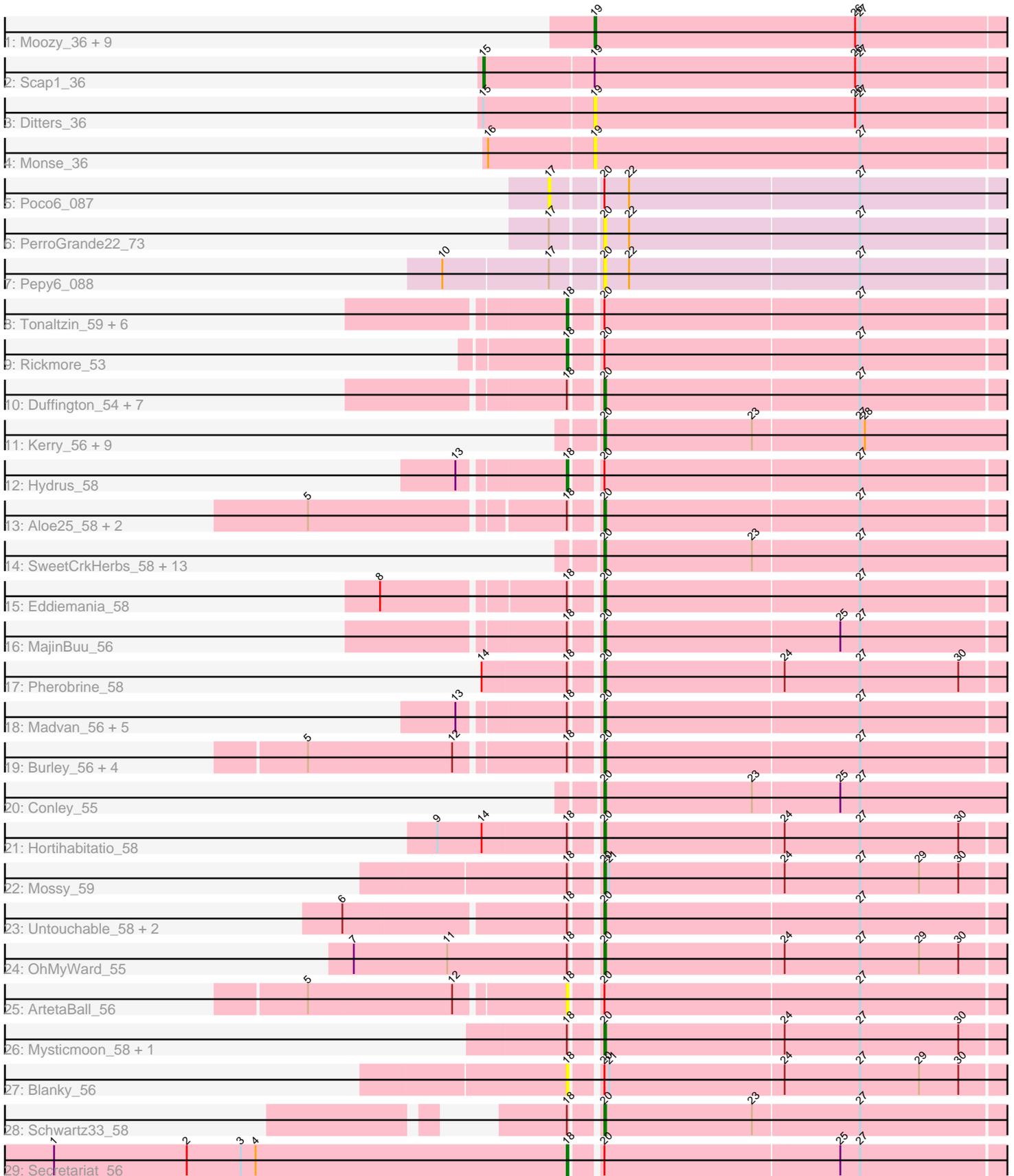


Pham 286932



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 286932 Report

This analysis was run 03/28/26 on database version 641.

Pham number 286932 has 87 members, 23 are drafts.

