



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 224330 Report

This analysis was run 03/28/25 on database version 593.

Pham number 224330 has 168 members, 19 are drafts.

Phages represented in each track:

- Track 1 : Tote\_63, Zephyr\_68, DrFeelGood\_65, Ohno789\_68, Rohr\_68, JuliaChild\_68, Chanagan\_60, Burton\_68, Arcanine\_69, Arlo\_65, Fenn\_73, Rufus\_69, Ichabod\_71, Gwendoluna\_71, PSullivan\_65, BPBiabs31\_70, Swole\_68, Killigrew\_65, Museum\_69, Petp2012\_70, Dynamix\_68, Sibs6\_69, Pelly\_69, Kanely\_68, Slagathor\_69, Blue\_67, NEHalo\_64, Rajelicia\_67, Ashballer\_70, Anglerfish\_67, Ringer\_70, Marcell\_63, StrongArm\_65, HermioneGrange\_69, SpikeBT\_65, PinkPlastic\_66, Pita2\_68, Turj99\_65, Bethlehem\_68, Moose\_68, Bexan\_64, QTRlifeCrisis\_68, TwoPeat\_68, Mryolo\_65, BigMau\_69, MaryBeth\_64, Bob3\_68, Euphoria\_66, BluSpix\_65, Jerm2\_68, TheloniousMonk\_71, Sorpresa\_65, Homines\_58, Briton15\_71, Pippin\_66, MetalQZJ\_63, Naira\_72, Corvo\_67, DreamCatcher\_69, Forsytheast\_68, Ruotula\_73, Ciao\_64, BaconJack\_72, SwissCheese\_70, PascalRango\_64, Magnito\_68, Raid\_67, Seabiscuit\_68, IgnatiusPatJac\_67, McGuire\_67, Froghopper\_64, ConceptII\_71, Bruns\_69, Rubeus\_66, PattyP\_69, HanShotFirst\_68, Altman\_69, ProMouse\_68, Violet\_64, MPlant7149\_67
- Track 2 : Teodoridan\_66, Levia\_61, Ajay\_66, BarrowTuph\_67, PhineBark\_65
- Track 3 : Marco3\_72
- Track 4 : Buttons\_63, Licorice\_67, Bxb1\_60, Fajezeel\_67, Acme\_68, Nhonho\_66, Watermelon\_66, Barriga\_69, Greg\_67, Wheeler\_69
- Track 5 : DD5\_67, Pari\_71, Lockley\_66
- Track 6 : Gyzlar\_62
- Track 7 : Applejack\_67
- Track 8 : Sumter\_63
- Track 9 : Payneful\_64, Marchy\_60
- Track 10 : Iqorha\_62, Norz\_66, Inyanga\_62
- Track 11 : Hope4ever\_68, Hermia\_64
- Track 12 : BeesKnees\_69, U2\_63, GMonster\_63, Sandaddy\_64, Molly\_68
- Track 13 : JC27\_71, Atkinbua\_70, Marge\_63, Oogway\_65
- Track 14 : Topgun\_64, Wilkins\_65
- Track 15 : Magnar\_66, Thor\_66, SarFire\_66, Fushigi\_62
- Track 16 : Dexes\_67
- Track 17 : HarryOW\_64, Treddle\_67, GrecoEtereo\_66, Jorgensen\_72
- Track 18 : Phlippers\_62, Fascinus\_62, Bigfoot\_60, CactusRose\_68, Maroc7\_66
- Track 19 : Mkhuseli\_62
- Track 20 : Beatrix\_66
- Track 21 : LunarLander\_68
- Track 22 : JackSparrow\_70

- Track 23 : Monet\_69, Edtherson\_65
- Track 24 : Dreamboat\_69, PherrisBueller\_68, Jasper\_68
- Track 25 : LilBib\_66
- Track 26 : KyMonks1A\_71
- Track 27 : Kugel\_71
- Track 28 : RidgeCB\_67
- Track 29 : Solon\_65, Crispicous1\_64
- Track 30 : Lopton\_67
- Track 31 : Graduation\_72
- Track 32 : George\_69, Twigg\_71
- Track 33 : Milcery\_73
- Track 34 : Prinash11\_72
- Track 35 : Aikoy\_99, Leopard\_97, Onyinye\_98
- Track 36 : Omega\_67, LittleE\_64
- Track 37 : Klein\_66, Kalah2\_61, Wanda\_71
- Track 38 : Nekros\_63, Shaboozey\_58, KashFlow\_60, Hannaconda\_63
- Track 39 : Gonephishing\_65

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

The start number called the most often in the published annotations is 1, it was called in 140 of the 149 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Acme\_68, Ajay\_66, Altman\_69, Anglerfish\_67, Applejack\_67, Arcanine\_69, Arlo\_65, Ashballer\_70, Atkinbua\_70, BPBiebs31\_70, BaconJack\_72, Barriga\_69, BarrowTuph\_67, Beatrix\_66, Bethlehem\_68, Bexan\_64, BigMau\_69, Bigfoot\_60, BluSpix\_65, Blue\_67, Bob3\_68, Briton15\_71, Bruns\_69, Burton\_68, Buttons\_63, Bxb1\_60, CactusRose\_68, Chanagan\_60, Ciao\_64, Conceptll\_71, Corvo\_67, Crispicous1\_64, DD5\_67, Dexes\_67, DrFeelGood\_65, DreamCatcher\_69, Dreamboat\_69, Dynamix\_68, Edtherson\_65, Euphoria\_66, Fajezeel\_67, Fascinus\_62, Fenn\_73, Forsytheast\_68, Froghopper\_64, Fushigi\_62, George\_69, Gonephishing\_65, Graduation\_72, GrecoEtereo\_66, Greg\_67, Gwendoluna\_71, Gyzlar\_62, HanShotFirst\_68, Hannaconda\_63, HarryOW\_64, Hermia\_64, HermioneGrange\_69, Homines\_58, Hope4ever\_68, Ichabod\_71, IgnatiusPatJac\_67, Inyanga\_62, Iqorha\_62, JC27\_71, JackSparrow\_70, Jasper\_68, Jerm2\_68, Jorgensen\_72, JuliaChild\_68, Kalah2\_61, Kanely\_68, KashFlow\_60, Killigrew\_65, Klein\_66, Kugel\_71, KyMonks1A\_71, Levia\_61, Licorice\_67, LittleE\_64, Lockley\_66, MPlant7149\_67, Magnar\_66, Magnito\_68, Marcell\_63, Marchy\_60, Marco3\_72, Marge\_63, Maroc7\_66, MaryBeth\_64, McGuire\_67, MetalQZJ\_63, Milcery\_73, Mkhuseleli\_62, Monet\_69, Moose\_68, Mryolo\_65, Museum\_69, NEHalo\_64, Naira\_72, Nekros\_63, Nhonho\_66, Norz\_66, Ohno789\_68, Omega\_67, Oogway\_65, PSullivan\_65, Pari\_71, PascalRango\_64, PattyP\_69, Payneful\_64, Pelly\_69, Petp2012\_70, PherrisBueller\_68, PhineBark\_65, Phlippers\_62, PinkPlastic\_66, Pippin\_66, Pita2\_68, Prinash11\_72, ProMouse\_68, QTRlifeCrisis\_68, Raid\_67, Rajelicia\_67, RidgeCB\_67, Ringer\_70, Rohr\_68, Rubeus\_66, Rufus\_69, Ruotula\_73, SarFire\_66, Seabiscuit\_68, Shaboozey\_58, Sibs6\_69, Slagathor\_69, Solon\_65, Sorpresa\_65, SpikeBT\_65, StrongArm\_65, SwissCheese\_70, Swole\_68, Teodoridan\_66, TheloniousMonk\_71, Thor\_66, Topgun\_64, Tote\_63, Treddle\_67, Turj99\_65, Twigg\_71, TwoPeat\_68, Violet\_64, Wanda\_71, Watermelon\_66,

Wheeler\_69, Wilkins\_65, Zephyr\_68,

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

- BeesKnees\_69, GMonster\_63, Lopton\_67, LunarLander\_68, Molly\_68, Sandaddy\_64, Sumter\_63, U2\_63,

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

- Aikoy\_99, Leopard\_97, LilBib\_66, Onyinye\_98,

### Summary by start number:

Start 1:

- Found in 164 of 168 ( 97.6% ) of genes in pham
- Manual Annotations of this start: 140 of 149
- Called 95.1% of time when present
- Phage (with cluster) where this start called: Acme\_68 (A1), Ajay\_66 (A1), Altman\_69 (A1), Anglerfish\_67 (A1), Applejack\_67 (A1), Arcanine\_69 (A1), Arlo\_65 (A1), Ashballer\_70 (A1), Atkinbua\_70 (A1), BPBiebs31\_70 (A1), BaconJack\_72 (A1), Barriga\_69 (A1), BarrowTuph\_67 (A1), Beatrix\_66 (A1), Bethlehem\_68 (A1), Bexan\_64 (A1), BigMau\_69 (A1), Bigfoot\_60 (A1), BluSpix\_65 (A1), Blue\_67 (A1), Bob3\_68 (A1), Briton15\_71 (A1), Bruns\_69 (A1), Burton\_68 (A1), Buttons\_63 (A1), Bxb1\_60 (A1), CactusRose\_68 (A1), Chanagan\_60 (A1), Ciao\_64 (A1), Conceptll\_71 (A1), Corvo\_67 (A1), Crispicous1\_64 (A1), DD5\_67 (A1), Dexes\_67 (A1), DrFeelGood\_65 (A1), DreamCatcher\_69 (A1), Dreamboat\_69 (A1), Dynamix\_68 (A1), Edtherson\_65 (A1), Euphoria\_66 (A1), Fajezeel\_67 (A1), Fascinus\_62 (A1), Fenn\_73 (A1), Forsytheast\_68 (A1), Froghopper\_64 (A1), Fushigi\_62 (A1), George\_69 (A5), Gonephishing\_65 (J), Graduation\_72 (A1), GrecoEtereo\_66 (A1), Greg\_67 (A1), Gwendoluna\_71 (A1), Gyzlar\_62 (A1), HanShotFirst\_68 (A1), Hannaconda\_63 (J), HarryOW\_64 (A1), Hermia\_64 (A1), HermioneGrange\_69 (A1), Homines\_58 (A1), Hope4ever\_68 (A1), Ichabod\_71 (A1), IgnatiusPatJac\_67 (A1), Inyanga\_62 (A1), Iqorha\_62 (A1), JC27\_71 (A1), JackSparrow\_70 (A1), Jasper\_68 (A1), Jerm2\_68 (A1), Jorgensen\_72 (A1), JuliaChild\_68 (A1), Kalah2\_61 (J), Kanely\_68 (A1), KashFlow\_60 (J), Killigrew\_65 (A1), Klein\_66 (J), Kugel\_71 (A1), KyMonks1A\_71 (A1), Levia\_61 (A1), Licorice\_67 (A1), LittleE\_64 (J), Lockley\_66 (A1), MPlant7149\_67 (A1), Magnar\_66 (A1), Magnito\_68 (A1), Marcell\_63 (A1), Marchy\_60 (A1), Marco3\_72 (A1), Marge\_63 (A1), Maroc7\_66 (A1), MaryBeth\_64 (A1), McGuire\_67 (A1), MetalQZJ\_63 (A1), Milcery\_73 (A5), Mkhuseleli\_62 (A1), Monet\_69 (A1), Moose\_68 (A1), Mryolo\_65 (A1), Museum\_69 (A1), NEHalo\_64 (A1), Naira\_72 (A1), Nekros\_63 (J), Nhonho\_66 (A1), Norz\_66 (A1), Ohno789\_68 (A1), Omega\_67 (J), Oogway\_65 (A1), PSullivan\_65 (A1), Pari\_71 (A1), PascalRango\_64 (A1), PattyP\_69 (A1), Payneful\_64 (A1), Pelly\_69 (A1), Petp2012\_70 (A1), PherrisBueller\_68 (A1), PhineBark\_65 (A1), Phlippers\_62 (A1), PinkPlastic\_66 (A1), Pippin\_66 (A1), Pita2\_68 (A1), Prinashe11\_72 (A5), ProMouse\_68 (A1), QTRLifeCrisis\_68 (A1), Raid\_67 (A1), Rajelicia\_67 (A1), RidgeCB\_67 (A1), Ringer\_70 (A1), Rohr\_68 (A1), Rubeus\_66 (A1), Rufus\_69 (A1), Ruotula\_73 (A1), SarFire\_66 (A1), Seabiscuit\_68 (A1), Shaboozey\_58 (J), Sibs6\_69 (A1), Slagathor\_69 (A1), Solon\_65 (A1), Sorpresa\_65 (A1), SpikeBT\_65 (A1), StrongArm\_65 (A1), SwissCheese\_70 (A1), Swole\_68 (A1), Teodoridan\_66 (A1), TheloniousMonk\_71 (A1), Thor\_66 (A1), Topgun\_64 (A1), Tote\_63 (A1), Treddle\_67 (A1), Turj99\_65 (A1), Twigg\_71 (A5), TwoPeat\_68 (A1), Violet\_64 (A1), Wanda\_71 (J), Watermelon\_66 (A1), Wheeler\_69 (A1), Wilkins\_65 (A1), Zephyr\_68 (A1),

Start 2:

- Found in 108 of 168 ( 64.3% ) of genes in pham
- Manual Annotations of this start: 1 of 149
- Called 0.9% of time when present
- Phage (with cluster) where this start called: Lopton\_67 (A1),

Start 9:

- Found in 3 of 168 ( 1.8% ) of genes in pham
- Manual Annotations of this start: 3 of 149
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aikoy\_99 (AE), Leopard\_97 (AE), Onyinye\_98 (AE),

Start 10:

- Found in 105 of 168 ( 62.5% ) of genes in pham
- Manual Annotations of this start: 4 of 149
- Called 6.7% of time when present
- Phage (with cluster) where this start called: BeesKnees\_69 (A1), GMonster\_63 (A1), LunarLander\_68 (A1), Molly\_68 (A1), Sandaddy\_64 (A1), Sumter\_63 (A1), U2\_63 (A1),

Start 11:

- Found in 18 of 168 ( 10.7% ) of genes in pham
- Manual Annotations of this start: 1 of 149
- Called 5.6% of time when present
- Phage (with cluster) where this start called: LilBib\_66 (A1),

### **Summary by clusters:**

There are 4 clusters represented in this pham: A1, A5, J, AE,

Info for manual annotations of cluster A1:

- Start number 1 was manually annotated 131 times for cluster A1.
- Start number 2 was manually annotated 1 time for cluster A1.
- Start number 10 was manually annotated 4 times for cluster A1.
- Start number 11 was manually annotated 1 time for cluster A1.

Info for manual annotations of cluster A5:

- Start number 1 was manually annotated 2 times for cluster A5.

Info for manual annotations of cluster AE:

- Start number 9 was manually annotated 3 times for cluster AE.

Info for manual annotations of cluster J:

- Start number 1 was manually annotated 7 times for cluster J.

### **Gene Information:**

Gene: Acme\_68 Start: 43138, Stop: 42821, Start Num: 1

Candidate Starts for Acme\_68:

(Start: 1 @43138 has 140 MA's), (Start: 11 @43057 has 1 MA's), (13, 43048), (19, 42991), (31, 42877), (34, 42835),

Gene: Aikoy\_99 Start: 65509, Stop: 65763, Start Num: 9  
Candidate Starts for Aikoy\_99:  
(Start: 9 @65509 has 3 MA's), (12, 65530), (15, 65539), (27, 65662),

Gene: Ajay\_66 Start: 43019, Stop: 42711, Start Num: 1  
Candidate Starts for Ajay\_66:  
(Start: 1 @43019 has 140 MA's), (Start: 11 @42938 has 1 MA's), (13, 42929), (18, 42884), (30, 42770),  
(33, 42737), (34, 42725),

Gene: Altman\_69 Start: 43120, Stop: 42800, Start Num: 1  
Candidate Starts for Altman\_69:  
(Start: 1 @43120 has 140 MA's), (Start: 2 @43102 has 1 MA's), (Start: 10 @43045 has 4 MA's), (19,  
42970), (31, 42856), (34, 42814),

Gene: Anglerfish\_67 Start: 43292, Stop: 42972, Start Num: 1  
Candidate Starts for Anglerfish\_67:  
(Start: 1 @43292 has 140 MA's), (Start: 2 @43274 has 1 MA's), (Start: 10 @43217 has 4 MA's), (19,  
43142), (31, 43028), (34, 42986),

Gene: Applejack\_67 Start: 41690, Stop: 41370, Start Num: 1  
Candidate Starts for Applejack\_67:  
(Start: 1 @41690 has 140 MA's), (Start: 2 @41672 has 1 MA's), (Start: 10 @41615 has 4 MA's), (16,  
41588), (19, 41540), (31, 41426), (34, 41384),

