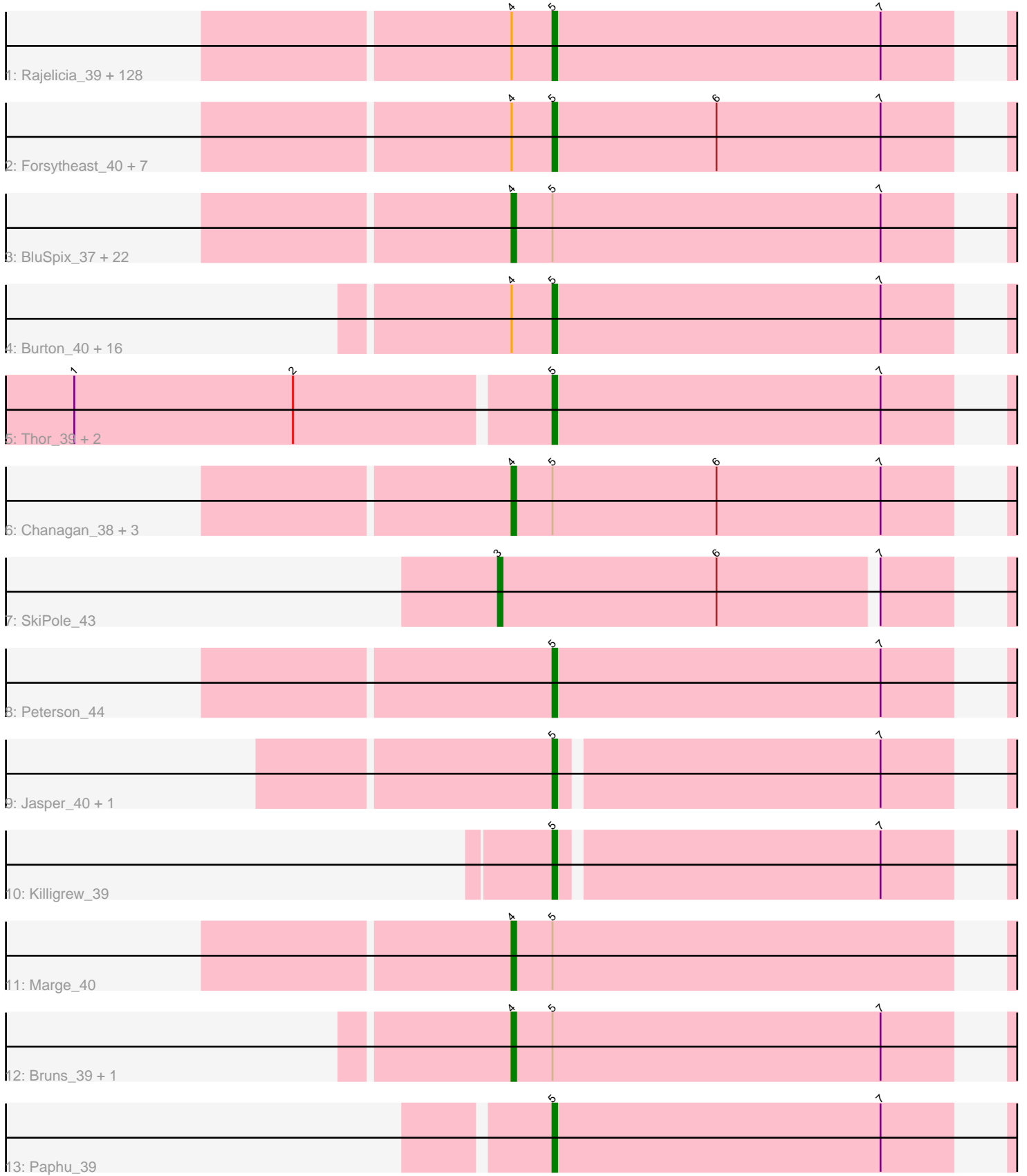


Pham 171218



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 171218 Report

This analysis was run 07/10/24 on database version 566.

Pham number 171218 has 193 members, 13 are drafts.

Phages represented in each track:

- Track 1 : Rajelicia\_39, Seabiscuit\_41, Kugel\_42, Crispicious1\_39, Marcell\_39, Michley\_39, Tasp14\_41, Rubeus\_40, GrecoEtereo\_41, Sorpresa\_39, ILeeKay\_43, Naira\_41, Wheeler\_41, Carlyle\_40, Fajezeel\_42, Cueylyss\_41, Seanderson\_42, Greg\_42, IgnatiusPatJac\_39, Blue\_40, Bexan\_38, U2\_39, PinkPlastic\_38, Trafft412\_41, Snazzy\_38, PascalRango\_40, Trouble\_41, BillKnuckles\_40, Mryolo\_38, Jorgensen\_40, Paraselene\_38, Sandaddy\_40, Kykar\_40, Zephyr\_40, Eyeball\_41, Arcanine\_39, Parliament\_39, SpikeBT\_41, McGuire\_40, MPlant7149\_39, Ashballer\_42, Sibs6\_41, StewieG\_39, Pinto\_41, JuliaChild\_41, AFIS\_39, Gwendoluna\_43, Switzer\_40, Perseus\_41, Ruotula\_42, Nerujay\_42, Norz\_41, Sanya\_39, Pepe\_37, Hope4ever\_41, Lopton\_41, Doom\_41, Rufus\_41, Manatee\_40, Gyzlar\_37, DreamCatcher\_42, Scowl\_40, Fenn\_41, Lesedi\_38, Pippin\_42, DrFeelGood\_39, Abbysshoes\_43, Bob3\_38, Swole\_41, Slagathor\_40, Adahisdi\_40, Treddle\_42, Buttons\_39, Barriga\_40, Makemake\_40, BeesKnees\_40, TheloniousMonk\_41, Oogway\_38, BaconJack\_43, Papez\_42, Tripl3t\_40, Pelly\_40, Squee\_40, KyMonks1A\_43, Anglerfish\_41, Edtherson\_41, Dulcie\_39, Acme\_43, HarryOW\_39, Petruchio\_40, Ichabod\_40, Sunshine924\_41, Ajay\_40, Rhynn\_39, Ciao\_40, Dynamix\_40, Lamina13\_40, PSullivan\_40, Target\_41, QTRlifeCrisis\_41, Applejack\_36, NEHalo\_39, Pita2\_43, Hami1\_34, Briton15\_41, DD5\_40, Abrogate\_400, Tote\_36, Beatrix\_39, RidgeCB\_40, Ringer\_41, Licorice\_43, Gandalf20\_41, Arlo\_38, Nhonho\_40, StrongArm\_39, MaryBeth\_40, Hermia\_42, PattyP\_41, Atkinbua\_41, GageAP\_41, Topgun\_40, Lockley\_40, Smairt\_42, MetalQZJ\_40, STLscum\_41, Kenmech\_44, JC27\_41, PherrisBueller\_40
- Track 2 : Forsytheast\_40, ConceptII\_42, SwissCheese\_42, Marchy\_34, Corvo\_41, Kanely\_41, Payneful\_39, Moose\_40
- Track 3 : BluSpix\_37, Bethlehem\_39, Dussy\_42, Euphoria\_39, Bxb1\_37, BigPaolini\_40, Graduation\_43, Fushigi\_38, HanShotFirst\_39, A6\_37, Dexes\_40, Alsfro\_44, Aeneas\_42, Espresso\_40, Pari\_40, BK1\_37, Rutherferd\_42, PhrostyMug\_40, Monet\_44, Zeuska\_40, Mule\_38, Solon\_40, Watermelon\_42
- Track 4 : Burton\_40, Zeeculate\_39, Big3\_39, Museum\_41, Magnito\_38, BigMau\_41, JackSparrow\_42, Petp2012\_41, Niza\_42, ShortQueendom\_35, Molly\_41, LilBib\_40, TwoPeat\_40, Rohr\_41, Jerm2\_41, HermioneGrange\_40, Turj99\_38
- Track 5 : Thor\_39, SarFire\_39, Smeagol\_41
- Track 6 : Chanagan\_38, Altman\_42, Violet\_38, Teodoridan\_38
- Track 7 : SkiPole\_43
- Track 8 : Peterson\_44
- Track 9 : Jasper\_40, Dreamboat\_40
- Track 10 : Killigrew\_39

- Track 11 : Marge\_40
- Track 12 : Bruns\_39, MrGordo\_39
- Track 13 : Paphu\_39

