



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 157739 Report

This analysis was run 04/13/24 on database version 558.

Pham number 157739 has 108 members, 5 are drafts.

Phages represented in each track:

- Track 1 : Dole\_54
- Track 2 : Jarvi\_51, Peel\_51, Rosmarinus\_51, CREW\_51, Geraldini\_54, Boiii\_51, Dalmuri\_51, BGIlluviae\_51, Asayake\_51, Hyperbowlee\_51, Jeckyll\_51, AlishaPH\_51, Atiba\_52, ActinUp\_51, BEEST\_51, Zabiza\_47, Joy99\_51, Inky\_51, Lunahalos\_51, JAWS\_51, Capricorn\_51, Blizzard\_51, Belladonna\_51, Beezoo\_53, Durfee\_51, Adephagia\_51, Tachez\_51, Homura\_51, Spock\_51, Ramen\_52, Twitch\_51, HedwigODU\_51, Topper\_51, ShiaSurprise\_52, Piatt\_51, Padfoot\_51, Llorens\_51, CaseJules\_53
- Track 3 : Slimphazie\_51, TruffulaTree\_51, Tiri\_52, Rapunzel97\_52, Jayhawk\_52, BarrelRoll\_51
- Track 4 : TiniBug\_52, DrHayes\_52, SamuelLPlaqson\_52, Urkel\_52
- Track 5 : TaiwanKao\_53
- Track 6 : Peanam\_54, Shaobing\_54, Niklas\_54
- Track 7 : Megsy\_53
- Track 8 : LastHope\_54
- Track 9 : LaterM\_52
- Track 10 : Efra2\_54
- Track 11 : Bella96\_52
- Track 12 : Illumine\_54, Devera\_56
- Track 13 : Apocalypse\_54
- Track 14 : Validus\_56
- Track 15 : BaghaKamala\_50
- Track 16 : Prithvi\_52, LindNT\_50, TreyKay\_52
- Track 17 : Chris\_54
- Track 18 : CheetoDust\_50
- Track 19 : Zavala\_53, Mynx\_52
- Track 20 : Nibb\_54
- Track 21 : Pokerus\_50
- Track 22 : Ageofdapage\_53
- Track 23 : Veliki\_52
- Track 24 : Adonis\_51, Ganymede\_52, QuincyRose\_50
- Track 25 : YoureAdopted\_50
- Track 26 : MarkPhew\_55
- Track 27 : Angelica\_51, Sulley\_51
- Track 28 : CrimD\_51
- Track 29 : Yunkel11\_54
- Track 30 : Padpat\_53, Emerson\_52

- Track 31 : Guanica15\_54
- Track 32 : Anaya\_53
- Track 33 : MeaningOfLife\_52
- Track 34 : Deby\_51
- Track 35 : Curiosium\_53
- Track 36 : Stinson\_52
- Track 37 : Murucutumbu\_52
- Track 38 : MacnCheese\_56
- Track 39 : Fefferhead\_52, Ellie\_50
- Track 40 : Bryler\_55, Cain\_55, Phrank\_55
- Track 41 : Hammy\_54, DarthP\_54, Amohnition\_54
- Track 42 : Ekdilam\_51
- Track 43 : Krueger\_58
- Track 44 : Tierra\_55
- Track 45 : Yuna\_58
- Track 46 : Ximenita\_58
- Track 47 : SirPhilip\_54
- Track 48 : Amgine\_52

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

The start number called the most often in the published annotations is 8, it was called in 79 of the 103 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ActinUp\_51, Adephagia\_51, Adonis\_51, Ageofdapage\_53, AlishaPH\_51, Anaya\_53, Angelica\_51, Apocalypse\_54, Asayake\_51, Atiba\_52, BEEST\_51, BGlluviae\_51, BaghaKamala\_50, BarrelRoll\_51, Beezoo\_53, Bella96\_52, Belladonna\_51, Blizzard\_51, Boiiii\_51, CREW\_51, Capricorn\_51, CaseJules\_53, CheetoDust\_50, CrimD\_51, Curiosium\_53, Dalmuri\_51, Deby\_51, Devera\_56, DrHayes\_52, Durfee\_51, Efra2\_54, Emerson\_52, Ganymede\_52, Geraldini\_54, Guanica15\_54, HedwigODU\_51, Homura\_51, Hyperbowlee\_51, Illumine\_54, Inky\_51, JAWS\_51, Jarvi\_51, Jayhawk\_52, Jeckyll\_51, Joy99\_51, LastHope\_54, LaterM\_52, LindNT\_50, Llorens\_51, Lunahalos\_51, MeaningOfLife\_52, Megsy\_53, Murucutumbu\_52, Mynx\_52, Padfoot\_51, Padpat\_53, Peel\_51, Piatt\_51, Pokerus\_50, Prithvi\_52, QuincyRose\_50, Ramen\_52, Rapunzel97\_52, Rosmarinus\_51, SamuelLPlaqson\_52, ShiaSurprise\_52, Slimphazie\_51, Spock\_51, Stinson\_52, Sulley\_51, Tachez\_51, TaiwanKao\_53, TiniBug\_52, Tiri\_52, Topper\_51, TreyKay\_52, TruffulaTree\_51, Twitch\_51, Urkel\_52, Veliki\_52, YoureAdopted\_50, Yunkel11\_54, Zabiza\_47, Zavala\_53,

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

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

- Amgine\_52, Amohnition\_54, Bryler\_55, Cain\_55, Chris\_54, DarthP\_54, Dole\_54, Ekdilam\_51, Ellie\_50, Fefferhead\_52, Hammy\_54, Krueger\_58, MacnCheese\_56, MarkPhew\_55, Nibb\_54, Niklas\_54, Peanam\_54, Phrank\_55, Shaobing\_54, SirPhilip\_54, Tierra\_55, Validus\_56, Ximenita\_58, Yuna\_58,

## Summary by start number:

### Start 8:

- Found in 84 of 108 ( 77.8% ) of genes in pham
- Manual Annotations of this start: 79 of 103
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ActinUp\_51 (K1), Adephagia\_51 (K1), Adonis\_51 (K1), Ageofdapage\_53 (K1), AlishaPH\_51 (K1), Anaya\_53 (K1), Angelica\_51 (K1), Apocalypse\_54 (K1), Asayake\_51 (K1), Atiba\_52 (K1), BEEST\_51 (K1), BGIluvia\_51 (K1), BaghaKamala\_50 (K1), BarrelRoll\_51 (K1), Beezoo\_53 (K1), Bella96\_52 (K1), Belladonna\_51 (K1), Blizzard\_51 (K1), Boiiii\_51 (K1), CREW\_51 (K1), Capricorn\_51 (K1), CaseJules\_53 (K1), CheetoDust\_50 (K1), CrimD\_51 (K1), Curiosium\_53 (K1), Dalmuri\_51 (K1), Deby\_51 (K1), Devera\_56 (K1), DrHayes\_52 (K1), Durfee\_51 (K1), Efra2\_54 (K1), Emerson\_52 (K1), Ganymede\_52 (K1), Geraldini\_54 (K1), Guanica15\_54 (K1), HedwigODU\_51 (K1), Homura\_51 (K1), Hyperbowlee\_51 (K1), Illumine\_54 (K1), Inky\_51 (K1), JAWS\_51 (K1), Jarvi\_51 (K1), Jayhawk\_52 (K1), Jeckyll\_51 (K1), Joy99\_51 (K1), LastHope\_54 (K1), LaterM\_52 (K1), LindNT\_50 (K1), Llorens\_51 (K1), Lunahalos\_51 (K1), MeaningOfLife\_52 (K1), Megsy\_53 (K1), Murucutumbu\_52 (K1), Mynx\_52 (K1), Padfoot\_51 (K1), Padpat\_53 (K1), Peel\_51 (K1), Piatt\_51 (K1), Pokerus\_50 (K1), Prithvi\_52 (K1), QuincyRose\_50 (K1), Ramen\_52 (K1), Rapunzel97\_52 (K1), Rosmarinus\_51 (K1), SamuelLPlaqsom\_52 (K1), ShiaSurprise\_52 (K1), Slimphazie\_51 (K1), Spock\_51 (K1), Stinson\_52 (K1), Sulley\_51 (K1), Tachez\_51 (K1), TaiwanKao\_53 (K1), TiniBug\_52 (K1), Tiri\_52 (K1), Topper\_51 (K1), TreyKay\_52 (K1), TruffulaTree\_51 (K1), Twitch\_51 (K1), Urkel\_52 (K1), Veliki\_52 (K1), YoureAdopted\_50 (K1), Yunkel11\_54 (K1), Zabiza\_47 (K1), Zavala\_53 (K1),

