

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 187038 Report

This analysis was run 11/02/24 on database version 579.

Pham number 187038 has 39 members, 2 are drafts.

Phages represented in each track:

- Track 1 : Pytheas_18
- Track 2 : Posh_18
- Track 3 : Wrigley_18
- Track 4 : BeeGee_18
- Track 5 : LonelyBoi_18
- Track 6 : Jablanski_18
- Track 7 : Cashline_18
- Track 8 : Angelique_18
- Track 9 : EnalisNailo_18, Lilas_18
- Track 10 : Confidence_18
- Track 11 : Bradissa_18
- Track 12 : BritBrat_18, Floral_18, EMSquaredA_18, Marteena_18, Pollux_18
- Track 13 : Coriander_17
- Track 14 : Dmitri_17
- Track 15 : RayTheFireFly_17
- Track 16 : Doggs_16
- Track 17 : Lucky10_16
- Track 18 : Morkie_16, PhorbesPhlower_16
- Track 19 : Birdsong_17
- Track 20 : BearBQ_17
- Track 21 : Ecliptus_22
- Track 22 : MortyNRick_17
- Track 23 : ODay_22
- Track 24 : Crater_16, Apricot_17
- Track 25 : Kuwabara_17
- Track 26 : Keelan_49
- Track 27 : Volt_53, Ronaldo_54, Ziko_54
- Track 28 : Guey18_56
- Track 29 : Fryberger_51
- Track 30 : Juicebox_17

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

The start number called the most often in the published annotations is 10, it was called in 17 of the 37 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Angelique_18, BeeGee_18, Bradissa_18, BritBrat_18, Cashline_18, Confidence_18, EMSquaredA_18, EnalisNailo_18, Floral_18, Jablanski_18, Lilas_18, LonelyBoi_18, Marteena_18, Pollux_18, Posh_18, Pytheas_18, Wrigley_18,

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

-

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

- Apricot_17, BearBQ_17, Birdsong_17, Coriander_17, Crater_16, Dmitri_17, Doggs_16, Ecliptus_22, Fryberger_51, Guey18_56, Juicebox_17, Keelan_49, Kuwabara_17, Lucky10_16, Morkie_16, MortyNRick_17, ODay_22, PhorbesPhlower_16, RayTheFireFly_17, Ronaldo_54, Volt_53, Ziko_54,

Summary by start number:

Start 1:

- Found in 4 of 39 (10.3%) of genes in pham
- Manual Annotations of this start: 3 of 37
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Coriander_17 (DB), Dmitri_17 (DB), Doggs_16 (DB), RayTheFireFly_17 (DB),

Start 10:

- Found in 17 of 39 (43.6%) of genes in pham
- Manual Annotations of this start: 17 of 37
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Angelique_18 (CY1), BeeGee_18 (CY), Bradissa_18 (CY1), BritBrat_18 (CY2), Cashline_18 (CY), Confidence_18 (CY1), EMSquaredA_18 (CY1), EnalisNailo_18 (CY1), Floral_18 (CY1), Jablanski_18 (CY), Lilas_18 (CY1), LonelyBoi_18 (CY), Marteena_18 (CY1), Pollux_18 (CY1), Posh_18 (CY), Pytheas_18 (CY), Wrigley_18 (CY),

Start 16:

- Found in 3 of 39 (7.7%) of genes in pham
- Manual Annotations of this start: 2 of 37
- Called 66.7% of time when present
- Phage (with cluster) where this start called: BearBQ_17 (DN), Birdsong_17 (DN),

Start 17:

- Found in 2 of 39 (5.1%) of genes in pham
- Manual Annotations of this start: 2 of 37
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ecliptus_22 (DN), ODay_22 (DN),

Start 19:

- Found in 27 of 39 (69.2%) of genes in pham
- Manual Annotations of this start: 1 of 37
- Called 3.7% of time when present
- Phage (with cluster) where this start called: Lucky10_16 (DH),

Start 20:

- Found in 15 of 39 (38.5%) of genes in pham
- Manual Annotations of this start: 12 of 37
- Called 80.0% of time when present
- Phage (with cluster) where this start called: Apricot_17 (DN3), Crater_16 (DN3), Fryberger_51 (DP), Guey18_56 (DP), Juicebox_17 (singleton), Keelan_49 (DP), Kuwabara_17 (DN4), Morkie_16 (DH), PhorbesPhlower_16 (DH), Ronaldo_54 (DP), Volt_53 (DP), Ziko_54 (DP),

Start 21:

- Found in 24 of 39 (61.5%) of genes in pham
- No Manual Annotations of this start.
- Called 4.2% of time when present
- Phage (with cluster) where this start called: MortyNRick_17 (DN),

Summary by clusters:

There are 10 clusters represented in this pham: DN, CY2, CY1, DH, DB, singleton, DN4, CY, DN3, DP,

Info for manual annotations of cluster CY:

- Start number 10 was manually annotated 7 times for cluster CY.

Info for manual annotations of cluster CY1:

- Start number 10 was manually annotated 9 times for cluster CY1.

Info for manual annotations of cluster CY2:

- Start number 10 was manually annotated 1 time for cluster CY2.

Info for manual annotations of cluster DB:

- Start number 1 was manually annotated 3 times for cluster DB.

Info for manual annotations of cluster DH:

- Start number 19 was manually annotated 1 time for cluster DH.
- Start number 20 was manually annotated 2 times for cluster DH.

Info for manual annotations of cluster DN:

- Start number 16 was manually annotated 2 times for cluster DN.
- Start number 17 was manually annotated 2 times for cluster DN.

Info for manual annotations of cluster DN3:

- Start number 20 was manually annotated 2 times for cluster DN3.

Info for manual annotations of cluster DN4:

- Start number 20 was manually annotated 1 time for cluster DN4.

Info for manual annotations of cluster DP:

- Start number 20 was manually annotated 6 times for cluster DP.

Gene Information:

Gene: Angelique_18 Start: 11177, Stop: 16801, Start Num: 10

Candidate Starts for Angelique_18:

(Start: 10 @11177 has 17 MA's), (12, 11210), (14, 11390), (15, 11402), (18, 11441), (Start: 19 @11450 has 1 MA's), (21, 11474), (27, 11558), (29, 11600), (52, 11831), (53, 11858), (62, 11954), (63, 11957), (67, 11978), (75, 12050), (79, 12104), (81, 12155), (83, 12167), (85, 12194), (86, 12209), (95, 12314), (96, 12326), (104, 12398), (105, 12419), (110, 12473), (114, 12512), (116, 12533), (118, 12548), (123, 12581), (126, 12593), (130, 12623), (134, 12656), (142, 12698), (152, 12791), (156, 12824), (157, 12827), (158, 12833), (161, 12842), (162, 12845), (166, 12908), (169, 12941), (175, 12980), (181, 13010), (193, 13094), (203, 13151), (214, 13259), (217, 13298), (219, 13310), (239, 13472), (241, 13490), (242, 13505), (246, 13532), (252, 13583), (253, 13598), (255, 13625), (256, 13631), (266, 13709), (269, 13763), (270, 13772), (271, 13802), (290, 13976), (292, 14006), (316, 14237), (318, 14249), (330, 14339), (337, 14387), (342, 14423), (345, 14447), (350, 14498), (352, 14504), (357, 14549), (361, 14570), (373, 14681), (387, 14873), (402, 15008), (439, 15248), (443, 15314), (447, 15335), (448, 15344), (451, 15371), (457, 15449), (458, 15473), (464, 15614), (474, 15749), (478, 15776), (483, 15842), (484, 15896), (490, 15998), (494, 16097), (504, 16232), (532, 16421), (543, 16547), (546, 16577), (557, 16613), (558, 16616), (568, 16691),

Gene: Apricot_17 Start: 9635, Stop: 15046, Start Num: 20

Candidate Starts for Apricot_17:

(Start: 19 @9629 has 1 MA's), (Start: 20 @9635 has 12 MA's), (26, 9713), (28, 9755), (29, 9767), (41, 9908), (42, 9914), (48, 9950), (53, 10010), (56, 10028), (57, 10046), (61, 10067), (64, 10118), (65, 10121), (66, 10124), (69, 10148), (70, 10151), (77, 10217), (79, 10247), (84, 10325), (89, 10370), (91, 10394), (94, 10448), (97, 10469), (108, 10607), (113, 10643), (115, 10670), (118, 10691), (122, 10706), (128, 10745), (129, 10757), (131, 10769), (139, 10829), (142, 10841), (154, 10892), (173, 10967), (176, 10988), (184, 11036), (187, 11054), (204, 11123), (208, 11147), (213, 11204), (215, 11234), (217, 11267), (230, 11384), (239, 11441), (241, 11459), (242, 11474), (252, 11552), (263, 11657), (264, 11669), (265, 11675), (272, 11789), (273, 11792), (279, 11876), (282, 11906), (284, 11918), (290, 11969), (293, 12002), (297, 12071), (300, 12086), (305, 12128), (311, 12182), (313, 12197), (317, 12236), (318, 12242), (320, 12266), (329, 12326), (330, 12332), (331, 12335), (339, 12404), (350, 12491), (352, 12497), (353, 12506), (357, 12542), (362, 12566), (377, 12677), (379, 12689), (395, 12896), (400, 12959), (401, 12968), (404, 13001), (410, 13058), (412, 13085), (417, 13151), (418, 13169), (420, 13181), (439, 13208), (441, 13238), (443, 13274), (447, 13295), (449, 13307), (451, 13331), (457, 13409), (458, 13433), (459, 13448), (463, 13538), (470, 13658), (471, 13673), (473, 13694), (474, 13703), (482, 13790), (493, 14033), (499, 14123), (511, 14273), (514, 14297), (516, 14306), (519, 14333), (525, 14381), (526, 14399), (528, 14417), (532, 14441), (538, 14501), (552, 14624), (563, 14675), (566, 14702), (578, 14801), (579, 14813), (588, 14909), (591, 14927), (592, 14939), (595, 15029),

Gene: BearBQ_17 Start: 9908, Stop: 16477, Start Num: 16

Candidate Starts for BearBQ_17:

(Start: 16 @9908 has 2 MA's), (21, 9965), (23, 9983), (28, 10067), (29, 10079), (31, 10091), (34, 10115), (36, 10145), (40, 10190), (41, 10220), (42, 10226), (52, 10295), (53, 10322), (56, 10340), (57, 10358), (60, 10370), (61, 10379), (64, 10430), (65, 10433), (66, 10436), (69, 10460), (70, 10463), (78, 10550), (79, 10559), (84, 10637), (89, 10682), (91, 10706), (92, 10739), (93, 10742), (101, 10829), (103, 10850), (113, 10955), (115, 10982), (120, 11009), (123, 11036), (124, 11039), (131, 11081), (132, 11099), (133, 11102), (146, 11174), (153, 11216), (159, 11237), (164, 11264), (167, 11273), (172, 11288), (174, 11306), (181, 11339), (184, 11372), (191, 11405), (192, 11414), (193, 11423), (195, 11444), (200, 11468), (204, 11483), (207, 11504), (208, 11507), (213, 11564), (215, 11594), (217, 11627), (236, 11765), (239, 11801), (242, 11834), (246, 11861), (248, 11888), (251, 11906), (257, 11966), (261, 12008), (264, 12029), (268, 12080), (270, 12101), (272, 12149), (273, 12152), (287, 12290), (290, 12329), (294, 12371), (297, 12431), (302, 12458), (304, 12479), (310, 12536), (313, 12557), (320, 12629), (324, 12671), (325, 12674), (332, 12707), (335, 12731), (337, 12743), (345, 12803), (350, 12854), (352, 12860), (353, 12869), (358, 12911), (362, 12929), (364, 12959),

