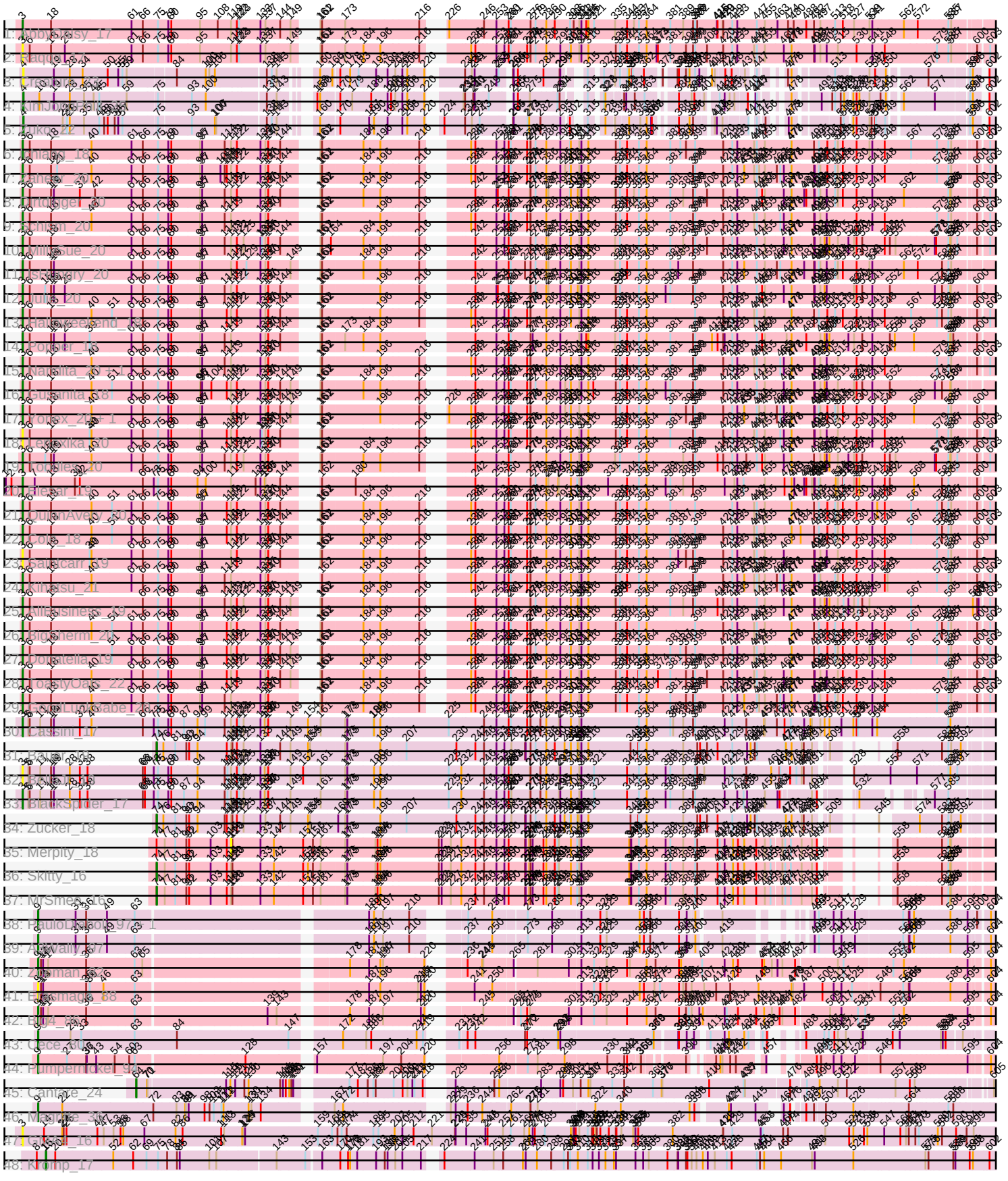
Zoomed Pham 347712



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 347712 Report

This analysis was run 11/14/26 on database version 672.

Pham number 347712 has 51 members, 9 are drafts.

Phages represented in each track:
- Track 1 : AbbyDaisy_17
- Track 2 : Raqqa_17
- Track 3 : Creature_23
- Track 4 : KimJongPhill_25
- Track 5 : Zuko_22
- Track 6 : Ichiang_18
- Track 7 : Zaheer_20
- Track 8 : Dirtdigger_20
- Track 9 : Schism_20
- Track 10 : MillySue_20
- Track 11 : IsHungry_20
- Track 12 : Julie_20
- Track 13 : Halloweekend_18
- Track 14 : Popper_18
- Track 15 : Nandita_20, Guinevere_20
- Track 16 : Gusanita_18
- Track 17 : Yonex_20, Ryan_20
- Track 18 : Lenoxika_20
- Track 19 : Toodles_20
- Track 20 : Elesar_19
- Track 21 : QuinnAvery_20
- Track 22 : Cole_18
- Track 23 : Saintcarr_19
- Track 24 : Kihatsu_21
- Track 25 : AllBusiness_19
- Track 26 : BigSherm_20
- Track 27 : Donatella_19
- Track 28 : ToastyOats_22
- Track 29 : GoodLuckBabe_20
- Track 30 : Cassini_17
- Track 31 : Bauer_19
- Track 32 : BellaJr_19
- Track 33 : BlackSpider_17
- Track 34 : Zucker_18
- Track 35 : Merpity_18
- Track 36 : Skitty_16
- Track 37 : MrSmee_16

• Track 38 : PauloDiaboli_97, Dodo_99
• Track 39 : A3Wally_97
• Track 40 : Zooman_82
• Track 41 : Erasmago_88
• Track 42 : Big4_86
• Track 43 : Cece_80
• Track 44 : Pumpernickel_94
• Track 45 : Cantare_24
• Track 46 : Magritte_36
• Track 47 : GMA4_16
• Track 48 : Kromp_17

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

The start number called the most often in the published annotations is 3, it was called in 26 of the 42 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• AbbyDaisy_17, AllBusiness_19, BellaJr_19, BigSherm_20, BlackSpider_17, Cassini_17, Cole_18, Dirtdigger_20, Donatella_19, Elesar_19, GMA4_16, GoodLuckBabe_20, Guinevere_20, Gusanita_18, Halloweekend_18, Ichiang_18, IsHungry_20, Julie_20, Kihatsu_21, Lenoxika_20, MillySue_20, Nandita_20, Popper_18, QuinnAvery_20, Raqqa_17, Ryan_20, Saintcarr_19, Schism_20, ToastyOats_22, Toodles_20, Yonex_20, Zaheer_20,

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

Genes that do not have the "Most Annotated" start:
• A3Wally_97, Bauer_19, Big4_86, Cantare_24, Cece_80, Creature_23, Dodo_99, Erasmago_88, KimJongPhill_25, Kromp_17, Magritte_36, Merpity_18, MrSmee_16, PauloDiaboli_97, Pumpernickel_94, Skitty_16, Zooman_82, Zucker_18, Zuko_22,

Summary by start number:

Start 3:
• Found in 32 of 51 (62.7%) of genes in pham
• Manual Annotations of this start: 26 of 42
• Called 100.0% of time when present
• Phage (with cluster) where this start called: AbbyDaisy_17 (AY), AllBusiness_19 (FF), BellaJr_19 (FN), BigSherm_20 (FF), BlackSpider_17 (FN), Cassini_17 (FN), Cole_18 (FF), Dirtdigger_20 (FF), Donatella_19 (FF), Elesar_19 (FF), GMA4_16 (singleton), GoodLuckBabe_20 (FF), Guinevere_20 (FF), Gusanita_18 (FF), Halloweekend_18 (FF), Ichiang_18 (FF), IsHungry_20 (FF), Julie_20 (FF), Kihatsu_21 (FF), Lenoxika_20 (FF), MillySue_20 (FF), Nandita_20 (FF), Popper_18 (FF), QuinnAvery_20 (FF), Raqqa_17 (AY), Ryan_20 (FF), Saintcarr_19 (FF), Schism_20 (FF), ToastyOats_22 (FF), Toodles_20 (FF), Yonex_20 (FF), Zaheer_20 (FF),

Start 4:

• Found in 3 of 51 (5.9%) of genes in pham
• Manual Annotations of this start: 2 of 42
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Creature_23 (BR), KimJongPhill_25 (BR), Zuko_22 (BR),

Start 9:
• Found in 9 of 51 (17.6%) of genes in pham
• Manual Annotations of this start: 8 of 42
• Called 100.0% of time when present
• Phage (with cluster) where this start called: A3Wally_97 (GD1), Big4_86 (GD2), Cece_80 (GD3), Dodo_99 (GD1), Erasmago_88 (GD2), Magritte_36 (singleton), PauloDiaboli_97 (GD1), Pumpernickel_94 (GD4), Zooman_82 (GD2),

Start 16:
• Found in 1 of 51 (2.0%) of genes in pham
• Manual Annotations of this start: 1 of 42
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Kromp_17 (singleton),

Start 64:
• Found in 1 of 51 (2.0%) of genes in pham
• Manual Annotations of this start: 1 of 42
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Cantare_24 (singleton),

Start 74:
• Found in 5 of 51 (9.8%) of genes in pham
• Manual Annotations of this start: 4 of 42
• Called 80.0% of time when present
• Phage (with cluster) where this start called: Bauer_19 (FN), MrSmee_16 (FQ1), Skitty_16 (FQ1), Zucker_18 (FN),

Start 119:
• Found in 36 of 51 (70.6%) of genes in pham
• No Manual Annotations of this start.
• Called 2.8% of time when present
• Phage (with cluster) where this start called: Merpity_18 (FQ1),

Summary by clusters:

There are 10 clusters represented in this pham: GD1, GD2, GD3, GD4, FF, singleton, BR, AY, FQ1, FN,

Info for manual annotations of cluster AY:
•Start number 3 was manually annotated 1 time for cluster AY.

Info for manual annotations of cluster BR:
•Start number 4 was manually annotated 2 times for cluster BR.

Info for manual annotations of cluster FF:
•Start number 3 was manually annotated 23 times for cluster FF.

Info for manual annotations of cluster FN:
•Start number 3 was manually annotated 2 times for cluster FN.
•Start number 74 was manually annotated 2 times for cluster FN.

Info for manual annotations of cluster FQ1:
•Start number 74 was manually annotated 2 times for cluster FQ1.

Info for manual annotations of cluster GD1:
•Start number 9 was manually annotated 3 times for cluster GD1.

Info for manual annotations of cluster GD2:
•Start number 9 was manually annotated 2 times for cluster GD2.

Info for manual annotations of cluster GD3:
•Start number 9 was manually annotated 1 time for cluster GD3.

Info for manual annotations of cluster GD4:
•Start number 9 was manually annotated 1 time for cluster GD4.

