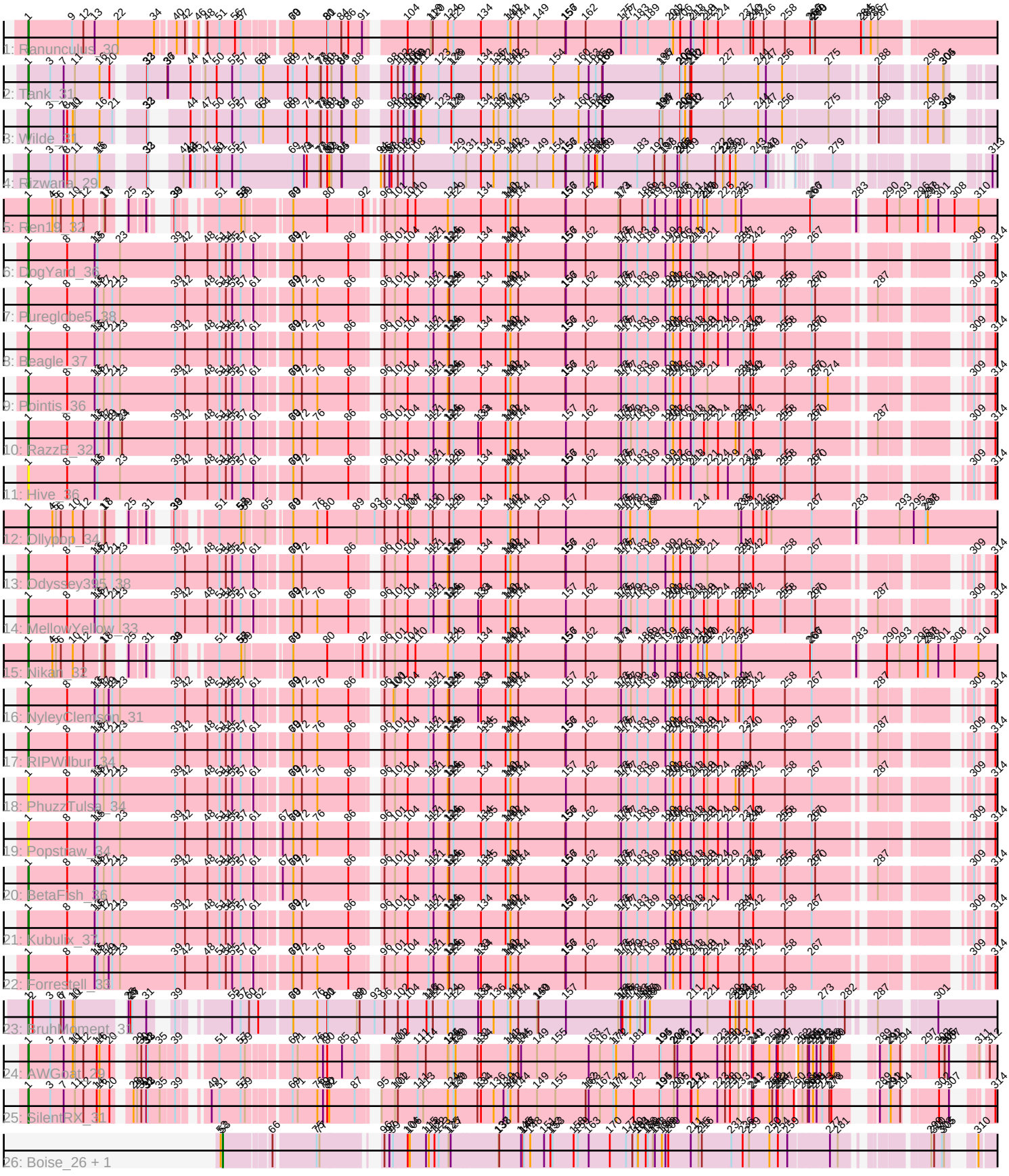
Zoomed Pham 341138



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 341138 Report

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

Pham number 341138 has 27 members, 4 are drafts.

Phages represented in each track:
- Track 1 : Ranunculus_30
- Track 2 : Tank_31
- Track 3 : Wilde_31
- Track 4 : Rizwana_29
- Track 5 : Ren19_32
- Track 6 : DogYard_36
- Track 7 : Pureglobe5_38
- Track 8 : Beagle_37
- Track 9 : Pointis_36
- Track 10 : RazzB_32
- Track 11 : Hive_36
- Track 12 : Ollypop_34
- Track 13 : Odyssey395_38
- Track 14 : MellowYellow_33
- Track 15 : Nikan_32
- Track 16 : NyleyClemson_31
- Track 17 : RIPWilbur_34
- Track 18 : PhuzzTulsa_34
- Track 19 : Popstraw_34
- Track 20 : BetaFish_36
- Track 21 : Kubulix_37
- Track 22 : Forrestell_33
- Track 23 : BruhMoment_31
- Track 24 : AWGoat_29
- Track 25 : SilentRX_31
- Track 26 : Boise_26, RomansRevenge_27

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

The start number called the most often in the published annotations is 1, it was called in 22 of the 23 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

• AWGoat_29, Beagle_37, BetaFish_36, BruhMoment_31, DogYard_36, Forrestell_33, Hive_36, Kubulix_37, MellowYellow_33, Nikan_32, NyleyClemson_31, Odyssey395_38, Ollypop_34, PhuzzTulsa_34, Pointis_36, Popstraw_34, Pureglobe5_38, RIPWilbur_34, Ranunculus_30, RazzB_32, Ren19_32, Rizwana_29, SilentRX_31, Tank_31, Wilde_31,

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

Genes that do not have the "Most Annotated" start:
• Boise_26, RomansRevenge_27,

Summary by start number:

Start 1:
• Found in 25 of 27 (92.6%) of genes in pham
• Manual Annotations of this start: 22 of 23
• Called 100.0% of time when present
• Phage (with cluster) where this start called: AWGoat_29 (AP4), Beagle_37 (AP2), BetaFish_36 (AP2), BruhMoment_31 (AP3), DogYard_36 (AP2), Forrestell_33 (AP2), Hive_36 (AP2), Kubulix_37 (AP2), MellowYellow_33 (AP2), Nikan_32 (AP2), NyleyClemson_31 (AP2), Odyssey395_38 (AP2), Ollypop_34 (AP2), PhuzzTulsa_34 (AP2), Pointis_36 (AP2), Popstraw_34 (AP2), Pureglobe5_38 (AP2), RIPWilbur_34 (AP2), Ranunculus_30 (AP), RazzB_32 (AP2), Ren19_32 (AP2), Rizwana_29 (AP1), SilentRX_31 (AP4), Tank_31 (AP1), Wilde_31 (AP1),

Start 53:
• Found in 2 of 27 (7.4%) of genes in pham
• Manual Annotations of this start: 1 of 23
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Boise_26 (FT), RomansRevenge_27 (FT),

Summary by clusters:

There are 6 clusters represented in this pham: FT, AP2, AP3, AP1, AP4, AP,

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

Info for manual annotations of cluster AP1:
•Start number 1 was manually annotated 3 times for cluster AP1.

Info for manual annotations of cluster AP2:
•Start number 1 was manually annotated 15 times for cluster AP2.

Info for manual annotations of cluster AP3:
•Start number 1 was manually annotated 1 time for cluster AP3.

Info for manual annotations of cluster AP4:
•Start number 1 was manually annotated 2 times for cluster AP4.

Info for manual annotations of cluster FT:

•Start number 53 was manually annotated 1 time for cluster FT.

Gene Information:

Gene: AWGoat_29 Start: 22075, Stop: 26175, Start Num: 1
Candidate Starts for AWGoat_29:
(Start: 1 @22075 has 22 MA's), (3, 22168), (7, 22225), (10, 22261), (11, 22270), (12, 22303), (14, 22360), (16, 22372), (20, 22414), (29, 22477), (30, 22495), (31, 22516), (32, 22519), (33, 22522), (35, 22573), (39, 22630), (51, 22741), (57, 22828), (59, 22846), (69, 22996), (71, 23017), (76, 23101), (79, 23125), (80, 23143), (85, 23206), (87, 23260), (101, 23368), (102, 23380), (111, 23464), (114, 23497), (124, 23590), (125, 23593), (129, 23614), (130, 23623), (132, 23713), (134, 23728), (141, 23836), (142, 23848), (144, 23881), (145, 23893), (149, 23959), (155, 24037), (163, 24178), (167, 24226), (171, 24283), (172, 24292), (181, 24364), (194, 24478), (195, 24481), (203, 24538), (204, 24541), (205, 24553), (211, 24610), (212, 24613), (223, 24721), (228, 24754), (230, 24775), (233, 24811), (241, 24838), (242, 24844), (250, 24907), (253, 24928), (254, 24934), (257, 24952), (262, 24994), (263, 25012), (264, 25033), (265, 25039), (268, 25054), (271, 25069), (272, 25084), (273, 25090), (276, 25117), (278, 25126), (280, 25135), (289, 25222), (291, 25249), (292, 25255), (294, 25291), (297, 25348), (302, 25405), (305, 25426), (306, 25429), (307, 25447), (311, 25480), (312, 25501), (315, 25546), (316, 25549), (318, 25636), (323, 25756), (325, 25777), (329, 25810), (335, 25891), (340, 25957), (353, 26128),

Gene: Beagle_37 Start: 21530, Stop: 26407, Start Num: 1
Candidate Starts for Beagle_37:
(Start: 1 @21530 has 22 MA's), (8, 21692), (13, 21809), (15, 21821), (17, 21848), (21, 21881), (23, 21914), (39, 22148), (42, 22190), (48, 22286), (51, 22337), (54, 22364), (55, 22391), (57, 22424), (61, 22466), (69, 22592), (70, 22595), (72, 22631), (76, 22697), (86, 22829), (96, 22919), (101, 22964), (104, 23018), (117, 23105), (121, 23126), (124, 23183), (126, 23189), (129, 23207), (134, 23321), (140, 23423), (141, 23432), (142, 23444), (144, 23477), (156, 23675), (157, 23678), (162, 23762), (173, 23900), (175, 23912), (177, 23933), (183, 23981), (189, 24026), (199, 24101), (201, 24119), (202, 24134), (206, 24164), (211, 24209), (213, 24221), (218, 24263), (221, 24278), (224, 24320), (229, 24362), (237, 24428), (240, 24452), (242, 24464), (255, 24578), (258, 24596), (267, 24704), (270, 24719), (309, 25142), (314, 25196), (320, 25337), (322, 25415), (332, 25547), (333, 25580), (347, 25769), (357, 25901), (361, 25991), (366, 26051), (367, 26069), (369, 26078), (370, 26081), (373, 26120), (382, 26219), (391, 26321), (392, 26351),

Gene: BetaFish_36 Start: 21724, Stop: 26601, Start Num: 1
Candidate Starts for BetaFish_36:
(Start: 1 @21724 has 22 MA's), (8, 21886), (13, 22003), (15, 22015), (17, 22042), (21, 22075), (23, 22108), (39, 22342), (42, 22384), (48, 22480), (51, 22531), (54, 22558), (55, 22585), (57, 22618), (61, 22660), (67, 22744), (69, 22786), (70, 22789), (72, 22825), (86, 23023), (96, 23113), (101, 23158), (104, 23212), (117, 23299), (121, 23320), (124, 23377), (126, 23383), (129, 23401), (134, 23515), (135, 23536), (140, 23617), (141, 23626), (142, 23638), (144, 23671), (156, 23869), (157, 23872), (162, 23956), (173, 24094), (175, 24106), (177, 24127), (183, 24175), (189, 24220), (199, 24295), (201, 24313), (202, 24328), (206, 24358), (211, 24403), (213, 24415), (218, 24457), (221, 24472), (224, 24514), (229, 24556), (237, 24622), (240, 24646), (242, 24658), (255, 24772), (258, 24790), (267, 24898), (270, 24913), (287, 25099), (309, 25336), (314, 25390), (320, 25531), (322, 25609), (332, 25741), (333, 25774), (347, 25963), (357, 26095), (361, 26185), (366, 26245), (367, 26263), (369, 26272), (370, 26275), (373, 26314), (382, 26413), (391, 26515), (392, 26545),

