Zoomed Pham 291317

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 291317 Report

This analysis was run 03/28/26 on database version 641.

Pham number 291317 has 40 members, 8 are drafts.

Phages represented in each track:
• Track 1 : LongHai_20, Salvus_20
• Track 2 : 8UZL_19
• Track 3 : Maco6_17
• Track 4 : FF47_19
• Track 5 : Muddy_19
• Track 6 : Paito_16
• Track 7 : Avocado_16
• Track 8 : Pace1224_16
• Track 9 : FlagStaff_16
• Track 10 : Belladonna_21
• Track 11 : TM4_17
• Track 12 : YasnayaPolyana_22
• Track 13 : Cheetobro_22
• Track 14 : Reptar3000_22, MissDaisy_22, Patt_22
• Track 15 : Kraw_22, Malthus_22
• Track 16 : Fionnbharth_22, Wintermute_22
• Track 17 : OmniCritical_22, SamScheppers_20, Mitti_22
• Track 18 : Ruthiejr_21, Juliette_22
• Track 19 : Eponine_22
• Track 20 : Chancellor_22
• Track 21 : DanSyl44_22
• Track 22 : Lebo14_22
• Track 23 : Slarp_22, Qhanda_22
• Track 24 : Bobquesha_22
• Track 25 : Taquito_20
• Track 26 : Y10_22, JF1_22, Y2_22
• Track 27 : Rando14_19
• Track 28 : Omnicron_19
• Track 29 : Boilgate_18

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

The start number called the most often in the published annotations is 6, it was called in 27 of the 32 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Avocado_16, Bobquesha_22, Chancellor_22, Cheetobro_22, DanSyl44_22, Eponine_22, Fionnbharth_22, FlagStaff_16, JF1_22, Juliette_22, Kraw_22, Lebo14_22, Malthus_22, MissDaisy_22, Mitti_22, OmniCritical_22, Omnicron_19, Pace1224_16, Patt_22, Qhanda_22, Rando14_19, Reptar3000_22, Ruthiejr_21, SamScheppers_20, Slarp_22, TM4_17, Taquito_20, Wintermute_22, Y10_22, Y2_22, YasnayaPolyana_22,

Genes that have the "Most Annotated" start but do not call it:
• 8UZL_19, Belladonna_21, Boilgate_18, FF47_19, LongHai_20, Maco6_17, Muddy_19, Salvus_20,

Genes that do not have the "Most Annotated" start:
• Paito_16,

Summary by start number:

Start 4:
• Found in 6 of 40 (15.0%) of genes in pham
• Manual Annotations of this start: 2 of 32
• Called 100.0% of time when present
• Phage (with cluster) where this start called: 8UZL_19 (AB), FF47_19 (AB), LongHai_20 (AB), Maco6_17 (AB), Muddy_19 (AB), Salvus_20 (AB),

Start 5:
• Found in 1 of 40 (2.5%) of genes in pham
• Manual Annotations of this start: 1 of 32
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Paito_16 (G1),

Start 6:
• Found in 39 of 40 (97.5%) of genes in pham
• Manual Annotations of this start: 27 of 32
• Called 79.5% of time when present
• Phage (with cluster) where this start called: Avocado_16 (G2), Bobquesha_22 (K4), Chancellor_22 (K4), Cheetobro_22 (K4), DanSyl44_22 (K4), Eponine_22 (K4), Fionnbharth_22 (K4), FlagStaff_16 (G2), JF1_22 (K4), Juliette_22 (K4), Kraw_22 (K4), Lebo14_22 (K4), Malthus_22 (K4), MissDaisy_22 (K4), Mitti_22 (K4), OmniCritical_22 (K4), Omnicron_19 (K5), Pace1224_16 (G2), Patt_22 (K4), Qhanda_22 (K4), Rando14_19 (K5), Reptar3000_22 (K4), Ruthiejr_21 (K4), SamScheppers_20 (K4), Slarp_22 (K4), TM4_17 (K2), Taquito_20 (K4), Wintermute_22 (K4), Y10_22 (K4), Y2_22 (K4), YasnayaPolyana_22 (K4),

Start 9:
• Found in 2 of 40 (5.0%) of genes in pham
• Manual Annotations of this start: 1 of 32
• Called 50.0% of time when present
• Phage (with cluster) where this start called: Belladonna_21 (K1),

Start 10:
• Found in 1 of 40 (2.5%) of genes in pham
• Manual Annotations of this start: 1 of 32

• Called 100.0% of time when present
• Phage (with cluster) where this start called: Boilgate_18 (K8),

Summary by clusters:

There are 8 clusters represented in this pham: AB, G2, G1, K2, K1, K5, K4, K8,

Info for manual annotations of cluster AB:
•Start number 4 was manually annotated 2 times for cluster AB.

Info for manual annotations of cluster G1:
•Start number 5 was manually annotated 1 time for cluster G1.

Info for manual annotations of cluster G2:
•Start number 6 was manually annotated 2 times for cluster G2.

Info for manual annotations of cluster K1:
•Start number 9 was manually annotated 1 time for cluster K1.

Info for manual annotations of cluster K2:
•Start number 6 was manually annotated 1 time for cluster K2.

Info for manual annotations of cluster K4:
•Start number 6 was manually annotated 22 times for cluster K4.

Info for manual annotations of cluster K5:
•Start number 6 was manually annotated 2 times for cluster K5.

Info for manual annotations of cluster K8:
•Start number 10 was manually annotated 1 time for cluster K8.

Gene Information:
Gene: 8UZL_19 Start: 11439, Stop: 14888, Start Num: 4
Candidate Starts for 8UZL_19:
(Start: 4 @11439 has 2 MA's), (Start: 6 @11454 has 27 MA's), (7, 11502), (8, 11505), (12, 11550), (17, 11673), (41, 12000), (42, 12012), (43, 12033), (45, 12117), (48, 12171), (49, 12180), (53, 12234), (55, 12243), (58, 12267), (59, 12276), (62, 12318), (66, 12363), (67, 12375), (68, 12396), (70, 12420), (75, 12474), (82, 12528), (83, 12549), (85, 12561), (89, 12585), (91, 12594), (102, 12672), (119, 12798), (121, 12840), (160, 13008), (161, 13014), (164, 13059), (196, 13182), (205, 13260), (211, 13293), (213, 13320), (215, 13332), (238, 13440), (239, 13449), (248, 13542), (253, 13572), (255, 13608), (259, 13638), (261, 13656), (264, 13683), (265, 13686), (271, 13740), (272, 13743), (278, 13833), (280, 13881), (282, 13896), (284, 13914), (286, 13929), (287, 13989), (288, 14022), (289, 14031), (291, 14040), (295, 14076), (302, 14091), (320, 14286), (331, 14481), (339, 14577), (341, 14595), (344, 14637), (345, 14643), (347, 14670), (356, 14772), (357, 14781), (359, 14820),

Gene: Avocado_16 Start: 11691, Stop: 15731, Start Num: 6
Candidate Starts for Avocado_16:
(Start: 6 @11691 has 27 MA's), (11, 11784), (14, 11814), (22, 11961), (27, 12045), (32, 12093), (42, 12231), (43, 12252), (44, 12306), (49, 12399), (50, 12420), (51, 12441), (54, 12459), (57, 12483), (59, 12495), (64, 12567), (66, 12582), (68, 12615), (82, 12747), (84, 12771), (87, 12792), (89, 12825), (92,

