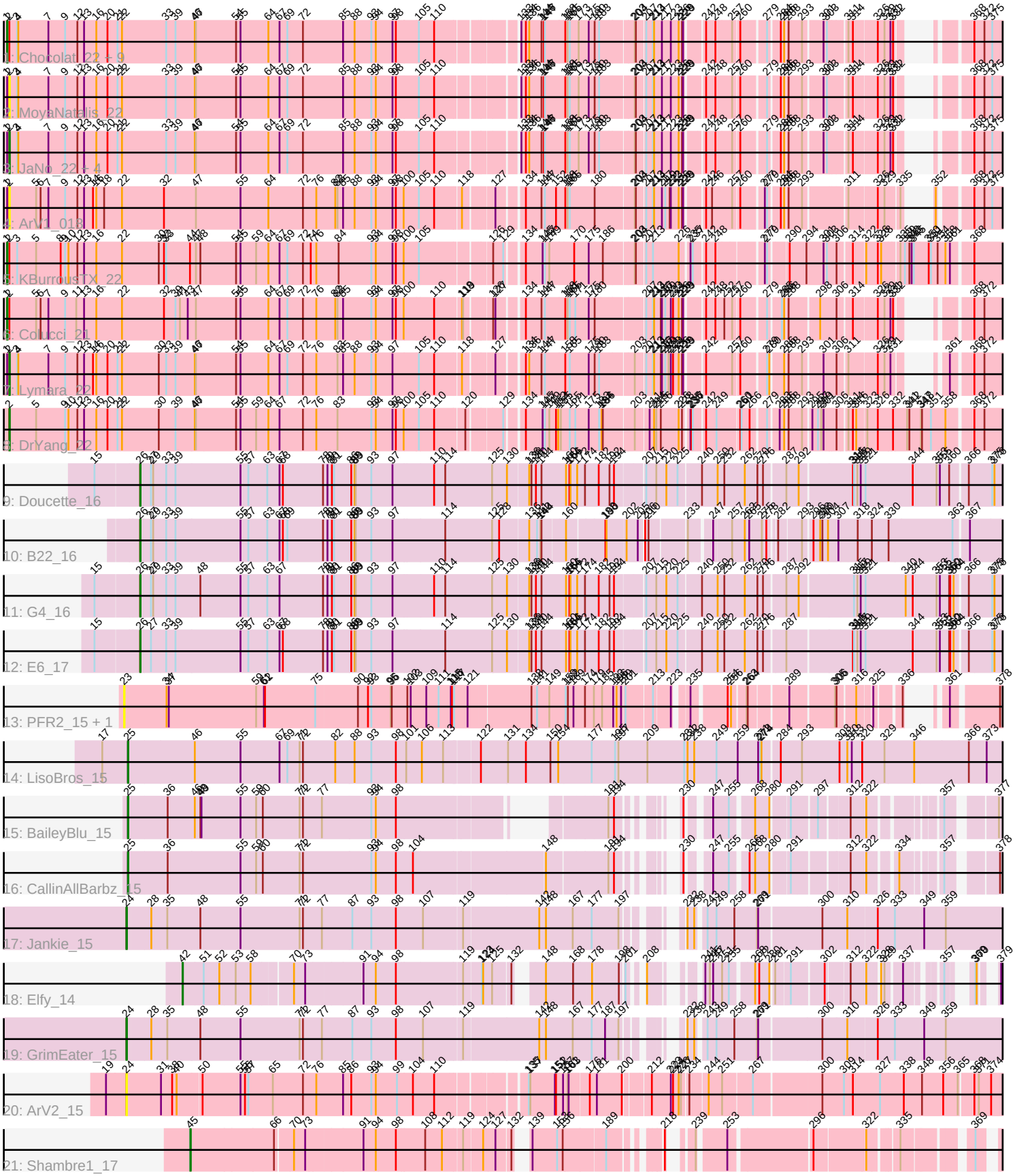Zoomed Pham 347843



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 347843 Report

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

Pham number 347843 has 35 members, 5 are drafts.

Phages represented in each track:
• Track 1 : Chocolat_22, Kabreeze_22, Chubster_22, Scavito_22, Conboy_22, PrincessTrina_22, Chipper1996_220, RosiePosie_22, EdgarPoe_22, HumptyDumpty_22
• Track 2 : MoyaNatalis_22
• Track 3 : JaNo_22, Linus_22, Mordred_22, Tophat_22, JayCookie_22
• Track 4 : ArV1_018
• Track 5 : KBurrousTX_22
• Track 6 : Colucci_21
• Track 7 : Lymara_22
• Track 8 : DrYang_22
• Track 9 : Doucette_16
• Track 10 : B22_16
• Track 11 : G4_16
• Track 12 : E6_17
• Track 13 : PFR2_15, PFR1_13
• Track 14 : LisoBros_15
• Track 15 : BaileyBlu_15
• Track 16 : CallinAllBarbz_15
• Track 17 : Jankie_15
• Track 18 : Elfy_14
• Track 19 : GrimEater_15
• Track 20 : ArV2_15
• Track 21 : Shambre1_17

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

The start number called the most often in the published annotations is 1, it was called in 12 of the 30 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Chipper1996_220, Chocolat_22, Chubster_22, Colucci_21, Conboy_22, EdgarPoe_22, HumptyDumpty_22, KBurrousTX_22, Kabreeze_22, PrincessTrina_22, RosiePosie_22, Scavito_22,

Genes that have the "Most Annotated" start but do not call it:
• ArV1_018, JaNo_22, JayCookie_22, Linus_22, Lymara_22, Mordred_22, MoyaNatalis_22, Tophat_22,

Genes that do not have the "Most Annotated" start:
• ArV2_15, B22_16, BaileyBlu_15, CallinAllBarbz_15, Doucette_16, DrYang_22, E6_17, Elfy_14, G4_16, GrimEater_15, Jankie_15, LisoBros_15, PFR1_13, PFR2_15, Shambre1_17,

Summary by start number:

Start 1:
• Found in 20 of 35 (57.1%) of genes in pham
• Manual Annotations of this start: 12 of 30
• Called 60.0% of time when present
• Phage (with cluster) where this start called: Chipper1996_220 (AR), Chocolat_22 (AR), Chubster_22 (AR), Colucci_21 (AR), Conboy_22 (AR), EdgarPoe_22 (AR), HumptyDumpty_22 (AR), KBurrousTX_22 (AR), Kabreeze_22 (AR), PrincessTrina_22 (AR), RosiePosie_22 (AR), Scavito_22 (AR),

Start 2:
• Found in 21 of 35 (60.0%) of genes in pham
• Manual Annotations of this start: 7 of 30
• Called 42.9% of time when present
• Phage (with cluster) where this start called: ArV1_018 (AR), DrYang_22 (AR), JaNo_22 (AR), JayCookie_22 (AR), Linus_22 (AR), Lymara_22 (AR), Mordred_22 (AR), MoyaNatalis_22 (AR), Tophat_22 (AR),

Start 23:
• Found in 2 of 35 (5.7%) of genes in pham
• No Manual Annotations of this start.
• Called 100.0% of time when present
• Phage (with cluster) where this start called: PFR1_13 (BX), PFR2_15 (BX),

Start 24:
• Found in 3 of 35 (8.6%) of genes in pham
• Manual Annotations of this start: 2 of 30
• Called 100.0% of time when present
• Phage (with cluster) where this start called: ArV2_15 (singleton), GrimEater_15 (FP), Jankie_15 (FP),

Start 25:
• Found in 3 of 35 (8.6%) of genes in pham
• Manual Annotations of this start: 3 of 30
• Called 100.0% of time when present
• Phage (with cluster) where this start called: BaileyBlu_15 (FP), CallinAllBarbz_15 (FP), LisoBros_15 (FP),

Start 26:
• Found in 4 of 35 (11.4%) of genes in pham
• Manual Annotations of this start: 4 of 30
• Called 100.0% of time when present

• Phage (with cluster) where this start called: B22_16 (BW), Doucette_16 (BW), E6_17 (BW), G4_16 (BW),

Start 42:
• Found in 1 of 35 (2.9%) of genes in pham
• Manual Annotations of this start: 1 of 30
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Elfy_14 (FP),

Start 45:
• Found in 1 of 35 (2.9%) of genes in pham
• Manual Annotations of this start: 1 of 30
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Shambre1_17 (singleton),

Summary by clusters:

There are 5 clusters represented in this pham: FP, BX, singleton, AR, BW,

Info for manual annotations of cluster AR:
•Start number 1 was manually annotated 12 times for cluster AR.
•Start number 2 was manually annotated 7 times for cluster AR.

Info for manual annotations of cluster BW:
•Start number 26 was manually annotated 4 times for cluster BW.

Info for manual annotations of cluster FP:
•Start number 24 was manually annotated 2 times for cluster FP.
•Start number 25 was manually annotated 3 times for cluster FP.
•Start number 42 was manually annotated 1 time for cluster FP.

