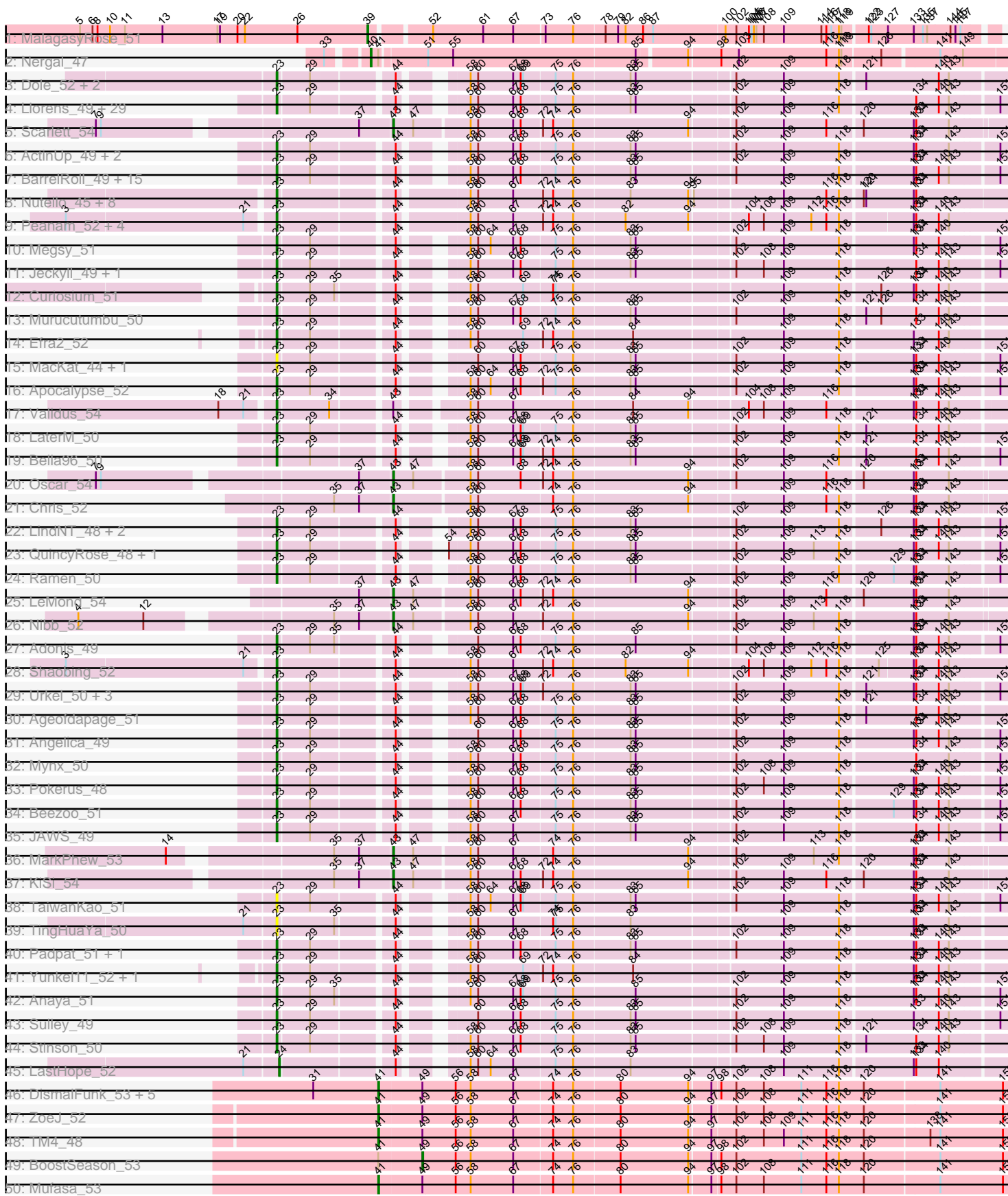


Pham 197852





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 197852 Report

This analysis was run 01/18/25 on database version 583.

Pham number 197852 has 203 members, 14 are drafts.

Phages represented in each track:

- Track 1 : MalagasyRose\_51
- Track 2 : Nergal\_47
- Track 3 : Dole\_52, Illumine\_52, Devera\_54
- Track 4 : Llorens\_49, Padfoot\_49, Dalmuri\_49, Topper\_49, Hyperbowlee\_49, CREW\_49, AlishaPH\_49, Rosmarinus\_49, Boiiii\_49, BaghaKamala\_48, BGIlluviae\_49, Asayake\_49, Joy99\_49, Zavala\_51, Blizzard\_49, Belladonna\_49, Adephagia\_49, Piatt\_49, BEEST\_49, Homura\_49, Inky\_49, Capricorn\_49, Lunahalos\_49, ShiaSurprise\_50, Durfee\_49, Peel\_49, Jarvi\_49, Spock\_49, Twitch\_49, CaseJules\_51
- Track 5 : Scarlett\_54
- Track 6 : ActinUp\_49, HedwigODU\_49, Zabiza\_44
- Track 7 : BarrelRoll\_49, Rapunzel97\_50, Tiri\_50, Geraldini\_52, TruffulaTree\_49, Jayhawk\_50, Deby\_49, CheetoDust\_48, Bern\_50, Veliki\_50, Atiba\_50, MeaningOfLife\_50, YoureAdopted\_48, CrimD\_49, Tachez\_49, Slimphazie\_49
- Track 8 : Nutello\_45, Nikao\_48, Amelie\_45, SgtBeansprout\_45, Torres\_47, LilPharaoh\_45, Binglebops\_45, Enkosi\_47, Mdavu\_46
- Track 9 : Peanam\_52, McMater\_52, Niklas\_52, Richo\_52, Dartin\_52
- Track 10 : Megsy\_51
- Track 11 : Jeckyll\_49, CallaLilly\_51
- Track 12 : Curiosium\_51
- Track 13 : Murucutumbu\_50
- Track 14 : Efra2\_52
- Track 15 : MacKat\_44, Clipper\_53
- Track 16 : Apocalypse\_52
- Track 17 : Validus\_54
- Track 18 : LaterM\_50
- Track 19 : Bella96\_50
- Track 20 : Oscar\_54
- Track 21 : Chris\_52
- Track 22 : LindNT\_48, Prithvi\_50, TreyKay\_50
- Track 23 : QuincyRose\_48, Ganymede\_50
- Track 24 : Ramen\_50
- Track 25 : LeMond\_54
- Track 26 : Nibb\_52
- Track 27 : Adonis\_49
- Track 28 : Shaobing\_52
- Track 29 : Urkel\_50, SamuelLPlaqson\_50, TiniBug\_50, DrHayes\_50

- Track 30 : Ageofdapage\_51
- Track 31 : Angelica\_49
- Track 32 : Mynx\_50
- Track 33 : Pokerus\_48
- Track 34 : Beezoo\_51
- Track 35 : JAWS\_49
- Track 36 : MarkPhew\_53
- Track 37 : KiSi\_54
- Track 38 : TaiwanKao\_51
- Track 39 : TingHuaYa\_50
- Track 40 : Padpat\_51, Emerson\_50
- Track 41 : Yunkel11\_52, Guanica15\_52
- Track 42 : Anaya\_51
- Track 43 : Sulley\_49
- Track 44 : Stinson\_50
- Track 45 : LastHope\_52
- Track 46 : DismalFunk\_53, Findley\_53, DismalStressor\_53, Milly\_53, Strobilo\_53, Marcoliusprime\_53
- Track 47 : ZoeJ\_52
- Track 48 : TM4\_48
- Track 49 : BoostSeason\_53
- Track 50 : Mufasa\_53
- Track 51 : Hurricane\_52
- Track 52 : TBond007\_50, Pixie\_51
- Track 53 : MacnCheese\_54
- Track 54 : Keshu\_54
- Track 55 : TribbleTrouble\_49
- Track 56 : Pharb\_49
- Track 57 : ShedlockHolmes\_53
- Track 58 : SamScheppers\_54, Taquito\_56, Juliette\_58, Cheetobro\_56, Slarp\_56, Wintermute\_56, OmniCritical\_55, Malthus\_57, Mitti\_56, Chancellor\_56
- Track 59 : Fionnbharth\_56, Eponine\_58
- Track 60 : Patt\_53, Reptar3000\_54, MissDaisy\_54
- Track 61 : JF1\_56, Ruthiejr\_57, Y10\_55, Y2\_55
- Track 62 : Kraw\_57
- Track 63 : Heftyboy\_45, SoSeph\_45
- Track 64 : Agent47\_47, ViviJ\_45, InvictusManeo\_45
- Track 65 : AlleyCat\_47, Neighly\_47, Dadosky\_47
- Track 66 : Guillsminger\_46, Leston\_45, Feyre\_46, Paola\_45, Miryou\_48
- Track 67 : Gengar\_45, OkiRoe\_45
- Track 68 : Edugator\_44
- Track 69 : Waterfoul\_46
- Track 70 : Psycho\_45, Larva\_46
- Track 71 : Kratio\_44
- Track 72 : Omnicron\_48
- Track 73 : Collard\_45
- Track 74 : Rando14\_47
- Track 75 : Thyatira\_48
- Track 76 : Bryler\_53, Tierra\_53, Phrank\_53, Cain\_53
- Track 77 : Unicorn\_52, PhelpsODU\_52
- Track 78 : Hammy\_52, Amohnition\_52
- Track 79 : Sunflower1121\_56
- Track 80 : Krueger\_56

- Track 81 : Ekdilam\_49
- Track 82 : November\_52
- Track 83 : Ellie\_48, Fefferhead\_50
- Track 84 : Syra333\_55
- Track 85 : Yuna\_56
- Track 86 : SirPhilip\_52
- Track 87 : Amgine\_50
- Track 88 : Ximenita\_56
- Track 89 : Shadow1\_55
- Track 90 : Marshawn\_52
- Track 91 : DarthP\_52
- Track 92 : TClif\_53
- Track 93 : Aminay\_55
- Track 94 : Boilgate\_49
- Track 95 : DS6A\_65

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

The start number called the most often in the published annotations is 23, it was called in 102 of the 189 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ActinUp\_49, Adephagia\_49, Adonis\_49, Ageofdapage\_51, AlishaPH\_49, Amelie\_45, Amgine\_50, Amohnition\_52, Anaya\_51, Angelica\_49, Apocalypse\_52, Asayake\_49, Atiba\_50, BEEST\_49, BGlluviae\_49, BaghaKamala\_48, BarrelRoll\_49, Beezoo\_51, Bella96\_50, Belladonna\_49, Bern\_50, Binglebops\_45, Blizzard\_49, Boiiii\_49, CREW\_49, CallaLilly\_51, Capricorn\_49, CaseJules\_51, CheetoDust\_48, Clipper\_53, CrimD\_49, Curiosium\_51, Dalmuri\_49, DarthP\_52, Dartin\_52, Deby\_49, Devera\_54, Dole\_52, DrHayes\_50, Durfee\_49, Efra2\_52, Ekdilam\_49, Ellie\_48, Emerson\_50, Enkosi\_47, Fefferhead\_50, Ganymede\_50, Geraldini\_52, Guanica15\_52, Hammy\_52, HedwigODU\_49, Homura\_49, Hyperbowlee\_49, Illumine\_52, Inky\_49, JAWS\_49, Jarvi\_49, Jayhawk\_50, Jeckyll\_49, Joy99\_49, LaterM\_50, LilPharaoh\_45, LindNT\_48, Llorens\_49, Lunahalos\_49, MacKat\_44, McMater\_52, Mdavu\_46, MeaningOfLife\_50, Megsy\_51, Murucutumbu\_50, Mynx\_50, Nikao\_48, Niklas\_52, November\_52, Nutello\_45, Padfoot\_49, Padpat\_51, Peanam\_52, Peel\_49, Piatt\_49, Pokerus\_48, Prithvi\_50, QuincyRose\_48, Ramen\_50, Rapunzel97\_50, Richo\_52, Rosmarinus\_49, SamuelLPlaqson\_50, SgtBeansprout\_45, Shaobing\_52, ShiaSurprise\_50, Slimphazie\_49, Spock\_49, Stinson\_50, Sulley\_49, Tachez\_49, TaiwanKao\_51, TingHuaYa\_50, TiniBug\_50, Tiri\_50, Topper\_49, Torres\_47, TreyKay\_50, TruffulaTree\_49, Twitch\_49, Urkel\_50, Validus\_54, Veliki\_50, YoureAdopted\_48, Yunkel11\_52, Zabiza\_44, Zavala\_51,

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

- 

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

- Agent47\_47, AlleyCat\_47, Aminay\_55, Boilgate\_49, BoostSeason\_53, Bryler\_53, Cain\_53, Chancellor\_56, Cheetobro\_56, Chris\_52, Collard\_45, DS6A\_65, Dadosky\_47, DismalFunk\_53, DismalStressor\_53, Edugator\_44, Eponine\_58, Feyre\_46, Findley\_53, Fionnbharth\_56, Gengar\_45, Guillsminger\_46, Heftyboy\_45,

Hurricane\_52, InvictusManeo\_45, JF1\_56, Juliette\_58, Keshu\_54, KiSi\_54, Kratio\_44, Kraw\_57, Krueger\_56, Larva\_46, LastHope\_52, LeMond\_54, Leston\_45, MacnCheese\_54, MalagasyRose\_51, Malthus\_57, Marcoliusprime\_53, MarkPhew\_53, Marshawn\_52, Milly\_53, Miryou\_48, MissDaisy\_54, Mitti\_56, Mufasa\_53, Neighly\_47, Nergal\_47, Nibb\_52, OkiRoe\_45, OmniCritical\_55, Omnicron\_48, Oscar\_54, Paola\_45, Patt\_53, Pharb\_49, PhelpsODU\_52, Phrank\_53, Pixie\_51, Psycho\_45, Rando14\_47, Reptar3000\_54, Ruthiejr\_57, SamScheppers\_54, Scarlett\_54, Shadow1\_55, ShedlockHolmes\_53, SirPhilip\_52, Slarp\_56, SoSeph\_45, Strobilo\_53, Sunflower1121\_56, Syra333\_55, TBond007\_50, TClif\_53, TM4\_48, Taquito\_56, Thyatira\_48, Tierra\_53, TribbleTrouble\_49, Unicorn\_52, ViviJ\_45, Waterfoul\_46, Wintermute\_56, Ximenita\_56, Y10\_55, Y2\_55, Yuna\_56, ZoeJ\_52,

