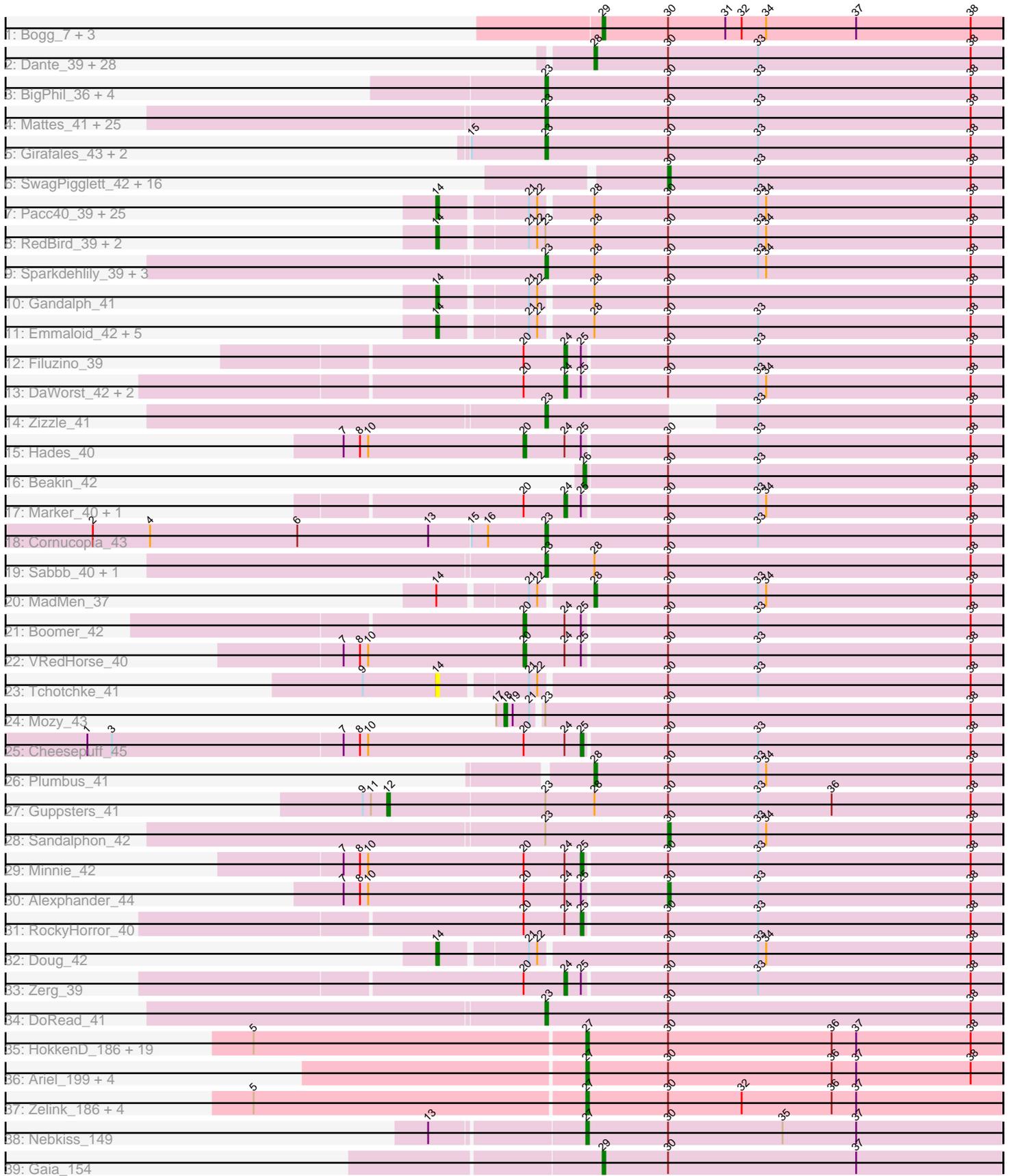


Pham 282005



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 282005 Report

This analysis was run 02/23/26 on database version 636.

Pham number 282005 has 183 members, 15 are drafts.

Phages represented in each track:

- Track 1 : Bogg\_7, Goku\_7, Manda\_6, Eureka\_6
- Track 2 : Dante\_39, Veteran\_39, Ramsey\_42, Daenerys\_38, Inventum\_38, Empress\_40, KingMidas\_41, Spoonbill\_39, Leozinho\_41, Nimbo\_38, Tootsieroll\_43, Scottish\_40, OlympiaSaint\_39, Royals2015\_41, Job42\_42, Stap\_40, OwlsT2W\_39, OldBen\_39, JoeyJr\_39, Deb65\_39, GUmbie\_39, Geralt\_39, IbOuu\_42, Radiance\_40, PHappiness\_39, Polka14\_40, BlueCrab\_39, Eish\_40, Sassafras\_40
- Track 3 : BigPhil\_36, Rita\_42, Cerasum\_36, Velveteen\_35, Sarma624\_36
- Track 4 : Mattes\_41, Clank\_41, Girr\_41, Zapner\_48, James\_41, Gorge\_41, Ruby\_40, Chevrolet\_44, BuzzLyseyear\_42, Philus\_41, Kimberlium\_42, QuickMath\_41, Wachhund\_41, DRBy19\_41, Doomslug\_45, MisterCuddles\_41, Jabbawokkie\_49, Ogopogo\_41, MulchExplorer\_45, BodEinwohner17\_39, Chuckly\_39, Saal\_41, Spikelee\_40, Avani\_44, ArcusAngelus\_41, Karhdo\_37
- Track 5 : Girafales\_43, Florinda\_44, Quico\_43
- Track 6 : SwagPiggett\_42, Pippy\_35, Doomphist\_41, Poenanya\_41, Martik\_42, Jarcob\_41, Maravista\_39, Koella\_35, Crumble\_35, NormanBulbieJr\_42, Lizziana\_41, Priscilla\_40, ShiLan\_41, BobaPhett\_41, Burwell21\_41, ShowerHandel\_42, Cabrinians\_41
- Track 7 : Pacc40\_39, DirtMcgirt\_40, GigiOuiOui\_39, LastJedi\_33, Starcevich\_42, LilMoolah\_41, Drago\_41, Brocalys\_34, Rockne\_39, Whouxphf\_41, Phasih\_40, Madiba\_38, LittleShirley\_42, Nivrat\_41, Aubs\_40, Mantra\_39, Krakatau\_40, RitaG\_40, Bubbles123\_39, Lucia\_41, Llij\_39, Beanstalk\_43, Clifton\_33, DotProduct\_39, UncleRicky\_42, Phatniss\_40
- Track 8 : RedBird\_39, Dorothy\_39, Yorick\_39
- Track 9 : Sparkdehlily\_39, Vivum\_40, Kersh\_38, TDanisky\_39
- Track 10 : Gandalph\_41
- Track 11 : Emmaloid\_42, EmiMonkey\_39, Totinger\_41, PhlipPhlop\_40, Slim\_42, Peridot\_45
- Track 12 : Filuzino\_39
- Track 13 : DaWorst\_42, Hamulus\_39, SiSi\_39
- Track 14 : Zizzle\_41
- Track 15 : Hades\_40
- Track 16 : Beakin\_42
- Track 17 : Marker\_40, DaddyRickover\_40
- Track 18 : Cornucopia\_43
- Track 19 : Sabbb\_40, Pollywog\_39
- Track 20 : MadMen\_37
- Track 21 : Boomer\_42

- Track 22 : VRedHorse\_40
- Track 23 : Tchotchke\_41
- Track 24 : Mozy\_43
- Track 25 : Cheesepuff\_45
- Track 26 : Plumbus\_41
- Track 27 : Guppsters\_41
- Track 28 : Sandalphon\_42
- Track 29 : Minnie\_42
- Track 30 : Alexphander\_44
- Track 31 : RockyHorror\_40
- Track 32 : Doug\_42
- Track 33 : Zerg\_39
- Track 34 : DoRead\_41
- Track 35 : HokkenD\_186, Redno2\_185, Odette\_195, Hannaconda\_185, Dallas\_192, Minerva\_193, Schatzie\_187, Beem\_194, JuicyJay\_187, EricMillard\_189, Duke13\_193, Wanda\_190, ThreeRngTarjay\_192, Bagrid\_200, BAKA\_199, Halley\_193, Ejimix\_182, Yeet\_183, NihilNomen\_194, Marleymoo\_178
- Track 36 : Ariel\_199, Courthouse\_195, Klein\_197, Kalah2\_194, MiaZeal\_200
- Track 37 : Zelink\_186, Lucky2013\_190, Hughesyang\_191, Porcelain\_193, Dove\_177
- Track 38 : Nebkiss\_149
- Track 39 : Gaia\_154

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

The start number called the most often in the published annotations is 23, it was called in 39 of the 168 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ArcusAngelus\_41, Avani\_44, BigPhil\_36, BodEinwohner17\_39, BuzzLyseyear\_42, Cerasum\_36, Chevrolet\_44, Chuckly\_39, Clank\_41, Cornucopia\_43, DRBy19\_41, DoRead\_41, Doomslug\_45, Florinda\_44, Girafales\_43, Girr\_41, Gorge\_41, Jabbawokkie\_49, James\_41, Karhdo\_37, Kersh\_38, Kimberlium\_42, Mattes\_41, MisterCuddles\_41, MulchExplorer\_45, OgoPogo\_41, Philus\_41, Pollywog\_39, QuickMath\_41, Quico\_43, Rita\_42, Ruby\_40, Saal\_41, Sabbb\_40, Sarma624\_36, Sparkdehlily\_39, Spikelee\_40, TDanisky\_39, Velveteen\_35, Vivum\_40, Wachhund\_41, Zapner\_48, Zizzle\_41,

