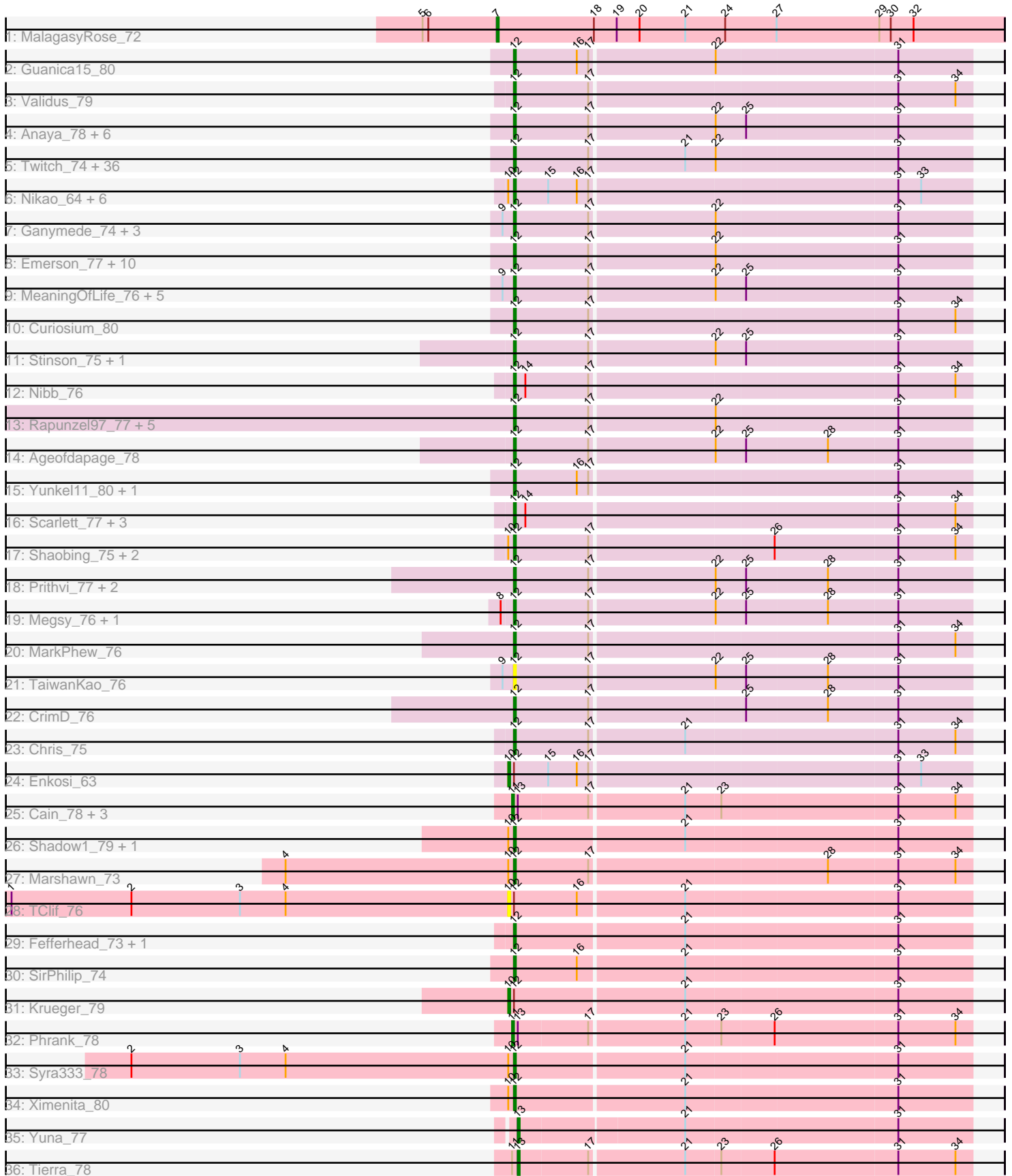


Pham 156227



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 156227 Report

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

Pham number 156227 has 122 members, 6 are drafts.

Phages represented in each track:

- Track 1 : MalagasyRose\_72
- Track 2 : Guanica15\_80
- Track 3 : Validus\_79
- Track 4 : Anaya\_78, Urkel\_74, DrHayes\_74, SamuelLPlaqson\_74, Devera\_82, Dole\_79, Illumine\_80
- Track 5 : Twitch\_74, Jeckyll\_74, AlishaPH\_73, HedwigODU\_74, Atiba\_75, Llorens\_73, Belladonna\_74, Zabiza\_70, CaseJules\_76, Lunahalos\_74, Adephagia\_73, Blizzard\_74, Rosmarinus\_74, Boiii\_74, Hyperbowlee\_73, Durfee\_74, Pokerus\_75, Homura\_73, Piatt\_73, Spock\_74, Jarvi\_74, ShiaSurprise\_75, BEEST\_74, Padfoot\_74, BaghaKamala\_73, Joy99\_75, Inky\_74, Asayake\_74, Capricorn\_74, Peel\_74, CREW\_73, Geraldini\_78, ActinUp\_75, Topper\_74, Tachez\_74, BGlluviae\_74, Dalmuri\_74
- Track 6 : Nikao\_64, LilPharaoh\_62, SgtBeansprout\_62, Nutello\_61, Biglebops\_61, Amelie\_61, Mdavu\_62
- Track 7 : Ganymede\_74, Beezoo\_77, YoureAdopted\_74, QuincyRose\_72
- Track 8 : Emerson\_77, Veliki\_75, Padpat\_78, Apocalypse\_77, Deby\_74, Tiri\_74, CheetoDust\_74, Ramen\_75, Zavala\_77, Mynx\_76, JAWS\_73
- Track 9 : MeaningOfLife\_76, TiniBug\_74, Bella96\_75, Sulley\_73, Angelica\_73, Adonis\_74
- Track 10 : Curiosium\_80
- Track 11 : Stinson\_75, LaterM\_74
- Track 12 : Nibb\_76
- Track 13 : Rapunzel97\_77, BarrelRoll\_75, TruffulaTree\_76, LastHope\_80, Jayhawk\_76, Slimphazie\_76
- Track 14 : Ageofdapage\_78
- Track 15 : Yunkel11\_80, Efra2\_81
- Track 16 : Scarlett\_77, LeMond\_76, KiSi\_77, Oscar\_76
- Track 17 : Shaobing\_75, Niklas\_76, Peanam\_76
- Track 18 : Prithvi\_77, LindNT\_73, TreyKay\_77
- Track 19 : Megsy\_76, Murucutumbu\_75
- Track 20 : MarkPhew\_76
- Track 21 : TaiwanKao\_76
- Track 22 : CrimD\_76
- Track 23 : Chris\_75
- Track 24 : Enkosi\_63
- Track 25 : Cain\_78, PhelpsODU\_77, Unicorn\_77, Bryler\_78
- Track 26 : Shadow1\_79, Sunflower1121\_80

