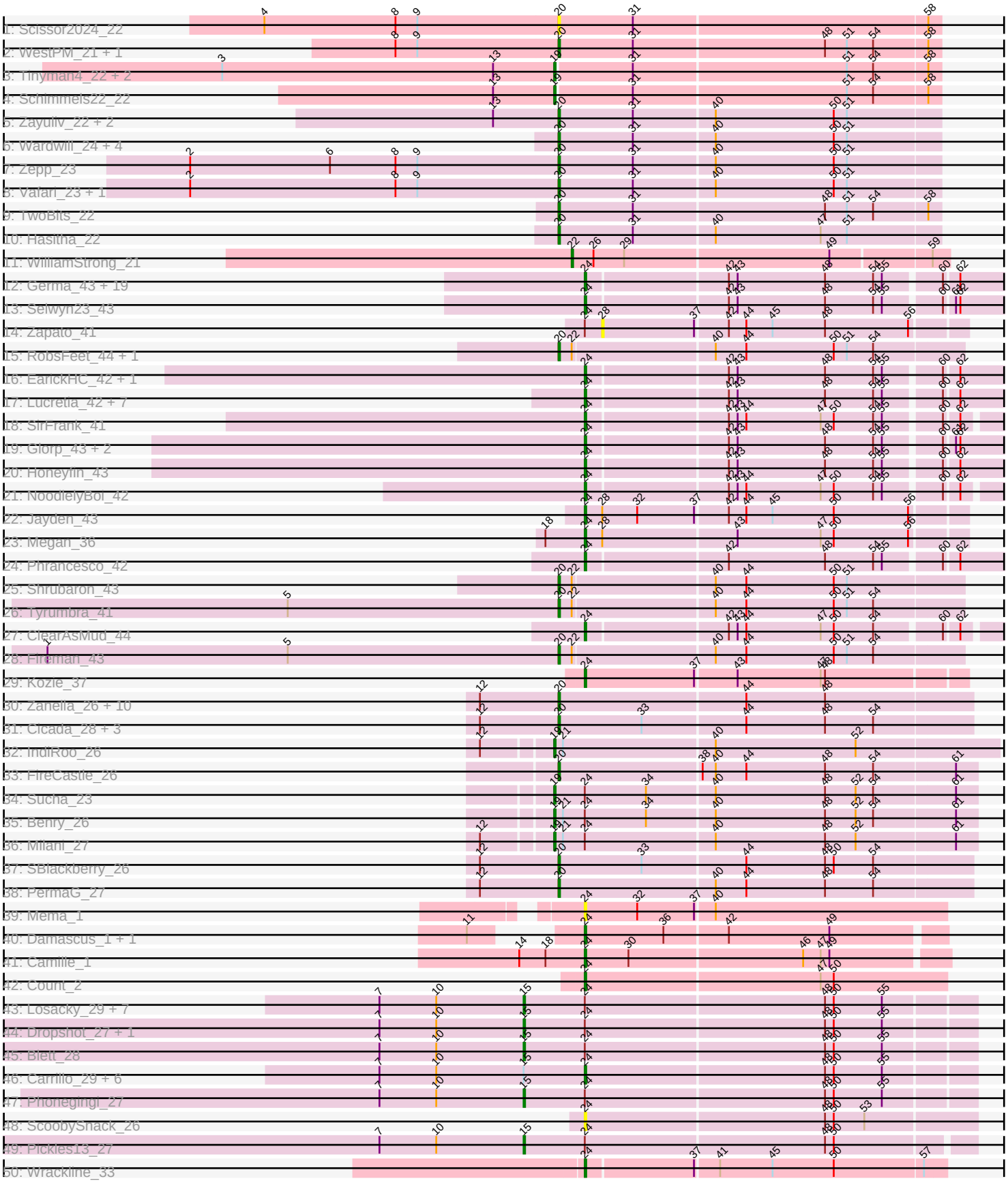
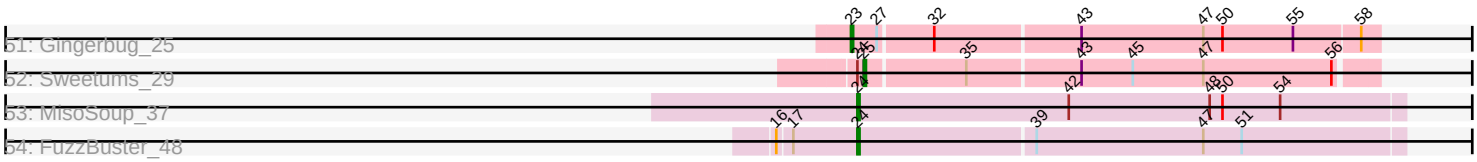
Pham 343772


1: Scissor2024_22
2: WestPM_21 + 1
3: Thyman4_22 + 2
4: Schimmels22_22
5: Zayuliv_22 + 2
6: Wardwill_24 + 4
7: Zepp_23
8: Vafari_23 + 1
9: TwoBits_22
10: Hasitha_22
11: WilliamStrong_21
12: Germa_43 + 19
13: Selwyn23_43
14: Zapato_41
15: RobsFeet_44 + 1
16: EarickHC_42 + 1
17: Lucretia_42 + 7
18: SirFrank_41
19: Glorp_43 + 2
20: Honeyfin_43
21: NoodlelyBoi_42
22: Jayden_43
23: Megan_36
24: Phrancesco_42
25: Shrubaron_43
26: Tyrumbra_41
27: ClearAsMud_44
28: Fireman_43
29: Kozie_37
30: Zanella_26 + 10
31: Cicada_28 + 3
32: IndiRoo_26
33: FireCastle_26
34: Sucha_23
35: Benry_26
36: Mliani_27
37: SBlackberry_26
38: PermaG_27
39: Mema_1
40: Damascus_1 + 1
41: Camille_1
42: Count_2
43: Losacky_29 + 7
44: Dropshot_27 + 1
45: Biett_28
46: Carrillo_29 + 6
47: Phonegingi_27
48: ScoobySnack_26
49: Pickles13_27
50: Wrackline_33

Pham 343772


51: Gingerbug_25
52: Sweetums_29
53: MisoSoup_37
54: FuzzBuster_48
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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 343772 Report

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

Pham number 343772 has 122 members, 14 are drafts.

