

# Zoomed Pham 282228

1: Ohgeesy_17	8	13,1	23	33	43	53	63	73	83	93	104	114	124	134	144	154	164	174	184	192	198			
2: Bunnybear_16	8	13,1	23	33	43	53	63	73	83	93	104	114	124	134	144	154	164	174	184	192	198			
3: Hyzer_17	8	13,1	23	33	43	53	63	73	83	93	104	114	124	134	144	154	164	174	184	192	198			
4: Antonio_17 + 10	8	13,1	23	33	43	53	63	73	83	93	104	114	124	134	144	154	164	174	184	192	198			
5: Bosnia_17 + 4	8	13,1	23	33	43	53	63	73	83	93	104	114	124	134	144	154	164	174	184	192	198			
6: Hugley_17 + 1	8	13,1	23	33	43	53	63	73	83	93	104	114	124	130	144	154	164	174	184	192	198			
7: Madavieve_17	8	13,1	23	33	43	53	63	73	83	93	104	114	124	134	144	154	164	174	184	192	198			
8: Bialota_17 + 1	8	13,1	23	33	43	53	63	73	83	93	104	114	124	134	144	150	164	174	184	192	198			
9: WelcomeAyanna_16 + 1	8	13,1	23	33	43	53	63	73	83	93	104	114	124	130	144	154	164	174	184	192	198			
10: Agueybana_17	8	13,1	23	33	43	53	63	73	83	93	104	114	124	134	144	154	164	174	184	192	198			
11: Madeline_17	8	13,1	23	33	43	53	63	73	83	93	104	114	124	134	144	154	164	174	184	192	198			
12: AlumE_17 + 1	8	13,1	23	33	43	53	63	73	83	93	104	114	124	134	144	154	164	174	184	192	198			
13: PantheRoc_17	8	13,1	23	33	43	53	63	73	83	93	104	114	124	134	144	154	164	174	184	192	198			
14: BaxterFox_16	8	13,1	23	33	43	53	63	73	83	93	104	114	124	134	144	154	164	174	184	192	198			
15: Yeezy_18	8	13,1	23	33	43	53	63	73	83	93	104	114	124	131	144	147	149	156	161	165	173	184	192	198
16: PhriskyACE_17 + 1	8	13,1	23	33	43	53	63	73	83	93	104	114	124	128	144	149	156	161	165	173	184	192	198	
17: Samman98_18 + 2	8	13,1	23	33	43	53	63	73	83	93	104	114	124	129	134	144	148	151	166	173	184	192	198	
18: Beenie_18	8	13,1	23	33	43	53	63	73	83	93	104	114	124	129	134	144	148	151	166	173	184	192	198	
19: Sekhmet_18 + 1	8	13,1	23	33	43	53	63	73	83	93	104	114	124	131	144	147	149	156	161	165	173	184	192	198
20: Clark_18 + 1	8	13,1	23	33	43	53	63	73	83	93	104	114	124	128	144	149	156	161	165	173	184	192	198	
21: Thimann_18	8	13,1	23	33	43	53	63	73	83	93	104	114	124	128	144	149	156	161	165	173	184	192	198	
22: DobbysSock_17	8	13,1	23	33	43	53	63	73	83	93	104	114	124	128	144	149	156	161	165	173	184	192	198	
23: Suerte_16	8	13,1	23	33	43	53	63	73	83	93	104	114	124	129	134	144	148	151	166	173	184	192	198	
24: Howe_18 + 1	8	13,1	23	33	43	53	63	73	83	93	104	114	124	129	134	144	148	151	166	173	184	192	198	
25: Mcklovin_18	8	13,1	23	33	43	53	63	73	83	93	104	114	124	129	134	144	148	151	166	173	184	192	198	
26: Oregano_18	8	13,1	23	33	43	53	63	73	83	93	104	114	124	129	134	144	148	151	166	173	184	192	198	
27: Tuti_22	8	13,1	23	33	43	53	63	73	83	93	104	114	124	129	134	144	148	151	166	173	184	192	198	
28: Adora_18	8	13,1	23	33	43	53	63	73	83	93	104	114	124	129	134	144	148	151	166	173	184	192	198	
29: Twinkle_18	8	13,1	23	33	43	53	63	73	83	93	104	114	124	128	144	149	156	161	165	173	184	192	198	
30: Easley_18	8	13,1	23	33	43	53	63	73	83	93	104	114	124	128	134	144	148	151	166	173	184	192	198	
31: Hortense_18	8	13,1	23	33	43	53	63	73	83	93	104	114	124	147	149	161	165	173	184	192	198			
32: Powerball_17	8	13,1	23	33	43	53	63	73	83	93	104	114	124	129	134	144	148	151	166	173	184	192	198	
33: Invetra_18	8	13,1	23	33	43	53	63	73	83	93	104	114	124	129	134	144	148	151	166	173	184	192	198	
34: Sidious_17	5	9,2	16	21	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	198		
35: Finkle_17	10	14	21	26	34	44	54	64	74	84	94	104	114	124	134	144	154	164	174	184	192	198		
36: GMA1_17	10	14	21	26	34	44	54	64	74	84	94	104	114	124	134	144	154	164	174	184	192	198		

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 282228 Report

This analysis was run 02/23/26 on database version 636.

Pham number 282228 has 60 members, 6 are drafts.

Phages represented in each track:

- Track 1 : Ohgeesy\_17
- Track 2 : Bunnybear\_16
- Track 3 : Hyzer\_17
- Track 4 : Antonio\_17, Tayonia\_17, Neobush\_17, Kita\_17, Manasvini\_17, Zameen\_17, Suscepit\_17, Polly\_17, Maridalia\_16, Eudoria\_17, Trumpet\_17
- Track 5 : Bosnia\_17, Eviarto\_17, TimTam\_17, BatStarr\_17, Nymphadora\_17
- Track 6 : Hugley\_17, Herod\_17
- Track 7 : Madavieve\_17
- Track 8 : Bialota\_17, Zirinka\_17
- Track 9 : WelcomeAyanna\_16, ThankyouJordi\_16
- Track 10 : Agueybana\_17
- Track 11 : Madeline\_17
- Track 12 : AlumE\_17, BoyNamedSue\_17
- Track 13 : PantheRoc\_17
- Track 14 : BaxterFox\_16
- Track 15 : Yeezy\_18
- Track 16 : PhriskyACE\_17, Dorito\_17
- Track 17 : Samman98\_18, WinkNick\_18, Dolores\_18
- Track 18 : Beenie\_18
- Track 19 : Sekhmet\_18, MichaelScott\_18
- Track 20 : Clark\_18, Annalisa\_18
- Track 21 : Thimann\_18
- Track 22 : DobbysSock\_17
- Track 23 : Suerte\_16
- Track 24 : Howe\_18, Shlim410\_18
- Track 25 : Mcklovin\_18
- Track 26 : Oregano\_18
- Track 27 : Tuti\_22
- Track 28 : Adora\_18
- Track 29 : Twinkle\_18
- Track 30 : Easley\_18
- Track 31 : Hortense\_18
- Track 32 : Powerball\_17
- Track 33 : Invectra\_18
- Track 34 : Sidious\_17
- Track 35 : Finkle\_17
- Track 36 : GMA1\_17

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

The start number called the most often in the published annotations is 7, it was called in 47 of the 54 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Agueybana\_17, AlumE\_17, Annalisa\_18, Antonio\_17, BatStarr\_17, BaxterFox\_16, Bialota\_17, Bosnia\_17, BoyNamedSue\_17, Bunnybear\_16, Clark\_18, DobbysSock\_17, Dolores\_18, Dorito\_17, Easley\_18, Eudoria\_17, Eviarto\_17, Finkle\_17, Herod\_17, Hortense\_18, Hugley\_17, Hyzer\_17, Invecetra\_18, Kita\_17, Madavieve\_17, Madeline\_17, Manasvini\_17, Maridalia\_16, Mcklovin\_18, MichaelScott\_18, Neobush\_17, Nymphadora\_17, Ohgeesy\_17, PantheRoc\_17, PhriskyACE\_17, Polly\_17, Powerball\_17, Samman98\_18, Sekhmet\_18, Sidious\_17, Suerte\_16, Suscepit\_17, Tayonia\_17, ThankyouJordi\_16, Thimann\_18, TimTam\_17, Trumpet\_17, WelcomeAyanna\_16, WinkNick\_18, Zameen\_17, Zirinka\_17,

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

- Adora\_18, Beenie\_18, Howe\_18, Oregano\_18, Shlim410\_18, Tuti\_22, Twinkle\_18, Yeezy\_18,

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

- GMA1\_17,

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

Start 6:

- Found in 15 of 60 ( 25.0% ) of genes in pham
- Manual Annotations of this start: 5 of 54
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Adora\_18 (CZ4), Howe\_18 (CZ4), Oregano\_18 (CZ4), Shlim410\_18 (CZ4), Twinkle\_18 (CZ4),

Start 7:

- Found in 59 of 60 ( 98.3% ) of genes in pham
- Manual Annotations of this start: 47 of 54
- Called 86.4% of time when present
- Phage (with cluster) where this start called: Agueybana\_17 (CZ1), AlumE\_17 (CZ1), Annalisa\_18 (CZ4), Antonio\_17 (CZ1), BatStarr\_17 (CZ1), BaxterFox\_16 (CZ3), Bialota\_17 (CZ1), Bosnia\_17 (CZ1), BoyNamedSue\_17 (CZ1), Bunnybear\_16 (CZ), Clark\_18 (CZ4), DobbysSock\_17 (CZ4), Dolores\_18 (CZ4), Dorito\_17 (CZ4), Easley\_18 (CZ4), Eudoria\_17 (CZ1), Eviarto\_17 (CZ1), Finkle\_17 (singleton), Herod\_17 (CZ1), Hortense\_18 (CZ4), Hugley\_17 (CZ1), Hyzer\_17 (CZ1), Invecetra\_18 (CZ4), Kita\_17 (CZ1), Madavieve\_17 (CZ1), Madeline\_17 (CZ1), Manasvini\_17 (CZ1), Maridalia\_16 (CZ1), Mcklovin\_18 (CZ4), MichaelScott\_18 (CZ4), Neobush\_17 (CZ1), Nymphadora\_17 (CZ1), Ohgeesy\_17 (CZ), PantheRoc\_17 (CZ3), PhriskyACE\_17 (CZ4), Polly\_17 (CZ1), Powerball\_17 (CZ4), Samman98\_18 (CZ4), Sekhmet\_18 (CZ4), Sidious\_17 (CZ7), Suerte\_16 (CZ4), Suscepit\_17 (CZ1), Tayonia\_17 (CZ1), ThankyouJordi\_16 (CZ1), Thimann\_18 (CZ4), TimTam\_17 (CZ1), Trumpet\_17 (CZ1), WelcomeAyanna\_16 (CZ1), WinkNick\_18 (CZ4), Zameen\_17

(CZ1), Zirinka\_17 (CZ1),

Start 10:

- Found in 1 of 60 ( 1.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: GMA1\_17 (singleton),

Start 13:

- Found in 56 of 60 ( 93.3% ) of genes in pham
- Manual Annotations of this start: 1 of 54
- Called 1.8% of time when present
- Phage (with cluster) where this start called: Yeezy\_18 (CZ3),

Start 20:

- Found in 12 of 60 ( 20.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 8.3% of time when present
- Phage (with cluster) where this start called: Tuti\_22 (CZ4),

Start 25:

- Found in 42 of 60 ( 70.0% ) of genes in pham
- Manual Annotations of this start: 1 of 54
- Called 2.4% of time when present
- Phage (with cluster) where this start called: Beenie\_18 (CZ4),

### **Summary by clusters:**

There are 6 clusters represented in this pham: singleton, CZ3, CZ1, CZ7, CZ4, CZ,

Info for manual annotations of cluster CZ:

- Start number 7 was manually annotated 2 times for cluster CZ.

Info for manual annotations of cluster CZ1:

- Start number 7 was manually annotated 25 times for cluster CZ1.

Info for manual annotations of cluster CZ3:

- Start number 7 was manually annotated 2 times for cluster CZ3.
- Start number 13 was manually annotated 1 time for cluster CZ3.

Info for manual annotations of cluster CZ4:

- Start number 6 was manually annotated 5 times for cluster CZ4.
- Start number 7 was manually annotated 16 times for cluster CZ4.
- Start number 25 was manually annotated 1 time for cluster CZ4.

Info for manual annotations of cluster CZ7:

- Start number 7 was manually annotated 1 time for cluster CZ7.

### **Gene Information:**

Gene: Adora\_18 Start: 10473, Stop: 17021, Start Num: 6

Candidate Starts for Adora\_18:

(Start: 6 @10473 has 5 MA's), (Start: 7 @10485 has 47 MA's), (9, 10524), (Start: 13 @10581 has 1 MA's), (17, 10623), (20, 10683), (23, 10743), (Start: 25 @10761 has 1 MA's), (32, 10887), (37, 10926), (39, 10947), (40, 10956), (42, 10968), (43, 10980), (46, 11025), (48, 11052), (54, 11127), (58, 11190), (59, 11211), (64, 11304), (65, 11340), (67, 11376), (69, 11394), (70, 11403), (73, 11436), (74, 11469), (77, 11538), (79, 11568), (80, 11583), (84, 11640), (86, 11691), (87, 11706), (91, 11739), (100, 11844), (102, 11853), (104, 11874), (108, 11910), (109, 11916), (113, 11958), (116, 12000), (120, 12060), (125, 12207), (127, 12246), (129, 12273), (134, 12366), (142, 12504), (143, 12510), (144, 12546), (145, 12558), (148, 12630), (151, 12729), (166, 13023), (169, 13065), (172, 13098), (173, 13104), (182, 13188), (184, 13215), (192, 13302), (194, 13347), (195, 13353), (202, 13509), (204, 13539), (205, 13542), (207, 13557), (210, 13581), (212, 13659), (213, 13689), (214, 13698), (220, 13746), (223, 13773), (226, 13836), (230, 13905), (236, 13953), (239, 13971), (241, 13998), (242, 14004), (245, 14049), (246, 14061), (247, 14070), (249, 14106), (254, 14205), (256, 14250), (257, 14262), (259, 14289), (260, 14325), (263, 14355), (267, 14415), (269, 14457), (270, 14466), (271, 14475), (273, 14502), (274, 14535), (278, 14601), (279, 14613), (282, 14691), (284, 14724), (307, 14886), (308, 14895), (310, 14919), (311, 14925), (317, 14964), (319, 15021), (321, 15048), (323, 15069), (324, 15081), (326, 15093), (328, 15129), (330, 15159), (331, 15177), (334, 15237), (337, 15282), (339, 15291), (348, 15411), (352, 15465), (356, 15531), (365, 15627), (367, 15681), (368, 15690), (371, 15717), (375, 15756), (376, 15768), (378, 15804), (384, 15930), (389, 16005), (402, 16227), (403, 16236), (406, 16314), (410, 16494), (417, 16584), (419, 16698), (421, 16755), (422, 16764), (423, 16785), (426, 16821), (430, 16956), (431, 16962), (432, 17004), (433, 17010), (434, 17016),

Gene: Agueybana\_17 Start: 10513, Stop: 16953, Start Num: 7

Candidate Starts for Agueybana\_17:

(Start: 7 @10513 has 47 MA's), (Start: 13 @10609 has 1 MA's), (17, 10651), (23, 10771), (24, 10777), (29, 10861), (30, 10873), (41, 11029), (43, 11050), (46, 11095), (51, 11155), (52, 11161), (57, 11254), (60, 11299), (62, 11326), (63, 11359), (71, 11482), (72, 11485), (77, 11605), (79, 11635), (87, 11764), (90, 11785), (93, 11797), (95, 11815), (104, 11860), (111, 11902), (112, 11911), (113, 11923), (114, 11944), (115, 11950), (116, 11953), (117, 11977), (119, 11986), (124, 12157), (130, 12208), (139, 12373), (143, 12415), (144, 12451), (145, 12463), (156, 12769), (160, 12832), (161, 12850), (165, 12925), (173, 13009), (179, 13066), (183, 13108), (184, 13120), (188, 13153), (192, 13207), (198, 13318), (202, 13414), (204, 13444), (205, 13447), (207, 13462), (210, 13486), (213, 13597), (214, 13606), (223, 13681), (226, 13744), (229, 13798), (230, 13813), (234, 13855), (239, 13879), (242, 13912), (245, 13957), (249, 14014), (253, 14089), (254, 14113), (256, 14158), (259, 14197), (261, 14236), (263, 14263), (267, 14323), (270, 14374), (273, 14410), (274, 14443), (276, 14467), (278, 14509), (279, 14521), (281, 14545), (282, 14599), (284, 14632), (306, 14782), (307, 14794), (308, 14803), (310, 14827), (311, 14833), (315, 14863), (317, 14875), (319, 14932), (320, 14944), (321, 14959), (322, 14968), (323, 14980), (324, 14992), (326, 15004), (328, 15040), (330, 15073), (331, 15091), (334, 15151), (337, 15196), (348, 15325), (352, 15379), (356, 15445), (358, 15454), (361, 15511), (366, 15547), (368, 15601), (373, 15646), (380, 15778), (384, 15847), (403, 16168), (404, 16189), (406, 16246), (407, 16261), (408, 16336), (410, 16426), (412, 16444), (413, 16459), (414, 16471), (415, 16483), (417, 16516), (418, 16540), (419, 16630), (421, 16687), (422, 16696), (423, 16717), (427, 16810), (429, 16882), (431, 16894), (432, 16936), (433, 16942),

Gene: AlumE\_17 Start: 10512, Stop: 16952, Start Num: 7

Candidate Starts for AlumE\_17:

(Start: 7 @10512 has 47 MA's), (Start: 13 @10608 has 1 MA's), (17, 10650), (23, 10770), (Start: 25 @10788 has 1 MA's), (28, 10839), (29, 10860), (30, 10872), (41, 11028), (43, 11049), (46, 11094), (51, 11154), (52, 11160), (57, 11253), (60, 11298), (62, 11325), (63, 11358), (71, 11481), (72, 11484), (77, 11604), (79, 11634), (87, 11763), (90, 11784), (93, 11796), (104, 11859), (111, 11901), (113, 11922), (114, 11943), (115, 11949), (116, 11952), (117, 11976), (119, 11985), (124, 12156), (139, 12372), (142, 12408), (143, 12414), (144, 12450), (145, 12462), (156, 12768), (160, 12831), (161, 12849), (165, 12924), (173, 13008), (179, 13065), (183, 13107), (184, 13119), (188, 13152), (192, 13206),

(198, 13317), (202, 13413), (204, 13443), (205, 13446), (207, 13461), (210, 13485), (213, 13596), (214, 13605), (223, 13680), (226, 13743), (229, 13797), (230, 13812), (234, 13854), (239, 13878), (242, 13911), (245, 13956), (249, 14013), (253, 14088), (254, 14112), (256, 14157), (259, 14196), (261, 14235), (263, 14262), (267, 14322), (268, 14325), (270, 14373), (272, 14400), (274, 14442), (276, 14466), (278, 14508), (279, 14520), (282, 14598), (284, 14631), (306, 14781), (307, 14793), (308, 14802), (309, 14823), (310, 14826), (311, 14832), (315, 14862), (317, 14874), (319, 14931), (320, 14943), (321, 14958), (322, 14967), (323, 14979), (324, 14991), (326, 15003), (328, 15039), (330, 15072), (331, 15090), (334, 15150), (337, 15195), (348, 15324), (352, 15378), (356, 15444), (358, 15453), (361, 15510), (365, 15540), (366, 15546), (368, 15600), (373, 15645), (380, 15777), (384, 15846), (403, 16167), (404, 16188), (406, 16245), (407, 16260), (410, 16425), (412, 16443), (413, 16458), (414, 16470), (415, 16482), (417, 16515), (419, 16629), (420, 16668), (421, 16686), (422, 16695), (423, 16716), (427, 16809), (429, 16881), (431, 16893), (432, 16935), (433, 16941),

Gene: Annalisa\_18 Start: 10090, Stop: 16512, Start Num: 7

Candidate Starts for Annalisa\_18:

(Start: 7 @10090 has 47 MA's), (Start: 13 @10186 has 1 MA's), (17, 10228), (19, 10282), (24, 10354), (Start: 25 @10366 has 1 MA's), (39, 10594), (43, 10627), (46, 10672), (51, 10732), (52, 10738), (57, 10831), (60, 10876), (61, 10897), (62, 10903), (63, 10936), (64, 10951), (71, 11059), (72, 11062), (76, 11179), (77, 11182), (78, 11209), (84, 11275), (88, 11347), (93, 11374), (95, 11392), (104, 11437), (114, 11521), (115, 11527), (116, 11530), (117, 11554), (124, 11734), (131, 11821), (142, 11986), (143, 11992), (144, 12028), (145, 12040), (147, 12103), (149, 12181), (156, 12346), (161, 12427), (165, 12502), (169, 12547), (172, 12580), (173, 12586), (175, 12619), (184, 12697), (192, 12784), (194, 12829), (195, 12835), (202, 12991), (204, 13021), (205, 13024), (207, 13039), (210, 13063), (211, 13105), (212, 13141), (214, 13180), (220, 13228), (223, 13255), (226, 13318), (230, 13387), (234, 13429), (236, 13435), (239, 13453), (241, 13480), (242, 13486), (245, 13531), (246, 13543), (247, 13552), (248, 13576), (249, 13588), (253, 13663), (254, 13687), (256, 13732), (259, 13771), (260, 13807), (263, 13837), (266, 13870), (267, 13897), (269, 13939), (270, 13948), (273, 13984), (274, 14017), (278, 14083), (279, 14095), (282, 14173), (284, 14206), (306, 14356), (307, 14368), (308, 14377), (310, 14401), (311, 14407), (317, 14446), (319, 14503), (323, 14551), (324, 14563), (326, 14575), (328, 14611), (330, 14641), (331, 14659), (334, 14719), (335, 14722), (337, 14764), (348, 14893), (352, 14947), (356, 15013), (365, 15109), (366, 15115), (367, 15172), (368, 15181), (371, 15208), (372, 15223), (376, 15259), (378, 15295), (382, 15367), (384, 15421), (392, 15514), (394, 15526), (398, 15574), (402, 15718), (406, 15805), (410, 15985), (417, 16075), (419, 16189), (421, 16246), (422, 16255), (423, 16276), (426, 16312), (430, 16447), (431, 16453), (432, 16495), (433, 16501), (434, 16507),

Gene: Antonio\_17 Start: 10512, Stop: 16949, Start Num: 7

Candidate Starts for Antonio\_17:

(Start: 7 @10512 has 47 MA's), (Start: 13 @10608 has 1 MA's), (17, 10650), (23, 10770), (24, 10776), (28, 10839), (29, 10860), (30, 10872), (41, 11028), (43, 11049), (46, 11094), (51, 11154), (52, 11160), (57, 11253), (60, 11298), (62, 11325), (63, 11358), (71, 11481), (72, 11484), (75, 11547), (77, 11604), (79, 11634), (85, 11700), (87, 11763), (90, 11784), (93, 11796), (95, 11814), (104, 11859), (111, 11901), (113, 11922), (114, 11943), (115, 11949), (116, 11952), (117, 11976), (119, 11985), (124, 12156), (139, 12372), (142, 12408), (143, 12414), (144, 12450), (145, 12462), (156, 12768), (160, 12831), (161, 12849), (165, 12924), (173, 13008), (179, 13065), (183, 13107), (184, 13119), (188, 13152), (189, 13155), (192, 13206), (198, 13317), (202, 13413), (204, 13443), (205, 13446), (210, 13485), (213, 13596), (214, 13605), (223, 13680), (226, 13743), (229, 13797), (230, 13812), (234, 13854), (239, 13878), (240, 13896), (242, 13911), (245, 13956), (248, 14001), (249, 14013), (253, 14088), (254, 14112), (256, 14157), (259, 14196), (261, 14235), (263, 14262), (267, 14322), (270, 14373), (273, 14409), (274, 14442), (276, 14466), (278, 14508), (279, 14520), (282, 14598), (284, 14631), (306, 14781), (307, 14793), (308, 14802), (309, 14823), (310, 14826), (311, 14832), (315, 14862), (317, 14874), (319, 14931), (320, 14943), (321, 14958), (322, 14967), (323, 14979), (324, 14991), (326, 15003), (328, 15039), (330, 15072), (331, 15090), (334, 15150), (337, 15195), (348,

15324), (352, 15378), (356, 15444), (361, 15510), (365, 15540), (366, 15546), (368, 15600), (373, 15645), (380, 15774), (384, 15843), (403, 16164), (404, 16185), (406, 16242), (407, 16257), (410, 16422), (411, 16428), (412, 16440), (413, 16455), (414, 16467), (415, 16479), (417, 16512), (418, 16536), (419, 16626), (420, 16665), (421, 16683), (422, 16692), (423, 16713), (424, 16716), (427, 16806), (429, 16878), (431, 16890), (432, 16932), (433, 16938),

Gene: BatStarr\_17 Start: 10512, Stop: 16940, Start Num: 7

Candidate Starts for BatStarr\_17:

(Start: 7 @10512 has 47 MA's), (Start: 13 @10608 has 1 MA's), (17, 10650), (23, 10770), (Start: 25 @10788 has 1 MA's), (28, 10839), (29, 10860), (30, 10872), (41, 11028), (43, 11049), (46, 11094), (51, 11154), (52, 11160), (57, 11253), (60, 11298), (62, 11325), (63, 11358), (71, 11481), (72, 11484), (77, 11604), (79, 11634), (87, 11763), (90, 11784), (93, 11796), (104, 11859), (111, 11901), (113, 11922), (114, 11943), (115, 11949), (116, 11952), (117, 11976), (119, 11985), (124, 12156), (139, 12372), (142, 12408), (143, 12414), (144, 12450), (145, 12462), (156, 12768), (160, 12831), (161, 12849), (165, 12924), (173, 13008), (179, 13065), (183, 13107), (184, 13119), (188, 13152), (192, 13206), (198, 13317), (202, 13413), (204, 13443), (205, 13446), (207, 13461), (210, 13485), (213, 13596), (214, 13605), (223, 13680), (226, 13743), (229, 13797), (230, 13812), (234, 13854), (239, 13878), (242, 13911), (245, 13956), (249, 14013), (253, 14088), (254, 14112), (256, 14157), (259, 14196), (261, 14235), (263, 14262), (267, 14322), (270, 14373), (273, 14409), (274, 14442), (278, 14508), (279, 14520), (281, 14544), (282, 14598), (284, 14631), (306, 14781), (307, 14793), (308, 14802), (310, 14826), (311, 14832), (315, 14862), (317, 14874), (319, 14931), (320, 14943), (321, 14958), (322, 14967), (323, 14979), (324, 14991), (326, 15003), (328, 15039), (331, 15087), (344, 15252), (347, 15321), (350, 15333), (351, 15336), (356, 15444), (358, 15453), (361, 15510), (366, 15546), (374, 15651), (376, 15672), (384, 15834), (385, 15837), (403, 16155), (404, 16176), (405, 16194), (406, 16233), (408, 16323), (410, 16413), (412, 16431), (413, 16446), (414, 16458), (417, 16503), (419, 16617), (421, 16674), (422, 16683), (423, 16704), (424, 16707), (426, 16740), (427, 16797), (428, 16839), (429, 16869), (431, 16881), (432, 16923), (433, 16929),

Gene: BaxterFox\_16 Start: 9860, Stop: 16279, Start Num: 7

Candidate Starts for BaxterFox\_16:

(Start: 7 @9860 has 47 MA's), (Start: 13 @9956 has 1 MA's), (17, 9998), (23, 10118), (Start: 25 @10136 has 1 MA's), (28, 10187), (29, 10208), (30, 10220), (41, 10376), (43, 10397), (46, 10442), (51, 10502), (52, 10508), (57, 10601), (60, 10646), (62, 10673), (63, 10706), (71, 10829), (72, 10832), (77, 10952), (79, 10982), (87, 11111), (90, 11132), (93, 11144), (104, 11207), (111, 11249), (113, 11270), (114, 11291), (115, 11297), (116, 11300), (117, 11324), (119, 11333), (124, 11504), (139, 11720), (142, 11756), (143, 11762), (144, 11798), (145, 11810), (156, 12116), (160, 12179), (161, 12197), (165, 12272), (173, 12356), (179, 12413), (183, 12455), (184, 12467), (188, 12500), (192, 12554), (198, 12665), (202, 12761), (204, 12791), (205, 12794), (207, 12809), (210, 12833), (213, 12944), (214, 12953), (223, 13028), (226, 13091), (229, 13145), (230, 13160), (234, 13202), (239, 13226), (242, 13259), (245, 13304), (249, 13361), (253, 13436), (254, 13460), (256, 13505), (259, 13544), (261, 13583), (263, 13610), (267, 13670), (270, 13721), (273, 13757), (274, 13790), (276, 13814), (278, 13856), (279, 13868), (281, 13892), (282, 13946), (284, 13979), (306, 14129), (307, 14141), (308, 14150), (309, 14171), (310, 14174), (311, 14180), (315, 14210), (317, 14222), (319, 14279), (320, 14291), (321, 14306), (322, 14315), (323, 14327), (324, 14339), (326, 14351), (328, 14387), (330, 14420), (331, 14438), (334, 14498), (337, 14543), (340, 14561), (348, 14672), (352, 14726), (356, 14792), (361, 14858), (366, 14894), (370, 14966), (372, 14984), (374, 14996), (376, 15017), (378, 15053), (384, 15179), (385, 15182), (403, 15494), (404, 15515), (405, 15533), (406, 15572), (408, 15662), (410, 15752), (412, 15770), (413, 15785), (414, 15797), (417, 15842), (419, 15956), (421, 16013), (422, 16022), (423, 16043), (424, 16046), (426, 16079), (427, 16136), (428, 16178), (429, 16208), (431, 16220), (432, 16262), (433, 16268),

Gene: Beenie\_18 Start: 10603, Stop: 16863, Start Num: 25

Candidate Starts for Beenie\_18:

(Start: 6 @10315 has 5 MA's), (Start: 7 @10327 has 47 MA's), (9, 10366), (Start: 13 @10423 has 1 MA's), (17, 10465), (20, 10525), (23, 10585), (Start: 25 @10603 has 1 MA's), (32, 10729), (37, 10768), (39, 10789), (40, 10798), (42, 10810), (43, 10822), (46, 10867), (48, 10894), (54, 10969), (58, 11032), (59, 11053), (64, 11146), (65, 11182), (67, 11218), (69, 11236), (70, 11245), (73, 11278), (74, 11311), (77, 11380), (79, 11410), (80, 11425), (84, 11482), (86, 11533), (87, 11548), (91, 11581), (100, 11686), (102, 11695), (104, 11716), (108, 11752), (109, 11758), (113, 11800), (116, 11842), (120, 11902), (125, 12049), (127, 12088), (129, 12115), (134, 12208), (142, 12346), (143, 12352), (144, 12388), (145, 12400), (148, 12472), (151, 12571), (166, 12865), (169, 12907), (172, 12940), (173, 12946), (182, 13030), (184, 13057), (192, 13144), (194, 13189), (195, 13195), (202, 13351), (204, 13381), (205, 13384), (207, 13399), (210, 13423), (212, 13501), (213, 13531), (214, 13540), (220, 13588), (223, 13615), (226, 13678), (230, 13747), (236, 13795), (239, 13813), (241, 13840), (242, 13846), (245, 13891), (246, 13903), (247, 13912), (249, 13948), (254, 14047), (256, 14092), (257, 14104), (259, 14131), (260, 14167), (263, 14197), (267, 14257), (269, 14299), (270, 14308), (271, 14317), (273, 14344), (274, 14377), (278, 14443), (279, 14455), (282, 14533), (284, 14566), (307, 14728), (308, 14737), (310, 14761), (311, 14767), (317, 14806), (319, 14863), (321, 14890), (323, 14911), (324, 14923), (326, 14935), (328, 14971), (330, 15001), (331, 15019), (334, 15079), (337, 15124), (339, 15133), (348, 15253), (352, 15307), (356, 15373), (365, 15469), (367, 15523), (368, 15532), (371, 15559), (376, 15610), (378, 15646), (382, 15718), (384, 15772), (389, 15847), (402, 16069), (403, 16078), (406, 16156), (410, 16336), (417, 16426), (419, 16540), (421, 16597), (422, 16606), (423, 16627), (426, 16663), (428, 16762), (430, 16798), (431, 16804), (432, 16846), (433, 16852), (434, 16858),

Gene: Bialota\_17 Start: 10512, Stop: 16952, Start Num: 7

Candidate Starts for Bialota\_17:

(Start: 7 @10512 has 47 MA's), (Start: 13 @10608 has 1 MA's), (17, 10650), (23, 10770), (Start: 25 @10788 has 1 MA's), (28, 10839), (29, 10860), (30, 10872), (41, 11028), (43, 11049), (46, 11094), (51, 11154), (52, 11160), (57, 11253), (60, 11298), (62, 11325), (63, 11358), (71, 11481), (72, 11484), (77, 11604), (79, 11634), (87, 11763), (90, 11784), (93, 11796), (95, 11814), (104, 11859), (111, 11901), (113, 11922), (114, 11943), (115, 11949), (116, 11952), (117, 11976), (119, 11985), (124, 12156), (139, 12372), (142, 12408), (143, 12414), (144, 12450), (145, 12462), (156, 12768), (160, 12831), (161, 12849), (165, 12924), (173, 13008), (179, 13065), (183, 13107), (184, 13119), (188, 13152), (192, 13206), (198, 13317), (202, 13413), (204, 13443), (205, 13446), (207, 13461), (210, 13485), (213, 13596), (214, 13605), (216, 13611), (217, 13644), (223, 13680), (226, 13743), (234, 13854), (239, 13878), (242, 13911), (245, 13956), (248, 14001), (249, 14013), (251, 14079), (254, 14112), (256, 14157), (259, 14196), (261, 14235), (263, 14262), (267, 14322), (270, 14373), (273, 14409), (274, 14442), (276, 14466), (278, 14508), (281, 14544), (282, 14598), (284, 14631), (306, 14781), (307, 14793), (308, 14802), (309, 14823), (310, 14826), (311, 14832), (315, 14862), (317, 14874), (319, 14931), (320, 14943), (321, 14958), (322, 14967), (323, 14979), (324, 14991), (326, 15003), (328, 15039), (330, 15072), (331, 15090), (334, 15150), (337, 15195), (348, 15324), (352, 15378), (356, 15444), (358, 15453), (361, 15510), (366, 15546), (368, 15600), (373, 15645), (380, 15777), (384, 15846), (403, 16167), (404, 16188), (405, 16206), (406, 16245), (407, 16260), (410, 16425), (412, 16443), (413, 16458), (414, 16470), (415, 16482), (417, 16515), (418, 16539), (419, 16629), (421, 16686), (422, 16695), (423, 16716), (427, 16809), (429, 16881), (431, 16893), (432, 16935), (433, 16941),

Gene: Bosnia\_17 Start: 10512, Stop: 16940, Start Num: 7

Candidate Starts for Bosnia\_17:

(Start: 7 @10512 has 47 MA's), (Start: 13 @10608 has 1 MA's), (17, 10650), (23, 10770), (Start: 25 @10788 has 1 MA's), (28, 10839), (29, 10860), (30, 10872), (41, 11028), (43, 11049), (46, 11094), (51, 11154), (52, 11160), (57, 11253), (60, 11298), (62, 11325), (63, 11358), (71, 11481), (72, 11484), (77, 11604), (79, 11634), (87, 11763), (90, 11784), (93, 11796), (104, 11859), (111, 11901), (113, 11922), (114, 11943), (115, 11949), (116, 11952), (117, 11976), (119, 11985), (124, 12156), (139, 12372), (142, 12408), (143, 12414), (144, 12450), (145, 12462), (156, 12768), (160, 12831), (161, 12849),

(165, 12924), (173, 13008), (179, 13065), (183, 13107), (184, 13119), (188, 13152), (192, 13206), (198, 13317), (202, 13413), (204, 13443), (205, 13446), (207, 13461), (210, 13485), (213, 13596), (214, 13605), (223, 13680), (226, 13743), (229, 13797), (230, 13812), (234, 13854), (239, 13878), (242, 13911), (245, 13956), (249, 14013), (253, 14088), (254, 14112), (256, 14157), (259, 14196), (261, 14235), (263, 14262), (267, 14322), (270, 14373), (273, 14409), (274, 14442), (278, 14508), (279, 14520), (281, 14544), (282, 14598), (284, 14631), (306, 14781), (307, 14793), (308, 14802), (310, 14826), (311, 14832), (315, 14862), (317, 14874), (319, 14931), (320, 14943), (321, 14958), (322, 14967), (323, 14979), (324, 14991), (326, 15003), (328, 15039), (331, 15087), (344, 15252), (347, 15321), (350, 15333), (351, 15336), (356, 15444), (358, 15453), (361, 15510), (366, 15546), (374, 15651), (376, 15672), (384, 15834), (385, 15837), (403, 16155), (404, 16176), (405, 16194), (406, 16233), (408, 16323), (410, 16413), (412, 16431), (413, 16446), (414, 16458), (417, 16503), (419, 16617), (421, 16674), (422, 16683), (423, 16704), (424, 16707), (426, 16740), (427, 16797), (428, 16839), (429, 16869), (431, 16881), (432, 16923), (433, 16929),

Gene: BoyNamedSue\_17 Start: 10512, Stop: 16952, Start Num: 7

Candidate Starts for BoyNamedSue\_17:

(Start: 7 @10512 has 47 MA's), (Start: 13 @10608 has 1 MA's), (17, 10650), (23, 10770), (Start: 25 @10788 has 1 MA's), (28, 10839), (29, 10860), (30, 10872), (41, 11028), (43, 11049), (46, 11094), (51, 11154), (52, 11160), (57, 11253), (60, 11298), (62, 11325), (63, 11358), (71, 11481), (72, 11484), (77, 11604), (79, 11634), (87, 11763), (90, 11784), (93, 11796), (104, 11859), (111, 11901), (113, 11922), (114, 11943), (115, 11949), (116, 11952), (117, 11976), (119, 11985), (124, 12156), (139, 12372), (142, 12408), (143, 12414), (144, 12450), (145, 12462), (156, 12768), (160, 12831), (161, 12849), (165, 12924), (173, 13008), (179, 13065), (183, 13107), (184, 13119), (188, 13152), (192, 13206), (198, 13317), (202, 13413), (204, 13443), (205, 13446), (207, 13461), (210, 13485), (213, 13596), (214, 13605), (223, 13680), (226, 13743), (229, 13797), (230, 13812), (234, 13854), (239, 13878), (242, 13911), (245, 13956), (249, 14013), (253, 14088), (254, 14112), (256, 14157), (259, 14196), (261, 14235), (263, 14262), (267, 14322), (268, 14325), (270, 14373), (272, 14400), (274, 14442), (276, 14466), (278, 14508), (279, 14520), (282, 14598), (284, 14631), (306, 14781), (307, 14793), (308, 14802), (309, 14823), (310, 14826), (311, 14832), (315, 14862), (317, 14874), (319, 14931), (320, 14943), (321, 14958), (322, 14967), (323, 14979), (324, 14991), (326, 15003), (328, 15039), (330, 15072), (331, 15090), (334, 15150), (337, 15195), (348, 15324), (352, 15378), (356, 15444), (358, 15453), (361, 15510), (365, 15540), (366, 15546), (368, 15600), (373, 15645), (380, 15777), (384, 15846), (403, 16167), (404, 16188), (406, 16245), (407, 16260), (410, 16425), (412, 16443), (413, 16458), (414, 16470), (415, 16482), (417, 16515), (419, 16629), (420, 16668), (421, 16686), (422, 16695), (423, 16716), (427, 16809), (429, 16881), (431, 16893), (432, 16935), (433, 16941),

Gene: Bunnybear\_16 Start: 10529, Stop: 16957, Start Num: 7

Candidate Starts for Bunnybear\_16:

(Start: 7 @10529 has 47 MA's), (Start: 13 @10625 has 1 MA's), (17, 10667), (23, 10787), (Start: 25 @10805 has 1 MA's), (29, 10877), (30, 10889), (31, 10895), (33, 10964), (36, 11006), (43, 11066), (46, 11111), (51, 11171), (52, 11177), (57, 11270), (60, 11315), (62, 11342), (63, 11375), (71, 11498), (72, 11501), (77, 11621), (83, 11708), (87, 11780), (90, 11801), (93, 11813), (104, 11876), (111, 11918), (113, 11939), (114, 11960), (115, 11966), (116, 11969), (117, 11993), (124, 12173), (139, 12389), (142, 12425), (143, 12431), (144, 12467), (145, 12479), (156, 12785), (160, 12848), (161, 12866), (165, 12941), (173, 13025), (179, 13082), (183, 13124), (184, 13136), (188, 13169), (189, 13172), (192, 13223), (198, 13334), (202, 13430), (204, 13460), (205, 13463), (210, 13502), (213, 13613), (214, 13622), (223, 13697), (226, 13760), (229, 13814), (230, 13829), (234, 13871), (239, 13895), (240, 13913), (242, 13928), (245, 13973), (248, 14018), (249, 14030), (253, 14105), (254, 14129), (256, 14174), (259, 14213), (261, 14252), (263, 14279), (267, 14339), (270, 14390), (273, 14426), (274, 14459), (278, 14525), (281, 14561), (282, 14615), (284, 14648), (306, 14798), (307, 14810), (308, 14819), (310, 14843), (311, 14849), (315, 14879), (317, 14891), (319, 14948), (320, 14960), (321, 14975), (323, 14996), (324, 15008), (326, 15020), (328, 15056), (331, 15107), (334, 15167), (337, 15212), (348, 15341), (352, 15395), (356, 15461), (361, 15527), (372, 15656), (376, 15689),

(378, 15725), (384, 15851), (385, 15854), (405, 16205), (406, 16244), (410, 16430), (413, 16463), (414, 16475), (416, 16505), (417, 16520), (419, 16634), (422, 16700), (423, 16721), (427, 16814), (429, 16886), (431, 16898), (432, 16940), (433, 16946),

Gene: Clark\_18 Start: 10090, Stop: 16512, Start Num: 7

Candidate Starts for Clark\_18:

(Start: 7 @10090 has 47 MA's), (Start: 13 @10186 has 1 MA's), (17, 10228), (19, 10282), (24, 10354), (Start: 25 @10366 has 1 MA's), (39, 10594), (43, 10627), (46, 10672), (51, 10732), (52, 10738), (57, 10831), (60, 10876), (61, 10897), (62, 10903), (63, 10936), (64, 10951), (71, 11059), (72, 11062), (76, 11179), (77, 11182), (78, 11209), (84, 11275), (88, 11347), (93, 11374), (95, 11392), (104, 11437), (114, 11521), (115, 11527), (116, 11530), (117, 11554), (124, 11734), (131, 11821), (142, 11986), (143, 11992), (144, 12028), (145, 12040), (147, 12103), (149, 12181), (156, 12346), (161, 12427), (165, 12502), (169, 12547), (172, 12580), (173, 12586), (175, 12619), (184, 12697), (192, 12784), (194, 12829), (195, 12835), (202, 12991), (204, 13021), (205, 13024), (207, 13039), (210, 13063), (211, 13105), (212, 13141), (214, 13180), (220, 13228), (223, 13255), (226, 13318), (230, 13387), (234, 13429), (236, 13435), (239, 13453), (241, 13480), (242, 13486), (245, 13531), (246, 13543), (247, 13552), (248, 13576), (249, 13588), (253, 13663), (254, 13687), (256, 13732), (259, 13771), (260, 13807), (263, 13837), (266, 13870), (267, 13897), (269, 13939), (270, 13948), (273, 13984), (274, 14017), (278, 14083), (279, 14095), (282, 14173), (284, 14206), (306, 14356), (307, 14368), (308, 14377), (310, 14401), (311, 14407), (317, 14446), (319, 14503), (323, 14551), (324, 14563), (326, 14575), (328, 14611), (330, 14641), (331, 14659), (334, 14719), (335, 14722), (337, 14764), (348, 14893), (352, 14947), (356, 15013), (365, 15109), (366, 15115), (367, 15172), (368, 15181), (371, 15208), (372, 15223), (376, 15259), (378, 15295), (382, 15367), (384, 15421), (392, 15514), (394, 15526), (398, 15574), (402, 15718), (406, 15805), (410, 15985), (417, 16075), (419, 16189), (421, 16246), (422, 16255), (423, 16276), (426, 16312), (430, 16447), (431, 16453), (432, 16495), (433, 16501), (434, 16507),

Gene: DobbysSock\_17 Start: 9573, Stop: 15986, Start Num: 7

Candidate Starts for DobbysSock\_17:

(Start: 7 @9573 has 47 MA's), (Start: 13 @9669 has 1 MA's), (17, 9711), (24, 9837), (Start: 25 @9849 has 1 MA's), (39, 10077), (43, 10110), (46, 10155), (51, 10215), (52, 10221), (57, 10314), (60, 10359), (61, 10380), (62, 10386), (63, 10419), (64, 10434), (71, 10542), (72, 10545), (76, 10662), (77, 10665), (84, 10758), (88, 10830), (93, 10857), (95, 10875), (104, 10920), (114, 11004), (115, 11010), (116, 11013), (117, 11037), (124, 11217), (128, 11250), (142, 11469), (143, 11475), (144, 11511), (145, 11523), (156, 11829), (161, 11910), (165, 11985), (173, 12069), (182, 12153), (184, 12180), (192, 12267), (194, 12312), (195, 12318), (202, 12474), (204, 12504), (205, 12507), (207, 12522), (210, 12546), (211, 12588), (212, 12624), (213, 12654), (214, 12663), (220, 12711), (223, 12738), (226, 12801), (230, 12870), (236, 12918), (239, 12936), (241, 12963), (242, 12969), (245, 13014), (246, 13026), (247, 13035), (249, 13071), (254, 13170), (256, 13215), (257, 13227), (259, 13254), (260, 13290), (263, 13320), (267, 13380), (269, 13422), (270, 13431), (271, 13440), (273, 13467), (274, 13500), (278, 13566), (279, 13578), (282, 13656), (284, 13689), (307, 13851), (308, 13860), (310, 13884), (311, 13890), (317, 13929), (319, 13986), (321, 14013), (323, 14034), (324, 14046), (326, 14058), (328, 14094), (330, 14124), (331, 14142), (334, 14202), (337, 14247), (339, 14256), (348, 14376), (352, 14430), (356, 14496), (365, 14592), (367, 14646), (368, 14655), (371, 14682), (372, 14697), (376, 14733), (378, 14769), (382, 14841), (384, 14895), (389, 14970), (394, 15000), (402, 15192), (403, 15201), (406, 15279), (410, 15459), (417, 15549), (419, 15663), (421, 15720), (422, 15729), (423, 15750), (426, 15786), (430, 15921), (431, 15927), (432, 15969), (433, 15975), (434, 15981),

Gene: Dolores\_18 Start: 10075, Stop: 16488, Start Num: 7

Candidate Starts for Dolores\_18:

(Start: 7 @10075 has 47 MA's), (Start: 13 @10171 has 1 MA's), (17, 10213), (24, 10339), (Start: 25 @10351 has 1 MA's), (39, 10579), (43, 10612), (46, 10657), (51, 10717), (52, 10723), (57, 10816), (60,

10861), (61, 10882), (62, 10888), (63, 10921), (64, 10936), (71, 11044), (72, 11047), (76, 11164), (77, 11167), (84, 11260), (88, 11332), (93, 11359), (95, 11377), (104, 11422), (114, 11506), (115, 11512), (116, 11515), (117, 11539), (124, 11719), (128, 11752), (142, 11971), (143, 11977), (144, 12013), (145, 12025), (149, 12166), (156, 12331), (161, 12412), (165, 12487), (169, 12532), (172, 12565), (173, 12571), (175, 12604), (184, 12682), (192, 12769), (194, 12814), (195, 12820), (202, 12976), (204, 13006), (205, 13009), (207, 13024), (210, 13048), (211, 13090), (212, 13126), (213, 13156), (214, 13165), (220, 13213), (223, 13240), (226, 13303), (230, 13372), (236, 13420), (239, 13438), (241, 13465), (242, 13471), (245, 13516), (246, 13528), (247, 13537), (249, 13573), (254, 13672), (256, 13717), (257, 13729), (259, 13756), (260, 13792), (263, 13822), (267, 13882), (269, 13924), (270, 13933), (271, 13942), (273, 13969), (274, 14002), (278, 14068), (279, 14080), (282, 14158), (284, 14191), (307, 14353), (308, 14362), (310, 14386), (311, 14392), (317, 14431), (319, 14488), (321, 14515), (323, 14536), (324, 14548), (326, 14560), (328, 14596), (330, 14626), (331, 14644), (334, 14704), (337, 14749), (339, 14758), (348, 14878), (352, 14932), (356, 14998), (365, 15094), (367, 15148), (368, 15157), (371, 15184), (376, 15235), (378, 15271), (384, 15397), (389, 15472), (394, 15502), (402, 15694), (403, 15703), (406, 15781), (410, 15961), (417, 16051), (419, 16165), (421, 16222), (422, 16231), (423, 16252), (426, 16288), (430, 16423), (431, 16429), (432, 16471), (433, 16477), (434, 16483),

Gene: Dorito\_17 Start: 9572, Stop: 15988, Start Num: 7

Candidate Starts for Dorito\_17:

(Start: 7 @9572 has 47 MA's), (17, 9710), (19, 9764), (24, 9836), (Start: 25 @9848 has 1 MA's), (39, 10076), (43, 10109), (46, 10154), (51, 10214), (52, 10220), (57, 10313), (60, 10358), (61, 10379), (62, 10385), (63, 10418), (64, 10433), (71, 10541), (72, 10544), (76, 10661), (77, 10664), (78, 10691), (84, 10757), (88, 10829), (93, 10856), (95, 10874), (104, 10919), (114, 11003), (115, 11009), (116, 11012), (117, 11036), (124, 11216), (131, 11303), (142, 11468), (143, 11474), (144, 11510), (145, 11522), (147, 11585), (149, 11663), (156, 11828), (161, 11909), (165, 11984), (169, 12029), (172, 12062), (173, 12068), (175, 12101), (184, 12179), (192, 12266), (194, 12311), (195, 12317), (204, 12503), (205, 12506), (208, 12536), (210, 12545), (212, 12626), (214, 12665), (220, 12713), (223, 12740), (226, 12803), (230, 12872), (234, 12914), (236, 12920), (239, 12938), (241, 12965), (242, 12971), (245, 13016), (246, 13028), (247, 13037), (248, 13061), (249, 13073), (254, 13172), (256, 13217), (259, 13256), (260, 13292), (263, 13322), (267, 13382), (269, 13424), (270, 13433), (273, 13469), (274, 13502), (278, 13568), (279, 13580), (282, 13658), (284, 13691), (306, 13841), (307, 13853), (308, 13862), (310, 13886), (311, 13892), (317, 13931), (319, 13988), (323, 14036), (324, 14048), (326, 14060), (328, 14096), (331, 14144), (334, 14204), (337, 14249), (348, 14378), (352, 14432), (356, 14498), (365, 14594), (366, 14600), (367, 14648), (368, 14657), (371, 14684), (376, 14735), (378, 14771), (382, 14843), (384, 14897), (388, 14945), (392, 14990), (394, 15002), (397, 15011), (398, 15050), (402, 15194), (406, 15281), (410, 15461), (417, 15551), (419, 15665), (421, 15722), (422, 15731), (423, 15752), (426, 15788), (430, 15923), (431, 15929), (432, 15971), (433, 15977), (434, 15983),

Gene: Easley\_18 Start: 10079, Stop: 16498, Start Num: 7

Candidate Starts for Easley\_18:

(Start: 7 @10079 has 47 MA's), (Start: 13 @10175 has 1 MA's), (17, 10217), (Start: 25 @10355 has 1 MA's), (39, 10583), (43, 10616), (46, 10661), (51, 10721), (52, 10727), (57, 10820), (60, 10865), (61, 10886), (62, 10892), (63, 10925), (64, 10940), (71, 11048), (72, 11051), (76, 11168), (77, 11171), (84, 11264), (88, 11336), (93, 11363), (95, 11381), (104, 11426), (114, 11510), (115, 11516), (116, 11519), (117, 11543), (124, 11723), (128, 11756), (142, 11975), (143, 11981), (144, 12017), (145, 12029), (156, 12335), (161, 12416), (165, 12491), (173, 12575), (182, 12659), (184, 12686), (192, 12773), (194, 12818), (195, 12824), (202, 12980), (204, 13010), (205, 13013), (207, 13028), (210, 13052), (211, 13094), (212, 13130), (213, 13160), (214, 13169), (220, 13217), (223, 13244), (226, 13307), (230, 13376), (236, 13424), (239, 13442), (241, 13469), (242, 13475), (245, 13520), (246, 13532), (247, 13541), (249, 13577), (254, 13676), (256, 13721), (257, 13733), (259, 13760), (260, 13796), (263, 13826), (267, 13886), (269, 13928), (270, 13937), (271, 13946), (273, 13973), (274, 14006),

(278, 14072), (279, 14084), (282, 14162), (284, 14195), (307, 14357), (308, 14366), (310, 14390), (311, 14396), (317, 14435), (319, 14492), (321, 14519), (323, 14540), (324, 14552), (326, 14564), (328, 14600), (330, 14630), (331, 14648), (334, 14708), (337, 14753), (339, 14762), (346, 14849), (348, 14882), (352, 14936), (356, 15002), (365, 15098), (367, 15152), (368, 15161), (371, 15188), (376, 15239), (378, 15275), (384, 15401), (389, 15476), (394, 15506), (395, 15515), (403, 15713), (404, 15734), (405, 15752), (406, 15791), (410, 15971), (417, 16061), (419, 16175), (421, 16232), (422, 16241), (423, 16262), (426, 16298), (430, 16433), (431, 16439), (432, 16481), (433, 16487), (434, 16493),

Gene: Eudoria\_17 Start: 10512, Stop: 16949, Start Num: 7

Candidate Starts for Eudoria\_17:

(Start: 7 @10512 has 47 MA's), (Start: 13 @10608 has 1 MA's), (17, 10650), (23, 10770), (24, 10776), (28, 10839), (29, 10860), (30, 10872), (41, 11028), (43, 11049), (46, 11094), (51, 11154), (52, 11160), (57, 11253), (60, 11298), (62, 11325), (63, 11358), (71, 11481), (72, 11484), (75, 11547), (77, 11604), (79, 11634), (85, 11700), (87, 11763), (90, 11784), (93, 11796), (95, 11814), (104, 11859), (111, 11901), (113, 11922), (114, 11943), (115, 11949), (116, 11952), (117, 11976), (119, 11985), (124, 12156), (139, 12372), (142, 12408), (143, 12414), (144, 12450), (145, 12462), (156, 12768), (160, 12831), (161, 12849), (165, 12924), (173, 13008), (179, 13065), (183, 13107), (184, 13119), (188, 13152), (189, 13155), (192, 13206), (198, 13317), (202, 13413), (204, 13443), (205, 13446), (210, 13485), (213, 13596), (214, 13605), (223, 13680), (226, 13743), (229, 13797), (230, 13812), (234, 13854), (239, 13878), (240, 13896), (242, 13911), (245, 13956), (248, 14001), (249, 14013), (253, 14088), (254, 14112), (256, 14157), (259, 14196), (261, 14235), (263, 14262), (267, 14322), (270, 14373), (273, 14409), (274, 14442), (276, 14466), (278, 14508), (279, 14520), (282, 14598), (284, 14631), (306, 14781), (307, 14793), (308, 14802), (309, 14823), (310, 14826), (311, 14832), (315, 14862), (317, 14874), (319, 14931), (320, 14943), (321, 14958), (322, 14967), (323, 14979), (324, 14991), (326, 15003), (328, 15039), (330, 15072), (331, 15090), (334, 15150), (337, 15195), (348, 15324), (352, 15378), (356, 15444), (361, 15510), (365, 15540), (366, 15546), (368, 15600), (373, 15645), (380, 15774), (384, 15843), (403, 16164), (404, 16185), (406, 16242), (407, 16257), (410, 16422), (411, 16428), (412, 16440), (413, 16455), (414, 16467), (415, 16479), (417, 16512), (418, 16536), (419, 16626), (420, 16665), (421, 16683), (422, 16692), (423, 16713), (424, 16716), (427, 16806), (429, 16878), (431, 16890), (432, 16932), (433, 16938),

Gene: Eviarto\_17 Start: 10512, Stop: 16940, Start Num: 7

Candidate Starts for Eviarto\_17:

(Start: 7 @10512 has 47 MA's), (Start: 13 @10608 has 1 MA's), (17, 10650), (23, 10770), (Start: 25 @10788 has 1 MA's), (28, 10839), (29, 10860), (30, 10872), (41, 11028), (43, 11049), (46, 11094), (51, 11154), (52, 11160), (57, 11253), (60, 11298), (62, 11325), (63, 11358), (71, 11481), (72, 11484), (77, 11604), (79, 11634), (87, 11763), (90, 11784), (93, 11796), (104, 11859), (111, 11901), (113, 11922), (114, 11943), (115, 11949), (116, 11952), (117, 11976), (119, 11985), (124, 12156), (139, 12372), (142, 12408), (143, 12414), (144, 12450), (145, 12462), (156, 12768), (160, 12831), (161, 12849), (165, 12924), (173, 13008), (179, 13065), (183, 13107), (184, 13119), (188, 13152), (192, 13206), (198, 13317), (202, 13413), (204, 13443), (205, 13446), (207, 13461), (210, 13485), (213, 13596), (214, 13605), (223, 13680), (226, 13743), (229, 13797), (230, 13812), (234, 13854), (239, 13878), (242, 13911), (245, 13956), (249, 14013), (253, 14088), (254, 14112), (256, 14157), (259, 14196), (261, 14235), (263, 14262), (267, 14322), (270, 14373), (273, 14409), (274, 14442), (278, 14508), (279, 14520), (281, 14544), (282, 14598), (284, 14631), (306, 14781), (307, 14793), (308, 14802), (310, 14826), (311, 14832), (315, 14862), (317, 14874), (319, 14931), (320, 14943), (321, 14958), (322, 14967), (323, 14979), (324, 14991), (326, 15003), (328, 15039), (331, 15087), (344, 15252), (347, 15321), (350, 15333), (351, 15336), (356, 15444), (358, 15453), (361, 15510), (366, 15546), (374, 15651), (376, 15672), (384, 15834), (385, 15837), (403, 16155), (404, 16176), (405, 16194), (406, 16233), (408, 16323), (410, 16413), (412, 16431), (413, 16446), (414, 16458), (417, 16503), (419, 16617), (421, 16674), (422, 16683), (423, 16704), (424, 16707), (426, 16740), (427, 16797), (428, 16839), (429, 16869), (431, 16881), (432, 16923), (433, 16929),

Gene: Finkle\_17 Start: 9925, Stop: 15438, Start Num: 7

Candidate Starts for Finkle\_17:

(1, 9220), (2, 9430), (3, 9493), (4, 9499), (5, 9901), (Start: 7 @9925 has 47 MA's), (9, 9964), (12, 9991), (15, 10042), (18, 10075), (27, 10237), (38, 10390), (45, 10480), (51, 10546), (52, 10552), (55, 10609), (62, 10717), (63, 10750), (66, 10813), (68, 10843), (71, 10873), (75, 10939), (89, 11167), (96, 11230), (97, 11242), (98, 11251), (101, 11284), (105, 11311), (110, 11344), (114, 11419), (116, 11428), (118, 11458), (119, 11461), (122, 11512), (123, 11518), (135, 11758), (137, 11803), (138, 11812), (141, 11875), (144, 11938), (145, 11950), (146, 12001), (154, 12238), (155, 12262), (157, 12289), (162, 12373), (163, 12394), (167, 12463), (173, 12505), (180, 12565), (187, 12637), (190, 12667), (197, 12790), (200, 12835), (206, 12955), (209, 12979), (221, 13156), (222, 13165), (227, 13252), (231, 13318), (236, 13363), (243, 13435), (244, 13438), (250, 13531), (252, 13591), (255, 13657), (258, 13702), (262, 13765), (264, 13789), (265, 13810), (269, 13879), (275, 13975), (282, 14119), (285, 14215), (304, 14278), (312, 14341), (314, 14353), (333, 14635), (338, 14692), (341, 14707), (349, 14818), (353, 14878), (357, 14935), (358, 14938), (362, 14998), (377, 15190), (381, 15262), (383, 15310), (386, 15355), (387, 15364), (390, 15409), (391, 15412), (393, 15427),

