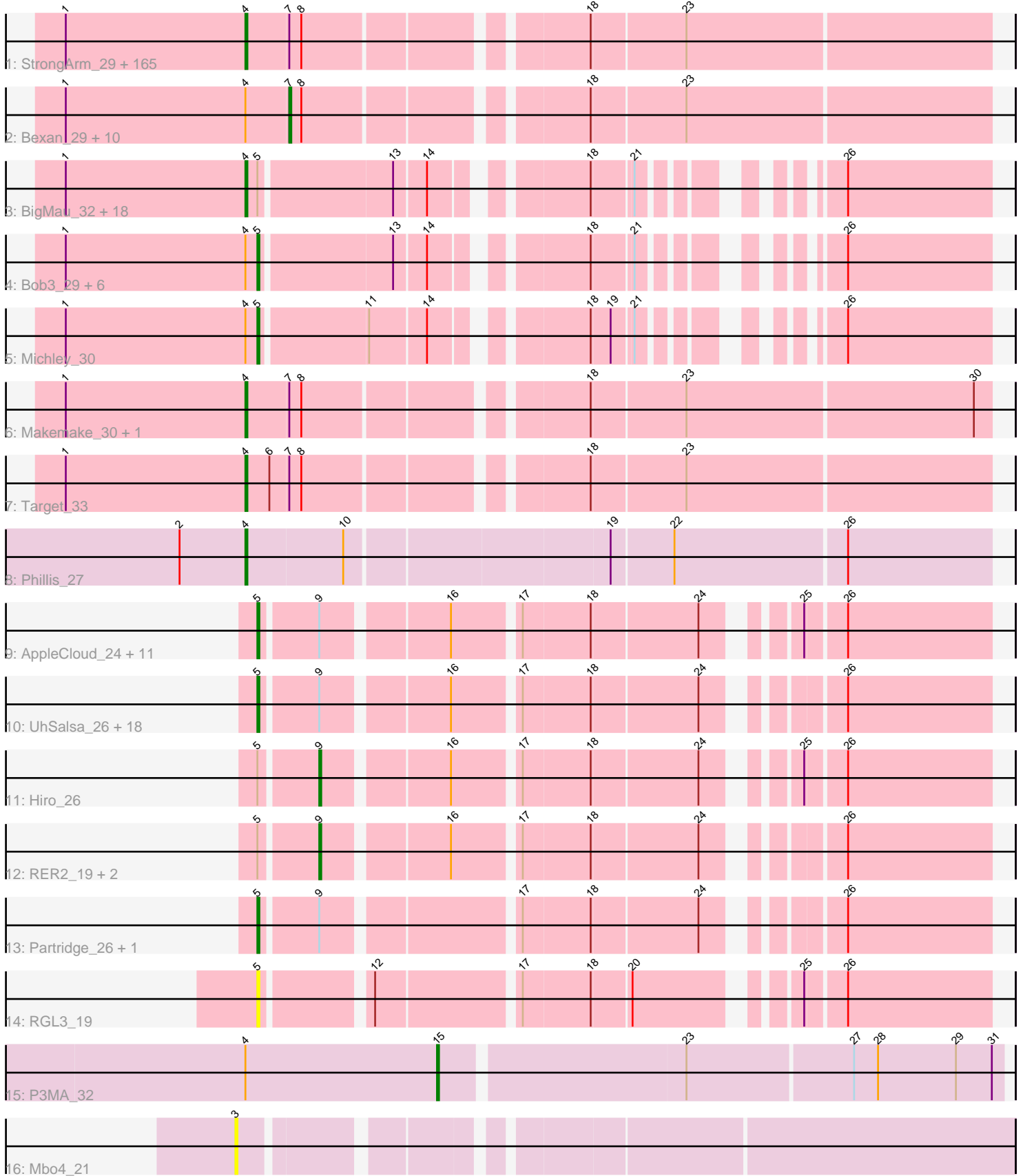


Pham 202644



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 202644 Report

This analysis was run 01/18/25 on database version 583.

Pham number 202644 has 248 members, 13 are drafts.

Phages represented in each track:

- Track 1 : StrongArm\_29, Aeneas\_32, PinkPlastic\_29, Solon\_30, BigPaolini\_31, Blue\_30, Rajelicia\_30, BluSpix\_31, Euphoria\_30, Zeuska\_31, PhrostyMug\_30, Ringer\_30, Museum\_32, LilBib\_31, Sorpresa\_30, JC27\_32, GageAP\_32, Kugel\_31, STLscum\_31, Mryolo\_29, Sunshine924\_31, Zeeculate\_30, GrecoEtereo\_32, MetalQZJ\_30, Ruotula\_29, Big3\_30, Thor\_30, Eyeball\_30, Tasp14\_31, Norz\_32, Alsfro\_34, Pita2\_32, PascalRango\_31, Manatee\_31, QTRlifeCrisis\_30, Altman\_32, Sandaddy\_29, Acme\_32, Lopton\_31, Nhonho\_30, Nerujay\_31, Carlyle\_32, ProMouse\_29, Chanagan\_29, Kenmech\_33, Molly\_31, Scowl\_31, Pippin\_32, SwissCheese\_32, Greg\_32, Arcanine\_31, BK1\_28, Watermelon\_32, Fushigi\_31, Magnito\_29, TheloniousMonk\_32, Naira\_31, Jasper\_31, HanShotFirst\_30, Gandalf20\_31, PherrisBueller\_31, Inyanga\_29, Marcell\_30, Forsytheast\_30, Pepe\_31, ConceptII\_32, Bruns\_29, McGuire\_31, Gyzlar\_32, Parliament\_29, BaconJack\_33, Monet\_32, Gwendoluna\_32, Applejack\_30, Turj99\_29, JuliaChild\_32, MaryBeth\_30, TwoPeat\_31, ILeeKay\_32, A6\_28, Homines\_30, Violet\_29, BeesKnees\_31, DrFeelGood\_29, Mule\_30, Rufus\_31, Dulcie\_29, Marge\_31, PattyP\_32, Lockley\_30, Doom\_31, Froghopper\_31, Alvin\_31, Sumter\_29, Lamina13\_30, Topgun\_30, Teodoridan\_28, Ciao\_30, Seanderson\_31, Abrogate\_310, SpikeBT\_32, Atkinbua\_32, Barriga\_30, Dexes\_31, JackSparrow\_31, BPBiebs31\_31, Zephyr\_30, Pari\_31, Hermia\_33, Arlo\_29, Licorice\_32, Ohno789\_30, Crispicous1\_29, Oogway\_29, Petruccio\_31, Sibs6\_32, Ichabod\_31, Ashballer\_32, Dreamboat\_31, Dynamix\_31, Payneful\_30, Rubeus\_31, Slagathor\_31, Pinto\_33, Burton\_31, Anglerfish\_31, Bxb1\_28, Pelly\_31, Killigrew\_28, PSullivan\_32, Paraselene\_29, Briton15\_32, Hope4ever\_30, NEHalo\_30, Maroc7\_29, SkiPole\_32, HarryOW\_31, MrGordo\_30, Magnar\_30, Rhynn\_30, Trouble\_31, Ajay\_31, Niza\_32, Tote\_32, Abbysshoes\_31, AFIS\_30, Jorgensen\_30, KyMonks1A\_32, Tripl3t\_31, Corvo\_31, Sanya\_29, Swole\_32, Sagefire\_31, Lesedi\_29, Petp2012\_32, GMonster\_29, Mkhuseleli\_31, Fajezeel\_32, Moose\_30, Papez\_32, Kanely\_31, BillKnuckles\_31, Wheeler\_30, Marchy\_29, Beatrix\_30, Switzer\_31
- Track 2 : Bexan\_29, Bethlehem\_30, Hami1\_32, IgnatiusPatJac\_30, Kykar\_30, StewieG\_29, Buttons\_32, KBG\_31, Rutherferd\_32, Raid\_31, ShortQueendom\_29
- Track 3 : BigMau\_32, Marsha\_30, Graduation\_32, Snazzy\_29, Jerm2\_31, Fenn\_31, Rohr\_31, RidgeCB\_30, Wilkins\_30, Adahisdi\_31, PacerPaul\_30, DreamCatcher\_33, Francis47\_30, Paphu\_29, Smairt\_31, Cueylyss\_30, Bigfoot\_29, CactusRose\_29, HermioneGrange\_30
- Track 4 : Bob3\_29, Edtherson\_31, Bones\_30, Traft412\_32, Fascinus\_29, Treddle\_32, MPlant7149\_29
- Track 5 : Michley\_30

- Track 6 : Makemake\_30, Espresso\_30
- Track 7 : Target\_33
- Track 8 : Phillis\_27
- Track 9 : AppleCloud\_24, Harlequin\_26, Yogi\_26, Bryce\_26, PhailMary\_25, Krishelle\_26, Alpacados\_25, Jester\_26, Yoncess\_26, Rasputin\_26, Bonanza\_26, BobbyDazzler\_26
- Track 10 : UhSalsa\_26, Naiad\_26, Alatin\_26, Erik\_26, Bradshaw\_26, Swann\_26, CosmicSans\_26, Rhodalysa\_26, TWAMP\_26, Takoda\_26, Lillie\_26, Espica\_26, Phrankenstien\_26, Shuman\_26, Gollum\_26, Belenaria\_26, StCroix\_26, Nancinator\_26, Natosaleda\_26
- Track 11 : Hiro\_26
- Track 12 : RER2\_19, AngryOrchard\_25, RexFury\_26
- Track 13 : Partridge\_26, Dinger\_26
- Track 14 : RGL3\_19
- Track 15 : P3MA\_32
- Track 16 : Mbo4\_21

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

The start number called the most often in the published annotations is 4, it was called in 182 of the 235 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- A6\_28, AFIS\_30, Abbyshoes\_31, Abrogate\_310, Acme\_32, Adahisdi\_31, Aeneas\_32, Ajay\_31, Alsfro\_34, Altman\_32, Alvin\_31, Anglerfish\_31, Applejack\_30, Arcanine\_31, Arlo\_29, Ashballer\_32, Atkinbua\_32, BK1\_28, BPBiabs31\_31, BaconJack\_33, Barriga\_30, Beatrix\_30, BeesKnees\_31, Big3\_30, BigMau\_32, BigPaolini\_31, Bigfoot\_29, BillKnuckles\_31, BluSpix\_31, Blue\_30, Briton15\_32, Bruns\_29, Burton\_31, Bxb1\_28, CactusRose\_29, Carlyle\_32, Chanagan\_29, Ciao\_30, Conceptll\_32, Corvo\_31, Crispicous1\_29, Cueyllyss\_30, Dexes\_31, Doom\_31, DrFeelGood\_29, DreamCatcher\_33, Dreamboat\_31, Dulcie\_29, Dynamix\_31, Espresso\_30, Euphoria\_30, Eyeball\_30, Fajezeel\_32, Fenn\_31, Forsytheast\_30, Francis47\_30, Froghopper\_31, Fushigi\_31, GMonster\_29, GageAP\_32, Gandalf20\_31, Graduation\_32, GrecoEtereo\_32, Greg\_32, Gwendoluna\_32, Gyzlar\_32, HanShotFirst\_30, HarryOW\_31, Hermia\_33, HermioneGrange\_30, Homines\_30, Hope4ever\_30, ILeeKay\_32, Ichabod\_31, Inyanga\_29, JC27\_32, JackSparrow\_31, Jasper\_31, Jerm2\_31, Jorgensen\_30, JuliaChild\_32, Kanely\_31, Kenmech\_33, Killigrew\_28, Kugel\_31, KyMonks1A\_32, Lamina13\_30, Lesedi\_29, Licorice\_32, LilBib\_31, Lockley\_30, Lopton\_31, Magnar\_30, Magnito\_29, Makemake\_30, Manatee\_31, Marcell\_30, Marchy\_29, Marge\_31, Maroc7\_29, Marsha\_30, MaryBeth\_30, McGuire\_31, MetalQZJ\_30, Mkhusele\_31, Molly\_31, Monet\_32, Moose\_30, MrGordo\_30, Mryolo\_29, Mule\_30, Museum\_32, NEHalo\_30, Naira\_31, Nerujay\_31, Nhonho\_30, Niza\_32, Norz\_32, Ohno789\_30, Oogway\_29, PSullivan\_32, PacerPaul\_30, Papez\_32, Paphu\_29, Paraselene\_29, Pari\_31, Parliament\_29, PascalRango\_31, PattyP\_32, Payneful\_30, Pelly\_31, Pepe\_31, Petp2012\_32, Petruccio\_31, PherrisBueller\_31, Phillis\_27, PhrostyMug\_30, PinkPlastic\_29, Pinto\_33, Pippin\_32, Pita2\_32, ProMouse\_29, QTRLifeCrisis\_30, Rajelicia\_30, Rhynn\_30, RidgeCB\_30, Ringer\_30, Rohr\_31, Rubeus\_31, Rufus\_31, Ruotula\_29, STLscum\_31, Sagefire\_31, Sandaddy\_29, Sanya\_29, Scowl\_31, Seanderson\_31, Sibs6\_32, SkiPole\_32, Slagathor\_31,