Phages represented in each track:

- Track 1 : Moozy\_36, Sangak\_35, Bilo\_35, PherryCruz\_36, GoblinVoyage\_37, HotFries\_36, Doxi13\_37, RavenPuff\_36, SheRa\_37, Annihilus\_37
- Track 2 : Scap1\_36
- Track 3 : Ditters\_36
- Track 4 : Monse\_36
- Track 5 : Poco6\_087
- Track 6 : PerroGrande22\_73
- Track 7 : Pepy6\_088
- Track 8 : Tonaltzin\_59, TenaciousP\_56, EndAve\_57, Citrus\_55, Luthien\_58, Figliar\_54, Glintora\_57
- Track 9 : Rickmore\_53
- Track 10 : Duffington\_54, Chikenjars\_54, AlainaMarie\_55, OlgasClover\_57, Nithya\_56, Aflac\_55, Jodelie19\_55, BluerMoon\_54
- Track 11 : Kerry\_56, Captrips\_56, Gravy\_56, Odesza\_56, Roney\_57, Tanis\_57, Capybara\_57, Gill\_57, NoPickles\_56, Magel\_58
- Track 12 : Hydrus\_58
- Track 13 : Aloe25\_58, Gusicorn\_57, PestoPenguin\_59
- Track 14 : SweetCrkHerbs\_58, Football\_59, Tairn4Wing\_59, Trufflozitus\_61, Perkunas\_58, Dancer\_57, FortCran\_57, Petito\_58, JulesRay\_57, Talon44\_58, ChickyNugget\_59, Bugg\_59, Avazak\_58, Artorias\_57
- Track 15 : Eddiemania\_58
- Track 16 : MajinBuu\_56
- Track 17 : Pherobrine\_58
- Track 18 : Madvan\_56, CWormy\_55, Phepper\_57, Dialga\_56, Kenosha\_55, Zeph\_58
- Track 19 : Burley\_56, Nadmeg\_57, Runhaar\_56, Vardy\_55, Crocheter\_56
- Track 20 : Conley\_55
- Track 21 : Hortihabitatio\_58
- Track 22 : Mossy\_59
- Track 23 : Untouchable\_58, Arataki\_55, Demure\_54
- Track 24 : OhMyWard\_55
- Track 25 : ArtetaBall\_56
- Track 26 : Mysticmoon\_58, Fazel\_57
- Track 27 : Blanky\_56
- Track 28 : Schwartz33\_58
- Track 29 : Secretariat\_56

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

The start number called the most often in the published annotations is 20, it was called in 47 of the 64 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aflac\_55, AlainaMarie\_55, Aloe25\_58, Arataki\_55, Artorias\_57, Avazak\_58, BluerMoon\_54, Bugg\_59, Burley\_56, CWormy\_55, Captrips\_56, Copybara\_57, ChickyNuggy\_59, Chikenjars\_54, Conley\_55, Crocheter\_56, Dancer\_57, Demure\_54, Dialga\_56, Duffington\_54, Eddiemania\_58, Fazel\_57, Football\_59, FortCran\_57, Gill\_57, Gravy\_56, Gusicorn\_57, Hortihabitatio\_58, Jodelie19\_55, JulesRay\_57, Kenosha\_55, Kerry\_56, Madvan\_56, Magel\_58, MajinBuu\_56, Mossy\_59, Mysticmoon\_58, Nadmeg\_57, Nithya\_56, NoPickles\_56, Odesza\_56, OhMyWard\_55, OlgasClover\_57, Pepy6\_088, Perkunas\_58, PerroGrande22\_73, PestoPenguin\_59, Petite\_58, Phepper\_57, Pherobrine\_58, Roney\_57, Runhaar\_56, Schwartz33\_58, SweetCrkHerbs\_58, Tairn4Wing\_59, Talon44\_58, Tanis\_57, Trufflozitus\_61, Untouchable\_58, Vardy\_55, Zeph\_58,

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

- ArtetaBall\_56, Blanky\_56, Citrus\_55, EndAve\_57, Figliar\_54, Glintora\_57, Hydrus\_58, Luthien\_58, Poco6\_087, Rickmore\_53, Secretariat\_56, TenaciousP\_56, Tonaltzin\_59,

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

- Annihilus\_37, Bilo\_35, Ditters\_36, Doxi13\_37, GoblinVoyage\_37, HotFries\_36, Monse\_36, Moozy\_36, PherryCruz\_36, RavenPuff\_36, Sangak\_35, Scap1\_36, SheRa\_37,

### **Summary by start number:**

Start 15:

- Found in 2 of 87 ( 2.3% ) of genes in pham
- Manual Annotations of this start: 1 of 64
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Scap1\_36 (B12),