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

The start number called the most often in the published annotations is 5, it was called in 151 of the 180 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AFIS\_39, Abbyshoes\_43, Abrogate\_400, Acme\_43, Adahisdi\_40, Ajay\_40, Anglerfish\_41, Applejack\_36, Arcanine\_39, Arlo\_38, Ashballer\_42, Atkinbua\_41, BaconJack\_43, Barriga\_40, Beatrix\_39, BeesKnees\_40, Bexan\_38, Big3\_39, BigMau\_41, BillKnuckles\_40, Blue\_40, Bob3\_38, Briton15\_41, Burton\_40, Buttons\_39, Carlyle\_40, Ciao\_40, ConceptII\_42, Corvo\_41, Crispicious1\_39, Cueyllyss\_41, DD5\_40, Doom\_41, DrFeelGood\_39, DreamCatcher\_42, Dreamboat\_40, Dulcie\_39, Dynamix\_40, Edtherson\_41, Eyeball\_41, Fajezeel\_42, Fenn\_41, Forsytheast\_40, GageAP\_41, Gandalf20\_41, GrecoEtereo\_41, Greg\_42, Gwendoluna\_43, Gyzlar\_37, Hami1\_34, HarryOW\_39, Hermia\_42, HermioneGrange\_40, Hope4ever\_41, ILeeKay\_43, Ichabod\_40, IgnatiusPatJac\_39, JC27\_41, JackSparrow\_42, Jasper\_40, Jerm2\_41, Jorgensen\_40, JuliaChild\_41, Kanely\_41, Kenmech\_44, Killigrew\_39, Kugel\_42, KyMonks1A\_43, Kykar\_40, Lamina13\_40, Lesedi\_38, Licorice\_43, LilBib\_40, Lockley\_40, Lopton\_41, MPlant7149\_39, Magnito\_38, Makemake\_40, Manatee\_40, Marcell\_39, Marchy\_34, MaryBeth\_40, McGuire\_40, MetalQZJ\_40, Michley\_39, Molly\_41, Moose\_40, Mryolo\_38, Museum\_41, NEHalo\_39, Naira\_41, Nerujay\_42, Nhonho\_40, Niza\_42, Norz\_41, Oogway\_38, PSullivan\_40, Papez\_42, Paphu\_39, Paraselene\_38, Parliament\_39, PascalRango\_40, PattyP\_41, Payneiful\_39, Pelly\_40, Pepe\_37, Perseus\_41, Peterson\_44, Petp2012\_41, Petruchio\_40, PherrisBueller\_40, PinkPlastic\_38, Pinto\_41, Pippin\_42, Pita2\_43, QTRlifeCrisis\_41, Rajelicia\_39, Rhynn\_39, RidgeCB\_40, Ringer\_41, Rohr\_41, Rubeus\_40, Rufus\_41, Ruotula\_42, STLscum\_41, Sandaddy\_40, Sanya\_39, SarFire\_39, Scowl\_40, Seabiscuit\_41, Seanderson\_42, ShortQueendom\_35, Sibs6\_41, Slagathor\_40, Smairt\_42, Smeagol\_41, Snazzy\_38, Sorpresa\_39, SpikeBT\_41, Squee\_40, StewieG\_39, StrongArm\_39, Sunshine924\_41, SwissCheese\_42, Switzer\_40, Swole\_41, Target\_41, Tasp14\_41, TheloniousMonk\_41, Thor\_39, Topgun\_40, Tote\_36, Traft412\_41, Treddle\_42, Tripl3t\_40, Trouble\_41, Turj99\_38, TwoPeat\_40, U2\_39, Wheeler\_41, Zeeculate\_39, Zephyr\_40,

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

- A6\_37, Aeneas\_42, Alsfro\_44, Altman\_42, BK1\_37, Bethlehem\_39, BigPaolini\_40, BluSpix\_37, Bruns\_39, Bxb1\_37, Chanagan\_38, Dexes\_40, Dussy\_42, Espresso\_40, Euphoria\_39, Fushigi\_38, Graduation\_43, HanShotFirst\_39, Marge\_40, Monet\_44, MrGordo\_39, Mule\_38, Pari\_40, PhrostyMug\_40, Rutherferd\_42, Solon\_40, Teodoridan\_38, Violet\_38, Watermelon\_42, Zeuska\_40,

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

- SkiPole\_43,

**Summary by start number:**

Start 3:

- Found in 1 of 193 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 180
- Called 100.0% of time when present
- Phage (with cluster) where this start called: SkiPole\_43 (A1),

Start 4:

- Found in 184 of 193 ( 95.3% ) of genes in pham
- Manual Annotations of this start: 28 of 180
- Called 16.3% of time when present
- Phage (with cluster) where this start called: A6\_37 (A1), Aeneas\_42 (A1), Alsfro\_44 (A1), Altman\_42 (A1), BK1\_37 (A1), Bethlehem\_39 (A1), BigPaolini\_40 (A1), BluSpix\_37 (A1), Bruns\_39 (A1), Bxb1\_37 (A1), Chanagan\_38 (A1), Dexes\_40 (A1), Dussy\_42 (A1), Espresso\_40 (A1), Euphoria\_39 (A1), Fushigi\_38 (A1), Graduation\_43 (A1), HanShotFirst\_39 (A1), Marge\_40 (A1), Monet\_44 (A1), MrGordo\_39 (A1), Mule\_38 (A1), Pari\_40 (A1), PhrostyMug\_40 (A1), Rutherford\_42 (A1), Solon\_40 (A1), Teodoridan\_38 (A1), Violet\_38 (A1), Watermelon\_42 (A1), Zeuska\_40 (A1),

Start 5:

- Found in 192 of 193 ( 99.5% ) of genes in pham
- Manual Annotations of this start: 151 of 180
- Called 84.4% of time when present
- Phage (with cluster) where this start called: AFIS\_39 (A1), Abbyshoes\_43 (A1), Abrogate\_400 (A1), Acme\_43 (A1), Adahisdi\_40 (A1), Ajay\_40 (A1), Anglerfish\_41 (A1), Applejack\_36 (A1), Arcanine\_39 (A1), Arlo\_38 (A1), Ashballer\_42 (A1), Atkinbua\_41 (A1), BaconJack\_43 (A1), Barriga\_40 (A1), Beatrix\_39 (A1), BeesKnees\_40 (A1), Bexan\_38 (A1), Big3\_39 (A1), BigMau\_41 (A1), BillKnuckles\_40 (A1), Blue\_40 (A1), Bob3\_38 (A1), Briton15\_41 (A1), Burton\_40 (A1), Buttons\_39 (A1), Carlyle\_40 (A1), Ciao\_40 (A1), Conceptll\_42 (A1), Corvo\_41 (A1), Crispicious1\_39 (A1), Cueyllyss\_41 (A1), DD5\_40 (A1), Doom\_41 (A1), DrFeelGood\_39 (A1), DreamCatcher\_42 (A1), Dreamboat\_40 (A1), Dulcie\_39 (A1), Dynamix\_40 (A1), Edtherson\_41 (A1), Eyeball\_41 (A1), Fajezeel\_42 (A1), Fenn\_41 (A1), Forsytheast\_40 (A1), GageAP\_41 (A1), Gandalf20\_41 (A1), GrecoEtereo\_41 (A1), Greg\_42 (A1), Gwendoluna\_43 (A1), Gyzlar\_37 (A1), Hami1\_34 (A1), HarryOW\_39 (A1), Hermia\_42 (A1), HermioneGrange\_40 (A1), Hope4ever\_41 (A1), ILeeKay\_43 (A1), Ichabod\_40 (A1), IgnatiusPatJac\_39 (A1), JC27\_41 (A1), JackSparrow\_42 (A1), Jasper\_40 (A1), Jerm2\_41 (A1), Jorgensen\_40 (A1), JuliaChild\_41 (A1), Kanely\_41 (A1), Kenmech\_44 (A1), Killigrew\_39 (A1), Kugel\_42 (A1), KyMonks1A\_43 (A1), Kykar\_40 (A1), Lamina13\_40 (A1), Lesedi\_38 (A1), Licorice\_43 (A1), LilBib\_40 (A1), Lockley\_40 (A1), Lopton\_41 (A1), MPlant7149\_39 (A1), Magnito\_38 (A1), Makemake\_40 (A1), Manatee\_40 (A1), Marcell\_39 (A1), Marchy\_34 (A1), MaryBeth\_40 (A1), McGuire\_40 (A1), MetalQZJ\_40 (A1), Michley\_39 (A1), Molly\_41 (A1), Moose\_40 (A1), Mryolo\_38 (A1), Museum\_41 (A1), NEHalo\_39 (A1), Naira\_41 (A1), Nerujay\_42 (A1), Nhonho\_40 (A1), Niza\_42 (A1), Norz\_41 (A1), Oogway\_38 (A1), PSullivan\_40 (A1), Papez\_42 (A1), Paphu\_39 (A1), Paraselene\_38 (A1), Parliament\_39 (A1), PascalRango\_40 (A1), PattyP\_41 (A1), Payneful\_39 (A1), Pelly\_40 (A1), Pepe\_37 (A1), Perseus\_41 (A1), Peterson\_44 (A1), Petp2012\_41 (A1), Petruchio\_40 (A1), PherrisBueller\_40 (A1), PinkPlastic\_38 (A1), Pinto\_41 (A1), Pippin\_42 (A1), Pita2\_43 (A1), QTRLifeCrisis\_41 (A1), Rajelicia\_39 (A1), Rhynn\_39 (A1), RidgeCB\_40 (A1), Ringer\_41 (A1), Rohr\_41 (A1), Rubeus\_40 (A1), Rufus\_41 (A1), Ruotula\_42 (A1), STLscum\_41 (A1), Sandaddy\_40 (A1),

