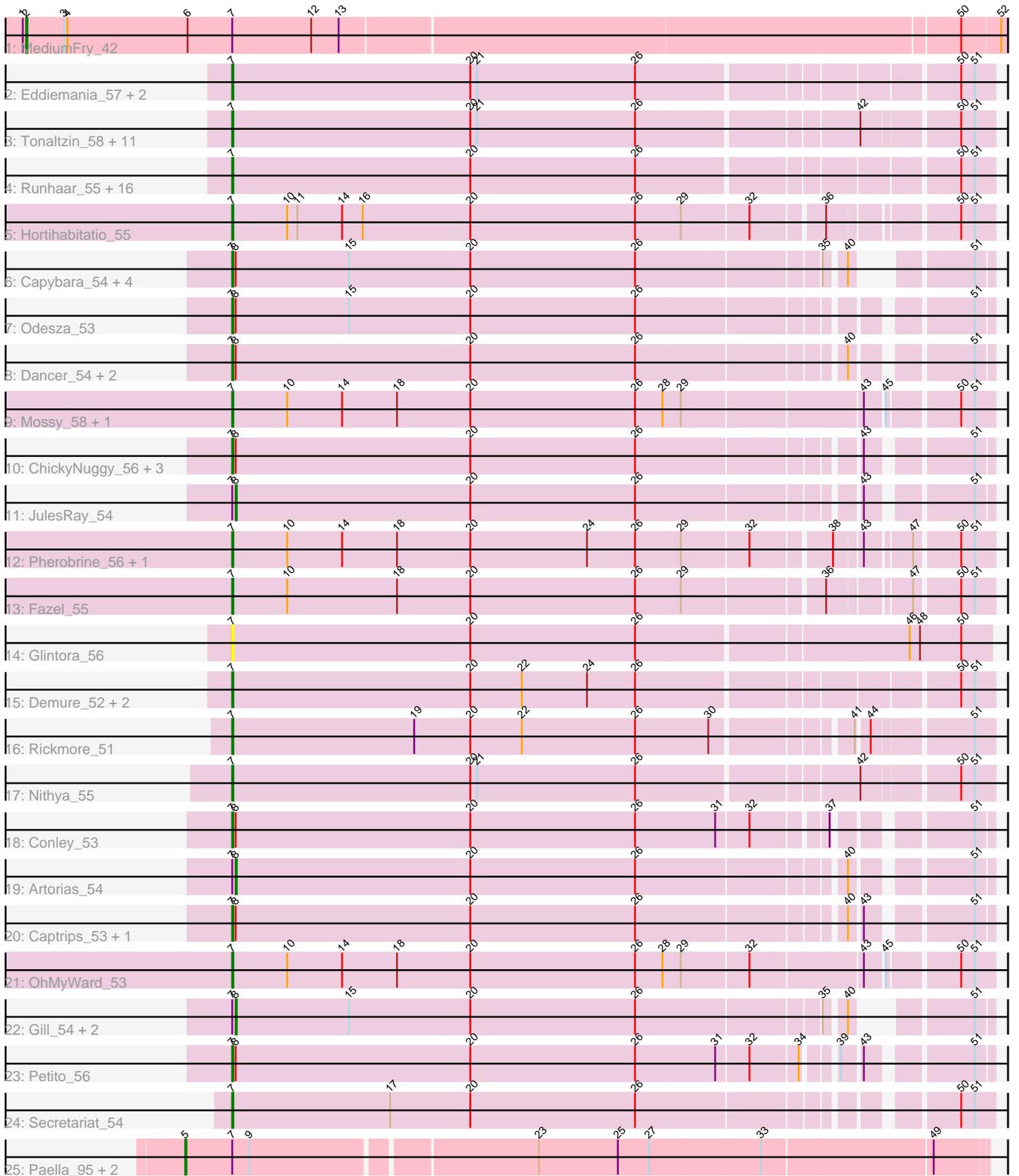


# Pham 283766



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 283766 Report

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

Pham number 283766 has 72 members, 16 are drafts.

