

Pham 171192

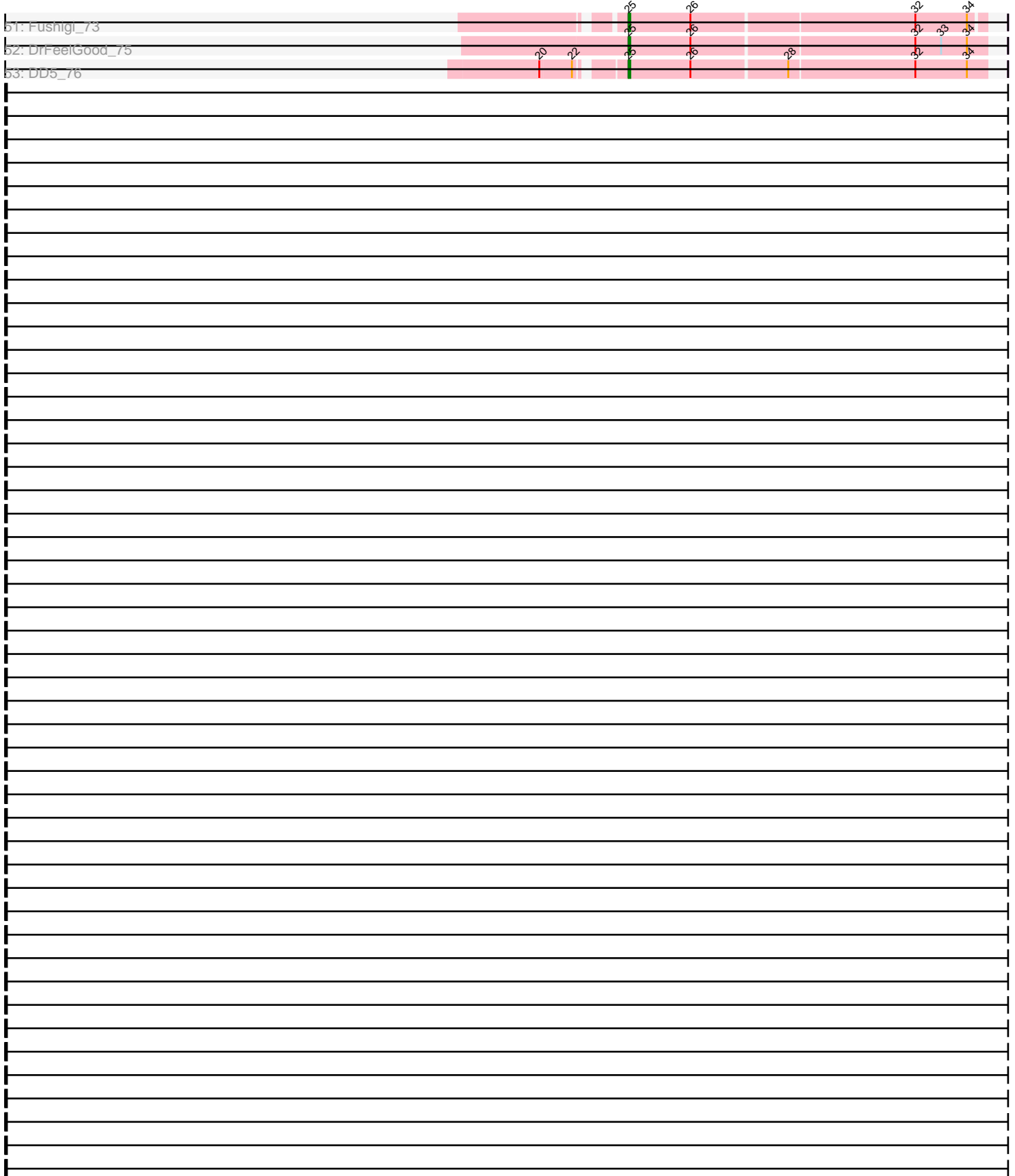


Pham 171192

51: Fushigi\_73

52: DrFeelGood\_75

53: DD5\_76



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 171192 Report

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

Pham number 171192 has 215 members, 14 are drafts.

Phages represented in each track:

- Track 1 : Rhynn\_75, PhrostyMug\_81, Smairt\_84, Mule\_79
- Track 2 : Espresso\_73, Gandalf20\_78
- Track 3 : McGuire\_78, Ohno789\_82, Oogway\_77, ShortQueendom\_71, Hermia\_74, GageAP\_81, AFIS\_76, Sorpresa\_76, Chanagan\_75, Tasp14\_78, StewieG\_75, Sandaddy\_77
- Track 4 : Alsfro\_85, BeesKnees\_79, BillKnuckles\_72, Lesedi\_76, HarryOW\_80, Graduation\_82, Marge\_75
- Track 5 : TheloniousMonk\_80
- Track 6 : Rubeus\_79, Dulcie\_80, Makemake\_82, Traft412\_78, Nhonho\_75, Nerujay\_83, Ichabod\_81, Tote\_76, Bxb1\_73, Barriga\_86, TwoPeat\_78, Squee\_79, PSullivan\_78, Moose\_82, Magnar\_76, Briton15\_81, Pita2\_81, Hope4ever\_80, Papez\_83, Swole\_78, Petp2012\_79, Fascinus\_75, Watermelon\_82, Blue\_75, Maroc7\_81, Bigfoot\_74, PascalRango\_77, Michley\_79, BluSpix\_76, Euphoria\_80, SwissCheese\_83, Zeuska\_82, SpikeBT\_76, Forsytheast\_82, Switzer\_77, IgnatiusPatJac\_79, Lopton\_79, Scowl\_79, Bruns\_81, JuliaChild\_81, Bethlehem\_82, CactusRose\_82, Pari\_84, Zephyr\_80, Rufus\_81, Carlyle\_79, Seabiscuit\_79
- Track 7 : MPlant7149\_80, Doom\_71, PacerPaul\_83, Francis47\_80, Niza\_79, Acme\_84, Greg\_83, Sunshine924\_81, BPBiebs31\_85, Rajelicia\_80, U2\_73, Pinto\_78, Trouble\_79, Fajezeel\_83, Killigrew\_75, Licorice\_82, Ringer\_79, BigPaolini\_78, Sibs6\_80, Solon\_74, Seanderson\_78, JC27\_82, Agaliana\_76, MaryBeth\_78, Burton\_81, Rohr\_82, MetalQZJ\_77, BaconJack\_81, Paphu\_76, Arlo\_80, Bones\_74, KBG\_78, Corvo\_82
- Track 8 : Kanely\_83, Altman\_84, Atkinbua\_88, DreamCatcher\_83, Monet\_82, STLscum\_85, Edtherson\_77, Rutherford\_81, PinkPlastic\_74, Mryolo\_74
- Track 9 : Adahisdi\_74, Turj99\_75, Magnito\_78
- Track 10 : PattyP\_79, Arcanine\_82, Slagathor\_79, NEHalo\_75, Museum\_79, Molly\_79
- Track 11 : Alvin\_76, BK1\_73, Anglerfish\_82, Marcell\_71, Ruotula\_84, HanShotFirst\_77, Naira\_80, A6\_73, Fenn\_81, Pelly\_80, Dexes\_82
- Track 12 : Lockley\_77
- Track 13 : Snazzy\_80
- Track 14 : KyMonks1A\_85
- Track 15 : Dreamboat\_78, PherrisBueller\_77, Jasper\_77
- Track 16 : JackSparrow\_79
- Track 17 : Bircsak\_79, Gompeii16\_79
- Track 18 : Lamina13\_82, Petruccio\_80
- Track 19 : Abbyshoes\_79, Kenmech\_81, Dussy\_78

- Track 20 : Sumter\_76
- Track 21 : Big3\_81, MrGordo\_81
- Track 22 : Peterson\_77
- Track 23 : Bexan\_73, Beatrix\_75, StrongArm\_74
- Track 24 : Smeagol\_82
- Track 25 : Sagefire\_75
- Track 26 : Ajay\_75, Eyeball\_78, KSSJEB\_77, Teodoridan\_76
- Track 27 : Wilkins\_76, Topgun\_75, Crispicous1\_74, Perseus\_79, Aeneas\_84, Abrogate\_760, Gyzlar\_71
- Track 28 : Conceptll\_86, Kugel\_80
- Track 29 : Target\_78
- Track 30 : Dynamix\_78, HermioneGrange\_82, Manatee\_77, Bob3\_79, Gwendoluna\_82, Jerm2\_80, BigMau\_81
- Track 31 : Homines\_67
- Track 32 : GrecoEtereo\_85
- Track 33 : Ciao\_76, Pippin\_80
- Track 34 : Sanya\_73
- Track 35 : Thor\_82, SarFire\_82
- Track 36 : Wheeler\_84, Treddle\_80
- Track 37 : Marchy\_70
- Track 38 : SkiPole\_88, Pepe\_73
- Track 39 : Violet\_74, Paraselene\_77
- Track 40 : Hami1\_71
- Track 41 : Zeeculate\_75
- Track 42 : Marsha\_79
- Track 43 : Tripl3t\_82
- Track 44 : QTRlifeCrisis\_78, Buttons\_76, Parliament\_80, ILeeKay\_76
- Track 45 : Norz\_76
- Track 46 : RidgeCB\_74
- Track 47 : Jorgensen\_88
- Track 48 : Sumter\_82, Perseus\_85, Pelly\_86, Trouble\_85, Paraselene\_82
- Track 49 : Kykar\_78
- Track 50 : Applejack\_78
- Track 51 : Fushigi\_73
- Track 52 : DrFeelGood\_75
- Track 53 : DD5\_76

