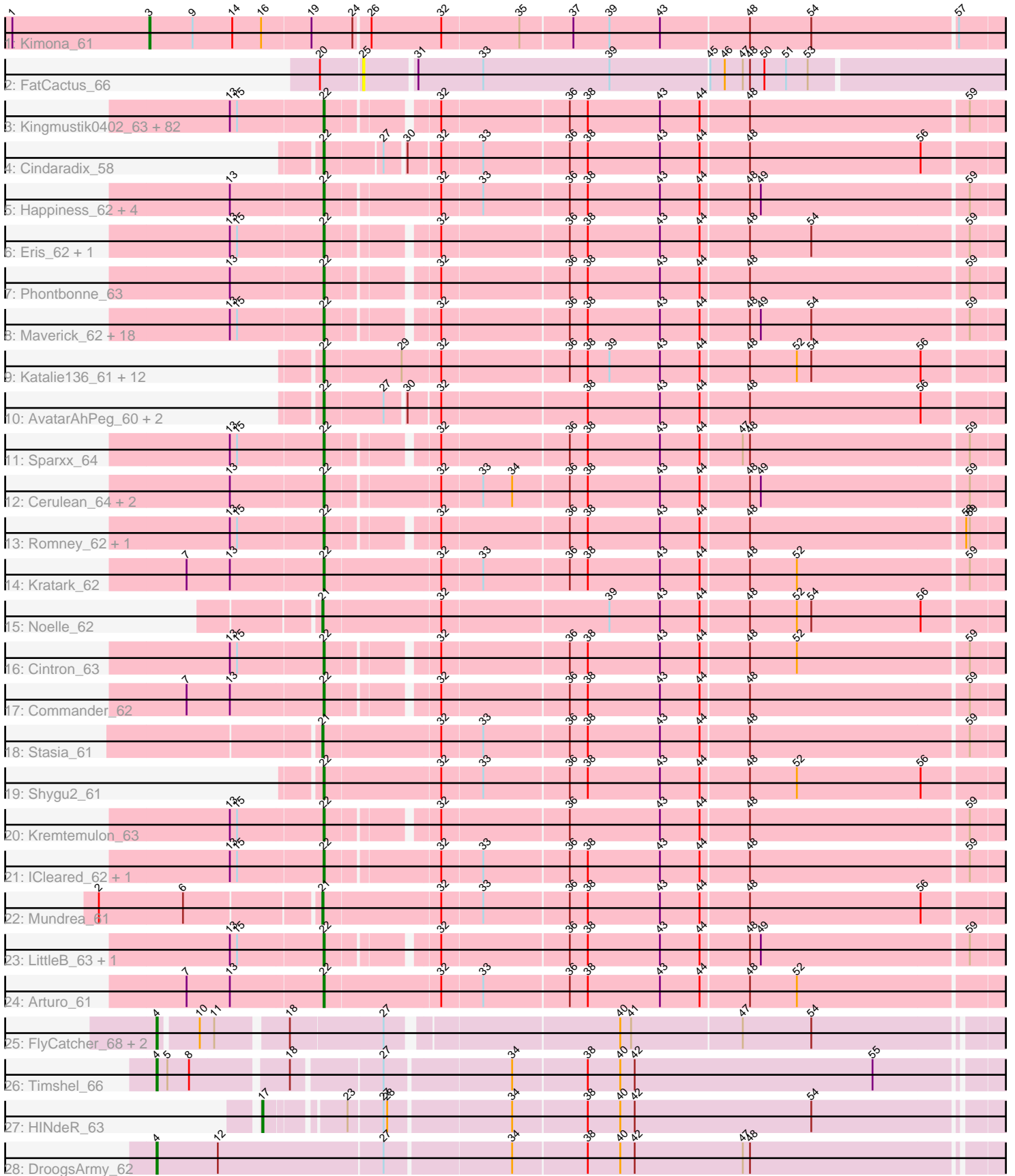


# Pham 308193



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 308193 Report

This analysis was run 06/27/26 on database version 652.

Pham number 308193 has 154 members, 6 are drafts.

Phages represented in each track:

- Track 1 : Kimona\_61
- Track 2 : FatCactus\_66
- Track 3 : Kingmustik0402\_63, Skipitt\_62, Lunsford\_64, Spino\_62, BellusTerra\_64, LochMonster\_64, Morrow\_64, Medusa\_63, Kampy\_62, Eagle\_62, TiroTheta9\_62, Blackmoor\_62, Eros\_63, OKaNui\_63, Sabertooth\_63, DirtyDunning\_62, Clarenza\_62, NorthStar\_61, Shaka\_61, Flux\_63, Huxley\_62, SenorClean\_64, Ohfah\_64, Iceman\_63, KekoraPapaka\_61, Koan\_60, Melvin\_65, Peaches\_61, Burger\_61, TroyPia\_64, Pumbaa\_63, Millski\_62, Jaykayelowell\_60, Eapen\_63, BubbleTrouble\_62, Deano\_61, Taquarus\_62, Alberto7\_64, HamSlice\_60, Roosevelt\_61, TinaFeyge\_61, KFPoly\_62, Felipe\_64, Broseidon\_63, Nyxis\_62, Abdiel\_63, Connomayer\_63, Ruin\_63, Bartimeaus\_63, Polymorphads\_64, SteMason\_63, Koreni\_62, Lorenzo\_63, Scamp\_63, Wizard007\_62, Florean\_63, Camperdownii\_61, YoSam321\_63, LeoAvram\_62, Bombshell\_63, Eurydice\_64, Dhanush\_63, Pipcraft\_60, Nebs\_64, Relief\_62, Phighter1804\_63, Druantia\_62, Annyong\_62, CentreCat\_63, TygerBlood\_63, Albee\_63, Holli\_62, LittleGuy\_63, Thanksgivukkah\_62, Citius\_63, Maxo\_64, Baby16\_63, Lemur\_63, MeeZee\_62, Rosa24\_61, RockieBear\_61, Tinybot\_62, LappelDuVide\_63
- Track 4 : Cindaradix\_58
- Track 5 : Happiness\_62, Obama12\_64, ChampagnePapi\_65, LHTSCC\_65, JetBlade\_63
- Track 6 : Eris\_62, Iracema64\_64
- Track 7 : Phontbonne\_63
- Track 8 : Maverick\_62, Funston\_62, Houdini22\_62, PeterPeter\_63, Avle17\_63, Mazhar510\_63, JoongJeon\_62, Mayonnaise\_61, Bruiser\_62, Kyee\_63, Palestino\_62, Phacado\_63, NotAPhaseMom\_62, Cocoaberry\_63, Nemo27\_62, Gadost\_63, Sultana\_63, Wander\_63, Caelakin\_62
- Track 9 : Katalie136\_61, Bumblebee11\_60, AbbysRanger\_61, Cici\_61, Achebe\_60, Datway\_61, Perplexer\_61, Backyardigan\_59, Morpher26\_61, Xena\_60, PetiteSangsue\_61, Wile\_61, Badger\_60
- Track 10 : AvatarAhPeg\_60, Miramae\_60, Stink\_60
- Track 11 : Sparxx\_64
- Track 12 : Cerulean\_64, BangNhom\_62, SheldonCooper\_63
- Track 13 : Romney\_62, Wilbur\_63
- Track 14 : Kratak\_62
- Track 15 : Noelle\_62
- Track 16 : Cintron\_63
- Track 17 : Commander\_62

- Track 18 : Stasia\_61
- Track 19 : Shygu2\_61
- Track 20 : Kremtemulon\_63
- Track 21 : ICleared\_62, Ulysses\_62
- Track 22 : Mundrea\_61
- Track 23 : LittleB\_63, Chaph\_63
- Track 24 : Arturo\_61
- Track 25 : FlyCatcher\_68, Sheen\_66, Toro\_66
- Track 26 : Timshel\_66
- Track 27 : HINdeR\_63
- Track 28 : DroogsArmy\_62

