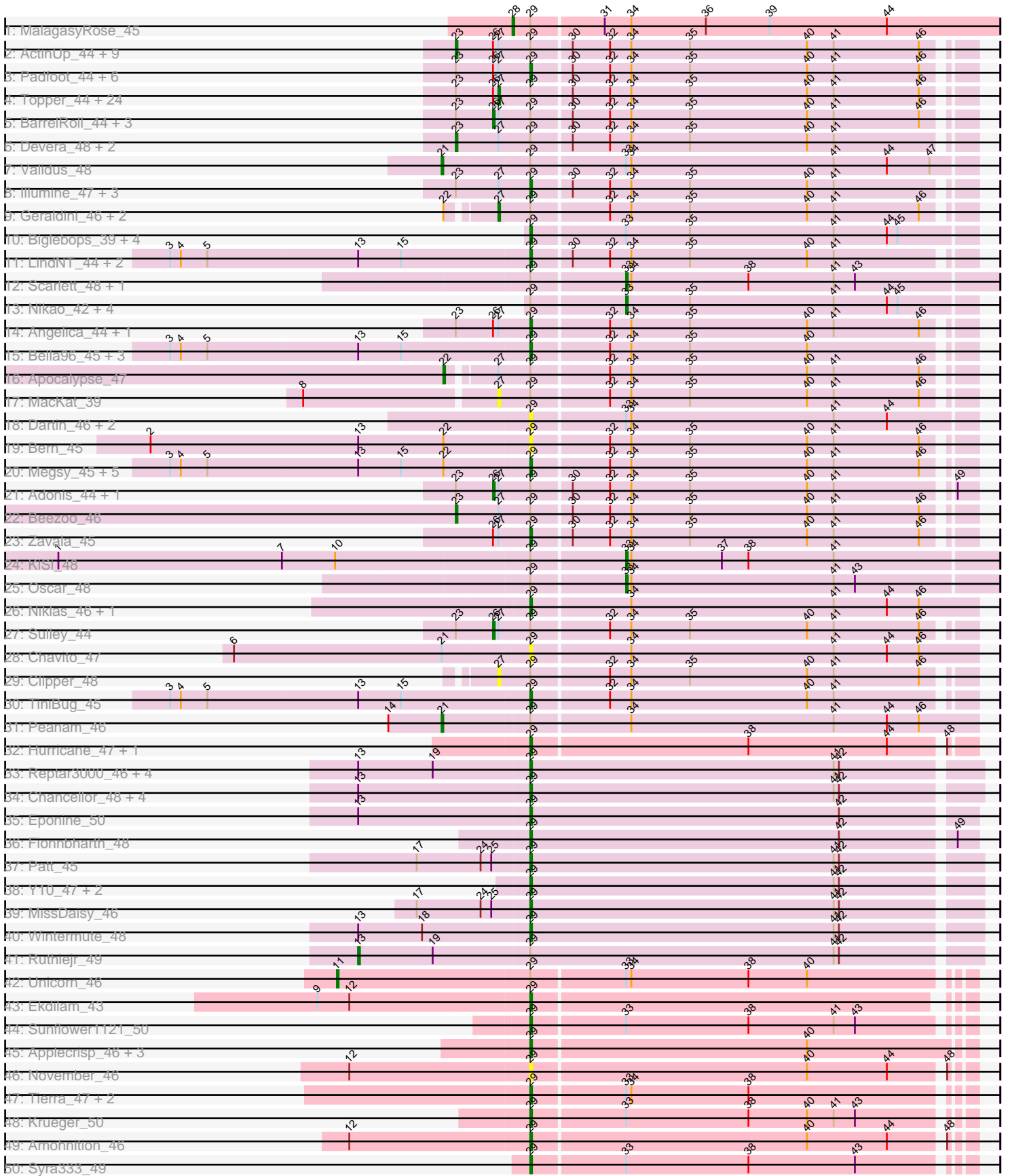
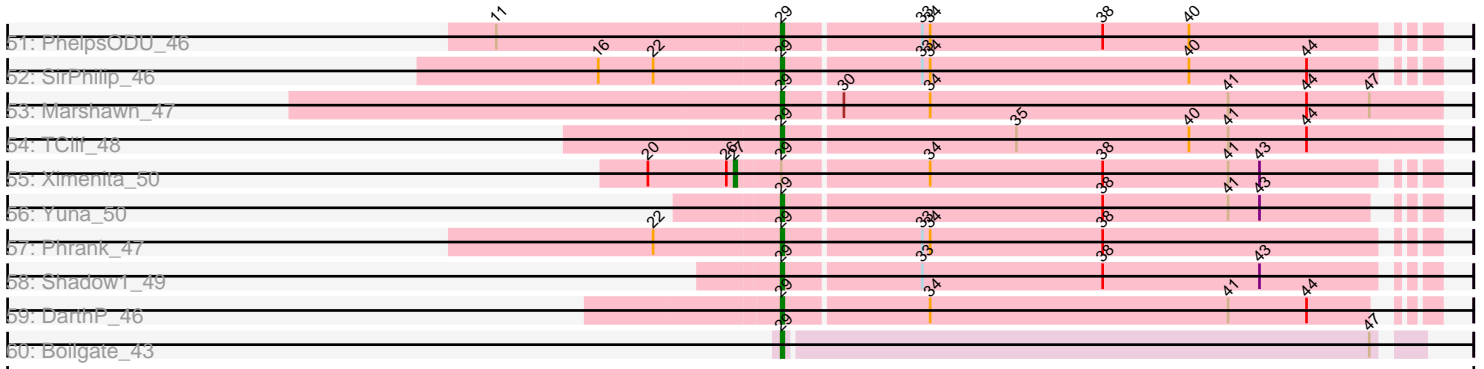


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Note: Tracks are now grouped by subcluster and scaled. Switching in subcluster is indicated by changes in track color. Track scale is now set by default to display the region 30 bp upstream of start 1 to 30 bp downstream of the last possible start. If this default region is judged to be packed too tightly with annotated starts, the track will be further scaled to only show that region of the ORF with annotated starts. This action will be indicated by adding "Zoomed" to the title. For starts, yellow indicates the location of called starts comprised solely of Glimmer/GeneMark auto-annotations, green indicates the location of called starts with at least 1 manual gene annotation.

## Pham 224361 Report

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

Pham number 224361 has 149 members, 13 are drafts.

Phages represented in each track:

- Track 1 : MalagasyRose\_45
- Track 2 : ActinUp\_44, Ramen\_44, CaseJules\_45, Hyperbowlee\_44, Joy99\_44, Blizzard\_44, Atiba\_44, Zabiza\_39, Durfee\_44, Piatt\_44
- Track 3 : Padfoot\_44, Jayhawk\_45, Asayake\_44, BEEST\_44, Mynx\_45, Padpat\_45, ShiaSurprise\_45
- Track 4 : Topper\_44, Llorens\_44, Dalmuri\_44, Rosmarinus\_44, CREW\_44, TruffulaTree\_44, Boiii\_44, BGiluviae\_44, Belladonna\_44, Jeckyll\_44, Veliki\_44, Rapunzel97\_44, Homura\_44, Inky\_44, Spock\_44, Lunahalos\_44, Capricorn\_44, HedwigODU\_44, CallaLilly\_46, YoureAdopted\_43, Emerson\_45, Jarvi\_44, Twitch\_44, Peel\_44, Slimphazie\_44
- Track 5 : BarrelRoll\_44, Adephagia\_44, JAWS\_44, Tachez\_44
- Track 6 : Devera\_48, Ageofdapage\_46, Murucutumbu\_45
- Track 7 : Validus\_48
- Track 8 : Illumine\_47, LaterM\_45, Stinson\_45, Dole\_47
- Track 9 : Geraldini\_46, BaghaKamala\_43, Pokerus\_43
- Track 10 : Biglebops\_39, Amelie\_39, Nutello\_39, LilPharaoh\_39, Mdavu\_40
- Track 11 : LindNT\_44, Prithvi\_45, TreyKay\_45
- Track 12 : Scarlett\_48, LeMond\_48
- Track 13 : Nikao\_42, Teejan\_42, Torres\_42, SgtBeansprout\_39, Enkosi\_42
- Track 14 : Angelica\_44, Deby\_44
- Track 15 : Bella96\_45, Urkel\_45, SamuelLPlaqson\_45, DrHayes\_45
- Track 16 : Apocalypse\_47
- Track 17 : MacKat\_39
- Track 18 : Dartin\_46, McMater\_46, Richo\_46
- Track 19 : Bern\_45
- Track 20 : Megsy\_45, MeaningOfLife\_45, Ganymede\_45, Tiri\_45, QuincyRose\_43, CrimD\_44
- Track 21 : Adonis\_44, Anaya\_46
- Track 22 : Beezoo\_46
- Track 23 : Zavala\_45
- Track 24 : KiSi\_48
- Track 25 : Oscar\_48
- Track 26 : Niklas\_46, Shaobing\_46
- Track 27 : Sulley\_44
- Track 28 : Chavito\_47
- Track 29 : Clipper\_48
- Track 30 : TiniBug\_45

