

Zoomed Pham 216374

1: Woker_16	5	8	10	24	26	35	36	58	61	62	64	66	67	69	72	77	83	84	87	89	90	101	104	108	112	118	124	129	130	144	165	174	180	186	190	195							
2: Malachai_18 + 1	5	8	10	24	26	35	36	58	62	66	69	72	77	83	84	87	89	90	100	104	108	112	118	124	129	130	144	156	174	180	186	190	195										
3: MissRoma_19 + 3	5	8	10	24	26	35	36	58	62	66	69	72	75	84	87	89	90	100	104	108	112	118	124	129	130	143	156	171	180	186	190	195											
4: Blino_17	5	8	10	24	26	35	36	58	66	69	72	77	83	84	87	89	90	100	104	108	112	118	124	129	130	144	153	165	174	180	186	190	195										
5: Fenry_16	5	8	10	24	26	35	36	58	62	65	66	69	72	77	83	84	87	89	90	100	104	108	112	118	124	129	130	156	165	174	180	186	190	195									
6: Frokostama_17	5	8	10	24	26	35	36	58	62	66	69	72	75	84	87	89	90	100	104	108	112	118	124	129	130	143	156	171	180	186	190	195											
7: CarolAnn_17	5	8	10	24	26	35	36	58	62	66	69	72	77	83	84	87	89	90	100	104	108	112	118	124	129	130	156	165	172	180	186	190	195										
8: Samba_17	5	8	10	24	26	35	36	58	62	66	69	72	77	83	84	87	89	90	100	104	108	112	118	124	129	130	156	165	174	180	186	190	195										
9: Wisp_16	11	12	13	20	21	23	24	32	33	34	51	60	63	67	70	72	77	81	82	83	85	86	91	95	96	101	104	108	112	118	120	136	151	153	167	175	180	189	192	193	195		
10: Malisha_19	12	13	14	20	21	23	24	32	33	34	51	56	66	69	72	77	81	82	83	85	86	91	95	96	101	104	108	112	118	120	136	144	147	150	162	167	175	180	189	192	193	195	
11: Budski_18	9	12	13	20	21	23	24	32	33	34	51	56	66	69	72	77	81	82	83	85	86	91	95	96	101	104	108	112	118	120	136	144	147	150	162	167	175	180	189	192	193	195	
12: Periwinkle_20	12	13	14	20	21	23	24	32	33	34	51	56	69	70	72	77	81	82	83	85	86	91	95	96	101	104	108	112	118	120	136	141	143	145	165	167	175	180	189	192	193	195	
13: Lutum_18 + 1	13	14	15	20	21	23	24	32	33	34	51	56	69	70	72	77	81	82	83	85	86	91	95	96	101	104	108	112	118	120	136	141	143	145	165	167	175	180	189	192	193	195	
14: Frickyeah_16	12	13	14	20	21	23	24	32	33	34	51	56	66	67	69	72	77	81	82	83	85	86	91	95	96	101	104	108	112	118	120	136	144	147	150	162	167	175	180	189	192	193	195
15: Kamaru_18	12	13	14	20	21	23	24	32	33	34	51	56	66	67	69	72	77	81	82	83	85	86	91	95	96	101	104	108	112	118	120	136	141	143	145	165	167	175	180	189	192	193	195
16: Whitney_19	13	14	15	20	21	23	24	32	33	34	51	56	69	70	72	77	81	82	83	85	86	91	95	96	101	104	108	112	118	120	136	141	143	145	165	167	175	180	189	192	193	195	
17: Asapag_18 + 1	12	13	14	20	21	23	24	32	33	34	51	56	66	67	69	72	77	81	82	83	85	86	91	95	96	101	104	108	112	118	120	136	144	147	150	162	167	175	180	189	192	193	195
18: LitninMcQueen_18 + 1	13	14	15	20	21	23	24	32	33	34	51	56	69	70	72	77	81	82	83	85	86	91	95	96	101	104	108	112	118	120	136	144	147	150	162	167	175	180	189	192	193	195	
19: CheeseTouch_18	13	14	15	20	21	23	24	32	33	34	51	56	69	70	72	77	81	82	83	85	86	91	95	96	101	104	108	112	118	120	136	144	147	150	162	167	175	180	189	192	193	195	
20: Leroy_18	13	14	15	20	21	23	24	32	33	34	51	56	69	70	72	77	81	82	83	85	86	91	95	96	101	104	108	112	118	120	136	141	143	145	165	167	175	180	189	192	193	195	
21: Horus_18	13	14	15	20	21	23	24	32	33	34	51	56	67	69	72	77	81	82	83	85	86	91	95	96	101	104	108	112	118	120	136	144	147	150	162	167	175	180	189	192	193	195	
22: ShawBrad_18	14	15	16	20	21	23	24	32	33	34	51	56	66	67	69	72	77	81	82	83	85	86	91	95	96	101	104	108	112	118	120	136	141	143	145	165	167	175	180	189	192	193	195
23: Getalong_18	15	16	18	24	27	28	29	34	35	36	52	57	67	69	72	77	80	82	83	85	86	91	95	96	101	104	108	112	118	120	136	141	143	145	163	165	175	180	189	192	193	195	
24: Phistory_19	14	15	16	24	27	28	29	34	35	36	52	57	67	69	70	72	77	81	82	83	85	86	91	95	96	101	104	108	112	118	120	136	143	149	153	167	175	180	189	192	193	195	
25: Spooky_18	14	15	16	20	21	23	24	32	33	34	51	56	63	66	69	70	72	77	81	82	83	85	86	91	95	96	101	104	108	112	118	120	136	143	149	158	167	175	180	189	192	195	
26: Squidly_20	14	15	16	20	21	23	24	32	33	34	51	56	63	66	69	70	72	77	81	82	83	85	86	91	95	96	101	104	108	112	118	120	136	143	149	158	167	175	180	189	192	195	

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 216374 Report

This analysis was run 02/22/25 on database version 588.

Pham number 216374 has 35 members, 4 are drafts.

Phages represented in each track:

- Track 1 : Wocket_18
- Track 2 : Malachai_18, Begonia_18
- Track 3 : MissRona_19, Gambino_19, Blueberry_19, Azula_19
- Track 4 : Blino_17
- Track 5 : Fenry_16
- Track 6 : Frokostdame_17
- Track 7 : CarolAnn_17
- Track 8 : Samba_17
- Track 9 : Wisp_16
- Track 10 : Malisha_19
- Track 11 : Budski_18
- Track 12 : Periwinkle_20
- Track 13 : Lutum_18, Kenna_17
- Track 14 : Frickyeah_18
- Track 15 : Kamaru_18, Holliday_18
- Track 16 : Whitney_19
- Track 17 : Asapag_18, BENtherdunthat_18, BotCity_19
- Track 18 : LitninMcQueen_18, Phabuloso_18
- Track 19 : CheeseTouch_18
- Track 20 : Leroy_18
- Track 21 : Horus_18
- Track 22 : ShawBrad_18
- Track 23 : Getalong_19
- Track 24 : Phistory_19
- Track 25 : Spooky_18
- Track 26 : Squiddly_20

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

The start number called the most often in the published annotations is 1, it was called in 11 of the 31 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Azula_19, Begonia_18, Blino_17, Blueberry_19, CarolAnn_17, Fenry_16, Gambino_19, Malachai_18, MissRona_19, Samba_17, Wocket_18,

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

- Frokostdame_17, Wisp_16,

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

- Asapag_18, BENtherdunthat_18, BotCity_19, Budski_18, CheeseTouch_18, Frickyeah_18, Getalong_19, Holliday_18, Horus_18, Kamaru_18, Kenna_17, Leroy_18, LitninMcQueen_18, Lutum_18, Malisha_19, Periwinkle_20, Phabuloso_18, Phistory_19, ShawBrad_18, Spooky_18, Squiddly_20, Whitney_19,

Summary by start number:

Start 1:

- Found in 13 of 35 (37.1%) of genes in pham
- Manual Annotations of this start: 11 of 31
- Called 84.6% of time when present
- Phage (with cluster) where this start called: Azula_19 (CV), Begonia_18 (CV), Blino_17 (CV), Blueberry_19 (CV), CarolAnn_17 (CV), Fenry_16 (CV), Gambino_19 (CV), Malachai_18 (CV), MissRona_19 (CV), Samba_17 (CV), Wocket_18 (CV),

Start 3:

- Found in 11 of 35 (31.4%) of genes in pham
- Manual Annotations of this start: 1 of 31
- Called 9.1% of time when present
- Phage (with cluster) where this start called: Frokostdame_17 (CV),

Start 6:

- Found in 13 of 35 (37.1%) of genes in pham
- No Manual Annotations of this start.
- Called 7.7% of time when present
- Phage (with cluster) where this start called: Wisp_16 (CV),

Start 11:

- Found in 1 of 35 (2.9%) of genes in pham
- Manual Annotations of this start: 1 of 31
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Phistory_19 (DN1),

Start 12:

- Found in 1 of 35 (2.9%) of genes in pham
- Manual Annotations of this start: 1 of 31
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Periwinkle_20 (DN1),

Start 13:

- Found in 15 of 35 (42.9%) of genes in pham
- Manual Annotations of this start: 10 of 31
- Called 73.3% of time when present
- Phage (with cluster) where this start called: Asapag_18 (DN1), BENtherdunthat_18 (DN1), BotCity_19 (DN), CheeseTouch_18 (DN1), Holliday_18 (DN1), Kamaru_18 (DN1), Kenna_17 (DN1), Leroy_18 (DN1), LitninMcQueen_18 (DN1), Lutum_18

(DN1), Phabuloso_18 (DN1),

Start 14:

- Found in 5 of 35 (14.3%) of genes in pham
- Manual Annotations of this start: 5 of 31
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Getalong_19 (DN1), Malisha_19 (DN), Spooky_18 (DN2), Squiddly_20 (DN2), Whitney_19 (DN1),

Start 18:

- Found in 22 of 35 (62.9%) of genes in pham
- Manual Annotations of this start: 1 of 31
- Called 13.6% of time when present
- Phage (with cluster) where this start called: Frickyeah_18 (DN1), Horus_18 (DN1), ShawBrad_18 (DN1),

Start 25:

- Found in 20 of 35 (57.1%) of genes in pham
- Manual Annotations of this start: 1 of 31
- Called 5.0% of time when present
- Phage (with cluster) where this start called: Budski_18 (DN),

Summary by clusters:

There are 4 clusters represented in this pham: DN, DN1, CV, DN2,

Info for manual annotations of cluster CV:

- Start number 1 was manually annotated 11 times for cluster CV.
- Start number 3 was manually annotated 1 time for cluster CV.

Info for manual annotations of cluster DN:

- Start number 14 was manually annotated 1 time for cluster DN.
- Start number 25 was manually annotated 1 time for cluster DN.

Info for manual annotations of cluster DN1:

- Start number 11 was manually annotated 1 time for cluster DN1.
- Start number 12 was manually annotated 1 time for cluster DN1.
- Start number 13 was manually annotated 10 times for cluster DN1.
- Start number 14 was manually annotated 2 times for cluster DN1.
- Start number 18 was manually annotated 1 time for cluster DN1.

Info for manual annotations of cluster DN2:

- Start number 14 was manually annotated 2 times for cluster DN2.