Gene: Boise_26 Start: 20099, Stop: 23632, Start Num: 53
Candidate Starts for Boise_26:

(52, 20090), (Start: 53 @20099 has 1 MA's), (66, 20273), (75, 20438), (77, 20450), (96, 20636), (97, 20657), (99, 20669), (104, 20729), (106, 20738), (115, 20807), (118, 20819), (122, 20843), (123, 20861), (125, 20903), (127, 20912), (137, 21113), (138, 21116), (145, 21209), (146, 21218), (147, 21221), (148, 21248), (151, 21305), (152, 21332), (153, 21341), (158, 21431), (159, 21449), (163, 21494), (170, 21584), (177, 21644), (180, 21671), (183, 21692), (184, 21695), (188, 21725), (189, 21734), (191, 21755), (193, 21764), (196, 21794), (199, 21809), (200, 21821), (211, 21917), (215, 21950), (216, 21959), (231, 22085), (236, 22133), (239, 22154), (250, 22241), (254, 22271), (259, 22304), (277, 22469), (281, 22502), (299, 22757), (300, 22769), (303, 22802), (305, 22811), (310, 22868), (325, 23174), (327, 23195), (328, 23204), (331, 23252), (334, 23303), (338, 23342), (339, 23348), (342, 23405), (352, 23534),

Gene: BruhMoment_31 Start: 21088, Stop: 25983, Start Num: 1
Candidate Starts for BruhMoment_31:
(Start: 1 @21088 has 22 MA's), (2, 21106), (3, 21181), (6, 21223), (7, 21235), (10, 21274), (11, 21283), (25, 21451), (26, 21460), (27, 21466), (31, 21520), (39, 21565), (55, 21730), (57, 21763), (60, 21799), (62, 21838), (69, 21964), (70, 21967), (76, 22069), (80, 22111), (81, 22114), (89, 22237), (90, 22249), (93, 22312), (96, 22354), (102, 22411), (104, 22453), (116, 22531), (117, 22540), (120, 22558), (124, 22618), (129, 22642), (133, 22744), (134, 22756), (136, 22807), (141, 22867), (142, 22879), (144, 22912), (149, 22990), (150, 22996), (157, 23113), (173, 23335), (175, 23347), (176, 23353), (177, 23368), (178, 23386), (183, 23416), (185, 23428), (187, 23449), (189, 23461), (190, 23470), (211, 23644), (221, 23713), (230, 23806), (232, 23830), (233, 23842), (234, 23845), (238, 23875), (242, 23902), (258, 24034), (273, 24187), (282, 24271), (287, 24340), (301, 24535), (322, 24997), (324, 25030), (330, 25087), (332, 25129), (335, 25174), (337, 25198), (343, 25294), (345, 25330), (347, 25351), (349, 25363), (354, 25450), (358, 25504), (360, 25561), (362, 25591), (364, 25624), (372, 25678), (373, 25705), (381, 25780), (387, 25855), (393, 25924),

Gene: DogYard_36 Start: 21418, Stop: 26301, Start Num: 1
Candidate Starts for DogYard_36:
(Start: 1 @21418 has 22 MA's), (8, 21580), (13, 21697), (15, 21709), (23, 21802), (39, 22036), (42, 22078), (48, 22174), (51, 22225), (54, 22252), (55, 22279), (57, 22312), (61, 22354), (69, 22480), (70, 22483), (72, 22519), (86, 22717), (96, 22807), (101, 22852), (104, 22906), (117, 22993), (121, 23014), (124, 23071), (126, 23077), (129, 23095), (134, 23209), (140, 23311), (141, 23320), (142, 23332), (144, 23365), (156, 23563), (157, 23566), (162, 23650), (173, 23788), (175, 23800), (177, 23821), (183, 23869), (189, 23914), (199, 23989), (202, 24022), (206, 24052), (211, 24097), (213, 24109), (221, 24166), (234, 24298), (237, 24316), (242, 24352), (258, 24484), (267, 24598), (309, 25036), (314, 25090), (320, 25231), (322, 25309), (332, 25441), (333, 25474), (347, 25663), (357, 25795), (361, 25885), (366, 25945), (367, 25963), (369, 25972), (370, 25975), (373, 26014), (382, 26113), (391, 26215), (392, 26245),

Gene: Forrestell_33 Start: 20211, Stop: 25094, Start Num: 1
Candidate Starts for Forrestell_33:
(Start: 1 @20211 has 22 MA's), (8, 20373), (13, 20490), (15, 20502), (17, 20529), (19, 20547), (21, 20562), (23, 20595), (39, 20829), (42, 20871), (48, 20967), (51, 21018), (54, 21045), (55, 21072), (57, 21105), (61, 21147), (69, 21273), (70, 21276), (72, 21312), (76, 21378), (86, 21510), (96, 21600), (101, 21645), (104, 21699), (117, 21786), (121, 21807), (124, 21864), (126, 21870), (129, 21888), (133, 21990), (134, 22002), (140, 22104), (141, 22113), (142, 22125), (144, 22158), (156, 22356), (157, 22359), (162, 22443), (173, 22581), (175, 22593), (177, 22614), (179, 22635), (183, 22662), (189, 22707), (199, 22782), (201, 22800), (202, 22815), (206, 22845), (211, 22890), (213, 22902), (218, 22944), (221, 22959), (224, 23001), (234, 23091), (237, 23109), (242, 23145), (258, 23277), (267, 23391), (309, 23829), (314, 23883), (320, 24024), (322, 24102), (332, 24234), (333, 24267), (351, 24510), (357, 24588), (361, 24678), (366, 24738), (367, 24756), (369, 24765), (370, 24768), (373, 24807), (382, 24906), (391, 25008), (392, 25038),

