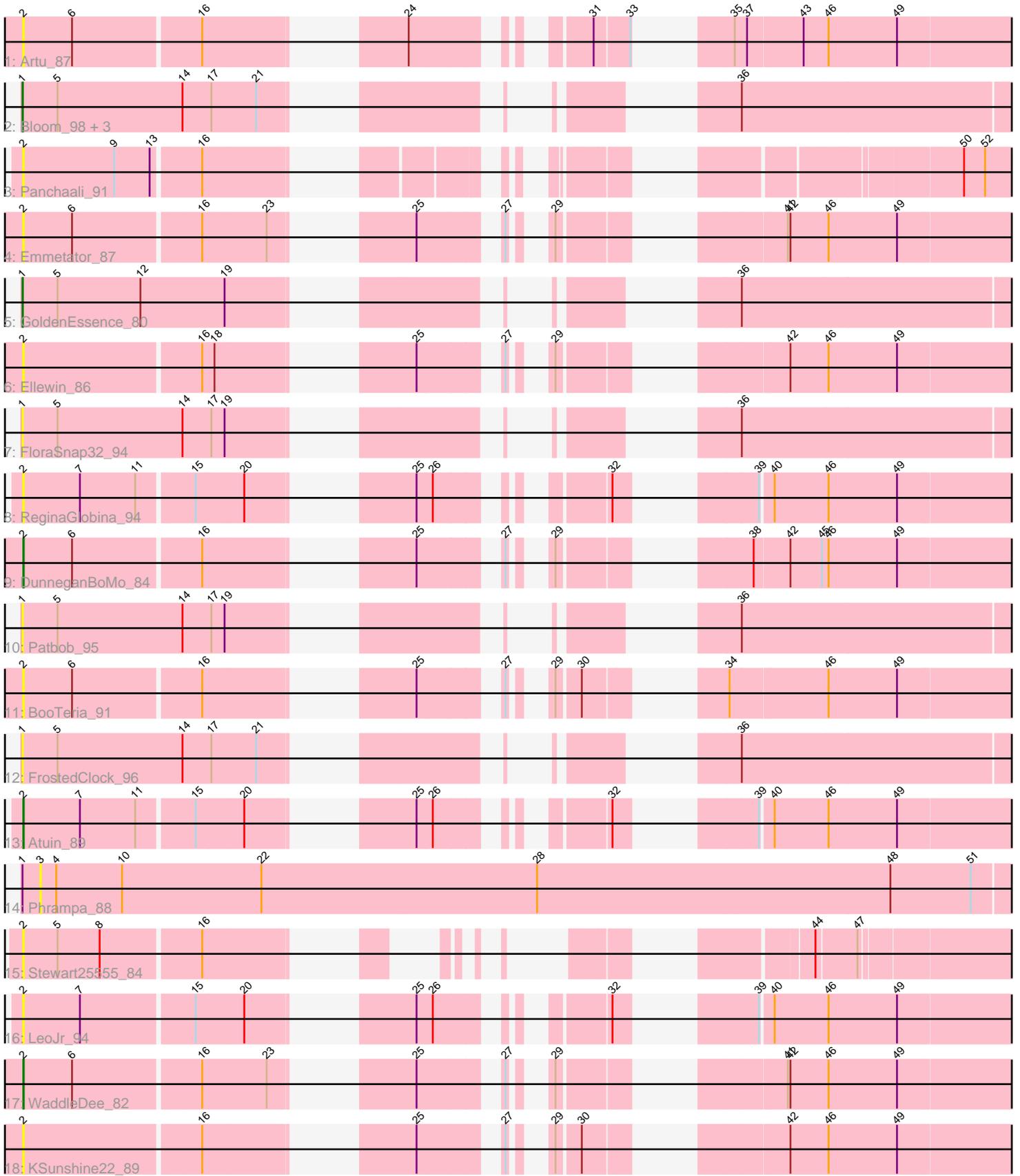


Zoomed Pham 284184



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 284184 Report

This analysis was run 02/23/26 on database version 636.

Pham number 284184 has 21 members, 14 are drafts.

Phages represented in each track:

- Track 1 : Artu_87
- Track 2 : Bloom_98, Mimi_94, Talia1610_94, Racecar_95
- Track 3 : Panchaali_91
- Track 4 : Emmetator_87
- Track 5 : GoldenEssence_80
- Track 6 : Ellewin_86
- Track 7 : FloraSnap32_94
- Track 8 : ReginaGlobina_94
- Track 9 : DunneganBoMo_84
- Track 10 : Patbob_95
- Track 11 : BooTeria_91
- Track 12 : FrostedClock_96
- Track 13 : Atuin_89
- Track 14 : Phrampa_88
- Track 15 : Stewart25555_84
- Track 16 : LeoJr_94
- Track 17 : WaddleDee_82
- Track 18 : KSunshine22_89

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 4 of the 7 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Bloom_98, FloraSnap32_94, FrostedClock_96, GoldenEssence_80, Mimi_94, Patbob_95, Racecar_95, Talia1610_94,

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

- Phrampa_88,

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

- Artu_87, Atuin_89, BooTeria_91, DunneganBoMo_84, Ellewin_86, Emmetator_87, KSunshine22_89, LeoJr_94, Panchaali_91, ReginaGlobina_94, Stewart25555_84,

WaddleDee_82,

Summary by start number:

Start 1:

- Found in 9 of 21 (42.9%) of genes in pham
- Manual Annotations of this start: 4 of 7
- Called 88.9% of time when present
- Phage (with cluster) where this start called: Bloom_98 (FC), FloraSnap32_94 (FC), FrostedClock_96 (FC), GoldenEssence_80 (FC), Mimi_94 (FC), Patbob_95 (FC), Racecar_95 (FC), Talia1610_94 (FC),

Start 2:

- Found in 12 of 21 (57.1%) of genes in pham
- Manual Annotations of this start: 3 of 7
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Artu_87 (FC), Atuin_89 (FC), BooTeria_91 (FC), DunneganBoMo_84 (FC), Ellewin_86 (FC), Emmetator_87 (FC), KSunshine22_89 (FC), LeoJr_94 (FC), Panchaali_91 (FC), ReginaGlobina_94 (FC), Stewart25555_84 (FC), WaddleDee_82 (FC),

Start 3:

- Found in 1 of 21 (4.8%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Phrampa_88 (FC),

Summary by clusters:

There is one cluster represented in this pham: FC

Info for manual annotations of cluster FC:

- Start number 1 was manually annotated 4 times for cluster FC.
- Start number 2 was manually annotated 3 times for cluster FC.

Gene Information:

Gene: Artu_87 Start: 60222, Stop: 73136, Start Num: 2

Candidate Starts for Artu_87:

(Start: 2 @60222 has 3 MA's), (6, 60330), (16, 60600), (24, 60900), (31, 61179), (33, 61254), (35, 61338), (37, 61365), (43, 61488), (46, 61545), (49, 61701), (55, 62118), (56, 62181), (58, 62235), (64, 62508), (72, 62739), (79, 62895), (80, 62907), (81, 62922), (85, 63105), (86, 63138), (90, 63207), (91, 63210), (95, 63279), (96, 63351), (98, 63390), (99, 63405), (102, 63447), (110, 63717), (118, 63771), (128, 63879), (131, 63933), (137, 64041), (138, 64086), (142, 64140), (144, 64149), (145, 64203), (147, 64257), (150, 64344), (157, 64464), (161, 64581), (178, 64893), (181, 64956), (185, 65133), (189, 65256), (190, 65277), (193, 65319), (202, 65469), (204, 65523), (205, 65535), (207, 65598), (216, 65772), (219, 65847), (221, 65997), (225, 66162), (227, 66183), (228, 66216), (239, 66378), (240, 66432), (242, 66444), (253, 66660), (258, 66729), (259, 66771), (266, 67125), (268, 67158), (281, 67434), (286, 67701), (295, 67890), (296, 67956), (300, 68076), (308, 68316), (311, 68394), (315, 68538), (317, 68637), (319, 68676), (329, 68940), (335, 69141), (336, 69162), (337, 69201), (338, 69204), (352, 69423), (376, 69528), (379, 69612), (399, 69930), (400, 70011), (401, 70059),

(404, 70071), (413, 70218), (417, 70392), (423, 70515), (427, 70680), (441, 70974), (442, 70995), (452, 71172), (453, 71235), (457, 71397), (458, 71403), (465, 71502), (466, 71505), (470, 71616), (472, 71634), (473, 71694), (480, 71808), (483, 71838), (491, 72018), (496, 72123), (497, 72126), (499, 72159), (510, 72261), (519, 72477), (525, 72570), (528, 72666), (536, 72846), (537, 72852), (543, 72960), (548, 73065),

Gene: Atuin_89 Start: 62854, Stop: 76545, Start Num: 2

Candidate Starts for Atuin_89:

(Start: 2 @62854 has 3 MA's), (7, 62977), (11, 63103), (15, 63220), (20, 63328), (25, 63553), (26, 63589), (32, 63850), (39, 64027), (40, 64051), (46, 64174), (49, 64330), (65, 65092), (71, 65275), (74, 65299), (76, 65308), (84, 65635), (88, 65710), (92, 65782), (93, 65791), (97, 65929), (103, 66016), (112, 66313), (114, 66325), (115, 66331), (117, 66352), (119, 66385), (122, 66514), (124, 66526), (127, 66571), (133, 66652), (135, 66673), (139, 66796), (141, 66811), (153, 67168), (156, 67177), (158, 67231), (169, 67546), (174, 67615), (176, 67630), (179, 67672), (188, 67972), (190, 68011), (195, 68074), (199, 68128), (207, 68344), (209, 68398), (222, 68572), (224, 68602), (228, 68689), (235, 68797), (236, 68809), (243, 68851), (245, 68917), (258, 69094), (259, 69136), (263, 69337), (266, 69493), (267, 69514), (268, 69526), (277, 69658), (281, 69802), (284, 70009), (287, 70099), (289, 70141), (294, 70213), (296, 70324), (299, 70414), (302, 70483), (309, 70708), (311, 70759), (317, 71002), (324, 71140), (329, 71305), (333, 71428), (335, 71506), (336, 71527), (337, 71566), (350, 72103), (351, 72139), (352, 72187), (363, 72409), (383, 72913), (392, 73141), (395, 73225), (396, 73249), (397, 73267), (407, 73456), (408, 73459), (417, 73756), (425, 73927), (432, 74113), (433, 74119), (442, 74347), (443, 74356), (444, 74362), (445, 74371), (446, 74377), (447, 74404), (448, 74431), (450, 74458), (453, 74587), (455, 74641), (457, 74749), (458, 74755), (459, 74782), (463, 74803), (464, 74806), (467, 74884), (470, 74968), (472, 74986), (479, 75160), (488, 75274), (491, 75406), (493, 75475), (499, 75574), (502, 75604), (506, 75637), (509, 75655), (512, 75736), (514, 75802), (517, 75838), (531, 76204), (542, 76366), (543, 76375),

