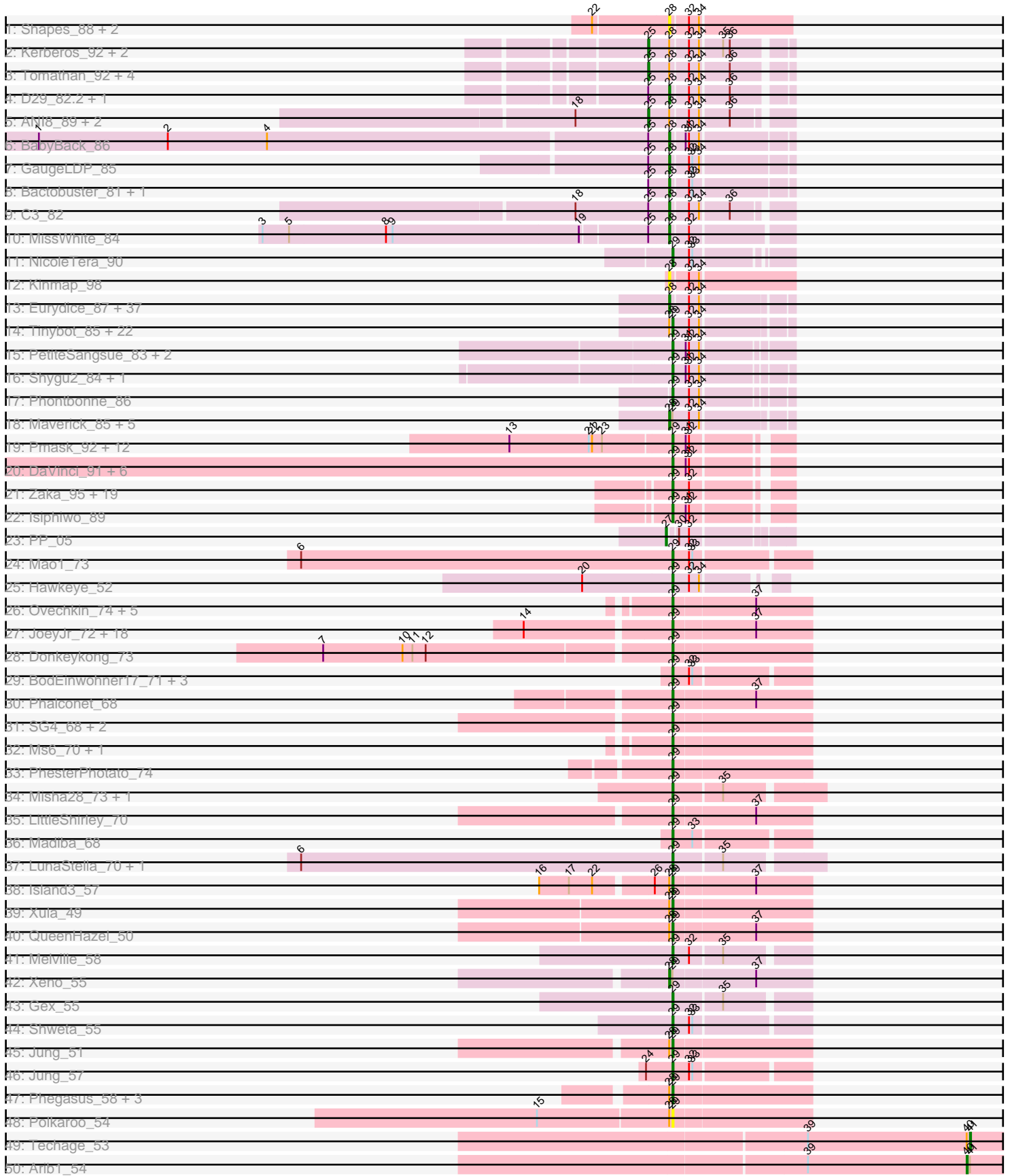
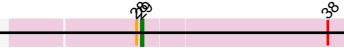


Pham 193738



51: Nazo\_57



A series of horizontal lines for writing, spanning the width of the page. The lines are evenly spaced and extend from the left margin to the right margin. The right margin is indicated by a dashed vertical line.

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 193738 Report

This analysis was run 11/02/24 on database version 579.

Pham number 193738 has 201 members, 12 are drafts.

Phages represented in each track:

- Track 1 : Shapes\_88, DustyMartin\_88, Rowdy\_88
- Track 2 : Kerberos\_92, Pomar16\_92, StarStuff\_92
- Track 3 : Tomathan\_92, D32\_80, Travvers\_92, DBQu4n\_92, Naji\_81
- Track 4 : D29\_82.2, Duplo\_93
- Track 5 : ANI8\_89, VC3\_88, AN9\_89
- Track 6 : BabyBack\_86
- Track 7 : GaugeLDP\_85
- Track 8 : Bactobuster\_81, IronMan\_86
- Track 9 : C3\_82
- Track 10 : MissWhite\_84
- Track 11 : NicoleTera\_90
- Track 12 : Kinmap\_98
- Track 13 : Eurydice\_87, Eapen\_86, Happiness\_85, JoongJeon\_85, CentreCat\_86, DirtyDunning\_85, Ohfah\_87, BubbleTrouble\_85, Holli\_85, Baby16\_86, Thanksgivukkah\_85, LochMonster\_87, Kye\_86, Sparxx\_87, ICleared\_85, Taquarus\_85, Mazhar510\_86, Nebs\_87, KFPoly\_85, Polymorphads\_87, SheldonCooper\_86, TygerBlood\_86, TroyPia\_87, Connomayer\_86, Cerulean\_88, Chaph\_86, Kratark\_85, JetBlade\_87, Morrow\_88, Alberto7\_87, Lunsford\_86, Eros\_86, Bartimeaus\_86, Phelipe\_86, BellusTerra\_86, Scamp\_86, PeterPeter\_86, Pumbaa\_86
- Track 14 : Tinybot\_85, Kremtemulon\_83, Funston\_85, Maxo\_88, Cintron\_86, YoSam321\_86, Kampy\_85, Miramae\_86, Nemo27\_85, Phighter1804\_86, NorthStar\_83, Kingmustik0402\_86, Rosa24\_82, AvatarAhPeg\_86, Houdini22\_85, NotAPhaseMom\_85, Ulysses\_85, Lorenzo\_86, Stink\_86, Koreni\_85, Cocoaberry\_86, Cindaradix\_81, Clarenza\_85
- Track 15 : PetiteSangsue\_83, Bumblebee11\_82, Datway\_83
- Track 16 : Shygu2\_84, Noelle\_85
- Track 17 : Phontbonne\_86
- Track 18 : Maverick\_85, Bombshell\_86, Melvin\_88, Pipcraft\_82, Mundrea\_84, Caelakin\_84
- Track 19 : Pmask\_92, JewelBug\_85, Dorothea\_93, Hoot\_88, Neeharika16\_92, EricB\_91, Jordennis\_91, BABullseye\_86, SuperAwesome\_93, Cookiedough\_93, Kipper29\_93, Priamo\_93, Newrala\_92
- Track 20 : DaVinci\_91, VohminGhazi\_93, Chartreuse\_91, Kazan\_94, Candra\_91, SmellyB\_93, McFly\_93
- Track 21 : Zaka\_95, Hammer\_95, Roksolana\_95, Yokurt\_94, Hexamo\_94, Artemis2UCLA\_94, Zulu\_96, Rifter\_95, SuperCallie99\_89, CloudWang3\_95,

Jeffabunny\_83, Gruunaga\_95, Wiks\_94, Lilbunny\_91, Koko\_96, Helmet\_96,  
 Tucker\_95, Gladiator\_91, Blue7\_96, Garak\_96  
 • Track 22 : Isiphiwo\_89  
 • Track 23 : PP\_05  
 • Track 24 : Mao1\_73  
 • Track 25 : Hawkeye\_52  
 • Track 26 : Ovechkin\_74, Kingsley\_75, Quico\_81, Batiatus\_70, Babsiella\_59,  
 Florinda\_84  
 • Track 27 : JoeyJr\_72, Doomphist\_75, KingMidas\_71, PHappiness\_72,  
 Poenanya\_75, Nimbo\_64, Leperchaun\_70, Geralt\_65, Daenerys\_71, Inventum\_70,  
 RedBird\_73, Dorothy\_73, Polka14\_76, Empress\_70, Deb65\_65, RitaG\_72,  
 Scottish\_70, Sassafras\_73, OldBen\_69  
 • Track 28 : Donkeykong\_73  
 • Track 29 : BodEinwohner17\_71, BuzzLyseyear\_73, Andies\_53, Tapioca\_57  
 • Track 30 : Phalconet\_68  
 • Track 31 : SG4\_68, Hegedechwinu\_71, StAnnes\_69  
 • Track 32 : Ms6\_70, DLane\_69  
 • Track 33 : PhesterPhotato\_74  
 • Track 34 : Misha28\_73, TootsiePop\_73  
 • Track 35 : LittleShirley\_70  
 • Track 36 : Madiba\_68  
 • Track 37 : LunaStella\_70, TChen\_72  
 • Track 38 : Island3\_57  
 • Track 39 : Xula\_49  
 • Track 40 : QueenHazel\_50  
 • Track 41 : Melville\_58  
 • Track 42 : Xeno\_55  
 • Track 43 : Gex\_55  
 • Track 44 : Shweta\_55  
 • Track 45 : Jung\_51  
 • Track 46 : Jung\_57  
 • Track 47 : Phegasus\_58, Mangethe\_58, Zilizebeth\_58, Majeke\_58  
 • Track 48 : Polkaroo\_54  
 • Track 49 : Techage\_53  
 • Track 50 : Arib1\_54  
 • Track 51 : Nazo\_57

