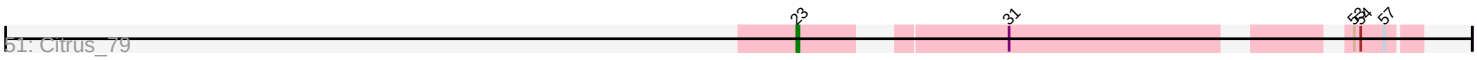
Pham 347421


1: Crocheter_79 + 4
2: OlgasClover_82
3: OlgasClover_81
4: Luthien_79 + 2
5: AlainaMarie_79
6: Mysticmoon_79
7: Demure_78
8: Pherobrine_80 + 5
9: Pherobrine_79 + 2
10: Burley_79 + 9
11: Perkunas_81 + 1
12: Nithya_77 + 2
13: Kerry_78 + 6
14: NoPickles_80 + 3
15: Mysticmoon_80 + 1
16: Glintora_80
17: Conley_78
18: Jodelle19_77 + 3
19: Untouchable_80 + 12
20: Jodelle19_78 + 2
21: BluerMoon_78
22: BluerMoon_79
23: Mossy_79 + 1
24: Roney_78
25: Aflac_80
26: MajinBuu_80 + 1
27: Petito_82
28: Crocheter_80 + 4
29: Zeph_81 + 1
30: JulesRay_81
31: Aflac_79
32: Fazel_82
33: Blanky_75
34: Trumozitus_82 + 1
35: Schwartz33_78
36: ChickyNuggy_84 + 1
37: Tonaltzin_78
38: Tonaltzin_79
39: Odesza_78 + 3
40: Chikenjars_78
41: Chikenjars_79
42: Duffington_79
43: Rickmore_78
44: Hydrus_78
45: AlainaMarie_80
46: CWormy_77
47: CWormy_78
48: Rickmore_77
49: OhMyWard_75
50: Kenosha_77

Pham 347421



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 347421 Report

This analysis was run 11/14/26 on database version 672.

Pham number 347421 has 115 members, 15 are drafts.

Phages represented in each track:
• Track 1 : Crocheter_79, PestoPenguin_80, Gusicorn_80, Aloe25_80, BetterYeti_78
• Track 2 : OlgasClover_82
• Track 3 : OlgasClover_81
• Track 4 : Luthien_79, Glintora_81, EndAve_81
• Track 5 : AlainaMarie_79
• Track 6 : Mysticmoon_79
• Track 7 : Demure_78
• Track 8 : Pherobrine_80, Nithya_78, Arataki_78, ShaggyRogers_79, OhMyWard_76, Kenosha_78
• Track 9 : Pherobrine_79, Demure_77, Arataki_77
• Track 10 : Burley_79, Untouchable_81, Eddiemania_80, Nadmeg_79, ArtetaBall_79, Runhaar_78, Vardy_78, Madvan_79, Dialga_81, Phepper_80
• Track 11 : Perkunas_81, SweetCrkHerbs_82
• Track 12 : Nithya_77, ShaggyRogers_78, Nadmeg_78
• Track 13 : Kerry_78, Dancer_81, FortCran_81, Bugg_85, Artorias_81, Gravy_78, Capybara_79
• Track 14 : NoPickles_80, Captrips_80, Avazak_82, Talon44_83
• Track 15 : Mysticmoon_80, Mossy_80
• Track 16 : Glintora_80
• Track 17 : Conley_78
• Track 18 : Jodelie19_77, MajinBuu_79, Figliar_77, TenaciousP_79
• Track 19 : Untouchable_80, Luthien_78, Eddiemania_79, Zeph_80, Runhaar_77, ArtetaBall_78, Vardy_77, Madvan_78, Burley_78, EndAve_80, Dialga_80, Phepper_79, Citrus_78
• Track 20 : Jodelie19_78, Figliar_78, TenaciousP_80
• Track 21 : BluerMoon_78
• Track 22 : BluerMoon_79
• Track 23 : Mossy_79, Blanky_74
• Track 24 : Roney_78
• Track 25 : Aflac_80
• Track 26 : MajinBuu_80, Duffington_80
• Track 27 : Petito_82
• Track 28 : Crocheter_80, PestoPenguin_81, Gusicorn_81, Aloe25_81, BetterYeti_79
• Track 29 : Zeph_81, Hydrus_79
• Track 30 : JulesRay_81
• Track 31 : Aflac_79
• Track 32 : Fazel_82

• Track 33 : Blanky_75
• Track 34 : Trufflozitus_82, Tairn4Wing_84
• Track 35 : Schwartz33_78
• Track 36 : ChickyNuggy_84, Football_84
• Track 37 : Tonaltzin_78
• Track 38 : Tonaltzin_79
• Track 39 : Odesza_78, Magel_80, Tanis_79, Gill_79
• Track 40 : Chikenjars_78
• Track 41 : Chikenjars_79
• Track 42 : Duffington_79
• Track 43 : Rickmore_78
• Track 44 : Hydrus_78
• Track 45 : AlainaMarie_80
• Track 46 : CWormy_77
• Track 47 : CWormy_78
• Track 48 : Rickmore_77
• Track 49 : OhMyWard_75
• Track 50 : Kenosha_77
• Track 51 : Citrus_79

