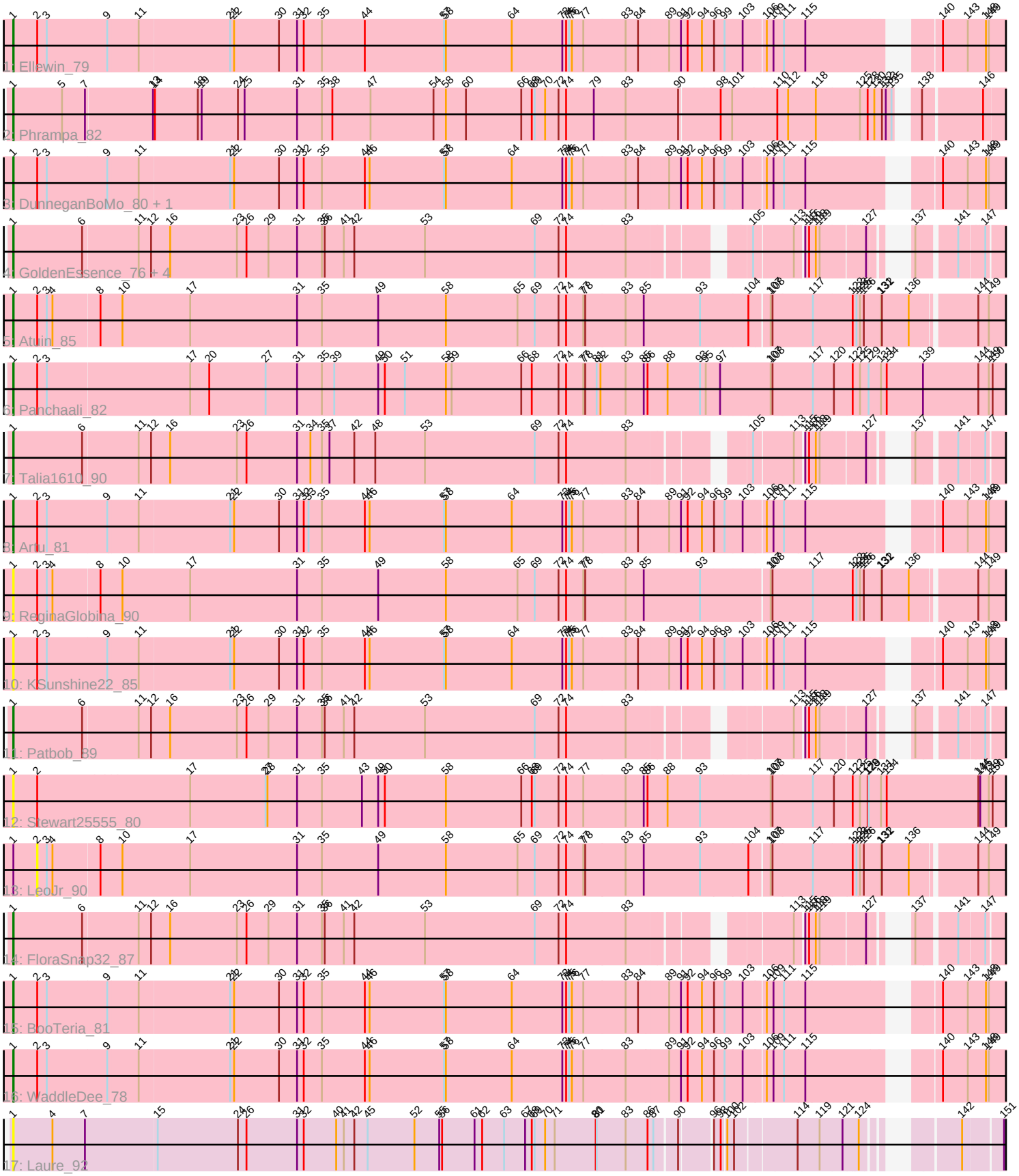
Zoomed Pham 346143



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 346143 Report

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

Pham number 346143 has 22 members, 7 are drafts.

Phages represented in each track:
• Track 1 : Ellewin_79
• Track 2 : Phrampa_82
• Track 3 : DunneganBoMo_80, Emmetator_83
• Track 4 : GoldenEssence_76, Racecar_91, Mimi_90, FrostedClock_89, Bloom_94
• Track 5 : Atuin_85
• Track 6 : Panchaali_82
• Track 7 : Talia1610_90
• Track 8 : Artu_81
• Track 9 : ReginaGlobina_90
• Track 10 : KSunshine22_85
• Track 11 : Patbob_89
• Track 12 : Stewart25555_80
• Track 13 : LeoJr_90
• Track 14 : FloraSnap32_87
• Track 15 : BooTeria_81
• Track 16 : WaddleDee_78
• Track 17 : Laure_92

