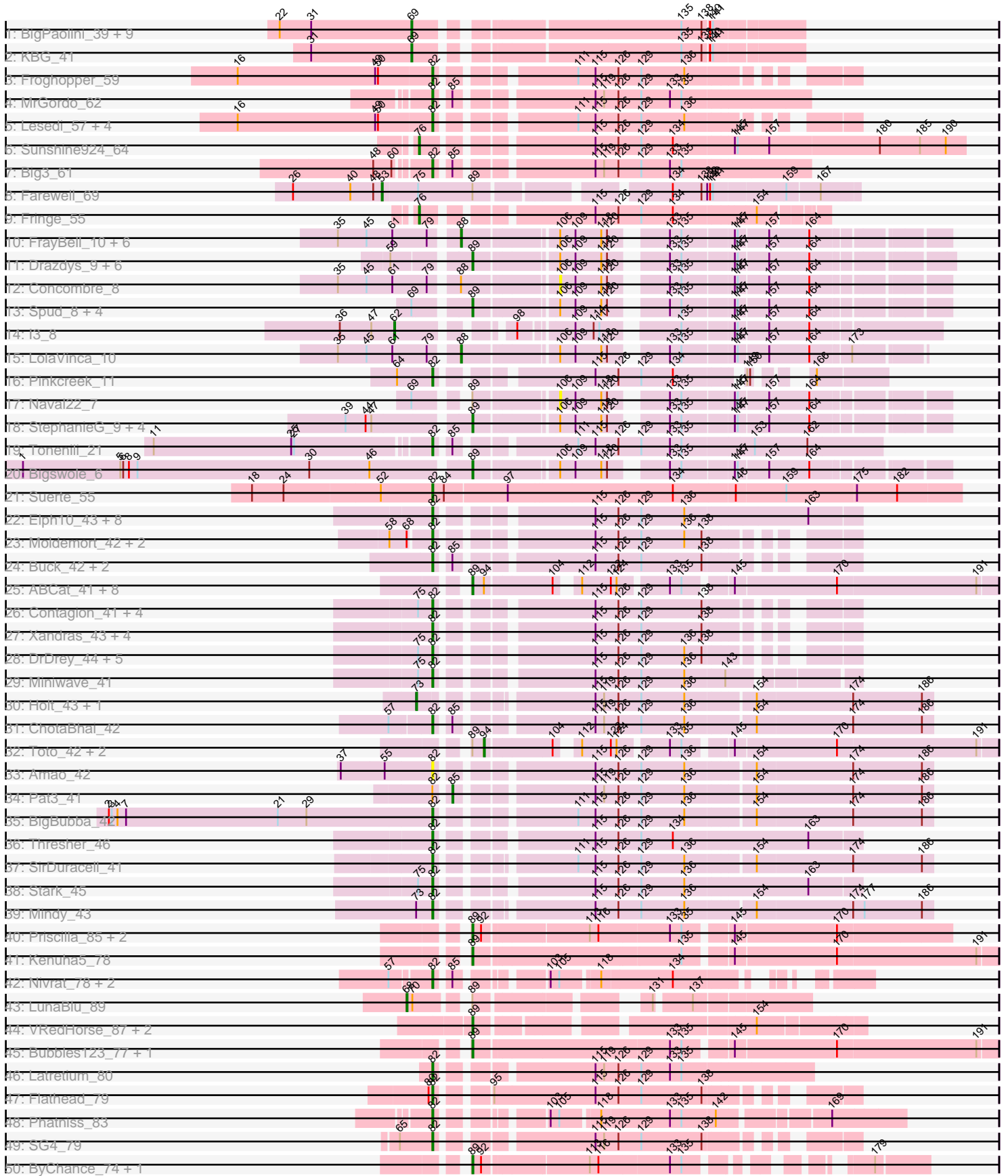


Pham 163347





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 163347 Report

This analysis was run 04/28/24 on database version 559.

Pham number 163347 has 209 members, 12 are drafts.

Phages represented in each track:

- Track 1 : BigPaolini\_39, ILeeKay\_42, Cueylyss\_40, Eyeball\_40, Doom\_40, Wilkins\_39, Topgun\_39, Graduation\_42, Licorice\_42, Smairt\_41
- Track 2 : KBG\_41
- Track 3 : FrogHopper\_59
- Track 4 : MrGordo\_62
- Track 5 : Lesedi\_57, Fajezeel\_62, Acme\_63, Bxb1\_55, Greg\_62
- Track 6 : Sunshine924\_64
- Track 7 : Big3\_61
- Track 8 : Farewell\_69
- Track 9 : Fringe\_55
- Track 10 : FrayBell\_10, JayJay\_8, Sebata\_9, Specks\_10, InterFolia\_10, LinStu\_9, LordLeafolot\_10
- Track 11 : Drazdys\_9, Kamryn\_7, Tyke\_9, Mikro\_7, DTDevon\_9, Bxz1\_7, NoodleTree\_7
- Track 12 : Concombre\_8
- Track 13 : Spud\_8, Nidhogg\_7, MoMoMixon\_7, Pio\_8, Sauce\_7
- Track 14 : l3\_8
- Track 15 : LolaVinca\_10
- Track 16 : Pinkcreek\_11
- Track 17 : Naval22\_7
- Track 18 : StephanieG\_9, NuevoMundo\_9, Pier\_10, Astraea\_9, Dandelion\_10
- Track 19 : Tonenili\_21
- Track 20 : Bigswole\_6
- Track 21 : Suerte\_55
- Track 22 : Elph10\_43, Czyszczonek\_44, NoSleep\_45, Murphy\_45, Maxxinista\_45, Cjw1\_44, Lilac\_46, Lilizi\_43, RiverMonster\_44
- Track 23 : Moldemort\_42, MadamMonkfish\_42, AmericanBeauty\_44
- Track 24 : Buck\_42, Rimmer\_42, Youngblood\_43
- Track 25 : ABCat\_41, Inca\_40, BilboSwaggins\_42, IHOP\_41, Tuco\_44, Myrale\_43, CrystalP\_43, ShamWow\_43, Phaja\_41
- Track 26 : Contagion\_41, Cookies\_41, Mosby\_40, TeardropMSU\_40, Tomaszewski\_40
- Track 27 : Xandras\_43, JeTaime\_44, OrionPax\_43, Filch\_44, Pumpkin\_45
- Track 28 : DrDrey\_44, Phrux\_42, HanKaySha\_43, 244\_45, Hopey\_44, ShereKhan\_42
- Track 29 : Miniwave\_41
- Track 30 : Holt\_43, DoctorDiddles\_42

- Track 31 : ChotaBhai\_42
- Track 32 : Toto\_42, StellaBean\_41, Marshmallow\_42
- Track 33 : Amao\_42
- Track 34 : Pat3\_41
- Track 35 : BigBubba\_42
- Track 36 : Thresher\_46
- Track 37 : SirDuracell\_41
- Track 38 : Stark\_45
- Track 39 : Mindy\_43
- Track 40 : Priscilla\_85, Koella\_77, NormanBulbieJr\_83
- Track 41 : Kenuha5\_78
- Track 42 : Nivrat\_78, LilMoolah\_80, Che8\_85
- Track 43 : LunaBlu\_89
- Track 44 : VRedHorse\_87, Estave1\_94, Avani\_91
- Track 45 : Bubbles123\_77, Shauna1\_82
- Track 46 : Latretium\_80
- Track 47 : Flathead\_79
- Track 48 : Phatniss\_83
- Track 49 : SG4\_79
- Track 50 : ByChance\_74, ShowerHandel\_81
- Track 51 : Harley\_91
- Track 52 : EleanorGeorge\_87
- Track 53 : Fancypants\_93
- Track 54 : TDanisky\_96, Sparkdehlily\_95
- Track 55 : Rialto\_92
- Track 56 : Fruitloop\_76
- Track 57 : Moonbeam\_89
- Track 58 : Pollywog\_88
- Track 59 : SimranZ1\_81
- Track 60 : Martik\_82
- Track 61 : Mahavrat\_77
- Track 62 : Kersh\_90
- Track 63 : Latretium\_87, Dante\_84
- Track 64 : Latretium\_83, Wanda\_76, Minerva\_78, Klein\_72
- Track 65 : Sabbb\_90
- Track 66 : Galactic\_79
- Track 67 : lbhubesi\_81
- Track 68 : Avani\_88
- Track 69 : Jabbawokkie\_90, Blarby\_90, Zapner\_89
- Track 70 : Yoshi\_97
- Track 71 : Demsculpinboyz\_96
- Track 72 : Che9d\_92
- Track 73 : Zelink\_70, Superphikiman\_70, Schatzie\_67, Kalah2\_67, Ejimix\_72, MiaZeal\_73, JuicyJay\_71, Dallas\_71, Halley\_74, Phoebus\_75, Beem\_72, DmpstrDiver\_72, Odette\_71, HokkenD\_65, Porcelain\_72, ThreeRngTarjay\_70, NihilNomen\_73, Redno2\_69, Quallification\_42, Hughesyang\_71, Lucky2013\_70, Squint\_73, Ariel\_72
- Track 74 : ThreeRngTarjay\_158
- Track 75 : Hannaconda\_69, Aubs\_83, SuperGrey\_83, Donkeykong\_89
- Track 76 : BAKA\_81, Duke13\_79
- Track 77 : KashFlow\_67
- Track 78 : Constella\_156
- Track 79 : Silvafighter\_56

- Track 80 : Ryadel\_104
- Track 81 : Thespis\_54, Brusacoram\_54, Atcoo\_54
- Track 82 : GreaseLightnin\_58, StevieRay\_57
- Track 83 : Juniormint\_57
- Track 84 : Tortellini\_64
- Track 85 : Beelzebub\_13, Corazon\_10, Lilbit\_11, LittleLaf\_10, Pringar\_10, Clarkson\_11, JoieB\_11, Huphlepuuff\_11
- Track 86 : Marvin\_9
- Track 87 : RedRaider77\_11
- Track 88 : Argie\_65
- Track 89 : Kumao\_58

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

The start number called the most often in the published annotations is 89, it was called in 85 of the 197 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ABCat\_41, Ariel\_72, Astraea\_9, Atcoo\_54, Aubs\_83, Avani\_88, Avani\_91, BAKA\_81, Beem\_72, Bigswole\_6, BilboSwaggins\_42, Brusacoram\_54, Bubbles123\_77, Bxz1\_7, ByChance\_74, CrystalP\_43, DTDevon\_9, Dallas\_71, Dandelion\_10, Dante\_84, DmpstrDiver\_72, Donkeykong\_89, Drazdys\_9, Duke13\_79, Ejimix\_72, EleanorGeorge\_87, Estave1\_94, GreaseLightnin\_58, Halley\_74, Hannaconda\_69, HokkenD\_65, Hughesyang\_71, IHOP\_41, Inca\_40, JuicyJay\_71, Kalah2\_67, Kamryn\_7, KashFlow\_67, Kenuha5\_78, Kersh\_90, Klein\_72, Koella\_77, Latretium\_83, Latretium\_87, Lucky2013\_70, Martik\_82, Marvin\_9, MiaZeal\_73, Mikro\_7, Minerva\_78, MoMoMixon\_7, Myrale\_43, Nidhogg\_7, NihilNomen\_73, NoodleTree\_7, NormanBulbieJr\_83, NuevoMundo\_9, Odette\_71, Phaja\_41, Phoebus\_75, Pier\_10, Pio\_8, Pollywog\_88, Porcelain\_72, Priscilla\_85, Quallification\_42, Redno2\_69, Sabbb\_90, Sauce\_7, Schatzie\_67, ShamWow\_43, Shauna1\_82, ShowerHandel\_81, SimranZ1\_81, Spud\_8, Squint\_73, StephanieG\_9, StevieRay\_57, SuperGrey\_83, Superphikiman\_70, Thespis\_54, ThreeRngTarjay\_70, Tuco\_44, Tyke\_9, VRedHorse\_87, Wanda\_76, Yoshi\_97, Zelink\_70,

