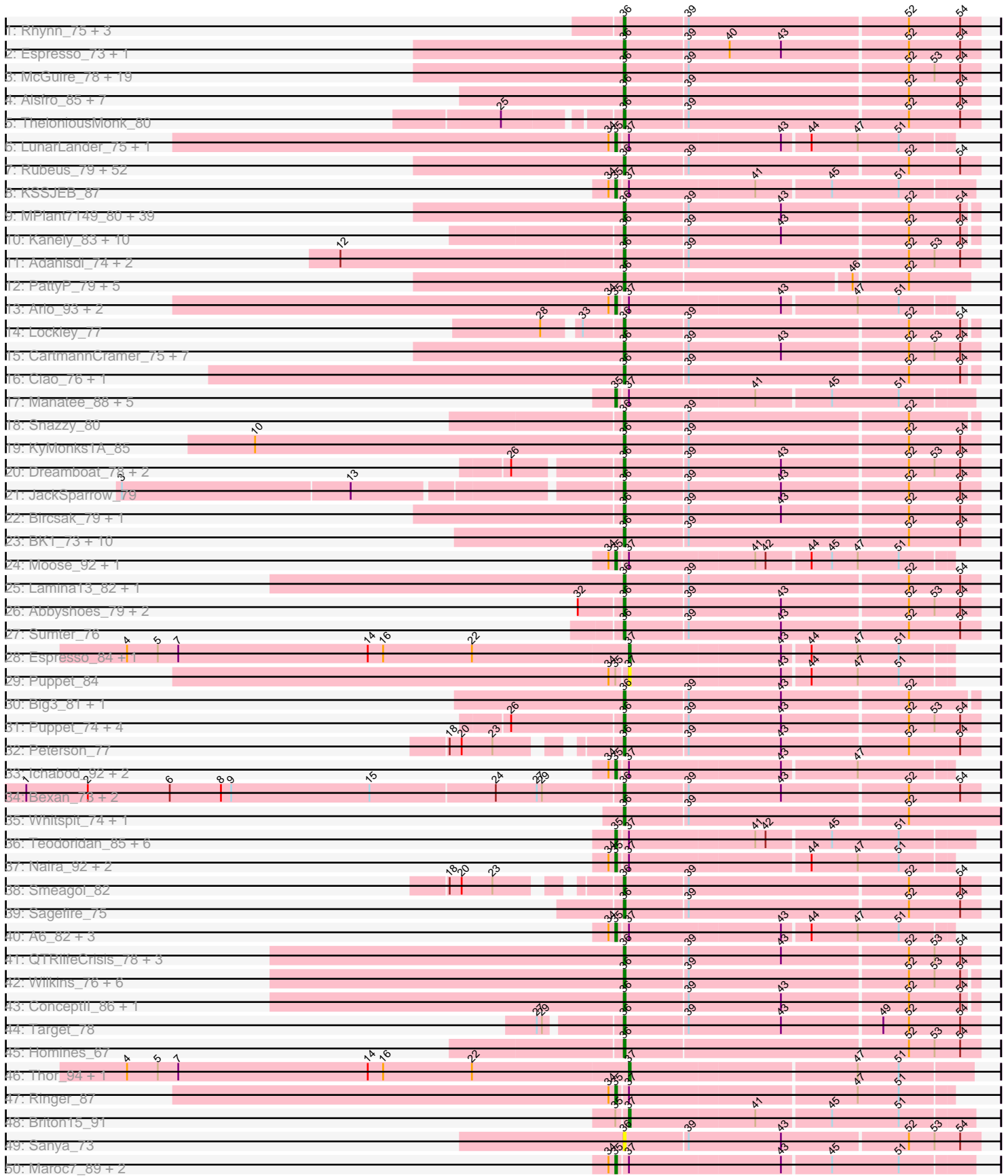


Pham 311167





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 311167 Report

This analysis was run 06/27/26 on database version 652.

Pham number 311167 has 289 members, 22 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, Bigchung\_79, ShortQueendom\_73, Hermia\_74, Aldrich\_71, GageAP\_81, McSinger\_77, CatBus\_71, Noxious\_75, AFIS\_76, KikiBouba\_75, Sorpresa\_78, Chanagan\_75, Tasp14\_78, DirtDevil\_73, StewieG\_75, Sandaddy\_77, GroundGoblin\_73
- Track 4 : Alsfro\_85, BeesKnees\_79, BillKnuckles\_72, Lesedi\_76, HarryOW\_80, Graduation\_82, Marge\_75, ProMouse\_78
- Track 5 : ThelioniousMonk\_80
- Track 6 : LunarLander\_75, Paphu\_82
- Track 7 : Rubeus\_79, Dulcie\_80, Blue\_75, Makemake\_82, Nerujay\_83, BluSpix\_77, Ichabod\_81, Bruns\_81, Levia\_73, Phlipppers\_77, Iqorha\_70, Bxb1\_73, Barriga\_86, TwoPeat\_78, Squee\_79, PSullivan\_78, PhineBark\_75, Magnar\_76, Briton15\_81, Pita2\_81, Papez\_83, Mkhuseli\_77, Traft412\_78, Watermelon\_82, Swole\_81, Maroc7\_81, Petp2012\_79, Bigfoot\_74, PascalRango\_77, Michley\_79, Euphoria\_80, SwissCheese\_83, Zeuska\_82, SpikeBT\_76, Moose\_82, Forsytheast\_82, Switzer\_77, IgnatiusPatJac\_79, Inyanga\_70, Lopton\_79, Scowl\_79, Tote\_76, JuliaChild\_81, Bethlehem\_82, CactusRose\_82, Nhonho\_75, Hope4ever\_80, Fascinus\_75, Pari\_84, Zephyr\_80, Rufus\_81, Carlyle\_79, Seabiscuit\_79
- Track 8 : KSSJEB\_87
- Track 9 : MPlant7149\_80, BigPaolini\_78, Doom\_71, PacerPaul\_83, Blackflame\_75, Francis47\_80, Niza\_79, Acme\_84, Greg\_83, Sunshine924\_81, Blesser\_73, BPBiebs31\_85, Pinto\_78, MilleFeuille\_80, GMonster\_76, Trouble\_79, U2\_73, Fajezeel\_83, Killigrew\_75, Licorice\_82, Ringer\_79, Sibs6\_80, Solon\_74, Seanderson\_78, ChristmasHams\_71, JC27\_82, Agaliana\_76, BarrowTuph\_82, Bones\_74, MaryBeth\_78, Burton\_81, Rohr\_82, MetalQZJ\_77, BaconJack\_81, Paphu\_76, Rajelicia\_80, Arlo\_80, PowerRanger\_74, KBG\_78, Corvo\_82
- Track 10 : Kanely\_83, Altman\_84, Atkinbua\_88, DreamCatcher\_83, Monet\_82, STLscum\_85, Edtherson\_77, Rutherford\_81, EnzoK\_80, Mryolo\_74, PinkPlastic\_74
- Track 11 : Adahisdi\_74, Magnito\_78, Turj99\_75
- Track 12 : PattyP\_79, Arcanine\_82, Slagathor\_79, NEHalo\_75, Museum\_79, Molly\_79
- Track 13 : Arlo\_93, Mkhuseli\_85, Carlyle\_87
- Track 14 : Lockley\_77
- Track 15 : CartmannCramer\_75, Dynamix\_78, HermioneGrange\_82, Manatee\_77, Bob3\_79, Gwendoluna\_83, BigMau\_81, Jerm2\_80
- Track 16 : Ciao\_76, Pippin\_80

- Track 17 : Manatee\_88, BeesKnees\_91, Seabiscuit\_90, PowerRanger\_82, U2\_81, McGuire\_88
- Track 18 : Snazzy\_80
- Track 19 : KyMonks1A\_85
- Track 20 : Dreamboat\_78, PherrisBueller\_77, Jasper\_77
- Track 21 : JackSparrow\_79
- Track 22 : Bircsak\_79, Gompeii16\_79
- Track 23 : BK1\_73, Anglerfish\_82, Alvin\_76, Pelly\_82, Marcell\_71, Ruotula\_84, Naira\_80, Fenn\_81, A6\_73, Dexes\_82, HanShotFirst\_77
- Track 24 : Moose\_92, Forsytheast\_93
- Track 25 : Lamina13\_82, Petruchio\_80
- Track 26 : Abbysshoes\_79, Kenmech\_81, Dussy\_78
- Track 27 : Sumter\_76
- Track 28 : Espresso\_84, Homines\_76
- Track 29 : Puppet\_84
- Track 30 : Big3\_81, MrGordo\_81
- Track 31 : Puppet\_74, Ajay\_75, Eyeball\_78, KSSJEB\_77, Teodoridan\_76
- Track 32 : Peterson\_77
- Track 33 : Ichabod\_92, Switzer\_87, Zephyr\_89
- Track 34 : Bexan\_73, Beatrix\_75, StrongArm\_74
- Track 35 : Whitspit\_74, Hami1\_74
- Track 36 : Teodoridan\_85, Topgun\_85, Jasper\_90, Wilkins\_86, Seanderson\_87, Dreamboat\_90, Snazzy\_90
- Track 37 : Naira\_92, Fenn\_93, Squee\_87
- Track 38 : Smeagol\_82
- Track 39 : Sagefire\_75
- Track 40 : A6\_82, ILeeKay\_88, Marcell\_80, BK1\_82
- Track 41 : QTRlifeCrisis\_78, Buttons\_76, Parliament\_80, ILeeKay\_76
- Track 42 : Wilkins\_76, Topgun\_75, Crispicous1\_74, Aeneas\_84, Perseus\_79, Abrogate\_760, Gyzlar\_71
- Track 43 : Conceptll\_86, Kugel\_80
- Track 44 : Target\_78
- Track 45 : Homines\_67
- Track 46 : Thor\_94, SarFire\_94
- Track 47 : Ringer\_87
- Track 48 : Briton15\_91
- Track 49 : Sanya\_73
- Track 50 : Maroc7\_89, Fascinus\_84, CactusRose\_93
- Track 51 : Thor\_82, SarFire\_82
- Track 52 : Wheeler\_84, Treddle\_80
- Track 53 : GrecoEtereo\_85
- Track 54 : Raid\_76
- Track 55 : Marchy\_73
- Track 56 : Zeeculate\_89
- Track 57 : Violet\_74, Paraselene\_77
- Track 58 : Lesedi\_85
- Track 59 : Marco3\_81
- Track 60 : Zeeculate\_75
- Track 61 : Marsha\_79
- Track 62 : Trouble\_85, Sumter\_82, Perseus\_85, Pelly\_88, Paraselene\_82
- Track 63 : Blue\_82
- Track 64 : Norz\_76
- Track 65 : RidgeCB\_74

- Track 66 : Jorgensen\_88
- Track 67 : Kykar\_78
- Track 68 : Eyeball\_88
- Track 69 : Applejack\_78
- Track 70 : Fushigi\_73
- Track 71 : DrFeelGood\_75
- Track 72 : Pepe\_73, SkiPole\_88
- Track 73 : Tripl3t\_82
- Track 74 : DD5\_76
- Track 75 : Kugel\_90