- Track 27 : Marshawn\_73
- Track 28 : TClif\_76
- Track 29 : Fefferhead\_73, Amgine\_72
- Track 30 : SirPhilip\_74
- Track 31 : Krueger\_79
- Track 32 : Phrank\_78
- Track 33 : Syra333\_78
- Track 34 : Ximenita\_80
- Track 35 : Yuna\_77
- Track 36 : Tierra\_78

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

The start number called the most often in the published annotations is 12, it was called in 106 of the 116 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ActinUp\_75, Adephagia\_73, Adonis\_74, Ageofdapage\_78, AlishaPH\_73, Amelie\_61, Amgine\_72, Anaya\_78, Angelica\_73, Apocalypse\_77, Asayake\_74, Atiba\_75, BEEST\_74, BGlluviae\_74, BaghaKamala\_73, BarrelRoll\_75, Beezoo\_77, Bella96\_75, Belladonna\_74, Biglebops\_61, Blizzard\_74, Boiiii\_74, CREW\_73, Capricorn\_74, CaseJules\_76, CheetoDust\_74, Chris\_75, CrimD\_76, Curiosium\_80, Dalmuri\_74, Deby\_74, Devera\_82, Dole\_79, DrHayes\_74, Durfee\_74, Efra2\_81, Emerson\_77, Fefferhead\_73, Ganymede\_74, Geraldini\_78, Guanica15\_80, HedwigODU\_74, Homura\_73, Hyperbowlee\_73, Illumine\_80, Inky\_74, JAWS\_73, Jarvi\_74, Jayhawk\_76, Jeckyll\_74, Joy99\_75, KiSi\_77, LastHope\_80, LaterM\_74, LeMond\_76, LilPharaoh\_62, LindNT\_73, Llorens\_73, Lunahalos\_74, MarkPhew\_76, Marshawn\_73, Mdavu\_62, MeaningOfLife\_76, Megsy\_76, Murucutumbu\_75, Mynx\_76, Nibb\_76, Nikao\_64, Niklas\_76, Nutello\_61, Oscar\_76, Padfoot\_74, Padpat\_78, Peanam\_76, Peel\_74, Piatt\_73, Pokerus\_75, Prithvi\_77, QuincyRose\_72, Ramen\_75, Rapunzel97\_77, Rosmarinus\_74, SamuelLPlaqson\_74, Scarlett\_77, SgtBeansprout\_62, Shadow1\_79, Shaobing\_75, ShiaSurprise\_75, SirPhilip\_74, Slimphazie\_76, Spock\_74, Stinson\_75, Sulley\_73, Sunflower1121\_80, Syra333\_78, Tachez\_74, TaiwanKao\_76, TiniBug\_74, Tiri\_74, Topper\_74, TreyKay\_77, TruffulaTree\_76, Twitch\_74, Urkel\_74, Validus\_79, Veliki\_75, Ximenita\_80, YoureAdopted\_74, Yunkel11\_80, Zabiza\_70, Zavala\_77,

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

- Enkosi\_63, Krueger\_79, TClif\_76,

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

- Bryler\_78, Cain\_78, MalagasyRose\_72, PhelpsODU\_77, Phrank\_78, Tierra\_78, Unicorn\_77, Yuna\_77,

**Summary by start number:**

Start 7:

- Found in 1 of 122 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 116
- Called 100.0% of time when present

- Phage (with cluster) where this start called: MalagasyRose\_72 (AG),

#### Start 10:

- Found in 18 of 122 ( 14.8% ) of genes in pham
- Manual Annotations of this start: 2 of 116
- Called 16.7% of time when present
- Phage (with cluster) where this start called: Enkosi\_63 (K1), Krueger\_79 (K6), TClif\_76 (K6),

#### Start 11:

- Found in 6 of 122 ( 4.9% ) of genes in pham
- Manual Annotations of this start: 5 of 116
- Called 83.3% of time when present
- Phage (with cluster) where this start called: Bryler\_78 (K6), Cain\_78 (K6), PhelpsODU\_77 (K6), Phrank\_78 (K6), Unicorn\_77 (K6),

