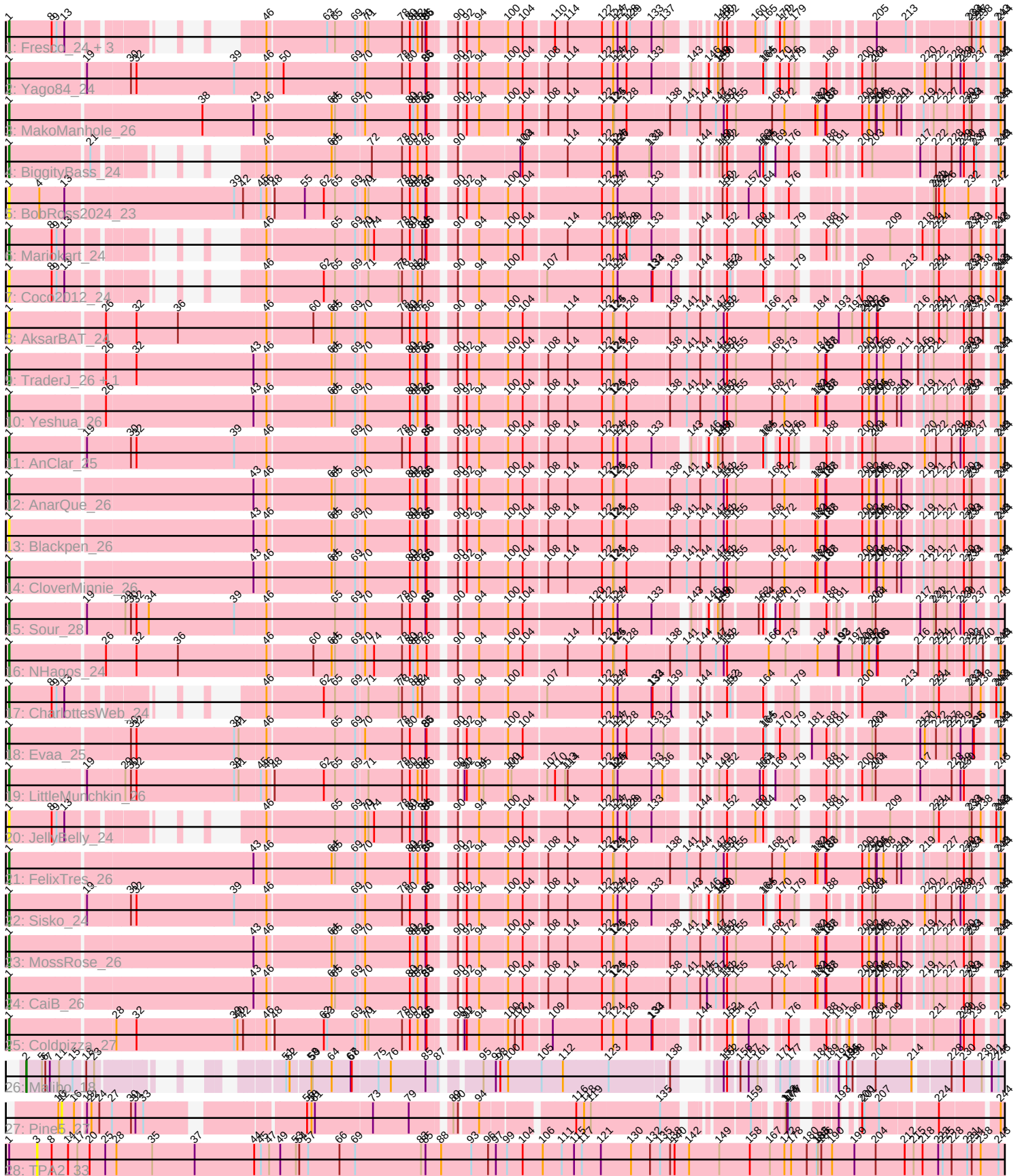


Zoomed Pham 331086



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 331086 Report

This analysis was run 09/05/26 on database version 662.

Pham number 331086 has 32 members, 8 are drafts.

Phages represented in each track:

- Track 1 : Fresco_24, Axumite_24, Shatter_24, Ligma_24
- Track 2 : Yago84_24
- Track 3 : MakoManhole_26
- Track 4 : BiggityBass_24
- Track 5 : BobRoss2024_23
- Track 6 : Mariokart_24
- Track 7 : Coco2012_24
- Track 8 : AksarBAT_24
- Track 9 : TraderJ_26, Wooper_26
- Track 10 : Yeshua_26
- Track 11 : AnClar_25
- Track 12 : AnarQue_26
- Track 13 : Blackpen_26
- Track 14 : CloverMinnie_26
- Track 15 : Sour_28
- Track 16 : NHagos_24
- Track 17 : CharlottesWeb_24
- Track 18 : Evaa_25
- Track 19 : LittleMunchkin_26
- Track 20 : JellyBelly_24
- Track 21 : FelixTres_26
- Track 22 : Sisko_24
- Track 23 : MossRose_26
- Track 24 : CaiB_26
- Track 25 : Coldpizza_27
- Track 26 : Malibo_18
- Track 27 : Pine5_27
- Track 28 : TPA2_33

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

The start number called the most often in the published annotations is 1, it was called in 23 of the 24 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AksarBAT_24, AnClar_25, AnarQue_26, Axumite_24, BiggityBass_24, Blackpen_26, BobRoss2024_23, CaiB_26, CharlottesWeb_24, CloverMinnie_26, Coco2012_24, Coldpizza_27, Evaa_25, FelixTres_26, Fresco_24, JellyBelly_24, Ligma_24, LittleMunchkin_26, MakoManhole_26, Mariokart_24, MossRose_26, NHagos_24, Shatter_24, Sisko_24, Sour_28, TraderJ_26, Wooper_26, Yago84_24, Yeshua_26,

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

- TPA2_33,

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

- Malibo_18, Pine5_27,

Summary by start number:

Start 1:

- Found in 30 of 32 (93.8%) of genes in pham
- Manual Annotations of this start: 23 of 24
- Called 96.7% of time when present
- Phage (with cluster) where this start called: AksarBAT_24 (DR), AnClar_25 (DR), AnarQue_26 (DR), Axumite_24 (DR), BiggityBass_24 (DR), Blackpen_26 (DR), BobRoss2024_23 (DR), CaiB_26 (DR), CharlottesWeb_24 (DR), CloverMinnie_26 (DR), Coco2012_24 (DR), Coldpizza_27 (DR), Evaa_25 (DR), FelixTres_26 (DR), Fresco_24 (DR), JellyBelly_24 (DR), Ligma_24 (DR), LittleMunchkin_26 (DR), MakoManhole_26 (DR), Mariokart_24 (DR), MossRose_26 (DR), NHagos_24 (DR), Shatter_24 (DR), Sisko_24 (DR), Sour_28 (DR), TraderJ_26 (DR), Wooper_26 (DR), Yago84_24 (DR), Yeshua_26 (DR),

Start 2:

- Found in 1 of 32 (3.1%) of genes in pham
- Manual Annotations of this start: 1 of 24
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Malibo_18 (DW),

Start 3:

- Found in 1 of 32 (3.1%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: TPA2_33 (singleton),

Start 12:

- Found in 1 of 32 (3.1%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Pine5_27 (singleton),

Summary by clusters:

There are 3 clusters represented in this pham: DW, singleton, DR,

Info for manual annotations of cluster DR:

- Start number 1 was manually annotated 23 times for cluster DR.

Info for manual annotations of cluster DW:

•Start number 2 was manually annotated 1 time for cluster DW.

Gene Information:

Gene: AksarBAT_24 Start: 18149, Stop: 24019, Start Num: 1

Candidate Starts for AksarBAT_24:

(Start: 1 @18149 has 23 MA's), (26, 18389), (32, 18458), (36, 18566), (46, 18791), (60, 18902), (64, 18950), (65, 18959), (69, 19013), (70, 19034), (78, 19127), (80, 19148), (81, 19157), (82, 19169), (86, 19193), (90, 19247), (94, 19289), (100, 19358), (104, 19397), (114, 19505), (122, 19592), (124, 19622), (125, 19625), (128, 19658), (138, 19763), (141, 19808), (144, 19841), (147, 19883), (151, 19901), (152, 19910), (166, 20018), (173, 20063), (184, 20144), (193, 20201), (197, 20237), (200, 20264), (201, 20270), (202, 20282), (205, 20303), (206, 20306), (216, 20402), (221, 20438), (224, 20450), (227, 20471), (230, 20507), (233, 20522), (234, 20528), (240, 20558), (243, 20582), (244, 20588), (246, 20609), (248, 20645), (249, 20660), (250, 20666), (253, 20678), (258, 20720), (262, 20747), (271, 20828), (274, 20867), (281, 20933), (284, 20963), (292, 21032), (293, 21044), (299, 21113), (300, 21131), (314, 21326), (315, 21332), (317, 21356), (323, 21401), (324, 21410), (325, 21419), (327, 21464), (336, 21533), (339, 21554), (346, 21626), (349, 21665), (351, 21728), (352, 21746), (355, 21767), (360, 21794), (364, 21842), (365, 21848), (366, 21872), (367, 21884), (382, 22040), (397, 22205), (417, 22427), (419, 22436), (420, 22448), (422, 22466), (430, 22568), (435, 22673), (438, 22709), (443, 22796), (447, 22832), (449, 22844), (452, 22871), (454, 22898), (455, 22919), (460, 22955), (461, 22997), (463, 23036), (468, 23081), (472, 23132), (474, 23150), (479, 23189), (481, 23201), (489, 23291), (493, 23303), (494, 23309), (496, 23321), (501, 23363), (502, 23375), (512, 23477), (519, 23525), (520, 23534), (523, 23552), (524, 23558), (531, 23654), (541, 23732), (544, 23768), (549, 23795), (552, 23816), (553, 23828), (554, 23846), (555, 23861), (557, 23885), (563, 23957), (568, 24011),