Gene Information:

Gene: Asapag_18 Start: 9881, Stop: 15508, Start Num: 13

Candidate Starts for Asapag_18:

(Start: 13 @9881 has 10 MA's), (Start: 18 @9926 has 1 MA's), (19, 9947), (21, 9968), (24, 10013), (Start: 25 @10028 has 1 MA's), (27, 10112), (29, 10154), (30, 10166), (35, 10229), (36, 10244), (38, 10253), (39, 10271), (40, 10277), (43, 10325), (54, 10460), (57, 10610), (60, 10640), (69, 10964), (70,

11060), (72, 11168), (74, 11210), (75, 11213), (76, 11219), (77, 11240), (81, 11321), (84, 11387), (85, 11414), (86, 11426), (87, 11444), (88, 11456), (91, 11480), (92, 11492), (93, 11531), (94, 11534), (95, 11543), (96, 11573), (103, 11678), (104, 11693), (107, 11723), (108, 11735), (111, 11780), (112, 11786), (114, 11801), (116, 11831), (117, 11852), (118, 11855), (122, 11918), (125, 11945), (126, 11948), (127, 11951), (128, 11957), (131, 11981), (132, 11984), (133, 11990), (134, 11996), (136, 12011), (139, 12029), (141, 12074), (146, 12158), (147, 12164), (150, 12191), (154, 12284), (155, 12293), (162, 12350), (164, 12362), (167, 12398), (168, 12404), (172, 12446), (175, 12458), (176, 12497), (177, 12503), (178, 12506), (179, 12524), (180, 12527), (181, 12530), (184, 12554), (189, 12629), (192, 12668), (193, 12692), (195, 12725), (200, 12836), (201, 12869), (203, 12932), (204, 12968), (205, 12998), (206, 13076), (207, 13079), (208, 13088), (210, 13112), (214, 13193), (215, 13199), (217, 13244), (218, 13247), (219, 13262), (221, 13307), (222, 13316), (223, 13325), (224, 13328), (226, 13433), (229, 13481), (230, 13484), (231, 13487), (233, 13586), (234, 13589), (236, 13601), (240, 13718), (241, 13751), (243, 13802), (246, 13832), (248, 13892), (251, 13973), (252, 13994), (254, 14027), (258, 14099), (259, 14108), (264, 14222), (267, 14252), (268, 14261), (269, 14300), (270, 14303), (272, 14333), (274, 14354), (279, 14552), (285, 14615), (286, 14621), (288, 14672), (291, 14858), (295, 14945), (297, 14972), (298, 14975), (301, 15050), (304, 15074), (305, 15113), (308, 15149), (310, 15170), (312, 15257), (314, 15299), (315, 15332), (316, 15344), (319, 15422), (322, 15488),

Gene: Azula_19 Start: 10619, Stop: 16108, Start Num: 1

Candidate Starts for Azula_19:

(Start: 1 @10619 has 11 MA's), (Start: 3 @10634 has 1 MA's), (4, 10640), (6, 10670), (7, 10679), (8, 10682), (10, 10724), (22, 10835), (23, 10856), (26, 10976), (28, 11018), (34, 11084), (35, 11102), (37, 11123), (38, 11126), (39, 11144), (41, 11168), (46, 11252), (50, 11294), (51, 11309), (52, 11318), (58, 11486), (60, 11513), (62, 11630), (67, 11801), (69, 11831), (72, 12035), (75, 12080), (77, 12107), (78, 12119), (79, 12131), (83, 12209), (84, 12254), (85, 12281), (87, 12311), (93, 12398), (94, 12401), (96, 12440), (100, 12503), (101, 12512), (104, 12560), (108, 12602), (111, 12647), (112, 12653), (114, 12668), (118, 12722), (120, 12761), (121, 12782), (122, 12785), (124, 12803), (129, 12830), (132, 12851), (133, 12857), (136, 12878), (139, 12896), (140, 12905), (156, 13178), (174, 13232), (180, 13262), (181, 13265), (186, 13316), (190, 13397), (191, 13400), (194, 13433), (195, 13463), (196, 13487), (201, 13553), (212, 13820), (215, 13868), (216, 13901), (217, 13913), (218, 13916), (221, 13976), (222, 13985), (223, 13994), (225, 14045), (227, 14117), (228, 14135), (231, 14156), (233, 14255), (234, 14258), (237, 14291), (238, 14357), (239, 14375), (240, 14390), (241, 14423), (243, 14474), (247, 14525), (250, 14594), (255, 14768), (256, 14771), (261, 14843), (262, 14846), (264, 14912), (265, 14915), (266, 14933), (273, 14993), (276, 15050), (277, 15068), (280, 15149), (281, 15152), (283, 15167), (289, 15338), (290, 15392), (293, 15464), (294, 15473), (297, 15509), (300, 15569), (301, 15587), (303, 15605), (305, 15650), (307, 15683), (313, 15794), (315, 15863), (317, 15926), (318, 15944), (323, 16094),

Gene: BENtherdunthat_18 Start: 9881, Stop: 15508, Start Num: 13

Candidate Starts for BENtherdunthat_18:

(Start: 13 @9881 has 10 MA's), (Start: 18 @9926 has 1 MA's), (19, 9947), (21, 9968), (24, 10013), (Start: 25 @10028 has 1 MA's), (27, 10112), (29, 10154), (30, 10166), (35, 10229), (36, 10244), (38, 10253), (39, 10271), (40, 10277), (43, 10325), (54, 10460), (57, 10610), (60, 10640), (69, 10964), (70, 11060), (72, 11168), (74, 11210), (75, 11213), (76, 11219), (77, 11240), (81, 11321), (84, 11387), (85, 11414), (86, 11426), (87, 11444), (88, 11456), (91, 11480), (92, 11492), (93, 11531), (94, 11534), (95, 11543), (96, 11573), (103, 11678), (104, 11693), (107, 11723), (108, 11735), (111, 11780), (112, 11786), (114, 11801), (116, 11831), (117, 11852), (118, 11855), (122, 11918), (125, 11945), (126, 11948), (127, 11951), (128, 11957), (131, 11981), (132, 11984), (133, 11990), (134, 11996), (136, 12011), (139, 12029), (141, 12074), (146, 12158), (147, 12164), (150, 12191), (154, 12284), (155, 12293), (162, 12350), (164, 12362), (167, 12398), (168, 12404), (172, 12446), (175, 12458), (176, 12497), (177, 12503), (178, 12506), (179, 12524), (180, 12527), (181, 12530), (184, 12554), (189, 12629), (192, 12668), (193, 12692), (195, 12725), (200, 12836), (201, 12869), (203, 12932), (204,

12968), (205, 12998), (206, 13076), (207, 13079), (208, 13088), (210, 13112), (214, 13193), (215, 13199), (217, 13244), (218, 13247), (219, 13262), (221, 13307), (222, 13316), (223, 13325), (224, 13328), (226, 13433), (229, 13481), (230, 13484), (231, 13487), (233, 13586), (234, 13589), (236, 13601), (240, 13718), (241, 13751), (243, 13802), (246, 13832), (248, 13892), (251, 13973), (252, 13994), (254, 14027), (258, 14099), (259, 14108), (264, 14222), (267, 14252), (268, 14261), (269, 14300), (270, 14303), (272, 14333), (274, 14354), (279, 14552), (285, 14615), (286, 14621), (288, 14672), (291, 14858), (295, 14945), (297, 14972), (298, 14975), (301, 15050), (304, 15074), (305, 15113), (308, 15149), (310, 15170), (312, 15257), (314, 15299), (315, 15332), (316, 15344), (319, 15422), (322, 15488),

Gene: Begonia_18 Start: 10785, Stop: 16274, Start Num: 1

Candidate Starts for Begonia_18:

(Start: 1 @10785 has 11 MA's), (5, 10824), (6, 10836), (7, 10845), (8, 10848), (10, 10890), (22, 11001), (23, 11022), (26, 11142), (28, 11184), (34, 11250), (35, 11268), (36, 11283), (37, 11289), (38, 11292), (39, 11310), (41, 11334), (46, 11418), (50, 11460), (51, 11475), (52, 11484), (58, 11652), (60, 11679), (61, 11754), (62, 11796), (64, 11844), (67, 11967), (69, 11997), (72, 12201), (75, 12246), (77, 12273), (78, 12285), (83, 12375), (84, 12420), (85, 12447), (87, 12477), (93, 12564), (96, 12606), (104, 12726), (108, 12768), (111, 12813), (112, 12819), (113, 12831), (114, 12834), (118, 12888), (120, 12927), (121, 12948), (122, 12951), (124, 12969), (129, 12996), (133, 13023), (136, 13044), (140, 13071), (144, 13143), (156, 13344), (161, 13359), (165, 13383), (174, 13398), (180, 13428), (181, 13431), (186, 13482), (190, 13563), (191, 13566), (194, 13599), (195, 13629), (196, 13653), (201, 13719), (212, 13986), (215, 14034), (217, 14079), (218, 14082), (219, 14097), (221, 14142), (222, 14151), (223, 14160), (225, 14211), (227, 14283), (228, 14301), (231, 14322), (233, 14421), (234, 14424), (237, 14457), (238, 14523), (239, 14541), (240, 14556), (241, 14589), (243, 14640), (247, 14691), (255, 14934), (256, 14937), (262, 15012), (264, 15078), (265, 15081), (266, 15099), (273, 15159), (280, 15315), (281, 15318), (283, 15333), (290, 15552), (292, 15609), (293, 15624), (297, 15672), (299, 15717), (306, 15837), (307, 15846), (311, 15885), (313, 15957), (315, 16026), (316, 16038), (317, 16089), (318, 16107), (321, 16164), (323, 16257),

Gene: Blino_17 Start: 10173, Stop: 15764, Start Num: 1

Candidate Starts for Blino_17:

(Start: 1 @10173 has 11 MA's), (Start: 3 @10188 has 1 MA's), (6, 10224), (7, 10233), (8, 10236), (10, 10278), (22, 10389), (23, 10410), (26, 10530), (34, 10638), (35, 10656), (37, 10677), (38, 10680), (39, 10698), (48, 10812), (50, 10848), (51, 10863), (52, 10872), (58, 11040), (60, 11067), (62, 11184), (67, 11355), (69, 11385), (72, 11589), (75, 11634), (84, 11808), (85, 11835), (87, 11865), (93, 11952), (94, 11955), (96, 11994), (100, 12057), (104, 12114), (108, 12156), (111, 12201), (112, 12207), (113, 12219), (114, 12222), (118, 12276), (120, 12315), (121, 12336), (122, 12339), (124, 12357), (129, 12384), (132, 12405), (133, 12411), (136, 12432), (140, 12459), (142, 12507), (145, 12537), (155, 12693), (157, 12717), (160, 12726), (162, 12747), (171, 12828), (180, 12924), (181, 12927), (182, 12933), (185, 12975), (186, 12978), (187, 12999), (190, 13059), (191, 13062), (194, 13095), (195, 13125), (201, 13215), (212, 13482), (215, 13530), (217, 13575), (218, 13578), (219, 13593), (221, 13638), (222, 13647), (223, 13656), (225, 13707), (227, 13779), (228, 13797), (231, 13818), (233, 13917), (234, 13920), (237, 13953), (238, 14019), (239, 14037), (240, 14052), (241, 14085), (243, 14136), (247, 14187), (249, 14235), (255, 14430), (256, 14433), (261, 14505), (262, 14508), (264, 14574), (265, 14577), (266, 14595), (273, 14655), (277, 14730), (281, 14814), (283, 14829), (290, 15042), (292, 15099), (293, 15114), (297, 15162), (299, 15207), (306, 15327), (307, 15336), (311, 15375), (313, 15447), (315, 15516), (317, 15579), (318, 15597), (321, 15654), (323, 15747),

Gene: Blueberry_19 Start: 10619, Stop: 16108, Start Num: 1

Candidate Starts for Blueberry_19:

(Start: 1 @10619 has 11 MA's), (Start: 3 @10634 has 1 MA's), (4, 10640), (6, 10670), (7, 10679), (8, 10682), (10, 10724), (22, 10835), (23, 10856), (26, 10976), (28, 11018), (34, 11084), (35, 11102), (37, 11123), (38, 11126), (39, 11144), (41, 11168), (46, 11252), (50, 11294), (51, 11309), (52, 11318), (58,

