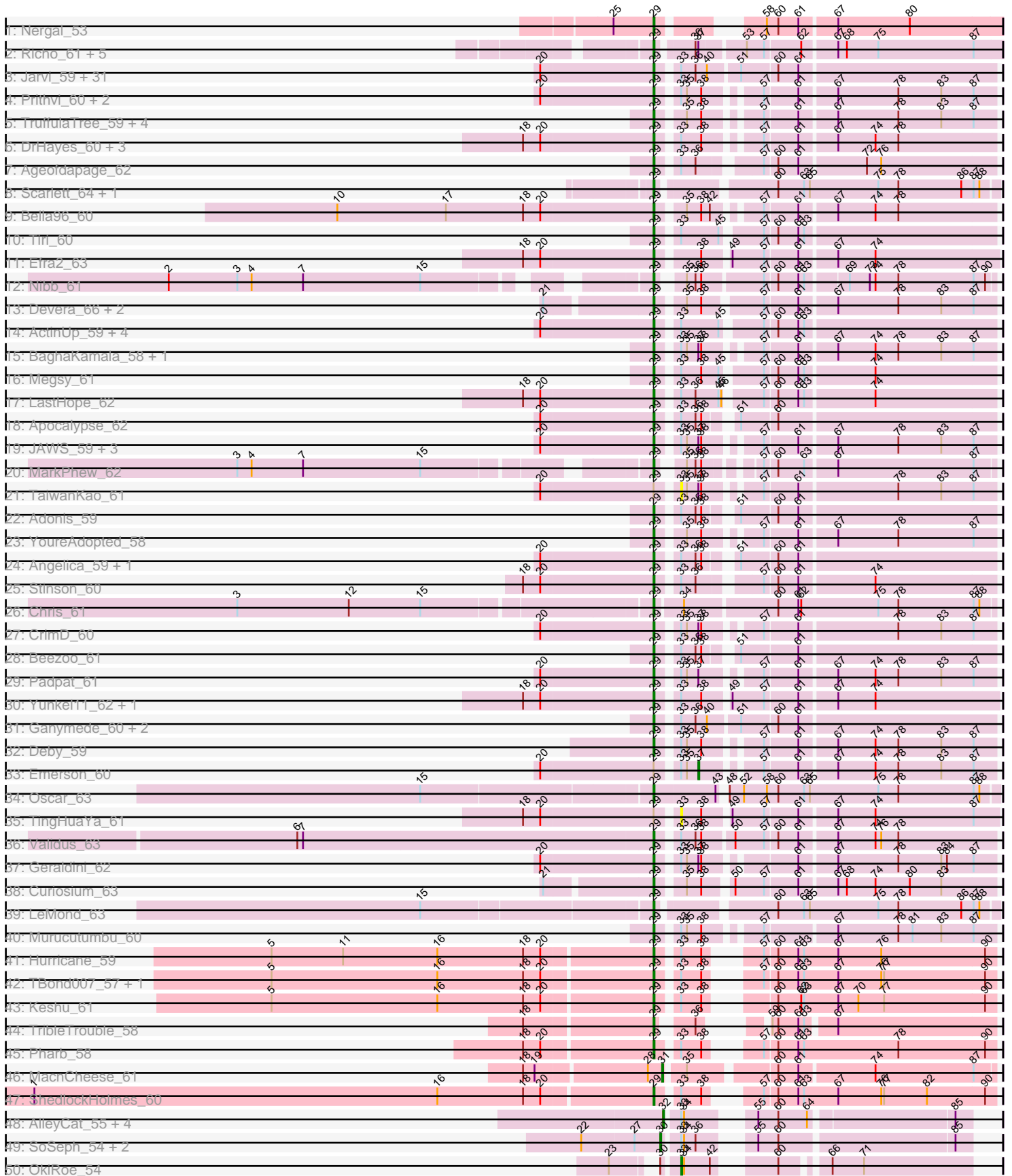


Pham 193798





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 193798 Report

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

Pham number 193798 has 149 members, 5 are drafts.

Phages represented in each track:

- Track 1 : Nergal\_53
- Track 2 : Richo\_61, Dartin\_61, Shaobing\_61, Niklas\_61, McMater\_61, Peanam\_61
- Track 3 : Jarvi\_59, Peel\_59, CREW\_59, Topper\_59, Boiiii\_59, BGIlluviae\_59, Dalmuri\_59, Asayake\_59, Hyperbowlee\_59, Padfoot\_59, Jeckyll\_59, AlishaPH\_59, Atiba\_60, CaseJules\_61, BEEST\_59, Inky\_59, Joy99\_59, Capricorn\_59, Lunahalos\_59, Blizzard\_59, Belladonna\_59, Adephagia\_59, Homura\_59, Tachez\_59, Spock\_59, Durfee\_59, Twitch\_59, ShiaSurprise\_60, Llorens\_59, Piatt\_59, Anaya\_61, Rosmarinus\_59
- Track 4 : Prithvi\_60, LindNT\_58, TreyKay\_60
- Track 5 : TruffulaTree\_59, Slimphazie\_59, Pokerus\_58, BarrelRoll\_59, Rapunzel97\_60
- Track 6 : DrHayes\_60, TiniBug\_60, Urkel\_60, SamuelLPlaqson\_60
- Track 7 : Ageofdapage\_62
- Track 8 : Scarlett\_64, KiSi\_64
- Track 9 : Bella96\_60
- Track 10 : Tiri\_60
- Track 11 : Efra2\_63
- Track 12 : Nibb\_61
- Track 13 : Devera\_66, Dole\_64, Illumine\_64
- Track 14 : ActinUp\_59, HedwigODU\_59, Ramen\_60, Jayhawk\_60, Zabiza\_54
- Track 15 : BaghaKamala\_58, CheetoDust\_58
- Track 16 : Megsy\_61
- Track 17 : LastHope\_62
- Track 18 : Apocalypse\_62
- Track 19 : JAWS\_59, Veliki\_60, Mynx\_60, Zavala\_61
- Track 20 : MarkPhew\_62
- Track 21 : TaiwanKao\_61
- Track 22 : Adonis\_59
- Track 23 : YoureAdopted\_58
- Track 24 : Angelica\_59, MeaningOfLife\_60
- Track 25 : Stinson\_60
- Track 26 : Chris\_61
- Track 27 : CrimD\_60
- Track 28 : Beezoo\_61
- Track 29 : Padpat\_61
- Track 30 : Yunkel11\_62, Guanica15\_62
- Track 31 : Ganymede\_60, QuincyRose\_58, Sulley\_59

- Track 32 : Deby\_59
- Track 33 : Emerson\_60
- Track 34 : Oscar\_63
- Track 35 : TingHuaYa\_61
- Track 36 : Validus\_63
- Track 37 : Geraldini\_62
- Track 38 : Curiosium\_63
- Track 39 : LeMond\_63
- Track 40 : Murucutumbu\_60
- Track 41 : Hurricane\_59
- Track 42 : TBond007\_57, Pixie\_58
- Track 43 : Keshu\_61
- Track 44 : TribbleTrouble\_58
- Track 45 : Pharb\_58
- Track 46 : MacnCheese\_61
- Track 47 : ShedlockHolmes\_60
- Track 48 : AlleyCat\_55, Larva\_54, Edugator\_52, Dadosky\_55, Psycho\_53
- Track 49 : SoSeph\_54, Heftyboy\_54, Waterfoul\_55
- Track 50 : OkiRoe\_54
- Track 51 : Agent47\_53, Collard\_51, InvictusManeo\_51
- Track 52 : Guillsminger\_54, Leston\_53
- Track 53 : Gengar\_53
- Track 54 : Feyre\_56, Miryou\_57
- Track 55 : Omnicron\_57
- Track 56 : Kratio\_51
- Track 57 : Thyatira\_56
- Track 58 : Rando14\_55
- Track 59 : Paola\_53
- Track 60 : Ximenita\_64, Shadow1\_63
- Track 61 : Fefferhead\_57
- Track 62 : Bryler\_61, Tierra\_61, Cain\_61, Phrank\_61
- Track 63 : Unicorn\_59, PhelpsODU\_59
- Track 64 : Yuna\_64
- Track 65 : Ekdilam\_57
- Track 66 : Ellie\_55
- Track 67 : Amohnition\_59
- Track 68 : SirPhilip\_60
- Track 69 : Amgine\_58
- Track 70 : Sunflower1121\_64
- Track 71 : DarthP\_59
- Track 72 : TClif\_60
- Track 73 : Hammy\_59

