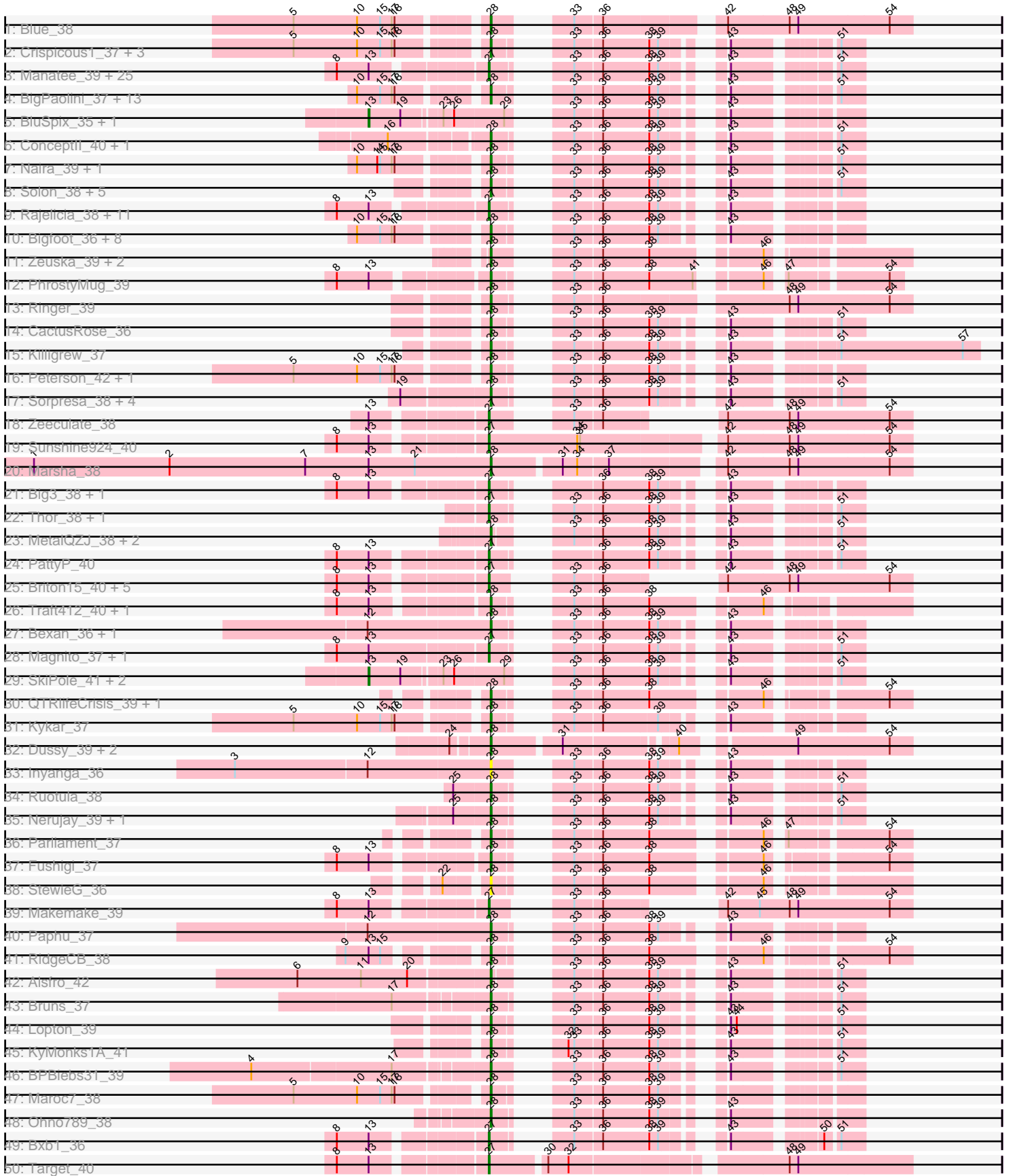
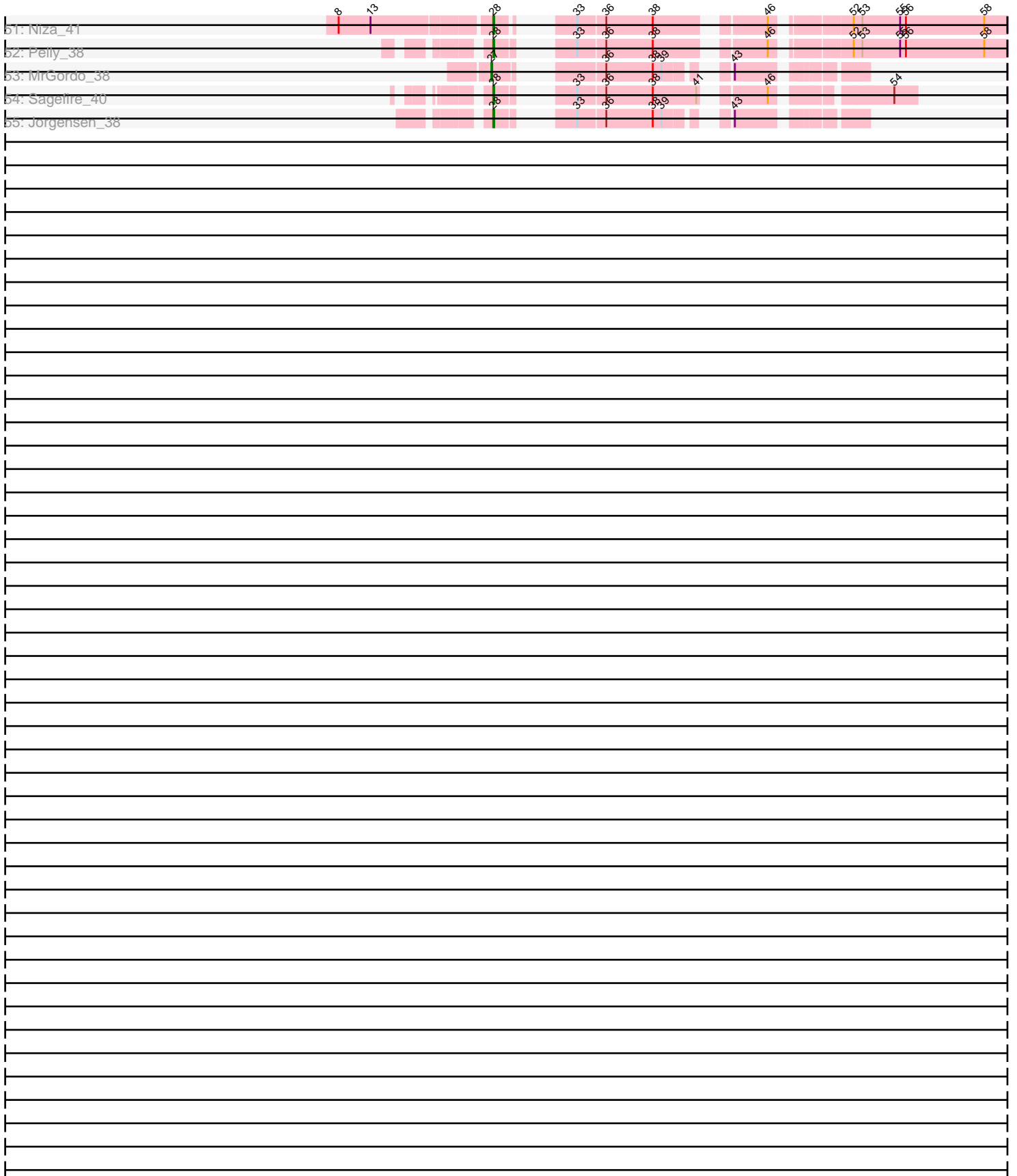


Pham 196343



# Pham 196343



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 196343 Report

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

Pham number 196343 has 148 members, 9 are drafts.

