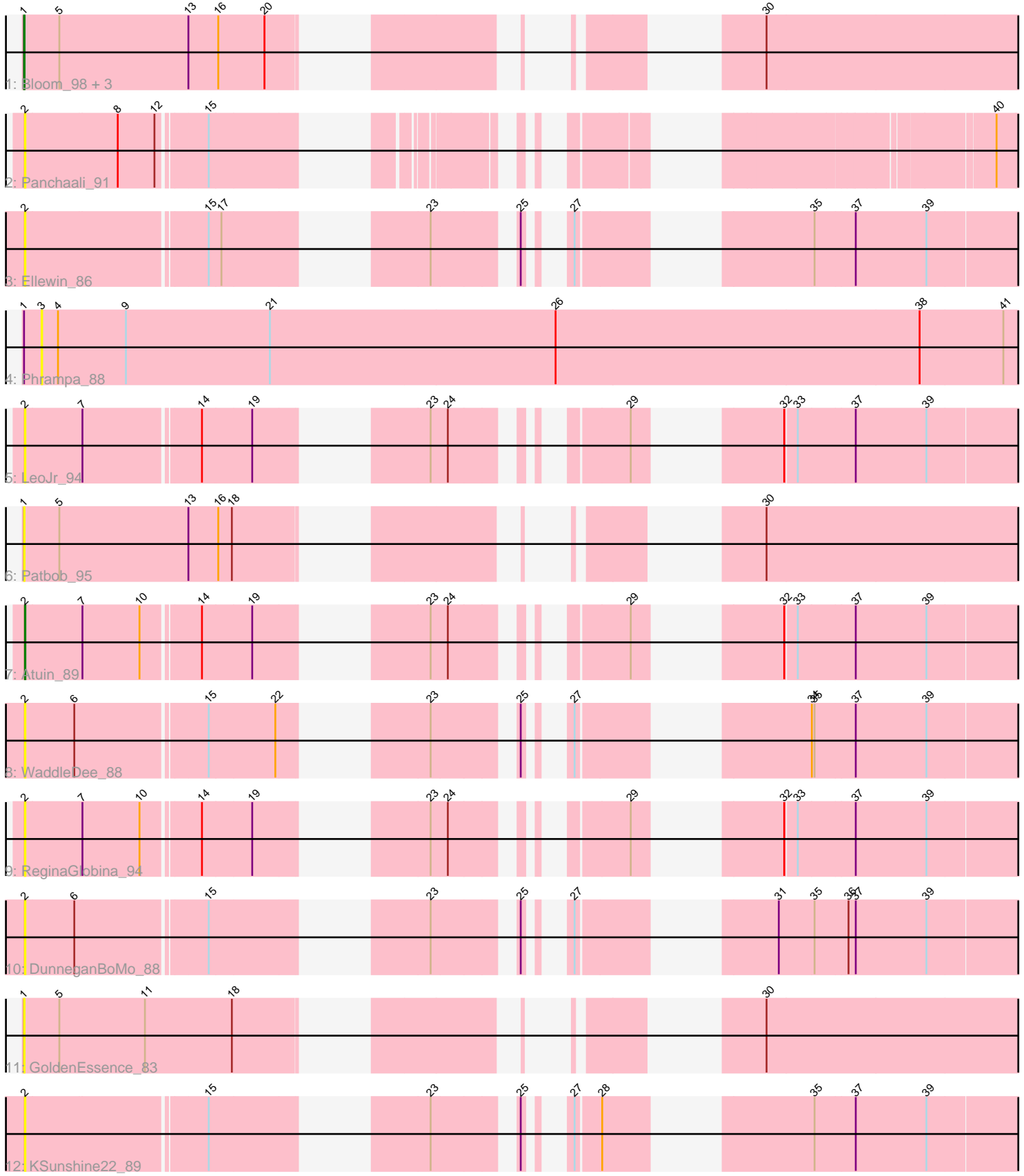


# Zoomed Pham 224989



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 224989 Report

This analysis was run 03/28/25 on database version 593.

Pham number 224989 has 15 members, 11 are drafts.

