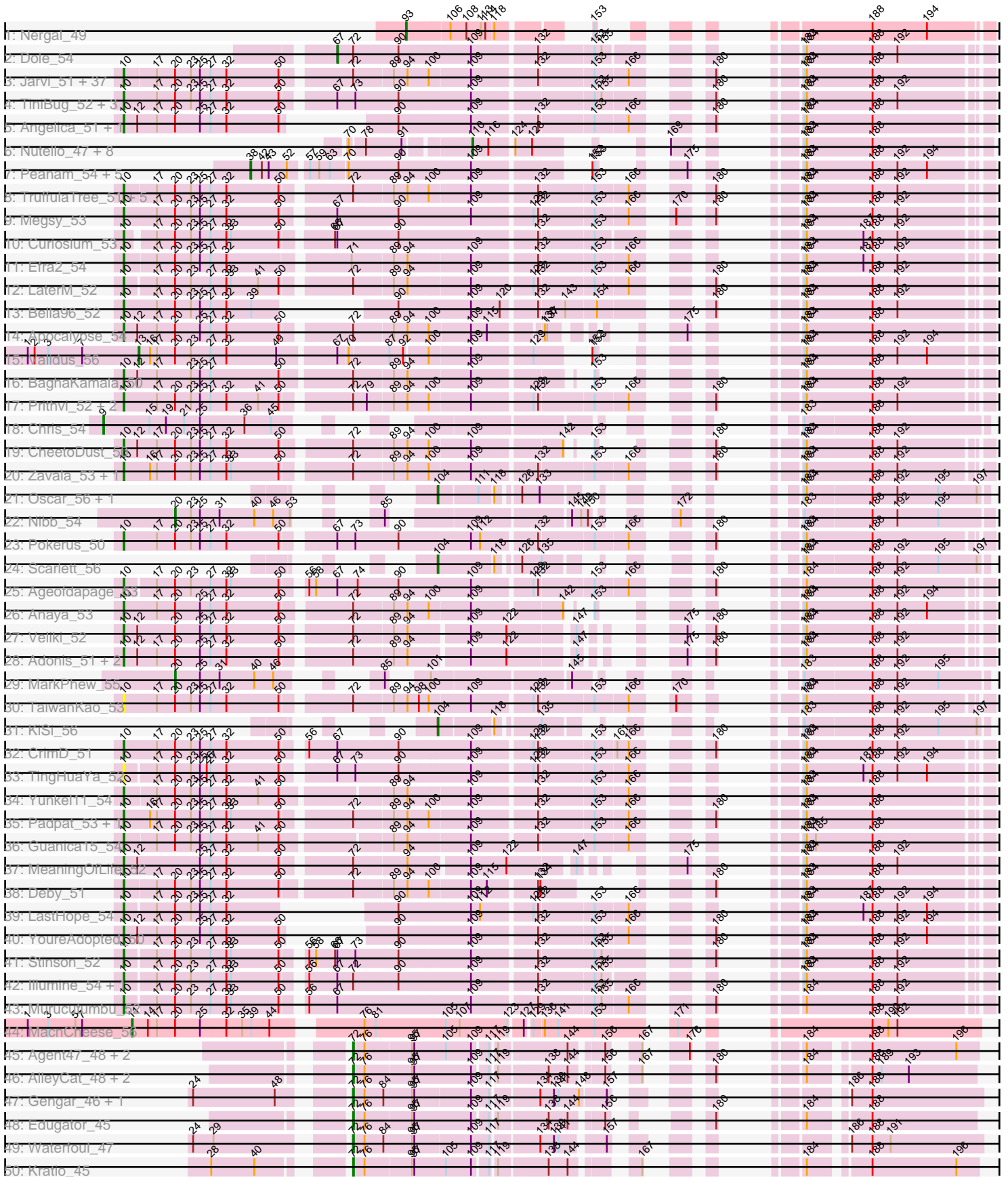
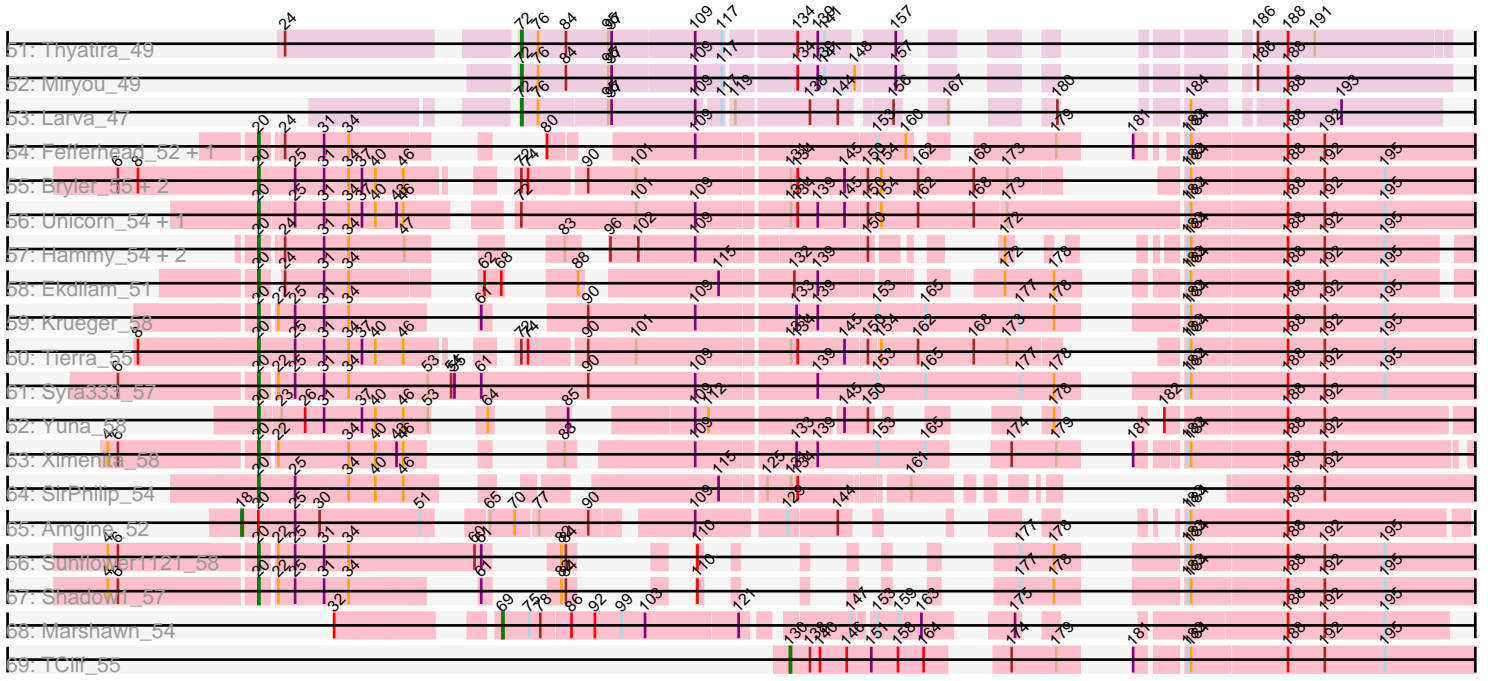


Pham 191120



Pham 191120



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 191120 Report

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

Pham number 191120 has 147 members, 6 are drafts.

Phages represented in each track:

- Track 1 : Nergal\_49
- Track 2 : Dole\_54
- Track 3 : Jarvi\_51, Peel\_51, Rosmarinus\_51, JAWS\_51, CREW\_51, Boiii\_51, Dalmuri\_51, BGIlluviae\_51, Asayake\_51, Hyperbowlee\_51, Jeckyll\_51, AlishaPH\_51, Atiba\_52, ActinUp\_51, BEEEST\_51, Zabiza\_46, Joy99\_51, Inky\_51, Lunahalos\_51, Capricorn\_51, Blizzard\_51, Belladonna\_51, Beezoo\_53, Durfee\_51, Adephagia\_51, Geraldini\_54, Tachez\_51, Homura\_51, Spock\_51, Twitch\_51, HedwigODU\_51, CaseJules\_53, Topper\_51, ShiaSurprise\_52, Piatt\_51, Padfoot\_51, Llorens\_51, Ramen\_52
- Track 4 : TiniBug\_52, DrHayes\_52, SamuelLPlaqson\_52, Urkel\_52
- Track 5 : Angelica\_51, Sulley\_51
- Track 6 : Nutello\_47, Amelie\_47, LilPharaoh\_47, Nikao\_50, SgtBeansprout\_47, Torres\_49, Binglebops\_47, Enkosi\_49, Mdavu\_48
- Track 7 : Peanam\_54, Dartin\_54, Shaobing\_54, Richo\_54, McMater\_54, Niklas\_54
- Track 8 : TruffulaTree\_51, Tiri\_52, Rapunzel97\_52, BarrelRoll\_51, Slimphazie\_51, Jayhawk\_52
- Track 9 : Megsy\_53
- Track 10 : Curiosium\_53
- Track 11 : Efra2\_54
- Track 12 : LaterM\_52
- Track 13 : Bella96\_52
- Track 14 : Apocalypse\_54
- Track 15 : Validus\_56
- Track 16 : BaghaKamala\_50
- Track 17 : Prithvi\_52, LindNT\_50, TreyKay\_52
- Track 18 : Chris\_54
- Track 19 : CheetoDust\_50
- Track 20 : Zavala\_53, Mynx\_52
- Track 21 : Oscar\_56, LeMond\_56
- Track 22 : Nibb\_54
- Track 23 : Pokerus\_50
- Track 24 : Scarlett\_56
- Track 25 : Ageofdapage\_53
- Track 26 : Anaya\_53
- Track 27 : Veliki\_52
- Track 28 : Adonis\_51, Ganymede\_52, QuincyRose\_50
- Track 29 : MarkPhew\_55

- Track 30 : TaiwanKao\_53
- Track 31 : KiSi\_56
- Track 32 : CrimD\_51
- Track 33 : TingHuaYa\_52
- Track 34 : Yunkel11\_54
- Track 35 : Padpat\_53, Emerson\_52
- Track 36 : Guanica15\_54
- Track 37 : MeaningOfLife\_52
- Track 38 : Deby\_51
- Track 39 : LastHope\_54
- Track 40 : YoureAdopted\_50
- Track 41 : Stinson\_52
- Track 42 : Illumine\_54, Devera\_56
- Track 43 : Murucutumbu\_52
- Track 44 : MacnCheese\_56
- Track 45 : Agent47\_48, Collard\_46, InvictusManeo\_46
- Track 46 : AlleyCat\_48, Dadosky\_48, Psycho\_46
- Track 47 : Gengar\_46, OkiRoe\_46
- Track 48 : Edugator\_45
- Track 49 : Waterfoul\_47
- Track 50 : Kratio\_45
- Track 51 : Thyatira\_49
- Track 52 : Miryou\_49
- Track 53 : Larva\_47
- Track 54 : Fefferhead\_52, Ellie\_50
- Track 55 : Bryler\_55, Cain\_55, Phrank\_55
- Track 56 : Unicorn\_54, PhelpsODU\_54
- Track 57 : Hammy\_54, DarthP\_54, Amohnition\_54
- Track 58 : Ekdilam\_51
- Track 59 : Krueger\_58
- Track 60 : Tierra\_55
- Track 61 : Syra333\_57
- Track 62 : Yuna\_58
- Track 63 : Ximenita\_58
- Track 64 : SirPhilip\_54
- Track 65 : Amgine\_52
- Track 66 : Sunflower1121\_58
- Track 67 : Shadow1\_57
- Track 68 : Marshawn\_54
- Track 69 : TClif\_55

