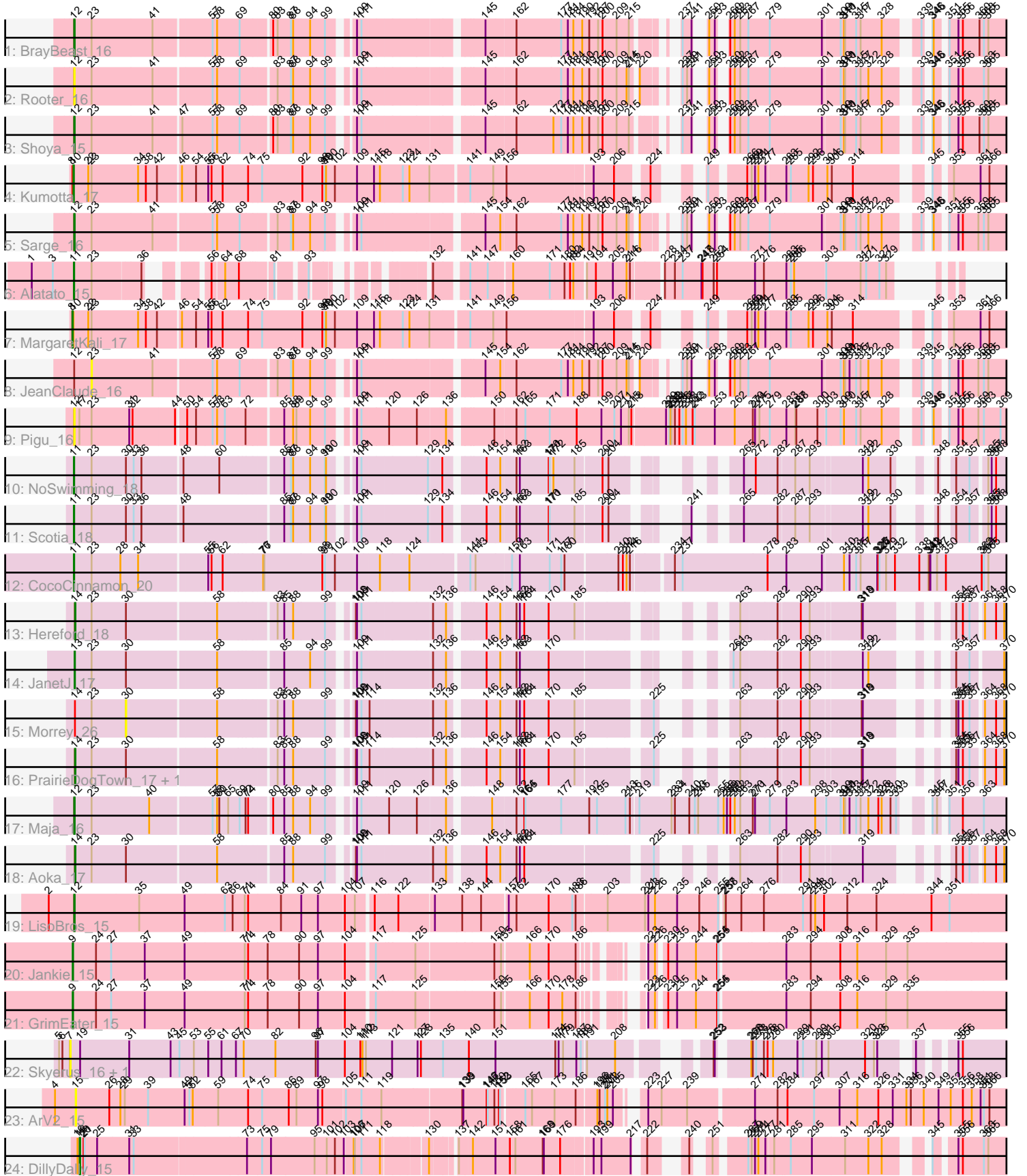


Zoomed Pham 311936



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 311936 Report

This analysis was run 06/27/26 on database version 652.

Pham number 311936 has 26 members, 7 are drafts.

Phages represented in each track:

- Track 1 : BrayBeast_16
- Track 2 : Rooter_16
- Track 3 : Shoya_15
- Track 4 : Kumotta_17
- Track 5 : Sarge_16
- Track 6 : Alatato_15
- Track 7 : MargaretKali_17
- Track 8 : JeanClaude_16
- Track 9 : Pigu_16
- Track 10 : NoSwimming_18
- Track 11 : Scotia_18
- Track 12 : CocoCinnamon_20
- Track 13 : Hereford_18
- Track 14 : JanetJ_17
- Track 15 : Morrey_26
- Track 16 : PrairieDogTown_17, EvenBluerMoon_17
- Track 17 : Maja_16
- Track 18 : Aoka_17
- Track 19 : LisoBros_15
- Track 20 : Jankie_15
- Track 21 : GrimEater_15
- Track 22 : Skyerus_16, Raya_16
- Track 23 : ArV2_15
- Track 24 : DillyDally_15

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

The start number called the most often in the published annotations is 12, it was called in 5 of the 19 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- BrayBeast_16, LisoBros_15, Maja_16, Pigu_16, Rooter_16, Sarge_16, Shoya_15,