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

- Farewell\_69, LunaBlu\_89, Marshmallow\_42, Naval22\_7, Silvafighter\_56, StellaBean\_41, Toto\_42,

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

- 244\_45, Acme\_63, Amao\_42, AmericanBeauty\_44, Argie\_65, Beelzebub\_13, Big3\_61, BigBubba\_42, BigPaolini\_39, Blarby\_90, Buck\_42, Bxb1\_55, Che8\_85, Che9d\_92, ChotaBhai\_42, Cjw1\_44, Clarkson\_11, Concombre\_8, Constella\_156, Contagion\_41, Cookies\_41, Corazon\_10, Cueyllyss\_40, Czyszczo1\_44, Demsculpinboyz\_96, DoctorDiddles\_42, Doom\_40, DrDrey\_44, Elph10\_43, Eyeball\_40, Fajezeel\_62, Fancypants\_93, Filch\_44, Flathead\_79, FrayBell\_10, Fringe\_55, Froghopper\_59, Fruitloop\_76, Galactic\_79, Graduation\_42, Greg\_62, HanKaySha\_43, Harley\_91, Holt\_43, Hopey\_44, Huphlepuuff\_11, I3\_8, ILeeKay\_42, Ihubesi\_81, InterFolia\_10, Jabbawokkie\_90, JayJay\_8, JeTaime\_44, JoieB\_11, Juniormint\_57, KBG\_41, Kumao\_58, Latretium\_80, Lesedi\_57, Licorice\_42, LilMoolah\_80, Lilac\_46, Lilbit\_11, Lilizi\_43, LinStu\_9, LittleLaf\_10, LolaVinca\_10,

LordLeafolot\_10, MadamMonkfish\_42, Mahavrat\_77, Maxxinista\_45, Mindy\_43, Miniwave\_41, Moldemort\_42, Moonbeam\_89, Mosby\_40, MrGordo\_62, Murphy\_45, Nivrat\_78, NoSleep\_45, OrionPax\_43, Pat3\_41, Phatniss\_83, Phrux\_42, Pinkcreek\_11, Pringar\_10, Pumpkin\_45, RedRaider77\_11, Rialto\_92, Rimmer\_42, RiverMonster\_44, Ryadel\_104, SG4\_79, Sebata\_9, ShereKhan\_42, SirDuracell\_41, Smairt\_41, Sparkdehlily\_95, Specks\_10, Stark\_45, Suerte\_55, Sunshine924\_64, TDanisky\_96, TeardropMSU\_40, ThreeRngTarjay\_158, Thresher\_46, Tomaszewski\_40, Tonenili\_21, Topgun\_39, Tortellini\_64, Wilkins\_39, Xandras\_43, Youngblood\_43, Zapner\_89,

### Summary by start number:

#### Start 35:

- Found in 10 of 209 ( 4.8% ) of genes in pham
- Manual Annotations of this start: 1 of 197
- Called 10.0% of time when present
- Phage (with cluster) where this start called: Kumao\_58 (singleton),

#### Start 53:

- Found in 2 of 209 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 2 of 197
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Farewell\_69 (AF), Silvafighter\_56 (N),

#### Start 54:

- Found in 3 of 209 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 3 of 197
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Argie\_65 (W), Che9d\_92 (F2), Fancypants\_93 (F1),

#### Start 56:

- Found in 2 of 209 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 2 of 197
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Constella\_156 (J), ThreeRngTarjay\_158 (J),

#### Start 62:

- Found in 2 of 209 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 2 of 197
- Called 100.0% of time when present
- Phage (with cluster) where this start called: I3\_8 (C1), Ryadel\_104 (O),

#### Start 66:

- Found in 3 of 209 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 197
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Tortellini\_64 (P2),

#### Start 68:

- Found in 6 of 209 ( 2.9% ) of genes in pham
- Manual Annotations of this start: 1 of 197

- Called 16.7% of time when present
- Phage (with cluster) where this start called: LunaBlu\_89 (F1),

#### Start 69:

- Found in 17 of 209 ( 8.1% ) of genes in pham
- Manual Annotations of this start: 11 of 197
- Called 64.7% of time when present
- Phage (with cluster) where this start called: BigPaolini\_39 (A1), Cueylyss\_40 (A1), Doom\_40 (A1), Eyeball\_40 (A1), Graduation\_42 (A1), ILeeKay\_42 (A1), KBG\_41 (A1), Licorice\_42 (A1), Smairt\_41 (A1), Topgun\_39 (A1), Wilkins\_39 (A1),

#### Start 73:

- Found in 3 of 209 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 2 of 197
- Called 66.7% of time when present
- Phage (with cluster) where this start called: DoctorDiddles\_42 (E), Holt\_43 (E),

#### Start 76:

- Found in 3 of 209 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 3 of 197
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Fringe\_55 (B1), RedRaider77\_11 (S), Sunshine924\_64 (A1),

#### Start 81:

- Found in 1 of 209 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 197
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ibhubesi\_81 (F1),

#### Start 82:

- Found in 75 of 209 ( 35.9% ) of genes in pham
- Manual Annotations of this start: 69 of 197
- Called 97.3% of time when present
- Phage (with cluster) where this start called: 244\_45 (E), Acme\_63 (A1), Amao\_42 (E), AmericanBeauty\_44 (E), Beelzebub\_13 (S), Big3\_61 (A1), BigBubba\_42 (E), Blarby\_90 (F), Buck\_42 (E), Bxb1\_55 (A1), Che8\_85 (F1), ChotaBhai\_42 (E), Cjw1\_44 (E), Clarkson\_11 (S), Contagion\_41 (E), Cookies\_41 (E), Corazon\_10 (S), Czyszczonek\_44 (E), Demsculpinboyz\_96 (F2), DrDrey\_44 (E), Elph10\_43 (E), Fajezeel\_62 (A1), Filch\_44 (E), Flathead\_79 (F1), Froghopper\_59 (A1), Fruitloop\_76 (F1), Galactic\_79 (F1), Greg\_62 (A1), HanKaySha\_43 (E), Harley\_91 (F1), Hopey\_44 (E), Huphlepuff\_11 (S), Jabbawokkie\_90 (F2), JeTaime\_44 (E), JoieB\_11 (S), Latretium\_80 (F1), Lesedi\_57 (A1), LilMoolah\_80 (F1), Lilac\_46 (E), Lilbit\_11 (S), Lilizi\_43 (E), LittleLaf\_10 (S), MadamMonkfish\_42 (E), Mahavrat\_77 (F1), Maxxinista\_45 (E), Mindy\_43 (E), Miniwave\_41 (E), Moldemort\_42 (E), Mosby\_40 (E), MrGordo\_62 (A1), Murphy\_45 (E), Nivrat\_78 (F1), NoSleep\_45 (E), OrionPax\_43 (E), Phatniss\_83 (F1), Phrux\_42 (E), Pinkcreek\_11 (C1), Pringar\_10 (S), Pumpkin\_45 (E), Rimmer\_42 (E), RiverMonster\_44 (E), SG4\_79 (F1), ShereKhan\_42 (E), SirDuracell\_41 (E), Stark\_45 (E), Suerte\_55 (CZ4), TeardropMSU\_40 (E), Thresher\_46 (E), Tomaszewski\_40 (E), Tonenili\_21 (C1), Xandras\_43 (E), Youngblood\_43 (E), Zapner\_89 (F2),

#### Start 85:

- Found in 21 of 209 ( 10.0% ) of genes in pham
- Manual Annotations of this start: 1 of 197
- Called 4.8% of time when present
- Phage (with cluster) where this start called: Pat3\_41 (E),

#### Start 87:

- Found in 1 of 209 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 197
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Juniormint\_57 (P1),

#### Start 88:

- Found in 10 of 209 ( 4.8% ) of genes in pham
- Manual Annotations of this start: 6 of 197
- Called 80.0% of time when present
- Phage (with cluster) where this start called: FrayBell\_10 (C1), InterFolia\_10 (C1), JayJay\_8 (C1), LinStu\_9 (C1), LolaVinca\_10 (C1), LordLeafolot\_10 (C1), Sebata\_9 (C1), Specks\_10 (C1),

#### Start 89:

- Found in 95 of 209 ( 45.5% ) of genes in pham
- Manual Annotations of this start: 85 of 197
- Called 92.6% of time when present
- Phage (with cluster) where this start called: ABCat\_41 (E), Ariel\_72 (J), Astraea\_9 (C1), Atcoo\_54 (P1), Aubs\_83 (F1), Avani\_88 (F2), Avani\_91 (F2), BAKA\_81 (J), Beem\_72 (J), Bigswole\_6 (C1), BilboSwaggins\_42 (E), Brusacoram\_54 (P1), Bubbles123\_77 (F1), Bxz1\_7 (C1), ByChance\_74 (F1), CrystalP\_43 (E), DTDevon\_9 (C1), Dallas\_71 (J), Dandelion\_10 (C1), Dante\_84 (F1), DmpstrDiver\_72 (J), Donkeykong\_89 (F1), Drazdys\_9 (C1), Duke13\_79 (J), Ejimix\_72 (J), EleanorGeorge\_87 (F1), Estave1\_94 (F1), GreaseLightnin\_58 (P1), Halley\_74 (J), Hannaconda\_69 (J), HokkenD\_65 (J), Hughesyang\_71 (J), IHOP\_41 (E), Inca\_40 (E), JuicyJay\_71 (J), Kalah2\_67 (J), Kamryn\_7 (C1), KashFlow\_67 (J), Kenuha5\_78 (F1), Kersh\_90 (F1), Klein\_72 (J), Koella\_77 (F1), Latretium\_83 (F1), Latretium\_87 (F1), Lucky2013\_70 (J), Martik\_82 (F1), Marvin\_9 (S), MiaZeal\_73 (J), Mikro\_7 (C1), Minerva\_78 (J), MoMoMixon\_7 (C1), Myrale\_43 (E), Nidhogg\_7 (C1), NihilNomen\_73 (J), NoodleTree\_7 (C1), NormanBulbieJr\_83 (F1), NuevoMundo\_9 (C1), Odette\_71 (J), Phaja\_41 (E), Phoebus\_75 (J), Pier\_10 (C1), Pio\_8 (C1), Pollywog\_88 (F1), Porcelain\_72 (J), Priscilla\_85 (F1), Quallification\_42 (E), Redno2\_69 (J), Sabbb\_90 (F1), Sauce\_7 (C1), Schatzie\_67 (J), ShamWow\_43 (E), Shauna1\_82 (F1), ShowerHandel\_81 (F1), SimranZ1\_81 (F1), Spud\_8 (C1), Squint\_73 (J), StephanieG\_9 (C1), StevieRay\_57 (P1), SuperGrey\_83 (F1), Superphikiman\_70 (J), Thespis\_54 (P1), ThreeRngTarjay\_70 (J), Tuco\_44 (E), Tyke\_9 (C1), VRedHorse\_87 (F1), Wanda\_76 (J), Yoshi\_97 (F2), Zelink\_70 (J),

#### Start 90:

- Found in 2 of 209 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 2 of 197
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Sparkdehlily\_95 (F1), TDanisky\_96 (F1),

#### Start 91:

- Found in 6 of 209 ( 2.9% ) of genes in pham
- Manual Annotations of this start: 1 of 197



- Called 16.7% of time when present
- Phage (with cluster) where this start called: Moonbeam\_89 (F1),

Start 93:

- Found in 4 of 209 ( 1.9% ) of genes in pham
- Manual Annotations of this start: 1 of 197
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Rialto\_92 (F1),

Start 94:

- Found in 17 of 209 ( 8.1% ) of genes in pham
- Manual Annotations of this start: 2 of 197
- Called 17.6% of time when present
- Phage (with cluster) where this start called: Marshmallow\_42 (E), StellaBean\_41 (E), Toto\_42 (E),

Start 106:

- Found in 38 of 209 ( 18.2% ) of genes in pham
- No Manual Annotations of this start.
- Called 5.3% of time when present
- Phage (with cluster) where this start called: Concombre\_8 (C1), Naval22\_7 (C1),

### **Summary by clusters:**

There are 17 clusters represented in this pham: P2, F1, F2, P1, E, AF, F, J, singleton, CZ4, N, A1, S, O, W, C1, B1,

Info for manual annotations of cluster A1:

- Start number 69 was manually annotated 11 times for cluster A1.
- Start number 76 was manually annotated 1 time for cluster A1.
- Start number 82 was manually annotated 8 times for cluster A1.

