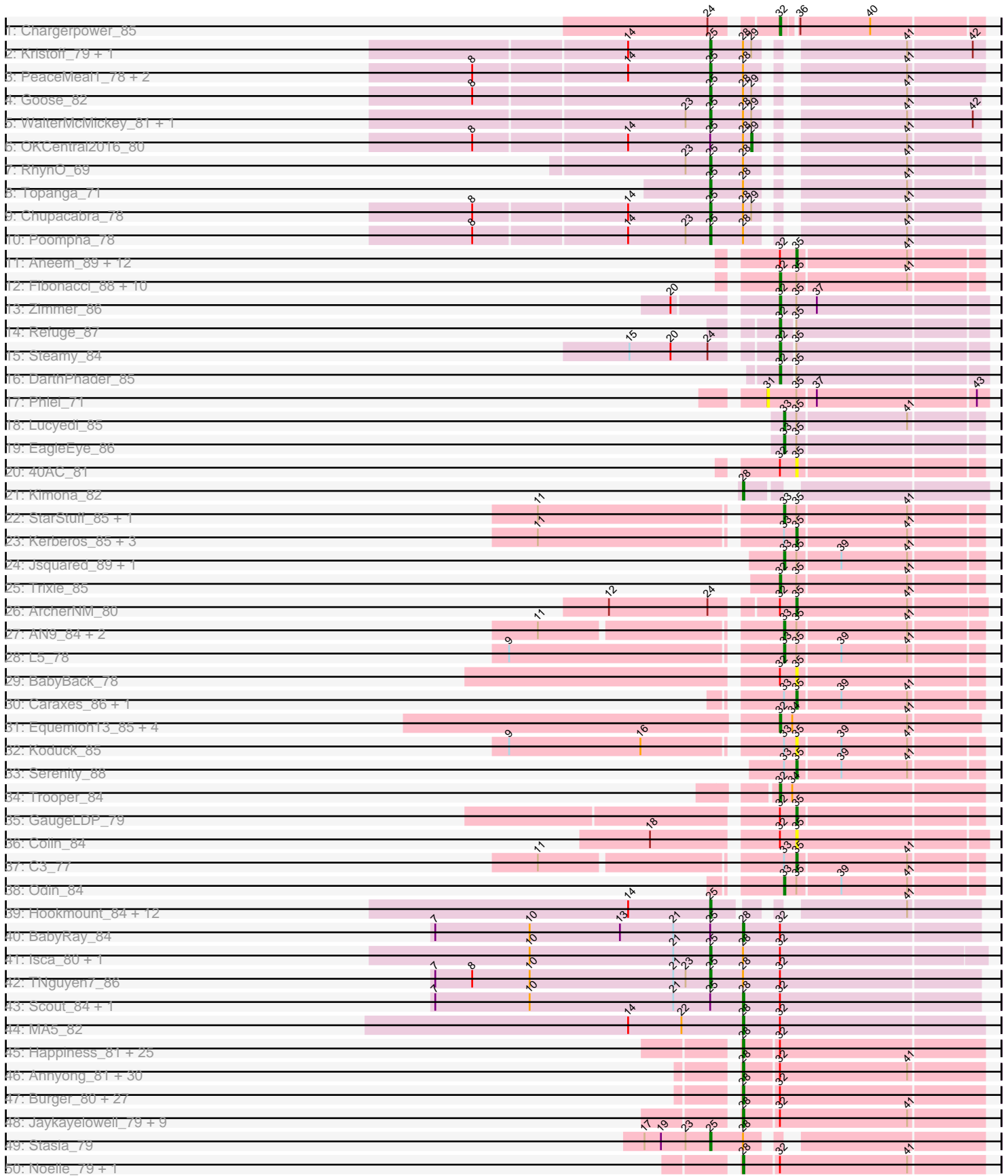
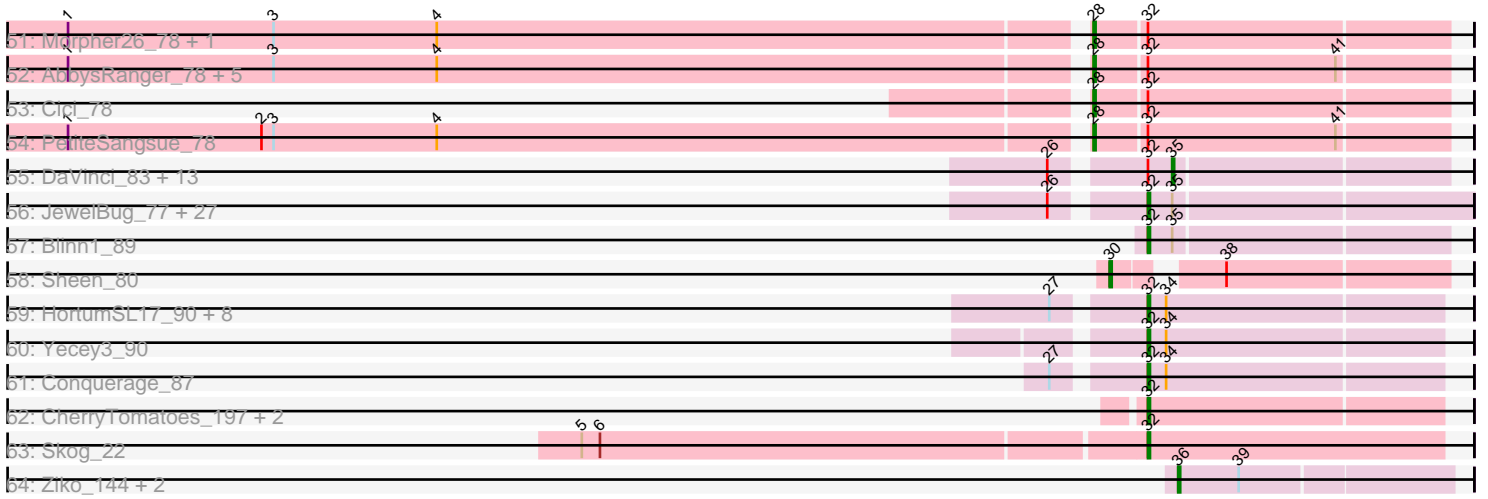


Pham 156010



Pham 156010



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 156010 Report

This analysis was run 04/12/24 on database version 558.

Pham number 156010 has 266 members, 19 are drafts.

Phages represented in each track:

- Track 1 : Chargerpower\_85
- Track 2 : Kristoff\_79, Rebeuca\_82
- Track 3 : PeaceMeal1\_78, Severus\_79, Drake94\_78
- Track 4 : Goose\_82
- Track 5 : WalterMcMickey\_81, Twister\_82
- Track 6 : OKCentral2016\_80
- Track 7 : RhynO\_69
- Track 8 : Topanga\_71
- Track 9 : Chupacabra\_78
- Track 10 : Poompha\_78
- Track 11 : Aneem\_89, TinyTimmy\_86, Salz\_84, Munch\_87, Bowtie\_84, Et2Brutus\_88, Lucivia\_89, Joselito\_86, Bachome\_86, Ebony\_87, Petersenfast\_82, Insomnia\_87, Timothy\_88
- Track 12 : Fibonacci\_88, Sham4\_85, MaCh\_88, Jabith\_88, Mulciber\_87, Orange\_88, Gilberta\_86, Flaverint\_89, Hutc2\_85, Snape\_88, Mabel\_88
- Track 13 : Zimmer\_86
- Track 14 : Refuge\_87
- Track 15 : Steamy\_84
- Track 16 : DarthPhader\_85
- Track 17 : Phlei\_71
- Track 18 : Lucyedi\_85
- Track 19 : EagleEye\_86
- Track 20 : 40AC\_81
- Track 21 : Kimona\_82
- Track 22 : StarStuff\_85, Duplo\_86
- Track 23 : Kerberos\_85, Tomathan\_85, DBQu4n\_85, Pomar16\_85
- Track 24 : Jsquared\_89, TipsytheTRex\_84
- Track 25 : Trixie\_85
- Track 26 : ArcherNM\_80
- Track 27 : AN9\_84, VC3\_83, ANI8\_84
- Track 28 : L5\_78
- Track 29 : BabyBack\_78
- Track 30 : Caraxes\_86, Superchunk\_85
- Track 31 : Equemioh13\_85, WideWale\_86, Flare16\_85, MiculUcigas\_85, HarryHoudini\_85
- Track 32 : Koduck\_85
- Track 33 : Serenity\_88

- Track 34 : Trooper\_84
- Track 35 : GaugeLDP\_79
- Track 36 : Colin\_84
- Track 37 : C3\_77
- Track 38 : Odin\_84
- Track 39 : Hookmount\_84, Lambert1\_84, Popcicle\_84, Norbert\_80, ResDef\_82, Noella\_85, Caviar\_73, Veracruz\_81, Pocahontas\_83, QuinnKiro\_83, Margo\_84, Todacoro\_84, Texage\_82
- Track 40 : BabyRay\_84
- Track 41 : Isca\_80, Phantastic\_85
- Track 42 : TNguyen7\_86
- Track 43 : Scout\_84, Heathen\_84
- Track 44 : MA5\_82
- Track 45 : Happiness\_81, CentreCat\_82, Eurydice\_83, Romney\_81, DirtyDunning\_81, Ohfah\_83, Kamy\_81, LochMonster\_83, Kye\_82, Cintron\_82, ICleared\_81, Spino\_81, PeterPeter\_82, Maxo\_84, Nebs\_83, BangNhom\_79, Ruin\_82, Cerulean\_84, TroyPia\_83, Dhanush\_82, Wilbur\_82, LittleB\_82, Sabertooth\_82, ChampagnePapi\_85, Phelipe\_82, Scamp\_82
- Track 46 : Anyong\_81, Blackmoor\_81, BubbleTrouble\_81, Albee\_82, Kratak\_81, Baby16\_82, Broseidon\_82, Iceman\_80, LittleGuy\_82, Pumbaa\_82, TinaFeyge\_80, YoSam321\_82, Tinybot\_81, Peaches\_80, Phontbonne\_82, Miramae\_82, Floean\_82, Taquarus\_81, Roosevelt\_80, HamSlice\_78, Polymorphads\_83, Connomayer\_82, LHTSCC\_84, Holli\_81, Camperdownii\_78, Morrow\_84, LappelDuVide\_78, TiroTheta9\_81, Nyxis\_81, Bartimeaus\_82, BellusTerra\_82
- Track 47 : Burger\_80, JoongJeon\_81, Funston\_81, Flux\_83, Thanksgivukkah\_81, Maverick\_81, Palestino\_81, Phighter1804\_82, Melvin\_84, Koreni\_81, Chaph\_82, Caelakin\_80, Eris\_81, Bombshell\_82, OKaNui\_81, Ulysses\_81, Lorenzo\_82, Mazhar510\_82, Wander\_82, Millski\_81, Pipcraft\_78, Bruiser\_81, KFPoly\_81, Alberto7\_83, Medusa\_81, Phacado\_82, Clarenza\_81, Iracema64\_82
- Track 48 : Jaykayelowell\_79, Citius\_82, Abdiel\_81, Shygu2\_80, Achebe\_77, Lemur\_82, Sparxx\_83, Shaka\_80, JetBlade\_83, Xena\_78
- Track 49 : Stasia\_79
- Track 50 : Noelle\_79, Mundrea\_80
- Track 51 : Morpher26\_78, Wile\_77
- Track 52 : AbbysRanger\_78, Perplexer\_78, Backyardigan\_76, Wizard007\_78, Bumblebee11\_77, Druantia\_80
- Track 53 : Cici\_78
- Track 54 : PetiteSangsue\_78
- Track 55 : DaVinci\_83, Pmask\_84, McFly\_85, Yokurt\_86, Zaka\_87, Isiphiwo\_81, Candra\_83, SuperCallie99\_81, Artemis2UCLA\_86, Dorothea\_82, ToneTone\_84, Priamo\_86, Garak\_88, Tucker\_87
- Track 56 : JewelBug\_77, Gruunaga\_86, Chartreuse\_83, CloudWang3\_87, Indra\_90, Roksolana\_87, Kazan\_86, SuperAwesome\_85, Hexamo\_86, Zulu\_88, EricB\_83, Rifter\_87, Hammer\_87, Neeharika16\_84, Jordennis\_83, Koko\_88, Hoot\_80, Wiks\_86, SmellyB\_85, Blue7\_88, BABullseye\_78, WunderPhui\_87, Kipper29\_85, Gladiator\_83, Cookiedough\_85, Helmet\_88, Newrala\_84, VohminGhazi\_85
- Track 57 : Blinn1\_89
- Track 58 : Sheen\_80
- Track 59 : HortumSL17\_90, Aliter\_82, Tubs\_89, Fayely\_87, PackMan\_84, Catalina\_91, Eidsmoe\_87, Myxus\_89, Spouty\_84
- Track 60 : Yecey3\_90
- Track 61 : Conquerage\_87
- Track 62 : CherryTomatoes\_197, Pupper\_190, SCentae\_189

