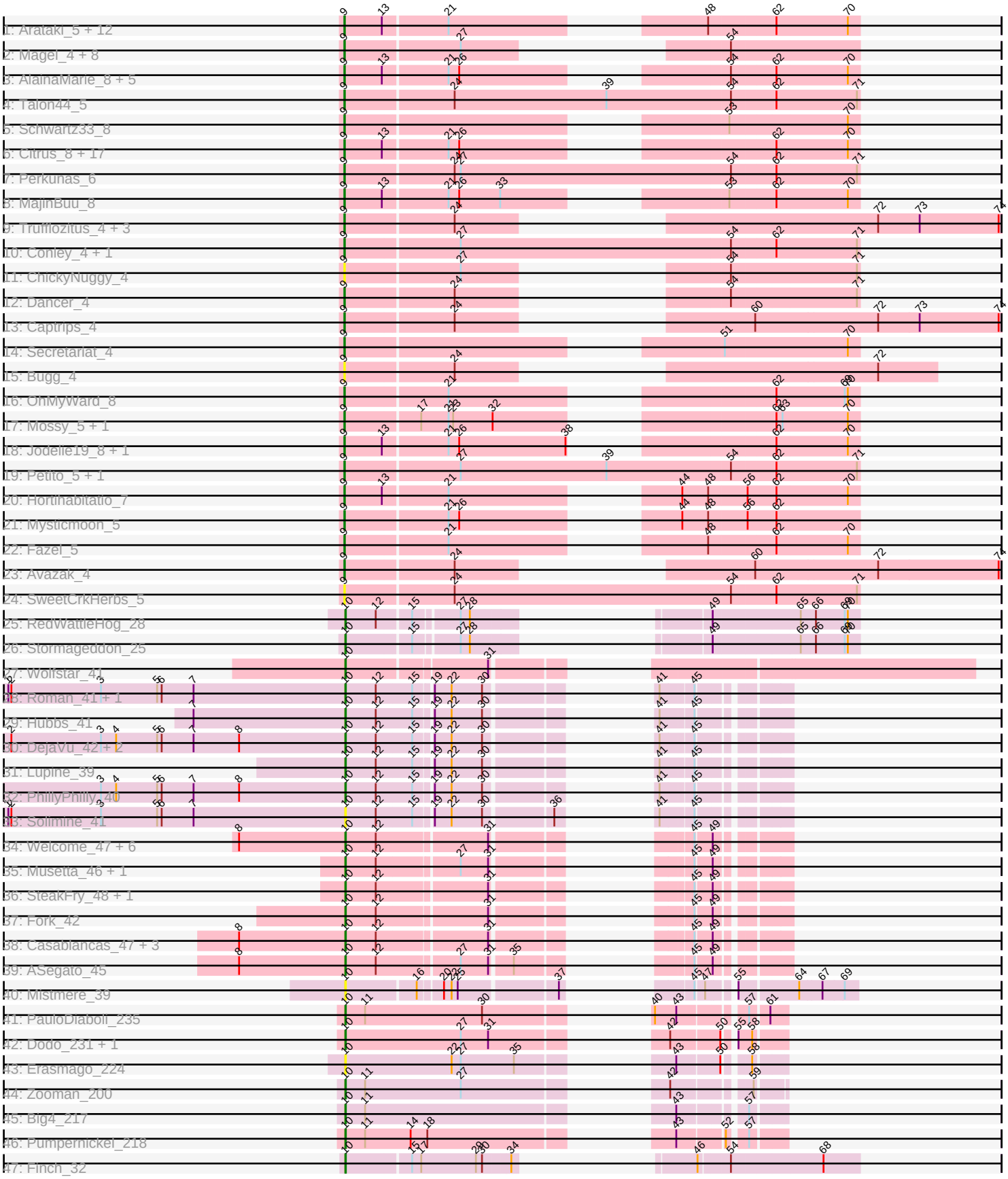
Pham 341963


1: Arataki_5 + 12
2: Magel_4 + 8
3: AlainaMarie_8 + 5
4: Talon44_5
5: Schwartz33_8
6: Citrus_8 + 17
7: Perkunas_6
8: MajinBuu_8
9: Trufflozitus_4 + 3
10: Conley_4 + 1
11: ChickyNuggy_4
12: Dancer_4
13: Captrips_4
14: Secretariat_4
15: Bugg_4
16: OhMyWard_8
17: Mossy_5 + 1
18: Jodelle19_8 + 1
19: Petito_5 + 1
20: Hortihabitatio_7
21: Mysticmoon_5
22: Fazel_5
23: Avazak_4
24: SweetCrkHerbs_5
25: RedWattleHog_28
26: Stormageddon_25
27: Wolfstar_41
28: Roman_41 + 1
29: Hubbs_41
30: Dejavu_42 + 2
31: Lupine_39
32: PhillyPhilly_40
33: Solimine_41
34: Welcome_47 + 6
35: Musetta_46 + 1
36: SteakFry_48 + 1
37: Fork_42
38: Casablancas_47 + 3
39: ASegato_45
40: Mistmere_39
41: PauloDiaboli_235
42: Dodo_231 + 1
43: Erasmago_224
44: Zooman_200
45: Big4_217
46: Pumpernickel_218
47: Finch_32

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 341963 Report

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

Pham number 341963 has 111 members, 16 are drafts.

