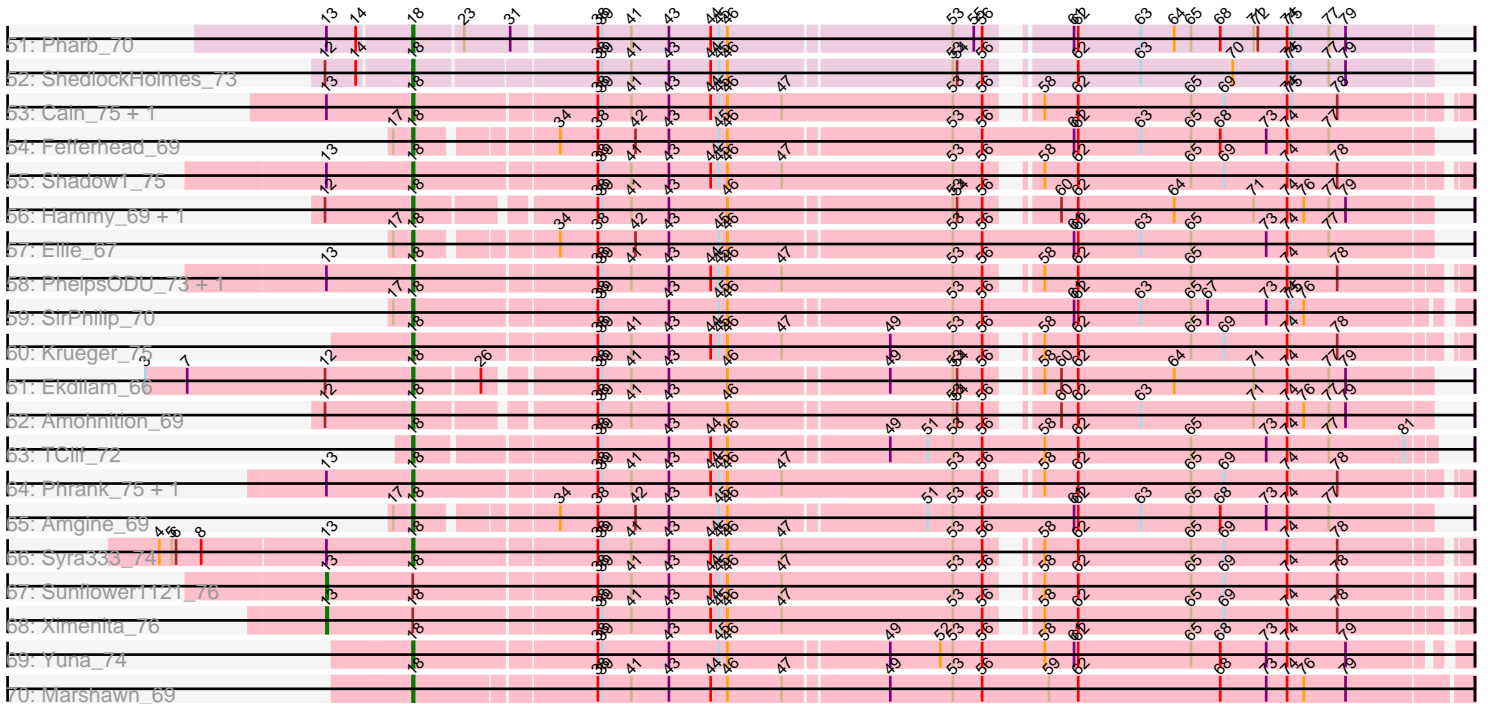


Pham 196339



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 196339 Report

This analysis was run 12/09/24 on database version 580.

Pham number 196339 has 150 members, 6 are drafts.

Phages represented in each track:

- Track 1 : Nergal\_62
- Track 2 : Rosmarinus\_71, Twitch\_71, Jeckyll\_71, Emerson\_73, Atiba\_72, Llorens\_71, CaseJules\_73, Padpat\_74, Jarvi\_71, Hyperbowlee\_70, Adephagia\_70, Blizzard\_71, Homura\_70, Boiii\_71, Durfee\_71, Piatt\_70, Spock\_71, ShiaSurprise\_72, BEEST\_71, Padfoot\_71, Joy99\_71, Inky\_71, Asayake\_71, Capricorn\_71, Dalmuri\_71, Peel\_71, Belladonna\_71, CREW\_70, AlishaPH\_70, Tachez\_71, BGIlluviae\_71
- Track 3 : Validus\_76
- Track 4 : Guanica15\_75, Yunkel11\_75, Efra2\_76
- Track 5 : Anaya\_74
- Track 6 : Nutello\_58, Nikao\_61, LilPharaoh\_59, SgtBeansprout\_59, Biglebops\_58, Enkosi\_60, Mdavu\_59
- Track 7 : YoureAdopted\_70, Beezoo\_73, QuincyRose\_68, Ganymede\_70
- Track 8 : LaterM\_70
- Track 9 : MeaningOfLife\_72, Apocalypse\_73
- Track 10 : JAWS\_70
- Track 11 : Curiosium\_75
- Track 12 : Veliki\_72, Rapunzel97\_73, BarrelRoll\_71, Ramen\_72, TruffulaTree\_72, BaghaKamala\_70, Zavala\_74, Jayhawk\_73, Slimphazie\_72, Mynx\_72
- Track 13 : Megsy\_73
- Track 14 : Devera\_78, Dole\_75, Illumine\_76
- Track 15 : Lunahalos\_71, Topper\_71
- Track 16 : Zabiza\_66, ActinUp\_71, CheetoDust\_70, HedwigODU\_70, Geraldini\_74
- Track 17 : Nibb\_73
- Track 18 : Pokerus\_71
- Track 19 : Ageofdapage\_74
- Track 20 : Shaobing\_72, Dartin\_72, Niklas\_73, Peanam\_73, McMater\_72, Richo\_72
- Track 21 : Prithvi\_73, TreyKay\_73, LindNT\_69
- Track 22 : TiniBug\_71
- Track 23 : Torres\_60, Amelie\_58
- Track 24 : DrHayes\_71, SamuelLPlaqson\_71, Urkel\_71
- Track 25 : MarkPhew\_72
- Track 26 : TaiwanKao\_72
- Track 27 : Bella96\_72
- Track 28 : CrimD\_72
- Track 29 : Deby\_70
- Track 30 : Sulley\_69

- Track 31 : Chris\_72
- Track 32 : LastHope\_75
- Track 33 : Stinson\_71
- Track 34 : Scarlett\_74, KiSi\_74
- Track 35 : Murucutumbu\_71
- Track 36 : Adonis\_70
- Track 37 : LeMond\_73, Oscar\_73
- Track 38 : Tiri\_71
- Track 39 : Angelica\_69
- Track 40 : TingHuaYa\_73
- Track 41 : Mufasa\_73, BoostSeason\_73
- Track 42 : Strobilo\_75, Marcoliusprime\_73, DismalStressor\_74
- Track 43 : Milly\_74, DismalFunk\_74, Findley\_74
- Track 44 : TM4\_72
- Track 45 : ZoeJ\_73
- Track 46 : Hurricane\_71
- Track 47 : Pixie\_70, TBond007\_67
- Track 48 : TribbleTrouble\_72
- Track 49 : Keshu\_73
- Track 50 : MacnCheese\_73
- Track 51 : Pharb\_70
- Track 52 : ShedlockHolmes\_73
- Track 53 : Cain\_75, Bryler\_75
- Track 54 : Fefferhead\_69
- Track 55 : Shadow1\_75
- Track 56 : Hammy\_69, DarthP\_69
- Track 57 : Ellie\_67
- Track 58 : PhelpsODU\_73, Unicorn\_73
- Track 59 : SirPhilip\_70
- Track 60 : Krueger\_75
- Track 61 : Ekdilam\_66
- Track 62 : Amohnition\_69
- Track 63 : TClif\_72
- Track 64 : Phrank\_75, Tierra\_75
- Track 65 : Amgine\_69
- Track 66 : Syra333\_74
- Track 67 : Sunflower1121\_76
- Track 68 : Ximenita\_76
- Track 69 : Yuna\_74
- Track 70 : Marshawn\_69

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

The start number called the most often in the published annotations is 18, it was called in 127 of the 144 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

• ActinUp\_71, Adephegia\_70, Adonis\_70, Ageofdapage\_74, AlishaPH\_70, Amgine\_69, Amohnition\_69, Anaya\_74, Apocalypse\_73, Asayake\_71, Atiba\_72, BEEST\_71, BGlluviae\_71, BaghaKamala\_70, BarrelRoll\_71, Beezoo\_73,

Bella96\_72, Belladonna\_71, Biglebops\_58, Blizzard\_71, Boiiii\_71, Bryler\_75, CREW\_70, Cain\_75, Capricorn\_71, CaseJules\_73, CheetoDust\_70, Chris\_72, CrimD\_72, Curiosium\_75, Dalmuri\_71, DarthP\_69, Dartin\_72, Deby\_70, Devera\_78, Dole\_75, DrHayes\_71, Durfee\_71, Efra2\_76, Ekdilam\_66, Ellie\_67, Emerson\_73, Enkosi\_60, Fefferhead\_69, Ganymede\_70, Geraldini\_74, Guanica15\_75, Hammy\_69, HedwigODU\_70, Homura\_70, Hurricane\_71, Hyperbowlee\_70, Illumine\_76, Inky\_71, Jarvi\_71, Jayhawk\_73, Jeckyll\_71, Joy99\_71, Keshu\_73, KiSi\_74, Krueger\_75, LastHope\_75, LaterM\_70, LeMond\_73, LilPharaoh\_59, LindNT\_69, Llorens\_71, Lunahalos\_71, MacnCheese\_73, MarkPheW\_72, Marshawn\_69, McMater\_72, Mdavu\_59, MeaningOfLife\_72, Megsy\_73, Murucutumbu\_71, Mynx\_72, Nibb\_73, Nikao\_61, Niklas\_73, Nutello\_58, Oscar\_73, Padfoot\_71, Padpat\_74, Peanam\_73, Peel\_71, Pharb\_70, PhelpsODU\_73, Phrank\_75, Piatt\_70, Pixie\_70, Prithvi\_73, QuincyRose\_68, Ramen\_72, Rapunzel97\_73, Richo\_72, Rosmarinus\_71, SamuelLPlaqson\_71, Scarlett\_74, SgtBeansprout\_59, Shadow1\_75, Shaobing\_72, ShedlockHolmes\_73, ShiaSurprise\_72, SirPhilip\_70, Slimphazie\_72, Spock\_71, Stinson\_71, Sulley\_69, Syra333\_74, TBond007\_67, TClif\_72, Tachez\_71, TaiwanKao\_72, Tierra\_75, TingHuaYa\_73, TiniBug\_71, Tiri\_71, Topper\_71, TreyKay\_73, TripleTrouble\_72, TruffulaTree\_72, Twitch\_71, Unicorn\_73, Urkel\_71, Validus\_76, Veliki\_72, YoureAdopted\_70, Yuna\_74, Yunkel11\_75, Zabiza\_66, Zavala\_74,

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

- Amelie\_58, Angelica\_69, JAWS\_70, Pokerus\_71, Sunflower1121\_76, Torres\_60, Ximenita\_76,

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

- BoostSeason\_73, DismalFunk\_74, DismalStressor\_74, Findley\_74, Marcoliusprime\_73, Milly\_74, Mufasa\_73, Nergal\_62, Strobilo\_75, TM4\_72, ZoeJ\_73,

### Summary by start number:

Start 10:

- Found in 2 of 150 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 2 of 144
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BoostSeason\_73 (K2), Mufasa\_73 (K2),

Start 13:

- Found in 22 of 150 ( 14.7% ) of genes in pham
- Manual Annotations of this start: 2 of 144
- Called 9.1% of time when present
- Phage (with cluster) where this start called: Sunflower1121\_76 (K6), Ximenita\_76 (K6),

Start 14:

- Found in 17 of 150 ( 11.3% ) of genes in pham
- Manual Annotations of this start: 1 of 144
- Called 11.8% of time when present
- Phage (with cluster) where this start called: Amelie\_58 (K1), Torres\_60 (K1),

Start 16:

- Found in 84 of 150 ( 56.0% ) of genes in pham
- Manual Annotations of this start: 3 of 144

- Called 3.6% of time when present
- Phage (with cluster) where this start called: Angelica\_69 (K1), JAWS\_70 (K1), Pokerus\_71 (K1),

#### Start 18:

- Found in 139 of 150 ( 92.7% ) of genes in pham
- Manual Annotations of this start: 127 of 144
- Called 95.0% of time when present
- Phage (with cluster) where this start called: ActinUp\_71 (K1), Adephagia\_70 (K1), Adonis\_70 (K1), Ageofdapage\_74 (K1), AlishaPH\_70 (K1), Amgine\_69 (K6), Amohntion\_69 (K6), Anaya\_74 (K1), Apocalypse\_73 (K1), Asayake\_71 (K1), Atiba\_72 (K1), BEEST\_71 (K1), BGlluviae\_71 (K1), BaghaKamala\_70 (K1), BarrelRoll\_71 (K1), Beezoo\_73 (K1), Bella96\_72 (K1), Belladonna\_71 (K1), Binglebops\_58 (K1), Blizzard\_71 (K1), Boiiii\_71 (K1), Bryler\_75 (K6), CREW\_70 (K1), Cain\_75 (K6), Capricorn\_71 (K1), CaseJules\_73 (K1), CheetoDust\_70 (K1), Chris\_72 (K1), CrimD\_72 (K1), Curiosium\_75 (K1), Dalmuri\_71 (K1), DarthP\_69 (K6), Dartin\_72 (K1), Deby\_70 (K1), Devera\_78 (K1), Dole\_75 (K1), DrHayes\_71 (K1), Durfee\_71 (K1), Efra2\_76 (K1), Ekdilam\_66 (K6), Ellie\_67 (K6), Emerson\_73 (K1), Enkosi\_60 (K1), Fefferhead\_69 (K6), Ganymede\_70 (K1), Geraldini\_74 (K1), Guanica15\_75 (K1), Hammy\_69 (K6), HedwigODU\_70 (K1), Homura\_70 (K1), Hurricane\_71 (K3), Hyperbowlee\_70 (K1), Illumine\_76 (K1), Inky\_71 (K1), Jarvi\_71 (K1), Jayhawk\_73 (K1), Jeckyll\_71 (K1), Joy99\_71 (K1), Keshu\_73 (K3), KiSi\_74 (K1), Krueger\_75 (K6), LastHope\_75 (K1), LaterM\_70 (K1), LeMond\_73 (K1), LilPharaoh\_59 (K1), LindNT\_69 (K1), Llorens\_71 (K1), Lunahalos\_71 (K1), MacnCheese\_73 (K3), MarkPhew\_72 (K1), Marshawn\_69 (K6), McMater\_72 (K1), Mdavu\_59 (K1), MeaningOfLife\_72 (K1), Megsy\_73 (K1), Murucutumbu\_71 (K1), Mynx\_72 (K1), Nibb\_73 (K1), Nikao\_61 (K1), Niklas\_73 (K1), Nutello\_58 (K1), Oscar\_73 (K1), Padfoot\_71 (K1), Padpat\_74 (K1), Peanam\_73 (K1), Peel\_71 (K1), Pharb\_70 (K3), PhelpsODU\_73 (K6), Phrank\_75 (K6), Piatt\_70 (K1), Pixie\_70 (K3), Prithvi\_73 (K1), QuincyRose\_68 (K1), Ramen\_72 (K1), Rapunzel97\_73 (K1), Richo\_72 (K1), Rosmarinus\_71 (K1), SamuelLPlaqson\_71 (K1), Scarlett\_74 (K1), SgtBeansprout\_59 (K1), Shadow1\_75 (K6), Shaobing\_72 (K1), ShedlockHolmes\_73 (K3), ShiaSurprise\_72 (K1), SirPhilip\_70 (K6), Slimphazie\_72 (K1), Spock\_71 (K1), Stinson\_71 (K1), Sulley\_69 (K1), Syra333\_74 (K6), TBond007\_67 (K3), TClif\_72 (K6), Tachez\_71 (K1), TaiwanKao\_72 (K1), Tierra\_75 (K6), TingHuaYa\_73 (K1), TiniBug\_71 (K1), Tiri\_71 (K1), Topper\_71 (K1), TreyKay\_73 (K1), TribbleTrouble\_72 (K3), TruffulaTree\_72 (K1), Twitch\_71 (K1), Unicorn\_73 (K6), Urkel\_71 (K1), Validus\_76 (K1), Veliki\_72 (K1), YoureAdopted\_70 (K1), Yuna\_74 (K6), Yunkel11\_75 (K1), Zabiza\_66 (K1), Zavala\_74 (K1),

#### Start 20:

- Found in 1 of 150 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 144
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Nergal\_62 (AG),

#### Start 29:

- Found in 10 of 150 ( 6.7% ) of genes in pham
- Manual Annotations of this start: 3 of 144
- Called 30.0% of time when present
- Phage (with cluster) where this start called: DismalStressor\_74 (K2), Marcoliusprime\_73 (K2), Strobilo\_75 (K2),

Start 30:

- Found in 10 of 150 ( 6.7% ) of genes in pham
- Manual Annotations of this start: 5 of 144
- Called 50.0% of time when present
- Phage (with cluster) where this start called: DismalFunk\_74 (K2), Findley\_74 (K2), Milly\_74 (K2), TM4\_72 (K2), ZoeJ\_73 (K2),

### **Summary by clusters:**

There are 5 clusters represented in this pham: K3, K2, K1, K6, AG,

Info for manual annotations of cluster AG:

- Start number 20 was manually annotated 1 time for cluster AG.

Info for manual annotations of cluster K1:

- Start number 14 was manually annotated 1 time for cluster K1.
- Start number 16 was manually annotated 3 times for cluster K1.
- Start number 18 was manually annotated 99 times for cluster K1.

Info for manual annotations of cluster K2:

- Start number 10 was manually annotated 2 times for cluster K2.
- Start number 29 was manually annotated 3 times for cluster K2.
- Start number 30 was manually annotated 5 times for cluster K2.

Info for manual annotations of cluster K3:

- Start number 18 was manually annotated 8 times for cluster K3.

Info for manual annotations of cluster K6:

- Start number 13 was manually annotated 2 times for cluster K6.
- Start number 18 was manually annotated 20 times for cluster K6.

### **Gene Information:**

Gene: ActinUp\_71 Start: 47382, Stop: 48080, Start Num: 18

Candidate Starts for ActinUp\_71:

(Start: 16 @47370 has 3 MA's), (Start: 18 @47382 has 127 MA's), (28, 47424), (37, 47487), (38, 47496), (43, 47547), (44, 47577), (46, 47589), (53, 47742), (56, 47763), (62, 47808), (63, 47853), (65, 47889), (73, 47943), (74, 47958), (77, 47988), (81, 48042),

Gene: Adephagia\_70 Start: 47419, Stop: 48117, Start Num: 18

Candidate Starts for Adephagia\_70:

(Start: 16 @47407 has 3 MA's), (Start: 18 @47419 has 127 MA's), (28, 47461), (37, 47524), (38, 47533), (43, 47584), (44, 47614), (46, 47626), (53, 47779), (56, 47800), (62, 47845), (63, 47890), (65, 47926), (66, 47929), (73, 47980), (74, 47995), (77, 48025), (81, 48079),

Gene: Adonis\_70 Start: 47654, Stop: 48352, Start Num: 18

Candidate Starts for Adonis\_70:

(Start: 16 @47642 has 3 MA's), (Start: 18 @47654 has 127 MA's), (28, 47696), (37, 47759), (38, 47768), (43, 47819), (44, 47849), (46, 47861), (53, 48014), (56, 48035), (60, 48068), (62, 48080), (63, 48125), (65, 48161), (66, 48164), (73, 48215), (74, 48230), (77, 48260), (81, 48314),

Gene: Ageofdapage\_74 Start: 48577, Stop: 49275, Start Num: 18

Candidate Starts for Ageofdapage\_74:

(Start: 16 @48565 has 3 MA's), (Start: 18 @48577 has 127 MA's), (27, 48616), (28, 48619), (37, 48682), (38, 48691), (43, 48742), (44, 48772), (46, 48784), (53, 48937), (56, 48958), (62, 49003), (63, 49048), (65, 49084), (73, 49138), (74, 49153), (75, 49156), (77, 49183), (81, 49237),

Gene: AlishaPH\_70 Start: 47680, Stop: 48378, Start Num: 18

Candidate Starts for AlishaPH\_70:

(Start: 16 @47668 has 3 MA's), (Start: 18 @47680 has 127 MA's), (28, 47722), (37, 47785), (38, 47794), (43, 47845), (44, 47875), (46, 47887), (53, 48040), (56, 48061), (62, 48106), (63, 48151), (65, 48187), (66, 48190), (73, 48241), (74, 48256), (77, 48286), (81, 48340),

Gene: Amelie\_58 Start: 44586, Stop: 45335, Start Num: 14

Candidate Starts for Amelie\_58:

(Start: 13 @44565 has 2 MA's), (Start: 14 @44586 has 1 MA's), (Start: 18 @44625 has 127 MA's), (37, 44742), (38, 44751), (40, 44760), (43, 44802), (44, 44832), (46, 44844), (48, 44934), (51, 44979), (53, 44997), (56, 45018), (57, 45021), (60, 45051), (61, 45060), (62, 45063), (63, 45108), (64, 45132), (65, 45144), (67, 45156), (68, 45165), (73, 45198), (74, 45213), (75, 45216), (77, 45243), (79, 45255), (82, 45318),

Gene: Amgine\_69 Start: 48229, Stop: 48930, Start Num: 18

Candidate Starts for Amgine\_69:

(17, 48217), (Start: 18 @48229 has 127 MA's), (34, 48316), (38, 48343), (42, 48370), (43, 48394), (45, 48430), (46, 48436), (51, 48571), (53, 48589), (56, 48610), (61, 48676), (62, 48679), (63, 48724), (65, 48760), (68, 48781), (73, 48814), (74, 48829), (77, 48859),

Gene: Amohnition\_69 Start: 47768, Stop: 48445, Start Num: 18

Candidate Starts for Amohnition\_69:

(12, 47708), (Start: 18 @47768 has 127 MA's), (38, 47882), (39, 47885), (41, 47906), (43, 47933), (46, 47975), (53, 48128), (54, 48131), (56, 48149), (60, 48182), (62, 48194), (63, 48239), (71, 48320), (74, 48344), (76, 48356), (77, 48374), (79, 48386),

Gene: Anaya\_74 Start: 48358, Stop: 49056, Start Num: 18

Candidate Starts for Anaya\_74:

(Start: 16 @48346 has 3 MA's), (Start: 18 @48358 has 127 MA's), (28, 48400), (37, 48463), (38, 48472), (43, 48523), (44, 48553), (46, 48565), (53, 48718), (56, 48739), (60, 48772), (62, 48784), (63, 48829), (65, 48865), (73, 48919), (74, 48934), (77, 48964),

Gene: Angelica\_69 Start: 47327, Stop: 48037, Start Num: 16

Candidate Starts for Angelica\_69:

(Start: 16 @47327 has 3 MA's), (Start: 18 @47339 has 127 MA's), (28, 47381), (37, 47444), (38, 47453), (43, 47504), (44, 47534), (46, 47546), (53, 47699), (55, 47714), (56, 47720), (62, 47765), (63, 47810), (65, 47846), (73, 47900), (74, 47915), (75, 47918), (77, 47945), (81, 47999),

Gene: Apocalypse\_73 Start: 48102, Stop: 48800, Start Num: 18

Candidate Starts for Apocalypse\_73:

(Start: 16 @48090 has 3 MA's), (Start: 18 @48102 has 127 MA's), (28, 48144), (37, 48207), (38, 48216), (43, 48267), (44, 48297), (46, 48309), (53, 48462), (56, 48483), (62, 48528), (63, 48573), (65, 48609), (73, 48663), (74, 48678), (77, 48708), (81, 48762), (83, 48786),

Gene: Asayake\_71 Start: 47734, Stop: 48432, Start Num: 18

Candidate Starts for Asayake\_71:



(Start: 16 @47722 has 3 MA's), (Start: 18 @47734 has 127 MA's), (28, 47776), (37, 47839), (38, 47848), (43, 47899), (44, 47929), (46, 47941), (53, 48094), (56, 48115), (62, 48160), (63, 48205), (65, 48241), (66, 48244), (73, 48295), (74, 48310), (77, 48340), (81, 48394),

Gene: Atiba\_72 Start: 47382, Stop: 48080, Start Num: 18

Candidate Starts for Atiba\_72:

(Start: 16 @47370 has 3 MA's), (Start: 18 @47382 has 127 MA's), (28, 47424), (37, 47487), (38, 47496), (43, 47547), (44, 47577), (46, 47589), (53, 47742), (56, 47763), (62, 47808), (63, 47853), (65, 47889), (66, 47892), (73, 47943), (74, 47958), (77, 47988), (81, 48042),

Gene: BEEST\_71 Start: 47734, Stop: 48432, Start Num: 18

Candidate Starts for BEEST\_71:

(Start: 16 @47722 has 3 MA's), (Start: 18 @47734 has 127 MA's), (28, 47776), (37, 47839), (38, 47848), (43, 47899), (44, 47929), (46, 47941), (53, 48094), (56, 48115), (62, 48160), (63, 48205), (65, 48241), (66, 48244), (73, 48295), (74, 48310), (77, 48340), (81, 48394),

Gene: BGlluviae\_71 Start: 47537, Stop: 48235, Start Num: 18

Candidate Starts for BGlluviae\_71:

(Start: 16 @47525 has 3 MA's), (Start: 18 @47537 has 127 MA's), (28, 47579), (37, 47642), (38, 47651), (43, 47702), (44, 47732), (46, 47744), (53, 47897), (56, 47918), (62, 47963), (63, 48008), (65, 48044), (66, 48047), (73, 48098), (74, 48113), (77, 48143), (81, 48197),

Gene: BaghaKamala\_70 Start: 46968, Stop: 47666, Start Num: 18

Candidate Starts for BaghaKamala\_70:

(Start: 16 @46956 has 3 MA's), (Start: 18 @46968 has 127 MA's), (28, 47010), (37, 47073), (38, 47082), (43, 47133), (44, 47163), (46, 47175), (53, 47328), (56, 47349), (62, 47394), (63, 47439), (65, 47475), (66, 47478), (73, 47529), (74, 47544), (77, 47574), (81, 47628), (83, 47652),

Gene: BarrelRoll\_71 Start: 47820, Stop: 48518, Start Num: 18

Candidate Starts for BarrelRoll\_71:

(Start: 16 @47808 has 3 MA's), (Start: 18 @47820 has 127 MA's), (28, 47862), (37, 47925), (38, 47934), (43, 47985), (44, 48015), (46, 48027), (53, 48180), (56, 48201), (62, 48246), (63, 48291), (65, 48327), (66, 48330), (73, 48381), (74, 48396), (77, 48426), (81, 48480), (83, 48504),

Gene: Beezoo\_73 Start: 48316, Stop: 49014, Start Num: 18

Candidate Starts for Beezoo\_73:

(Start: 16 @48304 has 3 MA's), (Start: 18 @48316 has 127 MA's), (28, 48358), (37, 48421), (38, 48430), (43, 48481), (44, 48511), (46, 48523), (53, 48676), (55, 48691), (56, 48697), (62, 48742), (63, 48787), (65, 48823), (66, 48826), (73, 48877), (74, 48892), (77, 48922), (81, 48976), (83, 49000),

Gene: Bella96\_72 Start: 47878, Stop: 48576, Start Num: 18

Candidate Starts for Bella96\_72:

(Start: 16 @47866 has 3 MA's), (Start: 18 @47878 has 127 MA's), (28, 47920), (37, 47983), (38, 47992), (43, 48043), (44, 48073), (46, 48085), (53, 48238), (55, 48253), (56, 48259), (62, 48304), (65, 48385), (68, 48406), (73, 48439), (74, 48454), (77, 48484), (81, 48538),

Gene: Belladonna\_71 Start: 47537, Stop: 48235, Start Num: 18

Candidate Starts for Belladonna\_71:

(Start: 16 @47525 has 3 MA's), (Start: 18 @47537 has 127 MA's), (28, 47579), (37, 47642), (38, 47651), (43, 47702), (44, 47732), (46, 47744), (53, 47897), (56, 47918), (62, 47963), (63, 48008), (65, 48044), (66, 48047), (73, 48098), (74, 48113), (77, 48143), (81, 48197),

Gene: Binglebops\_58 Start: 44625, Stop: 45335, Start Num: 18

Candidate Starts for Biglebops\_58:

(Start: 13 @44565 has 2 MA's), (Start: 14 @44586 has 1 MA's), (Start: 18 @44625 has 127 MA's), (37, 44742), (38, 44751), (40, 44760), (43, 44802), (44, 44832), (46, 44844), (48, 44934), (51, 44979), (53, 44997), (56, 45018), (57, 45021), (60, 45051), (61, 45060), (62, 45063), (63, 45108), (64, 45132), (65, 45144), (67, 45156), (68, 45165), (73, 45198), (74, 45213), (75, 45216), (77, 45243), (79, 45255), (82, 45318),

Gene: Blizzard\_71 Start: 47734, Stop: 48432, Start Num: 18

Candidate Starts for Blizzard\_71:

(Start: 16 @47722 has 3 MA's), (Start: 18 @47734 has 127 MA's), (28, 47776), (37, 47839), (38, 47848), (43, 47899), (44, 47929), (46, 47941), (53, 48094), (56, 48115), (62, 48160), (63, 48205), (65, 48241), (66, 48244), (73, 48295), (74, 48310), (77, 48340), (81, 48394),

Gene: Boiiii\_71 Start: 47736, Stop: 48434, Start Num: 18

Candidate Starts for Boiiii\_71:

(Start: 16 @47724 has 3 MA's), (Start: 18 @47736 has 127 MA's), (28, 47778), (37, 47841), (38, 47850), (43, 47901), (44, 47931), (46, 47943), (53, 48096), (56, 48117), (62, 48162), (63, 48207), (65, 48243), (66, 48246), (73, 48297), (74, 48312), (77, 48342), (81, 48396),

Gene: BoostSeason\_73 Start: 49181, Stop: 49957, Start Num: 10

Candidate Starts for BoostSeason\_73:

(Start: 10 @49181 has 2 MA's), (15, 49250), (Start: 29 @49316 has 3 MA's), (Start: 30 @49322 has 5 MA's), (32, 49340), (37, 49376), (38, 49385), (43, 49436), (44, 49466), (46, 49478), (54, 49616), (56, 49634), (60, 49667), (62, 49679), (63, 49724), (69, 49784), (73, 49814), (74, 49829), (84, 49946), (85, 49949),

Gene: Bryler\_75 Start: 47287, Stop: 48000, Start Num: 18

Candidate Starts for Bryler\_75:

(Start: 13 @47227 has 2 MA's), (Start: 18 @47287 has 127 MA's), (38, 47413), (39, 47416), (41, 47437), (43, 47464), (44, 47494), (45, 47500), (46, 47506), (47, 47545), (53, 47668), (56, 47689), (58, 47710), (62, 47734), (65, 47815), (69, 47839), (74, 47884), (75, 47887), (78, 47920),

Gene: CREW\_70 Start: 47537, Stop: 48235, Start Num: 18

Candidate Starts for CREW\_70:

(Start: 16 @47525 has 3 MA's), (Start: 18 @47537 has 127 MA's), (28, 47579), (37, 47642), (38, 47651), (43, 47702), (44, 47732), (46, 47744), (53, 47897), (56, 47918), (62, 47963), (63, 48008), (65, 48044), (66, 48047), (73, 48098), (74, 48113), (77, 48143), (81, 48197),

Gene: Cain\_75 Start: 47275, Stop: 47988, Start Num: 18

Candidate Starts for Cain\_75:

(Start: 13 @47215 has 2 MA's), (Start: 18 @47275 has 127 MA's), (38, 47401), (39, 47404), (41, 47425), (43, 47452), (44, 47482), (45, 47488), (46, 47494), (47, 47533), (53, 47656), (56, 47677), (58, 47698), (62, 47722), (65, 47803), (69, 47827), (74, 47872), (75, 47875), (78, 47908),

Gene: Capricorn\_71 Start: 47537, Stop: 48235, Start Num: 18

Candidate Starts for Capricorn\_71:

(Start: 16 @47525 has 3 MA's), (Start: 18 @47537 has 127 MA's), (28, 47579), (37, 47642), (38, 47651), (43, 47702), (44, 47732), (46, 47744), (53, 47897), (56, 47918), (62, 47963), (63, 48008), (65, 48044), (66, 48047), (73, 48098), (74, 48113), (77, 48143), (81, 48197),

Gene: CaseJules\_73 Start: 47734, Stop: 48432, Start Num: 18

Candidate Starts for CaseJules\_73:

(Start: 16 @47722 has 3 MA's), (Start: 18 @47734 has 127 MA's), (28, 47776), (37, 47839), (38, 47848), (43, 47899), (44, 47929), (46, 47941), (53, 48094), (56, 48115), (62, 48160), (63, 48205), (65, 48241), (66, 48244), (73, 48295), (74, 48310), (77, 48340), (81, 48394),

Gene: CheetoDust\_70 Start: 47015, Stop: 47713, Start Num: 18

Candidate Starts for CheetoDust\_70:

(Start: 16 @47003 has 3 MA's), (Start: 18 @47015 has 127 MA's), (28, 47057), (37, 47120), (38, 47129), (43, 47180), (44, 47210), (46, 47222), (53, 47375), (56, 47396), (62, 47441), (63, 47486), (65, 47522), (73, 47576), (74, 47591), (77, 47621), (81, 47675),

Gene: Chris\_72 Start: 48292, Stop: 49011, Start Num: 18

Candidate Starts for Chris\_72:

(17, 48280), (Start: 18 @48292 has 127 MA's), (22, 48319), (37, 48400), (38, 48409), (39, 48412), (43, 48460), (44, 48490), (45, 48496), (46, 48502), (53, 48655), (54, 48658), (55, 48670), (56, 48676), (60, 48733), (62, 48745), (73, 48880), (74, 48895), (76, 48907), (77, 48925),

Gene: CrimD\_72 Start: 48328, Stop: 49023, Start Num: 18

Candidate Starts for CrimD\_72:

(Start: 18 @48328 has 127 MA's), (28, 48370), (37, 48433), (38, 48442), (43, 48493), (44, 48523), (46, 48535), (53, 48688), (56, 48709), (62, 48754), (65, 48835), (66, 48838), (67, 48847), (73, 48889), (74, 48904), (79, 48946), (81, 48988),

Gene: Curiosium\_75 Start: 47009, Stop: 47707, Start Num: 18

Candidate Starts for Curiosium\_75:

(Start: 18 @47009 has 127 MA's), (28, 47051), (36, 47111), (38, 47123), (43, 47174), (44, 47204), (45, 47210), (46, 47216), (47, 47255), (51, 47351), (53, 47369), (56, 47390), (62, 47435), (65, 47516), (73, 47570), (74, 47585), (75, 47588), (76, 47597), (77, 47615),

Gene: Dalmuri\_71 Start: 47537, Stop: 48235, Start Num: 18

Candidate Starts for Dalmuri\_71:

(Start: 16 @47525 has 3 MA's), (Start: 18 @47537 has 127 MA's), (28, 47579), (37, 47642), (38, 47651), (43, 47702), (44, 47732), (46, 47744), (53, 47897), (56, 47918), (62, 47963), (63, 48008), (65, 48044), (66, 48047), (73, 48098), (74, 48113), (77, 48143), (81, 48197),

