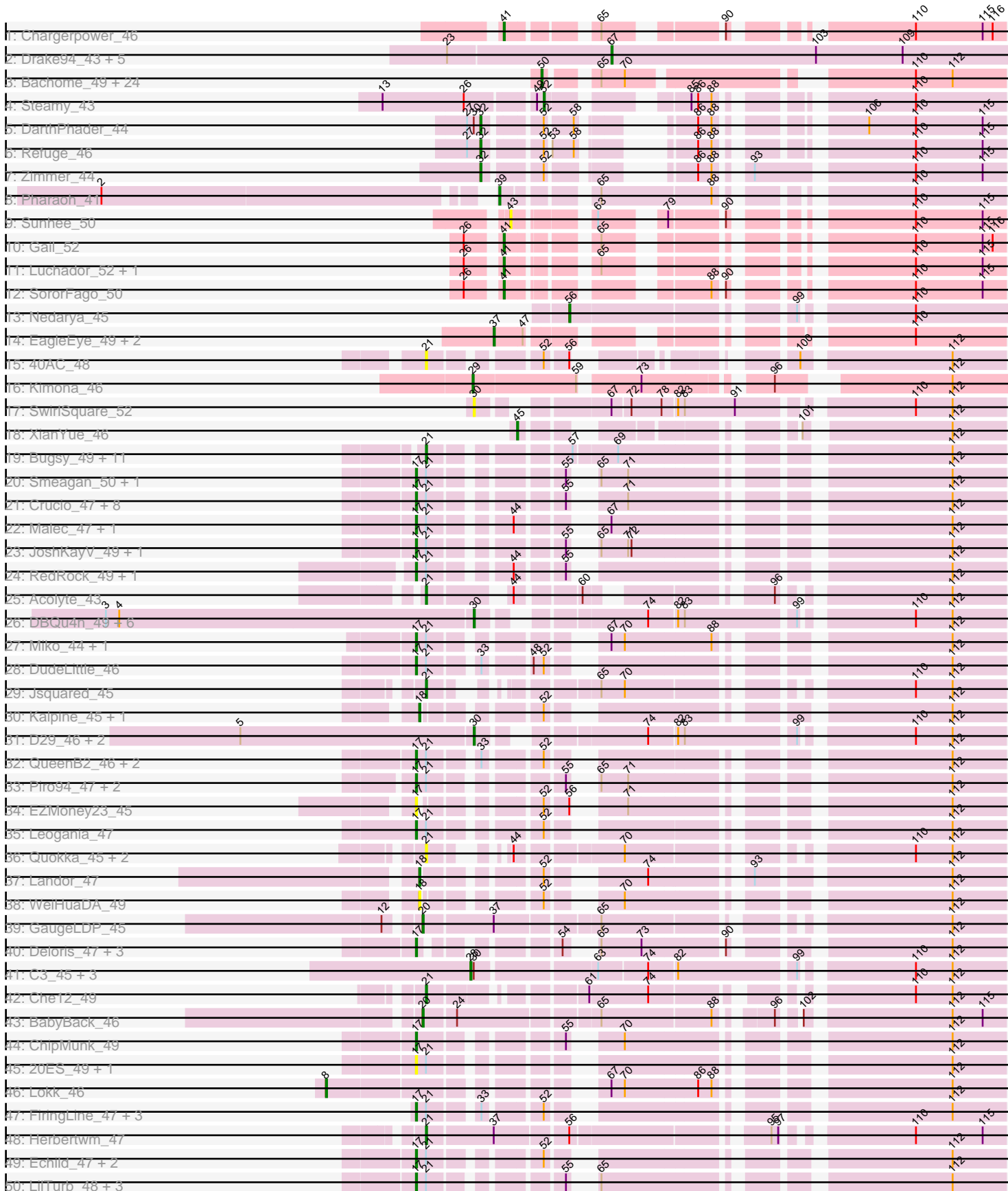
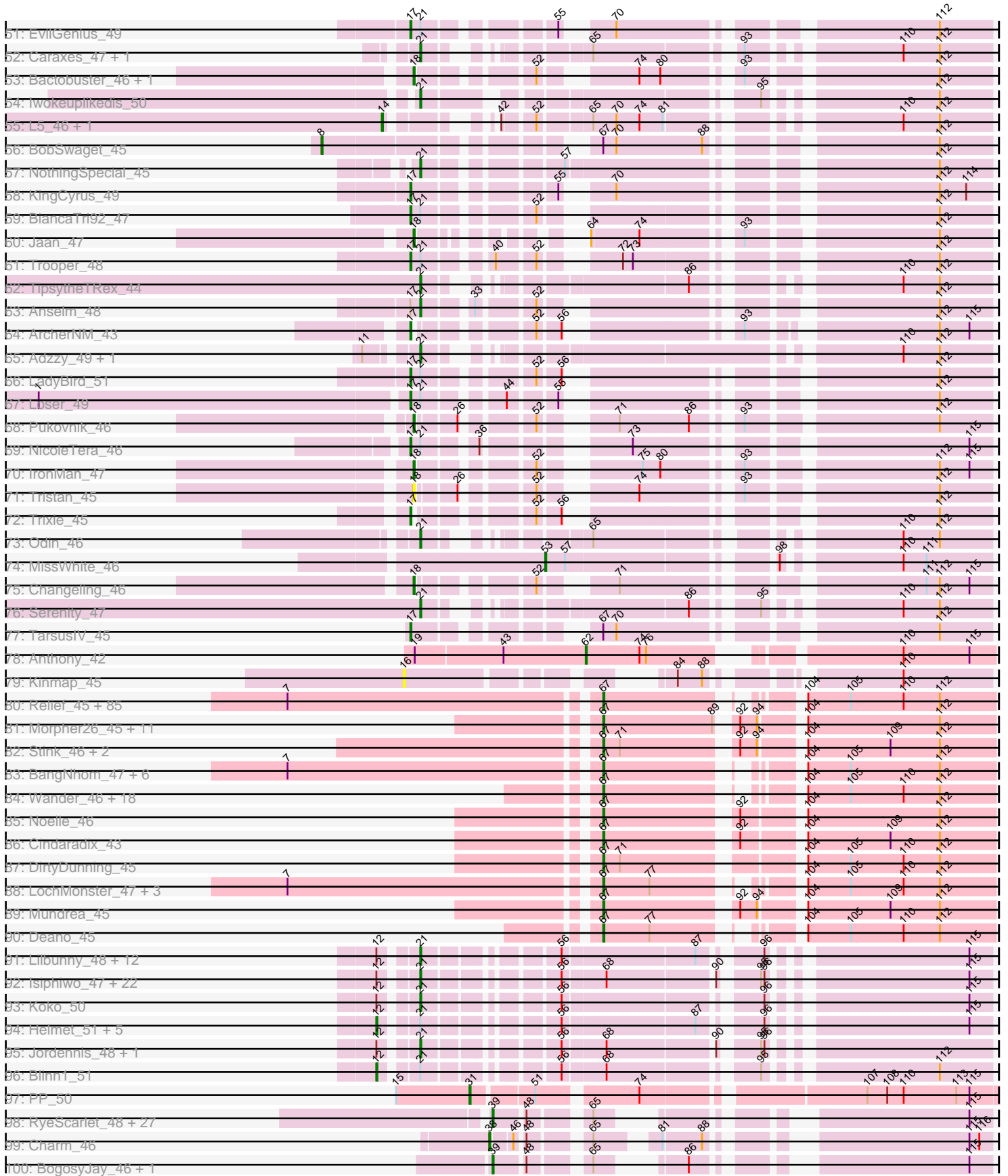


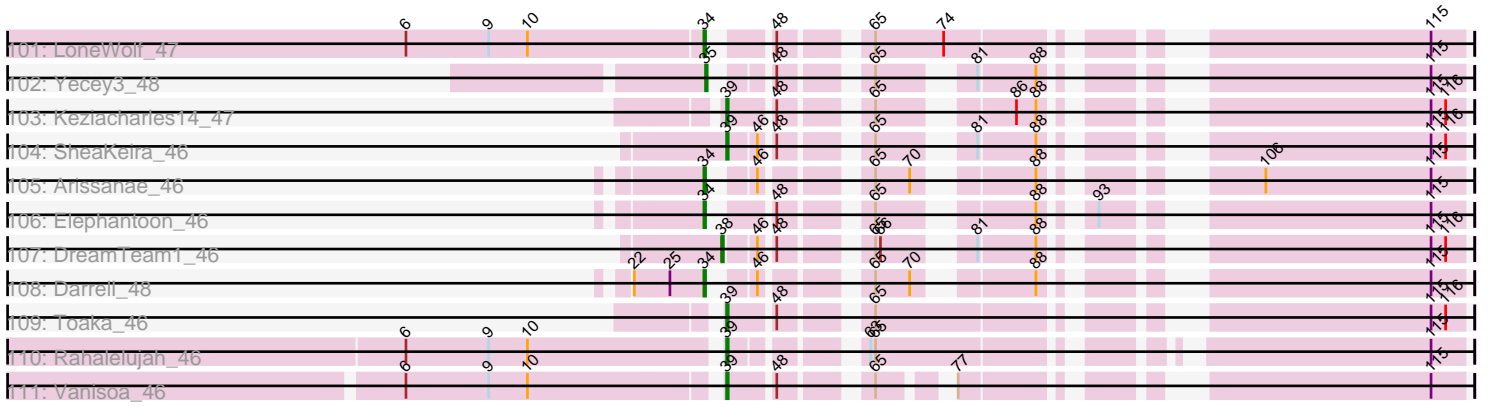
Pham 224178



Pham 224178



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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 224178 Report

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

Pham number 224178 has 394 members, 42 are drafts.

Phages represented in each track:

- Track 1 : Chargerpower\_46
- Track 2 : Drake94\_43, Trike\_43, Poompha\_44, Severus\_43, PeaceMeal1\_43, KittenMittens\_42
- Track 3 : Bachome\_49, Sham4\_47, Orange\_47, Insomnia\_48, Snape\_47, Mabel\_47, TinyTimmy\_47, Munch\_48, Et2Brutus\_46, Fibonacci\_47, Bud\_47, Lucivia\_48, Bowtie\_48, Mulciber\_47, MaCh\_48, Petersenfast\_46, Gilberta\_48, Timothy\_47, Aneem\_48, Hutc2\_47, Ebony\_47, Jabith\_48, Flaverint\_48, Salz\_46, Joselito\_48
- Track 4 : Steamy\_43
- Track 5 : DarthPhader\_44
- Track 6 : Refuge\_46
- Track 7 : Zimmer\_44
- Track 8 : Pharaoh\_41
- Track 9 : Sunhee\_50
- Track 10 : Gail\_52
- Track 11 : Luchador\_52, Jeeves\_52
- Track 12 : SororFago\_50
- Track 13 : Nedarya\_45
- Track 14 : EagleEye\_49, Lucyedi\_48, PainterBoy\_48
- Track 15 : 40AC\_48
- Track 16 : Kimona\_46
- Track 17 : SwirlSquare\_52
- Track 18 : XianYue\_46
- Track 19 : Buggy\_49, Baehexic\_46, Updawg\_48, WideWale\_48, Centaur\_48, Terrific\_50, NaSiaTalie\_47, Flare16\_47, Gratitude\_47, MiculUcigas\_47, Sknot\_49, Equemioh13\_48
- Track 20 : Smeagan\_50, Leviathan\_49
- Track 21 : Crucio\_47, Dignity\_49, SweetiePie\_47, Turbido\_48, SemperFi\_48, Retro23\_48, Georgie2\_48, Dalmatian\_48, Jerm\_49
- Track 22 : Malec\_47, Larenn\_46
- Track 23 : JoshKayV\_49, CRB1\_50
- Track 24 : RedRock\_49, AnnaL29\_49
- Track 25 : Acolyte\_43
- Track 26 : DBQu4n\_49, Pomar16\_49, Travvers\_49, Tomathan\_49, Kerberos\_49, Duplo\_49, StarStuff\_49
- Track 27 : Miko\_44, Rachaly\_46
- Track 28 : DudeLittle\_46

- Track 29 : Jsquared\_45
- Track 30 : Kalpine\_45, Colin\_47
- Track 31 : D29\_46, Naji\_49, D32\_49
- Track 32 : QueenB2\_46, Fameo\_47, Heffalump\_46
- Track 33 : Piro94\_47, HarryHoudini\_48, Drake55\_49
- Track 34 : EZMoney23\_45
- Track 35 : Leogania\_47
- Track 36 : Quokka\_45, Bradman\_46, MajorMajor\_46
- Track 37 : Landor\_47
- Track 38 : WeiHuaDA\_49
- Track 39 : GaugeLDP\_45
- Track 40 : Deloris\_47, VA6\_47, AN3\_49, BengiVuitton\_48
- Track 41 : C3\_45, AN9\_50, VC3\_50, ANI8\_50
- Track 42 : Che12\_49
- Track 43 : BabyBack\_46
- Track 44 : ChipMunk\_49
- Track 45 : 20ES\_49, First\_0048
- Track 46 : Lokk\_46
- Track 47 : FiringLine\_47, Power\_46, QueenBeesly\_47, SnapTap\_47
- Track 48 : Herbertwm\_47
- Track 49 : Echild\_47, LionsBait\_49, Benvolio\_44
- Track 50 : LilTurb\_48, Whabigail7\_48, Agape74\_49, AbbyPaige\_49
- Track 51 : EvilGenius\_49
- Track 52 : Caraxes\_47, Superchunk\_46
- Track 53 : Bactobuster\_46, Phaded\_48
- Track 54 : Iwokeuplikedis\_50
- Track 55 : L5\_46, Koduck\_47
- Track 56 : BobSwaget\_45
- Track 57 : NothingSpecial\_45
- Track 58 : KingCyrus\_49
- Track 59 : BiancaTri92\_47
- Track 60 : Jaan\_47
- Track 61 : Trooper\_48
- Track 62 : TipsytheTRex\_44
- Track 63 : Anselm\_48
- Track 64 : ArcherNM\_43
- Track 65 : Adzzy\_49, Ph8s\_49
- Track 66 : LadyBird\_51
- Track 67 : Loser\_49
- Track 68 : Pukovnik\_46
- Track 69 : NicoleTera\_46
- Track 70 : IronMan\_47
- Track 71 : Tristan\_45
- Track 72 : Trixie\_45
- Track 73 : Odin\_46
- Track 74 : MissWhite\_46
- Track 75 : Changeling\_46
- Track 76 : Serenity\_47
- Track 77 : TarsusIV\_45
- Track 78 : Anthony\_42
- Track 79 : Kinmap\_45
- Track 80 : Relief\_45, Melvin\_48, Citius\_46, HamSlice\_45, Jaykayelowell\_44, Phelipe\_47, Blackmoor\_46, Shaka\_46, Clarenza\_45, Ohfah\_47, Annyong\_46,

Thanksgivukkah\_45, Baby16\_46, LappelDuVide\_46, Tinybot\_45, Abdiel\_46, Broseidon\_46, Bartimeaus\_46, Koreni\_45, Nebs\_47, CentreCat\_46, Nyxis\_46, Lemur\_46, Morrow\_47, JetBlade\_46, Iracema64\_47, Polymorphads\_47, Iceman\_46, Sparxx\_47, Pumbaa\_46, BubbleTrouble\_45, Kingmustik0402\_46, TinaFeyge\_46, LeoAvram\_46, Florean\_46, Roosevelt\_45, PeterPeter\_46, Spino\_45, Dhanush\_46, Bombshell\_46, Pipcraft\_44, NorthStar\_45, Ruin\_46, Cintron\_45, Alberto7\_47, Connomayer\_46, KFPoly\_45, Peaches\_46, Eros\_46, LittleGuy\_46, Scamp\_46, Holli\_45, Eapen\_46, Palestino\_45, Phontbonne\_46, Kampy\_46, OKaNui\_46, ICleared\_46, Ulysses\_45, Chaph\_46, TygerBlood\_46, TroyPia\_47, Millski\_45, Caelakin\_46, LittleB\_46, Medusa\_46, Koan\_44, Sabertooth\_46, Wizard007\_46, Skipitt\_45, Lunsford\_47, Druantia\_46, Eurydice\_47, Burger\_44, Happiness\_45, MeeZee\_46, Albee\_46, Maxo\_47, Flux\_46, Eris\_45, Eagle\_46, Commander\_46, TiroTheta9\_46, Lorenzo\_46, YoSam321\_46, Taquarus\_46

- Track 81 : Morpher26\_45, Cici\_45, Xena\_44, Perplexer\_45, Achebe\_44, Badger\_44, Bumblebee11\_44, AbbysRanger\_45, Backyardigan\_44, PetiteSangsue\_45, Wile\_45, Katalie136\_45
- Track 82 : Stink\_46, AvatarAhPeg\_45, Miramae\_45
- Track 83 : BangNhom\_47, ChampagnePapi\_48, SheldonCooper\_48, Kremtemulon\_46, LHTSCC\_48, Obama12\_47, Cerulean\_47
- Track 84 : Wander\_46, Huxley\_46, Cocoaberry\_46, Gadost\_46, Avle17\_46, NotAPhaseMom\_46, Bruiser\_45, Houdini22\_46, Nemo27\_46, BellusTerra\_47, Mazhar510\_46, Camperdownii\_44, Mayonnaise\_46, Kye\_46, Funston\_45, SenorClean\_44, JoongJeon\_45, Phacado\_46, Maverick\_46
- Track 85 : Noelle\_46
- Track 86 : Cindaradix\_43
- Track 87 : DirtyDunning\_45
- Track 88 : LochMonster\_47, Rosa24\_45, Romney\_46, Wilbur\_46
- Track 89 : Mundrea\_45
- Track 90 : Deano\_45
- Track 91 : Lilbunny\_48, Wiks\_48, Blue7\_51, Zaka\_49, Gruunaga\_49, ToneTone\_46, Indra\_52, Zulu\_49, Tucker\_49, Jeffabunny\_49, WunderPhul\_49, Hammer\_50, Rifter\_50
- Track 92 : Isiphiwo\_47, Gladiator\_47, Newrala\_49, Dorothea\_49, Chartreuse\_48, DaVinci\_48, SmellyB\_49, SuperCallie99\_48, McFly\_49, Roksolana\_50, Polyphemus\_50, Artemis2UCLA\_49, GreedyLawyer\_49, Kipper29\_49, Cookiedough\_49, CloudWang3\_49, SuperAwesome\_49, Candra\_49, VohminGhazi\_49, Kazan\_50, EricB\_49, Pmask\_49, Neeharika16\_48
- Track 93 : Koko\_50
- Track 94 : Helmet\_51, Yokurt\_49, BlessJoy\_50, Temprado\_51, Garak\_51, Hexamo\_49
- Track 95 : Jordennis\_48, Priamo\_50
- Track 96 : Blinn1\_51
- Track 97 : PP\_50
- Track 98 : RyeScarlet\_48, EmyBug\_46, PackMan\_46, Scherzo\_47, Fayely\_47, Sachima\_44, Eidsmoe\_47, Holes\_46, Myxus\_47, Ugenie5\_44, Conquerage\_47, Phonnegut\_47, Pioneer\_47, Phaeder\_47, ExplosioNervosa\_47, HortumSL17\_47, Jiawan\_45, Tubs\_47, Spouty\_47, Qobbit\_47, Lilleskat\_45, Priya\_47, Beemo\_47, Hanray\_45, Onglai\_45, EdogawaKiddo\_45, Aliter\_47, Catalina\_48
- Track 99 : Charm\_46
- Track 100 : BogosyJay\_46, Maminiaina\_46
- Track 101 : LoneWolf\_47
- Track 102 : Yecey3\_48
- Track 103 : Keziacharles14\_47