Info for manual annotations of cluster AF:

- Start number 53 was manually annotated 1 time for cluster AF.

Info for manual annotations of cluster B1:

- Start number 76 was manually annotated 1 time for cluster B1.

Info for manual annotations of cluster C1:

- Start number 62 was manually annotated 1 time for cluster C1.
- Start number 82 was manually annotated 2 times for cluster C1.
- Start number 88 was manually annotated 6 times for cluster C1.
- Start number 89 was manually annotated 18 times for cluster C1.

Info for manual annotations of cluster CZ4:

- Start number 82 was manually annotated 1 time for cluster CZ4.

Info for manual annotations of cluster E:

- Start number 73 was manually annotated 2 times for cluster E.
- Start number 82 was manually annotated 37 times for cluster E.
- Start number 85 was manually annotated 1 time for cluster E.
- Start number 89 was manually annotated 9 times for cluster E.
- Start number 94 was manually annotated 2 times for cluster E.

Info for manual annotations of cluster F1:

- Start number 54 was manually annotated 1 time for cluster F1.
- Start number 68 was manually annotated 1 time for cluster F1.
- Start number 81 was manually annotated 1 time for cluster F1.
- Start number 82 was manually annotated 11 times for cluster F1.
- Start number 89 was manually annotated 21 times for cluster F1.
- Start number 90 was manually annotated 2 times for cluster F1.
- Start number 91 was manually annotated 1 time for cluster F1.
- Start number 93 was manually annotated 1 time for cluster F1.

Info for manual annotations of cluster F2:

- Start number 54 was manually annotated 1 time for cluster F2.
- Start number 82 was manually annotated 3 times for cluster F2.
- Start number 89 was manually annotated 3 times for cluster F2.

Info for manual annotations of cluster J:

- Start number 56 was manually annotated 2 times for cluster J.
- Start number 89 was manually annotated 28 times for cluster J.

Info for manual annotations of cluster N:

- Start number 53 was manually annotated 1 time for cluster N.

Info for manual annotations of cluster O:

- Start number 62 was manually annotated 1 time for cluster O.

Info for manual annotations of cluster P1:

- Start number 87 was manually annotated 1 time for cluster P1.
- Start number 89 was manually annotated 5 times for cluster P1.

Info for manual annotations of cluster P2:

- Start number 66 was manually annotated 1 time for cluster P2.

Info for manual annotations of cluster S:

- Start number 76 was manually annotated 1 time for cluster S.
- Start number 82 was manually annotated 7 times for cluster S.
- Start number 89 was manually annotated 1 time for cluster S.

Info for manual annotations of cluster W:

- Start number 54 was manually annotated 1 time for cluster W.

**Gene Information:**

Gene: 244\_45 Start: 35533, Stop: 35168, Start Num: 82

Candidate Starts for 244\_45:

(75, 35548), (Start: 82 @35533 has 69 MA's), (115, 35398), (126, 35374), (129, 35350), (136, 35305), (138, 35287),

Gene: ABCat\_41 Start: 35824, Stop: 35336, Start Num: 89

Candidate Starts for ABCat\_41:

(Start: 89 @35824 has 85 MA's), (Start: 94 @35812 has 2 MA's), (104, 35749), (112, 35734), (122, 35707), (124, 35701), (133, 35656), (135, 35644), (145, 35602), (170, 35500), (191, 35356),

Gene: Acme\_63 Start: 41329, Stop: 40964, Start Num: 82

Candidate Starts for Acme\_63:

(16, 41530), (49, 41386), (50, 41383), (Start: 82 @41329 has 69 MA's), (111, 41212), (115, 41194), (126, 41170), (129, 41146), (136, 41101),

Gene: Amao\_42 Start: 34812, Stop: 34333, Start Num: 82

Candidate Starts for Amao\_42:

(37, 34905), (55, 34860), (Start: 82 @34812 has 69 MA's), (115, 34674), (126, 34650), (129, 34626), (136, 34581), (154, 34515), (174, 34416), (186, 34344),

Gene: AmericanBeauty\_44 Start: 35021, Stop: 34656, Start Num: 82

Candidate Starts for AmericanBeauty\_44:

(58, 35060), (Start: 68 @35042 has 1 MA's), (Start: 82 @35021 has 69 MA's), (115, 34886), (126, 34862), (129, 34838), (136, 34793), (138, 34775),

Gene: Argie\_65 Start: 48661, Stop: 49026, Start Num: 54

Candidate Starts for Argie\_65:

(19, 48544), (28, 48574), (32, 48601), (43, 48637), (Start: 54 @48661 has 3 MA's), (98, 48766), (109, 48814), (114, 48832), (117, 48838), (134, 48895), (135, 48904), (157, 48976), (161, 49000), (165, 49015),

Gene: Ariel\_72 Start: 46298, Stop: 45933, Start Num: 89

Candidate Starts for Ariel\_72:

(Start: 89 @46298 has 85 MA's), (99, 46256), (126, 46160), (136, 46091), (146, 46052),

Gene: Astraea\_9 Start: 2499, Stop: 2930, Start Num: 89

Candidate Starts for Astraea\_9:

(39, 2394), (44, 2415), (47, 2421), (Start: 89 @2499 has 85 MA's), (106, 2574), (109, 2589), (118, 2616), (120, 2622), (133, 2667), (135, 2679), (145, 2730), (147, 2733), (157, 2763), (164, 2805),

Gene: Atcoo\_54 Start: 36879, Stop: 37241, Start Num: 89

Candidate Starts for Atcoo\_54:

(17, 36651), (63, 36798), (75, 36822), (Start: 89 @36879 has 85 MA's), (106, 36954), (109, 36969), (118, 36996), (120, 37002), (133, 37047), (135, 37059), (176, 37218),

Gene: Aubs\_83 Start: 50008, Stop: 50520, Start Num: 89

Candidate Starts for Aubs\_83:

(Start: 89 @50008 has 85 MA's), (99, 50050), (135, 50212), (145, 50254), (170, 50356), (191, 50500),

Gene: Avani\_88 Start: 46792, Stop: 47127, Start Num: 89

Candidate Starts for Avani\_88:

(72, 46759), (Start: 89 @46792 has 85 MA's), (Start: 94 @46804 has 2 MA's), (101, 46852), (123, 46927), (127, 46936), (133, 46984), (135, 46996),

Gene: Avani\_91 Start: 47610, Stop: 47966, Start Num: 89

Candidate Starts for Avani\_91:

(Start: 89 @47610 has 85 MA's), (154, 47862),

Gene: BAKA\_81 Start: 52347, Stop: 51940, Start Num: 89

Candidate Starts for BAKA\_81:

(Start: 89 @52347 has 85 MA's), (99, 52305), (126, 52209), (128, 52188), (133, 52155), (135, 52143), (142, 52110), (168, 52002),

Gene: Beelzebub\_13 Start: 3753, Stop: 4160, Start Num: 82

Candidate Starts for Beelzebub\_13:

(Start: 82 @3753 has 69 MA's), (Start: 85 @3765 has 1 MA's), (115, 3891), (126, 3915), (129, 3939), (134, 3972), (171, 4137),

Gene: Beem\_72 Start: 50575, Stop: 50210, Start Num: 89

Candidate Starts for Beem\_72:

(Start: 89 @50575 has 85 MA's), (99, 50533), (126, 50437), (136, 50368), (146, 50329),

Gene: Big3\_61 Start: 41706, Stop: 41350, Start Num: 82

Candidate Starts for Big3\_61:

(48, 41754), (60, 41736), (Start: 82 @41706 has 69 MA's), (Start: 85 @41694 has 1 MA's), (115, 41568), (119, 41559), (126, 41544), (129, 41520), (133, 41490), (135, 41478),

Gene: BigBubba\_42 Start: 34670, Stop: 34191, Start Num: 82

Candidate Starts for BigBubba\_42:

(2, 35006), (3, 35003), (4, 34997), (7, 34988), (21, 34829), (29, 34799), (Start: 82 @34670 has 69 MA's), (111, 34550), (115, 34532), (126, 34508), (129, 34484), (136, 34439), (154, 34373), (174, 34274), (186, 34202),

Gene: BigPaolini\_39 Start: 30429, Stop: 30067, Start Num: 69

Candidate Starts for BigPaolini\_39:

(22, 30567), (31, 30534), (Start: 69 @30429 has 11 MA's), (135, 30186), (138, 30165), (140, 30159), (141, 30156),

Gene: Bigswole\_6 Start: 2050, Stop: 2481, Start Num: 89

Candidate Starts for Bigswole\_6:

(1, 1606), (5, 1708), (6, 1711), (8, 1717), (9, 1726), (30, 1906), (46, 1969), (Start: 89 @2050 has 85 MA's), (106, 2125), (109, 2140), (118, 2167), (120, 2173), (133, 2218), (135, 2230), (145, 2281), (147, 2284), (157, 2314), (164, 2356),

Gene: BilboSwaggins\_42 Start: 35832, Stop: 35344, Start Num: 89

Candidate Starts for BilboSwaggins\_42:

(Start: 89 @35832 has 85 MA's), (Start: 94 @35820 has 2 MA's), (104, 35757), (112, 35742), (122, 35715), (124, 35709), (133, 35664), (135, 35652), (145, 35610), (170, 35508), (191, 35364),

Gene: Blarby\_90 Start: 47520, Stop: 47888, Start Num: 82

Candidate Starts for Blarby\_90:

(64, 47484), (Start: 82 @47520 has 69 MA's), (115, 47655), (126, 47679), (129, 47703), (136, 47748), (138, 47766), (151, 47814),

Gene: Brusacoram\_54 Start: 36385, Stop: 36747, Start Num: 89

Candidate Starts for Brusacoram\_54:

(17, 36157), (63, 36304), (75, 36328), (Start: 89 @36385 has 85 MA's), (106, 36460), (109, 36475), (118, 36502), (120, 36508), (133, 36553), (135, 36565), (176, 36724),

Gene: Bubbles123\_77 Start: 48885, Stop: 49397, Start Num: 89

Candidate Starts for Bubbles123\_77:

(Start: 89 @48885 has 85 MA's), (133, 49077), (135, 49089), (145, 49131), (170, 49233), (191, 49377),

Gene: Buck\_42 Start: 35321, Stop: 34953, Start Num: 82

Candidate Starts for Buck\_42:

(Start: 82 @35321 has 69 MA's), (Start: 85 @35309 has 1 MA's), (115, 35183), (126, 35159), (129, 35135), (138, 35072),

Gene: Bxb1\_55 Start: 39572, Stop: 39207, Start Num: 82

Candidate Starts for Bxb1\_55:

(16, 39773), (49, 39629), (50, 39626), (Start: 82 @39572 has 69 MA's), (111, 39455), (115, 39437), (126, 39413), (129, 39389), (136, 39344),

Gene: Bxz1\_7 Start: 2148, Stop: 2579, Start Num: 89

Candidate Starts for Bxz1\_7:

(59, 2091), (Start: 89 @2148 has 85 MA's), (106, 2223), (109, 2238), (118, 2265), (120, 2271), (133, 2316), (135, 2328), (145, 2379), (147, 2382), (157, 2412), (164, 2454),

Gene: ByChance\_74 Start: 45038, Stop: 45421, Start Num: 89

Candidate Starts for ByChance\_74:

(Start: 89 @45038 has 85 MA's), (92, 45047), (113, 45149), (116, 45158), (133, 45230), (135, 45242), (179, 45368),

Gene: Che8\_85 Start: 49488, Stop: 49877, Start Num: 82

Candidate Starts for Che8\_85:

(57, 49449), (Start: 82 @49488 has 69 MA's), (Start: 85 @49500 has 1 MA's), (103, 49572), (105, 49581), (118, 49617), (134, 49689),

Gene: Che9d\_92 Start: 49021, Stop: 49440, Start Num: 54

Candidate Starts for Che9d\_92:

(Start: 54 @49021 has 3 MA's), (98, 49126), (109, 49174), (114, 49192), (117, 49198), (135, 49264),

Gene: ChotaBhai\_42 Start: 34264, Stop: 33785, Start Num: 82

Candidate Starts for ChotaBhai\_42:

(57, 34303), (Start: 82 @34264 has 69 MA's), (Start: 85 @34252 has 1 MA's), (115, 34126), (119, 34117), (126, 34102), (129, 34078), (136, 34033), (154, 33967), (174, 33868), (186, 33796),

Gene: Cjw1\_44 Start: 36482, Stop: 36078, Start Num: 82

Candidate Starts for Cjw1\_44:

(Start: 82 @36482 has 69 MA's), (115, 36347), (126, 36323), (129, 36299), (136, 36254), (163, 36131),

Gene: Clarkson\_11 Start: 3529, Stop: 3936, Start Num: 82

Candidate Starts for Clarkson\_11:

(Start: 82 @3529 has 69 MA's), (Start: 85 @3541 has 1 MA's), (115, 3667), (126, 3691), (129, 3715), (134, 3748), (171, 3913),

Gene: Concombres\_8 Start: 2242, Stop: 2598, Start Num: 106

Candidate Starts for Concombres\_8:

(Start: 35 @2038 has 1 MA's), (45, 2068), (61, 2095), (79, 2131), (Start: 88 @2155 has 6 MA's), (106, 2242), (109, 2257), (118, 2284), (120, 2290), (133, 2335), (135, 2347), (145, 2398), (147, 2401), (157, 2431), (164, 2473),

Gene: Constella\_156 Start: 84801, Stop: 85325, Start Num: 56

Candidate Starts for Constella\_156:

(18, 84660), (Start: 56 @84801 has 2 MA's), (Start: 66 @84813 has 1 MA's), (86, 84864), (100, 84927), (108, 84972), (121, 85011), (130, 85044), (152, 85143), (158, 85164), (175, 85236), (180, 85260),

Gene: Contagion\_41 Start: 34707, Stop: 34342, Start Num: 82

Candidate Starts for Contagion\_41:

(75, 34722), (Start: 82 @34707 has 69 MA's), (115, 34572), (126, 34548), (129, 34524), (138, 34461),

Gene: Cookies\_41 Start: 35072, Stop: 34707, Start Num: 82

Candidate Starts for Cookies\_41:

(75, 35087), (Start: 82 @35072 has 69 MA's), (115, 34937), (126, 34913), (129, 34889), (138, 34826),

Gene: Corazon\_10 Start: 3482, Stop: 3889, Start Num: 82

Candidate Starts for Corazon\_10:

(Start: 82 @3482 has 69 MA's), (Start: 85 @3494 has 1 MA's), (115, 3620), (126, 3644), (129, 3668), (134, 3701), (171, 3866),

Gene: CrystalP\_43 Start: 35832, Stop: 35344, Start Num: 89

Candidate Starts for CrystalP\_43:

(Start: 89 @35832 has 85 MA's), (Start: 94 @35820 has 2 MA's), (104, 35757), (112, 35742), (122, 35715), (124, 35709), (133, 35664), (135, 35652), (145, 35610), (170, 35508), (191, 35364),

Gene: Cueyllyss\_40 Start: 32157, Stop: 31795, Start Num: 69

Candidate Starts for Cueyllyss\_40:

(22, 32295), (31, 32262), (Start: 69 @32157 has 11 MA's), (135, 31914), (138, 31893), (140, 31887), (141, 31884),

Gene: Czyszczonek\_44 Start: 35291, Stop: 34887, Start Num: 82

Candidate Starts for Czyszczonek\_44:

(Start: 82 @35291 has 69 MA's), (115, 35156), (126, 35132), (129, 35108), (136, 35063), (163, 34940),

Gene: DTDevon\_9 Start: 2817, Stop: 3251, Start Num: 89

Candidate Starts for DTDevon\_9:

(59, 2760), (Start: 89 @2817 has 85 MA's), (106, 2892), (109, 2907), (118, 2934), (120, 2940), (133, 2985), (135, 2997), (145, 3048), (147, 3051), (157, 3081), (164, 3123),

Gene: Dallas\_71 Start: 49496, Stop: 49131, Start Num: 89

Candidate Starts for Dallas\_71:

(Start: 89 @49496 has 85 MA's), (99, 49454), (126, 49358), (136, 49289), (146, 49250),

Gene: Dandelion\_10 Start: 3168, Stop: 3599, Start Num: 89

Candidate Starts for Dandelion\_10:

(39, 3063), (44, 3084), (47, 3090), (Start: 89 @3168 has 85 MA's), (106, 3243), (109, 3258), (118, 3285), (120, 3291), (133, 3336), (135, 3348), (145, 3399), (147, 3402), (157, 3432), (164, 3474),

Gene: Dante\_84 Start: 51687, Stop: 51980, Start Num: 89

Candidate Starts for Dante\_84:

(Start: 68 @51639 has 1 MA's), (70, 51645), (Start: 89 @51687 has 85 MA's), (131, 51831), (137, 51864),

Gene: Demsculpinboyz\_96 Start: 48718, Stop: 49200, Start Num: 82

Candidate Starts for Demsculpinboyz\_96:

(57, 48679), (Start: 82 @48718 has 69 MA's), (Start: 85 @48730 has 1 MA's), (115, 48856), (126, 48880), (129, 48904), (133, 48934), (135, 48946), (155, 49018), (172, 49108),

Gene: DmpstrDiver\_72 Start: 49923, Stop: 49558, Start Num: 89

Candidate Starts for DmpstrDiver\_72:

(Start: 89 @49923 has 85 MA's), (99, 49881), (126, 49785), (136, 49716), (146, 49677),

Gene: DoctorDiddles\_42 Start: 34192, Stop: 33701, Start Num: 73

Candidate Starts for DoctorDiddles\_42:

(Start: 73 @34192 has 2 MA's), (115, 34042), (119, 34033), (126, 34018), (129, 33994), (136, 33949), (154, 33883), (174, 33784), (186, 33712),

Gene: Donkeykong\_89 Start: 51613, Stop: 52125, Start Num: 89

Candidate Starts for Donkeykong\_89:

(Start: 89 @51613 has 85 MA's), (99, 51655), (135, 51817), (145, 51859), (170, 51961), (191, 52105),

Gene: Doom\_40 Start: 32350, Stop: 31988, Start Num: 69

Candidate Starts for Doom\_40:

(22, 32488), (31, 32455), (Start: 69 @32350 has 11 MA's), (135, 32107), (138, 32086), (140, 32080), (141, 32077),

Gene: DrDrey\_44 Start: 36335, Stop: 35970, Start Num: 82

Candidate Starts for DrDrey\_44:

(75, 36350), (Start: 82 @36335 has 69 MA's), (115, 36200), (126, 36176), (129, 36152), (136, 36107), (138, 36089),

Gene: Drazdys\_9 Start: 2817, Stop: 3251, Start Num: 89

Candidate Starts for Drazdys\_9:

(59, 2760), (Start: 89 @2817 has 85 MA's), (106, 2892), (109, 2907), (118, 2934), (120, 2940), (133, 2985), (135, 2997), (145, 3048), (147, 3051), (157, 3081), (164, 3123),

Gene: Duke13\_79 Start: 51559, Stop: 51152, Start Num: 89

Candidate Starts for Duke13\_79:

(Start: 89 @51559 has 85 MA's), (99, 51517), (126, 51421), (128, 51400), (133, 51367), (135, 51355), (142, 51322), (168, 51214),

Gene: Ejimix\_72 Start: 51361, Stop: 50996, Start Num: 89

Candidate Starts for Ejimix\_72:

(Start: 89 @51361 has 85 MA's), (99, 51319), (126, 51223), (136, 51154), (146, 51115),

Gene: EleanorGeorge\_87 Start: 51109, Stop: 51492, Start Num: 89

Candidate Starts for EleanorGeorge\_87:

(77, 51076), (Start: 89 @51109 has 85 MA's), (113, 51220), (116, 51229), (133, 51301), (135, 51313), (179, 51439),

Gene: Elph10\_43 Start: 34783, Stop: 34379, Start Num: 82

Candidate Starts for Elph10\_43:

(Start: 82 @34783 has 69 MA's), (115, 34648), (126, 34624), (129, 34600), (136, 34555), (163, 34432),

Gene: Estave1\_94 Start: 53968, Stop: 54324, Start Num: 89

Candidate Starts for Estave1\_94:

(Start: 89 @53968 has 85 MA's), (154, 54220),

Gene: Eyeball\_40 Start: 31827, Stop: 31465, Start Num: 69

Candidate Starts for Eyeball\_40:

(22, 31965), (31, 31932), (Start: 69 @31827 has 11 MA's), (135, 31584), (138, 31563), (140, 31557), (141, 31554),

Gene: Fajezeel\_62 Start: 40619, Stop: 40254, Start Num: 82

Candidate Starts for Fajezeel\_62:

(16, 40820), (49, 40676), (50, 40673), (Start: 82 @40619 has 69 MA's), (111, 40502), (115, 40484), (126, 40460), (129, 40436), (136, 40391),

Gene: Fancypants\_93 Start: 52418, Stop: 52996, Start Num: 54

Candidate Starts for Fancypants\_93:

(Start: 54 @52418 has 3 MA's), (Start: 91 @52508 has 1 MA's), (103, 52571), (110, 52595), (133, 52679), (135, 52691), (145, 52742), (147, 52745), (157, 52775), (164, 52817), (188, 52943),

Gene: Farewell\_69 Start: 47142, Stop: 47591, Start Num: 53

Candidate Starts for Farewell\_69:

(26, 47049), (40, 47109), (48, 47133), (Start: 53 @47142 has 2 MA's), (75, 47178), (Start: 89 @47235 has 85 MA's), (134, 47406), (138, 47436), (139, 47442), (140, 47445), (141, 47448), (159, 47520), (167, 47553),

Gene: Filch\_44 Start: 35012, Stop: 34647, Start Num: 82

Candidate Starts for Filch\_44:

(Start: 82 @35012 has 69 MA's), (115, 34877), (126, 34853), (129, 34829), (138, 34766),

Gene: Flathead\_79 Start: 48157, Stop: 48534, Start Num: 82

Candidate Starts for Flathead\_79:

(80, 48154), (Start: 82 @48157 has 69 MA's), (95, 48199), (115, 48304), (126, 48328), (129, 48352), (138, 48415),

Gene: FrayBell\_10 Start: 2978, Stop: 3421, Start Num: 88

Candidate Starts for FrayBell\_10:

(Start: 35 @2861 has 1 MA's), (45, 2891), (61, 2918), (79, 2954), (Start: 88 @2978 has 6 MA's), (106, 3065), (109, 3080), (118, 3107), (120, 3113), (133, 3158), (135, 3170), (145, 3221), (147, 3224), (157, 3254), (164, 3296),