Phages represented in each track:
• Track 1 : Arataki_5, Crocheter_7, CWormy_7, Zeph_7, Hydrus_7, Phepper_8, ArtetaBall_7, Pherobrine_5, Dialga_7, Demure_5, Madvan_8, Untouchable_7, Kenosha_5
• Track 2 : Magel_4, Capybara_4, NoPickles_4, Gravy_4, Odesza_4, Roney_4, Gill_4, Tanis_4, Kerry_4
• Track 3 : AlainaMarie_8, Glintora_7, EndAve_8, Nithya_8, Chikenjars_8, Luthien_8
• Track 4 : Talon44_5
• Track 5 : Schwartz33_8
• Track 6 : Citrus_8, BluerMoon_8, Aflac_8, Figliar_8, Runhaar_8, BetterYeti_8, Eddiemania_7, PestoPenguin_8, ShaggyRogers_8, Nadmeg_8, OlgasClover_8, Vardy_8, Gusicorn_8, Tonaltzin_8, Burley_8, Aloe25_8, Rickmore_7, Duffington_8
• Track 7 : Perkunas_6
• Track 8 : MajinBuu_8
• Track 9 : Trufflozitus_4, Artorias_4, JulesRay_4, FortCran_4
• Track 10 : Conley_4, Football_4
• Track 11 : ChickyNuggy_4
• Track 12 : Dancer_4
• Track 13 : Captrips_4
• Track 14 : Secretariat_4
• Track 15 : Bugg_4
• Track 16 : OhMyWard_8
• Track 17 : Mossy_5, Blanky_4
• Track 18 : Jodelie19_8, TenaciousP_8
• Track 19 : Petito_5, Tairn4Wing_4
• Track 20 : Hortihabitatio_7
• Track 21 : Mysticmoon_5
• Track 22 : Fazel_5
• Track 23 : Avazak_4
• Track 24 : SweetCrkHerbs_5
• Track 25 : RedWattleHog_28
• Track 26 : Stormageddon_25
• Track 27 : Wolfstar_41
• Track 28 : Roman_41, Saradis_41
• Track 29 : Hubbs_41
• Track 30 : DejaVu_42, Pavlo_39, Uterion_44
• Track 31 : Lupine_39
• Track 32 : PhillyPhilly_40

• Track 33 : Solimine_41
• Track 34 : Welcome_47, Lyell_46, StevieWelch_46, RunningBrook_47, Necrophoxinus_48, DustyDino_49, Deschain_47
• Track 35 : Musetta_46, Issa7_45
• Track 36 : SteakFry_48, HollowPurple_47
• Track 37 : Fork_42
• Track 38 : Casablancas_47, Erenyeager_46, Shroomer_50, Yuma_45
• Track 39 : ASegato_45
• Track 40 : Mistmere_39
• Track 41 : PauloDiaboli_235
• Track 42 : Dodo_231, A3Wally_235
• Track 43 : Erasmago_224
• Track 44 : Zooman_200
• Track 45 : Big4_217
• Track 46 : Pumpernickel_218
• Track 47 : Finch_32

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

The start number called the most often in the published annotations is 9, it was called in 63 of the 95 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Aflac_8, AlainaMarie_8, Aloe25_8, Arataki_5, ArtetaBall_7, Artorias_4, Avazak_4, BetterYeti_8, Blanky_4, BluerMoon_8, Bugg_4, Burley_8, CWormy_7, Captrips_4, Capybara_4, ChickyNuggy_4, Chikenjars_8, Citrus_8, Conley_4, Crocheter_7, Dancer_4, Demure_5, Dialga_7, Duffington_8, Eddiemania_7, EndAve_8, Fazel_5, Figliar_8, Football_4, FortCran_4, Gill_4, Glintora_7, Gravy_4, Gusicorn_8, Hortihabitatio_7, Hydrus_7, Jodelie19_8, JulesRay_4, Kenosha_5, Kerry_4, Luthien_8, Madvan_8, Magel_4, MajinBuu_8, Mossy_5, Mysticmoon_5, Nadmeg_8, Nithya_8, NoPickles_4, Odesza_4, OhMyWard_8, OlgasClover_8, Perkunas_6, PestoPenguin_8, Petito_5, Phepper_8, Pherobrine_5, Rickmore_7, Roney_4, Runhaar_8, Schwartz33_8, Secretariat_4, ShaggyRogers_8, SweetCrkHerbs_5, Tairn4Wing_4, Talon44_5, Tanis_4, TenaciousP_8, Tonaltzin_8, Trufflozitus_4, Untouchable_7, Vardy_8, Zeph_7,

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

Genes that do not have the "Most Annotated" start:
• A3Wally_235, ASegato_45, Big4_217, Casablancas_47, DejaVu_42, Deschain_47, Dodo_231, DustyDino_49, Erasmago_224, Erenyeager_46, Finch_32, Fork_42, HollowPurple_47, Hubbs_41, Issa7_45, Lupine_39, Lyell_46, Mistmere_39, Musetta_46, Necrophoxinus_48, PauloDiaboli_235, Pavlo_39, PhillyPhilly_40, Pumpernickel_218, RedWattleHog_28, Roman_41, RunningBrook_47, Saradis_41, Shroomer_50, Solimine_41, SteakFry_48, StevieWelch_46, Stormageddon_25, Uterion_44, Welcome_47, Wolfstar_41, Yuma_45, Zooman_200,

Summary by start number:

Start 9:
• Found in 73 of 111 (65.8%) of genes in pham
• Manual Annotations of this start: 63 of 95
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Aflac_8 (DJ), AlainaMarie_8 (DJ), Aloe25_8 (DJ), Arataki_5 (DJ), ArtetaBall_7 (DJ), Artorias_4 (DJ), Avazak_4 (DJ), BetterYeti_8 (DJ), Blanky_4 (DJ), BluerMoon_8 (DJ), Bugg_4 (DJ), Burley_8 (DJ), CWormy_7 (DJ), Captrips_4 (DJ), Capybara_4 (DJ), ChickyNuggy_4 (DJ), Chikenjars_8 (DJ), Citrus_8 (DJ), Conley_4 (DJ), Crocheter_7 (DJ), Dancer_4 (DJ), Demure_5 (DJ), Dialga_7 (DJ), Duffington_8 (DJ), Eddiemania_7 (DJ), EndAve_8 (DJ), Fazel_5 (DJ), Figliar_8 (DJ), Football_4 (DJ), FortCran_4 (DJ), Gill_4 (DJ), Glintora_7 (DJ), Gravy_4 (DJ), Gusicorn_8 (DJ), Hortihabitatio_7 (DJ), Hydrus_7 (DJ), Jodelie19_8 (DJ), JulesRay_4 (DJ), Kenosha_5 (DJ), Kerry_4 (DJ), Luthien_8 (DJ), Madvan_8 (DJ), Magel_4 (DJ), MajinBuu_8 (DJ), Mossy_5 (DJ), Mysticmoon_5 (DJ), Nadmeg_8 (DJ), Nithya_8 (DJ), NoPickles_4 (DJ), Odesza_4 (DJ), OhMyWard_8 (DJ), OlgasClover_8 (DJ), Perkunas_6 (DJ), PestoPenguin_8 (DJ), Petito_5 (DJ), Phepper_8 (DJ), Pherobrine_5 (DJ), Rickmore_7 (DJ), Roney_4 (DJ), Runhaar_8 (DJ), Schwartz33_8 (DJ), Secretariat_4 (DJ), ShaggyRogers_8 (DJ), SweetCrkHerbs_5 (DJ), Tairn4Wing_4 (DJ), Talon44_5 (DJ), Tanis_4 (DJ), TenaciousP_8 (DJ), Tonaltzin_8 (DJ), Trufflozitus_4 (DJ), Untouchable_7 (DJ), Vardy_8 (DJ), Zeph_7 (DJ),

Start 10:
• Found in 38 of 111 (34.2%) of genes in pham
• Manual Annotations of this start: 32 of 95
• Called 100.0% of time when present
• Phage (with cluster) where this start called: A3Wally_235 (GD1), ASegato_45 (ED2), Big4_217 (GD2), Casablancas_47 (ED2), DejaVu_42 (ED1), Deschain_47 (ED2), Dodo_231 (GD1), DustyDino_49 (ED2), Erasmago_224 (GD2), Erenyeager_46 (ED2), Finch_32 (singleton), Fork_42 (ED2), HollowPurple_47 (ED2), Hubbs_41 (ED1), Issa7_45 (ED2), Lupine_39 (ED1), Lyell_46 (ED2), Mistmere_39 (ED3), Musetta_46 (ED2), Necrophoxinus_48 (ED2), PauloDiaboli_235 (GD1), Pavlo_39 (ED1), PhillyPhilly_40 (ED1), Pumpernickel_218 (GD4), RedWattleHog_28 (DX), Roman_41 (ED1), RunningBrook_47 (ED2), Saradis_41 (ED1), Shroomer_50 (ED2), Solimine_41 (ED1), SteakFry_48 (ED2), StevieWelch_46 (ED2), Stormageddon_25 (DX), Uterion_44 (ED1), Welcome_47 (ED2), Wolfstar_41 (ED), Yuma_45 (ED2), Zooman_200 (GD2),

Summary by clusters:

There are 10 clusters represented in this pham: GD1, GD2, DJ, ED, singleton, ED2, ED3, ED1, DX, GD4,

Info for manual annotations of cluster DJ:
•Start number 9 was manually annotated 63 times for cluster DJ.

Info for manual annotations of cluster DX:
•Start number 10 was manually annotated 2 times for cluster DX.

Info for manual annotations of cluster ED:
•Start number 10 was manually annotated 1 time for cluster ED.

Info for manual annotations of cluster ED1:

•Start number 10 was manually annotated 7 times for cluster ED1.

Info for manual annotations of cluster ED2:
•Start number 10 was manually annotated 15 times for cluster ED2.

Info for manual annotations of cluster GD1:
•Start number 10 was manually annotated 3 times for cluster GD1.

Info for manual annotations of cluster GD2:
•Start number 10 was manually annotated 2 times for cluster GD2.

Info for manual annotations of cluster GD4:
•Start number 10 was manually annotated 1 time for cluster GD4.

Gene Information:

Gene: A3Wally_235 Start: 125991, Stop: 126635, Start Num: 10
Candidate Starts for A3Wally_235:
(Start: 10 @125991 has 32 MA's), (27, 126219), (31, 126273), (42, 126456), (50, 126543), (55, 126555), (58, 126579),

Gene: ASegato_45 Start: 19908, Stop: 20519, Start Num: 10
Candidate Starts for ASegato_45:
(8, 19698), (Start: 10 @19908 has 32 MA's), (12, 19968), (27, 20118), (31, 20172), (35, 20211), (45, 20373), (49, 20400),

Gene: Aflac_8 Start: 3585, Stop: 4418, Start Num: 9
Candidate Starts for Aflac_8:
(Start: 9 @3585 has 63 MA's), (13, 3657), (21, 3774), (26, 3795), (62, 4257), (70, 4395),

Gene: AlainaMarie_8 Start: 3576, Stop: 4409, Start Num: 9
Candidate Starts for AlainaMarie_8:
(Start: 9 @3576 has 63 MA's), (13, 3648), (21, 3765), (26, 3786), (54, 4167), (62, 4248), (70, 4386),

Gene: Aloe25_8 Start: 3582, Stop: 4415, Start Num: 9
Candidate Starts for Aloe25_8:
(Start: 9 @3582 has 63 MA's), (13, 3654), (21, 3771), (26, 3792), (62, 4254), (70, 4392),

Gene: Arataki_5 Start: 1373, Stop: 2206, Start Num: 9
Candidate Starts for Arataki_5:
(Start: 9 @1373 has 63 MA's), (13, 1445), (21, 1562), (48, 1925), (62, 2045), (70, 2183),