- Track 104 : SheaKeira\_46
- Track 105 : Arissanae\_46
- Track 106 : Elephantoon\_46
- Track 107 : DreamTeam1\_46
- Track 108 : Darrell\_48
- Track 109 : Toaka\_46
- Track 110 : Rahalelujah\_46
- Track 111 : Vanisoa\_46

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

The start number called the most often in the published annotations is 67, it was called in 137 of the 352 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AbbysRanger\_45, Abdiel\_46, Achebe\_44, Albee\_46, Alberto7\_47, Annyong\_46, AvatarAhPeg\_45, Avle17\_46, Baby16\_46, Backyardigan\_44, Badger\_44, BangNhom\_47, Bartimeaus\_46, BellusTerra\_47, Blackmoor\_46, Bombshell\_46, Broseidon\_46, Bruiser\_45, BubbleTrouble\_45, Bumblebee11\_44, Burger\_44, Caelakin\_46, Camperdownii\_44, CentreCat\_46, Cerulean\_47, ChampagnePapi\_48, Chaph\_46, Cici\_45, Cindaradix\_43, Cintron\_45, Citius\_46, Clarenza\_45, Cocoaberry\_46, Commander\_46, Connomayer\_46, Deano\_45, Dhanush\_46, DirtyDunning\_45, Drake94\_43, Druantia\_46, Eagle\_46, Eapen\_46, Eris\_45, Eros\_46, Eurydice\_47, Florean\_46, Flux\_46, Funston\_45, Gadost\_46, HamSlice\_45, Happiness\_45, Holli\_45, Houdini22\_46, Huxley\_46, ICleared\_46, Iceman\_46, Iracema64\_47, Jaykayelowell\_44, JetBlade\_46, JoongJeon\_45, KFPoly\_45, Kampy\_46, Katalie136\_45, Kingmustik0402\_46, KittenMittens\_42, Koan\_44, Koreni\_45, Kremtemulon\_46, Kyee\_46, LHTSCC\_48, LappelDuVide\_46, Lemur\_46, LeoAvram\_46, LittleB\_46, LittleGuy\_46, LochMonster\_47, Lorenzo\_46, Lunsford\_47, Maverick\_46, Maxo\_47, Mayonnaise\_46, Mazhar510\_46, Medusa\_46, MeeZee\_46, Melvin\_48, Millski\_45, Miramae\_45, Morpher26\_45, Morrow\_47, Mundrea\_45, Nebs\_47, Nemo27\_46, Noelle\_46, NorthStar\_45, NotAPhaseMom\_46, Nyxis\_46, OKaNui\_46, Obama12\_47, Ohfah\_47, Palestino\_45, PeaceMeal1\_43, Peaches\_46, Perplexer\_45, PeterPeter\_46, PetiteSangsue\_45, Phacado\_46, Felipe\_47, Phontbonne\_46, Pipcraft\_44, Polymorphads\_47, Poompha\_44, Pumbaa\_46, Relief\_45, Romney\_46, Roosevelt\_45, Rosa24\_45, Ruin\_46, Sabertooth\_46, Scamp\_46, SeniorClean\_44, Severus\_43, Shaka\_46, SheldonCooper\_48, Skipitt\_45, Sparxx\_47, Spino\_45, Stink\_46, Taquarus\_46, Thanksgivukkah\_45, TinaFeyge\_46, Tinybot\_45, TiroTheta9\_46, Trike\_43, TroyPia\_47, TygerBlood\_46, Ulysses\_45, Wander\_46, Wilbur\_46, Wile\_45, Wizard007\_46, Xena\_44, YoSam321\_46,

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

- BobSwaget\_45, Larenn\_46, Lokk\_46, Malec\_47, Miko\_44, Rachaly\_46, SwirlSquare\_52, TarsusIV\_45,

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

- 20ES\_49, 40AC\_48, AN3\_49, AN9\_50, ANI8\_50, AbbyPaige\_49, Acolyte\_43, Adzzy\_49, Agape74\_49, Aliter\_47, Aneem\_48, AnnaL29\_49, Anselm\_48, Anthony\_42, ArcherNM\_43, Arissanae\_46, Artemis2UCLA\_49, BabyBack\_46, Bachome\_49, Bactobuster\_46, Baehexic\_46, Beemo\_47, BengiVuitton\_48,

Benvolio\_44, BiancaTri92\_47, BlessJoy\_50, Blinn1\_51, Blue7\_51, BogosyJay\_46, Bowtie\_48, Bradman\_46, Bud\_47, Buggy\_49, C3\_45, CRB1\_50, Candra\_49, Caraxes\_47, Catalina\_48, Centaur\_48, Changeling\_46, Chargerpower\_46, Charm\_46, Chartreuse\_48, Che12\_49, ChipMunk\_49, CloudWang3\_49, Colin\_47, Conquerage\_47, Cookiedough\_49, Crucio\_47, D29\_46, D32\_49, DBQu4n\_49, DaVinci\_48, Dalmatian\_48, Darrell\_48, DarthPhader\_44, Deloris\_47, Dignity\_49, Dorothea\_49, Drake55\_49, DreamTeam1\_46, DudeLittle\_46, Duplo\_49, EZMoney23\_45, EagleEye\_49, Ebony\_47, Echild\_47, EdogawaKiddo\_45, Eidsmoe\_47, Elephantoon\_46, EmyBug\_46, Equemioh13\_48, EricB\_49, Et2Brutus\_46, EvilGenius\_49, ExplosioNervosa\_47, Fameo\_47, Fayely\_47, Fibonacci\_47, FiringLine\_47, First\_0048, Flare16\_47, Flaverint\_48, Gail\_52, Garak\_51, GaugeLDP\_45, Georgie2\_48, Gilberta\_48, Gladiator\_47, Gratitude\_47, GreedyLawyer\_49, Gruunaga\_49, Hammer\_50, Hanray\_45, HarryHoudini\_48, Heffalump\_46, Helmet\_51, Herbertwm\_47, Hexamo\_49, Horex\_46, HortumSL17\_47, Hutc2\_47, Indra\_52, Insomnia\_48, IronMan\_47, Isiphiwo\_47, Iwokeuplikedis\_50, Jaan\_47, Jabith\_48, Jeeves\_52, Jeffabunny\_49, Jerm\_49, Jiawan\_45, Jordennis\_48, Joselito\_48, JoshKayV\_49, Jsquared\_45, Kalpine\_45, Kazan\_50, Kerberos\_49, Keziacharles14\_47, Kimona\_46, KingCyrus\_49, Kinmap\_45, Kipper29\_49, Koduck\_47, Koko\_50, L5\_46, LadyBird\_51, Landor\_47, Leogania\_47, Leviathan\_49, LilTurb\_48, Lilbunny\_48, Lilleskat\_45, LionsBait\_49, LoneWolf\_47, Loser\_49, Luchador\_52, Lucivia\_48, Lucyedi\_48, MaCh\_48, Mabel\_47, MajorMajor\_46, Maminiaina\_46, McFly\_49, MiculUcigas\_47, MissWhite\_46, Mulciber\_47, Munch\_48, Myxus\_47, NaSiaTalie\_47, Naji\_49, Nedarya\_45, Neeharika16\_48, Newrala\_49, NicoleTera\_46, NothingSpecial\_45, Odin\_46, Onglai\_45, Orange\_47, PP\_50, PackMan\_46, PainterBoy\_48, Petersenfast\_46, Ph8s\_49, Phaded\_48, Phaeder\_47, Pharaoh\_41, Phonnegut\_47, Pioneer\_47, Piro94\_47, Pmask\_49, Polyphemus\_50, Pomar16\_49, Power\_46, Priamo\_50, Priya\_47, Pukovnik\_46, Qobbit\_47, QueenB2\_46, QueenBeesly\_47, Quokka\_45, Rahalelujah\_46, RedRock\_49, Refuge\_46, Retro23\_48, Rifter\_50, Roksolana\_50, RyeScarlet\_48, Sachima\_44, Salz\_46, Scherzo\_47, SemperFi\_48, Serenity\_47, Sham4\_47, SheaKeira\_46, Sknot\_49, Smeagan\_50, SmellyB\_49, SnapTap\_47, Snape\_47, SororFago\_50, Spouty\_47, StarStuff\_49, Steamy\_43, Sunhee\_50, SuperAwesome\_49, SuperCallie99\_48, Superchunk\_46, SweetiePie\_47, Temprado\_51, Terrific\_50, Timothy\_47, TinyTimmy\_47, TipsytheTRex\_44, Toaka\_46, Tomathan\_49, ToneTone\_46, Travvers\_49, Tristan\_45, Trixie\_45, Trooper\_48, Tubs\_47, Tucker\_49, Turbido\_48, Ugenie5\_44, Updawg\_48, VA6\_47, VC3\_50, Vanisoa\_46, VohminGhazi\_49, WeiHuaDA\_49, Whabigail7\_48, WideWale\_48, Wiks\_48, WunderPhul\_49, XianYue\_46, Yecey3\_48, Yokurt\_49, Zaka\_49, Zimmer\_44, Zulu\_49,

### Summary by start number:

#### Start 8:

- Found in 2 of 394 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 2 of 352
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BobSwaget\_45 (A2), Lokk\_46 (A2),

#### Start 12:

- Found in 47 of 394 ( 11.9% ) of genes in pham
- Manual Annotations of this start: 3 of 352
- Called 14.9% of time when present



- Phage (with cluster) where this start called: BlessJoy\_50 (A6), Blinn1\_51 (A6), Garak\_51 (A6), Helmet\_51 (A6), Hexamo\_49 (A6), Temprado\_51 (A6), Yokurt\_49 (A6),

#### Start 14:

- Found in 2 of 394 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 352
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Koduck\_47 (A2), L5\_46 (A2),

#### Start 16:

- Found in 1 of 394 ( 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: Kinmap\_45 (A21),

#### Start 17:

- Found in 57 of 394 ( 14.5% ) of genes in pham
- Manual Annotations of this start: 51 of 352
- Called 98.2% of time when present
- Phage (with cluster) where this start called: 20ES\_49 (A2), AN3\_49 (A2), AbbyPaige\_49 (A2), Agape74\_49 (A2), AnnaL29\_49 (A2), ArcherNM\_43 (A2), BengiVuitton\_48 (A2), Benvolio\_44 (A2), BiancaTri92\_47 (A2), CRB1\_50 (A2), ChipMunk\_49 (A2), Crucio\_47 (A2), Dalmatian\_48 (A2), Deloris\_47 (A2), Dignity\_49 (A2), Drake55\_49 (A2), DudeLittle\_46 (A2), EZMoney23\_45 (A2), Echild\_47 (A2), EvilGenius\_49 (A2), Fameo\_47 (A2), FiringLine\_47 (A2), First\_0048 (A2), Georgie2\_48 (A2), HarryHoudini\_48 (A2), Heffalump\_46 (A2), Jerm\_49 (A2), JoshKayV\_49 (A2), KingCyrus\_49 (A2), LadyBird\_51 (A2), Larenn\_46 (A2), Leogania\_47 (A2), Leviathan\_49 (A2), LilTurb\_48 (A2), LionsBait\_49 (A2), Loser\_49 (A2), Malec\_47 (A2), Miko\_44 (A2), NicoleTera\_46 (A2), Piro94\_47 (A2), Power\_46 (A2), QueenB2\_46 (A2), QueenBeesly\_47 (A2), Rachaly\_46 (A2), RedRock\_49 (A2), Retro23\_48 (A2), SemperFi\_48 (A2), Smeagan\_50 (A2), SnapTap\_47 (A2), SweetiePie\_47 (A2), TarsusIV\_45 (A2), Trixie\_45 (A2), Trooper\_48 (A2), Turbido\_48 (A2), VA6\_47 (A2), Whabigail7\_48 (A2),

#### Start 18:

- Found in 11 of 394 ( 2.8% ) of genes in pham
- Manual Annotations of this start: 8 of 352
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bactobuster\_46 (A2), Changeling\_46 (A2), Colin\_47 (A2), IronMan\_47 (A2), Jaan\_47 (A2), Kalpine\_45 (A2), Landor\_47 (A2), Phaded\_48 (A2), Pukovnik\_46 (A2), Tristan\_45 (A2), WeiHuaDA\_49 (A2),

#### Start 20:

- Found in 2 of 394 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 2 of 352
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BabyBack\_46 (A2), GaugeLDP\_45 (A2),

#### Start 21:

- Found in 122 of 394 ( 31.0% ) of genes in pham
- Manual Annotations of this start: 58 of 352
- Called 56.6% of time when present

- Phage (with cluster) where this start called: 40AC\_48 (A17), Acolyte\_43 (A2), Adzzy\_49 (A2), Anselm\_48 (A2), Artemis2UCLA\_49 (A6), Baehexic\_46 (A2), Blue7\_51 (A6), Bradman\_46 (A2), Buggy\_49 (A2), Candra\_49 (A6), Caraxes\_47 (A2), Centaur\_48 (A2), Chartreuse\_48 (A6), Che12\_49 (A2), CloudWang3\_49 (A6), Cookiedough\_49 (A6), DaVinci\_48 (A6), Dorothea\_49 (A6), Equemioh13\_48 (A2), EricB\_49 (A6), Flare16\_47 (A2), Gladiator\_47 (A6), Gratitude\_47 (A2), GreedyLawyer\_49 (A6), Gruunaga\_49 (A6), Hammer\_50 (A6), Herbertwm\_47 (A2), Indra\_52 (A6), Isiphiwo\_47 (A6), Iwokeuplikedis\_50 (A2), Jeffabunny\_49 (A6), Jordennis\_48 (A6), Jsquared\_45 (A2), Kazan\_50 (A6), Kipper29\_49 (A6), Koko\_50 (A6), Lilbunny\_48 (A6), MajorMajor\_46 (A2), McFly\_49 (A6), MiculUcigas\_47 (A2), NaSiaTalie\_47 (A2), Neeharika16\_48 (A6), Newrala\_49 (A6), NothingSpecial\_45 (A2), Odin\_46 (A2), Ph8s\_49 (A2), Pmask\_49 (A6), Polyphemus\_50 (A6), Priamo\_50 (A6), Quokka\_45 (A2), Rifter\_50 (A6), Roksolana\_50 (A6), Serenity\_47 (A2), Sknot\_49 (A2), SmellyB\_49 (A6), SuperAwesome\_49 (A6), SuperCallie99\_48 (A6), Superchunk\_46 (A2), Terrific\_50 (A2), TipsytheTRex\_44 (A2), ToneTone\_46 (A6), Tucker\_49 (A6), Updawg\_48 (A2), VohminGhazi\_49 (A6), WideWale\_48 (A2), Wiks\_48 (A6), WunderPhul\_49 (A6), Zaka\_49 (A6), Zulu\_49 (A6),

#### Start 28:

- Found in 4 of 394 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 4 of 352
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AN9\_50 (A2), ANI8\_50 (A2), C3\_45 (A2), VC3\_50 (A2),

#### Start 29:

- Found in 1 of 394 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 352
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kimona\_46 (A19),

#### Start 30:

- Found in 16 of 394 ( 4.1% ) of genes in pham
- Manual Annotations of this start: 9 of 352
- Called 68.8% of time when present
- Phage (with cluster) where this start called: D29\_46 (A2), D32\_49 (A2), DBQu4n\_49 (A2), Duplo\_49 (A2), Kerberos\_49 (A2), Naji\_49 (A2), Pomar16\_49 (A2), StarStuff\_49 (A2), SwirlSquare\_52 (A2), Tomathan\_49 (A2), Travvers\_49 (A2),

#### Start 31:

- Found in 1 of 394 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 352
- Called 100.0% of time when present
- Phage (with cluster) where this start called: PP\_50 (A7),

#### Start 32:

- Found in 3 of 394 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 3 of 352
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DARTHPhader\_44 (A12), Refuge\_46 (A12), Zimmer\_44 (A12),

#### Start 34:

- Found in 4 of 394 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 4 of 352
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Arissanae\_46 (A9), Darrell\_48 (A9), Elephantoon\_46 (A9), LoneWolf\_47 (A9),

#### Start 35:

- Found in 1 of 394 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 352
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Yecey3\_48 (A9),

#### Start 37:

- Found in 5 of 394 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 3 of 352
- Called 60.0% of time when present
- Phage (with cluster) where this start called: EagleEye\_49 (A16), Lucyedi\_48 (A16), PainterBoy\_48 (A16),

#### Start 38:

- Found in 2 of 394 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 2 of 352
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Charm\_46 (A9), DreamTeam1\_46 (A9),

#### Start 39:

- Found in 36 of 394 ( 9.1% ) of genes in pham
- Manual Annotations of this start: 28 of 352
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aliter\_47 (A9), Beemo\_47 (A9), BogosyJay\_46 (A9), Catalina\_48 (A9), Conquerage\_47 (A9), EdogawaKiddo\_45 (A9), Eidsmoe\_47 (A9), EmyBug\_46 (A9), ExplosioNervosa\_47 (A9), Fayely\_47 (A9), Hanray\_45 (A9), Halex\_46 (A9), HortumSL17\_47 (A9), Jiawan\_45 (A9), Keziacharles14\_47 (A9), Lilleskat\_45 (A9), Maminiana\_46 (A9), Myxus\_47 (A9), Onglai\_45 (A9), PackMan\_46 (A9), Phaeder\_47 (A9), Pharaoh\_41 (A12), Phonnegut\_47 (A9), Pioneer\_47 (A9), Priya\_47 (A9), Qobbit\_47 (A9), Rahalelujah\_46 (A9), RyeScarlet\_48 (A9), Sachima\_44 (A9), Scherzo\_47 (A9), SheaKeira\_46 (A9), Spouty\_47 (A9), Toaka\_46 (A9), Tubs\_47 (A9), Ugenie5\_44 (A9), Vanisoa\_46 (A9),

#### Start 41:

- Found in 5 of 394 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 5 of 352
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Chargerpower\_46 (A), Gail\_52 (A14), Jeeves\_52 (A14), Luchador\_52 (A14), SororFago\_50 (A14),

#### Start 43:

- Found in 2 of 394 ( 0.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Sunhee\_50 (A14),

#### Start 45:

- Found in 1 of 394 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 352
- Called 100.0% of time when present
- Phage (with cluster) where this start called: XianYue\_46 (A2),

#### Start 50:

- Found in 25 of 394 ( 6.3% ) of genes in pham
- Manual Annotations of this start: 24 of 352
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aneem\_48 (A11), Bachome\_49 (A11), Bowtie\_48 (A11), Bud\_47 (A11), Ebony\_47 (A11), Et2Brutus\_46 (A11), Fibonacci\_47 (A11), Flaverint\_48 (A11), Gilberta\_48 (A11), Hutc2\_47 (A11), Insomnia\_48 (A11), Jabith\_48 (A11), Joselito\_48 (A11), Lucivia\_48 (A11), MaCh\_48 (A11), Mabel\_47 (A11), Mulciber\_47 (A11), Munch\_48 (A11), Orange\_47 (A11), Petersenfast\_46 (A11), Salz\_46 (A11), Sham4\_47 (A11), Snape\_47 (A11), Timothy\_47 (A11), TinyTimmy\_47 (A11),