#### Start 12:

- Found in 114 of 122 ( 93.4% ) of genes in pham
- Manual Annotations of this start: 106 of 116
- Called 97.4% of time when present
- Phage (with cluster) where this start called: ActinUp\_75 (K1), Adephagia\_73 (K1), Adonis\_74 (K1), Ageofdapage\_78 (K1), AlishaPH\_73 (K1), Amelie\_61 (K1), Amgine\_72 (K6), Anaya\_78 (K1), Angelica\_73 (K1), Apocalypse\_77 (K1), Asayake\_74 (K1), Atiba\_75 (K1), BEEST\_74 (K1), BGlluviae\_74 (K1), BaghaKamala\_73 (K1), BarrelRoll\_75 (K1), Beezoo\_77 (K1), Bella96\_75 (K1), Belladonna\_74 (K1), Binglebops\_61 (K1), Blizzard\_74 (K1), Boiii\_74 (K1), CREW\_73 (K1), Capricorn\_74 (K1), CaseJules\_76 (K1), CheetoDust\_74 (K1), Chris\_75 (K1), CrimD\_76 (K1), Curiosium\_80 (K1), Dalmuri\_74 (K1), Deby\_74 (K1), Devera\_82 (K1), Dole\_79 (K1), DrHayes\_74 (K1), Durfee\_74 (K1), Efra2\_81 (K1), Emerson\_77 (K1), Fefferhead\_73 (K6), Ganymede\_74 (K1), Geraldini\_78 (K1), Guanica15\_80 (K1), HedwigODU\_74 (K1), Homura\_73 (K1), Hyperbowlee\_73 (K1), Illumine\_80 (K1), Inky\_74 (K1), JAWS\_73 (K1), Jarvi\_74 (K1), Jayhawk\_76 (K1), Jeckyll\_74 (K1), Joy99\_75 (K1), KiSi\_77 (K1), LastHope\_80 (K1), LaterM\_74 (K1), LeMond\_76 (K1), LilPharaoh\_62 (K1), LindNT\_73 (K1), Llorens\_73 (K1), Lunahalos\_74 (K1), MarkPhew\_76 (K1), Marshawn\_73 (K6), Mdavu\_62 (K1), MeaningOfLife\_76 (K1), Megsy\_76 (K1), Murucutumbu\_75 (K1), Mynx\_76 (K1), Nibb\_76 (K1), Nikao\_64 (K1), Niklas\_76 (K1), Nutello\_61 (K1), Oscar\_76 (K1), Padfoot\_74 (K1), Padpat\_78 (K1), Peanam\_76 (K1), Peel\_74 (K1), Piatt\_73 (K1), Pokerus\_75 (K1), Prithvi\_77 (K1), QuincyRose\_72 (K1), Ramen\_75 (K1), Rapunzel97\_77 (K1), Rosmarinus\_74 (K1), SamuelLPlaqson\_74 (K1), Scarlett\_77 (K1), SgtBeansprout\_62 (K1), Shadow1\_79 (K6), Shaobing\_75 (K1), ShiaSurprise\_75 (K1), SirPhilip\_74 (K6), Slimphazie\_76 (K1), Spock\_74 (K1), Stinson\_75 (K1), Sulley\_73 (K1), Sunflower1121\_80 (K6), Syra333\_78 (K6), Tachez\_74 (K1), TaiwanKao\_76 (K1), TiniBug\_74 (K1), Tiri\_74 (K1), Topper\_74 (K1), TreyKay\_77 (K1), TruffulaTree\_76 (K1), Twitch\_74 (K1), Urkel\_74 (K1), Validus\_79 (K1), Veliki\_75 (K1), Ximenita\_80 (K6), YoureAdopted\_74 (K1), Yunkel11\_80 (K1), Zabiza\_70 (K1), Zavala\_77 (K1),

#### Start 13:

- Found in 7 of 122 ( 5.7% ) of genes in pham
- Manual Annotations of this start: 2 of 116
- Called 28.6% of time when present
- Phage (with cluster) where this start called: Tierra\_78 (K6), Yuna\_77 (K6),

## Summary by clusters:

There are 3 clusters represented in this pham: K1, K6, AG,

Info for manual annotations of cluster AG:

- Start number 7 was manually annotated 1 time for cluster AG.

Info for manual annotations of cluster K1:

- Start number 10 was manually annotated 1 time for cluster K1.
- Start number 12 was manually annotated 98 times for cluster K1.

Info for manual annotations of cluster K6:

- Start number 10 was manually annotated 1 time for cluster K6.
- Start number 11 was manually annotated 5 times for cluster K6.
- Start number 12 was manually annotated 8 times for cluster K6.
- Start number 13 was manually annotated 2 times for cluster K6.

## Gene Information:

Gene: ActinUp\_75 Start: 49931, Stop: 50164, Start Num: 12

Candidate Starts for ActinUp\_75:

(Start: 12 @49931 has 106 MA's), (17, 49970), (21, 50018), (22, 50033), (31, 50126),

Gene: Adephagia\_73 Start: 49768, Stop: 50001, Start Num: 12

Candidate Starts for Adephagia\_73:

(Start: 12 @49768 has 106 MA's), (17, 49807), (21, 49855), (22, 49870), (31, 49963),

Gene: Adonis\_74 Start: 50203, Stop: 50436, Start Num: 12

Candidate Starts for Adonis\_74:

(9, 50197), (Start: 12 @50203 has 106 MA's), (17, 50242), (22, 50305), (25, 50320), (31, 50398),

Gene: Ageofdapage\_78 Start: 51128, Stop: 51361, Start Num: 12

Candidate Starts for Ageofdapage\_78:

(Start: 12 @51128 has 106 MA's), (17, 51167), (22, 51230), (25, 51245), (28, 51287), (31, 51323),

Gene: AlishaPH\_73 Start: 50029, Stop: 50262, Start Num: 12

Candidate Starts for AlishaPH\_73:

(Start: 12 @50029 has 106 MA's), (17, 50068), (21, 50116), (22, 50131), (31, 50224),

Gene: Amelie\_61 Start: 46926, Stop: 47159, Start Num: 12

Candidate Starts for Amelie\_61:

(Start: 10 @46923 has 2 MA's), (Start: 12 @46926 has 106 MA's), (15, 46944), (16, 46959), (17, 46965), (31, 47121), (33, 47133),

Gene: Amgine\_72 Start: 50438, Stop: 50671, Start Num: 12

Candidate Starts for Amgine\_72:

(Start: 12 @50438 has 106 MA's), (21, 50525), (31, 50633),

Gene: Anaya\_78 Start: 50826, Stop: 51059, Start Num: 12

Candidate Starts for Anaya\_78:

(Start: 12 @50826 has 106 MA's), (17, 50865), (22, 50928), (25, 50943), (31, 51021),

Gene: Angelica\_73 Start: 49888, Stop: 50121, Start Num: 12  
Candidate Starts for Angelica\_73:  
(9, 49882), (Start: 12 @49888 has 106 MA's), (17, 49927), (22, 49990), (25, 50005), (31, 50083),