11486), (60, 11513), (62, 11630), (67, 11801), (69, 11831), (72, 12035), (75, 12080), (77, 12107), (78, 12119), (79, 12131), (83, 12209), (84, 12254), (85, 12281), (87, 12311), (93, 12398), (94, 12401), (96, 12440), (100, 12503), (101, 12512), (104, 12560), (108, 12602), (111, 12647), (112, 12653), (114, 12668), (118, 12722), (120, 12761), (121, 12782), (122, 12785), (124, 12803), (129, 12830), (132, 12851), (133, 12857), (136, 12878), (139, 12896), (140, 12905), (156, 13178), (174, 13232), (180, 13262), (181, 13265), (186, 13316), (190, 13397), (191, 13400), (194, 13433), (195, 13463), (196, 13487), (201, 13553), (212, 13820), (215, 13868), (216, 13901), (217, 13913), (218, 13916), (221, 13976), (222, 13985), (223, 13994), (225, 14045), (227, 14117), (228, 14135), (231, 14156), (233, 14255), (234, 14258), (237, 14291), (238, 14357), (239, 14375), (240, 14390), (241, 14423), (243, 14474), (247, 14525), (250, 14594), (255, 14768), (256, 14771), (261, 14843), (262, 14846), (264, 14912), (265, 14915), (266, 14933), (273, 14993), (276, 15050), (277, 15068), (280, 15149), (281, 15152), (283, 15167), (289, 15338), (290, 15392), (293, 15464), (294, 15473), (297, 15509), (300, 15569), (301, 15587), (303, 15605), (305, 15650), (307, 15683), (313, 15794), (315, 15863), (317, 15926), (318, 15944), (323, 16094),

Gene: BotCity_19 Start: 9879, Stop: 15506, Start Num: 13

Candidate Starts for BotCity_19:

(Start: 13 @9879 has 10 MA's), (Start: 18 @9924 has 1 MA's), (19, 9945), (21, 9966), (24, 10011), (Start: 25 @10026 has 1 MA's), (27, 10110), (29, 10152), (30, 10164), (35, 10227), (36, 10242), (38, 10251), (39, 10269), (40, 10275), (43, 10323), (54, 10458), (57, 10608), (60, 10638), (69, 10962), (70, 11058), (72, 11166), (74, 11208), (75, 11211), (76, 11217), (77, 11238), (81, 11319), (84, 11385), (85, 11412), (86, 11424), (87, 11442), (88, 11454), (91, 11478), (92, 11490), (93, 11529), (94, 11532), (95, 11541), (96, 11571), (103, 11676), (104, 11691), (107, 11721), (108, 11733), (111, 11778), (112, 11784), (114, 11799), (116, 11829), (117, 11850), (118, 11853), (122, 11916), (125, 11943), (126, 11946), (127, 11949), (128, 11955), (131, 11979), (132, 11982), (133, 11988), (134, 11994), (136, 12009), (139, 12027), (141, 12072), (146, 12156), (147, 12162), (150, 12189), (154, 12282), (155, 12291), (162, 12348), (164, 12360), (167, 12396), (168, 12402), (172, 12444), (175, 12456), (176, 12495), (177, 12501), (178, 12504), (179, 12522), (180, 12525), (181, 12528), (184, 12552), (189, 12627), (192, 12666), (193, 12690), (195, 12723), (200, 12834), (201, 12867), (203, 12930), (204, 12966), (205, 12996), (206, 13074), (207, 13077), (208, 13086), (210, 13110), (214, 13191), (215, 13197), (217, 13242), (218, 13245), (219, 13260), (221, 13305), (222, 13314), (223, 13323), (224, 13326), (226, 13431), (229, 13479), (230, 13482), (231, 13485), (233, 13584), (234, 13587), (236, 13599), (240, 13716), (241, 13749), (243, 13800), (246, 13830), (248, 13890), (251, 13971), (252, 13992), (254, 14025), (258, 14097), (259, 14106), (264, 14220), (267, 14250), (268, 14259), (269, 14298), (270, 14301), (272, 14331), (274, 14352), (279, 14550), (285, 14613), (286, 14619), (288, 14670), (291, 14856), (295, 14943), (297, 14970), (298, 14973), (301, 15048), (304, 15072), (305, 15111), (308, 15147), (310, 15168), (312, 15255), (314, 15297), (315, 15330), (316, 15342), (319, 15420), (322, 15486),

Gene: Budski_18 Start: 10015, Stop: 15501, Start Num: 25

Candidate Starts for Budski_18:

(Start: 13 @9868 has 10 MA's), (17, 9895), (Start: 18 @9913 has 1 MA's), (19, 9934), (21, 9955), (24, 10000), (Start: 25 @10015 has 1 MA's), (27, 10099), (29, 10141), (30, 10153), (35, 10216), (36, 10231), (38, 10240), (39, 10258), (40, 10264), (43, 10312), (54, 10447), (57, 10597), (60, 10627), (66, 10846), (67, 10921), (69, 10951), (72, 11155), (74, 11197), (75, 11200), (76, 11206), (77, 11227), (81, 11308), (84, 11374), (85, 11401), (86, 11413), (87, 11431), (88, 11443), (91, 11467), (92, 11479), (93, 11518), (94, 11521), (95, 11530), (96, 11560), (99, 11605), (103, 11665), (104, 11680), (107, 11710), (108, 11722), (111, 11767), (112, 11773), (114, 11788), (116, 11818), (117, 11839), (118, 11842), (122, 11905), (125, 11932), (126, 11935), (127, 11938), (128, 11944), (131, 11968), (132, 11971), (133, 11977), (134, 11983), (136, 11998), (139, 12016), (144, 12097), (146, 12145), (147, 12151), (150, 12178), (162, 12337), (164, 12349), (167, 12385), (175, 12445), (176, 12484), (177, 12490), (178, 12493), (180, 12514), (181, 12517), (189, 12616), (192, 12655), (193, 12679), (195, 12712), (197, 12757), (199, 12811), (202, 12898), (203, 12919), (204, 12955), (205, 12985), (206, 13063),

(207, 13066), (208, 13075), (210, 13099), (214, 13180), (215, 13186), (217, 13231), (218, 13234), (219, 13249), (221, 13294), (222, 13303), (223, 13312), (224, 13315), (226, 13420), (229, 13468), (231, 13474), (233, 13573), (234, 13576), (236, 13588), (240, 13705), (241, 13738), (243, 13789), (244, 13801), (246, 13819), (248, 13879), (251, 13960), (252, 13981), (254, 14014), (257, 14077), (259, 14095), (264, 14209), (267, 14239), (268, 14248), (269, 14287), (270, 14290), (272, 14320), (274, 14341), (278, 14494), (279, 14545), (285, 14608), (286, 14614), (288, 14665), (291, 14851), (295, 14938), (297, 14965), (298, 14968), (301, 15043), (304, 15067), (305, 15106), (308, 15142), (310, 15163), (312, 15250), (314, 15292), (315, 15325), (316, 15337), (319, 15415), (322, 15481),

Gene: CarolAnn_17 Start: 10172, Stop: 15763, Start Num: 1

Candidate Starts for CarolAnn_17:

(Start: 1 @10172 has 11 MA's), (Start: 3 @10187 has 1 MA's), (6, 10223), (7, 10232), (8, 10235), (10, 10277), (22, 10388), (23, 10409), (26, 10529), (34, 10637), (35, 10655), (37, 10676), (38, 10679), (39, 10697), (48, 10811), (50, 10847), (51, 10862), (52, 10871), (58, 11039), (60, 11066), (62, 11183), (67, 11354), (69, 11384), (72, 11588), (75, 11633), (84, 11807), (85, 11834), (87, 11864), (90, 11885), (93, 11951), (94, 11954), (96, 11993), (100, 12056), (104, 12113), (108, 12155), (111, 12200), (112, 12206), (113, 12218), (114, 12221), (118, 12275), (120, 12314), (121, 12335), (122, 12338), (124, 12356), (129, 12383), (132, 12404), (133, 12410), (136, 12431), (140, 12458), (142, 12506), (145, 12536), (155, 12692), (157, 12716), (160, 12725), (162, 12746), (171, 12827), (180, 12923), (181, 12926), (182, 12932), (185, 12974), (186, 12977), (187, 12998), (190, 13058), (191, 13061), (194, 13094), (195, 13124), (201, 13214), (212, 13481), (215, 13529), (217, 13574), (218, 13577), (219, 13592), (221, 13637), (222, 13646), (223, 13655), (225, 13706), (227, 13778), (228, 13796), (231, 13817), (233, 13916), (234, 13919), (237, 13952), (238, 14018), (239, 14036), (240, 14051), (241, 14084), (243, 14135), (247, 14186), (249, 14234), (255, 14429), (256, 14432), (261, 14504), (262, 14507), (264, 14573), (265, 14576), (266, 14594), (273, 14654), (277, 14729), (281, 14813), (283, 14828), (290, 15041), (292, 15098), (293, 15113), (297, 15161), (299, 15206), (306, 15326), (307, 15335), (311, 15374), (313, 15446), (315, 15515), (317, 15578), (318, 15596), (321, 15653), (323, 15746),

Gene: CheeseTouch_18 Start: 9868, Stop: 15501, Start Num: 13

Candidate Starts for CheeseTouch_18:

(Start: 13 @9868 has 10 MA's), (Start: 18 @9913 has 1 MA's), (19, 9934), (21, 9955), (24, 10000), (Start: 25 @10015 has 1 MA's), (27, 10099), (29, 10141), (30, 10153), (35, 10216), (36, 10231), (38, 10240), (39, 10258), (40, 10264), (43, 10312), (54, 10447), (57, 10597), (60, 10627), (67, 10921), (69, 10951), (71, 11134), (72, 11155), (75, 11200), (76, 11206), (77, 11227), (81, 11308), (84, 11374), (85, 11401), (86, 11413), (87, 11431), (88, 11443), (91, 11467), (92, 11479), (93, 11518), (95, 11530), (96, 11560), (99, 11605), (103, 11665), (104, 11680), (107, 11710), (108, 11722), (111, 11767), (112, 11773), (113, 11785), (114, 11788), (115, 11809), (117, 11839), (118, 11842), (122, 11905), (125, 11932), (126, 11935), (127, 11938), (128, 11944), (131, 11968), (132, 11971), (133, 11977), (134, 11983), (136, 11998), (139, 12016), (144, 12097), (146, 12145), (147, 12151), (150, 12178), (162, 12337), (164, 12349), (167, 12385), (168, 12391), (172, 12433), (175, 12445), (176, 12484), (177, 12490), (178, 12493), (179, 12511), (180, 12514), (181, 12517), (184, 12541), (189, 12616), (192, 12655), (193, 12679), (195, 12712), (200, 12823), (201, 12856), (203, 12919), (204, 12955), (205, 12985), (206, 13063), (207, 13066), (208, 13075), (210, 13099), (215, 13186), (217, 13231), (218, 13234), (219, 13249), (221, 13294), (222, 13303), (223, 13312), (224, 13315), (226, 13420), (229, 13468), (231, 13474), (233, 13573), (234, 13576), (236, 13588), (240, 13705), (241, 13738), (243, 13789), (246, 13819), (248, 13879), (251, 13960), (252, 13981), (253, 13984), (254, 14014), (257, 14077), (258, 14086), (259, 14095), (264, 14209), (267, 14239), (269, 14287), (270, 14290), (272, 14320), (274, 14341), (279, 14539), (285, 14602), (286, 14608), (288, 14659), (291, 14851), (295, 14938), (297, 14965), (298, 14968), (301, 15043), (304, 15067), (305, 15106), (308, 15142), (310, 15163), (312, 15250), (314, 15292), (315, 15325), (316, 15337), (319, 15415), (322, 15481),

Gene: Fenry_16 Start: 10023, Stop: 15515, Start Num: 1

Candidate Starts for Ferry_16:

(Start: 1 @10023 has 11 MA's), (Start: 3 @10038 has 1 MA's), (4, 10044), (6, 10074), (7, 10083), (8, 10086), (10, 10128), (22, 10239), (23, 10260), (26, 10380), (34, 10488), (35, 10506), (36, 10521), (37, 10527), (38, 10530), (39, 10548), (41, 10572), (46, 10656), (48, 10662), (50, 10698), (51, 10713), (52, 10722), (58, 10890), (60, 10917), (66, 11130), (69, 11235), (72, 11439), (75, 11484), (77, 11511), (78, 11523), (83, 11613), (84, 11658), (85, 11685), (87, 11715), (93, 11802), (94, 11805), (96, 11844), (104, 11964), (108, 12006), (111, 12051), (112, 12057), (113, 12069), (114, 12072), (118, 12126), (120, 12165), (121, 12186), (122, 12189), (124, 12207), (132, 12255), (133, 12261), (136, 12282), (140, 12309), (144, 12381), (153, 12516), (158, 12588), (161, 12597), (163, 12609), (165, 12621), (174, 12636), (180, 12666), (181, 12669), (186, 12720), (190, 12801), (191, 12804), (194, 12837), (195, 12867), (196, 12891), (201, 12957), (209, 13173), (212, 13224), (215, 13272), (217, 13317), (218, 13320), (219, 13335), (221, 13380), (222, 13389), (223, 13398), (225, 13449), (227, 13521), (228, 13539), (231, 13560), (233, 13659), (234, 13662), (237, 13695), (238, 13761), (239, 13779), (240, 13794), (241, 13827), (243, 13878), (247, 13929), (255, 14172), (256, 14175), (261, 14247), (262, 14250), (264, 14316), (265, 14319), (266, 14337), (273, 14397), (280, 14553), (281, 14556), (283, 14571), (289, 14742), (290, 14796), (292, 14853), (293, 14868), (297, 14916), (299, 14961), (306, 15081), (307, 15090), (311, 15129), (313, 15201), (315, 15270), (316, 15282), (317, 15333), (318, 15351), (323, 15501),

Gene: Frickyeah_18 Start: 9926, Stop: 15508, Start Num: 18

Candidate Starts for Frickyeah_18:

(Start: 13 @9881 has 10 MA's), (Start: 18 @9926 has 1 MA's), (19, 9947), (21, 9968), (24, 10013), (Start: 25 @10028 has 1 MA's), (27, 10112), (29, 10154), (30, 10166), (35, 10229), (36, 10244), (38, 10253), (39, 10271), (40, 10277), (43, 10325), (54, 10460), (57, 10610), (60, 10640), (69, 10964), (70, 11060), (72, 11168), (75, 11213), (76, 11219), (77, 11240), (81, 11321), (84, 11387), (85, 11414), (86, 11426), (87, 11444), (88, 11456), (91, 11480), (92, 11492), (93, 11531), (94, 11534), (95, 11543), (96, 11573), (99, 11618), (103, 11678), (104, 11693), (107, 11723), (108, 11735), (111, 11780), (112, 11786), (114, 11801), (116, 11831), (117, 11852), (118, 11855), (122, 11918), (125, 11945), (126, 11948), (127, 11951), (128, 11957), (131, 11981), (132, 11984), (133, 11990), (134, 11996), (136, 12011), (139, 12029), (141, 12074), (146, 12158), (147, 12164), (150, 12191), (154, 12284), (155, 12293), (162, 12350), (164, 12362), (167, 12398), (168, 12404), (172, 12446), (175, 12458), (176, 12497), (177, 12503), (178, 12506), (179, 12524), (180, 12527), (181, 12530), (184, 12554), (189, 12629), (192, 12668), (193, 12692), (195, 12725), (200, 12836), (201, 12869), (203, 12932), (204, 12968), (205, 12998), (206, 13076), (207, 13079), (208, 13088), (210, 13112), (214, 13193), (215, 13199), (217, 13244), (218, 13247), (219, 13262), (221, 13307), (222, 13316), (223, 13325), (224, 13328), (226, 13433), (229, 13481), (230, 13484), (231, 13487), (233, 13586), (234, 13589), (236, 13601), (240, 13718), (241, 13751), (243, 13802), (246, 13832), (248, 13892), (251, 13973), (252, 13994), (254, 14027), (258, 14099), (259, 14108), (264, 14222), (267, 14252), (268, 14261), (269, 14300), (270, 14303), (272, 14333), (274, 14354), (279, 14552), (285, 14615), (286, 14621), (288, 14672), (291, 14858), (295, 14945), (297, 14972), (298, 14975), (301, 15050), (304, 15074), (305, 15113), (308, 15149), (310, 15170), (312, 15257), (314, 15299), (315, 15332), (316, 15344), (319, 15422), (322, 15488),

Gene: Frokostdame_17 Start: 10288, Stop: 15762, Start Num: 3

Candidate Starts for Frokostdame_17:

(Start: 1 @10273 has 11 MA's), (2, 10285), (Start: 3 @10288 has 1 MA's), (4, 10294), (6, 10324), (7, 10333), (10, 10378), (22, 10489), (23, 10510), (26, 10630), (28, 10672), (34, 10738), (35, 10756), (37, 10777), (38, 10780), (39, 10798), (41, 10822), (46, 10906), (50, 10948), (51, 10963), (52, 10972), (58, 11140), (60, 11167), (62, 11284), (65, 11338), (66, 11380), (69, 11485), (72, 11689), (75, 11734), (76, 11740), (77, 11761), (78, 11773), (83, 11863), (84, 11908), (85, 11935), (87, 11965), (93, 12052), (94, 12055), (96, 12094), (100, 12157), (101, 12166), (104, 12214), (108, 12256), (112, 12307), (114, 12322), (118, 12376), (120, 12415), (121, 12436), (122, 12439), (124, 12457), (129, 12484), (132, 12505), (133, 12511), (136, 12532), (139, 12550), (140, 12559), (156, 12832), (163, 12859), (165,

12871), (174, 12886), (180, 12916), (181, 12919), (186, 12970), (188, 13012), (190, 13051), (191, 13054), (194, 13087), (195, 13117), (196, 13141), (201, 13207), (212, 13474), (215, 13522), (216, 13555), (217, 13567), (218, 13570), (219, 13585), (221, 13630), (222, 13639), (223, 13648), (225, 13699), (227, 13771), (228, 13789), (231, 13810), (233, 13909), (234, 13912), (237, 13945), (238, 14011), (239, 14029), (240, 14044), (241, 14077), (243, 14128), (247, 14179), (255, 14422), (256, 14425), (261, 14497), (262, 14500), (264, 14566), (265, 14569), (266, 14587), (273, 14647), (276, 14704), (277, 14722), (280, 14803), (281, 14806), (283, 14821), (289, 14992), (290, 15046), (293, 15118), (294, 15127), (297, 15163), (300, 15223), (301, 15241), (303, 15259), (305, 15304), (307, 15337), (313, 15448), (315, 15517), (317, 15580), (318, 15598), (323, 15748),

Gene: Gambino_19 Start: 10619, Stop: 16108, Start Num: 1

Candidate Starts for Gambino_19:

(Start: 1 @10619 has 11 MA's), (Start: 3 @10634 has 1 MA's), (4, 10640), (6, 10670), (7, 10679), (8, 10682), (10, 10724), (22, 10835), (23, 10856), (26, 10976), (28, 11018), (34, 11084), (35, 11102), (37, 11123), (38, 11126), (39, 11144), (41, 11168), (46, 11252), (50, 11294), (51, 11309), (52, 11318), (58, 11486), (60, 11513), (62, 11630), (67, 11801), (69, 11831), (72, 12035), (75, 12080), (77, 12107), (78, 12119), (79, 12131), (83, 12209), (84, 12254), (85, 12281), (87, 12311), (93, 12398), (94, 12401), (96, 12440), (100, 12503), (101, 12512), (104, 12560), (108, 12602), (111, 12647), (112, 12653), (114, 12668), (118, 12722), (120, 12761), (121, 12782), (122, 12785), (124, 12803), (129, 12830), (132, 12851), (133, 12857), (136, 12878), (139, 12896), (140, 12905), (156, 13178), (174, 13232), (180, 13262), (181, 13265), (186, 13316), (190, 13397), (191, 13400), (194, 13433), (195, 13463), (196, 13487), (201, 13553), (212, 13820), (215, 13868), (216, 13901), (217, 13913), (218, 13916), (221, 13976), (222, 13985), (223, 13994), (225, 14045), (227, 14117), (228, 14135), (231, 14156), (233, 14255), (234, 14258), (237, 14291), (238, 14357), (239, 14375), (240, 14390), (241, 14423), (243, 14474), (247, 14525), (250, 14594), (255, 14768), (256, 14771), (261, 14843), (262, 14846), (264, 14912), (265, 14915), (266, 14933), (273, 14993), (276, 15050), (277, 15068), (280, 15149), (281, 15152), (283, 15167), (289, 15338), (290, 15392), (293, 15464), (294, 15473), (297, 15509), (300, 15569), (301, 15587), (303, 15605), (305, 15650), (307, 15683), (313, 15794), (315, 15863), (317, 15926), (318, 15944), (323, 16094),

Gene: Getalong_19 Start: 10672, Stop: 16305, Start Num: 14

Candidate Starts for Getalong_19:

(Start: 14 @10672 has 5 MA's), (Start: 18 @10717 has 1 MA's), (19, 10738), (21, 10759), (24, 10804), (Start: 25 @10819 has 1 MA's), (27, 10903), (29, 10945), (30, 10957), (35, 11020), (36, 11035), (38, 11044), (39, 11062), (40, 11068), (43, 11116), (54, 11251), (57, 11401), (60, 11431), (66, 11650), (67, 11725), (69, 11755), (72, 11959), (75, 12004), (76, 12010), (77, 12031), (79, 12055), (81, 12112), (84, 12178), (85, 12205), (86, 12217), (87, 12235), (88, 12247), (91, 12271), (92, 12283), (93, 12322), (94, 12325), (95, 12334), (96, 12364), (99, 12409), (103, 12469), (104, 12484), (107, 12514), (108, 12526), (111, 12571), (112, 12577), (114, 12592), (116, 12622), (117, 12643), (118, 12646), (122, 12709), (125, 12736), (126, 12739), (127, 12742), (128, 12748), (131, 12772), (132, 12775), (133, 12781), (134, 12787), (136, 12802), (139, 12820), (141, 12865), (146, 12949), (147, 12955), (150, 12982), (154, 13075), (155, 13084), (162, 13141), (164, 13153), (167, 13189), (168, 13195), (172, 13237), (175, 13249), (176, 13288), (177, 13294), (178, 13297), (179, 13315), (180, 13318), (181, 13321), (189, 13420), (192, 13459), (193, 13483), (195, 13516), (200, 13627), (201, 13660), (203, 13723), (204, 13759), (205, 13789), (206, 13867), (207, 13870), (208, 13879), (210, 13903), (215, 13990), (217, 14035), (218, 14038), (219, 14053), (221, 14098), (222, 14107), (223, 14116), (224, 14119), (226, 14224), (229, 14272), (231, 14278), (233, 14377), (234, 14380), (236, 14392), (240, 14509), (241, 14542), (243, 14593), (246, 14623), (248, 14683), (251, 14764), (252, 14785), (253, 14788), (254, 14818), (257, 14881), (258, 14890), (259, 14899), (264, 15013), (267, 15043), (269, 15091), (270, 15094), (272, 15124), (274, 15145), (279, 15343), (285, 15406), (286, 15412), (288, 15463), (291, 15655), (295, 15742), (297, 15769), (298, 15772), (301, 15847), (304, 15871), (305, 15910), (308, 15946), (310, 15967), (312, 16054), (314, 16096), (315, 16129), (316, 16141), (322, 16285),

Gene: Holliday_18 Start: 9868, Stop: 15501, Start Num: 13

Candidate Starts for Holliday_18:

(Start: 13 @9868 has 10 MA's), (17, 9895), (Start: 18 @9913 has 1 MA's), (19, 9934), (21, 9955), (24, 10000), (Start: 25 @10015 has 1 MA's), (27, 10099), (29, 10141), (30, 10153), (35, 10216), (36, 10231), (38, 10240), (39, 10258), (40, 10264), (43, 10312), (54, 10447), (57, 10597), (60, 10627), (66, 10846), (67, 10921), (69, 10951), (72, 11155), (74, 11197), (75, 11200), (76, 11206), (77, 11227), (81, 11308), (84, 11374), (85, 11401), (86, 11413), (87, 11431), (88, 11443), (91, 11467), (92, 11479), (93, 11518), (94, 11521), (95, 11530), (96, 11560), (99, 11605), (103, 11665), (104, 11680), (107, 11710), (108, 11722), (111, 11767), (112, 11773), (114, 11788), (116, 11818), (117, 11839), (118, 11842), (122, 11905), (125, 11932), (126, 11935), (127, 11938), (128, 11944), (131, 11968), (132, 11971), (133, 11977), (134, 11983), (136, 11998), (139, 12016), (144, 12097), (146, 12145), (147, 12151), (150, 12178), (162, 12337), (164, 12349), (167, 12385), (175, 12445), (176, 12484), (177, 12490), (178, 12493), (180, 12514), (181, 12517), (189, 12616), (192, 12655), (193, 12679), (195, 12712), (197, 12757), (199, 12811), (202, 12898), (203, 12919), (204, 12955), (205, 12985), (206, 13063), (207, 13066), (208, 13075), (210, 13099), (214, 13180), (215, 13186), (217, 13231), (218, 13234), (219, 13249), (221, 13294), (222, 13303), (223, 13312), (224, 13315), (226, 13420), (229, 13468), (231, 13474), (233, 13573), (234, 13576), (236, 13588), (240, 13705), (241, 13738), (243, 13789), (244, 13801), (246, 13819), (248, 13879), (251, 13960), (252, 13981), (254, 14014), (257, 14077), (259, 14095), (264, 14209), (267, 14239), (268, 14248), (269, 14287), (270, 14290), (272, 14320), (274, 14341), (278, 14494), (279, 14545), (285, 14608), (286, 14614), (288, 14665), (291, 14851), (295, 14938), (297, 14965), (298, 14968), (301, 15043), (304, 15067), (305, 15106), (308, 15142), (310, 15163), (312, 15250), (314, 15292), (315, 15325), (316, 15337), (319, 15415), (322, 15481),

Gene: Horus_18 Start: 9926, Stop: 15514, Start Num: 18

Candidate Starts for Horus_18:

(Start: 13 @9881 has 10 MA's), (Start: 18 @9926 has 1 MA's), (19, 9947), (21, 9968), (24, 10013), (Start: 25 @10028 has 1 MA's), (27, 10112), (29, 10154), (30, 10166), (35, 10229), (36, 10244), (38, 10253), (39, 10271), (40, 10277), (43, 10325), (54, 10460), (57, 10610), (60, 10640), (69, 10964), (70, 11060), (72, 11168), (74, 11210), (75, 11213), (76, 11219), (77, 11240), (81, 11321), (84, 11387), (85, 11414), (86, 11426), (87, 11444), (88, 11456), (91, 11480), (92, 11492), (93, 11531), (94, 11534), (95, 11543), (96, 11573), (103, 11678), (104, 11693), (107, 11723), (108, 11735), (111, 11780), (112, 11786), (114, 11801), (116, 11831), (117, 11852), (118, 11855), (122, 11918), (125, 11945), (126, 11948), (127, 11951), (128, 11957), (131, 11981), (132, 11984), (133, 11990), (134, 11996), (136, 12011), (139, 12029), (141, 12074), (146, 12158), (147, 12164), (150, 12191), (154, 12284), (155, 12293), (162, 12350), (164, 12362), (167, 12398), (172, 12446), (175, 12458), (176, 12497), (177, 12503), (178, 12506), (179, 12524), (180, 12527), (181, 12530), (184, 12554), (189, 12629), (193, 12692), (195, 12725), (198, 12800), (199, 12824), (200, 12836), (201, 12869), (203, 12932), (204, 12968), (205, 12998), (206, 13076), (207, 13079), (208, 13088), (215, 13199), (217, 13244), (218, 13247), (219, 13262), (221, 13307), (222, 13316), (223, 13325), (224, 13328), (226, 13433), (229, 13481), (231, 13487), (233, 13586), (234, 13589), (236, 13601), (240, 13718), (241, 13751), (243, 13802), (246, 13832), (248, 13892), (251, 13973), (252, 13994), (253, 13997), (254, 14027), (257, 14090), (258, 14099), (259, 14108), (264, 14222), (267, 14252), (269, 14300), (270, 14303), (272, 14333), (274, 14354), (279, 14552), (285, 14615), (286, 14621), (288, 14672), (291, 14864), (295, 14951), (297, 14978), (298, 14981), (301, 15056), (304, 15080), (305, 15119), (308, 15155), (310, 15176), (312, 15263), (314, 15305), (315, 15338), (316, 15350), (322, 15494),

Gene: Kamaru_18 Start: 9868, Stop: 15501, Start Num: 13

Candidate Starts for Kamaru_18:

(Start: 13 @9868 has 10 MA's), (17, 9895), (Start: 18 @9913 has 1 MA's), (19, 9934), (21, 9955), (24, 10000), (Start: 25 @10015 has 1 MA's), (27, 10099), (29, 10141), (30, 10153), (35, 10216), (36, 10231), (38, 10240), (39, 10258), (40, 10264), (43, 10312), (54, 10447), (57, 10597), (60, 10627), (66, 10846), (67, 10921), (69, 10951), (72, 11155), (74, 11197), (75, 11200), (76, 11206), (77, 11227), (81, 11308), (84, 11374), (85, 11401), (86, 11413), (87, 11431), (88, 11443), (91, 11467), (92, 11479), (93,

11518), (94, 11521), (95, 11530), (96, 11560), (99, 11605), (103, 11665), (104, 11680), (107, 11710), (108, 11722), (111, 11767), (112, 11773), (114, 11788), (116, 11818), (117, 11839), (118, 11842), (122, 11905), (125, 11932), (126, 11935), (127, 11938), (128, 11944), (131, 11968), (132, 11971), (133, 11977), (134, 11983), (136, 11998), (139, 12016), (144, 12097), (146, 12145), (147, 12151), (150, 12178), (162, 12337), (164, 12349), (167, 12385), (175, 12445), (176, 12484), (177, 12490), (178, 12493), (180, 12514), (181, 12517), (189, 12616), (192, 12655), (193, 12679), (195, 12712), (197, 12757), (199, 12811), (202, 12898), (203, 12919), (204, 12955), (205, 12985), (206, 13063), (207, 13066), (208, 13075), (210, 13099), (214, 13180), (215, 13186), (217, 13231), (218, 13234), (219, 13249), (221, 13294), (222, 13303), (223, 13312), (224, 13315), (226, 13420), (229, 13468), (231, 13474), (233, 13573), (234, 13576), (236, 13588), (240, 13705), (241, 13738), (243, 13789), (244, 13801), (246, 13819), (248, 13879), (251, 13960), (252, 13981), (254, 14014), (257, 14077), (259, 14095), (264, 14209), (267, 14239), (268, 14248), (269, 14287), (270, 14290), (272, 14320), (274, 14341), (278, 14494), (279, 14545), (285, 14608), (286, 14614), (288, 14665), (291, 14851), (295, 14938), (297, 14965), (298, 14968), (301, 15043), (304, 15067), (305, 15106), (308, 15142), (310, 15163), (312, 15250), (314, 15292), (315, 15325), (316, 15337), (319, 15415), (322, 15481),

Gene: Kenna_17 Start: 9881, Stop: 15508, Start Num: 13

Candidate Starts for Kenna_17:

(Start: 13 @9881 has 10 MA's), (17, 9908), (Start: 18 @9926 has 1 MA's), (19, 9947), (21, 9968), (24, 10013), (Start: 25 @10028 has 1 MA's), (27, 10112), (29, 10154), (30, 10166), (35, 10229), (36, 10244), (38, 10253), (39, 10271), (40, 10277), (43, 10325), (54, 10460), (57, 10610), (60, 10640), (69, 10964), (70, 11060), (72, 11168), (75, 11213), (76, 11219), (77, 11240), (79, 11264), (81, 11321), (84, 11387), (85, 11414), (86, 11426), (87, 11444), (88, 11456), (91, 11480), (92, 11492), (93, 11531), (94, 11534), (95, 11543), (96, 11573), (99, 11618), (103, 11678), (104, 11693), (107, 11723), (108, 11735), (111, 11780), (112, 11786), (114, 11801), (116, 11831), (117, 11852), (118, 11855), (122, 11918), (125, 11945), (126, 11948), (127, 11951), (128, 11957), (131, 11981), (132, 11984), (133, 11990), (134, 11996), (136, 12011), (139, 12029), (141, 12074), (146, 12158), (147, 12164), (150, 12191), (154, 12284), (155, 12293), (162, 12350), (164, 12362), (167, 12398), (168, 12404), (172, 12446), (175, 12458), (176, 12497), (177, 12503), (178, 12506), (179, 12524), (180, 12527), (181, 12530), (184, 12554), (189, 12629), (192, 12668), (193, 12692), (195, 12725), (200, 12836), (201, 12869), (203, 12932), (204, 12968), (205, 12998), (206, 13076), (207, 13079), (208, 13088), (210, 13112), (214, 13193), (215, 13199), (217, 13244), (218, 13247), (219, 13262), (221, 13307), (222, 13316), (223, 13325), (224, 13328), (226, 13433), (229, 13481), (230, 13484), (231, 13487), (233, 13586), (234, 13589), (236, 13601), (240, 13718), (241, 13751), (243, 13802), (246, 13832), (248, 13892), (251, 13973), (252, 13994), (254, 14027), (258, 14099), (259, 14108), (264, 14222), (267, 14252), (268, 14261), (269, 14300), (270, 14303), (272, 14333), (274, 14354), (279, 14552), (285, 14615), (286, 14621), (288, 14672), (291, 14858), (295, 14945), (297, 14972), (298, 14975), (301, 15050), (304, 15074), (305, 15113), (308, 15149), (310, 15170), (312, 15257), (314, 15299), (315, 15332), (316, 15344), (319, 15422), (322, 15488),

Gene: Leroy_18 Start: 9882, Stop: 15515, Start Num: 13

Candidate Starts for Leroy_18:

(Start: 13 @9882 has 10 MA's), (Start: 18 @9927 has 1 MA's), (19, 9948), (21, 9969), (24, 10014), (Start: 25 @10029 has 1 MA's), (27, 10113), (29, 10155), (30, 10167), (35, 10230), (36, 10245), (38, 10254), (39, 10272), (40, 10278), (43, 10326), (54, 10461), (57, 10611), (60, 10641), (67, 10935), (69, 10965), (72, 11169), (74, 11211), (75, 11214), (76, 11220), (77, 11241), (79, 11265), (81, 11322), (84, 11388), (85, 11415), (86, 11427), (87, 11445), (88, 11457), (91, 11481), (92, 11493), (93, 11532), (94, 11535), (95, 11544), (96, 11574), (98, 11580), (103, 11679), (104, 11694), (107, 11724), (108, 11736), (111, 11781), (112, 11787), (114, 11802), (116, 11832), (117, 11853), (118, 11856), (122, 11919), (125, 11946), (127, 11952), (131, 11982), (132, 11985), (133, 11991), (134, 11997), (136, 12012), (139, 12030), (144, 12111), (146, 12159), (147, 12165), (148, 12180), (150, 12192), (162, 12351), (164, 12363), (167, 12399), (168, 12405), (175, 12459), (176, 12498), (177, 12504), (178, 12507), (179, 12525), (180, 12528), (181, 12531), (184, 12555), (189, 12630), (193, 12693), (195, 12726),

(197, 12771), (199, 12825), (200, 12837), (202, 12912), (203, 12933), (204, 12969), (205, 12999), (207, 13080), (208, 13089), (210, 13113), (215, 13200), (217, 13245), (218, 13248), (221, 13308), (222, 13317), (223, 13326), (226, 13434), (229, 13482), (231, 13488), (233, 13587), (234, 13590), (236, 13602), (240, 13719), (241, 13752), (243, 13803), (246, 13833), (248, 13893), (251, 13974), (252, 13995), (254, 14028), (258, 14100), (259, 14109), (264, 14223), (267, 14253), (268, 14262), (269, 14301), (270, 14304), (272, 14334), (274, 14355), (279, 14553), (285, 14616), (286, 14622), (288, 14673), (291, 14865), (295, 14952), (297, 14979), (298, 14982), (301, 15057), (304, 15081), (305, 15120), (308, 15156), (310, 15177), (312, 15264), (314, 15306), (315, 15339), (316, 15351), (322, 15495),

Gene: LitninMcQueen_18 Start: 9869, Stop: 15502, Start Num: 13

Candidate Starts for LitninMcQueen_18:

(Start: 13 @9869 has 10 MA's), (17, 9896), (Start: 18 @9914 has 1 MA's), (19, 9935), (21, 9956), (24, 10001), (Start: 25 @10016 has 1 MA's), (27, 10100), (29, 10142), (30, 10154), (35, 10217), (36, 10232), (38, 10241), (39, 10259), (40, 10265), (43, 10313), (54, 10448), (57, 10598), (60, 10628), (66, 10847), (67, 10922), (69, 10952), (72, 11156), (74, 11198), (75, 11201), (76, 11207), (77, 11228), (81, 11309), (84, 11375), (85, 11402), (86, 11414), (87, 11432), (88, 11444), (91, 11468), (92, 11480), (93, 11519), (94, 11522), (95, 11531), (96, 11561), (99, 11606), (103, 11666), (104, 11681), (107, 11711), (108, 11723), (111, 11768), (112, 11774), (114, 11789), (116, 11819), (117, 11840), (118, 11843), (122, 11906), (125, 11933), (126, 11936), (127, 11939), (128, 11945), (131, 11969), (132, 11972), (133, 11978), (134, 11984), (136, 11999), (139, 12017), (144, 12098), (146, 12146), (147, 12152), (150, 12179), (162, 12338), (164, 12350), (167, 12386), (175, 12446), (176, 12485), (177, 12491), (178, 12494), (180, 12515), (181, 12518), (189, 12617), (192, 12656), (193, 12680), (195, 12713), (197, 12758), (199, 12812), (202, 12899), (203, 12920), (204, 12956), (205, 12986), (206, 13064), (207, 13067), (208, 13076), (210, 13100), (214, 13181), (215, 13187), (217, 13232), (218, 13235), (219, 13250), (221, 13295), (222, 13304), (223, 13313), (224, 13316), (226, 13421), (229, 13469), (231, 13475), (233, 13574), (234, 13577), (236, 13589), (240, 13706), (241, 13739), (243, 13790), (246, 13820), (248, 13880), (251, 13961), (252, 13982), (254, 14015), (257, 14078), (259, 14096), (264, 14210), (267, 14240), (268, 14249), (269, 14288), (270, 14291), (272, 14321), (274, 14342), (278, 14495), (279, 14546), (285, 14609), (286, 14615), (288, 14666), (291, 14852), (295, 14939), (297, 14966), (298, 14969), (301, 15044), (304, 15068), (305, 15107), (308, 15143), (310, 15164), (312, 15251), (314, 15293), (315, 15326), (316, 15338), (319, 15416), (322, 15482),

Gene: Lutum_18 Start: 9881, Stop: 15508, Start Num: 13

Candidate Starts for Lutum_18:

(Start: 13 @9881 has 10 MA's), (17, 9908), (Start: 18 @9926 has 1 MA's), (19, 9947), (21, 9968), (24, 10013), (Start: 25 @10028 has 1 MA's), (27, 10112), (29, 10154), (30, 10166), (35, 10229), (36, 10244), (38, 10253), (39, 10271), (40, 10277), (43, 10325), (54, 10460), (57, 10610), (60, 10640), (69, 10964), (70, 11060), (72, 11168), (75, 11213), (76, 11219), (77, 11240), (79, 11264), (81, 11321), (84, 11387), (85, 11414), (86, 11426), (87, 11444), (88, 11456), (91, 11480), (92, 11492), (93, 11531), (94, 11534), (95, 11543), (96, 11573), (99, 11618), (103, 11678), (104, 11693), (107, 11723), (108, 11735), (111, 11780), (112, 11786), (114, 11801), (116, 11831), (117, 11852), (118, 11855), (122, 11918), (125, 11945), (126, 11948), (127, 11951), (128, 11957), (131, 11981), (132, 11984), (133, 11990), (134, 11996), (136, 12011), (139, 12029), (141, 12074), (146, 12158), (147, 12164), (150, 12191), (154, 12284), (155, 12293), (162, 12350), (164, 12362), (167, 12398), (168, 12404), (172, 12446), (175, 12458), (176, 12497), (177, 12503), (178, 12506), (179, 12524), (180, 12527), (181, 12530), (184, 12554), (189, 12629), (192, 12668), (193, 12692), (195, 12725), (200, 12836), (201, 12869), (203, 12932), (204, 12968), (205, 12998), (206, 13076), (207, 13079), (208, 13088), (210, 13112), (214, 13193), (215, 13199), (217, 13244), (218, 13247), (219, 13262), (221, 13307), (222, 13316), (223, 13325), (224, 13328), (226, 13433), (229, 13481), (230, 13484), (231, 13487), (233, 13586), (234, 13589), (236, 13601), (240, 13718), (241, 13751), (243, 13802), (246, 13832), (248, 13892), (251, 13973), (252, 13994), (254, 14027), (258, 14099), (259, 14108), (264, 14222), (267, 14252), (268, 14261), (269, 14300), (270, 14303), (272, 14333), (274, 14354), (279, 14552), (285, 14615),

(286, 14621), (288, 14672), (291, 14858), (295, 14945), (297, 14972), (298, 14975), (301, 15050), (304, 15074), (305, 15113), (308, 15149), (310, 15170), (312, 15257), (314, 15299), (315, 15332), (316, 15344), (319, 15422), (322, 15488),

Gene: Malachai_18 Start: 10785, Stop: 16274, Start Num: 1

Candidate Starts for Malachai_18:

(Start: 1 @10785 has 11 MA's), (5, 10824), (6, 10836), (7, 10845), (8, 10848), (10, 10890), (22, 11001), (23, 11022), (26, 11142), (28, 11184), (34, 11250), (35, 11268), (36, 11283), (37, 11289), (38, 11292), (39, 11310), (41, 11334), (46, 11418), (50, 11460), (51, 11475), (52, 11484), (58, 11652), (60, 11679), (61, 11754), (62, 11796), (64, 11844), (67, 11967), (69, 11997), (72, 12201), (75, 12246), (77, 12273), (78, 12285), (83, 12375), (84, 12420), (85, 12447), (87, 12477), (93, 12564), (96, 12606), (104, 12726), (108, 12768), (111, 12813), (112, 12819), (113, 12831), (114, 12834), (118, 12888), (120, 12927), (121, 12948), (122, 12951), (124, 12969), (129, 12996), (133, 13023), (136, 13044), (140, 13071), (144, 13143), (156, 13344), (161, 13359), (165, 13383), (174, 13398), (180, 13428), (181, 13431), (186, 13482), (190, 13563), (191, 13566), (194, 13599), (195, 13629), (196, 13653), (201, 13719), (212, 13986), (215, 14034), (217, 14079), (218, 14082), (219, 14097), (221, 14142), (222, 14151), (223, 14160), (225, 14211), (227, 14283), (228, 14301), (231, 14322), (233, 14421), (234, 14424), (237, 14457), (238, 14523), (239, 14541), (240, 14556), (241, 14589), (243, 14640), (247, 14691), (255, 14934), (256, 14937), (262, 15012), (264, 15078), (265, 15081), (266, 15099), (273, 15159), (280, 15315), (281, 15318), (283, 15333), (290, 15552), (292, 15609), (293, 15624), (297, 15672), (299, 15717), (306, 15837), (307, 15846), (311, 15885), (313, 15957), (315, 16026), (316, 16038), (317, 16089), (318, 16107), (321, 16164), (323, 16257),

Gene: Malisha_19 Start: 11668, Stop: 17280, Start Num: 14

Candidate Starts for Malisha_19:

(Start: 14 @11668 has 5 MA's), (16, 11686), (17, 11695), (Start: 18 @11713 has 1 MA's), (19, 11734), (20, 11746), (24, 11800), (Start: 25 @11815 has 1 MA's), (33, 11992), (35, 12016), (38, 12040), (39, 12058), (42, 12103), (47, 12169), (48, 12172), (52, 12232), (57, 12397), (60, 12427), (63, 12583), (67, 12721), (70, 12847), (72, 12955), (73, 12988), (75, 13000), (77, 13027), (84, 13174), (85, 13201), (87, 13231), (91, 13267), (93, 13318), (94, 13321), (95, 13330), (98, 13366), (101, 13432), (104, 13480), (106, 13495), (107, 13510), (110, 13564), (111, 13567), (112, 13573), (113, 13585), (114, 13588), (117, 13639), (118, 13642), (120, 13681), (133, 13777), (136, 13798), (151, 14002), (153, 14032), (159, 14113), (162, 14137), (164, 14149), (167, 14185), (175, 14245), (176, 14284), (178, 14293), (180, 14314), (181, 14317), (189, 14416), (192, 14455), (193, 14479), (195, 14512), (197, 14557), (199, 14611), (200, 14623), (202, 14698), (203, 14719), (204, 14755), (205, 14785), (207, 14866), (208, 14875), (210, 14899), (214, 14980), (215, 14986), (217, 15031), (218, 15034), (221, 15094), (222, 15103), (223, 15112), (226, 15220), (229, 15268), (231, 15274), (233, 15373), (234, 15376), (236, 15388), (240, 15505), (241, 15538), (242, 15586), (243, 15589), (246, 15619), (248, 15679), (251, 15760), (252, 15781), (253, 15784), (257, 15877), (258, 15886), (263, 15988), (264, 16009), (267, 16039), (268, 16048), (269, 16087), (270, 16090), (271, 16093), (272, 16120), (275, 16174), (278, 16291), (282, 16375), (284, 16387), (285, 16399), (286, 16405), (287, 16432), (288, 16456), (291, 16633), (295, 16720), (296, 16738), (297, 16747), (301, 16825), (302, 16840), (304, 16849), (308, 16924), (309, 16933), (310, 16945), (312, 17032), (314, 17074), (315, 17107), (316, 17119), (319, 17194), (322, 17260),

Gene: MissRona_19 Start: 10619, Stop: 16108, Start Num: 1

Candidate Starts for MissRona_19:

(Start: 1 @10619 has 11 MA's), (Start: 3 @10634 has 1 MA's), (4, 10640), (6, 10670), (7, 10679), (8, 10682), (10, 10724), (22, 10835), (23, 10856), (26, 10976), (28, 11018), (34, 11084), (35, 11102), (37, 11123), (38, 11126), (39, 11144), (41, 11168), (46, 11252), (50, 11294), (51, 11309), (52, 11318), (58, 11486), (60, 11513), (62, 11630), (67, 11801), (69, 11831), (72, 12035), (75, 12080), (77, 12107), (78, 12119), (79, 12131), (83, 12209), (84, 12254), (85, 12281), (87, 12311), (93, 12398), (94, 12401), (96, 12440), (100, 12503), (101, 12512), (104, 12560), (108, 12602), (111, 12647), (112, 12653), (114,

12668), (118, 12722), (120, 12761), (121, 12782), (122, 12785), (124, 12803), (129, 12830), (132, 12851), (133, 12857), (136, 12878), (139, 12896), (140, 12905), (156, 13178), (174, 13232), (180, 13262), (181, 13265), (186, 13316), (190, 13397), (191, 13400), (194, 13433), (195, 13463), (196, 13487), (201, 13553), (212, 13820), (215, 13868), (216, 13901), (217, 13913), (218, 13916), (221, 13976), (222, 13985), (223, 13994), (225, 14045), (227, 14117), (228, 14135), (231, 14156), (233, 14255), (234, 14258), (237, 14291), (238, 14357), (239, 14375), (240, 14390), (241, 14423), (243, 14474), (247, 14525), (250, 14594), (255, 14768), (256, 14771), (261, 14843), (262, 14846), (264, 14912), (265, 14915), (266, 14933), (273, 14993), (276, 15050), (277, 15068), (280, 15149), (281, 15152), (283, 15167), (289, 15338), (290, 15392), (293, 15464), (294, 15473), (297, 15509), (300, 15569), (301, 15587), (303, 15605), (305, 15650), (307, 15683), (313, 15794), (315, 15863), (317, 15926), (318, 15944), (323, 16094),

Gene: Periwinkle_20 Start: 10340, Stop: 15973, Start Num: 12

Candidate Starts for Periwinkle_20:

(9, 10313), (Start: 12 @10340 has 1 MA's), (Start: 18 @10385 has 1 MA's), (19, 10406), (21, 10427), (24, 10472), (Start: 25 @10487 has 1 MA's), (27, 10571), (29, 10613), (30, 10625), (35, 10688), (36, 10703), (38, 10712), (39, 10730), (40, 10736), (43, 10784), (46, 10838), (54, 10919), (56, 11063), (57, 11069), (60, 11099), (66, 11318), (67, 11393), (69, 11423), (71, 11606), (72, 11627), (75, 11672), (76, 11678), (77, 11699), (81, 11780), (84, 11846), (85, 11873), (86, 11885), (87, 11903), (88, 11915), (91, 11939), (92, 11951), (93, 11990), (94, 11993), (95, 12002), (96, 12032), (99, 12077), (103, 12137), (104, 12152), (107, 12182), (108, 12194), (111, 12239), (112, 12245), (113, 12257), (114, 12260), (115, 12281), (117, 12311), (118, 12314), (122, 12377), (125, 12404), (126, 12407), (127, 12410), (128, 12416), (131, 12440), (132, 12443), (133, 12449), (134, 12455), (136, 12470), (139, 12488), (144, 12569), (146, 12617), (147, 12623), (150, 12650), (162, 12809), (164, 12821), (167, 12857), (175, 12917), (176, 12956), (177, 12962), (178, 12965), (180, 12986), (181, 12989), (189, 13088), (192, 13127), (193, 13151), (195, 13184), (197, 13229), (199, 13283), (202, 13370), (203, 13391), (204, 13427), (205, 13457), (207, 13538), (208, 13547), (210, 13571), (214, 13652), (215, 13658), (217, 13703), (218, 13706), (221, 13766), (222, 13775), (223, 13784), (226, 13892), (229, 13940), (231, 13946), (233, 14045), (234, 14048), (236, 14060), (240, 14177), (241, 14210), (243, 14261), (246, 14291), (248, 14351), (251, 14432), (252, 14453), (254, 14486), (257, 14549), (258, 14558), (259, 14567), (264, 14681), (267, 14711), (268, 14720), (269, 14759), (270, 14762), (272, 14792), (274, 14813), (279, 15017), (285, 15080), (286, 15086), (288, 15137), (291, 15323), (295, 15410), (297, 15437), (298, 15440), (301, 15515), (304, 15539), (305, 15578), (308, 15614), (310, 15635), (312, 15722), (314, 15764), (315, 15797), (316, 15809), (319, 15887), (322, 15953),

Gene: Phabuloso_18 Start: 9869, Stop: 15502, Start Num: 13

Candidate Starts for Phabuloso_18:

(Start: 13 @9869 has 10 MA's), (17, 9896), (Start: 18 @9914 has 1 MA's), (19, 9935), (21, 9956), (24, 10001), (Start: 25 @10016 has 1 MA's), (27, 10100), (29, 10142), (30, 10154), (35, 10217), (36, 10232), (38, 10241), (39, 10259), (40, 10265), (43, 10313), (54, 10448), (57, 10598), (60, 10628), (66, 10847), (67, 10922), (69, 10952), (72, 11156), (74, 11198), (75, 11201), (76, 11207), (77, 11228), (81, 11309), (84, 11375), (85, 11402), (86, 11414), (87, 11432), (88, 11444), (91, 11468), (92, 11480), (93, 11519), (94, 11522), (95, 11531), (96, 11561), (99, 11606), (103, 11666), (104, 11681), (107, 11711), (108, 11723), (111, 11768), (112, 11774), (114, 11789), (116, 11819), (117, 11840), (118, 11843), (122, 11906), (125, 11933), (126, 11936), (127, 11939), (128, 11945), (131, 11969), (132, 11972), (133, 11978), (134, 11984), (136, 11999), (139, 12017), (144, 12098), (146, 12146), (147, 12152), (150, 12179), (162, 12338), (164, 12350), (167, 12386), (175, 12446), (176, 12485), (177, 12491), (178, 12494), (180, 12515), (181, 12518), (189, 12617), (192, 12656), (193, 12680), (195, 12713), (197, 12758), (199, 12812), (202, 12899), (203, 12920), (204, 12956), (205, 12986), (206, 13064), (207, 13067), (208, 13076), (210, 13100), (214, 13181), (215, 13187), (217, 13232), (218, 13235), (219, 13250), (221, 13295), (222, 13304), (223, 13313), (224, 13316), (226, 13421), (229, 13469), (231, 13475), (233, 13574), (234, 13577), (236, 13589), (240, 13706), (241, 13739), (243, 13790), (246, 13820), (248, 13880), (251, 13961), (252, 13982), (254, 14015), (257, 14078), (259, 14096),

(264, 14210), (267, 14240), (268, 14249), (269, 14288), (270, 14291), (272, 14321), (274, 14342), (278, 14495), (279, 14546), (285, 14609), (286, 14615), (288, 14666), (291, 14852), (295, 14939), (297, 14966), (298, 14969), (301, 15044), (304, 15068), (305, 15107), (308, 15143), (310, 15164), (312, 15251), (314, 15293), (315, 15326), (316, 15338), (319, 15416), (322, 15482),

Gene: Phistory_19 Start: 10653, Stop: 16280, Start Num: 11

Candidate Starts for Phistory_19:

(Start: 11 @10653 has 1 MA's), (15, 10659), (Start: 18 @10698 has 1 MA's), (24, 10785), (27, 10884), (29, 10926), (30, 10938), (35, 11001), (36, 11016), (38, 11025), (39, 11043), (40, 11049), (43, 11097), (49, 11172), (54, 11232), (57, 11382), (60, 11412), (67, 11706), (69, 11736), (71, 11919), (72, 11940), (74, 11982), (75, 11985), (76, 11991), (77, 12012), (78, 12024), (80, 12084), (82, 12105), (84, 12159), (85, 12186), (86, 12198), (87, 12216), (88, 12228), (91, 12252), (92, 12264), (93, 12303), (94, 12306), (95, 12315), (97, 12348), (101, 12417), (102, 12438), (104, 12465), (105, 12471), (108, 12507), (109, 12510), (111, 12552), (112, 12558), (113, 12570), (114, 12573), (117, 12624), (118, 12627), (122, 12690), (123, 12699), (125, 12717), (126, 12720), (128, 12729), (133, 12762), (136, 12783), (137, 12789), (138, 12798), (141, 12846), (145, 12888), (146, 12930), (150, 12963), (152, 13014), (153, 13017), (154, 13056), (155, 13065), (162, 13122), (164, 13134), (167, 13170), (175, 13230), (176, 13269), (177, 13275), (180, 13299), (181, 13302), (183, 13320), (189, 13401), (193, 13464), (195, 13497), (198, 13572), (199, 13596), (200, 13608), (201, 13641), (203, 13704), (204, 13740), (205, 13770), (206, 13848), (207, 13851), (208, 13860), (210, 13884), (215, 13971), (217, 14016), (218, 14019), (219, 14034), (221, 14079), (222, 14088), (223, 14097), (224, 14100), (226, 14205), (229, 14253), (231, 14259), (233, 14358), (234, 14361), (236, 14373), (240, 14490), (241, 14523), (243, 14574), (246, 14604), (248, 14664), (251, 14745), (252, 14766), (253, 14769), (257, 14862), (259, 14880), (264, 14994), (267, 15024), (268, 15033), (269, 15072), (270, 15075), (272, 15105), (274, 15126), (279, 15324), (285, 15387), (286, 15393), (287, 15420), (288, 15444), (291, 15630), (295, 15717), (297, 15744), (298, 15747), (301, 15822), (304, 15846), (305, 15885), (308, 15921), (310, 15942), (312, 16029), (314, 16071), (315, 16104), (316, 16116), (319, 16194), (322, 16260),

Gene: Samba_17 Start: 10382, Stop: 15874, Start Num: 1

Candidate Starts for Samba_17:

(Start: 1 @10382 has 11 MA's), (Start: 3 @10397 has 1 MA's), (4, 10403), (6, 10433), (7, 10442), (8, 10445), (10, 10487), (22, 10598), (23, 10619), (26, 10739), (28, 10781), (34, 10847), (35, 10865), (36, 10880), (37, 10886), (38, 10889), (39, 10907), (41, 10931), (46, 11015), (50, 11057), (51, 11072), (52, 11081), (58, 11249), (60, 11276), (62, 11393), (67, 11564), (69, 11594), (72, 11798), (75, 11843), (77, 11870), (78, 11882), (83, 11972), (84, 12017), (85, 12044), (87, 12074), (93, 12161), (96, 12203), (100, 12266), (101, 12275), (104, 12323), (108, 12365), (111, 12410), (112, 12416), (113, 12428), (114, 12431), (118, 12485), (120, 12524), (121, 12545), (122, 12548), (124, 12566), (125, 12575), (132, 12614), (133, 12620), (135, 12638), (136, 12641), (140, 12668), (156, 12941), (163, 12968), (165, 12980), (173, 12992), (174, 12995), (180, 13025), (181, 13028), (186, 13079), (190, 13160), (191, 13163), (194, 13196), (195, 13226), (196, 13250), (201, 13316), (212, 13583), (215, 13631), (217, 13676), (218, 13679), (219, 13694), (221, 13739), (222, 13748), (223, 13757), (225, 13808), (227, 13880), (228, 13898), (231, 13919), (233, 14018), (234, 14021), (237, 14054), (238, 14120), (239, 14138), (240, 14153), (241, 14186), (243, 14237), (247, 14288), (255, 14531), (256, 14534), (261, 14606), (262, 14609), (264, 14675), (265, 14678), (266, 14696), (273, 14756), (280, 14912), (281, 14915), (283, 14930), (289, 15101), (290, 15155), (292, 15212), (293, 15227), (297, 15275), (299, 15320), (306, 15440), (307, 15449), (311, 15488), (313, 15560), (315, 15629), (317, 15692), (318, 15710), (323, 15860),

Gene: ShawBrad_18 Start: 9931, Stop: 15516, Start Num: 18

Candidate Starts for ShawBrad_18:

(Start: 13 @9886 has 10 MA's), (Start: 18 @9931 has 1 MA's), (19, 9952), (21, 9973), (24, 10018), (Start: 25 @10033 has 1 MA's), (27, 10117), (29, 10159), (30, 10171), (35, 10234), (36, 10249), (38, 10258), (39, 10276), (40, 10282), (43, 10330), (54, 10465), (57, 10615), (60, 10645), (67, 10939), (69,

10969), (72, 11173), (74, 11215), (75, 11218), (76, 11224), (77, 11245), (81, 11326), (84, 11392), (85, 11419), (86, 11431), (87, 11449), (88, 11461), (91, 11485), (92, 11497), (93, 11536), (94, 11539), (95, 11548), (96, 11578), (99, 11623), (103, 11683), (104, 11698), (107, 11728), (108, 11740), (111, 11785), (112, 11791), (113, 11803), (114, 11806), (115, 11827), (117, 11857), (118, 11860), (122, 11923), (125, 11950), (126, 11953), (127, 11956), (128, 11962), (131, 11986), (132, 11989), (133, 11995), (134, 12001), (136, 12016), (139, 12034), (144, 12115), (146, 12163), (147, 12169), (150, 12196), (154, 12289), (156, 12322), (162, 12352), (169, 12415), (171, 12433), (175, 12460), (189, 12631), (193, 12694), (195, 12727), (198, 12802), (199, 12826), (200, 12838), (201, 12871), (203, 12934), (204, 12970), (205, 13000), (206, 13078), (207, 13081), (208, 13090), (215, 13201), (217, 13246), (218, 13249), (219, 13264), (221, 13309), (222, 13318), (223, 13327), (224, 13330), (226, 13435), (229, 13483), (231, 13489), (233, 13588), (234, 13591), (236, 13603), (240, 13720), (241, 13753), (243, 13804), (246, 13834), (248, 13894), (251, 13975), (252, 13996), (254, 14029), (257, 14092), (259, 14110), (264, 14224), (267, 14254), (268, 14263), (269, 14302), (270, 14305), (272, 14335), (274, 14356), (279, 14554), (285, 14617), (286, 14623), (288, 14674), (291, 14866), (295, 14953), (297, 14980), (298, 14983), (301, 15058), (304, 15082), (305, 15121), (308, 15157), (310, 15178), (312, 15265), (314, 15307), (315, 15340), (316, 15352), (322, 15496),

