68:  
(Start: 32 @42318 has 40 MA's), (44, 42258),

Gene: Jabith\_74 Start: 43247, Stop: 43020, Start Num: 25



Candidate Starts for Jabith\_74:  
(Start: 25 @43247 has 44 MA's), (37, 43193), (38, 43187), (46, 43115),

Gene: Jaykayelowell\_64 Start: 42350, Stop: 42153, Start Num: 31  
Candidate Starts for Jaykayelowell\_64:  
(Start: 31 @42350 has 135 MA's), (43, 42293), (62, 42158),

Gene: Jeeves\_76 Start: 42825, Stop: 42604, Start Num: 20  
Candidate Starts for Jeeves\_76:  
(Start: 20 @42825 has 29 MA's), (37, 42771), (38, 42765), (42, 42747), (55, 42639),

Gene: Jerm\_74 Start: 43834, Stop: 43610, Start Num: 23  
Candidate Starts for Jerm\_74:  
(Start: 23 @43834 has 41 MA's), (37, 43783), (53, 43651), (54, 43648), (55, 43645),

Gene: JetBlade\_67 Start: 42387, Stop: 42163, Start Num: 31  
Candidate Starts for JetBlade\_67:  
(Start: 31 @42387 has 135 MA's), (43, 42330), (44, 42324), (62, 42168),

Gene: JoongJeon\_66 Start: 42354, Stop: 42157, Start Num: 31  
Candidate Starts for JoongJeon\_66:  
(Start: 31 @42354 has 135 MA's), (43, 42297), (62, 42162),

Gene: Joselito\_74 Start: 43267, Stop: 43040, Start Num: 25  
Candidate Starts for Joselito\_74:  
(Start: 25 @43267 has 44 MA's), (37, 43213), (38, 43207), (46, 43135),

Gene: JoshKayV\_73 Start: 43858, Stop: 43661, Start Num: 23  
Candidate Starts for JoshKayV\_73:  
(Start: 23 @43858 has 41 MA's), (42, 43783),

Gene: Jovo\_67 Start: 42421, Stop: 42119, Start Num: 32  
Candidate Starts for Jovo\_67:  
(Start: 32 @42421 has 40 MA's), (43, 42367), (44, 42361), (54, 42250), (56, 42244),

Gene: Jsquared\_76 Start: 43035, Stop: 42751, Start Num: 14  
Candidate Starts for Jsquared\_76:  
(Start: 14 @43035 has 4 MA's), (37, 42942), (38, 42936), (40, 42927), (49, 42828), (54, 42804),

Gene: KFPoly\_66 Start: 42351, Stop: 42154, Start Num: 31  
Candidate Starts for KFPoly\_66:  
(Start: 31 @42351 has 135 MA's), (43, 42294), (62, 42159),

Gene: Kabocha\_84 Start: 65081, Stop: 65293, Start Num: 39  
Candidate Starts for Kabocha\_84:  
(Start: 39 @65081 has 6 MA's), (50, 65195),

Gene: Kalpine\_72 Start: 43855, Stop: 43637, Start Num: 24  
Candidate Starts for Kalpine\_72:  
(Start: 24 @43855 has 36 MA's), (37, 43804), (42, 43780), (60, 43645),

Gene: Kampy\_66 Start: 42359, Stop: 42162, Start Num: 31  
Candidate Starts for Kampy\_66:

(Start: 31 @42359 has 135 MA's), (43, 42302), (62, 42167),

Gene: Katalie136\_66 Start: 42633, Stop: 42409, Start Num: 31

Candidate Starts for Katalie136\_66:

(Start: 31 @42633 has 135 MA's), (43, 42576), (44, 42570), (46, 42519), (62, 42414),

Gene: Kerberos\_75 Start: 44003, Stop: 43761, Start Num: 25

Candidate Starts for Kerberos\_75:

(Start: 25 @44003 has 44 MA's), (37, 43949), (42, 43925),

Gene: Keziacharles14\_71 Start: 43500, Stop: 43279, Start Num: 25

Candidate Starts for Keziacharles14\_71:

(Start: 25 @43500 has 44 MA's), (38, 43440), (42, 43422),

Gene: Kimona\_66 Start: 41475, Stop: 41236, Start Num: 25

Candidate Starts for Kimona\_66:

(Start: 25 @41475 has 44 MA's), (30, 41457), (37, 41424), (38, 41418),

Gene: KingCyrus\_72 Start: 44850, Stop: 44626, Start Num: 24

Candidate Starts for KingCyrus\_72:

(Start: 24 @44850 has 36 MA's), (37, 44799), (53, 44667), (54, 44664), (55, 44661), (60, 44634),

Gene: Kingmustik0402\_67 Start: 42346, Stop: 42149, Start Num: 31

Candidate Starts for Kingmustik0402\_67:

(Start: 31 @42346 has 135 MA's), (43, 42289), (62, 42154),

Gene: KittenMittens\_63 Start: 40822, Stop: 40583, Start Num: 23

Candidate Starts for KittenMittens\_63:

(Start: 23 @40822 has 41 MA's), (38, 40762), (62, 40588),

Gene: Koreni\_66 Start: 42038, Stop: 41841, Start Num: 31

Candidate Starts for Koreni\_66:

(Start: 31 @42038 has 135 MA's), (43, 41981), (62, 41846),

Gene: Kratark\_66 Start: 42394, Stop: 42170, Start Num: 31

Candidate Starts for Kratark\_66:

(Start: 31 @42394 has 135 MA's), (43, 42337), (44, 42331), (62, 42175),

Gene: Kremtemulon\_63 Start: 42490, Stop: 42266, Start Num: 31

Candidate Starts for Kremtemulon\_63:

(Start: 31 @42490 has 135 MA's), (43, 42433), (44, 42427), (62, 42271),

Gene: Kristoff\_65 Start: 42136, Stop: 41897, Start Num: 23

Candidate Starts for Kristoff\_65:

(Start: 23 @42136 has 41 MA's), (38, 42076), (54, 41947), (62, 41902),

Gene: Kyee\_67 Start: 42355, Stop: 42158, Start Num: 31

Candidate Starts for Kyee\_67:

(Start: 31 @42355 has 135 MA's), (43, 42298), (62, 42163),

Gene: L5\_68.1 Start: 42962, Stop: 42657, Start Num: 14

Candidate Starts for L5\_68.1:

(Start: 14 @42962 has 4 MA's), (37, 42869), (38, 42863), (49, 42755), (54, 42731), (62, 42686),

Gene: LHTSCC\_69 Start: 42796, Stop: 42572, Start Num: 31  
Candidate Starts for LHTSCC\_69:  
(Start: 31 @42796 has 135 MA's), (43, 42739), (44, 42733), (62, 42577),

Gene: LadyBird\_76 Start: 44079, Stop: 43882, Start Num: 24  
Candidate Starts for LadyBird\_76:  
(Start: 24 @44079 has 36 MA's), (37, 44028), (42, 44004),

Gene: Landor\_71 Start: 44756, Stop: 44517, Start Num: 25  
Candidate Starts for Landor\_71:  
(Start: 25 @44756 has 44 MA's), (38, 44693), (42, 44675), (54, 44570),

Gene: LappelDuVide\_63 Start: 42356, Stop: 42159, Start Num: 31  
Candidate Starts for LappelDuVide\_63:  
(Start: 31 @42356 has 135 MA's), (43, 42299), (62, 42164),

Gene: Larenn\_69 Start: 43196, Stop: 42972, Start Num: 24  
Candidate Starts for Larenn\_69:  
(Start: 24 @43196 has 36 MA's), (37, 43145), (38, 43139), (53, 43013), (54, 43010), (55, 43007), (60, 42980),

Gene: Lemur\_67 Start: 42354, Stop: 42157, Start Num: 31  
Candidate Starts for Lemur\_67:  
(Start: 31 @42354 has 135 MA's), (62, 42162),

Gene: LeoAvram\_66 Start: 42387, Stop: 42163, Start Num: 31  
Candidate Starts for LeoAvram\_66:  
(Start: 31 @42387 has 135 MA's), (43, 42330), (44, 42324), (62, 42168),

Gene: Leogania\_71 Start: 43883, Stop: 43659, Start Num: 24  
Candidate Starts for Leogania\_71:  
(Start: 24 @43883 has 36 MA's), (37, 43832), (54, 43697), (55, 43694), (60, 43667),

Gene: Lev2\_67 Start: 42053, Stop: 41751, Start Num: 32  
Candidate Starts for Lev2\_67:  
(Start: 32 @42053 has 40 MA's), (43, 41999), (44, 41993), (54, 41882), (56, 41876),

Gene: Leviathan\_74 Start: 43901, Stop: 43677, Start Num: 23  
Candidate Starts for Leviathan\_74:  
(Start: 23 @43901 has 41 MA's), (37, 43850), (53, 43718), (54, 43715), (55, 43712),

Gene: LilTurb\_73 Start: 43715, Stop: 43491, Start Num: 23  
Candidate Starts for LilTurb\_73:  
(Start: 23 @43715 has 41 MA's), (37, 43664), (53, 43532), (54, 43529), (55, 43526),

Gene: LittleB\_67 Start: 42358, Stop: 42161, Start Num: 31  
Candidate Starts for LittleB\_67:  
(Start: 31 @42358 has 135 MA's), (43, 42301), (62, 42166),

Gene: LittleCherry\_65 Start: 41616, Stop: 41314, Start Num: 32  
Candidate Starts for LittleCherry\_65:  
(Start: 32 @41616 has 40 MA's), (43, 41562), (44, 41556), (54, 41445), (56, 41439), (63, 41397),

Gene: LittleGuy\_67 Start: 42253, Stop: 42056, Start Num: 31

Candidate Starts for LittleGuy\_67:

(Start: 31 @42253 has 135 MA's), (43, 42196), (62, 42061),

Gene: LochMonster\_68 Start: 42596, Stop: 42399, Start Num: 31

Candidate Starts for LochMonster\_68:

(Start: 31 @42596 has 135 MA's), (43, 42539), (62, 42404),

Gene: Lokk\_66 Start: 42000, Stop: 41782, Start Num: 23

Candidate Starts for Lokk\_66:

(Start: 23 @42000 has 41 MA's), (42, 41925), (54, 41820), (55, 41817),

Gene: LoneWolf\_75 Start: 43122, Stop: 42901, Start Num: 25

Candidate Starts for LoneWolf\_75:

(Start: 25 @43122 has 44 MA's), (38, 43062), (42, 43044),

Gene: Lorenzo\_67 Start: 42357, Stop: 42160, Start Num: 31

Candidate Starts for Lorenzo\_67:

(Start: 31 @42357 has 135 MA's), (43, 42300), (62, 42165),

Gene: Loser\_74 Start: 43958, Stop: 43734, Start Num: 24

Candidate Starts for Loser\_74:

(Start: 24 @43958 has 36 MA's), (37, 43907), (54, 43772), (55, 43769),

Gene: Luchador\_75 Start: 44307, Stop: 44086, Start Num: 20

Candidate Starts for Luchador\_75:

(Start: 20 @44307 has 29 MA's), (37, 44253), (38, 44247), (42, 44229), (55, 44121),

Gene: Lucivia\_76 Start: 43546, Stop: 43319, Start Num: 25

Candidate Starts for Lucivia\_76:

(Start: 25 @43546 has 44 MA's), (37, 43492), (38, 43486), (46, 43414),

Gene: Lucyedi\_76 Start: 43723, Stop: 43523, Start Num: 23

Candidate Starts for Lucyedi\_76:

(16, 43747), (19, 43729), (Start: 23 @43723 has 41 MA's), (48, 43564),

Gene: Lunsford\_67 Start: 42351, Stop: 42154, Start Num: 31

Candidate Starts for Lunsford\_67:

(Start: 31 @42351 has 135 MA's), (43, 42294), (62, 42159),

Gene: MaCh\_75 Start: 43510, Stop: 43283, Start Num: 25

Candidate Starts for MaCh\_75:

(Start: 25 @43510 has 44 MA's), (37, 43456), (38, 43450), (46, 43378),

Gene: Mabel\_75 Start: 43511, Stop: 43284, Start Num: 25

Candidate Starts for Mabel\_75:

(Start: 25 @43511 has 44 MA's), (37, 43457), (38, 43451), (46, 43379),

Gene: Malec\_70 Start: 43763, Stop: 43539, Start Num: 24

Candidate Starts for Malec\_70:

(Start: 24 @43763 has 36 MA's), (37, 43712), (38, 43706), (53, 43580), (54, 43577), (55, 43574), (60, 43547),

Gene: MarysWell\_66 Start: 42293, Stop: 41991, Start Num: 32

Candidate Starts for MarysWell\_66:

(Start: 32 @42293 has 40 MA's), (43, 42239), (44, 42233), (54, 42122), (56, 42116), (63, 42074),

Gene: Maverick\_66 Start: 42357, Stop: 42160, Start Num: 31

Candidate Starts for Maverick\_66:

(Start: 31 @42357 has 135 MA's), (43, 42300), (62, 42165),

Gene: Maxo\_68 Start: 42359, Stop: 42162, Start Num: 31

Candidate Starts for Maxo\_68:

(Start: 31 @42359 has 135 MA's), (43, 42302), (62, 42167),

Gene: Mazhar510\_67 Start: 42358, Stop: 42161, Start Num: 31

Candidate Starts for Mazhar510\_67:

(Start: 31 @42358 has 135 MA's), (43, 42301), (62, 42166),

Gene: Medusa\_67 Start: 42371, Stop: 42174, Start Num: 31

Candidate Starts for Medusa\_67:

(Start: 31 @42371 has 135 MA's), (43, 42314), (62, 42179),

Gene: MeeZee\_66 Start: 42354, Stop: 42157, Start Num: 31

Candidate Starts for MeeZee\_66:

(Start: 31 @42354 has 135 MA's), (43, 42297), (62, 42162),

Gene: Melvin\_69 Start: 42352, Stop: 42155, Start Num: 31

Candidate Starts for Melvin\_69:

(Start: 31 @42352 has 135 MA's), (43, 42295), (62, 42160),

Gene: Micasa\_64 Start: 42015, Stop: 41713, Start Num: 32

Candidate Starts for Micasa\_64:

(Start: 32 @42015 has 40 MA's), (43, 41961), (44, 41955), (54, 41844), (56, 41838), (63, 41796),

Gene: MiculUcigas\_73 Start: 43404, Stop: 43177, Start Num: 24

Candidate Starts for MiculUcigas\_73:

(Start: 24 @43404 has 36 MA's), (37, 43350), (55, 43212),

Gene: Midas2\_63 Start: 41911, Stop: 41609, Start Num: 32

Candidate Starts for Midas2\_63:

(Start: 32 @41911 has 40 MA's), (43, 41857), (44, 41851), (64, 41668),

Gene: Miko\_66 Start: 42778, Stop: 42560, Start Num: 23

Candidate Starts for Miko\_66:

(Start: 23 @42778 has 41 MA's), (42, 42703), (54, 42598), (55, 42595),

Gene: Milcery\_66 Start: 41805, Stop: 41503, Start Num: 32

Candidate Starts for Milcery\_66:

(Start: 32 @41805 has 40 MA's), (43, 41751), (44, 41745), (54, 41634), (56, 41628), (63, 41586),

Gene: Millski\_66 Start: 42358, Stop: 42161, Start Num: 31

Candidate Starts for Millski\_66:

(Start: 31 @42358 has 135 MA's), (43, 42301), (62, 42166),

Gene: Miramae\_66 Start: 42179, Stop: 41955, Start Num: 31  
Candidate Starts for Miramae\_66:  
(Start: 31 @42179 has 135 MA's), (43, 42122), (44, 42116), (62, 41960),

Gene: MissWhite\_71 Start: 41889, Stop: 41647, Start Num: 25  
Candidate Starts for MissWhite\_71:  
(Start: 25 @41889 has 44 MA's), (37, 41835), (38, 41829), (49, 41724), (54, 41700),

Gene: Morpher26\_66 Start: 42654, Stop: 42430, Start Num: 31  
Candidate Starts for Morpher26\_66:  
(Start: 31 @42654 has 135 MA's), (43, 42597), (44, 42591), (46, 42540), (62, 42435),

Gene: Morrow\_68 Start: 42399, Stop: 42175, Start Num: 31  
Candidate Starts for Morrow\_68:  
(Start: 31 @42399 has 135 MA's), (43, 42342), (44, 42336), (62, 42180),

Gene: Mulciber\_73 Start: 43052, Stop: 42825, Start Num: 25  
Candidate Starts for Mulciber\_73:  
(Start: 25 @43052 has 44 MA's), (37, 42998), (46, 42920),

Gene: Munch\_75 Start: 43515, Stop: 43288, Start Num: 25  
Candidate Starts for Munch\_75:  
(Start: 25 @43515 has 44 MA's), (37, 43461), (38, 43455), (46, 43383),

Gene: Mundrea\_66 Start: 42647, Stop: 42423, Start Num: 31  
Candidate Starts for Mundrea\_66:  
(Start: 31 @42647 has 135 MA's), (43, 42590), (44, 42584), (46, 42533), (62, 42428),

Gene: MyraDee\_70 Start: 40654, Stop: 40406, Start Num: 32  
Candidate Starts for MyraDee\_70:  
(Start: 32 @40654 has 40 MA's), (44, 40594),

Gene: Myxus\_74 Start: 42923, Stop: 42705, Start Num: 20  
Candidate Starts for Myxus\_74:  
(Start: 20 @42923 has 29 MA's), (38, 42866), (42, 42848),

Gene: NaSiaTalie\_73 Start: 43498, Stop: 43271, Start Num: 24  
Candidate Starts for NaSiaTalie\_73:  
(Start: 24 @43498 has 36 MA's), (37, 43444), (55, 43306),

Gene: Naca\_69 Start: 43206, Stop: 42904, Start Num: 32  
Candidate Starts for Naca\_69:  
(Start: 32 @43206 has 40 MA's), (44, 43146), (52, 43041),

Gene: Naji\_75 Start: 44004, Stop: 43762, Start Num: 25  
Candidate Starts for Naji\_75:  
(Start: 25 @44004 has 44 MA's), (37, 43950), (42, 43926),

Gene: Nebs\_68 Start: 42396, Stop: 42172, Start Num: 31  
Candidate Starts for Nebs\_68:  
(Start: 31 @42396 has 135 MA's), (43, 42339), (44, 42333), (62, 42177),