Phages represented in each track:
• Track 1 : Scissor2024_22
• Track 2 : WestPM_21, Penta_21
• Track 3 : Tinyman4_22, Kavo_21, HerculesXL_22
• Track 4 : Schimmels22_22
• Track 5 : Zayuliv_22, GreenIvy_22, BaronJohn_22
• Track 6 : Wardwill_24, LilTerminator_22, Librie_22, Fulton_22, CaptainRex_22
• Track 7 : Zepp_23
• Track 8 : Vafari_23, QuadZero_22
• Track 9 : TwoBits_22
• Track 10 : Hasitha_22
• Track 11 : WilliamStrong_21
• Track 12 : Germa_43, CrazyRich_41, Ramiel05_41, Kowalski_41, Hermeonysus_41, Ganandorf_41, BeagleBug_41, Antares_42, Phorgeous_41, Crisis_43, Jollipop_42, Quhwah_45, Onika_41, BrazzalePHS_41, Cranjis_43, PhedwardCullen_41, Paschalis_41, Savannah_41, Scumberland_43, LittleFortune_43
• Track 13 : Selwyn23_43
• Track 14 : Zapato_41
• Track 15 : RobsFeet_44, Metamorphoo_43
• Track 16 : EarickHC_42, KaiHaiDragon_42
• Track 17 : Lucretia_42, Busephilis_41, PierreOrion_42, Piperis_42, Pulchra_43, Rockwell_41, Shotgun_41, PiperSansNom_42
• Track 18 : SirFrank_41
• Track 19 : Glorp_43, Jefe_42, Yeti_42
• Track 20 : Honeyfin_43
• Track 21 : NoodlelyBoi_42
• Track 22 : Jayden_43
• Track 23 : Megan_36
• Track 24 : Phrancesco_42
• Track 25 : Shrubaron_43
• Track 26 : Tyrumbra_41
• Track 27 : ClearAsMud_44
• Track 28 : Fireman_43
• Track 29 : Kozie_37
• Track 30 : Zanella_26, Jera_27, Alove_26, Rasovi_26, Linayshia_26, Htur_26, Rootkit7_26, Labella_28, AyoTeo_28, Typher_28, TurboVicky_26
• Track 31 : Cicada_28, Olympi_28, Johann_27, Goodman_27

• Track 32 : IndiRoo_26
• Track 33 : FireCastle_26
• Track 34 : Sucha_23
• Track 35 : Benry_26
• Track 36 : Milani_27
• Track 37 : SBlackberry_26
• Track 38 : PermaG_27
• Track 39 : Mema_1
• Track 40 : Damascus_1, DizzyRudy_1
• Track 41 : Camille_1
• Track 42 : Count_2
• Track 43 : Losacky_29, Bush_28, CookieDog_28, Antuna_28, Violeta_29, Mariel_29, Appa_27, PhillyJawn_28
• Track 44 : Dropshot_27, Warren_28
• Track 45 : Blett_28
• Track 46 : Carrillo_29, NCRodriguez_29, Phingu_30, Guzman_29, Jakelyne_29, MenE_28, Winchester007_29
• Track 47 : Phonegingi_27
• Track 48 : ScoobySnack_26
• Track 49 : Pickles13_27
• Track 50 : Wrackline_33
• Track 51 : Gingerbug_25
• Track 52 : Sweetums_29
• Track 53 : MisoSoup_37
• Track 54 : FuzzBuster_48

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

The start number called the most often in the published annotations is 24, it was called in 50 of the 108 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Antares_42, BeagleBug_41, BrazzalePHS_41, Busephilis_41, Camille_1, Carrillo_29, ClearAsMud_44, Count_2, Cranjis_43, CrazyRich_41, Crisis_43, Damascus_1, DizzyRudy_1, EarickHC_42, FuzzBuster_48, Ganandorf_41, Germa_43, Glorp_43, Guzman_29, Hermeonysus_41, Honeyfin_43, Jakelyne_29, Jayden_43, Jefe_42, Jollipop_42, KaiHaiDragon_42, Kowalski_41, Kozie_37, LittleFortune_43, Lucretia_42, Megan_36, Mema_1, MenE_28, MisoSoup_37, NCRodriguez_29, NoodlelyBoi_42, Onika_41, Paschalis_41, PhedwardCullen_41, Phingu_30, Phorgeous_41, Phrancesco_42, PierreOrion_42, PiperSansNom_42, Piperis_42, Pulchra_43, Quhwah_45, Ramiel05_41, Rockwell_41, Savannah_41, ScoobySnack_26, Scumberland_43, Selwyn23_43, Shotgun_41, SirFrank_41, Winchester007_29, Wrackline_33, Yeti_42,

Genes that have the "Most Annotated" start but do not call it:
• Antuna_28, Appa_27, Benry_26, Blett_28, Bush_28, CookieDog_28, Dropshot_27, Losacky_29, Mariel_29, Milani_27, PhillyJawn_28, Phonegingi_27, Pickles13_27, Sucha_23, Sweetums_29, Violeta_29, Warren_28, Zapato_41,

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

• Alove_26, AyoTeo_28, BaronJohn_22, CaptainRex_22, Cicada_28, FireCastle_26, Fireman_43, Fulton_22, Gingerbug_25, Goodman_27, GreenIvy_22, Hasitha_22, HerculesXL_22, Htur_26, IndiRoo_26, Jera_27, Johann_27, Kavo_21, Labella_28, Librie_22, LilTerminator_22, Linayshia_26, Metamorphoo_43, Olympi_28, Penta_21, PermaG_27, QuadZero_22, Rasovi_26, RobsFeet_44, Rootkit7_26, SBlackberry_26, Schimmels22_22, Scissor2024_22, Shrubaron_43, Tinyman4_22, TurboVicky_26, TwoBits_22, Typher_28, Tyrumbra_41, Vafari_23, Wardwill_24, WestPM_21, WilliamStrong_21, Zanella_26, Zayuliv_22, Zepp_23,

Summary by start number:

Start 15:
• Found in 20 of 122 (16.4%) of genes in pham
• Manual Annotations of this start: 12 of 108
• Called 65.0% of time when present
• Phage (with cluster) where this start called: Antuna_28 (GA), Appa_27 (GA), Blett_28 (GA), Bush_28 (GA), CookieDog_28 (GA), Dropshot_27 (GA), Losacky_29 (GA), Mariel_29 (GA), PhillyJawn_28 (GA), Phonegingi_27 (GA), Pickles13_27 (GA), Violeta_29 (GA), Warren_28 (GA),

Start 19:
• Found in 8 of 122 (6.6%) of genes in pham
• Manual Annotations of this start: 8 of 108
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Benry_26 (EJ), HerculesXL_22 (EA11), IndiRoo_26 (EJ), Kavo_21 (EA11), Milani_27 (EJ), Schimmels22_22 (EA11), Sucha_23 (EJ), Tinyman4_22 (EA11),

