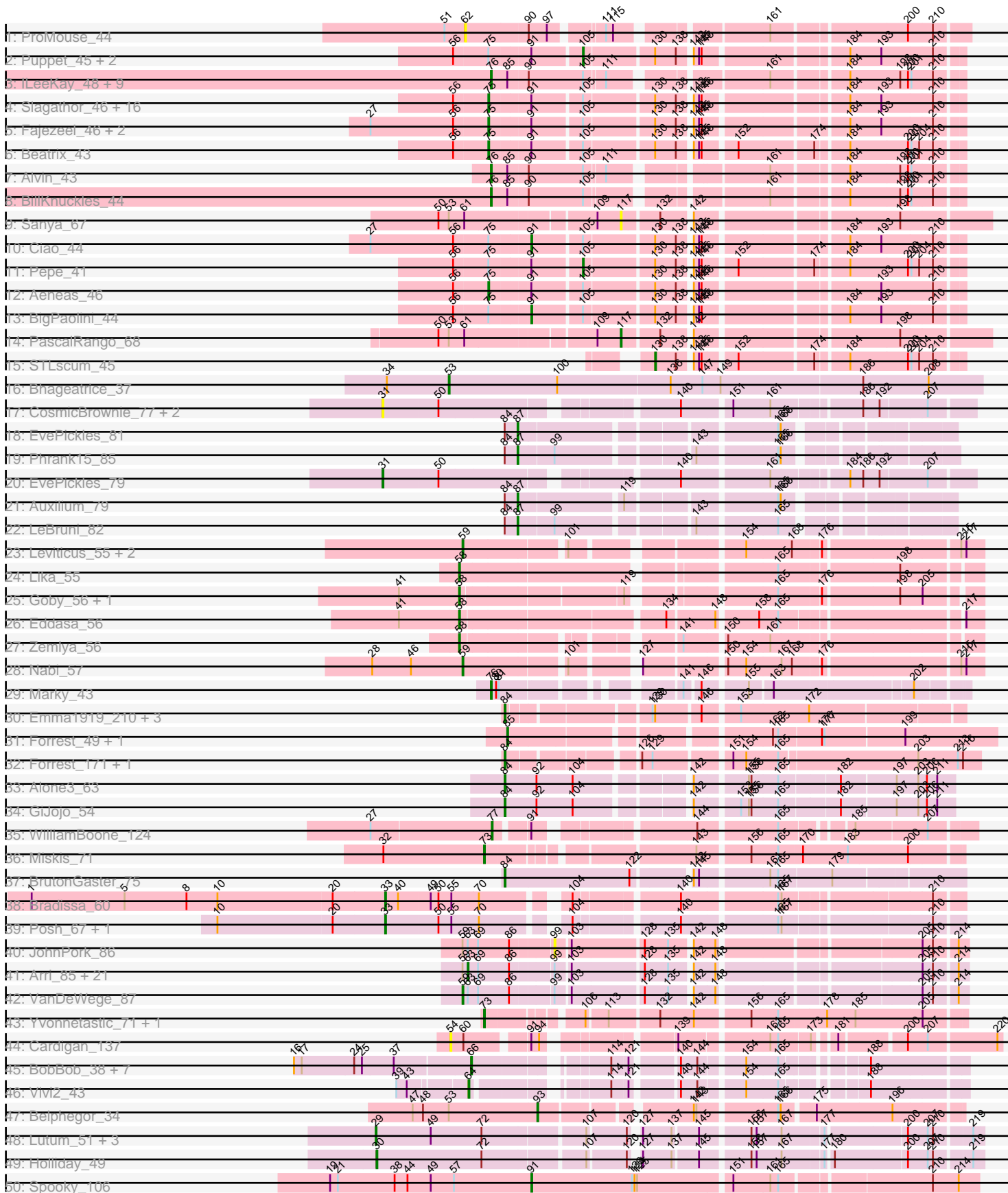
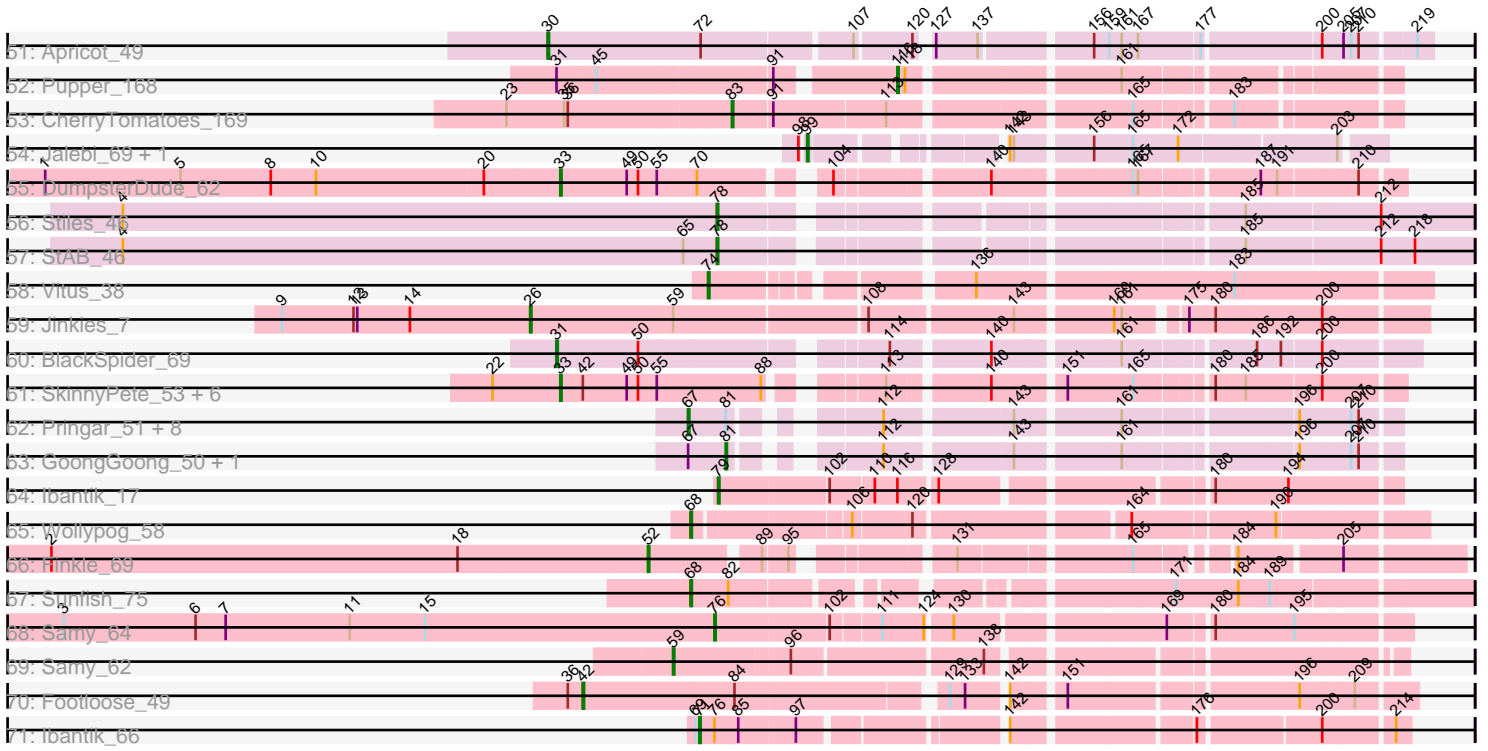


Pham 296302



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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 296302 Report

This analysis was run 04/25/26 on database version 644.

Pham number 296302 has 159 members, 11 are drafts.

Phages represented in each track:

- Track 1 : ProMouse\_44
- Track 2 : Puppet\_45, Teodoridan\_42, Ringer\_45
- Track 3 : ILeeKay\_48, Fushigi\_42, Trouble\_45, BluSpix\_41, IgnatiusPatJac\_43, Ajay\_44, Kykar\_44, Marco3\_46, Seanderson\_46, Petruccio\_44
- Track 4 : Slagathor\_46, Naira\_45, Bones\_44, Marge\_44, StrongArm\_43, Eyeball\_45, Bexan\_42, Dexes\_44, TheloniousMonk\_45, Fenn\_45, Niza\_46, Rajelicia\_45, Arcanine\_45, Licorice\_47, Ruotula\_47, Sagefire\_47, Smairt\_46
- Track 5 : Fajezeel\_46, Greg\_46, Pippin\_46
- Track 6 : Beatrix\_43
- Track 7 : Alvin\_43
- Track 8 : BillKnuckles\_44
- Track 9 : Sanya\_67
- Track 10 : Ciao\_44
- Track 11 : Pepe\_41
- Track 12 : Aeneas\_46
- Track 13 : BigPaolini\_44
- Track 14 : PascalRango\_68
- Track 15 : STLscum\_45
- Track 16 : Bhageatrice\_37
- Track 17 : CosmicBrownie\_77, Lasker\_82, GumGum\_85
- Track 18 : EvePickles\_81
- Track 19 : Phrank15\_85
- Track 20 : EvePickles\_79
- Track 21 : Auxilium\_79
- Track 22 : LeBruni\_82
- Track 23 : Leviticus\_55, Esperer\_55, Hydra\_56
- Track 24 : Lika\_55
- Track 25 : Goby\_56, Toma\_56
- Track 26 : Eddasa\_56
- Track 27 : Zemlya\_56
- Track 28 : Nabi\_57
- Track 29 : Marky\_43
- Track 30 : Emma1919\_210, Forrest\_210, Phredrick\_212, DeluluLabubu\_212
- Track 31 : Forrest\_49, Jada\_47
- Track 32 : Forrest\_171, Jada\_168
- Track 33 : Alone3\_63
- Track 34 : GiJojo\_54

- Track 35 : WilliamBoone\_124
- Track 36 : Miskis\_71
- Track 37 : BrutonGaster\_75
- Track 38 : Bradissa\_60
- Track 39 : Posh\_67, Wrigley\_69
- Track 40 : JohnPork\_86
- Track 41 : Arri\_85, PullumCavea\_83, SmokingBunny\_86, Twister6\_84, Wizard\_80, Fireball\_88, PinkCoffee\_86, Gezellig\_81, TillyBobJoe\_83, Salvador\_85, CherryCola\_84, RogerDodger\_88, Savbucketdawg\_80, Evamon\_85, Phlop\_82, KimmyK\_83, Sendy\_87, Valary\_86, Togo\_85, Egi03\_83, Portcullis\_85, Shinji\_84
- Track 42 : VanDeWege\_87
- Track 43 : Yvonnetastic\_71, JonJames\_73
- Track 44 : Cardigan\_137
- Track 45 : BobBob\_38, Charming\_41, Nordenberg\_35, Love\_44, Brandonk123\_42, Paries\_43, Tangent\_41, Rofo\_41
- Track 46 : Vivi2\_43
- Track 47 : Belphegor\_34
- Track 48 : Lutum\_51, Kenna\_50, BENtherdunthat\_51, Getalong\_54
- Track 49 : Holliday\_49
- Track 50 : Spooky\_106
- Track 51 : Apricot\_49
- Track 52 : Pupper\_168
- Track 53 : CherryTomatoes\_169
- Track 54 : Jalebi\_69, Sampudon\_70
- Track 55 : DumpsterDude\_62
- Track 56 : Stiles\_46
- Track 57 : StAB\_46
- Track 58 : Vitus\_38
- Track 59 : Jinkies\_7
- Track 60 : BlackSpider\_69
- Track 61 : SkinnyPete\_53, Aloeri\_75, TootsiePop\_72, ChickenDinner\_74, DocMcStuffins\_74, Misha28\_72, Awesomesauce\_74
- Track 62 : Pringar\_51, Blackbeetle\_51, Huphlepuuff\_53, VasuNzinga\_51, Raela\_51, Beelzebub\_55, Poise\_51, Lilbit\_50, Clarkson\_52
- Track 63 : GoongGoong\_50, LittleLaf\_51
- Track 64 : Ibantik\_17
- Track 65 : Wollypog\_58
- Track 66 : Finkle\_69
- Track 67 : Sunfish\_75
- Track 68 : Sammy\_64
- Track 69 : Sammy\_62
- Track 70 : Footloose\_49
- Track 71 : Ibantik\_66

