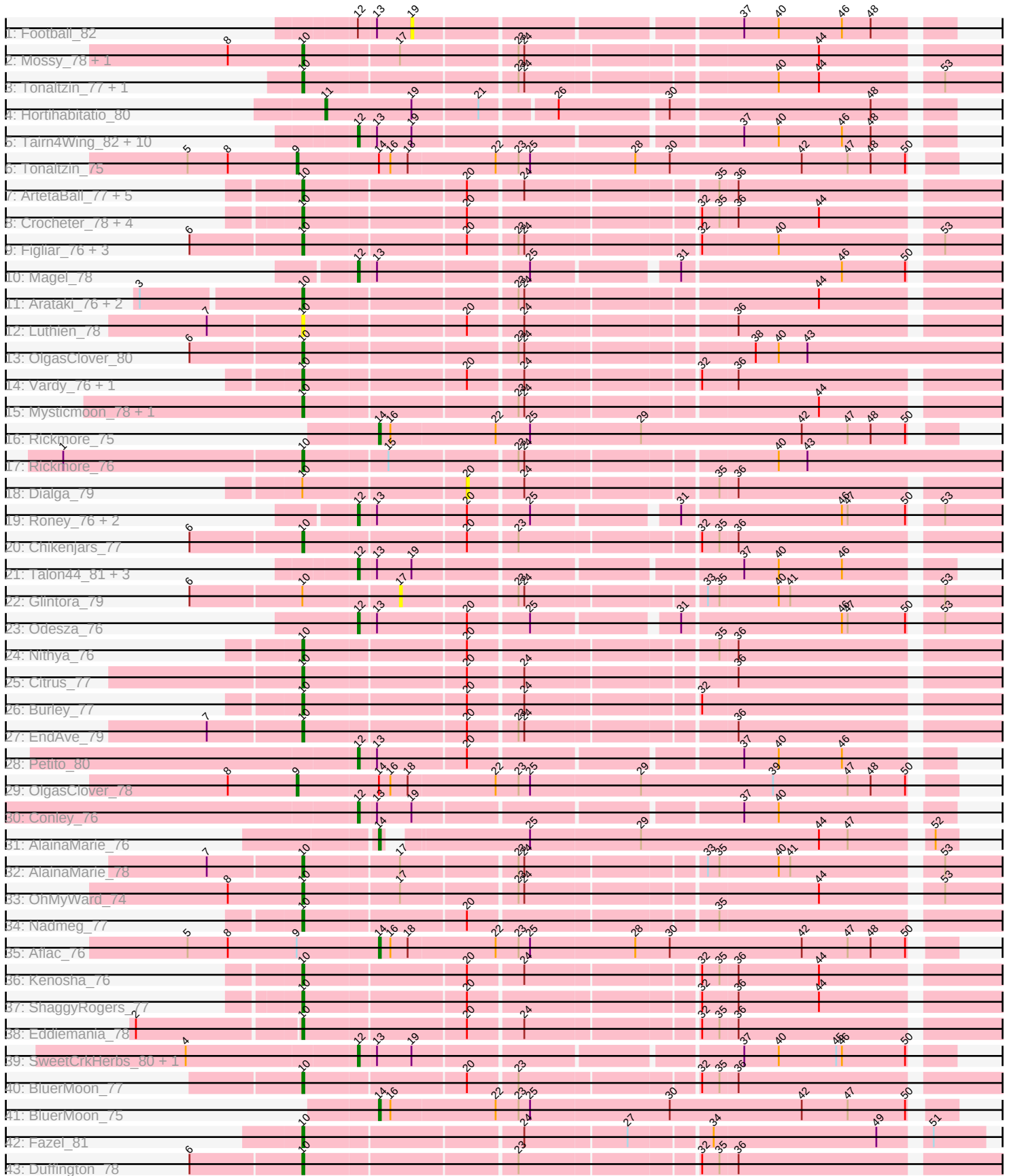


# Pham 325136



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 325136 Report

This analysis was run 09/05/26 on database version 662.

Pham number 325136 has 77 members, 12 are drafts.