Gene: Fringe\_55 Start: 47885, Stop: 47511, Start Num: 76

Candidate Starts for Fringe\_55:

(Start: 76 @47885 has 3 MA's), (115, 47735), (126, 47711), (129, 47687), (134, 47654), (154, 47573),

Gene: Froghopper\_59 Start: 39967, Stop: 39602, Start Num: 82

Candidate Starts for Froghopper\_59:

(16, 40168), (49, 40024), (50, 40021), (Start: 82 @39967 has 69 MA's), (111, 39850), (115, 39832), (126, 39808), (129, 39784), (136, 39739),

Gene: Fruitloop\_76 Start: 48252, Stop: 48602, Start Num: 82

Candidate Starts for Fruitloop\_76:

(64, 48216), (Start: 82 @48252 has 69 MA's), (115, 48387), (126, 48411), (129, 48435), (134, 48468),

Gene: Galactic\_79 Start: 48078, Stop: 48443, Start Num: 82

Candidate Starts for Galactic\_79:



(10, 47778), (11, 47787), (12, 47793), (13, 47802), (14, 47832), (64, 48042), (Start: 82 @48078 has 69 MA's), (115, 48213), (126, 48237), (129, 48261), (136, 48306), (138, 48324),

Gene: Graduation\_42 Start: 32744, Stop: 32382, Start Num: 69

Candidate Starts for Graduation\_42:

(22, 32882), (31, 32849), (Start: 69 @32744 has 11 MA's), (135, 32501), (138, 32480), (140, 32474), (141, 32471),

Gene: GreaseLightnin\_58 Start: 38269, Stop: 38631, Start Num: 89

Candidate Starts for GreaseLightnin\_58:

(15, 38008), (18, 38041), (20, 38065), (23, 38071), (75, 38212), (Start: 89 @38269 has 85 MA's), (106, 38344), (109, 38359), (118, 38386), (120, 38392), (133, 38437), (135, 38449), (176, 38608),

Gene: Greg\_62 Start: 40619, Stop: 40254, Start Num: 82

Candidate Starts for Greg\_62:

(16, 40820), (49, 40676), (50, 40673), (Start: 82 @40619 has 69 MA's), (111, 40502), (115, 40484), (126, 40460), (129, 40436), (136, 40391),

Gene: Halley\_74 Start: 50575, Stop: 50210, Start Num: 89

Candidate Starts for Halley\_74:

(Start: 89 @50575 has 85 MA's), (99, 50533), (126, 50437), (136, 50368), (146, 50329),

Gene: HanKaySha\_43 Start: 34995, Stop: 34630, Start Num: 82

Candidate Starts for HanKaySha\_43:

(75, 35010), (Start: 82 @34995 has 69 MA's), (115, 34860), (126, 34836), (129, 34812), (136, 34767), (138, 34749),

Gene: Hannaconda\_69 Start: 45759, Stop: 45247, Start Num: 89

Candidate Starts for Hannaconda\_69:

(Start: 89 @45759 has 85 MA's), (99, 45717), (135, 45555), (145, 45513), (170, 45411), (191, 45267),

Gene: Harley\_91 Start: 51213, Stop: 51740, Start Num: 82

Candidate Starts for Harley\_91:

(57, 51174), (Start: 82 @51213 has 69 MA's), (115, 51351), (126, 51375), (129, 51399), (133, 51429), (135, 51441), (142, 51474), (160, 51537), (178, 51615), (181, 51630),

Gene: HokkenD\_65 Start: 48844, Stop: 48479, Start Num: 89

Candidate Starts for HokkenD\_65:

(Start: 89 @48844 has 85 MA's), (99, 48802), (126, 48706), (136, 48637), (146, 48598),

Gene: Holt\_43 Start: 34307, Stop: 33816, Start Num: 73

Candidate Starts for Holt\_43:

(Start: 73 @34307 has 2 MA's), (115, 34157), (119, 34148), (126, 34133), (129, 34109), (136, 34064), (154, 33998), (174, 33899), (186, 33827),

Gene: Hopey\_44 Start: 35530, Stop: 35165, Start Num: 82

Candidate Starts for Hopey\_44:

(75, 35545), (Start: 82 @35530 has 69 MA's), (115, 35395), (126, 35371), (129, 35347), (136, 35302), (138, 35284),

Gene: Hughesyang\_71 Start: 50504, Stop: 50139, Start Num: 89

Candidate Starts for Hughesyang\_71:

(Start: 89 @50504 has 85 MA's), (99, 50462), (126, 50366), (136, 50297), (146, 50258),

Gene: Huphlepuuff\_11 Start: 3259, Stop: 3666, Start Num: 82  
Candidate Starts for Huphlepuuff\_11:  
(Start: 82 @3259 has 69 MA's), (Start: 85 @3271 has 1 MA's), (115, 3397), (126, 3421), (129, 3445),  
(134, 3478), (171, 3643),

Gene: I3\_8 Start: 2847, Stop: 3332, Start Num: 62  
Candidate Starts for I3\_8:  
(36, 2790), (47, 2823), (Start: 62 @2847 has 2 MA's), (98, 2940), (109, 2988), (114, 3006), (117,  
3012), (135, 3078), (145, 3129), (147, 3132), (157, 3162), (164, 3204),

Gene: IHOP\_41 Start: 35396, Stop: 34908, Start Num: 89  
Candidate Starts for IHOP\_41:  
(Start: 89 @35396 has 85 MA's), (Start: 94 @35384 has 2 MA's), (104, 35321), (112, 35306), (122,  
35279), (124, 35273), (133, 35228), (135, 35216), (145, 35174), (170, 35072), (191, 34928),

Gene: ILeeKay\_42 Start: 32194, Stop: 31832, Start Num: 69  
Candidate Starts for ILeeKay\_42:  
(22, 32332), (31, 32299), (Start: 69 @32194 has 11 MA's), (135, 31951), (138, 31930), (140, 31924),  
(141, 31921),

Gene: lbhubesi\_81 Start: 47329, Stop: 47838, Start Num: 81  
Candidate Starts for lbhubesi\_81:  
(Start: 81 @47329 has 1 MA's), (103, 47413), (105, 47422), (118, 47458), (135, 47539), (142, 47572),  
(160, 47635), (178, 47713), (181, 47728),

Gene: Inca\_40 Start: 33921, Stop: 33433, Start Num: 89  
Candidate Starts for Inca\_40:  
(Start: 89 @33921 has 85 MA's), (Start: 94 @33909 has 2 MA's), (104, 33846), (112, 33831), (122,  
33804), (124, 33798), (133, 33753), (135, 33741), (145, 33699), (170, 33597), (191, 33453),

Gene: InterFolia\_10 Start: 2977, Stop: 3420, Start Num: 88  
Candidate Starts for InterFolia\_10:  
(Start: 35 @2860 has 1 MA's), (45, 2890), (61, 2917), (79, 2953), (Start: 88 @2977 has 6 MA's), (106,  
3064), (109, 3079), (118, 3106), (120, 3112), (133, 3157), (135, 3169), (145, 3220), (147, 3223), (157,  
3253), (164, 3295),

Gene: Jabbawokkie\_90 Start: 47440, Stop: 47808, Start Num: 82  
Candidate Starts for Jabbawokkie\_90:  
(64, 47404), (Start: 82 @47440 has 69 MA's), (115, 47575), (126, 47599), (129, 47623), (136, 47668),  
(138, 47686), (151, 47734),

Gene: JayJay\_8 Start: 2506, Stop: 2949, Start Num: 88  
Candidate Starts for JayJay\_8:  
(Start: 35 @2389 has 1 MA's), (45, 2419), (61, 2446), (79, 2482), (Start: 88 @2506 has 6 MA's), (106,  
2593), (109, 2608), (118, 2635), (120, 2641), (133, 2686), (135, 2698), (145, 2749), (147, 2752), (157,  
2782), (164, 2824),

Gene: JeTaime\_44 Start: 36054, Stop: 35689, Start Num: 82  
Candidate Starts for JeTaime\_44:  
(Start: 82 @36054 has 69 MA's), (115, 35919), (126, 35895), (129, 35871), (138, 35808),

Gene: JoieB\_11 Start: 3478, Stop: 3885, Start Num: 82

Candidate Starts for JoieB\_11:

(Start: 82 @3478 has 69 MA's), (Start: 85 @3490 has 1 MA's), (115, 3616), (126, 3640), (129, 3664), (134, 3697), (171, 3862),

Gene: JuicyJay\_71 Start: 51709, Stop: 51344, Start Num: 89

Candidate Starts for JuicyJay\_71:

(Start: 89 @51709 has 85 MA's), (99, 51667), (126, 51571), (136, 51502), (146, 51463),

Gene: Juniormint\_57 Start: 37791, Stop: 38165, Start Num: 87

Candidate Starts for Juniormint\_57:

(Start: 87 @37791 has 1 MA's), (106, 37878), (109, 37893), (118, 37920), (120, 37926), (133, 37971), (135, 37983), (176, 38142),

Gene: KBG\_41 Start: 33134, Stop: 32772, Start Num: 69

Candidate Starts for KBG\_41:

(31, 33239), (Start: 69 @33134 has 11 MA's), (135, 32891), (138, 32870), (140, 32864), (141, 32861),

Gene: Kalah2\_67 Start: 49868, Stop: 49503, Start Num: 89

Candidate Starts for Kalah2\_67:

(Start: 89 @49868 has 85 MA's), (99, 49826), (126, 49730), (136, 49661), (146, 49622),

Gene: Kamryn\_7 Start: 2148, Stop: 2579, Start Num: 89

Candidate Starts for Kamryn\_7:

(59, 2091), (Start: 89 @2148 has 85 MA's), (106, 2223), (109, 2238), (118, 2265), (120, 2271), (133, 2316), (135, 2328), (145, 2379), (147, 2382), (157, 2412), (164, 2454),

Gene: KashFlow\_67 Start: 45630, Stop: 45118, Start Num: 89

Candidate Starts for KashFlow\_67:

(Start: 89 @45630 has 85 MA's), (99, 45588), (133, 45438), (135, 45426), (145, 45384), (170, 45282), (191, 45138),

Gene: Kenuha5\_78 Start: 49646, Stop: 50158, Start Num: 89

Candidate Starts for Kenuha5\_78:

(Start: 89 @49646 has 85 MA's), (135, 49850), (145, 49892), (170, 49994), (191, 50138),

Gene: Kersh\_90 Start: 52725, Stop: 53210, Start Num: 89

Candidate Starts for Kersh\_90:

(33, 52599), (78, 52695), (Start: 89 @52725 has 85 MA's), (Start: 94 @52737 has 2 MA's), (106, 52800), (109, 52815), (118, 52842), (120, 52848), (133, 52893), (135, 52905), (145, 52956), (147, 52959), (157, 52989), (164, 53031), (188, 53157),

Gene: Klein\_72 Start: 49891, Stop: 49526, Start Num: 89

Candidate Starts for Klein\_72:

(Start: 89 @49891 has 85 MA's), (99, 49849), (126, 49753), (136, 49684), (146, 49645),

Gene: Koella\_77 Start: 46451, Stop: 46915, Start Num: 89

Candidate Starts for Koella\_77:

(Start: 89 @46451 has 85 MA's), (92, 46460), (113, 46562), (116, 46571), (133, 46643), (135, 46655), (145, 46697), (170, 46799),

Gene: Kumao\_58 Start: 42552, Stop: 43010, Start Num: 35

Candidate Starts for Kumao\_58:

(Start: 35 @42552 has 1 MA's), (37, 42555), (Start: 82 @42645 has 69 MA's), (115, 42780), (126, 42804), (129, 42828), (136, 42873), (138, 42891),

Gene: Latretium\_80 Start: 47741, Stop: 48100, Start Num: 82

Candidate Starts for Latretium\_80:

(Start: 82 @47741 has 69 MA's), (115, 47879), (119, 47888), (126, 47903), (129, 47927), (133, 47957), (135, 47969),

Gene: Latretium\_87 Start: 49978, Stop: 50271, Start Num: 89

Candidate Starts for Latretium\_87:

(Start: 68 @49930 has 1 MA's), (70, 49936), (Start: 89 @49978 has 85 MA's), (131, 50122), (137, 50155),

Gene: Latretium\_83 Start: 48583, Stop: 48948, Start Num: 89

Candidate Starts for Latretium\_83:

(Start: 89 @48583 has 85 MA's), (99, 48625), (126, 48721), (136, 48790), (146, 48829),

Gene: Lesedi\_57 Start: 39252, Stop: 38887, Start Num: 82

Candidate Starts for Lesedi\_57:

(16, 39453), (49, 39309), (50, 39306), (Start: 82 @39252 has 69 MA's), (111, 39135), (115, 39117), (126, 39093), (129, 39069), (136, 39024),

Gene: Licorice\_42 Start: 33025, Stop: 32663, Start Num: 69

Candidate Starts for Licorice\_42:

(22, 33163), (31, 33130), (Start: 69 @33025 has 11 MA's), (135, 32782), (138, 32761), (140, 32755), (141, 32752),

Gene: LilMoolah\_80 Start: 49043, Stop: 49381, Start Num: 82

Candidate Starts for LilMoolah\_80:

(57, 49004), (Start: 82 @49043 has 69 MA's), (Start: 85 @49055 has 1 MA's), (103, 49127), (105, 49136), (118, 49172), (134, 49244),

Gene: Lilac\_46 Start: 35189, Stop: 34785, Start Num: 82

Candidate Starts for Lilac\_46:

(Start: 82 @35189 has 69 MA's), (115, 35054), (126, 35030), (129, 35006), (136, 34961), (163, 34838),

Gene: Lilbit\_11 Start: 3530, Stop: 3937, Start Num: 82

Candidate Starts for Lilbit\_11:

(Start: 82 @3530 has 69 MA's), (Start: 85 @3542 has 1 MA's), (115, 3668), (126, 3692), (129, 3716), (134, 3749), (171, 3914),

Gene: Lilizi\_43 Start: 34863, Stop: 34459, Start Num: 82

Candidate Starts for Lilizi\_43:

(Start: 82 @34863 has 69 MA's), (115, 34728), (126, 34704), (129, 34680), (136, 34635), (163, 34512),

Gene: LinStu\_9 Start: 3505, Stop: 3948, Start Num: 88

Candidate Starts for LinStu\_9:

(Start: 35 @3388 has 1 MA's), (45, 3418), (61, 3445), (79, 3481), (Start: 88 @3505 has 6 MA's), (106, 3592), (109, 3607), (118, 3634), (120, 3640), (133, 3685), (135, 3697), (145, 3748), (147, 3751), (157, 3781), (164, 3823),

Gene: LittleLaf\_10 Start: 3259, Stop: 3666, Start Num: 82

Candidate Starts for LittleLaf\_10:

(Start: 82 @3259 has 69 MA's), (Start: 85 @3271 has 1 MA's), (115, 3397), (126, 3421), (129, 3445), (134, 3478), (171, 3643),

Gene: LolaVinca\_10 Start: 2977, Stop: 3399, Start Num: 88

Candidate Starts for LolaVinca\_10:

(Start: 35 @2860 has 1 MA's), (45, 2890), (61, 2917), (79, 2953), (Start: 88 @2977 has 6 MA's), (106, 3064), (109, 3079), (118, 3106), (120, 3112), (133, 3157), (135, 3169), (145, 3220), (147, 3223), (157, 3253), (164, 3295), (173, 3334),

Gene: LordLeafolot\_10 Start: 2977, Stop: 3420, Start Num: 88

Candidate Starts for LordLeafolot\_10:

(Start: 35 @2860 has 1 MA's), (45, 2890), (61, 2917), (79, 2953), (Start: 88 @2977 has 6 MA's), (106, 3064), (109, 3079), (118, 3106), (120, 3112), (133, 3157), (135, 3169), (145, 3220), (147, 3223), (157, 3253), (164, 3295),

Gene: Lucky2013\_70 Start: 46314, Stop: 45949, Start Num: 89

Candidate Starts for Lucky2013\_70:

(Start: 89 @46314 has 85 MA's), (99, 46272), (126, 46176), (136, 46107), (146, 46068),

Gene: LunaBlu\_89 Start: 51072, Stop: 51413, Start Num: 68

Candidate Starts for LunaBlu\_89:

(Start: 68 @51072 has 1 MA's), (70, 51078), (Start: 89 @51120 has 85 MA's), (131, 51264), (137, 51297),

Gene: MadamMonkfish\_42 Start: 34547, Stop: 34182, Start Num: 82

Candidate Starts for MadamMonkfish\_42:

(58, 34586), (Start: 68 @34568 has 1 MA's), (Start: 82 @34547 has 69 MA's), (115, 34412), (126, 34388), (129, 34364), (136, 34319), (138, 34301),

Gene: Mahavrat\_77 Start: 46587, Stop: 46994, Start Num: 82

Candidate Starts for Mahavrat\_77:

(Start: 82 @46587 has 69 MA's), (Start: 85 @46599 has 1 MA's), (Start: 88 @46608 has 6 MA's), (115, 46725), (126, 46749), (129, 46773), (134, 46806), (148, 46878),

Gene: Marshmallow\_42 Start: 35818, Stop: 35342, Start Num: 94

Candidate Starts for Marshmallow\_42:

(Start: 89 @35830 has 85 MA's), (Start: 94 @35818 has 2 MA's), (104, 35755), (112, 35740), (122, 35713), (124, 35707), (133, 35662), (135, 35650), (145, 35608), (170, 35506), (191, 35362),

Gene: Martik\_82 Start: 51049, Stop: 51432, Start Num: 89

Candidate Starts for Martik\_82:

(44, 50959), (51, 50974), (77, 51016), (Start: 89 @51049 has 85 MA's), (113, 51160), (116, 51169), (133, 51241), (135, 51253), (179, 51379),

Gene: Marvin\_9 Start: 3241, Stop: 3600, Start Num: 89

Candidate Starts for Marvin\_9:

(Start: 89 @3241 has 85 MA's), (Start: 94 @3253 has 2 MA's), (104, 3316), (112, 3331), (122, 3358), (124, 3364), (133, 3409), (135, 3421),

Gene: Maxxinista\_45 Start: 35159, Stop: 34755, Start Num: 82

Candidate Starts for Maxxinista\_45:

(Start: 82 @35159 has 69 MA's), (115, 35024), (126, 35000), (129, 34976), (136, 34931), (163, 34808),

Gene: MiaZeal\_73 Start: 46970, Stop: 46605, Start Num: 89

Candidate Starts for MiaZeal\_73:

(Start: 89 @46970 has 85 MA's), (99, 46928), (126, 46832), (136, 46763), (146, 46724),

Gene: Mikro\_7 Start: 3147, Stop: 3578, Start Num: 89

Candidate Starts for Mikro\_7:

(59, 3090), (Start: 89 @3147 has 85 MA's), (106, 3222), (109, 3237), (118, 3264), (120, 3270), (133, 3315), (135, 3327), (145, 3378), (147, 3381), (157, 3411), (164, 3453),

Gene: Mindy\_43 Start: 34793, Stop: 34317, Start Num: 82

Candidate Starts for Mindy\_43:

(Start: 73 @34808 has 2 MA's), (Start: 82 @34793 has 69 MA's), (115, 34658), (126, 34634), (129, 34610), (136, 34565), (154, 34499), (174, 34400), (177, 34388), (186, 34328),

Gene: Minerva\_78 Start: 51991, Stop: 51626, Start Num: 89

Candidate Starts for Minerva\_78:

(Start: 89 @51991 has 85 MA's), (99, 51949), (126, 51853), (136, 51784), (146, 51745),

Gene: Miniwave\_41 Start: 35246, Stop: 34860, Start Num: 82

Candidate Starts for Miniwave\_41:

(75, 35261), (Start: 82 @35246 has 69 MA's), (115, 35111), (126, 35087), (129, 35063), (136, 35018), (143, 34979),

Gene: MoMoMixon\_7 Start: 2383, Stop: 2814, Start Num: 89

Candidate Starts for MoMoMixon\_7:

(Start: 69 @2347 has 11 MA's), (Start: 89 @2383 has 85 MA's), (106, 2458), (109, 2473), (118, 2500), (120, 2506), (133, 2551), (135, 2563), (145, 2614), (147, 2617), (157, 2647), (164, 2689),

Gene: Moldemort\_42 Start: 34776, Stop: 34411, Start Num: 82

Candidate Starts for Moldemort\_42:

(58, 34815), (Start: 68 @34797 has 1 MA's), (Start: 82 @34776 has 69 MA's), (115, 34641), (126, 34617), (129, 34593), (136, 34548), (138, 34530),

Gene: Moonbeam\_89 Start: 51150, Stop: 51629, Start Num: 91

Candidate Starts for Moonbeam\_89:

(Start: 91 @51150 has 1 MA's), (Start: 93 @51153 has 1 MA's), (107, 51222), (109, 51234), (118, 51261), (120, 51267), (133, 51312), (135, 51324), (145, 51375), (147, 51378), (157, 51408), (164, 51450), (188, 51576),

Gene: Mosby\_40 Start: 34707, Stop: 34342, Start Num: 82

Candidate Starts for Mosby\_40:

(75, 34722), (Start: 82 @34707 has 69 MA's), (115, 34572), (126, 34548), (129, 34524), (138, 34461),

Gene: MrGordo\_62 Start: 40946, Stop: 40590, Start Num: 82

Candidate Starts for MrGordo\_62:

(Start: 82 @40946 has 69 MA's), (Start: 85 @40934 has 1 MA's), (115, 40808), (119, 40799), (126, 40784), (129, 40760), (133, 40730), (135, 40718),

Gene: Murphy\_45 Start: 35671, Stop: 35267, Start Num: 82

Candidate Starts for Murphy\_45:

(Start: 82 @35671 has 69 MA's), (115, 35536), (126, 35512), (129, 35488), (136, 35443), (163, 35320),

Gene: Myrale\_43 Start: 35695, Stop: 35207, Start Num: 89

Candidate Starts for Myrale\_43:

(Start: 89 @35695 has 85 MA's), (Start: 94 @35683 has 2 MA's), (104, 35620), (112, 35605), (122, 35578), (124, 35572), (133, 35527), (135, 35515), (145, 35473), (170, 35371), (191, 35227),

Gene: Naval22\_7 Start: 2458, Stop: 2814, Start Num: 106

Candidate Starts for Naval22\_7:

(Start: 69 @2347 has 11 MA's), (Start: 89 @2383 has 85 MA's), (106, 2458), (109, 2473), (118, 2500), (120, 2506), (133, 2551), (135, 2563), (145, 2614), (147, 2617), (157, 2647), (164, 2689),

Gene: Nidhogg\_7 Start: 2383, Stop: 2814, Start Num: 89

Candidate Starts for Nidhogg\_7:

(Start: 69 @2347 has 11 MA's), (Start: 89 @2383 has 85 MA's), (106, 2458), (109, 2473), (118, 2500), (120, 2506), (133, 2551), (135, 2563), (145, 2614), (147, 2617), (157, 2647), (164, 2689),

Gene: NihilNomen\_73 Start: 50662, Stop: 50297, Start Num: 89

Candidate Starts for NihilNomen\_73:

(Start: 89 @50662 has 85 MA's), (99, 50620), (126, 50524), (136, 50455), (146, 50416),

Gene: Nivrat\_78 Start: 48916, Stop: 49254, Start Num: 82

Candidate Starts for Nivrat\_78:

(57, 48877), (Start: 82 @48916 has 69 MA's), (Start: 85 @48928 has 1 MA's), (103, 49000), (105, 49009), (118, 49045), (134, 49117),

Gene: NoSleep\_45 Start: 35431, Stop: 35027, Start Num: 82

Candidate Starts for NoSleep\_45:

(Start: 82 @35431 has 69 MA's), (115, 35296), (126, 35272), (129, 35248), (136, 35203), (163, 35080),

Gene: NoodleTree\_7 Start: 2148, Stop: 2579, Start Num: 89

Candidate Starts for NoodleTree\_7:

(59, 2091), (Start: 89 @2148 has 85 MA's), (106, 2223), (109, 2238), (118, 2265), (120, 2271), (133, 2316), (135, 2328), (145, 2379), (147, 2382), (157, 2412), (164, 2454),

Gene: NormanBulbieJr\_83 Start: 50465, Stop: 50929, Start Num: 89

Candidate Starts for NormanBulbieJr\_83:

(Start: 89 @50465 has 85 MA's), (92, 50474), (113, 50576), (116, 50585), (133, 50657), (135, 50669), (145, 50711), (170, 50813),

Gene: NuevoMundo\_9 Start: 2841, Stop: 3272, Start Num: 89

Candidate Starts for NuevoMundo\_9:

(39, 2736), (44, 2757), (47, 2763), (Start: 89 @2841 has 85 MA's), (106, 2916), (109, 2931), (118, 2958), (120, 2964), (133, 3009), (135, 3021), (145, 3072), (147, 3075), (157, 3105), (164, 3147),

Gene: Odette\_71 Start: 49705, Stop: 49340, Start Num: 89

Candidate Starts for Odette\_71:

(Start: 89 @49705 has 85 MA's), (99, 49663), (126, 49567), (136, 49498), (146, 49459),

Gene: OrionPax\_43 Start: 35001, Stop: 34636, Start Num: 82

Candidate Starts for OrionPax\_43:

(Start: 82 @35001 has 69 MA's), (115, 34866), (126, 34842), (129, 34818), (138, 34755),

Gene: Pat3\_41 Start: 33929, Stop: 33462, Start Num: 85

Candidate Starts for Pat3\_41:

(Start: 82 @33941 has 69 MA's), (Start: 85 @33929 has 1 MA's), (115, 33803), (119, 33794), (126, 33779), (129, 33755), (136, 33710), (154, 33644), (174, 33545), (186, 33473),

Gene: Phaja\_41 Start: 35395, Stop: 34907, Start Num: 89

Candidate Starts for Phaja\_41:

(Start: 89 @35395 has 85 MA's), (Start: 94 @35383 has 2 MA's), (104, 35320), (112, 35305), (122, 35278), (124, 35272), (133, 35227), (135, 35215), (145, 35173), (170, 35071), (191, 34927),

Gene: Phatniss\_83 Start: 49365, Stop: 49781, Start Num: 82

Candidate Starts for Phatniss\_83:

(Start: 82 @49365 has 69 MA's), (103, 49449), (105, 49458), (118, 49494), (133, 49563), (135, 49575), (142, 49608), (169, 49707),

Gene: Phoebus\_75 Start: 51844, Stop: 51479, Start Num: 89

Candidate Starts for Phoebus\_75:

(Start: 89 @51844 has 85 MA's), (99, 51802), (126, 51706), (136, 51637), (146, 51598),

Gene: Phrux\_42 Start: 34994, Stop: 34629, Start Num: 82

Candidate Starts for Phrux\_42:

(75, 35009), (Start: 82 @34994 has 69 MA's), (115, 34859), (126, 34835), (129, 34811), (136, 34766), (138, 34748),

Gene: Pier\_10 Start: 2844, Stop: 3275, Start Num: 89

Candidate Starts for Pier\_10:

(39, 2739), (44, 2760), (47, 2766), (Start: 89 @2844 has 85 MA's), (106, 2919), (109, 2934), (118, 2961), (120, 2967), (133, 3012), (135, 3024), (145, 3075), (147, 3078), (157, 3108), (164, 3150),

Gene: Pinkcreek\_11 Start: 4628, Stop: 5008, Start Num: 82

Candidate Starts for Pinkcreek\_11:

(64, 4592), (Start: 82 @4628 has 69 MA's), (115, 4763), (126, 4787), (129, 4811), (134, 4844), (149, 4904), (150, 4907), (166, 4937),

Gene: Pio\_8 Start: 2537, Stop: 2968, Start Num: 89

Candidate Starts for Pio\_8:

(Start: 69 @2501 has 11 MA's), (Start: 89 @2537 has 85 MA's), (106, 2612), (109, 2627), (118, 2654), (120, 2660), (133, 2705), (135, 2717), (145, 2768), (147, 2771), (157, 2801), (164, 2843),

Gene: Pollywog\_88 Start: 51599, Stop: 52084, Start Num: 89

Candidate Starts for Pollywog\_88:

(74, 51560), (Start: 89 @51599 has 85 MA's), (Start: 94 @51611 has 2 MA's), (106, 51674), (109, 51689), (118, 51716), (120, 51722), (133, 51767), (135, 51779), (145, 51830), (147, 51833), (157, 51863), (164, 51905), (188, 52031),

Gene: Porcelain\_72 Start: 46970, Stop: 46605, Start Num: 89

Candidate Starts for Porcelain\_72:

(Start: 89 @46970 has 85 MA's), (99, 46928), (126, 46832), (136, 46763), (146, 46724),

Gene: Pringar\_10 Start: 3084, Stop: 3491, Start Num: 82

Candidate Starts for Pringar\_10:



(Start: 82 @3084 has 69 MA's), (Start: 85 @3096 has 1 MA's), (115, 3222), (126, 3246), (129, 3270), (134, 3303), (171, 3468),

Gene: Priscilla\_85 Start: 50563, Stop: 51027, Start Num: 89

Candidate Starts for Priscilla\_85:

(Start: 89 @50563 has 85 MA's), (92, 50572), (113, 50674), (116, 50683), (133, 50755), (135, 50767), (145, 50809), (170, 50911),

Gene: Pumpkin\_45 Start: 35920, Stop: 35555, Start Num: 82

Candidate Starts for Pumpkin\_45:

(Start: 82 @35920 has 69 MA's), (115, 35785), (126, 35761), (129, 35737), (138, 35674),

Gene: Quallification\_42 Start: 35222, Stop: 34857, Start Num: 89

Candidate Starts for Quallification\_42:

(Start: 89 @35222 has 85 MA's), (99, 35180), (126, 35084), (136, 35015), (146, 34976),

Gene: RedRaider77\_11 Start: 3531, Stop: 3950, Start Num: 76

Candidate Starts for RedRaider77\_11:

(Start: 76 @3531 has 3 MA's), (115, 3681), (126, 3705), (129, 3729), (132, 3756), (133, 3759),

Gene: Redno2\_69 Start: 47458, Stop: 47093, Start Num: 89

Candidate Starts for Redno2\_69:

(Start: 89 @47458 has 85 MA's), (99, 47416), (126, 47320), (136, 47251), (146, 47212),

Gene: Rialto\_92 Start: 51249, Stop: 51725, Start Num: 93

Candidate Starts for Rialto\_92:

(Start: 91 @51246 has 1 MA's), (Start: 93 @51249 has 1 MA's), (107, 51318), (109, 51330), (118, 51357), (120, 51363), (133, 51408), (135, 51420), (145, 51471), (147, 51474), (157, 51504), (164, 51546), (188, 51672),

Gene: Rimmer\_42 Start: 34931, Stop: 34563, Start Num: 82

Candidate Starts for Rimmer\_42:

(Start: 82 @34931 has 69 MA's), (Start: 85 @34919 has 1 MA's), (115, 34793), (126, 34769), (129, 34745), (138, 34682),

Gene: RiverMonster\_44 Start: 35447, Stop: 35043, Start Num: 82

Candidate Starts for RiverMonster\_44:

(Start: 82 @35447 has 69 MA's), (115, 35312), (126, 35288), (129, 35264), (136, 35219), (163, 35096),

Gene: Ryadel\_104 Start: 63381, Stop: 62932, Start Num: 62

Candidate Starts for Ryadel\_104:

(38, 63432), (Start: 62 @63381 has 2 MA's), (67, 63369), (Start: 91 @63303 has 1 MA's), (103, 63240), (110, 63216), (133, 63132), (135, 63120), (144, 63087), (187, 62937),

Gene: SG4\_79 Start: 48739, Stop: 49107, Start Num: 82

Candidate Starts for SG4\_79:

(65, 48706), (Start: 82 @48739 has 69 MA's), (115, 48877), (119, 48886), (126, 48901), (129, 48925), (138, 48988),

Gene: Sabbb\_90 Start: 48794, Stop: 49228, Start Num: 89

Candidate Starts for Sabbb\_90:

(74, 48755), (Start: 89 @48794 has 85 MA's), (Start: 94 @48806 has 2 MA's), (106, 48869), (109, 48884), (118, 48911), (120, 48917), (133, 48962), (135, 48974), (145, 49025), (147, 49028), (157, 49058), (164, 49100),

Gene: Sauce\_7 Start: 2387, Stop: 2818, Start Num: 89

Candidate Starts for Sauce\_7:

(Start: 69 @2351 has 11 MA's), (Start: 89 @2387 has 85 MA's), (106, 2462), (109, 2477), (118, 2504), (120, 2510), (133, 2555), (135, 2567), (145, 2618), (147, 2621), (157, 2651), (164, 2693),

Gene: Schatzie\_67 Start: 49452, Stop: 49087, Start Num: 89

Candidate Starts for Schatzie\_67:

(Start: 89 @49452 has 85 MA's), (99, 49410), (126, 49314), (136, 49245), (146, 49206),

Gene: Sebata\_9 Start: 3505, Stop: 3948, Start Num: 88

Candidate Starts for Sebata\_9:

(Start: 35 @3388 has 1 MA's), (45, 3418), (61, 3445), (79, 3481), (Start: 88 @3505 has 6 MA's), (106, 3592), (109, 3607), (118, 3634), (120, 3640), (133, 3685), (135, 3697), (145, 3748), (147, 3751), (157, 3781), (164, 3823),

Gene: ShamWow\_43 Start: 35832, Stop: 35344, Start Num: 89

Candidate Starts for ShamWow\_43:

(Start: 89 @35832 has 85 MA's), (Start: 94 @35820 has 2 MA's), (104, 35757), (112, 35742), (122, 35715), (124, 35709), (133, 35664), (135, 35652), (145, 35610), (170, 35508), (191, 35364),

Gene: Shauna1\_82 Start: 49932, Stop: 50444, Start Num: 89

Candidate Starts for Shauna1\_82:

(Start: 89 @49932 has 85 MA's), (133, 50124), (135, 50136), (145, 50178), (170, 50280), (191, 50424),

Gene: ShereKhan\_42 Start: 35964, Stop: 35599, Start Num: 82

Candidate Starts for ShereKhan\_42:

(75, 35979), (Start: 82 @35964 has 69 MA's), (115, 35829), (126, 35805), (129, 35781), (136, 35736), (138, 35718),

Gene: ShowerHandel\_81 Start: 48976, Stop: 49359, Start Num: 89

Candidate Starts for ShowerHandel\_81:

(Start: 89 @48976 has 85 MA's), (92, 48985), (113, 49087), (116, 49096), (133, 49168), (135, 49180), (179, 49306),

Gene: Silvafighter\_56 Start: 36170, Stop: 36607, Start Num: 53

Candidate Starts for Silvafighter\_56:

(Start: 53 @36170 has 2 MA's), (75, 36206), (Start: 89 @36260 has 85 MA's), (99, 36302), (102, 36323), (125, 36374), (156, 36503), (164, 36545),