Gene: Arcanine\_69 Start: 44016, Stop: 43696, Start Num: 1  
Candidate Starts for Arcanine\_69:  
(Start: 1 @44016 has 140 MA's), (Start: 2 @43998 has 1 MA's), (Start: 10 @43941 has 4 MA's), (19,  
43866), (31, 43752), (34, 43710),

Gene: Arlo\_65 Start: 42607, Stop: 42287, Start Num: 1  
Candidate Starts for Arlo\_65:  
(Start: 1 @42607 has 140 MA's), (Start: 2 @42589 has 1 MA's), (Start: 10 @42532 has 4 MA's), (19,  
42457), (31, 42343), (34, 42301),

Gene: Ashballer\_70 Start: 43766, Stop: 43446, Start Num: 1  
Candidate Starts for Ashballer\_70:  
(Start: 1 @43766 has 140 MA's), (Start: 2 @43748 has 1 MA's), (Start: 10 @43691 has 4 MA's), (19,  
43616), (31, 43502), (34, 43460),

Gene: Atkinbua\_70 Start: 42967, Stop: 42671, Start Num: 1  
Candidate Starts for Atkinbua\_70:  
(Start: 1 @42967 has 140 MA's), (Start: 2 @42949 has 1 MA's), (Start: 10 @42892 has 4 MA's), (19,  
42817), (26, 42778), (28, 42748), (34, 42685),

Gene: BPBiabs31\_70 Start: 43713, Stop: 43393, Start Num: 1  
Candidate Starts for BPBiabs31\_70:  
(Start: 1 @43713 has 140 MA's), (Start: 2 @43695 has 1 MA's), (Start: 10 @43638 has 4 MA's), (19,  
43563), (31, 43449), (34, 43407),

Gene: BaconJack\_72 Start: 45978, Stop: 45658, Start Num: 1  
Candidate Starts for BaconJack\_72:

(Start: 1 @45978 has 140 MA's), (Start: 2 @45960 has 1 MA's), (Start: 10 @45903 has 4 MA's), (19, 45828), (31, 45714), (34, 45672),

Gene: Barriga\_69 Start: 41766, Stop: 41449, Start Num: 1

Candidate Starts for Barriga\_69:

(Start: 1 @41766 has 140 MA's), (Start: 11 @41685 has 1 MA's), (13, 41676), (19, 41619), (31, 41505), (34, 41463),

Gene: BarrowTuph\_67 Start: 42789, Stop: 42481, Start Num: 1

Candidate Starts for BarrowTuph\_67:

(Start: 1 @42789 has 140 MA's), (Start: 11 @42708 has 1 MA's), (13, 42699), (18, 42654), (30, 42540), (33, 42507), (34, 42495),

Gene: Beatrix\_66 Start: 43832, Stop: 43533, Start Num: 1

Candidate Starts for Beatrix\_66:

(Start: 1 @43832 has 140 MA's), (Start: 2 @43814 has 1 MA's), (Start: 10 @43757 has 4 MA's), (19, 43682), (20, 43673), (26, 43640), (28, 43610), (34, 43547),

Gene: BeesKnees\_69 Start: 42245, Stop: 42000, Start Num: 10

Candidate Starts for BeesKnees\_69:

(Start: 1 @42320 has 140 MA's), (Start: 2 @42302 has 1 MA's), (Start: 10 @42245 has 4 MA's), (19, 42170), (31, 42056), (34, 42014),

Gene: Bethlehem\_68 Start: 44631, Stop: 44311, Start Num: 1

Candidate Starts for Bethlehem\_68:

(Start: 1 @44631 has 140 MA's), (Start: 2 @44613 has 1 MA's), (Start: 10 @44556 has 4 MA's), (19, 44481), (31, 44367), (34, 44325),

Gene: Bexan\_64 Start: 43632, Stop: 43312, Start Num: 1

Candidate Starts for Bexan\_64:

(Start: 1 @43632 has 140 MA's), (Start: 2 @43614 has 1 MA's), (Start: 10 @43557 has 4 MA's), (19, 43482), (31, 43368), (34, 43326),

Gene: BigMau\_69 Start: 43521, Stop: 43201, Start Num: 1

Candidate Starts for BigMau\_69:

(Start: 1 @43521 has 140 MA's), (Start: 2 @43503 has 1 MA's), (Start: 10 @43446 has 4 MA's), (19, 43371), (31, 43257), (34, 43215),

Gene: Bigfoot\_60 Start: 42143, Stop: 41832, Start Num: 1

Candidate Starts for Bigfoot\_60:

(Start: 1 @42143 has 140 MA's), (8, 42095), (19, 42002), (29, 41909), (31, 41888),

Gene: BluSpix\_65 Start: 38736, Stop: 38416, Start Num: 1

Candidate Starts for BluSpix\_65:

(Start: 1 @38736 has 140 MA's), (Start: 2 @38718 has 1 MA's), (Start: 10 @38661 has 4 MA's), (19, 38586), (31, 38472), (34, 38430),

Gene: Blue\_67 Start: 43852, Stop: 43532, Start Num: 1

Candidate Starts for Blue\_67:

(Start: 1 @43852 has 140 MA's), (Start: 2 @43834 has 1 MA's), (Start: 10 @43777 has 4 MA's), (19, 43702), (31, 43588), (34, 43546),

Gene: Bob3\_68 Start: 42791, Stop: 42471, Start Num: 1

Candidate Starts for Bob3\_68:

(Start: 1 @42791 has 140 MA's), (Start: 2 @42773 has 1 MA's), (Start: 10 @42716 has 4 MA's), (19, 42641), (31, 42527), (34, 42485),

Gene: Briton15\_71 Start: 44595, Stop: 44275, Start Num: 1

Candidate Starts for Briton15\_71:

(Start: 1 @44595 has 140 MA's), (Start: 2 @44577 has 1 MA's), (Start: 10 @44520 has 4 MA's), (19, 44445), (31, 44331), (34, 44289),

Gene: Bruns\_69 Start: 42732, Stop: 42412, Start Num: 1

Candidate Starts for Bruns\_69:

(Start: 1 @42732 has 140 MA's), (Start: 2 @42714 has 1 MA's), (Start: 10 @42657 has 4 MA's), (19, 42582), (31, 42468), (34, 42426),

Gene: Burton\_68 Start: 44554, Stop: 44234, Start Num: 1

Candidate Starts for Burton\_68:

(Start: 1 @44554 has 140 MA's), (Start: 2 @44536 has 1 MA's), (Start: 10 @44479 has 4 MA's), (19, 44404), (31, 44290), (34, 44248),

Gene: Buttons\_63 Start: 40268, Stop: 39951, Start Num: 1

Candidate Starts for Buttons\_63:

(Start: 1 @40268 has 140 MA's), (Start: 11 @40187 has 1 MA's), (13, 40178), (19, 40121), (31, 40007), (34, 39965),

Gene: Bxb1\_60 Start: 41381, Stop: 41064, Start Num: 1

Candidate Starts for Bxb1\_60:

(Start: 1 @41381 has 140 MA's), (Start: 11 @41300 has 1 MA's), (13, 41291), (19, 41234), (31, 41120), (34, 41078),

Gene: CactusRose\_68 Start: 43163, Stop: 42852, Start Num: 1

Candidate Starts for CactusRose\_68:

(Start: 1 @43163 has 140 MA's), (8, 43115), (19, 43022), (29, 42929), (31, 42908),

Gene: Chanagan\_60 Start: 40365, Stop: 40045, Start Num: 1

Candidate Starts for Chanagan\_60:

(Start: 1 @40365 has 140 MA's), (Start: 2 @40347 has 1 MA's), (Start: 10 @40290 has 4 MA's), (19, 40215), (31, 40101), (34, 40059),

Gene: Ciao\_64 Start: 41729, Stop: 41409, Start Num: 1

Candidate Starts for Ciao\_64:

(Start: 1 @41729 has 140 MA's), (Start: 2 @41711 has 1 MA's), (Start: 10 @41654 has 4 MA's), (19, 41579), (31, 41465), (34, 41423),

Gene: ConceptII\_71 Start: 44348, Stop: 44028, Start Num: 1

Candidate Starts for ConceptII\_71:

(Start: 1 @44348 has 140 MA's), (Start: 2 @44330 has 1 MA's), (Start: 10 @44273 has 4 MA's), (19, 44198), (31, 44084), (34, 44042),

Gene: Corvo\_67 Start: 43660, Stop: 43340, Start Num: 1

Candidate Starts for Corvo\_67:

(Start: 1 @43660 has 140 MA's), (Start: 2 @43642 has 1 MA's), (Start: 10 @43585 has 4 MA's), (19, 43510), (31, 43396), (34, 43354),



Gene: Crispicious1\_64 Start: 42074, Stop: 41751, Start Num: 1

Candidate Starts for Crispicious1\_64:

(Start: 1 @42074 has 140 MA's), (3, 42047), (7, 42023), (19, 41930), (29, 41837), (31, 41807), (34, 41765),

Gene: DD5\_67 Start: 43895, Stop: 43575, Start Num: 1

Candidate Starts for DD5\_67:

(Start: 1 @43895 has 140 MA's), (Start: 2 @43877 has 1 MA's), (19, 43745), (31, 43631), (34, 43589),

Gene: Dexes\_67 Start: 43607, Stop: 43296, Start Num: 1

Candidate Starts for Dexes\_67:

(Start: 1 @43607 has 140 MA's), (Start: 2 @43589 has 1 MA's), (Start: 10 @43532 has 4 MA's), (18, 43469), (30, 43355), (33, 43322), (34, 43310),

Gene: DrFeelGood\_65 Start: 42150, Stop: 41830, Start Num: 1

Candidate Starts for DrFeelGood\_65:

(Start: 1 @42150 has 140 MA's), (Start: 2 @42132 has 1 MA's), (Start: 10 @42075 has 4 MA's), (19, 42000), (31, 41886), (34, 41844),

Gene: DreamCatcher\_69 Start: 43300, Stop: 42980, Start Num: 1

Candidate Starts for DreamCatcher\_69:

(Start: 1 @43300 has 140 MA's), (Start: 2 @43282 has 1 MA's), (Start: 10 @43225 has 4 MA's), (19, 43150), (31, 43036), (34, 42994),

Gene: Dreamboat\_69 Start: 42390, Stop: 42070, Start Num: 1

Candidate Starts for Dreamboat\_69:

(Start: 1 @42390 has 140 MA's), (Start: 2 @42372 has 1 MA's), (Start: 10 @42315 has 4 MA's), (19, 42240), (31, 42126),

Gene: Dynamix\_68 Start: 42224, Stop: 41904, Start Num: 1

Candidate Starts for Dynamix\_68:

(Start: 1 @42224 has 140 MA's), (Start: 2 @42206 has 1 MA's), (Start: 10 @42149 has 4 MA's), (19, 42074), (31, 41960), (34, 41918),

Gene: Edtherson\_65 Start: 43180, Stop: 42890, Start Num: 1

Candidate Starts for Edtherson\_65:

(Start: 1 @43180 has 140 MA's), (6, 43132), (19, 43039), (26, 42997), (28, 42967), (34, 42904),

Gene: Euphoria\_66 Start: 42676, Stop: 42356, Start Num: 1

Candidate Starts for Euphoria\_66:

(Start: 1 @42676 has 140 MA's), (Start: 2 @42658 has 1 MA's), (Start: 10 @42601 has 4 MA's), (19, 42526), (31, 42412), (34, 42370),

Gene: Fajezeel\_67 Start: 42428, Stop: 42111, Start Num: 1

Candidate Starts for Fajezeel\_67:

(Start: 1 @42428 has 140 MA's), (Start: 11 @42347 has 1 MA's), (13, 42338), (19, 42281), (31, 42167), (34, 42125),

Gene: Fascinus\_62 Start: 42657, Stop: 42346, Start Num: 1

Candidate Starts for Fascinus\_62:

(Start: 1 @42657 has 140 MA's), (8, 42609), (19, 42516), (29, 42423), (31, 42402),

Gene: Fenn\_73 Start: 45085, Stop: 44747, Start Num: 1

Candidate Starts for Fenn\_73:

(Start: 1 @45085 has 140 MA's), (Start: 2 @45067 has 1 MA's), (Start: 10 @45010 has 4 MA's), (19, 44935), (31, 44821), (34, 44761),

Gene: Forsytheast\_68 Start: 42729, Stop: 42409, Start Num: 1

Candidate Starts for Forsytheast\_68:

(Start: 1 @42729 has 140 MA's), (Start: 2 @42711 has 1 MA's), (Start: 10 @42654 has 4 MA's), (19, 42579), (31, 42465), (34, 42423),

Gene: Froghopper\_64 Start: 41788, Stop: 41468, Start Num: 1

Candidate Starts for Froghopper\_64:

(Start: 1 @41788 has 140 MA's), (Start: 2 @41770 has 1 MA's), (Start: 10 @41713 has 4 MA's), (19, 41638), (31, 41524), (34, 41482),

Gene: Fushigi\_62 Start: 40721, Stop: 40431, Start Num: 1

Candidate Starts for Fushigi\_62:

(Start: 1 @40721 has 140 MA's), (3, 40694), (6, 40670), (14, 40631), (26, 40538), (34, 40445),

Gene: GMonster\_63 Start: 42496, Stop: 42251, Start Num: 10

Candidate Starts for GMonster\_63:

(Start: 1 @42571 has 140 MA's), (Start: 2 @42553 has 1 MA's), (Start: 10 @42496 has 4 MA's), (19, 42421), (31, 42307), (34, 42265),

Gene: George\_69 Start: 45062, Stop: 44739, Start Num: 1

Candidate Starts for George\_69:

(Start: 1 @45062 has 140 MA's), (3, 45035), (7, 45011), (14, 44972), (19, 44918), (29, 44825), (31, 44795), (34, 44753),

Gene: Gonephishing\_65 Start: 45747, Stop: 45454, Start Num: 1

Candidate Starts for Gonephishing\_65:

(Start: 1 @45747 has 140 MA's), (3, 45720), (6, 45696), (19, 45603), (26, 45561), (28, 45531),

Gene: Graduation\_72 Start: 44468, Stop: 44178, Start Num: 1

Candidate Starts for Graduation\_72:

(Start: 1 @44468 has 140 MA's), (6, 44420), (19, 44327), (22, 44309), (26, 44285), (28, 44255), (34, 44192),

Gene: GrecoEtereo\_66 Start: 41999, Stop: 41685, Start Num: 1

Candidate Starts for GrecoEtereo\_66:

(Start: 1 @41999 has 140 MA's), (3, 41972), (7, 41948), (14, 41909), (19, 41855), (31, 41741), (34, 41699),

Gene: Greg\_67 Start: 42428, Stop: 42111, Start Num: 1

Candidate Starts for Greg\_67:

(Start: 1 @42428 has 140 MA's), (Start: 11 @42347 has 1 MA's), (13, 42338), (19, 42281), (31, 42167), (34, 42125),

Gene: Gwendoluna\_71 Start: 44946, Stop: 44626, Start Num: 1

Candidate Starts for Gwendoluna\_71:

(Start: 1 @44946 has 140 MA's), (Start: 2 @44928 has 1 MA's), (Start: 10 @44871 has 4 MA's), (19, 44796), (31, 44682), (34, 44640),

Gene: Gyzlar\_62 Start: 40674, Stop: 40381, Start Num: 1

Candidate Starts for Gyzlar\_62:

(Start: 1 @40674 has 140 MA's), (6, 40623), (14, 40584), (19, 40530), (26, 40488), (28, 40458), (34, 40395),

Gene: HanShotFirst\_68 Start: 44544, Stop: 44224, Start Num: 1

Candidate Starts for HanShotFirst\_68:

(Start: 1 @44544 has 140 MA's), (Start: 2 @44526 has 1 MA's), (Start: 10 @44469 has 4 MA's), (19, 44394), (31, 44280), (34, 44238),

Gene: Hannaconda\_63 Start: 43994, Stop: 43701, Start Num: 1

Candidate Starts for Hannaconda\_63:

(Start: 1 @43994 has 140 MA's), (3, 43967), (6, 43943), (19, 43850), (26, 43808), (28, 43778), (34, 43715),

Gene: HarryOW\_64 Start: 42506, Stop: 42192, Start Num: 1

Candidate Starts for HarryOW\_64:

(Start: 1 @42506 has 140 MA's), (3, 42479), (7, 42455), (14, 42416), (19, 42362), (31, 42248), (34, 42206),

Gene: Hermia\_64 Start: 42510, Stop: 42190, Start Num: 1

Candidate Starts for Hermia\_64:

(Start: 1 @42510 has 140 MA's), (Start: 2 @42492 has 1 MA's), (Start: 10 @42435 has 4 MA's), (17, 42375), (19, 42360), (31, 42246), (34, 42204),