Phages represented in each track:

- Track 1 : Football\_82
- Track 2 : Mossy\_78, Blanky\_75
- Track 3 : Tonaltzin\_77, Aflac\_78
- Track 4 : Hortihabitatio\_80
- Track 5 : Tairn4Wing\_82, Dancer\_79, Kerry\_76, JulesRay\_79, ChickyNuggy\_82, Bugg\_83, Capybara\_77, Trufflozitus\_80, Gravy\_76, Artorias\_79, FortCran\_79
- Track 6 : Tonaltzin\_75
- Track 7 : ArtetaBall\_77, Runhaar\_76, Madvan\_77, Phepper\_78, Untouchable\_79, CWormy\_76
- Track 8 : Crocheter\_78, PestoPenguin\_79, BetterYeti\_77, Aloe25\_79, Gusicorn\_79
- Track 9 : Figliar\_76, TenaciousP\_78, Jodelie19\_76, MajinBuu\_78
- Track 10 : Magel\_78
- Track 11 : Arataki\_76, Demure\_76, Hydrus\_77
- Track 12 : Luthien\_78
- Track 13 : OlgasClover\_80
- Track 14 : Vardy\_76, Zeph\_79
- Track 15 : Mysticmoon\_78, Pherobrine\_78
- Track 16 : Rickmore\_75
- Track 17 : Rickmore\_76
- Track 18 : Dialga\_79
- Track 19 : Roney\_76, Tanis\_77, Gill\_77
- Track 20 : Chikenjars\_77
- Track 21 : Talon44\_81, Captrips\_78, NoPickles\_78, Avazak\_80
- Track 22 : Glintora\_79
- Track 23 : Odesza\_76
- Track 24 : Nithya\_76
- Track 25 : Citrus\_77
- Track 26 : Burley\_77
- Track 27 : EndAve\_79
- Track 28 : Petite\_80
- Track 29 : OlgasClover\_78
- Track 30 : Conley\_76
- Track 31 : AlainaMarie\_76
- Track 32 : AlainaMarie\_78
- Track 33 : OhMyWard\_74
- Track 34 : Nadmeg\_77
- Track 35 : Aflac\_76

- Track 36 : Kenosha\_76
- Track 37 : ShaggyRogers\_77
- Track 38 : Eddiemania\_78
- Track 39 : SweetCrkHerbs\_80, Perkunas\_79
- Track 40 : BluerMoon\_77
- Track 41 : BluerMoon\_75
- Track 42 : Fazel\_81
- Track 43 : Duffington\_78

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

The start number called the most often in the published annotations is 10, it was called in 38 of the 65 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aflac\_78, AlainaMarie\_78, Aloe25\_79, Arataki\_76, ArtetaBall\_77, BetterYeti\_77, Blanky\_75, BluerMoon\_77, Burley\_77, CWormy\_76, Chickenjars\_77, Citrus\_77, Crocheter\_78, Demure\_76, Duffington\_78, Eddiemania\_78, EndAve\_79, Fazel\_81, Figliar\_76, Gusicorn\_79, Hydrus\_77, Jodelie19\_76, Kenosha\_76, Luthien\_78, Madvan\_77, MajinBuu\_78, Mossy\_78, Mysticmoon\_78, Nadmeg\_77, Nithya\_76, OhMyWard\_74, OlgasClover\_80, PestoPenguin\_79, Phepper\_78, Pherobrine\_78, Rickmore\_76, Runhaar\_76, ShaggyRogers\_77, TenaciousP\_78, Tonaltzin\_77, Untouchable\_79, Vardy\_76, Zeph\_79,

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

- Dialga\_79, Glintora\_79,

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

- Aflac\_76, AlainaMarie\_76, Artorias\_79, Avazak\_80, BluerMoon\_75, Bugg\_83, Captrips\_78, Cappybara\_77, ChickyNuggy\_82, Conley\_76, Dancer\_79, Football\_82, FortCran\_79, Gill\_77, Gravy\_76, Hortihabitatio\_80, JulesRay\_79, Kerry\_76, Magel\_78, NoPickles\_78, Odesza\_76, OlgasClover\_78, Perkunas\_79, Petito\_80, Rickmore\_75, Roney\_76, SweetCrkHerbs\_80, Tairn4Wing\_82, Talon44\_81, Tanis\_77, Tonaltzin\_75, Trufflozitus\_80,

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

Start 9:

- Found in 3 of 77 ( 3.9% ) of genes in pham
- Manual Annotations of this start: 2 of 65
- Called 66.7% of time when present
- Phage (with cluster) where this start called: OlgasClover\_78 (DJ), Tonaltzin\_75 (DJ),

Start 10:

- Found in 45 of 77 ( 58.4% ) of genes in pham
- Manual Annotations of this start: 38 of 65
- Called 95.6% of time when present
- Phage (with cluster) where this start called: Aflac\_78 (DJ), AlainaMarie\_78 (DJ), Aloe25\_79 (DJ), Arataki\_76 (DJ), ArtetaBall\_77 (DJ), BetterYeti\_77 (DJ), Blanky\_75 (DJ), BluerMoon\_77 (DJ), Burley\_77 (DJ), CWormy\_76 (DJ), Chickenjars\_77 (DJ),

Citrus\_77 (DJ), Crocheter\_78 (DJ), Demure\_76 (DJ), Duffington\_78 (DJ), Eddiemania\_78 (DJ), EndAve\_79 (DJ), Fazel\_81 (DJ), Figliar\_76 (DJ), Gusicorn\_79 (DJ), Hydrus\_77 (DJ), Jodelie19\_76 (DJ), Kenosha\_76 (DJ), Luthien\_78 (DJ), Madvan\_77 (DJ), MajinBuu\_78 (DJ), Mossy\_78 (DJ), Mysticmoon\_78 (DJ), Nadmeg\_77 (DJ), Nithya\_76 (DJ), OhMyWard\_74 (DJ), OlgasClover\_80 (DJ), PestoPenguin\_79 (DJ), Phepper\_78 (DJ), Pherobrine\_78 (DJ), Rickmore\_76 (DJ), Runhaar\_76 (DJ), ShaggyRogers\_77 (DJ), TenaciousP\_78 (DJ), Tonaltzin\_77 (DJ), Untouchable\_79 (DJ), Vardy\_76 (DJ), Zeph\_79 (DJ),

**Start 11:**

- Found in 1 of 77 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 1 of 65
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Hortihabitatio\_80 (DJ),

**Start 12:**

- Found in 25 of 77 ( 32.5% ) of genes in pham
- Manual Annotations of this start: 20 of 65
- Called 96.0% of time when present
- Phage (with cluster) where this start called: Artorias\_79 (DJ), Avazak\_80 (DJ), Bugg\_83 (DJ), Captrips\_78 (DJ), Cappybara\_77 (DJ), ChickyNuggy\_82 (DJ), Conley\_76 (DJ), Dancer\_79 (DJ), FortCran\_79 (DJ), Gill\_77 (DJ), Gravy\_76 (DJ), JulesRay\_79 (DJ), Kerry\_76 (DJ), Magel\_78 (DJ), NoPickles\_78 (DJ), Odesza\_76 (DJ), Perkunas\_79 (DJ), Petite\_80 (DJ), Roney\_76 (DJ), SweetCrkHerbs\_80 (DJ), Tairn4Wing\_82 (DJ), Talon44\_81 (DJ), Tanis\_77 (DJ), Trufflozitus\_80 (DJ),

**Start 14:**

- Found in 6 of 77 ( 7.8% ) of genes in pham
- Manual Annotations of this start: 4 of 65
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Aflac\_76 (DJ), AlainaMarie\_76 (DJ), BluerMoon\_75 (DJ), Rickmore\_75 (DJ),

**Start 17:**

- Found in 5 of 77 ( 6.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 20.0% of time when present
- Phage (with cluster) where this start called: Glintora\_79 (DJ),

**Start 19:**

- Found in 20 of 77 ( 26.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 5.0% of time when present
- Phage (with cluster) where this start called: Football\_82 (DJ),

**Start 20:**

- Found in 34 of 77 ( 44.2% ) of genes in pham
- No Manual Annotations of this start.
- Called 2.9% of time when present
- Phage (with cluster) where this start called: Dialga\_79 (DJ),

**Summary by clusters:**

There is one cluster represented in this pham: DJ

Info for manual annotations of cluster DJ:

- Start number 9 was manually annotated 2 times for cluster DJ.
- Start number 10 was manually annotated 38 times for cluster DJ.
- Start number 11 was manually annotated 1 time for cluster DJ.
- Start number 12 was manually annotated 20 times for cluster DJ.
- Start number 14 was manually annotated 4 times for cluster DJ.