Sanya\_39 (A1), SarFire\_39 (A1), Scowl\_40 (A1), Seabiscuit\_41 (A1), Seanderson\_42 (A1), ShortQueendom\_35 (A1), Sibs6\_41 (A1), Slagathor\_40 (A1), Smairt\_42 (A1), Smeagol\_41 (A1), Snazzy\_38 (A1), Sorpresa\_39 (A1), SpikeBT\_41 (A1), Squee\_40 (A1), StewieG\_39 (A1), StrongArm\_39 (A1), Sunshine924\_41 (A1), SwissCheese\_42 (A1), Switzer\_40 (A1), Swole\_41 (A1), Target\_41 (A1), Tasp14\_41 (A1), ThelioniousMonk\_41 (A1), Thor\_39 (A1), Topgun\_40 (A1), Tote\_36 (A1), Traft412\_41 (A1), Treddle\_42 (A1), Tripl3t\_40 (A1), Trouble\_41 (A1), Turj99\_38 (A1), TwoPeat\_40 (A1), U2\_39 (A1), Wheeler\_41 (A1), Zeeculate\_39 (A1), Zephyr\_40 (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 28 times for cluster A1.
- Start number 5 was manually annotated 151 times for cluster A1.

### **Gene Information:**

Gene: A6\_37 Start: 30984, Stop: 30805, Start Num: 4

Candidate Starts for A6\_37:

(Start: 4 @30984 has 28 MA's), (Start: 5 @30975 has 151 MA's), (7, 30903),

Gene: AFIS\_39 Start: 31765, Stop: 31595, Start Num: 5

Candidate Starts for AFIS\_39:

(Start: 4 @31774 has 28 MA's), (Start: 5 @31765 has 151 MA's), (7, 31693),

Gene: Abbyshoes\_43 Start: 32174, Stop: 32004, Start Num: 5

Candidate Starts for Abbyshoes\_43:

(Start: 4 @32183 has 28 MA's), (Start: 5 @32174 has 151 MA's), (7, 32102),

Gene: Abrogate\_400 Start: 32452, Stop: 32282, Start Num: 5

Candidate Starts for Abrogate\_400:

(Start: 4 @32461 has 28 MA's), (Start: 5 @32452 has 151 MA's), (7, 32380),

Gene: Acme\_43 Start: 32292, Stop: 32122, Start Num: 5

Candidate Starts for Acme\_43:

(Start: 4 @32301 has 28 MA's), (Start: 5 @32292 has 151 MA's), (7, 32220),

Gene: Adahisdi\_40 Start: 31815, Stop: 31645, Start Num: 5

Candidate Starts for Adahisdi\_40:

(Start: 4 @31824 has 28 MA's), (Start: 5 @31815 has 151 MA's), (7, 31743),

Gene: Aeneas\_42 Start: 31975, Stop: 31796, Start Num: 4

Candidate Starts for Aeneas\_42:

(Start: 4 @31975 has 28 MA's), (Start: 5 @31966 has 151 MA's), (7, 31894),

Gene: Ajay\_40 Start: 31606, Stop: 31436, Start Num: 5

Candidate Starts for Ajay\_40:

(Start: 4 @31615 has 28 MA's), (Start: 5 @31606 has 151 MA's), (7, 31534),

Gene: Alsfro\_44 Start: 32364, Stop: 32185, Start Num: 4

Candidate Starts for Alsfro\_44:

(Start: 4 @32364 has 28 MA's), (Start: 5 @32355 has 151 MA's), (7, 32283),

Gene: Altman\_42 Start: 32620, Stop: 32441, Start Num: 4

Candidate Starts for Altman\_42:

(Start: 4 @32620 has 28 MA's), (Start: 5 @32611 has 151 MA's), (6, 32575), (7, 32539),

Gene: Anglerfish\_41 Start: 31868, Stop: 31698, Start Num: 5

Candidate Starts for Anglerfish\_41:

(Start: 4 @31877 has 28 MA's), (Start: 5 @31868 has 151 MA's), (7, 31796),

Gene: Applejack\_36 Start: 28682, Stop: 28512, Start Num: 5

Candidate Starts for Applejack\_36:

(Start: 4 @28691 has 28 MA's), (Start: 5 @28682 has 151 MA's), (7, 28610),

Gene: Arcanine\_39 Start: 30988, Stop: 30818, Start Num: 5

Candidate Starts for Arcanine\_39:

(Start: 4 @30997 has 28 MA's), (Start: 5 @30988 has 151 MA's), (7, 30916),

Gene: Arlo\_38 Start: 31496, Stop: 31326, Start Num: 5

Candidate Starts for Arlo\_38:

(Start: 4 @31505 has 28 MA's), (Start: 5 @31496 has 151 MA's), (7, 31424),

Gene: Ashballer\_42 Start: 32748, Stop: 32578, Start Num: 5

Candidate Starts for Ashballer\_42:

(Start: 4 @32757 has 28 MA's), (Start: 5 @32748 has 151 MA's), (7, 32676),

Gene: Atkinbua\_41 Start: 31944, Stop: 31774, Start Num: 5

Candidate Starts for Atkinbua\_41:

(Start: 4 @31953 has 28 MA's), (Start: 5 @31944 has 151 MA's), (7, 31872),

Gene: BK1\_37 Start: 30984, Stop: 30805, Start Num: 4

Candidate Starts for BK1\_37:

(Start: 4 @30984 has 28 MA's), (Start: 5 @30975 has 151 MA's), (7, 30903),

Gene: BaconJack\_43 Start: 32721, Stop: 32551, Start Num: 5

Candidate Starts for BaconJack\_43:

(Start: 4 @32730 has 28 MA's), (Start: 5 @32721 has 151 MA's), (7, 32649),

Gene: Barriga\_40 Start: 31470, Stop: 31300, Start Num: 5

Candidate Starts for Barriga\_40:

(Start: 4 @31479 has 28 MA's), (Start: 5 @31470 has 151 MA's), (7, 31398),

Gene: Beatrix\_39 Start: 32941, Stop: 32771, Start Num: 5

Candidate Starts for Beatrix\_39:

(Start: 4 @32950 has 28 MA's), (Start: 5 @32941 has 151 MA's), (7, 32869),

Gene: BeesKnees\_40 Start: 31526, Stop: 31356, Start Num: 5

Candidate Starts for BeesKnees\_40:

(Start: 4 @31535 has 28 MA's), (Start: 5 @31526 has 151 MA's), (7, 31454),

Gene: Bethlehem\_39 Start: 32238, Stop: 32059, Start Num: 4  
Candidate Starts for Bethlehem\_39:  
(Start: 4 @32238 has 28 MA's), (Start: 5 @32229 has 151 MA's), (7, 32157),

Gene: Bexan\_38 Start: 32629, Stop: 32459, Start Num: 5  
Candidate Starts for Bexan\_38:  
(Start: 4 @32638 has 28 MA's), (Start: 5 @32629 has 151 MA's), (7, 32557),

Gene: Big3\_39 Start: 32107, Stop: 31937, Start Num: 5  
Candidate Starts for Big3\_39:  
(Start: 4 @32116 has 28 MA's), (Start: 5 @32107 has 151 MA's), (7, 32035),

