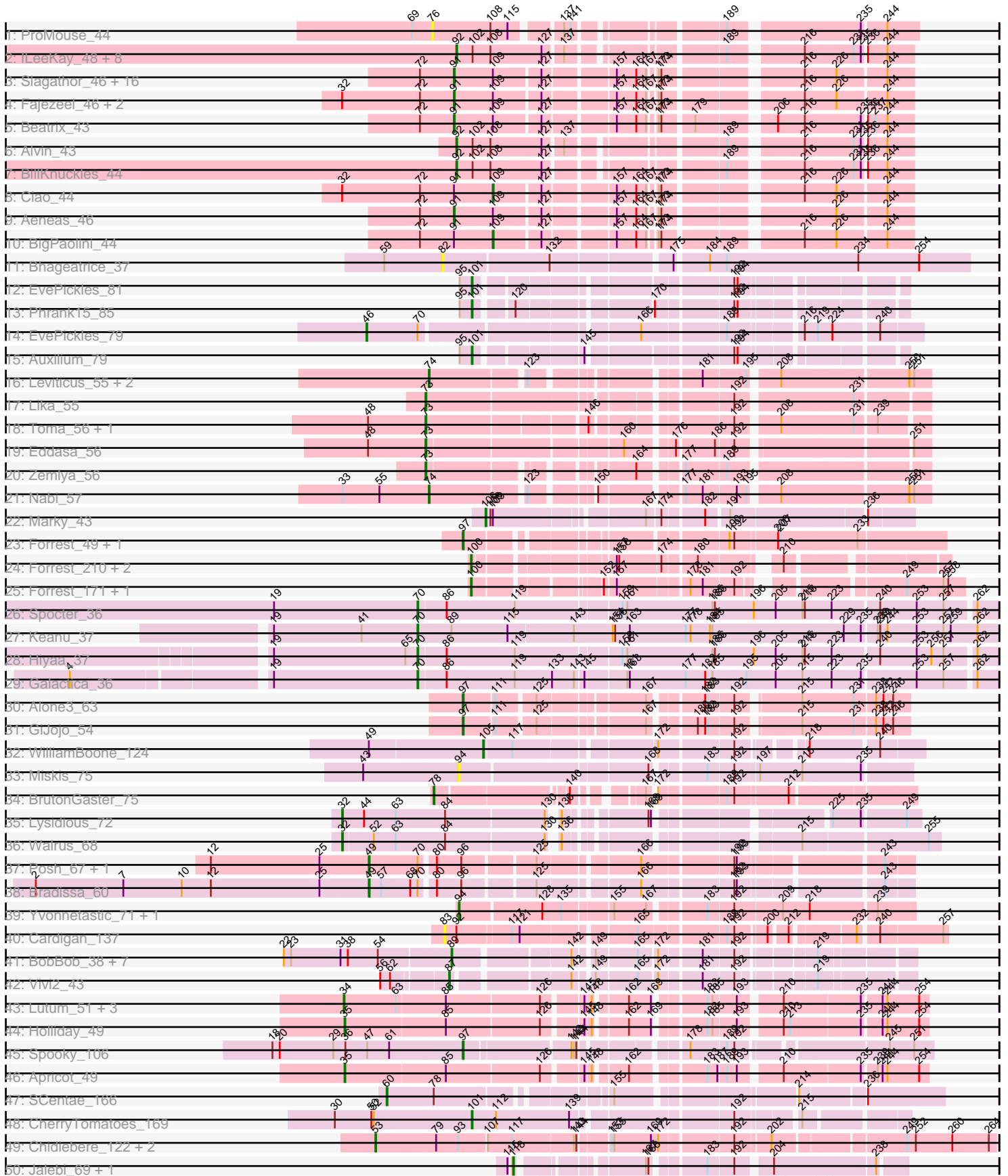
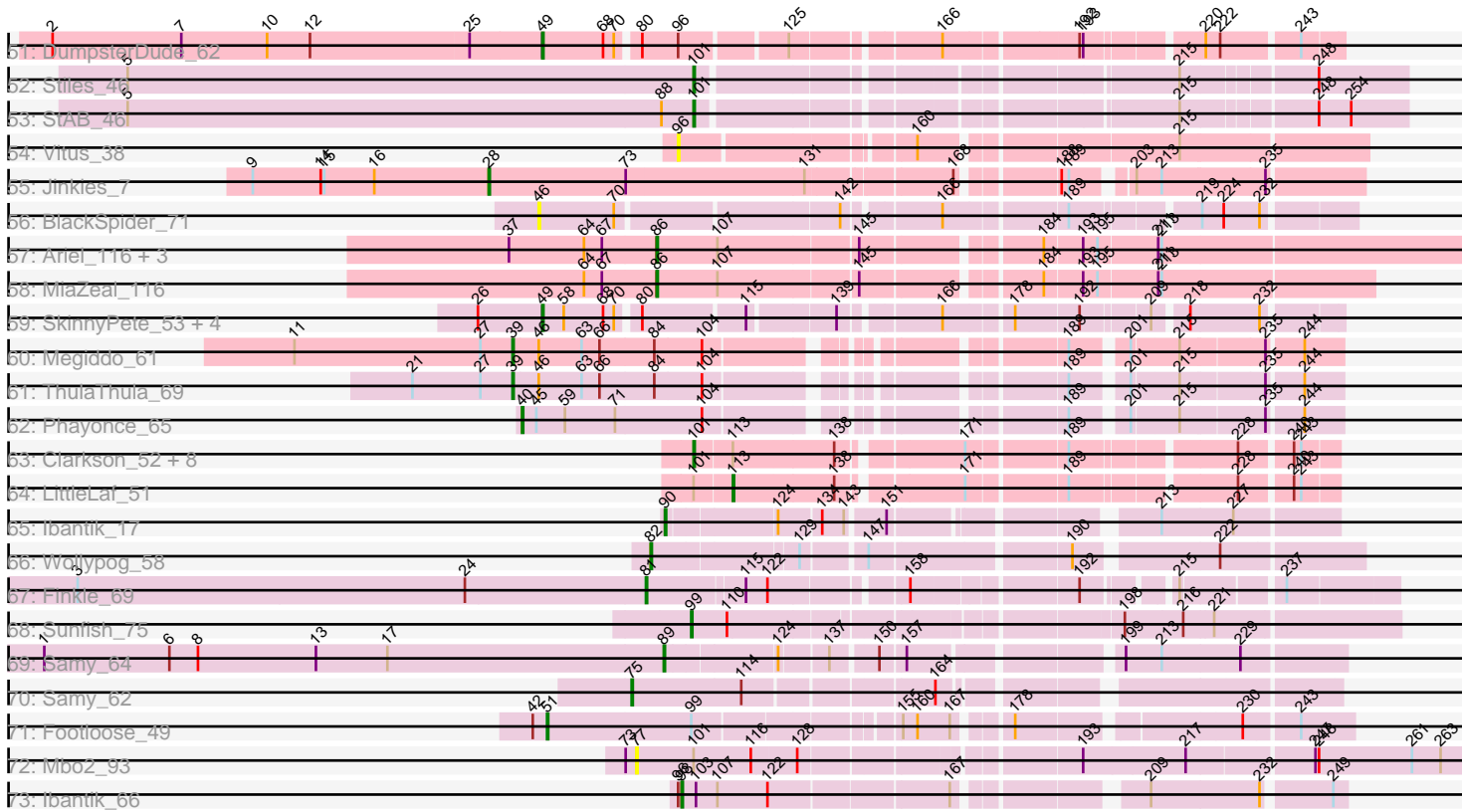


Pham 202760



Pham 202760



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 202760 Report

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

Pham number 202760 has 136 members, 8 are drafts.

Phages represented in each track:

- Track 1 : ProMouse\_44
- Track 2 : ILeeKay\_48, Fushigi\_42, Trouble\_45, BluSpix\_41, IgnatiusPatJac\_43, Ajay\_44, Seanderson\_46, Kykar\_44, Petruchio\_44
- Track 3 : 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 4 : Fajezeel\_46, Greg\_46, Pippin\_46
- Track 5 : Beatrix\_43
- Track 6 : Alvin\_43
- Track 7 : BillKnuckles\_44
- Track 8 : Ciao\_44
- Track 9 : Aeneas\_46
- Track 10 : BigPaolini\_44
- Track 11 : Bhageatrice\_37
- Track 12 : EvePickles\_81
- Track 13 : Phrank15\_85
- Track 14 : EvePickles\_79
- Track 15 : Auxilium\_79
- Track 16 : Leviticus\_55, Esperer\_55, Hydra\_56
- Track 17 : Lika\_55
- Track 18 : Toma\_56, Goby\_56
- Track 19 : Eddasa\_56
- Track 20 : Zemlya\_56
- Track 21 : Nabi\_57
- Track 22 : Marky\_43
- Track 23 : Forrest\_49, Jada\_47
- Track 24 : Forrest\_210, Phredrick\_212, Emma1919\_210
- Track 25 : Forrest\_171, Jada\_168
- Track 26 : Spocter\_36
- Track 27 : Keanu\_37
- Track 28 : Hiyaa\_37
- Track 29 : Galactica\_36
- Track 30 : Alone3\_63
- Track 31 : GiJojo\_54
- Track 32 : WilliamBoone\_124
- Track 33 : Miskis\_75
- Track 34 : BrutonGaster\_75