- Track 31 : Peanam\_46
- Track 32 : Hurricane\_47, Keshu\_48
- Track 33 : Reptar3000\_46, Bobquesha\_50, Juliette\_50, OmniCritical\_47, Malthus\_49
- Track 34 : Chancellor\_48, Mitti\_48, Slarp\_48, Cheetobro\_48, Taquito\_48
- Track 35 : Eponine\_50
- Track 36 : Fionnbharth\_48
- Track 37 : Patt\_45
- Track 38 : Y10\_47, JF1\_48, Y2\_47
- Track 39 : MissDaisy\_46
- Track 40 : Wintermute\_48
- Track 41 : Ruthiejr\_49
- Track 42 : Unicorn\_46
- Track 43 : Ekdilam\_43
- Track 44 : Sunflower1121\_50
- Track 45 : Applecrisp\_46, Ellie\_42, Amgine\_44, Fefferhead\_44
- Track 46 : November\_46
- Track 47 : Tierra\_47, Cain\_47, Bryler\_47
- Track 48 : Krueger\_50
- Track 49 : Amohnition\_46
- Track 50 : Syra333\_49
- Track 51 : PhelpsODU\_46
- Track 52 : SirPhilip\_46
- Track 53 : Marshawn\_47
- Track 54 : TClif\_48
- Track 55 : Ximenita\_50
- Track 56 : Yuna\_50
- Track 57 : Phrank\_47
- Track 58 : Shadow1\_49
- Track 59 : DARTH\_46
- Track 60 : Boilgate\_43

***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 74 of the 136 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

• Amelie\_39, Amgine\_44, Amohnition\_46, Angelica\_44, Applecrisp\_46, Asayake\_44, BEEST\_44, Bella96\_45, Bern\_45, Biglebops\_39, Bobquesha\_50, Boilgate\_43, Bryler\_47, Cain\_47, Chancellor\_48, Chavito\_47, Cheetobro\_48, CrimD\_44, DARTH\_46, Dartin\_46, Deby\_44, Dole\_47, DrHayes\_45, Ekdilam\_43, Ellie\_42, Eponine\_50, Fefferhead\_44, Fionnbharth\_48, Ganymede\_45, Hurricane\_47, Illumine\_47, JF1\_48, Jayhawk\_45, Juliette\_50, Keshu\_48, Krueger\_50, LaterM\_45, LilPharaoh\_39, LindNT\_44, Malthus\_49, Marshawn\_47, McMater\_46, Mdavu\_40, MeaningOfLife\_45, Megsy\_45, MissDaisy\_46, Mitti\_48, Mynx\_45, Niklas\_46, November\_46, Nutello\_39, OmniCritical\_47, Padfoot\_44, Padpat\_45, Patt\_45, PhelpsODU\_46, Phrank\_47, Prithvi\_45, QuincyRose\_43, Reptar3000\_46, Richo\_46, SamuelLPlaqson\_45, Shadow1\_49, Shaobing\_46, ShiaSurprise\_45, SirPhilip\_46, Slarp\_48, Stinson\_45, Sunflower1121\_50, Syra333\_49, TClif\_48, Taquito\_48,

Tierra\_47, TiniBug\_45, Tiri\_45, TreyKay\_45, Urkel\_45, Wintermute\_48, Y10\_47, Y2\_47, Yuna\_50, Zavala\_45,

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

- ActinUp\_44, Adephegia\_44, Adonis\_44, Ageofdapage\_46, Anaya\_46, Apocalypse\_47, Atiba\_44, BGlluviae\_44, BaghaKamala\_43, BarrelRoll\_44, Beezoo\_46, Belladonna\_44, Blizzard\_44, Boiii\_44, CREW\_44, CallaLilly\_46, Capricorn\_44, CaseJules\_45, Clipper\_48, Dalmuri\_44, Devera\_48, Durfee\_44, Emerson\_45, Enkosi\_42, Geraldini\_46, HedwigODU\_44, Homura\_44, Hyperbowlee\_44, Inky\_44, JAWS\_44, Jarvi\_44, Jeckyll\_44, Joy99\_44, KiSi\_48, LeMond\_48, Llorens\_44, Lunahalos\_44, MacKat\_39, MalagasyRose\_45, Murucutumbu\_45, Nikao\_42, Oscar\_48, Peanam\_46, Peel\_44, Piatt\_44, Pokerus\_43, Ramen\_44, Rapunzel97\_44, Rosmarinus\_44, Ruthiejr\_49, Scarlett\_48, SgtBeansprout\_39, Slimphazie\_44, Spock\_44, Sulley\_44, Tachez\_44, Teejan\_42, Topper\_44, Torres\_42, TruffulaTree\_44, Twitch\_44, Unicorn\_46, Validus\_48, Veliki\_44, Ximenita\_50, YoureAdopted\_43, Zabiza\_39,

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

- 

### Summary by start number:

Start 11:

- Found in 2 of 149 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 1 of 136
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Unicorn\_46 (K6),

Start 13:

- Found in 28 of 149 ( 18.8% ) of genes in pham
- Manual Annotations of this start: 1 of 136
- Called 3.6% of time when present
- Phage (with cluster) where this start called: Ruthiejr\_49 (K4),

Start 21:

- Found in 3 of 149 ( 2.0% ) of genes in pham
- Manual Annotations of this start: 2 of 136
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Peanam\_46 (K1), Validus\_48 (K1),

Start 22:

- Found in 13 of 149 ( 8.7% ) of genes in pham
- Manual Annotations of this start: 1 of 136
- Called 7.7% of time when present
- Phage (with cluster) where this start called: Apocalypse\_47 (K1),

Start 23:

- Found in 59 of 149 ( 39.6% ) of genes in pham
- Manual Annotations of this start: 14 of 136
- Called 23.7% of time when present
- Phage (with cluster) where this start called: ActinUp\_44 (K1), Ageofdapage\_46 (K1), Atiba\_44 (K1), Beezoo\_46 (K1), Blizzard\_44 (K1), CaseJules\_45 (K1), Devera\_48 (K1), Durfee\_44 (K1), Hyperbowlee\_44 (K1), Joy99\_44 (K1), Murucutumbu\_45 (K1),

Piatt\_44 (K1), Ramen\_44 (K1), Zabiza\_39 (K1),

Start 26:

- Found in 53 of 149 ( 35.6% ) of genes in pham
- Manual Annotations of this start: 7 of 136
- Called 13.2% of time when present
- Phage (with cluster) where this start called: Adephagia\_44 (K1), Adonis\_44 (K1), Anaya\_46 (K1), BarrelRoll\_44 (K1), JAWS\_44 (K1), Sulley\_44 (K1), Tachez\_44 (K1),

Start 27:

- Found in 67 of 149 ( 45.0% ) of genes in pham
- Manual Annotations of this start: 28 of 136
- Called 46.3% of time when present
- Phage (with cluster) where this start called: BGlluviae\_44 (K1), BaghaKamala\_43 (K1), Belladonna\_44 (K1), Boiii\_44 (K1), CREW\_44 (K1), CallaLilly\_46 (K1), Capricorn\_44 (K1), Clipper\_48 (K1), Dalmuri\_44 (K1), Emerson\_45 (K1), Geraldini\_46 (K1), HedwigODU\_44 (K1), Homura\_44 (K1), Inky\_44 (K1), Jarvi\_44 (K1), Jeckyll\_44 (K1), Llorens\_44 (K1), Lunahalos\_44 (K1), MacKat\_39 (K1), Peel\_44 (K1), Pokerus\_43 (K1), Rapunzel97\_44 (K1), Rosmarinus\_44 (K1), Slimphazie\_44 (K1), Spock\_44 (K1), Topper\_44 (K1), TruffulaTree\_44 (K1), Twitch\_44 (K1), Veliki\_44 (K1), Ximenita\_50 (K6), YoureAdopted\_43 (K1),

Start 28:

- Found in 1 of 149 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 136
- Called 100.0% of time when present
- Phage (with cluster) where this start called: MalagasyRose\_45 (AG),

Start 29:

- Found in 149 of 149 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 74 of 136
- Called 55.0% of time when present
- Phage (with cluster) where this start called: Amelie\_39 (K1), Amgine\_44 (K6), Amohntion\_46 (K6), Angelica\_44 (K1), Applecrisp\_46 (K6), Asayake\_44 (K1), BEEST\_44 (K1), Bella96\_45 (K1), Bern\_45 (K1), Binglebops\_39 (K1), Bobquesha\_50 (K4), Boilgate\_43 (K8), Bryler\_47 (K6), Cain\_47 (K6), Chancellor\_48 (K4), Chavito\_47 (K1), Cheetobro\_48 (K4), CrimD\_44 (K1), DARTH\_P\_46 (K6), Dartin\_46 (K1), Deby\_44 (K1), Dole\_47 (K1), DrHayes\_45 (K1), Ekdilam\_43 (K6), Ellie\_42 (K6), Eponine\_50 (K4), Fefferhead\_44 (K6), Fionnbharth\_48 (K4), Ganymede\_45 (K1), Hurricane\_47 (K3), Illumine\_47 (K1), JF1\_48 (K4), Jayhawk\_45 (K1), Juliette\_50 (K4), Keshu\_48 (K3), Krueger\_50 (K6), LaterM\_45 (K1), LilPharaoh\_39 (K1), LindNT\_44 (K1), Malthus\_49 (K4), Marshawn\_47 (K6), McMater\_46 (K1), Mdavu\_40 (K1), MeaningOfLife\_45 (K1), Megsy\_45 (K1), MissDaisy\_46 (K4), Mitti\_48 (K4), Mynx\_45 (K1), Niklas\_46 (K1), November\_46 (K6), Nutello\_39 (K1), OmniCritical\_47 (K4), Padfoot\_44 (K1), Padpat\_45 (K1), Patt\_45 (K4), PhelpsODU\_46 (K6), Phrank\_47 (K6), Prithvi\_45 (K1), QuincyRose\_43 (K1), Reptar3000\_46 (K4), Richo\_46 (K1), SamuelLPlaqson\_45 (K1), Shadow1\_49 (K6), Shaobing\_46 (K1), ShiaSurprise\_45 (K1), SirPhilip\_46 (K6), Slarp\_48 (K4), Stinson\_45 (K1), Sunflower1121\_50 (K6), Syra333\_49 (K6), TClif\_48 (K6), Taquito\_48 (K4), Tierra\_47 (K6), TiniBug\_45 (K1), Tiri\_45 (K1), TreyKay\_45 (K1), Urkel\_45 (K1), Wintermute\_48 (K4), Y10\_47 (K4), Y2\_47 (K4), Yuna\_50 (K6), Zavala\_45 (K1),