### Summary by start number:

#### Start 23:

- Found in 113 of 203 ( 55.7% ) of genes in pham
- Manual Annotations of this start: 102 of 189
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ActinUp\_49 (K1), Adephagia\_49 (K1), Adonis\_49 (K1), Ageofdapage\_51 (K1), AlishaPH\_49 (K1), Amelie\_45 (K1), Amgine\_50 (K6), Amohntion\_52 (K6), Anaya\_51 (K1), Angelica\_49 (K1), Apocalypse\_52 (K1), Asayake\_49 (K1), Atiba\_50 (K1), BEEST\_49 (K1), BGIlluviae\_49 (K1), BaghaKamala\_48 (K1), BarrelRoll\_49 (K1), Beezoo\_51 (K1), Bella96\_50 (K1), Belladonna\_49 (K1), Bern\_50 (K1), Binglebops\_45 (K1), Blizzard\_49 (K1), Boiiii\_49 (K1), CREW\_49 (K1), CallaLilly\_51 (K1), Capricorn\_49 (K1), CaseJules\_51 (K1), CheetoDust\_48 (K1), Clipper\_53 (K1), CrimD\_49 (K1), Curiosium\_51 (K1), Dalmuri\_49 (K1), DarthP\_52 (K6), Dartin\_52 (K1), Deby\_49 (K1), Devera\_54 (K1), Dole\_52 (K1), DrHayes\_50 (K1), Durfee\_49 (K1), Efra2\_52 (K1), Ekdilam\_49 (K6), Ellie\_48 (K6), Emerson\_50 (K1), Enkosi\_47 (K1), Fefferhead\_50 (K6), Ganymede\_50 (K1), Geraldini\_52 (K1), Guanica15\_52 (K1), Hammy\_52 (K6), HedwigODU\_49 (K1), Homura\_49 (K1), Hyperbowlee\_49 (K1), Illumine\_52 (K1), Inky\_49 (K1), JAWS\_49 (K1), Jarvi\_49 (K1), Jayhawk\_50 (K1), Jeckyll\_49 (K1), Joy99\_49 (K1), LaterM\_50 (K1), LilPharaoh\_45 (K1), LindNT\_48 (K1), Llorens\_49 (K1), Lunahalos\_49 (K1), MackKat\_44 (K1), McMater\_52 (K1), Mdavu\_46 (K1), MeaningOfLife\_50 (K1), Megsy\_51 (K1), Murucutumbu\_50 (K1), Mynx\_50 (K1), Nikao\_48 (K1), Niklas\_52 (K1), November\_52 (K6), Nutello\_45 (K1), Padfoot\_49 (K1), Padpat\_51 (K1), Peanam\_52 (K1), Peel\_49 (K1), Piatt\_49 (K1), Pokerus\_48 (K1), Prithvi\_50 (K1), QuincyRose\_48 (K1), Ramen\_50 (K1), Rapunzel97\_50 (K1), Richo\_52 (K1), Rosmarinus\_49 (K1), SamuelLPlaqson\_50 (K1), SgtBeansprout\_45 (K1), Shaobing\_52 (K1), ShiaSurprise\_50 (K1), Slimphazie\_49 (K1), Spock\_49 (K1), Stinson\_50 (K1), Sulley\_49 (K1), Tachez\_49 (K1), TaiwanKao\_51 (K1), TingHuaYa\_50 (K1), TiniBug\_50 (K1), Tiri\_50 (K1), Topper\_49 (K1), Torres\_47 (K1), TreyKay\_50 (K1), TruffulaTree\_49 (K1), Twitch\_49 (K1), Urkel\_50 (K1), Validus\_54 (K1), Veliki\_50 (K1), YoureAdopted\_48 (K1), Yunkel11\_52 (K1), Zabiza\_44 (K1), Zavala\_51 (K1),

#### Start 24:

- Found in 1 of 203 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 189
- Called 100.0% of time when present
- Phage (with cluster) where this start called: LastHope\_52 (K1),

Start 28:

- Found in 1 of 203 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 189
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DS6A\_65 (singleton),

Start 36:

- Found in 22 of 203 ( 10.8% ) of genes in pham
- Manual Annotations of this start: 7 of 189
- Called 31.8% of time when present
- Phage (with cluster) where this start called: Collard\_45 (K5), Edugator\_44 (K5), Gengar\_45 (K5), Kratio\_44 (K5), Larva\_46 (K5), OkiRoe\_45 (K5), Psycho\_45 (K5),

Start 38:

- Found in 24 of 203 ( 11.8% ) of genes in pham
- Manual Annotations of this start: 15 of 189
- Called 70.8% of time when present
- Phage (with cluster) where this start called: Agent47\_47 (K5), AlleyCat\_47 (K5), Dadosky\_47 (K5), Feyre\_46 (K5), Guillsminger\_46 (K5), Heftyboy\_45 (K5), InvictusManeo\_45 (K5), Leston\_45 (K5), Miryou\_48 (K5), Neighly\_47 (K3), Omnicron\_48 (K5), Paola\_45 (K5), Rando14\_47 (K5), SoSeph\_45 (K5), Thyatira\_48 (K5), ViviJ\_45 (K5), Waterfoul\_46 (K5),

Start 39:

- Found in 1 of 203 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 189
- Called 100.0% of time when present
- Phage (with cluster) where this start called: MalagasyRose\_51 (AG),

Start 40:

- Found in 1 of 203 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 189
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Nergal\_47 (AG),

Start 41:

- Found in 13 of 203 ( 6.4% ) of genes in pham
- Manual Annotations of this start: 9 of 189
- Called 69.2% of time when present
- Phage (with cluster) where this start called: DismalFunk\_53 (K2), DismalStressor\_53 (K2), Findley\_53 (K2), Marcoliusprime\_53 (K2), Milly\_53 (K2), Mufasa\_53 (K2), Strobilo\_53 (K2), TM4\_48 (K2), ZoeJ\_52 (K2),

Start 43:

- Found in 31 of 203 ( 15.3% ) of genes in pham
- Manual Annotations of this start: 30 of 189
- Called 96.8% of time when present
- Phage (with cluster) where this start called: Bryler\_53 (K6), Cain\_53 (K6), Chris\_52 (K1), Hurricane\_52 (K3), Keshu\_54 (K3), KiSi\_54 (K1), Krueger\_56 (K6), LeMond\_54 (K1), MacnCheese\_54 (K3), MarkPhew\_53 (K1), Marshawn\_52 (K6), Nibb\_52 (K1), Oscar\_54 (K1), Pharb\_49 (K3), PhelpsODU\_52 (K6), Phrank\_53 (K6), Pixie\_51 (K3), Scarlett\_54 (K1), Shadow1\_55 (K6), ShedlockHolmes\_53 (K3), SirPhilip\_52 (K6), Sunflower1121\_56 (K6), Syra333\_55 (K6), TBond007\_50 (K3), TClif\_53 (K6),

Tierra\_53 (K6), TripleTrouble\_49 (K3), Unicorn\_52 (K6), Ximenita\_56 (K6), Yuna\_56 (K6),

Start 44:

- Found in 114 of 203 ( 56.2% ) of genes in pham
- Manual Annotations of this start: 1 of 189
- Called 0.9% of time when present
- Phage (with cluster) where this start called: Aminay\_55 (K7),

Start 45:

- Found in 20 of 203 ( 9.9% ) of genes in pham
- Manual Annotations of this start: 19 of 189
- Called 95.0% of time when present
- Phage (with cluster) where this start called: Chancellor\_56 (K4), Cheetobro\_56 (K4), Eponine\_58 (K4), Fionnbharth\_56 (K4), JF1\_56 (K4), Juliette\_58 (K4), Malthus\_57 (K4), MissDaisy\_54 (K4), Mitti\_56 (K4), OmniCritical\_55 (K4), Patt\_53 (K4), Reptar3000\_54 (K4), Ruthiejr\_57 (K4), SamScheppers\_54 (K4), Slarp\_56 (K4), Taquito\_56 (K4), Wintermute\_56 (K4), Y10\_55 (K4), Y2\_55 (K4),

Start 46:

- Found in 17 of 203 ( 8.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 5.9% of time when present
- Phage (with cluster) where this start called: Kraw\_57 (K4),

Start 48:

- Found in 2 of 203 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 189
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Boilgate\_49 (K8),

Start 49:

- Found in 10 of 203 ( 4.9% ) of genes in pham
- Manual Annotations of this start: 1 of 189
- Called 10.0% of time when present
- Phage (with cluster) where this start called: BoostSeason\_53 (K2),

### **Summary by clusters:**

There are 10 clusters represented in this pham: singleton, AG, K3, K2, K1, K7, K6, K5, K4, K8,

Info for manual annotations of cluster AG:

- Start number 39 was manually annotated 1 time for cluster AG.
- Start number 40 was manually annotated 1 time for cluster AG.

Info for manual annotations of cluster K1:

- Start number 23 was manually annotated 95 times for cluster K1.
- Start number 24 was manually annotated 1 time for cluster K1.
- Start number 43 was manually annotated 7 times for cluster K1.

Info for manual annotations of cluster K2:

- Start number 41 was manually annotated 9 times for cluster K2.



- Start number 49 was manually annotated 1 time for cluster K2.

Info for manual annotations of cluster K3:

- Start number 43 was manually annotated 8 times for cluster K3.

Info for manual annotations of cluster K4:

- Start number 45 was manually annotated 19 times for cluster K4.

Info for manual annotations of cluster K5:

- Start number 36 was manually annotated 7 times for cluster K5.
- Start number 38 was manually annotated 15 times for cluster K5.

Info for manual annotations of cluster K6:

- Start number 23 was manually annotated 7 times for cluster K6.
- Start number 43 was manually annotated 15 times for cluster K6.

Info for manual annotations of cluster K7:

- Start number 44 was manually annotated 1 time for cluster K7.

Info for manual annotations of cluster K8:

- Start number 48 was manually annotated 1 time for cluster K8.

### ***Gene Information:***

Gene: ActinUp\_49 Start: 36568, Stop: 37359, Start Num: 23

Candidate Starts for ActinUp\_49:

(Start: 23 @36568 has 102 MA's), (29, 36604), (Start: 44 @36691 has 1 MA's), (58, 36745), (60, 36754), (67, 36796), (68, 36805), (75, 36844), (76, 36865), (83, 36931), (85, 36937), (102, 37045), (109, 37102), (118, 37168), (133, 37252), (134, 37255), (143, 37294), (151, 37348),

Gene: Adephagia\_49 Start: 36565, Stop: 37356, Start Num: 23

Candidate Starts for Adephagia\_49:

(Start: 23 @36565 has 102 MA's), (29, 36601), (Start: 44 @36688 has 1 MA's), (58, 36742), (60, 36751), (67, 36793), (68, 36802), (75, 36841), (76, 36862), (83, 36928), (85, 36934), (102, 37042), (109, 37099), (118, 37165), (134, 37252), (140, 37279), (143, 37291), (151, 37345),

Gene: Adonis\_49 Start: 36863, Stop: 37654, Start Num: 23

Candidate Starts for Adonis\_49:

(Start: 23 @36863 has 102 MA's), (29, 36899), (35, 36926), (Start: 44 @36986 has 1 MA's), (60, 37049), (67, 37091), (68, 37100), (75, 37139), (76, 37160), (85, 37232), (102, 37340), (109, 37397), (118, 37463), (133, 37547), (134, 37550), (140, 37577), (143, 37589), (151, 37643),

Gene: Agent47\_47 Start: 35656, Stop: 36384, Start Num: 38

Candidate Starts for Agent47\_47:

(Start: 36 @35629 has 7 MA's), (Start: 38 @35656 has 15 MA's), (53, 35749), (58, 35779), (68, 35839), (73, 35866), (74, 35875), (81, 35956), (84, 35968), (85, 35971), (113, 36178), (117, 36199), (118, 36208), (120, 36232), (138, 36298), (141, 36310), (149, 36337),

Gene: Ageofdapage\_51 Start: 37548, Stop: 38339, Start Num: 23

Candidate Starts for Ageofdapage\_51:

(Start: 23 @37548 has 102 MA's), (29, 37584), (Start: 44 @37671 has 1 MA's), (58, 37725), (60, 37734), (67, 37776), (68, 37785), (75, 37824), (76, 37845), (83, 37911), (85, 37917), (102, 38025), (109, 38082), (118, 38148), (121, 38175), (134, 38235), (140, 38262), (143, 38274),

Gene: AlishaPH\_49 Start: 36838, Stop: 37629, Start Num: 23

Candidate Starts for AlishaPH\_49:

(Start: 23 @36838 has 102 MA's), (29, 36874), (Start: 44 @36961 has 1 MA's), (58, 37015), (60, 37024), (67, 37066), (68, 37075), (75, 37114), (76, 37135), (83, 37201), (85, 37207), (102, 37315), (109, 37372), (118, 37438), (134, 37525), (140, 37552), (143, 37564), (151, 37618),

Gene: AlleyCat\_47 Start: 35510, Stop: 36238, Start Num: 38

Candidate Starts for AlleyCat\_47:

(Start: 36 @35483 has 7 MA's), (Start: 38 @35510 has 15 MA's), (58, 35633), (73, 35720), (74, 35729), (81, 35810), (84, 35822), (85, 35825), (113, 36032), (117, 36053), (118, 36062), (120, 36086), (138, 36152), (141, 36164), (149, 36191),

Gene: Amelie\_45 Start: 36225, Stop: 37043, Start Num: 23

Candidate Starts for Amelie\_45:

(Start: 23 @36225 has 102 MA's), (Start: 44 @36348 has 1 MA's), (58, 36423), (60, 36432), (67, 36474), (72, 36510), (74, 36522), (76, 36546), (83, 36612), (94, 36681), (95, 36684), (109, 36783), (116, 36834), (118, 36849), (120, 36873), (121, 36876), (133, 36933), (134, 36936),

Gene: Amgine\_50 Start: 37771, Stop: 38556, Start Num: 23

Candidate Starts for Amgine\_50:

(2, 37501), (Start: 23 @37771 has 102 MA's), (Start: 44 @37894 has 1 MA's), (58, 37948), (60, 37957), (67, 37999), (68, 38008), (69, 38011), (72, 38032), (74, 38044), (76, 38068), (85, 38140), (94, 38203), (104, 38263), (106, 38269), (118, 38371), (133, 38452), (134, 38455), (140, 38482), (143, 38494),

Gene: Aminay\_55 Start: 38521, Stop: 39168, Start Num: 44

Candidate Starts for Aminay\_55:

(Start: 44 @38521 has 1 MA's), (58, 38596), (62, 38617), (67, 38647), (77, 38716), (83, 38779), (93, 38836), (98, 38875), (111, 38971), (119, 39019), (120, 39040), (123, 39049), (139, 39124),

Gene: Amohnition\_52 Start: 37775, Stop: 38563, Start Num: 23

Candidate Starts for Amohnition\_52:

(1, 37484), (18, 37706), (Start: 23 @37775 has 102 MA's), (Start: 44 @37898 has 1 MA's), (54, 37928), (58, 37952), (60, 37961), (67, 38003), (68, 38012), (72, 38036), (76, 38072), (94, 38207), (109, 38309), (112, 38342), (114, 38354), (133, 38456), (134, 38459), (140, 38486), (143, 38498),

Gene: Anaya\_51 Start: 37165, Stop: 37956, Start Num: 23

Candidate Starts for Anaya\_51:

(Start: 23 @37165 has 102 MA's), (29, 37201), (35, 37228), (Start: 44 @37288 has 1 MA's), (58, 37342), (60, 37351), (67, 37393), (68, 37402), (69, 37405), (75, 37441), (76, 37462), (85, 37534), (102, 37642), (109, 37699), (118, 37765), (133, 37849), (134, 37852), (140, 37879), (143, 37891), (151, 37945),

Gene: Angelica\_49 Start: 36795, Stop: 37586, Start Num: 23

Candidate Starts for Angelica\_49:

(Start: 23 @36795 has 102 MA's), (29, 36831), (Start: 44 @36918 has 1 MA's), (60, 36981), (67, 37023), (68, 37032), (75, 37071), (76, 37092), (83, 37158), (85, 37164), (102, 37272), (109, 37329), (118, 37395), (133, 37479), (134, 37482), (140, 37509), (143, 37521), (151, 37575),

Gene: Apocalypse\_52 Start: 37574, Stop: 38365, Start Num: 23

Candidate Starts for Apocalypse\_52:

(Start: 23 @37574 has 102 MA's), (29, 37610), (Start: 44 @37697 has 1 MA's), (58, 37751), (60, 37760), (64, 37775), (67, 37802), (68, 37811), (72, 37835), (75, 37850), (76, 37871), (83, 37937), (85, 37943), (102, 38051), (109, 38108), (118, 38174), (133, 38258), (134, 38261), (140, 38288), (143, 38300), (151, 38354),

Gene: Asayake\_49 Start: 36880, Stop: 37671, Start Num: 23

Candidate Starts for Asayake\_49:

(Start: 23 @36880 has 102 MA's), (29, 36916), (Start: 44 @37003 has 1 MA's), (58, 37057), (60, 37066), (67, 37108), (68, 37117), (75, 37156), (76, 37177), (83, 37243), (85, 37249), (102, 37357), (109, 37414), (118, 37480), (134, 37567), (140, 37594), (143, 37606), (151, 37660),

Gene: Atiba\_50 Start: 36528, Stop: 37319, Start Num: 23

Candidate Starts for Atiba\_50:

(Start: 23 @36528 has 102 MA's), (29, 36564), (Start: 44 @36651 has 1 MA's), (58, 36705), (60, 36714), (67, 36756), (68, 36765), (75, 36804), (76, 36825), (83, 36891), (85, 36897), (102, 37005), (109, 37062), (118, 37128), (133, 37212), (134, 37215), (140, 37242), (143, 37254), (151, 37308),

Gene: BEEST\_49 Start: 36880, Stop: 37671, Start Num: 23

Candidate Starts for BEEST\_49:

(Start: 23 @36880 has 102 MA's), (29, 36916), (Start: 44 @37003 has 1 MA's), (58, 37057), (60, 37066), (67, 37108), (68, 37117), (75, 37156), (76, 37177), (83, 37243), (85, 37249), (102, 37357), (109, 37414), (118, 37480), (134, 37567), (140, 37594), (143, 37606), (151, 37660),

Gene: BGlluviae\_49 Start: 36683, Stop: 37474, Start Num: 23

Candidate Starts for BGlluviae\_49:

(Start: 23 @36683 has 102 MA's), (29, 36719), (Start: 44 @36806 has 1 MA's), (58, 36860), (60, 36869), (67, 36911), (68, 36920), (75, 36959), (76, 36980), (83, 37046), (85, 37052), (102, 37160), (109, 37217), (118, 37283), (134, 37370), (140, 37397), (143, 37409), (151, 37463),

Gene: BaghaKamala\_48 Start: 36003, Stop: 36794, Start Num: 23

Candidate Starts for BaghaKamala\_48:

(Start: 23 @36003 has 102 MA's), (29, 36039), (Start: 44 @36126 has 1 MA's), (58, 36180), (60, 36189), (67, 36231), (68, 36240), (75, 36279), (76, 36300), (83, 36366), (85, 36372), (102, 36480), (109, 36537), (118, 36603), (134, 36690), (140, 36717), (143, 36729), (151, 36783),

Gene: BarrelRoll\_49 Start: 36551, Stop: 37342, Start Num: 23

Candidate Starts for BarrelRoll\_49:

(Start: 23 @36551 has 102 MA's), (29, 36587), (Start: 44 @36674 has 1 MA's), (58, 36728), (60, 36737), (67, 36779), (68, 36788), (75, 36827), (76, 36848), (83, 36914), (85, 36920), (102, 37028), (109, 37085), (118, 37151), (133, 37235), (134, 37238), (140, 37265), (143, 37277), (151, 37331),

Gene: Beezoo\_51 Start: 37526, Stop: 38317, Start Num: 23

Candidate Starts for Beezoo\_51:

(Start: 23 @37526 has 102 MA's), (29, 37562), (Start: 44 @37649 has 1 MA's), (58, 37703), (60, 37712), (67, 37754), (68, 37763), (75, 37802), (76, 37823), (83, 37889), (85, 37895), (102, 38003), (109, 38060), (118, 38126), (129, 38186), (133, 38210), (134, 38213), (140, 38240), (143, 38252), (151, 38306),

Gene: Bella96\_50 Start: 37392, Stop: 38183, Start Num: 23

Candidate Starts for Bella96\_50:

(Start: 23 @37392 has 102 MA's), (29, 37428), (Start: 44 @37515 has 1 MA's), (58, 37569), (60, 37578), (67, 37620), (68, 37629), (69, 37632), (72, 37653), (74, 37665), (76, 37689), (83, 37755), (85,

37761), (102, 37869), (109, 37926), (118, 37992), (121, 38019), (134, 38079), (140, 38106), (143, 38118), (151, 38172),

Gene: Belladonna\_49 Start: 36683, Stop: 37474, Start Num: 23

Candidate Starts for Belladonna\_49:

(Start: 23 @36683 has 102 MA's), (29, 36719), (Start: 44 @36806 has 1 MA's), (58, 36860), (60, 36869), (67, 36911), (68, 36920), (75, 36959), (76, 36980), (83, 37046), (85, 37052), (102, 37160), (109, 37217), (118, 37283), (134, 37370), (140, 37397), (143, 37409), (151, 37463),

Gene: Bern\_50 Start: 35598, Stop: 36389, Start Num: 23

Candidate Starts for Bern\_50:

(Start: 23 @35598 has 102 MA's), (29, 35634), (Start: 44 @35721 has 1 MA's), (58, 35775), (60, 35784), (67, 35826), (68, 35835), (75, 35874), (76, 35895), (83, 35961), (85, 35967), (102, 36075), (109, 36132), (118, 36198), (133, 36282), (134, 36285), (140, 36312), (143, 36324), (151, 36378),

Gene: Biglebops\_45 Start: 36225, Stop: 37043, Start Num: 23

Candidate Starts for Biglebops\_45:

(Start: 23 @36225 has 102 MA's), (Start: 44 @36348 has 1 MA's), (58, 36423), (60, 36432), (67, 36474), (72, 36510), (74, 36522), (76, 36546), (83, 36612), (94, 36681), (95, 36684), (109, 36783), (116, 36834), (118, 36849), (120, 36873), (121, 36876), (133, 36933), (134, 36936),

Gene: Blizzard\_49 Start: 36880, Stop: 37671, Start Num: 23

Candidate Starts for Blizzard\_49:

(Start: 23 @36880 has 102 MA's), (29, 36916), (Start: 44 @37003 has 1 MA's), (58, 37057), (60, 37066), (67, 37108), (68, 37117), (75, 37156), (76, 37177), (83, 37243), (85, 37249), (102, 37357), (109, 37414), (118, 37480), (134, 37567), (140, 37594), (143, 37606), (151, 37660),

Gene: Boiiii\_49 Start: 36882, Stop: 37673, Start Num: 23

Candidate Starts for Boiiii\_49:

(Start: 23 @36882 has 102 MA's), (29, 36918), (Start: 44 @37005 has 1 MA's), (58, 37059), (60, 37068), (67, 37110), (68, 37119), (75, 37158), (76, 37179), (83, 37245), (85, 37251), (102, 37359), (109, 37416), (118, 37482), (134, 37569), (140, 37596), (143, 37608), (151, 37662),

Gene: Boilgate\_49 Start: 37862, Stop: 38506, Start Num: 48

Candidate Starts for Boilgate\_49:

(Start: 48 @37862 has 1 MA's), (50, 37871), (70, 37997), (79, 38096), (80, 38099), (83, 38111), (84, 38114), (88, 38141), (90, 38159), (98, 38213), (103, 38234), (109, 38288), (110, 38300), (118, 38354), (119, 38357), (121, 38381), (130, 38414), (131, 38426), (136, 38450),

Gene: BoostSeason\_53 Start: 38442, Stop: 39131, Start Num: 49

Candidate Starts for BoostSeason\_53:

(Start: 41 @38391 has 9 MA's), (Start: 49 @38442 has 1 MA's), (56, 38481), (58, 38499), (67, 38550), (74, 38595), (76, 38619), (80, 38673), (94, 38754), (97, 38778), (98, 38787), (102, 38805), (111, 38883), (116, 38913), (118, 38928), (120, 38958), (141, 39045), (152, 39120),

Gene: Bryler\_53 Start: 36462, Stop: 37157, Start Num: 43

Candidate Starts for Bryler\_53:

(37, 36429), (Start: 43 @36462 has 30 MA's), (58, 36540), (60, 36549), (67, 36591), (76, 36660), (101, 36834), (103, 36843), (109, 36897), (116, 36948), (118, 36963), (133, 37047), (134, 37050),

Gene: CREW\_49 Start: 36683, Stop: 37474, Start Num: 23

Candidate Starts for CREW\_49:

(Start: 23 @36683 has 102 MA's), (29, 36719), (Start: 44 @36806 has 1 MA's), (58, 36860), (60, 36869), (67, 36911), (68, 36920), (75, 36959), (76, 36980), (83, 37046), (85, 37052), (102, 37160), (109, 37217), (118, 37283), (134, 37370), (140, 37397), (143, 37409), (151, 37463),

Gene: Cain\_53 Start: 36450, Stop: 37145, Start Num: 43

Candidate Starts for Cain\_53:

(37, 36417), (Start: 43 @36450 has 30 MA's), (58, 36528), (60, 36537), (67, 36579), (76, 36648), (101, 36822), (103, 36831), (109, 36885), (116, 36936), (118, 36951), (133, 37035), (134, 37038),

Gene: CallaLilly\_51 Start: 36606, Stop: 37397, Start Num: 23

Candidate Starts for CallaLilly\_51:

(Start: 23 @36606 has 102 MA's), (29, 36642), (Start: 44 @36729 has 1 MA's), (58, 36783), (60, 36792), (67, 36834), (68, 36843), (75, 36882), (76, 36903), (83, 36969), (85, 36975), (102, 37083), (108, 37116), (109, 37140), (118, 37206), (134, 37293), (140, 37320), (143, 37332), (151, 37386),

Gene: Capricorn\_49 Start: 36683, Stop: 37474, Start Num: 23

Candidate Starts for Capricorn\_49:

(Start: 23 @36683 has 102 MA's), (29, 36719), (Start: 44 @36806 has 1 MA's), (58, 36860), (60, 36869), (67, 36911), (68, 36920), (75, 36959), (76, 36980), (83, 37046), (85, 37052), (102, 37160), (109, 37217), (118, 37283), (134, 37370), (140, 37397), (143, 37409), (151, 37463),

Gene: CaseJules\_51 Start: 36880, Stop: 37671, Start Num: 23

Candidate Starts for CaseJules\_51:

(Start: 23 @36880 has 102 MA's), (29, 36916), (Start: 44 @37003 has 1 MA's), (58, 37057), (60, 37066), (67, 37108), (68, 37117), (75, 37156), (76, 37177), (83, 37243), (85, 37249), (102, 37357), (109, 37414), (118, 37480), (134, 37567), (140, 37594), (143, 37606), (151, 37660),

Gene: Chancellor\_56 Start: 38211, Stop: 38903, Start Num: 45

Candidate Starts for Chancellor\_56:

(Start: 45 @38211 has 19 MA's), (46, 38214), (55, 38274), (56, 38277), (58, 38295), (68, 38352), (71, 38364), (80, 38466), (82, 38472), (92, 38535), (106, 38616), (108, 38628), (111, 38673), (116, 38703), (118, 38718), (123, 38751), (126, 38763), (128, 38772), (138, 38820), (149, 38859),

Gene: CheetoDust\_48 Start: 36052, Stop: 36843, Start Num: 23

Candidate Starts for CheetoDust\_48:

(Start: 23 @36052 has 102 MA's), (29, 36088), (Start: 44 @36175 has 1 MA's), (58, 36229), (60, 36238), (67, 36280), (68, 36289), (75, 36328), (76, 36349), (83, 36415), (85, 36421), (102, 36529), (109, 36586), (118, 36652), (133, 36736), (134, 36739), (140, 36766), (143, 36778), (151, 36832),

Gene: Cheetobro\_56 Start: 38208, Stop: 38900, Start Num: 45

Candidate Starts for Cheetobro\_56:

(Start: 45 @38208 has 19 MA's), (46, 38211), (55, 38271), (56, 38274), (58, 38292), (68, 38349), (71, 38361), (80, 38463), (82, 38469), (92, 38532), (106, 38613), (108, 38625), (111, 38670), (116, 38700), (118, 38715), (123, 38748), (126, 38760), (128, 38769), (138, 38817), (149, 38856),

Gene: Chris\_52 Start: 37597, Stop: 38295, Start Num: 43

Candidate Starts for Chris\_52:

(35, 37531), (37, 37561), (Start: 43 @37597 has 30 MA's), (58, 37684), (60, 37693), (74, 37780), (76, 37804), (94, 37939), (109, 38041), (116, 38092), (118, 38107), (133, 38191), (134, 38194), (143, 38233),

Gene: Clipper\_53 Start: 37199, Stop: 37990, Start Num: 23

Candidate Starts for Clipper\_53:

(Start: 23 @37199 has 102 MA's), (29, 37235), (Start: 44 @37322 has 1 MA's), (60, 37385), (67, 37427), (68, 37436), (75, 37475), (76, 37496), (83, 37562), (85, 37568), (102, 37676), (109, 37733), (118, 37799), (133, 37883), (134, 37886), (140, 37913), (151, 37979),

Gene: Collard\_45 Start: 35590, Stop: 36345, Start Num: 36

Candidate Starts for Collard\_45:

(Start: 36 @35590 has 7 MA's), (Start: 38 @35617 has 15 MA's), (53, 35710), (58, 35740), (68, 35800), (73, 35827), (74, 35836), (81, 35917), (84, 35929), (85, 35932), (113, 36139), (117, 36160), (118, 36169), (120, 36193), (138, 36259), (141, 36271), (149, 36298),

Gene: CrimD\_49 Start: 36789, Stop: 37580, Start Num: 23

Candidate Starts for CrimD\_49:

(Start: 23 @36789 has 102 MA's), (29, 36825), (Start: 44 @36912 has 1 MA's), (58, 36966), (60, 36975), (67, 37017), (68, 37026), (75, 37065), (76, 37086), (83, 37152), (85, 37158), (102, 37266), (109, 37323), (118, 37389), (133, 37473), (134, 37476), (140, 37503), (143, 37515), (151, 37569),

Gene: Curiosium\_51 Start: 35467, Stop: 36258, Start Num: 23

Candidate Starts for Curiosium\_51:

(Start: 23 @35467 has 102 MA's), (29, 35503), (35, 35530), (Start: 44 @35590 has 1 MA's), (58, 35644), (60, 35653), (69, 35707), (74, 35740), (75, 35743), (76, 35764), (109, 36001), (118, 36067), (126, 36112), (133, 36151), (134, 36154), (140, 36181), (143, 36193),

Gene: DS6A\_65 Start: 43090, Stop: 43806, Start Num: 28

Candidate Starts for DS6A\_65:

(Start: 28 @43090 has 1 MA's), (30, 43099), (32, 43108), (42, 43177), (47, 43201), (57, 43255), (59, 43273), (63, 43285), (65, 43288), (66, 43294), (85, 43423), (96, 43495), (99, 43510), (106, 43546), (116, 43633), (118, 43648), (119, 43651), (123, 43669), (137, 43729), (146, 43768), (148, 43771), (150, 43795),

Gene: Dadosky\_47 Start: 35512, Stop: 36240, Start Num: 38

Candidate Starts for Dadosky\_47:

(Start: 36 @35485 has 7 MA's), (Start: 38 @35512 has 15 MA's), (58, 35635), (73, 35722), (74, 35731), (81, 35812), (84, 35824), (85, 35827), (113, 36034), (117, 36055), (118, 36064), (120, 36088), (138, 36154), (141, 36166), (149, 36193),

Gene: Dalmuri\_49 Start: 36683, Stop: 37474, Start Num: 23

Candidate Starts for Dalmuri\_49:

(Start: 23 @36683 has 102 MA's), (29, 36719), (Start: 44 @36806 has 1 MA's), (58, 36860), (60, 36869), (67, 36911), (68, 36920), (75, 36959), (76, 36980), (83, 37046), (85, 37052), (102, 37160), (109, 37217), (118, 37283), (134, 37370), (140, 37397), (143, 37409), (151, 37463),