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

The start number called the most often in the published annotations is 23, it was called in 99 of the 100 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Aflac_79, Aflac_80, AlainaMarie_79, AlainaMarie_80, Aloe25_80, Aloe25_81, Arataki_77, Arataki_78, ArtetaBall_78, ArtetaBall_79, Artorias_81, Avazak_82, BetterYeti_78, BetterYeti_79, Blanky_74, Blanky_75, BluerMoon_78, BluerMoon_79, Bugg_85, Burley_78, Burley_79, CWormy_77, CWormy_78, Captrips_80, Capybara_79, ChickyNuggy_84, Chikenjars_78, Chikenjars_79, Citrus_78, Citrus_79, Conley_78, Crocheter_79, Crocheter_80, Dancer_81, Demure_77, Demure_78, Dialga_80, Dialga_81, Duffington_79, Duffington_80, Eddiemania_79, Eddiemania_80, EndAve_80, EndAve_81, Figliar_77, Figliar_78, Football_84, FortCran_81, Gill_79, Glintora_80, Glintora_81, Gravy_78, Gusicorn_80, Gusicorn_81, Hydrus_78, Hydrus_79, Jodelie19_77, Jodelie19_78, JulesRay_81, Kenosha_77, Kenosha_78, Kerry_78, Luthien_78, Luthien_79, Madvan_78, Madvan_79, Magel_80, MajinBuu_79, MajinBuu_80, Mossy_79, Mossy_80, Mysticmoon_79, Mysticmoon_80, Nadmeg_78, Nadmeg_79, Nithya_77, Nithya_78, NoPickles_80, Odesza_78, OhMyWard_75, OhMyWard_76, OlgasClover_81, OlgasClover_82, Perkunas_81, PestoPenguin_80, PestoPenguin_81, Petito_82, Phepper_79, Phepper_80, Pherobrine_79, Pherobrine_80, Rickmore_77, Rickmore_78, Roney_78, Runhaar_77, Runhaar_78, Schwartz33_78, ShaggyRogers_78, ShaggyRogers_79, SweetCrkHerbs_82, Tairn4Wing_84, Talon44_83, Tanis_79, TenaciousP_79, TenaciousP_80, Tonaltzin_78, Tonaltzin_79, Trufflozitus_82, Untouchable_80, Untouchable_81, Vardy_77, Vardy_78, Zeph_80, Zeph_81,

Genes that have the "Most Annotated" start but do not call it:
• Fazel_82,

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

Summary by start number:

Start 18:
• Found in 1 of 115 (0.9%) of genes in pham
• Manual Annotations of this start: 1 of 100
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Fazel_82 (DJ),

Start 23:
• Found in 115 of 115 (100.0%) of genes in pham
• Manual Annotations of this start: 99 of 100
• Called 99.1% of time when present
• Phage (with cluster) where this start called: Aflac_79 (DJ), Aflac_80 (DJ), AlainaMarie_79 (DJ), AlainaMarie_80 (DJ), Aloe25_80 (DJ), Aloe25_81 (DJ), Arataki_77 (DJ), Arataki_78 (DJ), ArtetaBall_78 (DJ), ArtetaBall_79 (DJ), Artorias_81 (DJ), Avazak_82 (DJ), BetterYeti_78 (DJ), BetterYeti_79 (DJ), Blanky_74 (DJ), Blanky_75 (DJ), BluerMoon_78 (DJ), BluerMoon_79 (DJ), Bugg_85 (DJ), Burley_78 (DJ), Burley_79 (DJ), CWormy_77 (DJ), CWormy_78 (DJ), Captrips_80 (DJ), Capybara_79 (DJ), ChickyNuggy_84 (DJ), Chikenjars_78 (DJ), Chikenjars_79 (DJ), Citrus_78 (DJ), Citrus_79 (DJ), Conley_78 (DJ), Crocheter_79 (DJ), Crocheter_80 (DJ), Dancer_81 (DJ), Demure_77 (DJ), Demure_78 (DJ), Dialga_80 (DJ), Dialga_81 (DJ), Duffington_79 (DJ), Duffington_80 (DJ), Eddiemania_79 (DJ), Eddiemania_80 (DJ), EndAve_80 (DJ), EndAve_81 (DJ), Figliar_77 (DJ), Figliar_78 (DJ), Football_84 (DJ), FortCran_81 (DJ), Gill_79 (DJ), Glintora_80 (DJ), Glintora_81 (DJ), Gravy_78 (DJ), Gusicorn_80 (DJ), Gusicorn_81 (DJ), Hydrus_78 (DJ), Hydrus_79 (DJ), Jodelie19_77 (DJ), Jodelie19_78 (DJ), JulesRay_81 (DJ), Kenosha_77 (DJ), Kenosha_78 (DJ), Kerry_78 (DJ), Luthien_78 (DJ), Luthien_79 (DJ), Madvan_78 (DJ), Madvan_79 (DJ), Magel_80 (DJ), MajinBuu_79 (DJ), MajinBuu_80 (DJ), Mossy_79 (DJ), Mossy_80 (DJ), Mysticmoon_79 (DJ), Mysticmoon_80 (DJ), Nadmeg_78 (DJ), Nadmeg_79 (DJ), Nithya_77 (DJ), Nithya_78 (DJ), NoPickles_80 (DJ), Odesza_78 (DJ), OhMyWard_75 (DJ), OhMyWard_76 (DJ), OlgasClover_81 (DJ), OlgasClover_82 (DJ), Perkunas_81 (DJ), PestoPenguin_80 (DJ), PestoPenguin_81 (DJ), Petito_82 (DJ), Phepper_79 (DJ), Phepper_80 (DJ), Pherobrine_79 (DJ), Pherobrine_80 (DJ), Rickmore_77 (DJ), Rickmore_78 (DJ), Roney_78 (DJ), Runhaar_77 (DJ), Runhaar_78 (DJ), Schwartz33_78 (DJ), ShaggyRogers_78 (DJ), ShaggyRogers_79 (DJ), SweetCrkHerbs_82 (DJ), Tairn4Wing_84 (DJ), Talon44_83 (DJ), Tanis_79 (DJ), TenaciousP_79 (DJ), TenaciousP_80 (DJ), Tonaltzin_78 (DJ), Tonaltzin_79 (DJ), Trufflozitus_82 (DJ), Untouchable_80 (DJ), Untouchable_81 (DJ), Vardy_77 (DJ), Vardy_78 (DJ), Zeph_80 (DJ), Zeph_81 (DJ),

Summary by clusters:

There is one cluster represented in this pham: DJ

Info for manual annotations of cluster DJ:
•Start number 18 was manually annotated 1 time for cluster DJ.
•Start number 23 was manually annotated 99 times for cluster DJ.