Start 33:

- Found in 29 of 149 ( 19.5% ) of genes in pham
- Manual Annotations of this start: 7 of 136
- Called 31.0% of time when present
- Phage (with cluster) where this start called: Enkosi\_42 (K1), KiSi\_48 (K1), LeMond\_48 (K1), Nikao\_42 (K1), Oscar\_48 (K1), Scarlett\_48 (K1), SgtBeansprout\_39 (K1), Teejan\_42 (K1), Torres\_42 (K1),

### **Summary by clusters:**

There are 6 clusters represented in this pham: AG, K3, K1, K6, K4, K8,

Info for manual annotations of cluster AG:

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

Info for manual annotations of cluster K1:

- Start number 21 was manually annotated 2 times for cluster K1.
- Start number 22 was manually annotated 1 time for cluster K1.
- Start number 23 was manually annotated 14 times for cluster K1.
- Start number 26 was manually annotated 7 times for cluster K1.
- Start number 27 was manually annotated 27 times for cluster K1.
- Start number 29 was manually annotated 35 times for cluster K1.
- Start number 33 was manually annotated 7 times for cluster K1.

Info for manual annotations of cluster K3:

- Start number 29 was manually annotated 2 times for cluster K3.

Info for manual annotations of cluster K4:

- Start number 13 was manually annotated 1 time for cluster K4.
- Start number 29 was manually annotated 17 times for cluster K4.

Info for manual annotations of cluster K6:

- Start number 11 was manually annotated 1 time for cluster K6.
- Start number 27 was manually annotated 1 time for cluster K6.
- Start number 29 was manually annotated 19 times for cluster K6.

Info for manual annotations of cluster K8:

- Start number 29 was manually annotated 1 time for cluster K8.

### **Gene Information:**

Gene: ActinUp\_44 Start: 35120, Stop: 35401, Start Num: 23

Candidate Starts for ActinUp\_44:

(Start: 23 @35120 has 14 MA's), (Start: 26 @35141 has 7 MA's), (Start: 27 @35144 has 28 MA's), (Start: 29 @35162 has 74 MA's), (30, 35183), (32, 35204), (34, 35216), (35, 35249), (40, 35315), (41, 35330), (46, 35378),

Gene: Adephagia\_44 Start: 35138, Stop: 35398, Start Num: 26

Candidate Starts for Adephagia\_44:

(Start: 23 @35117 has 14 MA's), (Start: 26 @35138 has 7 MA's), (Start: 27 @35141 has 28 MA's), (Start: 29 @35159 has 74 MA's), (30, 35180), (32, 35201), (34, 35213), (35, 35246), (40, 35312), (41, 35327), (46, 35375),

Gene: Adonis\_44 Start: 35436, Stop: 35696, Start Num: 26

Candidate Starts for Adonis\_44:

(Start: 23 @35415 has 14 MA's), (Start: 26 @35436 has 7 MA's), (Start: 27 @35439 has 28 MA's), (Start: 29 @35457 has 74 MA's), (30, 35478), (32, 35499), (34, 35511), (35, 35544), (40, 35610), (41, 35625), (49, 35685),

Gene: Ageofdapage\_46 Start: 36088, Stop: 36369, Start Num: 23

Candidate Starts for Ageofdapage\_46:

(Start: 23 @36088 has 14 MA's), (Start: 27 @36112 has 28 MA's), (Start: 29 @36130 has 74 MA's), (30, 36151), (32, 36172), (34, 36184), (35, 36217), (40, 36283), (41, 36298),

Gene: Amelie\_39 Start: 34739, Stop: 34984, Start Num: 29

Candidate Starts for Amelie\_39:

(Start: 29 @34739 has 74 MA's), (Start: 33 @34790 has 7 MA's), (35, 34826), (41, 34907), (44, 34937), (45, 34943),

Gene: Amgine\_44 Start: 36236, Stop: 36478, Start Num: 29

Candidate Starts for Amgine\_44:

(Start: 29 @36236 has 74 MA's), (40, 36389),

Gene: Amohnition\_46 Start: 36255, Stop: 36491, Start Num: 29

Candidate Starts for Amohnition\_46:

(12, 36156), (Start: 29 @36255 has 74 MA's), (40, 36408), (44, 36453), (48, 36480),

Gene: Anaya\_46 Start: 35748, Stop: 36008, Start Num: 26

Candidate Starts for Anaya\_46:

(Start: 23 @35727 has 14 MA's), (Start: 26 @35748 has 7 MA's), (Start: 27 @35751 has 28 MA's), (Start: 29 @35769 has 74 MA's), (30, 35790), (32, 35811), (34, 35823), (35, 35856), (40, 35922), (41, 35937), (49, 35997),

Gene: Angelica\_44 Start: 35389, Stop: 35628, Start Num: 29

Candidate Starts for Angelica\_44:

(Start: 23 @35347 has 14 MA's), (Start: 26 @35368 has 7 MA's), (Start: 27 @35371 has 28 MA's), (Start: 29 @35389 has 74 MA's), (32, 35431), (34, 35443), (35, 35476), (40, 35542), (41, 35557), (46, 35605),

Gene: Apocalypse\_47 Start: 36132, Stop: 36413, Start Num: 22

Candidate Starts for Apocalypse\_47:

(Start: 22 @36132 has 1 MA's), (Start: 27 @36156 has 28 MA's), (Start: 29 @36174 has 74 MA's), (32, 36216), (34, 36228), (35, 36261), (40, 36327), (41, 36342), (46, 36390),

Gene: Applecrisp\_46 Start: 35732, Stop: 35974, Start Num: 29

Candidate Starts for Applecrisp\_46:

(Start: 29 @35732 has 74 MA's), (40, 35885),

Gene: Asayake\_44 Start: 35474, Stop: 35713, Start Num: 29

Candidate Starts for Asayake\_44:

(Start: 23 @35432 has 14 MA's), (Start: 26 @35453 has 7 MA's), (Start: 27 @35456 has 28 MA's), (Start: 29 @35474 has 74 MA's), (30, 35495), (32, 35516), (34, 35528), (35, 35561), (40, 35627), (41, 35642), (46, 35690),

Gene: Atiba\_44 Start: 35080, Stop: 35361, Start Num: 23



Candidate Starts for Atiba\_44:

(Start: 23 @35080 has 14 MA's), (Start: 26 @35101 has 7 MA's), (Start: 27 @35104 has 28 MA's),  
(Start: 29 @35122 has 74 MA's), (30, 35143), (32, 35164), (34, 35176), (35, 35209), (40, 35275), (41,  
35290), (46, 35338),

Gene: BEEST\_44 Start: 35474, Stop: 35713, Start Num: 29

Candidate Starts for BEEST\_44:

(Start: 23 @35432 has 14 MA's), (Start: 26 @35453 has 7 MA's), (Start: 27 @35456 has 28 MA's),  
(Start: 29 @35474 has 74 MA's), (30, 35495), (32, 35516), (34, 35528), (35, 35561), (40, 35627), (41,  
35642), (46, 35690),

Gene: BGlluviae\_44 Start: 35259, Stop: 35516, Start Num: 27

Candidate Starts for BGlluviae\_44:

(Start: 23 @35235 has 14 MA's), (Start: 26 @35256 has 7 MA's), (Start: 27 @35259 has 28 MA's),  
(Start: 29 @35277 has 74 MA's), (30, 35298), (32, 35319), (34, 35331), (35, 35364), (40, 35430), (41,  
35445), (46, 35493),

Gene: BaghaKamala\_43 Start: 34579, Stop: 34836, Start Num: 27

Candidate Starts for BaghaKamala\_43:

(Start: 22 @34555 has 1 MA's), (Start: 27 @34579 has 28 MA's), (Start: 29 @34597 has 74 MA's), (32,  
34639), (34, 34651), (35, 34684), (40, 34750), (41, 34765), (46, 34813),

Gene: BarrelRoll\_44 Start: 35124, Stop: 35384, Start Num: 26

Candidate Starts for BarrelRoll\_44:

(Start: 23 @35103 has 14 MA's), (Start: 26 @35124 has 7 MA's), (Start: 27 @35127 has 28 MA's),  
(Start: 29 @35145 has 74 MA's), (30, 35166), (32, 35187), (34, 35199), (35, 35232), (40, 35298), (41,  
35313), (46, 35361),