Gene: BigMau\_41 Start: 31603, Stop: 31433, Start Num: 5  
Candidate Starts for BigMau\_41:  
(Start: 4 @31612 has 28 MA's), (Start: 5 @31603 has 151 MA's), (7, 31531),

Gene: BigPaolini\_40 Start: 30608, Stop: 30429, Start Num: 4  
Candidate Starts for BigPaolini\_40:  
(Start: 4 @30608 has 28 MA's), (Start: 5 @30599 has 151 MA's), (7, 30527),

Gene: BillKnuckles\_40 Start: 32329, Stop: 32159, Start Num: 5  
Candidate Starts for BillKnuckles\_40:  
(Start: 4 @32338 has 28 MA's), (Start: 5 @32329 has 151 MA's), (7, 32257),

Gene: BluSpix\_37 Start: 27712, Stop: 27533, Start Num: 4  
Candidate Starts for BluSpix\_37:  
(Start: 4 @27712 has 28 MA's), (Start: 5 @27703 has 151 MA's), (7, 27631),

Gene: Blue\_40 Start: 32387, Stop: 32217, Start Num: 5  
Candidate Starts for Blue\_40:  
(Start: 4 @32396 has 28 MA's), (Start: 5 @32387 has 151 MA's), (7, 32315),

Gene: Bob3\_38 Start: 30953, Stop: 30783, Start Num: 5  
Candidate Starts for Bob3\_38:  
(Start: 4 @30962 has 28 MA's), (Start: 5 @30953 has 151 MA's), (7, 30881),

Gene: Briton15\_41 Start: 31779, Stop: 31609, Start Num: 5  
Candidate Starts for Briton15\_41:  
(Start: 4 @31788 has 28 MA's), (Start: 5 @31779 has 151 MA's), (7, 31707),

Gene: Bruns\_39 Start: 31694, Stop: 31509, Start Num: 4  
Candidate Starts for Bruns\_39:  
(Start: 4 @31694 has 28 MA's), (Start: 5 @31685 has 151 MA's), (7, 31613),

Gene: Burton\_40 Start: 31523, Stop: 31353, Start Num: 5  
Candidate Starts for Burton\_40:  
(Start: 4 @31532 has 28 MA's), (Start: 5 @31523 has 151 MA's), (7, 31451),

Gene: Buttons\_39 Start: 30491, Stop: 30321, Start Num: 5  
Candidate Starts for Buttons\_39:  
(Start: 4 @30500 has 28 MA's), (Start: 5 @30491 has 151 MA's), (7, 30419),

Gene: Bxb1\_37 Start: 31562, Stop: 31383, Start Num: 4  
Candidate Starts for Bxb1\_37:  
(Start: 4 @31562 has 28 MA's), (Start: 5 @31553 has 151 MA's), (7, 31481),

Gene: Carlyle\_40 Start: 30235, Stop: 30065, Start Num: 5  
Candidate Starts for Carlyle\_40:  
(Start: 4 @30244 has 28 MA's), (Start: 5 @30235 has 151 MA's), (7, 30163),

Gene: Chanagan\_38 Start: 31084, Stop: 30905, Start Num: 4  
Candidate Starts for Chanagan\_38:  
(Start: 4 @31084 has 28 MA's), (Start: 5 @31075 has 151 MA's), (6, 31039), (7, 31003),

Gene: Ciao\_40 Start: 31748, Stop: 31578, Start Num: 5  
Candidate Starts for Ciao\_40:  
(Start: 4 @31757 has 28 MA's), (Start: 5 @31748 has 151 MA's), (7, 31676),

Gene: ConceptII\_42 Start: 32765, Stop: 32595, Start Num: 5  
Candidate Starts for ConceptII\_42:  
(Start: 4 @32774 has 28 MA's), (Start: 5 @32765 has 151 MA's), (6, 32729), (7, 32693),

Gene: Corvo\_41 Start: 32625, Stop: 32455, Start Num: 5  
Candidate Starts for Corvo\_41:  
(Start: 4 @32634 has 28 MA's), (Start: 5 @32625 has 151 MA's), (6, 32589), (7, 32553),

Gene: Crispicous1\_39 Start: 31389, Stop: 31219, Start Num: 5  
Candidate Starts for Crispicous1\_39:  
(Start: 4 @31398 has 28 MA's), (Start: 5 @31389 has 151 MA's), (7, 31317),

Gene: Cueyllyss\_41 Start: 32327, Stop: 32157, Start Num: 5  
Candidate Starts for Cueyllyss\_41:  
(Start: 4 @32336 has 28 MA's), (Start: 5 @32327 has 151 MA's), (7, 32255),

Gene: DD5\_40 Start: 32631, Stop: 32461, Start Num: 5  
Candidate Starts for DD5\_40:  
(Start: 4 @32640 has 28 MA's), (Start: 5 @32631 has 151 MA's), (7, 32559),

Gene: Dexes\_40 Start: 32374, Stop: 32195, Start Num: 4  
Candidate Starts for Dexes\_40:  
(Start: 4 @32374 has 28 MA's), (Start: 5 @32365 has 151 MA's), (7, 32293),

Gene: Doom\_41 Start: 32520, Stop: 32350, Start Num: 5  
Candidate Starts for Doom\_41:  
(Start: 4 @32529 has 28 MA's), (Start: 5 @32520 has 151 MA's), (7, 32448),

Gene: DrFeelGood\_39 Start: 32261, Stop: 32091, Start Num: 5  
Candidate Starts for DrFeelGood\_39:  
(Start: 4 @32270 has 28 MA's), (Start: 5 @32261 has 151 MA's), (7, 32189),

Gene: DreamCatcher\_42 Start: 32827, Stop: 32657, Start Num: 5  
Candidate Starts for DreamCatcher\_42:  
(Start: 4 @32836 has 28 MA's), (Start: 5 @32827 has 151 MA's), (7, 32755),

Gene: Dreamboat\_40 Start: 31450, Stop: 31283, Start Num: 5



Candidate Starts for Dreamboat\_40:  
(Start: 5 @31450 has 151 MA's), (7, 31381),

Gene: Dulcie\_39 Start: 31502, Stop: 31332, Start Num: 5  
Candidate Starts for Dulcie\_39:  
(Start: 4 @31511 has 28 MA's), (Start: 5 @31502 has 151 MA's), (7, 31430),

Gene: Dussy\_42 Start: 32203, Stop: 32024, Start Num: 4  
Candidate Starts for Dussy\_42:  
(Start: 4 @32203 has 28 MA's), (Start: 5 @32194 has 151 MA's), (7, 32122),

Gene: Dynamix\_40 Start: 31512, Stop: 31342, Start Num: 5  
Candidate Starts for Dynamix\_40:  
(Start: 4 @31521 has 28 MA's), (Start: 5 @31512 has 151 MA's), (7, 31440),

Gene: Edtherson\_41 Start: 32705, Stop: 32535, Start Num: 5  
Candidate Starts for Edtherson\_41:  
(Start: 4 @32714 has 28 MA's), (Start: 5 @32705 has 151 MA's), (7, 32633),

Gene: Espresso\_40 Start: 32091, Stop: 31912, Start Num: 4  
Candidate Starts for Espresso\_40:  
(Start: 4 @32091 has 28 MA's), (Start: 5 @32082 has 151 MA's), (7, 32010),

Gene: Euphoria\_39 Start: 31555, Stop: 31376, Start Num: 4  
Candidate Starts for Euphoria\_39:  
(Start: 4 @31555 has 28 MA's), (Start: 5 @31546 has 151 MA's), (7, 31474),

Gene: Eyeball\_41 Start: 31997, Stop: 31827, Start Num: 5  
Candidate Starts for Eyeball\_41:  
(Start: 4 @32006 has 28 MA's), (Start: 5 @31997 has 151 MA's), (7, 31925),

Gene: Fajezeel\_42 Start: 32121, Stop: 31951, Start Num: 5  
Candidate Starts for Fajezeel\_42:  
(Start: 4 @32130 has 28 MA's), (Start: 5 @32121 has 151 MA's), (7, 32049),

Gene: Fenn\_41 Start: 33445, Stop: 33275, Start Num: 5  
Candidate Starts for Fenn\_41:  
(Start: 4 @33454 has 28 MA's), (Start: 5 @33445 has 151 MA's), (7, 33373),

