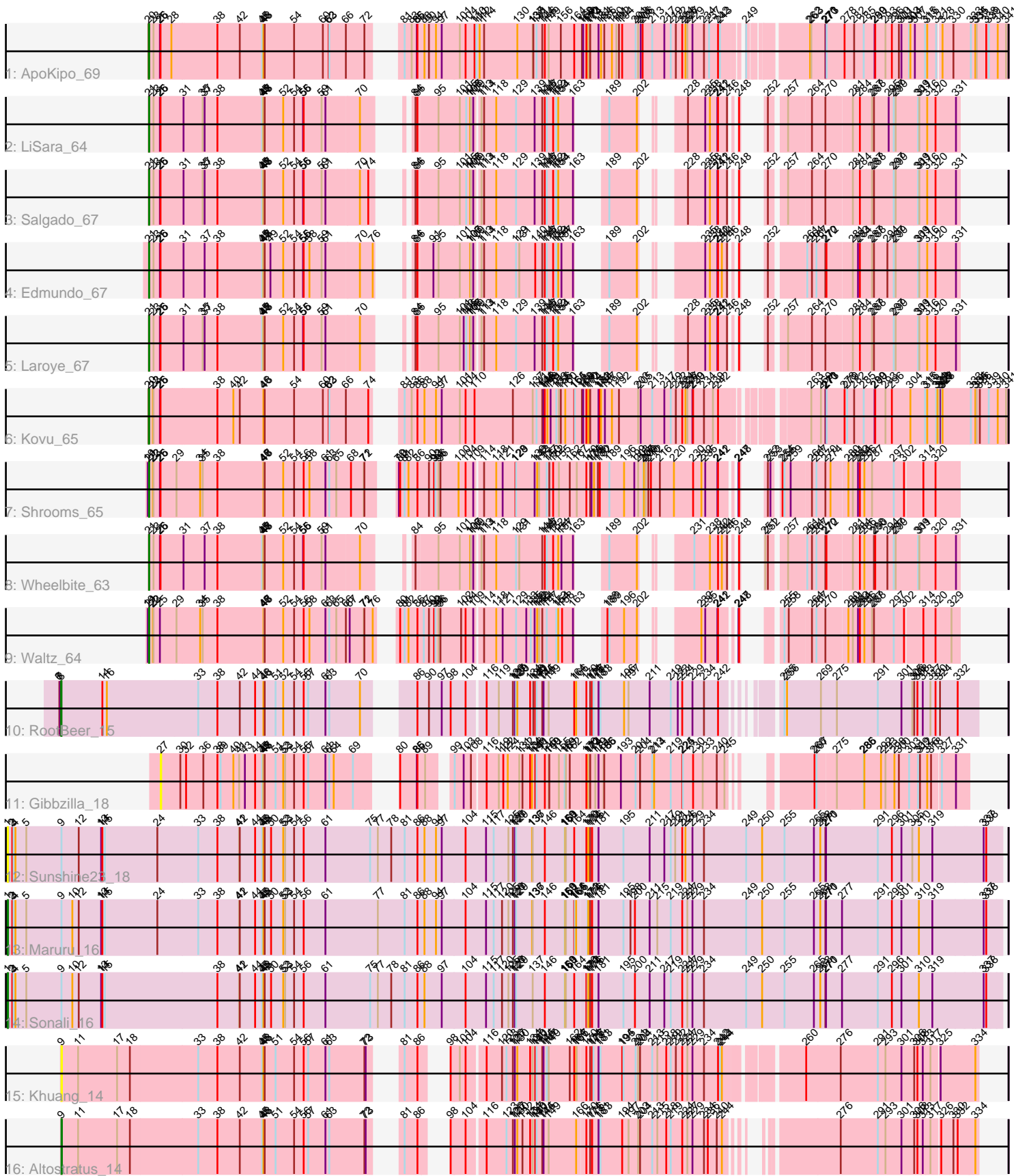


Pham 305379



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 305379 Report

This analysis was run 06/08/26 on database version 649.