Gene: Spooky_18 Start: 9874, Stop: 15489, Start Num: 14

Candidate Starts for Spooky_18:

(Start: 14 @9874 has 5 MA's), (Start: 18 @9919 has 1 MA's), (19, 9940), (21, 9961), (24, 10006), (38, 10246), (44, 10339), (45, 10351), (47, 10375), (48, 10378), (52, 10438), (53, 10447), (54, 10453), (55, 10525), (57, 10603), (59, 10612), (60, 10633), (70, 11053), (72, 11161), (73, 11194), (75, 11206), (77, 11233), (84, 11380), (85, 11407), (87, 11437), (91, 11473), (93, 11524), (94, 11527), (95, 11536), (98, 11572), (101, 11638), (104, 11686), (110, 11770), (111, 11773), (112, 11779), (113, 11791), (114, 11794), (117, 11845), (118, 11848), (120, 11887), (133, 11983), (136, 12004), (151, 12208), (153, 12238), (159, 12319), (162, 12343), (164, 12355), (167, 12391), (175, 12451), (176, 12490), (177, 12496), (178, 12499), (180, 12520), (181, 12523), (189, 12622), (192, 12661), (193, 12685), (195, 12718), (197, 12763), (199, 12817), (200, 12829), (202, 12904), (203, 12925), (204, 12961), (205, 12991), (207, 13072), (208, 13081), (210, 13105), (214, 13186), (215, 13192), (217, 13237), (218, 13240), (219, 13255), (221, 13300), (222, 13309), (223, 13318), (226, 13426), (228, 13459), (229, 13474), (231, 13480), (233, 13579), (234, 13582), (235, 13585), (236, 13594), (240, 13711), (241, 13744), (242, 13792), (243, 13795), (246, 13825), (248, 13885), (251, 13966), (252, 13987), (253, 13990), (257, 14083), (258, 14092), (263, 14194), (264, 14215), (267, 14245), (268, 14254), (269, 14293), (270, 14296), (271, 14299), (272, 14326), (275, 14380), (278, 14497), (282, 14581), (284, 14593), (285, 14605), (286, 14611), (287, 14638), (288, 14662), (291, 14839), (295, 14926), (296, 14944), (297, 14953), (301, 15031), (303, 15049), (309, 15139), (310, 15151), (312, 15238), (314, 15280), (315, 15313), (316, 15325), (322, 15469),

Gene: Squiddly_20 Start: 11289, Stop: 16901, Start Num: 14

Candidate Starts for Squiddly_20:

(Start: 14 @11289 has 5 MA's), (16, 11307), (17, 11316), (Start: 18 @11334 has 1 MA's), (19, 11355), (20, 11367), (24, 11421), (Start: 25 @11436 has 1 MA's), (32, 11604), (33, 11613), (35, 11637), (38, 11661), (39, 11679), (42, 11724), (47, 11790), (48, 11793), (52, 11853), (57, 12018), (60, 12048), (63, 12204), (67, 12342), (68, 12357), (70, 12468), (72, 12576), (74, 12618), (75, 12621), (76, 12627), (77, 12648), (78, 12660), (84, 12795), (85, 12822), (87, 12852), (89, 12870), (93, 12939), (95, 12951), (101, 13053), (104, 13101), (108, 13143), (111, 13188), (112, 13194), (113, 13206), (114, 13209), (115, 13230), (117, 13260), (118, 13263), (119, 13299), (120, 13302), (130, 13377), (133, 13398), (136, 13419), (143, 13503), (149, 13593), (159, 13734), (164, 13770), (166, 13803), (167, 13806), (170, 13824), (175, 13866), (176, 13905), (177, 13911), (178, 13914), (180, 13935), (181, 13938), (189, 14037), (192, 14076), (195, 14133), (198, 14208), (200, 14244), (203, 14340), (204, 14376), (205, 14406), (206, 14484), (207, 14487), (208, 14496), (210, 14520), (211, 14544), (213, 14577), (214, 14601), (215, 14607), (216, 14640), (217, 14652), (218, 14655), (219, 14670), (220, 14688), (221, 14715), (222, 14724), (223, 14733), (224, 14736), (226, 14841), (229, 14889), (231, 14895), (234,

14997), (236, 15009), (240, 15126), (241, 15159), (243, 15210), (244, 15222), (246, 15240), (248, 15300), (251, 15381), (252, 15402), (257, 15498), (259, 15516), (260, 15540), (263, 15609), (264, 15630), (267, 15660), (268, 15669), (269, 15708), (270, 15711), (271, 15714), (272, 15741), (275, 15795), (278, 15912), (282, 15996), (284, 16008), (285, 16020), (286, 16026), (287, 16053), (288, 16077), (291, 16254), (295, 16341), (296, 16359), (297, 16368), (301, 16446), (302, 16461), (304, 16470), (308, 16545), (309, 16554), (310, 16566), (312, 16653), (314, 16695), (315, 16728), (316, 16740), (319, 16815), (322, 16881),

Gene: Whitney_19 Start: 10672, Stop: 16305, Start Num: 14

Candidate Starts for Whitney_19:

(Start: 14 @10672 has 5 MA's), (Start: 18 @10717 has 1 MA's), (19, 10738), (21, 10759), (24, 10804), (Start: 25 @10819 has 1 MA's), (27, 10903), (29, 10945), (30, 10957), (35, 11020), (36, 11035), (38, 11044), (39, 11062), (40, 11068), (43, 11116), (54, 11251), (57, 11401), (60, 11431), (66, 11650), (67, 11725), (69, 11755), (72, 11959), (75, 12004), (76, 12010), (77, 12031), (79, 12055), (81, 12112), (84, 12178), (85, 12205), (86, 12217), (87, 12235), (88, 12247), (91, 12271), (92, 12283), (93, 12322), (94, 12325), (95, 12334), (96, 12364), (99, 12409), (103, 12469), (104, 12484), (107, 12514), (108, 12526), (111, 12571), (112, 12577), (114, 12592), (116, 12622), (117, 12643), (118, 12646), (122, 12709), (125, 12736), (126, 12739), (127, 12742), (128, 12748), (131, 12772), (132, 12775), (133, 12781), (134, 12787), (136, 12802), (139, 12820), (141, 12865), (146, 12949), (147, 12955), (150, 12982), (154, 13075), (155, 13084), (162, 13141), (164, 13153), (167, 13189), (168, 13195), (172, 13237), (175, 13249), (176, 13288), (177, 13294), (178, 13297), (179, 13315), (180, 13318), (181, 13321), (184, 13345), (189, 13420), (192, 13459), (193, 13483), (195, 13516), (200, 13627), (201, 13660), (203, 13723), (204, 13759), (205, 13789), (206, 13867), (207, 13870), (208, 13879), (210, 13903), (215, 13990), (217, 14035), (218, 14038), (219, 14053), (221, 14098), (222, 14107), (223, 14116), (224, 14119), (226, 14224), (229, 14272), (231, 14278), (233, 14377), (234, 14380), (236, 14392), (240, 14509), (241, 14542), (243, 14593), (246, 14623), (248, 14683), (251, 14764), (252, 14785), (253, 14788), (254, 14818), (257, 14881), (258, 14890), (259, 14899), (264, 15013), (267, 15043), (269, 15091), (270, 15094), (272, 15124), (274, 15145), (279, 15343), (285, 15406), (286, 15412), (288, 15463), (291, 15655), (295, 15742), (297, 15769), (298, 15772), (301, 15847), (304, 15871), (305, 15910), (308, 15946), (310, 15967), (312, 16054), (314, 16096), (315, 16129), (316, 16141), (322, 16285),

Gene: Wisp_16 Start: 10065, Stop: 15509, Start Num: 6

Candidate Starts for Wisp_16:

(Start: 1 @10014 has 11 MA's), (Start: 3 @10029 has 1 MA's), (4, 10035), (6, 10065), (7, 10074), (8, 10077), (10, 10119), (22, 10230), (23, 10251), (26, 10371), (28, 10413), (31, 10446), (34, 10479), (35, 10497), (36, 10512), (37, 10518), (38, 10521), (39, 10539), (41, 10563), (46, 10647), (50, 10689), (51, 10704), (52, 10713), (58, 10881), (60, 10908), (62, 11025), (67, 11196), (69, 11226), (72, 11430), (75, 11475), (77, 11502), (78, 11514), (83, 11604), (84, 11649), (85, 11676), (87, 11706), (93, 11793), (94, 11796), (96, 11835), (100, 11898), (104, 11955), (108, 11997), (111, 12042), (112, 12048), (113, 12060), (114, 12063), (118, 12117), (120, 12156), (121, 12177), (122, 12180), (124, 12198), (129, 12225), (132, 12246), (133, 12252), (135, 12270), (136, 12273), (137, 12279), (140, 12300), (156, 12573), (163, 12600), (165, 12612), (174, 12627), (180, 12657), (181, 12660), (190, 12792), (191, 12795), (194, 12828), (195, 12858), (196, 12882), (201, 12948), (212, 13215), (215, 13263), (217, 13308), (218, 13311), (219, 13326), (221, 13371), (222, 13380), (223, 13389), (225, 13440), (227, 13512), (228, 13530), (231, 13551), (233, 13650), (234, 13653), (237, 13686), (238, 13752), (239, 13770), (240, 13785), (241, 13818), (243, 13869), (247, 13920), (255, 14163), (256, 14166), (261, 14238), (262, 14241), (264, 14307), (265, 14310), (266, 14328), (273, 14388), (280, 14544), (281, 14547), (283, 14562), (289, 14733), (290, 14787), (292, 14844), (293, 14859), (297, 14907), (299, 14952), (306, 15072), (307, 15081), (311, 15120), (313, 15192), (315, 15261), (316, 15273), (317, 15324), (318, 15342), (321, 15399), (323, 15492),

Gene: Wocket_18 Start: 10497, Stop: 15983, Start Num: 1

Candidate Starts for Wocket_18:

(Start: 1 @10497 has 11 MA's), (Start: 3 @10512 has 1 MA's), (6, 10548), (7, 10557), (8, 10560), (10, 10602), (22, 10713), (23, 10734), (26, 10854), (34, 10962), (35, 10980), (37, 11001), (38, 11004), (39, 11022), (41, 11046), (43, 11076), (46, 11130), (48, 11136), (50, 11172), (51, 11187), (52, 11196), (58, 11364), (60, 11391), (65, 11562), (66, 11604), (67, 11679), (69, 11709), (72, 11913), (75, 11958), (76, 11964), (77, 11985), (78, 11997), (83, 12087), (84, 12132), (85, 12159), (87, 12189), (93, 12276), (96, 12318), (101, 12390), (104, 12438), (108, 12480), (111, 12525), (112, 12531), (114, 12546), (118, 12600), (120, 12639), (121, 12660), (122, 12663), (124, 12681), (129, 12708), (132, 12729), (133, 12735), (136, 12756), (140, 12783), (165, 13095), (174, 13110), (180, 13140), (181, 13143), (186, 13194), (190, 13275), (191, 13278), (194, 13311), (195, 13341), (196, 13365), (201, 13431), (212, 13698), (214, 13740), (215, 13746), (216, 13779), (217, 13791), (218, 13794), (219, 13809), (220, 13827), (221, 13854), (222, 13863), (223, 13872), (226, 13980), (229, 14028), (230, 14031), (231, 14034), (232, 14055), (234, 14136), (235, 14139), (240, 14265), (241, 14298), (242, 14346), (243, 14349), (245, 14364), (247, 14400), (256, 14646), (261, 14718), (262, 14721), (264, 14787), (265, 14790), (266, 14808), (273, 14868), (280, 15024), (283, 15042), (289, 15207), (290, 15261), (292, 15318), (293, 15333), (297, 15381), (299, 15426), (306, 15546), (307, 15555), (311, 15594), (313, 15666), (315, 15735), (317, 15798), (318, 15816), (320, 15846),