Gene: Forsytheast\_40 Start: 31903, Stop: 31733, Start Num: 5  
Candidate Starts for Forsytheast\_40:  
(Start: 4 @31912 has 28 MA's), (Start: 5 @31903 has 151 MA's), (6, 31867), (7, 31831),

Gene: Fushigi\_38 Start: 29740, Stop: 29561, Start Num: 4  
Candidate Starts for Fushigi\_38:  
(Start: 4 @29740 has 28 MA's), (Start: 5 @29731 has 151 MA's), (7, 29659),

Gene: GageAP\_41 Start: 31831, Stop: 31661, Start Num: 5  
Candidate Starts for GageAP\_41:  
(Start: 4 @31840 has 28 MA's), (Start: 5 @31831 has 151 MA's), (7, 31759),

Gene: Gandalf20\_41 Start: 32600, Stop: 32430, Start Num: 5  
Candidate Starts for Gandalf20\_41:

(Start: 4 @32609 has 28 MA's), (Start: 5 @32600 has 151 MA's), (7, 32528),

Gene: Graduation\_43 Start: 32923, Stop: 32744, Start Num: 4

Candidate Starts for Graduation\_43:

(Start: 4 @32923 has 28 MA's), (Start: 5 @32914 has 151 MA's), (7, 32842),

Gene: GrecoEtereo\_41 Start: 32242, Stop: 32072, Start Num: 5

Candidate Starts for GrecoEtereo\_41:

(Start: 4 @32251 has 28 MA's), (Start: 5 @32242 has 151 MA's), (7, 32170),

Gene: Greg\_42 Start: 32121, Stop: 31951, Start Num: 5

Candidate Starts for Greg\_42:

(Start: 4 @32130 has 28 MA's), (Start: 5 @32121 has 151 MA's), (7, 32049),

Gene: Gwendoluna\_43 Start: 33699, Stop: 33529, Start Num: 5

Candidate Starts for Gwendoluna\_43:

(Start: 4 @33708 has 28 MA's), (Start: 5 @33699 has 151 MA's), (7, 33627),

Gene: Gyzlar\_37 Start: 30222, Stop: 30052, Start Num: 5

Candidate Starts for Gyzlar\_37:

(Start: 4 @30231 has 28 MA's), (Start: 5 @30222 has 151 MA's), (7, 30150),

Gene: Hami1\_34 Start: 26660, Stop: 26490, Start Num: 5

Candidate Starts for Hami1\_34:

(Start: 4 @26669 has 28 MA's), (Start: 5 @26660 has 151 MA's), (7, 26588),

Gene: HanShotFirst\_39 Start: 31264, Stop: 31085, Start Num: 4

Candidate Starts for HanShotFirst\_39:

(Start: 4 @31264 has 28 MA's), (Start: 5 @31255 has 151 MA's), (7, 31183),

Gene: HarryOW\_39 Start: 31414, Stop: 31244, Start Num: 5

Candidate Starts for HarryOW\_39:

(Start: 4 @31423 has 28 MA's), (Start: 5 @31414 has 151 MA's), (7, 31342),

Gene: Hermia\_42 Start: 32970, Stop: 32800, Start Num: 5

Candidate Starts for Hermia\_42:

(Start: 4 @32979 has 28 MA's), (Start: 5 @32970 has 151 MA's), (7, 32898),

Gene: HermioneGrange\_40 Start: 32097, Stop: 31927, Start Num: 5

Candidate Starts for HermioneGrange\_40:

(Start: 4 @32106 has 28 MA's), (Start: 5 @32097 has 151 MA's), (7, 32025),

Gene: Hope4ever\_41 Start: 32288, Stop: 32118, Start Num: 5

Candidate Starts for Hope4ever\_41:

(Start: 4 @32297 has 28 MA's), (Start: 5 @32288 has 151 MA's), (7, 32216),

Gene: ILeeKay\_43 Start: 32364, Stop: 32194, Start Num: 5

Candidate Starts for ILeeKay\_43:

(Start: 4 @32373 has 28 MA's), (Start: 5 @32364 has 151 MA's), (7, 32292),

Gene: Ichabod\_40 Start: 31653, Stop: 31483, Start Num: 5

Candidate Starts for Ichabod\_40:

(Start: 4 @31662 has 28 MA's), (Start: 5 @31653 has 151 MA's), (7, 31581),

Gene: IgnatiusPatJac\_39 Start: 31648, Stop: 31478, Start Num: 5  
Candidate Starts for IgnatiusPatJac\_39:  
(Start: 4 @31657 has 28 MA's), (Start: 5 @31648 has 151 MA's), (7, 31576),

Gene: JC27\_41 Start: 32318, Stop: 32148, Start Num: 5  
Candidate Starts for JC27\_41:  
(Start: 4 @32327 has 28 MA's), (Start: 5 @32318 has 151 MA's), (7, 32246),

Gene: JackSparrow\_42 Start: 32628, Stop: 32458, Start Num: 5  
Candidate Starts for JackSparrow\_42:  
(Start: 4 @32637 has 28 MA's), (Start: 5 @32628 has 151 MA's), (7, 32556),

Gene: Jasper\_40 Start: 31336, Stop: 31169, Start Num: 5  
Candidate Starts for Jasper\_40:  
(Start: 5 @31336 has 151 MA's), (7, 31267),

Gene: Jerm2\_41 Start: 32352, Stop: 32182, Start Num: 5  
Candidate Starts for Jerm2\_41:  
(Start: 4 @32361 has 28 MA's), (Start: 5 @32352 has 151 MA's), (7, 32280),

Gene: Jorgensen\_40 Start: 31743, Stop: 31573, Start Num: 5  
Candidate Starts for Jorgensen\_40:  
(Start: 4 @31752 has 28 MA's), (Start: 5 @31743 has 151 MA's), (7, 31671),

Gene: JuliaChild\_41 Start: 32088, Stop: 31918, Start Num: 5  
Candidate Starts for JuliaChild\_41:  
(Start: 4 @32097 has 28 MA's), (Start: 5 @32088 has 151 MA's), (7, 32016),

Gene: Kanely\_41 Start: 32387, Stop: 32217, Start Num: 5  
Candidate Starts for Kanely\_41:  
(Start: 4 @32396 has 28 MA's), (Start: 5 @32387 has 151 MA's), (6, 32351), (7, 32315),

Gene: Kenmech\_44 Start: 33320, Stop: 33150, Start Num: 5  
Candidate Starts for Kenmech\_44:  
(Start: 4 @33329 has 28 MA's), (Start: 5 @33320 has 151 MA's), (7, 33248),

Gene: Killigrew\_39 Start: 31871, Stop: 31704, Start Num: 5  
Candidate Starts for Killigrew\_39:  
(Start: 5 @31871 has 151 MA's), (7, 31802),

Gene: Kugel\_42 Start: 32536, Stop: 32366, Start Num: 5  
Candidate Starts for Kugel\_42:  
(Start: 4 @32545 has 28 MA's), (Start: 5 @32536 has 151 MA's), (7, 32464),

Gene: KyMonks1A\_43 Start: 32408, Stop: 32238, Start Num: 5  
Candidate Starts for KyMonks1A\_43:  
(Start: 4 @32417 has 28 MA's), (Start: 5 @32408 has 151 MA's), (7, 32336),

Gene: Kykar\_40 Start: 31704, Stop: 31534, Start Num: 5  
Candidate Starts for Kykar\_40:  
(Start: 4 @31713 has 28 MA's), (Start: 5 @31704 has 151 MA's), (7, 31632),

Gene: Lamina13\_40 Start: 31497, Stop: 31327, Start Num: 5  
Candidate Starts for Lamina13\_40:  
(Start: 4 @31506 has 28 MA's), (Start: 5 @31497 has 151 MA's), (7, 31425),

Gene: Lesedi\_38 Start: 31377, Stop: 31207, Start Num: 5  
Candidate Starts for Lesedi\_38:  
(Start: 4 @31386 has 28 MA's), (Start: 5 @31377 has 151 MA's), (7, 31305),

Gene: Licorice\_43 Start: 33195, Stop: 33025, Start Num: 5  
Candidate Starts for Licorice\_43:  
(Start: 4 @33204 has 28 MA's), (Start: 5 @33195 has 151 MA's), (7, 33123),

Gene: LilBib\_40 Start: 32462, Stop: 32292, Start Num: 5  
Candidate Starts for LilBib\_40:  
(Start: 4 @32471 has 28 MA's), (Start: 5 @32462 has 151 MA's), (7, 32390),