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 15 of the 15 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Artu_81, Atuin_85, Bloom_94, BooTeria_81, DunneganBoMo_80, Ellewin_79, Emmetator_83, FloraSnap32_87, FrostedClock_89, GoldenEssence_76, KSunshine22_85, Laure_92, Mimi_90, Panchaali_82, Patbob_89, Phrampa_82, Racecar_91, ReginaGlobina_90, Stewart25555_80, Talia1610_90, WaddleDee_78,

Genes that have the "Most Annotated" start but do not call it:
• LeoJr_90,

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

Summary by start number:

Start 1:
• Found in 22 of 22 (100.0%) of genes in pham
• Manual Annotations of this start: 15 of 15
• Called 95.5% of time when present
• Phage (with cluster) where this start called: Artu_81 (FC), Atuin_85 (FC), Bloom_94 (FC), BooTeria_81 (FC), DunneganBoMo_80 (FC), Ellewin_79 (FC), Emmetator_83 (FC), FloraSnap32_87 (FC), FrostedClock_89 (FC), GoldenEssence_76 (FC), KSunshine22_85 (FC), Laure_92 (UNK), Mimi_90 (FC), Panchaali_82 (FC), Patbob_89 (FC), Phrampa_82 (FC), Racecar_91 (FC), ReginaGlobina_90 (FC), Stewart25555_80 (FC), Talia1610_90 (FC), WaddleDee_78 (FC),

Start 2:
• Found in 12 of 22 (54.5%) of genes in pham
• No Manual Annotations of this start.
• Called 8.3% of time when present
• Phage (with cluster) where this start called: LeoJr_90 (FC),

Summary by clusters:

There are 2 clusters represented in this pham: UNK, FC,

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

Gene Information:

Gene: Artu_81 Start: 50516, Stop: 57289, Start Num: 1
Candidate Starts for Artu_81:
(Start: 1 @50516 has 15 MA's), (2, 50591), (3, 50621), (9, 50807), (11, 50900), (21, 51182), (22, 51194), (30, 51335), (31, 51392), (32, 51413), (33, 51428), (35, 51470), (44, 51605), (46, 51620), (57, 51854), (58, 51860), (64, 52067), (73, 52226), (74, 52238), (75, 52247), (76, 52256), (77, 52292), (83, 52424), (84, 52463), (89, 52556), (91, 52589), (92, 52610), (94, 52655), (96, 52688), (99, 52721), (103, 52775), (106, 52841), (109, 52862), (111, 52895), (115, 52961), (140, 53288), (143, 53366), (148, 53420), (149, 53429), (168, 53819), (175, 53927), (177, 53969), (181, 54059), (184, 54110), (191, 54209), (198, 54305), (199, 54311), (201, 54347), (203, 54389), (205, 54401), (207, 54419), (209, 54473), (217, 54608), (218, 54620), (219, 54659), (221, 54686), (223, 54740), (224, 54746), (229, 54842), (236, 55037), (237, 55118), (241, 55178), (245, 55235), (252, 55382), (256, 55442), (257, 55463), (265, 55544), (267, 55628), (268, 55637), (270, 55658), (274, 55835), (275, 55844), (282, 55979), (283, 55982), (286, 56069), (287, 56078), (288, 56087), (290, 56216), (291, 56306), (292, 56354), (295, 56606), (296, 56621), (297, 56624), (298, 56642), (300, 56711), (302, 56729), (309, 56867), (316, 57017), (319, 57071), (323, 57200), (324, 57224),

Gene: Atuin_85 Start: 53166, Stop: 59930, Start Num: 1
Candidate Starts for Atuin_85:
(Start: 1 @53166 has 15 MA's), (2, 53241), (3, 53271), (4, 53289), (8, 53433), (10, 53502), (17, 53715), (31, 54051), (35, 54129), (49, 54306), (58, 54519), (65, 54744), (69, 54798), (72, 54873), (74, 54897), (77, 54951), (78, 54957), (83, 55083), (85, 55140), (93, 55317), (104, 55464), (107, 55521), (108,

55527), (117, 55653), (122, 55770), (123, 55782), (125, 55791), (126, 55803), (131, 55857), (132, 55860), (136, 55944), (144, 56130), (149, 56163), (152, 56229), (161, 56382), (162, 56403), (166, 56493), (167, 56502), (173, 56631), (178, 56724), (187, 56868), (188, 56886), (190, 56901), (194, 56934), (206, 57081), (210, 57138), (225, 57411), (226, 57432), (230, 57504), (239, 57774), (241, 57813), (244, 57849), (249, 57924), (267, 58275), (268, 58284), (274, 58482), (275, 58491), (282, 58623), (283, 58626), (285, 58665), (287, 58722), (288, 58731), (291, 58950), (293, 59163), (295, 59250), (296, 59265), (297, 59268), (298, 59286), (302, 59373), (305, 59394), (309, 59511), (310, 59520), (313, 59610), (315, 59658), (316, 59661), (317, 59700), (319, 59715), (322, 59772), (324, 59865),