Gene: DarthP\_69 Start: 47625, Stop: 48302, Start Num: 18

Candidate Starts for DarthP\_69:

(12, 47565), (Start: 18 @47625 has 127 MA's), (38, 47739), (39, 47742), (41, 47763), (43, 47790), (46, 47832), (53, 47985), (54, 47988), (56, 48006), (60, 48039), (62, 48051), (64, 48120), (71, 48177), (74, 48201), (76, 48213), (77, 48231), (79, 48243),

Gene: Dartin\_72 Start: 47786, Stop: 48490, Start Num: 18

Candidate Starts for Dartin\_72:

(Start: 18 @47786 has 127 MA's), (37, 47897), (38, 47906), (42, 47933), (43, 47957), (44, 47987), (45, 47993), (46, 47999), (49, 48107), (53, 48152), (56, 48173), (61, 48215), (62, 48218), (63, 48263), (65, 48299), (68, 48320), (73, 48353), (74, 48368),

Gene: Deby\_70 Start: 47787, Stop: 48485, Start Num: 18

Candidate Starts for Deby\_70:

(Start: 16 @47775 has 3 MA's), (Start: 18 @47787 has 127 MA's), (28, 47829), (37, 47892), (38, 47901), (43, 47952), (44, 47982), (46, 47994), (53, 48147), (55, 48162), (56, 48168), (62, 48213), (63, 48258), (65, 48294), (66, 48297), (73, 48348), (74, 48363), (75, 48366), (77, 48393), (81, 48447), (83, 48471),

Gene: Devera\_78 Start: 49128, Stop: 49826, Start Num: 18

Candidate Starts for Devera\_78:

(Start: 16 @49116 has 3 MA's), (Start: 18 @49128 has 127 MA's), (28, 49170), (37, 49233), (38, 49242), (43, 49293), (44, 49323), (46, 49335), (53, 49488), (56, 49509), (62, 49554), (65, 49635), (73, 49689), (74, 49704), (77, 49734), (81, 49788),

Gene: DismalFunk\_74 Start: 49851, Stop: 50486, Start Num: 30

Candidate Starts for DismalFunk\_74:

(Start: 29 @49845 has 3 MA's), (Start: 30 @49851 has 5 MA's), (32, 49869), (37, 49905), (38, 49914), (43, 49965), (44, 49995), (46, 50007), (50, 50118), (54, 50145), (56, 50163), (60, 50196), (62, 50208), (63, 50253), (69, 50313), (74, 50358), (84, 50475), (85, 50478),

Gene: DismalStressor\_74 Start: 49845, Stop: 50486, Start Num: 29

Candidate Starts for DismalStressor\_74:

(Start: 29 @49845 has 3 MA's), (Start: 30 @49851 has 5 MA's), (32, 49869), (37, 49905), (38, 49914), (43, 49965), (44, 49995), (46, 50007), (50, 50118), (54, 50145), (56, 50163), (60, 50196), (62, 50208), (63, 50253), (69, 50313), (74, 50358), (84, 50475), (85, 50478),

Gene: Dole\_75 Start: 49131, Stop: 49829, Start Num: 18

Candidate Starts for Dole\_75:

(Start: 16 @49119 has 3 MA's), (Start: 18 @49131 has 127 MA's), (28, 49173), (37, 49236), (38, 49245), (43, 49296), (44, 49326), (46, 49338), (53, 49491), (56, 49512), (62, 49557), (65, 49638), (73, 49692), (74, 49707), (77, 49737), (81, 49791),

Gene: DrHayes\_71 Start: 48032, Stop: 48730, Start Num: 18

Candidate Starts for DrHayes\_71:

(Start: 16 @48020 has 3 MA's), (Start: 18 @48032 has 127 MA's), (28, 48074), (37, 48137), (38, 48146), (43, 48197), (44, 48227), (46, 48239), (53, 48392), (55, 48407), (56, 48413), (60, 48446), (62, 48458), (65, 48539), (68, 48560), (73, 48593), (74, 48608), (77, 48638), (81, 48692),

Gene: Durfee\_71 Start: 47734, Stop: 48432, Start Num: 18

Candidate Starts for Durfee\_71:

(Start: 16 @47722 has 3 MA's), (Start: 18 @47734 has 127 MA's), (28, 47776), (37, 47839), (38, 47848), (43, 47899), (44, 47929), (46, 47941), (53, 48094), (56, 48115), (62, 48160), (63, 48205), (65, 48241), (66, 48244), (73, 48295), (74, 48310), (77, 48340), (81, 48394),

Gene: Efra2\_76 Start: 47875, Stop: 48570, Start Num: 18

Candidate Starts for Efra2\_76:

(Start: 16 @47863 has 3 MA's), (Start: 18 @47875 has 127 MA's), (28, 47917), (37, 47980), (38, 47989), (43, 48040), (44, 48070), (46, 48082), (53, 48235), (56, 48256), (62, 48301), (63, 48346), (65, 48382), (73, 48436),

Gene: Ekdilam\_66 Start: 47818, Stop: 48495, Start Num: 18

Candidate Starts for Ekdilam\_66:

(3, 47632), (7, 47662), (12, 47758), (Start: 18 @47818 has 127 MA's), (26, 47863), (38, 47932), (39, 47935), (41, 47956), (43, 47983), (46, 48025), (49, 48133), (53, 48178), (54, 48181), (56, 48199), (58, 48220), (60, 48232), (62, 48244), (64, 48313), (71, 48370), (74, 48394), (77, 48424), (79, 48436),

Gene: Ellie\_67 Start: 47252, Stop: 47953, Start Num: 18

Candidate Starts for Ellie\_67:

(17, 47240), (Start: 18 @47252 has 127 MA's), (34, 47339), (38, 47366), (42, 47393), (43, 47417), (45, 47453), (46, 47459), (53, 47612), (56, 47633), (61, 47699), (62, 47702), (63, 47747), (65, 47783), (73, 47837), (74, 47852), (77, 47882),

Gene: Emerson\_73 Start: 47854, Stop: 48552, Start Num: 18

Candidate Starts for Emerson\_73:

(Start: 16 @47842 has 3 MA's), (Start: 18 @47854 has 127 MA's), (28, 47896), (37, 47959), (38, 47968), (43, 48019), (44, 48049), (46, 48061), (53, 48214), (56, 48235), (62, 48280), (63, 48325), (65, 48361), (66, 48364), (73, 48415), (74, 48430), (77, 48460), (81, 48514),

Gene: Enkosi\_60 Start: 47238, Stop: 47948, Start Num: 18

Candidate Starts for Enkosi\_60:

(Start: 13 @47178 has 2 MA's), (Start: 14 @47199 has 1 MA's), (Start: 18 @47238 has 127 MA's), (37, 47355), (38, 47364), (40, 47373), (43, 47415), (44, 47445), (46, 47457), (48, 47547), (51, 47592), (53, 47610), (56, 47631), (57, 47634), (60, 47664), (61, 47673), (62, 47676), (63, 47721), (64, 47745), (65, 47757), (67, 47769), (68, 47778), (73, 47811), (74, 47826), (75, 47829), (77, 47856), (79, 47868), (82, 47931),

Gene: Fefferhead\_69 Start: 47160, Stop: 47861, Start Num: 18

Candidate Starts for Fefferhead\_69:

(17, 47148), (Start: 18 @47160 has 127 MA's), (34, 47247), (38, 47274), (42, 47301), (43, 47325), (45, 47361), (46, 47367), (53, 47520), (56, 47541), (61, 47607), (62, 47610), (63, 47655), (65, 47691), (68, 47712), (73, 47745), (74, 47760), (77, 47790),

Gene: Findley\_74 Start: 49869, Stop: 50504, Start Num: 30

Candidate Starts for Findley\_74:

(Start: 29 @49863 has 3 MA's), (Start: 30 @49869 has 5 MA's), (32, 49887), (37, 49923), (38, 49932), (43, 49983), (44, 50013), (46, 50025), (50, 50136), (54, 50163), (56, 50181), (60, 50214), (62, 50226), (63, 50271), (69, 50331), (74, 50376), (84, 50493), (85, 50496),

Gene: Ganymede\_70 Start: 47744, Stop: 48442, Start Num: 18

Candidate Starts for Ganymede\_70:

(Start: 16 @47732 has 3 MA's), (Start: 18 @47744 has 127 MA's), (28, 47786), (37, 47849), (38, 47858), (43, 47909), (44, 47939), (46, 47951), (53, 48104), (55, 48119), (56, 48125), (62, 48170), (63, 48215), (65, 48251), (66, 48254), (73, 48305), (74, 48320), (77, 48350), (81, 48404), (83, 48428),

Gene: Geraldini\_74 Start: 48415, Stop: 49113, Start Num: 18

Candidate Starts for Geraldini\_74:

(Start: 16 @48403 has 3 MA's), (Start: 18 @48415 has 127 MA's), (28, 48457), (37, 48520), (38, 48529), (43, 48580), (44, 48610), (46, 48622), (53, 48775), (56, 48796), (62, 48841), (63, 48886), (65, 48922), (73, 48976), (74, 48991), (77, 49021), (81, 49075),

Gene: Guanica15\_75 Start: 47621, Stop: 48316, Start Num: 18

Candidate Starts for Guanica15\_75:

(Start: 16 @47609 has 3 MA's), (Start: 18 @47621 has 127 MA's), (28, 47663), (37, 47726), (38, 47735), (43, 47786), (44, 47816), (46, 47828), (53, 47981), (56, 48002), (62, 48047), (63, 48092), (65, 48128), (73, 48182),

Gene: Hammy\_69 Start: 47610, Stop: 48287, Start Num: 18

Candidate Starts for Hammy\_69:

(12, 47550), (Start: 18 @47610 has 127 MA's), (38, 47724), (39, 47727), (41, 47748), (43, 47775), (46, 47817), (53, 47970), (54, 47973), (56, 47991), (60, 48024), (62, 48036), (64, 48105), (71, 48162), (74, 48186), (76, 48198), (77, 48216), (79, 48228),

Gene: HedwigODU\_70 Start: 47382, Stop: 48080, Start Num: 18

Candidate Starts for HedwigODU\_70:

(Start: 16 @47370 has 3 MA's), (Start: 18 @47382 has 127 MA's), (28, 47424), (37, 47487), (38, 47496), (43, 47547), (44, 47577), (46, 47589), (53, 47742), (56, 47763), (62, 47808), (63, 47853), (65, 47889), (73, 47943), (74, 47958), (77, 47988), (81, 48042),

Gene: Homura\_70 Start: 47537, Stop: 48235, Start Num: 18

Candidate Starts for Homura\_70:

(Start: 16 @47525 has 3 MA's), (Start: 18 @47537 has 127 MA's), (28, 47579), (37, 47642), (38, 47651), (43, 47702), (44, 47732), (46, 47744), (53, 47897), (56, 47918), (62, 47963), (63, 48008), (65, 48044), (66, 48047), (73, 48098), (74, 48113), (77, 48143), (81, 48197),

Gene: Hurricane\_71 Start: 47719, Stop: 48405, Start Num: 18

Candidate Starts for Hurricane\_71:

(9, 47590), (12, 47665), (Start: 14 @47686 has 1 MA's), (Start: 18 @47719 has 127 MA's), (38, 47842), (39, 47845), (41, 47866), (43, 47893), (44, 47923), (45, 47929), (46, 47935), (53, 48088), (54, 48091), (56, 48109), (61, 48151), (62, 48154), (63, 48199), (65, 48235), (74, 48304), (75, 48307), (77, 48334), (79, 48346),

Gene: Hyperbowlee\_70 Start: 47734, Stop: 48432, Start Num: 18

Candidate Starts for Hyperbowlee\_70:

(Start: 16 @47722 has 3 MA's), (Start: 18 @47734 has 127 MA's), (28, 47776), (37, 47839), (38, 47848), (43, 47899), (44, 47929), (46, 47941), (53, 48094), (56, 48115), (62, 48160), (63, 48205), (65, 48241), (66, 48244), (73, 48295), (74, 48310), (77, 48340), (81, 48394),