Gene Information:

Gene: ArV1_018 Start: 14054, Stop: 17587, Start Num: 2
Candidate Starts for ArV1_018:
(Start: 1 @14048 has 12 MA's), (Start: 2 @14054 has 7 MA's), (5, 14126), (6, 14138), (7, 14159), (9, 14204), (12, 14237), (13, 14255), (14, 14279), (16, 14288), (18, 14309), (22, 14357), (32, 14468), (47, 14552), (55, 14669), (64, 14744), (72, 14837), (76, 14873), (82, 14924), (83, 14930), (85, 14945), (88, 14975), (93, 15020), (94, 15032), (97, 15077), (98, 15086), (100, 15107), (105, 15146), (110, 15185), (118, 15251), (127, 15317), (134, 15377), (144, 15419), (147, 15428), (152, 15458), (158, 15479), (161, 15485), (165, 15491), (180, 15557), (203, 15650), (204, 15653), (207, 15674), (213, 15692), (214, 15695), (217, 15716), (219, 15725), (222, 15737), (223, 15740), (226, 15761), (228, 15770), (229, 15773), (242, 15812), (246, 15827), (257, 15875), (260, 15890), (277, 15941), (279, 15947), (284, 15971), (286, 15980), (288, 15986), (293, 16022), (311, 16121), (326, 16190), (329, 16208), (335, 16241), (352, 16253), (368, 16325), (372, 16352), (375, 16373), (383, 16442), (385, 16448), (387, 16463), (391, 16484), (396, 16505), (416, 16562), (440, 16595), (442, 16598), (449, 16622), (457, 16691), (469, 16727), (470, 16730), (471, 16733), (480, 16775), (484, 16796), (491, 16835), (503, 16898), (511, 16955), (531, 17096), (532, 17108), (541, 17177), (548, 17219), (554, 17249), (561, 17288), (564, 17309), (573, 17354), (580, 17417), (584, 17426), (593, 17489), (603, 17546),

Gene: ArV2_15 Start: 9152, Stop: 12778, Start Num: 24
Candidate Starts for ArV2_15:
(19, 9098), (Start: 24 @9152 has 2 MA's), (31, 9242), (38, 9272), (40, 9284), (50, 9347), (55, 9446), (56, 9458), (57, 9467), (65, 9533), (72, 9614), (76, 9650), (85, 9722), (86, 9743), (93, 9797), (94, 9809), (99, 9866), (104, 9908), (110, 9962), (135, 10166), (137, 10169), (151, 10229), (152, 10232), (157, 10250), (161, 10262), (163, 10265), (176, 10316), (181, 10334), (200, 10394), (212, 10451), (223, 10502), (224, 10508), (226, 10523), (227, 10529), (234, 10544), (244, 10586), (251, 10622), (267, 10691), (300, 10856), (309, 10913), (314, 10937), (327, 11009), (338, 11069), (348, 11117), (356, 11171), (365, 11210), (368, 11246), (371, 11258), (374, 11291), (380, 11330), (383, 11363), (389, 11396), (394, 11420), (398, 11444), (400, 11453), (403, 11468), (422, 11567), (427, 11591), (449, 11699), (451, 11714), (464, 11801), (479, 11873), (482, 11891), (491, 11942), (497, 11981), (516, 12092), (526, 12194), (528, 12209), (529, 12212), (530, 12227), (536, 12281), (537, 12284), (553, 12392), (559, 12431), (576, 12533), (581, 12587), (597, 12683), (610, 12761),

Gene: B22_16 Start: 9773, Stop: 13753, Start Num: 26
Candidate Starts for B22_16:
(Start: 26 @9773 has 4 MA's), (27, 9800), (29, 9806), (33, 9839), (39, 9863), (55, 10037), (57, 10058), (63, 10109), (67, 10142), (68, 10151), (69, 10163), (78, 10259), (79, 10271), (80, 10283), (81, 10289), (86, 10334), (88, 10343), (89, 10346), (93, 10388), (97, 10445), (114, 10583), (125, 10709), (128, 10727), (136, 10802), (141, 10823), (143, 10832), (144, 10835), (160, 10889), (188, 10985), (190, 10988), (202, 11033), (205, 11063), (206, 11075), (210, 11084), (233, 11174), (247, 11225), (257, 11267), (262, 11297), (265, 11306), (275, 11333), (278, 11345), (282, 11360), (293, 11408), (296, 11429), (298, 11447), (300, 11453), (304, 11468), (307, 11492), (318, 11537), (324, 11570), (330, 11615), (363, 11783), (367, 11819), (392, 11999), (402, 12044), (403, 12047), (404, 12053), (411, 12092), (428, 12173), (452, 12287), (482, 12443), (484, 12455), (495, 12536), (496, 12539), (498, 12557), (500, 12569), (502, 12572), (508, 12623), (512, 12659), (514, 12668), (517, 12680), (518, 12683), (521, 12701), (534, 12839), (539, 12893), (542, 12911), (556, 13007), (561, 13037), (572, 13121), (583, 13205), (592, 13271), (602, 13322), (610, 13379), (614, 13418), (618, 13535), (621, 13601), (626, 13661), (627, 13673), (629, 13688), (632, 13718),

Gene: BaileyBlu_15 Start: 8628, Stop: 12227, Start Num: 25
Candidate Starts for BaileyBlu_15:
(Start: 25 @8628 has 3 MA's), (36, 8730), (46, 8802), (48, 8817), (49, 8820), (55, 8925), (59, 8967), (60, 8985), (71, 9084), (72, 9093), (77, 9144), (93, 9276), (94, 9288), (98, 9342), (191, 9753), (194, 9768), (230, 9840), (247, 9879), (255, 9918), (268, 9969), (280, 10005), (291, 10047), (297, 10107), (312, 10179), (322, 10212), (357, 10353), (377, 10449), (382, 10488), (393, 10554), (399, 10587), (406, 10623), (408, 10632), (432, 10746), (435, 10761), (438, 10785), (467, 10917), (475, 10947), (488, 11034), (505, 11124), (507, 11148), (519, 11208), (527, 11301), (540, 11412), (563, 11544), (565, 11556), (567, 11568), (570, 11589), (582, 11682), (604, 11823), (617, 11967), (619, 12024), (624, 12084), (631, 12144), (635, 12180),

Gene: CallinAllBarbz_15 Start: 8647, Stop: 12354, Start Num: 25
Candidate Starts for CallinAllBarbz_15:
(Start: 25 @8647 has 3 MA's), (36, 8749), (55, 8944), (59, 8986), (60, 9004), (71, 9103), (72, 9112), (93, 9295), (94, 9307), (98, 9361), (104, 9406), (148, 9739), (191, 9889), (194, 9904), (230, 9976), (247, 10015), (255, 10054), (266, 10090), (268, 10105), (280, 10141), (291, 10183), (312, 10315), (322, 10348), (334, 10402), (357, 10489), (378, 10588), (382, 10624), (406, 10759), (410, 10783), (432, 10882), (438, 10921), (507, 11275), (509, 11287), (519, 11335), (520, 11338), (524, 11392), (543, 11551), (551, 11602), (563, 11671), (565, 11683), (567, 11695), (604, 11950), (619, 12151), (624, 12211), (635, 12307),

Gene: Chipper1996_220 Start: 15723, Stop: 19265, Start Num: 1
Candidate Starts for Chipper1996_220:

(Start: 1 @15723 has 12 MA's), (Start: 2 @15729 has 7 MA's), (3, 15750), (4, 15753), (7, 15834), (9, 15879), (12, 15912), (13, 15930), (16, 15963), (20, 15993), (21, 16020), (22, 16032), (33, 16149), (39, 16173), (46, 16224), (47, 16227), (54, 16332), (55, 16344), (64, 16419), (67, 16449), (69, 16470), (72, 16512), (85, 16620), (88, 16650), (93, 16695), (94, 16707), (97, 16752), (98, 16761), (105, 16821), (110, 16860), (133, 17040), (134, 17052), (136, 17061), (144, 17094), (146, 17100), (147, 17103), (158, 17154), (161, 17160), (165, 17166), (173, 17190), (175, 17217), (180, 17232), (183, 17244), (203, 17325), (204, 17328), (207, 17349), (213, 17367), (214, 17370), (217, 17391), (223, 17415), (226, 17436), (228, 17445), (229, 17448), (242, 17487), (248, 17511), (257, 17550), (260, 17565), (279, 17622), (284, 17646), (286, 17655), (288, 17661), (293, 17697), (301, 17745), (303, 17754), (311, 17796), (314, 17808), (326, 17865), (329, 17883), (331, 17898), (332, 17904), (368, 18000), (372, 18027), (375, 18048), (383, 18117), (387, 18138), (391, 18159), (416, 18237), (440, 18270), (442, 18273), (449, 18297), (457, 18366), (469, 18402), (470, 18405), (471, 18408), (474, 18423), (484, 18471), (490, 18507), (491, 18510), (503, 18573), (523, 18705), (531, 18771), (536, 18813), (541, 18852), (548, 18897), (561, 18966), (564, 18987), (573, 19032), (580, 19095), (587, 19134), (589, 19149), (599, 19200), (601, 19212),