Pham number 305379 has 16 members, 3 are drafts.

Phages represented in each track:

- Track 1 : ApoKipo\_69
- Track 2 : LiSara\_64
- Track 3 : Salgado\_67
- Track 4 : Edmundo\_67
- Track 5 : Laroye\_67
- Track 6 : Kovu\_65
- Track 7 : Shrooms\_65
- Track 8 : Wheelbite\_63
- Track 9 : Waltz\_64
- Track 10 : RootBeer\_15
- Track 11 : Gibbzilla\_18
- Track 12 : Sunshine23\_18
- Track 13 : Maruru\_16
- Track 14 : Sonali\_16
- Track 15 : Khuang\_14
- Track 16 : Altostratus\_14

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

The start number called the most often in the published annotations is 21, it was called in 7 of the 13 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Edmundo\_67, Laroye\_67, LiSara\_64, Salgado\_67, Shrooms\_65, Waltz\_64, Wheelbite\_63,

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

- 

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

- Altostratus\_14, ApoKipo\_69, Gibbzilla\_18, Khuang\_14, Kovu\_65, Maruru\_16, RootBeer\_15, Sonali\_16, Sunshine23\_18,

**Summary by start number:**

Start 1:

- Found in 3 of 16 ( 18.8% ) of genes in pham
- Manual Annotations of this start: 2 of 13
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Maruru\_16 (FG), Sonali\_16 (FG), Sunshine23\_18 (FG),

Start 8:

- Found in 1 of 16 ( 6.2% ) of genes in pham
- Manual Annotations of this start: 1 of 13
- Called 100.0% of time when present
- Phage (with cluster) where this start called: RootBeer\_15 (FA),

Start 9:

- Found in 5 of 16 ( 31.2% ) of genes in pham
- Manual Annotations of this start: 1 of 13
- Called 40.0% of time when present
- Phage (with cluster) where this start called: Altostratus\_14 (FS), Khuang\_14 (FS),

Start 20:

- Found in 2 of 16 ( 12.5% ) of genes in pham
- Manual Annotations of this start: 2 of 13
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ApoKipo\_69 (AL), Kovu\_65 (AL),

Start 21:

- Found in 7 of 16 ( 43.8% ) of genes in pham
- Manual Annotations of this start: 7 of 13
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Edmundo\_67 (AL), Laroye\_67 (AL), LiSara\_64 (AL), Salgado\_67 (AL), Shrooms\_65 (AL), Waltz\_64 (AL), Wheelbite\_63 (AL),

Start 27:

- Found in 1 of 16 ( 6.2% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gibbzilla\_18 (FB),

**Summary by clusters:**

There are 5 clusters represented in this pham: FA, FB, FS, AL, FG,

Info for manual annotations of cluster AL:

- Start number 20 was manually annotated 2 times for cluster AL.
- Start number 21 was manually annotated 7 times for cluster AL.

Info for manual annotations of cluster FA:

- Start number 8 was manually annotated 1 time for cluster FA.

Info for manual annotations of cluster FG:

- Start number 1 was manually annotated 2 times for cluster FG.

Info for manual annotations of cluster FS:

- Start number 9 was manually annotated 1 time for cluster FS.

### **Gene Information:**

Gene: Altostratus\_14 Start: 9122, Stop: 12901, Start Num: 9

Candidate Starts for Altostratus\_14:

(Start: 9 @9122 has 1 MA's), (11, 9200), (17, 9383), (18, 9443), (33, 9755), (38, 9845), (42, 9950), (45, 10055), (46, 10061), (48, 10067), (51, 10118), (54, 10205), (56, 10250), (57, 10271), (61, 10352), (63, 10370), (72, 10535), (73, 10541), (81, 10595), (86, 10655), (98, 10697), (104, 10766), (116, 10844), (123, 10937), (126, 10967), (127, 10976), (130, 10988), (132, 11009), (134, 11045), (137, 11057), (140, 11069), (141, 11075), (144, 11102), (145, 11108), (149, 11132), (166, 11261), (170, 11300), (174, 11318), (176, 11327), (181, 11354), (183, 11363), (194, 11465), (197, 11495), (203, 11540), (204, 11549), (213, 11606), (215, 11630), (218, 11672), (219, 11693), (224, 11747), (227, 11771), (229, 11792), (234, 11846), (236, 11864), (240, 11906), (244, 11930), (276, 12281), (291, 12455), (293, 12491), (301, 12566), (306, 12626), (308, 12641), (313, 12662), (317, 12695), (326, 12734), (330, 12788), (332, 12806), (334, 12887),

Gene: ApoKipo\_69 Start: 36687, Stop: 40424, Start Num: 20

Candidate Starts for ApoKipo\_69:

(Start: 20 @36687 has 2 MA's), (23, 36705), (25, 36735), (26, 36738), (28, 36789), (38, 36996), (42, 37101), (45, 37206), (46, 37212), (48, 37218), (54, 37356), (60, 37491), (62, 37518), (63, 37521), (66, 37599), (72, 37686), (81, 37749), (83, 37782), (85, 37806), (86, 37809), (88, 37839), (90, 37860), (94, 37893), (97, 37920), (101, 38004), (104, 38031), (110, 38073), (111, 38082), (112, 38097), (114, 38118), (130, 38274), (137, 38343), (138, 38346), (141, 38361), (144, 38388), (146, 38400), (149, 38418), (156, 38475), (164, 38538), (168, 38565), (169, 38571), (170, 38586), (172, 38595), (173, 38598), (174, 38604), (181, 38640), (184, 38652), (186, 38667), (190, 38703), (191, 38724), (192, 38736), (194, 38751), (201, 38814), (203, 38826), (205, 38838), (206, 38847), (213, 38892), (217, 38949), (219, 38979), (222, 39003), (224, 39033), (226, 39048), (227, 39057), (229, 39078), (234, 39132), (237, 39156), (242, 39198), (243, 39207), (249, 39282), (262, 39519), (263, 39525), (270, 39588), (271, 39591), (273, 39594), (278, 39678), (282, 39723), (285, 39768), (289, 39819), (290, 39822), (293, 39870), (296, 39900), (300, 39933), (301, 39945), (303, 39981), (304, 39987), (307, 40005), (315, 40053), (316, 40062), (321, 40101), (328, 40116), (330, 40167), (333, 40248), (334, 40269), (335, 40275), (338, 40320), (339, 40332), (340, 40374), (341, 40413),

Gene: Edmundo\_67 Start: 37140, Stop: 40157, Start Num: 21

Candidate Starts for Edmundo\_67:

(Start: 21 @37140 has 7 MA's), (23, 37161), (25, 37191), (26, 37194), (31, 37299), (37, 37392), (38, 37452), (45, 37662), (46, 37668), (47, 37671), (48, 37674), (49, 37701), (52, 37761), (54, 37812), (55, 37854), (56, 37857), (58, 37884), (59, 37941), (61, 37959), (70, 38109), (76, 38169), (84, 38202), (86, 38211), (91, 38277), (95, 38301), (101, 38397), (106, 38445), (107, 38448), (109, 38460), (113, 38481), (114, 38493), (118, 38544), (129, 38637), (131, 38652), (140, 38727), (144, 38760), (146, 38772), (147, 38781), (152, 38811), (153, 38826), (154, 38835), (157, 38850), (163, 38904), (189, 38943), (202, 39069), (235, 39219), (238, 39240), (241, 39273), (242, 39276), (244, 39294), (246, 39318), (248, 39330), (252, 39351), (261, 39486), (264, 39507), (267, 39528), (270, 39570), (272, 39573), (281, 39681), (283, 39705), (284, 39714), (287, 39768), (288, 39777), (294, 39840), (297, 39870), (299, 39879), (309, 39978), (311, 39984), (316, 40014), (320, 40053), (331, 40140),