Gene: Bloom_94 Start: 54521, Stop: 60796, Start Num: 1
Candidate Starts for Bloom_94:
(Start: 1 @54521 has 15 MA's), (6, 54737), (11, 54908), (12, 54947), (16, 55007), (23, 55217), (26, 55247), (29, 55316), (31, 55406), (35, 55484), (36, 55493), (41, 55553), (42, 55586), (53, 55808), (69, 56153), (72, 56228), (74, 56252), (83, 56438), (105, 56744), (113, 56861), (115, 56885), (116, 56897), (118, 56915), (119, 56927), (127, 57050), (137, 57098), (141, 57209), (147, 57281), (160, 57443), (163, 57491), (171, 57671), (173, 57692), (182, 57806), (187, 57893), (192, 57929), (193, 57938), (197, 58001), (200, 58013), (204, 58076), (212, 58169), (215, 58241), (216, 58244), (234, 58601), (244, 58799), (250, 58880), (263, 59108), (264, 59117), (266, 59135), (274, 59354), (275, 59363), (276, 59369), (282, 59492), (283, 59495), (287, 59591), (288, 59600), (292, 59867), (294, 60056), (295, 60119), (296, 60134), (306, 60269), (309, 60380), (313, 60479), (315, 60527), (318, 60575), (320, 60617), (321, 60626), (322, 60641), (323, 60707), (324, 60731),

Gene: BooTeria_81 Start: 50584, Stop: 57357, Start Num: 1
Candidate Starts for BooTeria_81:
(Start: 1 @50584 has 15 MA's), (2, 50659), (3, 50689), (9, 50875), (11, 50968), (21, 51250), (22, 51262), (30, 51403), (31, 51460), (32, 51481), (35, 51538), (44, 51673), (46, 51688), (57, 51922), (58, 51928), (64, 52135), (73, 52294), (74, 52306), (75, 52315), (76, 52324), (77, 52360), (83, 52492), (84, 52531), (89, 52624), (91, 52657), (92, 52678), (94, 52723), (96, 52756), (99, 52789), (103, 52843), (106, 52909), (109, 52930), (111, 52963), (115, 53029), (140, 53356), (143, 53434), (148, 53488), (149, 53497), (154, 53596), (169, 53935), (172, 53974), (175, 53995), (177, 54037), (181, 54127), (185, 54196), (189, 54256), (195, 54319), (198, 54373), (199, 54379), (201, 54415), (203, 54457), (205, 54469), (207, 54487), (217, 54676), (219, 54727), (221, 54754), (223, 54808), (227, 54850), (229, 54904), (237, 55186), (241, 55246), (244, 55279), (252, 55450), (256, 55510), (257, 55531), (265, 55612), (267, 55696), (268, 55705), (270, 55726), (274, 55903), (275, 55912), (282, 56047), (283, 56050), (286, 56137), (287, 56146), (288, 56155), (290, 56284), (292, 56422), (295, 56674), (296, 56689), (297, 56692), (298, 56710), (302, 56797), (309, 56935), (316, 57085), (319, 57139), (323, 57268), (324, 57292),

Gene: DunneganBoMo_80 Start: 50009, Stop: 56788, Start Num: 1
Candidate Starts for DunneganBoMo_80:
(Start: 1 @50009 has 15 MA's), (2, 50084), (3, 50114), (9, 50300), (11, 50393), (21, 50675), (22, 50687), (30, 50828), (31, 50885), (32, 50906), (35, 50963), (44, 51098), (46, 51113), (57, 51347), (58, 51353), (64, 51560), (73, 51719), (74, 51731), (75, 51740), (76, 51749), (77, 51785), (83, 51917), (84, 51956), (89, 52049), (91, 52082), (92, 52103), (94, 52148), (96, 52181), (99, 52214), (103, 52268), (106, 52334), (109, 52355), (111, 52388), (115, 52454), (140, 52781), (143, 52859), (148, 52913), (149, 52922), (168, 53312), (175, 53420), (177, 53462), (181, 53552), (184, 53603), (191, 53702), (198, 53798), (199, 53804), (201, 53840), (203, 53882), (205, 53894), (207, 53912), (217, 54101), (219, 54152), (221, 54179), (223, 54233), (224, 54239), (229, 54335), (241, 54677), (244, 54710), (252, 54881), (256, 54941), (257, 54962), (265, 55043), (267, 55127), (268, 55136), (270, 55157), (274, 55334), (275, 55343), (282, 55478), (283, 55481), (286, 55568), (287, 55577), (288, 55586), (290, 55715), (292, 55853), (295, 56105), (296, 56120), (297, 56123), (298, 56141), (300, 56210), (302, 56228), (309, 56366), (316, 56516), (319, 56570), (323, 56699), (324, 56723),