Smairt\_31, Snazzy\_29, Solon\_30, Sorpresa\_30, SpikeBT\_32, StrongArm\_29, Sumter\_29, Sunshine924\_31, SwissCheese\_32, Switzer\_31, Swole\_32, Target\_33, Tasp14\_31, Teodoridan\_28, TheloniousMonk\_32, Thor\_30, Topgun\_30, Tote\_32, Tripl3t\_31, Trouble\_31, Turj99\_29, TwoPeat\_31, Violet\_29, Watermelon\_32, Wheeler\_30, Wilkins\_30, Zeeculate\_30, Zephyr\_30, Zeuska\_31,

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

- Bethlehem\_30, Bexan\_29, Bob3\_29, Bones\_30, Buttons\_32, Edtherson\_31, Fascinus\_29, Hami1\_32, IgnatiusPatJac\_30, KBG\_31, Kykar\_30, MPlant7149\_29, Michley\_30, P3MA\_32, Raid\_31, Rutherferd\_32, ShortQueendom\_29, StewieG\_29, Traft412\_32, Treddle\_32,

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

- Alatin\_26, Alpacados\_25, AngryOrchard\_25, AppleCloud\_24, Belenaria\_26, BobbyDazzler\_26, Bonanza\_26, Bradshaw\_26, Bryce\_26, CosmicSans\_26, Dinger\_26, Erik\_26, Espica\_26, Gollum\_26, Harlequin\_26, Hiro\_26, Jester\_26, Krishelle\_26, Lillie\_26, Mbo4\_21, Naiad\_26, Nancinator\_26, Natosaleda\_26, Partridge\_26, PhailMary\_25, Phrankenstein\_26, RER2\_19, RGL3\_19, Rasputin\_26, RexFury\_26, Rhodalysa\_26, Shuman\_26, StCroix\_26, Swann\_26, TWAMP\_26, Takoda\_26, UhSalsa\_26, Yogi\_26, Yoncess\_26,

### Summary by start number:

Start 3:

- Found in 1 of 248 ( 0.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Mbo4\_21 (singleton),

Start 4:

- Found in 209 of 248 ( 84.3% ) of genes in pham
- Manual Annotations of this start: 182 of 235
- Called 90.4% of time when present
- Phage (with cluster) where this start called: A6\_28 (A1), AFIS\_30 (A1), Abbyshoes\_31 (A1), Abrogate\_310 (A1), Acme\_32 (A1), Adahisdi\_31 (A1), Aeneas\_32 (A1), Ajay\_31 (A1), Alsfro\_34 (A1), Altman\_32 (A1), Alvin\_31 (A1), Anglerfish\_31 (A1), Applejack\_30 (A1), Arcanine\_31 (A1), Arlo\_29 (A1), Ashballer\_32 (A1), Atkinbua\_32 (A1), BK1\_28 (A1), BPBiebs31\_31 (A1), BaconJack\_33 (A1), Barriga\_30 (A1), Beatrix\_30 (A1), BeesKnees\_31 (A1), Big3\_30 (A1), BigMau\_32 (A1), BigPaolini\_31 (A1), Bigfoot\_29 (A1), BillKnuckles\_31 (A1), BluSpix\_31 (A1), Blue\_30 (A1), Briton15\_32 (A1), Bruns\_29 (A1), Burton\_31 (A1), Bxb1\_28 (A1), CactusRose\_29 (A1), Carlyle\_32 (A1), Chanagan\_29 (A1), Ciao\_30 (A1), Conceptll\_32 (A1), Corvo\_31 (A1), Crispicous1\_29 (A1), Cueylyss\_30 (A1), Dexes\_31 (A1), Doom\_31 (A1), DrFeelGood\_29 (A1), DreamCatcher\_33 (A1), Dreamboat\_31 (A1), Dulcie\_29 (A1), Dynamix\_31 (A1), Espresso\_30 (A1), Euphoria\_30 (A1), Eyeball\_30 (A1), Fajezeel\_32 (A1), Fenn\_31 (A1), Forsytheast\_30 (A1), Francis47\_30 (A1), Froghopper\_31 (A1), Fushigi\_31 (A1), GMonster\_29 (A1), GageAP\_32 (A1), Gandalf20\_31 (A1), Graduation\_32 (A1), GrecoEtereo\_32 (A1), Greg\_32 (A1), Gwendoluna\_32 (A1), Gyzlar\_32 (A1), HanShotFirst\_30 (A1), HarryOW\_31 (A1), Hermia\_33 (A1), HermioneGrange\_30 (A1), Homines\_30 (A1), Hope4ever\_30 (A1), ILeeKay\_32 (A1), Ichabod\_31 (A1), Inyanga\_29 (A1), JC27\_32 (A1), JackSparrow\_31 (A1), Jasper\_31 (A1), Jerm2\_31 (A1), Jorgensen\_30 (A1), JuliaChild\_32 (A1), Kanely\_31 (A1), Kenmech\_33 (A1), Killigrew\_28 (A1), Kugel\_31

(A1), KyMonks1A\_32 (A1), Lamina13\_30 (A1), Lesedi\_29 (A1), Licorice\_32 (A1), LilBib\_31 (A1), Lockley\_30 (A1), Lopton\_31 (A1), Magnar\_30 (A1), Magnito\_29 (A1), Makemake\_30 (A1), Manatee\_31 (A1), Marcell\_30 (A1), Marchy\_29 (A1), Marge\_31 (A1), Maroc7\_29 (A1), Marsha\_30 (A1), MaryBeth\_30 (A1), McGuire\_31 (A1), MetalQZJ\_30 (A1), Mkhuseleli\_31 (A1), Molly\_31 (A1), Monet\_32 (A1), Moose\_30 (A1), MrGordo\_30 (A1), Mryolo\_29 (A1), Mule\_30 (A1), Museum\_32 (A1), NEHalo\_30 (A1), Naira\_31 (A1), Nerujay\_31 (A1), Nhonho\_30 (A1), Niza\_32 (A1), Norz\_32 (A1), Ohno789\_30 (A1), Oogway\_29 (A1), PSullivan\_32 (A1), PacerPaul\_30 (A1), Papez\_32 (A1), Paphu\_29 (A1), Paraselene\_29 (A1), Pari\_31 (A1), Parliament\_29 (A1), PascalRango\_31 (A1), PattyP\_32 (A1), Payneful\_30 (A1), Pelly\_31 (A1), Pepe\_31 (A1), Petp2012\_32 (A1), Petruccio\_31 (A1), PherrisBueller\_31 (A1), Phillis\_27 (A8), PhrostyMug\_30 (A1), PinkPlastic\_29 (A1), Pinto\_33 (A1), Pippin\_32 (A1), Pita2\_32 (A1), ProMouse\_29 (A1), QTRLifeCrisis\_30 (A1), Rajelicia\_30 (A1), Rhynn\_30 (A1), RidgeCB\_30 (A1), Ringer\_30 (A1), Rohr\_31 (A1), Rubeus\_31 (A1), Rufus\_31 (A1), Ruotula\_29 (A1), STLscum\_31 (A1), Sagefire\_31 (A1), Sandaddy\_29 (A1), Sanya\_29 (A1), Scowl\_31 (A1), Seanderson\_31 (A1), Sibs6\_32 (A1), SkiPole\_32 (A1), Slagathor\_31 (A1), Smairt\_31 (A1), Snazzy\_29 (A1), Solon\_30 (A1), Sorpresa\_30 (A1), SpikeBT\_32 (A1), StrongArm\_29 (A1), Sumter\_29 (A1), Sunshine924\_31 (A1), SwissCheese\_32 (A1), Switzer\_31 (A1), Swole\_32 (A1), Target\_33 (A1), Tasp14\_31 (A1), Teodoridan\_28 (A1), TheloniousMonk\_32 (A1), Thor\_30 (A1), Topgun\_30 (A1), Tote\_32 (A1), Trip13t\_31 (A1), Trouble\_31 (A1), Turj99\_29 (A1), TwoPeat\_31 (A1), Violet\_29 (A1), Watermelon\_32 (A1), Wheeler\_30 (A1), Wilkins\_30 (A1), Zeeculate\_30 (A1), Zephyr\_30 (A1), Zeuska\_31 (A1),

#### Start 5:

- Found in 65 of 248 ( 26.2% ) of genes in pham
- Manual Annotations of this start: 41 of 235
- Called 64.6% of time when present
- Phage (with cluster) where this start called: Alatin\_26 (CA), Alpacados\_25 (CA), AppleCloud\_24 (CA), Belenaria\_26 (CA), Bob3\_29 (A1), BobbyDazzler\_26 (CA), Bonanza\_26 (CA), Bones\_30 (A1), Bradshaw\_26 (CA), Bryce\_26 (CA), CosmicSans\_26 (CA), Dinger\_26 (CA), Edtherson\_31 (A1), Erik\_26 (CA), Espica\_26 (CA), Fascinus\_29 (A1), Gollum\_26 (CA), Harlequin\_26 (CA), Jester\_26 (CA), Krishelle\_26 (CA), Lillie\_26 (CA), MPlant7149\_29 (A1), Michley\_30 (A1), Naiad\_26 (CA), Nancinator\_26 (CA), Natosaleda\_26 (CA), Partridge\_26 (CA), PhailMary\_25 (CA), Phrankenstien\_26 (CA), RGL3\_19 (CA), Rasputin\_26 (CA), Rhodalysa\_26 (CA), Shuman\_26 (CA), StCroix\_26 (CA), Swann\_26 (CA), TWAMP\_26 (CA), Takoda\_26 (CA), Traft412\_32 (A1), Treddle\_32 (A1), UhSalsa\_26 (CA), Yogi\_26 (CA), Yoncess\_26 (CA),

#### Start 7:

- Found in 180 of 248 ( 72.6% ) of genes in pham
- Manual Annotations of this start: 8 of 235
- Called 6.1% of time when present
- Phage (with cluster) where this start called: Bethlehem\_30 (A1), Bexan\_29 (A1), Buttons\_32 (A1), Hami1\_32 (A1), IgnatiusPatJac\_30 (A1), KBG\_31 (A1), Kykar\_30 (A1), Raid\_31 (A1), Rutherferd\_32 (A1), ShortQueendom\_29 (A1), StewieG\_29 (A1),

#### Start 9:

- Found in 37 of 248 ( 14.9% ) of genes in pham
- Manual Annotations of this start: 3 of 235
- Called 10.8% of time when present

- Phage (with cluster) where this start called: AngryOrchard\_25 (CA), Hiro\_26 (CA), RER2\_19 (CA), RexFury\_26 (CA),

Start 15:

- Found in 1 of 248 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 235
- Called 100.0% of time when present
- Phage (with cluster) where this start called: P3MA\_32 (singleton),

### **Summary by clusters:**

There are 4 clusters represented in this pham: A1, A8, CA, singleton,

Info for manual annotations of cluster A1:

- Start number 4 was manually annotated 181 times for cluster A1.
- Start number 5 was manually annotated 8 times for cluster A1.
- Start number 7 was manually annotated 8 times for cluster A1.

Info for manual annotations of cluster A8:

- Start number 4 was manually annotated 1 time for cluster A8.

Info for manual annotations of cluster CA:

- Start number 5 was manually annotated 33 times for cluster CA.
- Start number 9 was manually annotated 3 times for cluster CA.