Gene: Chocolat_22 Start: 15724, Stop: 19266, Start Num: 1
Candidate Starts for Chocolat_22:
(Start: 1 @15724 has 12 MA's), (Start: 2 @15730 has 7 MA's), (3, 15751), (4, 15754), (7, 15835), (9, 15880), (12, 15913), (13, 15931), (16, 15964), (20, 15994), (21, 16021), (22, 16033), (33, 16150), (39, 16174), (46, 16225), (47, 16228), (54, 16333), (55, 16345), (64, 16420), (67, 16450), (69, 16471), (72, 16513), (85, 16621), (88, 16651), (93, 16696), (94, 16708), (97, 16753), (98, 16762), (105, 16822), (110, 16861), (133, 17041), (134, 17053), (136, 17062), (144, 17095), (146, 17101), (147, 17104), (158, 17155), (161, 17161), (165, 17167), (173, 17191), (175, 17218), (180, 17233), (183, 17245), (203, 17326), (204, 17329), (207, 17350), (213, 17368), (214, 17371), (217, 17392), (223, 17416), (226, 17437), (228, 17446), (229, 17449), (242, 17488), (248, 17512), (257, 17551), (260, 17566), (279, 17623), (284, 17647), (286, 17656), (288, 17662), (293, 17698), (301, 17746), (303, 17755), (311, 17797), (314, 17809), (326, 17866), (329, 17884), (331, 17899), (332, 17905), (368, 18001), (372, 18028), (375, 18049), (383, 18118), (387, 18139), (391, 18160), (416, 18238), (440, 18271), (442, 18274), (449, 18298), (457, 18367), (469, 18403), (470, 18406), (471, 18409), (474, 18424), (484, 18472), (490, 18508), (491, 18511), (503, 18574), (523, 18706), (531, 18772), (536, 18814), (541, 18853), (548, 18898), (561, 18967), (564, 18988), (573, 19033), (580, 19096), (587, 19135), (589, 19150), (599, 19201), (601, 19213),

Gene: Chubster_22 Start: 15494, Stop: 19036, Start Num: 1
Candidate Starts for Chubster_22:
(Start: 1 @15494 has 12 MA's), (Start: 2 @15500 has 7 MA's), (3, 15521), (4, 15524), (7, 15605), (9, 15650), (12, 15683), (13, 15701), (16, 15734), (20, 15764), (21, 15791), (22, 15803), (33, 15920), (39, 15944), (46, 15995), (47, 15998), (54, 16103), (55, 16115), (64, 16190), (67, 16220), (69, 16241), (72, 16283), (85, 16391), (88, 16421), (93, 16466), (94, 16478), (97, 16523), (98, 16532), (105, 16592), (110, 16631), (133, 16811), (134, 16823), (136, 16832), (144, 16865), (146, 16871), (147, 16874), (158, 16925), (161, 16931), (165, 16937), (173, 16961), (175, 16988), (180, 17003), (183, 17015), (203, 17096), (204, 17099), (207, 17120), (213, 17138), (214, 17141), (217, 17162), (223, 17186), (226, 17207), (228, 17216), (229, 17219), (242, 17258), (248, 17282), (257, 17321), (260, 17336), (279, 17393), (284, 17417), (286, 17426), (288, 17432), (293, 17468), (301, 17516), (303, 17525), (311, 17567), (314, 17579), (326, 17636), (329, 17654), (331, 17669), (332, 17675), (368, 17771), (372, 17798), (375, 17819), (383, 17888), (387, 17909), (391, 17930), (416, 18008), (440, 18041), (442, 18044), (449, 18068), (457, 18137), (469, 18173), (470, 18176), (471, 18179), (474, 18194), (484, 18242), (490, 18278), (491, 18281), (503, 18344), (523, 18476), (531, 18542), (536, 18584), (541, 18623), (548, 18668), (561, 18737), (564, 18758), (573, 18803), (580, 18866), (587, 18905), (589, 18920), (599, 18971), (601, 18983),

Gene: Colucci_21 Start: 15200, Stop: 18736, Start Num: 1

Candidate Starts for Colucci_21:
(Start: 1 @15200 has 12 MA's), (Start: 2 @15206 has 7 MA's), (5, 15278), (6, 15290), (7, 15311), (9, 15356), (11, 15386), (13, 15407), (16, 15440), (22, 15509), (32, 15620), (39, 15650), (41, 15662), (43, 15683), (47, 15704), (54, 15809), (55, 15821), (64, 15896), (67, 15926), (69, 15947), (72, 15989), (76, 16025), (82, 16076), (83, 16082), (85, 16097), (93, 16172), (94, 16184), (97, 16229), (98, 16238), (100, 16259), (110, 16337), (118, 16403), (119, 16406), (126, 16463), (127, 16469), (134, 16529), (144, 16571), (147, 16580), (158, 16631), (161, 16637), (165, 16643), (171, 16658), (175, 16694), (180, 16709), (207, 16826), (213, 16844), (214, 16847), (216, 16865), (217, 16868), (219, 16877), (223, 16892), (224, 16898), (226, 16913), (228, 16922), (229, 16925), (242, 16964), (248, 16988), (252, 17009), (257, 17027), (260, 17042), (279, 17099), (285, 17126), (286, 17132), (288, 17138), (298, 17213), (306, 17252), (314, 17285), (326, 17342), (329, 17360), (331, 17375), (332, 17381), (368, 17477), (372, 17504), (383, 17594), (387, 17615), (390, 17630), (391, 17636), (416, 17714), (417, 17717), (439, 17744), (440, 17747), (442, 17750), (446, 17765), (469, 17879), (474, 17900), (480, 17927), (484, 17948), (486, 17969), (489, 17975), (492, 17996), (503, 18050), (531, 18248), (532, 18260), (541, 18329), (545, 18353), (548, 18371), (561, 18437), (564, 18458), (573, 18503), (586, 18599), (587, 18605), (607, 18716),

Gene: Conboy_22 Start: 15722, Stop: 19264, Start Num: 1
Candidate Starts for Conboy_22:
(Start: 1 @15722 has 12 MA's), (Start: 2 @15728 has 7 MA's), (3, 15749), (4, 15752), (7, 15833), (9, 15878), (12, 15911), (13, 15929), (16, 15962), (20, 15992), (21, 16019), (22, 16031), (33, 16148), (39, 16172), (46, 16223), (47, 16226), (54, 16331), (55, 16343), (64, 16418), (67, 16448), (69, 16469), (72, 16511), (85, 16619), (88, 16649), (93, 16694), (94, 16706), (97, 16751), (98, 16760), (105, 16820), (110, 16859), (133, 17039), (134, 17051), (136, 17060), (144, 17093), (146, 17099), (147, 17102), (158, 17153), (161, 17159), (165, 17165), (173, 17189), (175, 17216), (180, 17231), (183, 17243), (203, 17324), (204, 17327), (207, 17348), (213, 17366), (214, 17369), (217, 17390), (223, 17414), (226, 17435), (228, 17444), (229, 17447), (242, 17486), (248, 17510), (257, 17549), (260, 17564), (279, 17621), (284, 17645), (286, 17654), (288, 17660), (293, 17696), (301, 17744), (303, 17753), (311, 17795), (314, 17807), (326, 17864), (329, 17882), (331, 17897), (332, 17903), (368, 17999), (372, 18026), (375, 18047), (383, 18116), (387, 18137), (391, 18158), (416, 18236), (440, 18269), (442, 18272), (449, 18296), (457, 18365), (469, 18401), (470, 18404), (471, 18407), (474, 18422), (484, 18470), (490, 18506), (491, 18509), (503, 18572), (523, 18704), (531, 18770), (536, 18812), (541, 18851), (548, 18896), (561, 18965), (564, 18986), (573, 19031), (580, 19094), (587, 19133), (589, 19148), (599, 19199), (601, 19211),