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

The start number called the most often in the published annotations is 25, it was called in 197 of the 201 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- A6\_73, AFIS\_76, Abbyshoes\_79, Abrogate\_760, Acme\_84, Adahisdi\_74, Aeneas\_84, Agaliana\_76, Ajay\_75, Alsfro\_85, Altman\_84, Alvin\_76, Anglerfish\_82, Applejack\_78, Arcanine\_82, Arlo\_80, Atkinbua\_88, BK1\_73, BPBiebs31\_85, BaconJack\_81, Barriga\_86, Beatrix\_75, BeesKnees\_79, Bethlehem\_82, Bexan\_73, Big3\_81, BigMau\_81, BigPaolini\_78, Bigfoot\_74, BillKnuckles\_72, Bircsak\_79, BluSpix\_76, Blue\_75, Bob3\_79, Bones\_74, Briton15\_81, Bruns\_81, Burton\_81, Buttons\_76, Bxb1\_73, CactusRose\_82, Carlyle\_79, Chanagan\_75, Ciao\_76,

ConceptII\_86, Corvo\_82, Crispicous1\_74, DD5\_76, Dexes\_82, Doom\_71, DrFeelGood\_75, DreamCatcher\_83, Dreamboat\_78, Dulcie\_80, Dussy\_78, Dynamix\_78, Edtherson\_77, Espresso\_73, Euphoria\_80, Eyeball\_78, Fajezeel\_83, Fascinus\_75, Fenn\_81, Forsytheast\_82, Francis47\_80, Fushigi\_73, GageAP\_81, Gandalf20\_78, Gompeii16\_79, Graduation\_82, GrecoEtereo\_85, Greg\_83, Gwendoluna\_82, Gyzlar\_71, Hami1\_71, HanShotFirst\_77, HarryOW\_80, Hermia\_74, HermioneGrange\_82, Homines\_67, Hope4ever\_80, ILeeKay\_76, Ichabod\_81, IgnatiusPatJac\_79, JC27\_82, JackSparrow\_79, Jasper\_77, Jerm2\_80, Jorgensen\_88, JuliaChild\_81, KBG\_78, KSSJEB\_77, Kanely\_83, Kenmech\_81, Killigrew\_75, Kugel\_80, KyMonks1A\_85, Kykar\_78, Lamina13\_82, Lesedi\_76, Licorice\_82, Lockley\_77, Lopton\_79, MPlant7149\_80, Magnar\_76, Magnito\_78, Makemake\_82, Manatee\_77, Marcell\_71, Marchy\_70, Marge\_75, Maroc7\_81, Marsha\_79, MaryBeth\_78, McGuire\_78, MetalQZJ\_77, Michley\_79, Molly\_79, Monet\_82, Moose\_82, MrGordo\_81, Mryolo\_74, Mule\_79, Museum\_79, NEHalo\_75, Naira\_80, Nerujay\_83, Nhonho\_75, Niza\_79, Norz\_76, Ohno789\_82, Oogway\_77, PSullivan\_78, PacerPaul\_83, Papez\_83, Paphu\_76, Paraselene\_77, Pari\_84, Parliament\_80, PascalRango\_77, PattyP\_79, Pelly\_80, Pepe\_73, Perseus\_79, Peterson\_77, Petp2012\_79, Petruchio\_80, PherrisBueller\_77, PhrostyMug\_81, PinkPlastic\_74, Pinto\_78, Pippin\_80, Pita2\_81, QTRlifeCrisis\_78, Rajelicia\_80, Rhynn\_75, RidgeCB\_74, Ringer\_79, Rohr\_82, Rubeus\_79, Rufus\_81, Ruotula\_84, Rutherford\_81, STLscum\_85, Sagefire\_75, Sandaddy\_77, Sanya\_73, SarFire\_82, Scowl\_79, Seabiscuit\_79, Seanderson\_78, ShortQueendom\_71, Sibs6\_80, SkiPole\_88, Slagathor\_79, Smairt\_84, Smeagol\_82, Snazzy\_80, Solon\_74, Sorpresa\_76, SpikeBT\_76, Squee\_79, StewieG\_75, StrongArm\_74, Sumter\_76, Sunshine924\_81, SwissCheese\_83, Switzer\_77, Swole\_78, Target\_78, Tasp14\_78, Teodoridan\_76, TheloniousMonk\_80, Thor\_82, Topgun\_75, Tote\_76, Traft412\_78, Treddle\_80, Tripl3t\_82, Trouble\_79, Turj99\_75, TwoPeat\_78, U2\_73, Violet\_74, Watermelon\_82, Wheeler\_84, Wilkins\_76, Zeeculate\_75, Zephyr\_80, Zeuska\_82,

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

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

- Paraselene\_82, Pelly\_86, Perseus\_85, Sumter\_82, Trouble\_85,

### Summary by start number:

Start 22:

- Found in 7 of 215 ( 3.3% ) of genes in pham
- Manual Annotations of this start: 4 of 201
- Called 71.4% of time when present
- Phage (with cluster) where this start called: Paraselene\_82 (A1), Pelly\_86 (A1), Perseus\_85 (A1), Sumter\_82 (A1), Trouble\_85 (A1),

Start 25:

- Found in 210 of 215 ( 97.7% ) of genes in pham
- Manual Annotations of this start: 197 of 201
- Called 100.0% of time when present
- Phage (with cluster) where this start called: A6\_73 (A1), AFIS\_76 (A1), Abbyshoes\_79 (A1), Abrogate\_760 (A1), Acme\_84 (A1), Adahisdi\_74 (A1), Aeneas\_84 (A1), Agaliana\_76 (A1), Ajay\_75 (A1), Alsfro\_85 (A1), Altman\_84 (A1), Alvin\_76 (A1), Anglerfish\_82 (A1), Applejack\_78 (A1), Arcanine\_82 (A1), Arlo\_80 (A1), Atkinbua\_88 (A1), BK1\_73 (A1), BPBiabs31\_85 (A1), BaconJack\_81 (A1),

Barriga\_86 (A1), Beatrix\_75 (A1), BeesKnees\_79 (A1), Bethlehem\_82 (A1), Bexan\_73 (A1), Big3\_81 (A1), BigMau\_81 (A1), BigPaolini\_78 (A1), Bigfoot\_74 (A1), BillKnuckles\_72 (A1), Bircsak\_79 (A1), BluSpix\_76 (A1), Blue\_75 (A1), Bob3\_79 (A1), Bones\_74 (A1), Briton15\_81 (A1), Bruns\_81 (A1), Burton\_81 (A1), Buttons\_76 (A1), Bxb1\_73 (A1), CactusRose\_82 (A1), Carlyle\_79 (A1), Chanagan\_75 (A1), Ciao\_76 (A1), Conceptll\_86 (A1), Corvo\_82 (A1), Crispicous1\_74 (A1), DD5\_76 (A1), Dexes\_82 (A1), Doom\_71 (A1), DrFeelGood\_75 (A1), DreamCatcher\_83 (A1), Dreamboat\_78 (A1), Dulcie\_80 (A1), Dussy\_78 (A1), Dynamix\_78 (A1), Edtherson\_77 (A1), Espresso\_73 (A1), Euphoria\_80 (A1), Eyeball\_78 (A1), Fajezeel\_83 (A1), Fascinus\_75 (A1), Fenn\_81 (A1), Forsytheast\_82 (A1), Francis47\_80 (A1), Fushigi\_73 (A1), GageAP\_81 (A1), Gandalf20\_78 (A1), Gompeii16\_79 (A1), Graduation\_82 (A1), GrecoEtereo\_85 (A1), Greg\_83 (A1), Gwendoluna\_82 (A1), Gyzlar\_71 (A1), Hami1\_71 (A1), HanShotFirst\_77 (A1), HarryOW\_80 (A1), Hermia\_74 (A1), HermioneGrange\_82 (A1), Homines\_67 (A1), Hope4ever\_80 (A1), ILeeKay\_76 (A1), Ichabod\_81 (A1), IgnatiusPatJac\_79 (A1), JC27\_82 (A1), JackSparrow\_79 (A1), Jasper\_77 (A1), Jerm2\_80 (A1), Jorgensen\_88 (A1), JuliaChild\_81 (A1), KBG\_78 (A1), KSSJEB\_77 (A1), Kanely\_83 (A1), Kenmech\_81 (A1), Killigrew\_75 (A1), Kugel\_80 (A1), KyMonks1A\_85 (A1), Kykar\_78 (A1), Lamina13\_82 (A1), Lesedi\_76 (A1), Licorice\_82 (A1), Lockley\_77 (A1), Lopton\_79 (A1), MPlant7149\_80 (A1), Magnar\_76 (A1), Magnito\_78 (A1), Makemake\_82 (A1), Manatee\_77 (A1), Marcell\_71 (A1), Marchy\_70 (A1), Marge\_75 (A1), Maroc7\_81 (A1), Marsha\_79 (A1), MaryBeth\_78 (A1), McGuire\_78 (A1), MetalQZJ\_77 (A1), Michley\_79 (A1), Molly\_79 (A1), Monet\_82 (A1), Moose\_82 (A1), MrGordo\_81 (A1), Mryolo\_74 (A1), Mule\_79 (A1), Museum\_79 (A1), NEHalo\_75 (A1), Naira\_80 (A1), Nerujay\_83 (A1), Nhonho\_75 (A1), Niza\_79 (A1), Norz\_76 (A1), Ohno789\_82 (A1), Oogway\_77 (A1), PSullivan\_78 (A1), PacerPaul\_83 (A1), Papez\_83 (A1), Paphu\_76 (A1), Paraselene\_77 (A1), Pari\_84 (A1), Parliament\_80 (A1), PascalRango\_77 (A1), PattyP\_79 (A1), Pelly\_80 (A1), Pepe\_73 (A1), Perseus\_79 (A1), Peterson\_77 (A1), Petp2012\_79 (A1), Petruchio\_80 (A1), PherrisBueller\_77 (A1), PhrostyMug\_81 (A1), PinkPlastic\_74 (A1), Pinto\_78 (A1), Pippin\_80 (A1), Pita2\_81 (A1), QTRlifeCrisis\_78 (A1), Rajelicia\_80 (A1), Rhynn\_75 (A1), RidgeCB\_74 (A1), Ringer\_79 (A1), Rohr\_82 (A1), Rubeus\_79 (A1), Rufus\_81 (A1), Ruotula\_84 (A1), Rutherford\_81 (A1), STLscum\_85 (A1), Sagefire\_75 (A1), Sandaddy\_77 (A1), Sanya\_73 (A1), SarFire\_82 (A1), Scowl\_79 (A1), Seabiscuit\_79 (A1), Seanderson\_78 (A1), ShortQueendom\_71 (A1), Sibs6\_80 (A1), SkiPole\_88 (A1), Slagathor\_79 (A1), Smairt\_84 (A1), Smeagol\_82 (A1), Snazzy\_80 (A1), Solon\_74 (A1), Sorpresa\_76 (A1), SpikeBT\_76 (A1), Squee\_79 (A1), StewieG\_75 (A1), StrongArm\_74 (A1), Sumter\_76 (A1), Sunshine924\_81 (A1), SwissCheese\_83 (A1), Switzer\_77 (A1), Swole\_78 (A1), Target\_78 (A1), Tasp14\_78 (A1), Teodoridan\_76 (A1), TheloniousMonk\_80 (A1), Thor\_82 (A1), Topgun\_75 (A1), Tote\_76 (A1), Traft412\_78 (A1), Treddle\_80 (A1), Tripl3t\_82 (A1), Trouble\_79 (A1), Turj99\_75 (A1), TwoPeat\_78 (A1), U2\_73 (A1), Violet\_74 (A1), Watermelon\_82 (A1), Wheeler\_84 (A1), Wilkins\_76 (A1), Zeeculate\_75 (A1), Zephyr\_80 (A1), Zeuska\_82 (A1),