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

The start number called the most often in the published annotations is 10, it was called in 83 of the 141 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, SamuelLPlaçon\_52, ShiaSurprise\_52, Slimphazie\_51, Spock\_51, Stinson\_52, Sulley\_51, Tachez\_51, TaiwanKao\_53, TingHuaYa\_52, TiniBug\_52, Tiri\_52, Topper\_51, TreyKay\_52, TruffulaTree\_51, Twitch\_51, Urkel\_52, Veliki\_52, YoureAdopted\_50, Yunkel11\_54, Zabiza\_46, Zavala\_53,

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

- 

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

- Agent47\_48, AlleyCat\_48, Amelie\_47, Amgine\_52, Amohnition\_54, Binglebops\_47, Bryler\_55, Cain\_55, Chris\_54, Collard\_46, Dadosky\_48, DarthP\_54, Dartin\_54, Dole\_54, Edugator\_45, Ekdilam\_51, Ellie\_50, Enkosi\_49, Fefferhead\_52, Gengar\_46, Hammy\_54, InvictusManeo\_46, KiSi\_56, Kratio\_45, Krueger\_58, Larva\_47, LeMond\_56, LilPharaoh\_47, MacnCheese\_56, MarkPhew\_55, Marshawn\_54, McMater\_54, Mdavu\_48, Miryou\_49, Nergal\_49, Nibb\_54, Nikao\_50, Niklas\_54, Nutello\_47, OkiRoe\_46, Oscar\_56, Peanam\_54, PhelpsODU\_54, Phrank\_55, Psycho\_46, Richo\_54, Scarlett\_56, SgtBeansprout\_47, Shadow1\_57, Shaobing\_54, SirPhilip\_54, Sunflower121\_58, Syra333\_57, TClif\_55, Thyatira\_49, Tierra\_55, Torres\_49, Unicorn\_54, Validus\_56, Waterfoul\_47, Ximenita\_58, Yuna\_58,

### Summary by start number:

Start 9:

- Found in 1 of 147 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 141
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Chris\_54 (K1),

Start 10:

- Found in 85 of 147 ( 57.8% ) of genes in pham
- Manual Annotations of this start: 83 of 141
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ActinUp\_51 (K1), Adephegia\_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), SamuelLPlaqson\_52 (K1), ShiaSurprise\_52 (K1), Slimphazie\_51 (K1), Spock\_51 (K1), Stinson\_52 (K1), Sulley\_51 (K1), Tachez\_51 (K1), TaiwanKao\_53 (K1), TingHuaYa\_52 (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\_46 (K1), Zavala\_53 (K1),

Start 11:

- Found in 1 of 147 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 141
- Called 100.0% of time when present
- Phage (with cluster) where this start called: MacnCheese\_56 (K3),

Start 13:

- Found in 1 of 147 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 141
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Validus\_56 (K1),

Start 18:

- Found in 1 of 147 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 141
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amgine\_52 (K6),

Start 20:

- Found in 107 of 147 ( 72.8% ) of genes in pham
- Manual Annotations of this start: 21 of 141
- Called 19.6% of time when present
- Phage (with cluster) where this start called: 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), MarkPhew\_55 (K1), Nibb\_54 (K1), PhelpsODU\_54 (K6), Phrank\_55 (K6), Shadow1\_57 (K6), SirPhilip\_54 (K6), Sunflower1121\_58 (K6), Syra333\_57 (K6), Tierra\_55 (K6), Unicorn\_54 (K6), Ximenita\_58 (K6), Yuna\_58 (K6),

Start 38:

- Found in 6 of 147 ( 4.1% ) of genes in pham
- Manual Annotations of this start: 3 of 141
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Dartin\_54 (K1), McMater\_54 (K1), Niklas\_54 (K1), Peanam\_54 (K1), Richo\_54 (K1), Shaobing\_54 (K1),

Start 67:

- Found in 16 of 147 ( 10.9% ) of genes in pham
- Manual Annotations of this start: 1 of 141
- Called 6.2% of time when present
- Phage (with cluster) where this start called: Dole\_54 (K1),

Start 69:

- Found in 1 of 147 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 141
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Marshawn\_54 (K6),

#### Start 72:

- Found in 86 of 147 ( 58.5% ) of genes in pham
- Manual Annotations of this start: 14 of 141
- Called 16.3% of time when present
- Phage (with cluster) where this start called: Agent47\_48 (K5), AlleyCat\_48 (K5), Collard\_46 (K5), Dadosky\_48 (K5), Edugator\_45 (K5), Gengar\_46 (K5), InvictusManeo\_46 (K5), Kratio\_45 (K5), Larva\_47 (K5), Miryou\_49 (K5), OkiRoe\_46 (K5), Psycho\_46 (K5), Thyatira\_49 (K5), Waterfoul\_47 (K5),

#### Start 93:

- Found in 1 of 147 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 141
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Nergal\_49 (AG),

#### Start 104:

- Found in 4 of 147 ( 2.7% ) of genes in pham
- Manual Annotations of this start: 4 of 141
- Called 100.0% of time when present
- Phage (with cluster) where this start called: KiSi\_56 (K1), LeMond\_56 (K1), Oscar\_56 (K1), Scarlett\_56 (K1),

#### Start 110:

- Found in 11 of 147 ( 7.5% ) of genes in pham
- Manual Annotations of this start: 8 of 141
- Called 81.8% of time when present
- Phage (with cluster) where this start called: Amelie\_47 (K1), Binglebops\_47 (K1), Enkosi\_49 (K1), LilPharaoh\_47 (K1), Mdavu\_48 (K1), Nikao\_50 (K1), Nutello\_47 (K1), SgtBeansprout\_47 (K1), Torres\_49 (K1),

#### Start 130:

- Found in 1 of 147 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 141
- Called 100.0% of time when present
- Phage (with cluster) where this start called: TClif\_55 (K6),

### Summary by clusters:

There are 5 clusters represented in this pham: AG, K3, K1, K6, K5,

Info for manual annotations of cluster AG:

- Start number 93 was manually annotated 1 time for cluster AG.

Info for manual annotations of cluster K1:

- Start number 9 was manually annotated 1 time for cluster K1.
- Start number 10 was manually annotated 83 times for cluster K1.
- Start number 13 was manually annotated 1 time for cluster K1.
- Start number 20 was manually annotated 2 times for cluster K1.

- Start number 38 was manually annotated 3 times for cluster K1.
- Start number 67 was manually annotated 1 time for cluster K1.
- Start number 104 was manually annotated 4 times for cluster K1.
- Start number 110 was manually annotated 8 times 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 K5:

- Start number 72 was manually annotated 14 times for cluster K5.

Info for manual annotations of cluster K6:

- Start number 18 was manually annotated 1 time for cluster K6.
- Start number 20 was manually annotated 19 times for cluster K6.
- Start number 69 was manually annotated 1 time for cluster K6.
- Start number 130 was manually annotated 1 time for cluster K6.

### **Gene Information:**

Gene: ActinUp\_51 Start: 37616, Stop: 38557, Start Num: 10

Candidate Starts for ActinUp\_51:

(Start: 10 @37616 has 83 MA's), (17, 37655), (Start: 20 @37679 has 21 MA's), (23, 37700), (25, 37712), (27, 37724), (32, 37745), (50, 37814), (Start: 72 @37892 has 14 MA's), (89, 37943), (94, 37961), (100, 37988), (109, 38039), (132, 38117), (153, 38186), (166, 38228), (180, 38291), (183, 38324), (184, 38327), (188, 38414),

Gene: Adephagia\_51 Start: 37613, Stop: 38554, Start Num: 10

Candidate Starts for Adephagia\_51:

(Start: 10 @37613 has 83 MA's), (17, 37652), (Start: 20 @37676 has 21 MA's), (23, 37697), (25, 37709), (27, 37721), (32, 37742), (50, 37811), (Start: 72 @37889 has 14 MA's), (89, 37940), (94, 37958), (100, 37985), (109, 38036), (132, 38114), (153, 38183), (166, 38225), (180, 38288), (183, 38321), (184, 38324), (188, 38411),

Gene: Adonis\_51 Start: 37911, Stop: 38798, Start Num: 10

Candidate Starts for Adonis\_51:

(Start: 10 @37911 has 83 MA's), (12, 37929), (17, 37953), (Start: 20 @37977 has 21 MA's), (25, 38010), (27, 38022), (32, 38043), (50, 38112), (Start: 72 @38190 has 14 MA's), (89, 38241), (94, 38259), (109, 38331), (122, 38376), (147, 38454), (175, 38514), (180, 38532), (183, 38565), (184, 38568), (188, 38655), (192, 38688),

Gene: Agent47\_48 Start: 36423, Stop: 37028, Start Num: 72

Candidate Starts for Agent47\_48:

(Start: 72 @36423 has 14 MA's), (76, 36438), (95, 36498), (97, 36501), (105, 36543), (109, 36576), (117, 36594), (119, 36600), (144, 36684), (156, 36720), (167, 36744), (176, 36771), (184, 36822), (188, 36888), (196, 36999),

Gene: Ageofdapage\_53 Start: 38596, Stop: 39540, Start Num: 10

Candidate Starts for Ageofdapage\_53:

(Start: 10 @38596 has 83 MA's), (17, 38632), (Start: 20 @38656 has 21 MA's), (23, 38677), (27, 38701), (32, 38722), (33, 38728), (50, 38791), (56, 38812), (58, 38821), (Start: 67 @38848 has 1 MA's), (74, 38875), (90, 38929), (109, 39022), (129, 39094), (132, 39100), (153, 39169), (166, 39211),



(180, 39274), (184, 39310), (188, 39397), (192, 39430),

Gene: AlishaPH\_51 Start: 37886, Stop: 38827, Start Num: 10

Candidate Starts for AlishaPH\_51:

(Start: 10 @37886 has 83 MA's), (17, 37925), (Start: 20 @37949 has 21 MA's), (23, 37970), (25, 37982), (27, 37994), (32, 38015), (50, 38084), (Start: 72 @38162 has 14 MA's), (89, 38213), (94, 38231), (100, 38258), (109, 38309), (132, 38387), (153, 38456), (166, 38498), (180, 38561), (183, 38594), (184, 38597), (188, 38684),

Gene: AlleyCat\_48 Start: 36277, Stop: 36879, Start Num: 72

Candidate Starts for AlleyCat\_48:

(Start: 72 @36277 has 14 MA's), (76, 36292), (95, 36352), (97, 36355), (109, 36430), (117, 36448), (119, 36454), (138, 36514), (144, 36538), (156, 36574), (167, 36598), (180, 36640), (184, 36676), (188, 36742), (189, 36754), (193, 36790),

Gene: Amelie\_47 Start: 37306, Stop: 37731, Start Num: 110

Candidate Starts for Amelie\_47:

(70, 37171), (78, 37189), (91, 37234), (Start: 110 @37306 has 8 MA's), (116, 37327), (124, 37354), (128, 37375), (169, 37429), (183, 37501), (184, 37504), (188, 37591),

Gene: Amgine\_52 Start: 38804, Stop: 39586, Start Num: 18

Candidate Starts for Amgine\_52:

(Start: 18 @38804 has 1 MA's), (Start: 20 @38819 has 21 MA's), (25, 38852), (30, 38873), (51, 38960), (65, 38990), (70, 39011), (77, 39029), (90, 39071), (109, 39146), (129, 39218), (144, 39260), (183, 39341), (184, 39344), (188, 39431),

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

Candidate Starts for Amohndition\_54:

(Start: 20 @38811 has 21 MA's), (24, 38826), (31, 38859), (34, 38880), (47, 38928), (83, 38988), (96, 39003), (102, 39027), (109, 39075), (150, 39213), (172, 39255), (183, 39306), (184, 39309), (188, 39393), (192, 39426), (195, 39480),