Gene: Illumine\_76 Start: 49130, Stop: 49828, Start Num: 18

Candidate Starts for Illumine\_76:

(Start: 16 @49118 has 3 MA's), (Start: 18 @49130 has 127 MA's), (28, 49172), (37, 49235), (38, 49244), (43, 49295), (44, 49325), (46, 49337), (53, 49490), (56, 49511), (62, 49556), (65, 49637), (73, 49691), (74, 49706), (77, 49736), (81, 49790),

Gene: Inky\_71 Start: 47537, Stop: 48235, Start Num: 18

Candidate Starts for Inky\_71:

(Start: 16 @47525 has 3 MA's), (Start: 18 @47537 has 127 MA's), (28, 47579), (37, 47642), (38, 47651), (43, 47702), (44, 47732), (46, 47744), (53, 47897), (56, 47918), (62, 47963), (63, 48008), (65, 48044), (66, 48047), (73, 48098), (74, 48113), (77, 48143), (81, 48197),

Gene: JAWS\_70 Start: 47568, Stop: 48278, Start Num: 16

Candidate Starts for JAWS\_70:

(Start: 16 @47568 has 3 MA's), (Start: 18 @47580 has 127 MA's), (28, 47622), (37, 47685), (38, 47694), (43, 47745), (44, 47775), (46, 47787), (53, 47940), (56, 47961), (62, 48006), (63, 48051), (65, 48087), (66, 48090), (73, 48141), (74, 48156), (77, 48186), (81, 48240), (83, 48264),

Gene: Jarvi\_71 Start: 47537, Stop: 48235, Start Num: 18

Candidate Starts for Jarvi\_71:

(Start: 16 @47525 has 3 MA's), (Start: 18 @47537 has 127 MA's), (28, 47579), (37, 47642), (38, 47651), (43, 47702), (44, 47732), (46, 47744), (53, 47897), (56, 47918), (62, 47963), (63, 48008), (65, 48044), (66, 48047), (73, 48098), (74, 48113), (77, 48143), (81, 48197),

Gene: Jayhawk\_73 Start: 47880, Stop: 48578, Start Num: 18

Candidate Starts for Jayhawk\_73:

(Start: 16 @47868 has 3 MA's), (Start: 18 @47880 has 127 MA's), (28, 47922), (37, 47985), (38, 47994), (43, 48045), (44, 48075), (46, 48087), (53, 48240), (56, 48261), (62, 48306), (63, 48351), (65, 48387), (66, 48390), (73, 48441), (74, 48456), (77, 48486), (81, 48540), (83, 48564),

Gene: Jeckyll\_71 Start: 47537, Stop: 48235, Start Num: 18

Candidate Starts for Jeckyll\_71:

(Start: 16 @47525 has 3 MA's), (Start: 18 @47537 has 127 MA's), (28, 47579), (37, 47642), (38, 47651), (43, 47702), (44, 47732), (46, 47744), (53, 47897), (56, 47918), (62, 47963), (63, 48008), (65, 48044), (66, 48047), (73, 48098), (74, 48113), (77, 48143), (81, 48197),

Gene: Joy99\_71 Start: 47466, Stop: 48164, Start Num: 18

Candidate Starts for Joy99\_71:

(Start: 16 @47454 has 3 MA's), (Start: 18 @47466 has 127 MA's), (28, 47508), (37, 47571), (38, 47580), (43, 47631), (44, 47661), (46, 47673), (53, 47826), (56, 47847), (62, 47892), (63, 47937), (65, 47973), (66, 47976), (73, 48027), (74, 48042), (77, 48072), (81, 48126),

Gene: Keshu\_73 Start: 47865, Stop: 48551, Start Num: 18

Candidate Starts for Keshu\_73:

(12, 47811), (Start: 14 @47832 has 1 MA's), (Start: 18 @47865 has 127 MA's), (38, 47988), (39, 47991), (41, 48012), (43, 48039), (44, 48069), (45, 48075), (46, 48081), (53, 48234), (54, 48237), (56, 48255), (62, 48300), (74, 48450), (77, 48480), (79, 48492),

Gene: KiSi\_74 Start: 48283, Stop: 49002, Start Num: 18

Candidate Starts for KiSi\_74:

(17, 48271), (Start: 18 @48283 has 127 MA's), (22, 48310), (38, 48400), (39, 48403), (43, 48451), (44, 48481), (45, 48487), (46, 48493), (48, 48583), (53, 48646), (54, 48649), (56, 48667), (61, 48733), (62, 48736), (73, 48871), (74, 48886), (76, 48898), (77, 48916),

Gene: Krueger\_75 Start: 47413, Stop: 48126, Start Num: 18

Candidate Starts for Krueger\_75:

(Start: 18 @47413 has 127 MA's), (38, 47539), (39, 47542), (41, 47563), (43, 47590), (44, 47620), (45, 47626), (46, 47632), (47, 47671), (49, 47749), (53, 47794), (56, 47815), (58, 47836), (62, 47860), (65, 47941), (69, 47965), (74, 48010), (78, 48046),

Gene: LastHope\_75 Start: 46731, Stop: 47426, Start Num: 18

Candidate Starts for LastHope\_75:

(Start: 16 @46719 has 3 MA's), (Start: 18 @46731 has 127 MA's), (28, 46773), (37, 46836), (38, 46845), (43, 46896), (44, 46926), (46, 46938), (53, 47091), (55, 47106), (56, 47112), (62, 47157), (63, 47202), (68, 47259), (73, 47292), (74, 47307), (81, 47391),

Gene: LaterM\_70 Start: 47995, Stop: 48693, Start Num: 18

Candidate Starts for LaterM\_70:

(Start: 16 @47983 has 3 MA's), (Start: 18 @47995 has 127 MA's), (27, 48034), (28, 48037), (37, 48100), (38, 48109), (43, 48160), (44, 48190), (46, 48202), (53, 48355), (55, 48370), (56, 48376), (62, 48421), (63, 48466), (65, 48502), (73, 48556), (74, 48571), (77, 48601), (81, 48655),

Gene: LeMond\_73 Start: 47887, Stop: 48606, Start Num: 18

Candidate Starts for LeMond\_73:

(17, 47875), (Start: 18 @47887 has 127 MA's), (38, 48004), (39, 48007), (43, 48055), (44, 48085), (45, 48091), (46, 48097), (48, 48187), (53, 48250), (54, 48253), (56, 48271), (61, 48337), (62, 48340), (73, 48475), (74, 48490), (76, 48502), (77, 48520),

Gene: LilPharaoh\_59 Start: 44353, Stop: 45063, Start Num: 18

Candidate Starts for LilPharaoh\_59:

(Start: 13 @44293 has 2 MA's), (Start: 14 @44314 has 1 MA's), (Start: 18 @44353 has 127 MA's), (37, 44470), (38, 44479), (40, 44488), (43, 44530), (44, 44560), (46, 44572), (48, 44662), (51, 44707), (53, 44725), (56, 44746), (57, 44749), (60, 44779), (61, 44788), (62, 44791), (63, 44836), (64, 44860),

(65, 44872), (67, 44884), (68, 44893), (73, 44926), (74, 44941), (75, 44944), (77, 44971), (79, 44983), (82, 45046),

Gene: LindNT\_69 Start: 47792, Stop: 48487, Start Num: 18

Candidate Starts for LindNT\_69:

(Start: 16 @47780 has 3 MA's), (Start: 18 @47792 has 127 MA's), (28, 47834), (37, 47897), (38, 47906), (43, 47957), (44, 47987), (46, 47999), (53, 48152), (56, 48173), (62, 48218), (65, 48299), (66, 48302), (67, 48311), (73, 48353), (74, 48368), (79, 48410), (81, 48452),

Gene: Llorens\_71 Start: 47537, Stop: 48235, Start Num: 18

Candidate Starts for Llorens\_71:

(Start: 16 @47525 has 3 MA's), (Start: 18 @47537 has 127 MA's), (28, 47579), (37, 47642), (38, 47651), (43, 47702), (44, 47732), (46, 47744), (53, 47897), (56, 47918), (62, 47963), (63, 48008), (65, 48044), (66, 48047), (73, 48098), (74, 48113), (77, 48143), (81, 48197),

Gene: Lunahalos\_71 Start: 47537, Stop: 48235, Start Num: 18

Candidate Starts for Lunahalos\_71:

(Start: 16 @47525 has 3 MA's), (Start: 18 @47537 has 127 MA's), (28, 47579), (37, 47642), (38, 47651), (43, 47702), (44, 47732), (46, 47744), (53, 47897), (56, 47918), (62, 47963), (63, 48008), (65, 48044), (66, 48047), (73, 48098), (74, 48113), (77, 48143), (80, 48158), (81, 48197),

Gene: MacnCheese\_73 Start: 48347, Stop: 49009, Start Num: 18

Candidate Starts for MacnCheese\_73:

(1, 48092), (2, 48122), (3, 48164), (7, 48194), (Start: 13 @48293 has 2 MA's), (Start: 14 @48314 has 1 MA's), (Start: 18 @48347 has 127 MA's), (36, 48434), (38, 48446), (39, 48449), (41, 48470), (43, 48497), (44, 48527), (45, 48533), (46, 48539), (53, 48692), (55, 48707), (56, 48713), (62, 48758), (74, 48908), (75, 48911), (76, 48920), (77, 48938), (79, 48950),

Gene: Marcoliusprime\_73 Start: 49845, Stop: 50486, Start Num: 29

Candidate Starts for Marcoliusprime\_73:

(Start: 29 @49845 has 3 MA's), (Start: 30 @49851 has 5 MA's), (32, 49869), (37, 49905), (38, 49914), (43, 49965), (44, 49995), (46, 50007), (50, 50118), (54, 50145), (56, 50163), (60, 50196), (62, 50208), (63, 50253), (69, 50313), (74, 50358), (84, 50475), (85, 50478),

Gene: MarkPhew\_72 Start: 47392, Stop: 48111, Start Num: 18

Candidate Starts for MarkPhew\_72:

(11, 47305), (Start: 18 @47392 has 127 MA's), (22, 47419), (24, 47422), (38, 47509), (39, 47512), (43, 47560), (44, 47590), (45, 47596), (46, 47602), (53, 47755), (54, 47758), (56, 47776), (61, 47842), (62, 47845), (73, 47980), (74, 47995), (76, 48007), (77, 48025),

Gene: Marshawn\_69 Start: 47761, Stop: 48495, Start Num: 18

Candidate Starts for Marshawn\_69:

(Start: 18 @47761 has 127 MA's), (38, 47884), (39, 47887), (41, 47908), (43, 47935), (44, 47965), (46, 47977), (47, 48016), (49, 48085), (53, 48130), (56, 48151), (59, 48199), (62, 48220), (68, 48322), (73, 48355), (74, 48370), (76, 48382), (79, 48412),

Gene: McMater\_72 Start: 47786, Stop: 48490, Start Num: 18

Candidate Starts for McMater\_72:

(Start: 18 @47786 has 127 MA's), (37, 47897), (38, 47906), (42, 47933), (43, 47957), (44, 47987), (45, 47993), (46, 47999), (49, 48107), (53, 48152), (56, 48173), (61, 48215), (62, 48218), (63, 48263), (65, 48299), (68, 48320), (73, 48353), (74, 48368),

Gene: Mdavu\_59 Start: 44614, Stop: 45324, Start Num: 18



Candidate Starts for Mdavu\_59:

(Start: 13 @44554 has 2 MA's), (Start: 14 @44575 has 1 MA's), (Start: 18 @44614 has 127 MA's), (37, 44731), (38, 44740), (40, 44749), (43, 44791), (44, 44821), (46, 44833), (48, 44923), (51, 44968), (53, 44986), (56, 45007), (57, 45010), (60, 45040), (61, 45049), (62, 45052), (63, 45097), (64, 45121), (65, 45133), (67, 45145), (68, 45154), (73, 45187), (74, 45202), (75, 45205), (77, 45232), (79, 45244), (82, 45307),

