

Zoomed Pham 216337

1: Pytheas_18	193	41	50	192	38	88	95	98	104	109	116	125	133	137	144	151	158	160	181	186	204	215	220	239	246	258	262	266	273	281	288	297	304	317			
2: Wrigley_18	193	41	50	192	38	88	95	98	104	109	116	125	133	137	144	151	158	160	181	186	204	215	220	239	246	258	262	266	273	281	288	297	304	317			
3: Posh_18	193	41	50	192	38	88	95	98	104	109	116	125	133	137	144	151	158	160	181	186	204	215	220	239	246	258	262	266	273	281	288	297	304	317			
4: BeeGee_18	193	41	50	192	38	88	95	98	104	109	116	125	133	137	144	151	158	160	181	186	204	215	220	239	246	252	262	266	271	288	300	306	317				
5: LonelyBoi_18	193	41	50	192	38	88	95	98	104	109	116	125	133	137	144	151	158	160	181	186	204	215	220	239	246	258	262	266	273	281	288	297	304	317			
6: Jablanski_18	193	41	50	192	38	88	95	98	104	109	116	125	133	137	144	151	158	160	181	186	204	215	220	239	246	258	262	266	273	281	288	297	304	317			
7: Cashline_18	193	41	50	191	80	98	104	109	116	126	132	137	144	151	158	163	169	181	187	207	220	229	242	246	262	266	273	288	297	317							
8: Angelique_18	193	41	50	191	80	94	98	104	109	125	132	137	144	151	158	169	173	181	187	207	220	229	242	246	262	266	271	288	297	317							
9: EnalisNailo_18 + 1	193	41	50	191	80	94	98	104	109	126	132	137	144	151	158	169	173	181	187	207	220	229	242	246	262	266	271	288	297	317							
10: Bradissa_18	193	41	50	193	82	95	98	104	109	116	125	133	137	144	151	158	160	181	186	204	215	220	239	246	258	262	266	273	281	288	297	304	317				
11: Confidence_18	193	41	50	192	38	88	95	98	104	109	116	125	133	137	144	151	158	160	181	186	204	215	220	239	246	258	262	266	273	281	288	297	304	317			
12: BritBrat_18 + 4	193	41	50	191	80	98	104	109	116	138	150	162	169	176	180	199	204	236	249	254	262	266	271	288	297	304	317										
13: Coriander_17	193	41	50	191	81	88	98	104	109	116	122	129	138	148	153	162	169	176	180	207	220	226	237	246	264	273	277	288	297	304	317						
14: MoonLover_17	193	41	50	191	81	88	98	104	109	116	129	138	148	153	162	169	176	180	207	220	226	237	246	264	273	277	288	297	304	317							
15: Dmitri_17	193	41	50	191	81	88	98	104	109	116	129	138	148	153	162	169	176	180	207	220	226	237	246	264	273	277	288	297	304	317							
16: RayTheFireFly_17	193	41	50	191	80	98	104	109	116	138	150	162	169	176	180	199	204	236	249	254	262	266	271	288	297	304	317										
17: Dcgggs_16	36	42	51	57	63	73	80	84	91	103	113	119	124	140	143	152	162	172	178	188	194	201	211	221	234	239	246	253	263	273	284	300	305	312	317		
18: Lucky10_16	36	42	51	57	63	73	80	84	91	103	113	119	124	140	143	152	162	172	178	188	194	201	211	221	234	239	246	253	263	273	284	300	305	312	317		
19: Morkie_16 + 1	36	42	51	57	63	73	80	84	91	103	113	119	124	140	143	152	162	172	178	188	194	201	211	221	234	239	246	253	263	273	284	300	305	312	317		
20: Birdsong_17	36	42	51	57	63	73	80	84	91	103	113	119	124	140	143	152	162	172	178	188	194	201	211	221	234	239	246	253	263	273	284	300	305	312	317		
21: BearBQ_17	36	42	51	57	63	73	80	84	91	103	113	119	124	140	143	152	162	172	178	188	194	201	211	221	234	239	246	253	263	273	284	300	305	312	317		
22: Ecliptus_22	36	42	51	57	63	73	80	84	91	103	113	119	124	140	143	152	162	172	178	188	194	201	211	221	234	239	246	253	263	273	284	300	305	312	317		
23: MortyNRick_17	36	42	51	57	63	73	80	84	91	103	113	119	124	140	143	152	162	172	178	188	194	201	211	221	234	239	246	253	263	273	284	300	305	312	317		
24: ODay_22	36	42	51	57	63	73	80	84	91	103	113	119	124	140	143	152	162	172	178	188	194	201	211	221	234	239	246	253	263	273	284	300	305	312	317		
25: Crater_16 + 1	36	42	51	57	63	73	80	84	91	103	113	119	124	140	143	152	162	172	178	188	194	201	211	221	234	239	246	253	263	273	284	300	305	312	317		
26: Kuwakara_17	16	20	23	29	33	42	45	49	53	63	68	73	81	82	98	106	110	116	121	135	140	156	168	178	191	198	225	235	241	251	259	271	275	283	299	306	315
27: Falaz_22 + 5	16	20	23	29	33	42	45	49	53	63	68	73	81	82	98	106	110	116	121	131	148	161	172	178	191	198	213	222	236	248	261	268	281	283	299	306	315
28: Bipper_22	16	20	23	29	33	42	45	49	53	63	68	73	81	82	98	106	110	116	121	131	148	161	172	178	191	198	213	222	236	248	261	268	281	283	299	306	315
29: Cracklewink_22	16	20	23	29	33	42	45	49	53	63	68	73	81	82	98	106	110	116	121	131	148	161	172	178	191	198	213	222	236	248	261	268	281	283	299	306	315

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 216337 Report

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

Pham number 216337 has 39 members, 5 are drafts.

Phages represented in each track:

- Track 1 : Pytheas_18
- Track 2 : Wrigley_18
- Track 3 : Posh_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 : Bradissa_18
- Track 11 : Confidence_18
- Track 12 : BritBrat_18, Floral_18, EMSquaredA_18, Marteena_18, Pollux_18
- Track 13 : Coriander_17
- Track 14 : Moonflower_17
- Track 15 : Dmitri_17
- Track 16 : RayTheFireFly_17
- Track 17 : Doggs_16
- Track 18 : Lucky10_16
- Track 19 : Morkie_16, PhorbesPhlower_16
- Track 20 : Birdsong_17
- Track 21 : BearBQ_17
- Track 22 : Ecliptus_22
- Track 23 : MortyNRick_17
- Track 24 : ODay_22
- Track 25 : Crater_16, Apricot_17
- Track 26 : Kuwabara_17
- Track 27 : Faiyaz_22, AuntGwenStacy_22, Typha_22, Hilltopfarm_22
- Track 28 : Bipper_22
- Track 29 : Cracklewink_22

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

The start number called the most often in the published annotations is 19, it was called in 17 of the 34 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:

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

- Apricot_17, AuntGwenStacy_22, BearBQ_17, Bipper_22, Birdsong_17, Coriander_17, Cracklewink_22, Crater_16, Dmitri_17, Doggs_16, Ecliptus_22, Faiyaz_22, Hilltopfarm_22, Kuwabara_17, Lucky10_16, Moonflower_17, Morkie_16, MortyNRick_17, ODay_22, PhorbPhlower_16, RayTheFireFly_17, Typha_22,

Summary by start number:

Start 1:

- Found in 6 of 39 (15.4%) of genes in pham
- Manual Annotations of this start: 4 of 34
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AuntGwenStacy_22 (Y), Bipper_22 (Y), Cracklewink_22 (Y), Faiyaz_22 (Y), Hilltopfarm_22 (Y), Typha_22 (Y),

Start 4:

- Found in 5 of 39 (12.8%) of genes in pham
- Manual Annotations of this start: 3 of 34
- Called 80.0% of time when present
- Phage (with cluster) where this start called: Coriander_17 (DB), Dmitri_17 (DB), Doggs_16 (DB), RayTheFireFly_17 (DB),

Start 6:

- Found in 3 of 39 (7.7%) of genes in pham
- No Manual Annotations of this start.
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Moonflower_17 (DB),

Start 19:

- Found in 17 of 39 (43.6%) of genes in pham
- Manual Annotations of this start: 17 of 34
- 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 36:

- Found in 5 of 39 (12.8%) of genes in pham
- Manual Annotations of this start: 2 of 34
- Called 40.0% of time when present
- Phage (with cluster) where this start called: BearBQ_17 (DN), Birdsong_17 (DN),

Start 37:

- Found in 2 of 39 (5.1%) of genes in pham
- Manual Annotations of this start: 2 of 34
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ecliptus_22 (DN), ODay_22 (DN),

Start 40:

- Found in 32 of 39 (82.1%) of genes in pham
- Manual Annotations of this start: 1 of 34
- Called 3.1% of time when present
- Phage (with cluster) where this start called: Lucky10_16 (DH),

Start 41:

- Found in 8 of 39 (20.5%) of genes in pham
- Manual Annotations of this start: 5 of 34
- Called 62.5% of time when present
- Phage (with cluster) where this start called: Apricot_17 (DN3), Crater_16 (DN3), Kuwabara_17 (DN4), Morkie_16 (DH), PhorbesPhlower_16 (DH),

Start 42:

- Found in 31 of 39 (79.5%) of genes in pham
- No Manual Annotations of this start.
- Called 3.2% of time when present
- Phage (with cluster) where this start called: MortyNRick_17 (DN),

Summary by clusters:

There are 9 clusters represented in this pham: DN, CY2, CY1, DH, DB, DN4, CY, DN3, Y,

Info for manual annotations of cluster CY:

- Start number 19 was manually annotated 7 times for cluster CY.

Info for manual annotations of cluster CY1:

- Start number 19 was manually annotated 9 times for cluster CY1.

Info for manual annotations of cluster CY2:

- Start number 19 was manually annotated 1 time for cluster CY2.

Info for manual annotations of cluster DB:

- Start number 4 was manually annotated 3 times for cluster DB.

Info for manual annotations of cluster DH:

- Start number 40 was manually annotated 1 time for cluster DH.
- Start number 41 was manually annotated 2 times for cluster DH.

Info for manual annotations of cluster DN:

- Start number 36 was manually annotated 2 times for cluster DN.
- Start number 37 was manually annotated 2 times for cluster DN.

Info for manual annotations of cluster DN3:

- Start number 41 was manually annotated 2 times for cluster DN3.

Info for manual annotations of cluster DN4:

- Start number 41 was manually annotated 1 time for cluster DN4.

Info for manual annotations of cluster Y:

- Start number 1 was manually annotated 4 times for cluster Y.