Gene: ArtetaBall_7 Start: 2509, Stop: 3342, Start Num: 9
Candidate Starts for ArtetaBall_7:
(Start: 9 @2509 has 63 MA's), (13, 2581), (21, 2698), (48, 3061), (62, 3181), (70, 3319),

Gene: Artorias_4 Start: 1145, Stop: 2128, Start Num: 9
Candidate Starts for Artorias_4:
(Start: 9 @1145 has 63 MA's), (24, 1346), (72, 1886), (73, 1967), (74, 2123),

Gene: Avazak_4 Start: 1145, Stop: 2128, Start Num: 9
Candidate Starts for Avazak_4:
(Start: 9 @1145 has 63 MA's), (24, 1346), (60, 1646), (72, 1886), (74, 2123),

Gene: BetterYeti_8 Start: 3582, Stop: 4415, Start Num: 9
Candidate Starts for BetterYeti_8:
(Start: 9 @3582 has 63 MA's), (13, 3654), (21, 3771), (26, 3792), (62, 4254), (70, 4392),

Gene: Big4_217 Start: 121400, Stop: 122044, Start Num: 10
Candidate Starts for Big4_217:
(Start: 10 @121400 has 32 MA's), (11, 121439), (43, 121877), (57, 121982),

Gene: Blanky_4 Start: 1427, Stop: 2260, Start Num: 9
Candidate Starts for Blanky_4:
(Start: 9 @1427 has 63 MA's), (17, 1562), (21, 1616), (23, 1625), (32, 1703), (62, 2099), (63, 2111), (70, 2237),

Gene: BluerMoon_8 Start: 3579, Stop: 4412, Start Num: 9
Candidate Starts for BluerMoon_8:
(Start: 9 @3579 has 63 MA's), (13, 3651), (21, 3768), (26, 3789), (62, 4251), (70, 4389),

Gene: Bugg_4 Start: 1145, Stop: 2002, Start Num: 9
Candidate Starts for Bugg_4:
(Start: 9 @1145 has 63 MA's), (24, 1346), (72, 1886),

Gene: Burley_8 Start: 3582, Stop: 4415, Start Num: 9
Candidate Starts for Burley_8:
(Start: 9 @3582 has 63 MA's), (13, 3654), (21, 3771), (26, 3792), (62, 4254), (70, 4392),

Gene: CWormy_7 Start: 2509, Stop: 3342, Start Num: 9
Candidate Starts for CWormy_7:
(Start: 9 @2509 has 63 MA's), (13, 2581), (21, 2698), (48, 3061), (62, 3181), (70, 3319),

Gene: Captrips_4 Start: 1145, Stop: 2128, Start Num: 9
Candidate Starts for Captrips_4:
(Start: 9 @1145 has 63 MA's), (24, 1346), (60, 1646), (72, 1886), (73, 1967), (74, 2123),

Gene: Capybara_4 Start: 1145, Stop: 1834, Start Num: 9
Candidate Starts for Capybara_4:
(Start: 9 @1145 has 63 MA's), (27, 1358), (54, 1592),

Gene: Casablancas_47 Start: 19992, Stop: 20603, Start Num: 10
Candidate Starts for Casablancas_47:
(8, 19782), (Start: 10 @19992 has 32 MA's), (12, 20052), (31, 20256), (45, 20457), (49, 20484),

Gene: ChickyNuggy_4 Start: 1145, Stop: 1834, Start Num: 9
Candidate Starts for ChickyNuggy_4:
(Start: 9 @1145 has 63 MA's), (27, 1358), (54, 1592), (71, 1829),

Gene: Chikenjars_8 Start: 3576, Stop: 4409, Start Num: 9
Candidate Starts for Chikenjars_8:
(Start: 9 @3576 has 63 MA's), (13, 3648), (21, 3765), (26, 3786), (54, 4167), (62, 4248), (70, 4386),

Gene: Citrus_8 Start: 3582, Stop: 4415, Start Num: 9
Candidate Starts for Citrus_8:
(Start: 9 @3582 has 63 MA's), (13, 3654), (21, 3771), (26, 3792), (62, 4254), (70, 4392),

Gene: Conley_4 Start: 1146, Stop: 2129, Start Num: 9
Candidate Starts for Conley_4:
(Start: 9 @1146 has 63 MA's), (27, 1359), (54, 1887), (62, 1968), (71, 2124),

Gene: Crocheter_7 Start: 2509, Stop: 3342, Start Num: 9
Candidate Starts for Crocheter_7:
(Start: 9 @2509 has 63 MA's), (13, 2581), (21, 2698), (48, 3061), (62, 3181), (70, 3319),

Gene: Dancer_4 Start: 1145, Stop: 1834, Start Num: 9
Candidate Starts for Dancer_4:
(Start: 9 @1145 has 63 MA's), (24, 1346), (54, 1592), (71, 1829),

Gene: DejaVu_42 Start: 19157, Stop: 19768, Start Num: 10
Candidate Starts for DejaVu_42:
(2, 18497), (3, 18674), (4, 18704), (5, 18785), (6, 18794), (7, 18857), (8, 18947), (Start: 10 @19157 has 32 MA's), (12, 19217), (15, 19286), (19, 19316), (22, 19349), (30, 19409), (41, 19562), (45, 19622),

Gene: Demure_5 Start: 1373, Stop: 2206, Start Num: 9
Candidate Starts for Demure_5:
(Start: 9 @1373 has 63 MA's), (13, 1445), (21, 1562), (48, 1925), (62, 2045), (70, 2183),

Gene: Deschain_47 Start: 20656, Stop: 21267, Start Num: 10
Candidate Starts for Deschain_47:
(8, 20446), (Start: 10 @20656 has 32 MA's), (12, 20716), (31, 20920), (45, 21121), (49, 21148),