Gene: DarthP\_52 Start: 37659, Stop: 38447, Start Num: 23

Candidate Starts for DarthP\_52:

(1, 37368), (18, 37590), (Start: 23 @37659 has 102 MA's), (Start: 44 @37782 has 1 MA's), (54, 37812), (58, 37836), (60, 37845), (67, 37887), (68, 37896), (72, 37920), (76, 37956), (84, 38025), (94, 38091), (109, 38193), (112, 38226), (114, 38238), (133, 38340), (134, 38343), (140, 38370), (143, 38382),

Gene: Dartin\_52 Start: 37470, Stop: 38288, Start Num: 23

Candidate Starts for Dartin\_52:

(3, 37230), (21, 37440), (Start: 23 @37470 has 102 MA's), (Start: 44 @37593 has 1 MA's), (58, 37668), (60, 37677), (67, 37719), (72, 37755), (74, 37767), (76, 37791), (82, 37851), (94, 37926), (104, 37986), (108, 38004), (109, 38028), (112, 38061), (116, 38079), (118, 38094), (133, 38175), (134, 38178), (140, 38205), (143, 38217),

Gene: Deby\_49 Start: 36811, Stop: 37602, Start Num: 23

Candidate Starts for Deby\_49:

(Start: 23 @36811 has 102 MA's), (29, 36847), (Start: 44 @36934 has 1 MA's), (58, 36988), (60, 36997), (67, 37039), (68, 37048), (75, 37087), (76, 37108), (83, 37174), (85, 37180), (102, 37288), (109, 37345), (118, 37411), (133, 37495), (134, 37498), (140, 37525), (143, 37537), (151, 37591),

Gene: Devera\_54 Start: 37315, Stop: 38106, Start Num: 23

Candidate Starts for Devera\_54:

(Start: 23 @37315 has 102 MA's), (29, 37351), (Start: 44 @37438 has 1 MA's), (58, 37492), (60, 37501), (67, 37543), (68, 37552), (69, 37555), (75, 37591), (76, 37612), (83, 37678), (85, 37684), (102, 37792), (109, 37849), (118, 37915), (121, 37942), (140, 38029), (143, 38041),

Gene: DismalFunk\_53 Start: 38822, Stop: 39562, Start Num: 41

Candidate Starts for DismalFunk\_53:

(31, 38744), (Start: 41 @38822 has 9 MA's), (Start: 49 @38873 has 1 MA's), (56, 38912), (58, 38930), (67, 38981), (74, 39026), (76, 39050), (80, 39104), (94, 39185), (97, 39209), (98, 39218), (102, 39236), (108, 39269), (111, 39314), (116, 39344), (118, 39359), (120, 39389), (141, 39476), (152, 39551),

Gene: DismalStressor\_53 Start: 38822, Stop: 39562, Start Num: 41

Candidate Starts for DismalStressor\_53:

(31, 38744), (Start: 41 @38822 has 9 MA's), (Start: 49 @38873 has 1 MA's), (56, 38912), (58, 38930), (67, 38981), (74, 39026), (76, 39050), (80, 39104), (94, 39185), (97, 39209), (98, 39218), (102, 39236), (108, 39269), (111, 39314), (116, 39344), (118, 39359), (120, 39389), (141, 39476), (152, 39551),

Gene: Dole\_52 Start: 37317, Stop: 38108, Start Num: 23

Candidate Starts for Dole\_52:

(Start: 23 @37317 has 102 MA's), (29, 37353), (Start: 44 @37440 has 1 MA's), (58, 37494), (60, 37503), (67, 37545), (68, 37554), (69, 37557), (75, 37593), (76, 37614), (83, 37680), (85, 37686), (102, 37794), (109, 37851), (118, 37917), (121, 37944), (140, 38031), (143, 38043),

Gene: DrHayes\_50 Start: 37454, Stop: 38245, Start Num: 23

Candidate Starts for DrHayes\_50:

(Start: 23 @37454 has 102 MA's), (29, 37490), (Start: 44 @37577 has 1 MA's), (58, 37631), (60, 37640), (67, 37682), (68, 37691), (69, 37694), (72, 37715), (76, 37751), (83, 37817), (85, 37823), (102, 37931), (109, 37988), (118, 38054), (121, 38081), (133, 38138), (134, 38141), (140, 38168), (143, 38180), (151, 38234),

Gene: Durfee\_49 Start: 36880, Stop: 37671, Start Num: 23

Candidate Starts for Durfee\_49:

(Start: 23 @36880 has 102 MA's), (29, 36916), (Start: 44 @37003 has 1 MA's), (58, 37057), (60, 37066), (67, 37108), (68, 37117), (75, 37156), (76, 37177), (83, 37243), (85, 37249), (102, 37357), (109, 37414), (118, 37480), (134, 37567), (140, 37594), (143, 37606), (151, 37660),

Gene: Edugator\_44 Start: 35910, Stop: 36665, Start Num: 36

Candidate Starts for Edugator\_44:

(Start: 36 @35910 has 7 MA's), (Start: 38 @35937 has 15 MA's), (58, 36060), (73, 36147), (74, 36156), (81, 36237), (84, 36249), (85, 36252), (113, 36459), (117, 36480), (118, 36489), (120, 36513), (138, 36579), (149, 36618),

Gene: Efra2\_52 Start: 36399, Stop: 37190, Start Num: 23

Candidate Starts for Efra2\_52:

(Start: 23 @36399 has 102 MA's), (29, 36435), (Start: 44 @36522 has 1 MA's), (58, 36576), (60, 36585), (69, 36639), (72, 36660), (74, 36672), (76, 36696), (84, 36765), (109, 36933), (118, 36999), (133, 37083), (140, 37113), (143, 37125),

Gene: Ekdilam\_49 Start: 37206, Stop: 37994, Start Num: 23

Candidate Starts for Ekdilam\_49:

(18, 37137), (Start: 23 @37206 has 102 MA's), (Start: 44 @37329 has 1 MA's), (54, 37359), (58, 37383), (60, 37392), (67, 37434), (68, 37443), (69, 37446), (72, 37467), (76, 37503), (82, 37563), (94, 37638), (109, 37740), (112, 37773), (120, 37830), (133, 37887), (134, 37890), (140, 37917), (143, 37929),

Gene: Ellie\_48 Start: 36959, Stop: 37744, Start Num: 23

Candidate Starts for Ellie\_48:

(2, 36689), (Start: 23 @36959 has 102 MA's), (Start: 44 @37082 has 1 MA's), (58, 37136), (60, 37145), (67, 37187), (68, 37196), (69, 37199), (72, 37220), (74, 37232), (76, 37256), (85, 37328), (94, 37391), (101, 37430), (104, 37451), (106, 37457), (118, 37559), (133, 37640), (134, 37643), (140, 37670), (143, 37682),

Gene: Emerson\_50 Start: 36559, Stop: 37350, Start Num: 23

Candidate Starts for Emerson\_50:

(Start: 23 @36559 has 102 MA's), (29, 36595), (Start: 44 @36682 has 1 MA's), (58, 36736), (60, 36745), (67, 36787), (68, 36796), (75, 36835), (76, 36856), (83, 36922), (85, 36928), (102, 37036), (109, 37093), (118, 37159), (133, 37243), (134, 37246), (140, 37273), (143, 37285),

Gene: Enkosi\_47 Start: 38838, Stop: 39656, Start Num: 23

Candidate Starts for Enkosi\_47:

(Start: 23 @38838 has 102 MA's), (Start: 44 @38961 has 1 MA's), (58, 39036), (60, 39045), (67, 39087), (72, 39123), (74, 39135), (76, 39159), (83, 39225), (94, 39294), (95, 39297), (109, 39396), (116, 39447), (118, 39462), (120, 39486), (121, 39489), (133, 39546), (134, 39549),

Gene: Eponine\_58 Start: 39048, Stop: 39740, Start Num: 45

Candidate Starts for Eponine\_58:

(Start: 45 @39048 has 19 MA's), (46, 39051), (55, 39111), (56, 39114), (68, 39189), (71, 39201), (80, 39303), (82, 39309), (92, 39372), (106, 39453), (108, 39465), (111, 39510), (116, 39540), (118, 39555), (123, 39588), (128, 39609), (138, 39657), (149, 39696),

Gene: Fefferhead\_50 Start: 36909, Stop: 37694, Start Num: 23

Candidate Starts for Fefferhead\_50:

(2, 36639), (Start: 23 @36909 has 102 MA's), (Start: 44 @37032 has 1 MA's), (58, 37086), (60, 37095), (67, 37137), (68, 37146), (69, 37149), (72, 37170), (74, 37182), (76, 37206), (85, 37278), (94, 37341), (101, 37380), (104, 37401), (106, 37407), (118, 37509), (133, 37590), (134, 37593), (140, 37620), (143, 37632),

Gene: Feyre\_46 Start: 36760, Stop: 37491, Start Num: 38

Candidate Starts for Feyre\_46:

(Start: 36 @36733 has 7 MA's), (Start: 38 @36760 has 15 MA's), (57, 36868), (58, 36880), (74, 36976), (76, 37000), (82, 37060), (85, 37072), (91, 37117), (94, 37135), (97, 37159), (102, 37186), (117, 37300), (118, 37309), (119, 37312), (138, 37399), (149, 37438),

Gene: Findley\_53 Start: 38815, Stop: 39555, Start Num: 41

Candidate Starts for Findley\_53:

(31, 38737), (Start: 41 @38815 has 9 MA's), (Start: 49 @38866 has 1 MA's), (56, 38905), (58, 38923), (67, 38974), (74, 39019), (76, 39043), (80, 39097), (94, 39178), (97, 39202), (98, 39211), (102, 39229),



(108, 39262), (111, 39307), (116, 39337), (118, 39352), (120, 39382), (141, 39469), (152, 39544),

Gene: Fionnbharth\_56 Start: 38446, Stop: 39138, Start Num: 45

Candidate Starts for Fionnbharth\_56:

(Start: 45 @38446 has 19 MA's), (46, 38449), (55, 38509), (56, 38512), (68, 38587), (71, 38599), (80, 38701), (82, 38707), (92, 38770), (106, 38851), (108, 38863), (111, 38908), (116, 38938), (118, 38953), (123, 38986), (128, 39007), (138, 39055), (149, 39094),

Gene: Ganymede\_50 Start: 36998, Stop: 37789, Start Num: 23

Candidate Starts for Ganymede\_50:

(Start: 23 @36998 has 102 MA's), (29, 37034), (Start: 44 @37121 has 1 MA's), (54, 37151), (58, 37175), (60, 37184), (67, 37226), (68, 37235), (75, 37274), (76, 37295), (83, 37361), (85, 37367), (102, 37475), (109, 37532), (113, 37568), (118, 37598), (133, 37682), (134, 37685), (140, 37712), (143, 37724), (151, 37778),

Gene: Gengar\_45 Start: 35348, Stop: 36106, Start Num: 36

Candidate Starts for Gengar\_45:

(Start: 36 @35348 has 7 MA's), (Start: 38 @35375 has 15 MA's), (57, 35483), (58, 35495), (74, 35591), (76, 35615), (82, 35675), (85, 35687), (91, 35732), (94, 35750), (97, 35774), (102, 35801), (117, 35915), (118, 35924), (119, 35927), (138, 36014), (149, 36053),

Gene: Geraldini\_52 Start: 37615, Stop: 38406, Start Num: 23

Candidate Starts for Geraldini\_52:

(Start: 23 @37615 has 102 MA's), (29, 37651), (Start: 44 @37738 has 1 MA's), (58, 37792), (60, 37801), (67, 37843), (68, 37852), (75, 37891), (76, 37912), (83, 37978), (85, 37984), (102, 38092), (109, 38149), (118, 38215), (133, 38299), (134, 38302), (140, 38329), (143, 38341), (151, 38395),

Gene: Guanica15\_52 Start: 36356, Stop: 37147, Start Num: 23

Candidate Starts for Guanica15\_52:

(Start: 23 @36356 has 102 MA's), (29, 36392), (Start: 44 @36479 has 1 MA's), (58, 36533), (60, 36542), (69, 36596), (72, 36617), (74, 36629), (76, 36653), (84, 36722), (109, 36890), (118, 36956), (133, 37040), (134, 37043), (140, 37070), (143, 37082),

Gene: Guillsminger\_46 Start: 35346, Stop: 36077, Start Num: 38

Candidate Starts for Guillsminger\_46:

(Start: 36 @35319 has 7 MA's), (Start: 38 @35346 has 15 MA's), (57, 35454), (58, 35466), (74, 35562), (76, 35586), (82, 35646), (85, 35658), (91, 35703), (94, 35721), (97, 35745), (102, 35772), (117, 35886), (118, 35895), (119, 35898), (138, 35985), (149, 36024),

Gene: Hammy\_52 Start: 37647, Stop: 38435, Start Num: 23

Candidate Starts for Hammy\_52:

(1, 37356), (18, 37578), (Start: 23 @37647 has 102 MA's), (Start: 44 @37770 has 1 MA's), (54, 37800), (58, 37824), (60, 37833), (67, 37875), (68, 37884), (72, 37908), (76, 37944), (94, 38079), (109, 38181), (112, 38214), (114, 38226), (133, 38328), (134, 38331), (140, 38358), (143, 38370),

Gene: HedwigODU\_49 Start: 36568, Stop: 37359, Start Num: 23

Candidate Starts for HedwigODU\_49:

(Start: 23 @36568 has 102 MA's), (29, 36604), (Start: 44 @36691 has 1 MA's), (58, 36745), (60, 36754), (67, 36796), (68, 36805), (75, 36844), (76, 36865), (83, 36931), (85, 36937), (102, 37045), (109, 37102), (118, 37168), (133, 37252), (134, 37255), (143, 37294), (151, 37348),

Gene: Heftyboy\_45 Start: 35496, Stop: 36227, Start Num: 38

Candidate Starts for Heftyboy\_45:

(Start: 36 @35469 has 7 MA's), (Start: 38 @35496 has 15 MA's), (57, 35604), (58, 35616), (74, 35712), (76, 35736), (82, 35796), (85, 35808), (94, 35871), (97, 35895), (102, 35922), (115, 36027), (117, 36036), (118, 36045), (119, 36048), (138, 36135), (149, 36174),

Gene: Homura\_49 Start: 36683, Stop: 37474, Start Num: 23

Candidate Starts for Homura\_49:

(Start: 23 @36683 has 102 MA's), (29, 36719), (Start: 44 @36806 has 1 MA's), (58, 36860), (60, 36869), (67, 36911), (68, 36920), (75, 36959), (76, 36980), (83, 37046), (85, 37052), (102, 37160), (109, 37217), (118, 37283), (134, 37370), (140, 37397), (143, 37409), (151, 37463),

Gene: Hurricane\_52 Start: 37245, Stop: 37922, Start Num: 43

Candidate Starts for Hurricane\_52:

(Start: 43 @37245 has 30 MA's), (58, 37320), (67, 37371), (74, 37416), (76, 37440), (84, 37509), (89, 37551), (94, 37575), (99, 37608), (102, 37620), (108, 37653), (109, 37677), (120, 37767), (134, 37830), (140, 37857),

Gene: Hyperbowlee\_49 Start: 36880, Stop: 37671, Start Num: 23

Candidate Starts for Hyperbowlee\_49:

(Start: 23 @36880 has 102 MA's), (29, 36916), (Start: 44 @37003 has 1 MA's), (58, 37057), (60, 37066), (67, 37108), (68, 37117), (75, 37156), (76, 37177), (83, 37243), (85, 37249), (102, 37357), (109, 37414), (118, 37480), (134, 37567), (140, 37594), (143, 37606), (151, 37660),