Phages represented in each track:

- Track 1 : Bloom\_98, Talia1610\_94, Mimi\_94, Racecar\_95
- Track 2 : Panchaali\_91
- Track 3 : Ellewin\_86
- Track 4 : Phrampa\_88
- Track 5 : LeoJr\_94
- Track 6 : Patbob\_95
- Track 7 : Atuin\_89
- Track 8 : WaddleDee\_88
- Track 9 : ReginaGlobina\_94
- Track 10 : DunneganBoMo\_88
- Track 11 : GoldenEssence\_83
- Track 12 : 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 3 of the 4 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Bloom\_98, GoldenEssence\_83, 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:

- Atuin\_89, DunneganBoMo\_88, Ellewin\_86, KSunshine22\_89, LeoJr\_94, Panchaali\_91, ReginaGlobina\_94, WaddleDee\_88,

### **Summary by start number:**

Start 1:

- Found in 7 of 15 ( 46.7% ) of genes in pham
- Manual Annotations of this start: 3 of 4
- Called 85.7% of time when present

- Phage (with cluster) where this start called: Bloom\_98 (FC), GoldenEssence\_83 (FC), Mimi\_94 (FC), Patbob\_95 (FC), Racecar\_95 (FC), Talia1610\_94 (FC),

Start 2:

- Found in 8 of 15 ( 53.3% ) of genes in pham
- Manual Annotations of this start: 1 of 4
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Atuin\_89 (FC), DunneganBoMo\_88 (FC), Ellewin\_86 (FC), KSunshine22\_89 (FC), LeoJr\_94 (FC), Panchaali\_91 (FC), ReginaGlobina\_94 (FC), WaddleDee\_88 (FC),

Start 3:

- Found in 1 of 15 ( 6.7% ) 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 3 times for cluster FC.
- Start number 2 was manually annotated 1 time for cluster FC.

### Gene Information:

Gene: Atuin\_89 Start: 62854, Stop: 76545, Start Num: 2

Candidate Starts for Atuin\_89:

(Start: 2 @62854 has 1 MA's), (7, 62977), (10, 63103), (14, 63220), (19, 63328), (23, 63553), (24, 63589), (29, 63850), (32, 64027), (33, 64051), (37, 64174), (39, 64330), (52, 65092), (58, 65275), (60, 65299), (62, 65308), (70, 65635), (75, 65710), (78, 65782), (79, 65791), (83, 65929), (88, 66016), (95, 66313), (96, 66325), (97, 66331), (99, 66352), (100, 66385), (104, 66514), (105, 66526), (109, 66571), (111, 66652), (112, 66673), (115, 66796), (118, 66811), (130, 67168), (131, 67177), (133, 67231), (144, 67546), (147, 67615), (149, 67630), (151, 67672), (159, 67972), (162, 68011), (167, 68074), (168, 68128), (175, 68344), (177, 68398), (188, 68572), (191, 68602), (192, 68689), (198, 68797), (199, 68809), (205, 68851), (209, 68917), (214, 69094), (215, 69136), (219, 69337), (223, 69493), (224, 69514), (225, 69526), (233, 69658), (234, 69802), (237, 70009), (240, 70099), (242, 70141), (246, 70213), (248, 70324), (251, 70414), (254, 70483), (259, 70708), (261, 70759), (266, 71002), (272, 71140), (276, 71305), (279, 71428), (281, 71506), (282, 71527), (283, 71566), (294, 72103), (295, 72139), (297, 72187), (306, 72409), (323, 72913), (329, 73141), (333, 73225), (334, 73249), (335, 73267), (346, 73456), (347, 73459), (355, 73756), (360, 73927), (367, 74113), (368, 74119), (375, 74347), (376, 74356), (377, 74362), (378, 74371), (379, 74377), (380, 74404), (381, 74431), (382, 74458), (386, 74587), (388, 74641), (390, 74749), (391, 74755), (393, 74782), (395, 74803), (396, 74806), (399, 74884), (402, 74968), (404, 74986), (407, 75160), (416, 75274), (417, 75406), (419, 75475), (424, 75574), (427, 75604), (430, 75637), (433, 75655), (436, 75736), (437, 75802), (440, 75838), (452, 76204), (463, 76366), (464, 76375),

Gene: Bloom\_98 Start: 63725, Stop: 76525, Start Num: 1

Candidate Starts for Bloom\_98:

(Start: 1 @63725 has 3 MA's), (5, 63803), (13, 64088), (16, 64154), (20, 64256), (30, 64835), (49, 65864), (50, 65924), (54, 66173), (65, 66449), (134, 67709), (139, 67916), (140, 67919), (142, 67940), (157, 68291), (161, 68408), (167, 68483), (180, 68855), (184, 68978), (196, 69338), (202, 69461), (206, 69524), (207, 69533), (208, 69551), (211, 69584), (218, 69977), (221, 70148), (226, 70199), (227, 70220), (228, 70241), (231, 70328), (257, 70634), (267, 71054), (270, 71159), (285, 71639), (286, 71669), (290, 71954), (291, 72044), (292, 72101), (298, 72308), (310, 72512), (317, 72650), (319, 72773), (328, 73058), (337, 73433), (338, 73439), (339, 73448), (344, 73514), (348, 73535), (354, 73817), (361, 74042), (370, 74342), (406, 75182), (410, 75236), (411, 75239), (417, 75413), (420, 75518), (421, 75533), (422, 75536), (423, 75551), (425, 75569), (426, 75575), (429, 75623), (432, 75641), (445, 75932), (450, 76064), (453, 76202), (461, 76337), (464, 76352),

Gene: DunneganBoMo\_88 Start: 59721, Stop: 72473, Start Num: 2

Candidate Starts for DunneganBoMo\_88:

(Start: 2 @59721 has 1 MA's), (6, 59829), (15, 60099), (23, 60417), (25, 60567), (27, 60603), (31, 60879), (35, 60957), (36, 61029), (37, 61044), (39, 61200), (45, 61617), (46, 61680), (48, 61734), (51, 62007), (59, 62238), (66, 62394), (67, 62406), (68, 62421), (71, 62604), (72, 62637), (76, 62706), (77, 62709), (82, 62850), (84, 62889), (85, 62904), (86, 62946), (93, 63216), (98, 63270), (110, 63378), (113, 63540), (114, 63585), (119, 63639), (120, 63648), (121, 63702), (123, 63756), (126, 63843), (132, 63963), (136, 64080), (150, 64392), (153, 64455), (158, 64632), (160, 64755), (162, 64776), (166, 64818), (171, 64968), (172, 65022), (173, 65034), (175, 65097), (182, 65271), (185, 65346), (189, 65496), (192, 65661), (200, 65715), (201, 65727), (207, 65844), (209, 65889), (210, 65898), (212, 65997), (213, 66063), (214, 66066), (215, 66108), (220, 66390), (223, 66462), (225, 66495), (234, 66771), (239, 67038), (247, 67227), (248, 67293), (252, 67413), (258, 67653), (264, 67875), (266, 67974), (268, 68013), (276, 68277), (281, 68478), (282, 68499), (283, 68538), (284, 68541), (297, 68760), (318, 68865), (320, 68949), (336, 69267), (340, 69348), (342, 69396), (343, 69408), (351, 69555), (355, 69729), (359, 69852), (362, 70017), (374, 70311), (375, 70332), (385, 70509), (386, 70572), (390, 70734), (391, 70740), (397, 70839), (398, 70842), (401, 70941), (402, 70953), (403, 70968), (404, 70971), (405, 71031), (408, 71145), (412, 71175), (417, 71355), (421, 71460), (422, 71463), (424, 71496), (434, 71598), (442, 71814), (447, 71907), (449, 72003), (458, 72189), (464, 72297), (467, 72402),

Gene: Ellewin\_86 Start: 59301, Stop: 71885, Start Num: 2

Candidate Starts for Ellewin\_86:

(Start: 2 @59301 has 1 MA's), (15, 59679), (17, 59706), (23, 59997), (25, 60147), (27, 60183), (35, 60537), (37, 60624), (39, 60780), (45, 61197), (48, 61314), (51, 61587), (59, 61818), (66, 61974), (67, 61986), (68, 62001), (71, 62184), (76, 62286), (77, 62289), (80, 62343), (81, 62358), (82, 62430), (84, 62469), (85, 62484), (86, 62526), (101, 62904), (103, 63003), (110, 63066), (116, 63282), (119, 63327), (120, 63336), (121, 63390), (125, 63498), (126, 63531), (130, 63597), (136, 63768), (158, 64317), (160, 64440), (166, 64503), (171, 64653), (181, 64857), (183, 64878), (186, 64911), (192, 65073), (200, 65127), (201, 65139), (212, 65409), (214, 65478), (215, 65520), (223, 65874), (225, 65907), (234, 66183), (236, 66327), (245, 66552), (247, 66639), (248, 66705), (255, 66891), (261, 67143), (264, 67287), (266, 67386), (268, 67425), (269, 67464), (275, 67665), (276, 67689), (281, 67890), (282, 67911), (283, 67950), (284, 67953), (297, 68172), (318, 68277), (320, 68361), (336, 68679), (342, 68808), (343, 68820), (351, 68967), (353, 69024), (355, 69141), (359, 69264), (362, 69429), (364, 69435), (374, 69723), (375, 69744), (384, 69894), (385, 69921), (386, 69984), (390, 70146), (391, 70152), (397, 70251), (398, 70254), (401, 70353), (402, 70365), (404, 70383), (405, 70443), (408, 70557), (417, 70767), (421, 70872), (424, 70908), (434, 71010), (435, 71025), (438, 71160), (442, 71226), (447, 71319), (449, 71415), (457, 71595), (458, 71601), (464, 71709), (467, 71814),