Gene: Lockley\_40 Start: 31793, Stop: 31623, Start Num: 5  
Candidate Starts for Lockley\_40:  
(Start: 4 @31802 has 28 MA's), (Start: 5 @31793 has 151 MA's), (7, 31721),

Gene: Lopton\_41 Start: 33294, Stop: 33112, Start Num: 5  
Candidate Starts for Lopton\_41:  
(Start: 4 @33303 has 28 MA's), (Start: 5 @33294 has 151 MA's), (7, 33222),

Gene: MPlant7149\_39 Start: 31162, Stop: 30992, Start Num: 5  
Candidate Starts for MPlant7149\_39:  
(Start: 4 @31171 has 28 MA's), (Start: 5 @31162 has 151 MA's), (7, 31090),

Gene: Magnito\_38 Start: 31167, Stop: 30985, Start Num: 5  
Candidate Starts for Magnito\_38:  
(Start: 4 @31176 has 28 MA's), (Start: 5 @31167 has 151 MA's), (7, 31095),

Gene: Makemake\_40 Start: 32809, Stop: 32639, Start Num: 5  
Candidate Starts for Makemake\_40:  
(Start: 4 @32818 has 28 MA's), (Start: 5 @32809 has 151 MA's), (7, 32737),

Gene: Manatee\_40 Start: 31188, Stop: 31018, Start Num: 5  
Candidate Starts for Manatee\_40:  
(Start: 4 @31197 has 28 MA's), (Start: 5 @31188 has 151 MA's), (7, 31116),

Gene: Marcell\_39 Start: 31852, Stop: 31682, Start Num: 5  
Candidate Starts for Marcell\_39:  
(Start: 4 @31861 has 28 MA's), (Start: 5 @31852 has 151 MA's), (7, 31780),

Gene: Marchy\_34 Start: 28627, Stop: 28457, Start Num: 5  
Candidate Starts for Marchy\_34:  
(Start: 4 @28636 has 28 MA's), (Start: 5 @28627 has 151 MA's), (6, 28591), (7, 28555),

Gene: Marge\_40 Start: 32249, Stop: 32070, Start Num: 4  
Candidate Starts for Marge\_40:  
(Start: 4 @32249 has 28 MA's), (Start: 5 @32240 has 151 MA's),

Gene: MaryBeth\_40 Start: 31842, Stop: 31672, Start Num: 5

Candidate Starts for MaryBeth\_40:  
(Start: 4 @31851 has 28 MA's), (Start: 5 @31842 has 151 MA's), (7, 31770),

Gene: McGuire\_40 Start: 31484, Stop: 31314, Start Num: 5  
Candidate Starts for McGuire\_40:  
(Start: 4 @31493 has 28 MA's), (Start: 5 @31484 has 151 MA's), (7, 31412),

Gene: MetalQZJ\_40 Start: 31842, Stop: 31672, Start Num: 5  
Candidate Starts for MetalQZJ\_40:  
(Start: 4 @31851 has 28 MA's), (Start: 5 @31842 has 151 MA's), (7, 31770),

Gene: Michley\_39 Start: 31329, Stop: 31159, Start Num: 5  
Candidate Starts for Michley\_39:  
(Start: 4 @31338 has 28 MA's), (Start: 5 @31329 has 151 MA's), (7, 31257),

Gene: Molly\_41 Start: 31396, Stop: 31226, Start Num: 5  
Candidate Starts for Molly\_41:  
(Start: 4 @31405 has 28 MA's), (Start: 5 @31396 has 151 MA's), (7, 31324),

Gene: Monet\_44 Start: 33667, Stop: 33488, Start Num: 4  
Candidate Starts for Monet\_44:  
(Start: 4 @33667 has 28 MA's), (Start: 5 @33658 has 151 MA's), (7, 33586),

Gene: Moose\_40 Start: 31903, Stop: 31733, Start Num: 5  
Candidate Starts for Moose\_40:  
(Start: 4 @31912 has 28 MA's), (Start: 5 @31903 has 151 MA's), (6, 31867), (7, 31831),

Gene: MrGordo\_39 Start: 31201, Stop: 31022, Start Num: 4  
Candidate Starts for MrGordo\_39:  
(Start: 4 @31201 has 28 MA's), (Start: 5 @31192 has 151 MA's), (7, 31120),

Gene: Mryolo\_38 Start: 31387, Stop: 31217, Start Num: 5  
Candidate Starts for Mryolo\_38:  
(Start: 4 @31396 has 28 MA's), (Start: 5 @31387 has 151 MA's), (7, 31315),

Gene: Mule\_38 Start: 29717, Stop: 29538, Start Num: 4  
Candidate Starts for Mule\_38:  
(Start: 4 @29717 has 28 MA's), (Start: 5 @29708 has 151 MA's), (7, 29636),

Gene: Museum\_41 Start: 31462, Stop: 31292, Start Num: 5  
Candidate Starts for Museum\_41:  
(Start: 4 @31471 has 28 MA's), (Start: 5 @31462 has 151 MA's), (7, 31390),

Gene: NEHalo\_39 Start: 31421, Stop: 31251, Start Num: 5  
Candidate Starts for NEHalo\_39:  
(Start: 4 @31430 has 28 MA's), (Start: 5 @31421 has 151 MA's), (7, 31349),

Gene: Naira\_41 Start: 33492, Stop: 33322, Start Num: 5  
Candidate Starts for Naira\_41:  
(Start: 4 @33501 has 28 MA's), (Start: 5 @33492 has 151 MA's), (7, 33420),

Gene: Nerujay\_42 Start: 32529, Stop: 32359, Start Num: 5  
Candidate Starts for Nerujay\_42:

(Start: 4 @32538 has 28 MA's), (Start: 5 @32529 has 151 MA's), (7, 32457),

Gene: Nhonho\_40 Start: 32214, Stop: 32044, Start Num: 5

Candidate Starts for Nhonho\_40:

(Start: 4 @32223 has 28 MA's), (Start: 5 @32214 has 151 MA's), (7, 32142),

Gene: Niza\_42 Start: 32891, Stop: 32709, Start Num: 5

Candidate Starts for Niza\_42:

(Start: 4 @32900 has 28 MA's), (Start: 5 @32891 has 151 MA's), (7, 32819),

Gene: Norz\_41 Start: 32339, Stop: 32169, Start Num: 5

Candidate Starts for Norz\_41:

(Start: 4 @32348 has 28 MA's), (Start: 5 @32339 has 151 MA's), (7, 32267),

Gene: Oogway\_38 Start: 31022, Stop: 30852, Start Num: 5

Candidate Starts for Oogway\_38:

(Start: 4 @31031 has 28 MA's), (Start: 5 @31022 has 151 MA's), (7, 30950),

Gene: PSullivan\_40 Start: 31416, Stop: 31246, Start Num: 5

Candidate Starts for PSullivan\_40:

(Start: 4 @31425 has 28 MA's), (Start: 5 @31416 has 151 MA's), (7, 31344),

Gene: Papez\_42 Start: 33553, Stop: 33383, Start Num: 5

Candidate Starts for Papez\_42:

(Start: 4 @33562 has 28 MA's), (Start: 5 @33553 has 151 MA's), (7, 33481),

Gene: Paphu\_39 Start: 31605, Stop: 31435, Start Num: 5

Candidate Starts for Paphu\_39:

(Start: 5 @31605 has 151 MA's), (7, 31533),

Gene: Paraselene\_38 Start: 31889, Stop: 31719, Start Num: 5

Candidate Starts for Paraselene\_38:

(Start: 4 @31898 has 28 MA's), (Start: 5 @31889 has 151 MA's), (7, 31817),

Gene: Pari\_40 Start: 31263, Stop: 31084, Start Num: 4

Candidate Starts for Pari\_40:

(Start: 4 @31263 has 28 MA's), (Start: 5 @31254 has 151 MA's), (7, 31182),

Gene: Parliament\_39 Start: 32031, Stop: 31861, Start Num: 5

Candidate Starts for Parliament\_39:

(Start: 4 @32040 has 28 MA's), (Start: 5 @32031 has 151 MA's), (7, 31959),

Gene: PascalRango\_40 Start: 31562, Stop: 31392, Start Num: 5

Candidate Starts for PascalRango\_40:

(Start: 4 @31571 has 28 MA's), (Start: 5 @31562 has 151 MA's), (7, 31490),

Gene: PattyP\_41 Start: 31752, Stop: 31582, Start Num: 5

Candidate Starts for PattyP\_41:

(Start: 4 @31761 has 28 MA's), (Start: 5 @31752 has 151 MA's), (7, 31680),

Gene: Payneful\_39 Start: 31344, Stop: 31174, Start Num: 5

Candidate Starts for Payneful\_39:

(Start: 4 @31353 has 28 MA's), (Start: 5 @31344 has 151 MA's), (6, 31308), (7, 31272),

Gene: Pelly\_40 Start: 32286, Stop: 32116, Start Num: 5  
Candidate Starts for Pelly\_40:  
(Start: 4 @32295 has 28 MA's), (Start: 5 @32286 has 151 MA's), (7, 32214),

Gene: Pepe\_37 Start: 30001, Stop: 29831, Start Num: 5  
Candidate Starts for Pepe\_37:  
(Start: 4 @30010 has 28 MA's), (Start: 5 @30001 has 151 MA's), (7, 29929),

Gene: Perseus\_41 Start: 32568, Stop: 32398, Start Num: 5  
Candidate Starts for Perseus\_41:  
(Start: 4 @32577 has 28 MA's), (Start: 5 @32568 has 151 MA's), (7, 32496),

Gene: Peterson\_44 Start: 34140, Stop: 33970, Start Num: 5  
Candidate Starts for Peterson\_44:  
(Start: 5 @34140 has 151 MA's), (7, 34068),

Gene: Petp2012\_41 Start: 32380, Stop: 32210, Start Num: 5  
Candidate Starts for Petp2012\_41:  
(Start: 4 @32389 has 28 MA's), (Start: 5 @32380 has 151 MA's), (7, 32308),

Gene: Petruccio\_40 Start: 31734, Stop: 31564, Start Num: 5  
Candidate Starts for Petruccio\_40:  
(Start: 4 @31743 has 28 MA's), (Start: 5 @31734 has 151 MA's), (7, 31662),

Gene: PherrisBueller\_40 Start: 31350, Stop: 31180, Start Num: 5  
Candidate Starts for PherrisBueller\_40:  
(Start: 4 @31359 has 28 MA's), (Start: 5 @31350 has 151 MA's), (7, 31278),

Gene: PhrostyMug\_40 Start: 31873, Stop: 31694, Start Num: 4  
Candidate Starts for PhrostyMug\_40:  
(Start: 4 @31873 has 28 MA's), (Start: 5 @31864 has 151 MA's), (7, 31792),

Gene: PinkPlastic\_38 Start: 31264, Stop: 31094, Start Num: 5  
Candidate Starts for PinkPlastic\_38:  
(Start: 4 @31273 has 28 MA's), (Start: 5 @31264 has 151 MA's), (7, 31192),

Gene: Pinto\_41 Start: 31696, Stop: 31526, Start Num: 5  
Candidate Starts for Pinto\_41:  
(Start: 4 @31705 has 28 MA's), (Start: 5 @31696 has 151 MA's), (7, 31624),

Gene: Pippin\_42 Start: 32165, Stop: 31995, Start Num: 5  
Candidate Starts for Pippin\_42:  
(Start: 4 @32174 has 28 MA's), (Start: 5 @32165 has 151 MA's), (7, 32093),

Gene: Pita2\_43 Start: 32913, Stop: 32743, Start Num: 5  
Candidate Starts for Pita2\_43:  
(Start: 4 @32922 has 28 MA's), (Start: 5 @32913 has 151 MA's), (7, 32841),

Gene: QTRlifeCrisis\_41 Start: 32687, Stop: 32517, Start Num: 5  
Candidate Starts for QTRlifeCrisis\_41:  
(Start: 4 @32696 has 28 MA's), (Start: 5 @32687 has 151 MA's), (7, 32615),

Gene: Rajelicia\_39 Start: 31650, Stop: 31480, Start Num: 5  
Candidate Starts for Rajelicia\_39:  
(Start: 4 @31659 has 28 MA's), (Start: 5 @31650 has 151 MA's), (7, 31578),

Gene: Rhynn\_39 Start: 31665, Stop: 31495, Start Num: 5  
Candidate Starts for Rhynn\_39:  
(Start: 4 @31674 has 28 MA's), (Start: 5 @31665 has 151 MA's), (7, 31593),

Gene: RidgeCB\_40 Start: 31700, Stop: 31530, Start Num: 5  
Candidate Starts for RidgeCB\_40:  
(Start: 4 @31709 has 28 MA's), (Start: 5 @31700 has 151 MA's), (7, 31628),

Gene: Ringer\_41 Start: 32553, Stop: 32383, Start Num: 5  
Candidate Starts for Ringer\_41:  
(Start: 4 @32562 has 28 MA's), (Start: 5 @32553 has 151 MA's), (7, 32481),

Gene: Rohr\_41 Start: 32398, Stop: 32228, Start Num: 5  
Candidate Starts for Rohr\_41:  
(Start: 4 @32407 has 28 MA's), (Start: 5 @32398 has 151 MA's), (7, 32326),

Gene: Rubeus\_40 Start: 30178, Stop: 30008, Start Num: 5  
Candidate Starts for Rubeus\_40:  
(Start: 4 @30187 has 28 MA's), (Start: 5 @30178 has 151 MA's), (7, 30106),

Gene: Rufus\_41 Start: 32021, Stop: 31851, Start Num: 5  
Candidate Starts for Rufus\_41:  
(Start: 4 @32030 has 28 MA's), (Start: 5 @32021 has 151 MA's), (7, 31949),

Gene: Ruotula\_42 Start: 33002, Stop: 32832, Start Num: 5  
Candidate Starts for Ruotula\_42:  
(Start: 4 @33011 has 28 MA's), (Start: 5 @33002 has 151 MA's), (7, 32930),

Gene: Rutherferd\_42 Start: 32941, Stop: 32762, Start Num: 4  
Candidate Starts for Rutherferd\_42:  
(Start: 4 @32941 has 28 MA's), (Start: 5 @32932 has 151 MA's), (7, 32860),

Gene: STLscum\_41 Start: 32737, Stop: 32531, Start Num: 5  
Candidate Starts for STLscum\_41:  
(Start: 4 @32746 has 28 MA's), (Start: 5 @32737 has 151 MA's), (7, 32665),

Gene: Sandaddy\_40 Start: 32305, Stop: 32135, Start Num: 5  
Candidate Starts for Sandaddy\_40:  
(Start: 4 @32314 has 28 MA's), (Start: 5 @32305 has 151 MA's), (7, 32233),

Gene: Sanya\_39 Start: 32598, Stop: 32428, Start Num: 5  
Candidate Starts for Sanya\_39:  
(Start: 4 @32607 has 28 MA's), (Start: 5 @32598 has 151 MA's), (7, 32526),

Gene: SarFire\_39 Start: 31724, Stop: 31554, Start Num: 5  
Candidate Starts for SarFire\_39:  
(1, 31826), (2, 31778), (Start: 5 @31724 has 151 MA's), (7, 31652),

Gene: Scowl\_40 Start: 32373, Stop: 32203, Start Num: 5



Candidate Starts for Scowl\_40:  
(Start: 4 @32382 has 28 MA's), (Start: 5 @32373 has 151 MA's), (7, 32301),

Gene: Seabiscuit\_41 Start: 31495, Stop: 31325, Start Num: 5  
Candidate Starts for Seabiscuit\_41:  
(Start: 4 @31504 has 28 MA's), (Start: 5 @31495 has 151 MA's), (7, 31423),

Gene: Seanderson\_42 Start: 32707, Stop: 32537, Start Num: 5  
Candidate Starts for Seanderson\_42:  
(Start: 4 @32716 has 28 MA's), (Start: 5 @32707 has 151 MA's), (7, 32635),

Gene: ShortQueendom\_35 Start: 28384, Stop: 28214, Start Num: 5  
Candidate Starts for ShortQueendom\_35:  
(Start: 4 @28393 has 28 MA's), (Start: 5 @28384 has 151 MA's), (7, 28312),

Gene: Sibs6\_41 Start: 31048, Stop: 30878, Start Num: 5  
Candidate Starts for Sibs6\_41:  
(Start: 4 @31057 has 28 MA's), (Start: 5 @31048 has 151 MA's), (7, 30976),

Gene: SkiPole\_43 Start: 32265, Stop: 32086, Start Num: 3  
Candidate Starts for SkiPole\_43:  
(Start: 3 @32265 has 1 MA's), (6, 32217), (7, 32184),