Gene Information:

Gene: Angelique_18 Start: 11177, Stop: 16801, Start Num: 19

Candidate Starts for Angelique_18:

(Start: 19 @11177 has 17 MA's), (23, 11210), (34, 11390), (35, 11402), (39, 11441), (Start: 40 @11450 has 1 MA's), (42, 11474), (47, 11558), (50, 11600), (73, 11831), (77, 11858), (85, 11954), (86, 11957), (90, 11978), (98, 12050), (104, 12104), (109, 12155), (111, 12167), (114, 12194), (115, 12209), (125, 12314), (126, 12326), (133, 12398), (134, 12419), (137, 12473), (141, 12512), (144, 12533), (146, 12548), (151, 12581), (154, 12593), (158, 12623), (163, 12656), (169, 12698), (181, 12791), (184, 12824), (185, 12827), (186, 12833), (187, 12842), (189, 12845), (194, 12908), (197, 12941), (202, 12980), (207, 13010), (220, 13094), (229, 13151), (242, 13259), (245, 13298), (246, 13310), (262, 13472), (263, 13490), (264, 13505), (266, 13532), (273, 13583), (275, 13598), (277, 13625), (278, 13631), (288, 13709), (293, 13763), (294, 13772), (297, 13802), (317, 13976), (322, 14006), (346, 14237), (350, 14249), (361, 14339), (368, 14387), (372, 14423), (374, 14447), (379, 14498), (381, 14504), (385, 14549), (389, 14570), (399, 14681), (412, 14873), (426, 15008), (470, 15248), (474, 15314), (476, 15335), (477, 15344), (479, 15371), (483, 15449), (484, 15473), (489, 15614), (496, 15749), (499, 15776), (502, 15842), (503, 15896), (507, 15998), (514, 16097), (527, 16232), (537, 16421), (546, 16547), (549, 16577), (552, 16613), (553, 16616), (562, 16691),

Gene: Apricot_17 Start: 9635, Stop: 15046, Start Num: 41

Candidate Starts for Apricot_17:

(Start: 40 @9629 has 1 MA's), (Start: 41 @9635 has 5 MA's), (46, 9713), (49, 9755), (50, 9767), (65, 9908), (66, 9914), (71, 9950), (77, 10010), (79, 10028), (80, 10046), (84, 10067), (87, 10118), (88, 10121), (89, 10124), (93, 10148), (94, 10151), (100, 10217), (104, 10247), (113, 10325), (116, 10370), (117, 10394), (124, 10448), (127, 10469), (136, 10607), (140, 10643), (143, 10670), (146, 10691), (150, 10706), (155, 10745), (157, 10757), (159, 10769), (166, 10829), (169, 10841), (177, 10892), (195, 10967), (203, 10988), (211, 11036), (214, 11054), (230, 11123), (234, 11147), (239, 11204), (243, 11234), (245, 11267), (255, 11384), (262, 11441), (263, 11459), (264, 11474), (273, 11552), (285, 11657), (286, 11669), (287, 11675), (299, 11789), (300, 11792), (305, 11876), (310, 11906), (312, 11918), (317, 11969), (323, 12002), (327, 12071), (329, 12086), (334, 12128), (339, 12182), (342, 12197), (348, 12236), (349, 12242), (353, 12266), (360, 12326), (361, 12332), (362, 12335), (369, 12404), (379, 12491), (381, 12497), (382, 12506), (385, 12542), (390, 12566), (403, 12677), (405, 12689), (418, 12896), (423, 12959), (424, 12968), (428, 13001), (435, 13058), (437, 13085), (444, 13151), (445, 13169), (446, 13181), (470, 13208), (472, 13238), (474, 13274), (476, 13295), (478, 13307), (479, 13331), (483, 13409), (484, 13433), (485, 13448), (488, 13538), (492, 13658), (493, 13673), (495, 13694), (496, 13703), (501, 13790), (505, 14033), (509, 14123), (512, 14273), (515, 14297), (516, 14306), (517, 14333), (521, 14381), (522, 14399), (524, 14417), (526, 14441), (530, 14501), (534, 14624), (538, 14675), (542, 14702), (547, 14801), (548, 14813), (557, 14909), (561, 14927), (563, 14939), (570, 15029),

Gene: AuntGwenStacy_22 Start: 14030, Stop: 18613, Start Num: 1

Candidate Starts for AuntGwenStacy_22:

(Start: 1 @14030 has 4 MA's), (2, 14057), (3, 14081), (7, 14165), (8, 14177), (11, 14219), (16, 14378), (20, 14438), (21, 14441), (25, 14471), (27, 14495), (28, 14513), (33, 14612), (34, 14618), (35, 14630), (38, 14648), (39, 14669), (Start: 40 @14678 has 1 MA's), (42, 14702), (47, 14786), (48, 14789), (50,

14828), (52, 14849), (60, 14927), (61, 14930), (64, 14960), (68, 15008), (72, 15035), (73, 15059), (74, 15071), (75, 15077), (76, 15080), (84, 15140), (86, 15185), (91, 15215), (92, 15218), (98, 15281), (101, 15308), (102, 15317), (106, 15347), (109, 15386), (114, 15425), (115, 15440), (116, 15461), (118, 15512), (119, 15515), (127, 15560), (131, 15623), (135, 15650), (142, 15752), (144, 15764), (149, 15797), (156, 15842), (160, 15881), (161, 15884), (168, 15941), (172, 15968), (174, 16001), (175, 16007), (178, 16022), (191, 16106), (192, 16139), (193, 16145), (198, 16193), (225, 16394), (233, 16436), (240, 16490), (241, 16505), (251, 16610), (259, 16682), (261, 16712), (274, 16838), (279, 16880), (283, 16925), (290, 16973), (291, 16976), (297, 17045), (298, 17051), (300, 17066), (306, 17159), (309, 17177), (316, 17225), (319, 17249), (321, 17255), (326, 17321), (332, 17405), (333, 17414), (336, 17432), (341, 17477), (347, 17525), (352, 17552), (364, 17639), (367, 17669), (375, 17747), (397, 17948), (404, 17987), (411, 18155), (412, 18158), (417, 18185), (434, 18374), (437, 18407), (438, 18416), (440, 18449), (447, 18545), (450, 18569), (452, 18590), (453, 18599),

Gene: BearBQ_17 Start: 9908, Stop: 16477, Start Num: 36

Candidate Starts for BearBQ_17:

(Start: 36 @9908 has 2 MA's), (42, 9965), (44, 9983), (49, 10067), (50, 10079), (51, 10091), (54, 10115), (57, 10145), (62, 10190), (65, 10220), (66, 10226), (73, 10295), (77, 10322), (79, 10340), (80, 10358), (83, 10370), (84, 10379), (87, 10430), (88, 10433), (89, 10436), (93, 10460), (94, 10463), (103, 10550), (104, 10559), (113, 10637), (116, 10682), (117, 10706), (120, 10739), (121, 10742), (130, 10829), (132, 10850), (140, 10955), (143, 10982), (148, 11009), (151, 11036), (152, 11039), (159, 11081), (161, 11099), (162, 11102), (172, 11174), (176, 11216), (179, 11237), (184, 11264), (188, 11273), (194, 11288), (198, 11306), (207, 11339), (211, 11372), (218, 11405), (219, 11414), (220, 11423), (222, 11444), (227, 11468), (230, 11483), (233, 11504), (234, 11507), (239, 11564), (243, 11594), (245, 11627), (259, 11765), (262, 11801), (264, 11834), (266, 11861), (270, 11888), (272, 11906), (280, 11966), (283, 12008), (286, 12029), (292, 12080), (294, 12101), (299, 12149), (300, 12152), (315, 12290), (317, 12329), (324, 12371), (327, 12431), (331, 12458), (332, 12479), (338, 12536), (342, 12557), (353, 12629), (357, 12671), (358, 12674), (363, 12707), (365, 12731), (368, 12743), (374, 12803), (379, 12854), (381, 12860), (382, 12869), (386, 12911), (390, 12929), (392, 12959), (416, 13157), (422, 13238), (424, 13256), (428, 13289), (429, 13301), (433, 13337), (437, 13373), (439, 13397), (441, 13400), (443, 13421), (445, 13457), (446, 13469), (449, 13508), (451, 13535), (454, 13562), (455, 13634), (456, 13664), (457, 13700), (458, 13868), (459, 13946), (460, 13997), (461, 14150), (462, 14285), (463, 14294), (464, 14315), (465, 14318), (466, 14327), (467, 14345), (468, 14375), (469, 14408), (470, 14612), (471, 14630), (472, 14642), (474, 14678), (476, 14699), (481, 14789), (483, 14813), (484, 14837), (488, 14945), (491, 15068), (493, 15092), (495, 15113), (496, 15122), (497, 15125), (500, 15152), (501, 15212), (505, 15455), (507, 15536), (508, 15539), (509, 15545), (512, 15704), (515, 15728), (516, 15737), (518, 15782), (519, 15794), (522, 15827), (524, 15845), (530, 15938), (533, 16043), (535, 16064), (539, 16118), (543, 16157), (546, 16229), (549, 16259), (553, 16298), (556, 16331), (561, 16370), (564, 16418), (568, 16451), (571, 16463),

Gene: BeeGee_18 Start: 10997, Stop: 16621, Start Num: 19

Candidate Starts for BeeGee_18:

(18, 10982), (Start: 19 @10997 has 17 MA's), (23, 11030), (34, 11210), (35, 11222), (39, 11261), (Start: 40 @11270 has 1 MA's), (42, 11294), (43, 11303), (47, 11378), (50, 11420), (70, 11609), (72, 11627), (73, 11651), (78, 11681), (85, 11774), (86, 11777), (95, 11828), (98, 11870), (104, 11924), (109, 11975), (111, 11987), (115, 12029), (125, 12134), (129, 12161), (133, 12218), (137, 12293), (141, 12332), (144, 12353), (146, 12368), (158, 12443), (167, 12515), (169, 12518), (170, 12527), (173, 12560), (181, 12611), (184, 12644), (185, 12647), (186, 12653), (187, 12662), (189, 12665), (192, 12710), (194, 12728), (196, 12737), (204, 12812), (205, 12818), (206, 12821), (207, 12830), (215, 12884), (219, 12905), (222, 12935), (229, 12971), (239, 13055), (245, 13118), (258, 13250), (262, 13292), (264, 13325), (266, 13352), (273, 13403), (276, 13436), (277, 13445), (281, 13460), (288, 13529), (293, 13583), (294, 13592), (297, 13622), (309, 13742), (311, 13754), (317, 13796), (342, 14024), (344, 14048), (346, 14057), (350, 14069), (360, 14153), (361, 14159), (363, 14171),

(368, 14207), (374, 14267), (379, 14318), (381, 14324), (385, 14369), (412, 14693), (426, 14828), (470, 15068), (474, 15134), (476, 15155), (477, 15164), (479, 15191), (483, 15269), (484, 15293), (487, 15386), (488, 15410), (489, 15434), (493, 15539), (496, 15569), (502, 15662), (503, 15716), (507, 15818), (514, 15917), (537, 16241), (546, 16367), (549, 16397), (552, 16433), (553, 16436), (562, 16511), (571, 16607),

Gene: Bipper_22 Start: 14060, Stop: 18745, Start Num: 1

Candidate Starts for Bipper_22:

(Start: 1 @14060 has 4 MA's), (3, 14111), (7, 14195), (8, 14207), (9, 14219), (16, 14408), (20, 14468), (26, 14522), (29, 14576), (30, 14615), (31, 14633), (35, 14678), (Start: 36 @14690 has 2 MA's), (38, 14696), (42, 14750), (45, 14801), (47, 14834), (49, 14864), (53, 14903), (63, 14999), (67, 15044), (68, 15056), (69, 15059), (72, 15083), (73, 15107), (74, 15119), (76, 15128), (77, 15134), (84, 15188), (86, 15233), (95, 15284), (96, 15293), (98, 15326), (101, 15353), (102, 15362), (106, 15392), (109, 15431), (110, 15434), (112, 15452), (114, 15470), (115, 15485), (116, 15506), (118, 15557), (123, 15575), (131, 15671), (144, 15812), (145, 15827), (146, 15833), (147, 15836), (161, 15932), (172, 16016), (174, 16049), (178, 16070), (191, 16154), (192, 16187), (193, 16193), (198, 16241), (213, 16358), (223, 16430), (224, 16433), (236, 16496), (238, 16511), (239, 16547), (244, 16598), (248, 16640), (261, 16778), (267, 16853), (268, 16865), (280, 16949), (283, 16991), (284, 16994), (288, 17021), (289, 17036), (290, 17039), (291, 17042), (296, 17114), (302, 17192), (303, 17198), (307, 17255), (309, 17270), (316, 17318), (318, 17339), (319, 17342), (321, 17348), (326, 17414), (343, 17579), (347, 17597), (355, 17642), (356, 17651), (358, 17675), (364, 17717), (375, 17828), (377, 17840), (378, 17849), (391, 17969), (394, 17999), (395, 18020), (408, 18179), (410, 18251), (417, 18293), (425, 18419), (437, 18536), (440, 18578), (442, 18590), (447, 18677), (448, 18686), (453, 18731),