### **Gene Information:**

Gene: A6\_28 Start: 23288, Stop: 23635, Start Num: 4

Candidate Starts for A6\_28:

(1, 23198), (Start: 4 @23288 has 182 MA's), (Start: 7 @23309 has 8 MA's), (8, 23315), (18, 23441), (23, 23486),

Gene: AFIS\_30 Start: 23831, Stop: 24178, Start Num: 4

Candidate Starts for AFIS\_30:

(1, 23741), (Start: 4 @23831 has 182 MA's), (Start: 7 @23852 has 8 MA's), (8, 23858), (18, 23984), (23, 24029),

Gene: Abbyshoes\_31 Start: 23946, Stop: 24293, Start Num: 4

Candidate Starts for Abbyshoes\_31:

(1, 23856), (Start: 4 @23946 has 182 MA's), (Start: 7 @23967 has 8 MA's), (8, 23973), (18, 24099), (23, 24144),

Gene: Abrogate\_310 Start: 24506, Stop: 24853, Start Num: 4

Candidate Starts for Abrogate\_310:

(1, 24416), (Start: 4 @24506 has 182 MA's), (Start: 7 @24527 has 8 MA's), (8, 24533), (18, 24659), (23, 24704),

Gene: Acme\_32 Start: 24047, Stop: 24394, Start Num: 4

Candidate Starts for Acme\_32:

(1, 23957), (Start: 4 @24047 has 182 MA's), (Start: 7 @24068 has 8 MA's), (8, 24074), (18, 24200), (23, 24245),

Gene: Adahisdi\_31 Start: 23954, Stop: 24253, Start Num: 4

Candidate Starts for Adahisdi\_31:

(1, 23864), (Start: 4 @23954 has 182 MA's), (Start: 5 @23960 has 41 MA's), (13, 24023), (14, 24038), (18, 24101), (21, 24119), (26, 24182),

Gene: Aeneas\_32 Start: 24083, Stop: 24430, Start Num: 4

Candidate Starts for Aeneas\_32:

(1, 23993), (Start: 4 @24083 has 182 MA's), (Start: 7 @24104 has 8 MA's), (8, 24110), (18, 24236), (23, 24281),

Gene: Ajay\_31 Start: 24259, Stop: 24606, Start Num: 4

Candidate Starts for Ajay\_31:

(1, 24169), (Start: 4 @24259 has 182 MA's), (Start: 7 @24280 has 8 MA's), (8, 24286), (18, 24412), (23, 24457),

Gene: Alatin\_26 Start: 18760, Stop: 19080, Start Num: 5

Candidate Starts for Alatin\_26:

(Start: 5 @18760 has 41 MA's), (Start: 9 @18787 has 3 MA's), (16, 18844), (17, 18874), (18, 18907), (24, 18958), (26, 19009),

Gene: Alpacados\_25 Start: 18696, Stop: 19016, Start Num: 5

Candidate Starts for Alpacados\_25:

(Start: 5 @18696 has 41 MA's), (Start: 9 @18723 has 3 MA's), (16, 18780), (17, 18810), (18, 18843), (24, 18894), (25, 18927), (26, 18945),

Gene: Alsfro\_34 Start: 24492, Stop: 24839, Start Num: 4

Candidate Starts for Alsfro\_34:

(1, 24402), (Start: 4 @24492 has 182 MA's), (Start: 7 @24513 has 8 MA's), (8, 24519), (18, 24645), (23, 24690),

Gene: Altman\_32 Start: 24550, Stop: 24897, Start Num: 4

Candidate Starts for Altman\_32:

(1, 24460), (Start: 4 @24550 has 182 MA's), (Start: 7 @24571 has 8 MA's), (8, 24577), (18, 24703), (23, 24748),

Gene: Alvin\_31 Start: 24319, Stop: 24666, Start Num: 4

Candidate Starts for Alvin\_31:

(1, 24229), (Start: 4 @24319 has 182 MA's), (Start: 7 @24340 has 8 MA's), (8, 24346), (18, 24472), (23, 24517),

Gene: Anglerfish\_31 Start: 24463, Stop: 24810, Start Num: 4

Candidate Starts for Anglerfish\_31:

(1, 24373), (Start: 4 @24463 has 182 MA's), (Start: 7 @24484 has 8 MA's), (8, 24490), (18, 24616), (23, 24661),

Gene: AngryOrchard\_25 Start: 18706, Stop: 18999, Start Num: 9

Candidate Starts for AngryOrchard\_25:

(Start: 5 @18679 has 41 MA's), (Start: 9 @18706 has 3 MA's), (16, 18763), (17, 18793), (18, 18826), (24, 18877), (26, 18928),

Gene: AppleCloud\_24 Start: 18725, Stop: 19045, Start Num: 5

Candidate Starts for AppleCloud\_24:

(Start: 5 @18725 has 41 MA's), (Start: 9 @18752 has 3 MA's), (16, 18809), (17, 18839), (18, 18872), (24, 18923), (25, 18956), (26, 18974),

Gene: Applejack\_30 Start: 23724, Stop: 24071, Start Num: 4

Candidate Starts for Applejack\_30:

(1, 23634), (Start: 4 @23724 has 182 MA's), (Start: 7 @23745 has 8 MA's), (8, 23751), (18, 23877), (23, 23922),

Gene: Arcanine\_31 Start: 23477, Stop: 23824, Start Num: 4

Candidate Starts for Arcanine\_31:

(1, 23387), (Start: 4 @23477 has 182 MA's), (Start: 7 @23498 has 8 MA's), (8, 23504), (18, 23630), (23, 23675),

Gene: Arlo\_29 Start: 23353, Stop: 23700, Start Num: 4

Candidate Starts for Arlo\_29:

(1, 23263), (Start: 4 @23353 has 182 MA's), (Start: 7 @23374 has 8 MA's), (8, 23380), (18, 23506), (23, 23551),

Gene: Ashballe\_32 Start: 24477, Stop: 24824, Start Num: 4

Candidate Starts for Ashballe\_32:

(1, 24387), (Start: 4 @24477 has 182 MA's), (Start: 7 @24498 has 8 MA's), (8, 24504), (18, 24630), (23, 24675),

Gene: Atkinbua\_32 Start: 24177, Stop: 24524, Start Num: 4

Candidate Starts for Atkinbua\_32:

(1, 24087), (Start: 4 @24177 has 182 MA's), (Start: 7 @24198 has 8 MA's), (8, 24204), (18, 24330), (23, 24375),

Gene: BK1\_28 Start: 23288, Stop: 23635, Start Num: 4

Candidate Starts for BK1\_28:

(1, 23198), (Start: 4 @23288 has 182 MA's), (Start: 7 @23309 has 8 MA's), (8, 23315), (18, 23441), (23, 23486),

Gene: BPBiebs31\_31 Start: 24048, Stop: 24395, Start Num: 4

Candidate Starts for BPBiebs31\_31:

(1, 23958), (Start: 4 @24048 has 182 MA's), (Start: 7 @24069 has 8 MA's), (8, 24075), (18, 24201), (23, 24246),

Gene: BaconJack\_33 Start: 24246, Stop: 24593, Start Num: 4

Candidate Starts for BaconJack\_33:

(1, 24156), (Start: 4 @24246 has 182 MA's), (Start: 7 @24267 has 8 MA's), (8, 24273), (18, 24399), (23, 24444),

Gene: Barriga\_30 Start: 23579, Stop: 23926, Start Num: 4

Candidate Starts for Barriga\_30:

(1, 23489), (Start: 4 @23579 has 182 MA's), (Start: 7 @23600 has 8 MA's), (8, 23606), (18, 23732), (23, 23777),

Gene: Beatrix\_30 Start: 25161, Stop: 25508, Start Num: 4

Candidate Starts for Beatrix\_30:

(1, 25071), (Start: 4 @25161 has 182 MA's), (Start: 7 @25182 has 8 MA's), (8, 25188), (18, 25314), (23, 25359),



Gene: BeesKnees\_31 Start: 23778, Stop: 24125, Start Num: 4

Candidate Starts for BeesKnees\_31:

(1, 23688), (Start: 4 @23778 has 182 MA's), (Start: 7 @23799 has 8 MA's), (8, 23805), (18, 23931), (23, 23976),

Gene: Belenaria\_26 Start: 18760, Stop: 19080, Start Num: 5

Candidate Starts for Belenaria\_26:

(Start: 5 @18760 has 41 MA's), (Start: 9 @18787 has 3 MA's), (16, 18844), (17, 18874), (18, 18907), (24, 18958), (26, 19009),

Gene: Bethlehem\_30 Start: 25025, Stop: 25351, Start Num: 7

Candidate Starts for Bethlehem\_30:

(1, 24914), (Start: 4 @25004 has 182 MA's), (Start: 7 @25025 has 8 MA's), (8, 25031), (18, 25157), (23, 25202),

Gene: Bexan\_29 Start: 24749, Stop: 25075, Start Num: 7

Candidate Starts for Bexan\_29:

(1, 24638), (Start: 4 @24728 has 182 MA's), (Start: 7 @24749 has 8 MA's), (8, 24755), (18, 24881), (23, 24926),

Gene: Big3\_30 Start: 24359, Stop: 24706, Start Num: 4

Candidate Starts for Big3\_30:

(1, 24269), (Start: 4 @24359 has 182 MA's), (Start: 7 @24380 has 8 MA's), (8, 24386), (18, 24512), (23, 24557),

Gene: BigMau\_32 Start: 23960, Stop: 24259, Start Num: 4

Candidate Starts for BigMau\_32:

(1, 23870), (Start: 4 @23960 has 182 MA's), (Start: 5 @23966 has 41 MA's), (13, 24029), (14, 24044), (18, 24107), (21, 24125), (26, 24188),

Gene: BigPaolini\_31 Start: 24357, Stop: 24704, Start Num: 4

Candidate Starts for BigPaolini\_31:

(1, 24267), (Start: 4 @24357 has 182 MA's), (Start: 7 @24378 has 8 MA's), (8, 24384), (18, 24510), (23, 24555),

Gene: Bigfoot\_29 Start: 23566, Stop: 23865, Start Num: 4

Candidate Starts for Bigfoot\_29:

(1, 23476), (Start: 4 @23566 has 182 MA's), (Start: 5 @23572 has 41 MA's), (13, 23635), (14, 23650), (18, 23713), (21, 23731), (26, 23794),

Gene: BillKnuckles\_31 Start: 24444, Stop: 24791, Start Num: 4

Candidate Starts for BillKnuckles\_31:

(1, 24354), (Start: 4 @24444 has 182 MA's), (Start: 7 @24465 has 8 MA's), (8, 24471), (18, 24597), (23, 24642),

Gene: BluSpix\_31 Start: 23974, Stop: 24321, Start Num: 4

Candidate Starts for BluSpix\_31:

(1, 23884), (Start: 4 @23974 has 182 MA's), (Start: 7 @23995 has 8 MA's), (8, 24001), (18, 24127), (23, 24172),

Gene: Blue\_30 Start: 24212, Stop: 24559, Start Num: 4

Candidate Starts for Blue\_30:

(1, 24122), (Start: 4 @24212 has 182 MA's), (Start: 7 @24233 has 8 MA's), (8, 24239), (18, 24365), (23, 24410),

Gene: Bob3\_29 Start: 23306, Stop: 23599, Start Num: 5

Candidate Starts for Bob3\_29:

(1, 23210), (Start: 4 @23300 has 182 MA's), (Start: 5 @23306 has 41 MA's), (13, 23369), (14, 23384), (18, 23447), (21, 23465), (26, 23528),

Gene: BobbyDazzler\_26 Start: 18805, Stop: 19125, Start Num: 5

Candidate Starts for BobbyDazzler\_26:

(Start: 5 @18805 has 41 MA's), (Start: 9 @18832 has 3 MA's), (16, 18889), (17, 18919), (18, 18952), (24, 19003), (25, 19036), (26, 19054),

Gene: Bonanza\_26 Start: 18734, Stop: 19054, Start Num: 5

Candidate Starts for Bonanza\_26:

(Start: 5 @18734 has 41 MA's), (Start: 9 @18761 has 3 MA's), (16, 18818), (17, 18848), (18, 18881), (24, 18932), (25, 18965), (26, 18983),

Gene: Bones\_30 Start: 23672, Stop: 23965, Start Num: 5

Candidate Starts for Bones\_30:

(1, 23576), (Start: 4 @23666 has 182 MA's), (Start: 5 @23672 has 41 MA's), (13, 23735), (14, 23750), (18, 23813), (21, 23831), (26, 23894),

Gene: Bradshaw\_26 Start: 18760, Stop: 19080, Start Num: 5

Candidate Starts for Bradshaw\_26:

(Start: 5 @18760 has 41 MA's), (Start: 9 @18787 has 3 MA's), (16, 18844), (17, 18874), (18, 18907), (24, 18958), (26, 19009),