12852), (97, 12894), (100, 12942), (112, 13080), (113, 13083), (119, 13125), (125, 13194), (126, 13197), (130, 13266), (133, 13308), (141, 13386), (156, 13503), (157, 13512), (159, 13527), (165, 13608), (167, 13617), (172, 13677), (184, 13791), (190, 13845), (192, 13869), (193, 13872), (194, 13875), (197, 13905), (202, 13935), (214, 14037), (216, 14058), (230, 14163), (231, 14166), (245, 14319), (247, 14337), (254, 14403), (255, 14418), (258, 14442), (263, 14484), (264, 14493), (272, 14553), (278, 14643), (286, 14739), (287, 14796), (288, 14829), (299, 14904), (320, 15099), (332, 15309), (337, 15378), (338, 15390), (339, 15399), (342, 15420), (354, 15579), (363, 15657),

Gene: Belladonna_21 Start: 12185, Stop: 15949, Start Num: 9
Candidate Starts for Belladonna_21:
(Start: 6 @12116 has 27 MA's), (Start: 9 @12185 has 1 MA's), (15, 12272), (21, 12347), (25, 12449), (28, 12476), (36, 12548), (37, 12560), (38, 12569), (42, 12641), (44, 12716), (48, 12800), (49, 12809), (50, 12830), (54, 12869), (59, 12905), (62, 12947), (68, 13025), (77, 13115), (85, 13190), (94, 13283), (96, 13292), (97, 13304), (98, 13313), (120, 13550), (124, 13589), (127, 13622), (133, 13709), (137, 13733), (143, 13817), (155, 13901), (157, 13913), (160, 13934), (194, 14090), (204, 14171), (211, 14219), (212, 14237), (215, 14258), (219, 14294), (232, 14345), (243, 14402), (250, 14480), (253, 14489), (260, 14567), (262, 14582), (267, 14624), (275, 14678), (292, 14918), (301, 14993), (317, 15104), (324, 15323), (326, 15335), (338, 15518), (339, 15527), (348, 15599), (351, 15629), (352, 15650), (361, 15770), (367, 15842), (368, 15860), (371, 15866),

Gene: Bobquesha_22 Start: 13067, Stop: 17233, Start Num: 6
Candidate Starts for Bobquesha_22:
(2, 13031), (Start: 6 @13067 has 27 MA's), (18, 13265), (36, 13493), (37, 13505), (38, 13514), (39, 13544), (43, 13607), (49, 13754), (50, 13775), (54, 13814), (55, 13817), (62, 13892), (68, 13970), (76, 14057), (77, 14060), (80, 14090), (83, 14123), (87, 14147), (95, 14231), (99, 14261), (100, 14288), (108, 14396), (111, 14417), (113, 14429), (115, 14441), (120, 14495), (133, 14654), (136, 14675), (143, 14783), (158, 14903), (180, 15152), (194, 15263), (200, 15314), (202, 15323), (207, 15368), (209, 15389), (221, 15488), (223, 15503), (225, 15509), (233, 15578), (235, 15599), (237, 15608), (239, 15620), (240, 15629), (246, 15701), (250, 15752), (251, 15755), (254, 15782), (267, 15881), (269, 15899), (278, 15974), (289, 16163), (292, 16175), (301, 16250), (318, 16430), (323, 16550), (329, 16658), (338, 16805), (349, 16925), (350, 16934), (351, 16937), (358, 17036), (361, 17063), (369, 17159), (373, 17222),

Gene: Boilgate_18 Start: 12212, Stop: 16429, Start Num: 10
Candidate Starts for Boilgate_18:
(1, 12077), (3, 12101), (Start: 6 @12122 has 27 MA's), (Start: 10 @12212 has 1 MA's), (18, 12323), (31, 12494), (34, 12512), (35, 12536), (36, 12551), (37, 12563), (41, 12632), (42, 12644), (43, 12665), (45, 12749), (48, 12803), (49, 12812), (50, 12833), (53, 12866), (54, 12872), (55, 12875), (56, 12890), (60, 12926), (62, 12950), (63, 12953), (68, 13028), (69, 13040), (76, 13115), (77, 13118), (78, 13121), (84, 13184), (96, 13295), (101, 13352), (105, 13406), (107, 13448), (115, 13496), (116, 13502), (118, 13517), (120, 13550), (123, 13583), (127, 13622), (128, 13625), (131, 13670), (133, 13709), (134, 13718), (136, 13730), (139, 13757), (145, 13850), (147, 13862), (151, 13919), (162, 14015), (173, 14090), (177, 14138), (178, 14144), (181, 14156), (191, 14192), (199, 14234), (225, 14432), (234, 14507), (246, 14624), (250, 14675), (251, 14678), (257, 14738), (258, 14741), (272, 14837), (277, 14915), (278, 14918), (287, 15074), (288, 15107), (289, 15116), (292, 15128), (294, 15152), (305, 15227), (308, 15236), (309, 15239), (311, 15263), (313, 15272), (314, 15275), (315, 15296), (318, 15368), (319, 15410), (320, 15440), (321, 15482), (325, 15554), (327, 15575), (330, 15662), (333, 15677), (338, 15758), (350, 15890), (366, 16112), (367, 16118), (375, 16232), (376, 16262), (377, 16280), (378, 16322), (379, 16355), (380, 16418),

Gene: Chancellor_22 Start: 13324, Stop: 17499, Start Num: 6
Candidate Starts for Chancellor_22:

(2, 13288), (Start: 6 @13324 has 27 MA's), (18, 13522), (37, 13762), (38, 13771), (43, 13864), (49, 14011), (50, 14032), (54, 14071), (55, 14074), (62, 14149), (68, 14227), (76, 14314), (77, 14317), (80, 14347), (83, 14380), (87, 14404), (95, 14488), (99, 14518), (100, 14545), (108, 14653), (111, 14674), (113, 14686), (115, 14698), (120, 14752), (133, 14911), (136, 14932), (143, 15040), (158, 15160), (194, 15520), (200, 15571), (202, 15580), (207, 15625), (209, 15646), (237, 15865), (239, 15877), (240, 15886), (246, 15958), (250, 16009), (251, 16012), (254, 16039), (267, 16138), (269, 16156), (278, 16231), (289, 16420), (292, 16432), (301, 16507), (318, 16693), (323, 16813), (329, 16921), (338, 17071), (349, 17191), (350, 17200), (351, 17203), (353, 17224), (358, 17302), (361, 17329), (369, 17425), (373, 17488),

Gene: Cheetobro_22 Start: 13324, Stop: 17496, Start Num: 6
Candidate Starts for Cheetobro_22:
(2, 13288), (Start: 6 @13324 has 27 MA's), (18, 13522), (37, 13762), (38, 13771), (43, 13864), (49, 14011), (50, 14032), (54, 14071), (55, 14074), (62, 14149), (68, 14227), (76, 14314), (77, 14317), (80, 14347), (83, 14380), (87, 14404), (95, 14488), (99, 14518), (100, 14545), (108, 14653), (111, 14674), (113, 14686), (115, 14698), (120, 14752), (133, 14911), (136, 14932), (143, 15040), (158, 15160), (194, 15520), (200, 15571), (202, 15580), (207, 15625), (209, 15646), (237, 15865), (239, 15877), (240, 15886), (246, 15958), (250, 16009), (251, 16012), (254, 16039), (267, 16138), (269, 16156), (278, 16231), (289, 16420), (292, 16432), (301, 16507), (318, 16693), (323, 16813), (329, 16921), (338, 17068), (349, 17188), (350, 17197), (351, 17200), (358, 17299), (361, 17326), (369, 17422), (373, 17485),

