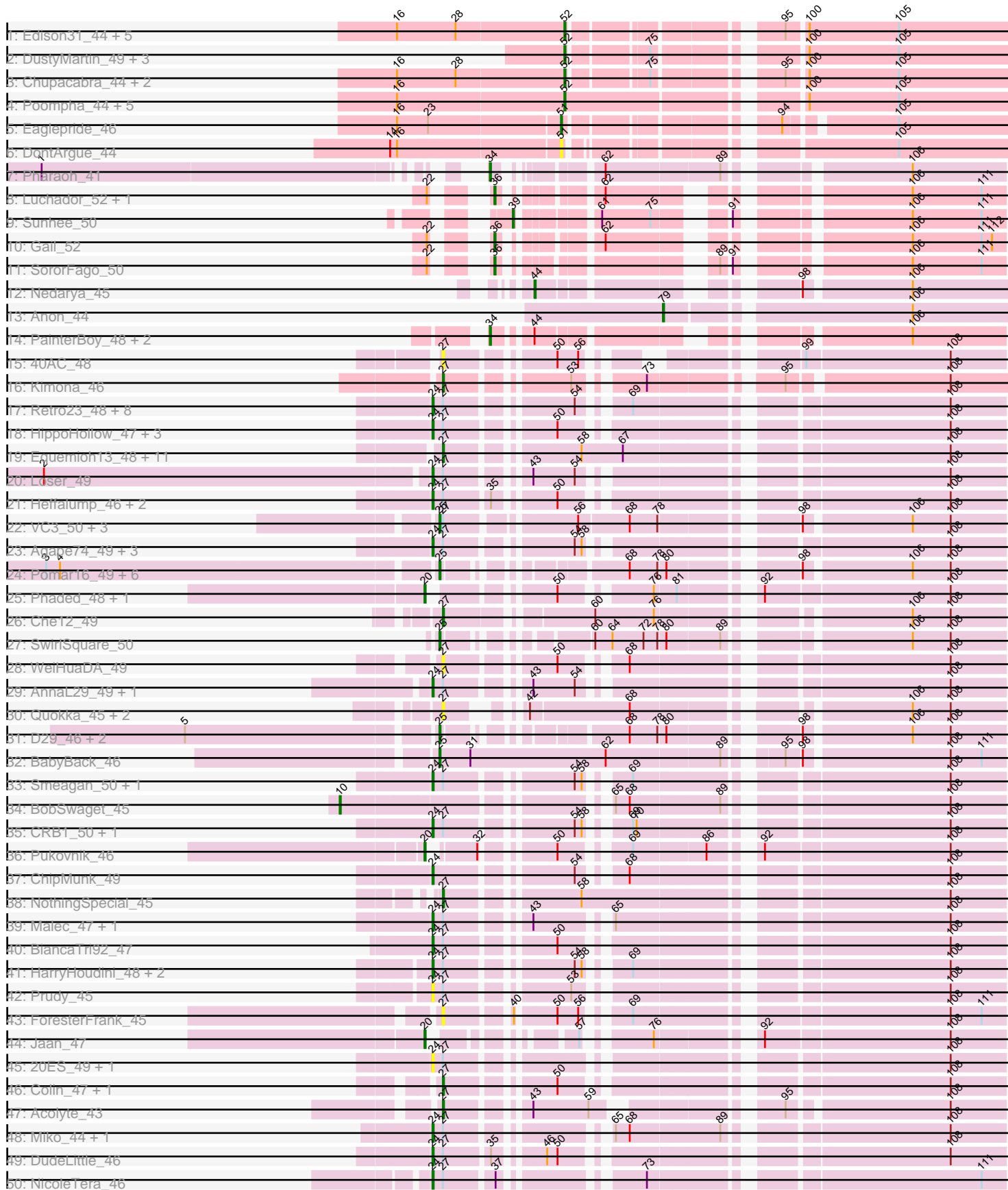
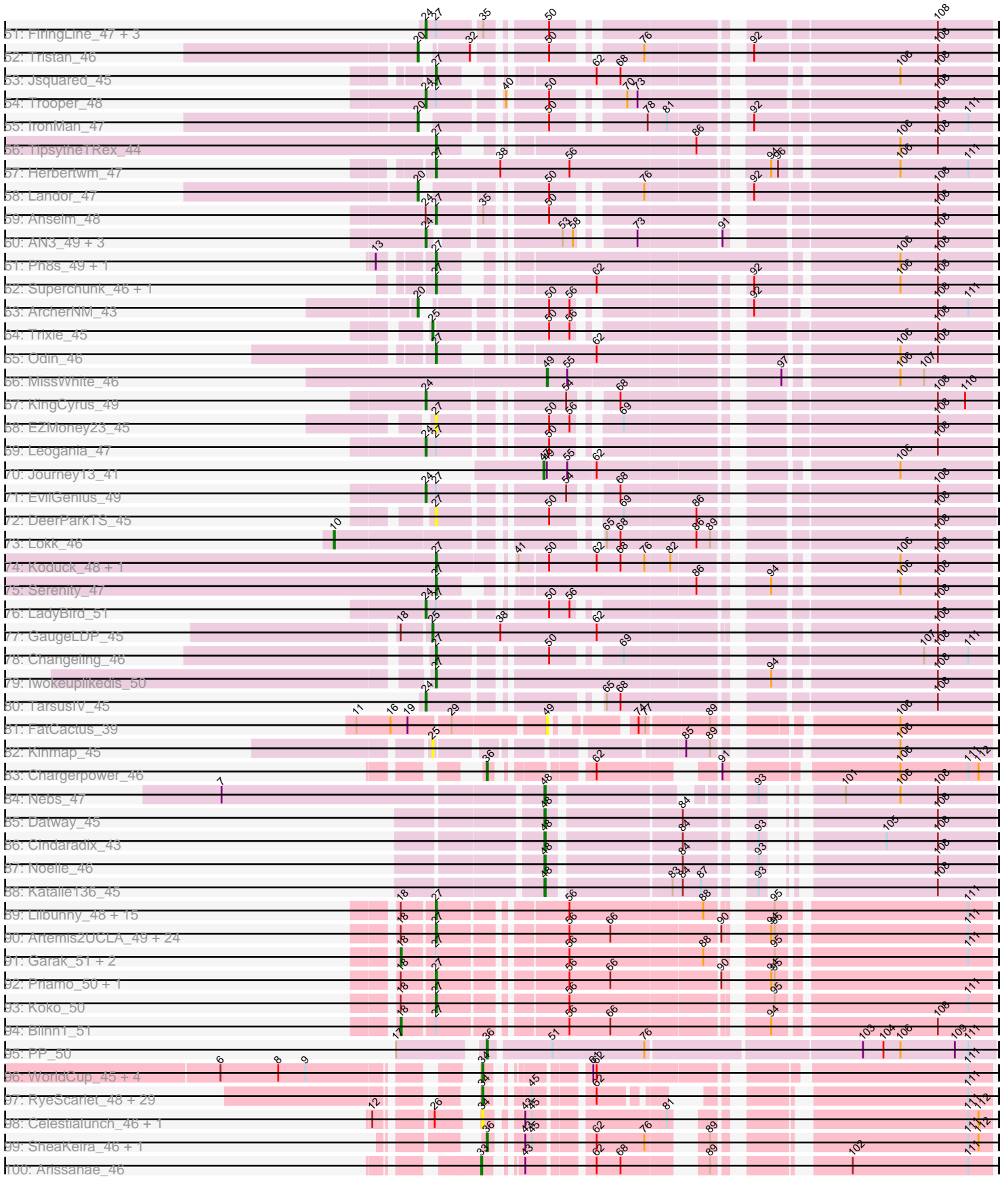


Pham 304678



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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 304678 Report

This analysis was run 06/08/26 on database version 649.

Pham number 304678 has 265 members, 44 are drafts.

Phages represented in each track:

- Track 1 : Edison31\_44, Rebeuca\_45, Topanga\_43, Kristoff\_45, WalterMcMickey\_43, Twister\_43
- Track 2 : DustyMartin\_49, RhynO\_46, Shapes\_49, Rowdy\_49
- Track 3 : Chupacabra\_44, OKCentral2016\_44, Goose\_45
- Track 4 : Poompha\_44, Severus\_43, Trike\_43, PeaceMeal1\_43, Drake94\_43, KittenMittens\_42
- Track 5 : Eaglepride\_46
- Track 6 : DontArgue\_44
- Track 7 : Pharaoh\_41
- Track 8 : Luchador\_52, Jeeves\_52
- Track 9 : Sunhee\_50
- Track 10 : Gail\_52
- Track 11 : SororFago\_50
- Track 12 : Nedarya\_45
- Track 13 : Anon\_44
- Track 14 : PainterBoy\_48, Lucyedi\_48, EagleEye\_49
- Track 15 : 40AC\_48
- Track 16 : Kimona\_46
- Track 17 : Retro23\_48, Georgie2\_48, Crucio\_47, Dignity\_49, SemperFi\_48, SweetiePie\_47, Dalmatian\_48, Turbido\_48, Jerm\_49
- Track 18 : HippoHollow\_47, Echild\_47, LionsBait\_49, Benvolio\_44
- Track 19 : Equemioh13\_48, Buggy\_49, WideWale\_48, MiculUcigas\_47, Baehexic\_46, Updawg\_48, Centaur\_48, Terrific\_50, Gratitude\_47, NaSiaTalie\_47, Sknot\_47, Flare16\_47
- Track 20 : Loser\_49
- Track 21 : Heffalump\_46, QueenB2\_46, Fameo\_47
- Track 22 : VC3\_50, AN9\_50, C3\_45, ANI8\_50
- Track 23 : Agape74\_49, AbbyPaige\_49, Whabigail7\_48, LilTurb\_48
- Track 24 : Pomar16\_49, Travvers\_49, DBQu4n\_49, Tomathan\_49, Kerberos\_49, Duplo\_49, StarStuff\_49
- Track 25 : Phaded\_48, Bactobuster\_46
- Track 26 : Che12\_49
- Track 27 : SwirlSquare\_50
- Track 28 : WeiHuaDA\_49
- Track 29 : AnnaL29\_49, RedRock\_49
- Track 30 : Quokka\_45, MajorMajor\_46, Bradman\_46
- Track 31 : D29\_46, Naji\_49, D32\_49

- Track 32 : BabyBack\_46
- Track 33 : Smeagan\_50, Leviathan\_49
- Track 34 : BobSwaget\_45
- Track 35 : CRB1\_50, JoshKayV\_49
- Track 36 : Pukovnik\_46
- Track 37 : ChipMunk\_49
- Track 38 : NothingSpecial\_45
- Track 39 : Malec\_47, Larenn\_46
- Track 40 : BiancaTri92\_47
- Track 41 : HarryHoudini\_48, Piro94\_47, Drake55\_49
- Track 42 : Prudy\_45
- Track 43 : ForesterFrank\_45
- Track 44 : Jaan\_47
- Track 45 : 20ES\_49, First\_0048
- Track 46 : Colin\_47, Kalpine\_45
- Track 47 : Acolyte\_43
- Track 48 : Miko\_44, Rachaly\_46
- Track 49 : DudeLittle\_46
- Track 50 : NicoleTera\_46
- Track 51 : FiringLine\_47, Power\_46, SnapTap\_47, QueenBeesly\_47
- Track 52 : Tristan\_46
- Track 53 : Jsquared\_45
- Track 54 : Trooper\_48
- Track 55 : IronMan\_47
- Track 56 : TipsytheTRex\_44
- Track 57 : Herbertwm\_47
- Track 58 : Landor\_47
- Track 59 : Anselm\_48
- Track 60 : AN3\_49, VA6\_47, BengiVuitton\_48, Deloris\_47
- Track 61 : Ph8s\_49, Adzzy\_49
- Track 62 : Superchunk\_46, Caraxes\_47
- Track 63 : ArcherNM\_43
- Track 64 : Trixie\_45
- Track 65 : Odin\_46
- Track 66 : MissWhite\_46
- Track 67 : KingCyrus\_49
- Track 68 : EZMoney23\_45
- Track 69 : Leogania\_47
- Track 70 : Journey13\_41
- Track 71 : EvilGenius\_49
- Track 72 : DeerParkTS\_45
- Track 73 : Loka\_46
- Track 74 : Koduck\_48, L5\_46
- Track 75 : Serenity\_47
- Track 76 : LadyBird\_51
- Track 77 : GaugeLDP\_45
- Track 78 : Changeling\_46
- Track 79 : Iwokeuplikedis\_50
- Track 80 : TarsusIV\_45
- Track 81 : FatCactus\_39
- Track 82 : Kinmap\_45
- Track 83 : Chargerpower\_46
- Track 84 : Nebs\_47