Gene: Briton15\_32 Start: 24011, Stop: 24358, Start Num: 4

Candidate Starts for Briton15\_32:

(1, 23921), (Start: 4 @24011 has 182 MA's), (Start: 7 @24032 has 8 MA's), (8, 24038), (18, 24164), (23, 24209),

Gene: Bruns\_29 Start: 23641, Stop: 23988, Start Num: 4

Candidate Starts for Bruns\_29:

(1, 23551), (Start: 4 @23641 has 182 MA's), (Start: 7 @23662 has 8 MA's), (8, 23668), (18, 23794), (23, 23839),

Gene: Bryce\_26 Start: 18734, Stop: 19054, Start Num: 5

Candidate Starts for Bryce\_26:

(Start: 5 @18734 has 41 MA's), (Start: 9 @18761 has 3 MA's), (16, 18818), (17, 18848), (18, 18881), (24, 18932), (25, 18965), (26, 18983),

Gene: Burton\_31 Start: 23861, Stop: 24208, Start Num: 4

Candidate Starts for Burton\_31:

(1, 23771), (Start: 4 @23861 has 182 MA's), (Start: 7 @23882 has 8 MA's), (8, 23888), (18, 24014), (23, 24059),

Gene: Buttons\_32 Start: 24723, Stop: 25049, Start Num: 7

Candidate Starts for Buttons\_32:

(1, 24612), (Start: 4 @24702 has 182 MA's), (Start: 7 @24723 has 8 MA's), (8, 24729), (18, 24855), (23, 24900),

Gene: Bxb1\_28 Start: 23812, Stop: 24159, Start Num: 4

Candidate Starts for Bxb1\_28:

(1, 23722), (Start: 4 @23812 has 182 MA's), (Start: 7 @23833 has 8 MA's), (8, 23839), (18, 23965), (23, 24010),

Gene: CactusRose\_29 Start: 23661, Stop: 23960, Start Num: 4

Candidate Starts for CactusRose\_29:

(1, 23571), (Start: 4 @23661 has 182 MA's), (Start: 5 @23667 has 41 MA's), (13, 23730), (14, 23745), (18, 23808), (21, 23826), (26, 23889),

Gene: Carlyle\_32 Start: 24541, Stop: 24888, Start Num: 4

Candidate Starts for Carlyle\_32:

(1, 24451), (Start: 4 @24541 has 182 MA's), (Start: 7 @24562 has 8 MA's), (8, 24568), (18, 24694), (23, 24739),

Gene: Chanagan\_29 Start: 23326, Stop: 23673, Start Num: 4

Candidate Starts for Chanagan\_29:

(1, 23236), (Start: 4 @23326 has 182 MA's), (Start: 7 @23347 has 8 MA's), (8, 23353), (18, 23479), (23, 23524),

Gene: Ciao\_30 Start: 23669, Stop: 24016, Start Num: 4

Candidate Starts for Ciao\_30:

(1, 23579), (Start: 4 @23669 has 182 MA's), (Start: 7 @23690 has 8 MA's), (8, 23696), (18, 23822), (23, 23867),

Gene: ConceptII\_32 Start: 24683, Stop: 25030, Start Num: 4

Candidate Starts for ConceptII\_32:

(1, 24593), (Start: 4 @24683 has 182 MA's), (Start: 7 @24704 has 8 MA's), (8, 24710), (18, 24836), (23, 24881),

Gene: Corvo\_31 Start: 24678, Stop: 25025, Start Num: 4

Candidate Starts for Corvo\_31:

(1, 24588), (Start: 4 @24678 has 182 MA's), (Start: 7 @24699 has 8 MA's), (8, 24705), (18, 24831), (23, 24876),

Gene: CosmicSans\_26 Start: 18760, Stop: 19080, Start Num: 5

Candidate Starts for CosmicSans\_26:

(Start: 5 @18760 has 41 MA's), (Start: 9 @18787 has 3 MA's), (16, 18844), (17, 18874), (18, 18907), (24, 18958), (26, 19009),

Gene: Crispicous1\_29 Start: 23255, Stop: 23602, Start Num: 4

Candidate Starts for Crispicous1\_29:

(1, 23165), (Start: 4 @23255 has 182 MA's), (Start: 7 @23276 has 8 MA's), (8, 23282), (18, 23408), (23, 23453),

Gene: Cueyllyss\_30 Start: 23899, Stop: 24198, Start Num: 4

Candidate Starts for Cueyllyss\_30:

(1, 23809), (Start: 4 @23899 has 182 MA's), (Start: 5 @23905 has 41 MA's), (13, 23968), (14, 23983), (18, 24046), (21, 24064), (26, 24127),

Gene: Dexes\_31 Start: 24407, Stop: 24754, Start Num: 4

Candidate Starts for Dexes\_31:

(1, 24317), (Start: 4 @24407 has 182 MA's), (Start: 7 @24428 has 8 MA's), (8, 24434), (18, 24560), (23, 24605),

Gene: Dinger\_26 Start: 18730, Stop: 19050, Start Num: 5

Candidate Starts for Dinger\_26:

(Start: 5 @18730 has 41 MA's), (Start: 9 @18757 has 3 MA's), (17, 18844), (18, 18877), (24, 18928), (26, 18979),

Gene: Doom\_31 Start: 24515, Stop: 24862, Start Num: 4

Candidate Starts for Doom\_31:

(1, 24425), (Start: 4 @24515 has 182 MA's), (Start: 7 @24536 has 8 MA's), (8, 24542), (18, 24668), (23, 24713),

Gene: DrFeelGood\_29 Start: 24118, Stop: 24465, Start Num: 4

Candidate Starts for DrFeelGood\_29:

(1, 24028), (Start: 4 @24118 has 182 MA's), (Start: 7 @24139 has 8 MA's), (8, 24145), (18, 24271), (23, 24316),

Gene: DreamCatcher\_33 Start: 25132, Stop: 25431, Start Num: 4

Candidate Starts for DreamCatcher\_33:

(1, 25042), (Start: 4 @25132 has 182 MA's), (Start: 5 @25138 has 41 MA's), (13, 25201), (14, 25216), (18, 25279), (21, 25297), (26, 25360),

Gene: Dreamboat\_31 Start: 23684, Stop: 24031, Start Num: 4

Candidate Starts for Dreamboat\_31:

(1, 23594), (Start: 4 @23684 has 182 MA's), (Start: 7 @23705 has 8 MA's), (8, 23711), (18, 23837), (23, 23882),

Gene: Dulcie\_29 Start: 23381, Stop: 23728, Start Num: 4

Candidate Starts for Dulcie\_29:

(1, 23291), (Start: 4 @23381 has 182 MA's), (Start: 7 @23402 has 8 MA's), (8, 23408), (18, 23534), (23, 23579),

Gene: Dynamix\_31 Start: 23763, Stop: 24110, Start Num: 4

Candidate Starts for Dynamix\_31:

(1, 23673), (Start: 4 @23763 has 182 MA's), (Start: 7 @23784 has 8 MA's), (8, 23790), (18, 23916), (23, 23961),

Gene: Edtherson\_31 Start: 24516, Stop: 24809, Start Num: 5

Candidate Starts for Edtherson\_31:

(1, 24420), (Start: 4 @24510 has 182 MA's), (Start: 5 @24516 has 41 MA's), (13, 24579), (14, 24594), (18, 24657), (21, 24675), (26, 24738),

Gene: Erik\_26 Start: 18759, Stop: 19079, Start Num: 5

Candidate Starts for Erik\_26:

(Start: 5 @18759 has 41 MA's), (Start: 9 @18786 has 3 MA's), (16, 18843), (17, 18873), (18, 18906), (24, 18957), (26, 19008),

Gene: Espica\_26 Start: 18760, Stop: 19080, Start Num: 5

Candidate Starts for Espica\_26:

(Start: 5 @18760 has 41 MA's), (Start: 9 @18787 has 3 MA's), (16, 18844), (17, 18874), (18, 18907), (24, 18958), (26, 19009),

Gene: Espresso\_30 Start: 23827, Stop: 24174, Start Num: 4

Candidate Starts for Espresso\_30:

(1, 23737), (Start: 4 @23827 has 182 MA's), (Start: 7 @23848 has 8 MA's), (8, 23854), (18, 23980), (23, 24025), (30, 24166),

Gene: Euphoria\_30 Start: 23717, Stop: 24064, Start Num: 4

Candidate Starts for Euphoria\_30:

(1, 23627), (Start: 4 @23717 has 182 MA's), (Start: 7 @23738 has 8 MA's), (8, 23744), (18, 23870), (23, 23915),

Gene: Eyeball\_30 Start: 23522, Stop: 23869, Start Num: 4

Candidate Starts for Eyeball\_30:

(1, 23432), (Start: 4 @23522 has 182 MA's), (Start: 7 @23543 has 8 MA's), (8, 23549), (18, 23675), (23, 23720),

Gene: Fajezeel\_32 Start: 24032, Stop: 24379, Start Num: 4

Candidate Starts for Fajezeel\_32:

(1, 23942), (Start: 4 @24032 has 182 MA's), (Start: 7 @24053 has 8 MA's), (8, 24059), (18, 24185), (23, 24230),

Gene: Fascinus\_29 Start: 23592, Stop: 23885, Start Num: 5

Candidate Starts for Fascinus\_29:

(1, 23496), (Start: 4 @23586 has 182 MA's), (Start: 5 @23592 has 41 MA's), (13, 23655), (14, 23670), (18, 23733), (21, 23751), (26, 23814),

Gene: Fenn\_31 Start: 25397, Stop: 25696, Start Num: 4

Candidate Starts for Fenn\_31:

(1, 25307), (Start: 4 @25397 has 182 MA's), (Start: 5 @25403 has 41 MA's), (13, 25466), (14, 25481), (18, 25544), (21, 25562), (26, 25625),

Gene: Forsytheast\_30 Start: 23956, Stop: 24303, Start Num: 4

Candidate Starts for Forsytheast\_30:

(1, 23866), (Start: 4 @23956 has 182 MA's), (Start: 7 @23977 has 8 MA's), (8, 23983), (18, 24109), (23, 24154),

Gene: Francis47\_30 Start: 24269, Stop: 24568, Start Num: 4

Candidate Starts for Francis47\_30:

(1, 24179), (Start: 4 @24269 has 182 MA's), (Start: 5 @24275 has 41 MA's), (13, 24338), (14, 24353), (18, 24416), (21, 24434), (26, 24497),

Gene: Froghopper\_31 Start: 23684, Stop: 24031, Start Num: 4

Candidate Starts for Froghopper\_31:

(1, 23594), (Start: 4 @23684 has 182 MA's), (Start: 7 @23705 has 8 MA's), (8, 23711), (18, 23837), (23, 23882),

Gene: Fushigi\_31 Start: 24141, Stop: 24488, Start Num: 4

Candidate Starts for Fushigi\_31:

(1, 24051), (Start: 4 @24141 has 182 MA's), (Start: 7 @24162 has 8 MA's), (8, 24168), (18, 24294), (23, 24339),

Gene: GMonster\_29 Start: 23101, Stop: 23448, Start Num: 4

Candidate Starts for GMonster\_29:

(1, 23011), (Start: 4 @23101 has 182 MA's), (Start: 7 @23122 has 8 MA's), (8, 23128), (18, 23254), (23, 23299),

Gene: GageAP\_32 Start: 24455, Stop: 24802, Start Num: 4

Candidate Starts for GageAP\_32:

(1, 24365), (Start: 4 @24455 has 182 MA's), (Start: 7 @24476 has 8 MA's), (8, 24482), (18, 24608), (23, 24653),

Gene: Gandalf20\_31 Start: 24560, Stop: 24907, Start Num: 4

Candidate Starts for Gandalf20\_31:

(1, 24470), (Start: 4 @24560 has 182 MA's), (Start: 7 @24581 has 8 MA's), (8, 24587), (18, 24713), (23, 24758),

Gene: Gollum\_26 Start: 18760, Stop: 19080, Start Num: 5

Candidate Starts for Gollum\_26:

(Start: 5 @18760 has 41 MA's), (Start: 9 @18787 has 3 MA's), (16, 18844), (17, 18874), (18, 18907), (24, 18958), (26, 19009),

Gene: Graduation\_32 Start: 24486, Stop: 24785, Start Num: 4

Candidate Starts for Graduation\_32:

(1, 24396), (Start: 4 @24486 has 182 MA's), (Start: 5 @24492 has 41 MA's), (13, 24555), (14, 24570), (18, 24633), (21, 24651), (26, 24714),