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

The start number called the most often in the published annotations is 36, it was called in 219 of the 267 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, Aldrich\_71, Alsfro\_85, Altman\_84, Alvin\_76, Anglerfish\_82, Applejack\_78, Arcanine\_82, Arlo\_80, Atkinbua\_88, BK1\_73, BPBiebs31\_85, BaconJack\_81, Barriga\_86, BarrowTuph\_82, Beatrix\_75, BeesKnees\_79, Bethlehem\_82, Bexan\_73, Big3\_81, BigMau\_81, BigPaolini\_78, Bigchungu\_79, Bigfoot\_74, BillKnuckles\_72, Bircsak\_79, Blackflame\_75, Blesser\_73, BluSpix\_77, Blue\_75, Bob3\_79, Bones\_74, Briton15\_81, Bruns\_81, Burton\_81, Buttons\_76, Bxb1\_73, CactusRose\_82, Carlyle\_79, CartmannCramer\_75, CatBus\_71, Chanagan\_75, ChristmasHams\_71, Ciao\_76, ConceptII\_86, Corvo\_82, Crispicious1\_74, DD5\_76, Dexes\_82, DirtDevil\_73, Doom\_71, DrFeelGood\_75, DreamCatcher\_83, Dreamboat\_78, Dulcie\_80, Dussy\_78, Dynamix\_78, Edtherson\_77, EnzoK\_80, Espresso\_73, Euphoria\_80, Eyeball\_78, Fajezeel\_83, Fascinus\_75, Fenn\_81, Forsytheast\_82, Francis47\_80, Fushigi\_73, GMonster\_76, GageAP\_81, Gandalf20\_78, Gompeii16\_79, Graduation\_82, GrecoEtereo\_85, Greg\_83, GroundGoblin\_73, Gwendoluna\_83, Gyzlar\_71, Hami1\_74, HanShotFirst\_77, HarryOW\_80, Hermia\_74, HermioneGrange\_82, Homines\_67, Hope4ever\_80, ILeeKay\_76, Ichabod\_81, IgnatiusPatJac\_79, Inyanga\_70, Iqorha\_70, JC27\_82, JackSparrow\_79, Jasper\_77, Jerm2\_80, Jorgensen\_88, JuliaChild\_81, KBG\_78, KSSJEB\_77, Kanely\_83, Kenmech\_81, KikiBouba\_75, Killigrew\_75, Kugel\_80, KyMonks1A\_85, Kykar\_78, Lamina13\_82, Lesedi\_76, Levia\_73, Licorice\_82, Lockley\_77, Lopton\_79, MPlant7149\_80, Magnar\_76, Magnito\_78, Makemake\_82, Manatee\_77, Marcell\_71, Marchy\_73, Marco3\_81, Marge\_75, Maroc7\_81, Marsha\_79, MaryBeth\_78, McGuire\_78, McSinger\_77, MetalQZJ\_77, Michley\_79, MilleFeuille\_80, Mkhuseli\_77, 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, Noxious\_75, Ohno789\_82, Oogway\_77, PSullivan\_78, PacerPaul\_83, Papez\_83, Paphu\_76, Paraselene\_77, Pari\_84, Parliament\_80, PascalRango\_77, PattyP\_79, Pelly\_82, Pepe\_73, Perseus\_79, Peterson\_77, Petp2012\_79, Petruccio\_80, PherrisBueller\_77, PhineBark\_75, Phlippers\_77, PhrostyMug\_81, PinkPlastic\_74, Pinto\_78, Pippin\_80, Pita2\_81, PowerRanger\_74, ProMouse\_78, Puppet\_74, QTRlifeCrisis\_78, Raid\_76, 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\_73, Sibs6\_80, SkiPole\_88, Slagathor\_79, Smairt\_84, Smeagol\_82, Snazzy\_80, Solon\_74, Sorpresa\_78, SpikeBT\_76, Squee\_79, StewieG\_75, StrongArm\_74, Sumter\_76, Sunshine924\_81, SwissCheese\_83, Switzer\_77, Swole\_81, 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, Whitspit\_74, Wilkins\_76, Zeeculate\_75, Zephyr\_80, Zeuska\_82,

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

- 

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

- A6\_82, Arlo\_93, BK1\_82, BeesKnees\_91, Blue\_82, Briton15\_91, CactusRose\_93, Carlyle\_87, Dreamboat\_90, Espresso\_84, Eyeball\_88, Fascinus\_84, Fenn\_93, Forsytheast\_93, Homines\_76, ILeeKay\_88, Ichabod\_92, Jasper\_90, KSSJEB\_87, Kugel\_90, Lesedi\_85, LunarLander\_75, Manatee\_88, Marcell\_80, Maroc7\_89, McGuire\_88, Mkhusei\_85, Moose\_92, Naira\_92, Paphu\_82, Paraselene\_82, Pelly\_88, Perseus\_85, PowerRanger\_82, Puppet\_84, Ringer\_87, SarFire\_94, Seabiscuit\_90, Seanderson\_87, Snazzy\_90, Squee\_87, Sumter\_82, Switzer\_87, Teodoridan\_85, Thor\_94, Topgun\_85, Trouble\_85, U2\_81, Wilkins\_86, Zeeculate\_89, Zephyr\_89,

### Summary by start number:

Start 30:

- Found in 5 of 289 ( 1.7% ) of genes in pham
- Manual Annotations of this start: 5 of 267
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Paraselene\_82 (A1), Pelly\_88 (A1), Perseus\_85 (A1), Sumter\_82 (A1), Trouble\_85 (A1),

Start 34:

- Found in 25 of 289 ( 8.7% ) of genes in pham
- Manual Annotations of this start: 1 of 267
- Called 4.0% of time when present
- Phage (with cluster) where this start called: Zeeculate\_89 (A1),

Start 35:

- Found in 42 of 289 ( 14.5% ) of genes in pham
- Manual Annotations of this start: 36 of 267
- Called 90.5% of time when present
- Phage (with cluster) where this start called: A6\_82 (A1), Arlo\_93 (A1), BK1\_82 (A1), BeesKnees\_91 (A1), Blue\_82 (A1), CactusRose\_93 (A1), Carlyle\_87 (A1), Dreamboat\_90 (A1), Fascinus\_84 (A1), Fenn\_93 (A1), Forsytheast\_93 (A1), ILeeKay\_88 (A1), Ichabod\_92 (A1), Jasper\_90 (A1), KSSJEB\_87 (A1), Kugel\_90 (A1), Lesedi\_85 (A1), LunarLander\_75 (A1), Manatee\_88 (A1), Marcell\_80 (A1), Maroc7\_89 (A1), McGuire\_88 (A1), Mkhusei\_85 (A1), Moose\_92 (A1), Naira\_92 (A1), Paphu\_82 (A1), PowerRanger\_82 (A1), Ringer\_87 (A1), Seabiscuit\_90 (A1), Seanderson\_87 (A1), Snazzy\_90 (A1), Squee\_87 (A1), Switzer\_87 (A1), Teodoridan\_85 (A1), Topgun\_85 (A1), U2\_81 (A1), Wilkins\_86 (A1), Zephyr\_89 (A1),

Start 36:

- Found in 238 of 289 ( 82.4% ) of genes in pham
- Manual Annotations of this start: 219 of 267
- 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), Aldrich\_71 (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), BarrowTuph\_82 (A1), Beatrix\_75 (A1), BeesKnees\_79 (A1), Bethlehem\_82 (A1), Bexan\_73 (A1), Big3\_81 (A1), BigMau\_81 (A1), BigPaolini\_78 (A1), Bigchungi\_79 (A1), Bigfoot\_74 (A1), BillKnuckles\_72 (A1), Bircsak\_79 (A1), Blackflame\_75 (A1), Blesser\_73 (A1), BluSpix\_77 (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), CartmannCramer\_75 (A1), CatBus\_71 (A1), Chanagan\_75 (A1), ChristmasHams\_71 (A1), Ciao\_76 (A1), ConceptII\_86 (A1), Corvo\_82 (A1), Crispicous1\_74 (A1), DD5\_76 (A1), Dexes\_82 (A1), DirtDevil\_73 (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), EnzoK\_80 (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), GMonster\_76 (A1), GageAP\_81 (A1), Gandalf20\_78 (A1), Gompeii16\_79 (A1), Graduation\_82 (A1), GrecoEtereo\_85 (A1), Greg\_83 (A1), GroundGoblin\_73 (A1), Gwendoluna\_83 (A1), Gyzlar\_71 (A1), Hami1\_74 (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), Inyanga\_70 (A1), Iqorha\_70 (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), KikiBouba\_75 (A1), Killigrew\_75 (A1), Kugel\_80 (A1), KyMonks1A\_85 (A1), Kykar\_78 (A1), Lamina13\_82 (A1), Lesedi\_76 (A1), Levia\_73 (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\_73 (A1), Marco3\_81 (A1), Marge\_75 (A1), Maroc7\_81 (A1), Marsha\_79 (A1), MaryBeth\_78 (A1), McGuire\_78 (A1), McSinger\_77 (A1), MetalQZJ\_77 (A1), Michley\_79 (A1), MilleFeuille\_80 (A1), Mkhusei\_77 (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), Noxious\_75 (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\_82 (A1), Pepe\_73 (A1), Perseus\_79 (A1), Peterson\_77 (A1), Petp2012\_79 (A1), Petruchio\_80 (A1), PherrisBueller\_77 (A1), PhineBark\_75 (A1), Phippers\_77 (A1), PhrostyMug\_81 (A1), PinkPlastic\_74 (A1), Pinto\_78 (A1), Pippin\_80 (A1), Pita2\_81 (A1), PowerRanger\_74 (A1), ProMouse\_78 (A1), Puppet\_74 (A1), QTRLifeCrisis\_78 (A1), Raid\_76 (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\_73 (A1), Sibs6\_80 (A1), SkiPole\_88 (A1), Slagathor\_79 (A1), Smairt\_84 (A1), Smeagol\_82 (A1), Snazzy\_80 (A1), Solon\_74 (A1), Sorpresa\_78 (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\_81 (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), Whitspit\_74 (A1), Wilkins\_76 (A1), Zeeculate\_75 (A1), Zephyr\_80 (A1), Zeuska\_82 (A1),

Start 37:

- Found in 45 of 289 ( 15.6% ) of genes in pham
- Manual Annotations of this start: 5 of 267
- Called 13.3% of time when present
- Phage (with cluster) where this start called: Briton15\_91 (A1), Espresso\_84 (A1), Homines\_76 (A1), Puppet\_84 (A1), SarFire\_94 (A1), Thor\_94 (A1),

Start 38:

- Found in 1 of 289 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 267
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Eyeball\_88 (A1),

### **Summary by clusters:**

There is one cluster represented in this pham: A1

Info for manual annotations of cluster A1:

- Start number 30 was manually annotated 5 times for cluster A1.
- Start number 34 was manually annotated 1 time for cluster A1.
- Start number 35 was manually annotated 36 times for cluster A1.
- Start number 36 was manually annotated 219 times for cluster A1.
- Start number 37 was manually annotated 5 times for cluster A1.
- Start number 38 was manually annotated 1 time for cluster A1.

### **Gene Information:**

Gene: A6\_82 Start: 48189, Stop: 48001, Start Num: 35

Candidate Starts for A6\_82:

(Start: 34 @48192 has 1 MA's), (Start: 35 @48189 has 36 MA's), (Start: 37 @48183 has 5 MA's), (43, 48096), (44, 48081), (47, 48054), (51, 48030),

Gene: A6\_73 Start: 45132, Stop: 44929, Start Num: 36

Candidate Starts for A6\_73:

(Start: 36 @45132 has 219 MA's), (39, 45096), (52, 44970), (54, 44940),

Gene: AFIS\_76 Start: 48153, Stop: 47950, Start Num: 36

Candidate Starts for AFIS\_76:

(Start: 36 @48153 has 219 MA's), (39, 48117), (52, 47991), (53, 47976), (54, 47961),

Gene: Abbyshoes\_79 Start: 47406, Stop: 47203, Start Num: 36

Candidate Starts for Abbyshoes\_79:

(32, 47430), (Start: 36 @47406 has 219 MA's), (39, 47370), (43, 47316), (52, 47244), (53, 47229), (54, 47214),

Gene: Abrogate\_760 Start: 48119, Stop: 47916, Start Num: 36

Candidate Starts for Abrogate\_760:

(Start: 36 @48119 has 219 MA's), (39, 48083), (52, 47957), (53, 47942), (54, 47927),

Gene: Acme\_84 Start: 49836, Stop: 49636, Start Num: 36

Candidate Starts for Acme\_84:

(Start: 36 @49836 has 219 MA's), (39, 49800), (43, 49746), (52, 49674), (54, 49644),

Gene: Adahisdi\_74 Start: 47304, Stop: 47101, Start Num: 36

Candidate Starts for Adahisdi\_74:

(12, 47466), (Start: 36 @47304 has 219 MA's), (39, 47268), (52, 47142), (53, 47127), (54, 47112),

Gene: Aeneas\_84 Start: 49765, Stop: 49562, Start Num: 36

Candidate Starts for Aeneas\_84:

(Start: 36 @49765 has 219 MA's), (39, 49729), (52, 49603), (53, 49588), (54, 49573),

Gene: Agaliana\_76 Start: 46122, Stop: 45919, Start Num: 36

Candidate Starts for Agaliana\_76:

(Start: 36 @46122 has 219 MA's), (39, 46086), (43, 46032), (52, 45960), (54, 45930),

Gene: Ajay\_75 Start: 46505, Stop: 46302, Start Num: 36

Candidate Starts for Ajay\_75:

(26, 46568), (Start: 36 @46505 has 219 MA's), (39, 46469), (43, 46415), (52, 46343), (53, 46328), (54, 46313),

Gene: Aldrich\_71 Start: 45995, Stop: 45792, Start Num: 36

Candidate Starts for Aldrich\_71:

(Start: 36 @45995 has 219 MA's), (39, 45959), (52, 45833), (53, 45818), (54, 45803),

Gene: Alsfro\_85 Start: 47868, Stop: 47665, Start Num: 36

Candidate Starts for Alsfro\_85:

(Start: 36 @47868 has 219 MA's), (39, 47832), (52, 47706), (54, 47676),

Gene: Altman\_84 Start: 48968, Stop: 48768, Start Num: 36

Candidate Starts for Altman\_84:

(Start: 36 @48968 has 219 MA's), (39, 48932), (43, 48878), (52, 48806), (54, 48776),

Gene: Alvin\_76 Start: 46725, Stop: 46522, Start Num: 36

Candidate Starts for Alvin\_76:

(Start: 36 @46725 has 219 MA's), (39, 46689), (52, 46563), (54, 46533),

Gene: Anglerfish\_82 Start: 48973, Stop: 48773, Start Num: 36

Candidate Starts for Anglerfish\_82:

(Start: 36 @48973 has 219 MA's), (39, 48937), (52, 48811), (54, 48781),

Gene: Applejack\_78 Start: 45786, Stop: 45583, Start Num: 36

Candidate Starts for Applejack\_78:

(21, 45879), (Start: 36 @45786 has 219 MA's), (39, 45750), (52, 45624), (54, 45594),

Gene: Arcanine\_82 Start: 49232, Stop: 49038, Start Num: 36

Candidate Starts for Arcanine\_82:

(Start: 36 @49232 has 219 MA's), (46, 49103), (52, 49073),

Gene: Arlo\_93 Start: 51829, Stop: 51641, Start Num: 35

Candidate Starts for Arlo\_93:

(Start: 34 @51832 has 1 MA's), (Start: 35 @51829 has 36 MA's), (Start: 37 @51823 has 5 MA's), (43, 51736), (47, 51694), (51, 51670),

Gene: Arlo\_80 Start: 48283, Stop: 48083, Start Num: 36

Candidate Starts for Arlo\_80:

(Start: 36 @48283 has 219 MA's), (39, 48247), (43, 48193), (52, 48121), (54, 48091),

Gene: Atkinbua\_88 Start: 49776, Stop: 49576, Start Num: 36

Candidate Starts for Atkinbua\_88:

(Start: 36 @49776 has 219 MA's), (39, 49740), (43, 49686), (52, 49614), (54, 49584),

Gene: BK1\_73 Start: 45132, Stop: 44929, Start Num: 36

Candidate Starts for BK1\_73:

(Start: 36 @45132 has 219 MA's), (39, 45096), (52, 44970), (54, 44940),

Gene: BK1\_82 Start: 48189, Stop: 48001, Start Num: 35

Candidate Starts for BK1\_82:

(Start: 34 @48192 has 1 MA's), (Start: 35 @48189 has 36 MA's), (Start: 37 @48183 has 5 MA's), (43, 48096), (44, 48081), (47, 48054), (51, 48030),

Gene: BPBiebs31\_85 Start: 49488, Stop: 49288, Start Num: 36

Candidate Starts for BPBiebs31\_85:

(Start: 36 @49488 has 219 MA's), (39, 49452), (43, 49398), (52, 49326), (54, 49296),

Gene: BaconJack\_81 Start: 49467, Stop: 49264, Start Num: 36

Candidate Starts for BaconJack\_81:

(Start: 36 @49467 has 219 MA's), (39, 49431), (43, 49377), (52, 49305), (54, 49275),

Gene: Barriga\_86 Start: 48333, Stop: 48130, Start Num: 36

Candidate Starts for Barriga\_86:

(Start: 36 @48333 has 219 MA's), (39, 48297), (52, 48171), (54, 48141),

Gene: BarrowTuph\_82 Start: 48513, Stop: 48310, Start Num: 36

Candidate Starts for BarrowTuph\_82:

(Start: 36 @48513 has 219 MA's), (39, 48477), (43, 48423), (52, 48351), (54, 48321),

Gene: Beatrix\_75 Start: 47300, Stop: 47097, Start Num: 36

Candidate Starts for Beatrix\_75:

(1, 47645), (2, 47609), (6, 47561), (8, 47531), (9, 47525), (15, 47444), (24, 47372), (27, 47348), (29, 47345), (Start: 36 @47300 has 219 MA's), (39, 47264), (43, 47210), (52, 47138), (54, 47108),

Gene: BeesKnees\_79 Start: 46403, Stop: 46200, Start Num: 36

Candidate Starts for BeesKnees\_79:

(Start: 36 @46403 has 219 MA's), (39, 46367), (52, 46241), (54, 46211),

Gene: BeesKnees\_91 Start: 49945, Stop: 49745, Start Num: 35

Candidate Starts for BeesKnees\_91:

(Start: 35 @49945 has 36 MA's), (Start: 37 @49939 has 5 MA's), (41, 49867), (45, 49825), (51, 49786),

Gene: Bethlehem\_82 Start: 50352, Stop: 50149, Start Num: 36

Candidate Starts for Bethlehem\_82:

(Start: 36 @50352 has 219 MA's), (39, 50316), (52, 50190), (54, 50160),

Gene: Bexan\_73 Start: 47074, Stop: 46871, Start Num: 36

Candidate Starts for Bexan\_73:

(1, 47419), (2, 47383), (6, 47335), (8, 47305), (9, 47299), (15, 47218), (24, 47146), (27, 47122), (29, 47119), (Start: 36 @47074 has 219 MA's), (39, 47038), (43, 46984), (52, 46912), (54, 46882),

Gene: Big3\_81 Start: 49478, Stop: 49278, Start Num: 36

Candidate Starts for Big3\_81:

(Start: 36 @49478 has 219 MA's), (39, 49442), (43, 49388), (52, 49316),

Gene: BigMau\_81 Start: 48890, Stop: 48687, Start Num: 36

Candidate Starts for BigMau\_81:

(Start: 36 @48890 has 219 MA's), (39, 48854), (43, 48800), (52, 48728), (53, 48713), (54, 48698),

Gene: BigPaolini\_78 Start: 46838, Stop: 46635, Start Num: 36

Candidate Starts for BigPaolini\_78:

(Start: 36 @46838 has 219 MA's), (39, 46802), (43, 46748), (52, 46676), (54, 46646),

Gene: Bigchungj\_79 Start: 48715, Stop: 48512, Start Num: 36

Candidate Starts for Bigchungj\_79:

(Start: 36 @48715 has 219 MA's), (39, 48679), (52, 48553), (53, 48538), (54, 48523),

Gene: Bigfoot\_74 Start: 47546, Stop: 47346, Start Num: 36

Candidate Starts for Bigfoot\_74:

(Start: 36 @47546 has 219 MA's), (39, 47510), (52, 47384), (54, 47354),

Gene: BillKnuckles\_72 Start: 47277, Stop: 47074, Start Num: 36

Candidate Starts for BillKnuckles\_72:

(Start: 36 @47277 has 219 MA's), (39, 47241), (52, 47115), (54, 47085),

Gene: Bircsak\_79 Start: 49965, Stop: 49762, Start Num: 36

Candidate Starts for Bircsak\_79:

(Start: 36 @49965 has 219 MA's), (39, 49929), (43, 49875), (52, 49803), (54, 49773),

Gene: Blackflame\_75 Start: 47670, Stop: 47467, Start Num: 36

Candidate Starts for Blackflame\_75:

(Start: 36 @47670 has 219 MA's), (39, 47634), (43, 47580), (52, 47508), (54, 47478),

Gene: Blesser\_73 Start: 46003, Stop: 45800, Start Num: 36

Candidate Starts for Blesser\_73:

(Start: 36 @46003 has 219 MA's), (39, 45967), (43, 45913), (52, 45841), (54, 45811),

Gene: BluSpix\_77 Start: 43001, Stop: 42798, Start Num: 36

Candidate Starts for BluSpix\_77:

(Start: 36 @43001 has 219 MA's), (39, 42965), (52, 42839), (54, 42809),

Gene: Blue\_75 Start: 47181, Stop: 46978, Start Num: 36

Candidate Starts for Blue\_75:

(Start: 36 @47181 has 219 MA's), (39, 47145), (52, 47019), (54, 46989),

Gene: Blue\_82 Start: 49700, Stop: 49512, Start Num: 35

Candidate Starts for Blue\_82:

(Start: 34 @49703 has 1 MA's), (Start: 35 @49700 has 36 MA's), (Start: 37 @49694 has 5 MA's), (43, 49607), (47, 49565), (51, 49541),

Gene: Bob3\_79 Start: 48157, Stop: 47954, Start Num: 36

Candidate Starts for Bob3\_79:

(Start: 36 @48157 has 219 MA's), (39, 48121), (43, 48067), (52, 47995), (53, 47980), (54, 47965),

Gene: Bones\_74 Start: 47463, Stop: 47260, Start Num: 36

Candidate Starts for Bones\_74:

(Start: 36 @47463 has 219 MA's), (39, 47427), (43, 47373), (52, 47301), (54, 47271),

Gene: Briton15\_81 Start: 48543, Stop: 48340, Start Num: 36

Candidate Starts for Briton15\_81:

(Start: 36 @48543 has 219 MA's), (39, 48507), (52, 48381), (54, 48351),

Gene: Briton15\_91 Start: 51502, Stop: 51308, Start Num: 37

Candidate Starts for Briton15\_91:

(Start: 35 @51508 has 36 MA's), (Start: 37 @51502 has 5 MA's), (41, 51430), (45, 51388), (51, 51349),

Gene: Bruns\_81 Start: 47406, Stop: 47203, Start Num: 36

Candidate Starts for Bruns\_81:

(Start: 36 @47406 has 219 MA's), (39, 47370), (52, 47244), (54, 47214),

Gene: Burton\_81 Start: 49920, Stop: 49720, Start Num: 36

Candidate Starts for Burton\_81:

(Start: 36 @49920 has 219 MA's), (39, 49884), (43, 49830), (52, 49758), (54, 49728),

Gene: Buttons\_76 Start: 45862, Stop: 45659, Start Num: 36

Candidate Starts for Buttons\_76:

(Start: 36 @45862 has 219 MA's), (39, 45826), (43, 45772), (52, 45700), (53, 45685), (54, 45670),

Gene: Bxb1\_73 Start: 45949, Stop: 45746, Start Num: 36

Candidate Starts for Bxb1\_73:

(Start: 36 @45949 has 219 MA's), (39, 45913), (52, 45787), (54, 45757),

Gene: CactusRose\_82 Start: 48563, Stop: 48363, Start Num: 36

Candidate Starts for CactusRose\_82:

(Start: 36 @48563 has 219 MA's), (39, 48527), (52, 48401), (54, 48371),

Gene: CactusRose\_93 Start: 51517, Stop: 51317, Start Num: 35

Candidate Starts for CactusRose\_93:

(Start: 34 @51520 has 1 MA's), (Start: 35 @51517 has 36 MA's), (Start: 37 @51511 has 5 MA's), (43, 51424), (45, 51397), (51, 51358),

Gene: Carlyle\_87 Start: 49720, Stop: 49532, Start Num: 35

Candidate Starts for Carlyle\_87:

(Start: 34 @49723 has 1 MA's), (Start: 35 @49720 has 36 MA's), (Start: 37 @49714 has 5 MA's), (43, 49627), (47, 49585), (51, 49561),

Gene: Carlyle\_79 Start: 46861, Stop: 46658, Start Num: 36

Candidate Starts for Carlyle\_79:

(Start: 36 @46861 has 219 MA's), (39, 46825), (52, 46699), (54, 46669),

Gene: CartmannCramer\_75 Start: 48488, Stop: 48285, Start Num: 36  
Candidate Starts for CartmannCramer\_75:  
(Start: 36 @48488 has 219 MA's), (39, 48452), (43, 48398), (52, 48326), (53, 48311), (54, 48296),

Gene: CatBus\_71 Start: 46187, Stop: 45984, Start Num: 36  
Candidate Starts for CatBus\_71:  
(Start: 36 @46187 has 219 MA's), (39, 46151), (52, 46025), (53, 46010), (54, 45995),

Gene: Chanagan\_75 Start: 45822, Stop: 45619, Start Num: 36  
Candidate Starts for Chanagan\_75:  
(Start: 36 @45822 has 219 MA's), (39, 45786), (52, 45660), (53, 45645), (54, 45630),

Gene: ChristmasHams\_71 Start: 44661, Stop: 44458, Start Num: 36  
Candidate Starts for ChristmasHams\_71:  
(Start: 36 @44661 has 219 MA's), (39, 44625), (43, 44571), (52, 44499), (54, 44469),

Gene: Ciao\_76 Start: 46158, Stop: 45958, Start Num: 36  
Candidate Starts for Ciao\_76:  
(Start: 36 @46158 has 219 MA's), (39, 46122), (52, 45996), (54, 45966),

Gene: ConceptII\_86 Start: 50069, Stop: 49869, Start Num: 36  
Candidate Starts for ConceptII\_86:  
(Start: 36 @50069 has 219 MA's), (39, 50033), (43, 49979), (52, 49907), (54, 49877),

Gene: Corvo\_82 Start: 49411, Stop: 49211, Start Num: 36  
Candidate Starts for Corvo\_82:  
(Start: 36 @49411 has 219 MA's), (39, 49375), (43, 49321), (52, 49249), (54, 49219),

Gene: Crispicous1\_74 Start: 45668, Stop: 45465, Start Num: 36  
Candidate Starts for Crispicous1\_74:  
(Start: 36 @45668 has 219 MA's), (39, 45632), (52, 45506), (53, 45491), (54, 45476),

Gene: DD5\_76 Start: 47589, Stop: 47386, Start Num: 36  
Candidate Starts for DD5\_76:  
(28, 47628), (33, 47610), (Start: 36 @47589 has 219 MA's), (39, 47553), (43, 47499), (52, 47427), (54, 47397),

Gene: Dexes\_82 Start: 50671, Stop: 50468, Start Num: 36  
Candidate Starts for Dexes\_82:  
(Start: 36 @50671 has 219 MA's), (39, 50635), (52, 50509), (54, 50479),

Gene: DirtDevil\_73 Start: 45995, Stop: 45792, Start Num: 36  
Candidate Starts for DirtDevil\_73:  
(Start: 36 @45995 has 219 MA's), (39, 45959), (52, 45833), (53, 45818), (54, 45803),

Gene: Doom\_71 Start: 46518, Stop: 46315, Start Num: 36  
Candidate Starts for Doom\_71:  
(Start: 36 @46518 has 219 MA's), (39, 46482), (43, 46428), (52, 46356), (54, 46326),

Gene: DrFeelGood\_75 Start: 45947, Stop: 45744, Start Num: 36  
Candidate Starts for DrFeelGood\_75:  
(Start: 36 @45947 has 219 MA's), (39, 45911), (52, 45785), (53, 45770), (54, 45755),

Gene: DreamCatcher\_83 Start: 48569, Stop: 48369, Start Num: 36  
Candidate Starts for DreamCatcher\_83:  
(Start: 36 @48569 has 219 MA's), (39, 48533), (43, 48479), (52, 48407), (54, 48377),

Gene: Dreamboat\_78 Start: 45875, Stop: 45672, Start Num: 36  
Candidate Starts for Dreamboat\_78:  
(26, 45932), (Start: 36 @45875 has 219 MA's), (39, 45839), (43, 45785), (52, 45713), (53, 45698), (54, 45683),

Gene: Dreamboat\_90 Start: 49294, Stop: 49094, Start Num: 35  
Candidate Starts for Dreamboat\_90:  
(Start: 35 @49294 has 36 MA's), (Start: 37 @49288 has 5 MA's), (41, 49216), (42, 49210), (45, 49174), (51, 49135),

Gene: Dulcie\_80 Start: 49841, Stop: 49638, Start Num: 36  
Candidate Starts for Dulcie\_80:  
(Start: 36 @49841 has 219 MA's), (39, 49805), (52, 49679), (54, 49649),

Gene: Dussy\_78 Start: 47426, Stop: 47223, Start Num: 36  
Candidate Starts for Dussy\_78:  
(32, 47450), (Start: 36 @47426 has 219 MA's), (39, 47390), (43, 47336), (52, 47264), (53, 47249), (54, 47234),

Gene: Dynamix\_78 Start: 46309, Stop: 46106, Start Num: 36  
Candidate Starts for Dynamix\_78:  
(Start: 36 @46309 has 219 MA's), (39, 46273), (43, 46219), (52, 46147), (53, 46132), (54, 46117),

Gene: Edtherson\_77 Start: 47485, Stop: 47282, Start Num: 36  
Candidate Starts for Edtherson\_77:  
(Start: 36 @47485 has 219 MA's), (39, 47449), (43, 47395), (52, 47323), (54, 47293),

Gene: EnzoK\_80 Start: 45767, Stop: 45564, Start Num: 36  
Candidate Starts for EnzoK\_80:  
(Start: 36 @45767 has 219 MA's), (39, 45731), (43, 45677), (52, 45605), (54, 45575),

Gene: Espresso\_73 Start: 46530, Stop: 46327, Start Num: 36  
Candidate Starts for Espresso\_73:  
(Start: 36 @46530 has 219 MA's), (39, 46494), (40, 46470), (43, 46440), (52, 46368), (54, 46338),

Gene: Espresso\_84 Start: 49761, Stop: 49579, Start Num: 37  
Candidate Starts for Espresso\_84:  
(4, 50052), (5, 50034), (7, 50022), (14, 49911), (16, 49902), (22, 49851), (Start: 37 @49761 has 5 MA's), (43, 49674), (44, 49659), (47, 49632), (51, 49608),

Gene: Euphoria\_80 Start: 48246, Stop: 48043, Start Num: 36  
Candidate Starts for Euphoria\_80:  
(Start: 36 @48246 has 219 MA's), (39, 48210), (52, 48084), (54, 48054),

Gene: Eyeball\_88 Start: 49419, Stop: 49577, Start Num: 38  
Candidate Starts for Eyeball\_88:  
(Start: 35 @49389 has 36 MA's), (Start: 38 @49419 has 1 MA's), (43, 49482), (44, 49497), (47, 49524), (51, 49548),

Gene: Eyeball\_78 Start: 47531, Stop: 47328, Start Num: 36

Candidate Starts for Eyeball\_78:

(26, 47594), (Start: 36 @47531 has 219 MA's), (39, 47495), (43, 47441), (52, 47369), (53, 47354), (54, 47339),

Gene: Fajezeel\_83 Start: 49126, Stop: 48926, Start Num: 36

Candidate Starts for Fajezeel\_83:

(Start: 36 @49126 has 219 MA's), (39, 49090), (43, 49036), (52, 48964), (54, 48934),

Gene: Fascinus\_84 Start: 51014, Stop: 50814, Start Num: 35

Candidate Starts for Fascinus\_84:

(Start: 34 @51017 has 1 MA's), (Start: 35 @51014 has 36 MA's), (Start: 37 @51008 has 5 MA's), (43, 50921), (45, 50894), (51, 50855),

Gene: Fascinus\_75 Start: 48059, Stop: 47859, Start Num: 36

Candidate Starts for Fascinus\_75:

(Start: 36 @48059 has 219 MA's), (39, 48023), (52, 47897), (54, 47867),

Gene: Fenn\_81 Start: 48414, Stop: 48211, Start Num: 36

Candidate Starts for Fenn\_81:

(Start: 36 @48414 has 219 MA's), (39, 48378), (52, 48252), (54, 48222),

Gene: Fenn\_93 Start: 51503, Stop: 51315, Start Num: 35

Candidate Starts for Fenn\_93:

(Start: 34 @51506 has 1 MA's), (Start: 35 @51503 has 36 MA's), (Start: 37 @51497 has 5 MA's), (44, 51395), (47, 51368), (51, 51344),

Gene: Forsytheast\_82 Start: 48445, Stop: 48245, Start Num: 36

Candidate Starts for Forsytheast\_82:

(Start: 36 @48445 has 219 MA's), (39, 48409), (52, 48283), (54, 48253),

Gene: Forsytheast\_93 Start: 51556, Stop: 51368, Start Num: 35

Candidate Starts for Forsytheast\_93:

(Start: 34 @51559 has 1 MA's), (Start: 35 @51556 has 36 MA's), (Start: 37 @51550 has 5 MA's), (41, 51478), (42, 51472), (44, 51448), (45, 51436), (47, 51421), (51, 51397),

Gene: Francis47\_80 Start: 49966, Stop: 49763, Start Num: 36

Candidate Starts for Francis47\_80:

(Start: 36 @49966 has 219 MA's), (39, 49930), (43, 49876), (52, 49804), (54, 49774),

Gene: Fushigi\_73 Start: 44498, Stop: 44298, Start Num: 36

Candidate Starts for Fushigi\_73:

(Start: 36 @44498 has 219 MA's), (39, 44462), (52, 44336), (54, 44306),

Gene: GMonster\_76 Start: 47261, Stop: 47058, Start Num: 36

Candidate Starts for GMonster\_76:

(Start: 36 @47261 has 219 MA's), (39, 47225), (43, 47171), (52, 47099), (54, 47069),

Gene: GageAP\_81 Start: 49319, Stop: 49116, Start Num: 36

Candidate Starts for GageAP\_81:

(Start: 36 @49319 has 219 MA's), (39, 49283), (52, 49157), (53, 49142), (54, 49127),

Gene: Gandalf20\_78 Start: 47815, Stop: 47612, Start Num: 36

Candidate Starts for Gandalf20\_78:  
(Start: 36 @47815 has 219 MA's), (39, 47779), (40, 47755), (43, 47725), (52, 47653), (54, 47623),

Gene: Gompeii16\_79 Start: 49966, Stop: 49763, Start Num: 36  
Candidate Starts for Gompeii16\_79:  
(Start: 36 @49966 has 219 MA's), (39, 49930), (43, 49876), (52, 49804), (54, 49774),

Gene: Graduation\_82 Start: 48096, Stop: 47893, Start Num: 36  
Candidate Starts for Graduation\_82:  
(Start: 36 @48096 has 219 MA's), (39, 48060), (52, 47934), (54, 47904),

Gene: GrecoEtereo\_85 Start: 49769, Stop: 49569, Start Num: 36  
Candidate Starts for GrecoEtereo\_85:  
(Start: 36 @49769 has 219 MA's), (39, 49733), (43, 49679), (52, 49607),

Gene: Greg\_83 Start: 49126, Stop: 48926, Start Num: 36  
Candidate Starts for Greg\_83:  
(Start: 36 @49126 has 219 MA's), (39, 49090), (43, 49036), (52, 48964), (54, 48934),

Gene: GroundGoblin\_73 Start: 46137, Stop: 45934, Start Num: 36  
Candidate Starts for GroundGoblin\_73:  
(Start: 36 @46137 has 219 MA's), (39, 46101), (52, 45975), (53, 45960), (54, 45945),

Gene: Gwendoluna\_83 Start: 49080, Stop: 48877, Start Num: 36  
Candidate Starts for Gwendoluna\_83:  
(Start: 36 @49080 has 219 MA's), (39, 49044), (43, 48990), (52, 48918), (53, 48903), (54, 48888),

Gene: Gyzlar\_71 Start: 44267, Stop: 44064, Start Num: 36  
Candidate Starts for Gyzlar\_71:  
(Start: 36 @44267 has 219 MA's), (39, 44231), (52, 44105), (53, 44090), (54, 44075),