Gene Information:

Gene: Aflac_80 Start: 52431, Stop: 52676, Start Num: 23
Candidate Starts for Aflac_80:
(Start: 23 @52431 has 99 MA's), (31, 52509), (33, 52515), (53, 52644), (54, 52647),

Gene: Aflac_79 Start: 52180, Stop: 52449, Start Num: 23
Candidate Starts for Aflac_79:
(1, 51850), (2, 51949), (3, 51952), (4, 51955), (6, 52075), (8, 52081), (10, 52111), (Start: 23 @52180 has 99 MA's), (37, 52285), (40, 52312), (45, 52348), (56, 52420),

Gene: AlainaMarie_79 Start: 52225, Stop: 52494, Start Num: 23
Candidate Starts for AlainaMarie_79:
(Start: 23 @52225 has 99 MA's), (28, 52267), (40, 52357), (41, 52366), (50, 52438), (55, 52462), (56, 52465),

Gene: AlainaMarie_80 Start: 52476, Stop: 52721, Start Num: 23
Candidate Starts for AlainaMarie_80:
(Start: 23 @52476 has 99 MA's), (53, 52689), (54, 52692),

Gene: Aloe25_81 Start: 51856, Stop: 52113, Start Num: 23
Candidate Starts for Aloe25_81:
(Start: 23 @51856 has 99 MA's), (31, 51934), (46, 52030), (53, 52069), (58, 52090),

Gene: Aloe25_80 Start: 51605, Stop: 51874, Start Num: 23
Candidate Starts for Aloe25_80:
(16, 51581), (20, 51590), (Start: 23 @51605 has 99 MA's), (37, 51710), (40, 51737), (47, 51791), (50, 51818), (56, 51845),

Gene: Arataki_78 Start: 51470, Stop: 51730, Start Num: 23
Candidate Starts for Arataki_78:
(Start: 23 @51470 has 99 MA's), (30, 51548), (37, 51578), (40, 51605), (53, 51701),

Gene: Arataki_77 Start: 51219, Stop: 51488, Start Num: 23
Candidate Starts for Arataki_77:
(20, 51204), (22, 51210), (Start: 23 @51219 has 99 MA's), (38, 51330), (39, 51342), (50, 51432), (56, 51459),

Gene: ArtetaBall_78 Start: 51781, Stop: 52050, Start Num: 23
Candidate Starts for ArtetaBall_78:
(20, 51766), (Start: 23 @51781 has 99 MA's), (37, 51886), (40, 51913), (45, 51949), (50, 51994), (56, 52021),

Gene: ArtetaBall_79 Start: 52032, Stop: 52289, Start Num: 23
Candidate Starts for ArtetaBall_79:
(Start: 23 @52032 has 99 MA's), (30, 52110), (37, 52140), (40, 52167), (53, 52263), (54, 52266), (57, 52275),

Gene: Artorias_81 Start: 51703, Stop: 51936, Start Num: 23
Candidate Starts for Artorias_81:

(12, 51643), (13, 51661), (Start: 23 @51703 has 99 MA's), (25, 51730), (30, 51778), (40, 51835), (42, 51847), (44, 51859), (49, 51910), (51, 51919),

Gene: Avazak_82 Start: 52385, Stop: 52618, Start Num: 23
Candidate Starts for Avazak_82:
(12, 52325), (13, 52343), (Start: 23 @52385 has 99 MA's), (25, 52412), (30, 52460), (40, 52517), (42, 52529), (49, 52592), (51, 52601),

Gene: BetterYeti_79 Start: 51855, Stop: 52112, Start Num: 23
Candidate Starts for BetterYeti_79:
(Start: 23 @51855 has 99 MA's), (31, 51933), (46, 52029), (53, 52068), (58, 52089),

Gene: BetterYeti_78 Start: 51604, Stop: 51873, Start Num: 23
Candidate Starts for BetterYeti_78:
(16, 51580), (20, 51589), (Start: 23 @51604 has 99 MA's), (37, 51709), (40, 51736), (47, 51790), (50, 51817), (56, 51844),

Gene: Blanky_75 Start: 52917, Stop: 53174, Start Num: 23
Candidate Starts for Blanky_75:
(15, 52881), (Start: 23 @52917 has 99 MA's), (30, 52995), (37, 53025), (40, 53052), (53, 53148), (54, 53151), (57, 53160),

Gene: Blanky_74 Start: 52666, Stop: 52935, Start Num: 23
Candidate Starts for Blanky_74:
(20, 52651), (Start: 23 @52666 has 99 MA's), (30, 52741), (45, 52834), (50, 52879), (56, 52906),

Gene: BluerMoon_78 Start: 52132, Stop: 52401, Start Num: 23
Candidate Starts for BluerMoon_78:
(14, 52102), (20, 52117), (Start: 23 @52132 has 99 MA's), (28, 52174), (40, 52264), (45, 52300), (50, 52345), (56, 52372),