Gene: HermioneGrange\_69 Start: 44015, Stop: 43695, Start Num: 1

Candidate Starts for HermioneGrange\_69:

(Start: 1 @44015 has 140 MA's), (Start: 2 @43997 has 1 MA's), (Start: 10 @43940 has 4 MA's), (19, 43865), (31, 43751), (34, 43709),

Gene: Homines\_58 Start: 38840, Stop: 38520, Start Num: 1

Candidate Starts for Homines\_58:

(Start: 1 @38840 has 140 MA's), (Start: 2 @38822 has 1 MA's), (Start: 10 @38765 has 4 MA's), (19, 38690), (31, 38576), (34, 38534),

Gene: Hope4ever\_68 Start: 42999, Stop: 42679, Start Num: 1

Candidate Starts for Hope4ever\_68:

(Start: 1 @42999 has 140 MA's), (Start: 2 @42981 has 1 MA's), (Start: 10 @42924 has 4 MA's), (17, 42864), (19, 42849), (31, 42735), (34, 42693),

Gene: Ichabod\_71 Start: 44109, Stop: 43789, Start Num: 1

Candidate Starts for Ichabod\_71:

(Start: 1 @44109 has 140 MA's), (Start: 2 @44091 has 1 MA's), (Start: 10 @44034 has 4 MA's), (19, 43959), (31, 43845), (34, 43803),

Gene: IgnatiusPatJac\_67 Start: 42681, Stop: 42361, Start Num: 1

Candidate Starts for IgnatiusPatJac\_67:

(Start: 1 @42681 has 140 MA's), (Start: 2 @42663 has 1 MA's), (Start: 10 @42606 has 4 MA's), (19, 42531), (31, 42417), (34, 42375),

Gene: Inyanga\_62 Start: 42774, Stop: 42484, Start Num: 1

Candidate Starts for Inyanga\_62:

(Start: 1 @42774 has 140 MA's), (3, 42747), (6, 42723), (14, 42684), (21, 42615), (26, 42591), (34, 42498),

Gene: Iqorha\_62 Start: 42773, Stop: 42483, Start Num: 1

Candidate Starts for Iqorha\_62:

(Start: 1 @42773 has 140 MA's), (3, 42746), (6, 42722), (14, 42683), (21, 42614), (26, 42590), (34, 42497),

Gene: JC27\_71 Start: 43722, Stop: 43423, Start Num: 1

Candidate Starts for JC27\_71:

(Start: 1 @43722 has 140 MA's), (Start: 2 @43704 has 1 MA's), (Start: 10 @43647 has 4 MA's), (19, 43572), (26, 43530), (28, 43500), (34, 43437),

Gene: JackSparrow\_70 Start: 43226, Stop: 42906, Start Num: 1

Candidate Starts for JackSparrow\_70:

(Start: 1 @43226 has 140 MA's), (8, 43178), (19, 43085), (29, 42992), (31, 42962), (34, 42920),

Gene: Jasper\_68 Start: 42276, Stop: 41956, Start Num: 1

Candidate Starts for Jasper\_68:

(Start: 1 @42276 has 140 MA's), (Start: 2 @42258 has 1 MA's), (Start: 10 @42201 has 4 MA's), (19, 42126), (31, 42012),

Gene: Jerm2\_68 Start: 44085, Stop: 43765, Start Num: 1

Candidate Starts for Jerm2\_68:

(Start: 1 @44085 has 140 MA's), (Start: 2 @44067 has 1 MA's), (Start: 10 @44010 has 4 MA's), (19, 43935), (31, 43821), (34, 43779),

Gene: Jorgensen\_72 Start: 43648, Stop: 43334, Start Num: 1

Candidate Starts for Jorgensen\_72:

(Start: 1 @43648 has 140 MA's), (3, 43621), (7, 43597), (14, 43558), (19, 43504), (31, 43390), (34, 43348),

Gene: JuliaChild\_68 Start: 43330, Stop: 43010, Start Num: 1

Candidate Starts for JuliaChild\_68:

(Start: 1 @43330 has 140 MA's), (Start: 2 @43312 has 1 MA's), (Start: 10 @43255 has 4 MA's), (19, 43180), (31, 43066), (34, 43024),

Gene: Kalah2\_61 Start: 48360, Stop: 48052, Start Num: 1

Candidate Starts for Kalah2\_61:

(Start: 1 @48360 has 140 MA's), (3, 48333), (5, 48309), (18, 48225), (30, 48111), (33, 48078), (34, 48066),

Gene: Kanely\_68 Start: 42897, Stop: 42577, Start Num: 1

Candidate Starts for Kanely\_68:

(Start: 1 @42897 has 140 MA's), (Start: 2 @42879 has 1 MA's), (Start: 10 @42822 has 4 MA's), (19, 42747), (31, 42633), (34, 42591),

Gene: KashFlow\_60 Start: 43615, Stop: 43322, Start Num: 1

Candidate Starts for KashFlow\_60:

(Start: 1 @43615 has 140 MA's), (3, 43588), (6, 43564), (19, 43471), (26, 43429), (28, 43399), (34, 43336),

Gene: Killigrew\_65 Start: 42942, Stop: 42622, Start Num: 1

Candidate Starts for Killigrew\_65:

(Start: 1 @42942 has 140 MA's), (Start: 2 @42924 has 1 MA's), (Start: 10 @42867 has 4 MA's), (19, 42792), (31, 42678), (34, 42636),

Gene: Klein\_66 Start: 48383, Stop: 48075, Start Num: 1

Candidate Starts for Klein\_66:

(Start: 1 @48383 has 140 MA's), (3, 48356), (5, 48332), (18, 48248), (30, 48134), (33, 48101), (34, 48089),

Gene: Kugel\_71 Start: 44755, Stop: 44435, Start Num: 1

Candidate Starts for Kugel\_71:

(Start: 1 @44755 has 140 MA's), (Start: 2 @44737 has 1 MA's), (4, 44725), (Start: 10 @44680 has 4 MA's), (19, 44605), (31, 44491), (34, 44449),

Gene: KyMonks1A\_71 Start: 43076, Stop: 42783, Start Num: 1

Candidate Starts for KyMonks1A\_71:

(Start: 1 @43076 has 140 MA's), (3, 43049), (6, 43025), (14, 42986), (19, 42932), (26, 42890), (28, 42860), (34, 42797),

Gene: Leopard\_97 Start: 65441, Stop: 65695, Start Num: 9

Candidate Starts for Leopard\_97:

(Start: 9 @65441 has 3 MA's), (12, 65462), (15, 65471), (27, 65594),

Gene: Levia\_61 Start: 42075, Stop: 41767, Start Num: 1

Candidate Starts for Levia\_61:

(Start: 1 @42075 has 140 MA's), (Start: 11 @41994 has 1 MA's), (13, 41985), (18, 41940), (30, 41826), (33, 41793), (34, 41781),

Gene: Licorice\_67 Start: 44201, Stop: 43884, Start Num: 1

Candidate Starts for Licorice\_67:

(Start: 1 @44201 has 140 MA's), (Start: 11 @44120 has 1 MA's), (13, 44111), (19, 44054), (31, 43940), (34, 43898),

Gene: LilBib\_66 Start: 44086, Stop: 43868, Start Num: 11

Candidate Starts for LilBib\_66:

(Start: 11 @44086 has 1 MA's), (13, 44077), (17, 44044), (23, 43999), (24, 43996), (25, 43993), (28, 43957),

Gene: LittleE\_64 Start: 47017, Stop: 46724, Start Num: 1

Candidate Starts for LittleE\_64:

(Start: 1 @47017 has 140 MA's), (3, 46990), (6, 46966), (19, 46873), (26, 46831), (28, 46801), (34, 46738),

Gene: Lockley\_66 Start: 43057, Stop: 42737, Start Num: 1

Candidate Starts for Lockley\_66:

(Start: 1 @43057 has 140 MA's), (Start: 2 @43039 has 1 MA's), (19, 42907), (31, 42793), (34, 42751),

Gene: Lopton\_67 Start: 44739, Stop: 44437, Start Num: 2

Candidate Starts for Lopton\_67:

(Start: 1 @44757 has 140 MA's), (Start: 2 @44739 has 1 MA's), (Start: 10 @44682 has 4 MA's), (19, 44607), (31, 44493), (34, 44451),

Gene: LunarLander\_68 Start: 43287, Stop: 43063, Start Num: 10

Candidate Starts for LunarLander\_68:

(Start: 1 @43362 has 140 MA's), (Start: 2 @43344 has 1 MA's), (Start: 10 @43287 has 4 MA's), (19, 43212), (22, 43194), (26, 43170), (28, 43140), (34, 43077),

Gene: MPlant7149\_67 Start: 41903, Stop: 41583, Start Num: 1

Candidate Starts for MPlant7149\_67:

(Start: 1 @41903 has 140 MA's), (Start: 2 @41885 has 1 MA's), (Start: 10 @41828 has 4 MA's), (19, 41753), (31, 41639), (34, 41597),

Gene: Magnar\_66 Start: 42946, Stop: 42656, Start Num: 1

Candidate Starts for Magnar\_66:

(Start: 1 @42946 has 140 MA's), (3, 42919), (6, 42895), (14, 42856), (26, 42763), (34, 42670),

Gene: Magnito\_68 Start: 43172, Stop: 42852, Start Num: 1

Candidate Starts for Magnito\_68:

(Start: 1 @43172 has 140 MA's), (Start: 2 @43154 has 1 MA's), (Start: 10 @43097 has 4 MA's), (19, 43022), (31, 42908), (34, 42866),

Gene: Marcell\_63 Start: 41686, Stop: 41363, Start Num: 1

Candidate Starts for Marcell\_63:

(Start: 1 @41686 has 140 MA's), (Start: 2 @41668 has 1 MA's), (Start: 10 @41608 has 4 MA's), (19, 41533), (31, 41419), (34, 41377),

Gene: Marchy\_60 Start: 39409, Stop: 39101, Start Num: 1

Candidate Starts for Marchy\_60:

(Start: 1 @39409 has 140 MA's), (Start: 11 @39328 has 1 MA's), (13, 39319), (18, 39274), (30, 39160), (33, 39127), (34, 39115),

Gene: Marco3\_72 Start: 45481, Stop: 45161, Start Num: 1

Candidate Starts for Marco3\_72:

(Start: 1 @45481 has 140 MA's), (Start: 2 @45463 has 1 MA's), (Start: 10 @45406 has 4 MA's), (19, 45331), (31, 45217), (32, 45190), (34, 45175),

Gene: Marge\_63 Start: 42192, Stop: 41893, Start Num: 1

Candidate Starts for Marge\_63:

(Start: 1 @42192 has 140 MA's), (Start: 2 @42174 has 1 MA's), (Start: 10 @42117 has 4 MA's), (19, 42042), (26, 42000), (28, 41970), (34, 41907),

Gene: Maroc7\_66 Start: 43647, Stop: 43336, Start Num: 1

Candidate Starts for Maroc7\_66:

(Start: 1 @43647 has 140 MA's), (8, 43599), (19, 43506), (29, 43413), (31, 43392),

Gene: MaryBeth\_64 Start: 43037, Stop: 42717, Start Num: 1

Candidate Starts for MaryBeth\_64:

(Start: 1 @43037 has 140 MA's), (Start: 2 @43019 has 1 MA's), (Start: 10 @42962 has 4 MA's), (19, 42887), (31, 42773), (34, 42731),

Gene: McGuire\_67 Start: 42007, Stop: 41687, Start Num: 1

Candidate Starts for McGuire\_67:

(Start: 1 @42007 has 140 MA's), (Start: 2 @41989 has 1 MA's), (Start: 10 @41932 has 4 MA's), (19, 41857), (31, 41743), (34, 41701),

Gene: MetalQZJ\_63 Start: 43037, Stop: 42717, Start Num: 1

Candidate Starts for MetalQZJ\_63:

(Start: 1 @43037 has 140 MA's), (Start: 2 @43019 has 1 MA's), (Start: 10 @42962 has 4 MA's), (19, 42887), (31, 42773), (34, 42731),

Gene: Milcery\_73 Start: 44855, Stop: 44550, Start Num: 1

Candidate Starts for Milcery\_73:

(Start: 1 @44855 has 140 MA's), (3, 44828), (5, 44804), (14, 44765), (18, 44723), (24, 44684), (30, 44609), (33, 44576), (34, 44564),

Gene: Mkhuseli\_62 Start: 41045, Stop: 40755, Start Num: 1

Candidate Starts for Mkhuseli\_62:

(Start: 1 @41045 has 140 MA's), (3, 41018), (6, 40994), (14, 40955), (21, 40886), (26, 40862), (34, 40769),

Gene: Molly\_68 Start: 43205, Stop: 42960, Start Num: 10

Candidate Starts for Molly\_68:

(Start: 1 @43280 has 140 MA's), (Start: 2 @43262 has 1 MA's), (Start: 10 @43205 has 4 MA's), (19, 43130), (31, 43016), (34, 42974),

Gene: Monet\_69 Start: 44571, Stop: 44281, Start Num: 1

Candidate Starts for Monet\_69:

(Start: 1 @44571 has 140 MA's), (6, 44523), (19, 44430), (26, 44388), (28, 44358), (34, 44295),

Gene: Moose\_68 Start: 42729, Stop: 42409, Start Num: 1

Candidate Starts for Moose\_68:

(Start: 1 @42729 has 140 MA's), (Start: 2 @42711 has 1 MA's), (Start: 10 @42654 has 4 MA's), (19, 42579), (31, 42465), (34, 42423),

Gene: Mryolo\_65 Start: 42553, Stop: 42233, Start Num: 1

Candidate Starts for Mryolo\_65:

(Start: 1 @42553 has 140 MA's), (Start: 2 @42535 has 1 MA's), (Start: 10 @42478 has 4 MA's), (19, 42403), (31, 42289), (34, 42247),

Gene: Museum\_69 Start: 44499, Stop: 44179, Start Num: 1

Candidate Starts for Museum\_69:

(Start: 1 @44499 has 140 MA's), (Start: 2 @44481 has 1 MA's), (Start: 10 @44424 has 4 MA's), (19, 44349), (31, 44235), (34, 44193),

Gene: NEHalo\_64 Start: 43153, Stop: 42833, Start Num: 1

Candidate Starts for NEHalo\_64:

(Start: 1 @43153 has 140 MA's), (Start: 2 @43135 has 1 MA's), (Start: 10 @43078 has 4 MA's), (19, 43003), (31, 42889), (34, 42847),

Gene: Naira\_72 Start: 45141, Stop: 44803, Start Num: 1

Candidate Starts for Naira\_72:

(Start: 1 @45141 has 140 MA's), (Start: 2 @45123 has 1 MA's), (Start: 10 @45066 has 4 MA's), (19, 44991), (31, 44877), (34, 44817),

Gene: Nekros\_63 Start: 47042, Stop: 46749, Start Num: 1

Candidate Starts for Nekros\_63:

(Start: 1 @47042 has 140 MA's), (3, 47015), (6, 46991), (19, 46898), (26, 46856), (28, 46826), (34, 46763),

Gene: Nhonho\_66 Start: 43641, Stop: 43324, Start Num: 1

Candidate Starts for Nhonho\_66:

(Start: 1 @43641 has 140 MA's), (Start: 11 @43560 has 1 MA's), (13, 43551), (19, 43494), (31, 43380), (34, 43338),

Gene: Norz\_66 Start: 44999, Stop: 44709, Start Num: 1

Candidate Starts for Norz\_66:

(Start: 1 @44999 has 140 MA's), (3, 44972), (6, 44948), (14, 44909), (21, 44840), (26, 44816), (34, 44723),

Gene: Ohno789\_68 Start: 43617, Stop: 43297, Start Num: 1

Candidate Starts for Ohno789\_68:

(Start: 1 @43617 has 140 MA's), (Start: 2 @43599 has 1 MA's), (Start: 10 @43542 has 4 MA's), (19, 43467), (31, 43353), (34, 43311),

Gene: Omega\_67 Start: 48752, Stop: 48459, Start Num: 1

Candidate Starts for Omega\_67:

(Start: 1 @48752 has 140 MA's), (3, 48725), (6, 48701), (19, 48608), (26, 48566), (28, 48536), (34, 48473),

Gene: Onyinye\_98 Start: 65302, Stop: 65556, Start Num: 9

Candidate Starts for Onyinye\_98:

(Start: 9 @65302 has 3 MA's), (12, 65323), (15, 65332), (27, 65455),

Gene: Oogway\_65 Start: 43651, Stop: 43352, Start Num: 1

Candidate Starts for Oogway\_65:

(Start: 1 @43651 has 140 MA's), (Start: 2 @43633 has 1 MA's), (Start: 10 @43576 has 4 MA's), (19, 43501), (26, 43459), (28, 43429), (34, 43366),