Start 20:
• Found in 39 of 122 (32.0%) of genes in pham
• Manual Annotations of this start: 35 of 108
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Alove_26 (EJ), AyoTeo_28 (EJ), BaronJohn_22 (EA5), CaptainRex_22 (EA5), Cicada_28 (EJ), FireCastle_26 (EJ), Fireman_43 (EC), Fulton_22 (EA5), Goodman_27 (EJ), GreenIvy_22 (EA5), Hasitha_22 (EA5), Htur_26 (EJ), Jera_27 (EJ), Johann_27 (EJ), Labella_28 (EJ), Librie_22 (EA5), LilTerminator_22 (EA5), Linayshia_26 (EJ), Metamorphoo_43 (EC), Olympi_28 (EJ), Penta_21 (EA11), PermaG_27 (EJ), QuadZero_22 (EA5), Rasovi_26 (EJ), RobsFeet_44 (EC), Rootkit7_26 (EJ), SBlackberry_26 (EJ), Scissor2024_22 (EA11), Shrubaron_43 (EC), TurboVicky_26 (EJ), TwoBits_22 (EA5), Typher_28 (EJ), Tyrumbra_41 (EC), Vafari_23 (EA5), Wardwill_24 (EA5), WestPM_21 (EA11), Zanella_26 (EJ), Zayuliv_22 (EA5), Zepp_23 (EA5),

Start 22:
• Found in 6 of 122 (4.9%) of genes in pham
• Manual Annotations of this start: 1 of 108
• Called 16.7% of time when present
• Phage (with cluster) where this start called: WilliamStrong_21 (EA6),

Start 23:
• Found in 1 of 122 (0.8%) of genes in pham
• Manual Annotations of this start: 1 of 108
• Called 100.0% of time when present

• Phage (with cluster) where this start called: Gingerbug_25 (GF),

Start 24:
• Found in 76 of 122 (62.3%) of genes in pham
• Manual Annotations of this start: 50 of 108
• Called 76.3% of time when present
• Phage (with cluster) where this start called: Antares_42 (EC), BeagleBug_41 (EC), BrazzalePHS_41 (EC), Busephilis_41 (EC), Camille_1 (EL), Carrillo_29 (GA), ClearAsMud_44 (EC), Count_2 (EL), Cranjis_43 (EC), CrazyRich_41 (EC), Crisis_43 (EC), Damascus_1 (EL), DizzyRudy_1 (EL), EarickHC_42 (EC), FuzzBuster_48 (GM), Ganandorf_41 (EC), Germa_43 (EC), Glorp_43 (EC), Guzman_29 (GA), Hermeonysus_41 (EC), Honeyfin_43 (EC), Jakelyne_29 (GA), Jayden_43 (EC), Jefe_42 (EC), Jollipop_42 (EC), KaiHaiDragon_42 (EC), Kowalski_41 (EC), Kozie_37 (EI), LittleFortune_43 (EC), Lucretia_42 (EC), Megan_36 (EC), Mema_1 (EL), MenE_28 (GA), MisoSoup_37 (GM), NCRodriguez_29 (GA), NoodlelyBoi_42 (EC), Onika_41 (EC), Paschalis_41 (EC), PhedwardCullen_41 (EC), Phingu_30 (GA), Phorgeous_41 (EC), Phrancesco_42 (EC), PierreOrion_42 (EC), PiperSansNom_42 (EC), Piperis_42 (EC), Pulchra_43 (EC), Quhwah_45 (EC), Ramiel05_41 (EC), Rockwell_41 (EC), Savannah_41 (EC), ScoobySnack_26 (GA), Scumberland_43 (EC), Selwyn23_43 (EC), Shotgun_41 (EC), SirFrank_41 (EC), Winchester007_29 (GA), Wrackline_33 (GF), Yeti_42 (EC),

Start 25:
• Found in 1 of 122 (0.8%) of genes in pham
• Manual Annotations of this start: 1 of 108
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Sweetums_29 (GF),

Start 28:
• Found in 3 of 122 (2.5%) of genes in pham
• No Manual Annotations of this start.
• Called 33.3% of time when present
• Phage (with cluster) where this start called: Zapato_41 (EC),

Summary by clusters:

There are 10 clusters represented in this pham: EL, EA11, EJ, EC, GF, GA, EI, GM, EA5, EA6,

Info for manual annotations of cluster EA11:
•Start number 19 was manually annotated 4 times for cluster EA11.
•Start number 20 was manually annotated 1 time for cluster EA11.

Info for manual annotations of cluster EA5:
•Start number 20 was manually annotated 12 times for cluster EA5.

Info for manual annotations of cluster EA6:
•Start number 22 was manually annotated 1 time for cluster EA6.

Info for manual annotations of cluster EC:
•Start number 20 was manually annotated 5 times for cluster EC.
•Start number 24 was manually annotated 37 times for cluster EC.

Info for manual annotations of cluster EI:
•Start number 24 was manually annotated 1 time for cluster EI.

Info for manual annotations of cluster EJ:
•Start number 19 was manually annotated 4 times for cluster EJ.
•Start number 20 was manually annotated 17 times for cluster EJ.

Info for manual annotations of cluster EL:
•Start number 24 was manually annotated 4 times for cluster EL.

Info for manual annotations of cluster GA:
•Start number 15 was manually annotated 12 times for cluster GA.
•Start number 24 was manually annotated 5 times for cluster GA.

Info for manual annotations of cluster GF:
•Start number 23 was manually annotated 1 time for cluster GF.
•Start number 24 was manually annotated 1 time for cluster GF.
•Start number 25 was manually annotated 1 time for cluster GF.

Info for manual annotations of cluster GM:
•Start number 24 was manually annotated 2 times for cluster GM.

Gene Information:

Gene: Alove_26 Start: 20201, Stop: 20479, Start Num: 20
Candidate Starts for Alove_26:
(12, 20147), (Start: 20 @20201 has 35 MA's), (44, 20327), (48, 20381),

Gene: Antares_42 Start: 29929, Stop: 30222, Start Num: 24
Candidate Starts for Antares_42:
(Start: 24 @29929 has 50 MA's), (42, 30022), (43, 30028), (48, 30088), (54, 30121), (55, 30127), (60, 30163), (62, 30172),

Gene: Antuna_28 Start: 18326, Stop: 18628, Start Num: 15
Candidate Starts for Antuna_28:
(7, 18227), (10, 18266), (Start: 15 @18326 has 12 MA's), (Start: 24 @18368 has 50 MA's), (48, 18530), (50, 18536), (55, 18569),

Gene: Appa_27 Start: 18188, Stop: 18493, Start Num: 15
Candidate Starts for Appa_27:
(7, 18089), (10, 18128), (Start: 15 @18188 has 12 MA's), (Start: 24 @18230 has 50 MA's), (48, 18392), (50, 18398), (55, 18431),

Gene: AyoTeo_28 Start: 20330, Stop: 20608, Start Num: 20
Candidate Starts for AyoTeo_28:
(12, 20276), (Start: 20 @20330 has 35 MA's), (44, 20456), (48, 20510),