Gene: BluerMoon_79 Start: 52383, Stop: 52628, Start Num: 23
Candidate Starts for BluerMoon_79:
(Start: 23 @52383 has 99 MA's), (31, 52461), (33, 52467), (35, 52476), (53, 52596), (54, 52599),

Gene: Bugg_85 Start: 51748, Stop: 51981, Start Num: 23
Candidate Starts for Bugg_85:
(12, 51688), (13, 51706), (Start: 23 @51748 has 99 MA's), (25, 51775), (30, 51823), (40, 51880), (42, 51892), (44, 51904), (49, 51955), (51, 51964),

Gene: Burley_79 Start: 51488, Stop: 51745, Start Num: 23
Candidate Starts for Burley_79:
(Start: 23 @51488 has 99 MA's), (30, 51566), (37, 51596), (40, 51623), (53, 51719), (54, 51722), (57, 51731),

Gene: Burley_78 Start: 51237, Stop: 51506, Start Num: 23
Candidate Starts for Burley_78:
(20, 51222), (Start: 23 @51237 has 99 MA's), (37, 51342), (40, 51369), (45, 51405), (50, 51450), (56, 51477),

Gene: CWormy_77 Start: 51198, Stop: 51467, Start Num: 23
Candidate Starts for CWormy_77:
(20, 51183), (Start: 23 @51198 has 99 MA's), (37, 51303), (40, 51330), (50, 51411), (56, 51438),

Gene: CWormy_78 Start: 51449, Stop: 51709, Start Num: 23
Candidate Starts for CWormy_78:
(Start: 23 @51449 has 99 MA's), (30, 51527), (37, 51557), (40, 51584), (53, 51680), (54, 51683),

Gene: Captrips_80 Start: 51533, Stop: 51766, Start Num: 23
Candidate Starts for Captrips_80:
(12, 51473), (13, 51491), (Start: 23 @51533 has 99 MA's), (25, 51560), (30, 51608), (40, 51665), (42, 51677), (49, 51740), (51, 51749),

Gene: Capybara_79 Start: 51370, Stop: 51603, Start Num: 23
Candidate Starts for Capybara_79:
(12, 51310), (13, 51328), (Start: 23 @51370 has 99 MA's), (25, 51397), (30, 51445), (40, 51502), (42, 51514), (44, 51526), (49, 51577), (51, 51586),

Gene: ChickyNuggy_84 Start: 52127, Stop: 52360, Start Num: 23
Candidate Starts for ChickyNuggy_84:
(12, 52067), (13, 52085), (Start: 23 @52127 has 99 MA's), (25, 52154), (30, 52202), (40, 52259), (41, 52268), (44, 52283), (48, 52328), (49, 52334), (51, 52343),

Gene: Chikenjars_78 Start: 52191, Stop: 52460, Start Num: 23
Candidate Starts for Chikenjars_78:
(14, 52161), (20, 52176), (Start: 23 @52191 has 99 MA's), (37, 52296), (40, 52323), (45, 52359), (50, 52404), (56, 52431),

Gene: Chikenjars_79 Start: 52442, Stop: 52714, Start Num: 23
Candidate Starts for Chikenjars_79:
(Start: 23 @52442 has 99 MA's), (31, 52538), (52, 52673),

Gene: Citrus_78 Start: 52241, Stop: 52510, Start Num: 23
Candidate Starts for Citrus_78:
(20, 52226), (Start: 23 @52241 has 99 MA's), (37, 52346), (40, 52373), (45, 52409), (50, 52454), (56, 52481),

Gene: Citrus_79 Start: 52492, Stop: 52731, Start Num: 23
Candidate Starts for Citrus_79:
(Start: 23 @52492 has 99 MA's), (31, 52570), (53, 52705), (54, 52708), (57, 52717),

Gene: Conley_78 Start: 51834, Stop: 52067, Start Num: 23
Candidate Starts for Conley_78:
(13, 51792), (Start: 23 @51834 has 99 MA's), (36, 51930), (40, 51966), (48, 52035),

Gene: Crocheter_79 Start: 51698, Stop: 51967, Start Num: 23
Candidate Starts for Crocheter_79:
(16, 51674), (20, 51683), (Start: 23 @51698 has 99 MA's), (37, 51803), (40, 51830), (47, 51884), (50, 51911), (56, 51938),

Gene: Crocheter_80 Start: 51949, Stop: 52206, Start Num: 23
Candidate Starts for Crocheter_80:
(Start: 23 @51949 has 99 MA's), (31, 52027), (46, 52123), (53, 52162), (58, 52183),

Gene: Dancer_81 Start: 51440, Stop: 51673, Start Num: 23
Candidate Starts for Dancer_81:

(12, 51380), (13, 51398), (Start: 23 @51440 has 99 MA's), (25, 51467), (30, 51515), (40, 51572), (42, 51584), (44, 51596), (49, 51647), (51, 51656),

Gene: Demure_78 Start: 51470, Stop: 51730, Start Num: 23
Candidate Starts for Demure_78:
(Start: 23 @51470 has 99 MA's), (30, 51548), (37, 51578), (40, 51605), (53, 51701),

Gene: Demure_77 Start: 51219, Stop: 51488, Start Num: 23
Candidate Starts for Demure_77:
(20, 51204), (22, 51210), (Start: 23 @51219 has 99 MA's), (38, 51330), (39, 51342), (50, 51432), (56, 51459),

Gene: Dialga_81 Start: 52051, Stop: 52308, Start Num: 23
Candidate Starts for Dialga_81:
(Start: 23 @52051 has 99 MA's), (30, 52129), (37, 52159), (40, 52186), (53, 52282), (54, 52285), (57, 52294),