Gene: Dialga_7 Start: 2509, Stop: 3342, Start Num: 9
Candidate Starts for Dialga_7:
(Start: 9 @2509 has 63 MA's), (13, 2581), (21, 2698), (48, 3061), (62, 3181), (70, 3319),

Gene: Dodo_231 Start: 125793, Stop: 126437, Start Num: 10
Candidate Starts for Dodo_231:
(Start: 10 @125793 has 32 MA's), (27, 126021), (31, 126075), (42, 126258), (50, 126345), (55, 126357), (58, 126381),

Gene: Duffington_8 Start: 3561, Stop: 4394, Start Num: 9
Candidate Starts for Duffington_8:
(Start: 9 @3561 has 63 MA's), (13, 3633), (21, 3750), (26, 3771), (62, 4233), (70, 4371),

Gene: DustyDino_49 Start: 20847, Stop: 21458, Start Num: 10
Candidate Starts for DustyDino_49:
(8, 20637), (Start: 10 @20847 has 32 MA's), (12, 20907), (31, 21111), (45, 21312), (49, 21339),

Gene: Eddiemania_7 Start: 2767, Stop: 3600, Start Num: 9
Candidate Starts for Eddiemania_7:
(Start: 9 @2767 has 63 MA's), (13, 2839), (21, 2956), (26, 2977), (62, 3439), (70, 3577),

Gene: EndAve_8 Start: 3576, Stop: 4409, Start Num: 9
Candidate Starts for EndAve_8:
(Start: 9 @3576 has 63 MA's), (13, 3648), (21, 3765), (26, 3786), (54, 4167), (62, 4248), (70, 4386),

Gene: Erasmago_224 Start: 120337, Stop: 120981, Start Num: 10
Candidate Starts for Erasmago_224:
(Start: 10 @120337 has 32 MA's), (22, 120547), (27, 120565), (35, 120670), (43, 120814), (50, 120889), (58, 120925),

Gene: Erenyeager_46 Start: 20242, Stop: 20853, Start Num: 10
Candidate Starts for Erenyeager_46:
(8, 20032), (Start: 10 @20242 has 32 MA's), (12, 20302), (31, 20506), (45, 20707), (49, 20734),

Gene: Fazel_5 Start: 2306, Stop: 3139, Start Num: 9
Candidate Starts for Fazel_5:
(Start: 9 @2306 has 63 MA's), (21, 2495), (48, 2858), (62, 2978), (70, 3116),

Gene: Figliar_8 Start: 3585, Stop: 4418, Start Num: 9
Candidate Starts for Figliar_8:
(Start: 9 @3585 has 63 MA's), (13, 3657), (21, 3774), (26, 3795), (62, 4257), (70, 4395),

Gene: Finch_32 Start: 27174, Stop: 27863, Start Num: 10
Candidate Starts for Finch_32:
(Start: 10 @27174 has 32 MA's), (15, 27291), (17, 27309), (29, 27417), (30, 27429), (34, 27477), (46, 27567), (54, 27621), (68, 27792),

Gene: Football_4 Start: 1145, Stop: 1834, Start Num: 9
Candidate Starts for Football_4:
(Start: 9 @1145 has 63 MA's), (27, 1358), (54, 1592), (62, 1673), (71, 1829),

Gene: Fork_42 Start: 19557, Stop: 20168, Start Num: 10
Candidate Starts for Fork_42:
(Start: 10 @19557 has 32 MA's), (12, 19617), (31, 19821), (45, 20022), (49, 20049),

Gene: FortCran_4 Start: 1145, Stop: 2128, Start Num: 9
Candidate Starts for FortCran_4:
(Start: 9 @1145 has 63 MA's), (24, 1346), (72, 1886), (73, 1967), (74, 2123),

Gene: Gill_4 Start: 1145, Stop: 1834, Start Num: 9
Candidate Starts for Gill_4:
(Start: 9 @1145 has 63 MA's), (27, 1358), (54, 1592),

Gene: Glintora_7 Start: 3576, Stop: 4409, Start Num: 9
Candidate Starts for Glintora_7:
(Start: 9 @3576 has 63 MA's), (13, 3648), (21, 3765), (26, 3786), (54, 4167), (62, 4248), (70, 4386),

Gene: Gravy_4 Start: 1145, Stop: 1834, Start Num: 9
Candidate Starts for Gravy_4:
(Start: 9 @1145 has 63 MA's), (27, 1358), (54, 1592),

Gene: Gusicorn_8 Start: 3582, Stop: 4415, Start Num: 9
Candidate Starts for Gusicorn_8:
(Start: 9 @3582 has 63 MA's), (13, 3654), (21, 3771), (26, 3792), (62, 4254), (70, 4392),

Gene: HollowPurple_47 Start: 20110, Stop: 20721, Start Num: 10
Candidate Starts for HollowPurple_47:

(Start: 10 @20110 has 32 MA's), (12, 20170), (31, 20374), (45, 20575), (49, 20602),

Gene: Hortihabitatio_7 Start: 2863, Stop: 3696, Start Num: 9
Candidate Starts for Hortihabitatio_7:
(Start: 9 @2863 has 63 MA's), (13, 2935), (21, 3052), (44, 3364), (48, 3415), (56, 3484), (62, 3535), (70, 3673),

Gene: Hubbs_41 Start: 19369, Stop: 19980, Start Num: 10
Candidate Starts for Hubbs_41:
(7, 19069), (Start: 10 @19369 has 32 MA's), (12, 19429), (15, 19498), (19, 19528), (22, 19561), (30, 19621), (41, 19774), (45, 19834),

