

Pham 196665

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|-----|-----|-----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1: CookieBea | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 2: Sashimi_20 | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 3: Globfish_19 | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 4: Hestia_19 | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 5: Tiff81_21 | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 6: ThayneThe | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 7: Anekin_18 | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 8: Hillester | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 9: Phrank16 | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 10: BillyTP_19 | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 11: EvePickles | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 12: Raphaela_19 | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 13: BenchScre | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 14: Seahorse_24 | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 15: SpicyFrank | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 16: Isolde_19 | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 17: Faja_19 | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 18: Aikyam_19 | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 19: Persistent_19 | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 20: YoungHark | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 21: MidnightR | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 22: PeggyLeg | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 23: KayMoney | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 24: Eileen_18 | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 25: GlobiWarr | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 26: Karkharia | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 27: Constance | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 28: Judy_19 | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 29: Pucara_18 | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 30: Bridgette | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 31: TripleA | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |
| 32: Kukla | 119 | 239 | 359 | 47 | 59 | 71 | 83 | 95 | 107 | 119 | 131 | 143 | 155 | 167 | 179 | 191 | 203 | 215 | 227 | 239 | 251 | 263 | 275 | 287 | 299 | 311 | 323 | 335 | 347 | 359 |

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 196665 Report

This analysis was run 12/09/24 on database version 580.

Pham number 196665 has 40 members, 12 are drafts.

Phages represented in each track:

- Track 1 : CookieBear_20, Sakai_19, Richie_19, Auxilium_19, Gorpy_19
- Track 2 : Sashimi_20
- Track 3 : Globfish_19
- Track 4 : Hestia_19
- Track 5 : Tiff81_21
- Track 6 : ThayneTheZag_19
- Track 7 : Anekin_18
- Track 8 : Hillester_19, RadFad_19
- Track 9 : Phrank15_18
- Track 10 : BillyTP_19, Lawnathon_19
- Track 11 : EvePickles_19
- Track 12 : Raphaella_19
- Track 13 : BenchScraper_19
- Track 14 : Seahorse_20
- Track 15 : SpicyFrank_19
- Track 16 : Isolde_19
- Track 17 : Faja_19
- Track 18 : Aikyam_19
- Track 19 : Persistence_18
- Track 20 : YoungHarleezy_19
- Track 21 : MidnightRain_19
- Track 22 : PeggyLeg03_18
- Track 23 : KayMoney_18, ChuckDuck_18
- Track 24 : Eileen_18, Peas_18
- Track 25 : GlobiWarming_18
- Track 26 : Karkharias_18
- Track 27 : Constance_18
- Track 28 : Judy_19
- Track 29 : Pucara_18
- Track 30 : Bridgette_18
- Track 31 : TripleJ_18
- Track 32 : Kukla_17

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

The start number called the most often in the published annotations is 17, it was called in 24 of the 28 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aikyam_19, Anekin_18, Auxilium_19, BenchScraper_19, BillyTP_19, Bridgette_18, ChuckDuck_18, Constance_18, CookieBear_20, Eileen_18, Globfish_19, GlobiWarming_18, Gorpy_19, Hestia_19, Hillester_19, Isolde_19, Judy_19, Karkharias_18, KayMoney_18, Lawnathon_19, MidnightRain_19, Peas_18, PeggyLeg03_18, Persistence_18, Phrank15_18, Pucara_18, RadFad_19, Raphaella_19, Richie_19, Sakai_19, Seahorse_20, SpicyFrank_19, ThayneTheZag_19, Tiff81_21, YoungHarleezy_19,

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:

- EvePickles_19, Faja_19, Kukla_17, Sashimi_20, TripleJ_18,

Summary by start number:

Start 6:

- Found in 1 of 40 (2.5%) of genes in pham
- Manual Annotations of this start: 1 of 28
- Called 100.0% of time when present
- Phage (with cluster) where this start called: TripleJ_18 (FJ),

Start 14:

- Found in 4 of 40 (10.0%) of genes in pham
- Manual Annotations of this start: 3 of 28
- Called 100.0% of time when present
- Phage (with cluster) where this start called: EvePickles_19 (AY), Faja_19 (AY), Kukla_17 (FJ), Sashimi_20 (AY),

Start 17:

- Found in 35 of 40 (87.5%) of genes in pham
- Manual Annotations of this start: 24 of 28
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aikyam_19 (AY), Anekin_18 (AY), Auxilium_19 (AY), BenchScraper_19 (AY), BillyTP_19 (AY), Bridgette_18 (FA), ChuckDuck_18 (FA), Constance_18 (FA), CookieBear_20 (AY), Eileen_18 (FA), Globfish_19 (AY), GlobiWarming_18 (FA), Gorpy_19 (AY), Hestia_19 (AY), Hillester_19 (AY), Isolde_19 (AY), Judy_19 (FA), Karkharias_18 (FA), KayMoney_18 (FA), Lawnathon_19 (AY), MidnightRain_19 (AY), Peas_18 (FA), PeggyLeg03_18 (FA), Persistence_18 (AY), Phrank15_18 (AY), Pucara_18 (FA), RadFad_19 (AY), Raphaella_19 (AY), Richie_19 (AY), Sakai_19 (AY), Seahorse_20 (AY), SpicyFrank_19 (AY), ThayneTheZag_19 (AY), Tiff81_21 (AY), YoungHarleezy_19 (AY),

Summary by clusters:

There are 3 clusters represented in this pham: AY, FA, FJ,

Info for manual annotations of cluster AY:

- Start number 14 was manually annotated 2 times for cluster AY.
- Start number 17 was manually annotated 15 times for cluster AY.

Info for manual annotations of cluster FA:

- Start number 17 was manually annotated 9 times for cluster FA.

Info for manual annotations of cluster FJ:

- Start number 6 was manually annotated 1 time for cluster FJ.
- Start number 14 was manually annotated 1 time for cluster FJ.

Gene Information:

Gene: Aikyam_19 Start: 10844, Stop: 14785, Start Num: 17

Candidate Starts for Aikyam_19:

(Start: 17 @10844 has 24 MA's), (19, 10883), (23, 10946), (25, 10979), (27, 11003), (29, 11009), (30, 11021), (35, 11045), (36, 11057), (37, 11075), (39, 11117), (47, 11282), (62, 11549), (64, 11555), (68, 11594), (78, 11687), (89, 11855), (93, 11900), (103, 11996), (116, 12071), (120, 12101), (126, 12188), (128, 12200), (134, 12269), (136, 12305), (138, 12335), (143, 12371), (148, 12419), (149, 12431), (154, 12461), (160, 12518), (162, 12527), (164, 12572), (165, 12575), (169, 12629), (176, 12713), (177, 12722), (179, 12734), (183, 12755), (189, 12806), (197, 12905), (206, 13013), (210, 13052), (222, 13142), (223, 13157), (238, 13259), (241, 13289), (246, 13340), (247, 13361), (252, 13409), (253, 13412), (261, 13496), (262, 13499), (268, 13577), (274, 13652), (275, 13661), (279, 13676), (292, 13796), (295, 13835), (297, 13853), (303, 13952), (307, 14045), (312, 14159), (313, 14177), (317, 14216), (318, 14258), (322, 14321), (323, 14333), (326, 14369), (328, 14411), (331, 14432), (336, 14528), (343, 14582), (352, 14672), (361, 14735),

Gene: Anekin_18 Start: 10911, Stop: 14747, Start Num: 17

Candidate Starts for Anekin_18:

(Start: 17 @10911 has 24 MA's), (21, 10971), (25, 11046), (27, 11070), (29, 11076), (34, 11106), (35, 11112), (37, 11142), (39, 11184), (49, 11388), (52, 11439), (62, 11616), (63, 11619), (66, 11628), (68, 11661), (89, 11922), (99, 12012), (101, 12033), (102, 12042), (104, 12066), (110, 12108), (115, 12129), (118, 12150), (127, 12261), (130, 12279), (133, 12327), (136, 12372), (137, 12381), (142, 12429), (147, 12474), (160, 12582), (169, 12693), (172, 12741), (176, 12777), (179, 12798), (189, 12870), (208, 13017), (214, 13050), (223, 13116), (225, 13122), (226, 13125), (231, 13176), (242, 13260), (246, 13299), (247, 13320), (268, 13539), (269, 13560), (271, 13587), (273, 13605), (274, 13614), (309, 14040), (310, 14070), (312, 14121), (317, 14178), (318, 14220), (322, 14283), (323, 14295), (328, 14373), (331, 14394), (334, 14478), (341, 14532), (343, 14544), (350, 14628), (352, 14634),

Gene: Auxilium_19 Start: 10843, Stop: 14784, Start Num: 17

Candidate Starts for Auxilium_19:

(Start: 17 @10843 has 24 MA's), (19, 10882), (23, 10945), (25, 10978), (27, 11002), (29, 11008), (30, 11020), (35, 11044), (36, 11056), (37, 11074), (39, 11116), (47, 11281), (62, 11548), (64, 11554), (68, 11593), (78, 11686), (89, 11854), (93, 11899), (103, 11995), (116, 12070), (120, 12100), (126, 12187), (128, 12199), (134, 12268), (136, 12304), (138, 12334), (143, 12370), (148, 12418), (149, 12430), (154, 12460), (160, 12517), (162, 12526), (164, 12571), (165, 12574), (167, 12619), (169, 12628), (176, 12712), (177, 12721), (179, 12733), (183, 12754), (188, 12793), (189, 12805), (193, 12880), (197, 12904), (206, 13012), (210, 13051), (222, 13141), (223, 13156), (238, 13258), (241, 13288), (246, 13339), (247, 13360), (252, 13408), (253, 13411), (261, 13495), (262, 13498), (268, 13576), (274, 13651), (275, 13660), (279, 13675), (292, 13795), (295, 13834), (297, 13852), (303, 13951),

(307, 14044), (312, 14158), (313, 14176), (317, 14215), (318, 14257), (322, 14320), (323, 14332), (326, 14368), (328, 14410), (331, 14431), (336, 14527), (343, 14581), (361, 14734),

Gene: BenchScraper_19 Start: 10858, Stop: 14799, Start Num: 17

Candidate Starts for BenchScraper_19:

(Start: 17 @10858 has 24 MA's), (19, 10897), (23, 10960), (25, 10993), (27, 11017), (29, 11023), (30, 11035), (35, 11059), (36, 11071), (37, 11089), (39, 11131), (47, 11296), (62, 11563), (64, 11569), (68, 11608), (78, 11701), (89, 11869), (93, 11914), (103, 12010), (116, 12085), (126, 12202), (128, 12214), (134, 12283), (136, 12319), (138, 12349), (143, 12385), (148, 12433), (149, 12445), (154, 12475), (160, 12532), (162, 12541), (164, 12586), (165, 12589), (169, 12643), (176, 12727), (177, 12736), (179, 12748), (183, 12769), (189, 12820), (197, 12919), (206, 13027), (210, 13066), (222, 13156), (223, 13171), (238, 13273), (241, 13303), (246, 13354), (247, 13375), (252, 13423), (253, 13426), (261, 13510), (262, 13513), (268, 13591), (274, 13666), (275, 13675), (279, 13690), (292, 13810), (295, 13849), (297, 13867), (303, 13966), (307, 14059), (312, 14173), (313, 14191), (317, 14230), (318, 14272), (322, 14335), (323, 14347), (326, 14383), (328, 14425), (331, 14446), (336, 14542), (343, 14596), (352, 14686), (361, 14749),

Gene: BillyTP_19 Start: 10765, Stop: 14568, Start Num: 17

Candidate Starts for BillyTP_19:

(Start: 17 @10765 has 24 MA's), (25, 10900), (27, 10924), (29, 10930), (35, 10966), (36, 10978), (37, 10996), (38, 11005), (39, 11038), (40, 11044), (42, 11122), (47, 11203), (49, 11242), (53, 11326), (54, 11335), (55, 11341), (57, 11365), (58, 11374), (63, 11473), (65, 11479), (71, 11566), (76, 11599), (81, 11635), (92, 11818), (97, 11854), (99, 11866), (103, 11917), (118, 12004), (123, 12091), (136, 12232), (144, 12301), (145, 12310), (149, 12358), (152, 12379), (153, 12382), (163, 12454), (166, 12517), (180, 12601), (182, 12616), (188, 12655), (191, 12712), (216, 12907), (224, 12952), (233, 13015), (246, 13117), (247, 13138), (268, 13360), (273, 13426), (274, 13435), (283, 13501), (294, 13597), (297, 13636), (301, 13702), (307, 13828), (312, 13942), (313, 13960), (316, 13990), (317, 13999), (318, 14041), (322, 14104), (323, 14116), (326, 14152), (328, 14194), (331, 14215), (332, 14227), (341, 14353), (343, 14365), (350, 14449), (352, 14455), (362, 14548),

Gene: Bridgette_18 Start: 10928, Stop: 14845, Start Num: 17

Candidate Starts for Bridgette_18:

(Start: 17 @10928 has 24 MA's), (25, 11063), (27, 11087), (29, 11093), (35, 11129), (36, 11141), (37, 11159), (38, 11168), (39, 11201), (40, 11207), (42, 11285), (47, 11366), (49, 11405), (53, 11489), (55, 11504), (57, 11528), (58, 11537), (65, 11642), (70, 11723), (71, 11729), (73, 11750), (79, 11792), (82, 11819), (86, 11909), (92, 12002), (99, 12050), (118, 12188), (123, 12275), (125, 12284), (144, 12485), (145, 12494), (149, 12542), (152, 12563), (153, 12566), (163, 12638), (166, 12701), (189, 12851), (200, 12977), (221, 13115), (230, 13166), (231, 13178), (233, 13199), (245, 13289), (258, 13424), (261, 13463), (265, 13499), (268, 13541), (269, 13562), (270, 13580), (274, 13616), (275, 13625), (279, 13640), (292, 13853), (302, 14003), (303, 14009), (307, 14102), (312, 14216), (313, 14234), (316, 14264), (317, 14273), (318, 14315), (322, 14378), (323, 14390), (328, 14468), (331, 14489), (332, 14501), (341, 14627), (343, 14639), (351, 14726), (354, 14744),

Gene: ChuckDuck_18 Start: 10884, Stop: 14687, Start Num: 17

Candidate Starts for ChuckDuck_18:

(Start: 17 @10884 has 24 MA's), (25, 11019), (27, 11043), (28, 11046), (29, 11049), (35, 11085), (36, 11097), (37, 11115), (38, 11124), (39, 11157), (40, 11163), (42, 11241), (47, 11322), (49, 11361), (53, 11445), (54, 11454), (55, 11460), (57, 11484), (58, 11493), (63, 11592), (65, 11598), (71, 11685), (76, 11718), (81, 11754), (92, 11937), (97, 11973), (99, 11985), (103, 12036), (118, 12123), (123, 12210), (125, 12219), (136, 12351), (144, 12420), (145, 12429), (149, 12477), (152, 12498), (153, 12501), (163, 12573), (166, 12636), (180, 12720), (182, 12735), (188, 12774), (191, 12831), (194, 12864), (216, 13026), (224, 13071), (233, 13134), (246, 13236), (247, 13257), (268, 13479), (274, 13554), (283, 13620), (294, 13716), (297, 13755), (301, 13821), (307, 13947), (312, 14061), (313, 14079),

(316, 14109), (317, 14118), (318, 14160), (322, 14223), (323, 14235), (326, 14271), (328, 14313), (331, 14334), (339, 14451), (343, 14484), (344, 14493), (350, 14568), (352, 14574),