### **Gene Information:**

Gene: Aflac\_78 Start: 51861, Stop: 52208, Start Num: 10

Candidate Starts for Aflac\_78:

(Start: 10 @51861 has 38 MA's), (23, 51966), (24, 51969), (40, 52092), (44, 52113), (53, 52170),

Gene: Aflac\_76 Start: 51417, Stop: 51707, Start Num: 14

Candidate Starts for Aflac\_76:

(5, 51318), (8, 51339), (Start: 9 @51375 has 2 MA's), (Start: 14 @51417 has 4 MA's), (16, 51423), (18, 51432), (22, 51477), (23, 51489), (25, 51495), (28, 51549), (30, 51567), (42, 51636), (47, 51660), (48, 51672), (50, 51690),

Gene: AlainaMarie\_76 Start: 51470, Stop: 51748, Start Num: 14

Candidate Starts for AlainaMarie\_76:

(Start: 14 @51470 has 4 MA's), (25, 51536), (29, 51593), (44, 51686), (47, 51701), (52, 51737),

Gene: AlainaMarie\_78 Start: 51906, Stop: 52253, Start Num: 10

Candidate Starts for AlainaMarie\_78:

(7, 51858), (Start: 10 @51906 has 38 MA's), (17, 51954), (23, 52011), (24, 52014), (33, 52101), (35, 52107), (40, 52137), (41, 52143), (53, 52215),

Gene: Aloe25\_79 Start: 51286, Stop: 51633, Start Num: 10

Candidate Starts for Aloe25\_79:

(Start: 10 @51286 has 38 MA's), (20, 51367), (32, 51478), (35, 51487), (36, 51496), (44, 51538),

Gene: Arataki\_76 Start: 50900, Stop: 51247, Start Num: 10

Candidate Starts for Arataki\_76:

(3, 50819), (Start: 10 @50900 has 38 MA's), (23, 51005), (24, 51008), (44, 51152),

Gene: ArtetaBall\_77 Start: 51462, Stop: 51809, Start Num: 10

Candidate Starts for ArtetaBall\_77:

(Start: 10 @51462 has 38 MA's), (20, 51543), (24, 51570), (35, 51663), (36, 51672),

Gene: Artorias\_79 Start: 51103, Stop: 51390, Start Num: 12

Candidate Starts for Artorias\_79:

(Start: 12 @51103 has 20 MA's), (13, 51112), (19, 51130), (37, 51289), (40, 51307), (46, 51340), (48, 51355),

Gene: Avazak\_80 Start: 51785, Stop: 52072, Start Num: 12

Candidate Starts for Avazak\_80:

(Start: 12 @51785 has 20 MA's), (13, 51794), (19, 51812), (37, 51971), (40, 51989), (46, 52022),

Gene: BetterYeti\_77 Start: 51285, Stop: 51632, Start Num: 10

Candidate Starts for BetterYeti\_77:

(Start: 10 @51285 has 38 MA's), (20, 51366), (32, 51477), (35, 51486), (36, 51495), (44, 51537),

Gene: Blanky\_75 Start: 52347, Stop: 52694, Start Num: 10

Candidate Starts for Blanky\_75:

(8, 52308), (Start: 10 @52347 has 38 MA's), (17, 52395), (23, 52452), (24, 52455), (44, 52599),

Gene: BluerMoon\_77 Start: 51813, Stop: 52160, Start Num: 10

Candidate Starts for BluerMoon\_77:

(Start: 10 @51813 has 38 MA's), (20, 51894), (23, 51918), (32, 52005), (35, 52014), (36, 52023),

Gene: BluerMoon\_75 Start: 51369, Stop: 51659, Start Num: 14

Candidate Starts for BluerMoon\_75:

(Start: 14 @51369 has 4 MA's), (16, 51375), (22, 51429), (23, 51441), (25, 51447), (30, 51519), (42, 51588), (47, 51612), (50, 51642),

Gene: Bugg\_83 Start: 51148, Stop: 51435, Start Num: 12

Candidate Starts for Bugg\_83:

(Start: 12 @51148 has 20 MA's), (13, 51157), (19, 51175), (37, 51334), (40, 51352), (46, 51385), (48, 51400),

Gene: Burley\_77 Start: 50918, Stop: 51265, Start Num: 10

Candidate Starts for Burley\_77:

(Start: 10 @50918 has 38 MA's), (20, 50999), (24, 51026), (32, 51110),

Gene: CWormy\_76 Start: 50879, Stop: 51226, Start Num: 10

Candidate Starts for CWormy\_76:

(Start: 10 @50879 has 38 MA's), (20, 50960), (24, 50987), (35, 51080), (36, 51089),

