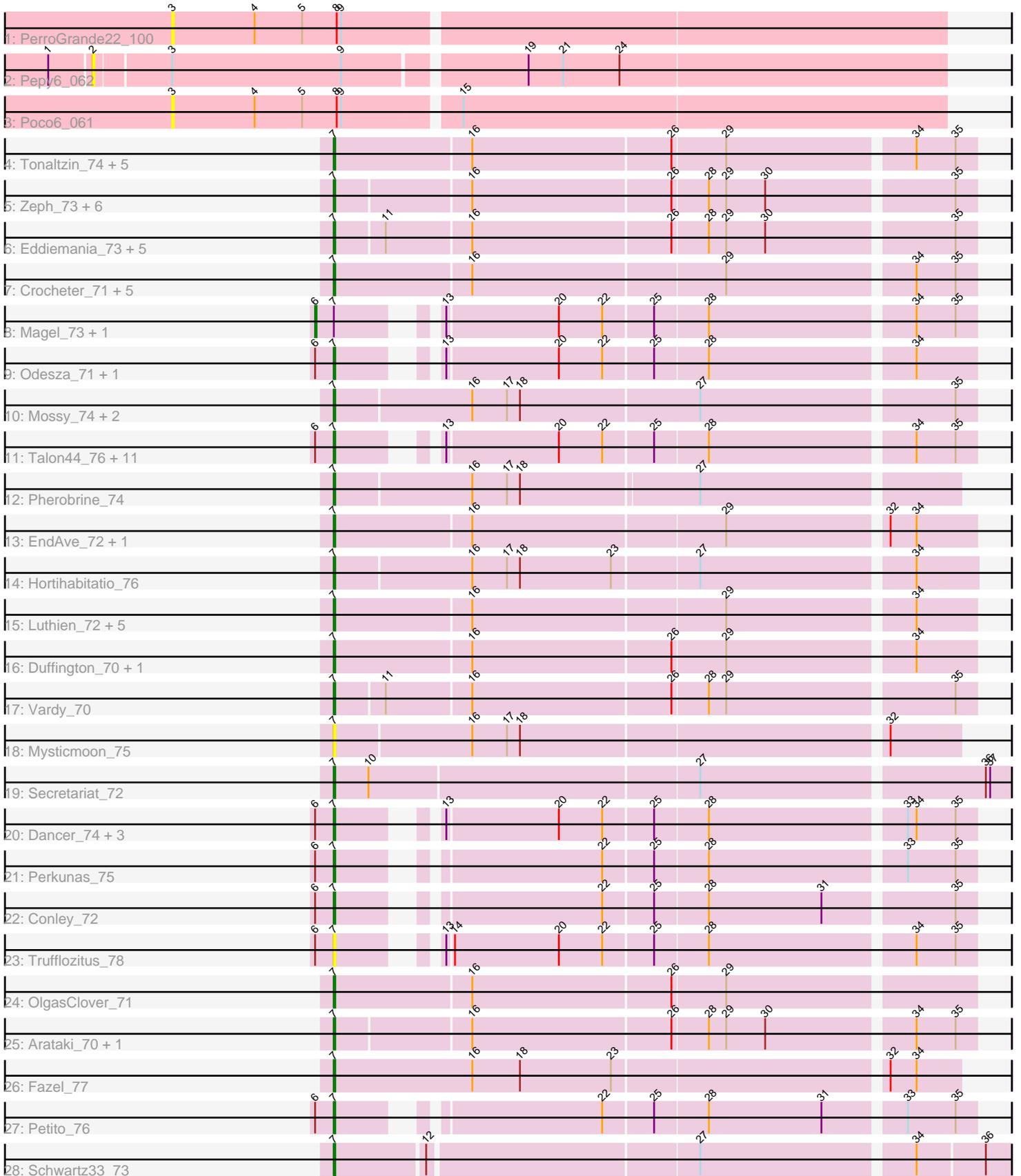


# Pham 282183



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 282183 Report

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

Pham number 282183 has 75 members, 19 are drafts.