Gene: Dialga_80 Start: 51800, Stop: 52069, Start Num: 23
Candidate Starts for Dialga_80:
(20, 51785), (Start: 23 @51800 has 99 MA's), (37, 51905), (40, 51932), (45, 51968), (50, 52013), (56, 52040),

Gene: Duffington_80 Start: 52412, Stop: 52678, Start Num: 23
Candidate Starts for Duffington_80:
(Start: 23 @52412 has 99 MA's), (31, 52511), (53, 52646), (54, 52649),

Gene: Duffington_79 Start: 52161, Stop: 52430, Start Num: 23
Candidate Starts for Duffington_79:
(14, 52131), (21, 52146), (Start: 23 @52161 has 99 MA's), (37, 52266), (39, 52284), (40, 52293), (50, 52374), (56, 52401),

Gene: Eddiemania_79 Start: 52277, Stop: 52546, Start Num: 23
Candidate Starts for Eddiemania_79:
(20, 52262), (Start: 23 @52277 has 99 MA's), (37, 52382), (40, 52409), (45, 52445), (50, 52490), (56, 52517),

Gene: Eddiemania_80 Start: 52528, Stop: 52785, Start Num: 23
Candidate Starts for Eddiemania_80:
(Start: 23 @52528 has 99 MA's), (30, 52606), (37, 52636), (40, 52663), (53, 52759), (54, 52762), (57, 52771),

Gene: EndAve_80 Start: 52135, Stop: 52404, Start Num: 23
Candidate Starts for EndAve_80:
(20, 52120), (Start: 23 @52135 has 99 MA's), (37, 52240), (40, 52267), (45, 52303), (50, 52348), (56, 52375),

Gene: EndAve_81 Start: 52386, Stop: 52646, Start Num: 23
Candidate Starts for EndAve_81:
(Start: 23 @52386 has 99 MA's), (30, 52464), (37, 52494), (40, 52521), (53, 52617), (54, 52620),

Gene: Fazel_82 Start: 52164, Stop: 52436, Start Num: 18
Candidate Starts for Fazel_82:

(11, 52113), (Start: 18 @52164 has 1 MA's), (Start: 23 @52185 has 99 MA's), (24, 52203), (27, 52224), (29, 52233), (30, 52260), (37, 52290), (40, 52317), (42, 52329), (51, 52401), (53, 52413), (54, 52416),

Gene: Figliar_78 Start: 52211, Stop: 52483, Start Num: 23
Candidate Starts for Figliar_78:
(Start: 23 @52211 has 99 MA's), (31, 52307), (52, 52442),

Gene: Figliar_77 Start: 51960, Stop: 52229, Start Num: 23
Candidate Starts for Figliar_77:
(5, 51849), (7, 51858), (8, 51861), (9, 51885), (Start: 23 @51960 has 99 MA's), (37, 52065), (40, 52092), (45, 52128), (47, 52146), (50, 52173), (56, 52200),

Gene: Football_84 Start: 51330, Stop: 51563, Start Num: 23
Candidate Starts for Football_84:
(12, 51270), (13, 51288), (Start: 23 @51330 has 99 MA's), (25, 51357), (30, 51405), (40, 51462), (41, 51471), (44, 51486), (48, 51531), (49, 51537), (51, 51546),

Gene: FortCran_81 Start: 51703, Stop: 51936, Start Num: 23
Candidate Starts for FortCran_81:
(12, 51643), (13, 51661), (Start: 23 @51703 has 99 MA's), (25, 51730), (30, 51778), (40, 51835), (42, 51847), (44, 51859), (49, 51910), (51, 51919),

Gene: Gill_79 Start: 51397, Stop: 51630, Start Num: 23
Candidate Starts for Gill_79:
(Start: 23 @51397 has 99 MA's), (24, 51415), (40, 51529), (41, 51538), (46, 51571), (48, 51598), (49, 51604), (51, 51613),

Gene: Glintora_81 Start: 52587, Stop: 52850, Start Num: 23
Candidate Starts for Glintora_81:
(Start: 23 @52587 has 99 MA's), (30, 52665), (37, 52695), (40, 52722), (53, 52818), (54, 52821),

Gene: Glintora_80 Start: 52336, Stop: 52605, Start Num: 23
Candidate Starts for Glintora_80:
(Start: 23 @52336 has 99 MA's), (37, 52441), (40, 52468), (45, 52504), (50, 52549), (56, 52576),

Gene: Gravy_78 Start: 51060, Stop: 51293, Start Num: 23
Candidate Starts for Gravy_78:
(12, 51000), (13, 51018), (Start: 23 @51060 has 99 MA's), (25, 51087), (30, 51135), (40, 51192), (42, 51204), (44, 51216), (49, 51267), (51, 51276),

Gene: Gusicorn_81 Start: 51856, Stop: 52113, Start Num: 23
Candidate Starts for Gusicorn_81:
(Start: 23 @51856 has 99 MA's), (31, 51934), (46, 52030), (53, 52069), (58, 52090),

Gene: Gusicorn_80 Start: 51605, Stop: 51874, Start Num: 23
Candidate Starts for Gusicorn_80:
(16, 51581), (20, 51590), (Start: 23 @51605 has 99 MA's), (37, 51710), (40, 51737), (47, 51791), (50, 51818), (56, 51845),

Gene: Hydrus_79 Start: 52247, Stop: 52492, Start Num: 23
Candidate Starts for Hydrus_79:
(Start: 23 @52247 has 99 MA's), (26, 52280), (30, 52322), (46, 52421), (53, 52460), (54, 52463),

Gene: Hydrus_78 Start: 51996, Stop: 52265, Start Num: 23
Candidate Starts for Hydrus_78:
(20, 51981), (22, 51987), (Start: 23 @51996 has 99 MA's), (37, 52101), (40, 52128), (45, 52164), (50, 52209), (56, 52236),