### Start 11:

- Found in 1 of 108 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 103
- Called 100.0% of time when present
- Phage (with cluster) where this start called: MacnCheese\_56 (K3),

### Start 12:

- Found in 4 of 108 ( 3.7% ) of genes in pham
- Manual Annotations of this start: 4 of 103
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Niklas\_54 (K1), Peanam\_54 (K1), Shaobing\_54 (K1), Validus\_56 (K1),

### Start 17:

- Found in 88 of 108 ( 81.5% ) of genes in pham
- Manual Annotations of this start: 1 of 103
- Called 1.1% of time when present
- Phage (with cluster) where this start called: Chris\_54 (K1),

### Start 20:

- Found in 14 of 108 ( 13.0% ) of genes in pham
- Manual Annotations of this start: 14 of 103
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amgine\_52 (K6), Amohnition\_54 (K6), Bryler\_55 (K6), Cain\_55 (K6), DarthP\_54 (K6), Ekdilam\_51 (K6), Ellie\_50 (K6), Fefferhead\_52 (K6), Hammy\_54 (K6), Krueger\_58 (K6), Phrank\_55 (K6), SirPhilip\_54

(K6), Tierra\_55 (K6), Ximenita\_58 (K6),

Start 29:

- Found in 3 of 108 ( 2.8% ) of genes in pham
- Manual Annotations of this start: 3 of 103
- Called 100.0% of time when present
- Phage (with cluster) where this start called: MarkPhew\_55 (K1), Nibb\_54 (K1), Yuna\_58 (K6),

Start 47:

- Found in 20 of 108 ( 18.5% ) of genes in pham
- Manual Annotations of this start: 1 of 103
- Called 5.0% of time when present
- Phage (with cluster) where this start called: Dole\_54 (K1),

### **Summary by clusters:**

There are 3 clusters represented in this pham: K3, K1, K6,

Info for manual annotations of cluster K1:

- Start number 8 was manually annotated 79 times for cluster K1.
- Start number 12 was manually annotated 4 times for cluster K1.
- Start number 17 was manually annotated 1 time for cluster K1.
- Start number 29 was manually annotated 2 times for cluster K1.
- Start number 47 was manually annotated 1 time for cluster K1.

Info for manual annotations of cluster K3:

- Start number 11 was manually annotated 1 time for cluster K3.

Info for manual annotations of cluster K6:

- Start number 20 was manually annotated 14 times for cluster K6.
- Start number 29 was manually annotated 1 time for cluster K6.

### **Gene Information:**

Gene: ActinUp\_51 Start: 37616, Stop: 38557, Start Num: 8

Candidate Starts for ActinUp\_51:

(Start: 8 @37616 has 79 MA's), (16, 37655), (Start: 17 @37679 has 1 MA's), (18, 37700), (19, 37712), (21, 37724), (24, 37745), (38, 37814), (51, 37892), (65, 37943), (67, 37961), (73, 37988), (78, 38039), (91, 38117), (106, 38186), (117, 38228), (128, 38291), (131, 38324), (132, 38327), (135, 38414),

Gene: Adephagia\_51 Start: 37613, Stop: 38554, Start Num: 8

Candidate Starts for Adephagia\_51:

(Start: 8 @37613 has 79 MA's), (16, 37652), (Start: 17 @37676 has 1 MA's), (18, 37697), (19, 37709), (21, 37721), (24, 37742), (38, 37811), (51, 37889), (65, 37940), (67, 37958), (73, 37985), (78, 38036), (91, 38114), (106, 38183), (117, 38225), (128, 38288), (131, 38321), (132, 38324), (135, 38411),

Gene: Adonis\_51 Start: 37911, Stop: 38798, Start Num: 8

Candidate Starts for Adonis\_51:

(Start: 8 @37911 has 79 MA's), (10, 37929), (16, 37953), (Start: 17 @37977 has 1 MA's), (19, 38010), (21, 38022), (24, 38043), (38, 38112), (51, 38190), (65, 38241), (67, 38259), (78, 38331), (82, 38376),

(103, 38454), (124, 38514), (128, 38532), (131, 38565), (132, 38568), (135, 38655), (137, 38688),

Gene: Ageofdapage\_53 Start: 38596, Stop: 39540, Start Num: 8

Candidate Starts for Ageofdapage\_53:

(Start: 8 @38596 has 79 MA's), (16, 38632), (Start: 17 @38656 has 1 MA's), (18, 38677), (21, 38701), (24, 38722), (25, 38728), (38, 38791), (42, 38812), (43, 38821), (Start: 47 @38848 has 1 MA's), (54, 38875), (66, 38929), (78, 39022), (87, 39094), (91, 39100), (106, 39169), (117, 39211), (128, 39274), (132, 39310), (135, 39397), (137, 39430),

Gene: AlishaPH\_51 Start: 37886, Stop: 38827, Start Num: 8

Candidate Starts for AlishaPH\_51:

(Start: 8 @37886 has 79 MA's), (16, 37925), (Start: 17 @37949 has 1 MA's), (18, 37970), (19, 37982), (21, 37994), (24, 38015), (38, 38084), (51, 38162), (65, 38213), (67, 38231), (73, 38258), (78, 38309), (91, 38387), (106, 38456), (117, 38498), (128, 38561), (131, 38594), (132, 38597), (135, 38684),

Gene: Amgine\_52 Start: 38804, Stop: 39586, Start Num: 20

Candidate Starts for Amgine\_52:

(Start: 20 @38804 has 14 MA's), (24, 38819), (30, 38852), (34, 38873), (48, 38960), (57, 38990), (59, 39011), (64, 39029), (69, 39071), (78, 39146), (88, 39218), (101, 39260), (131, 39341), (132, 39344), (135, 39431),

Gene: Amohnition\_54 Start: 38811, Stop: 39545, Start Num: 20

Candidate Starts for Amohnition\_54:

(Start: 20 @38811 has 14 MA's), (24, 38826), (30, 38859), (34, 38880), (Start: 47 @38928 has 1 MA's), (66, 38988), (70, 39003), (75, 39027), (78, 39075), (104, 39213), (118, 39255), (131, 39306), (132, 39309), (135, 39393), (137, 39426), (139, 39480),

Gene: Anaya\_53 Start: 38213, Stop: 39073, Start Num: 8

Candidate Starts for Anaya\_53:

(Start: 8 @38213 has 79 MA's), (16, 38255), (Start: 17 @38279 has 1 MA's), (19, 38312), (21, 38324), (24, 38345), (38, 38414), (51, 38492), (65, 38543), (67, 38561), (73, 38588), (78, 38639), (99, 38747), (102, 38750), (131, 38840), (132, 38843), (135, 38930), (137, 38963), (138, 39002),

Gene: Angelica\_51 Start: 37843, Stop: 38703, Start Num: 8

Candidate Starts for Angelica\_51:

(Start: 8 @37843 has 79 MA's), (10, 37861), (16, 37885), (Start: 17 @37909 has 1 MA's), (19, 37942), (21, 37954), (24, 37975), (38, 38044), (66, 38092), (78, 38185), (91, 38263), (106, 38332), (117, 38374), (128, 38437), (131, 38470), (132, 38473), (135, 38560),

Gene: Apocalypse\_54 Start: 38622, Stop: 39491, Start Num: 8

Candidate Starts for Apocalypse\_54:

(Start: 8 @38622 has 79 MA's), (10, 38640), (16, 38664), (Start: 17 @38688 has 1 MA's), (19, 38721), (21, 38733), (24, 38754), (38, 38823), (51, 38901), (65, 38952), (67, 38970), (73, 38997), (78, 39048), (80, 39069), (93, 39126), (95, 39129), (124, 39207), (131, 39258), (132, 39261), (135, 39348),

Gene: Asayake\_51 Start: 37928, Stop: 38869, Start Num: 8

Candidate Starts for Asayake\_51:

(Start: 8 @37928 has 79 MA's), (16, 37967), (Start: 17 @37991 has 1 MA's), (18, 38012), (19, 38024), (21, 38036), (24, 38057), (38, 38126), (51, 38204), (65, 38255), (67, 38273), (73, 38300), (78, 38351), (91, 38429), (106, 38498), (117, 38540), (128, 38603), (131, 38636), (132, 38639), (135, 38726),

Gene: Atiba\_52 Start: 37576, Stop: 38517, Start Num: 8

Candidate Starts for Atiba\_52:

(Start: 8 @37576 has 79 MA's), (16, 37615), (Start: 17 @37639 has 1 MA's), (18, 37660), (19, 37672), (21, 37684), (24, 37705), (38, 37774), (51, 37852), (65, 37903), (67, 37921), (73, 37948), (78, 37999), (91, 38077), (106, 38146), (117, 38188), (128, 38251), (131, 38284), (132, 38287), (135, 38374),