Gene: MeaningOfLife\_72 Start: 48289, Stop: 48987, Start Num: 18

Candidate Starts for MeaningOfLife\_72:

(Start: 16 @48277 has 3 MA's), (Start: 18 @48289 has 127 MA's), (28, 48331), (37, 48394), (38, 48403), (43, 48454), (44, 48484), (46, 48496), (53, 48649), (56, 48670), (62, 48715), (63, 48760), (65, 48796), (73, 48850), (74, 48865), (77, 48895), (81, 48949), (83, 48973),

Gene: Megsy\_73 Start: 47714, Stop: 48412, Start Num: 18

Candidate Starts for Megsy\_73:

(Start: 16 @47702 has 3 MA's), (Start: 18 @47714 has 127 MA's), (27, 47753), (28, 47756), (37, 47819), (38, 47828), (43, 47879), (44, 47909), (46, 47921), (53, 48074), (55, 48089), (56, 48095), (57, 48098), (62, 48140), (65, 48221), (66, 48224), (73, 48275), (74, 48290), (77, 48320), (81, 48374),

Gene: Milly\_74 Start: 49842, Stop: 50477, Start Num: 30

Candidate Starts for Milly\_74:

(Start: 29 @49836 has 3 MA's), (Start: 30 @49842 has 5 MA's), (32, 49860), (37, 49896), (38, 49905), (43, 49956), (44, 49986), (46, 49998), (50, 50109), (54, 50136), (56, 50154), (60, 50187), (62, 50199), (63, 50244), (69, 50304), (74, 50349), (84, 50466), (85, 50469),

Gene: Mufasa\_73 Start: 49168, Stop: 49944, Start Num: 10

Candidate Starts for Mufasa\_73:

(Start: 10 @49168 has 2 MA's), (15, 49237), (Start: 29 @49303 has 3 MA's), (Start: 30 @49309 has 5 MA's), (32, 49327), (37, 49363), (38, 49372), (43, 49423), (44, 49453), (46, 49465), (54, 49603), (56, 49621), (60, 49654), (62, 49666), (63, 49711), (69, 49771), (73, 49801), (74, 49816), (84, 49933), (85, 49936),

Gene: Murucutumbu\_71 Start: 48570, Stop: 49268, Start Num: 18

Candidate Starts for Murucutumbu\_71:

(Start: 16 @48558 has 3 MA's), (Start: 18 @48570 has 127 MA's), (28, 48612), (37, 48675), (38, 48684), (43, 48735), (44, 48765), (46, 48777), (53, 48930), (55, 48945), (56, 48951), (62, 48996), (65, 49077), (67, 49089), (73, 49131), (74, 49146), (77, 49176), (81, 49230),

Gene: Mynx\_72 Start: 48149, Stop: 48847, Start Num: 18

Candidate Starts for Mynx\_72:

(Start: 16 @48137 has 3 MA's), (Start: 18 @48149 has 127 MA's), (28, 48191), (37, 48254), (38, 48263), (43, 48314), (44, 48344), (46, 48356), (53, 48509), (56, 48530), (62, 48575), (63, 48620), (65, 48656), (66, 48659), (73, 48710), (74, 48725), (77, 48755), (81, 48809), (83, 48833),

Gene: Nergal\_62 Start: 43829, Stop: 44509, Start Num: 20

Candidate Starts for Nergal\_62:

(19, 43826), (Start: 20 @43829 has 1 MA's), (21, 43835), (25, 43856), (33, 43907), (35, 43913), (37, 43928), (38, 43937), (43, 43988), (44, 44018), (46, 44030), (49, 44120), (51, 44147), (52, 44156), (53, 44165), (56, 44186), (61, 44228), (62, 44231), (63, 44276), (69, 44336), (74, 44381), (77, 44411), (84, 44498),

Gene: Nibb\_73 Start: 47588, Stop: 48307, Start Num: 18

Candidate Starts for Nibb\_73:

(Start: 18 @47588 has 127 MA's), (22, 47615), (38, 47705), (39, 47708), (43, 47756), (44, 47786), (45, 47792), (46, 47798), (53, 47951), (54, 47954), (56, 47972), (61, 48038), (62, 48041), (73, 48176), (74, 48191), (76, 48203), (77, 48221),

Gene: Nikao\_61 Start: 47238, Stop: 47948, Start Num: 18

Candidate Starts for Nikao\_61:

(Start: 13 @47178 has 2 MA's), (Start: 14 @47199 has 1 MA's), (Start: 18 @47238 has 127 MA's), (37, 47355), (38, 47364), (40, 47373), (43, 47415), (44, 47445), (46, 47457), (48, 47547), (51, 47592), (53, 47610), (56, 47631), (57, 47634), (60, 47664), (61, 47673), (62, 47676), (63, 47721), (64, 47745), (65, 47757), (67, 47769), (68, 47778), (73, 47811), (74, 47826), (75, 47829), (77, 47856), (79, 47868), (82, 47931),

Gene: Niklas\_73 Start: 47847, Stop: 48551, Start Num: 18

Candidate Starts for Niklas\_73:

(Start: 18 @47847 has 127 MA's), (37, 47958), (38, 47967), (42, 47994), (43, 48018), (44, 48048), (45, 48054), (46, 48060), (49, 48168), (53, 48213), (56, 48234), (61, 48276), (62, 48279), (63, 48324), (65, 48360), (68, 48381), (73, 48414), (74, 48429),

Gene: Nutello\_58 Start: 44625, Stop: 45335, Start Num: 18

Candidate Starts for Nutello\_58:

(Start: 13 @44565 has 2 MA's), (Start: 14 @44586 has 1 MA's), (Start: 18 @44625 has 127 MA's), (37, 44742), (38, 44751), (40, 44760), (43, 44802), (44, 44832), (46, 44844), (48, 44934), (51, 44979), (53, 44997), (56, 45018), (57, 45021), (60, 45051), (61, 45060), (62, 45063), (63, 45108), (64, 45132), (65, 45144), (67, 45156), (68, 45165), (73, 45198), (74, 45213), (75, 45216), (77, 45243), (79, 45255), (82, 45318),

Gene: Oscar\_73 Start: 47807, Stop: 48526, Start Num: 18

Candidate Starts for Oscar\_73:

(17, 47795), (Start: 18 @47807 has 127 MA's), (38, 47924), (39, 47927), (43, 47975), (44, 48005), (45, 48011), (46, 48017), (48, 48107), (53, 48170), (54, 48173), (56, 48191), (61, 48257), (62, 48260), (73, 48395), (74, 48410), (76, 48422), (77, 48440),

Gene: Padfoot\_71 Start: 47734, Stop: 48432, Start Num: 18

Candidate Starts for Padfoot\_71:

(Start: 16 @47722 has 3 MA's), (Start: 18 @47734 has 127 MA's), (28, 47776), (37, 47839), (38, 47848), (43, 47899), (44, 47929), (46, 47941), (53, 48094), (56, 48115), (62, 48160), (63, 48205), (65, 48241), (66, 48244), (73, 48295), (74, 48310), (77, 48340), (81, 48394),

Gene: Padpat\_74 Start: 47854, Stop: 48552, Start Num: 18

Candidate Starts for Padpat\_74:

(Start: 16 @47842 has 3 MA's), (Start: 18 @47854 has 127 MA's), (28, 47896), (37, 47959), (38, 47968), (43, 48019), (44, 48049), (46, 48061), (53, 48214), (56, 48235), (62, 48280), (63, 48325), (65, 48361), (66, 48364), (73, 48415), (74, 48430), (77, 48460), (81, 48514),

Gene: Peanam\_73 Start: 47805, Stop: 48509, Start Num: 18

Candidate Starts for Peanam\_73:

(Start: 18 @47805 has 127 MA's), (37, 47916), (38, 47925), (42, 47952), (43, 47976), (44, 48006), (45, 48012), (46, 48018), (49, 48126), (53, 48171), (56, 48192), (61, 48234), (62, 48237), (63, 48282), (65, 48318), (68, 48339), (73, 48372), (74, 48387),

Gene: Peel\_71 Start: 47539, Stop: 48237, Start Num: 18

Candidate Starts for Peel\_71:

(Start: 16 @47527 has 3 MA's), (Start: 18 @47539 has 127 MA's), (28, 47581), (37, 47644), (38, 47653), (43, 47704), (44, 47734), (46, 47746), (53, 47899), (56, 47920), (62, 47965), (63, 48010), (65, 48046), (66, 48049), (73, 48100), (74, 48115), (77, 48145), (81, 48199),

Gene: Pharb\_70 Start: 47078, Stop: 47764, Start Num: 18

Candidate Starts for Pharb\_70:

(Start: 13 @47024 has 2 MA's), (Start: 14 @47045 has 1 MA's), (Start: 18 @47078 has 127 MA's), (23, 47111), (31, 47144), (38, 47201), (39, 47204), (41, 47225), (43, 47252), (44, 47282), (45, 47288), (46, 47294), (53, 47447), (55, 47462), (56, 47468), (61, 47510), (62, 47513), (63, 47558), (64, 47582), (65, 47594), (68, 47615), (71, 47639), (72, 47642), (74, 47663), (75, 47666), (77, 47693), (79, 47705),

Gene: PhelpsODU\_73 Start: 47199, Stop: 47912, Start Num: 18

Candidate Starts for PhelpsODU\_73:

(Start: 13 @47139 has 2 MA's), (Start: 18 @47199 has 127 MA's), (38, 47325), (39, 47328), (41, 47349), (43, 47376), (44, 47406), (45, 47412), (46, 47418), (47, 47457), (53, 47580), (56, 47601), (58, 47622), (62, 47646), (65, 47727), (74, 47796), (78, 47832),

Gene: Phrank\_75 Start: 47262, Stop: 47975, Start Num: 18

Candidate Starts for Phrank\_75:

(Start: 13 @47202 has 2 MA's), (Start: 18 @47262 has 127 MA's), (38, 47388), (39, 47391), (41, 47412), (43, 47439), (44, 47469), (45, 47475), (46, 47481), (47, 47520), (53, 47643), (56, 47664), (58, 47685), (62, 47709), (65, 47790), (69, 47814), (74, 47859), (78, 47895),

Gene: Piatt\_70 Start: 47734, Stop: 48432, Start Num: 18

Candidate Starts for Piatt\_70:

(Start: 16 @47722 has 3 MA's), (Start: 18 @47734 has 127 MA's), (28, 47776), (37, 47839), (38, 47848), (43, 47899), (44, 47929), (46, 47941), (53, 48094), (56, 48115), (62, 48160), (63, 48205), (65, 48241), (66, 48244), (73, 48295), (74, 48310), (77, 48340), (81, 48394),

Gene: Pixie\_70 Start: 47286, Stop: 47972, Start Num: 18

Candidate Starts for Pixie\_70:

(12, 47232), (Start: 14 @47253 has 1 MA's), (Start: 18 @47286 has 127 MA's), (38, 47409), (39, 47412), (41, 47433), (43, 47460), (44, 47490), (45, 47496), (46, 47502), (53, 47655), (54, 47658), (56, 47676), (62, 47721), (63, 47766), (74, 47871), (75, 47874), (77, 47901), (79, 47913),

Gene: Pokerus\_71 Start: 47851, Stop: 48561, Start Num: 16

Candidate Starts for Pokerus\_71:

(Start: 16 @47851 has 3 MA's), (Start: 18 @47863 has 127 MA's), (28, 47905), (37, 47968), (38, 47977), (43, 48028), (44, 48058), (46, 48070), (53, 48223), (55, 48238), (56, 48244), (62, 48289), (63, 48334), (65, 48370), (73, 48424), (74, 48439), (77, 48469), (81, 48523), (83, 48547),

Gene: Prithvi\_73 Start: 47792, Stop: 48487, Start Num: 18

Candidate Starts for Prithvi\_73:

(Start: 16 @47780 has 3 MA's), (Start: 18 @47792 has 127 MA's), (28, 47834), (37, 47897), (38, 47906), (43, 47957), (44, 47987), (46, 47999), (53, 48152), (56, 48173), (62, 48218), (65, 48299), (66, 48302), (67, 48311), (73, 48353), (74, 48368), (79, 48410), (81, 48452),

Gene: QuincyRose\_68 Start: 47744, Stop: 48442, Start Num: 18

Candidate Starts for QuincyRose\_68:

(Start: 16 @47732 has 3 MA's), (Start: 18 @47744 has 127 MA's), (28, 47786), (37, 47849), (38, 47858), (43, 47909), (44, 47939), (46, 47951), (53, 48104), (55, 48119), (56, 48125), (62, 48170), (63, 48215), (65, 48251), (66, 48254), (73, 48305), (74, 48320), (77, 48350), (81, 48404), (83, 48428),

Gene: Ramen\_72 Start: 47384, Stop: 48082, Start Num: 18

Candidate Starts for Ramen\_72:

(Start: 16 @47372 has 3 MA's), (Start: 18 @47384 has 127 MA's), (28, 47426), (37, 47489), (38, 47498), (43, 47549), (44, 47579), (46, 47591), (53, 47744), (56, 47765), (62, 47810), (63, 47855), (65, 47891), (66, 47894), (73, 47945), (74, 47960), (77, 47990), (81, 48044), (83, 48068),

Gene: Rapunzel97\_73 Start: 47835, Stop: 48533, Start Num: 18

Candidate Starts for Rapunzel97\_73:

(Start: 16 @47823 has 3 MA's), (Start: 18 @47835 has 127 MA's), (28, 47877), (37, 47940), (38, 47949), (43, 48000), (44, 48030), (46, 48042), (53, 48195), (56, 48216), (62, 48261), (63, 48306), (65, 48342), (66, 48345), (73, 48396), (74, 48411), (77, 48441), (81, 48495), (83, 48519),

Gene: Richo\_72 Start: 47786, Stop: 48490, Start Num: 18

Candidate Starts for Richo\_72:

(Start: 18 @47786 has 127 MA's), (37, 47897), (38, 47906), (42, 47933), (43, 47957), (44, 47987), (45, 47993), (46, 47999), (49, 48107), (53, 48152), (56, 48173), (61, 48215), (62, 48218), (63, 48263), (65, 48299), (68, 48320), (73, 48353), (74, 48368),

Gene: Rosmarinus\_71 Start: 47525, Stop: 48223, Start Num: 18

Candidate Starts for Rosmarinus\_71:

(Start: 16 @47513 has 3 MA's), (Start: 18 @47525 has 127 MA's), (28, 47567), (37, 47630), (38, 47639), (43, 47690), (44, 47720), (46, 47732), (53, 47885), (56, 47906), (62, 47951), (63, 47996), (65, 48032), (66, 48035), (73, 48086), (74, 48101), (77, 48131), (81, 48185),

Gene: SamuelLPlaqson\_71 Start: 48032, Stop: 48730, Start Num: 18

Candidate Starts for SamuelLPlaqson\_71:

(Start: 16 @48020 has 3 MA's), (Start: 18 @48032 has 127 MA's), (28, 48074), (37, 48137), (38, 48146), (43, 48197), (44, 48227), (46, 48239), (53, 48392), (55, 48407), (56, 48413), (60, 48446), (62, 48458), (65, 48539), (68, 48560), (73, 48593), (74, 48608), (77, 48638), (81, 48692),

Gene: Scarlett\_74 Start: 48143, Stop: 48862, Start Num: 18

Candidate Starts for Scarlett\_74:

(17, 48131), (Start: 18 @48143 has 127 MA's), (22, 48170), (38, 48260), (39, 48263), (43, 48311), (44, 48341), (45, 48347), (46, 48353), (48, 48443), (53, 48506), (54, 48509), (56, 48527), (61, 48593), (62, 48596), (73, 48731), (74, 48746), (76, 48758), (77, 48776),

Gene: SgtBeansprout\_59 Start: 44625, Stop: 45335, Start Num: 18

Candidate Starts for SgtBeansprout\_59:

(Start: 13 @44565 has 2 MA's), (Start: 14 @44586 has 1 MA's), (Start: 18 @44625 has 127 MA's), (37, 44742), (38, 44751), (40, 44760), (43, 44802), (44, 44832), (46, 44844), (48, 44934), (51, 44979), (53, 44997), (56, 45018), (57, 45021), (60, 45051), (61, 45060), (62, 45063), (63, 45108), (64, 45132), (65, 45144), (67, 45156), (68, 45165), (73, 45198), (74, 45213), (75, 45216), (77, 45243), (79, 45255), (82, 45318),

Gene: Shadow1\_75 Start: 47559, Stop: 48272, Start Num: 18

Candidate Starts for Shadow1\_75:

(Start: 13 @47499 has 2 MA's), (Start: 18 @47559 has 127 MA's), (38, 47685), (39, 47688), (41, 47709), (43, 47736), (44, 47766), (45, 47772), (46, 47778), (47, 47817), (53, 47940), (56, 47961), (58, 47982), (62, 48006), (65, 48087), (69, 48111), (74, 48156), (78, 48192),

Gene: Shaobing\_72 Start: 47822, Stop: 48526, Start Num: 18

Candidate Starts for Shaobing\_72:

(Start: 18 @47822 has 127 MA's), (37, 47933), (38, 47942), (42, 47969), (43, 47993), (44, 48023), (45, 48029), (46, 48035), (49, 48143), (53, 48188), (56, 48209), (61, 48251), (62, 48254), (63, 48299), (65, 48335), (68, 48356), (73, 48389), (74, 48404),

Gene: ShedlockHolmes\_73 Start: 47799, Stop: 48485, Start Num: 18

Candidate Starts for ShedlockHolmes\_73:

(12, 47745), (Start: 14 @47766 has 1 MA's), (Start: 18 @47799 has 127 MA's), (38, 47922), (39, 47925), (41, 47946), (43, 47973), (44, 48003), (45, 48009), (46, 48015), (53, 48168), (54, 48171), (56, 48189), (62, 48234), (63, 48279), (70, 48345), (74, 48384), (75, 48387), (77, 48414), (79, 48426),

Gene: ShiaSurprise\_72 Start: 47734, Stop: 48432, Start Num: 18

Candidate Starts for ShiaSurprise\_72:

(Start: 16 @47722 has 3 MA's), (Start: 18 @47734 has 127 MA's), (28, 47776), (37, 47839), (38, 47848), (43, 47899), (44, 47929), (46, 47941), (53, 48094), (56, 48115), (62, 48160), (63, 48205), (65, 48241), (66, 48244), (73, 48295), (74, 48310), (77, 48340), (81, 48394),

Gene: SirPhilip\_70 Start: 47940, Stop: 48668, Start Num: 18

Candidate Starts for SirPhilip\_70:

(17, 47928), (Start: 18 @47940 has 127 MA's), (38, 48066), (39, 48069), (43, 48117), (45, 48153), (46, 48159), (53, 48312), (56, 48333), (61, 48399), (62, 48402), (63, 48447), (65, 48483), (67, 48495), (73, 48537), (74, 48552), (75, 48555), (76, 48564),

Gene: Slimphazie\_72 Start: 47835, Stop: 48533, Start Num: 18

Candidate Starts for Slimphazie\_72:

(Start: 16 @47823 has 3 MA's), (Start: 18 @47835 has 127 MA's), (28, 47877), (37, 47940), (38, 47949), (43, 48000), (44, 48030), (46, 48042), (53, 48195), (56, 48216), (62, 48261), (63, 48306), (65, 48342), (66, 48345), (73, 48396), (74, 48411), (77, 48441), (81, 48495), (83, 48519),

Gene: Spock\_71 Start: 47538, Stop: 48236, Start Num: 18

Candidate Starts for Spock\_71:

(Start: 16 @47526 has 3 MA's), (Start: 18 @47538 has 127 MA's), (28, 47580), (37, 47643), (38, 47652), (43, 47703), (44, 47733), (46, 47745), (53, 47898), (56, 47919), (62, 47964), (63, 48009), (65, 48045), (66, 48048), (73, 48099), (74, 48114), (77, 48144), (81, 48198),

Gene: Stinson\_71 Start: 47930, Stop: 48628, Start Num: 18

Candidate Starts for Stinson\_71:

(Start: 16 @47918 has 3 MA's), (Start: 18 @47930 has 127 MA's), (27, 47969), (28, 47972), (37, 48035), (38, 48044), (43, 48095), (44, 48125), (46, 48137), (53, 48290), (55, 48305), (56, 48311), (62, 48356), (63, 48401), (65, 48437), (73, 48491), (75, 48509), (77, 48536), (81, 48590),

Gene: Strobilo\_75 Start: 49842, Stop: 50483, Start Num: 29

Candidate Starts for Strobilo\_75:

(Start: 29 @49842 has 3 MA's), (Start: 30 @49848 has 5 MA's), (32, 49866), (37, 49902), (38, 49911), (43, 49962), (44, 49992), (46, 50004), (50, 50115), (54, 50142), (56, 50160), (60, 50193), (62, 50205), (63, 50250), (69, 50310), (74, 50355), (84, 50472), (85, 50475),

Gene: Sulley\_69 Start: 47365, Stop: 48063, Start Num: 18

Candidate Starts for Sulley\_69:

(Start: 16 @47353 has 3 MA's), (Start: 18 @47365 has 127 MA's), (28, 47407), (37, 47470), (38, 47479), (43, 47530), (44, 47560), (46, 47572), (53, 47725), (55, 47740), (56, 47746), (62, 47791), (63, 47836), (65, 47872), (73, 47926), (74, 47941), (75, 47944), (77, 47971), (81, 48025),

Gene: Sunflower1121\_76 Start: 47645, Stop: 48418, Start Num: 13

Candidate Starts for Sunflower1121\_76:

(Start: 13 @47645 has 2 MA's), (Start: 18 @47705 has 127 MA's), (38, 47831), (39, 47834), (41, 47855), (43, 47882), (44, 47912), (45, 47918), (46, 47924), (47, 47963), (53, 48086), (56, 48107), (58, 48128), (62, 48152), (65, 48233), (69, 48257), (74, 48302), (78, 48338),

Gene: Syra333\_74 Start: 47424, Stop: 48137, Start Num: 18

Candidate Starts for Syra333\_74:

(4, 47247), (5, 47256), (6, 47259), (8, 47277), (Start: 13 @47364 has 2 MA's), (Start: 18 @47424 has 127 MA's), (38, 47550), (39, 47553), (41, 47574), (43, 47601), (44, 47631), (45, 47637), (46, 47643), (47, 47682), (53, 47805), (56, 47826), (58, 47847), (62, 47871), (65, 47952), (69, 47976), (74, 48021), (78, 48057),

Gene: TBond007\_67 Start: 47285, Stop: 47971, Start Num: 18

Candidate Starts for TBond007\_67:

(12, 47231), (Start: 14 @47252 has 1 MA's), (Start: 18 @47285 has 127 MA's), (38, 47408), (39, 47411), (41, 47432), (43, 47459), (44, 47489), (45, 47495), (46, 47501), (53, 47654), (54, 47657), (56, 47675), (62, 47720), (63, 47765), (74, 47870), (75, 47873), (77, 47900), (79, 47912),

Gene: TClif\_72 Start: 47378, Stop: 48085, Start Num: 18

Candidate Starts for TClif\_72:

(Start: 18 @47378 has 127 MA's), (38, 47498), (39, 47501), (43, 47549), (44, 47579), (46, 47591), (49, 47699), (51, 47726), (53, 47744), (56, 47765), (58, 47810), (62, 47834), (65, 47915), (73, 47969), (74, 47984), (77, 48014), (81, 48068),

Gene: TM4\_72 Start: 44414, Stop: 45055, Start Num: 30

Candidate Starts for TM4\_72:

(Start: 29 @44408 has 3 MA's), (Start: 30 @44414 has 5 MA's), (32, 44432), (37, 44468), (38, 44477), (43, 44528), (44, 44558), (46, 44570), (50, 44681), (56, 44726), (60, 44759), (62, 44771), (63, 44816), (69, 44876), (73, 44906), (74, 44921), (85, 45047),

Gene: Tachez\_71 Start: 47382, Stop: 48080, Start Num: 18

Candidate Starts for Tachez\_71:

(Start: 16 @47370 has 3 MA's), (Start: 18 @47382 has 127 MA's), (28, 47424), (37, 47487), (38, 47496), (43, 47547), (44, 47577), (46, 47589), (53, 47742), (56, 47763), (62, 47808), (63, 47853), (65, 47889), (66, 47892), (73, 47943), (74, 47958), (77, 47988), (81, 48042),

Gene: TaiwanKao\_72 Start: 47837, Stop: 48532, Start Num: 18

Candidate Starts for TaiwanKao\_72:

(Start: 16 @47825 has 3 MA's), (Start: 18 @47837 has 127 MA's), (27, 47876), (28, 47879), (37, 47942), (38, 47951), (43, 48002), (44, 48032), (46, 48044), (53, 48197), (55, 48212), (56, 48218), (57, 48221), (62, 48263), (63, 48308), (65, 48344), (73, 48398), (74, 48413), (77, 48443), (81, 48497),

Gene: Tierra\_75 Start: 48073, Stop: 48786, Start Num: 18

Candidate Starts for Tierra\_75:

(Start: 13 @48013 has 2 MA's), (Start: 18 @48073 has 127 MA's), (38, 48199), (39, 48202), (41, 48223), (43, 48250), (44, 48280), (45, 48286), (46, 48292), (47, 48331), (53, 48454), (56, 48475), (58, 48496), (62, 48520), (65, 48601), (69, 48625), (74, 48670), (78, 48706),

Gene: TingHuaYa\_73 Start: 47097, Stop: 47795, Start Num: 18

Candidate Starts for TingHuaYa\_73:

(Start: 16 @47085 has 3 MA's), (Start: 18 @47097 has 127 MA's), (28, 47139), (37, 47202), (38, 47211), (43, 47262), (44, 47292), (46, 47304), (53, 47457), (55, 47472), (56, 47478), (62, 47523), (63, 47568), (68, 47625), (73, 47658), (74, 47673), (83, 47781),

Gene: TiniBug\_71 Start: 48032, Stop: 48730, Start Num: 18

Candidate Starts for TiniBug\_71:

(Start: 16 @48020 has 3 MA's), (Start: 18 @48032 has 127 MA's), (28, 48074), (37, 48137), (38, 48146), (43, 48197), (44, 48227), (46, 48239), (53, 48392), (56, 48413), (62, 48458), (65, 48539), (68, 48560), (73, 48593), (74, 48608), (77, 48638), (81, 48692),

Gene: Tiri\_71 Start: 47438, Stop: 48136, Start Num: 18

Candidate Starts for Tiri\_71:

(Start: 16 @47426 has 3 MA's), (Start: 18 @47438 has 127 MA's), (28, 47480), (37, 47543), (38, 47552), (43, 47603), (44, 47633), (46, 47645), (53, 47798), (56, 47819), (60, 47852), (62, 47864), (63, 47909), (65, 47945), (66, 47948), (73, 47999), (74, 48014), (77, 48044), (81, 48098), (83, 48122),

Gene: Topper\_71 Start: 47537, Stop: 48235, Start Num: 18

Candidate Starts for Topper\_71:

(Start: 16 @47525 has 3 MA's), (Start: 18 @47537 has 127 MA's), (28, 47579), (37, 47642), (38, 47651), (43, 47702), (44, 47732), (46, 47744), (53, 47897), (56, 47918), (62, 47963), (63, 48008), (65, 48044), (66, 48047), (73, 48098), (74, 48113), (77, 48143), (80, 48158), (81, 48197),

Gene: Torres\_60 Start: 47200, Stop: 47949, Start Num: 14

Candidate Starts for Torres\_60:

(Start: 13 @47179 has 2 MA's), (Start: 14 @47200 has 1 MA's), (Start: 18 @47239 has 127 MA's), (37, 47356), (38, 47365), (40, 47374), (43, 47416), (44, 47446), (46, 47458), (48, 47548), (51, 47593), (53, 47611), (56, 47632), (57, 47635), (60, 47665), (61, 47674), (62, 47677), (63, 47722), (64, 47746), (65, 47758), (67, 47770), (68, 47779), (73, 47812), (74, 47827), (75, 47830), (77, 47857), (79, 47869), (82, 47932),

Gene: TreyKay\_73 Start: 47792, Stop: 48487, Start Num: 18

Candidate Starts for TreyKay\_73:

(Start: 16 @47780 has 3 MA's), (Start: 18 @47792 has 127 MA's), (28, 47834), (37, 47897), (38, 47906), (43, 47957), (44, 47987), (46, 47999), (53, 48152), (56, 48173), (62, 48218), (65, 48299), (66, 48302), (67, 48311), (73, 48353), (74, 48368), (79, 48410), (81, 48452),

Gene: TribbleTrouble\_72 Start: 48259, Stop: 48948, Start Num: 18

Candidate Starts for TribbleTrouble\_72:

(Start: 13 @48205 has 2 MA's), (Start: 14 @48226 has 1 MA's), (Start: 18 @48259 has 127 MA's), (34, 48358), (38, 48385), (39, 48388), (41, 48409), (43, 48436), (44, 48466), (45, 48472), (46, 48478), (53, 48631), (56, 48652), (62, 48697), (63, 48742), (74, 48847), (75, 48850), (77, 48877), (79, 48889),

Gene: TruffulaTree\_72 Start: 47831, Stop: 48529, Start Num: 18

Candidate Starts for TruffulaTree\_72:

(Start: 16 @47819 has 3 MA's), (Start: 18 @47831 has 127 MA's), (28, 47873), (37, 47936), (38, 47945), (43, 47996), (44, 48026), (46, 48038), (53, 48191), (56, 48212), (62, 48257), (63, 48302), (65, 48338), (66, 48341), (73, 48392), (74, 48407), (77, 48437), (81, 48491), (83, 48515),

Gene: Twitch\_71 Start: 47539, Stop: 48237, Start Num: 18

Candidate Starts for Twitch\_71:

(Start: 16 @47527 has 3 MA's), (Start: 18 @47539 has 127 MA's), (28, 47581), (37, 47644), (38, 47653), (43, 47704), (44, 47734), (46, 47746), (53, 47899), (56, 47920), (62, 47965), (63, 48010), (65, 48046), (66, 48049), (73, 48100), (74, 48115), (77, 48145), (81, 48199),

Gene: Unicorn\_73 Start: 47199, Stop: 47912, Start Num: 18

Candidate Starts for Unicorn\_73:

(Start: 13 @47139 has 2 MA's), (Start: 18 @47199 has 127 MA's), (38, 47325), (39, 47328), (41, 47349), (43, 47376), (44, 47406), (45, 47412), (46, 47418), (47, 47457), (53, 47580), (56, 47601), (58, 47622), (62, 47646), (65, 47727), (74, 47796), (78, 47832),

Gene: Urkel\_71 Start: 48032, Stop: 48730, Start Num: 18

Candidate Starts for Urkel\_71:

(Start: 16 @48020 has 3 MA's), (Start: 18 @48032 has 127 MA's), (28, 48074), (37, 48137), (38, 48146), (43, 48197), (44, 48227), (46, 48239), (53, 48392), (55, 48407), (56, 48413), (60, 48446), (62, 48458), (65, 48539), (68, 48560), (73, 48593), (74, 48608), (77, 48638), (81, 48692),

Gene: Validus\_76 Start: 48363, Stop: 49091, Start Num: 18

Candidate Starts for Validus\_76:

(Start: 18 @48363 has 127 MA's), (37, 48474), (38, 48483), (43, 48534), (44, 48564), (45, 48570), (46, 48576), (47, 48615), (53, 48729), (58, 48795), (61, 48816), (62, 48819), (63, 48864), (65, 48900), (68, 48921), (74, 48969), (77, 48999),

Gene: Veliki\_72 Start: 47571, Stop: 48269, Start Num: 18

Candidate Starts for Veliki\_72:

(Start: 16 @47559 has 3 MA's), (Start: 18 @47571 has 127 MA's), (28, 47613), (37, 47676), (38, 47685), (43, 47736), (44, 47766), (46, 47778), (53, 47931), (56, 47952), (62, 47997), (63, 48042), (65, 48078), (66, 48081), (73, 48132), (74, 48147), (77, 48177), (81, 48231), (83, 48255),

Gene: Ximenita\_76 Start: 47688, Stop: 48461, Start Num: 13

Candidate Starts for Ximenita\_76:

(Start: 13 @47688 has 2 MA's), (Start: 18 @47748 has 127 MA's), (38, 47874), (39, 47877), (41, 47898), (43, 47925), (44, 47955), (45, 47961), (46, 47967), (47, 48006), (53, 48129), (56, 48150), (58, 48171), (62, 48195), (65, 48276), (69, 48300), (74, 48345), (78, 48381),

Gene: YoureAdopted\_70 Start: 47701, Stop: 48399, Start Num: 18

Candidate Starts for YoureAdopted\_70:

(Start: 16 @47689 has 3 MA's), (Start: 18 @47701 has 127 MA's), (28, 47743), (37, 47806), (38, 47815), (43, 47866), (44, 47896), (46, 47908), (53, 48061), (55, 48076), (56, 48082), (62, 48127), (63, 48172), (65, 48208), (66, 48211), (73, 48262), (74, 48277), (77, 48307), (81, 48361), (83, 48385),

Gene: Yuna\_74 Start: 48850, Stop: 49575, Start Num: 18

Candidate Starts for Yuna\_74:

(Start: 18 @48850 has 127 MA's), (38, 48976), (39, 48979), (43, 49027), (45, 49063), (46, 49069), (49, 49177), (52, 49213), (53, 49222), (56, 49243), (58, 49288), (61, 49309), (62, 49312), (65, 49393), (68, 49414), (73, 49447), (74, 49462), (79, 49504),

Gene: Yunkel11\_75 Start: 47626, Stop: 48321, Start Num: 18

Candidate Starts for Yunkel11\_75:

(Start: 16 @47614 has 3 MA's), (Start: 18 @47626 has 127 MA's), (28, 47668), (37, 47731), (38, 47740), (43, 47791), (44, 47821), (46, 47833), (53, 47986), (56, 48007), (62, 48052), (63, 48097), (65, 48133), (73, 48187),

Gene: Zabiza\_66 Start: 43687, Stop: 44385, Start Num: 18

Candidate Starts for Zabiza\_66:

(Start: 16 @43675 has 3 MA's), (Start: 18 @43687 has 127 MA's), (28, 43729), (37, 43792), (38, 43801), (43, 43852), (44, 43882), (46, 43894), (53, 44047), (56, 44068), (62, 44113), (63, 44158), (65, 44194), (73, 44248), (74, 44263), (77, 44293), (81, 44347),

Gene: Zavala\_74 Start: 48109, Stop: 48807, Start Num: 18



Candidate Starts for Zavala\_74:

(Start: 16 @48097 has 3 MA's), (Start: 18 @48109 has 127 MA's), (28, 48151), (37, 48214), (38, 48223), (43, 48274), (44, 48304), (46, 48316), (53, 48469), (56, 48490), (62, 48535), (63, 48580), (65, 48616), (66, 48619), (73, 48670), (74, 48685), (77, 48715), (81, 48769), (83, 48793),

Gene: ZoeJ\_73 Start: 49283, Stop: 49918, Start Num: 30

Candidate Starts for ZoeJ\_73:

(Start: 29 @49277 has 3 MA's), (Start: 30 @49283 has 5 MA's), (32, 49301), (37, 49337), (38, 49346), (43, 49397), (44, 49427), (46, 49439), (54, 49577), (56, 49595), (60, 49628), (62, 49640), (63, 49685), (69, 49745), (73, 49775), (74, 49790), (84, 49907), (85, 49910),