Gene: GrecoEtereo\_32 Start: 24526, Stop: 24873, Start Num: 4

Candidate Starts for GrecoEtereo\_32:

(1, 24436), (Start: 4 @24526 has 182 MA's), (Start: 7 @24547 has 8 MA's), (8, 24553), (18, 24679), (23, 24724),

Gene: Greg\_32 Start: 24032, Stop: 24379, Start Num: 4

Candidate Starts for Greg\_32:

(1, 23942), (Start: 4 @24032 has 182 MA's), (Start: 7 @24053 has 8 MA's), (8, 24059), (18, 24185), (23, 24230),

Gene: Gwendoluna\_32 Start: 25674, Stop: 26021, Start Num: 4

Candidate Starts for Gwendoluna\_32:

(1, 25584), (Start: 4 @25674 has 182 MA's), (Start: 7 @25695 has 8 MA's), (8, 25701), (18, 25827), (23, 25872),

Gene: Gyzlar\_32 Start: 24980, Stop: 25327, Start Num: 4

Candidate Starts for Gyzlar\_32:

(1, 24890), (Start: 4 @24980 has 182 MA's), (Start: 7 @25001 has 8 MA's), (8, 25007), (18, 25133), (23, 25178),

Gene: Hami1\_32 Start: 24147, Stop: 24473, Start Num: 7

Candidate Starts for Hami1\_32:

(1, 24036), (Start: 4 @24126 has 182 MA's), (Start: 7 @24147 has 8 MA's), (8, 24153), (18, 24279), (23, 24324),

Gene: HanShotFirst\_30 Start: 23660, Stop: 24007, Start Num: 4

Candidate Starts for HanShotFirst\_30:

(1, 23570), (Start: 4 @23660 has 182 MA's), (Start: 7 @23681 has 8 MA's), (8, 23687), (18, 23813), (23, 23858),

Gene: Harlequin\_26 Start: 18710, Stop: 19030, Start Num: 5

Candidate Starts for Harlequin\_26:

(Start: 5 @18710 has 41 MA's), (Start: 9 @18737 has 3 MA's), (16, 18794), (17, 18824), (18, 18857), (24, 18908), (25, 18941), (26, 18959),

Gene: HarryOW\_31 Start: 24114, Stop: 24461, Start Num: 4

Candidate Starts for HarryOW\_31:

(1, 24024), (Start: 4 @24114 has 182 MA's), (Start: 7 @24135 has 8 MA's), (8, 24141), (18, 24267), (23, 24312),

Gene: Hermia\_33 Start: 25242, Stop: 25589, Start Num: 4

Candidate Starts for Hermia\_33:

(1, 25152), (Start: 4 @25242 has 182 MA's), (Start: 7 @25263 has 8 MA's), (8, 25269), (18, 25395), (23, 25440),

Gene: HermioneGrange\_30 Start: 23688, Stop: 23987, Start Num: 4

Candidate Starts for HermioneGrange\_30:

(1, 23598), (Start: 4 @23688 has 182 MA's), (Start: 5 @23694 has 41 MA's), (13, 23757), (14, 23772), (18, 23835), (21, 23853), (26, 23916),

Gene: Hiro\_26 Start: 19043, Stop: 19336, Start Num: 9

Candidate Starts for Hiro\_26:

(Start: 5 @19016 has 41 MA's), (Start: 9 @19043 has 3 MA's), (16, 19100), (17, 19130), (18, 19163), (24, 19214), (25, 19247), (26, 19265),

Gene: Homines\_30 Start: 24013, Stop: 24360, Start Num: 4

Candidate Starts for Homines\_30:

(1, 23923), (Start: 4 @24013 has 182 MA's), (Start: 7 @24034 has 8 MA's), (8, 24040), (18, 24166), (23, 24211),

Gene: Hope4ever\_30 Start: 24129, Stop: 24476, Start Num: 4

Candidate Starts for Hope4ever\_30:

(1, 24039), (Start: 4 @24129 has 182 MA's), (Start: 7 @24150 has 8 MA's), (8, 24156), (18, 24282), (23, 24327),

Gene: ILeeKay\_32 Start: 23893, Stop: 24240, Start Num: 4

Candidate Starts for ILeeKay\_32:

(1, 23803), (Start: 4 @23893 has 182 MA's), (Start: 7 @23914 has 8 MA's), (8, 23920), (18, 24046), (23, 24091),

Gene: Ichabod\_31 Start: 23917, Stop: 24264, Start Num: 4

Candidate Starts for Ichabod\_31:

(1, 23827), (Start: 4 @23917 has 182 MA's), (Start: 7 @23938 has 8 MA's), (8, 23944), (18, 24070), (23, 24115),

Gene: IgnatiusPatJac\_30 Start: 23996, Stop: 24322, Start Num: 7

Candidate Starts for IgnatiusPatJac\_30:

(1, 23885), (Start: 4 @23975 has 182 MA's), (Start: 7 @23996 has 8 MA's), (8, 24002), (18, 24128), (23, 24173),

Gene: Inyanga\_29 Start: 23496, Stop: 23843, Start Num: 4

Candidate Starts for Inyanga\_29:

(1, 23406), (Start: 4 @23496 has 182 MA's), (Start: 7 @23517 has 8 MA's), (8, 23523), (18, 23649), (23, 23694),

Gene: JC27\_32 Start: 24629, Stop: 24976, Start Num: 4

Candidate Starts for JC27\_32:

(1, 24539), (Start: 4 @24629 has 182 MA's), (Start: 7 @24650 has 8 MA's), (8, 24656), (18, 24782), (23, 24827),

Gene: JackSparrow\_31 Start: 24091, Stop: 24438, Start Num: 4

Candidate Starts for JackSparrow\_31:

(1, 24001), (Start: 4 @24091 has 182 MA's), (Start: 7 @24112 has 8 MA's), (8, 24118), (18, 24244), (23, 24289),

Gene: Jasper\_31 Start: 23570, Stop: 23917, Start Num: 4

Candidate Starts for Jasper\_31:

(1, 23480), (Start: 4 @23570 has 182 MA's), (Start: 7 @23591 has 8 MA's), (8, 23597), (18, 23723), (23, 23768),

Gene: Jerm2\_31 Start: 23960, Stop: 24259, Start Num: 4

Candidate Starts for Jerm2\_31:

(1, 23870), (Start: 4 @23960 has 182 MA's), (Start: 5 @23966 has 41 MA's), (13, 24029), (14, 24044), (18, 24107), (21, 24125), (26, 24188),

Gene: Jester\_26 Start: 18704, Stop: 19024, Start Num: 5

Candidate Starts for Jester\_26:

(Start: 5 @18704 has 41 MA's), (Start: 9 @18731 has 3 MA's), (16, 18788), (17, 18818), (18, 18851), (24, 18902), (25, 18935), (26, 18953),

Gene: Jorgensen\_30 Start: 23624, Stop: 23971, Start Num: 4

Candidate Starts for Jorgensen\_30:

(1, 23534), (Start: 4 @23624 has 182 MA's), (Start: 7 @23645 has 8 MA's), (8, 23651), (18, 23777), (23, 23822),

Gene: JuliaChild\_32 Start: 24269, Stop: 24616, Start Num: 4

Candidate Starts for JuliaChild\_32:

(1, 24179), (Start: 4 @24269 has 182 MA's), (Start: 7 @24290 has 8 MA's), (8, 24296), (18, 24422), (23, 24467),

Gene: KBG\_31 Start: 24644, Stop: 24970, Start Num: 7

Candidate Starts for KBG\_31:

(1, 24533), (Start: 4 @24623 has 182 MA's), (Start: 7 @24644 has 8 MA's), (8, 24650), (18, 24776), (23, 24821),

Gene: Kanely\_31 Start: 24327, Stop: 24674, Start Num: 4

Candidate Starts for Kanely\_31:

(1, 24237), (Start: 4 @24327 has 182 MA's), (Start: 7 @24348 has 8 MA's), (8, 24354), (18, 24480), (23, 24525),

Gene: Kenmech\_33 Start: 25033, Stop: 25380, Start Num: 4

Candidate Starts for Kenmech\_33:

(1, 24943), (Start: 4 @25033 has 182 MA's), (Start: 7 @25054 has 8 MA's), (8, 25060), (18, 25186), (23, 25231),



Gene: Killigrew\_28 Start: 23239, Stop: 23586, Start Num: 4

Candidate Starts for Killigrew\_28:

(1, 23149), (Start: 4 @23239 has 182 MA's), (Start: 7 @23260 has 8 MA's), (8, 23266), (18, 23392), (23, 23437),

Gene: Krishelle\_26 Start: 19031, Stop: 19351, Start Num: 5

Candidate Starts for Krishelle\_26:

(Start: 5 @19031 has 41 MA's), (Start: 9 @19058 has 3 MA's), (16, 19115), (17, 19145), (18, 19178), (24, 19229), (25, 19262), (26, 19280),

Gene: Kugel\_31 Start: 23900, Stop: 24247, Start Num: 4

Candidate Starts for Kugel\_31:

(1, 23810), (Start: 4 @23900 has 182 MA's), (Start: 7 @23921 has 8 MA's), (8, 23927), (18, 24053), (23, 24098),

Gene: KyMonks1A\_32 Start: 24066, Stop: 24413, Start Num: 4

Candidate Starts for KyMonks1A\_32:

(1, 23976), (Start: 4 @24066 has 182 MA's), (Start: 7 @24087 has 8 MA's), (8, 24093), (18, 24219), (23, 24264),

Gene: Kykar\_30 Start: 23709, Stop: 24035, Start Num: 7

Candidate Starts for Kykar\_30:

(1, 23598), (Start: 4 @23688 has 182 MA's), (Start: 7 @23709 has 8 MA's), (8, 23715), (18, 23841), (23, 23886),

Gene: Lamina13\_30 Start: 23337, Stop: 23684, Start Num: 4

Candidate Starts for Lamina13\_30:

(1, 23247), (Start: 4 @23337 has 182 MA's), (Start: 7 @23358 has 8 MA's), (8, 23364), (18, 23490), (23, 23535),

Gene: Lesedi\_29 Start: 23495, Stop: 23842, Start Num: 4

Candidate Starts for Lesedi\_29:

(1, 23405), (Start: 4 @23495 has 182 MA's), (Start: 7 @23516 has 8 MA's), (8, 23522), (18, 23648), (23, 23693),

Gene: Licorice\_32 Start: 24724, Stop: 25071, Start Num: 4

Candidate Starts for Licorice\_32:

(1, 24634), (Start: 4 @24724 has 182 MA's), (Start: 7 @24745 has 8 MA's), (8, 24751), (18, 24877), (23, 24922),

Gene: LilBib\_31 Start: 24937, Stop: 25284, Start Num: 4

Candidate Starts for LilBib\_31:

(1, 24847), (Start: 4 @24937 has 182 MA's), (Start: 7 @24958 has 8 MA's), (8, 24964), (18, 25090), (23, 25135),

Gene: Lillie\_26 Start: 18760, Stop: 19080, Start Num: 5

Candidate Starts for Lillie\_26:

(Start: 5 @18760 has 41 MA's), (Start: 9 @18787 has 3 MA's), (16, 18844), (17, 18874), (18, 18907), (24, 18958), (26, 19009),

Gene: Lockley\_30 Start: 23678, Stop: 24025, Start Num: 4

Candidate Starts for Lockley\_30:

(1, 23588), (Start: 4 @23678 has 182 MA's), (Start: 7 @23699 has 8 MA's), (8, 23705), (18, 23831), (23, 23876),

Gene: Lopton\_31 Start: 25139, Stop: 25486, Start Num: 4

Candidate Starts for Lopton\_31:

(1, 25049), (Start: 4 @25139 has 182 MA's), (Start: 7 @25160 has 8 MA's), (8, 25166), (18, 25292), (23, 25337),

Gene: MPlant7149\_29 Start: 23320, Stop: 23613, Start Num: 5

Candidate Starts for MPlant7149\_29:

(1, 23224), (Start: 4 @23314 has 182 MA's), (Start: 5 @23320 has 41 MA's), (13, 23383), (14, 23398), (18, 23461), (21, 23479), (26, 23542),

Gene: Magnar\_30 Start: 23464, Stop: 23811, Start Num: 4

Candidate Starts for Magnar\_30:

(1, 23374), (Start: 4 @23464 has 182 MA's), (Start: 7 @23485 has 8 MA's), (8, 23491), (18, 23617), (23, 23662),