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

- JeanClaude_16,

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

- Alatato_15, Aoka_17, ArV2_15, CocoCinnamon_20, DillyDally_15, EvenBluerMoon_17, GrimEater_15, Hereford_18, JanetJ_17, Jankie_15, Kumotta_17, MargaretKali_17, Morrey_26, NoSwimming_18, PrairieDogTown_17, Raya_16, Scotia_18, Skyerus_16,

Summary by start number:

Start 7:

- Found in 2 of 26 (7.7%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Raya_16 (FQ2), Skyerus_16 (FQ2),

Start 8:

- Found in 2 of 26 (7.7%) of genes in pham
- Manual Annotations of this start: 1 of 19
- Called 50.0% of time when present
- Phage (with cluster) where this start called: MargaretKali_17 (FB),

Start 9:

- Found in 2 of 26 (7.7%) of genes in pham
- Manual Annotations of this start: 2 of 19
- Called 100.0% of time when present
- Phage (with cluster) where this start called: GrimEater_15 (FP), Jankie_15 (FP),

Start 10:

- Found in 2 of 26 (7.7%) of genes in pham
- Manual Annotations of this start: 1 of 19
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Kumotta_17 (FB),

Start 11:

- Found in 4 of 26 (15.4%) of genes in pham
- Manual Annotations of this start: 4 of 19
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alatato_15 (FB), CocoCinnamon_20 (FO), NoSwimming_18 (FO), Scotia_18 (FO),

Start 12:

- Found in 8 of 26 (30.8%) of genes in pham
- Manual Annotations of this start: 5 of 19
- Called 87.5% of time when present
- Phage (with cluster) where this start called: BrayBeast_16 (FB), LisoBros_15 (FP), Maja_16 (FO), Pigu_16 (FB), Rooter_16 (FB), Sarge_16 (FB), Shoya_15 (FB),

Start 13:

- Found in 1 of 26 (3.8%) of genes in pham
- Manual Annotations of this start: 1 of 19
- Called 100.0% of time when present
- Phage (with cluster) where this start called: JanetJ_17 (FO),

Start 14:

- Found in 5 of 26 (19.2%) of genes in pham
- Manual Annotations of this start: 4 of 19
- Called 80.0% of time when present
- Phage (with cluster) where this start called: Aoka_17 (FO), EvenBluerMoon_17 (FO), Hereford_18 (FO), PrairieDogTown_17 (FO),

Start 15:

- Found in 1 of 26 (3.8%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ArV2_15 (singleton),

Start 18:

- Found in 1 of 26 (3.8%) of genes in pham
- Manual Annotations of this start: 1 of 19
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DillyDally_15 (singleton),

Start 23:

- Found in 19 of 26 (73.1%) of genes in pham
- No Manual Annotations of this start.
- Called 5.3% of time when present
- Phage (with cluster) where this start called: JeanClaude_16 (FB),

Start 30:

- Found in 8 of 26 (30.8%) of genes in pham
- No Manual Annotations of this start.
- Called 12.5% of time when present
- Phage (with cluster) where this start called: Morrey_26 (FO),

Summary by clusters:

There are 5 clusters represented in this pham: FQ2, FP, FB, singleton, FO,

Info for manual annotations of cluster FB:

- Start number 8 was manually annotated 1 time for cluster FB.
- Start number 10 was manually annotated 1 time for cluster FB.
- Start number 11 was manually annotated 1 time for cluster FB.
- Start number 12 was manually annotated 3 times for cluster FB.

Info for manual annotations of cluster FO:

- Start number 11 was manually annotated 3 times for cluster FO.
- Start number 12 was manually annotated 1 time for cluster FO.
- Start number 13 was manually annotated 1 time for cluster FO.
- Start number 14 was manually annotated 4 times for cluster FO.

Info for manual annotations of cluster FP:

- Start number 9 was manually annotated 2 times for cluster FP.
- Start number 12 was manually annotated 1 time for cluster FP.

Gene Information:

Gene: Alata_15 Start: 9384, Stop: 12482, Start Num: 11

Candidate Starts for Alata_15:

(1, 9270), (3, 9327), (Start: 11 @9384 has 4 MA's), (23, 9429), (36, 9552), (56, 9639), (64, 9663), (68, 9696), (81, 9771), (93, 9831), (132, 10026), (141, 10098), (147, 10140), (160, 10191), (171, 10290), (180, 10329), (182, 10344), (184, 10353), (191, 10380), (194, 10404), (205, 10449), (214, 10485), (216, 10494), (228, 10566), (234, 10593), (237, 10614), (247, 10665), (248, 10668), (252, 10698), (254, 10707), (271, 10809), (276, 10833), (283, 10887), (285, 10899), (286, 10908), (303, 10989), (317, 11079), (321, 11094), (327, 11130), (329, 11148), (371, 11217), (375, 11289), (376, 11298), (378, 11334), (382, 11388), (383, 11397), (386, 11436), (391, 11481), (394, 11553), (395, 11571), (398, 11616), (404, 11661), (413, 11772), (423, 11883), (425, 11901), (429, 11973), (431, 12033), (434, 12084), (437, 12114), (439, 12123), (454, 12243), (457, 12264), (478, 12450), (480, 12468), (481, 12471),

Gene: Aoka_17 Start: 10956, Stop: 14201, Start Num: 14

Candidate Starts for Aoka_17:

(Start: 14 @10956 has 4 MA's), (23, 11001), (30, 11094), (58, 11316), (85, 11478), (88, 11502), (99, 11583), (108, 11625), (109, 11628), (111, 11637), (132, 11808), (136, 11838), (146, 11919), (154, 11955), (162, 11991), (163, 12000), (164, 12012), (225, 12306), (263, 12396), (282, 12474), (290, 12528), (293, 12552), (319, 12681), (354, 12813), (356, 12828), (357, 12846), (364, 12870), (368, 12900), (370, 12921), (384, 13113), (386, 13149), (422, 13593), (424, 13614), (431, 13749), (439, 13839), (459, 14001), (463, 14055), (473, 14145), (474, 14154),

Gene: ArV2_15 Start: 9152, Stop: 12778, Start Num: 15

Candidate Starts for ArV2_15:

(4, 9098), (15, 9152), (26, 9242), (28, 9272), (29, 9284), (39, 9347), (49, 9446), (51, 9458), (52, 9467), (59, 9533), (74, 9614), (75, 9650), (86, 9722), (89, 9743), (97, 9797), (98, 9809), (105, 9866), (111, 9908), (119, 9962), (138, 10166), (139, 10169), (146, 10229), (147, 10232), (150, 10250), (152, 10262), (153, 10265), (165, 10316), (167, 10334), (173, 10394), (186, 10451), (196, 10502), (198, 10508), (201, 10523), (202, 10529), (205, 10544), (223, 10586), (227, 10622), (239, 10691), (271, 10856), (282, 10913), (284, 10937), (297, 11009), (307, 11069), (316, 11117), (326, 11171), (331, 11210), (334, 11246), (336, 11258), (340, 11291), (349, 11330), (352, 11363), (356, 11396), (358, 11420), (361, 11444), (363, 11453), (366, 11468), (373, 11567), (374, 11591), (381, 11699), (383, 11714), (391, 11801), (394, 11873), (395, 11891), (397, 11942), (404, 11981), (414, 12092), (423, 12194), (424, 12209), (425, 12212), (426, 12227), (428, 12281), (429, 12284), (434, 12392), (439, 12431), (451, 12533), (459, 12587), (465, 12683), (478, 12761),

Gene: BrayBeast_16 Start: 9776, Stop: 13165, Start Num: 12

Candidate Starts for BrayBeast_16:

(Start: 12 @9776 has 5 MA's), (23, 9821), (41, 9983), (57, 10124), (58, 10136), (69, 10196), (80, 10268), (83, 10280), (87, 10316), (88, 10322), (94, 10364), (99, 10403), (109, 10448), (111, 10457), (145, 10736), (162, 10811), (177, 10931), (181, 10949), (184, 10964), (190, 10988), (192, 11006), (197, 11030), (200, 11042), (209, 11078), (215, 11111), (237, 11168), (241, 11192), (250, 11198), (253, 11213), (260, 11222), (262, 11234), (263, 11249), (267, 11267), (279, 11324), (301, 11459), (309, 11501), (310, 11510), (311, 11513), (315, 11543), (317, 11555), (328, 11612), (339, 11681), (345, 11687), (346, 11690), (351, 11711), (355, 11735), (356, 11747), (360, 11792), (363, 11804), (365, 11816), (374, 11942), (378, 12002), (382, 12056), (384, 12068), (396, 12287), (402, 12317), (404, 12344), (407, 12365), (413, 12455), (423, 12566), (429, 12656), (430, 12701), (431, 12716), (434, 12767), (444, 12839), (451, 12899), (454, 12926), (458, 12950), (465, 13052), (466, 13058), (468, 13079), (475, 13109), (478, 13133), (479, 13142), (480, 13151), (481, 13154),

Gene: CocoCinnamon_20 Start: 11134, Stop: 14817, Start Num: 11

Candidate Starts for CocoCinnamon_20:

(Start: 11 @11134 has 4 MA's), (23, 11179), (28, 11257), (34, 11302), (55, 11473), (56, 11482), (62, 11512), (76, 11611), (77, 11614), (98, 11770), (99, 11776), (102, 11803), (109, 11863), (118, 11917), (124, 11992), (141, 12142), (143, 12154), (159, 12244), (163, 12265), (171, 12346), (177, 12376), (180, 12385), (210, 12520), (212, 12532), (214, 12541), (216, 12550), (234, 12649), (237, 12670), (278, 12898), (283, 12943), (301, 13039), (310, 13090), (313, 13105), (315, 13123), (317, 13135), (325, 13180), (326, 13183), (327, 13186), (329, 13204), (332, 13228), (338, 13294), (341, 13318), (342, 13321), (343, 13324), (347, 13342), (350, 13366), (362, 13462), (363, 13468), (365, 13480), (371, 13549), (372, 13570), (379, 13696), (381, 13714), (382, 13720), (384, 13732), (385, 13741), (391, 13813), (394, 13885), (395, 13903), (399, 13954), (404, 13993), (406, 14011), (408, 14038), (413, 14104), (423, 14215), (429, 14305), (431, 14365), (434, 14416), (442, 14470), (446, 14503), (454, 14575), (457, 14596), (465, 14701), (467, 14719), (468, 14728), (478, 14782), (479, 14791), (480, 14800), (481, 14803), (482, 14806),

Gene: DillyDally_15 Start: 9981, Stop: 13370, Start Num: 18

Candidate Starts for DillyDally_15:

(16, 9975), (Start: 18 @9981 has 1 MA's), (20, 9990), (21, 9993), (25, 10026), (31, 10110), (33, 10122), (73, 10413), (75, 10452), (79, 10476), (95, 10593), (101, 10626), (102, 10644), (103, 10668), (106, 10689), (107, 10692), (111, 10710), (118, 10752), (130, 10857), (137, 10911), (142, 10944), (151, 11004), (158, 11043), (161, 11058), (168, 11130), (169, 11133), (176, 11172), (193, 11241), (199, 11262), (217, 11340), (222, 11355), (240, 11409), (251, 11433), (267, 11499), (269, 11508), (271, 11517), (274, 11526), (277, 11544), (281, 11562), (285, 11598), (295, 11655), (311, 11742), (322, 11805), (328, 11841), (345, 11916), (355, 11964), (356, 11976), (363, 12033), (365, 12045), (373, 12147), (382, 12285), (385, 12306), (394, 12450), (395, 12468), (400, 12522), (405, 12567), (411, 12645), (415, 12705), (425, 12798), (427, 12822), (429, 12870), (430, 12915), (431, 12930), (434, 12981), (438, 13017), (441, 13029), (447, 13077), (450, 13089), (452, 13128), (453, 13131), (463, 13236), (467, 13296), (472, 13320), (476, 13344),

Gene: EvenBluerMoon_17 Start: 10991, Stop: 14236, Start Num: 14

Candidate Starts for EvenBluerMoon_17:

(Start: 14 @10991 has 4 MA's), (23, 11036), (30, 11129), (58, 11351), (83, 11495), (85, 11513), (88, 11537), (99, 11618), (108, 11660), (109, 11663), (111, 11672), (114, 11687), (132, 11843), (136, 11873), (146, 11954), (154, 11990), (162, 12026), (163, 12035), (164, 12047), (170, 12113), (185, 12182), (225, 12341), (263, 12431), (282, 12509), (290, 12563), (293, 12587), (318, 12713), (319, 12716), (354, 12848), (355, 12854), (356, 12863), (357, 12881), (364, 12905), (368, 12935), (370, 12956), (384, 13148), (386, 13184), (422, 13628), (424, 13649), (431, 13784), (439, 13874), (459, 14036), (463, 14090), (473, 14180), (474, 14189),

Gene: GrimEater_15 Start: 8656, Stop: 12603, Start Num: 9

Candidate Starts for GrimEater_15:

(Start: 9 @8656 has 2 MA's), (24, 8716), (27, 8755), (37, 8842), (49, 8950), (71, 9109), (74, 9118), (78, 9169), (90, 9250), (97, 9301), (104, 9367), (117, 9436), (125, 9535), (150, 9733), (155, 9751), (166, 9820), (170, 9871), (178, 9907), (186, 9943), (223, 10021), (226, 10036), (230, 10054), (235, 10078), (244, 10126), (254, 10183), (255, 10186), (283, 10348), (294, 10414), (308, 10483), (316, 10528), (329, 10603), (335, 10660), (377, 11035), (378, 11056), (380, 11098), (382, 11110), (404, 11404), (409, 11488), (412, 11518), (417, 11578), (424, 11653), (435, 11851), (440, 11908), (443, 11926), (448, 11965), (449, 11974), (471, 12193), (483, 12337), (484, 12394), (489, 12556),

Gene: Hereford_18 Start: 11115, Stop: 14360, Start Num: 14

Candidate Starts for Hereford_18:

(Start: 14 @11115 has 4 MA's), (23, 11160), (30, 11253), (58, 11475), (83, 11619), (85, 11637), (88, 11661), (99, 11742), (108, 11784), (109, 11787), (111, 11796), (132, 11967), (136, 11997), (146, 12078), (154, 12114), (162, 12150), (163, 12159), (164, 12171), (170, 12237), (185, 12306), (263, 12555), (282, 12633), (290, 12687), (293, 12711), (318, 12837), (319, 12840), (354, 12972), (356, 12987), (357, 13005), (364, 13029), (368, 13059), (370, 13080), (384, 13272), (386, 13308), (422, 13752), (424, 13773), (431, 13908), (439, 13998), (459, 14160), (463, 14214), (473, 14304), (474, 14313),

Gene: JanetJ_17 Start: 10770, Stop: 14018, Start Num: 13

Candidate Starts for JanetJ_17:

(Start: 13 @10770 has 1 MA's), (23, 10815), (30, 10908), (58, 11130), (85, 11292), (94, 11358), (99, 11397), (109, 11442), (111, 11451), (132, 11622), (136, 11652), (146, 11733), (154, 11769), (162, 11805), (163, 11814), (170, 11892), (261, 12192), (263, 12210), (282, 12288), (290, 12342), (293, 12366), (319, 12495), (322, 12510), (354, 12627), (357, 12660), (370, 12735), (386, 12963), (439, 13650), (459, 13812), (470, 13938), (473, 13950), (474, 13959),

Gene: Jankie_15 Start: 8655, Stop: 12602, Start Num: 9

Candidate Starts for Jankie_15:

(Start: 9 @8655 has 2 MA's), (24, 8715), (27, 8754), (37, 8841), (49, 8949), (71, 9108), (74, 9117), (78, 9168), (90, 9249), (97, 9300), (104, 9366), (117, 9435), (125, 9534), (150, 9732), (155, 9750), (166, 9819), (170, 9870), (186, 9942), (223, 10020), (226, 10035), (230, 10053), (235, 10077), (244, 10125), (254, 10182), (255, 10185), (283, 10347), (294, 10413), (308, 10482), (316, 10527), (329, 10602), (335, 10659), (377, 11034), (378, 11055), (380, 11097), (382, 11109), (404, 11403), (409, 11487), (412, 11517), (417, 11577), (424, 11652), (435, 11850), (440, 11907), (443, 11925), (448, 11964), (449, 11973), (471, 12192), (483, 12336), (484, 12393), (489, 12555),

Gene: JeanClaude_16 Start: 9728, Stop: 13072, Start Num: 23

Candidate Starts for JeanClaude_16:

(Start: 12 @9683 has 5 MA's), (23, 9728), (41, 9890), (57, 10031), (58, 10043), (69, 10103), (83, 10187), (87, 10223), (88, 10229), (94, 10271), (99, 10310), (109, 10355), (111, 10364), (145, 10643), (154, 10682), (162, 10718), (177, 10838), (181, 10856), (184, 10871), (190, 10895), (192, 10913), (197, 10937), (200, 10949), (209, 10985), (214, 11012), (215, 11018), (220, 11030), (237, 11075), (239, 11087), (241, 11099), (250, 11105), (253, 11120), (260, 11129), (262, 11141), (263, 11156), (267, 11174), (279, 11231), (301, 11366), (309, 11408), (310, 11417), (311, 11420), (313, 11432), (315, 11450), (317, 11462), (322, 11483), (328, 11519), (339, 11588), (345, 11594), (351, 11618), (355, 11642), (356, 11654), (359, 11696), (363, 11711), (365, 11723), (374, 11849), (378, 11909), (382, 11963), (384, 11975), (396, 12194), (402, 12224), (404, 12251), (407, 12272), (413, 12362), (415, 12398), (423, 12473), (429, 12563), (430, 12608), (431, 12623), (434, 12674), (444, 12746), (454, 12833), (458, 12857), (464, 12923), (465, 12959), (466, 12965), (468, 12986), (475, 13016), (478, 13040), (479, 13049), (480, 13058), (481, 13061),

Gene: Kumotta_17 Start: 10633, Stop: 14061, Start Num: 10

Candidate Starts for Kumotta_17:

(Start: 8 @10630 has 1 MA's), (Start: 10 @10633 has 1 MA's), (22, 10669), (23, 10678), (34, 10801), (38, 10822), (42, 10852), (46, 10906), (54, 10939), (55, 10972), (56, 10981), (62, 11011), (74, 11074), (75, 11110), (92, 11215), (98, 11269), (99, 11275), (100, 11278), (102, 11302), (109, 11362), (115, 11401), (118, 11416), (123, 11473), (124, 11491), (131, 11545), (141, 11641), (149, 11701), (156, 11731), (193, 11950), (206, 12004), (224, 12073), (249, 12127), (266, 12202), (269, 12214), (271, 12223), (274, 12232), (277, 12250), (283, 12292), (285, 12304), (292, 12352), (296, 12364), (304, 12403), (306, 12412), (314, 12469), (345, 12622), (353, 12658), (361, 12730), (366, 12754), (373, 12853), (374, 12877), (378, 12937), (382, 12991), (383, 13000), (384, 13003), (387, 13057), (392, 13090), (394, 13156), (395, 13174), (396, 13207), (398, 13216), (399, 13225), (402, 13237), (414, 13375), (420, 13441), (421, 13462), (423, 13477), (424, 13492), (425, 13495), (428, 13564), (429,

13567), (433, 13663), (438, 13711), (456, 13858), (458, 13867), (459, 13870), (467, 13987), (471, 14005), (477, 14038),

Gene: LisoBros_15 Start: 8925, Stop: 13016, Start Num: 12

Candidate Starts for LisoBros_15:

(2, 8856), (Start: 12 @8925 has 5 MA's), (35, 9096), (49, 9219), (63, 9324), (66, 9345), (71, 9378), (74, 9387), (84, 9474), (91, 9525), (97, 9570), (104, 9636), (107, 9663), (116, 9702), (122, 9759), (133, 9846), (138, 9918), (144, 9966), (157, 10032), (162, 10053), (170, 10140), (183, 10203), (186, 10212), (203, 10290), (221, 10389), (223, 10398), (226, 10416), (235, 10476), (246, 10533), (255, 10584), (257, 10590), (258, 10593), (264, 10635), (276, 10692), (291, 10791), (294, 10812), (298, 10824), (302, 10848), (312, 10905), (324, 10983), (344, 11124), (351, 11172), (374, 11400), (376, 11424), (383, 11523), (395, 11700), (403, 11781), (412, 11931), (413, 11943), (416, 11985), (418, 11994), (424, 12066), (432, 12228), (436, 12279), (443, 12330), (445, 12345), (448, 12369), (460, 12468), (471, 12597), (475, 12618), (485, 12831), (486, 12858), (487, 12918), (488, 12957),

Gene: Maja_16 Start: 10263, Stop: 13793, Start Num: 12

Candidate Starts for Maja_16:

(Start: 12 @10263 has 5 MA's), (23, 10308), (40, 10461), (57, 10611), (58, 10623), (60, 10629), (65, 10653), (69, 10683), (72, 10698), (74, 10704), (80, 10755), (85, 10785), (88, 10809), (94, 10851), (99, 10890), (109, 10935), (111, 10944), (120, 11007), (126, 11076), (136, 11145), (148, 11241), (162, 11298), (164, 11319), (165, 11322), (177, 11418), (192, 11493), (195, 11514), (213, 11589), (216, 11601), (219, 11619), (233, 11703), (234, 11712), (240, 11751), (243, 11766), (245, 11775), (255, 11829), (256, 11844), (259, 11853), (260, 11862), (262, 11874), (263, 11889), (270, 11919), (271, 11925), (279, 11964), (283, 12003), (298, 12081), (303, 12105), (309, 12141), (310, 12150), (311, 12153), (313, 12165), (315, 12183), (317, 12195), (322, 12216), (326, 12243), (328, 12252), (330, 12276), (333, 12291), (345, 12327), (347, 12339), (351, 12351), (356, 12387), (363, 12444), (374, 12582), (385, 12717), (391, 12789), (394, 12861), (395, 12879), (399, 12930), (404, 12969), (406, 12987), (407, 12990), (411, 13056), (413, 13080), (423, 13191), (429, 13281), (431, 13341), (454, 13551), (457, 13572), (465, 13677), (467, 13695), (468, 13704), (478, 13758), (479, 13767), (480, 13776), (481, 13779), (482, 13782),

Gene: MargaretKali_17 Start: 10265, Stop: 13696, Start Num: 8

Candidate Starts for MargaretKali_17:

(Start: 8 @10265 has 1 MA's), (Start: 10 @10268 has 1 MA's), (22, 10304), (23, 10313), (34, 10436), (38, 10457), (42, 10487), (46, 10541), (54, 10574), (55, 10607), (56, 10616), (62, 10646), (74, 10709), (75, 10745), (92, 10850), (98, 10904), (99, 10910), (100, 10913), (102, 10937), (109, 10997), (115, 11036), (118, 11051), (123, 11108), (124, 11126), (131, 11180), (141, 11276), (149, 11336), (156, 11366), (193, 11585), (206, 11639), (224, 11708), (249, 11762), (266, 11837), (269, 11849), (271, 11858), (274, 11867), (277, 11885), (283, 11927), (285, 11939), (292, 11987), (296, 11999), (304, 12038), (306, 12047), (314, 12104), (345, 12257), (353, 12293), (361, 12365), (366, 12389), (373, 12488), (374, 12512), (378, 12572), (382, 12626), (383, 12635), (384, 12638), (387, 12692), (392, 12725), (394, 12791), (395, 12809), (396, 12842), (398, 12851), (399, 12860), (402, 12872), (414, 13010), (420, 13076), (421, 13097), (423, 13112), (424, 13127), (425, 13130), (428, 13199), (429, 13202), (433, 13298), (438, 13346), (456, 13493), (458, 13502), (459, 13505), (467, 13622), (471, 13640), (477, 13673),

Gene: Morrey_26 Start: 11131, Stop: 14238, Start Num: 30

Candidate Starts for Morrey_26:

(Start: 14 @10993 has 4 MA's), (23, 11038), (30, 11131), (58, 11353), (83, 11497), (85, 11515), (88, 11539), (99, 11620), (108, 11662), (109, 11665), (111, 11674), (114, 11689), (132, 11845), (136, 11875), (146, 11956), (154, 11992), (162, 12028), (163, 12037), (164, 12049), (170, 12115), (185, 12184), (225, 12343), (263, 12433), (282, 12511), (290, 12565), (293, 12589), (318, 12715), (319, 12718), (354, 12850), (355, 12856), (356, 12865), (357, 12883), (364, 12907), (368, 12937), (370,

12958), (384, 13150), (386, 13186), (422, 13630), (424, 13651), (431, 13786), (439, 13876), (459, 14038), (463, 14092), (473, 14182), (474, 14191),

Gene: NoSwimming_18 Start: 11925, Stop: 15167, Start Num: 11

Candidate Starts for NoSwimming_18:

(Start: 11 @11925 has 4 MA's), (23, 11970), (30, 12063), (33, 12081), (36, 12102), (48, 12201), (60, 12291), (85, 12447), (87, 12465), (88, 12471), (94, 12513), (99, 12552), (100, 12555), (109, 12597), (111, 12606), (129, 12768), (134, 12798), (146, 12888), (154, 12924), (162, 12960), (163, 12969), (170, 13047), (171, 13050), (172, 13059), (185, 13116), (200, 13182), (204, 13197), (265, 13371), (272, 13398), (282, 13443), (287, 13482), (293, 13521), (319, 13650), (322, 13665), (330, 13725), (348, 13764), (354, 13782), (357, 13815), (365, 13848), (367, 13857), (368, 13869), (381, 14064), (382, 14070), (384, 14082), (386, 14118), (411, 14430), (423, 14565), (429, 14655), (439, 14805), (456, 14955), (463, 15021), (470, 15093), (473, 15105),

Gene: Pigu_16 Start: 9334, Stop: 12879, Start Num: 12

Candidate Starts for Pigu_16:

(Start: 12 @9334 has 5 MA's), (17, 9346), (23, 9379), (31, 9481), (32, 9487), (44, 9598), (50, 9616), (54, 9640), (57, 9682), (58, 9694), (63, 9715), (72, 9769), (85, 9856), (88, 9880), (89, 9889), (94, 9922), (99, 9961), (109, 10006), (111, 10015), (120, 10078), (126, 10147), (136, 10216), (150, 10318), (162, 10369), (165, 10393), (171, 10459), (188, 10531), (199, 10597), (207, 10630), (211, 10648), (215, 10669), (218, 10675), (229, 10759), (231, 10768), (232, 10771), (233, 10774), (234, 10783), (236, 10795), (237, 10804), (238, 10813), (242, 10831), (243, 10837), (253, 10891), (262, 10945), (270, 10990), (271, 10996), (275, 11008), (279, 11035), (283, 11074), (287, 11098), (288, 11101), (300, 11158), (303, 11176), (309, 11212), (310, 11221), (315, 11254), (317, 11266), (328, 11323), (339, 11392), (345, 11398), (346, 11401), (351, 11422), (355, 11446), (356, 11458), (359, 11500), (363, 11515), (369, 11560), (374, 11653), (382, 11767), (384, 11779), (393, 11929), (394, 11932), (395, 11950), (396, 11998), (401, 12025), (402, 12028), (405, 12064), (408, 12100), (410, 12130), (411, 12142), (413, 12166), (415, 12202), (423, 12277), (429, 12367), (431, 12427), (457, 12658), (463, 12718), (465, 12763), (467, 12781), (468, 12790), (478, 12844), (479, 12853), (480, 12862), (481, 12865), (482, 12868),

Gene: PrairieDogTown_17 Start: 10993, Stop: 14238, Start Num: 14

Candidate Starts for PrairieDogTown_17:

(Start: 14 @10993 has 4 MA's), (23, 11038), (30, 11131), (58, 11353), (83, 11497), (85, 11515), (88, 11539), (99, 11620), (108, 11662), (109, 11665), (111, 11674), (114, 11689), (132, 11845), (136, 11875), (146, 11956), (154, 11992), (162, 12028), (163, 12037), (164, 12049), (170, 12115), (185, 12184), (225, 12343), (263, 12433), (282, 12511), (290, 12565), (293, 12589), (318, 12715), (319, 12718), (354, 12850), (355, 12856), (356, 12865), (357, 12883), (364, 12907), (368, 12937), (370, 12958), (384, 13150), (386, 13186), (422, 13630), (424, 13651), (431, 13786), (439, 13876), (459, 14038), (463, 14092), (473, 14182), (474, 14191),

Gene: Raya_16 Start: 8509, Stop: 12048, Start Num: 7

Candidate Starts for Raya_16:

(5, 8479), (6, 8488), (7, 8509), (19, 8536), (31, 8665), (43, 8773), (45, 8797), (53, 8836), (55, 8869), (61, 8905), (67, 8944), (70, 8965), (82, 9049), (96, 9154), (97, 9160), (104, 9232), (110, 9274), (112, 9280), (113, 9289), (121, 9355), (127, 9424), (128, 9433), (135, 9493), (140, 9562), (151, 9634), (174, 9793), (175, 9802), (179, 9814), (187, 9850), (189, 9862), (191, 9871), (208, 9946), (252, 10108), (253, 10111), (268, 10180), (270, 10183), (273, 10192), (276, 10213), (278, 10222), (280, 10237), (289, 10303), (291, 10318), (299, 10354), (301, 10369), (305, 10387), (320, 10486), (323, 10510), (325, 10519), (337, 10585), (355, 10654), (356, 10666), (373, 10834), (374, 10858), (382, 10972), (383, 10981), (388, 11041), (389, 11047), (394, 11137), (395, 11155), (402, 11218), (404, 11245), (405, 11254), (406, 11263), (410, 11320), (411, 11332), (415, 11392), (419, 11416), (423, 11470), (434, 11671), (455, 11833), (458, 11860), (461, 11890), (462, 11893), (463, 11917), (469, 11992),

Gene: Rooter_16 Start: 9320, Stop: 12709, Start Num: 12

Candidate Starts for Rooter_16:

(Start: 12 @9320 has 5 MA's), (23, 9365), (41, 9527), (57, 9668), (58, 9680), (69, 9740), (83, 9824), (87, 9860), (88, 9866), (94, 9908), (99, 9947), (109, 9992), (111, 10001), (145, 10280), (162, 10355), (177, 10475), (181, 10493), (184, 10508), (190, 10532), (192, 10550), (197, 10574), (200, 10586), (209, 10622), (214, 10649), (215, 10655), (220, 10667), (237, 10712), (239, 10724), (241, 10736), (250, 10742), (253, 10757), (260, 10766), (262, 10778), (263, 10793), (267, 10811), (279, 10868), (301, 11003), (309, 11045), (310, 11054), (311, 11057), (315, 11087), (317, 11099), (322, 11120), (328, 11156), (339, 11225), (345, 11231), (346, 11234), (351, 11255), (355, 11279), (356, 11291), (363, 11348), (365, 11360), (374, 11486), (378, 11546), (382, 11600), (384, 11612), (402, 11861), (404, 11888), (407, 11909), (413, 11999), (423, 12110), (430, 12245), (431, 12260), (434, 12311), (444, 12383), (451, 12443), (454, 12470), (458, 12494), (464, 12560), (465, 12596), (466, 12602), (468, 12623), (475, 12653), (478, 12677), (479, 12686), (480, 12695), (481, 12698),

Gene: Sarge_16 Start: 9687, Stop: 13076, Start Num: 12

Candidate Starts for Sarge_16:

(Start: 12 @9687 has 5 MA's), (23, 9732), (41, 9894), (57, 10035), (58, 10047), (69, 10107), (83, 10191), (87, 10227), (88, 10233), (94, 10275), (99, 10314), (109, 10359), (111, 10368), (145, 10647), (154, 10686), (162, 10722), (177, 10842), (181, 10860), (184, 10875), (190, 10899), (192, 10917), (197, 10941), (200, 10953), (209, 10989), (214, 11016), (215, 11022), (220, 11034), (237, 11079), (239, 11091), (241, 11103), (250, 11109), (253, 11124), (260, 11133), (262, 11145), (263, 11160), (267, 11178), (279, 11235), (301, 11370), (309, 11412), (310, 11421), (311, 11424), (315, 11454), (317, 11466), (322, 11487), (328, 11523), (339, 11592), (345, 11598), (346, 11601), (351, 11622), (355, 11646), (356, 11658), (359, 11700), (363, 11715), (365, 11727), (374, 11853), (378, 11913), (382, 11967), (384, 11979), (390, 12051), (395, 12150), (396, 12198), (402, 12228), (404, 12255), (407, 12276), (413, 12366), (415, 12402), (423, 12477), (429, 12567), (431, 12627), (434, 12678), (444, 12750), (451, 12810), (454, 12837), (458, 12861), (464, 12927), (465, 12963), (466, 12969), (468, 12990), (475, 13020), (478, 13044), (479, 13053), (480, 13062), (481, 13065),

Gene: Scotia_18 Start: 11925, Stop: 15167, Start Num: 11

Candidate Starts for Scotia_18:

(Start: 11 @11925 has 4 MA's), (23, 11970), (30, 12063), (33, 12081), (36, 12102), (48, 12201), (85, 12447), (87, 12465), (88, 12471), (94, 12513), (99, 12552), (100, 12555), (109, 12597), (111, 12606), (129, 12768), (134, 12798), (146, 12888), (154, 12924), (162, 12960), (163, 12969), (170, 13047), (171, 13050), (185, 13116), (200, 13182), (204, 13197), (241, 13311), (265, 13371), (282, 13443), (287, 13482), (293, 13521), (319, 13650), (322, 13665), (330, 13725), (348, 13764), (354, 13782), (357, 13815), (365, 13848), (367, 13857), (368, 13869), (381, 14064), (382, 14070), (384, 14082), (386, 14118), (411, 14430), (423, 14565), (429, 14655), (439, 14805), (456, 14955), (463, 15021), (470, 15093), (473, 15105),

Gene: Shoya_15 Start: 9323, Stop: 12712, Start Num: 12

Candidate Starts for Shoya_15:

(Start: 12 @9323 has 5 MA's), (23, 9368), (41, 9530), (47, 9596), (57, 9671), (58, 9683), (69, 9743), (80, 9815), (83, 9827), (87, 9863), (88, 9869), (94, 9911), (99, 9950), (109, 9995), (111, 10004), (145, 10283), (162, 10358), (172, 10457), (177, 10478), (181, 10496), (184, 10511), (190, 10535), (192, 10553), (197, 10577), (200, 10589), (209, 10625), (215, 10658), (237, 10715), (241, 10739), (250, 10745), (253, 10760), (260, 10769), (262, 10781), (263, 10796), (267, 10814), (279, 10871), (301, 11006), (309, 11048), (310, 11057), (311, 11060), (315, 11090), (317, 11102), (328, 11159), (339, 11228), (345, 11234), (346, 11237), (351, 11258), (355, 11282), (356, 11294), (360, 11339), (363, 11351), (365, 11363), (374, 11489), (378, 11549), (382, 11603), (384, 11615), (396, 11834), (402, 11864), (404, 11891), (407, 11912), (413, 12002), (423, 12113), (429, 12203), (430, 12248), (431, 12263), (434, 12314), (444, 12386), (454, 12473), (458, 12497), (464, 12563), (465, 12599), (466,

12605), (468, 12626), (475, 12656), (478, 12680), (479, 12689), (480, 12698), (481, 12701),

Gene: Skyerus_16 Start: 8509, Stop: 12048, Start Num: 7

Candidate Starts for Skyerus_16:

(5, 8479), (6, 8488), (7, 8509), (19, 8536), (31, 8665), (43, 8773), (45, 8797), (53, 8836), (55, 8869), (61, 8905), (67, 8944), (70, 8965), (82, 9049), (96, 9154), (97, 9160), (104, 9232), (110, 9274), (112, 9280), (113, 9289), (121, 9355), (127, 9424), (128, 9433), (135, 9493), (140, 9562), (151, 9634), (174, 9793), (175, 9802), (179, 9814), (187, 9850), (189, 9862), (191, 9871), (208, 9946), (252, 10108), (253, 10111), (268, 10180), (270, 10183), (273, 10192), (276, 10213), (278, 10222), (280, 10237), (289, 10303), (291, 10318), (299, 10354), (301, 10369), (305, 10387), (320, 10486), (323, 10510), (325, 10519), (337, 10585), (355, 10654), (356, 10666), (373, 10834), (374, 10858), (382, 10972), (383, 10981), (388, 11041), (389, 11047), (394, 11137), (395, 11155), (402, 11218), (404, 11245), (405, 11254), (406, 11263), (410, 11320), (411, 11332), (415, 11392), (419, 11416), (423, 11470), (434, 11671), (455, 11833), (458, 11860), (461, 11890), (462, 11893), (463, 11917), (469, 11992),