Gene: BaronJohn_22 Start: 17074, Stop: 17331, Start Num: 20
Candidate Starts for BaronJohn_22:
(13, 17032), (Start: 20 @17074 has 35 MA's), (31, 17125), (40, 17179), (50, 17260), (51, 17269),

Gene: BeagleBug_41 Start: 29710, Stop: 30003, Start Num: 24
Candidate Starts for BeagleBug_41:
(Start: 24 @29710 has 50 MA's), (42, 29803), (43, 29809), (48, 29869), (54, 29902), (55, 29908), (60, 29944), (62, 29953),

Gene: Benry_26 Start: 18897, Stop: 19181, Start Num: 19
Candidate Starts for Benry_26:
(Start: 19 @18897 has 8 MA's), (21, 18903), (Start: 24 @18918 has 50 MA's), (34, 18960), (40, 19005), (48, 19080), (52, 19101), (54, 19113), (61, 19167),

Gene: Blett_28 Start: 18338, Stop: 18640, Start Num: 15
Candidate Starts for Blett_28:
(7, 18239), (10, 18278), (Start: 15 @18338 has 12 MA's), (Start: 24 @18380 has 50 MA's), (48, 18542), (50, 18548), (55, 18581),

Gene: BrazzalePHS_41 Start: 29724, Stop: 30017, Start Num: 24
Candidate Starts for BrazzalePHS_41:
(Start: 24 @29724 has 50 MA's), (42, 29817), (43, 29823), (48, 29883), (54, 29916), (55, 29922), (60, 29958), (62, 29967),

Gene: Busephilis_41 Start: 29665, Stop: 29958, Start Num: 24
Candidate Starts for Busephilis_41:
(Start: 24 @29665 has 50 MA's), (42, 29758), (43, 29764), (48, 29824), (54, 29857), (55, 29863), (60, 29899), (62, 29908),

Gene: Bush_28 Start: 18316, Stop: 18618, Start Num: 15
Candidate Starts for Bush_28:
(7, 18217), (10, 18256), (Start: 15 @18316 has 12 MA's), (Start: 24 @18358 has 50 MA's), (48, 18520), (50, 18526), (55, 18559),

Gene: Camille_1 Start: 116, Stop: 358, Start Num: 24
Candidate Starts for Camille_1:
(14, 71), (18, 89), (Start: 24 @116 has 50 MA's), (30, 146), (46, 263), (47, 275), (49, 281),

Gene: CaptainRex_22 Start: 16502, Stop: 16759, Start Num: 20
Candidate Starts for CaptainRex_22:
(Start: 20 @16502 has 35 MA's), (31, 16553), (40, 16607), (50, 16688), (51, 16697),

Gene: Carrillo_29 Start: 18337, Stop: 18597, Start Num: 24
Candidate Starts for Carrillo_29:
(7, 18196), (10, 18235), (Start: 15 @18295 has 12 MA's), (Start: 24 @18337 has 50 MA's), (48, 18499), (50, 18505), (55, 18538),

Gene: Cicada_28 Start: 20423, Stop: 20701, Start Num: 20
Candidate Starts for Cicada_28:
(12, 20369), (Start: 20 @20423 has 35 MA's), (33, 20480), (44, 20549), (48, 20603), (54, 20636),

Gene: ClearAsMud_44 Start: 29829, Stop: 30116, Start Num: 24
Candidate Starts for ClearAsMud_44:
(Start: 24 @29829 has 50 MA's), (42, 29922), (43, 29928), (44, 29934), (47, 29985), (50, 29994), (54, 30021), (60, 30063), (62, 30072),

Gene: CookieDog_28 Start: 18316, Stop: 18615, Start Num: 15

Candidate Starts for CookieDog_28:
(7, 18217), (10, 18256), (Start: 15 @18316 has 12 MA's), (Start: 24 @18358 has 50 MA's), (48, 18520), (50, 18526), (55, 18559),

Gene: Count_2 Start: 251, Stop: 496, Start Num: 24
Candidate Starts for Count_2:
(Start: 24 @251 has 50 MA's), (47, 410), (50, 419),

Gene: Cranjis_43 Start: 29884, Stop: 30177, Start Num: 24
Candidate Starts for Cranjis_43:
(Start: 24 @29884 has 50 MA's), (42, 29977), (43, 29983), (48, 30043), (54, 30076), (55, 30082), (60, 30118), (62, 30127),

Gene: CrazyRich_41 Start: 29693, Stop: 29986, Start Num: 24
Candidate Starts for CrazyRich_41:
(Start: 24 @29693 has 50 MA's), (42, 29786), (43, 29792), (48, 29852), (54, 29885), (55, 29891), (60, 29927), (62, 29936),

Gene: Crisis_43 Start: 29684, Stop: 29977, Start Num: 24
Candidate Starts for Crisis_43:
(Start: 24 @29684 has 50 MA's), (42, 29777), (43, 29783), (48, 29843), (54, 29876), (55, 29882), (60, 29918), (62, 29927),

Gene: Damascus_1 Start: 74, Stop: 313, Start Num: 24
Candidate Starts for Damascus_1:
(11, 35), (Start: 24 @74 has 50 MA's), (36, 128), (42, 170), (49, 239),

Gene: DizzyRudy_1 Start: 74, Stop: 313, Start Num: 24
Candidate Starts for DizzyRudy_1:
(11, 35), (Start: 24 @74 has 50 MA's), (36, 128), (42, 170), (49, 239),

Gene: Dropshot_27 Start: 18188, Stop: 18490, Start Num: 15
Candidate Starts for Dropshot_27:
(7, 18089), (10, 18128), (Start: 15 @18188 has 12 MA's), (Start: 24 @18230 has 50 MA's), (48, 18392), (50, 18398), (55, 18431),

Gene: EarickHC_42 Start: 29607, Stop: 29900, Start Num: 24
Candidate Starts for EarickHC_42:
(Start: 24 @29607 has 50 MA's), (42, 29700), (43, 29706), (48, 29766), (54, 29799), (55, 29805), (60, 29841), (62, 29850),

Gene: FireCastle_26 Start: 20491, Stop: 20772, Start Num: 20
Candidate Starts for FireCastle_26:
(Start: 20 @20491 has 35 MA's), (38, 20587), (40, 20596), (44, 20617), (48, 20671), (54, 20704), (61, 20758),

Gene: Fireman_43 Start: 31207, Stop: 31476, Start Num: 20
Candidate Starts for Fireman_43:
(1, 30856), (5, 31021), (Start: 20 @31207 has 35 MA's), (Start: 22 @31216 has 1 MA's), (40, 31309), (44, 31330), (50, 31390), (51, 31399), (54, 31417),