Gene: BEEST\_51 Start: 37928, Stop: 38869, Start Num: 8

Candidate Starts for BEEST\_51:

(Start: 8 @37928 has 79 MA's), (16, 37967), (Start: 17 @37991 has 1 MA's), (18, 38012), (19, 38024), (21, 38036), (24, 38057), (38, 38126), (51, 38204), (65, 38255), (67, 38273), (73, 38300), (78, 38351), (91, 38429), (106, 38498), (117, 38540), (128, 38603), (131, 38636), (132, 38639), (135, 38726),

Gene: BGlluviae\_51 Start: 37731, Stop: 38672, Start Num: 8

Candidate Starts for BGlluviae\_51:

(Start: 8 @37731 has 79 MA's), (16, 37770), (Start: 17 @37794 has 1 MA's), (18, 37815), (19, 37827), (21, 37839), (24, 37860), (38, 37929), (51, 38007), (65, 38058), (67, 38076), (73, 38103), (78, 38154), (91, 38232), (106, 38301), (117, 38343), (128, 38406), (131, 38439), (132, 38442), (135, 38529),

Gene: BaghaKamala\_50 Start: 37051, Stop: 37917, Start Num: 8

Candidate Starts for BaghaKamala\_50:

(Start: 8 @37051 has 79 MA's), (10, 37069), (16, 37093), (18, 37138), (19, 37150), (21, 37162), (38, 37252), (51, 37336), (65, 37387), (67, 37405), (78, 37483), (102, 37594), (131, 37684), (132, 37687), (135, 37774),

Gene: BarrelRoll\_51 Start: 37599, Stop: 38540, Start Num: 8

Candidate Starts for BarrelRoll\_51:

(Start: 8 @37599 has 79 MA's), (16, 37638), (Start: 17 @37662 has 1 MA's), (18, 37683), (19, 37695), (21, 37707), (24, 37728), (38, 37797), (51, 37875), (65, 37926), (67, 37944), (73, 37971), (78, 38022), (91, 38100), (106, 38169), (117, 38211), (128, 38274), (131, 38307), (132, 38310), (135, 38397), (137, 38430),

Gene: Beezoo\_53 Start: 38574, Stop: 39515, Start Num: 8

Candidate Starts for Beezoo\_53:

(Start: 8 @38574 has 79 MA's), (16, 38613), (Start: 17 @38637 has 1 MA's), (18, 38658), (19, 38670), (21, 38682), (24, 38703), (38, 38772), (51, 38850), (65, 38901), (67, 38919), (73, 38946), (78, 38997), (91, 39075), (106, 39144), (117, 39186), (128, 39249), (131, 39282), (132, 39285), (135, 39372),

Gene: Bella96\_52 Start: 38440, Stop: 39297, Start Num: 8

Candidate Starts for Bella96\_52:

(Start: 8 @38440 has 79 MA's), (16, 38482), (Start: 17 @38506 has 1 MA's), (18, 38527), (19, 38539), (21, 38551), (24, 38572), (31, 38605), (66, 38686), (78, 38779), (81, 38815), (91, 38857), (100, 38890), (107, 38929), (128, 39031), (131, 39064), (132, 39067), (135, 39154), (137, 39187),

Gene: Belladonna\_51 Start: 37731, Stop: 38672, Start Num: 8

Candidate Starts for Belladonna\_51:

(Start: 8 @37731 has 79 MA's), (16, 37770), (Start: 17 @37794 has 1 MA's), (18, 37815), (19, 37827), (21, 37839), (24, 37860), (38, 37929), (51, 38007), (65, 38058), (67, 38076), (73, 38103), (78, 38154), (91, 38232), (106, 38301), (117, 38343), (128, 38406), (131, 38439), (132, 38442), (135, 38529),

Gene: Blizzard\_51 Start: 37928, Stop: 38869, Start Num: 8

Candidate Starts for Blizzard\_51:

(Start: 8 @37928 has 79 MA's), (16, 37967), (Start: 17 @37991 has 1 MA's), (18, 38012), (19, 38024), (21, 38036), (24, 38057), (38, 38126), (51, 38204), (65, 38255), (67, 38273), (73, 38300), (78, 38351), (91, 38429), (106, 38498), (117, 38540), (128, 38603), (131, 38636), (132, 38639), (135, 38726),

Gene: Boiiii\_51 Start: 37930, Stop: 38871, Start Num: 8

Candidate Starts for Boiiii\_51:

(Start: 8 @37930 has 79 MA's), (16, 37969), (Start: 17 @37993 has 1 MA's), (18, 38014), (19, 38026), (21, 38038), (24, 38059), (38, 38128), (51, 38206), (65, 38257), (67, 38275), (73, 38302), (78, 38353), (91, 38431), (106, 38500), (117, 38542), (128, 38605), (131, 38638), (132, 38641), (135, 38728),

Gene: Bryler\_55 Start: 37408, Stop: 38334, Start Num: 20

Candidate Starts for Bryler\_55:

(7, 37285), (9, 37303), (Start: 20 @37408 has 14 MA's), (26, 37441), (30, 37465), (34, 37486), (36, 37498), (39, 37510), (41, 37531), (52, 37588), (56, 37594), (66, 37642), (74, 37684), (94, 37810), (97, 37816), (105, 37858), (110, 37876), (113, 37885), (116, 37918), (121, 37966), (123, 37996), (131, 38062), (132, 38065), (135, 38149), (137, 38182), (139, 38236),

Gene: CREW\_51 Start: 37731, Stop: 38672, Start Num: 8

Candidate Starts for CREW\_51:

(Start: 8 @37731 has 79 MA's), (16, 37770), (Start: 17 @37794 has 1 MA's), (18, 37815), (19, 37827), (21, 37839), (24, 37860), (38, 37929), (51, 38007), (65, 38058), (67, 38076), (73, 38103), (78, 38154), (91, 38232), (106, 38301), (117, 38343), (128, 38406), (131, 38439), (132, 38442), (135, 38529),

Gene: Cain\_55 Start: 37396, Stop: 38322, Start Num: 20

Candidate Starts for Cain\_55:

(7, 37273), (9, 37291), (Start: 20 @37396 has 14 MA's), (26, 37429), (30, 37453), (34, 37474), (36, 37486), (39, 37498), (41, 37519), (52, 37576), (56, 37582), (66, 37630), (74, 37672), (94, 37798), (97, 37804), (105, 37846), (110, 37864), (113, 37873), (116, 37906), (121, 37954), (123, 37984), (131, 38050), (132, 38053), (135, 38137), (137, 38170), (139, 38224),

Gene: Capricorn\_51 Start: 37731, Stop: 38672, Start Num: 8

Candidate Starts for Capricorn\_51:

(Start: 8 @37731 has 79 MA's), (16, 37770), (Start: 17 @37794 has 1 MA's), (18, 37815), (19, 37827), (21, 37839), (24, 37860), (38, 37929), (51, 38007), (65, 38058), (67, 38076), (73, 38103), (78, 38154), (91, 38232), (106, 38301), (117, 38343), (128, 38406), (131, 38439), (132, 38442), (135, 38529),

Gene: CaseJules\_53 Start: 37928, Stop: 38869, Start Num: 8

Candidate Starts for CaseJules\_53:

(Start: 8 @37928 has 79 MA's), (16, 37967), (Start: 17 @37991 has 1 MA's), (18, 38012), (19, 38024), (21, 38036), (24, 38057), (38, 38126), (51, 38204), (65, 38255), (67, 38273), (73, 38300), (78, 38351), (91, 38429), (106, 38498), (117, 38540), (128, 38603), (131, 38636), (132, 38639), (135, 38726),

Gene: CheetoDust\_50 Start: 37100, Stop: 37960, Start Num: 8

Candidate Starts for CheetoDust\_50:

(Start: 8 @37100 has 79 MA's), (10, 37118), (16, 37142), (Start: 17 @37166 has 1 MA's), (18, 37187), (19, 37199), (21, 37211), (24, 37232), (38, 37301), (51, 37379), (65, 37430), (67, 37448), (73, 37475), (78, 37526), (99, 37634), (102, 37637), (128, 37694), (131, 37727), (132, 37730), (135, 37817), (137, 37850),

Gene: Chris\_54 Start: 38558, Stop: 39373, Start Num: 17

Candidate Starts for Chris\_54:

(Start: 17 @38558 has 1 MA's), (23, 38618), (27, 38639), (32, 38663), (36, 38684), (45, 38741), (53, 38774), (131, 39137), (135, 39224),