Gene: GMA1\_17 Start: 10196, Stop: 15121, Start Num: 10

Candidate Starts for GMA1\_17:

(10, 10196), (11, 10202), (14, 10262), (21, 10388), (26, 10451), (39, 10616), (44, 10652), (52, 10760), (54, 10796), (58, 10859), (72, 11087), (82, 11270), (90, 11372), (92, 11384), (94, 11408), (99, 11447), (103, 11465), (106, 11501), (107, 11513), (110, 11531), (114, 11606), (116, 11615), (117, 11639), (123, 11705), (126, 11825), (140, 12044), (141, 12050), (142, 12071), (144, 12113), (145, 12125), (152, 12320), (153, 12356), (154, 12401), (155, 12425), (157, 12452), (159, 12473), (173, 12668), (174, 12689), (178, 12710), (185, 12779), (187, 12800), (201, 13052), (209, 13118), (215, 13235), (218, 13271), (219, 13277), (225, 13349), (228, 13388), (231, 13439), (235, 13481), (236, 13484), (250, 13652), (252, 13709), (258, 13814), (259, 13823), (277, 14114), (305, 14378), (313, 14444), (325, 14579), (329, 14636), (332, 14696), (342, 14822), (346, 14873), (354, 14975), (355, 14993), (360, 15047), (363, 15092), (364, 15110),

Gene: Herod\_17 Start: 10512, Stop: 16940, Start Num: 7

Candidate Starts for Herod\_17:

(Start: 7 @10512 has 47 MA's), (Start: 13 @10608 has 1 MA's), (17, 10650), (23, 10770), (Start: 25 @10788 has 1 MA's), (28, 10839), (29, 10860), (30, 10872), (41, 11028), (43, 11049), (46, 11094), (51, 11154), (52, 11160), (57, 11253), (60, 11298), (62, 11325), (63, 11358), (71, 11481), (72, 11484), (77, 11604), (79, 11634), (87, 11763), (90, 11784), (93, 11796), (104, 11859), (111, 11901), (113, 11922), (114, 11943), (115, 11949), (116, 11952), (117, 11976), (119, 11985), (124, 12156), (139, 12372), (142, 12408), (143, 12414), (144, 12450), (145, 12462), (156, 12768), (160, 12831), (161, 12849), (165, 12924), (173, 13008), (179, 13065), (183, 13107), (184, 13119), (188, 13152), (192, 13206), (198, 13317), (202, 13413), (204, 13443), (205, 13446), (207, 13461), (210, 13485), (213, 13596), (214, 13605), (223, 13680), (226, 13743), (229, 13797), (230, 13812), (234, 13854), (239, 13878), (242, 13911), (245, 13956), (249, 14013), (253, 14088), (254, 14112), (256, 14157), (259, 14196), (261, 14235), (263, 14262), (267, 14322), (270, 14373), (273, 14409), (274, 14442), (278, 14508), (279, 14520), (281, 14544), (282, 14598), (284, 14631), (306, 14781), (307, 14793), (308, 14802), (310, 14826), (311, 14832), (315, 14862), (317, 14874), (319, 14931), (320, 14943), (321, 14958), (322, 14967), (323, 14979), (324, 14991), (326, 15003), (328, 15039), (331, 15087), (344, 15252), (347, 15321), (350, 15333), (351, 15336), (356, 15444), (358, 15453), (361, 15510), (366, 15546), (374, 15651), (376, 15672), (384, 15834), (385, 15837), (396, 15951), (403, 16155), (404, 16176), (405, 16194), (406, 16233), (408, 16323), (410, 16413), (412, 16431), (413, 16446), (414, 16458), (417, 16503), (419, 16617), (421, 16674), (422, 16683), (423, 16704), (424, 16707), (426, 16740), (427, 16797), (428, 16839), (429, 16869), (431, 16881), (432, 16923), (433, 16929),

Gene: Hortense\_18 Start: 10532, Stop: 17068, Start Num: 7

Candidate Starts for Hortense\_18:

(Start: 6 @10520 has 5 MA's), (Start: 7 @10532 has 47 MA's), (9, 10571), (Start: 13 @10628 has 1 MA's), (17, 10670), (20, 10730), (23, 10790), (Start: 25 @10808 has 1 MA's), (32, 10934), (37, 10973), (39, 10994), (40, 11003), (42, 11015), (43, 11027), (46, 11072), (48, 11099), (54, 11174), (58, 11237), (59, 11258), (64, 11351), (65, 11387), (67, 11423), (69, 11441), (70, 11450), (73, 11483), (74, 11516), (77, 11585), (79, 11615), (80, 11630), (84, 11687), (86, 11738), (87, 11753), (91, 11786), (100, 11891), (102, 11900), (104, 11921), (108, 11957), (109, 11963), (113, 12005), (116, 12047), (120, 12107), (125, 12254), (127, 12293), (129, 12320), (134, 12413), (142, 12551), (143, 12557), (144, 12593), (145, 12605), (148, 12677), (151, 12776), (166, 13070), (169, 13112), (172, 13145), (173, 13151), (182, 13235), (184, 13262), (192, 13349), (194, 13394), (195, 13400), (202, 13556), (204, 13586), (205, 13589), (207, 13604), (210, 13628), (212, 13706), (213, 13736), (214, 13745), (220, 13793), (223, 13820), (226, 13883), (230, 13952), (236, 14000), (239, 14018), (241, 14045), (242, 14051), (245, 14096), (246, 14108), (247, 14117), (249, 14153), (254, 14252), (256, 14297), (257, 14309), (259, 14336), (260, 14372), (263, 14402), (267, 14462), (269, 14504), (270, 14513), (271, 14522), (273, 14549), (274, 14582), (278, 14648), (279, 14660), (282, 14738), (284, 14771), (307, 14933), (308, 14942), (310, 14966), (311, 14972), (317, 15011), (319, 15068), (321, 15095), (323, 15116), (324, 15128), (326, 15140), (328, 15176), (330, 15206), (331, 15224), (334, 15284), (337, 15329), (339, 15338), (348, 15458), (352, 15512), (356, 15578), (365, 15674), (367, 15728), (368, 15737), (371, 15764), (376, 15815), (378, 15851), (384, 15977), (389, 16052), (394, 16082), (402, 16274), (403, 16283), (406, 16361), (410, 16541), (417, 16631), (419, 16745), (421, 16802), (422, 16811), (423, 16832), (426, 16868), (430, 17003), (431, 17009), (432, 17051), (433, 17057), (434, 17063),

Gene: Howe\_18 Start: 10520, Stop: 17068, Start Num: 6

Candidate Starts for Howe\_18:

(Start: 6 @10520 has 5 MA's), (Start: 7 @10532 has 47 MA's), (9, 10571), (Start: 13 @10628 has 1 MA's), (17, 10670), (20, 10730), (23, 10790), (Start: 25 @10808 has 1 MA's), (32, 10934), (37, 10973), (39, 10994), (40, 11003), (42, 11015), (43, 11027), (46, 11072), (48, 11099), (54, 11174), (58, 11237), (59, 11258), (64, 11351), (65, 11387), (67, 11423), (69, 11441), (70, 11450), (73, 11483), (74, 11516), (77, 11585), (79, 11615), (80, 11630), (84, 11687), (86, 11738), (87, 11753), (91, 11786), (100, 11891), (102, 11900), (104, 11921), (108, 11957), (109, 11963), (113, 12005), (116, 12047), (120, 12107), (125, 12254), (127, 12293), (129, 12320), (134, 12413), (142, 12551), (143, 12557), (144, 12593), (145, 12605), (148, 12677), (151, 12776), (166, 13070), (169, 13112), (172, 13145), (173, 13151), (182, 13235), (184, 13262), (192, 13349), (194, 13394), (195, 13400), (202, 13556), (204, 13586), (205, 13589), (207, 13604), (210, 13628), (212, 13706), (213, 13736), (214, 13745), (220, 13793), (223, 13820), (226, 13883), (230, 13952), (236, 14000), (239, 14018), (241, 14045), (242, 14051), (245, 14096), (246, 14108), (247, 14117), (249, 14153), (254, 14252), (256, 14297), (257, 14309), (259, 14336), (260, 14372), (263, 14402), (267, 14462), (269, 14504), (270, 14513), (271, 14522), (273, 14549), (274, 14582), (278, 14648), (279, 14660), (282, 14738), (284, 14771), (307, 14933), (308, 14942), (310, 14966), (311, 14972), (317, 15011), (319, 15068), (321, 15095), (323, 15116), (324, 15128), (326, 15140), (328, 15176), (330, 15206), (331, 15224), (334, 15284), (337, 15329), (339, 15338), (348, 15458), (352, 15512), (356, 15578), (365, 15674), (367, 15728), (368, 15737), (371, 15764), (376, 15815), (378, 15851), (384, 15977), (389, 16052), (394, 16082), (402, 16274), (403, 16283), (406, 16361), (410, 16541), (417, 16631), (419, 16745), (421, 16802), (422, 16811), (423, 16832), (426, 16868), (430, 17003), (431, 17009), (432, 17051), (433, 17057), (434, 17063),

Gene: Hugley\_17 Start: 10512, Stop: 16940, Start Num: 7

Candidate Starts for Hugley\_17:

(Start: 7 @10512 has 47 MA's), (Start: 13 @10608 has 1 MA's), (17, 10650), (23, 10770), (Start: 25 @10788 has 1 MA's), (28, 10839), (29, 10860), (30, 10872), (41, 11028), (43, 11049), (46, 11094), (51, 11154), (52, 11160), (57, 11253), (60, 11298), (62, 11325), (63, 11358), (71, 11481), (72, 11484), (77, 11604), (79, 11634), (87, 11763), (90, 11784), (93, 11796), (104, 11859), (111, 11901), (113, 11922), (114, 11943), (115, 11949), (116, 11952), (117, 11976), (119, 11985), (124, 12156), (139, 12372), (142, 12408), (143, 12414), (144, 12450), (145, 12462), (156, 12768), (160, 12831), (161, 12849),

(165, 12924), (173, 13008), (179, 13065), (183, 13107), (184, 13119), (188, 13152), (192, 13206), (198, 13317), (202, 13413), (204, 13443), (205, 13446), (207, 13461), (210, 13485), (213, 13596), (214, 13605), (223, 13680), (226, 13743), (229, 13797), (230, 13812), (234, 13854), (239, 13878), (242, 13911), (245, 13956), (249, 14013), (253, 14088), (254, 14112), (256, 14157), (259, 14196), (261, 14235), (263, 14262), (267, 14322), (270, 14373), (273, 14409), (274, 14442), (278, 14508), (279, 14520), (281, 14544), (282, 14598), (284, 14631), (306, 14781), (307, 14793), (308, 14802), (310, 14826), (311, 14832), (315, 14862), (317, 14874), (319, 14931), (320, 14943), (321, 14958), (322, 14967), (323, 14979), (324, 14991), (326, 15003), (328, 15039), (331, 15087), (344, 15252), (347, 15321), (350, 15333), (351, 15336), (356, 15444), (358, 15453), (361, 15510), (366, 15546), (374, 15651), (376, 15672), (384, 15834), (385, 15837), (396, 15951), (403, 16155), (404, 16176), (405, 16194), (406, 16233), (408, 16323), (410, 16413), (412, 16431), (413, 16446), (414, 16458), (417, 16503), (419, 16617), (421, 16674), (422, 16683), (423, 16704), (424, 16707), (426, 16740), (427, 16797), (428, 16839), (429, 16869), (431, 16881), (432, 16923), (433, 16929),

Gene: Hyzer\_17 Start: 10553, Stop: 17011, Start Num: 7

Candidate Starts for Hyzer\_17:

(Start: 7 @10553 has 47 MA's), (8, 10586), (Start: 13 @10649 has 1 MA's), (16, 10679), (17, 10691), (22, 10808), (23, 10811), (24, 10817), (28, 10880), (34, 10997), (35, 11006), (38, 11039), (41, 11069), (43, 11090), (47, 11138), (50, 11177), (51, 11195), (52, 11201), (53, 11231), (57, 11294), (62, 11366), (63, 11399), (66, 11462), (71, 11522), (72, 11525), (73, 11543), (77, 11645), (81, 11711), (93, 11837), (104, 11900), (111, 11942), (114, 11984), (115, 11990), (116, 11993), (117, 12017), (120, 12053), (121, 12068), (125, 12200), (127, 12239), (129, 12266), (132, 12338), (133, 12350), (134, 12359), (136, 12398), (142, 12497), (143, 12503), (144, 12539), (145, 12551), (150, 12698), (158, 12890), (161, 12941), (165, 13016), (168, 13058), (169, 13061), (171, 13076), (172, 13094), (173, 13100), (177, 13139), (188, 13244), (193, 13301), (198, 13406), (199, 13424), (202, 13502), (203, 13508), (204, 13532), (205, 13535), (210, 13574), (213, 13685), (214, 13694), (223, 13769), (226, 13832), (230, 13901), (239, 13967), (240, 13985), (242, 14000), (245, 14045), (246, 14057), (247, 14066), (248, 14090), (249, 14102), (251, 14168), (254, 14201), (256, 14246), (259, 14285), (261, 14324), (263, 14351), (267, 14411), (270, 14462), (274, 14531), (276, 14555), (278, 14597), (279, 14609), (281, 14633), (282, 14687), (284, 14720), (306, 14870), (307, 14882), (308, 14891), (310, 14915), (311, 14921), (317, 14963), (319, 15020), (321, 15047), (323, 15068), (324, 15080), (326, 15092), (328, 15128), (330, 15161), (331, 15179), (334, 15239), (337, 15284), (340, 15302), (342, 15332), (344, 15341), (348, 15413), (352, 15467), (356, 15533), (361, 15599), (366, 15635), (374, 15740), (376, 15761), (378, 15797), (384, 15923), (399, 16079), (401, 16208), (406, 16301), (410, 16484), (411, 16490), (412, 16502), (413, 16517), (414, 16529), (417, 16574), (419, 16688), (421, 16745), (423, 16775), (425, 16793), (430, 16946), (431, 16952), (432, 16994), (433, 17000),

Gene: Invectra\_18 Start: 10327, Stop: 16869, Start Num: 7

Candidate Starts for Invectra\_18:

(Start: 6 @10315 has 5 MA's), (Start: 7 @10327 has 47 MA's), (9, 10366), (Start: 13 @10423 has 1 MA's), (17, 10465), (20, 10525), (23, 10585), (Start: 25 @10603 has 1 MA's), (32, 10729), (37, 10768), (39, 10789), (40, 10798), (42, 10810), (43, 10822), (46, 10867), (48, 10894), (54, 10969), (58, 11032), (59, 11053), (64, 11146), (65, 11182), (67, 11218), (69, 11236), (70, 11245), (73, 11278), (74, 11311), (77, 11380), (79, 11410), (80, 11425), (84, 11482), (86, 11533), (87, 11548), (91, 11581), (100, 11686), (102, 11695), (104, 11716), (108, 11752), (109, 11758), (113, 11800), (116, 11842), (120, 11902), (125, 12049), (127, 12088), (129, 12115), (134, 12208), (142, 12346), (143, 12352), (144, 12388), (145, 12400), (148, 12472), (151, 12571), (166, 12865), (169, 12907), (172, 12940), (173, 12946), (182, 13030), (184, 13057), (192, 13144), (194, 13189), (195, 13195), (202, 13351), (204, 13381), (205, 13384), (207, 13399), (210, 13423), (212, 13501), (213, 13531), (214, 13540), (220, 13588), (223, 13615), (226, 13678), (230, 13747), (236, 13795), (239, 13813), (241, 13840), (242, 13846), (245, 13891), (246, 13903), (247, 13912), (249, 13948), (254, 14047), (256, 14092), (257, 14104), (259, 14131), (260, 14167), (263, 14197), (267, 14257), (269, 14299), (270, 14308), (271, 14317), (273, 14344), (274, 14377), (278, 14443), (279, 14455), (282, 14533), (284, 14566), (307, 14728),

(308, 14737), (310, 14761), (311, 14767), (317, 14806), (319, 14863), (321, 14890), (323, 14911), (324, 14923), (326, 14935), (328, 14971), (330, 15001), (331, 15019), (334, 15079), (337, 15124), (339, 15133), (348, 15253), (352, 15307), (356, 15373), (365, 15469), (366, 15475), (367, 15523), (368, 15532), (371, 15559), (376, 15610), (378, 15646), (382, 15718), (384, 15772), (402, 16075), (406, 16162), (410, 16342), (417, 16432), (419, 16546), (421, 16603), (422, 16612), (423, 16633), (426, 16669), (430, 16804), (431, 16810), (432, 16852), (433, 16858), (434, 16864),

Gene: Kita\_17 Start: 10512, Stop: 16949, Start Num: 7

Candidate Starts for Kita\_17:

(Start: 7 @10512 has 47 MA's), (Start: 13 @10608 has 1 MA's), (17, 10650), (23, 10770), (24, 10776), (28, 10839), (29, 10860), (30, 10872), (41, 11028), (43, 11049), (46, 11094), (51, 11154), (52, 11160), (57, 11253), (60, 11298), (62, 11325), (63, 11358), (71, 11481), (72, 11484), (75, 11547), (77, 11604), (79, 11634), (85, 11700), (87, 11763), (90, 11784), (93, 11796), (95, 11814), (104, 11859), (111, 11901), (113, 11922), (114, 11943), (115, 11949), (116, 11952), (117, 11976), (119, 11985), (124, 12156), (139, 12372), (142, 12408), (143, 12414), (144, 12450), (145, 12462), (156, 12768), (160, 12831), (161, 12849), (165, 12924), (173, 13008), (179, 13065), (183, 13107), (184, 13119), (188, 13152), (189, 13155), (192, 13206), (198, 13317), (202, 13413), (204, 13443), (205, 13446), (210, 13485), (213, 13596), (214, 13605), (223, 13680), (226, 13743), (229, 13797), (230, 13812), (234, 13854), (239, 13878), (240, 13896), (242, 13911), (245, 13956), (248, 14001), (249, 14013), (253, 14088), (254, 14112), (256, 14157), (259, 14196), (261, 14235), (263, 14262), (267, 14322), (270, 14373), (273, 14409), (274, 14442), (276, 14466), (278, 14508), (279, 14520), (282, 14598), (284, 14631), (306, 14781), (307, 14793), (308, 14802), (309, 14823), (310, 14826), (311, 14832), (315, 14862), (317, 14874), (319, 14931), (320, 14943), (321, 14958), (322, 14967), (323, 14979), (324, 14991), (326, 15003), (328, 15039), (330, 15072), (331, 15090), (334, 15150), (337, 15195), (348, 15324), (352, 15378), (356, 15444), (361, 15510), (365, 15540), (366, 15546), (368, 15600), (373, 15645), (380, 15774), (384, 15843), (403, 16164), (404, 16185), (406, 16242), (407, 16257), (410, 16422), (411, 16428), (412, 16440), (413, 16455), (414, 16467), (415, 16479), (417, 16512), (418, 16536), (419, 16626), (420, 16665), (421, 16683), (422, 16692), (423, 16713), (424, 16716), (427, 16806), (429, 16878), (431, 16890), (432, 16932), (433, 16938),

Gene: Madavieve\_17 Start: 10798, Stop: 17220, Start Num: 7

Candidate Starts for Madavieve\_17:

(Start: 6 @10789 has 5 MA's), (Start: 7 @10798 has 47 MA's), (8, 10831), (Start: 13 @10894 has 1 MA's), (17, 10936), (23, 11056), (28, 11125), (29, 11146), (30, 11158), (41, 11314), (43, 11335), (46, 11380), (51, 11440), (52, 11446), (57, 11539), (60, 11584), (62, 11611), (63, 11644), (71, 11767), (72, 11770), (77, 11890), (79, 11920), (87, 12049), (90, 12070), (93, 12082), (95, 12100), (104, 12145), (111, 12187), (112, 12196), (113, 12208), (114, 12229), (115, 12235), (116, 12238), (117, 12262), (119, 12271), (124, 12442), (130, 12493), (139, 12658), (142, 12694), (143, 12700), (144, 12736), (145, 12748), (156, 13054), (160, 13117), (161, 13135), (165, 13210), (173, 13294), (179, 13351), (183, 13393), (184, 13405), (188, 13438), (192, 13492), (198, 13603), (202, 13699), (204, 13729), (205, 13732), (207, 13747), (210, 13771), (213, 13882), (214, 13891), (217, 13930), (220, 13939), (223, 13966), (226, 14029), (229, 14083), (234, 14140), (239, 14164), (242, 14197), (245, 14242), (248, 14287), (249, 14299), (253, 14374), (254, 14398), (256, 14443), (259, 14482), (261, 14521), (263, 14548), (267, 14608), (270, 14659), (273, 14695), (274, 14728), (276, 14752), (278, 14794), (279, 14806), (281, 14830), (282, 14884), (284, 14917), (306, 15067), (307, 15079), (308, 15088), (309, 15109), (310, 15112), (311, 15118), (315, 15148), (317, 15160), (319, 15217), (320, 15229), (321, 15244), (322, 15253), (323, 15265), (324, 15277), (326, 15289), (328, 15325), (330, 15358), (331, 15376), (334, 15436), (337, 15481), (348, 15610), (352, 15664), (356, 15730), (361, 15796), (366, 15832), (370, 15904), (374, 15934), (376, 15955), (378, 15991), (384, 16117), (385, 16120), (403, 16435), (404, 16456), (405, 16474), (406, 16513), (407, 16528), (410, 16693), (412, 16711), (413, 16726), (414, 16738), (417, 16783), (418, 16807), (419, 16897), (420, 16936), (421, 16954), (422, 16963), (423, 16984), (424, 16987), (426, 17020), (427, 17077), (428, 17119), (429, 17149), (431, 17161), (432, 17203), (433, 17209),

Gene: Madeline\_17 Start: 10798, Stop: 17238, Start Num: 7

Candidate Starts for Madeline\_17:

(Start: 6 @10789 has 5 MA's), (Start: 7 @10798 has 47 MA's), (8, 10831), (Start: 13 @10894 has 1 MA's), (17, 10936), (23, 11056), (29, 11146), (30, 11158), (41, 11314), (43, 11335), (46, 11380), (51, 11440), (52, 11446), (57, 11539), (60, 11584), (62, 11611), (63, 11644), (71, 11767), (72, 11770), (77, 11890), (79, 11920), (87, 12049), (90, 12070), (93, 12082), (95, 12100), (104, 12145), (111, 12187), (112, 12196), (113, 12208), (114, 12229), (115, 12235), (116, 12238), (117, 12262), (119, 12271), (124, 12442), (139, 12658), (142, 12694), (143, 12700), (144, 12736), (145, 12748), (156, 13054), (160, 13117), (161, 13135), (165, 13210), (173, 13294), (179, 13351), (183, 13393), (184, 13405), (188, 13438), (191, 13468), (192, 13492), (198, 13603), (202, 13699), (204, 13729), (205, 13732), (207, 13747), (210, 13771), (213, 13882), (214, 13891), (223, 13966), (226, 14029), (229, 14083), (230, 14098), (234, 14140), (239, 14164), (242, 14197), (245, 14242), (249, 14299), (253, 14374), (254, 14398), (256, 14443), (259, 14482), (261, 14521), (263, 14548), (267, 14608), (270, 14659), (273, 14695), (274, 14728), (276, 14752), (278, 14794), (279, 14806), (281, 14830), (282, 14884), (284, 14917), (306, 15067), (307, 15079), (308, 15088), (309, 15109), (310, 15112), (311, 15118), (315, 15148), (317, 15160), (319, 15217), (320, 15229), (321, 15244), (322, 15253), (323, 15265), (324, 15277), (326, 15289), (328, 15325), (330, 15358), (331, 15376), (334, 15436), (337, 15481), (348, 15610), (352, 15664), (356, 15730), (358, 15739), (361, 15796), (366, 15832), (368, 15886), (373, 15931), (380, 16063), (384, 16132), (403, 16453), (404, 16474), (405, 16492), (406, 16531), (407, 16546), (410, 16711), (412, 16729), (413, 16744), (414, 16756), (415, 16768), (417, 16801), (418, 16825), (419, 16915), (421, 16972), (422, 16981), (423, 17002), (427, 17095), (429, 17167), (431, 17179), (432, 17221), (433, 17227),

Gene: Manasvini\_17 Start: 10512, Stop: 16949, Start Num: 7

Candidate Starts for Manasvini\_17:

(Start: 7 @10512 has 47 MA's), (Start: 13 @10608 has 1 MA's), (17, 10650), (23, 10770), (24, 10776), (28, 10839), (29, 10860), (30, 10872), (41, 11028), (43, 11049), (46, 11094), (51, 11154), (52, 11160), (57, 11253), (60, 11298), (62, 11325), (63, 11358), (71, 11481), (72, 11484), (75, 11547), (77, 11604), (79, 11634), (85, 11700), (87, 11763), (90, 11784), (93, 11796), (95, 11814), (104, 11859), (111, 11901), (113, 11922), (114, 11943), (115, 11949), (116, 11952), (117, 11976), (119, 11985), (124, 12156), (139, 12372), (142, 12408), (143, 12414), (144, 12450), (145, 12462), (156, 12768), (160, 12831), (161, 12849), (165, 12924), (173, 13008), (179, 13065), (183, 13107), (184, 13119), (188, 13152), (189, 13155), (192, 13206), (198, 13317), (202, 13413), (204, 13443), (205, 13446), (210, 13485), (213, 13596), (214, 13605), (223, 13680), (226, 13743), (229, 13797), (230, 13812), (234, 13854), (239, 13878), (240, 13896), (242, 13911), (245, 13956), (248, 14001), (249, 14013), (253, 14088), (254, 14112), (256, 14157), (259, 14196), (261, 14235), (263, 14262), (267, 14322), (270, 14373), (273, 14409), (274, 14442), (276, 14466), (278, 14508), (279, 14520), (282, 14598), (284, 14631), (306, 14781), (307, 14793), (308, 14802), (309, 14823), (310, 14826), (311, 14832), (315, 14862), (317, 14874), (319, 14931), (320, 14943), (321, 14958), (322, 14967), (323, 14979), (324, 14991), (326, 15003), (328, 15039), (330, 15072), (331, 15090), (334, 15150), (337, 15195), (348, 15324), (352, 15378), (356, 15444), (361, 15510), (365, 15540), (366, 15546), (368, 15600), (373, 15645), (380, 15774), (384, 15843), (403, 16164), (404, 16185), (406, 16242), (407, 16257), (410, 16422), (411, 16428), (412, 16440), (413, 16455), (414, 16467), (415, 16479), (417, 16512), (418, 16536), (419, 16626), (420, 16665), (421, 16683), (422, 16692), (423, 16713), (424, 16716), (427, 16806), (429, 16878), (431, 16890), (432, 16932), (433, 16938),

Gene: Maridalia\_16 Start: 10512, Stop: 16949, Start Num: 7

Candidate Starts for Maridalia\_16:

(Start: 7 @10512 has 47 MA's), (Start: 13 @10608 has 1 MA's), (17, 10650), (23, 10770), (24, 10776), (28, 10839), (29, 10860), (30, 10872), (41, 11028), (43, 11049), (46, 11094), (51, 11154), (52, 11160), (57, 11253), (60, 11298), (62, 11325), (63, 11358), (71, 11481), (72, 11484), (75, 11547), (77, 11604), (79, 11634), (85, 11700), (87, 11763), (90, 11784), (93, 11796), (95, 11814), (104, 11859), (111,

11901), (113, 11922), (114, 11943), (115, 11949), (116, 11952), (117, 11976), (119, 11985), (124, 12156), (139, 12372), (142, 12408), (143, 12414), (144, 12450), (145, 12462), (156, 12768), (160, 12831), (161, 12849), (165, 12924), (173, 13008), (179, 13065), (183, 13107), (184, 13119), (188, 13152), (189, 13155), (192, 13206), (198, 13317), (202, 13413), (204, 13443), (205, 13446), (210, 13485), (213, 13596), (214, 13605), (223, 13680), (226, 13743), (229, 13797), (230, 13812), (234, 13854), (239, 13878), (240, 13896), (242, 13911), (245, 13956), (248, 14001), (249, 14013), (253, 14088), (254, 14112), (256, 14157), (259, 14196), (261, 14235), (263, 14262), (267, 14322), (270, 14373), (273, 14409), (274, 14442), (276, 14466), (278, 14508), (279, 14520), (282, 14598), (284, 14631), (306, 14781), (307, 14793), (308, 14802), (309, 14823), (310, 14826), (311, 14832), (315, 14862), (317, 14874), (319, 14931), (320, 14943), (321, 14958), (322, 14967), (323, 14979), (324, 14991), (326, 15003), (328, 15039), (330, 15072), (331, 15090), (334, 15150), (337, 15195), (348, 15324), (352, 15378), (356, 15444), (361, 15510), (365, 15540), (366, 15546), (368, 15600), (373, 15645), (380, 15774), (384, 15843), (403, 16164), (404, 16185), (406, 16242), (407, 16257), (410, 16422), (411, 16428), (412, 16440), (413, 16455), (414, 16467), (415, 16479), (417, 16512), (418, 16536), (419, 16626), (420, 16665), (421, 16683), (422, 16692), (423, 16713), (424, 16716), (427, 16806), (429, 16878), (431, 16890), (432, 16932), (433, 16938),

Gene: Mcklovin\_18 Start: 11645, Stop: 19237, Start Num: 7

Candidate Starts for Mcklovin\_18:

(Start: 6 @11633 has 5 MA's), (Start: 7 @11645 has 47 MA's), (9, 11684), (Start: 13 @11741 has 1 MA's), (17, 11783), (20, 11843), (23, 11903), (Start: 25 @11921 has 1 MA's), (32, 12047), (37, 12086), (39, 12107), (40, 12116), (42, 12128), (43, 12140), (46, 12185), (48, 12212), (54, 12287), (58, 12350), (59, 12371), (64, 12464), (65, 12500), (67, 12536), (69, 12554), (70, 12563), (73, 12596), (74, 12629), (77, 12698), (79, 12728), (80, 12743), (84, 12800), (86, 12851), (87, 12866), (91, 12899), (100, 13004), (102, 13013), (104, 13034), (108, 13070), (109, 13076), (113, 13118), (116, 13160), (120, 13220), (125, 13367), (127, 13406), (129, 13433), (134, 13526), (142, 13664), (143, 13670), (144, 13706), (145, 13718), (148, 13790), (151, 13889), (166, 14183), (169, 14225), (173, 14264), (176, 14300), (179, 14321), (183, 14363), (192, 14462), (194, 14507), (195, 14513), (202, 14669), (204, 14699), (205, 14702), (207, 14717), (210, 14741), (211, 14783), (212, 14819), (214, 14858), (220, 14906), (223, 14933), (226, 14996), (230, 15065), (234, 15107), (236, 15113), (239, 15131), (241, 15158), (242, 15164), (245, 15209), (246, 15221), (247, 15230), (248, 15254), (249, 15266), (253, 15341), (254, 15365), (256, 15410), (259, 15449), (260, 15485), (263, 15515), (266, 15548), (267, 15575), (269, 15617), (270, 15626), (273, 15662), (274, 15695), (278, 15761), (279, 15773), (282, 15851), (284, 15884), (286, 16028), (287, 16172), (288, 16178), (289, 16307), (290, 16322), (291, 16379), (292, 16511), (293, 16550), (294, 16574), (295, 16664), (296, 16730), (297, 16754), (298, 16880), (299, 16949), (300, 16994), (301, 17003), (302, 17030), (303, 17063), (307, 17102), (308, 17111), (310, 17135), (311, 17141), (317, 17180), (319, 17237), (321, 17264), (323, 17285), (324, 17297), (326, 17309), (328, 17345), (330, 17375), (331, 17393), (334, 17453), (337, 17498), (348, 17627), (352, 17681), (356, 17747), (365, 17843), (367, 17897), (368, 17906), (371, 17933), (372, 17948), (376, 17984), (378, 18020), (384, 18146), (389, 18221), (392, 18239), (394, 18251), (398, 18299), (402, 18443), (403, 18452), (406, 18530), (410, 18710), (417, 18800), (419, 18914), (421, 18971), (422, 18980), (423, 19001), (426, 19037), (428, 19136), (430, 19172), (431, 19178), (432, 19220), (433, 19226), (434, 19232),

Gene: MichaelScott\_18 Start: 10327, Stop: 16863, Start Num: 7

Candidate Starts for MichaelScott\_18:

(Start: 6 @10315 has 5 MA's), (Start: 7 @10327 has 47 MA's), (9, 10366), (Start: 13 @10423 has 1 MA's), (17, 10465), (20, 10525), (23, 10585), (Start: 25 @10603 has 1 MA's), (32, 10729), (37, 10768), (39, 10789), (40, 10798), (42, 10810), (43, 10822), (46, 10867), (48, 10894), (54, 10969), (58, 11032), (59, 11053), (64, 11146), (65, 11182), (67, 11218), (69, 11236), (70, 11245), (73, 11278), (74, 11311), (77, 11380), (79, 11410), (80, 11425), (84, 11482), (86, 11533), (87, 11548), (91, 11581), (100, 11686), (102, 11695), (104, 11716), (108, 11752), (109, 11758), (113, 11800), (116, 11842), (120, 11902), (125, 12049), (127, 12088), (129, 12115), (134, 12208), (142, 12346), (143, 12352), (144, 12388),

(145, 12400), (148, 12472), (151, 12571), (166, 12865), (169, 12907), (172, 12940), (173, 12946), (182, 13030), (184, 13057), (192, 13144), (194, 13189), (195, 13195), (202, 13351), (204, 13381), (205, 13384), (207, 13399), (210, 13423), (212, 13501), (213, 13531), (214, 13540), (220, 13588), (223, 13615), (226, 13678), (230, 13747), (236, 13795), (239, 13813), (241, 13840), (242, 13846), (245, 13891), (246, 13903), (247, 13912), (249, 13948), (254, 14047), (256, 14092), (257, 14104), (259, 14131), (260, 14167), (263, 14197), (267, 14257), (269, 14299), (270, 14308), (271, 14317), (273, 14344), (274, 14377), (278, 14443), (279, 14455), (282, 14533), (284, 14566), (307, 14728), (308, 14737), (310, 14761), (311, 14767), (317, 14806), (319, 14863), (321, 14890), (323, 14911), (324, 14923), (326, 14935), (328, 14971), (330, 15001), (331, 15019), (334, 15079), (337, 15124), (339, 15133), (348, 15253), (352, 15307), (356, 15373), (365, 15469), (367, 15523), (368, 15532), (371, 15559), (376, 15610), (378, 15646), (382, 15718), (384, 15772), (389, 15847), (402, 16069), (403, 16078), (406, 16156), (410, 16336), (417, 16426), (419, 16540), (421, 16597), (422, 16606), (423, 16627), (426, 16663), (428, 16762), (430, 16798), (431, 16804), (432, 16846), (433, 16852), (434, 16858),

Gene: Neobush\_17 Start: 10512, Stop: 16949, Start Num: 7

Candidate Starts for Neobush\_17:

(Start: 7 @10512 has 47 MA's), (Start: 13 @10608 has 1 MA's), (17, 10650), (23, 10770), (24, 10776), (28, 10839), (29, 10860), (30, 10872), (41, 11028), (43, 11049), (46, 11094), (51, 11154), (52, 11160), (57, 11253), (60, 11298), (62, 11325), (63, 11358), (71, 11481), (72, 11484), (75, 11547), (77, 11604), (79, 11634), (85, 11700), (87, 11763), (90, 11784), (93, 11796), (95, 11814), (104, 11859), (111, 11901), (113, 11922), (114, 11943), (115, 11949), (116, 11952), (117, 11976), (119, 11985), (124, 12156), (139, 12372), (142, 12408), (143, 12414), (144, 12450), (145, 12462), (156, 12768), (160, 12831), (161, 12849), (165, 12924), (173, 13008), (179, 13065), (183, 13107), (184, 13119), (188, 13152), (189, 13155), (192, 13206), (198, 13317), (202, 13413), (204, 13443), (205, 13446), (210, 13485), (213, 13596), (214, 13605), (223, 13680), (226, 13743), (229, 13797), (230, 13812), (234, 13854), (239, 13878), (240, 13896), (242, 13911), (245, 13956), (248, 14001), (249, 14013), (253, 14088), (254, 14112), (256, 14157), (259, 14196), (261, 14235), (263, 14262), (267, 14322), (270, 14373), (273, 14409), (274, 14442), (276, 14466), (278, 14508), (279, 14520), (282, 14598), (284, 14631), (306, 14781), (307, 14793), (308, 14802), (309, 14823), (310, 14826), (311, 14832), (315, 14862), (317, 14874), (319, 14931), (320, 14943), (321, 14958), (322, 14967), (323, 14979), (324, 14991), (326, 15003), (328, 15039), (330, 15072), (331, 15090), (334, 15150), (337, 15195), (348, 15324), (352, 15378), (356, 15444), (361, 15510), (365, 15540), (366, 15546), (368, 15600), (373, 15645), (380, 15774), (384, 15843), (403, 16164), (404, 16185), (406, 16242), (407, 16257), (410, 16422), (411, 16428), (412, 16440), (413, 16455), (414, 16467), (415, 16479), (417, 16512), (418, 16536), (419, 16626), (420, 16665), (421, 16683), (422, 16692), (423, 16713), (424, 16716), (427, 16806), (429, 16878), (431, 16890), (432, 16932), (433, 16938),

Gene: Nymphadora\_17 Start: 10512, Stop: 16940, Start Num: 7

Candidate Starts for Nymphadora\_17:

(Start: 7 @10512 has 47 MA's), (Start: 13 @10608 has 1 MA's), (17, 10650), (23, 10770), (Start: 25 @10788 has 1 MA's), (28, 10839), (29, 10860), (30, 10872), (41, 11028), (43, 11049), (46, 11094), (51, 11154), (52, 11160), (57, 11253), (60, 11298), (62, 11325), (63, 11358), (71, 11481), (72, 11484), (77, 11604), (79, 11634), (87, 11763), (90, 11784), (93, 11796), (104, 11859), (111, 11901), (113, 11922), (114, 11943), (115, 11949), (116, 11952), (117, 11976), (119, 11985), (124, 12156), (139, 12372), (142, 12408), (143, 12414), (144, 12450), (145, 12462), (156, 12768), (160, 12831), (161, 12849), (165, 12924), (173, 13008), (179, 13065), (183, 13107), (184, 13119), (188, 13152), (192, 13206), (198, 13317), (202, 13413), (204, 13443), (205, 13446), (207, 13461), (210, 13485), (213, 13596), (214, 13605), (223, 13680), (226, 13743), (229, 13797), (230, 13812), (234, 13854), (239, 13878), (242, 13911), (245, 13956), (249, 14013), (253, 14088), (254, 14112), (256, 14157), (259, 14196), (261, 14235), (263, 14262), (267, 14322), (270, 14373), (273, 14409), (274, 14442), (278, 14508), (279, 14520), (281, 14544), (282, 14598), (284, 14631), (306, 14781), (307, 14793), (308, 14802), (310, 14826), (311, 14832), (315, 14862), (317, 14874), (319, 14931), (320, 14943), (321, 14958),

(322, 14967), (323, 14979), (324, 14991), (326, 15003), (328, 15039), (331, 15087), (344, 15252), (347, 15321), (350, 15333), (351, 15336), (356, 15444), (358, 15453), (361, 15510), (366, 15546), (374, 15651), (376, 15672), (384, 15834), (385, 15837), (403, 16155), (404, 16176), (405, 16194), (406, 16233), (408, 16323), (410, 16413), (412, 16431), (413, 16446), (414, 16458), (417, 16503), (419, 16617), (421, 16674), (422, 16683), (423, 16704), (424, 16707), (426, 16740), (427, 16797), (428, 16839), (429, 16869), (431, 16881), (432, 16923), (433, 16929),