### Summary by clusters:

There is one cluster represented in this pham: A1

Info for manual annotations of cluster A1:

- Start number 22 was manually annotated 4 times for cluster A1.
- Start number 25 was manually annotated 197 times for cluster A1.

**Gene Information:**

Gene: A6\_73 Start: 45132, Stop: 44929, Start Num: 25

Candidate Starts for A6\_73:

(Start: 25 @45132 has 197 MA's), (26, 45096), (32, 44970), (34, 44940),

Gene: AFIS\_76 Start: 48153, Stop: 47950, Start Num: 25

Candidate Starts for AFIS\_76:

(Start: 25 @48153 has 197 MA's), (26, 48117), (32, 47991), (33, 47976), (34, 47961),

Gene: Abbysshoes\_79 Start: 47406, Stop: 47203, Start Num: 25

Candidate Starts for Abbysshoes\_79:

(23, 47430), (Start: 25 @47406 has 197 MA's), (26, 47370), (28, 47316), (32, 47244), (33, 47229), (34, 47214),

Gene: Abrogate\_760 Start: 48119, Stop: 47916, Start Num: 25

Candidate Starts for Abrogate\_760:

(Start: 25 @48119 has 197 MA's), (26, 48083), (32, 47957), (33, 47942), (34, 47927),

Gene: Acme\_84 Start: 49836, Stop: 49636, Start Num: 25

Candidate Starts for Acme\_84:

(Start: 25 @49836 has 197 MA's), (26, 49800), (28, 49746), (32, 49674), (34, 49644),

Gene: Adahisdi\_74 Start: 47304, Stop: 47101, Start Num: 25

Candidate Starts for Adahisdi\_74:

(9, 47466), (Start: 25 @47304 has 197 MA's), (26, 47268), (32, 47142), (33, 47127), (34, 47112),

Gene: Aeneas\_84 Start: 49765, Stop: 49562, Start Num: 25

Candidate Starts for Aeneas\_84:

(Start: 25 @49765 has 197 MA's), (26, 49729), (32, 49603), (33, 49588), (34, 49573),

Gene: Agaliana\_76 Start: 46122, Stop: 45919, Start Num: 25

Candidate Starts for Agaliana\_76:

(Start: 25 @46122 has 197 MA's), (26, 46086), (28, 46032), (32, 45960), (34, 45930),

Gene: Ajay\_75 Start: 46505, Stop: 46302, Start Num: 25

Candidate Starts for Ajay\_75:

(17, 46568), (Start: 25 @46505 has 197 MA's), (26, 46469), (28, 46415), (32, 46343), (33, 46328), (34, 46313),

Gene: Alsfro\_85 Start: 47868, Stop: 47665, Start Num: 25

Candidate Starts for Alsfro\_85:

(Start: 25 @47868 has 197 MA's), (26, 47832), (32, 47706), (34, 47676),

Gene: Altman\_84 Start: 48968, Stop: 48768, Start Num: 25

Candidate Starts for Altman\_84:

(Start: 25 @48968 has 197 MA's), (26, 48932), (28, 48878), (32, 48806), (34, 48776),

Gene: Alvin\_76 Start: 46725, Stop: 46522, Start Num: 25

Candidate Starts for Alvin\_76:

(Start: 25 @46725 has 197 MA's), (26, 46689), (32, 46563), (34, 46533),

Gene: Anglerfish\_82 Start: 48973, Stop: 48773, Start Num: 25  
Candidate Starts for Anglerfish\_82:  
(Start: 25 @48973 has 197 MA's), (26, 48937), (32, 48811), (34, 48781),

Gene: Applejack\_78 Start: 45786, Stop: 45583, Start Num: 25  
Candidate Starts for Applejack\_78:  
(13, 45879), (Start: 25 @45786 has 197 MA's), (26, 45750), (32, 45624), (34, 45594),

Gene: Arcanine\_82 Start: 49232, Stop: 49038, Start Num: 25  
Candidate Starts for Arcanine\_82:  
(Start: 25 @49232 has 197 MA's), (29, 49103), (32, 49073),

Gene: Arlo\_80 Start: 48283, Stop: 48083, Start Num: 25  
Candidate Starts for Arlo\_80:  
(Start: 25 @48283 has 197 MA's), (26, 48247), (28, 48193), (32, 48121), (34, 48091),

Gene: Atkinbua\_88 Start: 49776, Stop: 49576, Start Num: 25  
Candidate Starts for Atkinbua\_88:  
(Start: 25 @49776 has 197 MA's), (26, 49740), (28, 49686), (32, 49614), (34, 49584),

Gene: BK1\_73 Start: 45132, Stop: 44929, Start Num: 25  
Candidate Starts for BK1\_73:  
(Start: 25 @45132 has 197 MA's), (26, 45096), (32, 44970), (34, 44940),

Gene: BPBiebs31\_85 Start: 49488, Stop: 49288, Start Num: 25  
Candidate Starts for BPBiebs31\_85:  
(Start: 25 @49488 has 197 MA's), (26, 49452), (28, 49398), (32, 49326), (34, 49296),

Gene: BaconJack\_81 Start: 49467, Stop: 49264, Start Num: 25  
Candidate Starts for BaconJack\_81:  
(Start: 25 @49467 has 197 MA's), (26, 49431), (28, 49377), (32, 49305), (34, 49275),

Gene: Barriga\_86 Start: 48333, Stop: 48130, Start Num: 25  
Candidate Starts for Barriga\_86:  
(Start: 25 @48333 has 197 MA's), (26, 48297), (32, 48171), (34, 48141),

Gene: Beatrix\_75 Start: 47300, Stop: 47097, Start Num: 25  
Candidate Starts for Beatrix\_75:  
(1, 47645), (2, 47609), (4, 47561), (5, 47531), (6, 47525), (11, 47444), (15, 47372), (20, 47348), (21, 47345), (Start: 25 @47300 has 197 MA's), (26, 47264), (28, 47210), (32, 47138), (34, 47108),

Gene: BeesKnees\_79 Start: 46403, Stop: 46200, Start Num: 25  
Candidate Starts for BeesKnees\_79:  
(Start: 25 @46403 has 197 MA's), (26, 46367), (32, 46241), (34, 46211),

Gene: Bethlehem\_82 Start: 50352, Stop: 50149, Start Num: 25  
Candidate Starts for Bethlehem\_82:  
(Start: 25 @50352 has 197 MA's), (26, 50316), (32, 50190), (34, 50160),

Gene: Bexan\_73 Start: 47074, Stop: 46871, Start Num: 25  
Candidate Starts for Bexan\_73:



(1, 47419), (2, 47383), (4, 47335), (5, 47305), (6, 47299), (11, 47218), (15, 47146), (20, 47122), (21, 47119), (Start: 25 @47074 has 197 MA's), (26, 47038), (28, 46984), (32, 46912), (34, 46882),