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

The start number called the most often in the published annotations is 22, it was called in 140 of the 148 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AbbysRanger\_61, Abdiel\_63, Achebe\_60, Albee\_63, Alberto7\_64, Annyong\_62, Arturo\_61, AvatarAhPeg\_60, Avle17\_63, Baby16\_63, Backyardigan\_59, Badger\_60, BangNhom\_62, Bartimeaus\_63, BellusTerra\_64, Blackmoor\_62, Bombshell\_63, Broseidon\_63, Bruiser\_62, BubbleTrouble\_62, Bumblebee11\_60, Burger\_61, Caelakin\_62, Camperdownii\_61, CentreCat\_63, Cerulean\_64, ChampagnePapi\_65, Chaph\_63, Cici\_61, Cindaradix\_58, Cintron\_63, Citius\_63, Clarenza\_62, Cocoaberry\_63, Commander\_62, Connomayer\_63, Datway\_61, Deano\_61, Dhanush\_63, DirtyDunning\_62, Druantia\_62, Eagle\_62, Eapen\_63, Eris\_62, Eros\_63, Eurydice\_64, Florean\_63, Flux\_63, Funston\_62, Gadost\_63, HamSlice\_60, Happiness\_62, Holli\_62, Houdini22\_62, Huxley\_62, ICleared\_62, Iceman\_63, Iracema64\_64, Jaykayelowell\_60, JetBlade\_63, JoongJeon\_62, KFPoly\_62, Kampy\_62, Katalie136\_61, KekoraPapaka\_61, Kingmustik0402\_63, Koan\_60, Koreni\_62, Kratak\_62, Kremtemulon\_63, Kyee\_63, LHTSCC\_65, LappelDuVide\_63, Lemur\_63, LeoAvram\_62, LittleB\_63, LittleGuy\_63, LochMonster\_64, Lorenzo\_63, Lunsford\_64, Maverick\_62, Maxo\_64, Mayonnaise\_61, Mazhar510\_63, Medusa\_63, MeeZee\_62, Melvin\_65, Millski\_62, Miramae\_60, Morpher26\_61, Morrow\_64, Nebs\_64, Nemo27\_62, NorthStar\_61, NotAPhaseMom\_62, Nyxis\_62, OKaNui\_63, Obama12\_64, Ohfah\_64, Palestino\_62, Peaches\_61, Perplexer\_61, PeterPeter\_63, PetiteSangsue\_61, Phacado\_63, Phelipe\_64, Phighter1804\_63, Phontbonne\_63, Pipcraft\_60, Polymorphads\_64, Pumbaa\_63, Relief\_62, RockieBear\_61, Romney\_62, Roosevelt\_61, Rosa24\_61, Ruin\_63, Sabertooth\_63, Scamp\_63, SeniorClean\_64, Shaka\_61, SheldonCooper\_63, Shygu2\_61, Skipitt\_62, Sparxx\_64, Spino\_62, SteMason\_63, Stink\_60, Sultana\_63, Taquarus\_62, Thanksgivukkah\_62, TinaFeyge\_61, Tinybot\_62, TiroTheta9\_62, TroyPia\_64, TygerBlood\_63, Ulysses\_62, Wander\_63, Wilbur\_63, Wile\_61, Wizard007\_62, Xena\_60, YoSam321\_63,

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

- 

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

- DroogsArmy\_62, FatCactus\_66, FlyCatcher\_68, HINdeR\_63, Kimona\_61, Mundrea\_61, Noelle\_62, Sheen\_66, Stasia\_61, Timshel\_66, Toro\_66,

## Summary by start number:

### Start 3:

- Found in 1 of 154 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kimona\_61 (A19),

### Start 4:

- Found in 5 of 154 ( 3.2% ) of genes in pham
- Manual Annotations of this start: 3 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DroogsArmy\_62 (A7), FlyCatcher\_68 (A7), Sheen\_66 (A7), Timshel\_66 (A7), Toro\_66 (A7),

### Start 17:

- Found in 1 of 154 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: HINdeR\_63 (A7),

### Start 21:

- Found in 3 of 154 ( 1.9% ) of genes in pham
- Manual Annotations of this start: 3 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Mundrea\_61 (A4), Noelle\_62 (A4), Stasia\_61 (A4),

### Start 22:

- Found in 143 of 154 ( 92.9% ) of genes in pham
- Manual Annotations of this start: 140 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AbbysRanger\_61 (A4), Abdiel\_63 (A4), Achebe\_60 (A4), Albee\_63 (A4), Alberto7\_64 (A4), Annyong\_62 (A4), Arturo\_61 (A4), AvatarAhPeg\_60 (A4), Avle17\_63 (A4), Baby16\_63 (A4), Backyardigan\_59 (A4), Badger\_60 (A4), BangNhom\_62 (A4), Bartimeaus\_63 (A4), BellusTerra\_64 (A4), Blackmoor\_62 (A4), Bombshell\_63 (A4), Broseidon\_63 (A4), Bruiser\_62 (A4), BubbleTrouble\_62 (A4), Bumblebee11\_60 (A4), Burger\_61 (A4), Caelakin\_62 (A4), Camperdownii\_61 (A4), CentreCat\_63 (A4), Cerulean\_64 (A4), ChampagnePapi\_65 (A4), Chaph\_63 (A4), Cici\_61 (A4), Cindaradix\_58 (A4), Cintron\_63 (A4), Citius\_63 (A4), Clarenza\_62 (A4), Cocoaberry\_63 (A4), Commander\_62 (A4), Connomayer\_63 (A4), Datway\_61 (A4), Deano\_61 (A4), Dhanush\_63 (A4), DirtyDunning\_62 (A4), Druantia\_62 (A4), Eagle\_62 (A4), Eapen\_63 (A4), Eris\_62 (A4), Eros\_63 (A4), Eurydice\_64 (A4), Florean\_63 (A4), Flux\_63 (A4), Funston\_62 (A4), Gadost\_63 (A4), HamSlice\_60 (A4), Happiness\_62 (A4), Holli\_62 (A4), Houdini22\_62 (A4), Huxley\_62 (A4), ICleared\_62 (A4), Iceman\_63 (A4), Iracema64\_64 (A4), Jaykayelowell\_60 (A4), JetBlade\_63 (A4), JoongJeon\_62 (A4), KFPoly\_62 (A4), Kamy\_62 (A4), Katalie136\_61 (A4), KekoraPapaka\_61 (A4), Kingmustik0402\_63 (A4), Koan\_60 (A4), Koreni\_62 (A4), Kratak\_62 (A4), Kremtemulon\_63 (A4), Kyee\_63 (A4), LHTSCC\_65 (A4), LappelDuVide\_63 (A4), Lemur\_63 (A4), LeoAvram\_62 (A4), LittleB\_63 (A4), LittleGuy\_63 (A4), LochMonster\_64 (A4), Lorenzo\_63 (A4), Lunsford\_64 (A4), Maverick\_62 (A4), Maxo\_64 (A4), Mayonnaise\_61 (A4), Mazhar510\_63 (A4),

Medusa\_63 (A4), MeeZee\_62 (A4), Melvin\_65 (A4), Millski\_62 (A4), Miramae\_60 (A4), Morpher26\_61 (A4), Morrow\_64 (A4), Nebs\_64 (A4), Nemo27\_62 (A4), NorthStar\_61 (A4), NotAPhaseMom\_62 (A4), Nyxis\_62 (A4), OKaNui\_63 (A4), Obama12\_64 (A4), Ohfah\_64 (A4), Palestino\_62 (A4), Peaches\_61 (A4), Perplexer\_61 (A4), PeterPeter\_63 (A4), PetiteSangsue\_61 (A4), Phacado\_63 (A4), Phelipe\_64 (A4), Phighter1804\_63 (A4), Phontbonne\_63 (A4), Pipcraft\_60 (A4), Polymorphads\_64 (A4), Pumbaa\_63 (A4), Relief\_62 (A4), RockieBear\_61 (A4), Romney\_62 (A4), Roosevelt\_61 (A4), Rosa24\_61 (A4), Ruin\_63 (A4), Sabertooth\_63 (A4), Scamp\_63 (A4), SenorClean\_64 (A4), Shaka\_61 (A4), SheldonCooper\_63 (A4), Shygu2\_61 (A4), Skipitt\_62 (A4), Sparxx\_64 (A4), Spino\_62 (A4), SteMason\_63 (A4), Stink\_60 (A4), Sultana\_63 (A4), Taquarus\_62 (A4), Thanksgivukkah\_62 (A4), TinaFeyge\_61 (A4), Tinybot\_62 (A4), TiroTheta9\_62 (A4), TroyPia\_64 (A4), TygerBlood\_63 (A4), Ulysses\_62 (A4), Wander\_63 (A4), Wilbur\_63 (A4), Wile\_61 (A4), Wizard007\_62 (A4), Xena\_60 (A4), YoSam321\_63 (A4),

Start 25:

- Found in 1 of 154 ( 0.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: FatCactus\_66 (A20),

### **Summary by clusters:**

There are 4 clusters represented in this pham: A20, A19, A4, A7,

Info for manual annotations of cluster A19:

- Start number 3 was manually annotated 1 time for cluster A19.

Info for manual annotations of cluster A4:

- Start number 21 was manually annotated 3 times for cluster A4.
- Start number 22 was manually annotated 140 times for cluster A4.

Info for manual annotations of cluster A7:

- Start number 4 was manually annotated 3 times for cluster A7.
- Start number 17 was manually annotated 1 time for cluster A7.