Phages represented in each track:

- Track 1 : Blue\_38
- Track 2 : Crispicous1\_37, Magnar\_38, Fascinus\_37, Wheeler\_39
- Track 3 : Manatee\_39, Snazzy\_37, Switzer\_39, MPlant7149\_38, Pinto\_40, Violet\_37, Gwendoluna\_41, Marge\_39, Norz\_40, Rufus\_40, JuliaChild\_40, Anglerfish\_40, GMonster\_37, Ichabod\_39, McGuire\_39, Dynamix\_39, Rhynn\_38, Mkhusele\_39, Squee\_39, Tripl3t\_39, NEHalo\_38, Smeagol\_40, Tote\_35, AFIS\_38, Hermia\_41, Swole\_40
- Track 4 : BigPaolini\_37, Eyeball\_38, Agaliana\_36, A6\_35, KBG\_39, Wilkins\_37, PacerPaul\_39, Graduation\_40, Topgun\_37, BK1\_35, Froghopper\_38, Francis47\_38, Smairt\_39, Licorice\_40
- Track 5 : BluSpix\_35, IgnatiusPatJac\_37
- Track 6 : ConceptII\_40, Teodoridan\_36
- Track 7 : Naira\_39, Fenn\_39
- Track 8 : Solon\_38, DrFeelGood\_37, Lamina13\_38, Sumter\_37, Rubeus\_38, Tasp14\_39
- Track 9 : Rajelicia\_38, Michley\_38, Lesedi\_37, GrecoEtereo\_40, Arcanine\_38, Buttons\_38, Adahisdi\_39, TheloniousMonk\_40, Oogway\_37, HarryOW\_38, Slagathor\_39, Beatrix\_38
- Track 10 : Bigfoot\_36, Nhonho\_38, Bircsak\_38, Bones\_38, Gompeii16\_38, Espresso\_38, Doom\_38, Papez\_40, Barriga\_38
- Track 11 : Zeuska\_39, Applejack\_35, Abrogate\_390
- Track 12 : PhrostyMug\_39
- Track 13 : Ringer\_39
- Track 14 : CactusRose\_36
- Track 15 : Killigrew\_37
- Track 16 : Peterson\_42, ILeeKay\_40
- Track 17 : Sorpresa\_38, Pita2\_40, Sandaddy\_38, BaconJack\_41, PSullivan\_37
- Track 18 : Zeeculate\_38
- Track 19 : Sunshine924\_40
- Track 20 : Marsha\_38
- Track 21 : Big3\_38, Ajay\_39
- Track 22 : Thor\_38, SarFire\_38
- Track 23 : MetalQZJ\_38, Mryolo\_36, MaryBeth\_38
- Track 24 : PattyP\_40
- Track 25 : Briton15\_40, PascalRango\_39, Paraselene\_37, ProMouse\_36, Arlo\_37, Atkinbua\_40
- Track 26 : Traft412\_40, Perseus\_40

- Track 27 : Bexan\_36, StrongArm\_37
- Track 28 : Magnito\_37, Turj99\_37
- Track 29 : SkiPole\_41, Gandalf20\_39, STLscum\_39
- Track 30 : QTRlifeCrisis\_39, Dexes\_38
- Track 31 : Kykar\_37
- Track 32 : Dussy\_39, Abbyshoes\_40, Kenmech\_41
- Track 33 : Inyanga\_36
- Track 34 : Ruotula\_38
- Track 35 : Nerujay\_39, Hope4ever\_38
- Track 36 : Parliament\_37
- Track 37 : Fushigi\_37
- Track 38 : StewieG\_36
- Track 39 : Makemake\_39
- Track 40 : Paphu\_37
- Track 41 : RidgeCB\_38
- Track 42 : Alsfro\_42
- Track 43 : Bruns\_37
- Track 44 : Lopton\_39
- Track 45 : KyMonks1A\_41
- Track 46 : BPBiebs31\_39
- Track 47 : Maroc7\_38
- Track 48 : Ohno789\_38
- Track 49 : Bxb1\_36
- Track 50 : Target\_40
- Track 51 : Niza\_41
- Track 52 : Pelly\_38
- Track 53 : MrGordo\_38
- Track 54 : Sagefire\_40
- Track 55 : Jorgensen\_38

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

The start number called the most often in the published annotations is 28, it was called in 81 of the 139 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- A6\_35, Abbyshoes\_40, Abrogate\_390, Agaliana\_36, Alsfro\_42, Applejack\_35, BK1\_35, BPBiebs31\_39, BaconJack\_41, Barriga\_38, Bexan\_36, BigPaolini\_37, Bigfoot\_36, Bircsak\_38, Blue\_38, Bones\_38, Bruns\_37, CactusRose\_36, ConceptII\_40, Crispicous1\_37, Dexes\_38, Doom\_38, DrFeelGood\_37, Dussy\_39, Espresso\_38, Eyeball\_38, Fascinus\_37, Fenn\_39, Francis47\_38, Froghopper\_38, Fushigi\_37, Gompeii16\_38, Graduation\_40, Hope4ever\_38, ILeeKay\_40, Inyanga\_36, Jorgensen\_38, KBG\_39, Kenmech\_41, Killigrew\_37, KyMonks1A\_41, Kykar\_37, Lamina13\_38, Licorice\_40, Lopton\_39, Magnar\_38, Maroc7\_38, Marsha\_38, MaryBeth\_38, MetalQZJ\_38, Mryolo\_36, Naira\_39, Nerujay\_39, Nhonho\_38, Niza\_41, Ohno789\_38, PSullivan\_37, PacerPaul\_39, Papez\_40, Paphu\_37, Parliament\_37, Pelly\_38, Perseus\_40, Peterson\_42, PhrostyMug\_39, Pita2\_40, QTRlifeCrisis\_39, RidgeCB\_38, Ringer\_39, Rubeus\_38, Ruotula\_38, Sagefire\_40, Sandaddy\_38, Smairt\_39, Solon\_38, Sorpresa\_38, StewieG\_36, StrongArm\_37, Sumter\_37, Tasp14\_39, Teodoridan\_36, Topgun\_37, Traft412\_40,

Wheeler\_39, Wilkins\_37, Zeuska\_39,

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

- 

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

- AFIS\_38, Adahisdi\_39, Ajay\_39, Anglerfish\_40, Arcanine\_38, Arlo\_37, Atkinbua\_40, Beatrix\_38, Big3\_38, BluSpix\_35, Briton15\_40, Buttons\_38, Bxb1\_36, Dynamix\_39, GMonster\_37, Gandalf20\_39, GrecoEtereo\_40, Gwendoluna\_41, HarryOW\_38, Hermia\_41, Ichabod\_39, IgnatiusPatJac\_37, JuliaChild\_40, Lesedi\_37, MPlant7149\_38, Magnito\_37, Makemake\_39, Manatee\_39, Marge\_39, McGuire\_39, Michley\_38, Mkhuseli\_39, MrGordo\_38, NEHalo\_38, Norz\_40, Oogway\_37, Paraselene\_37, PascalRango\_39, PattyP\_40, Pinto\_40, ProMouse\_36, Rajelicia\_38, Rhynn\_38, Rufus\_40, STLscum\_39, SarFire\_38, SkiPole\_41, Slagathor\_39, Smeagol\_40, Snazzy\_37, Squee\_39, Sunshine924\_40, Switzer\_39, Swole\_40, Target\_40, TheloniousMonk\_40, Thor\_38, Tote\_35, Tripl3t\_39, Turj99\_37, Violet\_37, Zeeculate\_38,

### Summary by start number:

Start 13:

- Found in 66 of 148 ( 44.6% ) of genes in pham
- Manual Annotations of this start: 5 of 139
- Called 7.6% of time when present
- Phage (with cluster) where this start called: BluSpix\_35 (A1), Gandalf20\_39 (A1), IgnatiusPatJac\_37 (A1), STLscum\_39 (A1), SkiPole\_41 (A1),

Start 27:

- Found in 57 of 148 ( 38.5% ) of genes in pham
- Manual Annotations of this start: 53 of 139
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AFIS\_38 (A1), Adahisdi\_39 (A1), Ajay\_39 (A1), Anglerfish\_40 (A1), Arcanine\_38 (A1), Arlo\_37 (A1), Atkinbua\_40 (A1), Beatrix\_38 (A1), Big3\_38 (A1), Briton15\_40 (A1), Buttons\_38 (A1), Bxb1\_36 (A1), Dynamix\_39 (A1), GMonster\_37 (A1), GrecoEtereo\_40 (A1), Gwendoluna\_41 (A1), HarryOW\_38 (A1), Hermia\_41 (A1), Ichabod\_39 (A1), JuliaChild\_40 (A1), Lesedi\_37 (A1), MPlant7149\_38 (A1), Magnito\_37 (A1), Makemake\_39 (A1), Manatee\_39 (A1), Marge\_39 (A1), McGuire\_39 (A1), Michley\_38 (A1), Mkhuseli\_39 (A1), MrGordo\_38 (A1), NEHalo\_38 (A1), Norz\_40 (A1), Oogway\_37 (A1), Paraselene\_37 (A1), PascalRango\_39 (A1), PattyP\_40 (A1), Pinto\_40 (A1), ProMouse\_36 (A1), Rajelicia\_38 (A1), Rhynn\_38 (A1), Rufus\_40 (A1), SarFire\_38 (A1), Slagathor\_39 (A1), Smeagol\_40 (A1), Snazzy\_37 (A1), Squee\_39 (A1), Sunshine924\_40 (A1), Switzer\_39 (A1), Swole\_40 (A1), Target\_40 (A1), TheloniousMonk\_40 (A1), Thor\_38 (A1), Tote\_35 (A1), Tripl3t\_39 (A1), Turj99\_37 (A1), Violet\_37 (A1), Zeeculate\_38 (A1),