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

The start number called the most often in the published annotations is 29, it was called in 120 of the 144 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ActinUp\_59, Adephagia\_59, Adonis\_59, Ageofdapage\_62, AlishaPH\_59, Amgine\_58, Amohnition\_59, Anaya\_61, Angelica\_59, Apocalypse\_62, Asayake\_59, Atiba\_60, BEEST\_59, BGIlluviae\_59, BaghaKamala\_58, BarrelRoll\_59, Beezoo\_61, Bella96\_60, Belladonna\_59, Blizzard\_59, Boiiii\_59, Bryler\_61, CREW\_59, Cain\_61, Capricorn\_59, CaseJules\_61, CheetoDust\_58, Chris\_61, CrimD\_60, Curiosium\_63, Dalmuri\_59, DarthP\_59, Dartin\_61, Deby\_59, Devera\_66, Dole\_64, DrHayes\_60, Durfee\_59, Efra2\_63, Ekdilam\_57, Ellie\_55, Fefferhead\_57, Ganymede\_60, Geraldini\_62, Guanica15\_62, Hammy\_59, HedwigODU\_59, Homura\_59, Hurricane\_59, Hyperbowlee\_59, Illumine\_64, Inky\_59, JAWS\_59, Jarvi\_59, Jayhawk\_60, Jeckyll\_59, Joy99\_59, Keshu\_61, KiSi\_64, LastHope\_62, LeMond\_63, LindNT\_58, Llorens\_59, Lunahalos\_59, MarkPhew\_62, McMater\_61, MeaningOfLife\_60, Megsy\_61, Murucutumbu\_60, Mynx\_60, Nergal\_53, Nibb\_61, Niklas\_61, Oscar\_63, Padfoot\_59, Padpat\_61, Peanam\_61, Peel\_59, Pharb\_58, PhelpsODU\_59, Phrank\_61, Piatt\_59, Pixie\_58, Pokerus\_58, Prithvi\_60, QuincyRose\_58, Ramen\_60, Rapunzel97\_60, Richo\_61, Rosmarinus\_59, SamuelLPlaqson\_60, Scarlett\_64, Shadow1\_63, Shaobing\_61, ShedlockHolmes\_60, ShiaSurprise\_60, SirPhilip\_60, Slimphazie\_59, Spock\_59, Stinson\_60, Sulley\_59, Sunflower1121\_64, TBond007\_57, TClif\_60, Tachez\_59, Tierra\_61, TiniBug\_60, Tiri\_60, Topper\_59, TreyKay\_60, TripleTrouble\_58, TruffulaTree\_59, Twitch\_59, Unicorn\_59, Urkel\_60, Validus\_63, Veliki\_60, Ximenita\_64, YoureAdopted\_58, Yuna\_64, Yunkel11\_62, Zabiza\_54, Zavala\_61,

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

- Emerson\_60, TaiwanKao\_61, TingHuaYa\_61,

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

- Agent47\_53, AlleyCat\_55, Collard\_51, Dadosky\_55, Edugator\_52, Feyre\_56, Gengar\_53, Guillsminger\_54, Heftyboy\_54, InvictusManeo\_51, Kratio\_51, Larva\_54, Leston\_53, MacnCheese\_61, Miryou\_57, OkiRoe\_54, Omnicron\_57, Paola\_53, Psycho\_53, Rando14\_55, SoSeph\_54, Thyatira\_56, Waterfoul\_55,

### Summary by start number:

Start 26:

- Found in 4 of 149 ( 2.7% ) of genes in pham
- Manual Annotations of this start: 4 of 144
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Agent47\_53 (K5), Collard\_51 (K5), InvictusManeo\_51 (K5), Kratio\_51 (K5),

Start 29:

- Found in 126 of 149 ( 84.6% ) of genes in pham
- Manual Annotations of this start: 120 of 144
- Called 97.6% of time when present
- Phage (with cluster) where this start called: ActinUp\_59 (K1), Adephagia\_59 (K1), Adonis\_59 (K1), Ageofdapage\_62 (K1), AlishaPH\_59 (K1), Amgine\_58 (K6), Amohnition\_59 (K6), Anaya\_61 (K1), Angelica\_59 (K1), Apocalypse\_62 (K1), Asayake\_59 (K1), Atiba\_60 (K1), BEEST\_59 (K1), BGIlluviae\_59 (K1), BaghaKamala\_58 (K1), BarrelRoll\_59 (K1), Beezoo\_61 (K1), Bella96\_60 (K1), Belladonna\_59 (K1), Blizzard\_59 (K1), Boiiii\_59 (K1), Bryler\_61 (K6), CREW\_59 (K1), Cain\_61 (K6), Capricorn\_59 (K1), CaseJules\_61 (K1), CheetoDust\_58 (K1), Chris\_61 (K1), CrimD\_60 (K1), Curiosium\_63 (K1), Dalmuri\_59 (K1), DarthP\_59 (K6), Dartin\_61 (K1), Deby\_59 (K1), Devera\_66 (K1), Dole\_64 (K1), DrHayes\_60 (K1),

Durfee\_59 (K1), Efra2\_63 (K1), Ekdilam\_57 (K6), Ellie\_55 (K6), Fefferhead\_57 (K6), Ganymede\_60 (K1), Geraldini\_62 (K1), Guanica15\_62 (K1), Hammy\_59 (K6), HedwigODU\_59 (K1), Homura\_59 (K1), Hurricane\_59 (K3), Hyperbowlee\_59 (K1), Illumine\_64 (K1), Inky\_59 (K1), JAWS\_59 (K1), Jarvi\_59 (K1), Jayhawk\_60 (K1), Jeckyll\_59 (K1), Joy99\_59 (K1), Keshu\_61 (K3), KiSi\_64 (K1), LastHope\_62 (K1), LeMond\_63 (K1), LindNT\_58 (K1), Llorens\_59 (K1), Lunahalos\_59 (K1), MarkPhew\_62 (K1), McMater\_61 (K1), MeaningOfLife\_60 (K1), Megsy\_61 (K1), Murucutumbu\_60 (K1), Mynx\_60 (K1), Nergal\_53 (AG), Nibb\_61 (K1), Niklas\_61 (K1), Oscar\_63 (K1), Padfoot\_59 (K1), Padpat\_61 (K1), Peanam\_61 (K1), Peel\_59 (K1), Pharb\_58 (K3), PhelpsODU\_59 (K6), Phrank\_61 (K6), Piatt\_59 (K1), Pixie\_58 (K3), Pokerus\_58 (K1), Prithvi\_60 (K1), QuincyRose\_58 (K1), Ramen\_60 (K1), Rapunzel97\_60 (K1), Richo\_61 (K1), Rosmarinus\_59 (K1), SamuelLPiaqson\_60 (K1), Scarlett\_64 (K1), Shadow1\_63 (K6), Shaobing\_61 (K1), ShedlockHolmes\_60 (K3), ShiaSurprise\_60 (K1), SirPhilip\_60 (K6), Slimphazie\_59 (K1), Spock\_59 (K1), Stinson\_60 (K1), Sulley\_59 (K1), Sunflower1121\_64 (K6), TBond007\_57 (K3), TClif\_60 (K6), Tachez\_59 (K1), Tierra\_61 (K6), TiniBug\_60 (K1), Tiri\_60 (K1), Topper\_59 (K1), TreyKay\_60 (K1), TribbleTrouble\_58 (K3), TruffulaTree\_59 (K1), Twitch\_59 (K1), Unicorn\_59 (K6), Urkel\_60 (K1), Validus\_63 (K1), Veliki\_60 (K1), Ximenita\_64 (K6), YoureAdopted\_58 (K1), Yuna\_64 (K6), Yunkel11\_62 (K1), Zabiza\_54 (K1), Zavala\_61 (K1),

#### Start 30:

- Found in 13 of 149 ( 8.7% ) of genes in pham
- Manual Annotations of this start: 10 of 144
- Called 76.9% of time when present
- Phage (with cluster) where this start called: Feyre\_56 (K5), Gengar\_53 (K5), Heftyboy\_54 (K5), Miryou\_57 (K5), Omnicron\_57 (K5), Paola\_53 (K5), Rando14\_55 (K5), SoSeph\_54 (K5), Thyatira\_56 (K5), Waterfoul\_55 (K5),

#### Start 31:

- Found in 1 of 149 ( 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: MacnCheese\_61 (K3),

#### Start 32:

- Found in 5 of 149 ( 3.4% ) of genes in pham
- Manual Annotations of this start: 5 of 144
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AlleyCat\_55 (K5), Dadosky\_55 (K5), Edugator\_52 (K5), Larva\_54 (K5), Psycho\_53 (K5),

#### Start 33:

- Found in 105 of 149 ( 70.5% ) of genes in pham
- Manual Annotations of this start: 3 of 144
- Called 4.8% of time when present
- Phage (with cluster) where this start called: Guillsminger\_54 (K5), Leston\_53 (K5), OkiRoe\_54 (K5), TaiwanKao\_61 (K1), TingHuaYa\_61 (K1),

#### Start 37:

- Found in 17 of 149 ( 11.4% ) of genes in pham
- Manual Annotations of this start: 1 of 144
- Called 5.9% of time when present

- Phage (with cluster) where this start called: Emerson\_60 (K1),

### **Summary by clusters:**

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

Info for manual annotations of cluster AG:

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

Info for manual annotations of cluster K1:

- Start number 29 was manually annotated 93 times for cluster K1.
- Start number 37 was manually annotated 1 time for cluster K1.

