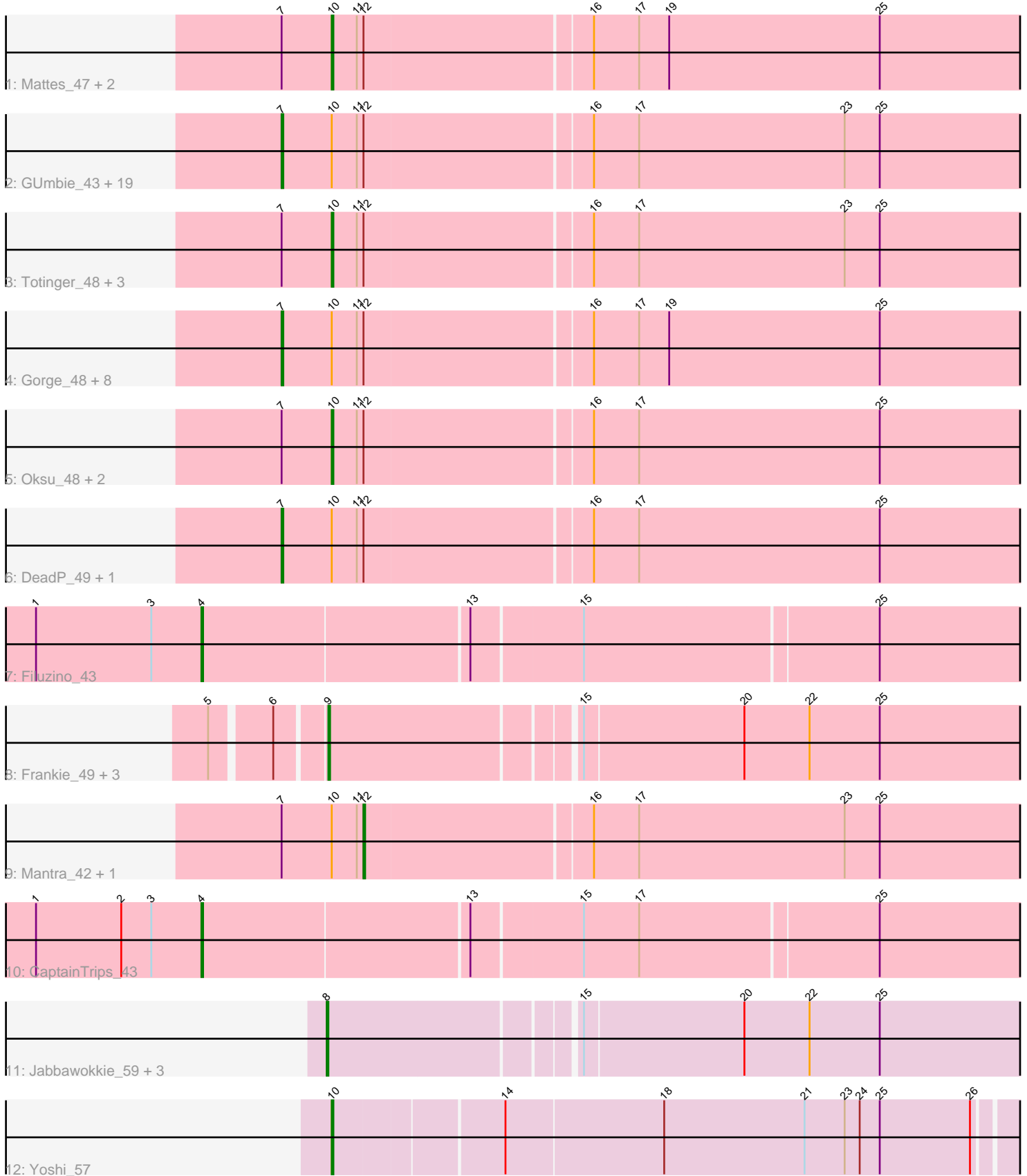


Pham 163645



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 163645 Report

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

Pham number 163645 has 54 members, 5 are drafts.