Gene: Beezoo\_46 Start: 36078, Stop: 36359, Start Num: 23

Candidate Starts for Beezoo\_46:

(Start: 23 @36078 has 14 MA's), (Start: 27 @36102 has 28 MA's), (Start: 29 @36120 has 74 MA's),  
(30, 36141), (32, 36162), (34, 36174), (35, 36207), (40, 36273), (41, 36288), (46, 36336),

Gene: Bella96\_45 Start: 36011, Stop: 36250, Start Num: 29

Candidate Starts for Bella96\_45:

(3, 35810), (4, 35816), (5, 35831), (Start: 13 @35915 has 1 MA's), (15, 35939), (Start: 29 @36011 has  
74 MA's), (32, 36053), (34, 36065), (35, 36098), (40, 36164),

Gene: Belladonna\_44 Start: 35259, Stop: 35516, Start Num: 27

Candidate Starts for Belladonna\_44:

(Start: 23 @35235 has 14 MA's), (Start: 26 @35256 has 7 MA's), (Start: 27 @35259 has 28 MA's),  
(Start: 29 @35277 has 74 MA's), (30, 35298), (32, 35319), (34, 35331), (35, 35364), (40, 35430), (41,  
35445), (46, 35493),

Gene: Bern\_45 Start: 34192, Stop: 34431, Start Num: 29

Candidate Starts for Bern\_45:

(2, 33979), (Start: 13 @34096 has 1 MA's), (Start: 22 @34144 has 1 MA's), (Start: 29 @34192 has 74  
MA's), (32, 34234), (34, 34246), (35, 34279), (40, 34345), (41, 34360), (46, 34408),

Gene: Biglebops\_39 Start: 34739, Stop: 34984, Start Num: 29

Candidate Starts for Biglebops\_39:

(Start: 29 @34739 has 74 MA's), (Start: 33 @34790 has 7 MA's), (35, 34826), (41, 34907), (44, 34937),  
(45, 34943),

Gene: Blizzard\_44 Start: 35432, Stop: 35713, Start Num: 23

Candidate Starts for Blizzard\_44:

(Start: 23 @35432 has 14 MA's), (Start: 26 @35453 has 7 MA's), (Start: 27 @35456 has 28 MA's),  
(Start: 29 @35474 has 74 MA's), (30, 35495), (32, 35516), (34, 35528), (35, 35561), (40, 35627), (41,  
35642), (46, 35690),

Gene: Bobquesha\_50 Start: 35544, Stop: 35792, Start Num: 29

Candidate Starts for Bobquesha\_50:

(Start: 13 @35448 has 1 MA's), (19, 35490), (Start: 29 @35544 has 74 MA's), (41, 35715), (42, 35718),

Gene: Boiiii\_44 Start: 35458, Stop: 35715, Start Num: 27

Candidate Starts for Boiiii\_44:

(Start: 23 @35434 has 14 MA's), (Start: 26 @35455 has 7 MA's), (Start: 27 @35458 has 28 MA's),  
(Start: 29 @35476 has 74 MA's), (30, 35497), (32, 35518), (34, 35530), (35, 35563), (40, 35629), (41,  
35644), (46, 35692),

Gene: Boilgate\_43 Start: 36328, Stop: 36564, Start Num: 29

Candidate Starts for Boilgate\_43:

(Start: 29 @36328 has 74 MA's), (47, 36550),

Gene: Bryler\_47 Start: 35116, Stop: 35352, Start Num: 29

Candidate Starts for Bryler\_47:

(Start: 29 @35116 has 74 MA's), (Start: 33 @35167 has 7 MA's), (34, 35170), (38, 35236),

Gene: CREW\_44 Start: 35259, Stop: 35516, Start Num: 27

Candidate Starts for CREW\_44:

(Start: 23 @35235 has 14 MA's), (Start: 26 @35256 has 7 MA's), (Start: 27 @35259 has 28 MA's),  
(Start: 29 @35277 has 74 MA's), (30, 35298), (32, 35319), (34, 35331), (35, 35364), (40, 35430), (41,  
35445), (46, 35493),

Gene: Cain\_47 Start: 35104, Stop: 35340, Start Num: 29

Candidate Starts for Cain\_47:

(Start: 29 @35104 has 74 MA's), (Start: 33 @35155 has 7 MA's), (34, 35158), (38, 35224),

Gene: CallaLilly\_46 Start: 35182, Stop: 35439, Start Num: 27

Candidate Starts for CallaLilly\_46:

(Start: 23 @35158 has 14 MA's), (Start: 26 @35179 has 7 MA's), (Start: 27 @35182 has 28 MA's),  
(Start: 29 @35200 has 74 MA's), (30, 35221), (32, 35242), (34, 35254), (35, 35287), (40, 35353), (41,  
35368), (46, 35416),

Gene: Capricorn\_44 Start: 35259, Stop: 35516, Start Num: 27

Candidate Starts for Capricorn\_44:

(Start: 23 @35235 has 14 MA's), (Start: 26 @35256 has 7 MA's), (Start: 27 @35259 has 28 MA's),  
(Start: 29 @35277 has 74 MA's), (30, 35298), (32, 35319), (34, 35331), (35, 35364), (40, 35430), (41,  
35445), (46, 35493),

Gene: CaseJules\_45 Start: 35432, Stop: 35713, Start Num: 23

Candidate Starts for CaseJules\_45:

(Start: 23 @35432 has 14 MA's), (Start: 26 @35453 has 7 MA's), (Start: 27 @35456 has 28 MA's),  
(Start: 29 @35474 has 74 MA's), (30, 35495), (32, 35516), (34, 35528), (35, 35561), (40, 35627), (41,  
35642), (46, 35690),

Gene: Chancellor\_48 Start: 36169, Stop: 36417, Start Num: 29

Candidate Starts for Chancellor\_48:

(Start: 13 @36073 has 1 MA's), (Start: 29 @36169 has 74 MA's), (41, 36340), (42, 36343),

Gene: Chavito\_47 Start: 36519, Stop: 36767, Start Num: 29

Candidate Starts for Chavito\_47:

(6, 36354), (Start: 21 @36471 has 2 MA's), (Start: 29 @36519 has 74 MA's), (34, 36573), (41, 36687), (44, 36717), (46, 36735),

Gene: Cheetobro\_48 Start: 36166, Stop: 36414, Start Num: 29

Candidate Starts for Cheetobro\_48:

(Start: 13 @36070 has 1 MA's), (Start: 29 @36166 has 74 MA's), (41, 36337), (42, 36340),

Gene: Clipper\_48 Start: 35775, Stop: 36032, Start Num: 27

Candidate Starts for Clipper\_48:

(Start: 27 @35775 has 28 MA's), (Start: 29 @35793 has 74 MA's), (32, 35835), (34, 35847), (35, 35880), (40, 35946), (41, 35961), (46, 36009),

Gene: CrimD\_44 Start: 35400, Stop: 35639, Start Num: 29

Candidate Starts for CrimD\_44:

(3, 35199), (4, 35205), (5, 35220), (Start: 13 @35304 has 1 MA's), (15, 35328), (Start: 22 @35352 has 1 MA's), (Start: 29 @35400 has 74 MA's), (32, 35442), (34, 35454), (35, 35487), (40, 35553), (41, 35568), (46, 35616),

Gene: Dalmuri\_44 Start: 35259, Stop: 35516, Start Num: 27

Candidate Starts for Dalmuri\_44:

(Start: 23 @35235 has 14 MA's), (Start: 26 @35256 has 7 MA's), (Start: 27 @35259 has 28 MA's), (Start: 29 @35277 has 74 MA's), (30, 35298), (32, 35319), (34, 35331), (35, 35364), (40, 35430), (41, 35445), (46, 35493),

Gene: DarthP\_46 Start: 36145, Stop: 36378, Start Num: 29

Candidate Starts for DarthP\_46:

(Start: 29 @36145 has 74 MA's), (34, 36199), (41, 36313), (44, 36343),

Gene: Dartin\_46 Start: 35860, Stop: 36105, Start Num: 29

Candidate Starts for Dartin\_46:

(Start: 29 @35860 has 74 MA's), (Start: 33 @35911 has 7 MA's), (34, 35914), (41, 36028), (44, 36058),

Gene: Deby\_44 Start: 35405, Stop: 35644, Start Num: 29

Candidate Starts for Deby\_44:

(Start: 23 @35363 has 14 MA's), (Start: 26 @35384 has 7 MA's), (Start: 27 @35387 has 28 MA's), (Start: 29 @35405 has 74 MA's), (32, 35447), (34, 35459), (35, 35492), (40, 35558), (41, 35573), (46, 35621),

Gene: Devera\_48 Start: 35896, Stop: 36177, Start Num: 23

Candidate Starts for Devera\_48:

(Start: 23 @35896 has 14 MA's), (Start: 27 @35920 has 28 MA's), (Start: 29 @35938 has 74 MA's), (30, 35959), (32, 35980), (34, 35992), (35, 36025), (40, 36091), (41, 36106),

Gene: Dole\_47 Start: 35940, Stop: 36179, Start Num: 29

Candidate Starts for Dole\_47:

(Start: 23 @35898 has 14 MA's), (Start: 27 @35922 has 28 MA's), (Start: 29 @35940 has 74 MA's), (30, 35961), (32, 35982), (34, 35994), (35, 36027), (40, 36093), (41, 36108),