- Track 63 : Skog\_22
- Track 64 : Ziko\_144, Volt\_145, Ronaldo\_142

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

The start number called the most often in the published annotations is 28, it was called in 111 of the 247 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AbbysRanger\_78, Abdiel\_81, Achebe\_77, Albee\_82, Alberto7\_83, Annyong\_81, Baby16\_82, BabyRay\_84, Backyardigan\_76, BangNhom\_79, Bartimeaus\_82, BellusTerra\_82, Blackmoor\_81, Bombshell\_82, Broseidon\_82, Bruiser\_81, BubbleTrouble\_81, Bumblebee11\_77, Burger\_80, Caelakin\_80, Camperdownii\_78, CentreCat\_82, Cerulean\_84, ChampagnePapi\_85, Chaph\_82, Cici\_78, Cintron\_82, Citius\_82, Clarenza\_81, Connomayer\_82, Dhanush\_82, DirtyDunning\_81, Druantia\_80, Eris\_81, Eurydice\_83, Florean\_82, Flux\_83, Funston\_81, HamSlice\_78, Happiness\_81, Heathen\_84, Holli\_81, ICleared\_81, Iceman\_80, Iracema64\_82, Jaykayelowell\_79, JetBlade\_83, JoongJeon\_81, KFPoly\_81, Kamy\_81, Kimona\_82, Koreni\_81, Kratak\_81, Kyee\_82, LHTSCC\_84, LappelDuVide\_78, Lemur\_82, LittleB\_82, LittleGuy\_82, LochMonster\_83, Lorenzo\_82, MA5\_82, Maverick\_81, Maxo\_84, Mazhar510\_82, Medusa\_81, Melvin\_84, Millski\_81, Miramae\_82, Morpher26\_78, Morrow\_84, Mundrea\_80, Nebs\_83, Noelle\_79, Nyxis\_81, OKaNui\_81, Ohfah\_83, Palestino\_81, Peaches\_80, Perplexer\_78, PeterPeter\_82, PetiteSangsue\_78, Phacado\_82, Felipe\_82, Phighter1804\_82, Phontbonne\_82, Pipcraft\_78, Polymorphads\_83, Pumbaa\_82, Romney\_81, Roosevelt\_80, Ruin\_82, Sabertooth\_82, Scamp\_82, Scout\_84, Shaka\_80, Shygu2\_80, Sparxx\_83, Spino\_81, Taquarus\_81, Thanksgivukkah\_81, TinaFeyge\_80, Tinybot\_81, TiroTheta9\_81, TroyPia\_83, Ulysses\_81, Wander\_82, Wilbur\_82, Wile\_77, Wizard007\_78, Xena\_78, YoSam321\_82,

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

- Chupacabra\_78, Drake94\_78, Goose\_82, Isca\_80, Kristoff\_79, OKCentral2016\_80, PeaceMeal1\_78, Phantastic\_85, Poompha\_78, Rebeuca\_82, RhynO\_69, Severus\_79, Stasia\_79, TNguyen7\_86, Topanga\_71, Twister\_82, WalterMcMickey\_81,

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

- 40AC\_81, AN9\_84, ANI8\_84, Aliter\_82, Aneem\_89, ArcherNM\_80, Artemis2UCLA\_86, BABullseye\_78, BabyBack\_78, Bachome\_86, Blinn1\_89, Blue7\_88, Bowtie\_84, C3\_77, Candra\_83, Caraxes\_86, Catalina\_91, Caviar\_73, Chargerpower\_85, Chartreuse\_83, CherryTomatoes\_197, CloudWang3\_87, Colin\_84, Conquerage\_87, Cookiedough\_85, DBQu4n\_85, DaVinci\_83, DARTHPhader\_85, Dorothea\_82, Duplo\_86, EagleEye\_86, Ebony\_87, Eidsmoe\_87, Equemioh13\_85, EricB\_83, Et2Brutus\_88, Fayely\_87, Fibonacci\_88, Flare16\_85, Flaverint\_89, Garak\_88, GaugeLDP\_79, Gilberta\_86, Gladiator\_83, Gruunaga\_86, Hammer\_87, HarryHoudini\_85, Helmet\_88, Hexamo\_86, Hookmount\_84, Hoot\_80, HortumSL17\_90, Hutc2\_85, Indra\_90, Insomnia\_87, Isiphiwo\_81, Jabith\_88, JewelBug\_77, Jordennis\_83, Joselito\_86, Jsquared\_89, Kazan\_86, Kerberos\_85, Kipper29\_85, Koduck\_85, Koko\_88, L5\_78, Lambert1\_84, Lucivia\_89, Lucyedi\_85, MaCh\_88, Mabel\_88, Margo\_84, McFly\_85, MiculUcigas\_85, Mulciber\_87,

Munch\_87, Myxus\_89, Neeharika16\_84, Newrala\_84, Noella\_85, Norbert\_80, Odin\_84, Orange\_88, PackMan\_84, Petersenfast\_82, Phlei\_71, Pmask\_84, Pocahontas\_83, Pomar16\_85, Popcicle\_84, Priamo\_86, Pupper\_190, QuinnKiro\_83, Refuge\_87, ResDef\_82, Rifter\_87, Roksolana\_87, Ronaldo\_142, SCentae\_189, Salz\_84, Serenity\_88, Sham4\_85, Sheen\_80, Skog\_22, SmellyB\_85, Snape\_88, Spouty\_84, StarStuff\_85, Steamy\_84, SuperAwesome\_85, SuperCallie99\_81, Superchunk\_85, Texage\_82, Timothy\_88, TinyTimmy\_86, TipsytheTRex\_84, Todacoro\_84, Tomathan\_85, ToneTone\_84, Trixie\_85, Trooper\_84, Tubs\_89, Tucker\_87, VC3\_83, Veracruz\_81, VohminGhazi\_85, Volt\_145, WideWale\_86, Wiks\_86, WunderPhul\_87, Yecey3\_90, Yokurt\_86, Zaka\_87, Ziko\_144, Zimmer\_86, Zulu\_88,

### Summary by start number:

#### Start 25:

- Found in 33 of 266 ( 12.4% ) of genes in pham
- Manual Annotations of this start: 28 of 247
- Called 87.9% of time when present
- Phage (with cluster) where this start called: Caviar\_73 (A3), Chupacabra\_78 (A10), Drake94\_78 (A10), Goose\_82 (A10), Hookmount\_84 (A3), Isca\_80 (A3), Kristoff\_79 (A10), Lambert1\_84 (A3), Margo\_84 (A3), Noella\_85 (A3), Norbert\_80 (A3), PeaceMeal1\_78 (A10), Phantastic\_85 (A3), Pocahontas\_83 (A3), Poompha\_78 (A10), Popcicle\_84 (A3), QuinnKiro\_83 (A3), Rebeuca\_82 (A10), ResDef\_82 (A3), RhynO\_69 (A10), Severus\_79 (A10), Stasia\_79 (A4), TNguyen7\_86 (A3), Texage\_82 (A3), Todacoro\_84 (A3), Topanga\_71 (A10), Twister\_82 (A10), Veracruz\_81 (A3), WalterMcMickey\_81 (A10),

#### Start 28:

- Found in 129 of 266 ( 48.5% ) of genes in pham
- Manual Annotations of this start: 111 of 247
- Called 86.8% of time when present
- Phage (with cluster) where this start called: AbbysRanger\_78 (A4), Abdiel\_81 (A4), Achebe\_77 (A4), Albee\_82 (A4), Alberto7\_83 (A4), Annyong\_81 (A4), Baby16\_82 (A4), BabyRay\_84 (A3), Backyardigan\_76 (A4), BangNhom\_79 (A4), Bartimeaus\_82 (A4), BellusTerra\_82 (A4), Blackmoor\_81 (A4), Bombshell\_82 (A4), Broseidon\_82 (A4), Bruiser\_81 (A4), BubbleTrouble\_81 (A4), Bumblebee11\_77 (A4), Burger\_80 (A4), Caelakin\_80 (A4), Camperdownii\_78 (A4), CentreCat\_82 (A4), Cerulean\_84 (A4), ChampagnePapi\_85 (A4), Chaph\_82 (A4), Cici\_78 (A4), Cintron\_82 (A4), Citius\_82 (A4), Clarenza\_81 (A4), Connomayer\_82 (A4), Dhanush\_82 (A4), DirtyDunning\_81 (A4), Druantia\_80 (A4), Eris\_81 (A4), Eurydice\_83 (A4), Florean\_82 (A4), Flux\_83 (A4), Funston\_81 (A4), HamSlice\_78 (A4), Happiness\_81 (A4), Heathen\_84 (A3), Holli\_81 (A4), ICleared\_81 (A4), Iceman\_80 (A4), Iracema64\_82 (A4), Jaykayelowell\_79 (A4), JetBlade\_83 (A4), JoongJeon\_81 (A4), KFPoly\_81 (A4), Kamy\_81 (A4), Kimona\_82 (A19), Koreni\_81 (A4), Kratark\_81 (A4), Kye\_82 (A4), LHTSCC\_84 (A4), LappelDuVide\_78 (A4), Lemur\_82 (A4), LittleB\_82 (A4), LittleGuy\_82 (A4), LochMonster\_83 (A4), Lorenzo\_82 (A4), MA5\_82 (A3), Maverick\_81 (A4), Maxo\_84 (A4), Mazhar510\_82 (A4), Medusa\_81 (A4), Melvin\_84 (A4), Millski\_81 (A4), Miramae\_82 (A4), Morpher26\_78 (A4), Morrow\_84 (A4), Mundrea\_80 (A4), Nebs\_83 (A4), Noelle\_79 (A4), Nyxis\_81 (A4), OKaNui\_81 (A4), Ohfah\_83 (A4), Palestino\_81 (A4), Peaches\_80 (A4), Perplexer\_78 (A4), PeterPeter\_82 (A4), PetiteSangsue\_78 (A4), Phacado\_82 (A4), Felipe\_82 (A4), Phighter1804\_82 (A4), Phontbonne\_82 (A4), Pipcraft\_78 (A4), Polymorphads\_83 (A4), Pumbaa\_82 (A4), Romney\_81 (A4), Roosevelt\_80 (A4), Ruin\_82 (A4),

Sabertooth\_82 (A4), Scamp\_82 (A4), Scout\_84 (A3), Shaka\_80 (A4), Shygu2\_80 (A4), Sparxx\_83 (A4), Spino\_81 (A4), Taquarus\_81 (A4), Thanksgivukkah\_81 (A4), TinaFeyge\_80 (A4), Tinybot\_81 (A4), TiroTheta9\_81 (A4), TroyPia\_83 (A4), Ulysses\_81 (A4), Wander\_82 (A4), Wilbur\_82 (A4), Wile\_77 (A4), Wizard007\_78 (A4), Xena\_78 (A4), YoSam321\_82 (A4),

Start 29:

- Found in 7 of 266 ( 2.6% ) of genes in pham
- Manual Annotations of this start: 1 of 247
- Called 14.3% of time when present
- Phage (with cluster) where this start called: OKCentral2016\_80 (A10),

Start 30:

- Found in 1 of 266 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 247
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Sheen\_80 (A7),

Start 31:

- Found in 1 of 266 ( 0.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Phlei\_71 (A13),

Start 32:

- Found in 213 of 266 ( 80.1% ) of genes in pham
- Manual Annotations of this start: 62 of 247
- Called 31.5% of time when present
- Phage (with cluster) where this start called: Aliter\_82 (A9), BABullseye\_78 (A6), Blinn1\_89 (A6), Blue7\_88 (A6), Catalina\_91 (A9), Chargerpower\_85 (A), Chartreuse\_83 (A6), CherryTomatoes\_197 (DO), CloudWang3\_87 (A6), Conquerage\_87 (A9), Cookiedough\_85 (A6), DarthPhader\_85 (A12), Eidsmoe\_87 (A9), Equemioh13\_85 (A2), EricB\_83 (A6), Fayely\_87 (A9), Fibonacci\_88 (A11), Flare16\_85 (A2), Flaverint\_89 (A11), Gilberta\_86 (A11), Gladiator\_83 (A6), Gruunaga\_86 (A6), Hammer\_87 (A6), HarryHoudini\_85 (A2), Helmet\_88 (A6), Hexamo\_86 (A6), Hoot\_80 (A6), HortumSL17\_90 (A9), Hutc2\_85 (A11), Indra\_90 (A6), Jabith\_88 (A11), JewelBug\_77 (A6), Jordennis\_83 (A6), Kazan\_86 (A6), Kipper29\_85 (A6), Koko\_88 (A6), MaCh\_88 (A11), Mabel\_88 (A11), MiculUcigas\_85 (A2), Mulciber\_87 (A11), Myxus\_89 (A9), Neeharika16\_84 (A6), Newrala\_84 (A6), Orange\_88 (A11), PackMan\_84 (A9), Pupper\_190 (DO), Refuge\_87 (A12), Rifter\_87 (A6), Roksolana\_87 (A6), SCentae\_189 (DO), Sham4\_85 (A11), Skog\_22 (DO), SmellyB\_85 (A6), Snape\_88 (A11), Spouty\_84 (A9), Steamy\_84 (A12), SuperAwesome\_85 (A6), Trixie\_85 (A2), Trooper\_84 (A2), Tubs\_89 (A9), VohminGhazi\_85 (A6), WideWale\_86 (A2), Wiks\_86 (A6), WunderPhul\_87 (A6), Yecey3\_90 (A9), Zimmer\_86 (A12), Zulu\_88 (A6),

Start 33:

- Found in 20 of 266 ( 7.5% ) of genes in pham
- Manual Annotations of this start: 11 of 247
- Called 55.0% of time when present
- Phage (with cluster) where this start called: AN9\_84 (A2), ANI8\_84 (A2), Duplo\_86 (A2), EagleEye\_86 (A16), Jsquared\_89 (A2), L5\_78 (A2), Lucyedi\_85 (A16), Odin\_84 (A2), StarStuff\_85 (A2), TopsytheTRex\_84 (A2), VC3\_83 (A2),

Start 35:

- Found in 98 of 266 ( 36.8% ) of genes in pham
- Manual Annotations of this start: 30 of 247
- Called 41.8% of time when present
- Phage (with cluster) where this start called: 40AC\_81 (A17), Aneem\_89 (A11), ArcherNM\_80 (A2), Artemis2UCLA\_86 (A6), BabyBack\_78 (A2), Bachome\_86 (A11), Bowtie\_84 (A11), C3\_77 (A2), Candra\_83 (A6), Caraxes\_86 (A2), Colin\_84 (A2), DBQu4n\_85 (A2), DaVinci\_83 (A6), Dorothea\_82 (A6), Ebony\_87 (A11), Et2Brutus\_88 (A11), Garak\_88 (A6), GaugeLDP\_79 (A2), Insomnia\_87 (A11), Isiphiwo\_81 (A6), Joselito\_86 (A11), Kerberos\_85 (A2), Koduck\_85 (A2), Lucivia\_89 (A11), McFly\_85 (A6), Munch\_87 (A11), Petersenfast\_82 (A11), Pmask\_84 (A6), Pomar16\_85 (A2), Priamo\_86 (A6), Salz\_84 (A11), Serenity\_88 (A2), SuperCallie99\_81 (A6), Superchunk\_85 (A2), Timothy\_88 (A11), TinyTimmy\_86 (A11), Tomathan\_85 (A2), ToneTone\_84 (A6), Tucker\_87 (A6), Yokurt\_86 (A6), Zaka\_87 (A6),

Start 36:

- Found in 4 of 266 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 3 of 247
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Ronaldo\_142 (DP), Volt\_145 (DP), Ziko\_144 (DP),

**Summary by clusters:**

There are 16 clusters represented in this pham: A, DO, A17, A16, A11, A10, A13, A12, A19, A3, A2, A4, A7, A6, A9, DP,

Info for manual annotations of cluster A:

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

Info for manual annotations of cluster A10:

- Start number 25 was manually annotated 12 times for cluster A10.
- Start number 29 was manually annotated 1 time for cluster A10.

Info for manual annotations of cluster A11:

- Start number 32 was manually annotated 11 times for cluster A11.
- Start number 35 was manually annotated 10 times for cluster A11.

Info for manual annotations of cluster A12:

- Start number 32 was manually annotated 4 times for cluster A12.

Info for manual annotations of cluster A16:

- Start number 33 was manually annotated 2 times for cluster A16.

Info for manual annotations of cluster A19:

- Start number 28 was manually annotated 1 time for cluster A19.

Info for manual annotations of cluster A2:

- Start number 32 was manually annotated 7 times for cluster A2.



- Start number 33 was manually annotated 9 times for cluster A2.
- Start number 35 was manually annotated 9 times for cluster A2.

Info for manual annotations of cluster A3:

- Start number 25 was manually annotated 15 times for cluster A3.
- Start number 28 was manually annotated 4 times for cluster A3.

Info for manual annotations of cluster A4:

- Start number 25 was manually annotated 1 time for cluster A4.
- Start number 28 was manually annotated 106 times for cluster A4.

Info for manual annotations of cluster A6:

- Start number 32 was manually annotated 26 times for cluster A6.
- Start number 35 was manually annotated 11 times for cluster A6.

Info for manual annotations of cluster A7:

- Start number 30 was manually annotated 1 time for cluster A7.

Info for manual annotations of cluster A9:

- Start number 32 was manually annotated 10 times for cluster A9.

Info for manual annotations of cluster DO:

- Start number 32 was manually annotated 3 times for cluster DO.

Info for manual annotations of cluster DP:

- Start number 36 was manually annotated 3 times for cluster DP.

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

Gene: 40AC\_81 Start: 48267, Stop: 48139, Start Num: 35

Candidate Starts for 40AC\_81:

(Start: 32 @48279 has 62 MA's), (Start: 35 @48267 has 30 MA's),

Gene: AN9\_84 Start: 47045, Stop: 46908, Start Num: 33

Candidate Starts for AN9\_84:

(11, 47204), (Start: 33 @47045 has 11 MA's), (Start: 35 @47036 has 30 MA's), (41, 46958),

Gene: ANI8\_84 Start: 47045, Stop: 46908, Start Num: 33

Candidate Starts for ANI8\_84:

(11, 47204), (Start: 33 @47045 has 11 MA's), (Start: 35 @47036 has 30 MA's), (41, 46958),

Gene: AbbysRanger\_78 Start: 47702, Stop: 47532, Start Num: 28

Candidate Starts for AbbysRanger\_78:

(1, 48197), (3, 48095), (4, 48014), (Start: 28 @47702 has 111 MA's), (Start: 32 @47678 has 62 MA's), (41, 47585),

Gene: Abdiel\_81 Start: 48078, Stop: 47908, Start Num: 28

Candidate Starts for Abdiel\_81:

(Start: 28 @48078 has 111 MA's), (Start: 32 @48054 has 62 MA's), (41, 47961),

Gene: Achebe\_77 Start: 47681, Stop: 47511, Start Num: 28

Candidate Starts for Achebe\_77:

(Start: 28 @47681 has 111 MA's), (Start: 32 @47657 has 62 MA's), (41, 47564),

Gene: Albee\_82 Start: 48066, Stop: 47896, Start Num: 28

Candidate Starts for Albee\_82:

(Start: 28 @48066 has 111 MA's), (Start: 32 @48042 has 62 MA's), (41, 47949),

Gene: Alberto7\_83 Start: 48403, Stop: 48233, Start Num: 28

Candidate Starts for Alberto7\_83:

(Start: 28 @48403 has 111 MA's), (Start: 32 @48379 has 62 MA's),

Gene: Aliter\_82 Start: 46009, Stop: 45866, Start Num: 32

Candidate Starts for Aliter\_82:

(27, 46048), (Start: 32 @46009 has 62 MA's), (34, 46000),

Gene: Aneem\_89 Start: 48093, Stop: 47965, Start Num: 35

Candidate Starts for Aneem\_89:

(Start: 32 @48105 has 62 MA's), (Start: 35 @48093 has 30 MA's), (41, 48015),

Gene: Annyong\_81 Start: 48111, Stop: 47941, Start Num: 28

Candidate Starts for Annyong\_81:

(Start: 28 @48111 has 111 MA's), (Start: 32 @48087 has 62 MA's), (41, 47994),

Gene: ArcherNM\_80 Start: 48138, Stop: 48004, Start Num: 35

Candidate Starts for ArcherNM\_80:

(12, 48261), (24, 48189), (Start: 32 @48150 has 62 MA's), (Start: 35 @48138 has 30 MA's), (41, 48057),

Gene: Artemis2UCLA\_86 Start: 46158, Stop: 46027, Start Num: 35

Candidate Starts for Artemis2UCLA\_86:

(26, 46209), (Start: 32 @46170 has 62 MA's), (Start: 35 @46158 has 30 MA's),

Gene: BABullseye\_78 Start: 44490, Stop: 44347, Start Num: 32

Candidate Starts for BABullseye\_78:

(26, 44529), (Start: 32 @44490 has 62 MA's), (Start: 35 @44478 has 30 MA's),

Gene: Baby16\_82 Start: 48077, Stop: 47907, Start Num: 28

Candidate Starts for Baby16\_82:

(Start: 28 @48077 has 111 MA's), (Start: 32 @48053 has 62 MA's), (41, 47960),

Gene: BabyBack\_78 Start: 48059, Stop: 47931, Start Num: 35

Candidate Starts for BabyBack\_78:

(Start: 32 @48071 has 62 MA's), (Start: 35 @48059 has 30 MA's),

Gene: BabyRay\_84 Start: 47109, Stop: 46939, Start Num: 28

Candidate Starts for BabyRay\_84:

(7, 47334), (10, 47265), (13, 47199), (21, 47160), (Start: 25 @47133 has 28 MA's), (Start: 28 @47109 has 111 MA's), (Start: 32 @47082 has 62 MA's),

Gene: Bachome\_86 Start: 46976, Stop: 46848, Start Num: 35

Candidate Starts for Bachome\_86:

(Start: 32 @46988 has 62 MA's), (Start: 35 @46976 has 30 MA's), (41, 46898),

Gene: Backyardigan\_76 Start: 47718, Stop: 47548, Start Num: 28  
Candidate Starts for Backyardigan\_76:  
(1, 48213), (3, 48111), (4, 48030), (Start: 28 @47718 has 111 MA's), (Start: 32 @47694 has 62 MA's),  
(41, 47601),

Gene: BangNhom\_79 Start: 48503, Stop: 48333, Start Num: 28  
Candidate Starts for BangNhom\_79:  
(Start: 28 @48503 has 111 MA's), (Start: 32 @48479 has 62 MA's),

Gene: Bartimeaus\_82 Start: 48068, Stop: 47898, Start Num: 28  
Candidate Starts for Bartimeaus\_82:  
(Start: 28 @48068 has 111 MA's), (Start: 32 @48044 has 62 MA's), (41, 47951),