Gene: AnClar_25 Start: 20494, Stop: 25980, Start Num: 1

Candidate Starts for AnClar_25:

(Start: 1 @20494 has 23 MA's), (19, 20683), (30, 20791), (32, 20803), (39, 21061), (46, 21136), (69, 21358), (70, 21379), (78, 21472), (80, 21493), (85, 21535), (86, 21538), (90, 21592), (92, 21604), (94, 21634), (100, 21703), (104, 21742), (108, 21799), (114, 21850), (122, 21937), (124, 21967), (127, 21979), (128, 22003), (133, 22069), (143, 22135), (146, 22159), (148, 22168), (149, 22171), (150, 22180), (164, 22264), (165, 22270), (170, 22285), (176, 22303), (179, 22318), (188, 22366), (200, 22423), (203, 22450), (204, 22459), (220, 22576), (222, 22600), (228, 22639), (229, 22657), (230, 22663), (237, 22696), (243, 22738), (244, 22744), (248, 22801), (253, 22834), (260, 22885), (271, 22984), (274, 23023), (276, 23038), (281, 23089), (290, 23155), (294, 23209), (300, 23287), (306, 23332), (308, 23377), (314, 23482), (315, 23488), (317, 23512), (319, 23521), (320, 23530), (324, 23566), (325, 23575), (334, 23680), (344, 23746), (346, 23794), (351, 23902), (358, 23953), (391, 24319), (392, 24328), (395, 24352), (397, 24364), (402, 24433), (422, 24604), (432, 24676), (434, 24715), (437, 24733), (438, 24754), (446, 24853), (447, 24877), (449, 24889), (451, 24904), (452, 24916), (460, 25000), (466, 25057), (469, 25075), (470, 25084), (479, 25162), (493, 25252), (494, 25258), (497, 25279), (500, 25303), (501, 25312), (512, 25426), (517, 25465), (524, 25507), (526, 25540), (534, 25636), (537, 25669), (539, 25681), (552, 25777), (554, 25807), (563, 25918), (568, 25972),

Gene: AnarQue_26 Start: 19634, Stop: 25498, Start Num: 1

Candidate Starts for AnarQue_26:

(Start: 1 @19634 has 23 MA's), (43, 20249), (46, 20276), (64, 20435), (65, 20444), (69, 20498), (70, 20519), (80, 20633), (81, 20642), (82, 20654), (85, 20675), (86, 20678), (90, 20732), (92, 20744), (94,

20774), (100, 20843), (104, 20882), (108, 20939), (114, 20990), (122, 21077), (124, 21107), (125, 21110), (128, 21143), (138, 21248), (141, 21293), (144, 21326), (147, 21368), (151, 21386), (152, 21395), (155, 21419), (168, 21512), (172, 21545), (182, 21623), (184, 21629), (187, 21650), (188, 21653), (200, 21749), (202, 21767), (204, 21785), (205, 21788), (208, 21806), (210, 21842), (211, 21854), (219, 21902), (221, 21923), (227, 21956), (230, 21992), (233, 22007), (234, 22013), (243, 22067), (244, 22073), (246, 22094), (248, 22130), (249, 22145), (253, 22163), (262, 22232), (264, 22256), (267, 22283), (271, 22313), (274, 22352), (277, 22370), (278, 22394), (279, 22406), (281, 22418), (284, 22448), (300, 22616), (309, 22709), (314, 22811), (315, 22817), (317, 22841), (324, 22895), (325, 22904), (327, 22949), (329, 22967), (346, 23111), (351, 23213), (352, 23231), (360, 23279), (364, 23327), (366, 23357), (367, 23369), (382, 23525), (384, 23543), (390, 23636), (392, 23654), (397, 23690), (402, 23759), (419, 23909), (420, 23921), (422, 23939), (423, 23942), (428, 23978), (430, 24041), (435, 24146), (438, 24182), (443, 24269), (446, 24281), (447, 24305), (449, 24317), (452, 24344), (454, 24371), (455, 24392), (457, 24401), (460, 24428), (461, 24470), (472, 24605), (473, 24608), (474, 24623), (476, 24632), (481, 24674), (484, 24722), (488, 24758), (493, 24782), (494, 24788), (496, 24800), (498, 24821), (501, 24842), (512, 24956), (520, 25013), (521, 25016), (523, 25031), (524, 25037), (531, 25133), (541, 25211), (552, 25295), (554, 25325), (557, 25364), (559, 25376), (563, 25436), (568, 25490),

Gene: Axumite_24 Start: 18254, Stop: 23506, Start Num: 1

Candidate Starts for Axumite_24:

(Start: 1 @18254 has 23 MA's), (8, 18365), (9, 18377), (13, 18398), (46, 18653), (63, 18800), (65, 18821), (69, 18875), (70, 18896), (71, 18905), (78, 18989), (80, 19010), (81, 19019), (82, 19031), (84, 19043), (85, 19052), (86, 19055), (90, 19109), (92, 19121), (94, 19151), (100, 19220), (104, 19259), (110, 19334), (114, 19367), (122, 19454), (124, 19484), (127, 19496), (128, 19520), (129, 19529), (133, 19586), (137, 19613), (148, 19685), (150, 19697), (152, 19709), (160, 19766), (165, 19787), (170, 19802), (172, 19808), (179, 19835), (205, 19979), (213, 20054), (233, 20195), (234, 20201), (237, 20213), (238, 20225), (243, 20255), (244, 20261), (248, 20318), (253, 20351), (258, 20393), (260, 20402), (265, 20456), (270, 20489), (274, 20540), (277, 20558), (278, 20582), (281, 20606), (284, 20636), (292, 20705), (300, 20804), (301, 20816), (305, 20840), (307, 20861), (309, 20897), (315, 21005), (317, 21029), (318, 21032), (319, 21038), (321, 21050), (324, 21083), (325, 21092), (331, 21173), (341, 21242), (346, 21299), (351, 21401), (352, 21419), (360, 21467), (362, 21494), (363, 21497), (367, 21557), (372, 21617), (382, 21713), (396, 21875), (397, 21878), (403, 21959), (418, 22106), (419, 22109), (428, 22178), (435, 22253), (436, 22259), (438, 22289), (444, 22379), (447, 22412), (449, 22424), (451, 22439), (452, 22451), (454, 22478), (455, 22499), (460, 22535), (466, 22592), (470, 22619), (498, 22817), (501, 22838), (504, 22871), (512, 22952), (513, 22955), (517, 22991), (524, 23033), (526, 23066), (531, 23141), (537, 23195), (543, 23234), (552, 23303), (554, 23333), (557, 23372), (560, 23396), (563, 23444), (568, 23498),

Gene: BiggityBass_24 Start: 20531, Stop: 25771, Start Num: 1

Candidate Starts for BiggityBass_24:

(Start: 1 @20531 has 23 MA's), (21, 20729), (46, 20930), (64, 21089), (65, 21098), (72, 21191), (78, 21266), (80, 21287), (82, 21308), (86, 21332), (90, 21386), (103, 21530), (104, 21536), (114, 21644), (122, 21731), (124, 21761), (126, 21770), (127, 21773), (131, 21857), (133, 21863), (144, 21944), (149, 21965), (150, 21974), (152, 21986), (163, 22055), (164, 22058), (165, 22064), (169, 22067), (176, 22097), (188, 22160), (191, 22178), (200, 22217), (203, 22244), (217, 22358), (222, 22394), (228, 22433), (229, 22451), (230, 22457), (236, 22484), (237, 22490), (243, 22532), (244, 22538), (248, 22595), (253, 22628), (258, 22670), (260, 22679), (261, 22694), (264, 22721), (274, 22817), (276, 22832), (281, 22883), (290, 22949), (294, 23003), (300, 23081), (306, 23126), (308, 23171), (315, 23282), (317, 23306), (319, 23315), (320, 23324), (324, 23360), (325, 23369), (328, 23420), (344, 23540), (346, 23588), (351, 23696), (391, 24113), (392, 24122), (397, 24158), (422, 24398), (432, 24470), (434, 24509), (437, 24527), (438, 24548), (442, 24629), (446, 24647), (447, 24671), (449, 24683), (451, 24698), (452, 24710), (460, 24794), (466, 24851), (469, 24869), (470, 24878), (479, 24956), (494, 25049), (496, 25061), (497, 25070), (500, 25094), (501, 25103), (512, 25217),

(517, 25256), (523, 25292), (524, 25298), (526, 25331), (534, 25427), (537, 25460), (552, 25568), (554, 25598), (563, 25709), (568, 25763),

Gene: Blackpen_26 Start: 19052, Stop: 24916, Start Num: 1

Candidate Starts for Blackpen_26:

(Start: 1 @19052 has 23 MA's), (43, 19667), (46, 19694), (64, 19853), (65, 19862), (69, 19916), (70, 19937), (80, 20051), (81, 20060), (82, 20072), (85, 20093), (86, 20096), (90, 20150), (92, 20162), (94, 20192), (100, 20261), (104, 20300), (108, 20357), (114, 20408), (122, 20495), (124, 20525), (125, 20528), (128, 20561), (138, 20666), (141, 20711), (144, 20744), (147, 20786), (151, 20804), (152, 20813), (155, 20837), (168, 20930), (172, 20963), (182, 21041), (184, 21047), (187, 21068), (188, 21071), (200, 21167), (202, 21185), (204, 21203), (205, 21206), (208, 21224), (210, 21260), (211, 21272), (219, 21320), (221, 21341), (227, 21374), (230, 21410), (233, 21425), (234, 21431), (243, 21485), (244, 21491), (246, 21512), (248, 21548), (249, 21563), (253, 21581), (261, 21647), (262, 21650), (264, 21674), (267, 21701), (271, 21731), (274, 21770), (277, 21788), (278, 21812), (279, 21824), (281, 21836), (284, 21866), (300, 22034), (309, 22127), (314, 22229), (315, 22235), (317, 22259), (324, 22313), (325, 22322), (327, 22367), (329, 22385), (346, 22529), (351, 22631), (352, 22649), (360, 22697), (364, 22745), (366, 22775), (367, 22787), (382, 22943), (384, 22961), (390, 23054), (392, 23072), (397, 23108), (402, 23177), (419, 23327), (420, 23339), (422, 23357), (423, 23360), (428, 23396), (430, 23459), (435, 23564), (438, 23600), (443, 23687), (446, 23699), (447, 23723), (449, 23735), (452, 23762), (454, 23789), (455, 23810), (457, 23819), (460, 23846), (461, 23888), (472, 24023), (473, 24026), (474, 24041), (476, 24050), (481, 24092), (484, 24140), (493, 24200), (494, 24206), (495, 24212), (496, 24218), (498, 24239), (501, 24260), (512, 24374), (520, 24431), (521, 24434), (523, 24449), (524, 24455), (531, 24551), (541, 24629), (544, 24665), (552, 24713), (554, 24743), (557, 24782), (559, 24794), (563, 24854), (568, 24908),

Gene: BobRoss2024_23 Start: 18016, Stop: 23535, Start Num: 1

Candidate Starts for BobRoss2024_23:

(Start: 1 @18016 has 23 MA's), (4, 18094), (13, 18160), (39, 18583), (42, 18607), (45, 18646), (46, 18658), (48, 18670), (55, 18748), (62, 18796), (65, 18826), (69, 18880), (70, 18901), (71, 18910), (78, 18994), (80, 19015), (81, 19024), (82, 19036), (85, 19057), (86, 19060), (90, 19114), (92, 19126), (94, 19156), (100, 19225), (104, 19264), (122, 19459), (124, 19489), (127, 19501), (133, 19591), (150, 19702), (152, 19714), (157, 19756), (164, 19786), (176, 19825), (221, 20116), (222, 20122), (224, 20128), (226, 20143), (232, 20197), (242, 20254), (248, 20323), (250, 20344), (253, 20356), (257, 20392), (260, 20407), (265, 20461), (274, 20545), (279, 20599), (288, 20665), (296, 20758), (306, 20854), (314, 21004), (315, 21010), (317, 21034), (318, 21037), (324, 21088), (325, 21097), (336, 21211), (346, 21304), (349, 21343), (351, 21406), (352, 21424), (355, 21445), (367, 21562), (382, 21718), (384, 21736), (392, 21847), (419, 22105), (422, 22135), (435, 22240), (442, 22357), (443, 22363), (447, 22399), (452, 22438), (478, 22693), (479, 22696), (493, 22807), (494, 22813), (497, 22834), (501, 22867), (518, 23026), (520, 23038), (523, 23056), (526, 23095), (532, 23179), (534, 23191), (552, 23332), (554, 23362), (556, 23383),

Gene: CaiB_26 Start: 19620, Stop: 25484, Start Num: 1

Candidate Starts for CaiB_26:

(Start: 1 @19620 has 23 MA's), (43, 20235), (46, 20262), (64, 20421), (65, 20430), (69, 20484), (70, 20505), (80, 20619), (81, 20628), (82, 20640), (85, 20661), (86, 20664), (90, 20718), (92, 20730), (94, 20760), (100, 20829), (104, 20868), (108, 20925), (114, 20976), (122, 21063), (124, 21093), (125, 21096), (128, 21129), (138, 21234), (141, 21279), (144, 21312), (145, 21330), (147, 21354), (151, 21372), (152, 21381), (155, 21405), (168, 21498), (172, 21531), (182, 21609), (184, 21615), (187, 21636), (188, 21639), (200, 21735), (202, 21753), (204, 21771), (205, 21774), (208, 21792), (210, 21828), (211, 21840), (219, 21888), (221, 21909), (227, 21942), (230, 21978), (233, 21993), (234, 21999), (243, 22053), (244, 22059), (246, 22080), (248, 22116), (249, 22131), (253, 22149), (261, 22215), (262, 22218), (264, 22242), (267, 22269), (271, 22299), (274, 22338), (277, 22356), (278, 22380), (279, 22392), (281, 22404), (284, 22434), (300, 22602), (309, 22695), (314, 22797), (315,

22803), (317, 22827), (324, 22881), (325, 22890), (327, 22935), (329, 22953), (346, 23097), (351, 23199), (352, 23217), (360, 23265), (364, 23313), (366, 23343), (367, 23355), (382, 23511), (384, 23529), (390, 23622), (392, 23640), (397, 23676), (402, 23745), (419, 23895), (420, 23907), (422, 23925), (423, 23928), (428, 23964), (430, 24027), (435, 24132), (438, 24168), (443, 24255), (446, 24267), (447, 24291), (449, 24303), (452, 24330), (454, 24357), (455, 24378), (457, 24387), (460, 24414), (461, 24456), (472, 24591), (473, 24594), (474, 24609), (476, 24618), (481, 24660), (484, 24708), (493, 24768), (494, 24774), (496, 24786), (498, 24807), (501, 24828), (512, 24942), (520, 24999), (521, 25002), (523, 25017), (524, 25023), (531, 25119), (541, 25197), (544, 25233), (552, 25281), (554, 25311), (557, 25350), (559, 25362), (563, 25422), (568, 25476),

Gene: CharlottesWeb_24 Start: 18138, Stop: 23423, Start Num: 1

Candidate Starts for CharlottesWeb_24:

(Start: 1 @18138 has 23 MA's), (8, 18249), (9, 18261), (13, 18282), (46, 18537), (62, 18675), (65, 18705), (69, 18759), (71, 18789), (77, 18864), (78, 18873), (81, 18903), (82, 18915), (84, 18927), (90, 18993), (94, 19035), (100, 19104), (107, 19197), (122, 19338), (124, 19368), (127, 19380), (133, 19470), (134, 19473), (139, 19512), (144, 19551), (152, 19593), (153, 19602), (164, 19665), (179, 19719), (200, 19824), (213, 19938), (221, 19995), (224, 20007), (233, 20079), (234, 20085), (238, 20109), (242, 20133), (243, 20139), (244, 20145), (245, 20163), (246, 20166), (247, 20193), (253, 20235), (260, 20286), (264, 20328), (270, 20373), (271, 20385), (272, 20406), (274, 20424), (278, 20466), (288, 20544), (293, 20601), (297, 20646), (306, 20733), (308, 20778), (315, 20889), (317, 20913), (318, 20916), (319, 20922), (320, 20931), (324, 20967), (325, 20976), (333, 21066), (346, 21186), (351, 21288), (352, 21306), (360, 21354), (362, 21381), (367, 21444), (380, 21585), (382, 21600), (391, 21720), (396, 21762), (400, 21828), (401, 21831), (412, 21939), (413, 21951), (415, 21981), (420, 22032), (442, 22281), (449, 22335), (452, 22362), (454, 22389), (477, 22599), (479, 22611), (484, 22635), (496, 22713), (497, 22722), (500, 22746), (501, 22755), (505, 22815), (513, 22872), (514, 22884), (520, 22926), (521, 22929), (524, 22950), (529, 23034), (534, 23079), (537, 23112), (542, 23139), (549, 23199), (552, 23220), (554, 23250), (557, 23289), (560, 23313), (563, 23361), (568, 23415),

Gene: CloverMinnie_26 Start: 19560, Stop: 25424, Start Num: 1

Candidate Starts for CloverMinnie_26:

(Start: 1 @19560 has 23 MA's), (43, 20175), (46, 20202), (64, 20361), (65, 20370), (69, 20424), (70, 20445), (80, 20559), (81, 20568), (82, 20580), (85, 20601), (86, 20604), (90, 20658), (92, 20670), (94, 20700), (100, 20769), (104, 20808), (108, 20865), (114, 20916), (122, 21003), (124, 21033), (125, 21036), (128, 21069), (138, 21174), (141, 21219), (144, 21252), (147, 21294), (151, 21312), (152, 21321), (155, 21345), (168, 21438), (172, 21471), (182, 21549), (184, 21555), (187, 21576), (188, 21579), (200, 21675), (202, 21693), (204, 21711), (205, 21714), (208, 21732), (210, 21768), (211, 21780), (219, 21828), (221, 21849), (227, 21882), (230, 21918), (233, 21933), (234, 21939), (243, 21993), (244, 21999), (246, 22020), (248, 22056), (249, 22071), (253, 22089), (261, 22155), (262, 22158), (264, 22182), (267, 22209), (271, 22239), (274, 22278), (277, 22296), (278, 22320), (279, 22332), (281, 22344), (284, 22374), (300, 22542), (309, 22635), (314, 22737), (315, 22743), (317, 22767), (324, 22821), (325, 22830), (327, 22875), (329, 22893), (346, 23037), (351, 23139), (352, 23157), (360, 23205), (364, 23253), (366, 23283), (367, 23295), (382, 23451), (384, 23469), (390, 23562), (392, 23580), (397, 23616), (402, 23685), (419, 23835), (420, 23847), (422, 23865), (423, 23868), (428, 23904), (430, 23967), (435, 24072), (438, 24108), (443, 24195), (446, 24207), (447, 24231), (449, 24243), (452, 24270), (454, 24297), (455, 24318), (457, 24327), (460, 24354), (461, 24396), (472, 24531), (473, 24534), (474, 24549), (476, 24558), (481, 24600), (484, 24648), (493, 24708), (494, 24714), (496, 24726), (498, 24747), (501, 24768), (512, 24882), (520, 24939), (521, 24942), (523, 24957), (524, 24963), (531, 25059), (541, 25137), (544, 25173), (552, 25221), (554, 25251), (557, 25290), (559, 25302), (563, 25362), (568, 25416),