Gene: Fulton_22 Start: 16484, Stop: 16741, Start Num: 20
Candidate Starts for Fulton_22:

(Start: 20 @16484 has 35 MA's), (31, 16535), (40, 16589), (50, 16670), (51, 16679),

Gene: FuzzBuster_48 Start: 30251, Stop: 30502, Start Num: 24
Candidate Starts for FuzzBuster_48:
(16, 30215), (17, 30221), (Start: 24 @30251 has 50 MA's), (39, 30332), (47, 30410), (51, 30428),

Gene: Ganandorf_41 Start: 29746, Stop: 30039, Start Num: 24
Candidate Starts for Ganandorf_41:
(Start: 24 @29746 has 50 MA's), (42, 29839), (43, 29845), (48, 29905), (54, 29938), (55, 29944), (60, 29980), (62, 29989),

Gene: Germa_43 Start: 29575, Stop: 29868, Start Num: 24
Candidate Starts for Germa_43:
(Start: 24 @29575 has 50 MA's), (42, 29668), (43, 29674), (48, 29734), (54, 29767), (55, 29773), (60, 29809), (62, 29818),

Gene: Gingerbug_25 Start: 18946, Stop: 19185, Start Num: 23
Candidate Starts for Gingerbug_25:
(Start: 23 @18946 has 1 MA's), (27, 18958), (32, 18982), (43, 19048), (47, 19105), (50, 19114), (55, 19147), (58, 19177),

Gene: Glorp_43 Start: 29747, Stop: 30040, Start Num: 24
Candidate Starts for Glorp_43:
(Start: 24 @29747 has 50 MA's), (42, 29840), (43, 29846), (48, 29906), (54, 29939), (55, 29945), (60, 29981), (61, 29987), (62, 29990),

Gene: Goodman_27 Start: 20336, Stop: 20614, Start Num: 20
Candidate Starts for Goodman_27:
(12, 20282), (Start: 20 @20336 has 35 MA's), (33, 20393), (44, 20462), (48, 20516), (54, 20549),

Gene: GreenIvy_22 Start: 17076, Stop: 17333, Start Num: 20
Candidate Starts for GreenIvy_22:
(13, 17034), (Start: 20 @17076 has 35 MA's), (31, 17127), (40, 17181), (50, 17262), (51, 17271),

Gene: Guzman_29 Start: 18639, Stop: 18899, Start Num: 24
Candidate Starts for Guzman_29:
(7, 18498), (10, 18537), (Start: 15 @18597 has 12 MA's), (Start: 24 @18639 has 50 MA's), (48, 18801), (50, 18807), (55, 18840),

Gene: Hasitha_22 Start: 16502, Stop: 16759, Start Num: 20
Candidate Starts for Hasitha_22:
(Start: 20 @16502 has 35 MA's), (31, 16553), (40, 16607), (47, 16679), (51, 16697),

Gene: HerculesXL_22 Start: 16593, Stop: 16850, Start Num: 19
Candidate Starts for HerculesXL_22:
(3, 16365), (13, 16551), (Start: 19 @16593 has 8 MA's), (31, 16644), (51, 16788), (54, 16806), (58, 16842),

Gene: Hermeonysus_41 Start: 29613, Stop: 29906, Start Num: 24
Candidate Starts for Hermeonysus_41:
(Start: 24 @29613 has 50 MA's), (42, 29706), (43, 29712), (48, 29772), (54, 29805), (55, 29811), (60, 29847), (62, 29856),

Gene: Honeyfin_43 Start: 29934, Stop: 30227, Start Num: 24
Candidate Starts for Honeyfin_43:
(Start: 24 @29934 has 50 MA's), (42, 30027), (43, 30033), (48, 30093), (54, 30126), (55, 30132), (60, 30168), (62, 30177),

Gene: Htur_26 Start: 20391, Stop: 20669, Start Num: 20
Candidate Starts for Htur_26:
(12, 20337), (Start: 20 @20391 has 35 MA's), (44, 20517), (48, 20571),

Gene: IndiRoo_26 Start: 18907, Stop: 19206, Start Num: 19
Candidate Starts for IndiRoo_26:
(12, 18862), (Start: 19 @18907 has 8 MA's), (21, 18913), (40, 19015), (52, 19111),

Gene: Jakelyne_29 Start: 18446, Stop: 18706, Start Num: 24
Candidate Starts for Jakelyne_29:
(7, 18305), (10, 18344), (Start: 15 @18404 has 12 MA's), (Start: 24 @18446 has 50 MA's), (48, 18608), (50, 18614), (55, 18647),

Gene: Jayden_43 Start: 30188, Stop: 30442, Start Num: 24
Candidate Starts for Jayden_43:
(Start: 24 @30188 has 50 MA's), (28, 30200), (32, 30224), (37, 30263), (42, 30284), (44, 30296), (45, 30314), (50, 30356), (56, 30407),

Gene: Jefe_42 Start: 29671, Stop: 29964, Start Num: 24
Candidate Starts for Jefe_42:
(Start: 24 @29671 has 50 MA's), (42, 29764), (43, 29770), (48, 29830), (54, 29863), (55, 29869), (60, 29905), (61, 29911), (62, 29914),

Gene: Jera_27 Start: 19448, Stop: 19726, Start Num: 20
Candidate Starts for Jera_27:
(12, 19394), (Start: 20 @19448 has 35 MA's), (44, 19574), (48, 19628),

Gene: Johann_27 Start: 20336, Stop: 20614, Start Num: 20
Candidate Starts for Johann_27:
(12, 20282), (Start: 20 @20336 has 35 MA's), (33, 20393), (44, 20462), (48, 20516), (54, 20549),

Gene: Jollipop_42 Start: 30010, Stop: 30303, Start Num: 24
Candidate Starts for Jollipop_42:
(Start: 24 @30010 has 50 MA's), (42, 30103), (43, 30109), (48, 30169), (54, 30202), (55, 30208), (60, 30244), (62, 30253),

Gene: KaiHaiDragon_42 Start: 29607, Stop: 29900, Start Num: 24
Candidate Starts for KaiHaiDragon_42:
(Start: 24 @29607 has 50 MA's), (42, 29700), (43, 29706), (48, 29766), (54, 29799), (55, 29805), (60, 29841), (62, 29850),

Gene: Kavo_21 Start: 16432, Stop: 16689, Start Num: 19
Candidate Starts for Kavo_21:
(3, 16204), (13, 16390), (Start: 19 @16432 has 8 MA's), (31, 16483), (51, 16627), (54, 16645), (58, 16681),

Gene: Kowalski_41 Start: 29720, Stop: 30013, Start Num: 24
Candidate Starts for Kowalski_41:

(Start: 24 @29720 has 50 MA's), (42, 29813), (43, 29819), (48, 29879), (54, 29912), (55, 29918), (60, 29954), (62, 29963),