Gene: Magnito\_29 Start: 23216, Stop: 23563, Start Num: 4

Candidate Starts for Magnito\_29:

(1, 23126), (Start: 4 @23216 has 182 MA's), (Start: 7 @23237 has 8 MA's), (8, 23243), (18, 23369), (23, 23414),

Gene: Makemake\_30 Start: 24932, Stop: 25279, Start Num: 4

Candidate Starts for Makemake\_30:

(1, 24842), (Start: 4 @24932 has 182 MA's), (Start: 7 @24953 has 8 MA's), (8, 24959), (18, 25085), (23, 25130), (30, 25271),

Gene: Manatee\_31 Start: 23462, Stop: 23809, Start Num: 4

Candidate Starts for Manatee\_31:

(1, 23372), (Start: 4 @23462 has 182 MA's), (Start: 7 @23483 has 8 MA's), (8, 23489), (18, 23615), (23, 23660),

Gene: Marcell\_30 Start: 23952, Stop: 24299, Start Num: 4

Candidate Starts for Marcell\_30:

(1, 23862), (Start: 4 @23952 has 182 MA's), (Start: 7 @23973 has 8 MA's), (8, 23979), (18, 24105), (23, 24150),

Gene: Marchy\_29 Start: 23257, Stop: 23604, Start Num: 4

Candidate Starts for Marchy\_29:

(1, 23167), (Start: 4 @23257 has 182 MA's), (Start: 7 @23278 has 8 MA's), (8, 23284), (18, 23410), (23, 23455),

Gene: Marge\_31 Start: 24352, Stop: 24699, Start Num: 4

Candidate Starts for Marge\_31:

(1, 24262), (Start: 4 @24352 has 182 MA's), (Start: 7 @24373 has 8 MA's), (8, 24379), (18, 24505), (23, 24550),

Gene: Maroc7\_29 Start: 23456, Stop: 23803, Start Num: 4

Candidate Starts for Maroc7\_29:

(1, 23366), (Start: 4 @23456 has 182 MA's), (Start: 7 @23477 has 8 MA's), (8, 23483), (18, 23609), (23, 23654),

Gene: Marsha\_30 Start: 24578, Stop: 24877, Start Num: 4

Candidate Starts for Marsha\_30:

(1, 24488), (Start: 4 @24578 has 182 MA's), (Start: 5 @24584 has 41 MA's), (13, 24647), (14, 24662), (18, 24725), (21, 24743), (26, 24806),

Gene: MaryBeth\_30 Start: 23884, Stop: 24231, Start Num: 4

Candidate Starts for MaryBeth\_30:

(1, 23794), (Start: 4 @23884 has 182 MA's), (Start: 7 @23905 has 8 MA's), (8, 23911), (18, 24037), (23, 24082),

Gene: Mbo4\_21 Start: 19372, Stop: 19725, Start Num: 3

Candidate Starts for Mbo4\_21:

(3, 19372),

Gene: McGuire\_31 Start: 23754, Stop: 24101, Start Num: 4

Candidate Starts for McGuire\_31:

(1, 23664), (Start: 4 @23754 has 182 MA's), (Start: 7 @23775 has 8 MA's), (8, 23781), (18, 23907), (23, 23952),

Gene: MetalQZJ\_30 Start: 23884, Stop: 24231, Start Num: 4

Candidate Starts for MetalQZJ\_30:

(1, 23794), (Start: 4 @23884 has 182 MA's), (Start: 7 @23905 has 8 MA's), (8, 23911), (18, 24037), (23, 24082),

Gene: Michley\_30 Start: 23635, Stop: 23928, Start Num: 5

Candidate Starts for Michley\_30:

(1, 23539), (Start: 4 @23629 has 182 MA's), (Start: 5 @23635 has 41 MA's), (11, 23686), (14, 23713), (18, 23776), (19, 23785), (21, 23794), (26, 23857),

Gene: Mkhuseleli\_31 Start: 23779, Stop: 24126, Start Num: 4

Candidate Starts for Mkhuseleli\_31:

(1, 23689), (Start: 4 @23779 has 182 MA's), (Start: 7 @23800 has 8 MA's), (8, 23806), (18, 23932), (23, 23977),

Gene: Molly\_31 Start: 23552, Stop: 23899, Start Num: 4

Candidate Starts for Molly\_31:

(1, 23462), (Start: 4 @23552 has 182 MA's), (Start: 7 @23573 has 8 MA's), (8, 23579), (18, 23705), (23, 23750),

Gene: Monet\_32 Start: 24980, Stop: 25327, Start Num: 4

Candidate Starts for Monet\_32:

(1, 24890), (Start: 4 @24980 has 182 MA's), (Start: 7 @25001 has 8 MA's), (8, 25007), (18, 25133), (23, 25178),

Gene: Moose\_30 Start: 23956, Stop: 24303, Start Num: 4

Candidate Starts for Moose\_30:

(1, 23866), (Start: 4 @23956 has 182 MA's), (Start: 7 @23977 has 8 MA's), (8, 23983), (18, 24109), (23, 24154),

Gene: MrGordo\_30 Start: 23444, Stop: 23791, Start Num: 4

Candidate Starts for MrGordo\_30:

(1, 23354), (Start: 4 @23444 has 182 MA's), (Start: 7 @23465 has 8 MA's), (8, 23471), (18, 23597), (23, 23642),

Gene: Mryolo\_29 Start: 23481, Stop: 23828, Start Num: 4

Candidate Starts for Mryolo\_29:

(1, 23391), (Start: 4 @23481 has 182 MA's), (Start: 7 @23502 has 8 MA's), (8, 23508), (18, 23634), (23, 23679),

Gene: Mule\_30 Start: 23790, Stop: 24137, Start Num: 4

Candidate Starts for Mule\_30:

(1, 23700), (Start: 4 @23790 has 182 MA's), (Start: 7 @23811 has 8 MA's), (8, 23817), (18, 23943), (23, 23988),

Gene: Museum\_32 Start: 23800, Stop: 24147, Start Num: 4

Candidate Starts for Museum\_32:

(1, 23710), (Start: 4 @23800 has 182 MA's), (Start: 7 @23821 has 8 MA's), (8, 23827), (18, 23953), (23, 23998),

Gene: NEHalo\_30 Start: 23538, Stop: 23885, Start Num: 4

Candidate Starts for NEHalo\_30:

(1, 23448), (Start: 4 @23538 has 182 MA's), (Start: 7 @23559 has 8 MA's), (8, 23565), (18, 23691), (23, 23736),

Gene: Naiad\_26 Start: 18760, Stop: 19080, Start Num: 5

Candidate Starts for Naiad\_26:

(Start: 5 @18760 has 41 MA's), (Start: 9 @18787 has 3 MA's), (16, 18844), (17, 18874), (18, 18907), (24, 18958), (26, 19009),

Gene: Naira\_31 Start: 25397, Stop: 25744, Start Num: 4

Candidate Starts for Naira\_31:

(1, 25307), (Start: 4 @25397 has 182 MA's), (Start: 7 @25418 has 8 MA's), (8, 25424), (18, 25550), (23, 25595),

Gene: Nancinator\_26 Start: 18760, Stop: 19080, Start Num: 5

Candidate Starts for Nancinator\_26:

(Start: 5 @18760 has 41 MA's), (Start: 9 @18787 has 3 MA's), (16, 18844), (17, 18874), (18, 18907), (24, 18958), (26, 19009),

Gene: Natosaleda\_26 Start: 18760, Stop: 19080, Start Num: 5

Candidate Starts for Natosaleda\_26:

(Start: 5 @18760 has 41 MA's), (Start: 9 @18787 has 3 MA's), (16, 18844), (17, 18874), (18, 18907), (24, 18958), (26, 19009),

Gene: Nerujay\_31 Start: 24206, Stop: 24553, Start Num: 4

Candidate Starts for Nerujay\_31:

(1, 24116), (Start: 4 @24206 has 182 MA's), (Start: 7 @24227 has 8 MA's), (8, 24233), (18, 24359), (23, 24404),

Gene: Nhonho\_30 Start: 23957, Stop: 24304, Start Num: 4

Candidate Starts for Nhonho\_30:

(1, 23867), (Start: 4 @23957 has 182 MA's), (Start: 7 @23978 has 8 MA's), (8, 23984), (18, 24110), (23, 24155),

Gene: Niza\_32 Start: 24834, Stop: 25181, Start Num: 4

Candidate Starts for Niza\_32:

(1, 24744), (Start: 4 @24834 has 182 MA's), (Start: 7 @24855 has 8 MA's), (8, 24861), (18, 24987), (23, 25032),

Gene: Norz\_32 Start: 24613, Stop: 24960, Start Num: 4

Candidate Starts for Norz\_32:

(1, 24523), (Start: 4 @24613 has 182 MA's), (Start: 7 @24634 has 8 MA's), (8, 24640), (18, 24766), (23, 24811),

Gene: Ohno789\_30 Start: 23599, Stop: 23946, Start Num: 4

Candidate Starts for Ohno789\_30:

(1, 23509), (Start: 4 @23599 has 182 MA's), (Start: 7 @23620 has 8 MA's), (8, 23626), (18, 23752), (23, 23797),

Gene: Oogway\_29 Start: 23721, Stop: 24068, Start Num: 4

Candidate Starts for Oogway\_29:

(1, 23631), (Start: 4 @23721 has 182 MA's), (Start: 7 @23742 has 8 MA's), (8, 23748), (18, 23874), (23, 23919),

Gene: P3MA\_32 Start: 25165, Stop: 25437, Start Num: 15

Candidate Starts for P3MA\_32:

(Start: 4 @25069 has 182 MA's), (Start: 15 @25165 has 1 MA's), (23, 25282), (27, 25363), (28, 25375), (29, 25414), (31, 25432),

Gene: PSullivan\_32 Start: 24269, Stop: 24616, Start Num: 4

Candidate Starts for PSullivan\_32:

(1, 24179), (Start: 4 @24269 has 182 MA's), (Start: 7 @24290 has 8 MA's), (8, 24296), (18, 24422), (23, 24467),

Gene: PacerPaul\_30 Start: 24000, Stop: 24299, Start Num: 4

Candidate Starts for PacerPaul\_30:

(1, 23910), (Start: 4 @24000 has 182 MA's), (Start: 5 @24006 has 41 MA's), (13, 24069), (14, 24084), (18, 24147), (21, 24165), (26, 24228),

Gene: Papez\_32 Start: 25437, Stop: 25784, Start Num: 4

Candidate Starts for Papez\_32:

(1, 25347), (Start: 4 @25437 has 182 MA's), (Start: 7 @25458 has 8 MA's), (8, 25464), (18, 25590), (23, 25635),

Gene: Paphu\_29 Start: 23513, Stop: 23812, Start Num: 4

Candidate Starts for Paphu\_29:

(1, 23423), (Start: 4 @23513 has 182 MA's), (Start: 5 @23519 has 41 MA's), (13, 23582), (14, 23597), (18, 23660), (21, 23678), (26, 23741),

Gene: Paraselene\_29 Start: 23941, Stop: 24288, Start Num: 4

Candidate Starts for Paraselene\_29:

(1, 23851), (Start: 4 @23941 has 182 MA's), (Start: 7 @23962 has 8 MA's), (8, 23968), (18, 24094), (23, 24139),

Gene: Pari\_31 Start: 23473, Stop: 23820, Start Num: 4

Candidate Starts for Pari\_31:

(1, 23383), (Start: 4 @23473 has 182 MA's), (Start: 7 @23494 has 8 MA's), (8, 23500), (18, 23626), (23, 23671),

Gene: Parliament\_29 Start: 23808, Stop: 24155, Start Num: 4

Candidate Starts for Parliament\_29:

(1, 23718), (Start: 4 @23808 has 182 MA's), (Start: 7 @23829 has 8 MA's), (8, 23835), (18, 23961), (23, 24006),

Gene: Partridge\_26 Start: 18793, Stop: 19113, Start Num: 5

Candidate Starts for Partridge\_26:

(Start: 5 @18793 has 41 MA's), (Start: 9 @18820 has 3 MA's), (17, 18907), (18, 18940), (24, 18991), (26, 19042),

Gene: PascalRango\_31 Start: 23776, Stop: 24123, Start Num: 4

Candidate Starts for PascalRango\_31:

(1, 23686), (Start: 4 @23776 has 182 MA's), (Start: 7 @23797 has 8 MA's), (8, 23803), (18, 23929), (23, 23974),

