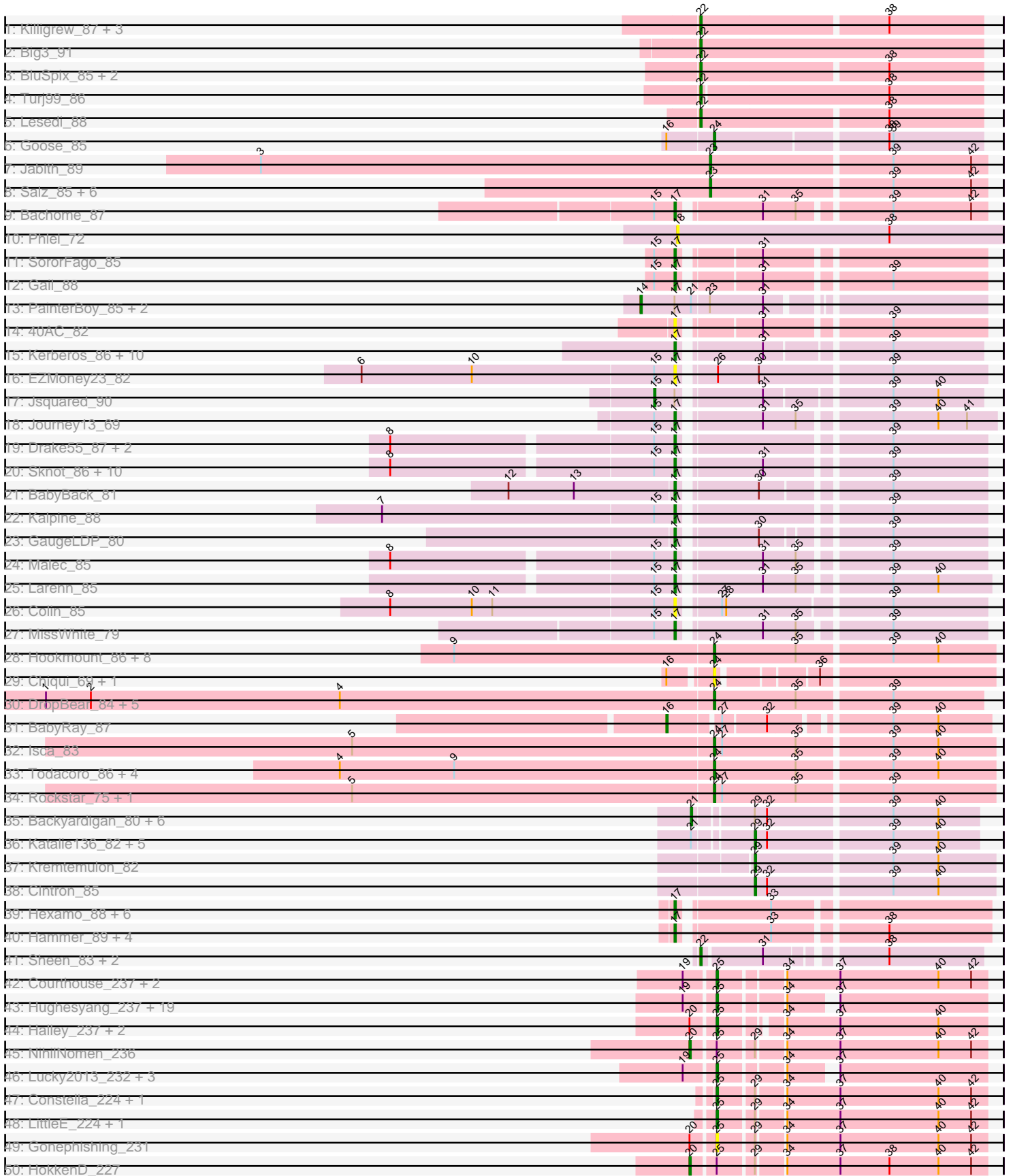


Pham 215901





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 215901 Report

This analysis was run 02/22/25 on database version 588.

Pham number 215901 has 157 members, 23 are drafts.

Phages represented in each track:

- Track 1 : Killigrew\_87, PherrisBueller\_88, EnzoK\_93, Zeeculate\_91
- Track 2 : Big3\_91
- Track 3 : BluSpix\_85, IgnatiusPatJac\_87, Alsfro\_94
- Track 4 : Turj99\_86
- Track 5 : Lesedi\_88
- Track 6 : Goose\_85
- Track 7 : Jabith\_89
- Track 8 : Salz\_85, Sham4\_86, Et2Brutus\_89, Insomnia\_89, Mulciber\_88, Hutc2\_86, Fibonacci\_89
- Track 9 : Bachome\_87
- Track 10 : Phlei\_72
- Track 11 : SororFago\_85
- Track 12 : Gail\_88
- Track 13 : PainterBoy\_85, Lucyedi\_86, EagleEye\_87
- Track 14 : 40AC\_82
- Track 15 : Kerberos\_86, Tomathan\_86, Duplo\_87, StarStuff\_86, ANI8\_85, Travvers\_86, Pomar16\_86, VC3\_84, DBQu4n\_86, AN9\_85, C3\_78
- Track 16 : EZMoney23\_82
- Track 17 : Jsquared\_90
- Track 18 : Journey13\_69
- Track 19 : Drake55\_87, HarryHoudini\_86, Piro94\_85
- Track 20 : Sknot\_86, NaSiaTalie\_87, Baehexic\_85, Flare16\_86, WideWale\_87, Equemioh13\_86, MiculUcigas\_86, Updawg\_87, Terrific\_87, Gratitude\_84, Centaur\_86
- Track 21 : BabyBack\_81
- Track 22 : Kalpine\_88
- Track 23 : GaugeLDP\_80
- Track 24 : Malec\_85
- Track 25 : Larenn\_85
- Track 26 : Colin\_85
- Track 27 : MissWhite\_79
- Track 28 : Hookmount\_86, Caviar\_75, Popcicle\_86, ResDef\_84, Noella\_87, Panamaxus\_82, Pocahontas\_85, Norbert\_82, Texage\_84
- Track 29 : Chiqui\_69, BabyJohn\_69
- Track 30 : DropBear\_84, HelDan\_86, Heathen\_86, Scout\_86, Kachowdy\_84, Marchesa\_86
- Track 31 : BabyRay\_87

- Track 32 : Isca\_83
- Track 33 : Todacoro\_86, Veracruz\_83, Margo\_86, QuinnKiro\_85, Lambert1\_86
- Track 34 : Rockstar\_75, Phantastic\_87
- Track 35 : Backyardigan\_80, Wile\_81, Badger\_81, Achebe\_81, Cici\_82, Wizard007\_82, Druantia\_84
- Track 36 : Katalie136\_82, PetiteSangsue\_82, Perplexer\_82, Morpher26\_82, Bumblebee11\_81, AbbysRanger\_82
- Track 37 : Kremtemulon\_82
- Track 38 : Cintron\_85
- Track 39 : Hexamo\_88, CloudWang3\_89, Roksolana\_89, Rifter\_89, Gruunaga\_88, Artemis2UCLA\_88, Gladiator\_85
- Track 40 : Hammer\_89, BlessJoy\_88, ToneTone\_86, Tucker\_89, Lilbunny\_88
- Track 41 : Sheen\_83, FlyCatcher\_86, Toro\_84
- Track 42 : Courthouse\_237, Ariel\_241, Superphikiman\_233
- Track 43 : Hughesyang\_237, Redno2\_226, Beem\_238, JuicyJay\_230, Shaboozey\_232, Squint\_233, Klein\_242, Bombitas\_219, Hannaconda\_225, ThreeRngTarjay\_234, Dove\_217, Schatzie\_227, Yeet\_229, Bagrid\_240, EricMillard\_232, Nekros\_235, Ejimix\_226, Zelink\_228, Phoebus\_233, Odette\_234
- Track 44 : Halley\_237, Dallas\_233, Minerva\_233
- Track 45 : NihilNomen\_236
- Track 46 : Lucky2013\_232, Porcelain\_236, MiaZeal\_245, Wanda\_234
- Track 47 : Constella\_224, Thibault\_209
- Track 48 : LittleE\_224, Rearden\_235
- Track 49 : Gonephishing\_231
- Track 50 : HokkenD\_227
- Track 51 : KashFlow\_227
- Track 52 : Duke13\_235