Info for manual annotations of cluster K3:

- Start number 29 was manually annotated 7 times for cluster K3.
- Start number 31 was manually annotated 1 time for cluster K3.

Info for manual annotations of cluster K5:

- Start number 26 was manually annotated 4 times for cluster K5.
- Start number 30 was manually annotated 10 times for cluster K5.
- Start number 32 was manually annotated 5 times for cluster K5.
- Start number 33 was manually annotated 3 times for cluster K5.

Info for manual annotations of cluster K6:

- Start number 29 was manually annotated 19 times for cluster K6.

### **Gene Information:**

Gene: ActinUp\_59 Start: 40802, Stop: 41128, Start Num: 29

Candidate Starts for ActinUp\_59:

(20, 40685), (Start: 29 @40802 has 120 MA's), (Start: 33 @40820 has 3 MA's), (45, 40859), (57, 40895), (60, 40907), (61, 40928), (63, 40934),

Gene: Adephagia\_59 Start: 40803, Stop: 41135, Start Num: 29

Candidate Starts for Adephagia\_59:

(20, 40686), (Start: 29 @40803 has 120 MA's), (Start: 33 @40821 has 3 MA's), (36, 40836), (40, 40848), (51, 40878), (60, 40914), (61, 40935),

Gene: Adonis\_59 Start: 41050, Stop: 41370, Start Num: 29

Candidate Starts for Adonis\_59:

(Start: 29 @41050 has 120 MA's), (Start: 33 @41068 has 3 MA's), (36, 41083), (38, 41089), (51, 41113), (60, 41149), (61, 41170),

Gene: Agent47\_53 Start: 38092, Stop: 38367, Start Num: 26

Candidate Starts for Agent47\_53:

(Start: 26 @38092 has 4 MA's), (Start: 33 @38107 has 3 MA's), (34, 38110), (55, 38158), (64, 38209),

Gene: Ageofdapage\_62 Start: 41791, Stop: 42111, Start Num: 29

Candidate Starts for Ageofdapage\_62:

(Start: 29 @41791 has 120 MA's), (Start: 33 @41809 has 3 MA's), (36, 41824), (57, 41878), (60, 41890), (61, 41911), (72, 41977), (76, 41992),

Gene: AlishaPH\_59 Start: 41064, Stop: 41396, Start Num: 29

Candidate Starts for AlishaPH\_59:

(20, 40947), (Start: 29 @41064 has 120 MA's), (Start: 33 @41082 has 3 MA's), (36, 41097), (40, 41109), (51, 41139), (60, 41175), (61, 41196),

Gene: AlleyCat\_55 Start: 38399, Stop: 38671, Start Num: 32

Candidate Starts for AlleyCat\_55:

(Start: 32 @38399 has 5 MA's), (Start: 33 @38411 has 3 MA's), (34, 38414), (55, 38462), (60, 38483), (64, 38513), (85, 38654),

Gene: Amgine\_58 Start: 41663, Stop: 41959, Start Num: 29

Candidate Starts for Amgine\_58:

(8, 41345), (9, 41363), (16, 41468), (24, 41624), (Start: 29 @41663 has 120 MA's), (Start: 33 @41675 has 3 MA's), (36, 41690), (57, 41729), (58, 41732), (60, 41741), (61, 41762), (62, 41765), (67, 41795), (73, 41828),

Gene: Amohnition\_59 Start: 41255, Stop: 41578, Start Num: 29

Candidate Starts for Amohnition\_59:

(14, 41027), (16, 41060), (Start: 29 @41255 has 120 MA's), (61, 41372), (63, 41378), (92, 41564),

Gene: Anaya\_61 Start: 41319, Stop: 41651, Start Num: 29

Candidate Starts for Anaya\_61:

(20, 41202), (Start: 29 @41319 has 120 MA's), (Start: 33 @41337 has 3 MA's), (36, 41352), (40, 41364), (51, 41394), (60, 41430), (61, 41451),

Gene: Angelica\_59 Start: 40958, Stop: 41278, Start Num: 29

Candidate Starts for Angelica\_59:

(20, 40841), (Start: 29 @40958 has 120 MA's), (Start: 33 @40976 has 3 MA's), (36, 40991), (38, 40997), (51, 41021), (60, 41057), (61, 41078),

Gene: Apocalypse\_62 Start: 41727, Stop: 42047, Start Num: 29

Candidate Starts for Apocalypse\_62:

(20, 41610), (Start: 29 @41727 has 120 MA's), (Start: 33 @41745 has 3 MA's), (36, 41760), (38, 41766), (51, 41790), (60, 41826),

Gene: Asayake\_59 Start: 41118, Stop: 41450, Start Num: 29

Candidate Starts for Asayake\_59:

(20, 41001), (Start: 29 @41118 has 120 MA's), (Start: 33 @41136 has 3 MA's), (36, 41151), (40, 41163), (51, 41193), (60, 41229), (61, 41250),

Gene: Atiba\_60 Start: 40766, Stop: 41098, Start Num: 29

Candidate Starts for Atiba\_60:

(20, 40649), (Start: 29 @40766 has 120 MA's), (Start: 33 @40784 has 3 MA's), (36, 40799), (40, 40811), (51, 40841), (60, 40877), (61, 40898),

Gene: BEEST\_59 Start: 41118, Stop: 41450, Start Num: 29

Candidate Starts for BEEST\_59:

(20, 41001), (Start: 29 @41118 has 120 MA's), (Start: 33 @41136 has 3 MA's), (36, 41151), (40, 41163), (51, 41193), (60, 41229), (61, 41250),

Gene: BGlluviae\_59 Start: 40921, Stop: 41253, Start Num: 29

Candidate Starts for BGlluviae\_59:



(20, 40804), (Start: 29 @40921 has 120 MA's), (Start: 33 @40939 has 3 MA's), (36, 40954), (40, 40966), (51, 40996), (60, 41032), (61, 41053),

Gene: BaghaKamala\_58 Start: 40159, Stop: 40479, Start Num: 29

Candidate Starts for BaghaKamala\_58:

(Start: 29 @40159 has 120 MA's), (Start: 33 @40177 has 3 MA's), (35, 40183), (Start: 37 @40195 has 1 MA's), (38, 40198), (57, 40246), (61, 40279), (67, 40315), (74, 40354), (78, 40378), (83, 40423), (87, 40456),

Gene: BarrelRoll\_59 Start: 40782, Stop: 41102, Start Num: 29

Candidate Starts for BarrelRoll\_59:

(Start: 29 @40782 has 120 MA's), (35, 40806), (38, 40821), (57, 40869), (61, 40902), (67, 40938), (78, 41001), (83, 41046), (87, 41079),

Gene: Beezoo\_61 Start: 41766, Stop: 42086, Start Num: 29

Candidate Starts for Beezoo\_61:

(Start: 29 @41766 has 120 MA's), (Start: 33 @41784 has 3 MA's), (36, 41799), (38, 41805), (51, 41829), (61, 41886),

Gene: Bella96\_60 Start: 41547, Stop: 41867, Start Num: 29

Candidate Starts for Bella96\_60:

(10, 41217), (17, 41331), (18, 41412), (20, 41430), (Start: 29 @41547 has 120 MA's), (35, 41571), (38, 41586), (42, 41595), (57, 41634), (61, 41667), (67, 41703), (74, 41742), (78, 41766),

Gene: Belladonna\_59 Start: 40921, Stop: 41253, Start Num: 29

Candidate Starts for Belladonna\_59:

(20, 40804), (Start: 29 @40921 has 120 MA's), (Start: 33 @40939 has 3 MA's), (36, 40954), (40, 40966), (51, 40996), (60, 41032), (61, 41053),

Gene: Blizzard\_59 Start: 41118, Stop: 41450, Start Num: 29

Candidate Starts for Blizzard\_59:

(20, 41001), (Start: 29 @41118 has 120 MA's), (Start: 33 @41136 has 3 MA's), (36, 41151), (40, 41163), (51, 41193), (60, 41229), (61, 41250),

Gene: Boiiii\_59 Start: 41120, Stop: 41452, Start Num: 29

Candidate Starts for Boiiii\_59:

(20, 41003), (Start: 29 @41120 has 120 MA's), (Start: 33 @41138 has 3 MA's), (36, 41153), (40, 41165), (51, 41195), (60, 41231), (61, 41252),

Gene: Bryler\_61 Start: 40039, Stop: 40365, Start Num: 29

Candidate Starts for Bryler\_61:

(Start: 29 @40039 has 120 MA's), (44, 40090), (47, 40102), (58, 40141), (79, 40270), (89, 40354),

Gene: CREW\_59 Start: 40921, Stop: 41253, Start Num: 29

Candidate Starts for CREW\_59:

(20, 40804), (Start: 29 @40921 has 120 MA's), (Start: 33 @40939 has 3 MA's), (36, 40954), (40, 40966), (51, 40996), (60, 41032), (61, 41053),

Gene: Cain\_61 Start: 40027, Stop: 40353, Start Num: 29

Candidate Starts for Cain\_61:

(Start: 29 @40027 has 120 MA's), (44, 40078), (47, 40090), (58, 40129), (79, 40258), (89, 40342),

Gene: Capricorn\_59 Start: 40921, Stop: 41253, Start Num: 29

Candidate Starts for Capricorn\_59:

(20, 40804), (Start: 29 @40921 has 120 MA's), (Start: 33 @40939 has 3 MA's), (36, 40954), (40, 40966), (51, 40996), (60, 41032), (61, 41053),

Gene: CaseJules\_61 Start: 41118, Stop: 41450, Start Num: 29

Candidate Starts for CaseJules\_61:

(20, 41001), (Start: 29 @41118 has 120 MA's), (Start: 33 @41136 has 3 MA's), (36, 41151), (40, 41163), (51, 41193), (60, 41229), (61, 41250),

Gene: CheetoDust\_58 Start: 40203, Stop: 40523, Start Num: 29

Candidate Starts for CheetoDust\_58:

(Start: 29 @40203 has 120 MA's), (Start: 33 @40221 has 3 MA's), (35, 40227), (Start: 37 @40239 has 1 MA's), (38, 40242), (57, 40290), (61, 40323), (67, 40359), (74, 40398), (78, 40422), (83, 40467), (87, 40500),

Gene: Chris\_61 Start: 41524, Stop: 41868, Start Num: 29

Candidate Starts for Chris\_61:

(3, 41107), (12, 41224), (15, 41299), (Start: 29 @41524 has 120 MA's), (34, 41551), (60, 41644), (61, 41665), (62, 41668), (75, 41749), (78, 41770), (87, 41848), (88, 41854),

Gene: Collard\_51 Start: 38053, Stop: 38328, Start Num: 26

Candidate Starts for Collard\_51:

(Start: 26 @38053 has 4 MA's), (Start: 33 @38068 has 3 MA's), (34, 38071), (55, 38119), (64, 38170),

Gene: CrimD\_60 Start: 41339, Stop: 41659, Start Num: 29

Candidate Starts for CrimD\_60:

(20, 41222), (Start: 29 @41339 has 120 MA's), (Start: 33 @41357 has 3 MA's), (35, 41363), (Start: 37 @41375 has 1 MA's), (38, 41378), (57, 41426), (61, 41459), (78, 41558), (83, 41603), (87, 41636),

Gene: Curiosium\_63 Start: 40449, Stop: 40775, Start Num: 29

Candidate Starts for Curiosium\_63:

(21, 40344), (Start: 29 @40449 has 120 MA's), (35, 40473), (38, 40488), (50, 40512), (57, 40542), (61, 40575), (67, 40611), (68, 40620), (74, 40650), (80, 40686), (83, 40719),

Gene: Dadosky\_55 Start: 38401, Stop: 38673, Start Num: 32

Candidate Starts for Dadosky\_55:

(Start: 32 @38401 has 5 MA's), (Start: 33 @38413 has 3 MA's), (34, 38416), (55, 38464), (60, 38485), (64, 38515), (85, 38656),

Gene: Dalmuri\_59 Start: 40921, Stop: 41253, Start Num: 29

Candidate Starts for Dalmuri\_59:

(20, 40804), (Start: 29 @40921 has 120 MA's), (Start: 33 @40939 has 3 MA's), (36, 40954), (40, 40966), (51, 40996), (60, 41032), (61, 41053),

Gene: DarthP\_59 Start: 41139, Stop: 41435, Start Num: 29

Candidate Starts for DarthP\_59:

(14, 40911), (16, 40944), (Start: 29 @41139 has 120 MA's), (35, 41157), (39, 41172), (57, 41208), (60, 41220), (61, 41241), (63, 41247), (83, 41382), (87, 41415),

Gene: Dartin\_61 Start: 41185, Stop: 41520, Start Num: 29

Candidate Starts for Dartin\_61:

(Start: 29 @41185 has 120 MA's), (36, 41218), (Start: 37 @41221 has 1 MA's), (53, 41263), (57, 41281), (62, 41317), (67, 41350), (68, 41359), (75, 41392), (87, 41491),

Gene: Deby\_59 Start: 40980, Stop: 41300, Start Num: 29

Candidate Starts for Deby\_59:

(Start: 29 @40980 has 120 MA's), (Start: 33 @40998 has 3 MA's), (35, 41004), (38, 41019), (57, 41067), (61, 41100), (67, 41136), (74, 41175), (78, 41199), (83, 41244), (87, 41277),

Gene: Devera\_66 Start: 42342, Stop: 42668, Start Num: 29

Candidate Starts for Devera\_66:

(21, 42237), (Start: 29 @42342 has 120 MA's), (35, 42366), (38, 42381), (57, 42435), (61, 42468), (67, 42504), (78, 42567), (83, 42612), (87, 42645),

Gene: Dole\_64 Start: 42345, Stop: 42671, Start Num: 29

Candidate Starts for Dole\_64:

(21, 42240), (Start: 29 @42345 has 120 MA's), (35, 42369), (38, 42384), (57, 42438), (61, 42471), (67, 42507), (78, 42570), (83, 42615), (87, 42648),

Gene: DrHayes\_60 Start: 41702, Stop: 42022, Start Num: 29

Candidate Starts for DrHayes\_60:

(18, 41567), (20, 41585), (Start: 29 @41702 has 120 MA's), (Start: 33 @41720 has 3 MA's), (38, 41741), (57, 41789), (61, 41822), (67, 41858), (74, 41897), (78, 41921),

Gene: Durfee\_59 Start: 41118, Stop: 41450, Start Num: 29

Candidate Starts for Durfee\_59:

(20, 41001), (Start: 29 @41118 has 120 MA's), (Start: 33 @41136 has 3 MA's), (36, 41151), (40, 41163), (51, 41193), (60, 41229), (61, 41250),

Gene: Edugator\_52 Start: 39822, Stop: 40094, Start Num: 32

Candidate Starts for Edugator\_52:

(Start: 32 @39822 has 5 MA's), (Start: 33 @39834 has 3 MA's), (34, 39837), (55, 39885), (60, 39906), (64, 39936), (85, 40077),

Gene: Efra2\_63 Start: 40878, Stop: 41210, Start Num: 29

Candidate Starts for Efra2\_63:

(18, 40743), (20, 40761), (Start: 29 @40878 has 120 MA's), (38, 40917), (49, 40941), (57, 40974), (61, 41007), (67, 41043), (74, 41082),

Gene: Ekdilam\_57 Start: 41139, Stop: 41465, Start Num: 29

Candidate Starts for Ekdilam\_57:

(16, 40944), (Start: 29 @41139 has 120 MA's), (35, 41157), (36, 41166), (39, 41172), (57, 41232), (60, 41244), (63, 41271), (87, 41442), (90, 41454),

Gene: Ellie\_55 Start: 40492, Stop: 40803, Start Num: 29

Candidate Starts for Ellie\_55:

(16, 40297), (24, 40453), (Start: 29 @40492 has 120 MA's), (35, 40510), (36, 40519), (60, 40588), (63, 40615), (76, 40687), (77, 40690), (83, 40750),

Gene: Emerson\_60 Start: 40835, Stop: 41119, Start Num: 37

Candidate Starts for Emerson\_60:

(20, 40682), (Start: 29 @40799 has 120 MA's), (Start: 33 @40817 has 3 MA's), (35, 40823), (Start: 37 @40835 has 1 MA's), (57, 40886), (61, 40919), (67, 40955), (74, 40994), (78, 41018), (83, 41063), (87, 41096),

Gene: Fefferhead\_57 Start: 40439, Stop: 40738, Start Num: 29

Candidate Starts for Fefferhead\_57:

(8, 40121), (9, 40139), (16, 40244), (Start: 29 @40439 has 120 MA's), (Start: 33 @40454 has 3 MA's), (36, 40469), (57, 40508), (58, 40511), (60, 40520), (61, 40541), (62, 40544), (67, 40574), (73, 40607),

Gene: Feyre\_56 Start: 41781, Stop: 42053, Start Num: 30

Candidate Starts for Feyre\_56:

(23, 41748), (Start: 30 @41781 has 10 MA's), (Start: 33 @41796 has 3 MA's), (34, 41799), (42, 41826), (60, 41868), (66, 41907), (71, 41940),