Gene: BellusTerra\_82 Start: 47931, Stop: 47761, Start Num: 28  
Candidate Starts for BellusTerra\_82:  
(Start: 28 @47931 has 111 MA's), (Start: 32 @47907 has 62 MA's), (41, 47814),

Gene: Blackmoor\_81 Start: 48068, Stop: 47898, Start Num: 28  
Candidate Starts for Blackmoor\_81:  
(Start: 28 @48068 has 111 MA's), (Start: 32 @48044 has 62 MA's), (41, 47951),

Gene: Blinn1\_89 Start: 47148, Stop: 47005, Start Num: 32  
Candidate Starts for Blinn1\_89:  
(Start: 32 @47148 has 62 MA's), (Start: 35 @47136 has 30 MA's),

Gene: Blue7\_88 Start: 46389, Stop: 46246, Start Num: 32  
Candidate Starts for Blue7\_88:  
(26, 46428), (Start: 32 @46389 has 62 MA's), (Start: 35 @46377 has 30 MA's),

Gene: Bombshell\_82 Start: 48063, Stop: 47893, Start Num: 28  
Candidate Starts for Bombshell\_82:  
(Start: 28 @48063 has 111 MA's), (Start: 32 @48039 has 62 MA's),

Gene: Bowtie\_84 Start: 46700, Stop: 46572, Start Num: 35  
Candidate Starts for Bowtie\_84:  
(Start: 32 @46712 has 62 MA's), (Start: 35 @46700 has 30 MA's), (41, 46622),

Gene: Broseidon\_82 Start: 48069, Stop: 47899, Start Num: 28  
Candidate Starts for Broseidon\_82:  
(Start: 28 @48069 has 111 MA's), (Start: 32 @48045 has 62 MA's), (41, 47952),

Gene: Bruiser\_81 Start: 48066, Stop: 47896, Start Num: 28  
Candidate Starts for Bruiser\_81:  
(Start: 28 @48066 has 111 MA's), (Start: 32 @48042 has 62 MA's),

Gene: BubbleTrouble\_81 Start: 48093, Stop: 47923, Start Num: 28  
Candidate Starts for BubbleTrouble\_81:  
(Start: 28 @48093 has 111 MA's), (Start: 32 @48069 has 62 MA's), (41, 47976),

Gene: Bumblebee11\_77 Start: 47684, Stop: 47514, Start Num: 28  
Candidate Starts for Bumblebee11\_77:  
(1, 48179), (3, 48077), (4, 47996), (Start: 28 @47684 has 111 MA's), (Start: 32 @47660 has 62 MA's),  
(41, 47567),

Gene: Burger\_80 Start: 48066, Stop: 47896, Start Num: 28  
Candidate Starts for Burger\_80:  
(Start: 28 @48066 has 111 MA's), (Start: 32 @48042 has 62 MA's),

Gene: C3\_77 Start: 47036, Stop: 46908, Start Num: 35  
Candidate Starts for C3\_77:  
(11, 47204), (Start: 33 @47045 has 11 MA's), (Start: 35 @47036 has 30 MA's), (41, 46958),

Gene: Caelakin\_80 Start: 48066, Stop: 47896, Start Num: 28  
Candidate Starts for Caelakin\_80:  
(Start: 28 @48066 has 111 MA's), (Start: 32 @48042 has 62 MA's),

Gene: Camperdownii\_78 Start: 47309, Stop: 47139, Start Num: 28  
Candidate Starts for Camperdownii\_78:  
(Start: 28 @47309 has 111 MA's), (Start: 32 @47285 has 62 MA's), (41, 47192),

Gene: Candra\_83 Start: 46183, Stop: 46052, Start Num: 35  
Candidate Starts for Candra\_83:  
(26, 46234), (Start: 32 @46195 has 62 MA's), (Start: 35 @46183 has 30 MA's),

Gene: Caraxes\_86 Start: 47335, Stop: 47207, Start Num: 35  
Candidate Starts for Caraxes\_86:  
(Start: 33 @47344 has 11 MA's), (Start: 35 @47335 has 30 MA's), (39, 47305), (41, 47257),

Gene: Catalina\_91 Start: 48956, Stop: 48813, Start Num: 32  
Candidate Starts for Catalina\_91:  
(27, 48995), (Start: 32 @48956 has 62 MA's), (34, 48947),

Gene: Caviar\_73 Start: 44224, Stop: 44060, Start Num: 25  
Candidate Starts for Caviar\_73:  
(14, 44284), (Start: 25 @44224 has 28 MA's), (41, 44110),

Gene: CentreCat\_82 Start: 48106, Stop: 47936, Start Num: 28  
Candidate Starts for CentreCat\_82:  
(Start: 28 @48106 has 111 MA's), (Start: 32 @48082 has 62 MA's),

Gene: Cerulean\_84 Start: 48504, Stop: 48334, Start Num: 28  
Candidate Starts for Cerulean\_84:  
(Start: 28 @48504 has 111 MA's), (Start: 32 @48480 has 62 MA's),

Gene: ChampagnePapi\_85 Start: 48506, Stop: 48336, Start Num: 28  
Candidate Starts for ChampagnePapi\_85:  
(Start: 28 @48506 has 111 MA's), (Start: 32 @48482 has 62 MA's),

Gene: Chaph\_82 Start: 48077, Stop: 47907, Start Num: 28  
Candidate Starts for Chaph\_82:  
(Start: 28 @48077 has 111 MA's), (Start: 32 @48053 has 62 MA's),

Gene: Chargerpower\_85 Start: 46897, Stop: 46760, Start Num: 32  
Candidate Starts for Chargerpower\_85:  
(24, 46936), (Start: 32 @46897 has 62 MA's), (Start: 36 @46888 has 3 MA's), (40, 46837),

Gene: Chartreuse\_83 Start: 45496, Stop: 45353, Start Num: 32  
Candidate Starts for Chartreuse\_83:  
(26, 45535), (Start: 32 @45496 has 62 MA's), (Start: 35 @45484 has 30 MA's),

Gene: CherryTomatoes\_197 Start: 134867, Stop: 135010, Start Num: 32  
Candidate Starts for CherryTomatoes\_197:  
(Start: 32 @134867 has 62 MA's),

Gene: Chupacabra\_78 Start: 47676, Stop: 47506, Start Num: 25  
Candidate Starts for Chupacabra\_78:  
(8, 47844), (14, 47736), (Start: 25 @47676 has 28 MA's), (Start: 28 @47652 has 111 MA's), (Start: 29 @47646 has 1 MA's), (41, 47556),

Gene: Cici\_78 Start: 47697, Stop: 47527, Start Num: 28  
Candidate Starts for Cici\_78:  
(Start: 28 @47697 has 111 MA's), (Start: 32 @47673 has 62 MA's),

Gene: Cintron\_82 Start: 48182, Stop: 48012, Start Num: 28  
Candidate Starts for Cintron\_82:  
(Start: 28 @48182 has 111 MA's), (Start: 32 @48158 has 62 MA's),

Gene: Citius\_82 Start: 48087, Stop: 47917, Start Num: 28  
Candidate Starts for Citius\_82:  
(Start: 28 @48087 has 111 MA's), (Start: 32 @48063 has 62 MA's), (41, 47970),

Gene: Clarenza\_81 Start: 48063, Stop: 47893, Start Num: 28  
Candidate Starts for Clarenza\_81:  
(Start: 28 @48063 has 111 MA's), (Start: 32 @48039 has 62 MA's),

Gene: CloudWang3\_87 Start: 46699, Stop: 46556, Start Num: 32  
Candidate Starts for CloudWang3\_87:  
(26, 46738), (Start: 32 @46699 has 62 MA's), (Start: 35 @46687 has 30 MA's),

Gene: Colin\_84 Start: 49181, Stop: 49047, Start Num: 35  
Candidate Starts for Colin\_84:  
(18, 49277), (Start: 32 @49193 has 62 MA's), (Start: 35 @49181 has 30 MA's),

Gene: Connomayer\_82 Start: 48066, Stop: 47896, Start Num: 28  
Candidate Starts for Connomayer\_82:  
(Start: 28 @48066 has 111 MA's), (Start: 32 @48042 has 62 MA's), (41, 47949),

Gene: Conquerage\_87 Start: 48617, Stop: 48474, Start Num: 32  
Candidate Starts for Conquerage\_87:  
(27, 48656), (Start: 32 @48617 has 62 MA's), (34, 48608),

Gene: Cookiedough\_85 Start: 46803, Stop: 46660, Start Num: 32  
Candidate Starts for Cookiedough\_85:  
(26, 46842), (Start: 32 @46803 has 62 MA's), (Start: 35 @46791 has 30 MA's),

Gene: DBQu4n\_85 Start: 48081, Stop: 47953, Start Num: 35  
Candidate Starts for DBQu4n\_85:  
(11, 48255), (Start: 33 @48090 has 11 MA's), (Start: 35 @48081 has 30 MA's), (41, 48003),

Gene: DaVinci\_83 Start: 45538, Stop: 45407, Start Num: 35  
Candidate Starts for DaVinci\_83:  
(26, 45589), (Start: 32 @45550 has 62 MA's), (Start: 35 @45538 has 30 MA's),

Gene: DarthPhader\_85 Start: 49743, Stop: 49600, Start Num: 32  
Candidate Starts for DarthPhader\_85:  
(Start: 32 @49743 has 62 MA's), (Start: 35 @49734 has 30 MA's),

Gene: Dhanush\_82 Start: 48069, Stop: 47899, Start Num: 28  
Candidate Starts for Dhanush\_82:  
(Start: 28 @48069 has 111 MA's), (Start: 32 @48045 has 62 MA's),

Gene: DirtyDunning\_81 Start: 48078, Stop: 47908, Start Num: 28  
Candidate Starts for DirtyDunning\_81:  
(Start: 28 @48078 has 111 MA's), (Start: 32 @48054 has 62 MA's),

Gene: Dorothea\_82 Start: 46784, Stop: 46653, Start Num: 35  
Candidate Starts for Dorothea\_82:  
(26, 46835), (Start: 32 @46796 has 62 MA's), (Start: 35 @46784 has 30 MA's),

Gene: Drake94\_78 Start: 46836, Stop: 46663, Start Num: 25  
Candidate Starts for Drake94\_78:  
(8, 47004), (14, 46896), (Start: 25 @46836 has 28 MA's), (Start: 28 @46812 has 111 MA's), (41, 46716),

Gene: Druantia\_80 Start: 47893, Stop: 47723, Start Num: 28  
Candidate Starts for Druantia\_80:  
(1, 48388), (3, 48286), (4, 48205), (Start: 28 @47893 has 111 MA's), (Start: 32 @47869 has 62 MA's), (41, 47776),

Gene: Duplo\_86 Start: 48147, Stop: 48010, Start Num: 33  
Candidate Starts for Duplo\_86:  
(11, 48312), (Start: 33 @48147 has 11 MA's), (Start: 35 @48138 has 30 MA's), (41, 48060),

Gene: EagleEye\_86 Start: 47944, Stop: 47807, Start Num: 33  
Candidate Starts for EagleEye\_86:  
(Start: 33 @47944 has 11 MA's), (Start: 35 @47935 has 30 MA's),

Gene: Ebony\_87 Start: 47664, Stop: 47536, Start Num: 35  
Candidate Starts for Ebony\_87:  
(Start: 32 @47676 has 62 MA's), (Start: 35 @47664 has 30 MA's), (41, 47586),

Gene: Eidsmoe\_87 Start: 48610, Stop: 48467, Start Num: 32  
Candidate Starts for Eidsmoe\_87:  
(27, 48649), (Start: 32 @48610 has 62 MA's), (34, 48601),

Gene: Equemioh13\_85 Start: 48350, Stop: 48207, Start Num: 32  
Candidate Starts for Equemioh13\_85:  
(Start: 32 @48350 has 62 MA's), (34, 48341), (41, 48257),

Gene: EricB\_83 Start: 45693, Stop: 45550, Start Num: 32  
Candidate Starts for EricB\_83:  
(26, 45732), (Start: 32 @45693 has 62 MA's), (Start: 35 @45681 has 30 MA's),