Gene: Nemo27\_66 Start: 42356, Stop: 42159, Start Num: 31

Candidate Starts for Nemo27\_66:

(Start: 31 @42356 has 135 MA's), (43, 42299), (62, 42164),

Gene: NicoleTera\_70 Start: 43518, Stop: 43297, Start Num: 24

Candidate Starts for NicoleTera\_70:

(Start: 24 @43518 has 36 MA's), (37, 43464), (55, 43332),

Gene: Noelle\_67 Start: 42962, Stop: 42738, Start Num: 31

Candidate Starts for Noelle\_67:

(Start: 31 @42962 has 135 MA's), (43, 42905), (44, 42899), (54, 42788), (62, 42743),

Gene: NorthStar\_65 Start: 42357, Stop: 42160, Start Num: 31

Candidate Starts for NorthStar\_65:

(Start: 31 @42357 has 135 MA's), (43, 42300), (62, 42165),

Gene: NotAPhaseMom\_66 Start: 42361, Stop: 42164, Start Num: 31

Candidate Starts for NotAPhaseMom\_66:

(Start: 31 @42361 has 135 MA's), (43, 42304), (62, 42169),

Gene: NothingSpecial\_68 Start: 43574, Stop: 43308, Start Num: 12

Candidate Starts for NothingSpecial\_68:

(Start: 12 @43574 has 1 MA's), (Start: 24 @43535 has 36 MA's), (37, 43481), (38, 43475), (53, 43349), (54, 43346), (55, 43343),

Gene: Nyxis\_66 Start: 42247, Stop: 42050, Start Num: 31

Candidate Starts for Nyxis\_66:

(Start: 31 @42247 has 135 MA's), (43, 42190), (62, 42055),

Gene: OKaNui\_66 Start: 42407, Stop: 42210, Start Num: 31

Candidate Starts for OKaNui\_66:

(Start: 31 @42407 has 135 MA's), (43, 42350), (62, 42215),

Gene: Obama12\_68 Start: 42780, Stop: 42556, Start Num: 31

Candidate Starts for Obama12\_68:

(Start: 31 @42780 has 135 MA's), (43, 42723), (44, 42717), (62, 42561),

Gene: Odin\_73 Start: 42517, Stop: 42317, Start Num: 20

Candidate Starts for Odin\_73:

(8, 42586), (Start: 11 @42556 has 4 MA's), (Start: 20 @42517 has 29 MA's), (37, 42463), (42, 42439), (55, 42325),

Gene: Ohfah\_68 Start: 42396, Stop: 42172, Start Num: 31

Candidate Starts for Ohfah\_68:

(Start: 31 @42396 has 135 MA's), (43, 42339), (44, 42333), (62, 42177),

Gene: Oogie\_82 Start: 65894, Stop: 66106, Start Num: 39

Candidate Starts for Oogie\_82:

(Start: 39 @65894 has 6 MA's), (50, 66008),

Gene: Orange\_74 Start: 43064, Stop: 42837, Start Num: 25

Candidate Starts for Orange\_74:

(Start: 25 @43064 has 44 MA's), (37, 43010), (38, 43004), (46, 42932),

Gene: PackMan\_73 Start: 42798, Stop: 42580, Start Num: 20  
Candidate Starts for PackMan\_73:  
(Start: 20 @42798 has 29 MA's), (38, 42741), (42, 42723),

Gene: PainterBoy\_75 Start: 43432, Stop: 43232, Start Num: 23  
Candidate Starts for PainterBoy\_75:  
(16, 43456), (19, 43438), (Start: 23 @43432 has 41 MA's), (48, 43273),

Gene: Pakusa\_79 Start: 63461, Stop: 63673, Start Num: 39  
Candidate Starts for Pakusa\_79:  
(Start: 39 @63461 has 6 MA's), (50, 63575),

Gene: Palestino\_66 Start: 42357, Stop: 42160, Start Num: 31  
Candidate Starts for Palestino\_66:  
(Start: 31 @42357 has 135 MA's), (43, 42300), (62, 42165),

Gene: PeaceMeal1\_64 Start: 40823, Stop: 40584, Start Num: 23  
Candidate Starts for PeaceMeal1\_64:  
(Start: 23 @40823 has 41 MA's), (38, 40763), (62, 40589),

Gene: Peaches\_65 Start: 42356, Stop: 42159, Start Num: 31  
Candidate Starts for Peaches\_65:  
(Start: 31 @42356 has 135 MA's), (43, 42299), (62, 42164),

Gene: Perplexer\_66 Start: 42630, Stop: 42406, Start Num: 31  
Candidate Starts for Perplexer\_66:  
(Start: 31 @42630 has 135 MA's), (43, 42573), (44, 42567), (46, 42516), (62, 42411),

Gene: PeterPeter\_67 Start: 42354, Stop: 42157, Start Num: 31  
Candidate Starts for PeterPeter\_67:  
(Start: 31 @42354 has 135 MA's), (43, 42297), (62, 42162),

Gene: Petersenfast\_69 Start: 41946, Stop: 41683, Start Num: 25  
Candidate Starts for Petersenfast\_69:  
(Start: 25 @41946 has 44 MA's), (37, 41892), (38, 41886), (46, 41814), (59, 41727),

Gene: PetiteSangsue\_66 Start: 42633, Stop: 42409, Start Num: 31  
Candidate Starts for PetiteSangsue\_66:  
(Start: 31 @42633 has 135 MA's), (43, 42576), (44, 42570), (46, 42519), (62, 42414),

Gene: PetterN\_74 Start: 42993, Stop: 42691, Start Num: 32  
Candidate Starts for PetterN\_74:  
(Start: 32 @42993 has 40 MA's), (44, 42933), (52, 42828),

Gene: Ph8s\_76 Start: 42621, Stop: 42382, Start Num: 11  
Candidate Starts for Ph8s\_76:  
(4, 42693), (Start: 11 @42621 has 4 MA's), (Start: 20 @42582 has 29 MA's), (37, 42528), (38, 42522),  
(42, 42504), (55, 42390),

Gene: Phacado\_67 Start: 42356, Stop: 42159, Start Num: 31  
Candidate Starts for Phacado\_67:  
(Start: 31 @42356 has 135 MA's), (43, 42299), (62, 42164),