- Track 85 : Datway\_45
- Track 86 : Cindaradix\_43
- Track 87 : Noelle\_46
- Track 88 : Katalie136\_45
- Track 89 : Lilbunny\_48, BlessJoy\_50, Wiks\_48, ToneTone\_46, Temprado\_50, Helmet\_51, Hammer\_50, Blue7\_51, Zaka\_49, Indra\_52, Zulu\_49, WunderPhul\_49, Rifter\_50, Jeffabunny\_49, Tucker\_49, Gruunaga\_49
- Track 90 : Artemis2UCLA\_49, BennyP\_50, SuperAwesome\_49, DaVinci\_48, Candra\_49, GreedyLawyer\_49, Kipper29\_49, Gladiator\_47, VohminGhazi\_49, Kazan\_50, McFly\_49, Dorothea\_49, Roksolana\_50, Chartreuse\_48, Neeharika16\_48, Pmask\_49, CloudWang3\_49, Newrala\_49, Cookiedough\_49, EricB\_49, SmellyB\_49, Isiphiwo\_47, DelvinSonDorr\_47, SuperCallie99\_48, Polyphemos\_50
- Track 91 : Garak\_51, Yokurt\_49, Hexamo\_49
- Track 92 : Priamo\_50, Jordennis\_48
- Track 93 : Koko\_50
- Track 94 : Blinn1\_51
- Track 95 : PP\_50
- Track 96 : WorldCup\_45, CogOmlette\_45, Rahalelujah\_46, Minispark\_45, Bellris\_45
- Track 97 : RyeScarlet\_48, Eidsmoe\_47, Phaeder\_47, Holes\_46, Fayely\_47, Lilleskat\_45, Myxus\_47, Beemo\_47, ExplosioNervosa\_47, EmyBug\_46, Priya\_47, PackMan\_46, Ugenie5\_44, Ayanochan\_48, Hanray\_45, Catalina\_48, HortumSL17\_47, Scherzo\_47, EdogawaKiddo\_45, Conquerage\_47, Onglai\_45, Sachima\_44, Jiawan\_45, Phonnegut\_47, Tubs\_47, Pioneer\_47, Alma\_47, Spouty\_47, Qobbit\_47, Aliter\_47
- Track 98 : Celestialunch\_46, MegTheThird\_46
- Track 99 : SheaKeira\_46, Klodlith\_47
- Track 100 : Arissanae\_46
- Track 101 : Toaka\_46
- Track 102 : Elephantoon\_46
- Track 103 : Charm\_46
- Track 104 : BogosyJay\_46, Maminiaina\_46
- Track 105 : LoneWolf\_47
- Track 106 : DreamTeam1\_46
- Track 107 : Vanisoa\_46
- Track 108 : Darrell\_48
- Track 109 : Yecey3\_48
- Track 110 : Keziacharles14\_47

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

The start number called the most often in the published annotations is 27, it was called in 70 of the 221 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 40AC\_48, Acolyte\_43, Adzzy\_49, Anselm\_48, Artemis2UCLA\_49, Baehexic\_46, BennyP\_50, BlessJoy\_50, Blue7\_51, Bradman\_46, Buggy\_49, Candra\_49, Caraxes\_47, Centaur\_48, Changeling\_46, Chartreuse\_48, Che12\_49, CloudWang3\_49, Colin\_47, Cookiedough\_49, DaVinci\_48, DeerParkTS\_45, DelvinSonDorr\_47, Dorothea\_49, EZMoney23\_45, Equemioh13\_48, EricB\_49, Flare16\_47, ForesterFrank\_45, Gladiator\_47, Gratitude\_47, GreedyLawyer\_49,

Gruunaga\_49, Hammer\_50, Helmet\_51, Herbertwm\_47, Indra\_52, Isiphiwo\_47, Iwokeuplikedis\_50, Jeffabunny\_49, Jordennis\_48, Jsquared\_45, Kalpine\_45, Kazan\_50, Kimona\_46, Kipper29\_49, Koduck\_48, Koko\_50, L5\_46, Lilbunny\_48, MajorMajor\_46, McFly\_49, MiculUcigas\_47, NaSiaTalie\_47, Neeharika16\_48, Newrala\_49, NothingSpecial\_45, Odin\_46, Ph8s\_49, Pmask\_49, Polyphemus\_50, Priamo\_50, Quokka\_45, Rifter\_50, Roksolana\_50, Serenity\_47, Sknot\_47, SmellyB\_49, SuperAwesome\_49, SuperCallie99\_48, Superchunk\_46, Temprado\_50, Terrific\_50, TipsytheTRex\_44, ToneTone\_46, Tucker\_49, Updawg\_48, VohminGhazi\_49, WeiHuaDA\_49, WideWale\_48, Wiks\_48, WunderPhul\_49, Zaka\_49, Zulu\_49,

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

- 20ES\_49, AN9\_50, AN18\_50, AbbyPaige\_49, Agape74\_49, AnnaL29\_49, Benvolio\_44, BiancaTri92\_47, Blinn1\_51, C3\_45, CRB1\_50, Crucio\_47, Dalmatian\_48, Dignity\_49, Drake55\_49, DudeLittle\_46, Echild\_47, EvilGenius\_49, Fameo\_47, FiringLine\_47, First\_0048, Garak\_51, Georgie2\_48, HarryHoudini\_48, Heffalump\_46, Hexamo\_49, HippoHollow\_47, Jerm\_49, JoshKayV\_49, LadyBird\_51, Larenn\_46, Leogania\_47, Leviathan\_49, LilTurb\_48, LionsBait\_49, Loser\_49, Malec\_47, Miko\_44, NicoleTera\_46, Piro94\_47, Power\_46, Prudy\_45, QueenB2\_46, QueenBeesly\_47, Rachaly\_46, RedRock\_49, Retro23\_48, SemperFi\_48, Smeagan\_50, SnapTap\_47, SweetiePie\_47, Trooper\_48, Turbido\_48, VC3\_50, Whabigail7\_48, Yokurt\_49,

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

- AN3\_49, Aliter\_47, Alma\_47, Anon\_44, ArcherNM\_43, Arissanae\_46, Ayanochan\_48, BabyBack\_46, Bactobuster\_46, Beemo\_47, Bellris\_45, BengiVuitton\_48, BobSwaget\_45, BogosyJay\_46, Catalina\_48, Celestialunch\_46, Chargerpower\_46, Charm\_46, ChipMunk\_49, Chupacabra\_44, Cindaradix\_43, CogOmlette\_45, Conquerage\_47, D29\_46, D32\_49, DBQu4n\_49, Darrell\_48, Datway\_45, Deloris\_47, DontArgue\_44, Drake94\_43, DreamTeam1\_46, Duplo\_49, DustyMartin\_49, EagleEye\_49, Eaglepride\_46, Edison31\_44, EdogawaKiddo\_45, Eidsmoe\_47, Elephantoon\_46, EmyBug\_46, ExplosioNervosa\_47, FatCactus\_39, Fayely\_47, Gail\_52, GaugeLDP\_45, Goose\_45, Hanray\_45, Halex\_46, HortumSL17\_47, IronMan\_47, Jaan\_47, Jeeves\_52, Jiawan\_45, Journey13\_41, Katalie136\_45, Kerberos\_49, Keziacharles14\_47, KingCyrus\_49, Kinmap\_45, KittenMittens\_42, Klodlith\_47, Kristoff\_45, Landor\_47, Lilleskat\_45, Lokk\_46, LoneWolf\_47, Luchador\_52, Lucyedi\_48, Maminiaina\_46, MegTheThird\_46, Minispark\_45, MissWhite\_46, Myxus\_47, Naji\_49, Nebs\_47, Nedarya\_45, Noelle\_46, OKCentral2016\_44, Onglai\_45, PP\_50, PackMan\_46, PainterBoy\_48, PeaceMeal1\_43, Phaded\_48, Phaeder\_47, Pharaoh\_41, Phonnegut\_47, Pioneer\_47, Pomar16\_49, Poompha\_44, Priya\_47, Pukovnik\_46, Qobbit\_47, Rahalelujah\_46, Rebeuca\_45, RhynO\_46, Rowdy\_49, RyeScarlet\_48, Sachima\_44, Scherzo\_47, Severus\_43, Shapes\_49, SheaKeira\_46, SororFago\_50, Spouty\_47, StarStuff\_49, Sunhee\_50, SwirlSquare\_50, TarsusIV\_45, Toaka\_46, Tomathan\_49, Topanga\_43, Travvers\_49, Trike\_43, Tristan\_46, Trixie\_45, Tubs\_47, Twister\_43, Ugenie5\_44, VA6\_47, Vanisoa\_46, WalterMcMickey\_43, WorldCup\_45, Yecy3\_48,

### Summary by start number:

Start 10:

- Found in 2 of 265 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 2 of 221
- Called 100.0% of time when present

- Phage (with cluster) where this start called: BobSwaget\_45 (A2), Lokk\_46 (A2),

#### Start 18:

- Found in 49 of 265 ( 18.5% ) of genes in pham
- Manual Annotations of this start: 3 of 221
- Called 8.2% of time when present
- Phage (with cluster) where this start called: Blinn1\_51 (A6), Garak\_51 (A6), Hexamo\_49 (A6), Yokurt\_49 (A6),

#### Start 20:

- Found in 8 of 265 ( 3.0% ) of genes in pham
- Manual Annotations of this start: 8 of 221
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ArcherNM\_43 (A2), Bactobuster\_46 (A2), IronMan\_47 (A2), Jaan\_47 (A2), Landor\_47 (A2), Phaded\_48 (A2), Pukovnik\_46 (A2), Tristan\_46 (A2),

#### Start 24:

- Found in 56 of 265 ( 21.1% ) of genes in pham
- Manual Annotations of this start: 49 of 221
- 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), 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), Echid\_47 (A2), EvilGenius\_49 (A2), Fameo\_47 (A2), FiringLine\_47 (A2), First\_0048 (A2), Georgie2\_48 (A2), HarryHoudini\_48 (A2), Heffalump\_46 (A2), HippoHollow\_47 (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), Prudy\_45 (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), Trooper\_48 (A2), Turbido\_48 (A2), VA6\_47 (A2), Whabigail7\_48 (A2),

#### Start 25:

- Found in 19 of 265 ( 7.2% ) of genes in pham
- Manual Annotations of this start: 17 of 221
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AN9\_50 (A2), ANI8\_50 (A2), BabyBack\_46 (A2), C3\_45 (A2), D29\_46 (A2), D32\_49 (A2), DBQu4n\_49 (A2), Duplo\_49 (A2), GaugeLDP\_45 (A2), Kerberos\_49 (A2), Kinmap\_45 (A2), Naji\_49 (A2), Pomar16\_49 (A2), StarStuff\_49 (A2), SwirlSquare\_50 (A2), Tomathan\_49 (A2), Travvers\_49 (A2), Trixie\_45 (A2), VC3\_50 (A2),

#### Start 27:

- Found in 140 of 265 ( 52.8% ) of genes in pham
- Manual Annotations of this start: 70 of 221
- Called 60.0% 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), BennyP\_50 (A6), BlessJoy\_50 (A6), Blue7\_51 (A6), Bradman\_46 (A2), Buggy\_49

(A2), Candra\_49 (A6), Caraxes\_47 (A2), Centaur\_48 (A2), Changeling\_46 (A2), Chartreuse\_48 (A6), Che12\_49 (A2), CloudWang3\_49 (A6), Colin\_47 (A2), Cookiedough\_49 (A6), DaVinci\_48 (A6), DeerParkTS\_45 (A2), DelvinSonDorr\_47 (A6), Dorothea\_49 (A6), EZMoney23\_45 (A2), Equemioh13\_48 (A2), EricB\_49 (A6), Flare16\_47 (A2), ForesterFrank\_45 (A2), Gladiator\_47 (A6), Gratitude\_47 (A2), GreedyLawyer\_49 (A6), Gruunaga\_49 (A6), Hammer\_50 (A6), Helmet\_51 (A6), Herbertwm\_47 (A2), Indra\_52 (A6), Isiphiwo\_47 (A6), Iwokeuplikedis\_50 (A2), Jeffabunny\_49 (A6), Jordennis\_48 (A6), Jsquared\_45 (A2), Kalpine\_45 (A2), Kazan\_50 (A6), Kimona\_46 (A19), Kipper29\_49 (A6), Koduck\_48 (A2), Koko\_50 (A6), L5\_46 (A2), 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\_47 (A2), SmellyB\_49 (A6), SuperAwesome\_49 (A6), SuperCallie99\_48 (A6), Superchunk\_46 (A2), Temprado\_50 (A6), Terrific\_50 (A2), TopsytheTRex\_44 (A2), ToneTone\_46 (A6), Tucker\_49 (A6), Updawg\_48 (A2), VohminGhazi\_49 (A6), WeiHuaDA\_49 (A2), WideWale\_48 (A2), Wiks\_48 (A6), WunderPhul\_49 (A6), Zaka\_49 (A6), Zulu\_49 (A6),

#### Start 30:

- Found in 1 of 265 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 221
- Called 100.0% of time when present
- Phage (with cluster) where this start called: LoneWolf\_47 (A9),

#### Start 33:

- Found in 3 of 265 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 3 of 221
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Arissanee\_46 (A9), Darrell\_48 (A9), Elephantoon\_46 (A9),