Gene: Anaya\_53 Start: 38213, Stop: 39073, Start Num: 10

Candidate Starts for Anaya\_53:

(Start: 10 @38213 has 83 MA's), (17, 38255), (Start: 20 @38279 has 21 MA's), (25, 38312), (27, 38324), (32, 38345), (50, 38414), (Start: 72 @38492 has 14 MA's), (89, 38543), (94, 38561), (100, 38588), (109, 38639), (142, 38747), (153, 38750), (183, 38840), (184, 38843), (188, 38930), (192, 38963), (194, 39002),

Gene: Angelica\_51 Start: 37843, Stop: 38703, Start Num: 10

Candidate Starts for Angelica\_51:

(Start: 10 @37843 has 83 MA's), (12, 37861), (17, 37885), (Start: 20 @37909 has 21 MA's), (25, 37942), (27, 37954), (32, 37975), (50, 38044), (90, 38092), (109, 38185), (132, 38263), (153, 38332), (166, 38374), (180, 38437), (183, 38470), (184, 38473), (188, 38560),

Gene: Apocalypse\_54 Start: 38622, Stop: 39491, Start Num: 10

Candidate Starts for Apocalypse\_54:

(Start: 10 @38622 has 83 MA's), (12, 38640), (17, 38664), (Start: 20 @38688 has 21 MA's), (25, 38721), (27, 38733), (32, 38754), (50, 38823), (Start: 72 @38901 has 14 MA's), (89, 38952), (94, 38970), (100, 38997), (109, 39048), (115, 39069), (136, 39126), (137, 39129), (175, 39207), (183, 39258), (184, 39261), (188, 39348),

Gene: Asayake\_51 Start: 37928, Stop: 38869, Start Num: 10

Candidate Starts for Asayake\_51:

(Start: 10 @37928 has 83 MA's), (17, 37967), (Start: 20 @37991 has 21 MA's), (23, 38012), (25, 38024), (27, 38036), (32, 38057), (50, 38126), (Start: 72 @38204 has 14 MA's), (89, 38255), (94, 38273), (100, 38300), (109, 38351), (132, 38429), (153, 38498), (166, 38540), (180, 38603), (183, 38636), (184, 38639), (188, 38726),

Gene: Atiba\_52 Start: 37576, Stop: 38517, Start Num: 10

Candidate Starts for Atiba\_52:

(Start: 10 @37576 has 83 MA's), (17, 37615), (Start: 20 @37639 has 21 MA's), (23, 37660), (25, 37672), (27, 37684), (32, 37705), (50, 37774), (Start: 72 @37852 has 14 MA's), (89, 37903), (94, 37921), (100, 37948), (109, 37999), (132, 38077), (153, 38146), (166, 38188), (180, 38251), (183, 38284), (184, 38287), (188, 38374),

Gene: BEEST\_51 Start: 37928, Stop: 38869, Start Num: 10

Candidate Starts for BEEST\_51:

(Start: 10 @37928 has 83 MA's), (17, 37967), (Start: 20 @37991 has 21 MA's), (23, 38012), (25, 38024), (27, 38036), (32, 38057), (50, 38126), (Start: 72 @38204 has 14 MA's), (89, 38255), (94, 38273), (100, 38300), (109, 38351), (132, 38429), (153, 38498), (166, 38540), (180, 38603), (183, 38636), (184, 38639), (188, 38726),

Gene: BGlluviae\_51 Start: 37731, Stop: 38672, Start Num: 10

Candidate Starts for BGlluviae\_51:

(Start: 10 @37731 has 83 MA's), (17, 37770), (Start: 20 @37794 has 21 MA's), (23, 37815), (25, 37827), (27, 37839), (32, 37860), (50, 37929), (Start: 72 @38007 has 14 MA's), (89, 38058), (94, 38076), (100, 38103), (109, 38154), (132, 38232), (153, 38301), (166, 38343), (180, 38406), (183, 38439), (184, 38442), (188, 38529),

Gene: BaghaKamala\_50 Start: 37051, Stop: 37917, Start Num: 10

Candidate Starts for BaghaKamala\_50:

(Start: 10 @37051 has 83 MA's), (12, 37069), (17, 37093), (23, 37138), (25, 37150), (27, 37162), (50, 37252), (Start: 72 @37336 has 14 MA's), (89, 37387), (94, 37405), (109, 37483), (153, 37594), (183, 37684), (184, 37687), (188, 37774),

Gene: BarrelRoll\_51 Start: 37599, Stop: 38540, Start Num: 10

Candidate Starts for BarrelRoll\_51:

(Start: 10 @37599 has 83 MA's), (17, 37638), (Start: 20 @37662 has 21 MA's), (23, 37683), (25, 37695), (27, 37707), (32, 37728), (50, 37797), (Start: 72 @37875 has 14 MA's), (89, 37926), (94, 37944), (100, 37971), (109, 38022), (132, 38100), (153, 38169), (166, 38211), (180, 38274), (183, 38307), (184, 38310), (188, 38397), (192, 38430),

Gene: Beezoo\_53 Start: 38574, Stop: 39515, Start Num: 10

Candidate Starts for Beezoo\_53:

(Start: 10 @38574 has 83 MA's), (17, 38613), (Start: 20 @38637 has 21 MA's), (23, 38658), (25, 38670), (27, 38682), (32, 38703), (50, 38772), (Start: 72 @38850 has 14 MA's), (89, 38901), (94, 38919), (100, 38946), (109, 38997), (132, 39075), (153, 39144), (166, 39186), (180, 39249), (183, 39282), (184, 39285), (188, 39372),

Gene: Bella96\_52 Start: 38440, Stop: 39297, Start Num: 10

Candidate Starts for Bella96\_52:

(Start: 10 @38440 has 83 MA's), (17, 38482), (Start: 20 @38506 has 21 MA's), (23, 38527), (25, 38539), (27, 38551), (32, 38572), (39, 38605), (90, 38686), (109, 38779), (120, 38815), (132, 38857), (143, 38890), (154, 38929), (180, 39031), (183, 39064), (184, 39067), (188, 39154), (192, 39187),

Gene: Belladonna\_51 Start: 37731, Stop: 38672, Start Num: 10

Candidate Starts for Belladonna\_51:

(Start: 10 @37731 has 83 MA's), (17, 37770), (Start: 20 @37794 has 21 MA's), (23, 37815), (25, 37827), (27, 37839), (32, 37860), (50, 37929), (Start: 72 @38007 has 14 MA's), (89, 38058), (94, 38076), (100, 38103), (109, 38154), (132, 38232), (153, 38301), (166, 38343), (180, 38406), (183, 38439), (184, 38442), (188, 38529),

Gene: Biglebops\_47 Start: 37306, Stop: 37731, Start Num: 110

Candidate Starts for Biglebops\_47:

(70, 37171), (78, 37189), (91, 37234), (Start: 110 @37306 has 8 MA's), (116, 37327), (124, 37354), (128, 37375), (169, 37429), (183, 37501), (184, 37504), (188, 37591),

Gene: Blizzard\_51 Start: 37928, Stop: 38869, Start Num: 10

Candidate Starts for Blizzard\_51:

(Start: 10 @37928 has 83 MA's), (17, 37967), (Start: 20 @37991 has 21 MA's), (23, 38012), (25, 38024), (27, 38036), (32, 38057), (50, 38126), (Start: 72 @38204 has 14 MA's), (89, 38255), (94, 38273), (100, 38300), (109, 38351), (132, 38429), (153, 38498), (166, 38540), (180, 38603), (183, 38636), (184, 38639), (188, 38726),

Gene: Boiiii\_51 Start: 37930, Stop: 38871, Start Num: 10

Candidate Starts for Boiiii\_51:

(Start: 10 @37930 has 83 MA's), (17, 37969), (Start: 20 @37993 has 21 MA's), (23, 38014), (25, 38026), (27, 38038), (32, 38059), (50, 38128), (Start: 72 @38206 has 14 MA's), (89, 38257), (94, 38275), (100, 38302), (109, 38353), (132, 38431), (153, 38500), (166, 38542), (180, 38605), (183, 38638), (184, 38641), (188, 38728),

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

Candidate Starts for Bryler\_55:

(6, 37285), (8, 37303), (Start: 20 @37408 has 21 MA's), (25, 37441), (31, 37465), (34, 37486), (37, 37498), (40, 37510), (46, 37531), (Start: 72 @37588 has 14 MA's), (74, 37594), (90, 37642), (101, 37684), (131, 37810), (134, 37816), (145, 37858), (150, 37876), (154, 37885), (162, 37918), (168, 37966), (173, 37996), (183, 38062), (184, 38065), (188, 38149), (192, 38182), (195, 38236),

Gene: CREW\_51 Start: 37731, Stop: 38672, Start Num: 10

Candidate Starts for CREW\_51:

(Start: 10 @37731 has 83 MA's), (17, 37770), (Start: 20 @37794 has 21 MA's), (23, 37815), (25, 37827), (27, 37839), (32, 37860), (50, 37929), (Start: 72 @38007 has 14 MA's), (89, 38058), (94, 38076), (100, 38103), (109, 38154), (132, 38232), (153, 38301), (166, 38343), (180, 38406), (183, 38439), (184, 38442), (188, 38529),

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

Candidate Starts for Cain\_55:

(6, 37273), (8, 37291), (Start: 20 @37396 has 21 MA's), (25, 37429), (31, 37453), (34, 37474), (37, 37486), (40, 37498), (46, 37519), (Start: 72 @37576 has 14 MA's), (74, 37582), (90, 37630), (101, 37672), (131, 37798), (134, 37804), (145, 37846), (150, 37864), (154, 37873), (162, 37906), (168, 37954), (173, 37984), (183, 38050), (184, 38053), (188, 38137), (192, 38170), (195, 38224),

Gene: Capricorn\_51 Start: 37731, Stop: 38672, Start Num: 10

Candidate Starts for Capricorn\_51:

(Start: 10 @37731 has 83 MA's), (17, 37770), (Start: 20 @37794 has 21 MA's), (23, 37815), (25, 37827), (27, 37839), (32, 37860), (50, 37929), (Start: 72 @38007 has 14 MA's), (89, 38058), (94, 38076), (100, 38103), (109, 38154), (132, 38232), (153, 38301), (166, 38343), (180, 38406), (183, 38439), (184, 38442), (188, 38529),

Gene: CaseJules\_53 Start: 37928, Stop: 38869, Start Num: 10

Candidate Starts for CaseJules\_53:

(Start: 10 @37928 has 83 MA's), (17, 37967), (Start: 20 @37991 has 21 MA's), (23, 38012), (25, 38024), (27, 38036), (32, 38057), (50, 38126), (Start: 72 @38204 has 14 MA's), (89, 38255), (94, 38273), (100, 38300), (109, 38351), (132, 38429), (153, 38498), (166, 38540), (180, 38603), (183, 38636), (184, 38639), (188, 38726),

Gene: CheetoDust\_50 Start: 37100, Stop: 37960, Start Num: 10

Candidate Starts for CheetoDust\_50:

(Start: 10 @37100 has 83 MA's), (12, 37118), (17, 37142), (Start: 20 @37166 has 21 MA's), (23, 37187), (25, 37199), (27, 37211), (32, 37232), (50, 37301), (Start: 72 @37379 has 14 MA's), (89, 37430), (94, 37448), (100, 37475), (109, 37526), (142, 37634), (153, 37637), (180, 37694), (183, 37727), (184, 37730), (188, 37817), (192, 37850),

Gene: Chris\_54 Start: 38558, Stop: 39373, Start Num: 9

Candidate Starts for Chris\_54:

(Start: 9 @38558 has 1 MA's), (15, 38618), (19, 38639), (21, 38663), (25, 38684), (36, 38741), (45, 38774), (183, 39137), (188, 39224),

Gene: Collard\_46 Start: 36384, Stop: 36989, Start Num: 72

Candidate Starts for Collard\_46:

(Start: 72 @36384 has 14 MA's), (76, 36399), (95, 36459), (97, 36462), (105, 36504), (109, 36537), (117, 36555), (119, 36561), (144, 36645), (156, 36681), (167, 36705), (176, 36732), (184, 36783), (188, 36849), (196, 36960),

Gene: CrimD\_51 Start: 37837, Stop: 38787, Start Num: 10

Candidate Starts for CrimD\_51:

(Start: 10 @37837 has 83 MA's), (17, 37879), (Start: 20 @37903 has 21 MA's), (23, 37924), (25, 37936), (27, 37948), (32, 37969), (50, 38038), (56, 38059), (Start: 67 @38095 has 1 MA's), (90, 38176), (109, 38269), (129, 38341), (132, 38347), (153, 38416), (161, 38443), (166, 38458), (180, 38521), (183, 38554), (184, 38557), (188, 38644), (192, 38677),

Gene: Curiosium\_53 Start: 36518, Stop: 37456, Start Num: 10

Candidate Starts for Curiosium\_53:

(Start: 10 @36518 has 83 MA's), (17, 36548), (Start: 20 @36572 has 21 MA's), (23, 36593), (25, 36605), (27, 36617), (32, 36638), (33, 36644), (50, 36707), (66, 36764), (Start: 67 @36767 has 1 MA's), (90, 36848), (132, 37019), (153, 37088), (183, 37223), (184, 37226), (187, 37301), (188, 37313), (192, 37346),

Gene: Dadosky\_48 Start: 36279, Stop: 36881, Start Num: 72

Candidate Starts for Dadosky\_48:

(Start: 72 @36279 has 14 MA's), (76, 36294), (95, 36354), (97, 36357), (109, 36432), (117, 36450), (119, 36456), (138, 36516), (144, 36540), (156, 36576), (167, 36600), (180, 36642), (184, 36678), (188, 36744), (189, 36756), (193, 36792),

Gene: Dalmuri\_51 Start: 37731, Stop: 38672, Start Num: 10

Candidate Starts for Dalmuri\_51:

(Start: 10 @37731 has 83 MA's), (17, 37770), (Start: 20 @37794 has 21 MA's), (23, 37815), (25, 37827), (27, 37839), (32, 37860), (50, 37929), (Start: 72 @38007 has 14 MA's), (89, 38058), (94, 38076), (100, 38103), (109, 38154), (132, 38232), (153, 38301), (166, 38343), (180, 38406), (183, 38439), (184, 38442), (188, 38529),

Gene: DarthP\_54 Start: 38695, Stop: 39429, Start Num: 20

Candidate Starts for DarthP\_54:

(Start: 20 @38695 has 21 MA's), (24, 38710), (31, 38743), (34, 38764), (47, 38812), (83, 38872), (96, 38887), (102, 38911), (109, 38959), (150, 39097), (172, 39139), (183, 39190), (184, 39193), (188, 39277), (192, 39310), (195, 39364),

Gene: Dartin\_54 Start: 38545, Stop: 39252, Start Num: 38

Candidate Starts for Dartin\_54:

(Start: 38 @38545 has 3 MA's), (42, 38560), (43, 38569), (52, 38593), (57, 38614), (59, 38626), (63, 38638), (70, 38659), (90, 38725), (109, 38818), (152, 38926), (153, 38929), (175, 38968), (183, 39019), (184, 39022), (188, 39109), (192, 39142), (194, 39181),

Gene: Deby\_51 Start: 37859, Stop: 38731, Start Num: 10

Candidate Starts for Deby\_51:

(Start: 10 @37859 has 83 MA's), (17, 37898), (Start: 20 @37922 has 21 MA's), (23, 37943), (25, 37955), (27, 37967), (32, 37988), (50, 38057), (Start: 72 @38141 has 14 MA's), (89, 38192), (94, 38210), (100, 38237), (109, 38288), (115, 38309), (132, 38366), (134, 38369), (180, 38465), (183, 38498), (184, 38501), (188, 38588),

Gene: Devera\_56 Start: 38363, Stop: 39304, Start Num: 10

Candidate Starts for Devera\_56:

(Start: 10 @38363 has 83 MA's), (17, 38399), (Start: 20 @38423 has 21 MA's), (23, 38444), (27, 38468), (32, 38489), (33, 38495), (50, 38558), (56, 38579), (Start: 67 @38615 has 1 MA's), (Start: 72 @38636 has 14 MA's), (90, 38696), (109, 38789), (132, 38867), (153, 38936), (155, 38945), (183, 39071), (184, 39074), (188, 39161), (192, 39194),

Gene: Dole\_54 Start: 38618, Stop: 39307, Start Num: 67

Candidate Starts for Dole\_54:

(Start: 67 @38618 has 1 MA's), (Start: 72 @38639 has 14 MA's), (90, 38699), (109, 38792), (132, 38870), (153, 38939), (155, 38948), (183, 39074), (184, 39077), (188, 39164), (192, 39197),

Gene: DrHayes\_52 Start: 38502, Stop: 39452, Start Num: 10

Candidate Starts for DrHayes\_52:

(Start: 10 @38502 has 83 MA's), (17, 38544), (Start: 20 @38568 has 21 MA's), (23, 38589), (25, 38601), (27, 38613), (32, 38634), (50, 38703), (Start: 67 @38760 has 1 MA's), (73, 38784), (90, 38841), (109, 38934), (153, 39081), (155, 39090), (180, 39186), (183, 39219), (184, 39222), (188, 39309), (192, 39342),

Gene: Durfee\_51 Start: 37928, Stop: 38869, Start Num: 10

Candidate Starts for Durfee\_51:

(Start: 10 @37928 has 83 MA's), (17, 37967), (Start: 20 @37991 has 21 MA's), (23, 38012), (25, 38024), (27, 38036), (32, 38057), (50, 38126), (Start: 72 @38204 has 14 MA's), (89, 38255), (94, 38273), (100, 38300), (109, 38351), (132, 38429), (153, 38498), (166, 38540), (180, 38603), (183, 38636), (184, 38639), (188, 38726),

Gene: Edugator\_45 Start: 36704, Stop: 37297, Start Num: 72

Candidate Starts for Edugator\_45:

(Start: 72 @36704 has 14 MA's), (76, 36719), (95, 36779), (97, 36782), (109, 36857), (117, 36875), (119, 36881), (138, 36941), (144, 36965), (156, 37001), (180, 37058), (184, 37094), (188, 37160),

Gene: Efra2\_54 Start: 37447, Stop: 38388, Start Num: 10

Candidate Starts for Efra2\_54:

(Start: 10 @37447 has 83 MA's), (17, 37486), (Start: 20 @37510 has 21 MA's), (23, 37531), (25, 37543), (27, 37555), (32, 37576), (71, 37723), (89, 37774), (94, 37792), (109, 37870), (132, 37948), (153, 38017), (166, 38059), (183, 38155), (184, 38158), (187, 38233), (188, 38245), (192, 38278),

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

Candidate Starts for Ekdilam\_51:

(Start: 20 @38242 has 21 MA's), (24, 38254), (31, 38287), (34, 38308), (62, 38380), (68, 38395), (88, 38425), (115, 38527), (132, 38584), (139, 38605), (172, 38722), (178, 38764), (183, 38824), (184, 38827), (188, 38911), (192, 38944), (195, 38998),

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

Candidate Starts for Ellie\_50:

(Start: 20 @37992 has 21 MA's), (24, 38007), (31, 38040), (34, 38061), (80, 38139), (109, 38232), (153, 38379), (160, 38403), (179, 38499), (181, 38520), (183, 38550), (184, 38553), (188, 38637), (192, 38670),

Gene: Emerson\_52 Start: 37607, Stop: 38551, Start Num: 10

Candidate Starts for Emerson\_52:

(Start: 10 @37607 has 83 MA's), (16, 37640), (17, 37649), (Start: 20 @37673 has 21 MA's), (23, 37694), (25, 37706), (27, 37718), (32, 37739), (33, 37745), (50, 37808), (Start: 72 @37886 has 14 MA's), (89, 37937), (94, 37955), (100, 37982), (109, 38033), (132, 38111), (153, 38180), (166, 38222), (180, 38285), (183, 38318), (184, 38321), (188, 38408),

Gene: Enkosi\_49 Start: 39919, Stop: 40344, Start Num: 110

Candidate Starts for Enkosi\_49:

(70, 39784), (78, 39802), (91, 39847), (Start: 110 @39919 has 8 MA's), (116, 39940), (124, 39967), (128, 39988), (169, 40042), (183, 40114), (184, 40117), (188, 40204),

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

Candidate Starts for Fefferhead\_52:

(Start: 20 @37942 has 21 MA's), (24, 37957), (31, 37990), (34, 38011), (80, 38089), (109, 38182), (153, 38329), (160, 38353), (179, 38449), (181, 38470), (183, 38497), (184, 38500), (188, 38584), (192, 38617),

Gene: Ganymede\_52 Start: 38046, Stop: 38933, Start Num: 10

Candidate Starts for Ganymede\_52:

(Start: 10 @38046 has 83 MA's), (12, 38064), (17, 38088), (Start: 20 @38112 has 21 MA's), (25, 38145), (27, 38157), (32, 38178), (50, 38247), (Start: 72 @38325 has 14 MA's), (89, 38376), (94, 38394), (109, 38466), (122, 38511), (147, 38589), (175, 38649), (180, 38667), (183, 38700), (184, 38703), (188, 38790), (192, 38823),

Gene: Gengar\_46 Start: 36147, Stop: 36782, Start Num: 72

Candidate Starts for Gengar\_46:

(24, 35970), (48, 36078), (Start: 72 @36147 has 14 MA's), (76, 36162), (84, 36186), (95, 36222), (97, 36225), (109, 36297), (117, 36321), (134, 36378), (139, 36396), (141, 36402), (148, 36429), (157, 36462), (186, 36609), (188, 36636),

Gene: Geraldini\_54 Start: 38663, Stop: 39604, Start Num: 10

Candidate Starts for Geraldini\_54:

(Start: 10 @38663 has 83 MA's), (17, 38702), (Start: 20 @38726 has 21 MA's), (23, 38747), (25, 38759), (27, 38771), (32, 38792), (50, 38861), (Start: 72 @38939 has 14 MA's), (89, 38990), (94, 39008), (100, 39035), (109, 39086), (132, 39164), (153, 39233), (166, 39275), (180, 39338), (183, 39371), (184, 39374), (188, 39461),

Gene: Guanica15\_54 Start: 37404, Stop: 38348, Start Num: 10

Candidate Starts for Guanica15\_54:

(Start: 10 @37404 has 83 MA's), (17, 37443), (Start: 20 @37467 has 21 MA's), (23, 37488), (25, 37500), (27, 37512), (32, 37533), (41, 37575), (50, 37602), (89, 37734), (94, 37752), (109, 37830), (132, 37908), (153, 37977), (166, 38019), (183, 38115), (184, 38118), (185, 38130), (188, 38205),

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

Candidate Starts for Hammy\_54:

(Start: 20 @38683 has 21 MA's), (24, 38698), (31, 38731), (34, 38752), (47, 38800), (83, 38860), (96, 38875), (102, 38899), (109, 38947), (150, 39085), (172, 39127), (183, 39178), (184, 39181), (188, 39265), (192, 39298), (195, 39352),

