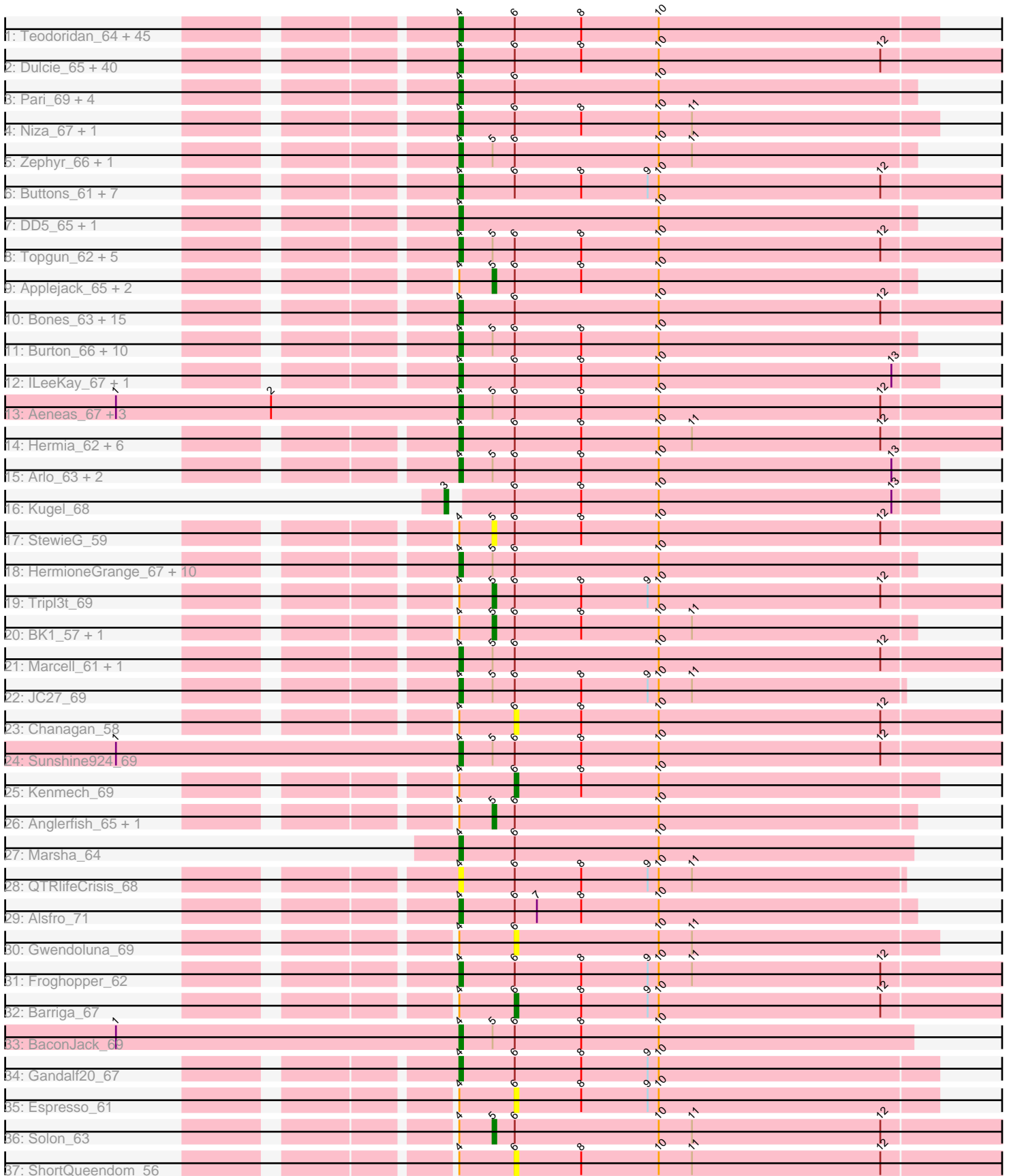


Pham 161583



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 161583 Report

This analysis was run 04/28/24 on database version 559.

Pham number 161583 has 193 members, 17 are drafts.

Phages represented in each track:

- Track 1 : Teodoridan\_64, Gompeii16\_65, DrFeelGood\_63, Ohno789\_66, Ashballer\_68, Sumter\_61, JuliaChild\_66, Ichabod\_69, MrGordo\_68, Rufus\_67, Fenn\_71, Abrogate\_650, PSullivan\_62, Swole\_64, Dussy\_66, Sibs6\_67, GrecoEtereo\_64, Pita2\_66, Squee\_68, Papez\_67, Zeeculate\_64, Museum\_67, Mryolo\_63, Briton15\_69, Ringer\_68, Bircsak\_65, Manatee\_65, BluSpix\_63, Michley\_69, Scowl\_66, Ruotula\_71, Thor\_64, Tote\_61, KBG\_66, Abbyshoes\_67, Naira\_70, SarFire\_64, Kykar\_66, IgnatiusPatJac\_65, Bob3\_66, Bruns\_67, Rubeus\_64, Molly\_66, MPlant7149\_65, HanShotFirst\_66, Nerujay\_70
- Track 2 : Dulcie\_65, Smeagol\_67, Homines\_56, Fajezeel\_65, Rohr\_66, Gyzlar\_60, Payneful\_60, Peterson\_68, Pinto\_65, Licorice\_65, BeesKnees\_67, Sagefire\_66, Adahisdi\_64, Doom\_62, HarryOW\_62, Treddle\_65, Killigrew\_63, BigPaolini\_61, Acme\_66, LilBib\_64, Lesedi\_61, Ajay\_64, PinkPlastic\_64, Zeuska\_70, Jerm2\_66, Sorpresa\_61, KSSJEB\_64, Watermelon\_64, Paphu\_64, JackSparrow\_68, Tasp14\_68, PascalRango\_62, Marchy\_55, McGuire\_65, Dynamix\_66, Sandaddy\_62, Parliament\_66, Greg\_65, Fushigi\_60, DreamCatcher\_67, Alvin\_64
- Track 3 : Pari\_69, PacerPaul\_65, Francis47\_64, Switzer\_66, TheloniousMonk\_69
- Track 4 : Niza\_67, Magnito\_66
- Track 5 : Zephyr\_66, Petp2012\_68
- Track 6 : Buttons\_61, GageAP\_66, NEHalo\_62, AFIS\_61, SpikeBT\_63, Oogway\_63, Violet\_62, Crispicous1\_62
- Track 7 : DD5\_65, Lockley\_64
- Track 8 : Topgun\_62, Cueylyss\_64, Rutherferd\_66, Big3\_65, Wilkins\_63, Seanderson\_67
- Track 9 : Applejack\_65, RidgeCB\_65, Pepe\_63
- Track 10 : Bones\_63, KyMonks1A\_69, Monet\_67, Edtherson\_63, Marge\_61, Eyeball\_66, Moose\_66, Perseus\_63, MaryBeth\_62, SwissCheese\_68, Lopton\_65, Wheeler\_67, MetalQZJ\_61, Corvo\_65, Forsytheast\_66, Norz\_64
- Track 11 : Burton\_66, Hope4ever\_66, Atkinbua\_68, SkiPole\_73, BillKnuckles\_62, Dexes\_65, Turj99\_63, STLscum\_74, Euphoria\_64, Petruccio\_67, Trafft412\_68
- Track 12 : ILeeKay\_67, Nhonho\_64
- Track 13 : Aeneas\_67, Smairt\_66, PhrostyMug\_64, Mule\_61
- Track 14 : Hermia\_62, Magnar\_64, Pippin\_64, Ciao\_62, Snazzy\_62, Lamina13\_68, Bxb1\_58
- Track 15 : Arlo\_63, BPBiabs31\_68, ConceptII\_69
- Track 16 : Kugel\_68
- Track 17 : StewieG\_59

- Track 18 : HermioneGrange\_67, Slagathor\_67, Kanely\_66, Beatrix\_64, Rajelicia\_65, Altman\_67, StrongArm\_63, Agaliana\_60, Bexan\_62, BigMau\_67, Arcanine\_67
- Track 19 : Tripl3t\_69
- Track 20 : BK1\_57, A6\_57
- Track 21 : Marcell\_61, Trouble\_65
- Track 22 : JC27\_69
- Track 23 : Chanagan\_58
- Track 24 : Sunshine924\_69
- Track 25 : Kenmech\_69
- Track 26 : Anglerfish\_65, TwoPeat\_64
- Track 27 : Marsha\_64
- Track 28 : QTRlifeCrisis\_68
- Track 29 : Alsfro\_71
- Track 30 : Gwendoluna\_69
- Track 31 : Froghopper\_62
- Track 32 : Barriga\_67
- Track 33 : BaconJack\_69
- Track 34 : Gandalf20\_67
- Track 35 : Espresso\_61
- Track 36 : Solon\_63
- Track 37 : ShortQueendom\_56