Gene: DanSyl44_22 Start: 13327, Stop: 17502, Start Num: 6
Candidate Starts for DanSyl44_22:
(2, 13291), (Start: 6 @13327 has 27 MA's), (18, 13525), (37, 13765), (38, 13774), (43, 13867), (49, 14014), (50, 14035), (54, 14074), (55, 14077), (62, 14152), (68, 14230), (76, 14317), (77, 14320), (80, 14350), (83, 14383), (87, 14407), (95, 14491), (99, 14521), (100, 14548), (108, 14656), (111, 14677), (113, 14689), (115, 14701), (120, 14755), (133, 14914), (136, 14935), (143, 15043), (158, 15163), (194, 15523), (200, 15574), (202, 15583), (207, 15628), (209, 15649), (237, 15868), (239, 15880), (240, 15889), (244, 15934), (246, 15961), (250, 16012), (251, 16015), (254, 16042), (258, 16078), (267, 16141), (269, 16159), (278, 16234), (289, 16423), (292, 16435), (301, 16510), (318, 16696), (323, 16816), (329, 16924), (338, 17074), (349, 17194), (350, 17203), (351, 17206), (358, 17305), (361, 17332), (369, 17428), (373, 17491),

Gene: Eponine_22 Start: 13193, Stop: 17389, Start Num: 6
Candidate Starts for Eponine_22:
(Start: 6 @13193 has 27 MA's), (18, 13391), (35, 13604), (37, 13631), (38, 13640), (42, 13712), (43, 13733), (48, 13871), (49, 13880), (50, 13901), (54, 13940), (61, 14009), (62, 14018), (68, 14096), (69, 14108), (77, 14186), (80, 14216), (83, 14249), (84, 14252), (87, 14273), (100, 14414), (101, 14423), (113, 14555), (115, 14567), (120, 14621), (124, 14660), (127, 14693), (133, 14780), (136, 14801), (150, 14978), (158, 15029), (170, 15188), (194, 15389), (200, 15440), (202, 15449), (207, 15494), (209, 15515), (211, 15521), (222, 15626), (225, 15635), (237, 15734), (239, 15746), (240, 15755), (246, 15827), (249, 15860), (250, 15878), (251, 15881), (254, 15908), (267, 16007), (269, 16025), (278, 16100), (289, 16289), (292, 16301), (301, 16376), (310, 16445), (318, 16577), (321, 16691), (338, 16958), (340, 16976), (350, 17087), (351, 17090), (358, 17189), (361, 17216), (362, 17219), (369, 17315), (373, 17378),

Gene: FF47_19 Start: 11405, Stop: 14815, Start Num: 4
Candidate Starts for FF47_19:
(Start: 4 @11405 has 2 MA's), (Start: 6 @11420 has 27 MA's), (7, 11468), (8, 11471), (12, 11516), (17, 11639), (41, 11966), (42, 11978), (43, 11999), (45, 12083), (48, 12137), (49, 12146), (53, 12200), (58, 12233), (59, 12242), (62, 12284), (66, 12329), (67, 12341), (68, 12362), (70, 12386), (75, 12440), (82, 12494), (83, 12515), (85, 12527), (89, 12551), (91, 12560), (102, 12638), (106, 12695), (119, 12764),

(160, 12974), (163, 13013), (164, 13025), (176, 13088), (194, 13130), (196, 13148), (207, 13235),
(211, 13259), (213, 13286), (215, 13298), (238, 13406), (239, 13415), (248, 13508), (253, 13538),
(254, 13559), (255, 13574), (270, 13685), (274, 13706), (278, 13781), (286, 13877), (287, 13934),
(288, 13967), (290, 13982), (320, 14213), (331, 14408), (339, 14504), (341, 14522), (344, 14564),
(345, 14570), (347, 14597), (356, 14699), (357, 14708), (359, 14747),

Gene: Fionnbharth_22 Start: 13314, Stop: 17489, Start Num: 6
Candidate Starts for Fionnbharth_22:
(2, 13278), (Start: 6 @13314 has 27 MA's), (18, 13512), (37, 13752), (38, 13761), (43, 13854), (46,
13956), (49, 14001), (54, 14061), (62, 14139), (68, 14217), (76, 14304), (77, 14307), (80, 14337), (83,
14370), (87, 14394), (95, 14478), (99, 14508), (100, 14535), (108, 14643), (111, 14664), (113, 14676),
(115, 14688), (120, 14742), (133, 14901), (136, 14922), (143, 15030), (158, 15150), (191, 15492),
(194, 15510), (200, 15561), (202, 15570), (207, 15615), (209, 15636), (225, 15756), (237, 15855),
(239, 15867), (240, 15876), (246, 15948), (250, 15999), (251, 16002), (254, 16029), (267, 16128),
(269, 16146), (278, 16221), (289, 16410), (292, 16422), (301, 16497), (306, 16527), (318, 16683),
(323, 16803), (329, 16911), (338, 17061), (350, 17190), (351, 17193), (358, 17292), (361, 17319),
(369, 17415), (373, 17478),

Gene: FlagStaff_16 Start: 11630, Stop: 15664, Start Num: 6
Candidate Starts for FlagStaff_16:
(Start: 6 @11630 has 27 MA's), (11, 11723), (14, 11753), (22, 11900), (27, 11984), (32, 12032), (41,
12158), (42, 12170), (43, 12191), (49, 12338), (50, 12359), (51, 12380), (54, 12398), (57, 12422), (59,
12434), (64, 12506), (66, 12521), (68, 12554), (82, 12686), (84, 12710), (87, 12731), (88, 12752), (89,
12764), (92, 12791), (93, 12803), (97, 12833), (100, 12881), (113, 13022), (114, 13025), (119, 13064),
(120, 13088), (125, 13133), (126, 13136), (133, 13247), (157, 13451), (165, 13547), (167, 13556),
(172, 13616), (184, 13730), (186, 13751), (193, 13811), (197, 13844), (202, 13874), (211, 13946),
(214, 13976), (216, 13997), (230, 14102), (231, 14105), (237, 14159), (245, 14258), (247, 14276),
(254, 14342), (255, 14357), (258, 14381), (263, 14423), (264, 14432), (272, 14492), (278, 14582),
(286, 14678), (287, 14735), (288, 14768), (296, 14828), (299, 14843), (320, 15038), (332, 15245),
(337, 15314), (338, 15326), (342, 15356), (346, 15416), (354, 15512), (360, 15572), (363, 15590),