Gene: DrHayes\_45 Start: 36056, Stop: 36295, Start Num: 29

Candidate Starts for DrHayes\_45:

(3, 35855), (4, 35861), (5, 35876), (Start: 13 @35960 has 1 MA's), (15, 35984), (Start: 29 @36056 has 74 MA's), (32, 36098), (34, 36110), (35, 36143), (40, 36209),

Gene: Durfee\_44 Start: 35432, Stop: 35713, Start Num: 23

Candidate Starts for Durfee\_44:

(Start: 23 @35432 has 14 MA's), (Start: 26 @35453 has 7 MA's), (Start: 27 @35456 has 28 MA's), (Start: 29 @35474 has 74 MA's), (30, 35495), (32, 35516), (34, 35528), (35, 35561), (40, 35627), (41, 35642), (46, 35690),

Gene: Ekdilam\_43 Start: 35707, Stop: 35940, Start Num: 29

Candidate Starts for Ekdilam\_43:

(9, 35590), (12, 35608), (Start: 29 @35707 has 74 MA's),

Gene: Ellie\_42 Start: 35424, Stop: 35666, Start Num: 29

Candidate Starts for Ellie\_42:

(Start: 29 @35424 has 74 MA's), (40, 35577),

Gene: Emerson\_45 Start: 35135, Stop: 35392, Start Num: 27

Candidate Starts for Emerson\_45:

(Start: 23 @35111 has 14 MA's), (Start: 26 @35132 has 7 MA's), (Start: 27 @35135 has 28 MA's), (Start: 29 @35153 has 74 MA's), (30, 35174), (32, 35195), (34, 35207), (35, 35240), (40, 35306), (41, 35321), (46, 35369),

Gene: Enkosi\_42 Start: 37403, Stop: 37597, Start Num: 33

Candidate Starts for Enkosi\_42:

(Start: 29 @37352 has 74 MA's), (Start: 33 @37403 has 7 MA's), (35, 37439), (41, 37520), (44, 37550), (45, 37556),

Gene: Eponine\_50 Start: 36922, Stop: 37167, Start Num: 29

Candidate Starts for Eponine\_50:

(Start: 13 @36826 has 1 MA's), (Start: 29 @36922 has 74 MA's), (42, 37096),

Gene: Fefferhead\_44 Start: 35375, Stop: 35617, Start Num: 29

Candidate Starts for Fefferhead\_44:

(Start: 29 @35375 has 74 MA's), (40, 35528),

Gene: Fionnbharth\_48 Start: 36320, Stop: 36565, Start Num: 29

Candidate Starts for Fionnbharth\_48:

(Start: 29 @36320 has 74 MA's), (42, 36494), (49, 36554),

Gene: Ganymede\_45 Start: 35592, Stop: 35831, Start Num: 29

Candidate Starts for Ganymede\_45:

(3, 35391), (4, 35397), (5, 35412), (Start: 13 @35496 has 1 MA's), (15, 35520), (Start: 22 @35544 has 1 MA's), (Start: 29 @35592 has 74 MA's), (32, 35634), (34, 35646), (35, 35679), (40, 35745), (41, 35760), (46, 35808),

Gene: Geraldini\_46 Start: 36191, Stop: 36448, Start Num: 27

Candidate Starts for Geraldini\_46:

(Start: 22 @36167 has 1 MA's), (Start: 27 @36191 has 28 MA's), (Start: 29 @36209 has 74 MA's), (32, 36251), (34, 36263), (35, 36296), (40, 36362), (41, 36377), (46, 36425),

Gene: HedwigODU\_44 Start: 35144, Stop: 35401, Start Num: 27

Candidate Starts for HedwigODU\_44:

(Start: 23 @35120 has 14 MA's), (Start: 26 @35141 has 7 MA's), (Start: 27 @35144 has 28 MA's),  
(Start: 29 @35162 has 74 MA's), (30, 35183), (32, 35204), (34, 35216), (35, 35249), (40, 35315), (41,  
35330), (46, 35378),

Gene: Homura\_44 Start: 35259, Stop: 35516, Start Num: 27

Candidate Starts for Homura\_44:

(Start: 23 @35235 has 14 MA's), (Start: 26 @35256 has 7 MA's), (Start: 27 @35259 has 28 MA's),  
(Start: 29 @35277 has 74 MA's), (30, 35298), (32, 35319), (34, 35331), (35, 35364), (40, 35430), (41,  
35445), (46, 35493),

Gene: Hurricane\_47 Start: 35860, Stop: 36099, Start Num: 29

Candidate Starts for Hurricane\_47:

(Start: 29 @35860 has 74 MA's), (38, 35980), (44, 36058), (48, 36085),

Gene: Hyperbowlee\_44 Start: 35432, Stop: 35713, Start Num: 23

Candidate Starts for Hyperbowlee\_44:

(Start: 23 @35432 has 14 MA's), (Start: 26 @35453 has 7 MA's), (Start: 27 @35456 has 28 MA's),  
(Start: 29 @35474 has 74 MA's), (30, 35495), (32, 35516), (34, 35528), (35, 35561), (40, 35627), (41,  
35642), (46, 35690),

Gene: Illumine\_47 Start: 35940, Stop: 36179, Start Num: 29

Candidate Starts for Illumine\_47:

(Start: 23 @35898 has 14 MA's), (Start: 27 @35922 has 28 MA's), (Start: 29 @35940 has 74 MA's),  
(30, 35961), (32, 35982), (34, 35994), (35, 36027), (40, 36093), (41, 36108),

Gene: Inky\_44 Start: 35259, Stop: 35516, Start Num: 27

Candidate Starts for Inky\_44:

(Start: 23 @35235 has 14 MA's), (Start: 26 @35256 has 7 MA's), (Start: 27 @35259 has 28 MA's),  
(Start: 29 @35277 has 74 MA's), (30, 35298), (32, 35319), (34, 35331), (35, 35364), (40, 35430), (41,  
35445), (46, 35493),

Gene: JAWS\_44 Start: 35130, Stop: 35390, Start Num: 26

Candidate Starts for JAWS\_44:

(Start: 23 @35109 has 14 MA's), (Start: 26 @35130 has 7 MA's), (Start: 27 @35133 has 28 MA's),  
(Start: 29 @35151 has 74 MA's), (30, 35172), (32, 35193), (34, 35205), (35, 35238), (40, 35304), (41,  
35319), (46, 35367),

Gene: JF1\_48 Start: 36237, Stop: 36485, Start Num: 29

Candidate Starts for JF1\_48:

(Start: 29 @36237 has 74 MA's), (41, 36408), (42, 36411),

Gene: Jarvi\_44 Start: 35259, Stop: 35516, Start Num: 27

Candidate Starts for Jarvi\_44:

(Start: 23 @35235 has 14 MA's), (Start: 26 @35256 has 7 MA's), (Start: 27 @35259 has 28 MA's),  
(Start: 29 @35277 has 74 MA's), (30, 35298), (32, 35319), (34, 35331), (35, 35364), (40, 35430), (41,  
35445), (46, 35493),

Gene: Jayhawk\_45 Start: 35160, Stop: 35399, Start Num: 29

Candidate Starts for Jayhawk\_45:

(Start: 23 @35118 has 14 MA's), (Start: 26 @35139 has 7 MA's), (Start: 27 @35142 has 28 MA's), (Start: 29 @35160 has 74 MA's), (30, 35181), (32, 35202), (34, 35214), (35, 35247), (40, 35313), (41, 35328), (46, 35376),

Gene: Jeckyll\_44 Start: 35259, Stop: 35516, Start Num: 27

Candidate Starts for Jeckyll\_44:

(Start: 23 @35235 has 14 MA's), (Start: 26 @35256 has 7 MA's), (Start: 27 @35259 has 28 MA's), (Start: 29 @35277 has 74 MA's), (30, 35298), (32, 35319), (34, 35331), (35, 35364), (40, 35430), (41, 35445), (46, 35493),

Gene: Joy99\_44 Start: 35164, Stop: 35445, Start Num: 23

Candidate Starts for Joy99\_44:

(Start: 23 @35164 has 14 MA's), (Start: 26 @35185 has 7 MA's), (Start: 27 @35188 has 28 MA's), (Start: 29 @35206 has 74 MA's), (30, 35227), (32, 35248), (34, 35260), (35, 35293), (40, 35359), (41, 35374), (46, 35422),

Gene: Juliette\_50 Start: 36393, Stop: 36641, Start Num: 29

Candidate Starts for Juliette\_50:

(Start: 13 @36297 has 1 MA's), (19, 36339), (Start: 29 @36393 has 74 MA's), (41, 36564), (42, 36567),

Gene: Keshu\_48 Start: 35918, Stop: 36157, Start Num: 29

Candidate Starts for Keshu\_48:

(Start: 29 @35918 has 74 MA's), (38, 36038), (44, 36116), (48, 36143),

Gene: KiSi\_48 Start: 36394, Stop: 36600, Start Num: 33

Candidate Starts for KiSi\_48:

(1, 36079), (7, 36205), (10, 36235), (Start: 29 @36343 has 74 MA's), (Start: 33 @36394 has 7 MA's), (34, 36397), (37, 36448), (38, 36463), (41, 36511),

