

Pham 330796



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 330796 Report

This analysis was run 09/05/26 on database version 662.

WARNING: Pham size does not match number of genes in report. Either unphamerated genes have been added (by you) or starterator has removed genes due to invalid start codon.

Pham number 330796 has 71 members, 9 are drafts.

Phages represented in each track:

- Track 1 : Euratis_12
- Track 2 : TG1_12
- Track 3 : phiBT1_43
- Track 4 : Samora_12
- Track 5 : Lilbooboo_12
- Track 6 : Vash_12
- Track 7 : Shawty_12
- Track 8 : Sebastisaurus_12
- Track 9 : RemusLoopin_12
- Track 10 : Heather_12
- Track 11 : ToastyFinz_15
- Track 12 : Mojourita_16
- Track 13 : DaRealMyers_16, Tubberson_16
- Track 14 : SoJo_16
- Track 15 : SV1_16
- Track 16 : Picard_16
- Track 17 : Darolandstone_16
- Track 18 : Raleigh_16
- Track 19 : PapayaSalad_16
- Track 20 : Lishka_16, Austintatious_16
- Track 21 : Ididsumtinwong_16, Bioscum_16
- Track 22 : Dubu_15
- Track 23 : phiSASD1_37
- Track 24 : AxeJC_17
- Track 25 : Eklok_17, Eastland_17, Piccadilly_17, FrumpyGal_17
- Track 26 : Ignacio_17, HFrancette_17
- Track 27 : Schlegelian_17
- Track 28 : Cumberbatch_17, ArizonaGT_17
- Track 29 : Vondra_17
- Track 30 : Keanu_21
- Track 31 : Kokushibo_21
- Track 32 : Hiya_21
- Track 33 : Spocter_21

- Track 34 : Galactica_19
- Track 35 : Antuna_22, Losacky_23, MenE_22, Violeta_23
- Track 36 : Dropshot_21, Appa_21
- Track 37 : NCRodriguez_23
- Track 38 : Phingu_24
- Track 39 : Mariel_23
- Track 40 : Blett_22
- Track 41 : Carrillo_23
- Track 42 : Phonegingi_21
- Track 43 : ScoobySnack_20
- Track 44 : PhillyJawn_22
- Track 45 : Jakelyne_23
- Track 46 : Winchester007_23
- Track 47 : Bush_22
- Track 48 : Warren_22
- Track 49 : CookieDog_22
- Track 50 : Guzman_23
- Track 51 : Pickles13_21
- Track 52 : Sweetums_22
- Track 53 : DelaGarza_20
- Track 54 : Lesiram_21
- Track 55 : Teng_22
- Track 56 : Gingerbug_18
- Track 57 : Wrackline_26
- Track 58 : Parvaparticeps_35
- Track 59 : Ball_14

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

The start number called the most often in the published annotations is 15, it was called in 22 of the 62 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

• Antuna_22, Appa_21, Blett_22, Bush_22, Carrillo_23, CookieDog_22, DelaGarza_20, Dropshot_21, Gingerbug_18, Guzman_23, Jakelyne_23, Lesiram_21, Losacky_23, Mariel_23, MenE_22, NCRodriguez_23, Parvaparticeps_35, PhillyJawn_22, Phingu_24, Phonegingi_21, Pickles13_21, ScoobySnack_20, Sweetums_22, Teng_22, Violeta_23, Warren_22, Winchester007_23, Wrackline_26,

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

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

• ArizonaGT_17, Austintatious_16, AxeJC_17, Ball_14, Bioscum_16, Cumberbatch_17, DaRealMyers_16, Darolandstone_16, Dubu_15, Eastland_17, Eklok_17, Euratis_12, FrumpyGal_17, Galactica_19, HFrancette_17, Heather_12, Hiya_21, Ididsumtinwong_16, Ignacio_17, Keanu_21, Kokushibo_21, Lilbooboo_12, Lishka_16, Moajorita_16, PapayaSalad_16, Picard_16, Piccadilly_17, Raleigh_16, RemusLoopin_12, SV1_16, Samora_12, Schlegelian_17, Sebastisaurus_12, Shawty_12, SoJo_16, Spocter_21, TG1_12, ToastyFinz_15, Tubberson_16,

Vash_12, Vondra_17, phiBT1_43, phiSASD1_37,

Summary by start number:

Start 2:

- Found in 9 of 71 (12.7%) of genes in pham
- Manual Annotations of this start: 5 of 62
- Called 55.6% of time when present
- Phage (with cluster) where this start called: ArizonaGT_17 (BP), AxeJC_17 (BP), Cumberbatch_17 (BP), Schlegelian_17 (BP), Vondra_17 (BP),

Start 3:

- Found in 11 of 71 (15.5%) of genes in pham
- Manual Annotations of this start: 6 of 62
- Called 54.5% of time when present
- Phage (with cluster) where this start called: Eastland_17 (BP), Eklok_17 (BP), FrumpyGal_17 (BP), HFrancette_17 (BP), Ignacio_17 (BP), Piccadilly_17 (BP),

Start 7:

- Found in 15 of 71 (21.1%) of genes in pham
- Manual Annotations of this start: 15 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Austintatious_16 (BC3), Bioscum_16 (BC3), DaRealMyers_16 (BC1), Galactica_19 (BQ), Hiyaa_21 (BQ), Ididsumtinwong_16 (BC3), Keanu_21 (BQ), Kokushibo_21 (BQ), Lishka_16 (BC3), PapayaSalad_16 (BC3), Raleigh_16 (BC2), SV1_16 (BC1), SoJo_16 (BC1), Spocter_21 (BQ), Tubberson_16 (BC1),

Start 13:

- Found in 1 of 71 (1.4%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ball_14 (singleton),

Start 14:

- Found in 10 of 71 (14.1%) of genes in pham
- Manual Annotations of this start: 9 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Euratis_12 (BB1), Heather_12 (BB2), Lilbooboo_12 (BB1), RemusLoopin_12 (BB2), Samora_12 (BB1), Sebastisaurus_12 (BB2), Shawty_12 (BB1), TG1_12 (BB1), Vash_12 (BB1), phiBT1_43 (BB1),

Start 15:

- Found in 28 of 71 (39.4%) of genes in pham
- Manual Annotations of this start: 22 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Antuna_22 (GA), Appa_21 (GA), Blett_22 (GA), Bush_22 (GA), Carrillo_23 (GA), CookieDog_22 (GA), DelaGarza_20 (GF), Dropshot_21 (GA), Gingerbug_18 (GF), Guzman_23 (GA), Jakelyne_23 (GA), Lesiram_21 (GF), Losacky_23 (GA), Mariel_23 (GA), MenE_22 (GA), NCRodriguez_23 (GA), Parvaparticeps_35 (UNK), PhillyJawn_22 (GA), Phingu_24 (GA), Phonegingi_21 (GA), Pickles13_21 (GA), ScoobySnack_20 (GA), Sweetums_22 (GF), Teng_22 (GF), Violeta_23 (GA), Warren_22 (GA),

Winchester007_23 (GA), Wrackline_26 (GF),

Start 19:

- Found in 1 of 71 (1.4%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: phiSASD1_37 (BJ),

Start 25:

- Found in 2 of 71 (2.8%) of genes in pham
- Manual Annotations of this start: 1 of 62
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Dubu_15 (BJ),

Start 30:

- Found in 4 of 71 (5.6%) of genes in pham
- Manual Annotations of this start: 4 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Darolandstone_16 (BC2), Mojerita_16 (BC1), Picard_16 (BC1), ToastyFinz_15 (BC1),

Summary by clusters:

There are 12 clusters represented in this pham: singleton, UNK, BJ, BB2, GF, BP, BB1, GA, BC3, BC1, BC2, BQ,

Info for manual annotations of cluster BB1:

- Start number 14 was manually annotated 6 times for cluster BB1.

Info for manual annotations of cluster BB2:

- Start number 14 was manually annotated 3 times for cluster BB2.

Info for manual annotations of cluster BC1:

- Start number 7 was manually annotated 4 times for cluster BC1.
- Start number 30 was manually annotated 3 times for cluster BC1.

Info for manual annotations of cluster BC2:

- Start number 7 was manually annotated 1 time for cluster BC2.
- Start number 30 was manually annotated 1 time for cluster BC2.

Info for manual annotations of cluster BC3:

- Start number 7 was manually annotated 5 times for cluster BC3.

Info for manual annotations of cluster BJ:

- Start number 25 was manually annotated 1 time for cluster BJ.

Info for manual annotations of cluster BP:

- Start number 2 was manually annotated 5 times for cluster BP.
- Start number 3 was manually annotated 6 times for cluster BP.

Info for manual annotations of cluster BQ:

- Start number 7 was manually annotated 5 times for cluster BQ.

Info for manual annotations of cluster GA:

- Start number 15 was manually annotated 17 times for cluster GA.

Info for manual annotations of cluster GF:

- Start number 15 was manually annotated 5 times for cluster GF.