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

- Dorothy\_39, Guppsters\_41, Mozy\_43, RedBird\_39, Sandalphon\_42, Yorick\_39,

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

- Alexphander\_44, Ariel\_199, Aubs\_40, BAKA\_199, Bagrid\_200, Beakin\_42, Beanstalk\_43, Beem\_194, BlueCrab\_39, BobaPhett\_41, Bogg\_7, Boomer\_42, Brocalys\_34, Bubbles123\_39, Burwell21\_41, Cabrinians\_41, Cheesepuff\_45, Clifton\_33, Courthouse\_195, Crumble\_35, DaWorst\_42, DaddyRickover\_40, Daenerys\_38, Dallas\_192, Dante\_39, Deb65\_39, DirtMcgirt\_40, Doomphist\_41, DotProduct\_39, Doug\_42, Dove\_177, Drago\_41, Duke13\_193, Eish\_40, Ejimix\_182, EmiMonkey\_39, Emmaloid\_42, Empress\_40, EricMillard\_189, Eureka\_6, Filuzino\_39, GUmbie\_39, Gaia\_154, Gandalph\_41, Geralt\_39, GigiOuiOui\_39, Goku\_7,

Hades\_40, Halley\_193, Hamulus\_39, Hannaconda\_185, HokkenD\_186, Hughesyang\_191, IbOuu\_42, Inventum\_38, Jarcob\_41, Job42\_42, JoeyJr\_39, JuicyJay\_187, Kalah2\_194, KingMidas\_41, Klein\_197, Koella\_35, Krakatau\_40, LastJedi\_33, Leozinho\_41, LilMoolah\_41, LittleShirley\_42, Lizziana\_41, Llij\_39, Lucia\_41, Lucky2013\_190, MadMen\_37, Madiba\_38, Manda\_6, Mantra\_39, Maravista\_39, Marker\_40, Marleymoo\_178, Martik\_42, MiaZeal\_200, Minerva\_193, Minnie\_42, Nebkiss\_149, NihilNomen\_194, Nimbo\_38, Nivrat\_41, NormanBulbieJr\_42, Odette\_195, OldBen\_39, OlympiaSaint\_39, OwlsT2W\_39, PHappiness\_39, Pacc40\_39, Peridot\_45, Phasih\_40, Phatniss\_40, PhlipPhlop\_40, Pippy\_35, Plumbus\_41, Poenanya\_41, Polka14\_40, Porcelain\_193, Priscilla\_40, Radiance\_40, Ramsey\_42, Redno2\_185, RitaG\_40, Rockne\_39, RockyHorror\_40, Royals2015\_41, Sassafras\_40, Schatzie\_187, Scottish\_40, ShiLan\_41, ShowerHandel\_42, SiSi\_39, Slim\_42, Spoonbill\_39, Stap\_40, Starcevich\_42, SwagPiggett\_42, Tchotchke\_41, ThreeRngTarjay\_192, Tootsieroll\_43, Totinger\_41, UncleRicky\_42, VRedHorse\_40, Veteran\_39, Wanda\_190, Whouxphf\_41, Yeet\_183, Zelink\_186, Zerg\_39,

### Summary by start number:

#### Start 12:

- Found in 1 of 183 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 168
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Guppsters\_41 (F1),

#### Start 14:

- Found in 39 of 183 ( 21.3% ) of genes in pham
- Manual Annotations of this start: 33 of 168
- Called 97.4% of time when present
- Phage (with cluster) where this start called: Aubs\_40 (F1), Beanstalk\_43 (F1), Brocalys\_34 (F1), Bubbles123\_39 (F1), Clifton\_33 (F1), DirtMcgirt\_40 (F1), Dorothy\_39 (F1), DotProduct\_39 (F1), Doug\_42 (F1), Drago\_41 (F1), EmiMonkey\_39 (F1), Emmaloid\_42 (F1), Gandolph\_41 (F1), GigiOuiOui\_39 (F1), Krakatau\_40 (F1), LastJedi\_33 (F1), LilMoolah\_41 (F1), LittleShirley\_42 (F1), Llij\_39 (F1), Lucia\_41 (F1), Madiba\_38 (F1), Mantra\_39 (F1), Nivrat\_41 (F1), Pacc40\_39 (F1), Peridot\_45 (F1), Phasih\_40 (F1), Phatniss\_40 (F1), PhlipPhlop\_40 (F1), RedBird\_39 (F1), RitaG\_40 (F1), Rockne\_39 (F1), Slim\_42 (F1), Starcevich\_42 (F1), Tchotchke\_41 (F1), Totinger\_41 (F1), UncleRicky\_42 (F1), Whouxphf\_41 (F1), Yorick\_39 (F1),

#### Start 18:

- Found in 1 of 183 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 168
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Mozy\_43 (F1),

#### Start 20:

- Found in 14 of 183 ( 7.7% ) of genes in pham
- Manual Annotations of this start: 3 of 168
- Called 21.4% of time when present
- Phage (with cluster) where this start called: Boomer\_42 (F1), Hades\_40 (F1), VRedHorse\_40 (F1),

#### Start 23:

- Found in 49 of 183 ( 26.8% ) of genes in pham
- Manual Annotations of this start: 39 of 168
- Called 87.8% of time when present
- Phage (with cluster) where this start called: ArcusAngelus\_41 (F1), Avani\_44 (F2), BigPhil\_36 (F1), BodEinwohner17\_39 (F1), BuzzLyseyear\_42 (F1), Cerasum\_36 (F1), Chevrolet\_44 (F1), Chuckly\_39 (F1), Clank\_41 (F), Cornucopia\_43 (F1), DRBy19\_41 (F1), DoRead\_41 (F1), Doomslug\_45 (F), Florinda\_44 (F1), Girafales\_43 (F1), Girr\_41 (F1), Gorge\_41 (F1), Jabbawokkie\_49 (F2), James\_41 (F1), Karhdo\_37 (F1), Kersh\_38 (F1), Kimberlium\_42 (F1), Mattes\_41 (F1), MisterCuddles\_41 (F1), MulchExplorer\_45 (F1), Ogopogo\_41 (F1), Philus\_41 (F1), Pollywog\_39 (F1), QuickMath\_41 (F1), Quico\_43 (F1), Rita\_42 (F1), Ruby\_40 (F1), Saal\_41 (F1), Sabbb\_40 (F1), Sarma624\_36 (F1), Sparkdehlily\_39 (F1), Spikelee\_40 (F1), TDanisky\_39 (F1), Velveteen\_35 (F1), Vivum\_40 (F1), Wachhund\_41 (F1), Zapner\_48 (F2), Zizzle\_41 (F1),

#### Start 24:

- Found in 14 of 183 ( 7.7% ) of genes in pham
- Manual Annotations of this start: 6 of 168
- Called 50.0% of time when present
- Phage (with cluster) where this start called: DaWorst\_42 (F1), DaddyRickover\_40 (F1), Filuzino\_39 (F1), Hamulus\_39 (F1), Marker\_40 (F1), SiSi\_39 (F1), Zerg\_39 (F1),

#### Start 25:

- Found in 14 of 183 ( 7.7% ) of genes in pham
- Manual Annotations of this start: 3 of 168
- Called 21.4% of time when present
- Phage (with cluster) where this start called: CheesePuff\_45 (F1), Minnie\_42 (F1), RockyHorror\_40 (F1),

#### Start 26:

- Found in 1 of 183 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 168
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Beakin\_42 (F1),

#### Start 27:

- Found in 31 of 183 ( 16.9% ) of genes in pham
- Manual Annotations of this start: 28 of 168
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ariel\_199 (J), BAKA\_199 (J), Bagrid\_200 (J), Beem\_194 (J), Courthouse\_195 (J), Dallas\_192 (J), Dove\_177 (J), Duke13\_193 (J), Ejimix\_182 (J), EricMillard\_189 (J), Halley\_193 (J), Hannaconda\_185 (J), HokkenD\_186 (J), Hughesyang\_191 (J), JuicyJay\_187 (J), Kalah2\_194 (J), Klein\_197 (J), Lucky2013\_190 (J), Marleymoo\_178 (J), MiaZeal\_200 (J), Minerva\_193 (J), Nebkiss\_149 (X), NihilNomen\_194 (J), Odette\_195 (J), Porcelain\_193 (J), Redno2\_185 (J), Schatzie\_187 (J), ThreeRngTarjay\_192 (J), Wanda\_190 (J), Yeet\_183 (J), Zelink\_186 (J),

#### Start 28:

- Found in 74 of 183 ( 40.4% ) of genes in pham
- Manual Annotations of this start: 30 of 168
- Called 41.9% of time when present

- Phage (with cluster) where this start called: BlueCrab\_39 (F1), Daenerys\_38 (F1), Dante\_39 (F1), Deb65\_39 (F1), Eish\_40 (F1), Empress\_40 (F1), GUmbie\_39 (F1), Geralt\_39 (F1), IbOuu\_42 (F1), Inventum\_38 (F1), Job42\_42 (F1), JoeyJr\_39 (F1), KingMidas\_41 (F1), Leozinho\_41 (F1), MadMen\_37 (F1), Nimbo\_38 (F1), OldBen\_39 (F1), OlympiaSaint\_39 (F1), OwlsT2W\_39 (F1), PHappiness\_39 (F1), Plumbus\_41 (F1), Polka14\_40 (F1), Radiance\_40 (F1), Ramsey\_42 (F1), Royals2015\_41 (F1), Sassafras\_40 (F1), Scottish\_40 (F1), Spoonbill\_39 (F1), Stap\_40 (F1), Tootsieroll\_43 (F1), Veteran\_39 (F1),