Gene Information:

Gene: A3Wally_97 Start: 51969, Stop: 56393, Start Num: 9
Candidate Starts for A3Wally_97:
(Start: 9 @51969 has 8 MA's), (31, 52125), (36, 52170), (49, 52257), (63, 52371), (187, 53226), (190, 53247), (197, 53280), (210, 53382), (237, 53532), (250, 53628), (273, 53751), (289, 53847), (313, 53958), (326, 54039), (329, 54066), (358, 54207), (362, 54225), (366, 54246), (386, 54360), (391, 54393), (400, 54420), (419, 54495), (493, 54699), (495, 54708), (511, 54771), (517, 54804), (529, 54858), (561, 55041), (564, 55065), (565, 55068), (568, 55086), (586, 55230), (595, 55296), (604, 55353), (618, 55440), (626, 55491), (641, 55623), (648, 55665), (649, 55689), (651, 55704), (654, 55725), (656, 55749), (657, 55755), (668, 55833), (672, 55848), (686, 55968), (688, 55980), (690, 55998), (706, 56079), (712, 56130), (736, 56277), (739, 56292), (742, 56301), (754, 56358), (758, 56376),

Gene: AbbyDaisy_17 Start: 9615, Stop: 14432, Start Num: 3
Candidate Starts for AbbyDaisy_17:
(Start: 3 @9615 has 26 MA's), (18, 9735), (61, 10071), (66, 10119), (75, 10179), (79, 10221), (80, 10233), (95, 10350), (108, 10425), (119, 10482), (122, 10506), (123, 10512), (133, 10602), (137, 10623), (144, 10683), (149, 10725), (161, 10758), (162, 10764), (173, 10854), (216, 11160), (226, 11193), (246, 11334), (253, 11385), (260, 11436), (261, 11445), (276, 11529), (279, 11550), (286, 11595), (290, 11628), (303, 11694), (306, 11709), (311, 11730), (313, 11739), (314, 11760), (316, 11769), (321, 11793), (335, 11883), (344, 11934), (353, 11964), (357, 11985), (364, 12012), (381, 12108), (389, 12162), (396, 12204), (399, 12213), (402, 12222), (415, 12306), (416, 12309), (419, 12330), (420, 12333), (429, 12372), (433, 12393), (447, 12477), (455, 12510), (463, 12561), (474, 12606), (480, 12630), (488, 12681), (492, 12714), (497, 12741), (513, 12804), (518, 12837), (527, 12882), (539, 12939), (541, 12951), (562, 13080), (572, 13137), (585, 13260), (587, 13272), (608, 13434), (609, 13437), (611, 13443), (614, 13461), (617, 13479), (623, 13515), (625, 13530), (627, 13545), (642, 13671), (644, 13683), (648, 13707), (651, 13743), (662, 13821), (664, 13836), (684, 14013), (699, 14091), (702, 14100), (703, 14127), (705, 14136), (715, 14196), (723, 14229), (743, 14355),

Gene: AllBusiness_19 Start: 11058, Stop: 15884, Start Num: 3

Candidate Starts for AllBusiness_19:
(Start: 3 @11058 has 26 MA's), (6, 11088), (18, 11178), (66, 11562), (75, 11622), (79, 11661), (80, 11673), (95, 11790), (97, 11799), (114, 11895), (119, 11922), (122, 11946), (125, 11970), (133, 12042), (137, 12063), (140, 12075), (144, 12123), (149, 12165), (161, 12198), (162, 12204), (184, 12369), (196, 12441), (216, 12600), (242, 12738), (253, 12825), (260, 12876), (261, 12885), (275, 12966), (276, 12969), (279, 12990), (286, 13035), (295, 13092), (304, 13137), (310, 13164), (311, 13170), (313, 13179), (316, 13209), (335, 13323), (336, 13326), (339, 13344), (357, 13425), (364, 13452), (381, 13548), (389, 13602), (396, 13644), (399, 13653), (416, 13749), (420, 13773), (429, 13812), (433, 13833), (447, 13917), (455, 13950), (469, 14028), (477, 14058), (478, 14061), (492, 14154), (493, 14157), (497, 14181), (502, 14199), (505, 14208), (508, 14220), (515, 14256), (519, 14280), (523, 14298), (527, 14322), (531, 14337), (534, 14355), (539, 14379), (567, 14550), (585, 14700), (598, 14790), (600, 14808), (601, 14814), (603, 14841), (609, 14886), (611, 14892), (614, 14910), (617, 14928), (623, 14964), (626, 14982), (631, 15012), (637, 15063), (642, 15120), (644, 15132), (651, 15192), (660, 15264), (662, 15270), (664, 15285), (684, 15462), (688, 15489), (697, 15528), (698, 15531), (699, 15540), (702, 15549), (711, 15633), (723, 15690), (744, 15822), (750, 15846),

Gene: Bauer_19 Start: 10992, Stop: 15116, Start Num: 74
Candidate Starts for Bauer_19:
(Start: 74 @10992 has 4 MA's), (76, 11016), (81, 11067), (90, 11112), (92, 11124), (94, 11160), (116, 11280), (119, 11298), (120, 11304), (122, 11322), (125, 11346), (133, 11415), (144, 11496), (149, 11538), (154, 11613), (155, 11622), (173, 11763), (175, 11772), (196, 11910), (207, 12015), (230, 12228), (242, 12303), (246, 12339), (253, 12390), (259, 12423), (263, 12453), (270, 12510), (271, 12513), (276, 12534), (279, 12555), (286, 12600), (290, 12633), (298, 12675), (303, 12699), (304, 12702), (309, 12726), (310, 12729), (311, 12735), (313, 12744), (316, 12774), (348, 12954), (356, 12987), (357, 12990), (364, 13017), (389, 13167), (402, 13227), (404, 13239), (408, 13269), (416, 13314), (429, 13377), (439, 13440), (442, 13455), (444, 13473), (447, 13482), (471, 13596), (472, 13599), (478, 13623), (485, 13659), (486, 13665), (491, 13698), (509, 13731), (558, 13809), (582, 13992), (585, 14016), (587, 14028), (592, 14064), (614, 14199), (634, 14289), (637, 14307), (647, 14397), (648, 14400), (651, 14436), (662, 14511), (666, 14553), (673, 14601), (687, 14709), (688, 14712), (716, 14874), (722, 14895), (729, 14955), (740, 15003), (755, 15081), (757, 15084), (759, 15093), (760, 15102), (761, 15105),

Gene: BellaJr_19 Start: 11008, Stop: 15927, Start Num: 3
Candidate Starts for BellaJr_19:
(Start: 3 @11008 has 26 MA's), (5, 11032), (6, 11038), (11, 11083), (18, 11128), (19, 11140), (28, 11206), (32, 11248), (38, 11281), (66, 11512), (68, 11521), (73, 11554), (75, 11572), (79, 11611), (80, 11623), (94, 11734), (114, 11845), (117, 11857), (119, 11872), (122, 11896), (123, 11902), (125, 11920), (133, 11992), (136, 12010), (137, 12013), (140, 12025), (149, 12115), (152, 12169), (161, 12244), (173, 12340), (175, 12349), (190, 12460), (196, 12487), (225, 12772), (232, 12826), (246, 12916), (253, 12967), (259, 13000), (260, 13018), (261, 13027), (263, 13030), (275, 13108), (276, 13111), (282, 13153), (286, 13177), (293, 13228), (295, 13234), (304, 13279), (311, 13312), (313, 13321), (321, 13375), (344, 13516), (357, 13567), (364, 13594), (379, 13672), (381, 13690), (389, 13744), (399, 13795), (402, 13804), (407, 13834), (421, 13921), (429, 13954), (438, 14014), (460, 14119), (464, 14152), (465, 14155), (476, 14194), (483, 14221), (485, 14236), (486, 14242), (491, 14275), (528, 14362), (553, 14494), (571, 14605), (585, 14731), (586, 14740), (591, 14767), (609, 14905), (611, 14911), (617, 14947), (623, 14983), (626, 15001), (632, 15034), (637, 15082), (638, 15085), (649, 15196), (651, 15211), (660, 15283), (663, 15295), (664, 15304), (684, 15481), (697, 15547), (699, 15559), (703, 15595), (705, 15604), (717, 15688), (740, 15814), (743, 15832), (753, 15871), (757, 15895), (759, 15904), (760, 15913), (761, 15916),

Gene: Big4_86 Start: 50992, Stop: 55611, Start Num: 9
Candidate Starts for Big4_86:

(Start: 9 @50992 has 8 MA's), (12, 51004), (13, 51013), (17, 51034), (36, 51193), (63, 51394), (139, 51901), (143, 51940), (178, 52171), (187, 52240), (197, 52294), (217, 52444), (220, 52459), (245, 52609), (265, 52717), (267, 52732), (272, 52759), (275, 52768), (301, 52918), (313, 52963), (321, 53017), (329, 53071), (344, 53158), (364, 53236), (372, 53272), (386, 53362), (390, 53392), (393, 53404), (395, 53413), (403, 53446), (406, 53461), (421, 53545), (423, 53554), (434, 53602), (446, 53677), (454, 53704), (461, 53737), (464, 53770), (467, 53782), (482, 53836), (509, 53968), (517, 54016), (531, 54082), (537, 54112), (555, 54214), (562, 54256), (595, 54508), (604, 54565), (618, 54652), (620, 54673), (621, 54676), (626, 54703), (648, 54880), (649, 54904), (651, 54919), (654, 54940), (656, 54964), (668, 55051), (672, 55066), (688, 55198), (690, 55216), (706, 55297), (712, 55348), (736, 55495), (742, 55519), (756, 55588), (758, 55594),

Gene: BigSherm_20 Start: 10998, Stop: 15812, Start Num: 3
Candidate Starts for BigSherm_20:
(Start: 3 @10998 has 26 MA's), (6, 11028), (18, 11118), (40, 11286), (51, 11370), (61, 11454), (66, 11502), (75, 11562), (79, 11601), (80, 11613), (95, 11730), (97, 11739), (116, 11844), (119, 11862), (122, 11886), (133, 11982), (137, 12003), (140, 12015), (144, 12063), (161, 12138), (162, 12144), (184, 12309), (196, 12381), (216, 12540), (238, 12660), (242, 12678), (253, 12765), (259, 12798), (260, 12816), (261, 12825), (272, 12894), (275, 12906), (276, 12909), (286, 12975), (295, 13032), (303, 13074), (304, 13077), (311, 13110), (313, 13119), (316, 13149), (336, 13266), (339, 13284), (344, 13314), (357, 13365), (364, 13392), (399, 13593), (420, 13713), (429, 13752), (433, 13773), (443, 13845), (447, 13857), (455, 13890), (477, 13998), (478, 14001), (492, 14094), (495, 14115), (506, 14151), (513, 14184), (518, 14217), (530, 14271), (541, 14331), (548, 14379), (567, 14490), (579, 14595), (582, 14616), (585, 14640), (587, 14652), (600, 14736), (603, 14769), (609, 14814), (611, 14820), (614, 14838), (617, 14856), (623, 14892), (625, 14907), (626, 14910), (631, 14940), (637, 14991), (642, 15048), (644, 15060), (649, 15105), (651, 15120), (660, 15192), (662, 15198), (663, 15204), (664, 15213), (684, 15390), (697, 15456), (698, 15459), (699, 15468), (711, 15561), (723, 15618), (750, 15774),

Gene: BlackSpider_17 Start: 10004, Stop: 14773, Start Num: 3
Candidate Starts for BlackSpider_17:
(Start: 3 @10004 has 26 MA's), (5, 10028), (6, 10034), (11, 10079), (18, 10124), (19, 10136), (28, 10202), (32, 10244), (38, 10277), (66, 10508), (68, 10517), (73, 10550), (75, 10568), (79, 10607), (80, 10619), (87, 10673), (94, 10730), (114, 10841), (117, 10853), (119, 10868), (122, 10892), (123, 10898), (125, 10916), (133, 10988), (136, 11006), (137, 11009), (140, 11021), (149, 11111), (161, 11240), (173, 11336), (175, 11345), (190, 11456), (196, 11483), (225, 11768), (232, 11822), (246, 11912), (253, 11963), (259, 11996), (260, 12014), (261, 12023), (263, 12026), (275, 12104), (276, 12107), (282, 12149), (286, 12173), (293, 12224), (295, 12230), (304, 12275), (311, 12308), (313, 12317), (321, 12371), (344, 12512), (357, 12563), (364, 12590), (379, 12668), (381, 12686), (389, 12740), (396, 12782), (399, 12791), (421, 12917), (433, 12971), (435, 12998), (439, 13013), (455, 13088), (463, 13139), (464, 13148), (491, 13250), (494, 13265), (532, 13349), (577, 13514), (585, 13568), (609, 13745), (611, 13751), (614, 13769), (617, 13787), (623, 13823), (626, 13841), (632, 13874), (637, 13922), (638, 13925), (649, 14036), (651, 14051), (660, 14123), (663, 14135), (664, 14144), (682, 14315), (684, 14321), (697, 14387), (699, 14399), (703, 14435), (705, 14444), (717, 14534), (731, 14618), (740, 14660), (743, 14678), (757, 14741), (759, 14750), (760, 14759), (761, 14762),