Gene Information:

Gene: Antuna_22 Start: 11505, Stop: 13703, Start Num: 15

Candidate Starts for Antuna_22:

(Start: 15 @11505 has 22 MA's), (27, 11580), (39, 11631), (44, 11658), (62, 11751), (69, 11808), (75, 11850), (79, 11883), (81, 11895), (91, 11946), (92, 11949), (94, 11958), (95, 11961), (99, 11997), (100, 12003), (101, 12006), (103, 12018), (105, 12027), (108, 12051), (123, 12150), (132, 12210), (136, 12249), (137, 12264), (144, 12321), (160, 12459), (163, 12489), (165, 12501), (168, 12525), (171, 12534), (175, 12555), (176, 12558), (179, 12570), (183, 12588), (192, 12630), (199, 12660), (230, 12801), (241, 12858), (254, 12924), (278, 12984), (281, 12993), (302, 13056), (329, 13122), (423, 13473), (429, 13497), (437, 13536), (440, 13557),

Gene: Appa_21 Start: 11367, Stop: 13565, Start Num: 15

Candidate Starts for Appa_21:

(Start: 15 @11367 has 22 MA's), (27, 11442), (39, 11493), (44, 11520), (62, 11613), (69, 11670), (75, 11712), (79, 11745), (81, 11757), (91, 11808), (92, 11811), (94, 11820), (95, 11823), (99, 11859), (100, 11865), (101, 11868), (103, 11880), (105, 11889), (108, 11913), (123, 12012), (132, 12072), (136, 12111), (137, 12126), (144, 12183), (160, 12321), (163, 12351), (165, 12363), (168, 12387), (171, 12396), (175, 12417), (176, 12420), (179, 12432), (183, 12450), (192, 12492), (199, 12522), (230, 12663), (241, 12720), (254, 12786), (278, 12846), (281, 12855), (302, 12918), (329, 12984), (344, 13017), (423, 13335), (429, 13359), (437, 13398), (440, 13419),

Gene: ArizonaGT_17 Start: 9962, Stop: 13312, Start Num: 2

Candidate Starts for ArizonaGT_17:

(1, 9905), (Start: 2 @9962 has 5 MA's), (Start: 3 @9965 has 6 MA's), (4, 10031), (6, 10052), (18, 10298), (26, 10364), (43, 10484), (45, 10490), (60, 10568), (73, 10661), (83, 10733), (88, 10757), (94, 10787), (95, 10790), (105, 10856), (111, 10904), (115, 10931), (119, 10952), (124, 10991), (126, 11006), (137, 11090), (138, 11093), (139, 11099), (142, 11141), (148, 11165), (154, 11228), (163, 11306), (172, 11363), (187, 11432), (205, 11510), (207, 11516), (213, 11546), (216, 11564), (243, 11708), (259, 11774), (262, 11789), (270, 11837), (271, 11840), (287, 11909), (296, 11942), (313, 12053), (316, 12065), (337, 12182), (343, 12209), (347, 12230), (351, 12254), (359, 12278), (413, 12548), (417, 12557), (418, 12569), (424, 12596), (436, 12647), (454, 12869), (456, 12905), (458, 12947), (460, 12968), (462, 13016), (463, 13019), (465, 13055), (466, 13097), (467, 13109), (468, 13124), (469, 13145), (470, 13196), (471, 13268),

Gene: Austintatious_16 Start: 9780, Stop: 12197, Start Num: 7

Candidate Starts for Austintatious_16:

(Start: 7 @9780 has 15 MA's), (9, 9792), (10, 9846), (11, 9867), (45, 10041), (48, 10062), (60, 10119), (65, 10152), (77, 10254), (85, 10296), (94, 10338), (95, 10341), (97, 10353), (109, 10431), (117, 10494), (126, 10557), (129, 10575), (132, 10587), (137, 10641), (139, 10650), (143, 10695), (144, 10698), (154, 10779), (164, 10866), (165, 10869), (173, 10917), (178, 10935), (182, 10953), (184, 10965), (212, 11076), (225, 11133), (233, 11169), (238, 11190), (243, 11223), (245, 11229), (252, 11262), (257, 11283), (264, 11316), (271, 11340), (312, 11538), (373, 11796), (377, 11817), (381, 11841), (384, 11862), (396, 11916), (410, 11982), (417, 11994), (428, 12039),

Gene: AxeJC_17 Start: 9978, Stop: 13328, Start Num: 2

Candidate Starts for AxeJC_17:

(1, 9921), (Start: 2 @9978 has 5 MA's), (Start: 3 @9981 has 6 MA's), (4, 10047), (6, 10068), (18, 10314), (26, 10380), (43, 10500), (45, 10506), (60, 10584), (73, 10677), (83, 10749), (88, 10773), (94, 10803), (95, 10806), (105, 10872), (111, 10920), (115, 10947), (119, 10968), (124, 11007), (126, 11022), (137, 11106), (138, 11109), (139, 11115), (142, 11157), (148, 11181), (154, 11244), (163, 11322), (172, 11379), (187, 11448), (205, 11526), (207, 11532), (213, 11562), (216, 11580), (243, 11724), (259, 11790), (262, 11805), (270, 11853), (271, 11856), (287, 11925), (296, 11958), (313, 12069), (316, 12081), (337, 12198), (343, 12225), (347, 12246), (351, 12270), (359, 12294), (418, 12585), (424, 12612), (436, 12663), (444, 12717), (454, 12885), (456, 12921), (458, 12963), (460, 12984), (462, 13032), (463, 13035), (465, 13071), (466, 13113), (467, 13125), (468, 13140), (469, 13161), (470, 13212), (471, 13284),

Gene: Ball_14 Start: 9578, Stop: 12361, Start Num: 13

Candidate Starts for Ball_14:

(13, 9578), (18, 9626), (Start: 25 @9668 has 1 MA's), (35, 9725), (45, 9767), (50, 9794), (56, 9815), (65, 9878), (79, 9989), (82, 10004), (91, 10052), (94, 10064), (98, 10094), (112, 10187), (114, 10205), (117, 10223), (132, 10316), (136, 10355), (137, 10370), (145, 10430), (180, 10685), (195, 10751), (202, 10778), (204, 10790), (207, 10802), (211, 10817), (219, 10871), (220, 10874), (223, 10889), (228, 10910), (236, 10946), (248, 11009), (254, 11042), (258, 11057), (281, 11177), (285, 11201), (308, 11342), (314, 11372), (334, 11483), (338, 11504), (357, 11582), (358, 11591), (362, 11603), (364, 11615), (372, 11648), (379, 11684), (383, 11714), (398, 11780), (406, 11834), (434, 11957), (441, 11999), (443, 12017), (451, 12143), (453, 12170), (461, 12305),

Gene: Bioscum_16 Start: 9816, Stop: 12233, Start Num: 7

Candidate Starts for Bioscum_16:

(Start: 7 @9816 has 15 MA's), (9, 9828), (10, 9882), (11, 9903), (45, 10077), (48, 10098), (60, 10155), (65, 10188), (77, 10290), (85, 10332), (94, 10374), (95, 10377), (97, 10389), (109, 10467), (117, 10530), (126, 10593), (129, 10611), (132, 10623), (137, 10677), (139, 10686), (143, 10731), (144, 10734), (154, 10815), (164, 10902), (165, 10905), (173, 10953), (178, 10971), (182, 10989), (184, 11001), (212, 11112), (225, 11169), (233, 11205), (238, 11226), (243, 11259), (245, 11265), (257, 11319), (264, 11352), (271, 11376), (312, 11574), (373, 11832), (377, 11853), (381, 11877), (384, 11898), (396, 11952), (410, 12018), (417, 12030), (428, 12075),

Gene: Blett_22 Start: 11520, Stop: 13718, Start Num: 15

Candidate Starts for Blett_22:

(Start: 15 @11520 has 22 MA's), (27, 11595), (39, 11646), (44, 11673), (62, 11766), (69, 11823), (75, 11865), (79, 11898), (81, 11910), (91, 11961), (92, 11964), (94, 11973), (95, 11976), (99, 12012), (100, 12018), (101, 12021), (103, 12033), (105, 12042), (108, 12066), (123, 12165), (132, 12225), (136, 12264), (137, 12279), (144, 12336), (160, 12474), (163, 12504), (165, 12516), (168, 12540), (171, 12549), (175, 12570), (176, 12573), (179, 12585), (183, 12603), (192, 12645), (199, 12675), (227, 12804), (241, 12873), (254, 12939), (278, 12999), (281, 13008), (302, 13071), (329, 13137), (344, 13170), (423, 13488), (429, 13512), (437, 13551), (440, 13572),

Gene: Bush_22 Start: 11501, Stop: 13699, Start Num: 15

Candidate Starts for Bush_22:

(Start: 15 @11501 has 22 MA's), (27, 11576), (39, 11627), (44, 11654), (62, 11747), (69, 11804), (75, 11846), (79, 11879), (81, 11891), (91, 11942), (92, 11945), (94, 11954), (95, 11957), (99, 11993), (100, 11999), (101, 12002), (103, 12014), (105, 12023), (108, 12047), (123, 12146), (132, 12206), (136, 12245), (137, 12260), (154, 12398), (155, 12404), (160, 12455), (163, 12485), (165, 12497), (168, 12521), (171, 12530), (175, 12551), (176, 12554), (179, 12566), (183, 12584), (192, 12626), (199, 12656), (230, 12797), (241, 12854), (254, 12920), (278, 12980), (281, 12989), (302, 13052), (329,

13118), (344, 13151), (423, 13469), (429, 13493), (437, 13532), (440, 13553),

Gene: Carrillo_23 Start: 11474, Stop: 13672, Start Num: 15

Candidate Starts for Carrillo_23:

(Start: 15 @11474 has 22 MA's), (27, 11549), (39, 11600), (44, 11627), (62, 11720), (69, 11777), (75, 11819), (79, 11852), (81, 11864), (91, 11915), (92, 11918), (94, 11927), (95, 11930), (99, 11966), (100, 11972), (101, 11975), (103, 11987), (105, 11996), (108, 12020), (123, 12119), (132, 12179), (136, 12218), (137, 12233), (144, 12290), (160, 12428), (163, 12458), (165, 12470), (168, 12494), (171, 12503), (175, 12524), (176, 12527), (179, 12539), (183, 12557), (192, 12599), (199, 12629), (230, 12770), (241, 12827), (254, 12893), (278, 12953), (281, 12962), (302, 13025), (329, 13091), (360, 13172), (423, 13442), (429, 13466), (437, 13505), (440, 13526),

Gene: CookieDog_22 Start: 11501, Stop: 13699, Start Num: 15

Candidate Starts for CookieDog_22:

(Start: 15 @11501 has 22 MA's), (27, 11576), (39, 11627), (44, 11654), (62, 11747), (75, 11846), (79, 11879), (81, 11891), (91, 11942), (92, 11945), (94, 11954), (95, 11957), (99, 11993), (100, 11999), (101, 12002), (103, 12014), (105, 12023), (108, 12047), (123, 12146), (132, 12206), (136, 12245), (137, 12260), (154, 12398), (155, 12404), (160, 12455), (163, 12485), (165, 12497), (168, 12521), (171, 12530), (175, 12551), (176, 12554), (179, 12566), (183, 12584), (192, 12626), (199, 12656), (230, 12797), (241, 12854), (254, 12920), (278, 12980), (281, 12989), (302, 13052), (329, 13118), (360, 13199), (423, 13469), (429, 13493), (437, 13532), (440, 13553),