Gene: Coco2012_24 Start: 18135, Stop: 23420, Start Num: 1

Candidate Starts for Coco2012_24:

(Start: 1 @18135 has 23 MA's), (8, 18246), (9, 18258), (13, 18279), (46, 18534), (62, 18672), (65, 18702), (69, 18756), (71, 18786), (77, 18861), (78, 18870), (81, 18900), (82, 18912), (84, 18924), (90, 18990), (94, 19032), (100, 19101), (107, 19194), (122, 19335), (124, 19365), (127, 19377), (133, 19467), (134, 19470), (139, 19509), (144, 19548), (152, 19590), (153, 19599), (164, 19662), (179, 19716), (200, 19821), (213, 19935), (221, 19992), (224, 20004), (233, 20076), (234, 20082), (238, 20106), (242, 20130), (243, 20136), (244, 20142), (245, 20160), (246, 20163), (247, 20190), (253, 20232), (260, 20283), (264, 20325), (270, 20370), (271, 20382), (272, 20403), (274, 20421), (278, 20463), (288, 20541), (293, 20598), (297, 20643), (306, 20730), (308, 20775), (315, 20886), (317, 20910), (318, 20913), (319, 20919), (320, 20928), (324, 20964), (325, 20973), (333, 21063), (346, 21183), (351, 21285), (352, 21303), (360, 21351), (362, 21378), (367, 21441), (380, 21582), (382, 21597), (391, 21717), (396, 21759), (400, 21825), (401, 21828), (411, 21924), (412, 21936), (413, 21948), (415, 21978), (420, 22029), (442, 22278), (449, 22332), (452, 22359), (454, 22386), (477, 22596), (479, 22608), (484, 22632), (496, 22710), (497, 22719), (500, 22743), (501, 22752), (505, 22812), (513, 22869), (514, 22881), (520, 22923), (521, 22926), (524, 22947), (529, 23031), (534, 23076), (537, 23109), (542, 23136), (549, 23196), (552, 23217), (554, 23247), (557, 23286), (560, 23310), (563, 23358), (568, 23412),

Gene: Coldpizza_27 Start: 22439, Stop: 27937, Start Num: 1

Candidate Starts for Coldpizza_27:

(Start: 1 @22439 has 23 MA's), (28, 22697), (32, 22745), (39, 23003), (40, 23012), (42, 23027), (46, 23078), (48, 23090), (62, 23216), (63, 23225), (69, 23300), (70, 23321), (71, 23330), (78, 23414), (80, 23435), (82, 23456), (85, 23477), (86, 23480), (90, 23534), (91, 23540), (92, 23546), (94, 23576), (100, 23645), (102, 23663), (104, 23684), (109, 23753), (122, 23879), (124, 23909), (128, 23945), (133, 24011), (134, 24014), (144, 24092), (152, 24134), (154, 24149), (157, 24176), (176, 24245), (188, 24308), (191, 24326), (196, 24344), (203, 24392), (204, 24401), (209, 24437), (221, 24536), (229, 24599), (230, 24605), (236, 24632), (243, 24680), (254, 24779), (255, 24788), (258, 24818), (260, 24827), (271, 24926), (274, 24965), (280, 25022), (281, 25031), (284, 25061), (285, 25064), (286, 25070), (296, 25178), (298, 25208), (301, 25241), (302, 25250), (303, 25253), (306, 25274), (309, 25322), (314, 25424), (315, 25430), (317, 25454), (319, 25463), (324, 25508), (325, 25517), (326, 25559), (327, 25562), (335, 25628), (337, 25643), (340, 25667), (346, 25739), (351, 25841), (352, 25859), (360, 25907), (367, 25997), (374, 26087), (382, 26153), (389, 26261), (392, 26282), (416, 26516), (418, 26534), (420, 26549), (428, 26606), (433, 26663), (438, 26702), (442, 26783), (446, 26801), (448, 26831), (449, 26837), (452, 26864), (454, 26891), (460, 26948), (478, 27119), (487, 27188), (497, 27242), (498, 27254), (500, 27266), (501, 27275), (516, 27422), (523, 27464), (524, 27470), (529, 27554), (549, 27719), (550, 27731), (552, 27740), (554, 27770), (568, 27929),

Gene: Evaa_25 Start: 19484, Stop: 24991, Start Num: 1

Candidate Starts for Evaa_25:

(Start: 1 @19484 has 23 MA's), (30, 19778), (32, 19790), (39, 20048), (41, 20060), (46, 20123), (65, 20291), (69, 20345), (70, 20366), (78, 20459), (80, 20480), (85, 20522), (86, 20525), (90, 20579), (92, 20591), (94, 20621), (100, 20690), (104, 20729), (122, 20924), (124, 20954), (127, 20966), (128, 20990), (133, 21056), (137, 21083), (144, 21137), (164, 21251), (165, 21257), (170, 21272), (179, 21305), (181, 21320), (188, 21353), (191, 21371), (203, 21437), (204, 21446), (217, 21551), (220, 21563), (222, 21587), (227, 21614), (228, 21626), (229, 21644), (235, 21674), (236, 21677), (243, 21725), (244, 21731), (246, 21752), (249, 21803), (250, 21809), (253, 21821), (255, 21833), (258, 21863), (259, 21869), (260, 21872), (261, 21887), (264, 21914), (267, 21941), (268, 21947), (270, 21959), (274, 22010), (277, 22028), (278, 22052), (281, 22076), (282, 22079), (287, 22118), (291, 22163), (296, 22223), (298, 22253), (301, 22286), (306, 22319), (309, 22367), (314, 22469), (315, 22475), (317, 22499), (319, 22508), (321, 22520), (322, 22526), (324, 22553), (325, 22562), (340, 22712), (346, 22784), (350, 22841), (351, 22886), (352, 22904), (355, 22925), (362, 22979), (367, 23042), (372, 23102), (380, 23183), (382, 23198), (384, 23216), (389, 23306), (397, 23363), (399, 23393), (416, 23561), (421, 23597), (422, 23612), (424, 23624), (439, 23762), (440, 23768), (442, 23828), (446, 23846), (449, 23882), (452, 23909), (454, 23936), (460, 23993), (466, 24062), (470,

24089), (480, 24176), (489, 24257), (491, 24263), (497, 24296), (498, 24308), (501, 24329), (502, 24341), (511, 24440), (514, 24458), (518, 24488), (519, 24491), (521, 24503), (523, 24518), (524, 24524), (526, 24557), (529, 24608), (537, 24686), (540, 24701), (546, 24755), (549, 24773), (552, 24794), (554, 24824), (563, 24929), (568, 24983),

Gene: FelixTres_26 Start: 19623, Stop: 25487, Start Num: 1

Candidate Starts for FelixTres_26:

(Start: 1 @19623 has 23 MA's), (43, 20238), (46, 20265), (64, 20424), (65, 20433), (69, 20487), (70, 20508), (80, 20622), (81, 20631), (82, 20643), (85, 20664), (86, 20667), (90, 20721), (92, 20733), (94, 20763), (100, 20832), (104, 20871), (108, 20928), (114, 20979), (122, 21066), (124, 21096), (125, 21099), (128, 21132), (138, 21237), (141, 21282), (144, 21315), (147, 21357), (151, 21375), (152, 21384), (155, 21408), (168, 21501), (172, 21534), (182, 21612), (184, 21618), (187, 21639), (188, 21642), (200, 21738), (202, 21756), (204, 21774), (205, 21777), (208, 21795), (210, 21831), (211, 21843), (219, 21891), (227, 21945), (230, 21981), (233, 21996), (234, 22002), (243, 22056), (244, 22062), (246, 22083), (248, 22119), (249, 22134), (253, 22152), (262, 22221), (264, 22245), (267, 22272), (271, 22302), (274, 22341), (277, 22359), (278, 22383), (279, 22395), (281, 22407), (284, 22437), (300, 22605), (309, 22698), (314, 22800), (315, 22806), (317, 22830), (324, 22884), (325, 22893), (327, 22938), (329, 22956), (346, 23100), (351, 23202), (352, 23220), (360, 23268), (364, 23316), (366, 23346), (367, 23358), (382, 23514), (384, 23532), (390, 23625), (392, 23643), (397, 23679), (402, 23748), (419, 23898), (420, 23910), (422, 23928), (423, 23931), (428, 23967), (430, 24030), (435, 24135), (438, 24171), (443, 24258), (446, 24270), (447, 24294), (449, 24306), (452, 24333), (454, 24360), (455, 24381), (457, 24390), (460, 24417), (461, 24459), (472, 24594), (473, 24597), (474, 24612), (476, 24621), (481, 24663), (484, 24711), (488, 24747), (493, 24771), (494, 24777), (496, 24789), (498, 24810), (501, 24831), (512, 24945), (520, 25002), (521, 25005), (523, 25020), (524, 25026), (531, 25122), (536, 25167), (541, 25200), (544, 25236), (552, 25284), (554, 25314), (557, 25353), (559, 25365), (563, 25425), (568, 25479),

Gene: Fresco_24 Start: 18254, Stop: 23506, Start Num: 1

Candidate Starts for Fresco_24:

(Start: 1 @18254 has 23 MA's), (8, 18365), (9, 18377), (13, 18398), (46, 18653), (63, 18800), (65, 18821), (69, 18875), (70, 18896), (71, 18905), (78, 18989), (80, 19010), (81, 19019), (82, 19031), (84, 19043), (85, 19052), (86, 19055), (90, 19109), (92, 19121), (94, 19151), (100, 19220), (104, 19259), (110, 19334), (114, 19367), (122, 19454), (124, 19484), (127, 19496), (128, 19520), (129, 19529), (133, 19586), (137, 19613), (148, 19685), (150, 19697), (152, 19709), (160, 19766), (165, 19787), (170, 19802), (172, 19808), (179, 19835), (205, 19979), (213, 20054), (233, 20195), (234, 20201), (237, 20213), (238, 20225), (243, 20255), (244, 20261), (248, 20318), (253, 20351), (258, 20393), (260, 20402), (265, 20456), (270, 20489), (274, 20540), (277, 20558), (278, 20582), (281, 20606), (284, 20636), (292, 20705), (300, 20804), (301, 20816), (305, 20840), (307, 20861), (309, 20897), (315, 21005), (317, 21029), (318, 21032), (319, 21038), (321, 21050), (324, 21083), (325, 21092), (331, 21173), (341, 21242), (346, 21299), (351, 21401), (352, 21419), (360, 21467), (362, 21494), (363, 21497), (367, 21557), (372, 21617), (382, 21713), (396, 21875), (397, 21878), (403, 21959), (418, 22106), (419, 22109), (428, 22178), (435, 22253), (436, 22259), (438, 22289), (444, 22379), (447, 22412), (449, 22424), (451, 22439), (452, 22451), (454, 22478), (455, 22499), (460, 22535), (466, 22592), (470, 22619), (498, 22817), (501, 22838), (504, 22871), (512, 22952), (513, 22955), (517, 22991), (524, 23033), (526, 23066), (531, 23141), (537, 23195), (543, 23234), (552, 23303), (554, 23333), (557, 23372), (560, 23396), (563, 23444), (568, 23498),

Gene: JellyBelly_24 Start: 18141, Stop: 23426, Start Num: 1

Candidate Starts for JellyBelly_24:

(Start: 1 @18141 has 23 MA's), (8, 18252), (9, 18264), (13, 18285), (46, 18540), (65, 18708), (69, 18762), (70, 18783), (71, 18792), (74, 18807), (78, 18876), (80, 18897), (81, 18906), (84, 18930), (85, 18939), (86, 18942), (90, 18996), (94, 19038), (100, 19107), (104, 19146), (114, 19254), (122, 19341), (124, 19371), (127, 19383), (128, 19407), (129, 19416), (133, 19473), (144, 19554), (152, 19596),

(160, 19653), (164, 19668), (179, 19722), (188, 19770), (191, 19788), (209, 19899), (221, 19998), (224, 20010), (233, 20082), (234, 20088), (238, 20112), (242, 20136), (243, 20142), (244, 20148), (245, 20166), (246, 20169), (248, 20205), (253, 20238), (260, 20289), (264, 20331), (265, 20343), (270, 20376), (272, 20409), (274, 20427), (278, 20469), (288, 20547), (293, 20604), (297, 20649), (299, 20673), (306, 20736), (308, 20781), (315, 20892), (317, 20916), (318, 20919), (319, 20925), (320, 20934), (324, 20970), (325, 20979), (333, 21069), (346, 21189), (351, 21291), (352, 21309), (360, 21357), (362, 21384), (367, 21447), (380, 21588), (382, 21603), (391, 21723), (396, 21765), (400, 21831), (401, 21834), (411, 21930), (412, 21942), (413, 21954), (415, 21984), (420, 22035), (442, 22284), (449, 22338), (452, 22365), (454, 22392), (477, 22602), (479, 22614), (484, 22638), (496, 22716), (497, 22725), (500, 22749), (501, 22758), (505, 22818), (513, 22875), (514, 22887), (520, 22929), (521, 22932), (524, 22953), (527, 22989), (529, 23037), (534, 23082), (537, 23115), (542, 23142), (549, 23202), (552, 23223), (554, 23253), (557, 23292), (560, 23316), (563, 23364), (568, 23418),

Gene: Ligma_24 Start: 18254, Stop: 23506, Start Num: 1

Candidate Starts for Ligma_24:

(Start: 1 @18254 has 23 MA's), (8, 18365), (9, 18377), (13, 18398), (46, 18653), (63, 18800), (65, 18821), (69, 18875), (70, 18896), (71, 18905), (78, 18989), (80, 19010), (81, 19019), (82, 19031), (84, 19043), (85, 19052), (86, 19055), (90, 19109), (92, 19121), (94, 19151), (100, 19220), (104, 19259), (110, 19334), (114, 19367), (122, 19454), (124, 19484), (127, 19496), (128, 19520), (129, 19529), (133, 19586), (137, 19613), (148, 19685), (150, 19697), (152, 19709), (160, 19766), (165, 19787), (170, 19802), (172, 19808), (179, 19835), (205, 19979), (213, 20054), (233, 20195), (234, 20201), (237, 20213), (238, 20225), (243, 20255), (244, 20261), (248, 20318), (253, 20351), (258, 20393), (260, 20402), (265, 20456), (270, 20489), (274, 20540), (277, 20558), (278, 20582), (281, 20606), (284, 20636), (292, 20705), (300, 20804), (301, 20816), (305, 20840), (307, 20861), (309, 20897), (315, 21005), (317, 21029), (318, 21032), (319, 21038), (321, 21050), (324, 21083), (325, 21092), (331, 21173), (341, 21242), (346, 21299), (351, 21401), (352, 21419), (360, 21467), (362, 21494), (363, 21497), (367, 21557), (372, 21617), (382, 21713), (396, 21875), (397, 21878), (403, 21959), (418, 22106), (419, 22109), (428, 22178), (435, 22253), (436, 22259), (438, 22289), (444, 22379), (447, 22412), (449, 22424), (451, 22439), (452, 22451), (454, 22478), (455, 22499), (460, 22535), (466, 22592), (470, 22619), (498, 22817), (501, 22838), (504, 22871), (512, 22952), (513, 22955), (517, 22991), (524, 23033), (526, 23066), (531, 23141), (537, 23195), (543, 23234), (552, 23303), (554, 23333), (557, 23372), (560, 23396), (563, 23444), (568, 23498),

Gene: LittleMunchkin_26 Start: 21076, Stop: 26559, Start Num: 1

Candidate Starts for LittleMunchkin_26:

(Start: 1 @21076 has 23 MA's), (19, 21265), (29, 21358), (30, 21373), (32, 21385), (39, 21643), (41, 21655), (45, 21706), (46, 21718), (48, 21730), (62, 21856), (65, 21886), (69, 21940), (71, 21970), (78, 22054), (80, 22075), (82, 22096), (84, 22108), (86, 22120), (90, 22174), (91, 22180), (92, 22186), (94, 22216), (95, 22225), (100, 22285), (101, 22294), (107, 22378), (110, 22399), (113, 22426), (114, 22432), (122, 22519), (124, 22549), (125, 22552), (127, 22561), (133, 22651), (136, 22675), (144, 22732), (149, 22753), (152, 22774), (163, 22843), (164, 22846), (169, 22855), (179, 22900), (188, 22948), (191, 22966), (200, 23005), (203, 23032), (204, 23041), (217, 23146), (228, 23221), (229, 23239), (230, 23245), (243, 23320), (253, 23416), (255, 23428), (260, 23467), (268, 23542), (270, 23554), (274, 23605), (276, 23620), (281, 23671), (287, 23713), (290, 23737), (292, 23770), (294, 23791), (300, 23869), (304, 23899), (306, 23914), (315, 24070), (317, 24094), (320, 24112), (324, 24148), (325, 24157), (328, 24208), (344, 24328), (346, 24376), (351, 24484), (365, 24598), (378, 24748), (391, 24901), (392, 24910), (396, 24943), (397, 24946), (400, 25009), (409, 25099), (419, 25156), (434, 25297), (435, 25300), (437, 25315), (438, 25336), (449, 25471), (451, 25486), (452, 25498), (460, 25582), (466, 25639), (470, 25666), (478, 25741), (479, 25744), (482, 25753), (484, 25771), (494, 25837), (496, 25849), (498, 25870), (500, 25882), (501, 25891), (512, 26005), (516, 26038), (517, 26044), (522, 26074), (524, 26086), (526, 26119), (534, 26215), (537, 26248), (549, 26335), (552, 26356), (554, 26386), (557, 26425), (563, 26497), (564, 26500), (568, 26551),

Gene: MakoManhole_26 Start: 19638, Stop: 25502, Start Num: 1

Candidate Starts for MakoManhole_26:

(Start: 1 @19638 has 23 MA's), (38, 20121), (43, 20253), (46, 20280), (64, 20439), (65, 20448), (69, 20502), (70, 20523), (80, 20637), (81, 20646), (82, 20658), (85, 20679), (86, 20682), (90, 20736), (92, 20748), (94, 20778), (100, 20847), (104, 20886), (108, 20943), (114, 20994), (122, 21081), (124, 21111), (125, 21114), (128, 21147), (138, 21252), (141, 21297), (144, 21330), (147, 21372), (151, 21390), (152, 21399), (155, 21423), (168, 21516), (172, 21549), (182, 21627), (184, 21633), (187, 21654), (188, 21657), (200, 21753), (202, 21771), (204, 21789), (205, 21792), (208, 21810), (210, 21846), (211, 21858), (219, 21906), (221, 21927), (227, 21960), (230, 21996), (233, 22011), (234, 22017), (243, 22071), (244, 22077), (246, 22098), (248, 22134), (249, 22149), (253, 22167), (261, 22233), (262, 22236), (264, 22260), (267, 22287), (271, 22317), (274, 22356), (277, 22374), (278, 22398), (279, 22410), (281, 22422), (284, 22452), (300, 22620), (309, 22713), (314, 22815), (315, 22821), (317, 22845), (324, 22899), (325, 22908), (327, 22953), (329, 22971), (346, 23115), (351, 23217), (352, 23235), (360, 23283), (364, 23331), (366, 23361), (367, 23373), (382, 23529), (384, 23547), (390, 23640), (392, 23658), (397, 23694), (402, 23763), (419, 23913), (420, 23925), (422, 23943), (423, 23946), (428, 23982), (430, 24045), (435, 24150), (438, 24186), (443, 24273), (446, 24285), (447, 24309), (449, 24321), (452, 24348), (454, 24375), (455, 24396), (457, 24405), (460, 24432), (461, 24474), (472, 24609), (473, 24612), (474, 24627), (476, 24636), (481, 24678), (484, 24726), (493, 24786), (494, 24792), (496, 24804), (498, 24825), (501, 24846), (512, 24960), (520, 25017), (521, 25020), (523, 25035), (524, 25041), (531, 25137), (536, 25182), (541, 25215), (544, 25251), (552, 25299), (554, 25329), (557, 25368), (559, 25380), (563, 25440), (568, 25494),