Gene: Gibbzilla\_18 Start: 9575, Stop: 12856, Start Num: 27

Candidate Starts for Gibbzilla\_18:

(27, 9575), (30, 9665), (32, 9692), (36, 9773), (38, 9839), (39, 9854), (40, 9914), (41, 9941), (43, 9968), (44, 10016), (45, 10049), (46, 10055), (47, 10058), (48, 10061), (51, 10112), (52, 10148), (53, 10157), (54, 10199), (56, 10244), (57, 10265), (61, 10346), (63, 10364), (64, 10385), (69, 10475), (80, 10547), (85, 10625), (86, 10628), (89, 10661), (99, 10739), (103, 10781), (108, 10814), (116, 10871), (119, 10928), (122, 10949), (124, 10970), (131, 11021), (132, 11036), (134, 11072), (136, 11081), (140, 11096), (141, 11102), (146, 11141), (149, 11159), (150, 11162), (155, 11207), (159, 11234), (161, 11240), (162, 11258), (170, 11327), (172, 11336), (173, 11339), (174, 11345), (179, 11366), (181, 11381), (185, 11405), (186, 11408), (193, 11486), (201, 11555), (204, 11576), (213, 11633), (214, 11642), (219, 11720), (224, 11774), (225, 11777), (230, 11825), (233, 11870), (240, 11930), (245, 11960), (266, 12176), (267, 12185), (275, 12263), (285, 12386), (286, 12389), (292, 12467), (293, 12488), (298, 12530), (300, 12551), (303, 12599), (309, 12638), (312, 12647), (316, 12680), (318, 12698), (327, 12737), (331, 12794),

Gene: Khuang\_14 Start: 9117, Stop: 13016, Start Num: 9

Candidate Starts for Khuang\_14:

(Start: 9 @9117 has 1 MA's), (11, 9195), (17, 9378), (18, 9438), (33, 9750), (38, 9840), (42, 9945), (45, 10050), (46, 10056), (48, 10062), (51, 10113), (54, 10200), (56, 10245), (57, 10266), (61, 10347), (63, 10365), (72, 10530), (73, 10536), (81, 10590), (86, 10650), (98, 10692), (101, 10734), (104, 10761), (116, 10839), (120, 10911), (123, 10932), (126, 10962), (127, 10971), (130, 10983), (134, 11040), (137, 11052), (140, 11064), (141, 11070), (144, 11097), (145, 11103), (147, 11118), (149, 11127), (162, 11226), (164, 11247), (166, 11256), (167, 11259), (170, 11295), (174, 11313), (176, 11322), (177, 11325), (181, 11349), (183, 11358), (194, 11460), (195, 11466), (201, 11523), (203, 11535), (204, 11544), (213, 11601), (215, 11625), (218, 11667), (219, 11688), (222, 11712), (224, 11742), (227, 11766), (229, 11787), (234, 11841), (242, 11907), (243, 11916), (244, 11925), (260, 12234), (276, 12393), (291, 12567), (293, 12603), (301, 12678), (306, 12738), (308, 12753), (313, 12774), (317, 12807), (325, 12843), (334, 13002),

Gene: Kovu\_65 Start: 36350, Stop: 40081, Start Num: 20

Candidate Starts for Kovu\_65:

(Start: 20 @36350 has 2 MA's), (22, 36365), (23, 36368), (25, 36398), (26, 36401), (38, 36659), (40, 36734), (42, 36764), (46, 36875), (48, 36881), (54, 37019), (60, 37154), (62, 37181), (63, 37184), (66, 37262), (74, 37367), (81, 37412), (83, 37445), (86, 37472), (88, 37502), (94, 37556), (97, 37583), (101, 37667), (104, 37694), (110, 37736), (126, 37916), (137, 38006), (141, 38024), (144, 38051), (145, 38057), (146, 38063), (148, 38075), (151, 38090), (153, 38117), (155, 38129), (156, 38138), (160, 38159), (164, 38201), (165, 38204), (168, 38228), (169, 38234), (170, 38249), (172, 38258), (174, 38267), (181, 38303), (182, 38309), (184, 38315), (187, 38333), (190, 38366), (192, 38399), (203, 38489), (205, 38501), (213, 38555), (217, 38612), (219, 38642), (222, 38666), (224, 38696), (226, 38711), (227, 38720), (229, 38741), (230, 38744), (234, 38795), (239, 38837), (242, 38861), (263, 39167), (269, 39209), (270, 39230), (271, 39233), (273, 39236), (278, 39320), (279, 39332), (282, 39365), (285, 39410), (289, 39461), (290, 39464), (293, 39512), (296, 39542), (304, 39629), (315, 39695), (316, 39704), (321, 39743), (322, 39749), (323, 39758), (325, 39764), (327, 39770), (328, 39773), (333, 39905), (334, 39926), (335, 39932), (336, 39947), (339, 39989), (340, 40031), (341, 40070),

Gene: Laroye\_67 Start: 36530, Stop: 39547, Start Num: 21

Candidate Starts for Laroye\_67:

(Start: 21 @36530 has 7 MA's), (23, 36551), (25, 36581), (26, 36584), (31, 36689), (35, 36773), (37, 36782), (38, 36842), (45, 37052), (46, 37058), (47, 37061), (48, 37064), (52, 37151), (54, 37202), (55, 37244), (56, 37247), (59, 37331), (61, 37349), (70, 37499), (84, 37592), (86, 37601), (95, 37691), (101, 37787), (103, 37805), (105, 37817), (106, 37835), (107, 37838), (109, 37850), (113, 37871), (114, 37883), (118, 37934), (129, 38027), (139, 38114), (144, 38150), (146, 38162), (147, 38171), (152, 38201), (153, 38216), (154, 38225), (163, 38294), (189, 38333), (202, 38459), (228, 38534), (235,

38609), (238, 38630), (241, 38663), (242, 38666), (246, 38708), (248, 38720), (252, 38741), (257, 38795), (264, 38897), (270, 38960), (281, 39071), (284, 39104), (287, 39158), (288, 39167), (297, 39260), (299, 39269), (309, 39368), (311, 39374), (316, 39404), (320, 39443), (331, 39530),

Gene: LiSara\_64 Start: 36692, Stop: 39709, Start Num: 21

Candidate Starts for LiSara\_64:

(Start: 21 @36692 has 7 MA's), (23, 36713), (25, 36743), (26, 36746), (31, 36851), (35, 36935), (37, 36944), (38, 37004), (45, 37214), (46, 37220), (47, 37223), (48, 37226), (52, 37313), (54, 37364), (55, 37406), (56, 37409), (59, 37493), (61, 37511), (70, 37661), (84, 37754), (86, 37763), (95, 37853), (101, 37949), (105, 37979), (106, 37997), (107, 38000), (109, 38012), (113, 38033), (114, 38045), (118, 38096), (129, 38189), (139, 38276), (144, 38312), (146, 38324), (147, 38333), (152, 38363), (153, 38378), (154, 38387), (163, 38456), (189, 38495), (202, 38621), (228, 38696), (235, 38771), (238, 38792), (241, 38825), (242, 38828), (246, 38870), (248, 38882), (252, 38903), (257, 38957), (264, 39059), (270, 39122), (281, 39233), (284, 39266), (287, 39320), (288, 39329), (295, 39398), (297, 39422), (299, 39431), (309, 39530), (311, 39536), (316, 39566), (320, 39605), (331, 39692),

Gene: Maruru\_16 Start: 12620, Stop: 17245, Start Num: 1

Candidate Starts for Maruru\_16:

(Start: 1 @12620 has 2 MA's), (2, 12641), (3, 12647), (4, 12656), (5, 12707), (Start: 9 @12872 has 1 MA's), (10, 12923), (12, 12953), (13, 13058), (14, 13064), (15, 13076), (24, 13322), (33, 13511), (38, 13601), (41, 13703), (42, 13706), (44, 13778), (45, 13811), (46, 13817), (48, 13823), (50, 13853), (52, 13910), (53, 13919), (54, 13961), (56, 14006), (61, 14108), (77, 14354), (81, 14480), (86, 14540), (88, 14570), (94, 14624), (97, 14651), (104, 14762), (115, 14858), (117, 14894), (120, 14933), (125, 14963), (126, 14984), (127, 14993), (129, 14999), (136, 15071), (137, 15074), (146, 15131), (159, 15224), (160, 15227), (161, 15230), (164, 15269), (165, 15272), (166, 15278), (171, 15323), (172, 15326), (174, 15335), (176, 15344), (181, 15371), (195, 15488), (198, 15521), (200, 15542), (211, 15611), (215, 15647), (219, 15710), (224, 15764), (227, 15788), (229, 15809), (234, 15863), (249, 16061), (250, 16136), (255, 16241), (265, 16379), (268, 16406), (270, 16430), (271, 16433), (277, 16508), (291, 16676), (296, 16742), (301, 16787), (310, 16868), (319, 16931), (337, 17165), (338, 17177),

Gene: RootBeer\_15 Start: 9305, Stop: 13243, Start Num: 8

Candidate Starts for RootBeer\_15:

(6, 9296), (7, 9299), (Start: 8 @9305 has 1 MA's), (14, 9497), (16, 9518), (33, 9938), (38, 10028), (42, 10133), (44, 10205), (46, 10244), (48, 10250), (51, 10301), (52, 10337), (54, 10388), (56, 10433), (57, 10454), (61, 10535), (63, 10553), (70, 10697), (86, 10838), (90, 10889), (97, 10949), (98, 10991), (104, 11060), (116, 11138), (119, 11195), (126, 11261), (127, 11270), (129, 11276), (130, 11282), (134, 11339), (138, 11354), (140, 11363), (141, 11369), (144, 11396), (145, 11402), (149, 11426), (164, 11546), (166, 11555), (170, 11594), (174, 11612), (176, 11621), (177, 11624), (181, 11648), (183, 11657), (196, 11768), (197, 11789), (211, 11888), (219, 11987), (223, 12020), (224, 12041), (229, 12086), (234, 12140), (242, 12206), (255, 12362), (256, 12374), (269, 12530), (275, 12605), (291, 12797), (301, 12908), (305, 12959), (306, 12968), (308, 12983), (313, 13004), (317, 13037), (320, 13058), (324, 13067), (332, 13148),

Gene: Salgado\_67 Start: 36346, Stop: 39363, Start Num: 21

Candidate Starts for Salgado\_67:

(Start: 21 @36346 has 7 MA's), (23, 36367), (25, 36397), (26, 36400), (31, 36505), (35, 36589), (37, 36598), (38, 36658), (45, 36868), (46, 36874), (47, 36877), (48, 36880), (52, 36967), (54, 37018), (55, 37060), (56, 37063), (59, 37147), (61, 37165), (70, 37315), (74, 37354), (84, 37408), (86, 37417), (95, 37507), (101, 37603), (105, 37633), (106, 37651), (107, 37654), (109, 37666), (113, 37687), (114, 37699), (118, 37750), (129, 37843), (139, 37930), (144, 37966), (146, 37978), (147, 37987), (152, 38017), (153, 38032), (154, 38041), (163, 38110), (189, 38149), (202, 38275), (228, 38350), (235, 38425), (238, 38446), (241, 38479), (242, 38482), (246, 38524), (248, 38536), (252, 38557), (257,