Gene: Apocalypse\_77 Start: 50570, Stop: 50803, Start Num: 12  
Candidate Starts for Apocalypse\_77:  
(Start: 12 @50570 has 106 MA's), (17, 50609), (22, 50672), (31, 50765),

Gene: Asayake\_74 Start: 50083, Stop: 50316, Start Num: 12  
Candidate Starts for Asayake\_74:  
(Start: 12 @50083 has 106 MA's), (17, 50122), (21, 50170), (22, 50185), (31, 50278),

Gene: Atiba\_75 Start: 49731, Stop: 49964, Start Num: 12  
Candidate Starts for Atiba\_75:  
(Start: 12 @49731 has 106 MA's), (17, 49770), (21, 49818), (22, 49833), (31, 49926),

Gene: BEEST\_74 Start: 50083, Stop: 50316, Start Num: 12  
Candidate Starts for BEEST\_74:  
(Start: 12 @50083 has 106 MA's), (17, 50122), (21, 50170), (22, 50185), (31, 50278),

Gene: BGlluviae\_74 Start: 49886, Stop: 50119, Start Num: 12  
Candidate Starts for BGlluviae\_74:  
(Start: 12 @49886 has 106 MA's), (17, 49925), (21, 49973), (22, 49988), (31, 50081),

Gene: BaghaKamala\_73 Start: 49317, Stop: 49550, Start Num: 12  
Candidate Starts for BaghaKamala\_73:  
(Start: 12 @49317 has 106 MA's), (17, 49356), (21, 49404), (22, 49419), (31, 49512),

Gene: BarrelRoll\_75 Start: 50288, Stop: 50521, Start Num: 12  
Candidate Starts for BarrelRoll\_75:  
(Start: 12 @50288 has 106 MA's), (17, 50327), (22, 50390), (31, 50483),

Gene: Beezoo\_77 Start: 50865, Stop: 51098, Start Num: 12  
Candidate Starts for Beezoo\_77:  
(9, 50859), (Start: 12 @50865 has 106 MA's), (17, 50904), (22, 50967), (31, 51060),

Gene: Bella96\_75 Start: 50149, Stop: 50382, Start Num: 12  
Candidate Starts for Bella96\_75:  
(9, 50143), (Start: 12 @50149 has 106 MA's), (17, 50188), (22, 50251), (25, 50266), (31, 50344),

Gene: Belladonna\_74 Start: 49886, Stop: 50119, Start Num: 12  
Candidate Starts for Belladonna\_74:  
(Start: 12 @49886 has 106 MA's), (17, 49925), (21, 49973), (22, 49988), (31, 50081),

Gene: Biglebops\_61 Start: 46941, Stop: 47174, Start Num: 12  
Candidate Starts for Biglebops\_61:  
(Start: 10 @46938 has 2 MA's), (Start: 12 @46941 has 106 MA's), (15, 46959), (16, 46974), (17, 46980), (31, 47136), (33, 47148),

Gene: Blizzard\_74 Start: 50083, Stop: 50316, Start Num: 12  
Candidate Starts for Blizzard\_74:  
(Start: 12 @50083 has 106 MA's), (17, 50122), (21, 50170), (22, 50185), (31, 50278),

Gene: Boiiii\_74 Start: 50085, Stop: 50318, Start Num: 12

Candidate Starts for Boiiii\_74:

(Start: 12 @50085 has 106 MA's), (17, 50124), (21, 50172), (22, 50187), (31, 50280),

Gene: Bryler\_78 Start: 49714, Stop: 49947, Start Num: 11

Candidate Starts for Bryler\_78:

(Start: 11 @49714 has 5 MA's), (Start: 13 @49717 has 2 MA's), (17, 49753), (21, 49801), (23, 49819), (31, 49909), (34, 49939),

Gene: CREW\_73 Start: 49886, Stop: 50119, Start Num: 12

Candidate Starts for CREW\_73:

(Start: 12 @49886 has 106 MA's), (17, 49925), (21, 49973), (22, 49988), (31, 50081),

Gene: Cain\_78 Start: 49702, Stop: 49935, Start Num: 11

Candidate Starts for Cain\_78:

(Start: 11 @49702 has 5 MA's), (Start: 13 @49705 has 2 MA's), (17, 49741), (21, 49789), (23, 49807), (31, 49897), (34, 49927),

Gene: Capricorn\_74 Start: 49886, Stop: 50119, Start Num: 12

Candidate Starts for Capricorn\_74:

(Start: 12 @49886 has 106 MA's), (17, 49925), (21, 49973), (22, 49988), (31, 50081),

Gene: CaseJules\_76 Start: 50083, Stop: 50316, Start Num: 12

Candidate Starts for CaseJules\_76:

(Start: 12 @50083 has 106 MA's), (17, 50122), (21, 50170), (22, 50185), (31, 50278),

Gene: CheetoDust\_74 Start: 49483, Stop: 49716, Start Num: 12

Candidate Starts for CheetoDust\_74:

(Start: 12 @49483 has 106 MA's), (17, 49522), (22, 49585), (31, 49678),

Gene: Chris\_75 Start: 50488, Stop: 50721, Start Num: 12

Candidate Starts for Chris\_75:

(Start: 12 @50488 has 106 MA's), (17, 50527), (21, 50575), (31, 50683), (34, 50713),

Gene: CrimD\_76 Start: 50884, Stop: 51117, Start Num: 12

Candidate Starts for CrimD\_76:

(Start: 12 @50884 has 106 MA's), (17, 50923), (25, 51001), (28, 51043), (31, 51079),

Gene: Curiosium\_80 Start: 49850, Stop: 50083, Start Num: 12

Candidate Starts for Curiosium\_80:

(Start: 12 @49850 has 106 MA's), (17, 49889), (31, 50045), (34, 50075),

Gene: Dalmuri\_74 Start: 49886, Stop: 50119, Start Num: 12

Candidate Starts for Dalmuri\_74:

(Start: 12 @49886 has 106 MA's), (17, 49925), (21, 49973), (22, 49988), (31, 50081),