Gene: Captrips\_78 Start: 50933, Stop: 51220, Start Num: 12

Candidate Starts for Captrips\_78:

(Start: 12 @50933 has 20 MA's), (13, 50942), (19, 50960), (37, 51119), (40, 51137), (46, 51170),

Gene: Capybara\_77 Start: 50770, Stop: 51057, Start Num: 12

Candidate Starts for Capybara\_77:

(Start: 12 @50770 has 20 MA's), (13, 50779), (19, 50797), (37, 50956), (40, 50974), (46, 51007), (48, 51022),

Gene: ChickyNuggy\_82 Start: 51527, Stop: 51814, Start Num: 12

Candidate Starts for ChickyNuggy\_82:

(Start: 12 @51527 has 20 MA's), (13, 51536), (19, 51554), (37, 51713), (40, 51731), (46, 51764), (48, 51779),

Gene: Chickenjars\_77 Start: 51872, Stop: 52219, Start Num: 10

Candidate Starts for Chickenjars\_77:

(6, 51815), (Start: 10 @51872 has 38 MA's), (20, 51953), (23, 51977), (32, 52064), (35, 52073), (36, 52082),

Gene: Citrus\_77 Start: 51922, Stop: 52269, Start Num: 10

Candidate Starts for Citrus\_77:

(Start: 10 @51922 has 38 MA's), (20, 52003), (24, 52030), (36, 52132),

Gene: Conley\_76 Start: 51234, Stop: 51521, Start Num: 12

Candidate Starts for Conley\_76:

(Start: 12 @51234 has 20 MA's), (13, 51243), (19, 51261), (37, 51420), (40, 51438),

Gene: Crocheter\_78 Start: 51379, Stop: 51726, Start Num: 10

Candidate Starts for Crocheter\_78:

(Start: 10 @51379 has 38 MA's), (20, 51460), (32, 51571), (35, 51580), (36, 51589), (44, 51631),

Gene: Dancer\_79 Start: 50840, Stop: 51127, Start Num: 12

Candidate Starts for Dancer\_79:

(Start: 12 @50840 has 20 MA's), (13, 50849), (19, 50867), (37, 51026), (40, 51044), (46, 51077), (48, 51092),

Gene: Demure\_76 Start: 50900, Stop: 51247, Start Num: 10

Candidate Starts for Demure\_76:

(3, 50819), (Start: 10 @50900 has 38 MA's), (23, 51005), (24, 51008), (44, 51152),

Gene: Dialga\_79 Start: 51562, Stop: 51828, Start Num: 20

Candidate Starts for Dialga\_79:

(Start: 10 @51481 has 38 MA's), (20, 51562), (24, 51589), (35, 51682), (36, 51691),

Gene: Duffington\_78 Start: 51842, Stop: 52189, Start Num: 10

Candidate Starts for Duffington\_78:

(6, 51785), (Start: 10 @51842 has 38 MA's), (23, 51947), (32, 52034), (35, 52043), (36, 52052),

Gene: Eddiemania\_78 Start: 51958, Stop: 52305, Start Num: 10

Candidate Starts for Eddiemania\_78:

(2, 51877), (Start: 10 @51958 has 38 MA's), (20, 52039), (24, 52066), (32, 52150), (35, 52159), (36, 52168),

Gene: EndAve\_79 Start: 51816, Stop: 52163, Start Num: 10

Candidate Starts for EndAve\_79:

(7, 51768), (Start: 10 @51816 has 38 MA's), (20, 51897), (23, 51921), (24, 51924), (36, 52026),

Gene: Fazel\_81 Start: 51842, Stop: 52171, Start Num: 10

Candidate Starts for Fazel\_81:

(Start: 10 @51842 has 38 MA's), (24, 51950), (27, 52001), (34, 52040), (49, 52124), (51, 52145),

Gene: Figliar\_76 Start: 51641, Stop: 51988, Start Num: 10

Candidate Starts for Figliar\_76:

(6, 51584), (Start: 10 @51641 has 38 MA's), (20, 51722), (23, 51746), (24, 51749), (32, 51833), (40, 51872), (53, 51950),

Gene: Football\_82 Start: 50757, Stop: 51017, Start Num: 19

Candidate Starts for Football\_82:

(Start: 12 @50730 has 20 MA's), (13, 50739), (19, 50757), (37, 50916), (40, 50934), (46, 50967), (48, 50982),