Phages represented in each track:

- Track 1 : PerroGrande22\_100
- Track 2 : Pepy6\_062
- Track 3 : Poco6\_061
- Track 4 : Tonaltzin\_74, TenaciousP\_71, Aflac\_70, Jodelie19\_69, Figliar\_69, MajinBuu\_71
- Track 5 : Zeph\_73, ArtetaBall\_70, Phepper\_72, Untouchable\_73, CWormy\_70, Hydrus\_73, Dialga\_72
- Track 6 : Eddiemania\_73, Kenosha\_70, Madvan\_71, Runhaar\_71, Burley\_71, Nadmeg\_72
- Track 7 : Crocheter\_71, PestoPenguin\_76, Aloe25\_74, BetterYeti\_71, ShaggyRogers\_71, Gusicorn\_72
- Track 8 : Magel\_73, Gill\_72
- Track 9 : Odesza\_71, Roney\_72
- Track 10 : Mossy\_74, Blanky\_71, OhMyWard\_70
- Track 11 : Talon44\_76, ChickyNugget\_77, Kerry\_71, Tanis\_72, Captrips\_73, Capybara\_72, Avazak\_75, Gravy\_71, Tairn4Wing\_76, NoPickles\_73, Football\_76, JulesRay\_74
- Track 12 : Pherobrine\_74
- Track 13 : EndAve\_72, AlainaMarie\_70
- Track 14 : Hortihabitatio\_76
- Track 15 : Luthien\_72, Glintora\_72, Chickenjars\_69, Citrus\_70, Rickmore\_68, Nithya\_71
- Track 16 : Duffington\_70, BluerMoon\_69
- Track 17 : Vardy\_70
- Track 18 : Mysticmoon\_75
- Track 19 : Secretariat\_72
- Track 20 : Dancer\_74, Bugg\_77, Artorias\_74, FortCran\_74
- Track 21 : Perkunas\_75
- Track 22 : Conley\_72
- Track 23 : Trufflozitus\_78
- Track 24 : OlgasClover\_71
- Track 25 : Arataki\_70, Demure\_69
- Track 26 : Fazel\_77
- Track 27 : Petite\_76
- Track 28 : Schwartz33\_73

### **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 54 of the 56 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aflac\_70, AlainaMarie\_70, Aloe25\_74, Arataki\_70, ArtetaBall\_70, Artorias\_74, Avazak\_75, BetterYeti\_71, Blanky\_71, BluerMoon\_69, Bugg\_77, Burley\_71, CWormy\_70, Captrips\_73, Copybara\_72, ChickyNuggy\_77, Chikenjars\_69, Citrus\_70, Conley\_72, Crocheter\_71, Dancer\_74, Demure\_69, Dialga\_72, Duffington\_70, Eddiemania\_73, EndAve\_72, Fazel\_77, Figliar\_69, Football\_76, FortCran\_74, Glintora\_72, Gravy\_71, Gusicorn\_72, Hortihabitatio\_76, Hydrus\_73, Jodelie19\_69, JulesRay\_74, Kenosha\_70, Kerry\_71, Luthien\_72, Madvan\_71, MajinBuu\_71, Mossy\_74, Mysticmoon\_75, Nadmeg\_72, Nithya\_71, NoPickles\_73, Odesza\_71, OhMyWard\_70, OlgasClover\_71, Perkunas\_75, PestoPenguin\_76, Petite\_76, Phepper\_72, Pherobrine\_74, Rickmore\_68, Roney\_72, Runhaar\_71, Schwartz33\_73, Secretariat\_72, ShaggyRogers\_71, Tairn4Wing\_76, Talon44\_76, Tanis\_72, TenaciousP\_71, Tonaltzin\_74, Trufflozitus\_78, Untouchable\_73, Vardy\_70, Zeph\_73,

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

- Gill\_72, Magel\_73,

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

- Pepy6\_062, PerroGrande22\_100, Poco6\_061,

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

Start 2:

- Found in 1 of 75 ( 1.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Pepy6\_062 (CC),

Start 3:

- Found in 3 of 75 ( 4.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 66.7% of time when present
- Phage (with cluster) where this start called: PerroGrande22\_100 (CC), Poco6\_061 (CC),

Start 6:

- Found in 24 of 75 ( 32.0% ) of genes in pham
- Manual Annotations of this start: 2 of 56
- Called 8.3% of time when present
- Phage (with cluster) where this start called: Gill\_72 (DJ), Magel\_73 (DJ),