Start 17:

- Found in 3 of 87 ( 3.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Poco6\_087 (CC),

Start 18:

- Found in 46 of 87 ( 52.9% ) of genes in pham
- Manual Annotations of this start: 7 of 64
- Called 26.1% of time when present
- Phage (with cluster) where this start called: ArtetaBall\_56 (DJ), Blanky\_56 (DJ), Citrus\_55 (DJ), EndAve\_57 (DJ), Figliar\_54 (DJ), Glintora\_57 (DJ), Hydrus\_58 (DJ), Luthien\_58 (DJ), Rickmore\_53 (DJ), Secretariat\_56 (DJ), TenaciousP\_56 (DJ), Tonaltzin\_59 (DJ),

Start 19:

- Found in 13 of 87 ( 14.9% ) of genes in pham
- Manual Annotations of this start: 9 of 64
- Called 92.3% of time when present
- Phage (with cluster) where this start called: Annihilus\_37 (BI2), Bilo\_35 (BI2), Ditters\_36 (BI2), Doxi13\_37 (BI2), GoblinVoyage\_37 (BI2), HotFries\_36 (BI2), Monse\_36 (BI2), Moozy\_36 (BI2), PherryCruz\_36 (BI2), RavenPuff\_36 (BI2), Sangak\_35 (BI2), SheRa\_37 (BI2),

Start 20:

- Found in 74 of 87 ( 85.1% ) of genes in pham
- Manual Annotations of this start: 47 of 64
- Called 82.4% of time when present
- Phage (with cluster) where this start called: Aflac\_55 (DJ), AlainaMarie\_55 (DJ), Aloe25\_58 (DJ), Arataki\_55 (DJ), Artorias\_57 (DJ), Avazak\_58 (DJ), BluerMoon\_54 (DJ), Bugg\_59 (DJ), Burley\_56 (DJ), CWormy\_55 (DJ), Captrips\_56 (DJ), Capybara\_57 (DJ), ChickyNuggy\_59 (DJ), Chikenjars\_54 (DJ), Conley\_55 (DJ), Crocheter\_56 (DJ), Dancer\_57 (DJ), Demure\_54 (DJ), Dialga\_56 (DJ), Duffington\_54 (DJ), Eddiemania\_58 (DJ), Fazel\_57 (DJ), Football\_59 (DJ), FortCran\_57 (DJ), Gill\_57 (DJ), Gravy\_56 (DJ), Gusicorn\_57 (DJ), Hortihabitatio\_58 (DJ), Jodelie19\_55 (DJ), JulesRay\_57 (DJ), Kenosha\_55 (DJ), Kerry\_56 (DJ), Madvan\_56 (DJ), Magel\_58 (DJ), MajinBuu\_56 (DJ), Mossy\_59 (DJ), Mysticmoon\_58 (DJ), Nadmeg\_57 (DJ), Nithya\_56 (DJ), NoPickles\_56 (DJ), Odesza\_56 (DJ), OhMyWard\_55 (DJ), OlgasClover\_57 (DJ), Pepy6\_088 (CC), Perkunus\_58 (DJ), PerroGrande22\_73 (CC), PestoPenguin\_59 (DJ), Petite\_58 (DJ), Phepper\_57 (DJ), Pherobrine\_58 (DJ), Roney\_57 (DJ), Runhaar\_56 (DJ), Schwartz33\_58 (DJ), SweetCrkHerbs\_58 (DJ), Tairn4Wing\_59 (DJ), Talon44\_58 (DJ), Tanis\_57 (DJ), Trufflozitus\_61 (DJ), Untouchable\_58 (DJ), Vardy\_55 (DJ), Zeph\_58 (DJ),

**Summary by clusters:**

There are 3 clusters represented in this pham: CC, BI2, DJ,

Info for manual annotations of cluster BI2:

- Start number 15 was manually annotated 1 time for cluster BI2.
- Start number 19 was manually annotated 9 times for cluster BI2.

Info for manual annotations of cluster DJ:

- Start number 18 was manually annotated 7 times for cluster DJ.
- Start number 20 was manually annotated 47 times for cluster DJ.