Gene: Hydrus_7 Start: 2767, Stop: 3600, Start Num: 9
Candidate Starts for Hydrus_7:
(Start: 9 @2767 has 63 MA's), (13, 2839), (21, 2956), (48, 3319), (62, 3439), (70, 3577),

Gene: Issa7_45 Start: 19563, Stop: 20174, Start Num: 10
Candidate Starts for Issa7_45:
(Start: 10 @19563 has 32 MA's), (12, 19623), (27, 19773), (31, 19827), (45, 20028), (49, 20055),

Gene: Jodelie19_8 Start: 3579, Stop: 4412, Start Num: 9
Candidate Starts for Jodelie19_8:
(Start: 9 @3579 has 63 MA's), (13, 3651), (21, 3768), (26, 3789), (38, 3999), (62, 4251), (70, 4389),

Gene: JulesRay_4 Start: 1145, Stop: 2128, Start Num: 9
Candidate Starts for JulesRay_4:
(Start: 9 @1145 has 63 MA's), (24, 1346), (72, 1886), (73, 1967), (74, 2123),

Gene: Kenosha_5 Start: 1368, Stop: 2201, Start Num: 9
Candidate Starts for Kenosha_5:
(Start: 9 @1368 has 63 MA's), (13, 1440), (21, 1557), (48, 1920), (62, 2040), (70, 2178),

Gene: Kerry_4 Start: 1145, Stop: 1834, Start Num: 9
Candidate Starts for Kerry_4:
(Start: 9 @1145 has 63 MA's), (27, 1358), (54, 1592),

Gene: Lupine_39 Start: 18570, Stop: 19181, Start Num: 10
Candidate Starts for Lupine_39:
(Start: 10 @18570 has 32 MA's), (12, 18630), (15, 18699), (19, 18729), (22, 18762), (30, 18822), (41, 18975), (45, 19035),

Gene: Luthien_8 Start: 3576, Stop: 4409, Start Num: 9
Candidate Starts for Luthien_8:
(Start: 9 @3576 has 63 MA's), (13, 3648), (21, 3765), (26, 3786), (54, 4167), (62, 4248), (70, 4386),

Gene: Lyell_46 Start: 20161, Stop: 20772, Start Num: 10
Candidate Starts for Lyell_46:
(8, 19951), (Start: 10 @20161 has 32 MA's), (12, 20221), (31, 20425), (45, 20626), (49, 20653),

Gene: Madvan_8 Start: 3582, Stop: 4415, Start Num: 9
Candidate Starts for Madvan_8:
(Start: 9 @3582 has 63 MA's), (13, 3654), (21, 3771), (48, 4134), (62, 4254), (70, 4392),

Gene: Magel_4 Start: 1145, Stop: 1834, Start Num: 9
Candidate Starts for Magel_4:
(Start: 9 @1145 has 63 MA's), (27, 1358), (54, 1592),

Gene: MajinBuu_8 Start: 3579, Stop: 4412, Start Num: 9
Candidate Starts for MajinBuu_8:
(Start: 9 @3579 has 63 MA's), (13, 3651), (21, 3768), (26, 3789), (33, 3870), (53, 4167), (62, 4251), (70, 4389),

Gene: Mistmere_39 Start: 18720, Stop: 19445, Start Num: 10
Candidate Starts for Mistmere_39:
(Start: 10 @18720 has 32 MA's), (16, 18846), (20, 18888), (22, 18903), (25, 18915), (37, 19095), (45, 19176), (47, 19191), (55, 19230), (64, 19335), (67, 19377), (69, 19419),

Gene: Mossy_5 Start: 1428, Stop: 2261, Start Num: 9
Candidate Starts for Mossy_5:
(Start: 9 @1428 has 63 MA's), (17, 1563), (21, 1617), (23, 1626), (32, 1704), (62, 2100), (63, 2112), (70, 2238),

Gene: Musetta_46 Start: 20279, Stop: 20890, Start Num: 10
Candidate Starts for Musetta_46:
(Start: 10 @20279 has 32 MA's), (12, 20339), (27, 20489), (31, 20543), (45, 20744), (49, 20771),

Gene: Mysticmoon_5 Start: 1338, Stop: 2171, Start Num: 9
Candidate Starts for Mysticmoon_5:
(Start: 9 @1338 has 63 MA's), (21, 1527), (26, 1548), (44, 1839), (48, 1890), (56, 1959), (62, 2010),

Gene: Nadmeg_8 Start: 3583, Stop: 4416, Start Num: 9
Candidate Starts for Nadmeg_8:
(Start: 9 @3583 has 63 MA's), (13, 3655), (21, 3772), (26, 3793), (62, 4255), (70, 4393),

Gene: Necrophoxinus_48 Start: 20855, Stop: 21466, Start Num: 10
Candidate Starts for Necrophoxinus_48:
(8, 20645), (Start: 10 @20855 has 32 MA's), (12, 20915), (31, 21119), (45, 21320), (49, 21347),

Gene: Nithya_8 Start: 3576, Stop: 4409, Start Num: 9
Candidate Starts for Nithya_8:
(Start: 9 @3576 has 63 MA's), (13, 3648), (21, 3765), (26, 3786), (54, 4167), (62, 4248), (70, 4386),

Gene: NoPickles_4 Start: 1145, Stop: 1834, Start Num: 9
Candidate Starts for NoPickles_4:
(Start: 9 @1145 has 63 MA's), (27, 1358), (54, 1592),

Gene: Odesza_4 Start: 1145, Stop: 1834, Start Num: 9
Candidate Starts for Odesza_4:
(Start: 9 @1145 has 63 MA's), (27, 1358), (54, 1592),

Gene: OhMyWard_8 Start: 3580, Stop: 4413, Start Num: 9
Candidate Starts for OhMyWard_8:
(Start: 9 @3580 has 63 MA's), (21, 3769), (62, 4252), (69, 4384), (70, 4390),