Gene: Hive_36 Start: 21605, Stop: 26482, Start Num: 1
Candidate Starts for Hive_36:
(Start: 1 @21605 has 22 MA's), (8, 21767), (13, 21884), (15, 21896), (23, 21989), (39, 22223), (42, 22265), (48, 22361), (51, 22412), (54, 22439), (55, 22466), (57, 22499), (61, 22541), (69, 22667), (70, 22670), (72, 22706), (86, 22904), (96, 22994), (101, 23039), (104, 23093), (117, 23180), (121, 23201), (126, 23264), (129, 23282), (134, 23396), (140, 23498), (141, 23507), (142, 23519), (144, 23552), (156, 23750), (157, 23753), (162, 23837), (173, 23975), (175, 23987), (177, 24008), (183, 24056), (189, 24101), (199, 24176), (202, 24209), (206, 24239), (211, 24284), (213, 24296), (221, 24353), (224, 24395), (229, 24437), (237, 24503), (240, 24527), (242, 24539), (255, 24653), (258, 24671), (267, 24779), (270, 24794), (309, 25217), (314, 25271), (320, 25412), (322, 25490), (332, 25622), (333, 25655), (347, 25844), (357, 25976), (361, 26066), (366, 26126), (367, 26144), (369, 26153), (370, 26156), (373, 26195), (376, 26258), (382, 26294), (391, 26396), (392, 26426),

Gene: Kubulix_37 Start: 21714, Stop: 26597, Start Num: 1
Candidate Starts for Kubulix_37:
(Start: 1 @21714 has 22 MA's), (8, 21876), (13, 21993), (15, 22005), (17, 22032), (21, 22065), (23, 22098), (39, 22332), (42, 22374), (48, 22470), (51, 22521), (54, 22548), (55, 22575), (57, 22608), (61, 22650), (69, 22776), (70, 22779), (72, 22815), (86, 23013), (96, 23103), (101, 23148), (104, 23202), (117, 23289), (121, 23310), (124, 23367), (126, 23373), (129, 23391), (134, 23505), (140, 23607), (141, 23616), (142, 23628), (144, 23661), (156, 23859), (157, 23862), (162, 23946), (173, 24084), (175, 24096), (177, 24117), (183, 24165), (189, 24210), (199, 24285), (202, 24318), (206, 24348), (211, 24393), (213, 24405), (221, 24462), (234, 24594), (237, 24612), (242, 24648), (258, 24780), (267, 24894), (309, 25332), (314, 25386), (320, 25527), (322, 25605), (332, 25737), (333, 25770), (347, 25959), (357, 26091), (361, 26181), (366, 26241), (367, 26259), (369, 26268), (370, 26271), (373, 26310), (376, 26373), (382, 26409), (391, 26511), (392, 26541),

Gene: MellowYellow_33 Start: 20265, Stop: 25142, Start Num: 1
Candidate Starts for MellowYellow_33:
(Start: 1 @20265 has 22 MA's), (8, 20427), (13, 20544), (15, 20556), (17, 20583), (21, 20616), (23, 20649), (39, 20883), (42, 20925), (48, 21021), (51, 21072), (54, 21099), (55, 21126), (57, 21159), (61, 21201), (69, 21327), (70, 21330), (72, 21366), (76, 21432), (86, 21564), (96, 21654), (101, 21699), (104, 21753), (117, 21840), (121, 21861), (124, 21918), (126, 21924), (129, 21942), (133, 22044), (134, 22056), (140, 22158), (141, 22167), (142, 22179), (144, 22212), (157, 22413), (162, 22497), (173, 22635), (175, 22647), (177, 22668), (179, 22689), (183, 22716), (189, 22761), (199, 22836), (201, 22854), (202, 22869), (206, 22899), (211, 22944), (213, 22956), (218, 22998), (221, 23013), (224, 23055), (232, 23130), (234, 23145), (237, 23163), (242, 23199), (255, 23313), (258, 23331), (267, 23439), (270, 23454), (287, 23640), (309, 23877), (314, 23931), (320, 24072), (322, 24150), (332, 24282), (333, 24315), (347, 24504), (357, 24636), (361, 24726), (366, 24786), (367, 24804), (369, 24813), (370, 24816), (373, 24855), (382, 24954), (391, 25056), (392, 25086),

Gene: Nikan_32 Start: 20595, Stop: 25382, Start Num: 1
Candidate Starts for Nikan_32:
(Start: 1 @20595 has 22 MA's), (4, 20697), (5, 20712), (6, 20733), (10, 20781), (12, 20826), (17, 20895), (18, 20898), (25, 20937), (31, 20979), (38, 21009), (39, 21012), (51, 21123), (57, 21210), (58, 21213), (59, 21228), (69, 21378), (70, 21381), (80, 21525), (92, 21663), (96, 21705), (101, 21750), (104, 21804), (110, 21837), (124, 21969), (129, 21993), (134, 22107), (140, 22209), (141, 22218), (142, 22230), (144, 22263), (156, 22461), (157, 22464), (162, 22548), (173, 22686), (174, 22695), (186, 22788), (189, 22812), (193, 22842), (199, 22887), (205, 22938), (206, 22950), (211, 22995), (214, 23025), (217, 23049), (219, 23052), (220, 23064), (225, 23127), (232, 23184), (235, 23199), (266, 23463), (267, 23469), (283, 23637), (290, 23718), (293, 23772), (296, 23844), (297, 23874), (298, 23883), (301, 23928), (308, 23997), (310, 24099), (319, 24303), (324, 24423), (325, 24435), (335, 24567), (340, 24642), (348, 24753), (349, 24756), (350, 24789), (351, 24798), (356, 24873), (371, 25059), (373, 25095), (376, 25158), (380, 25185), (384, 25239), (385, 25242), (386, 25260),