**Gene Information:**

Gene: Aflac\_55 Start: 38455, Stop: 38703, Start Num: 20

Candidate Starts for Aflac\_55:

(Start: 18 @38440 has 7 MA's), (Start: 20 @38455 has 47 MA's), (27, 38608),

Gene: AlainaMarie\_55 Start: 38440, Stop: 38688, Start Num: 20

Candidate Starts for AlainaMarie\_55:

(Start: 18 @38425 has 7 MA's), (Start: 20 @38440 has 47 MA's), (27, 38593),

Gene: Aloe25\_58 Start: 38538, Stop: 38786, Start Num: 20

Candidate Starts for Aloe25\_58:

(5, 38376), (Start: 18 @38523 has 7 MA's), (Start: 20 @38538 has 47 MA's), (27, 38691),

Gene: Annihilus\_37 Start: 27049, Stop: 27300, Start Num: 19

Candidate Starts for Annihilus\_37:

(Start: 19 @27049 has 9 MA's), (26, 27208), (27, 27211),

Gene: Arataki\_55 Start: 38135, Stop: 38383, Start Num: 20

Candidate Starts for Arataki\_55:

(6, 37991), (Start: 18 @38120 has 7 MA's), (Start: 20 @38135 has 47 MA's), (27, 38288),

Gene: ArtetaBall\_56 Start: 38748, Stop: 39011, Start Num: 18

Candidate Starts for ArtetaBall\_56:

(5, 38598), (12, 38685), (Start: 18 @38748 has 7 MA's), (Start: 20 @38763 has 47 MA's), (27, 38916),

Gene: Artorias\_57 Start: 38633, Stop: 38884, Start Num: 20

Candidate Starts for Artorias\_57:

(Start: 20 @38633 has 47 MA's), (23, 38723), (27, 38786),

Gene: Avazak\_58 Start: 38960, Stop: 39211, Start Num: 20

Candidate Starts for Avazak\_58:

(Start: 20 @38960 has 47 MA's), (23, 39050), (27, 39113),

Gene: Bilo\_35 Start: 27161, Stop: 27412, Start Num: 19

Candidate Starts for Bilo\_35:

(Start: 19 @27161 has 9 MA's), (26, 27320), (27, 27323),

Gene: Blanky\_56 Start: 40046, Stop: 40309, Start Num: 18

Candidate Starts for Blanky\_56:

(Start: 18 @40046 has 7 MA's), (Start: 20 @40061 has 47 MA's), (21, 40064), (24, 40169), (27, 40214), (29, 40250), (30, 40274),

Gene: BluerMoon\_54 Start: 38484, Stop: 38732, Start Num: 20

Candidate Starts for BluerMoon\_54:

(Start: 18 @38469 has 7 MA's), (Start: 20 @38484 has 47 MA's), (27, 38637),

Gene: Bugg\_59 Start: 38678, Stop: 38929, Start Num: 20

Candidate Starts for Bugg\_59:

(Start: 20 @38678 has 47 MA's), (23, 38768), (27, 38831),

Gene: Burley\_56 Start: 38225, Stop: 38473, Start Num: 20

Candidate Starts for Burley\_56:

(5, 38060), (12, 38147), (Start: 18 @38210 has 7 MA's), (Start: 20 @38225 has 47 MA's), (27, 38378),

Gene: CWormy\_55 Start: 38177, Stop: 38425, Start Num: 20

Candidate Starts for CWormy\_55:

(13, 38102), (Start: 18 @38162 has 7 MA's), (Start: 20 @38177 has 47 MA's), (27, 38330),

Gene: Captrips\_56 Start: 38108, Stop: 38359, Start Num: 20

Candidate Starts for Captrips\_56:

(Start: 20 @38108 has 47 MA's), (23, 38198), (27, 38261), (28, 38264),

Gene: Capybara\_57 Start: 38439, Stop: 38690, Start Num: 20

Candidate Starts for Capybara\_57:

(Start: 20 @38439 has 47 MA's), (23, 38529), (27, 38592), (28, 38595),

Gene: ChickyNuggy\_59 Start: 38704, Stop: 38955, Start Num: 20

Candidate Starts for ChickyNuggy\_59:

(Start: 20 @38704 has 47 MA's), (23, 38794), (27, 38857),

Gene: Chikenjars\_54 Start: 38453, Stop: 38701, Start Num: 20

Candidate Starts for Chikenjars\_54:

(Start: 18 @38438 has 7 MA's), (Start: 20 @38453 has 47 MA's), (27, 38606),

Gene: Citrus\_55 Start: 38715, Stop: 38978, Start Num: 18

Candidate Starts for Citrus\_55:

(Start: 18 @38715 has 7 MA's), (Start: 20 @38730 has 47 MA's), (27, 38883),

Gene: Conley\_55 Start: 39080, Stop: 39331, Start Num: 20

Candidate Starts for Conley\_55:

(Start: 20 @39080 has 47 MA's), (23, 39170), (25, 39221), (27, 39233),

Gene: Crocheter\_56 Start: 38621, Stop: 38869, Start Num: 20

Candidate Starts for Crocheter\_56:

(5, 38456), (12, 38543), (Start: 18 @38606 has 7 MA's), (Start: 20 @38621 has 47 MA's), (27, 38774),

Gene: Dancer\_57 Start: 38368, Stop: 38619, Start Num: 20

Candidate Starts for Dancer\_57:

(Start: 20 @38368 has 47 MA's), (23, 38458), (27, 38521),

Gene: Demure\_54 Start: 38135, Stop: 38383, Start Num: 20

Candidate Starts for Demure\_54:

(6, 37991), (Start: 18 @38120 has 7 MA's), (Start: 20 @38135 has 47 MA's), (27, 38288),

Gene: Dialga\_56 Start: 38791, Stop: 39039, Start Num: 20

Candidate Starts for Dialga\_56:

(13, 38716), (Start: 18 @38776 has 7 MA's), (Start: 20 @38791 has 47 MA's), (27, 38944),

Gene: Ditters\_36 Start: 27480, Stop: 27731, Start Num: 19

Candidate Starts for Ditters\_36:

(Start: 15 @27414 has 1 MA's), (Start: 19 @27480 has 9 MA's), (26, 27639), (27, 27642),

Gene: Doxi13\_37 Start: 27023, Stop: 27274, Start Num: 19

Candidate Starts for Doxi13\_37:

(Start: 19 @27023 has 9 MA's), (26, 27182), (27, 27185),

Gene: Duffington\_54 Start: 38148, Stop: 38396, Start Num: 20

Candidate Starts for Duffington\_54:

(Start: 18 @38133 has 7 MA's), (Start: 20 @38148 has 47 MA's), (27, 38301),

Gene: Eddiemania\_58 Start: 39366, Stop: 39614, Start Num: 20

Candidate Starts for Eddiemania\_58:

(8, 39246), (Start: 18 @39351 has 7 MA's), (Start: 20 @39366 has 47 MA's), (27, 39519),

Gene: EndAve\_57 Start: 38606, Stop: 38869, Start Num: 18  
Candidate Starts for EndAve\_57:  
(Start: 18 @38606 has 7 MA's), (Start: 20 @38621 has 47 MA's), (27, 38774),

Gene: Fazel\_57 Start: 38400, Stop: 38648, Start Num: 20  
Candidate Starts for Fazel\_57:  
(Start: 18 @38385 has 7 MA's), (Start: 20 @38400 has 47 MA's), (24, 38508), (27, 38553), (30, 38613),

Gene: Figliar\_54 Start: 38508, Stop: 38771, Start Num: 18  
Candidate Starts for Figliar\_54:  
(Start: 18 @38508 has 7 MA's), (Start: 20 @38523 has 47 MA's), (27, 38676),

Gene: Football\_59 Start: 38259, Stop: 38510, Start Num: 20  
Candidate Starts for Football\_59:  
(Start: 20 @38259 has 47 MA's), (23, 38349), (27, 38412),

Gene: FortCran\_57 Start: 38633, Stop: 38884, Start Num: 20  
Candidate Starts for FortCran\_57:  
(Start: 20 @38633 has 47 MA's), (23, 38723), (27, 38786),

Gene: Gill\_57 Start: 38456, Stop: 38707, Start Num: 20  
Candidate Starts for Gill\_57:  
(Start: 20 @38456 has 47 MA's), (23, 38546), (27, 38609), (28, 38612),

Gene: Glintora\_57 Start: 39056, Stop: 39319, Start Num: 18  
Candidate Starts for Glintora\_57:  
(Start: 18 @39056 has 7 MA's), (Start: 20 @39071 has 47 MA's), (27, 39224),

Gene: GoblinVoyage\_37 Start: 27023, Stop: 27274, Start Num: 19  
Candidate Starts for GoblinVoyage\_37:  
(Start: 19 @27023 has 9 MA's), (26, 27182), (27, 27185),