(392, 13157), (399, 13238), (401, 13256), (404, 13289), (405, 13301), (409, 13337), (412, 13373), (414, 13397), (415, 13400), (416, 13421), (418, 13457), (420, 13469), (421, 13508), (422, 13535), (423, 13562), (424, 13634), (425, 13664), (426, 13700), (427, 13868), (428, 13946), (429, 13997), (430, 14150), (431, 14285), (432, 14294), (433, 14315), (434, 14318), (435, 14327), (436, 14345), (437, 14375), (438, 14408), (439, 14612), (440, 14630), (441, 14642), (443, 14678), (447, 14699), (455, 14789), (457, 14813), (458, 14837), (463, 14945), (469, 15068), (471, 15092), (473, 15113), (474, 15122), (475, 15125), (479, 15152), (482, 15212), (493, 15455), (497, 15536), (498, 15539), (499, 15545), (511, 15704), (514, 15728), (516, 15737), (522, 15782), (523, 15794), (526, 15827), (528, 15845), (538, 15938), (549, 16043), (554, 16064), (565, 16118), (568, 16157), (577, 16229), (582, 16259), (585, 16298), (587, 16331), (591, 16370), (593, 16418), (594, 16451), (596, 16463),

Gene: BeeGee_18 Start: 10997, Stop: 16621, Start Num: 10

Candidate Starts for BeeGee_18:

(9, 10982), (Start: 10 @10997 has 17 MA's), (12, 11030), (14, 11210), (15, 11222), (18, 11261), (Start: 19 @11270 has 1 MA's), (21, 11294), (22, 11303), (27, 11378), (29, 11420), (46, 11609), (50, 11627), (52, 11651), (54, 11681), (62, 11774), (63, 11777), (71, 11828), (75, 11870), (79, 11924), (81, 11975), (83, 11987), (86, 12029), (95, 12134), (99, 12161), (104, 12218), (110, 12293), (114, 12332), (116, 12353), (118, 12368), (130, 12443), (141, 12515), (142, 12518), (143, 12527), (147, 12560), (152, 12611), (156, 12644), (157, 12647), (158, 12653), (161, 12662), (162, 12665), (165, 12710), (166, 12728), (168, 12737), (177, 12812), (178, 12818), (179, 12821), (181, 12830), (188, 12884), (192, 12905), (195, 12935), (203, 12971), (213, 13055), (217, 13118), (235, 13250), (239, 13292), (242, 13325), (246, 13352), (252, 13403), (254, 13436), (255, 13445), (258, 13460), (266, 13529), (269, 13583), (270, 13592), (271, 13622), (281, 13742), (283, 13754), (290, 13796), (313, 14024), (315, 14048), (316, 14057), (318, 14069), (329, 14153), (330, 14159), (332, 14171), (337, 14207), (345, 14267), (350, 14318), (352, 14324), (357, 14369), (387, 14693), (402, 14828), (439, 15068), (443, 15134), (447, 15155), (448, 15164), (451, 15191), (457, 15269), (458, 15293), (462, 15386), (463, 15410), (464, 15434), (471, 15539), (474, 15569), (483, 15662), (484, 15716), (490, 15818), (494, 15917), (532, 16241), (543, 16367), (546, 16397), (557, 16433), (558, 16436), (568, 16511), (580, 16607),

Gene: Birdsong_17 Start: 9908, Stop: 15370, Start Num: 16

Candidate Starts for Birdsong_17:

(Start: 16 @9908 has 2 MA's), (21, 9965), (23, 9983), (28, 10067), (29, 10079), (31, 10091), (34, 10115), (36, 10145), (40, 10190), (41, 10220), (42, 10226), (52, 10295), (53, 10322), (56, 10340), (57, 10358), (60, 10370), (61, 10379), (64, 10430), (65, 10433), (66, 10436), (69, 10460), (70, 10463), (78, 10550), (79, 10559), (84, 10637), (89, 10682), (91, 10706), (92, 10739), (93, 10742), (101, 10829), (103, 10850), (113, 10955), (115, 10982), (120, 11009), (123, 11036), (124, 11039), (131, 11081), (132, 11099), (133, 11102), (146, 11174), (153, 11216), (159, 11237), (164, 11264), (167, 11273), (172, 11288), (174, 11306), (181, 11339), (184, 11372), (191, 11405), (192, 11414), (193, 11423), (195, 11444), (200, 11468), (204, 11483), (207, 11504), (208, 11507), (213, 11564), (215, 11594), (217, 11627), (239, 11801), (242, 11834), (246, 11861), (248, 11888), (251, 11906), (257, 11966), (261, 12008), (264, 12029), (268, 12080), (270, 12101), (272, 12149), (273, 12152), (287, 12290), (290, 12329), (294, 12371), (297, 12431), (302, 12458), (304, 12479), (310, 12536), (313, 12557), (320, 12629), (324, 12671), (325, 12674), (332, 12707), (337, 12743), (345, 12803), (350, 12854), (352, 12860), (353, 12869), (354, 12878), (358, 12911), (362, 12929), (364, 12959), (391, 13154), (392, 13157), (399, 13238), (401, 13256), (404, 13289), (405, 13301), (409, 13337), (412, 13373), (414, 13397), (415, 13400), (416, 13421), (418, 13457), (420, 13469), (439, 13496), (440, 13514), (441, 13526), (443, 13562), (447, 13583), (455, 13673), (457, 13697), (458, 13721), (463, 13829), (469, 13952), (471, 13976), (474, 14006), (475, 14009), (479, 14036), (493, 14339), (497, 14420), (498, 14423), (499, 14429), (513, 14594), (514, 14612), (516, 14621), (522, 14666), (523, 14678), (526, 14714), (528, 14732), (538, 14831), (549, 14936), (554, 14957), (565, 15011), (568, 15050), (577, 15122), (582, 15152), (585, 15191), (587, 15224), (591, 15263), (593, 15311), (594, 15344), (596, 15356),

Gene: Bradissa_18 Start: 11180, Stop: 16804, Start Num: 10

Candidate Starts for Bradissa_18:

(Start: 10 @11180 has 17 MA's), (12, 11213), (14, 11393), (15, 11405), (18, 11444), (Start: 19 @11453 has 1 MA's), (21, 11477), (27, 11561), (28, 11591), (29, 11603), (52, 11834), (53, 11861), (62, 11957), (63, 11960), (67, 11981), (70, 12005), (75, 12053), (79, 12107), (81, 12158), (83, 12170), (85, 12197), (86, 12212), (95, 12317), (104, 12401), (105, 12422), (110, 12476), (116, 12536), (123, 12584), (126, 12596), (130, 12626), (134, 12659), (142, 12701), (147, 12743), (150, 12764), (152, 12794), (156, 12827), (157, 12830), (158, 12836), (161, 12845), (162, 12848), (166, 12911), (169, 12944), (175, 12983), (181, 13013), (193, 13097), (203, 13154), (214, 13262), (217, 13301), (219, 13313), (239, 13475), (241, 13493), (242, 13508), (246, 13535), (252, 13586), (253, 13601), (255, 13628), (266, 13712), (269, 13766), (270, 13775), (271, 13805), (290, 13979), (292, 14009), (300, 14096), (316, 14240), (318, 14252), (330, 14342), (337, 14390), (345, 14450), (350, 14501), (352, 14507), (357, 14552), (373, 14684), (402, 15011), (412, 15116), (439, 15251), (441, 15281), (443, 15317), (447, 15338), (448, 15347), (451, 15374), (457, 15452), (458, 15476), (464, 15617), (471, 15722), (474, 15752), (475, 15755), (483, 15845), (484, 15899), (490, 16001), (504, 16235), (529, 16403), (532, 16424), (543, 16550), (546, 16580), (557, 16616), (558, 16619),

Gene: BritBrat_18 Start: 11003, Stop: 16657, Start Num: 10

Candidate Starts for BritBrat_18:

(Start: 10 @11003 has 17 MA's), (12, 11036), (14, 11216), (15, 11228), (18, 11267), (Start: 19 @11276 has 1 MA's), (21, 11300), (22, 11309), (27, 11384), (29, 11426), (46, 11615), (50, 11633), (52, 11657), (54, 11687), (62, 11780), (63, 11783), (70, 11828), (71, 11834), (75, 11876), (79, 11930), (81, 11981), (83, 11993), (86, 12035), (95, 12140), (99, 12167), (104, 12224), (110, 12299), (114, 12338), (116, 12359), (118, 12374), (123, 12407), (130, 12449), (141, 12521), (142, 12524), (143, 12533), (152, 12617), (156, 12650), (157, 12653), (158, 12659), (161, 12668), (162, 12671), (165, 12716), (166, 12734), (168, 12743), (178, 12824), (179, 12827), (181, 12836), (188, 12890), (192, 12911), (203, 12977), (213, 13061), (217, 13124), (219, 13136), (238, 13274), (239, 13298), (241, 13316), (242, 13331), (246, 13358), (252, 13409), (254, 13442), (255, 13451), (258, 13466), (265, 13532), (266, 13535), (269, 13589), (270, 13598), (271, 13628), (290, 13802), (291, 13811), (295, 13850), (308, 13991), (316, 14063), (318, 14075), (325, 14144), (329, 14159), (330, 14165), (337, 14213), (340, 14240), (342, 14249), (350, 14324), (352, 14330), (354, 14348), (357, 14375), (387, 14699), (396, 14792), (399, 14834), (401, 14852), (439, 15104), (443, 15170), (447, 15191), (448, 15200), (451, 15227), (457, 15305), (458, 15329), (462, 15422), (463, 15446), (464, 15470), (471, 15575), (474, 15605), (483, 15698), (484, 15752), (490, 15854), (494, 15953), (529, 16256), (543, 16403), (546, 16433), (557, 16469), (558, 16472), (568, 16547), (580, 16643),

Gene: Cashline_18 Start: 10857, Stop: 16481, Start Num: 10

Candidate Starts for Cashline_18:

(Start: 10 @10857 has 17 MA's), (12, 10890), (14, 11070), (15, 11082), (18, 11121), (Start: 19 @11130 has 1 MA's), (21, 11154), (22, 11163), (27, 11238), (29, 11280), (46, 11469), (50, 11487), (52, 11511), (54, 11541), (62, 11634), (63, 11637), (71, 11688), (75, 11730), (79, 11784), (81, 11835), (83, 11847), (86, 11889), (95, 11994), (99, 12021), (104, 12078), (110, 12153), (114, 12192), (116, 12213), (118, 12228), (123, 12261), (130, 12303), (141, 12375), (142, 12378), (143, 12387), (152, 12471), (156, 12504), (157, 12507), (158, 12513), (161, 12522), (162, 12525), (165, 12570), (168, 12597), (177, 12672), (178, 12678), (179, 12681), (181, 12690), (188, 12744), (192, 12765), (195, 12795), (203, 12831), (213, 12915), (217, 12978), (219, 12990), (238, 13128), (239, 13152), (241, 13170), (242, 13185), (246, 13212), (252, 13263), (254, 13296), (255, 13305), (258, 13320), (265, 13386), (266, 13389), (269, 13443), (270, 13452), (271, 13482), (290, 13656), (291, 13665), (295, 13704), (308, 13845), (316, 13917), (318, 13929), (325, 13998), (329, 14013), (330, 14019), (337, 14067), (352, 14184), (354, 14202), (357, 14229), (387, 14553), (402, 14688), (439, 14928), (443, 14994), (447, 15015), (448, 15024), (451, 15051), (457, 15129), (458, 15153), (462, 15246), (463, 15270), (464, 15294), (471, 15399), (474, 15429), (483, 15522), (484, 15576), (490, 15678), (494,

15777), (532, 16101), (543, 16227), (546, 16257), (557, 16293), (558, 16296), (568, 16371), (580, 16467),

Gene: Confidence_18 Start: 10997, Stop: 16651, Start Num: 10

Candidate Starts for Confidence_18:

(Start: 10 @10997 has 17 MA's), (12, 11030), (14, 11210), (15, 11222), (18, 11261), (Start: 19 @11270 has 1 MA's), (21, 11294), (22, 11303), (27, 11378), (29, 11420), (46, 11609), (52, 11651), (54, 11681), (59, 11723), (62, 11774), (63, 11777), (71, 11828), (75, 11870), (79, 11924), (81, 11975), (83, 11987), (86, 12029), (95, 12134), (99, 12161), (104, 12218), (110, 12293), (114, 12332), (116, 12353), (118, 12368), (123, 12401), (130, 12443), (141, 12515), (142, 12518), (143, 12527), (152, 12611), (156, 12644), (157, 12647), (158, 12653), (161, 12662), (162, 12665), (165, 12710), (166, 12728), (168, 12737), (177, 12812), (178, 12818), (179, 12821), (181, 12830), (188, 12884), (192, 12905), (195, 12935), (203, 12971), (213, 13055), (217, 13118), (219, 13130), (238, 13268), (239, 13292), (241, 13310), (242, 13325), (246, 13352), (252, 13403), (254, 13436), (255, 13445), (258, 13460), (265, 13526), (266, 13529), (269, 13583), (270, 13592), (271, 13622), (290, 13796), (291, 13805), (295, 13844), (308, 13985), (316, 14057), (318, 14069), (325, 14138), (329, 14153), (330, 14159), (337, 14207), (352, 14324), (354, 14342), (357, 14369), (387, 14693), (396, 14786), (399, 14828), (401, 14846), (439, 15098), (443, 15164), (447, 15185), (448, 15194), (451, 15221), (457, 15299), (458, 15323), (462, 15416), (464, 15464), (471, 15569), (474, 15599), (483, 15692), (484, 15746), (490, 15848), (494, 15947), (529, 16250), (532, 16271), (543, 16397), (546, 16427), (557, 16463), (558, 16466), (568, 16541), (580, 16637),

Gene: Coriander_17 Start: 10886, Stop: 16564, Start Num: 1

Candidate Starts for Coriander_17:

(Start: 1 @10886 has 3 MA's), (2, 10916), (3, 10928), (5, 11021), (7, 11141), (8, 11177), (14, 11414), (15, 11426), (18, 11465), (21, 11498), (27, 11582), (29, 11624), (35, 11690), (38, 11708), (50, 11831), (52, 11855), (53, 11882), (63, 11981), (75, 12074), (79, 12128), (81, 12179), (83, 12191), (86, 12233), (111, 12506), (122, 12587), (131, 12650), (132, 12668), (133, 12671), (142, 12722), (146, 12743), (153, 12785), (163, 12833), (166, 12848), (175, 12878), (178, 12896), (181, 12908), (208, 13076), (209, 13079), (223, 13229), (228, 13298), (239, 13358), (242, 13391), (246, 13418), (255, 13511), (260, 13553), (261, 13565), (266, 13595), (267, 13610), (269, 13649), (271, 13688), (274, 13718), (278, 13778), (290, 13862), (292, 13892), (316, 14123), (321, 14168), (332, 14231), (336, 14255), (340, 14288), (343, 14300), (347, 14339), (351, 14366), (356, 14399), (360, 14429), (375, 14534), (378, 14543), (383, 14564), (386, 14663), (403, 14843), (404, 14846), (405, 14858), (407, 14879), (411, 14906), (442, 15101), (444, 15122), (446, 15125), (448, 15143), (460, 15278), (470, 15446), (474, 15491), (479, 15521), (484, 15629), (490, 15731), (494, 15830), (502, 15926), (506, 15986), (515, 16040), (540, 16298), (542, 16304), (546, 16337), (547, 16340), (551, 16361), (561, 16403), (562, 16406), (567, 16442), (573, 16517), (575, 16523), (576, 16526), (580, 16553),

Gene: Crater_16 Start: 9635, Stop: 15046, Start Num: 20

Candidate Starts for Crater_16:

(Start: 19 @9629 has 1 MA's), (Start: 20 @9635 has 12 MA's), (26, 9713), (28, 9755), (29, 9767), (41, 9908), (42, 9914), (48, 9950), (53, 10010), (56, 10028), (57, 10046), (61, 10067), (64, 10118), (65, 10121), (66, 10124), (69, 10148), (70, 10151), (77, 10217), (79, 10247), (84, 10325), (89, 10370), (91, 10394), (94, 10448), (97, 10469), (108, 10607), (113, 10643), (115, 10670), (118, 10691), (122, 10706), (128, 10745), (129, 10757), (131, 10769), (139, 10829), (142, 10841), (154, 10892), (173, 10967), (176, 10988), (184, 11036), (187, 11054), (204, 11123), (208, 11147), (213, 11204), (215, 11234), (217, 11267), (230, 11384), (239, 11441), (241, 11459), (242, 11474), (252, 11552), (263, 11657), (264, 11669), (265, 11675), (272, 11789), (273, 11792), (279, 11876), (282, 11906), (284, 11918), (290, 11969), (293, 12002), (297, 12071), (300, 12086), (305, 12128), (311, 12182), (313, 12197), (317, 12236), (318, 12242), (320, 12266), (329, 12326), (330, 12332), (331, 12335), (339, 12404), (350, 12491), (352, 12497), (353, 12506), (357, 12542), (362, 12566), (377, 12677), (379, 12689), (395, 12896), (400, 12959), (401, 12968), (404, 13001), (410, 13058), (412, 13085), (417,

13151), (418, 13169), (420, 13181), (439, 13208), (441, 13238), (443, 13274), (447, 13295), (449, 13307), (451, 13331), (457, 13409), (458, 13433), (459, 13448), (463, 13538), (470, 13658), (471, 13673), (473, 13694), (474, 13703), (482, 13790), (493, 14033), (499, 14123), (511, 14273), (514, 14297), (516, 14306), (519, 14333), (525, 14381), (526, 14399), (528, 14417), (532, 14441), (538, 14501), (552, 14624), (563, 14675), (566, 14702), (578, 14801), (579, 14813), (588, 14909), (591, 14927), (592, 14939), (595, 15029),

Gene: Dmitri_17 Start: 10871, Stop: 16561, Start Num: 1

Candidate Starts for Dmitri_17:

(Start: 1 @10871 has 3 MA's), (2, 10901), (4, 10955), (5, 11006), (8, 11162), (11, 11204), (14, 11399), (15, 11411), (18, 11450), (Start: 19 @11459 has 1 MA's), (21, 11483), (27, 11567), (29, 11609), (52, 11840), (58, 11909), (63, 11966), (75, 12059), (79, 12113), (81, 12164), (83, 12176), (86, 12218), (98, 12347), (99, 12350), (111, 12491), (112, 12494), (125, 12599), (131, 12635), (132, 12653), (133, 12656), (142, 12707), (146, 12728), (153, 12770), (161, 12800), (162, 12803), (163, 12818), (166, 12833), (181, 12893), (197, 13007), (202, 13028), (207, 13058), (210, 13076), (221, 13199), (224, 13220), (247, 13424), (254, 13484), (255, 13493), (258, 13508), (260, 13535), (261, 13547), (266, 13577), (269, 13631), (271, 13670), (274, 13700), (278, 13760), (280, 13781), (290, 13844), (292, 13874), (306, 14012), (316, 14105), (321, 14150), (332, 14213), (336, 14237), (340, 14270), (341, 14273), (343, 14282), (351, 14348), (378, 14525), (381, 14534), (383, 14546), (386, 14645), (388, 14678), (403, 14825), (404, 14828), (405, 14840), (407, 14861), (411, 14888), (419, 15005), (442, 15083), (444, 15104), (448, 15125), (460, 15260), (474, 15476), (476, 15485), (479, 15506), (490, 15728), (491, 15746), (502, 15923), (506, 15983), (508, 15992), (515, 16037), (542, 16301), (546, 16334), (547, 16337), (551, 16358), (561, 16400), (562, 16403), (567, 16439), (573, 16514), (575, 16520), (576, 16523), (580, 16550), (581, 16553),

Gene: Doggs_16 Start: 10586, Stop: 16264, Start Num: 1

Candidate Starts for Doggs_16:

(Start: 1 @10586 has 3 MA's), (2, 10616), (3, 10628), (5, 10721), (7, 10841), (8, 10877), (14, 11114), (15, 11126), (18, 11165), (21, 11198), (27, 11282), (29, 11324), (35, 11390), (38, 11408), (50, 11531), (52, 11555), (53, 11582), (63, 11681), (75, 11774), (79, 11828), (81, 11879), (83, 11891), (86, 11933), (111, 12206), (119, 12275), (120, 12278), (122, 12287), (131, 12350), (132, 12368), (133, 12371), (142, 12422), (146, 12443), (153, 12485), (163, 12533), (166, 12548), (175, 12578), (178, 12596), (181, 12608), (208, 12776), (209, 12779), (223, 12929), (228, 12998), (239, 13058), (242, 13091), (246, 13118), (255, 13211), (260, 13253), (261, 13265), (266, 13295), (267, 13310), (269, 13349), (271, 13388), (274, 13418), (278, 13478), (290, 13562), (292, 13592), (316, 13823), (321, 13868), (332, 13931), (336, 13955), (340, 13988), (343, 14000), (347, 14039), (351, 14066), (356, 14099), (360, 14129), (375, 14234), (378, 14243), (383, 14264), (386, 14363), (388, 14396), (404, 14546), (405, 14558), (407, 14579), (411, 14606), (442, 14801), (444, 14822), (446, 14825), (448, 14843), (460, 14978), (470, 15146), (474, 15191), (479, 15221), (484, 15329), (488, 15401), (490, 15431), (494, 15530), (502, 15629), (506, 15689), (520, 15782), (534, 15890), (537, 15902), (540, 15998), (542, 16004), (546, 16037), (547, 16040), (561, 16103), (562, 16106), (573, 16217), (575, 16223), (576, 16226), (580, 16253), (581, 16256),