Gene: Deby\_74 Start: 50255, Stop: 50488, Start Num: 12

Candidate Starts for Deby\_74:

(Start: 12 @50255 has 106 MA's), (17, 50294), (22, 50357), (31, 50450),

Gene: Devera\_82 Start: 51680, Stop: 51913, Start Num: 12

Candidate Starts for Devera\_82:

(Start: 12 @51680 has 106 MA's), (17, 51719), (22, 51782), (25, 51797), (31, 51875),

Gene: Dole\_79 Start: 51683, Stop: 51916, Start Num: 12

Candidate Starts for Dole\_79:

(Start: 12 @51683 has 106 MA's), (17, 51722), (22, 51785), (25, 51800), (31, 51878),

Gene: DrHayes\_74 Start: 50282, Stop: 50515, Start Num: 12

Candidate Starts for DrHayes\_74:

(Start: 12 @50282 has 106 MA's), (17, 50321), (22, 50384), (25, 50399), (31, 50477),

Gene: Durfee\_74 Start: 50083, Stop: 50316, Start Num: 12

Candidate Starts for Durfee\_74:

(Start: 12 @50083 has 106 MA's), (17, 50122), (21, 50170), (22, 50185), (31, 50278),

Gene: Efra2\_81 Start: 50716, Stop: 50949, Start Num: 12

Candidate Starts for Efra2\_81:

(Start: 12 @50716 has 106 MA's), (16, 50749), (17, 50755), (31, 50911),

Gene: Emerson\_77 Start: 50322, Stop: 50555, Start Num: 12

Candidate Starts for Emerson\_77:

(Start: 12 @50322 has 106 MA's), (17, 50361), (22, 50424), (31, 50517),

Gene: Enkosi\_63 Start: 49536, Stop: 49772, Start Num: 10

Candidate Starts for Enkosi\_63:

(Start: 10 @49536 has 2 MA's), (Start: 12 @49539 has 106 MA's), (15, 49557), (16, 49572), (17, 49578), (31, 49734), (33, 49746),

Gene: Fefferhead\_73 Start: 49667, Stop: 49900, Start Num: 12

Candidate Starts for Fefferhead\_73:

(Start: 12 @49667 has 106 MA's), (21, 49754), (31, 49862),

Gene: Ganymede\_74 Start: 50293, Stop: 50526, Start Num: 12

Candidate Starts for Ganymede\_74:

(9, 50287), (Start: 12 @50293 has 106 MA's), (17, 50332), (22, 50395), (31, 50488),

Gene: Geraldini\_78 Start: 50883, Stop: 51116, Start Num: 12

Candidate Starts for Geraldini\_78:

(Start: 12 @50883 has 106 MA's), (17, 50922), (21, 50970), (22, 50985), (31, 51078),

Gene: Guanica15\_80 Start: 50462, Stop: 50695, Start Num: 12

Candidate Starts for Guanica15\_80:

(Start: 12 @50462 has 106 MA's), (16, 50495), (17, 50501), (22, 50564), (31, 50657),

Gene: HedwigODU\_74 Start: 49931, Stop: 50164, Start Num: 12

Candidate Starts for HedwigODU\_74:

(Start: 12 @49931 has 106 MA's), (17, 49970), (21, 50018), (22, 50033), (31, 50126),

Gene: Homura\_73 Start: 49886, Stop: 50119, Start Num: 12

Candidate Starts for Homura\_73:

(Start: 12 @49886 has 106 MA's), (17, 49925), (21, 49973), (22, 49988), (31, 50081),

Gene: Hyperbowlee\_73 Start: 50083, Stop: 50316, Start Num: 12

Candidate Starts for Hyperbowlee\_73:



(Start: 12 @50083 has 106 MA's), (17, 50122), (21, 50170), (22, 50185), (31, 50278),

Gene: Illumine\_80 Start: 51682, Stop: 51915, Start Num: 12

Candidate Starts for Illumine\_80:

(Start: 12 @51682 has 106 MA's), (17, 51721), (22, 51784), (25, 51799), (31, 51877),

Gene: Inky\_74 Start: 49886, Stop: 50119, Start Num: 12

Candidate Starts for Inky\_74:

(Start: 12 @49886 has 106 MA's), (17, 49925), (21, 49973), (22, 49988), (31, 50081),

Gene: JAWS\_73 Start: 49848, Stop: 50081, Start Num: 12

Candidate Starts for JAWS\_73:

(Start: 12 @49848 has 106 MA's), (17, 49887), (22, 49950), (31, 50043),

Gene: Jarvi\_74 Start: 49886, Stop: 50119, Start Num: 12

Candidate Starts for Jarvi\_74:

(Start: 12 @49886 has 106 MA's), (17, 49925), (21, 49973), (22, 49988), (31, 50081),

Gene: Jayhawk\_76 Start: 50348, Stop: 50581, Start Num: 12

Candidate Starts for Jayhawk\_76:

(Start: 12 @50348 has 106 MA's), (17, 50387), (22, 50450), (31, 50543),

Gene: Jeckyll\_74 Start: 49886, Stop: 50119, Start Num: 12

Candidate Starts for Jeckyll\_74:

(Start: 12 @49886 has 106 MA's), (17, 49925), (21, 49973), (22, 49988), (31, 50081),

Gene: Joy99\_75 Start: 50015, Stop: 50248, Start Num: 12

Candidate Starts for Joy99\_75:

(Start: 12 @50015 has 106 MA's), (17, 50054), (21, 50102), (22, 50117), (31, 50210),

Gene: KiSi\_77 Start: 50476, Stop: 50709, Start Num: 12

Candidate Starts for KiSi\_77:

(Start: 12 @50476 has 106 MA's), (14, 50482), (31, 50671), (34, 50701),

Gene: Krueger\_79 Start: 50225, Stop: 50461, Start Num: 10

Candidate Starts for Krueger\_79:

(Start: 10 @50225 has 2 MA's), (Start: 12 @50228 has 106 MA's), (21, 50315), (31, 50423),