Gene: Bloom_98 Start: 63725, Stop: 76525, Start Num: 1

Candidate Starts for Bloom_98:

(Start: 1 @63725 has 4 MA's), (5, 63803), (14, 64088), (17, 64154), (21, 64256), (36, 64835), (62, 65864), (63, 65924), (67, 66173), (82, 66449), (162, 67709), (171, 67916), (172, 67919), (173, 67940), (186, 68291), (191, 68408), (197, 68483), (214, 68855), (220, 68978), (238, 69338), (244, 69461), (249, 69524), (250, 69533), (251, 69551), (252, 69584), (264, 69977), (270, 70148), (272, 70199), (273, 70220), (275, 70241), (278, 70328), (306, 70634), (318, 71054), (321, 71159), (339, 71639), (340, 71669), (345, 71954), (346, 72044), (348, 72101), (354, 72308), (370, 72512), (375, 72650), (378, 72773), (389, 73058), (402, 73433), (403, 73439), (405, 73448), (410, 73514), (412, 73535), (418, 73817), (426, 74042), (437, 74342), (477, 75182), (482, 75236), (483, 75239), (491, 75413), (494, 75518), (496, 75533), (497, 75536), (498, 75551), (500, 75569), (501, 75575), (505, 75623), (508, 75641), (522, 75932), (529, 76064), (532, 76202), (540, 76337), (543, 76352),

Gene: BooTeria_91 Start: 60290, Stop: 73204, Start Num: 2

Candidate Starts for BooTeria_91:

(Start: 2 @60290 has 3 MA's), (6, 60398), (16, 60668), (25, 60986), (27, 61136), (29, 61172), (30, 61220), (34, 61394), (46, 61613), (49, 61769), (55, 62186), (56, 62249), (58, 62303), (64, 62576), (72, 62807), (79, 62963), (80, 62975), (81, 62990), (85, 63173), (86, 63206), (90, 63275), (91, 63278), (95, 63347), (96, 63419), (98, 63458), (99, 63473), (102, 63515), (110, 63785), (116, 63830), (118, 63839), (130, 63992), (131, 64001), (136, 64055), (137, 64109), (138, 64154), (147, 64325), (148, 64358), (150, 64412), (157, 64532), (161, 64649), (178, 64961), (181, 65024), (185, 65201), (189, 65324), (190, 65345), (193, 65387), (202, 65537), (204, 65591), (205, 65603), (207, 65666), (216, 65840), (219, 65915), (221, 66065), (225, 66230), (227, 66251), (228, 66284), (239, 66446), (240, 66500), (242, 66512), (246, 66629), (253, 66728), (258, 66797), (259, 66839), (266, 67193), (268, 67226), (281, 67502), (286, 67769), (295, 67958), (296, 68024), (300, 68144), (308, 68384), (311, 68462), (315, 68606), (317, 68705), (319, 68744), (329, 69008), (335, 69209), (336, 69230), (337, 69269),

(338, 69272), (352, 69491), (376, 69596), (379, 69680), (399, 69998), (400, 70079), (401, 70127), (404, 70139), (413, 70286), (417, 70460), (423, 70583), (427, 70748), (441, 71042), (442, 71063), (452, 71240), (453, 71303), (457, 71465), (458, 71471), (465, 71570), (466, 71573), (469, 71672), (470, 71684), (471, 71699), (472, 71702), (473, 71762), (480, 71876), (483, 71906), (491, 72086), (496, 72191), (497, 72194), (499, 72227), (510, 72329), (519, 72545), (525, 72638), (528, 72734), (536, 72914), (537, 72920), (543, 73028), (548, 73133),

Gene: DunneganBoMo_84 Start: 59721, Stop: 72473, Start Num: 2

Candidate Starts for DunneganBoMo_84:

(Start: 2 @59721 has 3 MA's), (6, 59829), (16, 60099), (25, 60417), (27, 60567), (29, 60603), (38, 60879), (42, 60957), (45, 61029), (46, 61044), (49, 61200), (55, 61617), (56, 61680), (58, 61734), (64, 62007), (72, 62238), (79, 62394), (80, 62406), (81, 62421), (85, 62604), (86, 62637), (90, 62706), (91, 62709), (96, 62850), (98, 62889), (99, 62904), (102, 62946), (110, 63216), (118, 63270), (128, 63378), (137, 63540), (138, 63585), (142, 63639), (144, 63648), (145, 63702), (147, 63756), (150, 63843), (157, 63963), (161, 64080), (178, 64392), (181, 64455), (185, 64632), (189, 64755), (190, 64776), (193, 64818), (202, 64968), (204, 65022), (205, 65034), (207, 65097), (216, 65271), (219, 65346), (221, 65496), (225, 65661), (228, 65715), (229, 65727), (237, 65844), (245, 65889), (246, 65898), (253, 65997), (257, 66063), (258, 66066), (259, 66108), (265, 66390), (266, 66462), (268, 66495), (281, 66771), (286, 67038), (295, 67227), (296, 67293), (300, 67413), (308, 67653), (315, 67875), (317, 67974), (319, 68013), (329, 68277), (335, 68478), (336, 68499), (337, 68538), (338, 68541), (352, 68760), (376, 68865), (379, 68949), (399, 69267), (400, 69348), (401, 69396), (404, 69408), (413, 69555), (417, 69729), (423, 69852), (427, 70017), (441, 70311), (442, 70332), (452, 70509), (453, 70572), (457, 70734), (458, 70740), (465, 70839), (466, 70842), (469, 70941), (470, 70953), (471, 70968), (472, 70971), (473, 71031), (480, 71145), (483, 71175), (491, 71355), (496, 71460), (497, 71463), (499, 71496), (510, 71598), (519, 71814), (525, 71907), (528, 72003), (537, 72189), (543, 72297), (548, 72402),