Phages represented in each track:

- Track 1 : Mattes\_47, Philus\_47, Quico\_52
- Track 2 : GUmbie\_43, Ramsey\_46, BuzzLyseyear\_50, Alexphander\_50, Harley\_48, Phanphagia\_39, OwlsT2W\_43, Veteran\_43, Royals2015\_46, Sandalphon\_47, Wee\_48, SiSi\_45, Gandalph\_45, Tweety\_45, DotProduct\_42, GigiOuiOui\_42, Spikelee\_51, Hamulus\_46, Radiance\_44, Bipolar\_41
- Track 3 : Totinger\_48, Karhdo\_44, DaddyRickover\_45, IbOuu\_47
- Track 4 : Gorge\_48, James\_47, SwagPiggett\_49, Firehouse51\_44, BobaPhett\_47, Saal\_47, Girafales\_54, ByChance\_34, DRBy19\_47
- Track 5 : Oksu\_48, DosHalletts\_48, Starcevich\_45
- Track 6 : DeadP\_49, Hades\_45
- Track 7 : Filuzino\_43
- Track 8 : Frankie\_49, Spartacus\_45, WillSterrel\_45, IrishSherpFalk\_45
- Track 9 : Mantra\_42, OldBen\_43
- Track 10 : CaptainTrips\_43
- Track 11 : Jabbawokkie\_59, Avani\_53, Aubs\_43, Zapner\_57
- Track 12 : Yoshi\_57

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

The start number called the most often in the published annotations is 7, it was called in 31 of the 49 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Alexphander\_50, Bipolar\_41, BobaPhett\_47, BuzzLyseyear\_50, ByChance\_34, DRBy19\_47, DeadP\_49, DotProduct\_42, Firehouse51\_44, GUmbie\_43, Gandalph\_45, GigiOuiOui\_42, Girafales\_54, Gorge\_48, Hades\_45, Hamulus\_46, Harley\_48, James\_47, OwlsT2W\_43, Phanphagia\_39, Radiance\_44, Ramsey\_46, Royals2015\_46, Saal\_47, Sandalphon\_47, SiSi\_45, Spikelee\_51, SwagPiggett\_49, Tweety\_45, Veteran\_43, Wee\_48,

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

- DaddyRickover\_45, DosHalletts\_48, IbOuu\_47, Karhdo\_44, Mantra\_42, Mattes\_47, Oksu\_48, OldBen\_43, Philus\_47, Quico\_52, Starcevich\_45, Totinger\_48,

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

• Aubs\_43, Avani\_53, CaptainTrips\_43, Filuzino\_43, Frankie\_49, IrishSherpFalk\_45, Jabbawokkie\_59, Spartacus\_45, WillSterrel\_45, Yoshi\_57, Zapner\_57,

### Summary by start number:

Start 4:

- Found in 2 of 54 ( 3.7% ) of genes in pham
- Manual Annotations of this start: 2 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CaptainTrips\_43 (F1), Filuzino\_43 (F1),

Start 7:

- Found in 43 of 54 ( 79.6% ) of genes in pham
- Manual Annotations of this start: 31 of 49
- Called 72.1% of time when present
- Phage (with cluster) where this start called: Alexphander\_50 (F1), Bipolar\_41 (F1), BobaPhett\_47 (F1), BuzzLyseyear\_50 (F1), ByChance\_34 (F1), DRBy19\_47 (F1), DeadP\_49 (F1), DotProduct\_42 (F1), Firehouse51\_44 (F1), GUmbe\_43 (F1), Gandalph\_45 (F1), GigiOuiOui\_42 (F1), Girafales\_54 (F1), Gorge\_48 (F1), Hades\_45 (F1), Hamulus\_46 (F1), Harley\_48 (F1), James\_47 (F1), OwlsT2W\_43 (F1), Phanphagia\_39 (F1), Radiance\_44 (F1), Ramsey\_46 (F1), Royals2015\_46 (F1), Saal\_47 (F1), Sandalphon\_47 (F1), SiSi\_45 (F1), Spikelee\_51 (F1), SwagPiggett\_49 (F1), Tweety\_45 (F1), Veteran\_43 (F1), Wee\_48 (F1),

Start 8:

- Found in 4 of 54 ( 7.4% ) of genes in pham
- Manual Annotations of this start: 4 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aubs\_43 (F1), Avani\_53 (F2), Jabbawokkie\_59 (F2), Zapner\_57 (F2),

Start 9:

- Found in 4 of 54 ( 7.4% ) of genes in pham
- Manual Annotations of this start: 4 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Frankie\_49 (F1), IrishSherpFalk\_45 (F1), Spartacus\_45 (F1), WillSterrel\_45 (F1),

Start 10:

- Found in 44 of 54 ( 81.5% ) of genes in pham
- Manual Annotations of this start: 6 of 49
- Called 25.0% of time when present
- Phage (with cluster) where this start called: DaddyRickover\_45 (F1), DosHalletts\_48 (F1), IbOuu\_47 (F1), Karhdo\_44 (F1), Mattes\_47 (F1), Oksu\_48 (F1), Philus\_47 (F1), Quico\_52 (F1), Starcevich\_45 (F1), Totinger\_48 (F1), Yoshi\_57 (F2),

Start 12:

- Found in 43 of 54 ( 79.6% ) of genes in pham
- Manual Annotations of this start: 2 of 49
- Called 4.7% of time when present
- Phage (with cluster) where this start called: Mantra\_42 (F1), OldBen\_43 (F1),

## Summary by clusters:

There are 2 clusters represented in this pham: F1, F2,

Info for manual annotations of cluster F1:

- Start number 4 was manually annotated 2 times for cluster F1.
- Start number 7 was manually annotated 31 times for cluster F1.
- Start number 8 was manually annotated 1 time for cluster F1.
- Start number 9 was manually annotated 4 times for cluster F1.
- Start number 10 was manually annotated 5 times for cluster F1.
- Start number 12 was manually annotated 2 times for cluster F1.

Info for manual annotations of cluster F2:

- Start number 8 was manually annotated 3 times for cluster F2.
- Start number 10 was manually annotated 1 time for cluster F2.

## **Gene Information:**

Gene: Alexphander\_50 Start: 35477, Stop: 34944, Start Num: 7

Candidate Starts for Alexphander\_50:

(Start: 7 @35477 has 31 MA's), (Start: 10 @35447 has 6 MA's), (11, 35432), (Start: 12 @35429 has 2 MA's), (16, 35297), (17, 35270), (23, 35147), (25, 35126),

Gene: Aubs\_43 Start: 34347, Stop: 33856, Start Num: 8

Candidate Starts for Aubs\_43:

(Start: 8 @34347 has 4 MA's), (15, 34209), (20, 34116), (22, 34077), (25, 34035),

Gene: Avani\_53 Start: 34662, Stop: 34168, Start Num: 8

Candidate Starts for Avani\_53:

(Start: 8 @34662 has 4 MA's), (15, 34524), (20, 34431), (22, 34392), (25, 34350),

Gene: Bipolar\_41 Start: 33810, Stop: 33277, Start Num: 7

Candidate Starts for Bipolar\_41:

(Start: 7 @33810 has 31 MA's), (Start: 10 @33780 has 6 MA's), (11, 33765), (Start: 12 @33762 has 2 MA's), (16, 33630), (17, 33603), (23, 33480), (25, 33459),

Gene: BobaPhett\_47 Start: 36271, Stop: 35741, Start Num: 7

Candidate Starts for BobaPhett\_47:

(Start: 7 @36271 has 31 MA's), (Start: 10 @36241 has 6 MA's), (11, 36226), (Start: 12 @36223 has 2 MA's), (16, 36091), (17, 36064), (19, 36046), (25, 35920),

Gene: BuzzLyseyear\_50 Start: 36165, Stop: 35632, Start Num: 7

Candidate Starts for BuzzLyseyear\_50:

(Start: 7 @36165 has 31 MA's), (Start: 10 @36135 has 6 MA's), (11, 36120), (Start: 12 @36117 has 2 MA's), (16, 35985), (17, 35958), (23, 35835), (25, 35814),

Gene: ByChance\_34 Start: 29355, Stop: 28825, Start Num: 7

Candidate Starts for ByChance\_34:

(Start: 7 @29355 has 31 MA's), (Start: 10 @29325 has 6 MA's), (11, 29310), (Start: 12 @29307 has 2 MA's), (16, 29175), (17, 29148), (19, 29130), (25, 29004),