Gene: Cantare_24 Start: 20369, Stop: 24469, Start Num: 64
Candidate Starts for Cantare_24:
(Start: 64 @20369 has 1 MA's), (70, 20414), (71, 20417), (115, 20726), (118, 20744), (121, 20765), (126, 20804), (130, 20822), (144, 20945), (145, 20957), (146, 20969), (148, 20984), (150, 20993), (151, 20999), (177, 21173), (182, 21209), (186, 21251), (189, 21275), (192, 21281), (201, 21353), (206, 21389), (209, 21410), (211, 21431), (213, 21440), (218, 21473), (229, 21518), (252, 21677), (256, 21698), (283, 21860), (295, 21935), (296, 21947), (305, 21989), (312, 22022), (316, 22055),

(317, 22064), (333, 22157), (342, 22208), (369, 22325), (376, 22358), (377, 22361), (410, 22559), (435, 22706), (437, 22712), (476, 22886), (489, 22946), (496, 23000), (515, 23078), (522, 23108), (557, 23297), (566, 23357), (569, 23375), (605, 23645), (610, 23678), (611, 23681), (619, 23729), (628, 23765), (648, 23918), (671, 24110), (677, 24194), (679, 24206), (680, 24212), (683, 24218), (693, 24275), (701, 24311), (709, 24374), (710, 24392),

Gene: Cassini_17 Start: 9972, Stop: 15008, Start Num: 3
Candidate Starts for Cassini_17:
(Start: 3 @9972 has 26 MA's), (5, 9996), (6, 10002), (11, 10047), (18, 10092), (19, 10104), (32, 10212), (40, 10260), (66, 10476), (73, 10518), (75, 10536), (79, 10575), (80, 10587), (87, 10641), (94, 10698), (99, 10725), (114, 10809), (119, 10836), (122, 10860), (123, 10866), (125, 10884), (133, 10956), (136, 10974), (137, 10977), (140, 10989), (149, 11079), (154, 11154), (161, 11208), (173, 11304), (175, 11313), (189, 11421), (190, 11424), (196, 11451), (225, 11736), (246, 11880), (253, 11931), (260, 11982), (261, 11991), (272, 12060), (275, 12072), (276, 12075), (282, 12117), (286, 12141), (293, 12192), (295, 12198), (304, 12243), (311, 12276), (313, 12285), (357, 12531), (364, 12558), (381, 12654), (383, 12666), (389, 12708), (396, 12750), (399, 12759), (421, 12885), (429, 12918), (438, 12978), (454, 13053), (455, 13056), (462, 13104), (470, 13137), (477, 13164), (487, 13218), (490, 13245), (491, 13251), (497, 13287), (502, 13305), (508, 13326), (517, 13377), (526, 13425), (530, 13437), (531, 13443), (541, 13497), (544, 13518), (585, 13806), (586, 13815), (608, 13977), (609, 13980), (611, 13986), (614, 14004), (617, 14022), (623, 14058), (626, 14076), (632, 14109), (638, 14160), (644, 14226), (651, 14286), (660, 14358), (662, 14364), (664, 14379), (684, 14556), (697, 14622), (699, 14634), (703, 14670), (705, 14679), (740, 14895), (743, 14913), (753, 14952), (757, 14976), (759, 14985), (760, 14994), (761, 14997),

Gene: Cece_80 Start: 46891, Stop: 50733, Start Num: 9
Candidate Starts for Cece_80:
(Start: 9 @46891 has 8 MA's), (29, 47023), (33, 47068), (63, 47290), (84, 47467), (147, 47911), (172, 48070), (185, 48166), (188, 48187), (214, 48364), (219, 48391), (231, 48454), (236, 48481), (242, 48514), (270, 48715), (272, 48724), (291, 48835), (292, 48838), (295, 48847), (369, 49228), (370, 49231), (385, 49297), (386, 49300), (391, 49333), (397, 49357), (411, 49390), (421, 49444), (424, 49462), (436, 49525), (441, 49543), (453, 49573), (458, 49591), (488, 49639), (501, 49708), (507, 49723), (512, 49747), (515, 49762), (521, 49789), (533, 49855), (535, 49861), (554, 49969), (559, 49999), (581, 50152), (583, 50158), (584, 50170), (593, 50221), (615, 50359), (616, 50362), (622, 50404), (624, 50416), (639, 50512), (648, 50593), (649, 50617), (653, 50641), (659, 50695), (660, 50698),

Gene: Cole_18 Start: 10660, Stop: 15474, Start Num: 3
Candidate Starts for Cole_18:
(Start: 3 @10660 has 26 MA's), (6, 10690), (18, 10780), (40, 10948), (51, 11032), (61, 11116), (66, 11164), (75, 11224), (79, 11263), (80, 11275), (95, 11392), (97, 11401), (116, 11506), (119, 11524), (122, 11548), (133, 11644), (137, 11665), (140, 11677), (144, 11725), (161, 11800), (162, 11806), (184, 11971), (196, 12043), (216, 12202), (238, 12322), (242, 12340), (253, 12427), (259, 12460), (260, 12478), (261, 12487), (272, 12556), (275, 12568), (276, 12571), (279, 12592), (286, 12637), (295, 12694), (303, 12736), (304, 12739), (311, 12772), (313, 12781), (316, 12811), (336, 12928), (339, 12946), (344, 12976), (357, 13027), (364, 13054), (381, 13150), (387, 13192), (399, 13255), (420, 13375), (429, 13414), (433, 13435), (443, 13507), (447, 13519), (455, 13552), (477, 13660), (478, 13663), (484, 13699), (492, 13756), (495, 13777), (506, 13813), (513, 13846), (515, 13858), (518, 13879), (530, 13933), (541, 13993), (548, 14041), (567, 14152), (579, 14257), (582, 14278), (585, 14302), (587, 14314), (600, 14398), (603, 14431), (609, 14476), (611, 14482), (614, 14500), (617, 14518), (623, 14554), (625, 14569), (626, 14572), (631, 14602), (637, 14653), (642, 14710), (644, 14722), (649, 14767), (651, 14782), (660, 14854), (663, 14866), (664, 14875), (684, 15052), (697, 15118), (698, 15121), (699, 15130), (705, 15175), (711, 15223), (723, 15280), (750, 15436),

Gene: Creature_23 Start: 15333, Stop: 19559, Start Num: 4
Candidate Starts for Creature_23:
(Start: 4 @15333 has 2 MA's), (19, 15450), (28, 15516), (34, 15570), (50, 15675), (55, 15717), (57, 15735), (59, 15747), (84, 15927), (100, 16044), (101, 16059), (106, 16080), (138, 16278), (141, 16299), (143, 16320), (160, 16407), (166, 16452), (170, 16473), (178, 16515), (183, 16551), (193, 16623), (199, 16668), (203, 16701), (205, 16731), (208, 16752), (220, 16824), (234, 16932), (239, 16959), (241, 16971), (253, 17058), (255, 17067), (264, 17094), (265, 17097), (266, 17115), (284, 17217), (294, 17277), (295, 17280), (315, 17331), (327, 17370), (335, 17403), (339, 17421), (345, 17445), (346, 17451), (350, 17463), (351, 17466), (362, 17514), (378, 17565), (384, 17604), (386, 17610), (390, 17634), (393, 17646), (394, 17649), (399, 17673), (403, 17691), (412, 17712), (413, 17724), (422, 17760), (428, 17778), (437, 17826), (447, 17847), (474, 17901), (478, 17916), (513, 18051), (539, 18162), (542, 18183), (550, 18219), (576, 18348), (597, 18489), (598, 18495), (602, 18531), (610, 18582), (636, 18717), (643, 18786), (648, 18813), (649, 18837), (670, 18999), (674, 19017), (676, 19029), (688, 19143), (695, 19179), (704, 19242), (715, 19329), (720, 19353), (746, 19500), (749, 19509), (753, 19527),

Gene: Dirtdigger_20 Start: 10978, Stop: 15792, Start Num: 3
Candidate Starts for Dirtdigger_20:
(Start: 3 @10978 has 26 MA's), (6, 11008), (18, 11098), (19, 11110), (32, 11218), (42, 11281), (61, 11434), (66, 11482), (75, 11542), (79, 11581), (80, 11593), (95, 11710), (97, 11719), (114, 11815), (119, 11842), (122, 11866), (133, 11962), (137, 11983), (140, 11995), (144, 12043), (161, 12118), (162, 12124), (184, 12289), (196, 12361), (216, 12520), (242, 12658), (253, 12745), (254, 12751), (260, 12796), (261, 12805), (275, 12886), (276, 12889), (279, 12910), (286, 12955), (287, 12964), (295, 13012), (303, 13054), (304, 13057), (310, 13084), (311, 13090), (313, 13099), (316, 13129), (335, 13243), (336, 13246), (339, 13264), (344, 13294), (353, 13324), (357, 13345), (364, 13372), (381, 13468), (389, 13522), (396, 13564), (399, 13573), (408, 13624), (420, 13693), (433, 13753), (447, 13837), (452, 13858), (455, 13870), (469, 13948), (477, 13978), (478, 13981), (487, 14032), (488, 14041), (492, 14074), (493, 14077), (495, 14095), (497, 14101), (505, 14128), (513, 14164), (515, 14176), (518, 14197), (530, 14251), (541, 14311), (562, 14440), (585, 14620), (586, 14629), (587, 14632), (600, 14716), (603, 14749), (609, 14794), (611, 14800), (614, 14818), (617, 14836), (623, 14872), (626, 14890), (631, 14920), (637, 14971), (642, 15028), (644, 15040), (648, 15064), (651, 15100), (660, 15172), (664, 15193), (684, 15370), (697, 15436), (698, 15439), (702, 15457), (711, 15541), (723, 15598), (744, 15730), (750, 15754),

Gene: Dodo_99 Start: 52291, Stop: 56715, Start Num: 9
Candidate Starts for Dodo_99:
(Start: 9 @52291 has 8 MA's), (31, 52447), (36, 52492), (49, 52579), (63, 52693), (187, 53548), (190, 53569), (197, 53602), (210, 53704), (237, 53854), (250, 53950), (273, 54073), (289, 54169), (313, 54280), (326, 54361), (329, 54388), (358, 54529), (362, 54547), (366, 54568), (386, 54682), (391, 54715), (400, 54742), (419, 54817), (493, 55021), (495, 55030), (511, 55093), (517, 55126), (529, 55180), (561, 55363), (564, 55387), (565, 55390), (568, 55408), (586, 55552), (595, 55618), (600, 55642), (604, 55675), (618, 55762), (626, 55813), (641, 55945), (648, 55987), (649, 56011), (651, 56026), (654, 56047), (656, 56071), (657, 56077), (668, 56155), (672, 56170), (688, 56302), (690, 56320), (706, 56401), (712, 56452), (736, 56599), (739, 56614), (742, 56623), (754, 56680), (758, 56698),

Gene: Donatella_19 Start: 11124, Stop: 15938, Start Num: 3
Candidate Starts for Donatella_19:
(Start: 3 @11124 has 26 MA's), (6, 11154), (18, 11244), (51, 11496), (61, 11580), (66, 11628), (75, 11688), (79, 11727), (80, 11739), (95, 11856), (97, 11865), (116, 11970), (119, 11988), (122, 12012), (133, 12108), (137, 12129), (140, 12141), (144, 12189), (149, 12231), (161, 12264), (162, 12270), (184, 12435), (196, 12507), (216, 12666), (238, 12786), (242, 12804), (253, 12891), (259, 12924), (260, 12942), (261, 12951), (272, 13020), (275, 13032), (276, 13035), (279, 13056), (286, 13101),

(295, 13158), (303, 13200), (304, 13203), (311, 13236), (313, 13245), (316, 13275), (336, 13392), (339, 13410), (344, 13440), (357, 13491), (364, 13518), (381, 13614), (387, 13656), (390, 13680), (399, 13719), (420, 13839), (429, 13878), (433, 13899), (443, 13971), (447, 13983), (455, 14016), (477, 14124), (478, 14127), (492, 14220), (495, 14241), (506, 14277), (513, 14310), (515, 14322), (518, 14343), (530, 14397), (539, 14445), (541, 14457), (548, 14505), (567, 14616), (579, 14721), (585, 14766), (587, 14778), (600, 14862), (603, 14895), (609, 14940), (611, 14946), (614, 14964), (617, 14982), (623, 15018), (625, 15033), (626, 15036), (631, 15066), (637, 15117), (642, 15174), (644, 15186), (649, 15231), (651, 15246), (660, 15318), (663, 15330), (664, 15339), (684, 15516), (698, 15585), (699, 15594), (711, 15687), (723, 15744), (724, 15747), (750, 15900),