- Track 35 : Lysidious\_72
- Track 36 : Walrus\_68
- Track 37 : Posh\_67, Wrigley\_69
- Track 38 : Bradissa\_60
- Track 39 : Yvonnetastic\_71, JonJames\_73
- Track 40 : Cardigan\_137
- Track 41 : BobBob\_38, Charming\_41, Nordenberg\_35, Tangent\_41, Love\_44, Brandonk123\_42, Paries\_43, Rofo\_41
- Track 42 : Vivi2\_43
- Track 43 : Lutum\_51, Kenna\_50, BENtherdunthat\_51, Getalong\_54
- Track 44 : Holliday\_49
- Track 45 : Spooky\_106
- Track 46 : Apricot\_49
- Track 47 : SCentae\_166
- Track 48 : CherryTomatoes\_169
- Track 49 : Chidiebere\_122, Kabocha\_123, Schomber\_120
- Track 50 : Jalebi\_69, Sampudon\_70
- Track 51 : DumpsterDude\_62
- Track 52 : Stiles\_46
- Track 53 : StAB\_46
- Track 54 : Vitus\_38
- Track 55 : Jinkies\_7
- Track 56 : BlackSpider\_71
- Track 57 : Ariel\_116, Courthouse\_111, Squint\_114, Superphikiman\_113
- Track 58 : MiaZeal\_116
- Track 59 : SkinnyPete\_53, DocMcStuffins\_74, Misha28\_72, Awesomesauce\_74, TootsiePop\_72
- Track 60 : Megiddo\_61
- Track 61 : ThulaThula\_69
- Track 62 : Phayonce\_65
- Track 63 : Clarkson\_52, Pringar\_51, Blackbeetle\_51, Huphlepuuff\_53, VasuNzinga\_51, Raela\_51, Beelzebub\_55, Poise\_51, Lilbit\_52
- Track 64 : LittleLaf\_51
- Track 65 : Ibantik\_17
- Track 66 : Wollypog\_58
- Track 67 : Finkle\_69
- Track 68 : Sunfish\_75
- Track 69 : Sammy\_64
- Track 70 : Sammy\_62
- Track 71 : Footloose\_49
- Track 72 : Mbo2\_93
- Track 73 : 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 91, it was called in 22 of the 128 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,

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

- Ajay\_44, Alone3\_63, Alvin\_43, Apricot\_49, Ariel\_116, Auxilium\_79, Awesomesauce\_74, BENtherdunthat\_51, Beelzebub\_55, Bhageatrice\_37, BillKnuckles\_44, BlackSpider\_71, Blackbeetle\_51, BluSpix\_41, BobBob\_38, Bradissa\_60, Brandonk123\_42, BrutonGaster\_75, Cardigan\_137, Charming\_41, CherryTomatoes\_169, Chidiebere\_122, Clarkson\_52, Courthouse\_111, DocMcStuffins\_74, DumpsterDude\_62, Eddasa\_56, Emma1919\_210, Esperer\_55, EvePickles\_79, EvePickles\_81, Finkle\_69, Footloose\_49, Forrest\_171, Forrest\_210, Forrest\_49, Fushigi\_42, Galactica\_36, Getalong\_54, GiJojo\_54, Goby\_56, Hiyaa\_37, Holliday\_49, Huphlepuuff\_53, Hydra\_56, ILeeKay\_48, Ibantik\_17, Ibantik\_66, IgnatiusPatJac\_43, Jada\_168, Jada\_47, Jalebi\_69, Jinkies\_7, JonJames\_73, Kabocha\_123, Keanu\_37, Kenna\_50, Kykar\_44, Leviticus\_55, Lika\_55, Lilbit\_52, LittleLaf\_51, Love\_44, Lutum\_51, Lysidious\_72, Marky\_43, Mbo2\_93, Megiddo\_61, MiaZeal\_116, Misha28\_72, Miskis\_75, Nabi\_57, Nordenberg\_35, Paries\_43, Petruccio\_44, Phayonce\_65, Phrank15\_85, Phredrick\_212, Poise\_51, Posh\_67, Pringar\_51, ProMouse\_44, Raela\_51, Rofo\_41, SCentae\_166, Sampudon\_70, Samy\_62, Samy\_64, Schomber\_120, Seanderson\_46, SkinnyPete\_53, Spocter\_36, Spooky\_106, Squint\_114, StAB\_46, Stiles\_46, Sunfish\_75, Superphikiman\_113, Tangent\_41, ThulaThula\_69, Toma\_56, TootsiePop\_72, Trouble\_45, VasuNzinga\_51, Vitus\_38, Vivi2\_43, Walrus\_68, WilliamBoone\_124, Wollypog\_58, Wrigley\_69, Yvonnestic\_71, Zemlya\_56,

### Summary by start number:

Start 28:

- Found in 1 of 136 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 128
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jinkies\_7 (FL),

Start 32:

- Found in 6 of 136 ( 4.4% ) of genes in pham
- Manual Annotations of this start: 2 of 128
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Lysidious\_72 (CV), Walrus\_68 (CV),

Start 34:

- Found in 4 of 136 ( 2.9% ) of genes in pham
- Manual Annotations of this start: 4 of 128
- 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 35:

- Found in 2 of 136 ( 1.5% ) of genes in pham

- Manual Annotations of this start: 2 of 128
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Apricot\_49 (DN3), Holliday\_49 (DN1),

#### Start 39:

- Found in 2 of 136 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 2 of 128
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Megiddo\_61 (P1), ThulaThula\_69 (P5),

#### Start 40:

- Found in 1 of 136 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 128
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Phayonce\_65 (P5),

#### Start 46:

- Found in 4 of 136 ( 2.9% ) of genes in pham
- Manual Annotations of this start: 1 of 128
- Called 50.0% of time when present
- Phage (with cluster) where this start called: BlackSpider\_71 (FN), EvePickles\_79 (AY),

#### Start 49:

- Found in 10 of 136 ( 7.4% ) of genes in pham
- Manual Annotations of this start: 9 of 128
- Called 90.0% of time when present
- Phage (with cluster) where this start called: Awesomesauce\_74 (F1), Bradissa\_60 (CY1), DocMcStuffins\_74 (F1), DumpsterDude\_62 (DW), Misha28\_72 (F1), Posh\_67 (CY), SkinnyPete\_53 (N), TootsiePop\_72 (F1), Wrigley\_69 (CY),

#### Start 51:

- Found in 1 of 136 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 128
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Footloose\_49 (singleton),

#### Start 53:

- Found in 3 of 136 ( 2.2% ) of genes in pham
- Manual Annotations of this start: 3 of 128
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Chidiebere\_122 (DQ), Kabocha\_123 (DQ), Schomber\_120 (DQ),

#### Start 60:

- Found in 1 of 136 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 128
- Called 100.0% of time when present
- Phage (with cluster) where this start called: SCentae\_166 (DO),

#### Start 70:

- Found in 15 of 136 ( 11.0% ) of genes in pham
- Manual Annotations of this start: 4 of 128

- Called 26.7% of time when present
- Phage (with cluster) where this start called: Galactica\_36 (BQ), Hiyaa\_37 (BQ), Keanu\_37 (BQ), Spocter\_36 (BQ),

#### Start 73:

- Found in 7 of 136 ( 5.1% ) of genes in pham
- Manual Annotations of this start: 5 of 128
- Called 71.4% 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 74:

- Found in 4 of 136 ( 2.9% ) of genes in pham
- Manual Annotations of this start: 4 of 128
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Esperer\_55 (BD1), Hydra\_56 (BD1), Leviticus\_55 (BD1), Nabi\_57 (BD1),

#### Start 75:

- Found in 1 of 136 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 128
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Samy\_62 (singleton),

#### Start 76:

- Found in 1 of 136 ( 0.7% ) 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 77:

- Found in 1 of 136 ( 0.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Mbo2\_93 (singleton),

#### Start 78:

- Found in 2 of 136 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 1 of 128
- Called 50.0% of time when present
- Phage (with cluster) where this start called: BrutonGaster\_75 (CQ2),

#### Start 81:

- Found in 1 of 136 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 128
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Finkle\_69 (singleton),

#### Start 82:

- Found in 2 of 136 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 1 of 128
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Bhageatrice\_37 (AY), Wollypog\_58 (singleton),

Start 83:

- Found in 1 of 136 ( 0.7% ) 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 86:

- Found in 8 of 136 ( 5.9% ) of genes in pham
- Manual Annotations of this start: 5 of 128
- Called 62.5% of time when present
- Phage (with cluster) where this start called: Ariel\_116 (J), Courthouse\_111 (J), MiaZeal\_116 (J), Squint\_114 (J), Superphikiman\_113 (J),

Start 87:

- Found in 1 of 136 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 128
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Vivi2\_43 (DE1),

Start 89:

- Found in 10 of 136 ( 7.4% ) of genes in pham
- Manual Annotations of this start: 9 of 128
- Called 90.0% 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), Samy\_64 (singleton), Tangent\_41 (DE1),

Start 90:

- Found in 1 of 136 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 128
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ibantik\_17 (singleton),

Start 91:

- Found in 24 of 136 ( 17.6% ) of genes in pham
- Manual Annotations of this start: 22 of 128
- Called 91.7% 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 92:

- Found in 12 of 136 ( 8.8% ) of genes in pham
- Manual Annotations of this start: 11 of 128
- Called 91.7% 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), Petruccio\_44 (A1), Seanderson\_46 (A1), Trouble\_45 (A1),