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

The start number called the most often in the published annotations is 4, it was called in 166 of the 176 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AFIS\_61, Abbyshoes\_67, Abrogate\_650, Acme\_66, Adahisdi\_64, Aeneas\_67, Agaliana\_60, Ajay\_64, Alsfro\_71, Altman\_67, Alvin\_64, Arcanine\_67, Arlo\_63, Ashballer\_68, Atkinbua\_68, BPBiebs31\_68, BaconJack\_69, Beatrix\_64, BeesKnees\_67, Bexan\_62, Big3\_65, BigMau\_67, BigPaolini\_61, BillKnuckles\_62, Bircsak\_65, BluSpix\_63, Bob3\_66, Bones\_63, Briton15\_69, Bruns\_67, Burton\_66, Buttons\_61, Bxb1\_58, Ciao\_62, Conceptll\_69, Corvo\_65, Crispicous1\_62, Cueyllyss\_64, DD5\_65, Dexes\_65, Doom\_62, DrFeelGood\_63, DreamCatcher\_67, Dulcie\_65, Dussy\_66, Dynamix\_66, Edtherson\_63, Euphoria\_64, Eyeball\_66, Fajezeel\_65, Fenn\_71, Forsytheast\_66, Francis47\_64, Froghopper\_62, Fushigi\_60, GageAP\_66, Gandalf20\_67, Gompeii16\_65, GrecoEtereo\_64, Greg\_65, Gyzlar\_60, HanShotFirst\_66, HarryOW\_62, Hermia\_62, HermioneGrange\_67, Homines\_56, Hope4ever\_66, ILeeKay\_67, Ichabod\_69, IgnatiusPatJac\_65, JC27\_69, JackSparrow\_68, Jerm2\_66, JuliaChild\_66, KBG\_66, KSSJEB\_64, Kanely\_66, Killigrew\_63, KyMonks1A\_69, Kykar\_66, Lamina13\_68, Lesedi\_61, Licorice\_65, LilBib\_64, Lockley\_64, Lopton\_65, MPlant7149\_65, Magnar\_64, Magnito\_66, Manatee\_65, Marcell\_61, Marchy\_55, Marge\_61, Marsha\_64, MaryBeth\_62, McGuire\_65, MetalQZJ\_61, Michley\_69, Molly\_66, Monet\_67, Moose\_66, MrGordo\_68, Mryolo\_63, Mule\_61, Museum\_67, NEHalo\_62, Naira\_70, Nerujay\_70, Nhonho\_64, Niza\_67, Norz\_64, Ohno789\_66, Oogway\_63, PSullivan\_62, PacerPaul\_65, Papez\_67, Paphu\_64, Pari\_69, Parliament\_66, PascalRango\_62, Payneful\_60, Perseus\_63, Peterson\_68, Petp2012\_68, Petruchio\_67,

PhrostyMug\_64, PinkPlastic\_64, Pinto\_65, Pippin\_64, Pita2\_66, QTRlifeCrisis\_68, Rajelicia\_65, Ringer\_68, Rohr\_66, Rubeus\_64, Rufus\_67, Ruotula\_71, Rutherford\_66, STLscum\_74, Sagefire\_66, Sandaddy\_62, SarFire\_64, Scowl\_66, Seanderson\_67, Sibs6\_67, SkiPole\_73, Slagathor\_67, Smairt\_66, Smeagol\_67, Snazzy\_62, Sorpresa\_61, SpikeBT\_63, Squee\_68, StrongArm\_63, Sumter\_61, Sunshine924\_69, SwissCheese\_68, Switzer\_66, Swole\_64, Tasp14\_68, Teodoridan\_64, TheloniousMonk\_69, Thor\_64, Topgun\_62, Tote\_61, Traft412\_68, Treddle\_65, Trouble\_65, Turj99\_63, Violet\_62, Watermelon\_64, Wheeler\_67, Wilkins\_63, Zeeculate\_64, Zephyr\_66, Zeuska\_70,

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

- A6\_57, Anglerfish\_65, Applejack\_65, BK1\_57, Barriga\_67, Chanagan\_58, Espresso\_61, Gwendoluna\_69, Kenmech\_69, Pepe\_63, RidgeCB\_65, ShortQueendom\_56, Solon\_63, StewieG\_59, Tripl3t\_69, TwoPeat\_64,

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

- Kugel\_68,

### Summary by start number:

Start 3:

- Found in 1 of 193 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 176
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kugel\_68 (A1),

Start 4:

- Found in 192 of 193 ( 99.5% ) of genes in pham
- Manual Annotations of this start: 166 of 176
- Called 91.7% of time when present
- Phage (with cluster) where this start called: AFIS\_61 (A1), Abbyshoes\_67 (A1), Abrogate\_650 (A1), Acme\_66 (A1), Adahisdi\_64 (A1), Aeneas\_67 (A1), Agaliana\_60 (A1), Ajay\_64 (A1), Alsfro\_71 (A1), Altman\_67 (A1), Alvin\_64 (A1), Arcanine\_67 (A1), Arlo\_63 (A1), Ashballer\_68 (A1), Atkinbua\_68 (A1), BPBiebs31\_68 (A1), BaconJack\_69 (A1), Beatrix\_64 (A1), BeesKnees\_67 (A1), Bexan\_62 (A1), Big3\_65 (A1), BigMau\_67 (A1), BigPaolini\_61 (A1), BillKnuckles\_62 (A1), Bircsak\_65 (A1), BluSpix\_63 (A1), Bob3\_66 (A1), Bones\_63 (A1), Briton15\_69 (A1), Bruns\_67 (A1), Burton\_66 (A1), Buttons\_61 (A1), Bxb1\_58 (A1), Ciao\_62 (A1), ConceptII\_69 (A1), Corvo\_65 (A1), Crispicous1\_62 (A1), Cueyllyss\_64 (A1), DD5\_65 (A1), Dexes\_65 (A1), Doom\_62 (A1), DrFeelGood\_63 (A1), DreamCatcher\_67 (A1), Dulcie\_65 (A1), Dussy\_66 (A1), Dynamix\_66 (A1), Edtherson\_63 (A1), Euphoria\_64 (A1), Eyeball\_66 (A1), Fajezeel\_65 (A1), Fenn\_71 (A1), Forsytheast\_66 (A1), Francis47\_64 (A1), Froghopper\_62 (A1), Fushigi\_60 (A1), GageAP\_66 (A1), Gandalf20\_67 (A1), Gompeii16\_65 (A1), GrecoEtereo\_64 (A1), Greg\_65 (A1), Gyzlar\_60 (A1), HanShotFirst\_66 (A1), HarryOW\_62 (A1), Hermia\_62 (A1), HermioneGrange\_67 (A1), Homines\_56 (A1), Hope4ever\_66 (A1), ILeeKay\_67 (A1), Ichabod\_69 (A1), IgnatiusPatJac\_65 (A1), JC27\_69 (A1), JackSparrow\_68 (A1), Jerm2\_66 (A1), JuliaChild\_66 (A1), KBG\_66 (A1), KSSJEB\_64 (A1), Kanely\_66 (A1), Killigrew\_63 (A1), KyMonks1A\_69 (A1), Kykar\_66 (A1), Lamina13\_68 (A1), Lesedi\_61 (A1), Licorice\_65 (A1), LilBib\_64 (A1), Lockley\_64 (A1), Lopton\_65 (A1), MPlant7149\_65 (A1), Magnar\_64 (A1), Magnito\_66 (A1), Manatee\_65 (A1), Marcell\_61 (A1), Marchy\_55 (A1), Marge\_61 (A1), Marsha\_64 (A1), MaryBeth\_62 (A1), McGuire\_65 (A1), MetalQZJ\_61 (A1), Michley\_69 (A1), Molly\_66 (A1), Monet\_67 (A1), Moose\_66

(A1), MrGordo\_68 (A1), Mryolo\_63 (A1), Mule\_61 (A1), Museum\_67 (A1), NEHalo\_62 (A1), Naira\_70 (A1), Nerujay\_70 (A1), Nhonho\_64 (A1), Niza\_67 (A1), Norz\_64 (A1), Ohno789\_66 (A1), Oogway\_63 (A1), PSullivan\_62 (A1), PacerPaul\_65 (A1), Papez\_67 (A1), Paphu\_64 (A1), Pari\_69 (A1), Parliament\_66 (A1), PascalRango\_62 (A1), Payneful\_60 (A1), Perseus\_63 (A1), Peterson\_68 (A1), Petp2012\_68 (A1), Petruchio\_67 (A1), PhrostyMug\_64 (A1), PinkPlastic\_64 (A1), Pinto\_65 (A1), Pippin\_64 (A1), Pita2\_66 (A1), QTRlifeCrisis\_68 (A1), Rajelicia\_65 (A1), Ringer\_68 (A1), Rohr\_66 (A1), Rubeus\_64 (A1), Rufus\_67 (A1), Ruotula\_71 (A1), Rutherford\_66 (A1), STLscum\_74 (A1), Sagefire\_66 (A1), Sandaddy\_62 (A1), SarFire\_64 (A1), Scowl\_66 (A1), Seanderson\_67 (A1), Sibs6\_67 (A1), SkiPole\_73 (A1), Slagathor\_67 (A1), Smairt\_66 (A1), Smeagol\_67 (A1), Snazzy\_62 (A1), Sorpresa\_61 (A1), SpikeBT\_63 (A1), Squee\_68 (A1), StrongArm\_63 (A1), Sumter\_61 (A1), Sunshine924\_69 (A1), SwissCheese\_68 (A1), Switzer\_66 (A1), Swole\_64 (A1), Tasp14\_68 (A1), Teodoridan\_64 (A1), TheloniousMonk\_69 (A1), Thor\_64 (A1), Topgun\_62 (A1), Tote\_61 (A1), Traft412\_68 (A1), Treddle\_65 (A1), Trouble\_65 (A1), Turj99\_63 (A1), Violet\_62 (A1), Watermelon\_64 (A1), Wheeler\_67 (A1), Wilkins\_63 (A1), Zeeculate\_64 (A1), Zephyr\_66 (A1), Zeuska\_70 (A1),

#### Start 5:

- Found in 52 of 193 ( 26.9% ) of genes in pham
- Manual Annotations of this start: 7 of 176
- Called 19.2% of time when present
- Phage (with cluster) where this start called: A6\_57 (A1), Anglerfish\_65 (A1), Applejack\_65 (A1), BK1\_57 (A1), Pepe\_63 (A1), RidgeCB\_65 (A1), Solon\_63 (A1), StewieG\_59 (A1), Trip13t\_69 (A1), TwoPeat\_64 (A1),

#### Start 6:

- Found in 191 of 193 ( 99.0% ) of genes in pham
- Manual Annotations of this start: 2 of 176
- Called 3.1% of time when present
- Phage (with cluster) where this start called: Barriga\_67 (A1), Chanagan\_58 (A1), Espresso\_61 (A1), Gwendoluna\_69 (A1), Kenmech\_69 (A1), ShortQueendom\_56 (A1),

### Summary by clusters:

There is one cluster represented in this pham: A1

Info for manual annotations of cluster A1:

- Start number 3 was manually annotated 1 time for cluster A1.
- Start number 4 was manually annotated 166 times for cluster A1.
- Start number 5 was manually annotated 7 times for cluster A1.
- Start number 6 was manually annotated 2 times for cluster A1.