Gene: Slagathor\_40 Start: 31575, Stop: 31405, Start Num: 5  
Candidate Starts for Slagathor\_40:  
(Start: 4 @31584 has 28 MA's), (Start: 5 @31575 has 151 MA's), (7, 31503),

Gene: Smairt\_42 Start: 32415, Stop: 32245, Start Num: 5  
Candidate Starts for Smairt\_42:  
(Start: 4 @32424 has 28 MA's), (Start: 5 @32415 has 151 MA's), (7, 32343),

Gene: Smeagol\_41 Start: 32897, Stop: 32727, Start Num: 5  
Candidate Starts for Smeagol\_41:  
(1, 32999), (2, 32951), (Start: 5 @32897 has 151 MA's), (7, 32825),

Gene: Snazzy\_38 Start: 31451, Stop: 31281, Start Num: 5  
Candidate Starts for Snazzy\_38:  
(Start: 4 @31460 has 28 MA's), (Start: 5 @31451 has 151 MA's), (7, 31379),

Gene: Solon\_40 Start: 32186, Stop: 32007, Start Num: 4  
Candidate Starts for Solon\_40:  
(Start: 4 @32186 has 28 MA's), (Start: 5 @32177 has 151 MA's), (7, 32105),

Gene: Sorpresa\_39 Start: 32307, Stop: 32137, Start Num: 5  
Candidate Starts for Sorpresa\_39:  
(Start: 4 @32316 has 28 MA's), (Start: 5 @32307 has 151 MA's), (7, 32235),

Gene: SpikeBT\_41 Start: 32528, Stop: 32358, Start Num: 5  
Candidate Starts for SpikeBT\_41:  
(Start: 4 @32537 has 28 MA's), (Start: 5 @32528 has 151 MA's), (7, 32456),

Gene: Squee\_40 Start: 32302, Stop: 32132, Start Num: 5  
Candidate Starts for Squee\_40:

(Start: 4 @32311 has 28 MA's), (Start: 5 @32302 has 151 MA's), (7, 32230),

Gene: StewieG\_39 Start: 29735, Stop: 29565, Start Num: 5

Candidate Starts for StewieG\_39:

(Start: 4 @29744 has 28 MA's), (Start: 5 @29735 has 151 MA's), (7, 29663),

Gene: StrongArm\_39 Start: 32757, Stop: 32587, Start Num: 5

Candidate Starts for StrongArm\_39:

(Start: 4 @32766 has 28 MA's), (Start: 5 @32757 has 151 MA's), (7, 32685),

Gene: Sunshine924\_41 Start: 31586, Stop: 31416, Start Num: 5

Candidate Starts for Sunshine924\_41:

(Start: 4 @31595 has 28 MA's), (Start: 5 @31586 has 151 MA's), (7, 31514),

Gene: SwissCheese\_42 Start: 32403, Stop: 32233, Start Num: 5

Candidate Starts for SwissCheese\_42:

(Start: 4 @32412 has 28 MA's), (Start: 5 @32403 has 151 MA's), (6, 32367), (7, 32331),

Gene: Switzer\_40 Start: 31591, Stop: 31421, Start Num: 5

Candidate Starts for Switzer\_40:

(Start: 4 @31600 has 28 MA's), (Start: 5 @31591 has 151 MA's), (7, 31519),

Gene: Swole\_41 Start: 31563, Stop: 31393, Start Num: 5

Candidate Starts for Swole\_41:

(Start: 4 @31572 has 28 MA's), (Start: 5 @31563 has 151 MA's), (7, 31491),

Gene: Target\_41 Start: 30960, Stop: 30790, Start Num: 5

Candidate Starts for Target\_41:

(Start: 4 @30969 has 28 MA's), (Start: 5 @30960 has 151 MA's), (7, 30888),

Gene: Tasp14\_41 Start: 32121, Stop: 31951, Start Num: 5

Candidate Starts for Tasp14\_41:

(Start: 4 @32130 has 28 MA's), (Start: 5 @32121 has 151 MA's), (7, 32049),

Gene: Teodoridan\_38 Start: 31202, Stop: 31023, Start Num: 4

Candidate Starts for Teodoridan\_38:

(Start: 4 @31202 has 28 MA's), (Start: 5 @31193 has 151 MA's), (6, 31157), (7, 31121),

Gene: TheloniousMonk\_41 Start: 33133, Stop: 32963, Start Num: 5

Candidate Starts for TheloniousMonk\_41:

(Start: 4 @33142 has 28 MA's), (Start: 5 @33133 has 151 MA's), (7, 33061),

Gene: Thor\_39 Start: 31082, Stop: 30912, Start Num: 5

Candidate Starts for Thor\_39:

(1, 31184), (2, 31136), (Start: 5 @31082 has 151 MA's), (7, 31010),

Gene: Topgun\_40 Start: 31721, Stop: 31551, Start Num: 5

Candidate Starts for Topgun\_40:

(Start: 4 @31730 has 28 MA's), (Start: 5 @31721 has 151 MA's), (7, 31649),

Gene: Tote\_36 Start: 28830, Stop: 28660, Start Num: 5

Candidate Starts for Tote\_36:

(Start: 4 @28839 has 28 MA's), (Start: 5 @28830 has 151 MA's), (7, 28758),

Gene: Traft412\_41 Start: 32653, Stop: 32483, Start Num: 5  
Candidate Starts for Traft412\_41:  
(Start: 4 @32662 has 28 MA's), (Start: 5 @32653 has 151 MA's), (7, 32581),

Gene: Treddle\_42 Start: 33176, Stop: 33006, Start Num: 5  
Candidate Starts for Treddle\_42:  
(Start: 4 @33185 has 28 MA's), (Start: 5 @33176 has 151 MA's), (7, 33104),

Gene: Tripl3t\_40 Start: 32581, Stop: 32411, Start Num: 5  
Candidate Starts for Tripl3t\_40:  
(Start: 4 @32590 has 28 MA's), (Start: 5 @32581 has 151 MA's), (7, 32509),

Gene: Trouble\_41 Start: 32820, Stop: 32650, Start Num: 5  
Candidate Starts for Trouble\_41:  
(Start: 4 @32829 has 28 MA's), (Start: 5 @32820 has 151 MA's), (7, 32748),

Gene: Turj99\_38 Start: 31437, Stop: 31255, Start Num: 5  
Candidate Starts for Turj99\_38:  
(Start: 4 @31446 has 28 MA's), (Start: 5 @31437 has 151 MA's), (7, 31365),

Gene: TwoPeat\_40 Start: 31881, Stop: 31711, Start Num: 5  
Candidate Starts for TwoPeat\_40:  
(Start: 4 @31890 has 28 MA's), (Start: 5 @31881 has 151 MA's), (7, 31809),

Gene: U2\_39 Start: 31574, Stop: 31404, Start Num: 5  
Candidate Starts for U2\_39:  
(Start: 4 @31583 has 28 MA's), (Start: 5 @31574 has 151 MA's), (7, 31502),

Gene: Violet\_38 Start: 32008, Stop: 31829, Start Num: 4  
Candidate Starts for Violet\_38:  
(Start: 4 @32008 has 28 MA's), (Start: 5 @31999 has 151 MA's), (6, 31963), (7, 31927),

Gene: Watermelon\_42 Start: 32616, Stop: 32437, Start Num: 4  
Candidate Starts for Watermelon\_42:  
(Start: 4 @32616 has 28 MA's), (Start: 5 @32607 has 151 MA's), (7, 32535),

Gene: Wheeler\_41 Start: 32297, Stop: 32127, Start Num: 5  
Candidate Starts for Wheeler\_41:  
(Start: 4 @32306 has 28 MA's), (Start: 5 @32297 has 151 MA's), (7, 32225),

Gene: Zeeculate\_39 Start: 32272, Stop: 32105, Start Num: 5  
Candidate Starts for Zeeculate\_39:  
(Start: 4 @32281 has 28 MA's), (Start: 5 @32272 has 151 MA's), (7, 32203),

Gene: Zephyr\_40 Start: 31983, Stop: 31813, Start Num: 5  
Candidate Starts for Zephyr\_40:  
(Start: 4 @31992 has 28 MA's), (Start: 5 @31983 has 151 MA's), (7, 31911),

Gene: Zeuska\_40 Start: 32234, Stop: 32055, Start Num: 4  
Candidate Starts for Zeuska\_40:  
(Start: 4 @32234 has 28 MA's), (Start: 5 @32225 has 151 MA's), (7, 32153),