Gene: Gravy\_56 Start: 38129, Stop: 38380, Start Num: 20  
Candidate Starts for Gravy\_56:  
(Start: 20 @38129 has 47 MA's), (23, 38219), (27, 38282), (28, 38285),

Gene: Gusicorn\_57 Start: 38538, Stop: 38786, Start Num: 20  
Candidate Starts for Gusicorn\_57:  
(5, 38376), (Start: 18 @38523 has 7 MA's), (Start: 20 @38538 has 47 MA's), (27, 38691),

Gene: Hortihabitatio\_58 Start: 39228, Stop: 39476, Start Num: 20  
Candidate Starts for Hortihabitatio\_58:  
(9, 39135), (14, 39162), (Start: 18 @39213 has 7 MA's), (Start: 20 @39228 has 47 MA's), (24, 39336),  
(27, 39381), (30, 39441),

Gene: HotFries\_36 Start: 27067, Stop: 27318, Start Num: 19  
Candidate Starts for HotFries\_36:  
(Start: 19 @27067 has 9 MA's), (26, 27226), (27, 27229),

Gene: Hydrus\_58 Start: 39377, Stop: 39640, Start Num: 18  
Candidate Starts for Hydrus\_58:  
(13, 39317), (Start: 18 @39377 has 7 MA's), (Start: 20 @39392 has 47 MA's), (27, 39545),

Gene: Jodelie19\_55 Start: 39927, Stop: 40175, Start Num: 20  
Candidate Starts for Jodelie19\_55:  
(Start: 18 @39912 has 7 MA's), (Start: 20 @39927 has 47 MA's), (27, 40080),

Gene: JulesRay\_57 Start: 38629, Stop: 38880, Start Num: 20  
Candidate Starts for JulesRay\_57:  
(Start: 20 @38629 has 47 MA's), (23, 38719), (27, 38782),

Gene: Kenosha\_55 Start: 38852, Stop: 39100, Start Num: 20  
Candidate Starts for Kenosha\_55:  
(13, 38777), (Start: 18 @38837 has 7 MA's), (Start: 20 @38852 has 47 MA's), (27, 39005),

Gene: Kerry\_56 Start: 38129, Stop: 38380, Start Num: 20  
Candidate Starts for Kerry\_56:  
(Start: 20 @38129 has 47 MA's), (23, 38219), (27, 38282), (28, 38285),

Gene: Luthien\_58 Start: 38603, Stop: 38866, Start Num: 18  
Candidate Starts for Luthien\_58:  
(Start: 18 @38603 has 7 MA's), (Start: 20 @38618 has 47 MA's), (27, 38771),

Gene: Madvan\_56 Start: 38261, Stop: 38509, Start Num: 20  
Candidate Starts for Madvan\_56:  
(13, 38186), (Start: 18 @38246 has 7 MA's), (Start: 20 @38261 has 47 MA's), (27, 38414),

Gene: Magel\_58 Start: 38372, Stop: 38623, Start Num: 20  
Candidate Starts for Magel\_58:  
(Start: 20 @38372 has 47 MA's), (23, 38462), (27, 38525), (28, 38528),

Gene: MajinBuu\_56 Start: 38905, Stop: 39153, Start Num: 20  
Candidate Starts for MajinBuu\_56:  
(Start: 18 @38890 has 7 MA's), (Start: 20 @38905 has 47 MA's), (25, 39046), (27, 39058),

Gene: Monse\_36 Start: 26928, Stop: 27179, Start Num: 19  
Candidate Starts for Monse\_36:  
(16, 26865), (Start: 19 @26928 has 9 MA's), (27, 27090),

Gene: Moozy\_36 Start: 27024, Stop: 27275, Start Num: 19  
Candidate Starts for Moozy\_36:  
(Start: 19 @27024 has 9 MA's), (26, 27183), (27, 27186),

Gene: Mossy\_59 Start: 40273, Stop: 40521, Start Num: 20  
Candidate Starts for Mossy\_59:  
(Start: 18 @40258 has 7 MA's), (Start: 20 @40273 has 47 MA's), (21, 40276), (24, 40381), (27, 40426),  
(29, 40462), (30, 40486),

Gene: Mysticmoon\_58 Start: 39697, Stop: 39945, Start Num: 20  
Candidate Starts for Mysticmoon\_58:  
(Start: 18 @39682 has 7 MA's), (Start: 20 @39697 has 47 MA's), (24, 39805), (27, 39850), (30, 39910),