Gene: Cumberbatch_17 Start: 9962, Stop: 13312, Start Num: 2

Candidate Starts for Cumberbatch_17:

(1, 9905), (Start: 2 @9962 has 5 MA's), (Start: 3 @9965 has 6 MA's), (4, 10031), (6, 10052), (18, 10298), (26, 10364), (43, 10484), (45, 10490), (60, 10568), (73, 10661), (83, 10733), (88, 10757), (94, 10787), (95, 10790), (105, 10856), (111, 10904), (115, 10931), (119, 10952), (124, 10991), (126, 11006), (137, 11090), (138, 11093), (139, 11099), (142, 11141), (148, 11165), (154, 11228), (163, 11306), (172, 11363), (187, 11432), (205, 11510), (207, 11516), (213, 11546), (216, 11564), (243, 11708), (259, 11774), (262, 11789), (270, 11837), (271, 11840), (287, 11909), (296, 11942), (313, 12053), (316, 12065), (337, 12182), (343, 12209), (347, 12230), (351, 12254), (359, 12278), (413, 12548), (417, 12557), (418, 12569), (424, 12596), (436, 12647), (454, 12869), (456, 12905), (458, 12947), (460, 12968), (462, 13016), (463, 13019), (465, 13055), (466, 13097), (467, 13109), (468, 13124), (469, 13145), (470, 13196), (471, 13268),

Gene: DaRealMyers_16 Start: 10050, Stop: 12278, Start Num: 7

Candidate Starts for DaRealMyers_16:

(Start: 7 @10050 has 15 MA's), (8, 10056), (9, 10062), (22, 10239), (24, 10260), (45, 10377), (65, 10488), (73, 10548), (94, 10674), (105, 10743), (113, 10806), (119, 10839), (130, 10914), (137, 10977), (146, 11043), (154, 11115), (163, 11193), (173, 11253), (193, 11319), (208, 11373), (211, 11382), (221, 11427), (225, 11445), (227, 11451), (269, 11586), (299, 11685), (305, 11742), (322, 11808), (325, 11820), (346, 11928), (352, 11952), (373, 12027), (387, 12108), (398, 12159), (405, 12189),

Gene: Darolandstone_16 Start: 10249, Stop: 12471, Start Num: 30

Candidate Starts for Darolandstone_16:

(Start: 30 @10249 has 4 MA's), (57, 10369), (59, 10378), (64, 10411), (80, 10534), (87, 10573), (91, 10594), (103, 10660), (127, 10825), (149, 10984), (158, 11083), (261, 11605), (263, 11623), (266, 11635), (275, 11677), (276, 11689), (283, 11716), (349, 12067), (356, 12088), (359, 12097), (370, 12142), (375, 12169), (381, 12196), (396, 12277), (399, 12289), (416, 12382),

Gene: DelaGarza_20 Start: 12031, Stop: 14265, Start Num: 15

Candidate Starts for DelaGarza_20:

(Start: 15 @12031 has 22 MA's), (16, 12037), (29, 12118), (31, 12130), (36, 12148), (40, 12157), (48, 12199), (50, 12205), (75, 12367), (76, 12382), (80, 12403), (81, 12412), (94, 12475), (106, 12556), (108, 12568), (114, 12616), (117, 12634), (123, 12667), (132, 12727), (137, 12781), (144, 12838), (160, 12976), (163, 13006), (165, 13018), (172, 13063), (188, 13132), (198, 13171), (203, 13195), (209, 13216), (222, 13282), (242, 13372), (244, 13381), (246, 13384), (258, 13435), (315, 13579), (333, 13675), (340, 13711), (345, 13732), (357, 13783), (360, 13798), (397, 13963), (401, 13972), (407, 14008), (423, 14065), (428, 14083), (432, 14098), (433, 14107),

Gene: Dropshot_21 Start: 11367, Stop: 13565, Start Num: 15

Candidate Starts for Dropshot_21:

(Start: 15 @11367 has 22 MA's), (27, 11442), (39, 11493), (44, 11520), (62, 11613), (69, 11670), (75, 11712), (79, 11745), (81, 11757), (91, 11808), (92, 11811), (94, 11820), (95, 11823), (99, 11859), (100, 11865), (101, 11868), (103, 11880), (105, 11889), (108, 11913), (123, 12012), (132, 12072), (136, 12111), (137, 12126), (144, 12183), (160, 12321), (163, 12351), (165, 12363), (168, 12387), (171, 12396), (175, 12417), (176, 12420), (179, 12432), (183, 12450), (192, 12492), (199, 12522), (230, 12663), (241, 12720), (254, 12786), (278, 12846), (281, 12855), (302, 12918), (329, 12984), (344, 13017), (423, 13335), (429, 13359), (437, 13398), (440, 13419),

Gene: Dubu_15 Start: 9154, Stop: 11001, Start Num: 25

Candidate Starts for Dubu_15:

(Start: 25 @9154 has 1 MA's), (28, 9178), (29, 9184), (34, 9205), (37, 9217), (42, 9229), (43, 9238), (64, 9334), (70, 9370), (84, 9463), (88, 9478), (96, 9517), (103, 9562), (106, 9583), (107, 9586), (108, 9595), (116, 9658), (121, 9679), (127, 9727), (128, 9736), (131, 9748), (138, 9811), (141, 9844), (152, 9919), (157, 9982), (162, 10015), (175, 10090), (194, 10177), (198, 10189), (249, 10285), (255, 10306), (273, 10390), (290, 10465), (298, 10498), (302, 10531), (320, 10639), (341, 10744), (342, 10747), (363, 10834), (382, 10927),

Gene: Eastland_17 Start: 9966, Stop: 13313, Start Num: 3

Candidate Starts for Eastland_17:

(1, 9906), (Start: 2 @9963 has 5 MA's), (Start: 3 @9966 has 6 MA's), (4, 10032), (6, 10053), (18, 10299), (26, 10365), (43, 10485), (45, 10491), (60, 10569), (73, 10662), (83, 10734), (88, 10758), (94, 10788), (95, 10791), (105, 10857), (111, 10905), (115, 10932), (119, 10953), (124, 10992), (126, 11007), (137, 11091), (138, 11094), (139, 11100), (142, 11142), (148, 11166), (154, 11229), (163, 11307), (172, 11364), (187, 11433), (205, 11511), (207, 11517), (213, 11547), (216, 11565), (243, 11709), (259, 11775), (262, 11790), (270, 11838), (271, 11841), (287, 11910), (296, 11943), (313, 12054), (316, 12066), (337, 12183), (343, 12210), (347, 12231), (351, 12255), (359, 12279), (418, 12570), (424, 12597), (436, 12648), (444, 12702), (454, 12870), (456, 12906), (458, 12948), (460, 12969), (462, 13017), (463, 13020), (465, 13056), (466, 13098), (467, 13110), (468, 13125), (469, 13146), (470, 13197), (471, 13269),

Gene: Eklok_17 Start: 9981, Stop: 13328, Start Num: 3

Candidate Starts for Eklok_17:

(1, 9921), (Start: 2 @9978 has 5 MA's), (Start: 3 @9981 has 6 MA's), (4, 10047), (6, 10068), (18, 10314), (26, 10380), (43, 10500), (45, 10506), (60, 10584), (73, 10677), (83, 10749), (88, 10773), (94, 10803), (95, 10806), (105, 10872), (111, 10920), (115, 10947), (119, 10968), (124, 11007), (126, 11022), (137, 11106), (138, 11109), (139, 11115), (142, 11157), (148, 11181), (154, 11244), (163, 11322), (172, 11379), (187, 11448), (205, 11526), (207, 11532), (213, 11562), (216, 11580), (243, 11724), (259, 11790), (262, 11805), (270, 11853), (271, 11856), (287, 11925), (296, 11958), (313, 12069), (316, 12081), (337, 12198), (343, 12225), (347, 12246), (351, 12270), (359, 12294), (418, 12585), (424, 12612), (436, 12663), (444, 12717), (454, 12885), (456, 12921), (458, 12963), (460, 12984), (462, 13032), (463, 13035), (465, 13071), (466, 13113), (467, 13125), (468, 13140), (469, 13161), (470, 13212), (471, 13284),

Gene: Euratis_12 Start: 8185, Stop: 10374, Start Num: 14

Candidate Starts for Euratis_12:

(Start: 14 @8185 has 9 MA's), (17, 8212), (23, 8242), (58, 8392), (65, 8443), (67, 8470), (74, 8518), (77, 8545), (82, 8569), (93, 8626), (94, 8629), (97, 8644), (109, 8722), (117, 8785), (125, 8836), (135, 8911), (137, 8932), (154, 9070), (162, 9127), (165, 9160), (177, 9220), (195, 9295), (211, 9355), (212, 9367), (225, 9424), (227, 9430), (229, 9439), (233, 9460), (238, 9481), (250, 9538), (255, 9568), (257, 9574), (262, 9589), (264, 9607), (271, 9631), (277, 9664), (280, 9673), (282, 9679), (283, 9685), (300, 9748), (303, 9778), (317, 9862), (327, 9895), (330, 9907), (358, 10048), (367, 10081), (370, 10093), (378, 10132), (386, 10177), (399, 10231), (404, 10255), (426, 10342),

Gene: FrumpyGal_17 Start: 9966, Stop: 13313, Start Num: 3

Candidate Starts for FrumpyGal_17:

(1, 9906), (Start: 2 @9963 has 5 MA's), (Start: 3 @9966 has 6 MA's), (4, 10032), (6, 10053), (18, 10299), (26, 10365), (43, 10485), (45, 10491), (60, 10569), (73, 10662), (83, 10734), (88, 10758), (94, 10788), (95, 10791), (105, 10857), (111, 10905), (115, 10932), (119, 10953), (124, 10992), (126, 11007), (137, 11091), (138, 11094), (139, 11100), (142, 11142), (148, 11166), (154, 11229), (163, 11307), (172, 11364), (187, 11433), (205, 11511), (207, 11517), (213, 11547), (216, 11565), (243, 11709), (259, 11775), (262, 11790), (270, 11838), (271, 11841), (287, 11910), (296, 11943), (313, 12054), (316, 12066), (337, 12183), (343, 12210), (347, 12231), (351, 12255), (359, 12279), (418, 12570), (424, 12597), (436, 12648), (444, 12702), (454, 12870), (456, 12906), (458, 12948), (460, 12969), (462, 13017), (463, 13020), (465, 13056), (466, 13098), (467, 13110), (468, 13125), (469, 13146), (470, 13197), (471, 13269),

Gene: Galactica_19 Start: 14849, Stop: 17671, Start Num: 7

Candidate Starts for Galactica_19:

(Start: 7 @14849 has 15 MA's), (11, 14936), (12, 14957), (38, 15179), (45, 15212), (47, 15221), (73, 15383), (81, 15446), (95, 15512), (99, 15548), (104, 15575), (105, 15578), (113, 15641), (119, 15674), (137, 15812), (146, 15878), (154, 15950), (160, 15998), (163, 16028), (170, 16070), (177, 16100), (179, 16109), (181, 16121), (184, 16136), (193, 16163), (211, 16235), (213, 16250), (233, 16340), (238, 16361), (240, 16376), (252, 16433), (257, 16454), (262, 16469), (264, 16487), (271, 16511), (294, 16598), (301, 16637), (330, 16787), (342, 16862), (346, 16883), (355, 16916), (367, 16961), (373, 16982), (378, 17015), (384, 17048), (388, 17063), (400, 17117), (404, 17138), (408, 17159), (415, 17183), (420, 17207), (434, 17258), (435, 17270), (439, 17291), (452, 17453), (455, 17498), (457, 17555), (459, 17579),

Gene: Gingerbug_18 Start: 11192, Stop: 13474, Start Num: 15

Candidate Starts for Gingerbug_18:

(Start: 15 @11192 has 22 MA's), (29, 11273), (31, 11285), (58, 11393), (67, 11471), (69, 11480), (72, 11501), (75, 11522), (76, 11537), (80, 11558), (94, 11630), (97, 11645), (106, 11711), (109, 11726), (110, 11735), (114, 11771), (117, 11789), (123, 11822), (132, 11882), (137, 11936), (143, 11990), (150, 12023), (155, 12080), (162, 12140), (163, 12161), (165, 12173), (166, 12185), (174, 12224), (176, 12230), (180, 12251), (183, 12260), (192, 12302), (194, 12314), (199, 12332), (217, 12428), (224, 12449), (230, 12473), (231, 12476), (235, 12497), (242, 12533), (254, 12596), (260, 12620), (292, 12752), (302, 12761), (333, 12884), (340, 12920), (353, 12983), (366, 13034), (369, 13046), (378, 13091), (402, 13190), (407, 13217), (432, 13307), (446, 13376),

Gene: Guzman_23 Start: 11782, Stop: 13980, Start Num: 15

Candidate Starts for Guzman_23:

(Start: 15 @11782 has 22 MA's), (27, 11857), (39, 11908), (44, 11935), (62, 12028), (69, 12085), (75, 12127), (79, 12160), (81, 12172), (91, 12223), (92, 12226), (94, 12235), (95, 12238), (99, 12274), (100, 12280), (101, 12283), (103, 12295), (105, 12304), (108, 12328), (123, 12427), (132, 12487), (136, 12526), (137, 12541), (144, 12598), (160, 12736), (163, 12766), (165, 12778), (168, 12802), (171, 12811), (175, 12832), (176, 12835), (179, 12847), (183, 12865), (192, 12907), (199, 12937), (230,

13078), (241, 13135), (254, 13201), (278, 13261), (281, 13270), (302, 13333), (329, 13399), (360, 13480), (407, 13693), (423, 13750), (429, 13774), (437, 13813), (440, 13834),

Gene: HFrancette_17 Start: 9980, Stop: 13327, Start Num: 3

Candidate Starts for HFrancette_17:

(1, 9920), (Start: 3 @9980 has 6 MA's), (6, 10067), (18, 10313), (26, 10379), (43, 10499), (45, 10505), (60, 10583), (73, 10676), (88, 10772), (94, 10802), (95, 10805), (105, 10871), (111, 10919), (115, 10946), (119, 10967), (124, 11006), (126, 11021), (137, 11105), (138, 11108), (139, 11114), (142, 11156), (148, 11180), (154, 11243), (163, 11321), (172, 11378), (187, 11447), (205, 11525), (207, 11531), (213, 11561), (216, 11579), (243, 11723), (259, 11789), (262, 11804), (270, 11852), (271, 11855), (287, 11924), (296, 11957), (313, 12068), (316, 12080), (337, 12197), (343, 12224), (347, 12245), (351, 12269), (359, 12293), (413, 12563), (417, 12572), (418, 12584), (424, 12611), (436, 12662), (454, 12884), (458, 12962), (460, 12983), (462, 13031), (463, 13034), (465, 13070), (466, 13112), (467, 13124), (468, 13139), (469, 13160), (470, 13211), (471, 13283), (472, 13298),

Gene: Heather_12 Start: 8215, Stop: 10404, Start Num: 14

Candidate Starts for Heather_12:

(Start: 14 @8215 has 9 MA's), (46, 8365), (48, 8383), (58, 8422), (65, 8473), (67, 8500), (77, 8575), (82, 8599), (94, 8659), (109, 8752), (117, 8815), (125, 8866), (126, 8878), (137, 8962), (148, 9037), (151, 9070), (154, 9100), (162, 9157), (165, 9190), (251, 9580), (257, 9604), (264, 9637), (271, 9661), (277, 9694), (281, 9706), (330, 9937), (349, 10045), (358, 10078), (367, 10111), (386, 10207), (392, 10228), (413, 10324),

Gene: Hiyaa_21 Start: 15882, Stop: 18707, Start Num: 7

Candidate Starts for Hiyaa_21:

(5, 15810), (Start: 7 @15882 has 15 MA's), (11, 15969), (12, 15990), (38, 16212), (45, 16245), (65, 16356), (73, 16416), (95, 16545), (99, 16581), (100, 16587), (103, 16602), (105, 16611), (113, 16674), (119, 16707), (128, 16773), (137, 16845), (154, 16983), (163, 17061), (170, 17103), (173, 17121), (178, 17139), (179, 17142), (184, 17169), (187, 17175), (193, 17196), (204, 17247), (211, 17268), (218, 17304), (233, 17373), (239, 17400), (252, 17466), (257, 17487), (262, 17502), (264, 17520), (268, 17535), (271, 17544), (276, 17574), (298, 17649), (304, 17697), (306, 17718), (317, 17775), (318, 17778), (330, 17820), (331, 17823), (339, 17883), (342, 17895), (346, 17916), (361, 17973), (367, 17994), (374, 18027), (385, 18084), (397, 18138), (404, 18171), (419, 18237), (434, 18291), (438, 18315), (459, 18615), (464, 18696),

Gene: Ididsumtinwong_16 Start: 9816, Stop: 12233, Start Num: 7

Candidate Starts for Ididsumtinwong_16:

(Start: 7 @9816 has 15 MA's), (9, 9828), (10, 9882), (11, 9903), (45, 10077), (48, 10098), (60, 10155), (65, 10188), (77, 10290), (85, 10332), (94, 10374), (95, 10377), (97, 10389), (109, 10467), (117, 10530), (126, 10593), (129, 10611), (132, 10623), (137, 10677), (139, 10686), (143, 10731), (144, 10734), (154, 10815), (164, 10902), (165, 10905), (173, 10953), (178, 10971), (182, 10989), (184, 11001), (212, 11112), (225, 11169), (233, 11205), (238, 11226), (243, 11259), (245, 11265), (257, 11319), (264, 11352), (271, 11376), (312, 11574), (373, 11832), (377, 11853), (381, 11877), (384, 11898), (396, 11952), (410, 12018), (417, 12030), (428, 12075),

Gene: Ignacio_17 Start: 9980, Stop: 13327, Start Num: 3

Candidate Starts for Ignacio_17:

(1, 9920), (Start: 3 @9980 has 6 MA's), (6, 10067), (18, 10313), (26, 10379), (43, 10499), (45, 10505), (60, 10583), (73, 10676), (88, 10772), (94, 10802), (95, 10805), (105, 10871), (111, 10919), (115, 10946), (119, 10967), (124, 11006), (126, 11021), (137, 11105), (138, 11108), (139, 11114), (142, 11156), (148, 11180), (154, 11243), (163, 11321), (172, 11378), (187, 11447), (205, 11525), (207, 11531), (213, 11561), (216, 11579), (243, 11723), (259, 11789), (262, 11804), (270, 11852), (271, 11855), (287, 11924), (296, 11957), (313, 12068), (316, 12080), (337, 12197), (343, 12224), (347,

12245), (351, 12269), (359, 12293), (413, 12563), (417, 12572), (418, 12584), (424, 12611), (436, 12662), (454, 12884), (458, 12962), (460, 12983), (462, 13031), (463, 13034), (465, 13070), (466, 13112), (467, 13124), (468, 13139), (469, 13160), (470, 13211), (471, 13283), (472, 13298),

Gene: Jakelyne_23 Start: 11520, Stop: 13781, Start Num: 15

Candidate Starts for Jakelyne_23:

(Start: 15 @11520 has 22 MA's), (27, 11595), (39, 11646), (44, 11673), (62, 11766), (69, 11823), (75, 11865), (79, 11898), (81, 11910), (91, 11961), (92, 11964), (94, 11973), (95, 11976), (99, 12012), (100, 12018), (101, 12021), (103, 12033), (105, 12042), (108, 12066), (123, 12165), (132, 12225), (136, 12264), (137, 12279), (144, 12336), (160, 12474), (163, 12504), (165, 12516), (168, 12540), (171, 12549), (175, 12570), (176, 12573), (179, 12585), (183, 12603), (192, 12645), (199, 12675), (227, 12804), (241, 12873), (248, 12906), (254, 12939), (278, 12999), (281, 13008), (290, 13038), (309, 13098), (344, 13170), (360, 13218), (368, 13251), (378, 13302), (384, 13335), (389, 13368), (390, 13371), (402, 13446), (421, 13545), (423, 13551), (429, 13575), (437, 13614), (440, 13635),

Gene: Keanu_21 Start: 15925, Stop: 18747, Start Num: 7

Candidate Starts for Keanu_21:

(5, 15853), (Start: 7 @15925 has 15 MA's), (11, 16012), (12, 16033), (26, 16168), (38, 16255), (45, 16288), (47, 16297), (65, 16399), (73, 16459), (95, 16588), (99, 16624), (100, 16630), (101, 16633), (104, 16651), (105, 16654), (113, 16717), (119, 16750), (137, 16888), (143, 16942), (151, 16996), (154, 17026), (156, 17038), (163, 17104), (172, 17161), (173, 17164), (179, 17185), (184, 17212), (198, 17260), (214, 17338), (218, 17347), (239, 17443), (249, 17491), (252, 17509), (255, 17524), (256, 17527), (257, 17530), (262, 17545), (264, 17563), (271, 17587), (276, 17617), (298, 17692), (302, 17725), (304, 17740), (318, 17821), (323, 17839), (331, 17866), (333, 17893), (342, 17938), (349, 17971), (364, 18025), (367, 18037), (373, 18058), (374, 18070), (385, 18127), (400, 18193), (404, 18214), (419, 18280), (434, 18334), (435, 18346), (438, 18358),

Gene: Kokushibo_21 Start: 15897, Stop: 18722, Start Num: 7

Candidate Starts for Kokushibo_21:

(5, 15825), (Start: 7 @15897 has 15 MA's), (11, 15984), (12, 16005), (38, 16227), (45, 16260), (65, 16371), (73, 16431), (95, 16560), (99, 16596), (100, 16602), (103, 16617), (105, 16626), (113, 16689), (119, 16722), (128, 16788), (137, 16860), (154, 16998), (163, 17076), (170, 17118), (173, 17136), (178, 17154), (179, 17157), (184, 17184), (187, 17190), (193, 17211), (204, 17262), (211, 17283), (213, 17298), (214, 17310), (218, 17319), (233, 17388), (239, 17415), (252, 17481), (257, 17502), (262, 17517), (264, 17535), (268, 17550), (271, 17559), (276, 17589), (282, 17607), (298, 17664), (304, 17712), (306, 17733), (317, 17790), (318, 17793), (330, 17835), (331, 17838), (339, 17898), (342, 17910), (346, 17931), (361, 17988), (367, 18009), (374, 18042), (385, 18099), (397, 18153), (404, 18186), (408, 18207), (419, 18252), (434, 18306), (438, 18330), (442, 18363), (459, 18630), (464, 18711),

Gene: Lesiram_21 Start: 12001, Stop: 14235, Start Num: 15

Candidate Starts for Lesiram_21:

(Start: 15 @12001 has 22 MA's), (16, 12007), (29, 12088), (31, 12100), (36, 12118), (40, 12127), (48, 12169), (50, 12175), (75, 12337), (76, 12352), (80, 12373), (81, 12382), (94, 12445), (106, 12526), (108, 12538), (114, 12586), (117, 12604), (123, 12637), (132, 12697), (137, 12751), (144, 12808), (160, 12946), (163, 12976), (165, 12988), (172, 13033), (188, 13102), (198, 13141), (203, 13165), (209, 13186), (222, 13252), (242, 13342), (246, 13354), (258, 13405), (263, 13438), (333, 13645), (340, 13681), (345, 13702), (357, 13753), (360, 13768), (397, 13933), (401, 13942), (407, 13978), (423, 14035), (428, 14053), (432, 14068), (433, 14077),

Gene: Lilbooboo_12 Start: 8195, Stop: 10384, Start Num: 14

Candidate Starts for Lilbooboo_12:

(Start: 14 @8195 has 9 MA's), (17, 8222), (21, 8240), (48, 8363), (58, 8402), (65, 8453), (74, 8528), (77, 8555), (82, 8579), (83, 8585), (93, 8636), (94, 8639), (97, 8654), (109, 8732), (117, 8795), (125, 8846), (130, 8879), (133, 8900), (135, 8921), (137, 8942), (154, 9080), (165, 9170), (176, 9227), (181, 9251), (183, 9260), (195, 9305), (200, 9326), (225, 9434), (233, 9470), (238, 9491), (256, 9581), (257, 9584), (264, 9617), (271, 9641), (279, 9680), (281, 9686), (306, 9815), (317, 9872), (327, 9905), (328, 9908), (332, 9926), (335, 9959), (367, 10091), (386, 10187), (399, 10241), (426, 10352),

Gene: Lishka_16 Start: 9780, Stop: 12197, Start Num: 7

Candidate Starts for Lishka_16:

(Start: 7 @9780 has 15 MA's), (9, 9792), (10, 9846), (11, 9867), (45, 10041), (48, 10062), (60, 10119), (65, 10152), (77, 10254), (85, 10296), (94, 10338), (95, 10341), (97, 10353), (109, 10431), (117, 10494), (126, 10557), (129, 10575), (132, 10587), (137, 10641), (139, 10650), (143, 10695), (144, 10698), (154, 10779), (164, 10866), (165, 10869), (173, 10917), (178, 10935), (182, 10953), (184, 10965), (212, 11076), (225, 11133), (233, 11169), (238, 11190), (243, 11223), (245, 11229), (252, 11262), (257, 11283), (264, 11316), (271, 11340), (312, 11538), (373, 11796), (377, 11817), (381, 11841), (384, 11862), (396, 11916), (410, 11982), (417, 11994), (428, 12039),

Gene: Losacky_23 Start: 11647, Stop: 13845, Start Num: 15

Candidate Starts for Losacky_23:

(Start: 15 @11647 has 22 MA's), (27, 11722), (39, 11773), (44, 11800), (62, 11893), (69, 11950), (75, 11992), (79, 12025), (81, 12037), (91, 12088), (92, 12091), (94, 12100), (95, 12103), (99, 12139), (100, 12145), (101, 12148), (103, 12160), (105, 12169), (108, 12193), (123, 12292), (132, 12352), (136, 12391), (137, 12406), (144, 12463), (160, 12601), (163, 12631), (165, 12643), (168, 12667), (171, 12676), (175, 12697), (176, 12700), (179, 12712), (183, 12730), (192, 12772), (199, 12802), (230, 12943), (241, 13000), (254, 13066), (278, 13126), (281, 13135), (302, 13198), (329, 13264), (423, 13615), (429, 13639), (437, 13678), (440, 13699),

Gene: Mariel_23 Start: 11675, Stop: 14137, Start Num: 15

Candidate Starts for Mariel_23:

(Start: 15 @11675 has 22 MA's), (27, 11750), (32, 11780), (44, 11828), (58, 11891), (62, 11921), (65, 11942), (75, 12020), (79, 12053), (81, 12065), (91, 12116), (92, 12119), (95, 12131), (99, 12167), (100, 12173), (101, 12176), (103, 12188), (105, 12197), (108, 12221), (120, 12299), (123, 12320), (132, 12380), (136, 12419), (137, 12434), (144, 12491), (148, 12509), (154, 12572), (155, 12578), (160, 12629), (163, 12659), (165, 12671), (168, 12695), (171, 12704), (175, 12725), (176, 12728), (179, 12740), (192, 12800), (201, 12839), (203, 12848), (207, 12866), (224, 12947), (226, 12956), (231, 12974), (274, 13190), (282, 13223), (297, 13298), (311, 13400), (354, 13616), (380, 13724), (407, 13850), (423, 13907), (429, 13931), (437, 13970),

Gene: MenE_22 Start: 11635, Stop: 13833, Start Num: 15

Candidate Starts for MenE_22:

(Start: 15 @11635 has 22 MA's), (27, 11710), (39, 11761), (44, 11788), (62, 11881), (69, 11938), (75, 11980), (79, 12013), (81, 12025), (91, 12076), (92, 12079), (94, 12088), (95, 12091), (99, 12127), (100, 12133), (101, 12136), (103, 12148), (105, 12157), (108, 12181), (123, 12280), (132, 12340), (136, 12379), (137, 12394), (144, 12451), (160, 12589), (163, 12619), (165, 12631), (168, 12655), (171, 12664), (175, 12685), (176, 12688), (179, 12700), (183, 12718), (192, 12760), (199, 12790), (230, 12931), (241, 12988), (254, 13054), (278, 13114), (281, 13123), (302, 13186), (329, 13252), (423, 13603), (429, 13627), (437, 13666), (440, 13687),

Gene: Mojarita_16 Start: 10119, Stop: 12335, Start Num: 30

Candidate Starts for Mojarita_16:

(Start: 30 @10119 has 4 MA's), (33, 10140), (59, 10248), (64, 10281), (103, 10530), (121, 10647), (127, 10695), (140, 10788), (261, 11475), (263, 11493), (265, 11502), (275, 11547), (324, 11805), (341, 11901), (349, 11937), (359, 11967), (381, 12066), (396, 12147), (416, 12246),

Gene: NCRodriguez_23 Start: 11633, Stop: 13894, Start Num: 15

Candidate Starts for NCRodriguez_23:

(Start: 15 @11633 has 22 MA's), (27, 11708), (39, 11759), (44, 11786), (62, 11879), (69, 11936), (75, 11978), (79, 12011), (81, 12023), (91, 12074), (92, 12077), (94, 12086), (95, 12089), (99, 12125), (100, 12131), (101, 12134), (103, 12146), (105, 12155), (108, 12179), (123, 12278), (132, 12338), (136, 12377), (137, 12392), (155, 12536), (160, 12587), (163, 12617), (165, 12629), (168, 12653), (171, 12662), (175, 12683), (176, 12686), (179, 12698), (183, 12716), (192, 12758), (199, 12788), (227, 12917), (241, 12986), (248, 13019), (254, 13052), (278, 13112), (281, 13121), (290, 13151), (309, 13211), (344, 13283), (360, 13331), (368, 13364), (378, 13415), (384, 13448), (389, 13481), (390, 13484), (402, 13559), (421, 13658), (423, 13664), (429, 13688), (437, 13727), (440, 13748),