38611), (264, 38713), (270, 38776), (281, 38887), (284, 38920), (287, 38974), (288, 38983), (297, 39076), (299, 39085), (309, 39184), (311, 39190), (316, 39220), (320, 39259), (331, 39346),

Gene: Shrooms\_65 Start: 34492, Stop: 37881, Start Num: 21

Candidate Starts for Shrooms\_65:

(19, 34486), (Start: 21 @34492 has 7 MA's), (22, 34510), (23, 34513), (25, 34543), (26, 34546), (29, 34621), (34, 34723), (35, 34735), (38, 34804), (46, 35020), (47, 35023), (48, 35026), (52, 35113), (54, 35164), (56, 35209), (58, 35236), (61, 35311), (63, 35329), (65, 35362), (68, 35431), (71, 35491), (72, 35494), (79, 35560), (80, 35566), (81, 35587), (82, 35602), (86, 35644), (90, 35698), (92, 35722), (93, 35728), (95, 35743), (96, 35752), (100, 35833), (104, 35866), (109, 35902), (114, 35935), (118, 35986), (121, 36016), (128, 36076), (129, 36079), (139, 36166), (142, 36178), (143, 36187), (147, 36223), (150, 36235), (152, 36253), (155, 36280), (162, 36331), (167, 36364), (170, 36409), (174, 36427), (175, 36433), (178, 36445), (180, 36463), (182, 36472), (189, 36517), (196, 36586), (199, 36631), (203, 36649), (207, 36673), (208, 36676), (209, 36685), (210, 36697), (212, 36709), (216, 36751), (220, 36817), (230, 36907), (232, 36940), (235, 36958), (241, 37012), (242, 37015), (247, 37066), (248, 37069), (252, 37090), (253, 37102), (254, 37126), (255, 37135), (259, 37156), (264, 37246), (267, 37267), (270, 37309), (274, 37327), (280, 37399), (281, 37420), (283, 37444), (284, 37453), (286, 37474), (287, 37507), (297, 37609), (302, 37654), (314, 37720), (320, 37777),

Gene: Sonali\_16 Start: 13198, Stop: 17811, Start Num: 1

Candidate Starts for Sonali\_16:

(Start: 1 @13198 has 2 MA's), (2, 13219), (3, 13225), (4, 13234), (5, 13285), (Start: 9 @13450 has 1 MA's), (10, 13501), (12, 13531), (13, 13636), (14, 13642), (15, 13654), (38, 14179), (41, 14281), (42, 14284), (44, 14356), (45, 14389), (46, 14395), (48, 14401), (50, 14431), (52, 14488), (53, 14497), (54, 14539), (56, 14584), (61, 14686), (75, 14896), (77, 14920), (78, 14983), (81, 15046), (86, 15106), (88, 15136), (97, 15217), (104, 15328), (115, 15424), (117, 15460), (120, 15499), (125, 15529), (126, 15550), (127, 15559), (129, 15565), (137, 15640), (146, 15697), (159, 15790), (160, 15793), (161, 15796), (164, 15835), (170, 15883), (171, 15889), (172, 15892), (174, 15901), (176, 15910), (181, 15937), (195, 16054), (200, 16108), (211, 16177), (217, 16246), (219, 16276), (224, 16330), (227, 16354), (229, 16375), (234, 16429), (249, 16627), (250, 16702), (255, 16807), (265, 16945), (268, 16972), (270, 16996), (271, 16999), (277, 17074), (291, 17242), (296, 17308), (301, 17353), (310, 17434), (319, 17497), (337, 17731), (338, 17743),

Gene: Sunshine23\_18 Start: 13210, Stop: 17823, Start Num: 1

Candidate Starts for Sunshine23\_18:

(Start: 1 @13210 has 2 MA's), (2, 13231), (3, 13237), (4, 13246), (5, 13297), (Start: 9 @13462 has 1 MA's), (12, 13543), (13, 13648), (14, 13654), (15, 13666), (24, 13912), (33, 14101), (38, 14191), (41, 14293), (42, 14296), (44, 14368), (45, 14401), (46, 14407), (48, 14413), (50, 14443), (52, 14500), (53, 14509), (54, 14551), (56, 14596), (61, 14698), (75, 14908), (77, 14932), (78, 14995), (81, 15058), (86, 15118), (88, 15148), (94, 15202), (97, 15229), (104, 15340), (115, 15436), (117, 15472), (125, 15541), (126, 15562), (127, 15571), (129, 15577), (136, 15649), (137, 15652), (146, 15709), (159, 15802), (160, 15805), (161, 15808), (164, 15847), (170, 15895), (172, 15904), (174, 15913), (176, 15922), (181, 15949), (195, 16066), (211, 16189), (217, 16258), (219, 16288), (221, 16309), (224, 16342), (226, 16357), (229, 16387), (234, 16441), (249, 16639), (250, 16714), (255, 16819), (265, 16957), (268, 16984), (270, 17008), (271, 17011), (291, 17254), (296, 17320), (301, 17365), (305, 17416), (310, 17446), (319, 17509), (337, 17743), (338, 17755),

Gene: Waltz\_64 Start: 34787, Stop: 37879, Start Num: 21

Candidate Starts for Waltz\_64:

(19, 34781), (Start: 21 @34787 has 7 MA's), (22, 34805), (23, 34808), (25, 34838), (29, 34916), (34, 35018), (35, 35030), (38, 35099), (46, 35315), (47, 35318), (48, 35321), (52, 35408), (54, 35459), (56, 35504), (58, 35531), (61, 35606), (63, 35624), (65, 35657), (66, 35702), (67, 35720), (71, 35786), (72, 35789), (76, 35828), (80, 35861), (81, 35882), (82, 35897), (86, 35939), (87, 35969), (90, 35993), (92,

36017), (93, 36023), (95, 36038), (96, 36047), (102, 36140), (104, 36161), (109, 36197), (114, 36230), (118, 36281), (121, 36311), (129, 36374), (133, 36422), (135, 36443), (139, 36461), (142, 36473), (143, 36482), (144, 36497), (147, 36518), (153, 36563), (154, 36572), (158, 36590), (163, 36641), (188, 36671), (189, 36680), (196, 36749), (202, 36806), (232, 36938), (235, 36956), (241, 37010), (242, 37013), (247, 37064), (248, 37067), (255, 37133), (258, 37145), (264, 37244), (267, 37265), (270, 37307), (280, 37397), (281, 37418), (283, 37442), (284, 37451), (286, 37472), (287, 37505), (288, 37514), (297, 37607), (302, 37652), (314, 37718), (320, 37775), (329, 37841),

Gene: Wheelbite\_63 Start: 36504, Stop: 39521, Start Num: 21

Candidate Starts for Wheelbite\_63:

(Start: 21 @36504 has 7 MA's), (23, 36525), (25, 36555), (26, 36558), (31, 36663), (37, 36756), (38, 36816), (45, 37026), (46, 37032), (47, 37035), (48, 37038), (52, 37125), (54, 37176), (55, 37218), (56, 37221), (59, 37305), (61, 37323), (70, 37473), (84, 37566), (95, 37665), (101, 37761), (106, 37809), (107, 37812), (109, 37824), (113, 37845), (114, 37857), (118, 37908), (129, 38001), (131, 38016), (144, 38124), (146, 38136), (147, 38145), (152, 38175), (154, 38199), (157, 38214), (163, 38268), (189, 38307), (202, 38433), (231, 38538), (238, 38604), (242, 38640), (244, 38658), (246, 38682), (248, 38694), (251, 38703), (252, 38715), (257, 38769), (261, 38850), (264, 38871), (267, 38892), (270, 38934), (272, 38937), (281, 39045), (284, 39078), (286, 39099), (288, 39141), (290, 39147), (294, 39204), (297, 39234), (299, 39243), (309, 39342), (311, 39348), (320, 39417), (331, 39504),