Gene: Phaded\_68 Start: 44715, Stop: 44476, Start Num: 25  
Candidate Starts for Phaded\_68:  
(Start: 25 @44715 has 44 MA's), (38, 44652), (42, 44634), (54, 44529),

Gene: Phaeder\_74 Start: 42798, Stop: 42580, Start Num: 20  
Candidate Starts for Phaeder\_74:  
(Start: 20 @42798 has 29 MA's), (38, 42741), (42, 42723),

Gene: Pharaoh\_68 Start: 42838, Stop: 42611, Start Num: 20  
Candidate Starts for Pharaoh\_68:  
(Start: 20 @42838 has 29 MA's), (58, 42625), (59, 42622),

Gene: Phelipe\_68 Start: 42396, Stop: 42172, Start Num: 31  
Candidate Starts for Phelipe\_68:  
(Start: 31 @42396 has 135 MA's), (43, 42339), (44, 42333), (62, 42177),

Gene: Phighter1804\_67 Start: 42421, Stop: 42224, Start Num: 31  
Candidate Starts for Phighter1804\_67:  
(Start: 31 @42421 has 135 MA's), (43, 42364), (62, 42229),

Gene: Phlorence\_65 Start: 41798, Stop: 41496, Start Num: 32  
Candidate Starts for Phlorence\_65:  
(Start: 32 @41798 has 40 MA's), (43, 41744), (44, 41738), (54, 41627), (56, 41621),

Gene: Phonnegut\_74 Start: 42868, Stop: 42650, Start Num: 20  
Candidate Starts for Phonnegut\_74:  
(Start: 20 @42868 has 29 MA's), (38, 42811), (42, 42793),

Gene: Phontbonne\_67 Start: 42263, Stop: 42066, Start Num: 31  
Candidate Starts for Phontbonne\_67:  
(Start: 31 @42263 has 135 MA's), (43, 42206), (62, 42071),

Gene: PickleBack\_67 Start: 41975, Stop: 41673, Start Num: 32  
Candidate Starts for PickleBack\_67:  
(Start: 32 @41975 has 40 MA's), (43, 41921), (44, 41915), (54, 41804), (56, 41798),

Gene: Pioneer\_74 Start: 42868, Stop: 42650, Start Num: 20  
Candidate Starts for Pioneer\_74:  
(Start: 20 @42868 has 29 MA's), (38, 42811), (42, 42793),

Gene: Pipcraft\_64 Start: 42357, Stop: 42160, Start Num: 31  
Candidate Starts for Pipcraft\_64:  
(Start: 31 @42357 has 135 MA's), (43, 42300), (62, 42165),

Gene: Piro94\_72 Start: 43466, Stop: 43239, Start Num: 24  
Candidate Starts for Piro94\_72:  
(Start: 24 @43466 has 36 MA's), (37, 43412), (55, 43274), (61, 43244),

Gene: Polymorphads\_67 Start: 42377, Stop: 42153, Start Num: 31  
Candidate Starts for Polymorphads\_67:  
(Start: 31 @42377 has 135 MA's), (43, 42320), (44, 42314), (62, 42158),

Gene: Pomar16\_75 Start: 44044, Stop: 43802, Start Num: 25

Candidate Starts for Pomar16\_75:

(Start: 25 @44044 has 44 MA's), (37, 43990), (42, 43966),

Gene: Poompha\_63 Start: 40821, Stop: 40582, Start Num: 23

Candidate Starts for Poompha\_63:

(Start: 23 @40821 has 41 MA's), (38, 40761), (62, 40587),

Gene: Power\_72 Start: 43836, Stop: 43612, Start Num: 23

Candidate Starts for Power\_72:

(Start: 23 @43836 has 41 MA's), (53, 43653), (54, 43650), (55, 43647),

Gene: Priya\_72 Start: 42595, Stop: 42377, Start Num: 20

Candidate Starts for Priya\_72:

(Start: 20 @42595 has 29 MA's), (38, 42538), (42, 42520),

Gene: Pukovnik\_69 Start: 44363, Stop: 44136, Start Num: 24

Candidate Starts for Pukovnik\_69:

(Start: 24 @44363 has 36 MA's), (37, 44309), (55, 44171), (61, 44141),

Gene: Pumbaa\_67 Start: 42302, Stop: 42105, Start Num: 31

Candidate Starts for Pumbaa\_67:

(Start: 31 @42302 has 135 MA's), (43, 42245), (62, 42110),

Gene: Qobbit\_72 Start: 42557, Stop: 42339, Start Num: 20

Candidate Starts for Qobbit\_72:

(Start: 20 @42557 has 29 MA's), (38, 42500), (42, 42482),

Gene: QueenB2\_70 Start: 43119, Stop: 42895, Start Num: 23

Candidate Starts for QueenB2\_70:

(Start: 23 @43119 has 41 MA's), (37, 43068), (53, 42936), (55, 42930), (60, 42903),

Gene: QueenBeesly\_73 Start: 43793, Stop: 43569, Start Num: 23

Candidate Starts for QueenBeesly\_73:

(Start: 23 @43793 has 41 MA's), (53, 43610), (54, 43607), (55, 43604),

Gene: Rachaly\_68 Start: 42923, Stop: 42705, Start Num: 23

Candidate Starts for Rachaly\_68:

(Start: 23 @42923 has 41 MA's), (42, 42848), (54, 42743), (55, 42740),

Gene: Rahalelujah\_74 Start: 42760, Stop: 42527, Start Num: 18

Candidate Starts for Rahalelujah\_74:

(9, 42799), (Start: 18 @42760 has 1 MA's), (38, 42688), (42, 42670),

Gene: Rebeuca\_67 Start: 42137, Stop: 41898, Start Num: 23

Candidate Starts for Rebeuca\_67:

(Start: 23 @42137 has 41 MA's), (38, 42077), (54, 41948), (62, 41903),

Gene: RedRock\_71 Start: 43761, Stop: 43537, Start Num: 24

Candidate Starts for RedRock\_71:

(Start: 24 @43761 has 36 MA's), (Start: 26 @43758 has 4 MA's), (37, 43710), (54, 43575), (55, 43572),

Gene: Refuge\_70 Start: 44062, Stop: 43841, Start Num: 21

Candidate Starts for Refuge\_70:  
(Start: 21 @44062 has 2 MA's), (34, 44032),

Gene: Relief\_66 Start: 42354, Stop: 42157, Start Num: 31  
Candidate Starts for Relief\_66:  
(Start: 31 @42354 has 135 MA's), (43, 42297), (62, 42162),