Gene: Ohgeesy\_17 Start: 10144, Stop: 16563, Start Num: 7

Candidate Starts for Ohgeesy\_17:

(Start: 6 @10135 has 5 MA's), (Start: 7 @10144 has 47 MA's), (8, 10177), (Start: 13 @10240 has 1 MA's), (17, 10282), (23, 10402), (29, 10492), (30, 10504), (41, 10660), (43, 10681), (46, 10726), (51, 10786), (52, 10792), (57, 10885), (60, 10930), (62, 10957), (63, 10990), (71, 11113), (72, 11116), (77, 11236), (79, 11266), (87, 11395), (90, 11416), (93, 11428), (104, 11491), (111, 11533), (113, 11554), (114, 11575), (115, 11581), (116, 11584), (117, 11608), (119, 11617), (124, 11788), (139, 12004), (142, 12040), (143, 12046), (144, 12082), (145, 12094), (156, 12400), (160, 12463), (161, 12481), (165, 12556), (173, 12640), (179, 12697), (183, 12739), (184, 12751), (188, 12784), (192, 12838), (198, 12949), (202, 13045), (204, 13075), (205, 13078), (210, 13117), (213, 13228), (214, 13237), (216, 13243), (217, 13276), (223, 13312), (226, 13375), (229, 13429), (230, 13444), (232, 13474), (233, 13480), (234, 13486), (239, 13510), (240, 13528), (242, 13543), (245, 13588), (249, 13645), (253, 13720), (254, 13744), (256, 13789), (259, 13828), (261, 13867), (263, 13894), (267, 13954), (270, 14005), (273, 14041), (274, 14074), (276, 14098), (278, 14140), (279, 14152), (281, 14176), (282, 14230), (284, 14263), (306, 14413), (307, 14425), (308, 14434), (309, 14455), (310, 14458), (311, 14464), (315, 14494), (317, 14506), (319, 14563), (320, 14575), (321, 14590), (322, 14599), (323, 14611), (324, 14623), (326, 14635), (327, 14641), (328, 14671), (330, 14704), (331, 14722), (334, 14782), (337, 14827), (344, 14884), (348, 14956), (352, 15010), (356, 15076), (361, 15142), (366, 15178), (370, 15250), (374, 15280), (376, 15301), (378, 15337), (384, 15463), (385, 15466), (403, 15778), (404, 15799), (405, 15817), (406, 15856), (407, 15871), (408, 15946), (410, 16036), (412, 16054), (413, 16069), (414, 16081), (417, 16126), (419, 16240), (421, 16297), (422, 16306), (423, 16327), (424, 16330), (426, 16363), (427, 16420), (428, 16462), (429, 16492), (431, 16504), (432, 16546), (433, 16552),

Gene: Oregano\_18 Start: 9986, Stop: 16534, Start Num: 6

Candidate Starts for Oregano\_18:

(Start: 6 @9986 has 5 MA's), (Start: 7 @9998 has 47 MA's), (9, 10037), (Start: 13 @10094 has 1 MA's), (17, 10136), (20, 10196), (23, 10256), (Start: 25 @10274 has 1 MA's), (32, 10400), (37, 10439), (39, 10460), (40, 10469), (42, 10481), (43, 10493), (46, 10538), (48, 10565), (54, 10640), (58, 10703), (59, 10724), (64, 10817), (65, 10853), (67, 10889), (69, 10907), (70, 10916), (73, 10949), (74, 10982), (77, 11051), (79, 11081), (80, 11096), (84, 11153), (86, 11204), (87, 11219), (91, 11252), (100, 11357), (102, 11366), (104, 11387), (108, 11423), (109, 11429), (113, 11471), (116, 11513), (120, 11573), (125, 11720), (127, 11759), (129, 11786), (134, 11879), (142, 12017), (143, 12023), (144, 12059), (145, 12071), (148, 12143), (151, 12242), (166, 12536), (169, 12578), (172, 12611), (173, 12617), (182, 12701), (184, 12728), (192, 12815), (194, 12860), (195, 12866), (202, 13022), (204, 13052), (205, 13055), (207, 13070), (210, 13094), (212, 13172), (213, 13202), (214, 13211), (220, 13259), (223, 13286), (226, 13349), (230, 13418), (236, 13466), (239, 13484), (241, 13511), (242, 13517), (245, 13562), (246, 13574), (247, 13583), (249, 13619), (254, 13718), (256, 13763), (257, 13775), (259, 13802), (260, 13838), (263, 13868), (267, 13928), (269, 13970), (270, 13979), (271, 13988), (273, 14015), (274, 14048), (278, 14114), (279, 14126), (282, 14204), (284, 14237), (307, 14399), (308, 14408), (310, 14432), (311, 14438), (317, 14477), (319, 14534), (321, 14561), (323, 14582), (324, 14594), (326, 14606), (328, 14642), (330, 14672), (331, 14690), (334, 14750), (337, 14795), (339, 14804), (348, 14924), (352, 14978), (356, 15044), (365, 15140), (367, 15194), (368, 15203), (371, 15230), (372, 15245), (376, 15281), (378, 15317), (382, 15389), (384, 15443), (389, 15518), (394, 15548), (402, 15740), (403, 15749), (406, 15827), (410, 16007), (417, 16097), (419, 16211), (421, 16268), (422, 16277), (423, 16298), (426, 16334), (430, 16469), (431, 16475), (432, 16517),

(433, 16523), (434, 16529),

Gene: PantheRoc\_17 Start: 9846, Stop: 16271, Start Num: 7

Candidate Starts for PantheRoc\_17:

(Start: 7 @9846 has 47 MA's), (Start: 13 @9942 has 1 MA's), (17, 9984), (23, 10104), (Start: 25 @10122 has 1 MA's), (28, 10173), (29, 10194), (30, 10206), (41, 10362), (43, 10383), (46, 10428), (51, 10488), (52, 10494), (57, 10587), (60, 10632), (62, 10659), (63, 10692), (71, 10815), (72, 10818), (77, 10938), (79, 10968), (87, 11097), (90, 11118), (93, 11130), (104, 11193), (111, 11235), (113, 11256), (114, 11277), (115, 11283), (116, 11286), (117, 11310), (119, 11319), (124, 11490), (139, 11706), (142, 11742), (143, 11748), (144, 11784), (145, 11796), (156, 12102), (160, 12165), (161, 12183), (165, 12258), (173, 12342), (179, 12399), (183, 12441), (184, 12453), (188, 12486), (189, 12489), (192, 12540), (198, 12651), (202, 12747), (204, 12777), (205, 12780), (207, 12795), (210, 12819), (213, 12930), (214, 12939), (216, 12945), (223, 13014), (226, 13077), (229, 13131), (230, 13146), (234, 13188), (239, 13212), (240, 13230), (242, 13245), (245, 13290), (249, 13347), (251, 13413), (254, 13446), (256, 13491), (259, 13530), (261, 13569), (263, 13596), (267, 13656), (270, 13707), (273, 13743), (274, 13776), (278, 13842), (279, 13854), (281, 13878), (282, 13932), (284, 13965), (306, 14115), (307, 14127), (308, 14136), (309, 14157), (310, 14160), (311, 14166), (315, 14196), (317, 14208), (319, 14265), (321, 14292), (322, 14301), (323, 14313), (324, 14325), (326, 14337), (328, 14373), (330, 14406), (331, 14424), (334, 14484), (337, 14529), (340, 14547), (348, 14658), (352, 14712), (356, 14778), (358, 14787), (361, 14844), (366, 14880), (376, 15006), (378, 15042), (384, 15168), (385, 15171), (403, 15486), (404, 15507), (405, 15525), (406, 15564), (407, 15579), (410, 15744), (412, 15762), (413, 15777), (414, 15789), (417, 15834), (418, 15858), (419, 15948), (420, 15987), (421, 16005), (422, 16014), (423, 16035), (424, 16038), (426, 16071), (427, 16128), (429, 16200), (431, 16212), (432, 16254), (433, 16260),

Gene: PhriskyACE\_17 Start: 9572, Stop: 15988, Start Num: 7

Candidate Starts for PhriskyACE\_17:

(Start: 7 @9572 has 47 MA's), (17, 9710), (19, 9764), (24, 9836), (Start: 25 @9848 has 1 MA's), (39, 10076), (43, 10109), (46, 10154), (51, 10214), (52, 10220), (57, 10313), (60, 10358), (61, 10379), (62, 10385), (63, 10418), (64, 10433), (71, 10541), (72, 10544), (76, 10661), (77, 10664), (78, 10691), (84, 10757), (88, 10829), (93, 10856), (95, 10874), (104, 10919), (114, 11003), (115, 11009), (116, 11012), (117, 11036), (124, 11216), (131, 11303), (142, 11468), (143, 11474), (144, 11510), (145, 11522), (147, 11585), (149, 11663), (156, 11828), (161, 11909), (165, 11984), (169, 12029), (172, 12062), (173, 12068), (175, 12101), (184, 12179), (192, 12266), (194, 12311), (195, 12317), (204, 12503), (205, 12506), (208, 12536), (210, 12545), (212, 12626), (214, 12665), (220, 12713), (223, 12740), (226, 12803), (230, 12872), (234, 12914), (236, 12920), (239, 12938), (241, 12965), (242, 12971), (245, 13016), (246, 13028), (247, 13037), (248, 13061), (249, 13073), (254, 13172), (256, 13217), (259, 13256), (260, 13292), (263, 13322), (267, 13382), (269, 13424), (270, 13433), (273, 13469), (274, 13502), (278, 13568), (279, 13580), (282, 13658), (284, 13691), (306, 13841), (307, 13853), (308, 13862), (310, 13886), (311, 13892), (317, 13931), (319, 13988), (323, 14036), (324, 14048), (326, 14060), (328, 14096), (331, 14144), (334, 14204), (337, 14249), (348, 14378), (352, 14432), (356, 14498), (365, 14594), (366, 14600), (367, 14648), (368, 14657), (371, 14684), (376, 14735), (378, 14771), (382, 14843), (384, 14897), (388, 14945), (392, 14990), (394, 15002), (397, 15011), (398, 15050), (402, 15194), (406, 15281), (410, 15461), (417, 15551), (419, 15665), (421, 15722), (422, 15731), (423, 15752), (426, 15788), (430, 15923), (431, 15929), (432, 15971), (433, 15977), (434, 15983),

Gene: Polly\_17 Start: 10512, Stop: 16949, Start Num: 7

Candidate Starts for Polly\_17:

(Start: 7 @10512 has 47 MA's), (Start: 13 @10608 has 1 MA's), (17, 10650), (23, 10770), (24, 10776), (28, 10839), (29, 10860), (30, 10872), (41, 11028), (43, 11049), (46, 11094), (51, 11154), (52, 11160), (57, 11253), (60, 11298), (62, 11325), (63, 11358), (71, 11481), (72, 11484), (75, 11547), (77, 11604), (79, 11634), (85, 11700), (87, 11763), (90, 11784), (93, 11796), (95, 11814), (104, 11859), (111,

11901), (113, 11922), (114, 11943), (115, 11949), (116, 11952), (117, 11976), (119, 11985), (124, 12156), (139, 12372), (142, 12408), (143, 12414), (144, 12450), (145, 12462), (156, 12768), (160, 12831), (161, 12849), (165, 12924), (173, 13008), (179, 13065), (183, 13107), (184, 13119), (188, 13152), (189, 13155), (192, 13206), (198, 13317), (202, 13413), (204, 13443), (205, 13446), (210, 13485), (213, 13596), (214, 13605), (223, 13680), (226, 13743), (229, 13797), (230, 13812), (234, 13854), (239, 13878), (240, 13896), (242, 13911), (245, 13956), (248, 14001), (249, 14013), (253, 14088), (254, 14112), (256, 14157), (259, 14196), (261, 14235), (263, 14262), (267, 14322), (270, 14373), (273, 14409), (274, 14442), (276, 14466), (278, 14508), (279, 14520), (282, 14598), (284, 14631), (306, 14781), (307, 14793), (308, 14802), (309, 14823), (310, 14826), (311, 14832), (315, 14862), (317, 14874), (319, 14931), (320, 14943), (321, 14958), (322, 14967), (323, 14979), (324, 14991), (326, 15003), (328, 15039), (330, 15072), (331, 15090), (334, 15150), (337, 15195), (348, 15324), (352, 15378), (356, 15444), (361, 15510), (365, 15540), (366, 15546), (368, 15600), (373, 15645), (380, 15774), (384, 15843), (403, 16164), (404, 16185), (406, 16242), (407, 16257), (410, 16422), (411, 16428), (412, 16440), (413, 16455), (414, 16467), (415, 16479), (417, 16512), (418, 16536), (419, 16626), (420, 16665), (421, 16683), (422, 16692), (423, 16713), (424, 16716), (427, 16806), (429, 16878), (431, 16890), (432, 16932), (433, 16938),

Gene: Powerball\_17 Start: 9581, Stop: 15994, Start Num: 7

Candidate Starts for Powerball\_17:

(Start: 7 @9581 has 47 MA's), (Start: 13 @9677 has 1 MA's), (17, 9719), (24, 9845), (Start: 25 @9857 has 1 MA's), (39, 10085), (43, 10118), (46, 10163), (51, 10223), (52, 10229), (57, 10322), (60, 10367), (61, 10388), (62, 10394), (63, 10427), (64, 10442), (69, 10529), (72, 10553), (75, 10616), (76, 10670), (77, 10673), (84, 10766), (88, 10838), (93, 10865), (95, 10883), (104, 10928), (114, 11012), (115, 11018), (117, 11045), (124, 11225), (142, 11477), (143, 11483), (144, 11519), (145, 11531), (147, 11594), (149, 11672), (161, 11918), (165, 11993), (169, 12038), (170, 12044), (172, 12071), (173, 12077), (175, 12110), (182, 12161), (192, 12275), (194, 12320), (195, 12326), (202, 12482), (204, 12512), (205, 12515), (207, 12530), (210, 12554), (212, 12632), (213, 12662), (214, 12671), (223, 12746), (224, 12782), (226, 12809), (230, 12878), (234, 12920), (236, 12926), (239, 12944), (241, 12971), (242, 12977), (245, 13022), (246, 13034), (247, 13043), (249, 13079), (254, 13178), (256, 13223), (259, 13262), (260, 13298), (263, 13328), (267, 13388), (270, 13439), (274, 13508), (278, 13574), (279, 13586), (280, 13607), (281, 13610), (282, 13664), (283, 13685), (284, 13697), (306, 13847), (307, 13859), (308, 13868), (310, 13892), (311, 13898), (317, 13937), (319, 13994), (323, 14042), (324, 14054), (326, 14066), (330, 14132), (331, 14150), (334, 14210), (337, 14255), (342, 14303), (348, 14384), (352, 14438), (356, 14504), (365, 14600), (366, 14606), (367, 14666), (368, 14675), (378, 14777), (382, 14849), (384, 14903), (392, 14996), (394, 15008), (398, 15056), (402, 15200), (406, 15287), (410, 15467), (417, 15557), (419, 15671), (422, 15737), (423, 15758), (426, 15794), (430, 15929), (431, 15935), (432, 15977), (433, 15983), (434, 15989),

Gene: Samman98\_18 Start: 10090, Stop: 16503, Start Num: 7

Candidate Starts for Samman98\_18:

(Start: 7 @10090 has 47 MA's), (Start: 13 @10186 has 1 MA's), (17, 10228), (24, 10354), (Start: 25 @10366 has 1 MA's), (39, 10594), (43, 10627), (46, 10672), (51, 10732), (52, 10738), (57, 10831), (60, 10876), (61, 10897), (62, 10903), (63, 10936), (64, 10951), (71, 11059), (72, 11062), (76, 11179), (77, 11182), (84, 11275), (88, 11347), (93, 11374), (95, 11392), (104, 11437), (114, 11521), (115, 11527), (116, 11530), (117, 11554), (124, 11734), (128, 11767), (142, 11986), (143, 11992), (144, 12028), (145, 12040), (149, 12181), (156, 12346), (161, 12427), (165, 12502), (169, 12547), (172, 12580), (173, 12586), (175, 12619), (184, 12697), (192, 12784), (194, 12829), (195, 12835), (202, 12991), (204, 13021), (205, 13024), (207, 13039), (210, 13063), (211, 13105), (212, 13141), (213, 13171), (214, 13180), (220, 13228), (223, 13255), (226, 13318), (230, 13387), (236, 13435), (239, 13453), (241, 13480), (242, 13486), (245, 13531), (246, 13543), (247, 13552), (249, 13588), (254, 13687), (256, 13732), (257, 13744), (259, 13771), (260, 13807), (263, 13837), (267, 13897), (269, 13939), (270, 13948), (271, 13957), (273, 13984), (274, 14017), (278, 14083), (279, 14095), (282, 14173), (284, 14206), (307, 14368), (308, 14377), (310, 14401), (311, 14407), (317, 14446), (319, 14503),

(321, 14530), (323, 14551), (324, 14563), (326, 14575), (328, 14611), (330, 14641), (331, 14659), (334, 14719), (337, 14764), (339, 14773), (348, 14893), (352, 14947), (356, 15013), (365, 15109), (367, 15163), (368, 15172), (371, 15199), (376, 15250), (378, 15286), (384, 15412), (389, 15487), (394, 15517), (402, 15709), (403, 15718), (406, 15796), (410, 15976), (417, 16066), (419, 16180), (421, 16237), (422, 16246), (423, 16267), (426, 16303), (430, 16438), (431, 16444), (432, 16486), (433, 16492), (434, 16498),

Gene: Sekhmet\_18 Start: 10327, Stop: 16863, Start Num: 7

Candidate Starts for Sekhmet\_18:

(Start: 6 @10315 has 5 MA's), (Start: 7 @10327 has 47 MA's), (9, 10366), (Start: 13 @10423 has 1 MA's), (17, 10465), (20, 10525), (23, 10585), (Start: 25 @10603 has 1 MA's), (32, 10729), (37, 10768), (39, 10789), (40, 10798), (42, 10810), (43, 10822), (46, 10867), (48, 10894), (54, 10969), (58, 11032), (59, 11053), (64, 11146), (65, 11182), (67, 11218), (69, 11236), (70, 11245), (73, 11278), (74, 11311), (77, 11380), (79, 11410), (80, 11425), (84, 11482), (86, 11533), (87, 11548), (91, 11581), (100, 11686), (102, 11695), (104, 11716), (108, 11752), (109, 11758), (113, 11800), (116, 11842), (120, 11902), (125, 12049), (127, 12088), (129, 12115), (134, 12208), (142, 12346), (143, 12352), (144, 12388), (145, 12400), (148, 12472), (151, 12571), (166, 12865), (169, 12907), (172, 12940), (173, 12946), (182, 13030), (184, 13057), (192, 13144), (194, 13189), (195, 13195), (202, 13351), (204, 13381), (205, 13384), (207, 13399), (210, 13423), (212, 13501), (213, 13531), (214, 13540), (220, 13588), (223, 13615), (226, 13678), (230, 13747), (236, 13795), (239, 13813), (241, 13840), (242, 13846), (245, 13891), (246, 13903), (247, 13912), (249, 13948), (254, 14047), (256, 14092), (257, 14104), (259, 14131), (260, 14167), (263, 14197), (267, 14257), (269, 14299), (270, 14308), (271, 14317), (273, 14344), (274, 14377), (278, 14443), (279, 14455), (282, 14533), (284, 14566), (307, 14728), (308, 14737), (310, 14761), (311, 14767), (317, 14806), (319, 14863), (321, 14890), (323, 14911), (324, 14923), (326, 14935), (328, 14971), (330, 15001), (331, 15019), (334, 15079), (337, 15124), (339, 15133), (348, 15253), (352, 15307), (356, 15373), (365, 15469), (367, 15523), (368, 15532), (371, 15559), (376, 15610), (378, 15646), (382, 15718), (384, 15772), (389, 15847), (402, 16069), (403, 16078), (406, 16156), (410, 16336), (417, 16426), (419, 16540), (421, 16597), (422, 16606), (423, 16627), (426, 16663), (428, 16762), (430, 16798), (431, 16804), (432, 16846), (433, 16852), (434, 16858),