Gene: Nadmeg\_57 Start: 39508, Stop: 39756, Start Num: 20  
Candidate Starts for Nadmeg\_57:  
(5, 39343), (12, 39430), (Start: 18 @39493 has 7 MA's), (Start: 20 @39508 has 47 MA's), (27, 39661),

Gene: Nithya\_56 Start: 38364, Stop: 38612, Start Num: 20  
Candidate Starts for Nithya\_56:  
(Start: 18 @38349 has 7 MA's), (Start: 20 @38364 has 47 MA's), (27, 38517),

Gene: NoPickles\_56 Start: 37794, Stop: 38045, Start Num: 20  
Candidate Starts for NoPickles\_56:  
(Start: 20 @37794 has 47 MA's), (23, 37884), (27, 37947), (28, 37950),

Gene: Odesza\_56 Start: 38316, Stop: 38567, Start Num: 20  
Candidate Starts for Odesza\_56:  
(Start: 20 @38316 has 47 MA's), (23, 38406), (27, 38469), (28, 38472),

Gene: OhMyWard\_55 Start: 40027, Stop: 40275, Start Num: 20  
Candidate Starts for OhMyWard\_55:  
(7, 39883), (11, 39940), (Start: 18 @40012 has 7 MA's), (Start: 20 @40027 has 47 MA's), (24, 40135),  
(27, 40180), (29, 40216), (30, 40240),

Gene: OlgasClover\_57 Start: 39508, Stop: 39756, Start Num: 20  
Candidate Starts for OlgasClover\_57:  
(Start: 18 @39493 has 7 MA's), (Start: 20 @39508 has 47 MA's), (27, 39661),

Gene: Pepy6\_088 Start: 48806, Stop: 49051, Start Num: 20  
Candidate Starts for Pepy6\_088:  
(10, 48716), (17, 48779), (Start: 20 @48806 has 47 MA's), (22, 48821), (27, 48959),

Gene: Perkunas\_58 Start: 38597, Stop: 38848, Start Num: 20  
Candidate Starts for Perkunas\_58:  
(Start: 20 @38597 has 47 MA's), (23, 38687), (27, 38750),

Gene: PerroGrande22\_73 Start: 50526, Stop: 50771, Start Num: 20  
Candidate Starts for PerroGrande22\_73:  
(17, 50499), (Start: 20 @50526 has 47 MA's), (22, 50541), (27, 50679),

Gene: PestoPenguin\_59 Start: 38538, Stop: 38786, Start Num: 20  
Candidate Starts for PestoPenguin\_59:  
(5, 38376), (Start: 18 @38523 has 7 MA's), (Start: 20 @38538 has 47 MA's), (27, 38691),

Gene: Petite\_58 Start: 39754, Stop: 40005, Start Num: 20  
Candidate Starts for Petite\_58:  
(Start: 20 @39754 has 47 MA's), (23, 39844), (27, 39907),

Gene: Phepper\_57 Start: 38523, Stop: 38771, Start Num: 20  
Candidate Starts for Phepper\_57:  
(13, 38448), (Start: 18 @38508 has 7 MA's), (Start: 20 @38523 has 47 MA's), (27, 38676),

Gene: Pherobrine\_58 Start: 40107, Stop: 40355, Start Num: 20  
Candidate Starts for Pherobrine\_58:  
(14, 40041), (Start: 18 @40092 has 7 MA's), (Start: 20 @40107 has 47 MA's), (24, 40215), (27, 40260),  
(30, 40320),

Gene: PherryCruz\_36 Start: 27019, Stop: 27270, Start Num: 19  
Candidate Starts for PherryCruz\_36:

(Start: 19 @27019 has 9 MA's), (26, 27178), (27, 27181),

Gene: Poco6\_087 Start: 50294, Stop: 50566, Start Num: 17

Candidate Starts for Poco6\_087:

(17, 50294), (Start: 20 @50321 has 47 MA's), (22, 50336), (27, 50474),

Gene: RavenPuff\_36 Start: 27019, Stop: 27270, Start Num: 19

Candidate Starts for RavenPuff\_36:

(Start: 19 @27019 has 9 MA's), (26, 27178), (27, 27181),

Gene: Rickmore\_53 Start: 36852, Stop: 37115, Start Num: 18

Candidate Starts for Rickmore\_53:

(Start: 18 @36852 has 7 MA's), (Start: 20 @36867 has 47 MA's), (27, 37020),

Gene: Roney\_57 Start: 38482, Stop: 38733, Start Num: 20

Candidate Starts for Roney\_57:

(Start: 20 @38482 has 47 MA's), (23, 38572), (27, 38635), (28, 38638),

Gene: Runhaar\_56 Start: 38324, Stop: 38572, Start Num: 20

Candidate Starts for Runhaar\_56:

(5, 38159), (12, 38246), (Start: 18 @38309 has 7 MA's), (Start: 20 @38324 has 47 MA's), (27, 38477),

Gene: Sangak\_35 Start: 26577, Stop: 26828, Start Num: 19

Candidate Starts for Sangak\_35:

(Start: 19 @26577 has 9 MA's), (26, 26736), (27, 26739),

Gene: Scap1\_36 Start: 26822, Stop: 27139, Start Num: 15

Candidate Starts for Scap1\_36:

(Start: 15 @26822 has 1 MA's), (Start: 19 @26888 has 9 MA's), (26, 27047), (27, 27050),

Gene: Schwartz33\_58 Start: 38741, Stop: 38989, Start Num: 20

Candidate Starts for Schwartz33\_58:

(Start: 18 @38726 has 7 MA's), (Start: 20 @38741 has 47 MA's), (23, 38831), (27, 38894),

Gene: Secretariat\_56 Start: 37693, Stop: 37956, Start Num: 18

Candidate Starts for Secretariat\_56:

(1, 37381), (2, 37462), (3, 37495), (4, 37504), (Start: 18 @37693 has 7 MA's), (Start: 20 @37708 has 47 MA's), (25, 37849), (27, 37861),

Gene: SheRa\_37 Start: 27065, Stop: 27316, Start Num: 19

Candidate Starts for SheRa\_37:

(Start: 19 @27065 has 9 MA's), (26, 27224), (27, 27227),

Gene: SweetCrkHerbs\_58 Start: 38289, Stop: 38540, Start Num: 20

Candidate Starts for SweetCrkHerbs\_58:

(Start: 20 @38289 has 47 MA's), (23, 38379), (27, 38442),

Gene: Tairn4Wing\_59 Start: 38473, Stop: 38724, Start Num: 20

Candidate Starts for Tairn4Wing\_59:

(Start: 20 @38473 has 47 MA's), (23, 38563), (27, 38626),

Gene: Talon44\_58 Start: 38631, Stop: 38882, Start Num: 20

Candidate Starts for Talon44\_58:

(Start: 20 @38631 has 47 MA's), (23, 38721), (27, 38784),

Gene: Tanis\_57 Start: 38302, Stop: 38553, Start Num: 20

Candidate Starts for Tanis\_57:

(Start: 20 @38302 has 47 MA's), (23, 38392), (27, 38455), (28, 38458),

Gene: TenaciousP\_56 Start: 39874, Stop: 40137, Start Num: 18

Candidate Starts for TenaciousP\_56:

(Start: 18 @39874 has 7 MA's), (Start: 20 @39889 has 47 MA's), (27, 40042),

Gene: Tonaltzin\_59 Start: 38444, Stop: 38707, Start Num: 18

Candidate Starts for Tonaltzin\_59:

(Start: 18 @38444 has 7 MA's), (Start: 20 @38459 has 47 MA's), (27, 38612),

Gene: Trufflozitus\_61 Start: 38984, Stop: 39235, Start Num: 20

Candidate Starts for Trufflozitus\_61:

(Start: 20 @38984 has 47 MA's), (23, 39074), (27, 39137),

Gene: Untouchable\_58 Start: 39434, Stop: 39682, Start Num: 20

Candidate Starts for Untouchable\_58:

(6, 39290), (Start: 18 @39419 has 7 MA's), (Start: 20 @39434 has 47 MA's), (27, 39587),

Gene: Vardy\_55 Start: 38214, Stop: 38462, Start Num: 20

Candidate Starts for Vardy\_55:

(5, 38049), (12, 38136), (Start: 18 @38199 has 7 MA's), (Start: 20 @38214 has 47 MA's), (27, 38367),

Gene: Zeph\_58 Start: 39362, Stop: 39610, Start Num: 20

Candidate Starts for Zeph\_58:

(13, 39287), (Start: 18 @39347 has 7 MA's), (Start: 20 @39362 has 47 MA's), (27, 39515),