Gene: Elesar_19 Start: 11042, Stop: 15865, Start Num: 3
Candidate Starts for Elesar_19:
(1, 10970), (2, 10994), (Start: 3 @11042 has 26 MA's), (7, 11093), (18, 11162), (30, 11261), (32, 11282), (66, 11546), (73, 11588), (75, 11606), (79, 11645), (80, 11657), (94, 11768), (100, 11798), (119, 11906), (132, 12005), (133, 12026), (136, 12044), (137, 12047), (144, 12107), (162, 12188), (180, 12323), (242, 12722), (253, 12809), (260, 12860), (276, 12953), (279, 12974), (286, 13019), (287, 13028), (292, 13067), (293, 13070), (304, 13121), (309, 13145), (311, 13154), (313, 13163), (331, 13277), (344, 13358), (357, 13409), (364, 13436), (379, 13514), (381, 13532), (389, 13586), (396, 13628), (421, 13763), (431, 13805), (433, 13817), (435, 13844), (455, 13934), (470, 14015), (478, 14045), (481, 14057), (487, 14096), (488, 14105), (491, 14129), (492, 14138), (493, 14141), (495, 14159), (497, 14165), (514, 14231), (515, 14240), (518, 14261), (519, 14264), (527, 14306), (530, 14315), (532, 14327), (541, 14375), (548, 14423), (552, 14444), (568, 14546), (582, 14660), (585, 14684), (600, 14780), (609, 14858), (611, 14864), (614, 14882), (617, 14900), (623, 14936), (631, 14984), (634, 15017), (637, 15035), (642, 15092), (651, 15164), (660, 15236), (663, 15248), (664, 15257), (689, 15470), (697, 15500), (699, 15512), (711, 15608), (724, 15680), (729, 15734), (744, 15803), (750, 15827),

Gene: Erasmago_88 Start: 48589, Stop: 53256, Start Num: 9
Candidate Starts for Erasmago_88:
(Start: 9 @48589 has 8 MA's), (12, 48601), (13, 48610), (36, 48790), (39, 48805), (46, 48862), (63, 48991), (187, 49837), (196, 49879), (215, 50029), (217, 50041), (220, 50056), (241, 50179), (250, 50248), (313, 50578), (321, 50632), (326, 50659), (329, 50686), (358, 50827), (362, 50845), (371, 50884), (375, 50902), (386, 50980), (389, 50998), (390, 51010), (395, 51034), (407, 51088), (414, 51130), (426, 51190), (448, 51304), (478, 51445), (479, 51451), (487, 51499), (500, 51577), (511, 51625), (517, 51658), (525, 51700), (546, 51808), (561, 51895), (564, 51919), (565, 51922), (586, 52084), (595, 52150), (604, 52207), (618, 52294), (620, 52315), (621, 52318), (626, 52345), (633, 52393), (649, 52546), (651, 52561), (654, 52582), (668, 52693), (672, 52708), (686, 52828), (688, 52840), (690, 52858), (712, 52990), (719, 53041), (732, 53113), (737, 53149), (739, 53152), (751, 53209), (756, 53233), (758, 53239),

Gene: GMA4_16 Start: 10768, Stop: 16050, Start Num: 3
Candidate Starts for GMA4_16:
(Start: 3 @10768 has 26 MA's), (14, 10858), (22, 10936), (24, 10942), (26, 10954), (44, 11086), (47, 11113), (53, 11155), (56, 11185), (58, 11197), (67, 11287), (82, 11419), (86, 11449), (110, 11614), (113, 11626), (124, 11698), (125, 11704), (127, 11710), (159, 12016), (165, 12076), (168, 12100), (171, 12118), (174, 12139), (189, 12253), (195, 12274), (202, 12343), (205, 12376), (212, 12424), (221, 12502), (228, 12601), (229, 12604), (235, 12649), (247, 12730), (248, 12739), (257, 12805), (261, 12838), (269, 12892), (274, 12913), (277, 12928), (278, 12937), (285, 12979), (304, 13090), (305, 13099), (306, 13102), (307, 13105), (308, 13111), (311, 13126), (315, 13162), (318, 13180), (320, 13186), (322, 13195), (323, 13198), (324, 13201), (326, 13216), (332, 13252), (336, 13282), (338, 13285), (341, 13306), (352, 13357), (353, 13360), (355, 13366), (356, 13378), (382, 13525), (419, 13738), (420, 13741), (429, 13780), (451, 13900), (453, 13909), (468, 13993), (474, 14014), (503, 14161), (524, 14263), (526, 14281), (536, 14326), (538, 14341), (547, 14413), (560, 14482),

(563, 14506), (564, 14518), (570, 14545), (573, 14560), (580, 14641), (582, 14659), (590, 14719), (594, 14764), (599, 14794), (612, 14920), (620, 14977), (652, 15232), (654, 15250), (675, 15397), (685, 15511), (691, 15550), (694, 15559), (707, 15640), (708, 15643), (714, 15712), (718, 15733), (721, 15745), (729, 15811), (732, 15823), (738, 15862), (762, 16012), (763, 16036),

Gene: GoodLuckBabe_20 Start: 10954, Stop: 15768, Start Num: 3
Candidate Starts for GoodLuckBabe_20:
(Start: 3 @10954 has 26 MA's), (6, 10984), (18, 11074), (40, 11242), (61, 11410), (66, 11458), (75, 11518), (79, 11557), (80, 11569), (95, 11686), (97, 11695), (114, 11791), (119, 11818), (133, 11938), (137, 11959), (140, 11971), (161, 12094), (162, 12100), (184, 12265), (196, 12337), (216, 12496), (238, 12616), (242, 12634), (253, 12721), (259, 12754), (260, 12772), (261, 12781), (272, 12850), (275, 12862), (276, 12865), (286, 12931), (295, 12988), (303, 13030), (304, 13033), (311, 13066), (313, 13075), (316, 13105), (336, 13222), (339, 13240), (344, 13270), (357, 13321), (364, 13348), (381, 13444), (390, 13510), (396, 13540), (399, 13549), (420, 13669), (429, 13708), (433, 13729), (435, 13756), (436, 13759), (447, 13813), (449, 13822), (455, 13846), (462, 13894), (465, 13909), (469, 13924), (477, 13954), (478, 13957), (492, 14050), (493, 14053), (495, 14071), (497, 14077), (506, 14107), (513, 14140), (515, 14152), (518, 14173), (530, 14227), (541, 14287), (548, 14335), (579, 14551), (585, 14596), (587, 14608), (600, 14692), (603, 14725), (609, 14770), (611, 14776), (614, 14794), (617, 14812), (623, 14848), (625, 14863), (626, 14866), (631, 14896), (637, 14947), (642, 15004), (644, 15016), (660, 15148), (663, 15160), (664, 15169), (684, 15346), (697, 15412), (698, 15415), (699, 15424), (705, 15469), (711, 15517), (723, 15574), (728, 15628), (744, 15706), (750, 15730),

Gene: Guinevere_20 Start: 10985, Stop: 15799, Start Num: 3
Candidate Starts for Guinevere_20:
(Start: 3 @10985 has 26 MA's), (6, 11015), (18, 11105), (40, 11273), (61, 11441), (66, 11489), (75, 11549), (79, 11588), (80, 11600), (95, 11717), (97, 11726), (114, 11822), (119, 11849), (133, 11969), (137, 11990), (140, 12002), (161, 12125), (162, 12131), (196, 12368), (216, 12527), (238, 12647), (242, 12665), (253, 12752), (259, 12785), (260, 12803), (261, 12812), (272, 12881), (275, 12893), (276, 12896), (286, 12962), (295, 13019), (304, 13064), (311, 13097), (313, 13106), (316, 13136), (336, 13253), (339, 13271), (344, 13301), (357, 13352), (364, 13379), (381, 13475), (396, 13571), (399, 13580), (420, 13700), (429, 13739), (433, 13760), (443, 13832), (447, 13844), (455, 13877), (465, 13940), (469, 13955), (477, 13985), (478, 13988), (492, 14081), (493, 14084), (497, 14108), (505, 14135), (515, 14183), (530, 14258), (541, 14318), (548, 14366), (579, 14582), (585, 14627), (587, 14639), (600, 14723), (603, 14756), (609, 14801), (611, 14807), (614, 14825), (617, 14843), (623, 14879), (625, 14894), (626, 14897), (631, 14927), (642, 15035), (644, 15047), (649, 15092), (660, 15179), (663, 15191), (664, 15200), (684, 15377), (697, 15443), (698, 15446), (699, 15455), (705, 15500), (711, 15548), (723, 15605), (728, 15659), (744, 15737), (750, 15761),

Gene: Gusanita_18 Start: 10874, Stop: 15688, Start Num: 3
Candidate Starts for Gusanita_18:
(Start: 3 @10874 has 26 MA's), (6, 10904), (18, 10994), (40, 11162), (51, 11246), (61, 11330), (66, 11378), (75, 11438), (79, 11477), (80, 11489), (95, 11606), (96, 11609), (97, 11615), (104, 11654), (116, 11720), (119, 11738), (122, 11762), (133, 11858), (137, 11879), (140, 11891), (144, 11939), (149, 11981), (161, 12014), (162, 12020), (184, 12185), (196, 12257), (216, 12416), (242, 12554), (253, 12641), (259, 12674), (260, 12692), (261, 12701), (272, 12770), (275, 12782), (276, 12785), (279, 12806), (286, 12851), (295, 12908), (299, 12929), (303, 12950), (304, 12953), (311, 12986), (313, 12995), (316, 13025), (320, 13046), (336, 13142), (339, 13160), (344, 13190), (357, 13241), (364, 13268), (379, 13346), (381, 13364), (396, 13460), (399, 13469), (420, 13589), (429, 13628), (433, 13649), (447, 13733), (455, 13766), (469, 13844), (477, 13874), (478, 13877), (492, 13970), (493, 13973), (497, 13997), (502, 14015), (505, 14024), (515, 14072), (527, 14138), (530, 14147), (534, 14171), (541, 14207), (552, 14276), (577, 14462), (582, 14492), (586, 14525), (587, 14528), (608, 14687), (609, 14690), (611, 14696), (614, 14714), (617, 14732), (623, 14768), (625, 14783),

(626, 14786), (631, 14816), (637, 14867), (642, 14924), (644, 14936), (660, 15068), (663, 15080), (664, 15089), (684, 15266), (697, 15332), (699, 15344), (703, 15380), (711, 15437), (723, 15494), (750, 15650),

Gene: Halloweekend_18 Start: 10624, Stop: 15438, Start Num: 3
Candidate Starts for Halloweekend_18:
(Start: 3 @10624 has 26 MA's), (6, 10654), (18, 10744), (40, 10912), (51, 10996), (61, 11080), (66, 11128), (75, 11188), (79, 11227), (80, 11239), (95, 11356), (97, 11365), (116, 11470), (119, 11488), (122, 11512), (133, 11608), (137, 11629), (140, 11641), (144, 11689), (161, 11764), (162, 11770), (196, 12007), (216, 12166), (238, 12286), (242, 12304), (253, 12391), (259, 12424), (260, 12442), (261, 12451), (272, 12520), (275, 12532), (276, 12535), (286, 12601), (295, 12658), (303, 12700), (304, 12703), (311, 12736), (313, 12745), (316, 12775), (336, 12892), (339, 12910), (344, 12940), (357, 12991), (364, 13018), (399, 13219), (420, 13339), (429, 13378), (433, 13399), (443, 13471), (447, 13483), (455, 13516), (477, 13624), (478, 13627), (492, 13720), (495, 13741), (506, 13777), (513, 13810), (518, 13843), (530, 13897), (541, 13957), (548, 14005), (567, 14116), (579, 14221), (582, 14242), (585, 14266), (587, 14278), (600, 14362), (603, 14395), (609, 14440), (611, 14446), (614, 14464), (617, 14482), (623, 14518), (625, 14533), (626, 14536), (631, 14566), (637, 14617), (642, 14674), (644, 14686), (649, 14731), (651, 14746), (660, 14818), (662, 14824), (663, 14830), (664, 14839), (684, 15016), (697, 15082), (698, 15085), (699, 15094), (711, 15187), (723, 15244), (750, 15400),