Phages represented in each track:

- Track 1 : MediumFry\_42
- Track 2 : Eddiemania\_57, MajinBuu\_54, Kenosha\_54
- Track 3 : Tonaltzin\_58, Duffington\_53, Figliar\_53, Jodelie19\_54, Luthien\_57, Citrus\_54, Chikenjars\_53, EndAve\_56, OlgasClover\_56, Aflac\_54, AlainaMarie\_54, TenaciousP\_55
- Track 4 : Runhaar\_55, PestoPenguin\_58, ShaggyRogers\_55, Madvan\_55, Burley\_55, Crocheter\_55, BetterYeti\_55, Phepper\_56, Untouchable\_56, Nadmeg\_56, CWormy\_54, Aloe25\_57, ArtetaBall\_55, Hydrus\_57, Gusicorn\_56, Dialga\_55, Vardy\_54
- Track 5 : Hortihabitatio\_55
- Track 6 : Capybara\_54, Roney\_54, Kerry\_53, Tanis\_54, Gravy\_53
- Track 7 : Odesza\_53
- Track 8 : Dancer\_54, Bugg\_56, FortCran\_54
- Track 9 : Mossy\_58, Blanky\_55
- Track 10 : ChickyNuggy\_56, Avazak\_55, Trufflozitus\_58, Tairn4Wing\_56
- Track 11 : JulesRay\_54
- Track 12 : Pherobrine\_56, Mysticmoon\_56
- Track 13 : Fazel\_55
- Track 14 : Glintora\_56
- Track 15 : Demure\_52, Zeph\_57, Arataki\_53
- Track 16 : Rickmore\_51
- Track 17 : Nithya\_55
- Track 18 : Conley\_53
- Track 19 : Artorias\_54
- Track 20 : Captrips\_53, Football\_56
- Track 21 : OhMyWard\_53
- Track 22 : Gill\_54, NoPickles\_53, Magel\_55
- Track 23 : Petite\_56
- Track 24 : Secretariat\_54
- Track 25 : Paella\_95, Qui\_95, Elver\_94

***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 47 of the 56 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aflac\_54, AlainaMarie\_54, Aloe25\_57, Arataki\_53, ArtetaBall\_55, Avazak\_55, BetterYeti\_55, Blanky\_55, Bugg\_56, Burley\_55, CWormy\_54, Captrips\_53, Capybara\_54, ChickyNuggy\_56, Chikenjars\_53, Citrus\_54, Conley\_53, Crocheter\_55, Dancer\_54, Demure\_52, Dialga\_55, Duffington\_53, Eddiemania\_57, EndAve\_56, Fazel\_55, Figliar\_53, Football\_56, FortCran\_54, Glintora\_56, Gravy\_53, Gusicorn\_56, Hortihabitatio\_55, Hydrus\_57, Jodelie19\_54, Kenosha\_54, Kerry\_53, Luthien\_57, Madvan\_55, MajinBuu\_54, Mossy\_58, Mysticmoon\_56, Nadmeg\_56, Nithya\_55, Odesza\_53, OhMyWard\_53, OlgasClover\_56, PestoPenguin\_58, Petite\_56, Phepper\_56, Pherobrine\_56, Rickmore\_51, Roney\_54, Runhaar\_55, Secretariat\_54, ShaggyRogers\_55, Tairn4Wing\_56, Tanis\_54, TenaciousP\_55, Tonaltzin\_58, Trufflozitus\_58, Untouchable\_56, Vardy\_54, Zeph\_57,

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

- Artorias\_54, Elver\_94, Gill\_54, JulesRay\_54, Magel\_55, MediumFry\_42, NoPickles\_53, Paella\_95, Qui\_95,

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

- 

### Summary by start number:

Start 2:

- Found in 1 of 72 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 56
- Called 100.0% of time when present
- Phage (with cluster) where this start called: MediumFry\_42 (AU4),

Start 5:

- Found in 3 of 72 ( 4.2% ) of genes in pham
- Manual Annotations of this start: 3 of 56
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Elver\_94 (FK), Paella\_95 (FK), Qui\_95 (FK),

Start 7:

- Found in 72 of 72 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 47 of 56
- Called 87.5% of time when present
- Phage (with cluster) where this start called: Aflac\_54 (DJ), AlainaMarie\_54 (DJ), Aloe25\_57 (DJ), Arataki\_53 (DJ), ArtetaBall\_55 (DJ), Avazak\_55 (DJ), BetterYeti\_55 (DJ), Blanky\_55 (DJ), Bugg\_56 (DJ), Burley\_55 (DJ), CWormy\_54 (DJ), Captrips\_53 (DJ), Capybara\_54 (DJ), ChickyNuggy\_56 (DJ), Chikenjars\_53 (DJ), Citrus\_54 (DJ), Conley\_53 (DJ), Crocheter\_55 (DJ), Dancer\_54 (DJ), Demure\_52 (DJ), Dialga\_55 (DJ), Duffington\_53 (DJ), Eddiemania\_57 (DJ), EndAve\_56 (DJ), Fazel\_55 (DJ), Figliar\_53 (DJ), Football\_56 (DJ), FortCran\_54 (DJ), Glintora\_56 (DJ), Gravy\_53 (DJ), Gusicorn\_56 (DJ), Hortihabitatio\_55 (DJ), Hydrus\_57 (DJ), Jodelie19\_54 (DJ), Kenosha\_54 (DJ), Kerry\_53 (DJ), Luthien\_57 (DJ), Madvan\_55 (DJ), MajinBuu\_54 (DJ), Mossy\_58 (DJ), Mysticmoon\_56 (DJ), Nadmeg\_56 (DJ), Nithya\_55 (DJ), Odesza\_53 (DJ), OhMyWard\_53 (DJ), OlgasClover\_56 (DJ), PestoPenguin\_58 (DJ),

Petito\_56 (DJ), Phepper\_56 (DJ), Pherobrine\_56 (DJ), Rickmore\_51 (DJ), Roney\_54 (DJ), Runhaar\_55 (DJ), Secretariat\_54 (DJ), ShaggyRogers\_55 (DJ), Tairn4Wing\_56 (DJ), Tanis\_54 (DJ), TenaciousP\_55 (DJ), Tonaltzin\_58 (DJ), Trufflozitus\_58 (DJ), Untouchable\_56 (DJ), Vardy\_54 (DJ), Zeph\_57 (DJ),

Start 8:

- Found in 22 of 72 ( 30.6% ) of genes in pham
- Manual Annotations of this start: 5 of 56
- Called 22.7% of time when present
- Phage (with cluster) where this start called: Artorias\_54 (DJ), Gill\_54 (DJ), JulesRay\_54 (DJ), Magel\_55 (DJ), NoPickles\_53 (DJ),

### **Summary by clusters:**

There are 3 clusters represented in this pham: FK, DJ, AU4,

Info for manual annotations of cluster AU4:

- Start number 2 was manually annotated 1 time for cluster AU4.

Info for manual annotations of cluster DJ:

- Start number 7 was manually annotated 47 times for cluster DJ.
- Start number 8 was manually annotated 5 times for cluster DJ.

Info for manual annotations of cluster FK:

- Start number 5 was manually annotated 3 times for cluster FK.

### **Gene Information:**

Gene: Aflac\_54 Start: 37624, Stop: 38262, Start Num: 7

Candidate Starts for Aflac\_54:

(Start: 7 @37624 has 47 MA's), (20, 37831), (21, 37837), (26, 37975), (42, 38155), (50, 38233), (51, 38245),

Gene: AlainaMarie\_54 Start: 37610, Stop: 38248, Start Num: 7

Candidate Starts for AlainaMarie\_54:

(Start: 7 @37610 has 47 MA's), (20, 37817), (21, 37823), (26, 37961), (42, 38141), (50, 38219), (51, 38231),

Gene: Aloe25\_57 Start: 37709, Stop: 38344, Start Num: 7

Candidate Starts for Aloe25\_57:

(Start: 7 @37709 has 47 MA's), (20, 37916), (26, 38060), (50, 38315), (51, 38327),

Gene: Arataki\_53 Start: 36745, Stop: 37380, Start Num: 7

Candidate Starts for Arataki\_53:

(Start: 7 @36745 has 47 MA's), (20, 36952), (22, 36997), (24, 37054), (26, 37096), (50, 37351), (51, 37363),

Gene: ArtetaBall\_55 Start: 37934, Stop: 38569, Start Num: 7

Candidate Starts for ArtetaBall\_55:

(Start: 7 @37934 has 47 MA's), (20, 38141), (26, 38285), (50, 38540), (51, 38552),

Gene: Artorias\_54 Start: 36960, Stop: 37574, Start Num: 8  
Candidate Starts for Artorias\_54:  
(Start: 7 @36957 has 47 MA's), (Start: 8 @36960 has 5 MA's), (20, 37164), (26, 37308), (40, 37473),  
(51, 37560),

Gene: Avazak\_55 Start: 37284, Stop: 37901, Start Num: 7  
Candidate Starts for Avazak\_55:  
(Start: 7 @37284 has 47 MA's), (Start: 8 @37287 has 5 MA's), (20, 37491), (26, 37635), (43, 37809),  
(51, 37887),

Gene: BetterYeti\_55 Start: 37708, Stop: 38343, Start Num: 7  
Candidate Starts for BetterYeti\_55:  
(Start: 7 @37708 has 47 MA's), (20, 37915), (26, 38059), (50, 38314), (51, 38326),

Gene: Blanky\_55 Start: 39240, Stop: 39881, Start Num: 7  
Candidate Starts for Blanky\_55:  
(Start: 7 @39240 has 47 MA's), (10, 39288), (14, 39336), (18, 39384), (20, 39447), (26, 39591), (28,  
39615), (29, 39630), (43, 39780), (45, 39795), (50, 39852), (51, 39864),

Gene: Bugg\_56 Start: 37002, Stop: 37619, Start Num: 7  
Candidate Starts for Bugg\_56:  
(Start: 7 @37002 has 47 MA's), (Start: 8 @37005 has 5 MA's), (20, 37209), (26, 37353), (40, 37518),  
(51, 37605),

Gene: Burley\_55 Start: 37396, Stop: 38031, Start Num: 7  
Candidate Starts for Burley\_55:  
(Start: 7 @37396 has 47 MA's), (20, 37603), (26, 37747), (50, 38002), (51, 38014),

Gene: CWormy\_54 Start: 37347, Stop: 37982, Start Num: 7  
Candidate Starts for CWormy\_54:  
(Start: 7 @37347 has 47 MA's), (20, 37554), (26, 37698), (50, 37953), (51, 37965),

Gene: Captrips\_53 Start: 36432, Stop: 37049, Start Num: 7  
Candidate Starts for Captrips\_53:  
(Start: 7 @36432 has 47 MA's), (Start: 8 @36435 has 5 MA's), (20, 36639), (26, 36783), (40, 36948),  
(43, 36957), (51, 37035),

Gene: Capybara\_54 Start: 36783, Stop: 37382, Start Num: 7  
Candidate Starts for Capybara\_54:  
(Start: 7 @36783 has 47 MA's), (Start: 8 @36786 has 5 MA's), (15, 36885), (20, 36990), (26, 37134),  
(35, 37284), (40, 37299), (51, 37368),

Gene: ChickyNuggy\_56 Start: 37041, Stop: 37658, Start Num: 7  
Candidate Starts for ChickyNuggy\_56:  
(Start: 7 @37041 has 47 MA's), (Start: 8 @37044 has 5 MA's), (20, 37248), (26, 37392), (43, 37566),  
(51, 37644),

Gene: Chikenjars\_53 Start: 37622, Stop: 38260, Start Num: 7  
Candidate Starts for Chikenjars\_53:  
(Start: 7 @37622 has 47 MA's), (20, 37829), (21, 37835), (26, 37973), (42, 38153), (50, 38231), (51,  
38243),

Gene: Citrus\_54 Start: 37900, Stop: 38538, Start Num: 7

Candidate Starts for Citrus\_54:

(Start: 7 @37900 has 47 MA's), (20, 38107), (21, 38113), (26, 38251), (42, 38431), (50, 38509), (51, 38521),

Gene: Conley\_53 Start: 37570, Stop: 38184, Start Num: 7

Candidate Starts for Conley\_53:

(Start: 7 @37570 has 47 MA's), (Start: 8 @37573 has 5 MA's), (20, 37777), (26, 37921), (31, 37990), (32, 38017), (37, 38074), (51, 38170),