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

The start number called the most often in the published annotations is 29, it was called in 123 of the 189 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

• Andies\_53, Artemis2UCLA\_94, AvatarAhPeg\_86, BABullseye\_86, Babsiella\_59,  
 Batiatus\_70, Blue7\_96, BodEinwohner17\_71, Bumblebee11\_82, BuzzLyseyear\_73,  
 Candra\_91, Chartreuse\_91, Cindaradix\_81, Cintron\_86, Clarenza\_85,  
 CloudWang3\_95, Cocoaberry\_86, Cookiedough\_93, DLane\_69, DaVinci\_91,  
 Daenerys\_71, Datway\_83, Deb65\_65, Donkeykong\_73, Doomphist\_75,  
 Dorothea\_93, Dorothy\_73, Empress\_70, EricB\_91, Florinda\_84, Funston\_85,  
 Garak\_96, Geralt\_65, Gex\_55, Gladiator\_91, Gruunaga\_95, Hammer\_95,

Hawkeye\_52, Hegedechwinu\_71, Helmet\_96, Hexamo\_94, Hoot\_88, Houdini22\_85, Inventum\_70, Isiphiwo\_89, Island3\_57, Jeffabunny\_83, JewelBug\_85, JoeyJr\_72, Jordennis\_91, Jung\_51, Jung\_57, Kamy\_85, Kazan\_94, KingMidas\_71, Kingmustik0402\_86, Kingsley\_75, Kipper29\_93, Koko\_96, Koreni\_85, Kremtemulon\_83, Leperchaun\_70, Lilbunny\_91, LittleShirley\_70, Lorenzo\_86, LunaStella\_70, Madiba\_68, Majeke\_58, Mangethe\_58, Mao1\_73, Maxo\_88, McFly\_93, Melville\_58, Miramae\_86, Misha28\_73, Ms6\_70, Nazo\_57, Neeharika16\_92, Nemo27\_85, Newrala\_92, NicoleTera\_90, Nimbo\_64, Noelle\_85, NorthStar\_83, NotAPhaseMom\_85, OldBen\_69, Ovechkin\_74, PHappiness\_72, PetiteSangsue\_83, Phalconet\_68, Phegasus\_58, PhesterPotato\_74, Phighter1804\_86, Phontbonne\_86, Pmask\_92, Poenanya\_75, Polka14\_76, Polkaroo\_54, Priamo\_93, QueenHazel\_50, Quico\_81, RedBird\_73, Rifter\_95, RitaG\_72, Roksolana\_95, Rosa24\_82, SG4\_68, Sassafras\_73, Scottish\_70, Shweta\_55, Shygu2\_84, SmellyB\_93, StAnnes\_69, Stink\_86, SuperAwesome\_93, SuperCallie99\_89, TChen\_72, Tapioca\_57, Tinybot\_85, TootsiePop\_73, Tucker\_95, Ulysses\_85, VohminGhazi\_93, Wiks\_94, Xula\_49, YoSam321\_86, Yokurt\_94, Zaka\_95, Zilizebeth\_58, Zulu\_96,

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

- Bombshell\_86, Caelakin\_84, Maverick\_85, Melvin\_88, Mundrea\_84, Pipcraft\_82, Xeno\_55,

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

- AN9\_89, ANI8\_89, Alberto7\_87, Arib1\_54, Baby16\_86, BabyBack\_86, Bactobuster\_81, Bartimeaus\_86, BellusTerra\_86, BubbleTrouble\_85, C3\_82, CentreCat\_86, Cerulean\_88, Chaph\_86, Connomayer\_86, D29\_82.2, D32\_80, DBQu4n\_92, DirtyDunning\_85, Duplo\_93, DustyMartin\_88, Eapen\_86, Eros\_86, Eurydice\_87, GaugeLDP\_85, Happiness\_85, Holli\_85, ICleared\_85, IronMan\_86, JetBlade\_87, JoongJeon\_85, KFPoly\_85, Kerberos\_92, Kinmap\_98, Kratak\_85, Kyee\_86, LochMonster\_87, Lunsford\_86, Mazhar510\_86, MissWhite\_84, Morrow\_88, Naji\_81, Nebs\_87, Ohfah\_87, PP\_05, PeterPeter\_86, Felipe\_86, Polymorphads\_87, Pomar16\_92, Pumbaa\_86, Rowdy\_88, Scamp\_86, Shapes\_88, SheldonCooper\_86, Sparxx\_87, StarStuff\_92, Taquarus\_85, Techage\_53, Thanksgivukkah\_85, Tomathan\_92, Travvers\_92, TroyPia\_87, TygerBlood\_86, VC3\_88,

### Summary by start number:

Start 25:

- Found in 19 of 201 ( 9.5% ) of genes in pham
- Manual Annotations of this start: 10 of 189
- Called 57.9% of time when present
- Phage (with cluster) where this start called: AN9\_89 (A2), ANI8\_89 (A2), D32\_80 (A2), DBQu4n\_92 (A2), Kerberos\_92 (A2), Naji\_81 (A2), Pomar16\_92 (A2), StarStuff\_92 (A2), Tomathan\_92 (A2), Travvers\_92 (A2), VC3\_88 (A2),

Start 27:

- Found in 1 of 201 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 189
- Called 100.0% of time when present
- Phage (with cluster) where this start called: PP\_05 (A7),

Start 28:

- Found in 101 of 201 ( 50.2% ) of genes in pham

- Manual Annotations of this start: 53 of 189
- Called 56.4% of time when present
- Phage (with cluster) where this start called: Alberto7\_87 (A4), Baby16\_86 (A4), BabyBack\_86 (A2), Bactobuster\_81 (A2), Bartimeaus\_86 (A4), BellusTerra\_86 (A4), Bombshell\_86 (A4), BubbleTrouble\_85 (A4), C3\_82 (A2), Caelakin\_84 (A4), CentreCat\_86 (A4), Cerulean\_88 (A4), Chaph\_86 (A4), Connomayer\_86 (A4), D29\_82.2 (A2), DirtyDunning\_85 (A4), Duplo\_93 (A2), DustyMartin\_88 (A10), Eapen\_86 (A4), Eros\_86 (A4), Eurydice\_87 (A4), GaugeLDP\_85 (A2), Happiness\_85 (A4), Holli\_85 (A4), ICleared\_85 (A4), IronMan\_86 (A2), JetBlade\_87 (A4), JoongJeon\_85 (A4), KFPoly\_85 (A4), Kinmap\_98 (A21), Kratark\_85 (A4), Kyee\_86 (A4), LochMonster\_87 (A4), Lunsford\_86 (A4), Maverick\_85 (A4), Mazhar510\_86 (A4), Melvin\_88 (A4), MissWhite\_84 (A2), Morrow\_88 (A4), Mundrea\_84 (A4), Nebs\_87 (A4), Ohfah\_87 (A4), PeterPeter\_86 (A4), Phelipe\_86 (A4), Pipcraft\_82 (A4), Polymorphads\_87 (A4), Pumbaa\_86 (A4), Rowdy\_88 (A10), Scamp\_86 (A4), Shapes\_88 (A10), SheldonCooper\_86 (A4), Sparxx\_87 (A4), Taquarus\_85 (A4), Thanksgivukkah\_85 (A4), TroyPia\_87 (A4), TygerBlood\_86 (A4), Xeno\_55 (N),