Gene: Krueger\_50 Start: 36110, Stop: 36346, Start Num: 29

Candidate Starts for Krueger\_50:

(Start: 29 @36110 has 74 MA's), (Start: 33 @36161 has 7 MA's), (38, 36230), (40, 36263), (41, 36278), (43, 36290),

Gene: LaterM\_45 Start: 36054, Stop: 36293, Start Num: 29

Candidate Starts for LaterM\_45:

(Start: 23 @36012 has 14 MA's), (Start: 27 @36036 has 28 MA's), (Start: 29 @36054 has 74 MA's), (30, 36075), (32, 36096), (34, 36108), (35, 36141), (40, 36207), (41, 36222),

Gene: LeMond\_48 Start: 36378, Stop: 36584, Start Num: 33

Candidate Starts for LeMond\_48:

(Start: 29 @36327 has 74 MA's), (Start: 33 @36378 has 7 MA's), (34, 36381), (38, 36447), (41, 36495), (43, 36507),

Gene: LilPharaoh\_39 Start: 34467, Stop: 34712, Start Num: 29

Candidate Starts for LilPharaoh\_39:

(Start: 29 @34467 has 74 MA's), (Start: 33 @34518 has 7 MA's), (35, 34554), (41, 34635), (44, 34665), (45, 34671),

Gene: LindNT\_44 Start: 35343, Stop: 35582, Start Num: 29

Candidate Starts for LindNT\_44:

(3, 35142), (4, 35148), (5, 35163), (Start: 13 @35247 has 1 MA's), (15, 35271), (Start: 29 @35343 has 74 MA's), (30, 35364), (32, 35385), (34, 35397), (35, 35430), (40, 35496), (41, 35511),

Gene: Llorens\_44 Start: 35259, Stop: 35516, Start Num: 27

Candidate Starts for Llorens\_44:

(Start: 23 @35235 has 14 MA's), (Start: 26 @35256 has 7 MA's), (Start: 27 @35259 has 28 MA's), (Start: 29 @35277 has 74 MA's), (30, 35298), (32, 35319), (34, 35331), (35, 35364), (40, 35430), (41, 35445), (46, 35493),

Gene: Lunahalos\_44 Start: 35259, Stop: 35516, Start Num: 27

Candidate Starts for Lunahalos\_44:

(Start: 23 @35235 has 14 MA's), (Start: 26 @35256 has 7 MA's), (Start: 27 @35259 has 28 MA's), (Start: 29 @35277 has 74 MA's), (30, 35298), (32, 35319), (34, 35331), (35, 35364), (40, 35430), (41, 35445), (46, 35493),

Gene: MacKat\_39 Start: 30659, Stop: 30916, Start Num: 27

Candidate Starts for MacKat\_39:

(8, 30554), (Start: 27 @30659 has 28 MA's), (Start: 29 @30677 has 74 MA's), (32, 30719), (34, 30731), (35, 30764), (40, 30830), (41, 30845), (46, 30893),

Gene: MalagasyRose\_45 Start: 33899, Stop: 34168, Start Num: 28

Candidate Starts for MalagasyRose\_45:

(Start: 28 @33899 has 1 MA's), (Start: 29 @33908 has 74 MA's), (31, 33947), (34, 33962), (36, 34004), (39, 34040), (44, 34106),

Gene: Malthus\_49 Start: 36081, Stop: 36329, Start Num: 29

Candidate Starts for Malthus\_49:

(Start: 13 @35985 has 1 MA's), (19, 36027), (Start: 29 @36081 has 74 MA's), (41, 36252), (42, 36255),

Gene: Marshawn\_47 Start: 36184, Stop: 36432, Start Num: 29

Candidate Starts for Marshawn\_47:

(Start: 29 @36184 has 74 MA's), (30, 36205), (34, 36238), (41, 36352), (44, 36382), (47, 36406),

Gene: McMater\_46 Start: 35860, Stop: 36105, Start Num: 29

Candidate Starts for McMater\_46:

(Start: 29 @35860 has 74 MA's), (Start: 33 @35911 has 7 MA's), (34, 35914), (41, 36028), (44, 36058),

Gene: Mdavu\_40 Start: 34728, Stop: 34973, Start Num: 29

Candidate Starts for Mdavu\_40:

(Start: 29 @34728 has 74 MA's), (Start: 33 @34779 has 7 MA's), (35, 34815), (41, 34896), (44, 34926), (45, 34932),

Gene: MeaningOfLife\_45 Start: 36086, Stop: 36325, Start Num: 29

Candidate Starts for MeaningOfLife\_45:

(3, 35885), (4, 35891), (5, 35906), (Start: 13 @35990 has 1 MA's), (15, 36014), (Start: 22 @36038 has 1 MA's), (Start: 29 @36086 has 74 MA's), (32, 36128), (34, 36140), (35, 36173), (40, 36239), (41, 36254), (46, 36302),

Gene: Megsy\_45 Start: 35402, Stop: 35641, Start Num: 29

Candidate Starts for Megsy\_45:

(3, 35201), (4, 35207), (5, 35222), (Start: 13 @35306 has 1 MA's), (15, 35330), (Start: 22 @35354 has 1 MA's), (Start: 29 @35402 has 74 MA's), (32, 35444), (34, 35456), (35, 35489), (40, 35555), (41, 35570), (46, 35618),

Gene: MissDaisy\_46 Start: 35556, Stop: 35804, Start Num: 29

Candidate Starts for MissDaisy\_46:  
(17, 35493), (24, 35529), (25, 35535), (Start: 29 @35556 has 74 MA's), (41, 35727), (42, 35730),

Gene: Mitti\_48 Start: 36257, Stop: 36505, Start Num: 29  
Candidate Starts for Mitti\_48:  
(Start: 13 @36161 has 1 MA's), (Start: 29 @36257 has 74 MA's), (41, 36428), (42, 36431),

Gene: Murucutumbu\_45 Start: 36105, Stop: 36386, Start Num: 23  
Candidate Starts for Murucutumbu\_45:  
(Start: 23 @36105 has 14 MA's), (Start: 27 @36129 has 28 MA's), (Start: 29 @36147 has 74 MA's),  
(30, 36168), (32, 36189), (34, 36201), (35, 36234), (40, 36300), (41, 36315),

Gene: Mynx\_45 Start: 35478, Stop: 35717, Start Num: 29  
Candidate Starts for Mynx\_45:  
(Start: 23 @35436 has 14 MA's), (Start: 26 @35457 has 7 MA's), (Start: 27 @35460 has 28 MA's),  
(Start: 29 @35478 has 74 MA's), (30, 35499), (32, 35520), (34, 35532), (35, 35565), (40, 35631), (41,  
35646), (46, 35694),

Gene: Nikao\_42 Start: 37403, Stop: 37597, Start Num: 33  
Candidate Starts for Nikao\_42:  
(Start: 29 @37352 has 74 MA's), (Start: 33 @37403 has 7 MA's), (35, 37439), (41, 37520), (44, 37550),  
(45, 37556),

Gene: Niklas\_46 Start: 35918, Stop: 36166, Start Num: 29  
Candidate Starts for Niklas\_46:  
(Start: 29 @35918 has 74 MA's), (34, 35972), (41, 36086), (44, 36116), (46, 36134),

Gene: November\_46 Start: 35863, Stop: 36099, Start Num: 29  
Candidate Starts for November\_46:  
(12, 35764), (Start: 29 @35863 has 74 MA's), (40, 36016), (44, 36061), (48, 36088),

Gene: Nutello\_39 Start: 34739, Stop: 34984, Start Num: 29  
Candidate Starts for Nutello\_39:  
(Start: 29 @34739 has 74 MA's), (Start: 33 @34790 has 7 MA's), (35, 34826), (41, 34907), (44, 34937),  
(45, 34943),

Gene: OmniCritical\_47 Start: 36066, Stop: 36314, Start Num: 29  
Candidate Starts for OmniCritical\_47:  
(Start: 13 @35970 has 1 MA's), (19, 36012), (Start: 29 @36066 has 74 MA's), (41, 36237), (42, 36240),

Gene: Oscar\_48 Start: 36280, Stop: 36486, Start Num: 33  
Candidate Starts for Oscar\_48:  
(Start: 29 @36229 has 74 MA's), (Start: 33 @36280 has 7 MA's), (34, 36283), (41, 36397), (43, 36409),

Gene: Padfoot\_44 Start: 35474, Stop: 35713, Start Num: 29  
Candidate Starts for Padfoot\_44:  
(Start: 23 @35432 has 14 MA's), (Start: 26 @35453 has 7 MA's), (Start: 27 @35456 has 28 MA's),  
(Start: 29 @35474 has 74 MA's), (30, 35495), (32, 35516), (34, 35528), (35, 35561), (40, 35627), (41,  
35642), (46, 35690),

Gene: Padpat\_45 Start: 35153, Stop: 35392, Start Num: 29  
Candidate Starts for Padpat\_45:



(Start: 23 @35111 has 14 MA's), (Start: 26 @35132 has 7 MA's), (Start: 27 @35135 has 28 MA's), (Start: 29 @35153 has 74 MA's), (30, 35174), (32, 35195), (34, 35207), (35, 35240), (40, 35306), (41, 35321), (46, 35369),

Gene: Patt\_45 Start: 35280, Stop: 35528, Start Num: 29

Candidate Starts for Patt\_45:

(17, 35217), (24, 35253), (25, 35259), (Start: 29 @35280 has 74 MA's), (41, 35451), (42, 35454),

Gene: Peanam\_46 Start: 35828, Stop: 36124, Start Num: 21

Candidate Starts for Peanam\_46:

(14, 35798), (Start: 21 @35828 has 2 MA's), (Start: 29 @35876 has 74 MA's), (34, 35930), (41, 36044), (44, 36074), (46, 36092),

Gene: Peel\_44 Start: 35261, Stop: 35518, Start Num: 27

Candidate Starts for Peel\_44:

(Start: 23 @35237 has 14 MA's), (Start: 26 @35258 has 7 MA's), (Start: 27 @35261 has 28 MA's), (Start: 29 @35279 has 74 MA's), (30, 35300), (32, 35321), (34, 35333), (35, 35366), (40, 35432), (41, 35447), (46, 35495),

Gene: PhelpsODU\_46 Start: 35137, Stop: 35373, Start Num: 29

Candidate Starts for PhelpsODU\_46:

(Start: 11 @35029 has 1 MA's), (Start: 29 @35137 has 74 MA's), (Start: 33 @35188 has 7 MA's), (34, 35191), (38, 35257), (40, 35290),

Gene: Phrank\_47 Start: 35094, Stop: 35330, Start Num: 29

Candidate Starts for Phrank\_47:

(Start: 22 @35046 has 1 MA's), (Start: 29 @35094 has 74 MA's), (Start: 33 @35145 has 7 MA's), (34, 35148), (38, 35214),

Gene: Piatt\_44 Start: 35432, Stop: 35713, Start Num: 23

Candidate Starts for Piatt\_44:

(Start: 23 @35432 has 14 MA's), (Start: 26 @35453 has 7 MA's), (Start: 27 @35456 has 28 MA's), (Start: 29 @35474 has 74 MA's), (30, 35495), (32, 35516), (34, 35528), (35, 35561), (40, 35627), (41, 35642), (46, 35690),

Gene: Pokerus\_43 Start: 35182, Stop: 35439, Start Num: 27

Candidate Starts for Pokerus\_43:

(Start: 22 @35158 has 1 MA's), (Start: 27 @35182 has 28 MA's), (Start: 29 @35200 has 74 MA's), (32, 35242), (34, 35254), (35, 35287), (40, 35353), (41, 35368), (46, 35416),

Gene: Prithvi\_45 Start: 35343, Stop: 35582, Start Num: 29

Candidate Starts for Prithvi\_45:

(3, 35142), (4, 35148), (5, 35163), (Start: 13 @35247 has 1 MA's), (15, 35271), (Start: 29 @35343 has 74 MA's), (30, 35364), (32, 35385), (34, 35397), (35, 35430), (40, 35496), (41, 35511),

Gene: QuincyRose\_43 Start: 35592, Stop: 35831, Start Num: 29

Candidate Starts for QuincyRose\_43:

(3, 35391), (4, 35397), (5, 35412), (Start: 13 @35496 has 1 MA's), (15, 35520), (Start: 22 @35544 has 1 MA's), (Start: 29 @35592 has 74 MA's), (32, 35634), (34, 35646), (35, 35679), (40, 35745), (41, 35760), (46, 35808),

Gene: Ramen\_44 Start: 35122, Stop: 35403, Start Num: 23

Candidate Starts for Ramen\_44:

(Start: 23 @35122 has 14 MA's), (Start: 26 @35143 has 7 MA's), (Start: 27 @35146 has 28 MA's),  
(Start: 29 @35164 has 74 MA's), (30, 35185), (32, 35206), (34, 35218), (35, 35251), (40, 35317), (41,  
35332), (46, 35380),

Gene: Rapunzel97\_44 Start: 35142, Stop: 35399, Start Num: 27

Candidate Starts for Rapunzel97\_44:

(Start: 23 @35118 has 14 MA's), (Start: 26 @35139 has 7 MA's), (Start: 27 @35142 has 28 MA's),  
(Start: 29 @35160 has 74 MA's), (30, 35181), (32, 35202), (34, 35214), (35, 35247), (40, 35313), (41,  
35328), (46, 35376),

Gene: Reptar3000\_46 Start: 35271, Stop: 35519, Start Num: 29

Candidate Starts for Reptar3000\_46:

(Start: 13 @35175 has 1 MA's), (19, 35217), (Start: 29 @35271 has 74 MA's), (41, 35442), (42, 35445),

Gene: Richo\_46 Start: 35860, Stop: 36105, Start Num: 29

Candidate Starts for Richo\_46:

(Start: 29 @35860 has 74 MA's), (Start: 33 @35911 has 7 MA's), (34, 35914), (41, 36028), (44, 36058),

Gene: Rosmarinus\_44 Start: 35247, Stop: 35504, Start Num: 27

Candidate Starts for Rosmarinus\_44:

(Start: 23 @35223 has 14 MA's), (Start: 26 @35244 has 7 MA's), (Start: 27 @35247 has 28 MA's),  
(Start: 29 @35265 has 74 MA's), (30, 35286), (32, 35307), (34, 35319), (35, 35352), (40, 35418), (41,  
35433), (46, 35481),

Gene: Ruthiejr\_49 Start: 36035, Stop: 36379, Start Num: 13

Candidate Starts for Ruthiejr\_49:

(Start: 13 @36035 has 1 MA's), (19, 36077), (Start: 29 @36131 has 74 MA's), (41, 36302), (42, 36305),

Gene: SamuelLPlaqson\_45 Start: 36056, Stop: 36295, Start Num: 29

Candidate Starts for SamuelLPlaqson\_45:

(3, 35855), (4, 35861), (5, 35876), (Start: 13 @35960 has 1 MA's), (15, 35984), (Start: 29 @36056 has  
74 MA's), (32, 36098), (34, 36110), (35, 36143), (40, 36209),

Gene: Scarlett\_48 Start: 36272, Stop: 36478, Start Num: 33

Candidate Starts for Scarlett\_48:

(Start: 29 @36221 has 74 MA's), (Start: 33 @36272 has 7 MA's), (34, 36275), (38, 36341), (41, 36389),  
(43, 36401),

Gene: SgtBeansprout\_39 Start: 34790, Stop: 34984, Start Num: 33

Candidate Starts for SgtBeansprout\_39:

(Start: 29 @34739 has 74 MA's), (Start: 33 @34790 has 7 MA's), (35, 34826), (41, 34907), (44, 34937),  
(45, 34943),

Gene: Shadow1\_49 Start: 36255, Stop: 36491, Start Num: 29

Candidate Starts for Shadow1\_49:

(Start: 29 @36255 has 74 MA's), (Start: 33 @36306 has 7 MA's), (38, 36375), (43, 36435),

Gene: Shaobing\_46 Start: 35893, Stop: 36141, Start Num: 29

Candidate Starts for Shaobing\_46:

(Start: 29 @35893 has 74 MA's), (34, 35947), (41, 36061), (44, 36091), (46, 36109),

Gene: ShiaSurprise\_45 Start: 35474, Stop: 35713, Start Num: 29

Candidate Starts for ShiaSurprise\_45:

(Start: 23 @35432 has 14 MA's), (Start: 26 @35453 has 7 MA's), (Start: 27 @35456 has 28 MA's), (Start: 29 @35474 has 74 MA's), (30, 35495), (32, 35516), (34, 35528), (35, 35561), (40, 35627), (41, 35642), (46, 35690),

Gene: SirPhilip\_46 Start: 36474, Stop: 36710, Start Num: 29

Candidate Starts for SirPhilip\_46:

(16, 36405), (Start: 22 @36426 has 1 MA's), (Start: 29 @36474 has 74 MA's), (Start: 33 @36525 has 7 MA's), (34, 36528), (40, 36627), (44, 36672),

Gene: Slarp\_48 Start: 36169, Stop: 36417, Start Num: 29

Candidate Starts for Slarp\_48:

(Start: 13 @36073 has 1 MA's), (Start: 29 @36169 has 74 MA's), (41, 36340), (42, 36343),

Gene: Slimphazie\_44 Start: 35142, Stop: 35399, Start Num: 27

Candidate Starts for Slimphazie\_44:

(Start: 23 @35118 has 14 MA's), (Start: 26 @35139 has 7 MA's), (Start: 27 @35142 has 28 MA's), (Start: 29 @35160 has 74 MA's), (30, 35181), (32, 35202), (34, 35214), (35, 35247), (40, 35313), (41, 35328), (46, 35376),

Gene: Spock\_44 Start: 35260, Stop: 35517, Start Num: 27

Candidate Starts for Spock\_44:

(Start: 23 @35236 has 14 MA's), (Start: 26 @35257 has 7 MA's), (Start: 27 @35260 has 28 MA's), (Start: 29 @35278 has 74 MA's), (30, 35299), (32, 35320), (34, 35332), (35, 35365), (40, 35431), (41, 35446), (46, 35494),

Gene: Stinson\_45 Start: 35667, Stop: 35906, Start Num: 29

Candidate Starts for Stinson\_45:

(Start: 23 @35625 has 14 MA's), (Start: 27 @35649 has 28 MA's), (Start: 29 @35667 has 74 MA's), (30, 35688), (32, 35709), (34, 35721), (35, 35754), (40, 35820), (41, 35835),