Gene: Jodelie19_77 Start: 53127, Stop: 53396, Start Num: 23
Candidate Starts for Jodelie19_77:
(5, 53016), (7, 53025), (8, 53028), (9, 53052), (Start: 23 @53127 has 99 MA's), (37, 53232), (40, 53259), (45, 53295), (47, 53313), (50, 53340), (56, 53367),

Gene: Jodelie19_78 Start: 53378, Stop: 53650, Start Num: 23
Candidate Starts for Jodelie19_78:
(Start: 23 @53378 has 99 MA's), (31, 53474), (52, 53609),

Gene: JulesRay_81 Start: 52052, Stop: 52285, Start Num: 23
Candidate Starts for JulesRay_81:
(12, 51992), (13, 52010), (Start: 23 @52052 has 99 MA's), (25, 52079), (30, 52127), (40, 52184), (41, 52193), (44, 52208), (49, 52259), (51, 52268),

Gene: Kenosha_77 Start: 51826, Stop: 52095, Start Num: 23
Candidate Starts for Kenosha_77:
(5, 51715), (6, 51721), (7, 51724), (10, 51757), (20, 51811), (Start: 23 @51826 has 99 MA's), (38, 51937), (39, 51949), (50, 52039), (56, 52066),

Gene: Kenosha_78 Start: 52077, Stop: 52337, Start Num: 23
Candidate Starts for Kenosha_78:
(Start: 23 @52077 has 99 MA's), (30, 52155), (37, 52185), (40, 52212), (53, 52308),

Gene: Kerry_78 Start: 51123, Stop: 51356, Start Num: 23
Candidate Starts for Kerry_78:
(12, 51063), (13, 51081), (Start: 23 @51123 has 99 MA's), (25, 51150), (30, 51198), (40, 51255), (42, 51267), (44, 51279), (49, 51330), (51, 51339),

Gene: Luthien_79 Start: 52381, Stop: 52641, Start Num: 23
Candidate Starts for Luthien_79:
(Start: 23 @52381 has 99 MA's), (30, 52459), (37, 52489), (40, 52516), (53, 52612), (54, 52615),

Gene: Luthien_78 Start: 52130, Stop: 52399, Start Num: 23
Candidate Starts for Luthien_78:
(20, 52115), (Start: 23 @52130 has 99 MA's), (37, 52235), (40, 52262), (45, 52298), (50, 52343), (56, 52370),

Gene: Madvan_79 Start: 51544, Stop: 51801, Start Num: 23
Candidate Starts for Madvan_79:
(Start: 23 @51544 has 99 MA's), (30, 51622), (37, 51652), (40, 51679), (53, 51775), (54, 51778), (57, 51787),

Gene: Madvan_78 Start: 51293, Stop: 51562, Start Num: 23
Candidate Starts for Madvan_78:
(20, 51278), (Start: 23 @51293 has 99 MA's), (37, 51398), (40, 51425), (45, 51461), (50, 51506), (56, 51533),

Gene: Magel_80 Start: 51312, Stop: 51545, Start Num: 23

Candidate Starts for Magel_80:
(Start: 23 @51312 has 99 MA's), (24, 51330), (40, 51444), (41, 51453), (46, 51486), (48, 51513), (49, 51519), (51, 51528),

Gene: MajinBuu_80 Start: 52593, Stop: 52859, Start Num: 23
Candidate Starts for MajinBuu_80:
(Start: 23 @52593 has 99 MA's), (31, 52692), (53, 52827), (54, 52830),

Gene: MajinBuu_79 Start: 52342, Stop: 52611, Start Num: 23
Candidate Starts for MajinBuu_79:
(5, 52231), (7, 52240), (8, 52243), (9, 52267), (Start: 23 @52342 has 99 MA's), (37, 52447), (40, 52474), (45, 52510), (47, 52528), (50, 52555), (56, 52582),

Gene: Mossy_80 Start: 53129, Stop: 53389, Start Num: 23
Candidate Starts for Mossy_80:
(15, 53093), (Start: 23 @53129 has 99 MA's), (30, 53207), (37, 53237), (40, 53264), (53, 53360),

Gene: Mossy_79 Start: 52878, Stop: 53147, Start Num: 23
Candidate Starts for Mossy_79:
(20, 52863), (Start: 23 @52878 has 99 MA's), (30, 52953), (45, 53046), (50, 53091), (56, 53118),

Gene: Mysticmoon_79 Start: 52520, Stop: 52789, Start Num: 23
Candidate Starts for Mysticmoon_79:
(20, 52505), (Start: 23 @52520 has 99 MA's), (38, 52631), (39, 52643), (50, 52733), (56, 52760),

Gene: Mysticmoon_80 Start: 52771, Stop: 53031, Start Num: 23
Candidate Starts for Mysticmoon_80:
(15, 52735), (Start: 23 @52771 has 99 MA's), (30, 52849), (37, 52879), (40, 52906), (53, 53002),

Gene: Nadmeg_78 Start: 52296, Stop: 52565, Start Num: 23
Candidate Starts for Nadmeg_78:
(20, 52281), (Start: 23 @52296 has 99 MA's), (37, 52401), (40, 52428), (47, 52482), (50, 52509), (56, 52536),

Gene: Nadmeg_79 Start: 52547, Stop: 52804, Start Num: 23
Candidate Starts for Nadmeg_79:
(Start: 23 @52547 has 99 MA's), (30, 52625), (37, 52655), (40, 52682), (53, 52778), (54, 52781), (57, 52790),