Gene: OlgasClover_8 Start: 3576, Stop: 4409, Start Num: 9
Candidate Starts for OlgasClover_8:

(Start: 9 @3576 has 63 MA's), (13, 3648), (21, 3765), (26, 3786), (62, 4248), (70, 4386),

Gene: PauloDiaboli_235 Start: 124195, Stop: 124839, Start Num: 10
Candidate Starts for PauloDiaboli_235:
(Start: 10 @124195 has 32 MA's), (11, 124234), (30, 124465), (40, 124630), (43, 124672), (57, 124777), (61, 124810),

Gene: Pavlo_39 Start: 18848, Stop: 19459, Start Num: 10
Candidate Starts for Pavlo_39:
(2, 18188), (3, 18365), (4, 18395), (5, 18476), (6, 18485), (7, 18548), (8, 18638), (Start: 10 @18848 has 32 MA's), (12, 18908), (15, 18977), (19, 19007), (22, 19040), (30, 19100), (41, 19253), (45, 19313),

Gene: Perkunas_6 Start: 1664, Stop: 2647, Start Num: 9
Candidate Starts for Perkunas_6:
(Start: 9 @1664 has 63 MA's), (24, 1865), (27, 1877), (54, 2405), (62, 2486), (71, 2642),

Gene: PestoPenguin_8 Start: 3582, Stop: 4415, Start Num: 9
Candidate Starts for PestoPenguin_8:
(Start: 9 @3582 has 63 MA's), (13, 3654), (21, 3771), (26, 3792), (62, 4254), (70, 4392),

Gene: Petito_5 Start: 1340, Stop: 2323, Start Num: 9
Candidate Starts for Petito_5:
(Start: 9 @1340 has 63 MA's), (27, 1553), (39, 1841), (54, 2081), (62, 2162), (71, 2318),

Gene: Phepper_8 Start: 3582, Stop: 4415, Start Num: 9
Candidate Starts for Phepper_8:
(Start: 9 @3582 has 63 MA's), (13, 3654), (21, 3771), (48, 4134), (62, 4254), (70, 4392),

Gene: Pherobrine_5 Start: 1339, Stop: 2172, Start Num: 9
Candidate Starts for Pherobrine_5:
(Start: 9 @1339 has 63 MA's), (13, 1411), (21, 1528), (48, 1891), (62, 2011), (70, 2149),

Gene: PhillyPhilly_40 Start: 18750, Stop: 19361, Start Num: 10
Candidate Starts for PhillyPhilly_40:
(3, 18267), (4, 18297), (5, 18378), (6, 18387), (7, 18450), (8, 18540), (Start: 10 @18750 has 32 MA's), (12, 18810), (15, 18879), (19, 18909), (22, 18942), (30, 19002), (41, 19155), (45, 19215),

Gene: Pumpernickel_218 Start: 125283, Stop: 125930, Start Num: 10
Candidate Starts for Pumpernickel_218:
(Start: 10 @125283 has 32 MA's), (11, 125322), (14, 125412), (18, 125445), (43, 125760), (52, 125838), (57, 125865),

Gene: RedWattleHog_28 Start: 28686, Stop: 29360, Start Num: 10
Candidate Starts for RedWattleHog_28:
(Start: 10 @28686 has 32 MA's), (12, 28746), (15, 28803), (27, 28884), (28, 28902), (49, 29085), (65, 29244), (66, 29274), (69, 29331), (70, 29337),

Gene: Rickmore_7 Start: 2144, Stop: 2977, Start Num: 9
Candidate Starts for Rickmore_7:
(Start: 9 @2144 has 63 MA's), (13, 2216), (21, 2333), (26, 2354), (62, 2816), (70, 2954),

Gene: Roman_41 Start: 19216, Stop: 19827, Start Num: 10
Candidate Starts for Roman_41:

(1, 18550), (2, 18556), (3, 18733), (5, 18844), (6, 18853), (7, 18916), (Start: 10 @19216 has 32 MA's), (12, 19276), (15, 19345), (19, 19375), (22, 19408), (30, 19468), (41, 19621), (45, 19681),

Gene: Roney_4 Start: 1145, Stop: 1834, Start Num: 9
Candidate Starts for Roney_4:
(Start: 9 @1145 has 63 MA's), (27, 1358), (54, 1592),

Gene: Runhaar_8 Start: 3582, Stop: 4415, Start Num: 9
Candidate Starts for Runhaar_8:
(Start: 9 @3582 has 63 MA's), (13, 3654), (21, 3771), (26, 3792), (62, 4254), (70, 4392),

Gene: RunningBrook_47 Start: 20847, Stop: 21458, Start Num: 10
Candidate Starts for RunningBrook_47:
(8, 20637), (Start: 10 @20847 has 32 MA's), (12, 20907), (31, 21111), (45, 21312), (49, 21339),

Gene: Saradis_41 Start: 18808, Stop: 19419, Start Num: 10
Candidate Starts for Saradis_41:
(1, 18142), (2, 18148), (3, 18325), (5, 18436), (6, 18445), (7, 18508), (Start: 10 @18808 has 32 MA's), (12, 18868), (15, 18937), (19, 18967), (22, 19000), (30, 19060), (41, 19213), (45, 19273),

Gene: Schwartz33_8 Start: 3598, Stop: 4431, Start Num: 9
Candidate Starts for Schwartz33_8:
(Start: 9 @3598 has 63 MA's), (53, 4186), (70, 4408),

Gene: Secretariat_4 Start: 1204, Stop: 2037, Start Num: 9
Candidate Starts for Secretariat_4:
(Start: 9 @1204 has 63 MA's), (51, 1783), (70, 2014),