Gene: Shlim410\_18 Start: 10520, Stop: 17068, Start Num: 6

Candidate Starts for Shlim410\_18:

(Start: 6 @10520 has 5 MA's), (Start: 7 @10532 has 47 MA's), (9, 10571), (Start: 13 @10628 has 1 MA's), (17, 10670), (20, 10730), (23, 10790), (Start: 25 @10808 has 1 MA's), (32, 10934), (37, 10973), (39, 10994), (40, 11003), (42, 11015), (43, 11027), (46, 11072), (48, 11099), (54, 11174), (58, 11237), (59, 11258), (64, 11351), (65, 11387), (67, 11423), (69, 11441), (70, 11450), (73, 11483), (74, 11516), (77, 11585), (79, 11615), (80, 11630), (84, 11687), (86, 11738), (87, 11753), (91, 11786), (100, 11891), (102, 11900), (104, 11921), (108, 11957), (109, 11963), (113, 12005), (116, 12047), (120, 12107), (125, 12254), (127, 12293), (129, 12320), (134, 12413), (142, 12551), (143, 12557), (144, 12593), (145, 12605), (148, 12677), (151, 12776), (166, 13070), (169, 13112), (172, 13145), (173, 13151), (182, 13235), (184, 13262), (192, 13349), (194, 13394), (195, 13400), (202, 13556), (204, 13586), (205, 13589), (207, 13604), (210, 13628), (212, 13706), (213, 13736), (214, 13745), (220, 13793), (223, 13820), (226, 13883), (230, 13952), (236, 14000), (239, 14018), (241, 14045), (242, 14051), (245, 14096), (246, 14108), (247, 14117), (249, 14153), (254, 14252), (256, 14297), (257, 14309), (259, 14336), (260, 14372), (263, 14402), (267, 14462), (269, 14504), (270, 14513), (271, 14522), (273, 14549), (274, 14582), (278, 14648), (279, 14660), (282, 14738), (284, 14771), (307, 14933), (308, 14942), (310, 14966), (311, 14972), (317, 15011), (319, 15068), (321, 15095), (323, 15116), (324, 15128), (326, 15140), (328, 15176), (330, 15206), (331, 15224), (334, 15284), (337, 15329), (339, 15338), (348, 15458), (352, 15512), (356, 15578), (365, 15674), (367, 15728), (368, 15737), (371, 15764), (376, 15815), (378, 15851), (384, 15977), (389, 16052), (394, 16082), (402, 16274), (403, 16283), (406, 16361), (410, 16541), (417, 16631), (419, 16745), (421, 16802), (422, 16811), (423, 16832), (426, 16868), (430, 17003), (431, 17009), (432, 17051), (433, 17057), (434, 17063),

Gene: Sidious\_17 Start: 9992, Stop: 16465, Start Num: 7

Candidate Starts for Sidious\_17:

(Start: 7 @9992 has 47 MA's), (8, 10025), (Start: 13 @10088 has 1 MA's), (17, 10130), (22, 10247), (23, 10250), (24, 10256), (Start: 25 @10268 has 1 MA's), (33, 10427), (34, 10436), (35, 10445), (38, 10478), (41, 10508), (43, 10529), (47, 10577), (49, 10604), (50, 10616), (51, 10634), (52, 10640), (53, 10670), (56, 10718), (57, 10733), (62, 10805), (63, 10838), (66, 10901), (71, 10961), (72, 10964), (73, 10982), (77, 11084), (81, 11150), (84, 11177), (93, 11276), (104, 11339), (111, 11381), (113, 11402), (114, 11423), (115, 11429), (116, 11432), (117, 11456), (120, 11492), (121, 11507), (125, 11639), (127, 11678), (129, 11705), (131, 11750), (132, 11777), (134, 11798), (143, 11942), (144, 11978), (145, 11990), (158, 12329), (161, 12380), (162, 12404), (165, 12455), (168, 12497), (169, 12500), (171, 12515), (173, 12539), (175, 12572), (181, 12620), (186, 12662), (188, 12683), (190, 12707), (192, 12737), (193, 12740), (196, 12812), (198, 12845), (204, 12971), (205, 12974), (210, 13013), (213, 13124), (214, 13133), (223, 13208), (226, 13271), (230, 13340), (234, 13382), (238, 13400), (239, 13406), (240, 13424), (242, 13439), (245, 13484), (246, 13496), (247, 13505), (248, 13529), (249, 13541), (253, 13616), (256, 13685), (259, 13724), (261, 13763), (263, 13790), (267, 13850), (270, 13901), (274, 13970), (278, 14036), (279, 14048), (282, 14126), (284, 14159), (306, 14309), (307, 14321), (308, 14330), (310, 14354), (311, 14360), (315, 14390), (317, 14402), (319, 14459), (321, 14486), (323, 14507), (324, 14519), (326, 14531), (336, 14702), (343, 14783), (351, 14873), (356, 14981), (361, 15047), (369, 15152), (378, 15245), (384, 15371), (405, 15716), (406, 15755), (410, 15938), (411, 15944), (413, 15971), (414, 15983), (417, 16028), (419, 16142), (421, 16199), (422, 16208), (423, 16229), (425, 16247), (431, 16406), (432, 16448), (433, 16454),

Gene: Suerte\_16 Start: 9573, Stop: 15986, Start Num: 7

Candidate Starts for Suerte\_16:

(Start: 7 @9573 has 47 MA's), (Start: 13 @9669 has 1 MA's), (17, 9711), (19, 9765), (24, 9837), (Start: 25 @9849 has 1 MA's), (39, 10077), (43, 10110), (46, 10155), (51, 10215), (52, 10221), (57, 10314), (60, 10359), (61, 10380), (62, 10386), (63, 10419), (64, 10434), (71, 10542), (72, 10545), (76, 10662), (77, 10665), (84, 10758), (88, 10830), (93, 10857), (95, 10875), (104, 10920), (114, 11004), (115, 11010), (116, 11013), (117, 11037), (124, 11217), (128, 11250), (142, 11469), (143, 11475), (144, 11511), (145, 11523), (149, 11664), (156, 11829), (161, 11910), (165, 11985), (173, 12069), (182, 12153), (184, 12180), (192, 12267), (194, 12312), (195, 12318), (202, 12474), (204, 12504), (205, 12507), (207, 12522), (210, 12546), (211, 12588), (212, 12624), (213, 12654), (214, 12663), (220, 12711), (223, 12738), (226, 12801), (230, 12870), (236, 12918), (239, 12936), (241, 12963), (242, 12969), (245, 13014), (246, 13026), (247, 13035), (249, 13071), (254, 13170), (256, 13215), (259, 13254), (260, 13290), (263, 13320), (267, 13380), (269, 13422), (270, 13431), (273, 13467), (274, 13500), (278, 13566), (279, 13578), (282, 13656), (284, 13689), (307, 13851), (308, 13860), (310, 13884), (311, 13890), (317, 13929), (319, 13986), (323, 14034), (324, 14046), (326, 14058), (328, 14094), (330, 14124), (331, 14142), (334, 14202), (337, 14247), (339, 14256), (348, 14376), (356, 14496), (365, 14592), (366, 14598), (367, 14646), (368, 14655), (371, 14682), (376, 14733), (378, 14769), (382, 14841), (384, 14895), (392, 14988), (394, 15000), (398, 15048), (400, 15153), (402, 15192), (406, 15279), (410, 15459), (417, 15549), (419, 15663), (421, 15720), (422, 15729), (423, 15750), (426, 15786), (430, 15921), (431, 15927), (432, 15969), (433, 15975), (434, 15981),

Gene: Susceptit\_17 Start: 10512, Stop: 16949, Start Num: 7

Candidate Starts for Susceptit\_17:

(Start: 7 @10512 has 47 MA's), (Start: 13 @10608 has 1 MA's), (17, 10650), (23, 10770), (24, 10776), (28, 10839), (29, 10860), (30, 10872), (41, 11028), (43, 11049), (46, 11094), (51, 11154), (52, 11160), (57, 11253), (60, 11298), (62, 11325), (63, 11358), (71, 11481), (72, 11484), (75, 11547), (77, 11604), (79, 11634), (85, 11700), (87, 11763), (90, 11784), (93, 11796), (95, 11814), (104, 11859), (111, 11901), (113, 11922), (114, 11943), (115, 11949), (116, 11952), (117, 11976), (119, 11985), (124, 12156), (139, 12372), (142, 12408), (143, 12414), (144, 12450), (145, 12462), (156, 12768), (160, 12831), (161, 12849), (165, 12924), (173, 13008), (179, 13065), (183, 13107), (184, 13119), (188,

13152), (189, 13155), (192, 13206), (198, 13317), (202, 13413), (204, 13443), (205, 13446), (210, 13485), (213, 13596), (214, 13605), (223, 13680), (226, 13743), (229, 13797), (230, 13812), (234, 13854), (239, 13878), (240, 13896), (242, 13911), (245, 13956), (248, 14001), (249, 14013), (253, 14088), (254, 14112), (256, 14157), (259, 14196), (261, 14235), (263, 14262), (267, 14322), (270, 14373), (273, 14409), (274, 14442), (276, 14466), (278, 14508), (279, 14520), (282, 14598), (284, 14631), (306, 14781), (307, 14793), (308, 14802), (309, 14823), (310, 14826), (311, 14832), (315, 14862), (317, 14874), (319, 14931), (320, 14943), (321, 14958), (322, 14967), (323, 14979), (324, 14991), (326, 15003), (328, 15039), (330, 15072), (331, 15090), (334, 15150), (337, 15195), (348, 15324), (352, 15378), (356, 15444), (361, 15510), (365, 15540), (366, 15546), (368, 15600), (373, 15645), (380, 15774), (384, 15843), (403, 16164), (404, 16185), (406, 16242), (407, 16257), (410, 16422), (411, 16428), (412, 16440), (413, 16455), (414, 16467), (415, 16479), (417, 16512), (418, 16536), (419, 16626), (420, 16665), (421, 16683), (422, 16692), (423, 16713), (424, 16716), (427, 16806), (429, 16878), (431, 16890), (432, 16932), (433, 16938),

Gene: Tayonia\_17 Start: 10512, Stop: 16949, Start Num: 7

Candidate Starts for Tayonia\_17:

(Start: 7 @10512 has 47 MA's), (Start: 13 @10608 has 1 MA's), (17, 10650), (23, 10770), (24, 10776), (28, 10839), (29, 10860), (30, 10872), (41, 11028), (43, 11049), (46, 11094), (51, 11154), (52, 11160), (57, 11253), (60, 11298), (62, 11325), (63, 11358), (71, 11481), (72, 11484), (75, 11547), (77, 11604), (79, 11634), (85, 11700), (87, 11763), (90, 11784), (93, 11796), (95, 11814), (104, 11859), (111, 11901), (113, 11922), (114, 11943), (115, 11949), (116, 11952), (117, 11976), (119, 11985), (124, 12156), (139, 12372), (142, 12408), (143, 12414), (144, 12450), (145, 12462), (156, 12768), (160, 12831), (161, 12849), (165, 12924), (173, 13008), (179, 13065), (183, 13107), (184, 13119), (188, 13152), (189, 13155), (192, 13206), (198, 13317), (202, 13413), (204, 13443), (205, 13446), (210, 13485), (213, 13596), (214, 13605), (223, 13680), (226, 13743), (229, 13797), (230, 13812), (234, 13854), (239, 13878), (240, 13896), (242, 13911), (245, 13956), (248, 14001), (249, 14013), (253, 14088), (254, 14112), (256, 14157), (259, 14196), (261, 14235), (263, 14262), (267, 14322), (270, 14373), (273, 14409), (274, 14442), (276, 14466), (278, 14508), (279, 14520), (282, 14598), (284, 14631), (306, 14781), (307, 14793), (308, 14802), (309, 14823), (310, 14826), (311, 14832), (315, 14862), (317, 14874), (319, 14931), (320, 14943), (321, 14958), (322, 14967), (323, 14979), (324, 14991), (326, 15003), (328, 15039), (330, 15072), (331, 15090), (334, 15150), (337, 15195), (348, 15324), (352, 15378), (356, 15444), (361, 15510), (365, 15540), (366, 15546), (368, 15600), (373, 15645), (380, 15774), (384, 15843), (403, 16164), (404, 16185), (406, 16242), (407, 16257), (410, 16422), (411, 16428), (412, 16440), (413, 16455), (414, 16467), (415, 16479), (417, 16512), (418, 16536), (419, 16626), (420, 16665), (421, 16683), (422, 16692), (423, 16713), (424, 16716), (427, 16806), (429, 16878), (431, 16890), (432, 16932), (433, 16938),

Gene: ThankyouJordi\_16 Start: 10539, Stop: 16982, Start Num: 7

Candidate Starts for ThankyouJordi\_16:

(Start: 7 @10539 has 47 MA's), (Start: 13 @10635 has 1 MA's), (17, 10677), (23, 10797), (Start: 25 @10815 has 1 MA's), (28, 10866), (29, 10887), (30, 10899), (41, 11055), (43, 11076), (46, 11121), (51, 11181), (52, 11187), (57, 11280), (60, 11325), (61, 11346), (62, 11352), (63, 11385), (71, 11508), (72, 11511), (77, 11631), (84, 11724), (85, 11727), (87, 11790), (93, 11823), (95, 11841), (104, 11886), (111, 11928), (113, 11949), (114, 11970), (115, 11976), (116, 11979), (117, 12003), (119, 12012), (124, 12183), (139, 12399), (142, 12435), (143, 12441), (144, 12477), (145, 12489), (150, 12636), (156, 12795), (160, 12858), (164, 12936), (165, 12951), (173, 13035), (179, 13092), (183, 13134), (188, 13179), (189, 13182), (198, 13344), (202, 13440), (204, 13470), (205, 13473), (210, 13512), (213, 13623), (214, 13632), (223, 13707), (226, 13770), (230, 13839), (234, 13881), (239, 13905), (242, 13938), (245, 13983), (247, 14004), (248, 14028), (249, 14040), (254, 14139), (256, 14184), (259, 14223), (261, 14262), (263, 14289), (267, 14349), (270, 14400), (274, 14469), (276, 14493), (278, 14535), (279, 14547), (282, 14625), (284, 14658), (306, 14808), (307, 14820), (308, 14829), (310, 14853), (311, 14859), (317, 14901), (319, 14958), (321, 14985), (323, 15006), (326, 15030), (328, 15066), (330, 15102), (331, 15120), (334, 15180), (337, 15225), (344, 15282), (348, 15354),

(352, 15408), (356, 15474), (361, 15540), (365, 15570), (366, 15576), (373, 15669), (380, 15801), (384, 15870), (388, 15918), (403, 16194), (404, 16215), (406, 16272), (407, 16287), (410, 16455), (411, 16461), (412, 16473), (413, 16488), (414, 16500), (417, 16545), (419, 16659), (421, 16716), (423, 16746), (425, 16764), (429, 16911), (430, 16917), (431, 16923), (432, 16965), (433, 16971),

Gene: Thimann\_18 Start: 10060, Stop: 16470, Start Num: 7

Candidate Starts for Thimann\_18:

(Start: 7 @10060 has 47 MA's), (Start: 13 @10156 has 1 MA's), (17, 10198), (Start: 25 @10336 has 1 MA's), (39, 10564), (43, 10597), (46, 10642), (51, 10702), (52, 10708), (57, 10801), (60, 10846), (61, 10867), (62, 10873), (63, 10906), (64, 10921), (71, 11029), (72, 11032), (76, 11149), (77, 11152), (84, 11245), (88, 11317), (93, 11344), (95, 11362), (104, 11407), (114, 11491), (115, 11497), (116, 11500), (117, 11524), (124, 11704), (128, 11737), (142, 11956), (143, 11962), (144, 11998), (145, 12010), (156, 12316), (161, 12397), (165, 12472), (173, 12556), (182, 12640), (184, 12667), (192, 12754), (194, 12799), (195, 12805), (202, 12961), (204, 12991), (205, 12994), (207, 13009), (210, 13033), (211, 13075), (212, 13111), (213, 13141), (214, 13150), (220, 13198), (223, 13225), (226, 13288), (230, 13357), (236, 13405), (239, 13423), (241, 13450), (242, 13456), (245, 13501), (246, 13513), (247, 13522), (249, 13558), (254, 13657), (256, 13702), (257, 13714), (259, 13741), (260, 13777), (263, 13807), (267, 13867), (269, 13909), (270, 13918), (271, 13927), (273, 13954), (274, 13987), (278, 14053), (279, 14065), (282, 14143), (284, 14176), (307, 14338), (308, 14347), (310, 14371), (311, 14377), (317, 14416), (319, 14473), (321, 14500), (323, 14521), (324, 14533), (326, 14545), (328, 14581), (330, 14611), (331, 14629), (334, 14689), (337, 14734), (339, 14743), (348, 14863), (352, 14917), (356, 14983), (365, 15079), (367, 15133), (368, 15142), (371, 15169), (376, 15220), (378, 15256), (384, 15382), (389, 15457), (394, 15487), (403, 15685), (404, 15706), (405, 15724), (406, 15763), (409, 15874), (410, 15943), (417, 16033), (419, 16147), (421, 16204), (422, 16213), (423, 16234), (426, 16270), (428, 16369), (430, 16405), (431, 16411), (432, 16453), (433, 16459), (434, 16465),

Gene: TimTam\_17 Start: 10512, Stop: 16940, Start Num: 7

Candidate Starts for TimTam\_17:

(Start: 7 @10512 has 47 MA's), (Start: 13 @10608 has 1 MA's), (17, 10650), (23, 10770), (Start: 25 @10788 has 1 MA's), (28, 10839), (29, 10860), (30, 10872), (41, 11028), (43, 11049), (46, 11094), (51, 11154), (52, 11160), (57, 11253), (60, 11298), (62, 11325), (63, 11358), (71, 11481), (72, 11484), (77, 11604), (79, 11634), (87, 11763), (90, 11784), (93, 11796), (104, 11859), (111, 11901), (113, 11922), (114, 11943), (115, 11949), (116, 11952), (117, 11976), (119, 11985), (124, 12156), (139, 12372), (142, 12408), (143, 12414), (144, 12450), (145, 12462), (156, 12768), (160, 12831), (161, 12849), (165, 12924), (173, 13008), (179, 13065), (183, 13107), (184, 13119), (188, 13152), (192, 13206), (198, 13317), (202, 13413), (204, 13443), (205, 13446), (207, 13461), (210, 13485), (213, 13596), (214, 13605), (223, 13680), (226, 13743), (229, 13797), (230, 13812), (234, 13854), (239, 13878), (242, 13911), (245, 13956), (249, 14013), (253, 14088), (254, 14112), (256, 14157), (259, 14196), (261, 14235), (263, 14262), (267, 14322), (270, 14373), (273, 14409), (274, 14442), (278, 14508), (279, 14520), (281, 14544), (282, 14598), (284, 14631), (306, 14781), (307, 14793), (308, 14802), (310, 14826), (311, 14832), (315, 14862), (317, 14874), (319, 14931), (320, 14943), (321, 14958), (322, 14967), (323, 14979), (324, 14991), (326, 15003), (328, 15039), (331, 15087), (344, 15252), (347, 15321), (350, 15333), (351, 15336), (356, 15444), (358, 15453), (361, 15510), (366, 15546), (374, 15651), (376, 15672), (384, 15834), (385, 15837), (403, 16155), (404, 16176), (405, 16194), (406, 16233), (408, 16323), (410, 16413), (412, 16431), (413, 16446), (414, 16458), (417, 16503), (419, 16617), (421, 16674), (422, 16683), (423, 16704), (424, 16707), (426, 16740), (427, 16797), (428, 16839), (429, 16869), (431, 16881), (432, 16923), (433, 16929),

Gene: Trumpet\_17 Start: 10512, Stop: 16949, Start Num: 7

Candidate Starts for Trumpet\_17:

(Start: 7 @10512 has 47 MA's), (Start: 13 @10608 has 1 MA's), (17, 10650), (23, 10770), (24, 10776), (28, 10839), (29, 10860), (30, 10872), (41, 11028), (43, 11049), (46, 11094), (51, 11154), (52, 11160),