Gene: Nithya_78 Start: 51930, Stop: 52190, Start Num: 23
Candidate Starts for Nithya_78:
(Start: 23 @51930 has 99 MA's), (30, 52008), (37, 52038), (40, 52065), (53, 52161),

Gene: Nithya_77 Start: 51679, Stop: 51948, Start Num: 23
Candidate Starts for Nithya_77:
(20, 51664), (Start: 23 @51679 has 99 MA's), (37, 51784), (40, 51811), (47, 51865), (50, 51892), (56, 51919),

Gene: NoPickles_80 Start: 51219, Stop: 51452, Start Num: 23
Candidate Starts for NoPickles_80:
(12, 51159), (13, 51177), (Start: 23 @51219 has 99 MA's), (25, 51246), (30, 51294), (40, 51351), (42, 51363), (49, 51426), (51, 51435),

Gene: Odesza_78 Start: 51259, Stop: 51492, Start Num: 23
Candidate Starts for Odesza_78:
(Start: 23 @51259 has 99 MA's), (24, 51277), (40, 51391), (41, 51400), (46, 51433), (48, 51460), (49, 51466), (51, 51475),

Gene: OhMyWard_75 Start: 52637, Stop: 52906, Start Num: 23
Candidate Starts for OhMyWard_75:
(20, 52622), (Start: 23 @52637 has 99 MA's), (37, 52742), (39, 52760), (40, 52769), (50, 52850), (56, 52877),

Gene: OhMyWard_76 Start: 52888, Stop: 53148, Start Num: 23
Candidate Starts for OhMyWard_76:
(Start: 23 @52888 has 99 MA's), (30, 52966), (37, 52996), (40, 53023), (53, 53119),

Gene: OlgasClover_82 Start: 53301, Stop: 53540, Start Num: 23
Candidate Starts for OlgasClover_82:
(Start: 23 @53301 has 99 MA's), (30, 53376), (31, 53379), (33, 53385), (34, 53388), (49, 53493), (53, 53514), (54, 53517), (57, 53526),

Gene: OlgasClover_81 Start: 53050, Stop: 53319, Start Num: 23
Candidate Starts for OlgasClover_81:
(10, 52972), (11, 52975), (17, 53026), (19, 53032), (21, 53035), (Start: 23 @53050 has 99 MA's), (30, 53125), (40, 53182), (41, 53191), (50, 53263), (55, 53287), (56, 53290),

Gene: Perkunas_81 Start: 51320, Stop: 51553, Start Num: 23
Candidate Starts for Perkunas_81:
(13, 51278), (Start: 23 @51320 has 99 MA's), (30, 51395), (32, 51401), (40, 51452), (48, 51521), (51, 51536),

Gene: PestoPenguin_80 Start: 51605, Stop: 51874, Start Num: 23
Candidate Starts for PestoPenguin_80:
(16, 51581), (20, 51590), (Start: 23 @51605 has 99 MA's), (37, 51710), (40, 51737), (47, 51791), (50, 51818), (56, 51845),

Gene: PestoPenguin_81 Start: 51856, Stop: 52113, Start Num: 23
Candidate Starts for PestoPenguin_81:
(Start: 23 @51856 has 99 MA's), (31, 51934), (46, 52030), (53, 52069), (58, 52090),

Gene: Petito_82 Start: 52786, Stop: 53019, Start Num: 23
Candidate Starts for Petito_82:
(13, 52744), (Start: 23 @52786 has 99 MA's), (26, 52819), (36, 52882), (40, 52918),

Gene: Phepper_79 Start: 51535, Stop: 51804, Start Num: 23
Candidate Starts for Phepper_79:
(20, 51520), (Start: 23 @51535 has 99 MA's), (37, 51640), (40, 51667), (45, 51703), (50, 51748), (56, 51775),

Gene: Phepper_80 Start: 51786, Stop: 52043, Start Num: 23
Candidate Starts for Phepper_80:
(Start: 23 @51786 has 99 MA's), (30, 51864), (37, 51894), (40, 51921), (53, 52017), (54, 52020), (57, 52029),

Gene: Pherobrine_80 Start: 52826, Stop: 53086, Start Num: 23

Candidate Starts for Pherobrine_80:
(Start: 23 @52826 has 99 MA's), (30, 52904), (37, 52934), (40, 52961), (53, 53057),

Gene: Pherobrine_79 Start: 52575, Stop: 52844, Start Num: 23
Candidate Starts for Pherobrine_79:
(20, 52560), (22, 52566), (Start: 23 @52575 has 99 MA's), (38, 52686), (39, 52698), (50, 52788), (56, 52815),

Gene: Rickmore_78 Start: 50902, Stop: 51162, Start Num: 23
Candidate Starts for Rickmore_78:
(Start: 23 @50902 has 99 MA's), (31, 51001), (43, 51070), (53, 51136), (54, 51139), (57, 51148),

Gene: Rickmore_77 Start: 50651, Stop: 50920, Start Num: 23
Candidate Starts for Rickmore_77:
(10, 50573), (11, 50576), (17, 50627), (19, 50633), (21, 50636), (Start: 23 @50651 has 99 MA's), (37, 50756), (39, 50774), (40, 50783), (50, 50864), (56, 50891),

Gene: Roney_78 Start: 51422, Stop: 51655, Start Num: 23
Candidate Starts for Roney_78:
(Start: 23 @51422 has 99 MA's), (24, 51440), (30, 51497), (40, 51554), (42, 51566), (44, 51578), (49, 51629), (51, 51638),

Gene: Runhaar_77 Start: 51344, Stop: 51613, Start Num: 23
Candidate Starts for Runhaar_77:
(20, 51329), (Start: 23 @51344 has 99 MA's), (37, 51449), (40, 51476), (45, 51512), (50, 51557), (56, 51584),