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

The start number called the most often in the published annotations is 17, it was called in 42 of the 134 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 40AC\_82, AN9\_85, ANI8\_85, Artemis2UCLA\_88, BabyBack\_81, Bachome\_87, Baehexic\_85, BlessJoy\_88, C3\_78, Centaur\_86, CloudWang3\_89, Colin\_85, DBQu4n\_86, Drake55\_87, Duplo\_87, EZMoney23\_82, Equemioh13\_86, Flare16\_86, Gail\_88, GaugeLDP\_80, Gladiator\_85, Gratitude\_84, Gruunaga\_88, Hammer\_89, HarryHoudini\_86, Hexamo\_88, Journey13\_69, Kalpine\_88, Kerberos\_86, Larenn\_85, Lilbunny\_88, Malec\_85, MiculUcigas\_86, MissWhite\_79, NaSiaTalie\_87, Piro94\_85, Pomar16\_86, Rifter\_89, Roksolana\_89, Sknot\_86, SororFago\_85, StarStuff\_86, Terrific\_87, Tomathan\_86, ToneTone\_86, Travvers\_86, Tucker\_89, Updawg\_87, VC3\_84, WideWale\_87,

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

- EagleEye\_87, Jsquared\_90, Lucyedi\_86, PainterBoy\_85,

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

- AbbysRanger\_82, Achebe\_81, Alsfro\_94, Ariel\_241, BabyJohn\_69, BabyRay\_87, Backyardigan\_80, Badger\_81, Bagrid\_240, Beem\_238, Big3\_91, BluSpix\_85,

Bombitas\_219, Bumblebee11\_81, Caviar\_75, Chiqui\_69, Cici\_82, Cintron\_85, Constella\_224, Courthouse\_237, Dallas\_233, Dove\_217, DropBear\_84, Druantia\_84, Duke13\_235, Ejimix\_226, EnzoK\_93, EricMillard\_232, Et2Brutus\_89, Fibonacci\_89, FlyCatcher\_86, Gonephishing\_231, Goose\_85, Halley\_237, Hannaconda\_225, Heathen\_86, HelDan\_86, HokkenD\_227, Hookmount\_86, Hughesyang\_237, Hutc2\_86, IgnatiusPatJac\_87, Insomnia\_89, Isca\_83, Jabith\_89, JuicyJay\_230, Kachowdy\_84, KashFlow\_227, Katalie136\_82, Killigrew\_87, Klein\_242, Kremtemulon\_82, Lambert1\_86, Lesedi\_88, LittleE\_224, Lucky2013\_232, Marchesa\_86, Margo\_86, MiaZeal\_245, Minerva\_233, Morpher26\_82, Mulciber\_88, Nekros\_235, NihilNomen\_236, Noella\_87, Norbert\_82, Odette\_234, Panamaxus\_82, Perplexer\_82, PetiteSangsue\_82, Phantastic\_87, PherrisBueller\_88, Phlei\_72, Phoebus\_233, Pocahontas\_85, Popcicle\_86, Porcelain\_236, QuinnKiro\_85, Rearden\_235, Redno2\_226, ResDef\_84, Rockstar\_75, Salz\_85, Schatzie\_227, Scout\_86, Shaboozey\_232, Sham4\_86, Sheen\_83, Squint\_233, Superphikiman\_233, Texage\_84, Thibault\_209, ThreeRngTarjay\_234, Todacoro\_86, Toro\_84, Turj99\_86, Veracruz\_83, Wanda\_234, Wile\_81, Wizard007\_82, Yeet\_229, Zeeculate\_91, Zelink\_228,

### Summary by start number:

#### Start 14:

- Found in 3 of 157 ( 1.9% ) of genes in pham
- Manual Annotations of this start: 3 of 134
- Called 100.0% of time when present
- Phage (with cluster) where this start called: EagleEye\_87 (A16), Lucyedi\_86 (A16), PainterBoy\_85 (A16),

#### Start 15:

- Found in 25 of 157 ( 15.9% ) of genes in pham
- Manual Annotations of this start: 1 of 134
- Called 4.0% of time when present
- Phage (with cluster) where this start called: Jsquared\_90 (A2),

#### Start 16:

- Found in 4 of 157 ( 2.5% ) of genes in pham
- Manual Annotations of this start: 1 of 134
- Called 25.0% of time when present
- Phage (with cluster) where this start called: BabyRay\_87 (A3),

#### Start 17:

- Found in 54 of 157 ( 34.4% ) of genes in pham
- Manual Annotations of this start: 42 of 134
- Called 92.6% of time when present
- Phage (with cluster) where this start called: 40AC\_82 (A17), AN9\_85 (A2), ANI8\_85 (A2), Artemis2UCLA\_88 (A6), BabyBack\_81 (A2), Bachome\_87 (A11), Baehexic\_85 (A2), BlessJoy\_88 (A6), C3\_78 (A2), Centaur\_86 (A2), CloudWang3\_89 (A6), Colin\_85 (A2), DBQu4n\_86 (A2), Drake55\_87 (A2), Duplo\_87 (A2), EZMoney23\_82 (A2), Equemioh13\_86 (A2), Flare16\_86 (A2), Gail\_88 (A14), GaugeLDP\_80 (A2), Gladiator\_85 (A6), Gratitude\_84 (A2), Gruunaga\_88 (A6), Hammer\_89 (A6), HarryHoudini\_86 (A2), Hexamo\_88 (A6), Journey13\_69 (A2), Kalpine\_88 (A2), Kerberos\_86 (A2), Larenn\_85 (A2), Lilbunny\_88 (A6), Malec\_85 (A2), MiculUcigas\_86 (A2), MissWhite\_79 (A2), NaSiaTalie\_87 (A2), Piro94\_85 (A2), Pomar16\_86 (A2), Rifter\_89 (A6), Roksolana\_89 (A6), Sknot\_86 (A2), SororFago\_85

(A14), StarStuff\_86 (A2), Terrific\_87 (A2), Tomathan\_86 (A2), ToneTone\_86 (A6), Travvers\_86 (A2), Tucker\_89 (A6), Updawg\_87 (A2), VC3\_84 (A2), WideWale\_87 (A2),

Start 18:

- Found in 1 of 157 ( 0.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Phlei\_72 (A13),

Start 20:

- Found in 7 of 157 ( 4.5% ) of genes in pham
- Manual Annotations of this start: 2 of 134
- Called 28.6% of time when present
- Phage (with cluster) where this start called: HokkenD\_227 (J), NihilNomen\_236 (J),

Start 21:

- Found in 16 of 157 ( 10.2% ) of genes in pham
- Manual Annotations of this start: 7 of 134
- Called 43.8% of time when present
- Phage (with cluster) where this start called: Achebe\_81 (A4), Backyardigan\_80 (A4), Badger\_81 (A4), Cici\_82 (A4), Druantia\_84 (A4), Wile\_81 (A4), Wizard007\_82 (A4),