Gene: Big3\_81 Start: 49478, Stop: 49278, Start Num: 25

Candidate Starts for Big3\_81:

(Start: 25 @49478 has 197 MA's), (26, 49442), (28, 49388), (32, 49316),

Gene: BigMau\_81 Start: 48890, Stop: 48687, Start Num: 25

Candidate Starts for BigMau\_81:

(Start: 25 @48890 has 197 MA's), (26, 48854), (28, 48800), (32, 48728), (33, 48713), (34, 48698),

Gene: BigPaolini\_78 Start: 46838, Stop: 46635, Start Num: 25

Candidate Starts for BigPaolini\_78:

(Start: 25 @46838 has 197 MA's), (26, 46802), (28, 46748), (32, 46676), (34, 46646),

Gene: Bigfoot\_74 Start: 47546, Stop: 47346, Start Num: 25

Candidate Starts for Bigfoot\_74:

(Start: 25 @47546 has 197 MA's), (26, 47510), (32, 47384), (34, 47354),

Gene: BillKnuckles\_72 Start: 47277, Stop: 47074, Start Num: 25

Candidate Starts for BillKnuckles\_72:

(Start: 25 @47277 has 197 MA's), (26, 47241), (32, 47115), (34, 47085),

Gene: Bircsak\_79 Start: 49965, Stop: 49762, Start Num: 25

Candidate Starts for Bircsak\_79:

(Start: 25 @49965 has 197 MA's), (26, 49929), (28, 49875), (32, 49803), (34, 49773),

Gene: BluSpix\_76 Start: 43001, Stop: 42798, Start Num: 25

Candidate Starts for BluSpix\_76:

(Start: 25 @43001 has 197 MA's), (26, 42965), (32, 42839), (34, 42809),

Gene: Blue\_75 Start: 47181, Stop: 46978, Start Num: 25

Candidate Starts for Blue\_75:

(Start: 25 @47181 has 197 MA's), (26, 47145), (32, 47019), (34, 46989),

Gene: Bob3\_79 Start: 48157, Stop: 47954, Start Num: 25

Candidate Starts for Bob3\_79:

(Start: 25 @48157 has 197 MA's), (26, 48121), (28, 48067), (32, 47995), (33, 47980), (34, 47965),

Gene: Bones\_74 Start: 47463, Stop: 47260, Start Num: 25

Candidate Starts for Bones\_74:

(Start: 25 @47463 has 197 MA's), (26, 47427), (28, 47373), (32, 47301), (34, 47271),

Gene: Briton15\_81 Start: 48543, Stop: 48340, Start Num: 25

Candidate Starts for Briton15\_81:

(Start: 25 @48543 has 197 MA's), (26, 48507), (32, 48381), (34, 48351),

Gene: Bruns\_81 Start: 47406, Stop: 47203, Start Num: 25

Candidate Starts for Bruns\_81:

(Start: 25 @47406 has 197 MA's), (26, 47370), (32, 47244), (34, 47214),

Gene: Burton\_81 Start: 49920, Stop: 49720, Start Num: 25

Candidate Starts for Burton\_81:

(Start: 25 @49920 has 197 MA's), (26, 49884), (28, 49830), (32, 49758), (34, 49728),

Gene: Buttons\_76 Start: 45862, Stop: 45659, Start Num: 25

Candidate Starts for Buttons\_76:

(Start: 25 @45862 has 197 MA's), (26, 45826), (28, 45772), (32, 45700), (33, 45685), (34, 45670),

Gene: Bxb1\_73 Start: 45949, Stop: 45746, Start Num: 25

Candidate Starts for Bxb1\_73:

(Start: 25 @45949 has 197 MA's), (26, 45913), (32, 45787), (34, 45757),

Gene: CactusRose\_82 Start: 48563, Stop: 48363, Start Num: 25

Candidate Starts for CactusRose\_82:

(Start: 25 @48563 has 197 MA's), (26, 48527), (32, 48401), (34, 48371),

Gene: Carlyle\_79 Start: 46861, Stop: 46658, Start Num: 25

Candidate Starts for Carlyle\_79:

(Start: 25 @46861 has 197 MA's), (26, 46825), (32, 46699), (34, 46669),

Gene: Chanagan\_75 Start: 45822, Stop: 45619, Start Num: 25

Candidate Starts for Chanagan\_75:

(Start: 25 @45822 has 197 MA's), (26, 45786), (32, 45660), (33, 45645), (34, 45630),

Gene: Ciao\_76 Start: 46158, Stop: 45958, Start Num: 25

Candidate Starts for Ciao\_76:

(Start: 25 @46158 has 197 MA's), (26, 46122), (32, 45996), (34, 45966),

Gene: ConceptII\_86 Start: 50069, Stop: 49869, Start Num: 25

Candidate Starts for ConceptII\_86:

(Start: 25 @50069 has 197 MA's), (26, 50033), (28, 49979), (32, 49907), (34, 49877),

Gene: Corvo\_82 Start: 49411, Stop: 49211, Start Num: 25

Candidate Starts for Corvo\_82:

(Start: 25 @49411 has 197 MA's), (26, 49375), (28, 49321), (32, 49249), (34, 49219),

Gene: Crispicous1\_74 Start: 45668, Stop: 45465, Start Num: 25

Candidate Starts for Crispicous1\_74:

(Start: 25 @45668 has 197 MA's), (26, 45632), (32, 45506), (33, 45491), (34, 45476),

Gene: DD5\_76 Start: 47589, Stop: 47386, Start Num: 25

Candidate Starts for DD5\_76:

(20, 47628), (Start: 22 @47610 has 4 MA's), (Start: 25 @47589 has 197 MA's), (26, 47553), (28, 47499), (32, 47427), (34, 47397),

Gene: Dexes\_82 Start: 50671, Stop: 50468, Start Num: 25

Candidate Starts for Dexes\_82:

(Start: 25 @50671 has 197 MA's), (26, 50635), (32, 50509), (34, 50479),

Gene: Doom\_71 Start: 46518, Stop: 46315, Start Num: 25

Candidate Starts for Doom\_71:

(Start: 25 @46518 has 197 MA's), (26, 46482), (28, 46428), (32, 46356), (34, 46326),

Gene: DrFeelGood\_75 Start: 45947, Stop: 45744, Start Num: 25

Candidate Starts for DrFeelGood\_75:

(Start: 25 @45947 has 197 MA's), (26, 45911), (32, 45785), (33, 45770), (34, 45755),

Gene: DreamCatcher\_83 Start: 48569, Stop: 48369, Start Num: 25

Candidate Starts for DreamCatcher\_83:

(Start: 25 @48569 has 197 MA's), (26, 48533), (28, 48479), (32, 48407), (34, 48377),

Gene: Dreamboat\_78 Start: 45875, Stop: 45672, Start Num: 25

Candidate Starts for Dreamboat\_78:

(17, 45932), (Start: 25 @45875 has 197 MA's), (26, 45839), (28, 45785), (32, 45713), (33, 45698), (34, 45683),

Gene: Dulcie\_80 Start: 49841, Stop: 49638, Start Num: 25

Candidate Starts for Dulcie\_80:

(Start: 25 @49841 has 197 MA's), (26, 49805), (32, 49679), (34, 49649),

Gene: Dussy\_78 Start: 47426, Stop: 47223, Start Num: 25

Candidate Starts for Dussy\_78:

(23, 47450), (Start: 25 @47426 has 197 MA's), (26, 47390), (28, 47336), (32, 47264), (33, 47249), (34, 47234),

Gene: Dynamix\_78 Start: 46309, Stop: 46106, Start Num: 25

Candidate Starts for Dynamix\_78:

(Start: 25 @46309 has 197 MA's), (26, 46273), (28, 46219), (32, 46147), (33, 46132), (34, 46117),

Gene: Edtherson\_77 Start: 47485, Stop: 47282, Start Num: 25

Candidate Starts for Edtherson\_77:

(Start: 25 @47485 has 197 MA's), (26, 47449), (28, 47395), (32, 47323), (34, 47293),

Gene: Espresso\_73 Start: 46530, Stop: 46327, Start Num: 25

Candidate Starts for Espresso\_73:

(Start: 25 @46530 has 197 MA's), (26, 46494), (27, 46470), (28, 46440), (32, 46368), (34, 46338),

Gene: Euphoria\_80 Start: 48246, Stop: 48043, Start Num: 25

Candidate Starts for Euphoria\_80:

(Start: 25 @48246 has 197 MA's), (26, 48210), (32, 48084), (34, 48054),

Gene: Eyeball\_78 Start: 47531, Stop: 47328, Start Num: 25

Candidate Starts for Eyeball\_78:

(17, 47594), (Start: 25 @47531 has 197 MA's), (26, 47495), (28, 47441), (32, 47369), (33, 47354), (34, 47339),

Gene: Fajezeel\_83 Start: 49126, Stop: 48926, Start Num: 25

Candidate Starts for Fajezeel\_83:

(Start: 25 @49126 has 197 MA's), (26, 49090), (28, 49036), (32, 48964), (34, 48934),

Gene: Fascinus\_75 Start: 48059, Stop: 47859, Start Num: 25

Candidate Starts for Fascinus\_75:

(Start: 25 @48059 has 197 MA's), (26, 48023), (32, 47897), (34, 47867),

Gene: Fenn\_81 Start: 48414, Stop: 48211, Start Num: 25

Candidate Starts for Fenn\_81:

(Start: 25 @48414 has 197 MA's), (26, 48378), (32, 48252), (34, 48222),

Gene: Forsytheast\_82 Start: 48445, Stop: 48245, Start Num: 25  
Candidate Starts for Forsytheast\_82:  
(Start: 25 @48445 has 197 MA's), (26, 48409), (32, 48283), (34, 48253),

Gene: Francis47\_80 Start: 49966, Stop: 49763, Start Num: 25  
Candidate Starts for Francis47\_80:  
(Start: 25 @49966 has 197 MA's), (26, 49930), (28, 49876), (32, 49804), (34, 49774),

Gene: Fushigi\_73 Start: 44498, Stop: 44298, Start Num: 25  
Candidate Starts for Fushigi\_73:  
(Start: 25 @44498 has 197 MA's), (26, 44462), (32, 44336), (34, 44306),

Gene: GageAP\_81 Start: 49319, Stop: 49116, Start Num: 25  
Candidate Starts for GageAP\_81:  
(Start: 25 @49319 has 197 MA's), (26, 49283), (32, 49157), (33, 49142), (34, 49127),

Gene: Gandalf20\_78 Start: 47815, Stop: 47612, Start Num: 25  
Candidate Starts for Gandalf20\_78:  
(Start: 25 @47815 has 197 MA's), (26, 47779), (27, 47755), (28, 47725), (32, 47653), (34, 47623),

Gene: Gompeii16\_79 Start: 49966, Stop: 49763, Start Num: 25  
Candidate Starts for Gompeii16\_79:  
(Start: 25 @49966 has 197 MA's), (26, 49930), (28, 49876), (32, 49804), (34, 49774),

Gene: Graduation\_82 Start: 48096, Stop: 47893, Start Num: 25  
Candidate Starts for Graduation\_82:  
(Start: 25 @48096 has 197 MA's), (26, 48060), (32, 47934), (34, 47904),

Gene: GrecoEtereo\_85 Start: 49769, Stop: 49569, Start Num: 25  
Candidate Starts for GrecoEtereo\_85:  
(Start: 25 @49769 has 197 MA's), (26, 49733), (28, 49679), (32, 49607),

Gene: Greg\_83 Start: 49126, Stop: 48926, Start Num: 25  
Candidate Starts for Greg\_83:  
(Start: 25 @49126 has 197 MA's), (26, 49090), (28, 49036), (32, 48964), (34, 48934),

Gene: Gwendoluna\_82 Start: 49080, Stop: 48877, Start Num: 25  
Candidate Starts for Gwendoluna\_82:  
(Start: 25 @49080 has 197 MA's), (26, 49044), (28, 48990), (32, 48918), (33, 48903), (34, 48888),

Gene: Gyzlar\_71 Start: 44267, Stop: 44064, Start Num: 25  
Candidate Starts for Gyzlar\_71:  
(Start: 25 @44267 has 197 MA's), (26, 44231), (32, 44105), (33, 44090), (34, 44075),

Gene: Hami1\_71 Start: 43709, Stop: 43494, Start Num: 25  
Candidate Starts for Hami1\_71:  
(Start: 25 @43709 has 197 MA's), (26, 43673), (32, 43547),

Gene: HanShotFirst\_77 Start: 48049, Stop: 47849, Start Num: 25  
Candidate Starts for HanShotFirst\_77:  
(Start: 25 @48049 has 197 MA's), (26, 48013), (32, 47887), (34, 47857),

Gene: HarryOW\_80 Start: 49291, Stop: 49088, Start Num: 25

Candidate Starts for HarryOW\_80:

(Start: 25 @49291 has 197 MA's), (26, 49255), (32, 49129), (34, 49099),

Gene: Hermia\_74 Start: 46187, Stop: 45984, Start Num: 25

Candidate Starts for Hermia\_74:

(Start: 25 @46187 has 197 MA's), (26, 46151), (32, 46025), (33, 46010), (34, 45995),

Gene: HermioneGrange\_82 Start: 49384, Stop: 49181, Start Num: 25

Candidate Starts for HermioneGrange\_82:

(Start: 25 @49384 has 197 MA's), (26, 49348), (28, 49294), (32, 49222), (33, 49207), (34, 49192),

Gene: Homines\_67 Start: 42517, Stop: 42314, Start Num: 25

Candidate Starts for Homines\_67:

(Start: 25 @42517 has 197 MA's), (32, 42355), (33, 42340), (34, 42325),

Gene: Hope4ever\_80 Start: 47898, Stop: 47695, Start Num: 25

Candidate Starts for Hope4ever\_80:

(Start: 25 @47898 has 197 MA's), (26, 47862), (32, 47736), (34, 47706),

Gene: ILeeKay\_76 Start: 45909, Stop: 45706, Start Num: 25

Candidate Starts for ILeeKay\_76:

(Start: 25 @45909 has 197 MA's), (26, 45873), (28, 45819), (32, 45747), (33, 45732), (34, 45717),

Gene: Ichabod\_81 Start: 48156, Stop: 47953, Start Num: 25

Candidate Starts for Ichabod\_81:

(Start: 25 @48156 has 197 MA's), (26, 48120), (32, 47994), (34, 47964),

Gene: IgnatiusPatJac\_79 Start: 46946, Stop: 46743, Start Num: 25

Candidate Starts for IgnatiusPatJac\_79:

(Start: 25 @46946 has 197 MA's), (26, 46910), (32, 46784), (34, 46754),

Gene: JC27\_82 Start: 48025, Stop: 47822, Start Num: 25

Candidate Starts for JC27\_82:

(Start: 25 @48025 has 197 MA's), (26, 47989), (28, 47935), (32, 47863), (34, 47833),

Gene: JackSparrow\_79 Start: 47009, Stop: 46806, Start Num: 25

Candidate Starts for JackSparrow\_79:

(3, 47285), (10, 47153), (Start: 25 @47009 has 197 MA's), (26, 46973), (28, 46919), (32, 46847), (34, 46817),

Gene: Jasper\_77 Start: 45761, Stop: 45558, Start Num: 25

Candidate Starts for Jasper\_77:

(17, 45818), (Start: 25 @45761 has 197 MA's), (26, 45725), (28, 45671), (32, 45599), (33, 45584), (34, 45569),

Gene: Jerm2\_80 Start: 49454, Stop: 49251, Start Num: 25

Candidate Starts for Jerm2\_80:

(Start: 25 @49454 has 197 MA's), (26, 49418), (28, 49364), (32, 49292), (33, 49277), (34, 49262),

Gene: Jorgensen\_88 Start: 49498, Stop: 49295, Start Num: 25

Candidate Starts for Jorgensen\_88:

(1, 49843), (2, 49807), (4, 49759), (5, 49729), (6, 49723), (11, 49642), (15, 49570), (20, 49546), (21, 49543), (Start: 25 @49498 has 197 MA's), (26, 49462), (32, 49336), (34, 49306),

Gene: JuliaChild\_81 Start: 48350, Stop: 48150, Start Num: 25  
Candidate Starts for JuliaChild\_81:  
(Start: 25 @48350 has 197 MA's), (26, 48314), (32, 48188), (34, 48158),

Gene: KBG\_78 Start: 48993, Stop: 48790, Start Num: 25  
Candidate Starts for KBG\_78:  
(Start: 25 @48993 has 197 MA's), (26, 48957), (28, 48903), (32, 48831), (34, 48801),

Gene: KSSJEB\_77 Start: 46474, Stop: 46274, Start Num: 25  
Candidate Starts for KSSJEB\_77:  
(17, 46537), (Start: 25 @46474 has 197 MA's), (26, 46438), (28, 46384), (32, 46312), (33, 46297), (34, 46282),

Gene: Kanely\_83 Start: 48745, Stop: 48545, Start Num: 25  
Candidate Starts for Kanely\_83:  
(Start: 25 @48745 has 197 MA's), (26, 48709), (28, 48655), (32, 48583), (34, 48553),

Gene: Kenmech\_81 Start: 48552, Stop: 48349, Start Num: 25  
Candidate Starts for Kenmech\_81:  
(23, 48576), (Start: 25 @48552 has 197 MA's), (26, 48516), (28, 48462), (32, 48390), (33, 48375), (34, 48360),

Gene: Killigrew\_75 Start: 46600, Stop: 46397, Start Num: 25  
Candidate Starts for Killigrew\_75:  
(Start: 25 @46600 has 197 MA's), (26, 46564), (28, 46510), (32, 46438), (34, 46408),

Gene: Kugel\_80 Start: 48242, Stop: 48039, Start Num: 25  
Candidate Starts for Kugel\_80:  
(Start: 25 @48242 has 197 MA's), (26, 48206), (28, 48152), (32, 48080), (34, 48050),

Gene: KyMonks1A\_85 Start: 48883, Stop: 48680, Start Num: 25  
Candidate Starts for KyMonks1A\_85:  
(7, 49099), (Start: 25 @48883 has 197 MA's), (26, 48847), (32, 48721), (34, 48691),

Gene: Kykar\_78 Start: 47281, Stop: 47078, Start Num: 25  
Candidate Starts for Kykar\_78:  
(8, 47446), (12, 47398), (Start: 25 @47281 has 197 MA's), (26, 47245), (32, 47119), (34, 47089),

Gene: Lamina13\_82 Start: 49734, Stop: 49531, Start Num: 25  
Candidate Starts for Lamina13\_82:  
(Start: 25 @49734 has 197 MA's), (26, 49698), (32, 49572), (34, 49542),