Gene: Crocheter\_55 Start: 37792, Stop: 38427, Start Num: 7

Candidate Starts for Crocheter\_55:

(Start: 7 @37792 has 47 MA's), (20, 37999), (26, 38143), (50, 38398), (51, 38410),

Gene: Dancer\_54 Start: 36692, Stop: 37309, Start Num: 7

Candidate Starts for Dancer\_54:

(Start: 7 @36692 has 47 MA's), (Start: 8 @36695 has 5 MA's), (20, 36899), (26, 37043), (40, 37208), (51, 37295),

Gene: Demure\_52 Start: 36745, Stop: 37380, Start Num: 7

Candidate Starts for Demure\_52:

(Start: 7 @36745 has 47 MA's), (20, 36952), (22, 36997), (24, 37054), (26, 37096), (50, 37351), (51, 37363),

Gene: Dialga\_55 Start: 37961, Stop: 38596, Start Num: 7

Candidate Starts for Dialga\_55:

(Start: 7 @37961 has 47 MA's), (20, 38168), (26, 38312), (50, 38567), (51, 38579),

Gene: Duffington\_53 Start: 37317, Stop: 37955, Start Num: 7

Candidate Starts for Duffington\_53:

(Start: 7 @37317 has 47 MA's), (20, 37524), (21, 37530), (26, 37668), (42, 37848), (50, 37926), (51, 37938),

Gene: Eddiemania\_57 Start: 38537, Stop: 39172, Start Num: 7

Candidate Starts for Eddiemania\_57:

(Start: 7 @38537 has 47 MA's), (20, 38744), (21, 38750), (26, 38888), (50, 39143), (51, 39155),

Gene: Elver\_94 Start: 52859, Stop: 53530, Start Num: 5

Candidate Starts for Elver\_94:

(Start: 5 @52859 has 3 MA's), (Start: 7 @52898 has 47 MA's), (9, 52913), (23, 53150), (25, 53219), (27, 53246), (33, 53342), (49, 53486),

Gene: EndAve\_56 Start: 37790, Stop: 38428, Start Num: 7

Candidate Starts for EndAve\_56:

(Start: 7 @37790 has 47 MA's), (20, 37997), (21, 38003), (26, 38141), (42, 38321), (50, 38399), (51, 38411),

Gene: Fazel\_55 Start: 37262, Stop: 37894, Start Num: 7

Candidate Starts for Fazel\_55:

(Start: 7 @37262 has 47 MA's), (10, 37310), (18, 37406), (20, 37469), (26, 37613), (29, 37652), (36, 37766), (47, 37829), (50, 37865), (51, 37877),

Gene: Figliar\_53 Start: 37692, Stop: 38330, Start Num: 7

Candidate Starts for Figliar\_53:

(Start: 7 @37692 has 47 MA's), (20, 37899), (21, 37905), (26, 38043), (42, 38223), (50, 38301), (51, 38313),

Gene: Football\_56 Start: 36838, Stop: 37455, Start Num: 7

Candidate Starts for Football\_56:

(Start: 7 @36838 has 47 MA's), (Start: 8 @36841 has 5 MA's), (20, 37045), (26, 37189), (40, 37354), (43, 37363), (51, 37441),

Gene: FortCran\_54 Start: 36957, Stop: 37574, Start Num: 7

Candidate Starts for FortCran\_54:

(Start: 7 @36957 has 47 MA's), (Start: 8 @36960 has 5 MA's), (20, 37164), (26, 37308), (40, 37473), (51, 37560),

Gene: Gill\_54 Start: 36803, Stop: 37399, Start Num: 8

Candidate Starts for Gill\_54:

(Start: 7 @36800 has 47 MA's), (Start: 8 @36803 has 5 MA's), (15, 36902), (20, 37007), (26, 37151), (35, 37301), (40, 37316), (51, 37385),

Gene: Glintora\_56 Start: 38232, Stop: 38879, Start Num: 7

Candidate Starts for Glintora\_56:

(Start: 7 @38232 has 47 MA's), (20, 38439), (26, 38583), (46, 38808), (48, 38817), (50, 38853),

Gene: Gravy\_53 Start: 36473, Stop: 37072, Start Num: 7

Candidate Starts for Gravy\_53:

(Start: 7 @36473 has 47 MA's), (Start: 8 @36476 has 5 MA's), (15, 36575), (20, 36680), (26, 36824), (35, 36974), (40, 36989), (51, 37058),

Gene: Gusicorn\_56 Start: 37709, Stop: 38344, Start Num: 7

Candidate Starts for Gusicorn\_56:

(Start: 7 @37709 has 47 MA's), (20, 37916), (26, 38060), (50, 38315), (51, 38327),

Gene: Hortihabitatio\_55 Start: 37498, Stop: 38130, Start Num: 7

Candidate Starts for Hortihabitatio\_55:

(Start: 7 @37498 has 47 MA's), (10, 37546), (11, 37555), (14, 37594), (16, 37612), (20, 37705), (26, 37849), (29, 37888), (32, 37945), (36, 38002), (50, 38101), (51, 38113),

Gene: Hydrus\_57 Start: 38564, Stop: 39199, Start Num: 7

Candidate Starts for Hydrus\_57:

(Start: 7 @38564 has 47 MA's), (20, 38771), (26, 38915), (50, 39170), (51, 39182),

Gene: Jodelie19\_54 Start: 39096, Stop: 39734, Start Num: 7

Candidate Starts for Jodelie19\_54:

(Start: 7 @39096 has 47 MA's), (20, 39303), (21, 39309), (26, 39447), (42, 39627), (50, 39705), (51, 39717),

Gene: JulesRay\_54 Start: 36969, Stop: 37583, Start Num: 8

Candidate Starts for JulesRay\_54:

(Start: 7 @36966 has 47 MA's), (Start: 8 @36969 has 5 MA's), (20, 37173), (26, 37317), (43, 37491), (51, 37569),

Gene: Kenosha\_54 Start: 38023, Stop: 38658, Start Num: 7

Candidate Starts for Kenosha\_54:

(Start: 7 @38023 has 47 MA's), (20, 38230), (21, 38236), (26, 38374), (50, 38629), (51, 38641),

Gene: Kerry\_53 Start: 36473, Stop: 37072, Start Num: 7

Candidate Starts for Kerry\_53:

(Start: 7 @36473 has 47 MA's), (Start: 8 @36476 has 5 MA's), (15, 36575), (20, 36680), (26, 36824), (35, 36974), (40, 36989), (51, 37058),

Gene: Luthien\_57 Start: 37788, Stop: 38426, Start Num: 7

Candidate Starts for Luthien\_57:

(Start: 7 @37788 has 47 MA's), (20, 37995), (21, 38001), (26, 38139), (42, 38319), (50, 38397), (51, 38409),

Gene: Madvan\_55 Start: 37433, Stop: 38068, Start Num: 7

Candidate Starts for Madvan\_55:

(Start: 7 @37433 has 47 MA's), (20, 37640), (26, 37784), (50, 38039), (51, 38051),

Gene: Magel\_55 Start: 36719, Stop: 37315, Start Num: 8

Candidate Starts for Magel\_55:

(Start: 7 @36716 has 47 MA's), (Start: 8 @36719 has 5 MA's), (15, 36818), (20, 36923), (26, 37067), (35, 37217), (40, 37232), (51, 37301),

Gene: MajinBuu\_54 Start: 37725, Stop: 38363, Start Num: 7

Candidate Starts for MajinBuu\_54:

(Start: 7 @37725 has 47 MA's), (20, 37932), (21, 37938), (26, 38076), (50, 38334), (51, 38346),

Gene: MediumFry\_42 Start: 32492, Stop: 33331, Start Num: 2

Candidate Starts for MediumFry\_42:

(1, 32489), (Start: 2 @32492 has 1 MA's), (3, 32525), (4, 32528), (6, 32633), (Start: 7 @32672 has 47 MA's), (12, 32741), (13, 32765), (50, 33293), (52, 33326),

Gene: Mossy\_58 Start: 39452, Stop: 40093, Start Num: 7

Candidate Starts for Mossy\_58:

(Start: 7 @39452 has 47 MA's), (10, 39500), (14, 39548), (18, 39596), (20, 39659), (26, 39803), (28, 39827), (29, 39842), (43, 39992), (45, 40007), (50, 40064), (51, 40076),