Start 22:

- Found in 13 of 157 ( 8.3% ) of genes in pham
- Manual Annotations of this start: 10 of 134
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alsfro\_94 (A1), Big3\_91 (A1), BluSpix\_85 (A1), EnzoK\_93 (A1), FlyCatcher\_86 (A7), IgnatiusPatJac\_87 (A1), Killigrew\_87 (A1), Lesedi\_88 (A1), PherrisBueller\_88 (A1), Sheen\_83 (A7), Toro\_84 (A7), Turj99\_86 (A1), Zeeculate\_91 (A1),

Start 23:

- Found in 11 of 157 ( 7.0% ) of genes in pham
- Manual Annotations of this start: 8 of 134
- Called 72.7% of time when present
- Phage (with cluster) where this start called: Et2Brutus\_89 (A11), Fibonacci\_89 (A11), Hutc2\_86 (A11), Insomnia\_89 (A11), Jabith\_89 (A11), Mulciber\_88 (A11), Salz\_85 (A11), Sham4\_86 (A11),

Start 24:

- Found in 26 of 157 ( 16.6% ) of genes in pham
- Manual Annotations of this start: 21 of 134
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BabyJohn\_69 (A3), Caviar\_75 (A3), Chiqui\_69 (A3), DropBear\_84 (A3), Goose\_85 (A10), Heathen\_86 (A3), HelDan\_86 (A3), Hookmount\_86 (A3), Isca\_83 (A3), Kachowdy\_84 (A3), Lambert1\_86 (A3), Marchesa\_86 (A3), Margo\_86 (A3), Noella\_87 (A3), Norbert\_82 (A3), Panamaxus\_82 (A3), Phantastic\_87 (A3), Pocahontas\_85 (A3), Popcicle\_86 (A3), QuinnKiro\_85 (A3), ResDef\_84 (A3), Rockstar\_75 (A3), Scout\_86 (A3), Texage\_84 (A3), Todacoro\_86 (A3), Veracruz\_83 (A3),

Start 25:

- Found in 39 of 157 ( 24.8% ) of genes in pham
- Manual Annotations of this start: 31 of 134
- Called 94.9% of time when present
- Phage (with cluster) where this start called: Ariel\_241 (J), Bagrid\_240 (J), Beem\_238 (J), Bombitas\_219 (J), Constella\_224 (J), Courthouse\_237 (J), Dallas\_233 (J), Dove\_217 (J), Duke13\_235 (J), Ejimix\_226 (J), EricMillard\_232 (J), Gonephishing\_231 (J), Halley\_237 (J), Hannaconda\_225 (J), Hughesyang\_237 (J), JuicyJay\_230 (J), KashFlow\_227 (J), Klein\_242 (J), LittleE\_224 (J), Lucky2013\_232 (J), MiaZeal\_245 (J), Minerva\_233 (J), Nekros\_235 (J), Odette\_234 (J), Phoebus\_233 (J), Porcelain\_236 (J), Rearden\_235 (J), Redno2\_226 (J), Schatzie\_227 (J), Shaboozey\_232 (J), Squint\_233 (J), Superphikiman\_233 (J), Thibault\_209 (J), ThreeRngTarjay\_234 (J), Wanda\_234 (J), Yeet\_229 (J), Zelink\_228 (J),

Start 29:

- Found in 23 of 157 ( 14.6% ) of genes in pham
- Manual Annotations of this start: 8 of 134
- Called 34.8% of time when present
- Phage (with cluster) where this start called: AbbysRanger\_82 (A4), Bumblebee11\_81 (A4), Cintron\_85 (A4), Katalie136\_82 (A4), Kremtemulon\_82 (A4), Morpher26\_82 (A4), Perplexer\_82 (A4), PetiteSangsue\_82 (A4),

### Summary by clusters:

There are 13 clusters represented in this pham: A14, A17, A16, A11, A10, A13, J, A1, A3, A2, A4, A7, A6,

Info for manual annotations of cluster A1:

- Start number 22 was manually annotated 9 times for cluster A1.

Info for manual annotations of cluster A10:

- Start number 24 was manually annotated 1 time for cluster A10.

Info for manual annotations of cluster A11:

- Start number 17 was manually annotated 1 time for cluster A11.
- Start number 23 was manually annotated 8 times for cluster A11.

Info for manual annotations of cluster A14:

- Start number 17 was manually annotated 2 times for cluster A14.

Info for manual annotations of cluster A16:

- Start number 14 was manually annotated 3 times for cluster A16.

Info for manual annotations of cluster A2:

- Start number 15 was manually annotated 1 time for cluster A2.
- Start number 17 was manually annotated 28 times for cluster A2.

Info for manual annotations of cluster A3:

- Start number 16 was manually annotated 1 time for cluster A3.
- Start number 24 was manually annotated 20 times for cluster A3.

Info for manual annotations of cluster A4:

- Start number 21 was manually annotated 7 times for cluster A4.
- Start number 29 was manually annotated 8 times for cluster A4.

Info for manual annotations of cluster A6:

- Start number 17 was manually annotated 11 times for cluster A6.

Info for manual annotations of cluster A7:

- Start number 22 was manually annotated 1 time for cluster A7.

Info for manual annotations of cluster J:

- Start number 20 was manually annotated 2 times for cluster J.
- Start number 25 was manually annotated 31 times for cluster J.

### **Gene Information:**

Gene: 40AC\_82 Start: 48479, Stop: 48276, Start Num: 17

Candidate Starts for 40AC\_82:

(Start: 17 @48479 has 42 MA's), (31, 48428), (39, 48344),

Gene: AN9\_85 Start: 47253, Stop: 47056, Start Num: 17

Candidate Starts for AN9\_85:

(Start: 17 @47253 has 42 MA's), (31, 47199), (39, 47121),

Gene: ANI8\_85 Start: 47253, Stop: 47056, Start Num: 17

Candidate Starts for ANI8\_85:

(Start: 17 @47253 has 42 MA's), (31, 47199), (39, 47121),

Gene: AbbysRanger\_82 Start: 48599, Stop: 48441, Start Num: 29

Candidate Starts for AbbysRanger\_82:

(Start: 21 @48638 has 7 MA's), (Start: 29 @48599 has 8 MA's), (32, 48590), (39, 48503), (40, 48470),

Gene: Achebe\_81 Start: 48782, Stop: 48585, Start Num: 21

Candidate Starts for Achebe\_81:

(Start: 21 @48782 has 7 MA's), (Start: 29 @48743 has 8 MA's), (32, 48734), (39, 48647), (40, 48614),

Gene: Alsfro\_94 Start: 49646, Stop: 49846, Start Num: 22

Candidate Starts for Alsfro\_94:

(Start: 22 @49646 has 10 MA's), (38, 49778),

Gene: Ariel\_241 Start: 107734, Stop: 107546, Start Num: 25

Candidate Starts for Ariel\_241:

(19, 107755), (Start: 25 @107734 has 31 MA's), (34, 107692), (37, 107653), (40, 107581), (42, 107557),

Gene: Artemis2UCLA\_88 Start: 46537, Stop: 46328, Start Num: 17

Candidate Starts for Artemis2UCLA\_88:

(Start: 17 @46537 has 42 MA's), (33, 46477),

Gene: BabyBack\_81 Start: 48271, Stop: 48068, Start Num: 17

Candidate Starts for BabyBack\_81:

(12, 48391), (13, 48343), (Start: 17 @48271 has 42 MA's), (30, 48220), (39, 48136),