#### Start 29:

- Found in 137 of 201 ( 68.2% ) of genes in pham
- Manual Annotations of this start: 123 of 189
- Called 94.9% of time when present
- Phage (with cluster) where this start called: Andies\_53 (N), Artemis2UCLA\_94 (A6), AvatarAhPeg\_86 (A4), BABullseye\_86 (A6), Babsiella\_59 (I1), Batiatus\_70 (F1), Blue7\_96 (A6), BodEinwohner17\_71 (F1), Bumblebee11\_82 (A4), BuzzLyseyear\_73 (F1), Candra\_91 (A6), Chartreuse\_91 (A6), Cindaradix\_81 (A4), Cintron\_86 (A4), Clarenza\_85 (A4), CloudWang3\_95 (A6), Cocoaberry\_86 (A4), Cookiedough\_93 (A6), DLane\_69 (F1), DaVinci\_91 (A6), Daenerys\_71 (F1), Datway\_83 (A4), Deb65\_65 (F1), Donkeykong\_73 (F1), Doomphist\_75 (F1), Dorothea\_93 (A6), Dorothy\_73 (F1), Empress\_70 (F1), EricB\_91 (A6), Florinda\_84 (F1), Funston\_85 (A4), Garak\_96 (A6), Geralt\_65 (F1), Gex\_55 (N), Gladiator\_91 (A6), Gruunaga\_95 (A6), Hammer\_95 (A6), Hawkeye\_52 (D2), Hegedechwinu\_71 (F1), Helmet\_96 (A6), Hexamo\_94 (A6), Hoot\_88 (A6), Houdini22\_85 (A4), Inventum\_70 (F1), Isiphiwo\_89 (A6), Island3\_57 (I1), Jeffabunny\_83 (A6), JewelBug\_85 (A6), JoeyJr\_72 (F1), Jordennis\_91 (A6), Jung\_51 (P1), Jung\_57 (P1), Kamy\_85 (A4), Kazan\_94 (A6), KingMidas\_71 (F1), Kingmustik0402\_86 (A4), Kingsley\_75 (F1), Kipper29\_93 (A6), Koko\_96 (A6), Koreni\_85 (A4), Kremtemulon\_83 (A4), Leperchaun\_70 (F1), Lilbunny\_91 (A6), LittleShirley\_70 (F1), Lorenzo\_86 (A4), LunaStella\_70 (F4), Madiba\_68 (F1), Majeke\_58 (P1), Mangethe\_58 (P1), Mao1\_73 (AD), Maxo\_88 (A4), McFly\_93 (A6), Melville\_58 (N), Miramae\_86 (A4), Misha28\_73 (F1), Ms6\_70 (F1), Nazo\_57 (P4), Neeharika16\_92 (A6), Nemo27\_85 (A4), Newrala\_92 (A6), NicoleTera\_90 (A2), Nimbo\_64 (F1), Noelle\_85 (A4), NorthStar\_83 (A4), NotAPhaseMom\_85 (A4), OldBen\_69 (F1), Ovechkin\_74 (F1), PHappiness\_72 (F1), PetiteSangsue\_83 (A4), Phalconet\_68 (F1), Phegasus\_58 (P1), PhesterPhotato\_74 (F1), Phighter1804\_86 (A4), Phontbonne\_86 (A4), Pmask\_92 (A6), Poenanya\_75 (F1), Polka14\_76 (F1), Polkaroo\_54 (P1), Priamo\_93 (A6), QueenHazel\_50 (I1), Quico\_81 (F1), RedBird\_73 (F1), Rifter\_95 (A6), RitaG\_72 (F1), Roksolana\_95 (A6), Rosa24\_82 (A4), SG4\_68 (F1), Sassafras\_73 (F1), Scottish\_70 (F1), Shweta\_55 (N), Shygu2\_84 (A4), SmellyB\_93 (A6), StAnnes\_69 (F1), Stink\_86 (A4), SuperAwesome\_93 (A6), SuperCallie99\_89 (A6), TChen\_72 (F4), Tapioca\_57 (N), Tinybot\_85 (A4), TootsiePop\_73 (F1), Tucker\_95 (A6), Ulysses\_85 (A4), VohminGhazi\_93 (A6), Wiks\_94 (A6), Xula\_49 (I1), YoSam321\_86 (A4), Yokurt\_94 (A6), Zaka\_95 (A6), Zilizebeth\_58 (P1), Zulu\_96 (A6),

Start 40:

- Found in 2 of 201 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 189
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Arib1\_54 (P1),

Start 41:

- Found in 2 of 201 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 189
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Techage\_53 (P1),

**Summary by clusters:**

There are 14 clusters represented in this pham: F1, P1, F4, AD, P4, A21, I1, N, A2, A4, A7, A6, D2, A10,

Info for manual annotations of cluster A2:

- Start number 25 was manually annotated 10 times for cluster A2.
- Start number 28 was manually annotated 8 times for cluster A2.
- Start number 29 was manually annotated 1 time for cluster A2.

Info for manual annotations of cluster A4:

- Start number 28 was manually annotated 44 times for cluster A4.
- Start number 29 was manually annotated 28 times for cluster A4.

Info for manual annotations of cluster A6:

- Start number 29 was manually annotated 37 times for cluster A6.

Info for manual annotations of cluster A7:

- Start number 27 was manually annotated 1 time for cluster A7.

Info for manual annotations of cluster AD:

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

Info for manual annotations of cluster D2:

- Start number 29 was manually annotated 1 time for cluster D2.

Info for manual annotations of cluster F1:

- Start number 29 was manually annotated 37 times for cluster F1.

Info for manual annotations of cluster F4:

- Start number 29 was manually annotated 2 times for cluster F4.

Info for manual annotations of cluster I1:

- Start number 29 was manually annotated 4 times for cluster I1.

Info for manual annotations of cluster N:

- Start number 28 was manually annotated 1 time for cluster N.
- Start number 29 was manually annotated 5 times for cluster N.

Info for manual annotations of cluster P1:

- Start number 29 was manually annotated 6 times for cluster P1.
- Start number 40 was manually annotated 1 time for cluster P1.
- Start number 41 was manually annotated 1 time for cluster P1.

Info for manual annotations of cluster P4:

- Start number 29 was manually annotated 1 time for cluster P4.

### **Gene Information:**

Gene: AN9\_89 Start: 48160, Stop: 48047, Start Num: 25

Candidate Starts for AN9\_89:

(18, 48226), (Start: 25 @48160 has 10 MA's), (Start: 28 @48142 has 53 MA's), (32, 48127), (34, 48118), (36, 48094),

Gene: ANI8\_89 Start: 48160, Stop: 48047, Start Num: 25

Candidate Starts for ANI8\_89:

(18, 48226), (Start: 25 @48160 has 10 MA's), (Start: 28 @48142 has 53 MA's), (32, 48127), (34, 48118), (36, 48094),

Gene: Alberto7\_87 Start: 49235, Stop: 49137, Start Num: 28

Candidate Starts for Alberto7\_87:

(Start: 28 @49235 has 53 MA's), (32, 49220), (34, 49211),

Gene: Andies\_53 Start: 38224, Stop: 38349, Start Num: 29

Candidate Starts for Andies\_53:

(Start: 29 @38224 has 123 MA's), (32, 38239), (33, 38242),

Gene: Arib1\_54 Start: 36196, Stop: 36321, Start Num: 40

Candidate Starts for Arib1\_54:

(39, 36052), (Start: 40 @36196 has 1 MA's), (Start: 41 @36199 has 1 MA's),

Gene: Artemis2UCLA\_94 Start: 48593, Stop: 48501, Start Num: 29

Candidate Starts for Artemis2UCLA\_94:

(Start: 29 @48593 has 123 MA's), (32, 48578),

Gene: AvatarAhPeg\_86 Start: 49151, Stop: 49053, Start Num: 29

Candidate Starts for AvatarAhPeg\_86:

(Start: 28 @49154 has 53 MA's), (Start: 29 @49151 has 123 MA's), (32, 49136), (34, 49127),

Gene: BABullseye\_86 Start: 46928, Stop: 46836, Start Num: 29

Candidate Starts for BABullseye\_86:

(13, 47072), (21, 47000), (22, 46997), (23, 46988), (Start: 29 @46928 has 123 MA's), (31, 46916), (32, 46913),

Gene: Babsiella\_59 Start: 39433, Stop: 39555, Start Num: 29

Candidate Starts for Babsiella\_59:

(Start: 29 @39433 has 123 MA's), (37, 39505),

Gene: Baby16\_86 Start: 48909, Stop: 48811, Start Num: 28

Candidate Starts for Baby16\_86:



(Start: 28 @48909 has 53 MA's), (32, 48894), (34, 48885),

Gene: BabyBack\_86 Start: 50367, Stop: 50266, Start Num: 28

Candidate Starts for BabyBack\_86:

(1, 50931), (2, 50814), (4, 50724), (Start: 25 @50385 has 10 MA's), (Start: 28 @50367 has 53 MA's), (31, 50355), (32, 50352), (34, 50343),

Gene: Bactobuster\_81 Start: 48864, Stop: 48763, Start Num: 28

Candidate Starts for Bactobuster\_81:

(Start: 25 @48882 has 10 MA's), (Start: 28 @48864 has 53 MA's), (32, 48849), (33, 48846),

Gene: Bartimeaus\_86 Start: 48900, Stop: 48802, Start Num: 28

Candidate Starts for Bartimeaus\_86:

(Start: 28 @48900 has 53 MA's), (32, 48885), (34, 48876),

Gene: Batiatus\_70 Start: 44968, Stop: 45090, Start Num: 29

Candidate Starts for Batiatus\_70:

(Start: 29 @44968 has 123 MA's), (37, 45040),

Gene: BellusTerra\_86 Start: 48763, Stop: 48665, Start Num: 28

Candidate Starts for BellusTerra\_86:

(Start: 28 @48763 has 53 MA's), (32, 48748), (34, 48739),

Gene: Blue7\_96 Start: 48827, Stop: 48735, Start Num: 29

Candidate Starts for Blue7\_96:

(Start: 29 @48827 has 123 MA's), (32, 48812),

Gene: BodEinwohner17\_71 Start: 45997, Stop: 46113, Start Num: 29

Candidate Starts for BodEinwohner17\_71:

(Start: 29 @45997 has 123 MA's), (32, 46012), (33, 46015),

Gene: Bombshell\_86 Start: 48898, Stop: 48797, Start Num: 28

Candidate Starts for Bombshell\_86:

(Start: 28 @48898 has 53 MA's), (Start: 29 @48895 has 123 MA's), (32, 48880), (34, 48871),

Gene: BubbleTrouble\_85 Start: 48925, Stop: 48827, Start Num: 28

Candidate Starts for BubbleTrouble\_85:

(Start: 28 @48925 has 53 MA's), (32, 48910), (34, 48901),

Gene: Bumblebee11\_82 Start: 48676, Stop: 48578, Start Num: 29

Candidate Starts for Bumblebee11\_82:

(Start: 29 @48676 has 123 MA's), (31, 48664), (32, 48661), (34, 48652),

Gene: BuzzLyseyear\_73 Start: 47467, Stop: 47583, Start Num: 29

Candidate Starts for BuzzLyseyear\_73:

(Start: 29 @47467 has 123 MA's), (32, 47482), (33, 47485),

Gene: C3\_82 Start: 48142, Stop: 48047, Start Num: 28

Candidate Starts for C3\_82:

(18, 48226), (Start: 25 @48160 has 10 MA's), (Start: 28 @48142 has 53 MA's), (32, 48127), (34, 48118), (36, 48094),

Gene: Caelakin\_84 Start: 48901, Stop: 48800, Start Num: 28

Candidate Starts for Caelakin\_84:

(Start: 28 @48901 has 53 MA's), (Start: 29 @48898 has 123 MA's), (32, 48883), (34, 48874),

Gene: Candra\_91 Start: 48632, Stop: 48540, Start Num: 29

Candidate Starts for Candra\_91:

(Start: 29 @48632 has 123 MA's), (31, 48620), (32, 48617),

Gene: CentreCat\_86 Start: 48938, Stop: 48840, Start Num: 28

Candidate Starts for CentreCat\_86:

(Start: 28 @48938 has 53 MA's), (32, 48923), (34, 48914),

Gene: Cerulean\_88 Start: 49336, Stop: 49238, Start Num: 28

Candidate Starts for Cerulean\_88:

(Start: 28 @49336 has 53 MA's), (32, 49321), (34, 49312),

Gene: Chaph\_86 Start: 48909, Stop: 48811, Start Num: 28

Candidate Starts for Chaph\_86:

(Start: 28 @48909 has 53 MA's), (32, 48894), (34, 48885),

Gene: Chartreuse\_91 Start: 47933, Stop: 47841, Start Num: 29

Candidate Starts for Chartreuse\_91:

(Start: 29 @47933 has 123 MA's), (31, 47921), (32, 47918),

Gene: Cindaradix\_81 Start: 49097, Stop: 48999, Start Num: 29

Candidate Starts for Cindaradix\_81:

(Start: 28 @49100 has 53 MA's), (Start: 29 @49097 has 123 MA's), (32, 49082), (34, 49073),

Gene: Cintron\_86 Start: 48973, Stop: 48869, Start Num: 29

Candidate Starts for Cintron\_86:

(Start: 28 @48976 has 53 MA's), (Start: 29 @48973 has 123 MA's), (32, 48958), (34, 48949),

Gene: Clarenza\_85 Start: 48895, Stop: 48797, Start Num: 29

Candidate Starts for Clarenza\_85:

(Start: 28 @48898 has 53 MA's), (Start: 29 @48895 has 123 MA's), (32, 48880), (34, 48871),

Gene: CloudWang3\_95 Start: 49122, Stop: 49030, Start Num: 29

Candidate Starts for CloudWang3\_95:

(Start: 29 @49122 has 123 MA's), (32, 49107),

Gene: Cocoaberry\_86 Start: 48899, Stop: 48801, Start Num: 29

Candidate Starts for Cocoaberry\_86:

(Start: 28 @48902 has 53 MA's), (Start: 29 @48899 has 123 MA's), (32, 48884), (34, 48875),

Gene: Connomayer\_86 Start: 48898, Stop: 48800, Start Num: 28

Candidate Starts for Connomayer\_86:

(Start: 28 @48898 has 53 MA's), (32, 48883), (34, 48874),

Gene: Cookiedough\_93 Start: 49247, Stop: 49155, Start Num: 29

Candidate Starts for Cookiedough\_93:

(13, 49391), (21, 49319), (22, 49316), (23, 49307), (Start: 29 @49247 has 123 MA's), (31, 49235), (32, 49232),

Gene: D29\_82.2 Start: 46114, Stop: 46019, Start Num: 28

Candidate Starts for D29\_82.2:

(Start: 25 @46132 has 10 MA's), (Start: 28 @46114 has 53 MA's), (32, 46099), (34, 46090), (36, 46066),

Gene: D32\_80 Start: 46132, Stop: 46019, Start Num: 25

Candidate Starts for D32\_80:

(Start: 25 @46132 has 10 MA's), (Start: 28 @46114 has 53 MA's), (32, 46099), (34, 46090), (36, 46066),

Gene: DBQu4n\_92 Start: 49747, Stop: 49634, Start Num: 25

Candidate Starts for DBQu4n\_92:

(Start: 25 @49747 has 10 MA's), (Start: 28 @49729 has 53 MA's), (32, 49714), (34, 49705), (36, 49681),

Gene: DLane\_69 Start: 44902, Stop: 45024, Start Num: 29

Candidate Starts for DLane\_69:

(Start: 29 @44902 has 123 MA's),

Gene: DaVinci\_91 Start: 47987, Stop: 47895, Start Num: 29

Candidate Starts for DaVinci\_91:

(Start: 29 @47987 has 123 MA's), (31, 47975), (32, 47972),

Gene: Daenerys\_71 Start: 46948, Stop: 47070, Start Num: 29

Candidate Starts for Daenerys\_71:

(14, 46825), (Start: 29 @46948 has 123 MA's), (37, 47020),

Gene: Datway\_83 Start: 48706, Stop: 48611, Start Num: 29

Candidate Starts for Datway\_83:

(Start: 29 @48706 has 123 MA's), (31, 48694), (32, 48691), (34, 48682),

Gene: Deb65\_65 Start: 44669, Stop: 44791, Start Num: 29

Candidate Starts for Deb65\_65:

(14, 44546), (Start: 29 @44669 has 123 MA's), (37, 44741),

Gene: DirtyDunning\_85 Start: 48910, Stop: 48812, Start Num: 28

Candidate Starts for DirtyDunning\_85:

(Start: 28 @48910 has 53 MA's), (32, 48895), (34, 48886),

Gene: Donkeykong\_73 Start: 46520, Stop: 46642, Start Num: 29

Candidate Starts for Donkeykong\_73:

(7, 46217), (10, 46289), (11, 46298), (12, 46310), (Start: 29 @46520 has 123 MA's),

Gene: Doomphist\_75 Start: 46761, Stop: 46883, Start Num: 29

Candidate Starts for Doomphist\_75:

(14, 46638), (Start: 29 @46761 has 123 MA's), (37, 46833),

Gene: Dorothea\_93 Start: 49239, Stop: 49147, Start Num: 29

Candidate Starts for Dorothea\_93:

(13, 49383), (21, 49311), (22, 49308), (23, 49299), (Start: 29 @49239 has 123 MA's), (31, 49227), (32, 49224),

Gene: Dorothy\_73 Start: 45386, Stop: 45508, Start Num: 29

Candidate Starts for Dorothy\_73:

(14, 45263), (Start: 29 @45386 has 123 MA's), (37, 45458),

Gene: Duplo\_93 Start: 49786, Stop: 49691, Start Num: 28

Candidate Starts for Duplo\_93:

(Start: 25 @49804 has 10 MA's), (Start: 28 @49786 has 53 MA's), (32, 49771), (34, 49762), (36, 49738),

Gene: DustyMartin\_88 Start: 48914, Stop: 48810, Start Num: 28

Candidate Starts for DustyMartin\_88:

(22, 48980), (Start: 28 @48914 has 53 MA's), (32, 48899), (34, 48890),

Gene: Eapen\_86 Start: 48893, Stop: 48795, Start Num: 28

Candidate Starts for Eapen\_86:

(Start: 28 @48893 has 53 MA's), (32, 48878), (34, 48869),

Gene: Empress\_70 Start: 45572, Stop: 45694, Start Num: 29

Candidate Starts for Empress\_70:

(14, 45449), (Start: 29 @45572 has 123 MA's), (37, 45644),

Gene: EricB\_91 Start: 48136, Stop: 48044, Start Num: 29

Candidate Starts for EricB\_91:

(13, 48280), (21, 48208), (22, 48205), (23, 48196), (Start: 29 @48136 has 123 MA's), (31, 48124), (32, 48121),

Gene: Eros\_86 Start: 48906, Stop: 48808, Start Num: 28

Candidate Starts for Eros\_86:

(Start: 28 @48906 has 53 MA's), (32, 48891), (34, 48882),

Gene: Eurydice\_87 Start: 48935, Stop: 48837, Start Num: 28

Candidate Starts for Eurydice\_87:

(Start: 28 @48935 has 53 MA's), (32, 48920), (34, 48911),

Gene: Florinda\_84 Start: 47608, Stop: 47730, Start Num: 29

Candidate Starts for Florinda\_84:

(Start: 29 @47608 has 123 MA's), (37, 47680),

Gene: Funston\_85 Start: 48895, Stop: 48797, Start Num: 29

Candidate Starts for Funston\_85:

(Start: 28 @48898 has 53 MA's), (Start: 29 @48895 has 123 MA's), (32, 48880), (34, 48871),

Gene: Garak\_96 Start: 49067, Stop: 48975, Start Num: 29

Candidate Starts for Garak\_96:

(Start: 29 @49067 has 123 MA's), (32, 49052),

Gene: GaugeLDP\_85 Start: 49917, Stop: 49816, Start Num: 28

Candidate Starts for GaugeLDP\_85:

(Start: 25 @49935 has 10 MA's), (Start: 28 @49917 has 53 MA's), (32, 49902), (33, 49899), (34, 49893),

Gene: Geralt\_65 Start: 44668, Stop: 44790, Start Num: 29

Candidate Starts for Geralt\_65:

(14, 44545), (Start: 29 @44668 has 123 MA's), (37, 44740),

Gene: Gex\_55 Start: 36173, Stop: 36286, Start Num: 29  
Candidate Starts for Gex\_55:  
(Start: 29 @36173 has 123 MA's), (35, 36215),

Gene: Gladiator\_91 Start: 48787, Stop: 48695, Start Num: 29  
Candidate Starts for Gladiator\_91:  
(Start: 29 @48787 has 123 MA's), (32, 48772),

Gene: Gruunaga\_95 Start: 48743, Stop: 48651, Start Num: 29  
Candidate Starts for Gruunaga\_95:  
(Start: 29 @48743 has 123 MA's), (32, 48728),

Gene: Hammer\_95 Start: 48440, Stop: 48348, Start Num: 29  
Candidate Starts for Hammer\_95:  
(Start: 29 @48440 has 123 MA's), (32, 48425),

Gene: Happiness\_85 Start: 48921, Stop: 48823, Start Num: 28  
Candidate Starts for Happiness\_85:  
(Start: 28 @48921 has 53 MA's), (32, 48906), (34, 48897),

Gene: Hawkeye\_52 Start: 38301, Stop: 38384, Start Num: 29  
Candidate Starts for Hawkeye\_52:  
(20, 38220), (Start: 29 @38301 has 123 MA's), (32, 38316), (34, 38325),

Gene: Hegedechwinu\_71 Start: 42986, Stop: 43108, Start Num: 29  
Candidate Starts for Hegedechwinu\_71:  
(Start: 29 @42986 has 123 MA's),

Gene: Helmet\_96 Start: 49067, Stop: 48975, Start Num: 29  
Candidate Starts for Helmet\_96:  
(Start: 29 @49067 has 123 MA's), (32, 49052),

Gene: Hexamo\_94 Start: 48608, Stop: 48516, Start Num: 29  
Candidate Starts for Hexamo\_94:  
(Start: 29 @48608 has 123 MA's), (32, 48593),

Gene: Holli\_85 Start: 48688, Stop: 48590, Start Num: 28  
Candidate Starts for Holli\_85:  
(Start: 28 @48688 has 53 MA's), (32, 48673), (34, 48664),

Gene: Hoot\_88 Start: 46453, Stop: 46361, Start Num: 29  
Candidate Starts for Hoot\_88:  
(13, 46597), (21, 46525), (22, 46522), (23, 46513), (Start: 29 @46453 has 123 MA's), (31, 46441), (32, 46438),

Gene: Houdini22\_85 Start: 48899, Stop: 48801, Start Num: 29  
Candidate Starts for Houdini22\_85:  
(Start: 28 @48902 has 53 MA's), (Start: 29 @48899 has 123 MA's), (32, 48884), (34, 48875),

Gene: ICleared\_85 Start: 48966, Stop: 48868, Start Num: 28  
Candidate Starts for ICleared\_85:  
(Start: 28 @48966 has 53 MA's), (32, 48951), (34, 48942),

Gene: Inventum\_70 Start: 45584, Stop: 45706, Start Num: 29

Candidate Starts for Inventum\_70:

(14, 45461), (Start: 29 @45584 has 123 MA's), (37, 45656),

Gene: IronMan\_86 Start: 50377, Stop: 50276, Start Num: 28

Candidate Starts for IronMan\_86:

(Start: 25 @50395 has 10 MA's), (Start: 28 @50377 has 53 MA's), (32, 50362), (33, 50359),

Gene: Isiphiwo\_89 Start: 48158, Stop: 48066, Start Num: 29

Candidate Starts for Isiphiwo\_89:

(Start: 29 @48158 has 123 MA's), (31, 48146), (32, 48143),

Gene: Island3\_57 Start: 38289, Stop: 38411, Start Num: 29

Candidate Starts for Island3\_57:

(16, 38178), (17, 38205), (22, 38226), (26, 38274), (Start: 28 @38286 has 53 MA's), (Start: 29 @38289 has 123 MA's), (37, 38361),

Gene: Jeffabunny\_83 Start: 45211, Stop: 45119, Start Num: 29

Candidate Starts for Jeffabunny\_83:

(Start: 29 @45211 has 123 MA's), (32, 45196),

Gene: JetBlade\_87 Start: 48926, Stop: 48828, Start Num: 28

Candidate Starts for JetBlade\_87:

(Start: 28 @48926 has 53 MA's), (32, 48911), (34, 48902),

Gene: JewelBug\_85 Start: 46932, Stop: 46840, Start Num: 29

Candidate Starts for JewelBug\_85:

(13, 47076), (21, 47004), (22, 47001), (23, 46992), (Start: 29 @46932 has 123 MA's), (31, 46920), (32, 46917),

Gene: JoeyJr\_72 Start: 46573, Stop: 46695, Start Num: 29

Candidate Starts for JoeyJr\_72:

(14, 46450), (Start: 29 @46573 has 123 MA's), (37, 46645),

Gene: JoongJeon\_85 Start: 48892, Stop: 48794, Start Num: 28

Candidate Starts for JoongJeon\_85:

(Start: 28 @48892 has 53 MA's), (32, 48877), (34, 48868),

Gene: Jordennis\_91 Start: 48836, Stop: 48744, Start Num: 29

Candidate Starts for Jordennis\_91:

(13, 48980), (21, 48908), (22, 48905), (23, 48896), (Start: 29 @48836 has 123 MA's), (31, 48824), (32, 48821),

Gene: Jung\_51 Start: 35878, Stop: 36000, Start Num: 29

Candidate Starts for Jung\_51:

(Start: 28 @35875 has 53 MA's), (Start: 29 @35878 has 123 MA's),

Gene: Jung\_57 Start: 38107, Stop: 38223, Start Num: 29

Candidate Starts for Jung\_57:

(24, 38083), (Start: 29 @38107 has 123 MA's), (32, 38122), (33, 38125),

Gene: KFPoly\_85 Start: 48892, Stop: 48794, Start Num: 28

Candidate Starts for KFPoly\_85:

(Start: 28 @48892 has 53 MA's), (32, 48877), (34, 48868),

Gene: Kamy\_85 Start: 48901, Stop: 48803, Start Num: 29

Candidate Starts for Kamy\_85:

(Start: 28 @48904 has 53 MA's), (Start: 29 @48901 has 123 MA's), (32, 48886), (34, 48877),

Gene: Kazan\_94 Start: 48602, Stop: 48510, Start Num: 29

Candidate Starts for Kazan\_94:

(Start: 29 @48602 has 123 MA's), (31, 48590), (32, 48587),

Gene: Kerberos\_92 Start: 49767, Stop: 49654, Start Num: 25

Candidate Starts for Kerberos\_92:

(Start: 25 @49767 has 10 MA's), (Start: 28 @49749 has 53 MA's), (32, 49734), (34, 49725), (35, 49707), (36, 49701),

Gene: KingMidas\_71 Start: 45987, Stop: 46109, Start Num: 29

Candidate Starts for KingMidas\_71:

(14, 45864), (Start: 29 @45987 has 123 MA's), (37, 46059),

Gene: Kingmustik0402\_86 Start: 48887, Stop: 48789, Start Num: 29

Candidate Starts for Kingmustik0402\_86:

(Start: 28 @48890 has 53 MA's), (Start: 29 @48887 has 123 MA's), (32, 48872), (34, 48863),

Gene: Kingsley\_75 Start: 48363, Stop: 48485, Start Num: 29

Candidate Starts for Kingsley\_75:

(Start: 29 @48363 has 123 MA's), (37, 48435),

Gene: Kinmap\_98 Start: 49864, Stop: 49757, Start Num: 28

Candidate Starts for Kinmap\_98:

(Start: 28 @49864 has 53 MA's), (32, 49849), (34, 49840),

Gene: Kipper29\_93 Start: 48611, Stop: 48519, Start Num: 29

Candidate Starts for Kipper29\_93:

(13, 48755), (21, 48683), (22, 48680), (23, 48671), (Start: 29 @48611 has 123 MA's), (31, 48599), (32, 48596),

Gene: Koko\_96 Start: 49457, Stop: 49365, Start Num: 29

Candidate Starts for Koko\_96:

(Start: 29 @49457 has 123 MA's), (32, 49442),

Gene: Koreni\_85 Start: 48579, Stop: 48481, Start Num: 29

Candidate Starts for Koreni\_85:

(Start: 28 @48582 has 53 MA's), (Start: 29 @48579 has 123 MA's), (32, 48564), (34, 48555),

Gene: Kratak\_85 Start: 48932, Stop: 48834, Start Num: 28

Candidate Starts for Kratak\_85:

(Start: 28 @48932 has 53 MA's), (32, 48917), (34, 48908),

Gene: Kremtemulon\_83 Start: 48731, Stop: 48633, Start Num: 29

Candidate Starts for Kremtemulon\_83:

(Start: 28 @48734 has 53 MA's), (Start: 29 @48731 has 123 MA's), (32, 48716), (34, 48707),

Gene: Kyee\_86 Start: 48893, Stop: 48795, Start Num: 28

Candidate Starts for Kyee\_86:

(Start: 28 @48893 has 53 MA's), (32, 48878), (34, 48869),

Gene: Leperchaun\_70 Start: 45807, Stop: 45929, Start Num: 29

Candidate Starts for Leperchaun\_70:

(14, 45684), (Start: 29 @45807 has 123 MA's), (37, 45879),

Gene: Lilbunny\_91 Start: 47315, Stop: 47223, Start Num: 29

Candidate Starts for Lilbunny\_91:

(Start: 29 @47315 has 123 MA's), (32, 47300),

Gene: LittleShirley\_70 Start: 44567, Stop: 44689, Start Num: 29

Candidate Starts for LittleShirley\_70:

(Start: 29 @44567 has 123 MA's), (37, 44639),

Gene: LochMonster\_87 Start: 49135, Stop: 49037, Start Num: 28

Candidate Starts for LochMonster\_87:

(Start: 28 @49135 has 53 MA's), (32, 49120), (34, 49111),

Gene: Lorenzo\_86 Start: 48896, Stop: 48798, Start Num: 29

Candidate Starts for Lorenzo\_86:

(Start: 28 @48899 has 53 MA's), (Start: 29 @48896 has 123 MA's), (32, 48881), (34, 48872),

Gene: LunaStella\_70 Start: 45241, Stop: 45366, Start Num: 29

Candidate Starts for LunaStella\_70:

(6, 44905), (Start: 29 @45241 has 123 MA's), (35, 45283),

Gene: Lunsford\_86 Start: 48891, Stop: 48793, Start Num: 28

Candidate Starts for Lunsford\_86:

(Start: 28 @48891 has 53 MA's), (32, 48876), (34, 48867),

Gene: Madiba\_68 Start: 44600, Stop: 44716, Start Num: 29

Candidate Starts for Madiba\_68:

(Start: 29 @44600 has 123 MA's), (33, 44618),

Gene: Majeke\_58 Start: 37716, Stop: 37838, Start Num: 29

Candidate Starts for Majeke\_58:

(Start: 28 @37713 has 53 MA's), (Start: 29 @37716 has 123 MA's),

Gene: Mangethe\_58 Start: 37716, Stop: 37838, Start Num: 29

Candidate Starts for Mangethe\_58:

(Start: 28 @37713 has 53 MA's), (Start: 29 @37716 has 123 MA's),

Gene: Mao1\_73 Start: 53391, Stop: 53507, Start Num: 29

Candidate Starts for Mao1\_73:

(6, 53055), (Start: 29 @53391 has 123 MA's), (32, 53406), (33, 53409),

Gene: Maverick\_85 Start: 48898, Stop: 48797, Start Num: 28

Candidate Starts for Maverick\_85:

(Start: 28 @48898 has 53 MA's), (Start: 29 @48895 has 123 MA's), (32, 48880), (34, 48871),

Gene: Maxo\_88 Start: 48901, Stop: 48803, Start Num: 29

Candidate Starts for Maxo\_88:



(Start: 28 @48904 has 53 MA's), (Start: 29 @48901 has 123 MA's), (32, 48886), (34, 48877),

Gene: Mazhar510\_86 Start: 48896, Stop: 48798, Start Num: 28

Candidate Starts for Mazhar510\_86:

(Start: 28 @48896 has 53 MA's), (32, 48881), (34, 48872),

Gene: McFly\_93 Start: 48941, Stop: 48849, Start Num: 29

Candidate Starts for McFly\_93:

(Start: 29 @48941 has 123 MA's), (31, 48929), (32, 48926),

Gene: Melville\_58 Start: 36158, Stop: 36271, Start Num: 29

Candidate Starts for Melville\_58:

(Start: 29 @36158 has 123 MA's), (32, 36173), (35, 36200),

Gene: Melvin\_88 Start: 48896, Stop: 48795, Start Num: 28

Candidate Starts for Melvin\_88:

(Start: 28 @48896 has 53 MA's), (Start: 29 @48893 has 123 MA's), (32, 48878), (34, 48869),

Gene: Miramae\_86 Start: 48814, Stop: 48716, Start Num: 29

Candidate Starts for Miramae\_86:

(Start: 28 @48817 has 53 MA's), (Start: 29 @48814 has 123 MA's), (32, 48799), (34, 48790),

Gene: Misha28\_73 Start: 45868, Stop: 45993, Start Num: 29

Candidate Starts for Misha28\_73:

(Start: 29 @45868 has 123 MA's), (35, 45910),

Gene: MissWhite\_84 Start: 46424, Stop: 46323, Start Num: 28

Candidate Starts for MissWhite\_84:

(3, 46784), (5, 46760), (8, 46673), (9, 46667), (19, 46499), (Start: 25 @46442 has 10 MA's), (Start: 28 @46424 has 53 MA's), (32, 46409),

Gene: Morrow\_88 Start: 48938, Stop: 48840, Start Num: 28

Candidate Starts for Morrow\_88:

(Start: 28 @48938 has 53 MA's), (32, 48923), (34, 48914),

Gene: Ms6\_70 Start: 41131, Stop: 41253, Start Num: 29

Candidate Starts for Ms6\_70:

(Start: 29 @41131 has 123 MA's),

Gene: Mundrea\_84 Start: 48776, Stop: 48678, Start Num: 28

Candidate Starts for Mundrea\_84:

(Start: 28 @48776 has 53 MA's), (Start: 29 @48773 has 123 MA's), (32, 48758), (34, 48749),

Gene: Naji\_81 Start: 46132, Stop: 46019, Start Num: 25

Candidate Starts for Naji\_81:

(Start: 25 @46132 has 10 MA's), (Start: 28 @46114 has 53 MA's), (32, 46099), (34, 46090), (36, 46066),

Gene: Nazo\_57 Start: 39956, Stop: 40078, Start Num: 29

Candidate Starts for Nazo\_57:

(Start: 28 @39953 has 53 MA's), (Start: 29 @39956 has 123 MA's), (38, 40067),

Gene: Nebs\_87 Start: 48938, Stop: 48840, Start Num: 28

Candidate Starts for Nebs\_87:

(Start: 28 @48938 has 53 MA's), (32, 48923), (34, 48914),

Gene: Neeharika16\_92 Start: 48698, Stop: 48606, Start Num: 29

Candidate Starts for Neeharika16\_92:

(13, 48842), (21, 48770), (22, 48767), (23, 48758), (Start: 29 @48698 has 123 MA's), (31, 48686), (32, 48683),