Gene: Sulley\_44 Start: 35383, Stop: 35643, Start Num: 26

Candidate Starts for Sulley\_44:

(Start: 23 @35362 has 14 MA's), (Start: 26 @35383 has 7 MA's), (Start: 27 @35386 has 28 MA's), (Start: 29 @35404 has 74 MA's), (32, 35446), (34, 35458), (35, 35491), (40, 35557), (41, 35572), (46, 35620),

Gene: Sunflower1121\_50 Start: 36356, Stop: 36592, Start Num: 29

Candidate Starts for Sunflower1121\_50:

(Start: 29 @36356 has 74 MA's), (Start: 33 @36407 has 7 MA's), (38, 36476), (41, 36524), (43, 36536),

Gene: Syra333\_49 Start: 36023, Stop: 36259, Start Num: 29

Candidate Starts for Syra333\_49:

(Start: 29 @36023 has 74 MA's), (Start: 33 @36074 has 7 MA's), (38, 36143), (43, 36203),

Gene: TClif\_48 Start: 36322, Stop: 36570, Start Num: 29

Candidate Starts for TClif\_48:

(Start: 29 @36322 has 74 MA's), (35, 36409), (40, 36475), (41, 36490), (44, 36520),

Gene: Tachez\_44 Start: 35101, Stop: 35361, Start Num: 26

Candidate Starts for Tachez\_44:

(Start: 23 @35080 has 14 MA's), (Start: 26 @35101 has 7 MA's), (Start: 27 @35104 has 28 MA's), (Start: 29 @35122 has 74 MA's), (30, 35143), (32, 35164), (34, 35176), (35, 35209), (40, 35275), (41, 35290), (46, 35338),

Gene: Taquito\_48 Start: 36416, Stop: 36664, Start Num: 29

Candidate Starts for Taquito\_48:

(Start: 13 @36320 has 1 MA's), (Start: 29 @36416 has 74 MA's), (41, 36587), (42, 36590),

Gene: Teejan\_42 Start: 37403, Stop: 37597, Start Num: 33

Candidate Starts for Teejan\_42:

(Start: 29 @37352 has 74 MA's), (Start: 33 @37403 has 7 MA's), (35, 37439), (41, 37520), (44, 37550), (45, 37556),

Gene: Tierra\_47 Start: 35905, Stop: 36141, Start Num: 29

Candidate Starts for Tierra\_47:

(Start: 29 @35905 has 74 MA's), (Start: 33 @35956 has 7 MA's), (34, 35959), (38, 36025),

Gene: TiniBug\_45 Start: 36052, Stop: 36291, Start Num: 29

Candidate Starts for TiniBug\_45:

(3, 35851), (4, 35857), (5, 35872), (Start: 13 @35956 has 1 MA's), (15, 35980), (Start: 29 @36052 has 74 MA's), (32, 36094), (34, 36106), (40, 36205), (41, 36220),

Gene: Tiri\_45 Start: 35452, Stop: 35691, Start Num: 29

Candidate Starts for Tiri\_45:

(3, 35251), (4, 35257), (5, 35272), (Start: 13 @35356 has 1 MA's), (15, 35380), (Start: 22 @35404 has 1 MA's), (Start: 29 @35452 has 74 MA's), (32, 35494), (34, 35506), (35, 35539), (40, 35605), (41, 35620), (46, 35668),

Gene: Topper\_44 Start: 35259, Stop: 35516, Start Num: 27

Candidate Starts for Topper\_44:

(Start: 23 @35235 has 14 MA's), (Start: 26 @35256 has 7 MA's), (Start: 27 @35259 has 28 MA's), (Start: 29 @35277 has 74 MA's), (30, 35298), (32, 35319), (34, 35331), (35, 35364), (40, 35430), (41, 35445), (46, 35493),

Gene: Torres\_42 Start: 37404, Stop: 37598, Start Num: 33

Candidate Starts for Torres\_42:

(Start: 29 @37353 has 74 MA's), (Start: 33 @37404 has 7 MA's), (35, 37440), (41, 37521), (44, 37551), (45, 37557),

Gene: TreyKay\_45 Start: 35343, Stop: 35582, Start Num: 29

Candidate Starts for TreyKay\_45:

(3, 35142), (4, 35148), (5, 35163), (Start: 13 @35247 has 1 MA's), (15, 35271), (Start: 29 @35343 has 74 MA's), (30, 35364), (32, 35385), (34, 35397), (35, 35430), (40, 35496), (41, 35511),

Gene: TruffulaTree\_44 Start: 35138, Stop: 35395, Start Num: 27

Candidate Starts for TruffulaTree\_44:

(Start: 23 @35114 has 14 MA's), (Start: 26 @35135 has 7 MA's), (Start: 27 @35138 has 28 MA's), (Start: 29 @35156 has 74 MA's), (30, 35177), (32, 35198), (34, 35210), (35, 35243), (40, 35309), (41, 35324), (46, 35372),

Gene: Twitch\_44 Start: 35261, Stop: 35518, Start Num: 27

Candidate Starts for Twitch\_44:

(Start: 23 @35237 has 14 MA's), (Start: 26 @35258 has 7 MA's), (Start: 27 @35261 has 28 MA's), (Start: 29 @35279 has 74 MA's), (30, 35300), (32, 35321), (34, 35333), (35, 35366), (40, 35432), (41, 35447), (46, 35495),

Gene: Unicorn\_46 Start: 35029, Stop: 35373, Start Num: 11

Candidate Starts for Unicorn\_46:

(Start: 11 @35029 has 1 MA's), (Start: 29 @35137 has 74 MA's), (Start: 33 @35188 has 7 MA's), (34, 35191), (38, 35257), (40, 35290),

Gene: Urkel\_45 Start: 36056, Stop: 36295, Start Num: 29

Candidate Starts for Urkel\_45:

(3, 35855), (4, 35861), (5, 35876), (Start: 13 @35960 has 1 MA's), (15, 35984), (Start: 29 @36056 has 74 MA's), (32, 36098), (34, 36110), (35, 36143), (40, 36209),

Gene: Validus\_48 Start: 35897, Stop: 36190, Start Num: 21

Candidate Starts for Validus\_48:

(Start: 21 @35897 has 2 MA's), (Start: 29 @35945 has 74 MA's), (Start: 33 @35996 has 7 MA's), (34, 35999), (41, 36113), (44, 36143), (47, 36167),

Gene: Veliki\_44 Start: 35178, Stop: 35435, Start Num: 27

Candidate Starts for Veliki\_44:

(Start: 23 @35154 has 14 MA's), (Start: 26 @35175 has 7 MA's), (Start: 27 @35178 has 28 MA's), (Start: 29 @35196 has 74 MA's), (30, 35217), (32, 35238), (34, 35250), (35, 35283), (40, 35349), (41, 35364), (46, 35412),

Gene: Wintermute\_48 Start: 36318, Stop: 36566, Start Num: 29

Candidate Starts for Wintermute\_48:

(Start: 13 @36222 has 1 MA's), (18, 36258), (Start: 29 @36318 has 74 MA's), (41, 36489), (42, 36492),

Gene: Ximenita\_50 Start: 36194, Stop: 36445, Start Num: 27

Candidate Starts for Ximenita\_50:

(20, 36161), (Start: 26 @36191 has 7 MA's), (Start: 27 @36194 has 28 MA's), (Start: 29 @36209 has 74 MA's), (34, 36263), (38, 36329), (41, 36377), (43, 36389),

Gene: Y10\_47 Start: 36237, Stop: 36485, Start Num: 29

Candidate Starts for Y10\_47:

(Start: 29 @36237 has 74 MA's), (41, 36408), (42, 36411),

Gene: Y2\_47 Start: 36237, Stop: 36485, Start Num: 29

Candidate Starts for Y2\_47:

(Start: 29 @36237 has 74 MA's), (41, 36408), (42, 36411),

Gene: YoureAdopted\_43 Start: 35343, Stop: 35600, Start Num: 27

Candidate Starts for YoureAdopted\_43:

(Start: 23 @35319 has 14 MA's), (Start: 26 @35340 has 7 MA's), (Start: 27 @35343 has 28 MA's), (Start: 29 @35361 has 74 MA's), (30, 35382), (32, 35403), (34, 35415), (35, 35448), (40, 35514), (41, 35529), (46, 35577),

Gene: Yuna\_50 Start: 36971, Stop: 37204, Start Num: 29

Candidate Starts for Yuna\_50:

(Start: 29 @36971 has 74 MA's), (38, 37091), (41, 37139), (43, 37151),

Gene: Zabiza\_39 Start: 31425, Stop: 31706, Start Num: 23

Candidate Starts for Zabiza\_39:

(Start: 23 @31425 has 14 MA's), (Start: 26 @31446 has 7 MA's), (Start: 27 @31449 has 28 MA's), (Start: 29 @31467 has 74 MA's), (30, 31488), (32, 31509), (34, 31521), (35, 31554), (40, 31620), (41, 31635), (46, 31683),

Gene: Zavala\_45 Start: 35438, Stop: 35677, Start Num: 29

Candidate Starts for Zavala\_45:

(Start: 26 @35417 has 7 MA's), (Start: 27 @35420 has 28 MA's), (Start: 29 @35438 has 74 MA's), (30, 35459), (32, 35480), (34, 35492), (35, 35525), (40, 35591), (41, 35606), (46, 35654),