Gene: HedwigODU\_51 Start: 37616, Stop: 38557, Start Num: 10

Candidate Starts for HedwigODU\_51:

(Start: 10 @37616 has 83 MA's), (17, 37655), (Start: 20 @37679 has 21 MA's), (23, 37700), (25, 37712), (27, 37724), (32, 37745), (50, 37814), (Start: 72 @37892 has 14 MA's), (89, 37943), (94, 37961), (100, 37988), (109, 38039), (132, 38117), (153, 38186), (166, 38228), (180, 38291), (183, 38324), (184, 38327), (188, 38414),

Gene: Homura\_51 Start: 37731, Stop: 38672, Start Num: 10

Candidate Starts for Homura\_51:

(Start: 10 @37731 has 83 MA's), (17, 37770), (Start: 20 @37794 has 21 MA's), (23, 37815), (25, 37827), (27, 37839), (32, 37860), (50, 37929), (Start: 72 @38007 has 14 MA's), (89, 38058), (94, 38076), (100, 38103), (109, 38154), (132, 38232), (153, 38301), (166, 38343), (180, 38406), (183, 38439), (184, 38442), (188, 38529),

Gene: Hyperbowlee\_51 Start: 37928, Stop: 38869, Start Num: 10

Candidate Starts for Hyperbowlee\_51:

(Start: 10 @37928 has 83 MA's), (17, 37967), (Start: 20 @37991 has 21 MA's), (23, 38012), (25, 38024), (27, 38036), (32, 38057), (50, 38126), (Start: 72 @38204 has 14 MA's), (89, 38255), (94, 38273), (100, 38300), (109, 38351), (132, 38429), (153, 38498), (166, 38540), (180, 38603), (183, 38636), (184, 38639), (188, 38726),

Gene: Illumine\_54 Start: 38365, Stop: 39306, Start Num: 10

Candidate Starts for Illumine\_54:

(Start: 10 @38365 has 83 MA's), (17, 38401), (Start: 20 @38425 has 21 MA's), (23, 38446), (27, 38470), (32, 38491), (33, 38497), (50, 38560), (56, 38581), (Start: 67 @38617 has 1 MA's), (Start: 72 @38638 has 14 MA's), (90, 38698), (109, 38791), (132, 38869), (153, 38938), (155, 38947), (183, 39073), (184, 39076), (188, 39163), (192, 39196),

Gene: Inky\_51 Start: 37731, Stop: 38672, Start Num: 10

Candidate Starts for Inky\_51:

(Start: 10 @37731 has 83 MA's), (17, 37770), (Start: 20 @37794 has 21 MA's), (23, 37815), (25, 37827), (27, 37839), (32, 37860), (50, 37929), (Start: 72 @38007 has 14 MA's), (89, 38058), (94, 38076), (100, 38103), (109, 38154), (132, 38232), (153, 38301), (166, 38343), (180, 38406), (183, 38439), (184, 38442), (188, 38529),

Gene: InvictusManeo\_46 Start: 36427, Stop: 37032, Start Num: 72

Candidate Starts for InvictusManeo\_46:

(Start: 72 @36427 has 14 MA's), (76, 36442), (95, 36502), (97, 36505), (105, 36547), (109, 36580), (117, 36598), (119, 36604), (144, 36688), (156, 36724), (167, 36748), (176, 36775), (184, 36826), (188, 36892), (196, 37003),

Gene: JAWS\_51 Start: 37605, Stop: 38546, Start Num: 10

Candidate Starts for JAWS\_51:

(Start: 10 @37605 has 83 MA's), (17, 37644), (Start: 20 @37668 has 21 MA's), (23, 37689), (25, 37701), (27, 37713), (32, 37734), (50, 37803), (Start: 72 @37881 has 14 MA's), (89, 37932), (94, 37950), (100, 37977), (109, 38028), (132, 38106), (153, 38175), (166, 38217), (180, 38280), (183, 38313), (184, 38316), (188, 38403),

Gene: Jarvi\_51 Start: 37731, Stop: 38672, Start Num: 10

Candidate Starts for Jarvi\_51:

(Start: 10 @37731 has 83 MA's), (17, 37770), (Start: 20 @37794 has 21 MA's), (23, 37815), (25, 37827), (27, 37839), (32, 37860), (50, 37929), (Start: 72 @38007 has 14 MA's), (89, 38058), (94, 38076), (100, 38103), (109, 38154), (132, 38232), (153, 38301), (166, 38343), (180, 38406), (183, 38439), (184, 38442), (188, 38529),

Gene: Jayhawk\_52 Start: 37614, Stop: 38555, Start Num: 10

Candidate Starts for Jayhawk\_52:

(Start: 10 @37614 has 83 MA's), (17, 37653), (Start: 20 @37677 has 21 MA's), (23, 37698), (25, 37710), (27, 37722), (32, 37743), (50, 37812), (Start: 72 @37890 has 14 MA's), (89, 37941), (94, 37959), (100, 37986), (109, 38037), (132, 38115), (153, 38184), (166, 38226), (180, 38289), (183, 38322), (184, 38325), (188, 38412), (192, 38445),

Gene: Jeckyll\_51 Start: 37731, Stop: 38672, Start Num: 10

Candidate Starts for Jeckyll\_51:

(Start: 10 @37731 has 83 MA's), (17, 37770), (Start: 20 @37794 has 21 MA's), (23, 37815), (25, 37827), (27, 37839), (32, 37860), (50, 37929), (Start: 72 @38007 has 14 MA's), (89, 38058), (94, 38076), (100, 38103), (109, 38154), (132, 38232), (153, 38301), (166, 38343), (180, 38406), (183, 38439), (184, 38442), (188, 38529),

Gene: Joy99\_51 Start: 37660, Stop: 38601, Start Num: 10

Candidate Starts for Joy99\_51:

(Start: 10 @37660 has 83 MA's), (17, 37699), (Start: 20 @37723 has 21 MA's), (23, 37744), (25, 37756), (27, 37768), (32, 37789), (50, 37858), (Start: 72 @37936 has 14 MA's), (89, 37987), (94, 38005), (100, 38032), (109, 38083), (132, 38161), (153, 38230), (166, 38272), (180, 38335), (183, 38368), (184, 38371), (188, 38458),

Gene: KiSi\_56 Start: 38953, Stop: 39420, Start Num: 104

Candidate Starts for KiSi\_56:

(Start: 104 @38953 has 4 MA's), (118, 39016), (135, 39061), (183, 39184), (188, 39271), (192, 39304), (195, 39358), (197, 39409),

Gene: Kratio\_45 Start: 35977, Stop: 36582, Start Num: 72

Candidate Starts for Kratio\_45:

(28, 35833), (40, 35890), (Start: 72 @35977 has 14 MA's), (76, 35992), (95, 36052), (97, 36055), (105, 36097), (109, 36130), (117, 36148), (119, 36154), (138, 36214), (144, 36238), (167, 36298), (184, 36376), (188, 36442), (196, 36553),

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

Candidate Starts for Krueger\_58:

(Start: 20 @38393 has 21 MA's), (22, 38405), (25, 38420), (31, 38444), (34, 38465), (61, 38531), (90, 38576), (109, 38669), (133, 38747), (139, 38765), (153, 38819), (165, 38861), (177, 38945), (178, 38975), (183, 39041), (184, 39044), (188, 39128), (192, 39161), (195, 39215),



Gene: Larva\_47 Start: 36146, Stop: 36748, Start Num: 72

Candidate Starts for Larva\_47:

(Start: 72 @36146 has 14 MA's), (76, 36161), (95, 36221), (97, 36224), (109, 36299), (117, 36317), (119, 36323), (138, 36383), (144, 36407), (156, 36443), (167, 36467), (180, 36509), (184, 36545), (188, 36611), (193, 36659),

Gene: LastHope\_54 Start: 36888, Stop: 37739, Start Num: 10

Candidate Starts for LastHope\_54:

(Start: 10 @36888 has 83 MA's), (17, 36924), (Start: 20 @36948 has 21 MA's), (23, 36969), (25, 36981), (27, 36993), (32, 37014), (90, 37128), (109, 37221), (112, 37233), (129, 37293), (132, 37299), (153, 37368), (166, 37410), (183, 37506), (184, 37509), (187, 37584), (188, 37596), (192, 37629), (194, 37668),

Gene: LaterM\_52 Start: 38493, Stop: 39431, Start Num: 10

Candidate Starts for LaterM\_52:

(Start: 10 @38493 has 83 MA's), (17, 38529), (Start: 20 @38553 has 21 MA's), (23, 38574), (27, 38598), (32, 38619), (33, 38625), (41, 38661), (50, 38688), (Start: 72 @38766 has 14 MA's), (89, 38817), (94, 38835), (109, 38913), (129, 38985), (132, 38991), (153, 39060), (166, 39102), (180, 39165), (183, 39198), (184, 39201), (188, 39288), (192, 39321),

Gene: LeMond\_56 Start: 38937, Stop: 39401, Start Num: 104

Candidate Starts for LeMond\_56:

(Start: 104 @38937 has 4 MA's), (111, 38982), (118, 38997), (126, 39018), (133, 39039), (183, 39165), (184, 39168), (188, 39252), (192, 39285), (195, 39339), (197, 39390),

Gene: LilPharaoh\_47 Start: 37034, Stop: 37459, Start Num: 110

Candidate Starts for LilPharaoh\_47:

(70, 36899), (78, 36917), (91, 36962), (Start: 110 @37034 has 8 MA's), (116, 37055), (124, 37082), (128, 37103), (169, 37157), (183, 37229), (184, 37232), (188, 37319),

Gene: LindNT\_50 Start: 37816, Stop: 38760, Start Num: 10

Candidate Starts for LindNT\_50:

(Start: 10 @37816 has 83 MA's), (17, 37858), (Start: 20 @37882 has 21 MA's), (23, 37903), (25, 37915), (27, 37927), (32, 37948), (41, 37990), (50, 38017), (Start: 72 @38095 has 14 MA's), (79, 38113), (89, 38146), (94, 38164), (100, 38191), (109, 38242), (129, 38314), (132, 38320), (153, 38389), (166, 38431), (180, 38494), (183, 38527), (184, 38530), (188, 38617), (192, 38650),

Gene: Llorens\_51 Start: 37731, Stop: 38672, Start Num: 10

Candidate Starts for Llorens\_51:

(Start: 10 @37731 has 83 MA's), (17, 37770), (Start: 20 @37794 has 21 MA's), (23, 37815), (25, 37827), (27, 37839), (32, 37860), (50, 37929), (Start: 72 @38007 has 14 MA's), (89, 38058), (94, 38076), (100, 38103), (109, 38154), (132, 38232), (153, 38301), (166, 38343), (180, 38406), (183, 38439), (184, 38442), (188, 38529),

Gene: Lunahalos\_51 Start: 37731, Stop: 38672, Start Num: 10

Candidate Starts for Lunahalos\_51:

(Start: 10 @37731 has 83 MA's), (17, 37770), (Start: 20 @37794 has 21 MA's), (23, 37815), (25, 37827), (27, 37839), (32, 37860), (50, 37929), (Start: 72 @38007 has 14 MA's), (89, 38058), (94, 38076), (100, 38103), (109, 38154), (132, 38232), (153, 38301), (166, 38343), (180, 38406), (183, 38439), (184, 38442), (188, 38529),

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

Candidate Starts for MacnCheese\_56:

(1, 39053), (3, 39080), (5, 39116), (7, 39125), (Start: 11 @39191 has 1 MA's), (14, 39212), (17, 39224), (Start: 20 @39248 has 21 MA's), (25, 39281), (32, 39314), (35, 39335), (39, 39347), (44, 39371), (76, 39467), (81, 39482), (105, 39572), (107, 39590), (123, 39653), (127, 39668), (129, 39674), (136, 39686), (141, 39704), (153, 39752), (171, 39827), (188, 39986), (190, 40007), (192, 40019),