Gene: Retro23\_73 Start: 43524, Stop: 43300, Start Num: 23  
Candidate Starts for Retro23\_73:  
(Start: 23 @43524 has 41 MA's), (53, 43341), (54, 43338), (55, 43335),

Gene: Romney\_66 Start: 42354, Stop: 42157, Start Num: 31  
Candidate Starts for Romney\_66:  
(Start: 31 @42354 has 135 MA's), (43, 42297), (62, 42162),

Gene: Roosevelt\_65 Start: 42359, Stop: 42162, Start Num: 31  
Candidate Starts for Roosevelt\_65:  
(Start: 31 @42359 has 135 MA's), (43, 42302), (62, 42167),

Gene: Ruin\_67 Start: 42350, Stop: 42153, Start Num: 31  
Candidate Starts for Ruin\_67:  
(Start: 31 @42350 has 135 MA's), (43, 42293), (62, 42158),

Gene: Sabertooth\_67 Start: 42359, Stop: 42162, Start Num: 31  
Candidate Starts for Sabertooth\_67:  
(Start: 31 @42359 has 135 MA's), (43, 42302), (62, 42167),

Gene: Salz\_70 Start: 41861, Stop: 41598, Start Num: 25  
Candidate Starts for Salz\_70:  
(Start: 25 @41861 has 44 MA's), (37, 41807), (38, 41801), (46, 41729), (59, 41642),

Gene: Scamp\_67 Start: 42359, Stop: 42162, Start Num: 31  
Candidate Starts for Scamp\_67:  
(Start: 31 @42359 has 135 MA's), (43, 42302), (62, 42167),

Gene: ScarletRaider\_83 Start: 67178, Stop: 67384, Start Num: 39  
Candidate Starts for ScarletRaider\_83:  
(1, 66935), (2, 66956), (3, 66989), (5, 67010), (7, 67019), (Start: 39 @67178 has 6 MA's), (55, 67316),

Gene: Scherzo\_73 Start: 43087, Stop: 42869, Start Num: 20  
Candidate Starts for Scherzo\_73:  
(Start: 20 @43087 has 29 MA's), (38, 43030), (42, 43012),

Gene: Schomber\_81 Start: 63469, Stop: 63681, Start Num: 39  
Candidate Starts for Schomber\_81:  
(Start: 39 @63469 has 6 MA's), (50, 63583),

Gene: Scorpia\_70 Start: 42564, Stop: 42262, Start Num: 32  
Candidate Starts for Scorpia\_70:  
(Start: 32 @42564 has 40 MA's), (44, 42504), (52, 42399),

Gene: SemperFi\_73 Start: 43681, Stop: 43457, Start Num: 23  
Candidate Starts for SemperFi\_73:

(Start: 23 @43681 has 41 MA's), (53, 43498), (54, 43495), (55, 43492),

Gene: Serenity\_76 Start: 43102, Stop: 42818, Start Num: 14

Candidate Starts for Serenity\_76:

(Start: 14 @43102 has 4 MA's), (37, 43009), (38, 43003), (40, 42994), (49, 42895), (54, 42871),

Gene: Severus\_64 Start: 40821, Stop: 40582, Start Num: 23

Candidate Starts for Severus\_64:

(Start: 23 @40821 has 41 MA's), (38, 40761), (62, 40587),

Gene: Shaka\_65 Start: 42354, Stop: 42157, Start Num: 31

Candidate Starts for Shaka\_65:

(Start: 31 @42354 has 135 MA's), (43, 42297), (62, 42162),

Gene: Sham4\_71 Start: 41945, Stop: 41682, Start Num: 25

Candidate Starts for Sham4\_71:

(Start: 25 @41945 has 44 MA's), (37, 41891), (38, 41885), (46, 41813), (59, 41726),

Gene: SheaKeira\_68 Start: 41846, Stop: 41625, Start Num: 25

Candidate Starts for SheaKeira\_68:

(Start: 25 @41846 has 44 MA's), (37, 41792), (55, 41660),

Gene: SheldonCooper\_67 Start: 42797, Stop: 42573, Start Num: 31

Candidate Starts for SheldonCooper\_67:

(Start: 31 @42797 has 135 MA's), (43, 42740), (44, 42734), (62, 42578),

Gene: Shygu2\_66 Start: 42684, Stop: 42460, Start Num: 31

Candidate Starts for Shygu2\_66:

(Start: 31 @42684 has 135 MA's), (43, 42627), (44, 42621), (62, 42465),

Gene: Skipitt\_66 Start: 42351, Stop: 42154, Start Num: 31

Candidate Starts for Skipitt\_66:

(Start: 31 @42351 has 135 MA's), (43, 42294), (62, 42159),

Gene: Smeagan\_75 Start: 43992, Stop: 43768, Start Num: 23

Candidate Starts for Smeagan\_75:

(Start: 23 @43992 has 41 MA's), (37, 43941), (53, 43809), (54, 43806), (55, 43803),

Gene: SnapTap\_72 Start: 43492, Stop: 43268, Start Num: 23

Candidate Starts for SnapTap\_72:

(Start: 23 @43492 has 41 MA's), (53, 43309), (54, 43306), (55, 43303),

Gene: Snape\_75 Start: 43054, Stop: 42827, Start Num: 25

Candidate Starts for Snape\_75:

(Start: 25 @43054 has 44 MA's), (37, 43000), (46, 42922),

Gene: SororFago\_74 Start: 44027, Stop: 43806, Start Num: 20

Candidate Starts for SororFago\_74:

(Start: 20 @44027 has 29 MA's), (37, 43973), (38, 43967), (42, 43949), (55, 43841),

Gene: Sparxx\_68 Start: 42352, Stop: 42155, Start Num: 31

Candidate Starts for Sparxx\_68:

(Start: 31 @42352 has 135 MA's), (43, 42295), (62, 42160),

Gene: Spino\_66 Start: 42360, Stop: 42163, Start Num: 31  
Candidate Starts for Spino\_66:  
(Start: 31 @42360 has 135 MA's), (43, 42303), (62, 42168),