Gene: Doucette_16 Start: 9832, Stop: 13926, Start Num: 26
Candidate Starts for Doucette_16:
(15, 9718), (Start: 26 @9832 has 4 MA's), (27, 9859), (29, 9865), (33, 9898), (39, 9922), (55, 10096), (57, 10117), (63, 10168), (67, 10201), (68, 10210), (78, 10318), (79, 10330), (80, 10342), (81, 10348), (86, 10393), (88, 10402), (89, 10405), (93, 10447), (97, 10504), (110, 10612), (114, 10642), (125, 10768), (130, 10807), (136, 10861), (138, 10867), (140, 10879), (144, 10894), (160, 10957), (164, 10966), (166, 10969), (172, 10987), (174, 11008), (182, 11044), (192, 11071), (194, 11083), (207, 11155), (215, 11182), (220, 11209), (225, 11239), (240, 11296), (250, 11338), (252, 11356), (262, 11407), (270, 11437), (276, 11452), (287, 11503), (292, 11536), (314, 11668), (315, 11671), (317, 11680), (319, 11689), (321, 11701), (344, 11827), (353, 11887), (355, 11896), (360, 11917), (366, 11959), (375, 12019), (376, 12025), (381, 12073), (382, 12085), (383, 12091), (388, 12124), (389, 12127), (391, 12142), (398, 12175), (400, 12184), (403, 12199), (407, 12223), (409, 12244), (420, 12289), (421, 12298), (422, 12301), (425, 12313), (429, 12334), (431, 12343), (443, 12397), (445, 12406), (447, 12418), (450, 12430), (456, 12484), (459, 12505), (461, 12520), (468, 12538), (477, 12577), (484, 12628), (495, 12709), (496, 12712), (498, 12730), (500, 12742), (502, 12745), (510, 12820), (512, 12832), (514, 12841), (518, 12856), (534, 13012), (539, 13066), (542, 13084), (556, 13180), (561, 13210), (572, 13294), (583, 13378), (592, 13444), (602, 13495), (610, 13552), (614, 13591), (618, 13708), (621, 13774), (626, 13834), (627, 13846), (629, 13861), (632, 13891),

Gene: DrYang_22 Start: 15693, Stop: 19463, Start Num: 2
Candidate Starts for DrYang_22:
(Start: 2 @15693 has 7 MA's), (5, 15765), (9, 15843), (10, 15852), (12, 15876), (13, 15894), (16, 15927), (20, 15957), (21, 15984), (22, 15996), (30, 16095), (39, 16137), (46, 16188), (47, 16191), (54, 16296), (55, 16308), (59, 16350), (64, 16383), (67, 16413), (72, 16476), (76, 16512), (83, 16569), (93, 16659), (94, 16671), (97, 16716), (98, 16725), (100, 16746), (105, 16785), (110, 16824), (120, 16899), (129, 16977), (134, 17016), (145, 17061), (147, 17067), (149, 17079), (152, 17097), (154, 17103), (155, 17109), (165, 17130), (171, 17145), (175, 17181), (183, 17208), (184, 17214), (186, 17217), (203, 17289), (211, 17322), (214, 17334), (215, 17340), (216, 17352), (226, 17400), (228, 17409), (235, 17421), (236, 17424), (237, 17427), (242, 17451), (249, 17478), (260, 17529), (261, 17532), (266, 17550), (279, 17586), (283, 17607), (286, 17619), (288, 17625), (293, 17661), (295, 17679), (297, 17694), (299, 17703), (301, 17709), (306, 17739), (311, 17760), (314, 17772), (316, 17781), (323, 17805), (326, 17829), (332, 17868), (341, 17904), (342, 17907), (347, 17937), (348, 17940), (351, 17964), (358, 18003), (368, 18066), (372, 18093), (383, 18183), (387, 18204), (396, 18246), (412, 18333), (416, 18339), (419, 18360), (436, 18441), (437, 18453), (439, 18468), (454, 18537), (463, 18588), (469, 18603), (471, 18609), (477, 18633), (480, 18651), (484, 18672), (490, 18708), (493, 18723), (503, 18774), (523, 18906), (531, 18972), (541, 19053), (561, 19164), (564, 19185), (573, 19230), (580, 19293), (584, 19302), (587, 19332), (596, 19386), (603, 19422),

Gene: E6_17 Start: 9880, Stop: 13974, Start Num: 26
Candidate Starts for E6_17:
(15, 9766), (Start: 26 @9880 has 4 MA's), (27, 9907), (33, 9946), (39, 9970), (55, 10144), (57, 10165), (63, 10216), (67, 10249), (68, 10258), (78, 10366), (79, 10378), (80, 10390), (81, 10396), (86, 10441), (88, 10450), (89, 10453), (93, 10495), (97, 10552), (114, 10690), (125, 10816), (130, 10855), (136, 10909), (138, 10915), (140, 10927), (144, 10942), (160, 11005), (164, 11014), (166, 11017), (172, 11035), (174, 11056), (182, 11092), (192, 11119), (194, 11131), (207, 11203), (215, 11230), (220, 11257), (225, 11287), (240, 11344), (250, 11386), (252, 11404), (262, 11455), (270, 11485), (276, 11500), (287, 11551), (314, 11716), (315, 11719), (317, 11728), (319, 11737), (321, 11749), (344, 11875), (353, 11935), (355, 11944), (360, 11965), (362, 11968), (364, 11977), (366, 12007), (375, 12067), (376, 12073), (381, 12121), (382, 12133), (383, 12139), (388, 12172), (389, 12175), (391, 12190), (398, 12223), (400, 12232), (403, 12247), (407, 12271), (409, 12292), (415, 12313), (418, 12331), (420, 12337), (421, 12346), (422, 12349), (425, 12361), (429, 12382), (431, 12391), (441, 12439), (443, 12445), (445, 12454), (447, 12466), (448, 12469), (450, 12478), (456, 12532), (459, 12553), (471, 12601), (476, 12622), (496, 12760), (498, 12778), (502, 12793), (504, 12811), (510, 12868), (512, 12880), (514, 12889), (518, 12904), (521, 12922), (534, 13060), (539, 13114), (542, 13132), (556, 13228), (561, 13258), (572, 13342), (583, 13426), (592, 13492), (602, 13543), (610, 13600), (614, 13639), (621, 13822), (626, 13882), (627, 13894), (629, 13909), (632, 13939),

Gene: EdgarPoe_22 Start: 15722, Stop: 19264, Start Num: 1
Candidate Starts for EdgarPoe_22:
(Start: 1 @15722 has 12 MA's), (Start: 2 @15728 has 7 MA's), (3, 15749), (4, 15752), (7, 15833), (9, 15878), (12, 15911), (13, 15929), (16, 15962), (20, 15992), (21, 16019), (22, 16031), (33, 16148), (39, 16172), (46, 16223), (47, 16226), (54, 16331), (55, 16343), (64, 16418), (67, 16448), (69, 16469), (72, 16511), (85, 16619), (88, 16649), (93, 16694), (94, 16706), (97, 16751), (98, 16760), (105, 16820), (110, 16859), (133, 17039), (134, 17051), (136, 17060), (144, 17093), (146, 17099), (147, 17102), (158, 17153), (161, 17159), (165, 17165), (173, 17189), (175, 17216), (180, 17231), (183, 17243), (203, 17324), (204, 17327), (207, 17348), (213, 17366), (214, 17369), (217, 17390), (223, 17414), (226, 17435), (228, 17444), (229, 17447), (242, 17486), (248, 17510), (257, 17549), (260, 17564), (279, 17621), (284, 17645), (286, 17654), (288, 17660), (293, 17696), (301, 17744), (303, 17753), (311, 17795), (314, 17807), (326, 17864), (329, 17882), (331, 17897), (332, 17903), (368, 17999), (372, 18026), (375, 18047), (383, 18116), (387, 18137), (391, 18158), (416, 18236), (440, 18269), (442, 18272), (449, 18296), (457, 18365), (469, 18401), (470, 18404), (471, 18407), (474, 18422),

(484, 18470), (490, 18506), (491, 18509), (503, 18572), (523, 18704), (531, 18770), (536, 18812), (541, 18851), (548, 18896), (561, 18965), (564, 18986), (573, 19031), (580, 19094), (587, 19133), (589, 19148), (599, 19199), (601, 19211),

Gene: Elfy_14 Start: 8586, Stop: 11948, Start Num: 42
Candidate Starts for Elfy_14:
(Start: 42 @8586 has 1 MA's), (51, 8637), (52, 8679), (53, 8721), (58, 8760), (70, 8853), (73, 8883), (91, 9030), (94, 9060), (98, 9111), (119, 9273), (123, 9318), (124, 9321), (125, 9342), (132, 9387), (148, 9432), (168, 9498), (178, 9543), (198, 9606), (201, 9615), (208, 9630), (241, 9696), (245, 9708), (247, 9717), (251, 9738), (255, 9756), (268, 9807), (272, 9816), (280, 9843), (281, 9849), (291, 9885), (302, 9960), (312, 10017), (322, 10050), (328, 10074), (329, 10083), (337, 10116), (357, 10182), (369, 10212), (370, 10215), (379, 10236), (386, 10281), (398, 10341), (469, 10626), (485, 10713), (487, 10731), (519, 10905), (520, 10908), (524, 10962), (547, 11145), (552, 11178), (555, 11193), (567, 11265), (574, 11313), (577, 11370), (590, 11439), (604, 11520), (605, 11523), (611, 11568), (616, 11679), (623, 11805), (632, 11874), (633, 11883),