(388, 25278), (391, 25305), (392, 25335),

Gene: NyleyClemson_31 Start: 20192, Stop: 25075, Start Num: 1
Candidate Starts for NyleyClemson_31:
(Start: 1 @20192 has 22 MA's), (8, 20354), (13, 20471), (15, 20483), (17, 20510), (19, 20528), (21, 20543), (23, 20576), (39, 20810), (42, 20852), (48, 20948), (51, 20999), (54, 21026), (55, 21053), (57, 21086), (61, 21128), (69, 21254), (70, 21257), (72, 21293), (76, 21359), (86, 21491), (96, 21581), (100, 21620), (101, 21626), (104, 21680), (117, 21767), (121, 21788), (124, 21845), (126, 21851), (129, 21869), (133, 21971), (134, 21983), (140, 22085), (141, 22094), (142, 22106), (144, 22139), (157, 22340), (162, 22424), (173, 22562), (175, 22574), (177, 22595), (179, 22616), (183, 22643), (189, 22688), (199, 22763), (201, 22781), (202, 22796), (206, 22826), (211, 22871), (213, 22883), (218, 22925), (221, 22940), (224, 22982), (232, 23057), (234, 23072), (237, 23090), (242, 23126), (258, 23258), (267, 23372), (287, 23573), (309, 23810), (314, 23864), (320, 24005), (322, 24083), (332, 24215), (333, 24248), (351, 24491), (357, 24569), (361, 24659), (366, 24719), (367, 24737), (369, 24746), (370, 24749), (373, 24788), (382, 24887), (391, 24989), (392, 25019),

Gene: Odyssey395_38 Start: 21543, Stop: 26426, Start Num: 1
Candidate Starts for Odyssey395_38:
(Start: 1 @21543 has 22 MA's), (8, 21705), (13, 21822), (15, 21834), (17, 21861), (21, 21894), (23, 21927), (39, 22161), (42, 22203), (48, 22299), (51, 22350), (54, 22377), (55, 22404), (57, 22437), (61, 22479), (69, 22605), (70, 22608), (72, 22644), (86, 22842), (96, 22932), (101, 22977), (104, 23031), (117, 23118), (121, 23139), (124, 23196), (126, 23202), (129, 23220), (134, 23334), (140, 23436), (141, 23445), (142, 23457), (144, 23490), (156, 23688), (157, 23691), (162, 23775), (173, 23913), (175, 23925), (177, 23946), (183, 23994), (189, 24039), (199, 24114), (202, 24147), (206, 24177), (211, 24222), (213, 24234), (221, 24291), (234, 24423), (237, 24441), (242, 24477), (258, 24609), (267, 24723), (309, 25161), (314, 25215), (320, 25356), (322, 25434), (332, 25566), (333, 25599), (347, 25788), (357, 25920), (361, 26010), (366, 26070), (367, 26088), (369, 26097), (370, 26100), (373, 26139), (382, 26238), (391, 26340), (392, 26370),

Gene: Ollypop_34 Start: 20617, Stop: 25488, Start Num: 1
Candidate Starts for Ollypop_34:
(Start: 1 @20617 has 22 MA's), (4, 20719), (5, 20734), (6, 20755), (10, 20803), (12, 20848), (17, 20917), (18, 20920), (25, 20959), (31, 21001), (38, 21031), (39, 21034), (51, 21145), (57, 21232), (58, 21235), (59, 21250), (65, 21316), (69, 21400), (70, 21403), (76, 21505), (80, 21547), (89, 21673), (93, 21748), (96, 21790), (102, 21847), (104, 21889), (107, 21901), (117, 21976), (120, 21994), (126, 22060), (129, 22078), (134, 22192), (141, 22303), (142, 22315), (144, 22348), (150, 22432), (157, 22549), (173, 22771), (175, 22783), (177, 22804), (178, 22822), (183, 22852), (189, 22897), (190, 22906), (214, 23110), (233, 23278), (235, 23290), (242, 23338), (245, 23371), (248, 23392), (251, 23413), (267, 23569), (283, 23737), (293, 23872), (295, 23932), (297, 23980), (298, 23989), (319, 24409), (322, 24496), (332, 24628), (333, 24661), (335, 24673), (337, 24697), (340, 24748), (348, 24859), (349, 24862), (356, 24979), (359, 25015), (371, 25165), (373, 25201), (376, 25264), (380, 25291), (386, 25366), (391, 25411), (392, 25441),

Gene: PhuzzTulsa_34 Start: 21503, Stop: 26386, Start Num: 1
Candidate Starts for PhuzzTulsa_34:
(Start: 1 @21503 has 22 MA's), (8, 21665), (13, 21782), (15, 21794), (17, 21821), (21, 21854), (23, 21887), (39, 22121), (42, 22163), (48, 22259), (51, 22310), (54, 22337), (55, 22364), (57, 22397), (61, 22439), (69, 22565), (70, 22568), (72, 22604), (76, 22670), (86, 22802), (96, 22892), (101, 22937), (104, 22991), (117, 23078), (121, 23099), (124, 23156), (126, 23162), (129, 23180), (134, 23294), (140, 23396), (141, 23405), (142, 23417), (144, 23450), (157, 23651), (162, 23735), (173, 23873), (175, 23885), (177, 23906), (183, 23954), (189, 23999), (199, 24074), (201, 24092), (202, 24107), (206, 24137), (211, 24182), (213, 24194), (218, 24236), (221, 24251), (224, 24293), (232, 24368), (234, 24383), (237, 24401), (242, 24437), (258, 24569), (267, 24683), (287, 24884), (309, 25121),

(314, 25175), (320, 25316), (322, 25394), (332, 25526), (333, 25559), (347, 25748), (357, 25880), (361, 25970), (366, 26030), (367, 26048), (369, 26057), (370, 26060), (373, 26099), (382, 26198), (391, 26300), (392, 26330),