Start 94:

- Found in 3 of 136 ( 2.2% ) of genes in pham
- Manual Annotations of this start: 2 of 128
- Called 100.0% of time when present
- Phage (with cluster) where this start called: JonJames\_73 (DD), Miskis\_75 (CQ1), Yvonnestic\_71 (DD),

Start 96:

- Found in 6 of 136 ( 4.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 16.7% of time when present
- Phage (with cluster) where this start called: Vitus\_38 (FL),

Start 97:

- Found in 5 of 136 ( 3.7% ) of genes in pham
- Manual Annotations of this start: 5 of 128
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alone3\_63 (BS), Forrest\_49 (BK1), GiJojo\_54 (BS), Jada\_47 (BK1), Spooky\_106 (DN2),

Start 98:

- Found in 1 of 136 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 128
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ibantik\_66 (singleton),

Start 99:

- Found in 2 of 136 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 1 of 128
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Sunfish\_75 (singleton),

Start 100:

- Found in 5 of 136 ( 3.7% ) of genes in pham
- Manual Annotations of this start: 5 of 128
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Emma1919\_210 (BK1), Forrest\_171 (BK1), Forrest\_210 (BK1), Jada\_168 (BK1), Phredrick\_212 (BK1),

Start 101:

- Found in 17 of 136 ( 12.5% ) of genes in pham
- Manual Annotations of this start: 14 of 128
- Called 88.2% of time when present
- Phage (with cluster) where this start called: Auxilium\_79 (AY), Beelzebub\_55 (S), Blackbeetle\_51 (S), CherryTomatoes\_169 (DO), Clarkson\_52 (S), EvePickles\_81 (AY), Huphlepuuff\_53 (S), Lilbit\_52 (S), Phrank15\_85 (AY), Poise\_51 (S), Pringar\_51 (S), Raela\_51 (S), StAB\_46 (EP), Stiles\_46 (EP), VasuNzinga\_51 (S),

Start 105:

- Found in 1 of 136 ( 0.7% ) of genes in pham

- Manual Annotations of this start: 1 of 128
- Called 100.0% of time when present
- Phage (with cluster) where this start called: WilliamBoone\_124 (CQ1),

#### Start 106:

- Found in 1 of 136 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 128
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Marky\_43 (BH),

#### Start 109:

- Found in 25 of 136 ( 18.4% ) of genes in pham
- Manual Annotations of this start: 2 of 128
- Called 8.0% of time when present
- Phage (with cluster) where this start called: BigPaolini\_44 (A1), Ciao\_44 (A1),

#### Start 113:

- Found in 10 of 136 ( 7.4% ) of genes in pham
- Manual Annotations of this start: 1 of 128
- Called 10.0% of time when present
- Phage (with cluster) where this start called: LittleLaf\_51 (S),

#### Start 118:

- Found in 2 of 136 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 2 of 128
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jalebi\_69 (DV), Sampudon\_70 (DV),

### Summary by clusters:

There are 31 clusters represented in this pham: DO, singleton, DD, BH, BQ, BS, DV, DW, FL, FN, DQ, EP, A1, BD1, DN3, DN2, DN1, CQ1, CY1, P1, P5, J, N, CY, BK1, CQ2, AY, CV, F1, DE1, S,

#### Info for manual annotations of cluster A1:

- Start number 91 was manually annotated 22 times for cluster A1.
- Start number 92 was manually annotated 11 times for cluster A1.
- Start number 109 was manually annotated 2 times for cluster A1.

#### Info for manual annotations of cluster AY:

- Start number 46 was manually annotated 1 time for cluster AY.
- Start number 101 was manually annotated 3 times for cluster AY.

#### Info for manual annotations of cluster BD1:

- Start number 73 was manually annotated 5 times for cluster BD1.
- Start number 74 was manually annotated 4 times for cluster BD1.

#### Info for manual annotations of cluster BH:

- Start number 106 was manually annotated 1 time for cluster BH.

#### Info for manual annotations of cluster BK1:

- Start number 97 was manually annotated 2 times for cluster BK1.
- Start number 100 was manually annotated 5 times for cluster BK1.

Info for manual annotations of cluster BQ:

- Start number 70 was manually annotated 4 times for cluster BQ.

Info for manual annotations of cluster BS:

- Start number 97 was manually annotated 2 times for cluster BS.

Info for manual annotations of cluster CQ1:

- Start number 105 was manually annotated 1 time for cluster CQ1.

Info for manual annotations of cluster CQ2:

- Start number 78 was manually annotated 1 time for cluster CQ2.

Info for manual annotations of cluster CV:

- Start number 32 was manually annotated 2 times for cluster CV.

Info for manual annotations of cluster CY:

- Start number 49 was manually annotated 2 times for cluster CY.

Info for manual annotations of cluster CY1:

- Start number 49 was manually annotated 1 time for cluster CY1.

Info for manual annotations of cluster DD:

- Start number 94 was manually annotated 2 times for cluster DD.

Info for manual annotations of cluster DE1:

- Start number 87 was manually annotated 1 time for cluster DE1.
- Start number 89 was manually annotated 8 times for cluster DE1.

Info for manual annotations of cluster DN1:

- Start number 34 was manually annotated 4 times for cluster DN1.
- Start number 35 was manually annotated 1 time for cluster DN1.

Info for manual annotations of cluster DN2:

- Start number 97 was manually annotated 1 time for cluster DN2.

Info for manual annotations of cluster DN3:

- Start number 35 was manually annotated 1 time for cluster DN3.

Info for manual annotations of cluster DO:

- Start number 60 was manually annotated 1 time for cluster DO.
- Start number 101 was manually annotated 1 time for cluster DO.

Info for manual annotations of cluster DQ:

- Start number 53 was manually annotated 3 times for cluster DQ.

Info for manual annotations of cluster DV:

- Start number 118 was manually annotated 2 times for cluster DV.

Info for manual annotations of cluster DW:

- Start number 49 was manually annotated 1 time for cluster DW.

Info for manual annotations of cluster EP:

- Start number 101 was manually annotated 2 times for cluster EP.

Info for manual annotations of cluster F1:

- Start number 49 was manually annotated 4 times for cluster F1.

Info for manual annotations of cluster FL:

- Start number 28 was manually annotated 1 time for cluster FL.

Info for manual annotations of cluster J:

- Start number 86 was manually annotated 5 times for cluster J.

Info for manual annotations of cluster N:

- Start number 49 was manually annotated 1 time for cluster N.

Info for manual annotations of cluster P1:

- Start number 39 was manually annotated 1 time for cluster P1.

Info for manual annotations of cluster P5:

- Start number 39 was manually annotated 1 time for cluster P5.
- Start number 40 was manually annotated 1 time for cluster P5.

Info for manual annotations of cluster S:

- Start number 101 was manually annotated 8 times for cluster S.
- Start number 113 was manually annotated 1 time for cluster S.

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

Gene: Aeneas\_46 Start: 33206, Stop: 32721, Start Num: 91

Candidate Starts for Aeneas\_46:

(72, 33245), (Start: 91 @33206 has 22 MA's), (Start: 109 @33164 has 2 MA's), (127, 33110), (157, 33035), (164, 33011), (167, 32999), (173, 32993), (174, 32990), (226, 32807), (244, 32750),

Gene: Ajay\_44 Start: 32810, Stop: 32334, Start Num: 92

Candidate Starts for Ajay\_44:

(Start: 92 @32810 has 11 MA's), (102, 32792), (108, 32771), (127, 32708), (137, 32687), (189, 32534), (216, 32456), (231, 32399), (235, 32390), (236, 32387), (244, 32363),

Gene: Alone3\_63 Start: 21624, Stop: 22094, Start Num: 97

Candidate Starts for Alone3\_63:

(Start: 97 @21624 has 5 MA's), (111, 21660), (125, 21702), (167, 21816), (182, 21870), (183, 21873), (192, 21903), (215, 21969), (231, 22029), (238, 22053), (242, 22062), (246, 22074),

Gene: Alvin\_43 Start: 33331, Stop: 32855, Start Num: 92

Candidate Starts for Alvin\_43:

(Start: 92 @33331 has 11 MA's), (102, 33313), (108, 33292), (127, 33229), (137, 33208), (189, 33055), (216, 32977), (231, 32920), (235, 32911), (236, 32908), (244, 32884),

Gene: Apricot\_49 Start: 33085, Stop: 32453, Start Num: 35

Candidate Starts for Apricot\_49:

(Start: 35 @33085 has 2 MA's), (85, 32965), (126, 32854), (145, 32812), (148, 32806), (162, 32773), (183, 32695), (187, 32683), (189, 32674), (193, 32662), (210, 32617), (235, 32530), (239, 32515), (241, 32509), (244, 32503), (254, 32464),

Gene: Arcanine\_45 Start: 32773, Stop: 32288, Start Num: 91

Candidate Starts for Arcanine\_45:

(72, 32812), (Start: 91 @32773 has 22 MA's), (Start: 109 @32731 has 2 MA's), (127, 32677), (157, 32602), (164, 32578), (167, 32566), (173, 32560), (174, 32557), (216, 32410), (226, 32374), (244, 32317),

Gene: Ariel\_116 Start: 62922, Stop: 63554, Start Num: 86

Candidate Starts for Ariel\_116:

(37, 62799), (64, 62862), (67, 62877), (Start: 86 @62922 has 5 MA's), (107, 62973), (145, 63084), (184, 63213), (193, 63243), (195, 63255), (211, 63303), (213, 63306),

Gene: Auxilium\_79 Start: 44205, Stop: 44636, Start Num: 101

Candidate Starts for Auxilium\_79:

(95, 44190), (Start: 101 @44205 has 14 MA's), (145, 44313), (192, 44466), (194, 44469),

Gene: Awesomesauce\_74 Start: 45209, Stop: 45796, Start Num: 49

Candidate Starts for Awesomesauce\_74:

(26, 45155), (Start: 49 @45209 has 9 MA's), (58, 45227), (68, 45260), (Start: 70 @45269 has 4 MA's), (80, 45284), (115, 45365), (139, 45431), (166, 45503), (178, 45554), (192, 45605), (209, 45656), (218, 45680), (232, 45737),

Gene: BENtherdunthat\_51 Start: 33462, Stop: 32830, Start Num: 34

Candidate Starts for BENtherdunthat\_51:

(Start: 34 @33462 has 4 MA's), (63, 33399), (85, 33342), (126, 33231), (145, 33189), (148, 33183), (162, 33150), (169, 33123), (183, 33072), (185, 33066), (193, 33039), (210, 32994), (235, 32907), (241, 32886), (244, 32880), (254, 32841),

Gene: Beatrix\_43 Start: 34176, Stop: 33691, Start Num: 91

Candidate Starts for Beatrix\_43:

(72, 34215), (Start: 91 @34176 has 22 MA's), (Start: 109 @34134 has 2 MA's), (127, 34080), (157, 34005), (164, 33981), (167, 33969), (173, 33963), (174, 33960), (179, 33927), (206, 33846), (216, 33813), (235, 33747), (236, 33744), (237, 33735), (244, 33720),

Gene: Beelzebub\_55 Start: 29418, Stop: 29891, Start Num: 101

Candidate Starts for Beelzebub\_55:

(Start: 101 @29418 has 14 MA's), (Start: 113 @29448 has 1 MA's), (138, 29529), (171, 29619), (189, 29694), (228, 29817), (240, 29856), (243, 29862),

Gene: Bexan\_42 Start: 33854, Stop: 33369, Start Num: 91

Candidate Starts for Bexan\_42:

(72, 33893), (Start: 91 @33854 has 22 MA's), (Start: 109 @33812 has 2 MA's), (127, 33758), (157, 33683), (164, 33659), (167, 33647), (173, 33641), (174, 33638), (216, 33491), (226, 33455), (244, 33398),

Gene: Bhageatrice\_37 Start: 26729, Stop: 27340, Start Num: 82

Candidate Starts for Bhageatrice\_37:

(59, 26657), (Start: 82 @26729 has 1 MA's), (132, 26855), (175, 26984), (184, 27020), (189, 27041), (234, 27203), (254, 27278),

Gene: BigPaolini\_44 Start: 31801, Stop: 31358, Start Num: 109

Candidate Starts for BigPaolini\_44:

(72, 31882), (Start: 91 @31843 has 22 MA's), (Start: 109 @31801 has 2 MA's), (127, 31747), (157, 31672), (164, 31648), (167, 31636), (173, 31630), (174, 31627), (216, 31480), (226, 31444), (244, 31387),

Gene: BillKnuckles\_44 Start: 33515, Stop: 33039, Start Num: 92

Candidate Starts for BillKnuckles\_44:

(Start: 92 @33515 has 11 MA's), (102, 33497), (108, 33476), (127, 33413), (189, 33239), (216, 33161), (231, 33104), (235, 33095), (236, 33092), (244, 33068),

Gene: BlackSpider\_71 Start: 42752, Stop: 43360, Start Num: 46

Candidate Starts for BlackSpider\_71:

(Start: 46 @42752 has 1 MA's), (Start: 70 @42815 has 4 MA's), (142, 42986), (166, 43055), (189, 43148), (219, 43241), (224, 43259), (232, 43289),

Gene: Blackbeetle\_51 Start: 28464, Stop: 28937, Start Num: 101

Candidate Starts for Blackbeetle\_51:

(Start: 101 @28464 has 14 MA's), (Start: 113 @28494 has 1 MA's), (138, 28575), (171, 28665), (189, 28740), (228, 28863), (240, 28902), (243, 28908),

Gene: BluSpix\_41 Start: 28937, Stop: 28461, Start Num: 92

Candidate Starts for BluSpix\_41:

(Start: 92 @28937 has 11 MA's), (102, 28919), (108, 28898), (127, 28835), (137, 28814), (189, 28661), (216, 28583), (231, 28526), (235, 28517), (236, 28514), (244, 28490),

Gene: BobBob\_38 Start: 35578, Stop: 35108, Start Num: 89

Candidate Starts for BobBob\_38:

(22, 35776), (23, 35767), (31, 35707), (38, 35698), (54, 35662), (Start: 89 @35578 has 9 MA's), (142, 35452), (149, 35434), (165, 35389), (172, 35371), (181, 35326), (192, 35290), (219, 35212),

Gene: Bones\_44 Start: 33339, Stop: 32854, Start Num: 91

Candidate Starts for Bones\_44:

(72, 33378), (Start: 91 @33339 has 22 MA's), (Start: 109 @33297 has 2 MA's), (127, 33243), (157, 33168), (164, 33144), (167, 33132), (173, 33126), (174, 33123), (216, 32976), (226, 32940), (244, 32883),

Gene: Bradissa\_60 Start: 44116, Stop: 44703, Start Num: 49

Candidate Starts for Bradissa\_60:

(2, 43708), (7, 43816), (10, 43888), (12, 43924), (25, 44056), (Start: 49 @44116 has 9 MA's), (57, 44131), (68, 44167), (Start: 70 @44176 has 4 MA's), (80, 44191), (96, 44221), (125, 44302), (166, 44410), (192, 44512), (193, 44515), (243, 44671),

Gene: Brandonk123\_42 Start: 36713, Stop: 36243, Start Num: 89

Candidate Starts for Brandonk123\_42:

(22, 36911), (23, 36902), (31, 36842), (38, 36833), (54, 36797), (Start: 89 @36713 has 9 MA's), (142, 36587), (149, 36569), (165, 36524), (172, 36506), (181, 36461), (192, 36425), (219, 36347),

Gene: BrutonGaster\_75 Start: 52573, Stop: 53064, Start Num: 78

Candidate Starts for BrutonGaster\_75:

(Start: 78 @52573 has 1 MA's), (140, 52717), (167, 52774), (172, 52780), (189, 52852), (192, 52861), (212, 52921),

Gene: Cardigan\_137 Start: 77101, Stop: 77631, Start Num: 83

Candidate Starts for Cardigan\_137:

(83, 77101), (Start: 92 @77116 has 11 MA's), (117, 77179), (121, 77188), (165, 77311), (189, 77404), (192, 77413), (200, 77446), (212, 77464), (232, 77530), (240, 77551), (257, 77626),

Gene: Charming\_41 Start: 36214, Stop: 35744, Start Num: 89

Candidate Starts for Charming\_41:

(22, 36412), (23, 36403), (31, 36343), (38, 36334), (54, 36298), (Start: 89 @36214 has 9 MA's), (142, 36088), (149, 36070), (165, 36025), (172, 36007), (181, 35962), (192, 35926), (219, 35848),

Gene: CherryTomatoes\_169 Start: 123046, Stop: 122573, Start Num: 101

Candidate Starts for CherryTomatoes\_169:

(30, 123214), (50, 123169), (52, 123166), (Start: 101 @123046 has 14 MA's), (112, 123016), (139, 122929), (192, 122755), (215, 122689),

Gene: Chidiebere\_122 Start: 85918, Stop: 86616, Start Num: 53

Candidate Starts for Chidiebere\_122:

(Start: 53 @85918 has 3 MA's), (79, 85990), (93, 86017), (107, 86050), (117, 86080), (143, 86152), (144, 86155), (153, 86188), (155, 86191), (169, 86236), (172, 86245), (192, 86326), (202, 86365), (249, 86509), (252, 86518), (260, 86563), (264, 86608),

Gene: Ciao\_44 Start: 32944, Stop: 32501, Start Num: 109

Candidate Starts for Ciao\_44:

(Start: 32 @33121 has 2 MA's), (72, 33025), (Start: 91 @32986 has 22 MA's), (Start: 109 @32944 has 2 MA's), (127, 32890), (157, 32815), (164, 32791), (167, 32779), (173, 32773), (174, 32770), (216, 32623), (226, 32587), (244, 32530),

Gene: Clarkson\_52 Start: 29146, Stop: 29619, Start Num: 101

Candidate Starts for Clarkson\_52:

(Start: 101 @29146 has 14 MA's), (Start: 113 @29176 has 1 MA's), (138, 29257), (171, 29347), (189, 29422), (228, 29545), (240, 29584), (243, 29590),

Gene: Courthouse\_111 Start: 62522, Stop: 63154, Start Num: 86

Candidate Starts for Courthouse\_111:

(37, 62399), (64, 62462), (67, 62477), (Start: 86 @62522 has 5 MA's), (107, 62573), (145, 62684), (184, 62813), (193, 62843), (195, 62855), (211, 62903), (213, 62906),

Gene: Dexes\_44 Start: 33602, Stop: 33117, Start Num: 91

Candidate Starts for Dexes\_44:

(72, 33641), (Start: 91 @33602 has 22 MA's), (Start: 109 @33560 has 2 MA's), (127, 33506), (157, 33431), (164, 33407), (167, 33395), (173, 33389), (174, 33386), (216, 33239), (226, 33203), (244, 33146),

Gene: DocMcStuffins\_74 Start: 46126, Stop: 46713, Start Num: 49

Candidate Starts for DocMcStuffins\_74:

(26, 46072), (Start: 49 @46126 has 9 MA's), (58, 46144), (68, 46177), (Start: 70 @46186 has 4 MA's), (80, 46201), (115, 46282), (139, 46348), (166, 46420), (178, 46471), (192, 46522), (209, 46573), (218, 46597), (232, 46654),

Gene: DumpsterDude\_62 Start: 46219, Stop: 46806, Start Num: 49

Candidate Starts for DumpsterDude\_62:

(2, 45811), (7, 45919), (10, 45991), (12, 46027), (25, 46159), (Start: 49 @46219 has 9 MA's), (68, 46270), (Start: 70 @46279 has 4 MA's), (80, 46294), (96, 46324), (125, 46405), (166, 46513), (192,

46615), (193, 46618), (220, 46702), (222, 46714), (243, 46774),

Gene: Eddasa\_56 Start: 41265, Stop: 40723, Start Num: 73

Candidate Starts for Eddasa\_56:

(48, 41334), (Start: 73 @41265 has 5 MA's), (160, 41046), (176, 40995), (186, 40953), (192, 40932), (251, 40743),

Gene: Emma1919\_210 Start: 103175, Stop: 103651, Start Num: 100

Candidate Starts for Emma1919\_210:

(Start: 100 @103175 has 5 MA's), (157, 103319), (158, 103322), (174, 103370), (180, 103406), (210, 103484),

Gene: Esperer\_55 Start: 40815, Stop: 40285, Start Num: 74

Candidate Starts for Esperer\_55:

(Start: 74 @40815 has 4 MA's), (123, 40707), (181, 40539), (195, 40488), (208, 40458), (250, 40311), (251, 40305),

Gene: EvePickles\_81 Start: 47374, Stop: 47805, Start Num: 101

Candidate Starts for EvePickles\_81:

(95, 47359), (Start: 101 @47374 has 14 MA's), (192, 47635), (194, 47638),

Gene: EvePickles\_79 Start: 46090, Stop: 46698, Start Num: 46

Candidate Starts for EvePickles\_79:

(Start: 46 @46090 has 1 MA's), (Start: 70 @46153 has 4 MA's), (166, 46393), (189, 46486), (216, 46564), (219, 46579), (224, 46597), (240, 46648),

Gene: Eyeball\_45 Start: 33249, Stop: 32764, Start Num: 91

Candidate Starts for Eyeball\_45:

(72, 33288), (Start: 91 @33249 has 22 MA's), (Start: 109 @33207 has 2 MA's), (127, 33153), (157, 33078), (164, 33054), (167, 33042), (173, 33036), (174, 33033), (216, 32886), (226, 32850), (244, 32793),

Gene: Fajezeel\_46 Start: 33359, Stop: 32874, Start Num: 91

Candidate Starts for Fajezeel\_46:

(Start: 32 @33494 has 2 MA's), (72, 33398), (Start: 91 @33359 has 22 MA's), (Start: 109 @33317 has 2 MA's), (127, 33263), (157, 33188), (164, 33164), (167, 33152), (173, 33146), (174, 33143), (216, 32996), (226, 32960), (244, 32903),

Gene: Fenn\_45 Start: 34680, Stop: 34195, Start Num: 91

Candidate Starts for Fenn\_45:

(72, 34719), (Start: 91 @34680 has 22 MA's), (Start: 109 @34638 has 2 MA's), (127, 34584), (157, 34509), (164, 34485), (167, 34473), (173, 34467), (174, 34464), (216, 34317), (226, 34281), (244, 34224),

Gene: Finkle\_69 Start: 42637, Stop: 43176, Start Num: 81

Candidate Starts for Finkle\_69:

(3, 42163), (24, 42487), (Start: 81 @42637 has 1 MA's), (115, 42715), (122, 42733), (158, 42832), (192, 42955), (215, 43015), (237, 43087),

Gene: Footloose\_49 Start: 28880, Stop: 29479, Start Num: 51

Candidate Starts for Footloose\_49:

(42, 28868), (Start: 51 @28880 has 1 MA's), (Start: 99 @29000 has 1 MA's), (155, 29150), (160, 29162), (167, 29189), (178, 29225), (230, 29393), (243, 29435),



Gene: Forrest\_49 Start: 41931, Stop: 42446, Start Num: 97

Candidate Starts for Forrest\_49:

(Start: 97 @41931 has 5 MA's), (190, 42195), (192, 42201), (206, 42249), (207, 42252), (233, 42342),

Gene: Forrest\_210 Start: 104141, Stop: 104617, Start Num: 100

Candidate Starts for Forrest\_210:

(Start: 100 @104141 has 5 MA's), (157, 104285), (158, 104288), (174, 104336), (180, 104372), (210, 104450),

Gene: Forrest\_171 Start: 88900, Stop: 89394, Start Num: 100

Candidate Starts for Forrest\_171:

(Start: 100 @88900 has 5 MA's), (152, 89029), (157, 89041), (178, 89119), (181, 89134), (192, 89170), (249, 89323), (257, 89368), (258, 89374),

Gene: Fushigi\_42 Start: 30914, Stop: 30438, Start Num: 92

Candidate Starts for Fushigi\_42:

(Start: 92 @30914 has 11 MA's), (102, 30896), (108, 30875), (127, 30812), (137, 30791), (189, 30638), (216, 30560), (231, 30503), (235, 30494), (236, 30491), (244, 30467),

Gene: Galactica\_36 Start: 26897, Stop: 27583, Start Num: 70

Candidate Starts for Galactica\_36:

(4, 26495), (19, 26720), (Start: 70 @26897 has 4 MA's), (Start: 86 @26930 has 5 MA's), (119, 27014), (133, 27059), (143, 27086), (145, 27095), (161, 27140), (163, 27143), (177, 27212), (182, 27236), (185, 27245), (195, 27287), (205, 27323), (215, 27356), (223, 27392), (235, 27428), (253, 27491), (257, 27524), (262, 27557),

Gene: Getalong\_54 Start: 36463, Stop: 35831, Start Num: 34

Candidate Starts for Getalong\_54:

(Start: 34 @36463 has 4 MA's), (63, 36400), (85, 36343), (126, 36232), (145, 36190), (148, 36184), (162, 36151), (169, 36124), (183, 36073), (185, 36067), (193, 36040), (210, 35995), (235, 35908), (241, 35887), (244, 35881), (254, 35842),

Gene: GiJojo\_54 Start: 20818, Stop: 21288, Start Num: 97

Candidate Starts for GiJojo\_54:

(Start: 97 @20818 has 5 MA's), (111, 20854), (125, 20896), (167, 21010), (180, 21055), (182, 21064), (183, 21067), (192, 21097), (215, 21163), (231, 21223), (238, 21247), (242, 21256), (246, 21268),

Gene: Goby\_56 Start: 42305, Stop: 41778, Start Num: 73

Candidate Starts for Goby\_56:

(48, 42374), (Start: 73 @42305 has 5 MA's), (146, 42131), (192, 41987), (208, 41942), (231, 41858), (239, 41834),

Gene: Greg\_46 Start: 33359, Stop: 32874, Start Num: 91

Candidate Starts for Greg\_46:

(Start: 32 @33494 has 2 MA's), (72, 33398), (Start: 91 @33359 has 22 MA's), (Start: 109 @33317 has 2 MA's), (127, 33263), (157, 33188), (164, 33164), (167, 33152), (173, 33146), (174, 33143), (216, 32996), (226, 32960), (244, 32903),

Gene: Hiyaa\_37 Start: 28140, Stop: 28826, Start Num: 70

Candidate Starts for Hiyaa\_37:

(19, 27963), (65, 28125), (Start: 70 @28140 has 4 MA's), (Start: 86 @28173 has 5 MA's), (119, 28257), (159, 28377), (161, 28383), (185, 28488), (186, 28491), (196, 28539), (205, 28566), (215, 28599),

(216, 28602), (223, 28635), (240, 28689), (253, 28734), (256, 28752), (257, 28767), (262, 28800),

Gene: Holliday\_49 Start: 33694, Stop: 33062, Start Num: 35

Candidate Starts for Holliday\_49:

(Start: 35 @33694 has 2 MA's), (85, 33574), (126, 33463), (145, 33421), (148, 33415), (162, 33382), (169, 33355), (183, 33304), (185, 33298), (193, 33271), (210, 33226), (213, 33220), (235, 33139), (241, 33118), (244, 33112), (254, 33073),

Gene: Huphleuff\_53 Start: 28951, Stop: 29424, Start Num: 101

Candidate Starts for Huphleuff\_53:

(Start: 101 @28951 has 14 MA's), (Start: 113 @28981 has 1 MA's), (138, 29062), (171, 29152), (189, 29227), (228, 29350), (240, 29389), (243, 29395),

Gene: Hydra\_56 Start: 41651, Stop: 41121, Start Num: 74

Candidate Starts for Hydra\_56:

(Start: 74 @41651 has 4 MA's), (123, 41543), (181, 41375), (195, 41324), (208, 41294), (250, 41147), (251, 41141),

Gene: ILeeKay\_48 Start: 33858, Stop: 33382, Start Num: 92

Candidate Starts for ILeeKay\_48:

(Start: 92 @33858 has 11 MA's), (102, 33840), (108, 33819), (127, 33756), (137, 33735), (189, 33582), (216, 33504), (231, 33447), (235, 33438), (236, 33435), (244, 33411),

Gene: Ibantik\_17 Start: 6683, Stop: 6195, Start Num: 90

Candidate Starts for Ibantik\_17:

(Start: 90 @6683 has 1 MA's), (124, 6599), (134, 6566), (143, 6548), (151, 6521), (213, 6335), (227, 6278),

Gene: Ibantik\_66 Start: 28032, Stop: 28526, Start Num: 98

Candidate Starts for Ibantik\_66:

(96, 28029), (Start: 98 @28032 has 1 MA's), (103, 28044), (107, 28062), (122, 28104), (167, 28245), (209, 28374), (232, 28464), (249, 28515),

Gene: IgnatiusPatJac\_43 Start: 32882, Stop: 32406, Start Num: 92

Candidate Starts for IgnatiusPatJac\_43:

(Start: 92 @32882 has 11 MA's), (102, 32864), (108, 32843), (127, 32780), (137, 32759), (189, 32606), (216, 32528), (231, 32471), (235, 32462), (236, 32459), (244, 32435),

Gene: Jada\_47 Start: 41113, Stop: 41628, Start Num: 97

Candidate Starts for Jada\_47:

(Start: 97 @41113 has 5 MA's), (190, 41377), (192, 41383), (206, 41431), (207, 41434), (233, 41524),

Gene: Jada\_168 Start: 87596, Stop: 88090, Start Num: 100

Candidate Starts for Jada\_168:

(Start: 100 @87596 has 5 MA's), (152, 87725), (157, 87737), (178, 87815), (181, 87830), (192, 87866), (249, 88019), (257, 88064), (258, 88070),

Gene: Jalebi\_69 Start: 49016, Stop: 49408, Start Num: 118

Candidate Starts for Jalebi\_69:

(115, 49013), (Start: 118 @49016 has 2 MA's), (167, 49139), (168, 49142), (183, 49196), (192, 49226), (204, 49262), (238, 49376),

Gene: Jinkies\_7 Start: 5796, Stop: 6461, Start Num: 28

Candidate Starts for Jinkies\_7:

(9, 5598), (14, 5655), (15, 5658), (16, 5700), (Start: 28 @5796 has 1 MA's), (Start: 73 @5910 has 5 MA's), (131, 6057), (168, 6165), (188, 6234), (189, 6240), (203, 6279), (213, 6300), (235, 6384),

Gene: JonJames\_73 Start: 49905, Stop: 50405, Start Num: 94

Candidate Starts for JonJames\_73:

(Start: 94 @49905 has 2 MA's), (128, 49998), (135, 50019), (155, 50073), (167, 50112), (183, 50169), (192, 50199), (209, 50253), (218, 50286), (239, 50361),

Gene: Kabocha\_123 Start: 86731, Stop: 87429, Start Num: 53

Candidate Starts for Kabocha\_123:

(Start: 53 @86731 has 3 MA's), (79, 86803), (93, 86830), (107, 86863), (117, 86893), (143, 86965), (144, 86968), (153, 87001), (155, 87004), (169, 87049), (172, 87058), (192, 87139), (202, 87178), (249, 87322), (252, 87331), (260, 87376), (264, 87421),

Gene: Keanu\_37 Start: 27981, Stop: 28685, Start Num: 70

Candidate Starts for Keanu\_37:

(19, 27804), (41, 27912), (Start: 70 @27981 has 4 MA's), (Start: 89 @28023 has 9 MA's), (115, 28092), (143, 28170), (154, 28218), (156, 28221), (163, 28239), (177, 28308), (178, 28314), (184, 28338), (185, 28341), (229, 28503), (235, 28524), (239, 28539), (240, 28542), (244, 28551), (253, 28587), (257, 28620), (259, 28629), (262, 28662),

Gene: Kenna\_50 Start: 34206, Stop: 33574, Start Num: 34

Candidate Starts for Kenna\_50:

(Start: 34 @34206 has 4 MA's), (63, 34143), (85, 34086), (126, 33975), (145, 33933), (148, 33927), (162, 33894), (169, 33867), (183, 33816), (185, 33810), (193, 33783), (210, 33738), (235, 33651), (241, 33630), (244, 33624), (254, 33585),

Gene: Kykar\_44 Start: 32934, Stop: 32458, Start Num: 92

Candidate Starts for Kykar\_44:

(Start: 92 @32934 has 11 MA's), (102, 32916), (108, 32895), (127, 32832), (137, 32811), (189, 32658), (216, 32580), (231, 32523), (235, 32514), (236, 32511), (244, 32487),

Gene: Leviticus\_55 Start: 41002, Stop: 40472, Start Num: 74

Candidate Starts for Leviticus\_55:

(Start: 74 @41002 has 4 MA's), (123, 40894), (181, 40726), (195, 40675), (208, 40645), (250, 40498), (251, 40492),

Gene: Licorice\_47 Start: 34445, Stop: 33960, Start Num: 91

Candidate Starts for Licorice\_47:

(72, 34484), (Start: 91 @34445 has 22 MA's), (Start: 109 @34403 has 2 MA's), (127, 34349), (157, 34274), (164, 34250), (167, 34238), (173, 34232), (174, 34229), (216, 34082), (226, 34046), (244, 33989),

Gene: Lika\_55 Start: 42316, Stop: 41774, Start Num: 73

Candidate Starts for Lika\_55:

(Start: 73 @42316 has 5 MA's), (192, 41986), (231, 41857),

Gene: Lilbit\_52 Start: 29147, Stop: 29620, Start Num: 101

Candidate Starts for Lilbit\_52:

(Start: 101 @29147 has 14 MA's), (Start: 113 @29177 has 1 MA's), (138, 29258), (171, 29348), (189, 29423), (228, 29546), (240, 29585), (243, 29591),

Gene: LittleLaf\_51 Start: 28906, Stop: 29349, Start Num: 113

Candidate Starts for LittleLaf\_51:

(Start: 101 @28876 has 14 MA's), (Start: 113 @28906 has 1 MA's), (138, 28987), (171, 29077), (189, 29152), (228, 29275), (240, 29314), (243, 29320),

Gene: Love\_44 Start: 37647, Stop: 37177, Start Num: 89

Candidate Starts for Love\_44:

(22, 37845), (23, 37836), (31, 37776), (38, 37767), (54, 37731), (Start: 89 @37647 has 9 MA's), (142, 37521), (149, 37503), (165, 37458), (172, 37440), (181, 37395), (192, 37359), (219, 37281),

Gene: Lutum\_51 Start: 34206, Stop: 33574, Start Num: 34

Candidate Starts for Lutum\_51:

(Start: 34 @34206 has 4 MA's), (63, 34143), (85, 34086), (126, 33975), (145, 33933), (148, 33927), (162, 33894), (169, 33867), (183, 33816), (185, 33810), (193, 33783), (210, 33738), (235, 33651), (241, 33630), (244, 33624), (254, 33585),

Gene: Lysidious\_72 Start: 45013, Stop: 45621, Start Num: 32

Candidate Starts for Lysidious\_72:

(Start: 32 @45013 has 2 MA's), (44, 45040), (63, 45079), (84, 45139), (130, 45256), (136, 45262), (168, 45343), (169, 45346), (225, 45520), (235, 45553), (249, 45604),

Gene: Marge\_44 Start: 33477, Stop: 32992, Start Num: 91

Candidate Starts for Marge\_44:

(72, 33516), (Start: 91 @33477 has 22 MA's), (Start: 109 @33435 has 2 MA's), (127, 33381), (157, 33306), (164, 33282), (167, 33270), (173, 33264), (174, 33261), (216, 33114), (226, 33078), (244, 33021),

Gene: Marky\_43 Start: 31173, Stop: 31622, Start Num: 106

Candidate Starts for Marky\_43:

(Start: 106 @31173 has 1 MA's), (108, 31179), (Start: 109 @31182 has 2 MA's), (167, 31344), (174, 31359), (182, 31404), (191, 31428), (236, 31572),

Gene: Mbo2\_93 Start: 66190, Stop: 65546, Start Num: 77

Candidate Starts for Mbo2\_93:

(Start: 73 @66199 has 5 MA's), (77, 66190), (Start: 101 @66142 has 14 MA's), (116, 66094), (128, 66058), (193, 65854), (217, 65770), (247, 65671), (248, 65668), (261, 65590), (263, 65566),

Gene: Megiddo\_61 Start: 41199, Stop: 41795, Start Num: 39

Candidate Starts for Megiddo\_61:

(11, 41016), (27, 41172), (Start: 39 @41199 has 2 MA's), (Start: 46 @41220 has 1 MA's), (63, 41256), (66, 41271), (84, 41316), (104, 41355), (189, 41595), (201, 41634), (215, 41670), (235, 41736), (244, 41763),

Gene: MiaZeal\_116 Start: 63594, Stop: 64151, Start Num: 86

Candidate Starts for MiaZeal\_116:

(64, 63534), (67, 63549), (Start: 86 @63594 has 5 MA's), (107, 63645), (145, 63756), (184, 63885), (193, 63915), (195, 63927), (211, 63975), (213, 63978),

Gene: Misha28\_72 Start: 45214, Stop: 45801, Start Num: 49

Candidate Starts for Misha28\_72:

(26, 45160), (Start: 49 @45214 has 9 MA's), (58, 45232), (68, 45265), (Start: 70 @45274 has 4 MA's), (80, 45289), (115, 45370), (139, 45436), (166, 45508), (178, 45559), (192, 45610), (209, 45661), (218, 45685), (232, 45742),

Gene: Miskis\_75 Start: 47774, Stop: 48271, Start Num: 94

Candidate Starts for Miskis\_75:

(43, 47657), (Start: 94 @47774 has 2 MA's), (168, 47984), (183, 48038), (192, 48068), (197, 48095), (215, 48146), (235, 48215),

Gene: Nabi\_57 Start: 42255, Stop: 41725, Start Num: 74

Candidate Starts for Nabi\_57:

(33, 42360), (55, 42315), (Start: 74 @42255 has 4 MA's), (123, 42147), (150, 42084), (177, 42000), (181, 41979), (193, 41940), (195, 41928), (208, 41898), (250, 41751), (251, 41745),

Gene: Naira\_45 Start: 34727, Stop: 34242, Start Num: 91

Candidate Starts for Naira\_45:

(72, 34766), (Start: 91 @34727 has 22 MA's), (Start: 109 @34685 has 2 MA's), (127, 34631), (157, 34556), (164, 34532), (167, 34520), (173, 34514), (174, 34511), (216, 34364), (226, 34328), (244, 34271),

Gene: Niza\_46 Start: 34104, Stop: 33619, Start Num: 91

Candidate Starts for Niza\_46:

(72, 34143), (Start: 91 @34104 has 22 MA's), (Start: 109 @34062 has 2 MA's), (127, 34008), (157, 33933), (164, 33909), (167, 33897), (173, 33891), (174, 33888), (216, 33741), (226, 33705), (244, 33648),

Gene: Nordenberg\_35 Start: 35840, Stop: 35370, Start Num: 89

Candidate Starts for Nordenberg\_35:

(22, 36038), (23, 36029), (31, 35969), (38, 35960), (54, 35924), (Start: 89 @35840 has 9 MA's), (142, 35714), (149, 35696), (165, 35651), (172, 35633), (181, 35588), (192, 35552), (219, 35474),

Gene: Paries\_43 Start: 37309, Stop: 36839, Start Num: 89

Candidate Starts for Paries\_43:

(22, 37507), (23, 37498), (31, 37438), (38, 37429), (54, 37393), (Start: 89 @37309 has 9 MA's), (142, 37183), (149, 37165), (165, 37120), (172, 37102), (181, 37057), (192, 37021), (219, 36943),

Gene: Petruccio\_44 Start: 32947, Stop: 32471, Start Num: 92

Candidate Starts for Petruccio\_44:

(Start: 92 @32947 has 11 MA's), (102, 32929), (108, 32908), (127, 32845), (137, 32824), (189, 32671), (216, 32593), (231, 32536), (235, 32527), (236, 32524), (244, 32500),

Gene: Phayonce\_65 Start: 43286, Stop: 43876, Start Num: 40

Candidate Starts for Phayonce\_65:

(Start: 40 @43286 has 1 MA's), (45, 43298), (59, 43322), (71, 43364), (104, 43436), (189, 43676), (201, 43715), (215, 43751), (235, 43817), (244, 43844),

Gene: Phrank15\_85 Start: 46952, Stop: 47386, Start Num: 101

Candidate Starts for Phrank15\_85:

(95, 46937), (Start: 101 @46952 has 14 MA's), (120, 46988), (170, 47129), (192, 47213), (194, 47216),

Gene: Phredrick\_212 Start: 102971, Stop: 103447, Start Num: 100

Candidate Starts for Phredrick\_212:

(Start: 100 @102971 has 5 MA's), (157, 103115), (158, 103118), (174, 103166), (180, 103202), (210, 103280),

Gene: Pippin\_46 Start: 33403, Stop: 32918, Start Num: 91

Candidate Starts for Pippin\_46:

(Start: 32 @33538 has 2 MA's), (72, 33442), (Start: 91 @33403 has 22 MA's), (Start: 109 @33361 has 2 MA's), (127, 33307), (157, 33232), (164, 33208), (167, 33196), (173, 33190), (174, 33187), (216, 33040), (226, 33004), (244, 32947),

Gene: Poise\_51 Start: 28464, Stop: 28937, Start Num: 101

Candidate Starts for Poise\_51:

(Start: 101 @28464 has 14 MA's), (Start: 113 @28494 has 1 MA's), (138, 28575), (171, 28665), (189, 28740), (228, 28863), (240, 28902), (243, 28908),

Gene: Posh\_67 Start: 45892, Stop: 46479, Start Num: 49

Candidate Starts for Posh\_67:

(12, 45700), (25, 45832), (Start: 49 @45892 has 9 MA's), (Start: 70 @45952 has 4 MA's), (80, 45967), (96, 45997), (125, 46078), (166, 46186), (192, 46288), (193, 46291), (243, 46447),

Gene: Pringar\_51 Start: 28752, Stop: 29225, Start Num: 101

Candidate Starts for Pringar\_51:

(Start: 101 @28752 has 14 MA's), (Start: 113 @28782 has 1 MA's), (138, 28863), (171, 28953), (189, 29028), (228, 29151), (240, 29190), (243, 29196),

Gene: ProMouse\_44 Start: 33305, Stop: 32802, Start Num: 76

Candidate Starts for ProMouse\_44:

(69, 33329), (76, 33305), (108, 33236), (115, 33215), (137, 33164), (141, 33158), (189, 33011), (235, 32867), (244, 32840),

Gene: Raela\_51 Start: 29019, Stop: 29492, Start Num: 101

Candidate Starts for Raela\_51:

(Start: 101 @29019 has 14 MA's), (Start: 113 @29049 has 1 MA's), (138, 29130), (171, 29220), (189, 29295), (228, 29418), (240, 29457), (243, 29463),

Gene: Rajelicia\_45 Start: 33435, Stop: 32950, Start Num: 91

Candidate Starts for Rajelicia\_45:

(72, 33474), (Start: 91 @33435 has 22 MA's), (Start: 109 @33393 has 2 MA's), (127, 33339), (157, 33264), (164, 33240), (167, 33228), (173, 33222), (174, 33219), (216, 33072), (226, 33036), (244, 32979),

Gene: Rofo\_41 Start: 36635, Stop: 36165, Start Num: 89

Candidate Starts for Rofo\_41:

(22, 36833), (23, 36824), (31, 36764), (38, 36755), (54, 36719), (Start: 89 @36635 has 9 MA's), (142, 36509), (149, 36491), (165, 36446), (172, 36428), (181, 36383), (192, 36347), (219, 36269),

Gene: Ruotula\_47 Start: 34572, Stop: 34078, Start Num: 91

Candidate Starts for Ruotula\_47:

(72, 34611), (Start: 91 @34572 has 22 MA's), (Start: 109 @34530 has 2 MA's), (127, 34476), (157, 34401), (164, 34377), (167, 34365), (173, 34359), (174, 34356), (216, 34200), (226, 34164), (244, 34107),

Gene: SCentae\_166 Start: 121636, Stop: 122217, Start Num: 60

Candidate Starts for SCentae\_166:

(Start: 60 @121636 has 1 MA's), (Start: 78 @121693 has 1 MA's), (155, 121873), (214, 122059), (236, 122125),

Gene: Sagefire\_47 Start: 34321, Stop: 33836, Start Num: 91

Candidate Starts for Sagefire\_47:

(72, 34360), (Start: 91 @34321 has 22 MA's), (Start: 109 @34279 has 2 MA's), (127, 34225), (157, 34150), (164, 34126), (167, 34114), (173, 34108), (174, 34105), (216, 33958), (226, 33922), (244, 33865),

Gene: Sampudon\_70 Start: 49016, Stop: 49408, Start Num: 118

Candidate Starts for Sampudon\_70:

(115, 49013), (Start: 118 @49016 has 2 MA's), (167, 49139), (168, 49142), (183, 49196), (192, 49226), (204, 49262), (238, 49376),

Gene: Samy\_64 Start: 40970, Stop: 41473, Start Num: 89

Candidate Starts for Samy\_64:

(1, 40451), (6, 40556), (8, 40580), (13, 40679), (17, 40739), (Start: 89 @40970 has 9 MA's), (124, 41057), (137, 41093), (150, 41126), (157, 41144), (199, 41297), (213, 41327), (229, 41390),

Gene: Samy\_62 Start: 37969, Stop: 38490, Start Num: 75

Candidate Starts for Samy\_62:

(Start: 75 @37969 has 1 MA's), (114, 38059), (164, 38200),

Gene: Schomber\_120 Start: 85119, Stop: 85817, Start Num: 53

Candidate Starts for Schomber\_120:

(Start: 53 @85119 has 3 MA's), (79, 85191), (93, 85218), (107, 85251), (117, 85281), (143, 85353), (144, 85356), (153, 85389), (155, 85392), (169, 85437), (172, 85446), (192, 85527), (202, 85566), (249, 85710), (252, 85719), (260, 85764), (264, 85809),