Gene: Ganymede\_60 Start: 41182, Stop: 41514, Start Num: 29

Candidate Starts for Ganymede\_60:

(Start: 29 @41182 has 120 MA's), (Start: 33 @41200 has 3 MA's), (36, 41215), (40, 41227), (51, 41257), (60, 41293), (61, 41314),

Gene: Gengar\_53 Start: 39794, Stop: 40072, Start Num: 30

Candidate Starts for Gengar\_53:

(13, 39533), (22, 39731), (27, 39785), (Start: 30 @39794 has 10 MA's), (Start: 33 @39809 has 3 MA's), (34, 39812), (36, 39824), (55, 39860), (60, 39881), (85, 40055), (86, 40061),

Gene: Geraldini\_62 Start: 41848, Stop: 42168, Start Num: 29

Candidate Starts for Geraldini\_62:

(20, 41731), (Start: 29 @41848 has 120 MA's), (Start: 33 @41866 has 3 MA's), (35, 41872), (Start: 37 @41884 has 1 MA's), (38, 41887), (61, 41968), (67, 42004), (78, 42067), (83, 42112), (84, 42118), (87, 42145),

Gene: Guanica15\_62 Start: 40619, Stop: 40951, Start Num: 29

Candidate Starts for Guanica15\_62:

(18, 40484), (20, 40502), (Start: 29 @40619 has 120 MA's), (Start: 33 @40637 has 3 MA's), (38, 40658), (49, 40682), (57, 40715), (61, 40748), (67, 40784), (74, 40823),

Gene: Guillsminger\_54 Start: 39780, Stop: 40043, Start Num: 33

Candidate Starts for Guillsminger\_54:

(22, 39702), (Start: 30 @39765 has 10 MA's), (Start: 33 @39780 has 3 MA's), (34, 39783), (36, 39795), (55, 39831), (60, 39852), (85, 40026),

Gene: Hammy\_59 Start: 41127, Stop: 41423, Start Num: 29

Candidate Starts for Hammy\_59:

(Start: 29 @41127 has 120 MA's), (35, 41145), (39, 41160), (57, 41196), (60, 41208), (61, 41229), (63, 41235), (87, 41403),

Gene: HedwigODU\_59 Start: 40802, Stop: 41128, Start Num: 29

Candidate Starts for HedwigODU\_59:

(20, 40685), (Start: 29 @40802 has 120 MA's), (Start: 33 @40820 has 3 MA's), (45, 40859), (57, 40895), (60, 40907), (61, 40928), (63, 40934),

Gene: Heftyboy\_54 Start: 40137, Stop: 40415, Start Num: 30

Candidate Starts for Heftyboy\_54:

(22, 40074), (27, 40128), (Start: 30 @40137 has 10 MA's), (Start: 33 @40152 has 3 MA's), (34, 40155), (36, 40167), (55, 40203), (60, 40224), (85, 40398),

Gene: Homura\_59 Start: 40921, Stop: 41253, Start Num: 29

Candidate Starts for Homura\_59:

(20, 40804), (Start: 29 @40921 has 120 MA's), (Start: 33 @40939 has 3 MA's), (36, 40954), (40, 40966), (51, 40996), (60, 41032), (61, 41053),

Gene: Hurricane\_59 Start: 41071, Stop: 41379, Start Num: 29

Candidate Starts for Hurricane\_59:

(5, 40678), (11, 40753), (16, 40852), (18, 40942), (20, 40960), (Start: 29 @41071 has 120 MA's), (Start: 33 @41089 has 3 MA's), (38, 41110), (57, 41140), (60, 41152), (61, 41173), (63, 41179), (67, 41215), (76, 41260), (90, 41368),

Gene: Hyperbowlee\_59 Start: 41118, Stop: 41450, Start Num: 29

Candidate Starts for Hyperbowlee\_59:

(20, 41001), (Start: 29 @41118 has 120 MA's), (Start: 33 @41136 has 3 MA's), (36, 41151), (40, 41163), (51, 41193), (60, 41229), (61, 41250),

Gene: Illumine\_64 Start: 42344, Stop: 42670, Start Num: 29

Candidate Starts for Illumine\_64:

(21, 42239), (Start: 29 @42344 has 120 MA's), (35, 42368), (38, 42383), (57, 42437), (61, 42470), (67, 42506), (78, 42569), (83, 42614), (87, 42647),

Gene: Inky\_59 Start: 40921, Stop: 41253, Start Num: 29

Candidate Starts for Inky\_59:

(20, 40804), (Start: 29 @40921 has 120 MA's), (Start: 33 @40939 has 3 MA's), (36, 40954), (40, 40966), (51, 40996), (60, 41032), (61, 41053),

Gene: InvictusManeo\_51 Start: 38096, Stop: 38371, Start Num: 26

Candidate Starts for InvictusManeo\_51:

(Start: 26 @38096 has 4 MA's), (Start: 33 @38111 has 3 MA's), (34, 38114), (55, 38162), (64, 38213),

Gene: JAWS\_59 Start: 40788, Stop: 41108, Start Num: 29

Candidate Starts for JAWS\_59:

(20, 40671), (Start: 29 @40788 has 120 MA's), (Start: 33 @40806 has 3 MA's), (35, 40812), (Start: 37 @40824 has 1 MA's), (38, 40827), (57, 40875), (61, 40908), (67, 40944), (78, 41007), (83, 41052), (87, 41085),

Gene: Jarvi\_59 Start: 40921, Stop: 41253, Start Num: 29

Candidate Starts for Jarvi\_59:

(20, 40804), (Start: 29 @40921 has 120 MA's), (Start: 33 @40939 has 3 MA's), (36, 40954), (40, 40966), (51, 40996), (60, 41032), (61, 41053),

Gene: Jayhawk\_60 Start: 40797, Stop: 41123, Start Num: 29

Candidate Starts for Jayhawk\_60:

(20, 40680), (Start: 29 @40797 has 120 MA's), (Start: 33 @40815 has 3 MA's), (45, 40854), (57, 40890), (60, 40902), (61, 40923), (63, 40929),

Gene: Jeckyll\_59 Start: 40921, Stop: 41253, Start Num: 29

Candidate Starts for Jeckyll\_59:

(20, 40804), (Start: 29 @40921 has 120 MA's), (Start: 33 @40939 has 3 MA's), (36, 40954), (40, 40966), (51, 40996), (60, 41032), (61, 41053),

Gene: Joy99\_59 Start: 40850, Stop: 41182, Start Num: 29

Candidate Starts for Joy99\_59:

(20, 40733), (Start: 29 @40850 has 120 MA's), (Start: 33 @40868 has 3 MA's), (36, 40883), (40, 40895), (51, 40925), (60, 40961), (61, 40982),

Gene: Keshu\_61 Start: 41169, Stop: 41477, Start Num: 29

Candidate Starts for Keshu\_61:

(5, 40776), (16, 40950), (18, 41040), (20, 41058), (Start: 29 @41169 has 120 MA's), (Start: 33 @41187 has 3 MA's), (38, 41208), (60, 41250), (62, 41274), (63, 41277), (67, 41313), (70, 41334), (77, 41361), (90, 41466),

Gene: KiSi\_64 Start: 41902, Stop: 42237, Start Num: 29

Candidate Starts for KiSi\_64:

(Start: 29 @41902 has 120 MA's), (60, 42010), (63, 42037), (65, 42043), (75, 42115), (78, 42136), (86, 42202), (87, 42214), (88, 42220),

Gene: Kratio\_51 Start: 37838, Stop: 38113, Start Num: 26

Candidate Starts for Kratio\_51:

(Start: 26 @37838 has 4 MA's), (Start: 33 @37853 has 3 MA's), (34, 37856), (55, 37904), (56, 37907), (60, 37925), (64, 37955), (85, 38096),

Gene: Larva\_54 Start: 39273, Stop: 39545, Start Num: 32

Candidate Starts for Larva\_54:

(Start: 32 @39273 has 5 MA's), (Start: 33 @39285 has 3 MA's), (34, 39288), (55, 39336), (60, 39357), (64, 39387), (85, 39528),

Gene: LastHope\_62 Start: 39964, Stop: 40290, Start Num: 29

Candidate Starts for LastHope\_62:

(18, 39829), (20, 39847), (Start: 29 @39964 has 120 MA's), (Start: 33 @39982 has 3 MA's), (36, 39997), (45, 40021), (46, 40024), (57, 40057), (60, 40069), (61, 40090), (63, 40096), (74, 40165),

Gene: LeMond\_63 Start: 41533, Stop: 41868, Start Num: 29

Candidate Starts for LeMond\_63:

(15, 41305), (Start: 29 @41533 has 120 MA's), (60, 41641), (63, 41668), (65, 41674), (75, 41746), (78, 41767), (86, 41833), (87, 41845), (88, 41851),