### Gene Information:

Gene: A6\_57 Start: 40014, Stop: 39901, Start Num: 5

Candidate Starts for A6\_57:

(Start: 4 @40023 has 166 MA's), (Start: 5 @40014 has 7 MA's), (Start: 6 @40008 has 2 MA's), (8, 39990), (10, 39969), (11, 39960),

Gene: AFIS\_61 Start: 41478, Stop: 41332, Start Num: 4  
Candidate Starts for AFIS\_61:  
(Start: 4 @41478 has 166 MA's), (Start: 6 @41463 has 2 MA's), (8, 41445), (9, 41427), (10, 41424),  
(12, 41364),

Gene: Abbysshoes\_67 Start: 42982, Stop: 42854, Start Num: 4  
Candidate Starts for Abbysshoes\_67:  
(Start: 4 @42982 has 166 MA's), (Start: 6 @42967 has 2 MA's), (8, 42949), (10, 42928),

Gene: Abrogate\_650 Start: 44071, Stop: 43949, Start Num: 4  
Candidate Starts for Abrogate\_650:  
(Start: 4 @44071 has 166 MA's), (Start: 6 @44056 has 2 MA's), (8, 44038), (10, 44017),

Gene: Acme\_66 Start: 42534, Stop: 42388, Start Num: 4  
Candidate Starts for Acme\_66:  
(Start: 4 @42534 has 166 MA's), (Start: 6 @42519 has 2 MA's), (8, 42501), (10, 42480), (12, 42420),

Gene: Adahisdi\_64 Start: 43478, Stop: 43332, Start Num: 4  
Candidate Starts for Adahisdi\_64:  
(Start: 4 @43478 has 166 MA's), (Start: 6 @43463 has 2 MA's), (8, 43445), (10, 43424), (12, 43364),

Gene: Aeneas\_67 Start: 44036, Stop: 43890, Start Num: 4  
Candidate Starts for Aeneas\_67:  
(1, 44129), (2, 44087), (Start: 4 @44036 has 166 MA's), (Start: 5 @44027 has 7 MA's), (Start: 6  
@44021 has 2 MA's), (8, 44003), (10, 43982), (12, 43922),

Gene: Agaliana\_60 Start: 39357, Stop: 39235, Start Num: 4  
Candidate Starts for Agaliana\_60:  
(Start: 4 @39357 has 166 MA's), (Start: 5 @39348 has 7 MA's), (Start: 6 @39342 has 2 MA's), (10,  
39303),

Gene: Ajay\_64 Start: 42424, Stop: 42278, Start Num: 4  
Candidate Starts for Ajay\_64:  
(Start: 4 @42424 has 166 MA's), (Start: 6 @42409 has 2 MA's), (8, 42391), (10, 42370), (12, 42310),

Gene: Alsfro\_71 Start: 42875, Stop: 42753, Start Num: 4  
Candidate Starts for Alsfro\_71:  
(Start: 4 @42875 has 166 MA's), (Start: 6 @42860 has 2 MA's), (7, 42854), (8, 42842), (10, 42821),

Gene: Altman\_67 Start: 42513, Stop: 42391, Start Num: 4  
Candidate Starts for Altman\_67:  
(Start: 4 @42513 has 166 MA's), (Start: 5 @42504 has 7 MA's), (Start: 6 @42498 has 2 MA's), (10,  
42459),

Gene: Alvin\_64 Start: 42306, Stop: 42160, Start Num: 4  
Candidate Starts for Alvin\_64:  
(Start: 4 @42306 has 166 MA's), (Start: 6 @42291 has 2 MA's), (8, 42273), (10, 42252), (12, 42192),

Gene: Anglerfish\_65 Start: 42676, Stop: 42563, Start Num: 5  
Candidate Starts for Anglerfish\_65:  
(Start: 4 @42685 has 166 MA's), (Start: 5 @42676 has 7 MA's), (Start: 6 @42670 has 2 MA's), (10,  
42631),

Gene: Applejack\_65 Start: 41074, Stop: 40961, Start Num: 5  
Candidate Starts for Applejack\_65:  
(Start: 4 @41083 has 166 MA's), (Start: 5 @41074 has 7 MA's), (Start: 6 @41068 has 2 MA's), (8, 41050), (10, 41029),

Gene: Arcanine\_67 Start: 43409, Stop: 43287, Start Num: 4  
Candidate Starts for Arcanine\_67:  
(Start: 4 @43409 has 166 MA's), (Start: 5 @43400 has 7 MA's), (Start: 6 @43394 has 2 MA's), (10, 43355),

Gene: Arlo\_63 Start: 42000, Stop: 41872, Start Num: 4  
Candidate Starts for Arlo\_63:  
(Start: 4 @42000 has 166 MA's), (Start: 5 @41991 has 7 MA's), (Start: 6 @41985 has 2 MA's), (8, 41967), (10, 41946), (13, 41883),

Gene: Ashballer\_68 Start: 43159, Stop: 43037, Start Num: 4  
Candidate Starts for Ashballer\_68:  
(Start: 4 @43159 has 166 MA's), (Start: 6 @43144 has 2 MA's), (8, 43126), (10, 43105),

Gene: Atkinbua\_68 Start: 42384, Stop: 42256, Start Num: 4  
Candidate Starts for Atkinbua\_68:  
(Start: 4 @42384 has 166 MA's), (Start: 5 @42375 has 7 MA's), (Start: 6 @42369 has 2 MA's), (8, 42351), (10, 42330),

Gene: BK1\_57 Start: 40014, Stop: 39901, Start Num: 5  
Candidate Starts for BK1\_57:  
(Start: 4 @40023 has 166 MA's), (Start: 5 @40014 has 7 MA's), (Start: 6 @40008 has 2 MA's), (8, 39990), (10, 39969), (11, 39960),

Gene: BPBiebs31\_68 Start: 43106, Stop: 42978, Start Num: 4  
Candidate Starts for BPBiebs31\_68:  
(Start: 4 @43106 has 166 MA's), (Start: 5 @43097 has 7 MA's), (Start: 6 @43091 has 2 MA's), (8, 43073), (10, 43052), (13, 42989),

Gene: BaconJack\_69 Start: 45126, Stop: 45004, Start Num: 4  
Candidate Starts for BaconJack\_69:  
(1, 45219), (Start: 4 @45126 has 166 MA's), (Start: 5 @45117 has 7 MA's), (Start: 6 @45111 has 2 MA's), (8, 45093), (10, 45072),

Gene: Barriga\_67 Start: 41147, Stop: 41016, Start Num: 6  
Candidate Starts for Barriga\_67:  
(Start: 4 @41162 has 166 MA's), (Start: 6 @41147 has 2 MA's), (8, 41129), (9, 41111), (10, 41108), (12, 41048),

Gene: Beatrix\_64 Start: 43246, Stop: 43124, Start Num: 4  
Candidate Starts for Beatrix\_64:  
(Start: 4 @43246 has 166 MA's), (Start: 5 @43237 has 7 MA's), (Start: 6 @43231 has 2 MA's), (10, 43192),

Gene: BeesKnees\_67 Start: 41713, Stop: 41567, Start Num: 4  
Candidate Starts for BeesKnees\_67:  
(Start: 4 @41713 has 166 MA's), (Start: 6 @41698 has 2 MA's), (8, 41680), (10, 41659), (12, 41599),

Gene: Bexan\_62 Start: 43025, Stop: 42903, Start Num: 4  
Candidate Starts for Bexan\_62:  
(Start: 4 @43025 has 166 MA's), (Start: 5 @43016 has 7 MA's), (Start: 6 @43010 has 2 MA's), (10, 42971),

Gene: Big3\_65 Start: 43493, Stop: 43347, Start Num: 4  
Candidate Starts for Big3\_65:  
(Start: 4 @43493 has 166 MA's), (Start: 5 @43484 has 7 MA's), (Start: 6 @43478 has 2 MA's), (8, 43460), (10, 43439), (12, 43379),

Gene: BigMau\_67 Start: 42914, Stop: 42792, Start Num: 4  
Candidate Starts for BigMau\_67:  
(Start: 4 @42914 has 166 MA's), (Start: 5 @42905 has 7 MA's), (Start: 6 @42899 has 2 MA's), (10, 42860),