Gene: Kozie_37 Start: 29192, Stop: 29446, Start Num: 24
Candidate Starts for Kozie_37:
(Start: 24 @29192 has 50 MA's), (37, 29267), (43, 29294), (47, 29351), (48, 29354),

Gene: Labella_28 Start: 20329, Stop: 20607, Start Num: 20
Candidate Starts for Labella_28:
(12, 20275), (Start: 20 @20329 has 35 MA's), (44, 20455), (48, 20509),

Gene: Librie_22 Start: 16502, Stop: 16759, Start Num: 20
Candidate Starts for Librie_22:
(Start: 20 @16502 has 35 MA's), (31, 16553), (40, 16607), (50, 16688), (51, 16697),

Gene: LilTerminator_22 Start: 16508, Stop: 16765, Start Num: 20
Candidate Starts for LilTerminator_22:
(Start: 20 @16508 has 35 MA's), (31, 16559), (40, 16613), (50, 16694), (51, 16703),

Gene: Linayshia_26 Start: 20383, Stop: 20661, Start Num: 20
Candidate Starts for Linayshia_26:
(12, 20329), (Start: 20 @20383 has 35 MA's), (44, 20509), (48, 20563),

Gene: LittleFortune_43 Start: 29976, Stop: 30269, Start Num: 24
Candidate Starts for LittleFortune_43:
(Start: 24 @29976 has 50 MA's), (42, 30069), (43, 30075), (48, 30135), (54, 30168), (55, 30174), (60, 30210), (62, 30219),

Gene: Losacky_29 Start: 18468, Stop: 18770, Start Num: 15
Candidate Starts for Losacky_29:
(7, 18369), (10, 18408), (Start: 15 @18468 has 12 MA's), (Start: 24 @18510 has 50 MA's), (48, 18672), (50, 18678), (55, 18711),

Gene: Lucretia_42 Start: 29663, Stop: 29956, Start Num: 24
Candidate Starts for Lucretia_42:
(Start: 24 @29663 has 50 MA's), (42, 29756), (43, 29762), (48, 29822), (54, 29855), (55, 29861), (60, 29897), (62, 29906),

Gene: Mariel_29 Start: 18760, Stop: 19062, Start Num: 15
Candidate Starts for Mariel_29:
(7, 18661), (10, 18700), (Start: 15 @18760 has 12 MA's), (Start: 24 @18802 has 50 MA's), (48, 18964), (50, 18970), (55, 19003),

Gene: Megan_36 Start: 30627, Stop: 30881, Start Num: 24
Candidate Starts for Megan_36:
(18, 30600), (Start: 24 @30627 has 50 MA's), (28, 30639), (43, 30729), (47, 30786), (50, 30795), (56, 30846),

Gene: Mema_1 Start: 96, Stop: 341, Start Num: 24
Candidate Starts for Mema_1:
(Start: 24 @96 has 50 MA's), (32, 132), (37, 171), (40, 183),

Gene: MenE_28 Start: 18498, Stop: 18758, Start Num: 24

Candidate Starts for MenE_28:
(7, 18357), (10, 18396), (Start: 15 @18456 has 12 MA's), (Start: 24 @18498 has 50 MA's), (48, 18660), (50, 18666), (55, 18699),

Gene: Metamorphoo_43 Start: 30469, Stop: 30738, Start Num: 20
Candidate Starts for Metamorphoo_43:
(Start: 20 @30469 has 35 MA's), (Start: 22 @30478 has 1 MA's), (40, 30571), (44, 30592), (50, 30652), (51, 30661), (54, 30679),

Gene: Milani_27 Start: 19537, Stop: 19821, Start Num: 19
Candidate Starts for Milani_27:
(12, 19492), (Start: 19 @19537 has 8 MA's), (21, 19543), (Start: 24 @19558 has 50 MA's), (40, 19645), (48, 19720), (52, 19741), (61, 19807),

Gene: MisoSoup_37 Start: 27536, Stop: 27790, Start Num: 24
Candidate Starts for MisoSoup_37:
(Start: 24 @27536 has 50 MA's), (42, 27635), (48, 27701), (50, 27707), (54, 27734),

Gene: NCRodriguez_29 Start: 18550, Stop: 18807, Start Num: 24
Candidate Starts for NCRodriguez_29:
(7, 18409), (10, 18448), (Start: 15 @18508 has 12 MA's), (Start: 24 @18550 has 50 MA's), (48, 18712), (50, 18718), (55, 18751),

Gene: NoodlelyBoi_42 Start: 30039, Stop: 30326, Start Num: 24
Candidate Starts for NoodlelyBoi_42:
(Start: 24 @30039 has 50 MA's), (42, 30132), (43, 30138), (44, 30144), (47, 30195), (50, 30204), (54, 30231), (55, 30237), (60, 30273), (62, 30282),

Gene: Olympi_28 Start: 20323, Stop: 20601, Start Num: 20
Candidate Starts for Olympi_28:
(12, 20269), (Start: 20 @20323 has 35 MA's), (33, 20380), (44, 20449), (48, 20503), (54, 20536),

Gene: Onika_41 Start: 29695, Stop: 29988, Start Num: 24
Candidate Starts for Onika_41:
(Start: 24 @29695 has 50 MA's), (42, 29788), (43, 29794), (48, 29854), (54, 29887), (55, 29893), (60, 29929), (62, 29938),

Gene: Paschalis_41 Start: 29702, Stop: 29995, Start Num: 24
Candidate Starts for Paschalis_41:
(Start: 24 @29702 has 50 MA's), (42, 29795), (43, 29801), (48, 29861), (54, 29894), (55, 29900), (60, 29936), (62, 29945),

Gene: Penta_21 Start: 16428, Stop: 16685, Start Num: 20
Candidate Starts for Penta_21:
(8, 16317), (9, 16332), (Start: 20 @16428 has 35 MA's), (31, 16479), (48, 16608), (51, 16623), (54, 16641), (58, 16677),

Gene: PermaG_27 Start: 20401, Stop: 20679, Start Num: 20
Candidate Starts for PermaG_27:
(12, 20347), (Start: 20 @20401 has 35 MA's), (40, 20506), (44, 20527), (48, 20581), (54, 20614),

Gene: PhedwardCullen_41 Start: 29453, Stop: 29746, Start Num: 24
Candidate Starts for PhedwardCullen_41:

(Start: 24 @29453 has 50 MA's), (42, 29546), (43, 29552), (48, 29612), (54, 29645), (55, 29651), (60, 29687), (62, 29696),

Gene: PhillyJawn_28 Start: 18188, Stop: 18490, Start Num: 15
Candidate Starts for PhillyJawn_28:
(7, 18089), (10, 18128), (Start: 15 @18188 has 12 MA's), (Start: 24 @18230 has 50 MA's), (48, 18392), (50, 18398), (55, 18431),