Gene: Runhaar_78 Start: 51595, Stop: 51852, Start Num: 23
Candidate Starts for Runhaar_78:
(Start: 23 @51595 has 99 MA's), (30, 51673), (37, 51703), (40, 51730), (53, 51826), (54, 51829), (57, 51838),

Gene: Schwartz33_78 Start: 51355, Stop: 51648, Start Num: 23
Candidate Starts for Schwartz33_78:
(Start: 23 @51355 has 99 MA's), (40, 51487), (59, 51628),

Gene: ShaggyRogers_79 Start: 51586, Stop: 51855, Start Num: 23
Candidate Starts for ShaggyRogers_79:
(Start: 23 @51586 has 99 MA's), (30, 51664), (37, 51694), (40, 51721), (53, 51817),

Gene: ShaggyRogers_78 Start: 51335, Stop: 51604, Start Num: 23
Candidate Starts for ShaggyRogers_78:
(20, 51320), (Start: 23 @51335 has 99 MA's), (37, 51440), (40, 51467), (47, 51521), (50, 51548), (56, 51575),

Gene: SweetCrkHerbs_82 Start: 51333, Stop: 51566, Start Num: 23
Candidate Starts for SweetCrkHerbs_82:
(13, 51291), (Start: 23 @51333 has 99 MA's), (30, 51408), (32, 51414), (40, 51465), (48, 51534), (51, 51549),

Gene: Tairn4Wing_84 Start: 51541, Stop: 51774, Start Num: 23
Candidate Starts for Tairn4Wing_84:

(12, 51481), (13, 51499), (Start: 23 @51541 has 99 MA's), (25, 51568), (40, 51673), (42, 51685), (44, 51697), (49, 51748), (51, 51757),

Gene: Talon44_83 Start: 52171, Stop: 52404, Start Num: 23
Candidate Starts for Talon44_83:
(12, 52111), (13, 52129), (Start: 23 @52171 has 99 MA's), (25, 52198), (30, 52246), (40, 52303), (42, 52315), (49, 52378), (51, 52387),

Gene: Tanis_79 Start: 51242, Stop: 51475, Start Num: 23
Candidate Starts for Tanis_79:
(Start: 23 @51242 has 99 MA's), (24, 51260), (40, 51374), (41, 51383), (46, 51416), (48, 51443), (49, 51449), (51, 51458),

Gene: TenaciousP_80 Start: 53340, Stop: 53612, Start Num: 23
Candidate Starts for TenaciousP_80:
(Start: 23 @53340 has 99 MA's), (31, 53436), (52, 53571),

Gene: TenaciousP_79 Start: 53089, Stop: 53358, Start Num: 23
Candidate Starts for TenaciousP_79:
(5, 52978), (7, 52987), (8, 52990), (9, 53014), (Start: 23 @53089 has 99 MA's), (37, 53194), (40, 53221), (45, 53257), (47, 53275), (50, 53302), (56, 53329),

Gene: Tonaltzin_78 Start: 51948, Stop: 52217, Start Num: 23
Candidate Starts for Tonaltzin_78:
(1, 51618), (2, 51717), (3, 51720), (4, 51723), (6, 51843), (8, 51849), (10, 51879), (Start: 23 @51948 has 99 MA's), (37, 52053), (40, 52080), (45, 52116), (50, 52161), (56, 52188),

Gene: Tonaltzin_79 Start: 52199, Stop: 52444, Start Num: 23
Candidate Starts for Tonaltzin_79:
(Start: 23 @52199 has 99 MA's), (40, 52331), (41, 52340), (46, 52373), (53, 52412), (54, 52415),

Gene: Trufflozitus_82 Start: 52056, Stop: 52289, Start Num: 23
Candidate Starts for Trufflozitus_82:
(12, 51996), (13, 52014), (Start: 23 @52056 has 99 MA's), (25, 52083), (40, 52188), (42, 52200), (44, 52212), (49, 52263), (51, 52272),

Gene: Untouchable_80 Start: 52532, Stop: 52801, Start Num: 23
Candidate Starts for Untouchable_80:
(20, 52517), (Start: 23 @52532 has 99 MA's), (37, 52637), (40, 52664), (45, 52700), (50, 52745), (56, 52772),

Gene: Untouchable_81 Start: 52783, Stop: 53040, Start Num: 23
Candidate Starts for Untouchable_81:
(Start: 23 @52783 has 99 MA's), (30, 52861), (37, 52891), (40, 52918), (53, 53014), (54, 53017), (57, 53026),

Gene: Vardy_78 Start: 51482, Stop: 51739, Start Num: 23
Candidate Starts for Vardy_78:
(Start: 23 @51482 has 99 MA's), (30, 51560), (37, 51590), (40, 51617), (53, 51713), (54, 51716), (57, 51725),

Gene: Vardy_77 Start: 51231, Stop: 51500, Start Num: 23
Candidate Starts for Vardy_77:

(20, 51216), (Start: 23 @51231 has 99 MA's), (37, 51336), (40, 51363), (45, 51399), (50, 51444), (56, 51471),

Gene: Zeph_80 Start: 52369, Stop: 52638, Start Num: 23
Candidate Starts for Zeph_80:
(20, 52354), (Start: 23 @52369 has 99 MA's), (37, 52474), (40, 52501), (45, 52537), (50, 52582), (56, 52609),

Gene: Zeph_81 Start: 52620, Stop: 52865, Start Num: 23
Candidate Starts for Zeph_81:
(Start: 23 @52620 has 99 MA's), (26, 52653), (30, 52695), (46, 52794), (53, 52833), (54, 52836),