Gene: Constance_18 Start: 10931, Stop: 14827, Start Num: 17

Candidate Starts for Constance_18:

(Start: 17 @10931 has 24 MA's), (25, 11066), (27, 11090), (29, 11096), (35, 11132), (36, 11144), (37, 11162), (38, 11171), (39, 11204), (40, 11210), (42, 11288), (47, 11369), (49, 11408), (53, 11492), (57, 11531), (58, 11540), (65, 11645), (70, 11726), (71, 11732), (76, 11765), (81, 11801), (99, 12032), (118, 12170), (125, 12266), (144, 12467), (145, 12476), (149, 12524), (152, 12545), (153, 12548), (163, 12620), (182, 12782), (189, 12833), (200, 12959), (221, 13097), (231, 13160), (233, 13181), (245, 13271), (258, 13406), (261, 13445), (265, 13481), (268, 13523), (270, 13562), (272, 13586), (274, 13598), (275, 13607), (279, 13622), (291, 13826), (292, 13835), (301, 13958), (302, 13985), (303, 13991), (304, 14012), (307, 14084), (312, 14198), (316, 14246), (317, 14255), (318, 14297), (322, 14360), (323, 14372), (326, 14408), (328, 14450), (331, 14471), (332, 14483), (336, 14567), (343, 14621), (349, 14702), (351, 14708), (353, 14723), (354, 14726), (358, 14762),

Gene: CookieBear_20 Start: 10843, Stop: 14784, Start Num: 17

Candidate Starts for CookieBear_20:

(Start: 17 @10843 has 24 MA's), (19, 10882), (23, 10945), (25, 10978), (27, 11002), (29, 11008), (30, 11020), (35, 11044), (36, 11056), (37, 11074), (39, 11116), (47, 11281), (62, 11548), (64, 11554), (68, 11593), (78, 11686), (89, 11854), (93, 11899), (103, 11995), (116, 12070), (120, 12100), (126, 12187), (128, 12199), (134, 12268), (136, 12304), (138, 12334), (143, 12370), (148, 12418), (149, 12430), (154, 12460), (160, 12517), (162, 12526), (164, 12571), (165, 12574), (167, 12619), (169, 12628), (176, 12712), (177, 12721), (179, 12733), (183, 12754), (188, 12793), (189, 12805), (193, 12880), (197, 12904), (206, 13012), (210, 13051), (222, 13141), (223, 13156), (238, 13258), (241, 13288), (246, 13339), (247, 13360), (252, 13408), (253, 13411), (261, 13495), (262, 13498), (268, 13576), (274, 13651), (275, 13660), (279, 13675), (292, 13795), (295, 13834), (297, 13852), (303, 13951), (307, 14044), (312, 14158), (313, 14176), (317, 14215), (318, 14257), (322, 14320), (323, 14332), (326, 14368), (328, 14410), (331, 14431), (336, 14527), (343, 14581), (361, 14734),

Gene: Eileen_18 Start: 10892, Stop: 14788, Start Num: 17

Candidate Starts for Eileen_18:

(Start: 17 @10892 has 24 MA's), (25, 11027), (27, 11051), (29, 11057), (35, 11093), (36, 11105), (37, 11123), (38, 11132), (39, 11165), (40, 11171), (42, 11249), (47, 11330), (49, 11369), (53, 11453), (55, 11468), (58, 11501), (65, 11606), (71, 11693), (76, 11726), (81, 11762), (92, 11945), (99, 11993), (103, 12044), (104, 12047), (108, 12083), (109, 12086), (118, 12131), (123, 12218), (136, 12359), (144, 12428), (145, 12437), (149, 12485), (152, 12506), (153, 12509), (163, 12581), (166, 12644), (182, 12743), (189, 12794), (200, 12920), (221, 13058), (230, 13109), (231, 13121), (233, 13142), (245, 13232), (258, 13367), (261, 13406), (265, 13442), (268, 13484), (269, 13505), (270, 13523), (272, 13547), (274, 13559), (275, 13568), (279, 13583), (292, 13796), (302, 13946), (303, 13952), (307, 14045), (312, 14159), (313, 14177), (316, 14207), (317, 14216), (318, 14258), (322, 14321), (323, 14333), (326, 14369), (328, 14411), (331, 14432), (332, 14444), (341, 14570), (343, 14582), (351, 14669), (354, 14687),

Gene: EvePickles_19 Start: 11006, Stop: 15145, Start Num: 14

Candidate Starts for EvePickles_19:

(13, 10994), (Start: 14 @11006 has 3 MA's), (15, 11024), (18, 11066), (23, 11150), (37, 11279), (39, 11321), (43, 11420), (47, 11486), (50, 11555), (51, 11564), (54, 11618), (57, 11648), (61, 11693), (62, 11753), (63, 11756), (68, 11798), (76, 11882), (81, 11918), (101, 12170), (105, 12221), (107, 12233), (118, 12287), (125, 12383), (126, 12392), (132, 12458), (139, 12545), (148, 12617), (155, 12659), (162, 12710), (171, 12851), (176, 12896), (185, 12953), (197, 13088), (198, 13094), (201, 13136), (202, 13148), (205, 13187), (210, 13235), (222, 13325), (223, 13340), (228, 13373), (238, 13442), (241, 13472), (243, 13487), (246, 13523), (247, 13544), (249, 13568), (253, 13601), (256, 13637),

(257, 13640), (263, 13694), (270, 13808), (271, 13817), (273, 13835), (281, 13898), (287, 14054), (288, 14060), (297, 14168), (306, 14330), (309, 14393), (311, 14435), (315, 14513), (318, 14573), (319, 14582), (320, 14594), (321, 14618), (324, 14663), (326, 14684), (328, 14726), (331, 14747), (333, 14810), (335, 14843), (343, 14900), (346, 14939), (348, 14969), (355, 15014), (363, 15113), (364, 15131),

Gene: Faja_19 Start: 10995, Stop: 15041, Start Num: 14

Candidate Starts for Faja_19:

(Start: 14 @10995 has 3 MA's), (18, 11055), (22, 11130), (24, 11142), (26, 11193), (30, 11214), (31, 11217), (33, 11226), (37, 11268), (39, 11310), (41, 11319), (43, 11409), (46, 11457), (47, 11475), (48, 11481), (49, 11514), (51, 11553), (54, 11607), (55, 11613), (60, 11670), (62, 11742), (68, 11787), (69, 11796), (74, 11865), (76, 11871), (78, 11880), (81, 11907), (85, 11949), (87, 12003), (98, 12135), (99, 12138), (101, 12159), (103, 12189), (105, 12210), (107, 12222), (118, 12276), (122, 12345), (130, 12405), (134, 12462), (137, 12507), (143, 12564), (145, 12585), (160, 12711), (163, 12723), (168, 12819), (169, 12822), (172, 12870), (179, 12927), (191, 13044), (197, 13098), (202, 13158), (206, 13206), (210, 13245), (212, 13257), (223, 13350), (229, 13389), (232, 13413), (233, 13431), (234, 13434), (238, 13452), (242, 13494), (246, 13533), (247, 13554), (250, 13578), (259, 13668), (269, 13794), (270, 13812), (276, 13860), (277, 13863), (284, 13920), (288, 13962), (297, 14070), (299, 14103), (309, 14295), (311, 14337), (315, 14415), (318, 14475), (320, 14496), (326, 14586), (328, 14628), (331, 14649), (333, 14712), (340, 14775), (345, 14820), (355, 14910), (363, 15009), (364, 15027),

Gene: Globfish_19 Start: 10916, Stop: 14857, Start Num: 17

Candidate Starts for Globfish_19:

(Start: 17 @10916 has 24 MA's), (19, 10955), (23, 11018), (25, 11051), (27, 11075), (29, 11081), (35, 11117), (36, 11129), (37, 11147), (39, 11189), (47, 11354), (48, 11360), (61, 11561), (62, 11621), (68, 11666), (78, 11759), (89, 11927), (93, 11972), (113, 12128), (116, 12143), (126, 12260), (128, 12272), (133, 12332), (134, 12341), (138, 12407), (143, 12443), (148, 12491), (149, 12503), (154, 12533), (158, 12557), (160, 12590), (165, 12647), (169, 12701), (176, 12785), (177, 12794), (179, 12806), (186, 12857), (189, 12878), (197, 12977), (206, 13085), (210, 13124), (222, 13214), (223, 13229), (238, 13331), (241, 13361), (242, 13373), (246, 13412), (247, 13433), (252, 13481), (253, 13484), (261, 13568), (262, 13571), (268, 13649), (274, 13724), (275, 13733), (279, 13748), (297, 13925), (307, 14117), (312, 14231), (313, 14249), (317, 14288), (318, 14330), (322, 14393), (323, 14405), (326, 14441), (328, 14483), (331, 14504), (343, 14654), (347, 14720), (352, 14744), (359, 14792), (361, 14807),

Gene: GlobiWarming_18 Start: 10885, Stop: 14781, Start Num: 17

Candidate Starts for GlobiWarming_18:

(1, 10477), (2, 10486), (3, 10507), (5, 10558), (Start: 17 @10885 has 24 MA's), (25, 11020), (27, 11044), (29, 11050), (35, 11086), (36, 11098), (37, 11116), (38, 11125), (39, 11158), (40, 11164), (42, 11242), (47, 11323), (49, 11362), (53, 11446), (55, 11461), (58, 11494), (65, 11599), (71, 11686), (73, 11707), (76, 11719), (81, 11755), (92, 11938), (99, 11986), (103, 12037), (118, 12124), (123, 12211), (125, 12220), (144, 12421), (145, 12430), (149, 12478), (152, 12499), (153, 12502), (163, 12574), (166, 12637), (182, 12736), (189, 12787), (200, 12913), (221, 13051), (230, 13102), (231, 13114), (233, 13135), (245, 13225), (258, 13360), (261, 13399), (265, 13435), (268, 13477), (269, 13498), (270, 13516), (272, 13540), (274, 13552), (275, 13561), (279, 13576), (292, 13789), (302, 13939), (303, 13945), (307, 14038), (312, 14152), (313, 14170), (316, 14200), (317, 14209), (318, 14251), (322, 14314), (323, 14326), (326, 14362), (328, 14404), (331, 14425), (332, 14437), (341, 14563), (343, 14575), (351, 14662), (354, 14680),

Gene: Gorpy_19 Start: 10852, Stop: 14793, Start Num: 17

Candidate Starts for Gorpy_19:

(Start: 17 @10852 has 24 MA's), (19, 10891), (23, 10954), (25, 10987), (27, 11011), (29, 11017), (30, 11029), (35, 11053), (36, 11065), (37, 11083), (39, 11125), (47, 11290), (62, 11557), (64, 11563), (68, 11602), (78, 11695), (89, 11863), (93, 11908), (103, 12004), (116, 12079), (120, 12109), (126, 12196), (128, 12208), (134, 12277), (136, 12313), (138, 12343), (143, 12379), (148, 12427), (149, 12439), (154, 12469), (160, 12526), (162, 12535), (164, 12580), (165, 12583), (167, 12628), (169, 12637), (176, 12721), (177, 12730), (179, 12742), (183, 12763), (188, 12802), (189, 12814), (193, 12889), (197, 12913), (206, 13021), (210, 13060), (222, 13150), (223, 13165), (238, 13267), (241, 13297), (246, 13348), (247, 13369), (252, 13417), (253, 13420), (261, 13504), (262, 13507), (268, 13585), (274, 13660), (275, 13669), (279, 13684), (292, 13804), (295, 13843), (297, 13861), (303, 13960), (307, 14053), (312, 14167), (313, 14185), (317, 14224), (318, 14266), (322, 14329), (323, 14341), (326, 14377), (328, 14419), (331, 14440), (336, 14536), (343, 14590), (361, 14743),

Gene: Hestia_19 Start: 10985, Stop: 14962, Start Num: 17

Candidate Starts for Hestia_19:

(Start: 17 @10985 has 24 MA's), (25, 11120), (27, 11144), (29, 11150), (33, 11174), (37, 11216), (39, 11258), (44, 11372), (62, 11690), (67, 11732), (68, 11735), (99, 12086), (101, 12107), (104, 12140), (117, 12221), (118, 12224), (120, 12242), (123, 12311), (124, 12317), (129, 12350), (153, 12590), (160, 12653), (169, 12764), (172, 12812), (173, 12815), (176, 12848), (177, 12857), (179, 12869), (183, 12890), (189, 12941), (194, 13019), (213, 13127), (220, 13181), (227, 13226), (241, 13340), (246, 13391), (247, 13412), (261, 13553), (268, 13631), (272, 13694), (274, 13706), (279, 13730), (282, 13802), (289, 13934), (290, 13961), (291, 13964), (292, 13973), (294, 13991), (297, 14030), (303, 14129), (307, 14222), (312, 14336), (313, 14354), (317, 14393), (318, 14435), (322, 14498), (323, 14510), (325, 14543), (326, 14546), (328, 14588), (330, 14603), (331, 14609), (336, 14705), (343, 14759), (344, 14768), (352, 14849), (361, 14912),

Gene: Hillester_19 Start: 10843, Stop: 14784, Start Num: 17

Candidate Starts for Hillester_19:

(Start: 17 @10843 has 24 MA's), (19, 10882), (23, 10945), (25, 10978), (27, 11002), (29, 11008), (30, 11020), (35, 11044), (36, 11056), (37, 11074), (39, 11116), (47, 11281), (62, 11548), (64, 11554), (68, 11593), (78, 11686), (89, 11854), (93, 11899), (103, 11995), (116, 12070), (120, 12100), (126, 12187), (128, 12199), (134, 12268), (136, 12304), (138, 12334), (143, 12370), (148, 12418), (149, 12430), (154, 12460), (160, 12517), (162, 12526), (164, 12571), (165, 12574), (169, 12628), (176, 12712), (177, 12721), (179, 12733), (183, 12754), (189, 12805), (190, 12832), (197, 12904), (206, 13012), (210, 13051), (222, 13141), (223, 13156), (238, 13258), (241, 13288), (246, 13339), (247, 13360), (252, 13408), (253, 13411), (261, 13495), (262, 13498), (268, 13576), (274, 13651), (275, 13660), (279, 13675), (295, 13834), (297, 13852), (303, 13951), (307, 14044), (312, 14158), (313, 14176), (317, 14215), (318, 14257), (322, 14320), (323, 14332), (326, 14368), (328, 14410), (331, 14431), (336, 14527), (343, 14581), (352, 14671), (361, 14734),

Gene: Isolde_19 Start: 10834, Stop: 14619, Start Num: 17

Candidate Starts for Isolde_19:

(Start: 17 @10834 has 24 MA's), (25, 10969), (27, 10993), (29, 10999), (35, 11035), (36, 11047), (37, 11065), (39, 11107), (50, 11341), (53, 11395), (54, 11404), (55, 11410), (56, 11416), (58, 11443), (62, 11539), (68, 11584), (75, 11668), (81, 11704), (83, 11710), (91, 11881), (94, 11896), (96, 11923), (106, 12019), (109, 12031), (112, 12040), (114, 12052), (119, 12085), (134, 12262), (145, 12382), (149, 12430), (150, 12448), (157, 12472), (163, 12526), (180, 12673), (182, 12688), (193, 12814), (198, 12844), (203, 12886), (215, 12970), (221, 13003), (231, 13066), (244, 13171), (255, 13270), (264, 13369), (269, 13444), (271, 13471), (279, 13522), (280, 13525), (297, 13687), (303, 13786), (307, 13879), (312, 13993), (313, 14011), (316, 14041), (317, 14050), (318, 14092), (322, 14155), (323, 14167), (326, 14203), (328, 14245), (331, 14266), (334, 14350), (336, 14362), (343, 14416), (350, 14500), (352, 14506),