Gene: Mysticmoon\_56 Start: 38307, Stop: 38939, Start Num: 7

Candidate Starts for Mysticmoon\_56:

(Start: 7 @38307 has 47 MA's), (10, 38355), (14, 38403), (18, 38451), (20, 38514), (24, 38616), (26, 38658), (29, 38697), (32, 38754), (38, 38817), (43, 38838), (47, 38874), (50, 38910), (51, 38922),

Gene: Nadmeg\_56 Start: 38679, Stop: 39314, Start Num: 7

Candidate Starts for Nadmeg\_56:

(Start: 7 @38679 has 47 MA's), (20, 38886), (26, 39030), (50, 39285), (51, 39297),

Gene: Nithya\_55 Start: 37534, Stop: 38172, Start Num: 7

Candidate Starts for Nithya\_55:

(Start: 7 @37534 has 47 MA's), (20, 37741), (21, 37747), (26, 37885), (42, 38065), (50, 38143), (51, 38155),

Gene: NoPickles\_53 Start: 36141, Stop: 36737, Start Num: 8

Candidate Starts for NoPickles\_53:

(Start: 7 @36138 has 47 MA's), (Start: 8 @36141 has 5 MA's), (15, 36240), (20, 36345), (26, 36489), (35, 36639), (40, 36654), (51, 36723),

Gene: Odesza\_53 Start: 36528, Stop: 37145, Start Num: 7  
Candidate Starts for Odesza\_53:  
(Start: 7 @36528 has 47 MA's), (Start: 8 @36531 has 5 MA's), (15, 36630), (20, 36735), (26, 36879),  
(51, 37131),

Gene: OhMyWard\_53 Start: 38645, Stop: 39286, Start Num: 7  
Candidate Starts for OhMyWard\_53:  
(Start: 7 @38645 has 47 MA's), (10, 38693), (14, 38741), (18, 38789), (20, 38852), (26, 38996), (28,  
39020), (29, 39035), (32, 39092), (43, 39185), (45, 39200), (50, 39257), (51, 39269),

Gene: OlgasClover\_56 Start: 38677, Stop: 39315, Start Num: 7  
Candidate Starts for OlgasClover\_56:  
(Start: 7 @38677 has 47 MA's), (20, 38884), (21, 38890), (26, 39028), (42, 39208), (50, 39286), (51,  
39298),

Gene: Paella\_95 Start: 53449, Stop: 54120, Start Num: 5  
Candidate Starts for Paella\_95:  
(Start: 5 @53449 has 3 MA's), (Start: 7 @53488 has 47 MA's), (9, 53503), (23, 53740), (25, 53809),  
(27, 53836), (33, 53932), (49, 54076),

Gene: PestoPenguin\_58 Start: 37709, Stop: 38344, Start Num: 7  
Candidate Starts for PestoPenguin\_58:  
(Start: 7 @37709 has 47 MA's), (20, 37916), (26, 38060), (50, 38315), (51, 38327),

Gene: Petito\_56 Start: 38630, Stop: 39244, Start Num: 7  
Candidate Starts for Petito\_56:  
(Start: 7 @38630 has 47 MA's), (Start: 8 @38633 has 5 MA's), (20, 38837), (26, 38981), (31, 39050),  
(32, 39077), (34, 39116), (39, 39137), (43, 39152), (51, 39230),

Gene: Phepper\_56 Start: 37695, Stop: 38330, Start Num: 7  
Candidate Starts for Phepper\_56:  
(Start: 7 @37695 has 47 MA's), (20, 37902), (26, 38046), (50, 38301), (51, 38313),

Gene: Pherobrine\_56 Start: 38600, Stop: 39232, Start Num: 7  
Candidate Starts for Pherobrine\_56:  
(Start: 7 @38600 has 47 MA's), (10, 38648), (14, 38696), (18, 38744), (20, 38807), (24, 38909), (26,  
38951), (29, 38990), (32, 39047), (38, 39110), (43, 39131), (47, 39167), (50, 39203), (51, 39215),