Gene: CrimD\_51 Start: 37837, Stop: 38787, Start Num: 8

Candidate Starts for CrimD\_51:



(Start: 8 @37837 has 79 MA's), (16, 37879), (Start: 17 @37903 has 1 MA's), (18, 37924), (19, 37936), (21, 37948), (24, 37969), (38, 38038), (42, 38059), (Start: 47 @38095 has 1 MA's), (66, 38176), (78, 38269), (87, 38341), (91, 38347), (106, 38416), (113, 38443), (117, 38458), (128, 38521), (131, 38554), (132, 38557), (135, 38644), (137, 38677),

Gene: Curiosium\_53 Start: 36518, Stop: 37456, Start Num: 8

Candidate Starts for Curiosium\_53:

(Start: 8 @36518 has 79 MA's), (16, 36548), (Start: 17 @36572 has 1 MA's), (18, 36593), (19, 36605), (21, 36617), (24, 36638), (25, 36644), (38, 36707), (46, 36764), (Start: 47 @36767 has 1 MA's), (66, 36848), (91, 37019), (106, 37088), (131, 37223), (132, 37226), (134, 37301), (135, 37313), (137, 37346),

Gene: Dalmuri\_51 Start: 37731, Stop: 38672, Start Num: 8

Candidate Starts for Dalmuri\_51:

(Start: 8 @37731 has 79 MA's), (16, 37770), (Start: 17 @37794 has 1 MA's), (18, 37815), (19, 37827), (21, 37839), (24, 37860), (38, 37929), (51, 38007), (65, 38058), (67, 38076), (73, 38103), (78, 38154), (91, 38232), (106, 38301), (117, 38343), (128, 38406), (131, 38439), (132, 38442), (135, 38529),

Gene: DARTH\_P\_54 Start: 38695, Stop: 39429, Start Num: 20

Candidate Starts for DARTH\_P\_54:

(Start: 20 @38695 has 14 MA's), (24, 38710), (30, 38743), (34, 38764), (Start: 47 @38812 has 1 MA's), (66, 38872), (70, 38887), (75, 38911), (78, 38959), (104, 39097), (118, 39139), (131, 39190), (132, 39193), (135, 39277), (137, 39310), (139, 39364),

Gene: Deby\_51 Start: 37859, Stop: 38731, Start Num: 8

Candidate Starts for Deby\_51:

(Start: 8 @37859 has 79 MA's), (16, 37898), (Start: 17 @37922 has 1 MA's), (18, 37943), (19, 37955), (21, 37967), (24, 37988), (38, 38057), (51, 38141), (65, 38192), (67, 38210), (73, 38237), (78, 38288), (80, 38309), (91, 38366), (92, 38369), (128, 38465), (131, 38498), (132, 38501), (135, 38588),

Gene: Devera\_56 Start: 38363, Stop: 39304, Start Num: 8

Candidate Starts for Devera\_56:

(Start: 8 @38363 has 79 MA's), (16, 38399), (Start: 17 @38423 has 1 MA's), (18, 38444), (21, 38468), (24, 38489), (25, 38495), (38, 38558), (42, 38579), (Start: 47 @38615 has 1 MA's), (51, 38636), (66, 38696), (78, 38789), (91, 38867), (106, 38936), (108, 38945), (131, 39071), (132, 39074), (135, 39161), (137, 39194),

Gene: Dole\_54 Start: 38618, Stop: 39307, Start Num: 47

Candidate Starts for Dole\_54:

(Start: 47 @38618 has 1 MA's), (51, 38639), (66, 38699), (78, 38792), (91, 38870), (106, 38939), (108, 38948), (131, 39074), (132, 39077), (135, 39164), (137, 39197),

Gene: DrHayes\_52 Start: 38502, Stop: 39452, Start Num: 8

Candidate Starts for DrHayes\_52:

(Start: 8 @38502 has 79 MA's), (16, 38544), (Start: 17 @38568 has 1 MA's), (18, 38589), (19, 38601), (21, 38613), (24, 38634), (38, 38703), (Start: 47 @38760 has 1 MA's), (52, 38784), (66, 38841), (78, 38934), (106, 39081), (108, 39090), (128, 39186), (131, 39219), (132, 39222), (135, 39309), (137, 39342),

Gene: Durfee\_51 Start: 37928, Stop: 38869, Start Num: 8

Candidate Starts for Durfee\_51:

(Start: 8 @37928 has 79 MA's), (16, 37967), (Start: 17 @37991 has 1 MA's), (18, 38012), (19, 38024), (21, 38036), (24, 38057), (38, 38126), (51, 38204), (65, 38255), (67, 38273), (73, 38300), (78, 38351),

(91, 38429), (106, 38498), (117, 38540), (128, 38603), (131, 38636), (132, 38639), (135, 38726),

Gene: Efra2\_54 Start: 37447, Stop: 38388, Start Num: 8

Candidate Starts for Efra2\_54:

(Start: 8 @37447 has 79 MA's), (16, 37486), (Start: 17 @37510 has 1 MA's), (18, 37531), (19, 37543), (21, 37555), (24, 37576), (51, 37723), (65, 37774), (67, 37792), (78, 37870), (91, 37948), (106, 38017), (117, 38059), (131, 38155), (132, 38158), (134, 38233), (135, 38245), (137, 38278),

Gene: Ekdilam\_51 Start: 38242, Stop: 39063, Start Num: 20

Candidate Starts for Ekdilam\_51:

(Start: 20 @38242 has 14 MA's), (24, 38254), (30, 38287), (34, 38308), (57, 38380), (61, 38395), (68, 38425), (80, 38527), (90, 38584), (98, 38605), (118, 38722), (125, 38764), (131, 38824), (132, 38827), (135, 38911), (137, 38944), (139, 38998),

Gene: Ellie\_50 Start: 37992, Stop: 38804, Start Num: 20

Candidate Starts for Ellie\_50:

(Start: 20 @37992 has 14 MA's), (24, 38007), (30, 38040), (34, 38061), (62, 38139), (78, 38232), (106, 38379), (112, 38403), (126, 38499), (129, 38520), (131, 38550), (132, 38553), (135, 38637), (137, 38670),

Gene: Emerson\_52 Start: 37607, Stop: 38551, Start Num: 8

Candidate Starts for Emerson\_52:

(Start: 8 @37607 has 79 MA's), (13, 37640), (16, 37649), (Start: 17 @37673 has 1 MA's), (18, 37694), (19, 37706), (21, 37718), (24, 37739), (25, 37745), (38, 37808), (51, 37886), (65, 37937), (67, 37955), (73, 37982), (78, 38033), (91, 38111), (106, 38180), (117, 38222), (128, 38285), (131, 38318), (132, 38321), (135, 38408),

Gene: Fefferhead\_52 Start: 37942, Stop: 38751, Start Num: 20

Candidate Starts for Fefferhead\_52:

(Start: 20 @37942 has 14 MA's), (24, 37957), (30, 37990), (34, 38011), (62, 38089), (78, 38182), (106, 38329), (112, 38353), (126, 38449), (129, 38470), (131, 38497), (132, 38500), (135, 38584), (137, 38617),

Gene: Ganymede\_52 Start: 38046, Stop: 38933, Start Num: 8

Candidate Starts for Ganymede\_52:

(Start: 8 @38046 has 79 MA's), (10, 38064), (16, 38088), (Start: 17 @38112 has 1 MA's), (19, 38145), (21, 38157), (24, 38178), (38, 38247), (51, 38325), (65, 38376), (67, 38394), (78, 38466), (82, 38511), (103, 38589), (124, 38649), (128, 38667), (131, 38700), (132, 38703), (135, 38790), (137, 38823),

Gene: Geraldini\_54 Start: 38663, Stop: 39604, Start Num: 8

Candidate Starts for Geraldini\_54:

(Start: 8 @38663 has 79 MA's), (16, 38702), (Start: 17 @38726 has 1 MA's), (18, 38747), (19, 38759), (21, 38771), (24, 38792), (38, 38861), (51, 38939), (65, 38990), (67, 39008), (73, 39035), (78, 39086), (91, 39164), (106, 39233), (117, 39275), (128, 39338), (131, 39371), (132, 39374), (135, 39461),

Gene: Guanica15\_54 Start: 37404, Stop: 38348, Start Num: 8

Candidate Starts for Guanica15\_54:

(Start: 8 @37404 has 79 MA's), (16, 37443), (Start: 17 @37467 has 1 MA's), (18, 37488), (19, 37500), (21, 37512), (24, 37533), (33, 37575), (38, 37602), (65, 37734), (67, 37752), (78, 37830), (91, 37908), (106, 37977), (117, 38019), (131, 38115), (132, 38118), (133, 38130), (135, 38205),