Gene: FortCran\_79 Start: 51103, Stop: 51390, Start Num: 12

Candidate Starts for FortCran\_79:

(Start: 12 @51103 has 20 MA's), (13, 51112), (19, 51130), (37, 51289), (40, 51307), (46, 51340), (48, 51355),

Gene: Gill\_77 Start: 50798, Stop: 51109, Start Num: 12

Candidate Starts for Gill\_77:

(Start: 12 @50798 has 20 MA's), (13, 50807), (20, 50852), (25, 50882), (31, 50951), (46, 51032), (47, 51035), (50, 51065), (53, 51077),

Gene: Glintora\_79 Start: 52065, Stop: 52364, Start Num: 17

Candidate Starts for Glintora\_79:

(6, 51960), (Start: 10 @52017 has 38 MA's), (17, 52065), (23, 52122), (24, 52125), (33, 52212), (35, 52218), (40, 52248), (41, 52254), (53, 52326),

Gene: Gravy\_76 Start: 50460, Stop: 50747, Start Num: 12

Candidate Starts for Gravy\_76:

(Start: 12 @50460 has 20 MA's), (13, 50469), (19, 50487), (37, 50646), (40, 50664), (46, 50697), (48, 50712),

Gene: Gusicorn\_79 Start: 51286, Stop: 51633, Start Num: 10

Candidate Starts for Gusicorn\_79:

(Start: 10 @51286 has 38 MA's), (20, 51367), (32, 51478), (35, 51487), (36, 51496), (44, 51538),

Gene: Hortihabitatio\_80 Start: 52238, Stop: 52543, Start Num: 11

Candidate Starts for Hortihabitatio\_80:

(Start: 11 @52238 has 1 MA's), (19, 52283), (21, 52316), (26, 52352), (30, 52406), (48, 52508),

Gene: Hydrus\_77 Start: 51677, Stop: 52024, Start Num: 10

Candidate Starts for Hydrus\_77:

(3, 51596), (Start: 10 @51677 has 38 MA's), (23, 51782), (24, 51785), (44, 51929),

Gene: Jodelie19\_76 Start: 52808, Stop: 53155, Start Num: 10

Candidate Starts for Jodelie19\_76:

(6, 52751), (Start: 10 @52808 has 38 MA's), (20, 52889), (23, 52913), (24, 52916), (32, 53000), (40, 53039), (53, 53117),

Gene: JulesRay\_79 Start: 51452, Stop: 51739, Start Num: 12

Candidate Starts for JulesRay\_79:

(Start: 12 @51452 has 20 MA's), (13, 51461), (19, 51479), (37, 51638), (40, 51656), (46, 51689), (48, 51704),

Gene: Kenosha\_76 Start: 51507, Stop: 51854, Start Num: 10

Candidate Starts for Kenosha\_76:

(Start: 10 @51507 has 38 MA's), (20, 51588), (24, 51615), (32, 51699), (35, 51708), (36, 51717), (44, 51759),

Gene: Kerry\_76 Start: 50523, Stop: 50810, Start Num: 12

Candidate Starts for Kerry\_76:

(Start: 12 @50523 has 20 MA's), (13, 50532), (19, 50550), (37, 50709), (40, 50727), (46, 50760), (48, 50775),

Gene: Luthien\_78 Start: 51811, Stop: 52158, Start Num: 10

Candidate Starts for Luthien\_78:

(7, 51763), (Start: 10 @51811 has 38 MA's), (20, 51892), (24, 51919), (36, 52021),

Gene: Madvan\_77 Start: 50974, Stop: 51321, Start Num: 10

Candidate Starts for Madvan\_77:

(Start: 10 @50974 has 38 MA's), (20, 51055), (24, 51082), (35, 51175), (36, 51184),

Gene: Magel\_78 Start: 50713, Stop: 51024, Start Num: 12

Candidate Starts for Magel\_78:

(Start: 12 @50713 has 20 MA's), (13, 50722), (25, 50797), (31, 50866), (46, 50947), (50, 50980),

Gene: MajinBuu\_78 Start: 52023, Stop: 52370, Start Num: 10

Candidate Starts for MajinBuu\_78:

(6, 51966), (Start: 10 @52023 has 38 MA's), (20, 52104), (23, 52128), (24, 52131), (32, 52215), (40, 52254), (53, 52332),