Gene: Lesedi\_76 Start: 46040, Stop: 45837, Start Num: 25  
Candidate Starts for Lesedi\_76:  
(Start: 25 @46040 has 197 MA's), (26, 46004), (32, 45878), (34, 45848),

Gene: Licorice\_82 Start: 50034, Stop: 49831, Start Num: 25  
Candidate Starts for Licorice\_82:  
(Start: 25 @50034 has 197 MA's), (26, 49998), (28, 49944), (32, 49872), (34, 49842),

Gene: Lockley\_77 Start: 47186, Stop: 46986, Start Num: 25  
Candidate Starts for Lockley\_77:

(20, 47225), (Start: 22 @47207 has 4 MA's), (Start: 25 @47186 has 197 MA's), (26, 47150), (32, 47024), (34, 46994),

Gene: Lopton\_79 Start: 49061, Stop: 48861, Start Num: 25

Candidate Starts for Lopton\_79:

(Start: 25 @49061 has 197 MA's), (26, 49025), (32, 48899), (34, 48869),

Gene: MPlant7149\_80 Start: 47615, Stop: 47415, Start Num: 25

Candidate Starts for MPlant7149\_80:

(Start: 25 @47615 has 197 MA's), (26, 47579), (28, 47525), (32, 47453), (34, 47423),

Gene: Magnar\_76 Start: 46914, Stop: 46711, Start Num: 25

Candidate Starts for Magnar\_76:

(Start: 25 @46914 has 197 MA's), (26, 46878), (32, 46752), (34, 46722),

Gene: Magnito\_78 Start: 46868, Stop: 46665, Start Num: 25

Candidate Starts for Magnito\_78:

(9, 47030), (Start: 25 @46868 has 197 MA's), (26, 46832), (32, 46706), (33, 46691), (34, 46676),

Gene: Makemake\_82 Start: 48490, Stop: 48287, Start Num: 25

Candidate Starts for Makemake\_82:

(Start: 25 @48490 has 197 MA's), (26, 48454), (32, 48328), (34, 48298),

Gene: Manatee\_77 Start: 46420, Stop: 46217, Start Num: 25

Candidate Starts for Manatee\_77:

(Start: 25 @46420 has 197 MA's), (26, 46384), (28, 46330), (32, 46258), (33, 46243), (34, 46228),

Gene: Marcell\_71 Start: 45015, Stop: 44812, Start Num: 25

Candidate Starts for Marcell\_71:

(Start: 25 @45015 has 197 MA's), (26, 44979), (32, 44853), (34, 44823),

Gene: Marchy\_70 Start: 45220, Stop: 45005, Start Num: 25

Candidate Starts for Marchy\_70:

(Start: 25 @45220 has 197 MA's), (26, 45184), (32, 45058),

Gene: Marge\_75 Start: 46512, Stop: 46309, Start Num: 25

Candidate Starts for Marge\_75:

(Start: 25 @46512 has 197 MA's), (26, 46476), (32, 46350), (34, 46320),

Gene: Maroc7\_81 Start: 49487, Stop: 49287, Start Num: 25

Candidate Starts for Maroc7\_81:

(Start: 25 @49487 has 197 MA's), (26, 49451), (32, 49325), (34, 49295),

Gene: Marsha\_79 Start: 49315, Stop: 49112, Start Num: 25

Candidate Starts for Marsha\_79:

(Start: 25 @49315 has 197 MA's), (26, 49279), (32, 49153), (34, 49123),

Gene: MaryBeth\_78 Start: 47886, Stop: 47686, Start Num: 25

Candidate Starts for MaryBeth\_78:

(Start: 25 @47886 has 197 MA's), (26, 47850), (28, 47796), (32, 47724), (34, 47694),

Gene: McGuire\_78 Start: 46551, Stop: 46348, Start Num: 25

Candidate Starts for McGuire\_78:

(Start: 25 @46551 has 197 MA's), (26, 46515), (32, 46389), (33, 46374), (34, 46359),

Gene: MetalQZJ\_77 Start: 47886, Stop: 47686, Start Num: 25

Candidate Starts for MetalQZJ\_77:

(Start: 25 @47886 has 197 MA's), (26, 47850), (28, 47796), (32, 47724), (34, 47694),

Gene: Michley\_79 Start: 47279, Stop: 47076, Start Num: 25

Candidate Starts for Michley\_79:

(Start: 25 @47279 has 197 MA's), (26, 47243), (32, 47117), (34, 47087),

Gene: Molly\_79 Start: 47090, Stop: 46896, Start Num: 25

Candidate Starts for Molly\_79:

(Start: 25 @47090 has 197 MA's), (29, 46961), (32, 46931),

Gene: Monet\_82 Start: 48961, Stop: 48758, Start Num: 25

Candidate Starts for Monet\_82:

(Start: 25 @48961 has 197 MA's), (26, 48925), (28, 48871), (32, 48799), (34, 48769),

Gene: Moose\_82 Start: 48445, Stop: 48245, Start Num: 25

Candidate Starts for Moose\_82:

(Start: 25 @48445 has 197 MA's), (26, 48409), (32, 48283), (34, 48253),

Gene: MrGordo\_81 Start: 47224, Stop: 47024, Start Num: 25

Candidate Starts for MrGordo\_81:

(Start: 25 @47224 has 197 MA's), (26, 47188), (28, 47134), (32, 47062),

Gene: Mryolo\_74 Start: 46054, Stop: 45851, Start Num: 25

Candidate Starts for Mryolo\_74:

(Start: 25 @46054 has 197 MA's), (26, 46018), (28, 45964), (32, 45892), (34, 45862),

Gene: Mule\_79 Start: 47341, Stop: 47138, Start Num: 25

Candidate Starts for Mule\_79:

(Start: 25 @47341 has 197 MA's), (26, 47305), (32, 47179), (34, 47149),

Gene: Museum\_79 Start: 48153, Stop: 47959, Start Num: 25

Candidate Starts for Museum\_79:

(Start: 25 @48153 has 197 MA's), (29, 48024), (32, 47994),

Gene: NEHalo\_75 Start: 46963, Stop: 46769, Start Num: 25

Candidate Starts for NEHalo\_75:

(Start: 25 @46963 has 197 MA's), (29, 46834), (32, 46804),

Gene: Naira\_80 Start: 48470, Stop: 48267, Start Num: 25

Candidate Starts for Naira\_80:

(Start: 25 @48470 has 197 MA's), (26, 48434), (32, 48308), (34, 48278),

Gene: Nerujay\_83 Start: 49538, Stop: 49335, Start Num: 25

Candidate Starts for Nerujay\_83:

(Start: 25 @49538 has 197 MA's), (26, 49502), (32, 49376), (34, 49346),

Gene: Nhonho\_75 Start: 47335, Stop: 47132, Start Num: 25

Candidate Starts for Nhonho\_75:

(Start: 25 @47335 has 197 MA's), (26, 47299), (32, 47173), (34, 47143),



Gene: Niza\_79 Start: 48442, Stop: 48239, Start Num: 25

Candidate Starts for Niza\_79:

(Start: 25 @48442 has 197 MA's), (26, 48406), (28, 48352), (32, 48280), (34, 48250),

Gene: Norz\_76 Start: 49697, Stop: 49482, Start Num: 25

Candidate Starts for Norz\_76:

(Start: 25 @49697 has 197 MA's), (26, 49661), (28, 49607), (32, 49535),

Gene: Ohno789\_82 Start: 49192, Stop: 48989, Start Num: 25

Candidate Starts for Ohno789\_82:

(Start: 25 @49192 has 197 MA's), (26, 49156), (32, 49030), (33, 49015), (34, 49000),

Gene: Oogway\_77 Start: 47851, Stop: 47648, Start Num: 25

Candidate Starts for Oogway\_77:

(Start: 25 @47851 has 197 MA's), (26, 47815), (32, 47689), (33, 47674), (34, 47659),

Gene: PSullivan\_78 Start: 46418, Stop: 46218, Start Num: 25

Candidate Starts for PSullivan\_78:

(Start: 25 @46418 has 197 MA's), (26, 46382), (32, 46256), (34, 46226),

Gene: PacerPaul\_83 Start: 49333, Stop: 49130, Start Num: 25

Candidate Starts for PacerPaul\_83:

(Start: 25 @49333 has 197 MA's), (26, 49297), (28, 49243), (32, 49171), (34, 49141),

Gene: Papez\_83 Start: 48887, Stop: 48687, Start Num: 25

Candidate Starts for Papez\_83:

(Start: 25 @48887 has 197 MA's), (26, 48851), (32, 48725), (34, 48695),

Gene: Paphu\_76 Start: 47057, Stop: 46854, Start Num: 25

Candidate Starts for Paphu\_76:

(Start: 25 @47057 has 197 MA's), (26, 47021), (28, 46967), (32, 46895), (34, 46865),

Gene: Paraselene\_77 Start: 47305, Stop: 47102, Start Num: 25

Candidate Starts for Paraselene\_77:

(Start: 25 @47305 has 197 MA's), (32, 47143), (34, 47113),

Gene: Paraselene\_82 Start: 48170, Stop: 47949, Start Num: 22

Candidate Starts for Paraselene\_82:

(Start: 22 @48170 has 4 MA's), (24, 48161),

Gene: Pari\_84 Start: 48036, Stop: 47833, Start Num: 25

Candidate Starts for Pari\_84:

(Start: 25 @48036 has 197 MA's), (26, 48000), (32, 47874), (34, 47844),

Gene: Parliament\_80 Start: 50217, Stop: 50014, Start Num: 25

Candidate Starts for Parliament\_80:

(Start: 25 @50217 has 197 MA's), (26, 50181), (28, 50127), (32, 50055), (33, 50040), (34, 50025),

Gene: PascalRango\_77 Start: 47311, Stop: 47108, Start Num: 25

Candidate Starts for PascalRango\_77:

(Start: 25 @47311 has 197 MA's), (26, 47275), (32, 47149), (34, 47119),

Gene: PattyP\_79 Start: 47859, Stop: 47665, Start Num: 25  
Candidate Starts for PattyP\_79:  
(Start: 25 @47859 has 197 MA's), (29, 47730), (32, 47700),

Gene: Pelly\_80 Start: 50581, Stop: 50378, Start Num: 25  
Candidate Starts for Pelly\_80:  
(Start: 25 @50581 has 197 MA's), (26, 50545), (32, 50419), (34, 50389),

Gene: Pelly\_86 Start: 51616, Stop: 51395, Start Num: 22  
Candidate Starts for Pelly\_86:  
(Start: 22 @51616 has 4 MA's), (24, 51607),

Gene: Pepe\_73 Start: 45753, Stop: 45562, Start Num: 25  
Candidate Starts for Pepe\_73:  
(Start: 25 @45753 has 197 MA's), (29, 45624), (30, 45621), (32, 45594),

Gene: Perseus\_85 Start: 50464, Stop: 50243, Start Num: 22  
Candidate Starts for Perseus\_85:  
(Start: 22 @50464 has 4 MA's), (24, 50455),

Gene: Perseus\_79 Start: 49298, Stop: 49095, Start Num: 25  
Candidate Starts for Perseus\_79:  
(Start: 25 @49298 has 197 MA's), (26, 49262), (32, 49136), (33, 49121), (34, 49106),

Gene: Peterson\_77 Start: 48292, Stop: 48089, Start Num: 25  
Candidate Starts for Peterson\_77:  
(14, 48370), (16, 48364), (19, 48346), (Start: 25 @48292 has 197 MA's), (26, 48256), (28, 48202), (32, 48130), (34, 48100),

Gene: Petp2012\_79 Start: 48474, Stop: 48271, Start Num: 25  
Candidate Starts for Petp2012\_79:  
(Start: 25 @48474 has 197 MA's), (26, 48438), (32, 48312), (34, 48282),

Gene: Petruchio\_80 Start: 46874, Stop: 46671, Start Num: 25  
Candidate Starts for Petruchio\_80:  
(Start: 25 @46874 has 197 MA's), (26, 46838), (32, 46712), (34, 46682),

Gene: PherrisBueller\_77 Start: 45412, Stop: 45209, Start Num: 25  
Candidate Starts for PherrisBueller\_77:  
(17, 45469), (Start: 25 @45412 has 197 MA's), (26, 45376), (28, 45322), (32, 45250), (33, 45235), (34, 45220),

Gene: PhrostyMug\_81 Start: 49511, Stop: 49308, Start Num: 25  
Candidate Starts for PhrostyMug\_81:  
(Start: 25 @49511 has 197 MA's), (26, 49475), (32, 49349), (34, 49319),

Gene: PinkPlastic\_74 Start: 46060, Stop: 45857, Start Num: 25  
Candidate Starts for PinkPlastic\_74:  
(Start: 25 @46060 has 197 MA's), (26, 46024), (28, 45970), (32, 45898), (34, 45868),

Gene: Pinto\_78 Start: 47923, Stop: 47720, Start Num: 25  
Candidate Starts for Pinto\_78:  
(Start: 25 @47923 has 197 MA's), (26, 47887), (28, 47833), (32, 47761), (34, 47731),

Gene: Pippin\_80 Start: 47741, Stop: 47541, Start Num: 25

Candidate Starts for Pippin\_80:

(Start: 25 @47741 has 197 MA's), (26, 47705), (32, 47579), (34, 47549),

Gene: Pita2\_81 Start: 47914, Stop: 47714, Start Num: 25

Candidate Starts for Pita2\_81:

(Start: 25 @47914 has 197 MA's), (26, 47878), (32, 47752), (34, 47722),

Gene: QTRlifeCrisis\_78 Start: 47097, Stop: 46894, Start Num: 25

Candidate Starts for QTRlifeCrisis\_78:

(Start: 25 @47097 has 197 MA's), (26, 47061), (28, 47007), (32, 46935), (33, 46920), (34, 46905),

Gene: Rajelicia\_80 Start: 49746, Stop: 49543, Start Num: 25

Candidate Starts for Rajelicia\_80:

(Start: 25 @49746 has 197 MA's), (26, 49710), (28, 49656), (32, 49584), (34, 49554),

Gene: Rhynn\_75 Start: 47688, Stop: 47485, Start Num: 25

Candidate Starts for Rhynn\_75:

(Start: 25 @47688 has 197 MA's), (26, 47652), (32, 47526), (34, 47496),

Gene: RidgeCB\_74 Start: 46007, Stop: 45804, Start Num: 25

Candidate Starts for RidgeCB\_74:

(Start: 25 @46007 has 197 MA's), (26, 45971), (27, 45947), (32, 45845), (34, 45815),

Gene: Ringer\_79 Start: 48655, Stop: 48452, Start Num: 25

Candidate Starts for Ringer\_79:

(Start: 25 @48655 has 197 MA's), (26, 48619), (28, 48565), (32, 48493), (34, 48463),

Gene: Rohr\_82 Start: 49705, Stop: 49505, Start Num: 25

Candidate Starts for Rohr\_82:

(Start: 25 @49705 has 197 MA's), (26, 49669), (28, 49615), (32, 49543), (34, 49513),

Gene: Rubeus\_79 Start: 46029, Stop: 45826, Start Num: 25

Candidate Starts for Rubeus\_79:

(Start: 25 @46029 has 197 MA's), (26, 45993), (32, 45867), (34, 45837),

Gene: Rufus\_81 Start: 48718, Stop: 48515, Start Num: 25

Candidate Starts for Rufus\_81:

(Start: 25 @48718 has 197 MA's), (26, 48682), (32, 48556), (34, 48526),

Gene: Ruotula\_84 Start: 49577, Stop: 49377, Start Num: 25

Candidate Starts for Ruotula\_84:

(Start: 25 @49577 has 197 MA's), (26, 49541), (32, 49415), (34, 49385),

Gene: Rutherferd\_81 Start: 48483, Stop: 48280, Start Num: 25

Candidate Starts for Rutherferd\_81:

(Start: 25 @48483 has 197 MA's), (26, 48447), (28, 48393), (32, 48321), (34, 48291),

Gene: STLscum\_85 Start: 48512, Stop: 48309, Start Num: 25

Candidate Starts for STLscum\_85:

(Start: 25 @48512 has 197 MA's), (26, 48476), (28, 48422), (32, 48350), (34, 48320),

Gene: Sagefire\_75 Start: 47388, Stop: 47185, Start Num: 25  
Candidate Starts for Sagefire\_75:  
(Start: 25 @47388 has 197 MA's), (26, 47352), (32, 47226), (34, 47196),

Gene: Sandaddy\_77 Start: 47892, Stop: 47689, Start Num: 25  
Candidate Starts for Sandaddy\_77:  
(Start: 25 @47892 has 197 MA's), (26, 47856), (32, 47730), (33, 47715), (34, 47700),

Gene: Sanya\_73 Start: 48025, Stop: 47822, Start Num: 25  
Candidate Starts for Sanya\_73:  
(Start: 25 @48025 has 197 MA's), (26, 47989), (28, 47935), (32, 47863), (33, 47848), (34, 47833),

Gene: SarFire\_82 Start: 49362, Stop: 49159, Start Num: 25  
Candidate Starts for SarFire\_82:  
(Start: 25 @49362 has 197 MA's), (26, 49326), (27, 49302), (32, 49200), (34, 49170),

Gene: Scowl\_79 Start: 47685, Stop: 47482, Start Num: 25  
Candidate Starts for Scowl\_79:  
(Start: 25 @47685 has 197 MA's), (26, 47649), (32, 47523), (34, 47493),

Gene: Seabiscuit\_79 Start: 46785, Stop: 46582, Start Num: 25  
Candidate Starts for Seabiscuit\_79:  
(Start: 25 @46785 has 197 MA's), (26, 46749), (32, 46623), (34, 46593),

Gene: Seanderson\_78 Start: 49089, Stop: 48886, Start Num: 25  
Candidate Starts for Seanderson\_78:  
(Start: 25 @49089 has 197 MA's), (26, 49053), (28, 48999), (32, 48927), (34, 48897),

Gene: ShortQueendom\_71 Start: 45394, Stop: 45191, Start Num: 25  
Candidate Starts for ShortQueendom\_71:  
(Start: 25 @45394 has 197 MA's), (26, 45358), (32, 45232), (33, 45217), (34, 45202),

Gene: Sibs6\_80 Start: 45382, Stop: 45182, Start Num: 25  
Candidate Starts for Sibs6\_80:  
(Start: 25 @45382 has 197 MA's), (26, 45346), (28, 45292), (32, 45220), (34, 45190),

Gene: SkiPole\_88 Start: 49295, Stop: 49104, Start Num: 25  
Candidate Starts for SkiPole\_88:  
(Start: 25 @49295 has 197 MA's), (29, 49166), (30, 49163), (32, 49136),