#### Start 52:

- Found in 36 of 394 ( 9.1% ) of genes in pham
- Manual Annotations of this start: 1 of 352
- Called 2.8% of time when present
- Phage (with cluster) where this start called: Steamy\_43 (A12),

#### Start 53:

- Found in 2 of 394 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 352
- Called 50.0% of time when present
- Phage (with cluster) where this start called: MissWhite\_46 (A2),

#### Start 56:

- Found in 53 of 394 ( 13.5% ) of genes in pham
- Manual Annotations of this start: 1 of 352
- Called 1.9% of time when present
- Phage (with cluster) where this start called: Nedarya\_45 (A15),

#### Start 62:

- Found in 1 of 394 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 352
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Anthony\_42 (A20),

#### Start 67:

- Found in 150 of 394 ( 38.1% ) of genes in pham
- Manual Annotations of this start: 137 of 352
- Called 94.7% of time when present
- Phage (with cluster) where this start called: AbbysRanger\_45 (A4), Abdiel\_46 (A4), Achebe\_44 (A4), Albee\_46 (A4), Alberto7\_47 (A4), Annyong\_46 (A4), AvatarAhPeg\_45 (A4), Avle17\_46 (A4), Baby16\_46 (A4), Backyardigan\_44 (A4), Badger\_44 (A4), BangNhom\_47 (A4), Bartimeaus\_46 (A4), BellusTerra\_47 (A4), Blackmoor\_46 (A4), Bombshell\_46 (A4), Broseidon\_46 (A4), Bruiser\_45 (A4), BubbleTrouble\_45 (A4), Bumblebee11\_44 (A4), Burger\_44 (A4), Caelakin\_46 (A4), Camperdownii\_44 (A4), CentreCat\_46 (A4), Cerulean\_47 (A4), ChampagnePapi\_48 (A4), Chaph\_46 (A4), Cici\_45 (A4), Cindaradix\_43 (A4), Cintron\_45 (A4), Citius\_46

(A4), Clarenza\_45 (A4), Cocoaberry\_46 (A4), Commander\_46 (A4), Connomayer\_46 (A4), Deano\_45 (A4), Dhanush\_46 (A4), DirtyDunning\_45 (A4), Drake94\_43 (A10), Druantia\_46 (A4), Eagle\_46 (A4), Eapen\_46 (A4), Eris\_45 (A4), Eros\_46 (A4), Eurydice\_47 (A4), Florean\_46 (A4), Flux\_46 (A4), Funston\_45 (A4), Gadost\_46 (A4), HamSlice\_45 (A4), Happiness\_45 (A4), Holli\_45 (A4), Houdini22\_46 (A4), Huxley\_46 (A4), ICleared\_46 (A4), Iceman\_46 (A4), Iracema64\_47 (A4), Jaykayelowell\_44 (A4), JetBlade\_46 (A4), JoongJeon\_45 (A4), KFPoly\_45 (A4), Kamy\_46 (A4), Katalie136\_45 (A4), Kingmustik0402\_46 (A4), KittenMittens\_42 (A10), Koan\_44 (A4), Koreni\_45 (A4), Kremtemulon\_46 (A4), Kyee\_46 (A4), LHTSCC\_48 (A4), LappelDuVide\_46 (A4), Lemur\_46 (A4), LeoAvram\_46 (A4), LittleB\_46 (A4), LittleGuy\_46 (A4), LochMonster\_47 (A4), Lorenzo\_46 (A4), Lunsford\_47 (A4), Maverick\_46 (A4), Maxo\_47 (A4), Mayonnaise\_46 (A4), Mazhar510\_46 (A4), Medusa\_46 (A4), MeeZee\_46 (A4), Melvin\_48 (A4), Millski\_45 (A4), Miramae\_45 (A4), Morpher26\_45 (A4), Morrow\_47 (A4), Mundrea\_45 (A4), Nebs\_47 (A4), Nemo27\_46 (A4), Noelle\_46 (A4), NorthStar\_45 (A4), NotAPhaseMom\_46 (A4), Nyxis\_46 (A4), OKaNui\_46 (A4), Obama12\_47 (A4), Ohfah\_47 (A4), Palestino\_45 (A4), PeaceMeal1\_43 (A10), Peaches\_46 (A4), Perplexer\_45 (A4), PeterPeter\_46 (A4), PetiteSangsue\_45 (A4), Phacado\_46 (A4), Phelipe\_47 (A4), Phontbonne\_46 (A4), Pipcraft\_44 (A4), Polymorphads\_47 (A4), Poompha\_44 (A10), Pumbaa\_46 (A4), Relief\_45 (A4), Romney\_46 (A4), Roosevelt\_45 (A4), Rosa24\_45 (A4), Ruin\_46 (A4), Sabertooth\_46 (A4), Scamp\_46 (A4), SeniorClean\_44 (A4), Severus\_43 (A10), Shaka\_46 (A4), SheldonCooper\_48 (A4), Skipitt\_45 (A4), Sparxx\_47 (A4), Spino\_45 (A4), Stink\_46 (A4), Taquarus\_46 (A4), Thanksgivukkah\_45 (A4), TinaFeyge\_46 (A4), Tinybot\_45 (A4), TiroTheta9\_46 (A4), Trike\_43 (A10), TroyPia\_47 (A4), TygerBlood\_46 (A4), Ulysses\_45 (A4), Wander\_46 (A4), Wilbur\_46 (A4), Wile\_45 (A4), Wizard007\_46 (A4), Xena\_44 (A4), YoSam321\_46 (A4),

### **Summary by clusters:**

There are 16 clusters represented in this pham: A15, A14, A17, A16, A11, A10, A12, A19, A21, A20, A2, A, A4, A7, A6, A9,

Info for manual annotations of cluster A:

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

Info for manual annotations of cluster A10:

- Start number 67 was manually annotated 6 times for cluster A10.

Info for manual annotations of cluster A11:

- Start number 50 was manually annotated 24 times for cluster A11.

Info for manual annotations of cluster A12:

- Start number 32 was manually annotated 3 times for cluster A12.
- Start number 39 was manually annotated 1 time for cluster A12.
- Start number 52 was manually annotated 1 time for cluster A12.

Info for manual annotations of cluster A14:

- Start number 41 was manually annotated 4 times for cluster A14.

Info for manual annotations of cluster A15:

- Start number 56 was manually annotated 1 time for cluster A15.

Info for manual annotations of cluster A16:

- Start number 37 was manually annotated 3 times for cluster A16.

Info for manual annotations of cluster A19:

- Start number 29 was manually annotated 1 time for cluster A19.

Info for manual annotations of cluster A2:

- Start number 8 was manually annotated 2 times for cluster A2.
- Start number 14 was manually annotated 1 time for cluster A2.
- Start number 17 was manually annotated 51 times for cluster A2.
- Start number 18 was manually annotated 8 times for cluster A2.
- Start number 20 was manually annotated 2 times for cluster A2.
- Start number 21 was manually annotated 22 times for cluster A2.
- Start number 28 was manually annotated 4 times for cluster A2.
- Start number 30 was manually annotated 9 times for cluster A2.
- Start number 45 was manually annotated 1 time for cluster A2.
- Start number 53 was manually annotated 1 time for cluster A2.

Info for manual annotations of cluster A20:

- Start number 62 was manually annotated 1 time for cluster A20.

Info for manual annotations of cluster A4:

- Start number 67 was manually annotated 131 times for cluster A4.

Info for manual annotations of cluster A6:

- Start number 12 was manually annotated 3 times for cluster A6.
- Start number 21 was manually annotated 36 times for cluster A6.

Info for manual annotations of cluster A7:

- Start number 31 was manually annotated 1 time for cluster A7.

Info for manual annotations of cluster A9:

- Start number 34 was manually annotated 4 times for cluster A9.
- Start number 35 was manually annotated 1 time for cluster A9.
- Start number 38 was manually annotated 2 times for cluster A9.
- Start number 39 was manually annotated 27 times for cluster A9.

**Gene Information:**

Gene: 20ES\_49 Start: 32435, Stop: 32013, Start Num: 17

Candidate Starts for 20ES\_49:

(Start: 17 @32435 has 51 MA's), (Start: 21 @32426 has 58 MA's), (112, 32060),

Gene: 40AC\_48 Start: 33450, Stop: 33055, Start Num: 21

Candidate Starts for 40AC\_48:

(Start: 21 @33450 has 58 MA's), (Start: 52 @33372 has 1 MA's), (Start: 56 @33354 has 1 MA's), (100, 33225), (112, 33102),

Gene: AN3\_49 Start: 32806, Stop: 32393, Start Num: 17

Candidate Starts for AN3\_49:

(Start: 17 @32806 has 51 MA's), (54, 32716), (65, 32707), (73, 32671), (90, 32605), (112, 32440),

Gene: AN9\_50 Start: 32346, Stop: 31912, Start Num: 28

Candidate Starts for AN9\_50:

(Start: 28 @32346 has 4 MA's), (Start: 30 @32343 has 9 MA's), (63, 32244), (74, 32202), (82, 32178), (99, 32079), (110, 31992), (112, 31959),

Gene: ANI8\_50 Start: 32346, Stop: 31912, Start Num: 28

Candidate Starts for ANI8\_50:

(Start: 28 @32346 has 4 MA's), (Start: 30 @32343 has 9 MA's), (63, 32244), (74, 32202), (82, 32178), (99, 32079), (110, 31992), (112, 31959),

Gene: AbbyPaige\_49 Start: 32616, Stop: 32194, Start Num: 17

Candidate Starts for AbbyPaige\_49:

(Start: 17 @32616 has 51 MA's), (Start: 21 @32607 has 58 MA's), (55, 32514), (65, 32508), (112, 32241),

Gene: AbbysRanger\_45 Start: 31867, Stop: 31544, Start Num: 67

Candidate Starts for AbbysRanger\_45:

(Start: 67 @31867 has 137 MA's), (89, 31768), (92, 31759), (94, 31744), (104, 31714), (112, 31594),

Gene: Abdiel\_46 Start: 31881, Stop: 31579, Start Num: 67

Candidate Starts for Abdiel\_46:

(7, 32151), (Start: 67 @31881 has 137 MA's), (104, 31749), (105, 31710), (110, 31662), (112, 31629),

Gene: Achebe\_44 Start: 31850, Stop: 31527, Start Num: 67

Candidate Starts for Achebe\_44:

(Start: 67 @31850 has 137 MA's), (89, 31751), (92, 31742), (94, 31727), (104, 31697), (112, 31577),

Gene: Acolyte\_43 Start: 31589, Stop: 31182, Start Num: 21

Candidate Starts for Acolyte\_43:

(Start: 21 @31589 has 58 MA's), (44, 31532), (60, 31484), (96, 31358), (112, 31229),

Gene: Adzzy\_49 Start: 31071, Stop: 30643, Start Num: 21

Candidate Starts for Adzzy\_49:

(11, 31107), (Start: 21 @31071 has 58 MA's), (110, 30723), (112, 30690),

Gene: Agape74\_49 Start: 32601, Stop: 32179, Start Num: 17

Candidate Starts for Agape74\_49:

(Start: 17 @32601 has 51 MA's), (Start: 21 @32592 has 58 MA's), (55, 32499), (65, 32493), (112, 32226),

Gene: Albee\_46 Start: 31880, Stop: 31578, Start Num: 67

Candidate Starts for Albee\_46:

(7, 32150), (Start: 67 @31880 has 137 MA's), (104, 31748), (105, 31709), (110, 31661), (112, 31628),

Gene: Alberto7\_47 Start: 32217, Stop: 31915, Start Num: 67

Candidate Starts for Alberto7\_47:

(7, 32487), (Start: 67 @32217 has 137 MA's), (104, 32085), (105, 32046), (110, 31998), (112, 31965),

Gene: Aliter\_47 Start: 32037, Stop: 31711, Start Num: 39

Candidate Starts for Aliter\_47:

(Start: 39 @32037 has 28 MA's), (48, 32013), (65, 31971), (115, 31731),

Gene: Aneem\_48 Start: 31705, Stop: 31358, Start Num: 50  
Candidate Starts for Aneem\_48:  
(Start: 50 @31705 has 24 MA's), (65, 31672), (70, 31651), (110, 31438), (112, 31405),

Gene: AnnaL29\_49 Start: 33146, Stop: 32724, Start Num: 17  
Candidate Starts for AnnaL29\_49:  
(Start: 17 @33146 has 51 MA's), (Start: 21 @33137 has 58 MA's), (44, 33080), (55, 33044), (112, 32771),

Gene: Annyong\_46 Start: 31925, Stop: 31623, Start Num: 67  
Candidate Starts for Annyong\_46:  
(7, 32195), (Start: 67 @31925 has 137 MA's), (104, 31793), (105, 31754), (110, 31706), (112, 31673),

Gene: Anselm\_48 Start: 32523, Stop: 32110, Start Num: 21  
Candidate Starts for Anselm\_48:  
(Start: 17 @32532 has 51 MA's), (Start: 21 @32523 has 58 MA's), (33, 32487), (Start: 52 @32445 has 1 MA's), (112, 32157),

Gene: Anthony\_42 Start: 29795, Stop: 29478, Start Num: 62  
Candidate Starts for Anthony\_42:  
(19, 29948), (43, 29870), (Start: 62 @29795 has 1 MA's), (74, 29747), (76, 29741), (110, 29561), (115, 29501),

Gene: ArcherNM\_43 Start: 32185, Stop: 31778, Start Num: 17  
Candidate Starts for ArcherNM\_43:  
(Start: 17 @32185 has 51 MA's), (Start: 52 @32107 has 1 MA's), (Start: 56 @32089 has 1 MA's), (93, 31972), (112, 31825), (115, 31798),

Gene: Arissanae\_46 Start: 32694, Stop: 32350, Start Num: 34  
Candidate Starts for Arissanae\_46:  
(Start: 34 @32694 has 4 MA's), (46, 32679), (65, 32631), (70, 32610), (88, 32556), (106, 32472), (115, 32370),

Gene: Artemis2UCLA\_49 Start: 30834, Stop: 30406, Start Num: 21  
Candidate Starts for Artemis2UCLA\_49:  
(Start: 12 @30861 has 3 MA's), (Start: 21 @30834 has 58 MA's), (Start: 56 @30738 has 1 MA's), (68, 30702), (90, 30612), (95, 30585), (96, 30582), (115, 30426),

Gene: AvatarAhPeg\_45 Start: 32379, Stop: 32056, Start Num: 67  
Candidate Starts for AvatarAhPeg\_45:  
(Start: 67 @32379 has 137 MA's), (71, 32364), (92, 32271), (94, 32256), (104, 32226), (109, 32151), (112, 32106),

Gene: Avle17\_46 Start: 31877, Stop: 31575, Start Num: 67  
Candidate Starts for Avle17\_46:  
(Start: 67 @31877 has 137 MA's), (104, 31745), (105, 31706), (110, 31658), (112, 31625),

Gene: Baby16\_46 Start: 31891, Stop: 31589, Start Num: 67  
Candidate Starts for Baby16\_46:  
(7, 32161), (Start: 67 @31891 has 137 MA's), (104, 31759), (105, 31720), (110, 31672), (112, 31639),

Gene: BabyBack\_46 Start: 32865, Stop: 32410, Start Num: 20



Candidate Starts for BabyBack\_46:

(Start: 20 @32865 has 2 MA's), (24, 32838), (65, 32721), (88, 32625), (96, 32589), (102, 32577), (112, 32457), (115, 32430),

Gene: Bachome\_49 Start: 31693, Stop: 31346, Start Num: 50

Candidate Starts for Bachome\_49:

(Start: 50 @31693 has 24 MA's), (65, 31660), (70, 31639), (110, 31426), (112, 31393),

Gene: Backyardigan\_44 Start: 31883, Stop: 31560, Start Num: 67

Candidate Starts for Backyardigan\_44:

(Start: 67 @31883 has 137 MA's), (89, 31784), (92, 31775), (94, 31760), (104, 31730), (112, 31610),

Gene: Bactobuster\_46 Start: 33096, Stop: 32677, Start Num: 18

Candidate Starts for Bactobuster\_46:

(Start: 18 @33096 has 8 MA's), (Start: 52 @33015 has 1 MA's), (74, 32952), (80, 32934), (93, 32880), (112, 32724),

Gene: Badger\_44 Start: 31851, Stop: 31528, Start Num: 67

Candidate Starts for Badger\_44:

(Start: 67 @31851 has 137 MA's), (89, 31752), (92, 31743), (94, 31728), (104, 31698), (112, 31578),

Gene: Baehexic\_46 Start: 32303, Stop: 31869, Start Num: 21

Candidate Starts for Baehexic\_46:

(Start: 21 @32303 has 58 MA's), (57, 32204), (69, 32168), (112, 31916),

Gene: BangNhom\_47 Start: 32302, Stop: 32000, Start Num: 67

Candidate Starts for BangNhom\_47:

(7, 32572), (Start: 67 @32302 has 137 MA's), (104, 32170), (105, 32131), (112, 32050),

Gene: Bartimeaus\_46 Start: 31882, Stop: 31580, Start Num: 67

Candidate Starts for Bartimeaus\_46:

(7, 32152), (Start: 67 @31882 has 137 MA's), (104, 31750), (105, 31711), (110, 31663), (112, 31630),

Gene: Beemo\_47 Start: 32159, Stop: 31833, Start Num: 39

Candidate Starts for Beemo\_47:

(Start: 39 @32159 has 28 MA's), (48, 32135), (65, 32093), (115, 31853),

Gene: BellusTerra\_47 Start: 31881, Stop: 31579, Start Num: 67

Candidate Starts for BellusTerra\_47:

(Start: 67 @31881 has 137 MA's), (104, 31749), (105, 31710), (110, 31662), (112, 31629),

Gene: BengiVuitton\_48 Start: 32388, Stop: 31975, Start Num: 17

Candidate Starts for BengiVuitton\_48:

(Start: 17 @32388 has 51 MA's), (54, 32298), (65, 32289), (73, 32253), (90, 32187), (112, 32022),

Gene: Benvolio\_44 Start: 31563, Stop: 31141, Start Num: 17

Candidate Starts for Benvolio\_44:

(Start: 17 @31563 has 51 MA's), (Start: 21 @31554 has 58 MA's), (Start: 52 @31476 has 1 MA's), (112, 31188),

Gene: BiancaTri92\_47 Start: 32931, Stop: 32509, Start Num: 17

Candidate Starts for BiancaTri92\_47:

(Start: 17 @32931 has 51 MA's), (Start: 21 @32922 has 58 MA's), (Start: 52 @32844 has 1 MA's), (112, 32556),

Gene: Blackmoor\_46 Start: 31882, Stop: 31580, Start Num: 67

Candidate Starts for Blackmoor\_46:

(7, 32152), (Start: 67 @31882 has 137 MA's), (104, 31750), (105, 31711), (110, 31663), (112, 31630),

Gene: BlessJoy\_50 Start: 31322, Stop: 30867, Start Num: 12

Candidate Starts for BlessJoy\_50:

(Start: 12 @31322 has 3 MA's), (Start: 21 @31295 has 58 MA's), (Start: 56 @31199 has 1 MA's), (87, 31085), (96, 31043), (115, 30887),

Gene: Blinn1\_51 Start: 31121, Stop: 30666, Start Num: 12

Candidate Starts for Blinn1\_51:

(Start: 12 @31121 has 3 MA's), (Start: 21 @31094 has 58 MA's), (Start: 56 @30998 has 1 MA's), (68, 30962), (95, 30845), (112, 30713),