Gene: G4_16 Start: 9822, Stop: 13916, Start Num: 26
Candidate Starts for G4_16:
(15, 9708), (Start: 26 @9822 has 4 MA's), (27, 9849), (29, 9855), (33, 9888), (39, 9912), (48, 9978), (55, 10086), (57, 10107), (63, 10158), (67, 10191), (78, 10308), (79, 10320), (80, 10332), (81, 10338), (86, 10383), (88, 10392), (89, 10395), (93, 10437), (97, 10494), (110, 10602), (114, 10632), (125, 10758), (130, 10797), (136, 10851), (138, 10857), (140, 10869), (144, 10884), (160, 10947), (164, 10956), (166, 10959), (172, 10977), (174, 10998), (182, 11034), (192, 11061), (194, 11073), (207, 11145), (215, 11172), (220, 11199), (225, 11229), (240, 11286), (250, 11328), (252, 11346), (262, 11397), (270, 11427), (276, 11442), (287, 11493), (292, 11526), (315, 11661), (317, 11670), (319, 11679), (321, 11691), (340, 11799), (344, 11817), (353, 11877), (355, 11886), (360, 11907), (362, 11910), (364, 11919), (366, 11949), (375, 12009), (376, 12015), (381, 12063), (382, 12075), (383, 12081), (388, 12114), (389, 12117), (391, 12132), (398, 12165), (400, 12174), (403, 12189), (407, 12213), (409, 12234), (415, 12255), (418, 12273), (420, 12279), (422, 12291), (425, 12303), (429, 12324), (431, 12333), (443, 12387), (445, 12396), (447, 12408), (448, 12411), (450, 12420), (456, 12474), (460, 12498), (461, 12510), (466, 12522), (468, 12528), (470, 12540), (471, 12543), (473, 12555), (476, 12564), (479, 12588), (484, 12618), (495, 12699), (496, 12702), (500, 12732), (502, 12735), (510, 12810), (512, 12822), (514, 12831), (517, 12843), (518, 12846), (534, 13002), (539, 13056), (542, 13074), (556, 13170), (561, 13200), (572, 13284), (583, 13368), (592, 13434), (601, 13482), (602, 13485), (610, 13542), (614, 13581), (618, 13698), (621, 13764), (626, 13824), (627, 13836), (629, 13851), (632, 13881),

Gene: GrimEater_15 Start: 8656, Stop: 12603, Start Num: 24
Candidate Starts for GrimEater_15:
(Start: 24 @8656 has 2 MA's), (28, 8716), (35, 8755), (48, 8842), (55, 8950), (71, 9109), (72, 9118), (77, 9169), (87, 9250), (93, 9301), (98, 9367), (107, 9436), (119, 9535), (142, 9733), (148, 9751), (167, 9820), (177, 9871), (187, 9907), (197, 9943), (232, 10021), (238, 10036), (243, 10054), (249, 10078), (258, 10126), (269, 10183), (271, 10186), (300, 10348), (310, 10414), (326, 10483), (333, 10528), (349, 10603), (359, 10660), (413, 11035), (418, 11056), (427, 11098), (430, 11110), (488, 11404), (502, 11488), (507, 11518), (519, 11578), (525, 11653), (552, 11851), (562, 11908), (565, 11926), (571, 11965), (572, 11974), (604, 12193), (617, 12337), (619, 12394), (635, 12556),

Gene: HumptyDumpty_22 Start: 15721, Stop: 19263, Start Num: 1
Candidate Starts for HumptyDumpty_22:
(Start: 1 @15721 has 12 MA's), (Start: 2 @15727 has 7 MA's), (3, 15748), (4, 15751), (7, 15832), (9, 15877), (12, 15910), (13, 15928), (16, 15961), (20, 15991), (21, 16018), (22, 16030), (33, 16147), (39, 16171), (46, 16222), (47, 16225), (54, 16330), (55, 16342), (64, 16417), (67, 16447), (69, 16468), (72, 16510), (85, 16618), (88, 16648), (93, 16693), (94, 16705), (97, 16750), (98, 16759), (105, 16819),

(110, 16858), (133, 17038), (134, 17050), (136, 17059), (144, 17092), (146, 17098), (147, 17101), (158, 17152), (161, 17158), (165, 17164), (173, 17188), (175, 17215), (180, 17230), (183, 17242), (203, 17323), (204, 17326), (207, 17347), (213, 17365), (214, 17368), (217, 17389), (223, 17413), (226, 17434), (228, 17443), (229, 17446), (242, 17485), (248, 17509), (257, 17548), (260, 17563), (279, 17620), (284, 17644), (286, 17653), (288, 17659), (293, 17695), (301, 17743), (303, 17752), (311, 17794), (314, 17806), (326, 17863), (329, 17881), (331, 17896), (332, 17902), (368, 17998), (372, 18025), (375, 18046), (383, 18115), (387, 18136), (391, 18157), (416, 18235), (440, 18268), (442, 18271), (449, 18295), (457, 18364), (469, 18400), (470, 18403), (471, 18406), (474, 18421), (484, 18469), (490, 18505), (491, 18508), (503, 18571), (523, 18703), (531, 18769), (536, 18811), (541, 18850), (548, 18895), (561, 18964), (564, 18985), (573, 19030), (580, 19093), (587, 19132), (589, 19147), (599, 19198), (601, 19210),

Gene: JaNo_22 Start: 15727, Stop: 19263, Start Num: 2
Candidate Starts for JaNo_22:
(Start: 1 @15721 has 12 MA's), (Start: 2 @15727 has 7 MA's), (3, 15748), (4, 15751), (7, 15832), (9, 15877), (12, 15910), (13, 15928), (16, 15961), (20, 15991), (21, 16018), (22, 16030), (33, 16147), (39, 16171), (46, 16222), (47, 16225), (54, 16330), (55, 16342), (64, 16417), (67, 16447), (69, 16468), (72, 16510), (85, 16618), (88, 16648), (93, 16693), (94, 16705), (97, 16750), (98, 16759), (105, 16819), (110, 16858), (133, 17038), (134, 17050), (136, 17059), (144, 17092), (146, 17098), (147, 17101), (158, 17152), (161, 17158), (165, 17164), (173, 17188), (175, 17215), (180, 17230), (183, 17242), (203, 17323), (204, 17326), (207, 17347), (213, 17365), (214, 17368), (217, 17389), (223, 17413), (226, 17434), (228, 17443), (229, 17446), (242, 17485), (248, 17509), (257, 17548), (260, 17563), (279, 17620), (284, 17644), (286, 17653), (288, 17659), (293, 17695), (301, 17743), (303, 17752), (311, 17794), (314, 17806), (326, 17863), (329, 17881), (331, 17896), (332, 17902), (368, 17998), (372, 18025), (375, 18046), (383, 18115), (387, 18136), (391, 18157), (416, 18235), (440, 18268), (442, 18271), (449, 18295), (457, 18364), (469, 18400), (470, 18403), (471, 18406), (474, 18421), (484, 18469), (490, 18505), (491, 18508), (503, 18571), (523, 18703), (531, 18769), (536, 18811), (541, 18850), (548, 18895), (561, 18964), (564, 18985), (573, 19030), (580, 19093), (587, 19132), (589, 19147), (599, 19198), (601, 19210),

Gene: Jankie_15 Start: 8655, Stop: 12602, Start Num: 24
Candidate Starts for Jankie_15:
(Start: 24 @8655 has 2 MA's), (28, 8715), (35, 8754), (48, 8841), (55, 8949), (71, 9108), (72, 9117), (77, 9168), (87, 9249), (93, 9300), (98, 9366), (107, 9435), (119, 9534), (142, 9732), (148, 9750), (167, 9819), (177, 9870), (197, 9942), (232, 10020), (238, 10035), (243, 10053), (249, 10077), (258, 10125), (269, 10182), (271, 10185), (300, 10347), (310, 10413), (326, 10482), (333, 10527), (349, 10602), (359, 10659), (413, 11034), (418, 11055), (427, 11097), (430, 11109), (488, 11403), (502, 11487), (507, 11517), (519, 11577), (525, 11652), (552, 11850), (562, 11907), (565, 11925), (571, 11964), (572, 11973), (604, 12192), (617, 12336), (619, 12393), (635, 12555),