Gene: Slagathor\_79 Start: 48540, Stop: 48346, Start Num: 25  
Candidate Starts for Slagathor\_79:  
(Start: 25 @48540 has 197 MA's), (29, 48411), (32, 48381),

Gene: Smairt\_84 Start: 50528, Stop: 50325, Start Num: 25  
Candidate Starts for Smairt\_84:  
(Start: 25 @50528 has 197 MA's), (26, 50492), (32, 50366), (34, 50336),

Gene: Smeagol\_82 Start: 50026, Stop: 49823, Start Num: 25  
Candidate Starts for Smeagol\_82:  
(14, 50104), (16, 50098), (19, 50080), (Start: 25 @50026 has 197 MA's), (26, 49990), (32, 49864), (34, 49834),

Gene: Snazzy\_80 Start: 48373, Stop: 48173, Start Num: 25

Candidate Starts for Snazzy\_80:

(Start: 25 @48373 has 197 MA's), (26, 48337), (32, 48211),

Gene: Solon\_74 Start: 45832, Stop: 45629, Start Num: 25

Candidate Starts for Solon\_74:

(Start: 25 @45832 has 197 MA's), (26, 45796), (28, 45742), (32, 45670), (34, 45640),

Gene: Sorpresa\_76 Start: 47898, Stop: 47695, Start Num: 25

Candidate Starts for Sorpresa\_76:

(Start: 25 @47898 has 197 MA's), (26, 47862), (32, 47736), (33, 47721), (34, 47706),

Gene: SpikeBT\_76 Start: 46826, Stop: 46623, Start Num: 25

Candidate Starts for SpikeBT\_76:

(Start: 25 @46826 has 197 MA's), (26, 46790), (32, 46664), (34, 46634),

Gene: Squee\_79 Start: 47270, Stop: 47067, Start Num: 25

Candidate Starts for Squee\_79:

(Start: 25 @47270 has 197 MA's), (26, 47234), (32, 47108), (34, 47078),

Gene: StewieG\_75 Start: 44976, Stop: 44773, Start Num: 25

Candidate Starts for StewieG\_75:

(Start: 25 @44976 has 197 MA's), (26, 44940), (32, 44814), (33, 44799), (34, 44784),

Gene: StrongArm\_74 Start: 47202, Stop: 46999, Start Num: 25

Candidate Starts for StrongArm\_74:

(1, 47547), (2, 47511), (4, 47463), (5, 47433), (6, 47427), (11, 47346), (15, 47274), (20, 47250), (21, 47247), (Start: 25 @47202 has 197 MA's), (26, 47166), (28, 47112), (32, 47040), (34, 47010),

Gene: Sumter\_76 Start: 48550, Stop: 48347, Start Num: 25

Candidate Starts for Sumter\_76:

(Start: 25 @48550 has 197 MA's), (26, 48514), (28, 48460), (32, 48388), (34, 48358),

Gene: Sumter\_82 Start: 49815, Stop: 49594, Start Num: 22

Candidate Starts for Sumter\_82:

(Start: 22 @49815 has 4 MA's), (24, 49806),

Gene: Sunshine924\_81 Start: 47337, Stop: 47134, Start Num: 25

Candidate Starts for Sunshine924\_81:

(Start: 25 @47337 has 197 MA's), (26, 47301), (28, 47247), (32, 47175), (34, 47145),

Gene: SwissCheese\_83 Start: 47889, Stop: 47686, Start Num: 25

Candidate Starts for SwissCheese\_83:

(Start: 25 @47889 has 197 MA's), (26, 47853), (32, 47727), (34, 47697),

Gene: Switzer\_77 Start: 47661, Stop: 47458, Start Num: 25

Candidate Starts for Switzer\_77:

(Start: 25 @47661 has 197 MA's), (26, 47625), (32, 47499), (34, 47469),

Gene: Swole\_78 Start: 47824, Stop: 47624, Start Num: 25

Candidate Starts for Swole\_78:

(Start: 25 @47824 has 197 MA's), (26, 47788), (32, 47662), (34, 47632),

Gene: Target\_78 Start: 46294, Stop: 46091, Start Num: 25  
Candidate Starts for Target\_78:  
(20, 46336), (21, 46333), (Start: 25 @46294 has 197 MA's), (26, 46258), (28, 46204), (31, 46147), (32, 46132), (34, 46102),

Gene: Tasp14\_78 Start: 47936, Stop: 47733, Start Num: 25  
Candidate Starts for Tasp14\_78:  
(Start: 25 @47936 has 197 MA's), (26, 47900), (32, 47774), (33, 47759), (34, 47744),

Gene: Teodoridan\_76 Start: 45601, Stop: 45398, Start Num: 25  
Candidate Starts for Teodoridan\_76:  
(17, 45664), (Start: 25 @45601 has 197 MA's), (26, 45565), (28, 45511), (32, 45439), (33, 45424), (34, 45409),

Gene: TheloniousMonk\_80 Start: 48986, Stop: 48783, Start Num: 25  
Candidate Starts for TheloniousMonk\_80:  
(18, 49046), (Start: 25 @48986 has 197 MA's), (26, 48950), (32, 48824), (34, 48794),

Gene: Thor\_82 Start: 48720, Stop: 48517, Start Num: 25  
Candidate Starts for Thor\_82:  
(Start: 25 @48720 has 197 MA's), (26, 48684), (27, 48660), (32, 48558), (34, 48528),

Gene: Topgun\_75 Start: 46114, Stop: 45914, Start Num: 25  
Candidate Starts for Topgun\_75:  
(Start: 25 @46114 has 197 MA's), (26, 46078), (32, 45952), (33, 45937), (34, 45922),

Gene: Tote\_76 Start: 45092, Stop: 44892, Start Num: 25  
Candidate Starts for Tote\_76:  
(Start: 25 @45092 has 197 MA's), (26, 45056), (32, 44930), (34, 44900),

Gene: Traft412\_78 Start: 48019, Stop: 47816, Start Num: 25  
Candidate Starts for Traft412\_78:  
(Start: 25 @48019 has 197 MA's), (26, 47983), (32, 47857), (34, 47827),

Gene: Treddle\_80 Start: 48749, Stop: 48546, Start Num: 25  
Candidate Starts for Treddle\_80:  
(Start: 25 @48749 has 197 MA's), (26, 48713), (32, 48587), (33, 48572), (34, 48557),

Gene: Tripl3t\_82 Start: 50461, Stop: 50258, Start Num: 25  
Candidate Starts for Tripl3t\_82:  
(12, 50575), (Start: 25 @50461 has 197 MA's), (26, 50425), (28, 50371), (32, 50299), (34, 50269),

Gene: Trouble\_79 Start: 48127, Stop: 47924, Start Num: 25  
Candidate Starts for Trouble\_79:  
(Start: 25 @48127 has 197 MA's), (26, 48091), (28, 48037), (32, 47965), (34, 47935),

Gene: Trouble\_85 Start: 49293, Stop: 49072, Start Num: 22  
Candidate Starts for Trouble\_85:  
(Start: 22 @49293 has 4 MA's), (24, 49284),

Gene: Turj99\_75 Start: 47479, Stop: 47276, Start Num: 25  
Candidate Starts for Turj99\_75:  
(9, 47641), (Start: 25 @47479 has 197 MA's), (26, 47443), (32, 47317), (33, 47302), (34, 47287),

Gene: TwoPeat\_78 Start: 47281, Stop: 47078, Start Num: 25  
Candidate Starts for TwoPeat\_78:  
(Start: 25 @47281 has 197 MA's), (26, 47245), (32, 47119), (34, 47089),

Gene: U2\_73 Start: 47866, Stop: 47666, Start Num: 25  
Candidate Starts for U2\_73:  
(Start: 25 @47866 has 197 MA's), (26, 47830), (28, 47776), (32, 47704), (34, 47674),

Gene: Violet\_74 Start: 48089, Stop: 47889, Start Num: 25  
Candidate Starts for Violet\_74:  
(Start: 25 @48089 has 197 MA's), (32, 47927), (34, 47897),

Gene: Watermelon\_82 Start: 48995, Stop: 48792, Start Num: 25  
Candidate Starts for Watermelon\_82:  
(Start: 25 @48995 has 197 MA's), (26, 48959), (32, 48833), (34, 48803),

Gene: Wheeler\_84 Start: 49724, Stop: 49521, Start Num: 25  
Candidate Starts for Wheeler\_84:  
(Start: 25 @49724 has 197 MA's), (26, 49688), (32, 49562), (33, 49547), (34, 49532),

Gene: Wilkins\_76 Start: 46044, Stop: 45844, Start Num: 25  
Candidate Starts for Wilkins\_76:  
(Start: 25 @46044 has 197 MA's), (26, 46008), (32, 45882), (33, 45867), (34, 45852),

Gene: Zeeculate\_75 Start: 47813, Stop: 47610, Start Num: 25  
Candidate Starts for Zeeculate\_75:  
(Start: 25 @47813 has 197 MA's), (26, 47777), (32, 47651), (34, 47621),

Gene: Zephyr\_80 Start: 47913, Stop: 47710, Start Num: 25  
Candidate Starts for Zephyr\_80:  
(Start: 25 @47913 has 197 MA's), (26, 47877), (32, 47751), (34, 47721),

Gene: Zeuska\_82 Start: 49482, Stop: 49282, Start Num: 25  
Candidate Starts for Zeuska\_82:  
(Start: 25 @49482 has 197 MA's), (26, 49446), (32, 49320), (34, 49290),