Gene: Hammy\_54 Start: 38683, Stop: 39417, Start Num: 20

Candidate Starts for Hammy\_54:

(Start: 20 @38683 has 14 MA's), (24, 38698), (30, 38731), (34, 38752), (Start: 47 @38800 has 1 MA's), (66, 38860), (70, 38875), (75, 38899), (78, 38947), (104, 39085), (118, 39127), (131, 39178), (132, 39181), (135, 39265), (137, 39298), (139, 39352),

Gene: HedwigODU\_51 Start: 37616, Stop: 38557, Start Num: 8

Candidate Starts for HedwigODU\_51:

(Start: 8 @37616 has 79 MA's), (16, 37655), (Start: 17 @37679 has 1 MA's), (18, 37700), (19, 37712), (21, 37724), (24, 37745), (38, 37814), (51, 37892), (65, 37943), (67, 37961), (73, 37988), (78, 38039), (91, 38117), (106, 38186), (117, 38228), (128, 38291), (131, 38324), (132, 38327), (135, 38414),

Gene: Homura\_51 Start: 37731, Stop: 38672, Start Num: 8

Candidate Starts for Homura\_51:

(Start: 8 @37731 has 79 MA's), (16, 37770), (Start: 17 @37794 has 1 MA's), (18, 37815), (19, 37827), (21, 37839), (24, 37860), (38, 37929), (51, 38007), (65, 38058), (67, 38076), (73, 38103), (78, 38154), (91, 38232), (106, 38301), (117, 38343), (128, 38406), (131, 38439), (132, 38442), (135, 38529),

Gene: Hyperbowlee\_51 Start: 37928, Stop: 38869, Start Num: 8

Candidate Starts for Hyperbowlee\_51:

(Start: 8 @37928 has 79 MA's), (16, 37967), (Start: 17 @37991 has 1 MA's), (18, 38012), (19, 38024), (21, 38036), (24, 38057), (38, 38126), (51, 38204), (65, 38255), (67, 38273), (73, 38300), (78, 38351), (91, 38429), (106, 38498), (117, 38540), (128, 38603), (131, 38636), (132, 38639), (135, 38726),

Gene: Illumine\_54 Start: 38365, Stop: 39306, Start Num: 8

Candidate Starts for Illumine\_54:

(Start: 8 @38365 has 79 MA's), (16, 38401), (Start: 17 @38425 has 1 MA's), (18, 38446), (21, 38470), (24, 38491), (25, 38497), (38, 38560), (42, 38581), (Start: 47 @38617 has 1 MA's), (51, 38638), (66, 38698), (78, 38791), (91, 38869), (106, 38938), (108, 38947), (131, 39073), (132, 39076), (135, 39163), (137, 39196),

Gene: Inky\_51 Start: 37731, Stop: 38672, Start Num: 8

Candidate Starts for Inky\_51:

(Start: 8 @37731 has 79 MA's), (16, 37770), (Start: 17 @37794 has 1 MA's), (18, 37815), (19, 37827), (21, 37839), (24, 37860), (38, 37929), (51, 38007), (65, 38058), (67, 38076), (73, 38103), (78, 38154), (91, 38232), (106, 38301), (117, 38343), (128, 38406), (131, 38439), (132, 38442), (135, 38529),

Gene: JAWS\_51 Start: 37605, Stop: 38546, Start Num: 8

Candidate Starts for JAWS\_51:

(Start: 8 @37605 has 79 MA's), (16, 37644), (Start: 17 @37668 has 1 MA's), (18, 37689), (19, 37701), (21, 37713), (24, 37734), (38, 37803), (51, 37881), (65, 37932), (67, 37950), (73, 37977), (78, 38028), (91, 38106), (106, 38175), (117, 38217), (128, 38280), (131, 38313), (132, 38316), (135, 38403),

Gene: Jarvi\_51 Start: 37731, Stop: 38672, Start Num: 8

Candidate Starts for Jarvi\_51:

(Start: 8 @37731 has 79 MA's), (16, 37770), (Start: 17 @37794 has 1 MA's), (18, 37815), (19, 37827), (21, 37839), (24, 37860), (38, 37929), (51, 38007), (65, 38058), (67, 38076), (73, 38103), (78, 38154), (91, 38232), (106, 38301), (117, 38343), (128, 38406), (131, 38439), (132, 38442), (135, 38529),

Gene: Jayhawk\_52 Start: 37614, Stop: 38555, Start Num: 8

Candidate Starts for Jayhawk\_52:

(Start: 8 @37614 has 79 MA's), (16, 37653), (Start: 17 @37677 has 1 MA's), (18, 37698), (19, 37710), (21, 37722), (24, 37743), (38, 37812), (51, 37890), (65, 37941), (67, 37959), (73, 37986), (78, 38037), (91, 38115), (106, 38184), (117, 38226), (128, 38289), (131, 38322), (132, 38325), (135, 38412), (137, 38445),

Gene: Jeckyll\_51 Start: 37731, Stop: 38672, Start Num: 8

Candidate Starts for Jeckyll\_51:

(Start: 8 @37731 has 79 MA's), (16, 37770), (Start: 17 @37794 has 1 MA's), (18, 37815), (19, 37827), (21, 37839), (24, 37860), (38, 37929), (51, 38007), (65, 38058), (67, 38076), (73, 38103), (78, 38154), (91, 38232), (106, 38301), (117, 38343), (128, 38406), (131, 38439), (132, 38442), (135, 38529),

Gene: Joy99\_51 Start: 37660, Stop: 38601, Start Num: 8

Candidate Starts for Joy99\_51:

(Start: 8 @37660 has 79 MA's), (16, 37699), (Start: 17 @37723 has 1 MA's), (18, 37744), (19, 37756), (21, 37768), (24, 37789), (38, 37858), (51, 37936), (65, 37987), (67, 38005), (73, 38032), (78, 38083), (91, 38161), (106, 38230), (117, 38272), (128, 38335), (131, 38368), (132, 38371), (135, 38458),

Gene: Krueger\_58 Start: 38393, Stop: 39313, Start Num: 20

Candidate Starts for Krueger\_58:

(Start: 20 @38393 has 14 MA's), (22, 38405), (26, 38420), (30, 38444), (34, 38465), (51, 38531), (66, 38576), (78, 38669), (91, 38747), (98, 38765), (106, 38819), (114, 38861), (121, 38945), (123, 38975), (131, 39041), (132, 39044), (135, 39128), (137, 39161), (139, 39215),

Gene: LastHope\_54 Start: 36888, Stop: 37739, Start Num: 8

Candidate Starts for LastHope\_54:

(Start: 8 @36888 has 79 MA's), (16, 36924), (Start: 17 @36948 has 1 MA's), (18, 36969), (19, 36981), (21, 36993), (24, 37014), (66, 37128), (78, 37221), (79, 37233), (87, 37293), (91, 37299), (106, 37368), (117, 37410), (131, 37506), (132, 37509), (134, 37584), (135, 37596), (137, 37629), (138, 37668),

Gene: LaterM\_52 Start: 38493, Stop: 39431, Start Num: 8

Candidate Starts for LaterM\_52:

(Start: 8 @38493 has 79 MA's), (16, 38529), (Start: 17 @38553 has 1 MA's), (18, 38574), (21, 38598), (24, 38619), (25, 38625), (33, 38661), (38, 38688), (51, 38766), (65, 38817), (67, 38835), (78, 38913), (87, 38985), (91, 38991), (106, 39060), (117, 39102), (128, 39165), (131, 39198), (132, 39201), (135, 39288), (137, 39321),

Gene: LindNT\_50 Start: 37816, Stop: 38760, Start Num: 8

Candidate Starts for LindNT\_50:

(Start: 8 @37816 has 79 MA's), (16, 37858), (Start: 17 @37882 has 1 MA's), (18, 37903), (19, 37915), (21, 37927), (24, 37948), (33, 37990), (38, 38017), (51, 38095), (58, 38113), (65, 38146), (67, 38164), (73, 38191), (78, 38242), (87, 38314), (91, 38320), (106, 38389), (117, 38431), (128, 38494), (131, 38527), (132, 38530), (135, 38617), (137, 38650),

Gene: Llorens\_51 Start: 37731, Stop: 38672, Start Num: 8

Candidate Starts for Llorens\_51:

(Start: 8 @37731 has 79 MA's), (16, 37770), (Start: 17 @37794 has 1 MA's), (18, 37815), (19, 37827), (21, 37839), (24, 37860), (38, 37929), (51, 38007), (65, 38058), (67, 38076), (73, 38103), (78, 38154), (91, 38232), (106, 38301), (117, 38343), (128, 38406), (131, 38439), (132, 38442), (135, 38529),