Gene: Leston\_53 Start: 39909, Stop: 40172, Start Num: 33

Candidate Starts for Leston\_53:

(22, 39831), (Start: 30 @39894 has 10 MA's), (Start: 33 @39909 has 3 MA's), (34, 39912), (36, 39924), (55, 39960), (60, 39981), (85, 40155),

Gene: LindNT\_58 Start: 41005, Stop: 41325, Start Num: 29

Candidate Starts for LindNT\_58:

(20, 40888), (Start: 29 @41005 has 120 MA's), (Start: 33 @41023 has 3 MA's), (35, 41029), (38, 41044), (57, 41092), (61, 41125), (67, 41161), (78, 41224), (83, 41269), (87, 41302),

Gene: Llorens\_59 Start: 40921, Stop: 41253, Start Num: 29

Candidate Starts for Llorens\_59:

(20, 40804), (Start: 29 @40921 has 120 MA's), (Start: 33 @40939 has 3 MA's), (36, 40954), (40, 40966), (51, 40996), (60, 41032), (61, 41053),

Gene: Lunahalos\_59 Start: 40921, Stop: 41253, Start Num: 29

Candidate Starts for Lunahalos\_59:

(20, 40804), (Start: 29 @40921 has 120 MA's), (Start: 33 @40939 has 3 MA's), (36, 40954), (40, 40966), (51, 40996), (60, 41032), (61, 41053),

Gene: MacnCheese\_61 Start: 41660, Stop: 41977, Start Num: 31

Candidate Starts for MacnCheese\_61:

(18, 41522), (19, 41534), (28, 41645), (Start: 31 @41660 has 1 MA's), (35, 41678), (60, 41759), (61, 41780), (74, 41855), (87, 41957),

Gene: MarkPhew\_62 Start: 41206, Stop: 41514, Start Num: 29

Candidate Starts for MarkPhew\_62:

(3, 40810), (4, 40825), (7, 40879), (15, 41002), (Start: 29 @41206 has 120 MA's), (35, 41224), (36, 41233), (38, 41239), (57, 41284), (60, 41296), (63, 41323), (67, 41353), (87, 41494),

Gene: McMater\_61 Start: 41185, Stop: 41520, Start Num: 29

Candidate Starts for McMater\_61:

(Start: 29 @41185 has 120 MA's), (36, 41218), (Start: 37 @41221 has 1 MA's), (53, 41263), (57, 41281), (62, 41317), (67, 41350), (68, 41359), (75, 41392), (87, 41491),

Gene: MeaningOfLife\_60 Start: 41676, Stop: 41996, Start Num: 29

Candidate Starts for MeaningOfLife\_60:

(20, 41559), (Start: 29 @41676 has 120 MA's), (Start: 33 @41694 has 3 MA's), (36, 41709), (38, 41715), (51, 41739), (60, 41775), (61, 41796),

Gene: Megsy\_61 Start: 41070, Stop: 41396, Start Num: 29

Candidate Starts for Megsy\_61:

(Start: 29 @41070 has 120 MA's), (Start: 33 @41088 has 3 MA's), (38, 41109), (45, 41127), (57, 41163), (60, 41175), (61, 41196), (63, 41202), (74, 41271),

Gene: Miryou\_57 Start: 42497, Stop: 42769, Start Num: 30

Candidate Starts for Miryou\_57:

(23, 42464), (Start: 30 @42497 has 10 MA's), (Start: 33 @42512 has 3 MA's), (34, 42515), (42, 42542), (60, 42584), (66, 42623), (71, 42656),

Gene: Murucutumbu\_60 Start: 41776, Stop: 42096, Start Num: 29

Candidate Starts for Murucutumbu\_60:

(Start: 29 @41776 has 120 MA's), (Start: 33 @41794 has 3 MA's), (35, 41800), (38, 41815), (57, 41863), (67, 41932), (78, 41995), (81, 42010), (83, 42040), (87, 42073),

Gene: Mynx\_60 Start: 41118, Stop: 41438, Start Num: 29

Candidate Starts for Mynx\_60:

(20, 41001), (Start: 29 @41118 has 120 MA's), (Start: 33 @41136 has 3 MA's), (35, 41142), (Start: 37 @41154 has 1 MA's), (38, 41157), (57, 41205), (61, 41238), (67, 41274), (78, 41337), (83, 41382), (87, 41415),

Gene: Nergal\_53 Start: 37748, Stop: 38059, Start Num: 29

Candidate Starts for Nergal\_53:

(25, 37706), (Start: 29 @37748 has 120 MA's), (58, 37820), (60, 37832), (61, 37853), (67, 37889), (80, 37964),

Gene: Nibb\_61 Start: 40886, Stop: 41206, Start Num: 29

Candidate Starts for Nibb\_61:

(2, 40433), (3, 40505), (4, 40520), (7, 40574), (15, 40697), (Start: 29 @40886 has 120 MA's), (35, 40904), (36, 40913), (38, 40919), (57, 40979), (60, 40991), (61, 41012), (63, 41018), (69, 41057), (73, 41078), (74, 41084), (78, 41108), (87, 41186), (90, 41198),

Gene: Niklas\_61 Start: 41246, Stop: 41581, Start Num: 29

Candidate Starts for Niklas\_61:

(Start: 29 @41246 has 120 MA's), (36, 41279), (Start: 37 @41282 has 1 MA's), (53, 41324), (57, 41342), (62, 41378), (67, 41411), (68, 41420), (75, 41453), (87, 41552),

Gene: OkiRoe\_54 Start: 40183, Stop: 40440, Start Num: 33

Candidate Starts for OkiRoe\_54:

(23, 40135), (Start: 30 @40168 has 10 MA's), (Start: 33 @40183 has 3 MA's), (34, 40186), (42, 40213), (60, 40255), (66, 40294), (71, 40327),

Gene: Omnicron\_57 Start: 40271, Stop: 40540, Start Num: 30

Candidate Starts for Omnicron\_57:

(Start: 30 @40271 has 10 MA's), (Start: 33 @40286 has 3 MA's), (34, 40289), (36, 40301), (54, 40328), (55, 40337), (60, 40358), (67, 40406), (85, 40523),

Gene: Oscar\_63 Start: 41441, Stop: 41785, Start Num: 29

Candidate Starts for Oscar\_63:

(15, 41210), (Start: 29 @41441 has 120 MA's), (43, 41504), (48, 41507), (52, 41522), (58, 41546), (60, 41558), (63, 41585), (65, 41591), (75, 41663), (78, 41684), (87, 41762), (88, 41768),

Gene: Padfoot\_59 Start: 41118, Stop: 41450, Start Num: 29

Candidate Starts for Padfoot\_59:

(20, 41001), (Start: 29 @41118 has 120 MA's), (Start: 33 @41136 has 3 MA's), (36, 41151), (40, 41163), (51, 41193), (60, 41229), (61, 41250),

Gene: Padpat\_61 Start: 40799, Stop: 41119, Start Num: 29

Candidate Starts for Padpat\_61:

(20, 40682), (Start: 29 @40799 has 120 MA's), (Start: 33 @40817 has 3 MA's), (35, 40823), (Start: 37 @40835 has 1 MA's), (57, 40886), (61, 40919), (67, 40955), (74, 40994), (78, 41018), (83, 41063), (87, 41096),

Gene: Paola\_53 Start: 39765, Stop: 40043, Start Num: 30

Candidate Starts for Paola\_53:

(22, 39702), (Start: 30 @39765 has 10 MA's), (Start: 33 @39780 has 3 MA's), (34, 39783), (36, 39795), (55, 39831), (60, 39852), (85, 40026),

Gene: Peanam\_61 Start: 41204, Stop: 41539, Start Num: 29

Candidate Starts for Peanam\_61:

(Start: 29 @41204 has 120 MA's), (36, 41237), (Start: 37 @41240 has 1 MA's), (53, 41282), (57, 41300), (62, 41336), (67, 41369), (68, 41378), (75, 41411), (87, 41510),

Gene: Peel\_59 Start: 40923, Stop: 41255, Start Num: 29

Candidate Starts for Peel\_59:

(20, 40806), (Start: 29 @40923 has 120 MA's), (Start: 33 @40941 has 3 MA's), (36, 40956), (40, 40968), (51, 40998), (60, 41034), (61, 41055),

Gene: Pharb\_58 Start: 40273, Stop: 40581, Start Num: 29

Candidate Starts for Pharb\_58:

(18, 40144), (20, 40162), (Start: 29 @40273 has 120 MA's), (Start: 33 @40291 has 3 MA's), (38, 40312), (57, 40342), (60, 40354), (61, 40375), (63, 40381), (78, 40480), (90, 40570),

Gene: PhelpsODU\_59 Start: 39956, Stop: 40282, Start Num: 29

Candidate Starts for PhelpsODU\_59:

(Start: 29 @39956 has 120 MA's), (41, 39998), (60, 40067), (61, 40088), (68, 40130), (89, 40271),



Gene: Phrank\_61 Start: 40017, Stop: 40343, Start Num: 29  
Candidate Starts for Phrank\_61:  
(Start: 29 @40017 has 120 MA's), (44, 40068), (47, 40080), (58, 40119), (79, 40248), (89, 40332),

Gene: Piatt\_59 Start: 41118, Stop: 41450, Start Num: 29  
Candidate Starts for Piatt\_59:  
(20, 41001), (Start: 29 @41118 has 120 MA's), (Start: 33 @41136 has 3 MA's), (36, 41151), (40, 41163), (51, 41193), (60, 41229), (61, 41250),

Gene: Pixie\_58 Start: 40609, Stop: 40917, Start Num: 29  
Candidate Starts for Pixie\_58:  
(5, 40216), (16, 40390), (18, 40480), (20, 40498), (Start: 29 @40609 has 120 MA's), (Start: 33 @40627 has 3 MA's), (38, 40648), (57, 40678), (60, 40690), (61, 40711), (63, 40717), (67, 40753), (76, 40798), (77, 40801), (90, 40906),

Gene: Pokerus\_58 Start: 40848, Stop: 41168, Start Num: 29  
Candidate Starts for Pokerus\_58:  
(Start: 29 @40848 has 120 MA's), (35, 40872), (38, 40887), (57, 40935), (61, 40968), (67, 41004), (78, 41067), (83, 41112), (87, 41145),

Gene: Prithvi\_60 Start: 41005, Stop: 41325, Start Num: 29  
Candidate Starts for Prithvi\_60:  
(20, 40888), (Start: 29 @41005 has 120 MA's), (Start: 33 @41023 has 3 MA's), (35, 41029), (38, 41044), (57, 41092), (61, 41125), (67, 41161), (78, 41224), (83, 41269), (87, 41302),

Gene: Psycho\_53 Start: 38398, Stop: 38670, Start Num: 32  
Candidate Starts for Psycho\_53:  
(Start: 32 @38398 has 5 MA's), (Start: 33 @38410 has 3 MA's), (34, 38413), (55, 38461), (60, 38482), (64, 38512), (85, 38653),

Gene: QuincyRose\_58 Start: 41182, Stop: 41514, Start Num: 29  
Candidate Starts for QuincyRose\_58:  
(Start: 29 @41182 has 120 MA's), (Start: 33 @41200 has 3 MA's), (36, 41215), (40, 41227), (51, 41257), (60, 41293), (61, 41314),

Gene: Ramen\_60 Start: 40804, Stop: 41130, Start Num: 29  
Candidate Starts for Ramen\_60:  
(20, 40687), (Start: 29 @40804 has 120 MA's), (Start: 33 @40822 has 3 MA's), (45, 40861), (57, 40897), (60, 40909), (61, 40930), (63, 40936),

Gene: Rando14\_55 Start: 37968, Stop: 38240, Start Num: 30  
Candidate Starts for Rando14\_55:  
(Start: 30 @37968 has 10 MA's), (Start: 33 @37983 has 3 MA's), (34, 37986), (36, 37998), (55, 38034), (60, 38055), (64, 38082), (85, 38223),

Gene: Rapunzel97\_60 Start: 40797, Stop: 41117, Start Num: 29  
Candidate Starts for Rapunzel97\_60:  
(Start: 29 @40797 has 120 MA's), (35, 40821), (38, 40836), (57, 40884), (61, 40917), (67, 40953), (78, 41016), (83, 41061), (87, 41094),

Gene: Richo\_61 Start: 41185, Stop: 41520, Start Num: 29  
Candidate Starts for Richo\_61:

(Start: 29 @41185 has 120 MA's), (36, 41218), (Start: 37 @41221 has 1 MA's), (53, 41263), (57, 41281), (62, 41317), (67, 41350), (68, 41359), (75, 41392), (87, 41491),

Gene: Rosmarinus\_59 Start: 40909, Stop: 41241, Start Num: 29

Candidate Starts for Rosmarinus\_59:

(20, 40792), (Start: 29 @40909 has 120 MA's), (Start: 33 @40927 has 3 MA's), (36, 40942), (40, 40954), (51, 40984), (60, 41020), (61, 41041),

Gene: SamuelLPlaqson\_60 Start: 41702, Stop: 42022, Start Num: 29

Candidate Starts for SamuelLPlaqson\_60:

(18, 41567), (20, 41585), (Start: 29 @41702 has 120 MA's), (Start: 33 @41720 has 3 MA's), (38, 41741), (57, 41789), (61, 41822), (67, 41858), (74, 41897), (78, 41921),

Gene: Scarlett\_64 Start: 41780, Stop: 42115, Start Num: 29

Candidate Starts for Scarlett\_64:

(Start: 29 @41780 has 120 MA's), (60, 41888), (63, 41915), (65, 41921), (75, 41993), (78, 42014), (86, 42080), (87, 42092), (88, 42098),

Gene: Shadow1\_63 Start: 40864, Stop: 41187, Start Num: 29

Candidate Starts for Shadow1\_63:

(Start: 29 @40864 has 120 MA's), (44, 40912), (47, 40924), (58, 40963), (63, 40999), (74, 41065), (79, 41092), (89, 41176),

Gene: Shaobing\_61 Start: 41222, Stop: 41557, Start Num: 29

Candidate Starts for Shaobing\_61:

(Start: 29 @41222 has 120 MA's), (36, 41255), (Start: 37 @41258 has 1 MA's), (53, 41300), (57, 41318), (62, 41354), (67, 41387), (68, 41396), (75, 41429), (87, 41528),

Gene: ShedlockHolmes\_60 Start: 41128, Stop: 41436, Start Num: 29

Candidate Starts for ShedlockHolmes\_60:

(1, 40486), (16, 40909), (18, 40999), (20, 41017), (Start: 29 @41128 has 120 MA's), (Start: 33 @41146 has 3 MA's), (38, 41167), (57, 41197), (60, 41209), (61, 41230), (63, 41236), (67, 41272), (76, 41317), (77, 41320), (82, 41365), (90, 41425),

Gene: ShiaSurprise\_60 Start: 41118, Stop: 41450, Start Num: 29

Candidate Starts for ShiaSurprise\_60:

(20, 41001), (Start: 29 @41118 has 120 MA's), (Start: 33 @41136 has 3 MA's), (36, 41151), (40, 41163), (51, 41193), (60, 41229), (61, 41250),

Gene: SirPhilip\_60 Start: 41537, Stop: 41830, Start Num: 29

Candidate Starts for SirPhilip\_60:

(Start: 29 @41537 has 120 MA's), (35, 41555), (36, 41564), (56, 41597), (60, 41612), (61, 41633), (62, 41636), (63, 41639), (67, 41666), (72, 41696),

Gene: Slimphazie\_59 Start: 40797, Stop: 41117, Start Num: 29

Candidate Starts for Slimphazie\_59:

(Start: 29 @40797 has 120 MA's), (35, 40821), (38, 40836), (57, 40884), (61, 40917), (67, 40953), (78, 41016), (83, 41061), (87, 41094),

Gene: SoSeph\_54 Start: 40137, Stop: 40415, Start Num: 30

Candidate Starts for SoSeph\_54:

(22, 40074), (27, 40128), (Start: 30 @40137 has 10 MA's), (Start: 33 @40152 has 3 MA's), (34, 40155), (36, 40167), (55, 40203), (60, 40224), (85, 40398),

Gene: Spock\_59 Start: 40922, Stop: 41254, Start Num: 29

Candidate Starts for Spock\_59:

(20, 40805), (Start: 29 @40922 has 120 MA's), (Start: 33 @40940 has 3 MA's), (36, 40955), (40, 40967), (51, 40997), (60, 41033), (61, 41054),

Gene: Stinson\_60 Start: 41299, Stop: 41619, Start Num: 29

Candidate Starts for Stinson\_60:

(18, 41164), (20, 41182), (Start: 29 @41299 has 120 MA's), (Start: 33 @41317 has 3 MA's), (36, 41332), (57, 41386), (60, 41398), (61, 41419), (74, 41494),

Gene: Sulley\_59 Start: 40973, Stop: 41305, Start Num: 29

Candidate Starts for Sulley\_59:

(Start: 29 @40973 has 120 MA's), (Start: 33 @40991 has 3 MA's), (36, 41006), (40, 41018), (51, 41048), (60, 41084), (61, 41105),

Gene: Sunflower1121\_64 Start: 41010, Stop: 41333, Start Num: 29

Candidate Starts for Sunflower1121\_64:

(Start: 29 @41010 has 120 MA's), (44, 41058), (47, 41070), (58, 41109), (63, 41145), (74, 41211), (79, 41238),