Gene: Ichiang_18 Start: 10641, Stop: 15455, Start Num: 3
Candidate Starts for Ichiang_18:
(Start: 3 @10641 has 26 MA's), (6, 10671), (18, 10761), (40, 10929), (61, 11097), (66, 11145), (75, 11205), (79, 11244), (80, 11256), (95, 11373), (97, 11382), (114, 11478), (119, 11505), (122, 11529), (133, 11625), (137, 11646), (140, 11658), (144, 11706), (161, 11781), (162, 11787), (184, 11952), (196, 12024), (216, 12183), (238, 12303), (242, 12321), (253, 12408), (259, 12441), (260, 12459), (261, 12468), (272, 12537), (275, 12549), (276, 12552), (279, 12573), (286, 12618), (295, 12675), (303, 12717), (304, 12720), (311, 12753), (313, 12762), (316, 12792), (336, 12909), (339, 12927), (344, 12957), (357, 13008), (364, 13035), (381, 13131), (387, 13173), (390, 13197), (399, 13236), (420, 13356), (429, 13395), (433, 13416), (443, 13488), (447, 13500), (455, 13533), (477, 13641), (478, 13644), (492, 13737), (495, 13758), (506, 13794), (513, 13827), (515, 13839), (518, 13860), (530, 13914), (539, 13962), (541, 13974), (548, 14022), (567, 14133), (579, 14238), (585, 14283), (587, 14295), (600, 14379), (603, 14412), (609, 14457), (611, 14463), (614, 14481), (617, 14499), (623, 14535), (625, 14550), (626, 14553), (631, 14583), (637, 14634), (642, 14691), (644, 14703), (649, 14748), (651, 14763), (660, 14835), (663, 14847), (664, 14856), (684, 15033), (698, 15102), (699, 15111), (711, 15204), (723, 15261), (724, 15264), (750, 15417),

Gene: IsHungry_20 Start: 10951, Stop: 15765, Start Num: 3
Candidate Starts for IsHungry_20:
(Start: 3 @10951 has 26 MA's), (6, 10981), (18, 11071), (19, 11083), (61, 11407), (66, 11455), (75, 11515), (79, 11554), (80, 11566), (95, 11683), (97, 11692), (119, 11815), (122, 11839), (129, 11875), (133, 11935), (137, 11956), (140, 11968), (149, 12058), (161, 12091), (162, 12097), (184, 12262), (196, 12334), (216, 12493), (242, 12631), (253, 12718), (260, 12769), (261, 12778), (270, 12838), (276, 12862), (279, 12883), (286, 12928), (287, 12937), (295, 12985), (303, 13027), (304, 13030), (311, 13063), (313, 13072), (316, 13102), (335, 13216), (339, 13237), (344, 13267), (357, 13318), (364, 13345), (381, 13441), (385, 13474), (396, 13537), (420, 13666), (429, 13705), (433, 13726), (436, 13756), (447, 13810), (455, 13843), (462, 13891), (465, 13906), (478, 13954), (487, 14005), (492, 14047), (493, 14050), (495, 14068), (497, 14074), (505, 14101), (513, 14137), (515, 14149), (518, 14170), (530, 14224), (539, 14272), (541, 14284), (562, 14413), (572, 14470), (582, 14569), (585, 14593), (587, 14605), (609, 14770), (611, 14776), (614, 14794), (617, 14812), (623, 14848), (625, 14863), (626, 14866), (642, 15004), (644, 15016), (660, 15148), (663, 15160), (664, 15169), (684, 15346), (688, 15373), (698, 15415), (699, 15424), (711, 15517), (723, 15574), (744, 15703),

(750, 15727),

Gene: Julie_20 Start: 11214, Stop: 16028, Start Num: 3
Candidate Starts for Julie_20:
(Start: 3 @11214 has 26 MA's), (6, 11244), (15, 11310), (18, 11334), (19, 11346), (25, 11391), (61, 11670), (66, 11718), (75, 11778), (79, 11817), (80, 11829), (95, 11946), (97, 11955), (114, 12051), (119, 12078), (122, 12102), (133, 12198), (137, 12219), (140, 12231), (144, 12279), (161, 12354), (162, 12360), (196, 12597), (216, 12756), (242, 12894), (253, 12981), (254, 12987), (260, 13032), (261, 13041), (275, 13122), (276, 13125), (279, 13146), (286, 13191), (287, 13200), (295, 13248), (303, 13290), (304, 13293), (310, 13320), (311, 13326), (313, 13335), (316, 13365), (335, 13479), (336, 13482), (339, 13500), (357, 13581), (364, 13608), (379, 13686), (381, 13704), (396, 13800), (399, 13809), (420, 13929), (429, 13968), (433, 13989), (447, 14073), (452, 14094), (455, 14106), (469, 14184), (477, 14214), (478, 14217), (492, 14310), (493, 14313), (497, 14337), (502, 14355), (505, 14364), (527, 14478), (530, 14487), (534, 14511), (541, 14547), (552, 14616), (577, 14802), (582, 14832), (585, 14856), (586, 14865), (587, 14868), (600, 14952), (609, 15030), (611, 15036), (614, 15054), (617, 15072), (623, 15108), (625, 15123), (626, 15126), (631, 15156), (637, 15207), (642, 15264), (644, 15276), (651, 15336), (660, 15408), (664, 15429), (684, 15606), (697, 15672), (698, 15675), (699, 15684), (702, 15693), (711, 15777), (723, 15834), (744, 15966), (750, 15990),

Gene: Kihatsu_21 Start: 11307, Stop: 16121, Start Num: 3
Candidate Starts for Kihatsu_21:
(Start: 3 @11307 has 26 MA's), (6, 11337), (18, 11427), (40, 11595), (61, 11763), (66, 11811), (75, 11871), (79, 11910), (80, 11922), (95, 12039), (97, 12048), (114, 12144), (119, 12171), (133, 12291), (137, 12312), (140, 12324), (162, 12453), (184, 12618), (196, 12690), (216, 12849), (238, 12969), (242, 12987), (253, 13074), (259, 13107), (260, 13125), (261, 13134), (272, 13203), (275, 13215), (276, 13218), (286, 13284), (295, 13341), (304, 13386), (311, 13419), (313, 13428), (316, 13458), (336, 13575), (339, 13593), (344, 13623), (357, 13674), (364, 13701), (381, 13797), (396, 13893), (399, 13902), (420, 14022), (429, 14061), (433, 14082), (435, 14109), (436, 14112), (443, 14154), (447, 14166), (449, 14175), (455, 14199), (462, 14247), (465, 14262), (469, 14277), (477, 14307), (478, 14310), (492, 14403), (493, 14406), (495, 14424), (497, 14430), (513, 14493), (515, 14505), (518, 14526), (530, 14580), (541, 14640), (548, 14688), (551, 14700), (579, 14904), (585, 14949), (587, 14961), (600, 15045), (603, 15078), (609, 15123), (611, 15129), (614, 15147), (617, 15165), (623, 15201), (625, 15216), (626, 15219), (631, 15249), (637, 15300), (642, 15357), (644, 15369), (660, 15501), (663, 15513), (664, 15522), (684, 15699), (696, 15756), (698, 15768), (699, 15777), (705, 15822), (711, 15870), (723, 15927), (744, 16059), (750, 16083),

Gene: KimJongPhill_25 Start: 16539, Stop: 20771, Start Num: 4
Candidate Starts for KimJongPhill_25:
(Start: 4 @16539 has 2 MA's), (10, 16599), (19, 16656), (28, 16722), (35, 16782), (41, 16821), (45, 16845), (59, 16953), (75, 17070), (93, 17196), (100, 17250), (138, 17484), (143, 17526), (158, 17601), (160, 17613), (170, 17676), (179, 17727), (188, 17805), (199, 17871), (200, 17886), (203, 17904), (205, 17934), (208, 17955), (220, 18027), (233, 18129), (234, 18135), (240, 18168), (241, 18174), (249, 18228), (265, 18300), (266, 18318), (275, 18363), (291, 18471), (294, 18480), (315, 18534), (327, 18573), (328, 18579), (342, 18633), (343, 18642), (354, 18678), (363, 18720), (386, 18813), (395, 18861), (398, 18873), (407, 18906), (417, 18939), (421, 18960), (425, 18972), (431, 18993), (440, 19038), (445, 19044), (447, 19050), (478, 19119), (499, 19209), (510, 19242), (513, 19254), (516, 19275), (519, 19287), (520, 19290), (526, 19308), (530, 19320), (532, 19332), (539, 19365), (546, 19407), (550, 19422), (562, 19455), (577, 19575), (597, 19692), (598, 19698), (602, 19734), (610, 19785), (630, 19881), (636, 19926), (640, 19971), (648, 20022), (650, 20049), (658, 20115), (670, 20208), (695, 20388), (704, 20451), (713, 20526), (715, 20538), (725, 20598), (746, 20712), (748, 20715), (749, 20721),

Gene: Kromp_17 Start: 11250, Stop: 16064, Start Num: 16

Candidate Starts for Kromp_17:
(8, 11211), (15, 11247), (Start: 16 @11250 has 1 MA's), (20, 11289), (52, 11529), (62, 11613), (69, 11670), (75, 11709), (78, 11742), (84, 11784), (85, 11796), (101, 11916), (107, 11943), (143, 12174), (153, 12291), (163, 12345), (170, 12420), (176, 12453), (178, 12462), (181, 12492), (193, 12570), (198, 12603), (199, 12615), (203, 12648), (205, 12678), (217, 12756), (224, 12795), (241, 12918), (251, 12993), (258, 13032), (268, 13110), (271, 13122), (280, 13170), (288, 13227), (297, 13275), (300, 13293), (303, 13302), (310, 13335), (315, 13377), (319, 13398), (325, 13425), (328, 13452), (334, 13488), (337, 13497), (355, 13578), (361, 13611), (365, 13629), (380, 13704), (384, 13746), (385, 13749), (390, 13776), (392, 13782), (395, 13800), (401, 13821), (406, 13848), (409, 13869), (413, 13899), (423, 13950), (428, 13971), (447, 14079), (450, 14091), (454, 14109), (466, 14181), (491, 14310), (493, 14322), (526, 14478), (575, 14769), (576, 14781), (588, 14883), (589, 14892), (596, 14949), (598, 14961), (602, 15030), (607, 15066), (640, 15303), (645, 15336), (669, 15543), (670, 15546), (674, 15564), (700, 15747), (723, 15888), (741, 15999), (752, 16047),

Gene: Lenoxika_20 Start: 10987, Stop: 15795, Start Num: 3
Candidate Starts for Lenoxika_20:
(Start: 3 @10987 has 26 MA's), (6, 11017), (18, 11107), (39, 11269), (40, 11275), (61, 11443), (66, 11491), (75, 11551), (79, 11590), (80, 11602), (95, 11719), (97, 11728), (116, 11833), (119, 11851), (122, 11875), (133, 11971), (135, 11977), (137, 11992), (140, 12004), (144, 12052), (161, 12127), (162, 12133), (216, 12529), (238, 12649), (242, 12667), (253, 12754), (259, 12787), (260, 12805), (261, 12814), (272, 12883), (275, 12895), (276, 12898), (286, 12964), (295, 13021), (304, 13066), (311, 13099), (313, 13108), (316, 13138), (336, 13255), (339, 13273), (344, 13303), (357, 13354), (364, 13381), (381, 13477), (396, 13573), (399, 13582), (420, 13702), (429, 13741), (433, 13762), (443, 13834), (447, 13846), (455, 13879), (465, 13942), (469, 13957), (477, 13987), (478, 13990), (492, 14083), (493, 14086), (497, 14110), (505, 14137), (515, 14185), (530, 14260), (541, 14320), (548, 14368), (579, 14584), (585, 14629), (587, 14641), (600, 14725), (603, 14758), (609, 14803), (611, 14809), (614, 14827), (617, 14845), (623, 14881), (625, 14896), (626, 14899), (631, 14929), (642, 15037), (644, 15049), (649, 15094), (660, 15181), (663, 15193), (664, 15202), (684, 15379), (697, 15445), (698, 15448), (699, 15457), (705, 15502), (711, 15544), (723, 15601), (724, 15604), (728, 15655), (744, 15733), (750, 15757),