Gene: Blue7\_51 Start: 30930, Stop: 30502, Start Num: 21

Candidate Starts for Blue7\_51:

(Start: 12 @30957 has 3 MA's), (Start: 21 @30930 has 58 MA's), (Start: 56 @30834 has 1 MA's), (87, 30720), (96, 30678), (115, 30522),

Gene: BobSwaget\_45 Start: 31896, Stop: 31399, Start Num: 8

Candidate Starts for BobSwaget\_45:

(Start: 8 @31896 has 2 MA's), (Start: 67 @31704 has 137 MA's), (70, 31692), (88, 31617), (112, 31446),

Gene: BogosyJay\_46 Start: 31869, Stop: 31543, Start Num: 39

Candidate Starts for BogosyJay\_46:

(Start: 39 @31869 has 28 MA's), (48, 31845), (65, 31803), (86, 31761), (115, 31563),

Gene: Bombshell\_46 Start: 31877, Stop: 31575, Start Num: 67

Candidate Starts for Bombshell\_46:

(7, 32147), (Start: 67 @31877 has 137 MA's), (104, 31745), (105, 31706), (110, 31658), (112, 31625),

Gene: Bowtie\_48 Start: 31712, Stop: 31365, Start Num: 50

Candidate Starts for Bowtie\_48:

(Start: 50 @31712 has 24 MA's), (65, 31679), (70, 31658), (110, 31445), (112, 31412),

Gene: Bradman\_46 Start: 31085, Stop: 30678, Start Num: 21

Candidate Starts for Bradman\_46:

(Start: 21 @31085 has 58 MA's), (44, 31049), (70, 30965), (110, 30758), (112, 30725),

Gene: Broseidon\_46 Start: 31882, Stop: 31580, Start Num: 67

Candidate Starts for Broseidon\_46:

(7, 32152), (Start: 67 @31882 has 137 MA's), (104, 31750), (105, 31711), (110, 31663), (112, 31630),

Gene: Bruiser\_45 Start: 31880, Stop: 31578, Start Num: 67

Candidate Starts for Bruiser\_45:

(Start: 67 @31880 has 137 MA's), (104, 31748), (105, 31709), (110, 31661), (112, 31628),

Gene: BubbleTrouble\_45 Start: 31880, Stop: 31578, Start Num: 67

Candidate Starts for BubbleTrouble\_45:

(7, 32150), (Start: 67 @31880 has 137 MA's), (104, 31748), (105, 31709), (110, 31661), (112, 31628),

Gene: Bud\_47 Start: 31267, Stop: 30920, Start Num: 50

Candidate Starts for Bud\_47:

(Start: 50 @31267 has 24 MA's), (65, 31234), (70, 31213), (110, 31000), (112, 30967),

Gene: Buggy\_49 Start: 32673, Stop: 32239, Start Num: 21

Candidate Starts for Buggy\_49:

(Start: 21 @32673 has 58 MA's), (57, 32574), (69, 32538), (112, 32286),

Gene: Bumblebee11\_44 Start: 31853, Stop: 31530, Start Num: 67

Candidate Starts for Bumblebee11\_44:

(Start: 67 @31853 has 137 MA's), (89, 31754), (92, 31745), (94, 31730), (104, 31700), (112, 31580),

Gene: Burger\_44 Start: 31880, Stop: 31578, Start Num: 67

Candidate Starts for Burger\_44:

(7, 32150), (Start: 67 @31880 has 137 MA's), (104, 31748), (105, 31709), (110, 31661), (112, 31628),

Gene: C3\_45 Start: 32346, Stop: 31912, Start Num: 28

Candidate Starts for C3\_45:

(Start: 28 @32346 has 4 MA's), (Start: 30 @32343 has 9 MA's), (63, 32244), (74, 32202), (82, 32178), (99, 32079), (110, 31992), (112, 31959),

Gene: CRB1\_50 Start: 32781, Stop: 32359, Start Num: 17

Candidate Starts for CRB1\_50:

(Start: 17 @32781 has 51 MA's), (Start: 21 @32772 has 58 MA's), (55, 32679), (65, 32673), (71, 32649), (72, 32646), (112, 32406),

Gene: Caelakin\_46 Start: 31880, Stop: 31578, Start Num: 67

Candidate Starts for Caelakin\_46:

(7, 32150), (Start: 67 @31880 has 137 MA's), (104, 31748), (105, 31709), (110, 31661), (112, 31628),

Gene: Camperdownii\_44 Start: 31553, Stop: 31251, Start Num: 67

Candidate Starts for Camperdownii\_44:

(Start: 67 @31553 has 137 MA's), (104, 31421), (105, 31382), (110, 31334), (112, 31301),

Gene: Candra\_49 Start: 31173, Stop: 30745, Start Num: 21

Candidate Starts for Candra\_49:

(Start: 12 @31200 has 3 MA's), (Start: 21 @31173 has 58 MA's), (Start: 56 @31077 has 1 MA's), (68, 31041), (90, 30951), (95, 30924), (96, 30921), (115, 30765),

Gene: Caraxes\_47 Start: 30723, Stop: 30316, Start Num: 21

Candidate Starts for Caraxes\_47:

(Start: 21 @30723 has 58 MA's), (65, 30624), (93, 30510), (110, 30396), (112, 30363),

Gene: Catalina\_48 Start: 32110, Stop: 31784, Start Num: 39

Candidate Starts for Catalina\_48:

(Start: 39 @32110 has 28 MA's), (48, 32086), (65, 32044), (115, 31804),

Gene: Centaur\_48 Start: 32520, Stop: 32086, Start Num: 21

Candidate Starts for Centaur\_48:

(Start: 21 @32520 has 58 MA's), (57, 32421), (69, 32385), (112, 32133),

Gene: CentreCat\_46 Start: 31883, Stop: 31581, Start Num: 67  
Candidate Starts for CentreCat\_46:  
(7, 32153), (Start: 67 @31883 has 137 MA's), (104, 31751), (105, 31712), (110, 31664), (112, 31631),

Gene: Cerulean\_47 Start: 32303, Stop: 32001, Start Num: 67  
Candidate Starts for Cerulean\_47:  
(7, 32573), (Start: 67 @32303 has 137 MA's), (104, 32171), (105, 32132), (112, 32051),

Gene: ChampagnePapi\_48 Start: 32302, Stop: 32000, Start Num: 67  
Candidate Starts for ChampagnePapi\_48:  
(7, 32572), (Start: 67 @32302 has 137 MA's), (104, 32170), (105, 32131), (112, 32050),

Gene: Changeling\_46 Start: 32725, Stop: 32312, Start Num: 18  
Candidate Starts for Changeling\_46:  
(Start: 18 @32725 has 8 MA's), (Start: 52 @32647 has 1 MA's), (71, 32602), (111, 32371), (112, 32359), (115, 32332),

Gene: Chaph\_46 Start: 31891, Stop: 31589, Start Num: 67  
Candidate Starts for Chaph\_46:  
(7, 32161), (Start: 67 @31891 has 137 MA's), (104, 31759), (105, 31720), (110, 31672), (112, 31639),

Gene: Chargerpower\_46 Start: 31054, Stop: 30704, Start Num: 41  
Candidate Starts for Chargerpower\_46:  
(Start: 41 @31054 has 5 MA's), (65, 30991), (90, 30910), (110, 30784), (115, 30724), (116, 30715),

Gene: Charm\_46 Start: 31899, Stop: 31555, Start Num: 38  
Candidate Starts for Charm\_46:  
(Start: 38 @31899 has 2 MA's), (46, 31884), (48, 31878), (65, 31836), (81, 31794), (88, 31761), (115, 31575), (116, 31566),

Gene: Chartreuse\_48 Start: 30533, Stop: 30105, Start Num: 21  
Candidate Starts for Chartreuse\_48:  
(Start: 12 @30560 has 3 MA's), (Start: 21 @30533 has 58 MA's), (Start: 56 @30437 has 1 MA's), (68, 30401), (90, 30311), (95, 30284), (96, 30281), (115, 30125),

Gene: Che12\_49 Start: 31155, Stop: 30727, Start Num: 21  
Candidate Starts for Che12\_49:  
(Start: 21 @31155 has 58 MA's), (61, 31044), (74, 30993), (110, 30807), (112, 30774),

Gene: ChipMunk\_49 Start: 33873, Stop: 33451, Start Num: 17  
Candidate Starts for ChipMunk\_49:  
(Start: 17 @33873 has 51 MA's), (55, 33771), (70, 33744), (112, 33498),

Gene: Cici\_45 Start: 31868, Stop: 31545, Start Num: 67  
Candidate Starts for Cici\_45:  
(Start: 67 @31868 has 137 MA's), (89, 31769), (92, 31760), (94, 31745), (104, 31715), (112, 31595),

Gene: Cindaradix\_43 Start: 31493, Stop: 31170, Start Num: 67  
Candidate Starts for Cindaradix\_43:  
(Start: 67 @31493 has 137 MA's), (92, 31385), (104, 31340), (109, 31265), (112, 31220),

Gene: Cintron\_45 Start: 31860, Stop: 31558, Start Num: 67  
Candidate Starts for Cintron\_45:

(7, 32130), (Start: 67 @31860 has 137 MA's), (104, 31728), (105, 31689), (110, 31641), (112, 31608),

Gene: Citius\_46 Start: 31901, Stop: 31599, Start Num: 67

Candidate Starts for Citius\_46:

(7, 32171), (Start: 67 @31901 has 137 MA's), (104, 31769), (105, 31730), (110, 31682), (112, 31649),

Gene: Clarenza\_45 Start: 31877, Stop: 31575, Start Num: 67

Candidate Starts for Clarenza\_45:

(7, 32147), (Start: 67 @31877 has 137 MA's), (104, 31745), (105, 31706), (110, 31658), (112, 31625),

Gene: CloudWang3\_49 Start: 30934, Stop: 30506, Start Num: 21

Candidate Starts for CloudWang3\_49:

(Start: 12 @30961 has 3 MA's), (Start: 21 @30934 has 58 MA's), (Start: 56 @30838 has 1 MA's), (68, 30802), (90, 30712), (95, 30685), (96, 30682), (115, 30526),

Gene: Cocoaberry\_46 Start: 31884, Stop: 31582, Start Num: 67

Candidate Starts for Cocoaberry\_46:

(Start: 67 @31884 has 137 MA's), (104, 31752), (105, 31713), (110, 31665), (112, 31632),

Gene: Colin\_47 Start: 32497, Stop: 32084, Start Num: 18

Candidate Starts for Colin\_47:

(Start: 18 @32497 has 8 MA's), (Start: 52 @32419 has 1 MA's), (112, 32131),

Gene: Commander\_46 Start: 31879, Stop: 31577, Start Num: 67

Candidate Starts for Commander\_46:

(7, 32149), (Start: 67 @31879 has 137 MA's), (104, 31747), (105, 31708), (110, 31660), (112, 31627),

Gene: Connomayer\_46 Start: 31880, Stop: 31578, Start Num: 67

Candidate Starts for Connomayer\_46:

(7, 32150), (Start: 67 @31880 has 137 MA's), (104, 31748), (105, 31709), (110, 31661), (112, 31628),

Gene: Conquerage\_47 Start: 32133, Stop: 31807, Start Num: 39

Candidate Starts for Conquerage\_47:

(Start: 39 @32133 has 28 MA's), (48, 32109), (65, 32067), (115, 31827),

Gene: Cookiedough\_49 Start: 31149, Stop: 30721, Start Num: 21

Candidate Starts for Cookiedough\_49:

(Start: 12 @31176 has 3 MA's), (Start: 21 @31149 has 58 MA's), (Start: 56 @31053 has 1 MA's), (68, 31017), (90, 30927), (95, 30900), (96, 30897), (115, 30741),

Gene: Crucio\_47 Start: 32116, Stop: 31694, Start Num: 17

Candidate Starts for Crucio\_47:

(Start: 17 @32116 has 51 MA's), (Start: 21 @32107 has 58 MA's), (55, 32014), (71, 31984), (112, 31741),

Gene: D29\_46 Start: 31906, Stop: 31496, Start Num: 30

Candidate Starts for D29\_46:

(5, 32113), (Start: 30 @31906 has 9 MA's), (74, 31786), (82, 31762), (83, 31756), (99, 31663), (110, 31576), (112, 31543),

Gene: D32\_49 Start: 31906, Stop: 31496, Start Num: 30

Candidate Starts for D32\_49:

(5, 32113), (Start: 30 @31906 has 9 MA's), (74, 31786), (82, 31762), (83, 31756), (99, 31663), (110, 31576), (112, 31543),

Gene: DBQu4n\_49 Start: 31906, Stop: 31496, Start Num: 30

Candidate Starts for DBQu4n\_49:

(3, 32233), (4, 32221), (Start: 30 @31906 has 9 MA's), (74, 31786), (82, 31762), (83, 31756), (99, 31663), (110, 31576), (112, 31543),

Gene: DaVinci\_48 Start: 30587, Stop: 30159, Start Num: 21

Candidate Starts for DaVinci\_48:

(Start: 12 @30614 has 3 MA's), (Start: 21 @30587 has 58 MA's), (Start: 56 @30491 has 1 MA's), (68, 30455), (90, 30365), (95, 30338), (96, 30335), (115, 30179),

Gene: Dalmatian\_48 Start: 32508, Stop: 32086, Start Num: 17

Candidate Starts for Dalmatian\_48:

(Start: 17 @32508 has 51 MA's), (Start: 21 @32499 has 58 MA's), (55, 32406), (71, 32376), (112, 32133),

Gene: Darrell\_48 Start: 32497, Stop: 32153, Start Num: 34

Candidate Starts for Darrell\_48:

(22, 32539), (25, 32518), (Start: 34 @32497 has 4 MA's), (46, 32482), (65, 32434), (70, 32413), (88, 32359), (115, 32173),

Gene: DARTHPhader\_44 Start: 32954, Stop: 32610, Start Num: 32

Candidate Starts for DARTHPhader\_44:

(27, 32966), (Start: 30 @32960 has 9 MA's), (Start: 32 @32954 has 3 MA's), (Start: 52 @32912 has 1 MA's), (58, 32891), (86, 32837), (88, 32825), (106, 32732), (110, 32690), (115, 32630),

Gene: Deano\_45 Start: 31888, Stop: 31586, Start Num: 67

Candidate Starts for Deano\_45:

(Start: 67 @31888 has 137 MA's), (77, 31846), (104, 31756), (105, 31717), (110, 31669), (112, 31636),

Gene: Deloris\_47 Start: 32057, Stop: 31644, Start Num: 17

Candidate Starts for Deloris\_47:

(Start: 17 @32057 has 51 MA's), (54, 31967), (65, 31958), (73, 31922), (90, 31856), (112, 31691),

Gene: Dhanush\_46 Start: 31883, Stop: 31581, Start Num: 67

Candidate Starts for Dhanush\_46:

(7, 32153), (Start: 67 @31883 has 137 MA's), (104, 31751), (105, 31712), (110, 31664), (112, 31631),

Gene: Dignity\_49 Start: 32681, Stop: 32259, Start Num: 17

Candidate Starts for Dignity\_49:

(Start: 17 @32681 has 51 MA's), (Start: 21 @32672 has 58 MA's), (55, 32579), (71, 32549), (112, 32306),

Gene: DirtyDunning\_45 Start: 31898, Stop: 31575, Start Num: 67

Candidate Starts for DirtyDunning\_45:

(Start: 67 @31898 has 137 MA's), (71, 31883), (104, 31745), (105, 31706), (110, 31658), (112, 31625),

Gene: Dorothea\_49 Start: 31156, Stop: 30728, Start Num: 21

Candidate Starts for Dorothea\_49:

(Start: 12 @31183 has 3 MA's), (Start: 21 @31156 has 58 MA's), (Start: 56 @31060 has 1 MA's), (68, 31024), (90, 30934), (95, 30907), (96, 30904), (115, 30748),

Gene: Drake55\_49 Start: 32605, Stop: 32183, Start Num: 17

Candidate Starts for Drake55\_49:

(Start: 17 @32605 has 51 MA's), (Start: 21 @32596 has 58 MA's), (55, 32503), (65, 32497), (71, 32473), (112, 32230),

Gene: Drake94\_43 Start: 30743, Stop: 30387, Start Num: 67

Candidate Starts for Drake94\_43:

(23, 30887), (Start: 67 @30743 has 137 MA's), (103, 30560), (109, 30482),

Gene: DreamTeam1\_46 Start: 31773, Stop: 31429, Start Num: 38

Candidate Starts for DreamTeam1\_46:

(Start: 38 @31773 has 2 MA's), (46, 31758), (48, 31752), (65, 31710), (66, 31707), (81, 31668), (88, 31635), (115, 31449), (116, 31440),

Gene: Druantia\_46 Start: 31883, Stop: 31581, Start Num: 67

Candidate Starts for Druantia\_46:

(7, 32153), (Start: 67 @31883 has 137 MA's), (104, 31751), (105, 31712), (110, 31664), (112, 31631),

Gene: DudeLittle\_46 Start: 32250, Stop: 31828, Start Num: 17

Candidate Starts for DudeLittle\_46:

(Start: 17 @32250 has 51 MA's), (Start: 21 @32241 has 58 MA's), (33, 32205), (48, 32172), (Start: 52 @32163 has 1 MA's), (112, 31875),

Gene: Duplo\_49 Start: 31944, Stop: 31534, Start Num: 30

Candidate Starts for Duplo\_49:

(3, 32271), (4, 32259), (Start: 30 @31944 has 9 MA's), (74, 31824), (82, 31800), (83, 31794), (99, 31701), (110, 31614), (112, 31581),

Gene: EZMoney23\_45 Start: 32055, Stop: 31642, Start Num: 17

Candidate Starts for EZMoney23\_45:

(Start: 17 @32055 has 51 MA's), (Start: 52 @31977 has 1 MA's), (Start: 56 @31959 has 1 MA's), (71, 31932), (112, 31689),

Gene: Eagle\_46 Start: 31905, Stop: 31603, Start Num: 67

Candidate Starts for Eagle\_46:

(7, 32175), (Start: 67 @31905 has 137 MA's), (104, 31773), (105, 31734), (110, 31686), (112, 31653),

Gene: EagleEye\_49 Start: 31670, Stop: 31308, Start Num: 37

Candidate Starts for EagleEye\_49:

(Start: 37 @31670 has 3 MA's), (47, 31646), (110, 31388),

Gene: Eapen\_46 Start: 31875, Stop: 31573, Start Num: 67

Candidate Starts for Eapen\_46:

(7, 32145), (Start: 67 @31875 has 137 MA's), (104, 31743), (105, 31704), (110, 31656), (112, 31623),

Gene: Ebony\_47 Start: 31284, Stop: 30937, Start Num: 50

Candidate Starts for Ebony\_47:

(Start: 50 @31284 has 24 MA's), (65, 31251), (70, 31230), (110, 31017), (112, 30984),

Gene: Echild\_47 Start: 31587, Stop: 31165, Start Num: 17

Candidate Starts for Echild\_47:

(Start: 17 @31587 has 51 MA's), (Start: 21 @31578 has 58 MA's), (Start: 52 @31500 has 1 MA's),  
(112, 31212),

Gene: EdogawaKiddo\_45 Start: 32110, Stop: 31784, Start Num: 39

Candidate Starts for EdogawaKiddo\_45:

(Start: 39 @32110 has 28 MA's), (48, 32086), (65, 32044), (115, 31804),

Gene: Eidsmoe\_47 Start: 32173, Stop: 31847, Start Num: 39

Candidate Starts for Eidsmoe\_47:

(Start: 39 @32173 has 28 MA's), (48, 32149), (65, 32107), (115, 31867),

Gene: Elephantoon\_46 Start: 31477, Stop: 31130, Start Num: 34

Candidate Starts for Elephantoon\_46:

(Start: 34 @31477 has 4 MA's), (48, 31453), (65, 31411), (88, 31336), (93, 31318), (115, 31150),

Gene: EmyBug\_46 Start: 32175, Stop: 31849, Start Num: 39

Candidate Starts for EmyBug\_46:

(Start: 39 @32175 has 28 MA's), (48, 32151), (65, 32109), (115, 31869),

Gene: Equemioh13\_48 Start: 32422, Stop: 31988, Start Num: 21

Candidate Starts for Equemioh13\_48:

(Start: 21 @32422 has 58 MA's), (57, 32323), (69, 32287), (112, 32035),

Gene: EricB\_49 Start: 31130, Stop: 30702, Start Num: 21

Candidate Starts for EricB\_49:

(Start: 12 @31157 has 3 MA's), (Start: 21 @31130 has 58 MA's), (Start: 56 @31034 has 1 MA's), (68, 30998), (90, 30908), (95, 30881), (96, 30878), (115, 30722),

Gene: Eris\_45 Start: 31880, Stop: 31578, Start Num: 67

Candidate Starts for Eris\_45:

(7, 32150), (Start: 67 @31880 has 137 MA's), (104, 31748), (105, 31709), (110, 31661), (112, 31628),

Gene: Eros\_46 Start: 31882, Stop: 31580, Start Num: 67

Candidate Starts for Eros\_46:

(7, 32152), (Start: 67 @31882 has 137 MA's), (104, 31750), (105, 31711), (110, 31663), (112, 31630),

Gene: Et2Brutus\_46 Start: 31244, Stop: 30897, Start Num: 50

Candidate Starts for Et2Brutus\_46:

(Start: 50 @31244 has 24 MA's), (65, 31211), (70, 31190), (110, 30977), (112, 30944),

Gene: Eurydice\_47 Start: 31877, Stop: 31575, Start Num: 67

Candidate Starts for Eurydice\_47:

(7, 32147), (Start: 67 @31877 has 137 MA's), (104, 31745), (105, 31706), (110, 31658), (112, 31625),

Gene: EvilGenius\_49 Start: 33877, Stop: 33455, Start Num: 17

Candidate Starts for EvilGenius\_49:

(Start: 17 @33877 has 51 MA's), (Start: 21 @33868 has 58 MA's), (55, 33775), (70, 33748), (112, 33502),

Gene: ExplosioNervosa\_47 Start: 32193, Stop: 31867, Start Num: 39

Candidate Starts for ExplosioNervosa\_47:

(Start: 39 @32193 has 28 MA's), (48, 32169), (65, 32127), (115, 31887),



Gene: Fameo\_47 Start: 32426, Stop: 32004, Start Num: 17  
Candidate Starts for Fameo\_47:  
(Start: 17 @32426 has 51 MA's), (Start: 21 @32417 has 58 MA's), (33, 32381), (Start: 52 @32339 has 1 MA's), (112, 32051),

Gene: Fayely\_47 Start: 32142, Stop: 31816, Start Num: 39  
Candidate Starts for Fayely\_47:  
(Start: 39 @32142 has 28 MA's), (48, 32118), (65, 32076), (115, 31836),

Gene: Fibonacci\_47 Start: 31259, Stop: 30912, Start Num: 50  
Candidate Starts for Fibonacci\_47:  
(Start: 50 @31259 has 24 MA's), (65, 31226), (70, 31205), (110, 30992), (112, 30959),

Gene: FiringLine\_47 Start: 32097, Stop: 31675, Start Num: 17  
Candidate Starts for FiringLine\_47:  
(Start: 17 @32097 has 51 MA's), (Start: 21 @32088 has 58 MA's), (33, 32052), (Start: 52 @32010 has 1 MA's), (112, 31722),

Gene: First\_0048 Start: 32311, Stop: 31889, Start Num: 17  
Candidate Starts for First\_0048:  
(Start: 17 @32311 has 51 MA's), (Start: 21 @32302 has 58 MA's), (112, 31936),

Gene: Flare16\_47 Start: 32181, Stop: 31747, Start Num: 21  
Candidate Starts for Flare16\_47:  
(Start: 21 @32181 has 58 MA's), (57, 32082), (69, 32046), (112, 31794),

Gene: Flaverint\_48 Start: 31706, Stop: 31359, Start Num: 50  
Candidate Starts for Flaverint\_48:  
(Start: 50 @31706 has 24 MA's), (65, 31673), (70, 31652), (110, 31439), (112, 31406),

Gene: Florean\_46 Start: 31879, Stop: 31577, Start Num: 67  
Candidate Starts for Florean\_46:  
(7, 32149), (Start: 67 @31879 has 137 MA's), (104, 31747), (105, 31708), (110, 31660), (112, 31627),

Gene: Flux\_46 Start: 31879, Stop: 31577, Start Num: 67  
Candidate Starts for Flux\_46:  
(7, 32149), (Start: 67 @31879 has 137 MA's), (104, 31747), (105, 31708), (110, 31660), (112, 31627),

Gene: Funston\_45 Start: 31880, Stop: 31578, Start Num: 67  
Candidate Starts for Funston\_45:  
(Start: 67 @31880 has 137 MA's), (104, 31748), (105, 31709), (110, 31661), (112, 31628),

Gene: Gadost\_46 Start: 31884, Stop: 31582, Start Num: 67  
Candidate Starts for Gadost\_46:  
(Start: 67 @31884 has 137 MA's), (104, 31752), (105, 31713), (110, 31665), (112, 31632),

Gene: Gail\_52 Start: 33875, Stop: 33528, Start Num: 41  
Candidate Starts for Gail\_52:  
(26, 33899), (Start: 41 @33875 has 5 MA's), (65, 33815), (110, 33608), (115, 33548), (116, 33539),

Gene: Garak\_51 Start: 31328, Stop: 30873, Start Num: 12  
Candidate Starts for Garak\_51:

(Start: 12 @31328 has 3 MA's), (Start: 21 @31301 has 58 MA's), (Start: 56 @31205 has 1 MA's), (87, 31091), (96, 31049), (115, 30893),

Gene: GaugeLDP\_45 Start: 32488, Stop: 32036, Start Num: 20

Candidate Starts for GaugeLDP\_45:

(Start: 12 @32512 has 3 MA's), (Start: 20 @32488 has 2 MA's), (Start: 37 @32428 has 3 MA's), (65, 32344), (112, 32083),

Gene: Georgie2\_48 Start: 32142, Stop: 31720, Start Num: 17

Candidate Starts for Georgie2\_48:

(Start: 17 @32142 has 51 MA's), (Start: 21 @32133 has 58 MA's), (55, 32040), (71, 32010), (112, 31767),

Gene: Gilberta\_48 Start: 31696, Stop: 31349, Start Num: 50

Candidate Starts for Gilberta\_48:

(Start: 50 @31696 has 24 MA's), (65, 31663), (70, 31642), (110, 31429), (112, 31396),

Gene: Gladiator\_47 Start: 30461, Stop: 30033, Start Num: 21

Candidate Starts for Gladiator\_47:

(Start: 12 @30488 has 3 MA's), (Start: 21 @30461 has 58 MA's), (Start: 56 @30365 has 1 MA's), (68, 30329), (90, 30239), (95, 30212), (96, 30209), (115, 30053),

Gene: Gratitude\_47 Start: 32422, Stop: 31988, Start Num: 21

Candidate Starts for Gratitude\_47:

(Start: 21 @32422 has 58 MA's), (57, 32323), (69, 32287), (112, 32035),

Gene: GreedyLawyer\_49 Start: 31137, Stop: 30709, Start Num: 21

Candidate Starts for GreedyLawyer\_49:

(Start: 12 @31164 has 3 MA's), (Start: 21 @31137 has 58 MA's), (Start: 56 @31041 has 1 MA's), (68, 31005), (90, 30915), (95, 30888), (96, 30885), (115, 30729),

Gene: Gruunaga\_49 Start: 31137, Stop: 30709, Start Num: 21

Candidate Starts for Gruunaga\_49:

(Start: 12 @31164 has 3 MA's), (Start: 21 @31137 has 58 MA's), (Start: 56 @31041 has 1 MA's), (87, 30927), (96, 30885), (115, 30729),

Gene: HamSlice\_45 Start: 31878, Stop: 31576, Start Num: 67

Candidate Starts for HamSlice\_45:

(7, 32148), (Start: 67 @31878 has 137 MA's), (104, 31746), (105, 31707), (110, 31659), (112, 31626),

Gene: Hammer\_50 Start: 30740, Stop: 30312, Start Num: 21

Candidate Starts for Hammer\_50:

(Start: 12 @30767 has 3 MA's), (Start: 21 @30740 has 58 MA's), (Start: 56 @30644 has 1 MA's), (87, 30530), (96, 30488), (115, 30332),

Gene: Hanray\_45 Start: 32114, Stop: 31788, Start Num: 39

Candidate Starts for Hanray\_45:

(Start: 39 @32114 has 28 MA's), (48, 32090), (65, 32048), (115, 31808),

Gene: Happiness\_45 Start: 31885, Stop: 31583, Start Num: 67

Candidate Starts for Happiness\_45:

(7, 32155), (Start: 67 @31885 has 137 MA's), (104, 31753), (105, 31714), (110, 31666), (112, 31633),

Gene: HarryHoudini\_48 Start: 32614, Stop: 32192, Start Num: 17  
Candidate Starts for HarryHoudini\_48:  
(Start: 17 @32614 has 51 MA's), (Start: 21 @32605 has 58 MA's), (55, 32512), (65, 32506), (71, 32482), (112, 32239),

Gene: Heffalump\_46 Start: 32894, Stop: 32472, Start Num: 17  
Candidate Starts for Heffalump\_46:  
(Start: 17 @32894 has 51 MA's), (Start: 21 @32885 has 58 MA's), (33, 32849), (Start: 52 @32807 has 1 MA's), (112, 32519),

Gene: Helmet\_51 Start: 31328, Stop: 30873, Start Num: 12  
Candidate Starts for Helmet\_51:  
(Start: 12 @31328 has 3 MA's), (Start: 21 @31301 has 58 MA's), (Start: 56 @31205 has 1 MA's), (87, 31091), (96, 31049), (115, 30893),

Gene: Herbertwm\_47 Start: 31973, Stop: 31524, Start Num: 21  
Candidate Starts for Herbertwm\_47:  
(Start: 21 @31973 has 58 MA's), (Start: 37 @31916 has 3 MA's), (Start: 56 @31856 has 1 MA's), (95, 31703), (97, 31697), (110, 31604), (115, 31544),

Gene: Hexamo\_49 Start: 30949, Stop: 30494, Start Num: 12  
Candidate Starts for Hexamo\_49:  
(Start: 12 @30949 has 3 MA's), (Start: 21 @30922 has 58 MA's), (Start: 56 @30826 has 1 MA's), (87, 30712), (96, 30670), (115, 30514),

Gene: Horex\_46 Start: 32133, Stop: 31807, Start Num: 39  
Candidate Starts for Horex\_46:  
(Start: 39 @32133 has 28 MA's), (48, 32109), (65, 32067), (115, 31827),

Gene: Holli\_45 Start: 31670, Stop: 31368, Start Num: 67  
Candidate Starts for Holli\_45:  
(7, 31940), (Start: 67 @31670 has 137 MA's), (104, 31538), (105, 31499), (110, 31451), (112, 31418),

Gene: HortumSL17\_47 Start: 32109, Stop: 31783, Start Num: 39  
Candidate Starts for HortumSL17\_47:  
(Start: 39 @32109 has 28 MA's), (48, 32085), (65, 32043), (115, 31803),

Gene: Houdini22\_46 Start: 31884, Stop: 31582, Start Num: 67  
Candidate Starts for Houdini22\_46:  
(Start: 67 @31884 has 137 MA's), (104, 31752), (105, 31713), (110, 31665), (112, 31632),

Gene: Hutc2\_47 Start: 31259, Stop: 30912, Start Num: 50  
Candidate Starts for Hutc2\_47:  
(Start: 50 @31259 has 24 MA's), (65, 31226), (70, 31205), (110, 30992), (112, 30959),

Gene: Huxley\_46 Start: 31941, Stop: 31639, Start Num: 67  
Candidate Starts for Huxley\_46:  
(Start: 67 @31941 has 137 MA's), (104, 31809), (105, 31770), (110, 31722), (112, 31689),

Gene: ICleared\_46 Start: 31909, Stop: 31607, Start Num: 67  
Candidate Starts for ICleared\_46:  
(7, 32179), (Start: 67 @31909 has 137 MA's), (104, 31777), (105, 31738), (110, 31690), (112, 31657),

Gene: Iceman\_46 Start: 32166, Stop: 31864, Start Num: 67  
Candidate Starts for Iceman\_46:  
(7, 32436), (Start: 67 @32166 has 137 MA's), (104, 32034), (105, 31995), (110, 31947), (112, 31914),

Gene: Indra\_52 Start: 31302, Stop: 30874, Start Num: 21  
Candidate Starts for Indra\_52:  
(Start: 12 @31329 has 3 MA's), (Start: 21 @31302 has 58 MA's), (Start: 56 @31206 has 1 MA's), (87, 31092), (96, 31050), (115, 30894),

Gene: Insomnia\_48 Start: 31764, Stop: 31417, Start Num: 50  
Candidate Starts for Insomnia\_48:  
(Start: 50 @31764 has 24 MA's), (65, 31731), (70, 31710), (110, 31497), (112, 31464),

Gene: Iracema64\_47 Start: 32144, Stop: 31842, Start Num: 67  
Candidate Starts for Iracema64\_47:  
(7, 32414), (Start: 67 @32144 has 137 MA's), (104, 32012), (105, 31973), (110, 31925), (112, 31892),

Gene: IronMan\_47 Start: 33279, Stop: 32860, Start Num: 18  
Candidate Starts for IronMan\_47:  
(Start: 18 @33279 has 8 MA's), (Start: 52 @33198 has 1 MA's), (75, 33132), (80, 33117), (93, 33063), (112, 32907), (115, 32880),

Gene: Isiphiwo\_47 Start: 30674, Stop: 30246, Start Num: 21  
Candidate Starts for Isiphiwo\_47:  
(Start: 12 @30701 has 3 MA's), (Start: 21 @30674 has 58 MA's), (Start: 56 @30578 has 1 MA's), (68, 30542), (90, 30452), (95, 30425), (96, 30422), (115, 30266),

Gene: Iwokeuplikedis\_50 Start: 32216, Stop: 31788, Start Num: 21  
Candidate Starts for Iwokeuplikedis\_50:  
(Start: 21 @32216 has 58 MA's), (95, 31967), (112, 31835),

Gene: Jaan\_47 Start: 33445, Stop: 33047, Start Num: 18  
Candidate Starts for Jaan\_47:  
(Start: 18 @33445 has 8 MA's), (64, 33364), (74, 33322), (93, 33250), (112, 33094),

Gene: Jabith\_48 Start: 31765, Stop: 31418, Start Num: 50  
Candidate Starts for Jabith\_48:  
(Start: 50 @31765 has 24 MA's), (65, 31732), (70, 31711), (110, 31498), (112, 31465),

Gene: Jaykayelowell\_44 Start: 31873, Stop: 31571, Start Num: 67  
Candidate Starts for Jaykayelowell\_44:  
(7, 32143), (Start: 67 @31873 has 137 MA's), (104, 31741), (105, 31702), (110, 31654), (112, 31621),

Gene: Jeeves\_52 Start: 32647, Stop: 32300, Start Num: 41  
Candidate Starts for Jeeves\_52:  
(26, 32671), (Start: 41 @32647 has 5 MA's), (65, 32587), (110, 32380), (115, 32320),

Gene: Jeffabunny\_49 Start: 30958, Stop: 30530, Start Num: 21  
Candidate Starts for Jeffabunny\_49:  
(Start: 12 @30985 has 3 MA's), (Start: 21 @30958 has 58 MA's), (Start: 56 @30862 has 1 MA's), (87, 30748), (96, 30706), (115, 30550),

Gene: Jerm\_49 Start: 32674, Stop: 32252, Start Num: 17

Candidate Starts for Jerm\_49:

(Start: 17 @32674 has 51 MA's), (Start: 21 @32665 has 58 MA's), (55, 32572), (71, 32542), (112, 32299),

Gene: JetBlade\_46 Start: 31874, Stop: 31572, Start Num: 67

Candidate Starts for JetBlade\_46:

(7, 32144), (Start: 67 @31874 has 137 MA's), (104, 31742), (105, 31703), (110, 31655), (112, 31622),

Gene: Jiawan\_45 Start: 32146, Stop: 31820, Start Num: 39

Candidate Starts for Jiawan\_45:

(Start: 39 @32146 has 28 MA's), (48, 32122), (65, 32080), (115, 31840),

Gene: JoongJeon\_45 Start: 31877, Stop: 31575, Start Num: 67

Candidate Starts for JoongJeon\_45:

(Start: 67 @31877 has 137 MA's), (104, 31745), (105, 31706), (110, 31658), (112, 31625),

Gene: Jordennis\_48 Start: 30594, Stop: 30166, Start Num: 21

Candidate Starts for Jordennis\_48:

(Start: 12 @30621 has 3 MA's), (Start: 21 @30594 has 58 MA's), (Start: 56 @30498 has 1 MA's), (68, 30462), (90, 30372), (95, 30345), (96, 30342),

Gene: Joselito\_48 Start: 31705, Stop: 31358, Start Num: 50

Candidate Starts for Joselito\_48:

(Start: 50 @31705 has 24 MA's), (65, 31672), (70, 31651), (110, 31438), (112, 31405),

Gene: JoshKayV\_49 Start: 32755, Stop: 32333, Start Num: 17

Candidate Starts for JoshKayV\_49:

(Start: 17 @32755 has 51 MA's), (Start: 21 @32746 has 58 MA's), (55, 32653), (65, 32647), (71, 32623), (72, 32620), (112, 32380),

Gene: Jsquared\_45 Start: 31025, Stop: 30618, Start Num: 21

Candidate Starts for Jsquared\_45:

(Start: 21 @31025 has 58 MA's), (65, 30926), (70, 30905), (110, 30698), (112, 30665),

Gene: KFPoly\_45 Start: 31874, Stop: 31572, Start Num: 67

Candidate Starts for KFPoly\_45:

(7, 32144), (Start: 67 @31874 has 137 MA's), (104, 31742), (105, 31703), (110, 31655), (112, 31622),

Gene: Kalpine\_45 Start: 32395, Stop: 31982, Start Num: 18

Candidate Starts for Kalpine\_45:

(Start: 18 @32395 has 8 MA's), (Start: 52 @32317 has 1 MA's), (112, 32029),

Gene: Kampy\_46 Start: 31882, Stop: 31580, Start Num: 67

Candidate Starts for Kampy\_46:

(7, 32152), (Start: 67 @31882 has 137 MA's), (104, 31750), (105, 31711), (110, 31663), (112, 31630),