Gene: Phingu_30 Start: 18446, Stop: 18703, Start Num: 24
Candidate Starts for Phingu_30:
(7, 18305), (10, 18344), (Start: 15 @18404 has 12 MA's), (Start: 24 @18446 has 50 MA's), (48, 18608), (50, 18614), (55, 18647),

Gene: Phonegingi_27 Start: 18231, Stop: 18533, Start Num: 15
Candidate Starts for Phonegingi_27:
(7, 18132), (10, 18171), (Start: 15 @18231 has 12 MA's), (Start: 24 @18273 has 50 MA's), (48, 18435), (50, 18441), (55, 18474),

Gene: Phorgeous_41 Start: 29565, Stop: 29858, Start Num: 24
Candidate Starts for Phorgeous_41:
(Start: 24 @29565 has 50 MA's), (42, 29658), (43, 29664), (48, 29724), (54, 29757), (55, 29763), (60, 29799), (62, 29808),

Gene: Phrancesco_42 Start: 29846, Stop: 30148, Start Num: 24
Candidate Starts for Phrancesco_42:
(Start: 24 @29846 has 50 MA's), (42, 29939), (48, 30005), (54, 30038), (55, 30044), (60, 30080), (62, 30089),

Gene: Pickles13_27 Start: 18619, Stop: 18918, Start Num: 15
Candidate Starts for Pickles13_27:
(7, 18520), (10, 18559), (Start: 15 @18619 has 12 MA's), (Start: 24 @18661 has 50 MA's), (48, 18823), (50, 18829),

Gene: PierreOrion_42 Start: 29869, Stop: 30162, Start Num: 24
Candidate Starts for PierreOrion_42:
(Start: 24 @29869 has 50 MA's), (42, 29962), (43, 29968), (48, 30028), (54, 30061), (55, 30067), (60, 30103), (62, 30112),

Gene: PiperSansNom_42 Start: 30009, Stop: 30302, Start Num: 24
Candidate Starts for PiperSansNom_42:
(Start: 24 @30009 has 50 MA's), (42, 30102), (43, 30108), (48, 30168), (54, 30201), (55, 30207), (60, 30243), (62, 30252),

Gene: Piperis_42 Start: 29688, Stop: 29981, Start Num: 24
Candidate Starts for Piperis_42:
(Start: 24 @29688 has 50 MA's), (42, 29781), (43, 29787), (48, 29847), (54, 29880), (55, 29886), (60, 29922), (62, 29931),

Gene: Pulchra_43 Start: 30085, Stop: 30378, Start Num: 24
Candidate Starts for Pulchra_43:
(Start: 24 @30085 has 50 MA's), (42, 30178), (43, 30184), (48, 30244), (54, 30277), (55, 30283), (60, 30319), (62, 30328),

Gene: QuadZero_22 Start: 16512, Stop: 16769, Start Num: 20
Candidate Starts for QuadZero_22:
(2, 16263), (8, 16404), (9, 16419), (Start: 20 @16512 has 35 MA's), (31, 16563), (40, 16617), (50, 16698), (51, 16707),

Gene: Quhwah_45 Start: 30317, Stop: 30610, Start Num: 24
Candidate Starts for Quhwah_45:
(Start: 24 @30317 has 50 MA's), (42, 30410), (43, 30416), (48, 30476), (54, 30509), (55, 30515), (60, 30551), (62, 30560),

Gene: Ramiel05_41 Start: 29720, Stop: 30013, Start Num: 24
Candidate Starts for Ramiel05_41:
(Start: 24 @29720 has 50 MA's), (42, 29813), (43, 29819), (48, 29879), (54, 29912), (55, 29918), (60, 29954), (62, 29963),

Gene: Rasovi_26 Start: 20391, Stop: 20669, Start Num: 20
Candidate Starts for Rasovi_26:
(12, 20337), (Start: 20 @20391 has 35 MA's), (44, 20517), (48, 20571),

Gene: RobsFeet_44 Start: 30750, Stop: 31019, Start Num: 20
Candidate Starts for RobsFeet_44:
(Start: 20 @30750 has 35 MA's), (Start: 22 @30759 has 1 MA's), (40, 30852), (44, 30873), (50, 30933), (51, 30942), (54, 30960),

Gene: Rockwell_41 Start: 29720, Stop: 30013, Start Num: 24
Candidate Starts for Rockwell_41:
(Start: 24 @29720 has 50 MA's), (42, 29813), (43, 29819), (48, 29879), (54, 29912), (55, 29918), (60, 29954), (62, 29963),

Gene: Rootkit7_26 Start: 20201, Stop: 20479, Start Num: 20
Candidate Starts for Rootkit7_26:
(12, 20147), (Start: 20 @20201 has 35 MA's), (44, 20327), (48, 20381),

Gene: SBlackberry_26 Start: 20201, Stop: 20479, Start Num: 20
Candidate Starts for SBlackberry_26:
(12, 20147), (Start: 20 @20201 has 35 MA's), (33, 20258), (44, 20327), (48, 20381), (50, 20387), (54, 20414),

Gene: Savannah_41 Start: 29747, Stop: 30040, Start Num: 24
Candidate Starts for Savannah_41:
(Start: 24 @29747 has 50 MA's), (42, 29840), (43, 29846), (48, 29906), (54, 29939), (55, 29945), (60, 29981), (62, 29990),

Gene: Schimmels22_22 Start: 16956, Stop: 17213, Start Num: 19
Candidate Starts for Schimmels22_22:
(13, 16914), (Start: 19 @16956 has 8 MA's), (31, 17007), (51, 17151), (54, 17169), (58, 17205),

Gene: Scissor2024_22 Start: 16592, Stop: 16849, Start Num: 20
Candidate Starts for Scissor2024_22:
(4, 16391), (8, 16481), (9, 16496), (Start: 20 @16592 has 35 MA's), (31, 16643), (58, 16841),

Gene: ScoobySnack_26 Start: 18360, Stop: 18623, Start Num: 24
Candidate Starts for ScoobySnack_26:

(Start: 24 @18360 has 50 MA's), (48, 18522), (50, 18528), (53, 18549),

Gene: Scumberland_43 Start: 29942, Stop: 30235, Start Num: 24
Candidate Starts for Scumberland_43:
(Start: 24 @29942 has 50 MA's), (42, 30035), (43, 30041), (48, 30101), (54, 30134), (55, 30140), (60, 30176), (62, 30185),

Gene: Selwyn23_43 Start: 29919, Stop: 30212, Start Num: 24
Candidate Starts for Selwyn23_43:
(Start: 24 @29919 has 50 MA's), (42, 30012), (43, 30018), (48, 30078), (54, 30111), (55, 30117), (60, 30153), (61, 30159), (62, 30162),