Gene: Hami1\_74 Start: 43709, Stop: 43494, Start Num: 36  
Candidate Starts for Hami1\_74:  
(Start: 36 @43709 has 219 MA's), (39, 43673), (52, 43547),

Gene: HanShotFirst\_77 Start: 48049, Stop: 47849, Start Num: 36  
Candidate Starts for HanShotFirst\_77:  
(Start: 36 @48049 has 219 MA's), (39, 48013), (52, 47887), (54, 47857),

Gene: HarryOW\_80 Start: 49291, Stop: 49088, Start Num: 36  
Candidate Starts for HarryOW\_80:  
(Start: 36 @49291 has 219 MA's), (39, 49255), (52, 49129), (54, 49099),

Gene: Hermia\_74 Start: 46187, Stop: 45984, Start Num: 36  
Candidate Starts for Hermia\_74:  
(Start: 36 @46187 has 219 MA's), (39, 46151), (52, 46025), (53, 46010), (54, 45995),

Gene: HermioneGrange\_82 Start: 49384, Stop: 49181, Start Num: 36  
Candidate Starts for HermioneGrange\_82:  
(Start: 36 @49384 has 219 MA's), (39, 49348), (43, 49294), (52, 49222), (53, 49207), (54, 49192),

Gene: Homines\_76 Start: 45144, Stop: 44962, Start Num: 37  
Candidate Starts for Homines\_76:

(4, 45435), (5, 45417), (7, 45405), (14, 45294), (16, 45285), (22, 45234), (Start: 37 @45144 has 5 MA's), (43, 45057), (44, 45042), (47, 45015), (51, 44991),

Gene: Homines\_67 Start: 42517, Stop: 42314, Start Num: 36

Candidate Starts for Homines\_67:

(Start: 36 @42517 has 219 MA's), (52, 42355), (53, 42340), (54, 42325),

Gene: Hope4ever\_80 Start: 47898, Stop: 47695, Start Num: 36

Candidate Starts for Hope4ever\_80:

(Start: 36 @47898 has 219 MA's), (39, 47862), (52, 47736), (54, 47706),

Gene: ILeeKay\_88 Start: 49875, Stop: 49687, Start Num: 35

Candidate Starts for ILeeKay\_88:

(Start: 34 @49878 has 1 MA's), (Start: 35 @49875 has 36 MA's), (Start: 37 @49869 has 5 MA's), (43, 49782), (44, 49767), (47, 49740), (51, 49716),

Gene: ILeeKay\_76 Start: 45909, Stop: 45706, Start Num: 36

Candidate Starts for ILeeKay\_76:

(Start: 36 @45909 has 219 MA's), (39, 45873), (43, 45819), (52, 45747), (53, 45732), (54, 45717),

Gene: Ichabod\_81 Start: 48156, Stop: 47953, Start Num: 36

Candidate Starts for Ichabod\_81:

(Start: 36 @48156 has 219 MA's), (39, 48120), (52, 47994), (54, 47964),

Gene: Ichabod\_92 Start: 51778, Stop: 51590, Start Num: 35

Candidate Starts for Ichabod\_92:

(Start: 34 @51781 has 1 MA's), (Start: 35 @51778 has 36 MA's), (Start: 37 @51772 has 5 MA's), (43, 51685), (47, 51643),

Gene: IgnatiusPatJac\_79 Start: 46946, Stop: 46743, Start Num: 36

Candidate Starts for IgnatiusPatJac\_79:

(Start: 36 @46946 has 219 MA's), (39, 46910), (52, 46784), (54, 46754),

Gene: Inyanga\_70 Start: 46102, Stop: 45899, Start Num: 36

Candidate Starts for Inyanga\_70:

(Start: 36 @46102 has 219 MA's), (39, 46066), (52, 45940), (54, 45910),

Gene: Iqorha\_70 Start: 46101, Stop: 45898, Start Num: 36

Candidate Starts for Iqorha\_70:

(Start: 36 @46101 has 219 MA's), (39, 46065), (52, 45939), (54, 45909),

Gene: JC27\_82 Start: 48025, Stop: 47822, Start Num: 36

Candidate Starts for JC27\_82:

(Start: 36 @48025 has 219 MA's), (39, 47989), (43, 47935), (52, 47863), (54, 47833),

Gene: JackSparrow\_79 Start: 47009, Stop: 46806, Start Num: 36

Candidate Starts for JackSparrow\_79:

(3, 47285), (13, 47153), (Start: 36 @47009 has 219 MA's), (39, 46973), (43, 46919), (52, 46847), (54, 46817),

Gene: Jasper\_90 Start: 49180, Stop: 48980, Start Num: 35

Candidate Starts for Jasper\_90:

(Start: 35 @49180 has 36 MA's), (Start: 37 @49174 has 5 MA's), (41, 49102), (42, 49096), (45, 49060), (51, 49021),

Gene: Jasper\_77 Start: 45761, Stop: 45558, Start Num: 36

Candidate Starts for Jasper\_77:

(26, 45818), (Start: 36 @45761 has 219 MA's), (39, 45725), (43, 45671), (52, 45599), (53, 45584), (54, 45569),

Gene: Jerm2\_80 Start: 49454, Stop: 49251, Start Num: 36

Candidate Starts for Jerm2\_80:

(Start: 36 @49454 has 219 MA's), (39, 49418), (43, 49364), (52, 49292), (53, 49277), (54, 49262),

Gene: Jorgensen\_88 Start: 49498, Stop: 49295, Start Num: 36

Candidate Starts for Jorgensen\_88:

(1, 49843), (2, 49807), (6, 49759), (8, 49729), (9, 49723), (15, 49642), (24, 49570), (27, 49546), (29, 49543), (Start: 36 @49498 has 219 MA's), (39, 49462), (52, 49336), (54, 49306),

Gene: JuliaChild\_81 Start: 48350, Stop: 48150, Start Num: 36

Candidate Starts for JuliaChild\_81:

(Start: 36 @48350 has 219 MA's), (39, 48314), (52, 48188), (54, 48158),

Gene: KBG\_78 Start: 48993, Stop: 48790, Start Num: 36

Candidate Starts for KBG\_78:

(Start: 36 @48993 has 219 MA's), (39, 48957), (43, 48903), (52, 48831), (54, 48801),

Gene: KSSJEB\_87 Start: 49614, Stop: 49414, Start Num: 35

Candidate Starts for KSSJEB\_87:

(Start: 34 @49617 has 1 MA's), (Start: 35 @49614 has 36 MA's), (Start: 37 @49608 has 5 MA's), (41, 49536), (45, 49494), (51, 49455),

Gene: KSSJEB\_77 Start: 46474, Stop: 46274, Start Num: 36

Candidate Starts for KSSJEB\_77:

(26, 46537), (Start: 36 @46474 has 219 MA's), (39, 46438), (43, 46384), (52, 46312), (53, 46297), (54, 46282),

Gene: Kanely\_83 Start: 48745, Stop: 48545, Start Num: 36

Candidate Starts for Kanely\_83:

(Start: 36 @48745 has 219 MA's), (39, 48709), (43, 48655), (52, 48583), (54, 48553),

Gene: Kenmech\_81 Start: 48552, Stop: 48349, Start Num: 36

Candidate Starts for Kenmech\_81:

(32, 48576), (Start: 36 @48552 has 219 MA's), (39, 48516), (43, 48462), (52, 48390), (53, 48375), (54, 48360),

Gene: KikiBouba\_75 Start: 45996, Stop: 45793, Start Num: 36

Candidate Starts for KikiBouba\_75:

(Start: 36 @45996 has 219 MA's), (39, 45960), (52, 45834), (53, 45819), (54, 45804),

Gene: Killigrew\_75 Start: 46600, Stop: 46397, Start Num: 36

Candidate Starts for Killigrew\_75:

(Start: 36 @46600 has 219 MA's), (39, 46564), (43, 46510), (52, 46438), (54, 46408),

Gene: Kugel\_80 Start: 48242, Stop: 48039, Start Num: 36

Candidate Starts for Kugel\_80:

(Start: 36 @48242 has 219 MA's), (39, 48206), (43, 48152), (52, 48080), (54, 48050),

Gene: Kugel\_90 Start: 50859, Stop: 50671, Start Num: 35

Candidate Starts for Kugel\_90:

(Start: 35 @50859 has 36 MA's), (Start: 37 @50853 has 5 MA's), (41, 50781), (42, 50775), (44, 50751), (45, 50739), (47, 50724), (51, 50700),

Gene: KyMonks1A\_85 Start: 48883, Stop: 48680, Start Num: 36

Candidate Starts for KyMonks1A\_85:

(10, 49099), (Start: 36 @48883 has 219 MA's), (39, 48847), (52, 48721), (54, 48691),

Gene: Kykar\_78 Start: 47281, Stop: 47078, Start Num: 36

Candidate Starts for Kykar\_78:

(11, 47446), (17, 47398), (Start: 36 @47281 has 219 MA's), (39, 47245), (52, 47119), (54, 47089),

Gene: Lamina13\_82 Start: 49734, Stop: 49531, Start Num: 36

Candidate Starts for Lamina13\_82:

(Start: 36 @49734 has 219 MA's), (39, 49698), (52, 49572), (54, 49542),

Gene: Lesedi\_76 Start: 46040, Stop: 45837, Start Num: 36

Candidate Starts for Lesedi\_76:

(Start: 36 @46040 has 219 MA's), (39, 46004), (52, 45878), (54, 45848),

Gene: Lesedi\_85 Start: 49329, Stop: 49141, Start Num: 35

Candidate Starts for Lesedi\_85:

(Start: 35 @49329 has 36 MA's), (Start: 37 @49323 has 5 MA's), (41, 49251), (42, 49245), (45, 49209), (50, 49173), (51, 49170),

Gene: Levia\_73 Start: 45578, Stop: 45375, Start Num: 36

Candidate Starts for Levia\_73:

(Start: 36 @45578 has 219 MA's), (39, 45542), (52, 45416), (54, 45386),

Gene: Licorice\_82 Start: 50034, Stop: 49831, Start Num: 36

Candidate Starts for Licorice\_82:

(Start: 36 @50034 has 219 MA's), (39, 49998), (43, 49944), (52, 49872), (54, 49842),

Gene: Lockley\_77 Start: 47186, Stop: 46986, Start Num: 36

Candidate Starts for Lockley\_77:

(28, 47225), (33, 47207), (Start: 36 @47186 has 219 MA's), (39, 47150), (52, 47024), (54, 46994),

Gene: Lopton\_79 Start: 49061, Stop: 48861, Start Num: 36

Candidate Starts for Lopton\_79:

(Start: 36 @49061 has 219 MA's), (39, 49025), (52, 48899), (54, 48869),

Gene: LunarLander\_75 Start: 47154, Stop: 46966, Start Num: 35

Candidate Starts for LunarLander\_75:

(Start: 34 @47157 has 1 MA's), (Start: 35 @47154 has 36 MA's), (Start: 37 @47148 has 5 MA's), (43, 47061), (44, 47046), (47, 47019), (51, 46995),

Gene: MPlant7149\_80 Start: 47615, Stop: 47415, Start Num: 36

Candidate Starts for MPlant7149\_80:

(Start: 36 @47615 has 219 MA's), (39, 47579), (43, 47525), (52, 47453), (54, 47423),

Gene: Magnar\_76 Start: 46914, Stop: 46711, Start Num: 36  
Candidate Starts for Magnar\_76:  
(Start: 36 @46914 has 219 MA's), (39, 46878), (52, 46752), (54, 46722),

Gene: Magnito\_78 Start: 46868, Stop: 46665, Start Num: 36  
Candidate Starts for Magnito\_78:  
(12, 47030), (Start: 36 @46868 has 219 MA's), (39, 46832), (52, 46706), (53, 46691), (54, 46676),

Gene: Makemake\_82 Start: 48490, Stop: 48287, Start Num: 36  
Candidate Starts for Makemake\_82:  
(Start: 36 @48490 has 219 MA's), (39, 48454), (52, 48328), (54, 48298),