Gene: JF1_22 Start: 13313, Stop: 17488, Start Num: 6
Candidate Starts for JF1_22:
(2, 13277), (Start: 6 @13313 has 27 MA's), (18, 13511), (37, 13751), (38, 13760), (43, 13853), (46,
13955), (49, 14000), (54, 14060), (62, 14138), (68, 14216), (76, 14303), (77, 14306), (80, 14336), (83,
14369), (87, 14393), (95, 14477), (99, 14507), (100, 14534), (108, 14642), (111, 14663), (113, 14675),
(115, 14687), (120, 14741), (133, 14900), (136, 14921), (143, 15029), (158, 15149), (191, 15491),
(194, 15509), (200, 15560), (202, 15569), (207, 15614), (209, 15635), (225, 15755), (237, 15854),
(239, 15866), (240, 15875), (246, 15947), (250, 15998), (251, 16001), (254, 16028), (267, 16127),
(269, 16145), (278, 16220), (289, 16409), (292, 16421), (301, 16496), (306, 16526), (318, 16682),
(323, 16802), (329, 16910), (338, 17060), (349, 17180), (350, 17189), (351, 17192), (358, 17291),
(361, 17318), (369, 17414), (373, 17477),

Gene: Juliette_22 Start: 13193, Stop: 17389, Start Num: 6
Candidate Starts for Juliette_22:
(Start: 6 @13193 has 27 MA's), (18, 13391), (35, 13604), (37, 13631), (38, 13640), (42, 13712), (43,
13733), (48, 13871), (49, 13880), (50, 13901), (54, 13940), (61, 14009), (62, 14018), (68, 14096), (69,
14108), (77, 14186), (80, 14216), (83, 14249), (84, 14252), (87, 14273), (100, 14414), (101, 14423),
(113, 14555), (115, 14567), (120, 14621), (124, 14660), (127, 14693), (133, 14780), (136, 14801),
(150, 14978), (158, 15029), (170, 15188), (194, 15389), (200, 15440), (202, 15449), (207, 15494),
(209, 15515), (211, 15521), (225, 15635), (237, 15734), (239, 15746), (240, 15755), (246, 15827),
(249, 15860), (250, 15878), (251, 15881), (254, 15908), (267, 16007), (269, 16025), (278, 16100),
(289, 16289), (292, 16301), (301, 16376), (310, 16445), (318, 16577), (321, 16691), (338, 16958),

(340, 16976), (350, 17087), (351, 17090), (358, 17189), (361, 17216), (362, 17219), (369, 17315), (373, 17378),

Gene: Kraw_22 Start: 13237, Stop: 17412, Start Num: 6
Candidate Starts for Kraw_22:
(2, 13201), (Start: 6 @13237 has 27 MA's), (18, 13435), (37, 13675), (38, 13684), (43, 13777), (46, 13879), (49, 13924), (54, 13984), (62, 14062), (68, 14140), (76, 14227), (77, 14230), (80, 14260), (83, 14293), (87, 14317), (95, 14401), (99, 14431), (100, 14458), (108, 14566), (111, 14587), (113, 14599), (115, 14611), (120, 14665), (133, 14824), (136, 14845), (143, 14953), (158, 15073), (191, 15415), (194, 15433), (200, 15484), (202, 15493), (207, 15538), (209, 15559), (225, 15679), (237, 15778), (239, 15790), (240, 15799), (246, 15871), (250, 15922), (251, 15925), (254, 15952), (267, 16051), (269, 16069), (278, 16144), (289, 16333), (292, 16345), (301, 16420), (306, 16450), (318, 16606), (323, 16726), (329, 16834), (338, 16984), (350, 17113), (351, 17116), (358, 17215), (361, 17242), (369, 17338), (373, 17401),

Gene: Lebo14_22 Start: 13327, Stop: 17505, Start Num: 6
Candidate Starts for Lebo14_22:
(2, 13291), (Start: 6 @13327 has 27 MA's), (18, 13525), (37, 13765), (38, 13774), (43, 13867), (49, 14014), (50, 14035), (54, 14074), (55, 14077), (62, 14152), (68, 14230), (76, 14317), (77, 14320), (80, 14350), (83, 14383), (87, 14407), (95, 14491), (99, 14521), (100, 14548), (108, 14656), (111, 14677), (113, 14689), (115, 14701), (120, 14755), (133, 14914), (136, 14935), (143, 15043), (158, 15163), (194, 15523), (200, 15574), (202, 15583), (207, 15628), (209, 15649), (237, 15868), (239, 15880), (240, 15889), (246, 15961), (250, 16012), (251, 16015), (254, 16042), (258, 16078), (267, 16141), (269, 16159), (278, 16234), (289, 16423), (292, 16435), (301, 16510), (318, 16696), (323, 16816), (329, 16924), (338, 17077), (349, 17197), (350, 17206), (351, 17209), (358, 17308), (361, 17335), (369, 17431), (373, 17494),

Gene: LongHai_20 Start: 11740, Stop: 15189, Start Num: 4
Candidate Starts for LongHai_20:
(Start: 4 @11740 has 2 MA's), (Start: 6 @11755 has 27 MA's), (7, 11803), (8, 11806), (12, 11851), (17, 11974), (19, 11995), (41, 12301), (42, 12313), (43, 12334), (45, 12418), (48, 12472), (49, 12481), (58, 12568), (59, 12577), (62, 12619), (66, 12664), (67, 12676), (68, 12697), (70, 12721), (75, 12775), (83, 12850), (85, 12862), (89, 12886), (102, 12973), (106, 13030), (119, 13099), (122, 13153), (160, 13309), (163, 13348), (164, 13360), (176, 13423), (194, 13465), (196, 13483), (207, 13570), (211, 13594), (213, 13621), (215, 13633), (225, 13699), (238, 13741), (239, 13750), (248, 13843), (253, 13873), (255, 13909), (259, 13939), (261, 13957), (264, 13984), (265, 13987), (270, 14038), (271, 14041), (272, 14044), (278, 14134), (280, 14182), (282, 14197), (284, 14215), (286, 14230), (287, 14290), (288, 14323), (289, 14332), (291, 14341), (295, 14377), (302, 14392), (320, 14587), (331, 14782), (339, 14878), (341, 14896), (344, 14938), (345, 14944), (347, 14971), (356, 15073), (357, 15082), (359, 15121),

Gene: Maco6_17 Start: 10697, Stop: 14146, Start Num: 4
Candidate Starts for Maco6_17:
(Start: 4 @10697 has 2 MA's), (Start: 6 @10712 has 27 MA's), (7, 10760), (8, 10763), (12, 10808), (17, 10931), (41, 11258), (42, 11270), (43, 11291), (45, 11375), (48, 11429), (49, 11438), (53, 11492), (55, 11501), (58, 11525), (59, 11534), (62, 11576), (66, 11621), (67, 11633), (68, 11654), (70, 11678), (73, 11708), (75, 11732), (83, 11807), (85, 11819), (89, 11843), (91, 11852), (102, 11930), (106, 11987), (119, 12056), (161, 12272), (164, 12317), (196, 12440), (205, 12518), (211, 12551), (213, 12578), (215, 12590), (238, 12698), (239, 12707), (248, 12800), (253, 12830), (255, 12866), (259, 12896), (261, 12914), (264, 12941), (265, 12944), (271, 12998), (272, 13001), (278, 13091), (280, 13139), (282, 13154), (284, 13172), (286, 13187), (287, 13247), (288, 13280), (289, 13289), (291, 13298), (295, 13334), (302, 13349), (316, 13421), (320, 13544), (331, 13739), (339, 13835), (341, 13853), (344, 13895), (345, 13901), (347, 13928), (356, 14030), (357, 14039), (359, 14078),