Gene: BigPaolini\_61 Start: 40150, Stop: 40004, Start Num: 4  
Candidate Starts for BigPaolini\_61:  
(Start: 4 @40150 has 166 MA's), (Start: 6 @40135 has 2 MA's), (8, 40117), (10, 40096), (12, 40036),

Gene: BillKnuckles\_62 Start: 43545, Stop: 43423, Start Num: 4  
Candidate Starts for BillKnuckles\_62:  
(Start: 4 @43545 has 166 MA's), (Start: 5 @43536 has 7 MA's), (Start: 6 @43530 has 2 MA's), (8, 43512), (10, 43491),

Gene: Bircsak\_65 Start: 44274, Stop: 44149, Start Num: 4  
Candidate Starts for Bircsak\_65:  
(Start: 4 @44274 has 166 MA's), (Start: 6 @44259 has 2 MA's), (8, 44241), (10, 44220),

Gene: BluSpix\_63 Start: 38129, Stop: 38007, Start Num: 4  
Candidate Starts for BluSpix\_63:  
(Start: 4 @38129 has 166 MA's), (Start: 6 @38114 has 2 MA's), (8, 38096), (10, 38075),

Gene: Bob3\_66 Start: 42184, Stop: 42065, Start Num: 4  
Candidate Starts for Bob3\_66:  
(Start: 4 @42184 has 166 MA's), (Start: 6 @42169 has 2 MA's), (8, 42151), (10, 42130),

Gene: Bones\_63 Start: 43200, Stop: 43054, Start Num: 4  
Candidate Starts for Bones\_63:  
(Start: 4 @43200 has 166 MA's), (Start: 6 @43185 has 2 MA's), (10, 43146), (12, 43086),

Gene: Briton15\_69 Start: 43988, Stop: 43869, Start Num: 4  
Candidate Starts for Briton15\_69:  
(Start: 4 @43988 has 166 MA's), (Start: 6 @43973 has 2 MA's), (8, 43955), (10, 43934),

Gene: Bruns\_67 Start: 42125, Stop: 42003, Start Num: 4  
Candidate Starts for Bruns\_67:  
(Start: 4 @42125 has 166 MA's), (Start: 6 @42110 has 2 MA's), (8, 42092), (10, 42071),

Gene: Burton\_66 Start: 43947, Stop: 43825, Start Num: 4  
Candidate Starts for Burton\_66:  
(Start: 4 @43947 has 166 MA's), (Start: 5 @43938 has 7 MA's), (Start: 6 @43932 has 2 MA's), (8, 43914), (10, 43893),



Gene: Buttons\_61 Start: 39664, Stop: 39518, Start Num: 4

Candidate Starts for Buttons\_61:

(Start: 4 @39664 has 166 MA's), (Start: 6 @39649 has 2 MA's), (8, 39631), (9, 39613), (10, 39610), (12, 39550),

Gene: Bxb1\_58 Start: 40777, Stop: 40631, Start Num: 4

Candidate Starts for Bxb1\_58:

(Start: 4 @40777 has 166 MA's), (Start: 6 @40762 has 2 MA's), (8, 40744), (10, 40723), (11, 40714), (12, 40663),

Gene: Chanagan\_58 Start: 39743, Stop: 39612, Start Num: 6

Candidate Starts for Chanagan\_58:

(Start: 4 @39758 has 166 MA's), (Start: 6 @39743 has 2 MA's), (8, 39725), (10, 39704), (12, 39644),

Gene: Ciao\_62 Start: 41122, Stop: 40976, Start Num: 4

Candidate Starts for Ciao\_62:

(Start: 4 @41122 has 166 MA's), (Start: 6 @41107 has 2 MA's), (8, 41089), (10, 41068), (11, 41059), (12, 41008),

Gene: ConceptII\_69 Start: 43741, Stop: 43613, Start Num: 4

Candidate Starts for ConceptII\_69:

(Start: 4 @43741 has 166 MA's), (Start: 5 @43732 has 7 MA's), (Start: 6 @43726 has 2 MA's), (8, 43708), (10, 43687), (13, 43624),

Gene: Corvo\_65 Start: 43053, Stop: 42907, Start Num: 4

Candidate Starts for Corvo\_65:

(Start: 4 @43053 has 166 MA's), (Start: 6 @43038 has 2 MA's), (10, 42999), (12, 42939),

Gene: Crispicous1\_62 Start: 41464, Stop: 41318, Start Num: 4

Candidate Starts for Crispicous1\_62:

(Start: 4 @41464 has 166 MA's), (Start: 6 @41449 has 2 MA's), (8, 41431), (9, 41413), (10, 41410), (12, 41350),

Gene: Cueyllyss\_64 Start: 43400, Stop: 43254, Start Num: 4

Candidate Starts for Cueyllyss\_64:

(Start: 4 @43400 has 166 MA's), (Start: 5 @43391 has 7 MA's), (Start: 6 @43385 has 2 MA's), (8, 43367), (10, 43346), (12, 43286),

Gene: DD5\_65 Start: 43288, Stop: 43166, Start Num: 4

Candidate Starts for DD5\_65:

(Start: 4 @43288 has 166 MA's), (10, 43234),

Gene: Dexes\_65 Start: 43009, Stop: 42890, Start Num: 4

Candidate Starts for Dexes\_65:

(Start: 4 @43009 has 166 MA's), (Start: 5 @43000 has 7 MA's), (Start: 6 @42994 has 2 MA's), (8, 42976), (10, 42955),

Gene: Doom\_62 Start: 42609, Stop: 42463, Start Num: 4

Candidate Starts for Doom\_62:

(Start: 4 @42609 has 166 MA's), (Start: 6 @42594 has 2 MA's), (8, 42576), (10, 42555), (12, 42495),

Gene: DrFeelGood\_63 Start: 41543, Stop: 41424, Start Num: 4

Candidate Starts for DrFeelGood\_63:

(Start: 4 @41543 has 166 MA's), (Start: 6 @41528 has 2 MA's), (8, 41510), (10, 41489),

Gene: DreamCatcher\_67 Start: 42693, Stop: 42547, Start Num: 4

Candidate Starts for DreamCatcher\_67:

(Start: 4 @42693 has 166 MA's), (Start: 6 @42678 has 2 MA's), (8, 42660), (10, 42639), (12, 42579),

Gene: Dulcie\_65 Start: 44018, Stop: 43872, Start Num: 4

Candidate Starts for Dulcie\_65:

(Start: 4 @44018 has 166 MA's), (Start: 6 @44003 has 2 MA's), (8, 43985), (10, 43964), (12, 43904),

Gene: Dussy\_66 Start: 43002, Stop: 42874, Start Num: 4

Candidate Starts for Dussy\_66:

(Start: 4 @43002 has 166 MA's), (Start: 6 @42987 has 2 MA's), (8, 42969), (10, 42948),

Gene: Dynamix\_66 Start: 41617, Stop: 41471, Start Num: 4

Candidate Starts for Dynamix\_66:

(Start: 4 @41617 has 166 MA's), (Start: 6 @41602 has 2 MA's), (8, 41584), (10, 41563), (12, 41503),

Gene: Edtherson\_63 Start: 42603, Stop: 42457, Start Num: 4

Candidate Starts for Edtherson\_63:

(Start: 4 @42603 has 166 MA's), (Start: 6 @42588 has 2 MA's), (10, 42549), (12, 42489),

Gene: Espresso\_61 Start: 42212, Stop: 42099, Start Num: 6

Candidate Starts for Espresso\_61:

(Start: 4 @42227 has 166 MA's), (Start: 6 @42212 has 2 MA's), (8, 42194), (9, 42176), (10, 42173),

Gene: Euphoria\_64 Start: 42069, Stop: 41950, Start Num: 4

Candidate Starts for Euphoria\_64:

(Start: 4 @42069 has 166 MA's), (Start: 5 @42060 has 7 MA's), (Start: 6 @42054 has 2 MA's), (8, 42036), (10, 42015),

Gene: Eyeball\_66 Start: 43108, Stop: 42962, Start Num: 4

Candidate Starts for Eyeball\_66:

(Start: 4 @43108 has 166 MA's), (Start: 6 @43093 has 2 MA's), (10, 43054), (12, 42994),

Gene: Fajezeel\_65 Start: 41824, Stop: 41678, Start Num: 4

Candidate Starts for Fajezeel\_65:

(Start: 4 @41824 has 166 MA's), (Start: 6 @41809 has 2 MA's), (8, 41791), (10, 41770), (12, 41710),

Gene: Fenn\_71 Start: 44460, Stop: 44344, Start Num: 4

Candidate Starts for Fenn\_71:

(Start: 4 @44460 has 166 MA's), (Start: 6 @44445 has 2 MA's), (8, 44427), (10, 44406),

Gene: Forsytheast\_66 Start: 42122, Stop: 41976, Start Num: 4

Candidate Starts for Forsytheast\_66:

(Start: 4 @42122 has 166 MA's), (Start: 6 @42107 has 2 MA's), (10, 42068), (12, 42008),

Gene: Francis47\_64 Start: 43201, Stop: 43079, Start Num: 4

Candidate Starts for Francis47\_64:

(Start: 4 @43201 has 166 MA's), (Start: 6 @43186 has 2 MA's), (10, 43147),

Gene: Froghopper\_62 Start: 41181, Stop: 41035, Start Num: 4

Candidate Starts for Froghopper\_62:

(Start: 4 @41181 has 166 MA's), (Start: 6 @41166 has 2 MA's), (8, 41148), (9, 41130), (10, 41127), (11, 41118), (12, 41067),

Gene: Fushigi\_60 Start: 40144, Stop: 39998, Start Num: 4

Candidate Starts for Fushigi\_60:

(Start: 4 @40144 has 166 MA's), (Start: 6 @40129 has 2 MA's), (8, 40111), (10, 40090), (12, 40030),

Gene: GageAP\_66 Start: 43145, Stop: 42999, Start Num: 4

Candidate Starts for GageAP\_66:

(Start: 4 @43145 has 166 MA's), (Start: 6 @43130 has 2 MA's), (8, 43112), (9, 43094), (10, 43091), (12, 43031),

Gene: Gandalf20\_67 Start: 43512, Stop: 43384, Start Num: 4

Candidate Starts for Gandalf20\_67:

(Start: 4 @43512 has 166 MA's), (Start: 6 @43497 has 2 MA's), (8, 43479), (9, 43461), (10, 43458),

Gene: Gompeii16\_65 Start: 44275, Stop: 44150, Start Num: 4

Candidate Starts for Gompeii16\_65:

(Start: 4 @44275 has 166 MA's), (Start: 6 @44260 has 2 MA's), (8, 44242), (10, 44221),

Gene: GrecoEtereo\_64 Start: 41398, Stop: 41279, Start Num: 4

Candidate Starts for GrecoEtereo\_64:

(Start: 4 @41398 has 166 MA's), (Start: 6 @41383 has 2 MA's), (8, 41365), (10, 41344),

Gene: Greg\_65 Start: 41824, Stop: 41678, Start Num: 4

Candidate Starts for Greg\_65:

(Start: 4 @41824 has 166 MA's), (Start: 6 @41809 has 2 MA's), (8, 41791), (10, 41770), (12, 41710),

Gene: Gwendoluna\_69 Start: 44324, Stop: 44211, Start Num: 6

Candidate Starts for Gwendoluna\_69:

(Start: 4 @44339 has 166 MA's), (Start: 6 @44324 has 2 MA's), (10, 44285), (11, 44276),

Gene: Gyzlar\_60 Start: 40094, Stop: 39948, Start Num: 4

Candidate Starts for Gyzlar\_60:

(Start: 4 @40094 has 166 MA's), (Start: 6 @40079 has 2 MA's), (8, 40061), (10, 40040), (12, 39980),

Gene: HanShotFirst\_66 Start: 43937, Stop: 43818, Start Num: 4

Candidate Starts for HanShotFirst\_66:

(Start: 4 @43937 has 166 MA's), (Start: 6 @43922 has 2 MA's), (8, 43904), (10, 43883),

Gene: HarryOW\_62 Start: 41905, Stop: 41759, Start Num: 4

Candidate Starts for HarryOW\_62:

(Start: 4 @41905 has 166 MA's), (Start: 6 @41890 has 2 MA's), (8, 41872), (10, 41851), (12, 41791),

Gene: Hermia\_62 Start: 41903, Stop: 41757, Start Num: 4

Candidate Starts for Hermia\_62:

(Start: 4 @41903 has 166 MA's), (Start: 6 @41888 has 2 MA's), (8, 41870), (10, 41849), (11, 41840), (12, 41789),

Gene: HermioneGrange\_67 Start: 43408, Stop: 43286, Start Num: 4

Candidate Starts for HermioneGrange\_67:

(Start: 4 @43408 has 166 MA's), (Start: 5 @43399 has 7 MA's), (Start: 6 @43393 has 2 MA's), (10, 43354),

Gene: Homines\_56 Start: 38233, Stop: 38087, Start Num: 4  
Candidate Starts for Homines\_56:  
(Start: 4 @38233 has 166 MA's), (Start: 6 @38218 has 2 MA's), (8, 38200), (10, 38179), (12, 38119),

Gene: Hope4ever\_66 Start: 42392, Stop: 42270, Start Num: 4  
Candidate Starts for Hope4ever\_66:  
(Start: 4 @42392 has 166 MA's), (Start: 5 @42383 has 7 MA's), (Start: 6 @42377 has 2 MA's), (8, 42359), (10, 42338),

Gene: ILeeKay\_67 Start: 42289, Stop: 42161, Start Num: 4  
Candidate Starts for ILeeKay\_67:  
(Start: 4 @42289 has 166 MA's), (Start: 6 @42274 has 2 MA's), (8, 42256), (10, 42235), (13, 42172),

Gene: Ichabod\_69 Start: 43502, Stop: 43383, Start Num: 4  
Candidate Starts for Ichabod\_69:  
(Start: 4 @43502 has 166 MA's), (Start: 6 @43487 has 2 MA's), (8, 43469), (10, 43448),

Gene: IgnatiusPatJac\_65 Start: 42074, Stop: 41952, Start Num: 4  
Candidate Starts for IgnatiusPatJac\_65:  
(Start: 4 @42074 has 166 MA's), (Start: 6 @42059 has 2 MA's), (8, 42041), (10, 42020),

Gene: JC27\_69 Start: 43136, Stop: 43017, Start Num: 4  
Candidate Starts for JC27\_69:  
(Start: 4 @43136 has 166 MA's), (Start: 5 @43127 has 7 MA's), (Start: 6 @43121 has 2 MA's), (8, 43103), (9, 43085), (10, 43082), (11, 43073),

Gene: JackSparrow\_68 Start: 42619, Stop: 42473, Start Num: 4  
Candidate Starts for JackSparrow\_68:  
(Start: 4 @42619 has 166 MA's), (Start: 6 @42604 has 2 MA's), (8, 42586), (10, 42565), (12, 42505),

Gene: Jerm2\_66 Start: 43478, Stop: 43332, Start Num: 4  
Candidate Starts for Jerm2\_66:  
(Start: 4 @43478 has 166 MA's), (Start: 6 @43463 has 2 MA's), (8, 43445), (10, 43424), (12, 43364),

Gene: JuliaChild\_66 Start: 42723, Stop: 42604, Start Num: 4  
Candidate Starts for JuliaChild\_66:  
(Start: 4 @42723 has 166 MA's), (Start: 6 @42708 has 2 MA's), (8, 42690), (10, 42669),

Gene: KBG\_66 Start: 44255, Stop: 44133, Start Num: 4  
Candidate Starts for KBG\_66:  
(Start: 4 @44255 has 166 MA's), (Start: 6 @44240 has 2 MA's), (8, 44222), (10, 44201),

Gene: KSSJEB\_64 Start: 41531, Stop: 41385, Start Num: 4  
Candidate Starts for KSSJEB\_64:  
(Start: 4 @41531 has 166 MA's), (Start: 6 @41516 has 2 MA's), (8, 41498), (10, 41477), (12, 41417),

Gene: Kanely\_66 Start: 42290, Stop: 42168, Start Num: 4  
Candidate Starts for Kanely\_66:  
(Start: 4 @42290 has 166 MA's), (Start: 5 @42281 has 7 MA's), (Start: 6 @42275 has 2 MA's), (10, 42236),

Gene: Kenmech\_69 Start: 44113, Stop: 44000, Start Num: 6

Candidate Starts for Kenmech\_69:

(Start: 4 @44128 has 166 MA's), (Start: 6 @44113 has 2 MA's), (8, 44095), (10, 44074),

Gene: Killigrew\_63 Start: 42335, Stop: 42189, Start Num: 4

Candidate Starts for Killigrew\_63:

(Start: 4 @42335 has 166 MA's), (Start: 6 @42320 has 2 MA's), (8, 42302), (10, 42281), (12, 42221),

Gene: Kugel\_68 Start: 43936, Stop: 43808, Start Num: 3

Candidate Starts for Kugel\_68:

(Start: 3 @43936 has 1 MA's), (Start: 6 @43921 has 2 MA's), (8, 43903), (10, 43882), (13, 43819),

Gene: KyMonks1A\_69 Start: 42496, Stop: 42350, Start Num: 4

Candidate Starts for KyMonks1A\_69:

(Start: 4 @42496 has 166 MA's), (Start: 6 @42481 has 2 MA's), (10, 42442), (12, 42382),

Gene: Kykar\_66 Start: 42871, Stop: 42749, Start Num: 4

Candidate Starts for Kykar\_66:

(Start: 4 @42871 has 166 MA's), (Start: 6 @42856 has 2 MA's), (8, 42838), (10, 42817),

Gene: Lamina13\_68 Start: 43488, Stop: 43342, Start Num: 4

Candidate Starts for Lamina13\_68:

(Start: 4 @43488 has 166 MA's), (Start: 6 @43473 has 2 MA's), (8, 43455), (10, 43434), (11, 43425), (12, 43374),

Gene: Lesedi\_61 Start: 40563, Stop: 40417, Start Num: 4

Candidate Starts for Lesedi\_61:

(Start: 4 @40563 has 166 MA's), (Start: 6 @40548 has 2 MA's), (8, 40530), (10, 40509), (12, 40449),

Gene: Licorice\_65 Start: 43597, Stop: 43451, Start Num: 4

Candidate Starts for Licorice\_65:

(Start: 4 @43597 has 166 MA's), (Start: 6 @43582 has 2 MA's), (8, 43564), (10, 43543), (12, 43483),

Gene: LilBib\_64 Start: 43581, Stop: 43435, Start Num: 4

Candidate Starts for LilBib\_64:

(Start: 4 @43581 has 166 MA's), (Start: 6 @43566 has 2 MA's), (8, 43548), (10, 43527), (12, 43467),

Gene: Lockley\_64 Start: 42450, Stop: 42328, Start Num: 4

Candidate Starts for Lockley\_64:

(Start: 4 @42450 has 166 MA's), (10, 42396),

Gene: Lopton\_65 Start: 44150, Stop: 44004, Start Num: 4

Candidate Starts for Lopton\_65:

(Start: 4 @44150 has 166 MA's), (Start: 6 @44135 has 2 MA's), (10, 44096), (12, 44036),

Gene: MPlant7149\_65 Start: 41296, Stop: 41174, Start Num: 4

Candidate Starts for MPlant7149\_65:

(Start: 4 @41296 has 166 MA's), (Start: 6 @41281 has 2 MA's), (8, 41263), (10, 41242),

Gene: Magnar\_64 Start: 42369, Stop: 42223, Start Num: 4

Candidate Starts for Magnar\_64:

(Start: 4 @42369 has 166 MA's), (Start: 6 @42354 has 2 MA's), (8, 42336), (10, 42315), (11, 42306), (12, 42255),

Gene: Magnito\_66 Start: 42565, Stop: 42446, Start Num: 4  
Candidate Starts for Magnito\_66:  
(Start: 4 @42565 has 166 MA's), (Start: 6 @42550 has 2 MA's), (8, 42532), (10, 42511), (11, 42502),

Gene: Manatee\_65 Start: 42037, Stop: 41909, Start Num: 4  
Candidate Starts for Manatee\_65:  
(Start: 4 @42037 has 166 MA's), (Start: 6 @42022 has 2 MA's), (8, 42004), (10, 41983),

Gene: Marcell\_61 Start: 41076, Stop: 40930, Start Num: 4  
Candidate Starts for Marcell\_61:  
(Start: 4 @41076 has 166 MA's), (Start: 5 @41067 has 7 MA's), (Start: 6 @41061 has 2 MA's), (10, 41022), (12, 40962),

Gene: Marchy\_55 Start: 38814, Stop: 38668, Start Num: 4  
Candidate Starts for Marchy\_55:  
(Start: 4 @38814 has 166 MA's), (Start: 6 @38799 has 2 MA's), (8, 38781), (10, 38760), (12, 38700),

Gene: Marge\_61 Start: 41606, Stop: 41460, Start Num: 4  
Candidate Starts for Marge\_61:  
(Start: 4 @41606 has 166 MA's), (Start: 6 @41591 has 2 MA's), (10, 41552), (12, 41492),

Gene: Marsha\_64 Start: 43363, Stop: 43241, Start Num: 4  
Candidate Starts for Marsha\_64:  
(Start: 4 @43363 has 166 MA's), (Start: 6 @43348 has 2 MA's), (10, 43309),

Gene: MaryBeth\_62 Start: 42430, Stop: 42284, Start Num: 4  
Candidate Starts for MaryBeth\_62:  
(Start: 4 @42430 has 166 MA's), (Start: 6 @42415 has 2 MA's), (10, 42376), (12, 42316),

Gene: McGuire\_65 Start: 41400, Stop: 41254, Start Num: 4  
Candidate Starts for McGuire\_65:  
(Start: 4 @41400 has 166 MA's), (Start: 6 @41385 has 2 MA's), (8, 41367), (10, 41346), (12, 41286),

Gene: MetalQZJ\_61 Start: 42430, Stop: 42284, Start Num: 4  
Candidate Starts for MetalQZJ\_61:  
(Start: 4 @42430 has 166 MA's), (Start: 6 @42415 has 2 MA's), (10, 42376), (12, 42316),

Gene: Michley\_69 Start: 42991, Stop: 42869, Start Num: 4  
Candidate Starts for Michley\_69:  
(Start: 4 @42991 has 166 MA's), (Start: 6 @42976 has 2 MA's), (8, 42958), (10, 42937),

Gene: Molly\_66 Start: 42673, Stop: 42554, Start Num: 4  
Candidate Starts for Molly\_66:  
(Start: 4 @42673 has 166 MA's), (Start: 6 @42658 has 2 MA's), (8, 42640), (10, 42619),

Gene: Monet\_67 Start: 43994, Stop: 43848, Start Num: 4  
Candidate Starts for Monet\_67:  
(Start: 4 @43994 has 166 MA's), (Start: 6 @43979 has 2 MA's), (10, 43940), (12, 43880),

Gene: Moose\_66 Start: 42122, Stop: 41976, Start Num: 4  
Candidate Starts for Moose\_66:  
(Start: 4 @42122 has 166 MA's), (Start: 6 @42107 has 2 MA's), (10, 42068), (12, 42008),

Gene: MrGordo\_68 Start: 42912, Stop: 42790, Start Num: 4

Candidate Starts for MrGordo\_68:

(Start: 4 @42912 has 166 MA's), (Start: 6 @42897 has 2 MA's), (8, 42879), (10, 42858),

Gene: Mryolo\_63 Start: 41946, Stop: 41827, Start Num: 4

Candidate Starts for Mryolo\_63:

(Start: 4 @41946 has 166 MA's), (Start: 6 @41931 has 2 MA's), (8, 41913), (10, 41892),

Gene: Mule\_61 Start: 41409, Stop: 41263, Start Num: 4

Candidate Starts for Mule\_61:

(1, 41502), (2, 41460), (Start: 4 @41409 has 166 MA's), (Start: 5 @41400 has 7 MA's), (Start: 6 @41394 has 2 MA's), (8, 41376), (10, 41355), (12, 41295),

Gene: Museum\_67 Start: 43892, Stop: 43773, Start Num: 4

Candidate Starts for Museum\_67:

(Start: 4 @43892 has 166 MA's), (Start: 6 @43877 has 2 MA's), (8, 43859), (10, 43838),

Gene: NEHalo\_62 Start: 42546, Stop: 42400, Start Num: 4

Candidate Starts for NEHalo\_62:

(Start: 4 @42546 has 166 MA's), (Start: 6 @42531 has 2 MA's), (8, 42513), (9, 42495), (10, 42492), (12, 42432),

Gene: Naira\_70 Start: 44516, Stop: 44400, Start Num: 4

Candidate Starts for Naira\_70:

(Start: 4 @44516 has 166 MA's), (Start: 6 @44501 has 2 MA's), (8, 44483), (10, 44462),

Gene: Nerujay\_70 Start: 44095, Stop: 43979, Start Num: 4

Candidate Starts for Nerujay\_70:

(Start: 4 @44095 has 166 MA's), (Start: 6 @44080 has 2 MA's), (8, 44062), (10, 44041),

Gene: Nhonho\_64 Start: 43037, Stop: 42909, Start Num: 4

Candidate Starts for Nhonho\_64:

(Start: 4 @43037 has 166 MA's), (Start: 6 @43022 has 2 MA's), (8, 43004), (10, 42983), (13, 42920),

Gene: Niza\_67 Start: 44182, Stop: 44054, Start Num: 4

Candidate Starts for Niza\_67:

(Start: 4 @44182 has 166 MA's), (Start: 6 @44167 has 2 MA's), (8, 44149), (10, 44128), (11, 44119),

Gene: Norz\_64 Start: 44422, Stop: 44276, Start Num: 4

Candidate Starts for Norz\_64:

(Start: 4 @44422 has 166 MA's), (Start: 6 @44407 has 2 MA's), (10, 44368), (12, 44308),

Gene: Ohno789\_66 Start: 43010, Stop: 42888, Start Num: 4

Candidate Starts for Ohno789\_66:

(Start: 4 @43010 has 166 MA's), (Start: 6 @42995 has 2 MA's), (8, 42977), (10, 42956),

Gene: Oogway\_63 Start: 43065, Stop: 42919, Start Num: 4

Candidate Starts for Oogway\_63:

(Start: 4 @43065 has 166 MA's), (Start: 6 @43050 has 2 MA's), (8, 43032), (9, 43014), (10, 43011), (12, 42951),

Gene: PSullivan\_62 Start: 40790, Stop: 40671, Start Num: 4

Candidate Starts for PSullivan\_62:

(Start: 4 @40790 has 166 MA's), (Start: 6 @40775 has 2 MA's), (8, 40757), (10, 40736),

Gene: PacerPaul\_65 Start: 42568, Stop: 42446, Start Num: 4

Candidate Starts for PacerPaul\_65:

(Start: 4 @42568 has 166 MA's), (Start: 6 @42553 has 2 MA's), (10, 42514),

Gene: Papez\_67 Start: 43734, Stop: 43612, Start Num: 4

Candidate Starts for Papez\_67:

(Start: 4 @43734 has 166 MA's), (Start: 6 @43719 has 2 MA's), (8, 43701), (10, 43680),

Gene: Paphu\_64 Start: 42876, Stop: 42730, Start Num: 4

Candidate Starts for Paphu\_64:

(Start: 4 @42876 has 166 MA's), (Start: 6 @42861 has 2 MA's), (8, 42843), (10, 42822), (12, 42762),

Gene: Pari\_69 Start: 42086, Stop: 41964, Start Num: 4

Candidate Starts for Pari\_69:

(Start: 4 @42086 has 166 MA's), (Start: 6 @42071 has 2 MA's), (10, 42032),

Gene: Parliament\_66 Start: 44668, Stop: 44522, Start Num: 4

Candidate Starts for Parliament\_66:

(Start: 4 @44668 has 166 MA's), (Start: 6 @44653 has 2 MA's), (8, 44635), (10, 44614), (12, 44554),

Gene: PascalRango\_62 Start: 41863, Stop: 41717, Start Num: 4

Candidate Starts for PascalRango\_62:

(Start: 4 @41863 has 166 MA's), (Start: 6 @41848 has 2 MA's), (8, 41830), (10, 41809), (12, 41749),

Gene: Payneful\_60 Start: 41531, Stop: 41385, Start Num: 4

Candidate Starts for Payneful\_60:

(Start: 4 @41531 has 166 MA's), (Start: 6 @41516 has 2 MA's), (8, 41498), (10, 41477), (12, 41417),

Gene: Pepe\_63 Start: 41355, Stop: 41242, Start Num: 5

Candidate Starts for Pepe\_63:

(Start: 4 @41364 has 166 MA's), (Start: 5 @41355 has 7 MA's), (Start: 6 @41349 has 2 MA's), (8, 41331), (10, 41310),

Gene: Perseus\_63 Start: 43814, Stop: 43668, Start Num: 4

Candidate Starts for Perseus\_63:

(Start: 4 @43814 has 166 MA's), (Start: 6 @43799 has 2 MA's), (10, 43760), (12, 43700),

Gene: Peterson\_68 Start: 44680, Stop: 44534, Start Num: 4

Candidate Starts for Peterson\_68:

(Start: 4 @44680 has 166 MA's), (Start: 6 @44665 has 2 MA's), (8, 44647), (10, 44626), (12, 44566),

Gene: Petp2012\_68 Start: 44379, Stop: 44257, Start Num: 4

Candidate Starts for Petp2012\_68:

(Start: 4 @44379 has 166 MA's), (Start: 5 @44370 has 7 MA's), (Start: 6 @44364 has 2 MA's), (10, 44325), (11, 44316),

Gene: Petruccio\_67 Start: 42200, Stop: 42078, Start Num: 4

Candidate Starts for Petruccio\_67:

(Start: 4 @42200 has 166 MA's), (Start: 5 @42191 has 7 MA's), (Start: 6 @42185 has 2 MA's), (8, 42167), (10, 42146),



Gene: PhrostyMug\_64 Start: 43583, Stop: 43437, Start Num: 4

Candidate Starts for PhrostyMug\_64:

(1, 43676), (2, 43634), (Start: 4 @43583 has 166 MA's), (Start: 5 @43574 has 7 MA's), (Start: 6 @43568 has 2 MA's), (8, 43550), (10, 43529), (12, 43469),

Gene: PinkPlastic\_64 Start: 42136, Stop: 41990, Start Num: 4

Candidate Starts for PinkPlastic\_64:

(Start: 4 @42136 has 166 MA's), (Start: 6 @42121 has 2 MA's), (8, 42103), (10, 42082), (12, 42022),

Gene: Pinto\_65 Start: 42089, Stop: 41943, Start Num: 4

Candidate Starts for Pinto\_65:

(Start: 4 @42089 has 166 MA's), (Start: 6 @42074 has 2 MA's), (8, 42056), (10, 42035), (12, 41975),

Gene: Pippin\_64 Start: 41515, Stop: 41369, Start Num: 4

Candidate Starts for Pippin\_64:

(Start: 4 @41515 has 166 MA's), (Start: 6 @41500 has 2 MA's), (8, 41482), (10, 41461), (11, 41452), (12, 41401),

Gene: Pita2\_66 Start: 42287, Stop: 42168, Start Num: 4

Candidate Starts for Pita2\_66:

(Start: 4 @42287 has 166 MA's), (Start: 6 @42272 has 2 MA's), (8, 42254), (10, 42233),

Gene: QTRlifeCrisis\_68 Start: 42816, Stop: 42697, Start Num: 4

Candidate Starts for QTRlifeCrisis\_68:

(Start: 4 @42816 has 166 MA's), (Start: 6 @42801 has 2 MA's), (8, 42783), (9, 42765), (10, 42762), (11, 42753),

Gene: Rajelicia\_65 Start: 43919, Stop: 43797, Start Num: 4

Candidate Starts for Rajelicia\_65:

(Start: 4 @43919 has 166 MA's), (Start: 5 @43910 has 7 MA's), (Start: 6 @43904 has 2 MA's), (10, 43865),

Gene: RidgeCB\_65 Start: 42227, Stop: 42114, Start Num: 5

Candidate Starts for RidgeCB\_65:

(Start: 4 @42236 has 166 MA's), (Start: 5 @42227 has 7 MA's), (Start: 6 @42221 has 2 MA's), (8, 42203), (10, 42182),

Gene: Ringer\_68 Start: 44342, Stop: 44220, Start Num: 4

Candidate Starts for Ringer\_68:

(Start: 4 @44342 has 166 MA's), (Start: 6 @44327 has 2 MA's), (8, 44309), (10, 44288),

Gene: Rohr\_66 Start: 43554, Stop: 43408, Start Num: 4

Candidate Starts for Rohr\_66:

(Start: 4 @43554 has 166 MA's), (Start: 6 @43539 has 2 MA's), (8, 43521), (10, 43500), (12, 43440),

Gene: Rubeus\_64 Start: 40056, Stop: 39934, Start Num: 4

Candidate Starts for Rubeus\_64:

(Start: 4 @40056 has 166 MA's), (Start: 6 @40041 has 2 MA's), (8, 40023), (10, 40002),

Gene: Rufus\_67 Start: 42740, Stop: 42618, Start Num: 4

Candidate Starts for Rufus\_67:

(Start: 4 @42740 has 166 MA's), (Start: 6 @42725 has 2 MA's), (8, 42707), (10, 42686),

Gene: Ruotula\_71 Start: 44843, Stop: 44715, Start Num: 4  
Candidate Starts for Ruotula\_71:  
(Start: 4 @44843 has 166 MA's), (Start: 6 @44828 has 2 MA's), (8, 44810), (10, 44789),

Gene: Rutherferd\_66 Start: 43635, Stop: 43489, Start Num: 4  
Candidate Starts for Rutherferd\_66:  
(Start: 4 @43635 has 166 MA's), (Start: 5 @43626 has 7 MA's), (Start: 6 @43620 has 2 MA's), (8, 43602), (10, 43581), (12, 43521),

Gene: STLscum\_74 Start: 44557, Stop: 44435, Start Num: 4  
Candidate Starts for STLscum\_74:  
(Start: 4 @44557 has 166 MA's), (Start: 5 @44548 has 7 MA's), (Start: 6 @44542 has 2 MA's), (8, 44524), (10, 44503),

Gene: Sagefire\_66 Start: 43769, Stop: 43623, Start Num: 4  
Candidate Starts for Sagefire\_66:  
(Start: 4 @43769 has 166 MA's), (Start: 6 @43754 has 2 MA's), (8, 43736), (10, 43715), (12, 43655),

Gene: Sandaddy\_62 Start: 42037, Stop: 41891, Start Num: 4  
Candidate Starts for Sandaddy\_62:  
(Start: 4 @42037 has 166 MA's), (Start: 6 @42022 has 2 MA's), (8, 42004), (10, 41983), (12, 41923),

Gene: SarFire\_64 Start: 42283, Stop: 42155, Start Num: 4  
Candidate Starts for SarFire\_64:  
(Start: 4 @42283 has 166 MA's), (Start: 6 @42268 has 2 MA's), (8, 42250), (10, 42229),

Gene: Scowl\_66 Start: 42209, Stop: 42087, Start Num: 4  
Candidate Starts for Scowl\_66:  
(Start: 4 @42209 has 166 MA's), (Start: 6 @42194 has 2 MA's), (8, 42176), (10, 42155),

Gene: Seanderson\_67 Start: 44663, Stop: 44517, Start Num: 4  
Candidate Starts for Seanderson\_67:  
(Start: 4 @44663 has 166 MA's), (Start: 5 @44654 has 7 MA's), (Start: 6 @44648 has 2 MA's), (8, 44630), (10, 44609), (12, 44549),

Gene: ShortQueendom\_56 Start: 39733, Stop: 39602, Start Num: 6  
Candidate Starts for ShortQueendom\_56:  
(Start: 4 @39748 has 166 MA's), (Start: 6 @39733 has 2 MA's), (8, 39715), (10, 39694), (11, 39685), (12, 39634),

Gene: Sibs6\_67 Start: 40939, Stop: 40820, Start Num: 4  
Candidate Starts for Sibs6\_67:  
(Start: 4 @40939 has 166 MA's), (Start: 6 @40924 has 2 MA's), (8, 40906), (10, 40885),

Gene: SkiPole\_73 Start: 43830, Stop: 43708, Start Num: 4  
Candidate Starts for SkiPole\_73:  
(Start: 4 @43830 has 166 MA's), (Start: 5 @43821 has 7 MA's), (Start: 6 @43815 has 2 MA's), (8, 43797), (10, 43776),

Gene: Slagathor\_67 Start: 44305, Stop: 44183, Start Num: 4  
Candidate Starts for Slagathor\_67:  
(Start: 4 @44305 has 166 MA's), (Start: 5 @44296 has 7 MA's), (Start: 6 @44290 has 2 MA's), (10, 44251),

Gene: Smairt\_66 Start: 44577, Stop: 44431, Start Num: 4

Candidate Starts for Smairt\_66:

(1, 44670), (2, 44628), (Start: 4 @44577 has 166 MA's), (Start: 5 @44568 has 7 MA's), (Start: 6 @44562 has 2 MA's), (8, 44544), (10, 44523), (12, 44463),

Gene: Smeagol\_67 Start: 44063, Stop: 43917, Start Num: 4

Candidate Starts for Smeagol\_67:

(Start: 4 @44063 has 166 MA's), (Start: 6 @44048 has 2 MA's), (8, 44030), (10, 44009), (12, 43949),

Gene: Snazzy\_62 Start: 41204, Stop: 41058, Start Num: 4

Candidate Starts for Snazzy\_62:

(Start: 4 @41204 has 166 MA's), (Start: 6 @41189 has 2 MA's), (8, 41171), (10, 41150), (11, 41141), (12, 41090),

Gene: Solon\_63 Start: 41771, Stop: 41634, Start Num: 5

Candidate Starts for Solon\_63:

(Start: 4 @41780 has 166 MA's), (Start: 5 @41771 has 7 MA's), (Start: 6 @41765 has 2 MA's), (10, 41726), (11, 41717), (12, 41666),

Gene: Sorpresa\_61 Start: 42039, Stop: 41893, Start Num: 4

Candidate Starts for Sorpresa\_61:

(Start: 4 @42039 has 166 MA's), (Start: 6 @42024 has 2 MA's), (8, 42006), (10, 41985), (12, 41925),

Gene: SpikeBT\_63 Start: 42403, Stop: 42257, Start Num: 4

Candidate Starts for SpikeBT\_63:

(Start: 4 @42403 has 166 MA's), (Start: 6 @42388 has 2 MA's), (8, 42370), (9, 42352), (10, 42349), (12, 42289),

Gene: Squee\_68 Start: 42436, Stop: 42314, Start Num: 4

Candidate Starts for Squee\_68:

(Start: 4 @42436 has 166 MA's), (Start: 6 @42421 has 2 MA's), (8, 42403), (10, 42382),

Gene: StewieG\_59 Start: 38578, Stop: 38441, Start Num: 5

Candidate Starts for StewieG\_59:

(Start: 4 @38587 has 166 MA's), (Start: 5 @38578 has 7 MA's), (Start: 6 @38572 has 2 MA's), (8, 38554), (10, 38533), (12, 38473),

Gene: StrongArm\_63 Start: 43153, Stop: 43031, Start Num: 4

Candidate Starts for StrongArm\_63:

(Start: 4 @43153 has 166 MA's), (Start: 5 @43144 has 7 MA's), (Start: 6 @43138 has 2 MA's), (10, 43099),

Gene: Sumter\_61 Start: 42394, Stop: 42272, Start Num: 4

Candidate Starts for Sumter\_61:

(Start: 4 @42394 has 166 MA's), (Start: 6 @42379 has 2 MA's), (8, 42361), (10, 42340),

Gene: Sunshine924\_69 Start: 42853, Stop: 42707, Start Num: 4

Candidate Starts for Sunshine924\_69:

(1, 42946), (Start: 4 @42853 has 166 MA's), (Start: 5 @42844 has 7 MA's), (Start: 6 @42838 has 2 MA's), (8, 42820), (10, 42799), (12, 42739),

Gene: SwissCheese\_68 Start: 42622, Stop: 42476, Start Num: 4

Candidate Starts for SwissCheese\_68:

(Start: 4 @42622 has 166 MA's), (Start: 6 @42607 has 2 MA's), (10, 42568), (12, 42508),

Gene: Switzer\_66 Start: 43928, Stop: 43806, Start Num: 4

Candidate Starts for Switzer\_66:

(Start: 4 @43928 has 166 MA's), (Start: 6 @43913 has 2 MA's), (10, 43874),

Gene: Swole\_64 Start: 42197, Stop: 42078, Start Num: 4

Candidate Starts for Swole\_64:

(Start: 4 @42197 has 166 MA's), (Start: 6 @42182 has 2 MA's), (8, 42164), (10, 42143),

Gene: Tasp14\_68 Start: 44157, Stop: 44011, Start Num: 4

Candidate Starts for Tasp14\_68:

(Start: 4 @44157 has 166 MA's), (Start: 6 @44142 has 2 MA's), (8, 44124), (10, 44103), (12, 44043),

Gene: Teodoridan\_64 Start: 41520, Stop: 41392, Start Num: 4

Candidate Starts for Teodoridan\_64:

(Start: 4 @41520 has 166 MA's), (Start: 6 @41505 has 2 MA's), (8, 41487), (10, 41466),

Gene: TheloniousMonk\_69 Start: 44891, Stop: 44775, Start Num: 4

Candidate Starts for TheloniousMonk\_69:

(Start: 4 @44891 has 166 MA's), (Start: 6 @44876 has 2 MA's), (10, 44837),

Gene: Thor\_64 Start: 41641, Stop: 41513, Start Num: 4

Candidate Starts for Thor\_64:

(Start: 4 @41641 has 166 MA's), (Start: 6 @41626 has 2 MA's), (8, 41608), (10, 41587),

Gene: Topgun\_62 Start: 41267, Stop: 41121, Start Num: 4

Candidate Starts for Topgun\_62:

(Start: 4 @41267 has 166 MA's), (Start: 5 @41258 has 7 MA's), (Start: 6 @41252 has 2 MA's), (8, 41234), (10, 41213), (12, 41153),

Gene: Tote\_61 Start: 39464, Stop: 39345, Start Num: 4

Candidate Starts for Tote\_61:

(Start: 4 @39464 has 166 MA's), (Start: 6 @39449 has 2 MA's), (8, 39431), (10, 39410),

Gene: Traft412\_68 Start: 43252, Stop: 43130, Start Num: 4

Candidate Starts for Traft412\_68:

(Start: 4 @43252 has 166 MA's), (Start: 5 @43243 has 7 MA's), (Start: 6 @43237 has 2 MA's), (8, 43219), (10, 43198),

Gene: Treddle\_65 Start: 43506, Stop: 43360, Start Num: 4

Candidate Starts for Treddle\_65:

(Start: 4 @43506 has 166 MA's), (Start: 6 @43491 has 2 MA's), (8, 43473), (10, 43452), (12, 43392),

Gene: Tripl3t\_69 Start: 44980, Stop: 44843, Start Num: 5

Candidate Starts for Tripl3t\_69:

(Start: 4 @44989 has 166 MA's), (Start: 5 @44980 has 7 MA's), (Start: 6 @44974 has 2 MA's), (8, 44956), (9, 44938), (10, 44935), (12, 44875),

Gene: Trouble\_65 Start: 42607, Stop: 42461, Start Num: 4

Candidate Starts for Trouble\_65:

(Start: 4 @42607 has 166 MA's), (Start: 5 @42598 has 7 MA's), (Start: 6 @42592 has 2 MA's), (10, 42553), (12, 42493),

Gene: Turj99\_63 Start: 43176, Stop: 43057, Start Num: 4

Candidate Starts for Turj99\_63:

(Start: 4 @43176 has 166 MA's), (Start: 5 @43167 has 7 MA's), (Start: 6 @43161 has 2 MA's), (8, 43143), (10, 43122),

Gene: TwoPeat\_64 Start: 43019, Stop: 42906, Start Num: 5

Candidate Starts for TwoPeat\_64:

(Start: 4 @43028 has 166 MA's), (Start: 5 @43019 has 7 MA's), (Start: 6 @43013 has 2 MA's), (10, 42974),

Gene: Violet\_62 Start: 43864, Stop: 43718, Start Num: 4

Candidate Starts for Violet\_62:

(Start: 4 @43864 has 166 MA's), (Start: 6 @43849 has 2 MA's), (8, 43831), (9, 43813), (10, 43810), (12, 43750),

Gene: Watermelon\_64 Start: 41600, Stop: 41454, Start Num: 4

Candidate Starts for Watermelon\_64:

(Start: 4 @41600 has 166 MA's), (Start: 6 @41585 has 2 MA's), (8, 41567), (10, 41546), (12, 41486),

Gene: Wheeler\_67 Start: 42867, Stop: 42721, Start Num: 4

Candidate Starts for Wheeler\_67:

(Start: 4 @42867 has 166 MA's), (Start: 6 @42852 has 2 MA's), (10, 42813), (12, 42753),

Gene: Wilkins\_63 Start: 41197, Stop: 41051, Start Num: 4

Candidate Starts for Wilkins\_63:

(Start: 4 @41197 has 166 MA's), (Start: 5 @41188 has 7 MA's), (Start: 6 @41182 has 2 MA's), (8, 41164), (10, 41143), (12, 41083),

Gene: Zeeculate\_64 Start: 42837, Stop: 42715, Start Num: 4

Candidate Starts for Zeeculate\_64:

(Start: 4 @42837 has 166 MA's), (Start: 6 @42822 has 2 MA's), (8, 42804), (10, 42783),

Gene: Zephyr\_66 Start: 41938, Stop: 41816, Start Num: 4

Candidate Starts for Zephyr\_66:

(Start: 4 @41938 has 166 MA's), (Start: 5 @41929 has 7 MA's), (Start: 6 @41923 has 2 MA's), (10, 41884), (11, 41875),

Gene: Zeuska\_70 Start: 45101, Stop: 44955, Start Num: 4

Candidate Starts for Zeuska\_70:

(Start: 4 @45101 has 166 MA's), (Start: 6 @45086 has 2 MA's), (8, 45068), (10, 45047), (12, 44987),