Gene: Spouty\_69 Start: 42594, Stop: 42376, Start Num: 20  
Candidate Starts for Spouty\_69:  
(Start: 20 @42594 has 29 MA's), (38, 42537), (42, 42519),

Gene: StarStuff\_75 Start: 44006, Stop: 43764, Start Num: 25  
Candidate Starts for StarStuff\_75:  
(Start: 25 @44006 has 44 MA's), (37, 43952), (42, 43928),

Gene: Stasia\_66 Start: 42567, Stop: 42343, Start Num: 31  
Candidate Starts for Stasia\_66:  
(Start: 31 @42567 has 135 MA's), (43, 42510), (44, 42504), (54, 42393), (62, 42348),

Gene: Steamy\_67 Start: 42288, Stop: 42067, Start Num: 21  
Candidate Starts for Steamy\_67:  
(Start: 21 @42288 has 2 MA's), (35, 42258), (53, 42108),

Gene: Stink\_66 Start: 42459, Stop: 42235, Start Num: 31  
Candidate Starts for Stink\_66:  
(Start: 31 @42459 has 135 MA's), (43, 42402), (44, 42396), (62, 42240),

Gene: Superchunk\_74 Start: 42168, Stop: 41929, Start Num: 11  
Candidate Starts for Superchunk\_74:  
(4, 42240), (6, 42222), (Start: 11 @42168 has 4 MA's), (Start: 20 @42129 has 29 MA's), (37, 42075),  
(42, 42051), (55, 41937),

Gene: SweetiePie\_72 Start: 43624, Stop: 43400, Start Num: 23  
Candidate Starts for SweetiePie\_72:  
(Start: 23 @43624 has 41 MA's), (53, 43441), (54, 43438), (55, 43435),

Gene: SwirlSquare\_79 Start: 42851, Stop: 42651, Start Num: 20  
Candidate Starts for SwirlSquare\_79:  
(Start: 20 @42851 has 29 MA's), (37, 42797), (38, 42791), (42, 42773),

Gene: Swirley\_66 Start: 41955, Stop: 41653, Start Num: 32  
Candidate Starts for Swirley\_66:  
(Start: 32 @41955 has 40 MA's), (43, 41901), (44, 41895), (54, 41784), (56, 41778), (63, 41736),

Gene: SydNat\_66 Start: 42147, Stop: 41845, Start Num: 32  
Candidate Starts for SydNat\_66:  
(Start: 32 @42147 has 40 MA's), (43, 42093), (44, 42087), (64, 41904),

Gene: Taquarus\_66 Start: 42360, Stop: 42163, Start Num: 31  
Candidate Starts for Taquarus\_66:  
(Start: 31 @42360 has 135 MA's), (43, 42303), (62, 42168),

Gene: TarsusIV\_70 Start: 43465, Stop: 43244, Start Num: 24  
Candidate Starts for TarsusIV\_70:  
(Start: 24 @43465 has 36 MA's), (37, 43411), (38, 43405), (42, 43387), (55, 43279),

Gene: Tarynearal\_65 Start: 41791, Stop: 41489, Start Num: 32  
Candidate Starts for Tarynearal\_65:  
(Start: 32 @41791 has 40 MA's), (43, 41737), (44, 41731), (54, 41620), (56, 41614), (63, 41572),

Gene: Thanksgivukkah\_66 Start: 42355, Stop: 42158, Start Num: 31  
Candidate Starts for Thanksgivukkah\_66:  
(Start: 31 @42355 has 135 MA's), (43, 42298), (47, 42244), (62, 42163),

Gene: Theia\_65 Start: 42277, Stop: 41975, Start Num: 32  
Candidate Starts for Theia\_65:  
(Start: 32 @42277 has 40 MA's), (43, 42223), (44, 42217), (64, 42034),

Gene: Tiger\_66 Start: 41719, Stop: 41417, Start Num: 32  
Candidate Starts for Tiger\_66:  
(Start: 32 @41719 has 40 MA's), (43, 41665), (44, 41659), (54, 41548), (56, 41542),

Gene: Timothy\_75 Start: 43031, Stop: 42804, Start Num: 25  
Candidate Starts for Timothy\_75:  
(Start: 25 @43031 has 44 MA's), (37, 42977), (38, 42971), (46, 42899),

Gene: TinaFeyge\_65 Start: 42352, Stop: 42155, Start Num: 31  
Candidate Starts for TinaFeyge\_65:  
(Start: 31 @42352 has 135 MA's), (43, 42295), (62, 42160),

Gene: TinyTimmy\_71 Start: 42760, Stop: 42533, Start Num: 25  
Candidate Starts for TinyTimmy\_71:  
(Start: 25 @42760 has 44 MA's), (37, 42706), (38, 42700), (46, 42628),

Gene: Tinybot\_66 Start: 42387, Stop: 42190, Start Num: 31  
Candidate Starts for Tinybot\_66:  
(Start: 31 @42387 has 135 MA's), (43, 42330), (62, 42195),

Gene: TopsytheTRex\_72 Start: 43101, Stop: 42820, Start Num: 14  
Candidate Starts for TopsytheTRex\_72:  
(Start: 14 @43101 has 4 MA's), (37, 43008), (38, 43002), (42, 42984), (54, 42873),

Gene: TiroTheta9\_66 Start: 42351, Stop: 42154, Start Num: 31  
Candidate Starts for TiroTheta9\_66:  
(Start: 31 @42351 has 135 MA's), (43, 42294), (62, 42159),

Gene: Tomathan\_75 Start: 44117, Stop: 43875, Start Num: 25  
Candidate Starts for Tomathan\_75:  
(Start: 25 @44117 has 44 MA's), (37, 44063), (42, 44039),

Gene: Topanga\_63 Start: 41611, Stop: 41378, Start Num: 26  
Candidate Starts for Topanga\_63:  
(Start: 26 @41611 has 4 MA's), (37, 41563), (38, 41557), (62, 41383),

Gene: Trike\_63 Start: 40825, Stop: 40589, Start Num: 23  
Candidate Starts for Trike\_63:  
(Start: 23 @40825 has 41 MA's), (38, 40768), (62, 40594),

Gene: Trixie\_72 Start: 44253, Stop: 44035, Start Num: 24  
Candidate Starts for Trixie\_72:  
(Start: 24 @44253 has 36 MA's), (37, 44202), (42, 44178), (49, 44091), (55, 44070), (60, 44043),