Start 29:

- Found in 5 of 183 ( 2.7% ) of genes in pham
- Manual Annotations of this start: 4 of 168
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bogg\_7 (E), Eureka\_6 (E), Gaia\_154 (X), Goku\_7 (E), Manda\_6 (E),

Start 30:

- Found in 182 of 183 ( 99.5% ) of genes in pham
- Manual Annotations of this start: 19 of 168
- Called 10.4% of time when present
- Phage (with cluster) where this start called: Alexphander\_44 (F1), BobaPhett\_41 (F1), Burwell21\_41 (F1), Cabrinians\_41 (F1), Crumble\_35 (F1), Doomphist\_41 (F1), Jarcob\_41 (F1), Koella\_35 (F1), Lizziana\_41 (F1), Maravista\_39 (F1), Martik\_42 (F1), NormanBulbieJr\_42 (F1), Pippy\_35 (F1), Poenanya\_41 (F1), Priscilla\_40 (F1), Sandalphon\_42 (F1), ShiLan\_41 (F1), ShowerHandel\_42 (F1), SwagPiggett\_42 (F1),

### Summary by clusters:

There are 6 clusters represented in this pham: F1, F2, E, F, J, X,

Info for manual annotations of cluster E:

- Start number 29 was manually annotated 3 times for cluster E.

Info for manual annotations of cluster F1:

- Start number 12 was manually annotated 1 time for cluster F1.
- Start number 14 was manually annotated 33 times for cluster F1.
- Start number 18 was manually annotated 1 time for cluster F1.
- Start number 20 was manually annotated 3 times for cluster F1.
- Start number 23 was manually annotated 36 times for cluster F1.
- Start number 24 was manually annotated 6 times for cluster F1.
- Start number 25 was manually annotated 3 times for cluster F1.
- Start number 26 was manually annotated 1 time for cluster F1.
- Start number 28 was manually annotated 30 times for cluster F1.
- Start number 30 was manually annotated 19 times for cluster F1.

Info for manual annotations of cluster F2:

- Start number 23 was manually annotated 3 times for cluster F2.

Info for manual annotations of cluster J:

- Start number 27 was manually annotated 27 times for cluster J.

Info for manual annotations of cluster X:

- Start number 27 was manually annotated 1 time for cluster X.
- Start number 29 was manually annotated 1 time for cluster X.

### **Gene Information:**

Gene: Alexphander\_44 Start: 32015, Stop: 31893, Start Num: 30

Candidate Starts for Alexphander\_44:

(7, 32132), (8, 32126), (10, 32123), (Start: 20 @32066 has 3 MA's), (Start: 24 @32051 has 6 MA's), (Start: 25 @32045 has 3 MA's), (Start: 30 @32015 has 19 MA's), (33, 31982), (38, 31904),

Gene: ArcusAngelus\_41 Start: 32687, Stop: 32520, Start Num: 23

Candidate Starts for ArcusAngelus\_41:

(Start: 23 @32687 has 39 MA's), (Start: 30 @32642 has 19 MA's), (33, 32609), (38, 32531),

Gene: Ariel\_199 Start: 95043, Stop: 94891, Start Num: 27

Candidate Starts for Ariel\_199:

(Start: 27 @95043 has 28 MA's), (Start: 30 @95013 has 19 MA's), (36, 94953), (37, 94944), (38, 94902),

Gene: Aubs\_40 Start: 31370, Stop: 31170, Start Num: 14

Candidate Starts for Aubs\_40:

(Start: 14 @31370 has 33 MA's), (21, 31340), (22, 31337), (Start: 28 @31319 has 30 MA's), (Start: 30 @31292 has 19 MA's), (33, 31259), (34, 31256), (38, 31181),

Gene: Avani\_44 Start: 30455, Stop: 30288, Start Num: 23

Candidate Starts for Avani\_44:

(Start: 23 @30455 has 39 MA's), (Start: 30 @30410 has 19 MA's), (33, 30377), (38, 30299),

Gene: BAKA\_199 Start: 98499, Stop: 98347, Start Num: 27

Candidate Starts for BAKA\_199:

(5, 98619), (Start: 27 @98499 has 28 MA's), (Start: 30 @98469 has 19 MA's), (36, 98409), (37, 98400), (38, 98358),

Gene: Bagrid\_200 Start: 98804, Stop: 98652, Start Num: 27

Candidate Starts for Bagrid\_200:

(5, 98924), (Start: 27 @98804 has 28 MA's), (Start: 30 @98774 has 19 MA's), (36, 98714), (37, 98705), (38, 98663),

Gene: Beakin\_42 Start: 31202, Stop: 31050, Start Num: 26

Candidate Starts for Beakin\_42:

(Start: 26 @31202 has 1 MA's), (Start: 30 @31172 has 19 MA's), (33, 31139), (38, 31061),

Gene: Beanstalk\_43 Start: 31231, Stop: 31031, Start Num: 14

Candidate Starts for Beanstalk\_43:

(Start: 14 @31231 has 33 MA's), (21, 31201), (22, 31198), (Start: 28 @31180 has 30 MA's), (Start: 30 @31153 has 19 MA's), (33, 31120), (34, 31117), (38, 31042),

Gene: Beem\_194 Start: 97507, Stop: 97355, Start Num: 27

Candidate Starts for Beem\_194:

(5, 97627), (Start: 27 @97507 has 28 MA's), (Start: 30 @97477 has 19 MA's), (36, 97417), (37, 97408), (38, 97366),

Gene: BigPhil\_36 Start: 27528, Stop: 27361, Start Num: 23

Candidate Starts for BigPhil\_36:

(Start: 23 @27528 has 39 MA's), (Start: 30 @27483 has 19 MA's), (33, 27450), (38, 27372),

Gene: BlueCrab\_39 Start: 31084, Stop: 30935, Start Num: 28

Candidate Starts for BlueCrab\_39:

(Start: 28 @31084 has 30 MA's), (Start: 30 @31057 has 19 MA's), (33, 31024), (38, 30946),

Gene: BobaPhett\_41 Start: 31438, Stop: 31316, Start Num: 30

Candidate Starts for BobaPhett\_41:

(Start: 30 @31438 has 19 MA's), (33, 31405), (38, 31327),

Gene: BodEinwohner17\_39 Start: 31322, Stop: 31155, Start Num: 23

Candidate Starts for BodEinwohner17\_39:

(Start: 23 @31322 has 39 MA's), (Start: 30 @31277 has 19 MA's), (33, 31244), (38, 31166),

Gene: Bogg\_7 Start: 1856, Stop: 1710, Start Num: 29

Candidate Starts for Bogg\_7:

(Start: 29 @1856 has 4 MA's), (Start: 30 @1832 has 19 MA's), (31, 1811), (32, 1805), (34, 1796), (37, 1763), (38, 1721),

Gene: Boomer\_42 Start: 31942, Stop: 31769, Start Num: 20

Candidate Starts for Boomer\_42:

(Start: 20 @31942 has 3 MA's), (Start: 24 @31927 has 6 MA's), (Start: 25 @31921 has 3 MA's), (Start: 30 @31891 has 19 MA's), (33, 31858), (38, 31780),

Gene: Brocalys\_34 Start: 26831, Stop: 26631, Start Num: 14

Candidate Starts for Brocalys\_34:

(Start: 14 @26831 has 33 MA's), (21, 26801), (22, 26798), (Start: 28 @26780 has 30 MA's), (Start: 30 @26753 has 19 MA's), (33, 26720), (34, 26717), (38, 26642),

Gene: Bubbles123\_39 Start: 32019, Stop: 31819, Start Num: 14

Candidate Starts for Bubbles123\_39:

(Start: 14 @32019 has 33 MA's), (21, 31989), (22, 31986), (Start: 28 @31968 has 30 MA's), (Start: 30 @31941 has 19 MA's), (33, 31908), (34, 31905), (38, 31830),

Gene: Burwell21\_41 Start: 31421, Stop: 31299, Start Num: 30

Candidate Starts for Burwell21\_41:

(Start: 30 @31421 has 19 MA's), (33, 31388), (38, 31310),

Gene: BuzzLyseyear\_42 Start: 31722, Stop: 31555, Start Num: 23

Candidate Starts for BuzzLyseyear\_42:

(Start: 23 @31722 has 39 MA's), (Start: 30 @31677 has 19 MA's), (33, 31644), (38, 31566),

Gene: Cabrinians\_41 Start: 31499, Stop: 31377, Start Num: 30

Candidate Starts for Cabrinians\_41:

(Start: 30 @31499 has 19 MA's), (33, 31466), (38, 31388),

Gene: Cerasum\_36 Start: 27528, Stop: 27361, Start Num: 23

Candidate Starts for Cerasum\_36:

(Start: 23 @27528 has 39 MA's), (Start: 30 @27483 has 19 MA's), (33, 27450), (38, 27372),

Gene: Cheesepuff\_45 Start: 32928, Stop: 32776, Start Num: 25

Candidate Starts for Cheesepuff\_45:

(1, 33108), (3, 33099), (7, 33015), (8, 33009), (10, 33006), (Start: 20 @32949 has 3 MA's), (Start: 24 @32934 has 6 MA's), (Start: 25 @32928 has 3 MA's), (Start: 30 @32898 has 19 MA's), (33, 32865), (38, 32787),

Gene: Chevrolet\_44 Start: 32688, Stop: 32521, Start Num: 23

Candidate Starts for Chevrolet\_44:

(Start: 23 @32688 has 39 MA's), (Start: 30 @32643 has 19 MA's), (33, 32610), (38, 32532),

Gene: Chuckly\_39 Start: 31104, Stop: 30937, Start Num: 23

Candidate Starts for Chuckly\_39:

(Start: 23 @31104 has 39 MA's), (Start: 30 @31059 has 19 MA's), (33, 31026), (38, 30948),

Gene: Clank\_41 Start: 31563, Stop: 31396, Start Num: 23

Candidate Starts for Clank\_41:

(Start: 23 @31563 has 39 MA's), (Start: 30 @31518 has 19 MA's), (33, 31485), (38, 31407),

Gene: Clifton\_33 Start: 27182, Stop: 26982, Start Num: 14

Candidate Starts for Clifton\_33:

(Start: 14 @27182 has 33 MA's), (21, 27152), (22, 27149), (Start: 28 @27131 has 30 MA's), (Start: 30 @27104 has 19 MA's), (33, 27071), (34, 27068), (38, 26993),

Gene: Cornucopia\_43 Start: 31545, Stop: 31378, Start Num: 23

Candidate Starts for Cornucopia\_43:

(2, 31710), (4, 31689), (6, 31635), (13, 31587), (15, 31572), (16, 31566), (Start: 23 @31545 has 39 MA's), (Start: 30 @31500 has 19 MA's), (33, 31467), (38, 31389),

Gene: Courthouse\_195 Start: 95492, Stop: 95340, Start Num: 27

Candidate Starts for Courthouse\_195:

(Start: 27 @95492 has 28 MA's), (Start: 30 @95462 has 19 MA's), (36, 95402), (37, 95393), (38, 95351),

Gene: Crumble\_35 Start: 27435, Stop: 27313, Start Num: 30

Candidate Starts for Crumble\_35:

(Start: 30 @27435 has 19 MA's), (33, 27402), (38, 27324),

Gene: DRBy19\_41 Start: 31392, Stop: 31225, Start Num: 23

Candidate Starts for DRBy19\_41:

(Start: 23 @31392 has 39 MA's), (Start: 30 @31347 has 19 MA's), (33, 31314), (38, 31236),

Gene: DaWorst\_42 Start: 31825, Stop: 31667, Start Num: 24

Candidate Starts for DaWorst\_42:

(Start: 20 @31840 has 3 MA's), (Start: 24 @31825 has 6 MA's), (Start: 25 @31819 has 3 MA's), (Start: 30 @31789 has 19 MA's), (33, 31756), (34, 31753), (38, 31678),

Gene: DaddyRickover\_40 Start: 31105, Stop: 30947, Start Num: 24

Candidate Starts for DaddyRickover\_40:

(Start: 20 @31120 has 3 MA's), (Start: 24 @31105 has 6 MA's), (Start: 25 @31099 has 3 MA's), (Start: 30 @31069 has 19 MA's), (33, 31036), (34, 31033), (38, 30958),

Gene: Daenerys\_38 Start: 30918, Stop: 30769, Start Num: 28

Candidate Starts for Daenerys\_38:

(Start: 28 @30918 has 30 MA's), (Start: 30 @30891 has 19 MA's), (33, 30858), (38, 30780),

Gene: Dallas\_192 Start: 96527, Stop: 96375, Start Num: 27

Candidate Starts for Dallas\_192:

(5, 96647), (Start: 27 @96527 has 28 MA's), (Start: 30 @96497 has 19 MA's), (36, 96437), (37, 96428), (38, 96386),

Gene: Dante\_39 Start: 31035, Stop: 30886, Start Num: 28

Candidate Starts for Dante\_39:

(Start: 28 @31035 has 30 MA's), (Start: 30 @31008 has 19 MA's), (33, 30975), (38, 30897),

Gene: Deb65\_39 Start: 30918, Stop: 30769, Start Num: 28

Candidate Starts for Deb65\_39:

(Start: 28 @30918 has 30 MA's), (Start: 30 @30891 has 19 MA's), (33, 30858), (38, 30780),

Gene: DirtMcgirt\_40 Start: 30869, Stop: 30669, Start Num: 14

Candidate Starts for DirtMcgirt\_40:

(Start: 14 @30869 has 33 MA's), (21, 30839), (22, 30836), (Start: 28 @30818 has 30 MA's), (Start: 30 @30791 has 19 MA's), (33, 30758), (34, 30755), (38, 30680),

Gene: DoRead\_41 Start: 31530, Stop: 31363, Start Num: 23

Candidate Starts for DoRead\_41:

(Start: 23 @31530 has 39 MA's), (Start: 30 @31485 has 19 MA's), (38, 31374),

Gene: Doomphist\_41 Start: 31369, Stop: 31247, Start Num: 30

Candidate Starts for Doomphist\_41:

(Start: 30 @31369 has 19 MA's), (33, 31336), (38, 31258),

Gene: Doomslug\_45 Start: 31125, Stop: 30958, Start Num: 23

Candidate Starts for Doomslug\_45:

(Start: 23 @31125 has 39 MA's), (Start: 30 @31080 has 19 MA's), (33, 31047), (38, 30969),

Gene: Dorothy\_39 Start: 31342, Stop: 31139, Start Num: 14

Candidate Starts for Dorothy\_39:

(Start: 14 @31342 has 33 MA's), (21, 31312), (22, 31309), (Start: 23 @31306 has 39 MA's), (Start: 28 @31288 has 30 MA's), (Start: 30 @31261 has 19 MA's), (33, 31228), (34, 31225), (38, 31150),

Gene: DotProduct\_39 Start: 31001, Stop: 30834, Start Num: 14

Candidate Starts for DotProduct\_39:

(Start: 14 @31001 has 33 MA's), (21, 30971), (22, 30968), (Start: 28 @30950 has 30 MA's), (Start: 30 @30923 has 19 MA's), (33, 30890), (34, 30887), (38, 30845),

Gene: Doug\_42 Start: 31891, Stop: 31691, Start Num: 14

Candidate Starts for Doug\_42:

(Start: 14 @31891 has 33 MA's), (21, 31861), (22, 31858), (Start: 30 @31813 has 19 MA's), (33, 31780), (34, 31777), (38, 31702),

Gene: Dove\_177 Start: 92787, Stop: 92635, Start Num: 27

Candidate Starts for Dove\_177:

(5, 92907), (Start: 27 @92787 has 28 MA's), (Start: 30 @92757 has 19 MA's), (32, 92730), (36, 92697), (37, 92688),

Gene: Drago\_41 Start: 30862, Stop: 30662, Start Num: 14

Candidate Starts for Drago\_41:

(Start: 14 @30862 has 33 MA's), (21, 30832), (22, 30829), (Start: 28 @30811 has 30 MA's), (Start: 30 @30784 has 19 MA's), (33, 30751), (34, 30748), (38, 30673),

Gene: Duke13\_193 Start: 96796, Stop: 96644, Start Num: 27

Candidate Starts for Duke13\_193:

(5, 96916), (Start: 27 @96796 has 28 MA's), (Start: 30 @96766 has 19 MA's), (36, 96706), (37, 96697), (38, 96655),

Gene: Eish\_40 Start: 31623, Stop: 31474, Start Num: 28

Candidate Starts for Eish\_40:

(Start: 28 @31623 has 30 MA's), (Start: 30 @31596 has 19 MA's), (33, 31563), (38, 31485),

Gene: Ejimix\_182 Start: 95865, Stop: 95713, Start Num: 27

Candidate Starts for Ejimix\_182:

(5, 95985), (Start: 27 @95865 has 28 MA's), (Start: 30 @95835 has 19 MA's), (36, 95775), (37, 95766), (38, 95724),

Gene: EmiMonkey\_39 Start: 32657, Stop: 32457, Start Num: 14

Candidate Starts for EmiMonkey\_39:

(Start: 14 @32657 has 33 MA's), (21, 32627), (22, 32624), (Start: 28 @32606 has 30 MA's), (Start: 30 @32579 has 19 MA's), (33, 32546), (38, 32468),

Gene: Emmaloid\_42 Start: 32735, Stop: 32535, Start Num: 14

Candidate Starts for Emmaloid\_42:

(Start: 14 @32735 has 33 MA's), (21, 32705), (22, 32702), (Start: 28 @32684 has 30 MA's), (Start: 30 @32657 has 19 MA's), (33, 32624), (38, 32546),

Gene: Empress\_40 Start: 32331, Stop: 32182, Start Num: 28

Candidate Starts for Empress\_40:

(Start: 28 @32331 has 30 MA's), (Start: 30 @32304 has 19 MA's), (33, 32271), (38, 32193),

Gene: EricMillard\_189 Start: 97575, Stop: 97423, Start Num: 27

Candidate Starts for EricMillard\_189:

(5, 97695), (Start: 27 @97575 has 28 MA's), (Start: 30 @97545 has 19 MA's), (36, 97485), (37, 97476), (38, 97434),

Gene: Eureka\_6 Start: 1686, Stop: 1540, Start Num: 29

Candidate Starts for Eureka\_6:

(Start: 29 @1686 has 4 MA's), (Start: 30 @1662 has 19 MA's), (31, 1641), (32, 1635), (34, 1626), (37, 1593), (38, 1551),

Gene: Filuzino\_39 Start: 30876, Stop: 30718, Start Num: 24

Candidate Starts for Filuzino\_39:

(Start: 20 @30891 has 3 MA's), (Start: 24 @30876 has 6 MA's), (Start: 25 @30870 has 3 MA's), (Start: 30 @30840 has 19 MA's), (33, 30807), (38, 30729),