Gene: EMSquaredA_18 Start: 11003, Stop: 16657, Start Num: 10

Candidate Starts for EMSquaredA_18:

(Start: 10 @11003 has 17 MA's), (12, 11036), (14, 11216), (15, 11228), (18, 11267), (Start: 19 @11276 has 1 MA's), (21, 11300), (22, 11309), (27, 11384), (29, 11426), (46, 11615), (50, 11633), (52, 11657), (54, 11687), (62, 11780), (63, 11783), (70, 11828), (71, 11834), (75, 11876), (79, 11930), (81, 11981), (83, 11993), (86, 12035), (95, 12140), (99, 12167), (104, 12224), (110, 12299), (114, 12338), (116, 12359), (118, 12374), (123, 12407), (130, 12449), (141, 12521), (142, 12524), (143, 12533), (152, 12617), (156, 12650), (157, 12653), (158, 12659), (161, 12668), (162, 12671), (165, 12716), (166, 12734), (168, 12743), (178, 12824), (179, 12827), (181, 12836), (188, 12890), (192, 12911), (203, 12977), (213, 13061), (217, 13124), (219, 13136), (238, 13274), (239, 13298), (241,

13316), (242, 13331), (246, 13358), (252, 13409), (254, 13442), (255, 13451), (258, 13466), (265, 13532), (266, 13535), (269, 13589), (270, 13598), (271, 13628), (290, 13802), (291, 13811), (295, 13850), (308, 13991), (316, 14063), (318, 14075), (325, 14144), (329, 14159), (330, 14165), (337, 14213), (340, 14240), (342, 14249), (350, 14324), (352, 14330), (354, 14348), (357, 14375), (387, 14699), (396, 14792), (399, 14834), (401, 14852), (439, 15104), (443, 15170), (447, 15191), (448, 15200), (451, 15227), (457, 15305), (458, 15329), (462, 15422), (463, 15446), (464, 15470), (471, 15575), (474, 15605), (483, 15698), (484, 15752), (490, 15854), (494, 15953), (529, 16256), (543, 16403), (546, 16433), (557, 16469), (558, 16472), (568, 16547), (580, 16643),

Gene: Ecliptus_22 Start: 11993, Stop: 17506, Start Num: 17

Candidate Starts for Ecliptus_22:

(Start: 17 @11993 has 2 MA's), (Start: 19 @12026 has 1 MA's), (Start: 20 @12032 has 12 MA's), (28, 12152), (29, 12164), (36, 12230), (41, 12305), (53, 12407), (57, 12443), (61, 12464), (65, 12518), (66, 12521), (70, 12548), (76, 12599), (78, 12635), (79, 12644), (84, 12722), (89, 12767), (91, 12791), (92, 12824), (93, 12827), (103, 12935), (113, 13040), (115, 13067), (120, 13094), (122, 13103), (123, 13121), (124, 13124), (131, 13166), (132, 13184), (133, 13187), (146, 13259), (153, 13301), (159, 13322), (162, 13328), (164, 13349), (167, 13358), (172, 13373), (174, 13391), (181, 13424), (184, 13457), (191, 13490), (192, 13499), (193, 13508), (195, 13529), (200, 13553), (203, 13565), (204, 13568), (207, 13589), (208, 13592), (213, 13649), (215, 13679), (232, 13838), (233, 13841), (238, 13862), (239, 13886), (242, 13919), (248, 13973), (250, 13988), (261, 14093), (264, 14114), (266, 14123), (272, 14234), (273, 14237), (290, 14414), (294, 14456), (297, 14516), (299, 14525), (304, 14564), (308, 14603), (310, 14621), (313, 14642), (316, 14675), (320, 14714), (325, 14759), (332, 14792), (337, 14828), (345, 14888), (352, 14945), (359, 14999), (382, 15152), (390, 15305), (397, 15359), (400, 15404), (401, 15413), (404, 15446), (415, 15551), (418, 15608), (439, 15647), (443, 15713), (447, 15734), (456, 15842), (457, 15848), (458, 15872), (463, 15986), (464, 16010), (467, 16085), (471, 16121), (473, 16142), (474, 16151), (475, 16154), (479, 16181), (493, 16484), (497, 16565), (498, 16568), (499, 16574), (513, 16739), (514, 16757), (516, 16766), (522, 16811), (523, 16823), (526, 16856), (528, 16874), (538, 16967), (549, 17072), (554, 17093), (565, 17147), (568, 17186), (577, 17258), (582, 17288), (585, 17327), (587, 17360), (591, 17399), (593, 17447), (594, 17480), (596, 17492),

Gene: EnalisNailo_18 Start: 11182, Stop: 16806, Start Num: 10

Candidate Starts for EnalisNailo_18:

(Start: 10 @11182 has 17 MA's), (12, 11215), (14, 11395), (15, 11407), (18, 11446), (Start: 19 @11455 has 1 MA's), (21, 11479), (27, 11563), (28, 11593), (29, 11605), (52, 11836), (53, 11863), (62, 11959), (63, 11962), (67, 11983), (70, 12007), (75, 12055), (79, 12109), (81, 12160), (83, 12172), (85, 12199), (86, 12214), (95, 12319), (104, 12403), (105, 12424), (110, 12478), (114, 12517), (116, 12538), (123, 12586), (126, 12598), (130, 12628), (134, 12661), (142, 12703), (147, 12745), (150, 12766), (152, 12796), (156, 12829), (157, 12832), (158, 12838), (161, 12847), (162, 12850), (166, 12913), (169, 12946), (175, 12985), (181, 13015), (193, 13099), (203, 13156), (214, 13264), (217, 13303), (219, 13315), (239, 13477), (241, 13495), (242, 13510), (246, 13537), (252, 13588), (253, 13603), (255, 13630), (266, 13714), (269, 13768), (270, 13777), (271, 13807), (290, 13981), (292, 14011), (300, 14098), (316, 14242), (318, 14254), (330, 14344), (337, 14392), (345, 14452), (350, 14503), (352, 14509), (357, 14554), (373, 14686), (402, 15013), (412, 15118), (439, 15253), (441, 15283), (443, 15319), (447, 15340), (448, 15349), (451, 15376), (457, 15454), (458, 15478), (464, 15619), (471, 15724), (474, 15754), (475, 15757), (483, 15847), (484, 15901), (490, 16003), (504, 16237), (529, 16405), (532, 16426), (543, 16552), (546, 16582), (557, 16618), (558, 16621),

Gene: Floral_18 Start: 11003, Stop: 16657, Start Num: 10

Candidate Starts for Floral_18:

(Start: 10 @11003 has 17 MA's), (12, 11036), (14, 11216), (15, 11228), (18, 11267), (Start: 19 @11276 has 1 MA's), (21, 11300), (22, 11309), (27, 11384), (29, 11426), (46, 11615), (50, 11633), (52, 11657), (54, 11687), (62, 11780), (63, 11783), (70, 11828), (71, 11834), (75, 11876), (79, 11930),

(81, 11981), (83, 11993), (86, 12035), (95, 12140), (99, 12167), (104, 12224), (110, 12299), (114, 12338), (116, 12359), (118, 12374), (123, 12407), (130, 12449), (141, 12521), (142, 12524), (143, 12533), (152, 12617), (156, 12650), (157, 12653), (158, 12659), (161, 12668), (162, 12671), (165, 12716), (166, 12734), (168, 12743), (178, 12824), (179, 12827), (181, 12836), (188, 12890), (192, 12911), (203, 12977), (213, 13061), (217, 13124), (219, 13136), (238, 13274), (239, 13298), (241, 13316), (242, 13331), (246, 13358), (252, 13409), (254, 13442), (255, 13451), (258, 13466), (265, 13532), (266, 13535), (269, 13589), (270, 13598), (271, 13628), (290, 13802), (291, 13811), (295, 13850), (308, 13991), (316, 14063), (318, 14075), (325, 14144), (329, 14159), (330, 14165), (337, 14213), (340, 14240), (342, 14249), (350, 14324), (352, 14330), (354, 14348), (357, 14375), (387, 14699), (396, 14792), (399, 14834), (401, 14852), (439, 15104), (443, 15170), (447, 15191), (448, 15200), (451, 15227), (457, 15305), (458, 15329), (462, 15422), (463, 15446), (464, 15470), (471, 15575), (474, 15605), (483, 15698), (484, 15752), (490, 15854), (494, 15953), (529, 16256), (543, 16403), (546, 16433), (557, 16469), (558, 16472), (568, 16547), (580, 16643),

Gene: Fryberger_51 Start: 21435, Stop: 26990, Start Num: 20

Candidate Starts for Fryberger_51:

(Start: 20 @21435 has 12 MA's), (25, 21501), (26, 21513), (30, 21585), (39, 21654), (41, 21714), (43, 21729), (45, 21747), (47, 21759), (51, 21789), (55, 21822), (64, 21924), (65, 21927), (73, 21969), (74, 21993), (78, 22044), (87, 22164), (88, 22167), (90, 22185), (91, 22200), (98, 22284), (100, 22290), (105, 22371), (107, 22395), (110, 22431), (112, 22443), (114, 22470), (117, 22497), (133, 22605), (140, 22650), (149, 22719), (151, 22731), (193, 23070), (195, 23100), (199, 23121), (201, 23127), (211, 23193), (216, 23259), (231, 23412), (237, 23442), (240, 23481), (241, 23484), (244, 23514), (249, 23556), (254, 23610), (260, 23661), (262, 23676), (263, 23682), (266, 23703), (269, 23757), (271, 23796), (274, 23826), (276, 23856), (277, 23880), (289, 23970), (290, 23979), (292, 24009), (294, 24021), (301, 24102), (308, 24168), (309, 24180), (326, 24333), (327, 24336), (334, 24381), (348, 24498), (362, 24588), (364, 24618), (367, 24657), (370, 24666), (371, 24681), (385, 24756), (412, 25035), (413, 25041), (439, 25173), (449, 25272), (457, 25368), (461, 25446), (471, 25653), (481, 25764), (488, 25929), (489, 25953), (492, 26010), (496, 26097), (505, 26235), (507, 26253), (509, 26274), (524, 26376), (527, 26421), (530, 26445), (543, 26595), (553, 26655), (560, 26685), (565, 26712), (566, 26727), (569, 26781), (571, 26796), (583, 26877), (584, 26892), (591, 26967),