Gene: BabyJohn\_69 Start: 44585, Stop: 44400, Start Num: 24  
Candidate Starts for BabyJohn\_69:  
(Start: 16 @44612 has 1 MA's), (Start: 24 @44585 has 21 MA's), (36, 44522),

Gene: BabyRay\_87 Start: 47952, Stop: 47743, Start Num: 16  
Candidate Starts for BabyRay\_87:  
(Start: 16 @47952 has 1 MA's), (27, 47919), (32, 47889), (39, 47814), (40, 47781),

Gene: Bachome\_87 Start: 47191, Stop: 46985, Start Num: 17  
Candidate Starts for Bachome\_87:  
(Start: 15 @47206 has 1 MA's), (Start: 17 @47191 has 42 MA's), (31, 47137), (35, 47113), (39, 47053),  
(42, 46996),

Gene: Backyardigan\_80 Start: 48654, Stop: 48457, Start Num: 21  
Candidate Starts for Backyardigan\_80:  
(Start: 21 @48654 has 7 MA's), (Start: 29 @48615 has 8 MA's), (32, 48606), (39, 48519), (40, 48486),

Gene: Badger\_81 Start: 48620, Stop: 48423, Start Num: 21  
Candidate Starts for Badger\_81:  
(Start: 21 @48620 has 7 MA's), (Start: 29 @48581 has 8 MA's), (32, 48572), (39, 48485), (40, 48452),

Gene: Baehexic\_85 Start: 48457, Stop: 48251, Start Num: 17  
Candidate Starts for Baehexic\_85:  
(8, 48655), (Start: 15 @48472 has 1 MA's), (Start: 17 @48457 has 42 MA's), (31, 48403), (39, 48319),

Gene: Bagrid\_240 Start: 111821, Stop: 111645, Start Num: 25  
Candidate Starts for Bagrid\_240:  
(19, 111842), (Start: 25 @111821 has 31 MA's), (34, 111779), (37, 111752),

Gene: Beem\_238 Start: 110940, Stop: 110764, Start Num: 25  
Candidate Starts for Beem\_238:  
(19, 110961), (Start: 25 @110940 has 31 MA's), (34, 110898), (37, 110871),

Gene: Big3\_91 Start: 53046, Stop: 52840, Start Num: 22  
Candidate Starts for Big3\_91:  
(Start: 22 @53046 has 10 MA's),

Gene: BlessJoy\_88 Start: 47058, Stop: 46849, Start Num: 17  
Candidate Starts for BlessJoy\_88:  
(Start: 17 @47058 has 42 MA's), (33, 46998), (38, 46923),

Gene: BluSpix\_85 Start: 44982, Stop: 45182, Start Num: 22  
Candidate Starts for BluSpix\_85:  
(Start: 22 @44982 has 10 MA's), (38, 45114),

Gene: Bombitas\_219 Start: 107223, Stop: 107050, Start Num: 25  
Candidate Starts for Bombitas\_219:  
(19, 107244), (Start: 25 @107223 has 31 MA's), (34, 107181), (37, 107154),

Gene: Bumblebee11\_81 Start: 48581, Stop: 48423, Start Num: 29  
Candidate Starts for Bumblebee11\_81:  
(Start: 21 @48620 has 7 MA's), (Start: 29 @48581 has 8 MA's), (32, 48572), (39, 48485), (40, 48452),

Gene: C3\_78 Start: 47253, Stop: 47056, Start Num: 17

Candidate Starts for C3\_78:

(Start: 17 @47253 has 42 MA's), (31, 47199), (39, 47121),

Gene: Caviar\_75 Start: 44830, Stop: 44630, Start Num: 24

Candidate Starts for Caviar\_75:

(9, 45019), (Start: 24 @44830 has 21 MA's), (35, 44770), (39, 44704), (40, 44671),

Gene: Centaur\_86 Start: 48324, Stop: 48118, Start Num: 17

Candidate Starts for Centaur\_86:

(8, 48522), (Start: 15 @48339 has 1 MA's), (Start: 17 @48324 has 42 MA's), (31, 48270), (39, 48186),

Gene: Chiqui\_69 Start: 44594, Stop: 44409, Start Num: 24

Candidate Starts for Chiqui\_69:

(Start: 16 @44621 has 1 MA's), (Start: 24 @44594 has 21 MA's), (36, 44531),

Gene: Cici\_82 Start: 48633, Stop: 48436, Start Num: 21

Candidate Starts for Cici\_82:

(Start: 21 @48633 has 7 MA's), (Start: 29 @48594 has 8 MA's), (32, 48585), (39, 48498), (40, 48465),

Gene: Cintron\_85 Start: 48872, Stop: 48702, Start Num: 29

Candidate Starts for Cintron\_85:

(Start: 29 @48872 has 8 MA's), (32, 48863), (39, 48776), (40, 48743),

Gene: CloudWang3\_89 Start: 47066, Stop: 46857, Start Num: 17

Candidate Starts for CloudWang3\_89:

(Start: 17 @47066 has 42 MA's), (33, 47006),

Gene: Colin\_85 Start: 49399, Stop: 49190, Start Num: 17

Candidate Starts for Colin\_85:

(8, 49606), (10, 49546), (11, 49531), (Start: 15 @49414 has 1 MA's), (Start: 17 @49399 has 42 MA's), (27, 49375), (28, 49372), (39, 49258),

Gene: Constella\_224 Start: 108319, Stop: 108131, Start Num: 25

Candidate Starts for Constella\_224:

(Start: 25 @108319 has 31 MA's), (Start: 29 @108295 has 8 MA's), (34, 108277), (37, 108238), (40, 108166), (42, 108142),

Gene: Courthouse\_237 Start: 108498, Stop: 108310, Start Num: 25

Candidate Starts for Courthouse\_237:

(19, 108519), (Start: 25 @108498 has 31 MA's), (34, 108456), (37, 108417), (40, 108345), (42, 108321),

Gene: DBQu4n\_86 Start: 48304, Stop: 48101, Start Num: 17

Candidate Starts for DBQu4n\_86:

(Start: 17 @48304 has 42 MA's), (31, 48250), (39, 48166),

Gene: Dallas\_233 Start: 109177, Stop: 108995, Start Num: 25

Candidate Starts for Dallas\_233:

(Start: 20 @109192 has 2 MA's), (Start: 25 @109177 has 31 MA's), (34, 109141), (37, 109102), (40, 109030),

Gene: Dove\_217 Start: 105704, Stop: 105528, Start Num: 25  
Candidate Starts for Dove\_217:  
(19, 105725), (Start: 25 @105704 has 31 MA's), (34, 105662), (37, 105635),

Gene: Drake55\_87 Start: 48575, Stop: 48369, Start Num: 17  
Candidate Starts for Drake55\_87:  
(8, 48773), (Start: 15 @48590 has 1 MA's), (Start: 17 @48575 has 42 MA's), (39, 48437),

Gene: DropBear\_84 Start: 48015, Stop: 47824, Start Num: 24  
Candidate Starts for DropBear\_84:  
(1, 48504), (2, 48471), (4, 48288), (Start: 24 @48015 has 21 MA's), (35, 47955), (39, 47889),

Gene: Druantia\_84 Start: 48829, Stop: 48632, Start Num: 21  
Candidate Starts for Druantia\_84:  
(Start: 21 @48829 has 7 MA's), (Start: 29 @48790 has 8 MA's), (32, 48781), (39, 48694), (40, 48661),