Gene: Illumine\_52 Start: 37317, Stop: 38108, Start Num: 23

Candidate Starts for Illumine\_52:

(Start: 23 @37317 has 102 MA's), (29, 37353), (Start: 44 @37440 has 1 MA's), (58, 37494), (60, 37503), (67, 37545), (68, 37554), (69, 37557), (75, 37593), (76, 37614), (83, 37680), (85, 37686), (102, 37794), (109, 37851), (118, 37917), (121, 37944), (140, 38031), (143, 38043),

Gene: Inky\_49 Start: 36683, Stop: 37474, Start Num: 23

Candidate Starts for Inky\_49:

(Start: 23 @36683 has 102 MA's), (29, 36719), (Start: 44 @36806 has 1 MA's), (58, 36860), (60, 36869), (67, 36911), (68, 36920), (75, 36959), (76, 36980), (83, 37046), (85, 37052), (102, 37160), (109, 37217), (118, 37283), (134, 37370), (140, 37397), (143, 37409), (151, 37463),

Gene: InvictusManeo\_45 Start: 35660, Stop: 36388, Start Num: 38

Candidate Starts for InvictusManeo\_45:

(Start: 36 @35633 has 7 MA's), (Start: 38 @35660 has 15 MA's), (53, 35753), (58, 35783), (68, 35843), (73, 35870), (74, 35879), (81, 35960), (84, 35972), (85, 35975), (113, 36182), (117, 36203), (118, 36212), (120, 36236), (138, 36302), (141, 36314), (149, 36341),

Gene: JAWS\_49 Start: 36557, Stop: 37348, Start Num: 23

Candidate Starts for JAWS\_49:

(Start: 23 @36557 has 102 MA's), (29, 36593), (Start: 44 @36680 has 1 MA's), (58, 36734), (60, 36743), (67, 36785), (75, 36833), (76, 36854), (83, 36920), (85, 36926), (102, 37034), (109, 37091), (118, 37157), (134, 37244), (140, 37271), (143, 37283), (151, 37337),

Gene: JF1\_56 Start: 38363, Stop: 39055, Start Num: 45

Candidate Starts for JF1\_56:

(Start: 45 @38363 has 19 MA's), (46, 38366), (55, 38426), (56, 38429), (58, 38447), (68, 38504), (71, 38516), (80, 38618), (82, 38624), (92, 38687), (106, 38768), (108, 38780), (111, 38825), (113, 38840), (116, 38855), (118, 38870), (123, 38903), (126, 38915), (128, 38924), (138, 38972), (149, 39011),

Gene: Jarvi\_49 Start: 36683, Stop: 37474, Start Num: 23

Candidate Starts for Jarvi\_49:

(Start: 23 @36683 has 102 MA's), (29, 36719), (Start: 44 @36806 has 1 MA's), (58, 36860), (60, 36869), (67, 36911), (68, 36920), (75, 36959), (76, 36980), (83, 37046), (85, 37052), (102, 37160), (109, 37217), (118, 37283), (134, 37370), (140, 37397), (143, 37409), (151, 37463),

Gene: Jayhawk\_50 Start: 36566, Stop: 37357, Start Num: 23

Candidate Starts for Jayhawk\_50:

(Start: 23 @36566 has 102 MA's), (29, 36602), (Start: 44 @36689 has 1 MA's), (58, 36743), (60, 36752), (67, 36794), (68, 36803), (75, 36842), (76, 36863), (83, 36929), (85, 36935), (102, 37043), (109, 37100), (118, 37166), (133, 37250), (134, 37253), (140, 37280), (143, 37292), (151, 37346),

Gene: Jeckyll\_49 Start: 36683, Stop: 37474, Start Num: 23

Candidate Starts for Jeckyll\_49:

(Start: 23 @36683 has 102 MA's), (29, 36719), (Start: 44 @36806 has 1 MA's), (58, 36860), (60, 36869), (67, 36911), (68, 36920), (75, 36959), (76, 36980), (83, 37046), (85, 37052), (102, 37160), (108, 37193), (109, 37217), (118, 37283), (134, 37370), (140, 37397), (143, 37409), (151, 37463),

Gene: Joy99\_49 Start: 36612, Stop: 37403, Start Num: 23

Candidate Starts for Joy99\_49:

(Start: 23 @36612 has 102 MA's), (29, 36648), (Start: 44 @36735 has 1 MA's), (58, 36789), (60, 36798), (67, 36840), (68, 36849), (75, 36888), (76, 36909), (83, 36975), (85, 36981), (102, 37089), (109, 37146), (118, 37212), (134, 37299), (140, 37326), (143, 37338), (151, 37392),

Gene: Juliette\_58 Start: 38516, Stop: 39208, Start Num: 45

Candidate Starts for Juliette\_58:

(Start: 45 @38516 has 19 MA's), (46, 38519), (55, 38579), (56, 38582), (58, 38600), (68, 38657), (71, 38669), (80, 38771), (82, 38777), (92, 38840), (106, 38921), (108, 38933), (111, 38978), (116, 39008), (118, 39023), (123, 39056), (126, 39068), (128, 39077), (138, 39125), (149, 39164),

Gene: Keshu\_54 Start: 37312, Stop: 37989, Start Num: 43

Candidate Starts for Keshu\_54:

(Start: 43 @37312 has 30 MA's), (58, 37387), (67, 37438), (74, 37483), (76, 37507), (84, 37576), (89, 37618), (94, 37642), (99, 37675), (102, 37687), (108, 37720), (109, 37744), (117, 37801), (120, 37834), (140, 37924), (142, 37930),

Gene: KiSi\_54 Start: 37986, Stop: 38690, Start Num: 43

Candidate Starts for KiSi\_54:

(35, 37920), (37, 37950), (Start: 43 @37986 has 30 MA's), (47, 38010), (58, 38073), (60, 38082), (67, 38124), (68, 38133), (72, 38157), (74, 38169), (76, 38193), (94, 38328), (102, 38373), (109, 38430), (116, 38481), (120, 38520), (133, 38580), (134, 38583), (143, 38622),

Gene: Kratio\_44 Start: 35184, Stop: 35939, Start Num: 36

Candidate Starts for Kratio\_44:

(Start: 36 @35184 has 7 MA's), (Start: 38 @35211 has 15 MA's), (58, 35334), (73, 35421), (74, 35430), (81, 35511), (84, 35523), (85, 35526), (113, 35733), (118, 35763), (120, 35787), (138, 35853), (141, 35865), (149, 35892),

Gene: Kraw\_57 Start: 38207, Stop: 38896, Start Num: 46

Candidate Starts for Kraw\_57:

(Start: 45 @38204 has 19 MA's), (46, 38207), (55, 38267), (56, 38270), (58, 38288), (68, 38345), (71, 38357), (80, 38459), (82, 38465), (92, 38528), (106, 38609), (108, 38621), (111, 38666), (116, 38696), (118, 38711), (123, 38744), (126, 38756), (128, 38765), (138, 38813), (149, 38852),

Gene: Krueger\_56 Start: 37456, Stop: 38148, Start Num: 43

Candidate Starts for Krueger\_56:

(37, 37423), (Start: 43 @37456 has 30 MA's), (58, 37534), (60, 37543), (67, 37585), (68, 37594), (74, 37630), (76, 37654), (101, 37828), (103, 37837), (109, 37891), (112, 37924), (116, 37942), (118, 37957), (133, 38041), (134, 38044),

Gene: Larva\_46 Start: 35352, Stop: 36107, Start Num: 36

Candidate Starts for Larva\_46:

(Start: 36 @35352 has 7 MA's), (Start: 38 @35379 has 15 MA's), (58, 35502), (73, 35589), (74, 35598), (81, 35679), (84, 35691), (85, 35694), (113, 35901), (117, 35922), (118, 35931), (120, 35955), (138, 36021), (141, 36033), (149, 36060),

Gene: LastHope\_52 Start: 35843, Stop: 36631, Start Num: 24

Candidate Starts for LastHope\_52:

(21, 35804), (Start: 24 @35843 has 1 MA's), (Start: 44 @35963 has 1 MA's), (58, 36017), (60, 36026), (64, 36041), (67, 36068), (75, 36116), (76, 36137), (83, 36203), (109, 36374), (118, 36440), (133, 36524), (134, 36527), (140, 36554),

Gene: LaterM\_50 Start: 37445, Stop: 38236, Start Num: 23

Candidate Starts for LaterM\_50:

(Start: 23 @37445 has 102 MA's), (29, 37481), (Start: 44 @37568 has 1 MA's), (58, 37622), (60, 37631), (67, 37673), (68, 37682), (69, 37685), (75, 37721), (76, 37742), (83, 37808), (85, 37814), (102, 37922), (109, 37979), (118, 38045), (121, 38072), (134, 38132), (140, 38159), (143, 38171),

Gene: LeMond\_54 Start: 37970, Stop: 38674, Start Num: 43

Candidate Starts for LeMond\_54:

(37, 37934), (Start: 43 @37970 has 30 MA's), (47, 37994), (58, 38057), (60, 38066), (67, 38108), (68, 38117), (72, 38141), (74, 38153), (76, 38177), (94, 38312), (102, 38357), (109, 38414), (116, 38465), (120, 38504), (133, 38564), (134, 38567), (143, 38606),

Gene: Leston\_45 Start: 35475, Stop: 36206, Start Num: 38

Candidate Starts for Leston\_45:

(Start: 36 @35448 has 7 MA's), (Start: 38 @35475 has 15 MA's), (57, 35583), (58, 35595), (74, 35691), (76, 35715), (82, 35775), (85, 35787), (91, 35832), (94, 35850), (97, 35874), (102, 35901), (117, 36015), (118, 36024), (119, 36027), (138, 36114), (149, 36153),

Gene: LilPharaoh\_45 Start: 35953, Stop: 36771, Start Num: 23

Candidate Starts for LilPharaoh\_45:

(Start: 23 @35953 has 102 MA's), (Start: 44 @36076 has 1 MA's), (58, 36151), (60, 36160), (67, 36202), (72, 36238), (74, 36250), (76, 36274), (83, 36340), (94, 36409), (95, 36412), (109, 36511), (116, 36562), (118, 36577), (120, 36601), (121, 36604), (133, 36661), (134, 36664),

Gene: LindNT\_48 Start: 36768, Stop: 37559, Start Num: 23

Candidate Starts for LindNT\_48:

(Start: 23 @36768 has 102 MA's), (29, 36804), (Start: 44 @36891 has 1 MA's), (58, 36945), (60, 36954), (67, 36996), (68, 37005), (75, 37044), (76, 37065), (83, 37131), (85, 37137), (102, 37245), (109, 37302), (118, 37368), (126, 37413), (133, 37452), (134, 37455), (140, 37482), (143, 37494), (151, 37548),

Gene: Llorens\_49 Start: 36683, Stop: 37474, Start Num: 23

Candidate Starts for Llorens\_49:

(Start: 23 @36683 has 102 MA's), (29, 36719), (Start: 44 @36806 has 1 MA's), (58, 36860), (60, 36869), (67, 36911), (68, 36920), (75, 36959), (76, 36980), (83, 37046), (85, 37052), (102, 37160),

(109, 37217), (118, 37283), (134, 37370), (140, 37397), (143, 37409), (151, 37463),

Gene: Lunahalos\_49 Start: 36683, Stop: 37474, Start Num: 23

Candidate Starts for Lunahalos\_49:

(Start: 23 @36683 has 102 MA's), (29, 36719), (Start: 44 @36806 has 1 MA's), (58, 36860), (60, 36869), (67, 36911), (68, 36920), (75, 36959), (76, 36980), (83, 37046), (85, 37052), (102, 37160), (109, 37217), (118, 37283), (134, 37370), (140, 37397), (143, 37409), (151, 37463),

Gene: MacKat\_44 Start: 32083, Stop: 32874, Start Num: 23

Candidate Starts for MacKat\_44:

(Start: 23 @32083 has 102 MA's), (29, 32119), (Start: 44 @32206 has 1 MA's), (60, 32269), (67, 32311), (68, 32320), (75, 32359), (76, 32380), (83, 32446), (85, 32452), (102, 32560), (109, 32617), (118, 32683), (133, 32767), (134, 32770), (140, 32797), (151, 32863),

Gene: MacnCheese\_54 Start: 38254, Stop: 38931, Start Num: 43

Candidate Starts for MacnCheese\_54:

(16, 38008), (Start: 43 @38254 has 30 MA's), (58, 38329), (67, 38380), (76, 38449), (84, 38518), (89, 38560), (94, 38584), (99, 38617), (102, 38629), (106, 38650), (108, 38662), (109, 38686), (117, 38743), (118, 38752), (120, 38776), (134, 38839), (140, 38866),

Gene: MalagasyRose\_51 Start: 35357, Stop: 36058, Start Num: 39

Candidate Starts for MalagasyRose\_51:

(5, 35012), (6, 35027), (8, 35033), (10, 35048), (11, 35066), (13, 35111), (17, 35177), (19, 35180), (20, 35201), (22, 35210), (26, 35273), (Start: 39 @35357 has 1 MA's), (52, 35420), (61, 35480), (67, 35516), (73, 35549), (76, 35582), (78, 35618), (79, 35633), (82, 35642), (86, 35663), (87, 35675), (100, 35756), (102, 35768), (104, 35783), (105, 35786), (106, 35789), (107, 35792), (108, 35801), (109, 35825), (114, 35870), (116, 35876), (117, 35882), (118, 35891), (119, 35894), (122, 35921), (123, 35924), (127, 35942), (133, 35972), (135, 35981), (137, 35984), (144, 36011), (145, 36017), (147, 36023),

Gene: Malthus\_57 Start: 38204, Stop: 38896, Start Num: 45

Candidate Starts for Malthus\_57:

(Start: 45 @38204 has 19 MA's), (46, 38207), (55, 38267), (56, 38270), (58, 38288), (68, 38345), (71, 38357), (80, 38459), (82, 38465), (92, 38528), (106, 38609), (108, 38621), (111, 38666), (116, 38696), (118, 38711), (123, 38744), (126, 38756), (128, 38765), (138, 38813), (149, 38852),

Gene: Marcoliusprime\_53 Start: 38822, Stop: 39562, Start Num: 41

Candidate Starts for Marcoliusprime\_53:

(31, 38744), (Start: 41 @38822 has 9 MA's), (Start: 49 @38873 has 1 MA's), (56, 38912), (58, 38930), (67, 38981), (74, 39026), (76, 39050), (80, 39104), (94, 39185), (97, 39209), (98, 39218), (102, 39236), (108, 39269), (111, 39314), (116, 39344), (118, 39359), (120, 39389), (141, 39476), (152, 39551),

Gene: MarkPhew\_53 Start: 37429, Stop: 38127, Start Num: 43

Candidate Starts for MarkPhew\_53:

(14, 37198), (35, 37363), (37, 37393), (Start: 43 @37429 has 30 MA's), (47, 37453), (58, 37516), (60, 37525), (67, 37567), (74, 37612), (76, 37636), (94, 37771), (102, 37816), (113, 37909), (118, 37939), (133, 38023), (134, 38026), (143, 38065),

Gene: Marshawn\_52 Start: 37567, Stop: 38265, Start Num: 43

Candidate Starts for Marshawn\_52:

(15, 37342), (25, 37453), (37, 37534), (Start: 43 @37567 has 30 MA's), (58, 37651), (60, 37660), (67, 37702), (68, 37711), (76, 37771), (82, 37831), (85, 37843), (108, 37984), (109, 38008), (113, 38044), (114, 38053), (118, 38074), (119, 38077), (134, 38161), (143, 38200),

Gene: McMater\_52 Start: 37470, Stop: 38288, Start Num: 23

Candidate Starts for McMater\_52:

(3, 37230), (21, 37440), (Start: 23 @37470 has 102 MA's), (Start: 44 @37593 has 1 MA's), (58, 37668), (60, 37677), (67, 37719), (72, 37755), (74, 37767), (76, 37791), (82, 37851), (94, 37926), (104, 37986), (108, 38004), (109, 38028), (112, 38061), (116, 38079), (118, 38094), (133, 38175), (134, 38178), (140, 38205), (143, 38217),

Gene: Mdavu\_46 Start: 36214, Stop: 37032, Start Num: 23

Candidate Starts for Mdavu\_46:

(Start: 23 @36214 has 102 MA's), (Start: 44 @36337 has 1 MA's), (58, 36412), (60, 36421), (67, 36463), (72, 36499), (74, 36511), (76, 36535), (83, 36601), (94, 36670), (95, 36673), (109, 36772), (116, 36823), (118, 36838), (120, 36862), (121, 36865), (133, 36922), (134, 36925),

Gene: MeaningOfLife\_50 Start: 37492, Stop: 38283, Start Num: 23

Candidate Starts for MeaningOfLife\_50:

(Start: 23 @37492 has 102 MA's), (29, 37528), (Start: 44 @37615 has 1 MA's), (58, 37669), (60, 37678), (67, 37720), (68, 37729), (75, 37768), (76, 37789), (83, 37855), (85, 37861), (102, 37969), (109, 38026), (118, 38092), (133, 38176), (134, 38179), (140, 38206), (143, 38218), (151, 38272),

Gene: Megsy\_51 Start: 36827, Stop: 37618, Start Num: 23

Candidate Starts for Megsy\_51:

(Start: 23 @36827 has 102 MA's), (29, 36863), (Start: 44 @36950 has 1 MA's), (58, 37004), (60, 37013), (64, 37028), (67, 37055), (68, 37064), (75, 37103), (76, 37124), (83, 37190), (85, 37196), (102, 37304), (109, 37361), (118, 37427), (133, 37511), (134, 37514), (140, 37541), (151, 37607),

Gene: Milly\_53 Start: 38795, Stop: 39535, Start Num: 41

Candidate Starts for Milly\_53:

(31, 38717), (Start: 41 @38795 has 9 MA's), (Start: 49 @38846 has 1 MA's), (56, 38885), (58, 38903), (67, 38954), (74, 38999), (76, 39023), (80, 39077), (94, 39158), (97, 39182), (98, 39191), (102, 39209), (108, 39242), (111, 39287), (116, 39317), (118, 39332), (120, 39362), (141, 39449), (152, 39524),

Gene: Miryou\_48 Start: 37678, Stop: 38409, Start Num: 38

Candidate Starts for Miryou\_48:

(Start: 36 @37651 has 7 MA's), (Start: 38 @37678 has 15 MA's), (57, 37786), (58, 37798), (74, 37894), (76, 37918), (82, 37978), (85, 37990), (91, 38035), (94, 38053), (97, 38077), (102, 38104), (117, 38218), (118, 38227), (119, 38230), (138, 38317), (149, 38356),

Gene: MissDaisy\_54 Start: 37736, Stop: 38428, Start Num: 45

Candidate Starts for MissDaisy\_54:

(Start: 45 @37736 has 19 MA's), (55, 37799), (58, 37820), (71, 37889), (74, 37910), (75, 37913), (80, 37991), (82, 37997), (92, 38060), (106, 38141), (111, 38198), (116, 38228), (118, 38243), (123, 38276), (126, 38288), (128, 38297), (138, 38345), (149, 38384),

Gene: Mitti\_56 Start: 38383, Stop: 39075, Start Num: 45

Candidate Starts for Mitti\_56:

(Start: 45 @38383 has 19 MA's), (46, 38386), (55, 38446), (56, 38449), (58, 38467), (68, 38524), (71, 38536), (80, 38638), (82, 38644), (92, 38707), (106, 38788), (108, 38800), (111, 38845), (116, 38875), (118, 38890), (123, 38923), (126, 38935), (128, 38944), (138, 38992), (149, 39031),

Gene: Mufasa\_53 Start: 38376, Stop: 39116, Start Num: 41

Candidate Starts for Mufasa\_53:

(Start: 41 @38376 has 9 MA's), (Start: 49 @38427 has 1 MA's), (56, 38466), (58, 38484), (67, 38535), (74, 38580), (76, 38604), (80, 38658), (94, 38739), (97, 38763), (98, 38772), (102, 38790), (108, 38823), (111, 38868), (116, 38898), (118, 38913), (120, 38943), (141, 39030), (152, 39105),

Gene: Murucutumbu\_50 Start: 37538, Stop: 38329, Start Num: 23

Candidate Starts for Murucutumbu\_50:

(Start: 23 @37538 has 102 MA's), (29, 37574), (Start: 44 @37661 has 1 MA's), (58, 37715), (60, 37724), (67, 37766), (68, 37775), (75, 37814), (76, 37835), (83, 37901), (85, 37907), (102, 38015), (109, 38072), (118, 38138), (121, 38165), (126, 38183), (134, 38225), (140, 38252), (143, 38264),

Gene: Mynx\_50 Start: 36884, Stop: 37675, Start Num: 23

Candidate Starts for Mynx\_50:

(Start: 23 @36884 has 102 MA's), (29, 36920), (Start: 44 @37007 has 1 MA's), (58, 37061), (60, 37070), (67, 37112), (68, 37121), (75, 37160), (76, 37181), (83, 37247), (85, 37253), (102, 37361), (109, 37418), (118, 37484), (134, 37571), (143, 37610), (151, 37664),

Gene: Neighly\_47 Start: 35378, Stop: 36106, Start Num: 38

Candidate Starts for Neighly\_47:

(Start: 36 @35351 has 7 MA's), (Start: 38 @35378 has 15 MA's), (58, 35501), (73, 35588), (74, 35597), (81, 35678), (84, 35690), (85, 35693), (113, 35900), (117, 35921), (118, 35930), (120, 35954), (138, 36020), (141, 36032), (149, 36059),

Gene: Nergal\_47 Start: 35299, Stop: 36027, Start Num: 40

Candidate Starts for Nergal\_47:

(33, 35260), (Start: 40 @35299 has 1 MA's), (Start: 41 @35308 has 9 MA's), (51, 35359), (55, 35389), (85, 35605), (94, 35659), (98, 35695), (103, 35716), (116, 35821), (118, 35836), (119, 35839), (126, 35881), (141, 35944), (149, 35971),

Gene: Nibb\_52 Start: 37118, Stop: 37816, Start Num: 43

Candidate Starts for Nibb\_52:

(4, 36782), (12, 36860), (35, 37052), (37, 37082), (Start: 43 @37118 has 30 MA's), (47, 37142), (58, 37205), (60, 37214), (67, 37256), (72, 37289), (76, 37325), (94, 37460), (102, 37505), (109, 37562), (113, 37598), (118, 37628), (133, 37712), (134, 37715), (143, 37754),

Gene: Nikao\_48 Start: 38838, Stop: 39656, Start Num: 23

Candidate Starts for Nikao\_48:

(Start: 23 @38838 has 102 MA's), (Start: 44 @38961 has 1 MA's), (58, 39036), (60, 39045), (67, 39087), (72, 39123), (74, 39135), (76, 39159), (83, 39225), (94, 39294), (95, 39297), (109, 39396), (116, 39447), (118, 39462), (120, 39486), (121, 39489), (133, 39546), (134, 39549),

Gene: Niklas\_52 Start: 37531, Stop: 38349, Start Num: 23

Candidate Starts for Niklas\_52:

(3, 37291), (21, 37501), (Start: 23 @37531 has 102 MA's), (Start: 44 @37654 has 1 MA's), (58, 37729), (60, 37738), (67, 37780), (72, 37816), (74, 37828), (76, 37852), (82, 37912), (94, 37987), (104, 38047), (108, 38065), (109, 38089), (112, 38122), (116, 38140), (118, 38155), (133, 38236), (134, 38239), (140, 38266), (143, 38278),

Gene: November\_52 Start: 37410, Stop: 38198, Start Num: 23

Candidate Starts for November\_52:

(1, 37119), (18, 37341), (Start: 23 @37410 has 102 MA's), (Start: 44 @37533 has 1 MA's), (54, 37563), (58, 37587), (60, 37596), (67, 37638), (68, 37647), (72, 37671), (76, 37707), (82, 37767), (85, 37779), (94, 37842), (102, 37887), (104, 37902), (106, 37908), (109, 37944), (113, 37980), (118, 38010), (133, 38091), (134, 38094), (140, 38121), (143, 38133),

Gene: Nutello\_45 Start: 36225, Stop: 37043, Start Num: 23

Candidate Starts for Nutello\_45:

(Start: 23 @36225 has 102 MA's), (Start: 44 @36348 has 1 MA's), (58, 36423), (60, 36432), (67, 36474), (72, 36510), (74, 36522), (76, 36546), (83, 36612), (94, 36681), (95, 36684), (109, 36783), (116, 36834), (118, 36849), (120, 36873), (121, 36876), (133, 36933), (134, 36936),

Gene: OkiRoe\_45 Start: 35321, Stop: 36079, Start Num: 36

Candidate Starts for OkiRoe\_45:

(Start: 36 @35321 has 7 MA's), (Start: 38 @35348 has 15 MA's), (57, 35456), (58, 35468), (74, 35564), (76, 35588), (82, 35648), (85, 35660), (91, 35705), (94, 35723), (97, 35747), (102, 35774), (117, 35888), (118, 35897), (119, 35900), (138, 35987), (149, 36026),

Gene: OmniCritical\_55 Start: 38192, Stop: 38884, Start Num: 45

Candidate Starts for OmniCritical\_55:

(Start: 45 @38192 has 19 MA's), (46, 38195), (55, 38255), (56, 38258), (58, 38276), (68, 38333), (71, 38345), (80, 38447), (82, 38453), (92, 38516), (106, 38597), (108, 38609), (111, 38654), (116, 38684), (118, 38699), (123, 38732), (126, 38744), (128, 38753), (138, 38801), (149, 38840),

Gene: Omnicron\_48 Start: 34963, Stop: 35694, Start Num: 38

Candidate Starts for Omnicron\_48:

(Start: 38 @34963 has 15 MA's), (Start: 41 @34981 has 9 MA's), (74, 35179), (76, 35203), (79, 35254), (81, 35260), (97, 35362), (102, 35389), (117, 35503), (118, 35512), (124, 35548), (138, 35602), (141, 35614), (149, 35641),

Gene: Oscar\_54 Start: 37872, Stop: 38576, Start Num: 43

Candidate Starts for Oscar\_54:

(7, 37548), (9, 37554), (37, 37836), (Start: 43 @37872 has 30 MA's), (47, 37896), (58, 37959), (60, 37968), (68, 38019), (72, 38043), (74, 38055), (76, 38079), (94, 38214), (102, 38259), (109, 38316), (116, 38367), (120, 38406), (133, 38466), (134, 38469), (143, 38508),

Gene: Padfoot\_49 Start: 36880, Stop: 37671, Start Num: 23

Candidate Starts for Padfoot\_49:

(Start: 23 @36880 has 102 MA's), (29, 36916), (Start: 44 @37003 has 1 MA's), (58, 37057), (60, 37066), (67, 37108), (68, 37117), (75, 37156), (76, 37177), (83, 37243), (85, 37249), (102, 37357), (109, 37414), (118, 37480), (134, 37567), (140, 37594), (143, 37606), (151, 37660),

Gene: Padpat\_51 Start: 36559, Stop: 37350, Start Num: 23

Candidate Starts for Padpat\_51:

(Start: 23 @36559 has 102 MA's), (29, 36595), (Start: 44 @36682 has 1 MA's), (58, 36736), (60, 36745), (67, 36787), (68, 36796), (75, 36835), (76, 36856), (83, 36922), (85, 36928), (102, 37036), (109, 37093), (118, 37159), (133, 37243), (134, 37246), (140, 37273), (143, 37285),

Gene: Paola\_45 Start: 35346, Stop: 36077, Start Num: 38

Candidate Starts for Paola\_45:

(Start: 36 @35319 has 7 MA's), (Start: 38 @35346 has 15 MA's), (57, 35454), (58, 35466), (74, 35562), (76, 35586), (82, 35646), (85, 35658), (91, 35703), (94, 35721), (97, 35745), (102, 35772), (117, 35886), (118, 35895), (119, 35898), (138, 35985), (149, 36024),

Gene: Patt\_53 Start: 37460, Stop: 38152, Start Num: 45

Candidate Starts for Patt\_53:

(Start: 45 @37460 has 19 MA's), (55, 37523), (58, 37544), (71, 37613), (74, 37634), (75, 37637), (80, 37715), (82, 37721), (92, 37784), (106, 37865), (111, 37922), (116, 37952), (118, 37967), (123,



38000), (126, 38012), (128, 38021), (138, 38069), (149, 38108),

Gene: Peanam\_52 Start: 37489, Stop: 38307, Start Num: 23

Candidate Starts for Peanam\_52:

(3, 37249), (21, 37459), (Start: 23 @37489 has 102 MA's), (Start: 44 @37612 has 1 MA's), (58, 37687), (60, 37696), (67, 37738), (72, 37774), (74, 37786), (76, 37810), (82, 37870), (94, 37945), (104, 38005), (108, 38023), (109, 38047), (112, 38080), (116, 38098), (118, 38113), (133, 38194), (134, 38197), (140, 38224), (143, 38236),

Gene: Peel\_49 Start: 36685, Stop: 37476, Start Num: 23

Candidate Starts for Peel\_49:

(Start: 23 @36685 has 102 MA's), (29, 36721), (Start: 44 @36808 has 1 MA's), (58, 36862), (60, 36871), (67, 36913), (68, 36922), (75, 36961), (76, 36982), (83, 37048), (85, 37054), (102, 37162), (109, 37219), (118, 37285), (134, 37372), (140, 37399), (143, 37411), (151, 37465),

Gene: Pharb\_49 Start: 36008, Stop: 36685, Start Num: 43

Candidate Starts for Pharb\_49:

(27, 35906), (37, 35972), (Start: 43 @36008 has 30 MA's), (58, 36083), (67, 36134), (74, 36179), (76, 36203), (82, 36263), (84, 36272), (89, 36314), (94, 36338), (97, 36362), (99, 36371), (108, 36416), (109, 36440), (113, 36476), (114, 36485), (120, 36530), (133, 36590), (134, 36593), (140, 36620),

Gene: PhelpsODU\_52 Start: 36483, Stop: 37178, Start Num: 43

Candidate Starts for PhelpsODU\_52:

(37, 36450), (Start: 43 @36483 has 30 MA's), (58, 36561), (60, 36570), (68, 36621), (76, 36681), (101, 36855), (103, 36864), (108, 36894), (109, 36918), (116, 36969), (118, 36984), (133, 37068), (134, 37071),

Gene: Phrank\_53 Start: 36440, Stop: 37135, Start Num: 43

Candidate Starts for Phrank\_53:

(37, 36407), (Start: 43 @36440 has 30 MA's), (58, 36518), (60, 36527), (67, 36569), (76, 36638), (101, 36812), (103, 36821), (109, 36875), (116, 36926), (118, 36941), (133, 37025), (134, 37028),

Gene: Piatt\_49 Start: 36880, Stop: 37671, Start Num: 23

Candidate Starts for Piatt\_49:

(Start: 23 @36880 has 102 MA's), (29, 36916), (Start: 44 @37003 has 1 MA's), (58, 37057), (60, 37066), (67, 37108), (68, 37117), (75, 37156), (76, 37177), (83, 37243), (85, 37249), (102, 37357), (109, 37414), (118, 37480), (134, 37567), (140, 37594), (143, 37606), (151, 37660),