Start 7:

- Found in 72 of 75 ( 96.0% ) of genes in pham
- Manual Annotations of this start: 54 of 56
- Called 97.2% of time when present

- Phage (with cluster) where this start called: Aflac\_70 (DJ), AlainaMarie\_70 (DJ), Aloe25\_74 (DJ), Arataki\_70 (DJ), ArtetaBall\_70 (DJ), Artorias\_74 (DJ), Avazak\_75 (DJ), BetterYeti\_71 (DJ), Blanky\_71 (DJ), BluerMoon\_69 (DJ), Bugg\_77 (DJ), Burley\_71 (DJ), CWormy\_70 (DJ), Captrips\_73 (DJ), Capybara\_72 (DJ), ChickyNuggy\_77 (DJ), Chikenjars\_69 (DJ), Citrus\_70 (DJ), Conley\_72 (DJ), Crocheter\_71 (DJ), Dancer\_74 (DJ), Demure\_69 (DJ), Dialga\_72 (DJ), Duffington\_70 (DJ), Eddiemania\_73 (DJ), EndAve\_72 (DJ), Fazel\_77 (DJ), Figliar\_69 (DJ), Football\_76 (DJ), FortCran\_74 (DJ), Glintora\_72 (DJ), Gravy\_71 (DJ), Gusicorn\_72 (DJ), Hortihabitatio\_76 (DJ), Hydrus\_73 (DJ), Jodelie19\_69 (DJ), JulesRay\_74 (DJ), Kenosha\_70 (DJ), Kerry\_71 (DJ), Luthien\_72 (DJ), Madvan\_71 (DJ), MajinBuu\_71 (DJ), Mossy\_74 (DJ), Mysticmoon\_75 (DJ), Nadmeg\_72 (DJ), Nithya\_71 (DJ), NoPickles\_73 (DJ), Odesza\_71 (DJ), OhMyWard\_70 (DJ), OlgasClover\_71 (DJ), Perunas\_75 (DJ), PestoPenguin\_76 (DJ), Petite\_76 (DJ), Phepper\_72 (DJ), Pherobrine\_74 (DJ), Rickmore\_68 (DJ), Roney\_72 (DJ), Runhaar\_71 (DJ), Schwartz33\_73 (DJ), Secretariat\_72 (DJ), ShaggyRogers\_71 (DJ), Tairn4Wing\_76 (DJ), Talon44\_76 (DJ), Tanis\_72 (DJ), TenaciousP\_71 (DJ), Tonaltzin\_74 (DJ), Trufflozitus\_78 (DJ), Untouchable\_73 (DJ), Vardy\_70 (DJ), Zeph\_73 (DJ),

### Summary by clusters:

There are 2 clusters represented in this pham: CC, DJ,

Info for manual annotations of cluster DJ:

- Start number 6 was manually annotated 2 times for cluster DJ.
- Start number 7 was manually annotated 54 times for cluster DJ.

### Gene Information:

Gene: Aflac\_70 Start: 49866, Stop: 50294, Start Num: 7

Candidate Starts for Aflac\_70:

(Start: 7 @49866 has 54 MA's), (16, 49959), (26, 50094), (29, 50130), (34, 50253), (35, 50280),

Gene: AlainaMarie\_70 Start: 49907, Stop: 50335, Start Num: 7

Candidate Starts for AlainaMarie\_70:

(Start: 7 @49907 has 54 MA's), (16, 50000), (29, 50171), (32, 50276), (34, 50294),

Gene: Aloe25\_74 Start: 49709, Stop: 50137, Start Num: 7

Candidate Starts for Aloe25\_74:

(Start: 7 @49709 has 54 MA's), (16, 49802), (29, 49973), (34, 50096), (35, 50123),

Gene: Arataki\_70 Start: 49339, Stop: 49764, Start Num: 7

Candidate Starts for Arataki\_70:

(Start: 7 @49339 has 54 MA's), (16, 49429), (26, 49564), (28, 49588), (29, 49600), (30, 49627), (34, 49723), (35, 49750),

Gene: ArtetaBall\_70 Start: 49902, Stop: 50327, Start Num: 7

Candidate Starts for ArtetaBall\_70:

(Start: 7 @49902 has 54 MA's), (16, 49992), (26, 50127), (28, 50151), (29, 50163), (30, 50190), (35, 50313),

Gene: Artorias\_74 Start: 49927, Stop: 50325, Start Num: 7

Candidate Starts for Artorias\_74:

(Start: 6 @49915 has 2 MA's), (Start: 7 @49927 has 54 MA's), (13, 49975), (20, 50050), (22, 50080), (25, 50113), (28, 50149), (33, 50278), (34, 50284), (35, 50311),

Gene: Avazak\_75 Start: 50609, Stop: 51007, Start Num: 7

Candidate Starts for Avazak\_75:

(Start: 6 @50597 has 2 MA's), (Start: 7 @50609 has 54 MA's), (13, 50657), (20, 50732), (22, 50762), (25, 50795), (28, 50831), (34, 50966), (35, 50993),

Gene: BetterYeti\_71 Start: 49708, Stop: 50136, Start Num: 7

Candidate Starts for BetterYeti\_71:

(Start: 7 @49708 has 54 MA's), (16, 49801), (29, 49972), (34, 50095), (35, 50122),

Gene: Blanky\_71 Start: 51188, Stop: 51616, Start Num: 7

Candidate Starts for Blanky\_71:

(Start: 7 @51188 has 54 MA's), (16, 51281), (17, 51305), (18, 51314), (27, 51434), (35, 51602),

Gene: BluerMoon\_69 Start: 49818, Stop: 50246, Start Num: 7

Candidate Starts for BluerMoon\_69:

(Start: 7 @49818 has 54 MA's), (16, 49911), (26, 50046), (29, 50082), (34, 50205),

Gene: Bugg\_77 Start: 49972, Stop: 50370, Start Num: 7

Candidate Starts for Bugg\_77:

(Start: 6 @49960 has 2 MA's), (Start: 7 @49972 has 54 MA's), (13, 50020), (20, 50095), (22, 50125), (25, 50158), (28, 50194), (33, 50323), (34, 50329), (35, 50356),

Gene: Burley\_71 Start: 49358, Stop: 49783, Start Num: 7

Candidate Starts for Burley\_71:

(Start: 7 @49358 has 54 MA's), (11, 49391), (16, 49448), (26, 49583), (28, 49607), (29, 49619), (30, 49646), (35, 49769),

Gene: CWormy\_70 Start: 49316, Stop: 49741, Start Num: 7

Candidate Starts for CWormy\_70:

(Start: 7 @49316 has 54 MA's), (16, 49406), (26, 49541), (28, 49565), (29, 49577), (30, 49604), (35, 49727),

Gene: Captrips\_73 Start: 49757, Stop: 50155, Start Num: 7

Candidate Starts for Captrips\_73:

(Start: 6 @49745 has 2 MA's), (Start: 7 @49757 has 54 MA's), (13, 49805), (20, 49880), (22, 49910), (25, 49943), (28, 49979), (34, 50114), (35, 50141),

Gene: Capybara\_72 Start: 49596, Stop: 49994, Start Num: 7

Candidate Starts for Capybara\_72:

(Start: 6 @49584 has 2 MA's), (Start: 7 @49596 has 54 MA's), (13, 49644), (20, 49719), (22, 49749), (25, 49782), (28, 49818), (34, 49953), (35, 49980),

Gene: ChickyNuggy\_77 Start: 50351, Stop: 50749, Start Num: 7

Candidate Starts for ChickyNuggy\_77:

(Start: 6 @50339 has 2 MA's), (Start: 7 @50351 has 54 MA's), (13, 50399), (20, 50474), (22, 50504), (25, 50537), (28, 50573), (34, 50708), (35, 50735),

Gene: Chikenjars\_69 Start: 49939, Stop: 50367, Start Num: 7

Candidate Starts for Chikenjars\_69:

(Start: 7 @49939 has 54 MA's), (16, 50032), (29, 50203), (34, 50326),

Gene: Citrus\_70 Start: 50200, Stop: 50628, Start Num: 7

Candidate Starts for Citrus\_70:

(Start: 7 @50200 has 54 MA's), (16, 50293), (29, 50464), (34, 50587),

Gene: Conley\_72 Start: 50234, Stop: 50632, Start Num: 7

Candidate Starts for Conley\_72:

(Start: 6 @50222 has 2 MA's), (Start: 7 @50234 has 54 MA's), (22, 50387), (25, 50420), (28, 50456), (31, 50534), (35, 50618),

Gene: Crocheter\_71 Start: 49802, Stop: 50230, Start Num: 7

Candidate Starts for Crocheter\_71:

(Start: 7 @49802 has 54 MA's), (16, 49895), (29, 50066), (34, 50189), (35, 50216),

Gene: Dancer\_74 Start: 49664, Stop: 50062, Start Num: 7

Candidate Starts for Dancer\_74:

(Start: 6 @49652 has 2 MA's), (Start: 7 @49664 has 54 MA's), (13, 49712), (20, 49787), (22, 49817), (25, 49850), (28, 49886), (33, 50015), (34, 50021), (35, 50048),

Gene: Demure\_69 Start: 49339, Stop: 49764, Start Num: 7

Candidate Starts for Demure\_69:

(Start: 7 @49339 has 54 MA's), (16, 49429), (26, 49564), (28, 49588), (29, 49600), (30, 49627), (34, 49723), (35, 49750),

Gene: Dialga\_72 Start: 49921, Stop: 50346, Start Num: 7

Candidate Starts for Dialga\_72:

(Start: 7 @49921 has 54 MA's), (16, 50011), (26, 50146), (28, 50170), (29, 50182), (30, 50209), (35, 50332),

Gene: Duffington\_70 Start: 49872, Stop: 50300, Start Num: 7

Candidate Starts for Duffington\_70:

(Start: 7 @49872 has 54 MA's), (16, 49965), (26, 50100), (29, 50136), (34, 50259),

Gene: Eddiemania\_73 Start: 50547, Stop: 50972, Start Num: 7

Candidate Starts for Eddiemania\_73:

(Start: 7 @50547 has 54 MA's), (11, 50580), (16, 50637), (26, 50772), (28, 50796), (29, 50808), (30, 50835), (35, 50958),

Gene: EndAve\_72 Start: 50094, Stop: 50522, Start Num: 7

Candidate Starts for EndAve\_72:

(Start: 7 @50094 has 54 MA's), (16, 50187), (29, 50358), (32, 50463), (34, 50481),

Gene: Fazel\_77 Start: 50881, Stop: 51300, Start Num: 7

Candidate Starts for Fazel\_77:

(Start: 7 @50881 has 54 MA's), (16, 50977), (18, 51010), (23, 51073), (32, 51253), (34, 51271),

Gene: Figliar\_69 Start: 49935, Stop: 50363, Start Num: 7

Candidate Starts for Figliar\_69:

(Start: 7 @49935 has 54 MA's), (16, 50028), (26, 50163), (29, 50199), (34, 50322), (35, 50349),

Gene: Football\_76 Start: 49555, Stop: 49953, Start Num: 7

Candidate Starts for Football\_76:

(Start: 6 @49543 has 2 MA's), (Start: 7 @49555 has 54 MA's), (13, 49603), (20, 49678), (22, 49708), (25, 49741), (28, 49777), (34, 49912), (35, 49939),

Gene: FortCran\_74 Start: 49927, Stop: 50325, Start Num: 7

Candidate Starts for FortCran\_74:

(Start: 6 @49915 has 2 MA's), (Start: 7 @49927 has 54 MA's), (13, 49975), (20, 50050), (22, 50080), (25, 50113), (28, 50149), (33, 50278), (34, 50284), (35, 50311),

Gene: Gill\_72 Start: 49596, Stop: 50006, Start Num: 6

Candidate Starts for Gill\_72:

(Start: 6 @49596 has 2 MA's), (Start: 7 @49608 has 54 MA's), (13, 49656), (20, 49731), (22, 49761), (25, 49794), (28, 49830), (34, 49965), (35, 49992),

Gene: Glintora\_72 Start: 50527, Stop: 50955, Start Num: 7

Candidate Starts for Glintora\_72:

(Start: 7 @50527 has 54 MA's), (16, 50620), (29, 50791), (34, 50914),

Gene: Gravy\_71 Start: 49286, Stop: 49684, Start Num: 7

Candidate Starts for Gravy\_71:

(Start: 6 @49274 has 2 MA's), (Start: 7 @49286 has 54 MA's), (13, 49334), (20, 49409), (22, 49439), (25, 49472), (28, 49508), (34, 49643), (35, 49670),

Gene: Gusicorn\_72 Start: 49709, Stop: 50137, Start Num: 7

Candidate Starts for Gusicorn\_72:

(Start: 7 @49709 has 54 MA's), (16, 49802), (29, 49973), (34, 50096), (35, 50123),

Gene: Hortihabitatio\_76 Start: 51089, Stop: 51517, Start Num: 7

Candidate Starts for Hortihabitatio\_76:

(Start: 7 @51089 has 54 MA's), (16, 51182), (17, 51206), (18, 51215), (23, 51278), (27, 51335), (34, 51476),

Gene: Hydrus\_73 Start: 50523, Stop: 50948, Start Num: 7

Candidate Starts for Hydrus\_73:

(Start: 7 @50523 has 54 MA's), (16, 50613), (26, 50748), (28, 50772), (29, 50784), (30, 50811), (35, 50934),

Gene: Jodelie19\_69 Start: 51102, Stop: 51530, Start Num: 7

Candidate Starts for Jodelie19\_69:

(Start: 7 @51102 has 54 MA's), (16, 51195), (26, 51330), (29, 51366), (34, 51489), (35, 51516),

Gene: JulesRay\_74 Start: 50276, Stop: 50674, Start Num: 7

Candidate Starts for JulesRay\_74:

(Start: 6 @50264 has 2 MA's), (Start: 7 @50276 has 54 MA's), (13, 50324), (20, 50399), (22, 50429), (25, 50462), (28, 50498), (34, 50633), (35, 50660),

Gene: Kenosha\_70 Start: 49949, Stop: 50374, Start Num: 7

Candidate Starts for Kenosha\_70:

(Start: 7 @49949 has 54 MA's), (11, 49982), (16, 50039), (26, 50174), (28, 50198), (29, 50210), (30, 50237), (35, 50360),

Gene: Kerry\_71 Start: 49349, Stop: 49747, Start Num: 7

Candidate Starts for Kerry\_71:

(Start: 6 @49337 has 2 MA's), (Start: 7 @49349 has 54 MA's), (13, 49397), (20, 49472), (22, 49502), (25, 49535), (28, 49571), (34, 49706), (35, 49733),

Gene: Luthien\_72 Start: 50089, Stop: 50517, Start Num: 7

Candidate Starts for Luthien\_72:

(Start: 7 @50089 has 54 MA's), (16, 50182), (29, 50353), (34, 50476),

Gene: Madvan\_71 Start: 49411, Stop: 49836, Start Num: 7

Candidate Starts for Madvan\_71:

(Start: 7 @49411 has 54 MA's), (11, 49444), (16, 49501), (26, 49636), (28, 49660), (29, 49672), (30, 49699), (35, 49822),

Gene: Magel\_73 Start: 49511, Stop: 49921, Start Num: 6

Candidate Starts for Magel\_73:

(Start: 6 @49511 has 2 MA's), (Start: 7 @49523 has 54 MA's), (13, 49571), (20, 49646), (22, 49676), (25, 49709), (28, 49745), (34, 49880), (35, 49907),

Gene: MajinBuu\_71 Start: 50317, Stop: 50745, Start Num: 7

Candidate Starts for MajinBuu\_71:

(Start: 7 @50317 has 54 MA's), (16, 50410), (26, 50545), (29, 50581), (34, 50704), (35, 50731),

Gene: Mossy\_74 Start: 51400, Stop: 51828, Start Num: 7

Candidate Starts for Mossy\_74:

(Start: 7 @51400 has 54 MA's), (16, 51493), (17, 51517), (18, 51526), (27, 51646), (35, 51814),

Gene: Mysticmoon\_75 Start: 51102, Stop: 51518, Start Num: 7

Candidate Starts for Mysticmoon\_75:

(Start: 7 @51102 has 54 MA's), (16, 51195), (17, 51219), (18, 51228), (32, 51471),

Gene: Nadmeg\_72 Start: 50640, Stop: 51065, Start Num: 7

Candidate Starts for Nadmeg\_72:

(Start: 7 @50640 has 54 MA's), (11, 50673), (16, 50730), (26, 50865), (28, 50889), (29, 50901), (30, 50928), (35, 51051),

Gene: Nithya\_71 Start: 49795, Stop: 50223, Start Num: 7

Candidate Starts for Nithya\_71:

(Start: 7 @49795 has 54 MA's), (16, 49888), (29, 50059), (34, 50182),

Gene: NoPickles\_73 Start: 49443, Stop: 49841, Start Num: 7

Candidate Starts for NoPickles\_73:

(Start: 6 @49431 has 2 MA's), (Start: 7 @49443 has 54 MA's), (13, 49491), (20, 49566), (22, 49596), (25, 49629), (28, 49665), (34, 49800), (35, 49827),

Gene: Odesza\_71 Start: 49467, Stop: 49865, Start Num: 7

Candidate Starts for Odesza\_71:

(Start: 6 @49455 has 2 MA's), (Start: 7 @49467 has 54 MA's), (13, 49515), (20, 49590), (22, 49620), (25, 49653), (28, 49689), (34, 49824),

Gene: OhMyWard\_70 Start: 51159, Stop: 51587, Start Num: 7

Candidate Starts for OhMyWard\_70:

(Start: 7 @51159 has 54 MA's), (16, 51252), (17, 51276), (18, 51285), (27, 51405), (35, 51573),

Gene: OlgasClover\_71 Start: 50444, Stop: 50872, Start Num: 7

Candidate Starts for OlgasClover\_71:  
(Start: 7 @50444 has 54 MA's), (16, 50537), (26, 50672), (29, 50708),

Gene: Pepy6\_062 Start: 64801, Stop: 65370, Start Num: 2  
Candidate Starts for Pepy6\_062:  
(1, 64774), (2, 64801), (3, 64849), (9, 64966), (19, 65083), (21, 65107), (24, 65146),

Gene: Perkunas\_75 Start: 49660, Stop: 50058, Start Num: 7  
Candidate Starts for Perkunas\_75:  
(Start: 6 @49648 has 2 MA's), (Start: 7 @49660 has 54 MA's), (22, 49813), (25, 49846), (28, 49882),  
(33, 50011), (35, 50044),

Gene: PerroGrande22\_100 Start: 66182, Stop: 66706, Start Num: 3  
Candidate Starts for PerroGrande22\_100:  
(3, 66182), (4, 66239), (5, 66272), (8, 66296), (9, 66299),

Gene: PestoPenguin\_76 Start: 49709, Stop: 50137, Start Num: 7  
Candidate Starts for PestoPenguin\_76:  
(Start: 7 @49709 has 54 MA's), (16, 49802), (29, 49973), (34, 50096), (35, 50123),

Gene: Petito\_76 Start: 51180, Stop: 51578, Start Num: 7  
Candidate Starts for Petito\_76:  
(Start: 6 @51168 has 2 MA's), (Start: 7 @51180 has 54 MA's), (22, 51333), (25, 51366), (28, 51402),  
(31, 51480), (33, 51531), (35, 51564),

Gene: Phepper\_72 Start: 49653, Stop: 50078, Start Num: 7  
Candidate Starts for Phepper\_72:  
(Start: 7 @49653 has 54 MA's), (16, 49743), (26, 49878), (28, 49902), (29, 49914), (30, 49941), (35,  
50064),

Gene: Pherobrine\_74 Start: 51157, Stop: 51573, Start Num: 7  
Candidate Starts for Pherobrine\_74:  
(Start: 7 @51157 has 54 MA's), (16, 51250), (17, 51274), (18, 51283), (27, 51403),

Gene: Poco6\_061 Start: 65593, Stop: 66117, Start Num: 3  
Candidate Starts for Poco6\_061:  
(3, 65593), (4, 65650), (5, 65683), (8, 65707), (9, 65710), (15, 65785),

Gene: Rickmore\_68 Start: 48311, Stop: 48739, Start Num: 7  
Candidate Starts for Rickmore\_68:  
(Start: 7 @48311 has 54 MA's), (16, 48404), (29, 48575), (34, 48698),