Gene: Birdsong_17 Start: 9908, Stop: 15370, Start Num: 36

Candidate Starts for Birdsong_17:

(Start: 36 @9908 has 2 MA's), (42, 9965), (44, 9983), (49, 10067), (50, 10079), (51, 10091), (54, 10115), (57, 10145), (62, 10190), (65, 10220), (66, 10226), (73, 10295), (77, 10322), (79, 10340), (80, 10358), (83, 10370), (84, 10379), (87, 10430), (88, 10433), (89, 10436), (93, 10460), (94, 10463), (103, 10550), (104, 10559), (113, 10637), (116, 10682), (117, 10706), (120, 10739), (121, 10742), (130, 10829), (132, 10850), (140, 10955), (143, 10982), (148, 11009), (151, 11036), (152, 11039), (159, 11081), (161, 11099), (162, 11102), (172, 11174), (176, 11216), (179, 11237), (184, 11264), (188, 11273), (194, 11288), (198, 11306), (207, 11339), (211, 11372), (218, 11405), (219, 11414), (220, 11423), (222, 11444), (227, 11468), (230, 11483), (233, 11504), (234, 11507), (239, 11564), (243, 11594), (245, 11627), (262, 11801), (264, 11834), (266, 11861), (270, 11888), (272, 11906), (280, 11966), (283, 12008), (286, 12029), (292, 12080), (294, 12101), (299, 12149), (300, 12152), (315, 12290), (317, 12329), (324, 12371), (327, 12431), (331, 12458), (332, 12479), (338, 12536), (342, 12557), (353, 12629), (357, 12671), (358, 12674), (363, 12707), (368, 12743), (374, 12803), (379, 12854), (381, 12860), (382, 12869), (383, 12878), (386, 12911), (390, 12929), (392, 12959), (415, 13154), (416, 13157), (422, 13238), (424, 13256), (428, 13289), (429, 13301), (433, 13337), (437, 13373), (439, 13397), (441, 13400), (443, 13421), (445, 13457), (446, 13469), (470, 13496), (471, 13514), (472, 13526), (474, 13562), (476, 13583), (481, 13673), (483, 13697), (484, 13721), (488, 13829), (491, 13952), (493, 13976), (496, 14006), (497, 14009), (500, 14036), (505, 14339), (507, 14420), (508, 14423), (509, 14429), (513, 14594), (515, 14612), (516, 14621), (518, 14666), (519, 14678), (522, 14714), (524, 14732), (530, 14831), (533, 14936), (535, 14957), (539, 15011), (543, 15050), (546, 15122), (549, 15152), (553, 15191), (556, 15224), (561, 15263), (564, 15311), (568, 15344), (571, 15356),

Gene: Bradissa_18 Start: 11180, Stop: 16804, Start Num: 19

Candidate Starts for Bradissa_18:

(Start: 19 @11180 has 17 MA's), (23, 11213), (34, 11393), (35, 11405), (39, 11444), (Start: 40 @11453 has 1 MA's), (42, 11477), (47, 11561), (49, 11591), (50, 11603), (73, 11834), (77, 11861), (85, 11957), (86, 11960), (90, 11981), (94, 12005), (98, 12053), (104, 12107), (109, 12158), (111, 12170), (114,

12197), (115, 12212), (125, 12317), (133, 12401), (134, 12422), (137, 12476), (144, 12536), (151, 12584), (154, 12596), (158, 12626), (163, 12659), (169, 12701), (173, 12743), (176, 12764), (181, 12794), (184, 12827), (185, 12830), (186, 12836), (187, 12845), (189, 12848), (194, 12911), (197, 12944), (202, 12983), (207, 13013), (220, 13097), (229, 13154), (242, 13262), (245, 13301), (246, 13313), (262, 13475), (263, 13493), (264, 13508), (266, 13535), (273, 13586), (275, 13601), (277, 13628), (288, 13712), (293, 13766), (294, 13775), (297, 13805), (317, 13979), (322, 14009), (329, 14096), (346, 14240), (350, 14252), (361, 14342), (368, 14390), (374, 14450), (379, 14501), (381, 14507), (385, 14552), (399, 14684), (426, 15011), (437, 15116), (470, 15251), (472, 15281), (474, 15317), (476, 15338), (477, 15347), (479, 15374), (483, 15452), (484, 15476), (489, 15617), (493, 15722), (496, 15752), (497, 15755), (502, 15845), (503, 15899), (507, 16001), (527, 16235), (536, 16403), (537, 16424), (546, 16550), (549, 16580), (552, 16616), (553, 16619),

Gene: BritBrat_18 Start: 11003, Stop: 16657, Start Num: 19

Candidate Starts for BritBrat_18:

(Start: 19 @11003 has 17 MA's), (23, 11036), (34, 11216), (35, 11228), (39, 11267), (Start: 40 @11276 has 1 MA's), (42, 11300), (43, 11309), (47, 11384), (50, 11426), (70, 11615), (72, 11633), (73, 11657), (78, 11687), (85, 11780), (86, 11783), (94, 11828), (95, 11834), (98, 11876), (104, 11930), (109, 11981), (111, 11993), (115, 12035), (125, 12140), (129, 12167), (133, 12224), (137, 12299), (141, 12338), (144, 12359), (146, 12374), (151, 12407), (158, 12449), (167, 12521), (169, 12524), (170, 12533), (181, 12617), (184, 12650), (185, 12653), (186, 12659), (187, 12668), (189, 12671), (192, 12716), (194, 12734), (196, 12743), (205, 12824), (206, 12827), (207, 12836), (215, 12890), (219, 12911), (229, 12977), (239, 13061), (245, 13124), (246, 13136), (260, 13274), (262, 13298), (263, 13316), (264, 13331), (266, 13358), (273, 13409), (276, 13442), (277, 13451), (281, 13466), (287, 13532), (288, 13535), (293, 13589), (294, 13598), (297, 13628), (317, 13802), (320, 13811), (325, 13850), (337, 13991), (346, 14063), (350, 14075), (358, 14144), (360, 14159), (361, 14165), (368, 14213), (370, 14240), (372, 14249), (379, 14324), (381, 14330), (383, 14348), (385, 14375), (412, 14699), (419, 14792), (422, 14834), (424, 14852), (470, 15104), (474, 15170), (476, 15191), (477, 15200), (479, 15227), (483, 15305), (484, 15329), (487, 15422), (488, 15446), (489, 15470), (493, 15575), (496, 15605), (502, 15698), (503, 15752), (507, 15854), (514, 15953), (536, 16256), (546, 16403), (549, 16433), (552, 16469), (553, 16472), (562, 16547), (571, 16643),

Gene: Cashline_18 Start: 10857, Stop: 16481, Start Num: 19

Candidate Starts for Cashline_18:

(Start: 19 @10857 has 17 MA's), (23, 10890), (34, 11070), (35, 11082), (39, 11121), (Start: 40 @11130 has 1 MA's), (42, 11154), (43, 11163), (47, 11238), (50, 11280), (70, 11469), (72, 11487), (73, 11511), (78, 11541), (85, 11634), (86, 11637), (95, 11688), (98, 11730), (104, 11784), (109, 11835), (111, 11847), (115, 11889), (125, 11994), (129, 12021), (133, 12078), (137, 12153), (141, 12192), (144, 12213), (146, 12228), (151, 12261), (158, 12303), (167, 12375), (169, 12378), (170, 12387), (181, 12471), (184, 12504), (185, 12507), (186, 12513), (187, 12522), (189, 12525), (192, 12570), (196, 12597), (204, 12672), (205, 12678), (206, 12681), (207, 12690), (215, 12744), (219, 12765), (222, 12795), (229, 12831), (239, 12915), (245, 12978), (246, 12990), (260, 13128), (262, 13152), (263, 13170), (264, 13185), (266, 13212), (273, 13263), (276, 13296), (277, 13305), (281, 13320), (287, 13386), (288, 13389), (293, 13443), (294, 13452), (297, 13482), (317, 13656), (320, 13665), (325, 13704), (337, 13845), (346, 13917), (350, 13929), (358, 13998), (360, 14013), (361, 14019), (368, 14067), (381, 14184), (383, 14202), (385, 14229), (412, 14553), (426, 14688), (470, 14928), (474, 14994), (476, 15015), (477, 15024), (479, 15051), (483, 15129), (484, 15153), (487, 15246), (488, 15270), (489, 15294), (493, 15399), (496, 15429), (502, 15522), (503, 15576), (507, 15678), (514, 15777), (537, 16101), (546, 16227), (549, 16257), (552, 16293), (553, 16296), (562, 16371), (571, 16467),

Gene: Confidence_18 Start: 10997, Stop: 16651, Start Num: 19

Candidate Starts for Confidence_18:

(Start: 19 @10997 has 17 MA's), (23, 11030), (34, 11210), (35, 11222), (39, 11261), (Start: 40 @11270 has 1 MA's), (42, 11294), (43, 11303), (47, 11378), (50, 11420), (70, 11609), (73, 11651), (78, 11681), (82, 11723), (85, 11774), (86, 11777), (95, 11828), (98, 11870), (104, 11924), (109, 11975), (111, 11987), (115, 12029), (125, 12134), (129, 12161), (133, 12218), (137, 12293), (141, 12332), (144, 12353), (146, 12368), (151, 12401), (158, 12443), (167, 12515), (169, 12518), (170, 12527), (181, 12611), (184, 12644), (185, 12647), (186, 12653), (187, 12662), (189, 12665), (192, 12710), (194, 12728), (196, 12737), (204, 12812), (205, 12818), (206, 12821), (207, 12830), (215, 12884), (219, 12905), (222, 12935), (229, 12971), (239, 13055), (245, 13118), (246, 13130), (260, 13268), (262, 13292), (263, 13310), (264, 13325), (266, 13352), (273, 13403), (276, 13436), (277, 13445), (281, 13460), (287, 13526), (288, 13529), (293, 13583), (294, 13592), (297, 13622), (317, 13796), (320, 13805), (325, 13844), (337, 13985), (346, 14057), (350, 14069), (358, 14138), (360, 14153), (361, 14159), (368, 14207), (381, 14324), (383, 14342), (385, 14369), (412, 14693), (419, 14786), (422, 14828), (424, 14846), (470, 15098), (474, 15164), (476, 15185), (477, 15194), (479, 15221), (483, 15299), (484, 15323), (487, 15416), (489, 15464), (493, 15569), (496, 15599), (502, 15692), (503, 15746), (507, 15848), (514, 15947), (536, 16250), (537, 16271), (546, 16397), (549, 16427), (552, 16463), (553, 16466), (562, 16541), (571, 16637),

Gene: Coriander_17 Start: 10886, Stop: 16564, Start Num: 4

Candidate Starts for Coriander_17:

(Start: 4 @10886 has 3 MA's), (5, 10916), (6, 10928), (13, 11021), (15, 11141), (17, 11177), (34, 11414), (35, 11426), (39, 11465), (42, 11498), (47, 11582), (50, 11624), (56, 11690), (59, 11708), (72, 11831), (73, 11855), (77, 11882), (86, 11981), (98, 12074), (104, 12128), (109, 12179), (111, 12191), (115, 12233), (138, 12506), (150, 12587), (159, 12650), (161, 12668), (162, 12671), (169, 12722), (172, 12743), (176, 12785), (184, 12833), (190, 12848), (199, 12878), (205, 12896), (207, 12908), (234, 13076), (235, 13079), (249, 13229), (254, 13298), (262, 13358), (264, 13391), (266, 13418), (277, 13511), (282, 13553), (283, 13565), (288, 13595), (289, 13610), (293, 13649), (297, 13688), (301, 13718), (304, 13778), (317, 13862), (322, 13892), (345, 14123), (354, 14168), (363, 14231), (366, 14255), (370, 14288), (373, 14300), (376, 14339), (380, 14366), (384, 14399), (388, 14429), (398, 14534), (400, 14543), (404, 14564), (409, 14663), (427, 14843), (428, 14846), (429, 14858), (431, 14879), (436, 14906), (473, 15101), (474, 15122), (475, 15125), (476, 15143), (486, 15278), (492, 15446), (496, 15491), (500, 15521), (503, 15629), (507, 15731), (514, 15830), (525, 15926), (528, 15986), (531, 16040), (544, 16298), (545, 16304), (549, 16337), (550, 16340), (551, 16361), (554, 16403), (555, 16406), (558, 16442), (565, 16517), (566, 16523), (567, 16526), (569, 16553),

Gene: Cracklewink_22 Start: 14060, Stop: 18745, Start Num: 1

Candidate Starts for Cracklewink_22:

(Start: 1 @14060 has 4 MA's), (3, 14111), (7, 14195), (8, 14207), (9, 14219), (16, 14408), (20, 14468), (24, 14507), (26, 14522), (29, 14576), (30, 14615), (31, 14633), (Start: 36 @14690 has 2 MA's), (38, 14696), (42, 14750), (45, 14801), (47, 14834), (49, 14864), (53, 14903), (55, 14933), (63, 14999), (67, 15044), (68, 15056), (69, 15059), (72, 15083), (73, 15107), (74, 15119), (76, 15128), (77, 15134), (84, 15188), (86, 15233), (95, 15284), (96, 15293), (98, 15326), (101, 15353), (102, 15362), (106, 15392), (109, 15431), (110, 15434), (112, 15452), (114, 15470), (115, 15485), (116, 15506), (118, 15557), (123, 15575), (131, 15671), (144, 15812), (145, 15827), (146, 15833), (147, 15836), (161, 15932), (172, 16016), (174, 16049), (178, 16070), (191, 16154), (192, 16187), (193, 16193), (198, 16241), (201, 16250), (210, 16340), (213, 16358), (223, 16430), (224, 16433), (236, 16496), (239, 16547), (244, 16598), (248, 16640), (261, 16778), (267, 16853), (268, 16865), (280, 16949), (283, 16991), (284, 16994), (288, 17021), (289, 17036), (290, 17039), (291, 17042), (295, 17096), (296, 17114), (302, 17192), (303, 17198), (307, 17255), (309, 17270), (316, 17318), (318, 17339), (319, 17342), (321, 17348), (326, 17414), (343, 17579), (347, 17597), (355, 17642), (356, 17651), (358, 17675), (364, 17717), (375, 17828), (377, 17840), (378, 17849), (391, 17969), (394, 17999), (395, 18020), (408, 18179), (410, 18251), (417, 18293), (425, 18419), (437, 18536), (440, 18578), (442, 18590), (447, 18677), (448, 18686), (453, 18731),

Gene: Crater_16 Start: 9635, Stop: 15046, Start Num: 41

Candidate Starts for Crater_16:

(Start: 40 @9629 has 1 MA's), (Start: 41 @9635 has 5 MA's), (46, 9713), (49, 9755), (50, 9767), (65, 9908), (66, 9914), (71, 9950), (77, 10010), (79, 10028), (80, 10046), (84, 10067), (87, 10118), (88, 10121), (89, 10124), (93, 10148), (94, 10151), (100, 10217), (104, 10247), (113, 10325), (116, 10370), (117, 10394), (124, 10448), (127, 10469), (136, 10607), (140, 10643), (143, 10670), (146, 10691), (150, 10706), (155, 10745), (157, 10757), (159, 10769), (166, 10829), (169, 10841), (177, 10892), (195, 10967), (203, 10988), (211, 11036), (214, 11054), (230, 11123), (234, 11147), (239, 11204), (243, 11234), (245, 11267), (255, 11384), (262, 11441), (263, 11459), (264, 11474), (273, 11552), (285, 11657), (286, 11669), (287, 11675), (299, 11789), (300, 11792), (305, 11876), (310, 11906), (312, 11918), (317, 11969), (323, 12002), (327, 12071), (329, 12086), (334, 12128), (339, 12182), (342, 12197), (348, 12236), (349, 12242), (353, 12266), (360, 12326), (361, 12332), (362, 12335), (369, 12404), (379, 12491), (381, 12497), (382, 12506), (385, 12542), (390, 12566), (403, 12677), (405, 12689), (418, 12896), (423, 12959), (424, 12968), (428, 13001), (435, 13058), (437, 13085), (444, 13151), (445, 13169), (446, 13181), (470, 13208), (472, 13238), (474, 13274), (476, 13295), (478, 13307), (479, 13331), (483, 13409), (484, 13433), (485, 13448), (488, 13538), (492, 13658), (493, 13673), (495, 13694), (496, 13703), (501, 13790), (505, 14033), (509, 14123), (512, 14273), (515, 14297), (516, 14306), (517, 14333), (521, 14381), (522, 14399), (524, 14417), (526, 14441), (530, 14501), (534, 14624), (538, 14675), (542, 14702), (547, 14801), (548, 14813), (557, 14909), (561, 14927), (563, 14939), (570, 15029),

Gene: Dmitri_17 Start: 10871, Stop: 16561, Start Num: 4

Candidate Starts for Dmitri_17:

(Start: 4 @10871 has 3 MA's), (5, 10901), (10, 10955), (13, 11006), (17, 11162), (22, 11204), (34, 11399), (35, 11411), (39, 11450), (Start: 40 @11459 has 1 MA's), (42, 11483), (47, 11567), (50, 11609), (73, 11840), (81, 11909), (86, 11966), (98, 12059), (104, 12113), (109, 12164), (111, 12176), (115, 12218), (128, 12347), (129, 12350), (138, 12491), (139, 12494), (153, 12599), (159, 12635), (161, 12653), (162, 12656), (169, 12707), (172, 12728), (176, 12770), (182, 12800), (183, 12803), (184, 12818), (190, 12833), (207, 12893), (226, 13007), (228, 13028), (233, 13058), (237, 13076), (247, 13199), (250, 13220), (269, 13424), (276, 13484), (277, 13493), (281, 13508), (282, 13535), (283, 13547), (288, 13577), (293, 13631), (297, 13670), (301, 13700), (304, 13760), (308, 13781), (317, 13844), (322, 13874), (335, 14012), (345, 14105), (354, 14150), (363, 14213), (366, 14237), (370, 14270), (371, 14273), (373, 14282), (380, 14348), (400, 14525), (402, 14534), (404, 14546), (409, 14645), (413, 14678), (427, 14825), (428, 14828), (429, 14840), (431, 14861), (436, 14888), (445, 15005), (473, 15083), (474, 15104), (476, 15125), (486, 15260), (496, 15476), (498, 15485), (500, 15506), (507, 15728), (510, 15746), (525, 15923), (528, 15983), (529, 15992), (531, 16037), (545, 16301), (549, 16334), (550, 16337), (551, 16358), (554, 16400), (555, 16403), (558, 16439), (565, 16514), (566, 16520), (567, 16523), (569, 16550), (571, 16553),

Gene: Doggs_16 Start: 10586, Stop: 16264, Start Num: 4

Candidate Starts for Doggs_16:

(Start: 4 @10586 has 3 MA's), (5, 10616), (6, 10628), (13, 10721), (15, 10841), (17, 10877), (34, 11114), (35, 11126), (39, 11165), (42, 11198), (47, 11282), (50, 11324), (56, 11390), (59, 11408), (72, 11531), (73, 11555), (77, 11582), (86, 11681), (98, 11774), (104, 11828), (109, 11879), (111, 11891), (115, 11933), (138, 12206), (147, 12275), (148, 12278), (150, 12287), (159, 12350), (161, 12368), (162, 12371), (169, 12422), (172, 12443), (176, 12485), (184, 12533), (190, 12548), (199, 12578), (205, 12596), (207, 12608), (234, 12776), (235, 12779), (249, 12929), (254, 12998), (262, 13058), (264, 13091), (266, 13118), (277, 13211), (282, 13253), (283, 13265), (288, 13295), (289, 13310), (293, 13349), (297, 13388), (301, 13418), (304, 13478), (317, 13562), (322, 13592), (345, 13823), (354, 13868), (363, 13931), (366, 13955), (370, 13988), (373, 14000), (376, 14039), (380, 14066), (384, 14099), (388, 14129), (398, 14234), (400, 14243), (404, 14264), (409, 14363), (413, 14396), (428, 14546), (429, 14558), (431, 14579), (436, 14606), (473, 14801), (474, 14822), (475, 14825), (476, 14843), (486, 14978), (492, 15146), (496, 15191), (500, 15221), (503, 15329), (506, 15401),

(507, 15431), (514, 15530), (525, 15629), (528, 15689), (532, 15782), (540, 15890), (542, 15902), (544, 15998), (545, 16004), (549, 16037), (550, 16040), (554, 16103), (555, 16106), (565, 16217), (566, 16223), (567, 16226), (569, 16253), (571, 16256),

Gene: EMSquaredA_18 Start: 11003, Stop: 16657, Start Num: 19

Candidate Starts for EMSquaredA_18:

(Start: 19 @11003 has 17 MA's), (23, 11036), (34, 11216), (35, 11228), (39, 11267), (Start: 40 @11276 has 1 MA's), (42, 11300), (43, 11309), (47, 11384), (50, 11426), (70, 11615), (72, 11633), (73, 11657), (78, 11687), (85, 11780), (86, 11783), (94, 11828), (95, 11834), (98, 11876), (104, 11930), (109, 11981), (111, 11993), (115, 12035), (125, 12140), (129, 12167), (133, 12224), (137, 12299), (141, 12338), (144, 12359), (146, 12374), (151, 12407), (158, 12449), (167, 12521), (169, 12524), (170, 12533), (181, 12617), (184, 12650), (185, 12653), (186, 12659), (187, 12668), (189, 12671), (192, 12716), (194, 12734), (196, 12743), (205, 12824), (206, 12827), (207, 12836), (215, 12890), (219, 12911), (229, 12977), (239, 13061), (245, 13124), (246, 13136), (260, 13274), (262, 13298), (263, 13316), (264, 13331), (266, 13358), (273, 13409), (276, 13442), (277, 13451), (281, 13466), (287, 13532), (288, 13535), (293, 13589), (294, 13598), (297, 13628), (317, 13802), (320, 13811), (325, 13850), (337, 13991), (346, 14063), (350, 14075), (358, 14144), (360, 14159), (361, 14165), (368, 14213), (370, 14240), (372, 14249), (379, 14324), (381, 14330), (383, 14348), (385, 14375), (412, 14699), (419, 14792), (422, 14834), (424, 14852), (470, 15104), (474, 15170), (476, 15191), (477, 15200), (479, 15227), (483, 15305), (484, 15329), (487, 15422), (488, 15446), (489, 15470), (493, 15575), (496, 15605), (502, 15698), (503, 15752), (507, 15854), (514, 15953), (536, 16256), (546, 16403), (549, 16433), (552, 16469), (553, 16472), (562, 16547), (571, 16643),

Gene: Ecliptus_22 Start: 11993, Stop: 17506, Start Num: 37

Candidate Starts for Ecliptus_22:

(Start: 37 @11993 has 2 MA's), (Start: 40 @12026 has 1 MA's), (Start: 41 @12032 has 5 MA's), (49, 12152), (50, 12164), (57, 12230), (65, 12305), (77, 12407), (80, 12443), (84, 12464), (88, 12518), (89, 12521), (94, 12548), (99, 12599), (103, 12635), (104, 12644), (113, 12722), (116, 12767), (117, 12791), (120, 12824), (121, 12827), (132, 12935), (140, 13040), (143, 13067), (148, 13094), (150, 13103), (151, 13121), (152, 13124), (159, 13166), (161, 13184), (162, 13187), (172, 13259), (176, 13301), (179, 13322), (181, 13328), (184, 13349), (188, 13358), (194, 13373), (198, 13391), (207, 13424), (211, 13457), (218, 13490), (219, 13499), (220, 13508), (222, 13529), (227, 13553), (229, 13565), (230, 13568), (233, 13589), (234, 13592), (239, 13649), (243, 13679), (256, 13838), (257, 13841), (260, 13862), (262, 13886), (264, 13919), (270, 13973), (271, 13988), (283, 14093), (286, 14114), (288, 14123), (299, 14234), (300, 14237), (317, 14414), (324, 14456), (327, 14516), (328, 14525), (332, 14564), (337, 14603), (338, 14621), (342, 14642), (345, 14675), (353, 14714), (358, 14759), (363, 14792), (368, 14828), (374, 14888), (381, 14945), (387, 14999), (406, 15152), (414, 15305), (420, 15359), (423, 15404), (424, 15413), (428, 15446), (441, 15551), (445, 15608), (470, 15647), (474, 15713), (476, 15734), (482, 15842), (483, 15848), (484, 15872), (488, 15986), (489, 16010), (490, 16085), (493, 16121), (495, 16142), (496, 16151), (497, 16154), (500, 16181), (505, 16484), (507, 16565), (508, 16568), (509, 16574), (513, 16739), (515, 16757), (516, 16766), (518, 16811), (519, 16823), (522, 16856), (524, 16874), (530, 16967), (533, 17072), (535, 17093), (539, 17147), (543, 17186), (546, 17258), (549, 17288), (553, 17327), (556, 17360), (561, 17399), (564, 17447), (568, 17480), (571, 17492),

Gene: EnalisNailo_18 Start: 11182, Stop: 16806, Start Num: 19

Candidate Starts for EnalisNailo_18:

(Start: 19 @11182 has 17 MA's), (23, 11215), (34, 11395), (35, 11407), (39, 11446), (Start: 40 @11455 has 1 MA's), (42, 11479), (47, 11563), (49, 11593), (50, 11605), (73, 11836), (77, 11863), (85, 11959), (86, 11962), (90, 11983), (94, 12007), (98, 12055), (104, 12109), (109, 12160), (111, 12172), (114, 12199), (115, 12214), (125, 12319), (133, 12403), (134, 12424), (137, 12478), (141, 12517), (144, 12538), (151, 12586), (154, 12598), (158, 12628), (163, 12661), (169, 12703), (173, 12745), (176, 12766), (181, 12796), (184, 12829), (185, 12832), (186, 12838), (187, 12847), (189, 12850), (194,

12913), (197, 12946), (202, 12985), (207, 13015), (220, 13099), (229, 13156), (242, 13264), (245, 13303), (246, 13315), (262, 13477), (263, 13495), (264, 13510), (266, 13537), (273, 13588), (275, 13603), (277, 13630), (288, 13714), (293, 13768), (294, 13777), (297, 13807), (317, 13981), (322, 14011), (329, 14098), (346, 14242), (350, 14254), (361, 14344), (368, 14392), (374, 14452), (379, 14503), (381, 14509), (385, 14554), (399, 14686), (426, 15013), (437, 15118), (470, 15253), (472, 15283), (474, 15319), (476, 15340), (477, 15349), (479, 15376), (483, 15454), (484, 15478), (489, 15619), (493, 15724), (496, 15754), (497, 15757), (502, 15847), (503, 15901), (507, 16003), (527, 16237), (536, 16405), (537, 16426), (546, 16552), (549, 16582), (552, 16618), (553, 16621),

Gene: Faiyaz_22 Start: 14030, Stop: 18613, Start Num: 1

Candidate Starts for Faiyaz_22:

(Start: 1 @14030 has 4 MA's), (2, 14057), (3, 14081), (7, 14165), (8, 14177), (11, 14219), (16, 14378), (20, 14438), (21, 14441), (25, 14471), (27, 14495), (28, 14513), (33, 14612), (34, 14618), (35, 14630), (38, 14648), (39, 14669), (Start: 40 @14678 has 1 MA's), (42, 14702), (47, 14786), (48, 14789), (50, 14828), (52, 14849), (60, 14927), (61, 14930), (64, 14960), (68, 15008), (72, 15035), (73, 15059), (74, 15071), (75, 15077), (76, 15080), (84, 15140), (86, 15185), (91, 15215), (92, 15218), (98, 15281), (101, 15308), (102, 15317), (106, 15347), (109, 15386), (114, 15425), (115, 15440), (116, 15461), (118, 15512), (119, 15515), (127, 15560), (131, 15623), (135, 15650), (142, 15752), (144, 15764), (149, 15797), (156, 15842), (160, 15881), (161, 15884), (168, 15941), (172, 15968), (174, 16001), (175, 16007), (178, 16022), (191, 16106), (192, 16139), (193, 16145), (198, 16193), (225, 16394), (233, 16436), (240, 16490), (241, 16505), (251, 16610), (259, 16682), (261, 16712), (274, 16838), (279, 16880), (283, 16925), (290, 16973), (291, 16976), (297, 17045), (298, 17051), (300, 17066), (306, 17159), (309, 17177), (316, 17225), (319, 17249), (321, 17255), (326, 17321), (332, 17405), (333, 17414), (336, 17432), (341, 17477), (347, 17525), (352, 17552), (364, 17639), (367, 17669), (375, 17747), (397, 17948), (404, 17987), (411, 18155), (412, 18158), (417, 18185), (434, 18374), (437, 18407), (438, 18416), (440, 18449), (447, 18545), (450, 18569), (452, 18590), (453, 18599),

Gene: Floral_18 Start: 11003, Stop: 16657, Start Num: 19

Candidate Starts for Floral_18:

(Start: 19 @11003 has 17 MA's), (23, 11036), (34, 11216), (35, 11228), (39, 11267), (Start: 40 @11276 has 1 MA's), (42, 11300), (43, 11309), (47, 11384), (50, 11426), (70, 11615), (72, 11633), (73, 11657), (78, 11687), (85, 11780), (86, 11783), (94, 11828), (95, 11834), (98, 11876), (104, 11930), (109, 11981), (111, 11993), (115, 12035), (125, 12140), (129, 12167), (133, 12224), (137, 12299), (141, 12338), (144, 12359), (146, 12374), (151, 12407), (158, 12449), (167, 12521), (169, 12524), (170, 12533), (181, 12617), (184, 12650), (185, 12653), (186, 12659), (187, 12668), (189, 12671), (192, 12716), (194, 12734), (196, 12743), (205, 12824), (206, 12827), (207, 12836), (215, 12890), (219, 12911), (229, 12977), (239, 13061), (245, 13124), (246, 13136), (260, 13274), (262, 13298), (263, 13316), (264, 13331), (266, 13358), (273, 13409), (276, 13442), (277, 13451), (281, 13466), (287, 13532), (288, 13535), (293, 13589), (294, 13598), (297, 13628), (317, 13802), (320, 13811), (325, 13850), (337, 13991), (346, 14063), (350, 14075), (358, 14144), (360, 14159), (361, 14165), (368, 14213), (370, 14240), (372, 14249), (379, 14324), (381, 14330), (383, 14348), (385, 14375), (412, 14699), (419, 14792), (422, 14834), (424, 14852), (470, 15104), (474, 15170), (476, 15191), (477, 15200), (479, 15227), (483, 15305), (484, 15329), (487, 15422), (488, 15446), (489, 15470), (493, 15575), (496, 15605), (502, 15698), (503, 15752), (507, 15854), (514, 15953), (536, 16256), (546, 16403), (549, 16433), (552, 16469), (553, 16472), (562, 16547), (571, 16643),

Gene: Hilltopfarm_22 Start: 14060, Stop: 18643, Start Num: 1

Candidate Starts for Hilltopfarm_22:

(Start: 1 @14060 has 4 MA's), (2, 14087), (3, 14111), (7, 14195), (8, 14207), (11, 14249), (16, 14408), (20, 14468), (21, 14471), (25, 14501), (27, 14525), (28, 14543), (33, 14642), (34, 14648), (35, 14660), (38, 14678), (39, 14699), (Start: 40 @14708 has 1 MA's), (42, 14732), (47, 14816), (48, 14819), (50, 14858), (52, 14879), (60, 14957), (61, 14960), (64, 14990), (68, 15038), (72, 15065), (73, 15089), (74, 15101), (75, 15107), (76, 15110), (84, 15170), (86, 15215), (91, 15245), (92, 15248), (98, 15311), (101,

15338), (102, 15347), (106, 15377), (109, 15416), (114, 15455), (115, 15470), (116, 15491), (118, 15542), (119, 15545), (127, 15590), (131, 15653), (135, 15680), (142, 15782), (144, 15794), (149, 15827), (156, 15872), (160, 15911), (161, 15914), (168, 15971), (172, 15998), (174, 16031), (175, 16037), (178, 16052), (191, 16136), (192, 16169), (193, 16175), (198, 16223), (225, 16424), (233, 16466), (240, 16520), (241, 16535), (251, 16640), (259, 16712), (261, 16742), (274, 16868), (279, 16910), (283, 16955), (290, 17003), (291, 17006), (297, 17075), (298, 17081), (300, 17096), (306, 17189), (309, 17207), (316, 17255), (319, 17279), (321, 17285), (326, 17351), (332, 17435), (333, 17444), (336, 17462), (341, 17507), (347, 17555), (352, 17582), (364, 17669), (367, 17699), (375, 17777), (397, 17978), (404, 18017), (411, 18185), (412, 18188), (417, 18215), (434, 18404), (437, 18437), (438, 18446), (440, 18479), (447, 18575), (450, 18599), (452, 18620), (453, 18629),

Gene: Jablanski_18 Start: 11132, Stop: 16768, Start Num: 19

Candidate Starts for Jablanski_18:

(Start: 19 @11132 has 17 MA's), (23, 11165), (34, 11345), (35, 11357), (39, 11396), (Start: 40 @11405 has 1 MA's), (42, 11429), (43, 11438), (47, 11513), (50, 11555), (70, 11744), (72, 11762), (73, 11786), (78, 11816), (82, 11858), (85, 11909), (86, 11912), (95, 11963), (98, 12005), (104, 12059), (109, 12110), (111, 12122), (115, 12164), (125, 12269), (129, 12296), (133, 12353), (137, 12428), (141, 12467), (144, 12488), (146, 12503), (151, 12536), (158, 12578), (167, 12650), (169, 12653), (170, 12662), (181, 12746), (184, 12779), (185, 12782), (186, 12788), (187, 12797), (189, 12800), (192, 12845), (194, 12863), (196, 12872), (206, 12956), (207, 12965), (215, 13019), (219, 13040), (222, 13070), (229, 13106), (239, 13190), (245, 13253), (246, 13265), (260, 13403), (262, 13427), (263, 13445), (264, 13460), (265, 13478), (266, 13487), (273, 13538), (276, 13571), (277, 13580), (281, 13595), (287, 13661), (288, 13664), (293, 13718), (294, 13727), (297, 13757), (304, 13847), (317, 13931), (322, 13961), (337, 14120), (339, 14144), (344, 14183), (346, 14192), (350, 14204), (361, 14294), (368, 14342), (372, 14378), (374, 14402), (379, 14453), (381, 14459), (385, 14504), (393, 14567), (412, 14828), (426, 14963), (470, 15203), (474, 15269), (476, 15290), (477, 15299), (479, 15326), (483, 15404), (484, 15428), (487, 15521), (489, 15569), (493, 15674), (494, 15686), (496, 15704), (502, 15797), (503, 15851), (504, 15875), (507, 15953), (514, 16052), (527, 16199), (537, 16388), (546, 16514), (549, 16544), (552, 16580), (553, 16583), (571, 16754),