### **Gene Information:**

Gene: AbbysRanger\_61 Start: 40924, Stop: 40376, Start Num: 22

Candidate Starts for AbbysRanger\_61:

(Start: 22 @40924 has 140 MA's), (29, 40861), (32, 40831), (36, 40729), (38, 40714), (39, 40696), (43, 40654), (44, 40621), (48, 40582), (52, 40543), (54, 40531), (56, 40441),

Gene: Abdiel\_63 Start: 41071, Stop: 40526, Start Num: 22

Candidate Starts for Abdiel\_63:

(13, 41146), (15, 41140), (Start: 22 @41071 has 140 MA's), (32, 40984), (36, 40882), (38, 40867), (43, 40807), (44, 40774), (48, 40735), (59, 40558),

Gene: Achebe\_60 Start: 40907, Stop: 40359, Start Num: 22

Candidate Starts for Achebe\_60:

(Start: 22 @40907 has 140 MA's), (29, 40844), (32, 40814), (36, 40712), (38, 40697), (39, 40679), (43, 40637), (44, 40604), (48, 40565), (52, 40526), (54, 40514), (56, 40424),

Gene: Albee\_63 Start: 41058, Stop: 40522, Start Num: 22

Candidate Starts for Albee\_63:

(13, 41133), (15, 41127), (Start: 22 @41058 has 140 MA's), (32, 40980), (36, 40878), (38, 40863), (43, 40803), (44, 40770), (48, 40731), (59, 40554),

Gene: Alberto7\_64 Start: 41395, Stop: 40859, Start Num: 22

Candidate Starts for Alberto7\_64:

(13, 41470), (15, 41464), (Start: 22 @41395 has 140 MA's), (32, 41317), (36, 41215), (38, 41200), (43, 41140), (44, 41107), (48, 41068), (59, 40891),

Gene: Annyong\_62 Start: 41103, Stop: 40567, Start Num: 22

Candidate Starts for Annyong\_62:

(13, 41178), (15, 41172), (Start: 22 @41103 has 140 MA's), (32, 41025), (36, 40923), (38, 40908), (43, 40848), (44, 40815), (48, 40776), (59, 40599),

Gene: Arturo\_61 Start: 41185, Stop: 40637, Start Num: 22

Candidate Starts for Arturo\_61:

(7, 41296), (13, 41260), (Start: 22 @41185 has 140 MA's), (32, 41092), (33, 41059), (36, 40990), (38, 40975), (43, 40915), (44, 40882), (48, 40843), (52, 40804),

Gene: AvatarAhPeg\_60 Start: 40691, Stop: 40149, Start Num: 22

Candidate Starts for AvatarAhPeg\_60:

(Start: 22 @40691 has 140 MA's), (27, 40643), (30, 40628), (32, 40604), (38, 40487), (43, 40427), (44, 40394), (48, 40355), (56, 40214),

Gene: Avle17\_63 Start: 41055, Stop: 40519, Start Num: 22

Candidate Starts for Avle17\_63:

(13, 41130), (15, 41124), (Start: 22 @41055 has 140 MA's), (32, 40977), (36, 40875), (38, 40860), (43, 40800), (44, 40767), (48, 40728), (49, 40719), (54, 40677), (59, 40551),

Gene: Baby16\_63 Start: 41069, Stop: 40533, Start Num: 22

Candidate Starts for Baby16\_63:

(13, 41144), (15, 41138), (Start: 22 @41069 has 140 MA's), (32, 40991), (36, 40889), (38, 40874), (43, 40814), (44, 40781), (48, 40742), (59, 40565),

Gene: Backyardigan\_59 Start: 40940, Stop: 40392, Start Num: 22

Candidate Starts for Backyardigan\_59:

(Start: 22 @40940 has 140 MA's), (29, 40877), (32, 40847), (36, 40745), (38, 40730), (39, 40712), (43, 40670), (44, 40637), (48, 40598), (52, 40559), (54, 40547), (56, 40457),

Gene: Badger\_60 Start: 40908, Stop: 40360, Start Num: 22

Candidate Starts for Badger\_60:

(Start: 22 @40908 has 140 MA's), (29, 40845), (32, 40815), (36, 40713), (38, 40698), (39, 40680), (43, 40638), (44, 40605), (48, 40566), (52, 40527), (54, 40515), (56, 40425),

Gene: BangNhom\_62 Start: 41470, Stop: 40925, Start Num: 22

Candidate Starts for BangNhom\_62:

(13, 41545), (Start: 22 @41470 has 140 MA's), (32, 41383), (33, 41350), (34, 41326), (36, 41281), (38, 41266), (43, 41206), (44, 41173), (48, 41134), (49, 41125), (59, 40957),

Gene: Bartimeaus\_63 Start: 41060, Stop: 40524, Start Num: 22

Candidate Starts for Bartimeaus\_63:

(13, 41135), (15, 41129), (Start: 22 @41060 has 140 MA's), (32, 40982), (36, 40880), (38, 40865), (43, 40805), (44, 40772), (48, 40733), (59, 40556),

Gene: BellusTerra\_64 Start: 41071, Stop: 40526, Start Num: 22

Candidate Starts for BellusTerra\_64:

(13, 41146), (15, 41140), (Start: 22 @41071 has 140 MA's), (32, 40984), (36, 40882), (38, 40867), (43, 40807), (44, 40774), (48, 40735), (59, 40558),

Gene: Blackmoor\_62 Start: 41060, Stop: 40524, Start Num: 22

Candidate Starts for Blackmoor\_62:

(13, 41135), (15, 41129), (Start: 22 @41060 has 140 MA's), (32, 40982), (36, 40880), (38, 40865), (43, 40805), (44, 40772), (48, 40733), (59, 40556),

Gene: Bombshell\_63 Start: 41055, Stop: 40519, Start Num: 22

Candidate Starts for Bombshell\_63:

(13, 41130), (15, 41124), (Start: 22 @41055 has 140 MA's), (32, 40977), (36, 40875), (38, 40860), (43, 40800), (44, 40767), (48, 40728), (59, 40551),

Gene: Broseidon\_63 Start: 41060, Stop: 40524, Start Num: 22

Candidate Starts for Broseidon\_63:

(13, 41135), (15, 41129), (Start: 22 @41060 has 140 MA's), (32, 40982), (36, 40880), (38, 40865), (43, 40805), (44, 40772), (48, 40733), (59, 40556),

Gene: Bruiser\_62 Start: 41058, Stop: 40522, Start Num: 22

Candidate Starts for Bruiser\_62:

(13, 41133), (15, 41127), (Start: 22 @41058 has 140 MA's), (32, 40980), (36, 40878), (38, 40863), (43, 40803), (44, 40770), (48, 40731), (49, 40722), (54, 40680), (59, 40554),

Gene: BubbleTrouble\_62 Start: 41058, Stop: 40522, Start Num: 22

Candidate Starts for BubbleTrouble\_62:

(13, 41133), (15, 41127), (Start: 22 @41058 has 140 MA's), (32, 40980), (36, 40878), (38, 40863), (43, 40803), (44, 40770), (48, 40731), (59, 40554),

Gene: Bumblebee11\_60 Start: 40910, Stop: 40362, Start Num: 22

Candidate Starts for Bumblebee11\_60:

(Start: 22 @40910 has 140 MA's), (29, 40847), (32, 40817), (36, 40715), (38, 40700), (39, 40682), (43, 40640), (44, 40607), (48, 40568), (52, 40529), (54, 40517), (56, 40427),

Gene: Burger\_61 Start: 41058, Stop: 40522, Start Num: 22

Candidate Starts for Burger\_61:

(13, 41133), (15, 41127), (Start: 22 @41058 has 140 MA's), (32, 40980), (36, 40878), (38, 40863), (43, 40803), (44, 40770), (48, 40731), (59, 40554),

Gene: Caelakin\_62 Start: 41058, Stop: 40522, Start Num: 22

Candidate Starts for Caelakin\_62:

(13, 41133), (15, 41127), (Start: 22 @41058 has 140 MA's), (32, 40980), (36, 40878), (38, 40863), (43, 40803), (44, 40770), (48, 40731), (49, 40722), (54, 40680), (59, 40554),

Gene: Camperdownii\_61 Start: 40732, Stop: 40196, Start Num: 22

Candidate Starts for Camperdownii\_61:

(13, 40807), (15, 40801), (Start: 22 @40732 has 140 MA's), (32, 40654), (36, 40552), (38, 40537), (43, 40477), (44, 40444), (48, 40405), (59, 40228),

Gene: CentreCat\_63 Start: 41070, Stop: 40525, Start Num: 22

Candidate Starts for CentreCat\_63:

(13, 41145), (15, 41139), (Start: 22 @41070 has 140 MA's), (32, 40983), (36, 40881), (38, 40866), (43, 40806), (44, 40773), (48, 40734), (59, 40557),

Gene: Cerulean\_64 Start: 41471, Stop: 40926, Start Num: 22

Candidate Starts for Cerulean\_64:

(13, 41546), (Start: 22 @41471 has 140 MA's), (32, 41384), (33, 41351), (34, 41327), (36, 41282), (38, 41267), (43, 41207), (44, 41174), (48, 41135), (49, 41126), (59, 40958),