Gene: MarkPhew\_55 Start: 38390, Stop: 39106, Start Num: 20

Candidate Starts for MarkPhew\_55:

(Start: 20 @38390 has 21 MA's), (25, 38423), (31, 38447), (40, 38492), (46, 38513), (85, 38570), (101, 38594), (145, 38759), (183, 38870), (188, 38957), (192, 38990), (195, 39044),

Gene: Marshawn\_54 Start: 38519, Stop: 39190, Start Num: 69

Candidate Starts for Marshawn\_54:

(32, 38411), (Start: 69 @38519 has 1 MA's), (75, 38543), (78, 38552), (86, 38576), (92, 38597), (99, 38621), (103, 38642), (121, 38723), (147, 38801), (153, 38816), (159, 38834), (163, 38852), (175, 38903), (188, 39047), (192, 39080), (195, 39134),

Gene: McMater\_54 Start: 38545, Stop: 39252, Start Num: 38

Candidate Starts for McMater\_54:

(Start: 38 @38545 has 3 MA's), (42, 38560), (43, 38569), (52, 38593), (57, 38614), (59, 38626), (63, 38638), (70, 38659), (90, 38725), (109, 38818), (152, 38926), (153, 38929), (175, 38968), (183, 39019), (184, 39022), (188, 39109), (192, 39142), (194, 39181),

Gene: Mdavu\_48 Start: 37295, Stop: 37720, Start Num: 110

Candidate Starts for Mdavu\_48:

(70, 37160), (78, 37178), (91, 37223), (Start: 110 @37295 has 8 MA's), (116, 37316), (124, 37343), (128, 37364), (169, 37418), (183, 37490), (184, 37493), (188, 37580),

Gene: MeaningOfLife\_52 Start: 38540, Stop: 39427, Start Num: 10

Candidate Starts for MeaningOfLife\_52:

(Start: 10 @38540 has 83 MA's), (12, 38558), (25, 38639), (27, 38651), (32, 38672), (50, 38741), (Start: 72 @38819 has 14 MA's), (94, 38888), (109, 38960), (122, 39005), (147, 39083), (175, 39143), (183, 39194), (184, 39197), (188, 39284), (192, 39317),

Gene: Megsy\_53 Start: 37875, Stop: 38825, Start Num: 10

Candidate Starts for Megsy\_53:

(Start: 10 @37875 has 83 MA's), (17, 37917), (Start: 20 @37941 has 21 MA's), (23, 37962), (25, 37974), (27, 37986), (32, 38007), (50, 38076), (Start: 67 @38133 has 1 MA's), (90, 38214), (109, 38307), (129, 38379), (132, 38385), (153, 38454), (166, 38496), (170, 38526), (180, 38559), (183, 38592), (184, 38595), (188, 38682), (192, 38715),

Gene: Miryou\_49 Start: 38449, Stop: 39084, Start Num: 72

Candidate Starts for Miryou\_49:

(Start: 72 @38449 has 14 MA's), (76, 38464), (84, 38488), (95, 38524), (97, 38527), (109, 38599), (117, 38623), (134, 38680), (139, 38698), (141, 38704), (148, 38731), (157, 38764), (186, 38911), (188, 38938),

Gene: Murucutumbu\_52 Start: 38586, Stop: 39530, Start Num: 10

Candidate Starts for Murucutumbu\_52:

(Start: 10 @38586 has 83 MA's), (17, 38622), (Start: 20 @38646 has 21 MA's), (23, 38667), (27, 38691), (32, 38712), (33, 38718), (50, 38781), (56, 38802), (Start: 67 @38838 has 1 MA's), (109, 39012), (132, 39090), (153, 39159), (155, 39168), (166, 39201), (180, 39264), (184, 39300), (188, 39387), (192, 39420),

Gene: Mynx\_52 Start: 37932, Stop: 38876, Start Num: 10

Candidate Starts for Mynx\_52:

(Start: 10 @37932 has 83 MA's), (16, 37965), (17, 37974), (Start: 20 @37998 has 21 MA's), (23, 38019), (25, 38031), (27, 38043), (32, 38064), (33, 38070), (50, 38133), (Start: 72 @38211 has 14 MA's), (89, 38262), (94, 38280), (100, 38307), (109, 38358), (132, 38436), (153, 38505), (166, 38547), (180, 38610), (183, 38643), (184, 38646), (188, 38733), (192, 38766),

Gene: Nergal\_49 Start: 36269, Stop: 36790, Start Num: 93

Candidate Starts for Nergal\_49:

(Start: 93 @36269 has 1 MA's), (106, 36323), (108, 36344), (113, 36362), (114, 36368), (118, 36377), (153, 36455), (188, 36641), (194, 36713),

Gene: Nibb\_54 Start: 38079, Stop: 38801, Start Num: 20

Candidate Starts for Nibb\_54:

(Start: 20 @38079 has 21 MA's), (23, 38100), (25, 38112), (31, 38136), (40, 38181), (46, 38202), (53, 38223), (85, 38259), (145, 38448), (149, 38460), (150, 38469), (172, 38514), (183, 38559), (188, 38646), (192, 38679), (195, 38733),

Gene: Nikao\_50 Start: 39919, Stop: 40344, Start Num: 110

Candidate Starts for Nikao\_50:

(70, 39784), (78, 39802), (91, 39847), (Start: 110 @39919 has 8 MA's), (116, 39940), (124, 39967), (128, 39988), (169, 40042), (183, 40114), (184, 40117), (188, 40204),

Gene: Niklas\_54 Start: 38606, Stop: 39313, Start Num: 38

Candidate Starts for Niklas\_54:

(Start: 38 @38606 has 3 MA's), (42, 38621), (43, 38630), (52, 38654), (57, 38675), (59, 38687), (63, 38699), (70, 38720), (90, 38786), (109, 38879), (152, 38987), (153, 38990), (175, 39029), (183, 39080), (184, 39083), (188, 39170), (192, 39203), (194, 39242),

Gene: Nutello\_47 Start: 37306, Stop: 37731, Start Num: 110

Candidate Starts for Nutello\_47:

(70, 37171), (78, 37189), (91, 37234), (Start: 110 @37306 has 8 MA's), (116, 37327), (124, 37354), (128, 37375), (169, 37429), (183, 37501), (184, 37504), (188, 37591),

Gene: OkiRoe\_46 Start: 36120, Stop: 36755, Start Num: 72

Candidate Starts for OkiRoe\_46:

(24, 35943), (48, 36051), (Start: 72 @36120 has 14 MA's), (76, 36135), (84, 36159), (95, 36195), (97, 36198), (109, 36270), (117, 36294), (134, 36351), (139, 36369), (141, 36375), (148, 36402), (157, 36435), (186, 36582), (188, 36609),

Gene: Oscar\_56 Start: 38839, Stop: 39306, Start Num: 104

Candidate Starts for Oscar\_56:

(Start: 104 @38839 has 4 MA's), (111, 38887), (118, 38902), (126, 38923), (133, 38944), (183, 39070), (184, 39073), (188, 39157), (192, 39190), (195, 39244), (197, 39295),

Gene: Padfoot\_51 Start: 37928, Stop: 38869, Start Num: 10

Candidate Starts for Padfoot\_51:

(Start: 10 @37928 has 83 MA's), (17, 37967), (Start: 20 @37991 has 21 MA's), (23, 38012), (25, 38024), (27, 38036), (32, 38057), (50, 38126), (Start: 72 @38204 has 14 MA's), (89, 38255), (94, 38273), (100, 38300), (109, 38351), (132, 38429), (153, 38498), (166, 38540), (180, 38603), (183, 38636), (184, 38639), (188, 38726),

Gene: Padpat\_53 Start: 37607, Stop: 38551, Start Num: 10

Candidate Starts for Padpat\_53:

(Start: 10 @37607 has 83 MA's), (16, 37640), (17, 37649), (Start: 20 @37673 has 21 MA's), (23, 37694), (25, 37706), (27, 37718), (32, 37739), (33, 37745), (50, 37808), (Start: 72 @37886 has 14 MA's), (89, 37937), (94, 37955), (100, 37982), (109, 38033), (132, 38111), (153, 38180), (166, 38222), (180, 38285), (183, 38318), (184, 38321), (188, 38408),

Gene: Peanam\_54 Start: 38564, Stop: 39271, Start Num: 38

Candidate Starts for Peanam\_54:

(Start: 38 @38564 has 3 MA's), (42, 38579), (43, 38588), (52, 38612), (57, 38633), (59, 38645), (63, 38657), (70, 38678), (90, 38744), (109, 38837), (152, 38945), (153, 38948), (175, 38987), (183, 39038), (184, 39041), (188, 39128), (192, 39161), (194, 39200),

Gene: Peel\_51 Start: 37733, Stop: 38674, Start Num: 10

Candidate Starts for Peel\_51:

(Start: 10 @37733 has 83 MA's), (17, 37772), (Start: 20 @37796 has 21 MA's), (23, 37817), (25, 37829), (27, 37841), (32, 37862), (50, 37931), (Start: 72 @38009 has 14 MA's), (89, 38060), (94, 38078), (100, 38105), (109, 38156), (132, 38234), (153, 38303), (166, 38345), (180, 38408), (183, 38441), (184, 38444), (188, 38531),

Gene: PhelpsODU\_54 Start: 37429, Stop: 38442, Start Num: 20

Candidate Starts for PhelpsODU\_54:

(Start: 20 @37429 has 21 MA's), (25, 37459), (31, 37483), (34, 37504), (37, 37516), (40, 37528), (43, 37543), (46, 37549), (Start: 72 @37621 has 14 MA's), (101, 37723), (109, 37774), (131, 37849), (134, 37855), (139, 37873), (145, 37897), (150, 37915), (154, 37924), (162, 37957), (168, 38005), (173, 38032), (183, 38188), (184, 38191), (188, 38275), (192, 38308), (195, 38362),

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

Candidate Starts for Phrank\_55:

(6, 37263), (8, 37281), (Start: 20 @37386 has 21 MA's), (25, 37419), (31, 37443), (34, 37464), (37, 37476), (40, 37488), (46, 37509), (Start: 72 @37566 has 14 MA's), (74, 37572), (90, 37620), (101, 37662), (131, 37788), (134, 37794), (145, 37836), (150, 37854), (154, 37863), (162, 37896), (168, 37944), (173, 37974), (183, 38040), (184, 38043), (188, 38127), (192, 38160), (195, 38214),

Gene: Piatt\_51 Start: 37928, Stop: 38869, Start Num: 10

Candidate Starts for Piatt\_51:

(Start: 10 @37928 has 83 MA's), (17, 37967), (Start: 20 @37991 has 21 MA's), (23, 38012), (25, 38024), (27, 38036), (32, 38057), (50, 38126), (Start: 72 @38204 has 14 MA's), (89, 38255), (94, 38273), (100, 38300), (109, 38351), (132, 38429), (153, 38498), (166, 38540), (180, 38603), (183, 38636), (184, 38639), (188, 38726),

Gene: Pokerus\_50 Start: 37654, Stop: 38604, Start Num: 10

Candidate Starts for Pokerus\_50:

(Start: 10 @37654 has 83 MA's), (17, 37696), (Start: 20 @37720 has 21 MA's), (23, 37741), (25, 37753), (27, 37765), (32, 37786), (50, 37855), (Start: 67 @37912 has 1 MA's), (73, 37936), (90, 37993), (109, 38086), (112, 38098), (132, 38164), (153, 38233), (166, 38275), (180, 38338), (183, 38371), (184, 38374), (188, 38461),