Gene: Judy_19 Start: 11202, Stop: 15098, Start Num: 17

Candidate Starts for Judy_19:

(Start: 17 @11202 has 24 MA's), (25, 11337), (27, 11361), (29, 11367), (35, 11403), (36, 11415), (37, 11433), (38, 11442), (39, 11475), (40, 11481), (42, 11559), (47, 11640), (49, 11679), (53, 11763), (57, 11802), (58, 11811), (65, 11916), (70, 11997), (71, 12003), (76, 12036), (81, 12072), (99, 12303), (109, 12396), (118, 12441), (125, 12537), (144, 12738), (145, 12747), (149, 12795), (152, 12816), (153, 12819), (163, 12891), (182, 13053), (189, 13104), (200, 13230), (221, 13368), (231, 13431), (233, 13452), (245, 13542), (258, 13677), (261, 13716), (265, 13752), (268, 13794), (270, 13833), (272, 13857), (274, 13869), (275, 13878), (279, 13893), (291, 14097), (292, 14106), (301, 14229), (302, 14256), (303, 14262), (304, 14283), (307, 14355), (312, 14469), (316, 14517), (317, 14526), (318, 14568), (322, 14631), (323, 14643), (326, 14679), (328, 14721), (331, 14742), (332, 14754), (336, 14838), (343, 14892), (349, 14973), (351, 14979), (353, 14994), (354, 14997), (358, 15033),

Gene: Karkharias_18 Start: 10889, Stop: 14785, Start Num: 17

Candidate Starts for Karkharias_18:

(Start: 17 @10889 has 24 MA's), (25, 11024), (27, 11048), (29, 11054), (35, 11090), (36, 11102), (37, 11120), (38, 11129), (39, 11162), (40, 11168), (42, 11246), (47, 11327), (49, 11366), (53, 11450), (55, 11465), (58, 11498), (65, 11603), (71, 11690), (76, 11723), (81, 11759), (92, 11942), (99, 11990), (103, 12041), (104, 12044), (118, 12128), (123, 12215), (125, 12224), (144, 12425), (145, 12434), (149, 12482), (152, 12503), (153, 12506), (163, 12578), (166, 12641), (189, 12791), (200, 12917), (221, 13055), (230, 13106), (231, 13118), (233, 13139), (245, 13229), (258, 13364), (261, 13403), (265, 13439), (268, 13481), (269, 13502), (270, 13520), (274, 13556), (279, 13580), (292, 13793), (302, 13943), (303, 13949), (307, 14042), (312, 14156), (313, 14174), (316, 14204), (317, 14213), (318, 14255), (322, 14318), (323, 14330), (328, 14408), (331, 14429), (332, 14441), (341, 14567), (343, 14579), (351, 14666), (354, 14684),

Gene: KayMoney_18 Start: 10886, Stop: 14689, Start Num: 17

Candidate Starts for KayMoney_18:

(Start: 17 @10886 has 24 MA's), (25, 11021), (27, 11045), (28, 11048), (29, 11051), (35, 11087), (36, 11099), (37, 11117), (38, 11126), (39, 11159), (40, 11165), (42, 11243), (47, 11324), (49, 11363), (53, 11447), (54, 11456), (55, 11462), (57, 11486), (58, 11495), (63, 11594), (65, 11600), (71, 11687), (76, 11720), (81, 11756), (92, 11939), (97, 11975), (99, 11987), (103, 12038), (118, 12125), (123, 12212), (125, 12221), (136, 12353), (144, 12422), (145, 12431), (149, 12479), (152, 12500), (153, 12503), (163, 12575), (166, 12638), (180, 12722), (182, 12737), (188, 12776), (191, 12833), (194, 12866), (216, 13028), (224, 13073), (233, 13136), (246, 13238), (247, 13259), (268, 13481), (274, 13556), (283, 13622), (294, 13718), (297, 13757), (301, 13823), (307, 13949), (312, 14063), (313, 14081), (316, 14111), (317, 14120), (318, 14162), (322, 14225), (323, 14237), (326, 14273), (328, 14315), (331, 14336), (339, 14453), (343, 14486), (344, 14495), (350, 14570), (352, 14576),

Gene: Kukla_17 Start: 10473, Stop: 14528, Start Num: 14

Candidate Starts for Kukla_17:

(11, 10419), (13, 10461), (Start: 14 @10473 has 3 MA's), (15, 10491), (18, 10533), (20, 10563), (24, 10620), (30, 10692), (32, 10698), (33, 10704), (37, 10746), (39, 10788), (42, 10872), (47, 10953), (50, 11022), (51, 11031), (55, 11091), (59, 11127), (62, 11220), (66, 11232), (68, 11265), (72, 11325), (77, 11352), (81, 11385), (96, 11601), (100, 11634), (105, 11688), (107, 11700), (122, 11823), (132, 11925), (139, 12012), (162, 12177), (187, 12438), (193, 12531), (199, 12555), (227, 12762), (236, 12840), (239, 12852), (241, 12876), (244, 12909), (247, 12948), (266, 13173), (271, 13230), (277, 13272), (284, 13410), (287, 13446), (288, 13452), (297, 13560), (309, 13785), (311, 13827), (315, 13905), (318, 13965), (320, 13986), (326, 14076), (328, 14118), (331, 14139), (333, 14202), (340, 14265), (342, 14283), (343, 14292), (345, 14310), (355, 14400), (363, 14496), (364, 14514),

Gene: Lawnathon_19 Start: 10910, Stop: 14713, Start Num: 17

Candidate Starts for Lawnathon_19:

(Start: 17 @10910 has 24 MA's), (25, 11045), (27, 11069), (29, 11075), (35, 11111), (36, 11123), (37, 11141), (38, 11150), (39, 11183), (40, 11189), (42, 11267), (47, 11348), (49, 11387), (53, 11471), (54, 11480), (55, 11486), (57, 11510), (58, 11519), (63, 11618), (65, 11624), (71, 11711), (76, 11744), (81, 11780), (92, 11963), (97, 11999), (99, 12011), (103, 12062), (118, 12149), (123, 12236), (136, 12377), (144, 12446), (145, 12455), (149, 12503), (152, 12524), (153, 12527), (163, 12599), (166, 12662), (180, 12746), (182, 12761), (188, 12800), (191, 12857), (216, 13052), (224, 13097), (233, 13160), (246, 13262), (247, 13283), (268, 13505), (273, 13571), (274, 13580), (283, 13646), (294, 13742), (297, 13781), (301, 13847), (307, 13973), (312, 14087), (313, 14105), (316, 14135), (317, 14144), (318, 14186), (322, 14249), (323, 14261), (326, 14297), (328, 14339), (331, 14360), (332, 14372), (341, 14498), (343, 14510), (350, 14594), (352, 14600), (362, 14693),

Gene: MidnightRain_19 Start: 10842, Stop: 14783, Start Num: 17

Candidate Starts for MidnightRain_19:

(Start: 17 @10842 has 24 MA's), (19, 10881), (23, 10944), (25, 10977), (27, 11001), (29, 11007), (30, 11019), (35, 11043), (36, 11055), (37, 11073), (39, 11115), (47, 11280), (62, 11547), (64, 11553), (68, 11592), (78, 11685), (89, 11853), (93, 11898), (103, 11994), (116, 12069), (120, 12099), (126, 12186), (128, 12198), (134, 12267), (136, 12303), (138, 12333), (143, 12369), (148, 12417), (149, 12429), (154, 12459), (160, 12516), (162, 12525), (164, 12570), (165, 12573), (167, 12618), (169, 12627), (176, 12711), (177, 12720), (179, 12732), (183, 12753), (188, 12792), (189, 12804), (193, 12879), (197, 12903), (206, 13011), (210, 13050), (222, 13140), (223, 13155), (238, 13257), (241, 13287), (246, 13338), (247, 13359), (252, 13407), (253, 13410), (261, 13494), (262, 13497), (268, 13575), (274, 13650), (275, 13659), (279, 13674), (295, 13833), (297, 13851), (303, 13950), (307, 14043), (312, 14157), (313, 14175), (317, 14214), (318, 14256), (322, 14319), (323, 14331), (326, 14367), (328, 14409), (331, 14430), (336, 14526), (343, 14580), (352, 14670), (361, 14733),