Gene: PapayaSalad_16 Start: 9786, Stop: 12203, Start Num: 7

Candidate Starts for PapayaSalad_16:

(Start: 7 @9786 has 15 MA's), (9, 9798), (10, 9852), (11, 9873), (45, 10047), (48, 10068), (60, 10125), (77, 10260), (85, 10302), (94, 10344), (95, 10347), (97, 10359), (109, 10437), (117, 10500), (126, 10563), (129, 10581), (132, 10593), (137, 10647), (139, 10656), (143, 10701), (144, 10704), (154, 10785), (164, 10872), (165, 10875), (173, 10923), (178, 10941), (182, 10959), (184, 10971), (212, 11082), (225, 11139), (233, 11175), (238, 11196), (243, 11229), (245, 11235), (252, 11268), (257, 11289), (264, 11322), (271, 11346), (291, 11421), (377, 11823), (381, 11847), (384, 11868), (396, 11922), (409, 11985), (417, 12000), (428, 12045),

Gene: Parvaparticeps_35 Start: 26694, Stop: 24370, Start Num: 15

Candidate Starts for Parvaparticeps_35:

(Start: 15 @26694 has 22 MA's), (37, 26571), (39, 26568), (48, 26517), (56, 26490), (58, 26478), (71, 26379), (72, 26370), (75, 26349), (81, 26304), (94, 26241), (95, 26238), (101, 26193), (110, 26136), (112, 26118), (117, 26082), (126, 26019), (132, 25989), (137, 25935), (167, 25680), (177, 25638), (179, 25629), (193, 25566), (194, 25557), (196, 25551), (197, 25548), (210, 25494), (226, 25401), (235, 25362), (237, 25350), (241, 25329), (253, 25269), (258, 25248), (282, 25185), (288, 25158), (314, 25074), (326, 25020), (337, 24954), (380, 24765), (393, 24702), (397, 24687), (402, 24669), (403, 24666), (407, 24642), (425, 24573), (432, 24552), (445, 24468), (448, 24435), (449, 24402),

Gene: PhillyJawn_22 Start: 11367, Stop: 13565, Start Num: 15

Candidate Starts for PhillyJawn_22:

(Start: 15 @11367 has 22 MA's), (27, 11442), (39, 11493), (44, 11520), (62, 11613), (69, 11670), (75, 11712), (79, 11745), (81, 11757), (91, 11808), (92, 11811), (94, 11820), (95, 11823), (99, 11859), (100, 11865), (101, 11868), (103, 11880), (105, 11889), (108, 11913), (123, 12012), (132, 12072), (136, 12111), (137, 12126), (144, 12183), (160, 12321), (163, 12351), (165, 12363), (168, 12387), (171, 12396), (175, 12417), (176, 12420), (179, 12432), (183, 12450), (230, 12663), (241, 12720), (254, 12786), (278, 12846), (281, 12855), (302, 12918), (329, 12984), (344, 13017), (423, 13335), (429, 13359), (437, 13398), (440, 13419),

Gene: Phingu_24 Start: 11523, Stop: 13784, Start Num: 15

Candidate Starts for Phingu_24:

(Start: 15 @11523 has 22 MA's), (27, 11598), (39, 11649), (44, 11676), (62, 11769), (69, 11826), (75, 11868), (79, 11901), (81, 11913), (91, 11964), (92, 11967), (94, 11976), (95, 11979), (99, 12015), (100, 12021), (101, 12024), (103, 12036), (105, 12045), (108, 12069), (123, 12168), (132, 12228), (136, 12267), (137, 12282), (144, 12339), (160, 12477), (163, 12507), (165, 12519), (168, 12543), (171, 12552), (175, 12573), (176, 12576), (179, 12588), (183, 12606), (192, 12648), (199, 12678), (231, 12822), (241, 12876), (254, 12942), (278, 13002), (281, 13011), (302, 13074), (309, 13101), (344, 13173), (360, 13221), (368, 13254), (378, 13305), (384, 13338), (389, 13371), (390, 13374), (402, 13449), (421, 13548), (423, 13554), (429, 13578), (437, 13617), (440, 13638),

Gene: Phonegingi_21 Start: 11365, Stop: 13626, Start Num: 15

Candidate Starts for Phonegingi_21:

(Start: 15 @11365 has 22 MA's), (27, 11440), (39, 11491), (44, 11518), (62, 11611), (71, 11680), (75, 11710), (79, 11743), (81, 11755), (91, 11806), (92, 11809), (94, 11818), (95, 11821), (99, 11857), (100, 11863), (101, 11866), (103, 11878), (105, 11887), (123, 12010), (132, 12070), (136, 12109), (137, 12124), (144, 12181), (155, 12268), (160, 12319), (163, 12349), (165, 12361), (168, 12385), (171, 12394), (172, 12406), (175, 12415), (176, 12418), (179, 12430), (191, 12487), (192, 12490), (199, 12520), (227, 12649), (241, 12718), (248, 12751), (254, 12784), (258, 12799), (278, 12844), (281, 12853), (309, 12943), (344, 13015), (360, 13063), (368, 13096), (378, 13147), (384, 13180), (389, 13213), (390, 13216), (402, 13291), (423, 13396), (429, 13420), (437, 13459),

Gene: Picard_16 Start: 10113, Stop: 12329, Start Num: 30

Candidate Starts for Picard_16:

(Start: 30 @10113 has 4 MA's), (33, 10134), (59, 10242), (64, 10275), (103, 10524), (121, 10641), (127, 10689), (140, 10782), (261, 11469), (265, 11496), (275, 11541), (321, 11790), (324, 11799), (341, 11895), (349, 11931), (359, 11961), (381, 12060), (396, 12141), (416, 12240),

Gene: Piccadilly_17 Start: 9965, Stop: 13312, Start Num: 3

Candidate Starts for Piccadilly_17:

(1, 9905), (Start: 2 @9962 has 5 MA's), (Start: 3 @9965 has 6 MA's), (4, 10031), (6, 10052), (18, 10298), (26, 10364), (43, 10484), (45, 10490), (60, 10568), (73, 10661), (83, 10733), (88, 10757), (94, 10787), (95, 10790), (105, 10856), (111, 10904), (115, 10931), (119, 10952), (124, 10991), (126, 11006), (137, 11090), (138, 11093), (139, 11099), (142, 11141), (148, 11165), (154, 11228), (163, 11306), (172, 11363), (187, 11432), (205, 11510), (207, 11516), (213, 11546), (216, 11564), (243, 11708), (259, 11774), (262, 11789), (270, 11837), (271, 11840), (287, 11909), (296, 11942), (313, 12053), (316, 12065), (337, 12182), (343, 12209), (347, 12230), (351, 12254), (359, 12278), (418, 12569), (424, 12596), (436, 12647), (444, 12701), (454, 12869), (456, 12905), (458, 12947), (460, 12968), (462, 13016), (463, 13019), (465, 13055), (466, 13097), (467, 13109), (468, 13124), (469, 13145), (470, 13196), (471, 13268),

Gene: Pickles13_21 Start: 11528, Stop: 13990, Start Num: 15

Candidate Starts for Pickles13_21:

(Start: 15 @11528 has 22 MA's), (27, 11603), (32, 11633), (41, 11666), (44, 11681), (58, 11744), (62, 11774), (65, 11795), (69, 11831), (75, 11873), (79, 11906), (81, 11918), (91, 11969), (92, 11972), (95, 11984), (99, 12020), (100, 12026), (101, 12029), (103, 12041), (105, 12050), (108, 12074), (120, 12152), (132, 12233), (136, 12272), (137, 12287), (140, 12299), (144, 12344), (148, 12362), (154, 12425), (155, 12431), (160, 12482), (163, 12512), (165, 12524), (168, 12548), (171, 12557), (175, 12578), (176, 12581), (179, 12593), (183, 12611), (185, 12623), (192, 12653), (203, 12701), (207, 12719), (224, 12800), (226, 12809), (231, 12827), (274, 13043), (282, 13076), (297, 13151), (311, 13253), (316, 13271), (326, 13322), (330, 13337), (336, 13385), (354, 13469), (380, 13577), (423, 13760), (429, 13784), (437, 13823), (439, 13838), (447, 13886), (450, 13964),

Gene: Raleigh_16 Start: 10247, Stop: 12655, Start Num: 7

Candidate Starts for Raleigh_16:

(Start: 7 @10247 has 15 MA's), (10, 10313), (11, 10334), (12, 10355), (16, 10412), (45, 10508), (52, 10544), (60, 10586), (79, 10730), (84, 10760), (85, 10763), (88, 10775), (89, 10784), (94, 10805), (99, 10844), (108, 10895), (117, 10961), (119, 10970), (122, 10982), (132, 11054), (137, 11108), (165, 11336), (173, 11384), (179, 11405), (241, 11675), (252, 11729), (253, 11732), (257, 11750), (262, 11765), (264, 11783), (271, 11807), (272, 11816), (276, 11837), (291, 11882), (301, 11933), (319, 12041), (349, 12176), (364, 12230), (369, 12251), (377, 12284), (384, 12329), (396, 12383), (417, 12464), (422, 12491), (431, 12515),

Gene: RemusLoopin_12 Start: 8193, Stop: 10382, Start Num: 14

Candidate Starts for RemusLoopin_12:

(Start: 14 @8193 has 9 MA's), (46, 8343), (48, 8361), (58, 8400), (65, 8451), (67, 8478), (77, 8553), (82, 8577), (94, 8637), (97, 8652), (108, 8727), (117, 8793), (125, 8844), (137, 8940), (151, 9048), (154, 9078), (165, 9168), (220, 9405), (225, 9432), (238, 9489), (250, 9546), (251, 9558), (257, 9582), (264, 9615), (271, 9639), (306, 9813), (330, 9915), (367, 10089), (386, 10185), (392, 10206), (417, 10311),