Gene: Kuwabara_17 Start: 9635, Stop: 15067, Start Num: 41

Candidate Starts for Kuwabara_17:

(Start: 40 @9629 has 1 MA's), (Start: 41 @9635 has 5 MA's), (46, 9713), (49, 9755), (50, 9767), (65, 9908), (66, 9914), (71, 9950), (77, 10010), (79, 10028), (80, 10046), (84, 10067), (87, 10118), (88, 10121), (89, 10124), (93, 10148), (94, 10151), (100, 10217), (104, 10247), (113, 10325), (116, 10370), (117, 10394), (124, 10448), (127, 10469), (136, 10607), (140, 10643), (143, 10670), (146, 10691), (150, 10706), (155, 10745), (157, 10757), (159, 10769), (166, 10829), (169, 10841), (177, 10892), (195, 10967), (203, 10988), (211, 11036), (214, 11054), (230, 11123), (234, 11147), (239, 11204), (243, 11234), (245, 11267), (255, 11384), (262, 11441), (263, 11459), (264, 11474), (273, 11552), (285, 11657), (286, 11669), (287, 11675), (299, 11789), (300, 11792), (305, 11876), (310, 11906), (312, 11918), (317, 11969), (323, 12002), (327, 12071), (329, 12086), (334, 12128), (339, 12182), (340, 12185), (342, 12197), (348, 12236), (349, 12242), (353, 12266), (360, 12326), (361, 12332), (362, 12335), (369, 12404), (379, 12491), (381, 12497), (382, 12506), (385, 12542), (390, 12566), (403, 12677), (405, 12689), (418, 12896), (421, 12941), (424, 12968), (428, 13001), (437, 13079), (439, 13103), (441, 13106), (445, 13163), (446, 13175), (470, 13202), (471, 13220), (474, 13268), (476, 13289), (481, 13379), (483, 13403), (484, 13427), (488, 13535), (491, 13658), (493, 13682), (495, 13703), (496, 13712), (497, 13715), (500, 13742), (501, 13802), (505, 14045), (507, 14126), (508, 14129), (509, 14135), (513, 14300), (515, 14318), (516, 14327), (518, 14372), (519, 14384), (522, 14417), (524, 14435), (530, 14528), (533, 14633), (535, 14654), (539, 14708), (543, 14747), (546, 14819), (549, 14849), (553, 14888), (556, 14921), (561, 14960), (564, 15008), (568, 15041), (571, 15053),

Gene: Lilas_18 Start: 11182, Stop: 16806, Start Num: 19

Candidate Starts for Lilas_18:

(Start: 19 @11182 has 17 MA's), (23, 11215), (34, 11395), (35, 11407), (39, 11446), (Start: 40 @11455 has 1 MA's), (42, 11479), (47, 11563), (49, 11593), (50, 11605), (73, 11836), (77, 11863), (85, 11959), (86, 11962), (90, 11983), (94, 12007), (98, 12055), (104, 12109), (109, 12160), (111, 12172), (114, 12199), (115, 12214), (125, 12319), (133, 12403), (134, 12424), (137, 12478), (141, 12517), (144, 12538), (151, 12586), (154, 12598), (158, 12628), (163, 12661), (169, 12703), (173, 12745), (176, 12766), (181, 12796), (184, 12829), (185, 12832), (186, 12838), (187, 12847), (189, 12850), (194, 12913), (197, 12946), (202, 12985), (207, 13015), (220, 13099), (229, 13156), (242, 13264), (245, 13303), (246, 13315), (262, 13477), (263, 13495), (264, 13510), (266, 13537), (273, 13588), (275, 13603), (277, 13630), (288, 13714), (293, 13768), (294, 13777), (297, 13807), (317, 13981), (322, 14011), (329, 14098), (346, 14242), (350, 14254), (361, 14344), (368, 14392), (374, 14452), (379, 14503), (381, 14509), (385, 14554), (399, 14686), (426, 15013), (437, 15118), (470, 15253), (472, 15283), (474, 15319), (476, 15340), (477, 15349), (479, 15376), (483, 15454), (484, 15478), (489, 15619), (493, 15724), (496, 15754), (497, 15757), (502, 15847), (503, 15901), (507, 16003), (527, 16237), (536, 16405), (537, 16426), (546, 16552), (549, 16582), (552, 16618), (553, 16621),

Gene: LonelyBoi_18 Start: 11131, Stop: 16809, Start Num: 19

Candidate Starts for LonelyBoi_18:

(Start: 19 @11131 has 17 MA's), (23, 11164), (34, 11344), (35, 11356), (39, 11395), (Start: 40 @11404 has 1 MA's), (42, 11428), (43, 11437), (47, 11512), (50, 11554), (70, 11743), (72, 11761), (73, 11785), (78, 11815), (82, 11857), (85, 11908), (86, 11911), (95, 11962), (98, 12004), (104, 12058), (109, 12109), (111, 12121), (115, 12163), (125, 12268), (129, 12295), (133, 12352), (137, 12427), (141, 12466), (144, 12487), (146, 12502), (151, 12535), (158, 12577), (169, 12652), (173, 12694), (181, 12745), (184, 12778), (185, 12781), (187, 12796), (194, 12862), (200, 12904), (202, 12934), (204, 12946), (207, 12964), (209, 13000), (212, 13018), (216, 13045), (217, 13048), (226, 13099), (229, 13126), (232, 13138), (239, 13210), (245, 13273), (246, 13285), (252, 13330), (262, 13447), (264, 13480), (266, 13507), (270, 13534), (277, 13600), (283, 13654), (286, 13675), (299, 13795), (300, 13798), (305, 13882), (312, 13924), (313, 13927), (314, 13933), (315, 13936), (317, 13975), (327, 14077), (331, 14104), (344, 14233), (353, 14281), (360, 14341), (361, 14347), (363, 14359), (365, 14383), (368, 14395), (374, 14455), (379, 14506), (381, 14512), (385, 14557), (399, 14689), (426, 15016), (470, 15256), (474, 15322), (476, 15343), (477, 15352), (479, 15379), (483, 15457), (484, 15481), (487, 15574), (488, 15598), (489, 15622), (493, 15727), (496, 15757), (502, 15850), (503, 15904), (507, 16006), (514, 16105), (536, 16408), (537, 16429), (546, 16555), (549, 16585), (552, 16621), (553, 16624), (562, 16699), (571, 16795),

Gene: Lucky10_16 Start: 8884, Stop: 14280, Start Num: 40

Candidate Starts for Lucky10_16:

(Start: 40 @8884 has 1 MA's), (Start: 41 @8890 has 5 MA's), (49, 9010), (50, 9022), (57, 9088), (65, 9163), (66, 9169), (80, 9301), (87, 9373), (88, 9376), (89, 9379), (94, 9406), (97, 9442), (103, 9493), (104, 9502), (108, 9538), (113, 9580), (116, 9625), (117, 9649), (124, 9703), (127, 9724), (140, 9898), (144, 9931), (150, 9961), (155, 10000), (157, 10012), (159, 10024), (165, 10069), (166, 10084), (169, 10096), (177, 10147), (195, 10222), (208, 10270), (211, 10291), (214, 10309), (221, 10339), (230, 10378), (234, 10402), (239, 10459), (243, 10489), (245, 10522), (253, 10618), (262, 10696), (263, 10714), (264, 10729), (273, 10807), (286, 10924), (287, 10930), (299, 11044), (300, 11047), (305, 11131), (312, 11173), (317, 11224), (323, 11257), (327, 11326), (334, 11383), (339, 11437), (340, 11440), (342, 11452), (348, 11491), (351, 11509), (353, 11521), (358, 11566), (360, 11581), (374, 11695), (379, 11746), (381, 11752), (383, 11770), (386, 11803), (390, 11821), (396, 11896), (403, 11932), (405, 11944), (407, 11965), (412, 12070), (413, 12076), (428, 12226), (429, 12238), (430, 12247), (436, 12286), (439, 12328), (445, 12388), (446, 12400), (470, 12427), (472, 12457), (474, 12493), (476, 12514), (483, 12628), (484, 12652), (493, 12895), (494, 12907), (496, 12925), (501, 13015), (505, 13258), (511, 13378), (516, 13540), (522, 13630), (524, 13648), (532, 13816), (535, 13867), (539, 13921), (542, 13936), (546, 14032), (549, 14062), (553, 14101), (556, 14134), (557, 14155), (559, 14167), (560, 14170), (564, 14221), (568, 14254), (571, 14266),

Gene: Marteena_18 Start: 11003, Stop: 16657, Start Num: 19

Candidate Starts for Marteena_18:

(Start: 19 @11003 has 17 MA's), (23, 11036), (34, 11216), (35, 11228), (39, 11267), (Start: 40 @11276 has 1 MA's), (42, 11300), (43, 11309), (47, 11384), (50, 11426), (70, 11615), (72, 11633), (73, 11657), (78, 11687), (85, 11780), (86, 11783), (94, 11828), (95, 11834), (98, 11876), (104, 11930), (109, 11981), (111, 11993), (115, 12035), (125, 12140), (129, 12167), (133, 12224), (137, 12299), (141, 12338), (144, 12359), (146, 12374), (151, 12407), (158, 12449), (167, 12521), (169, 12524), (170, 12533), (181, 12617), (184, 12650), (185, 12653), (186, 12659), (187, 12668), (189, 12671), (192, 12716), (194, 12734), (196, 12743), (205, 12824), (206, 12827), (207, 12836), (215, 12890), (219, 12911), (229, 12977), (239, 13061), (245, 13124), (246, 13136), (260, 13274), (262, 13298), (263, 13316), (264, 13331), (266, 13358), (273, 13409), (276, 13442), (277, 13451), (281, 13466), (287, 13532), (288, 13535), (293, 13589), (294, 13598), (297, 13628), (317, 13802), (320, 13811), (325, 13850), (337, 13991), (346, 14063), (350, 14075), (358, 14144), (360, 14159), (361, 14165), (368, 14213), (370, 14240), (372, 14249), (379, 14324), (381, 14330), (383, 14348), (385, 14375), (412, 14699), (419, 14792), (422, 14834), (424, 14852), (470, 15104), (474, 15170), (476, 15191), (477, 15200), (479, 15227), (483, 15305), (484, 15329), (487, 15422), (488, 15446), (489, 15470), (493, 15575), (496, 15605), (502, 15698), (503, 15752), (507, 15854), (514, 15953), (536, 16256), (546, 16403), (549, 16433), (552, 16469), (553, 16472), (562, 16547), (571, 16643),

Gene: Moonflower_17 Start: 10660, Stop: 16308, Start Num: 6

Candidate Starts for Moonflower_17:

(Start: 4 @10618 has 3 MA's), (5, 10648), (6, 10660), (12, 10735), (13, 10753), (15, 10873), (17, 10909), (32, 11128), (34, 11146), (35, 11158), (39, 11197), (Start: 40 @11206 has 1 MA's), (42, 11230), (47, 11314), (50, 11356), (73, 11587), (81, 11656), (86, 11713), (98, 11806), (104, 11860), (105, 11866), (107, 11875), (109, 11911), (111, 11923), (115, 11965), (122, 12052), (129, 12097), (138, 12238), (146, 12304), (148, 12310), (153, 12346), (158, 12379), (159, 12382), (166, 12442), (169, 12454), (171, 12466), (172, 12475), (176, 12517), (182, 12547), (184, 12565), (190, 12580), (207, 12640), (220, 12724), (226, 12754), (228, 12775), (231, 12790), (237, 12823), (247, 12946), (248, 12955), (250, 12967), (264, 13120), (273, 13198), (277, 13240), (282, 13282), (283, 13294), (288, 13324), (289, 13339), (293, 13378), (297, 13417), (301, 13447), (304, 13507), (317, 13591), (322, 13621), (330, 13714), (335, 13759), (345, 13852), (354, 13897), (363, 13960), (370, 14017), (373, 14029), (380, 14095), (384, 14128), (400, 14272), (404, 14293), (409, 14392), (413, 14425), (427, 14572), (428, 14575), (429, 14587), (431, 14608), (436, 14635), (445, 14752), (473, 14830), (474, 14851), (475, 14854), (476, 14872), (486, 15007), (492, 15178), (496, 15223), (507, 15475), (510, 15493), (523, 15664), (528, 15733), (532, 15826), (540, 15934), (542, 15946), (544, 16042), (545, 16048), (549, 16081), (550, 16084), (551, 16105), (554, 16147), (555, 16150), (558, 16186), (565, 16261), (566, 16267), (567, 16270), (569, 16297), (571, 16300),

Gene: Morkie_16 Start: 8855, Stop: 14248, Start Num: 41

Candidate Starts for Morkie_16:

(Start: 40 @8849 has 1 MA's), (Start: 41 @8855 has 5 MA's), (49, 8975), (50, 8987), (57, 9053), (58, 9056), (65, 9128), (66, 9134), (77, 9230), (79, 9248), (80, 9266), (87, 9338), (88, 9341), (89, 9344), (94, 9371), (97, 9407), (103, 9458), (104, 9467), (108, 9503), (113, 9545), (116, 9590), (117, 9614), (124, 9668), (127, 9689), (140, 9863), (144, 9896), (150, 9926), (151, 9944), (155, 9965), (157, 9977), (159, 9989), (164, 10028), (165, 10034), (166, 10049), (169, 10061), (177, 10112), (180, 10133), (195, 10187), (208, 10235), (211, 10256), (214, 10274), (221, 10304), (230, 10343), (234, 10367), (239, 10424), (243, 10454), (245, 10487), (262, 10661), (263, 10679), (264, 10694), (266, 10721), (273, 10772), (283, 10868), (285, 10877), (286, 10889), (299, 11009), (300, 11012), (305, 11096), (317, 11189), (323, 11222), (327, 11291), (339, 11402), (340, 11405), (342, 11417), (348, 11456), (349, 11462), (351, 11474), (353, 11486), (358, 11531), (360, 11546), (362, 11555), (374, 11660), (379, 11711), (381, 11717), (386, 11768), (390, 11786), (396, 11861), (403, 11897), (405, 11909), (407, 11930), (412, 12035), (413, 12041), (428, 12191), (429, 12203), (430, 12212), (432, 12236), (445,

12353), (446, 12365), (470, 12392), (472, 12422), (474, 12458), (476, 12479), (483, 12593), (484, 12617), (488, 12725), (493, 12863), (496, 12893), (500, 12923), (501, 12983), (505, 13226), (509, 13316), (516, 13508), (522, 13598), (524, 13616), (532, 13784), (535, 13835), (539, 13889), (542, 13904), (546, 14000), (549, 14030), (553, 14069), (556, 14102), (557, 14123), (559, 14135), (560, 14138), (568, 14222), (571, 14234),

Gene: MortyNRick_17 Start: 9965, Stop: 15370, Start Num: 42

Candidate Starts for MortyNRick_17:

(Start: 36 @9908 has 2 MA's), (42, 9965), (44, 9983), (49, 10067), (50, 10079), (51, 10091), (54, 10115), (57, 10145), (62, 10190), (65, 10220), (66, 10226), (73, 10295), (77, 10322), (79, 10340), (80, 10358), (83, 10370), (84, 10379), (87, 10430), (88, 10433), (89, 10436), (93, 10460), (94, 10463), (103, 10550), (104, 10559), (113, 10637), (116, 10682), (117, 10706), (120, 10739), (121, 10742), (130, 10829), (132, 10850), (140, 10955), (143, 10982), (148, 11009), (151, 11036), (152, 11039), (159, 11081), (161, 11099), (162, 11102), (172, 11174), (176, 11216), (179, 11237), (184, 11264), (188, 11273), (194, 11288), (198, 11306), (207, 11339), (211, 11372), (218, 11405), (219, 11414), (220, 11423), (222, 11444), (227, 11468), (230, 11483), (233, 11504), (234, 11507), (239, 11564), (243, 11594), (245, 11627), (262, 11801), (264, 11834), (266, 11861), (270, 11888), (272, 11906), (280, 11966), (283, 12008), (286, 12029), (292, 12080), (294, 12101), (299, 12149), (300, 12152), (315, 12290), (317, 12329), (324, 12371), (327, 12431), (331, 12458), (332, 12479), (338, 12536), (342, 12557), (353, 12629), (357, 12671), (358, 12674), (363, 12707), (368, 12743), (374, 12803), (379, 12854), (381, 12860), (382, 12869), (383, 12878), (386, 12911), (390, 12929), (392, 12959), (415, 13154), (416, 13157), (422, 13238), (424, 13256), (428, 13289), (429, 13301), (433, 13337), (437, 13373), (439, 13397), (441, 13400), (443, 13421), (445, 13457), (446, 13469), (470, 13496), (471, 13514), (472, 13526), (474, 13562), (476, 13583), (481, 13673), (483, 13697), (484, 13721), (488, 13829), (491, 13952), (493, 13976), (496, 14006), (497, 14009), (500, 14036), (505, 14339), (507, 14420), (508, 14423), (509, 14429), (513, 14594), (515, 14612), (516, 14621), (518, 14666), (519, 14678), (522, 14714), (524, 14732), (530, 14831), (533, 14936), (535, 14957), (539, 15011), (543, 15050), (546, 15122), (549, 15152), (553, 15191), (556, 15224), (561, 15263), (564, 15311), (568, 15344), (571, 15356),

Gene: ODay_22 Start: 12098, Stop: 17611, Start Num: 37

Candidate Starts for ODay_22:

(Start: 37 @12098 has 2 MA's), (Start: 40 @12131 has 1 MA's), (Start: 41 @12137 has 5 MA's), (49, 12257), (50, 12269), (57, 12335), (65, 12410), (73, 12485), (77, 12512), (79, 12530), (80, 12548), (83, 12560), (84, 12569), (88, 12623), (89, 12626), (93, 12650), (94, 12653), (103, 12740), (104, 12749), (113, 12827), (116, 12872), (117, 12896), (121, 12932), (130, 13019), (132, 13040), (136, 13109), (140, 13145), (143, 13172), (148, 13199), (151, 13226), (152, 13229), (159, 13271), (161, 13289), (162, 13292), (176, 13406), (179, 13427), (184, 13454), (188, 13463), (194, 13478), (207, 13529), (211, 13562), (218, 13595), (219, 13604), (220, 13613), (227, 13658), (229, 13670), (230, 13673), (233, 13694), (234, 13697), (239, 13754), (243, 13784), (256, 13943), (257, 13946), (260, 13967), (262, 13991), (264, 14024), (270, 14078), (271, 14093), (283, 14198), (286, 14219), (288, 14228), (299, 14339), (300, 14342), (317, 14519), (324, 14561), (327, 14621), (328, 14630), (332, 14669), (337, 14708), (338, 14726), (342, 14747), (345, 14780), (353, 14819), (363, 14897), (368, 14933), (374, 14993), (379, 15044), (381, 15050), (387, 15104), (401, 15230), (406, 15257), (420, 15464), (424, 15518), (430, 15572), (441, 15656), (445, 15713), (470, 15752), (474, 15818), (476, 15839), (479, 15875), (480, 15890), (483, 15953), (484, 15977), (487, 16067), (488, 16091), (489, 16115), (490, 16190), (491, 16202), (493, 16226), (495, 16247), (496, 16256), (500, 16286), (501, 16346), (505, 16589), (507, 16670), (508, 16673), (509, 16679), (513, 16844), (515, 16862), (516, 16871), (518, 16916), (519, 16928), (522, 16961), (524, 16979), (530, 17072), (533, 17177), (535, 17198), (539, 17252), (543, 17291), (546, 17363), (549, 17393), (553, 17432), (556, 17465), (561, 17504), (564, 17552), (568, 17585), (571, 17597),

Gene: PhorbesPhlower_16 Start: 8855, Stop: 14248, Start Num: 41

Candidate Starts for PhorbesPhlower_16:

(Start: 40 @8849 has 1 MA's), (Start: 41 @8855 has 5 MA's), (49, 8975), (50, 8987), (57, 9053), (58, 9056), (65, 9128), (66, 9134), (77, 9230), (79, 9248), (80, 9266), (87, 9338), (88, 9341), (89, 9344), (94, 9371), (97, 9407), (103, 9458), (104, 9467), (108, 9503), (113, 9545), (116, 9590), (117, 9614), (124, 9668), (127, 9689), (140, 9863), (144, 9896), (150, 9926), (151, 9944), (155, 9965), (157, 9977), (159, 9989), (164, 10028), (165, 10034), (166, 10049), (169, 10061), (177, 10112), (180, 10133), (195, 10187), (208, 10235), (211, 10256), (214, 10274), (221, 10304), (230, 10343), (234, 10367), (239, 10424), (243, 10454), (245, 10487), (262, 10661), (263, 10679), (264, 10694), (266, 10721), (273, 10772), (283, 10868), (285, 10877), (286, 10889), (299, 11009), (300, 11012), (305, 11096), (317, 11189), (323, 11222), (327, 11291), (339, 11402), (340, 11405), (342, 11417), (348, 11456), (349, 11462), (351, 11474), (353, 11486), (358, 11531), (360, 11546), (362, 11555), (374, 11660), (379, 11711), (381, 11717), (386, 11768), (390, 11786), (396, 11861), (403, 11897), (405, 11909), (407, 11930), (412, 12035), (413, 12041), (428, 12191), (429, 12203), (430, 12212), (432, 12236), (445, 12353), (446, 12365), (470, 12392), (472, 12422), (474, 12458), (476, 12479), (483, 12593), (484, 12617), (488, 12725), (493, 12863), (496, 12893), (500, 12923), (501, 12983), (505, 13226), (509, 13316), (516, 13508), (522, 13598), (524, 13616), (532, 13784), (535, 13835), (539, 13889), (542, 13904), (546, 14000), (549, 14030), (553, 14069), (556, 14102), (557, 14123), (559, 14135), (560, 14138), (568, 14222), (571, 14234),

Gene: Pollux_18 Start: 11003, Stop: 16657, Start Num: 19

Candidate Starts for Pollux_18:

(Start: 19 @11003 has 17 MA's), (23, 11036), (34, 11216), (35, 11228), (39, 11267), (Start: 40 @11276 has 1 MA's), (42, 11300), (43, 11309), (47, 11384), (50, 11426), (70, 11615), (72, 11633), (73, 11657), (78, 11687), (85, 11780), (86, 11783), (94, 11828), (95, 11834), (98, 11876), (104, 11930), (109, 11981), (111, 11993), (115, 12035), (125, 12140), (129, 12167), (133, 12224), (137, 12299), (141, 12338), (144, 12359), (146, 12374), (151, 12407), (158, 12449), (167, 12521), (169, 12524), (170, 12533), (181, 12617), (184, 12650), (185, 12653), (186, 12659), (187, 12668), (189, 12671), (192, 12716), (194, 12734), (196, 12743), (205, 12824), (206, 12827), (207, 12836), (215, 12890), (219, 12911), (229, 12977), (239, 13061), (245, 13124), (246, 13136), (260, 13274), (262, 13298), (263, 13316), (264, 13331), (266, 13358), (273, 13409), (276, 13442), (277, 13451), (281, 13466), (287, 13532), (288, 13535), (293, 13589), (294, 13598), (297, 13628), (317, 13802), (320, 13811), (325, 13850), (337, 13991), (346, 14063), (350, 14075), (358, 14144), (360, 14159), (361, 14165), (368, 14213), (370, 14240), (372, 14249), (379, 14324), (381, 14330), (383, 14348), (385, 14375), (412, 14699), (419, 14792), (422, 14834), (424, 14852), (470, 15104), (474, 15170), (476, 15191), (477, 15200), (479, 15227), (483, 15305), (484, 15329), (487, 15422), (488, 15446), (489, 15470), (493, 15575), (496, 15605), (502, 15698), (503, 15752), (507, 15854), (514, 15953), (536, 16256), (546, 16403), (549, 16433), (552, 16469), (553, 16472), (562, 16547), (571, 16643),

Gene: Posh_18 Start: 11000, Stop: 16621, Start Num: 19

Candidate Starts for Posh_18:

(14, 10904), (Start: 19 @11000 has 17 MA's), (23, 11033), (34, 11213), (35, 11225), (39, 11264), (Start: 40 @11273 has 1 MA's), (42, 11297), (43, 11306), (47, 11381), (50, 11423), (70, 11612), (72, 11630), (73, 11654), (78, 11684), (86, 11780), (95, 11831), (98, 11873), (104, 11927), (109, 11978), (111, 11990), (115, 12032), (125, 12137), (129, 12164), (133, 12221), (137, 12296), (141, 12335), (144, 12356), (146, 12371), (151, 12404), (158, 12446), (167, 12518), (169, 12521), (170, 12530), (173, 12563), (181, 12614), (184, 12647), (185, 12650), (186, 12656), (187, 12665), (189, 12668), (192, 12713), (194, 12731), (196, 12740), (205, 12821), (206, 12824), (207, 12833), (215, 12887), (219, 12908), (229, 12974), (239, 13058), (245, 13121), (246, 13133), (258, 13253), (262, 13295), (264, 13328), (266, 13355), (273, 13406), (276, 13439), (277, 13448), (281, 13463), (288, 13532), (293, 13586), (294, 13595), (297, 13625), (304, 13715), (317, 13799), (337, 13988), (339, 14012), (344, 14051), (346, 14060), (350, 14072), (361, 14162), (368, 14210), (374, 14270), (379, 14321), (381, 14327), (385, 14372), (393, 14435), (398, 14495), (399, 14501), (412, 14693), (426, 14828), (470, 15068), (474, 15134), (476, 15155), (477, 15164), (479, 15191), (483, 15269), (484, 15293),

(487, 15386), (489, 15434), (493, 15539), (494, 15551), (496, 15569), (497, 15572), (502, 15662), (503, 15716), (504, 15740), (507, 15818), (514, 15917), (536, 16220), (537, 16241), (546, 16367), (549, 16397), (552, 16433), (553, 16436), (562, 16511), (571, 16607),

Gene: Pytheas_18 Start: 11131, Stop: 16767, Start Num: 19

Candidate Starts for Pytheas_18:

(Start: 19 @11131 has 17 MA's), (23, 11164), (34, 11344), (35, 11356), (39, 11395), (Start: 40 @11404 has 1 MA's), (42, 11428), (43, 11437), (47, 11512), (50, 11554), (70, 11743), (72, 11761), (73, 11785), (78, 11815), (82, 11857), (85, 11908), (86, 11911), (95, 11962), (98, 12004), (104, 12058), (109, 12109), (111, 12121), (115, 12163), (125, 12268), (129, 12295), (133, 12352), (137, 12427), (141, 12466), (144, 12487), (146, 12502), (151, 12535), (158, 12577), (167, 12649), (169, 12652), (170, 12661), (181, 12745), (184, 12778), (185, 12781), (186, 12787), (187, 12796), (189, 12799), (192, 12844), (194, 12862), (196, 12871), (206, 12955), (207, 12964), (215, 13018), (219, 13039), (222, 13069), (229, 13105), (239, 13189), (245, 13252), (246, 13264), (260, 13402), (262, 13426), (263, 13444), (264, 13459), (265, 13477), (266, 13486), (273, 13537), (276, 13570), (277, 13579), (281, 13594), (287, 13660), (288, 13663), (293, 13717), (294, 13726), (297, 13756), (304, 13846), (317, 13930), (322, 13960), (337, 14119), (339, 14143), (344, 14182), (346, 14191), (350, 14203), (361, 14293), (368, 14341), (372, 14377), (374, 14401), (379, 14452), (381, 14458), (385, 14503), (393, 14566), (412, 14827), (426, 14962), (470, 15202), (474, 15268), (476, 15289), (477, 15298), (479, 15325), (483, 15403), (484, 15427), (487, 15520), (489, 15568), (493, 15673), (494, 15685), (496, 15703), (502, 15796), (503, 15850), (504, 15874), (507, 15952), (514, 16051), (527, 16198), (537, 16387), (546, 16513), (549, 16543), (552, 16579), (553, 16582), (571, 16753),

Gene: RayTheFireFly_17 Start: 10898, Stop: 16588, Start Num: 4

Candidate Starts for RayTheFireFly_17:

(Start: 4 @10898 has 3 MA's), (5, 10928), (13, 11033), (15, 11153), (17, 11189), (34, 11426), (35, 11438), (39, 11477), (Start: 40 @11486 has 1 MA's), (42, 11510), (47, 11594), (50, 11636), (73, 11867), (81, 11936), (86, 11993), (98, 12086), (104, 12140), (109, 12191), (111, 12203), (115, 12245), (129, 12377), (138, 12518), (146, 12584), (148, 12590), (153, 12626), (158, 12659), (159, 12662), (166, 12722), (169, 12734), (171, 12746), (172, 12755), (176, 12797), (182, 12827), (184, 12845), (190, 12860), (207, 12920), (220, 13004), (226, 13034), (228, 13055), (231, 13070), (237, 13103), (247, 13226), (248, 13235), (250, 13247), (264, 13400), (273, 13478), (277, 13520), (282, 13562), (283, 13574), (288, 13604), (289, 13619), (293, 13658), (297, 13697), (301, 13727), (304, 13787), (317, 13871), (322, 13901), (330, 13994), (335, 14039), (345, 14132), (354, 14177), (359, 14219), (363, 14240), (366, 14264), (370, 14297), (373, 14309), (380, 14375), (384, 14408), (400, 14552), (404, 14573), (409, 14672), (413, 14705), (427, 14852), (428, 14855), (429, 14867), (431, 14888), (436, 14915), (445, 15032), (473, 15110), (474, 15131), (475, 15134), (492, 15458), (496, 15503), (507, 15755), (510, 15773), (520, 15920), (528, 16013), (532, 16106), (540, 16214), (541, 16220), (544, 16322), (545, 16328), (549, 16361), (550, 16364), (551, 16385), (554, 16427), (555, 16430), (558, 16466), (565, 16541), (566, 16547), (567, 16550), (569, 16577), (571, 16580),

Gene: Typha_22 Start: 14030, Stop: 18613, Start Num: 1

Candidate Starts for Typha_22:

(Start: 1 @14030 has 4 MA's), (2, 14057), (3, 14081), (7, 14165), (8, 14177), (11, 14219), (16, 14378), (20, 14438), (21, 14441), (25, 14471), (27, 14495), (28, 14513), (33, 14612), (34, 14618), (35, 14630), (38, 14648), (39, 14669), (Start: 40 @14678 has 1 MA's), (42, 14702), (47, 14786), (48, 14789), (50, 14828), (52, 14849), (60, 14927), (61, 14930), (64, 14960), (68, 15008), (72, 15035), (73, 15059), (74, 15071), (75, 15077), (76, 15080), (84, 15140), (86, 15185), (91, 15215), (92, 15218), (98, 15281), (101, 15308), (102, 15317), (106, 15347), (109, 15386), (114, 15425), (115, 15440), (116, 15461), (118, 15512), (119, 15515), (127, 15560), (131, 15623), (135, 15650), (142, 15752), (144, 15764), (149, 15797), (156, 15842), (160, 15881), (161, 15884), (168, 15941), (172, 15968), (174, 16001), (175, 16007), (178, 16022), (191, 16106), (192, 16139), (193, 16145), (198, 16193), (225, 16394), (233, 16436), (240, 16490), (241, 16505), (251, 16610), (259, 16682), (261, 16712), (274, 16838), (279,

16880), (283, 16925), (290, 16973), (291, 16976), (297, 17045), (298, 17051), (300, 17066), (306, 17159), (309, 17177), (316, 17225), (319, 17249), (321, 17255), (326, 17321), (332, 17405), (333, 17414), (336, 17432), (341, 17477), (347, 17525), (352, 17552), (364, 17639), (367, 17669), (375, 17747), (397, 17948), (404, 17987), (411, 18155), (412, 18158), (417, 18185), (434, 18374), (437, 18407), (438, 18416), (440, 18449), (447, 18545), (450, 18569), (452, 18590), (453, 18599),

Gene: Wrigley_18 Start: 10897, Stop: 16518, Start Num: 19

Candidate Starts for Wrigley_18:

(Start: 19 @10897 has 17 MA's), (23, 10930), (34, 11110), (35, 11122), (39, 11161), (Start: 40 @11170 has 1 MA's), (42, 11194), (43, 11203), (47, 11278), (50, 11320), (70, 11509), (72, 11527), (73, 11551), (78, 11581), (82, 11623), (86, 11677), (95, 11728), (98, 11770), (104, 11824), (109, 11875), (111, 11887), (115, 11929), (125, 12034), (129, 12061), (133, 12118), (137, 12193), (141, 12232), (144, 12253), (146, 12268), (151, 12301), (158, 12343), (167, 12415), (169, 12418), (170, 12427), (173, 12460), (181, 12511), (184, 12544), (185, 12547), (186, 12553), (187, 12562), (189, 12565), (192, 12610), (194, 12628), (196, 12637), (205, 12718), (206, 12721), (207, 12730), (215, 12784), (219, 12805), (229, 12871), (239, 12955), (245, 13018), (246, 13030), (258, 13150), (262, 13192), (264, 13225), (266, 13252), (273, 13303), (276, 13336), (277, 13345), (281, 13360), (288, 13429), (293, 13483), (294, 13492), (297, 13522), (304, 13612), (317, 13696), (337, 13885), (339, 13909), (344, 13948), (346, 13957), (350, 13969), (361, 14059), (368, 14107), (374, 14167), (379, 14218), (381, 14224), (385, 14269), (393, 14332), (398, 14392), (399, 14398), (412, 14590), (426, 14725), (470, 14965), (474, 15031), (476, 15052), (477, 15061), (479, 15088), (483, 15166), (484, 15190), (487, 15283), (489, 15331), (493, 15436), (494, 15448), (496, 15466), (502, 15559), (503, 15613), (504, 15637), (507, 15715), (514, 15814), (546, 16264), (549, 16294), (552, 16330), (553, 16333), (562, 16408), (571, 16504),