#### Start 34:

- Found in 47 of 265 ( 17.7% ) of genes in pham
- Manual Annotations of this start: 32 of 221
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aliter\_47 (A9), Alma\_47 (A9), Ayanochan\_48 (A9), Beemo\_47 (A9), Bellris\_45 (A9), BogosyJay\_46 (A9), Catalina\_48 (A9), Celestiallunch\_46 (A9), CogOmlette\_45 (A9), Conquerage\_47 (A9), EagleEye\_49 (A16), EdogawaKiddo\_45 (A9), Eidsmoe\_47 (A9), EmyBug\_46 (A9), ExplosioNervosa\_47 (A9), Fayely\_47 (A9), Hanray\_45 (A9), Horex\_46 (A9), HortumSL17\_47 (A9), Jiawan\_45 (A9), Keziacharles14\_47 (A9), Lilleskat\_45 (A9), Lucyedi\_48 (A16), Maminiaina\_46 (A9), MegTheThird\_46 (A9), Minispark\_45 (A9), Myxus\_47 (A9), Onglai\_45 (A9), PackMan\_46 (A9), PainterBoy\_48 (A16), 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), Spouty\_47 (A9), Toaka\_46 (A9), Tubs\_47 (A9), Ugenie5\_44 (A9), Vanisoa\_46 (A9), WorldCup\_45 (A9), Yecey3\_48 (A9),

#### Start 36:

- Found in 10 of 265 ( 3.8% ) of genes in pham
- Manual Annotations of this start: 9 of 221
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Chargerpower\_46 (A22), Charm\_46 (A9), DreamTeam1\_46 (A9), Gail\_52 (A14), Jeeves\_52 (A14), Klodlith\_47 (A9), Luchador\_52 (A14), PP\_50 (A7), SheaKeira\_46 (A9), SororFago\_50 (A14),

#### Start 39:

- Found in 1 of 265 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 221
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Sunhee\_50 (A14),

#### Start 44:

- Found in 4 of 265 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 1 of 221
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Nedarya\_45 (A15),

#### Start 47:

- Found in 1 of 265 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 221
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Journey13\_41 (A2),

#### Start 48:

- Found in 5 of 265 ( 1.9% ) of genes in pham
- Manual Annotations of this start: 5 of 221
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cindaradix\_43 (A4), Datway\_45 (A4), Katalie136\_45 (A4), Nebs\_47 (A4), Noelle\_46 (A4),

#### Start 49:

- Found in 3 of 265 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 1 of 221
- Called 66.7% of time when present
- Phage (with cluster) where this start called: FatCactus\_39 (A20), MissWhite\_46 (A2),

#### Start 51:

- Found in 3 of 265 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 1 of 221
- Called 66.7% of time when present
- Phage (with cluster) where this start called: DontArgue\_44 (A10), Eaglepride\_46 (A10),

#### Start 52:

- Found in 19 of 265 ( 7.2% ) of genes in pham
- Manual Annotations of this start: 16 of 221
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Chupacabra\_44 (A10), Drake94\_43 (A10), DustyMartin\_49 (A10), Edison31\_44 (A10), Goose\_45 (A10), KittenMittens\_42 (A10), Kristoff\_45 (A10), OKCentral2016\_44 (A10), PeaceMeal1\_43 (A10), Poompha\_44 (A10), Rebeuca\_45 (A10), RhynO\_46 (A10), Rowdy\_49 (A10), Severus\_43 (A10), Shapes\_49 (A10), Topanga\_43 (A10), Trike\_43 (A10), Twister\_43 (A10), WalterMcMickey\_43 (A10),

Start 79:

- Found in 1 of 265 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 221
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Anon\_44 (A15),

### **Summary by clusters:**

There are 15 clusters represented in this pham: A15, A21, A17, A16, A10, A14, A12, A19, A22, A20, A2, A4, A7, A6, A9,

Info for manual annotations of cluster A10:

- Start number 51 was manually annotated 1 time for cluster A10.
- Start number 52 was manually annotated 16 times for cluster A10.

Info for manual annotations of cluster A12:

- Start number 34 was manually annotated 1 time for cluster A12.

Info for manual annotations of cluster A14:

- Start number 36 was manually annotated 4 times for cluster A14.
- Start number 39 was manually annotated 1 time for cluster A14.

Info for manual annotations of cluster A15:

- Start number 44 was manually annotated 1 time for cluster A15.
- Start number 79 was manually annotated 1 time for cluster A15.

Info for manual annotations of cluster A16:

- Start number 34 was manually annotated 3 times for cluster A16.

Info for manual annotations of cluster A19:

- Start number 27 was manually annotated 1 time for cluster A19.

Info for manual annotations of cluster A2:

- Start number 10 was manually annotated 2 times for cluster A2.
- Start number 20 was manually annotated 8 times for cluster A2.
- Start number 24 was manually annotated 49 times for cluster A2.
- Start number 25 was manually annotated 17 times for cluster A2.
- Start number 27 was manually annotated 27 times for cluster A2.
- Start number 47 was manually annotated 1 time for cluster A2.
- Start number 49 was manually annotated 1 time for cluster A2.

Info for manual annotations of cluster A22:

- Start number 36 was manually annotated 1 time for cluster A22.

Info for manual annotations of cluster A4:

- Start number 48 was manually annotated 5 times for cluster A4.

Info for manual annotations of cluster A6:

- Start number 18 was manually annotated 3 times for cluster A6.

- Start number 27 was manually annotated 42 times for cluster A6.

Info for manual annotations of cluster A7:

- Start number 36 was manually annotated 1 time for cluster A7.

Info for manual annotations of cluster A9:

- Start number 30 was manually annotated 1 time for cluster A9.
- Start number 33 was manually annotated 3 times for cluster A9.
- Start number 34 was manually annotated 28 times for cluster A9.
- Start number 36 was manually annotated 3 times for cluster A9.

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

Gene: 20ES\_49 Start: 32435, Stop: 32013, Start Num: 24

Candidate Starts for 20ES\_49:

(Start: 24 @32435 has 49 MA's), (Start: 27 @32426 has 70 MA's), (108, 32060),

Gene: 40AC\_48 Start: 33450, Stop: 33055, Start Num: 27

Candidate Starts for 40AC\_48:

(Start: 27 @33450 has 70 MA's), (50, 33372), (56, 33354), (99, 33225), (108, 33102),

Gene: AN3\_49 Start: 32806, Stop: 32393, Start Num: 24

Candidate Starts for AN3\_49:

(Start: 24 @32806 has 49 MA's), (53, 32716), (58, 32707), (73, 32671), (91, 32605), (108, 32440),

Gene: AN9\_50 Start: 32346, Stop: 31912, Start Num: 25

Candidate Starts for AN9\_50:

(Start: 25 @32346 has 17 MA's), (Start: 27 @32343 has 70 MA's), (56, 32244), (68, 32202), (78, 32178), (98, 32079), (106, 31992), (108, 31959),

Gene: ANI8\_50 Start: 32346, Stop: 31912, Start Num: 25

Candidate Starts for ANI8\_50:

(Start: 25 @32346 has 17 MA's), (Start: 27 @32343 has 70 MA's), (56, 32244), (68, 32202), (78, 32178), (98, 32079), (106, 31992), (108, 31959),

Gene: AbbyPaige\_49 Start: 32616, Stop: 32194, Start Num: 24

Candidate Starts for AbbyPaige\_49:

(Start: 24 @32616 has 49 MA's), (Start: 27 @32607 has 70 MA's), (54, 32514), (58, 32508), (108, 32241),

Gene: Acolyte\_43 Start: 31589, Stop: 31182, Start Num: 27

Candidate Starts for Acolyte\_43:

(Start: 27 @31589 has 70 MA's), (43, 31532), (59, 31484), (95, 31358), (108, 31229),

Gene: Adzzy\_49 Start: 31071, Stop: 30643, Start Num: 27

Candidate Starts for Adzzy\_49:

(13, 31107), (Start: 27 @31071 has 70 MA's), (106, 30723), (108, 30690),

Gene: Agape74\_49 Start: 32601, Stop: 32179, Start Num: 24

Candidate Starts for Agape74\_49:

(Start: 24 @32601 has 49 MA's), (Start: 27 @32592 has 70 MA's), (54, 32499), (58, 32493), (108, 32226),

Gene: Aliter\_47 Start: 32037, Stop: 31711, Start Num: 34

Candidate Starts for Aliter\_47:

(Start: 34 @32037 has 32 MA's), (45, 32013), (62, 31971), (111, 31731),

Gene: Alma\_47 Start: 32160, Stop: 31834, Start Num: 34

Candidate Starts for Alma\_47:

(Start: 34 @32160 has 32 MA's), (45, 32136), (62, 32094), (111, 31854),

Gene: AnnaL29\_49 Start: 33146, Stop: 32724, Start Num: 24

Candidate Starts for AnnaL29\_49:

(Start: 24 @33146 has 49 MA's), (Start: 27 @33137 has 70 MA's), (43, 33080), (54, 33044), (108, 32771),

Gene: Anon\_44 Start: 29643, Stop: 29365, Start Num: 79

Candidate Starts for Anon\_44:

(Start: 79 @29643 has 1 MA's), (106, 29448),

Gene: Anselm\_48 Start: 32523, Stop: 32110, Start Num: 27

Candidate Starts for Anselm\_48:

(Start: 24 @32532 has 49 MA's), (Start: 27 @32523 has 70 MA's), (35, 32487), (50, 32445), (108, 32157),

Gene: ArcherNM\_43 Start: 32185, Stop: 31778, Start Num: 20

Candidate Starts for ArcherNM\_43:

(Start: 20 @32185 has 8 MA's), (50, 32107), (56, 32089), (92, 31972), (108, 31825), (111, 31798),

Gene: Arissanae\_46 Start: 32694, Stop: 32350, Start Num: 33

Candidate Starts for Arissanae\_46:

(Start: 33 @32694 has 3 MA's), (43, 32679), (62, 32631), (68, 32610), (89, 32556), (102, 32472), (111, 32370),

Gene: Artemis2UCLA\_49 Start: 30834, Stop: 30406, Start Num: 27

Candidate Starts for Artemis2UCLA\_49:

(Start: 18 @30861 has 3 MA's), (Start: 27 @30834 has 70 MA's), (56, 30738), (66, 30702), (90, 30612), (94, 30585), (95, 30582), (111, 30426),

Gene: Ayanochan\_48 Start: 32164, Stop: 31838, Start Num: 34

Candidate Starts for Ayanochan\_48:

(Start: 34 @32164 has 32 MA's), (45, 32140), (62, 32098), (111, 31858),

Gene: BabyBack\_46 Start: 32865, Stop: 32410, Start Num: 25

Candidate Starts for BabyBack\_46:

(Start: 25 @32865 has 17 MA's), (31, 32838), (62, 32721), (89, 32625), (95, 32589), (98, 32577), (108, 32457), (111, 32430),

Gene: Bactobuster\_46 Start: 33096, Stop: 32677, Start Num: 20

Candidate Starts for Bactobuster\_46:

(Start: 20 @33096 has 8 MA's), (50, 33015), (76, 32952), (81, 32934), (92, 32880), (108, 32724),

Gene: Baehexic\_46 Start: 32303, Stop: 31869, Start Num: 27

Candidate Starts for Baehexic\_46:

(Start: 27 @32303 has 70 MA's), (58, 32204), (67, 32168), (108, 31916),

Gene: Beemo\_47 Start: 32159, Stop: 31833, Start Num: 34

Candidate Starts for Beemo\_47:

(Start: 34 @32159 has 32 MA's), (45, 32135), (62, 32093), (111, 31853),

Gene: Bellris\_45 Start: 31402, Stop: 31031, Start Num: 34

Candidate Starts for Bellris\_45:

(6, 31588), (8, 31537), (9, 31513), (Start: 34 @31402 has 32 MA's), (61, 31342), (62, 31339), (111, 31051),

Gene: BengiVuitton\_48 Start: 32388, Stop: 31975, Start Num: 24

Candidate Starts for BengiVuitton\_48:

(Start: 24 @32388 has 49 MA's), (53, 32298), (58, 32289), (73, 32253), (91, 32187), (108, 32022),

Gene: BennyP\_50 Start: 31282, Stop: 30854, Start Num: 27

Candidate Starts for BennyP\_50:

(Start: 18 @31309 has 3 MA's), (Start: 27 @31282 has 70 MA's), (56, 31186), (66, 31150), (90, 31060), (94, 31033), (95, 31030), (111, 30874),

Gene: Benvolio\_44 Start: 31563, Stop: 31141, Start Num: 24

Candidate Starts for Benvolio\_44:

(Start: 24 @31563 has 49 MA's), (Start: 27 @31554 has 70 MA's), (50, 31476), (108, 31188),

Gene: BiancaTri92\_47 Start: 32931, Stop: 32509, Start Num: 24

Candidate Starts for BiancaTri92\_47:

(Start: 24 @32931 has 49 MA's), (Start: 27 @32922 has 70 MA's), (50, 32844), (108, 32556),

Gene: BlessJoy\_50 Start: 31295, Stop: 30867, Start Num: 27

Candidate Starts for BlessJoy\_50:

(Start: 18 @31322 has 3 MA's), (Start: 27 @31295 has 70 MA's), (56, 31199), (88, 31085), (95, 31043), (111, 30887),

Gene: Blinn1\_51 Start: 31121, Stop: 30666, Start Num: 18

Candidate Starts for Blinn1\_51:

(Start: 18 @31121 has 3 MA's), (Start: 27 @31094 has 70 MA's), (56, 30998), (66, 30962), (94, 30845), (108, 30713),

Gene: Blue7\_51 Start: 30930, Stop: 30502, Start Num: 27

Candidate Starts for Blue7\_51:

(Start: 18 @30957 has 3 MA's), (Start: 27 @30930 has 70 MA's), (56, 30834), (88, 30720), (95, 30678), (111, 30522),

Gene: BobSwaget\_45 Start: 31896, Stop: 31399, Start Num: 10

Candidate Starts for BobSwaget\_45:

(Start: 10 @31896 has 2 MA's), (65, 31704), (68, 31692), (89, 31617), (108, 31446),

Gene: BogosyJay\_46 Start: 31869, Stop: 31543, Start Num: 34

Candidate Starts for BogosyJay\_46:

(Start: 34 @31869 has 32 MA's), (45, 31845), (62, 31803), (86, 31761), (111, 31563),

Gene: Bradman\_46 Start: 31085, Stop: 30678, Start Num: 27

Candidate Starts for Bradman\_46:

(Start: 27 @31085 has 70 MA's), (42, 31049), (68, 30965), (106, 30758), (108, 30725),

Gene: Buggy\_49 Start: 32673, Stop: 32239, Start Num: 27

Candidate Starts for Buggy\_49:

(Start: 27 @32673 has 70 MA's), (58, 32574), (67, 32538), (108, 32286),

Gene: C3\_45 Start: 32346, Stop: 31912, Start Num: 25

Candidate Starts for C3\_45:

(Start: 25 @32346 has 17 MA's), (Start: 27 @32343 has 70 MA's), (56, 32244), (68, 32202), (78, 32178), (98, 32079), (106, 31992), (108, 31959),

Gene: CRB1\_50 Start: 32781, Stop: 32359, Start Num: 24

Candidate Starts for CRB1\_50:

(Start: 24 @32781 has 49 MA's), (Start: 27 @32772 has 70 MA's), (54, 32679), (58, 32673), (69, 32649), (70, 32646), (108, 32406),

Gene: Candra\_49 Start: 31173, Stop: 30745, Start Num: 27

Candidate Starts for Candra\_49:

(Start: 18 @31200 has 3 MA's), (Start: 27 @31173 has 70 MA's), (56, 31077), (66, 31041), (90, 30951), (94, 30924), (95, 30921), (111, 30765),

Gene: Caraxes\_47 Start: 30723, Stop: 30316, Start Num: 27

Candidate Starts for Caraxes\_47:

(Start: 27 @30723 has 70 MA's), (62, 30624), (92, 30510), (106, 30396), (108, 30363),

Gene: Catalina\_48 Start: 32110, Stop: 31784, Start Num: 34

Candidate Starts for Catalina\_48:

(Start: 34 @32110 has 32 MA's), (45, 32086), (62, 32044), (111, 31804),

Gene: Celestiallunch\_46 Start: 31680, Stop: 31330, Start Num: 34

Candidate Starts for Celestiallunch\_46:

(12, 31743), (26, 31704), (Start: 34 @31680 has 32 MA's), (43, 31659), (45, 31653), (81, 31551), (111, 31350), (112, 31341),

Gene: Centaur\_48 Start: 32520, Stop: 32086, Start Num: 27

Candidate Starts for Centaur\_48:

(Start: 27 @32520 has 70 MA's), (58, 32421), (67, 32385), (108, 32133),

Gene: Changeling\_46 Start: 32725, Stop: 32312, Start Num: 27

Candidate Starts for Changeling\_46:

(Start: 27 @32725 has 70 MA's), (50, 32647), (69, 32602), (107, 32371), (108, 32359), (111, 32332),

Gene: Chargerpower\_46 Start: 31054, Stop: 30704, Start Num: 36

Candidate Starts for Chargerpower\_46:

(Start: 36 @31054 has 9 MA's), (62, 30991), (91, 30910), (106, 30784), (111, 30724), (112, 30715),

Gene: Charm\_46 Start: 31899, Stop: 31555, Start Num: 36

Candidate Starts for Charm\_46:

(Start: 36 @31899 has 9 MA's), (43, 31884), (45, 31878), (62, 31836), (76, 31794), (89, 31761), (111, 31575), (112, 31566),

Gene: Chartreuse\_48 Start: 30533, Stop: 30105, Start Num: 27

Candidate Starts for Chartreuse\_48:

(Start: 18 @30560 has 3 MA's), (Start: 27 @30533 has 70 MA's), (56, 30437), (66, 30401), (90, 30311), (94, 30284), (95, 30281), (111, 30125),

Gene: Che12\_49 Start: 31155, Stop: 30727, Start Num: 27

Candidate Starts for Che12\_49:

(Start: 27 @31155 has 70 MA's), (60, 31044), (76, 30993), (106, 30807), (108, 30774),

Gene: ChipMunk\_49 Start: 33873, Stop: 33451, Start Num: 24

Candidate Starts for ChipMunk\_49:

(Start: 24 @33873 has 49 MA's), (54, 33771), (68, 33744), (108, 33498),

Gene: Chupacabra\_44 Start: 31467, Stop: 31129, Start Num: 52

Candidate Starts for Chupacabra\_44:

(16, 31611), (28, 31560), (Start: 52 @31467 has 16 MA's), (75, 31407), (95, 31317), (100, 31302), (105, 31224),

Gene: Cindaradix\_43 Start: 31493, Stop: 31170, Start Num: 48

Candidate Starts for Cindaradix\_43:

(Start: 48 @31493 has 5 MA's), (84, 31385), (93, 31340), (105, 31265), (108, 31220),

Gene: CloudWang3\_49 Start: 30934, Stop: 30506, Start Num: 27

Candidate Starts for CloudWang3\_49:

(Start: 18 @30961 has 3 MA's), (Start: 27 @30934 has 70 MA's), (56, 30838), (66, 30802), (90, 30712), (94, 30685), (95, 30682), (111, 30526),

Gene: CogOmlette\_45 Start: 31399, Stop: 31028, Start Num: 34

Candidate Starts for CogOmlette\_45:

(6, 31585), (8, 31534), (9, 31510), (Start: 34 @31399 has 32 MA's), (61, 31339), (62, 31336), (111, 31048),

Gene: Colin\_47 Start: 32497, Stop: 32084, Start Num: 27

Candidate Starts for Colin\_47:

(Start: 27 @32497 has 70 MA's), (50, 32419), (108, 32131),

Gene: Conquerage\_47 Start: 32133, Stop: 31807, Start Num: 34

Candidate Starts for Conquerage\_47:

(Start: 34 @32133 has 32 MA's), (45, 32109), (62, 32067), (111, 31827),

Gene: Cookiedough\_49 Start: 31149, Stop: 30721, Start Num: 27

Candidate Starts for Cookiedough\_49:

(Start: 18 @31176 has 3 MA's), (Start: 27 @31149 has 70 MA's), (56, 31053), (66, 31017), (90, 30927), (94, 30900), (95, 30897), (111, 30741),

Gene: Crucio\_47 Start: 32116, Stop: 31694, Start Num: 24

Candidate Starts for Crucio\_47:

(Start: 24 @32116 has 49 MA's), (Start: 27 @32107 has 70 MA's), (54, 32014), (69, 31984), (108, 31741),

Gene: D29\_46 Start: 31906, Stop: 31496, Start Num: 25

Candidate Starts for D29\_46:

(5, 32113), (Start: 25 @31906 has 17 MA's), (68, 31786), (78, 31762), (80, 31756), (98, 31663), (106, 31576), (108, 31543),

Gene: D32\_49 Start: 31906, Stop: 31496, Start Num: 25

Candidate Starts for D32\_49:

(5, 32113), (Start: 25 @31906 has 17 MA's), (68, 31786), (78, 31762), (80, 31756), (98, 31663), (106, 31576), (108, 31543),

Gene: DBQu4n\_49 Start: 31906, Stop: 31496, Start Num: 25

Candidate Starts for DBQu4n\_49:

(3, 32233), (4, 32221), (Start: 25 @31906 has 17 MA's), (68, 31786), (78, 31762), (80, 31756), (98, 31663), (106, 31576), (108, 31543),

Gene: DaVinci\_48 Start: 30587, Stop: 30159, Start Num: 27

Candidate Starts for DaVinci\_48:

(Start: 18 @30614 has 3 MA's), (Start: 27 @30587 has 70 MA's), (56, 30491), (66, 30455), (90, 30365), (94, 30338), (95, 30335), (111, 30179),

Gene: Dalmatian\_48 Start: 32508, Stop: 32086, Start Num: 24

Candidate Starts for Dalmatian\_48:

(Start: 24 @32508 has 49 MA's), (Start: 27 @32499 has 70 MA's), (54, 32406), (69, 32376), (108, 32133),

Gene: Darrell\_48 Start: 32497, Stop: 32153, Start Num: 33

Candidate Starts for Darrell\_48:

(15, 32539), (21, 32518), (Start: 33 @32497 has 3 MA's), (43, 32482), (62, 32434), (68, 32413), (89, 32359), (111, 32173),

Gene: Datway\_45 Start: 31839, Stop: 31516, Start Num: 48

Candidate Starts for Datway\_45:

(Start: 48 @31839 has 5 MA's), (84, 31731), (108, 31566),

Gene: DeerParkTS\_45 Start: 31640, Stop: 31224, Start Num: 27

Candidate Starts for DeerParkTS\_45:

(Start: 27 @31640 has 70 MA's), (50, 31562), (69, 31517), (86, 31457), (108, 31274),

Gene: Deloris\_47 Start: 32057, Stop: 31644, Start Num: 24

Candidate Starts for Deloris\_47:

(Start: 24 @32057 has 49 MA's), (53, 31967), (58, 31958), (73, 31922), (91, 31856), (108, 31691),

Gene: DelvinSonDorr\_47 Start: 31025, Stop: 30597, Start Num: 27

Candidate Starts for DelvinSonDorr\_47:

(Start: 18 @31052 has 3 MA's), (Start: 27 @31025 has 70 MA's), (56, 30929), (66, 30893), (90, 30803), (94, 30776), (95, 30773), (111, 30617),

Gene: Dignity\_49 Start: 32681, Stop: 32259, Start Num: 24

Candidate Starts for Dignity\_49:

(Start: 24 @32681 has 49 MA's), (Start: 27 @32672 has 70 MA's), (54, 32579), (69, 32549), (108, 32306),

Gene: DontArgue\_44 Start: 30703, Stop: 30368, Start Num: 51

Candidate Starts for DontArgue\_44:

(14, 30847), (16, 30841), (Start: 51 @30703 has 1 MA's), (105, 30463),

Gene: Dorothea\_49 Start: 31156, Stop: 30728, Start Num: 27

Candidate Starts for Dorothea\_49:

(Start: 18 @31183 has 3 MA's), (Start: 27 @31156 has 70 MA's), (56, 31060), (66, 31024), (90, 30934), (94, 30907), (95, 30904), (111, 30748),

Gene: Drake55\_49 Start: 32605, Stop: 32183, Start Num: 24

Candidate Starts for Drake55\_49:

(Start: 24 @32605 has 49 MA's), (Start: 27 @32596 has 70 MA's), (54, 32503), (58, 32497), (69, 32473), (108, 32230),

Gene: Drake94\_43 Start: 30743, Stop: 30387, Start Num: 52

Candidate Starts for Drake94\_43:

(16, 30887), (Start: 52 @30743 has 16 MA's), (100, 30560), (105, 30482),

Gene: DreamTeam1\_46 Start: 31773, Stop: 31429, Start Num: 36

Candidate Starts for DreamTeam1\_46:

(Start: 36 @31773 has 9 MA's), (43, 31758), (45, 31752), (62, 31710), (63, 31707), (76, 31668), (89, 31635), (111, 31449), (112, 31440),

Gene: DudeLittle\_46 Start: 32250, Stop: 31828, Start Num: 24

Candidate Starts for DudeLittle\_46:

(Start: 24 @32250 has 49 MA's), (Start: 27 @32241 has 70 MA's), (35, 32205), (46, 32172), (50, 32163), (108, 31875),

Gene: Duplo\_49 Start: 31944, Stop: 31534, Start Num: 25

Candidate Starts for Duplo\_49:

(3, 32271), (4, 32259), (Start: 25 @31944 has 17 MA's), (68, 31824), (78, 31800), (80, 31794), (98, 31701), (106, 31614), (108, 31581),

Gene: DustyMartin\_49 Start: 31547, Stop: 31209, Start Num: 52

Candidate Starts for DustyMartin\_49:

(Start: 52 @31547 has 16 MA's), (75, 31487), (100, 31382), (105, 31304),

Gene: EZMoney23\_45 Start: 32055, Stop: 31642, Start Num: 27

Candidate Starts for EZMoney23\_45:

(Start: 27 @32055 has 70 MA's), (50, 31977), (56, 31959), (69, 31932), (108, 31689),

Gene: EagleEye\_49 Start: 31670, Stop: 31308, Start Num: 34

Candidate Starts for EagleEye\_49:

(Start: 34 @31670 has 32 MA's), (Start: 44 @31646 has 1 MA's), (106, 31388),

Gene: Eaglepride\_46 Start: 31543, Stop: 31214, Start Num: 51

Candidate Starts for Eaglepride\_46:

(16, 31681), (23, 31654), (Start: 51 @31543 has 1 MA's), (94, 31393), (105, 31309),

Gene: Echild\_47 Start: 31587, Stop: 31165, Start Num: 24

Candidate Starts for Echild\_47:

(Start: 24 @31587 has 49 MA's), (Start: 27 @31578 has 70 MA's), (50, 31500), (108, 31212),

Gene: Edison31\_44 Start: 31487, Stop: 31149, Start Num: 52

Candidate Starts for Edison31\_44:

(16, 31631), (28, 31580), (Start: 52 @31487 has 16 MA's), (95, 31337), (100, 31322), (105, 31244),

Gene: EdogawaKiddo\_45 Start: 32110, Stop: 31784, Start Num: 34

Candidate Starts for EdogawaKiddo\_45:  
(Start: 34 @32110 has 32 MA's), (45, 32086), (62, 32044), (111, 31804),

Gene: Eidsmoe\_47 Start: 32173, Stop: 31847, Start Num: 34  
Candidate Starts for Eidsmoe\_47:  
(Start: 34 @32173 has 32 MA's), (45, 32149), (62, 32107), (111, 31867),

Gene: Elephantoon\_46 Start: 31477, Stop: 31130, Start Num: 33  
Candidate Starts for Elephantoon\_46:  
(Start: 33 @31477 has 3 MA's), (45, 31453), (62, 31411), (89, 31336), (92, 31318), (111, 31150),

Gene: EmyBug\_46 Start: 32175, Stop: 31849, Start Num: 34  
Candidate Starts for EmyBug\_46:  
(Start: 34 @32175 has 32 MA's), (45, 32151), (62, 32109), (111, 31869),

Gene: Equemioh13\_48 Start: 32422, Stop: 31988, Start Num: 27  
Candidate Starts for Equemioh13\_48:  
(Start: 27 @32422 has 70 MA's), (58, 32323), (67, 32287), (108, 32035),

Gene: EricB\_49 Start: 31130, Stop: 30702, Start Num: 27  
Candidate Starts for EricB\_49:  
(Start: 18 @31157 has 3 MA's), (Start: 27 @31130 has 70 MA's), (56, 31034), (66, 30998), (90, 30908),  
(94, 30881), (95, 30878), (111, 30722),

Gene: EvilGenius\_49 Start: 33877, Stop: 33455, Start Num: 24  
Candidate Starts for EvilGenius\_49:  
(Start: 24 @33877 has 49 MA's), (Start: 27 @33868 has 70 MA's), (54, 33775), (68, 33748), (108,  
33502),

Gene: ExplosioNervosa\_47 Start: 32193, Stop: 31867, Start Num: 34  
Candidate Starts for ExplosioNervosa\_47:  
(Start: 34 @32193 has 32 MA's), (45, 32169), (62, 32127), (111, 31887),

Gene: Fameo\_47 Start: 32426, Stop: 32004, Start Num: 24  
Candidate Starts for Fameo\_47:  
(Start: 24 @32426 has 49 MA's), (Start: 27 @32417 has 70 MA's), (35, 32381), (50, 32339), (108,  
32051),

Gene: FatCactus\_39 Start: 29455, Stop: 29141, Start Num: 49  
Candidate Starts for FatCactus\_39:  
(11, 29608), (16, 29578), (19, 29563), (29, 29530), (Start: 49 @29455 has 1 MA's), (74, 29407), (77,  
29401), (89, 29350), (106, 29221),

Gene: Fayely\_47 Start: 32142, Stop: 31816, Start Num: 34  
Candidate Starts for Fayely\_47:  
(Start: 34 @32142 has 32 MA's), (45, 32118), (62, 32076), (111, 31836),

Gene: FiringLine\_47 Start: 32097, Stop: 31675, Start Num: 24  
Candidate Starts for FiringLine\_47:  
(Start: 24 @32097 has 49 MA's), (Start: 27 @32088 has 70 MA's), (35, 32052), (50, 32010), (108,  
31722),

Gene: First\_0048 Start: 32311, Stop: 31889, Start Num: 24

Candidate Starts for First\_0048:

(Start: 24 @32311 has 49 MA's), (Start: 27 @32302 has 70 MA's), (108, 31936),

Gene: Flare16\_47 Start: 32181, Stop: 31747, Start Num: 27

Candidate Starts for Flare16\_47:

(Start: 27 @32181 has 70 MA's), (58, 32082), (67, 32046), (108, 31794),

Gene: ForesterFrank\_45 Start: 32797, Stop: 32381, Start Num: 27

Candidate Starts for ForesterFrank\_45:

(Start: 27 @32797 has 70 MA's), (40, 32749), (50, 32719), (56, 32701), (69, 32674), (108, 32428), (111, 32401),

Gene: Gail\_52 Start: 33875, Stop: 33528, Start Num: 36

Candidate Starts for Gail\_52:

(22, 33899), (Start: 36 @33875 has 9 MA's), (62, 33815), (106, 33608), (111, 33548), (112, 33539),

Gene: Garak\_51 Start: 31328, Stop: 30873, Start Num: 18

Candidate Starts for Garak\_51:

(Start: 18 @31328 has 3 MA's), (Start: 27 @31301 has 70 MA's), (56, 31205), (88, 31091), (95, 31049), (111, 30893),

Gene: GaugeLDP\_45 Start: 32488, Stop: 32036, Start Num: 25

Candidate Starts for GaugeLDP\_45:

(Start: 18 @32512 has 3 MA's), (Start: 25 @32488 has 17 MA's), (38, 32428), (62, 32344), (108, 32083),

Gene: Georgie2\_48 Start: 32142, Stop: 31720, Start Num: 24

Candidate Starts for Georgie2\_48:

(Start: 24 @32142 has 49 MA's), (Start: 27 @32133 has 70 MA's), (54, 32040), (69, 32010), (108, 31767),

Gene: Gladiator\_47 Start: 30461, Stop: 30033, Start Num: 27

Candidate Starts for Gladiator\_47:

(Start: 18 @30488 has 3 MA's), (Start: 27 @30461 has 70 MA's), (56, 30365), (66, 30329), (90, 30239), (94, 30212), (95, 30209), (111, 30053),

Gene: Goose\_45 Start: 31271, Stop: 30933, Start Num: 52

Candidate Starts for Goose\_45:

(16, 31415), (28, 31364), (Start: 52 @31271 has 16 MA's), (75, 31211), (95, 31121), (100, 31106), (105, 31028),

Gene: Gratitude\_47 Start: 32422, Stop: 31988, Start Num: 27

Candidate Starts for Gratitude\_47:

(Start: 27 @32422 has 70 MA's), (58, 32323), (67, 32287), (108, 32035),

Gene: GreedyLawyer\_49 Start: 31137, Stop: 30709, Start Num: 27

Candidate Starts for GreedyLawyer\_49:

(Start: 18 @31164 has 3 MA's), (Start: 27 @31137 has 70 MA's), (56, 31041), (66, 31005), (90, 30915), (94, 30888), (95, 30885), (111, 30729),

Gene: Gruunaga\_49 Start: 31137, Stop: 30709, Start Num: 27

Candidate Starts for Gruunaga\_49:

(Start: 18 @31164 has 3 MA's), (Start: 27 @31137 has 70 MA's), (56, 31041), (88, 30927), (95, 30885), (111, 30729),

Gene: Hammer\_50 Start: 30740, Stop: 30312, Start Num: 27

Candidate Starts for Hammer\_50:

(Start: 18 @30767 has 3 MA's), (Start: 27 @30740 has 70 MA's), (56, 30644), (88, 30530), (95, 30488), (111, 30332),

Gene: Hanray\_45 Start: 32114, Stop: 31788, Start Num: 34

Candidate Starts for Hanray\_45:

(Start: 34 @32114 has 32 MA's), (45, 32090), (62, 32048), (111, 31808),

Gene: HarryHoudini\_48 Start: 32614, Stop: 32192, Start Num: 24

Candidate Starts for HarryHoudini\_48:

(Start: 24 @32614 has 49 MA's), (Start: 27 @32605 has 70 MA's), (54, 32512), (58, 32506), (69, 32482), (108, 32239),

Gene: Heffalump\_46 Start: 32894, Stop: 32472, Start Num: 24

Candidate Starts for Heffalump\_46:

(Start: 24 @32894 has 49 MA's), (Start: 27 @32885 has 70 MA's), (35, 32849), (50, 32807), (108, 32519),

Gene: Helmet\_51 Start: 31301, Stop: 30873, Start Num: 27

Candidate Starts for Helmet\_51:

(Start: 18 @31328 has 3 MA's), (Start: 27 @31301 has 70 MA's), (56, 31205), (88, 31091), (95, 31049), (111, 30893),

Gene: Herbertwm\_47 Start: 31973, Stop: 31524, Start Num: 27

Candidate Starts for Herbertwm\_47:

(Start: 27 @31973 has 70 MA's), (38, 31916), (56, 31856), (94, 31703), (96, 31697), (106, 31604), (111, 31544),

Gene: Hexamo\_49 Start: 30949, Stop: 30494, Start Num: 18

Candidate Starts for Hexamo\_49:

(Start: 18 @30949 has 3 MA's), (Start: 27 @30922 has 70 MA's), (56, 30826), (88, 30712), (95, 30670), (111, 30514),

Gene: HippoHollow\_47 Start: 33647, Stop: 33225, Start Num: 24

Candidate Starts for HippoHollow\_47:

(Start: 24 @33647 has 49 MA's), (Start: 27 @33638 has 70 MA's), (50, 33560), (108, 33272),

Gene: Horex\_46 Start: 32133, Stop: 31807, Start Num: 34

Candidate Starts for Horex\_46:

(Start: 34 @32133 has 32 MA's), (45, 32109), (62, 32067), (111, 31827),

Gene: HortumSL17\_47 Start: 32109, Stop: 31783, Start Num: 34

Candidate Starts for HortumSL17\_47:

(Start: 34 @32109 has 32 MA's), (45, 32085), (62, 32043), (111, 31803),

Gene: Indra\_52 Start: 31302, Stop: 30874, Start Num: 27

Candidate Starts for Indra\_52:

(Start: 18 @31329 has 3 MA's), (Start: 27 @31302 has 70 MA's), (56, 31206), (88, 31092), (95, 31050), (111, 30894),

Gene: IronMan\_47 Start: 33279, Stop: 32860, Start Num: 20

Candidate Starts for IronMan\_47:

(Start: 20 @33279 has 8 MA's), (50, 33198), (78, 33132), (81, 33117), (92, 33063), (108, 32907), (111, 32880),

Gene: Isiphiwo\_47 Start: 30674, Stop: 30246, Start Num: 27

Candidate Starts for Isiphiwo\_47:

(Start: 18 @30701 has 3 MA's), (Start: 27 @30674 has 70 MA's), (56, 30578), (66, 30542), (90, 30452), (94, 30425), (95, 30422), (111, 30266),

Gene: Iwokeuplikedis\_50 Start: 32216, Stop: 31788, Start Num: 27

Candidate Starts for Iwokeuplikedis\_50:

(Start: 27 @32216 has 70 MA's), (94, 31967), (108, 31835),

Gene: Jaan\_47 Start: 33445, Stop: 33047, Start Num: 20

Candidate Starts for Jaan\_47:

(Start: 20 @33445 has 8 MA's), (57, 33364), (76, 33322), (92, 33250), (108, 33094),

Gene: Jeeves\_52 Start: 32647, Stop: 32300, Start Num: 36

Candidate Starts for Jeeves\_52:

(22, 32671), (Start: 36 @32647 has 9 MA's), (62, 32587), (106, 32380), (111, 32320),

Gene: Jeffabunny\_49 Start: 30958, Stop: 30530, Start Num: 27

Candidate Starts for Jeffabunny\_49:

(Start: 18 @30985 has 3 MA's), (Start: 27 @30958 has 70 MA's), (56, 30862), (88, 30748), (95, 30706), (111, 30550),

Gene: Jerm\_49 Start: 32674, Stop: 32252, Start Num: 24

Candidate Starts for Jerm\_49:

(Start: 24 @32674 has 49 MA's), (Start: 27 @32665 has 70 MA's), (54, 32572), (69, 32542), (108, 32299),

Gene: Jiawan\_45 Start: 32146, Stop: 31820, Start Num: 34

Candidate Starts for Jiawan\_45:

(Start: 34 @32146 has 32 MA's), (45, 32122), (62, 32080), (111, 31840),

Gene: Jordennis\_48 Start: 30594, Stop: 30166, Start Num: 27

Candidate Starts for Jordennis\_48:

(Start: 18 @30621 has 3 MA's), (Start: 27 @30594 has 70 MA's), (56, 30498), (66, 30462), (90, 30372), (94, 30345), (95, 30342),

Gene: JoshKayV\_49 Start: 32755, Stop: 32333, Start Num: 24

Candidate Starts for JoshKayV\_49:

(Start: 24 @32755 has 49 MA's), (Start: 27 @32746 has 70 MA's), (54, 32653), (58, 32647), (69, 32623), (70, 32620), (108, 32380),

Gene: Journey13\_41 Start: 30529, Stop: 30176, Start Num: 47

Candidate Starts for Journey13\_41:

(Start: 47 @30529 has 1 MA's), (Start: 49 @30526 has 1 MA's), (55, 30508), (62, 30484), (106, 30256),

Gene: Jsquared\_45 Start: 31025, Stop: 30618, Start Num: 27

Candidate Starts for Jsquared\_45:

(Start: 27 @31025 has 70 MA's), (62, 30926), (68, 30905), (106, 30698), (108, 30665),

Gene: Kalpine\_45 Start: 32395, Stop: 31982, Start Num: 27

Candidate Starts for Kalpine\_45:

(Start: 27 @32395 has 70 MA's), (50, 32317), (108, 32029),

Gene: Katalie136\_45 Start: 31853, Stop: 31530, Start Num: 48

Candidate Starts for Katalie136\_45:

(Start: 48 @31853 has 5 MA's), (83, 31754), (84, 31745), (87, 31730), (93, 31700), (108, 31580),

Gene: Kazan\_50 Start: 31143, Stop: 30715, Start Num: 27

Candidate Starts for Kazan\_50:

(Start: 18 @31170 has 3 MA's), (Start: 27 @31143 has 70 MA's), (56, 31047), (66, 31011), (90, 30921), (94, 30894), (95, 30891), (111, 30735),

Gene: Kerberos\_49 Start: 31906, Stop: 31496, Start Num: 25

Candidate Starts for Kerberos\_49:

(3, 32233), (4, 32221), (Start: 25 @31906 has 17 MA's), (68, 31786), (78, 31762), (80, 31756), (98, 31663), (106, 31576), (108, 31543),

Gene: Keziacharles14\_47 Start: 33144, Stop: 32797, Start Num: 34

Candidate Starts for Keziacharles14\_47:

(Start: 34 @33144 has 32 MA's), (45, 33120), (62, 33078), (82, 33015), (89, 33003), (111, 32817), (112, 32808),

Gene: Kimona\_46 Start: 30459, Stop: 30046, Start Num: 27

Candidate Starts for Kimona\_46:

(Start: 27 @30459 has 70 MA's), (53, 30369), (73, 30324), (95, 30228), (108, 30099),

Gene: KingCyrus\_49 Start: 33872, Stop: 33450, Start Num: 24

Candidate Starts for KingCyrus\_49:

(Start: 24 @33872 has 49 MA's), (54, 33770), (68, 33743), (108, 33497), (110, 33473),

Gene: Kinmap\_45 Start: 31426, Stop: 31016, Start Num: 25

Candidate Starts for Kinmap\_45:

(Start: 25 @31426 has 17 MA's), (85, 31252), (89, 31231), (106, 31096),

Gene: Kipper29\_49 Start: 31156, Stop: 30728, Start Num: 27

Candidate Starts for Kipper29\_49:

(Start: 18 @31183 has 3 MA's), (Start: 27 @31156 has 70 MA's), (56, 31060), (66, 31024), (90, 30934), (94, 30907), (95, 30904), (111, 30748),

Gene: KittenMittens\_42 Start: 30751, Stop: 30395, Start Num: 52

Candidate Starts for KittenMittens\_42:

(16, 30895), (Start: 52 @30751 has 16 MA's), (100, 30568), (105, 30490),

Gene: Klodlith\_47 Start: 31790, Stop: 31446, Start Num: 36

Candidate Starts for Klodlith\_47:

(Start: 36 @31790 has 9 MA's), (43, 31775), (45, 31769), (62, 31727), (76, 31685), (89, 31652), (111, 31466), (112, 31457),

Gene: Koduck\_48 Start: 31317, Stop: 30889, Start Num: 27

Candidate Starts for Koduck\_48:

(Start: 27 @31317 has 70 MA's), (41, 31263), (50, 31239), (62, 31197), (68, 31176), (76, 31155), (82, 31134), (106, 30969), (108, 30936),

Gene: Koko\_50 Start: 31279, Stop: 30851, Start Num: 27

Candidate Starts for Koko\_50:

(Start: 18 @31306 has 3 MA's), (Start: 27 @31279 has 70 MA's), (56, 31183), (95, 31027), (111, 30871),

Gene: Kristoff\_45 Start: 31839, Stop: 31501, Start Num: 52

Candidate Starts for Kristoff\_45:

(16, 31983), (28, 31932), (Start: 52 @31839 has 16 MA's), (95, 31689), (100, 31674), (105, 31596),

Gene: L5\_46 Start: 31389, Stop: 30961, Start Num: 27

Candidate Starts for L5\_46:

(Start: 27 @31389 has 70 MA's), (41, 31335), (50, 31311), (62, 31269), (68, 31248), (76, 31227), (82, 31206), (106, 31041), (108, 31008),

Gene: LadyBird\_51 Start: 32746, Stop: 32324, Start Num: 24

Candidate Starts for LadyBird\_51:

(Start: 24 @32746 has 49 MA's), (Start: 27 @32737 has 70 MA's), (50, 32659), (56, 32641), (108, 32371),

Gene: Landor\_47 Start: 33357, Stop: 32938, Start Num: 20

Candidate Starts for Landor\_47:

(Start: 20 @33357 has 8 MA's), (50, 33276), (76, 33213), (92, 33141), (108, 32985),

Gene: Larenn\_46 Start: 32287, Stop: 31865, Start Num: 24

Candidate Starts for Larenn\_46:

(Start: 24 @32287 has 49 MA's), (Start: 27 @32278 has 70 MA's), (43, 32221), (65, 32170), (108, 31912),

Gene: Leogania\_47 Start: 33298, Stop: 32876, Start Num: 24

Candidate Starts for Leogania\_47:

(Start: 24 @33298 has 49 MA's), (Start: 27 @33289 has 70 MA's), (50, 33211), (108, 32923),

Gene: Leviathan\_49 Start: 32730, Stop: 32308, Start Num: 24

Candidate Starts for Leviathan\_49:

(Start: 24 @32730 has 49 MA's), (Start: 27 @32721 has 70 MA's), (54, 32628), (58, 32622), (69, 32598), (108, 32355),

Gene: LilTurb\_48 Start: 32563, Stop: 32141, Start Num: 24

Candidate Starts for LilTurb\_48:

(Start: 24 @32563 has 49 MA's), (Start: 27 @32554 has 70 MA's), (54, 32461), (58, 32455), (108, 32188),

Gene: Lilbunny\_48 Start: 30932, Stop: 30504, Start Num: 27

Candidate Starts for Lilbunny\_48:

(Start: 18 @30959 has 3 MA's), (Start: 27 @30932 has 70 MA's), (56, 30836), (88, 30722), (95, 30680), (111, 30524),

Gene: Lilleskat\_45 Start: 32063, Stop: 31737, Start Num: 34

Candidate Starts for Lilleskat\_45:

(Start: 34 @32063 has 32 MA's), (45, 32039), (62, 31997), (111, 31757),

Gene: LionsBait\_49 Start: 33648, Stop: 33226, Start Num: 24

Candidate Starts for LionsBait\_49:

(Start: 24 @33648 has 49 MA's), (Start: 27 @33639 has 70 MA's), (50, 33561), (108, 33273),

Gene: Lokk\_46 Start: 32421, Stop: 31924, Start Num: 10

Candidate Starts for Lokk\_46:

(Start: 10 @32421 has 2 MA's), (65, 32229), (68, 32217), (86, 32154), (89, 32142), (108, 31971),

Gene: LoneWolf\_47 Start: 31870, Stop: 31502, Start Num: 30

Candidate Starts for LoneWolf\_47:

(6, 32050), (8, 31999), (9, 31975), (Start: 30 @31870 has 1 MA's), (45, 31846), (62, 31804), (76, 31762), (111, 31522),

Gene: Loser\_49 Start: 33095, Stop: 32673, Start Num: 24

Candidate Starts for Loser\_49:

(2, 33422), (Start: 24 @33095 has 49 MA's), (Start: 27 @33086 has 70 MA's), (43, 33029), (54, 32993), (108, 32720),

Gene: Luchador\_52 Start: 34435, Stop: 34088, Start Num: 36

Candidate Starts for Luchador\_52:

(22, 34459), (Start: 36 @34435 has 9 MA's), (62, 34375), (106, 34168), (111, 34108),

Gene: Lucyedi\_48 Start: 31865, Stop: 31503, Start Num: 34

Candidate Starts for Lucyedi\_48:

(Start: 34 @31865 has 32 MA's), (Start: 44 @31841 has 1 MA's), (106, 31583),

Gene: MajorMajor\_46 Start: 31085, Stop: 30678, Start Num: 27

Candidate Starts for MajorMajor\_46:

(Start: 27 @31085 has 70 MA's), (42, 31049), (68, 30965), (106, 30758), (108, 30725),

Gene: Malec\_47 Start: 32851, Stop: 32429, Start Num: 24

Candidate Starts for Malec\_47:

(Start: 24 @32851 has 49 MA's), (Start: 27 @32842 has 70 MA's), (43, 32785), (65, 32734), (108, 32476),

Gene: Maminiaina\_46 Start: 31851, Stop: 31525, Start Num: 34

Candidate Starts for Maminiaina\_46:

(Start: 34 @31851 has 32 MA's), (45, 31827), (62, 31785), (86, 31743), (111, 31545),

Gene: McFly\_49 Start: 31137, Stop: 30709, Start Num: 27

Candidate Starts for McFly\_49:

(Start: 18 @31164 has 3 MA's), (Start: 27 @31137 has 70 MA's), (56, 31041), (66, 31005), (90, 30915), (94, 30888), (95, 30885), (111, 30729),

Gene: MegTheThird\_46 Start: 31679, Stop: 31329, Start Num: 34

Candidate Starts for MegTheThird\_46:

(12, 31742), (26, 31703), (Start: 34 @31679 has 32 MA's), (43, 31658), (45, 31652), (81, 31550), (111, 31349), (112, 31340),

Gene: MiculUcigas\_47 Start: 32081, Stop: 31647, Start Num: 27

Candidate Starts for MiculUcigas\_47:

(Start: 27 @32081 has 70 MA's), (58, 31982), (67, 31946), (108, 31694),

Gene: Miko\_44 Start: 32243, Stop: 31821, Start Num: 24

Candidate Starts for Miko\_44:

(Start: 24 @32243 has 49 MA's), (Start: 27 @32234 has 70 MA's), (65, 32126), (68, 32114), (89, 32039), (108, 31868),

Gene: Minispark\_45 Start: 31396, Stop: 31025, Start Num: 34

Candidate Starts for Minispark\_45:

(6, 31582), (8, 31531), (9, 31507), (Start: 34 @31396 has 32 MA's), (61, 31336), (62, 31333), (111, 31045),

Gene: MissWhite\_46 Start: 30606, Stop: 30256, Start Num: 49

Candidate Starts for MissWhite\_46:

(Start: 49 @30606 has 1 MA's), (55, 30588), (97, 30426), (106, 30336), (107, 30315),

Gene: Myxus\_47 Start: 32109, Stop: 31783, Start Num: 34

Candidate Starts for Myxus\_47:

(Start: 34 @32109 has 32 MA's), (45, 32085), (62, 32043), (111, 31803),

Gene: NaSiaTalie\_47 Start: 32178, Stop: 31744, Start Num: 27

Candidate Starts for NaSiaTalie\_47:

(Start: 27 @32178 has 70 MA's), (58, 32079), (67, 32043), (108, 31791),

Gene: Naji\_49 Start: 31906, Stop: 31496, Start Num: 25

Candidate Starts for Naji\_49:

(5, 32113), (Start: 25 @31906 has 17 MA's), (68, 31786), (78, 31762), (80, 31756), (98, 31663), (106, 31576), (108, 31543),

Gene: Nebs\_47 Start: 31880, Stop: 31578, Start Num: 48

Candidate Starts for Nebs\_47:

(7, 32150), (Start: 48 @31880 has 5 MA's), (93, 31748), (101, 31709), (106, 31661), (108, 31628),

Gene: Nedarya\_45 Start: 30054, Stop: 29713, Start Num: 44

Candidate Starts for Nedarya\_45:

(Start: 44 @30054 has 1 MA's), (98, 29883), (106, 29796),

Gene: Neeharika16\_48 Start: 30597, Stop: 30169, Start Num: 27

Candidate Starts for Neeharika16\_48:

(Start: 18 @30624 has 3 MA's), (Start: 27 @30597 has 70 MA's), (56, 30501), (66, 30465), (90, 30375), (94, 30348), (95, 30345), (111, 30189),