Gene: Ellewin_86 Start: 59301, Stop: 71885, Start Num: 2

Candidate Starts for Ellewin_86:

(Start: 2 @59301 has 3 MA's), (16, 59679), (18, 59706), (25, 59997), (27, 60147), (29, 60183), (42, 60537), (46, 60624), (49, 60780), (55, 61197), (58, 61314), (64, 61587), (72, 61818), (79, 61974), (80, 61986), (81, 62001), (85, 62184), (90, 62286), (91, 62289), (94, 62343), (95, 62358), (96, 62430), (98, 62469), (99, 62484), (102, 62526), (120, 62904), (123, 63003), (128, 63066), (140, 63282), (142, 63327), (144, 63336), (145, 63390), (149, 63498), (150, 63531), (153, 63597), (161, 63768), (185, 64317), (189, 64440), (193, 64503), (202, 64653), (210, 64857), (215, 64878), (217, 64911), (225, 65073), (228, 65127), (229, 65139), (253, 65409), (258, 65478), (259, 65520), (266, 65874), (268, 65907), (281, 66183), (283, 66327), (292, 66552), (295, 66639), (296, 66705), (303, 66891), (311, 67143), (315, 67287), (317, 67386), (319, 67425), (320, 67464), (328, 67665), (329, 67689), (335, 67890), (336, 67911), (337, 67950), (338, 67953), (352, 68172), (376, 68277), (379, 68361), (399, 68679), (401, 68808), (404, 68820), (413, 68967), (415, 69024), (417, 69141), (423, 69264), (427, 69429), (429, 69435), (441, 69723), (442, 69744), (451, 69894), (452, 69921), (453, 69984), (457, 70146), (458, 70152), (465, 70251), (466, 70254), (469, 70353), (470, 70365), (472, 70383), (473, 70443), (480, 70557), (491, 70767), (496, 70872), (499, 70908), (510, 71010), (511, 71025), (515, 71160), (519, 71226), (525, 71319), (528, 71415), (536, 71595), (537, 71601), (543, 71709), (548, 71814),

Gene: Emmetator_87 Start: 60555, Stop: 72476, Start Num: 2

Candidate Starts for Emmetator_87:

(Start: 2 @60555 has 3 MA's), (6, 60663), (16, 60933), (23, 61077), (25, 61251), (27, 61401), (29, 61437), (41, 61785), (42, 61791), (46, 61878), (49, 62034), (55, 62451), (69, 62766), (77, 62832), (78, 62841), (108, 63057), (110, 63165), (137, 63327), (138, 63372), (142, 63426), (144, 63435), (145, 63489), (147, 63543), (150, 63630), (157, 63750), (161, 63867), (178, 64179), (181, 64242), (185, 64419), (189, 64542), (190, 64563), (193, 64605), (202, 64755), (204, 64809), (205, 64821), (207,

64884), (216, 65058), (219, 65133), (221, 65283), (225, 65448), (228, 65502), (239, 65664), (240, 65718), (242, 65730), (246, 65847), (247, 65892), (248, 65901), (253, 66000), (257, 66066), (258, 66069), (259, 66111), (265, 66393), (266, 66465), (268, 66498), (281, 66774), (286, 67041), (295, 67230), (296, 67296), (300, 67416), (308, 67656), (315, 67878), (317, 67977), (319, 68016), (328, 68256), (329, 68280), (332, 68370), (333, 68403), (335, 68481), (336, 68502), (337, 68541), (338, 68544), (352, 68763), (379, 68952), (399, 69270), (404, 69411), (413, 69558), (415, 69615), (417, 69732), (423, 69855), (427, 70020), (431, 70077), (439, 70305), (442, 70335), (451, 70485), (452, 70512), (453, 70575), (457, 70737), (458, 70743), (465, 70842), (466, 70845), (469, 70944), (470, 70956), (471, 70971), (472, 70974), (473, 71034), (480, 71148), (483, 71178), (491, 71358), (496, 71463), (497, 71466), (499, 71499), (510, 71601), (519, 71817), (525, 71910), (528, 72006), (536, 72186), (537, 72192), (543, 72300), (548, 72405),

Gene: FloraSnap32_94 Start: 62765, Stop: 75421, Start Num: 1

Candidate Starts for FloraSnap32_94:

(Start: 1 @62765 has 4 MA's), (5, 62843), (14, 63128), (17, 63194), (19, 63224), (36, 63875), (62, 64904), (63, 64964), (82, 65489), (162, 66749), (163, 66836), (171, 66956), (172, 66959), (173, 66980), (177, 67034), (187, 67382), (191, 67448), (197, 67523), (214, 67895), (220, 68018), (238, 68378), (244, 68501), (250, 68573), (251, 68591), (252, 68624), (264, 69017), (271, 69200), (273, 69260), (275, 69281), (278, 69368), (305, 69599), (306, 69674), (307, 69734), (312, 69839), (321, 70199), (331, 70439), (340, 70709), (356, 71336), (357, 71342), (360, 71384), (361, 71408), (371, 71516), (374, 71576), (378, 71714), (388, 71969), (406, 72401), (422, 72839), (426, 72974), (437, 73274), (452, 73529), (456, 73739), (477, 74114), (485, 74195), (491, 74333), (493, 74402), (496, 74453), (500, 74489), (508, 74558), (519, 74774), (523, 74855), (536, 75140), (545, 75287), (546, 75293),