Gene: Qui\_95 Start: 53449, Stop: 54120, Start Num: 5  
Candidate Starts for Qui\_95:  
(Start: 5 @53449 has 3 MA's), (Start: 7 @53488 has 47 MA's), (9, 53503), (23, 53740), (25, 53809),  
(27, 53836), (33, 53932), (49, 54076),

Gene: Rickmore\_51 Start: 35485, Stop: 36111, Start Num: 7  
Candidate Starts for Rickmore\_51:  
(Start: 7 @35485 has 47 MA's), (19, 35644), (20, 35692), (22, 35737), (26, 35836), (30, 35899), (41,  
36004), (44, 36013), (51, 36094),

Gene: Roney\_54 Start: 36826, Stop: 37425, Start Num: 7  
Candidate Starts for Roney\_54:  
(Start: 7 @36826 has 47 MA's), (Start: 8 @36829 has 5 MA's), (15, 36928), (20, 37033), (26, 37177),  
(35, 37327), (40, 37342), (51, 37411),

Gene: Runhaar\_55 Start: 37495, Stop: 38130, Start Num: 7  
Candidate Starts for Runhaar\_55:  
(Start: 7 @37495 has 47 MA's), (20, 37702), (26, 37846), (50, 38101), (51, 38113),

Gene: Secretariat\_54 Start: 36535, Stop: 37155, Start Num: 7  
Candidate Starts for Secretariat\_54:  
(Start: 7 @36535 has 47 MA's), (17, 36673), (20, 36742), (26, 36886), (50, 37126), (51, 37138),

Gene: ShaggyRogers\_55 Start: 37445, Stop: 38080, Start Num: 7  
Candidate Starts for ShaggyRogers\_55:  
(Start: 7 @37445 has 47 MA's), (20, 37652), (26, 37796), (50, 38051), (51, 38063),

Gene: Tairn4Wing\_56 Start: 36785, Stop: 37402, Start Num: 7  
Candidate Starts for Tairn4Wing\_56:  
(Start: 7 @36785 has 47 MA's), (Start: 8 @36788 has 5 MA's), (20, 36992), (26, 37136), (43, 37310),  
(51, 37388),

Gene: Tanis\_54 Start: 36646, Stop: 37245, Start Num: 7  
Candidate Starts for Tanis\_54:  
(Start: 7 @36646 has 47 MA's), (Start: 8 @36649 has 5 MA's), (15, 36748), (20, 36853), (26, 36997),  
(35, 37147), (40, 37162), (51, 37231),

Gene: TenaciousP\_55 Start: 39058, Stop: 39696, Start Num: 7  
Candidate Starts for TenaciousP\_55:  
(Start: 7 @39058 has 47 MA's), (20, 39265), (21, 39271), (26, 39409), (42, 39589), (50, 39667), (51,  
39679),

Gene: Tonaltzin\_58 Start: 37628, Stop: 38266, Start Num: 7  
Candidate Starts for Tonaltzin\_58:  
(Start: 7 @37628 has 47 MA's), (20, 37835), (21, 37841), (26, 37979), (42, 38159), (50, 38237), (51,  
38249),

Gene: Trufflozitus\_58 Start: 37308, Stop: 37925, Start Num: 7  
Candidate Starts for Trufflozitus\_58:  
(Start: 7 @37308 has 47 MA's), (Start: 8 @37311 has 5 MA's), (20, 37515), (26, 37659), (43, 37833),  
(51, 37911),

Gene: Untouchable\_56 Start: 38044, Stop: 38679, Start Num: 7  
Candidate Starts for Untouchable\_56:  
(Start: 7 @38044 has 47 MA's), (20, 38251), (26, 38395), (50, 38650), (51, 38662),

Gene: Vardy\_54 Start: 37385, Stop: 38020, Start Num: 7  
Candidate Starts for Vardy\_54:  
(Start: 7 @37385 has 47 MA's), (20, 37592), (26, 37736), (50, 37991), (51, 38003),

Gene: Zeph\_57 Start: 38532, Stop: 39167, Start Num: 7  
Candidate Starts for Zeph\_57:  
(Start: 7 @38532 has 47 MA's), (20, 38739), (22, 38784), (24, 38841), (26, 38883), (50, 39138), (51,  
39150),