Gene: Ellewin_79 Start: 49604, Stop: 56377, Start Num: 1
Candidate Starts for Ellewin_79:
(Start: 1 @49604 has 15 MA's), (2, 49679), (3, 49709), (9, 49895), (11, 49988), (21, 50270), (22, 50282), (30, 50423), (31, 50480), (32, 50501), (35, 50558), (44, 50693), (57, 50942), (58, 50948), (64, 51155), (73, 51314), (74, 51326), (75, 51335), (76, 51344), (77, 51380), (83, 51512), (84, 51551), (89, 51644), (91, 51677), (92, 51698), (94, 51743), (96, 51776), (99, 51809), (103, 51863), (106, 51929), (109, 51950), (111, 51983), (115, 52049), (140, 52376), (143, 52454), (148, 52508), (149, 52517), (154, 52616), (175, 53015), (177, 53057), (181, 53147), (184, 53198), (191, 53297), (198, 53393), (199, 53399), (201, 53435), (203, 53477), (205, 53489), (207, 53507), (209, 53561), (217, 53696), (218, 53708), (219, 53747), (221, 53774), (223, 53828), (224, 53834), (229, 53930), (236, 54125), (237, 54206), (241, 54266), (245, 54323), (252, 54470), (256, 54530), (257, 54551), (265, 54632), (267, 54716), (268, 54725), (270, 54746), (274, 54923), (275, 54932), (282, 55067), (283, 55070), (286, 55157), (287, 55166), (288, 55175), (290, 55304), (291, 55394), (292, 55442), (295, 55694), (297, 55712), (298, 55730), (302, 55817), (309, 55955), (313, 56054), (315, 56102), (316, 56105), (319, 56159), (323, 56288), (324, 56312),

Gene: Emmetator_83 Start: 50756, Stop: 57622, Start Num: 1
Candidate Starts for Emmetator_83:
(Start: 1 @50756 has 15 MA's), (2, 50831), (3, 50861), (9, 51047), (11, 51140), (21, 51422), (22, 51434), (30, 51575), (31, 51632), (32, 51653), (35, 51710), (44, 51845), (46, 51860), (57, 52094), (58, 52100), (64, 52307), (73, 52466), (74, 52478), (75, 52487), (76, 52496), (77, 52532), (83, 52664), (84, 52703), (89, 52796), (91, 52829), (92, 52850), (94, 52895), (96, 52928), (99, 52961), (103, 53015), (106, 53081), (109, 53102), (111, 53135), (115, 53201), (140, 53615), (143, 53693), (148, 53747), (149, 53756), (168, 54146), (175, 54254), (177, 54296), (181, 54386), (184, 54437), (191, 54536), (198, 54632), (199, 54638), (201, 54674), (203, 54716), (205, 54728), (207, 54746), (217, 54935), (219, 54986), (221, 55013), (223, 55067), (224, 55073), (229, 55169), (241, 55511), (244, 55544), (252, 55715), (256, 55775), (257, 55796), (265, 55877), (267, 55961), (268, 55970), (270, 55991), (274, 56168), (275, 56177), (282, 56312), (283, 56315), (286, 56402), (287, 56411), (288, 56420), (290, 56549), (292, 56687), (295, 56939), (296, 56954), (297, 56957), (298, 56975), (300, 57044), (302, 57062), (309, 57200), (316, 57350), (319, 57404), (323, 57533), (324, 57557),

Gene: FloraSnap32_87 Start: 53558, Stop: 59836, Start Num: 1
Candidate Starts for FloraSnap32_87:
(Start: 1 @53558 has 15 MA's), (6, 53774), (11, 53945), (12, 53984), (16, 54044), (23, 54254), (26, 54284), (29, 54353), (31, 54443), (35, 54521), (36, 54530), (41, 54590), (42, 54623), (53, 54845), (69, 55190), (72, 55265), (74, 55289), (83, 55475), (113, 55898), (115, 55922), (116, 55934), (118, 55952), (119, 55964), (127, 56087), (137, 56135), (141, 56246), (147, 56318), (160, 56480), (163, 56528), (171, 56708), (173, 56729), (182, 56843), (187, 56930), (192, 56966), (193, 56975), (197, 57038), (200, 57050), (204, 57113), (212, 57206), (215, 57278), (216, 57281), (234, 57641), (244, 57839), (250, 57920), (263, 58148), (264, 58157), (266, 58175), (274, 58394), (275, 58403), (276, 58409), (282, 58532), (283, 58535), (287, 58631), (288, 58640), (292, 58907), (294, 59096), (295, 59159), (296, 59174), (306, 59309), (309, 59420), (313, 59519), (315, 59567), (318, 59615), (320, 59657), (321, 59666), (322, 59681), (323, 59747), (324, 59771),

Gene: FrostedClock_89 Start: 54009, Stop: 60284, Start Num: 1
Candidate Starts for FrostedClock_89:
(Start: 1 @54009 has 15 MA's), (6, 54225), (11, 54396), (12, 54435), (16, 54495), (23, 54705), (26, 54735), (29, 54804), (31, 54894), (35, 54972), (36, 54981), (41, 55041), (42, 55074), (53, 55296), (69, 55641), (72, 55716), (74, 55740), (83, 55926), (105, 56232), (113, 56349), (115, 56373), (116, 56385), (118, 56403), (119, 56415), (127, 56538), (137, 56586), (141, 56697), (147, 56769), (160, 56931), (163, 56979), (171, 57159), (173, 57180), (182, 57294), (187, 57381), (192, 57417), (193, 57426), (197, 57489), (200, 57501), (204, 57564), (212, 57657), (215, 57729), (216, 57732), (234, 58089),