Gene: Malthus_22 Start: 13237, Stop: 17412, Start Num: 6
Candidate Starts for Malthus_22:
(2, 13201), (Start: 6 @13237 has 27 MA's), (18, 13435), (37, 13675), (38, 13684), (43, 13777), (46, 13879), (49, 13924), (54, 13984), (62, 14062), (68, 14140), (76, 14227), (77, 14230), (80, 14260), (83, 14293), (87, 14317), (95, 14401), (99, 14431), (100, 14458), (108, 14566), (111, 14587), (113, 14599), (115, 14611), (120, 14665), (133, 14824), (136, 14845), (143, 14953), (158, 15073), (191, 15415), (194, 15433), (200, 15484), (202, 15493), (207, 15538), (209, 15559), (225, 15679), (237, 15778), (239, 15790), (240, 15799), (246, 15871), (250, 15922), (251, 15925), (254, 15952), (267, 16051), (269, 16069), (278, 16144), (289, 16333), (292, 16345), (301, 16420), (306, 16450), (318, 16606), (323, 16726), (329, 16834), (338, 16984), (350, 17113), (351, 17116), (358, 17215), (361, 17242), (369, 17338), (373, 17401),

Gene: MissDaisy_22 Start: 13088, Stop: 17254, Start Num: 6
Candidate Starts for MissDaisy_22:
(2, 13052), (Start: 6 @13088 has 27 MA's), (18, 13286), (36, 13514), (37, 13526), (38, 13535), (39, 13565), (43, 13628), (49, 13775), (50, 13796), (54, 13835), (55, 13838), (62, 13913), (68, 13991), (76, 14078), (77, 14081), (80, 14111), (83, 14144), (87, 14168), (95, 14252), (99, 14282), (100, 14309), (108, 14417), (111, 14438), (113, 14450), (115, 14462), (120, 14516), (133, 14675), (136, 14696), (143, 14804), (158, 14924), (180, 15173), (194, 15284), (200, 15335), (202, 15344), (207, 15389), (209, 15410), (221, 15509), (223, 15524), (225, 15530), (233, 15599), (235, 15620), (237, 15629), (239, 15641), (240, 15650), (246, 15722), (250, 15773), (251, 15776), (254, 15803), (267, 15902), (269, 15920), (278, 15995), (289, 16184), (292, 16196), (301, 16271), (318, 16451), (323, 16571), (329, 16679), (331, 16739), (338, 16826), (343, 16856), (349, 16946), (350, 16955), (351, 16958), (358, 17057), (361, 17084), (369, 17180), (373, 17243),

Gene: Mitti_22 Start: 13237, Stop: 17412, Start Num: 6
Candidate Starts for Mitti_22:
(2, 13201), (Start: 6 @13237 has 27 MA's), (18, 13435), (37, 13675), (38, 13684), (43, 13777), (49, 13924), (50, 13945), (54, 13984), (55, 13987), (62, 14062), (68, 14140), (76, 14227), (77, 14230), (80, 14260), (83, 14293), (87, 14317), (95, 14401), (99, 14431), (100, 14458), (108, 14566), (111, 14587), (113, 14599), (115, 14611), (120, 14665), (133, 14824), (136, 14845), (143, 14953), (158, 15073), (194, 15433), (200, 15484), (202, 15493), (207, 15538), (209, 15559), (237, 15778), (239, 15790), (240, 15799), (246, 15871), (250, 15922), (251, 15925), (254, 15952), (267, 16051), (269, 16069), (278, 16144), (289, 16333), (292, 16345), (301, 16420), (318, 16606), (323, 16726), (329, 16834), (338, 16984), (349, 17104), (350, 17113), (351, 17116), (358, 17215), (361, 17242), (369, 17338), (373, 17401),

Gene: Muddy_19 Start: 11647, Stop: 15096, Start Num: 4
Candidate Starts for Muddy_19:
(Start: 4 @11647 has 2 MA's), (Start: 6 @11662 has 27 MA's), (7, 11710), (8, 11713), (12, 11758), (17, 11881), (40, 12187), (41, 12208), (42, 12220), (43, 12241), (45, 12325), (48, 12379), (49, 12388), (58, 12475), (59, 12484), (62, 12526), (66, 12571), (67, 12583), (68, 12604), (70, 12628), (75, 12682), (82, 12736), (83, 12757), (85, 12769), (89, 12793), (91, 12802), (102, 12880), (104, 12898), (106, 12937), (119, 13006), (122, 13060), (152, 13180), (160, 13216), (161, 13222), (163, 13255), (164, 13267), (196, 13390), (211, 13501), (213, 13528), (215, 13540), (238, 13648), (239, 13657), (248, 13750), (253, 13780), (255, 13816), (259, 13846), (261, 13864), (264, 13891), (265, 13894), (271, 13948), (272, 13951), (278, 14041), (280, 14089), (282, 14104), (284, 14122), (286, 14137), (287, 14197), (288, 14230), (289, 14239), (291, 14248), (295, 14284), (302, 14299), (320, 14494), (331, 14689), (339, 14785), (341, 14803), (344, 14845), (345, 14851), (347, 14878), (356, 14980), (357, 14989), (359, 15028),

Gene: OmniCritical_22 Start: 13225, Stop: 17397, Start Num: 6

Candidate Starts for OmniCritical_22:
(2, 13189), (Start: 6 @13225 has 27 MA's), (18, 13423), (37, 13663), (38, 13672), (43, 13765), (49, 13912), (50, 13933), (54, 13972), (55, 13975), (62, 14050), (68, 14128), (76, 14215), (77, 14218), (80, 14248), (83, 14281), (87, 14305), (95, 14389), (99, 14419), (100, 14446), (108, 14554), (111, 14575), (113, 14587), (115, 14599), (120, 14653), (133, 14812), (136, 14833), (143, 14941), (158, 15061), (194, 15421), (200, 15472), (202, 15481), (207, 15526), (209, 15547), (237, 15766), (239, 15778), (240, 15787), (246, 15859), (250, 15910), (251, 15913), (254, 15940), (267, 16039), (269, 16057), (278, 16132), (289, 16321), (292, 16333), (301, 16408), (318, 16594), (323, 16714), (329, 16822), (338, 16969), (349, 17089), (350, 17098), (351, 17101), (358, 17200), (361, 17227), (369, 17323), (373, 17386),

Gene: Omnicron_19 Start: 11169, Stop: 15011, Start Num: 6
Candidate Starts for Omnicron_19:
(Start: 6 @11169 has 27 MA's), (16, 11355), (20, 11367), (23, 11433), (24, 11445), (26, 11457), (29, 11475), (30, 11478), (42, 11631), (43, 11652), (44, 11706), (45, 11736), (46, 11754), (47, 11784), (48, 11790), (49, 11799), (50, 11820), (52, 11847), (62, 11937), (68, 12015), (71, 12048), (72, 12060), (75, 12093), (81, 12138), (84, 12171), (88, 12213), (89, 12225), (90, 12228), (102, 12348), (105, 12372), (111, 12438), (114, 12453), (115, 12462), (116, 12468), (120, 12516), (146, 12627), (148, 12636), (153, 12687), (154, 12693), (157, 12708), (159, 12723), (167, 12813), (169, 12846), (182, 12975), (184, 12987), (185, 12996), (188, 13014), (189, 13029), (190, 13041), (194, 13071), (198, 13110), (202, 13131), (203, 13140), (206, 13173), (208, 13185), (209, 13197), (211, 13203), (217, 13263), (218, 13272), (226, 13326), (228, 13338), (243, 13488), (250, 13569), (251, 13572), (256, 13626), (263, 13674), (264, 13683), (266, 13707), (277, 13827), (278, 13830), (285, 13917), (286, 13926), (287, 13986), (288, 14019), (290, 14034), (292, 14040), (298, 14085), (307, 14106), (312, 14133), (319, 14268), (322, 14343), (328, 14451), (333, 14520), (334, 14529), (335, 14532), (336, 14559), (338, 14601), (343, 14631), (348, 14688), (350, 14715), (355, 14775), (362, 14847), (365, 14868), (370, 14940), (372, 14964), (374, 15003),