Start 28:

- Found in 86 of 148 ( 58.1% ) of genes in pham
- Manual Annotations of this start: 81 of 139
- Called 100.0% of time when present
- Phage (with cluster) where this start called: A6\_35 (A1), Abbyshoes\_40 (A1), Abrogate\_390 (A1), Agaliana\_36 (A1), Alsfro\_42 (A1), Applejack\_35 (A1), BK1\_35 (A1), BPBiebs31\_39 (A1), BaconJack\_41 (A1), Barriga\_38 (A1), Bexan\_36 (A1),

BigPaolini\_37 (A1), Bigfoot\_36 (A1), Bircsak\_38 (A1), Blue\_38 (A1), Bones\_38 (A1), Bruns\_37 (A1), CactusRose\_36 (A1), Conceptll\_40 (A1), Crispicious1\_37 (A1), Dexes\_38 (A1), Doom\_38 (A1), DrFeelGood\_37 (A1), Dussy\_39 (A1), Espresso\_38 (A1), Eyeball\_38 (A1), Fascinus\_37 (A1), Fenn\_39 (A1), Francis47\_38 (A1), Froghopper\_38 (A1), Fushigi\_37 (A1), Gompeii16\_38 (A1), Graduation\_40 (A1), Hope4ever\_38 (A1), ILeeKay\_40 (A1), Inyanga\_36 (A1), Jorgensen\_38 (A1), KBG\_39 (A1), Kenmech\_41 (A1), Killigrew\_37 (A1), KyMonks1A\_41 (A1), Kykar\_37 (A1), Lamina13\_38 (A1), Licorice\_40 (A1), Lopton\_39 (A1), Magnar\_38 (A1), Maroc7\_38 (A1), Marsha\_38 (A1), MaryBeth\_38 (A1), MetalQZJ\_38 (A1), Mryolo\_36 (A1), Naira\_39 (A1), Nerujay\_39 (A1), Nhonho\_38 (A1), Niza\_41 (A1), Ohno789\_38 (A1), PSullivan\_37 (A1), PacerPaul\_39 (A1), Papez\_40 (A1), Paphu\_37 (A1), Parliament\_37 (A1), Pelly\_38 (A1), Perseus\_40 (A1), Peterson\_42 (A1), PhrostyMug\_39 (A1), Pita2\_40 (A1), QTRlifeCrisis\_39 (A1), RidgeCB\_38 (A1), Ringer\_39 (A1), Rubeus\_38 (A1), Ruotula\_38 (A1), Sagefire\_40 (A1), Sandaddy\_38 (A1), Smairt\_39 (A1), Solon\_38 (A1), Sorpresa\_38 (A1), StewieG\_36 (A1), StrongArm\_37 (A1), Sumter\_37 (A1), Tasp14\_39 (A1), Teodoridan\_36 (A1), Topgun\_37 (A1), Traft412\_40 (A1), Wheeler\_39 (A1), Wilkins\_37 (A1), Zeuska\_39 (A1),

### **Summary by clusters:**

There is one cluster represented in this pham: A1

Info for manual annotations of cluster A1:

- Start number 13 was manually annotated 5 times for cluster A1.
- Start number 27 was manually annotated 53 times for cluster A1.
- Start number 28 was manually annotated 81 times for cluster A1.

### **Gene Information:**

Gene: A6\_35 Start: 30422, Stop: 30150, Start Num: 28

Candidate Starts for A6\_35:

(10, 30536), (15, 30512), (17, 30500), (18, 30497), (Start: 28 @30422 has 81 MA's), (33, 30380), (36, 30353), (38, 30308), (39, 30299), (43, 30260), (51, 30173),

Gene: AFIS\_38 Start: 31598, Stop: 31326, Start Num: 27

Candidate Starts for AFIS\_38:

(8, 31733), (Start: 13 @31700 has 5 MA's), (Start: 27 @31598 has 53 MA's), (33, 31556), (36, 31529), (38, 31484), (39, 31475), (43, 31436), (51, 31349),

Gene: Abbyshoes\_40 Start: 31568, Stop: 31185, Start Num: 28

Candidate Starts for Abbyshoes\_40:

(24, 31604), (Start: 28 @31568 has 81 MA's), (31, 31502), (40, 31400), (49, 31301), (54, 31208),

Gene: Abrogate\_390 Start: 32285, Stop: 31953, Start Num: 28

Candidate Starts for Abrogate\_390:

(Start: 28 @32285 has 81 MA's), (33, 32243), (36, 32216), (38, 32168), (46, 32075),

Gene: Adahisdi\_39 Start: 31648, Stop: 31376, Start Num: 27

Candidate Starts for Adahisdi\_39:

(8, 31783), (Start: 13 @31750 has 5 MA's), (Start: 27 @31648 has 53 MA's), (33, 31606), (36, 31579), (38, 31534), (39, 31525), (43, 31486),

Gene: Agaliana\_36 Start: 28180, Stop: 27908, Start Num: 28

Candidate Starts for Agaliana\_36:

(10, 28294), (15, 28270), (17, 28258), (18, 28255), (Start: 28 @28180 has 81 MA's), (33, 28138), (36, 28111), (38, 28066), (39, 28057), (43, 28018), (51, 27931),

Gene: Ajay\_39 Start: 31439, Stop: 31167, Start Num: 27

Candidate Starts for Ajay\_39:

(8, 31574), (Start: 13 @31541 has 5 MA's), (Start: 27 @31439 has 53 MA's), (36, 31370), (38, 31325), (39, 31316), (43, 31277),

Gene: Alsfro\_42 Start: 31790, Stop: 31518, Start Num: 28

Candidate Starts for Alsfro\_42:

(6, 31982), (11, 31916), (20, 31868), (Start: 28 @31790 has 81 MA's), (33, 31748), (36, 31721), (38, 31676), (39, 31667), (43, 31628), (51, 31541),

Gene: Anglerfish\_40 Start: 31701, Stop: 31429, Start Num: 27

Candidate Starts for Anglerfish\_40:

(8, 31836), (Start: 13 @31803 has 5 MA's), (Start: 27 @31701 has 53 MA's), (33, 31659), (36, 31632), (38, 31587), (39, 31578), (43, 31539), (51, 31452),

Gene: Applejack\_35 Start: 28515, Stop: 28180, Start Num: 28

Candidate Starts for Applejack\_35:

(Start: 28 @28515 has 81 MA's), (33, 28470), (36, 28443), (38, 28395), (46, 28302),

Gene: Arcanine\_38 Start: 30821, Stop: 30549, Start Num: 27

Candidate Starts for Arcanine\_38:

(8, 30956), (Start: 13 @30923 has 5 MA's), (Start: 27 @30821 has 53 MA's), (33, 30779), (36, 30752), (38, 30707), (39, 30698), (43, 30659),

Gene: Arlo\_37 Start: 31329, Stop: 31018, Start Num: 27

Candidate Starts for Arlo\_37:

(8, 31464), (Start: 13 @31431 has 5 MA's), (Start: 27 @31329 has 53 MA's), (33, 31287), (36, 31260), (42, 31206), (48, 31143), (49, 31134), (54, 31041),

Gene: Atkinbua\_40 Start: 31777, Stop: 31466, Start Num: 27

Candidate Starts for Atkinbua\_40:

(8, 31912), (Start: 13 @31879 has 5 MA's), (Start: 27 @31777 has 53 MA's), (33, 31735), (36, 31708), (42, 31654), (48, 31591), (49, 31582), (54, 31489),

Gene: BK1\_35 Start: 30422, Stop: 30150, Start Num: 28

Candidate Starts for BK1\_35:

(10, 30536), (15, 30512), (17, 30500), (18, 30497), (Start: 28 @30422 has 81 MA's), (33, 30380), (36, 30353), (38, 30308), (39, 30299), (43, 30260), (51, 30173),

Gene: BPBiebs31\_39 Start: 31743, Stop: 31468, Start Num: 28

Candidate Starts for BPBiebs31\_39:

(4, 31971), (17, 31830), (Start: 28 @31743 has 81 MA's), (33, 31698), (36, 31671), (38, 31626), (39, 31617), (43, 31578), (51, 31491),

Gene: BaconJack\_41 Start: 31798, Stop: 31526, Start Num: 28

Candidate Starts for BaconJack\_41:

(19, 31882), (Start: 28 @31798 has 81 MA's), (33, 31756), (36, 31729), (38, 31684), (39, 31675), (43, 31636), (51, 31549),