(244, 58287), (250, 58368), (263, 58596), (264, 58605), (266, 58623), (274, 58842), (275, 58851), (276, 58857), (282, 58980), (283, 58983), (287, 59079), (288, 59088), (292, 59355), (294, 59544), (295, 59607), (296, 59622), (306, 59757), (309, 59868), (313, 59967), (315, 60015), (318, 60063), (320, 60105), (321, 60114), (322, 60129), (323, 60195), (324, 60219),

Gene: GoldenEssence_76 Start: 48314, Stop: 54592, Start Num: 1
Candidate Starts for GoldenEssence_76:
(Start: 1 @48314 has 15 MA's), (6, 48530), (11, 48701), (12, 48740), (16, 48800), (23, 49010), (26, 49040), (29, 49109), (31, 49199), (35, 49277), (36, 49286), (41, 49346), (42, 49379), (53, 49601), (69, 49946), (72, 50021), (74, 50045), (83, 50231), (105, 50537), (113, 50654), (115, 50678), (116, 50690), (118, 50708), (119, 50720), (127, 50843), (137, 50891), (141, 51002), (147, 51074), (160, 51236), (163, 51284), (171, 51464), (173, 51485), (182, 51599), (187, 51686), (192, 51722), (193, 51731), (197, 51794), (200, 51806), (204, 51869), (212, 51962), (215, 52034), (216, 52037), (234, 52397), (244, 52595), (250, 52676), (263, 52904), (264, 52913), (266, 52931), (274, 53150), (275, 53159), (276, 53165), (282, 53288), (283, 53291), (287, 53387), (288, 53396), (292, 53663), (294, 53852), (295, 53915), (296, 53930), (306, 54065), (309, 54176), (313, 54275), (315, 54323), (318, 54371), (320, 54413), (321, 54422), (322, 54437), (323, 54503), (324, 54527),

Gene: KSunshine22_85 Start: 51243, Stop: 58010, Start Num: 1
Candidate Starts for KSunshine22_85:
(Start: 1 @51243 has 15 MA's), (2, 51318), (3, 51348), (9, 51534), (11, 51627), (21, 51909), (22, 51921), (30, 52062), (31, 52119), (32, 52140), (35, 52197), (44, 52332), (46, 52347), (57, 52581), (58, 52587), (64, 52794), (73, 52953), (74, 52965), (75, 52974), (76, 52983), (77, 53019), (83, 53151), (84, 53190), (89, 53283), (91, 53316), (92, 53337), (94, 53382), (96, 53415), (99, 53448), (103, 53502), (106, 53568), (109, 53589), (111, 53622), (115, 53688), (140, 54015), (143, 54093), (148, 54147), (149, 54156), (154, 54255), (168, 54546), (175, 54654), (177, 54696), (181, 54786), (186, 54858), (198, 55032), (199, 55038), (213, 55230), (217, 55332), (232, 55644), (233, 55668), (237, 55839), (243, 55920), (252, 56103), (256, 56163), (257, 56184), (265, 56265), (267, 56349), (268, 56358), (270, 56379), (274, 56556), (275, 56565), (282, 56700), (283, 56703), (286, 56790), (287, 56799), (288, 56808), (290, 56937), (291, 57027), (292, 57075), (295, 57327), (297, 57345), (298, 57363), (302, 57450), (309, 57588), (313, 57687), (315, 57735), (316, 57738), (319, 57792), (324, 57945),

Gene: Laure_92 Start: 54152, Stop: 59191, Start Num: 1
Candidate Starts for Laure_92:
(Start: 1 @54152 has 15 MA's), (4, 54275), (7, 54377), (15, 54593), (24, 54845), (26, 54872), (31, 55031), (32, 55052), (40, 55151), (41, 55175), (42, 55208), (45, 55250), (52, 55397), (55, 55475), (56, 55484), (61, 55586), (62, 55610), (63, 55679), (67, 55745), (68, 55766), (69, 55775), (70, 55808), (71, 55838), (80, 55967), (81, 55970), (83, 56060), (86, 56129), (87, 56141), (90, 56204), (96, 56294), (98, 56315), (100, 56327), (102, 56348), (114, 56528), (119, 56594), (121, 56663), (124, 56705), (142, 56897), (151, 57008), (156, 57068), (157, 57080), (158, 57101), (169, 57332), (174, 57377), (176, 57416), (179, 57437), (182, 57488), (187, 57575), (192, 57611), (193, 57620), (197, 57683), (208, 57803), (211, 57836), (212, 57851), (220, 58022), (222, 58073), (235, 58220), (240, 58334), (242, 58376), (250, 58478), (255, 58619), (259, 58667), (262, 58697), (269, 58778), (271, 58787), (272, 58853), (276, 58970), (277, 59000), (278, 59003), (280, 59060), (284, 59105),