Gene: TBond007\_57 Start: 40608, Stop: 40916, Start Num: 29

Candidate Starts for TBond007\_57:

(5, 40215), (16, 40389), (18, 40479), (20, 40497), (Start: 29 @40608 has 120 MA's), (Start: 33 @40626 has 3 MA's), (38, 40647), (57, 40677), (60, 40689), (61, 40710), (63, 40716), (67, 40752), (76, 40797), (77, 40800), (90, 40905),

Gene: TClif\_60 Start: 40675, Stop: 40983, Start Num: 29

Candidate Starts for TClif\_60:

(Start: 29 @40675 has 120 MA's), (Start: 33 @40693 has 3 MA's), (38, 40714), (60, 40756), (63, 40783), (78, 40882), (90, 40972),

Gene: Tachez\_59 Start: 40766, Stop: 41098, Start Num: 29

Candidate Starts for Tachez\_59:

(20, 40649), (Start: 29 @40766 has 120 MA's), (Start: 33 @40784 has 3 MA's), (36, 40799), (40, 40811), (51, 40841), (60, 40877), (61, 40898),

Gene: TaiwanKao\_61 Start: 41085, Stop: 41387, Start Num: 33

Candidate Starts for TaiwanKao\_61:

(20, 40950), (Start: 29 @41067 has 120 MA's), (Start: 33 @41085 has 3 MA's), (35, 41091), (Start: 37 @41103 has 1 MA's), (38, 41106), (57, 41154), (61, 41187), (78, 41286), (83, 41331), (87, 41364),

Gene: Thyatira\_56 Start: 42101, Stop: 42373, Start Num: 30

Candidate Starts for Thyatira\_56:

(22, 42038), (Start: 30 @42101 has 10 MA's), (Start: 33 @42116 has 3 MA's), (34, 42119), (42, 42146), (60, 42188), (66, 42227), (71, 42260),

Gene: Tierra\_61 Start: 40828, Stop: 41154, Start Num: 29

Candidate Starts for Tierra\_61:

(Start: 29 @40828 has 120 MA's), (44, 40879), (47, 40891), (58, 40930), (79, 41059), (89, 41143),

Gene: TingHuaYa\_61 Start: 40144, Stop: 40458, Start Num: 33

Candidate Starts for TingHuaYa\_61:

(18, 39991), (20, 40009), (Start: 29 @40126 has 120 MA's), (Start: 33 @40144 has 3 MA's), (38, 40165), (49, 40189), (57, 40222), (61, 40255), (67, 40291), (74, 40330), (87, 40432),

Gene: TiniBug\_60 Start: 41698, Stop: 42018, Start Num: 29

Candidate Starts for TiniBug\_60:

(18, 41563), (20, 41581), (Start: 29 @41698 has 120 MA's), (Start: 33 @41716 has 3 MA's), (38, 41737), (57, 41785), (61, 41818), (67, 41854), (74, 41893), (78, 41917),

Gene: Tiri\_60 Start: 41087, Stop: 41413, Start Num: 29

Candidate Starts for Tiri\_60:

(Start: 29 @41087 has 120 MA's), (Start: 33 @41105 has 3 MA's), (45, 41144), (57, 41180), (60, 41192), (61, 41213), (63, 41219),

Gene: Topper\_59 Start: 40921, Stop: 41253, Start Num: 29

Candidate Starts for Topper\_59:

(20, 40804), (Start: 29 @40921 has 120 MA's), (Start: 33 @40939 has 3 MA's), (36, 40954), (40, 40966), (51, 40996), (60, 41032), (61, 41053),

Gene: TreyKay\_60 Start: 41005, Stop: 41325, Start Num: 29

Candidate Starts for TreyKay\_60:

(20, 40888), (Start: 29 @41005 has 120 MA's), (Start: 33 @41023 has 3 MA's), (35, 41029), (38, 41044), (57, 41092), (61, 41125), (67, 41161), (78, 41224), (83, 41269), (87, 41302),

Gene: TribbleTrouble\_58 Start: 41084, Stop: 41362, Start Num: 29

Candidate Starts for TribbleTrouble\_58:

(18, 40955), (Start: 29 @41084 has 120 MA's), (36, 41111), (59, 41138), (60, 41144), (61, 41165), (63, 41171), (67, 41198),

Gene: TruffulaTree\_59 Start: 40793, Stop: 41113, Start Num: 29

Candidate Starts for TruffulaTree\_59:

(Start: 29 @40793 has 120 MA's), (35, 40817), (38, 40832), (57, 40880), (61, 40913), (67, 40949), (78, 41012), (83, 41057), (87, 41090),

Gene: Twitch\_59 Start: 40923, Stop: 41255, Start Num: 29

Candidate Starts for Twitch\_59:

(20, 40806), (Start: 29 @40923 has 120 MA's), (Start: 33 @40941 has 3 MA's), (36, 40956), (40, 40968), (51, 40998), (60, 41034), (61, 41055),

Gene: Unicorn\_59 Start: 39956, Stop: 40282, Start Num: 29

Candidate Starts for Unicorn\_59:

(Start: 29 @39956 has 120 MA's), (41, 39998), (60, 40067), (61, 40088), (68, 40130), (89, 40271),

Gene: Urkel\_60 Start: 41702, Stop: 42022, Start Num: 29

Candidate Starts for Urkel\_60:

(18, 41567), (20, 41585), (Start: 29 @41702 has 120 MA's), (Start: 33 @41720 has 3 MA's), (38, 41741), (57, 41789), (61, 41822), (67, 41858), (74, 41897), (78, 41921),

Gene: Validus\_63 Start: 41564, Stop: 41896, Start Num: 29

Candidate Starts for Validus\_63:

(6, 41195), (7, 41201), (Start: 29 @41564 has 120 MA's), (Start: 33 @41582 has 3 MA's), (36, 41597), (38, 41603), (50, 41633), (57, 41663), (60, 41675), (61, 41696), (67, 41732), (74, 41771), (76, 41777), (78, 41795),

Gene: Veliki\_60 Start: 40779, Stop: 41099, Start Num: 29

Candidate Starts for Veliki\_60:

(20, 40662), (Start: 29 @40779 has 120 MA's), (Start: 33 @40797 has 3 MA's), (35, 40803), (Start: 37 @40815 has 1 MA's), (38, 40818), (57, 40866), (61, 40899), (67, 40935), (78, 40998), (83, 41043), (87, 41076),

Gene: Waterfoul\_55 Start: 40199, Stop: 40477, Start Num: 30

Candidate Starts for Waterfoul\_55:

(22, 40136), (27, 40190), (Start: 30 @40199 has 10 MA's), (Start: 33 @40214 has 3 MA's), (34, 40217), (36, 40229), (55, 40265), (60, 40286), (85, 40460),

Gene: Ximenita\_64 Start: 41028, Stop: 41351, Start Num: 29

Candidate Starts for Ximenita\_64:

(Start: 29 @41028 has 120 MA's), (44, 41076), (47, 41088), (58, 41127), (63, 41163), (74, 41229), (79, 41256), (89, 41340),

Gene: YoureAdopted\_58 Start: 40922, Stop: 41242, Start Num: 29

Candidate Starts for YoureAdopted\_58:

(Start: 29 @40922 has 120 MA's), (35, 40946), (38, 40961), (57, 41009), (61, 41042), (67, 41078), (78, 41141), (87, 41219),

Gene: Yuna\_64 Start: 42123, Stop: 42446, Start Num: 29

Candidate Starts for Yuna\_64:

(Start: 29 @42123 has 120 MA's), (35, 42141), (36, 42150), (40, 42162), (57, 42210), (61, 42243), (63, 42249), (87, 42420), (91, 42435),

Gene: Yunkel11\_62 Start: 40618, Stop: 40950, Start Num: 29

Candidate Starts for Yunkel11\_62:

(18, 40483), (20, 40501), (Start: 29 @40618 has 120 MA's), (Start: 33 @40636 has 3 MA's), (38, 40657), (49, 40681), (57, 40714), (61, 40747), (67, 40783), (74, 40822),

Gene: Zabiza\_54 Start: 37107, Stop: 37433, Start Num: 29

Candidate Starts for Zabiza\_54:

(20, 36990), (Start: 29 @37107 has 120 MA's), (Start: 33 @37125 has 3 MA's), (45, 37164), (57, 37200), (60, 37212), (61, 37233), (63, 37239),

Gene: Zavala\_61 Start: 41078, Stop: 41398, Start Num: 29

Candidate Starts for Zavala\_61:

(20, 40961), (Start: 29 @41078 has 120 MA's), (Start: 33 @41096 has 3 MA's), (35, 41102), (Start: 37 @41114 has 1 MA's), (38, 41117), (57, 41165), (61, 41198), (67, 41234), (78, 41297), (83, 41342), (87, 41375),