(57, 11253), (60, 11298), (62, 11325), (63, 11358), (71, 11481), (72, 11484), (75, 11547), (77, 11604), (79, 11634), (85, 11700), (87, 11763), (90, 11784), (93, 11796), (95, 11814), (104, 11859), (111, 11901), (113, 11922), (114, 11943), (115, 11949), (116, 11952), (117, 11976), (119, 11985), (124, 12156), (139, 12372), (142, 12408), (143, 12414), (144, 12450), (145, 12462), (156, 12768), (160, 12831), (161, 12849), (165, 12924), (173, 13008), (179, 13065), (183, 13107), (184, 13119), (188, 13152), (189, 13155), (192, 13206), (198, 13317), (202, 13413), (204, 13443), (205, 13446), (210, 13485), (213, 13596), (214, 13605), (223, 13680), (226, 13743), (229, 13797), (230, 13812), (234, 13854), (239, 13878), (240, 13896), (242, 13911), (245, 13956), (248, 14001), (249, 14013), (253, 14088), (254, 14112), (256, 14157), (259, 14196), (261, 14235), (263, 14262), (267, 14322), (270, 14373), (273, 14409), (274, 14442), (276, 14466), (278, 14508), (279, 14520), (282, 14598), (284, 14631), (306, 14781), (307, 14793), (308, 14802), (309, 14823), (310, 14826), (311, 14832), (315, 14862), (317, 14874), (319, 14931), (320, 14943), (321, 14958), (322, 14967), (323, 14979), (324, 14991), (326, 15003), (328, 15039), (330, 15072), (331, 15090), (334, 15150), (337, 15195), (348, 15324), (352, 15378), (356, 15444), (361, 15510), (365, 15540), (366, 15546), (368, 15600), (373, 15645), (380, 15774), (384, 15843), (403, 16164), (404, 16185), (406, 16242), (407, 16257), (410, 16422), (411, 16428), (412, 16440), (413, 16455), (414, 16467), (415, 16479), (417, 16512), (418, 16536), (419, 16626), (420, 16665), (421, 16683), (422, 16692), (423, 16713), (424, 16716), (427, 16806), (429, 16878), (431, 16890), (432, 16932), (433, 16938),

Gene: Tuti\_22 Start: 10528, Stop: 16875, Start Num: 20

Candidate Starts for Tuti\_22:

(Start: 6 @10318 has 5 MA's), (Start: 7 @10330 has 47 MA's), (9, 10369), (Start: 13 @10426 has 1 MA's), (17, 10468), (20, 10528), (23, 10588), (Start: 25 @10606 has 1 MA's), (32, 10732), (37, 10771), (39, 10792), (40, 10801), (42, 10813), (43, 10825), (46, 10870), (48, 10897), (54, 10972), (58, 11035), (59, 11056), (64, 11149), (65, 11185), (67, 11221), (69, 11239), (70, 11248), (73, 11281), (74, 11314), (77, 11383), (79, 11413), (80, 11428), (84, 11485), (86, 11536), (87, 11551), (91, 11584), (100, 11689), (102, 11698), (104, 11719), (108, 11755), (109, 11761), (113, 11803), (116, 11845), (120, 11905), (125, 12052), (127, 12091), (129, 12118), (134, 12211), (142, 12349), (143, 12355), (144, 12391), (145, 12403), (148, 12475), (151, 12574), (166, 12868), (169, 12910), (172, 12943), (173, 12949), (182, 13033), (184, 13060), (192, 13147), (194, 13192), (195, 13198), (202, 13354), (204, 13384), (205, 13387), (207, 13402), (210, 13426), (212, 13504), (213, 13534), (214, 13543), (220, 13591), (223, 13618), (226, 13681), (230, 13750), (234, 13792), (236, 13798), (237, 13807), (239, 13816), (241, 13843), (242, 13849), (245, 13894), (246, 13906), (247, 13915), (248, 13939), (249, 13951), (254, 14050), (256, 14095), (257, 14107), (259, 14134), (260, 14170), (263, 14200), (267, 14260), (270, 14311), (273, 14347), (274, 14380), (278, 14446), (279, 14458), (282, 14536), (283, 14557), (284, 14569), (306, 14719), (307, 14731), (308, 14740), (310, 14764), (311, 14770), (315, 14797), (316, 14800), (317, 14809), (318, 14854), (321, 14893), (323, 14914), (324, 14926), (326, 14938), (328, 14974), (330, 15004), (331, 15022), (334, 15082), (336, 15097), (337, 15127), (345, 15187), (348, 15256), (356, 15376), (358, 15385), (359, 15406), (361, 15442), (365, 15472), (366, 15478), (368, 15535), (371, 15562), (376, 15625), (379, 15694), (382, 15733), (384, 15787), (403, 16090), (404, 16111), (406, 16168), (410, 16348), (412, 16366), (413, 16381), (414, 16393), (417, 16438), (419, 16552), (420, 16591), (421, 16609), (422, 16618), (423, 16639), (426, 16675), (428, 16774), (431, 16816), (432, 16858), (433, 16864),

Gene: Twinkle\_18 Start: 10520, Stop: 18127, Start Num: 6

Candidate Starts for Twinkle\_18:

(Start: 6 @10520 has 5 MA's), (Start: 7 @10532 has 47 MA's), (9, 10571), (Start: 13 @10628 has 1 MA's), (17, 10670), (20, 10730), (23, 10790), (Start: 25 @10808 has 1 MA's), (32, 10934), (37, 10973), (39, 10994), (40, 11003), (42, 11015), (43, 11027), (46, 11072), (48, 11099), (54, 11174), (58, 11237), (59, 11258), (64, 11351), (65, 11387), (67, 11423), (69, 11441), (70, 11450), (73, 11483), (74, 11516), (77, 11585), (79, 11615), (80, 11630), (84, 11687), (86, 11738), (87, 11753), (91, 11786), (100, 11891), (102, 11900), (104, 11921), (108, 11957), (109, 11963), (113, 12005), (116, 12047), (120, 12107), (125, 12254), (127, 12293), (129, 12320), (134, 12413), (142, 12551), (143, 12557), (144, 12593),

(145, 12605), (148, 12677), (151, 12776), (166, 13070), (169, 13112), (172, 13145), (173, 13151), (182, 13235), (184, 13262), (192, 13349), (194, 13394), (202, 13556), (204, 13586), (205, 13589), (210, 13628), (212, 13709), (213, 13739), (214, 13748), (220, 13796), (223, 13823), (226, 13886), (230, 13955), (236, 14003), (239, 14021), (242, 14054), (245, 14099), (246, 14111), (247, 14120), (249, 14156), (254, 14255), (256, 14300), (259, 14339), (260, 14375), (263, 14405), (267, 14465), (269, 14507), (270, 14516), (273, 14552), (274, 14585), (278, 14651), (279, 14663), (282, 14741), (284, 14774), (286, 14918), (287, 15062), (288, 15068), (289, 15197), (290, 15212), (291, 15269), (292, 15401), (293, 15440), (294, 15464), (295, 15554), (296, 15620), (297, 15644), (298, 15770), (299, 15839), (300, 15884), (301, 15893), (302, 15920), (303, 15953), (306, 15980), (307, 15992), (308, 16001), (310, 16025), (311, 16031), (317, 16070), (319, 16127), (321, 16154), (323, 16175), (324, 16187), (326, 16199), (328, 16235), (330, 16265), (331, 16283), (334, 16343), (337, 16388), (339, 16397), (348, 16517), (352, 16571), (356, 16637), (365, 16733), (367, 16787), (368, 16796), (371, 16823), (376, 16874), (378, 16910), (384, 17036), (389, 17111), (394, 17141), (402, 17333), (403, 17342), (406, 17420), (410, 17600), (417, 17690), (419, 17804), (421, 17861), (422, 17870), (423, 17891), (426, 17927), (430, 18062), (431, 18068), (432, 18110), (433, 18116), (434, 18122),

Gene: WelcomeAyanna\_16 Start: 10539, Stop: 16982, Start Num: 7

Candidate Starts for WelcomeAyanna\_16:

(Start: 7 @10539 has 47 MA's), (Start: 13 @10635 has 1 MA's), (17, 10677), (23, 10797), (Start: 25 @10815 has 1 MA's), (28, 10866), (29, 10887), (30, 10899), (41, 11055), (43, 11076), (46, 11121), (51, 11181), (52, 11187), (57, 11280), (60, 11325), (61, 11346), (62, 11352), (63, 11385), (71, 11508), (72, 11511), (77, 11631), (84, 11724), (85, 11727), (87, 11790), (93, 11823), (95, 11841), (104, 11886), (111, 11928), (113, 11949), (114, 11970), (115, 11976), (116, 11979), (117, 12003), (119, 12012), (124, 12183), (139, 12399), (142, 12435), (143, 12441), (144, 12477), (145, 12489), (150, 12636), (156, 12795), (160, 12858), (164, 12936), (165, 12951), (173, 13035), (179, 13092), (183, 13134), (188, 13179), (189, 13182), (198, 13344), (202, 13440), (204, 13470), (205, 13473), (210, 13512), (213, 13623), (214, 13632), (223, 13707), (226, 13770), (230, 13839), (234, 13881), (239, 13905), (242, 13938), (245, 13983), (247, 14004), (248, 14028), (249, 14040), (254, 14139), (256, 14184), (259, 14223), (261, 14262), (263, 14289), (267, 14349), (270, 14400), (274, 14469), (276, 14493), (278, 14535), (279, 14547), (282, 14625), (284, 14658), (306, 14808), (307, 14820), (308, 14829), (310, 14853), (311, 14859), (317, 14901), (319, 14958), (321, 14985), (323, 15006), (326, 15030), (328, 15066), (330, 15102), (331, 15120), (334, 15180), (337, 15225), (344, 15282), (348, 15354), (352, 15408), (356, 15474), (361, 15540), (365, 15570), (366, 15576), (373, 15669), (380, 15801), (384, 15870), (388, 15918), (403, 16194), (404, 16215), (406, 16272), (407, 16287), (410, 16455), (411, 16461), (412, 16473), (413, 16488), (414, 16500), (417, 16545), (419, 16659), (421, 16716), (423, 16746), (425, 16764), (429, 16911), (430, 16917), (431, 16923), (432, 16965), (433, 16971),

Gene: WinkNick\_18 Start: 10075, Stop: 16488, Start Num: 7

Candidate Starts for WinkNick\_18:

(Start: 7 @10075 has 47 MA's), (Start: 13 @10171 has 1 MA's), (17, 10213), (24, 10339), (Start: 25 @10351 has 1 MA's), (39, 10579), (43, 10612), (46, 10657), (51, 10717), (52, 10723), (57, 10816), (60, 10861), (61, 10882), (62, 10888), (63, 10921), (64, 10936), (71, 11044), (72, 11047), (76, 11164), (77, 11167), (84, 11260), (88, 11332), (93, 11359), (95, 11377), (104, 11422), (114, 11506), (115, 11512), (116, 11515), (117, 11539), (124, 11719), (128, 11752), (142, 11971), (143, 11977), (144, 12013), (145, 12025), (149, 12166), (156, 12331), (161, 12412), (165, 12487), (169, 12532), (172, 12565), (173, 12571), (175, 12604), (184, 12682), (192, 12769), (194, 12814), (195, 12820), (202, 12976), (204, 13006), (205, 13009), (207, 13024), (210, 13048), (211, 13090), (212, 13126), (213, 13156), (214, 13165), (220, 13213), (223, 13240), (226, 13303), (230, 13372), (236, 13420), (239, 13438), (241, 13465), (242, 13471), (245, 13516), (246, 13528), (247, 13537), (249, 13573), (254, 13672), (256, 13717), (257, 13729), (259, 13756), (260, 13792), (263, 13822), (267, 13882), (269, 13924), (270, 13933), (271, 13942), (273, 13969), (274, 14002), (278, 14068), (279, 14080), (282, 14158), (284, 14191), (307, 14353), (308, 14362), (310, 14386), (311, 14392), (317, 14431), (319, 14488), (321, 14515), (323, 14536), (324, 14548), (326, 14560), (328, 14596), (330, 14626), (331, 14644),

(334, 14704), (337, 14749), (339, 14758), (348, 14878), (352, 14932), (356, 14998), (365, 15094), (367, 15148), (368, 15157), (371, 15184), (376, 15235), (378, 15271), (384, 15397), (389, 15472), (394, 15502), (402, 15694), (403, 15703), (406, 15781), (410, 15961), (417, 16051), (419, 16165), (421, 16222), (422, 16231), (423, 16252), (426, 16288), (430, 16423), (431, 16429), (432, 16471), (433, 16477), (434, 16483),

Gene: Yeezy\_18 Start: 9966, Stop: 16295, Start Num: 13

Candidate Starts for Yeezy\_18:

(Start: 7 @9870 has 47 MA's), (Start: 13 @9966 has 1 MA's), (17, 10008), (23, 10128), (Start: 25 @10146 has 1 MA's), (28, 10197), (29, 10218), (30, 10230), (41, 10386), (43, 10407), (46, 10452), (51, 10512), (52, 10518), (57, 10611), (60, 10656), (62, 10683), (63, 10716), (71, 10839), (72, 10842), (77, 10962), (79, 10992), (87, 11121), (90, 11142), (93, 11154), (104, 11217), (111, 11259), (113, 11280), (114, 11301), (115, 11307), (116, 11310), (117, 11334), (119, 11343), (124, 11514), (139, 11730), (142, 11766), (143, 11772), (144, 11808), (145, 11820), (156, 12126), (160, 12189), (161, 12207), (165, 12282), (173, 12366), (179, 12423), (183, 12465), (184, 12477), (188, 12510), (189, 12513), (192, 12564), (198, 12675), (202, 12771), (204, 12801), (205, 12804), (207, 12819), (210, 12843), (213, 12954), (214, 12963), (216, 12969), (223, 13038), (226, 13101), (229, 13155), (230, 13170), (234, 13212), (239, 13236), (242, 13269), (245, 13314), (249, 13371), (253, 13446), (254, 13470), (256, 13515), (259, 13554), (261, 13593), (263, 13620), (267, 13680), (270, 13731), (273, 13767), (274, 13800), (278, 13866), (279, 13878), (281, 13902), (282, 13956), (284, 13989), (306, 14139), (307, 14151), (308, 14160), (309, 14181), (310, 14184), (311, 14190), (315, 14220), (317, 14232), (319, 14289), (321, 14316), (322, 14325), (323, 14337), (324, 14349), (326, 14361), (328, 14397), (330, 14430), (331, 14448), (334, 14508), (337, 14553), (340, 14571), (348, 14682), (352, 14736), (356, 14802), (358, 14811), (361, 14868), (366, 14904), (376, 15030), (378, 15066), (384, 15192), (385, 15195), (403, 15510), (404, 15531), (405, 15549), (406, 15588), (407, 15603), (410, 15768), (412, 15786), (413, 15801), (414, 15813), (417, 15858), (418, 15882), (419, 15972), (420, 16011), (421, 16029), (422, 16038), (423, 16059), (424, 16062), (426, 16095), (427, 16152), (429, 16224), (431, 16236), (432, 16278), (433, 16284),

Gene: Zameen\_17 Start: 10512, Stop: 16949, Start Num: 7

Candidate Starts for Zameen\_17:

(Start: 7 @10512 has 47 MA's), (Start: 13 @10608 has 1 MA's), (17, 10650), (23, 10770), (24, 10776), (28, 10839), (29, 10860), (30, 10872), (41, 11028), (43, 11049), (46, 11094), (51, 11154), (52, 11160), (57, 11253), (60, 11298), (62, 11325), (63, 11358), (71, 11481), (72, 11484), (75, 11547), (77, 11604), (79, 11634), (85, 11700), (87, 11763), (90, 11784), (93, 11796), (95, 11814), (104, 11859), (111, 11901), (113, 11922), (114, 11943), (115, 11949), (116, 11952), (117, 11976), (119, 11985), (124, 12156), (139, 12372), (142, 12408), (143, 12414), (144, 12450), (145, 12462), (156, 12768), (160, 12831), (161, 12849), (165, 12924), (173, 13008), (179, 13065), (183, 13107), (184, 13119), (188, 13152), (189, 13155), (192, 13206), (198, 13317), (202, 13413), (204, 13443), (205, 13446), (210, 13485), (213, 13596), (214, 13605), (223, 13680), (226, 13743), (229, 13797), (230, 13812), (234, 13854), (239, 13878), (240, 13896), (242, 13911), (245, 13956), (248, 14001), (249, 14013), (253, 14088), (254, 14112), (256, 14157), (259, 14196), (261, 14235), (263, 14262), (267, 14322), (270, 14373), (273, 14409), (274, 14442), (276, 14466), (278, 14508), (279, 14520), (282, 14598), (284, 14631), (306, 14781), (307, 14793), (308, 14802), (309, 14823), (310, 14826), (311, 14832), (315, 14862), (317, 14874), (319, 14931), (320, 14943), (321, 14958), (322, 14967), (323, 14979), (324, 14991), (326, 15003), (328, 15039), (330, 15072), (331, 15090), (334, 15150), (337, 15195), (348, 15324), (352, 15378), (356, 15444), (361, 15510), (365, 15540), (366, 15546), (368, 15600), (373, 15645), (380, 15774), (384, 15843), (403, 16164), (404, 16185), (406, 16242), (407, 16257), (410, 16422), (411, 16428), (412, 16440), (413, 16455), (414, 16467), (415, 16479), (417, 16512), (418, 16536), (419, 16626), (420, 16665), (421, 16683), (422, 16692), (423, 16713), (424, 16716), (427, 16806), (429, 16878), (431, 16890), (432, 16932), (433, 16938),

Gene: Zirinka\_17 Start: 10512, Stop: 16952, Start Num: 7

Candidate Starts for Zirinka\_17:

(Start: 7 @10512 has 47 MA's), (Start: 13 @10608 has 1 MA's), (17, 10650), (23, 10770), (Start: 25 @10788 has 1 MA's), (28, 10839), (29, 10860), (30, 10872), (41, 11028), (43, 11049), (46, 11094), (51, 11154), (52, 11160), (57, 11253), (60, 11298), (62, 11325), (63, 11358), (71, 11481), (72, 11484), (77, 11604), (79, 11634), (87, 11763), (90, 11784), (93, 11796), (95, 11814), (104, 11859), (111, 11901), (113, 11922), (114, 11943), (115, 11949), (116, 11952), (117, 11976), (119, 11985), (124, 12156), (139, 12372), (142, 12408), (143, 12414), (144, 12450), (145, 12462), (156, 12768), (160, 12831), (161, 12849), (165, 12924), (173, 13008), (179, 13065), (183, 13107), (184, 13119), (188, 13152), (192, 13206), (198, 13317), (202, 13413), (204, 13443), (205, 13446), (207, 13461), (210, 13485), (213, 13596), (214, 13605), (216, 13611), (217, 13644), (223, 13680), (226, 13743), (234, 13854), (239, 13878), (242, 13911), (245, 13956), (248, 14001), (249, 14013), (251, 14079), (254, 14112), (256, 14157), (259, 14196), (261, 14235), (263, 14262), (267, 14322), (270, 14373), (273, 14409), (274, 14442), (276, 14466), (278, 14508), (281, 14544), (282, 14598), (284, 14631), (306, 14781), (307, 14793), (308, 14802), (309, 14823), (310, 14826), (311, 14832), (315, 14862), (317, 14874), (319, 14931), (320, 14943), (321, 14958), (322, 14967), (323, 14979), (324, 14991), (326, 15003), (328, 15039), (330, 15072), (331, 15090), (334, 15150), (337, 15195), (348, 15324), (352, 15378), (356, 15444), (358, 15453), (361, 15510), (366, 15546), (368, 15600), (373, 15645), (380, 15777), (384, 15846), (403, 16167), (404, 16188), (405, 16206), (406, 16245), (407, 16260), (410, 16425), (412, 16443), (413, 16458), (414, 16470), (415, 16482), (417, 16515), (418, 16539), (419, 16629), (421, 16686), (422, 16695), (423, 16716), (427, 16809), (429, 16881), (431, 16893), (432, 16935), (433, 16941),