Gene: Florinda\_44 Start: 31679, Stop: 31512, Start Num: 23

Candidate Starts for Florinda\_44:

(15, 31706), (Start: 23 @31679 has 39 MA's), (Start: 30 @31634 has 19 MA's), (33, 31601), (38, 31523),

Gene: GUmbie\_39 Start: 30937, Stop: 30788, Start Num: 28

Candidate Starts for GUmbie\_39:  
(Start: 28 @30937 has 30 MA's), (Start: 30 @30910 has 19 MA's), (33, 30877), (38, 30799),

Gene: Gaia\_154 Start: 80338, Stop: 80192, Start Num: 29  
Candidate Starts for Gaia\_154:  
(Start: 29 @80338 has 4 MA's), (Start: 30 @80314 has 19 MA's), (37, 80245),

Gene: Gandalph\_41 Start: 31303, Stop: 31103, Start Num: 14  
Candidate Starts for Gandalph\_41:  
(Start: 14 @31303 has 33 MA's), (21, 31273), (22, 31270), (Start: 28 @31252 has 30 MA's), (Start: 30 @31225 has 19 MA's), (38, 31114),

Gene: Geralt\_39 Start: 30917, Stop: 30768, Start Num: 28  
Candidate Starts for Geralt\_39:  
(Start: 28 @30917 has 30 MA's), (Start: 30 @30890 has 19 MA's), (33, 30857), (38, 30779),

Gene: GigiOuiOui\_39 Start: 31144, Stop: 30977, Start Num: 14  
Candidate Starts for GigiOuiOui\_39:  
(Start: 14 @31144 has 33 MA's), (21, 31114), (22, 31111), (Start: 28 @31093 has 30 MA's), (Start: 30 @31066 has 19 MA's), (33, 31033), (34, 31030), (38, 30988),

Gene: Girafales\_43 Start: 31487, Stop: 31320, Start Num: 23  
Candidate Starts for Girafales\_43:  
(15, 31514), (Start: 23 @31487 has 39 MA's), (Start: 30 @31442 has 19 MA's), (33, 31409), (38, 31331),

Gene: Girr\_41 Start: 31972, Stop: 31805, Start Num: 23  
Candidate Starts for Girr\_41:  
(Start: 23 @31972 has 39 MA's), (Start: 30 @31927 has 19 MA's), (33, 31894), (38, 31816),

Gene: Goku\_7 Start: 1686, Stop: 1540, Start Num: 29  
Candidate Starts for Goku\_7:  
(Start: 29 @1686 has 4 MA's), (Start: 30 @1662 has 19 MA's), (31, 1641), (32, 1635), (34, 1626), (37, 1593), (38, 1551),

Gene: Gorge\_41 Start: 31526, Stop: 31359, Start Num: 23  
Candidate Starts for Gorge\_41:  
(Start: 23 @31526 has 39 MA's), (Start: 30 @31481 has 19 MA's), (33, 31448), (38, 31370),

Gene: Guppsters\_41 Start: 31587, Stop: 31363, Start Num: 12  
Candidate Starts for Guppsters\_41:  
(9, 31596), (11, 31593), (Start: 12 @31587 has 1 MA's), (Start: 23 @31530 has 39 MA's), (Start: 28 @31512 has 30 MA's), (Start: 30 @31485 has 19 MA's), (33, 31452), (36, 31425), (38, 31374),

Gene: Hades\_40 Start: 31272, Stop: 31099, Start Num: 20  
Candidate Starts for Hades\_40:  
(7, 31338), (8, 31332), (10, 31329), (Start: 20 @31272 has 3 MA's), (Start: 24 @31257 has 6 MA's), (Start: 25 @31251 has 3 MA's), (Start: 30 @31221 has 19 MA's), (33, 31188), (38, 31110),

Gene: Halley\_193 Start: 96033, Stop: 95881, Start Num: 27  
Candidate Starts for Halley\_193:  
(5, 96153), (Start: 27 @96033 has 28 MA's), (Start: 30 @96003 has 19 MA's), (36, 95943), (37, 95934), (38, 95892),

Gene: Hamulus\_39 Start: 31995, Stop: 31837, Start Num: 24

Candidate Starts for Hamulus\_39:

(Start: 20 @32010 has 3 MA's), (Start: 24 @31995 has 6 MA's), (Start: 25 @31989 has 3 MA's), (Start: 30 @31959 has 19 MA's), (33, 31926), (34, 31923), (38, 31848),

Gene: Hannaconda\_185 Start: 96466, Stop: 96314, Start Num: 27

Candidate Starts for Hannaconda\_185:

(5, 96586), (Start: 27 @96466 has 28 MA's), (Start: 30 @96436 has 19 MA's), (36, 96376), (37, 96367), (38, 96325),

Gene: HokkenD\_186 Start: 97961, Stop: 97809, Start Num: 27

Candidate Starts for HokkenD\_186:

(5, 98081), (Start: 27 @97961 has 28 MA's), (Start: 30 @97931 has 19 MA's), (36, 97871), (37, 97862), (38, 97820),

Gene: Hughesyang\_191 Start: 97201, Stop: 97049, Start Num: 27

Candidate Starts for Hughesyang\_191:

(5, 97321), (Start: 27 @97201 has 28 MA's), (Start: 30 @97171 has 19 MA's), (32, 97144), (36, 97111), (37, 97102),

Gene: lbOuu\_42 Start: 31492, Stop: 31343, Start Num: 28

Candidate Starts for lbOuu\_42:

(Start: 28 @31492 has 30 MA's), (Start: 30 @31465 has 19 MA's), (33, 31432), (38, 31354),

Gene: Inventum\_38 Start: 31598, Stop: 31449, Start Num: 28

Candidate Starts for Inventum\_38:

(Start: 28 @31598 has 30 MA's), (Start: 30 @31571 has 19 MA's), (33, 31538), (38, 31460),

Gene: Jabbawokkie\_49 Start: 31633, Stop: 31466, Start Num: 23

Candidate Starts for Jabbawokkie\_49:

(Start: 23 @31633 has 39 MA's), (Start: 30 @31588 has 19 MA's), (33, 31555), (38, 31477),

Gene: James\_41 Start: 31483, Stop: 31316, Start Num: 23

Candidate Starts for James\_41:

(Start: 23 @31483 has 39 MA's), (Start: 30 @31438 has 19 MA's), (33, 31405), (38, 31327),

Gene: Jacob\_41 Start: 31474, Stop: 31352, Start Num: 30

Candidate Starts for Jacob\_41:

(Start: 30 @31474 has 19 MA's), (33, 31441), (38, 31363),

Gene: Job42\_42 Start: 32914, Stop: 32765, Start Num: 28

Candidate Starts for Job42\_42:

(Start: 28 @32914 has 30 MA's), (Start: 30 @32887 has 19 MA's), (33, 32854), (38, 32776),

Gene: JoeyJr\_39 Start: 31086, Stop: 30937, Start Num: 28

Candidate Starts for JoeyJr\_39:

(Start: 28 @31086 has 30 MA's), (Start: 30 @31059 has 19 MA's), (33, 31026), (38, 30948),

Gene: JuicyJay\_187 Start: 97459, Stop: 97307, Start Num: 27

Candidate Starts for JuicyJay\_187:

(5, 97579), (Start: 27 @97459 has 28 MA's), (Start: 30 @97429 has 19 MA's), (36, 97369), (37, 97360), (38, 97318),

Gene: Kalah2\_194 Start: 98851, Stop: 98699, Start Num: 27

Candidate Starts for Kalah2\_194:

(Start: 27 @98851 has 28 MA's), (Start: 30 @98821 has 19 MA's), (36, 98761), (37, 98752), (38, 98710),

Gene: Karhdo\_37 Start: 31068, Stop: 30901, Start Num: 23

Candidate Starts for Karhdo\_37:

(Start: 23 @31068 has 39 MA's), (Start: 30 @31023 has 19 MA's), (33, 30990), (38, 30912),

Gene: Kersh\_38 Start: 32506, Stop: 32339, Start Num: 23

Candidate Starts for Kersh\_38:

(Start: 23 @32506 has 39 MA's), (Start: 28 @32488 has 30 MA's), (Start: 30 @32461 has 19 MA's), (33, 32428), (34, 32425), (38, 32350),

Gene: Kimberlium\_42 Start: 32322, Stop: 32155, Start Num: 23

Candidate Starts for Kimberlium\_42:

(Start: 23 @32322 has 39 MA's), (Start: 30 @32277 has 19 MA's), (33, 32244), (38, 32166),

Gene: KingMidas\_41 Start: 32780, Stop: 32631, Start Num: 28

Candidate Starts for KingMidas\_41:

(Start: 28 @32780 has 30 MA's), (Start: 30 @32753 has 19 MA's), (33, 32720), (38, 32642),

Gene: Klein\_197 Start: 96390, Stop: 96238, Start Num: 27

Candidate Starts for Klein\_197:

(Start: 27 @96390 has 28 MA's), (Start: 30 @96360 has 19 MA's), (36, 96300), (37, 96291), (38, 96249),

Gene: Koella\_35 Start: 27397, Stop: 27275, Start Num: 30

Candidate Starts for Koella\_35:

(Start: 30 @27397 has 19 MA's), (33, 27364), (38, 27286),

Gene: Krakatau\_40 Start: 31706, Stop: 31539, Start Num: 14

Candidate Starts for Krakatau\_40:

(Start: 14 @31706 has 33 MA's), (21, 31676), (22, 31673), (Start: 28 @31655 has 30 MA's), (Start: 30 @31628 has 19 MA's), (33, 31595), (34, 31592), (38, 31550),