Gene: ShaggyRogers_8 Start: 3581, Stop: 4414, Start Num: 9
Candidate Starts for ShaggyRogers_8:
(Start: 9 @3581 has 63 MA's), (13, 3653), (21, 3770), (26, 3791), (62, 4253), (70, 4391),

Gene: Shroomer_50 Start: 20387, Stop: 20998, Start Num: 10
Candidate Starts for Shroomer_50:
(8, 20177), (Start: 10 @20387 has 32 MA's), (12, 20447), (31, 20651), (45, 20852), (49, 20879),

Gene: Solimine_41 Start: 19223, Stop: 19834, Start Num: 10
Candidate Starts for Solimine_41:
(1, 18557), (2, 18563), (3, 18740), (5, 18851), (6, 18860), (7, 18923), (Start: 10 @19223 has 32 MA's), (12, 19283), (15, 19352), (19, 19382), (22, 19415), (30, 19475), (36, 19598), (41, 19628), (45, 19688),

Gene: SteakFry_48 Start: 20110, Stop: 20721, Start Num: 10
Candidate Starts for SteakFry_48:
(Start: 10 @20110 has 32 MA's), (12, 20170), (31, 20374), (45, 20575), (49, 20602),

Gene: StevieWelch_46 Start: 20247, Stop: 20858, Start Num: 10
Candidate Starts for StevieWelch_46:
(8, 20037), (Start: 10 @20247 has 32 MA's), (12, 20307), (31, 20511), (45, 20712), (49, 20739),

Gene: Stormageddon_25 Start: 28669, Stop: 29343, Start Num: 10
Candidate Starts for Stormageddon_25:
(Start: 10 @28669 has 32 MA's), (15, 28786), (27, 28867), (28, 28885), (49, 29068), (65, 29227), (66, 29257), (69, 29314), (70, 29320),

Gene: SweetCrkHerbs_5 Start: 1340, Stop: 2323, Start Num: 9
Candidate Starts for SweetCrkHerbs_5:
(Start: 9 @1340 has 63 MA's), (24, 1541), (54, 2081), (62, 2162), (71, 2318),

Gene: Tairn4Wing_4 Start: 1145, Stop: 2128, Start Num: 9
Candidate Starts for Tairn4Wing_4:
(Start: 9 @1145 has 63 MA's), (27, 1358), (39, 1646), (54, 1886), (62, 1967), (71, 2123),

Gene: Talon44_5 Start: 1340, Stop: 2323, Start Num: 9
Candidate Starts for Talon44_5:
(Start: 9 @1340 has 63 MA's), (24, 1541), (39, 1841), (54, 2081), (62, 2162), (71, 2318),

Gene: Tanis_4 Start: 1145, Stop: 1684, Start Num: 9
Candidate Starts for Tanis_4:
(Start: 9 @1145 has 63 MA's), (27, 1358), (54, 1442),

Gene: TenaciousP_8 Start: 3579, Stop: 4412, Start Num: 9
Candidate Starts for TenaciousP_8:
(Start: 9 @3579 has 63 MA's), (13, 3651), (21, 3768), (26, 3789), (38, 3999), (62, 4251), (70, 4389),

Gene: Tonaltzin_8 Start: 3579, Stop: 4412, Start Num: 9
Candidate Starts for Tonaltzin_8:
(Start: 9 @3579 has 63 MA's), (13, 3651), (21, 3768), (26, 3789), (62, 4251), (70, 4389),

Gene: Trufflozitus_4 Start: 1145, Stop: 2128, Start Num: 9
Candidate Starts for Trufflozitus_4:
(Start: 9 @1145 has 63 MA's), (24, 1346), (72, 1886), (73, 1967), (74, 2123),

Gene: Untouchable_7 Start: 2508, Stop: 3341, Start Num: 9
Candidate Starts for Untouchable_7:
(Start: 9 @2508 has 63 MA's), (13, 2580), (21, 2697), (48, 3060), (62, 3180), (70, 3318),

Gene: Uterion_44 Start: 19318, Stop: 19929, Start Num: 10
Candidate Starts for Uterion_44:
(2, 18658), (3, 18835), (4, 18865), (5, 18946), (6, 18955), (7, 19018), (8, 19108), (Start: 10 @19318 has 32 MA's), (12, 19378), (15, 19447), (19, 19477), (22, 19510), (30, 19570), (41, 19723), (45, 19783),

Gene: Vardy_8 Start: 3581, Stop: 4414, Start Num: 9
Candidate Starts for Vardy_8:
(Start: 9 @3581 has 63 MA's), (13, 3653), (21, 3770), (26, 3791), (62, 4253), (70, 4391),

Gene: Welcome_47 Start: 20264, Stop: 20875, Start Num: 10
Candidate Starts for Welcome_47:
(8, 20054), (Start: 10 @20264 has 32 MA's), (12, 20324), (31, 20528), (45, 20729), (49, 20756),

Gene: Wolfstar_41 Start: 19173, Stop: 20177, Start Num: 10
Candidate Starts for Wolfstar_41:
(Start: 10 @19173 has 32 MA's), (31, 19428),

Gene: Yuma_45 Start: 20175, Stop: 20786, Start Num: 10
Candidate Starts for Yuma_45:
(8, 19965), (Start: 10 @20175 has 32 MA's), (12, 20235), (31, 20439), (45, 20640), (49, 20667),

Gene: Zeph_7 Start: 2767, Stop: 3600, Start Num: 9
Candidate Starts for Zeph_7:
(Start: 9 @2767 has 63 MA's), (13, 2839), (21, 2956), (48, 3319), (62, 3439), (70, 3577),

Gene: Zooman_200 Start: 118042, Stop: 118683, Start Num: 10
Candidate Starts for Zooman_200:
(Start: 10 @118042 has 32 MA's), (11, 118081), (27, 118270), (42, 118507), (59, 118633),