Gene: LastHope\_80 Start: 49572, Stop: 49805, Start Num: 12

Candidate Starts for LastHope\_80:

(Start: 12 @49572 has 106 MA's), (17, 49611), (22, 49674), (31, 49767),

Gene: LaterM\_74 Start: 50546, Stop: 50779, Start Num: 12

Candidate Starts for LaterM\_74:

(Start: 12 @50546 has 106 MA's), (17, 50585), (22, 50648), (25, 50663), (31, 50741),

Gene: LeMond\_76 Start: 50080, Stop: 50313, Start Num: 12

Candidate Starts for LeMond\_76:

(Start: 12 @50080 has 106 MA's), (14, 50086), (31, 50275), (34, 50305),

Gene: LilPharaoh\_62 Start: 46654, Stop: 46887, Start Num: 12

Candidate Starts for LilPharaoh\_62:

(Start: 10 @46651 has 2 MA's), (Start: 12 @46654 has 106 MA's), (15, 46672), (16, 46687), (17, 46693), (31, 46849), (33, 46861),

Gene: LindNT\_73 Start: 50348, Stop: 50581, Start Num: 12

Candidate Starts for LindNT\_73:

(Start: 12 @50348 has 106 MA's), (17, 50387), (22, 50450), (25, 50465), (28, 50507), (31, 50543),

Gene: Llorens\_73 Start: 49886, Stop: 50119, Start Num: 12

Candidate Starts for Llorens\_73:

(Start: 12 @49886 has 106 MA's), (17, 49925), (21, 49973), (22, 49988), (31, 50081),

Gene: Lunahalos\_74 Start: 49886, Stop: 50119, Start Num: 12

Candidate Starts for Lunahalos\_74:

(Start: 12 @49886 has 106 MA's), (17, 49925), (21, 49973), (22, 49988), (31, 50081),

Gene: MalagasyRose\_72 Start: 48317, Stop: 48583, Start Num: 7

Candidate Starts for MalagasyRose\_72:

(5, 48278), (6, 48281), (Start: 7 @48317 has 1 MA's), (18, 48368), (19, 48380), (20, 48392), (21, 48416), (24, 48437), (27, 48464), (29, 48518), (30, 48524), (32, 48536),

Gene: MarkPhew\_76 Start: 49965, Stop: 50198, Start Num: 12

Candidate Starts for MarkPhew\_76:

(Start: 12 @49965 has 106 MA's), (17, 50004), (31, 50160), (34, 50190),

Gene: Marshawn\_73 Start: 50358, Stop: 50591, Start Num: 12

Candidate Starts for Marshawn\_73:

(4, 50238), (Start: 10 @50355 has 2 MA's), (Start: 12 @50358 has 106 MA's), (17, 50397), (28, 50517), (31, 50553), (34, 50583),

Gene: Mdavu\_62 Start: 46930, Stop: 47163, Start Num: 12

Candidate Starts for Mdavu\_62:

(Start: 10 @46927 has 2 MA's), (Start: 12 @46930 has 106 MA's), (15, 46948), (16, 46963), (17, 46969), (31, 47125), (33, 47137),

Gene: MeaningOfLife\_76 Start: 50838, Stop: 51071, Start Num: 12

Candidate Starts for MeaningOfLife\_76:

(9, 50832), (Start: 12 @50838 has 106 MA's), (17, 50877), (22, 50940), (25, 50955), (31, 51033),

Gene: Megsy\_76 Start: 49976, Stop: 50209, Start Num: 12

Candidate Starts for Megsy\_76:

(8, 49970), (Start: 12 @49976 has 106 MA's), (17, 50015), (22, 50078), (25, 50093), (28, 50135), (31, 50171),

Gene: Murucutumbu\_75 Start: 51122, Stop: 51355, Start Num: 12

Candidate Starts for Murucutumbu\_75:

(8, 51116), (Start: 12 @51122 has 106 MA's), (17, 51161), (22, 51224), (25, 51239), (28, 51281), (31, 51317),

Gene: Mynx\_76 Start: 50617, Stop: 50850, Start Num: 12

Candidate Starts for Mynx\_76:

(Start: 12 @50617 has 106 MA's), (17, 50656), (22, 50719), (31, 50812),

Gene: Nibb\_76 Start: 49781, Stop: 50014, Start Num: 12

Candidate Starts for Nibb\_76:

(Start: 12 @49781 has 106 MA's), (14, 49787), (17, 49820), (31, 49976), (34, 50006),

Gene: Nikao\_64 Start: 49539, Stop: 49772, Start Num: 12

Candidate Starts for Nikao\_64:

(Start: 10 @49536 has 2 MA's), (Start: 12 @49539 has 106 MA's), (15, 49557), (16, 49572), (17, 49578), (31, 49734), (33, 49746),

Gene: Niklas\_76 Start: 50118, Stop: 50351, Start Num: 12

Candidate Starts for Niklas\_76:

(Start: 10 @50115 has 2 MA's), (Start: 12 @50118 has 106 MA's), (17, 50157), (26, 50250), (31, 50313), (34, 50343),

Gene: Nutello\_61 Start: 46926, Stop: 47159, Start Num: 12

Candidate Starts for Nutello\_61:

(Start: 10 @46923 has 2 MA's), (Start: 12 @46926 has 106 MA's), (15, 46944), (16, 46959), (17, 46965), (31, 47121), (33, 47133),

Gene: Oscar\_76 Start: 50000, Stop: 50233, Start Num: 12

Candidate Starts for Oscar\_76:

(Start: 12 @50000 has 106 MA's), (14, 50006), (31, 50195), (34, 50225),

Gene: Padfoot\_74 Start: 50083, Stop: 50316, Start Num: 12

Candidate Starts for Padfoot\_74:

(Start: 12 @50083 has 106 MA's), (17, 50122), (21, 50170), (22, 50185), (31, 50278),

Gene: Padpat\_78 Start: 50322, Stop: 50555, Start Num: 12

Candidate Starts for Padpat\_78:

(Start: 12 @50322 has 106 MA's), (17, 50361), (22, 50424), (31, 50517),

Gene: Peanam\_76 Start: 50076, Stop: 50309, Start Num: 12

Candidate Starts for Peanam\_76:

(Start: 10 @50073 has 2 MA's), (Start: 12 @50076 has 106 MA's), (17, 50115), (26, 50208), (31, 50271), (34, 50301),

Gene: Peel\_74 Start: 49888, Stop: 50121, Start Num: 12

Candidate Starts for Peel\_74:

(Start: 12 @49888 has 106 MA's), (17, 49927), (21, 49975), (22, 49990), (31, 50083),

Gene: PhelpsODU\_77 Start: 49829, Stop: 50062, Start Num: 11

Candidate Starts for PhelpsODU\_77:

(Start: 11 @49829 has 5 MA's), (Start: 13 @49832 has 2 MA's), (17, 49868), (21, 49916), (23, 49934), (31, 50024), (34, 50054),

Gene: Phrank\_78 Start: 49689, Stop: 49922, Start Num: 11

Candidate Starts for Phrank\_78:

(Start: 11 @49689 has 5 MA's), (Start: 13 @49692 has 2 MA's), (17, 49728), (21, 49776), (23, 49794), (26, 49821), (31, 49884), (34, 49914),

Gene: Piatt\_73 Start: 50083, Stop: 50316, Start Num: 12

Candidate Starts for Piatt\_73:

(Start: 12 @50083 has 106 MA's), (17, 50122), (21, 50170), (22, 50185), (31, 50278),

Gene: Pokerus\_75 Start: 50331, Stop: 50564, Start Num: 12  
Candidate Starts for Pokerus\_75:  
(Start: 12 @50331 has 106 MA's), (17, 50370), (21, 50418), (22, 50433), (31, 50526),

Gene: Prithvi\_77 Start: 50348, Stop: 50581, Start Num: 12  
Candidate Starts for Prithvi\_77:  
(Start: 12 @50348 has 106 MA's), (17, 50387), (22, 50450), (25, 50465), (28, 50507), (31, 50543),

Gene: QuincyRose\_72 Start: 50293, Stop: 50526, Start Num: 12  
Candidate Starts for QuincyRose\_72:  
(9, 50287), (Start: 12 @50293 has 106 MA's), (17, 50332), (22, 50395), (31, 50488),

Gene: Ramen\_75 Start: 49652, Stop: 49885, Start Num: 12  
Candidate Starts for Ramen\_75:  
(Start: 12 @49652 has 106 MA's), (17, 49691), (22, 49754), (31, 49847),

Gene: Rapunzel97\_77 Start: 50303, Stop: 50536, Start Num: 12  
Candidate Starts for Rapunzel97\_77:  
(Start: 12 @50303 has 106 MA's), (17, 50342), (22, 50405), (31, 50498),

Gene: Rosmarinus\_74 Start: 49874, Stop: 50107, Start Num: 12  
Candidate Starts for Rosmarinus\_74:  
(Start: 12 @49874 has 106 MA's), (17, 49913), (21, 49961), (22, 49976), (31, 50069),

Gene: SamuelLPlaqson\_74 Start: 50282, Stop: 50515, Start Num: 12  
Candidate Starts for SamuelLPlaqson\_74:  
(Start: 12 @50282 has 106 MA's), (17, 50321), (22, 50384), (25, 50399), (31, 50477),

Gene: Scarlett\_77 Start: 50336, Stop: 50569, Start Num: 12  
Candidate Starts for Scarlett\_77:  
(Start: 12 @50336 has 106 MA's), (14, 50342), (31, 50531), (34, 50561),

Gene: SgtBeansprout\_62 Start: 46926, Stop: 47159, Start Num: 12  
Candidate Starts for SgtBeansprout\_62:  
(Start: 10 @46923 has 2 MA's), (Start: 12 @46926 has 106 MA's), (15, 46944), (16, 46959), (17, 46965), (31, 47121), (33, 47133),

Gene: Shadow1\_79 Start: 50368, Stop: 50601, Start Num: 12  
Candidate Starts for Shadow1\_79:  
(Start: 10 @50365 has 2 MA's), (Start: 12 @50368 has 106 MA's), (21, 50455), (31, 50563),

Gene: Shaobing\_75 Start: 50093, Stop: 50326, Start Num: 12  
Candidate Starts for Shaobing\_75:  
(Start: 10 @50090 has 2 MA's), (Start: 12 @50093 has 106 MA's), (17, 50132), (26, 50225), (31, 50288), (34, 50318),

Gene: ShiaSurprise\_75 Start: 50083, Stop: 50316, Start Num: 12  
Candidate Starts for ShiaSurprise\_75:  
(Start: 12 @50083 has 106 MA's), (17, 50122), (21, 50170), (22, 50185), (31, 50278),

Gene: SirPhilip\_74 Start: 50594, Stop: 50827, Start Num: 12  
Candidate Starts for SirPhilip\_74:  
(Start: 12 @50594 has 106 MA's), (16, 50627), (21, 50681), (31, 50789),

Gene: Slimphazie\_76 Start: 50303, Stop: 50536, Start Num: 12  
Candidate Starts for Slimphazie\_76:  
(Start: 12 @50303 has 106 MA's), (17, 50342), (22, 50405), (31, 50498),

Gene: Spock\_74 Start: 49887, Stop: 50120, Start Num: 12  
Candidate Starts for Spock\_74:  
(Start: 12 @49887 has 106 MA's), (17, 49926), (21, 49974), (22, 49989), (31, 50082),

Gene: Stinson\_75 Start: 50481, Stop: 50714, Start Num: 12  
Candidate Starts for Stinson\_75:  
(Start: 12 @50481 has 106 MA's), (17, 50520), (22, 50583), (25, 50598), (31, 50676),

Gene: Sulley\_73 Start: 49914, Stop: 50147, Start Num: 12  
Candidate Starts for Sulley\_73:  
(9, 49908), (Start: 12 @49914 has 106 MA's), (17, 49953), (22, 50016), (25, 50031), (31, 50109),