Gene: Pointis_36 Start: 21547, Stop: 26424, Start Num: 1
Candidate Starts for Pointis_36:
(Start: 1 @21547 has 22 MA's), (8, 21709), (13, 21826), (15, 21838), (17, 21865), (21, 21898), (23, 21931), (39, 22165), (42, 22207), (48, 22303), (51, 22354), (54, 22381), (55, 22408), (57, 22441), (61, 22483), (69, 22609), (70, 22612), (72, 22648), (76, 22714), (86, 22846), (96, 22936), (101, 22981), (104, 23035), (117, 23122), (121, 23143), (124, 23200), (126, 23206), (129, 23224), (134, 23338), (140, 23440), (141, 23449), (142, 23461), (144, 23494), (156, 23692), (157, 23695), (162, 23779), (173, 23917), (175, 23929), (177, 23950), (183, 23998), (189, 24043), (199, 24118), (201, 24136), (202, 24151), (206, 24181), (211, 24226), (213, 24238), (221, 24295), (234, 24427), (237, 24445), (240, 24469), (242, 24481), (258, 24613), (267, 24721), (270, 24736), (274, 24790), (309, 25159), (314, 25213), (320, 25354), (322, 25432), (332, 25564), (333, 25597), (347, 25786), (357, 25918), (361, 26008), (366, 26068), (367, 26086), (369, 26095), (370, 26098), (373, 26137), (382, 26236), (391, 26338), (392, 26368),

Gene: Popstraw_34 Start: 21333, Stop: 26210, Start Num: 1
Candidate Starts for Popstraw_34:
(Start: 1 @21333 has 22 MA's), (8, 21495), (13, 21612), (15, 21624), (23, 21717), (39, 21951), (42, 21993), (48, 22089), (51, 22140), (54, 22167), (55, 22194), (57, 22227), (61, 22269), (67, 22353), (69, 22395), (70, 22398), (72, 22434), (76, 22500), (86, 22632), (96, 22722), (101, 22767), (104, 22821), (117, 22908), (121, 22929), (124, 22986), (126, 22992), (129, 23010), (134, 23124), (135, 23145), (140, 23226), (141, 23235), (142, 23247), (144, 23280), (156, 23478), (157, 23481), (162, 23565), (173, 23703), (175, 23715), (177, 23736), (183, 23784), (189, 23829), (199, 23904), (201, 23922), (202, 23937), (206, 23967), (211, 24012), (213, 24024), (218, 24066), (221, 24081), (224, 24123), (229, 24165), (237, 24231), (240, 24255), (242, 24267), (255, 24381), (258, 24399), (267, 24507), (270, 24522), (309, 24945), (314, 24999), (320, 25140), (322, 25218), (332, 25350), (333, 25383), (347, 25572), (357, 25704), (361, 25794), (366, 25854), (367, 25872), (369, 25881), (370, 25884), (373, 25923), (376, 25986), (382, 26022), (391, 26124), (392, 26154),

Gene: Pureglobe5_38 Start: 21730, Stop: 26607, Start Num: 1
Candidate Starts for Pureglobe5_38:
(Start: 1 @21730 has 22 MA's), (8, 21892), (13, 22009), (15, 22021), (17, 22048), (21, 22081), (23, 22114), (39, 22348), (42, 22390), (48, 22486), (51, 22537), (54, 22564), (55, 22591), (57, 22624), (61, 22666), (69, 22792), (70, 22795), (72, 22831), (76, 22897), (86, 23029), (96, 23119), (101, 23164), (104, 23218), (117, 23305), (121, 23326), (124, 23383), (126, 23389), (129, 23407), (134, 23521), (140, 23623), (141, 23632), (142, 23644), (144, 23677), (156, 23875), (157, 23878), (162, 23962), (173, 24100), (175, 24112), (177, 24133), (183, 24181), (189, 24226), (199, 24301), (201, 24319), (202, 24334), (206, 24364), (211, 24409), (213, 24421), (218, 24463), (221, 24478), (224, 24520), (229, 24562), (237, 24628), (240, 24652), (242, 24664), (255, 24778), (258, 24796), (267, 24904), (270, 24919), (287, 25105), (309, 25342), (314, 25396), (320, 25537), (322, 25615), (333, 25780), (347, 25969), (357, 26101), (361, 26191), (366, 26251), (367, 26269), (369, 26278), (370, 26281), (373, 26320), (382, 26419), (391, 26521), (392, 26551),

Gene: RIPWilbur_34 Start: 20857, Stop: 25740, Start Num: 1
Candidate Starts for RIPWilbur_34:
(Start: 1 @20857 has 22 MA's), (8, 21019), (13, 21136), (15, 21148), (17, 21175), (21, 21208), (23, 21241), (39, 21475), (42, 21517), (48, 21613), (51, 21664), (54, 21691), (55, 21718), (57, 21751), (61, 21793), (69, 21919), (70, 21922), (72, 21958), (76, 22024), (86, 22156), (96, 22246), (101, 22291), (104, 22345), (117, 22432), (121, 22453), (124, 22510), (126, 22516), (129, 22534), (134, 22648), (135, 22669), (140, 22750), (141, 22759), (142, 22771), (144, 22804), (156, 23002), (157, 23005),

(162, 23089), (173, 23227), (175, 23239), (177, 23260), (183, 23308), (189, 23353), (199, 23428), (201, 23446), (202, 23461), (206, 23491), (211, 23536), (213, 23548), (218, 23590), (221, 23605), (224, 23647), (237, 23755), (240, 23779), (258, 23923), (267, 24037), (287, 24238), (309, 24475), (314, 24529), (320, 24670), (322, 24748), (332, 24880), (333, 24913), (347, 25102), (357, 25234), (361, 25324), (366, 25384), (367, 25402), (369, 25411), (370, 25414), (373, 25453), (382, 25552), (391, 25654), (392, 25684),