Gene: Katalie136\_45 Start: 31853, Stop: 31530, Start Num: 67

Candidate Starts for Katalie136\_45:

(Start: 67 @31853 has 137 MA's), (89, 31754), (92, 31745), (94, 31730), (104, 31700), (112, 31580),

Gene: Kazan\_50 Start: 31143, Stop: 30715, Start Num: 21

Candidate Starts for Kazan\_50:

(Start: 12 @31170 has 3 MA's), (Start: 21 @31143 has 58 MA's), (Start: 56 @31047 has 1 MA's), (68, 31011), (90, 30921), (95, 30894), (96, 30891), (115, 30735),

Gene: Kerberos\_49 Start: 31906, Stop: 31496, Start Num: 30

Candidate Starts for Kerberos\_49:

(3, 32233), (4, 32221), (Start: 30 @31906 has 9 MA's), (74, 31786), (82, 31762), (83, 31756), (99, 31663), (110, 31576), (112, 31543),

Gene: Keziacharles14\_47 Start: 33144, Stop: 32797, Start Num: 39

Candidate Starts for Keziacharles14\_47:

(Start: 39 @33144 has 28 MA's), (48, 33120), (65, 33078), (86, 33015), (88, 33003), (115, 32817), (116, 32808),

Gene: Kimona\_46 Start: 30459, Stop: 30046, Start Num: 29

Candidate Starts for Kimona\_46:

(Start: 29 @30459 has 1 MA's), (59, 30369), (73, 30324), (96, 30228), (112, 30099),

Gene: KingCyrus\_49 Start: 33872, Stop: 33450, Start Num: 17

Candidate Starts for KingCyrus\_49:

(Start: 17 @33872 has 51 MA's), (55, 33770), (70, 33743), (112, 33497), (114, 33473),

Gene: Kingmustik0402\_46 Start: 31869, Stop: 31567, Start Num: 67

Candidate Starts for Kingmustik0402\_46:

(7, 32139), (Start: 67 @31869 has 137 MA's), (104, 31737), (105, 31698), (110, 31650), (112, 31617),

Gene: Kinmap\_45 Start: 31426, Stop: 31016, Start Num: 16

Candidate Starts for Kinmap\_45:

(16, 31426), (84, 31252), (88, 31231), (110, 31096),

Gene: Kipper29\_49 Start: 31156, Stop: 30728, Start Num: 21

Candidate Starts for Kipper29\_49:

(Start: 12 @31183 has 3 MA's), (Start: 21 @31156 has 58 MA's), (Start: 56 @31060 has 1 MA's), (68, 31024), (90, 30934), (95, 30907), (96, 30904), (115, 30748),

Gene: KittenMittens\_42 Start: 30751, Stop: 30395, Start Num: 67

Candidate Starts for KittenMittens\_42:

(23, 30895), (Start: 67 @30751 has 137 MA's), (103, 30568), (109, 30490),

Gene: Koan\_44 Start: 31880, Stop: 31578, Start Num: 67

Candidate Starts for Koan\_44:

(7, 32150), (Start: 67 @31880 has 137 MA's), (104, 31748), (105, 31709), (110, 31661), (112, 31628),

Gene: Koduck\_47 Start: 31317, Stop: 30889, Start Num: 14

Candidate Starts for Koduck\_47:

(Start: 14 @31317 has 1 MA's), (42, 31263), (Start: 52 @31239 has 1 MA's), (65, 31197), (70, 31176), (74, 31155), (81, 31134), (110, 30969), (112, 30936),

Gene: Koko\_50 Start: 31279, Stop: 30851, Start Num: 21

Candidate Starts for Koko\_50:

(Start: 12 @31306 has 3 MA's), (Start: 21 @31279 has 58 MA's), (Start: 56 @31183 has 1 MA's), (96, 31027), (115, 30871),

Gene: Koreni\_45 Start: 31561, Stop: 31259, Start Num: 67

Candidate Starts for Koreni\_45:

(7, 31831), (Start: 67 @31561 has 137 MA's), (104, 31429), (105, 31390), (110, 31342), (112, 31309),

Gene: Kremtemulon\_46 Start: 31831, Stop: 31529, Start Num: 67

Candidate Starts for Kremtemulon\_46:

(7, 32101), (Start: 67 @31831 has 137 MA's), (104, 31699), (105, 31660), (112, 31579),

Gene: Kyee\_46 Start: 31878, Stop: 31576, Start Num: 67

Candidate Starts for Kyee\_46:

(Start: 67 @31878 has 137 MA's), (104, 31746), (105, 31707), (110, 31659), (112, 31626),

Gene: L5\_46 Start: 31389, Stop: 30961, Start Num: 14

Candidate Starts for L5\_46:

(Start: 14 @31389 has 1 MA's), (42, 31335), (Start: 52 @31311 has 1 MA's), (65, 31269), (70, 31248), (74, 31227), (81, 31206), (110, 31041), (112, 31008),

Gene: LHTSCC\_48 Start: 32302, Stop: 32000, Start Num: 67

Candidate Starts for LHTSCC\_48:

(7, 32572), (Start: 67 @32302 has 137 MA's), (104, 32170), (105, 32131), (112, 32050),

Gene: LadyBird\_51 Start: 32746, Stop: 32324, Start Num: 17

Candidate Starts for LadyBird\_51:

(Start: 17 @32746 has 51 MA's), (Start: 21 @32737 has 58 MA's), (Start: 52 @32659 has 1 MA's), (Start: 56 @32641 has 1 MA's), (112, 32371),

Gene: Landor\_47 Start: 33357, Stop: 32938, Start Num: 18

Candidate Starts for Landor\_47:

(Start: 18 @33357 has 8 MA's), (Start: 52 @33276 has 1 MA's), (74, 33213), (93, 33141), (112, 32985),

Gene: LappelDuVide\_46 Start: 31879, Stop: 31577, Start Num: 67

Candidate Starts for LappelDuVide\_46:

(7, 32149), (Start: 67 @31879 has 137 MA's), (104, 31747), (105, 31708), (110, 31660), (112, 31627),

Gene: Larenn\_46 Start: 32287, Stop: 31865, Start Num: 17

Candidate Starts for Larenn\_46:

(Start: 17 @32287 has 51 MA's), (Start: 21 @32278 has 58 MA's), (44, 32221), (Start: 67 @32170 has 137 MA's), (112, 31912),

Gene: Lemur\_46 Start: 31877, Stop: 31575, Start Num: 67

Candidate Starts for Lemur\_46:

(7, 32147), (Start: 67 @31877 has 137 MA's), (104, 31745), (105, 31706), (110, 31658), (112, 31625),

Gene: LeoAvram\_46 Start: 31880, Stop: 31578, Start Num: 67

Candidate Starts for LeoAvram\_46:

(7, 32150), (Start: 67 @31880 has 137 MA's), (104, 31748), (105, 31709), (110, 31661), (112, 31628),

Gene: Leogania\_47 Start: 33298, Stop: 32876, Start Num: 17

Candidate Starts for Leogania\_47:

(Start: 17 @33298 has 51 MA's), (Start: 21 @33289 has 58 MA's), (Start: 52 @33211 has 1 MA's), (112, 32923),

Gene: Leviathan\_49 Start: 32730, Stop: 32308, Start Num: 17

Candidate Starts for Leviathan\_49:

(Start: 17 @32730 has 51 MA's), (Start: 21 @32721 has 58 MA's), (55, 32628), (65, 32622), (71, 32598), (112, 32355),

Gene: LilTurb\_48 Start: 32563, Stop: 32141, Start Num: 17

Candidate Starts for LilTurb\_48:

(Start: 17 @32563 has 51 MA's), (Start: 21 @32554 has 58 MA's), (55, 32461), (65, 32455), (112, 32188),

Gene: Lilbunny\_48 Start: 30932, Stop: 30504, Start Num: 21

Candidate Starts for Lilbunny\_48:

(Start: 12 @30959 has 3 MA's), (Start: 21 @30932 has 58 MA's), (Start: 56 @30836 has 1 MA's), (87, 30722), (96, 30680), (115, 30524),

Gene: Lilleskat\_45 Start: 32063, Stop: 31737, Start Num: 39

Candidate Starts for Lilleskat\_45:

(Start: 39 @32063 has 28 MA's), (48, 32039), (65, 31997), (115, 31757),

Gene: LionsBait\_49 Start: 33648, Stop: 33226, Start Num: 17

Candidate Starts for LionsBait\_49:

(Start: 17 @33648 has 51 MA's), (Start: 21 @33639 has 58 MA's), (Start: 52 @33561 has 1 MA's), (112, 33273),

Gene: LittleB\_46 Start: 31881, Stop: 31579, Start Num: 67

Candidate Starts for LittleB\_46:

(7, 32151), (Start: 67 @31881 has 137 MA's), (104, 31749), (105, 31710), (110, 31662), (112, 31629),

Gene: LittleGuy\_46 Start: 31776, Stop: 31474, Start Num: 67

Candidate Starts for LittleGuy\_46:

(7, 32046), (Start: 67 @31776 has 137 MA's), (104, 31644), (105, 31605), (110, 31557), (112, 31524),

Gene: LochMonster\_47 Start: 32116, Stop: 31814, Start Num: 67

Candidate Starts for LochMonster\_47:

(7, 32386), (Start: 67 @32116 has 137 MA's), (77, 32074), (104, 31984), (105, 31945), (110, 31897), (112, 31864),

Gene: Lokk\_46 Start: 32421, Stop: 31924, Start Num: 8

Candidate Starts for Lokk\_46:

(Start: 8 @32421 has 2 MA's), (Start: 67 @32229 has 137 MA's), (70, 32217), (86, 32154), (88, 32142), (112, 31971),

Gene: LoneWolf\_47 Start: 31870, Stop: 31502, Start Num: 34

Candidate Starts for LoneWolf\_47:

(6, 32050), (9, 31999), (10, 31975), (Start: 34 @31870 has 4 MA's), (48, 31846), (65, 31804), (74, 31762), (115, 31522),

Gene: Lorenzo\_46 Start: 31880, Stop: 31578, Start Num: 67

Candidate Starts for Lorenzo\_46:

(7, 32150), (Start: 67 @31880 has 137 MA's), (104, 31748), (105, 31709), (110, 31661), (112, 31628),

Gene: Loser\_49 Start: 33095, Stop: 32673, Start Num: 17

Candidate Starts for Loser\_49:

(1, 33422), (Start: 17 @33095 has 51 MA's), (Start: 21 @33086 has 58 MA's), (44, 33029), (55, 32993), (112, 32720),



Gene: Luchador\_52 Start: 34435, Stop: 34088, Start Num: 41

Candidate Starts for Luchador\_52:

(26, 34459), (Start: 41 @34435 has 5 MA's), (65, 34375), (110, 34168), (115, 34108),

Gene: Lucivia\_48 Start: 31754, Stop: 31407, Start Num: 50

Candidate Starts for Lucivia\_48:

(Start: 50 @31754 has 24 MA's), (65, 31721), (70, 31700), (110, 31487), (112, 31454),

Gene: Lucyedi\_48 Start: 31865, Stop: 31503, Start Num: 37

Candidate Starts for Lucyedi\_48:

(Start: 37 @31865 has 3 MA's), (47, 31841), (110, 31583),

Gene: Lunsford\_47 Start: 31874, Stop: 31572, Start Num: 67

Candidate Starts for Lunsford\_47:

(7, 32144), (Start: 67 @31874 has 137 MA's), (104, 31742), (105, 31703), (110, 31655), (112, 31622),

Gene: MaCh\_48 Start: 31692, Stop: 31345, Start Num: 50

Candidate Starts for MaCh\_48:

(Start: 50 @31692 has 24 MA's), (65, 31659), (70, 31638), (110, 31425), (112, 31392),

Gene: Mabel\_47 Start: 31294, Stop: 30947, Start Num: 50

Candidate Starts for Mabel\_47:

(Start: 50 @31294 has 24 MA's), (65, 31261), (70, 31240), (110, 31027), (112, 30994),

Gene: MajorMajor\_46 Start: 31085, Stop: 30678, Start Num: 21

Candidate Starts for MajorMajor\_46:

(Start: 21 @31085 has 58 MA's), (44, 31049), (70, 30965), (110, 30758), (112, 30725),

Gene: Malec\_47 Start: 32851, Stop: 32429, Start Num: 17

Candidate Starts for Malec\_47:

(Start: 17 @32851 has 51 MA's), (Start: 21 @32842 has 58 MA's), (44, 32785), (Start: 67 @32734 has 137 MA's), (112, 32476),

Gene: Maminiaina\_46 Start: 31851, Stop: 31525, Start Num: 39

Candidate Starts for Maminiaina\_46:

(Start: 39 @31851 has 28 MA's), (48, 31827), (65, 31785), (86, 31743), (115, 31545),

Gene: Maverick\_46 Start: 31880, Stop: 31578, Start Num: 67

Candidate Starts for Maverick\_46:

(Start: 67 @31880 has 137 MA's), (104, 31748), (105, 31709), (110, 31661), (112, 31628),

Gene: Maxo\_47 Start: 31882, Stop: 31580, Start Num: 67

Candidate Starts for Maxo\_47:

(7, 32152), (Start: 67 @31882 has 137 MA's), (104, 31750), (105, 31711), (110, 31663), (112, 31630),

Gene: Mayonnaise\_46 Start: 31880, Stop: 31578, Start Num: 67

Candidate Starts for Mayonnaise\_46:

(Start: 67 @31880 has 137 MA's), (104, 31748), (105, 31709), (110, 31661), (112, 31628),

Gene: Mazhar510\_46 Start: 31881, Stop: 31579, Start Num: 67

Candidate Starts for Mazhar510\_46:

(Start: 67 @31881 has 137 MA's), (104, 31749), (105, 31710), (110, 31662), (112, 31629),

Gene: McFly\_49 Start: 31137, Stop: 30709, Start Num: 21

Candidate Starts for McFly\_49:

(Start: 12 @31164 has 3 MA's), (Start: 21 @31137 has 58 MA's), (Start: 56 @31041 has 1 MA's), (68, 31005), (90, 30915), (95, 30888), (96, 30885), (115, 30729),

Gene: Medusa\_46 Start: 31879, Stop: 31577, Start Num: 67

Candidate Starts for Medusa\_46:

(7, 32149), (Start: 67 @31879 has 137 MA's), (104, 31747), (105, 31708), (110, 31660), (112, 31627),

Gene: MeeZee\_46 Start: 31877, Stop: 31575, Start Num: 67

Candidate Starts for MeeZee\_46:

(7, 32147), (Start: 67 @31877 has 137 MA's), (104, 31745), (105, 31706), (110, 31658), (112, 31625),

Gene: Melvin\_48 Start: 31875, Stop: 31573, Start Num: 67

Candidate Starts for Melvin\_48:

(7, 32145), (Start: 67 @31875 has 137 MA's), (104, 31743), (105, 31704), (110, 31656), (112, 31623),

Gene: MiculUcigas\_47 Start: 32081, Stop: 31647, Start Num: 21

Candidate Starts for MiculUcigas\_47:

(Start: 21 @32081 has 58 MA's), (57, 31982), (69, 31946), (112, 31694),

Gene: Miko\_44 Start: 32243, Stop: 31821, Start Num: 17

Candidate Starts for Miko\_44:

(Start: 17 @32243 has 51 MA's), (Start: 21 @32234 has 58 MA's), (Start: 67 @32126 has 137 MA's), (70, 32114), (88, 32039), (112, 31868),

Gene: Millski\_45 Start: 31881, Stop: 31579, Start Num: 67

Candidate Starts for Millski\_45:

(7, 32151), (Start: 67 @31881 has 137 MA's), (104, 31749), (105, 31710), (110, 31662), (112, 31629),

Gene: Miramae\_45 Start: 32041, Stop: 31718, Start Num: 67

Candidate Starts for Miramae\_45:

(Start: 67 @32041 has 137 MA's), (71, 32026), (92, 31933), (94, 31918), (104, 31888), (109, 31813), (112, 31768),

Gene: MissWhite\_46 Start: 30606, Stop: 30256, Start Num: 53

Candidate Starts for MissWhite\_46:

(Start: 53 @30606 has 1 MA's), (57, 30588), (98, 30426), (110, 30336), (111, 30315),

Gene: Morpher26\_45 Start: 31874, Stop: 31551, Start Num: 67

Candidate Starts for Morpher26\_45:

(Start: 67 @31874 has 137 MA's), (89, 31775), (92, 31766), (94, 31751), (104, 31721), (112, 31601),

Gene: Morrow\_47 Start: 31886, Stop: 31584, Start Num: 67

Candidate Starts for Morrow\_47:

(7, 32156), (Start: 67 @31886 has 137 MA's), (104, 31754), (105, 31715), (110, 31667), (112, 31634),

Gene: Mulciber\_47 Start: 31256, Stop: 30909, Start Num: 50

Candidate Starts for Mulciber\_47:

(Start: 50 @31256 has 24 MA's), (65, 31223), (70, 31202), (110, 30989), (112, 30956),

Gene: Munch\_48 Start: 31705, Stop: 31358, Start Num: 50

Candidate Starts for Munch\_48:

(Start: 50 @31705 has 24 MA's), (65, 31672), (70, 31651), (110, 31438), (112, 31405),

Gene: Mundrea\_45 Start: 31861, Stop: 31538, Start Num: 67

Candidate Starts for Mundrea\_45:

(Start: 67 @31861 has 137 MA's), (92, 31753), (94, 31738), (104, 31708), (109, 31633), (112, 31588),

Gene: Myxus\_47 Start: 32109, Stop: 31783, Start Num: 39

Candidate Starts for Myxus\_47:

(Start: 39 @32109 has 28 MA's), (48, 32085), (65, 32043), (115, 31803),

Gene: NaSiaTalie\_47 Start: 32178, Stop: 31744, Start Num: 21

Candidate Starts for NaSiaTalie\_47:

(Start: 21 @32178 has 58 MA's), (57, 32079), (69, 32043), (112, 31791),

Gene: Naji\_49 Start: 31906, Stop: 31496, Start Num: 30

Candidate Starts for Naji\_49:

(5, 32113), (Start: 30 @31906 has 9 MA's), (74, 31786), (82, 31762), (83, 31756), (99, 31663), (110, 31576), (112, 31543),

Gene: Nebs\_47 Start: 31880, Stop: 31578, Start Num: 67

Candidate Starts for Nebs\_47:

(7, 32150), (Start: 67 @31880 has 137 MA's), (104, 31748), (105, 31709), (110, 31661), (112, 31628),

Gene: Nedarya\_45 Start: 30054, Stop: 29713, Start Num: 56

Candidate Starts for Nedarya\_45:

(Start: 56 @30054 has 1 MA's), (99, 29883), (110, 29796),

Gene: Neeharika16\_48 Start: 30597, Stop: 30169, Start Num: 21

Candidate Starts for Neeharika16\_48:

(Start: 12 @30624 has 3 MA's), (Start: 21 @30597 has 58 MA's), (Start: 56 @30501 has 1 MA's), (68, 30465), (90, 30375), (95, 30348), (96, 30345), (115, 30189),

Gene: Nemo27\_46 Start: 31879, Stop: 31577, Start Num: 67

Candidate Starts for Nemo27\_46:

(Start: 67 @31879 has 137 MA's), (104, 31747), (105, 31708), (110, 31660), (112, 31627),

Gene: Newrala\_49 Start: 31148, Stop: 30720, Start Num: 21

Candidate Starts for Newrala\_49:

(Start: 12 @31175 has 3 MA's), (Start: 21 @31148 has 58 MA's), (Start: 56 @31052 has 1 MA's), (68, 31016), (90, 30926), (95, 30899), (96, 30896), (115, 30740),

Gene: NicoleTera\_46 Start: 32449, Stop: 32027, Start Num: 17

Candidate Starts for NicoleTera\_46:

(Start: 17 @32449 has 51 MA's), (Start: 21 @32440 has 58 MA's), (36, 32401), (73, 32305), (115, 32047),

Gene: Noelle\_46 Start: 32163, Stop: 31840, Start Num: 67

Candidate Starts for Noelle\_46:

(Start: 67 @32163 has 137 MA's), (92, 32055), (104, 32010), (112, 31890),

Gene: NorthStar\_45 Start: 31880, Stop: 31578, Start Num: 67

Candidate Starts for NorthStar\_45:

(7, 32150), (Start: 67 @31880 has 137 MA's), (104, 31748), (105, 31709), (110, 31661), (112, 31628),

Gene: NotAPhaseMom\_46 Start: 31884, Stop: 31582, Start Num: 67

Candidate Starts for NotAPhaseMom\_46:

(Start: 67 @31884 has 137 MA's), (104, 31752), (105, 31713), (110, 31665), (112, 31632),

Gene: NothingSpecial\_45 Start: 32705, Stop: 32271, Start Num: 21

Candidate Starts for NothingSpecial\_45:

(Start: 21 @32705 has 58 MA's), (57, 32606), (112, 32318),

Gene: Nyxis\_46 Start: 31770, Stop: 31468, Start Num: 67

Candidate Starts for Nyxis\_46:

(7, 32040), (Start: 67 @31770 has 137 MA's), (104, 31638), (105, 31599), (110, 31551), (112, 31518),

Gene: OKaNui\_46 Start: 31930, Stop: 31628, Start Num: 67

Candidate Starts for OKaNui\_46:

(7, 32200), (Start: 67 @31930 has 137 MA's), (104, 31798), (105, 31759), (110, 31711), (112, 31678),

Gene: Obama12\_47 Start: 32304, Stop: 32002, Start Num: 67

Candidate Starts for Obama12\_47:

(7, 32574), (Start: 67 @32304 has 137 MA's), (104, 32172), (105, 32133), (112, 32052),

Gene: Odin\_46 Start: 30872, Stop: 30465, Start Num: 21

Candidate Starts for Odin\_46:

(Start: 21 @30872 has 58 MA's), (65, 30773), (110, 30545), (112, 30512),

Gene: Ohfah\_47 Start: 31880, Stop: 31578, Start Num: 67

Candidate Starts for Ohfah\_47:

(7, 32150), (Start: 67 @31880 has 137 MA's), (104, 31748), (105, 31709), (110, 31661), (112, 31628),

Gene: Onglai\_45 Start: 30450, Stop: 30124, Start Num: 39

Candidate Starts for Onglai\_45:

(Start: 39 @30450 has 28 MA's), (48, 30426), (65, 30384), (115, 30144),

Gene: Orange\_47 Start: 31254, Stop: 30907, Start Num: 50

Candidate Starts for Orange\_47:

(Start: 50 @31254 has 24 MA's), (65, 31221), (70, 31200), (110, 30987), (112, 30954),

Gene: PP\_50 Start: 36311, Stop: 35883, Start Num: 31

Candidate Starts for PP\_50:

(15, 36377), (Start: 31 @36311 has 1 MA's), (51, 36260), (74, 36179), (107, 35999), (108, 35981), (110, 35966), (113, 35918), (115, 35906),

Gene: PackMan\_46 Start: 32109, Stop: 31783, Start Num: 39

Candidate Starts for PackMan\_46:

(Start: 39 @32109 has 28 MA's), (48, 32085), (65, 32043), (115, 31803),

Gene: PainterBoy\_48 Start: 31801, Stop: 31439, Start Num: 37

Candidate Starts for PainterBoy\_48:

(Start: 37 @31801 has 3 MA's), (47, 31777), (110, 31519),

Gene: Palestino\_45 Start: 31880, Stop: 31578, Start Num: 67

Candidate Starts for Palestino\_45:

(7, 32150), (Start: 67 @31880 has 137 MA's), (104, 31748), (105, 31709), (110, 31661), (112, 31628),

Gene: PeaceMeal1\_43 Start: 30752, Stop: 30396, Start Num: 67

Candidate Starts for PeaceMeal1\_43:

(23, 30896), (Start: 67 @30752 has 137 MA's), (103, 30569), (109, 30491),

Gene: Peaches\_46 Start: 31879, Stop: 31577, Start Num: 67

Candidate Starts for Peaches\_46:

(7, 32149), (Start: 67 @31879 has 137 MA's), (104, 31747), (105, 31708), (110, 31660), (112, 31627),

Gene: Perplexer\_45 Start: 31850, Stop: 31527, Start Num: 67

Candidate Starts for Perplexer\_45:

(Start: 67 @31850 has 137 MA's), (89, 31751), (92, 31742), (94, 31727), (104, 31697), (112, 31577),

Gene: PeterPeter\_46 Start: 31877, Stop: 31575, Start Num: 67

Candidate Starts for PeterPeter\_46:

(7, 32147), (Start: 67 @31877 has 137 MA's), (104, 31745), (105, 31706), (110, 31658), (112, 31625),

Gene: Petersenfast\_46 Start: 31261, Stop: 30914, Start Num: 50

Candidate Starts for Petersenfast\_46:

(Start: 50 @31261 has 24 MA's), (65, 31228), (70, 31207), (110, 30994), (112, 30961),

Gene: PetiteSangsue\_45 Start: 31853, Stop: 31530, Start Num: 67

Candidate Starts for PetiteSangsue\_45:

(Start: 67 @31853 has 137 MA's), (89, 31754), (92, 31745), (94, 31730), (104, 31700), (112, 31580),

Gene: Ph8s\_49 Start: 31506, Stop: 31078, Start Num: 21

Candidate Starts for Ph8s\_49:

(11, 31542), (Start: 21 @31506 has 58 MA's), (110, 31158), (112, 31125),

Gene: Phacado\_46 Start: 31879, Stop: 31577, Start Num: 67

Candidate Starts for Phacado\_46:

(Start: 67 @31879 has 137 MA's), (104, 31747), (105, 31708), (110, 31660), (112, 31627),

Gene: Phaded\_48 Start: 33339, Stop: 32920, Start Num: 18

Candidate Starts for Phaded\_48:

(Start: 18 @33339 has 8 MA's), (Start: 52 @33258 has 1 MA's), (74, 33195), (80, 33177), (93, 33123), (112, 32967),

Gene: Phaeder\_47 Start: 32109, Stop: 31783, Start Num: 39

Candidate Starts for Phaeder\_47:

(Start: 39 @32109 has 28 MA's), (48, 32085), (65, 32043), (115, 31803),

Gene: Pharaoh\_41 Start: 31682, Stop: 31311, Start Num: 39

Candidate Starts for Pharaoh\_41:

(2, 32006), (Start: 39 @31682 has 28 MA's), (65, 31619), (88, 31523), (110, 31391),

Gene: Phelipe\_47 Start: 31880, Stop: 31578, Start Num: 67

Candidate Starts for Phelipe\_47:

(7, 32150), (Start: 67 @31880 has 137 MA's), (104, 31748), (105, 31709), (110, 31661), (112, 31628),

Gene: Phonnegut\_47 Start: 32158, Stop: 31832, Start Num: 39

Candidate Starts for Phonnegut\_47:

(Start: 39 @32158 has 28 MA's), (48, 32134), (65, 32092), (115, 31852),

Gene: Phontbonne\_46 Start: 31771, Stop: 31469, Start Num: 67

Candidate Starts for Phontbonne\_46:

(7, 32041), (Start: 67 @31771 has 137 MA's), (104, 31639), (105, 31600), (110, 31552), (112, 31519),

Gene: Pioneer\_47 Start: 32158, Stop: 31832, Start Num: 39

Candidate Starts for Pioneer\_47:

(Start: 39 @32158 has 28 MA's), (48, 32134), (65, 32092), (115, 31852),

Gene: Pipcraft\_44 Start: 31880, Stop: 31578, Start Num: 67

Candidate Starts for Pipcraft\_44:

(7, 32150), (Start: 67 @31880 has 137 MA's), (104, 31748), (105, 31709), (110, 31661), (112, 31628),

Gene: Piro94\_47 Start: 32531, Stop: 32109, Start Num: 17

Candidate Starts for Piro94\_47:

(Start: 17 @32531 has 51 MA's), (Start: 21 @32522 has 58 MA's), (55, 32429), (65, 32423), (71, 32399), (112, 32156),

Gene: Pmask\_49 Start: 31149, Stop: 30721, Start Num: 21

Candidate Starts for Pmask\_49:

(Start: 12 @31176 has 3 MA's), (Start: 21 @31149 has 58 MA's), (Start: 56 @31053 has 1 MA's), (68, 31017), (90, 30927), (95, 30900), (96, 30897), (115, 30741),

Gene: Polymorphads\_47 Start: 31873, Stop: 31571, Start Num: 67

Candidate Starts for Polymorphads\_47:

(7, 32143), (Start: 67 @31873 has 137 MA's), (104, 31741), (105, 31702), (110, 31654), (112, 31621),

Gene: Polyphemus\_50 Start: 31292, Stop: 30864, Start Num: 21

Candidate Starts for Polyphemus\_50:

(Start: 12 @31319 has 3 MA's), (Start: 21 @31292 has 58 MA's), (Start: 56 @31196 has 1 MA's), (68, 31160), (90, 31070), (95, 31043), (96, 31040), (115, 30884),

Gene: Pomar16\_49 Start: 31947, Stop: 31537, Start Num: 30

Candidate Starts for Pomar16\_49:

(3, 32274), (4, 32262), (Start: 30 @31947 has 9 MA's), (74, 31827), (82, 31803), (83, 31797), (99, 31704), (110, 31617), (112, 31584),

Gene: Poompha\_44 Start: 30750, Stop: 30394, Start Num: 67

Candidate Starts for Poompha\_44:

(23, 30894), (Start: 67 @30750 has 137 MA's), (103, 30567), (109, 30489),

Gene: Power\_46 Start: 32150, Stop: 31728, Start Num: 17

Candidate Starts for Power\_46:

(Start: 17 @32150 has 51 MA's), (Start: 21 @32141 has 58 MA's), (33, 32105), (Start: 52 @32063 has 1 MA's), (112, 31775),

Gene: Priamo\_50 Start: 30766, Stop: 30338, Start Num: 21

Candidate Starts for Priamo\_50:

(Start: 12 @30793 has 3 MA's), (Start: 21 @30766 has 58 MA's), (Start: 56 @30670 has 1 MA's), (68, 30634), (90, 30544), (95, 30517), (96, 30514),

Gene: Priya\_47 Start: 32176, Stop: 31850, Start Num: 39

Candidate Starts for Priya\_47:

(Start: 39 @32176 has 28 MA's), (48, 32152), (65, 32110), (115, 31870),

Gene: Pukovnik\_46 Start: 32944, Stop: 32528, Start Num: 18

Candidate Starts for Pukovnik\_46:

(Start: 18 @32944 has 8 MA's), (26, 32914), (Start: 52 @32866 has 1 MA's), (71, 32821), (86, 32761), (93, 32731), (112, 32575),

Gene: Pumbaa\_46 Start: 31825, Stop: 31523, Start Num: 67

Candidate Starts for Pumbaa\_46:

(7, 32095), (Start: 67 @31825 has 137 MA's), (104, 31693), (105, 31654), (110, 31606), (112, 31573),

Gene: Qobbit\_47 Start: 32138, Stop: 31812, Start Num: 39

Candidate Starts for Qobbit\_47:

(Start: 39 @32138 has 28 MA's), (48, 32114), (65, 32072), (115, 31832),

Gene: QueenB2\_46 Start: 32110, Stop: 31688, Start Num: 17

Candidate Starts for QueenB2\_46:

(Start: 17 @32110 has 51 MA's), (Start: 21 @32101 has 58 MA's), (33, 32065), (Start: 52 @32023 has 1 MA's), (112, 31735),

Gene: QueenBeesly\_47 Start: 32097, Stop: 31675, Start Num: 17

Candidate Starts for QueenBeesly\_47:

(Start: 17 @32097 has 51 MA's), (Start: 21 @32088 has 58 MA's), (33, 32052), (Start: 52 @32010 has 1 MA's), (112, 31722),

Gene: Quokka\_45 Start: 31085, Stop: 30678, Start Num: 21

Candidate Starts for Quokka\_45:

(Start: 21 @31085 has 58 MA's), (44, 31049), (70, 30965), (110, 30758), (112, 30725),

Gene: Rachaly\_46 Start: 32420, Stop: 31998, Start Num: 17

Candidate Starts for Rachaly\_46:

(Start: 17 @32420 has 51 MA's), (Start: 21 @32411 has 58 MA's), (Start: 67 @32303 has 137 MA's), (70, 32291), (88, 32216), (112, 32045),

Gene: Rahalelujah\_46 Start: 31411, Stop: 31040, Start Num: 39

Candidate Starts for Rahalelujah\_46:

(6, 31597), (9, 31546), (10, 31522), (Start: 39 @31411 has 28 MA's), (63, 31351), (65, 31348), (115, 31060),

Gene: RedRock\_49 Start: 33308, Stop: 32886, Start Num: 17

Candidate Starts for RedRock\_49:

(Start: 17 @33308 has 51 MA's), (Start: 21 @33299 has 58 MA's), (44, 33242), (55, 33206), (112, 32933),

Gene: Refuge\_46 Start: 33330, Stop: 32986, Start Num: 32

Candidate Starts for Refuge\_46:

(27, 33342), (Start: 32 @33330 has 3 MA's), (Start: 52 @33288 has 1 MA's), (Start: 53 @33285 has 1 MA's), (58, 33267), (86, 33213), (88, 33201), (110, 33066), (115, 33006),

Gene: Relief\_45 Start: 31877, Stop: 31575, Start Num: 67

Candidate Starts for Relief\_45:

(7, 32147), (Start: 67 @31877 has 137 MA's), (104, 31745), (105, 31706), (110, 31658), (112, 31625),

Gene: Retro23\_48 Start: 32504, Stop: 32082, Start Num: 17

Candidate Starts for Retro23\_48:

(Start: 17 @32504 has 51 MA's), (Start: 21 @32495 has 58 MA's), (55, 32402), (71, 32372), (112, 32129),

Gene: Rifter\_50 Start: 30703, Stop: 30275, Start Num: 21

Candidate Starts for Rifter\_50:

(Start: 12 @30730 has 3 MA's), (Start: 21 @30703 has 58 MA's), (Start: 56 @30607 has 1 MA's), (87, 30493), (96, 30451), (115, 30295),

Gene: Roksolana\_50 Start: 31185, Stop: 30757, Start Num: 21

Candidate Starts for Roksolana\_50:

(Start: 12 @31212 has 3 MA's), (Start: 21 @31185 has 58 MA's), (Start: 56 @31089 has 1 MA's), (68, 31053), (90, 30963), (95, 30936), (96, 30933), (115, 30777),

Gene: Romney\_46 Start: 31877, Stop: 31575, Start Num: 67

Candidate Starts for Romney\_46:

(7, 32147), (Start: 67 @31877 has 137 MA's), (77, 31835), (104, 31745), (105, 31706), (110, 31658), (112, 31625),

Gene: Roosevelt\_45 Start: 31882, Stop: 31580, Start Num: 67

Candidate Starts for Roosevelt\_45:

(7, 32152), (Start: 67 @31882 has 137 MA's), (104, 31750), (105, 31711), (110, 31663), (112, 31630),

Gene: Rosa24\_45 Start: 31911, Stop: 31609, Start Num: 67

Candidate Starts for Rosa24\_45:

(7, 32181), (Start: 67 @31911 has 137 MA's), (77, 31869), (104, 31779), (105, 31740), (110, 31692), (112, 31659),

Gene: Ruin\_46 Start: 31873, Stop: 31571, Start Num: 67

Candidate Starts for Ruin\_46:

(7, 32143), (Start: 67 @31873 has 137 MA's), (104, 31741), (105, 31702), (110, 31654), (112, 31621),

Gene: RyeScarlet\_48 Start: 32133, Stop: 31807, Start Num: 39

Candidate Starts for RyeScarlet\_48:

(Start: 39 @32133 has 28 MA's), (48, 32109), (65, 32067), (115, 31827),

Gene: Sabertooth\_46 Start: 31882, Stop: 31580, Start Num: 67

Candidate Starts for Sabertooth\_46:

(7, 32152), (Start: 67 @31882 has 137 MA's), (104, 31750), (105, 31711), (110, 31663), (112, 31630),

Gene: Sachima\_44 Start: 32043, Stop: 31717, Start Num: 39

Candidate Starts for Sachima\_44:

(Start: 39 @32043 has 28 MA's), (48, 32019), (65, 31977), (115, 31737),

Gene: Salz\_46 Start: 31232, Stop: 30885, Start Num: 50

Candidate Starts for Salz\_46:

(Start: 50 @31232 has 24 MA's), (65, 31199), (70, 31178), (110, 30965), (112, 30932),

Gene: Scamp\_46 Start: 31882, Stop: 31580, Start Num: 67

Candidate Starts for Scamp\_46:

(7, 32152), (Start: 67 @31882 has 137 MA's), (104, 31750), (105, 31711), (110, 31663), (112, 31630),



Gene: Scherzo\_47 Start: 32347, Stop: 32021, Start Num: 39  
Candidate Starts for Scherzo\_47:  
(Start: 39 @32347 has 28 MA's), (48, 32323), (65, 32281), (115, 32041),

Gene: SemperFi\_48 Start: 32365, Stop: 31943, Start Num: 17  
Candidate Starts for SemperFi\_48:  
(Start: 17 @32365 has 51 MA's), (Start: 21 @32356 has 58 MA's), (55, 32263), (71, 32233), (112, 31990),

Gene: SenorClean\_44 Start: 31880, Stop: 31578, Start Num: 67  
Candidate Starts for SenorClean\_44:  
(Start: 67 @31880 has 137 MA's), (104, 31748), (105, 31709), (110, 31661), (112, 31628),

Gene: Serenity\_47 Start: 31249, Stop: 30842, Start Num: 21  
Candidate Starts for Serenity\_47:  
(Start: 21 @31249 has 58 MA's), (86, 31066), (95, 31021), (110, 30922), (112, 30889),

Gene: Severus\_43 Start: 30750, Stop: 30394, Start Num: 67  
Candidate Starts for Severus\_43:  
(23, 30894), (Start: 67 @30750 has 137 MA's), (103, 30567), (109, 30489),

Gene: Shaka\_46 Start: 31877, Stop: 31575, Start Num: 67  
Candidate Starts for Shaka\_46:  
(7, 32147), (Start: 67 @31877 has 137 MA's), (104, 31745), (105, 31706), (110, 31658), (112, 31625),

Gene: Sham4\_47 Start: 31260, Stop: 30913, Start Num: 50  
Candidate Starts for Sham4\_47:  
(Start: 50 @31260 has 24 MA's), (65, 31227), (70, 31206), (110, 30993), (112, 30960),