Gene: Pixie\_51 Start: 36777, Stop: 37454, Start Num: 43

Candidate Starts for Pixie\_51:

(Start: 43 @36777 has 30 MA's), (58, 36852), (67, 36903), (74, 36948), (76, 36972), (84, 37041), (89, 37083), (94, 37107), (99, 37140), (102, 37152), (108, 37185), (109, 37209), (117, 37266), (120, 37299), (134, 37362), (140, 37389), (142, 37395),

Gene: Pokerus\_48 Start: 36606, Stop: 37397, Start Num: 23

Candidate Starts for Pokerus\_48:

(Start: 23 @36606 has 102 MA's), (29, 36642), (Start: 44 @36729 has 1 MA's), (58, 36783), (60, 36792), (67, 36834), (68, 36843), (75, 36882), (76, 36903), (83, 36969), (85, 36975), (102, 37083), (108, 37116), (109, 37140), (118, 37206), (133, 37290), (134, 37293), (140, 37320), (143, 37332), (151, 37386),

Gene: Prithvi\_50 Start: 36768, Stop: 37559, Start Num: 23

Candidate Starts for Prithvi\_50:

(Start: 23 @36768 has 102 MA's), (29, 36804), (Start: 44 @36891 has 1 MA's), (58, 36945), (60, 36954), (67, 36996), (68, 37005), (75, 37044), (76, 37065), (83, 37131), (85, 37137), (102, 37245), (109, 37302), (118, 37368), (126, 37413), (133, 37452), (134, 37455), (140, 37482), (143, 37494), (151, 37548),

Gene: Psycho\_45 Start: 35482, Stop: 36237, Start Num: 36

Candidate Starts for Psycho\_45:

(Start: 36 @35482 has 7 MA's), (Start: 38 @35509 has 15 MA's), (58, 35632), (73, 35719), (74, 35728), (81, 35809), (84, 35821), (85, 35824), (113, 36031), (117, 36052), (118, 36061), (120, 36085), (138, 36151), (141, 36163), (149, 36190),

Gene: QuincyRose\_48 Start: 36998, Stop: 37789, Start Num: 23

Candidate Starts for QuincyRose\_48:

(Start: 23 @36998 has 102 MA's), (29, 37034), (Start: 44 @37121 has 1 MA's), (54, 37151), (58, 37175), (60, 37184), (67, 37226), (68, 37235), (75, 37274), (76, 37295), (83, 37361), (85, 37367), (102, 37475), (109, 37532), (113, 37568), (118, 37598), (133, 37682), (134, 37685), (140, 37712), (143, 37724), (151, 37778),

Gene: Ramen\_50 Start: 36570, Stop: 37361, Start Num: 23

Candidate Starts for Ramen\_50:

(Start: 23 @36570 has 102 MA's), (29, 36606), (Start: 44 @36693 has 1 MA's), (58, 36747), (60, 36756), (67, 36798), (68, 36807), (75, 36846), (76, 36867), (83, 36933), (85, 36939), (102, 37047), (109, 37104), (118, 37170), (129, 37230), (133, 37254), (134, 37257), (143, 37296), (151, 37350),

Gene: Rando14\_47 Start: 34531, Stop: 35259, Start Num: 38

Candidate Starts for Rando14\_47:

(Start: 38 @34531 has 15 MA's), (Start: 41 @34549 has 9 MA's), (74, 34747), (76, 34771), (79, 34822), (81, 34828), (97, 34930), (102, 34957), (115, 35062), (117, 35071), (118, 35080), (119, 35083), (138, 35170), (141, 35182),

Gene: Rapunzel97\_50 Start: 36566, Stop: 37357, Start Num: 23

Candidate Starts for Rapunzel97\_50:

(Start: 23 @36566 has 102 MA's), (29, 36602), (Start: 44 @36689 has 1 MA's), (58, 36743), (60, 36752), (67, 36794), (68, 36803), (75, 36842), (76, 36863), (83, 36929), (85, 36935), (102, 37043), (109, 37100), (118, 37166), (133, 37250), (134, 37253), (140, 37280), (143, 37292), (151, 37346),

Gene: Reptar3000\_54 Start: 37448, Stop: 38140, Start Num: 45

Candidate Starts for Reptar3000\_54:

(Start: 45 @37448 has 19 MA's), (55, 37511), (58, 37532), (71, 37601), (74, 37622), (75, 37625), (80, 37703), (82, 37709), (92, 37772), (106, 37853), (111, 37910), (116, 37940), (118, 37955), (123, 37988), (126, 38000), (128, 38009), (138, 38057), (149, 38096),

Gene: Richo\_52 Start: 37470, Stop: 38288, Start Num: 23

Candidate Starts for Richo\_52:

(3, 37230), (21, 37440), (Start: 23 @37470 has 102 MA's), (Start: 44 @37593 has 1 MA's), (58, 37668), (60, 37677), (67, 37719), (72, 37755), (74, 37767), (76, 37791), (82, 37851), (94, 37926), (104, 37986), (108, 38004), (109, 38028), (112, 38061), (116, 38079), (118, 38094), (133, 38175), (134, 38178), (140, 38205), (143, 38217),

Gene: Rosmarinus\_49 Start: 36671, Stop: 37462, Start Num: 23

Candidate Starts for Rosmarinus\_49:

(Start: 23 @36671 has 102 MA's), (29, 36707), (Start: 44 @36794 has 1 MA's), (58, 36848), (60, 36857), (67, 36899), (68, 36908), (75, 36947), (76, 36968), (83, 37034), (85, 37040), (102, 37148),

(109, 37205), (118, 37271), (134, 37358), (140, 37385), (143, 37397), (151, 37451),

Gene: Ruthiejr\_57 Start: 38254, Stop: 38946, Start Num: 45

Candidate Starts for Ruthiejr\_57:

(Start: 45 @38254 has 19 MA's), (46, 38257), (55, 38317), (56, 38320), (58, 38338), (68, 38395), (71, 38407), (80, 38509), (82, 38515), (92, 38578), (106, 38659), (108, 38671), (111, 38716), (113, 38731), (116, 38746), (118, 38761), (123, 38794), (126, 38806), (128, 38815), (138, 38863), (149, 38902),

Gene: SamScheppers\_54 Start: 38683, Stop: 39375, Start Num: 45

Candidate Starts for SamScheppers\_54:

(Start: 45 @38683 has 19 MA's), (46, 38686), (55, 38746), (56, 38749), (58, 38767), (68, 38824), (71, 38836), (80, 38938), (82, 38944), (92, 39007), (106, 39088), (108, 39100), (111, 39145), (116, 39175), (118, 39190), (123, 39223), (126, 39235), (128, 39244), (138, 39292), (149, 39331),

Gene: SamuelLPlaqson\_50 Start: 37454, Stop: 38245, Start Num: 23

Candidate Starts for SamuelLPlaqson\_50:

(Start: 23 @37454 has 102 MA's), (29, 37490), (Start: 44 @37577 has 1 MA's), (58, 37631), (60, 37640), (67, 37682), (68, 37691), (69, 37694), (72, 37715), (76, 37751), (83, 37817), (85, 37823), (102, 37931), (109, 37988), (118, 38054), (121, 38081), (133, 38138), (134, 38141), (140, 38168), (143, 38180), (151, 38234),

Gene: Scarlett\_54 Start: 37864, Stop: 38568, Start Num: 43

Candidate Starts for Scarlett\_54:

(7, 37540), (9, 37546), (37, 37828), (Start: 43 @37864 has 30 MA's), (47, 37888), (58, 37951), (60, 37960), (67, 38002), (68, 38011), (72, 38035), (74, 38047), (76, 38071), (94, 38206), (102, 38251), (109, 38308), (116, 38359), (120, 38398), (133, 38458), (134, 38461), (143, 38500),

Gene: SgtBeansprout\_45 Start: 36225, Stop: 37043, Start Num: 23

Candidate Starts for SgtBeansprout\_45:

(Start: 23 @36225 has 102 MA's), (Start: 44 @36348 has 1 MA's), (58, 36423), (60, 36432), (67, 36474), (72, 36510), (74, 36522), (76, 36546), (83, 36612), (94, 36681), (95, 36684), (109, 36783), (116, 36834), (118, 36849), (120, 36873), (121, 36876), (133, 36933), (134, 36936),

Gene: Shadow1\_55 Start: 37601, Stop: 38293, Start Num: 43

Candidate Starts for Shadow1\_55:

(37, 37568), (Start: 43 @37601 has 30 MA's), (58, 37679), (60, 37688), (67, 37730), (74, 37775), (76, 37799), (101, 37973), (103, 37982), (112, 38069), (116, 38087), (118, 38102), (133, 38186), (134, 38189),

Gene: Shaobing\_52 Start: 37507, Stop: 38325, Start Num: 23

Candidate Starts for Shaobing\_52:

(3, 37267), (21, 37477), (Start: 23 @37507 has 102 MA's), (Start: 44 @37630 has 1 MA's), (58, 37705), (60, 37714), (67, 37756), (72, 37792), (74, 37804), (76, 37828), (82, 37888), (94, 37963), (104, 38023), (108, 38041), (109, 38065), (112, 38098), (116, 38116), (118, 38131), (125, 38173), (133, 38212), (134, 38215), (140, 38242), (143, 38254),

Gene: ShedlockHolmes\_53 Start: 37302, Stop: 37979, Start Num: 43

Candidate Starts for ShedlockHolmes\_53:

(Start: 43 @37302 has 30 MA's), (58, 37377), (67, 37428), (74, 37473), (76, 37497), (84, 37566), (89, 37608), (94, 37632), (99, 37665), (102, 37677), (108, 37710), (109, 37734), (117, 37791), (120, 37824), (140, 37914), (142, 37920),

Gene: ShiaSurprise\_50 Start: 36880, Stop: 37671, Start Num: 23

Candidate Starts for ShiaSurprise\_50:

(Start: 23 @36880 has 102 MA's), (29, 36916), (Start: 44 @37003 has 1 MA's), (58, 37057), (60, 37066), (67, 37108), (68, 37117), (75, 37156), (76, 37177), (83, 37243), (85, 37249), (102, 37357), (109, 37414), (118, 37480), (134, 37567), (140, 37594), (143, 37606), (151, 37660),

Gene: SirPhilip\_52 Start: 37984, Stop: 38682, Start Num: 43

Candidate Starts for SirPhilip\_52:

(15, 37723), (37, 37945), (Start: 43 @37984 has 30 MA's), (Start: 48 @38011 has 1 MA's), (58, 38071), (60, 38080), (67, 38122), (68, 38131), (74, 38167), (76, 38191), (82, 38251), (85, 38263), (94, 38326), (109, 38428), (114, 38473), (133, 38575), (143, 38617),

Gene: Slarp\_56 Start: 38211, Stop: 38903, Start Num: 45

Candidate Starts for Slarp\_56:

(Start: 45 @38211 has 19 MA's), (46, 38214), (55, 38274), (56, 38277), (58, 38295), (68, 38352), (71, 38364), (80, 38466), (82, 38472), (92, 38535), (106, 38616), (108, 38628), (111, 38673), (116, 38703), (118, 38718), (123, 38751), (126, 38763), (128, 38772), (138, 38820), (149, 38859),

Gene: Slimphazie\_49 Start: 36566, Stop: 37357, Start Num: 23

Candidate Starts for Slimphazie\_49:

(Start: 23 @36566 has 102 MA's), (29, 36602), (Start: 44 @36689 has 1 MA's), (58, 36743), (60, 36752), (67, 36794), (68, 36803), (75, 36842), (76, 36863), (83, 36929), (85, 36935), (102, 37043), (109, 37100), (118, 37166), (133, 37250), (134, 37253), (140, 37280), (143, 37292), (151, 37346),

Gene: SoSeph\_45 Start: 35496, Stop: 36227, Start Num: 38

Candidate Starts for SoSeph\_45:

(Start: 36 @35469 has 7 MA's), (Start: 38 @35496 has 15 MA's), (57, 35604), (58, 35616), (74, 35712), (76, 35736), (82, 35796), (85, 35808), (94, 35871), (97, 35895), (102, 35922), (115, 36027), (117, 36036), (118, 36045), (119, 36048), (138, 36135), (149, 36174),

Gene: Spock\_49 Start: 36684, Stop: 37475, Start Num: 23

Candidate Starts for Spock\_49:

(Start: 23 @36684 has 102 MA's), (29, 36720), (Start: 44 @36807 has 1 MA's), (58, 36861), (60, 36870), (67, 36912), (68, 36921), (75, 36960), (76, 36981), (83, 37047), (85, 37053), (102, 37161), (109, 37218), (118, 37284), (134, 37371), (140, 37398), (143, 37410), (151, 37464),

Gene: Stinson\_50 Start: 37058, Stop: 37849, Start Num: 23

Candidate Starts for Stinson\_50:

(Start: 23 @37058 has 102 MA's), (29, 37094), (Start: 44 @37181 has 1 MA's), (58, 37235), (60, 37244), (67, 37286), (68, 37295), (75, 37334), (76, 37355), (83, 37421), (85, 37427), (102, 37535), (108, 37568), (109, 37592), (118, 37658), (121, 37685), (134, 37745), (140, 37772), (143, 37784),

Gene: Strobilo\_53 Start: 38797, Stop: 39537, Start Num: 41

Candidate Starts for Strobilo\_53:

(31, 38719), (Start: 41 @38797 has 9 MA's), (Start: 49 @38848 has 1 MA's), (56, 38887), (58, 38905), (67, 38956), (74, 39001), (76, 39025), (80, 39079), (94, 39160), (97, 39184), (98, 39193), (102, 39211), (108, 39244), (111, 39289), (116, 39319), (118, 39334), (120, 39364), (141, 39451), (152, 39526),

Gene: Sulley\_49 Start: 36810, Stop: 37601, Start Num: 23

Candidate Starts for Sulley\_49:

(Start: 23 @36810 has 102 MA's), (29, 36846), (Start: 44 @36933 has 1 MA's), (60, 36996), (67, 37038), (68, 37047), (75, 37086), (76, 37107), (83, 37173), (85, 37179), (102, 37287), (109, 37344), (118, 37410), (133, 37494), (140, 37524), (143, 37536), (151, 37590),

Gene: Sunflower1121\_56 Start: 37702, Stop: 38394, Start Num: 43

Candidate Starts for Sunflower1121\_56:

(37, 37669), (Start: 43 @37702 has 30 MA's), (58, 37780), (60, 37789), (67, 37831), (74, 37876), (76, 37900), (101, 38074), (103, 38083), (109, 38137), (112, 38170), (116, 38188), (118, 38203), (133, 38287), (134, 38290),

Gene: Syra333\_55 Start: 37366, Stop: 38058, Start Num: 43

Candidate Starts for Syra333\_55:

(Start: 43 @37366 has 30 MA's), (58, 37444), (60, 37453), (67, 37495), (74, 37540), (76, 37564), (101, 37738), (103, 37747), (109, 37801), (113, 37837), (116, 37852), (118, 37867), (133, 37951), (134, 37954),

Gene: TBond007\_50 Start: 36776, Stop: 37453, Start Num: 43

Candidate Starts for TBond007\_50:

(Start: 43 @36776 has 30 MA's), (58, 36851), (67, 36902), (74, 36947), (76, 36971), (84, 37040), (89, 37082), (94, 37106), (99, 37139), (102, 37151), (108, 37184), (109, 37208), (117, 37265), (120, 37298), (134, 37361), (140, 37388), (142, 37394),

Gene: TClif\_53 Start: 37733, Stop: 38428, Start Num: 43

Candidate Starts for TClif\_53:

(37, 37700), (Start: 43 @37733 has 30 MA's), (58, 37811), (60, 37820), (67, 37862), (68, 37871), (72, 37895), (76, 37931), (94, 38066), (109, 38168), (113, 38204), (118, 38234), (119, 38237), (133, 38318), (134, 38321), (143, 38360),

Gene: TM4\_48 Start: 33177, Stop: 33917, Start Num: 41

Candidate Starts for TM4\_48:

(Start: 41 @33177 has 9 MA's), (Start: 49 @33228 has 1 MA's), (56, 33267), (58, 33285), (67, 33336), (74, 33381), (76, 33405), (80, 33459), (94, 33540), (97, 33564), (102, 33591), (108, 33624), (109, 33648), (111, 33669), (116, 33699), (118, 33714), (120, 33744), (138, 33819), (141, 33831), (152, 33906),

Gene: Tachez\_49 Start: 36528, Stop: 37319, Start Num: 23

Candidate Starts for Tachez\_49:

(Start: 23 @36528 has 102 MA's), (29, 36564), (Start: 44 @36651 has 1 MA's), (58, 36705), (60, 36714), (67, 36756), (68, 36765), (75, 36804), (76, 36825), (83, 36891), (85, 36897), (102, 37005), (109, 37062), (118, 37128), (133, 37212), (134, 37215), (140, 37242), (143, 37254), (151, 37308),

Gene: TaiwanKao\_51 Start: 36824, Stop: 37615, Start Num: 23

Candidate Starts for TaiwanKao\_51:

(Start: 23 @36824 has 102 MA's), (29, 36860), (Start: 44 @36947 has 1 MA's), (58, 37001), (60, 37010), (64, 37025), (67, 37052), (68, 37061), (69, 37064), (75, 37100), (76, 37121), (83, 37187), (85, 37193), (102, 37301), (109, 37358), (118, 37424), (133, 37508), (134, 37511), (140, 37538), (143, 37550), (151, 37604),

Gene: Taquito\_56 Start: 38539, Stop: 39231, Start Num: 45

Candidate Starts for Taquito\_56:

(Start: 45 @38539 has 19 MA's), (46, 38542), (55, 38602), (56, 38605), (58, 38623), (68, 38680), (71, 38692), (80, 38794), (82, 38800), (92, 38863), (106, 38944), (108, 38956), (111, 39001), (116, 39031), (118, 39046), (123, 39079), (126, 39091), (128, 39100), (138, 39148), (149, 39187),

Gene: Thyatira\_48 Start: 37698, Stop: 38429, Start Num: 38

Candidate Starts for Thyatira\_48:

(Start: 36 @37671 has 7 MA's), (Start: 38 @37698 has 15 MA's), (57, 37806), (58, 37818), (74, 37914), (76, 37938), (82, 37998), (85, 38010), (94, 38073), (97, 38097), (102, 38124), (117, 38238), (118, 38247), (119, 38250), (138, 38337), (149, 38376),

Gene: Tierra\_53 Start: 37251, Stop: 37946, Start Num: 43

Candidate Starts for Tierra\_53:

(37, 37218), (Start: 43 @37251 has 30 MA's), (58, 37329), (60, 37338), (67, 37380), (76, 37449), (101, 37623), (103, 37632), (109, 37686), (116, 37737), (118, 37752), (133, 37836), (134, 37839),

Gene: TingHuaYa\_50 Start: 35609, Stop: 36400, Start Num: 23

Candidate Starts for TingHuaYa\_50:

(21, 35573), (Start: 23 @35609 has 102 MA's), (35, 35672), (Start: 44 @35732 has 1 MA's), (58, 35786), (60, 35795), (67, 35837), (74, 35882), (75, 35885), (76, 35906), (83, 35972), (109, 36143), (118, 36209), (133, 36293), (134, 36296), (143, 36335),

Gene: TiniBug\_50 Start: 37450, Stop: 38241, Start Num: 23

Candidate Starts for TiniBug\_50:

(Start: 23 @37450 has 102 MA's), (29, 37486), (Start: 44 @37573 has 1 MA's), (58, 37627), (60, 37636), (67, 37678), (68, 37687), (69, 37690), (72, 37711), (76, 37747), (83, 37813), (85, 37819), (102, 37927), (109, 37984), (118, 38050), (121, 38077), (133, 38134), (134, 38137), (140, 38164), (143, 38176), (151, 38230),

Gene: Tiri\_50 Start: 36858, Stop: 37649, Start Num: 23

Candidate Starts for Tiri\_50:

(Start: 23 @36858 has 102 MA's), (29, 36894), (Start: 44 @36981 has 1 MA's), (58, 37035), (60, 37044), (67, 37086), (68, 37095), (75, 37134), (76, 37155), (83, 37221), (85, 37227), (102, 37335), (109, 37392), (118, 37458), (133, 37542), (134, 37545), (140, 37572), (143, 37584), (151, 37638),

Gene: Topper\_49 Start: 36683, Stop: 37474, Start Num: 23

Candidate Starts for Topper\_49:

(Start: 23 @36683 has 102 MA's), (29, 36719), (Start: 44 @36806 has 1 MA's), (58, 36860), (60, 36869), (67, 36911), (68, 36920), (75, 36959), (76, 36980), (83, 37046), (85, 37052), (102, 37160), (109, 37217), (118, 37283), (134, 37370), (140, 37397), (143, 37409), (151, 37463),

Gene: Torres\_47 Start: 38839, Stop: 39657, Start Num: 23

Candidate Starts for Torres\_47:

(Start: 23 @38839 has 102 MA's), (Start: 44 @38962 has 1 MA's), (58, 39037), (60, 39046), (67, 39088), (72, 39124), (74, 39136), (76, 39160), (83, 39226), (94, 39295), (95, 39298), (109, 39397), (116, 39448), (118, 39463), (120, 39487), (121, 39490), (133, 39547), (134, 39550),

Gene: TreyKay\_50 Start: 36768, Stop: 37559, Start Num: 23

Candidate Starts for TreyKay\_50:

(Start: 23 @36768 has 102 MA's), (29, 36804), (Start: 44 @36891 has 1 MA's), (58, 36945), (60, 36954), (67, 36996), (68, 37005), (75, 37044), (76, 37065), (83, 37131), (85, 37137), (102, 37245), (109, 37302), (118, 37368), (126, 37413), (133, 37452), (134, 37455), (140, 37482), (143, 37494), (151, 37548),

Gene: TribbleTrouble\_49 Start: 36661, Stop: 37338, Start Num: 43

Candidate Starts for TribbleTrouble\_49:

(27, 36556), (Start: 43 @36661 has 30 MA's), (58, 36736), (67, 36787), (74, 36832), (76, 36856), (84, 36925), (89, 36967), (94, 36991), (99, 37024), (102, 37036), (108, 37069), (109, 37093), (118, 37159), (134, 37246), (140, 37273),

Gene: TruffulaTree\_49 Start: 36562, Stop: 37353, Start Num: 23

Candidate Starts for TruffulaTree\_49:

(Start: 23 @36562 has 102 MA's), (29, 36598), (Start: 44 @36685 has 1 MA's), (58, 36739), (60, 36748), (67, 36790), (68, 36799), (75, 36838), (76, 36859), (83, 36925), (85, 36931), (102, 37039), (109, 37096), (118, 37162), (133, 37246), (134, 37249), (140, 37276), (143, 37288), (151, 37342),

Gene: Twitch\_49 Start: 36685, Stop: 37476, Start Num: 23

Candidate Starts for Twitch\_49:

(Start: 23 @36685 has 102 MA's), (29, 36721), (Start: 44 @36808 has 1 MA's), (58, 36862), (60, 36871), (67, 36913), (68, 36922), (75, 36961), (76, 36982), (83, 37048), (85, 37054), (102, 37162), (109, 37219), (118, 37285), (134, 37372), (140, 37399), (143, 37411), (151, 37465),

Gene: Unicorn\_52 Start: 36483, Stop: 37178, Start Num: 43

Candidate Starts for Unicorn\_52:

(37, 36450), (Start: 43 @36483 has 30 MA's), (58, 36561), (60, 36570), (68, 36621), (76, 36681), (101, 36855), (103, 36864), (108, 36894), (109, 36918), (116, 36969), (118, 36984), (133, 37068), (134, 37071),

Gene: Urkel\_50 Start: 37454, Stop: 38245, Start Num: 23

Candidate Starts for Urkel\_50:

(Start: 23 @37454 has 102 MA's), (29, 37490), (Start: 44 @37577 has 1 MA's), (58, 37631), (60, 37640), (67, 37682), (68, 37691), (69, 37694), (72, 37715), (76, 37751), (83, 37817), (85, 37823), (102, 37931), (109, 37988), (118, 38054), (121, 38081), (133, 38138), (134, 38141), (140, 38168), (143, 38180), (151, 38234),

Gene: Validus\_54 Start: 37554, Stop: 38354, Start Num: 23

Candidate Starts for Validus\_54:

(18, 37494), (21, 37524), (Start: 23 @37554 has 102 MA's), (34, 37611), (Start: 43 @37674 has 30 MA's), (58, 37740), (60, 37749), (67, 37791), (76, 37863), (84, 37932), (94, 37998), (104, 38058), (108, 38076), (109, 38100), (116, 38151), (133, 38250), (134, 38253), (140, 38280), (143, 38292),

Gene: Veliki\_50 Start: 36602, Stop: 37393, Start Num: 23

Candidate Starts for Veliki\_50:

(Start: 23 @36602 has 102 MA's), (29, 36638), (Start: 44 @36725 has 1 MA's), (58, 36779), (60, 36788), (67, 36830), (68, 36839), (75, 36878), (76, 36899), (83, 36965), (85, 36971), (102, 37079), (109, 37136), (118, 37202), (133, 37286), (134, 37289), (140, 37316), (143, 37328), (151, 37382),

Gene: ViviJ\_45 Start: 35417, Stop: 36145, Start Num: 38

Candidate Starts for ViviJ\_45:

(Start: 36 @35390 has 7 MA's), (Start: 38 @35417 has 15 MA's), (53, 35510), (58, 35540), (68, 35600), (73, 35627), (74, 35636), (81, 35717), (84, 35729), (85, 35732), (113, 35939), (117, 35960), (118, 35969), (120, 35993), (138, 36059), (141, 36071), (149, 36098),

Gene: Waterfoul\_46 Start: 35589, Stop: 36320, Start Num: 38

Candidate Starts for Waterfoul\_46:

(Start: 36 @35562 has 7 MA's), (Start: 38 @35589 has 15 MA's), (57, 35697), (58, 35709), (74, 35805), (76, 35829), (82, 35889), (85, 35901), (94, 35964), (102, 36015), (117, 36129), (118, 36138), (119, 36141), (138, 36228), (149, 36267),

Gene: Wintermute\_56 Start: 38441, Stop: 39133, Start Num: 45

Candidate Starts for Wintermute\_56:

(Start: 45 @38441 has 19 MA's), (46, 38444), (55, 38504), (56, 38507), (58, 38525), (68, 38582), (71, 38594), (80, 38696), (82, 38702), (92, 38765), (106, 38846), (108, 38858), (111, 38903), (116, 38933),

(118, 38948), (123, 38981), (126, 38993), (128, 39002), (138, 39050), (149, 39089),

Gene: Ximenita\_56 Start: 37555, Stop: 38247, Start Num: 43

Candidate Starts for Ximenita\_56:

(37, 37522), (Start: 43 @37555 has 30 MA's), (58, 37633), (60, 37642), (67, 37684), (74, 37729), (76, 37753), (101, 37927), (103, 37936), (109, 37990), (112, 38023), (116, 38041), (118, 38056), (132, 38131), (133, 38140), (134, 38143),

Gene: Y10\_55 Start: 38363, Stop: 39055, Start Num: 45

Candidate Starts for Y10\_55:

(Start: 45 @38363 has 19 MA's), (46, 38366), (55, 38426), (56, 38429), (58, 38447), (68, 38504), (71, 38516), (80, 38618), (82, 38624), (92, 38687), (106, 38768), (108, 38780), (111, 38825), (113, 38840), (116, 38855), (118, 38870), (123, 38903), (126, 38915), (128, 38924), (138, 38972), (149, 39011),

Gene: Y2\_55 Start: 38363, Stop: 39055, Start Num: 45

Candidate Starts for Y2\_55:

(Start: 45 @38363 has 19 MA's), (46, 38366), (55, 38426), (56, 38429), (58, 38447), (68, 38504), (71, 38516), (80, 38618), (82, 38624), (92, 38687), (106, 38768), (108, 38780), (111, 38825), (113, 38840), (116, 38855), (118, 38870), (123, 38903), (126, 38915), (128, 38924), (138, 38972), (149, 39011),

Gene: YoureAdopted\_48 Start: 36767, Stop: 37558, Start Num: 23

Candidate Starts for YoureAdopted\_48:

(Start: 23 @36767 has 102 MA's), (29, 36803), (Start: 44 @36890 has 1 MA's), (58, 36944), (60, 36953), (67, 36995), (68, 37004), (75, 37043), (76, 37064), (83, 37130), (85, 37136), (102, 37244), (109, 37301), (118, 37367), (133, 37451), (134, 37454), (140, 37481), (143, 37493), (151, 37547),

Gene: Yuna\_56 Start: 38468, Stop: 39154, Start Num: 43

Candidate Starts for Yuna\_56:

(Start: 43 @38468 has 30 MA's), (58, 38549), (60, 38558), (67, 38600), (68, 38609), (74, 38645), (76, 38669), (79, 38720), (109, 38906), (113, 38942), (114, 38951), (116, 38957), (118, 38972), (119, 38975), (133, 39050), (134, 39053), (143, 39092),

Gene: Yunkel11\_52 Start: 36355, Stop: 37146, Start Num: 23

Candidate Starts for Yunkel11\_52:

(Start: 23 @36355 has 102 MA's), (29, 36391), (Start: 44 @36478 has 1 MA's), (58, 36532), (60, 36541), (69, 36595), (72, 36616), (74, 36628), (76, 36652), (84, 36721), (109, 36889), (118, 36955), (133, 37039), (134, 37042), (140, 37069), (143, 37081),

Gene: Zabiza\_44 Start: 32873, Stop: 33664, Start Num: 23

Candidate Starts for Zabiza\_44:

(Start: 23 @32873 has 102 MA's), (29, 32909), (Start: 44 @32996 has 1 MA's), (58, 33050), (60, 33059), (67, 33101), (68, 33110), (75, 33149), (76, 33170), (83, 33236), (85, 33242), (102, 33350), (109, 33407), (118, 33473), (133, 33557), (134, 33560), (143, 33599), (151, 33653),

Gene: Zavala\_51 Start: 36844, Stop: 37635, Start Num: 23

Candidate Starts for Zavala\_51:

(Start: 23 @36844 has 102 MA's), (29, 36880), (Start: 44 @36967 has 1 MA's), (58, 37021), (60, 37030), (67, 37072), (68, 37081), (75, 37120), (76, 37141), (83, 37207), (85, 37213), (102, 37321), (109, 37378), (118, 37444), (134, 37531), (140, 37558), (143, 37570), (151, 37624),

Gene: ZoeJ\_52 Start: 38268, Stop: 39008, Start Num: 41

Candidate Starts for ZoeJ\_52:



(Start: 41 @38268 has 9 MA's), (Start: 49 @38319 has 1 MA's), (56, 38358), (58, 38376), (67, 38427), (74, 38472), (76, 38496), (80, 38550), (94, 38631), (97, 38655), (102, 38682), (108, 38715), (111, 38760), (116, 38790), (118, 38805), (120, 38835), (141, 38922), (152, 38997),