Gene: Guey18_56 Start: 22628, Stop: 28183, Start Num: 20

Candidate Starts for Guey18_56:

(Start: 20 @22628 has 12 MA's), (25, 22694), (26, 22706), (30, 22778), (41, 22907), (43, 22922), (45, 22940), (47, 22952), (51, 22982), (55, 23015), (64, 23117), (65, 23120), (73, 23162), (74, 23186), (78, 23237), (87, 23357), (88, 23360), (90, 23378), (91, 23393), (98, 23477), (100, 23483), (105, 23564), (107, 23588), (110, 23624), (112, 23636), (114, 23663), (117, 23690), (133, 23798), (140, 23843), (149, 23912), (151, 23924), (193, 24263), (195, 24293), (199, 24314), (201, 24320), (211, 24386), (216, 24452), (231, 24605), (234, 24617), (237, 24635), (240, 24674), (241, 24677), (244, 24707), (249, 24749), (254, 24803), (260, 24854), (262, 24869), (263, 24875), (266, 24896), (269, 24950), (271, 24989), (274, 25019), (276, 25049), (289, 25163), (290, 25172), (292, 25202), (294, 25214), (301, 25295), (308, 25361), (309, 25373), (326, 25526), (327, 25529), (334, 25574), (348, 25691), (362, 25781), (364, 25811), (367, 25850), (370, 25859), (371, 25874), (385, 25949), (412, 26228), (413, 26234), (439, 26366), (449, 26465), (457, 26561), (461, 26639), (468, 26819), (471, 26846), (481, 26957), (488, 27122), (489, 27146), (492, 27203), (496, 27290), (505, 27428), (507, 27446), (509, 27467), (524, 27569), (530, 27638), (560, 27878), (565, 27905), (566, 27920), (569, 27974), (583, 28070), (584, 28085), (591, 28160),

Gene: Jablanski_18 Start: 11132, Stop: 16768, Start Num: 10

Candidate Starts for Jablanski_18:

(Start: 10 @11132 has 17 MA's), (12, 11165), (14, 11345), (15, 11357), (18, 11396), (Start: 19 @11405 has 1 MA's), (21, 11429), (22, 11438), (27, 11513), (29, 11555), (46, 11744), (50, 11762), (52, 11786), (54, 11816), (59, 11858), (62, 11909), (63, 11912), (71, 11963), (75, 12005), (79, 12059),

(81, 12110), (83, 12122), (86, 12164), (95, 12269), (99, 12296), (104, 12353), (110, 12428), (114, 12467), (116, 12488), (118, 12503), (123, 12536), (130, 12578), (141, 12650), (142, 12653), (143, 12662), (152, 12746), (156, 12779), (157, 12782), (158, 12788), (161, 12797), (162, 12800), (165, 12845), (166, 12863), (168, 12872), (179, 12956), (181, 12965), (188, 13019), (192, 13040), (195, 13070), (203, 13106), (213, 13190), (217, 13253), (219, 13265), (238, 13403), (239, 13427), (241, 13445), (242, 13460), (245, 13478), (246, 13487), (252, 13538), (254, 13571), (255, 13580), (258, 13595), (265, 13661), (266, 13664), (269, 13718), (270, 13727), (271, 13757), (278, 13847), (290, 13931), (292, 13961), (308, 14120), (311, 14144), (315, 14183), (316, 14192), (318, 14204), (330, 14294), (337, 14342), (342, 14378), (345, 14402), (350, 14453), (352, 14459), (357, 14504), (365, 14567), (387, 14828), (402, 14963), (439, 15203), (443, 15269), (447, 15290), (448, 15299), (451, 15326), (457, 15404), (458, 15428), (462, 15521), (464, 15569), (471, 15674), (472, 15686), (474, 15704), (483, 15797), (484, 15851), (485, 15875), (490, 15953), (494, 16052), (504, 16199), (532, 16388), (543, 16514), (546, 16544), (557, 16580), (558, 16583), (580, 16754),

Gene: Juicebox_17 Start: 11025, Stop: 16616, Start Num: 20

Candidate Starts for Juicebox_17:

(Start: 20 @11025 has 12 MA's), (24, 11091), (26, 11103), (33, 11196), (35, 11223), (39, 11238), (44, 11319), (45, 11331), (47, 11343), (49, 11352), (56, 11418), (57, 11436), (61, 11457), (62, 11499), (72, 11550), (77, 11607), (82, 11694), (86, 11739), (91, 11784), (102, 11925), (106, 11967), (109, 12012), (121, 12105), (127, 12144), (130, 12171), (137, 12216), (145, 12264), (155, 12348), (156, 12369), (170, 12492), (181, 12558), (186, 12615), (193, 12669), (196, 12693), (198, 12702), (202, 12720), (203, 12726), (208, 12753), (212, 12798), (220, 12888), (230, 12993), (232, 13002), (243, 13098), (255, 13212), (259, 13236), (263, 13275), (275, 13440), (284, 13542), (288, 13563), (296, 13689), (298, 13695), (303, 13728), (307, 13773), (311, 13809), (314, 13836), (318, 13872), (322, 13926), (333, 13989), (346, 14091), (349, 14118), (360, 14190), (363, 14214), (366, 14256), (369, 14280), (380, 14352), (387, 14499), (389, 14508), (394, 14553), (442, 15048), (443, 15066), (445, 15069), (450, 15120), (453, 15141), (454, 15168), (465, 15378), (471, 15501), (474, 15531), (477, 15552), (480, 15564), (486, 15708), (487, 15711), (494, 15879), (503, 15999), (510, 16062), (512, 16071), (516, 16101), (517, 16104), (521, 16137), (531, 16227), (533, 16242), (536, 16263), (539, 16362), (541, 16365), (545, 16383), (548, 16410), (550, 16419), (555, 16428), (559, 16443), (562, 16452), (572, 16563), (578, 16584), (582, 16611),

Gene: Keelan_49 Start: 21419, Stop: 26977, Start Num: 20

Candidate Starts for Keelan_49:

(13, 21353), (Start: 20 @21419 has 12 MA's), (26, 21497), (30, 21569), (32, 21584), (41, 21698), (45, 21731), (47, 21743), (51, 21773), (55, 21806), (64, 21908), (65, 21911), (68, 21920), (73, 21953), (77, 22007), (78, 22028), (87, 22148), (90, 22169), (91, 22184), (105, 22355), (122, 22505), (135, 22601), (142, 22640), (148, 22691), (149, 22703), (151, 22715), (180, 22937), (182, 22946), (201, 23099), (218, 23264), (220, 23276), (229, 23372), (231, 23384), (237, 23414), (241, 23456), (244, 23486), (249, 23528), (250, 23540), (254, 23582), (260, 23633), (263, 23654), (265, 23672), (266, 23675), (268, 23717), (269, 23729), (271, 23768), (276, 23828), (283, 23903), (290, 23951), (294, 23993), (301, 24074), (302, 24080), (307, 24128), (308, 24140), (323, 24296), (338, 24377), (344, 24425), (346, 24452), (348, 24470), (355, 24518), (358, 24542), (362, 24560), (374, 24671), (385, 24740), (393, 24815), (413, 25025), (439, 25157), (449, 25256), (457, 25352), (458, 25376), (461, 25430), (466, 25541), (471, 25643), (481, 25754), (488, 25919), (489, 25943), (495, 26075), (507, 26240), (509, 26261), (518, 26318), (524, 26363), (527, 26408), (530, 26432), (543, 26582), (556, 26654), (560, 26672), (564, 26693), (565, 26699), (569, 26768), (570, 26777), (574, 26801), (586, 26891), (591, 26954),

Gene: Kuwabara_17 Start: 9635, Stop: 15067, Start Num: 20

Candidate Starts for Kuwabara_17:

(Start: 19 @9629 has 1 MA's), (Start: 20 @9635 has 12 MA's), (26, 9713), (28, 9755), (29, 9767), (41, 9908), (42, 9914), (48, 9950), (53, 10010), (56, 10028), (57, 10046), (61, 10067), (64, 10118), (65,

10121), (66, 10124), (69, 10148), (70, 10151), (77, 10217), (79, 10247), (84, 10325), (89, 10370), (91, 10394), (94, 10448), (97, 10469), (108, 10607), (113, 10643), (115, 10670), (118, 10691), (122, 10706), (128, 10745), (129, 10757), (131, 10769), (139, 10829), (142, 10841), (154, 10892), (173, 10967), (176, 10988), (184, 11036), (187, 11054), (204, 11123), (208, 11147), (213, 11204), (215, 11234), (217, 11267), (230, 11384), (239, 11441), (241, 11459), (242, 11474), (252, 11552), (263, 11657), (264, 11669), (265, 11675), (272, 11789), (273, 11792), (279, 11876), (282, 11906), (284, 11918), (290, 11969), (293, 12002), (297, 12071), (300, 12086), (305, 12128), (311, 12182), (312, 12185), (313, 12197), (317, 12236), (318, 12242), (320, 12266), (329, 12326), (330, 12332), (331, 12335), (339, 12404), (350, 12491), (352, 12497), (353, 12506), (357, 12542), (362, 12566), (377, 12677), (379, 12689), (395, 12896), (398, 12941), (401, 12968), (404, 13001), (412, 13079), (414, 13103), (415, 13106), (418, 13163), (420, 13175), (439, 13202), (440, 13220), (443, 13268), (447, 13289), (455, 13379), (457, 13403), (458, 13427), (463, 13535), (469, 13658), (471, 13682), (473, 13703), (474, 13712), (475, 13715), (479, 13742), (482, 13802), (493, 14045), (497, 14126), (498, 14129), (499, 14135), (513, 14300), (514, 14318), (516, 14327), (522, 14372), (523, 14384), (526, 14417), (528, 14435), (538, 14528), (549, 14633), (554, 14654), (565, 14708), (568, 14747), (577, 14819), (582, 14849), (585, 14888), (587, 14921), (591, 14960), (593, 15008), (594, 15041), (596, 15053),

Gene: Lilas_18 Start: 11182, Stop: 16806, Start Num: 10

Candidate Starts for Lilas_18:

(Start: 10 @11182 has 17 MA's), (12, 11215), (14, 11395), (15, 11407), (18, 11446), (Start: 19 @11455 has 1 MA's), (21, 11479), (27, 11563), (28, 11593), (29, 11605), (52, 11836), (53, 11863), (62, 11959), (63, 11962), (67, 11983), (70, 12007), (75, 12055), (79, 12109), (81, 12160), (83, 12172), (85, 12199), (86, 12214), (95, 12319), (104, 12403), (105, 12424), (110, 12478), (114, 12517), (116, 12538), (123, 12586), (126, 12598), (130, 12628), (134, 12661), (142, 12703), (147, 12745), (150, 12766), (152, 12796), (156, 12829), (157, 12832), (158, 12838), (161, 12847), (162, 12850), (166, 12913), (169, 12946), (175, 12985), (181, 13015), (193, 13099), (203, 13156), (214, 13264), (217, 13303), (219, 13315), (239, 13477), (241, 13495), (242, 13510), (246, 13537), (252, 13588), (253, 13603), (255, 13630), (266, 13714), (269, 13768), (270, 13777), (271, 13807), (290, 13981), (292, 14011), (300, 14098), (316, 14242), (318, 14254), (330, 14344), (337, 14392), (345, 14452), (350, 14503), (352, 14509), (357, 14554), (373, 14686), (402, 15013), (412, 15118), (439, 15253), (441, 15283), (443, 15319), (447, 15340), (448, 15349), (451, 15376), (457, 15454), (458, 15478), (464, 15619), (471, 15724), (474, 15754), (475, 15757), (483, 15847), (484, 15901), (490, 16003), (504, 16237), (529, 16405), (532, 16426), (543, 16552), (546, 16582), (557, 16618), (558, 16621),

Gene: LonelyBoi_18 Start: 11131, Stop: 16809, Start Num: 10

Candidate Starts for LonelyBoi_18:

(Start: 10 @11131 has 17 MA's), (12, 11164), (14, 11344), (15, 11356), (18, 11395), (Start: 19 @11404 has 1 MA's), (21, 11428), (22, 11437), (27, 11512), (29, 11554), (46, 11743), (50, 11761), (52, 11785), (54, 11815), (59, 11857), (62, 11908), (63, 11911), (71, 11962), (75, 12004), (79, 12058), (81, 12109), (83, 12121), (86, 12163), (95, 12268), (99, 12295), (104, 12352), (110, 12427), (114, 12466), (116, 12487), (118, 12502), (123, 12535), (130, 12577), (142, 12652), (147, 12694), (152, 12745), (156, 12778), (157, 12781), (161, 12796), (166, 12862), (171, 12904), (175, 12934), (177, 12946), (181, 12964), (183, 13000), (185, 13018), (189, 13045), (190, 13048), (197, 13099), (203, 13126), (206, 13138), (213, 13210), (217, 13273), (219, 13285), (226, 13330), (239, 13447), (242, 13480), (246, 13507), (248, 13534), (255, 13600), (261, 13654), (264, 13675), (272, 13795), (273, 13798), (279, 13882), (284, 13924), (285, 13927), (286, 13933), (287, 13936), (290, 13975), (297, 14077), (302, 14104), (315, 14233), (320, 14281), (329, 14341), (330, 14347), (332, 14359), (335, 14383), (337, 14395), (345, 14455), (350, 14506), (352, 14512), (357, 14557), (373, 14689), (402, 15016), (439, 15256), (443, 15322), (447, 15343), (448, 15352), (451, 15379), (457, 15457), (458, 15481), (462, 15574), (463, 15598), (464, 15622), (471, 15727), (474, 15757), (483, 15850), (484, 15904), (490, 16006), (494, 16105), (529, 16408), (532, 16429), (543, 16555), (546, 16585), (557, 16621), (558, 16624), (568, 16699), (580, 16795),

Gene: Lucky10_16 Start: 8884, Stop: 14280, Start Num: 19

Candidate Starts for Lucky10_16:

(Start: 19 @8884 has 1 MA's), (Start: 20 @8890 has 12 MA's), (28, 9010), (29, 9022), (36, 9088), (41, 9163), (42, 9169), (57, 9301), (64, 9373), (65, 9376), (66, 9379), (70, 9406), (74, 9442), (78, 9493), (79, 9502), (80, 9538), (84, 9580), (89, 9625), (91, 9649), (94, 9703), (97, 9724), (113, 9898), (116, 9931), (122, 9961), (128, 10000), (129, 10012), (131, 10024), (138, 10069), (139, 10084), (142, 10096), (154, 10147), (173, 10222), (182, 10270), (184, 10291), (187, 10309), (194, 10339), (204, 10378), (208, 10402), (213, 10459), (215, 10489), (217, 10522), (227, 10618), (239, 10696), (241, 10714), (242, 10729), (252, 10807), (264, 10924), (265, 10930), (272, 11044), (273, 11047), (279, 11131), (284, 11173), (290, 11224), (293, 11257), (297, 11326), (305, 11383), (311, 11437), (312, 11440), (313, 11452), (317, 11491), (319, 11509), (320, 11521), (325, 11566), (329, 11581), (345, 11695), (350, 11746), (352, 11752), (354, 11770), (358, 11803), (362, 11821), (368, 11896), (377, 11932), (379, 11944), (384, 11965), (387, 12070), (388, 12076), (404, 12226), (405, 12238), (406, 12247), (411, 12286), (414, 12328), (418, 12388), (420, 12400), (439, 12427), (441, 12457), (443, 12493), (447, 12514), (457, 12628), (458, 12652), (471, 12895), (472, 12907), (474, 12925), (482, 13015), (493, 13258), (501, 13378), (516, 13540), (526, 13630), (528, 13648), (544, 13816), (554, 13867), (565, 13921), (566, 13936), (577, 14032), (582, 14062), (585, 14101), (587, 14134), (588, 14155), (589, 14167), (590, 14170), (593, 14221), (594, 14254), (596, 14266),

Gene: Marteena_18 Start: 11003, Stop: 16657, Start Num: 10

Candidate Starts for Marteena_18:

(Start: 10 @11003 has 17 MA's), (12, 11036), (14, 11216), (15, 11228), (18, 11267), (Start: 19 @11276 has 1 MA's), (21, 11300), (22, 11309), (27, 11384), (29, 11426), (46, 11615), (50, 11633), (52, 11657), (54, 11687), (62, 11780), (63, 11783), (70, 11828), (71, 11834), (75, 11876), (79, 11930), (81, 11981), (83, 11993), (86, 12035), (95, 12140), (99, 12167), (104, 12224), (110, 12299), (114, 12338), (116, 12359), (118, 12374), (123, 12407), (130, 12449), (141, 12521), (142, 12524), (143, 12533), (152, 12617), (156, 12650), (157, 12653), (158, 12659), (161, 12668), (162, 12671), (165, 12716), (166, 12734), (168, 12743), (178, 12824), (179, 12827), (181, 12836), (188, 12890), (192, 12911), (203, 12977), (213, 13061), (217, 13124), (219, 13136), (238, 13274), (239, 13298), (241, 13316), (242, 13331), (246, 13358), (252, 13409), (254, 13442), (255, 13451), (258, 13466), (265, 13532), (266, 13535), (269, 13589), (270, 13598), (271, 13628), (290, 13802), (291, 13811), (295, 13850), (308, 13991), (316, 14063), (318, 14075), (325, 14144), (329, 14159), (330, 14165), (337, 14213), (340, 14240), (342, 14249), (350, 14324), (352, 14330), (354, 14348), (357, 14375), (387, 14699), (396, 14792), (399, 14834), (401, 14852), (439, 15104), (443, 15170), (447, 15191), (448, 15200), (451, 15227), (457, 15305), (458, 15329), (462, 15422), (463, 15446), (464, 15470), (471, 15575), (474, 15605), (483, 15698), (484, 15752), (490, 15854), (494, 15953), (529, 16256), (543, 16403), (546, 16433), (557, 16469), (558, 16472), (568, 16547), (580, 16643),

Gene: Morkie_16 Start: 8855, Stop: 14248, Start Num: 20

Candidate Starts for Morkie_16:

(Start: 19 @8849 has 1 MA's), (Start: 20 @8855 has 12 MA's), (28, 8975), (29, 8987), (36, 9053), (37, 9056), (41, 9128), (42, 9134), (53, 9230), (56, 9248), (57, 9266), (64, 9338), (65, 9341), (66, 9344), (70, 9371), (74, 9407), (78, 9458), (79, 9467), (80, 9503), (84, 9545), (89, 9590), (91, 9614), (94, 9668), (97, 9689), (113, 9863), (116, 9896), (122, 9926), (123, 9944), (128, 9965), (129, 9977), (131, 9989), (136, 10028), (138, 10034), (139, 10049), (142, 10061), (154, 10112), (160, 10133), (173, 10187), (182, 10235), (184, 10256), (187, 10274), (194, 10304), (204, 10343), (208, 10367), (213, 10424), (215, 10454), (217, 10487), (239, 10661), (241, 10679), (242, 10694), (246, 10721), (252, 10772), (261, 10868), (263, 10877), (264, 10889), (272, 11009), (273, 11012), (279, 11096), (290, 11189), (293, 11222), (297, 11291), (311, 11402), (312, 11405), (313, 11417), (317, 11456), (318, 11462), (319, 11474), (320, 11486), (325, 11531), (329, 11546), (331, 11555), (345, 11660), (350, 11711), (352, 11717), (358, 11768), (362, 11786), (368, 11861), (377, 11897), (379, 11909), (384, 11930), (387, 12035), (388, 12041), (404, 12191), (405, 12203), (406, 12212), (408, 12236), (418,

12353), (420, 12365), (439, 12392), (441, 12422), (443, 12458), (447, 12479), (457, 12593), (458, 12617), (463, 12725), (471, 12863), (474, 12893), (479, 12923), (482, 12983), (493, 13226), (499, 13316), (516, 13508), (526, 13598), (528, 13616), (544, 13784), (554, 13835), (565, 13889), (566, 13904), (577, 14000), (582, 14030), (585, 14069), (587, 14102), (588, 14123), (589, 14135), (590, 14138), (594, 14222), (596, 14234),

Gene: MortyNRick_17 Start: 9965, Stop: 15370, Start Num: 21

Candidate Starts for MortyNRick_17:

(Start: 16 @9908 has 2 MA's), (21, 9965), (23, 9983), (28, 10067), (29, 10079), (31, 10091), (34, 10115), (36, 10145), (40, 10190), (41, 10220), (42, 10226), (52, 10295), (53, 10322), (56, 10340), (57, 10358), (60, 10370), (61, 10379), (64, 10430), (65, 10433), (66, 10436), (69, 10460), (70, 10463), (78, 10550), (79, 10559), (84, 10637), (89, 10682), (91, 10706), (92, 10739), (93, 10742), (101, 10829), (103, 10850), (113, 10955), (115, 10982), (120, 11009), (123, 11036), (124, 11039), (131, 11081), (132, 11099), (133, 11102), (146, 11174), (153, 11216), (159, 11237), (164, 11264), (167, 11273), (172, 11288), (174, 11306), (181, 11339), (184, 11372), (191, 11405), (192, 11414), (193, 11423), (195, 11444), (200, 11468), (204, 11483), (207, 11504), (208, 11507), (213, 11564), (215, 11594), (217, 11627), (239, 11801), (242, 11834), (246, 11861), (248, 11888), (251, 11906), (257, 11966), (261, 12008), (264, 12029), (268, 12080), (270, 12101), (272, 12149), (273, 12152), (287, 12290), (290, 12329), (294, 12371), (297, 12431), (302, 12458), (304, 12479), (310, 12536), (313, 12557), (320, 12629), (324, 12671), (325, 12674), (332, 12707), (337, 12743), (345, 12803), (350, 12854), (352, 12860), (353, 12869), (354, 12878), (358, 12911), (362, 12929), (364, 12959), (391, 13154), (392, 13157), (399, 13238), (401, 13256), (404, 13289), (405, 13301), (409, 13337), (412, 13373), (414, 13397), (415, 13400), (416, 13421), (418, 13457), (420, 13469), (439, 13496), (440, 13514), (441, 13526), (443, 13562), (447, 13583), (455, 13673), (457, 13697), (458, 13721), (463, 13829), (469, 13952), (471, 13976), (474, 14006), (475, 14009), (479, 14036), (493, 14339), (497, 14420), (498, 14423), (499, 14429), (513, 14594), (514, 14612), (516, 14621), (522, 14666), (523, 14678), (526, 14714), (528, 14732), (538, 14831), (549, 14936), (554, 14957), (565, 15011), (568, 15050), (577, 15122), (582, 15152), (585, 15191), (587, 15224), (591, 15263), (593, 15311), (594, 15344), (596, 15356),

Gene: ODay_22 Start: 12098, Stop: 17611, Start Num: 17

Candidate Starts for ODay_22:

(Start: 17 @12098 has 2 MA's), (Start: 19 @12131 has 1 MA's), (Start: 20 @12137 has 12 MA's), (28, 12257), (29, 12269), (36, 12335), (41, 12410), (52, 12485), (53, 12512), (56, 12530), (57, 12548), (60, 12560), (61, 12569), (65, 12623), (66, 12626), (69, 12650), (70, 12653), (78, 12740), (79, 12749), (84, 12827), (89, 12872), (91, 12896), (93, 12932), (101, 13019), (103, 13040), (108, 13109), (113, 13145), (115, 13172), (120, 13199), (123, 13226), (124, 13229), (131, 13271), (132, 13289), (133, 13292), (153, 13406), (159, 13427), (164, 13454), (167, 13463), (172, 13478), (181, 13529), (184, 13562), (191, 13595), (192, 13604), (193, 13613), (200, 13658), (203, 13670), (204, 13673), (207, 13694), (208, 13697), (213, 13754), (215, 13784), (232, 13943), (233, 13946), (238, 13967), (239, 13991), (242, 14024), (248, 14078), (250, 14093), (261, 14198), (264, 14219), (266, 14228), (272, 14339), (273, 14342), (290, 14519), (294, 14561), (297, 14621), (299, 14630), (304, 14669), (308, 14708), (310, 14726), (313, 14747), (316, 14780), (320, 14819), (332, 14897), (337, 14933), (345, 14993), (350, 15044), (352, 15050), (359, 15104), (376, 15230), (382, 15257), (397, 15464), (401, 15518), (406, 15572), (415, 15656), (418, 15713), (439, 15752), (443, 15818), (447, 15839), (451, 15875), (452, 15890), (457, 15953), (458, 15977), (462, 16067), (463, 16091), (464, 16115), (467, 16190), (469, 16202), (471, 16226), (473, 16247), (474, 16256), (479, 16286), (482, 16346), (493, 16589), (497, 16670), (498, 16673), (499, 16679), (513, 16844), (514, 16862), (516, 16871), (522, 16916), (523, 16928), (526, 16961), (528, 16979), (538, 17072), (549, 17177), (554, 17198), (565, 17252), (568, 17291), (577, 17363), (582, 17393), (585, 17432), (587, 17465), (591, 17504), (593, 17552), (594, 17585), (596, 17597),

Gene: PhorbesPhlower_16 Start: 8855, Stop: 14248, Start Num: 20

Candidate Starts for PhorbesPhlower_16:

(Start: 19 @8849 has 1 MA's), (Start: 20 @8855 has 12 MA's), (28, 8975), (29, 8987), (36, 9053), (37, 9056), (41, 9128), (42, 9134), (53, 9230), (56, 9248), (57, 9266), (64, 9338), (65, 9341), (66, 9344), (70, 9371), (74, 9407), (78, 9458), (79, 9467), (80, 9503), (84, 9545), (89, 9590), (91, 9614), (94, 9668), (97, 9689), (113, 9863), (116, 9896), (122, 9926), (123, 9944), (128, 9965), (129, 9977), (131, 9989), (136, 10028), (138, 10034), (139, 10049), (142, 10061), (154, 10112), (160, 10133), (173, 10187), (182, 10235), (184, 10256), (187, 10274), (194, 10304), (204, 10343), (208, 10367), (213, 10424), (215, 10454), (217, 10487), (239, 10661), (241, 10679), (242, 10694), (246, 10721), (252, 10772), (261, 10868), (263, 10877), (264, 10889), (272, 11009), (273, 11012), (279, 11096), (290, 11189), (293, 11222), (297, 11291), (311, 11402), (312, 11405), (313, 11417), (317, 11456), (318, 11462), (319, 11474), (320, 11486), (325, 11531), (329, 11546), (331, 11555), (345, 11660), (350, 11711), (352, 11717), (358, 11768), (362, 11786), (368, 11861), (377, 11897), (379, 11909), (384, 11930), (387, 12035), (388, 12041), (404, 12191), (405, 12203), (406, 12212), (408, 12236), (418, 12353), (420, 12365), (439, 12392), (441, 12422), (443, 12458), (447, 12479), (457, 12593), (458, 12617), (463, 12725), (471, 12863), (474, 12893), (479, 12923), (482, 12983), (493, 13226), (499, 13316), (516, 13508), (526, 13598), (528, 13616), (544, 13784), (554, 13835), (565, 13889), (566, 13904), (577, 14000), (582, 14030), (585, 14069), (587, 14102), (588, 14123), (589, 14135), (590, 14138), (594, 14222), (596, 14234),

Gene: Pollux_18 Start: 11003, Stop: 16657, Start Num: 10

Candidate Starts for Pollux_18:

(Start: 10 @11003 has 17 MA's), (12, 11036), (14, 11216), (15, 11228), (18, 11267), (Start: 19 @11276 has 1 MA's), (21, 11300), (22, 11309), (27, 11384), (29, 11426), (46, 11615), (50, 11633), (52, 11657), (54, 11687), (62, 11780), (63, 11783), (70, 11828), (71, 11834), (75, 11876), (79, 11930), (81, 11981), (83, 11993), (86, 12035), (95, 12140), (99, 12167), (104, 12224), (110, 12299), (114, 12338), (116, 12359), (118, 12374), (123, 12407), (130, 12449), (141, 12521), (142, 12524), (143, 12533), (152, 12617), (156, 12650), (157, 12653), (158, 12659), (161, 12668), (162, 12671), (165, 12716), (166, 12734), (168, 12743), (178, 12824), (179, 12827), (181, 12836), (188, 12890), (192, 12911), (203, 12977), (213, 13061), (217, 13124), (219, 13136), (238, 13274), (239, 13298), (241, 13316), (242, 13331), (246, 13358), (252, 13409), (254, 13442), (255, 13451), (258, 13466), (265, 13532), (266, 13535), (269, 13589), (270, 13598), (271, 13628), (290, 13802), (291, 13811), (295, 13850), (308, 13991), (316, 14063), (318, 14075), (325, 14144), (329, 14159), (330, 14165), (337, 14213), (340, 14240), (342, 14249), (350, 14324), (352, 14330), (354, 14348), (357, 14375), (387, 14699), (396, 14792), (399, 14834), (401, 14852), (439, 15104), (443, 15170), (447, 15191), (448, 15200), (451, 15227), (457, 15305), (458, 15329), (462, 15422), (463, 15446), (464, 15470), (471, 15575), (474, 15605), (483, 15698), (484, 15752), (490, 15854), (494, 15953), (529, 16256), (543, 16403), (546, 16433), (557, 16469), (558, 16472), (568, 16547), (580, 16643),

Gene: Posh_18 Start: 11000, Stop: 16621, Start Num: 10

Candidate Starts for Posh_18:

(6, 10904), (Start: 10 @11000 has 17 MA's), (12, 11033), (14, 11213), (15, 11225), (18, 11264), (Start: 19 @11273 has 1 MA's), (21, 11297), (22, 11306), (27, 11381), (29, 11423), (46, 11612), (50, 11630), (52, 11654), (54, 11684), (63, 11780), (71, 11831), (75, 11873), (79, 11927), (81, 11978), (83, 11990), (86, 12032), (95, 12137), (99, 12164), (104, 12221), (110, 12296), (114, 12335), (116, 12356), (118, 12371), (123, 12404), (130, 12446), (141, 12518), (142, 12521), (143, 12530), (147, 12563), (152, 12614), (156, 12647), (157, 12650), (158, 12656), (161, 12665), (162, 12668), (165, 12713), (166, 12731), (168, 12740), (178, 12821), (179, 12824), (181, 12833), (188, 12887), (192, 12908), (203, 12974), (213, 13058), (217, 13121), (219, 13133), (235, 13253), (239, 13295), (242, 13328), (246, 13355), (252, 13406), (254, 13439), (255, 13448), (258, 13463), (266, 13532), (269, 13586), (270, 13595), (271, 13625), (278, 13715), (290, 13799), (308, 13988), (311, 14012), (315, 14051), (316, 14060), (318, 14072), (330, 14162), (337, 14210), (345, 14270), (350, 14321), (352, 14327), (357, 14372), (365, 14435), (372, 14495), (373, 14501), (387, 14693), (402, 14828), (439, 15068), (443, 15134), (447, 15155), (448, 15164), (451, 15191), (457, 15269), (458, 15293), (462, 15386), (464,

15434), (471, 15539), (472, 15551), (474, 15569), (475, 15572), (483, 15662), (484, 15716), (485, 15740), (490, 15818), (494, 15917), (529, 16220), (532, 16241), (543, 16367), (546, 16397), (557, 16433), (558, 16436), (568, 16511), (580, 16607),

Gene: Pytheas_18 Start: 11131, Stop: 16767, Start Num: 10

Candidate Starts for Pytheas_18:

(Start: 10 @11131 has 17 MA's), (12, 11164), (14, 11344), (15, 11356), (18, 11395), (Start: 19 @11404 has 1 MA's), (21, 11428), (22, 11437), (27, 11512), (29, 11554), (46, 11743), (50, 11761), (52, 11785), (54, 11815), (59, 11857), (62, 11908), (63, 11911), (71, 11962), (75, 12004), (79, 12058), (81, 12109), (83, 12121), (86, 12163), (95, 12268), (99, 12295), (104, 12352), (110, 12427), (114, 12466), (116, 12487), (118, 12502), (123, 12535), (130, 12577), (141, 12649), (142, 12652), (143, 12661), (152, 12745), (156, 12778), (157, 12781), (158, 12787), (161, 12796), (162, 12799), (165, 12844), (166, 12862), (168, 12871), (179, 12955), (181, 12964), (188, 13018), (192, 13039), (195, 13069), (203, 13105), (213, 13189), (217, 13252), (219, 13264), (238, 13402), (239, 13426), (241, 13444), (242, 13459), (245, 13477), (246, 13486), (252, 13537), (254, 13570), (255, 13579), (258, 13594), (265, 13660), (266, 13663), (269, 13717), (270, 13726), (271, 13756), (278, 13846), (290, 13930), (292, 13960), (308, 14119), (311, 14143), (315, 14182), (316, 14191), (318, 14203), (330, 14293), (337, 14341), (342, 14377), (345, 14401), (350, 14452), (352, 14458), (357, 14503), (365, 14566), (387, 14827), (402, 14962), (439, 15202), (443, 15268), (447, 15289), (448, 15298), (451, 15325), (457, 15403), (458, 15427), (462, 15520), (464, 15568), (471, 15673), (472, 15685), (474, 15703), (483, 15796), (484, 15850), (485, 15874), (490, 15952), (494, 16051), (504, 16198), (532, 16387), (543, 16513), (546, 16543), (557, 16579), (558, 16582), (580, 16753),

Gene: RayTheFireFly_17 Start: 10898, Stop: 16588, Start Num: 1

Candidate Starts for RayTheFireFly_17:

(Start: 1 @10898 has 3 MA's), (2, 10928), (5, 11033), (7, 11153), (8, 11189), (14, 11426), (15, 11438), (18, 11477), (Start: 19 @11486 has 1 MA's), (21, 11510), (27, 11594), (29, 11636), (52, 11867), (58, 11936), (63, 11993), (75, 12086), (79, 12140), (81, 12191), (83, 12203), (86, 12245), (99, 12377), (111, 12518), (118, 12584), (120, 12590), (125, 12626), (130, 12659), (131, 12662), (139, 12722), (142, 12734), (144, 12746), (146, 12755), (153, 12797), (161, 12827), (163, 12845), (166, 12860), (181, 12920), (193, 13004), (197, 13034), (202, 13055), (205, 13070), (210, 13103), (221, 13226), (222, 13235), (224, 13247), (242, 13400), (252, 13478), (255, 13520), (260, 13562), (261, 13574), (266, 13604), (267, 13619), (269, 13658), (271, 13697), (274, 13727), (278, 13787), (290, 13871), (292, 13901), (301, 13994), (306, 14039), (316, 14132), (321, 14177), (328, 14219), (332, 14240), (336, 14264), (340, 14297), (343, 14309), (351, 14375), (356, 14408), (378, 14552), (383, 14573), (386, 14672), (388, 14705), (403, 14852), (404, 14855), (405, 14867), (407, 14888), (411, 14915), (419, 15032), (442, 15110), (444, 15131), (446, 15134), (470, 15458), (474, 15503), (490, 15755), (491, 15773), (500, 15920), (506, 16013), (520, 16106), (534, 16214), (535, 16220), (540, 16322), (542, 16328), (546, 16361), (547, 16364), (551, 16385), (561, 16427), (562, 16430), (567, 16466), (573, 16541), (575, 16547), (576, 16550), (580, 16577), (581, 16580),

Gene: Ronaldo_54 Start: 22393, Stop: 27948, Start Num: 20

Candidate Starts for Ronaldo_54:

(Start: 20 @22393 has 12 MA's), (25, 22459), (26, 22471), (30, 22543), (39, 22612), (41, 22672), (43, 22687), (45, 22705), (47, 22717), (51, 22747), (55, 22780), (64, 22882), (65, 22885), (73, 22927), (74, 22951), (78, 23002), (87, 23122), (88, 23125), (90, 23143), (91, 23158), (98, 23242), (100, 23248), (105, 23329), (107, 23353), (112, 23401), (114, 23428), (117, 23455), (133, 23563), (140, 23608), (149, 23677), (151, 23689), (193, 24028), (195, 24058), (199, 24079), (201, 24085), (216, 24217), (225, 24298), (231, 24370), (237, 24400), (240, 24439), (241, 24442), (244, 24472), (249, 24514), (254, 24568), (260, 24619), (262, 24634), (263, 24640), (266, 24661), (269, 24715), (271, 24754), (274, 24784), (276, 24814), (277, 24838), (289, 24928), (290, 24937), (292, 24967), (294, 24979), (301, 25060), (308, 25126), (309, 25138), (326, 25291), (327, 25294), (334, 25339), (348, 25456), (362, 25546), (364, 25576), (367, 25615), (370, 25624), (371, 25639), (385, 25714), (412, 25993),

(413, 25999), (439, 26131), (449, 26230), (457, 26326), (461, 26404), (471, 26611), (481, 26722), (488, 26887), (489, 26911), (492, 26968), (496, 27055), (505, 27193), (507, 27211), (509, 27232), (524, 27334), (527, 27379), (530, 27403), (543, 27553), (553, 27613), (560, 27643), (565, 27670), (566, 27685), (569, 27739), (571, 27754), (583, 27835), (584, 27850), (591, 27925),

Gene: Volt_53 Start: 22393, Stop: 27948, Start Num: 20

Candidate Starts for Volt_53:

(Start: 20 @22393 has 12 MA's), (25, 22459), (26, 22471), (30, 22543), (39, 22612), (41, 22672), (43, 22687), (45, 22705), (47, 22717), (51, 22747), (55, 22780), (64, 22882), (65, 22885), (73, 22927), (74, 22951), (78, 23002), (87, 23122), (88, 23125), (90, 23143), (91, 23158), (98, 23242), (100, 23248), (105, 23329), (107, 23353), (112, 23401), (114, 23428), (117, 23455), (133, 23563), (140, 23608), (149, 23677), (151, 23689), (193, 24028), (195, 24058), (199, 24079), (201, 24085), (216, 24217), (225, 24298), (231, 24370), (237, 24400), (240, 24439), (241, 24442), (244, 24472), (249, 24514), (254, 24568), (260, 24619), (262, 24634), (263, 24640), (266, 24661), (269, 24715), (271, 24754), (274, 24784), (276, 24814), (277, 24838), (289, 24928), (290, 24937), (292, 24967), (294, 24979), (301, 25060), (308, 25126), (309, 25138), (326, 25291), (327, 25294), (334, 25339), (348, 25456), (362, 25546), (364, 25576), (367, 25615), (370, 25624), (371, 25639), (385, 25714), (412, 25993), (413, 25999), (439, 26131), (449, 26230), (457, 26326), (461, 26404), (471, 26611), (481, 26722), (488, 26887), (489, 26911), (492, 26968), (496, 27055), (505, 27193), (507, 27211), (509, 27232), (524, 27334), (527, 27379), (530, 27403), (543, 27553), (553, 27613), (560, 27643), (565, 27670), (566, 27685), (569, 27739), (571, 27754), (583, 27835), (584, 27850), (591, 27925),

Gene: Wrigley_18 Start: 10897, Stop: 16518, Start Num: 10

Candidate Starts for Wrigley_18:

(Start: 10 @10897 has 17 MA's), (12, 10930), (14, 11110), (15, 11122), (18, 11161), (Start: 19 @11170 has 1 MA's), (21, 11194), (22, 11203), (27, 11278), (29, 11320), (46, 11509), (50, 11527), (52, 11551), (54, 11581), (59, 11623), (63, 11677), (71, 11728), (75, 11770), (79, 11824), (81, 11875), (83, 11887), (86, 11929), (95, 12034), (99, 12061), (104, 12118), (110, 12193), (114, 12232), (116, 12253), (118, 12268), (123, 12301), (130, 12343), (141, 12415), (142, 12418), (143, 12427), (147, 12460), (152, 12511), (156, 12544), (157, 12547), (158, 12553), (161, 12562), (162, 12565), (165, 12610), (166, 12628), (168, 12637), (178, 12718), (179, 12721), (181, 12730), (188, 12784), (192, 12805), (203, 12871), (213, 12955), (217, 13018), (219, 13030), (235, 13150), (239, 13192), (242, 13225), (246, 13252), (252, 13303), (254, 13336), (255, 13345), (258, 13360), (266, 13429), (269, 13483), (270, 13492), (271, 13522), (278, 13612), (290, 13696), (308, 13885), (311, 13909), (315, 13948), (316, 13957), (318, 13969), (330, 14059), (337, 14107), (345, 14167), (350, 14218), (352, 14224), (357, 14269), (365, 14332), (372, 14392), (373, 14398), (387, 14590), (402, 14725), (439, 14965), (443, 15031), (447, 15052), (448, 15061), (451, 15088), (457, 15166), (458, 15190), (462, 15283), (464, 15331), (471, 15436), (472, 15448), (474, 15466), (483, 15559), (484, 15613), (485, 15637), (490, 15715), (494, 15814), (543, 16264), (546, 16294), (557, 16330), (558, 16333), (568, 16408), (580, 16504),

Gene: Ziko_54 Start: 22333, Stop: 27888, Start Num: 20

Candidate Starts for Ziko_54:

(Start: 20 @22333 has 12 MA's), (25, 22399), (26, 22411), (30, 22483), (39, 22552), (41, 22612), (43, 22627), (45, 22645), (47, 22657), (51, 22687), (55, 22720), (64, 22822), (65, 22825), (73, 22867), (74, 22891), (78, 22942), (87, 23062), (88, 23065), (90, 23083), (91, 23098), (98, 23182), (100, 23188), (105, 23269), (107, 23293), (112, 23341), (114, 23368), (117, 23395), (133, 23503), (140, 23548), (149, 23617), (151, 23629), (193, 23968), (195, 23998), (199, 24019), (201, 24025), (216, 24157), (225, 24238), (231, 24310), (237, 24340), (240, 24379), (241, 24382), (244, 24412), (249, 24454), (254, 24508), (260, 24559), (262, 24574), (263, 24580), (266, 24601), (269, 24655), (271, 24694), (274, 24724), (276, 24754), (277, 24778), (289, 24868), (290, 24877), (292, 24907), (294, 24919), (301, 25000), (308, 25066), (309, 25078), (326, 25231), (327, 25234), (334, 25279), (348, 25396), (362, 25486), (364, 25516), (367, 25555), (370, 25564), (371, 25579), (385, 25654), (412, 25933),

(413, 25939), (439, 26071), (449, 26170), (457, 26266), (461, 26344), (471, 26551), (481, 26662),
(488, 26827), (489, 26851), (492, 26908), (496, 26995), (505, 27133), (507, 27151), (509, 27172),
(524, 27274), (527, 27319), (530, 27343), (543, 27493), (553, 27553), (560, 27583), (565, 27610),
(566, 27625), (569, 27679), (571, 27694), (583, 27775), (584, 27790), (591, 27865),