Gene: Pace1224_16 Start: 11630, Stop: 15664, Start Num: 6
Candidate Starts for Pace1224_16:
(Start: 6 @11630 has 27 MA's), (11, 11723), (14, 11753), (22, 11900), (27, 11984), (32, 12032), (41, 12158), (42, 12170), (43, 12191), (49, 12338), (50, 12359), (51, 12380), (54, 12398), (57, 12422), (59, 12434), (64, 12506), (66, 12521), (68, 12554), (82, 12686), (84, 12710), (87, 12731), (88, 12752), (89, 12764), (92, 12791), (93, 12803), (97, 12833), (100, 12881), (113, 13022), (119, 13064), (120, 13088), (125, 13133), (126, 13136), (133, 13247), (157, 13451), (159, 13466), (165, 13547), (167, 13556), (172, 13616), (184, 13730), (186, 13751), (193, 13811), (197, 13844), (202, 13874), (211, 13946), (214, 13976), (216, 13997), (230, 14102), (231, 14105), (237, 14159), (245, 14258), (247, 14276), (254, 14342), (255, 14357), (258, 14381), (263, 14423), (264, 14432), (272, 14492), (278, 14582), (286, 14678), (287, 14735), (288, 14768), (296, 14828), (299, 14843), (320, 15038), (332, 15245), (337, 15314), (338, 15326), (342, 15356), (346, 15416), (354, 15512), (360, 15572), (363, 15590),

Gene: Paito_16 Start: 11582, Stop: 15610, Start Num: 5
Candidate Starts for Paito_16:
(Start: 5 @11582 has 1 MA's), (18, 11783), (23, 11885), (24, 11897), (27, 11918), (31, 11954), (33, 11969), (36, 12011), (42, 12104), (43, 12125), (48, 12263), (49, 12272), (51, 12314), (54, 12332), (55, 12335), (57, 12356), (59, 12368), (64, 12440), (68, 12488), (84, 12644), (103, 12848), (105, 12869), (109, 12920), (117, 12977), (120, 13013), (127, 13085), (129, 13106), (132, 13145), (133, 13172), (139, 13220), (140, 13241), (143, 13280), (157, 13376), (159, 13391), (170, 13538), (172, 13541), (183, 13649), (218, 13940), (224, 13982), (227, 14000), (231, 14030), (232, 14039), (250, 14246), (252, 14252), (254, 14276), (255, 14291), (257, 14312), (258, 14315), (264, 14366), (272, 14426), (276, 14507), (278, 14516), (279, 14549), (280, 14564), (286, 14612), (287, 14669), (288, 14702), (290, 14717), (300, 14780), (335, 15224), (336, 15251), (338, 15293), (339, 15302), (350, 15401), (354, 15458), (360, 15518), (363, 15536), (364, 15545),

Gene: Patt_22 Start: 13064, Stop: 17230, Start Num: 6
Candidate Starts for Patt_22:
(2, 13028), (Start: 6 @13064 has 27 MA's), (18, 13262), (36, 13490), (37, 13502), (38, 13511), (39, 13541), (43, 13604), (49, 13751), (50, 13772), (54, 13811), (55, 13814), (62, 13889), (68, 13967), (76, 14054), (77, 14057), (80, 14087), (83, 14120), (87, 14144), (95, 14228), (99, 14258), (100, 14285), (108, 14393), (111, 14414), (113, 14426), (115, 14438), (120, 14492), (133, 14651), (136, 14672), (143, 14780), (158, 14900), (180, 15149), (194, 15260), (200, 15311), (202, 15320), (207, 15365), (209, 15386), (221, 15485), (223, 15500), (225, 15506), (233, 15575), (235, 15596), (237, 15605), (239, 15617), (240, 15626), (246, 15698), (250, 15749), (251, 15752), (254, 15779), (267, 15878), (269, 15896), (278, 15971), (289, 16160), (292, 16172), (301, 16247), (318, 16427), (323, 16547), (329, 16655), (331, 16715), (338, 16802), (343, 16832), (349, 16922), (350, 16931), (351, 16934), (358, 17033), (361, 17060), (369, 17156), (373, 17219),

Gene: Qhanda_22 Start: 13333, Stop: 17508, Start Num: 6
Candidate Starts for Qhanda_22:
(2, 13297), (Start: 6 @13333 has 27 MA's), (13, 13432), (18, 13531), (37, 13771), (38, 13780), (43, 13873), (49, 14020), (50, 14041), (54, 14080), (55, 14083), (62, 14158), (68, 14236), (76, 14323), (77, 14326), (80, 14356), (83, 14389), (87, 14413), (95, 14497), (99, 14527), (100, 14554), (108, 14662), (111, 14683), (113, 14695), (115, 14707), (120, 14761), (133, 14920), (136, 14941), (143, 15049), (158, 15169), (194, 15529), (200, 15580), (202, 15589), (207, 15634), (209, 15655), (237, 15874), (239, 15886), (240, 15895), (246, 15967), (250, 16018), (251, 16021), (254, 16048), (267, 16147), (269, 16165), (278, 16240), (289, 16429), (292, 16441), (301, 16516), (318, 16702), (323, 16822), (329, 16930), (338, 17080), (349, 17200), (350, 17209), (351, 17212), (358, 17311), (361, 17338), (369, 17434), (373, 17497),

Gene: Rando14_19 Start: 11071, Stop: 14910, Start Num: 6
Candidate Starts for Rando14_19:
(Start: 6 @11071 has 27 MA's), (12, 11170), (16, 11257), (20, 11269), (23, 11335), (24, 11347), (26, 11359), (29, 11377), (42, 11533), (43, 11554), (45, 11638), (46, 11656), (47, 11686), (48, 11692), (49, 11701), (50, 11722), (52, 11749), (53, 11755), (56, 11779), (62, 11839), (68, 11917), (71, 11950), (72, 11962), (75, 11995), (84, 12073), (86, 12091), (88, 12115), (89, 12127), (90, 12130), (102, 12250), (105, 12274), (110, 12337), (111, 12340), (114, 12355), (120, 12418), (135, 12466), (149, 12559), (151, 12574), (167, 12715), (169, 12748), (182, 12877), (184, 12889), (185, 12898), (187, 12913), (189, 12931), (190, 12943), (194, 12973), (198, 13012), (201, 13030), (202, 13033), (209, 13099), (211, 13105), (214, 13135), (217, 13165), (222, 13210), (226, 13228), (228, 13240), (242, 13375), (243, 13390), (250, 13471), (251, 13474), (256, 13528), (263, 13576), (264, 13585), (266, 13609), (268, 13630), (277, 13729), (278, 13732), (282, 13795), (286, 13828), (287, 13888), (288, 13921), (290, 13936), (292, 13942), (298, 13987), (307, 14008), (312, 14035), (319, 14170), (322, 14245), (327, 14335), (333, 14422), (334, 14431), (335, 14434), (336, 14461), (337, 14491), (338, 14503), (343, 14533), (348, 14587), (349, 14605), (355, 14674), (362, 14746), (365, 14767), (370, 14839), (372, 14863), (374, 14902),