Gene: Eris\_81 Start: 48078, Stop: 47908, Start Num: 28  
Candidate Starts for Eris\_81:  
(Start: 28 @48078 has 111 MA's), (Start: 32 @48054 has 62 MA's),

Gene: Et2Brutus\_88 Start: 47941, Stop: 47813, Start Num: 35  
Candidate Starts for Et2Brutus\_88:  
(Start: 32 @47953 has 62 MA's), (Start: 35 @47941 has 30 MA's), (41, 47863),

Gene: Eurydice\_83 Start: 48103, Stop: 47933, Start Num: 28  
Candidate Starts for Eurydice\_83:  
(Start: 28 @48103 has 111 MA's), (Start: 32 @48079 has 62 MA's),

Gene: Fayely\_87 Start: 48586, Stop: 48443, Start Num: 32  
Candidate Starts for Fayely\_87:  
(27, 48625), (Start: 32 @48586 has 62 MA's), (34, 48577),

Gene: Fibonacci\_88 Start: 47959, Stop: 47819, Start Num: 32  
Candidate Starts for Fibonacci\_88:  
(Start: 32 @47959 has 62 MA's), (Start: 35 @47947 has 30 MA's), (41, 47869),

Gene: Flare16\_85 Start: 48165, Stop: 48022, Start Num: 32  
Candidate Starts for Flare16\_85:  
(Start: 32 @48165 has 62 MA's), (34, 48156), (41, 48072),

Gene: Flaverint\_89 Start: 48103, Stop: 47963, Start Num: 32  
Candidate Starts for Flaverint\_89:  
(Start: 32 @48103 has 62 MA's), (Start: 35 @48091 has 30 MA's), (41, 48013),

Gene: Florean\_82 Start: 48065, Stop: 47895, Start Num: 28  
Candidate Starts for Florean\_82:  
(Start: 28 @48065 has 111 MA's), (Start: 32 @48041 has 62 MA's), (41, 47948),

Gene: Flux\_83 Start: 48064, Stop: 47894, Start Num: 28  
Candidate Starts for Flux\_83:  
(Start: 28 @48064 has 111 MA's), (Start: 32 @48040 has 62 MA's),

Gene: Funston\_81 Start: 48063, Stop: 47893, Start Num: 28  
Candidate Starts for Funston\_81:  
(Start: 28 @48063 has 111 MA's), (Start: 32 @48039 has 62 MA's),

Gene: Garak\_88 Start: 46620, Stop: 46489, Start Num: 35  
Candidate Starts for Garak\_88:  
(26, 46671), (Start: 32 @46632 has 62 MA's), (Start: 35 @46620 has 30 MA's),

Gene: GaugeLDP\_79 Start: 47615, Stop: 47487, Start Num: 35  
Candidate Starts for GaugeLDP\_79:  
(Start: 32 @47627 has 62 MA's), (Start: 35 @47615 has 30 MA's),

Gene: Gilberta\_86 Start: 46979, Stop: 46839, Start Num: 32  
Candidate Starts for Gilberta\_86:  
(Start: 32 @46979 has 62 MA's), (Start: 35 @46967 has 30 MA's), (41, 46889),

Gene: Gladiator\_83 Start: 46355, Stop: 46212, Start Num: 32  
Candidate Starts for Gladiator\_83:  
(26, 46394), (Start: 32 @46355 has 62 MA's), (Start: 35 @46343 has 30 MA's),

Gene: Goose\_82 Start: 47487, Stop: 47317, Start Num: 25  
Candidate Starts for Goose\_82:  
(8, 47655), (Start: 25 @47487 has 28 MA's), (Start: 28 @47463 has 111 MA's), (Start: 29 @47457 has 1 MA's), (41, 47367),

Gene: Gruunaga\_86 Start: 46310, Stop: 46167, Start Num: 32  
Candidate Starts for Gruunaga\_86:  
(26, 46349), (Start: 32 @46310 has 62 MA's), (Start: 35 @46298 has 30 MA's),

Gene: HamSlice\_78 Start: 48065, Stop: 47895, Start Num: 28  
Candidate Starts for HamSlice\_78:  
(Start: 28 @48065 has 111 MA's), (Start: 32 @48041 has 62 MA's), (41, 47948),

Gene: Hammer\_87 Start: 46017, Stop: 45874, Start Num: 32  
Candidate Starts for Hammer\_87:  
(26, 46056), (Start: 32 @46017 has 62 MA's), (Start: 35 @46005 has 30 MA's),

Gene: Happiness\_81 Start: 48089, Stop: 47919, Start Num: 28  
Candidate Starts for Happiness\_81:  
(Start: 28 @48089 has 111 MA's), (Start: 32 @48065 has 62 MA's),

Gene: HarryHoudini\_85 Start: 48375, Stop: 48232, Start Num: 32  
Candidate Starts for HarryHoudini\_85:  
(Start: 32 @48375 has 62 MA's), (34, 48366), (41, 48282),

Gene: Heathen\_84 Start: 47262, Stop: 47092, Start Num: 28  
Candidate Starts for Heathen\_84:  
(7, 47487), (10, 47418), (21, 47313), (Start: 25 @47286 has 28 MA's), (Start: 28 @47262 has 111 MA's), (Start: 32 @47235 has 62 MA's),

Gene: Helmet\_88 Start: 46632, Stop: 46489, Start Num: 32  
Candidate Starts for Helmet\_88:  
(26, 46671), (Start: 32 @46632 has 62 MA's), (Start: 35 @46620 has 30 MA's),

Gene: Hexamo\_86 Start: 46185, Stop: 46042, Start Num: 32  
Candidate Starts for Hexamo\_86:  
(26, 46224), (Start: 32 @46185 has 62 MA's), (Start: 35 @46173 has 30 MA's),

Gene: Holli\_81 Start: 47856, Stop: 47686, Start Num: 28  
Candidate Starts for Holli\_81:  
(Start: 28 @47856 has 111 MA's), (Start: 32 @47832 has 62 MA's), (41, 47739),

Gene: Hookmount\_84 Start: 47227, Stop: 47063, Start Num: 25  
Candidate Starts for Hookmount\_84:  
(14, 47287), (Start: 25 @47227 has 28 MA's), (41, 47113),

Gene: Hoot\_80 Start: 44010, Stop: 43867, Start Num: 32  
Candidate Starts for Hoot\_80:  
(26, 44049), (Start: 32 @44010 has 62 MA's), (Start: 35 @43998 has 30 MA's),



Gene: HortumSL17\_90 Start: 48954, Stop: 48811, Start Num: 32

Candidate Starts for HortumSL17\_90:

(27, 48993), (Start: 32 @48954 has 62 MA's), (34, 48945),

Gene: Hutc2\_85 Start: 46843, Stop: 46703, Start Num: 32

Candidate Starts for Hutc2\_85:

(Start: 32 @46843 has 62 MA's), (Start: 35 @46831 has 30 MA's), (41, 46753),

Gene: ICleared\_81 Start: 48134, Stop: 47964, Start Num: 28

Candidate Starts for ICleared\_81:

(Start: 28 @48134 has 111 MA's), (Start: 32 @48110 has 62 MA's),

Gene: Iceman\_80 Start: 48356, Stop: 48186, Start Num: 28

Candidate Starts for Iceman\_80:

(Start: 28 @48356 has 111 MA's), (Start: 32 @48332 has 62 MA's), (41, 48239),

Gene: Indra\_90 Start: 46633, Stop: 46490, Start Num: 32

Candidate Starts for Indra\_90:

(26, 46672), (Start: 32 @46633 has 62 MA's), (Start: 35 @46621 has 30 MA's),

Gene: Insomnia\_87 Start: 48125, Stop: 47997, Start Num: 35

Candidate Starts for Insomnia\_87:

(Start: 32 @48137 has 62 MA's), (Start: 35 @48125 has 30 MA's), (41, 48047),

Gene: Iracema64\_82 Start: 48330, Stop: 48160, Start Num: 28

Candidate Starts for Iracema64\_82:

(Start: 28 @48330 has 111 MA's), (Start: 32 @48306 has 62 MA's),

Gene: Isca\_80 Start: 46413, Stop: 46216, Start Num: 25

Candidate Starts for Isca\_80:

(10, 46545), (21, 46440), (Start: 25 @46413 has 28 MA's), (Start: 28 @46389 has 111 MA's), (Start: 32 @46362 has 62 MA's),

Gene: Isiphiwo\_81 Start: 45709, Stop: 45578, Start Num: 35

Candidate Starts for Isiphiwo\_81:

(26, 45760), (Start: 32 @45721 has 62 MA's), (Start: 35 @45709 has 30 MA's),

Gene: Jabith\_88 Start: 48151, Stop: 48011, Start Num: 32

Candidate Starts for Jabith\_88:

(Start: 32 @48151 has 62 MA's), (Start: 35 @48139 has 30 MA's), (41, 48061),

Gene: Jaykayelowell\_79 Start: 48059, Stop: 47889, Start Num: 28

Candidate Starts for Jaykayelowell\_79:

(Start: 28 @48059 has 111 MA's), (Start: 32 @48035 has 62 MA's), (41, 47942),

Gene: JetBlade\_83 Start: 48094, Stop: 47924, Start Num: 28

Candidate Starts for JetBlade\_83:

(Start: 28 @48094 has 111 MA's), (Start: 32 @48070 has 62 MA's), (41, 47977),

Gene: JewelBug\_77 Start: 44488, Stop: 44333, Start Num: 32

Candidate Starts for JewelBug\_77:

(26, 44527), (Start: 32 @44488 has 62 MA's), (Start: 35 @44476 has 30 MA's),

Gene: JoongJeon\_81 Start: 48060, Stop: 47890, Start Num: 28  
Candidate Starts for JoongJeon\_81:  
(Start: 28 @48060 has 111 MA's), (Start: 32 @48036 has 62 MA's),

Gene: Jordennis\_83 Start: 46392, Stop: 46249, Start Num: 32  
Candidate Starts for Jordennis\_83:  
(26, 46431), (Start: 32 @46392 has 62 MA's), (Start: 35 @46380 has 30 MA's),

Gene: Joselito\_86 Start: 47845, Stop: 47717, Start Num: 35  
Candidate Starts for Joselito\_86:  
(Start: 32 @47857 has 62 MA's), (Start: 35 @47845 has 30 MA's), (41, 47767),

Gene: Jsquared\_89 Start: 47958, Stop: 47821, Start Num: 33  
Candidate Starts for Jsquared\_89:  
(Start: 33 @47958 has 11 MA's), (Start: 35 @47949 has 30 MA's), (39, 47919), (41, 47871),

Gene: KFPoly\_81 Start: 48060, Stop: 47890, Start Num: 28  
Candidate Starts for KFPoly\_81:  
(Start: 28 @48060 has 111 MA's), (Start: 32 @48036 has 62 MA's),

Gene: Kamy\_81 Start: 48069, Stop: 47899, Start Num: 28  
Candidate Starts for Kamy\_81:  
(Start: 28 @48069 has 111 MA's), (Start: 32 @48045 has 62 MA's),

Gene: Kazan\_86 Start: 46165, Stop: 46022, Start Num: 32  
Candidate Starts for Kazan\_86:  
(26, 46204), (Start: 32 @46165 has 62 MA's), (Start: 35 @46153 has 30 MA's),

Gene: Kerberos\_85 Start: 48101, Stop: 47973, Start Num: 35  
Candidate Starts for Kerberos\_85:  
(11, 48275), (Start: 33 @48110 has 11 MA's), (Start: 35 @48101 has 30 MA's), (41, 48023),

Gene: Kimona\_82 Start: 46840, Stop: 46682, Start Num: 28  
Candidate Starts for Kimona\_82:  
(Start: 28 @46840 has 111 MA's),

Gene: Kipper29\_85 Start: 46168, Stop: 46025, Start Num: 32  
Candidate Starts for Kipper29\_85:  
(26, 46207), (Start: 32 @46168 has 62 MA's), (Start: 35 @46156 has 30 MA's),