Gene: Newrala\_49 Start: 31148, Stop: 30720, Start Num: 27

Candidate Starts for Newrala\_49:

(Start: 18 @31175 has 3 MA's), (Start: 27 @31148 has 70 MA's), (56, 31052), (66, 31016), (90, 30926), (94, 30899), (95, 30896), (111, 30740),

Gene: NicoleTera\_46 Start: 32449, Stop: 32027, Start Num: 24

Candidate Starts for NicoleTera\_46:

(Start: 24 @32449 has 49 MA's), (Start: 27 @32440 has 70 MA's), (37, 32401), (73, 32305), (111, 32047),

Gene: Noelle\_46 Start: 32163, Stop: 31840, Start Num: 48

Candidate Starts for Noelle\_46:

(Start: 48 @32163 has 5 MA's), (84, 32055), (93, 32010), (108, 31890),

Gene: NothingSpecial\_45 Start: 32705, Stop: 32271, Start Num: 27

Candidate Starts for NothingSpecial\_45:

(Start: 27 @32705 has 70 MA's), (58, 32606), (108, 32318),

Gene: OKCentral2016\_44 Start: 31174, Stop: 30836, Start Num: 52

Candidate Starts for OKCentral2016\_44:

(16, 31318), (28, 31267), (Start: 52 @31174 has 16 MA's), (75, 31114), (95, 31024), (100, 31009), (105, 30931),

Gene: Odin\_46 Start: 30872, Stop: 30465, Start Num: 27

Candidate Starts for Odin\_46:

(Start: 27 @30872 has 70 MA's), (62, 30773), (106, 30545), (108, 30512),

Gene: Onglai\_45 Start: 30450, Stop: 30124, Start Num: 34

Candidate Starts for Onglai\_45:

(Start: 34 @30450 has 32 MA's), (45, 30426), (62, 30384), (111, 30144),

Gene: PP\_50 Start: 36311, Stop: 35883, Start Num: 36

Candidate Starts for PP\_50:

(17, 36377), (Start: 36 @36311 has 9 MA's), (Start: 51 @36260 has 1 MA's), (76, 36179), (103, 35999), (104, 35981), (106, 35966), (109, 35918), (111, 35906),

Gene: PackMan\_46 Start: 32109, Stop: 31783, Start Num: 34

Candidate Starts for PackMan\_46:

(Start: 34 @32109 has 32 MA's), (45, 32085), (62, 32043), (111, 31803),

Gene: PainterBoy\_48 Start: 31801, Stop: 31439, Start Num: 34

Candidate Starts for PainterBoy\_48:

(Start: 34 @31801 has 32 MA's), (Start: 44 @31777 has 1 MA's), (106, 31519),

Gene: PeaceMeal1\_43 Start: 30752, Stop: 30396, Start Num: 52

Candidate Starts for PeaceMeal1\_43:

(16, 30896), (Start: 52 @30752 has 16 MA's), (100, 30569), (105, 30491),

Gene: Ph8s\_49 Start: 31506, Stop: 31078, Start Num: 27

Candidate Starts for Ph8s\_49:

(13, 31542), (Start: 27 @31506 has 70 MA's), (106, 31158), (108, 31125),

Gene: Phaded\_48 Start: 33339, Stop: 32920, Start Num: 20

Candidate Starts for Phaded\_48:

(Start: 20 @33339 has 8 MA's), (50, 33258), (76, 33195), (81, 33177), (92, 33123), (108, 32967),

Gene: Phaeder\_47 Start: 32109, Stop: 31783, Start Num: 34

Candidate Starts for Phaeder\_47:

(Start: 34 @32109 has 32 MA's), (45, 32085), (62, 32043), (111, 31803),

Gene: Pharaoh\_41 Start: 31682, Stop: 31311, Start Num: 34

Candidate Starts for Pharaoh\_41:

(1, 32006), (Start: 34 @31682 has 32 MA's), (62, 31619), (89, 31523), (106, 31391),

Gene: Phonnegut\_47 Start: 32158, Stop: 31832, Start Num: 34

Candidate Starts for Phonnegut\_47:  
(Start: 34 @32158 has 32 MA's), (45, 32134), (62, 32092), (111, 31852),

Gene: Pioneer\_47 Start: 32158, Stop: 31832, Start Num: 34  
Candidate Starts for Pioneer\_47:  
(Start: 34 @32158 has 32 MA's), (45, 32134), (62, 32092), (111, 31852),

Gene: Piro94\_47 Start: 32531, Stop: 32109, Start Num: 24  
Candidate Starts for Piro94\_47:  
(Start: 24 @32531 has 49 MA's), (Start: 27 @32522 has 70 MA's), (54, 32429), (58, 32423), (69, 32399), (108, 32156),

Gene: Pmask\_49 Start: 31149, Stop: 30721, Start Num: 27  
Candidate Starts for Pmask\_49:  
(Start: 18 @31176 has 3 MA's), (Start: 27 @31149 has 70 MA's), (56, 31053), (66, 31017), (90, 30927), (94, 30900), (95, 30897), (111, 30741),

Gene: Polyphemus\_50 Start: 31292, Stop: 30864, Start Num: 27  
Candidate Starts for Polyphemus\_50:  
(Start: 18 @31319 has 3 MA's), (Start: 27 @31292 has 70 MA's), (56, 31196), (66, 31160), (90, 31070), (94, 31043), (95, 31040), (111, 30884),

Gene: Pomar16\_49 Start: 31947, Stop: 31537, Start Num: 25  
Candidate Starts for Pomar16\_49:  
(3, 32274), (4, 32262), (Start: 25 @31947 has 17 MA's), (68, 31827), (78, 31803), (80, 31797), (98, 31704), (106, 31617), (108, 31584),

Gene: Poompha\_44 Start: 30750, Stop: 30394, Start Num: 52  
Candidate Starts for Poompha\_44:  
(16, 30894), (Start: 52 @30750 has 16 MA's), (100, 30567), (105, 30489),

Gene: Power\_46 Start: 32150, Stop: 31728, Start Num: 24  
Candidate Starts for Power\_46:  
(Start: 24 @32150 has 49 MA's), (Start: 27 @32141 has 70 MA's), (35, 32105), (50, 32063), (108, 31775),

Gene: Priamo\_50 Start: 30766, Stop: 30338, Start Num: 27  
Candidate Starts for Priamo\_50:  
(Start: 18 @30793 has 3 MA's), (Start: 27 @30766 has 70 MA's), (56, 30670), (66, 30634), (90, 30544), (94, 30517), (95, 30514),

Gene: Priya\_47 Start: 32176, Stop: 31850, Start Num: 34  
Candidate Starts for Priya\_47:  
(Start: 34 @32176 has 32 MA's), (45, 32152), (62, 32110), (111, 31870),

Gene: Prudy\_45 Start: 32629, Stop: 32207, Start Num: 24  
Candidate Starts for Prudy\_45:  
(Start: 24 @32629 has 49 MA's), (Start: 27 @32620 has 70 MA's), (53, 32530), (108, 32254),

Gene: Pukovnik\_46 Start: 32944, Stop: 32528, Start Num: 20  
Candidate Starts for Pukovnik\_46:  
(Start: 20 @32944 has 8 MA's), (32, 32914), (50, 32866), (69, 32821), (86, 32761), (92, 32731), (108, 32575),

Gene: Qobbit\_47 Start: 32138, Stop: 31812, Start Num: 34  
Candidate Starts for Qobbit\_47:  
(Start: 34 @32138 has 32 MA's), (45, 32114), (62, 32072), (111, 31832),

Gene: QueenB2\_46 Start: 32110, Stop: 31688, Start Num: 24  
Candidate Starts for QueenB2\_46:  
(Start: 24 @32110 has 49 MA's), (Start: 27 @32101 has 70 MA's), (35, 32065), (50, 32023), (108, 31735),

Gene: QueenBeesly\_47 Start: 32097, Stop: 31675, Start Num: 24  
Candidate Starts for QueenBeesly\_47:  
(Start: 24 @32097 has 49 MA's), (Start: 27 @32088 has 70 MA's), (35, 32052), (50, 32010), (108, 31722),

Gene: Quokka\_45 Start: 31085, Stop: 30678, Start Num: 27  
Candidate Starts for Quokka\_45:  
(Start: 27 @31085 has 70 MA's), (42, 31049), (68, 30965), (106, 30758), (108, 30725),

Gene: Rachaly\_46 Start: 32420, Stop: 31998, Start Num: 24  
Candidate Starts for Rachaly\_46:  
(Start: 24 @32420 has 49 MA's), (Start: 27 @32411 has 70 MA's), (65, 32303), (68, 32291), (89, 32216), (108, 32045),

Gene: Rahalelujah\_46 Start: 31411, Stop: 31040, Start Num: 34  
Candidate Starts for Rahalelujah\_46:  
(6, 31597), (8, 31546), (9, 31522), (Start: 34 @31411 has 32 MA's), (61, 31351), (62, 31348), (111, 31060),

Gene: Rebeuca\_45 Start: 31840, Stop: 31502, Start Num: 52  
Candidate Starts for Rebeuca\_45:  
(16, 31984), (28, 31933), (Start: 52 @31840 has 16 MA's), (95, 31690), (100, 31675), (105, 31597),

Gene: RedRock\_49 Start: 33308, Stop: 32886, Start Num: 24  
Candidate Starts for RedRock\_49:  
(Start: 24 @33308 has 49 MA's), (Start: 27 @33299 has 70 MA's), (43, 33242), (54, 33206), (108, 32933),

Gene: Retro23\_48 Start: 32504, Stop: 32082, Start Num: 24  
Candidate Starts for Retro23\_48:  
(Start: 24 @32504 has 49 MA's), (Start: 27 @32495 has 70 MA's), (54, 32402), (69, 32372), (108, 32129),

Gene: RhynO\_46 Start: 31639, Stop: 31301, Start Num: 52  
Candidate Starts for RhynO\_46:  
(Start: 52 @31639 has 16 MA's), (75, 31579), (100, 31474), (105, 31396),

Gene: Rifter\_50 Start: 30703, Stop: 30275, Start Num: 27  
Candidate Starts for Rifter\_50:  
(Start: 18 @30730 has 3 MA's), (Start: 27 @30703 has 70 MA's), (56, 30607), (88, 30493), (95, 30451), (111, 30295),

Gene: Roksolana\_50 Start: 31185, Stop: 30757, Start Num: 27

Candidate Starts for Roksolana\_50:

(Start: 18 @31212 has 3 MA's), (Start: 27 @31185 has 70 MA's), (56, 31089), (66, 31053), (90, 30963), (94, 30936), (95, 30933), (111, 30777),

Gene: Rowdy\_49 Start: 31547, Stop: 31209, Start Num: 52

Candidate Starts for Rowdy\_49:

(Start: 52 @31547 has 16 MA's), (75, 31487), (100, 31382), (105, 31304),

Gene: RyeScarlet\_48 Start: 32133, Stop: 31807, Start Num: 34

Candidate Starts for RyeScarlet\_48:

(Start: 34 @32133 has 32 MA's), (45, 32109), (62, 32067), (111, 31827),

Gene: Sachima\_44 Start: 32043, Stop: 31717, Start Num: 34

Candidate Starts for Sachima\_44:

(Start: 34 @32043 has 32 MA's), (45, 32019), (62, 31977), (111, 31737),

Gene: Scherzo\_47 Start: 32347, Stop: 32021, Start Num: 34

Candidate Starts for Scherzo\_47:

(Start: 34 @32347 has 32 MA's), (45, 32323), (62, 32281), (111, 32041),

Gene: SemperFi\_48 Start: 32365, Stop: 31943, Start Num: 24

Candidate Starts for SemperFi\_48:

(Start: 24 @32365 has 49 MA's), (Start: 27 @32356 has 70 MA's), (54, 32263), (69, 32233), (108, 31990),

Gene: Serenity\_47 Start: 31249, Stop: 30842, Start Num: 27

Candidate Starts for Serenity\_47:

(Start: 27 @31249 has 70 MA's), (86, 31066), (94, 31021), (106, 30922), (108, 30889),

Gene: Severus\_43 Start: 30750, Stop: 30394, Start Num: 52

Candidate Starts for Severus\_43:

(16, 30894), (Start: 52 @30750 has 16 MA's), (100, 30567), (105, 30489),

Gene: Shapes\_49 Start: 31547, Stop: 31209, Start Num: 52

Candidate Starts for Shapes\_49:

(Start: 52 @31547 has 16 MA's), (75, 31487), (100, 31382), (105, 31304),

Gene: SheaKeira\_46 Start: 31684, Stop: 31340, Start Num: 36

Candidate Starts for SheaKeira\_46:

(Start: 36 @31684 has 9 MA's), (43, 31669), (45, 31663), (62, 31621), (76, 31579), (89, 31546), (111, 31360), (112, 31351),

Gene: Sknot\_47 Start: 32181, Stop: 31747, Start Num: 27

Candidate Starts for Sknot\_47:

(Start: 27 @32181 has 70 MA's), (58, 32082), (67, 32046), (108, 31794),

Gene: Smeagan\_50 Start: 32817, Stop: 32395, Start Num: 24

Candidate Starts for Smeagan\_50:

(Start: 24 @32817 has 49 MA's), (Start: 27 @32808 has 70 MA's), (54, 32715), (58, 32709), (69, 32685), (108, 32442),

Gene: SmellyB\_49 Start: 31137, Stop: 30709, Start Num: 27

Candidate Starts for SmellyB\_49:

(Start: 18 @31164 has 3 MA's), (Start: 27 @31137 has 70 MA's), (56, 31041), (66, 31005), (90, 30915), (94, 30888), (95, 30885), (111, 30729),

Gene: SnapTap\_47 Start: 32176, Stop: 31754, Start Num: 24

Candidate Starts for SnapTap\_47:

(Start: 24 @32176 has 49 MA's), (Start: 27 @32167 has 70 MA's), (35, 32131), (50, 32089), (108, 31801),

Gene: SororFago\_50 Start: 33759, Stop: 33412, Start Num: 36

Candidate Starts for SororFago\_50:

(22, 33783), (Start: 36 @33759 has 9 MA's), (89, 33624), (91, 33618), (106, 33492), (111, 33432),

Gene: Spouty\_47 Start: 32175, Stop: 31849, Start Num: 34

Candidate Starts for Spouty\_47:

(Start: 34 @32175 has 32 MA's), (45, 32151), (62, 32109), (111, 31869),

Gene: StarStuff\_49 Start: 31909, Stop: 31499, Start Num: 25

Candidate Starts for StarStuff\_49:

(3, 32236), (4, 32224), (Start: 25 @31909 has 17 MA's), (68, 31789), (78, 31765), (80, 31759), (98, 31666), (106, 31579), (108, 31546),

Gene: Sunhee\_50 Start: 32074, Stop: 31730, Start Num: 39

Candidate Starts for Sunhee\_50:

(Start: 39 @32074 has 1 MA's), (61, 32020), (75, 31978), (91, 31936), (106, 31810), (111, 31750),

Gene: SuperAwesome\_49 Start: 31148, Stop: 30720, Start Num: 27

Candidate Starts for SuperAwesome\_49:

(Start: 18 @31175 has 3 MA's), (Start: 27 @31148 has 70 MA's), (56, 31052), (66, 31016), (90, 30926), (94, 30899), (95, 30896), (111, 30740),

Gene: SuperCallie99\_48 Start: 31021, Stop: 30593, Start Num: 27

Candidate Starts for SuperCallie99\_48:

(Start: 18 @31048 has 3 MA's), (Start: 27 @31021 has 70 MA's), (56, 30925), (66, 30889), (90, 30799), (94, 30772), (95, 30769), (111, 30613),

Gene: Superchunk\_46 Start: 30723, Stop: 30316, Start Num: 27

Candidate Starts for Superchunk\_46:

(Start: 27 @30723 has 70 MA's), (62, 30624), (92, 30510), (106, 30396), (108, 30363),

Gene: SweetiePie\_47 Start: 32305, Stop: 31883, Start Num: 24

Candidate Starts for SweetiePie\_47:

(Start: 24 @32305 has 49 MA's), (Start: 27 @32296 has 70 MA's), (54, 32203), (69, 32173), (108, 31930),

Gene: SwirlSquare\_50 Start: 31390, Stop: 30980, Start Num: 25

Candidate Starts for SwirlSquare\_50:

(Start: 25 @31390 has 17 MA's), (60, 31300), (64, 31285), (72, 31258), (78, 31246), (80, 31240), (89, 31195), (106, 31060), (108, 31027),

Gene: TarsusIV\_45 Start: 31964, Stop: 31542, Start Num: 24

Candidate Starts for TarsusIV\_45:

(Start: 24 @31964 has 49 MA's), (65, 31847), (68, 31835), (108, 31589),

Gene: Temprado\_50 Start: 31301, Stop: 30873, Start Num: 27  
Candidate Starts for Temprado\_50:  
(Start: 18 @31328 has 3 MA's), (Start: 27 @31301 has 70 MA's), (56, 31205), (88, 31091), (95, 31049),  
(111, 30893),

Gene: Terrific\_50 Start: 32535, Stop: 32101, Start Num: 27  
Candidate Starts for Terrific\_50:  
(Start: 27 @32535 has 70 MA's), (58, 32436), (67, 32400), (108, 32148),

Gene: TopsytheTRex\_44 Start: 31322, Stop: 30915, Start Num: 27  
Candidate Starts for TopsytheTRex\_44:  
(Start: 27 @31322 has 70 MA's), (86, 31139), (106, 30995), (108, 30962),

Gene: Toaka\_46 Start: 31676, Stop: 31308, Start Num: 34  
Candidate Starts for Toaka\_46:  
(Start: 34 @31676 has 32 MA's), (45, 31652), (62, 31610), (111, 31328), (112, 31319),

Gene: Tomathan\_49 Start: 31906, Stop: 31496, Start Num: 25  
Candidate Starts for Tomathan\_49:  
(3, 32233), (4, 32221), (Start: 25 @31906 has 17 MA's), (68, 31786), (78, 31762), (80, 31756), (98,  
31663), (106, 31576), (108, 31543),

Gene: ToneTone\_46 Start: 30864, Stop: 30436, Start Num: 27  
Candidate Starts for ToneTone\_46:  
(Start: 18 @30891 has 3 MA's), (Start: 27 @30864 has 70 MA's), (56, 30768), (88, 30654), (95, 30612),  
(111, 30456),

Gene: Topanga\_43 Start: 31489, Stop: 31151, Start Num: 52  
Candidate Starts for Topanga\_43:  
(16, 31633), (28, 31582), (Start: 52 @31489 has 16 MA's), (95, 31339), (100, 31324), (105, 31246),

Gene: Travvers\_49 Start: 31906, Stop: 31496, Start Num: 25  
Candidate Starts for Travvers\_49:  
(3, 32233), (4, 32221), (Start: 25 @31906 has 17 MA's), (68, 31786), (78, 31762), (80, 31756), (98,  
31663), (106, 31576), (108, 31543),

Gene: Trike\_43 Start: 30758, Stop: 30402, Start Num: 52  
Candidate Starts for Trike\_43:  
(16, 30902), (Start: 52 @30758 has 16 MA's), (100, 30575), (105, 30497),

Gene: Tristan\_46 Start: 33143, Stop: 32727, Start Num: 20  
Candidate Starts for Tristan\_46:  
(Start: 20 @33143 has 8 MA's), (32, 33113), (50, 33065), (76, 33002), (92, 32930), (108, 32774),

Gene: Trixie\_45 Start: 32233, Stop: 31820, Start Num: 25  
Candidate Starts for Trixie\_45:  
(Start: 25 @32233 has 17 MA's), (50, 32155), (56, 32137), (108, 31867),

Gene: Trooper\_48 Start: 32526, Stop: 32104, Start Num: 24  
Candidate Starts for Trooper\_48:  
(Start: 24 @32526 has 49 MA's), (Start: 27 @32517 has 70 MA's), (40, 32469), (50, 32439), (70,  
32391), (73, 32382), (108, 32151),

Gene: Tubs\_47 Start: 32109, Stop: 31783, Start Num: 34  
Candidate Starts for Tubs\_47:  
(Start: 34 @32109 has 32 MA's), (45, 32085), (62, 32043), (111, 31803),

Gene: Tucker\_49 Start: 30751, Stop: 30323, Start Num: 27  
Candidate Starts for Tucker\_49:  
(Start: 18 @30778 has 3 MA's), (Start: 27 @30751 has 70 MA's), (56, 30655), (88, 30541), (95, 30499),  
(111, 30343),

Gene: Turbido\_48 Start: 32560, Stop: 32138, Start Num: 24  
Candidate Starts for Turbido\_48:  
(Start: 24 @32560 has 49 MA's), (Start: 27 @32551 has 70 MA's), (54, 32458), (69, 32428), (108,  
32185),

Gene: Twister\_43 Start: 31400, Stop: 31062, Start Num: 52  
Candidate Starts for Twister\_43:  
(16, 31544), (28, 31493), (Start: 52 @31400 has 16 MA's), (95, 31250), (100, 31235), (105, 31157),

Gene: Ugenie5\_44 Start: 32346, Stop: 32020, Start Num: 34  
Candidate Starts for Ugenie5\_44:  
(Start: 34 @32346 has 32 MA's), (45, 32322), (62, 32280), (111, 32040),

Gene: Updawg\_48 Start: 32422, Stop: 31988, Start Num: 27  
Candidate Starts for Updawg\_48:  
(Start: 27 @32422 has 70 MA's), (58, 32323), (67, 32287), (108, 32035),

Gene: VA6\_47 Start: 32280, Stop: 31867, Start Num: 24  
Candidate Starts for VA6\_47:  
(Start: 24 @32280 has 49 MA's), (53, 32190), (58, 32181), (73, 32145), (91, 32079), (108, 31914),

Gene: VC3\_50 Start: 32346, Stop: 31912, Start Num: 25  
Candidate Starts for VC3\_50:  
(Start: 25 @32346 has 17 MA's), (Start: 27 @32343 has 70 MA's), (56, 32244), (68, 32202), (78,  
32178), (98, 32079), (106, 31992), (108, 31959),

Gene: Vanisoa\_46 Start: 32705, Stop: 32358, Start Num: 34  
Candidate Starts for Vanisoa\_46:  
(6, 32888), (8, 32837), (9, 32813), (Start: 34 @32705 has 32 MA's), (45, 32681), (62, 32639), (71,  
32609), (111, 32378),

Gene: VohminGhazi\_49 Start: 31138, Stop: 30710, Start Num: 27  
Candidate Starts for VohminGhazi\_49:  
(Start: 18 @31165 has 3 MA's), (Start: 27 @31138 has 70 MA's), (56, 31042), (66, 31006), (90, 30916),  
(94, 30889), (95, 30886), (111, 30730),

Gene: WalterMcMickey\_43 Start: 31400, Stop: 31062, Start Num: 52  
Candidate Starts for WalterMcMickey\_43:  
(16, 31544), (28, 31493), (Start: 52 @31400 has 16 MA's), (95, 31250), (100, 31235), (105, 31157),

Gene: WeiHuaDA\_49 Start: 33119, Stop: 32706, Start Num: 27  
Candidate Starts for WeiHuaDA\_49:  
(Start: 27 @33119 has 70 MA's), (50, 33041), (68, 32999), (108, 32753),

Gene: Whabigail7\_48 Start: 32545, Stop: 32123, Start Num: 24  
Candidate Starts for Whabigail7\_48:  
(Start: 24 @32545 has 49 MA's), (Start: 27 @32536 has 70 MA's), (54, 32443), (58, 32437), (108, 32170),

Gene: WideWale\_48 Start: 32422, Stop: 31988, Start Num: 27  
Candidate Starts for WideWale\_48:  
(Start: 27 @32422 has 70 MA's), (58, 32323), (67, 32287), (108, 32035),

Gene: Wiks\_48 Start: 30932, Stop: 30504, Start Num: 27  
Candidate Starts for Wiks\_48:  
(Start: 18 @30959 has 3 MA's), (Start: 27 @30932 has 70 MA's), (56, 30836), (88, 30722), (95, 30680), (111, 30524),

Gene: WorldCup\_45 Start: 31405, Stop: 31034, Start Num: 34  
Candidate Starts for WorldCup\_45:  
(6, 31591), (8, 31540), (9, 31516), (Start: 34 @31405 has 32 MA's), (61, 31345), (62, 31342), (111, 31054),

Gene: WunderPhul\_49 Start: 30930, Stop: 30502, Start Num: 27  
Candidate Starts for WunderPhul\_49:  
(Start: 18 @30957 has 3 MA's), (Start: 27 @30930 has 70 MA's), (56, 30834), (88, 30720), (95, 30678), (111, 30522),

Gene: Yecey3\_48 Start: 31582, Stop: 31238, Start Num: 34  
Candidate Starts for Yecey3\_48:  
(Start: 34 @31582 has 32 MA's), (45, 31561), (62, 31519), (76, 31477), (89, 31444), (111, 31258),

Gene: Yokurt\_49 Start: 30959, Stop: 30504, Start Num: 18  
Candidate Starts for Yokurt\_49:  
(Start: 18 @30959 has 3 MA's), (Start: 27 @30932 has 70 MA's), (56, 30836), (88, 30722), (95, 30680), (111, 30524),

Gene: Zaka\_49 Start: 30932, Stop: 30504, Start Num: 27  
Candidate Starts for Zaka\_49:  
(Start: 18 @30959 has 3 MA's), (Start: 27 @30932 has 70 MA's), (56, 30836), (88, 30722), (95, 30680), (111, 30524),

Gene: Zulu\_49 Start: 30732, Stop: 30304, Start Num: 27  
Candidate Starts for Zulu\_49:  
(Start: 18 @30759 has 3 MA's), (Start: 27 @30732 has 70 MA's), (56, 30636), (88, 30522), (95, 30480), (111, 30324),