Gene: Magritte_36 Start: 31216, Stop: 35913, Start Num: 9
Candidate Starts for Magritte_36:
(Start: 9 @31216 has 8 MA's), (22, 31312), (72, 31693), (83, 31780), (88, 31816), (89, 31819), (91, 31831), (98, 31894), (102, 31915), (105, 31933), (111, 31966), (112, 31975), (130, 32080), (131, 32092), (134, 32131), (167, 32371), (172, 32401), (227, 32746), (229, 32767), (236, 32815), (244, 32878), (262, 32980), (275, 33055), (276, 33058), (281, 33088), (322, 33301), (340, 33409), (394, 33685), (398, 33706), (424, 33820), (427, 33829), (445, 33934), (469, 33994), (476, 34021), (488, 34054), (492, 34087), (504, 34126), (526, 34234), (564, 34444), (585, 34600), (588, 34621), (606, 34789), (618, 34849), (621, 34873), (626, 34900), (635, 34969), (642, 35035), (651, 35107), (655, 35143), (661, 35182), (667, 35236), (668, 35254), (672, 35269), (675, 35281), (678, 35353), (688, 35398), (712, 35548), (727, 35662), (734, 35701), (747, 35755),

Gene: Merpity_18 Start: 9052, Stop: 12855, Start Num: 119
Candidate Starts for Merpity_18:
(Start: 74 @8746 has 4 MA's), (77, 8776), (81, 8821), (90, 8866), (92, 8878), (103, 8965), (116, 9034), (119, 9052), (120, 9058), (133, 9169), (142, 9226), (152, 9346), (156, 9388), (161, 9421), (173, 9517), (175, 9526), (191, 9643), (194, 9652), (196, 9664), (222, 9907), (223, 9919), (227, 9958), (232, 10003), (242, 10057), (246, 10093), (253, 10144), (259, 10177), (260, 10195), (270, 10264), (271, 10267), (274, 10282), (275, 10285), (276, 10288), (277, 10297), (284, 10342), (286, 10354), (290, 10387), (291, 10399), (293, 10405), (304, 10456), (309, 10480), (311, 10489), (313, 10498), (346, 10702), (348, 10708), (349, 10711), (357, 10744), (364, 10771), (379, 10849), (381, 10867), (389, 10921), (399, 10972), (402, 10981), (416, 11068), (417, 11077), (421, 11098), (429, 11131), (430, 11134),

(434, 11155), (435, 11179), (436, 11182), (446, 11233), (455, 11269), (459, 11290), (467, 11320), (471, 11329), (477, 11353), (485, 11392), (491, 11431), (494, 11446), (558, 11542), (582, 11725), (585, 11749), (586, 11758), (587, 11761), (614, 11932), (629, 11983), (631, 11995), (637, 12040), (642, 12097), (651, 12169), (662, 12244), (665, 12262), (666, 12286), (673, 12334), (688, 12445), (705, 12541), (729, 12691), (742, 12748), (745, 12769), (753, 12799), (757, 12823), (759, 12832), (760, 12841), (761, 12844),

Gene: MillySue_20 Start: 11000, Stop: 15814, Start Num: 3
Candidate Starts for MillySue_20:
(Start: 3 @11000 has 26 MA's), (6, 11030), (18, 11120), (61, 11456), (66, 11504), (75, 11564), (79, 11603), (80, 11615), (95, 11732), (97, 11741), (114, 11837), (119, 11864), (122, 11888), (125, 11912), (133, 11984), (135, 11990), (137, 12005), (140, 12017), (144, 12065), (161, 12140), (162, 12146), (164, 12182), (184, 12311), (196, 12383), (216, 12542), (242, 12680), (253, 12767), (259, 12800), (260, 12818), (261, 12827), (276, 12911), (279, 12932), (286, 12977), (287, 12986), (295, 13034), (303, 13076), (304, 13079), (311, 13112), (313, 13121), (316, 13151), (335, 13265), (339, 13286), (357, 13367), (364, 13394), (381, 13490), (389, 13544), (396, 13586), (399, 13595), (408, 13646), (420, 13715), (429, 13754), (433, 13775), (447, 13859), (455, 13892), (469, 13970), (477, 14000), (478, 14003), (492, 14096), (493, 14099), (497, 14123), (502, 14141), (505, 14150), (508, 14162), (515, 14198), (523, 14240), (527, 14264), (530, 14273), (534, 14297), (548, 14381), (552, 14402), (557, 14426), (577, 14588), (578, 14594), (585, 14642), (586, 14651), (587, 14654), (591, 14678), (600, 14738), (603, 14771), (609, 14816), (611, 14822), (614, 14840), (617, 14858), (623, 14894), (625, 14909), (626, 14912), (637, 14993), (642, 15050), (644, 15062), (651, 15122), (660, 15194), (663, 15206), (664, 15215), (684, 15392), (697, 15458), (698, 15461), (699, 15470), (702, 15479), (711, 15563), (723, 15620), (744, 15752), (750, 15776),

Gene: MrSmee_16 Start: 8746, Stop: 12855, Start Num: 74
Candidate Starts for MrSmee_16:
(Start: 74 @8746 has 4 MA's), (77, 8776), (81, 8821), (90, 8866), (92, 8878), (103, 8965), (116, 9034), (119, 9052), (120, 9058), (133, 9169), (142, 9226), (152, 9346), (156, 9388), (161, 9421), (173, 9517), (175, 9526), (191, 9643), (194, 9652), (196, 9664), (222, 9907), (223, 9919), (227, 9958), (232, 10003), (242, 10057), (246, 10093), (253, 10144), (259, 10177), (260, 10195), (270, 10264), (271, 10267), (274, 10282), (275, 10285), (276, 10288), (277, 10297), (284, 10342), (286, 10354), (290, 10387), (291, 10399), (293, 10405), (304, 10456), (309, 10480), (311, 10489), (313, 10498), (346, 10702), (348, 10708), (349, 10711), (357, 10744), (364, 10771), (379, 10849), (381, 10867), (389, 10921), (399, 10972), (402, 10981), (416, 11068), (417, 11077), (421, 11098), (429, 11131), (430, 11134), (434, 11155), (435, 11179), (436, 11182), (446, 11233), (455, 11269), (459, 11290), (467, 11320), (471, 11329), (477, 11353), (485, 11392), (491, 11431), (494, 11446), (558, 11542), (582, 11725), (585, 11749), (586, 11758), (587, 11761), (614, 11932), (629, 11983), (631, 11995), (637, 12040), (642, 12097), (651, 12169), (662, 12244), (665, 12262), (666, 12286), (673, 12334), (688, 12445), (705, 12541), (729, 12691), (742, 12748), (745, 12769), (753, 12799), (757, 12823), (759, 12832), (760, 12841), (761, 12844),

Gene: Nandita_20 Start: 10985, Stop: 15799, Start Num: 3
Candidate Starts for Nandita_20:
(Start: 3 @10985 has 26 MA's), (6, 11015), (18, 11105), (40, 11273), (61, 11441), (66, 11489), (75, 11549), (79, 11588), (80, 11600), (95, 11717), (97, 11726), (114, 11822), (119, 11849), (133, 11969), (137, 11990), (140, 12002), (161, 12125), (162, 12131), (196, 12368), (216, 12527), (238, 12647), (242, 12665), (253, 12752), (259, 12785), (260, 12803), (261, 12812), (272, 12881), (275, 12893), (276, 12896), (286, 12962), (295, 13019), (304, 13064), (311, 13097), (313, 13106), (316, 13136), (336, 13253), (339, 13271), (344, 13301), (357, 13352), (364, 13379), (381, 13475), (396, 13571), (399, 13580), (420, 13700), (429, 13739), (433, 13760), (443, 13832), (447, 13844), (455, 13877), (465, 13940), (469, 13955), (477, 13985), (478, 13988), (492, 14081), (493, 14084), (497, 14108), (505, 14135), (515, 14183), (530, 14258), (541, 14318), (548, 14366), (579, 14582), (585, 14627),

(587, 14639), (600, 14723), (603, 14756), (609, 14801), (611, 14807), (614, 14825), (617, 14843), (623, 14879), (625, 14894), (626, 14897), (631, 14927), (642, 15035), (644, 15047), (649, 15092), (660, 15179), (663, 15191), (664, 15200), (684, 15377), (697, 15443), (698, 15446), (699, 15455), (705, 15500), (711, 15548), (723, 15605), (728, 15659), (744, 15737), (750, 15761),

Gene: PauloDiaboli_97 Start: 51326, Stop: 55750, Start Num: 9
Candidate Starts for PauloDiaboli_97:
(Start: 9 @51326 has 8 MA's), (31, 51482), (36, 51527), (49, 51614), (63, 51728), (187, 52583), (190, 52604), (197, 52637), (210, 52739), (237, 52889), (250, 52985), (273, 53108), (289, 53204), (313, 53315), (326, 53396), (329, 53423), (358, 53564), (362, 53582), (366, 53603), (386, 53717), (391, 53750), (400, 53777), (419, 53852), (493, 54056), (495, 54065), (511, 54128), (517, 54161), (529, 54215), (561, 54398), (564, 54422), (565, 54425), (568, 54443), (586, 54587), (595, 54653), (600, 54677), (604, 54710), (618, 54797), (626, 54848), (641, 54980), (648, 55022), (649, 55046), (651, 55061), (654, 55082), (656, 55106), (657, 55112), (668, 55190), (672, 55205), (688, 55337), (690, 55355), (706, 55436), (712, 55487), (736, 55634), (739, 55649), (742, 55658), (754, 55715), (758, 55733),

Gene: Popper_18 Start: 10512, Stop: 15323, Start Num: 3
Candidate Starts for Popper_18:
(Start: 3 @10512 has 26 MA's), (6, 10542), (18, 10632), (19, 10644), (25, 10689), (39, 10794), (61, 10968), (66, 11016), (75, 11076), (79, 11118), (80, 11130), (95, 11247), (97, 11256), (114, 11352), (119, 11379), (133, 11499), (137, 11520), (140, 11532), (144, 11580), (161, 11655), (162, 11661), (173, 11751), (184, 11826), (196, 11898), (242, 12195), (253, 12282), (260, 12333), (261, 12342), (276, 12426), (277, 12435), (286, 12492), (295, 12549), (311, 12627), (313, 12636), (314, 12657), (316, 12666), (335, 12780), (339, 12801), (344, 12831), (357, 12882), (364, 12909), (381, 13005), (396, 13101), (399, 13110), (412, 13182), (416, 13206), (420, 13230), (421, 13236), (429, 13269), (433, 13290), (447, 13374), (452, 13395), (455, 13407), (473, 13497), (478, 13518), (488, 13578), (497, 13638), (502, 13656), (505, 13665), (508, 13677), (523, 13755), (527, 13779), (534, 13812), (541, 13848), (552, 13917), (556, 13938), (568, 14019), (585, 14157), (586, 14166), (587, 14169), (588, 14178), (600, 14253), (608, 14328), (609, 14331), (611, 14337), (614, 14355), (617, 14373), (623, 14409), (625, 14424), (626, 14427), (631, 14457), (642, 14565), (644, 14577), (648, 14601), (651, 14637), (660, 14709), (662, 14715), (663, 14721), (664, 14730), (684, 14907), (697, 14973), (698, 14976), (699, 14985), (705, 15030), (729, 15192), (735, 15222), (744, 15261), (750, 15285),