Gene: FrostedClock_96 Start: 63213, Stop: 76004, Start Num: 1

Candidate Starts for FrostedClock_96:

(Start: 1 @63213 has 4 MA's), (5, 63291), (14, 63576), (17, 63642), (21, 63744), (36, 64323), (62, 65352), (63, 65412), (67, 65661), (82, 65937), (162, 67197), (171, 67404), (172, 67407), (173, 67428), (186, 67779), (191, 67896), (197, 67971), (214, 68343), (220, 68466), (238, 68826), (244, 68949), (249, 69012), (250, 69021), (251, 69039), (252, 69072), (264, 69465), (270, 69636), (272, 69687), (273, 69708), (275, 69729), (278, 69816), (306, 70122), (318, 70542), (321, 70647), (339, 71127), (340, 71157), (345, 71442), (346, 71532), (348, 71589), (354, 71796), (370, 72000), (375, 72138), (378, 72261), (389, 72546), (390, 72561), (391, 72576), (406, 72948), (422, 73386), (423, 73398), (426, 73521), (437, 73821), (452, 74076), (477, 74661), (482, 74715), (483, 74718), (491, 74892), (494, 74997), (496, 75012), (497, 75015), (498, 75030), (500, 75048), (501, 75054), (505, 75102), (508, 75120), (522, 75411), (529, 75543), (532, 75681), (540, 75816), (543, 75831),

Gene: GoldenEssence_80 Start: 57521, Stop: 70312, Start Num: 1

Candidate Starts for GoldenEssence_80:

(Start: 1 @57521 has 4 MA's), (5, 57599), (12, 57788), (19, 57980), (36, 58631), (62, 59660), (63, 59720), (67, 59969), (82, 60245), (107, 60854), (162, 61505), (171, 61712), (172, 61715), (177, 61790), (191, 62204), (197, 62279), (207, 62516), (208, 62564), (214, 62648), (220, 62771), (238, 63131), (244, 63254), (250, 63326), (251, 63344), (252, 63377), (264, 63770), (271, 63953), (273, 64013), (275, 64034), (278, 64121), (312, 64592), (321, 64952), (322, 64967), (331, 65222), (340, 65492), (345, 65777), (346, 65867), (349, 65927), (354, 66131), (375, 66473), (378, 66596), (388, 66851), (389, 66881), (398, 67106), (402, 67256), (403, 67262), (405, 67271), (410, 67337), (412, 67358), (418, 67640), (426, 67865), (437, 68165), (452, 68420), (456, 68630), (477, 69005), (485, 69086), (491, 69224), (496, 69344), (500, 69380), (501, 69386), (507, 69437), (508, 69449), (518, 69659), (523, 69746), (527, 69839), (536, 70031),

Gene: KSunshine22_89 Start: 60934, Stop: 73530, Start Num: 2

Candidate Starts for KSunshine22_89:

(Start: 2 @60934 has 3 MA's), (16, 61312), (25, 61630), (27, 61780), (29, 61816), (30, 61864), (42, 62170), (46, 62257), (49, 62413), (55, 62830), (58, 62947), (64, 63220), (72, 63451), (79, 63607), (80, 63619), (81, 63634), (85, 63817), (90, 63919), (91, 63922), (94, 63976), (95, 63991), (96, 64063), (98, 64102), (99, 64117), (102, 64159), (120, 64537), (123, 64636), (128, 64699), (140, 64915), (142, 64960), (144, 64969), (145, 65023), (149, 65131), (150, 65164), (153, 65230), (161, 65401), (185, 65950), (189, 66073), (193, 66136), (210, 66502), (215, 66523), (217, 66556), (225, 66718), (228, 66772), (229, 66784), (237, 66901), (245, 66946), (246, 66955), (253, 67054), (258, 67123), (259, 67165), (266, 67519), (268, 67552), (281, 67828), (283, 67972), (292, 68197), (295, 68284), (296, 68350), (303, 68536), (315, 68932), (317, 69031), (319, 69070), (320, 69109), (328, 69310), (329, 69334), (335, 69535), (336, 69556), (337, 69595), (338, 69598), (352, 69817), (376, 69922), (379, 70006), (399, 70324), (400, 70405), (401, 70453), (404, 70465), (413, 70612), (415, 70669), (417, 70786), (423, 70909), (427, 71074), (429, 71080), (441, 71368), (442, 71389), (451, 71539), (452, 71566), (453, 71629), (457, 71791), (458, 71797), (465, 71896), (466, 71899), (469, 71998), (470, 72010), (471, 72025), (472, 72028), (473, 72088), (480, 72202), (483, 72232), (491, 72412), (496, 72517), (497, 72520), (499, 72553), (510, 72655), (519, 72871), (525, 72964), (528, 73060), (536, 73240), (537, 73246), (543, 73354), (548, 73459),

Gene: LeoJr_94 Start: 62982, Stop: 76781, Start Num: 2

Candidate Starts for LeoJr_94:

(Start: 2 @62982 has 3 MA's), (7, 63105), (15, 63348), (20, 63456), (25, 63681), (26, 63717), (32, 63978), (39, 64155), (40, 64179), (46, 64302), (49, 64458), (71, 65403), (74, 65427), (76, 65436), (84, 65763), (88, 65838), (92, 65910), (93, 65919), (97, 66057), (103, 66144), (112, 66441), (114, 66453), (115, 66459), (117, 66480), (119, 66513), (122, 66642), (124, 66654), (127, 66699), (133, 66780), (135, 66801), (139, 66924), (141, 66939), (153, 67296), (156, 67305), (165, 67623), (169, 67674), (174, 67743), (176, 67758), (179, 67800), (188, 68100), (190, 68139), (199, 68256), (207, 68472), (209, 68526), (218, 68625), (222, 68700), (224, 68730), (228, 68817), (235, 68925), (236, 68937), (243, 69087), (245, 69153), (258, 69330), (259, 69372), (266, 69729), (267, 69750), (268, 69762), (277, 69894), (281, 70038), (284, 70245), (287, 70335), (289, 70377), (294, 70449), (296, 70560), (299, 70650), (302, 70719), (309, 70944), (311, 70995), (317, 71238), (324, 71376), (329, 71541), (333, 71664), (335, 71742), (336, 71763), (337, 71802), (350, 72339), (351, 72375), (352, 72423), (363, 72645), (383, 73149), (392, 73377), (395, 73461), (396, 73485), (397, 73503), (407, 73692), (408, 73695), (417, 73992), (425, 74163), (432, 74349), (433, 74355), (442, 74583), (443, 74592), (444, 74598), (445, 74607), (446, 74613), (447, 74640), (448, 74667), (450, 74694), (453, 74823), (455, 74877), (457, 74985), (458, 74991), (459, 75018), (463, 75039), (464, 75042), (467, 75120), (470, 75204), (472, 75222), (479, 75396), (488, 75510), (491, 75642), (493, 75711), (499, 75810), (502, 75840), (506, 75873), (509, 75891), (512, 75972), (514, 76038), (517, 76074), (531, 76440), (542, 76602), (543, 76611),

Gene: Mimi_94 Start: 63072, Stop: 75872, Start Num: 1

Candidate Starts for Mimi_94:

(Start: 1 @63072 has 4 MA's), (5, 63150), (14, 63435), (17, 63501), (21, 63603), (36, 64182), (62, 65211), (63, 65271), (67, 65520), (82, 65796), (162, 67056), (171, 67263), (172, 67266), (173, 67287), (186, 67638), (191, 67755), (197, 67830), (214, 68202), (220, 68325), (238, 68685), (244, 68808), (249, 68871), (250, 68880), (251, 68898), (252, 68931), (264, 69324), (270, 69495), (272, 69546), (273, 69567), (275, 69588), (278, 69675), (306, 69981), (318, 70401), (321, 70506), (339, 70986), (340, 71016), (345, 71301), (346, 71391), (348, 71448), (354, 71655), (370, 71859), (375, 71997), (378, 72120), (389, 72405), (402, 72780), (403, 72786), (405, 72795), (410, 72861), (412, 72882), (418, 73164), (426, 73389), (437, 73689), (477, 74529), (482, 74583), (483, 74586), (491, 74760), (494, 74865), (496, 74880), (497, 74883), (498, 74898), (500, 74916), (501, 74922), (505, 74970), (508, 74988), (522, 75279), (529, 75411), (532, 75549), (540, 75684), (543, 75699),

Gene: Panchaali_91 Start: 60813, Stop: 73469, Start Num: 2

Candidate Starts for Panchaali_91:

(Start: 2 @60813 has 3 MA's), (9, 61014), (13, 61095), (16, 61191), (50, 62340), (52, 62388), (53, 62547), (57, 62700), (65, 62985), (66, 63009), (75, 63189), (87, 63438), (104, 63675), (109, 63816), (111, 63873), (142, 64272), (146, 64356), (148, 64410), (156, 64539), (166, 64878), (168, 64908), (170, 64917), (175, 64989), (180, 65037), (183, 65160), (184, 65175), (200, 65490), (204, 65577), (215, 65760), (225, 65907), (226, 65913), (227, 65928), (229, 65970), (231, 66012), (232, 66033), (258, 66309), (259, 66351), (261, 66447), (266, 66705), (268, 66738), (274, 66828), (277, 66870), (281, 67014), (286, 67287), (291, 67383), (295, 67476), (296, 67542), (310, 67935), (311, 67980), (313, 68055), (316, 68217), (317, 68223), (324, 68361), (329, 68526), (330, 68574), (333, 68649), (335, 68727), (336, 68748), (337, 68787), (341, 68871), (343, 69096), (344, 69114), (347, 69159), (365, 69417), (367, 69465), (372, 69540), (380, 69807), (381, 69855), (385, 69930), (386, 69957), (393, 70137), (394, 70188), (409, 70485), (428, 71031), (430, 71055), (436, 71190), (437, 71268), (438, 71307), (442, 71343), (454, 71613), (460, 71790), (466, 71847), (468, 71940), (470, 71958), (473, 72036), (481, 72159), (491, 72357), (496, 72462), (499, 72498), (503, 72528), (510, 72600), (516, 72753), (521, 72849), (525, 72909), (528, 73005), (541, 73281),

Gene: Patbob_95 Start: 63944, Stop: 76600, Start Num: 1

Candidate Starts for Patbob_95:

(Start: 1 @63944 has 4 MA's), (5, 64022), (14, 64307), (17, 64373), (19, 64403), (36, 65054), (54, 65807), (62, 66083), (63, 66143), (67, 66392), (73, 66479), (107, 67277), (162, 67928), (171, 68135), (172, 68138), (173, 68159), (186, 68510), (191, 68627), (197, 68702), (214, 69074), (220, 69197), (238, 69557), (244, 69680), (250, 69752), (251, 69770), (252, 69803), (264, 70196), (271, 70379), (273, 70439), (275, 70460), (278, 70547), (305, 70778), (306, 70853), (312, 71018), (321, 71378), (340, 71888), (356, 72515), (357, 72521), (360, 72563), (361, 72587), (362, 72590), (369, 72683), (371, 72695), (373, 72731), (374, 72755), (378, 72893), (389, 73178), (406, 73580), (422, 74018), (423, 74030), (426, 74153), (437, 74453), (440, 74498), (456, 74918), (477, 75293), (491, 75512), (493, 75581), (496, 75632), (500, 75668), (508, 75737), (519, 75953), (523, 76034), (536, 76319),

Gene: Phrampa_88 Start: 61282, Stop: 78105, Start Num: 3

Candidate Starts for Phrampa_88:

(Start: 1 @61243 has 4 MA's), (3, 61282), (4, 61318), (10, 61468), (22, 61786), (28, 62413), (48, 63214), (51, 63397), (60, 63799), (89, 64750), (121, 65575), (130, 65722), (143, 65959), (152, 66328), (154, 66373), (155, 66376), (167, 66742), (171, 66787), (182, 67033), (192, 67321), (194, 67342), (196, 67363), (201, 67477), (211, 67720), (212, 67738), (213, 67741), (223, 68113), (241, 68440), (260, 68923), (262, 68992), (273, 69343), (275, 69364), (276, 69376), (279, 69454), (282, 69712), (285, 69970), (288, 70027), (289, 70054), (290, 70057), (291, 70078), (295, 70171), (296, 70237), (297, 70306), (298, 70357), (301, 70555), (325, 71620), (327, 71650), (340, 72415), (356, 73042), (357, 73048), (359, 73081), (360, 73090), (361, 73114), (364, 73132), (366, 73144), (374, 73282), (378, 73420), (402, 74080), (403, 74086), (405, 74095), (410, 74161), (411, 74164), (412, 74182), (414, 74251), (416, 74299), (418, 74464), (421, 74551), (434, 74839), (462, 75526), (484, 75931), (487, 75964), (492, 76099), (520, 76549), (530, 76822), (533, 76933), (534, 76942), (535, 76948), (538, 76996), (539, 77032), (540, 77056), (544, 77080), (547, 77125), (549, 77401), (550, 77458), (551, 77638), (552, 78040), (553, 78076), (554, 78100),

Gene: Racecar_95 Start: 63725, Stop: 76525, Start Num: 1

Candidate Starts for Racecar_95:

(Start: 1 @63725 has 4 MA's), (5, 63803), (14, 64088), (17, 64154), (21, 64256), (36, 64835), (62, 65864), (63, 65924), (67, 66173), (82, 66449), (162, 67709), (171, 67916), (172, 67919), (173, 67940), (186, 68291), (191, 68408), (197, 68483), (214, 68855), (220, 68978), (238, 69338), (244, 69461), (249, 69524), (250, 69533), (251, 69551), (252, 69584), (264, 69977), (270, 70148), (272, 70199), (273, 70220), (275, 70241), (278, 70328), (306, 70634), (318, 71054), (321, 71159), (339, 71639), (340, 71669), (345, 71954), (346, 72044), (348, 72101), (354, 72308), (370, 72512), (375, 72650), (378, 72773), (389, 73058), (402, 73433), (403, 73439), (405, 73448), (410, 73514), (412, 73535), (418, 73817), (426, 74042), (437, 74342), (477, 75182), (482, 75236), (483, 75239), (491, 75413),

(494, 75518), (496, 75533), (497, 75536), (498, 75551), (500, 75569), (501, 75575), (505, 75623), (508, 75641), (522, 75932), (529, 76064), (532, 76202), (540, 76337), (543, 76352),

Gene: ReginaGlobina_94 Start: 63735, Stop: 76346, Start Num: 2

Candidate Starts for ReginaGlobina_94:

(Start: 2 @63735 has 3 MA's), (7, 63858), (11, 63984), (15, 64101), (20, 64209), (25, 64434), (26, 64470), (32, 64731), (39, 64908), (40, 64932), (46, 65055), (49, 65211), (68, 66102), (71, 66156), (74, 66180), (76, 66189), (83, 66408), (101, 66690), (122, 66930), (125, 66960), (126, 66969), (127, 66987), (133, 67068), (135, 67089), (139, 67212), (141, 67227), (160, 67476), (169, 67692), (174, 67761), (188, 68121), (190, 68160), (199, 68277), (207, 68493), (209, 68547), (218, 68646), (222, 68721), (224, 68751), (228, 68838), (245, 68904), (258, 69081), (259, 69123), (266, 69480), (267, 69501), (268, 69513), (277, 69645), (281, 69789), (287, 70095), (289, 70137), (294, 70209), (296, 70320), (302, 70479), (311, 70815), (313, 70890), (317, 71058), (321, 71169), (324, 71196), (329, 71361), (333, 71484), (334, 71508), (336, 71583), (337, 71622), (341, 71706), (358, 72147), (368, 72288), (382, 72684), (383, 72714), (384, 72723), (392, 72942), (396, 73050), (397, 73068), (407, 73257), (408, 73260), (417, 73557), (425, 73728), (432, 73914), (433, 73920), (442, 74148), (443, 74157), (444, 74163), (445, 74172), (446, 74178), (447, 74205), (448, 74232), (450, 74259), (453, 74388), (455, 74442), (457, 74550), (458, 74556), (459, 74583), (463, 74604), (464, 74607), (467, 74685), (470, 74769), (472, 74787), (479, 74961), (488, 75075), (491, 75207), (493, 75276), (499, 75375), (502, 75405), (506, 75438), (509, 75456), (512, 75537), (514, 75603), (517, 75639), (531, 76005), (542, 76167), (543, 76176),