Gene: Ranunculus_30 Start: 20630, Stop: 25639, Start Num: 1
Candidate Starts for Ranunculus_30:
(Start: 1 @20630 has 22 MA's), (9, 20813), (12, 20858), (13, 20906), (22, 21002), (34, 21155), (40, 21218), (42, 21245), (46, 21278), (48, 21290), (51, 21338), (56, 21404), (57, 21425), (69, 21593), (70, 21596), (80, 21740), (81, 21743), (84, 21800), (86, 21830), (91, 21887), (104, 22019), (119, 22115), (120, 22124), (124, 22184), (129, 22208), (134, 22322), (141, 22433), (142, 22445), (144, 22478), (149, 22556), (156, 22676), (157, 22679), (162, 22763), (175, 22913), (177, 22934), (183, 22982), (189, 23027), (201, 23120), (202, 23135), (206, 23165), (211, 23210), (213, 23222), (218, 23264), (221, 23279), (224, 23321), (237, 23429), (240, 23453), (242, 23465), (246, 23507), (258, 23597), (266, 23699), (267, 23705), (269, 23717), (270, 23720), (284, 23915), (285, 23927), (286, 23957), (287, 23987), (319, 24560), (324, 24680), (325, 24692), (332, 24779), (333, 24812), (335, 24824), (337, 24848), (340, 24899), (348, 25010), (349, 25013), (356, 25130), (359, 25166), (363, 25241), (366, 25283), (373, 25352), (374, 25367), (378, 25430), (379, 25439), (380, 25442), (390, 25547),

Gene: RazzB_32 Start: 20011, Stop: 24888, Start Num: 1
Candidate Starts for RazzB_32:
(Start: 1 @20011 has 22 MA's), (8, 20173), (13, 20290), (15, 20302), (17, 20329), (19, 20347), (21, 20362), (23, 20395), (24, 20404), (39, 20629), (42, 20671), (48, 20767), (51, 20818), (54, 20845), (55, 20872), (57, 20905), (61, 20947), (69, 21073), (70, 21076), (72, 21112), (76, 21178), (86, 21310), (96, 21400), (101, 21445), (104, 21499), (117, 21586), (121, 21607), (124, 21664), (126, 21670), (129, 21688), (133, 21790), (134, 21802), (140, 21904), (141, 21913), (142, 21925), (144, 21958), (157, 22159), (162, 22243), (173, 22381), (175, 22393), (177, 22414), (179, 22435), (183, 22462), (189, 22507), (199, 22582), (201, 22600), (202, 22615), (206, 22645), (211, 22690), (213, 22702), (218, 22744), (221, 22759), (224, 22801), (232, 22876), (234, 22891), (237, 22909), (242, 22945), (255, 23059), (258, 23077), (267, 23185), (270, 23200), (287, 23386), (309, 23623), (314, 23677), (320, 23818), (322, 23896), (332, 24028), (333, 24061), (347, 24250), (357, 24382), (361, 24472), (366, 24532), (367, 24550), (369, 24559), (370, 24562), (373, 24601), (382, 24700), (391, 24802), (392, 24832),

Gene: Ren19_32 Start: 20595, Stop: 25382, Start Num: 1
Candidate Starts for Ren19_32:
(Start: 1 @20595 has 22 MA's), (4, 20697), (5, 20712), (6, 20733), (10, 20781), (12, 20826), (17, 20895), (18, 20898), (25, 20937), (31, 20979), (38, 21009), (39, 21012), (51, 21123), (57, 21210), (58, 21213), (59, 21228), (69, 21378), (70, 21381), (80, 21525), (92, 21663), (96, 21705), (101, 21750), (104, 21804), (110, 21837), (124, 21969), (129, 21993), (134, 22107), (140, 22209), (141, 22218), (142, 22230), (144, 22263), (156, 22461), (157, 22464), (162, 22548), (173, 22686), (174, 22695), (186, 22788), (189, 22812), (193, 22842), (199, 22887), (205, 22938), (206, 22950), (211, 22995), (214, 23025), (217, 23049), (219, 23052), (220, 23064), (225, 23127), (232, 23184), (235, 23199), (266, 23463), (267, 23469), (283, 23637), (290, 23718), (293, 23772), (296, 23844), (297, 23874), (298, 23883), (301, 23928), (308, 23997), (310, 24099), (319, 24303), (324, 24423), (325, 24435), (335, 24567), (340, 24642), (348, 24753), (349, 24756), (350, 24789), (351, 24798), (356, 24873), (357, 24876), (359, 24909), (361, 24966), (365, 25017), (368, 25050), (371, 25059), (373, 25095), (376, 25158), (380, 25185), (384, 25239), (385, 25242), (386, 25260), (388, 25278), (391, 25305), (392, 25335),

Gene: Rizwana_29 Start: 20756, Stop: 25231, Start Num: 1

Candidate Starts for Rizwana_29:
(Start: 1 @20756 has 22 MA's), (3, 20843), (7, 20900), (8, 20912), (11, 20945), (15, 21038), (16, 21047), (32, 21194), (33, 21197), (41, 21263), (43, 21281), (44, 21284), (45, 21302), (47, 21335), (50, 21383), (51, 21395), (55, 21449), (57, 21482), (69, 21704), (73, 21752), (74, 21764), (77, 21818), (78, 21824), (80, 21851), (82, 21860), (83, 21869), (84, 21911), (85, 21914), (94, 22016), (96, 22031), (97, 22052), (98, 22061), (102, 22088), (103, 22112), (108, 22154), (129, 22322), (131, 22376), (134, 22436), (136, 22487), (141, 22547), (142, 22559), (143, 22589), (149, 22670), (154, 22739), (156, 22790), (157, 22793), (161, 22868), (163, 22889), (164, 22916), (166, 22925), (169, 22949), (183, 23093), (192, 23165), (197, 23201), (198, 23210), (205, 23264), (206, 23276), (207, 23279), (209, 23306), (222, 23420), (226, 23453), (227, 23456), (230, 23483), (232, 23507), (243, 23573), (247, 23621), (249, 23630), (261, 23666), (279, 23747), (313, 24155), (321, 24320), (325, 24431), (332, 24518), (354, 24698), (355, 24719), (356, 24728), (358, 24752), (362, 24839), (364, 24872), (373, 24953), (383, 25061), (389, 25148), (394, 25199),