Gene: PattyP\_32 Start: 24009, Stop: 24356, Start Num: 4

Candidate Starts for PattyP\_32:

(1, 23919), (Start: 4 @24009 has 182 MA's), (Start: 7 @24030 has 8 MA's), (8, 24036), (18, 24162), (23, 24207),

Gene: Payneful\_30 Start: 23257, Stop: 23604, Start Num: 4

Candidate Starts for Payneful\_30:

(1, 23167), (Start: 4 @23257 has 182 MA's), (Start: 7 @23278 has 8 MA's), (8, 23284), (18, 23410), (23, 23455),

Gene: Pelly\_31 Start: 24428, Stop: 24775, Start Num: 4

Candidate Starts for Pelly\_31:

(1, 24338), (Start: 4 @24428 has 182 MA's), (Start: 7 @24449 has 8 MA's), (8, 24455), (18, 24581), (23, 24626),

Gene: Pepe\_31 Start: 24610, Stop: 24957, Start Num: 4

Candidate Starts for Pepe\_31:

(1, 24520), (Start: 4 @24610 has 182 MA's), (Start: 7 @24631 has 8 MA's), (8, 24637), (18, 24763), (23, 24808),

Gene: Petp2012\_32 Start: 24680, Stop: 25027, Start Num: 4

Candidate Starts for Petp2012\_32:

(1, 24590), (Start: 4 @24680 has 182 MA's), (Start: 7 @24701 has 8 MA's), (8, 24707), (18, 24833), (23, 24878),

Gene: Petruccio\_31 Start: 24138, Stop: 24485, Start Num: 4

Candidate Starts for Petruccio\_31:

(1, 24048), (Start: 4 @24138 has 182 MA's), (Start: 7 @24159 has 8 MA's), (8, 24165), (18, 24291), (23, 24336),

Gene: PhailMary\_25 Start: 19082, Stop: 19402, Start Num: 5

Candidate Starts for PhailMary\_25:

(Start: 5 @19082 has 41 MA's), (Start: 9 @19109 has 3 MA's), (16, 19166), (17, 19196), (18, 19229), (24, 19280), (25, 19313), (26, 19331),

Gene: PherrisBueller\_31 Start: 23593, Stop: 23940, Start Num: 4

Candidate Starts for PherrisBueller\_31:

(1, 23503), (Start: 4 @23593 has 182 MA's), (Start: 7 @23614 has 8 MA's), (8, 23620), (18, 23746), (23, 23791),

Gene: Phillis\_27 Start: 21206, Stop: 21565, Start Num: 4

Candidate Starts for Phillis\_27:

(2, 21173), (Start: 4 @21206 has 182 MA's), (10, 21254), (19, 21380), (22, 21410), (26, 21494),

Gene: Phrankenstein\_26 Start: 18760, Stop: 19080, Start Num: 5

Candidate Starts for Phrankenstein\_26:

(Start: 5 @18760 has 41 MA's), (Start: 9 @18787 has 3 MA's), (16, 18844), (17, 18874), (18, 18907), (24, 18958), (26, 19009),

Gene: PhrostyMug\_30 Start: 23787, Stop: 24134, Start Num: 4

Candidate Starts for PhrostyMug\_30:

(1, 23697), (Start: 4 @23787 has 182 MA's), (Start: 7 @23808 has 8 MA's), (8, 23814), (18, 23940), (23, 23985),

Gene: PinkPlastic\_29 Start: 23527, Stop: 23874, Start Num: 4

Candidate Starts for PinkPlastic\_29:

(1, 23437), (Start: 4 @23527 has 182 MA's), (Start: 7 @23548 has 8 MA's), (8, 23554), (18, 23680), (23, 23725),

Gene: Pinto\_33 Start: 24340, Stop: 24687, Start Num: 4

Candidate Starts for Pinto\_33:

(1, 24250), (Start: 4 @24340 has 182 MA's), (Start: 7 @24361 has 8 MA's), (8, 24367), (18, 24493), (23, 24538),

Gene: Pippin\_32 Start: 24091, Stop: 24438, Start Num: 4

Candidate Starts for Pippin\_32:

(1, 24001), (Start: 4 @24091 has 182 MA's), (Start: 7 @24112 has 8 MA's), (8, 24118), (18, 24244), (23, 24289),

Gene: Pita2\_32 Start: 24269, Stop: 24616, Start Num: 4

Candidate Starts for Pita2\_32:

(1, 24179), (Start: 4 @24269 has 182 MA's), (Start: 7 @24290 has 8 MA's), (8, 24296), (18, 24422), (23, 24467),

Gene: ProMouse\_29 Start: 24232, Stop: 24579, Start Num: 4

Candidate Starts for ProMouse\_29:

(1, 24142), (Start: 4 @24232 has 182 MA's), (Start: 7 @24253 has 8 MA's), (8, 24259), (18, 24385), (23, 24430),

Gene: QTRlifeCrisis\_30 Start: 24347, Stop: 24694, Start Num: 4

Candidate Starts for QTRlifeCrisis\_30:

(1, 24257), (Start: 4 @24347 has 182 MA's), (Start: 7 @24368 has 8 MA's), (8, 24374), (18, 24500), (23, 24545),

Gene: RER2\_19 Start: 15659, Stop: 15952, Start Num: 9

Candidate Starts for RER2\_19:

(Start: 5 @15632 has 41 MA's), (Start: 9 @15659 has 3 MA's), (16, 15716), (17, 15746), (18, 15779), (24, 15830), (26, 15881),

Gene: RGL3\_19 Start: 15780, Stop: 16100, Start Num: 5

Candidate Starts for RGL3\_19:

(Start: 5 @15780 has 41 MA's), (12, 15828), (17, 15894), (18, 15927), (20, 15945), (25, 16011), (26, 16029),

Gene: Raid\_31 Start: 23817, Stop: 24143, Start Num: 7

Candidate Starts for Raid\_31:

(1, 23706), (Start: 4 @23796 has 182 MA's), (Start: 7 @23817 has 8 MA's), (8, 23823), (18, 23949), (23, 23994),

Gene: Rajelicia\_30 Start: 23506, Stop: 23853, Start Num: 4

Candidate Starts for Rajelicia\_30:

(1, 23416), (Start: 4 @23506 has 182 MA's), (Start: 7 @23527 has 8 MA's), (8, 23533), (18, 23659), (23, 23704),

Gene: Rasputin\_26 Start: 18728, Stop: 19048, Start Num: 5

Candidate Starts for Rasputin\_26:

(Start: 5 @18728 has 41 MA's), (Start: 9 @18755 has 3 MA's), (16, 18812), (17, 18842), (18, 18875), (24, 18926), (25, 18959), (26, 18977),

Gene: RexFury\_26 Start: 18818, Stop: 19111, Start Num: 9

Candidate Starts for RexFury\_26:

(Start: 5 @18791 has 41 MA's), (Start: 9 @18818 has 3 MA's), (16, 18875), (17, 18905), (18, 18938), (24, 18989), (26, 19040),

Gene: Rhodalysa\_26 Start: 18760, Stop: 19080, Start Num: 5

Candidate Starts for Rhodalysa\_26:

(Start: 5 @18760 has 41 MA's), (Start: 9 @18787 has 3 MA's), (16, 18844), (17, 18874), (18, 18907), (24, 18958), (26, 19009),

Gene: Rhynn\_30 Start: 23796, Stop: 24143, Start Num: 4

Candidate Starts for Rhynn\_30:

(1, 23706), (Start: 4 @23796 has 182 MA's), (Start: 7 @23817 has 8 MA's), (8, 23823), (18, 23949), (23, 23994),

Gene: RidgeCB\_30 Start: 23571, Stop: 23870, Start Num: 4

Candidate Starts for RidgeCB\_30:

(1, 23481), (Start: 4 @23571 has 182 MA's), (Start: 5 @23577 has 41 MA's), (13, 23640), (14, 23655), (18, 23718), (21, 23736), (26, 23799),

Gene: Ringer\_30 Start: 24448, Stop: 24795, Start Num: 4

Candidate Starts for Ringer\_30:

(1, 24358), (Start: 4 @24448 has 182 MA's), (Start: 7 @24469 has 8 MA's), (8, 24475), (18, 24601), (23, 24646),

Gene: Rohr\_31 Start: 23993, Stop: 24292, Start Num: 4

Candidate Starts for Rohr\_31:

(1, 23903), (Start: 4 @23993 has 182 MA's), (Start: 5 @23999 has 41 MA's), (13, 24062), (14, 24077), (18, 24140), (21, 24158), (26, 24221),

Gene: Rubeus\_31 Start: 23831, Stop: 24178, Start Num: 4

Candidate Starts for Rubeus\_31:

(1, 23741), (Start: 4 @23831 has 182 MA's), (Start: 7 @23852 has 8 MA's), (8, 23858), (18, 23984), (23, 24029),



Gene: Rufus\_31 Start: 24133, Stop: 24480, Start Num: 4

Candidate Starts for Rufus\_31:

(1, 24043), (Start: 4 @24133 has 182 MA's), (Start: 7 @24154 has 8 MA's), (8, 24160), (18, 24286), (23, 24331),

Gene: Ruotula\_29 Start: 24337, Stop: 24684, Start Num: 4

Candidate Starts for Ruotula\_29:

(1, 24247), (Start: 4 @24337 has 182 MA's), (Start: 7 @24358 has 8 MA's), (8, 24364), (18, 24490), (23, 24535),

Gene: Rutherferd\_32 Start: 24423, Stop: 24749, Start Num: 7

Candidate Starts for Rutherferd\_32:

(1, 24312), (Start: 4 @24402 has 182 MA's), (Start: 7 @24423 has 8 MA's), (8, 24429), (18, 24555), (23, 24600),

Gene: STLscum\_31 Start: 24540, Stop: 24887, Start Num: 4

Candidate Starts for STLscum\_31:

(1, 24450), (Start: 4 @24540 has 182 MA's), (Start: 7 @24561 has 8 MA's), (8, 24567), (18, 24693), (23, 24738),

Gene: Sagefire\_31 Start: 24573, Stop: 24920, Start Num: 4

Candidate Starts for Sagefire\_31:

(1, 24483), (Start: 4 @24573 has 182 MA's), (Start: 7 @24594 has 8 MA's), (8, 24600), (18, 24726), (23, 24771),

Gene: Sandaddy\_29 Start: 23686, Stop: 24033, Start Num: 4

Candidate Starts for Sandaddy\_29:

(1, 23596), (Start: 4 @23686 has 182 MA's), (Start: 7 @23707 has 8 MA's), (8, 23713), (18, 23839), (23, 23884),

Gene: Sanya\_29 Start: 24370, Stop: 24717, Start Num: 4

Candidate Starts for Sanya\_29:

(1, 24280), (Start: 4 @24370 has 182 MA's), (Start: 7 @24391 has 8 MA's), (8, 24397), (18, 24523), (23, 24568),

Gene: Scowl\_31 Start: 24430, Stop: 24777, Start Num: 4

Candidate Starts for Scowl\_31:

(1, 24340), (Start: 4 @24430 has 182 MA's), (Start: 7 @24451 has 8 MA's), (8, 24457), (18, 24583), (23, 24628),

Gene: Seanderson\_31 Start: 24228, Stop: 24575, Start Num: 4

Candidate Starts for Seanderson\_31:

(1, 24138), (Start: 4 @24228 has 182 MA's), (Start: 7 @24249 has 8 MA's), (8, 24255), (18, 24381), (23, 24426),

Gene: ShortQueendom\_29 Start: 23689, Stop: 24015, Start Num: 7

Candidate Starts for ShortQueendom\_29:

(1, 23578), (Start: 4 @23668 has 182 MA's), (Start: 7 @23689 has 8 MA's), (8, 23695), (18, 23821), (23, 23866),

Gene: Shuman\_26 Start: 18760, Stop: 19080, Start Num: 5

Candidate Starts for Shuman\_26:

(Start: 5 @18760 has 41 MA's), (Start: 9 @18787 has 3 MA's), (16, 18844), (17, 18874), (18, 18907), (24, 18958), (26, 19009),

Gene: Sibs6\_32 Start: 24313, Stop: 24660, Start Num: 4

Candidate Starts for Sibs6\_32:

(1, 24223), (Start: 4 @24313 has 182 MA's), (Start: 7 @24334 has 8 MA's), (8, 24340), (18, 24466), (23, 24511),