Gene: LastJedi\_33 Start: 27225, Stop: 27025, Start Num: 14

Candidate Starts for LastJedi\_33:

(Start: 14 @27225 has 33 MA's), (21, 27195), (22, 27192), (Start: 28 @27174 has 30 MA's), (Start: 30 @27147 has 19 MA's), (33, 27114), (34, 27111), (38, 27036),

Gene: Leozinho\_41 Start: 31339, Stop: 31190, Start Num: 28

Candidate Starts for Leozinho\_41:

(Start: 28 @31339 has 30 MA's), (Start: 30 @31312 has 19 MA's), (33, 31279), (38, 31201),

Gene: LilMoolah\_41 Start: 31599, Stop: 31399, Start Num: 14

Candidate Starts for LilMoolah\_41:

(Start: 14 @31599 has 33 MA's), (21, 31569), (22, 31566), (Start: 28 @31548 has 30 MA's), (Start: 30 @31521 has 19 MA's), (33, 31488), (34, 31485), (38, 31410),

Gene: LittleShirley\_42 Start: 32652, Stop: 32485, Start Num: 14

Candidate Starts for LittleShirley\_42:

(Start: 14 @32652 has 33 MA's), (21, 32622), (22, 32619), (Start: 28 @32601 has 30 MA's), (Start: 30 @32574 has 19 MA's), (33, 32541), (34, 32538), (38, 32496),

Gene: Lizziana\_41 Start: 31396, Stop: 31274, Start Num: 30  
Candidate Starts for Lizziana\_41:  
(Start: 30 @31396 has 19 MA's), (33, 31363), (38, 31285),

Gene: Llij\_39 Start: 31026, Stop: 30826, Start Num: 14  
Candidate Starts for Llij\_39:  
(Start: 14 @31026 has 33 MA's), (21, 30996), (22, 30993), (Start: 28 @30975 has 30 MA's), (Start: 30 @30948 has 19 MA's), (33, 30915), (34, 30912), (38, 30837),

Gene: Lucia\_41 Start: 31157, Stop: 30957, Start Num: 14  
Candidate Starts for Lucia\_41:  
(Start: 14 @31157 has 33 MA's), (21, 31127), (22, 31124), (Start: 28 @31106 has 30 MA's), (Start: 30 @31079 has 19 MA's), (33, 31046), (34, 31043), (38, 30968),

Gene: Lucky2013\_190 Start: 93680, Stop: 93528, Start Num: 27  
Candidate Starts for Lucky2013\_190:  
(5, 93800), (Start: 27 @93680 has 28 MA's), (Start: 30 @93650 has 19 MA's), (32, 93623), (36, 93590), (37, 93581),

Gene: MadMen\_37 Start: 30611, Stop: 30462, Start Num: 28  
Candidate Starts for MadMen\_37:  
(Start: 14 @30662 has 33 MA's), (21, 30632), (22, 30629), (Start: 28 @30611 has 30 MA's), (Start: 30 @30584 has 19 MA's), (33, 30551), (34, 30548), (38, 30473),

Gene: Madiba\_38 Start: 29952, Stop: 29752, Start Num: 14  
Candidate Starts for Madiba\_38:  
(Start: 14 @29952 has 33 MA's), (21, 29922), (22, 29919), (Start: 28 @29901 has 30 MA's), (Start: 30 @29874 has 19 MA's), (33, 29841), (34, 29838), (38, 29763),

Gene: Manda\_6 Start: 1478, Stop: 1332, Start Num: 29  
Candidate Starts for Manda\_6:  
(Start: 29 @1478 has 4 MA's), (Start: 30 @1454 has 19 MA's), (31, 1433), (32, 1427), (34, 1418), (37, 1385), (38, 1343),

Gene: Mantra\_39 Start: 31110, Stop: 30943, Start Num: 14  
Candidate Starts for Mantra\_39:  
(Start: 14 @31110 has 33 MA's), (21, 31080), (22, 31077), (Start: 28 @31059 has 30 MA's), (Start: 30 @31032 has 19 MA's), (33, 30999), (34, 30996), (38, 30954),

Gene: Maravista\_39 Start: 30897, Stop: 30775, Start Num: 30  
Candidate Starts for Maravista\_39:  
(Start: 30 @30897 has 19 MA's), (33, 30864), (38, 30786),

Gene: Marker\_40 Start: 30904, Stop: 30746, Start Num: 24  
Candidate Starts for Marker\_40:  
(Start: 20 @30919 has 3 MA's), (Start: 24 @30904 has 6 MA's), (Start: 25 @30898 has 3 MA's), (Start: 30 @30868 has 19 MA's), (33, 30835), (34, 30832), (38, 30757),

Gene: Marleymoo\_178 Start: 95038, Stop: 94886, Start Num: 27  
Candidate Starts for Marleymoo\_178:

(5, 95158), (Start: 27 @95038 has 28 MA's), (Start: 30 @95008 has 19 MA's), (36, 94948), (37, 94939), (38, 94897),

Gene: Martik\_42 Start: 31423, Stop: 31301, Start Num: 30  
Candidate Starts for Martik\_42:  
(Start: 30 @31423 has 19 MA's), (33, 31390), (38, 31312),

Gene: Mattes\_41 Start: 31483, Stop: 31316, Start Num: 23  
Candidate Starts for Mattes\_41:  
(Start: 23 @31483 has 39 MA's), (Start: 30 @31438 has 19 MA's), (33, 31405), (38, 31327),

Gene: MiaZeal\_200 Start: 95709, Stop: 95557, Start Num: 27  
Candidate Starts for MiaZeal\_200:  
(Start: 27 @95709 has 28 MA's), (Start: 30 @95679 has 19 MA's), (36, 95619), (37, 95610), (38, 95568),

Gene: Minerva\_193 Start: 96026, Stop: 95874, Start Num: 27  
Candidate Starts for Minerva\_193:  
(5, 96146), (Start: 27 @96026 has 28 MA's), (Start: 30 @95996 has 19 MA's), (36, 95936), (37, 95927), (38, 95885),

Gene: Minnie\_42 Start: 32289, Stop: 32137, Start Num: 25  
Candidate Starts for Minnie\_42:  
(7, 32376), (8, 32370), (10, 32367), (Start: 20 @32310 has 3 MA's), (Start: 24 @32295 has 6 MA's), (Start: 25 @32289 has 3 MA's), (Start: 30 @32259 has 19 MA's), (33, 32226), (38, 32148),

Gene: MisterCuddles\_41 Start: 31972, Stop: 31805, Start Num: 23  
Candidate Starts for MisterCuddles\_41:  
(Start: 23 @31972 has 39 MA's), (Start: 30 @31927 has 19 MA's), (33, 31894), (38, 31816),

Gene: Mozy\_43 Start: 32689, Stop: 32510, Start Num: 18  
Candidate Starts for Mozy\_43:  
(17, 32692), (Start: 18 @32689 has 1 MA's), (19, 32686), (21, 32680), (Start: 23 @32677 has 39 MA's), (Start: 30 @32632 has 19 MA's), (38, 32521),

Gene: MulchExplorer\_45 Start: 32321, Stop: 32154, Start Num: 23  
Candidate Starts for MulchExplorer\_45:  
(Start: 23 @32321 has 39 MA's), (Start: 30 @32276 has 19 MA's), (33, 32243), (38, 32165),

Gene: Nebkiss\_149 Start: 75124, Stop: 74972, Start Num: 27  
Candidate Starts for Nebkiss\_149:  
(13, 75178), (Start: 27 @75124 has 28 MA's), (Start: 30 @75094 has 19 MA's), (35, 75052), (37, 75025),

Gene: NihilNomen\_194 Start: 95587, Stop: 95435, Start Num: 27  
Candidate Starts for NihilNomen\_194:  
(5, 95707), (Start: 27 @95587 has 28 MA's), (Start: 30 @95557 has 19 MA's), (36, 95497), (37, 95488), (38, 95446),

Gene: Nimbo\_38 Start: 30921, Stop: 30772, Start Num: 28  
Candidate Starts for Nimbo\_38:  
(Start: 28 @30921 has 30 MA's), (Start: 30 @30894 has 19 MA's), (33, 30861), (38, 30783),

Gene: Nivrat\_41 Start: 31473, Stop: 31273, Start Num: 14

Candidate Starts for Nivrat\_41:

(Start: 14 @31473 has 33 MA's), (21, 31443), (22, 31440), (Start: 28 @31422 has 30 MA's), (Start: 30 @31395 has 19 MA's), (33, 31362), (34, 31359), (38, 31284),

Gene: NormanBulbieJr\_42 Start: 31410, Stop: 31288, Start Num: 30

Candidate Starts for NormanBulbieJr\_42:

(Start: 30 @31410 has 19 MA's), (33, 31377), (38, 31299),

Gene: Odette\_195 Start: 98656, Stop: 98504, Start Num: 27

Candidate Starts for Odette\_195:

(5, 98776), (Start: 27 @98656 has 28 MA's), (Start: 30 @98626 has 19 MA's), (36, 98566), (37, 98557), (38, 98515),

Gene: Ogopogo\_41 Start: 30648, Stop: 30481, Start Num: 23

Candidate Starts for Ogopogo\_41:

(Start: 23 @30648 has 39 MA's), (Start: 30 @30603 has 19 MA's), (33, 30570), (38, 30492),

Gene: OldBen\_39 Start: 30952, Stop: 30803, Start Num: 28

Candidate Starts for OldBen\_39:

(Start: 28 @30952 has 30 MA's), (Start: 30 @30925 has 19 MA's), (33, 30892), (38, 30814),

Gene: OlympiaSaint\_39 Start: 31367, Stop: 31218, Start Num: 28

Candidate Starts for OlympiaSaint\_39:

(Start: 28 @31367 has 30 MA's), (Start: 30 @31340 has 19 MA's), (33, 31307), (38, 31229),

Gene: OwlsT2W\_39 Start: 31342, Stop: 31193, Start Num: 28

Candidate Starts for OwlsT2W\_39:

(Start: 28 @31342 has 30 MA's), (Start: 30 @31315 has 19 MA's), (33, 31282), (38, 31204),

Gene: PHappiness\_39 Start: 30894, Stop: 30745, Start Num: 28

Candidate Starts for PHappiness\_39:

(Start: 28 @30894 has 30 MA's), (Start: 30 @30867 has 19 MA's), (33, 30834), (38, 30756),

Gene: Pacc40\_39 Start: 31217, Stop: 31017, Start Num: 14

Candidate Starts for Pacc40\_39:

(Start: 14 @31217 has 33 MA's), (21, 31187), (22, 31184), (Start: 28 @31166 has 30 MA's), (Start: 30 @31139 has 19 MA's), (33, 31106), (34, 31103), (38, 31028),

Gene: Peridot\_45 Start: 32854, Stop: 32654, Start Num: 14

Candidate Starts for Peridot\_45:

(Start: 14 @32854 has 33 MA's), (21, 32824), (22, 32821), (Start: 28 @32803 has 30 MA's), (Start: 30 @32776 has 19 MA's), (33, 32743), (38, 32665),

Gene: Phasih\_40 Start: 31569, Stop: 31402, Start Num: 14

Candidate Starts for Phasih\_40:

(Start: 14 @31569 has 33 MA's), (21, 31539), (22, 31536), (Start: 28 @31518 has 30 MA's), (Start: 30 @31491 has 19 MA's), (33, 31458), (34, 31455), (38, 31413),

Gene: Phatniss\_40 Start: 31543, Stop: 31343, Start Num: 14

Candidate Starts for Phatniss\_40:

(Start: 14 @31543 has 33 MA's), (21, 31513), (22, 31510), (Start: 28 @31492 has 30 MA's), (Start: 30 @31465 has 19 MA's), (33, 31432), (34, 31429), (38, 31354),

Gene: Philus\_41 Start: 31368, Stop: 31201, Start Num: 23

Candidate Starts for Philus\_41:

(Start: 23 @31368 has 39 MA's), (Start: 30 @31323 has 19 MA's), (33, 31290), (38, 31212),

Gene: PhlipPhlop\_40 Start: 32657, Stop: 32457, Start Num: 14

Candidate Starts for PhlipPhlop\_40:

(Start: 14 @32657 has 33 MA's), (21, 32627), (22, 32624), (Start: 28 @32606 has 30 MA's), (Start: 30 @32579 has 19 MA's), (33, 32546), (38, 32468),

Gene: Pippy\_35 Start: 27386, Stop: 27264, Start Num: 30

Candidate Starts for Pippy\_35:

(Start: 30 @27386 has 19 MA's), (33, 27353), (38, 27275),

Gene: Plumbus\_41 Start: 31071, Stop: 30922, Start Num: 28

Candidate Starts for Plumbus\_41:

(Start: 28 @31071 has 30 MA's), (Start: 30 @31044 has 19 MA's), (33, 31011), (34, 31008), (38, 30933),

Gene: Poenanya\_41 Start: 31369, Stop: 31247, Start Num: 30

Candidate Starts for Poenanya\_41:

(Start: 30 @31369 has 19 MA's), (33, 31336), (38, 31258),

Gene: Polka14\_40 Start: 31539, Stop: 31390, Start Num: 28

Candidate Starts for Polka14\_40:

(Start: 28 @31539 has 30 MA's), (Start: 30 @31512 has 19 MA's), (33, 31479), (38, 31401),

Gene: Pollywog\_39 Start: 31260, Stop: 31099, Start Num: 23

Candidate Starts for Pollywog\_39:

(Start: 23 @31260 has 39 MA's), (Start: 28 @31248 has 30 MA's), (Start: 30 @31221 has 19 MA's), (38, 31110),

Gene: Porcelain\_193 Start: 94626, Stop: 94474, Start Num: 27

Candidate Starts for Porcelain\_193:

(5, 94746), (Start: 27 @94626 has 28 MA's), (Start: 30 @94596 has 19 MA's), (32, 94569), (36, 94536), (37, 94527),

Gene: Priscilla\_40 Start: 31509, Stop: 31387, Start Num: 30

Candidate Starts for Priscilla\_40:

(Start: 30 @31509 has 19 MA's), (33, 31476), (38, 31398),

Gene: QuickMath\_41 Start: 32545, Stop: 32378, Start Num: 23

Candidate Starts for QuickMath\_41:

(Start: 23 @32545 has 39 MA's), (Start: 30 @32500 has 19 MA's), (33, 32467), (38, 32389),

Gene: Quico\_43 Start: 31487, Stop: 31320, Start Num: 23

Candidate Starts for Quico\_43:

(15, 31514), (Start: 23 @31487 has 39 MA's), (Start: 30 @31442 has 19 MA's), (33, 31409), (38, 31331),

Gene: Radiance\_40 Start: 31089, Stop: 30940, Start Num: 28

Candidate Starts for Radiance\_40:

(Start: 28 @31089 has 30 MA's), (Start: 30 @31062 has 19 MA's), (33, 31029), (38, 30951),

Gene: Ramsey\_42 Start: 31749, Stop: 31600, Start Num: 28

Candidate Starts for Ramsey\_42:

(Start: 28 @31749 has 30 MA's), (Start: 30 @31722 has 19 MA's), (33, 31689), (38, 31611),

Gene: RedBird\_39 Start: 31354, Stop: 31151, Start Num: 14

Candidate Starts for RedBird\_39:

(Start: 14 @31354 has 33 MA's), (21, 31324), (22, 31321), (Start: 23 @31318 has 39 MA's), (Start: 28 @31300 has 30 MA's), (Start: 30 @31273 has 19 MA's), (33, 31240), (34, 31237), (38, 31162),

Gene: Redno2\_185 Start: 93534, Stop: 93382, Start Num: 27

Candidate Starts for Redno2\_185:

(5, 93654), (Start: 27 @93534 has 28 MA's), (Start: 30 @93504 has 19 MA's), (36, 93444), (37, 93435), (38, 93393),

Gene: Rita\_42 Start: 31568, Stop: 31401, Start Num: 23

Candidate Starts for Rita\_42:

(Start: 23 @31568 has 39 MA's), (Start: 30 @31523 has 19 MA's), (33, 31490), (38, 31412),

Gene: RitaG\_40 Start: 31489, Stop: 31289, Start Num: 14

Candidate Starts for RitaG\_40:

(Start: 14 @31489 has 33 MA's), (21, 31459), (22, 31456), (Start: 28 @31438 has 30 MA's), (Start: 30 @31411 has 19 MA's), (33, 31378), (34, 31375), (38, 31300),

Gene: Rockne\_39 Start: 31026, Stop: 30826, Start Num: 14

Candidate Starts for Rockne\_39:

(Start: 14 @31026 has 33 MA's), (21, 30996), (22, 30993), (Start: 28 @30975 has 30 MA's), (Start: 30 @30948 has 19 MA's), (33, 30915), (34, 30912), (38, 30837),

Gene: RockyHorror\_40 Start: 30844, Stop: 30692, Start Num: 25

Candidate Starts for RockyHorror\_40:

(Start: 20 @30865 has 3 MA's), (Start: 24 @30850 has 6 MA's), (Start: 25 @30844 has 3 MA's), (Start: 30 @30814 has 19 MA's), (33, 30781), (38, 30703),

Gene: Royals2015\_41 Start: 31375, Stop: 31226, Start Num: 28

Candidate Starts for Royals2015\_41:

(Start: 28 @31375 has 30 MA's), (Start: 30 @31348 has 19 MA's), (33, 31315), (38, 31237),

Gene: Ruby\_40 Start: 31972, Stop: 31805, Start Num: 23

Candidate Starts for Ruby\_40:

(Start: 23 @31972 has 39 MA's), (Start: 30 @31927 has 19 MA's), (33, 31894), (38, 31816),

Gene: Saal\_41 Start: 31346, Stop: 31179, Start Num: 23

Candidate Starts for Saal\_41:

(Start: 23 @31346 has 39 MA's), (Start: 30 @31301 has 19 MA's), (33, 31268), (38, 31190),

Gene: Sabbb\_40 Start: 31695, Stop: 31528, Start Num: 23

Candidate Starts for Sabbb\_40:

(Start: 23 @31695 has 39 MA's), (Start: 28 @31677 has 30 MA's), (Start: 30 @31650 has 19 MA's), (38, 31539),

Gene: Sandalphon\_42 Start: 32031, Stop: 31909, Start Num: 30

Candidate Starts for Sandalphon\_42:

(Start: 23 @32076 has 39 MA's), (Start: 30 @32031 has 19 MA's), (33, 31998), (34, 31995), (38, 31920),

Gene: Sarma624\_36 Start: 27528, Stop: 27361, Start Num: 23

Candidate Starts for Sarma624\_36:

(Start: 23 @27528 has 39 MA's), (Start: 30 @27483 has 19 MA's), (33, 27450), (38, 27372),

Gene: Sassafras\_40 Start: 31598, Stop: 31449, Start Num: 28

Candidate Starts for Sassafras\_40:

(Start: 28 @31598 has 30 MA's), (Start: 30 @31571 has 19 MA's), (33, 31538), (38, 31460),

Gene: Schatzie\_187 Start: 96468, Stop: 96316, Start Num: 27

Candidate Starts for Schatzie\_187:

(5, 96588), (Start: 27 @96468 has 28 MA's), (Start: 30 @96438 has 19 MA's), (36, 96378), (37, 96369), (38, 96327),

Gene: Scottish\_40 Start: 32219, Stop: 32070, Start Num: 28

Candidate Starts for Scottish\_40:

(Start: 28 @32219 has 30 MA's), (Start: 30 @32192 has 19 MA's), (33, 32159), (38, 32081),

Gene: ShiLan\_41 Start: 31464, Stop: 31342, Start Num: 30

Candidate Starts for ShiLan\_41:

(Start: 30 @31464 has 19 MA's), (33, 31431), (38, 31353),

Gene: ShowerHandel\_42 Start: 31423, Stop: 31301, Start Num: 30

Candidate Starts for ShowerHandel\_42:

(Start: 30 @31423 has 19 MA's), (33, 31390), (38, 31312),

Gene: SiSi\_39 Start: 30984, Stop: 30826, Start Num: 24

Candidate Starts for SiSi\_39:

(Start: 20 @30999 has 3 MA's), (Start: 24 @30984 has 6 MA's), (Start: 25 @30978 has 3 MA's), (Start: 30 @30948 has 19 MA's), (33, 30915), (34, 30912), (38, 30837),

Gene: Slim\_42 Start: 32726, Stop: 32526, Start Num: 14

Candidate Starts for Slim\_42:

(Start: 14 @32726 has 33 MA's), (21, 32696), (22, 32693), (Start: 28 @32675 has 30 MA's), (Start: 30 @32648 has 19 MA's), (33, 32615), (38, 32537),

Gene: Sparkdehlily\_39 Start: 31291, Stop: 31124, Start Num: 23

Candidate Starts for Sparkdehlily\_39:

(Start: 23 @31291 has 39 MA's), (Start: 28 @31273 has 30 MA's), (Start: 30 @31246 has 19 MA's), (33, 31213), (34, 31210), (38, 31135),

Gene: Spikelee\_40 Start: 31180, Stop: 31013, Start Num: 23

Candidate Starts for Spikelee\_40:

(Start: 23 @31180 has 39 MA's), (Start: 30 @31135 has 19 MA's), (33, 31102), (38, 31024),

Gene: Spoonbill\_39 Start: 31178, Stop: 31029, Start Num: 28

Candidate Starts for Spoonbill\_39:

(Start: 28 @31178 has 30 MA's), (Start: 30 @31151 has 19 MA's), (33, 31118), (38, 31040),

Gene: Stap\_40 Start: 31069, Stop: 30920, Start Num: 28

Candidate Starts for Stap\_40:

(Start: 28 @31069 has 30 MA's), (Start: 30 @31042 has 19 MA's), (33, 31009), (38, 30931),

Gene: Starcevich\_42 Start: 32208, Stop: 32008, Start Num: 14

Candidate Starts for Starcevich\_42:

(Start: 14 @32208 has 33 MA's), (21, 32178), (22, 32175), (Start: 28 @32157 has 30 MA's), (Start: 30 @32130 has 19 MA's), (33, 32097), (34, 32094), (38, 32019),

Gene: SwagPigglett\_42 Start: 31234, Stop: 31112, Start Num: 30

Candidate Starts for SwagPigglett\_42:

(Start: 30 @31234 has 19 MA's), (33, 31201), (38, 31123),

Gene: TDanisky\_39 Start: 31291, Stop: 31124, Start Num: 23

Candidate Starts for TDanisky\_39:

(Start: 23 @31291 has 39 MA's), (Start: 28 @31273 has 30 MA's), (Start: 30 @31246 has 19 MA's), (33, 31213), (34, 31210), (38, 31135),

Gene: Tchotchke\_41 Start: 31089, Stop: 30889, Start Num: 14

Candidate Starts for Tchotchke\_41:

(9, 31116), (Start: 14 @31089 has 33 MA's), (21, 31059), (22, 31056), (Start: 30 @31011 has 19 MA's), (33, 30978), (38, 30900),

Gene: ThreeRngTarjay\_192 Start: 98306, Stop: 98154, Start Num: 27

Candidate Starts for ThreeRngTarjay\_192:

(5, 98426), (Start: 27 @98306 has 28 MA's), (Start: 30 @98276 has 19 MA's), (36, 98216), (37, 98207), (38, 98165),

Gene: Tootsieroll\_43 Start: 31327, Stop: 31178, Start Num: 28

Candidate Starts for Tootsieroll\_43:

(Start: 28 @31327 has 30 MA's), (Start: 30 @31300 has 19 MA's), (33, 31267), (38, 31189),

Gene: Totinger\_41 Start: 31337, Stop: 31137, Start Num: 14

Candidate Starts for Totinger\_41:

(Start: 14 @31337 has 33 MA's), (21, 31307), (22, 31304), (Start: 28 @31286 has 30 MA's), (Start: 30 @31259 has 19 MA's), (33, 31226), (38, 31148),

Gene: UncleRicky\_42 Start: 32359, Stop: 32159, Start Num: 14

Candidate Starts for UncleRicky\_42:

(Start: 14 @32359 has 33 MA's), (21, 32329), (22, 32326), (Start: 28 @32308 has 30 MA's), (Start: 30 @32281 has 19 MA's), (33, 32248), (34, 32245), (38, 32170),

Gene: VRedHorse\_40 Start: 31496, Stop: 31323, Start Num: 20

Candidate Starts for VRedHorse\_40:

(7, 31562), (8, 31556), (10, 31553), (Start: 20 @31496 has 3 MA's), (Start: 24 @31481 has 6 MA's), (Start: 25 @31475 has 3 MA's), (Start: 30 @31445 has 19 MA's), (33, 31412), (38, 31334),

Gene: Velveteen\_35 Start: 27528, Stop: 27361, Start Num: 23

Candidate Starts for Velveteen\_35:

(Start: 23 @27528 has 39 MA's), (Start: 30 @27483 has 19 MA's), (33, 27450), (38, 27372),

Gene: Veteran\_39 Start: 30937, Stop: 30788, Start Num: 28

Candidate Starts for Veteran\_39:

(Start: 28 @30937 has 30 MA's), (Start: 30 @30910 has 19 MA's), (33, 30877), (38, 30799),

Gene: Vivum\_40 Start: 31191, Stop: 31024, Start Num: 23

Candidate Starts for Vivum\_40:

(Start: 23 @31191 has 39 MA's), (Start: 28 @31173 has 30 MA's), (Start: 30 @31146 has 19 MA's), (33, 31113), (34, 31110), (38, 31035),

Gene: Wachhund\_41 Start: 31468, Stop: 31301, Start Num: 23

Candidate Starts for Wachhund\_41:

(Start: 23 @31468 has 39 MA's), (Start: 30 @31423 has 19 MA's), (33, 31390), (38, 31312),

Gene: Wanda\_190 Start: 94039, Stop: 93887, Start Num: 27

Candidate Starts for Wanda\_190:

(5, 94159), (Start: 27 @94039 has 28 MA's), (Start: 30 @94009 has 19 MA's), (36, 93949), (37, 93940), (38, 93898),

Gene: Whouxphf\_41 Start: 31533, Stop: 31333, Start Num: 14

Candidate Starts for Whouxphf\_41:

(Start: 14 @31533 has 33 MA's), (21, 31503), (22, 31500), (Start: 28 @31482 has 30 MA's), (Start: 30 @31455 has 19 MA's), (33, 31422), (34, 31419), (38, 31344),

Gene: Yeet\_183 Start: 95175, Stop: 95023, Start Num: 27

Candidate Starts for Yeet\_183:

(5, 95295), (Start: 27 @95175 has 28 MA's), (Start: 30 @95145 has 19 MA's), (36, 95085), (37, 95076), (38, 95034),

Gene: Yorick\_39 Start: 31548, Stop: 31345, Start Num: 14

Candidate Starts for Yorick\_39:

(Start: 14 @31548 has 33 MA's), (21, 31518), (22, 31515), (Start: 23 @31512 has 39 MA's), (Start: 28 @31494 has 30 MA's), (Start: 30 @31467 has 19 MA's), (33, 31434), (34, 31431), (38, 31356),

Gene: Zapner\_48 Start: 31634, Stop: 31467, Start Num: 23

Candidate Starts for Zapner\_48:

(Start: 23 @31634 has 39 MA's), (Start: 30 @31589 has 19 MA's), (33, 31556), (38, 31478),

Gene: Zelink\_186 Start: 95957, Stop: 95805, Start Num: 27

Candidate Starts for Zelink\_186:

(5, 96077), (Start: 27 @95957 has 28 MA's), (Start: 30 @95927 has 19 MA's), (32, 95900), (36, 95867), (37, 95858),

Gene: Zerg\_39 Start: 30959, Stop: 30801, Start Num: 24

Candidate Starts for Zerg\_39:

(Start: 20 @30974 has 3 MA's), (Start: 24 @30959 has 6 MA's), (Start: 25 @30953 has 3 MA's), (Start: 30 @30923 has 19 MA's), (33, 30890), (38, 30812),

Gene: Zizzle\_41 Start: 31392, Stop: 31243, Start Num: 23

Candidate Starts for Zizzle\_41:

(Start: 23 @31392 has 39 MA's), (33, 31332), (38, 31254),