Gene: SV1_16 Start: 10022, Stop: 12439, Start Num: 7

Candidate Starts for SV1_16:

(Start: 7 @10022 has 15 MA's), (9, 10034), (10, 10088), (11, 10109), (45, 10283), (48, 10304), (58, 10343), (65, 10394), (77, 10496), (85, 10538), (93, 10577), (94, 10580), (95, 10583), (109, 10673), (117, 10736), (126, 10799), (129, 10817), (132, 10829), (137, 10883), (144, 10940), (154, 11021), (164, 11108), (165, 11111), (173, 11159), (178, 11177), (184, 11207), (238, 11432), (245, 11471), (249, 11486), (257, 11525), (264, 11558), (271, 11582), (301, 11708), (312, 11780), (363, 12002), (373, 12038), (377, 12059), (381, 12083), (384, 12104), (391, 12131), (395, 12155), (396, 12158), (409, 12221), (410, 12224), (417, 12236), (428, 12281),

Gene: Samora_12 Start: 8227, Stop: 10419, Start Num: 14

Candidate Starts for Samora_12:

(Start: 14 @8227 has 9 MA's), (17, 8254), (21, 8272), (65, 8485), (67, 8512), (74, 8560), (77, 8587), (82, 8611), (94, 8671), (95, 8674), (97, 8686), (109, 8764), (117, 8827), (125, 8878), (133, 8932), (135, 8953), (137, 8974), (151, 9082), (154, 9112), (165, 9202), (233, 9502), (257, 9616), (264, 9649), (271, 9673), (279, 9712), (281, 9718), (306, 9847), (317, 9904), (327, 9937), (367, 10123), (386, 10219), (399, 10273), (404, 10297),

Gene: Schlegelian_17 Start: 9962, Stop: 13312, Start Num: 2

Candidate Starts for Schlegelian_17:

(1, 9905), (Start: 2 @9962 has 5 MA's), (Start: 3 @9965 has 6 MA's), (4, 10031), (6, 10052), (18, 10298), (26, 10364), (43, 10484), (45, 10490), (60, 10568), (73, 10661), (83, 10733), (88, 10757), (94, 10787), (95, 10790), (105, 10856), (111, 10904), (114, 10925), (115, 10931), (119, 10952), (124, 10991), (126, 11006), (137, 11090), (138, 11093), (139, 11099), (142, 11141), (148, 11165), (154, 11228), (163, 11306), (172, 11363), (187, 11432), (205, 11510), (207, 11516), (213, 11546), (216, 11564), (243, 11708), (259, 11774), (262, 11789), (270, 11837), (271, 11840), (287, 11909), (296, 11942), (313, 12053), (316, 12065), (337, 12182), (343, 12209), (347, 12230), (351, 12254), (359, 12278), (413, 12548), (417, 12557), (418, 12569), (424, 12596), (436, 12647), (454, 12869), (458, 12947), (460, 12968), (462, 13016), (463, 13019), (465, 13055), (466, 13097), (467, 13109), (468, 13124), (469, 13145), (470, 13196), (471, 13268), (472, 13283),

Gene: ScoobySnack_20 Start: 11232, Stop: 13694, Start Num: 15

Candidate Starts for ScoobySnack_20:

(Start: 15 @11232 has 22 MA's), (27, 11307), (39, 11358), (44, 11385), (65, 11499), (75, 11577), (79, 11610), (81, 11622), (91, 11673), (92, 11676), (94, 11685), (95, 11688), (99, 11724), (100, 11730), (101, 11733), (103, 11745), (105, 11754), (108, 11778), (123, 11877), (132, 11937), (136, 11976), (137, 11991), (160, 12186), (163, 12216), (165, 12228), (168, 12252), (171, 12261), (174, 12279), (175, 12282), (176, 12285), (179, 12297), (183, 12315), (185, 12327), (203, 12405), (207, 12423), (226, 12513), (231, 12531), (257, 12663), (274, 12747), (282, 12780), (290, 12828), (311, 12957), (337, 13092), (354, 13173), (368, 13227), (376, 13266), (380, 13281), (407, 13407), (423, 13464), (429, 13488), (433, 13506),

Gene: Sebastisaurus_12 Start: 8219, Stop: 10408, Start Num: 14

Candidate Starts for Sebastisaurus_12:

(Start: 14 @8219 has 9 MA's), (46, 8369), (48, 8387), (58, 8426), (62, 8456), (65, 8477), (67, 8504), (77, 8579), (82, 8603), (94, 8663), (97, 8678), (108, 8753), (117, 8819), (137, 8966), (151, 9074), (154,

9104), (162, 9161), (165, 9194), (220, 9431), (225, 9458), (238, 9515), (250, 9572), (251, 9584), (257, 9608), (264, 9641), (271, 9665), (306, 9839), (327, 9929), (330, 9941), (349, 10049), (358, 10082), (367, 10115), (375, 10151), (386, 10211), (393, 10235), (413, 10328), (417, 10337),

Gene: Shawty_12 Start: 8222, Stop: 10411, Start Num: 14

Candidate Starts for Shawty_12:

(Start: 14 @8222 has 9 MA's), (17, 8249), (55, 8414), (58, 8429), (65, 8480), (67, 8507), (77, 8582), (82, 8606), (94, 8666), (97, 8681), (102, 8717), (108, 8756), (117, 8822), (125, 8873), (135, 8948), (137, 8969), (146, 9035), (153, 9083), (154, 9107), (162, 9164), (165, 9197), (195, 9332), (226, 9464), (229, 9476), (233, 9497), (255, 9605), (257, 9611), (262, 9626), (264, 9644), (271, 9668), (280, 9710), (283, 9722), (303, 9815), (306, 9842), (327, 9932), (358, 10085), (367, 10118), (386, 10214),

Gene: SoJo_16 Start: 10050, Stop: 12278, Start Num: 7

Candidate Starts for SoJo_16:

(Start: 7 @10050 has 15 MA's), (8, 10056), (9, 10062), (22, 10239), (24, 10260), (45, 10377), (65, 10488), (73, 10548), (94, 10674), (105, 10743), (119, 10839), (130, 10914), (137, 10977), (146, 11043), (154, 11115), (163, 11193), (173, 11253), (193, 11319), (208, 11373), (211, 11382), (221, 11427), (225, 11445), (227, 11451), (269, 11586), (299, 11685), (305, 11742), (322, 11808), (325, 11820), (346, 11928), (352, 11952), (373, 12027), (387, 12108), (398, 12159), (405, 12189),

Gene: Spocter_21 Start: 15870, Stop: 18695, Start Num: 7

Candidate Starts for Spocter_21:

(5, 15798), (Start: 7 @15870 has 15 MA's), (11, 15957), (12, 15978), (38, 16200), (45, 16233), (65, 16344), (73, 16404), (95, 16533), (99, 16569), (100, 16575), (103, 16590), (105, 16599), (113, 16662), (119, 16695), (128, 16761), (137, 16833), (154, 16971), (163, 17049), (170, 17091), (173, 17109), (178, 17127), (179, 17130), (184, 17157), (187, 17163), (193, 17184), (204, 17235), (211, 17256), (213, 17271), (214, 17283), (218, 17292), (233, 17361), (239, 17388), (252, 17454), (257, 17475), (262, 17490), (264, 17508), (268, 17523), (271, 17532), (276, 17562), (282, 17580), (298, 17637), (304, 17685), (306, 17706), (317, 17763), (318, 17766), (330, 17808), (331, 17811), (335, 17850), (339, 17871), (342, 17883), (346, 17904), (361, 17961), (367, 17982), (374, 18015), (385, 18072), (397, 18126), (404, 18159), (434, 18279), (438, 18303), (459, 18603), (464, 18684),

Gene: Sweetums_22 Start: 12109, Stop: 14346, Start Num: 15

Candidate Starts for Sweetums_22:

(Start: 15 @12109 has 22 MA's), (16, 12115), (20, 12133), (22, 12139), (48, 12280), (50, 12286), (58, 12319), (69, 12406), (75, 12448), (76, 12463), (80, 12484), (81, 12493), (94, 12556), (106, 12637), (108, 12649), (114, 12697), (117, 12715), (123, 12748), (132, 12808), (137, 12862), (144, 12919), (160, 13057), (162, 13066), (163, 13087), (172, 13144), (198, 13252), (203, 13276), (209, 13297), (222, 13363), (242, 13453), (244, 13462), (246, 13465), (258, 13516), (315, 13660), (333, 13756), (340, 13792), (345, 13813), (357, 13864), (360, 13879), (397, 14044), (401, 14053), (407, 14089), (423, 14146), (428, 14164), (432, 14179), (433, 14188),

Gene: TG1_12 Start: 8190, Stop: 10379, Start Num: 14

Candidate Starts for TG1_12:

(Start: 14 @8190 has 9 MA's), (17, 8217), (46, 8340), (51, 8370), (56, 8385), (58, 8397), (65, 8448), (82, 8574), (94, 8634), (109, 8727), (117, 8790), (118, 8796), (133, 8895), (137, 8937), (148, 9012), (151, 9045), (154, 9075), (165, 9165), (189, 9276), (190, 9279), (195, 9300), (206, 9348), (229, 9444), (243, 9519), (249, 9540), (257, 9579), (262, 9594), (264, 9612), (268, 9627), (271, 9636), (284, 9693), (298, 9741), (330, 9912), (333, 9942), (335, 9954), (367, 10086), (370, 10098), (386, 10182), (405, 10263), (412, 10299), (430, 10362),

Gene: Teng_22 Start: 12028, Stop: 14262, Start Num: 15

Candidate Starts for Teng_22:

(Start: 15 @12028 has 22 MA's), (16, 12034), (29, 12115), (31, 12127), (36, 12145), (40, 12154), (48, 12196), (50, 12202), (75, 12364), (76, 12379), (80, 12400), (81, 12409), (94, 12472), (106, 12553), (108, 12565), (114, 12613), (117, 12631), (123, 12664), (132, 12724), (137, 12778), (144, 12835), (160, 12973), (163, 13003), (165, 13015), (188, 13129), (198, 13168), (203, 13192), (209, 13213), (222, 13279), (242, 13369), (246, 13381), (258, 13432), (340, 13708), (345, 13729), (357, 13780), (360, 13795), (397, 13960), (401, 13969), (407, 14005), (423, 14062), (428, 14080), (432, 14095), (433, 14104),

Gene: ToastyFinz_15 Start: 9909, Stop: 11960, Start Num: 30

Candidate Starts for ToastyFinz_15:

(Start: 30 @9909 has 4 MA's), (49, 9996), (57, 10029), (59, 10038), (61, 10056), (64, 10071), (103, 10320), (127, 10485), (169, 10833), (192, 10935), (247, 11025), (256, 11070), (261, 11091), (275, 11163), (329, 11442), (349, 11553), (359, 11583), (365, 11607), (370, 11628), (381, 11682), (396, 11763),

Gene: Tubberson_16 Start: 10050, Stop: 12278, Start Num: 7

Candidate Starts for Tubberson_16:

(Start: 7 @10050 has 15 MA's), (8, 10056), (9, 10062), (22, 10239), (24, 10260), (45, 10377), (65, 10488), (73, 10548), (94, 10674), (105, 10743), (113, 10806), (119, 10839), (130, 10914), (137, 10977), (146, 11043), (154, 11115), (163, 11193), (173, 11253), (193, 11319), (208, 11373), (211, 11382), (221, 11427), (225, 11445), (227, 11451), (269, 11586), (299, 11685), (305, 11742), (322, 11808), (325, 11820), (346, 11928), (352, 11952), (373, 12027), (387, 12108), (398, 12159), (405, 12189),

Gene: Vash_12 Start: 8200, Stop: 10392, Start Num: 14

Candidate Starts for Vash_12:

(Start: 14 @8200 has 9 MA's), (17, 8227), (48, 8368), (58, 8407), (65, 8458), (74, 8533), (77, 8560), (82, 8584), (83, 8590), (93, 8641), (94, 8644), (97, 8659), (109, 8737), (117, 8800), (125, 8851), (130, 8884), (135, 8926), (137, 8947), (146, 9013), (154, 9085), (165, 9175), (176, 9232), (183, 9265), (190, 9289), (195, 9310), (200, 9331), (225, 9439), (233, 9475), (251, 9565), (253, 9571), (256, 9586), (257, 9589), (264, 9622), (271, 9646), (279, 9685), (306, 9820), (317, 9877), (327, 9910), (330, 9922), (367, 10096), (386, 10192), (399, 10246), (404, 10270), (412, 10309), (414, 10315), (426, 10360),

Gene: Violeta_23 Start: 11465, Stop: 13663, Start Num: 15

Candidate Starts for Violeta_23:

(Start: 15 @11465 has 22 MA's), (27, 11540), (39, 11591), (44, 11618), (62, 11711), (69, 11768), (75, 11810), (79, 11843), (81, 11855), (91, 11906), (92, 11909), (94, 11918), (95, 11921), (99, 11957), (100, 11963), (101, 11966), (103, 11978), (105, 11987), (108, 12011), (123, 12110), (132, 12170), (136, 12209), (137, 12224), (144, 12281), (160, 12419), (163, 12449), (165, 12461), (168, 12485), (171, 12494), (175, 12515), (176, 12518), (179, 12530), (183, 12548), (192, 12590), (199, 12620), (230, 12761), (241, 12818), (254, 12884), (278, 12944), (281, 12953), (302, 13016), (329, 13082), (423, 13433), (429, 13457), (437, 13496), (440, 13517),

Gene: Vondra_17 Start: 9974, Stop: 13324, Start Num: 2

Candidate Starts for Vondra_17:

(1, 9917), (Start: 2 @9974 has 5 MA's), (Start: 3 @9977 has 6 MA's), (4, 10043), (6, 10064), (18, 10310), (26, 10376), (43, 10496), (45, 10502), (60, 10580), (65, 10613), (73, 10673), (88, 10769), (95, 10802), (105, 10868), (111, 10916), (114, 10937), (119, 10964), (124, 11003), (126, 11018), (137, 11102), (138, 11105), (139, 11111), (142, 11153), (148, 11177), (154, 11240), (163, 11318), (172, 11375), (187, 11444), (205, 11522), (207, 11528), (213, 11558), (216, 11576), (243, 11720), (259, 11786), (262, 11801), (270, 11849), (271, 11852), (287, 11921), (296, 11954), (313, 12065), (316, 12077), (337, 12194), (343, 12221), (347, 12242), (351, 12266), (359, 12290), (418, 12581), (424, 12608), (436, 12659), (444, 12713), (454, 12881), (456, 12917), (458, 12959), (460, 12980), (462,

13028), (463, 13031), (465, 13067), (466, 13109), (467, 13121), (468, 13136), (469, 13157), (470, 13208), (471, 13280),

Gene: Warren_22 Start: 11565, Stop: 13763, Start Num: 15

Candidate Starts for Warren_22:

(Start: 15 @11565 has 22 MA's), (27, 11640), (39, 11691), (44, 11718), (62, 11811), (75, 11910), (79, 11943), (81, 11955), (91, 12006), (92, 12009), (94, 12018), (95, 12021), (99, 12057), (100, 12063), (101, 12066), (103, 12078), (105, 12087), (108, 12111), (123, 12210), (132, 12270), (136, 12309), (137, 12324), (144, 12381), (160, 12519), (163, 12549), (165, 12561), (168, 12585), (171, 12594), (175, 12615), (176, 12618), (179, 12630), (183, 12648), (192, 12690), (199, 12720), (204, 12744), (227, 12849), (241, 12918), (248, 12951), (254, 12984), (278, 13044), (281, 13053), (302, 13116), (329, 13182), (344, 13215), (403, 13452), (423, 13533), (429, 13557), (437, 13596), (440, 13617),

Gene: Winchester007_23 Start: 11508, Stop: 13706, Start Num: 15

Candidate Starts for Winchester007_23:

(Start: 15 @11508 has 22 MA's), (27, 11583), (39, 11634), (44, 11661), (62, 11754), (75, 11853), (79, 11886), (81, 11898), (91, 11949), (92, 11952), (94, 11961), (95, 11964), (99, 12000), (100, 12006), (101, 12009), (103, 12021), (105, 12030), (108, 12054), (123, 12153), (132, 12213), (136, 12252), (137, 12267), (144, 12324), (160, 12462), (163, 12492), (165, 12504), (168, 12528), (171, 12537), (175, 12558), (176, 12561), (179, 12573), (183, 12591), (199, 12663), (230, 12804), (241, 12861), (254, 12927), (278, 12987), (281, 12996), (302, 13059), (329, 13125), (423, 13476), (429, 13500), (437, 13539), (440, 13560),

Gene: Wrackline_26 Start: 12677, Stop: 15094, Start Num: 15

Candidate Starts for Wrackline_26:

(Start: 15 @12677 has 22 MA's), (20, 12695), (29, 12758), (31, 12770), (50, 12845), (56, 12866), (58, 12878), (67, 12956), (75, 13007), (76, 13022), (80, 13043), (81, 13052), (86, 13079), (91, 13103), (92, 13106), (94, 13115), (105, 13184), (106, 13196), (114, 13256), (117, 13274), (120, 13286), (123, 13307), (126, 13337), (132, 13367), (134, 13382), (137, 13421), (147, 13490), (150, 13508), (158, 13598), (159, 13604), (162, 13625), (163, 13646), (165, 13658), (172, 13703), (174, 13709), (175, 13712), (180, 13736), (183, 13745), (186, 13760), (194, 13799), (199, 13817), (205, 13847), (222, 13922), (224, 13934), (230, 13958), (231, 13961), (232, 13964), (235, 13982), (248, 14048), (262, 14114), (267, 14159), (285, 14237), (286, 14246), (288, 14261), (293, 14279), (307, 14372), (348, 14576), (350, 14588), (364, 14642), (366, 14651), (368, 14657), (378, 14708), (402, 14807), (411, 14852), (423, 14891), (427, 14906), (432, 14924), (433, 14933),

Gene: phiBT1_43 Start: 8225, Stop: 10414, Start Num: 14

Candidate Starts for phiBT1_43:

(Start: 14 @8225 has 9 MA's), (17, 8252), (58, 8432), (65, 8483), (67, 8510), (74, 8558), (77, 8585), (82, 8609), (94, 8669), (97, 8684), (109, 8762), (117, 8825), (119, 8834), (125, 8876), (133, 8930), (135, 8951), (137, 8972), (151, 9080), (154, 9110), (165, 9200), (181, 9281), (189, 9311), (195, 9335), (200, 9356), (215, 9425), (220, 9437), (226, 9467), (229, 9479), (234, 9503), (252, 9593), (255, 9608), (257, 9614), (264, 9647), (268, 9662), (271, 9671), (279, 9710), (281, 9716), (283, 9725), (303, 9818), (317, 9902), (328, 9938), (330, 9947), (358, 10088), (367, 10121), (375, 10157), (386, 10217), (399, 10271), (401, 10277), (417, 10343),

Gene: phiSASD1_37 Start: 9706, Stop: 11628, Start Num: 19

Candidate Starts for phiSASD1_37:

(19, 9706), (36, 9820), (53, 9886), (54, 9889), (58, 9907), (63, 9940), (66, 9973), (68, 9985), (78, 10057), (90, 10117), (103, 10189), (106, 10210), (121, 10306), (131, 10375), (134, 10396), (148, 10510), (152, 10546), (157, 10609), (161, 10636), (198, 10816), (233, 10858), (243, 10891), (253, 10927), (276, 11035), (289, 11089), (295, 11113), (302, 11158), (310, 11215), (341, 11371), (352, 11419), (363, 11461), (365, 11467), (366, 11473), (371, 11491), (382, 11554), (394, 11602),