Gene: Lunahalos\_51 Start: 37731, Stop: 38672, Start Num: 8

Candidate Starts for Lunahalos\_51:

(Start: 8 @37731 has 79 MA's), (16, 37770), (Start: 17 @37794 has 1 MA's), (18, 37815), (19, 37827), (21, 37839), (24, 37860), (38, 37929), (51, 38007), (65, 38058), (67, 38076), (73, 38103), (78, 38154), (91, 38232), (106, 38301), (117, 38343), (128, 38406), (131, 38439), (132, 38442), (135, 38529),

Gene: MacnCheese\_56 Start: 39191, Stop: 40129, Start Num: 11

Candidate Starts for MacnCheese\_56:

(1, 39053), (3, 39080), (4, 39116), (5, 39125), (Start: 11 @39191 has 1 MA's), (14, 39212), (16, 39224), (Start: 17 @39248 has 1 MA's), (19, 39281), (24, 39314), (28, 39335), (31, 39347), (35, 39371), (52, 39467), (58, 39482), (76, 39572), (77, 39590), (83, 39653), (85, 39668), (86, 39674), (89, 39686), (96, 39704), (106, 39752), (120, 39827), (135, 39986), (136, 40007), (137, 40019),

Gene: MarkPhew\_55 Start: 38390, Stop: 39106, Start Num: 29

Candidate Starts for MarkPhew\_55:

(Start: 29 @38390 has 3 MA's), (36, 38423), (40, 38447), (Start: 47 @38492 has 1 MA's), (55, 38513), (67, 38570), (72, 38594), (106, 38759), (131, 38870), (135, 38957), (137, 38990), (139, 39044),

Gene: MeaningOfLife\_52 Start: 38540, Stop: 39427, Start Num: 8

Candidate Starts for MeaningOfLife\_52:

(Start: 8 @38540 has 79 MA's), (10, 38558), (19, 38639), (21, 38651), (24, 38672), (38, 38741), (51, 38819), (67, 38888), (78, 38960), (82, 39005), (103, 39083), (124, 39143), (131, 39194), (132, 39197), (135, 39284), (137, 39317),

Gene: Megsy\_53 Start: 37875, Stop: 38825, Start Num: 8

Candidate Starts for Megsy\_53:

(Start: 8 @37875 has 79 MA's), (16, 37917), (Start: 17 @37941 has 1 MA's), (18, 37962), (19, 37974), (21, 37986), (24, 38007), (38, 38076), (Start: 47 @38133 has 1 MA's), (66, 38214), (78, 38307), (87, 38379), (91, 38385), (106, 38454), (117, 38496), (119, 38526), (128, 38559), (131, 38592), (132, 38595), (135, 38682), (137, 38715),

Gene: Murucutumbu\_52 Start: 38586, Stop: 39530, Start Num: 8

Candidate Starts for Murucutumbu\_52:

(Start: 8 @38586 has 79 MA's), (16, 38622), (Start: 17 @38646 has 1 MA's), (18, 38667), (21, 38691), (24, 38712), (25, 38718), (38, 38781), (42, 38802), (Start: 47 @38838 has 1 MA's), (78, 39012), (91, 39090), (106, 39159), (108, 39168), (117, 39201), (128, 39264), (132, 39300), (135, 39387), (137, 39420),

Gene: Mynx\_52 Start: 37932, Stop: 38876, Start Num: 8

Candidate Starts for Mynx\_52:

(Start: 8 @37932 has 79 MA's), (13, 37965), (16, 37974), (Start: 17 @37998 has 1 MA's), (18, 38019), (19, 38031), (21, 38043), (24, 38064), (25, 38070), (38, 38133), (51, 38211), (65, 38262), (67, 38280), (73, 38307), (78, 38358), (91, 38436), (106, 38505), (117, 38547), (128, 38610), (131, 38643), (132, 38646), (135, 38733), (137, 38766),

Gene: Nibb\_54 Start: 38079, Stop: 38801, Start Num: 29

Candidate Starts for Nibb\_54:

(Start: 29 @38079 has 3 MA's), (34, 38100), (36, 38112), (40, 38136), (Start: 47 @38181 has 1 MA's), (55, 38202), (60, 38223), (67, 38259), (106, 38448), (109, 38460), (111, 38469), (122, 38514), (131, 38559), (135, 38646), (137, 38679), (139, 38733),

Gene: Niklas\_54 Start: 38606, Stop: 39313, Start Num: 12

Candidate Starts for Niklas\_54:

(Start: 12 @38606 has 4 MA's), (15, 38621), (16, 38630), (Start: 17 @38654 has 1 MA's), (18, 38675), (19, 38687), (21, 38699), (24, 38720), (37, 38786), (78, 38879), (99, 38987), (102, 38990), (124, 39029), (131, 39080), (132, 39083), (135, 39170), (137, 39203), (138, 39242),

Gene: Padfoot\_51 Start: 37928, Stop: 38869, Start Num: 8

Candidate Starts for Padfoot\_51:

(Start: 8 @37928 has 79 MA's), (16, 37967), (Start: 17 @37991 has 1 MA's), (18, 38012), (19, 38024), (21, 38036), (24, 38057), (38, 38126), (51, 38204), (65, 38255), (67, 38273), (73, 38300), (78, 38351), (91, 38429), (106, 38498), (117, 38540), (128, 38603), (131, 38636), (132, 38639), (135, 38726),

Gene: Padpat\_53 Start: 37607, Stop: 38551, Start Num: 8

Candidate Starts for Padpat\_53:

(Start: 8 @37607 has 79 MA's), (13, 37640), (16, 37649), (Start: 17 @37673 has 1 MA's), (18, 37694), (19, 37706), (21, 37718), (24, 37739), (25, 37745), (38, 37808), (51, 37886), (65, 37937), (67, 37955), (73, 37982), (78, 38033), (91, 38111), (106, 38180), (117, 38222), (128, 38285), (131, 38318), (132, 38321), (135, 38408),

Gene: Peanam\_54 Start: 38564, Stop: 39271, Start Num: 12

Candidate Starts for Peanam\_54:

(Start: 12 @38564 has 4 MA's), (15, 38579), (16, 38588), (Start: 17 @38612 has 1 MA's), (18, 38633), (19, 38645), (21, 38657), (24, 38678), (37, 38744), (78, 38837), (99, 38945), (102, 38948), (124, 38987), (131, 39038), (132, 39041), (135, 39128), (137, 39161), (138, 39200),

Gene: Peel\_51 Start: 37733, Stop: 38674, Start Num: 8

Candidate Starts for Peel\_51:

(Start: 8 @37733 has 79 MA's), (16, 37772), (Start: 17 @37796 has 1 MA's), (18, 37817), (19, 37829), (21, 37841), (24, 37862), (38, 37931), (51, 38009), (65, 38060), (67, 38078), (73, 38105), (78, 38156), (91, 38234), (106, 38303), (117, 38345), (128, 38408), (131, 38441), (132, 38444), (135, 38531),

Gene: Phrank\_55 Start: 37386, Stop: 38312, Start Num: 20

Candidate Starts for Phrank\_55:

(7, 37263), (9, 37281), (Start: 20 @37386 has 14 MA's), (26, 37419), (30, 37443), (34, 37464), (36, 37476), (39, 37488), (41, 37509), (52, 37566), (56, 37572), (66, 37620), (74, 37662), (94, 37788), (97, 37794), (105, 37836), (110, 37854), (113, 37863), (116, 37896), (121, 37944), (123, 37974), (131, 38040), (132, 38043), (135, 38127), (137, 38160), (139, 38214),

Gene: Piatt\_51 Start: 37928, Stop: 38869, Start Num: 8

Candidate Starts for Piatt\_51:

(Start: 8 @37928 has 79 MA's), (16, 37967), (Start: 17 @37991 has 1 MA's), (18, 38012), (19, 38024), (21, 38036), (24, 38057), (38, 38126), (51, 38204), (65, 38255), (67, 38273), (73, 38300), (78, 38351), (91, 38429), (106, 38498), (117, 38540), (128, 38603), (131, 38636), (132, 38639), (135, 38726),

Gene: Pokerus\_50 Start: 37654, Stop: 38604, Start Num: 8

Candidate Starts for Pokerus\_50:

(Start: 8 @37654 has 79 MA's), (16, 37696), (Start: 17 @37720 has 1 MA's), (18, 37741), (19, 37753), (21, 37765), (24, 37786), (38, 37855), (Start: 47 @37912 has 1 MA's), (52, 37936), (66, 37993), (78, 38086), (79, 38098), (91, 38164), (106, 38233), (117, 38275), (128, 38338), (131, 38371), (132, 38374), (135, 38461),