Gene: Reptar3000_22 Start: 13066, Stop: 17232, Start Num: 6
Candidate Starts for Reptar3000_22:
(2, 13030), (Start: 6 @13066 has 27 MA's), (18, 13264), (36, 13492), (37, 13504), (38, 13513), (39, 13543), (43, 13606), (49, 13753), (50, 13774), (54, 13813), (55, 13816), (62, 13891), (68, 13969), (76, 14056), (77, 14059), (80, 14089), (83, 14122), (87, 14146), (95, 14230), (99, 14260), (100, 14287), (108, 14395), (111, 14416), (113, 14428), (115, 14440), (120, 14494), (133, 14653), (136, 14674), (143, 14782), (158, 14902), (180, 15151), (194, 15262), (200, 15313), (202, 15322), (207, 15367), (209, 15388), (221, 15487), (223, 15502), (225, 15508), (233, 15577), (235, 15598), (237, 15607), (239, 15619), (240, 15628), (246, 15700), (250, 15751), (251, 15754), (254, 15781), (267, 15880), (269, 15898), (278, 15973), (289, 16162), (292, 16174), (301, 16249), (318, 16429), (323, 16549),

(329, 16657), (331, 16717), (338, 16804), (343, 16834), (349, 16924), (350, 16933), (351, 16936), (358, 17035), (361, 17062), (369, 17158), (373, 17221),

Gene: Ruthiejr_21 Start: 12924, Stop: 17120, Start Num: 6
Candidate Starts for Ruthiejr_21:
(Start: 6 @12924 has 27 MA's), (18, 13122), (35, 13335), (37, 13362), (38, 13371), (42, 13443), (43, 13464), (48, 13602), (49, 13611), (50, 13632), (54, 13671), (61, 13740), (62, 13749), (68, 13827), (69, 13839), (77, 13917), (80, 13947), (83, 13980), (84, 13983), (87, 14004), (100, 14145), (101, 14154), (113, 14286), (115, 14298), (120, 14352), (124, 14391), (127, 14424), (133, 14511), (136, 14532), (150, 14709), (158, 14760), (170, 14919), (194, 15120), (200, 15171), (202, 15180), (207, 15225), (209, 15246), (211, 15252), (225, 15366), (237, 15465), (239, 15477), (240, 15486), (246, 15558), (249, 15591), (250, 15609), (251, 15612), (254, 15639), (267, 15738), (269, 15756), (278, 15831), (289, 16020), (292, 16032), (301, 16107), (310, 16176), (318, 16308), (321, 16422), (338, 16689), (340, 16707), (350, 16818), (351, 16821), (358, 16920), (361, 16947), (362, 16950), (369, 17046), (373, 17109),

Gene: Salvus_20 Start: 11740, Stop: 15189, Start Num: 4
Candidate Starts for Salvus_20:
(Start: 4 @11740 has 2 MA's), (Start: 6 @11755 has 27 MA's), (7, 11803), (8, 11806), (12, 11851), (17, 11974), (19, 11995), (41, 12301), (42, 12313), (43, 12334), (45, 12418), (48, 12472), (49, 12481), (58, 12568), (59, 12577), (62, 12619), (66, 12664), (67, 12676), (68, 12697), (70, 12721), (75, 12775), (83, 12850), (85, 12862), (89, 12886), (102, 12973), (106, 13030), (119, 13099), (122, 13153), (160, 13309), (163, 13348), (164, 13360), (176, 13423), (194, 13465), (196, 13483), (207, 13570), (211, 13594), (213, 13621), (215, 13633), (225, 13699), (238, 13741), (239, 13750), (248, 13843), (253, 13873), (255, 13909), (259, 13939), (261, 13957), (264, 13984), (265, 13987), (270, 14038), (271, 14041), (272, 14044), (278, 14134), (280, 14182), (282, 14197), (284, 14215), (286, 14230), (287, 14290), (288, 14323), (289, 14332), (291, 14341), (295, 14377), (302, 14392), (320, 14587), (331, 14782), (339, 14878), (341, 14896), (344, 14938), (345, 14944), (347, 14971), (356, 15073), (357, 15082), (359, 15121),

Gene: SamScheppers_20 Start: 12840, Stop: 17027, Start Num: 6
Candidate Starts for SamScheppers_20:
(2, 12804), (Start: 6 @12840 has 27 MA's), (18, 13038), (37, 13278), (38, 13287), (43, 13380), (49, 13527), (50, 13548), (54, 13587), (55, 13590), (62, 13665), (68, 13743), (76, 13830), (77, 13833), (80, 13863), (83, 13896), (87, 13920), (95, 14004), (99, 14034), (100, 14061), (108, 14169), (111, 14190), (113, 14202), (115, 14214), (120, 14268), (133, 14427), (136, 14448), (143, 14556), (158, 14676), (194, 15036), (200, 15087), (202, 15096), (207, 15141), (209, 15162), (237, 15381), (239, 15393), (240, 15402), (246, 15474), (250, 15525), (251, 15528), (254, 15555), (267, 15654), (269, 15672), (278, 15747), (289, 15936), (292, 15948), (301, 16023), (318, 16224), (323, 16344), (329, 16452), (338, 16599), (349, 16719), (350, 16728), (351, 16731), (358, 16830), (361, 16857), (369, 16953), (373, 17016),

Gene: Slarp_22 Start: 13324, Stop: 17499, Start Num: 6
Candidate Starts for Slarp_22:
(2, 13288), (Start: 6 @13324 has 27 MA's), (13, 13423), (18, 13522), (37, 13762), (38, 13771), (43, 13864), (49, 14011), (50, 14032), (54, 14071), (55, 14074), (62, 14149), (68, 14227), (76, 14314), (77, 14317), (80, 14347), (83, 14380), (87, 14404), (95, 14488), (99, 14518), (100, 14545), (108, 14653), (111, 14674), (113, 14686), (115, 14698), (120, 14752), (133, 14911), (136, 14932), (143, 15040), (158, 15160), (194, 15520), (200, 15571), (202, 15580), (207, 15625), (209, 15646), (237, 15865), (239, 15877), (240, 15886), (246, 15958), (250, 16009), (251, 16012), (254, 16039), (267, 16138), (269, 16156), (278, 16231), (289, 16420), (292, 16432), (301, 16507), (318, 16693), (323, 16813), (329, 16921), (338, 17071), (349, 17191), (350, 17200), (351, 17203), (358, 17302), (361, 17329), (369, 17425), (373, 17488),