Gene: CaptainTrips\_43 Start: 34800, Stop: 34231, Start Num: 4  
Candidate Starts for CaptainTrips\_43:  
(1, 34899), (2, 34848), (3, 34830), (Start: 4 @34800 has 2 MA's), (13, 34644), (15, 34581), (17, 34548), (25, 34410),

Gene: DRBy19\_47 Start: 35058, Stop: 34528, Start Num: 7  
Candidate Starts for DRBy19\_47:  
(Start: 7 @35058 has 31 MA's), (Start: 10 @35028 has 6 MA's), (11, 35013), (Start: 12 @35010 has 2 MA's), (16, 34878), (17, 34851), (19, 34833), (25, 34707),

Gene: DaddyRickover\_45 Start: 34702, Stop: 34199, Start Num: 10  
Candidate Starts for DaddyRickover\_45:  
(Start: 7 @34732 has 31 MA's), (Start: 10 @34702 has 6 MA's), (11, 34687), (Start: 12 @34684 has 2 MA's), (16, 34552), (17, 34525), (23, 34402), (25, 34381),

Gene: DeadP\_49 Start: 35014, Stop: 34481, Start Num: 7  
Candidate Starts for DeadP\_49:  
(Start: 7 @35014 has 31 MA's), (Start: 10 @34984 has 6 MA's), (11, 34969), (Start: 12 @34966 has 2 MA's), (16, 34834), (17, 34807), (25, 34663),

Gene: DosHalletts\_48 Start: 34299, Stop: 33799, Start Num: 10  
Candidate Starts for DosHalletts\_48:  
(Start: 7 @34329 has 31 MA's), (Start: 10 @34299 has 6 MA's), (11, 34284), (Start: 12 @34281 has 2 MA's), (16, 34149), (17, 34122), (25, 33978),

Gene: DotProduct\_42 Start: 34013, Stop: 33480, Start Num: 7  
Candidate Starts for DotProduct\_42:  
(Start: 7 @34013 has 31 MA's), (Start: 10 @33983 has 6 MA's), (11, 33968), (Start: 12 @33965 has 2 MA's), (16, 33833), (17, 33806), (23, 33683), (25, 33662),

Gene: Filuzino\_43 Start: 33794, Stop: 33225, Start Num: 4  
Candidate Starts for Filuzino\_43:  
(1, 33893), (3, 33824), (Start: 4 @33794 has 2 MA's), (13, 33638), (15, 33575), (25, 33404),

Gene: Firehouse51\_44 Start: 35967, Stop: 35437, Start Num: 7  
Candidate Starts for Firehouse51\_44:  
(Start: 7 @35967 has 31 MA's), (Start: 10 @35937 has 6 MA's), (11, 35922), (Start: 12 @35919 has 2 MA's), (16, 35787), (17, 35760), (19, 35742), (25, 35616),

Gene: Frankie\_49 Start: 35937, Stop: 35446, Start Num: 9  
Candidate Starts for Frankie\_49:  
(5, 35997), (6, 35964), (Start: 9 @35937 has 4 MA's), (15, 35799), (20, 35706), (22, 35667), (25, 35625),

Gene: GUmbie\_43 Start: 34242, Stop: 33709, Start Num: 7  
Candidate Starts for GUmbie\_43:  
(Start: 7 @34242 has 31 MA's), (Start: 10 @34212 has 6 MA's), (11, 34197), (Start: 12 @34194 has 2 MA's), (16, 34062), (17, 34035), (23, 33912), (25, 33891),

Gene: Gandolph\_45 Start: 34322, Stop: 33789, Start Num: 7  
Candidate Starts for Gandolph\_45:  
(Start: 7 @34322 has 31 MA's), (Start: 10 @34292 has 6 MA's), (11, 34277), (Start: 12 @34274 has 2 MA's), (16, 34142), (17, 34115), (23, 33992), (25, 33971),

Gene: GigiOuiOui\_42 Start: 34155, Stop: 33622, Start Num: 7

Candidate Starts for GigiOuiOui\_42:

(Start: 7 @34155 has 31 MA's), (Start: 10 @34125 has 6 MA's), (11, 34110), (Start: 12 @34107 has 2 MA's), (16, 33975), (17, 33948), (23, 33825), (25, 33804),

Gene: Girafales\_54 Start: 35441, Stop: 34908, Start Num: 7

Candidate Starts for Girafales\_54:

(Start: 7 @35441 has 31 MA's), (Start: 10 @35411 has 6 MA's), (11, 35396), (Start: 12 @35393 has 2 MA's), (16, 35261), (17, 35234), (19, 35216), (25, 35090),

Gene: Gorge\_48 Start: 35192, Stop: 34662, Start Num: 7

Candidate Starts for Gorge\_48:

(Start: 7 @35192 has 31 MA's), (Start: 10 @35162 has 6 MA's), (11, 35147), (Start: 12 @35144 has 2 MA's), (16, 35012), (17, 34985), (19, 34967), (25, 34841),

Gene: Hades\_45 Start: 34414, Stop: 33881, Start Num: 7

Candidate Starts for Hades\_45:

(Start: 7 @34414 has 31 MA's), (Start: 10 @34384 has 6 MA's), (11, 34369), (Start: 12 @34366 has 2 MA's), (16, 34234), (17, 34207), (25, 34063),

Gene: Hamulus\_46 Start: 35597, Stop: 35064, Start Num: 7

Candidate Starts for Hamulus\_46:

(Start: 7 @35597 has 31 MA's), (Start: 10 @35567 has 6 MA's), (11, 35552), (Start: 12 @35549 has 2 MA's), (16, 35417), (17, 35390), (23, 35267), (25, 35246),

Gene: Harley\_48 Start: 34950, Stop: 34417, Start Num: 7

Candidate Starts for Harley\_48:

(Start: 7 @34950 has 31 MA's), (Start: 10 @34920 has 6 MA's), (11, 34905), (Start: 12 @34902 has 2 MA's), (16, 34770), (17, 34743), (23, 34620), (25, 34599),

Gene: lbOuu\_47 Start: 34761, Stop: 34258, Start Num: 10

Candidate Starts for lbOuu\_47:

(Start: 7 @34791 has 31 MA's), (Start: 10 @34761 has 6 MA's), (11, 34746), (Start: 12 @34743 has 2 MA's), (16, 34611), (17, 34584), (23, 34461), (25, 34440),

Gene: IrishSherpFalk\_45 Start: 35509, Stop: 35018, Start Num: 9

Candidate Starts for IrishSherpFalk\_45:

(5, 35569), (6, 35536), (Start: 9 @35509 has 4 MA's), (15, 35371), (20, 35278), (22, 35239), (25, 35197),

Gene: Jabbawokkie\_59 Start: 35688, Stop: 35194, Start Num: 8

Candidate Starts for Jabbawokkie\_59:

(Start: 8 @35688 has 4 MA's), (15, 35550), (20, 35457), (22, 35418), (25, 35376),

Gene: James\_47 Start: 35149, Stop: 34619, Start Num: 7

Candidate Starts for James\_47:

(Start: 7 @35149 has 31 MA's), (Start: 10 @35119 has 6 MA's), (11, 35104), (Start: 12 @35101 has 2 MA's), (16, 34969), (17, 34942), (19, 34924), (25, 34798),

Gene: Karhdo\_44 Start: 35007, Stop: 34504, Start Num: 10

Candidate Starts for Karhdo\_44:

(Start: 7 @35037 has 31 MA's), (Start: 10 @35007 has 6 MA's), (11, 34992), (Start: 12 @34989 has 2 MA's), (16, 34857), (17, 34830), (23, 34707), (25, 34686),

Gene: Mantra\_42 Start: 34073, Stop: 33588, Start Num: 12

Candidate Starts for Mantra\_42:

(Start: 7 @34121 has 31 MA's), (Start: 10 @34091 has 6 MA's), (11, 34076), (Start: 12 @34073 has 2 MA's), (16, 33941), (17, 33914), (23, 33791), (25, 33770),

Gene: Mattes\_47 Start: 35119, Stop: 34619, Start Num: 10

Candidate Starts for Mattes\_47:

(Start: 7 @35149 has 31 MA's), (Start: 10 @35119 has 6 MA's), (11, 35104), (Start: 12 @35101 has 2 MA's), (16, 34969), (17, 34942), (19, 34924), (25, 34798),

Gene: Oksu\_48 Start: 35586, Stop: 35083, Start Num: 10

Candidate Starts for Oksu\_48:

(Start: 7 @35616 has 31 MA's), (Start: 10 @35586 has 6 MA's), (11, 35571), (Start: 12 @35568 has 2 MA's), (16, 35436), (17, 35409), (25, 35265),

Gene: OldBen\_43 Start: 34181, Stop: 33696, Start Num: 12

Candidate Starts for OldBen\_43:

(Start: 7 @34229 has 31 MA's), (Start: 10 @34199 has 6 MA's), (11, 34184), (Start: 12 @34181 has 2 MA's), (16, 34049), (17, 34022), (23, 33899), (25, 33878),

Gene: OwlsT2W\_43 Start: 34652, Stop: 34119, Start Num: 7

Candidate Starts for OwlsT2W\_43:

(Start: 7 @34652 has 31 MA's), (Start: 10 @34622 has 6 MA's), (11, 34607), (Start: 12 @34604 has 2 MA's), (16, 34472), (17, 34445), (23, 34322), (25, 34301),

Gene: Phanphagia\_39 Start: 33469, Stop: 32939, Start Num: 7

Candidate Starts for Phanphagia\_39:

(Start: 7 @33469 has 31 MA's), (Start: 10 @33439 has 6 MA's), (11, 33424), (Start: 12 @33421 has 2 MA's), (16, 33289), (17, 33262), (23, 33139), (25, 33118),

Gene: Philus\_47 Start: 35004, Stop: 34504, Start Num: 10

Candidate Starts for Philus\_47:

(Start: 7 @35034 has 31 MA's), (Start: 10 @35004 has 6 MA's), (11, 34989), (Start: 12 @34986 has 2 MA's), (16, 34854), (17, 34827), (19, 34809), (25, 34683),

Gene: Quico\_52 Start: 35423, Stop: 34923, Start Num: 10

Candidate Starts for Quico\_52:

(Start: 7 @35453 has 31 MA's), (Start: 10 @35423 has 6 MA's), (11, 35408), (Start: 12 @35405 has 2 MA's), (16, 35273), (17, 35246), (19, 35228), (25, 35102),

Gene: Radiance\_44 Start: 34399, Stop: 33866, Start Num: 7

Candidate Starts for Radiance\_44:

(Start: 7 @34399 has 31 MA's), (Start: 10 @34369 has 6 MA's), (11, 34354), (Start: 12 @34351 has 2 MA's), (16, 34219), (17, 34192), (23, 34069), (25, 34048),

Gene: Ramsey\_46 Start: 35025, Stop: 34492, Start Num: 7

Candidate Starts for Ramsey\_46:

(Start: 7 @35025 has 31 MA's), (Start: 10 @34995 has 6 MA's), (11, 34980), (Start: 12 @34977 has 2 MA's), (16, 34845), (17, 34818), (23, 34695), (25, 34674),

Gene: Royals2015\_46 Start: 34672, Stop: 34139, Start Num: 7

Candidate Starts for Royals2015\_46:

(Start: 7 @34672 has 31 MA's), (Start: 10 @34642 has 6 MA's), (11, 34627), (Start: 12 @34624 has 2 MA's), (16, 34492), (17, 34465), (23, 34342), (25, 34321),

Gene: Saal\_47 Start: 35012, Stop: 34482, Start Num: 7

Candidate Starts for Saal\_47:

(Start: 7 @35012 has 31 MA's), (Start: 10 @34982 has 6 MA's), (11, 34967), (Start: 12 @34964 has 2 MA's), (16, 34832), (17, 34805), (19, 34787), (25, 34661),

Gene: Sandalphon\_47 Start: 35586, Stop: 35053, Start Num: 7

Candidate Starts for Sandalphon\_47:

(Start: 7 @35586 has 31 MA's), (Start: 10 @35556 has 6 MA's), (11, 35541), (Start: 12 @35538 has 2 MA's), (16, 35406), (17, 35379), (23, 35256), (25, 35235),