Gene: Koduck\_85 Start: 47288, Stop: 47160, Start Num: 35  
Candidate Starts for Koduck\_85:  
(9, 47483), (16, 47387), (Start: 33 @47297 has 11 MA's), (Start: 35 @47288 has 30 MA's), (39, 47258), (41, 47210),

Gene: Koko\_88 Start: 47022, Stop: 46879, Start Num: 32  
Candidate Starts for Koko\_88:  
(26, 47061), (Start: 32 @47022 has 62 MA's), (Start: 35 @47010 has 30 MA's),

Gene: Koreni\_81 Start: 47747, Stop: 47577, Start Num: 28  
Candidate Starts for Koreni\_81:  
(Start: 28 @47747 has 111 MA's), (Start: 32 @47723 has 62 MA's),

Gene: Kratak\_81 Start: 48100, Stop: 47930, Start Num: 28  
Candidate Starts for Kratak\_81:  
(Start: 28 @48100 has 111 MA's), (Start: 32 @48076 has 62 MA's), (41, 47983),

Gene: Kristoff\_79 Start: 48111, Stop: 47938, Start Num: 25  
Candidate Starts for Kristoff\_79:  
(14, 48171), (Start: 25 @48111 has 28 MA's), (Start: 28 @48087 has 111 MA's), (Start: 29 @48081 has 1 MA's), (41, 47991), (42, 47946),

Gene: Kyee\_82 Start: 48061, Stop: 47891, Start Num: 28  
Candidate Starts for Kyee\_82:  
(Start: 28 @48061 has 111 MA's), (Start: 32 @48037 has 62 MA's),

Gene: L5\_78 Start: 47188, Stop: 47051, Start Num: 33  
Candidate Starts for L5\_78:  
(9, 47374), (Start: 33 @47188 has 11 MA's), (Start: 35 @47179 has 30 MA's), (39, 47149), (41, 47101),

Gene: LHTSCC\_84 Start: 48506, Stop: 48336, Start Num: 28  
Candidate Starts for LHTSCC\_84:  
(Start: 28 @48506 has 111 MA's), (Start: 32 @48482 has 62 MA's), (41, 48389),

Gene: Lambert1\_84 Start: 47228, Stop: 47064, Start Num: 25  
Candidate Starts for Lambert1\_84:  
(14, 47288), (Start: 25 @47228 has 28 MA's), (41, 47114),

Gene: LappelDuVide\_78 Start: 48066, Stop: 47896, Start Num: 28  
Candidate Starts for LappelDuVide\_78:  
(Start: 28 @48066 has 111 MA's), (Start: 32 @48042 has 62 MA's), (41, 47949),

Gene: Lemur\_82 Start: 48063, Stop: 47893, Start Num: 28  
Candidate Starts for Lemur\_82:  
(Start: 28 @48063 has 111 MA's), (Start: 32 @48039 has 62 MA's), (41, 47946),

Gene: LittleB\_82 Start: 48067, Stop: 47897, Start Num: 28  
Candidate Starts for LittleB\_82:  
(Start: 28 @48067 has 111 MA's), (Start: 32 @48043 has 62 MA's),

Gene: LittleGuy\_82 Start: 47957, Stop: 47784, Start Num: 28  
Candidate Starts for LittleGuy\_82:  
(Start: 28 @47957 has 111 MA's), (Start: 32 @47930 has 62 MA's), (41, 47837),

Gene: LochMonster\_83 Start: 48303, Stop: 48133, Start Num: 28  
Candidate Starts for LochMonster\_83:  
(Start: 28 @48303 has 111 MA's), (Start: 32 @48279 has 62 MA's),

Gene: Lorenzo\_82 Start: 48064, Stop: 47894, Start Num: 28  
Candidate Starts for Lorenzo\_82:  
(Start: 28 @48064 has 111 MA's), (Start: 32 @48040 has 62 MA's),

Gene: Lucivia\_89 Start: 48124, Stop: 47996, Start Num: 35  
Candidate Starts for Lucivia\_89:

(Start: 32 @48136 has 62 MA's), (Start: 35 @48124 has 30 MA's), (41, 48046),

Gene: Lucyedi\_85 Start: 48143, Stop: 48006, Start Num: 33

Candidate Starts for Lucyedi\_85:

(Start: 33 @48143 has 11 MA's), (Start: 35 @48134 has 30 MA's), (41, 48056),

Gene: MA5\_82 Start: 46285, Stop: 46112, Start Num: 28

Candidate Starts for MA5\_82:

(14, 46369), (22, 46330), (Start: 28 @46285 has 111 MA's), (Start: 32 @46258 has 62 MA's),

Gene: MaCh\_88 Start: 48100, Stop: 47960, Start Num: 32

Candidate Starts for MaCh\_88:

(Start: 32 @48100 has 62 MA's), (Start: 35 @48088 has 30 MA's), (41, 48010),

Gene: Mabel\_88 Start: 48101, Stop: 47961, Start Num: 32

Candidate Starts for Mabel\_88:

(Start: 32 @48101 has 62 MA's), (Start: 35 @48089 has 30 MA's), (41, 48011),

Gene: Margo\_84 Start: 47253, Stop: 47089, Start Num: 25

Candidate Starts for Margo\_84:

(14, 47313), (Start: 25 @47253 has 28 MA's), (41, 47139),

Gene: Maverick\_81 Start: 48063, Stop: 47893, Start Num: 28

Candidate Starts for Maverick\_81:

(Start: 28 @48063 has 111 MA's), (Start: 32 @48039 has 62 MA's),

Gene: Maxo\_84 Start: 48069, Stop: 47899, Start Num: 28

Candidate Starts for Maxo\_84:

(Start: 28 @48069 has 111 MA's), (Start: 32 @48045 has 62 MA's),

Gene: Mazhar510\_82 Start: 48064, Stop: 47894, Start Num: 28

Candidate Starts for Mazhar510\_82:

(Start: 28 @48064 has 111 MA's), (Start: 32 @48040 has 62 MA's),

Gene: McFly\_85 Start: 46492, Stop: 46361, Start Num: 35

Candidate Starts for McFly\_85:

(26, 46543), (Start: 32 @46504 has 62 MA's), (Start: 35 @46492 has 30 MA's),

Gene: Medusa\_81 Start: 48079, Stop: 47909, Start Num: 28

Candidate Starts for Medusa\_81:

(Start: 28 @48079 has 111 MA's), (Start: 32 @48055 has 62 MA's),

Gene: Melvin\_84 Start: 48061, Stop: 47891, Start Num: 28

Candidate Starts for Melvin\_84:

(Start: 28 @48061 has 111 MA's), (Start: 32 @48037 has 62 MA's),

Gene: MiculUcigas\_85 Start: 48068, Stop: 47925, Start Num: 32

Candidate Starts for MiculUcigas\_85:

(Start: 32 @48068 has 62 MA's), (34, 48059), (41, 47975),

Gene: Millski\_81 Start: 48067, Stop: 47897, Start Num: 28

Candidate Starts for Millski\_81:

(Start: 28 @48067 has 111 MA's), (Start: 32 @48043 has 62 MA's),

Gene: Miramae\_82 Start: 47982, Stop: 47812, Start Num: 28

Candidate Starts for Miramae\_82:

(Start: 28 @47982 has 111 MA's), (Start: 32 @47958 has 62 MA's), (41, 47865),

Gene: Morpher26\_78 Start: 47705, Stop: 47535, Start Num: 28

Candidate Starts for Morpher26\_78:

(1, 48200), (3, 48098), (4, 48017), (Start: 28 @47705 has 111 MA's), (Start: 32 @47681 has 62 MA's),

Gene: Morrow\_84 Start: 48106, Stop: 47936, Start Num: 28

Candidate Starts for Morrow\_84:

(Start: 28 @48106 has 111 MA's), (Start: 32 @48082 has 62 MA's), (41, 47989),

Gene: Mulciber\_87 Start: 47956, Stop: 47816, Start Num: 32

Candidate Starts for Mulciber\_87:

(Start: 32 @47956 has 62 MA's), (Start: 35 @47944 has 30 MA's), (41, 47866),

Gene: Munch\_87 Start: 48093, Stop: 47965, Start Num: 35

Candidate Starts for Munch\_87:

(Start: 32 @48105 has 62 MA's), (Start: 35 @48093 has 30 MA's), (41, 48015),

Gene: Mundrea\_80 Start: 47944, Stop: 47774, Start Num: 28

Candidate Starts for Mundrea\_80:

(Start: 28 @47944 has 111 MA's), (Start: 32 @47920 has 62 MA's), (41, 47827),

Gene: Myxus\_89 Start: 48954, Stop: 48811, Start Num: 32

Candidate Starts for Myxus\_89:

(27, 48993), (Start: 32 @48954 has 62 MA's), (34, 48945),

Gene: Nebs\_83 Start: 48106, Stop: 47936, Start Num: 28

Candidate Starts for Nebs\_83:

(Start: 28 @48106 has 111 MA's), (Start: 32 @48082 has 62 MA's),

Gene: Neeharika16\_84 Start: 46254, Stop: 46111, Start Num: 32

Candidate Starts for Neeharika16\_84:

(26, 46293), (Start: 32 @46254 has 62 MA's), (Start: 35 @46242 has 30 MA's),

Gene: Newrala\_84 Start: 46600, Stop: 46457, Start Num: 32

Candidate Starts for Newrala\_84:

(26, 46639), (Start: 32 @46600 has 62 MA's), (Start: 35 @46588 has 30 MA's),

Gene: Noella\_85 Start: 47229, Stop: 47065, Start Num: 25

Candidate Starts for Noella\_85:

(14, 47289), (Start: 25 @47229 has 28 MA's), (41, 47115),

Gene: Noelle\_79 Start: 47911, Stop: 47741, Start Num: 28

Candidate Starts for Noelle\_79:

(Start: 28 @47911 has 111 MA's), (Start: 32 @47887 has 62 MA's), (41, 47794),

Gene: Norbert\_80 Start: 47226, Stop: 47062, Start Num: 25

Candidate Starts for Norbert\_80:

(14, 47286), (Start: 25 @47226 has 28 MA's), (41, 47112),

Gene: Nyxis\_81 Start: 47951, Stop: 47778, Start Num: 28  
Candidate Starts for Nyxis\_81:  
(Start: 28 @47951 has 111 MA's), (Start: 32 @47924 has 62 MA's), (41, 47831),

Gene: OKCentral2016\_80 Start: 46884, Stop: 46744, Start Num: 29  
Candidate Starts for OKCentral2016\_80:  
(8, 47082), (14, 46974), (Start: 25 @46914 has 28 MA's), (Start: 28 @46890 has 111 MA's), (Start: 29 @46884 has 1 MA's), (41, 46794),

Gene: OKaNui\_81 Start: 48117, Stop: 47947, Start Num: 28  
Candidate Starts for OKaNui\_81:  
(Start: 28 @48117 has 111 MA's), (Start: 32 @48093 has 62 MA's),

Gene: Odin\_84 Start: 47817, Stop: 47680, Start Num: 33  
Candidate Starts for Odin\_84:  
(Start: 33 @47817 has 11 MA's), (Start: 35 @47808 has 30 MA's), (39, 47778), (41, 47730),

Gene: Ohfah\_83 Start: 48106, Stop: 47936, Start Num: 28  
Candidate Starts for Ohfah\_83:  
(Start: 28 @48106 has 111 MA's), (Start: 32 @48082 has 62 MA's),

Gene: Orange\_88 Start: 47655, Stop: 47515, Start Num: 32  
Candidate Starts for Orange\_88:  
(Start: 32 @47655 has 62 MA's), (Start: 35 @47643 has 30 MA's), (41, 47565),

Gene: PackMan\_84 Start: 46868, Stop: 46725, Start Num: 32  
Candidate Starts for PackMan\_84:  
(27, 46907), (Start: 32 @46868 has 62 MA's), (34, 46859),

Gene: Palestino\_81 Start: 48063, Stop: 47893, Start Num: 28  
Candidate Starts for Palestino\_81:  
(Start: 28 @48063 has 111 MA's), (Start: 32 @48039 has 62 MA's),