Gene: TM4_17 Start: 10184, Stop: 13873, Start Num: 6
Candidate Starts for TM4_17:
(Start: 6 @10184 has 27 MA's), (Start: 9 @10256 has 1 MA's), (29, 10490), (36, 10541), (42, 10634), (43, 10655), (44, 10709), (49, 10802), (50, 10823), (51, 10844), (52, 10850), (62, 10940), (65, 10982), (68, 11018), (70, 11042), (71, 11051), (72, 11063), (74, 11087), (77, 11108), (79, 11132), (80, 11138), (84, 11174), (85, 11183), (86, 11192), (88, 11216), (89, 11228), (92, 11255), (110, 11438), (112, 11450), (114, 11456), (119, 11495), (120, 11519), (135, 11567), (138, 11579), (142, 11612), (144, 11618), (165, 11807), (166, 11813), (168, 11843), (171, 11870), (174, 11888), (175, 11894), (179, 11918), (188, 11987), (190, 12014), (195, 12047), (201, 12080), (202, 12083), (210, 12134), (217, 12167), (220, 12188), (229, 12212), (236, 12242), (241, 12263), (273, 12545), (278, 12638), (280, 12686), (281, 12689), (282, 12701), (287, 12782), (288, 12815), (289, 12824), (290, 12830), (293, 12863), (297, 12890), (303, 12908), (304, 12926), (307, 12932), (321, 13178), (333, 13358), (334, 13367), (339, 13448), (362, 13703), (369, 13796),

Gene: Taquito_20 Start: 12915, Stop: 17108, Start Num: 6
Candidate Starts for Taquito_20:
(Start: 6 @12915 has 27 MA's), (18, 13113), (37, 13353), (38, 13362), (42, 13434), (43, 13455), (48, 13593), (49, 13602), (50, 13623), (54, 13662), (61, 13731), (62, 13740), (68, 13818), (69, 13830), (77, 13908), (80, 13938), (83, 13971), (84, 13974), (87, 13995), (100, 14136), (101, 14145), (113, 14277), (115, 14289), (120, 14343), (124, 14382), (127, 14415), (133, 14502), (136, 14523), (150, 14700), (158, 14751), (170, 14910), (194, 15111), (200, 15162), (202, 15171), (207, 15216), (209, 15237), (237, 15456), (239, 15468), (240, 15477), (244, 15522), (246, 15549), (249, 15582), (250, 15600), (251, 15603), (254, 15630), (267, 15729), (269, 15747), (278, 15822), (283, 15894), (289, 16011), (292, 16023), (301, 16098), (310, 16167), (318, 16296), (321, 16410), (338, 16677), (340, 16695), (350, 16806), (351, 16809), (358, 16908), (361, 16935), (362, 16938), (369, 17034), (373, 17097),

Gene: Wintermute_22 Start: 13313, Stop: 17488, Start Num: 6
Candidate Starts for Wintermute_22:
(2, 13277), (Start: 6 @13313 has 27 MA's), (18, 13511), (37, 13751), (38, 13760), (43, 13853), (46, 13955), (49, 14000), (54, 14060), (62, 14138), (68, 14216), (76, 14303), (77, 14306), (80, 14336), (83, 14369), (87, 14393), (95, 14477), (99, 14507), (100, 14534), (108, 14642), (111, 14663), (113, 14675), (115, 14687), (120, 14741), (133, 14900), (136, 14921), (143, 15029), (158, 15149), (191, 15491), (194, 15509), (200, 15560), (202, 15569), (207, 15614), (209, 15635), (225, 15755), (237, 15854), (239, 15866), (240, 15875), (246, 15947), (250, 15998), (251, 16001), (254, 16028), (267, 16127), (269, 16145), (278, 16220), (289, 16409), (292, 16421), (301, 16496), (306, 16526), (318, 16682), (323, 16802), (329, 16910), (338, 17060), (350, 17189), (351, 17192), (358, 17291), (361, 17318), (369, 17414), (373, 17477),

Gene: Y10_22 Start: 13313, Stop: 17488, Start Num: 6
Candidate Starts for Y10_22:
(2, 13277), (Start: 6 @13313 has 27 MA's), (18, 13511), (37, 13751), (38, 13760), (43, 13853), (46, 13955), (49, 14000), (54, 14060), (62, 14138), (68, 14216), (76, 14303), (77, 14306), (80, 14336), (83, 14369), (87, 14393), (95, 14477), (99, 14507), (100, 14534), (108, 14642), (111, 14663), (113, 14675), (115, 14687), (120, 14741), (133, 14900), (136, 14921), (143, 15029), (158, 15149), (191, 15491), (194, 15509), (200, 15560), (202, 15569), (207, 15614), (209, 15635), (225, 15755), (237, 15854), (239, 15866), (240, 15875), (246, 15947), (250, 15998), (251, 16001), (254, 16028), (267, 16127), (269, 16145), (278, 16220), (289, 16409), (292, 16421), (301, 16496), (306, 16526), (318, 16682), (323, 16802), (329, 16910), (338, 17060), (349, 17180), (350, 17189), (351, 17192), (358, 17291), (361, 17318), (369, 17414), (373, 17477),

Gene: Y2_22 Start: 13313, Stop: 17488, Start Num: 6
Candidate Starts for Y2_22:

(2, 13277), (Start: 6 @13313 has 27 MA's), (18, 13511), (37, 13751), (38, 13760), (43, 13853), (46, 13955), (49, 14000), (54, 14060), (62, 14138), (68, 14216), (76, 14303), (77, 14306), (80, 14336), (83, 14369), (87, 14393), (95, 14477), (99, 14507), (100, 14534), (108, 14642), (111, 14663), (113, 14675), (115, 14687), (120, 14741), (133, 14900), (136, 14921), (143, 15029), (158, 15149), (191, 15491), (194, 15509), (200, 15560), (202, 15569), (207, 15614), (209, 15635), (225, 15755), (237, 15854), (239, 15866), (240, 15875), (246, 15947), (250, 15998), (251, 16001), (254, 16028), (267, 16127), (269, 16145), (278, 16220), (289, 16409), (292, 16421), (301, 16496), (306, 16526), (318, 16682), (323, 16802), (329, 16910), (338, 17060), (349, 17180), (350, 17189), (351, 17192), (358, 17291), (361, 17318), (369, 17414), (373, 17477),

Gene: YasnayaPolyana_22 Start: 13314, Stop: 17489, Start Num: 6
Candidate Starts for YasnayaPolyana_22:
(2, 13278), (Start: 6 @13314 has 27 MA's), (18, 13512), (37, 13752), (38, 13761), (43, 13854), (46, 13956), (49, 14001), (50, 14022), (54, 14061), (55, 14064), (62, 14139), (68, 14217), (76, 14304), (77, 14307), (80, 14337), (83, 14370), (87, 14394), (95, 14478), (99, 14508), (100, 14535), (108, 14643), (111, 14664), (113, 14676), (115, 14688), (120, 14742), (133, 14901), (136, 14922), (143, 15030), (158, 15150), (191, 15492), (194, 15510), (200, 15561), (202, 15570), (207, 15615), (209, 15636), (225, 15756), (237, 15855), (239, 15867), (240, 15876), (246, 15948), (250, 15999), (251, 16002), (254, 16029), (267, 16128), (269, 16146), (278, 16221), (289, 16410), (292, 16422), (301, 16497), (306, 16527), (318, 16683), (323, 16803), (329, 16911), (338, 17061), (350, 17190), (351, 17193), (358, 17292), (361, 17319), (369, 17415), (373, 17478),