Gene: ChampagnePapi\_65 Start: 41470, Stop: 40925, Start Num: 22

Candidate Starts for ChampagnePapi\_65:

(13, 41545), (Start: 22 @41470 has 140 MA's), (32, 41383), (33, 41350), (36, 41281), (38, 41266), (43, 41206), (44, 41173), (48, 41134), (49, 41125), (59, 40957),

Gene: Chaph\_63 Start: 41069, Stop: 40533, Start Num: 22

Candidate Starts for Chaph\_63:

(13, 41144), (15, 41138), (Start: 22 @41069 has 140 MA's), (32, 40991), (36, 40889), (38, 40874), (43, 40814), (44, 40781), (48, 40742), (49, 40733), (59, 40565),

Gene: Cici\_61 Start: 40925, Stop: 40377, Start Num: 22

Candidate Starts for Cici\_61:

(Start: 22 @40925 has 140 MA's), (29, 40862), (32, 40832), (36, 40730), (38, 40715), (39, 40697), (43, 40655), (44, 40622), (48, 40583), (52, 40544), (54, 40532), (56, 40442),

Gene: Cindaradix\_58 Start: 40534, Stop: 39995, Start Num: 22

Candidate Starts for Cindaradix\_58:

(Start: 22 @40534 has 140 MA's), (27, 40489), (30, 40474), (32, 40450), (33, 40417), (36, 40348), (38, 40333), (43, 40273), (44, 40240), (48, 40201), (56, 40060),

Gene: Cintron\_63 Start: 41181, Stop: 40645, Start Num: 22

Candidate Starts for Cintron\_63:

(13, 41256), (15, 41250), (Start: 22 @41181 has 140 MA's), (32, 41103), (36, 41001), (38, 40986), (43, 40926), (44, 40893), (48, 40854), (52, 40815), (59, 40677),

Gene: Citius\_63 Start: 41079, Stop: 40543, Start Num: 22

Candidate Starts for Citius\_63:

(13, 41154), (15, 41148), (Start: 22 @41079 has 140 MA's), (32, 41001), (36, 40899), (38, 40884), (43, 40824), (44, 40791), (48, 40752), (59, 40575),

Gene: Clarenza\_62 Start: 41055, Stop: 40519, Start Num: 22

Candidate Starts for Clarenza\_62:

(13, 41130), (15, 41124), (Start: 22 @41055 has 140 MA's), (32, 40977), (36, 40875), (38, 40860), (43, 40800), (44, 40767), (48, 40728), (59, 40551),

Gene: Cocoaberry\_63 Start: 41062, Stop: 40526, Start Num: 22

Candidate Starts for Cocoaberry\_63:

(13, 41137), (15, 41131), (Start: 22 @41062 has 140 MA's), (32, 40984), (36, 40882), (38, 40867), (43, 40807), (44, 40774), (48, 40735), (49, 40726), (54, 40684), (59, 40558),

Gene: Commander\_62 Start: 41057, Stop: 40521, Start Num: 22

Candidate Starts for Commander\_62:

(7, 41168), (13, 41132), (Start: 22 @41057 has 140 MA's), (32, 40979), (36, 40877), (38, 40862), (43, 40802), (44, 40769), (48, 40730), (59, 40553),

Gene: Connomayer\_63 Start: 41058, Stop: 40522, Start Num: 22

Candidate Starts for Connomayer\_63:

(13, 41133), (15, 41127), (Start: 22 @41058 has 140 MA's), (32, 40980), (36, 40878), (38, 40863), (43, 40803), (44, 40770), (48, 40731), (59, 40554),

Gene: Datway\_61 Start: 40896, Stop: 40348, Start Num: 22

Candidate Starts for Datway\_61:

(Start: 22 @40896 has 140 MA's), (29, 40833), (32, 40803), (36, 40701), (38, 40686), (39, 40668), (43, 40626), (44, 40593), (48, 40554), (52, 40515), (54, 40503), (56, 40413),

Gene: Deano\_61 Start: 41066, Stop: 40530, Start Num: 22

Candidate Starts for Deano\_61:

(13, 41141), (15, 41135), (Start: 22 @41066 has 140 MA's), (32, 40988), (36, 40886), (38, 40871), (43, 40811), (44, 40778), (48, 40739), (59, 40562),

Gene: Dhanush\_63 Start: 41061, Stop: 40525, Start Num: 22

Candidate Starts for Dhanush\_63:

(13, 41136), (15, 41130), (Start: 22 @41061 has 140 MA's), (32, 40983), (36, 40881), (38, 40866), (43, 40806), (44, 40773), (48, 40734), (59, 40557),

Gene: DirtyDunning\_62 Start: 41073, Stop: 40537, Start Num: 22

Candidate Starts for DirtyDunning\_62:

(13, 41148), (15, 41142), (Start: 22 @41073 has 140 MA's), (32, 40995), (36, 40893), (38, 40878), (43, 40818), (44, 40785), (48, 40746), (59, 40569),

Gene: DroogsArmy\_62 Start: 44054, Stop: 43362, Start Num: 4

Candidate Starts for DroogsArmy\_62:

(Start: 4 @44054 has 3 MA's), (12, 44003), (27, 43868), (34, 43769), (38, 43709), (40, 43682), (42, 43670), (47, 43580), (48, 43574),

Gene: Druantia\_62 Start: 41061, Stop: 40525, Start Num: 22

Candidate Starts for Druantia\_62:

(13, 41136), (15, 41130), (Start: 22 @41061 has 140 MA's), (32, 40983), (36, 40881), (38, 40866), (43, 40806), (44, 40773), (48, 40734), (59, 40557),

Gene: Eagle\_62 Start: 41092, Stop: 40547, Start Num: 22

Candidate Starts for Eagle\_62:

(13, 41167), (15, 41161), (Start: 22 @41092 has 140 MA's), (32, 41005), (36, 40903), (38, 40888), (43, 40828), (44, 40795), (48, 40756), (59, 40579),

Gene: Eapen\_63 Start: 41053, Stop: 40517, Start Num: 22

Candidate Starts for Eapen\_63:

(13, 41128), (15, 41122), (Start: 22 @41053 has 140 MA's), (32, 40975), (36, 40873), (38, 40858), (43, 40798), (44, 40765), (48, 40726), (59, 40549),

Gene: Eris\_62 Start: 41073, Stop: 40537, Start Num: 22

Candidate Starts for Eris\_62:

(13, 41148), (15, 41142), (Start: 22 @41073 has 140 MA's), (32, 40995), (36, 40893), (38, 40878), (43, 40818), (44, 40785), (48, 40746), (54, 40695), (59, 40569),

Gene: Eros\_63 Start: 41060, Stop: 40524, Start Num: 22

Candidate Starts for Eros\_63:

(13, 41135), (15, 41129), (Start: 22 @41060 has 140 MA's), (32, 40982), (36, 40880), (38, 40865), (43, 40805), (44, 40772), (48, 40733), (59, 40556),

Gene: Eurydice\_64 Start: 41067, Stop: 40522, Start Num: 22

Candidate Starts for Eurydice\_64:

(13, 41142), (15, 41136), (Start: 22 @41067 has 140 MA's), (32, 40980), (36, 40878), (38, 40863), (43, 40803), (44, 40770), (48, 40731), (59, 40554),

Gene: FatCactus\_66 Start: 41400, Stop: 40867, Start Num: 25

Candidate Starts for FatCactus\_66:

(20, 41433), (25, 41400), (31, 41361), (33, 41307), (39, 41202), (45, 41121), (46, 41109), (47, 41094), (48, 41088), (50, 41076), (51, 41058), (53, 41040),

Gene: Florean\_63 Start: 41057, Stop: 40521, Start Num: 22

Candidate Starts for Florean\_63:

(13, 41132), (15, 41126), (Start: 22 @41057 has 140 MA's), (32, 40979), (36, 40877), (38, 40862), (43, 40802), (44, 40769), (48, 40730), (59, 40553),

Gene: Flux\_63 Start: 41057, Stop: 40521, Start Num: 22

Candidate Starts for Flux\_63:

(13, 41132), (15, 41126), (Start: 22 @41057 has 140 MA's), (32, 40979), (36, 40877), (38, 40862), (43, 40802), (44, 40769), (48, 40730), (59, 40553),

Gene: FlyCatcher\_68 Start: 44704, Stop: 44048, Start Num: 4

Candidate Starts for FlyCatcher\_68:

(Start: 4 @44704 has 3 MA's), (10, 44674), (11, 44662), (18, 44608), (27, 44533), (40, 44356), (41, 44347), (47, 44257), (54, 44200),

Gene: Funston\_62 Start: 41058, Stop: 40522, Start Num: 22

Candidate Starts for Funston\_62:

(13, 41133), (15, 41127), (Start: 22 @41058 has 140 MA's), (32, 40980), (36, 40878), (38, 40863), (43, 40803), (44, 40770), (48, 40731), (49, 40722), (54, 40680), (59, 40554),