Gene: SkiPole\_32 Start: 24052, Stop: 24399, Start Num: 4

Candidate Starts for SkiPole\_32:

(1, 23962), (Start: 4 @24052 has 182 MA's), (Start: 7 @24073 has 8 MA's), (8, 24079), (18, 24205), (23, 24250),

Gene: Slagathor\_31 Start: 23713, Stop: 24060, Start Num: 4

Candidate Starts for Slagathor\_31:

(1, 23623), (Start: 4 @23713 has 182 MA's), (Start: 7 @23734 has 8 MA's), (8, 23740), (18, 23866), (23, 23911),

Gene: Smairt\_31 Start: 24488, Stop: 24787, Start Num: 4

Candidate Starts for Smairt\_31:

(1, 24398), (Start: 4 @24488 has 182 MA's), (Start: 5 @24494 has 41 MA's), (13, 24557), (14, 24572), (18, 24635), (21, 24653), (26, 24716),

Gene: Snazzy\_29 Start: 23674, Stop: 23973, Start Num: 4

Candidate Starts for Snazzy\_29:

(1, 23584), (Start: 4 @23674 has 182 MA's), (Start: 5 @23680 has 41 MA's), (13, 23743), (14, 23758), (18, 23821), (21, 23839), (26, 23902),

Gene: Solon\_30 Start: 24339, Stop: 24686, Start Num: 4

Candidate Starts for Solon\_30:

(1, 24249), (Start: 4 @24339 has 182 MA's), (Start: 7 @24360 has 8 MA's), (8, 24366), (18, 24492), (23, 24537),

Gene: Sorpresa\_30 Start: 23686, Stop: 24033, Start Num: 4

Candidate Starts for Sorpresa\_30:

(1, 23596), (Start: 4 @23686 has 182 MA's), (Start: 7 @23707 has 8 MA's), (8, 23713), (18, 23839), (23, 23884),

Gene: SpikeBT\_32 Start: 24644, Stop: 24991, Start Num: 4

Candidate Starts for SpikeBT\_32:

(1, 24554), (Start: 4 @24644 has 182 MA's), (Start: 7 @24665 has 8 MA's), (8, 24671), (18, 24797), (23, 24842),

Gene: StCroix\_26 Start: 18760, Stop: 19080, Start Num: 5

Candidate Starts for StCroix\_26:

(Start: 5 @18760 has 41 MA's), (Start: 9 @18787 has 3 MA's), (16, 18844), (17, 18874), (18, 18907), (24, 18958), (26, 19009),

Gene: StewieG\_29 Start: 23550, Stop: 23876, Start Num: 7

Candidate Starts for StewieG\_29:

(1, 23439), (Start: 4 @23529 has 182 MA's), (Start: 7 @23550 has 8 MA's), (8, 23556), (18, 23682), (23, 23727),

Gene: StrongArm\_29 Start: 24728, Stop: 25075, Start Num: 4

Candidate Starts for StrongArm\_29:

(1, 24638), (Start: 4 @24728 has 182 MA's), (Start: 7 @24749 has 8 MA's), (8, 24755), (18, 24881), (23, 24926),

Gene: Sumter\_29 Start: 23277, Stop: 23624, Start Num: 4

Candidate Starts for Sumter\_29:

(1, 23187), (Start: 4 @23277 has 182 MA's), (Start: 7 @23298 has 8 MA's), (8, 23304), (18, 23430), (23, 23475),

Gene: Sunshine924\_31 Start: 23558, Stop: 23905, Start Num: 4

Candidate Starts for Sunshine924\_31:

(1, 23468), (Start: 4 @23558 has 182 MA's), (Start: 7 @23579 has 8 MA's), (8, 23585), (18, 23711), (23, 23756),

Gene: Swann\_26 Start: 18760, Stop: 19080, Start Num: 5

Candidate Starts for Swann\_26:

(Start: 5 @18760 has 41 MA's), (Start: 9 @18787 has 3 MA's), (16, 18844), (17, 18874), (18, 18907), (24, 18958), (26, 19009),

Gene: SwissCheese\_32 Start: 24456, Stop: 24803, Start Num: 4

Candidate Starts for SwissCheese\_32:

(1, 24366), (Start: 4 @24456 has 182 MA's), (Start: 7 @24477 has 8 MA's), (8, 24483), (18, 24609), (23, 24654),

Gene: Switzer\_31 Start: 23860, Stop: 24207, Start Num: 4

Candidate Starts for Switzer\_31:

(1, 23770), (Start: 4 @23860 has 182 MA's), (Start: 7 @23881 has 8 MA's), (8, 23887), (18, 24013), (23, 24058),

Gene: Swole\_32 Start: 24269, Stop: 24616, Start Num: 4

Candidate Starts for Swole\_32:

(1, 24179), (Start: 4 @24269 has 182 MA's), (Start: 7 @24290 has 8 MA's), (8, 24296), (18, 24422), (23, 24467),

Gene: TWAMP\_26 Start: 18760, Stop: 19080, Start Num: 5

Candidate Starts for TWAMP\_26:

(Start: 5 @18760 has 41 MA's), (Start: 9 @18787 has 3 MA's), (16, 18844), (17, 18874), (18, 18907), (24, 18958), (26, 19009),

Gene: Takoda\_26 Start: 18720, Stop: 19040, Start Num: 5

Candidate Starts for Takoda\_26:

(Start: 5 @18720 has 41 MA's), (Start: 9 @18747 has 3 MA's), (16, 18804), (17, 18834), (18, 18867), (24, 18918), (26, 18969),

Gene: Target\_33 Start: 25243, Stop: 25590, Start Num: 4

Candidate Starts for Target\_33:

(1, 25153), (Start: 4 @25243 has 182 MA's), (6, 25255), (Start: 7 @25264 has 8 MA's), (8, 25270), (18, 25396), (23, 25441),

Gene: Tasp14\_31 Start: 23973, Stop: 24320, Start Num: 4

Candidate Starts for Tasp14\_31:

(1, 23883), (Start: 4 @23973 has 182 MA's), (Start: 7 @23994 has 8 MA's), (8, 24000), (18, 24126), (23, 24171),

Gene: Teodoridan\_28 Start: 23094, Stop: 23441, Start Num: 4

Candidate Starts for Teodoridan\_28:

(1, 23004), (Start: 4 @23094 has 182 MA's), (Start: 7 @23115 has 8 MA's), (8, 23121), (18, 23247), (23, 23292),

Gene: TheloniousMonk\_32 Start: 25387, Stop: 25734, Start Num: 4

Candidate Starts for TheloniousMonk\_32:

(1, 25297), (Start: 4 @25387 has 182 MA's), (Start: 7 @25408 has 8 MA's), (8, 25414), (18, 25540), (23, 25585),

Gene: Thor\_30 Start: 23848, Stop: 24195, Start Num: 4

Candidate Starts for Thor\_30:

(1, 23758), (Start: 4 @23848 has 182 MA's), (Start: 7 @23869 has 8 MA's), (8, 23875), (18, 24001), (23, 24046),

Gene: Topgun\_30 Start: 23601, Stop: 23948, Start Num: 4

Candidate Starts for Topgun\_30:

(1, 23511), (Start: 4 @23601 has 182 MA's), (Start: 7 @23622 has 8 MA's), (8, 23628), (18, 23754), (23, 23799),

Gene: Tote\_32 Start: 24269, Stop: 24616, Start Num: 4

Candidate Starts for Tote\_32:

(1, 24179), (Start: 4 @24269 has 182 MA's), (Start: 7 @24290 has 8 MA's), (8, 24296), (18, 24422), (23, 24467),

Gene: Traft412\_32 Start: 24697, Stop: 24990, Start Num: 5

Candidate Starts for Traft412\_32:

(1, 24601), (Start: 4 @24691 has 182 MA's), (Start: 5 @24697 has 41 MA's), (13, 24760), (14, 24775), (18, 24838), (21, 24856), (26, 24919),

Gene: Treddle\_32 Start: 24987, Stop: 25280, Start Num: 5

Candidate Starts for Treddle\_32:

(1, 24891), (Start: 4 @24981 has 182 MA's), (Start: 5 @24987 has 41 MA's), (13, 25050), (14, 25065), (18, 25128), (21, 25146), (26, 25209),

Gene: Tripl3t\_31 Start: 24600, Stop: 24947, Start Num: 4

Candidate Starts for Tripl3t\_31:

(1, 24510), (Start: 4 @24600 has 182 MA's), (Start: 7 @24621 has 8 MA's), (8, 24627), (18, 24753), (23, 24798),

Gene: Trouble\_31 Start: 24547, Stop: 24894, Start Num: 4

Candidate Starts for Trouble\_31:

(1, 24457), (Start: 4 @24547 has 182 MA's), (Start: 7 @24568 has 8 MA's), (8, 24574), (18, 24700), (23, 24745),

Gene: Turj99\_29 Start: 23487, Stop: 23834, Start Num: 4

Candidate Starts for Turj99\_29:

(1, 23397), (Start: 4 @23487 has 182 MA's), (Start: 7 @23508 has 8 MA's), (8, 23514), (18, 23640), (23, 23685),

Gene: TwoPeat\_31 Start: 24068, Stop: 24415, Start Num: 4

Candidate Starts for TwoPeat\_31:

(1, 23978), (Start: 4 @24068 has 182 MA's), (Start: 7 @24089 has 8 MA's), (8, 24095), (18, 24221), (23, 24266),

Gene: UhSalsa\_26 Start: 18760, Stop: 19080, Start Num: 5

Candidate Starts for UhSalsa\_26:

(Start: 5 @18760 has 41 MA's), (Start: 9 @18787 has 3 MA's), (16, 18844), (17, 18874), (18, 18907), (24, 18958), (26, 19009),

Gene: Violet\_29 Start: 24273, Stop: 24620, Start Num: 4

Candidate Starts for Violet\_29:

(1, 24183), (Start: 4 @24273 has 182 MA's), (Start: 7 @24294 has 8 MA's), (8, 24300), (18, 24426), (23, 24471),

Gene: Watermelon\_32 Start: 24609, Stop: 24956, Start Num: 4

Candidate Starts for Watermelon\_32:

(1, 24519), (Start: 4 @24609 has 182 MA's), (Start: 7 @24630 has 8 MA's), (8, 24636), (18, 24762), (23, 24807),

Gene: Wheeler\_30 Start: 24041, Stop: 24388, Start Num: 4

Candidate Starts for Wheeler\_30:

(1, 23951), (Start: 4 @24041 has 182 MA's), (Start: 7 @24062 has 8 MA's), (8, 24068), (18, 24194), (23, 24239),

Gene: Wilkins\_30 Start: 23579, Stop: 23878, Start Num: 4

Candidate Starts for Wilkins\_30:

(1, 23489), (Start: 4 @23579 has 182 MA's), (Start: 5 @23585 has 41 MA's), (13, 23648), (14, 23663), (18, 23726), (21, 23744), (26, 23807),

Gene: Yogi\_26 Start: 18734, Stop: 19054, Start Num: 5

Candidate Starts for Yogi\_26:

(Start: 5 @18734 has 41 MA's), (Start: 9 @18761 has 3 MA's), (16, 18818), (17, 18848), (18, 18881), (24, 18932), (25, 18965), (26, 18983),

Gene: Yoncess\_26 Start: 18734, Stop: 19054, Start Num: 5

Candidate Starts for Yoncess\_26:

(Start: 5 @18734 has 41 MA's), (Start: 9 @18761 has 3 MA's), (16, 18818), (17, 18848), (18, 18881), (24, 18932), (25, 18965), (26, 18983),

Gene: Zeeculate\_30 Start: 24480, Stop: 24827, Start Num: 4

Candidate Starts for Zeeculate\_30:

(1, 24390), (Start: 4 @24480 has 182 MA's), (Start: 7 @24501 has 8 MA's), (8, 24507), (18, 24633), (23, 24678),

Gene: Zephyr\_30 Start: 23842, Stop: 24189, Start Num: 4

Candidate Starts for Zephyr\_30:

(1, 23752), (Start: 4 @23842 has 182 MA's), (Start: 7 @23863 has 8 MA's), (8, 23869), (18, 23995), (23, 24040),

Gene: Zeuska\_31 Start: 24276, Stop: 24623, Start Num: 4

Candidate Starts for Zeuska\_31:

(1, 24186), (Start: 4 @24276 has 182 MA's), (Start: 7 @24297 has 8 MA's), (8, 24303), (18, 24429),  
(23, 24474),