Gene: Stewart25555_84 Start: 60244, Stop: 72339, Start Num: 2

Candidate Starts for Stewart25555_84:

(Start: 2 @60244 has 3 MA's), (5, 60319), (8, 60412), (16, 60622), (44, 61297), (47, 61378), (59, 61996), (61, 62017), (65, 62248), (68, 62374), (70, 62407), (77, 62473), (100, 62875), (105, 62905), (106, 62914), (108, 62932), (113, 63013), (129, 63157), (132, 63172), (134, 63199), (142, 63367), (145, 63430), (151, 63529), (158, 63646), (159, 63700), (164, 63883), (174, 64024), (177, 64054), (190, 64426), (193, 64480), (195, 64489), (198, 64522), (203, 64630), (206, 64693), (209, 64801), (217, 64888), (229, 65119), (230, 65152), (233, 65188), (234, 65209), (236, 65230), (254, 65581), (255, 65599), (256, 65602), (269, 66103), (280, 66325), (286, 66640), (290, 66715), (292, 66742), (293, 66748), (295, 66829), (304, 67090), (308, 67255), (311, 67333), (313, 67408), (314, 67411), (317, 67576), (323, 67705), (326, 67744), (335, 68080), (336, 68101), (337, 68140), (342, 68314), (353, 68611), (355, 68665), (374, 68908), (375, 68959), (377, 69052), (381, 69175), (385, 69250), (386, 69277), (387, 69319), (393, 69457), (394, 69508), (409, 69805), (419, 70138), (420, 70147), (424, 70222), (430, 70345), (435, 70447), (447, 70687), (449, 70732), (461, 71080), (463, 71083), (466, 71134), (469, 71233), (470, 71245), (474, 71365), (475, 71395), (476, 71407), (478, 71413), (486, 71506), (489, 71545), (490, 71590), (495, 71743), (504, 71839), (512, 71959), (513, 72022), (524, 72184), (526, 72256), (528, 72289),

Gene: Talia1610_94 Start: 63090, Stop: 75890, Start Num: 1

Candidate Starts for Talia1610_94:

(Start: 1 @63090 has 4 MA's), (5, 63168), (14, 63453), (17, 63519), (21, 63621), (36, 64200), (62, 65229), (63, 65289), (67, 65538), (82, 65814), (162, 67074), (171, 67281), (172, 67284), (173, 67305), (186, 67656), (191, 67773), (197, 67848), (214, 68220), (220, 68343), (238, 68703), (244, 68826), (249, 68889), (250, 68898), (251, 68916), (252, 68949), (264, 69342), (270, 69513), (272, 69564), (273, 69585), (275, 69606), (278, 69693), (306, 69999), (318, 70419), (321, 70524), (339, 71004), (340, 71034), (345, 71319), (346, 71409), (348, 71466), (354, 71673), (370, 71877), (375, 72015), (378, 72138), (389, 72423), (402, 72798), (403, 72804), (405, 72813), (410, 72879), (412, 72900), (418, 73182), (426, 73407), (437, 73707), (477, 74547), (482, 74601), (483, 74604), (491, 74778), (494, 74883), (496, 74898), (497, 74901), (498, 74916), (500, 74934), (501, 74940), (505, 74988), (508, 75006), (522, 75297), (529, 75429), (532, 75567), (540, 75702), (543, 75717),

Gene: WaddleDee_82 Start: 59576, Stop: 71659, Start Num: 2

Candidate Starts for WaddleDee_82:

(Start: 2 @59576 has 3 MA's), (6, 59684), (16, 59954), (23, 60098), (25, 60272), (27, 60422), (29, 60458), (41, 60806), (42, 60812), (46, 60899), (49, 61055), (55, 61472), (69, 61787), (77, 61853), (78, 61862), (108, 62078), (110, 62186), (128, 62348), (137, 62510), (138, 62555), (142, 62609), (144, 62618), (145, 62672), (147, 62726), (150, 62813), (157, 62933), (161, 63050), (178, 63362), (181, 63425), (185, 63602), (189, 63725), (190, 63746), (193, 63788), (202, 63938), (204, 63992), (205, 64004), (207, 64067), (216, 64241), (219, 64316), (221, 64466), (225, 64631), (228, 64685), (239, 64847), (240, 64901), (242, 64913), (246, 65030), (247, 65075), (248, 65084), (253, 65183), (257, 65249), (258, 65252), (259, 65294), (265, 65576), (266, 65648), (268, 65681), (281, 65957), (286, 66224), (295, 66413), (296, 66479), (300, 66599), (308, 66839), (315, 67061), (317, 67160), (319, 67199), (329, 67463), (335, 67664), (336, 67685), (337, 67724), (338, 67727), (352, 67946), (376, 68051), (379, 68135), (399, 68453), (400, 68534), (401, 68582), (404, 68594), (413, 68741), (417, 68915), (423, 69038), (427, 69203), (441, 69497), (442, 69518), (452, 69695), (453, 69758), (457, 69920), (458, 69926), (465, 70025), (466, 70028), (469, 70127), (470, 70139), (471, 70154), (472, 70157), (473, 70217), (480, 70331), (483, 70361), (491, 70541), (496, 70646), (497, 70649), (499, 70682), (510, 70784), (519, 71000), (525, 71093), (528, 71189), (537, 71375), (543, 71483), (548, 71588),