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

The start number called the most often in the published annotations is 75, it was called in 22 of the 148 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

• Aeneas\_46, Arcanine\_45, Beatrix\_43, Bexan\_42, Bones\_44, Dexes\_44, Eyeball\_45, Fajezeel\_46, Fenn\_45, Greg\_46, Licorice\_47, Marge\_44, Naira\_45, Niza\_46, Pippin\_46, Rajelicia\_45, Ruotula\_47, Sagefire\_47, Slagathor\_46, Smairt\_46, StrongArm\_43, TheloniousMonk\_45,

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

• BigPaolini\_44, Ciao\_44, Pepe\_41, Puppet\_45, Ringer\_45, Teodoridan\_42,

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

• Ajay\_44, Aloeri\_75, Alone3\_63, Alvin\_43, Apricot\_49, Arri\_85, Auxilium\_79, Awesomesauce\_74, BENtherdunthat\_51, Beelzebub\_55, Belphegor\_34, Bhageatrice\_37, BillKnuckles\_44, BlackSpider\_69, Blackbeetle\_51, BluSpix\_41, BobBob\_38, Bradissa\_60, Brandonk123\_42, BrutonGaster\_75, Cardigan\_137, Charming\_41, CherryCola\_84, CherryTomatoes\_169, ChickenDinner\_74, Clarkson\_52, CosmicBrownie\_77, DeluluLabubu\_212, DocMcStuffins\_74, DumpsterDude\_62, Eddasa\_56, Egi03\_83, Emma1919\_210, Esperer\_55, Evamon\_85, EvePickles\_79, EvePickles\_81, Finkle\_69, Fireball\_88, Footloose\_49, Forrest\_171, Forrest\_210, Forrest\_49, Fushigi\_42, Getalong\_54, Gezellig\_81, GiJojo\_54, Goby\_56, GoongGoong\_50, GumGum\_85, Holliday\_49, Huphlepuuff\_53, Hydra\_56, ILeeKay\_48, Ibantik\_17, Ibantik\_66, IgnatiusPatJac\_43, Jada\_168, Jada\_47, Jalebi\_69, Jinkies\_7, JohnPork\_86, JonJames\_73, Kenna\_50, KimmyK\_83, Kykar\_44, Lasker\_82, LeBruni\_82, Leviticus\_55, Lika\_55, Lilbit\_50, LittleLaf\_51, Love\_44, Lutum\_51, Marco3\_46, Marky\_43, Misha28\_72, Miskis\_71, Nabi\_57, Nordenberg\_35, Paries\_43, PascalRango\_68, Petruccio\_44, Phlop\_82, Phrank15\_85, Phredrick\_212, PinkCoffee\_86, Poise\_51, Portcullis\_85, Posh\_67, Pringar\_51, ProMouse\_44, PullumCavea\_83, Pupper\_168, Raela\_51, Rofo\_41, RogerDodger\_88, STLscum\_45, Salvador\_85, Sampudon\_70, Samy\_62, Samy\_64, Sanya\_67, Savbucketdawg\_80, Seanderson\_46, Sendy\_87, Shinji\_84, SkinnyPete\_53, SmokingBunny\_86, Spooky\_106, StAB\_46, Stiles\_46, Sunfish\_75, Tangent\_41, TillyBobJoe\_83, Togo\_85, Toma\_56, TootsiePop\_72, Trouble\_45, Twister6\_84, Valary\_86, VanDeWege\_87, VasuNzinga\_51, Vitus\_38, Vivi2\_43, WilliamBoone\_124, Wizard\_80, Wollypog\_58, Wrigley\_69, Yvonnetastic\_71, Zemlya\_56,

### Summary by start number:

Start 26:

- Found in 1 of 159 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jinkies\_7 (FL),

Start 29:

- Found in 4 of 159 ( 2.5% ) of genes in pham
- Manual Annotations of this start: 4 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BENtherdunthat\_51 (DN1), Getalong\_54 (DN1), Kenna\_50 (DN1), Lutum\_51 (DN1),

Start 30:

- Found in 2 of 159 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 2 of 148
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Apricot\_49 (DN3), Holliday\_49 (DN1),

Start 31:

- Found in 6 of 159 ( 3.8% ) of genes in pham
- Manual Annotations of this start: 2 of 148
- Called 83.3% of time when present
- Phage (with cluster) where this start called: BlackSpider\_69 (FN), CosmicBrownie\_77 (AY), EvePickles\_79 (AY), GumGum\_85 (AY), Lasker\_82 (AY),

Start 33:

- Found in 11 of 159 ( 6.9% ) of genes in pham
- Manual Annotations of this start: 11 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aloeri\_75 (F1), Awesomesauce\_74 (F1), Bradissa\_60 (CY1), ChickenDinner\_74 (F1), DocMcStuffins\_74 (F1), DumpsterDude\_62 (DW), Misha28\_72 (F1), Posh\_67 (CY4), SkinnyPete\_53 (N), TootsiePop\_72 (F1), Wrigley\_69 (CY4),

Start 42:

- Found in 8 of 159 ( 5.0% ) of genes in pham
- Manual Annotations of this start: 1 of 148
- Called 12.5% of time when present
- Phage (with cluster) where this start called: Footloose\_49 (singleton),

Start 52:

- Found in 1 of 159 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Finkle\_69 (singleton),

Start 53:

- Found in 4 of 159 ( 2.5% ) of genes in pham
- Manual Annotations of this start: 1 of 148
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Bhageatrice\_37 (AY),

Start 54:

- Found in 1 of 159 ( 0.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cardigan\_137 (DD),

Start 58:

- Found in 5 of 159 ( 3.1% ) of genes in pham
- Manual Annotations of this start: 5 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Eddasa\_56 (BD1), Goby\_56 (BD1), Lika\_55 (BD1), Toma\_56 (BD1), Zemlya\_56 (BD1),

Start 59:

- Found in 30 of 159 ( 18.9% ) of genes in pham
- Manual Annotations of this start: 6 of 148
- Called 20.0% of time when present

- Phage (with cluster) where this start called: Esperer\_55 (BD1), Hydra\_56 (BD1), Leviticus\_55 (BD1), Nabi\_57 (BD1), Samy\_62 (singleton), VanDeWege\_87 (DC1),

#### Start 62:

- Found in 1 of 159 ( 0.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ProMouse\_44 (A1),

#### Start 63:

- Found in 24 of 159 ( 15.1% ) of genes in pham
- Manual Annotations of this start: 20 of 148
- Called 91.7% of time when present
- Phage (with cluster) where this start called: Arri\_85 (DC1), CherryCola\_84 (DC1), Egi03\_83 (DC1), Evamon\_85 (DC1), Fireball\_88 (DC1), Gezellig\_81 (DC1), KimmyK\_83 (DC1), Phlop\_82 (DC1), PinkCoffee\_86 (DC1), Portcullis\_85 (DC1), PullumCavea\_83 (DC1), RogerDodger\_88 (DC1), Salvador\_85 (DC1), Savbucketdawg\_80 (DC1), Sendy\_87 (DC), Shinji\_84 (DC1), SmokingBunny\_86 (DC1), TillyBobJoe\_83 (DC1), Togo\_85 (DC1), Twister6\_84 (DC1), Valary\_86 (DC1), Wizard\_80 (DC1),

#### Start 64:

- Found in 1 of 159 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Vivi2\_43 (DE1),

#### Start 66:

- Found in 8 of 159 ( 5.0% ) of genes in pham
- Manual Annotations of this start: 8 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BobBob\_38 (DE1), Brandonk123\_42 (DE1), Charming\_41 (DE1), Love\_44 (DE1), Nordenberg\_35 (DE1), Paries\_43 (DE1), Rofo\_41 (DE1), Tangent\_41 (DE1),

#### Start 67:

- Found in 11 of 159 ( 6.9% ) of genes in pham
- Manual Annotations of this start: 9 of 148
- Called 81.8% of time when present
- Phage (with cluster) where this start called: Beelzebub\_55 (S), Blackbeetle\_51 (S), Clarkson\_52 (S), Huphlepuuff\_53 (S), Lilbit\_50 (S), Poise\_51 (S), Pringar\_51 (S), Raela\_51 (S), VasuNzinga\_51 (S),

#### Start 68:

- Found in 2 of 159 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 2 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Sunfish\_75 (singleton), Wollypog\_58 (singleton),

#### Start 71:

- Found in 1 of 159 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 148

- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ibantik\_66 (singleton),

#### Start 73:

- Found in 3 of 159 ( 1.9% ) of genes in pham
- Manual Annotations of this start: 3 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: JonJames\_73 (DD), Miskis\_71 (CQ1), Yvonnestic\_71 (DD),

#### Start 74:

- Found in 1 of 159 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Vitus\_38 (FL),

#### Start 75:

- Found in 28 of 159 ( 17.6% ) of genes in pham
- Manual Annotations of this start: 22 of 148
- Called 78.6% of time when present
- Phage (with cluster) where this start called: Aeneas\_46 (A1), Arcanine\_45 (A1), Beatrix\_43 (A1), Bexan\_42 (A1), Bones\_44 (A1), Dexes\_44 (A1), Eyeball\_45 (A1), Fajezeel\_46 (A1), Fenn\_45 (A1), Greg\_46 (A1), Licorice\_47 (A1), Marge\_44 (A1), Naira\_45 (A1), Niza\_46 (A1), Pippin\_46 (A1), Rajelicia\_45 (A1), Ruotula\_47 (A1), Sagefire\_47 (A1), Slagathor\_46 (A1), Smairt\_46 (A1), StrongArm\_43 (A1), TheloniousMonk\_45 (A1),

#### Start 76:

- Found in 15 of 159 ( 9.4% ) of genes in pham
- Manual Annotations of this start: 14 of 148
- Called 93.3% of time when present
- Phage (with cluster) where this start called: Ajay\_44 (A1), Alvin\_43 (A1), BillKnuckles\_44 (A1), BluSpix\_41 (A1), Fushigi\_42 (A1), ILeeKay\_48 (A1), IgnatiusPatJac\_43 (A1), Kykar\_44 (A1), Marco3\_46 (A1), Marky\_43 (BH), Petruccio\_44 (A1), Samy\_64 (singleton), Seanderson\_46 (A1), Trouble\_45 (A1),

#### Start 77:

- Found in 1 of 159 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: WilliamBoone\_124 (CQ1),