Gene: Duke13\_235 Start: 110008, Stop: 109820, Start Num: 25  
Candidate Starts for Duke13\_235:  
(Start: 20 @110023 has 2 MA's), (Start: 25 @110008 has 31 MA's), (Start: 29 @109984 has 8 MA's),  
(34, 109966), (37, 109927), (38, 109891), (40, 109855), (42, 109831),

Gene: Duplo\_87 Start: 48361, Stop: 48158, Start Num: 17  
Candidate Starts for Duplo\_87:  
(Start: 17 @48361 has 42 MA's), (31, 48307), (39, 48223),

Gene: EZMoney23\_82 Start: 48034, Stop: 47822, Start Num: 17  
Candidate Starts for EZMoney23\_82:  
(6, 48262), (10, 48181), (Start: 15 @48049 has 1 MA's), (Start: 17 @48034 has 42 MA's), (26, 48013),  
(30, 47983), (39, 47890),

Gene: EagleEye\_87 Start: 48171, Stop: 47941, Start Num: 14  
Candidate Starts for EagleEye\_87:  
(Start: 14 @48171 has 3 MA's), (Start: 17 @48147 has 42 MA's), (Start: 21 @48135 has 7 MA's),  
(Start: 23 @48123 has 8 MA's), (31, 48084),

Gene: Ejimix\_226 Start: 109183, Stop: 109007, Start Num: 25  
Candidate Starts for Ejimix\_226:  
(19, 109204), (Start: 25 @109183 has 31 MA's), (34, 109141), (37, 109114),

Gene: EnzoK\_93 Start: 50479, Stop: 50279, Start Num: 22  
Candidate Starts for EnzoK\_93:  
(Start: 22 @50479 has 10 MA's), (38, 50347),

Gene: Equemioh13\_86 Start: 48553, Stop: 48347, Start Num: 17  
Candidate Starts for Equemioh13\_86:  
(8, 48751), (Start: 15 @48568 has 1 MA's), (Start: 17 @48553 has 42 MA's), (31, 48499), (39, 48415),

Gene: EricMillard\_232 Start: 111027, Stop: 110851, Start Num: 25  
Candidate Starts for EricMillard\_232:  
(19, 111048), (Start: 25 @111027 has 31 MA's), (34, 110985), (37, 110958),

Gene: Et2Brutus\_89 Start: 48147, Stop: 47950, Start Num: 23  
Candidate Starts for Et2Brutus\_89:

(Start: 23 @48147 has 8 MA's), (39, 48018), (42, 47961),

Gene: Fibonacci\_89 Start: 48153, Stop: 47956, Start Num: 23

Candidate Starts for Fibonacci\_89:

(Start: 23 @48153 has 8 MA's), (39, 48024), (42, 47967),

Gene: Flare16\_86 Start: 48368, Stop: 48162, Start Num: 17

Candidate Starts for Flare16\_86:

(8, 48566), (Start: 15 @48383 has 1 MA's), (Start: 17 @48368 has 42 MA's), (31, 48314), (39, 48230),

Gene: FlyCatcher\_86 Start: 51563, Stop: 51378, Start Num: 22

Candidate Starts for FlyCatcher\_86:

(Start: 22 @51563 has 10 MA's), (31, 51521), (38, 51446),

Gene: Gail\_88 Start: 48344, Stop: 48141, Start Num: 17

Candidate Starts for Gail\_88:

(Start: 15 @48359 has 1 MA's), (Start: 17 @48344 has 42 MA's), (31, 48293), (39, 48209),

Gene: GaugeLDP\_80 Start: 47824, Stop: 47624, Start Num: 17

Candidate Starts for GaugeLDP\_80:

(Start: 17 @47824 has 42 MA's), (30, 47773), (39, 47692),

Gene: Gladiator\_85 Start: 46722, Stop: 46513, Start Num: 17

Candidate Starts for Gladiator\_85:

(Start: 17 @46722 has 42 MA's), (33, 46662),

Gene: Gonephishing\_231 Start: 108727, Stop: 108539, Start Num: 25

Candidate Starts for Gonephishing\_231:

(Start: 20 @108742 has 2 MA's), (Start: 25 @108727 has 31 MA's), (Start: 29 @108703 has 8 MA's), (34, 108685), (37, 108646), (40, 108574), (42, 108550),

Gene: Goose\_85 Start: 48375, Stop: 48187, Start Num: 24

Candidate Starts for Goose\_85:

(Start: 16 @48408 has 1 MA's), (Start: 24 @48375 has 21 MA's), (38, 48255), (39, 48252),

Gene: Gratitude\_84 Start: 48553, Stop: 48347, Start Num: 17

Candidate Starts for Gratitude\_84:

(8, 48751), (Start: 15 @48568 has 1 MA's), (Start: 17 @48553 has 42 MA's), (31, 48499), (39, 48415),

Gene: Gruunaga\_88 Start: 46677, Stop: 46468, Start Num: 17

Candidate Starts for Gruunaga\_88:

(Start: 17 @46677 has 42 MA's), (33, 46617),

Gene: Halley\_237 Start: 109664, Stop: 109482, Start Num: 25

Candidate Starts for Halley\_237:

(Start: 20 @109679 has 2 MA's), (Start: 25 @109664 has 31 MA's), (34, 109628), (37, 109589), (40, 109517),

Gene: Hammer\_89 Start: 46384, Stop: 46175, Start Num: 17

Candidate Starts for Hammer\_89:

(Start: 17 @46384 has 42 MA's), (33, 46324), (38, 46249),

Gene: Hannaconda\_225 Start: 109232, Stop: 109056, Start Num: 25

Candidate Starts for Hannaconda\_225:

(19, 109253), (Start: 25 @109232 has 31 MA's), (34, 109190), (37, 109163),

Gene: HarryHoudini\_86 Start: 48578, Stop: 48372, Start Num: 17

Candidate Starts for HarryHoudini\_86:

(8, 48776), (Start: 15 @48593 has 1 MA's), (Start: 17 @48578 has 42 MA's), (39, 48440),

Gene: Heathen\_86 Start: 47894, Stop: 47703, Start Num: 24

Candidate Starts for Heathen\_86:

(1, 48383), (2, 48350), (4, 48167), (Start: 24 @47894 has 21 MA's), (35, 47834), (39, 47768),

Gene: HelDan\_86 Start: 48117, Stop: 47926, Start Num: 24

Candidate Starts for HelDan\_86:

(1, 48606), (2, 48573), (4, 48390), (Start: 24 @48117 has 21 MA's), (35, 48057), (39, 47991),

Gene: Hexamo\_88 Start: 46552, Stop: 46343, Start Num: 17

Candidate Starts for Hexamo\_88:

(Start: 17 @46552 has 42 MA's), (33, 46492),

Gene: HokkenD\_227 Start: 110994, Stop: 110791, Start Num: 20

Candidate Starts for HokkenD\_227:

(Start: 20 @110994 has 2 MA's), (Start: 25 @110979 has 31 MA's), (Start: 29 @110955 has 8 MA's), (34, 110937), (37, 110898), (38, 110862), (40, 110826), (42, 110802),

Gene: Hookmount\_86 Start: 47833, Stop: 47633, Start Num: 24

Candidate Starts for Hookmount\_86:

(9, 48022), (Start: 24 @47833 has 21 MA's), (35, 47773), (39, 47707), (40, 47674),

Gene: Hughesyang\_237 Start: 110914, Stop: 110738, Start Num: 25

Candidate Starts for Hughesyang\_237:

(19, 110935), (Start: 25 @110914 has 31 MA's), (34, 110872), (37, 110845),

Gene: Hutc2\_86 Start: 47037, Stop: 46840, Start Num: 23

Candidate Starts for Hutc2\_86:

(Start: 23 @47037 has 8 MA's), (39, 46908), (42, 46851),

Gene: IgnatiusPatJac\_87 Start: 48927, Stop: 49127, Start Num: 22

Candidate Starts for IgnatiusPatJac\_87:

(Start: 22 @48927 has 10 MA's), (38, 49059),

Gene: Insomnia\_89 Start: 48331, Stop: 48134, Start Num: 23

Candidate Starts for Insomnia\_89:

(Start: 23 @48331 has 8 MA's), (39, 48202), (42, 48145),

Gene: Isca\_83 Start: 47223, Stop: 47023, Start Num: 24

Candidate Starts for Isca\_83:

(5, 47487), (Start: 24 @47223 has 21 MA's), (27, 47217), (35, 47163), (39, 47097), (40, 47064),

Gene: Jabith\_89 Start: 48345, Stop: 48148, Start Num: 23

Candidate Starts for Jabith\_89:

(3, 48675), (Start: 23 @48345 has 8 MA's), (39, 48216), (42, 48159),

Gene: Journey13\_69 Start: 43468, Stop: 43256, Start Num: 17

Candidate Starts for Journey13\_69:

(Start: 15 @43483 has 1 MA's), (Start: 17 @43468 has 42 MA's), (31, 43414), (35, 43390), (39, 43330), (40, 43297), (41, 43276),

Gene: Jsquared\_90 Start: 48187, Stop: 47969, Start Num: 15

Candidate Starts for Jsquared\_90:

(Start: 15 @48187 has 1 MA's), (Start: 17 @48172 has 42 MA's), (31, 48118), (39, 48034), (40, 48001),

Gene: JuicyJay\_230 Start: 110889, Stop: 110713, Start Num: 25

Candidate Starts for JuicyJay\_230:

(19, 110910), (Start: 25 @110889 has 31 MA's), (34, 110847), (37, 110820),

Gene: Kachowdy\_84 Start: 48146, Stop: 47955, Start Num: 24

Candidate Starts for Kachowdy\_84:

(1, 48635), (2, 48602), (4, 48419), (Start: 24 @48146 has 21 MA's), (35, 48086), (39, 48020),

Gene: Kalpine\_88 Start: 49294, Stop: 49088, Start Num: 17

Candidate Starts for Kalpine\_88:

(7, 49507), (Start: 15 @49309 has 1 MA's), (Start: 17 @49294 has 42 MA's), (39, 49156),

Gene: KashFlow\_227 Start: 109125, Stop: 108949, Start Num: 25

Candidate Starts for KashFlow\_227:

(19, 109146), (Start: 25 @109125 has 31 MA's), (34, 109083), (37, 109056), (39, 109017),

Gene: Katalie136\_82 Start: 48581, Stop: 48423, Start Num: 29

Candidate Starts for Katalie136\_82:

(Start: 21 @48620 has 7 MA's), (Start: 29 @48581 has 8 MA's), (32, 48572), (39, 48485), (40, 48452),

Gene: Kerberos\_86 Start: 48324, Stop: 48121, Start Num: 17

Candidate Starts for Kerberos\_86:

(Start: 17 @48324 has 42 MA's), (31, 48270), (39, 48186),

Gene: Killigrew\_87 Start: 50774, Stop: 50574, Start Num: 22

Candidate Starts for Killigrew\_87:

(Start: 22 @50774 has 10 MA's), (38, 50642),

Gene: Klein\_242 Start: 109911, Stop: 109735, Start Num: 25

Candidate Starts for Klein\_242:

(19, 109932), (Start: 25 @109911 has 31 MA's), (34, 109869), (37, 109842),

Gene: Kremtemulon\_82 Start: 48636, Stop: 48466, Start Num: 29

Candidate Starts for Kremtemulon\_82:

(Start: 29 @48636 has 8 MA's), (39, 48540), (40, 48507),

Gene: Lambert1\_86 Start: 47834, Stop: 47634, Start Num: 24

Candidate Starts for Lambert1\_86:

(4, 48107), (9, 48023), (Start: 24 @47834 has 21 MA's), (35, 47774), (39, 47708), (40, 47675),

Gene: Larenn\_85 Start: 48736, Stop: 48527, Start Num: 17

Candidate Starts for Larenn\_85:

(Start: 15 @48751 has 1 MA's), (Start: 17 @48736 has 42 MA's), (31, 48682), (35, 48658), (39, 48598), (40, 48565),

Gene: Lesedi\_88 Start: 50089, Stop: 49889, Start Num: 22

Candidate Starts for Lesedi\_88:

(Start: 22 @50089 has 10 MA's), (38, 49957),

Gene: Lilbunny\_88 Start: 46631, Stop: 46422, Start Num: 17

Candidate Starts for Lilbunny\_88:

(Start: 17 @46631 has 42 MA's), (33, 46571), (38, 46496),

Gene: LittleE\_224 Start: 106916, Stop: 106728, Start Num: 25

Candidate Starts for LittleE\_224:

(Start: 25 @106916 has 31 MA's), (Start: 29 @106892 has 8 MA's), (34, 106874), (37, 106835), (40, 106763), (42, 106739),

Gene: Lucky2013\_232 Start: 106413, Stop: 106237, Start Num: 25

Candidate Starts for Lucky2013\_232:

(19, 106434), (Start: 25 @106413 has 31 MA's), (34, 106371), (37, 106344),

Gene: Lucyedi\_86 Start: 48370, Stop: 48140, Start Num: 14

Candidate Starts for Lucyedi\_86:

(Start: 14 @48370 has 3 MA's), (Start: 17 @48346 has 42 MA's), (Start: 21 @48334 has 7 MA's), (Start: 23 @48322 has 8 MA's), (31, 48283),

Gene: Malec\_85 Start: 49144, Stop: 48938, Start Num: 17

Candidate Starts for Malec\_85:

(8, 49342), (Start: 15 @49159 has 1 MA's), (Start: 17 @49144 has 42 MA's), (31, 49090), (35, 49066), (39, 49006),

Gene: Marchesa\_86 Start: 48008, Stop: 47817, Start Num: 24

Candidate Starts for Marchesa\_86:

(1, 48497), (2, 48464), (4, 48281), (Start: 24 @48008 has 21 MA's), (35, 47948), (39, 47882),

Gene: Margo\_86 Start: 47859, Stop: 47659, Start Num: 24

Candidate Starts for Margo\_86:

(4, 48132), (9, 48048), (Start: 24 @47859 has 21 MA's), (35, 47799), (39, 47733), (40, 47700),

Gene: MiaZeal\_245 Start: 108550, Stop: 108374, Start Num: 25

Candidate Starts for MiaZeal\_245:

(19, 108571), (Start: 25 @108550 has 31 MA's), (34, 108508), (37, 108481),

Gene: MiculUcigas\_86 Start: 48271, Stop: 48065, Start Num: 17

Candidate Starts for MiculUcigas\_86:

(8, 48469), (Start: 15 @48286 has 1 MA's), (Start: 17 @48271 has 42 MA's), (31, 48217), (39, 48133),

Gene: Minerva\_233 Start: 107908, Stop: 107726, Start Num: 25

Candidate Starts for Minerva\_233:

(Start: 20 @107923 has 2 MA's), (Start: 25 @107908 has 31 MA's), (34, 107872), (37, 107833), (40, 107761),

Gene: MissWhite\_79 Start: 45139, Stop: 44933, Start Num: 17

Candidate Starts for MissWhite\_79:

(Start: 15 @45154 has 1 MA's), (Start: 17 @45139 has 42 MA's), (31, 45085), (35, 45061), (39, 45001),

Gene: Morpher26\_82 Start: 48602, Stop: 48444, Start Num: 29

Candidate Starts for Morpher26\_82:

(Start: 21 @48641 has 7 MA's), (Start: 29 @48602 has 8 MA's), (32, 48593), (39, 48506), (40, 48473),

Gene: Mulciber\_88 Start: 48150, Stop: 47953, Start Num: 23

Candidate Starts for Mulciber\_88:

(Start: 23 @48150 has 8 MA's), (39, 48021), (42, 47964),

Gene: NaSiaTalie\_87 Start: 48558, Stop: 48352, Start Num: 17

Candidate Starts for NaSiaTalie\_87:

(8, 48756), (Start: 15 @48573 has 1 MA's), (Start: 17 @48558 has 42 MA's), (31, 48504), (39, 48420),

Gene: Nekros\_235 Start: 109893, Stop: 109717, Start Num: 25

Candidate Starts for Nekros\_235:

(19, 109914), (Start: 25 @109893 has 31 MA's), (34, 109851), (37, 109824),

Gene: NihilNomen\_236 Start: 108748, Stop: 108545, Start Num: 20

Candidate Starts for NihilNomen\_236:

(Start: 20 @108748 has 2 MA's), (Start: 25 @108733 has 31 MA's), (Start: 29 @108709 has 8 MA's), (34, 108691), (37, 108652), (40, 108580), (42, 108556),

Gene: Noella\_87 Start: 47835, Stop: 47635, Start Num: 24

Candidate Starts for Noella\_87:

(9, 48024), (Start: 24 @47835 has 21 MA's), (35, 47775), (39, 47709), (40, 47676),

Gene: Norbert\_82 Start: 47832, Stop: 47632, Start Num: 24

Candidate Starts for Norbert\_82:

(9, 48021), (Start: 24 @47832 has 21 MA's), (35, 47772), (39, 47706), (40, 47673),

Gene: Odette\_234 Start: 110012, Stop: 109836, Start Num: 25

Candidate Starts for Odette\_234:

(19, 110033), (Start: 25 @110012 has 31 MA's), (34, 109970), (37, 109943),

Gene: PainterBoy\_85 Start: 48081, Stop: 47851, Start Num: 14

Candidate Starts for PainterBoy\_85:

(Start: 14 @48081 has 3 MA's), (Start: 17 @48057 has 42 MA's), (Start: 21 @48045 has 7 MA's), (Start: 23 @48033 has 8 MA's), (31, 47994),

Gene: Panamaxus\_82 Start: 47834, Stop: 47634, Start Num: 24

Candidate Starts for Panamaxus\_82:

(9, 48023), (Start: 24 @47834 has 21 MA's), (35, 47774), (39, 47708), (40, 47675),

Gene: Perplexer\_82 Start: 48582, Stop: 48424, Start Num: 29

Candidate Starts for Perplexer\_82:

(Start: 21 @48621 has 7 MA's), (Start: 29 @48582 has 8 MA's), (32, 48573), (39, 48486), (40, 48453),

Gene: PetiteSangsue\_82 Start: 48585, Stop: 48427, Start Num: 29

Candidate Starts for PetiteSangsue\_82:

(Start: 21 @48624 has 7 MA's), (Start: 29 @48585 has 8 MA's), (32, 48576), (39, 48489), (40, 48456),

Gene: Phantastic\_87 Start: 47341, Stop: 47150, Start Num: 24

Candidate Starts for Phantastic\_87:

(5, 47605), (Start: 24 @47341 has 21 MA's), (27, 47335), (35, 47281), (39, 47215),



Gene: PherrisBueller\_88 Start: 48812, Stop: 48612, Start Num: 22  
Candidate Starts for PherrisBueller\_88:  
(Start: 22 @48812 has 10 MA's), (38, 48680),

Gene: Phlei\_72 Start: 46175, Stop: 45936, Start Num: 18  
Candidate Starts for Phlei\_72:  
(18, 46175), (38, 46019),

Gene: Phoebus\_233 Start: 112122, Stop: 111946, Start Num: 25  
Candidate Starts for Phoebus\_233:  
(19, 112143), (Start: 25 @112122 has 31 MA's), (34, 112080), (37, 112053),

Gene: Piro94\_85 Start: 48506, Stop: 48300, Start Num: 17  
Candidate Starts for Piro94\_85:  
(8, 48704), (Start: 15 @48521 has 1 MA's), (Start: 17 @48506 has 42 MA's), (39, 48368),

Gene: Pocahontas\_85 Start: 47830, Stop: 47630, Start Num: 24  
Candidate Starts for Pocahontas\_85:  
(9, 48019), (Start: 24 @47830 has 21 MA's), (35, 47770), (39, 47704), (40, 47671),

Gene: Pomar16\_86 Start: 48397, Stop: 48194, Start Num: 17  
Candidate Starts for Pomar16\_86:  
(Start: 17 @48397 has 42 MA's), (31, 48343), (39, 48259),

Gene: Popcicle\_86 Start: 47830, Stop: 47630, Start Num: 24  
Candidate Starts for Popcicle\_86:  
(9, 48019), (Start: 24 @47830 has 21 MA's), (35, 47770), (39, 47704), (40, 47671),

Gene: Porcelain\_236 Start: 107360, Stop: 107184, Start Num: 25  
Candidate Starts for Porcelain\_236:  
(19, 107381), (Start: 25 @107360 has 31 MA's), (34, 107318), (37, 107291),

Gene: QuinnKiro\_85 Start: 47833, Stop: 47633, Start Num: 24  
Candidate Starts for QuinnKiro\_85:  
(4, 48106), (9, 48022), (Start: 24 @47833 has 21 MA's), (35, 47773), (39, 47707), (40, 47674),

Gene: Rearden\_235 Start: 108013, Stop: 107825, Start Num: 25  
Candidate Starts for Rearden\_235:  
(Start: 25 @108013 has 31 MA's), (Start: 29 @107989 has 8 MA's), (34, 107971), (37, 107932), (40, 107860), (42, 107836),

Gene: Redno2\_226 Start: 106231, Stop: 106055, Start Num: 25  
Candidate Starts for Redno2\_226:  
(19, 106252), (Start: 25 @106231 has 31 MA's), (34, 106189), (37, 106162),

Gene: ResDef\_84 Start: 47836, Stop: 47636, Start Num: 24  
Candidate Starts for ResDef\_84:  
(9, 48025), (Start: 24 @47836 has 21 MA's), (35, 47776), (39, 47710), (40, 47677),

Gene: Rifter\_89 Start: 46179, Stop: 45970, Start Num: 17  
Candidate Starts for Rifter\_89:  
(Start: 17 @46179 has 42 MA's), (33, 46119),

Gene: Rockstar\_75 Start: 45031, Stop: 44831, Start Num: 24  
Candidate Starts for Rockstar\_75:  
(5, 45295), (Start: 24 @45031 has 21 MA's), (27, 45025), (35, 44971), (39, 44905),

Gene: Roksolana\_89 Start: 46895, Stop: 46686, Start Num: 17  
Candidate Starts for Roksolana\_89:  
(Start: 17 @46895 has 42 MA's), (33, 46835),

Gene: Salz\_85 Start: 46959, Stop: 46762, Start Num: 23  
Candidate Starts for Salz\_85:  
(Start: 23 @46959 has 8 MA's), (39, 46830), (42, 46773),