Gene: Roney\_72 Start: 49633, Stop: 50031, Start Num: 7  
Candidate Starts for Roney\_72:  
(Start: 6 @49621 has 2 MA's), (Start: 7 @49633 has 54 MA's), (13, 49681), (20, 49756), (22, 49786),  
(25, 49819), (28, 49855), (34, 49990),

Gene: Runhaar\_71 Start: 49462, Stop: 49887, Start Num: 7  
Candidate Starts for Runhaar\_71:  
(Start: 7 @49462 has 54 MA's), (11, 49495), (16, 49552), (26, 49687), (28, 49711), (29, 49723), (30,  
49750), (35, 49873),

Gene: Schwartz33\_73 Start: 49999, Stop: 50442, Start Num: 7

Candidate Starts for Schwartz33\_73:

(Start: 7 @49999 has 54 MA's), (12, 50059), (27, 50239), (34, 50380), (36, 50425),

Gene: Secretariat\_72 Start: 49337, Stop: 49789, Start Num: 7

Candidate Starts for Secretariat\_72:

(Start: 7 @49337 has 54 MA's), (10, 49361), (27, 49583), (36, 49772), (37, 49775),

Gene: ShaggyRogers\_71 Start: 49443, Stop: 49871, Start Num: 7

Candidate Starts for ShaggyRogers\_71:

(Start: 7 @49443 has 54 MA's), (16, 49536), (29, 49707), (34, 49830), (35, 49857),

Gene: Tairn4Wing\_76 Start: 49765, Stop: 50163, Start Num: 7

Candidate Starts for Tairn4Wing\_76:

(Start: 6 @49753 has 2 MA's), (Start: 7 @49765 has 54 MA's), (13, 49813), (20, 49888), (22, 49918), (25, 49951), (28, 49987), (34, 50122), (35, 50149),

Gene: Talon44\_76 Start: 50395, Stop: 50793, Start Num: 7

Candidate Starts for Talon44\_76:

(Start: 6 @50383 has 2 MA's), (Start: 7 @50395 has 54 MA's), (13, 50443), (20, 50518), (22, 50548), (25, 50581), (28, 50617), (34, 50752), (35, 50779),

Gene: Tanis\_72 Start: 49453, Stop: 49851, Start Num: 7

Candidate Starts for Tanis\_72:

(Start: 6 @49441 has 2 MA's), (Start: 7 @49453 has 54 MA's), (13, 49501), (20, 49576), (22, 49606), (25, 49639), (28, 49675), (34, 49810), (35, 49837),

Gene: TenaciousP\_71 Start: 51064, Stop: 51492, Start Num: 7

Candidate Starts for TenaciousP\_71:

(Start: 7 @51064 has 54 MA's), (16, 51157), (26, 51292), (29, 51328), (34, 51451), (35, 51478),

Gene: Tonaltzin\_74 Start: 49634, Stop: 50062, Start Num: 7

Candidate Starts for Tonaltzin\_74:

(Start: 7 @49634 has 54 MA's), (16, 49727), (26, 49862), (29, 49898), (34, 50021), (35, 50048),

Gene: Trufflozitus\_78 Start: 50280, Stop: 50678, Start Num: 7

Candidate Starts for Trufflozitus\_78:

(Start: 6 @50268 has 2 MA's), (Start: 7 @50280 has 54 MA's), (13, 50328), (14, 50331), (20, 50403), (22, 50433), (25, 50466), (28, 50502), (34, 50637), (35, 50664),

Gene: Untouchable\_73 Start: 50650, Stop: 51075, Start Num: 7

Candidate Starts for Untouchable\_73:

(Start: 7 @50650 has 54 MA's), (16, 50740), (26, 50875), (28, 50899), (29, 50911), (30, 50938), (35, 51061),

Gene: Vardy\_70 Start: 49352, Stop: 49777, Start Num: 7

Candidate Starts for Vardy\_70:

(Start: 7 @49352 has 54 MA's), (11, 49385), (16, 49442), (26, 49577), (28, 49601), (29, 49613), (35, 49763),

Gene: Zeph\_73 Start: 50490, Stop: 50915, Start Num: 7

Candidate Starts for Zeph\_73:

(Start: 7 @50490 has 54 MA's), (16, 50580), (26, 50715), (28, 50739), (29, 50751), (30, 50778), (35, 50901),