Gene: Manatee\_88 Start: 49510, Stop: 49310, Start Num: 35  
Candidate Starts for Manatee\_88:  
(Start: 35 @49510 has 36 MA's), (Start: 37 @49504 has 5 MA's), (41, 49432), (45, 49390), (51, 49351),

Gene: Manatee\_77 Start: 46420, Stop: 46217, Start Num: 36  
Candidate Starts for Manatee\_77:  
(Start: 36 @46420 has 219 MA's), (39, 46384), (43, 46330), (52, 46258), (53, 46243), (54, 46228),

Gene: Marcell\_71 Start: 45015, Stop: 44812, Start Num: 36  
Candidate Starts for Marcell\_71:  
(Start: 36 @45015 has 219 MA's), (39, 44979), (52, 44853), (54, 44823),

Gene: Marcell\_80 Start: 48034, Stop: 47846, Start Num: 35  
Candidate Starts for Marcell\_80:  
(Start: 34 @48037 has 1 MA's), (Start: 35 @48034 has 36 MA's), (Start: 37 @48028 has 5 MA's), (43, 47941), (44, 47926), (47, 47899), (51, 47875),

Gene: Marchy\_73 Start: 45220, Stop: 45005, Start Num: 36  
Candidate Starts for Marchy\_73:  
(Start: 36 @45220 has 219 MA's), (39, 45184), (52, 45058),

Gene: Marco3\_81 Start: 48970, Stop: 48767, Start Num: 36  
Candidate Starts for Marco3\_81:  
(19, 49045), (Start: 36 @48970 has 219 MA's), (43, 48880), (52, 48808), (54, 48778),

Gene: Marge\_75 Start: 46512, Stop: 46309, Start Num: 36  
Candidate Starts for Marge\_75:  
(Start: 36 @46512 has 219 MA's), (39, 46476), (52, 46350), (54, 46320),

Gene: Maroc7\_81 Start: 49487, Stop: 49287, Start Num: 36  
Candidate Starts for Maroc7\_81:  
(Start: 36 @49487 has 219 MA's), (39, 49451), (52, 49325), (54, 49295),

Gene: Maroc7\_89 Start: 52233, Stop: 52033, Start Num: 35  
Candidate Starts for Maroc7\_89:  
(Start: 34 @52236 has 1 MA's), (Start: 35 @52233 has 36 MA's), (Start: 37 @52227 has 5 MA's), (43, 52140), (45, 52113), (51, 52074),

Gene: Marsha\_79 Start: 49315, Stop: 49112, Start Num: 36  
Candidate Starts for Marsha\_79:

(Start: 36 @49315 has 219 MA's), (39, 49279), (52, 49153), (54, 49123),

Gene: MaryBeth\_78 Start: 47886, Stop: 47686, Start Num: 36

Candidate Starts for MaryBeth\_78:

(Start: 36 @47886 has 219 MA's), (39, 47850), (43, 47796), (52, 47724), (54, 47694),

Gene: McGuire\_78 Start: 46551, Stop: 46348, Start Num: 36

Candidate Starts for McGuire\_78:

(Start: 36 @46551 has 219 MA's), (39, 46515), (52, 46389), (53, 46374), (54, 46359),

Gene: McGuire\_88 Start: 49744, Stop: 49544, Start Num: 35

Candidate Starts for McGuire\_88:

(Start: 35 @49744 has 36 MA's), (Start: 37 @49738 has 5 MA's), (41, 49666), (45, 49624), (51, 49585),

Gene: McSinger\_77 Start: 47681, Stop: 47478, Start Num: 36

Candidate Starts for McSinger\_77:

(Start: 36 @47681 has 219 MA's), (39, 47645), (52, 47519), (53, 47504), (54, 47489),

Gene: MetalQZJ\_77 Start: 47886, Stop: 47686, Start Num: 36

Candidate Starts for MetalQZJ\_77:

(Start: 36 @47886 has 219 MA's), (39, 47850), (43, 47796), (52, 47724), (54, 47694),

Gene: Michley\_79 Start: 47279, Stop: 47076, Start Num: 36

Candidate Starts for Michley\_79:

(Start: 36 @47279 has 219 MA's), (39, 47243), (52, 47117), (54, 47087),

Gene: MilleFeuille\_80 Start: 46952, Stop: 46749, Start Num: 36

Candidate Starts for MilleFeuille\_80:

(Start: 36 @46952 has 219 MA's), (39, 46916), (43, 46862), (52, 46790), (54, 46760),

Gene: Mkhuseli\_85 Start: 47970, Stop: 47782, Start Num: 35

Candidate Starts for Mkhuseli\_85:

(Start: 34 @47973 has 1 MA's), (Start: 35 @47970 has 36 MA's), (Start: 37 @47964 has 5 MA's), (43, 47877), (47, 47835), (51, 47811),

Gene: Mkhuseli\_77 Start: 45606, Stop: 45403, Start Num: 36

Candidate Starts for Mkhuseli\_77:

(Start: 36 @45606 has 219 MA's), (39, 45570), (52, 45444), (54, 45414),

Gene: Molly\_79 Start: 47090, Stop: 46896, Start Num: 36

Candidate Starts for Molly\_79:

(Start: 36 @47090 has 219 MA's), (46, 46961), (52, 46931),

Gene: Monet\_82 Start: 48961, Stop: 48758, Start Num: 36

Candidate Starts for Monet\_82:

(Start: 36 @48961 has 219 MA's), (39, 48925), (43, 48871), (52, 48799), (54, 48769),

Gene: Moose\_92 Start: 51556, Stop: 51368, Start Num: 35

Candidate Starts for Moose\_92:

(Start: 34 @51559 has 1 MA's), (Start: 35 @51556 has 36 MA's), (Start: 37 @51550 has 5 MA's), (41, 51478), (42, 51472), (44, 51448), (45, 51436), (47, 51421), (51, 51397),

Gene: Moose\_82 Start: 48445, Stop: 48245, Start Num: 36

Candidate Starts for Moose\_82:

(Start: 36 @48445 has 219 MA's), (39, 48409), (52, 48283), (54, 48253),

Gene: MrGordo\_81 Start: 47224, Stop: 47024, Start Num: 36

Candidate Starts for MrGordo\_81:

(Start: 36 @47224 has 219 MA's), (39, 47188), (43, 47134), (52, 47062),

Gene: Mryolo\_74 Start: 46054, Stop: 45851, Start Num: 36

Candidate Starts for Mryolo\_74:

(Start: 36 @46054 has 219 MA's), (39, 46018), (43, 45964), (52, 45892), (54, 45862),

Gene: Mule\_79 Start: 47341, Stop: 47138, Start Num: 36

Candidate Starts for Mule\_79:

(Start: 36 @47341 has 219 MA's), (39, 47305), (52, 47179), (54, 47149),

Gene: Museum\_79 Start: 48153, Stop: 47959, Start Num: 36

Candidate Starts for Museum\_79:

(Start: 36 @48153 has 219 MA's), (46, 48024), (52, 47994),

Gene: NEHalo\_75 Start: 46963, Stop: 46769, Start Num: 36

Candidate Starts for NEHalo\_75:

(Start: 36 @46963 has 219 MA's), (46, 46834), (52, 46804),

Gene: Naira\_92 Start: 51635, Stop: 51447, Start Num: 35

Candidate Starts for Naira\_92:

(Start: 34 @51638 has 1 MA's), (Start: 35 @51635 has 36 MA's), (Start: 37 @51629 has 5 MA's), (44, 51527), (47, 51500), (51, 51476),

Gene: Naira\_80 Start: 48470, Stop: 48267, Start Num: 36

Candidate Starts for Naira\_80:

(Start: 36 @48470 has 219 MA's), (39, 48434), (52, 48308), (54, 48278),

Gene: Nerujay\_83 Start: 49538, Stop: 49335, Start Num: 36

Candidate Starts for Nerujay\_83:

(Start: 36 @49538 has 219 MA's), (39, 49502), (52, 49376), (54, 49346),

Gene: Nhonho\_75 Start: 47335, Stop: 47132, Start Num: 36

Candidate Starts for Nhonho\_75:

(Start: 36 @47335 has 219 MA's), (39, 47299), (52, 47173), (54, 47143),

Gene: Niza\_79 Start: 48442, Stop: 48239, Start Num: 36

Candidate Starts for Niza\_79:

(Start: 36 @48442 has 219 MA's), (39, 48406), (43, 48352), (52, 48280), (54, 48250),

Gene: Norz\_76 Start: 49697, Stop: 49482, Start Num: 36

Candidate Starts for Norz\_76:

(Start: 36 @49697 has 219 MA's), (39, 49661), (43, 49607), (52, 49535),

Gene: Noxious\_75 Start: 46187, Stop: 45984, Start Num: 36

Candidate Starts for Noxious\_75:

(Start: 36 @46187 has 219 MA's), (39, 46151), (52, 46025), (53, 46010), (54, 45995),

Gene: Ohno789\_82 Start: 49192, Stop: 48989, Start Num: 36

Candidate Starts for Ohno789\_82:

(Start: 36 @49192 has 219 MA's), (39, 49156), (52, 49030), (53, 49015), (54, 49000),

Gene: Oogway\_77 Start: 47851, Stop: 47648, Start Num: 36

Candidate Starts for Oogway\_77:

(Start: 36 @47851 has 219 MA's), (39, 47815), (52, 47689), (53, 47674), (54, 47659),

Gene: PSullivan\_78 Start: 46418, Stop: 46218, Start Num: 36

Candidate Starts for PSullivan\_78:

(Start: 36 @46418 has 219 MA's), (39, 46382), (52, 46256), (54, 46226),

Gene: PacerPaul\_83 Start: 49333, Stop: 49130, Start Num: 36

Candidate Starts for PacerPaul\_83:

(Start: 36 @49333 has 219 MA's), (39, 49297), (43, 49243), (52, 49171), (54, 49141),

Gene: Papez\_83 Start: 48887, Stop: 48687, Start Num: 36

Candidate Starts for Papez\_83:

(Start: 36 @48887 has 219 MA's), (39, 48851), (52, 48725), (54, 48695),

Gene: Paphu\_82 Start: 48282, Stop: 48094, Start Num: 35

Candidate Starts for Paphu\_82:

(Start: 34 @48285 has 1 MA's), (Start: 35 @48282 has 36 MA's), (Start: 37 @48276 has 5 MA's), (43, 48189), (44, 48174), (47, 48147), (51, 48123),

Gene: Paphu\_76 Start: 47057, Stop: 46854, Start Num: 36

Candidate Starts for Paphu\_76:

(Start: 36 @47057 has 219 MA's), (39, 47021), (43, 46967), (52, 46895), (54, 46865),

Gene: Paraselene\_77 Start: 47305, Stop: 47102, Start Num: 36

Candidate Starts for Paraselene\_77:

(Start: 36 @47305 has 219 MA's), (52, 47143), (54, 47113),

Gene: Paraselene\_82 Start: 48170, Stop: 47949, Start Num: 30

Candidate Starts for Paraselene\_82:

(Start: 30 @48170 has 5 MA's), (31, 48161),

Gene: Pari\_84 Start: 48036, Stop: 47833, Start Num: 36

Candidate Starts for Pari\_84:

(Start: 36 @48036 has 219 MA's), (39, 48000), (52, 47874), (54, 47844),

Gene: Parliament\_80 Start: 50217, Stop: 50014, Start Num: 36

Candidate Starts for Parliament\_80:

(Start: 36 @50217 has 219 MA's), (39, 50181), (43, 50127), (52, 50055), (53, 50040), (54, 50025),

Gene: PascalRango\_77 Start: 47311, Stop: 47108, Start Num: 36

Candidate Starts for PascalRango\_77:

(Start: 36 @47311 has 219 MA's), (39, 47275), (52, 47149), (54, 47119),

Gene: PattyP\_79 Start: 47859, Stop: 47665, Start Num: 36

Candidate Starts for PattyP\_79:

(Start: 36 @47859 has 219 MA's), (46, 47730), (52, 47700),

Gene: Pelly\_82 Start: 50581, Stop: 50378, Start Num: 36

Candidate Starts for Pelly\_82:

(Start: 36 @50581 has 219 MA's), (39, 50545), (52, 50419), (54, 50389),

Gene: Pelly\_88 Start: 51616, Stop: 51395, Start Num: 30

Candidate Starts for Pelly\_88:

(Start: 30 @51616 has 5 MA's), (31, 51607),

Gene: Pepe\_73 Start: 45753, Stop: 45562, Start Num: 36

Candidate Starts for Pepe\_73:

(Start: 36 @45753 has 219 MA's), (46, 45624), (48, 45621), (52, 45594),

Gene: Perseus\_85 Start: 50464, Stop: 50243, Start Num: 30

Candidate Starts for Perseus\_85:

(Start: 30 @50464 has 5 MA's), (31, 50455),

Gene: Perseus\_79 Start: 49298, Stop: 49095, Start Num: 36

Candidate Starts for Perseus\_79:

(Start: 36 @49298 has 219 MA's), (39, 49262), (52, 49136), (53, 49121), (54, 49106),

Gene: Peterson\_77 Start: 48292, Stop: 48089, Start Num: 36

Candidate Starts for Peterson\_77:

(18, 48370), (20, 48364), (23, 48346), (Start: 36 @48292 has 219 MA's), (39, 48256), (43, 48202), (52, 48130), (54, 48100),

Gene: Petp2012\_79 Start: 48474, Stop: 48271, Start Num: 36

Candidate Starts for Petp2012\_79:

(Start: 36 @48474 has 219 MA's), (39, 48438), (52, 48312), (54, 48282),

Gene: Petruccio\_80 Start: 46874, Stop: 46671, Start Num: 36

Candidate Starts for Petruccio\_80:

(Start: 36 @46874 has 219 MA's), (39, 46838), (52, 46712), (54, 46682),

Gene: PherrisBueller\_77 Start: 45412, Stop: 45209, Start Num: 36

Candidate Starts for PherrisBueller\_77:

(26, 45469), (Start: 36 @45412 has 219 MA's), (39, 45376), (43, 45322), (52, 45250), (53, 45235), (54, 45220),

Gene: PhineBark\_75 Start: 46596, Stop: 46393, Start Num: 36

Candidate Starts for PhineBark\_75:

(Start: 36 @46596 has 219 MA's), (39, 46560), (52, 46434), (54, 46404),

Gene: Phlippers\_77 Start: 48951, Stop: 48751, Start Num: 36

Candidate Starts for Phlippers\_77:

(Start: 36 @48951 has 219 MA's), (39, 48915), (52, 48789), (54, 48759),

Gene: PhrostyMug\_81 Start: 49511, Stop: 49308, Start Num: 36

Candidate Starts for PhrostyMug\_81:

(Start: 36 @49511 has 219 MA's), (39, 49475), (52, 49349), (54, 49319),

Gene: PinkPlastic\_74 Start: 46060, Stop: 45857, Start Num: 36

Candidate Starts for PinkPlastic\_74:

(Start: 36 @46060 has 219 MA's), (39, 46024), (43, 45970), (52, 45898), (54, 45868),

Gene: Pinto\_78 Start: 47923, Stop: 47720, Start Num: 36  
Candidate Starts for Pinto\_78:  
(Start: 36 @47923 has 219 MA's), (39, 47887), (43, 47833), (52, 47761), (54, 47731),

Gene: Pippin\_80 Start: 47741, Stop: 47541, Start Num: 36  
Candidate Starts for Pippin\_80:  
(Start: 36 @47741 has 219 MA's), (39, 47705), (52, 47579), (54, 47549),

Gene: Pita2\_81 Start: 47914, Stop: 47714, Start Num: 36  
Candidate Starts for Pita2\_81:  
(Start: 36 @47914 has 219 MA's), (39, 47878), (52, 47752), (54, 47722),

Gene: PowerRanger\_82 Start: 50174, Stop: 49974, Start Num: 35  
Candidate Starts for PowerRanger\_82:  
(Start: 35 @50174 has 36 MA's), (Start: 37 @50168 has 5 MA's), (41, 50096), (45, 50054), (51, 50015),

Gene: PowerRanger\_74 Start: 47498, Stop: 47295, Start Num: 36  
Candidate Starts for PowerRanger\_74:  
(Start: 36 @47498 has 219 MA's), (39, 47462), (43, 47408), (52, 47336), (54, 47306),

Gene: ProMouse\_78 Start: 47065, Stop: 46862, Start Num: 36  
Candidate Starts for ProMouse\_78:  
(Start: 36 @47065 has 219 MA's), (39, 47029), (52, 46903), (54, 46873),

Gene: Puppet\_84 Start: 50596, Stop: 50414, Start Num: 37  
Candidate Starts for Puppet\_84:  
(Start: 34 @50605 has 1 MA's), (Start: 35 @50602 has 36 MA's), (Start: 37 @50596 has 5 MA's), (43, 50509), (44, 50494), (47, 50467), (51, 50443),

Gene: Puppet\_74 Start: 47955, Stop: 47752, Start Num: 36  
Candidate Starts for Puppet\_74:  
(26, 48018), (Start: 36 @47955 has 219 MA's), (39, 47919), (43, 47865), (52, 47793), (53, 47778), (54, 47763),

Gene: QTRlifeCrisis\_78 Start: 47097, Stop: 46894, Start Num: 36  
Candidate Starts for QTRlifeCrisis\_78:  
(Start: 36 @47097 has 219 MA's), (39, 47061), (43, 47007), (52, 46935), (53, 46920), (54, 46905),

Gene: Raid\_76 Start: 46964, Stop: 46761, Start Num: 36  
Candidate Starts for Raid\_76:  
(18, 47060), (24, 47033), (25, 47030), (Start: 36 @46964 has 219 MA's), (39, 46928), (52, 46802), (54, 46772),

Gene: Rajelicia\_80 Start: 49746, Stop: 49543, Start Num: 36  
Candidate Starts for Rajelicia\_80:  
(Start: 36 @49746 has 219 MA's), (39, 49710), (43, 49656), (52, 49584), (54, 49554),

Gene: Rhynn\_75 Start: 47688, Stop: 47485, Start Num: 36  
Candidate Starts for Rhynn\_75:  
(Start: 36 @47688 has 219 MA's), (39, 47652), (52, 47526), (54, 47496),

Gene: RidgeCB\_74 Start: 46007, Stop: 45804, Start Num: 36  
Candidate Starts for RidgeCB\_74:

(Start: 36 @46007 has 219 MA's), (39, 45971), (40, 45947), (52, 45845), (54, 45815),

Gene: Ringer\_87 Start: 50657, Stop: 50469, Start Num: 35

Candidate Starts for Ringer\_87:

(Start: 34 @50660 has 1 MA's), (Start: 35 @50657 has 36 MA's), (Start: 37 @50651 has 5 MA's), (47, 50522), (51, 50498),

Gene: Ringer\_79 Start: 48655, Stop: 48452, Start Num: 36

Candidate Starts for Ringer\_79:

(Start: 36 @48655 has 219 MA's), (39, 48619), (43, 48565), (52, 48493), (54, 48463),

Gene: Rohr\_82 Start: 49705, Stop: 49505, Start Num: 36

Candidate Starts for Rohr\_82:

(Start: 36 @49705 has 219 MA's), (39, 49669), (43, 49615), (52, 49543), (54, 49513),

Gene: Rubeus\_79 Start: 46029, Stop: 45826, Start Num: 36

Candidate Starts for Rubeus\_79:

(Start: 36 @46029 has 219 MA's), (39, 45993), (52, 45867), (54, 45837),

Gene: Rufus\_81 Start: 48718, Stop: 48515, Start Num: 36

Candidate Starts for Rufus\_81:

(Start: 36 @48718 has 219 MA's), (39, 48682), (52, 48556), (54, 48526),

Gene: Ruotula\_84 Start: 49577, Stop: 49377, Start Num: 36

Candidate Starts for Ruotula\_84:

(Start: 36 @49577 has 219 MA's), (39, 49541), (52, 49415), (54, 49385),

Gene: Rutherferd\_81 Start: 48483, Stop: 48280, Start Num: 36

Candidate Starts for Rutherferd\_81:

(Start: 36 @48483 has 219 MA's), (39, 48447), (43, 48393), (52, 48321), (54, 48291),

Gene: STLscum\_85 Start: 48512, Stop: 48309, Start Num: 36

Candidate Starts for STLscum\_85:

(Start: 36 @48512 has 219 MA's), (39, 48476), (43, 48422), (52, 48350), (54, 48320),

Gene: Sagefire\_75 Start: 47388, Stop: 47185, Start Num: 36

Candidate Starts for Sagefire\_75:

(Start: 36 @47388 has 219 MA's), (39, 47352), (52, 47226), (54, 47196),

Gene: Sandaddy\_77 Start: 47892, Stop: 47689, Start Num: 36

Candidate Starts for Sandaddy\_77:

(Start: 36 @47892 has 219 MA's), (39, 47856), (52, 47730), (53, 47715), (54, 47700),

Gene: Sanya\_73 Start: 48025, Stop: 47822, Start Num: 36

Candidate Starts for Sanya\_73:

(Start: 36 @48025 has 219 MA's), (39, 47989), (43, 47935), (52, 47863), (53, 47848), (54, 47833),

Gene: SarFire\_82 Start: 49362, Stop: 49159, Start Num: 36

Candidate Starts for SarFire\_82:

(Start: 36 @49362 has 219 MA's), (39, 49326), (40, 49302), (52, 49200), (54, 49170),

Gene: SarFire\_94 Start: 52388, Stop: 52194, Start Num: 37

Candidate Starts for SarFire\_94:

(4, 52679), (5, 52661), (7, 52649), (14, 52538), (16, 52529), (22, 52478), (Start: 37 @52388 has 5 MA's), (47, 52259), (51, 52235),

Gene: Scowl\_79 Start: 47685, Stop: 47482, Start Num: 36

Candidate Starts for Scowl\_79:

(Start: 36 @47685 has 219 MA's), (39, 47649), (52, 47523), (54, 47493),

Gene: Seabiscuit\_90 Start: 49976, Stop: 49776, Start Num: 35

Candidate Starts for Seabiscuit\_90:

(Start: 35 @49976 has 36 MA's), (Start: 37 @49970 has 5 MA's), (41, 49898), (45, 49856), (51, 49817),

Gene: Seabiscuit\_79 Start: 46785, Stop: 46582, Start Num: 36

Candidate Starts for Seabiscuit\_79:

(Start: 36 @46785 has 219 MA's), (39, 46749), (52, 46623), (54, 46593),

Gene: Seanderson\_78 Start: 49089, Stop: 48886, Start Num: 36

Candidate Starts for Seanderson\_78:

(Start: 36 @49089 has 219 MA's), (39, 49053), (43, 48999), (52, 48927), (54, 48897),

Gene: Seanderson\_87 Start: 51872, Stop: 51684, Start Num: 35

Candidate Starts for Seanderson\_87:

(Start: 35 @51872 has 36 MA's), (Start: 37 @51866 has 5 MA's), (41, 51794), (42, 51788), (45, 51752), (51, 51713),

Gene: ShortQueendom\_73 Start: 45394, Stop: 45191, Start Num: 36

Candidate Starts for ShortQueendom\_73:

(Start: 36 @45394 has 219 MA's), (39, 45358), (52, 45232), (53, 45217), (54, 45202),

Gene: Sibs6\_80 Start: 45382, Stop: 45182, Start Num: 36

Candidate Starts for Sibs6\_80:

(Start: 36 @45382 has 219 MA's), (39, 45346), (43, 45292), (52, 45220), (54, 45190),

Gene: SkiPole\_88 Start: 49295, Stop: 49104, Start Num: 36

Candidate Starts for SkiPole\_88:

(Start: 36 @49295 has 219 MA's), (46, 49166), (48, 49163), (52, 49136),

Gene: Slagathor\_79 Start: 48540, Stop: 48346, Start Num: 36

Candidate Starts for Slagathor\_79:

(Start: 36 @48540 has 219 MA's), (46, 48411), (52, 48381),

Gene: Smairt\_84 Start: 50528, Stop: 50325, Start Num: 36

Candidate Starts for Smairt\_84:

(Start: 36 @50528 has 219 MA's), (39, 50492), (52, 50366), (54, 50336),

Gene: Smeagol\_82 Start: 50026, Stop: 49823, Start Num: 36

Candidate Starts for Smeagol\_82:

(18, 50104), (20, 50098), (23, 50080), (Start: 36 @50026 has 219 MA's), (39, 49990), (52, 49864), (54, 49834),

Gene: Snazzy\_80 Start: 48373, Stop: 48173, Start Num: 36

Candidate Starts for Snazzy\_80:

(Start: 36 @48373 has 219 MA's), (39, 48337), (52, 48211),

Gene: Snazzy\_90 Start: 51084, Stop: 50884, Start Num: 35  
Candidate Starts for Snazzy\_90:  
(Start: 35 @51084 has 36 MA's), (Start: 37 @51078 has 5 MA's), (41, 51006), (42, 51000), (45, 50964),  
(51, 50925),

Gene: Solon\_74 Start: 45832, Stop: 45629, Start Num: 36  
Candidate Starts for Solon\_74:  
(Start: 36 @45832 has 219 MA's), (39, 45796), (43, 45742), (52, 45670), (54, 45640),

Gene: Sorpresa\_78 Start: 47898, Stop: 47695, Start Num: 36  
Candidate Starts for Sorpresa\_78:  
(Start: 36 @47898 has 219 MA's), (39, 47862), (52, 47736), (53, 47721), (54, 47706),

Gene: SpikeBT\_76 Start: 46826, Stop: 46623, Start Num: 36  
Candidate Starts for SpikeBT\_76:  
(Start: 36 @46826 has 219 MA's), (39, 46790), (52, 46664), (54, 46634),

Gene: Squee\_79 Start: 47270, Stop: 47067, Start Num: 36  
Candidate Starts for Squee\_79:  
(Start: 36 @47270 has 219 MA's), (39, 47234), (52, 47108), (54, 47078),

Gene: Squee\_87 Start: 50007, Stop: 49819, Start Num: 35  
Candidate Starts for Squee\_87:  
(Start: 34 @50010 has 1 MA's), (Start: 35 @50007 has 36 MA's), (Start: 37 @50001 has 5 MA's), (44,  
49899), (47, 49872), (51, 49848),

Gene: StewieG\_75 Start: 44976, Stop: 44773, Start Num: 36  
Candidate Starts for StewieG\_75:  
(Start: 36 @44976 has 219 MA's), (39, 44940), (52, 44814), (53, 44799), (54, 44784),

Gene: StrongArm\_74 Start: 47202, Stop: 46999, Start Num: 36  
Candidate Starts for StrongArm\_74:  
(1, 47547), (2, 47511), (6, 47463), (8, 47433), (9, 47427), (15, 47346), (24, 47274), (27, 47250), (29,  
47247), (Start: 36 @47202 has 219 MA's), (39, 47166), (43, 47112), (52, 47040), (54, 47010),

Gene: Sumter\_76 Start: 48550, Stop: 48347, Start Num: 36  
Candidate Starts for Sumter\_76:  
(Start: 36 @48550 has 219 MA's), (39, 48514), (43, 48460), (52, 48388), (54, 48358),

Gene: Sumter\_82 Start: 49815, Stop: 49594, Start Num: 30  
Candidate Starts for Sumter\_82:  
(Start: 30 @49815 has 5 MA's), (31, 49806),

Gene: Sunshine924\_81 Start: 47337, Stop: 47134, Start Num: 36  
Candidate Starts for Sunshine924\_81:  
(Start: 36 @47337 has 219 MA's), (39, 47301), (43, 47247), (52, 47175), (54, 47145),

Gene: SwissCheese\_83 Start: 47889, Stop: 47686, Start Num: 36  
Candidate Starts for SwissCheese\_83:  
(Start: 36 @47889 has 219 MA's), (39, 47853), (52, 47727), (54, 47697),

Gene: Switzer\_87 Start: 50760, Stop: 50560, Start Num: 35  
Candidate Starts for Switzer\_87:

(Start: 34 @50763 has 1 MA's), (Start: 35 @50760 has 36 MA's), (Start: 37 @50754 has 5 MA's), (43, 50667), (47, 50625),

Gene: Switzer\_77 Start: 47661, Stop: 47458, Start Num: 36

Candidate Starts for Switzer\_77:

(Start: 36 @47661 has 219 MA's), (39, 47625), (52, 47499), (54, 47469),

Gene: Swole\_81 Start: 47824, Stop: 47624, Start Num: 36

Candidate Starts for Swole\_81:

(Start: 36 @47824 has 219 MA's), (39, 47788), (52, 47662), (54, 47632),

Gene: Target\_78 Start: 46294, Stop: 46091, Start Num: 36

Candidate Starts for Target\_78:

(27, 46336), (29, 46333), (Start: 36 @46294 has 219 MA's), (39, 46258), (43, 46204), (49, 46147), (52, 46132), (54, 46102),

Gene: Tasp14\_78 Start: 47936, Stop: 47733, Start Num: 36

Candidate Starts for Tasp14\_78:

(Start: 36 @47936 has 219 MA's), (39, 47900), (52, 47774), (53, 47759), (54, 47744),

Gene: Teodoridan\_85 Start: 48171, Stop: 47971, Start Num: 35

Candidate Starts for Teodoridan\_85:

(Start: 35 @48171 has 36 MA's), (Start: 37 @48165 has 5 MA's), (41, 48093), (42, 48087), (45, 48051), (51, 48012),

Gene: Teodoridan\_76 Start: 45601, Stop: 45398, Start Num: 36

Candidate Starts for Teodoridan\_76:

(26, 45664), (Start: 36 @45601 has 219 MA's), (39, 45565), (43, 45511), (52, 45439), (53, 45424), (54, 45409),

Gene: TheloniousMonk\_80 Start: 48986, Stop: 48783, Start Num: 36

Candidate Starts for TheloniousMonk\_80:

(25, 49046), (Start: 36 @48986 has 219 MA's), (39, 48950), (52, 48824), (54, 48794),

Gene: Thor\_94 Start: 51746, Stop: 51552, Start Num: 37

Candidate Starts for Thor\_94:

(4, 52037), (5, 52019), (7, 52007), (14, 51896), (16, 51887), (22, 51836), (Start: 37 @51746 has 5 MA's), (47, 51617), (51, 51593),

Gene: Thor\_82 Start: 48720, Stop: 48517, Start Num: 36

Candidate Starts for Thor\_82:

(Start: 36 @48720 has 219 MA's), (39, 48684), (40, 48660), (52, 48558), (54, 48528),

Gene: Topgun\_75 Start: 46114, Stop: 45914, Start Num: 36

Candidate Starts for Topgun\_75:

(Start: 36 @46114 has 219 MA's), (39, 46078), (52, 45952), (53, 45937), (54, 45922),

Gene: Topgun\_85 Start: 48489, Stop: 48289, Start Num: 35

Candidate Starts for Topgun\_85:

(Start: 35 @48489 has 36 MA's), (Start: 37 @48483 has 5 MA's), (41, 48411), (42, 48405), (45, 48369), (51, 48330),

Gene: Tote\_76 Start: 45092, Stop: 44892, Start Num: 36

Candidate Starts for Tote\_76:

(Start: 36 @45092 has 219 MA's), (39, 45056), (52, 44930), (54, 44900),

Gene: Traft412\_78 Start: 48019, Stop: 47816, Start Num: 36

Candidate Starts for Traft412\_78:

(Start: 36 @48019 has 219 MA's), (39, 47983), (52, 47857), (54, 47827),

Gene: Treddle\_80 Start: 48749, Stop: 48546, Start Num: 36

Candidate Starts for Treddle\_80:

(Start: 36 @48749 has 219 MA's), (39, 48713), (52, 48587), (53, 48572), (54, 48557),

Gene: Tripl3t\_82 Start: 50461, Stop: 50258, Start Num: 36

Candidate Starts for Tripl3t\_82:

(17, 50575), (Start: 36 @50461 has 219 MA's), (39, 50425), (43, 50371), (52, 50299), (54, 50269),

Gene: Trouble\_79 Start: 48127, Stop: 47924, Start Num: 36

Candidate Starts for Trouble\_79:

(Start: 36 @48127 has 219 MA's), (39, 48091), (43, 48037), (52, 47965), (54, 47935),

Gene: Trouble\_85 Start: 49293, Stop: 49072, Start Num: 30

Candidate Starts for Trouble\_85:

(Start: 30 @49293 has 5 MA's), (31, 49284),

Gene: Turj99\_75 Start: 47479, Stop: 47276, Start Num: 36

Candidate Starts for Turj99\_75:

(12, 47641), (Start: 36 @47479 has 219 MA's), (39, 47443), (52, 47317), (53, 47302), (54, 47287),

Gene: TwoPeat\_78 Start: 47281, Stop: 47078, Start Num: 36

Candidate Starts for TwoPeat\_78:

(Start: 36 @47281 has 219 MA's), (39, 47245), (52, 47119), (54, 47089),

Gene: U2\_73 Start: 47866, Stop: 47666, Start Num: 36

Candidate Starts for U2\_73:

(Start: 36 @47866 has 219 MA's), (39, 47830), (43, 47776), (52, 47704), (54, 47674),

Gene: U2\_81 Start: 50965, Stop: 50765, Start Num: 35

Candidate Starts for U2\_81:

(Start: 35 @50965 has 36 MA's), (Start: 37 @50959 has 5 MA's), (41, 50887), (45, 50845), (51, 50806),

Gene: Violet\_74 Start: 48089, Stop: 47889, Start Num: 36

Candidate Starts for Violet\_74:

(Start: 36 @48089 has 219 MA's), (52, 47927), (54, 47897),

Gene: Watermelon\_82 Start: 48995, Stop: 48792, Start Num: 36

Candidate Starts for Watermelon\_82:

(Start: 36 @48995 has 219 MA's), (39, 48959), (52, 48833), (54, 48803),

Gene: Wheeler\_84 Start: 49724, Stop: 49521, Start Num: 36

Candidate Starts for Wheeler\_84:

(Start: 36 @49724 has 219 MA's), (39, 49688), (52, 49562), (53, 49547), (54, 49532),

Gene: Whitspit\_74 Start: 46046, Stop: 45831, Start Num: 36

Candidate Starts for Whitspit\_74:

(Start: 36 @46046 has 219 MA's), (39, 46010), (52, 45884),

Gene: Wilkins\_76 Start: 46044, Stop: 45844, Start Num: 36

Candidate Starts for Wilkins\_76:

(Start: 36 @46044 has 219 MA's), (39, 46008), (52, 45882), (53, 45867), (54, 45852),

Gene: Wilkins\_86 Start: 48419, Stop: 48219, Start Num: 35

Candidate Starts for Wilkins\_86:

(Start: 35 @48419 has 36 MA's), (Start: 37 @48413 has 5 MA's), (41, 48341), (42, 48335), (45, 48299), (51, 48260),

Gene: Zeeculate\_89 Start: 52732, Stop: 52541, Start Num: 34

Candidate Starts for Zeeculate\_89:

(Start: 34 @52732 has 1 MA's), (Start: 35 @52729 has 36 MA's), (Start: 37 @52723 has 5 MA's), (43, 52636), (47, 52594),

Gene: Zeeculate\_75 Start: 47813, Stop: 47610, Start Num: 36

Candidate Starts for Zeeculate\_75:

(Start: 36 @47813 has 219 MA's), (39, 47777), (52, 47651), (54, 47621),

Gene: Zephyr\_80 Start: 47913, Stop: 47710, Start Num: 36

Candidate Starts for Zephyr\_80:

(Start: 36 @47913 has 219 MA's), (39, 47877), (52, 47751), (54, 47721),

Gene: Zephyr\_89 Start: 51170, Stop: 50982, Start Num: 35

Candidate Starts for Zephyr\_89:

(Start: 34 @51173 has 1 MA's), (Start: 35 @51170 has 36 MA's), (Start: 37 @51164 has 5 MA's), (43, 51077), (47, 51035),

Gene: Zeuska\_82 Start: 49482, Stop: 49282, Start Num: 36

Candidate Starts for Zeuska\_82:

(Start: 36 @49482 has 219 MA's), (39, 49446), (52, 49320), (54, 49290),