Gene: Shotgun_41 Start: 29546, Stop: 29839, Start Num: 24
Candidate Starts for Shotgun_41:
(Start: 24 @29546 has 50 MA's), (42, 29639), (43, 29645), (48, 29705), (54, 29738), (55, 29744), (60, 29780), (62, 29789),

Gene: Shrubaron_43 Start: 30384, Stop: 30653, Start Num: 20
Candidate Starts for Shrubaron_43:
(Start: 20 @30384 has 35 MA's), (Start: 22 @30393 has 1 MA's), (40, 30486), (44, 30507), (50, 30567), (51, 30576),

Gene: SirFrank_41 Start: 29594, Stop: 29881, Start Num: 24
Candidate Starts for SirFrank_41:
(Start: 24 @29594 has 50 MA's), (42, 29687), (43, 29693), (44, 29699), (47, 29750), (50, 29759), (54, 29786), (55, 29792), (60, 29828), (62, 29837),

Gene: Sucha_23 Start: 17894, Stop: 18178, Start Num: 19
Candidate Starts for Sucha_23:
(Start: 19 @17894 has 8 MA's), (Start: 24 @17915 has 50 MA's), (34, 17957), (40, 18002), (48, 18077), (52, 18098), (54, 18110), (61, 18164),

Gene: Sweetums_29 Start: 18906, Stop: 19136, Start Num: 25
Candidate Starts for Sweetums_29:
(Start: 24 @18903 has 50 MA's), (Start: 25 @18906 has 1 MA's), (35, 18951), (43, 19002), (45, 19026), (47, 19059), (56, 19119),

Gene: Tinyman4_22 Start: 16593, Stop: 16850, Start Num: 19
Candidate Starts for Tinyman4_22:
(3, 16365), (13, 16551), (Start: 19 @16593 has 8 MA's), (31, 16644), (51, 16788), (54, 16806), (58, 16842),

Gene: TurboVicky_26 Start: 20200, Stop: 20478, Start Num: 20
Candidate Starts for TurboVicky_26:
(12, 20146), (Start: 20 @20200 has 35 MA's), (44, 20326), (48, 20380),

Gene: TwoBits_22 Start: 16890, Stop: 17147, Start Num: 20
Candidate Starts for TwoBits_22:
(Start: 20 @16890 has 35 MA's), (31, 16941), (48, 17070), (51, 17085), (54, 17103), (58, 17139),

Gene: Typher_28 Start: 20329, Stop: 20607, Start Num: 20
Candidate Starts for Typher_28:
(12, 20275), (Start: 20 @20329 has 35 MA's), (44, 20455), (48, 20509),

Gene: Tyrumbra_41 Start: 30550, Stop: 30819, Start Num: 20
Candidate Starts for Tyrumbra_41:
(5, 30364), (Start: 20 @30550 has 35 MA's), (Start: 22 @30559 has 1 MA's), (40, 30652), (44, 30673), (50, 30733), (51, 30742), (54, 30760),

Gene: Vafari_23 Start: 16497, Stop: 16754, Start Num: 20
Candidate Starts for Vafari_23:
(2, 16248), (8, 16389), (9, 16404), (Start: 20 @16497 has 35 MA's), (31, 16548), (40, 16602), (50, 16683), (51, 16692),

Gene: Violeta_29 Start: 18286, Stop: 18588, Start Num: 15
Candidate Starts for Violeta_29:
(7, 18187), (10, 18226), (Start: 15 @18286 has 12 MA's), (Start: 24 @18328 has 50 MA's), (48, 18490), (50, 18496), (55, 18529),

Gene: Wardwill_24 Start: 16670, Stop: 16927, Start Num: 20
Candidate Starts for Wardwill_24:
(Start: 20 @16670 has 35 MA's), (31, 16721), (40, 16775), (50, 16856), (51, 16865),

Gene: Warren_28 Start: 18392, Stop: 18691, Start Num: 15
Candidate Starts for Warren_28:
(7, 18293), (10, 18332), (Start: 15 @18392 has 12 MA's), (Start: 24 @18434 has 50 MA's), (48, 18596), (50, 18602), (55, 18635),

Gene: WestPM_21 Start: 16437, Stop: 16694, Start Num: 20
Candidate Starts for WestPM_21:
(8, 16326), (9, 16341), (Start: 20 @16437 has 35 MA's), (31, 16488), (48, 16617), (51, 16632), (54, 16650), (58, 16686),

Gene: WilliamStrong_21 Start: 18148, Stop: 18399, Start Num: 22
Candidate Starts for WilliamStrong_21:
(Start: 22 @18148 has 1 MA's), (26, 18163), (29, 18184), (49, 18322), (59, 18388),

Gene: Winchester007_29 Start: 18371, Stop: 18631, Start Num: 24
Candidate Starts for Winchester007_29:
(7, 18230), (10, 18269), (Start: 15 @18329 has 12 MA's), (Start: 24 @18371 has 50 MA's), (48, 18533), (50, 18539), (55, 18572),

Gene: Wrackline_33 Start: 20157, Stop: 20396, Start Num: 24
Candidate Starts for Wrackline_33:
(Start: 24 @20157 has 50 MA's), (37, 20229), (41, 20244), (45, 20280), (50, 20322), (57, 20382),

Gene: Yeti_42 Start: 29721, Stop: 30014, Start Num: 24
Candidate Starts for Yeti_42:
(Start: 24 @29721 has 50 MA's), (42, 29814), (43, 29820), (48, 29880), (54, 29913), (55, 29919), (60, 29955), (61, 29961), (62, 29964),

Gene: Zanella_26 Start: 20203, Stop: 20481, Start Num: 20
Candidate Starts for Zanella_26:
(12, 20149), (Start: 20 @20203 has 35 MA's), (44, 20329), (48, 20383),

Gene: Zapato_41 Start: 30018, Stop: 30260, Start Num: 28

Candidate Starts for Zapato_41:
(Start: 24 @30006 has 50 MA's), (28, 30018), (37, 30081), (42, 30102), (44, 30114), (45, 30132), (48, 30168), (56, 30225),

Gene: Zayuliv_22 Start: 17098, Stop: 17355, Start Num: 20
Candidate Starts for Zayuliv_22:
(13, 17056), (Start: 20 @17098 has 35 MA's), (31, 17149), (40, 17203), (50, 17284), (51, 17293),

Gene: Zepp_23 Start: 16496, Stop: 16753, Start Num: 20
Candidate Starts for Zepp_23:
(2, 16247), (6, 16343), (8, 16388), (9, 16403), (Start: 20 @16496 has 35 MA's), (31, 16547), (40, 16601), (50, 16682), (51, 16691),