Gene: Barriga\_38 Start: 30917, Stop: 30645, Start Num: 28

Candidate Starts for Barriga\_38:

(10, 31031), (15, 31007), (17, 30995), (18, 30992), (Start: 28 @30917 has 81 MA's), (33, 30875), (36, 30848), (38, 30803), (39, 30794), (43, 30755),

Gene: Beatrix\_38 Start: 32774, Stop: 32502, Start Num: 27

Candidate Starts for Beatrix\_38:

(8, 32909), (Start: 13 @32876 has 5 MA's), (Start: 27 @32774 has 53 MA's), (33, 32732), (36, 32705), (38, 32660), (39, 32651), (43, 32612),

Gene: Bexan\_36 Start: 32268, Stop: 31996, Start Num: 28

Candidate Starts for Bexan\_36:

(12, 32394), (Start: 28 @32268 has 81 MA's), (33, 32226), (36, 32199), (38, 32154), (39, 32145), (43, 32106),

Gene: Big3\_38 Start: 31940, Stop: 31668, Start Num: 27

Candidate Starts for Big3\_38:

(8, 32075), (Start: 13 @32042 has 5 MA's), (Start: 27 @31940 has 53 MA's), (36, 31871), (38, 31826), (39, 31817), (43, 31778),

Gene: BigPaolini\_37 Start: 29684, Stop: 29412, Start Num: 28

Candidate Starts for BigPaolini\_37:

(10, 29798), (15, 29774), (17, 29762), (18, 29759), (Start: 28 @29684 has 81 MA's), (33, 29642), (36, 29615), (38, 29570), (39, 29561), (43, 29522), (51, 29435),

Gene: Bigfoot\_36 Start: 30710, Stop: 30438, Start Num: 28

Candidate Starts for Bigfoot\_36:

(10, 30824), (15, 30800), (17, 30788), (18, 30785), (Start: 28 @30710 has 81 MA's), (33, 30668), (36, 30641), (38, 30596), (39, 30587), (43, 30548),

Gene: Bircsak\_38 Start: 31775, Stop: 31503, Start Num: 28

Candidate Starts for Bircsak\_38:

(10, 31889), (15, 31865), (17, 31853), (18, 31850), (Start: 28 @31775 has 81 MA's), (33, 31733), (36, 31706), (38, 31661), (39, 31652), (43, 31613),

Gene: BluSpix\_35 Start: 27351, Stop: 26965, Start Num: 13

Candidate Starts for BluSpix\_35:

(Start: 13 @27351 has 5 MA's), (19, 27318), (23, 27282), (26, 27273), (29, 27225), (33, 27195), (36, 27168), (38, 27123), (39, 27114), (43, 27075),

Gene: Blue\_38 Start: 31834, Stop: 31469, Start Num: 28

Candidate Starts for Blue\_38:

(5, 32014), (10, 31948), (15, 31924), (17, 31912), (18, 31909), (Start: 28 @31834 has 81 MA's), (33, 31789), (36, 31762), (42, 31657), (48, 31594), (49, 31585), (54, 31492),

Gene: Bones\_38 Start: 31179, Stop: 30907, Start Num: 28

Candidate Starts for Bones\_38:

(10, 31293), (15, 31269), (17, 31257), (18, 31254), (Start: 28 @31179 has 81 MA's), (33, 31137), (36, 31110), (38, 31065), (39, 31056), (43, 31017),



Gene: Briton15\_40 Start: 31612, Stop: 31301, Start Num: 27

Candidate Starts for Briton15\_40:

(8, 31747), (Start: 13 @31714 has 5 MA's), (Start: 27 @31612 has 53 MA's), (33, 31570), (36, 31543), (42, 31489), (48, 31426), (49, 31417), (54, 31324),

Gene: Bruns\_37 Start: 31253, Stop: 30981, Start Num: 28

Candidate Starts for Bruns\_37:

(17, 31340), (Start: 28 @31253 has 81 MA's), (33, 31211), (36, 31184), (38, 31139), (39, 31130), (43, 31091), (51, 31004),

Gene: Buttons\_38 Start: 30324, Stop: 30052, Start Num: 27

Candidate Starts for Buttons\_38:

(8, 30459), (Start: 13 @30426 has 5 MA's), (Start: 27 @30324 has 53 MA's), (33, 30282), (36, 30255), (38, 30210), (39, 30201), (43, 30162),

Gene: Bxb1\_36 Start: 31386, Stop: 31114, Start Num: 27

Candidate Starts for Bxb1\_36:

(8, 31521), (Start: 13 @31488 has 5 MA's), (Start: 27 @31386 has 53 MA's), (33, 31344), (36, 31317), (38, 31272), (39, 31263), (43, 31224), (50, 31149), (51, 31137),

Gene: CactusRose\_36 Start: 30823, Stop: 30551, Start Num: 28

Candidate Starts for CactusRose\_36:

(Start: 28 @30823 has 81 MA's), (33, 30781), (36, 30754), (38, 30709), (39, 30700), (43, 30661), (51, 30574),

Gene: ConceptII\_40 Start: 32357, Stop: 32085, Start Num: 28

Candidate Starts for ConceptII\_40:

(16, 32447), (Start: 28 @32357 has 81 MA's), (33, 32315), (36, 32288), (38, 32243), (39, 32234), (43, 32195), (51, 32108),

Gene: Crispicous1\_37 Start: 30836, Stop: 30564, Start Num: 28

Candidate Starts for Crispicous1\_37:

(5, 31016), (10, 30950), (15, 30926), (17, 30914), (18, 30911), (Start: 28 @30836 has 81 MA's), (33, 30794), (36, 30767), (38, 30722), (39, 30713), (43, 30674), (51, 30587),

Gene: Dexes\_38 Start: 31800, Stop: 31477, Start Num: 28

Candidate Starts for Dexes\_38:

(Start: 28 @31800 has 81 MA's), (33, 31758), (36, 31731), (38, 31683), (46, 31590), (54, 31491),

Gene: Doom\_38 Start: 31605, Stop: 31333, Start Num: 28

Candidate Starts for Doom\_38:

(10, 31719), (15, 31695), (17, 31683), (18, 31680), (Start: 28 @31605 has 81 MA's), (33, 31563), (36, 31536), (38, 31491), (39, 31482), (43, 31443),

Gene: DrFeelGood\_37 Start: 31699, Stop: 31427, Start Num: 28

Candidate Starts for DrFeelGood\_37:

(Start: 28 @31699 has 81 MA's), (33, 31657), (36, 31630), (38, 31585), (39, 31576), (43, 31537), (51, 31450),

Gene: Dussy\_39 Start: 31588, Stop: 31205, Start Num: 28

Candidate Starts for Dussy\_39:

(24, 31624), (Start: 28 @31588 has 81 MA's), (31, 31522), (40, 31420), (49, 31321), (54, 31228),

Gene: Dynamix\_39 Start: 31345, Stop: 31073, Start Num: 27

Candidate Starts for Dynamix\_39:

(8, 31480), (Start: 13 @31447 has 5 MA's), (Start: 27 @31345 has 53 MA's), (33, 31303), (36, 31276), (38, 31231), (39, 31222), (43, 31183), (51, 31096),

Gene: Espresso\_38 Start: 31529, Stop: 31257, Start Num: 28

Candidate Starts for Espresso\_38:

(10, 31643), (15, 31619), (17, 31607), (18, 31604), (Start: 28 @31529 has 81 MA's), (33, 31487), (36, 31460), (38, 31415), (39, 31406), (43, 31367),

Gene: Eyeball\_38 Start: 31085, Stop: 30813, Start Num: 28

Candidate Starts for Eyeball\_38:

(10, 31199), (15, 31175), (17, 31163), (18, 31160), (Start: 28 @31085 has 81 MA's), (33, 31043), (36, 31016), (38, 30971), (39, 30962), (43, 30923), (51, 30836),

Gene: Fascinus\_37 Start: 30859, Stop: 30587, Start Num: 28

Candidate Starts for Fascinus\_37:

(5, 31039), (10, 30973), (15, 30949), (17, 30937), (18, 30934), (Start: 28 @30859 has 81 MA's), (33, 30817), (36, 30790), (38, 30745), (39, 30736), (43, 30697), (51, 30610),

Gene: Fenn\_39 Start: 32892, Stop: 32620, Start Num: 28

Candidate Starts for Fenn\_39:

(10, 33006), (14, 32985), (15, 32982), (17, 32970), (18, 32967), (Start: 28 @32892 has 81 MA's), (33, 32850), (36, 32823), (38, 32778), (39, 32769), (43, 32730), (51, 32643),

Gene: Francis47\_38 Start: 31946, Stop: 31674, Start Num: 28

Candidate Starts for Francis47\_38:

(10, 32060), (15, 32036), (17, 32024), (18, 32021), (Start: 28 @31946 has 81 MA's), (33, 31904), (36, 31877), (38, 31832), (39, 31823), (43, 31784), (51, 31697),

Gene: Froghopper\_38 Start: 30873, Stop: 30601, Start Num: 28

Candidate Starts for Froghopper\_38:

(10, 30987), (15, 30963), (17, 30951), (18, 30948), (Start: 28 @30873 has 81 MA's), (33, 30831), (36, 30804), (38, 30759), (39, 30750), (43, 30711), (51, 30624),

Gene: Fushigi\_37 Start: 29564, Stop: 29232, Start Num: 28

Candidate Starts for Fushigi\_37:

(8, 29699), (Start: 13 @29666 has 5 MA's), (Start: 28 @29564 has 81 MA's), (33, 29522), (36, 29495), (38, 29447), (46, 29354), (54, 29255),

Gene: GMonster\_37 Start: 30681, Stop: 30409, Start Num: 27

Candidate Starts for GMonster\_37:

(8, 30816), (Start: 13 @30783 has 5 MA's), (Start: 27 @30681 has 53 MA's), (33, 30639), (36, 30612), (38, 30567), (39, 30558), (43, 30519), (51, 30432),

Gene: Gandalf20\_39 Start: 32248, Stop: 31862, Start Num: 13

Candidate Starts for Gandalf20\_39:

(Start: 13 @32248 has 5 MA's), (19, 32215), (23, 32179), (26, 32170), (29, 32122), (33, 32092), (36, 32065), (38, 32020), (39, 32011), (43, 31972), (51, 31885),

Gene: Gompeii16\_38 Start: 31776, Stop: 31504, Start Num: 28

Candidate Starts for Gompeii16\_38:

(10, 31890), (15, 31866), (17, 31854), (18, 31851), (Start: 28 @31776 has 81 MA's), (33, 31734), (36, 31707), (38, 31662), (39, 31653), (43, 31614),

Gene: Graduation\_40 Start: 31999, Stop: 31727, Start Num: 28

Candidate Starts for Graduation\_40:

(10, 32113), (15, 32089), (17, 32077), (18, 32074), (Start: 28 @31999 has 81 MA's), (33, 31957), (36, 31930), (38, 31885), (39, 31876), (43, 31837), (51, 31750),

Gene: GrecoEtereo\_40 Start: 32075, Stop: 31803, Start Num: 27

Candidate Starts for GrecoEtereo\_40:

(8, 32210), (Start: 13 @32177 has 5 MA's), (Start: 27 @32075 has 53 MA's), (33, 32033), (36, 32006), (38, 31961), (39, 31952), (43, 31913),

Gene: Gwendoluna\_41 Start: 33532, Stop: 33128, Start Num: 27

Candidate Starts for Gwendoluna\_41:

(8, 33667), (Start: 13 @33634 has 5 MA's), (Start: 27 @33532 has 53 MA's), (33, 33490), (36, 33463), (38, 33418), (39, 33409), (43, 33370), (51, 33277),

Gene: HarryOW\_38 Start: 31247, Stop: 30975, Start Num: 27

Candidate Starts for HarryOW\_38:

(8, 31382), (Start: 13 @31349 has 5 MA's), (Start: 27 @31247 has 53 MA's), (33, 31205), (36, 31178), (38, 31133), (39, 31124), (43, 31085),

Gene: Hermia\_41 Start: 32803, Stop: 32531, Start Num: 27

Candidate Starts for Hermia\_41:

(8, 32938), (Start: 13 @32905 has 5 MA's), (Start: 27 @32803 has 53 MA's), (33, 32761), (36, 32734), (38, 32689), (39, 32680), (43, 32641), (51, 32554),

Gene: Hope4ever\_38 Start: 31682, Stop: 31410, Start Num: 28

Candidate Starts for Hope4ever\_38:

(25, 31718), (Start: 28 @31682 has 81 MA's), (33, 31640), (36, 31613), (38, 31568), (39, 31559), (43, 31520), (51, 31433),

Gene: ILeeKay\_40 Start: 31449, Stop: 31177, Start Num: 28

Candidate Starts for ILeeKay\_40:

(5, 31629), (10, 31563), (15, 31539), (17, 31527), (18, 31524), (Start: 28 @31449 has 81 MA's), (33, 31407), (36, 31380), (38, 31335), (39, 31326), (43, 31287),

Gene: Ichabod\_39 Start: 31486, Stop: 31214, Start Num: 27

Candidate Starts for Ichabod\_39:

(8, 31621), (Start: 13 @31588 has 5 MA's), (Start: 27 @31486 has 53 MA's), (33, 31444), (36, 31417), (38, 31372), (39, 31363), (43, 31324), (51, 31237),

Gene: IgnatiusPatJac\_37 Start: 31296, Stop: 30910, Start Num: 13

Candidate Starts for IgnatiusPatJac\_37:

(Start: 13 @31296 has 5 MA's), (19, 31263), (23, 31227), (26, 31218), (29, 31170), (33, 31140), (36, 31113), (38, 31068), (39, 31059), (43, 31020),

Gene: Inyanga\_36 Start: 30633, Stop: 30358, Start Num: 28

Candidate Starts for Inyanga\_36:

(3, 30894), (12, 30759), (Start: 28 @30633 has 81 MA's), (33, 30588), (36, 30561), (38, 30516), (39, 30507), (43, 30468),

Gene: Jorgensen\_38 Start: 31181, Stop: 30909, Start Num: 28

Candidate Starts for Jorgensen\_38:

(Start: 28 @31181 has 81 MA's), (33, 31139), (36, 31112), (38, 31067), (39, 31058), (43, 31019),

Gene: JuliaChild\_40 Start: 31921, Stop: 31649, Start Num: 27

Candidate Starts for JuliaChild\_40:

(8, 32056), (Start: 13 @32023 has 5 MA's), (Start: 27 @31921 has 53 MA's), (33, 31879), (36, 31852), (38, 31807), (39, 31798), (43, 31759), (51, 31672),

Gene: KBG\_39 Start: 32392, Stop: 32120, Start Num: 28

Candidate Starts for KBG\_39:

(10, 32506), (15, 32482), (17, 32470), (18, 32467), (Start: 28 @32392 has 81 MA's), (33, 32350), (36, 32323), (38, 32278), (39, 32269), (43, 32230), (51, 32143),

Gene: Kenmech\_41 Start: 32714, Stop: 32331, Start Num: 28

Candidate Starts for Kenmech\_41:

(24, 32750), (Start: 28 @32714 has 81 MA's), (31, 32648), (40, 32546), (49, 32447), (54, 32354),

Gene: Killigrew\_37 Start: 31321, Stop: 30923, Start Num: 28

Candidate Starts for Killigrew\_37:

(Start: 28 @31321 has 81 MA's), (33, 31279), (36, 31252), (38, 31207), (39, 31198), (43, 31159), (51, 31066), (57, 30940),

Gene: KyMonks1A\_41 Start: 31846, Stop: 31574, Start Num: 28

Candidate Starts for KyMonks1A\_41:

(Start: 28 @31846 has 81 MA's), (32, 31810), (33, 31804), (36, 31777), (38, 31732), (39, 31723), (43, 31684), (51, 31597),

Gene: Kykar\_37 Start: 30822, Stop: 30550, Start Num: 28

Candidate Starts for Kykar\_37:

(5, 31002), (10, 30936), (15, 30912), (17, 30900), (18, 30897), (Start: 28 @30822 has 81 MA's), (33, 30780), (36, 30753), (39, 30699), (43, 30660),

Gene: Lamina13\_38 Start: 30935, Stop: 30663, Start Num: 28

Candidate Starts for Lamina13\_38:

(Start: 28 @30935 has 81 MA's), (33, 30893), (36, 30866), (38, 30821), (39, 30812), (43, 30773), (51, 30686),

Gene: Lesedi\_37 Start: 31210, Stop: 30938, Start Num: 27

Candidate Starts for Lesedi\_37:

(8, 31345), (Start: 13 @31312 has 5 MA's), (Start: 27 @31210 has 53 MA's), (33, 31168), (36, 31141), (38, 31096), (39, 31087), (43, 31048),

Gene: Licorice\_40 Start: 32280, Stop: 32008, Start Num: 28

Candidate Starts for Licorice\_40:

(10, 32394), (15, 32370), (17, 32358), (18, 32355), (Start: 28 @32280 has 81 MA's), (33, 32238), (36, 32211), (38, 32166), (39, 32157), (43, 32118), (51, 32031),

Gene: Lopton\_39 Start: 32717, Stop: 32445, Start Num: 28

Candidate Starts for Lopton\_39:

(Start: 28 @32717 has 81 MA's), (33, 32675), (36, 32648), (38, 32603), (39, 32594), (43, 32555), (44, 32549), (51, 32468),

Gene: MPlant7149\_38 Start: 30995, Stop: 30723, Start Num: 27

Candidate Starts for MPlant7149\_38:

(8, 31130), (Start: 13 @31097 has 5 MA's), (Start: 27 @30995 has 53 MA's), (33, 30953), (36, 30926), (38, 30881), (39, 30872), (43, 30833), (51, 30746),

Gene: Magnar\_38 Start: 31184, Stop: 30912, Start Num: 28

Candidate Starts for Magnar\_38:

(5, 31364), (10, 31298), (15, 31274), (17, 31262), (18, 31259), (Start: 28 @31184 has 81 MA's), (33, 31142), (36, 31115), (38, 31070), (39, 31061), (43, 31022), (51, 30935),

Gene: Magnito\_37 Start: 30988, Stop: 30716, Start Num: 27

Candidate Starts for Magnito\_37:

(8, 31135), (Start: 13 @31102 has 5 MA's), (Start: 27 @30988 has 53 MA's), (33, 30946), (36, 30919), (38, 30874), (39, 30865), (43, 30826), (51, 30739),

Gene: Makemake\_39 Start: 32642, Stop: 32331, Start Num: 27

Candidate Starts for Makemake\_39:

(8, 32777), (Start: 13 @32744 has 5 MA's), (Start: 27 @32642 has 53 MA's), (33, 32600), (36, 32573), (42, 32519), (45, 32486), (48, 32456), (49, 32447), (54, 32354),

Gene: Manatee\_39 Start: 31021, Stop: 30749, Start Num: 27

Candidate Starts for Manatee\_39:

(8, 31156), (Start: 13 @31123 has 5 MA's), (Start: 27 @31021 has 53 MA's), (33, 30979), (36, 30952), (38, 30907), (39, 30898), (43, 30859), (51, 30772),

Gene: Marge\_39 Start: 32073, Stop: 31798, Start Num: 27

Candidate Starts for Marge\_39:

(8, 32208), (Start: 13 @32175 has 5 MA's), (Start: 27 @32073 has 53 MA's), (33, 32028), (36, 32001), (38, 31956), (39, 31947), (43, 31908), (51, 31821),

Gene: Maroc7\_38 Start: 31169, Stop: 30897, Start Num: 28

Candidate Starts for Maroc7\_38:

(5, 31349), (10, 31283), (15, 31259), (17, 31247), (18, 31244), (Start: 28 @31169 has 81 MA's), (33, 31127), (36, 31100), (38, 31055), (39, 31046),

Gene: Marsha\_38 Start: 32325, Stop: 31924, Start Num: 28

Candidate Starts for Marsha\_38:

(1, 32799), (2, 32658), (7, 32517), (Start: 13 @32451 has 5 MA's), (21, 32403), (Start: 28 @32325 has 81 MA's), (31, 32259), (34, 32244), (37, 32214), (42, 32112), (48, 32049), (49, 32040), (54, 31947),

Gene: MaryBeth\_38 Start: 31490, Stop: 31218, Start Num: 28

Candidate Starts for MaryBeth\_38:

(Start: 28 @31490 has 81 MA's), (33, 31448), (36, 31421), (38, 31376), (39, 31367), (43, 31328), (51, 31241),

Gene: McGuire\_39 Start: 31317, Stop: 31045, Start Num: 27

Candidate Starts for McGuire\_39:

(8, 31452), (Start: 13 @31419 has 5 MA's), (Start: 27 @31317 has 53 MA's), (33, 31275), (36, 31248), (38, 31203), (39, 31194), (43, 31155), (51, 31068),

Gene: MetalQZJ\_38 Start: 31490, Stop: 31218, Start Num: 28

Candidate Starts for MetalQZJ\_38:

(Start: 28 @31490 has 81 MA's), (33, 31448), (36, 31421), (38, 31376), (39, 31367), (43, 31328), (51, 31241),

Gene: Michley\_38 Start: 31162, Stop: 30890, Start Num: 27

Candidate Starts for Michley\_38:

(8, 31297), (Start: 13 @31264 has 5 MA's), (Start: 27 @31162 has 53 MA's), (33, 31120), (36, 31093), (38, 31048), (39, 31039), (43, 31000),

Gene: Mkhuseleli\_39 Start: 31361, Stop: 31089, Start Num: 27

Candidate Starts for Mkhuseleli\_39:

(8, 31496), (Start: 13 @31463 has 5 MA's), (Start: 27 @31361 has 53 MA's), (33, 31319), (36, 31292), (38, 31247), (39, 31238), (43, 31199), (51, 31112),

Gene: MrGordo\_38 Start: 31025, Stop: 30753, Start Num: 27

Candidate Starts for MrGordo\_38:

(Start: 27 @31025 has 53 MA's), (36, 30956), (38, 30911), (39, 30902), (43, 30863),

Gene: Mryolo\_36 Start: 31035, Stop: 30763, Start Num: 28

Candidate Starts for Mryolo\_36:

(Start: 28 @31035 has 81 MA's), (33, 30993), (36, 30966), (38, 30921), (39, 30912), (43, 30873), (51, 30786),

Gene: NEHalo\_38 Start: 31254, Stop: 30982, Start Num: 27

Candidate Starts for NEHalo\_38:

(8, 31389), (Start: 13 @31356 has 5 MA's), (Start: 27 @31254 has 53 MA's), (33, 31212), (36, 31185), (38, 31140), (39, 31131), (43, 31092), (51, 31005),

Gene: Naira\_39 Start: 32939, Stop: 32667, Start Num: 28

Candidate Starts for Naira\_39:

(10, 33053), (14, 33032), (15, 33029), (17, 33017), (18, 33014), (Start: 28 @32939 has 81 MA's), (33, 32897), (36, 32870), (38, 32825), (39, 32816), (43, 32777), (51, 32690),

Gene: Nerujay\_39 Start: 31923, Stop: 31651, Start Num: 28

Candidate Starts for Nerujay\_39:

(25, 31959), (Start: 28 @31923 has 81 MA's), (33, 31881), (36, 31854), (38, 31809), (39, 31800), (43, 31761), (51, 31674),

Gene: Nhonho\_38 Start: 31661, Stop: 31389, Start Num: 28

Candidate Starts for Nhonho\_38:

(10, 31775), (15, 31751), (17, 31739), (18, 31736), (Start: 28 @31661 has 81 MA's), (33, 31619), (36, 31592), (38, 31547), (39, 31538), (43, 31499),

Gene: Niza\_41 Start: 32712, Stop: 32281, Start Num: 28

Candidate Starts for Niza\_41:

(8, 32859), (Start: 13 @32826 has 5 MA's), (Start: 28 @32712 has 81 MA's), (33, 32673), (36, 32646), (38, 32598), (46, 32505), (52, 32439), (53, 32430), (55, 32391), (56, 32385), (58, 32304),

Gene: Norz\_40 Start: 32172, Stop: 31900, Start Num: 27

Candidate Starts for Norz\_40:

(8, 32307), (Start: 13 @32274 has 5 MA's), (Start: 27 @32172 has 53 MA's), (33, 32130), (36, 32103), (38, 32058), (39, 32049), (43, 32010), (51, 31923),

Gene: Ohno789\_38 Start: 31317, Stop: 31045, Start Num: 28

Candidate Starts for Ohno789\_38:

(Start: 28 @31317 has 81 MA's), (33, 31275), (36, 31248), (38, 31203), (39, 31194), (43, 31155),

Gene: Oogway\_37 Start: 30855, Stop: 30583, Start Num: 27

Candidate Starts for Oogway\_37:

(8, 30990), (Start: 13 @30957 has 5 MA's), (Start: 27 @30855 has 53 MA's), (33, 30813), (36, 30786), (38, 30741), (39, 30732), (43, 30693),

Gene: PSullivan\_37 Start: 30492, Stop: 30220, Start Num: 28

Candidate Starts for PSullivan\_37:

(19, 30576), (Start: 28 @30492 has 81 MA's), (33, 30450), (36, 30423), (38, 30378), (39, 30369), (43, 30330), (51, 30243),

Gene: PacerPaul\_39 Start: 31313, Stop: 31041, Start Num: 28

Candidate Starts for PacerPaul\_39:

(10, 31427), (15, 31403), (17, 31391), (18, 31388), (Start: 28 @31313 has 81 MA's), (33, 31271), (36, 31244), (38, 31199), (39, 31190), (43, 31151), (51, 31064),

Gene: Papez\_40 Start: 33003, Stop: 32731, Start Num: 28

Candidate Starts for Papez\_40:

(10, 33117), (15, 33093), (17, 33081), (18, 33078), (Start: 28 @33003 has 81 MA's), (33, 32961), (36, 32934), (38, 32889), (39, 32880), (43, 32841),

Gene: Paphu\_37 Start: 31244, Stop: 30972, Start Num: 28

Candidate Starts for Paphu\_37:

(12, 31370), (Start: 28 @31244 has 81 MA's), (33, 31202), (36, 31175), (38, 31130), (39, 31121), (43, 31082),

Gene: Paraselene\_37 Start: 31722, Stop: 31354, Start Num: 27

Candidate Starts for Paraselene\_37:

(8, 31857), (Start: 13 @31824 has 5 MA's), (Start: 27 @31722 has 53 MA's), (33, 31677), (36, 31650), (42, 31542), (48, 31479), (49, 31470), (54, 31377),

Gene: Parliament\_37 Start: 31469, Stop: 31134, Start Num: 28

Candidate Starts for Parliament\_37:

(Start: 28 @31469 has 81 MA's), (33, 31427), (36, 31400), (38, 31352), (46, 31259), (47, 31247), (54, 31157),

Gene: PascalRango\_39 Start: 31395, Stop: 31084, Start Num: 27

Candidate Starts for PascalRango\_39:

(8, 31530), (Start: 13 @31497 has 5 MA's), (Start: 27 @31395 has 53 MA's), (33, 31353), (36, 31326), (42, 31272), (48, 31209), (49, 31200), (54, 31107),

Gene: PattyP\_40 Start: 31585, Stop: 31313, Start Num: 27

Candidate Starts for PattyP\_40:

(8, 31720), (Start: 13 @31687 has 5 MA's), (Start: 27 @31585 has 53 MA's), (36, 31516), (38, 31471), (39, 31462), (43, 31423), (51, 31336),

Gene: Pelly\_38 Start: 31718, Stop: 31284, Start Num: 28

Candidate Starts for Pelly\_38:

(Start: 28 @31718 has 81 MA's), (33, 31676), (36, 31649), (38, 31601), (46, 31508), (52, 31442), (53, 31433), (55, 31394), (56, 31388), (58, 31307),

Gene: Perseus\_40 Start: 32401, Stop: 32072, Start Num: 28

Candidate Starts for Perseus\_40:

(8, 32536), (Start: 13 @32503 has 5 MA's), (Start: 28 @32401 has 81 MA's), (33, 32362), (36, 32335), (38, 32287), (46, 32194),

Gene: Peterson\_42 Start: 33587, Stop: 33315, Start Num: 28

Candidate Starts for Peterson\_42:

(5, 33767), (10, 33701), (15, 33677), (17, 33665), (18, 33662), (Start: 28 @33587 has 81 MA's), (33, 33545), (36, 33518), (38, 33473), (39, 33464), (43, 33425),

Gene: PhrostyMug\_39 Start: 31697, Stop: 31371, Start Num: 28

Candidate Starts for PhrostyMug\_39:

(8, 31832), (Start: 13 @31799 has 5 MA's), (Start: 28 @31697 has 81 MA's), (33, 31655), (36, 31628), (38, 31580), (41, 31535), (46, 31487), (47, 31475), (54, 31385),

Gene: Pinto\_40 Start: 31529, Stop: 31257, Start Num: 27

Candidate Starts for Pinto\_40:

(8, 31664), (Start: 13 @31631 has 5 MA's), (Start: 27 @31529 has 53 MA's), (33, 31487), (36, 31460), (38, 31415), (39, 31406), (43, 31367), (51, 31280),

Gene: Pita2\_40 Start: 31989, Stop: 31717, Start Num: 28

Candidate Starts for Pita2\_40:

(19, 32073), (Start: 28 @31989 has 81 MA's), (33, 31947), (36, 31920), (38, 31875), (39, 31866), (43, 31827), (51, 31740),

Gene: ProMouse\_36 Start: 31549, Stop: 31166, Start Num: 27

Candidate Starts for ProMouse\_36:

(8, 31684), (Start: 13 @31651 has 5 MA's), (Start: 27 @31549 has 53 MA's), (33, 31507), (36, 31480), (42, 31354), (48, 31291), (49, 31282), (54, 31189),

Gene: QTRlifeCrisis\_39 Start: 32125, Stop: 31793, Start Num: 28

Candidate Starts for QTRlifeCrisis\_39:

(Start: 28 @32125 has 81 MA's), (33, 32083), (36, 32056), (38, 32008), (46, 31915), (54, 31816),

Gene: Rajelicia\_38 Start: 31483, Stop: 31211, Start Num: 27

Candidate Starts for Rajelicia\_38:

(8, 31618), (Start: 13 @31585 has 5 MA's), (Start: 27 @31483 has 53 MA's), (33, 31441), (36, 31414), (38, 31369), (39, 31360), (43, 31321),

Gene: Rhynn\_38 Start: 31498, Stop: 31226, Start Num: 27

Candidate Starts for Rhynn\_38:

(8, 31633), (Start: 13 @31600 has 5 MA's), (Start: 27 @31498 has 53 MA's), (33, 31456), (36, 31429), (38, 31384), (39, 31375), (43, 31336), (51, 31249),

Gene: RidgeCB\_38 Start: 31144, Stop: 30812, Start Num: 28

Candidate Starts for RidgeCB\_38:

(9, 31258), (Start: 13 @31234 has 5 MA's), (15, 31222), (Start: 28 @31144 has 81 MA's), (33, 31102), (36, 31075), (38, 31027), (46, 30934), (54, 30835),

Gene: Ringer\_39 Start: 31985, Stop: 31623, Start Num: 28

Candidate Starts for Ringer\_39:

(Start: 28 @31985 has 81 MA's), (33, 31943), (36, 31916), (48, 31748), (49, 31739), (54, 31646),



Gene: Rubeus\_38 Start: 29616, Stop: 29344, Start Num: 28

Candidate Starts for Rubeus\_38:

(Start: 28 @29616 has 81 MA's), (33, 29574), (36, 29547), (38, 29502), (39, 29493), (43, 29454), (51, 29367),

Gene: Rufus\_40 Start: 31854, Stop: 31582, Start Num: 27

Candidate Starts for Rufus\_40:

(8, 31989), (Start: 13 @31956 has 5 MA's), (Start: 27 @31854 has 53 MA's), (33, 31812), (36, 31785), (38, 31740), (39, 31731), (43, 31692), (51, 31605),

Gene: Ruotula\_38 Start: 32043, Stop: 31771, Start Num: 28

Candidate Starts for Ruotula\_38:

(25, 32079), (Start: 28 @32043 has 81 MA's), (33, 32001), (36, 31974), (38, 31929), (39, 31920), (43, 31881), (51, 31794),

Gene: STLscum\_39 Start: 32385, Stop: 31999, Start Num: 13

Candidate Starts for STLscum\_39:

(Start: 13 @32385 has 5 MA's), (19, 32352), (23, 32316), (26, 32307), (29, 32259), (33, 32229), (36, 32202), (38, 32157), (39, 32148), (43, 32109), (51, 32022),

Gene: Sagefire\_40 Start: 32355, Stop: 32020, Start Num: 28

Candidate Starts for Sagefire\_40:

(Start: 28 @32355 has 81 MA's), (33, 32313), (36, 32286), (38, 32238), (41, 32193), (46, 32145), (54, 32043),

Gene: Sandaddy\_38 Start: 31382, Stop: 31110, Start Num: 28

Candidate Starts for Sandaddy\_38:

(19, 31466), (Start: 28 @31382 has 81 MA's), (33, 31340), (36, 31313), (38, 31268), (39, 31259), (43, 31220), (51, 31133),

Gene: SarFire\_38 Start: 31557, Stop: 31285, Start Num: 27

Candidate Starts for SarFire\_38:

(Start: 27 @31557 has 53 MA's), (33, 31515), (36, 31488), (38, 31443), (39, 31434), (43, 31395), (51, 31308),

Gene: SkiPole\_41 Start: 31904, Stop: 31518, Start Num: 13

Candidate Starts for SkiPole\_41:

(Start: 13 @31904 has 5 MA's), (19, 31871), (23, 31835), (26, 31826), (29, 31778), (33, 31748), (36, 31721), (38, 31676), (39, 31667), (43, 31628), (51, 31541),

Gene: Slagathor\_39 Start: 31408, Stop: 31136, Start Num: 27

Candidate Starts for Slagathor\_39:

(8, 31543), (Start: 13 @31510 has 5 MA's), (Start: 27 @31408 has 53 MA's), (33, 31366), (36, 31339), (38, 31294), (39, 31285), (43, 31246),