Gene: Nemo27\_85 Start: 48894, Stop: 48796, Start Num: 29

Candidate Starts for Nemo27\_85:

(Start: 28 @48897 has 53 MA's), (Start: 29 @48894 has 123 MA's), (32, 48879), (34, 48870),

Gene: Newrala\_92 Start: 49044, Stop: 48952, Start Num: 29

Candidate Starts for Newrala\_92:

(13, 49188), (21, 49116), (22, 49113), (23, 49104), (Start: 29 @49044 has 123 MA's), (31, 49032), (32, 49029),

Gene: NicoleTera\_90 Start: 49767, Stop: 49672, Start Num: 29

Candidate Starts for NicoleTera\_90:

(Start: 29 @49767 has 123 MA's), (32, 49752), (33, 49749),

Gene: Nimbo\_64 Start: 44671, Stop: 44793, Start Num: 29

Candidate Starts for Nimbo\_64:

(14, 44548), (Start: 29 @44671 has 123 MA's), (37, 44743),

Gene: Noelle\_85 Start: 49016, Stop: 48912, Start Num: 29

Candidate Starts for Noelle\_85:

(Start: 29 @49016 has 123 MA's), (31, 49004), (32, 49001), (34, 48992),

Gene: NorthStar\_83 Start: 48898, Stop: 48800, Start Num: 29

Candidate Starts for NorthStar\_83:

(Start: 28 @48901 has 53 MA's), (Start: 29 @48898 has 123 MA's), (32, 48883), (34, 48874),

Gene: NotAPhaseMom\_85 Start: 48899, Stop: 48801, Start Num: 29

Candidate Starts for NotAPhaseMom\_85:

(Start: 28 @48902 has 53 MA's), (Start: 29 @48899 has 123 MA's), (32, 48884), (34, 48875),

Gene: Ohfah\_87 Start: 48938, Stop: 48840, Start Num: 28

Candidate Starts for Ohfah\_87:

(Start: 28 @48938 has 53 MA's), (32, 48923), (34, 48914),

Gene: OldBen\_69 Start: 46063, Stop: 46185, Start Num: 29

Candidate Starts for OldBen\_69:

(14, 45940), (Start: 29 @46063 has 123 MA's), (37, 46135),

Gene: Ovechkin\_74 Start: 46191, Stop: 46313, Start Num: 29

Candidate Starts for Ovechkin\_74:

(Start: 29 @46191 has 123 MA's), (37, 46263),

Gene: PHappiness\_72 Start: 46892, Stop: 47014, Start Num: 29

Candidate Starts for PHappiness\_72:

(14, 46769), (Start: 29 @46892 has 123 MA's), (37, 46964),

Gene: PP\_05 Start: 1199, Stop: 1101, Start Num: 27  
Candidate Starts for PP\_05:  
(Start: 27 @1199 has 1 MA's), (30, 1193), (32, 1184),

Gene: PeterPeter\_86 Start: 48892, Stop: 48794, Start Num: 28  
Candidate Starts for PeterPeter\_86:  
(Start: 28 @48892 has 53 MA's), (32, 48877), (34, 48868),

Gene: PetiteSangsue\_83 Start: 48680, Stop: 48582, Start Num: 29  
Candidate Starts for PetiteSangsue\_83:  
(Start: 29 @48680 has 123 MA's), (31, 48668), (32, 48665), (34, 48656),

Gene: Phalconet\_68 Start: 43304, Stop: 43426, Start Num: 29  
Candidate Starts for Phalconet\_68:  
(Start: 29 @43304 has 123 MA's), (37, 43376),

Gene: Phegasus\_58 Start: 37683, Stop: 37805, Start Num: 29  
Candidate Starts for Phegasus\_58:  
(Start: 28 @37680 has 53 MA's), (Start: 29 @37683 has 123 MA's),

Gene: Phelipe\_86 Start: 48859, Stop: 48761, Start Num: 28  
Candidate Starts for Phelipe\_86:  
(Start: 28 @48859 has 53 MA's), (32, 48844), (34, 48835),

Gene: PhesterPhotato\_74 Start: 45630, Stop: 45752, Start Num: 29  
Candidate Starts for PhesterPhotato\_74:  
(Start: 29 @45630 has 123 MA's),

Gene: Phighter1804\_86 Start: 48959, Stop: 48861, Start Num: 29  
Candidate Starts for Phighter1804\_86:  
(Start: 28 @48962 has 53 MA's), (Start: 29 @48959 has 123 MA's), (32, 48944), (34, 48935),

Gene: Phontbonne\_86 Start: 48796, Stop: 48701, Start Num: 29  
Candidate Starts for Phontbonne\_86:  
(Start: 29 @48796 has 123 MA's), (32, 48781), (34, 48772),

Gene: Pipcraft\_82 Start: 48902, Stop: 48801, Start Num: 28  
Candidate Starts for Pipcraft\_82:  
(Start: 28 @48902 has 53 MA's), (Start: 29 @48899 has 123 MA's), (32, 48884), (34, 48875),

Gene: Pmask\_92 Start: 49245, Stop: 49153, Start Num: 29  
Candidate Starts for Pmask\_92:  
(13, 49389), (21, 49317), (22, 49314), (23, 49305), (Start: 29 @49245 has 123 MA's), (31, 49233), (32, 49230),

Gene: Poenanya\_75 Start: 46761, Stop: 46883, Start Num: 29  
Candidate Starts for Poenanya\_75:  
(14, 46638), (Start: 29 @46761 has 123 MA's), (37, 46833),

Gene: Polka14\_76 Start: 47551, Stop: 47673, Start Num: 29  
Candidate Starts for Polka14\_76:  
(14, 47428), (Start: 29 @47551 has 123 MA's), (37, 47623),

Gene: Polkaroo\_54 Start: 37256, Stop: 37378, Start Num: 29  
Candidate Starts for Polkaroo\_54:  
(15, 37136), (Start: 28 @37253 has 53 MA's), (Start: 29 @37256 has 123 MA's),

Gene: Polymorphads\_87 Start: 48919, Stop: 48821, Start Num: 28  
Candidate Starts for Polymorphads\_87:  
(Start: 28 @48919 has 53 MA's), (32, 48904), (34, 48895),

Gene: Pomar16\_92 Start: 49840, Stop: 49727, Start Num: 25  
Candidate Starts for Pomar16\_92:  
(Start: 25 @49840 has 10 MA's), (Start: 28 @49822 has 53 MA's), (32, 49807), (34, 49798), (35, 49780), (36, 49774),

Gene: Priamo\_93 Start: 48288, Stop: 48196, Start Num: 29  
Candidate Starts for Priamo\_93:  
(13, 48432), (21, 48360), (22, 48357), (23, 48348), (Start: 29 @48288 has 123 MA's), (31, 48276), (32, 48273),

Gene: Pumbaa\_86 Start: 48843, Stop: 48745, Start Num: 28  
Candidate Starts for Pumbaa\_86:  
(Start: 28 @48843 has 53 MA's), (32, 48828), (34, 48819),

Gene: QueenHazel\_50 Start: 36087, Stop: 36209, Start Num: 29  
Candidate Starts for QueenHazel\_50:  
(Start: 28 @36084 has 53 MA's), (Start: 29 @36087 has 123 MA's), (37, 36159),

Gene: Quico\_81 Start: 47428, Stop: 47550, Start Num: 29  
Candidate Starts for Quico\_81:  
(Start: 29 @47428 has 123 MA's), (37, 47500),

Gene: RedBird\_73 Start: 45253, Stop: 45375, Start Num: 29  
Candidate Starts for RedBird\_73:  
(14, 45130), (Start: 29 @45253 has 123 MA's), (37, 45325),

Gene: Rifter\_95 Start: 48235, Stop: 48143, Start Num: 29  
Candidate Starts for Rifter\_95:  
(Start: 29 @48235 has 123 MA's), (32, 48220),

Gene: RitaG\_72 Start: 46694, Stop: 46816, Start Num: 29  
Candidate Starts for RitaG\_72:  
(14, 46571), (Start: 29 @46694 has 123 MA's), (37, 46766),

Gene: Roksolana\_95 Start: 48951, Stop: 48859, Start Num: 29  
Candidate Starts for Roksolana\_95:  
(Start: 29 @48951 has 123 MA's), (32, 48936),

Gene: Rosa24\_82 Start: 48926, Stop: 48828, Start Num: 29  
Candidate Starts for Rosa24\_82:  
(Start: 28 @48929 has 53 MA's), (Start: 29 @48926 has 123 MA's), (32, 48911), (34, 48902),

Gene: Rowdy\_88 Start: 48914, Stop: 48810, Start Num: 28  
Candidate Starts for Rowdy\_88:  
(22, 48980), (Start: 28 @48914 has 53 MA's), (32, 48899), (34, 48890),