Gene: PSullivan\_65 Start: 41397, Stop: 41077, Start Num: 1

Candidate Starts for PSullivan\_65:

(Start: 1 @41397 has 140 MA's), (Start: 2 @41379 has 1 MA's), (Start: 10 @41322 has 4 MA's), (19, 41247), (31, 41133), (34, 41091),

Gene: Pari\_71 Start: 42684, Stop: 42373, Start Num: 1

Candidate Starts for Pari\_71:

(Start: 1 @42684 has 140 MA's), (Start: 2 @42666 has 1 MA's), (19, 42543), (31, 42429), (34, 42387),

Gene: PascalRango\_64 Start: 42470, Stop: 42150, Start Num: 1

Candidate Starts for PascalRango\_64:

(Start: 1 @42470 has 140 MA's), (Start: 2 @42452 has 1 MA's), (Start: 10 @42395 has 4 MA's), (19, 42320), (31, 42206), (34, 42164),

Gene: PattyP\_69 Start: 44205, Stop: 43885, Start Num: 1

Candidate Starts for PattyP\_69:

(Start: 1 @44205 has 140 MA's), (Start: 2 @44187 has 1 MA's), (Start: 10 @44130 has 4 MA's), (19, 44055), (31, 43941), (34, 43899),

Gene: Payneful\_64 Start: 42126, Stop: 41818, Start Num: 1

Candidate Starts for Payneful\_64:

(Start: 1 @42126 has 140 MA's), (Start: 11 @42045 has 1 MA's), (13, 42036), (18, 41991), (30, 41877), (33, 41844), (34, 41832),

Gene: Pelly\_69 Start: 45142, Stop: 44822, Start Num: 1



Candidate Starts for Pelly\_69:

(Start: 1 @45142 has 140 MA's), (Start: 2 @45124 has 1 MA's), (Start: 10 @45067 has 4 MA's), (19, 44992), (31, 44878), (34, 44836),

Gene: Petp2012\_70 Start: 44986, Stop: 44666, Start Num: 1

Candidate Starts for Petp2012\_70:

(Start: 1 @44986 has 140 MA's), (Start: 2 @44968 has 1 MA's), (Start: 10 @44911 has 4 MA's), (19, 44836), (31, 44722), (34, 44680),

Gene: PherrisBueller\_68 Start: 41927, Stop: 41607, Start Num: 1

Candidate Starts for PherrisBueller\_68:

(Start: 1 @41927 has 140 MA's), (Start: 2 @41909 has 1 MA's), (Start: 10 @41852 has 4 MA's), (19, 41777), (31, 41663),

Gene: PhineBark\_65 Start: 43093, Stop: 42785, Start Num: 1

Candidate Starts for PhineBark\_65:

(Start: 1 @43093 has 140 MA's), (Start: 11 @43012 has 1 MA's), (13, 43003), (18, 42958), (30, 42844), (33, 42811), (34, 42799),

Gene: Phlippers\_62 Start: 42940, Stop: 42629, Start Num: 1

Candidate Starts for Phlippers\_62:

(Start: 1 @42940 has 140 MA's), (8, 42892), (19, 42799), (29, 42706), (31, 42685),

Gene: PinkPlastic\_66 Start: 42743, Stop: 42423, Start Num: 1

Candidate Starts for PinkPlastic\_66:

(Start: 1 @42743 has 140 MA's), (Start: 2 @42725 has 1 MA's), (Start: 10 @42668 has 4 MA's), (19, 42593), (31, 42479), (34, 42437),

Gene: Pippin\_66 Start: 42122, Stop: 41802, Start Num: 1

Candidate Starts for Pippin\_66:

(Start: 1 @42122 has 140 MA's), (Start: 2 @42104 has 1 MA's), (Start: 10 @42047 has 4 MA's), (19, 41972), (31, 41858), (34, 41816),

Gene: Pita2\_68 Start: 42894, Stop: 42574, Start Num: 1

Candidate Starts for Pita2\_68:

(Start: 1 @42894 has 140 MA's), (Start: 2 @42876 has 1 MA's), (Start: 10 @42819 has 4 MA's), (19, 42744), (31, 42630), (34, 42588),

Gene: Prin Ashe11\_72 Start: 44787, Stop: 44482, Start Num: 1

Candidate Starts for Prin Ashe11\_72:

(Start: 1 @44787 has 140 MA's), (3, 44760), (5, 44736), (14, 44697), (18, 44655), (30, 44541), (33, 44508), (34, 44496),

Gene: ProMouse\_68 Start: 43412, Stop: 43092, Start Num: 1

Candidate Starts for ProMouse\_68:

(Start: 1 @43412 has 140 MA's), (Start: 2 @43394 has 1 MA's), (Start: 10 @43337 has 4 MA's), (19, 43262), (31, 43148), (34, 43106),

Gene: QTRlifeCrisis\_68 Start: 43423, Stop: 43103, Start Num: 1

Candidate Starts for QTRlifeCrisis\_68:

(Start: 1 @43423 has 140 MA's), (Start: 2 @43405 has 1 MA's), (Start: 10 @43348 has 4 MA's), (19, 43273), (31, 43159), (34, 43117),

Gene: Raid\_67 Start: 43249, Stop: 42929, Start Num: 1

Candidate Starts for Raid\_67:

(Start: 1 @43249 has 140 MA's), (Start: 2 @43231 has 1 MA's), (Start: 10 @43174 has 4 MA's), (19, 43099), (31, 42985), (34, 42943),

Gene: Rajelicia\_67 Start: 44526, Stop: 44206, Start Num: 1

Candidate Starts for Rajelicia\_67:

(Start: 1 @44526 has 140 MA's), (Start: 2 @44508 has 1 MA's), (Start: 10 @44451 has 4 MA's), (19, 44376), (31, 44262), (34, 44220),

Gene: RidgeCB\_67 Start: 42843, Stop: 42523, Start Num: 1

Candidate Starts for RidgeCB\_67:

(Start: 1 @42843 has 140 MA's), (Start: 2 @42825 has 1 MA's), (Start: 10 @42768 has 4 MA's), (31, 42579), (34, 42537),

Gene: Ringer\_70 Start: 44949, Stop: 44629, Start Num: 1

Candidate Starts for Ringer\_70:

(Start: 1 @44949 has 140 MA's), (Start: 2 @44931 has 1 MA's), (Start: 10 @44874 has 4 MA's), (19, 44799), (31, 44685), (34, 44643),

Gene: Rohr\_68 Start: 44161, Stop: 43841, Start Num: 1

Candidate Starts for Rohr\_68:

(Start: 1 @44161 has 140 MA's), (Start: 2 @44143 has 1 MA's), (Start: 10 @44086 has 4 MA's), (19, 44011), (31, 43897), (34, 43855),

Gene: Rubeus\_66 Start: 40663, Stop: 40343, Start Num: 1

Candidate Starts for Rubeus\_66:

(Start: 1 @40663 has 140 MA's), (Start: 2 @40645 has 1 MA's), (Start: 10 @40588 has 4 MA's), (19, 40513), (31, 40399), (34, 40357),

Gene: Rufus\_69 Start: 43347, Stop: 43027, Start Num: 1

Candidate Starts for Rufus\_69:

(Start: 1 @43347 has 140 MA's), (Start: 2 @43329 has 1 MA's), (Start: 10 @43272 has 4 MA's), (19, 43197), (31, 43083), (34, 43041),

Gene: Ruotula\_73 Start: 45450, Stop: 45130, Start Num: 1

Candidate Starts for Ruotula\_73:

(Start: 1 @45450 has 140 MA's), (Start: 2 @45432 has 1 MA's), (Start: 10 @45375 has 4 MA's), (19, 45300), (31, 45186), (34, 45144),

Gene: Sandaddy\_64 Start: 42569, Stop: 42324, Start Num: 10

Candidate Starts for Sandaddy\_64:

(Start: 1 @42644 has 140 MA's), (Start: 2 @42626 has 1 MA's), (Start: 10 @42569 has 4 MA's), (19, 42494), (31, 42380), (34, 42338),

Gene: SarFire\_66 Start: 42860, Stop: 42570, Start Num: 1

Candidate Starts for SarFire\_66:

(Start: 1 @42860 has 140 MA's), (3, 42833), (6, 42809), (14, 42770), (26, 42677), (34, 42584),

Gene: Seabiscuit\_68 Start: 42270, Stop: 41950, Start Num: 1

Candidate Starts for Seabiscuit\_68:

(Start: 1 @42270 has 140 MA's), (Start: 2 @42252 has 1 MA's), (Start: 10 @42195 has 4 MA's), (19, 42120), (31, 42006), (34, 41964),

Gene: Shaboozey\_58 Start: 42731, Stop: 42438, Start Num: 1

Candidate Starts for Shaboozey\_58:

(Start: 1 @42731 has 140 MA's), (3, 42704), (6, 42680), (19, 42587), (26, 42545), (28, 42515), (34, 42452),

Gene: Sibs6\_69 Start: 41546, Stop: 41226, Start Num: 1

Candidate Starts for Sibs6\_69:

(Start: 1 @41546 has 140 MA's), (Start: 2 @41528 has 1 MA's), (Start: 10 @41471 has 4 MA's), (19, 41396), (31, 41282), (34, 41240),

Gene: Slagathor\_69 Start: 44912, Stop: 44592, Start Num: 1

Candidate Starts for Slagathor\_69:

(Start: 1 @44912 has 140 MA's), (Start: 2 @44894 has 1 MA's), (Start: 10 @44837 has 4 MA's), (19, 44762), (31, 44648), (34, 44606),

Gene: Solon\_65 Start: 42390, Stop: 42067, Start Num: 1

Candidate Starts for Solon\_65:

(Start: 1 @42390 has 140 MA's), (3, 42363), (7, 42339), (19, 42246), (29, 42153), (31, 42123), (34, 42081),

Gene: Sorpresa\_65 Start: 42646, Stop: 42326, Start Num: 1

Candidate Starts for Sorpresa\_65:

(Start: 1 @42646 has 140 MA's), (Start: 2 @42628 has 1 MA's), (Start: 10 @42571 has 4 MA's), (19, 42496), (31, 42382), (34, 42340),

Gene: SpikeBT\_65 Start: 43010, Stop: 42690, Start Num: 1

Candidate Starts for SpikeBT\_65:

(Start: 1 @43010 has 140 MA's), (Start: 2 @42992 has 1 MA's), (Start: 10 @42935 has 4 MA's), (19, 42860), (31, 42746), (34, 42704),

Gene: StrongArm\_65 Start: 43760, Stop: 43440, Start Num: 1

Candidate Starts for StrongArm\_65:

(Start: 1 @43760 has 140 MA's), (Start: 2 @43742 has 1 MA's), (Start: 10 @43685 has 4 MA's), (19, 43610), (31, 43496), (34, 43454),

Gene: Sumter\_63 Start: 42935, Stop: 42681, Start Num: 10

Candidate Starts for Sumter\_63:

(Start: 1 @43010 has 140 MA's), (Start: 2 @42992 has 1 MA's), (Start: 10 @42935 has 4 MA's), (19, 42860), (29, 42767), (31, 42737), (34, 42695),

Gene: SwissCheese\_70 Start: 43229, Stop: 42909, Start Num: 1

Candidate Starts for SwissCheese\_70:

(Start: 1 @43229 has 140 MA's), (Start: 2 @43211 has 1 MA's), (Start: 10 @43154 has 4 MA's), (19, 43079), (31, 42965), (34, 42923),

Gene: Swole\_68 Start: 42804, Stop: 42484, Start Num: 1

Candidate Starts for Swole\_68:

(Start: 1 @42804 has 140 MA's), (Start: 2 @42786 has 1 MA's), (Start: 10 @42729 has 4 MA's), (19, 42654), (31, 42540), (34, 42498),

Gene: Teodoridan\_66 Start: 42115, Stop: 41807, Start Num: 1

Candidate Starts for Teodoridan\_66:

(Start: 1 @42115 has 140 MA's), (Start: 11 @42034 has 1 MA's), (13, 42025), (18, 41980), (30, 41866), (33, 41833), (34, 41821),

Gene: TheloniousMonk\_71 Start: 45498, Stop: 45178, Start Num: 1  
Candidate Starts for TheloniousMonk\_71:

(Start: 1 @45498 has 140 MA's), (Start: 2 @45480 has 1 MA's), (Start: 10 @45423 has 4 MA's), (19, 45348), (31, 45234), (34, 45192),

Gene: Thor\_66 Start: 42218, Stop: 41928, Start Num: 1  
Candidate Starts for Thor\_66:

(Start: 1 @42218 has 140 MA's), (3, 42191), (6, 42167), (14, 42128), (26, 42035), (34, 41942),

Gene: Topgun\_64 Start: 41853, Stop: 41554, Start Num: 1  
Candidate Starts for Topgun\_64:

(Start: 1 @41853 has 140 MA's), (Start: 2 @41835 has 1 MA's), (Start: 10 @41778 has 4 MA's), (19, 41703), (22, 41685), (26, 41661), (28, 41631), (34, 41568),

Gene: Tote\_63 Start: 40071, Stop: 39751, Start Num: 1  
Candidate Starts for Tote\_63:

(Start: 1 @40071 has 140 MA's), (Start: 2 @40053 has 1 MA's), (Start: 10 @39996 has 4 MA's), (19, 39921), (31, 39807), (34, 39765),

Gene: Treddle\_67 Start: 44107, Stop: 43793, Start Num: 1  
Candidate Starts for Treddle\_67:

(Start: 1 @44107 has 140 MA's), (3, 44080), (7, 44056), (14, 44017), (19, 43963), (31, 43849), (34, 43807),

Gene: Turj99\_65 Start: 43783, Stop: 43463, Start Num: 1  
Candidate Starts for Turj99\_65:

(Start: 1 @43783 has 140 MA's), (Start: 2 @43765 has 1 MA's), (Start: 10 @43708 has 4 MA's), (19, 43633), (31, 43519), (34, 43477),

Gene: Twigg\_71 Start: 44828, Stop: 44505, Start Num: 1  
Candidate Starts for Twigg\_71:

(Start: 1 @44828 has 140 MA's), (3, 44801), (7, 44777), (14, 44738), (19, 44684), (29, 44591), (31, 44561), (34, 44519),

Gene: TwoPeat\_68 Start: 43635, Stop: 43315, Start Num: 1  
Candidate Starts for TwoPeat\_68:

(Start: 1 @43635 has 140 MA's), (Start: 2 @43617 has 1 MA's), (Start: 10 @43560 has 4 MA's), (19, 43485), (31, 43371), (34, 43329),

Gene: U2\_63 Start: 43530, Stop: 43285, Start Num: 10  
Candidate Starts for U2\_63:

(Start: 1 @43605 has 140 MA's), (Start: 2 @43587 has 1 MA's), (Start: 10 @43530 has 4 MA's), (19, 43455), (31, 43341), (34, 43299),

Gene: Violet\_64 Start: 44471, Stop: 44151, Start Num: 1  
Candidate Starts for Violet\_64:

(Start: 1 @44471 has 140 MA's), (Start: 2 @44453 has 1 MA's), (Start: 10 @44396 has 4 MA's), (19, 44321), (31, 44207), (34, 44165),

Gene: Wanda\_71 Start: 48692, Stop: 48384, Start Num: 1

Candidate Starts for Wanda\_71:

(Start: 1 @48692 has 140 MA's), (3, 48665), (5, 48641), (18, 48557), (30, 48443), (33, 48410), (34, 48398),

Gene: Watermelon\_66 Start: 42204, Stop: 41887, Start Num: 1

Candidate Starts for Watermelon\_66:

(Start: 1 @42204 has 140 MA's), (Start: 11 @42123 has 1 MA's), (13, 42114), (19, 42057), (31, 41943), (34, 41901),

Gene: Wheeler\_69 Start: 43471, Stop: 43154, Start Num: 1

Candidate Starts for Wheeler\_69:

(Start: 1 @43471 has 140 MA's), (Start: 11 @43390 has 1 MA's), (13, 43381), (19, 43324), (31, 43210), (34, 43168),

Gene: Wilkins\_65 Start: 41783, Stop: 41484, Start Num: 1

Candidate Starts for Wilkins\_65:

(Start: 1 @41783 has 140 MA's), (Start: 2 @41765 has 1 MA's), (Start: 10 @41708 has 4 MA's), (19, 41633), (22, 41615), (26, 41591), (28, 41561), (34, 41498),

Gene: Zephyr\_68 Start: 42545, Stop: 42225, Start Num: 1

Candidate Starts for Zephyr\_68:

(Start: 1 @42545 has 140 MA's), (Start: 2 @42527 has 1 MA's), (Start: 10 @42470 has 4 MA's), (19, 42395), (31, 42281), (34, 42239),