Gene: Peas_18 Start: 10892, Stop: 14788, Start Num: 17

Candidate Starts for Peas_18:

(Start: 17 @10892 has 24 MA's), (25, 11027), (27, 11051), (29, 11057), (35, 11093), (36, 11105), (37, 11123), (38, 11132), (39, 11165), (40, 11171), (42, 11249), (47, 11330), (49, 11369), (53, 11453), (55, 11468), (58, 11501), (65, 11606), (71, 11693), (76, 11726), (81, 11762), (92, 11945), (99, 11993), (103, 12044), (104, 12047), (108, 12083), (109, 12086), (118, 12131), (123, 12218), (136, 12359), (144, 12428), (145, 12437), (149, 12485), (152, 12506), (153, 12509), (163, 12581), (166, 12644), (182, 12743), (189, 12794), (200, 12920), (221, 13058), (230, 13109), (231, 13121), (233, 13142), (245, 13232), (258, 13367), (261, 13406), (265, 13442), (268, 13484), (269, 13505), (270, 13523), (272, 13547), (274, 13559), (275, 13568), (279, 13583), (292, 13796), (302, 13946), (303, 13952), (307, 14045), (312, 14159), (313, 14177), (316, 14207), (317, 14216), (318, 14258), (322, 14321), (323, 14333), (326, 14369), (328, 14411), (331, 14432), (332, 14444), (341, 14570), (343, 14582), (351, 14669), (354, 14687),

Gene: PeggyLeg03_18 Start: 10931, Stop: 14827, Start Num: 17

Candidate Starts for PeggyLeg03_18:

(Start: 17 @10931 has 24 MA's), (25, 11066), (27, 11090), (29, 11096), (35, 11132), (36, 11144), (37, 11162), (38, 11171), (39, 11204), (40, 11210), (42, 11288), (47, 11369), (49, 11408), (53, 11492), (57, 11531), (58, 11540), (65, 11645), (70, 11726), (71, 11732), (76, 11765), (81, 11801), (99, 12032), (118, 12170), (125, 12266), (144, 12467), (145, 12476), (149, 12524), (152, 12545), (153, 12548), (163, 12620), (178, 12761), (182, 12782), (189, 12833), (200, 12959), (221, 13097), (231, 13160), (233, 13181), (245, 13271), (258, 13406), (261, 13445), (265, 13481), (268, 13523), (270, 13562), (272, 13586), (273, 13589), (274, 13598), (275, 13607), (279, 13622), (291, 13826), (292, 13835), (301, 13958), (302, 13985), (303, 13991), (304, 14012), (307, 14084), (312, 14198), (316, 14246), (317, 14255), (318, 14297), (322, 14360), (323, 14372), (326, 14408), (328, 14450), (331, 14471), (332, 14483), (336, 14567), (343, 14621), (349, 14702), (351, 14708), (353, 14723), (354, 14726), (358, 14762),

Gene: Persistence_18 Start: 10866, Stop: 14705, Start Num: 17

Candidate Starts for Persistence_18:

(Start: 17 @10866 has 24 MA's), (25, 11001), (27, 11025), (29, 11031), (34, 11061), (35, 11067), (37, 11097), (39, 11139), (49, 11343), (51, 11382), (52, 11394), (55, 11442), (62, 11571), (66, 11583), (68, 11616), (81, 11736), (89, 11877), (93, 11922), (99, 11967), (101, 11988), (102, 11997), (104, 12021), (110, 12063), (116, 12093), (118, 12105), (122, 12174), (127, 12216), (136, 12327), (137, 12336), (142, 12384), (147, 12429), (153, 12474), (160, 12537), (169, 12648), (172, 12696), (179, 12753), (189, 12825), (193, 12900), (196, 12915), (208, 12972), (214, 13005), (225, 13077), (226, 13080), (242, 13215), (246, 13254), (247, 13275), (256, 13368), (261, 13422), (267, 13491), (268, 13497), (271, 13545), (274, 13572), (275, 13581), (307, 13965), (308, 13992), (309, 13998), (310, 14028), (312, 14079), (317, 14136), (318, 14178), (322, 14241), (323, 14253), (327, 14298), (328, 14331), (331, 14352), (336, 14448), (343, 14502), (357, 14634),

Gene: Phrank15_18 Start: 10912, Stop: 14718, Start Num: 17

Candidate Starts for Phrank15_18:

(12, 10822), (Start: 17 @10912 has 24 MA's), (19, 10951), (25, 11047), (27, 11071), (29, 11077), (30, 11089), (31, 11092), (33, 11101), (35, 11113), (36, 11125), (37, 11143), (38, 11152), (39, 11185), (40, 11191), (42, 11269), (47, 11350), (49, 11389), (54, 11482), (55, 11488), (58, 11521), (65, 11626), (71, 11713), (76, 11746), (81, 11782), (88, 11908), (89, 11923), (92, 11965), (108, 12103), (118, 12151), (131, 12307), (136, 12379), (144, 12448), (145, 12457), (149, 12505), (152, 12526), (153, 12529), (154, 12535), (163, 12601), (166, 12664), (182, 12763), (184, 12772), (189, 12814), (192, 12868), (200, 12940), (207, 12994), (221, 13078), (230, 13129), (231, 13141), (233, 13162), (244, 13246), (248, 13297), (261, 13423), (268, 13501), (270, 13540), (273, 13567), (274, 13576), (279, 13600), (280, 13603), (297, 13777), (307, 13969), (309, 14002), (312, 14083), (313, 14101), (317, 14140), (318, 14182), (322, 14245), (323, 14257), (326, 14293), (328, 14335), (331, 14356), (332, 14368), (336, 14452), (343, 14506), (349, 14581), (351, 14587), (353, 14602), (354, 14605),

Gene: Pucara_18 Start: 10892, Stop: 14788, Start Num: 17

Candidate Starts for Pucara_18:

(Start: 17 @10892 has 24 MA's), (21, 10952), (25, 11027), (27, 11051), (29, 11057), (35, 11093), (36, 11105), (37, 11123), (38, 11132), (39, 11165), (40, 11171), (42, 11249), (47, 11330), (49, 11369), (53, 11453), (55, 11468), (57, 11492), (58, 11501), (65, 11606), (71, 11693), (76, 11726), (81, 11762), (92, 11945), (99, 11993), (103, 12044), (104, 12047), (109, 12086), (118, 12131), (123, 12218), (125, 12227), (144, 12428), (145, 12437), (149, 12485), (152, 12506), (153, 12509), (163, 12581), (166, 12644), (189, 12794), (200, 12920), (221, 13058), (230, 13109), (231, 13121), (233, 13142), (245, 13232), (258, 13367), (261, 13406), (265, 13442), (268, 13484), (269, 13505), (270, 13523), (274, 13559), (279, 13583), (292, 13796), (302, 13946), (303, 13952), (307, 14045), (312, 14159), (313, 14177), (316, 14207), (317, 14216), (318, 14258), (322, 14321), (323, 14333), (328, 14411), (331, 14432), (332, 14444), (339, 14549), (341, 14570), (343, 14582), (351, 14669), (354, 14687),

Gene: RadFad_19 Start: 10843, Stop: 14784, Start Num: 17

Candidate Starts for RadFad_19:

(Start: 17 @10843 has 24 MA's), (19, 10882), (23, 10945), (25, 10978), (27, 11002), (29, 11008), (30, 11020), (35, 11044), (36, 11056), (37, 11074), (39, 11116), (47, 11281), (62, 11548), (64, 11554), (68, 11593), (78, 11686), (89, 11854), (93, 11899), (103, 11995), (116, 12070), (120, 12100), (126, 12187), (128, 12199), (134, 12268), (136, 12304), (138, 12334), (143, 12370), (148, 12418), (149, 12430), (154, 12460), (160, 12517), (162, 12526), (164, 12571), (165, 12574), (169, 12628), (176, 12712), (177, 12721), (179, 12733), (183, 12754), (189, 12805), (190, 12832), (197, 12904), (206, 13012), (210, 13051), (222, 13141), (223, 13156), (238, 13258), (241, 13288), (246, 13339), (247, 13360), (252, 13408), (253, 13411), (261, 13495), (262, 13498), (268, 13576), (274, 13651), (275, 13660), (279, 13675), (295, 13834), (297, 13852), (303, 13951), (307, 14044), (312, 14158), (313, 14176), (317, 14215), (318, 14257), (322, 14320), (323, 14332), (326, 14368), (328, 14410), (331, 14431), (336, 14527), (343, 14581), (352, 14671), (361, 14734),

Gene: Raphaella_19 Start: 10843, Stop: 14784, Start Num: 17

Candidate Starts for Raphaella_19:

(Start: 17 @10843 has 24 MA's), (19, 10882), (23, 10945), (25, 10978), (27, 11002), (29, 11008), (30, 11020), (35, 11044), (36, 11056), (37, 11074), (39, 11116), (47, 11281), (62, 11548), (64, 11554), (68, 11593), (78, 11686), (89, 11854), (93, 11899), (103, 11995), (116, 12070), (120, 12100), (126, 12187), (128, 12199), (134, 12268), (136, 12304), (138, 12334), (143, 12370), (148, 12418), (149, 12430), (154, 12460), (160, 12517), (162, 12526), (164, 12571), (165, 12574), (167, 12619), (169, 12628), (176, 12712), (177, 12721), (179, 12733), (183, 12754), (188, 12793), (189, 12805), (193, 12880), (197, 12904), (206, 13012), (210, 13051), (222, 13141), (223, 13156), (238, 13258), (241, 13288), (246, 13339), (247, 13360), (252, 13408), (253, 13411), (261, 13495), (262, 13498), (268, 13576), (274, 13651), (275, 13660), (279, 13675), (295, 13834), (297, 13852), (303, 13951), (307, 14044), (312, 14158), (313, 14176), (317, 14215), (318, 14257), (322, 14320), (323, 14332), (326, 14368), (328, 14410), (331, 14431), (336, 14527), (343, 14581), (361, 14734),

Gene: Richie_19 Start: 10858, Stop: 14799, Start Num: 17

Candidate Starts for Richie_19:

(Start: 17 @10858 has 24 MA's), (19, 10897), (23, 10960), (25, 10993), (27, 11017), (29, 11023), (30, 11035), (35, 11059), (36, 11071), (37, 11089), (39, 11131), (47, 11296), (62, 11563), (64, 11569), (68, 11608), (78, 11701), (89, 11869), (93, 11914), (103, 12010), (116, 12085), (120, 12115), (126, 12202), (128, 12214), (134, 12283), (136, 12319), (138, 12349), (143, 12385), (148, 12433), (149, 12445), (154, 12475), (160, 12532), (162, 12541), (164, 12586), (165, 12589), (167, 12634), (169, 12643), (176, 12727), (177, 12736), (179, 12748), (183, 12769), (188, 12808), (189, 12820), (193, 12895), (197, 12919), (206, 13027), (210, 13066), (222, 13156), (223, 13171), (238, 13273), (241, 13303), (246, 13354), (247, 13375), (252, 13423), (253, 13426), (261, 13510), (262, 13513), (268, 13591), (274, 13666), (275, 13675), (279, 13690), (292, 13810), (295, 13849), (297, 13867), (303, 13966), (307, 14059), (312, 14173), (313, 14191), (317, 14230), (318, 14272), (322, 14335), (323, 14347), (326, 14383), (328, 14425), (331, 14446), (336, 14542), (343, 14596), (361, 14749),

Gene: Sakai_19 Start: 10852, Stop: 14793, Start Num: 17

Candidate Starts for Sakai_19:

(Start: 17 @10852 has 24 MA's), (19, 10891), (23, 10954), (25, 10987), (27, 11011), (29, 11017), (30, 11029), (35, 11053), (36, 11065), (37, 11083), (39, 11125), (47, 11290), (62, 11557), (64, 11563), (68, 11602), (78, 11695), (89, 11863), (93, 11908), (103, 12004), (116, 12079), (120, 12109), (126, 12196), (128, 12208), (134, 12277), (136, 12313), (138, 12343), (143, 12379), (148, 12427), (149, 12439), (154, 12469), (160, 12526), (162, 12535), (164, 12580), (165, 12583), (167, 12628), (169, 12637), (176, 12721), (177, 12730), (179, 12742), (183, 12763), (188, 12802), (189, 12814), (193, 12889), (197, 12913), (206, 13021), (210, 13060), (222, 13150), (223, 13165), (238, 13267), (241, 13297), (246, 13348), (247, 13369), (252, 13417), (253, 13420), (261, 13504), (262, 13507), (268, 13585), (274, 13660), (275, 13669), (279, 13684), (292, 13804), (295, 13843), (297, 13861), (303, 13960), (307, 14053), (312, 14167), (313, 14185), (317, 14224), (318, 14266), (322, 14329), (323, 14341), (326, 14377), (328, 14419), (331, 14440), (336, 14536), (343, 14590), (361, 14743),

Gene: Sashimi_20 Start: 11112, Stop: 15146, Start Num: 14

Candidate Starts for Sashimi_20:

(Start: 14 @11112 has 3 MA's), (18, 11172), (22, 11247), (24, 11259), (26, 11310), (30, 11331), (31, 11334), (33, 11343), (37, 11385), (39, 11427), (43, 11526), (47, 11592), (48, 11598), (49, 11631), (51, 11670), (54, 11724), (55, 11730), (60, 11787), (62, 11859), (68, 11904), (69, 11913), (74, 11982), (76, 11988), (78, 11997), (81, 12024), (85, 12066), (87, 12120), (96, 12240), (99, 12255), (105, 12327), (112, 12357), (118, 12393), (130, 12522), (134, 12579), (137, 12624), (143, 12681), (145, 12702), (151, 12762), (160, 12828), (163, 12840), (164, 12882), (168, 12936), (169, 12939), (172, 12987), (179, 13044), (181, 13056), (191, 13161), (197, 13215), (202, 13275), (204, 13296), (206, 13323), (210, 13362), (223, 13467), (229, 13506), (232, 13530), (234, 13551), (238, 13569), (242, 13611),

(246, 13650), (247, 13671), (250, 13695), (259, 13785), (269, 13911), (270, 13929), (271, 13938), (275, 13974), (292, 14118), (297, 14175), (309, 14400), (311, 14442), (318, 14580), (320, 14601), (326, 14691), (328, 14733), (331, 14754), (333, 14817), (340, 14880), (345, 14925), (355, 15015), (363, 15114), (364, 15132),

Gene: Seahorse_20 Start: 11096, Stop: 15148, Start Num: 17

Candidate Starts for Seahorse_20:

(Start: 17 @11096 has 24 MA's), (25, 11231), (37, 11327), (39, 11369), (42, 11453), (51, 11612), (52, 11624), (57, 11696), (62, 11801), (67, 11843), (68, 11846), (85, 12008), (90, 12119), (95, 12173), (101, 12218), (103, 12248), (111, 12296), (121, 12362), (125, 12446), (127, 12479), (135, 12596), (140, 12659), (146, 12716), (149, 12767), (156, 12824), (161, 12878), (166, 12962), (195, 13253), (217, 13424), (218, 13427), (219, 13445), (237, 13565), (240, 13589), (254, 13751), (262, 13853), (268, 13931), (273, 13997), (274, 14006), (275, 14015), (290, 14138), (297, 14207), (303, 14306), (306, 14369), (307, 14399), (310, 14462), (312, 14513), (313, 14531), (317, 14570), (318, 14612), (322, 14675), (323, 14687), (326, 14723), (328, 14765), (329, 14768), (331, 14786), (343, 14936), (356, 15050), (360, 15083),

Gene: SpicyFrank_19 Start: 10920, Stop: 14861, Start Num: 17

Candidate Starts for SpicyFrank_19:

(Start: 17 @10920 has 24 MA's), (19, 10959), (23, 11022), (25, 11055), (27, 11079), (29, 11085), (35, 11121), (36, 11133), (37, 11151), (39, 11193), (45, 11322), (62, 11625), (68, 11670), (78, 11763), (89, 11931), (93, 11976), (116, 12147), (126, 12264), (128, 12276), (133, 12336), (134, 12345), (138, 12411), (143, 12447), (148, 12495), (149, 12507), (154, 12537), (160, 12594), (165, 12651), (169, 12705), (170, 12726), (176, 12789), (177, 12798), (179, 12810), (186, 12861), (189, 12882), (197, 12981), (206, 13089), (210, 13128), (222, 13218), (223, 13233), (238, 13335), (241, 13365), (246, 13416), (247, 13437), (252, 13485), (253, 13488), (261, 13572), (262, 13575), (268, 13653), (274, 13728), (279, 13752), (297, 13929), (303, 14028), (307, 14121), (312, 14235), (313, 14253), (317, 14292), (318, 14334), (322, 14397), (323, 14409), (326, 14445), (328, 14487), (330, 14502), (331, 14508), (343, 14658), (352, 14748), (359, 14796), (361, 14811),

Gene: ThayneTheZag_19 Start: 10917, Stop: 14951, Start Num: 17

Candidate Starts for ThayneTheZag_19:

(Start: 17 @10917 has 24 MA's), (19, 10956), (23, 11019), (25, 11052), (27, 11076), (29, 11082), (33, 11106), (36, 11130), (37, 11148), (39, 11190), (47, 11355), (48, 11361), (62, 11622), (68, 11667), (85, 11829), (89, 11928), (98, 12015), (116, 12144), (126, 12261), (128, 12273), (133, 12333), (138, 12408), (143, 12444), (148, 12492), (149, 12504), (154, 12534), (160, 12591), (165, 12648), (169, 12702), (176, 12786), (177, 12795), (179, 12807), (186, 12858), (189, 12879), (197, 12978), (209, 13110), (210, 13125), (222, 13215), (223, 13230), (234, 13314), (235, 13323), (238, 13332), (246, 13413), (247, 13434), (251, 13476), (256, 13527), (257, 13530), (260, 13557), (271, 13707), (273, 13725), (275, 13743), (278, 13752), (285, 13833), (293, 13926), (296, 13959), (298, 14010), (300, 14076), (304, 14139), (305, 14157), (307, 14211), (309, 14244), (312, 14325), (313, 14343), (317, 14382), (318, 14424), (322, 14487), (323, 14499), (328, 14577), (331, 14598), (334, 14682), (338, 14712), (339, 14715), (343, 14748), (344, 14757), (350, 14832), (352, 14838),

Gene: Tiff81_21 Start: 10986, Stop: 14879, Start Num: 17

Candidate Starts for Tiff81_21:

(12, 10893), (Start: 17 @10986 has 24 MA's), (25, 11121), (27, 11145), (30, 11163), (35, 11187), (36, 11199), (37, 11217), (38, 11226), (39, 11259), (40, 11265), (42, 11343), (47, 11424), (49, 11463), (53, 11547), (55, 11562), (58, 11595), (65, 11700), (71, 11787), (76, 11820), (81, 11856), (92, 12039), (99, 12087), (103, 12138), (104, 12141), (118, 12225), (123, 12312), (125, 12321), (144, 12522), (145, 12531), (149, 12579), (152, 12600), (153, 12603), (163, 12675), (175, 12795), (182, 12837), (189, 12888), (200, 13014), (221, 13152), (231, 13215), (233, 13236), (245, 13326), (258, 13461), (261, 13500), (265, 13536), (268, 13578), (269, 13599), (270, 13617), (272, 13641), (274, 13653), (275,

13662), (279, 13677), (291, 13881), (292, 13890), (301, 14013), (302, 14040), (303, 14046), (307, 14139), (312, 14253), (316, 14301), (317, 14310), (318, 14352), (322, 14415), (323, 14427), (326, 14463), (328, 14505), (330, 14520), (331, 14526), (332, 14538), (336, 14622), (343, 14676), (344, 14685), (352, 14766), (361, 14829),

Gene: TripleJ_18 Start: 11061, Stop: 15446, Start Num: 6

Candidate Starts for TripleJ_18:

(4, 10983), (Start: 6 @11061 has 1 MA's), (7, 11121), (8, 11184), (9, 11196), (10, 11238), (16, 11331), (22, 11448), (37, 11586), (38, 11595), (39, 11628), (43, 11727), (47, 11793), (49, 11832), (51, 11871), (53, 11916), (54, 11925), (55, 11931), (57, 11955), (62, 12060), (68, 12105), (71, 12156), (80, 12216), (84, 12252), (85, 12267), (87, 12321), (101, 12477), (105, 12528), (118, 12594), (136, 12816), (137, 12825), (141, 12864), (143, 12882), (144, 12894), (145, 12903), (151, 12963), (159, 13017), (160, 13029), (162, 13038), (169, 13140), (174, 13209), (178, 13242), (179, 13245), (202, 13476), (210, 13563), (211, 13569), (212, 13575), (223, 13668), (228, 13701), (238, 13770), (243, 13815), (246, 13851), (247, 13872), (259, 13986), (266, 14082), (269, 14112), (270, 14130), (271, 14139), (277, 14181), (286, 14352), (288, 14361), (295, 14451), (297, 14469), (309, 14694), (311, 14736), (314, 14796), (318, 14874), (320, 14895), (324, 14964), (326, 14985), (328, 15027), (331, 15048), (333, 15111), (337, 15150), (343, 15201), (346, 15240), (355, 15315), (363, 15414), (364, 15432),

Gene: YoungHarleezy_19 Start: 10856, Stop: 14797, Start Num: 17

Candidate Starts for YoungHarleezy_19:

(Start: 17 @10856 has 24 MA's), (19, 10895), (21, 10916), (23, 10958), (25, 10991), (27, 11015), (29, 11021), (30, 11033), (36, 11069), (37, 11087), (39, 11129), (47, 11294), (62, 11561), (64, 11567), (68, 11606), (78, 11699), (89, 11867), (93, 11912), (103, 12008), (116, 12083), (120, 12113), (126, 12200), (128, 12212), (134, 12281), (136, 12317), (138, 12347), (143, 12383), (148, 12431), (149, 12443), (154, 12473), (160, 12530), (162, 12539), (164, 12584), (165, 12587), (167, 12632), (169, 12641), (176, 12725), (177, 12734), (179, 12746), (183, 12767), (188, 12806), (189, 12818), (193, 12893), (197, 12917), (206, 13025), (210, 13064), (222, 13154), (223, 13169), (238, 13271), (241, 13301), (246, 13352), (247, 13373), (252, 13421), (253, 13424), (261, 13508), (262, 13511), (268, 13589), (274, 13664), (275, 13673), (279, 13688), (292, 13808), (295, 13847), (297, 13865), (303, 13964), (307, 14057), (312, 14171), (313, 14189), (317, 14228), (318, 14270), (322, 14333), (323, 14345), (326, 14381), (328, 14423), (331, 14444), (336, 14540), (343, 14594), (361, 14747),