Gene: Mossy\_78 Start: 52559, Stop: 52906, Start Num: 10

Candidate Starts for Mossy\_78:

(8, 52520), (Start: 10 @52559 has 38 MA's), (17, 52607), (23, 52664), (24, 52667), (44, 52811),

Gene: Mysticmoon\_78 Start: 52201, Stop: 52548, Start Num: 10

Candidate Starts for Mysticmoon\_78:

(Start: 10 @52201 has 38 MA's), (23, 52306), (24, 52309), (44, 52453),

Gene: Nadmeg\_77 Start: 51977, Stop: 52324, Start Num: 10

Candidate Starts for Nadmeg\_77:

(Start: 10 @51977 has 38 MA's), (20, 52058), (35, 52178),

Gene: Nithya\_76 Start: 51360, Stop: 51707, Start Num: 10

Candidate Starts for Nithya\_76:

(Start: 10 @51360 has 38 MA's), (20, 51441), (35, 51561), (36, 51570),

Gene: NoPickles\_78 Start: 50619, Stop: 50906, Start Num: 12

Candidate Starts for NoPickles\_78:

(Start: 12 @50619 has 20 MA's), (13, 50628), (19, 50646), (37, 50805), (40, 50823), (46, 50856),

Gene: Odesza\_76 Start: 50660, Stop: 50971, Start Num: 12

Candidate Starts for Odesza\_76:

(Start: 12 @50660 has 20 MA's), (13, 50669), (20, 50714), (25, 50744), (31, 50813), (46, 50894), (47, 50897), (50, 50927), (53, 50939),

Gene: OhMyWard\_74 Start: 52318, Stop: 52665, Start Num: 10

Candidate Starts for OhMyWard\_74:

(8, 52279), (Start: 10 @52318 has 38 MA's), (17, 52366), (23, 52423), (24, 52426), (44, 52570), (53, 52627),

Gene: OlgasClover\_80 Start: 52722, Stop: 53078, Start Num: 10

Candidate Starts for OlgasClover\_80:

(6, 52665), (Start: 10 @52722 has 38 MA's), (23, 52827), (24, 52830), (38, 52941), (40, 52953), (43, 52968),

Gene: OlgasClover\_78 Start: 52236, Stop: 52568, Start Num: 9

Candidate Starts for OlgasClover\_78:

(8, 52200), (Start: 9 @52236 has 2 MA's), (Start: 14 @52278 has 4 MA's), (16, 52284), (18, 52293), (22, 52338), (23, 52350), (25, 52356), (29, 52413), (39, 52482), (47, 52521), (48, 52533), (50, 52551),

Gene: Perkunas\_79 Start: 50720, Stop: 51007, Start Num: 12

Candidate Starts for Perkunas\_79:

(4, 50633), (Start: 12 @50720 has 20 MA's), (13, 50729), (19, 50747), (37, 50906), (40, 50924), (45, 50954), (46, 50957), (50, 50990),

Gene: PestoPenguin\_79 Start: 51286, Stop: 51633, Start Num: 10

Candidate Starts for PestoPenguin\_79:

(Start: 10 @51286 has 38 MA's), (20, 51367), (32, 51478), (35, 51487), (36, 51496), (44, 51538),

Gene: Petito\_80 Start: 52186, Stop: 52473, Start Num: 12

Candidate Starts for Petito\_80:

(Start: 12 @52186 has 20 MA's), (13, 52195), (20, 52240), (37, 52372), (40, 52390), (46, 52423),

Gene: Phepper\_78 Start: 51216, Stop: 51563, Start Num: 10

Candidate Starts for Phepper\_78:

(Start: 10 @51216 has 38 MA's), (20, 51297), (24, 51324), (35, 51417), (36, 51426),

Gene: Pherobrine\_78 Start: 52256, Stop: 52603, Start Num: 10

Candidate Starts for Pherobrine\_78:

(Start: 10 @52256 has 38 MA's), (23, 52361), (24, 52364), (44, 52508),

Gene: Rickmore\_75 Start: 50033, Stop: 50323, Start Num: 14

Candidate Starts for Rickmore\_75:

(Start: 14 @50033 has 4 MA's), (16, 50039), (22, 50093), (25, 50111), (29, 50168), (42, 50252), (47, 50276), (48, 50288), (50, 50306),

Gene: Rickmore\_76 Start: 50323, Stop: 50679, Start Num: 10

Candidate Starts for Rickmore\_76:

(1, 50200), (Start: 10 @50323 has 38 MA's), (15, 50365), (23, 50428), (24, 50431), (40, 50554), (43, 50569),

Gene: Roney\_76 Start: 50823, Stop: 51134, Start Num: 12

Candidate Starts for Roney\_76:

(Start: 12 @50823 has 20 MA's), (13, 50832), (20, 50877), (25, 50907), (31, 50976), (46, 51057), (47, 51060), (50, 51090), (53, 51102),

Gene: Runhaar\_76 Start: 51025, Stop: 51372, Start Num: 10

Candidate Starts for Runhaar\_76:

(Start: 10 @51025 has 38 MA's), (20, 51106), (24, 51133), (35, 51226), (36, 51235),

Gene: ShaggyRogers\_77 Start: 51016, Stop: 51363, Start Num: 10

Candidate Starts for ShaggyRogers\_77:

(Start: 10 @51016 has 38 MA's), (20, 51097), (32, 51208), (36, 51226), (44, 51268),

Gene: SweetCrkHerbs\_80 Start: 50733, Stop: 51020, Start Num: 12

Candidate Starts for SweetCrkHerbs\_80:

(4, 50646), (Start: 12 @50733 has 20 MA's), (13, 50742), (19, 50760), (37, 50919), (40, 50937), (45, 50967), (46, 50970), (50, 51003),

Gene: Tairn4Wing\_82 Start: 50941, Stop: 51228, Start Num: 12

Candidate Starts for Tairn4Wing\_82:

(Start: 12 @50941 has 20 MA's), (13, 50950), (19, 50968), (37, 51127), (40, 51145), (46, 51178), (48, 51193),

Gene: Talon44\_81 Start: 51571, Stop: 51858, Start Num: 12

Candidate Starts for Talon44\_81:

(Start: 12 @51571 has 20 MA's), (13, 51580), (19, 51598), (37, 51757), (40, 51775), (46, 51808),

Gene: Tanis\_77 Start: 50643, Stop: 50954, Start Num: 12

Candidate Starts for Tanis\_77:

(Start: 12 @50643 has 20 MA's), (13, 50652), (20, 50697), (25, 50727), (31, 50796), (46, 50877), (47, 50880), (50, 50910), (53, 50922),

Gene: TenaciousP\_78 Start: 52770, Stop: 53117, Start Num: 10

Candidate Starts for TenaciousP\_78:

(6, 52713), (Start: 10 @52770 has 38 MA's), (20, 52851), (23, 52875), (24, 52878), (32, 52962), (40, 53001), (53, 53079),

Gene: Tonaltzin\_77 Start: 51629, Stop: 51976, Start Num: 10

Candidate Starts for Tonaltzin\_77:

(Start: 10 @51629 has 38 MA's), (23, 51734), (24, 51737), (40, 51860), (44, 51881), (53, 51938),

Gene: Tonaltzin\_75 Start: 51143, Stop: 51475, Start Num: 9

Candidate Starts for Tonaltzin\_75:

(5, 51086), (8, 51107), (Start: 9 @51143 has 2 MA's), (Start: 14 @51185 has 4 MA's), (16, 51191), (18, 51200), (22, 51245), (23, 51257), (25, 51263), (28, 51317), (30, 51335), (42, 51404), (47, 51428), (48, 51440), (50, 51458),

Gene: Trufflozitus\_80 Start: 51456, Stop: 51743, Start Num: 12

Candidate Starts for Trufflozitus\_80:

(Start: 12 @51456 has 20 MA's), (13, 51465), (19, 51483), (37, 51642), (40, 51660), (46, 51693), (48, 51708),

Gene: Untouchable\_79 Start: 52213, Stop: 52554, Start Num: 10

Candidate Starts for Untouchable\_79:

(Start: 10 @52213 has 38 MA's), (20, 52294), (24, 52321), (35, 52414), (36, 52423),

Gene: Vardy\_76 Start: 50912, Stop: 51259, Start Num: 10

Candidate Starts for Vardy\_76:

(Start: 10 @50912 has 38 MA's), (20, 50993), (24, 51020), (32, 51104), (36, 51122),

Gene: Zeph\_79 Start: 52050, Stop: 52397, Start Num: 10

Candidate Starts for Zeph\_79:

(Start: 10 @52050 has 38 MA's), (20, 52131), (24, 52158), (32, 52242), (36, 52260),