Gene: Prithvi\_52 Start: 37816, Stop: 38760, Start Num: 10

Candidate Starts for Prithvi\_52:

(Start: 10 @37816 has 83 MA's), (17, 37858), (Start: 20 @37882 has 21 MA's), (23, 37903), (25, 37915), (27, 37927), (32, 37948), (41, 37990), (50, 38017), (Start: 72 @38095 has 14 MA's), (79, 38113), (89, 38146), (94, 38164), (100, 38191), (109, 38242), (129, 38314), (132, 38320), (153,

38389), (166, 38431), (180, 38494), (183, 38527), (184, 38530), (188, 38617), (192, 38650),

Gene: Psycho\_46 Start: 36276, Stop: 36878, Start Num: 72

Candidate Starts for Psycho\_46:

(Start: 72 @36276 has 14 MA's), (76, 36291), (95, 36351), (97, 36354), (109, 36429), (117, 36447), (119, 36453), (138, 36513), (144, 36537), (156, 36573), (167, 36597), (180, 36639), (184, 36675), (188, 36741), (189, 36753), (193, 36789),

Gene: QuincyRose\_50 Start: 38046, Stop: 38933, Start Num: 10

Candidate Starts for QuincyRose\_50:

(Start: 10 @38046 has 83 MA's), (12, 38064), (17, 38088), (Start: 20 @38112 has 21 MA's), (25, 38145), (27, 38157), (32, 38178), (50, 38247), (Start: 72 @38325 has 14 MA's), (89, 38376), (94, 38394), (109, 38466), (122, 38511), (147, 38589), (175, 38649), (180, 38667), (183, 38700), (184, 38703), (188, 38790), (192, 38823),

Gene: Ramen\_52 Start: 37618, Stop: 38559, Start Num: 10

Candidate Starts for Ramen\_52:

(Start: 10 @37618 has 83 MA's), (17, 37657), (Start: 20 @37681 has 21 MA's), (23, 37702), (25, 37714), (27, 37726), (32, 37747), (50, 37816), (Start: 72 @37894 has 14 MA's), (89, 37945), (94, 37963), (100, 37990), (109, 38041), (132, 38119), (153, 38188), (166, 38230), (180, 38293), (183, 38326), (184, 38329), (188, 38416),

Gene: Rapunzel97\_52 Start: 37614, Stop: 38555, Start Num: 10

Candidate Starts for Rapunzel97\_52:

(Start: 10 @37614 has 83 MA's), (17, 37653), (Start: 20 @37677 has 21 MA's), (23, 37698), (25, 37710), (27, 37722), (32, 37743), (50, 37812), (Start: 72 @37890 has 14 MA's), (89, 37941), (94, 37959), (100, 37986), (109, 38037), (132, 38115), (153, 38184), (166, 38226), (180, 38289), (183, 38322), (184, 38325), (188, 38412), (192, 38445),

Gene: Richo\_54 Start: 38545, Stop: 39252, Start Num: 38

Candidate Starts for Richo\_54:

(Start: 38 @38545 has 3 MA's), (42, 38560), (43, 38569), (52, 38593), (57, 38614), (59, 38626), (63, 38638), (70, 38659), (90, 38725), (109, 38818), (152, 38926), (153, 38929), (175, 38968), (183, 39019), (184, 39022), (188, 39109), (192, 39142), (194, 39181),

Gene: Rosmarinus\_51 Start: 37719, Stop: 38660, Start Num: 10

Candidate Starts for Rosmarinus\_51:

(Start: 10 @37719 has 83 MA's), (17, 37758), (Start: 20 @37782 has 21 MA's), (23, 37803), (25, 37815), (27, 37827), (32, 37848), (50, 37917), (Start: 72 @37995 has 14 MA's), (89, 38046), (94, 38064), (100, 38091), (109, 38142), (132, 38220), (153, 38289), (166, 38331), (180, 38394), (183, 38427), (184, 38430), (188, 38517),

Gene: SamuelLPlaqson\_52 Start: 38502, Stop: 39452, Start Num: 10

Candidate Starts for SamuelLPlaqson\_52:

(Start: 10 @38502 has 83 MA's), (17, 38544), (Start: 20 @38568 has 21 MA's), (23, 38589), (25, 38601), (27, 38613), (32, 38634), (50, 38703), (Start: 67 @38760 has 1 MA's), (73, 38784), (90, 38841), (109, 38934), (153, 39081), (155, 39090), (180, 39186), (183, 39219), (184, 39222), (188, 39309), (192, 39342),

Gene: Scarlett\_56 Start: 38831, Stop: 39301, Start Num: 104

Candidate Starts for Scarlett\_56:

(Start: 104 @38831 has 4 MA's), (118, 38897), (126, 38918), (135, 38942), (183, 39065), (184, 39068), (188, 39152), (192, 39185), (195, 39239), (197, 39290),

Gene: SgtBeansprout\_47 Start: 37306, Stop: 37731, Start Num: 110

Candidate Starts for SgtBeansprout\_47:

(70, 37171), (78, 37189), (91, 37234), (Start: 110 @37306 has 8 MA's), (116, 37327), (124, 37354), (128, 37375), (169, 37429), (183, 37501), (184, 37504), (188, 37591),

Gene: Shadow1\_57 Start: 38538, Stop: 39143, Start Num: 20

Candidate Starts for Shadow1\_57:

(4, 38412), (6, 38421), (Start: 20 @38538 has 21 MA's), (22, 38550), (25, 38565), (31, 38589), (34, 38610), (61, 38676), (82, 38697), (84, 38700), (Start: 110 @38724 has 8 MA's), (177, 38793), (178, 38823), (183, 38889), (184, 38892), (188, 38976), (192, 39009), (195, 39063),

Gene: Shaobing\_54 Start: 38582, Stop: 39289, Start Num: 38

Candidate Starts for Shaobing\_54:

(Start: 38 @38582 has 3 MA's), (42, 38597), (43, 38606), (52, 38630), (57, 38651), (59, 38663), (63, 38675), (70, 38696), (90, 38762), (109, 38855), (152, 38963), (153, 38966), (175, 39005), (183, 39056), (184, 39059), (188, 39146), (192, 39179), (194, 39218),

Gene: ShiaSurprise\_52 Start: 37928, Stop: 38869, Start Num: 10

Candidate Starts for ShiaSurprise\_52:

(Start: 10 @37928 has 83 MA's), (17, 37967), (Start: 20 @37991 has 21 MA's), (23, 38012), (25, 38024), (27, 38036), (32, 38057), (50, 38126), (Start: 72 @38204 has 14 MA's), (89, 38255), (94, 38273), (100, 38300), (109, 38351), (132, 38429), (153, 38498), (166, 38540), (180, 38603), (183, 38636), (184, 38639), (188, 38726),

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

Candidate Starts for SirPhilip\_54:

(Start: 20 @38933 has 21 MA's), (25, 38963), (34, 39008), (40, 39032), (46, 39053), (115, 39245), (125, 39278), (131, 39299), (134, 39305), (161, 39392), (188, 39530), (192, 39563),

Gene: Slimphazie\_51 Start: 37614, Stop: 38555, Start Num: 10

Candidate Starts for Slimphazie\_51:

(Start: 10 @37614 has 83 MA's), (17, 37653), (Start: 20 @37677 has 21 MA's), (23, 37698), (25, 37710), (27, 37722), (32, 37743), (50, 37812), (Start: 72 @37890 has 14 MA's), (89, 37941), (94, 37959), (100, 37986), (109, 38037), (132, 38115), (153, 38184), (166, 38226), (180, 38289), (183, 38322), (184, 38325), (188, 38412), (192, 38445),

Gene: Spock\_51 Start: 37732, Stop: 38673, Start Num: 10

Candidate Starts for Spock\_51:

(Start: 10 @37732 has 83 MA's), (17, 37771), (Start: 20 @37795 has 21 MA's), (23, 37816), (25, 37828), (27, 37840), (32, 37861), (50, 37930), (Start: 72 @38008 has 14 MA's), (89, 38059), (94, 38077), (100, 38104), (109, 38155), (132, 38233), (153, 38302), (166, 38344), (180, 38407), (183, 38440), (184, 38443), (188, 38530),

Gene: Stinson\_52 Start: 38106, Stop: 39053, Start Num: 10

Candidate Starts for Stinson\_52:

(Start: 10 @38106 has 83 MA's), (17, 38142), (Start: 20 @38166 has 21 MA's), (23, 38187), (27, 38211), (32, 38232), (33, 38238), (50, 38301), (56, 38322), (58, 38331), (66, 38355), (Start: 67 @38358 has 1 MA's), (73, 38382), (90, 38439), (109, 38532), (132, 38610), (153, 38682), (155, 38691), (180, 38787), (183, 38820), (184, 38823), (188, 38910), (192, 38943),

Gene: Sulley\_51 Start: 37858, Stop: 38718, Start Num: 10

Candidate Starts for Sulley\_51:

(Start: 10 @37858 has 83 MA's), (12, 37876), (17, 37900), (Start: 20 @37924 has 21 MA's), (25, 37957), (27, 37969), (32, 37990), (50, 38059), (90, 38107), (109, 38200), (132, 38278), (153, 38347), (166, 38389), (180, 38452), (183, 38485), (184, 38488), (188, 38575),

Gene: Sunflower1121\_58 Start: 38639, Stop: 39289, Start Num: 20

Candidate Starts for Sunflower1121\_58:

(4, 38513), (6, 38522), (Start: 20 @38639 has 21 MA's), (22, 38651), (25, 38666), (31, 38690), (34, 38711), (60, 38816), (61, 38822), (82, 38843), (84, 38846), (Start: 110 @38870 has 8 MA's), (177, 38939), (178, 38969), (183, 39035), (184, 39038), (188, 39122), (192, 39155), (195, 39209),

Gene: Syra333\_57 Start: 38303, Stop: 39322, Start Num: 20

Candidate Starts for Syra333\_57:

(6, 38186), (Start: 20 @38303 has 21 MA's), (22, 38315), (25, 38330), (31, 38354), (34, 38375), (53, 38441), (54, 38462), (55, 38465), (61, 38489), (90, 38585), (109, 38678), (139, 38774), (153, 38828), (165, 38870), (177, 38954), (178, 38984), (183, 39050), (184, 39053), (188, 39137), (192, 39170), (195, 39224),

Gene: TClif\_55 Start: 38682, Stop: 39194, Start Num: 130

Candidate Starts for TClif\_55:

(Start: 130 @38682 has 1 MA's), (138, 38697), (140, 38706), (146, 38730), (151, 38751), (158, 38775), (164, 38796), (174, 38832), (179, 38868), (181, 38889), (183, 38925), (184, 38928), (188, 39012), (192, 39045), (195, 39099),

Gene: Tachez\_51 Start: 37576, Stop: 38517, Start Num: 10

Candidate Starts for Tachez\_51:

(Start: 10 @37576 has 83 MA's), (17, 37615), (Start: 20 @37639 has 21 MA's), (23, 37660), (25, 37672), (27, 37684), (32, 37705), (50, 37774), (Start: 72 @37852 has 14 MA's), (89, 37903), (94, 37921), (100, 37948), (109, 37999), (132, 38077), (153, 38146), (166, 38188), (180, 38251), (183, 38284), (184, 38287), (188, 38374),

Gene: TaiwanKao\_53 Start: 37872, Stop: 38816, Start Num: 10

Candidate Starts for TaiwanKao\_53:

(Start: 10 @37872 has 83 MA's), (17, 37914), (Start: 20 @37938 has 21 MA's), (23, 37959), (25, 37971), (27, 37983), (32, 38004), (50, 38073), (Start: 72 @38151 has 14 MA's), (89, 38202), (94, 38220), (98, 38235), (100, 38247), (109, 38298), (129, 38370), (132, 38376), (153, 38445), (166, 38487), (170, 38517), (183, 38583), (184, 38586), (188, 38673), (192, 38706),

Gene: Thyatira\_49 Start: 38470, Stop: 39090, Start Num: 72

Candidate Starts for Thyatira\_49:

(24, 38293), (Start: 72 @38470 has 14 MA's), (76, 38485), (84, 38509), (95, 38545), (97, 38548), (109, 38620), (117, 38644), (134, 38701), (139, 38719), (141, 38725), (157, 38776), (186, 38923), (188, 38950), (191, 38974),

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

Candidate Starts for Tierra\_55:

(8, 38092), (Start: 20 @38197 has 21 MA's), (25, 38230), (31, 38254), (34, 38275), (37, 38287), (40, 38299), (46, 38320), (Start: 72 @38377 has 14 MA's), (74, 38383), (90, 38431), (101, 38473), (131, 38599), (134, 38605), (145, 38647), (150, 38665), (154, 38674), (162, 38707), (168, 38755), (173, 38785), (183, 38851), (184, 38854), (188, 38938), (192, 38971), (195, 39025),

Gene: TingHuaYa\_52 Start: 36657, Stop: 37601, Start Num: 10

Candidate Starts for TingHuaYa\_52:

(Start: 10 @36657 has 83 MA's), (17, 36693), (Start: 20 @36717 has 21 MA's), (23, 36738), (25, 36750), (26, 36759), (27, 36762), (32, 36783), (50, 36852), (Start: 67 @36909 has 1 MA's), (73, 36933), (90, 36990), (109, 37083), (129, 37155), (132, 37161), (153, 37230), (166, 37272), (183, 37368), (184, 37371), (187, 37446), (188, 37458), (192, 37491), (194, 37530),

Gene: TiniBug\_52 Start: 38498, Stop: 39448, Start Num: 10

Candidate Starts for TiniBug\_52:

(Start: 10 @38498 has 83 MA's), (17, 38540), (Start: 20 @38564 has 21 MA's), (23, 38585), (25, 38597), (27, 38609), (32, 38630), (50, 38699), (Start: 67 @38756 has 1 MA's), (73, 38780), (90, 38837), (109, 38930), (153, 39077), (155, 39086), (180, 39182), (183, 39215), (184, 39218), (188, 39305), (192, 39338),

Gene: Tiri\_52 Start: 37906, Stop: 38847, Start Num: 10

Candidate Starts for Tiri\_52:

(Start: 10 @37906 has 83 MA's), (17, 37945), (Start: 20 @37969 has 21 MA's), (23, 37990), (25, 38002), (27, 38014), (32, 38035), (50, 38104), (Start: 72 @38182 has 14 MA's), (89, 38233), (94, 38251), (100, 38278), (109, 38329), (132, 38407), (153, 38476), (166, 38518), (180, 38581), (183, 38614), (184, 38617), (188, 38704), (192, 38737),

Gene: Topper\_51 Start: 37731, Stop: 38672, Start Num: 10

Candidate Starts for Topper\_51:

(Start: 10 @37731 has 83 MA's), (17, 37770), (Start: 20 @37794 has 21 MA's), (23, 37815), (25, 37827), (27, 37839), (32, 37860), (50, 37929), (Start: 72 @38007 has 14 MA's), (89, 38058), (94, 38076), (100, 38103), (109, 38154), (132, 38232), (153, 38301), (166, 38343), (180, 38406), (183, 38439), (184, 38442), (188, 38529),

Gene: Torres\_49 Start: 39920, Stop: 40345, Start Num: 110

Candidate Starts for Torres\_49:

(70, 39785), (78, 39803), (91, 39848), (Start: 110 @39920 has 8 MA's), (116, 39941), (124, 39968), (128, 39989), (169, 40043), (183, 40115), (184, 40118), (188, 40205),

Gene: TreyKay\_52 Start: 37816, Stop: 38760, Start Num: 10

Candidate Starts for TreyKay\_52:

(Start: 10 @37816 has 83 MA's), (17, 37858), (Start: 20 @37882 has 21 MA's), (23, 37903), (25, 37915), (27, 37927), (32, 37948), (41, 37990), (50, 38017), (Start: 72 @38095 has 14 MA's), (79, 38113), (89, 38146), (94, 38164), (100, 38191), (109, 38242), (129, 38314), (132, 38320), (153, 38389), (166, 38431), (180, 38494), (183, 38527), (184, 38530), (188, 38617), (192, 38650),

Gene: TruffulaTree\_51 Start: 37610, Stop: 38551, Start Num: 10

Candidate Starts for TruffulaTree\_51:

(Start: 10 @37610 has 83 MA's), (17, 37649), (Start: 20 @37673 has 21 MA's), (23, 37694), (25, 37706), (27, 37718), (32, 37739), (50, 37808), (Start: 72 @37886 has 14 MA's), (89, 37937), (94, 37955), (100, 37982), (109, 38033), (132, 38111), (153, 38180), (166, 38222), (180, 38285), (183, 38318), (184, 38321), (188, 38408), (192, 38441),

Gene: Twitch\_51 Start: 37733, Stop: 38674, Start Num: 10

Candidate Starts for Twitch\_51:

(Start: 10 @37733 has 83 MA's), (17, 37772), (Start: 20 @37796 has 21 MA's), (23, 37817), (25, 37829), (27, 37841), (32, 37862), (50, 37931), (Start: 72 @38009 has 14 MA's), (89, 38060), (94, 38078), (100, 38105), (109, 38156), (132, 38234), (153, 38303), (166, 38345), (180, 38408), (183, 38441), (184, 38444), (188, 38531),

Gene: Unicorn\_54 Start: 37429, Stop: 38442, Start Num: 20



Candidate Starts for Unicorn\_54:

(Start: 20 @37429 has 21 MA's), (25, 37459), (31, 37483), (34, 37504), (37, 37516), (40, 37528), (43, 37543), (46, 37549), (Start: 72 @37621 has 14 MA's), (101, 37723), (109, 37774), (131, 37849), (134, 37855), (139, 37873), (145, 37897), (150, 37915), (154, 37924), (162, 37957), (168, 38005), (173, 38032), (183, 38188), (184, 38191), (188, 38275), (192, 38308), (195, 38362),

Gene: Urkel\_52 Start: 38502, Stop: 39452, Start Num: 10

Candidate Starts for Urkel\_52:

(Start: 10 @38502 has 83 MA's), (17, 38544), (Start: 20 @38568 has 21 MA's), (23, 38589), (25, 38601), (27, 38613), (32, 38634), (50, 38703), (Start: 67 @38760 has 1 MA's), (73, 38784), (90, 38841), (109, 38934), (153, 39081), (155, 39090), (180, 39186), (183, 39219), (184, 39222), (188, 39309), (192, 39342),

Gene: Validus\_56 Start: 38620, Stop: 39468, Start Num: 13

Candidate Starts for Validus\_56:

(1, 38473), (2, 38482), (3, 38500), (7, 38545), (Start: 13 @38620 has 1 MA's), (16, 38635), (17, 38644), (Start: 20 @38668 has 21 MA's), (23, 38689), (27, 38713), (32, 38734), (49, 38800), (Start: 67 @38869 has 1 MA's), (70, 38881), (87, 38932), (92, 38950), (100, 38977), (109, 39028), (129, 39100), (152, 39136), (153, 39139), (183, 39232), (184, 39235), (188, 39322), (192, 39355), (194, 39394),

Gene: Veliki\_52 Start: 37650, Stop: 38537, Start Num: 10

Candidate Starts for Veliki\_52:

(Start: 10 @37650 has 83 MA's), (12, 37668), (Start: 20 @37716 has 21 MA's), (25, 37749), (27, 37761), (32, 37782), (50, 37851), (Start: 72 @37929 has 14 MA's), (89, 37980), (94, 37998), (109, 38070), (122, 38115), (147, 38193), (175, 38253), (180, 38271), (183, 38304), (184, 38307), (188, 38394), (192, 38427),

Gene: Waterfoul\_47 Start: 36361, Stop: 36987, Start Num: 72

Candidate Starts for Waterfoul\_47:

(24, 36184), (29, 36211), (Start: 72 @36361 has 14 MA's), (76, 36376), (84, 36400), (95, 36436), (97, 36439), (109, 36511), (117, 36535), (134, 36592), (139, 36610), (141, 36616), (157, 36667), (186, 36814), (188, 36841), (191, 36865),

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

Candidate Starts for Ximenita\_58:

(4, 38366), (6, 38375), (Start: 20 @38492 has 21 MA's), (22, 38504), (34, 38564), (40, 38588), (43, 38603), (46, 38609), (83, 38654), (109, 38747), (133, 38825), (139, 38843), (153, 38897), (165, 38939), (174, 38975), (179, 39011), (181, 39032), (183, 39065), (184, 39068), (188, 39152), (192, 39185),

Gene: YoureAdopted\_50 Start: 37815, Stop: 38675, Start Num: 10

Candidate Starts for YoureAdopted\_50:

(Start: 10 @37815 has 83 MA's), (12, 37833), (17, 37857), (Start: 20 @37881 has 21 MA's), (25, 37914), (27, 37926), (32, 37947), (50, 38016), (90, 38064), (109, 38157), (132, 38235), (153, 38304), (166, 38346), (180, 38409), (183, 38442), (184, 38445), (188, 38532), (192, 38565), (194, 38604),

Gene: Yuna\_58 Start: 39426, Stop: 40163, Start Num: 20

Candidate Starts for Yuna\_58:

(Start: 20 @39426 has 21 MA's), (23, 39444), (26, 39465), (31, 39480), (37, 39513), (40, 39525), (46, 39546), (53, 39567), (64, 39579), (85, 39603), (109, 39672), (112, 39684), (145, 39789), (150, 39810), (178, 39879), (182, 39891), (188, 39993), (192, 40026),

Gene: Yunkel11\_54 Start: 37403, Stop: 38347, Start Num: 10

Candidate Starts for Yunkel11\_54:

(Start: 10 @37403 has 83 MA's), (17, 37442), (Start: 20 @37466 has 21 MA's), (23, 37487), (25, 37499), (27, 37511), (32, 37532), (41, 37574), (50, 37601), (89, 37733), (94, 37751), (109, 37829), (132, 37907), (153, 37976), (166, 38018), (183, 38114), (184, 38117), (188, 38204),

Gene: Zabiza\_46 Start: 33921, Stop: 34862, Start Num: 10

Candidate Starts for Zabiza\_46:

(Start: 10 @33921 has 83 MA's), (17, 33960), (Start: 20 @33984 has 21 MA's), (23, 34005), (25, 34017), (27, 34029), (32, 34050), (50, 34119), (Start: 72 @34197 has 14 MA's), (89, 34248), (94, 34266), (100, 34293), (109, 34344), (132, 34422), (153, 34491), (166, 34533), (180, 34596), (183, 34629), (184, 34632), (188, 34719),

Gene: Zavala\_53 Start: 37892, Stop: 38836, Start Num: 10

Candidate Starts for Zavala\_53:

(Start: 10 @37892 has 83 MA's), (16, 37925), (17, 37934), (Start: 20 @37958 has 21 MA's), (23, 37979), (25, 37991), (27, 38003), (32, 38024), (33, 38030), (50, 38093), (Start: 72 @38171 has 14 MA's), (89, 38222), (94, 38240), (100, 38267), (109, 38318), (132, 38396), (153, 38465), (166, 38507), (180, 38570), (183, 38603), (184, 38606), (188, 38693), (192, 38726),