Gene: JayCookie_22 Start: 15730, Stop: 19266, Start Num: 2
Candidate Starts for JayCookie_22:
(Start: 1 @15724 has 12 MA's), (Start: 2 @15730 has 7 MA's), (3, 15751), (4, 15754), (7, 15835), (9, 15880), (12, 15913), (13, 15931), (16, 15964), (20, 15994), (21, 16021), (22, 16033), (33, 16150), (39, 16174), (46, 16225), (47, 16228), (54, 16333), (55, 16345), (64, 16420), (67, 16450), (69, 16471), (72, 16513), (85, 16621), (88, 16651), (93, 16696), (94, 16708), (97, 16753), (98, 16762), (105, 16822), (110, 16861), (133, 17041), (134, 17053), (136, 17062), (144, 17095), (146, 17101), (147, 17104), (158, 17155), (161, 17161), (165, 17167), (173, 17191), (175, 17218), (180, 17233), (183, 17245), (203, 17326), (204, 17329), (207, 17350), (213, 17368), (214, 17371), (217, 17392), (223, 17416), (226, 17437), (228, 17446), (229, 17449), (242, 17488), (248, 17512), (257, 17551), (260, 17566), (279, 17623), (284, 17647), (286, 17656), (288, 17662), (293, 17698), (301, 17746), (303, 17755), (311, 17797), (314, 17809), (326, 17866), (329, 17884), (331, 17899), (332, 17905), (368, 18001), (372, 18028), (375, 18049), (383, 18118), (387, 18139), (391, 18160), (416, 18238), (440, 18271),

(442, 18274), (449, 18298), (457, 18367), (469, 18403), (470, 18406), (471, 18409), (474, 18424), (484, 18472), (490, 18508), (491, 18511), (503, 18574), (523, 18706), (531, 18772), (536, 18814), (541, 18853), (548, 18898), (561, 18967), (564, 18988), (573, 19033), (580, 19096), (587, 19135), (589, 19150), (599, 19201), (601, 19213),

Gene: KBurrousTX_22 Start: 15522, Stop: 19298, Start Num: 1
Candidate Starts for KBurrousTX_22:
(Start: 1 @15522 has 12 MA's), (Start: 2 @15528 has 7 MA's), (3, 15549), (5, 15600), (8, 15666), (9, 15678), (10, 15687), (12, 15711), (13, 15729), (16, 15762), (22, 15831), (30, 15930), (32, 15942), (33, 15948), (44, 16011), (47, 16026), (48, 16038), (54, 16131), (55, 16143), (59, 16185), (64, 16218), (67, 16248), (69, 16269), (72, 16311), (74, 16332), (76, 16347), (84, 16407), (93, 16494), (94, 16506), (97, 16551), (98, 16560), (100, 16581), (105, 16620), (126, 16785), (129, 16812), (134, 16851), (145, 16896), (147, 16902), (149, 16914), (170, 16977), (175, 17016), (186, 17052), (203, 17124), (204, 17127), (207, 17148), (213, 17166), (226, 17235), (235, 17256), (237, 17262), (242, 17286), (248, 17310), (277, 17415), (279, 17421), (290, 17463), (294, 17508), (301, 17550), (303, 17559), (306, 17580), (314, 17613), (322, 17643), (326, 17670), (328, 17679), (335, 17721), (339, 17733), (342, 17745), (343, 17751), (345, 17757), (350, 17796), (351, 17802), (354, 17820), (358, 17841), (361, 17853), (368, 17904), (383, 18021), (387, 18042), (396, 18084), (406, 18129), (412, 18171), (414, 18174), (416, 18177), (424, 18219), (437, 18291), (439, 18306), (442, 18312), (460, 18414), (470, 18444), (471, 18447), (484, 18510), (490, 18546), (491, 18549), (501, 18606), (511, 18669), (523, 18744), (528, 18789), (541, 18891), (548, 18933), (561, 19002), (564, 19023), (573, 19068), (584, 19140), (593, 19200), (601, 19245),

Gene: Kabreeze_22 Start: 15721, Stop: 19263, Start Num: 1
Candidate Starts for Kabreeze_22:
(Start: 1 @15721 has 12 MA's), (Start: 2 @15727 has 7 MA's), (3, 15748), (4, 15751), (7, 15832), (9, 15877), (12, 15910), (13, 15928), (16, 15961), (20, 15991), (21, 16018), (22, 16030), (33, 16147), (39, 16171), (46, 16222), (47, 16225), (54, 16330), (55, 16342), (64, 16417), (67, 16447), (69, 16468), (72, 16510), (85, 16618), (88, 16648), (93, 16693), (94, 16705), (97, 16750), (98, 16759), (105, 16819), (110, 16858), (133, 17038), (134, 17050), (136, 17059), (144, 17092), (146, 17098), (147, 17101), (158, 17152), (161, 17158), (165, 17164), (173, 17188), (175, 17215), (180, 17230), (183, 17242), (203, 17323), (204, 17326), (207, 17347), (213, 17365), (214, 17368), (217, 17389), (223, 17413), (226, 17434), (228, 17443), (229, 17446), (242, 17485), (248, 17509), (257, 17548), (260, 17563), (279, 17620), (284, 17644), (286, 17653), (288, 17659), (293, 17695), (301, 17743), (303, 17752), (311, 17794), (314, 17806), (326, 17863), (329, 17881), (331, 17896), (332, 17902), (368, 17998), (372, 18025), (375, 18046), (383, 18115), (387, 18136), (391, 18157), (416, 18235), (440, 18268), (442, 18271), (449, 18295), (457, 18364), (469, 18400), (470, 18403), (471, 18406), (474, 18421), (484, 18469), (490, 18505), (491, 18508), (503, 18571), (523, 18703), (531, 18769), (536, 18811), (541, 18850), (548, 18895), (561, 18964), (564, 18985), (573, 19030), (580, 19093), (587, 19132), (589, 19147), (599, 19198), (601, 19210),

Gene: Linus_22 Start: 15727, Stop: 19263, Start Num: 2
Candidate Starts for Linus_22:
(Start: 1 @15721 has 12 MA's), (Start: 2 @15727 has 7 MA's), (3, 15748), (4, 15751), (7, 15832), (9, 15877), (12, 15910), (13, 15928), (16, 15961), (20, 15991), (21, 16018), (22, 16030), (33, 16147), (39, 16171), (46, 16222), (47, 16225), (54, 16330), (55, 16342), (64, 16417), (67, 16447), (69, 16468), (72, 16510), (85, 16618), (88, 16648), (93, 16693), (94, 16705), (97, 16750), (98, 16759), (105, 16819), (110, 16858), (133, 17038), (134, 17050), (136, 17059), (144, 17092), (146, 17098), (147, 17101), (158, 17152), (161, 17158), (165, 17164), (173, 17188), (175, 17215), (180, 17230), (183, 17242), (203, 17323), (204, 17326), (207, 17347), (213, 17365), (214, 17368), (217, 17389), (223, 17413), (226, 17434), (228, 17443), (229, 17446), (242, 17485), (248, 17509), (257, 17548), (260, 17563), (279, 17620), (284, 17644), (286, 17653), (288, 17659), (293, 17695), (301, 17743), (303, 17752), (311, 17794), (314, 17806), (326, 17863), (329, 17881), (331, 17896), (332, 17902), (368, 17998),

(372, 18025), (375, 18046), (383, 18115), (387, 18136), (391, 18157), (416, 18235), (440, 18268), (442, 18271), (449, 18295), (457, 18364), (469, 18400), (470, 18403), (471, 18406), (474, 18421), (484, 18469), (490, 18505), (491, 18508), (503, 18571), (523, 18703), (531, 18769), (536, 18811), (541, 18850), (548, 18895), (561, 18964), (564, 18985), (573, 19030), (580, 19093), (587, 19132), (589, 19147), (599, 19198), (601, 19210),

Gene: LisoBros_15 Start: 8925, Stop: 13016, Start Num: 25
Candidate Starts for LisoBros_15:
(17, 8856), (Start: 25 @8925 has 3 MA's), (46, 9096), (55, 9219), (67, 9324), (69, 9345), (71, 9378), (72, 9387), (82, 9474), (88, 9525), (93, 9570), (98, 9636), (101, 9663), (106, 9702), (113, 9759), (122, 9846), (131, 9918), (134, 9966), (150, 10032), (154, 10053), (177, 10140), (195, 10203), (197, 10212), (209, 10290), (231, 10389), (232, 10398), (238, 10416), (249, 10476), (259, 10533), (271, 10584), (273, 10590), (274, 10593), (284, 10635), (293, 10692), (308, 10791), (310, 10812), (313, 10824), (320, 10848), (329, 10905), (346, 10983), (366, 11124), (373, 11172), (406, 11400), (410, 11424), (432, 11523), (467, 11700), (483, 11781), (507, 11931), (509, 11943), (517, 11985), (520, 11994), (525, 12066), (546, 12228), (554, 12279), (565, 12330), (568, 12345), (571, 12369), (585, 12468), (604, 12597), (608, 12618), (622, 12831), (624, 12858), (630, 12918), (634, 12957),