Gene: Gadost\_63 Start: 41062, Stop: 40526, Start Num: 22

Candidate Starts for Gadost\_63:

(13, 41137), (15, 41131), (Start: 22 @41062 has 140 MA's), (32, 40984), (36, 40882), (38, 40867), (43, 40807), (44, 40774), (48, 40735), (49, 40726), (54, 40684), (59, 40558),

Gene: HINdeR\_63 Start: 43646, Stop: 43056, Start Num: 17

Candidate Starts for HINdeR\_63:

(Start: 17 @43646 has 1 MA's), (23, 43589), (27, 43562), (28, 43559), (34, 43463), (38, 43403), (40, 43376), (42, 43364), (54, 43217),

Gene: HamSlice\_60 Start: 41056, Stop: 40520, Start Num: 22

Candidate Starts for HamSlice\_60:

(13, 41131), (15, 41125), (Start: 22 @41056 has 140 MA's), (32, 40978), (36, 40876), (38, 40861), (43, 40801), (44, 40768), (48, 40729), (59, 40552),

Gene: Happiness\_62 Start: 41053, Stop: 40508, Start Num: 22

Candidate Starts for Happiness\_62:

(13, 41128), (Start: 22 @41053 has 140 MA's), (32, 40966), (33, 40933), (36, 40864), (38, 40849), (43, 40789), (44, 40756), (48, 40717), (49, 40708), (59, 40540),

Gene: Holli\_62 Start: 40848, Stop: 40312, Start Num: 22

Candidate Starts for Holli\_62:

(13, 40923), (15, 40917), (Start: 22 @40848 has 140 MA's), (32, 40770), (36, 40668), (38, 40653), (43, 40593), (44, 40560), (48, 40521), (59, 40344),

Gene: Houdini22\_62 Start: 41062, Stop: 40526, Start Num: 22

Candidate Starts for Houdini22\_62:

(13, 41137), (15, 41131), (Start: 22 @41062 has 140 MA's), (32, 40984), (36, 40882), (38, 40867), (43, 40807), (44, 40774), (48, 40735), (49, 40726), (54, 40684), (59, 40558),

Gene: Huxley\_62 Start: 41122, Stop: 40586, Start Num: 22

Candidate Starts for Huxley\_62:

(13, 41197), (15, 41191), (Start: 22 @41122 has 140 MA's), (32, 41044), (36, 40942), (38, 40927), (43, 40867), (44, 40834), (48, 40795), (59, 40618),

Gene: ICleared\_62 Start: 41099, Stop: 40554, Start Num: 22

Candidate Starts for ICleared\_62:

(13, 41174), (15, 41168), (Start: 22 @41099 has 140 MA's), (32, 41012), (33, 40979), (36, 40910), (38, 40895), (43, 40835), (44, 40802), (48, 40763), (59, 40586),

Gene: Iceman\_63 Start: 41347, Stop: 40811, Start Num: 22

Candidate Starts for Iceman\_63:

(13, 41422), (15, 41416), (Start: 22 @41347 has 140 MA's), (32, 41269), (36, 41167), (38, 41152), (43, 41092), (44, 41059), (48, 41020), (59, 40843),

Gene: Iracema64\_64 Start: 41325, Stop: 40789, Start Num: 22

Candidate Starts for Iracema64\_64:

(13, 41400), (15, 41394), (Start: 22 @41325 has 140 MA's), (32, 41247), (36, 41145), (38, 41130), (43, 41070), (44, 41037), (48, 40998), (54, 40947), (59, 40821),

Gene: Jaykayelowell\_60 Start: 41051, Stop: 40515, Start Num: 22

Candidate Starts for Jaykayelowell\_60:

(13, 41126), (15, 41120), (Start: 22 @41051 has 140 MA's), (32, 40973), (36, 40871), (38, 40856), (43, 40796), (44, 40763), (48, 40724), (59, 40547),

Gene: JetBlade\_63 Start: 41061, Stop: 40516, Start Num: 22

Candidate Starts for JetBlade\_63:

(13, 41136), (Start: 22 @41061 has 140 MA's), (32, 40974), (33, 40941), (36, 40872), (38, 40857), (43, 40797), (44, 40764), (48, 40725), (49, 40716), (59, 40548),

Gene: JoongJeon\_62 Start: 41055, Stop: 40519, Start Num: 22

Candidate Starts for JoongJeon\_62:

(13, 41130), (15, 41124), (Start: 22 @41055 has 140 MA's), (32, 40977), (36, 40875), (38, 40860), (43, 40800), (44, 40767), (48, 40728), (49, 40719), (54, 40677), (59, 40551),

Gene: KFPoly\_62 Start: 41052, Stop: 40516, Start Num: 22

Candidate Starts for KFPoly\_62:

(13, 41127), (15, 41121), (Start: 22 @41052 has 140 MA's), (32, 40974), (36, 40872), (38, 40857), (43, 40797), (44, 40764), (48, 40725), (59, 40548),

Gene: Kamy\_62 Start: 41060, Stop: 40524, Start Num: 22

Candidate Starts for Kamy\_62:

(13, 41135), (15, 41129), (Start: 22 @41060 has 140 MA's), (32, 40982), (36, 40880), (38, 40865), (43, 40805), (44, 40772), (48, 40733), (59, 40556),

Gene: Katalie136\_61 Start: 40910, Stop: 40362, Start Num: 22

Candidate Starts for Katalie136\_61:

(Start: 22 @40910 has 140 MA's), (29, 40847), (32, 40817), (36, 40715), (38, 40700), (39, 40682), (43, 40640), (44, 40607), (48, 40568), (52, 40529), (54, 40517), (56, 40427),

Gene: KekoraPapaka\_61 Start: 41058, Stop: 40522, Start Num: 22

Candidate Starts for KekoraPapaka\_61:

(13, 41133), (15, 41127), (Start: 22 @41058 has 140 MA's), (32, 40980), (36, 40878), (38, 40863), (43, 40803), (44, 40770), (48, 40731), (59, 40554),

Gene: Kimona\_61 Start: 39816, Stop: 39106, Start Num: 3

Candidate Starts for Kimona\_61:

(1, 39930), (Start: 3 @39816 has 1 MA's), (9, 39780), (14, 39747), (16, 39723), (19, 39684), (24, 39651), (26, 39639), (32, 39582), (35, 39519), (37, 39477), (39, 39447), (43, 39405), (48, 39333), (54, 39282), (57, 39165),

Gene: Kingmustik0402\_63 Start: 41047, Stop: 40511, Start Num: 22

Candidate Starts for Kingmustik0402\_63:

(13, 41122), (15, 41116), (Start: 22 @41047 has 140 MA's), (32, 40969), (36, 40867), (38, 40852), (43, 40792), (44, 40759), (48, 40720), (59, 40543),

Gene: Koan\_60 Start: 41058, Stop: 40522, Start Num: 22

Candidate Starts for Koan\_60:

(13, 41133), (15, 41127), (Start: 22 @41058 has 140 MA's), (32, 40980), (36, 40878), (38, 40863), (43, 40803), (44, 40770), (48, 40731), (59, 40554),

Gene: Koreni\_62 Start: 40739, Stop: 40203, Start Num: 22

Candidate Starts for Koreni\_62:

(13, 40814), (15, 40808), (Start: 22 @40739 has 140 MA's), (32, 40661), (36, 40559), (38, 40544), (43, 40484), (44, 40451), (48, 40412), (59, 40235),

Gene: Kratak\_62 Start: 41068, Stop: 40520, Start Num: 22

Candidate Starts for Kratak\_62:

(7, 41179), (13, 41143), (Start: 22 @41068 has 140 MA's), (32, 40975), (33, 40942), (36, 40873), (38, 40858), (43, 40798), (44, 40765), (48, 40726), (52, 40687), (59, 40549),

Gene: Kremtemulon\_63 Start: 41164, Stop: 40628, Start Num: 22

Candidate Starts for Kremtemulon\_63:

(13, 41239), (15, 41233), (Start: 22 @41164 has 140 MA's), (32, 41086), (36, 40984), (43, 40909), (44, 40876), (48, 40837), (59, 40660),

Gene: Kyee\_63 Start: 41056, Stop: 40520, Start Num: 22

Candidate Starts for Kyee\_63:

(13, 41131), (15, 41125), (Start: 22 @41056 has 140 MA's), (32, 40978), (36, 40876), (38, 40861), (43, 40801), (44, 40768), (48, 40729), (49, 40720), (54, 40678), (59, 40552),

Gene: LHTSCC\_65 Start: 41470, Stop: 40925, Start Num: 22

Candidate Starts for LHTSCC\_65:

(13, 41545), (Start: 22 @41470 has 140 MA's), (32, 41383), (33, 41350), (36, 41281), (38, 41266), (43, 41206), (44, 41173), (48, 41134), (49, 41125), (59, 40957),