Gene: LeoJr_90 Start: 53369, Stop: 60058, Start Num: 2
Candidate Starts for LeoJr_90:
(Start: 1 @53294 has 15 MA's), (2, 53369), (3, 53399), (4, 53417), (8, 53561), (10, 53630), (17, 53843), (31, 54179), (35, 54257), (49, 54434), (58, 54647), (65, 54872), (69, 54926), (72, 55001), (74, 55025), (77, 55079), (78, 55085), (83, 55211), (85, 55268), (93, 55445), (104, 55592), (107, 55649), (108, 55655), (117, 55781), (122, 55898), (123, 55910), (125, 55919), (126, 55931), (131, 55985), (132, 55988), (136, 56072), (144, 56258), (149, 56291), (152, 56357), (161, 56510), (162, 56531), (166, 56621), (167, 56630), (173, 56759), (178, 56852), (187, 56996), (188, 57014), (190, 57029), (194,

57062), (206, 57209), (210, 57266), (225, 57539), (226, 57560), (230, 57632), (239, 57902), (241, 57941), (244, 57977), (249, 58052), (267, 58403), (268, 58412), (274, 58610), (275, 58619), (282, 58751), (283, 58754), (285, 58793), (287, 58850), (288, 58859), (291, 59078), (293, 59291), (295, 59378), (296, 59393), (297, 59396), (298, 59414), (302, 59501), (305, 59522), (309, 59639), (310, 59648), (313, 59738), (315, 59786), (316, 59789), (317, 59828), (319, 59843), (322, 59900), (324, 59993),

Gene: Mimi_90 Start: 53868, Stop: 60143, Start Num: 1
Candidate Starts for Mimi_90:
(Start: 1 @53868 has 15 MA's), (6, 54084), (11, 54255), (12, 54294), (16, 54354), (23, 54564), (26, 54594), (29, 54663), (31, 54753), (35, 54831), (36, 54840), (41, 54900), (42, 54933), (53, 55155), (69, 55500), (72, 55575), (74, 55599), (83, 55785), (105, 56091), (113, 56208), (115, 56232), (116, 56244), (118, 56262), (119, 56274), (127, 56397), (137, 56445), (141, 56556), (147, 56628), (160, 56790), (163, 56838), (171, 57018), (173, 57039), (182, 57153), (187, 57240), (192, 57276), (193, 57285), (197, 57348), (200, 57360), (204, 57423), (212, 57516), (215, 57588), (216, 57591), (234, 57948), (244, 58146), (250, 58227), (263, 58455), (264, 58464), (266, 58482), (274, 58701), (275, 58710), (276, 58716), (282, 58839), (283, 58842), (287, 58938), (288, 58947), (292, 59214), (294, 59403), (295, 59466), (296, 59481), (306, 59616), (309, 59727), (313, 59826), (315, 59874), (318, 59922), (320, 59964), (321, 59973), (322, 59988), (323, 60054), (324, 60078),

Gene: Panchaali_82 Start: 51010, Stop: 57891, Start Num: 1
Candidate Starts for Panchaali_82:
(Start: 1 @51010 has 15 MA's), (2, 51085), (3, 51115), (17, 51559), (20, 51619), (27, 51796), (31, 51895), (35, 51973), (39, 52012), (49, 52150), (50, 52171), (51, 52234), (58, 52363), (59, 52381), (66, 52600), (68, 52633), (72, 52717), (74, 52741), (77, 52795), (78, 52801), (81, 52837), (82, 52849), (83, 52927), (85, 52984), (86, 52996), (88, 53059), (93, 53161), (95, 53179), (97, 53224), (107, 53377), (108, 53383), (117, 53509), (120, 53572), (122, 53626), (125, 53647), (129, 53674), (131, 53713), (134, 53731), (139, 53845), (144, 54019), (149, 54052), (150, 54064), (159, 54259), (162, 54325), (165, 54367), (168, 54463), (170, 54529), (171, 54532), (173, 54553), (180, 54676), (182, 54709), (187, 54799), (196, 54907), (225, 55363), (229, 55447), (230, 55456), (231, 55486), (238, 55723), (241, 55765), (244, 55801), (246, 55831), (267, 56233), (268, 56242), (274, 56440), (275, 56449), (281, 56557), (282, 56581), (283, 56584), (287, 56680), (291, 56908), (296, 57223), (297, 57226), (298, 57244), (299, 57286), (302, 57331), (303, 57334), (304, 57343), (306, 57358), (307, 57394), (308, 57433), (309, 57469), (315, 57616), (317, 57658), (319, 57673), (324, 57826),