Gene: Pumpernickel_94 Start: 52653, Stop: 56996, Start Num: 9
Candidate Starts for Pumpernickel_94:
(Start: 9 @52653 has 8 MA's), (27, 52773), (36, 52854), (37, 52857), (43, 52896), (54, 52974), (60, 53034), (63, 53055), (128, 53469), (157, 53706), (197, 53961), (204, 54030), (220, 54126), (256, 54336), (273, 54435), (281, 54474), (298, 54573), (330, 54747), (342, 54819), (344, 54831), (359, 54873), (360, 54876), (390, 54984), (414, 55041), (418, 55059), (419, 55068), (426, 55101), (432, 55125), (457, 55215), (494, 55305), (498, 55323), (511, 55377), (517, 55410), (529, 55464), (546, 55560), (595, 55902), (604, 55959), (613, 56019), (618, 56046), (626, 56097), (641, 56229), (646, 56253), (668, 56439), (672, 56454), (686, 56574), (688, 56586), (690, 56604), (712, 56736), (719, 56787), (733, 56874), (737, 56895), (742, 56907), (756, 56976),

Gene: QuinnAvery_20 Start: 10998, Stop: 15812, Start Num: 3
Candidate Starts for QuinnAvery_20:
(Start: 3 @10998 has 26 MA's), (6, 11028), (18, 11118), (40, 11286), (51, 11370), (61, 11454), (66, 11502), (75, 11562), (79, 11601), (80, 11613), (95, 11730), (97, 11739), (116, 11844), (119, 11862), (122, 11886), (133, 11982), (137, 12003), (140, 12015), (144, 12063), (161, 12138), (162, 12144), (184, 12309), (196, 12381), (216, 12540), (238, 12660), (242, 12678), (253, 12765), (259, 12798), (260, 12816), (261, 12825), (272, 12894), (275, 12906), (276, 12909), (279, 12930), (286, 12975), (295, 13032), (303, 13074), (304, 13077), (311, 13110), (313, 13119), (316, 13149), (336, 13266),

(339, 13284), (344, 13314), (357, 13365), (364, 13392), (381, 13488), (399, 13593), (429, 13752), (433, 13773), (443, 13845), (447, 13857), (455, 13890), (477, 13998), (478, 14001), (492, 14094), (495, 14115), (506, 14151), (513, 14184), (515, 14196), (518, 14217), (530, 14271), (541, 14331), (544, 14352), (548, 14379), (567, 14490), (579, 14595), (582, 14616), (585, 14640), (587, 14652), (600, 14736), (603, 14769), (609, 14814), (611, 14820), (614, 14838), (617, 14856), (623, 14892), (625, 14907), (626, 14910), (631, 14940), (637, 14991), (642, 15048), (644, 15060), (649, 15105), (651, 15120), (660, 15192), (662, 15198), (663, 15204), (664, 15213), (684, 15390), (697, 15456), (698, 15459), (699, 15468), (705, 15513), (711, 15561), (723, 15618), (750, 15774),

Gene: Raqqa_17 Start: 9916, Stop: 14730, Start Num: 3
Candidate Starts for Raqqa_17:
(Start: 3 @9916 has 26 MA's), (6, 9946), (18, 10036), (25, 10093), (61, 10372), (66, 10420), (75, 10480), (79, 10522), (80, 10534), (95, 10651), (119, 10783), (122, 10807), (123, 10813), (133, 10903), (137, 10924), (149, 11026), (161, 11059), (162, 11065), (173, 11155), (184, 11230), (196, 11302), (216, 11461), (238, 11581), (242, 11599), (253, 11686), (259, 11719), (260, 11737), (261, 11746), (272, 11815), (275, 11827), (276, 11830), (279, 11851), (286, 11896), (295, 11953), (303, 11995), (304, 11998), (311, 12031), (313, 12040), (316, 12070), (336, 12187), (339, 12205), (344, 12235), (357, 12286), (364, 12313), (373, 12355), (374, 12358), (381, 12409), (390, 12475), (396, 12505), (399, 12514), (408, 12565), (420, 12634), (429, 12673), (433, 12694), (443, 12766), (447, 12778), (455, 12811), (469, 12889), (477, 12919), (478, 12922), (492, 13015), (493, 13018), (497, 13042), (505, 13069), (515, 13117), (530, 13192), (541, 13252), (548, 13300), (579, 13516), (585, 13561), (587, 13573), (600, 13657), (603, 13690), (609, 13735), (611, 13741), (614, 13759), (617, 13777), (623, 13813), (625, 13828), (626, 13831), (631, 13861), (637, 13912), (642, 13969), (644, 13981), (649, 14026), (651, 14041), (660, 14113), (663, 14125), (664, 14134), (684, 14311), (697, 14377), (699, 14389), (705, 14434), (723, 14527), (743, 14653),

Gene: Ryan_20 Start: 11131, Stop: 15945, Start Num: 3
Candidate Starts for Ryan_20:
(Start: 3 @11131 has 26 MA's), (6, 11161), (18, 11251), (40, 11419), (61, 11587), (66, 11635), (75, 11695), (79, 11734), (80, 11746), (95, 11863), (97, 11872), (119, 11995), (122, 12019), (133, 12115), (137, 12136), (140, 12148), (144, 12196), (149, 12238), (161, 12271), (162, 12277), (196, 12514), (216, 12673), (226, 12706), (238, 12793), (242, 12811), (253, 12898), (259, 12931), (260, 12949), (261, 12958), (272, 13027), (275, 13039), (276, 13042), (286, 13108), (295, 13165), (299, 13186), (303, 13207), (304, 13210), (311, 13243), (316, 13282), (336, 13399), (339, 13417), (344, 13447), (357, 13498), (364, 13525), (381, 13621), (390, 13687), (396, 13717), (399, 13726), (420, 13846), (429, 13885), (433, 13906), (435, 13933), (436, 13936), (447, 13990), (449, 13999), (455, 14023), (462, 14071), (465, 14086), (469, 14101), (477, 14131), (478, 14134), (492, 14227), (493, 14230), (495, 14248), (497, 14254), (506, 14284), (513, 14317), (515, 14329), (518, 14350), (530, 14404), (541, 14464), (548, 14512), (568, 14635), (585, 14773), (587, 14785), (600, 14869), (609, 14947), (611, 14953), (614, 14971), (617, 14989), (623, 15025), (625, 15040), (626, 15043), (631, 15073), (637, 15124), (642, 15181), (644, 15193), (660, 15325), (663, 15337), (664, 15346), (684, 15523), (697, 15589), (698, 15592), (699, 15601), (705, 15646), (711, 15694), (723, 15751), (728, 15805), (744, 15883), (750, 15907),

Gene: Saintcarr_19 Start: 11008, Stop: 15822, Start Num: 3
Candidate Starts for Saintcarr_19:
(Start: 3 @11008 has 26 MA's), (6, 11038), (18, 11128), (39, 11290), (40, 11296), (61, 11464), (66, 11512), (75, 11572), (79, 11611), (80, 11623), (95, 11740), (97, 11749), (119, 11872), (122, 11896), (133, 11992), (137, 12013), (140, 12025), (144, 12073), (161, 12148), (162, 12154), (184, 12319), (196, 12391), (216, 12550), (238, 12670), (242, 12688), (253, 12775), (259, 12808), (260, 12826), (261, 12835), (272, 12904), (276, 12919), (286, 12985), (295, 13042), (303, 13084), (304, 13087), (311, 13120), (313, 13129), (316, 13159), (336, 13276), (339, 13294), (344, 13324), (357, 13375), (364, 13402), (381, 13498), (385, 13531), (390, 13564), (396, 13594), (399, 13603), (420, 13723),

(429, 13762), (433, 13783), (443, 13855), (447, 13867), (455, 13900), (469, 13978), (492, 14104), (493, 14107), (497, 14131), (505, 14158), (515, 14206), (530, 14281), (541, 14341), (548, 14389), (579, 14605), (585, 14650), (587, 14662), (600, 14746), (609, 14824), (611, 14830), (614, 14848), (617, 14866), (623, 14902), (625, 14917), (626, 14920), (631, 14950), (637, 15001), (642, 15058), (644, 15070), (649, 15115), (651, 15130), (660, 15202), (663, 15214), (664, 15223), (684, 15400), (697, 15466), (698, 15469), (699, 15478), (705, 15523), (711, 15571), (723, 15628), (724, 15631), (750, 15784),

Gene: Schism_20 Start: 10985, Stop: 15799, Start Num: 3
Candidate Starts for Schism_20:
(Start: 3 @10985 has 26 MA's), (6, 11015), (18, 11105), (40, 11273), (61, 11441), (66, 11489), (75, 11549), (79, 11588), (80, 11600), (95, 11717), (97, 11726), (114, 11822), (119, 11849), (133, 11969), (137, 11990), (140, 12002), (161, 12125), (162, 12131), (196, 12368), (216, 12527), (238, 12647), (242, 12665), (253, 12752), (259, 12785), (260, 12803), (261, 12812), (272, 12881), (275, 12893), (276, 12896), (286, 12962), (295, 13019), (304, 13064), (311, 13097), (313, 13106), (316, 13136), (336, 13253), (339, 13271), (344, 13301), (357, 13352), (364, 13379), (381, 13475), (396, 13571), (399, 13580), (420, 13700), (429, 13739), (433, 13760), (443, 13832), (447, 13844), (455, 13877), (465, 13940), (469, 13955), (477, 13985), (478, 13988), (492, 14081), (493, 14084), (497, 14108), (505, 14135), (530, 14258), (541, 14318), (548, 14366), (579, 14582), (585, 14627), (587, 14639), (600, 14723), (603, 14756), (609, 14801), (611, 14807), (614, 14825), (617, 14843), (623, 14879), (625, 14894), (626, 14897), (631, 14927), (642, 15035), (644, 15047), (649, 15092), (660, 15179), (663, 15191), (664, 15200), (684, 15377), (697, 15443), (698, 15446), (699, 15455), (705, 15500), (711, 15548), (723, 15605), (728, 15659), (744, 15737), (750, 15761),

Gene: Skitty_16 Start: 8746, Stop: 12855, Start Num: 74
Candidate Starts for Skitty_16:
(Start: 74 @8746 has 4 MA's), (77, 8776), (81, 8821), (90, 8866), (92, 8878), (103, 8965), (116, 9034), (119, 9052), (120, 9058), (133, 9169), (142, 9226), (152, 9346), (154, 9367), (156, 9388), (161, 9421), (173, 9517), (175, 9526), (191, 9643), (194, 9652), (196, 9664), (222, 9907), (223, 9919), (227, 9958), (232, 10003), (242, 10057), (246, 10093), (253, 10144), (259, 10177), (260, 10195), (270, 10264), (271, 10267), (274, 10282), (275, 10285), (276, 10288), (277, 10297), (284, 10342), (286, 10354), (290, 10387), (291, 10399), (293, 10405), (304, 10456), (309, 10480), (311, 10489), (313, 10498), (346, 10702), (348, 10708), (349, 10711), (357, 10744), (364, 10771), (379, 10849), (381, 10867), (389, 10921), (399, 10972), (402, 10981), (416, 11068), (417, 11077), (421, 11098), (429, 11131), (430, 11134), (434, 11155), (435, 11179), (436, 11182), (446, 11233), (455, 11269), (459, 11290), (467, 11320), (471, 11329), (477, 11353), (485, 11392), (491, 11431), (494, 11446), (558, 11542), (582, 11725), (585, 11749), (586, 11758), (587, 11761), (614, 11932), (629, 11983), (631, 11995), (637, 12040), (642, 12097), (651, 12169), (662, 12244), (665, 12262), (666, 12286), (673, 12334), (688, 12445), (705, 12541), (729, 12691), (742, 12748), (745, 12769), (753, 12799), (757, 12823), (759, 12832), (760, 12841), (761, 12844),