Gene: Trooper\_72 Start: 43427, Stop: 43203, Start Num: 24  
Candidate Starts for Trooper\_72:  
(Start: 24 @43427 has 36 MA's), (37, 43376), (38, 43370), (54, 43241), (55, 43238),

Gene: TroyPia\_68 Start: 42391, Stop: 42167, Start Num: 31  
Candidate Starts for TroyPia\_68:  
(Start: 31 @42391 has 135 MA's), (43, 42334), (44, 42328), (62, 42172),

Gene: Tubs\_74 Start: 42798, Stop: 42580, Start Num: 20  
Candidate Starts for Tubs\_74:  
(Start: 20 @42798 has 29 MA's), (38, 42741), (42, 42723),

Gene: Turbido\_73 Start: 43711, Stop: 43487, Start Num: 23  
Candidate Starts for Turbido\_73:  
(Start: 23 @43711 has 41 MA's), (37, 43660), (53, 43528), (54, 43525), (55, 43522),

Gene: Twister\_65 Start: 41732, Stop: 41499, Start Num: 26  
Candidate Starts for Twister\_65:  
(Start: 26 @41732 has 4 MA's), (37, 41684), (38, 41678), (62, 41504),

Gene: TygerBlood\_67 Start: 42357, Stop: 42160, Start Num: 31  
Candidate Starts for TygerBlood\_67:  
(Start: 31 @42357 has 135 MA's), (43, 42300), (62, 42165),

Gene: UBSmoodge\_86 Start: 67618, Stop: 67824, Start Num: 39  
Candidate Starts for UBSmoodge\_86:  
(Start: 39 @67618 has 6 MA's), (55, 67756),

Gene: Ugenie5\_69 Start: 43086, Stop: 42868, Start Num: 20  
Candidate Starts for Ugenie5\_69:  
(Start: 20 @43086 has 29 MA's), (38, 43029), (42, 43011),

Gene: Ulysses\_66 Start: 42043, Stop: 41846, Start Num: 31  
Candidate Starts for Ulysses\_66:  
(Start: 31 @42043 has 135 MA's), (43, 41986), (62, 41851),

Gene: UnionJack\_70 Start: 42228, Stop: 41926, Start Num: 32  
Candidate Starts for UnionJack\_70:  
(Start: 32 @42228 has 40 MA's), (44, 42168),

Gene: Updawg\_73 Start: 43362, Stop: 43135, Start Num: 24  
Candidate Starts for Updawg\_73:  
(Start: 24 @43362 has 36 MA's), (37, 43308), (55, 43170),

Gene: VC3\_74 Start: 43459, Stop: 43217, Start Num: 25  
Candidate Starts for VC3\_74:  
(Start: 25 @43459 has 44 MA's), (37, 43405), (42, 43381), (53, 43273),

Gene: WalterMcMickey\_65 Start: 41732, Stop: 41499, Start Num: 26

Candidate Starts for WalterMcMickey\_65:  
(Start: 26 @41732 has 4 MA's), (37, 41684), (38, 41678), (62, 41504),

Gene: Wander\_67 Start: 42354, Stop: 42157, Start Num: 31  
Candidate Starts for Wander\_67:  
(Start: 31 @42354 has 135 MA's), (43, 42297), (62, 42162),

Gene: WeiHuaDA\_73 Start: 44299, Stop: 44075, Start Num: 24  
Candidate Starts for WeiHuaDA\_73:  
(Start: 24 @44299 has 36 MA's), (37, 44248), (38, 44242), (53, 44116), (54, 44113), (55, 44110), (60, 44083),

Gene: Whabigail7\_73 Start: 43711, Stop: 43487, Start Num: 23  
Candidate Starts for Whabigail7\_73:  
(Start: 23 @43711 has 41 MA's), (37, 43660), (53, 43528), (54, 43525), (55, 43522),

Gene: WideWale\_73 Start: 43362, Stop: 43135, Start Num: 24  
Candidate Starts for WideWale\_73:  
(Start: 24 @43362 has 36 MA's), (37, 43308), (55, 43170),

Gene: Wilbur\_67 Start: 42354, Stop: 42157, Start Num: 31  
Candidate Starts for Wilbur\_67:  
(Start: 31 @42354 has 135 MA's), (43, 42297), (62, 42162),

Gene: Wile\_65 Start: 42663, Stop: 42439, Start Num: 31  
Candidate Starts for Wile\_65:  
(Start: 31 @42663 has 135 MA's), (43, 42606), (44, 42600), (46, 42549), (62, 42444),

Gene: Wizard007\_66 Start: 42389, Stop: 42165, Start Num: 31  
Candidate Starts for Wizard007\_66:  
(Start: 31 @42389 has 135 MA's), (43, 42332), (44, 42326), (46, 42275), (62, 42170),

Gene: Xena\_65 Start: 42630, Stop: 42406, Start Num: 31  
Candidate Starts for Xena\_65:  
(Start: 31 @42630 has 135 MA's), (43, 42573), (44, 42567), (46, 42516), (62, 42411),

Gene: XianYue\_68 Start: 43295, Stop: 43074, Start Num: 22  
Candidate Starts for XianYue\_68:  
(Start: 22 @43295 has 1 MA's), (42, 43217), (54, 43112), (61, 43079),

Gene: Yecey3\_76 Start: 42829, Stop: 42608, Start Num: 24  
Candidate Starts for Yecey3\_76:  
(Start: 24 @42829 has 36 MA's), (38, 42769), (42, 42751), (49, 42664),

Gene: YoSam321\_67 Start: 42351, Stop: 42154, Start Num: 31  
Candidate Starts for YoSam321\_67:  
(Start: 31 @42351 has 135 MA's), (43, 42294), (62, 42159),

Gene: Zimmer\_71 Start: 43934, Stop: 43707, Start Num: 24  
Candidate Starts for Zimmer\_71:  
(Start: 24 @43934 has 36 MA's), (37, 43880), (38, 43874), (42, 43856), (53, 43748), (55, 43742),

Gene: Zolita\_65 Start: 42151, Stop: 41849, Start Num: 32



Candidate Starts for Zolita\_65:

(Start: 32 @42151 has 40 MA's), (43, 42097), (44, 42091), (64, 41908),