Gene: SG4\_68 Start: 43359, Stop: 43481, Start Num: 29  
Candidate Starts for SG4\_68:  
(Start: 29 @43359 has 123 MA's),

Gene: Sassafras\_73 Start: 45583, Stop: 45705, Start Num: 29  
Candidate Starts for Sassafras\_73:  
(14, 45460), (Start: 29 @45583 has 123 MA's), (37, 45655),

Gene: Scamp\_86 Start: 48900, Stop: 48802, Start Num: 28  
Candidate Starts for Scamp\_86:  
(Start: 28 @48900 has 53 MA's), (32, 48885), (34, 48876),

Gene: Scottish\_70 Start: 45242, Stop: 45364, Start Num: 29  
Candidate Starts for Scottish\_70:  
(14, 45119), (Start: 29 @45242 has 123 MA's), (37, 45314),

Gene: Shapes\_88 Start: 48914, Stop: 48810, Start Num: 28  
Candidate Starts for Shapes\_88:  
(22, 48980), (Start: 28 @48914 has 53 MA's), (32, 48899), (34, 48890),

Gene: SheldonCooper\_86 Start: 49336, Stop: 49238, Start Num: 28  
Candidate Starts for SheldonCooper\_86:  
(Start: 28 @49336 has 53 MA's), (32, 49321), (34, 49312),

Gene: Shweta\_55 Start: 36817, Stop: 36933, Start Num: 29  
Candidate Starts for Shweta\_55:  
(Start: 29 @36817 has 123 MA's), (32, 36832), (33, 36835),

Gene: Shygu2\_84 Start: 48839, Stop: 48744, Start Num: 29  
Candidate Starts for Shygu2\_84:  
(Start: 29 @48839 has 123 MA's), (31, 48827), (32, 48824), (34, 48815),

Gene: SmellyB\_93 Start: 48596, Stop: 48504, Start Num: 29  
Candidate Starts for SmellyB\_93:  
(Start: 29 @48596 has 123 MA's), (31, 48584), (32, 48581),

Gene: Sparxx\_87 Start: 48894, Stop: 48796, Start Num: 28  
Candidate Starts for Sparxx\_87:  
(Start: 28 @48894 has 53 MA's), (32, 48879), (34, 48870),

Gene: StAnnes\_69 Start: 44436, Stop: 44558, Start Num: 29  
Candidate Starts for StAnnes\_69:  
(Start: 29 @44436 has 123 MA's),

Gene: StarStuff\_92 Start: 49802, Stop: 49689, Start Num: 25  
Candidate Starts for StarStuff\_92:  
(Start: 25 @49802 has 10 MA's), (Start: 28 @49784 has 53 MA's), (32, 49769), (34, 49760), (35, 49742), (36, 49736),

Gene: Stink\_86 Start: 49122, Stop: 49024, Start Num: 29  
Candidate Starts for Stink\_86:  
(Start: 28 @49125 has 53 MA's), (Start: 29 @49122 has 123 MA's), (32, 49107), (34, 49098),

Gene: SuperAwesome\_93 Start: 49284, Stop: 49192, Start Num: 29

Candidate Starts for SuperAwesome\_93:

(13, 49428), (21, 49356), (22, 49353), (23, 49344), (Start: 29 @49284 has 123 MA's), (31, 49272), (32, 49269),

Gene: SuperCallie99\_89 Start: 48659, Stop: 48567, Start Num: 29

Candidate Starts for SuperCallie99\_89:

(Start: 29 @48659 has 123 MA's), (32, 48644),

Gene: TChen\_72 Start: 47192, Stop: 47317, Start Num: 29

Candidate Starts for TChen\_72:

(6, 46856), (Start: 29 @47192 has 123 MA's), (35, 47234),

Gene: Tapioca\_57 Start: 38663, Stop: 38788, Start Num: 29

Candidate Starts for Tapioca\_57:

(Start: 29 @38663 has 123 MA's), (32, 38678), (33, 38681),

Gene: Taquarus\_85 Start: 48907, Stop: 48809, Start Num: 28

Candidate Starts for Taquarus\_85:

(Start: 28 @48907 has 53 MA's), (32, 48892), (34, 48883),

Gene: Techage\_53 Start: 36249, Stop: 36371, Start Num: 41

Candidate Starts for Techage\_53:

(39, 36102), (Start: 40 @36246 has 1 MA's), (Start: 41 @36249 has 1 MA's),

Gene: Thanksgivukkah\_85 Start: 48896, Stop: 48798, Start Num: 28

Candidate Starts for Thanksgivukkah\_85:

(Start: 28 @48896 has 53 MA's), (32, 48881), (34, 48872),

Gene: Tinybot\_85 Start: 48925, Stop: 48827, Start Num: 29

Candidate Starts for Tinybot\_85:

(Start: 28 @48928 has 53 MA's), (Start: 29 @48925 has 123 MA's), (32, 48910), (34, 48901),

Gene: Tomathan\_92 Start: 49881, Stop: 49768, Start Num: 25

Candidate Starts for Tomathan\_92:

(Start: 25 @49881 has 10 MA's), (Start: 28 @49863 has 53 MA's), (32, 49848), (34, 49839), (36, 49815),

Gene: TootsiePop\_73 Start: 45868, Stop: 45993, Start Num: 29

Candidate Starts for TootsiePop\_73:

(Start: 29 @45868 has 123 MA's), (35, 45910),

Gene: Travvers\_92 Start: 49798, Stop: 49685, Start Num: 25

Candidate Starts for Travvers\_92:

(Start: 25 @49798 has 10 MA's), (Start: 28 @49780 has 53 MA's), (32, 49765), (34, 49756), (36, 49732),

Gene: TroyPia\_87 Start: 48933, Stop: 48835, Start Num: 28

Candidate Starts for TroyPia\_87:

(Start: 28 @48933 has 53 MA's), (32, 48918), (34, 48909),

Gene: Tucker\_95 Start: 48821, Stop: 48729, Start Num: 29

Candidate Starts for Tucker\_95:  
(Start: 29 @48821 has 123 MA's), (32, 48806),

Gene: TygerBlood\_86 Start: 48898, Stop: 48800, Start Num: 28  
Candidate Starts for TygerBlood\_86:  
(Start: 28 @48898 has 53 MA's), (32, 48883), (34, 48874),

Gene: Ulysses\_85 Start: 48581, Stop: 48483, Start Num: 29  
Candidate Starts for Ulysses\_85:  
(Start: 28 @48584 has 53 MA's), (Start: 29 @48581 has 123 MA's), (32, 48566), (34, 48557),

Gene: VC3\_88 Start: 48160, Stop: 48047, Start Num: 25  
Candidate Starts for VC3\_88:  
(18, 48226), (Start: 25 @48160 has 10 MA's), (Start: 28 @48142 has 53 MA's), (32, 48127), (34, 48118), (36, 48094),

Gene: VohminGhazi\_93 Start: 48597, Stop: 48505, Start Num: 29  
Candidate Starts for VohminGhazi\_93:  
(Start: 29 @48597 has 123 MA's), (31, 48585), (32, 48582),

Gene: Wiks\_94 Start: 48698, Stop: 48606, Start Num: 29  
Candidate Starts for Wiks\_94:  
(Start: 29 @48698 has 123 MA's), (32, 48683),

Gene: Xeno\_55 Start: 35530, Stop: 35655, Start Num: 28  
Candidate Starts for Xeno\_55:  
(Start: 28 @35530 has 53 MA's), (Start: 29 @35533 has 123 MA's), (37, 35605),

Gene: Xula\_49 Start: 35689, Stop: 35811, Start Num: 29  
Candidate Starts for Xula\_49:  
(Start: 28 @35686 has 53 MA's), (Start: 29 @35689 has 123 MA's),

Gene: YoSam321\_86 Start: 48893, Stop: 48795, Start Num: 29  
Candidate Starts for YoSam321\_86:  
(Start: 28 @48896 has 53 MA's), (Start: 29 @48893 has 123 MA's), (32, 48878), (34, 48869),

Gene: Yokurt\_94 Start: 48698, Stop: 48606, Start Num: 29  
Candidate Starts for Yokurt\_94:  
(Start: 29 @48698 has 123 MA's), (32, 48683),

Gene: Zaka\_95 Start: 48698, Stop: 48606, Start Num: 29  
Candidate Starts for Zaka\_95:  
(Start: 29 @48698 has 123 MA's), (32, 48683),

Gene: Zilizebeth\_58 Start: 37707, Stop: 37829, Start Num: 29  
Candidate Starts for Zilizebeth\_58:  
(Start: 28 @37704 has 53 MA's), (Start: 29 @37707 has 123 MA's),

Gene: Zulu\_96 Start: 49075, Stop: 48983, Start Num: 29  
Candidate Starts for Zulu\_96:  
(Start: 29 @49075 has 123 MA's), (32, 49060),