Gene: ToastyOats_22 Start: 11463, Stop: 16277, Start Num: 3
Candidate Starts for ToastyOats_22:
(Start: 3 @11463 has 26 MA's), (6, 11493), (18, 11583), (40, 11751), (61, 11919), (66, 11967), (75, 12027), (79, 12066), (80, 12078), (95, 12195), (97, 12204), (116, 12309), (119, 12327), (122, 12351), (133, 12447), (137, 12468), (140, 12480), (144, 12528), (149, 12570), (161, 12603), (162, 12609), (184, 12774), (196, 12846), (216, 13005), (238, 13125), (242, 13143), (253, 13230), (259, 13263), (260, 13281), (261, 13290), (272, 13359), (275, 13371), (276, 13374), (286, 13440), (295, 13497), (303, 13539), (304, 13542), (311, 13575), (313, 13584), (316, 13614), (336, 13731), (339, 13749), (344, 13779), (356, 13827), (357, 13830), (364, 13857), (374, 13902), (381, 13953), (390, 14019), (396, 14049), (399, 14058), (408, 14109), (420, 14178), (429, 14217), (433, 14238), (443, 14310), (447, 14322), (455, 14355), (469, 14433), (477, 14463), (478, 14466), (492, 14559), (493, 14562), (497, 14586), (505, 14613), (515, 14661), (518, 14682), (530, 14736), (541, 14796), (548, 14844),

(585, 15105), (587, 15117), (600, 15201), (603, 15234), (609, 15279), (611, 15285), (614, 15303), (617, 15321), (623, 15357), (625, 15372), (626, 15375), (631, 15405), (637, 15456), (642, 15513), (644, 15525), (660, 15657), (663, 15669), (664, 15678), (684, 15855), (697, 15921), (698, 15924), (699, 15933), (705, 15978), (711, 16026), (723, 16083), (724, 16086), (750, 16239),

Gene: Toodles_20 Start: 11209, Stop: 16023, Start Num: 3
Candidate Starts for Toodles_20:
(Start: 3 @11209 has 26 MA's), (6, 11239), (15, 11305), (18, 11329), (19, 11341), (40, 11497), (61, 11665), (66, 11713), (75, 11773), (79, 11812), (80, 11824), (95, 11941), (97, 11950), (114, 12046), (119, 12073), (122, 12097), (125, 12121), (133, 12193), (137, 12214), (140, 12226), (161, 12349), (162, 12355), (184, 12520), (196, 12592), (216, 12751), (242, 12889), (253, 12976), (260, 13027), (261, 13036), (275, 13117), (276, 13120), (286, 13186), (295, 13243), (303, 13285), (304, 13288), (311, 13321), (313, 13330), (316, 13360), (335, 13474), (339, 13495), (357, 13576), (364, 13603), (389, 13753), (396, 13795), (399, 13804), (416, 13900), (420, 13924), (429, 13963), (433, 13984), (438, 14023), (447, 14068), (452, 14089), (455, 14101), (469, 14179), (477, 14209), (478, 14212), (492, 14305), (497, 14332), (502, 14350), (505, 14359), (508, 14371), (515, 14407), (523, 14449), (527, 14473), (530, 14482), (534, 14506), (548, 14590), (552, 14611), (557, 14635), (577, 14797), (578, 14803), (585, 14851), (586, 14860), (587, 14863), (591, 14887), (600, 14947), (603, 14980), (609, 15025), (611, 15031), (614, 15049), (617, 15067), (623, 15103), (626, 15121), (631, 15151), (637, 15202), (642, 15259), (644, 15271), (651, 15331), (660, 15403), (662, 15409), (663, 15415), (664, 15424), (684, 15601), (688, 15628), (697, 15667), (698, 15670), (699, 15679), (702, 15688), (711, 15772), (723, 15829), (744, 15961), (750, 15985),

Gene: Yonex_20 Start: 11131, Stop: 15945, Start Num: 3
Candidate Starts for Yonex_20:
(Start: 3 @11131 has 26 MA's), (6, 11161), (18, 11251), (40, 11419), (61, 11587), (66, 11635), (75, 11695), (79, 11734), (80, 11746), (95, 11863), (97, 11872), (119, 11995), (122, 12019), (133, 12115), (137, 12136), (140, 12148), (144, 12196), (149, 12238), (161, 12271), (162, 12277), (196, 12514), (216, 12673), (226, 12706), (238, 12793), (242, 12811), (253, 12898), (259, 12931), (260, 12949), (261, 12958), (272, 13027), (275, 13039), (276, 13042), (286, 13108), (295, 13165), (299, 13186), (303, 13207), (304, 13210), (311, 13243), (316, 13282), (336, 13399), (339, 13417), (344, 13447), (357, 13498), (364, 13525), (381, 13621), (390, 13687), (396, 13717), (399, 13726), (420, 13846), (429, 13885), (433, 13906), (435, 13933), (436, 13936), (447, 13990), (449, 13999), (455, 14023), (462, 14071), (465, 14086), (469, 14101), (477, 14131), (478, 14134), (492, 14227), (493, 14230), (495, 14248), (497, 14254), (506, 14284), (513, 14317), (515, 14329), (518, 14350), (530, 14404), (541, 14464), (548, 14512), (568, 14635), (585, 14773), (587, 14785), (600, 14869), (609, 14947), (611, 14953), (614, 14971), (617, 14989), (623, 15025), (625, 15040), (626, 15043), (631, 15073), (637, 15124), (642, 15181), (644, 15193), (660, 15325), (663, 15337), (664, 15346), (684, 15523), (697, 15589), (698, 15592), (699, 15601), (705, 15646), (711, 15694), (723, 15751), (728, 15805), (744, 15883), (750, 15907),

Gene: Zaheer_20 Start: 11220, Stop: 16034, Start Num: 3
Candidate Starts for Zaheer_20:
(Start: 3 @11220 has 26 MA's), (6, 11250), (18, 11340), (21, 11364), (40, 11508), (61, 11676), (66, 11724), (75, 11784), (79, 11823), (80, 11835), (95, 11952), (97, 11961), (109, 12039), (114, 12057), (116, 12066), (119, 12084), (122, 12108), (133, 12204), (137, 12225), (140, 12237), (144, 12285), (161, 12360), (162, 12366), (184, 12531), (196, 12603), (216, 12762), (238, 12882), (242, 12900), (253, 12987), (259, 13020), (260, 13038), (261, 13047), (272, 13116), (275, 13128), (276, 13131), (279, 13152), (286, 13197), (295, 13254), (299, 13275), (303, 13296), (304, 13299), (311, 13332), (313, 13341), (316, 13371), (336, 13488), (339, 13506), (344, 13536), (357, 13587), (364, 13614), (381, 13710), (396, 13806), (399, 13815), (420, 13935), (429, 13974), (433, 13995), (435, 14022), (436, 14025), (443, 14067), (447, 14079), (449, 14088), (455, 14112), (462, 14160), (465, 14175), (469, 14190), (477, 14220), (478, 14223), (492, 14316), (493, 14319), (495, 14337), (497, 14343),

(506, 14373), (513, 14406), (515, 14418), (518, 14439), (530, 14493), (541, 14553), (548, 14601), (579, 14817), (585, 14862), (587, 14874), (600, 14958), (603, 14991), (609, 15036), (611, 15042), (614, 15060), (617, 15078), (623, 15114), (625, 15129), (626, 15132), (631, 15162), (642, 15270), (644, 15282), (660, 15414), (663, 15426), (664, 15435), (684, 15612), (697, 15678), (698, 15681), (699, 15690), (705, 15735), (711, 15783), (723, 15840), (728, 15894), (744, 15972), (750, 15996),

Gene: Zooman_82 Start: 49648, Stop: 54291, Start Num: 9
Candidate Starts for Zooman_82:
(Start: 9 @49648 has 8 MA's), (12, 49660), (13, 49669), (17, 49690), (36, 49849), (63, 50050), (65, 50080), (178, 50827), (187, 50896), (196, 50938), (197, 50950), (220, 51115), (236, 51199), (244, 51262), (245, 51265), (265, 51373), (281, 51457), (301, 51574), (313, 51619), (321, 51673), (329, 51727), (344, 51814), (347, 51826), (364, 51892), (372, 51928), (386, 52018), (388, 52027), (405, 52114), (421, 52210), (430, 52246), (434, 52267), (452, 52360), (454, 52369), (461, 52402), (463, 52426), (467, 52447), (482, 52501), (515, 52666), (519, 52690), (555, 52879), (562, 52921), (595, 53173), (604, 53230), (618, 53317), (620, 53338), (621, 53341), (626, 53368), (633, 53416), (668, 53719), (672, 53734), (674, 53743), (681, 53839), (688, 53875), (690, 53893), (712, 54028), (736, 54175), (742, 54199), (758, 54274),

Gene: Zucker_18 Start: 10305, Stop: 14429, Start Num: 74
Candidate Starts for Zucker_18:
(Start: 74 @10305 has 4 MA's), (76, 10329), (81, 10380), (90, 10425), (92, 10437), (94, 10473), (114, 10584), (116, 10593), (119, 10611), (120, 10617), (122, 10635), (125, 10659), (133, 10728), (137, 10749), (144, 10809), (149, 10851), (154, 10926), (155, 10935), (169, 11046), (173, 11076), (175, 11085), (196, 11223), (207, 11328), (230, 11541), (242, 11616), (246, 11652), (253, 11703), (259, 11736), (263, 11766), (270, 11823), (271, 11826), (276, 11847), (279, 11868), (286, 11913), (290, 11946), (295, 11970), (298, 11988), (303, 12012), (304, 12015), (309, 12039), (310, 12042), (311, 12048), (313, 12057), (316, 12087), (348, 12267), (356, 12300), (357, 12303), (364, 12330), (389, 12480), (402, 12540), (404, 12552), (408, 12582), (416, 12627), (429, 12690), (439, 12753), (442, 12768), (444, 12786), (447, 12795), (471, 12909), (472, 12912), (478, 12936), (485, 12972), (486, 12978), (491, 13011), (509, 13044), (545, 13101), (574, 13215), (582, 13305), (585, 13329), (587, 13341), (592, 13377), (614, 13512), (634, 13602), (637, 13620), (647, 13710), (648, 13713), (651, 13749), (662, 13824), (666, 13866), (673, 13914), (687, 14022), (688, 14025), (716, 14187), (722, 14208), (729, 14268), (740, 14316), (755, 14394), (757, 14397), (759, 14406), (760, 14415), (761, 14418),

Gene: Zuko_22 Start: 14495, Stop: 18724, Start Num: 4
Candidate Starts for Zuko_22:
(Start: 4 @14495 has 2 MA's), (23, 14648), (27, 14666), (28, 14678), (35, 14738), (45, 14801), (48, 14822), (50, 14837), (54, 14864), (55, 14879), (57, 14897), (75, 15026), (93, 15152), (106, 15242), (107, 15248), (138, 15440), (141, 15461), (143, 15482), (160, 15569), (170, 15632), (187, 15752), (190, 15773), (199, 15827), (205, 15890), (208, 15911), (220, 15983), (224, 16007), (234, 16091), (239, 16118), (243, 16151), (264, 16253), (265, 16256), (273, 16310), (274, 16316), (282, 16364), (295, 16439), (302, 16463), (315, 16490), (328, 16535), (335, 16562), (346, 16610), (359, 16658), (364, 16679), (367, 16697), (368, 16700), (386, 16769), (394, 16808), (396, 16823), (413, 16883), (415, 16892), (419, 16907), (441, 16997), (447, 17006), (456, 17027), (475, 17063), (478, 17075), (516, 17231), (519, 17243), (526, 17264), (530, 17276), (539, 17321), (540, 17330), (542, 17342), (543, 17345), (549, 17375), (597, 17648), (598, 17654), (602, 17690), (610, 17741), (649, 17999), (650, 18002), (658, 18068), (670, 18161), (674, 18179), (688, 18305), (692, 18329), (695, 18341), (704, 18404), (710, 18446), (726, 18569), (730, 18581), (746, 18665), (748, 18668), (749, 18674), (753, 18692),