Gene: Seanderson\_46 Start: 33923, Stop: 33447, Start Num: 92

Candidate Starts for Seanderson\_46:

(Start: 92 @33923 has 11 MA's), (102, 33905), (108, 33884), (127, 33821), (137, 33800), (189, 33647), (216, 33569), (231, 33512), (235, 33503), (236, 33500), (244, 33476),

Gene: SkinnyPete\_53 Start: 35995, Stop: 36582, Start Num: 49

Candidate Starts for SkinnyPete\_53:

(26, 35941), (Start: 49 @35995 has 9 MA's), (58, 36013), (68, 36046), (Start: 70 @36055 has 4 MA's), (80, 36070), (115, 36151), (139, 36217), (166, 36289), (178, 36340), (192, 36391), (209, 36442), (218, 36466), (232, 36523),

Gene: Slagathor\_46 Start: 33360, Stop: 32875, Start Num: 91

Candidate Starts for Slagathor\_46:

(72, 33399), (Start: 91 @33360 has 22 MA's), (Start: 109 @33318 has 2 MA's), (127, 33264), (157, 33189), (164, 33165), (167, 33153), (173, 33147), (174, 33144), (216, 32997), (226, 32961), (244, 32904),

Gene: Smairt\_46 Start: 33659, Stop: 33174, Start Num: 91

Candidate Starts for Smairt\_46:

(72, 33698), (Start: 91 @33659 has 22 MA's), (Start: 109 @33617 has 2 MA's), (127, 33563), (157, 33488), (164, 33464), (167, 33452), (173, 33446), (174, 33443), (216, 33296), (226, 33260), (244, 33203),

Gene: Spocter\_36 Start: 28063, Stop: 28749, Start Num: 70

Candidate Starts for Spocter\_36:

(19, 27886), (Start: 70 @28063 has 4 MA's), (Start: 86 @28096 has 5 MA's), (119, 28180), (159, 28300), (161, 28306), (185, 28411), (186, 28414), (196, 28462), (205, 28489), (215, 28522), (216, 28525), (223, 28558), (240, 28612), (253, 28657), (257, 28690), (262, 28723),

Gene: Spooky\_106 Start: 55742, Stop: 56233, Start Num: 97

Candidate Starts for Spooky\_106:

(18, 55508), (20, 55517), (29, 55583), (36, 55598), (47, 55625), (61, 55652), (Start: 97 @55742 has 5 MA's), (142, 55859), (143, 55862), (144, 55865), (178, 55967), (189, 56009), (192, 56018), (245, 56180), (251, 56210),

Gene: Squint\_114 Start: 63713, Stop: 64345, Start Num: 86

Candidate Starts for Squint\_114:

(37, 63590), (64, 63653), (67, 63668), (Start: 86 @63713 has 5 MA's), (107, 63764), (145, 63875), (184, 64004), (193, 64034), (195, 64046), (211, 64094), (213, 64097),

Gene: StAB\_46 Start: 35820, Stop: 36344, Start Num: 101

Candidate Starts for StAB\_46:

(5, 35346), (88, 35793), (Start: 101 @35820 has 14 MA's), (215, 36168), (248, 36270), (254, 36297),

Gene: Stiles\_46 Start: 35275, Stop: 35799, Start Num: 101

Candidate Starts for Stiles\_46:

(5, 34801), (Start: 101 @35275 has 14 MA's), (215, 35623), (248, 35725),

Gene: StrongArm\_43 Start: 33982, Stop: 33497, Start Num: 91

Candidate Starts for StrongArm\_43:

(72, 34021), (Start: 91 @33982 has 22 MA's), (Start: 109 @33940 has 2 MA's), (127, 33886), (157, 33811), (164, 33787), (167, 33775), (173, 33769), (174, 33766), (216, 33619), (226, 33583), (244, 33526),

Gene: Sunfish\_75 Start: 46858, Stop: 46316, Start Num: 99

Candidate Starts for Sunfish\_75:

(Start: 99 @46858 has 1 MA's), (110, 46828), (198, 46537), (216, 46489), (221, 46465),

Gene: Superphikiman\_113 Start: 62804, Stop: 63436, Start Num: 86

Candidate Starts for Superphikiman\_113:

(37, 62681), (64, 62744), (67, 62759), (Start: 86 @62804 has 5 MA's), (107, 62855), (145, 62966), (184, 63095), (193, 63125), (195, 63137), (211, 63185), (213, 63188),

Gene: Tangent\_41 Start: 36226, Stop: 35756, Start Num: 89

Candidate Starts for Tangent\_41:

(22, 36424), (23, 36415), (31, 36355), (38, 36346), (54, 36310), (Start: 89 @36226 has 9 MA's), (142, 36100), (149, 36082), (165, 36037), (172, 36019), (181, 35974), (192, 35938), (219, 35860),

Gene: TheloniousMonk\_45 Start: 34368, Stop: 33883, Start Num: 91

Candidate Starts for TheloniousMonk\_45:

(72, 34407), (Start: 91 @34368 has 22 MA's), (Start: 109 @34326 has 2 MA's), (127, 34272), (157, 34197), (164, 34173), (167, 34161), (173, 34155), (174, 34152), (216, 34005), (226, 33969), (244, 33912),

Gene: ThulaThula\_69 Start: 44706, Stop: 45302, Start Num: 39

Candidate Starts for ThulaThula\_69:

(21, 44622), (27, 44679), (Start: 39 @44706 has 2 MA's), (Start: 46 @44727 has 1 MA's), (63, 44763), (66, 44778), (84, 44823), (104, 44862), (189, 45102), (201, 45141), (215, 45177), (235, 45243), (244, 45270),

Gene: Toma\_56 Start: 42308, Stop: 41778, Start Num: 73



Candidate Starts for Toma\_56:

(48, 42377), (Start: 73 @42308 has 5 MA's), (146, 42131), (192, 41987), (208, 41942), (231, 41858), (239, 41834),

Gene: TootsiePop\_72 Start: 45214, Stop: 45801, Start Num: 49

Candidate Starts for TootsiePop\_72:

(26, 45160), (Start: 49 @45214 has 9 MA's), (58, 45232), (68, 45265), (Start: 70 @45274 has 4 MA's), (80, 45289), (115, 45370), (139, 45436), (166, 45508), (178, 45559), (192, 45610), (209, 45661), (218, 45685), (232, 45742),

Gene: Trouble\_45 Start: 34048, Stop: 33572, Start Num: 92

Candidate Starts for Trouble\_45:

(Start: 92 @34048 has 11 MA's), (102, 34030), (108, 34009), (127, 33946), (137, 33925), (189, 33772), (216, 33694), (231, 33637), (235, 33628), (236, 33625), (244, 33601),

Gene: VasuNzinga\_51 Start: 28326, Stop: 28799, Start Num: 101

Candidate Starts for VasuNzinga\_51:

(Start: 101 @28326 has 14 MA's), (Start: 113 @28356 has 1 MA's), (138, 28437), (171, 28527), (189, 28602), (228, 28725), (240, 28764), (243, 28770),

Gene: Vitus\_38 Start: 31088, Stop: 31606, Start Num: 96

Candidate Starts for Vitus\_38:

(96, 31088), (160, 31262), (215, 31457),

Gene: Vivi2\_43 Start: 37381, Stop: 36914, Start Num: 87

Candidate Starts for Vivi2\_43:

(56, 37450), (62, 37441), (Start: 87 @37381 has 1 MA's), (142, 37258), (149, 37240), (165, 37195), (172, 37177), (181, 37132), (192, 37096), (219, 37018),

Gene: Walrus\_68 Start: 43422, Stop: 44057, Start Num: 32

Candidate Starts for Walrus\_68:

(Start: 32 @43422 has 2 MA's), (52, 43458), (63, 43485), (84, 43545), (130, 43662), (136, 43668), (215, 43899), (255, 44043),

Gene: WilliamBoone\_124 Start: 68689, Stop: 69156, Start Num: 105

Candidate Starts for WilliamBoone\_124:

(Start: 49 @68554 has 9 MA's), (Start: 105 @68689 has 1 MA's), (117, 68722), (172, 68878), (192, 68962), (218, 69028), (240, 69106),

Gene: Wollypog\_58 Start: 43704, Stop: 44234, Start Num: 82

Candidate Starts for Wollypog\_58:

(Start: 82 @43704 has 1 MA's), (129, 43818), (147, 43863), (190, 44016), (222, 44124),

Gene: Wrigley\_69 Start: 45475, Stop: 46062, Start Num: 49

Candidate Starts for Wrigley\_69:

(12, 45283), (25, 45415), (Start: 49 @45475 has 9 MA's), (Start: 70 @45535 has 4 MA's), (80, 45550), (96, 45580), (125, 45661), (166, 45769), (192, 45871), (193, 45874), (243, 46030),

Gene: Yvonnetastic\_71 Start: 47446, Stop: 47946, Start Num: 94

Candidate Starts for Yvonnetastic\_71:

(Start: 94 @47446 has 2 MA's), (128, 47539), (135, 47560), (155, 47614), (167, 47653), (183, 47710), (192, 47740), (209, 47794), (218, 47827), (239, 47902),

Gene: Zemlya\_56 Start: 42043, Stop: 41525, Start Num: 73

Candidate Starts for Zemlya\_56:

(Start: 73 @42043 has 5 MA's), (164, 41836), (177, 41794), (189, 41746),