Gene: PeaceMeal1\_78 Start: 46844, Stop: 46671, Start Num: 25  
Candidate Starts for PeaceMeal1\_78:  
(8, 47012), (14, 46904), (Start: 25 @46844 has 28 MA's), (Start: 28 @46820 has 111 MA's), (41, 46724),

Gene: Peaches\_80 Start: 48071, Stop: 47898, Start Num: 28  
Candidate Starts for Peaches\_80:  
(Start: 28 @48071 has 111 MA's), (Start: 32 @48044 has 62 MA's), (41, 47951),

Gene: Perplexer\_78 Start: 47685, Stop: 47515, Start Num: 28  
Candidate Starts for Perplexer\_78:  
(1, 48180), (3, 48078), (4, 47997), (Start: 28 @47685 has 111 MA's), (Start: 32 @47661 has 62 MA's), (41, 47568),

Gene: PeterPeter\_82 Start: 48060, Stop: 47890, Start Num: 28  
Candidate Starts for PeterPeter\_82:  
(Start: 28 @48060 has 111 MA's), (Start: 32 @48036 has 62 MA's),

Gene: Petersenfast\_82 Start: 46524, Stop: 46396, Start Num: 35  
Candidate Starts for Petersenfast\_82:

(Start: 32 @46536 has 62 MA's), (Start: 35 @46524 has 30 MA's), (41, 46446),

Gene: PetiteSangsue\_78 Start: 47688, Stop: 47518, Start Num: 28

Candidate Starts for PetiteSangsue\_78:

(1, 48183), (2, 48087), (3, 48081), (4, 48000), (Start: 28 @47688 has 111 MA's), (Start: 32 @47664 has 62 MA's), (41, 47571),

Gene: Phacado\_82 Start: 48062, Stop: 47892, Start Num: 28

Candidate Starts for Phacado\_82:

(Start: 28 @48062 has 111 MA's), (Start: 32 @48038 has 62 MA's),

Gene: Phantastic\_85 Start: 46741, Stop: 46544, Start Num: 25

Candidate Starts for Phantastic\_85:

(10, 46873), (21, 46768), (Start: 25 @46741 has 28 MA's), (Start: 28 @46717 has 111 MA's), (Start: 32 @46690 has 62 MA's),

Gene: Phelipe\_82 Start: 48027, Stop: 47857, Start Num: 28

Candidate Starts for Phelipe\_82:

(Start: 28 @48027 has 111 MA's), (Start: 32 @48003 has 62 MA's),

Gene: Phighter1804\_82 Start: 48127, Stop: 47957, Start Num: 28

Candidate Starts for Phighter1804\_82:

(Start: 28 @48127 has 111 MA's), (Start: 32 @48103 has 62 MA's),

Gene: Phlei\_71 Start: 45865, Stop: 45713, Start Num: 31

Candidate Starts for Phlei\_71:

(31, 45865), (Start: 35 @45844 has 30 MA's), (37, 45832), (43, 45721),

Gene: Phontbonne\_82 Start: 47967, Stop: 47794, Start Num: 28

Candidate Starts for Phontbonne\_82:

(Start: 28 @47967 has 111 MA's), (Start: 32 @47940 has 62 MA's), (41, 47847),

Gene: Pipcraft\_78 Start: 48067, Stop: 47897, Start Num: 28

Candidate Starts for Pipcraft\_78:

(Start: 28 @48067 has 111 MA's), (Start: 32 @48043 has 62 MA's),

Gene: Pmask\_84 Start: 46789, Stop: 46658, Start Num: 35

Candidate Starts for Pmask\_84:

(26, 46840), (Start: 32 @46801 has 62 MA's), (Start: 35 @46789 has 30 MA's),

Gene: Pocahontas\_83 Start: 47224, Stop: 47060, Start Num: 25

Candidate Starts for Pocahontas\_83:

(14, 47284), (Start: 25 @47224 has 28 MA's), (41, 47110),

Gene: Polymorphads\_83 Start: 48087, Stop: 47917, Start Num: 28

Candidate Starts for Polymorphads\_83:

(Start: 28 @48087 has 111 MA's), (Start: 32 @48063 has 62 MA's), (41, 47970),

Gene: Pomar16\_85 Start: 48174, Stop: 48046, Start Num: 35

Candidate Starts for Pomar16\_85:

(11, 48348), (Start: 33 @48183 has 11 MA's), (Start: 35 @48174 has 30 MA's), (41, 48096),

Gene: Poompha\_78 Start: 46842, Stop: 46669, Start Num: 25

Candidate Starts for Poompha\_78:  
(8, 47010), (14, 46902), (23, 46860), (Start: 25 @46842 has 28 MA's), (Start: 28 @46818 has 111 MA's), (41, 46722),

Gene: Popcicle\_84 Start: 47224, Stop: 47060, Start Num: 25  
Candidate Starts for Popcicle\_84:  
(14, 47284), (Start: 25 @47224 has 28 MA's), (41, 47110),

Gene: Priamo\_86 Start: 46033, Stop: 45902, Start Num: 35  
Candidate Starts for Priamo\_86:  
(26, 46084), (Start: 32 @46045 has 62 MA's), (Start: 35 @46033 has 30 MA's),

Gene: Pumbaa\_82 Start: 48011, Stop: 47841, Start Num: 28  
Candidate Starts for Pumbaa\_82:  
(Start: 28 @48011 has 111 MA's), (Start: 32 @47987 has 62 MA's), (41, 47894),

Gene: Pupper\_190 Start: 134729, Stop: 134872, Start Num: 32  
Candidate Starts for Pupper\_190:  
(Start: 32 @134729 has 62 MA's),

Gene: QuinnKiro\_83 Start: 47227, Stop: 47063, Start Num: 25  
Candidate Starts for QuinnKiro\_83:  
(14, 47287), (Start: 25 @47227 has 28 MA's), (41, 47113),

Gene: Rebeuca\_82 Start: 48112, Stop: 47939, Start Num: 25  
Candidate Starts for Rebeuca\_82:  
(14, 48172), (Start: 25 @48112 has 28 MA's), (Start: 28 @48088 has 111 MA's), (Start: 29 @48082 has 1 MA's), (41, 47992), (42, 47947),

Gene: Refuge\_87 Start: 50587, Stop: 50444, Start Num: 32  
Candidate Starts for Refuge\_87:  
(Start: 32 @50587 has 62 MA's), (Start: 35 @50578 has 30 MA's),

Gene: ResDef\_82 Start: 47230, Stop: 47066, Start Num: 25  
Candidate Starts for ResDef\_82:  
(14, 47290), (Start: 25 @47230 has 28 MA's), (41, 47116),

Gene: RhynO\_69 Start: 43547, Stop: 43377, Start Num: 25  
Candidate Starts for RhynO\_69:  
(23, 43565), (Start: 25 @43547 has 28 MA's), (Start: 28 @43523 has 111 MA's), (41, 43427),

Gene: Rifter\_87 Start: 45812, Stop: 45669, Start Num: 32  
Candidate Starts for Rifter\_87:  
(26, 45851), (Start: 32 @45812 has 62 MA's), (Start: 35 @45800 has 30 MA's),

Gene: Roksolana\_87 Start: 46528, Stop: 46385, Start Num: 32  
Candidate Starts for Roksolana\_87:  
(26, 46567), (Start: 32 @46528 has 62 MA's), (Start: 35 @46516 has 30 MA's),

Gene: Romney\_81 Start: 48063, Stop: 47893, Start Num: 28  
Candidate Starts for Romney\_81:  
(Start: 28 @48063 has 111 MA's), (Start: 32 @48039 has 62 MA's),



Gene: Ronaldo\_142 Start: 66482, Stop: 66613, Start Num: 36  
Candidate Starts for Ronaldo\_142:  
(Start: 36 @66482 has 3 MA's), (39, 66512),

Gene: Roosevelt\_80 Start: 48068, Stop: 47898, Start Num: 28  
Candidate Starts for Roosevelt\_80:  
(Start: 28 @48068 has 111 MA's), (Start: 32 @48044 has 62 MA's), (41, 47951),

Gene: Ruin\_82 Start: 48059, Stop: 47889, Start Num: 28  
Candidate Starts for Ruin\_82:  
(Start: 28 @48059 has 111 MA's), (Start: 32 @48035 has 62 MA's),

Gene: SCentae\_189 Start: 134921, Stop: 135064, Start Num: 32  
Candidate Starts for SCentae\_189:  
(Start: 32 @134921 has 62 MA's),

Gene: Sabertooth\_82 Start: 48071, Stop: 47901, Start Num: 28  
Candidate Starts for Sabertooth\_82:  
(Start: 28 @48071 has 111 MA's), (Start: 32 @48047 has 62 MA's),

Gene: Salz\_84 Start: 46753, Stop: 46625, Start Num: 35  
Candidate Starts for Salz\_84:  
(Start: 32 @46765 has 62 MA's), (Start: 35 @46753 has 30 MA's), (41, 46675),

Gene: Scamp\_82 Start: 48068, Stop: 47898, Start Num: 28  
Candidate Starts for Scamp\_82:  
(Start: 28 @48068 has 111 MA's), (Start: 32 @48044 has 62 MA's),

Gene: Scout\_84 Start: 46725, Stop: 46555, Start Num: 28  
Candidate Starts for Scout\_84:  
(7, 46950), (10, 46881), (21, 46776), (Start: 25 @46749 has 28 MA's), (Start: 28 @46725 has 111 MA's), (Start: 32 @46698 has 62 MA's),

Gene: Serenity\_88 Start: 47747, Stop: 47619, Start Num: 35  
Candidate Starts for Serenity\_88:  
(Start: 33 @47756 has 11 MA's), (Start: 35 @47747 has 30 MA's), (39, 47717), (41, 47669),

Gene: Severus\_79 Start: 46842, Stop: 46669, Start Num: 25  
Candidate Starts for Severus\_79:  
(8, 47010), (14, 46902), (Start: 25 @46842 has 28 MA's), (Start: 28 @46818 has 111 MA's), (41, 46722),

Gene: Shaka\_80 Start: 48064, Stop: 47894, Start Num: 28  
Candidate Starts for Shaka\_80:  
(Start: 28 @48064 has 111 MA's), (Start: 32 @48040 has 62 MA's), (41, 47947),

Gene: Sham4\_85 Start: 46851, Stop: 46711, Start Num: 32  
Candidate Starts for Sham4\_85:  
(Start: 32 @46851 has 62 MA's), (Start: 35 @46839 has 30 MA's), (41, 46761),

Gene: Sheen\_80 Start: 50105, Stop: 49956, Start Num: 30  
Candidate Starts for Sheen\_80:  
(Start: 30 @50105 has 1 MA's), (38, 50063),

Gene: Shygu2\_80 Start: 48010, Stop: 47840, Start Num: 28  
Candidate Starts for Shygu2\_80:  
(Start: 28 @48010 has 111 MA's), (Start: 32 @47986 has 62 MA's), (41, 47893),

Gene: Skog\_22 Start: 10918, Stop: 11064, Start Num: 32  
Candidate Starts for Skog\_22:  
(5, 10645), (6, 10654), (Start: 32 @10918 has 62 MA's),

Gene: SmellyB\_85 Start: 46159, Stop: 46016, Start Num: 32  
Candidate Starts for SmellyB\_85:  
(26, 46198), (Start: 32 @46159 has 62 MA's), (Start: 35 @46147 has 30 MA's),

Gene: Snape\_88 Start: 47644, Stop: 47504, Start Num: 32  
Candidate Starts for Snape\_88:  
(Start: 32 @47644 has 62 MA's), (Start: 35 @47632 has 30 MA's), (41, 47554),

Gene: Sparxx\_83 Start: 48062, Stop: 47892, Start Num: 28  
Candidate Starts for Sparxx\_83:  
(Start: 28 @48062 has 111 MA's), (Start: 32 @48038 has 62 MA's), (41, 47945),

Gene: Spino\_81 Start: 48066, Stop: 47896, Start Num: 28  
Candidate Starts for Spino\_81:  
(Start: 28 @48066 has 111 MA's), (Start: 32 @48042 has 62 MA's),