Gene: Smairt\_39 Start: 31500, Stop: 31228, Start Num: 28

Candidate Starts for Smairt\_39:

(10, 31614), (15, 31590), (17, 31578), (18, 31575), (Start: 28 @31500 has 81 MA's), (33, 31458), (36, 31431), (38, 31386), (39, 31377), (43, 31338), (51, 31251),

Gene: Smeagol\_40 Start: 32730, Stop: 32458, Start Num: 27

Candidate Starts for Smeagol\_40:

(8, 32865), (Start: 13 @32832 has 5 MA's), (Start: 27 @32730 has 53 MA's), (33, 32688), (36, 32661), (38, 32616), (39, 32607), (43, 32568), (51, 32481),

Gene: Snazzy\_37 Start: 31284, Stop: 31012, Start Num: 27

Candidate Starts for Snazzy\_37:

(8, 31419), (Start: 13 @31386 has 5 MA's), (Start: 27 @31284 has 53 MA's), (33, 31242), (36, 31215), (38, 31170), (39, 31161), (43, 31122), (51, 31035),

Gene: Solon\_38 Start: 31615, Stop: 31343, Start Num: 28

Candidate Starts for Solon\_38:

(Start: 28 @31615 has 81 MA's), (33, 31573), (36, 31546), (38, 31501), (39, 31492), (43, 31453), (51, 31366),

Gene: Sorpresa\_38 Start: 31384, Stop: 31112, Start Num: 28

Candidate Starts for Sorpresa\_38:

(19, 31468), (Start: 28 @31384 has 81 MA's), (33, 31342), (36, 31315), (38, 31270), (39, 31261), (43, 31222), (51, 31135),

Gene: Squee\_39 Start: 32135, Stop: 31863, Start Num: 27

Candidate Starts for Squee\_39:

(8, 32270), (Start: 13 @32237 has 5 MA's), (Start: 27 @32135 has 53 MA's), (33, 32093), (36, 32066), (38, 32021), (39, 32012), (43, 31973), (51, 31886),

Gene: StewieG\_36 Start: 29129, Stop: 28797, Start Num: 28

Candidate Starts for StewieG\_36:

(22, 29165), (Start: 28 @29129 has 81 MA's), (33, 29087), (36, 29060), (38, 29012), (46, 28919),

Gene: StrongArm\_37 Start: 32396, Stop: 32124, Start Num: 28

Candidate Starts for StrongArm\_37:

(12, 32522), (Start: 28 @32396 has 81 MA's), (33, 32354), (36, 32327), (38, 32282), (39, 32273), (43, 32234),

Gene: Sumter\_37 Start: 31344, Stop: 31072, Start Num: 28

Candidate Starts for Sumter\_37:

(Start: 28 @31344 has 81 MA's), (33, 31302), (36, 31275), (38, 31230), (39, 31221), (43, 31182), (51, 31095),

Gene: Sunshine924\_40 Start: 31419, Stop: 31006, Start Num: 27

Candidate Starts for Sunshine924\_40:

(8, 31554), (Start: 13 @31521 has 5 MA's), (Start: 27 @31419 has 53 MA's), (34, 31329), (35, 31326), (42, 31194), (48, 31131), (49, 31122), (54, 31029),

Gene: Switzer\_39 Start: 31424, Stop: 31152, Start Num: 27

Candidate Starts for Switzer\_39:

(8, 31559), (Start: 13 @31526 has 5 MA's), (Start: 27 @31424 has 53 MA's), (33, 31382), (36, 31355), (38, 31310), (39, 31301), (43, 31262), (51, 31175),

Gene: Swole\_40 Start: 31396, Stop: 31124, Start Num: 27

Candidate Starts for Swole\_40:

(8, 31531), (Start: 13 @31498 has 5 MA's), (Start: 27 @31396 has 53 MA's), (33, 31354), (36, 31327), (38, 31282), (39, 31273), (43, 31234), (51, 31147),

Gene: Target\_40 Start: 30793, Stop: 30395, Start Num: 27

Candidate Starts for Target\_40:

(8, 30928), (Start: 13 @30895 has 5 MA's), (Start: 27 @30793 has 53 MA's), (30, 30742), (32, 30721), (48, 30520), (49, 30511),

Gene: Tasp14\_39 Start: 31559, Stop: 31287, Start Num: 28

Candidate Starts for Tasp14\_39:

(Start: 28 @31559 has 81 MA's), (33, 31517), (36, 31490), (38, 31445), (39, 31436), (43, 31397), (51, 31310),

Gene: Teodoridan\_36 Start: 30785, Stop: 30513, Start Num: 28

Candidate Starts for Teodoridan\_36:

(16, 30875), (Start: 28 @30785 has 81 MA's), (33, 30743), (36, 30716), (38, 30671), (39, 30662), (43, 30623), (51, 30536),

Gene: TheloniousMonk\_40 Start: 32966, Stop: 32694, Start Num: 27

Candidate Starts for TheloniousMonk\_40:

(8, 33101), (Start: 13 @33068 has 5 MA's), (Start: 27 @32966 has 53 MA's), (33, 32924), (36, 32897), (38, 32852), (39, 32843), (43, 32804),

Gene: Thor\_38 Start: 30915, Stop: 30643, Start Num: 27

Candidate Starts for Thor\_38:

(Start: 27 @30915 has 53 MA's), (33, 30873), (36, 30846), (38, 30801), (39, 30792), (43, 30753), (51, 30666),

Gene: Topgun\_37 Start: 30806, Stop: 30534, Start Num: 28

Candidate Starts for Topgun\_37:

(10, 30920), (15, 30896), (17, 30884), (18, 30881), (Start: 28 @30806 has 81 MA's), (33, 30764), (36, 30737), (38, 30692), (39, 30683), (43, 30644), (51, 30557),

Gene: Tote\_35 Start: 28663, Stop: 28391, Start Num: 27

Candidate Starts for Tote\_35:

(8, 28798), (Start: 13 @28765 has 5 MA's), (Start: 27 @28663 has 53 MA's), (33, 28621), (36, 28594), (38, 28549), (39, 28540), (43, 28501), (51, 28414),

Gene: Traft412\_40 Start: 32486, Stop: 32154, Start Num: 28

Candidate Starts for Traft412\_40:

(8, 32621), (Start: 13 @32588 has 5 MA's), (Start: 28 @32486 has 81 MA's), (33, 32444), (36, 32417), (38, 32369), (46, 32276),

Gene: Tripl3t\_39 Start: 32414, Stop: 32145, Start Num: 27

Candidate Starts for Tripl3t\_39:

(8, 32549), (Start: 13 @32516 has 5 MA's), (Start: 27 @32414 has 53 MA's), (33, 32369), (36, 32342), (38, 32297), (39, 32288), (43, 32249), (51, 32162),

Gene: Turj99\_37 Start: 31258, Stop: 30986, Start Num: 27

Candidate Starts for Turj99\_37:

(8, 31405), (Start: 13 @31372 has 5 MA's), (Start: 27 @31258 has 53 MA's), (33, 31216), (36, 31189), (38, 31144), (39, 31135), (43, 31096), (51, 31009),

Gene: Violet\_37 Start: 31832, Stop: 31560, Start Num: 27

Candidate Starts for Violet\_37:

(8, 31967), (Start: 13 @31934 has 5 MA's), (Start: 27 @31832 has 53 MA's), (33, 31790), (36, 31763), (38, 31718), (39, 31709), (43, 31670), (51, 31583),

Gene: Wheeler\_39 Start: 31744, Stop: 31472, Start Num: 28

Candidate Starts for Wheeler\_39:

(5, 31924), (10, 31858), (15, 31834), (17, 31822), (18, 31819), (Start: 28 @31744 has 81 MA's), (33, 31702), (36, 31675), (38, 31630), (39, 31621), (43, 31582), (51, 31495),

Gene: Wilkins\_37 Start: 30739, Stop: 30467, Start Num: 28

Candidate Starts for Wilkins\_37:

(10, 30853), (15, 30829), (17, 30817), (18, 30814), (Start: 28 @30739 has 81 MA's), (33, 30697), (36, 30670), (38, 30625), (39, 30616), (43, 30577), (51, 30490),

Gene: Zeeculate\_38 Start: 32108, Stop: 31794, Start Num: 27

Candidate Starts for Zeeculate\_38:

(Start: 13 @32210 has 5 MA's), (Start: 27 @32108 has 53 MA's), (33, 32063), (36, 32036), (42, 31982), (48, 31919), (49, 31910), (54, 31817),

Gene: Zeuska\_39 Start: 32058, Stop: 31723, Start Num: 28

Candidate Starts for Zeuska\_39:

(Start: 28 @32058 has 81 MA's), (33, 32013), (36, 31986), (38, 31938), (46, 31845),