Gene: LappelDuVide\_63 Start: 41057, Stop: 40521, Start Num: 22

Candidate Starts for LappelDuVide\_63:

(13, 41132), (15, 41126), (Start: 22 @41057 has 140 MA's), (32, 40979), (36, 40877), (38, 40862), (43, 40802), (44, 40769), (48, 40730), (59, 40553),

Gene: Lemur\_63 Start: 41055, Stop: 40519, Start Num: 22

Candidate Starts for Lemur\_63:

(13, 41130), (15, 41124), (Start: 22 @41055 has 140 MA's), (32, 40977), (36, 40875), (38, 40860), (43, 40800), (44, 40767), (48, 40728), (59, 40551),

Gene: LeoAvram\_62 Start: 41061, Stop: 40525, Start Num: 22

Candidate Starts for LeoAvram\_62:

(13, 41136), (15, 41130), (Start: 22 @41061 has 140 MA's), (32, 40983), (36, 40881), (38, 40866), (43, 40806), (44, 40773), (48, 40734), (59, 40557),

Gene: LittleB\_63 Start: 41059, Stop: 40523, Start Num: 22

Candidate Starts for LittleB\_63:

(13, 41134), (15, 41128), (Start: 22 @41059 has 140 MA's), (32, 40981), (36, 40879), (38, 40864), (43, 40804), (44, 40771), (48, 40732), (49, 40723), (59, 40555),

Gene: LittleGuy\_63 Start: 40954, Stop: 40418, Start Num: 22

Candidate Starts for LittleGuy\_63:

(13, 41029), (15, 41023), (Start: 22 @40954 has 140 MA's), (32, 40876), (36, 40774), (38, 40759), (43, 40699), (44, 40666), (48, 40627), (59, 40450),

Gene: LochMonster\_64 Start: 41297, Stop: 40761, Start Num: 22

Candidate Starts for LochMonster\_64:

(13, 41372), (15, 41366), (Start: 22 @41297 has 140 MA's), (32, 41219), (36, 41117), (38, 41102), (43, 41042), (44, 41009), (48, 40970), (59, 40793),

Gene: Lorenzo\_63 Start: 41058, Stop: 40522, Start Num: 22

Candidate Starts for Lorenzo\_63:

(13, 41133), (15, 41127), (Start: 22 @41058 has 140 MA's), (32, 40980), (36, 40878), (38, 40863), (43, 40803), (44, 40770), (48, 40731), (59, 40554),

Gene: Lunsford\_64 Start: 41052, Stop: 40516, Start Num: 22

Candidate Starts for Lunsford\_64:

(13, 41127), (15, 41121), (Start: 22 @41052 has 140 MA's), (32, 40974), (36, 40872), (38, 40857), (43, 40797), (44, 40764), (48, 40725), (59, 40548),

Gene: Maverick\_62 Start: 41058, Stop: 40522, Start Num: 22

Candidate Starts for Maverick\_62:

(13, 41133), (15, 41127), (Start: 22 @41058 has 140 MA's), (32, 40980), (36, 40878), (38, 40863), (43, 40803), (44, 40770), (48, 40731), (49, 40722), (54, 40680), (59, 40554),

Gene: Maxo\_64 Start: 41060, Stop: 40524, Start Num: 22

Candidate Starts for Maxo\_64:

(13, 41135), (15, 41129), (Start: 22 @41060 has 140 MA's), (32, 40982), (36, 40880), (38, 40865), (43, 40805), (44, 40772), (48, 40733), (59, 40556),

Gene: Mayonnaise\_61 Start: 41058, Stop: 40522, Start Num: 22

Candidate Starts for Mayonnaise\_61:

(13, 41133), (15, 41127), (Start: 22 @41058 has 140 MA's), (32, 40980), (36, 40878), (38, 40863), (43, 40803), (44, 40770), (48, 40731), (49, 40722), (54, 40680), (59, 40554),

Gene: Mazhar510\_63 Start: 41059, Stop: 40523, Start Num: 22

Candidate Starts for Mazhar510\_63:

(13, 41134), (15, 41128), (Start: 22 @41059 has 140 MA's), (32, 40981), (36, 40879), (38, 40864), (43, 40804), (44, 40771), (48, 40732), (49, 40723), (54, 40681), (59, 40555),

Gene: Medusa\_63 Start: 41072, Stop: 40536, Start Num: 22

Candidate Starts for Medusa\_63:

(13, 41147), (15, 41141), (Start: 22 @41072 has 140 MA's), (32, 40994), (36, 40892), (38, 40877), (43, 40817), (44, 40784), (48, 40745), (59, 40568),

Gene: MeeZee\_62 Start: 41055, Stop: 40519, Start Num: 22

Candidate Starts for MeeZee\_62:

(13, 41130), (15, 41124), (Start: 22 @41055 has 140 MA's), (32, 40977), (36, 40875), (38, 40860), (43, 40800), (44, 40767), (48, 40728), (59, 40551),

Gene: Melvin\_65 Start: 41053, Stop: 40517, Start Num: 22

Candidate Starts for Melvin\_65:

(13, 41128), (15, 41122), (Start: 22 @41053 has 140 MA's), (32, 40975), (36, 40873), (38, 40858), (43, 40798), (44, 40765), (48, 40726), (59, 40549),

Gene: Millski\_62 Start: 41059, Stop: 40523, Start Num: 22

Candidate Starts for Millski\_62:

(13, 41134), (15, 41128), (Start: 22 @41059 has 140 MA's), (32, 40981), (36, 40879), (38, 40864), (43, 40804), (44, 40771), (48, 40732), (59, 40555),

Gene: Miramae\_60 Start: 40353, Stop: 39811, Start Num: 22

Candidate Starts for Miramae\_60:

(Start: 22 @40353 has 140 MA's), (27, 40305), (30, 40290), (32, 40266), (38, 40149), (43, 40089), (44, 40056), (48, 40017), (56, 39876),

Gene: Morpher26\_61 Start: 40931, Stop: 40383, Start Num: 22

Candidate Starts for Morpher26\_61:

(Start: 22 @40931 has 140 MA's), (29, 40868), (32, 40838), (36, 40736), (38, 40721), (39, 40703), (43, 40661), (44, 40628), (48, 40589), (52, 40550), (54, 40538), (56, 40448),

Gene: Morrow\_64 Start: 41073, Stop: 40528, Start Num: 22

Candidate Starts for Morrow\_64:

(13, 41148), (15, 41142), (Start: 22 @41073 has 140 MA's), (32, 40986), (36, 40884), (38, 40869), (43, 40809), (44, 40776), (48, 40737), (59, 40560),

Gene: Mundrea\_61 Start: 40923, Stop: 40375, Start Num: 21

Candidate Starts for Mundrea\_61:

(2, 41097), (6, 41028), (Start: 21 @40923 has 3 MA's), (32, 40830), (33, 40797), (36, 40728), (38, 40713), (43, 40653), (44, 40620), (48, 40581), (56, 40440),

Gene: Nebs\_64 Start: 41070, Stop: 40525, Start Num: 22

Candidate Starts for Nebs\_64:

(13, 41145), (15, 41139), (Start: 22 @41070 has 140 MA's), (32, 40983), (36, 40881), (38, 40866), (43, 40806), (44, 40773), (48, 40734), (59, 40557),

Gene: Nemo27\_62 Start: 41057, Stop: 40521, Start Num: 22

Candidate Starts for Nemo27\_62:

(13, 41132), (15, 41126), (Start: 22 @41057 has 140 MA's), (32, 40979), (36, 40877), (38, 40862), (43, 40802), (44, 40769), (48, 40730), (49, 40721), (54, 40679), (59, 40553),

Gene: Noelle\_62 Start: 41238, Stop: 40684, Start Num: 21

Candidate Starts for Noelle\_62:

(Start: 21 @41238 has 3 MA's), (32, 41145), (39, 41010), (43, 40968), (44, 40935), (48, 40896), (52, 40857), (54, 40845), (56, 40755),

Gene: NorthStar\_61 Start: 41058, Stop: 40522, Start Num: 22

Candidate Starts for NorthStar\_61:

(13, 41133), (15, 41127), (Start: 22 @41058 has 140 MA's), (32, 40980), (36, 40878), (38, 40863), (43, 40803), (44, 40770), (48, 40731), (59, 40554),

Gene: NotAPhaseMom\_62 Start: 41062, Stop: 40526, Start Num: 22

Candidate Starts for NotAPhaseMom\_62:

(13, 41137), (15, 41131), (Start: 22 @41062 has 140 MA's), (32, 40984), (36, 40882), (38, 40867), (43, 40807), (44, 40774), (48, 40735), (49, 40726), (54, 40684), (59, 40558),

Gene: Nyxis\_62 Start: 40948, Stop: 40412, Start Num: 22

Candidate Starts for Nyxis\_62:

(13, 41023), (15, 41017), (Start: 22 @40948 has 140 MA's), (32, 40870), (36, 40768), (38, 40753), (43, 40693), (44, 40660), (48, 40621), (59, 40444),

Gene: OKaNui\_63 Start: 41108, Stop: 40572, Start Num: 22

Candidate Starts for OKaNui\_63:

(13, 41183), (15, 41177), (Start: 22 @41108 has 140 MA's), (32, 41030), (36, 40928), (38, 40913), (43, 40853), (44, 40820), (48, 40781), (59, 40604),

Gene: Obama12\_64 Start: 41454, Stop: 40909, Start Num: 22

Candidate Starts for Obama12\_64:

(13, 41529), (Start: 22 @41454 has 140 MA's), (32, 41367), (33, 41334), (36, 41265), (38, 41250), (43, 41190), (44, 41157), (48, 41118), (49, 41109), (59, 40941),

Gene: Ohfah\_64 Start: 41070, Stop: 40525, Start Num: 22

Candidate Starts for Ohfah\_64:

(13, 41145), (15, 41139), (Start: 22 @41070 has 140 MA's), (32, 40983), (36, 40881), (38, 40866), (43, 40806), (44, 40773), (48, 40734), (59, 40557),

Gene: Palestino\_62 Start: 41058, Stop: 40522, Start Num: 22

Candidate Starts for Palestino\_62:

(13, 41133), (15, 41127), (Start: 22 @41058 has 140 MA's), (32, 40980), (36, 40878), (38, 40863), (43, 40803), (44, 40770), (48, 40731), (49, 40722), (54, 40680), (59, 40554),

Gene: Peaches\_61 Start: 41057, Stop: 40521, Start Num: 22

Candidate Starts for Peaches\_61:

(13, 41132), (15, 41126), (Start: 22 @41057 has 140 MA's), (32, 40979), (36, 40877), (38, 40862), (43, 40802), (44, 40769), (48, 40730), (59, 40553),

Gene: Perplexer\_61 Start: 40907, Stop: 40359, Start Num: 22

Candidate Starts for Perplexer\_61:

(Start: 22 @40907 has 140 MA's), (29, 40844), (32, 40814), (36, 40712), (38, 40697), (39, 40679), (43, 40637), (44, 40604), (48, 40565), (52, 40526), (54, 40514), (56, 40424),

Gene: PeterPeter\_63 Start: 41055, Stop: 40519, Start Num: 22

Candidate Starts for PeterPeter\_63:

(13, 41130), (15, 41124), (Start: 22 @41055 has 140 MA's), (32, 40977), (36, 40875), (38, 40860), (43, 40800), (44, 40767), (48, 40728), (49, 40719), (54, 40677), (59, 40551),

Gene: PetiteSangsue\_61 Start: 40910, Stop: 40362, Start Num: 22

Candidate Starts for PetiteSangsue\_61:

(Start: 22 @40910 has 140 MA's), (29, 40847), (32, 40817), (36, 40715), (38, 40700), (39, 40682), (43, 40640), (44, 40607), (48, 40568), (52, 40529), (54, 40517), (56, 40427),

Gene: Phacado\_63 Start: 41057, Stop: 40521, Start Num: 22

Candidate Starts for Phacado\_63:

(13, 41132), (15, 41126), (Start: 22 @41057 has 140 MA's), (32, 40979), (36, 40877), (38, 40862), (43, 40802), (44, 40769), (48, 40730), (49, 40721), (54, 40679), (59, 40553),

Gene: Phelipe\_64 Start: 41070, Stop: 40525, Start Num: 22

Candidate Starts for Phelipe\_64:

(13, 41145), (15, 41139), (Start: 22 @41070 has 140 MA's), (32, 40983), (36, 40881), (38, 40866), (43, 40806), (44, 40773), (48, 40734), (59, 40557),

Gene: Phighter1804\_63 Start: 41122, Stop: 40586, Start Num: 22

Candidate Starts for Phighter1804\_63:

(13, 41197), (15, 41191), (Start: 22 @41122 has 140 MA's), (32, 41044), (36, 40942), (38, 40927), (43, 40867), (44, 40834), (48, 40795), (59, 40618),

Gene: Phontbonne\_63 Start: 40964, Stop: 40428, Start Num: 22

Candidate Starts for Phontbonne\_63:

(13, 41039), (Start: 22 @40964 has 140 MA's), (32, 40886), (36, 40784), (38, 40769), (43, 40709), (44, 40676), (48, 40637), (59, 40460),

Gene: Pipcraft\_60 Start: 41058, Stop: 40522, Start Num: 22

Candidate Starts for Pipcraft\_60:

(13, 41133), (15, 41127), (Start: 22 @41058 has 140 MA's), (32, 40980), (36, 40878), (38, 40863), (43, 40803), (44, 40770), (48, 40731), (59, 40554),

Gene: Polymorphads\_64 Start: 41051, Stop: 40515, Start Num: 22

Candidate Starts for Polymorphads\_64:

(13, 41126), (15, 41120), (Start: 22 @41051 has 140 MA's), (32, 40973), (36, 40871), (38, 40856), (43, 40796), (44, 40763), (48, 40724), (59, 40547),

Gene: Pumbaa\_63 Start: 41003, Stop: 40467, Start Num: 22

Candidate Starts for Pumbaa\_63:

(13, 41078), (15, 41072), (Start: 22 @41003 has 140 MA's), (32, 40925), (36, 40823), (38, 40808), (43, 40748), (44, 40715), (48, 40676), (59, 40499),

Gene: Relief\_62 Start: 41055, Stop: 40519, Start Num: 22

Candidate Starts for Relief\_62:

(13, 41130), (15, 41124), (Start: 22 @41055 has 140 MA's), (32, 40977), (36, 40875), (38, 40860), (43, 40800), (44, 40767), (48, 40728), (59, 40551),

Gene: RockieBear\_61 Start: 41058, Stop: 40522, Start Num: 22

Candidate Starts for RockieBear\_61:

(13, 41133), (15, 41127), (Start: 22 @41058 has 140 MA's), (32, 40980), (36, 40878), (38, 40863), (43, 40803), (44, 40770), (48, 40731), (59, 40554),

Gene: Romney\_62 Start: 41055, Stop: 40519, Start Num: 22

Candidate Starts for Romney\_62:

(13, 41130), (15, 41124), (Start: 22 @41055 has 140 MA's), (32, 40977), (36, 40875), (38, 40860), (43, 40800), (44, 40767), (48, 40728), (58, 40554), (59, 40551),

Gene: Roosevelt\_61 Start: 41060, Stop: 40524, Start Num: 22

Candidate Starts for Roosevelt\_61:

(13, 41135), (15, 41129), (Start: 22 @41060 has 140 MA's), (32, 40982), (36, 40880), (38, 40865), (43, 40805), (44, 40772), (48, 40733), (59, 40556),

Gene: Rosa24\_61 Start: 41089, Stop: 40553, Start Num: 22

Candidate Starts for Rosa24\_61:

(13, 41164), (15, 41158), (Start: 22 @41089 has 140 MA's), (32, 41011), (36, 40909), (38, 40894), (43, 40834), (44, 40801), (48, 40762), (59, 40585),

Gene: Ruin\_63 Start: 41051, Stop: 40515, Start Num: 22

Candidate Starts for Ruin\_63:

(13, 41126), (15, 41120), (Start: 22 @41051 has 140 MA's), (32, 40973), (36, 40871), (38, 40856), (43, 40796), (44, 40763), (48, 40724), (59, 40547),

Gene: Sabertooth\_63 Start: 41060, Stop: 40524, Start Num: 22

Candidate Starts for Sabertooth\_63:

(13, 41135), (15, 41129), (Start: 22 @41060 has 140 MA's), (32, 40982), (36, 40880), (38, 40865), (43, 40805), (44, 40772), (48, 40733), (59, 40556),

Gene: Scamp\_63 Start: 41060, Stop: 40524, Start Num: 22

Candidate Starts for Scamp\_63:

(13, 41135), (15, 41129), (Start: 22 @41060 has 140 MA's), (32, 40982), (36, 40880), (38, 40865), (43, 40805), (44, 40772), (48, 40733), (59, 40556),

Gene: SenorClean\_64 Start: 41058, Stop: 40522, Start Num: 22

Candidate Starts for SenorClean\_64:

(13, 41133), (15, 41127), (Start: 22 @41058 has 140 MA's), (32, 40980), (36, 40878), (38, 40863), (43, 40803), (44, 40770), (48, 40731), (59, 40554),

Gene: Shaka\_61 Start: 41055, Stop: 40519, Start Num: 22

Candidate Starts for Shaka\_61:

(13, 41130), (15, 41124), (Start: 22 @41055 has 140 MA's), (32, 40977), (36, 40875), (38, 40860), (43, 40800), (44, 40767), (48, 40728), (59, 40551),