Gene: Malibo_18 Start: 10639, Stop: 15675, Start Num: 2

Candidate Starts for Malibo_18:

(Start: 2 @10639 has 1 MA's), (5, 10681), (6, 10690), (7, 10702), (11, 10726), (15, 10759), (18, 10783), (23, 10804), (51, 11089), (52, 11098), (58, 11149), (59, 11152), (64, 11203), (67, 11251), (68, 11254), (75, 11317), (76, 11350), (85, 11443), (87, 11476), (95, 11548), (97, 11581), (98, 11593), (100, 11614), (105, 11701), (112, 11755), (123, 11872), (138, 12019), (151, 12073), (152, 12082), (156, 12106), (157, 12127), (161, 12148), (171, 12178), (177, 12199), (184, 12235), (189, 12247), (193, 12268), (194, 12274), (195, 12277), (198, 12289), (204, 12337), (214, 12433), (228, 12514), (230, 12538), (239, 12586), (241, 12592), (243, 12610), (249, 12685), (251, 12694), (255, 12712), (256, 12715), (263, 12781), (275, 12847), (281, 12892), (283, 12913), (307, 13144), (312, 13210), (316, 13306), (317, 13321), (324, 13375), (325, 13384), (342, 13546), (347, 13645), (348, 13648), (354, 13747), (356, 13765), (359, 13780), (362, 13813), (367, 13864), (368, 13879), (370, 13915), (371, 13918), (376, 13963), (379, 13993), (383, 14020), (385, 14041), (386, 14083), (392, 14158), (393, 14161), (398, 14212), (401, 14266), (404, 14305), (407, 14317), (408, 14344), (410, 14350), (418, 14410), (445, 14692), (455, 14797), (458, 14821), (471, 14950), (475, 14974), (486, 15061), (490, 15088), (515, 15286), (525, 15373), (528, 15394), (545, 15586),

Gene: Mariokart_24 Start: 18137, Stop: 23422, Start Num: 1

Candidate Starts for Mariokart_24:

(Start: 1 @18137 has 23 MA's), (8, 18248), (9, 18260), (13, 18281), (46, 18536), (65, 18704), (69, 18758), (70, 18779), (71, 18788), (74, 18803), (78, 18872), (80, 18893), (81, 18902), (84, 18926), (85, 18935), (86, 18938), (90, 18992), (94, 19034), (100, 19103), (104, 19142), (114, 19250), (122, 19337), (124, 19367), (127, 19379), (128, 19403), (129, 19412), (133, 19469), (144, 19550), (152, 19592), (160, 19649), (164, 19664), (179, 19718), (188, 19766), (191, 19784), (209, 19895), (218, 19970), (221, 19994), (224, 20006), (233, 20078), (234, 20084), (238, 20108), (242, 20132), (243, 20138), (245, 20162), (246, 20165), (253, 20234), (260, 20285), (264, 20327), (270, 20372), (271, 20384), (272, 20405), (274, 20423), (288, 20543), (293, 20600), (297, 20645), (299, 20669), (306, 20732), (308, 20777), (315, 20888), (317, 20912), (318, 20915), (319, 20921), (320, 20930), (324, 20966), (325, 20975), (333, 21065), (346, 21185), (351, 21287), (352, 21305), (360, 21353), (362, 21380), (367, 21443), (380, 21584), (382, 21599), (391, 21719), (396, 21761), (400, 21827), (401, 21830),

(412, 21938), (413, 21950), (415, 21980), (420, 22031), (442, 22280), (449, 22334), (452, 22361), (454, 22388), (477, 22598), (479, 22610), (484, 22634), (496, 22712), (497, 22721), (500, 22745), (501, 22754), (505, 22814), (513, 22871), (514, 22883), (520, 22925), (521, 22928), (524, 22949), (527, 22985), (529, 23033), (534, 23078), (537, 23111), (542, 23138), (549, 23198), (552, 23219), (554, 23249), (557, 23288), (560, 23312), (563, 23360), (568, 23414),

Gene: MossRose_26 Start: 19617, Stop: 25481, Start Num: 1

Candidate Starts for MossRose_26:

(Start: 1 @19617 has 23 MA's), (43, 20232), (46, 20259), (64, 20418), (65, 20427), (69, 20481), (70, 20502), (80, 20616), (81, 20625), (82, 20637), (85, 20658), (86, 20661), (90, 20715), (92, 20727), (94, 20757), (100, 20826), (104, 20865), (108, 20922), (114, 20973), (122, 21060), (124, 21090), (125, 21093), (128, 21126), (138, 21231), (141, 21276), (144, 21309), (147, 21351), (151, 21369), (152, 21378), (155, 21402), (168, 21495), (172, 21528), (182, 21606), (184, 21612), (187, 21633), (188, 21636), (200, 21732), (202, 21750), (204, 21768), (205, 21771), (208, 21789), (210, 21825), (211, 21837), (219, 21885), (221, 21906), (227, 21939), (230, 21975), (233, 21990), (234, 21996), (243, 22050), (244, 22056), (246, 22077), (248, 22113), (249, 22128), (253, 22146), (262, 22215), (264, 22239), (267, 22266), (271, 22296), (274, 22335), (277, 22353), (278, 22377), (279, 22389), (281, 22401), (284, 22431), (300, 22599), (309, 22692), (314, 22794), (315, 22800), (317, 22824), (324, 22878), (325, 22887), (327, 22932), (329, 22950), (346, 23094), (351, 23196), (352, 23214), (360, 23262), (364, 23310), (366, 23340), (367, 23352), (382, 23508), (384, 23526), (390, 23619), (392, 23637), (397, 23673), (402, 23742), (419, 23892), (420, 23904), (422, 23922), (423, 23925), (426, 23946), (428, 23961), (430, 24024), (435, 24129), (438, 24165), (443, 24252), (446, 24264), (447, 24288), (449, 24300), (452, 24327), (454, 24354), (455, 24375), (457, 24384), (460, 24411), (461, 24453), (472, 24588), (473, 24591), (474, 24606), (476, 24615), (481, 24657), (484, 24705), (493, 24765), (494, 24771), (496, 24783), (498, 24804), (501, 24825), (512, 24939), (520, 24996), (521, 24999), (523, 25014), (524, 25020), (531, 25116), (541, 25194), (544, 25230), (552, 25278), (554, 25308), (557, 25347), (559, 25359), (563, 25419), (568, 25473),

Gene: NHagos_24 Start: 18152, Stop: 24022, Start Num: 1

Candidate Starts for NHagos_24:

(Start: 1 @18152 has 23 MA's), (26, 18392), (32, 18461), (36, 18569), (46, 18794), (60, 18905), (64, 18953), (65, 18962), (69, 19016), (70, 19037), (74, 19061), (78, 19130), (80, 19151), (81, 19160), (82, 19172), (86, 19196), (90, 19250), (94, 19292), (100, 19361), (104, 19400), (114, 19508), (122, 19595), (124, 19625), (125, 19628), (128, 19661), (138, 19766), (141, 19811), (144, 19844), (147, 19886), (151, 19904), (152, 19913), (166, 20021), (173, 20066), (184, 20147), (192, 20201), (193, 20204), (197, 20240), (200, 20267), (201, 20273), (202, 20285), (205, 20306), (206, 20309), (216, 20405), (221, 20441), (224, 20453), (227, 20474), (230, 20510), (233, 20525), (237, 20543), (240, 20561), (243, 20585), (244, 20591), (246, 20612), (248, 20648), (249, 20663), (253, 20681), (258, 20723), (262, 20750), (267, 20801), (274, 20870), (281, 20936), (284, 20966), (292, 21035), (293, 21047), (299, 21116), (300, 21134), (314, 21329), (315, 21335), (317, 21359), (323, 21404), (324, 21413), (325, 21422), (327, 21467), (336, 21536), (339, 21557), (346, 21629), (349, 21668), (351, 21731), (352, 21749), (355, 21770), (360, 21797), (364, 21845), (365, 21851), (366, 21875), (367, 21887), (382, 22043), (402, 22277), (410, 22364), (417, 22430), (419, 22439), (420, 22451), (422, 22469), (430, 22571), (435, 22676), (438, 22712), (443, 22799), (447, 22835), (449, 22847), (452, 22874), (454, 22901), (455, 22922), (460, 22958), (461, 23000), (463, 23039), (472, 23135), (473, 23138), (474, 23153), (479, 23192), (481, 23204), (489, 23294), (493, 23306), (494, 23312), (496, 23324), (501, 23366), (502, 23378), (512, 23480), (519, 23528), (520, 23537), (522, 23549), (523, 23555), (524, 23561), (531, 23657), (541, 23735), (544, 23771), (549, 23798), (552, 23819), (553, 23831), (554, 23849), (555, 23864), (557, 23888), (563, 23960), (568, 24014),

Gene: Pine5_27 Start: 20638, Stop: 25836, Start Num: 12

Candidate Starts for Pine5_27:

(10, 20629), (12, 20638), (16, 20671), (19, 20695), (22, 20707), (24, 20728), (27, 20761), (30, 20806), (31, 20818), (33, 20839), (56, 21193), (58, 21205), (61, 21214), (73, 21361), (79, 21454), (89, 21544), (90, 21556), (94, 21601), (116, 21811), (118, 21832), (119, 21850), (135, 22027), (159, 22189), (173, 22249), (174, 22252), (175, 22255), (177, 22261), (193, 22336), (200, 22357), (201, 22363), (207, 22402), (224, 22540), (244, 22675), (250, 22753), (252, 22759), (255, 22777), (259, 22813), (266, 22882), (287, 23059), (295, 23152), (306, 23260), (311, 23332), (313, 23347), (325, 23509), (330, 23563), (340, 23638), (345, 23683), (346, 23710), (351, 23818), (367, 23956), (373, 24040), (381, 24100), (390, 24217), (405, 24382), (417, 24472), (419, 24481), (425, 24532), (426, 24535), (428, 24550), (437, 24652), (441, 24712), (452, 24820), (459, 24895), (467, 24988), (483, 25129), (492, 25198), (493, 25201), (496, 25219), (501, 25261), (506, 25327), (508, 25342), (510, 25348), (519, 25402), (520, 25411), (521, 25414), (544, 25603), (546, 25612), (550, 25642), (551, 25648), (552, 25651), (557, 25720),

Gene: Shatter_24 Start: 18254, Stop: 23506, Start Num: 1

Candidate Starts for Shatter_24:

(Start: 1 @18254 has 23 MA's), (8, 18365), (9, 18377), (13, 18398), (46, 18653), (63, 18800), (65, 18821), (69, 18875), (70, 18896), (71, 18905), (78, 18989), (80, 19010), (81, 19019), (82, 19031), (84, 19043), (85, 19052), (86, 19055), (90, 19109), (92, 19121), (94, 19151), (100, 19220), (104, 19259), (110, 19334), (114, 19367), (122, 19454), (124, 19484), (127, 19496), (128, 19520), (129, 19529), (133, 19586), (137, 19613), (148, 19685), (150, 19697), (152, 19709), (160, 19766), (165, 19787), (170, 19802), (172, 19808), (179, 19835), (205, 19979), (213, 20054), (233, 20195), (234, 20201), (237, 20213), (238, 20225), (243, 20255), (244, 20261), (248, 20318), (253, 20351), (258, 20393), (260, 20402), (265, 20456), (270, 20489), (274, 20540), (277, 20558), (278, 20582), (281, 20606), (284, 20636), (292, 20705), (300, 20804), (301, 20816), (305, 20840), (307, 20861), (309, 20897), (315, 21005), (317, 21029), (318, 21032), (319, 21038), (321, 21050), (324, 21083), (325, 21092), (331, 21173), (341, 21242), (346, 21299), (351, 21401), (352, 21419), (360, 21467), (362, 21494), (363, 21497), (367, 21557), (372, 21617), (382, 21713), (396, 21875), (397, 21878), (403, 21959), (418, 22106), (419, 22109), (428, 22178), (435, 22253), (436, 22259), (438, 22289), (444, 22379), (447, 22412), (449, 22424), (451, 22439), (452, 22451), (454, 22478), (455, 22499), (460, 22535), (466, 22592), (470, 22619), (498, 22817), (501, 22838), (504, 22871), (512, 22952), (513, 22955), (517, 22991), (524, 23033), (526, 23066), (531, 23141), (537, 23195), (543, 23234), (552, 23303), (554, 23333), (557, 23372), (560, 23396), (563, 23444), (568, 23498),

Gene: Sisko_24 Start: 18501, Stop: 23987, Start Num: 1

Candidate Starts for Sisko_24:

(Start: 1 @18501 has 23 MA's), (19, 18690), (30, 18798), (32, 18810), (39, 19068), (46, 19143), (69, 19365), (70, 19386), (78, 19479), (80, 19500), (85, 19542), (86, 19545), (90, 19599), (92, 19611), (94, 19641), (100, 19710), (104, 19749), (108, 19806), (114, 19857), (122, 19944), (124, 19974), (127, 19986), (128, 20010), (133, 20076), (143, 20142), (146, 20166), (148, 20175), (149, 20178), (150, 20187), (164, 20271), (165, 20277), (170, 20292), (179, 20325), (188, 20373), (200, 20430), (203, 20457), (204, 20466), (220, 20583), (222, 20607), (228, 20646), (229, 20664), (230, 20670), (237, 20703), (243, 20745), (244, 20751), (248, 20808), (253, 20841), (260, 20892), (271, 20991), (274, 21030), (276, 21045), (281, 21096), (290, 21162), (294, 21216), (300, 21294), (306, 21339), (308, 21384), (314, 21489), (315, 21495), (317, 21519), (319, 21528), (320, 21537), (324, 21573), (325, 21582), (334, 21687), (344, 21753), (346, 21801), (351, 21909), (358, 21960), (391, 22326), (392, 22335), (395, 22359), (397, 22371), (402, 22440), (422, 22611), (432, 22683), (434, 22722), (437, 22740), (438, 22761), (446, 22860), (447, 22884), (449, 22896), (451, 22911), (452, 22923), (460, 23007), (466, 23064), (469, 23082), (470, 23091), (479, 23169), (493, 23259), (494, 23265), (497, 23286), (500, 23310), (501, 23319), (512, 23433), (517, 23472), (524, 23514), (526, 23547), (537, 23676), (539, 23688), (552, 23784), (554, 23814), (563, 23925), (568, 23979),

Gene: Sour_28 Start: 22231, Stop: 27735, Start Num: 1

Candidate Starts for Sour_28:

(Start: 1 @22231 has 23 MA's), (19, 22420), (29, 22513), (30, 22528), (32, 22540), (34, 22570), (39, 22798), (46, 22873), (65, 23041), (69, 23095), (70, 23116), (78, 23209), (80, 23230), (85, 23272), (86, 23275), (90, 23329), (94, 23371), (100, 23440), (104, 23479), (120, 23653), (122, 23674), (124, 23704), (127, 23716), (133, 23806), (143, 23872), (146, 23896), (148, 23905), (149, 23908), (150, 23917), (162, 23995), (164, 24001), (169, 24010), (170, 24022), (179, 24055), (188, 24103), (191, 24121), (203, 24187), (204, 24196), (217, 24301), (221, 24331), (222, 24337), (227, 24364), (229, 24394), (230, 24400), (237, 24433), (243, 24475), (246, 24502), (248, 24538), (249, 24553), (250, 24559), (253, 24571), (259, 24619), (260, 24622), (267, 24691), (270, 24709), (271, 24721), (274, 24760), (276, 24775), (277, 24778), (281, 24826), (284, 24856), (294, 24946), (306, 25069), (308, 25114), (313, 25156), (314, 25219), (315, 25225), (317, 25249), (320, 25267), (324, 25303), (325, 25312), (328, 25363), (332, 25396), (334, 25417), (338, 25441), (344, 25483), (346, 25531), (351, 25639), (358, 25690), (367, 25786), (378, 25903), (391, 26056), (392, 26065), (394, 26077), (397, 26101), (400, 26164), (402, 26170), (409, 26254), (419, 26311), (422, 26341), (427, 26374), (437, 26470), (438, 26491), (442, 26572), (449, 26626), (450, 26629), (452, 26653), (458, 26725), (465, 26812), (470, 26845), (477, 26911), (479, 26923), (484, 26947), (487, 26980), (493, 27007), (494, 27013), (496, 27025), (501, 27067), (512, 27181), (517, 27220), (522, 27250), (524, 27262), (526, 27295), (534, 27391), (537, 27424), (552, 27532), (554, 27562), (560, 27625), (563, 27673), (566, 27715), (568, 27727),

Gene: TPA2_33 Start: 20583, Stop: 27740, Start Num: 3

Candidate Starts for TPA2_33:

(Start: 1 @20508 has 23 MA's), (3, 20583), (8, 20622), (14, 20664), (17, 20688), (20, 20721), (25, 20763), (28, 20793), (35, 20889), (37, 21003), (44, 21162), (45, 21180), (47, 21201), (49, 21231), (53, 21273), (54, 21282), (57, 21306), (66, 21390), (69, 21432), (83, 21609), (85, 21621), (88, 21663), (93, 21744), (96, 21789), (97, 21810), (99, 21840), (104, 21882), (106, 21936), (111, 21987), (115, 22020), (117, 22041), (121, 22092), (130, 22173), (132, 22221), (135, 22248), (138, 22275), (140, 22287), (142, 22326), (149, 22407), (158, 22488), (167, 22542), (172, 22581), (178, 22599), (180, 22641), (183, 22668), (185, 22671), (186, 22680), (190, 22707), (199, 22764), (204, 22821), (212, 22899), (215, 22923), (218, 22947), (223, 22989), (225, 23001), (228, 23025), (231, 23067), (234, 23079), (238, 23103), (243, 23151), (246, 23178), (247, 23205), (248, 23214), (253, 23247), (262, 23316), (265, 23352), (267, 23367), (269, 23376), (270, 23385), (273, 23427), (279, 23490), (289, 23562), (293, 23613), (296, 23649), (298, 23679), (306, 23745), (309, 23793), (310, 23814), (314, 23895), (315, 23901), (317, 23925), (320, 23943), (322, 23952), (324, 23979), (343, 24162), (347, 24246), (348, 24249), (349, 24252), (353, 24348), (357, 24378), (361, 24411), (367, 24477), (369, 24495), (375, 24591), (377, 24603), (387, 24726), (388, 24729), (399, 24861), (400, 24894), (401, 24897), (405, 24939), (406, 24942), (414, 25023), (429, 25182), (431, 25242), (434, 25347), (453, 25581), (456, 25623), (462, 25710), (464, 25764), (480, 25911), (485, 25968), (496, 26031), (499, 26061), (503, 26100), (507, 26163), (509, 26175), (514, 26199), (530, 26358), (533, 26394), (535, 26427), (538, 26439), (544, 26502), (547, 26514), (548, 26526), (553, 26562), (557, 26625), (558, 26631), (561, 26655), (562, 26670), (565, 26709), (567, 26745), (569, 26766), (570, 26781), (571, 26811), (572, 26922), (573, 26934), (574, 26943), (575, 26952), (576, 26973), (577, 26988), (578, 26994), (579, 27006), (580, 27108), (581, 27189), (582, 27222), (583, 27384), (584, 27450), (585, 27543), (586, 27546), (587, 27576), (588, 27615), (589, 27732),