#### Start 78:

- Found in 2 of 159 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 2 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: StAB\_46 (EP), Stiles\_46 (EP),

#### Start 79:

- Found in 1 of 159 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ibantik\_17 (singleton),

Start 81:

- Found in 12 of 159 ( 7.5% ) of genes in pham
- Manual Annotations of this start: 2 of 148
- Called 16.7% of time when present
- Phage (with cluster) where this start called: GoongGoong\_50 (S), LittleLaf\_51 (S),

Start 83:

- Found in 1 of 159 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CherryTomatoes\_169 (DO),

Start 84:

- Found in 14 of 159 ( 8.8% ) of genes in pham
- Manual Annotations of this start: 9 of 148
- Called 64.3% of time when present
- Phage (with cluster) where this start called: Alone3\_63 (BS), BrutonGaster\_75 (CQ2), DeluluLabubu\_212 (BK1), Emma1919\_210 (BK1), Forrest\_171 (BK1), Forrest\_210 (BK1), GiJojo\_54 (BS), Jada\_168 (BK1), Phredrick\_212 (BK1),

Start 85:

- Found in 15 of 159 ( 9.4% ) of genes in pham
- Manual Annotations of this start: 2 of 148
- Called 13.3% of time when present
- Phage (with cluster) where this start called: Forrest\_49 (BK1), Jada\_47 (BK1),

Start 87:

- Found in 4 of 159 ( 2.5% ) of genes in pham
- Manual Annotations of this start: 4 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Auxilium\_79 (AY), EvePickles\_81 (AY), LeBruni\_82 (AY), Phrank15\_85 (AY),

Start 91:

- Found in 33 of 159 ( 20.8% ) of genes in pham
- Manual Annotations of this start: 3 of 148
- Called 9.1% of time when present
- Phage (with cluster) where this start called: BigPaolini\_44 (A1), Ciao\_44 (A1), Spooky\_106 (DN2),

Start 93:

- Found in 1 of 159 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Belphegor\_34 (DE2),

Start 99:

- Found in 28 of 159 ( 17.6% ) of genes in pham
- Manual Annotations of this start: 2 of 148
- Called 10.7% of time when present
- Phage (with cluster) where this start called: Jalebi\_69 (DV), JohnPork\_86 (DC), Sampudon\_70 (DV),

Start 105:

- Found in 40 of 159 ( 25.2% ) of genes in pham
- Manual Annotations of this start: 2 of 148
- Called 10.0% of time when present
- Phage (with cluster) where this start called: Pepe\_41 (A1), Puppet\_45 (A1), Ringer\_45 (A1), Teodoridan\_42 (A1),

Start 116:

- Found in 2 of 159 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 1 of 148
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Pupper\_168 (DO),

Start 117:

- Found in 2 of 159 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 1 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: PascalRango\_68 (A1), Sanya\_67 (A1),

Start 130:

- Found in 34 of 159 ( 21.4% ) of genes in pham
- Manual Annotations of this start: 1 of 148
- Called 2.9% of time when present
- Phage (with cluster) where this start called: STLscum\_45 (A1),

**Summary by clusters:**

There are 28 clusters represented in this pham: DO, singleton, DD, BH, DC, BS, DV, DW, FL, FN, A1, BD1, DN3, DN2, DN1, CQ1, CY1, CY4, N, S, BK1, CQ2, AY, EP, DC1, F1, DE1, DE2,

Info for manual annotations of cluster A1:

- Start number 75 was manually annotated 22 times for cluster A1.
- Start number 76 was manually annotated 12 times for cluster A1.
- Start number 91 was manually annotated 2 times for cluster A1.
- Start number 105 was manually annotated 2 times for cluster A1.
- Start number 117 was manually annotated 1 time for cluster A1.
- Start number 130 was manually annotated 1 time for cluster A1.

Info for manual annotations of cluster AY:

- Start number 31 was manually annotated 1 time for cluster AY.
- Start number 53 was manually annotated 1 time for cluster AY.
- Start number 87 was manually annotated 4 times for cluster AY.

Info for manual annotations of cluster BD1:

- Start number 58 was manually annotated 5 times for cluster BD1.
- Start number 59 was manually annotated 4 times for cluster BD1.

Info for manual annotations of cluster BH:

- Start number 76 was manually annotated 1 time for cluster BH.

Info for manual annotations of cluster BK1:

- Start number 84 was manually annotated 6 times for cluster BK1.
- Start number 85 was manually annotated 2 times for cluster BK1.

Info for manual annotations of cluster BS:

- Start number 84 was manually annotated 2 times for cluster BS.

Info for manual annotations of cluster CQ1:

- Start number 73 was manually annotated 1 time for cluster CQ1.
- Start number 77 was manually annotated 1 time for cluster CQ1.

Info for manual annotations of cluster CQ2:

- Start number 84 was manually annotated 1 time for cluster CQ2.

Info for manual annotations of cluster CY1:

- Start number 33 was manually annotated 1 time for cluster CY1.

Info for manual annotations of cluster CY4:

- Start number 33 was manually annotated 2 times for cluster CY4.

Info for manual annotations of cluster DC1:

- Start number 59 was manually annotated 1 time for cluster DC1.
- Start number 63 was manually annotated 20 times for cluster DC1.

Info for manual annotations of cluster DD:

- Start number 73 was manually annotated 2 times for cluster DD.

Info for manual annotations of cluster DE1:

- Start number 64 was manually annotated 1 time for cluster DE1.
- Start number 66 was manually annotated 8 times for cluster DE1.

Info for manual annotations of cluster DE2:

- Start number 93 was manually annotated 1 time for cluster DE2.

Info for manual annotations of cluster DN1:

- Start number 29 was manually annotated 4 times for cluster DN1.
- Start number 30 was manually annotated 1 time for cluster DN1.

Info for manual annotations of cluster DN2:

- Start number 91 was manually annotated 1 time for cluster DN2.

Info for manual annotations of cluster DN3:

- Start number 30 was manually annotated 1 time for cluster DN3.

Info for manual annotations of cluster DO:

- Start number 83 was manually annotated 1 time for cluster DO.
- Start number 116 was manually annotated 1 time for cluster DO.

Info for manual annotations of cluster DV:

- Start number 99 was manually annotated 2 times for cluster DV.

Info for manual annotations of cluster DW:

- Start number 33 was manually annotated 1 time for cluster DW.

Info for manual annotations of cluster EP:

- Start number 78 was manually annotated 2 times for cluster EP.

Info for manual annotations of cluster F1:

- Start number 33 was manually annotated 6 times for cluster F1.

Info for manual annotations of cluster FL:

- Start number 26 was manually annotated 1 time for cluster FL.
- Start number 74 was manually annotated 1 time for cluster FL.

Info for manual annotations of cluster FN:

- Start number 31 was manually annotated 1 time for cluster FN.

Info for manual annotations of cluster N:

- Start number 33 was manually annotated 1 time for cluster N.

Info for manual annotations of cluster S:

- Start number 67 was manually annotated 9 times for cluster S.
- Start number 81 was manually annotated 2 times for cluster S.

### ***Gene Information:***

Gene: Aeneas\_46 Start: 33206, Stop: 32721, Start Num: 75

Candidate Starts for Aeneas\_46:

(56, 33245), (Start: 75 @33206 has 22 MA's), (Start: 91 @33164 has 3 MA's), (Start: 105 @33110 has 2 MA's), (Start: 130 @33035 has 1 MA's), (138, 33011), (142, 32999), (145, 32993), (146, 32990), (193, 32807), (210, 32750),

Gene: Ajay\_44 Start: 32810, Stop: 32334, Start Num: 76

Candidate Starts for Ajay\_44:

(Start: 76 @32810 has 14 MA's), (Start: 85 @32792 has 2 MA's), (90, 32771), (Start: 105 @32708 has 2 MA's), (111, 32687), (161, 32534), (184, 32456), (198, 32399), (200, 32390), (201, 32387), (210, 32363),

Gene: Aloeri\_75 Start: 46126, Stop: 46713, Start Num: 33

Candidate Starts for Aloeri\_75:

(22, 46072), (Start: 33 @46126 has 11 MA's), (Start: 42 @46144 has 1 MA's), (49, 46177), (50, 46186), (55, 46201), (88, 46282), (113, 46348), (140, 46420), (151, 46471), (165, 46522), (180, 46573), (185, 46597), (200, 46654),

Gene: Alone3\_63 Start: 21624, Stop: 22094, Start Num: 84

Candidate Starts for Alone3\_63:

(Start: 84 @21624 has 9 MA's), (92, 21660), (104, 21702), (142, 21816), (155, 21870), (156, 21873), (165, 21903), (182, 21969), (197, 22029), (203, 22053), (206, 22062), (211, 22074),

Gene: Alvin\_43 Start: 33331, Stop: 32855, Start Num: 76

Candidate Starts for Alvin\_43:

(Start: 76 @33331 has 14 MA's), (Start: 85 @33313 has 2 MA's), (90, 33292), (Start: 105 @33229 has 2 MA's), (111, 33208), (161, 33055), (184, 32977), (198, 32920), (200, 32911), (201, 32908), (210, 32884),

Gene: Apricot\_49 Start: 33085, Stop: 32453, Start Num: 30

Candidate Starts for Apricot\_49:

(Start: 30 @33085 has 2 MA's), (72, 32965), (107, 32854), (120, 32812), (127, 32806), (137, 32773), (156, 32695), (159, 32683), (161, 32674), (167, 32662), (177, 32617), (200, 32530), (205, 32515), (207, 32509), (210, 32503), (219, 32464),

Gene: Arcanine\_45 Start: 32773, Stop: 32288, Start Num: 75

Candidate Starts for Arcanine\_45:

(56, 32812), (Start: 75 @32773 has 22 MA's), (Start: 91 @32731 has 3 MA's), (Start: 105 @32677 has 2 MA's), (Start: 130 @32602 has 1 MA's), (138, 32578), (142, 32566), (145, 32560), (146, 32557), (184, 32410), (193, 32374), (210, 32317),

Gene: Arri\_85 Start: 56022, Stop: 55507, Start Num: 63

Candidate Starts for Arri\_85:

(Start: 59 @56028 has 6 MA's), (Start: 63 @56022 has 20 MA's), (69, 56010), (86, 55974), (Start: 99 @55929 has 2 MA's), (103, 55914), (128, 55836), (135, 55809), (142, 55788), (148, 55764), (205, 55554), (210, 55542), (214, 55518),

Gene: Auxilium\_79 Start: 44205, Stop: 44636, Start Num: 87

Candidate Starts for Auxilium\_79:

(Start: 84 @44190 has 9 MA's), (Start: 87 @44205 has 4 MA's), (119, 44313), (165, 44466), (166, 44469),

Gene: Awesomesauce\_74 Start: 45209, Stop: 45796, Start Num: 33

Candidate Starts for Awesomesauce\_74:

(22, 45155), (Start: 33 @45209 has 11 MA's), (Start: 42 @45227 has 1 MA's), (49, 45260), (50, 45269), (55, 45284), (88, 45365), (113, 45431), (140, 45503), (151, 45554), (165, 45605), (180, 45656), (185, 45680), (200, 45737),

Gene: BENtherdunthat\_51 Start: 33462, Stop: 32830, Start Num: 29

Candidate Starts for BENtherdunthat\_51:

(Start: 29 @33462 has 4 MA's), (49, 33399), (72, 33342), (107, 33231), (120, 33189), (127, 33183), (137, 33150), (145, 33123), (156, 33072), (157, 33066), (167, 33039), (177, 32994), (200, 32907), (207, 32886), (210, 32880), (219, 32841),

Gene: Beatrix\_43 Start: 34176, Stop: 33691, Start Num: 75

Candidate Starts for Beatrix\_43:

(56, 34215), (Start: 75 @34176 has 22 MA's), (Start: 91 @34134 has 3 MA's), (Start: 105 @34080 has 2 MA's), (Start: 130 @34005 has 1 MA's), (138, 33981), (142, 33969), (145, 33963), (146, 33960), (152, 33927), (174, 33846), (184, 33813), (200, 33747), (201, 33744), (204, 33735), (210, 33720),

Gene: Beelzebub\_55 Start: 29418, Stop: 29891, Start Num: 67

Candidate Starts for Beelzebub\_55:

(Start: 67 @29418 has 9 MA's), (Start: 81 @29448 has 2 MA's), (112, 29529), (143, 29619), (161, 29694), (196, 29817), (207, 29856), (210, 29862),

Gene: Belphegor\_34 Start: 32088, Stop: 31654, Start Num: 93

Candidate Starts for Belphegor\_34:

(47, 32232), (48, 32220), (Start: 53 @32190 has 1 MA's), (Start: 93 @32088 has 1 MA's), (142, 31938), (143, 31935), (165, 31851), (166, 31848), (175, 31815), (196, 31728),

Gene: Bexan\_42 Start: 33854, Stop: 33369, Start Num: 75

Candidate Starts for Bexan\_42:

(56, 33893), (Start: 75 @33854 has 22 MA's), (Start: 91 @33812 has 3 MA's), (Start: 105 @33758 has 2 MA's), (Start: 130 @33683 has 1 MA's), (138, 33659), (142, 33647), (145, 33641), (146, 33638), (184, 33491), (193, 33455), (210, 33398),

Gene: Bhageatrice\_37 Start: 26729, Stop: 27340, Start Num: 53

Candidate Starts for Bhageatrice\_37:

(34, 26657), (Start: 53 @26729 has 1 MA's), (100, 26855), (136, 26984), (147, 27020), (149, 27041), (186, 27203), (208, 27278),

Gene: BigPaolini\_44 Start: 31801, Stop: 31358, Start Num: 91

Candidate Starts for BigPaolini\_44:

(56, 31882), (Start: 75 @31843 has 22 MA's), (Start: 91 @31801 has 3 MA's), (Start: 105 @31747 has 2 MA's), (Start: 130 @31672 has 1 MA's), (138, 31648), (142, 31636), (145, 31630), (146, 31627), (184, 31480), (193, 31444), (210, 31387),

Gene: BillKnuckles\_44 Start: 33515, Stop: 33039, Start Num: 76

Candidate Starts for BillKnuckles\_44:

(Start: 76 @33515 has 14 MA's), (Start: 85 @33497 has 2 MA's), (90, 33476), (Start: 105 @33413 has 2 MA's), (161, 33239), (184, 33161), (198, 33104), (200, 33095), (201, 33092), (210, 33068),

Gene: BlackSpider\_69 Start: 42752, Stop: 43360, Start Num: 31

Candidate Starts for BlackSpider\_69:

(Start: 31 @42752 has 2 MA's), (50, 42815), (114, 42986), (140, 43055), (161, 43148), (186, 43241), (192, 43259), (200, 43289),

Gene: Blackbeetle\_51 Start: 28464, Stop: 28937, Start Num: 67

Candidate Starts for Blackbeetle\_51:

(Start: 67 @28464 has 9 MA's), (Start: 81 @28494 has 2 MA's), (112, 28575), (143, 28665), (161, 28740), (196, 28863), (207, 28902), (210, 28908),

Gene: BluSpix\_41 Start: 28937, Stop: 28461, Start Num: 76

Candidate Starts for BluSpix\_41:

(Start: 76 @28937 has 14 MA's), (Start: 85 @28919 has 2 MA's), (90, 28898), (Start: 105 @28835 has 2 MA's), (111, 28814), (161, 28661), (184, 28583), (198, 28526), (200, 28517), (201, 28514), (210, 28490),

Gene: BobBob\_38 Start: 35578, Stop: 35108, Start Num: 66

Candidate Starts for BobBob\_38:

(16, 35776), (17, 35767), (24, 35707), (25, 35698), (37, 35662), (Start: 66 @35578 has 8 MA's), (114, 35452), (121, 35434), (140, 35389), (144, 35371), (154, 35326), (165, 35290), (188, 35212),

Gene: Bones\_44 Start: 33339, Stop: 32854, Start Num: 75

Candidate Starts for Bones\_44:

(56, 33378), (Start: 75 @33339 has 22 MA's), (Start: 91 @33297 has 3 MA's), (Start: 105 @33243 has 2 MA's), (Start: 130 @33168 has 1 MA's), (138, 33144), (142, 33132), (145, 33126), (146, 33123), (184, 32976), (193, 32940), (210, 32883),

Gene: Bradissa\_60 Start: 44116, Stop: 44703, Start Num: 33

Candidate Starts for Bradissa\_60:

(1, 43708), (5, 43816), (8, 43888), (10, 43924), (20, 44056), (Start: 33 @44116 has 11 MA's), (40, 44131), (49, 44167), (50, 44176), (55, 44191), (70, 44221), (104, 44302), (140, 44410), (165, 44512), (167, 44515), (210, 44671),

Gene: Brandonk123\_42 Start: 36713, Stop: 36243, Start Num: 66

Candidate Starts for Brandonk123\_42:

(16, 36911), (17, 36902), (24, 36842), (25, 36833), (37, 36797), (Start: 66 @36713 has 8 MA's), (114, 36587), (121, 36569), (140, 36524), (144, 36506), (154, 36461), (165, 36425), (188, 36347),

Gene: BrutonGaster\_75 Start: 52573, Stop: 53064, Start Num: 84

Candidate Starts for BrutonGaster\_75:

(Start: 84 @52573 has 9 MA's), (122, 52717), (142, 52774), (145, 52780), (161, 52852), (165, 52861), (179, 52921),

Gene: Cardigan\_137 Start: 77101, Stop: 77631, Start Num: 54

Candidate Starts for Cardigan\_137:

(54, 77101), (60, 77116), (Start: 91 @77179 has 3 MA's), (94, 77188), (139, 77311), (161, 77404), (165, 77413), (173, 77446), (181, 77464), (200, 77530), (207, 77551), (220, 77626),

Gene: Charming\_41 Start: 36214, Stop: 35744, Start Num: 66

Candidate Starts for Charming\_41:

(16, 36412), (17, 36403), (24, 36343), (25, 36334), (37, 36298), (Start: 66 @36214 has 8 MA's), (114, 36088), (121, 36070), (140, 36025), (144, 36007), (154, 35962), (165, 35926), (188, 35848),

Gene: CherryCola\_84 Start: 56435, Stop: 55920, Start Num: 63

Candidate Starts for CherryCola\_84:

(Start: 59 @56441 has 6 MA's), (Start: 63 @56435 has 20 MA's), (69, 56423), (86, 56387), (Start: 99 @56342 has 2 MA's), (103, 56327), (128, 56249), (135, 56222), (142, 56201), (148, 56177), (205, 55967), (210, 55955), (214, 55931),

Gene: CherryTomatoes\_169 Start: 123046, Stop: 122573, Start Num: 83

Candidate Starts for CherryTomatoes\_169:

(23, 123214), (35, 123169), (36, 123166), (Start: 83 @123046 has 1 MA's), (Start: 91 @123016 has 3 MA's), (113, 122929), (165, 122755), (183, 122689),

Gene: ChickenDinner\_74 Start: 46126, Stop: 46713, Start Num: 33

Candidate Starts for ChickenDinner\_74:

(22, 46072), (Start: 33 @46126 has 11 MA's), (Start: 42 @46144 has 1 MA's), (49, 46177), (50, 46186), (55, 46201), (88, 46282), (113, 46348), (140, 46420), (151, 46471), (165, 46522), (180, 46573), (185, 46597), (200, 46654),

Gene: Ciao\_44 Start: 32944, Stop: 32501, Start Num: 91

Candidate Starts for Ciao\_44:

(27, 33121), (56, 33025), (Start: 75 @32986 has 22 MA's), (Start: 91 @32944 has 3 MA's), (Start: 105 @32890 has 2 MA's), (Start: 130 @32815 has 1 MA's), (138, 32791), (142, 32779), (145, 32773), (146, 32770), (184, 32623), (193, 32587), (210, 32530),

Gene: Clarkson\_52 Start: 29146, Stop: 29619, Start Num: 67

Candidate Starts for Clarkson\_52:

(Start: 67 @29146 has 9 MA's), (Start: 81 @29176 has 2 MA's), (112, 29257), (143, 29347), (161, 29422), (196, 29545), (207, 29584), (210, 29590),

Gene: CosmicBrownie\_77 Start: 44062, Stop: 44670, Start Num: 31

Candidate Starts for CosmicBrownie\_77:

(Start: 31 @44062 has 2 MA's), (50, 44125), (140, 44365), (151, 44416), (161, 44458), (186, 44551), (192, 44569), (207, 44620),

Gene: DeluluLabubu\_212 Start: 104650, Stop: 105126, Start Num: 84

Candidate Starts for DeluluLabubu\_212:

(Start: 84 @104650 has 9 MA's), (129, 104794), (Start: 130 @104797 has 1 MA's), (146, 104845), (153, 104881), (172, 104959),

Gene: Dexes\_44 Start: 33602, Stop: 33117, Start Num: 75

Candidate Starts for Dexes\_44:

(56, 33641), (Start: 75 @33602 has 22 MA's), (Start: 91 @33560 has 3 MA's), (Start: 105 @33506 has 2 MA's), (Start: 130 @33431 has 1 MA's), (138, 33407), (142, 33395), (145, 33389), (146, 33386), (184, 33239), (193, 33203), (210, 33146),

Gene: DocMcStuffins\_74 Start: 46126, Stop: 46713, Start Num: 33

Candidate Starts for DocMcStuffins\_74:

(22, 46072), (Start: 33 @46126 has 11 MA's), (Start: 42 @46144 has 1 MA's), (49, 46177), (50, 46186), (55, 46201), (88, 46282), (113, 46348), (140, 46420), (151, 46471), (165, 46522), (180, 46573), (185, 46597), (200, 46654),

Gene: DumpsterDude\_62 Start: 46219, Stop: 46806, Start Num: 33

Candidate Starts for DumpsterDude\_62:

(1, 45811), (5, 45919), (8, 45991), (10, 46027), (20, 46159), (Start: 33 @46219 has 11 MA's), (49, 46270), (50, 46279), (55, 46294), (70, 46324), (104, 46405), (140, 46513), (165, 46615), (167, 46618), (187, 46702), (191, 46714), (210, 46774),

Gene: Eddasa\_56 Start: 41265, Stop: 40723, Start Num: 58

Candidate Starts for Eddasa\_56:

(41, 41334), (Start: 58 @41265 has 5 MA's), (134, 41046), (148, 40995), (158, 40953), (165, 40932), (217, 40743),

Gene: Egi03\_83 Start: 55457, Stop: 54942, Start Num: 63

Candidate Starts for Egi03\_83:

(Start: 59 @55463 has 6 MA's), (Start: 63 @55457 has 20 MA's), (69, 55445), (86, 55409), (Start: 99 @55364 has 2 MA's), (103, 55349), (128, 55271), (135, 55244), (142, 55223), (148, 55199), (205, 54989), (210, 54977), (214, 54953),

Gene: Emma1919\_210 Start: 103175, Stop: 103651, Start Num: 84

Candidate Starts for Emma1919\_210:

(Start: 84 @103175 has 9 MA's), (129, 103319), (Start: 130 @103322 has 1 MA's), (146, 103370), (153, 103406), (172, 103484),

Gene: Esperer\_55 Start: 40815, Stop: 40285, Start Num: 59

Candidate Starts for Esperer\_55:

(Start: 59 @40815 has 6 MA's), (101, 40707), (154, 40539), (168, 40488), (176, 40458), (215, 40311), (217, 40305),

Gene: Evamon\_85 Start: 55834, Stop: 55319, Start Num: 63

Candidate Starts for Evamon\_85:

(Start: 59 @55840 has 6 MA's), (Start: 63 @55834 has 20 MA's), (69, 55822), (86, 55786), (Start: 99 @55741 has 2 MA's), (103, 55726), (128, 55648), (135, 55621), (142, 55600), (148, 55576), (205, 55366), (210, 55354), (214, 55330),

Gene: EvePickles\_81 Start: 47374, Stop: 47805, Start Num: 87

Candidate Starts for EvePickles\_81:

(Start: 84 @47359 has 9 MA's), (Start: 87 @47374 has 4 MA's), (165, 47635), (166, 47638),

Gene: EvePickles\_79 Start: 46090, Stop: 46698, Start Num: 31

Candidate Starts for EvePickles\_79:

(Start: 31 @46090 has 2 MA's), (50, 46153), (140, 46393), (161, 46486), (184, 46564), (186, 46579), (192, 46597), (207, 46648),

Gene: Eyeball\_45 Start: 33249, Stop: 32764, Start Num: 75

Candidate Starts for Eyeball\_45:

(56, 33288), (Start: 75 @33249 has 22 MA's), (Start: 91 @33207 has 3 MA's), (Start: 105 @33153 has 2 MA's), (Start: 130 @33078 has 1 MA's), (138, 33054), (142, 33042), (145, 33036), (146, 33033), (184, 32886), (193, 32850), (210, 32793),

Gene: Fajezeel\_46 Start: 33359, Stop: 32874, Start Num: 75

Candidate Starts for Fajezeel\_46:

(27, 33494), (56, 33398), (Start: 75 @33359 has 22 MA's), (Start: 91 @33317 has 3 MA's), (Start: 105 @33263 has 2 MA's), (Start: 130 @33188 has 1 MA's), (138, 33164), (142, 33152), (145, 33146), (146, 33143), (184, 32996), (193, 32960), (210, 32903),

Gene: Fenn\_45 Start: 34680, Stop: 34195, Start Num: 75

Candidate Starts for Fenn\_45:

(56, 34719), (Start: 75 @34680 has 22 MA's), (Start: 91 @34638 has 3 MA's), (Start: 105 @34584 has 2 MA's), (Start: 130 @34509 has 1 MA's), (138, 34485), (142, 34473), (145, 34467), (146, 34464), (184, 34317), (193, 34281), (210, 34224),

Gene: Finkle\_69 Start: 42637, Stop: 43176, Start Num: 52

Candidate Starts for Finkle\_69:

(2, 42163), (18, 42487), (Start: 52 @42637 has 1 MA's), (89, 42715), (95, 42733), (131, 42832), (165, 42955), (184, 43015), (205, 43087),

Gene: Fireball\_88 Start: 56296, Stop: 55781, Start Num: 63

Candidate Starts for Fireball\_88:

(Start: 59 @56302 has 6 MA's), (Start: 63 @56296 has 20 MA's), (69, 56284), (86, 56248), (Start: 99 @56203 has 2 MA's), (103, 56188), (128, 56110), (135, 56083), (142, 56062), (148, 56038), (205, 55828), (210, 55816), (214, 55792),

Gene: Footloose\_49 Start: 28880, Stop: 29479, Start Num: 42

Candidate Starts for Footloose\_49:

(36, 28868), (Start: 42 @28880 has 1 MA's), (Start: 84 @29000 has 9 MA's), (129, 29150), (133, 29162), (142, 29189), (151, 29225), (196, 29393), (209, 29435),

Gene: Forrest\_49 Start: 41931, Stop: 42446, Start Num: 85

Candidate Starts for Forrest\_49:

(Start: 85 @41931 has 2 MA's), (162, 42195), (165, 42201), (176, 42249), (177, 42252), (199, 42342),

Gene: Forrest\_210 Start: 104141, Stop: 104617, Start Num: 84

Candidate Starts for Forrest\_210:

(Start: 84 @104141 has 9 MA's), (129, 104285), (Start: 130 @104288 has 1 MA's), (146, 104336), (153, 104372), (172, 104450),

Gene: Forrest\_171 Start: 88900, Stop: 89394, Start Num: 84

Candidate Starts for Forrest\_171:

(Start: 84 @88900 has 9 MA's), (126, 89029), (129, 89041), (151, 89119), (154, 89134), (165, 89170), (203, 89323), (213, 89368), (216, 89374),

Gene: Fushigi\_42 Start: 30914, Stop: 30438, Start Num: 76

Candidate Starts for Fushigi\_42:

(Start: 76 @30914 has 14 MA's), (Start: 85 @30896 has 2 MA's), (90, 30875), (Start: 105 @30812 has 2 MA's), (111, 30791), (161, 30638), (184, 30560), (198, 30503), (200, 30494), (201, 30491), (210, 30467),

Gene: Getalong\_54 Start: 36463, Stop: 35831, Start Num: 29

Candidate Starts for Getalong\_54:

(Start: 29 @36463 has 4 MA's), (49, 36400), (72, 36343), (107, 36232), (120, 36190), (127, 36184), (137, 36151), (145, 36124), (156, 36073), (157, 36067), (167, 36040), (177, 35995), (200, 35908), (207, 35887), (210, 35881), (219, 35842),

Gene: Gezellig\_81 Start: 55680, Stop: 55165, Start Num: 63

Candidate Starts for Gezellig\_81:

(Start: 59 @55686 has 6 MA's), (Start: 63 @55680 has 20 MA's), (69, 55668), (86, 55632), (Start: 99 @55587 has 2 MA's), (103, 55572), (128, 55494), (135, 55467), (142, 55446), (148, 55422), (205, 55212), (210, 55200), (214, 55176),

Gene: GiJojo\_54 Start: 20818, Stop: 21288, Start Num: 84

Candidate Starts for GiJojo\_54:

(Start: 84 @20818 has 9 MA's), (92, 20854), (104, 20896), (142, 21010), (153, 21055), (155, 21064), (156, 21067), (165, 21097), (182, 21163), (197, 21223), (203, 21247), (206, 21256), (211, 21268),

Gene: Goby\_56 Start: 42305, Stop: 41778, Start Num: 58

Candidate Starts for Goby\_56:

(41, 42374), (Start: 58 @42305 has 5 MA's), (119, 42131), (165, 41987), (176, 41942), (198, 41858), (205, 41834),

Gene: GoongGoong\_50 Start: 28396, Stop: 28839, Start Num: 81

Candidate Starts for GoongGoong\_50:

(Start: 67 @28366 has 9 MA's), (Start: 81 @28396 has 2 MA's), (112, 28477), (143, 28567), (161, 28642), (196, 28765), (207, 28804), (210, 28810),

Gene: Greg\_46 Start: 33359, Stop: 32874, Start Num: 75

Candidate Starts for Greg\_46:

(27, 33494), (56, 33398), (Start: 75 @33359 has 22 MA's), (Start: 91 @33317 has 3 MA's), (Start: 105 @33263 has 2 MA's), (Start: 130 @33188 has 1 MA's), (138, 33164), (142, 33152), (145, 33146), (146, 33143), (184, 32996), (193, 32960), (210, 32903),

Gene: GumGum\_85 Start: 45863, Stop: 46471, Start Num: 31

Candidate Starts for GumGum\_85:

(Start: 31 @45863 has 2 MA's), (50, 45926), (140, 46166), (151, 46217), (161, 46259), (186, 46352), (192, 46370), (207, 46421),

Gene: Holliday\_49 Start: 33694, Stop: 33062, Start Num: 30

Candidate Starts for Holliday\_49:

(Start: 30 @33694 has 2 MA's), (72, 33574), (107, 33463), (120, 33421), (127, 33415), (137, 33382), (145, 33355), (156, 33304), (157, 33298), (167, 33271), (177, 33226), (180, 33220), (200, 33139), (207, 33118), (210, 33112), (219, 33073),

Gene: Huphlepuuff\_53 Start: 28951, Stop: 29424, Start Num: 67

Candidate Starts for Huphlepuuff\_53:

(Start: 67 @28951 has 9 MA's), (Start: 81 @28981 has 2 MA's), (112, 29062), (143, 29152), (161, 29227), (196, 29350), (207, 29389), (210, 29395),

Gene: Hydra\_56 Start: 41651, Stop: 41121, Start Num: 59

Candidate Starts for Hydra\_56:

(Start: 59 @41651 has 6 MA's), (101, 41543), (154, 41375), (168, 41324), (176, 41294), (215, 41147), (217, 41141),

Gene: lLeeKay\_48 Start: 33858, Stop: 33382, Start Num: 76

Candidate Starts for lLeeKay\_48:

(Start: 76 @33858 has 14 MA's), (Start: 85 @33840 has 2 MA's), (90, 33819), (Start: 105 @33756 has 2 MA's), (111, 33735), (161, 33582), (184, 33504), (198, 33447), (200, 33438), (201, 33435), (210, 33411),

Gene: lbantik\_17 Start: 6683, Stop: 6195, Start Num: 79

Candidate Starts for lbantik\_17:

(Start: 79 @6683 has 1 MA's), (102, 6599), (110, 6566), (Start: 116 @6548 has 1 MA's), (128, 6521), (180, 6335), (194, 6278),

Gene: lbantik\_66 Start: 28032, Stop: 28526, Start Num: 71

Candidate Starts for lbantik\_66:

(69, 28029), (Start: 71 @28032 has 1 MA's), (Start: 76 @28044 has 14 MA's), (Start: 85 @28062 has 2 MA's), (97, 28104), (142, 28245), (176, 28374), (200, 28464), (214, 28515),

Gene: IgnatiusPatJac\_43 Start: 32882, Stop: 32406, Start Num: 76

Candidate Starts for IgnatiusPatJac\_43:

(Start: 76 @32882 has 14 MA's), (Start: 85 @32864 has 2 MA's), (90, 32843), (Start: 105 @32780 has 2 MA's), (111, 32759), (161, 32606), (184, 32528), (198, 32471), (200, 32462), (201, 32459), (210, 32435),

Gene: Jada\_168 Start: 87596, Stop: 88090, Start Num: 84

Candidate Starts for Jada\_168:

(Start: 84 @87596 has 9 MA's), (126, 87725), (129, 87737), (151, 87815), (154, 87830), (165, 87866), (203, 88019), (213, 88064), (216, 88070),

Gene: Jada\_47 Start: 41113, Stop: 41628, Start Num: 85

Candidate Starts for Jada\_47:

(Start: 85 @41113 has 2 MA's), (162, 41377), (165, 41383), (176, 41431), (177, 41434), (199, 41524),

Gene: Jalebi\_69 Start: 49016, Stop: 49408, Start Num: 99

Candidate Starts for Jalebi\_69:

(98, 49013), (Start: 99 @49016 has 2 MA's), (142, 49139), (143, 49142), (156, 49196), (165, 49226), (172, 49262), (203, 49376),

Gene: Jinkies\_7 Start: 5796, Stop: 6461, Start Num: 26

Candidate Starts for Jinkies\_7:

(9, 5598), (12, 5655), (13, 5658), (14, 5700), (Start: 26 @5796 has 1 MA's), (Start: 59 @5910 has 6 MA's), (108, 6057), (143, 6165), (160, 6234), (161, 6240), (175, 6279), (180, 6300), (200, 6384),

Gene: JohnPork\_86 Start: 55643, Stop: 55221, Start Num: 99

Candidate Starts for JohnPork\_86:

(Start: 59 @55742 has 6 MA's), (Start: 63 @55736 has 20 MA's), (69, 55724), (86, 55688), (Start: 99 @55643 has 2 MA's), (103, 55628), (128, 55550), (135, 55523), (142, 55502), (148, 55478), (205, 55268), (210, 55256), (214, 55232),

Gene: JonJames\_73 Start: 49905, Stop: 50405, Start Num: 73

Candidate Starts for JonJames\_73:

(Start: 73 @49905 has 3 MA's), (106, 49998), (113, 50019), (132, 50073), (142, 50112), (156, 50169), (165, 50199), (178, 50253), (185, 50286), (205, 50361),

Gene: Kenna\_50 Start: 34206, Stop: 33574, Start Num: 29

Candidate Starts for Kenna\_50:

(Start: 29 @34206 has 4 MA's), (49, 34143), (72, 34086), (107, 33975), (120, 33933), (127, 33927), (137, 33894), (145, 33867), (156, 33816), (157, 33810), (167, 33783), (177, 33738), (200, 33651), (207, 33630), (210, 33624), (219, 33585),

Gene: KimmyK\_83 Start: 56127, Stop: 55612, Start Num: 63

Candidate Starts for KimmyK\_83:

(Start: 59 @56133 has 6 MA's), (Start: 63 @56127 has 20 MA's), (69, 56115), (86, 56079), (Start: 99 @56034 has 2 MA's), (103, 56019), (128, 55941), (135, 55914), (142, 55893), (148, 55869), (205, 55659), (210, 55647), (214, 55623),

Gene: Kykar\_44 Start: 32934, Stop: 32458, Start Num: 76

Candidate Starts for Kykar\_44:

(Start: 76 @32934 has 14 MA's), (Start: 85 @32916 has 2 MA's), (90, 32895), (Start: 105 @32832 has 2 MA's), (111, 32811), (161, 32658), (184, 32580), (198, 32523), (200, 32514), (201, 32511), (210, 32487),

Gene: Lasker\_82 Start: 46302, Stop: 46910, Start Num: 31

Candidate Starts for Lasker\_82:

(Start: 31 @46302 has 2 MA's), (50, 46365), (140, 46605), (151, 46656), (161, 46698), (186, 46791), (192, 46809), (207, 46860),

Gene: LeBruni\_82 Start: 46016, Stop: 46447, Start Num: 87

Candidate Starts for LeBruni\_82:

(Start: 84 @46001 has 9 MA's), (Start: 87 @46016 has 4 MA's), (Start: 99 @46052 has 2 MA's), (143, 46193), (165, 46277),

Gene: Leviticus\_55 Start: 41002, Stop: 40472, Start Num: 59

Candidate Starts for Leviticus\_55:

(Start: 59 @41002 has 6 MA's), (101, 40894), (154, 40726), (168, 40675), (176, 40645), (215, 40498), (217, 40492),

Gene: Licorice\_47 Start: 34445, Stop: 33960, Start Num: 75

Candidate Starts for Licorice\_47:

(56, 34484), (Start: 75 @34445 has 22 MA's), (Start: 91 @34403 has 3 MA's), (Start: 105 @34349 has 2 MA's), (Start: 130 @34274 has 1 MA's), (138, 34250), (142, 34238), (145, 34232), (146, 34229), (184, 34082), (193, 34046), (210, 33989),

Gene: Lika\_55 Start: 42316, Stop: 41774, Start Num: 58

Candidate Starts for Lika\_55:

(Start: 58 @42316 has 5 MA's), (165, 41986), (198, 41857),

Gene: Lilbit\_50 Start: 29147, Stop: 29620, Start Num: 67

Candidate Starts for Lilbit\_50:

(Start: 67 @29147 has 9 MA's), (Start: 81 @29177 has 2 MA's), (112, 29258), (143, 29348), (161, 29423), (196, 29546), (207, 29585), (210, 29591),

Gene: LittleLaf\_51 Start: 28906, Stop: 29349, Start Num: 81

Candidate Starts for LittleLaf\_51:

(Start: 67 @28876 has 9 MA's), (Start: 81 @28906 has 2 MA's), (112, 28987), (143, 29077), (161, 29152), (196, 29275), (207, 29314), (210, 29320),

Gene: Love\_44 Start: 37647, Stop: 37177, Start Num: 66

Candidate Starts for Love\_44:

(16, 37845), (17, 37836), (24, 37776), (25, 37767), (37, 37731), (Start: 66 @37647 has 8 MA's), (114, 37521), (121, 37503), (140, 37458), (144, 37440), (154, 37395), (165, 37359), (188, 37281),

Gene: Lutum\_51 Start: 34206, Stop: 33574, Start Num: 29

Candidate Starts for Lutum\_51:

(Start: 29 @34206 has 4 MA's), (49, 34143), (72, 34086), (107, 33975), (120, 33933), (127, 33927), (137, 33894), (145, 33867), (156, 33816), (157, 33810), (167, 33783), (177, 33738), (200, 33651), (207, 33630), (210, 33624), (219, 33585),

Gene: Marco3\_46 Start: 33679, Stop: 33203, Start Num: 76

Candidate Starts for Marco3\_46:

(Start: 76 @33679 has 14 MA's), (Start: 85 @33661 has 2 MA's), (90, 33640), (Start: 105 @33577 has 2 MA's), (111, 33556), (161, 33403), (184, 33325), (198, 33268), (200, 33259), (201, 33256), (210, 33232),

Gene: Marge\_44 Start: 33477, Stop: 32992, Start Num: 75

Candidate Starts for Marge\_44:

(56, 33516), (Start: 75 @33477 has 22 MA's), (Start: 91 @33435 has 3 MA's), (Start: 105 @33381 has 2 MA's), (Start: 130 @33306 has 1 MA's), (138, 33282), (142, 33270), (145, 33264), (146, 33261), (184, 33114), (193, 33078), (210, 33021),

Gene: Marky\_43 Start: 31173, Stop: 31622, Start Num: 76

Candidate Starts for Marky\_43:

(Start: 76 @31173 has 14 MA's), (80, 31179), (Start: 81 @31182 has 2 MA's), (141, 31344), (146, 31359), (155, 31404), (163, 31428), (202, 31572),

Gene: Misha28\_72 Start: 45214, Stop: 45801, Start Num: 33

Candidate Starts for Misha28\_72:

(22, 45160), (Start: 33 @45214 has 11 MA's), (Start: 42 @45232 has 1 MA's), (49, 45265), (50, 45274), (55, 45289), (88, 45370), (113, 45436), (140, 45508), (151, 45559), (165, 45610), (180, 45661), (185, 45685), (200, 45742),

Gene: Miskis\_71 Start: 47774, Stop: 48271, Start Num: 73

Candidate Starts for Miskis\_71:

(32, 47657), (Start: 73 @47774 has 3 MA's), (143, 47984), (156, 48038), (165, 48068), (170, 48095), (183, 48146), (200, 48215),

Gene: Nabi\_57 Start: 42255, Stop: 41725, Start Num: 59

Candidate Starts for Nabi\_57:

(28, 42360), (46, 42315), (Start: 59 @42255 has 6 MA's), (101, 42147), (127, 42084), (150, 42000), (154, 41979), (167, 41940), (168, 41928), (176, 41898), (215, 41751), (217, 41745),

Gene: Naira\_45 Start: 34727, Stop: 34242, Start Num: 75

Candidate Starts for Naira\_45:

(56, 34766), (Start: 75 @34727 has 22 MA's), (Start: 91 @34685 has 3 MA's), (Start: 105 @34631 has 2 MA's), (Start: 130 @34556 has 1 MA's), (138, 34532), (142, 34520), (145, 34514), (146, 34511), (184, 34364), (193, 34328), (210, 34271),

Gene: Niza\_46 Start: 34104, Stop: 33619, Start Num: 75

Candidate Starts for Niza\_46:

(56, 34143), (Start: 75 @34104 has 22 MA's), (Start: 91 @34062 has 3 MA's), (Start: 105 @34008 has 2 MA's), (Start: 130 @33933 has 1 MA's), (138, 33909), (142, 33897), (145, 33891), (146, 33888), (184, 33741), (193, 33705), (210, 33648),

Gene: Nordenberg\_35 Start: 35840, Stop: 35370, Start Num: 66

Candidate Starts for Nordenberg\_35:

(16, 36038), (17, 36029), (24, 35969), (25, 35960), (37, 35924), (Start: 66 @35840 has 8 MA's), (114, 35714), (121, 35696), (140, 35651), (144, 35633), (154, 35588), (165, 35552), (188, 35474),

Gene: Paries\_43 Start: 37309, Stop: 36839, Start Num: 66

Candidate Starts for Paries\_43:

(16, 37507), (17, 37498), (24, 37438), (25, 37429), (37, 37393), (Start: 66 @37309 has 8 MA's), (114, 37183), (121, 37165), (140, 37120), (144, 37102), (154, 37057), (165, 37021), (188, 36943),

Gene: PascalRango\_68 Start: 44439, Stop: 44059, Start Num: 117

Candidate Starts for PascalRango\_68:

(50, 44637), (Start: 53 @44625 has 1 MA's), (61, 44607), (109, 44466), (Start: 117 @44439 has 1 MA's), (132, 44400), (142, 44370), (198, 44157),

Gene: Pepe\_41 Start: 31155, Stop: 30766, Start Num: 105

Candidate Starts for Pepe\_41:

(56, 31290), (Start: 75 @31251 has 22 MA's), (Start: 91 @31209 has 3 MA's), (Start: 105 @31155 has 2 MA's), (Start: 130 @31080 has 1 MA's), (138, 31056), (142, 31044), (145, 31038), (146, 31035), (152, 31002), (174, 30921), (184, 30888), (200, 30822), (201, 30819), (204, 30810), (210, 30795),

Gene: Petruccio\_44 Start: 32947, Stop: 32471, Start Num: 76

Candidate Starts for Petruccio\_44:

(Start: 76 @32947 has 14 MA's), (Start: 85 @32929 has 2 MA's), (90, 32908), (Start: 105 @32845 has 2 MA's), (111, 32824), (161, 32671), (184, 32593), (198, 32536), (200, 32527), (201, 32524), (210, 32500),

Gene: Phlop\_82 Start: 55730, Stop: 55215, Start Num: 63

Candidate Starts for Phlop\_82:

(Start: 59 @55736 has 6 MA's), (Start: 63 @55730 has 20 MA's), (69, 55718), (86, 55682), (Start: 99 @55637 has 2 MA's), (103, 55622), (128, 55544), (135, 55517), (142, 55496), (148, 55472), (205, 55262), (210, 55250), (214, 55226),

Gene: Phrank15\_85 Start: 46952, Stop: 47386, Start Num: 87

Candidate Starts for Phrank15\_85:

(Start: 84 @46937 has 9 MA's), (Start: 87 @46952 has 4 MA's), (Start: 99 @46988 has 2 MA's), (143, 47129), (165, 47213), (166, 47216),

Gene: Phredrick\_212 Start: 102971, Stop: 103447, Start Num: 84

Candidate Starts for Phredrick\_212:

(Start: 84 @102971 has 9 MA's), (129, 103115), (Start: 130 @103118 has 1 MA's), (146, 103166), (153, 103202), (172, 103280),

Gene: PinkCoffee\_86 Start: 55594, Stop: 55079, Start Num: 63

Candidate Starts for PinkCoffee\_86:

(Start: 59 @55600 has 6 MA's), (Start: 63 @55594 has 20 MA's), (69, 55582), (86, 55546), (Start: 99 @55501 has 2 MA's), (103, 55486), (128, 55408), (135, 55381), (142, 55360), (148, 55336), (205, 55126), (210, 55114), (214, 55090),

Gene: Pippin\_46 Start: 33403, Stop: 32918, Start Num: 75

Candidate Starts for Pippin\_46:

(27, 33538), (56, 33442), (Start: 75 @33403 has 22 MA's), (Start: 91 @33361 has 3 MA's), (Start: 105 @33307 has 2 MA's), (Start: 130 @33232 has 1 MA's), (138, 33208), (142, 33196), (145, 33190), (146, 33187), (184, 33040), (193, 33004), (210, 32947),

Gene: Poise\_51 Start: 28464, Stop: 28937, Start Num: 67

Candidate Starts for Poise\_51:

(Start: 67 @28464 has 9 MA's), (Start: 81 @28494 has 2 MA's), (112, 28575), (143, 28665), (161, 28740), (196, 28863), (207, 28902), (210, 28908),

Gene: Portcullis\_85 Start: 55736, Stop: 55221, Start Num: 63

Candidate Starts for Portcullis\_85:

(Start: 59 @55742 has 6 MA's), (Start: 63 @55736 has 20 MA's), (69, 55724), (86, 55688), (Start: 99 @55643 has 2 MA's), (103, 55628), (128, 55550), (135, 55523), (142, 55502), (148, 55478), (205, 55268), (210, 55256), (214, 55232),

Gene: Posh\_67 Start: 45892, Stop: 46479, Start Num: 33

Candidate Starts for Posh\_67:

(10, 45700), (20, 45832), (Start: 33 @45892 has 11 MA's), (50, 45952), (55, 45967), (70, 45997), (104, 46078), (140, 46186), (165, 46288), (167, 46291), (210, 46447),

Gene: Pringar\_51 Start: 28752, Stop: 29225, Start Num: 67

Candidate Starts for Pringar\_51:

(Start: 67 @28752 has 9 MA's), (Start: 81 @28782 has 2 MA's), (112, 28863), (143, 28953), (161, 29028), (196, 29151), (207, 29190), (210, 29196),

Gene: ProMouse\_44 Start: 33305, Stop: 32802, Start Num: 62

Candidate Starts for ProMouse\_44:

(51, 33329), (62, 33305), (90, 33236), (97, 33215), (111, 33164), (115, 33158), (161, 33011), (200, 32867), (210, 32840),

Gene: PullumCavea\_83 Start: 55907, Stop: 55392, Start Num: 63

Candidate Starts for PullumCavea\_83:

(Start: 59 @55913 has 6 MA's), (Start: 63 @55907 has 20 MA's), (69, 55895), (86, 55859), (Start: 99 @55814 has 2 MA's), (103, 55799), (128, 55721), (135, 55694), (142, 55673), (148, 55649), (205, 55439), (210, 55427), (214, 55403),

Gene: Pupper\_168 Start: 123157, Stop: 122813, Start Num: 116

Candidate Starts for Pupper\_168:

(Start: 31 @123403 has 2 MA's), (45, 123373), (Start: 91 @123241 has 3 MA's), (Start: 116 @123157 has 1 MA's), (118, 123151), (161, 123001),

Gene: Puppet\_45 Start: 33423, Stop: 33034, Start Num: 105

Candidate Starts for Puppet\_45:

(56, 33558), (Start: 75 @33519 has 22 MA's), (Start: 91 @33477 has 3 MA's), (Start: 105 @33423 has 2 MA's), (Start: 130 @33348 has 1 MA's), (138, 33324), (142, 33312), (145, 33306), (146, 33303), (184, 33156), (193, 33120), (210, 33063),

Gene: Raela\_51 Start: 29019, Stop: 29492, Start Num: 67

Candidate Starts for Raela\_51:

(Start: 67 @29019 has 9 MA's), (Start: 81 @29049 has 2 MA's), (112, 29130), (143, 29220), (161, 29295), (196, 29418), (207, 29457), (210, 29463),

Gene: Rajelicia\_45 Start: 33435, Stop: 32950, Start Num: 75

Candidate Starts for Rajelicia\_45:

(56, 33474), (Start: 75 @33435 has 22 MA's), (Start: 91 @33393 has 3 MA's), (Start: 105 @33339 has 2 MA's), (Start: 130 @33264 has 1 MA's), (138, 33240), (142, 33228), (145, 33222), (146, 33219), (184, 33072), (193, 33036), (210, 32979),

Gene: Ringer\_45 Start: 33671, Stop: 33282, Start Num: 105

Candidate Starts for Ringer\_45:

(56, 33806), (Start: 75 @33767 has 22 MA's), (Start: 91 @33725 has 3 MA's), (Start: 105 @33671 has 2 MA's), (Start: 130 @33596 has 1 MA's), (138, 33572), (142, 33560), (145, 33554), (146, 33551), (184, 33404), (193, 33368), (210, 33311),

Gene: Rofo\_41 Start: 36635, Stop: 36165, Start Num: 66

Candidate Starts for Rofo\_41:

(16, 36833), (17, 36824), (24, 36764), (25, 36755), (37, 36719), (Start: 66 @36635 has 8 MA's), (114, 36509), (121, 36491), (140, 36446), (144, 36428), (154, 36383), (165, 36347), (188, 36269),

Gene: RogerDodger\_88 Start: 56495, Stop: 55980, Start Num: 63

Candidate Starts for RogerDodger\_88:

(Start: 59 @56501 has 6 MA's), (Start: 63 @56495 has 20 MA's), (69, 56483), (86, 56447), (Start: 99 @56402 has 2 MA's), (103, 56387), (128, 56309), (135, 56282), (142, 56261), (148, 56237), (205, 56027), (210, 56015), (214, 55991),

Gene: Ruotula\_47 Start: 34572, Stop: 34078, Start Num: 75

Candidate Starts for Ruotula\_47:

(56, 34611), (Start: 75 @34572 has 22 MA's), (Start: 91 @34530 has 3 MA's), (Start: 105 @34476 has 2 MA's), (Start: 130 @34401 has 1 MA's), (138, 34377), (142, 34365), (145, 34359), (146, 34356), (184, 34200), (193, 34164), (210, 34107),

Gene: STLscum\_45 Start: 33801, Stop: 33487, Start Num: 130

Candidate Starts for STLscum\_45:

(Start: 130 @33801 has 1 MA's), (138, 33777), (142, 33765), (145, 33759), (146, 33756), (152, 33723), (174, 33642), (184, 33609), (200, 33543), (201, 33540), (204, 33531), (210, 33516),

Gene: Sagefire\_47 Start: 34321, Stop: 33836, Start Num: 75

Candidate Starts for Sagefire\_47:

(56, 34360), (Start: 75 @34321 has 22 MA's), (Start: 91 @34279 has 3 MA's), (Start: 105 @34225 has 2 MA's), (Start: 130 @34150 has 1 MA's), (138, 34126), (142, 34114), (145, 34108), (146, 34105), (184, 33958), (193, 33922), (210, 33865),

Gene: Salvador\_85 Start: 55832, Stop: 55317, Start Num: 63

Candidate Starts for Salvador\_85:

(Start: 59 @55838 has 6 MA's), (Start: 63 @55832 has 20 MA's), (69, 55820), (86, 55784), (Start: 99 @55739 has 2 MA's), (103, 55724), (128, 55646), (135, 55619), (142, 55598), (148, 55574), (205, 55364), (210, 55352), (214, 55328),

Gene: Sampudon\_70 Start: 49016, Stop: 49408, Start Num: 99

Candidate Starts for Sampudon\_70:

(98, 49013), (Start: 99 @49016 has 2 MA's), (142, 49139), (143, 49142), (156, 49196), (165, 49226), (172, 49262), (203, 49376),

Gene: Samy\_64 Start: 40970, Stop: 41473, Start Num: 76

Candidate Starts for Samy\_64:

(3, 40451), (6, 40556), (7, 40580), (11, 40679), (15, 40739), (Start: 76 @40970 has 14 MA's), (102, 41057), (111, 41093), (124, 41126), (Start: 130 @41144 has 1 MA's), (169, 41297), (180, 41327), (195, 41390),

Gene: Samy\_62 Start: 37969, Stop: 38490, Start Num: 59

Candidate Starts for Samy\_62:

(Start: 59 @37969 has 6 MA's), (96, 38059), (138, 38200),

Gene: Sanya\_67 Start: 45283, Stop: 44903, Start Num: 117

Candidate Starts for Sanya\_67:

(50, 45481), (Start: 53 @45469 has 1 MA's), (61, 45451), (109, 45310), (Start: 117 @45283 has 1 MA's), (132, 45244), (142, 45214), (198, 45001),

Gene: Savbucketdawg\_80 Start: 55174, Stop: 54659, Start Num: 63

Candidate Starts for Savbucketdawg\_80:

(Start: 59 @55180 has 6 MA's), (Start: 63 @55174 has 20 MA's), (69, 55162), (86, 55126), (Start: 99 @55081 has 2 MA's), (103, 55066), (128, 54988), (135, 54961), (142, 54940), (148, 54916), (205, 54706), (210, 54694), (214, 54670),

Gene: Seanderson\_46 Start: 33923, Stop: 33447, Start Num: 76

Candidate Starts for Seanderson\_46:

(Start: 76 @33923 has 14 MA's), (Start: 85 @33905 has 2 MA's), (90, 33884), (Start: 105 @33821 has 2 MA's), (111, 33800), (161, 33647), (184, 33569), (198, 33512), (200, 33503), (201, 33500), (210, 33476),

Gene: Sendy\_87 Start: 55912, Stop: 55397, Start Num: 63

Candidate Starts for Sendy\_87:

(Start: 59 @55918 has 6 MA's), (Start: 63 @55912 has 20 MA's), (69, 55900), (86, 55864), (Start: 99 @55819 has 2 MA's), (103, 55804), (128, 55726), (135, 55699), (142, 55678), (148, 55654), (205, 55444), (210, 55432), (214, 55408),

Gene: Shinji\_84 Start: 55913, Stop: 55398, Start Num: 63

Candidate Starts for Shinji\_84:

(Start: 59 @55919 has 6 MA's), (Start: 63 @55913 has 20 MA's), (69, 55901), (86, 55865), (Start: 99 @55820 has 2 MA's), (103, 55805), (128, 55727), (135, 55700), (142, 55679), (148, 55655), (205, 55445), (210, 55433), (214, 55409),

Gene: SkinnyPete\_53 Start: 35995, Stop: 36582, Start Num: 33

Candidate Starts for SkinnyPete\_53:

(22, 35941), (Start: 33 @35995 has 11 MA's), (Start: 42 @36013 has 1 MA's), (49, 36046), (50, 36055), (55, 36070), (88, 36151), (113, 36217), (140, 36289), (151, 36340), (165, 36391), (180, 36442), (185, 36466), (200, 36523),

Gene: Slagathor\_46 Start: 33360, Stop: 32875, Start Num: 75

Candidate Starts for Slagathor\_46:

(56, 33399), (Start: 75 @33360 has 22 MA's), (Start: 91 @33318 has 3 MA's), (Start: 105 @33264 has 2 MA's), (Start: 130 @33189 has 1 MA's), (138, 33165), (142, 33153), (145, 33147), (146, 33144), (184, 32997), (193, 32961), (210, 32904),

Gene: Smairt\_46 Start: 33659, Stop: 33174, Start Num: 75

Candidate Starts for Smairt\_46:

(56, 33698), (Start: 75 @33659 has 22 MA's), (Start: 91 @33617 has 3 MA's), (Start: 105 @33563 has 2 MA's), (Start: 130 @33488 has 1 MA's), (138, 33464), (142, 33452), (145, 33446), (146, 33443), (184, 33296), (193, 33260), (210, 33203),

Gene: SmokingBunny\_86 Start: 56828, Stop: 56313, Start Num: 63

Candidate Starts for SmokingBunny\_86:

(Start: 59 @56834 has 6 MA's), (Start: 63 @56828 has 20 MA's), (69, 56816), (86, 56780), (Start: 99 @56735 has 2 MA's), (103, 56720), (128, 56642), (135, 56615), (142, 56594), (148, 56570), (205, 56360), (210, 56348), (214, 56324),

Gene: Spooky\_106 Start: 55742, Stop: 56233, Start Num: 91

Candidate Starts for Spooky\_106:

(19, 55508), (21, 55517), (38, 55583), (44, 55598), (49, 55625), (57, 55652), (Start: 91 @55742 has 3 MA's), (123, 55859), (124, 55862), (125, 55865), (151, 55967), (161, 56009), (165, 56018), (210, 56180), (214, 56210),

Gene: StAB\_46 Start: 35820, Stop: 36344, Start Num: 78

Candidate Starts for StAB\_46:

(4, 35346), (65, 35793), (Start: 78 @35820 has 2 MA's), (185, 36168), (212, 36270), (218, 36297),

Gene: Stiles\_46 Start: 35275, Stop: 35799, Start Num: 78

Candidate Starts for Stiles\_46:

(4, 34801), (Start: 78 @35275 has 2 MA's), (185, 35623), (212, 35725),

Gene: StrongArm\_43 Start: 33982, Stop: 33497, Start Num: 75

Candidate Starts for StrongArm\_43:

(56, 34021), (Start: 75 @33982 has 22 MA's), (Start: 91 @33940 has 3 MA's), (Start: 105 @33886 has 2 MA's), (Start: 130 @33811 has 1 MA's), (138, 33787), (142, 33775), (145, 33769), (146, 33766), (184, 33619), (193, 33583), (210, 33526),

Gene: Sunfish\_75 Start: 46858, Stop: 46316, Start Num: 68

Candidate Starts for Sunfish\_75:

(Start: 68 @46858 has 2 MA's), (82, 46828), (171, 46537), (184, 46489), (189, 46465),

Gene: Tangent\_41 Start: 36226, Stop: 35756, Start Num: 66

Candidate Starts for Tangent\_41:

(16, 36424), (17, 36415), (24, 36355), (25, 36346), (37, 36310), (Start: 66 @36226 has 8 MA's), (114, 36100), (121, 36082), (140, 36037), (144, 36019), (154, 35974), (165, 35938), (188, 35860),

Gene: Teodoridan\_42 Start: 32338, Stop: 31949, Start Num: 105

Candidate Starts for Teodoridan\_42:

(56, 32473), (Start: 75 @32434 has 22 MA's), (Start: 91 @32392 has 3 MA's), (Start: 105 @32338 has 2 MA's), (Start: 130 @32263 has 1 MA's), (138, 32239), (142, 32227), (145, 32221), (146, 32218), (184, 32071), (193, 32035), (210, 31978),

Gene: TheloniousMonk\_45 Start: 34368, Stop: 33883, Start Num: 75

Candidate Starts for TheloniousMonk\_45:

(56, 34407), (Start: 75 @34368 has 22 MA's), (Start: 91 @34326 has 3 MA's), (Start: 105 @34272 has 2 MA's), (Start: 130 @34197 has 1 MA's), (138, 34173), (142, 34161), (145, 34155), (146, 34152), (184, 34005), (193, 33969), (210, 33912),

Gene: TillyBobJoe\_83 Start: 55714, Stop: 55199, Start Num: 63

Candidate Starts for TillyBobJoe\_83:

(Start: 59 @55720 has 6 MA's), (Start: 63 @55714 has 20 MA's), (69, 55702), (86, 55666), (Start: 99 @55621 has 2 MA's), (103, 55606), (128, 55528), (135, 55501), (142, 55480), (148, 55456), (205, 55246), (210, 55234), (214, 55210),

Gene: Togo\_85 Start: 56828, Stop: 56313, Start Num: 63

Candidate Starts for Togo\_85:

(Start: 59 @56834 has 6 MA's), (Start: 63 @56828 has 20 MA's), (69, 56816), (86, 56780), (Start: 99 @56735 has 2 MA's), (103, 56720), (128, 56642), (135, 56615), (142, 56594), (148, 56570), (205, 56360), (210, 56348), (214, 56324),

Gene: Toma\_56 Start: 42308, Stop: 41778, Start Num: 58

Candidate Starts for Toma\_56:

(41, 42377), (Start: 58 @42308 has 5 MA's), (119, 42131), (165, 41987), (176, 41942), (198, 41858), (205, 41834),

Gene: TootsiePop\_72 Start: 45214, Stop: 45801, Start Num: 33

Candidate Starts for TootsiePop\_72:

(22, 45160), (Start: 33 @45214 has 11 MA's), (Start: 42 @45232 has 1 MA's), (49, 45265), (50, 45274), (55, 45289), (88, 45370), (113, 45436), (140, 45508), (151, 45559), (165, 45610), (180, 45661), (185, 45685), (200, 45742),

Gene: Trouble\_45 Start: 34048, Stop: 33572, Start Num: 76

Candidate Starts for Trouble\_45:

(Start: 76 @34048 has 14 MA's), (Start: 85 @34030 has 2 MA's), (90, 34009), (Start: 105 @33946 has 2 MA's), (111, 33925), (161, 33772), (184, 33694), (198, 33637), (200, 33628), (201, 33625), (210, 33601),

Gene: Twister6\_84 Start: 55177, Stop: 54662, Start Num: 63

Candidate Starts for Twister6\_84:

(Start: 59 @55183 has 6 MA's), (Start: 63 @55177 has 20 MA's), (69, 55165), (86, 55129), (Start: 99 @55084 has 2 MA's), (103, 55069), (128, 54991), (135, 54964), (142, 54943), (148, 54919), (205, 54709), (210, 54697), (214, 54673),

Gene: Valary\_86 Start: 56820, Stop: 56305, Start Num: 63

Candidate Starts for Valary\_86:

(Start: 59 @56826 has 6 MA's), (Start: 63 @56820 has 20 MA's), (69, 56808), (86, 56772), (Start: 99 @56727 has 2 MA's), (103, 56712), (128, 56634), (135, 56607), (142, 56586), (148, 56562), (205, 56352), (210, 56340), (214, 56316),

Gene: VanDeWege\_87 Start: 56351, Stop: 55830, Start Num: 59

Candidate Starts for VanDeWege\_87:

(Start: 59 @56351 has 6 MA's), (Start: 63 @56345 has 20 MA's), (69, 56333), (86, 56297), (Start: 99 @56252 has 2 MA's), (103, 56237), (128, 56159), (135, 56132), (142, 56111), (148, 56087), (205, 55877), (210, 55865), (214, 55841),

Gene: VasuNzinga\_51 Start: 28326, Stop: 28799, Start Num: 67

Candidate Starts for VasuNzinga\_51:

(Start: 67 @28326 has 9 MA's), (Start: 81 @28356 has 2 MA's), (112, 28437), (143, 28527), (161, 28602), (196, 28725), (207, 28764), (210, 28770),

Gene: Vitus\_38 Start: 31088, Stop: 31606, Start Num: 74

Candidate Starts for Vitus\_38:

(Start: 74 @31088 has 1 MA's), (136, 31262), (183, 31457),

Gene: Vivi2\_43 Start: 37381, Stop: 36914, Start Num: 64

Candidate Starts for Vivi2\_43:

(39, 37450), (43, 37441), (Start: 64 @37381 has 1 MA's), (114, 37258), (121, 37240), (140, 37195), (144, 37177), (154, 37132), (165, 37096), (188, 37018),

Gene: WilliamBoone\_124 Start: 68689, Stop: 69156, Start Num: 77

Candidate Starts for WilliamBoone\_124:

(27, 68554), (Start: 77 @68689 has 1 MA's), (Start: 91 @68722 has 3 MA's), (144, 68878), (165, 68962), (185, 69028), (207, 69106),

Gene: Wizard\_80 Start: 55680, Stop: 55165, Start Num: 63

Candidate Starts for Wizard\_80:

(Start: 59 @55686 has 6 MA's), (Start: 63 @55680 has 20 MA's), (69, 55668), (86, 55632), (Start: 99 @55587 has 2 MA's), (103, 55572), (128, 55494), (135, 55467), (142, 55446), (148, 55422), (205, 55212), (210, 55200), (214, 55176),

Gene: Wollypog\_58 Start: 43704, Stop: 44234, Start Num: 68

Candidate Starts for Wollypog\_58:

(Start: 68 @43704 has 2 MA's), (106, 43818), (120, 43863), (164, 44016), (190, 44124),

Gene: Wrigley\_69 Start: 45475, Stop: 46062, Start Num: 33

Candidate Starts for Wrigley\_69:

(10, 45283), (20, 45415), (Start: 33 @45475 has 11 MA's), (50, 45535), (55, 45550), (70, 45580), (104, 45661), (140, 45769), (165, 45871), (167, 45874), (210, 46030),

Gene: Yvonnetastic\_71 Start: 47446, Stop: 47946, Start Num: 73

Candidate Starts for Yvonnetastic\_71:

(Start: 73 @47446 has 3 MA's), (106, 47539), (113, 47560), (132, 47614), (142, 47653), (156, 47710), (165, 47740), (178, 47794), (185, 47827), (205, 47902),

Gene: Zemlya\_56 Start: 42043, Stop: 41525, Start Num: 58

Candidate Starts for Zemlya\_56:

(Start: 58 @42043 has 5 MA's), (141, 41836), (150, 41794), (161, 41746),