Gene: Sunflower1121\_80 Start: 50514, Stop: 50747, Start Num: 12  
Candidate Starts for Sunflower1121\_80:  
(Start: 10 @50511 has 2 MA's), (Start: 12 @50514 has 106 MA's), (21, 50601), (31, 50709),

Gene: Syra333\_78 Start: 50242, Stop: 50475, Start Num: 12  
Candidate Starts for Syra333\_78:  
(2, 50041), (3, 50098), (4, 50122), (Start: 10 @50239 has 2 MA's), (Start: 12 @50242 has 106 MA's),  
(21, 50329), (31, 50437),

Gene: TClif\_76 Start: 49977, Stop: 50213, Start Num: 10  
Candidate Starts for TClif\_76:  
(1, 49716), (2, 49779), (3, 49836), (4, 49860), (Start: 10 @49977 has 2 MA's), (Start: 12 @49980 has  
106 MA's), (16, 50013), (21, 50067), (31, 50175),

Gene: Tachez\_74 Start: 49731, Stop: 49964, Start Num: 12  
Candidate Starts for Tachez\_74:  
(Start: 12 @49731 has 106 MA's), (17, 49770), (21, 49818), (22, 49833), (31, 49926),

Gene: TaiwanKao\_76 Start: 50406, Stop: 50639, Start Num: 12  
Candidate Starts for TaiwanKao\_76:  
(9, 50400), (Start: 12 @50406 has 106 MA's), (17, 50445), (22, 50508), (25, 50523), (28, 50565), (31,  
50601),

Gene: Tierra\_78 Start: 50503, Stop: 50733, Start Num: 13  
Candidate Starts for Tierra\_78:  
(Start: 11 @50500 has 5 MA's), (Start: 13 @50503 has 2 MA's), (17, 50539), (21, 50587), (23, 50605),  
(26, 50632), (31, 50695), (34, 50725),

Gene: TiniBug\_74 Start: 50282, Stop: 50515, Start Num: 12  
Candidate Starts for TiniBug\_74:  
(9, 50276), (Start: 12 @50282 has 106 MA's), (17, 50321), (22, 50384), (25, 50399), (31, 50477),

Gene: Tiri\_74 Start: 49787, Stop: 50020, Start Num: 12  
Candidate Starts for Tiri\_74:  
(Start: 12 @49787 has 106 MA's), (17, 49826), (22, 49889), (31, 49982),

Gene: Topper\_74 Start: 49886, Stop: 50119, Start Num: 12  
Candidate Starts for Topper\_74:  
(Start: 12 @49886 has 106 MA's), (17, 49925), (21, 49973), (22, 49988), (31, 50081),

Gene: TreyKay\_77 Start: 50348, Stop: 50581, Start Num: 12  
Candidate Starts for TreyKay\_77:  
(Start: 12 @50348 has 106 MA's), (17, 50387), (22, 50450), (25, 50465), (28, 50507), (31, 50543),

Gene: TruffulaTree\_76 Start: 50299, Stop: 50532, Start Num: 12  
Candidate Starts for TruffulaTree\_76:  
(Start: 12 @50299 has 106 MA's), (17, 50338), (22, 50401), (31, 50494),

Gene: Twitch\_74 Start: 49888, Stop: 50121, Start Num: 12  
Candidate Starts for Twitch\_74:  
(Start: 12 @49888 has 106 MA's), (17, 49927), (21, 49975), (22, 49990), (31, 50083),

Gene: Unicorn\_77 Start: 49829, Stop: 50062, Start Num: 11  
Candidate Starts for Unicorn\_77:  
(Start: 11 @49829 has 5 MA's), (Start: 13 @49832 has 2 MA's), (17, 49868), (21, 49916), (23, 49934),  
(31, 50024), (34, 50054),

Gene: Urkel\_74 Start: 50282, Stop: 50515, Start Num: 12  
Candidate Starts for Urkel\_74:  
(Start: 12 @50282 has 106 MA's), (17, 50321), (22, 50384), (25, 50399), (31, 50477),

Gene: Validus\_79 Start: 50643, Stop: 50876, Start Num: 12  
Candidate Starts for Validus\_79:  
(Start: 12 @50643 has 106 MA's), (17, 50682), (31, 50838), (34, 50868),

Gene: Veliki\_75 Start: 49839, Stop: 50072, Start Num: 12  
Candidate Starts for Veliki\_75:  
(Start: 12 @49839 has 106 MA's), (17, 49878), (22, 49941), (31, 50034),

Gene: Ximenita\_80 Start: 50566, Stop: 50799, Start Num: 12  
Candidate Starts for Ximenita\_80:  
(Start: 10 @50563 has 2 MA's), (Start: 12 @50566 has 106 MA's), (21, 50653), (31, 50761),

Gene: YoureAdopted\_74 Start: 50250, Stop: 50483, Start Num: 12  
Candidate Starts for YoureAdopted\_74:  
(9, 50244), (Start: 12 @50250 has 106 MA's), (17, 50289), (22, 50352), (31, 50445),

Gene: Yuna\_77 Start: 51331, Stop: 51561, Start Num: 13  
Candidate Starts for Yuna\_77:  
(Start: 13 @51331 has 2 MA's), (21, 51415), (31, 51523),

Gene: Yunkel11\_80 Start: 50467, Stop: 50700, Start Num: 12  
Candidate Starts for Yunkel11\_80:  
(Start: 12 @50467 has 106 MA's), (16, 50500), (17, 50506), (31, 50662),

Gene: Zabiza\_70 Start: 46236, Stop: 46469, Start Num: 12  
Candidate Starts for Zabiza\_70:  
(Start: 12 @46236 has 106 MA's), (17, 46275), (21, 46323), (22, 46338), (31, 46431),

Gene: Zavala\_77 Start: 50377, Stop: 50610, Start Num: 12

Candidate Starts for Zavala\_77:

(Start: 12 @50377 has 106 MA's), (17, 50416), (22, 50479), (31, 50572),