Gene: Lymara_22 Start: 15725, Stop: 19261, Start Num: 2
Candidate Starts for Lymara_22:
(Start: 1 @15719 has 12 MA's), (Start: 2 @15725 has 7 MA's), (3, 15746), (4, 15749), (7, 15830), (9, 15875), (12, 15908), (13, 15926), (14, 15950), (16, 15959), (20, 15989), (21, 16016), (22, 16028), (30, 16127), (33, 16145), (39, 16169), (46, 16220), (47, 16223), (54, 16328), (55, 16340), (64, 16415), (67, 16445), (69, 16466), (72, 16508), (76, 16544), (83, 16601), (85, 16616), (88, 16646), (93, 16691), (94, 16703), (97, 16748), (105, 16817), (110, 16856), (118, 16922), (127, 16988), (134, 17048), (136, 17057), (144, 17090), (147, 17099), (158, 17150), (165, 17162), (175, 17213), (180, 17228), (183, 17240), (203, 17321), (207, 17345), (213, 17363), (214, 17366), (216, 17384), (217, 17387), (219, 17396), (221, 17405), (223, 17411), (224, 17417), (226, 17432), (228, 17441), (229, 17444), (242, 17483), (257, 17546), (260, 17561), (279, 17618), (280, 17624), (286, 17651), (288, 17657), (293, 17693), (301, 17741), (306, 17771), (311, 17792), (326, 17861), (329, 17879), (331, 17894), (361, 17945), (368, 17996), (372, 18023), (383, 18113), (385, 18119), (387, 18134), (396, 18176), (416, 18233), (440, 18266), (442, 18269), (449, 18293), (469, 18398), (470, 18401), (471, 18404), (484, 18467), (490, 18503), (503, 18569), (531, 18767), (532, 18779), (540, 18845), (541, 18848), (542, 18854), (548, 18893), (554, 18923), (561, 18962), (564, 18983), (573, 19028), (580, 19091), (589, 19145), (599, 19196), (601, 19208),

Gene: Mordred_22 Start: 15727, Stop: 19263, Start Num: 2
Candidate Starts for Mordred_22:
(Start: 1 @15721 has 12 MA's), (Start: 2 @15727 has 7 MA's), (3, 15748), (4, 15751), (7, 15832), (9, 15877), (12, 15910), (13, 15928), (16, 15961), (20, 15991), (21, 16018), (22, 16030), (33, 16147), (39, 16171), (46, 16222), (47, 16225), (54, 16330), (55, 16342), (64, 16417), (67, 16447), (69, 16468), (72, 16510), (85, 16618), (88, 16648), (93, 16693), (94, 16705), (97, 16750), (98, 16759), (105, 16819), (110, 16858), (133, 17038), (134, 17050), (136, 17059), (144, 17092), (146, 17098), (147, 17101), (158, 17152), (161, 17158), (165, 17164), (173, 17188), (175, 17215), (180, 17230), (183, 17242), (203, 17323), (204, 17326), (207, 17347), (213, 17365), (214, 17368), (217, 17389), (223, 17413), (226, 17434), (228, 17443), (229, 17446), (242, 17485), (248, 17509), (257, 17548), (260, 17563), (279, 17620), (284, 17644), (286, 17653), (288, 17659), (293, 17695), (301, 17743), (303, 17752), (311, 17794), (314, 17806), (326, 17863), (329, 17881), (331, 17896), (332, 17902), (368, 17998), (372, 18025), (375, 18046), (383, 18115), (387, 18136), (391, 18157), (416, 18235), (440, 18268), (442, 18271), (449, 18295), (457, 18364), (469, 18400), (470, 18403), (471, 18406), (474, 18421), (484, 18469), (490, 18505), (491, 18508), (503, 18571), (523, 18703), (531, 18769), (536, 18811), (541, 18850), (548, 18895), (561, 18964), (564, 18985), (573, 19030), (580, 19093), (587, 19132), (589, 19147), (599, 19198), (601, 19210),

Gene: MoyaNatalis_22 Start: 15730, Stop: 19266, Start Num: 2
Candidate Starts for MoyaNatalis_22:
(Start: 1 @15724 has 12 MA's), (Start: 2 @15730 has 7 MA's), (3, 15751), (4, 15754), (7, 15835), (9, 15880), (12, 15913), (13, 15931), (16, 15964), (20, 15994), (21, 16021), (22, 16033), (33, 16150), (39, 16174), (46, 16225), (47, 16228), (54, 16333), (55, 16345), (64, 16420), (67, 16450), (69, 16471), (72, 16513), (85, 16621), (88, 16651), (93, 16696), (94, 16708), (97, 16753), (98, 16762), (105, 16822), (110, 16861), (133, 17041), (134, 17053), (136, 17062), (144, 17095), (146, 17101), (147, 17104), (158, 17155), (161, 17161), (165, 17167), (173, 17191), (175, 17218), (180, 17233), (183, 17245), (203, 17326), (204, 17329), (207, 17350), (213, 17368), (214, 17371), (217, 17392), (223, 17416), (226, 17437), (228, 17446), (229, 17449), (242, 17488), (248, 17512), (257, 17551), (260, 17566), (279, 17623), (284, 17647), (286, 17656), (288, 17662), (293, 17698), (301, 17746), (303, 17755), (311, 17797), (314, 17809), (326, 17866), (329, 17884), (331, 17899), (332, 17905), (368, 18001), (372, 18028), (375, 18049), (383, 18118), (387, 18139), (391, 18160), (416, 18238), (440, 18271), (442, 18274), (449, 18298), (457, 18367), (469, 18403), (470, 18406), (471, 18409), (474, 18424), (484, 18472), (490, 18508), (491, 18511), (503, 18574), (523, 18706), (531, 18772), (532, 18784), (541, 18853), (548, 18898), (561, 18967), (564, 18988), (573, 19033), (580, 19096), (587, 19135), (589, 19150), (599, 19201), (601, 19213),

Gene: PFR1_13 Start: 9476, Stop: 12970, Start Num: 23
Candidate Starts for PFR1_13:
(23, 9476), (34, 9590), (37, 9596), (59, 9830), (61, 9851), (62, 9854), (75, 9989), (90, 10097), (92, 10124), (93, 10133), (95, 10184), (96, 10187), (102, 10229), (103, 10238), (109, 10280), (111, 10313), (115, 10343), (116, 10346), (117, 10352), (121, 10388), (138, 10547), (141, 10562), (149, 10595), (159, 10634), (162, 10640), (169, 10655), (174, 10685), (179, 10709), (185, 10730), (193, 10760), (196, 10769), (199, 10781), (201, 10787), (213, 10853), (223, 10895), (235, 10922), (254, 11006), (256, 11015), (263, 11048), (264, 11051), (289, 11141), (305, 11252), (306, 11255), (316, 11297), (325, 11330), (336, 11387), (361, 11411), (378, 11522), (401, 11657), (405, 11681), (410, 11702), (425, 11768), (426, 11777), (433, 11804), (434, 11813), (444, 11855), (453, 11909), (458, 11951), (462, 11969), (465, 11975), (472, 12002), (478, 12041), (481, 12050), (494, 12122), (496, 12143), (499, 12164), (506, 12209), (508, 12221), (515, 12266), (518, 12278), (522, 12314), (530, 12401), (533, 12431), (535, 12443), (544, 12506), (550, 12548), (555, 12578), (558, 12596), (560, 12608), (563, 12629), (569, 12665), (570, 12674), (575, 12710), (578, 12761), (579, 12764), (591, 12839), (594, 12848), (595, 12860), (598, 12872), (600, 12881), (606, 12920), (609, 12947), (612, 12962),

Gene: PFR2_15 Start: 11045, Stop: 14539, Start Num: 23
Candidate Starts for PFR2_15:
(23, 11045), (34, 11159), (37, 11165), (59, 11399), (61, 11420), (62, 11423), (75, 11558), (90, 11666), (92, 11693), (93, 11702), (95, 11753), (96, 11756), (102, 11798), (103, 11807), (109, 11849), (111, 11882), (115, 11912), (116, 11915), (117, 11921), (121, 11957), (138, 12116), (141, 12131), (149, 12164), (159, 12203), (162, 12209), (169, 12224), (174, 12254), (179, 12278), (185, 12299), (193, 12329), (196, 12338), (199, 12350), (201, 12356), (213, 12422), (223, 12464), (235, 12491), (254, 12575), (256, 12584), (263, 12617), (264, 12620), (289, 12710), (305, 12821), (306, 12824), (316, 12866), (325, 12899), (336, 12956), (361, 12980), (378, 13091), (401, 13226), (405, 13250), (410, 13271), (425, 13337), (426, 13346), (433, 13373), (434, 13382), (444, 13424), (453, 13478), (458, 13520), (462, 13538), (465, 13544), (472, 13571), (478, 13610), (481, 13619), (494, 13691), (496, 13712), (499, 13733), (506, 13778), (508, 13790), (515, 13835), (518, 13847), (522, 13883), (530, 13970), (533, 14000), (535, 14012), (544, 14075), (550, 14117), (555, 14147), (558, 14165), (560, 14177), (563, 14198), (569, 14234), (570, 14243), (575, 14279), (578, 14330), (579, 14333), (591, 14408), (594, 14417), (595, 14429), (598, 14441), (600, 14450), (606, 14489), (609, 14516), (612, 14531),