Gene: TraderJ_26 Start: 19623, Stop: 25487, Start Num: 1

Candidate Starts for TraderJ_26:

(Start: 1 @19623 has 23 MA's), (26, 19863), (32, 19932), (43, 20238), (46, 20265), (64, 20424), (65, 20433), (69, 20487), (70, 20508), (80, 20622), (81, 20631), (82, 20643), (85, 20664), (86, 20667), (90, 20721), (92, 20733), (94, 20763), (100, 20832), (104, 20871), (108, 20928), (114, 20979), (122, 21066), (124, 21096), (125, 21099), (128, 21132), (138, 21237), (141, 21282), (144, 21315), (147, 21357), (151, 21375), (152, 21384), (155, 21408), (168, 21501), (173, 21537), (184, 21618), (187, 21639), (188, 21642), (200, 21738), (202, 21756), (205, 21777), (208, 21795), (211, 21843), (216, 21876), (219, 21891), (221, 21912), (230, 21981), (233, 21996), (234, 22002), (243, 22056), (244,

22062), (246, 22083), (248, 22119), (249, 22134), (250, 22140), (253, 22152), (261, 22218), (262, 22221), (264, 22245), (267, 22272), (271, 22302), (274, 22341), (277, 22359), (278, 22383), (279, 22395), (281, 22407), (284, 22437), (300, 22605), (309, 22698), (314, 22800), (315, 22806), (317, 22830), (324, 22884), (325, 22893), (327, 22938), (329, 22956), (346, 23100), (351, 23202), (352, 23220), (360, 23268), (364, 23316), (366, 23346), (367, 23358), (382, 23514), (384, 23532), (390, 23625), (392, 23643), (397, 23679), (402, 23748), (419, 23898), (420, 23910), (422, 23928), (428, 23967), (430, 24030), (435, 24135), (438, 24171), (443, 24258), (446, 24270), (447, 24294), (449, 24306), (452, 24333), (454, 24360), (455, 24381), (457, 24390), (460, 24417), (461, 24459), (472, 24594), (473, 24597), (474, 24612), (481, 24663), (484, 24711), (493, 24771), (494, 24777), (498, 24810), (501, 24831), (512, 24945), (520, 25002), (521, 25005), (523, 25020), (524, 25026), (531, 25122), (541, 25200), (544, 25236), (552, 25284), (554, 25314), (557, 25353), (559, 25365), (563, 25425), (568, 25479),

Gene: Wooper_26 Start: 19629, Stop: 25493, Start Num: 1

Candidate Starts for Wooper_26:

(Start: 1 @19629 has 23 MA's), (26, 19869), (32, 19938), (43, 20244), (46, 20271), (64, 20430), (65, 20439), (69, 20493), (70, 20514), (80, 20628), (81, 20637), (82, 20649), (85, 20670), (86, 20673), (90, 20727), (92, 20739), (94, 20769), (100, 20838), (104, 20877), (108, 20934), (114, 20985), (122, 21072), (124, 21102), (125, 21105), (128, 21138), (138, 21243), (141, 21288), (144, 21321), (147, 21363), (151, 21381), (152, 21390), (155, 21414), (168, 21507), (173, 21543), (184, 21624), (187, 21645), (188, 21648), (200, 21744), (202, 21762), (205, 21783), (208, 21801), (211, 21849), (216, 21882), (219, 21897), (221, 21918), (230, 21987), (233, 22002), (234, 22008), (243, 22062), (244, 22068), (246, 22089), (248, 22125), (249, 22140), (250, 22146), (253, 22158), (261, 22224), (262, 22227), (264, 22251), (267, 22278), (271, 22308), (274, 22347), (277, 22365), (278, 22389), (279, 22401), (281, 22413), (284, 22443), (300, 22611), (309, 22704), (314, 22806), (315, 22812), (317, 22836), (324, 22890), (325, 22899), (327, 22944), (329, 22962), (346, 23106), (351, 23208), (352, 23226), (360, 23274), (364, 23322), (366, 23352), (367, 23364), (382, 23520), (384, 23538), (390, 23631), (392, 23649), (397, 23685), (402, 23754), (419, 23904), (420, 23916), (422, 23934), (428, 23973), (430, 24036), (435, 24141), (438, 24177), (443, 24264), (446, 24276), (447, 24300), (449, 24312), (452, 24339), (454, 24366), (455, 24387), (457, 24396), (460, 24423), (461, 24465), (472, 24600), (473, 24603), (474, 24618), (481, 24669), (484, 24717), (493, 24777), (494, 24783), (498, 24816), (501, 24837), (512, 24951), (520, 25008), (521, 25011), (523, 25026), (524, 25032), (531, 25128), (541, 25206), (544, 25242), (552, 25290), (554, 25320), (557, 25359), (559, 25371), (563, 25431), (568, 25485),

Gene: Yago84_24 Start: 18575, Stop: 24061, Start Num: 1

Candidate Starts for Yago84_24:

(Start: 1 @18575 has 23 MA's), (19, 18764), (30, 18872), (32, 18884), (39, 19142), (46, 19217), (50, 19253), (69, 19439), (70, 19460), (78, 19553), (80, 19574), (85, 19616), (86, 19619), (90, 19673), (92, 19685), (94, 19715), (100, 19784), (104, 19823), (108, 19880), (114, 19931), (122, 20018), (124, 20048), (127, 20060), (128, 20084), (133, 20150), (143, 20216), (146, 20240), (148, 20249), (149, 20252), (150, 20261), (164, 20345), (165, 20351), (170, 20366), (176, 20384), (179, 20399), (188, 20447), (200, 20504), (203, 20531), (204, 20540), (220, 20657), (222, 20681), (228, 20720), (229, 20738), (230, 20744), (237, 20777), (243, 20819), (244, 20825), (248, 20882), (253, 20915), (260, 20966), (271, 21065), (274, 21104), (276, 21119), (281, 21170), (290, 21236), (294, 21290), (300, 21368), (306, 21413), (308, 21458), (314, 21563), (315, 21569), (317, 21593), (319, 21602), (320, 21611), (324, 21647), (325, 21656), (334, 21761), (344, 21827), (346, 21875), (351, 21983), (358, 22034), (391, 22400), (392, 22409), (395, 22433), (397, 22445), (402, 22514), (422, 22685), (432, 22757), (434, 22796), (437, 22814), (438, 22835), (446, 22934), (447, 22958), (449, 22970), (451, 22985), (452, 22997), (460, 23081), (466, 23138), (469, 23156), (470, 23165), (479, 23243), (493, 23333), (494, 23339), (497, 23360), (500, 23384), (501, 23393), (512, 23507), (517, 23546), (524, 23588), (526, 23621), (537, 23750), (539, 23762), (552, 23858), (554, 23888), (563, 23999), (568, 24053),

Gene: Yeshua_26 Start: 19606, Stop: 25470, Start Num: 1

Candidate Starts for Yeshua_26:

(Start: 1 @19606 has 23 MA's), (26, 19846), (43, 20221), (46, 20248), (64, 20407), (65, 20416), (69, 20470), (70, 20491), (80, 20605), (81, 20614), (82, 20626), (85, 20647), (86, 20650), (90, 20704), (92, 20716), (94, 20746), (100, 20815), (104, 20854), (108, 20911), (114, 20962), (122, 21049), (124, 21079), (125, 21082), (128, 21115), (138, 21220), (141, 21265), (144, 21298), (147, 21340), (151, 21358), (152, 21367), (155, 21391), (168, 21484), (172, 21517), (182, 21595), (184, 21601), (187, 21622), (188, 21625), (200, 21721), (202, 21739), (204, 21757), (205, 21760), (208, 21778), (210, 21814), (211, 21826), (219, 21874), (221, 21895), (227, 21928), (230, 21964), (233, 21979), (234, 21985), (243, 22039), (244, 22045), (246, 22066), (248, 22102), (249, 22117), (253, 22135), (261, 22201), (262, 22204), (264, 22228), (267, 22255), (271, 22285), (274, 22324), (277, 22342), (278, 22366), (279, 22378), (281, 22390), (284, 22420), (300, 22588), (309, 22681), (314, 22783), (315, 22789), (317, 22813), (324, 22867), (325, 22876), (327, 22921), (329, 22939), (346, 23083), (351, 23185), (352, 23203), (360, 23251), (364, 23299), (366, 23329), (367, 23341), (382, 23497), (384, 23515), (390, 23608), (392, 23626), (397, 23662), (402, 23731), (419, 23881), (420, 23893), (422, 23911), (423, 23914), (428, 23950), (430, 24013), (435, 24118), (438, 24154), (443, 24241), (446, 24253), (447, 24277), (449, 24289), (452, 24316), (454, 24343), (455, 24364), (457, 24373), (460, 24400), (461, 24442), (472, 24577), (473, 24580), (474, 24595), (481, 24646), (484, 24694), (493, 24754), (494, 24760), (498, 24793), (501, 24814), (512, 24928), (520, 24985), (521, 24988), (523, 25003), (524, 25009), (531, 25105), (541, 25183), (544, 25219), (552, 25267), (554, 25297), (557, 25336), (559, 25348), (563, 25408), (568, 25462),