Gene: Spouty\_84 Start: 48612, Stop: 48469, Start Num: 32  
Candidate Starts for Spouty\_84:  
(27, 48651), (Start: 32 @48612 has 62 MA's), (34, 48603),

Gene: StarStuff\_85 Start: 48145, Stop: 48008, Start Num: 33  
Candidate Starts for StarStuff\_85:  
(11, 48310), (Start: 33 @48145 has 11 MA's), (Start: 35 @48136 has 30 MA's), (41, 48058),

Gene: Stasia\_79 Start: 48019, Stop: 47846, Start Num: 25  
Candidate Starts for Stasia\_79:  
(17, 48067), (19, 48055), (23, 48037), (Start: 25 @48019 has 28 MA's), (Start: 28 @47995 has 111 MA's),

Gene: Steamy\_84 Start: 49557, Stop: 49414, Start Num: 32  
Candidate Starts for Steamy\_84:  
(15, 49653), (20, 49623), (24, 49596), (Start: 32 @49557 has 62 MA's), (Start: 35 @49548 has 30 MA's),

Gene: SuperAwesome\_85 Start: 46840, Stop: 46697, Start Num: 32  
Candidate Starts for SuperAwesome\_85:  
(26, 46879), (Start: 32 @46840 has 62 MA's), (Start: 35 @46828 has 30 MA's),

Gene: SuperCallie99\_81 Start: 46210, Stop: 46079, Start Num: 35  
Candidate Starts for SuperCallie99\_81:  
(26, 46261), (Start: 32 @46222 has 62 MA's), (Start: 35 @46210 has 30 MA's),

Gene: Superchunk\_85 Start: 47335, Stop: 47207, Start Num: 35  
Candidate Starts for Superchunk\_85:

(Start: 33 @47344 has 11 MA's), (Start: 35 @47335 has 30 MA's), (39, 47305), (41, 47257),

Gene: TNguyen7\_86 Start: 47526, Stop: 47332, Start Num: 25

Candidate Starts for TNguyen7\_86:

(7, 47727), (8, 47700), (10, 47658), (21, 47553), (23, 47544), (Start: 25 @47526 has 28 MA's), (Start: 28 @47502 has 111 MA's), (Start: 32 @47475 has 62 MA's),

Gene: Taquarus\_81 Start: 48075, Stop: 47902, Start Num: 28

Candidate Starts for Taquarus\_81:

(Start: 28 @48075 has 111 MA's), (Start: 32 @48048 has 62 MA's), (41, 47955),

Gene: Texage\_82 Start: 47228, Stop: 47064, Start Num: 25

Candidate Starts for Texage\_82:

(14, 47288), (Start: 25 @47228 has 28 MA's), (41, 47114),

Gene: Thanksgivukkah\_81 Start: 48064, Stop: 47894, Start Num: 28

Candidate Starts for Thanksgivukkah\_81:

(Start: 28 @48064 has 111 MA's), (Start: 32 @48040 has 62 MA's),

Gene: Timothy\_88 Start: 47609, Stop: 47481, Start Num: 35

Candidate Starts for Timothy\_88:

(Start: 32 @47621 has 62 MA's), (Start: 35 @47609 has 30 MA's), (41, 47531),

Gene: TinaFeyge\_80 Start: 48061, Stop: 47891, Start Num: 28

Candidate Starts for TinaFeyge\_80:

(Start: 28 @48061 has 111 MA's), (Start: 32 @48037 has 62 MA's), (41, 47944),

Gene: TinyTimmy\_86 Start: 47338, Stop: 47210, Start Num: 35

Candidate Starts for TinyTimmy\_86:

(Start: 32 @47350 has 62 MA's), (Start: 35 @47338 has 30 MA's), (41, 47260),

Gene: Tinybot\_81 Start: 48093, Stop: 47923, Start Num: 28

Candidate Starts for Tinybot\_81:

(Start: 28 @48093 has 111 MA's), (Start: 32 @48069 has 62 MA's), (41, 47976),

Gene: TipsytheTRex\_84 Start: 47758, Stop: 47621, Start Num: 33

Candidate Starts for TipsytheTRex\_84:

(Start: 33 @47758 has 11 MA's), (Start: 35 @47749 has 30 MA's), (39, 47719), (41, 47671),

Gene: TiroTheta9\_81 Start: 48060, Stop: 47890, Start Num: 28

Candidate Starts for TiroTheta9\_81:

(Start: 28 @48060 has 111 MA's), (Start: 32 @48036 has 62 MA's), (41, 47943),

Gene: Todacoro\_84 Start: 47227, Stop: 47063, Start Num: 25

Candidate Starts for Todacoro\_84:

(14, 47287), (Start: 25 @47227 has 28 MA's), (41, 47113),

Gene: Tomathan\_85 Start: 48214, Stop: 48086, Start Num: 35

Candidate Starts for Tomathan\_85:

(11, 48388), (Start: 33 @48223 has 11 MA's), (Start: 35 @48214 has 30 MA's), (41, 48136),

Gene: ToneTone\_84 Start: 46180, Stop: 46049, Start Num: 35

Candidate Starts for ToneTone\_84:

(26, 46231), (Start: 32 @46192 has 62 MA's), (Start: 35 @46180 has 30 MA's),

Gene: Topanga\_71 Start: 44568, Stop: 44395, Start Num: 25

Candidate Starts for Topanga\_71:

(Start: 25 @44568 has 28 MA's), (Start: 28 @44544 has 111 MA's), (41, 44448),

Gene: Trixie\_85 Start: 49116, Stop: 48976, Start Num: 32

Candidate Starts for Trixie\_85:

(Start: 32 @49116 has 62 MA's), (Start: 35 @49104 has 30 MA's), (41, 49026),

Gene: Trooper\_84 Start: 48107, Stop: 47961, Start Num: 32

Candidate Starts for Trooper\_84:

(Start: 32 @48107 has 62 MA's), (34, 48098),

Gene: TroyPia\_83 Start: 48101, Stop: 47931, Start Num: 28

Candidate Starts for TroyPia\_83:

(Start: 28 @48101 has 111 MA's), (Start: 32 @48077 has 62 MA's),

Gene: Tubs\_89 Start: 48829, Stop: 48686, Start Num: 32

Candidate Starts for Tubs\_89:

(27, 48868), (Start: 32 @48829 has 62 MA's), (34, 48820),

Gene: Tucker\_87 Start: 46383, Stop: 46252, Start Num: 35

Candidate Starts for Tucker\_87:

(26, 46434), (Start: 32 @46395 has 62 MA's), (Start: 35 @46383 has 30 MA's),

Gene: Twister\_82 Start: 47776, Stop: 47606, Start Num: 25

Candidate Starts for Twister\_82:

(23, 47794), (Start: 25 @47776 has 28 MA's), (Start: 28 @47752 has 111 MA's), (Start: 29 @47746 has 1 MA's), (41, 47656), (42, 47611),

Gene: Ulysses\_81 Start: 47749, Stop: 47579, Start Num: 28

Candidate Starts for Ulysses\_81:

(Start: 28 @47749 has 111 MA's), (Start: 32 @47725 has 62 MA's),

Gene: VC3\_83 Start: 47045, Stop: 46908, Start Num: 33

Candidate Starts for VC3\_83:

(11, 47204), (Start: 33 @47045 has 11 MA's), (Start: 35 @47036 has 30 MA's), (41, 46958),

Gene: Veracruz\_81 Start: 47228, Stop: 47064, Start Num: 25

Candidate Starts for Veracruz\_81:

(14, 47288), (Start: 25 @47228 has 28 MA's), (41, 47114),

Gene: VohminGhazi\_85 Start: 46160, Stop: 46017, Start Num: 32

Candidate Starts for VohminGhazi\_85:

(26, 46199), (Start: 32 @46160 has 62 MA's), (Start: 35 @46148 has 30 MA's),

Gene: Volt\_145 Start: 66646, Stop: 66777, Start Num: 36

Candidate Starts for Volt\_145:

(Start: 36 @66646 has 3 MA's), (39, 66676),

Gene: WalterMcMickey\_81 Start: 47776, Stop: 47606, Start Num: 25

Candidate Starts for WalterMcMickey\_81:

(23, 47794), (Start: 25 @47776 has 28 MA's), (Start: 28 @47752 has 111 MA's), (Start: 29 @47746 has 1 MA's), (41, 47656), (42, 47611),

Gene: Wander\_82 Start: 48060, Stop: 47890, Start Num: 28  
Candidate Starts for Wander\_82:  
(Start: 28 @48060 has 111 MA's), (Start: 32 @48036 has 62 MA's),

Gene: WideWale\_86 Start: 48350, Stop: 48207, Start Num: 32  
Candidate Starts for WideWale\_86:  
(Start: 32 @48350 has 62 MA's), (34, 48341), (41, 48257),

Gene: Wiks\_86 Start: 46263, Stop: 46120, Start Num: 32  
Candidate Starts for Wiks\_86:  
(26, 46302), (Start: 32 @46263 has 62 MA's), (Start: 35 @46251 has 30 MA's),

Gene: Wilbur\_82 Start: 48063, Stop: 47893, Start Num: 28  
Candidate Starts for Wilbur\_82:  
(Start: 28 @48063 has 111 MA's), (Start: 32 @48039 has 62 MA's),

Gene: Wile\_77 Start: 47714, Stop: 47544, Start Num: 28  
Candidate Starts for Wile\_77:  
(1, 48209), (3, 48107), (4, 48026), (Start: 28 @47714 has 111 MA's), (Start: 32 @47690 has 62 MA's),

Gene: Wizard007\_78 Start: 47440, Stop: 47270, Start Num: 28  
Candidate Starts for Wizard007\_78:  
(1, 47935), (3, 47833), (4, 47752), (Start: 28 @47440 has 111 MA's), (Start: 32 @47416 has 62 MA's), (41, 47323),

Gene: WunderPhul\_87 Start: 46261, Stop: 46118, Start Num: 32  
Candidate Starts for WunderPhul\_87:  
(26, 46300), (Start: 32 @46261 has 62 MA's), (Start: 35 @46249 has 30 MA's),

Gene: Xena\_78 Start: 47885, Stop: 47715, Start Num: 28  
Candidate Starts for Xena\_78:  
(Start: 28 @47885 has 111 MA's), (Start: 32 @47861 has 62 MA's), (41, 47768),

Gene: Yecey3\_90 Start: 48586, Stop: 48443, Start Num: 32  
Candidate Starts for Yecey3\_90:  
(Start: 32 @48586 has 62 MA's), (34, 48577),

Gene: YoSam321\_82 Start: 48061, Stop: 47891, Start Num: 28  
Candidate Starts for YoSam321\_82:  
(Start: 28 @48061 has 111 MA's), (Start: 32 @48037 has 62 MA's), (41, 47944),

Gene: Yokurt\_86 Start: 46251, Stop: 46120, Start Num: 35  
Candidate Starts for Yokurt\_86:  
(26, 46302), (Start: 32 @46263 has 62 MA's), (Start: 35 @46251 has 30 MA's),

Gene: Zaka\_87 Start: 46251, Stop: 46120, Start Num: 35  
Candidate Starts for Zaka\_87:  
(26, 46302), (Start: 32 @46263 has 62 MA's), (Start: 35 @46251 has 30 MA's),

Gene: Ziko\_144 Start: 66950, Stop: 67081, Start Num: 36

Candidate Starts for Ziko\_144:

(Start: 36 @66950 has 3 MA's), (39, 66980),

Gene: Zimmer\_86 Start: 50022, Stop: 49876, Start Num: 32

Candidate Starts for Zimmer\_86:

(20, 50088), (Start: 32 @50022 has 62 MA's), (Start: 35 @50010 has 30 MA's), (37, 49995),

Gene: Zulu\_88 Start: 46641, Stop: 46498, Start Num: 32

Candidate Starts for Zulu\_88:

(26, 46680), (Start: 32 @46641 has 62 MA's), (Start: 35 @46629 has 30 MA's),