Gene: Patbob_89 Start: 54740, Stop: 61015, Start Num: 1
Candidate Starts for Patbob_89:
(Start: 1 @54740 has 15 MA's), (6, 54956), (11, 55127), (12, 55166), (16, 55226), (23, 55436), (26, 55466), (29, 55535), (31, 55625), (35, 55703), (36, 55712), (41, 55772), (42, 55805), (53, 56027), (69, 56372), (72, 56447), (74, 56471), (83, 56657), (113, 57080), (115, 57104), (116, 57116), (118, 57134), (119, 57146), (127, 57269), (137, 57317), (141, 57428), (147, 57500), (160, 57662), (163, 57710), (171, 57890), (173, 57911), (182, 58025), (187, 58112), (192, 58148), (193, 58157), (197, 58220), (200, 58232), (204, 58295), (212, 58388), (215, 58460), (216, 58463), (234, 58820), (244, 59018), (250, 59099), (260, 59306), (261, 59315), (264, 59336), (266, 59354), (274, 59573), (275, 59582), (276, 59588), (282, 59711), (283, 59714), (287, 59810), (288, 59819), (292, 60086), (294, 60275), (295, 60338), (296, 60353), (301, 60455), (306, 60488), (309, 60599), (313, 60698), (315, 60746), (318, 60794), (320, 60836), (321, 60845), (322, 60860), (323, 60926), (324, 60950),

Gene: Phrampa_82 Start: 51474, Stop: 58328, Start Num: 1
Candidate Starts for Phrampa_82:
(Start: 1 @51474 has 15 MA's), (5, 51627), (7, 51699), (13, 51906), (14, 51912), (18, 52047), (19, 52059), (24, 52173), (25, 52194), (31, 52359), (35, 52437), (38, 52470), (47, 52590), (54, 52788), (58, 52827), (60, 52890), (66, 53064), (68, 53097), (69, 53106), (70, 53139), (72, 53181), (74, 53205), (79,

53292), (83, 53391), (90, 53556), (98, 53676), (101, 53712), (110, 53850), (112, 53883), (118, 53970), (125, 54099), (128, 54123), (130, 54144), (132, 54162), (133, 54174), (135, 54192), (138, 54231), (146, 54405), (155, 54534), (164, 54711), (182, 55062), (183, 55065), (184, 55101), (187, 55152), (188, 55170), (196, 55260), (202, 55356), (214, 55479), (228, 55758), (248, 56235), (254, 56451), (258, 56502), (262, 56547), (273, 56832), (274, 56886), (275, 56895), (282, 57024), (283, 57027), (287, 57123), (288, 57132), (291, 57351), (292, 57399), (294, 57588), (295, 57651), (304, 57786), (309, 57912), (311, 57939), (313, 58011), (314, 58023), (315, 58059), (319, 58116), (320, 58149), (321, 58158), (322, 58173), (323, 58239), (324, 58263),

Gene: Racecar_91 Start: 54521, Stop: 60796, Start Num: 1
Candidate Starts for Racecar_91:
(Start: 1 @54521 has 15 MA's), (6, 54737), (11, 54908), (12, 54947), (16, 55007), (23, 55217), (26, 55247), (29, 55316), (31, 55406), (35, 55484), (36, 55493), (41, 55553), (42, 55586), (53, 55808), (69, 56153), (72, 56228), (74, 56252), (83, 56438), (105, 56744), (113, 56861), (115, 56885), (116, 56897), (118, 56915), (119, 56927), (127, 57050), (137, 57098), (141, 57209), (147, 57281), (160, 57443), (163, 57491), (171, 57671), (173, 57692), (182, 57806), (187, 57893), (192, 57929), (193, 57938), (197, 58001), (200, 58013), (204, 58076), (212, 58169), (215, 58241), (216, 58244), (234, 58601), (244, 58799), (250, 58880), (263, 59108), (264, 59117), (266, 59135), (274, 59354), (275, 59363), (276, 59369), (282, 59492), (283, 59495), (287, 59591), (288, 59600), (292, 59867), (294, 60056), (295, 60119), (296, 60134), (306, 60269), (309, 60380), (313, 60479), (315, 60527), (318, 60575), (320, 60617), (321, 60626), (322, 60641), (323, 60707), (324, 60731),

Gene: ReginaGlobina_90 Start: 54047, Stop: 60811, Start Num: 1
Candidate Starts for ReginaGlobina_90:
(Start: 1 @54047 has 15 MA's), (2, 54122), (3, 54152), (4, 54170), (8, 54314), (10, 54383), (17, 54596), (31, 54932), (35, 55010), (49, 55187), (58, 55400), (65, 55625), (69, 55679), (72, 55754), (74, 55778), (77, 55832), (78, 55838), (83, 55964), (85, 56021), (93, 56198), (107, 56402), (108, 56408), (117, 56534), (122, 56651), (123, 56663), (125, 56672), (126, 56684), (131, 56738), (132, 56741), (136, 56825), (144, 57011), (149, 57044), (152, 57110), (161, 57263), (162, 57284), (166, 57374), (167, 57383), (173, 57512), (178, 57605), (187, 57749), (188, 57767), (190, 57782), (194, 57815), (206, 57962), (210, 58019), (225, 58292), (226, 58313), (230, 58385), (239, 58655), (241, 58694), (244, 58730), (249, 58805), (267, 59156), (268, 59165), (274, 59363), (275, 59372), (282, 59504), (283, 59507), (285, 59546), (287, 59603), (288, 59612), (291, 59831), (293, 60044), (295, 60131), (296, 60146), (297, 60149), (298, 60167), (302, 60254), (305, 60275), (309, 60392), (310, 60401), (313, 60491), (315, 60539), (316, 60542), (317, 60581), (319, 60596), (322, 60653), (324, 60746),