Gene: RomansRevenge_27 Start: 20099, Stop: 23632, Start Num: 53
Candidate Starts for RomansRevenge_27:
(52, 20090), (Start: 53 @20099 has 1 MA's), (66, 20273), (75, 20438), (77, 20450), (96, 20636), (97, 20657), (99, 20669), (104, 20729), (106, 20738), (115, 20807), (118, 20819), (122, 20843), (123, 20861), (125, 20903), (127, 20912), (137, 21113), (138, 21116), (145, 21209), (146, 21218), (147, 21221), (148, 21248), (151, 21305), (152, 21332), (153, 21341), (158, 21431), (159, 21449), (163, 21494), (170, 21584), (177, 21644), (180, 21671), (183, 21692), (184, 21695), (188, 21725), (189, 21734), (191, 21755), (193, 21764), (196, 21794), (199, 21809), (200, 21821), (211, 21917), (215, 21950), (216, 21959), (231, 22085), (236, 22133), (239, 22154), (250, 22241), (254, 22271), (259, 22304), (277, 22469), (281, 22502), (299, 22757), (300, 22769), (303, 22802), (305, 22811), (310, 22868), (325, 23174), (327, 23195), (328, 23204), (331, 23252), (334, 23303), (338, 23342), (339, 23348), (342, 23405), (352, 23534),

Gene: SilentRX_31 Start: 21787, Stop: 25887, Start Num: 1
Candidate Starts for SilentRX_31:
(Start: 1 @21787 has 22 MA's), (3, 21880), (7, 21937), (11, 21982), (12, 22015), (14, 22072), (16, 22084), (20, 22126), (28, 22174), (29, 22189), (30, 22207), (31, 22228), (32, 22231), (33, 22234), (35, 22285), (39, 22342), (49, 22420), (51, 22453), (57, 22540), (59, 22558), (69, 22708), (71, 22729), (76, 22813), (79, 22837), (80, 22855), (82, 22864), (87, 22972), (95, 23023), (101, 23080), (102, 23092), (111, 23176), (113, 23200), (124, 23302), (129, 23326), (130, 23335), (132, 23425), (134, 23440), (136, 23491), (139, 23530), (141, 23548), (142, 23560), (144, 23593), (149, 23671), (155, 23749), (162, 23878), (163, 23890), (167, 23938), (171, 23995), (172, 24004), (182, 24079), (194, 24190), (195, 24193), (203, 24250), (205, 24265), (211, 24322), (212, 24325), (214, 24352), (223, 24433), (228, 24466), (230, 24487), (233, 24523), (241, 24550), (242, 24556), (250, 24619), (252, 24631), (253, 24640), (254, 24646), (257, 24664), (260, 24703), (263, 24724), (264, 24745), (265, 24751), (268, 24766), (271, 24781), (273, 24802), (276, 24829), (278, 24838), (289, 24934), (291, 24961), (292, 24967), (294, 25003), (302, 25117), (307, 25159), (314, 25237), (315, 25258), (316, 25261), (317, 25327), (321, 25390), (325, 25489), (329, 25522), (335, 25603), (353, 25840),

Gene: Tank_31 Start: 20703, Stop: 25535, Start Num: 1
Candidate Starts for Tank_31:
(Start: 1 @20703 has 22 MA's), (3, 20790), (7, 20847), (11, 20892), (16, 20994), (20, 21036), (32, 21141), (33, 21144), (36, 21228), (37, 21231), (44, 21318), (47, 21369), (50, 21417), (55, 21483), (57, 21516), (63, 21594), (64, 21612), (68, 21717), (69, 21738), (74, 21798), (77, 21852), (78, 21858), (80, 21885), (83, 21903), (84, 21945), (85, 21948), (88, 22008), (98, 22095), (102, 22122), (103, 22146), (105, 22170), (108, 22188), (109, 22194), (112, 22221), (123, 22293), (128, 22347), (129, 22356), (134, 22470), (136, 22521), (137, 22542), (141, 22581), (142, 22593), (143, 22623), (154, 22773), (160, 22881), (163, 22923), (165, 22953), (168, 22980), (169, 22983), (195, 23226), (197, 23235), (206, 23310), (207, 23313), (208, 23331), (210, 23352), (212, 23358), (227, 23490), (244, 23622),

(247, 23655), (256, 23724), (275, 23898), (288, 24021), (298, 24159), (304, 24225), (305, 24228), (319, 24468), (321, 24489), (322, 24555), (326, 24621), (332, 24687), (333, 24720), (336, 24753), (337, 24756), (341, 24819), (344, 24885), (346, 24897), (347, 24909), (348, 24918), (354, 25002), (355, 25023), (362, 25143), (364, 25176), (373, 25257), (377, 25332), (382, 25356), (383, 25365),

Gene: Wilde_31 Start: 20632, Stop: 25377, Start Num: 1
Candidate Starts for Wilde_31:
(Start: 1 @20632 has 22 MA's), (3, 20719), (7, 20776), (8, 20788), (10, 20812), (11, 20821), (16, 20923), (21, 20977), (32, 21070), (33, 21073), (44, 21160), (47, 21211), (50, 21259), (55, 21325), (57, 21358), (63, 21436), (64, 21454), (68, 21559), (69, 21580), (74, 21640), (77, 21694), (78, 21700), (80, 21727), (83, 21745), (84, 21787), (85, 21790), (88, 21850), (98, 21937), (102, 21964), (103, 21988), (105, 22012), (108, 22030), (109, 22036), (112, 22063), (123, 22135), (128, 22189), (129, 22198), (134, 22312), (136, 22363), (137, 22384), (141, 22423), (142, 22435), (143, 22465), (154, 22615), (160, 22723), (163, 22765), (165, 22795), (168, 22822), (169, 22825), (194, 23065), (195, 23068), (197, 23077), (206, 23152), (207, 23155), (208, 23173), (210, 23194), (212, 23200), (227, 23332), (244, 23464), (247, 23497), (256, 23566), (275, 23740), (288, 23863), (298, 24001), (304, 24067), (305, 24070), (319, 24310), (321, 24331), (322, 24397), (326, 24463), (332, 24529), (333, 24562), (336, 24595), (341, 24661), (344, 24727), (346, 24739), (347, 24751), (354, 24844), (355, 24865), (362, 24985), (364, 25018), (373, 25099), (375, 25144), (377, 25174), (382, 25198), (383, 25207),