Gene: Sheen\_66 Start: 44592, Stop: 43936, Start Num: 4

Candidate Starts for Sheen\_66:

(Start: 4 @44592 has 3 MA's), (10, 44562), (11, 44550), (18, 44496), (27, 44421), (40, 44244), (41, 44235), (47, 44145), (54, 44088),

Gene: SheldonCooper\_63 Start: 41471, Stop: 40926, Start Num: 22

Candidate Starts for SheldonCooper\_63:

(13, 41546), (Start: 22 @41471 has 140 MA's), (32, 41384), (33, 41351), (34, 41327), (36, 41282), (38, 41267), (43, 41207), (44, 41174), (48, 41135), (49, 41126), (59, 40958),

Gene: Shygu2\_61 Start: 40961, Stop: 40413, Start Num: 22

Candidate Starts for Shygu2\_61:

(Start: 22 @40961 has 140 MA's), (32, 40868), (33, 40835), (36, 40766), (38, 40751), (43, 40691), (44, 40658), (48, 40619), (52, 40580), (56, 40478),

Gene: Skipitt\_62 Start: 41052, Stop: 40516, Start Num: 22

Candidate Starts for Skipitt\_62:

(13, 41127), (15, 41121), (Start: 22 @41052 has 140 MA's), (32, 40974), (36, 40872), (38, 40857), (43, 40797), (44, 40764), (48, 40725), (59, 40548),

Gene: Sparxx\_64 Start: 41053, Stop: 40517, Start Num: 22

Candidate Starts for Sparxx\_64:

(13, 41128), (15, 41122), (Start: 22 @41053 has 140 MA's), (32, 40975), (36, 40873), (38, 40858), (43, 40798), (44, 40765), (47, 40732), (48, 40726), (59, 40549),

Gene: Spino\_62 Start: 41061, Stop: 40525, Start Num: 22

Candidate Starts for Spino\_62:

(13, 41136), (15, 41130), (Start: 22 @41061 has 140 MA's), (32, 40983), (36, 40881), (38, 40866), (43, 40806), (44, 40773), (48, 40734), (59, 40557),

Gene: Stasia\_61 Start: 40841, Stop: 40287, Start Num: 21

Candidate Starts for Stasia\_61:

(Start: 21 @40841 has 3 MA's), (32, 40748), (33, 40715), (36, 40646), (38, 40631), (43, 40571), (44, 40538), (48, 40499), (59, 40322),

Gene: SteMason\_63 Start: 41055, Stop: 40519, Start Num: 22

Candidate Starts for SteMason\_63:

(13, 41130), (15, 41124), (Start: 22 @41055 has 140 MA's), (32, 40977), (36, 40875), (38, 40860), (43, 40800), (44, 40767), (48, 40728), (59, 40551),

Gene: Stink\_60 Start: 40633, Stop: 40091, Start Num: 22

Candidate Starts for Stink\_60:

(Start: 22 @40633 has 140 MA's), (27, 40585), (30, 40570), (32, 40546), (38, 40429), (43, 40369), (44, 40336), (48, 40297), (56, 40156),

Gene: Sultana\_63 Start: 41058, Stop: 40522, Start Num: 22

Candidate Starts for Sultana\_63:

(13, 41133), (15, 41127), (Start: 22 @41058 has 140 MA's), (32, 40980), (36, 40878), (38, 40863), (43, 40803), (44, 40770), (48, 40731), (49, 40722), (54, 40680), (59, 40554),

Gene: Taquarus\_62 Start: 41061, Stop: 40525, Start Num: 22

Candidate Starts for Taquarus\_62:

(13, 41136), (15, 41130), (Start: 22 @41061 has 140 MA's), (32, 40983), (36, 40881), (38, 40866), (43, 40806), (44, 40773), (48, 40734), (59, 40557),

Gene: Thanksgivukkah\_62 Start: 41056, Stop: 40520, Start Num: 22

Candidate Starts for Thanksgivukkah\_62:

(13, 41131), (15, 41125), (Start: 22 @41056 has 140 MA's), (32, 40978), (36, 40876), (38, 40861), (43, 40801), (44, 40768), (48, 40729), (59, 40552),

Gene: Timshel\_66 Start: 44325, Stop: 43648, Start Num: 4

Candidate Starts for Timshel\_66:

(Start: 4 @44325 has 3 MA's), (5, 44316), (8, 44298), (18, 44223), (27, 44154), (34, 44055), (38, 43995), (40, 43968), (42, 43956), (55, 43758),

Gene: TinaFeyge\_61 Start: 41053, Stop: 40517, Start Num: 22

Candidate Starts for TinaFeyge\_61:

(13, 41128), (15, 41122), (Start: 22 @41053 has 140 MA's), (32, 40975), (36, 40873), (38, 40858), (43, 40798), (44, 40765), (48, 40726), (59, 40549),

Gene: Tinybot\_62 Start: 41088, Stop: 40552, Start Num: 22

Candidate Starts for Tinybot\_62:

(13, 41163), (15, 41157), (Start: 22 @41088 has 140 MA's), (32, 41010), (36, 40908), (38, 40893), (43, 40833), (44, 40800), (48, 40761), (59, 40584),

Gene: TiroTheta9\_62 Start: 41052, Stop: 40516, Start Num: 22

Candidate Starts for TiroTheta9\_62:

(13, 41127), (15, 41121), (Start: 22 @41052 has 140 MA's), (32, 40974), (36, 40872), (38, 40857), (43, 40797), (44, 40764), (48, 40725), (59, 40548),

Gene: Toro\_66 Start: 44704, Stop: 44048, Start Num: 4

Candidate Starts for Toro\_66:

(Start: 4 @44704 has 3 MA's), (10, 44674), (11, 44662), (18, 44608), (27, 44533), (40, 44356), (41, 44347), (47, 44257), (54, 44200),

Gene: TroyPia\_64 Start: 41065, Stop: 40520, Start Num: 22

Candidate Starts for TroyPia\_64:

(13, 41140), (15, 41134), (Start: 22 @41065 has 140 MA's), (32, 40978), (36, 40876), (38, 40861), (43, 40801), (44, 40768), (48, 40729), (59, 40552),

Gene: TygerBlood\_63 Start: 41058, Stop: 40522, Start Num: 22

Candidate Starts for TygerBlood\_63:

(13, 41133), (15, 41127), (Start: 22 @41058 has 140 MA's), (32, 40980), (36, 40878), (38, 40863), (43, 40803), (44, 40770), (48, 40731), (59, 40554),

Gene: Ulysses\_62 Start: 40744, Stop: 40202, Start Num: 22

Candidate Starts for Ulysses\_62:

(13, 40819), (15, 40813), (Start: 22 @40744 has 140 MA's), (32, 40657), (33, 40624), (36, 40555), (38, 40540), (43, 40480), (44, 40447), (48, 40408), (59, 40231),

Gene: Wander\_63 Start: 41055, Stop: 40519, Start Num: 22

Candidate Starts for Wander\_63:

(13, 41130), (15, 41124), (Start: 22 @41055 has 140 MA's), (32, 40977), (36, 40875), (38, 40860), (43, 40800), (44, 40767), (48, 40728), (49, 40719), (54, 40677), (59, 40551),

Gene: Wilbur\_63 Start: 41055, Stop: 40519, Start Num: 22

Candidate Starts for Wilbur\_63:

(13, 41130), (15, 41124), (Start: 22 @41055 has 140 MA's), (32, 40977), (36, 40875), (38, 40860), (43, 40800), (44, 40767), (48, 40728), (58, 40554), (59, 40551),

Gene: Wile\_61 Start: 40941, Stop: 40393, Start Num: 22

Candidate Starts for Wile\_61:

(Start: 22 @40941 has 140 MA's), (29, 40878), (32, 40848), (36, 40746), (38, 40731), (39, 40713), (43, 40671), (44, 40638), (48, 40599), (52, 40560), (54, 40548), (56, 40458),

Gene: Wizard007\_62 Start: 41063, Stop: 40527, Start Num: 22

Candidate Starts for Wizard007\_62:

(13, 41138), (15, 41132), (Start: 22 @41063 has 140 MA's), (32, 40985), (36, 40883), (38, 40868), (43, 40808), (44, 40775), (48, 40736), (59, 40559),

Gene: Xena\_60 Start: 40907, Stop: 40359, Start Num: 22

Candidate Starts for Xena\_60:

(Start: 22 @40907 has 140 MA's), (29, 40844), (32, 40814), (36, 40712), (38, 40697), (39, 40679), (43, 40637), (44, 40604), (48, 40565), (52, 40526), (54, 40514), (56, 40424),

Gene: YoSam321\_63 Start: 41052, Stop: 40516, Start Num: 22

Candidate Starts for YoSam321\_63:

(13, 41127), (15, 41121), (Start: 22 @41052 has 140 MA's), (32, 40974), (36, 40872), (38, 40857), (43, 40797), (44, 40764), (48, 40725), (59, 40548),