Gene: Stewart25555_80 Start: 50433, Stop: 57314, Start Num: 1
Candidate Starts for Stewart25555_80:
(Start: 1 @50433 has 15 MA's), (2, 50508), (17, 50982), (27, 51219), (28, 51225), (31, 51318), (35, 51396), (43, 51522), (49, 51573), (50, 51594), (58, 51786), (66, 52023), (68, 52056), (69, 52065), (72, 52140), (74, 52164), (77, 52218), (83, 52350), (85, 52407), (86, 52419), (88, 52482), (93, 52584), (107, 52800), (108, 52806), (117, 52932), (120, 52995), (122, 53049), (125, 53070), (128, 53094), (129, 53097), (131, 53136), (134, 53154), (144, 53442), (145, 53448), (149, 53475), (150, 53487), (153, 53562), (165, 53790), (170, 53952), (171, 53955), (173, 53976), (182, 54132), (187, 54222), (196, 54330), (225, 54786), (229, 54870), (230, 54879), (244, 55224), (246, 55254), (247, 55287), (251, 55341), (253, 55440), (267, 55656), (268, 55665), (274, 55863), (275, 55872), (279, 55932), (283, 56004), (287, 56100), (289, 56196), (291, 56328), (295, 56628), (296, 56643), (297, 56646), (298, 56664), (302, 56751), (307, 56814), (308, 56853), (309, 56889), (312, 56925), (314, 57000), (315, 57036), (317, 57078), (319, 57093), (324, 57249), (325, 57264),

Gene: Talia1610_90 Start: 53886, Stop: 60161, Start Num: 1
Candidate Starts for Talia1610_90:

(Start: 1 @53886 has 15 MA's), (6, 54102), (11, 54273), (12, 54312), (16, 54372), (23, 54582), (26, 54612), (31, 54771), (34, 54813), (35, 54849), (37, 54873), (42, 54951), (48, 55017), (53, 55173), (69, 55518), (72, 55593), (74, 55617), (83, 55803), (105, 56109), (113, 56226), (115, 56250), (116, 56262), (118, 56280), (119, 56292), (127, 56415), (137, 56463), (141, 56574), (147, 56646), (160, 56808), (163, 56856), (171, 57036), (173, 57057), (182, 57171), (187, 57258), (192, 57294), (193, 57303), (197, 57366), (200, 57378), (204, 57441), (212, 57534), (215, 57606), (216, 57609), (234, 57966), (244, 58164), (250, 58245), (263, 58473), (264, 58482), (266, 58500), (274, 58719), (275, 58728), (276, 58734), (282, 58857), (283, 58860), (287, 58956), (288, 58965), (292, 59232), (294, 59421), (295, 59484), (296, 59499), (306, 59634), (309, 59745), (313, 59844), (315, 59892), (318, 59940), (320, 59982), (321, 59991), (322, 60006), (323, 60072), (324, 60096),

Gene: WaddleDee_78 Start: 49864, Stop: 56643, Start Num: 1
Candidate Starts for WaddleDee_78:
(Start: 1 @49864 has 15 MA's), (2, 49939), (3, 49969), (9, 50155), (11, 50248), (21, 50530), (22, 50542), (30, 50683), (31, 50740), (32, 50761), (35, 50818), (44, 50953), (46, 50968), (57, 51202), (58, 51208), (64, 51415), (73, 51574), (74, 51586), (75, 51595), (76, 51604), (77, 51640), (83, 51772), (89, 51904), (91, 51937), (92, 51958), (94, 52003), (96, 52036), (99, 52069), (103, 52123), (106, 52189), (109, 52210), (111, 52243), (115, 52309), (140, 52636), (143, 52714), (148, 52768), (149, 52777), (168, 53167), (175, 53275), (177, 53317), (181, 53407), (184, 53458), (191, 53557), (198, 53653), (199, 53659), (201, 53695), (203, 53737), (205, 53749), (207, 53767), (217, 53956), (219, 54007), (221, 54034), (223, 54088), (224, 54094), (229, 54190), (241, 54532), (244, 54565), (252, 54736), (256, 54796), (257, 54817), (265, 54898), (267, 54982), (268, 54991), (270, 55012), (274, 55189), (275, 55198), (282, 55333), (283, 55336), (286, 55423), (287, 55432), (288, 55441), (290, 55570), (292, 55708), (295, 55960), (296, 55975), (297, 55978), (298, 55996), (300, 56065), (302, 56083), (309, 56221), (316, 56371), (319, 56425), (323, 56554), (324, 56578),