Gene: SimranZ1\_81 Start: 48125, Stop: 48592, Start Num: 89

Candidate Starts for SimranZ1\_81:

(74, 48086), (Start: 89 @48125 has 85 MA's), (106, 48200), (109, 48215), (118, 48242), (120, 48248), (133, 48293), (135, 48305), (145, 48356), (147, 48359), (157, 48389), (183, 48503), (189, 48545),

Gene: SirDuracell\_41 Start: 33680, Stop: 33204, Start Num: 82

Candidate Starts for SirDuracell\_41:

(Start: 82 @33680 has 69 MA's), (111, 33563), (115, 33545), (126, 33521), (129, 33497), (136, 33452), (154, 33386), (174, 33287), (186, 33215),

Gene: Smairt\_41 Start: 32245, Stop: 31883, Start Num: 69

Candidate Starts for Smairt\_41:

(22, 32383), (31, 32350), (Start: 69 @32245 has 11 MA's), (135, 32002), (138, 31981), (140, 31975), (141, 31972),

Gene: Sparkdehlily\_95 Start: 49514, Stop: 49996, Start Num: 90

Candidate Starts for Sparkdehlily\_95:

(Start: 90 @49514 has 2 MA's), (Start: 91 @49517 has 1 MA's), (Start: 93 @49520 has 1 MA's), (107, 49589), (109, 49601), (118, 49628), (120, 49634), (133, 49679), (135, 49691), (145, 49742), (147, 49745), (157, 49775), (164, 49817), (188, 49943),

Gene: Specks\_10 Start: 2977, Stop: 3420, Start Num: 88

Candidate Starts for Specks\_10:

(Start: 35 @2860 has 1 MA's), (45, 2890), (61, 2917), (79, 2953), (Start: 88 @2977 has 6 MA's), (106, 3064), (109, 3079), (118, 3106), (120, 3112), (133, 3157), (135, 3169), (145, 3220), (147, 3223), (157, 3253), (164, 3295),

Gene: Spud\_8 Start: 2537, Stop: 2968, Start Num: 89

Candidate Starts for Spud\_8:

(Start: 69 @2501 has 11 MA's), (Start: 89 @2537 has 85 MA's), (106, 2612), (109, 2627), (118, 2654), (120, 2660), (133, 2705), (135, 2717), (145, 2768), (147, 2771), (157, 2801), (164, 2843),

Gene: Squint\_73 Start: 47089, Stop: 46724, Start Num: 89

Candidate Starts for Squint\_73:

(Start: 89 @47089 has 85 MA's), (99, 47047), (126, 46951), (136, 46882), (146, 46843),

Gene: Stark\_45 Start: 35450, Stop: 35046, Start Num: 82

Candidate Starts for Stark\_45:

(75, 35465), (Start: 82 @35450 has 69 MA's), (115, 35315), (126, 35291), (129, 35267), (136, 35222), (163, 35099),

Gene: StellaBean\_41 Start: 35144, Stop: 34668, Start Num: 94

Candidate Starts for StellaBean\_41:

(Start: 89 @35156 has 85 MA's), (Start: 94 @35144 has 2 MA's), (104, 35081), (112, 35066), (122, 35039), (124, 35033), (133, 34988), (135, 34976), (145, 34934), (170, 34832), (191, 34688),

Gene: StephanieG\_9 Start: 2844, Stop: 3275, Start Num: 89

Candidate Starts for StephanieG\_9:

(39, 2739), (44, 2760), (47, 2766), (Start: 89 @2844 has 85 MA's), (106, 2919), (109, 2934), (118, 2961), (120, 2967), (133, 3012), (135, 3024), (145, 3075), (147, 3078), (157, 3108), (164, 3150),

Gene: StevieRay\_57 Start: 37992, Stop: 38351, Start Num: 89

Candidate Starts for StevieRay\_57:

(15, 37731), (18, 37764), (20, 37788), (23, 37794), (75, 37935), (Start: 89 @37992 has 85 MA's), (106, 38067), (109, 38082), (118, 38109), (120, 38115), (133, 38160), (135, 38172), (176, 38328),

Gene: Suerte\_55 Start: 39354, Stop: 39890, Start Num: 82

Candidate Starts for Suerte\_55:

(18, 39168), (24, 39201), (52, 39300), (Start: 82 @39354 has 69 MA's), (84, 39366), (97, 39429), (134, 39597), (146, 39660), (159, 39711), (175, 39783), (182, 39825),

Gene: Sunshine924\_64 Start: 40630, Stop: 40100, Start Num: 76

Candidate Starts for Sunshine924\_64:

(Start: 76 @40630 has 3 MA's), (115, 40477), (126, 40453), (129, 40429), (134, 40396), (145, 40336), (147, 40333), (157, 40303), (180, 40189), (185, 40147), (190, 40120),

Gene: SuperGrey\_83 Start: 51298, Stop: 51810, Start Num: 89

Candidate Starts for SuperGrey\_83:

(Start: 89 @51298 has 85 MA's), (99, 51340), (135, 51502), (145, 51544), (170, 51646), (191, 51790),

Gene: Superphikiman\_70 Start: 46180, Stop: 45815, Start Num: 89

Candidate Starts for Superphikiman\_70:

(Start: 89 @46180 has 85 MA's), (99, 46138), (126, 46042), (136, 45973), (146, 45934),

Gene: TDanisky\_96 Start: 49514, Stop: 49996, Start Num: 90

Candidate Starts for TDanisky\_96:

(Start: 90 @49514 has 2 MA's), (Start: 91 @49517 has 1 MA's), (Start: 93 @49520 has 1 MA's), (107, 49589), (109, 49601), (118, 49628), (120, 49634), (133, 49679), (135, 49691), (145, 49742), (147, 49745), (157, 49775), (164, 49817), (188, 49943),

Gene: TeardropMSU\_40 Start: 34933, Stop: 34568, Start Num: 82

Candidate Starts for TeardropMSU\_40:

(75, 34948), (Start: 82 @34933 has 69 MA's), (115, 34798), (126, 34774), (129, 34750), (138, 34687),

Gene: Thespis\_54 Start: 36385, Stop: 36747, Start Num: 89

Candidate Starts for Thespis\_54:

(17, 36157), (63, 36304), (75, 36328), (Start: 89 @36385 has 85 MA's), (106, 36460), (109, 36475), (118, 36502), (120, 36508), (133, 36553), (135, 36565), (176, 36724),

Gene: ThreeRngTarjay\_158 Start: 86296, Stop: 86820, Start Num: 56

Candidate Starts for ThreeRngTarjay\_158:

(18, 86155), (Start: 56 @86296 has 2 MA's), (Start: 66 @86308 has 1 MA's), (86, 86359), (100, 86422), (108, 86467), (121, 86506), (130, 86539), (158, 86659), (164, 86683), (175, 86731), (180, 86755),

Gene: ThreeRngTarjay\_70 Start: 50738, Stop: 50373, Start Num: 89

Candidate Starts for ThreeRngTarjay\_70:

(Start: 89 @50738 has 85 MA's), (99, 50696), (126, 50600), (136, 50531), (146, 50492),

Gene: Thresher\_46 Start: 36685, Stop: 36281, Start Num: 82

Candidate Starts for Thresher\_46:

(Start: 82 @36685 has 69 MA's), (115, 36550), (126, 36526), (129, 36502), (134, 36469), (163, 36334),

Gene: Tomaszewski\_40 Start: 34800, Stop: 34435, Start Num: 82

Candidate Starts for Tomaszewski\_40:

(75, 34815), (Start: 82 @34800 has 69 MA's), (115, 34665), (126, 34641), (129, 34617), (138, 34554),

Gene: Tonenili\_21 Start: 6415, Stop: 6846, Start Num: 82

Candidate Starts for Tonenili\_21:

(11, 6136), (25, 6280), (27, 6283), (Start: 82 @6415 has 69 MA's), (Start: 85 @6427 has 1 MA's), (111, 6535), (115, 6553), (126, 6577), (129, 6601), (133, 6631), (135, 6643), (153, 6715), (162, 6769),

Gene: Topgun\_39 Start: 31551, Stop: 31189, Start Num: 69

Candidate Starts for Topgun\_39:

(22, 31689), (31, 31656), (Start: 69 @31551 has 11 MA's), (135, 31308), (138, 31287), (140, 31281), (141, 31278),

Gene: Tortellini\_64 Start: 43747, Stop: 44214, Start Num: 66

Candidate Starts for Tortellini\_64:

(41, 43702), (Start: 66 @43747 has 1 MA's), (92, 43822), (96, 43846), (104, 43888), (175, 44155), (184, 44200),

Gene: Toto\_42 Start: 35820, Stop: 35344, Start Num: 94

Candidate Starts for Toto\_42:

(Start: 89 @35832 has 85 MA's), (Start: 94 @35820 has 2 MA's), (104, 35757), (112, 35742), (122, 35715), (124, 35709), (133, 35664), (135, 35652), (145, 35610), (170, 35508), (191, 35364),

Gene: Tuco\_44 Start: 36340, Stop: 35852, Start Num: 89

Candidate Starts for Tuco\_44:

(Start: 89 @36340 has 85 MA's), (Start: 94 @36328 has 2 MA's), (104, 36265), (112, 36250), (122, 36223), (124, 36217), (133, 36172), (135, 36160), (145, 36118), (170, 36016), (191, 35872),

Gene: Tyke\_9 Start: 2817, Stop: 3251, Start Num: 89

Candidate Starts for Tyke\_9:

(59, 2760), (Start: 89 @2817 has 85 MA's), (106, 2892), (109, 2907), (118, 2934), (120, 2940), (133, 2985), (135, 2997), (145, 3048), (147, 3051), (157, 3081), (164, 3123),

Gene: VRedHorse\_87 Start: 48107, Stop: 48463, Start Num: 89

Candidate Starts for VRedHorse\_87:

(Start: 89 @48107 has 85 MA's), (154, 48359),

Gene: Wanda\_76 Start: 50200, Stop: 49835, Start Num: 89

Candidate Starts for Wanda\_76:

(Start: 89 @50200 has 85 MA's), (99, 50158), (126, 50062), (136, 49993), (146, 49954),

Gene: Wilkins\_39 Start: 31484, Stop: 31122, Start Num: 69

Candidate Starts for Wilkins\_39:

(22, 31622), (31, 31589), (Start: 69 @31484 has 11 MA's), (135, 31241), (138, 31220), (140, 31214), (141, 31211),

Gene: Xandras\_43 Start: 35049, Stop: 34684, Start Num: 82

Candidate Starts for Xandras\_43:

(Start: 82 @35049 has 69 MA's), (115, 34914), (126, 34890), (129, 34866), (138, 34803),

Gene: Yoshi\_97 Start: 50855, Stop: 51199, Start Num: 89

Candidate Starts for Yoshi\_97:

(34, 50720), (42, 50744), (71, 50801), (78, 50813), (83, 50822), (Start: 89 @50855 has 85 MA's), (150, 51101),

Gene: Youngblood\_43 Start: 35542, Stop: 35174, Start Num: 82

Candidate Starts for Youngblood\_43:

(Start: 82 @35542 has 69 MA's), (Start: 85 @35530 has 1 MA's), (115, 35404), (126, 35380), (129, 35356), (138, 35293),

Gene: Zapner\_89 Start: 47534, Stop: 47902, Start Num: 82

Candidate Starts for Zapner\_89:

(64, 47498), (Start: 82 @47534 has 69 MA's), (115, 47669), (126, 47693), (129, 47717), (136, 47762),  
(138, 47780), (151, 47828),

Gene: Zelink\_70 Start: 51051, Stop: 50686, Start Num: 89

Candidate Starts for Zelink\_70:

(Start: 89 @51051 has 85 MA's), (99, 51009), (126, 50913), (136, 50844), (146, 50805),