Gene: SiSi\_45 Start: 34585, Stop: 34052, Start Num: 7

Candidate Starts for SiSi\_45:

(Start: 7 @34585 has 31 MA's), (Start: 10 @34555 has 6 MA's), (11, 34540), (Start: 12 @34537 has 2 MA's), (16, 34405), (17, 34378), (23, 34255), (25, 34234),

Gene: Spartacus\_45 Start: 34426, Stop: 33935, Start Num: 9

Candidate Starts for Spartacus\_45:

(5, 34486), (6, 34453), (Start: 9 @34426 has 4 MA's), (15, 34288), (20, 34195), (22, 34156), (25, 34114),

Gene: Spikelee\_51 Start: 35582, Stop: 35049, Start Num: 7

Candidate Starts for Spikelee\_51:

(Start: 7 @35582 has 31 MA's), (Start: 10 @35552 has 6 MA's), (11, 35537), (Start: 12 @35534 has 2 MA's), (16, 35402), (17, 35375), (23, 35252), (25, 35231),

Gene: Starcevich\_45 Start: 35189, Stop: 34686, Start Num: 10

Candidate Starts for Starcevich\_45:

(Start: 7 @35219 has 31 MA's), (Start: 10 @35189 has 6 MA's), (11, 35174), (Start: 12 @35171 has 2 MA's), (16, 35039), (17, 35012), (25, 34868),

Gene: SwagPigglett\_49 Start: 36067, Stop: 35537, Start Num: 7

Candidate Starts for SwagPigglett\_49:

(Start: 7 @36067 has 31 MA's), (Start: 10 @36037 has 6 MA's), (11, 36022), (Start: 12 @36019 has 2 MA's), (16, 35887), (17, 35860), (19, 35842), (25, 35716),

Gene: Totinger\_48 Start: 34331, Stop: 33828, Start Num: 10

Candidate Starts for Totinger\_48:

(Start: 7 @34361 has 31 MA's), (Start: 10 @34331 has 6 MA's), (11, 34316), (Start: 12 @34313 has 2 MA's), (16, 34181), (17, 34154), (23, 34031), (25, 34010),

Gene: Tweety\_45 Start: 35097, Stop: 34564, Start Num: 7

Candidate Starts for Tweety\_45:

(Start: 7 @35097 has 31 MA's), (Start: 10 @35067 has 6 MA's), (11, 35052), (Start: 12 @35049 has 2 MA's), (16, 34917), (17, 34890), (23, 34767), (25, 34746),

Gene: Veteran\_43 Start: 34229, Stop: 33696, Start Num: 7

Candidate Starts for Veteran\_43:



(Start: 7 @34229 has 31 MA's), (Start: 10 @34199 has 6 MA's), (11, 34184), (Start: 12 @34181 has 2 MA's), (16, 34049), (17, 34022), (23, 33899), (25, 33878),

Gene: Wee\_48 Start: 35596, Stop: 35063, Start Num: 7

Candidate Starts for Wee\_48:

(Start: 7 @35596 has 31 MA's), (Start: 10 @35566 has 6 MA's), (11, 35551), (Start: 12 @35548 has 2 MA's), (16, 35416), (17, 35389), (23, 35266), (25, 35245),

Gene: WillSterrel\_45 Start: 35542, Stop: 35051, Start Num: 9

Candidate Starts for WillSterrel\_45:

(5, 35602), (6, 35569), (Start: 9 @35542 has 4 MA's), (15, 35404), (20, 35311), (22, 35272), (25, 35230),

Gene: Yoshi\_57 Start: 35913, Stop: 35455, Start Num: 10

Candidate Starts for Yoshi\_57:

(Start: 10 @35913 has 6 MA's), (14, 35817), (18, 35724), (21, 35640), (23, 35616), (24, 35607), (25, 35595), (26, 35541),

Gene: Zapner\_57 Start: 35689, Stop: 35195, Start Num: 8

Candidate Starts for Zapner\_57:

(Start: 8 @35689 has 4 MA's), (15, 35551), (20, 35458), (22, 35419), (25, 35377),