Gene: PrincessTrina_22 Start: 15724, Stop: 19266, Start Num: 1

Candidate Starts for PrincessTrina_22:
(Start: 1 @15724 has 12 MA's), (Start: 2 @15730 has 7 MA's), (3, 15751), (4, 15754), (7, 15835), (9, 15880), (12, 15913), (13, 15931), (16, 15964), (20, 15994), (21, 16021), (22, 16033), (33, 16150), (39, 16174), (46, 16225), (47, 16228), (54, 16333), (55, 16345), (64, 16420), (67, 16450), (69, 16471), (72, 16513), (85, 16621), (88, 16651), (93, 16696), (94, 16708), (97, 16753), (98, 16762), (105, 16822), (110, 16861), (133, 17041), (134, 17053), (136, 17062), (144, 17095), (146, 17101), (147, 17104), (158, 17155), (161, 17161), (165, 17167), (173, 17191), (175, 17218), (180, 17233), (183, 17245), (203, 17326), (204, 17329), (207, 17350), (213, 17368), (214, 17371), (217, 17392), (223, 17416), (226, 17437), (228, 17446), (229, 17449), (242, 17488), (248, 17512), (257, 17551), (260, 17566), (279, 17623), (284, 17647), (286, 17656), (288, 17662), (293, 17698), (301, 17746), (303, 17755), (311, 17797), (314, 17809), (326, 17866), (329, 17884), (331, 17899), (332, 17905), (368, 18001), (372, 18028), (375, 18049), (383, 18118), (387, 18139), (391, 18160), (416, 18238), (440, 18271), (442, 18274), (449, 18298), (457, 18367), (469, 18403), (470, 18406), (471, 18409), (474, 18424), (484, 18472), (490, 18508), (491, 18511), (503, 18574), (523, 18706), (531, 18772), (536, 18814), (541, 18853), (548, 18898), (561, 18967), (564, 18988), (573, 19033), (580, 19096), (587, 19135), (589, 19150), (599, 19201), (601, 19213),

Gene: RosiePosie_22 Start: 15724, Stop: 19266, Start Num: 1
Candidate Starts for RosiePosie_22:
(Start: 1 @15724 has 12 MA's), (Start: 2 @15730 has 7 MA's), (3, 15751), (4, 15754), (7, 15835), (9, 15880), (12, 15913), (13, 15931), (16, 15964), (20, 15994), (21, 16021), (22, 16033), (33, 16150), (39, 16174), (46, 16225), (47, 16228), (54, 16333), (55, 16345), (64, 16420), (67, 16450), (69, 16471), (72, 16513), (85, 16621), (88, 16651), (93, 16696), (94, 16708), (97, 16753), (98, 16762), (105, 16822), (110, 16861), (133, 17041), (134, 17053), (136, 17062), (144, 17095), (146, 17101), (147, 17104), (158, 17155), (161, 17161), (165, 17167), (173, 17191), (175, 17218), (180, 17233), (183, 17245), (203, 17326), (204, 17329), (207, 17350), (213, 17368), (214, 17371), (217, 17392), (223, 17416), (226, 17437), (228, 17446), (229, 17449), (242, 17488), (248, 17512), (257, 17551), (260, 17566), (279, 17623), (284, 17647), (286, 17656), (288, 17662), (293, 17698), (301, 17746), (303, 17755), (311, 17797), (314, 17809), (326, 17866), (329, 17884), (331, 17899), (332, 17905), (368, 18001), (372, 18028), (375, 18049), (383, 18118), (387, 18139), (391, 18160), (416, 18238), (440, 18271), (442, 18274), (449, 18298), (457, 18367), (469, 18403), (470, 18406), (471, 18409), (474, 18424), (484, 18472), (490, 18508), (491, 18511), (503, 18574), (523, 18706), (531, 18772), (536, 18814), (541, 18853), (548, 18898), (561, 18967), (564, 18988), (573, 19033), (580, 19096), (587, 19135), (589, 19150), (599, 19201), (601, 19213),

Gene: Scavito_22 Start: 15721, Stop: 19263, Start Num: 1
Candidate Starts for Scavito_22:
(Start: 1 @15721 has 12 MA's), (Start: 2 @15727 has 7 MA's), (3, 15748), (4, 15751), (7, 15832), (9, 15877), (12, 15910), (13, 15928), (16, 15961), (20, 15991), (21, 16018), (22, 16030), (33, 16147), (39, 16171), (46, 16222), (47, 16225), (54, 16330), (55, 16342), (64, 16417), (67, 16447), (69, 16468), (72, 16510), (85, 16618), (88, 16648), (93, 16693), (94, 16705), (97, 16750), (98, 16759), (105, 16819), (110, 16858), (133, 17038), (134, 17050), (136, 17059), (144, 17092), (146, 17098), (147, 17101), (158, 17152), (161, 17158), (165, 17164), (173, 17188), (175, 17215), (180, 17230), (183, 17242), (203, 17323), (204, 17326), (207, 17347), (213, 17365), (214, 17368), (217, 17389), (223, 17413), (226, 17434), (228, 17443), (229, 17446), (242, 17485), (248, 17509), (257, 17548), (260, 17563), (279, 17620), (284, 17644), (286, 17653), (288, 17659), (293, 17695), (301, 17743), (303, 17752), (311, 17794), (314, 17806), (326, 17863), (329, 17881), (331, 17896), (332, 17902), (368, 17998), (372, 18025), (375, 18046), (383, 18115), (387, 18136), (391, 18157), (416, 18235), (440, 18268), (442, 18271), (449, 18295), (457, 18364), (469, 18400), (470, 18403), (471, 18406), (474, 18421), (484, 18469), (490, 18505), (491, 18508), (503, 18571), (523, 18703), (531, 18769), (536, 18811), (541, 18850), (548, 18895), (561, 18964), (564, 18985), (573, 19030), (580, 19093), (587, 19132), (589, 19147), (599, 19198), (601, 19210),

Gene: Shambre1_17 Start: 11044, Stop: 14676, Start Num: 45
Candidate Starts for Shambre1_17:
(Start: 45 @11044 has 1 MA's), (66, 11266), (70, 11308), (73, 11338), (91, 11485), (94, 11515), (98, 11566), (108, 11638), (112, 11683), (119, 11728), (124, 11776), (127, 11806), (132, 11842), (139, 11854), (153, 11917), (156, 11932), (189, 12034), (218, 12130), (239, 12157), (253, 12223), (296, 12427), (322, 12556), (335, 12622), (369, 12766), (384, 12841), (395, 12898), (397, 12919), (423, 13024), (455, 13171), (503, 13429), (513, 13504), (519, 13528), (538, 13735), (549, 13816), (557, 13864), (566, 13918), (588, 14083), (590, 14092), (610, 14221), (613, 14242), (615, 14314), (620, 14440), (625, 14485), (628, 14518),

Gene: Tophat_22 Start: 15729, Stop: 19265, Start Num: 2
Candidate Starts for Tophat_22:
(Start: 1 @15723 has 12 MA's), (Start: 2 @15729 has 7 MA's), (3, 15750), (4, 15753), (7, 15834), (9, 15879), (12, 15912), (13, 15930), (16, 15963), (20, 15993), (21, 16020), (22, 16032), (33, 16149), (39, 16173), (46, 16224), (47, 16227), (54, 16332), (55, 16344), (64, 16419), (67, 16449), (69, 16470), (72, 16512), (85, 16620), (88, 16650), (93, 16695), (94, 16707), (97, 16752), (98, 16761), (105, 16821), (110, 16860), (133, 17040), (134, 17052), (136, 17061), (144, 17094), (146, 17100), (147, 17103), (158, 17154), (161, 17160), (165, 17166), (173, 17190), (175, 17217), (180, 17232), (183, 17244), (203, 17325), (204, 17328), (207, 17349), (213, 17367), (214, 17370), (217, 17391), (223, 17415), (226, 17436), (228, 17445), (229, 17448), (242, 17487), (248, 17511), (257, 17550), (260, 17565), (279, 17622), (284, 17646), (286, 17655), (288, 17661), (293, 17697), (301, 17745), (303, 17754), (311, 17796), (314, 17808), (326, 17865), (329, 17883), (331, 17898), (332, 17904), (368, 18000), (372, 18027), (375, 18048), (383, 18117), (387, 18138), (391, 18159), (416, 18237), (440, 18270), (442, 18273), (449, 18297), (457, 18366), (469, 18402), (470, 18405), (471, 18408), (474, 18423), (484, 18471), (490, 18507), (491, 18510), (503, 18573), (523, 18705), (531, 18771), (536, 18813), (541, 18852), (548, 18897), (561, 18966), (564, 18987), (573, 19032), (580, 19095), (587, 19134), (589, 19149), (599, 19200), (601, 19212),