Gene: Schatzie\_227 Start: 109153, Stop: 108977, Start Num: 25  
Candidate Starts for Schatzie\_227:  
(19, 109174), (Start: 25 @109153 has 31 MA's), (34, 109111), (37, 109084),

Gene: Scout\_86 Start: 47357, Stop: 47166, Start Num: 24  
Candidate Starts for Scout\_86:  
(1, 47846), (2, 47813), (4, 47630), (Start: 24 @47357 has 21 MA's), (35, 47297), (39, 47231),

Gene: Shaboozey\_232 Start: 106458, Stop: 106282, Start Num: 25  
Candidate Starts for Shaboozey\_232:  
(19, 106479), (Start: 25 @106458 has 31 MA's), (34, 106416), (37, 106389),

Gene: Sham4\_86 Start: 47045, Stop: 46848, Start Num: 23  
Candidate Starts for Sham4\_86:  
(Start: 23 @47045 has 8 MA's), (39, 46916), (42, 46859),

Gene: Sheen\_83 Start: 50900, Stop: 50715, Start Num: 22  
Candidate Starts for Sheen\_83:  
(Start: 22 @50900 has 10 MA's), (31, 50858), (38, 50783),

Gene: Sknot\_86 Start: 48365, Stop: 48159, Start Num: 17  
Candidate Starts for Sknot\_86:  
(8, 48563), (Start: 15 @48380 has 1 MA's), (Start: 17 @48365 has 42 MA's), (31, 48311), (39, 48227),

Gene: SororFago\_85 Start: 48106, Stop: 47903, Start Num: 17  
Candidate Starts for SororFago\_85:  
(Start: 15 @48121 has 1 MA's), (Start: 17 @48106 has 42 MA's), (31, 48055),

Gene: Squint\_233 Start: 108166, Stop: 107990, Start Num: 25  
Candidate Starts for Squint\_233:  
(19, 108187), (Start: 25 @108166 has 31 MA's), (34, 108124), (37, 108097),

Gene: StarStuff\_86 Start: 48359, Stop: 48156, Start Num: 17  
Candidate Starts for StarStuff\_86:  
(Start: 17 @48359 has 42 MA's), (31, 48305), (39, 48221),

Gene: Superphikiman\_233 Start: 107294, Stop: 107106, Start Num: 25  
Candidate Starts for Superphikiman\_233:  
(19, 107315), (Start: 25 @107294 has 31 MA's), (34, 107252), (37, 107213), (40, 107141), (42, 107117),

Gene: Terrific\_87 Start: 48339, Stop: 48133, Start Num: 17  
Candidate Starts for Terrific\_87:  
(8, 48537), (Start: 15 @48354 has 1 MA's), (Start: 17 @48339 has 42 MA's), (31, 48285), (39, 48201),

Gene: Texage\_84 Start: 47834, Stop: 47634, Start Num: 24  
Candidate Starts for Texage\_84:  
(9, 48023), (Start: 24 @47834 has 21 MA's), (35, 47774), (39, 47708), (40, 47675),

Gene: Thibault\_209 Start: 104098, Stop: 103910, Start Num: 25  
Candidate Starts for Thibault\_209:  
(Start: 25 @104098 has 31 MA's), (Start: 29 @104074 has 8 MA's), (34, 104056), (37, 104017), (40, 103945), (42, 103921),

Gene: ThreeRngTarjay\_234 Start: 111335, Stop: 111162, Start Num: 25  
Candidate Starts for ThreeRngTarjay\_234:  
(19, 111356), (Start: 25 @111335 has 31 MA's), (34, 111293), (37, 111266),

Gene: Todacoro\_86 Start: 47833, Stop: 47633, Start Num: 24  
Candidate Starts for Todacoro\_86:  
(4, 48106), (9, 48022), (Start: 24 @47833 has 21 MA's), (35, 47773), (39, 47707), (40, 47674),

Gene: Tomathan\_86 Start: 48437, Stop: 48234, Start Num: 17  
Candidate Starts for Tomathan\_86:  
(Start: 17 @48437 has 42 MA's), (31, 48383), (39, 48299),

Gene: ToneTone\_86 Start: 46559, Stop: 46350, Start Num: 17  
Candidate Starts for ToneTone\_86:  
(Start: 17 @46559 has 42 MA's), (33, 46499), (38, 46424),

Gene: Toro\_84 Start: 51563, Stop: 51378, Start Num: 22  
Candidate Starts for Toro\_84:  
(Start: 22 @51563 has 10 MA's), (31, 51521), (38, 51446),

Gene: Travvers\_86 Start: 48354, Stop: 48151, Start Num: 17  
Candidate Starts for Travvers\_86:  
(Start: 17 @48354 has 42 MA's), (31, 48300), (39, 48216),

Gene: Tucker\_89 Start: 46762, Stop: 46553, Start Num: 17  
Candidate Starts for Tucker\_89:  
(Start: 17 @46762 has 42 MA's), (33, 46702), (38, 46627),

Gene: Turj99\_86 Start: 50763, Stop: 50560, Start Num: 22  
Candidate Starts for Turj99\_86:  
(Start: 22 @50763 has 10 MA's), (38, 50628),

Gene: Updawg\_87 Start: 48553, Stop: 48347, Start Num: 17  
Candidate Starts for Updawg\_87:  
(8, 48751), (Start: 15 @48568 has 1 MA's), (Start: 17 @48553 has 42 MA's), (31, 48499), (39, 48415),

Gene: VC3\_84 Start: 47253, Stop: 47056, Start Num: 17  
Candidate Starts for VC3\_84:  
(Start: 17 @47253 has 42 MA's), (31, 47199), (39, 47121),

Gene: Veracruz\_83 Start: 47834, Stop: 47634, Start Num: 24

Candidate Starts for Veracruz\_83:

(4, 48107), (9, 48023), (Start: 24 @47834 has 21 MA's), (35, 47774), (39, 47708), (40, 47675),

Gene: Wanda\_234 Start: 107541, Stop: 107365, Start Num: 25

Candidate Starts for Wanda\_234:

(19, 107562), (Start: 25 @107541 has 31 MA's), (34, 107499), (37, 107472),

Gene: WideWale\_87 Start: 48553, Stop: 48347, Start Num: 17

Candidate Starts for WideWale\_87:

(8, 48751), (Start: 15 @48568 has 1 MA's), (Start: 17 @48553 has 42 MA's), (31, 48499), (39, 48415),

Gene: Wile\_81 Start: 48650, Stop: 48453, Start Num: 21

Candidate Starts for Wile\_81:

(Start: 21 @48650 has 7 MA's), (Start: 29 @48611 has 8 MA's), (32, 48602), (39, 48515), (40, 48482),

Gene: Wizard007\_82 Start: 48376, Stop: 48179, Start Num: 21

Candidate Starts for Wizard007\_82:

(Start: 21 @48376 has 7 MA's), (Start: 29 @48337 has 8 MA's), (32, 48328), (39, 48241), (40, 48208),

Gene: Yeet\_229 Start: 109251, Stop: 109075, Start Num: 25

Candidate Starts for Yeet\_229:

(19, 109272), (Start: 25 @109251 has 31 MA's), (34, 109209), (37, 109182),

Gene: Zeeculate\_91 Start: 53471, Stop: 53271, Start Num: 22

Candidate Starts for Zeeculate\_91:

(Start: 22 @53471 has 10 MA's), (38, 53339),

Gene: Zelink\_228 Start: 108839, Stop: 108663, Start Num: 25

Candidate Starts for Zelink\_228:

(19, 108860), (Start: 25 @108839 has 31 MA's), (34, 108797), (37, 108770),