Gene: SheaKeira\_46 Start: 31684, Stop: 31340, Start Num: 39  
Candidate Starts for SheaKeira\_46:  
(Start: 39 @31684 has 28 MA's), (46, 31669), (48, 31663), (65, 31621), (81, 31579), (88, 31546), (115, 31360), (116, 31351),

Gene: SheldonCooper\_48 Start: 32303, Stop: 32001, Start Num: 67  
Candidate Starts for SheldonCooper\_48:  
(7, 32573), (Start: 67 @32303 has 137 MA's), (104, 32171), (105, 32132), (112, 32051),

Gene: Skipitt\_45 Start: 31874, Stop: 31572, Start Num: 67  
Candidate Starts for Skipitt\_45:  
(7, 32144), (Start: 67 @31874 has 137 MA's), (104, 31742), (105, 31703), (110, 31655), (112, 31622),

Gene: Sknot\_49 Start: 32181, Stop: 31747, Start Num: 21  
Candidate Starts for Sknot\_49:  
(Start: 21 @32181 has 58 MA's), (57, 32082), (69, 32046), (112, 31794),

Gene: Smeagan\_50 Start: 32817, Stop: 32395, Start Num: 17  
Candidate Starts for Smeagan\_50:  
(Start: 17 @32817 has 51 MA's), (Start: 21 @32808 has 58 MA's), (55, 32715), (65, 32709), (71, 32685), (112, 32442),

Gene: SmellyB\_49 Start: 31137, Stop: 30709, Start Num: 21

Candidate Starts for SmellyB\_49:

(Start: 12 @31164 has 3 MA's), (Start: 21 @31137 has 58 MA's), (Start: 56 @31041 has 1 MA's), (68, 31005), (90, 30915), (95, 30888), (96, 30885), (115, 30729),

Gene: SnapTap\_47 Start: 32176, Stop: 31754, Start Num: 17

Candidate Starts for SnapTap\_47:

(Start: 17 @32176 has 51 MA's), (Start: 21 @32167 has 58 MA's), (33, 32131), (Start: 52 @32089 has 1 MA's), (112, 31801),

Gene: Snape\_47 Start: 31258, Stop: 30911, Start Num: 50

Candidate Starts for Snape\_47:

(Start: 50 @31258 has 24 MA's), (65, 31225), (70, 31204), (110, 30991), (112, 30958),

Gene: SororFago\_50 Start: 33759, Stop: 33412, Start Num: 41

Candidate Starts for SororFago\_50:

(26, 33783), (Start: 41 @33759 has 5 MA's), (88, 33624), (90, 33618), (110, 33492), (115, 33432),

Gene: Sparxx\_47 Start: 31875, Stop: 31573, Start Num: 67

Candidate Starts for Sparxx\_47:

(7, 32145), (Start: 67 @31875 has 137 MA's), (104, 31743), (105, 31704), (110, 31656), (112, 31623),

Gene: Spino\_45 Start: 31880, Stop: 31578, Start Num: 67

Candidate Starts for Spino\_45:

(7, 32150), (Start: 67 @31880 has 137 MA's), (104, 31748), (105, 31709), (110, 31661), (112, 31628),

Gene: Spouty\_47 Start: 32175, Stop: 31849, Start Num: 39

Candidate Starts for Spouty\_47:

(Start: 39 @32175 has 28 MA's), (48, 32151), (65, 32109), (115, 31869),

Gene: StarStuff\_49 Start: 31909, Stop: 31499, Start Num: 30

Candidate Starts for StarStuff\_49:

(3, 32236), (4, 32224), (Start: 30 @31909 has 9 MA's), (74, 31789), (82, 31765), (83, 31759), (99, 31666), (110, 31579), (112, 31546),

Gene: Steamy\_43 Start: 31608, Stop: 31282, Start Num: 52

Candidate Starts for Steamy\_43:

(13, 31740), (26, 31668), (49, 31614), (Start: 52 @31608 has 1 MA's), (85, 31515), (86, 31509), (88, 31497), (110, 31362),

Gene: Stink\_46 Start: 32321, Stop: 31998, Start Num: 67

Candidate Starts for Stink\_46:

(Start: 67 @32321 has 137 MA's), (71, 32306), (92, 32213), (94, 32198), (104, 32168), (109, 32093), (112, 32048),

Gene: Sunhee\_50 Start: 32074, Stop: 31730, Start Num: 43

Candidate Starts for Sunhee\_50:

(43, 32074), (63, 32020), (79, 31978), (90, 31936), (110, 31810), (115, 31750),

Gene: SuperAwesome\_49 Start: 31148, Stop: 30720, Start Num: 21

Candidate Starts for SuperAwesome\_49:

(Start: 12 @31175 has 3 MA's), (Start: 21 @31148 has 58 MA's), (Start: 56 @31052 has 1 MA's), (68, 31016), (90, 30926), (95, 30899), (96, 30896), (115, 30740),

Gene: SuperCallie99\_48 Start: 31021, Stop: 30593, Start Num: 21  
Candidate Starts for SuperCallie99\_48:  
(Start: 12 @31048 has 3 MA's), (Start: 21 @31021 has 58 MA's), (Start: 56 @30925 has 1 MA's), (68, 30889), (90, 30799), (95, 30772), (96, 30769), (115, 30613),

Gene: Superchunk\_46 Start: 30723, Stop: 30316, Start Num: 21  
Candidate Starts for Superchunk\_46:  
(Start: 21 @30723 has 58 MA's), (65, 30624), (93, 30510), (110, 30396), (112, 30363),

Gene: SweetiePie\_47 Start: 32305, Stop: 31883, Start Num: 17  
Candidate Starts for SweetiePie\_47:  
(Start: 17 @32305 has 51 MA's), (Start: 21 @32296 has 58 MA's), (55, 32203), (71, 32173), (112, 31930),

Gene: SwirlSquare\_52 Start: 31390, Stop: 30980, Start Num: 30  
Candidate Starts for SwirlSquare\_52:  
(Start: 30 @31390 has 9 MA's), (Start: 67 @31300 has 137 MA's), (72, 31285), (78, 31258), (82, 31246), (83, 31240), (91, 31195), (110, 31060), (112, 31027),

Gene: Taquarus\_46 Start: 31883, Stop: 31581, Start Num: 67  
Candidate Starts for Taquarus\_46:  
(7, 32153), (Start: 67 @31883 has 137 MA's), (104, 31751), (105, 31712), (110, 31664), (112, 31631),

Gene: TarsusIV\_45 Start: 31964, Stop: 31542, Start Num: 17  
Candidate Starts for TarsusIV\_45:  
(Start: 17 @31964 has 51 MA's), (Start: 67 @31847 has 137 MA's), (70, 31835), (112, 31589),

Gene: Temprado\_51 Start: 31328, Stop: 30873, Start Num: 12  
Candidate Starts for Temprado\_51:  
(Start: 12 @31328 has 3 MA's), (Start: 21 @31301 has 58 MA's), (Start: 56 @31205 has 1 MA's), (87, 31091), (96, 31049), (115, 30893),

Gene: Terrific\_50 Start: 32535, Stop: 32101, Start Num: 21  
Candidate Starts for Terrific\_50:  
(Start: 21 @32535 has 58 MA's), (57, 32436), (69, 32400), (112, 32148),

Gene: Thanksgivukkah\_45 Start: 31878, Stop: 31576, Start Num: 67  
Candidate Starts for Thanksgivukkah\_45:  
(7, 32148), (Start: 67 @31878 has 137 MA's), (104, 31746), (105, 31707), (110, 31659), (112, 31626),

Gene: Timothy\_47 Start: 31235, Stop: 30888, Start Num: 50  
Candidate Starts for Timothy\_47:  
(Start: 50 @31235 has 24 MA's), (65, 31202), (70, 31181), (110, 30968), (112, 30935),

Gene: TinaFeyge\_46 Start: 31875, Stop: 31573, Start Num: 67  
Candidate Starts for TinaFeyge\_46:  
(7, 32145), (Start: 67 @31875 has 137 MA's), (104, 31743), (105, 31704), (110, 31656), (112, 31623),

Gene: TinyTimmy\_47 Start: 31278, Stop: 30931, Start Num: 50  
Candidate Starts for TinyTimmy\_47:  
(Start: 50 @31278 has 24 MA's), (65, 31245), (70, 31224), (110, 31011), (112, 30978),

Gene: Tinybot\_45 Start: 31907, Stop: 31605, Start Num: 67

Candidate Starts for Tinybot\_45:

(7, 32177), (Start: 67 @31907 has 137 MA's), (104, 31775), (105, 31736), (110, 31688), (112, 31655),

Gene: TopsytheTRex\_44 Start: 31322, Stop: 30915, Start Num: 21

Candidate Starts for TopsytheTRex\_44:

(Start: 21 @31322 has 58 MA's), (86, 31139), (110, 30995), (112, 30962),

Gene: TiroTheta9\_46 Start: 31874, Stop: 31572, Start Num: 67

Candidate Starts for TiroTheta9\_46:

(7, 32144), (Start: 67 @31874 has 137 MA's), (104, 31742), (105, 31703), (110, 31655), (112, 31622),

Gene: Toaka\_46 Start: 31676, Stop: 31308, Start Num: 39

Candidate Starts for Toaka\_46:

(Start: 39 @31676 has 28 MA's), (48, 31652), (65, 31610), (115, 31328), (116, 31319),

Gene: Tomathan\_49 Start: 31906, Stop: 31496, Start Num: 30

Candidate Starts for Tomathan\_49:

(3, 32233), (4, 32221), (Start: 30 @31906 has 9 MA's), (74, 31786), (82, 31762), (83, 31756), (99, 31663), (110, 31576), (112, 31543),

Gene: ToneTone\_46 Start: 30864, Stop: 30436, Start Num: 21

Candidate Starts for ToneTone\_46:

(Start: 12 @30891 has 3 MA's), (Start: 21 @30864 has 58 MA's), (Start: 56 @30768 has 1 MA's), (87, 30654), (96, 30612), (115, 30456),

Gene: Travvers\_49 Start: 31906, Stop: 31496, Start Num: 30

Candidate Starts for Travvers\_49:

(3, 32233), (4, 32221), (Start: 30 @31906 has 9 MA's), (74, 31786), (82, 31762), (83, 31756), (99, 31663), (110, 31576), (112, 31543),

Gene: Trike\_43 Start: 30758, Stop: 30402, Start Num: 67

Candidate Starts for Trike\_43:

(23, 30902), (Start: 67 @30758 has 137 MA's), (103, 30575), (109, 30497),

Gene: Tristan\_45 Start: 33143, Stop: 32727, Start Num: 18

Candidate Starts for Tristan\_45:

(Start: 18 @33143 has 8 MA's), (26, 33113), (Start: 52 @33065 has 1 MA's), (74, 33002), (93, 32930), (112, 32774),

Gene: Trixie\_45 Start: 32233, Stop: 31820, Start Num: 17

Candidate Starts for Trixie\_45:

(Start: 17 @32233 has 51 MA's), (Start: 52 @32155 has 1 MA's), (Start: 56 @32137 has 1 MA's), (112, 31867),

Gene: Trooper\_48 Start: 32526, Stop: 32104, Start Num: 17

Candidate Starts for Trooper\_48:

(Start: 17 @32526 has 51 MA's), (Start: 21 @32517 has 58 MA's), (40, 32469), (Start: 52 @32439 has 1 MA's), (72, 32391), (73, 32382), (112, 32151),

Gene: TroyPia\_47 Start: 31878, Stop: 31576, Start Num: 67

Candidate Starts for TroyPia\_47:

(7, 32148), (Start: 67 @31878 has 137 MA's), (104, 31746), (105, 31707), (110, 31659), (112, 31626),

Gene: Tubs\_47 Start: 32109, Stop: 31783, Start Num: 39  
Candidate Starts for Tubs\_47:  
(Start: 39 @32109 has 28 MA's), (48, 32085), (65, 32043), (115, 31803),

Gene: Tucker\_49 Start: 30751, Stop: 30323, Start Num: 21  
Candidate Starts for Tucker\_49:  
(Start: 12 @30778 has 3 MA's), (Start: 21 @30751 has 58 MA's), (Start: 56 @30655 has 1 MA's), (87, 30541), (96, 30499), (115, 30343),

Gene: Turbido\_48 Start: 32560, Stop: 32138, Start Num: 17  
Candidate Starts for Turbido\_48:  
(Start: 17 @32560 has 51 MA's), (Start: 21 @32551 has 58 MA's), (55, 32458), (71, 32428), (112, 32185),

Gene: TygerBlood\_46 Start: 31880, Stop: 31578, Start Num: 67  
Candidate Starts for TygerBlood\_46:  
(7, 32150), (Start: 67 @31880 has 137 MA's), (104, 31748), (105, 31709), (110, 31661), (112, 31628),

Gene: Ugenie5\_44 Start: 32346, Stop: 32020, Start Num: 39  
Candidate Starts for Ugenie5\_44:  
(Start: 39 @32346 has 28 MA's), (48, 32322), (65, 32280), (115, 32040),

Gene: Ulysses\_45 Start: 31557, Stop: 31255, Start Num: 67  
Candidate Starts for Ulysses\_45:  
(7, 31827), (Start: 67 @31557 has 137 MA's), (104, 31425), (105, 31386), (110, 31338), (112, 31305),

Gene: Updawg\_48 Start: 32422, Stop: 31988, Start Num: 21  
Candidate Starts for Updawg\_48:  
(Start: 21 @32422 has 58 MA's), (57, 32323), (69, 32287), (112, 32035),

Gene: VA6\_47 Start: 32280, Stop: 31867, Start Num: 17  
Candidate Starts for VA6\_47:  
(Start: 17 @32280 has 51 MA's), (54, 32190), (65, 32181), (73, 32145), (90, 32079), (112, 31914),

Gene: VC3\_50 Start: 32346, Stop: 31912, Start Num: 28  
Candidate Starts for VC3\_50:  
(Start: 28 @32346 has 4 MA's), (Start: 30 @32343 has 9 MA's), (63, 32244), (74, 32202), (82, 32178), (99, 32079), (110, 31992), (112, 31959),

Gene: Vanisoa\_46 Start: 32705, Stop: 32358, Start Num: 39  
Candidate Starts for Vanisoa\_46:  
(6, 32888), (9, 32837), (10, 32813), (Start: 39 @32705 has 28 MA's), (48, 32681), (65, 32639), (77, 32609), (115, 32378),

Gene: VohminGhazi\_49 Start: 31138, Stop: 30710, Start Num: 21  
Candidate Starts for VohminGhazi\_49:  
(Start: 12 @31165 has 3 MA's), (Start: 21 @31138 has 58 MA's), (Start: 56 @31042 has 1 MA's), (68, 31006), (90, 30916), (95, 30889), (96, 30886), (115, 30730),

Gene: Wander\_46 Start: 31877, Stop: 31575, Start Num: 67  
Candidate Starts for Wander\_46:  
(Start: 67 @31877 has 137 MA's), (104, 31745), (105, 31706), (110, 31658), (112, 31625),

Gene: WeiHuaDA\_49 Start: 33119, Stop: 32706, Start Num: 18  
Candidate Starts for WeiHuaDA\_49:  
(Start: 18 @33119 has 8 MA's), (Start: 52 @33041 has 1 MA's), (70, 32999), (112, 32753),

Gene: Whabigail7\_48 Start: 32545, Stop: 32123, Start Num: 17  
Candidate Starts for Whabigail7\_48:  
(Start: 17 @32545 has 51 MA's), (Start: 21 @32536 has 58 MA's), (55, 32443), (65, 32437), (112, 32170),

Gene: WideWale\_48 Start: 32422, Stop: 31988, Start Num: 21  
Candidate Starts for WideWale\_48:  
(Start: 21 @32422 has 58 MA's), (57, 32323), (69, 32287), (112, 32035),

Gene: Wiks\_48 Start: 30932, Stop: 30504, Start Num: 21  
Candidate Starts for Wiks\_48:  
(Start: 12 @30959 has 3 MA's), (Start: 21 @30932 has 58 MA's), (Start: 56 @30836 has 1 MA's), (87, 30722), (96, 30680), (115, 30524),

Gene: Wilbur\_46 Start: 31877, Stop: 31575, Start Num: 67  
Candidate Starts for Wilbur\_46:  
(7, 32147), (Start: 67 @31877 has 137 MA's), (77, 31835), (104, 31745), (105, 31706), (110, 31658), (112, 31625),

Gene: Wile\_45 Start: 31884, Stop: 31561, Start Num: 67  
Candidate Starts for Wile\_45:  
(Start: 67 @31884 has 137 MA's), (89, 31785), (92, 31776), (94, 31761), (104, 31731), (112, 31611),

Gene: Wizard007\_46 Start: 31885, Stop: 31583, Start Num: 67  
Candidate Starts for Wizard007\_46:  
(7, 32155), (Start: 67 @31885 has 137 MA's), (104, 31753), (105, 31714), (110, 31666), (112, 31633),

Gene: WunderPhul\_49 Start: 30930, Stop: 30502, Start Num: 21  
Candidate Starts for WunderPhul\_49:  
(Start: 12 @30957 has 3 MA's), (Start: 21 @30930 has 58 MA's), (Start: 56 @30834 has 1 MA's), (87, 30720), (96, 30678), (115, 30522),

Gene: Xena\_44 Start: 31850, Stop: 31527, Start Num: 67  
Candidate Starts for Xena\_44:  
(Start: 67 @31850 has 137 MA's), (89, 31751), (92, 31742), (94, 31727), (104, 31697), (112, 31577),

Gene: XianYue\_46 Start: 31886, Stop: 31548, Start Num: 45  
Candidate Starts for XianYue\_46:  
(Start: 45 @31886 has 1 MA's), (101, 31712), (112, 31595),

Gene: Yecey3\_48 Start: 31582, Stop: 31238, Start Num: 35  
Candidate Starts for Yecey3\_48:  
(Start: 35 @31582 has 1 MA's), (48, 31561), (65, 31519), (81, 31477), (88, 31444), (115, 31258),

Gene: YoSam321\_46 Start: 31874, Stop: 31572, Start Num: 67  
Candidate Starts for YoSam321\_46:  
(7, 32144), (Start: 67 @31874 has 137 MA's), (104, 31742), (105, 31703), (110, 31655), (112, 31622),

Gene: Yokurt\_49 Start: 30959, Stop: 30504, Start Num: 12

Candidate Starts for Yokurt\_49:

(Start: 12 @30959 has 3 MA's), (Start: 21 @30932 has 58 MA's), (Start: 56 @30836 has 1 MA's), (87, 30722), (96, 30680), (115, 30524),

Gene: Zaka\_49 Start: 30932, Stop: 30504, Start Num: 21

Candidate Starts for Zaka\_49:

(Start: 12 @30959 has 3 MA's), (Start: 21 @30932 has 58 MA's), (Start: 56 @30836 has 1 MA's), (87, 30722), (96, 30680), (115, 30524),

Gene: Zimmer\_44 Start: 32823, Stop: 32467, Start Num: 32

Candidate Starts for Zimmer\_44:

(Start: 32 @32823 has 3 MA's), (Start: 52 @32781 has 1 MA's), (86, 32706), (88, 32694), (93, 32676), (110, 32547), (115, 32487),

Gene: Zulu\_49 Start: 30732, Stop: 30304, Start Num: 21

Candidate Starts for Zulu\_49:

(Start: 12 @30759 has 3 MA's), (Start: 21 @30732 has 58 MA's), (Start: 56 @30636 has 1 MA's), (87, 30522), (96, 30480), (115, 30324),