Gene: Prithvi\_52 Start: 37816, Stop: 38760, Start Num: 8

Candidate Starts for Prithvi\_52:

(Start: 8 @37816 has 79 MA's), (16, 37858), (Start: 17 @37882 has 1 MA's), (18, 37903), (19, 37915), (21, 37927), (24, 37948), (33, 37990), (38, 38017), (51, 38095), (58, 38113), (65, 38146), (67, 38164), (73, 38191), (78, 38242), (87, 38314), (91, 38320), (106, 38389), (117, 38431), (128, 38494), (131, 38527), (132, 38530), (135, 38617), (137, 38650),

Gene: QuincyRose\_50 Start: 38046, Stop: 38933, Start Num: 8

Candidate Starts for QuincyRose\_50:

(Start: 8 @38046 has 79 MA's), (10, 38064), (16, 38088), (Start: 17 @38112 has 1 MA's), (19, 38145), (21, 38157), (24, 38178), (38, 38247), (51, 38325), (65, 38376), (67, 38394), (78, 38466), (82, 38511), (103, 38589), (124, 38649), (128, 38667), (131, 38700), (132, 38703), (135, 38790), (137, 38823),

Gene: Ramen\_52 Start: 37618, Stop: 38559, Start Num: 8

Candidate Starts for Ramen\_52:

(Start: 8 @37618 has 79 MA's), (16, 37657), (Start: 17 @37681 has 1 MA's), (18, 37702), (19, 37714), (21, 37726), (24, 37747), (38, 37816), (51, 37894), (65, 37945), (67, 37963), (73, 37990), (78, 38041), (91, 38119), (106, 38188), (117, 38230), (128, 38293), (131, 38326), (132, 38329), (135, 38416),

Gene: Rapunzel97\_52 Start: 37614, Stop: 38555, Start Num: 8

Candidate Starts for Rapunzel97\_52:

(Start: 8 @37614 has 79 MA's), (16, 37653), (Start: 17 @37677 has 1 MA's), (18, 37698), (19, 37710), (21, 37722), (24, 37743), (38, 37812), (51, 37890), (65, 37941), (67, 37959), (73, 37986), (78, 38037), (91, 38115), (106, 38184), (117, 38226), (128, 38289), (131, 38322), (132, 38325), (135, 38412), (137, 38445),

Gene: Rosmarinus\_51 Start: 37719, Stop: 38660, Start Num: 8

Candidate Starts for Rosmarinus\_51:

(Start: 8 @37719 has 79 MA's), (16, 37758), (Start: 17 @37782 has 1 MA's), (18, 37803), (19, 37815), (21, 37827), (24, 37848), (38, 37917), (51, 37995), (65, 38046), (67, 38064), (73, 38091), (78, 38142), (91, 38220), (106, 38289), (117, 38331), (128, 38394), (131, 38427), (132, 38430), (135, 38517),

Gene: SamuelLPlaqson\_52 Start: 38502, Stop: 39452, Start Num: 8

Candidate Starts for SamuelLPlaqson\_52:

(Start: 8 @38502 has 79 MA's), (16, 38544), (Start: 17 @38568 has 1 MA's), (18, 38589), (19, 38601), (21, 38613), (24, 38634), (38, 38703), (Start: 47 @38760 has 1 MA's), (52, 38784), (66, 38841), (78, 38934), (106, 39081), (108, 39090), (128, 39186), (131, 39219), (132, 39222), (135, 39309), (137, 39342),

Gene: Shaobing\_54 Start: 38582, Stop: 39289, Start Num: 12

Candidate Starts for Shaobing\_54:

(Start: 12 @38582 has 4 MA's), (15, 38597), (16, 38606), (Start: 17 @38630 has 1 MA's), (18, 38651), (19, 38663), (21, 38675), (24, 38696), (37, 38762), (78, 38855), (99, 38963), (102, 38966), (124, 39005), (131, 39056), (132, 39059), (135, 39146), (137, 39179), (138, 39218),

Gene: ShiaSurprise\_52 Start: 37928, Stop: 38869, Start Num: 8

Candidate Starts for ShiaSurprise\_52:

(Start: 8 @37928 has 79 MA's), (16, 37967), (Start: 17 @37991 has 1 MA's), (18, 38012), (19, 38024), (21, 38036), (24, 38057), (38, 38126), (51, 38204), (65, 38255), (67, 38273), (73, 38300), (78, 38351), (91, 38429), (106, 38498), (117, 38540), (128, 38603), (131, 38636), (132, 38639), (135, 38726),

Gene: SirPhilip\_54 Start: 38933, Stop: 39697, Start Num: 20

Candidate Starts for SirPhilip\_54:

(Start: 20 @38933 has 14 MA's), (26, 38963), (34, 39008), (39, 39032), (44, 39053), (80, 39245), (84, 39278), (94, 39299), (97, 39305), (119, 39392), (135, 39530), (137, 39563),

Gene: Slimphazie\_51 Start: 37614, Stop: 38555, Start Num: 8

Candidate Starts for Slimphazie\_51:

(Start: 8 @37614 has 79 MA's), (16, 37653), (Start: 17 @37677 has 1 MA's), (18, 37698), (19, 37710), (21, 37722), (24, 37743), (38, 37812), (51, 37890), (65, 37941), (67, 37959), (73, 37986), (78, 38037), (91, 38115), (106, 38184), (117, 38226), (128, 38289), (131, 38322), (132, 38325), (135, 38412), (137, 38445),

Gene: Spock\_51 Start: 37732, Stop: 38673, Start Num: 8

Candidate Starts for Spock\_51:

(Start: 8 @37732 has 79 MA's), (16, 37771), (Start: 17 @37795 has 1 MA's), (18, 37816), (19, 37828), (21, 37840), (24, 37861), (38, 37930), (51, 38008), (65, 38059), (67, 38077), (73, 38104), (78, 38155), (91, 38233), (106, 38302), (117, 38344), (128, 38407), (131, 38440), (132, 38443), (135, 38530),

Gene: Stinson\_52 Start: 38106, Stop: 39053, Start Num: 8

Candidate Starts for Stinson\_52:

(Start: 8 @38106 has 79 MA's), (16, 38142), (Start: 17 @38166 has 1 MA's), (18, 38187), (21, 38211), (24, 38232), (25, 38238), (38, 38301), (42, 38322), (43, 38331), (46, 38355), (Start: 47 @38358 has 1 MA's), (52, 38382), (66, 38439), (78, 38532), (91, 38610), (106, 38682), (108, 38691), (128, 38787), (131, 38820), (132, 38823), (135, 38910), (137, 38943),

Gene: Sulley\_51 Start: 37858, Stop: 38718, Start Num: 8

Candidate Starts for Sulley\_51:

(Start: 8 @37858 has 79 MA's), (10, 37876), (16, 37900), (Start: 17 @37924 has 1 MA's), (19, 37957), (21, 37969), (24, 37990), (38, 38059), (66, 38107), (78, 38200), (91, 38278), (106, 38347), (117, 38389), (128, 38452), (131, 38485), (132, 38488), (135, 38575),

Gene: Tachez\_51 Start: 37576, Stop: 38517, Start Num: 8

Candidate Starts for Tachez\_51:

(Start: 8 @37576 has 79 MA's), (16, 37615), (Start: 17 @37639 has 1 MA's), (18, 37660), (19, 37672), (21, 37684), (24, 37705), (38, 37774), (51, 37852), (65, 37903), (67, 37921), (73, 37948), (78, 37999), (91, 38077), (106, 38146), (117, 38188), (128, 38251), (131, 38284), (132, 38287), (135, 38374),

Gene: TaiwanKao\_53 Start: 37872, Stop: 38816, Start Num: 8

Candidate Starts for TaiwanKao\_53:

(Start: 8 @37872 has 79 MA's), (16, 37914), (Start: 17 @37938 has 1 MA's), (18, 37959), (19, 37971), (21, 37983), (24, 38004), (38, 38073), (51, 38151), (65, 38202), (67, 38220), (71, 38235), (73, 38247), (78, 38298), (87, 38370), (91, 38376), (106, 38445), (117, 38487), (119, 38517), (131, 38583), (132, 38586), (135, 38673), (137, 38706),

Gene: Tierra\_55 Start: 38197, Stop: 39123, Start Num: 20

Candidate Starts for Tierra\_55:

(9, 38092), (Start: 20 @38197 has 14 MA's), (26, 38230), (30, 38254), (34, 38275), (36, 38287), (39, 38299), (41, 38320), (52, 38377), (56, 38383), (66, 38431), (74, 38473), (94, 38599), (97, 38605), (105, 38647), (110, 38665), (113, 38674), (116, 38707), (121, 38755), (123, 38785), (131, 38851), (132, 38854), (135, 38938), (137, 38971), (139, 39025),

Gene: TiniBug\_52 Start: 38498, Stop: 39448, Start Num: 8

Candidate Starts for TiniBug\_52:

(Start: 8 @38498 has 79 MA's), (16, 38540), (Start: 17 @38564 has 1 MA's), (18, 38585), (19, 38597), (21, 38609), (24, 38630), (38, 38699), (Start: 47 @38756 has 1 MA's), (52, 38780), (66, 38837), (78, 38930), (106, 39077), (108, 39086), (128, 39182), (131, 39215), (132, 39218), (135, 39305), (137, 39338),

Gene: Tiri\_52 Start: 37906, Stop: 38847, Start Num: 8

Candidate Starts for Tiri\_52:

(Start: 8 @37906 has 79 MA's), (16, 37945), (Start: 17 @37969 has 1 MA's), (18, 37990), (19, 38002), (21, 38014), (24, 38035), (38, 38104), (51, 38182), (65, 38233), (67, 38251), (73, 38278), (78, 38329), (91, 38407), (106, 38476), (117, 38518), (128, 38581), (131, 38614), (132, 38617), (135, 38704), (137, 38737),



Gene: Topper\_51 Start: 37731, Stop: 38672, Start Num: 8

Candidate Starts for Topper\_51:

(Start: 8 @37731 has 79 MA's), (16, 37770), (Start: 17 @37794 has 1 MA's), (18, 37815), (19, 37827), (21, 37839), (24, 37860), (38, 37929), (51, 38007), (65, 38058), (67, 38076), (73, 38103), (78, 38154), (91, 38232), (106, 38301), (117, 38343), (128, 38406), (131, 38439), (132, 38442), (135, 38529),

Gene: TreyKay\_52 Start: 37816, Stop: 38760, Start Num: 8

Candidate Starts for TreyKay\_52:

(Start: 8 @37816 has 79 MA's), (16, 37858), (Start: 17 @37882 has 1 MA's), (18, 37903), (19, 37915), (21, 37927), (24, 37948), (33, 37990), (38, 38017), (51, 38095), (58, 38113), (65, 38146), (67, 38164), (73, 38191), (78, 38242), (87, 38314), (91, 38320), (106, 38389), (117, 38431), (128, 38494), (131, 38527), (132, 38530), (135, 38617), (137, 38650),

Gene: TruffulaTree\_51 Start: 37610, Stop: 38551, Start Num: 8

Candidate Starts for TruffulaTree\_51:

(Start: 8 @37610 has 79 MA's), (16, 37649), (Start: 17 @37673 has 1 MA's), (18, 37694), (19, 37706), (21, 37718), (24, 37739), (38, 37808), (51, 37886), (65, 37937), (67, 37955), (73, 37982), (78, 38033), (91, 38111), (106, 38180), (117, 38222), (128, 38285), (131, 38318), (132, 38321), (135, 38408), (137, 38441),

Gene: Twitch\_51 Start: 37733, Stop: 38674, Start Num: 8

Candidate Starts for Twitch\_51:

(Start: 8 @37733 has 79 MA's), (16, 37772), (Start: 17 @37796 has 1 MA's), (18, 37817), (19, 37829), (21, 37841), (24, 37862), (38, 37931), (51, 38009), (65, 38060), (67, 38078), (73, 38105), (78, 38156), (91, 38234), (106, 38303), (117, 38345), (128, 38408), (131, 38441), (132, 38444), (135, 38531),

Gene: Urkel\_52 Start: 38502, Stop: 39452, Start Num: 8

Candidate Starts for Urkel\_52:

(Start: 8 @38502 has 79 MA's), (16, 38544), (Start: 17 @38568 has 1 MA's), (18, 38589), (19, 38601), (21, 38613), (24, 38634), (38, 38703), (Start: 47 @38760 has 1 MA's), (52, 38784), (66, 38841), (78, 38934), (106, 39081), (108, 39090), (128, 39186), (131, 39219), (132, 39222), (135, 39309), (137, 39342),

Gene: Validus\_56 Start: 38620, Stop: 39468, Start Num: 12

Candidate Starts for Validus\_56:

(1, 38473), (2, 38482), (3, 38500), (5, 38545), (Start: 12 @38620 has 4 MA's), (15, 38635), (16, 38644), (Start: 17 @38668 has 1 MA's), (18, 38689), (21, 38713), (24, 38734), (37, 38800), (49, 38869), (51, 38881), (65, 38932), (67, 38950), (73, 38977), (78, 39028), (87, 39100), (99, 39136), (102, 39139), (131, 39232), (132, 39235), (135, 39322), (137, 39355), (138, 39394),

Gene: Veliki\_52 Start: 37650, Stop: 38537, Start Num: 8

Candidate Starts for Veliki\_52:

(Start: 8 @37650 has 79 MA's), (10, 37668), (Start: 17 @37716 has 1 MA's), (19, 37749), (21, 37761), (24, 37782), (38, 37851), (51, 37929), (65, 37980), (67, 37998), (78, 38070), (82, 38115), (103, 38193), (124, 38253), (128, 38271), (131, 38304), (132, 38307), (135, 38394), (137, 38427),

Gene: Ximenita\_58 Start: 38492, Stop: 39322, Start Num: 20

Candidate Starts for Ximenita\_58:

(6, 38366), (7, 38375), (Start: 20 @38492 has 14 MA's), (22, 38504), (34, 38564), (39, 38588), (50, 38603), (52, 38609), (66, 38654), (78, 38747), (91, 38825), (98, 38843), (106, 38897), (115, 38939), (119, 38975), (125, 39011), (128, 39032), (131, 39065), (132, 39068), (135, 39152), (137, 39185),

Gene: YoureAdopted\_50 Start: 37815, Stop: 38675, Start Num: 8

Candidate Starts for YoureAdopted\_50:

(Start: 8 @37815 has 79 MA's), (10, 37833), (16, 37857), (Start: 17 @37881 has 1 MA's), (19, 37914), (21, 37926), (24, 37947), (38, 38016), (66, 38064), (78, 38157), (91, 38235), (106, 38304), (117, 38346), (128, 38409), (131, 38442), (132, 38445), (135, 38532), (137, 38565), (138, 38604),

Gene: Yuna\_58 Start: 39426, Stop: 40163, Start Num: 29

Candidate Starts for Yuna\_58:

(Start: 29 @39426 has 3 MA's), (34, 39444), (38, 39465), (40, 39480), (44, 39513), (Start: 47 @39525 has 1 MA's), (55, 39546), (60, 39567), (63, 39579), (67, 39603), (78, 39672), (79, 39684), (106, 39789), (111, 39810), (127, 39879), (130, 39891), (135, 39993), (137, 40026),

Gene: Yunkel11\_54 Start: 37403, Stop: 38347, Start Num: 8

Candidate Starts for Yunkel11\_54:

(Start: 8 @37403 has 79 MA's), (16, 37442), (Start: 17 @37466 has 1 MA's), (18, 37487), (19, 37499), (21, 37511), (24, 37532), (33, 37574), (38, 37601), (65, 37733), (67, 37751), (78, 37829), (91, 37907), (106, 37976), (117, 38018), (131, 38114), (132, 38117), (135, 38204),

Gene: Zabiza\_47 Start: 33921, Stop: 34862, Start Num: 8

Candidate Starts for Zabiza\_47:

(Start: 8 @33921 has 79 MA's), (16, 33960), (Start: 17 @33984 has 1 MA's), (18, 34005), (19, 34017), (21, 34029), (24, 34050), (38, 34119), (51, 34197), (65, 34248), (67, 34266), (73, 34293), (78, 34344), (91, 34422), (106, 34491), (117, 34533), (128, 34596), (131, 34629), (132, 34632), (135, 34719),

Gene: Zavala\_53 Start: 37892, Stop: 38836, Start Num: 8

Candidate Starts for Zavala\_53:

(Start: 8 @37892 has 79 MA's), (13, 37925), (16, 37934), (Start: 17 @37958 has 1 MA's), (18, 37979), (19, 37991), (21, 38003), (24, 38024), (25, 38030), (38, 38093), (51, 38171), (65, 38222), (67, 38240), (73, 38267), (78, 38318), (91, 38396), (106, 38465), (117, 38507), (128, 38570), (131, 38603), (132, 38606), (135, 38693), (137, 38726),