Gene: GoldenEssence\_83 Start: 57521, Stop: 70312, Start Num: 1

Candidate Starts for GoldenEssence\_83:

(Start: 1 @57521 has 3 MA's), (5, 57599), (11, 57788), (18, 57980), (30, 58631), (49, 59660), (50, 59720), (54, 59969), (65, 60245), (89, 60854), (134, 61505), (139, 61712), (140, 61715), (146, 61790), (161, 62204), (167, 62279), (174, 62516), (175, 62564), (180, 62648), (184, 62771), (196, 63131), (202, 63254), (207, 63326), (208, 63344), (211, 63377), (218, 63770), (222, 63953), (227, 64013), (228, 64034), (231, 64121), (262, 64592), (270, 64952), (271, 64967), (278, 65222), (286, 65492), (290, 65777), (291, 65867), (293, 65927), (298, 66131), (317, 66473), (319, 66596), (327, 66851), (328, 66881), (332, 67106), (337, 67256), (338, 67262), (339, 67271), (344, 67337), (348, 67358), (354, 67640), (361, 67865), (370, 68165), (383, 68420), (389, 68630), (406, 69005), (414, 69086), (417, 69224), (421, 69344), (425, 69380), (426, 69386), (431, 69437), (432, 69449), (441, 69659), (446, 69746), (448, 69839), (457, 70031),

Gene: KSunshine22\_89 Start: 60934, Stop: 73530, Start Num: 2

Candidate Starts for KSunshine22\_89:

(Start: 2 @60934 has 1 MA's), (15, 61312), (23, 61630), (25, 61780), (27, 61816), (28, 61864), (35, 62170), (37, 62257), (39, 62413), (45, 62830), (48, 62947), (51, 63220), (59, 63451), (66, 63607), (67, 63619), (68, 63634), (71, 63817), (76, 63919), (77, 63922), (80, 63976), (81, 63991), (82, 64063), (84, 64102), (85, 64117), (86, 64159), (101, 64537), (103, 64636), (110, 64699), (116, 64915), (119, 64960), (120, 64969), (121, 65023), (125, 65131), (126, 65164), (130, 65230), (136, 65401), (158, 65950), (160, 66073), (166, 66136), (181, 66502), (183, 66523), (186, 66556), (192, 66718), (200, 66772), (201, 66784), (207, 66901), (209, 66946), (210, 66955), (212, 67054), (214, 67123), (215, 67165), (223, 67519), (225, 67552), (234, 67828), (236, 67972), (245, 68197), (247, 68284), (248, 68350), (255, 68536), (264, 68932), (266, 69031), (268, 69070), (269, 69109), (275, 69310), (276, 69334), (281, 69535), (282, 69556), (283, 69595), (284, 69598), (297, 69817), (318, 69922), (320, 70006), (336, 70324), (340, 70405), (342, 70453), (343, 70465), (351, 70612), (353, 70669), (355, 70786), (359, 70909), (362, 71074), (364, 71080), (374, 71368), (375, 71389), (384, 71539), (385, 71566), (386, 71629), (390, 71791), (391, 71797), (397, 71896), (398, 71899), (401, 71998), (402, 72010), (403, 72025), (404, 72028), (405, 72088), (408, 72202), (412, 72232), (417, 72412), (421, 72517), (422, 72520), (424, 72553), (434, 72655), (442, 72871), (447, 72964), (449, 73060), (457, 73240), (458, 73246), (464, 73354), (467, 73459),

Gene: LeoJr\_94 Start: 62982, Stop: 76781, Start Num: 2

Candidate Starts for LeoJr\_94:

(Start: 2 @62982 has 1 MA's), (7, 63105), (14, 63348), (19, 63456), (23, 63681), (24, 63717), (29, 63978), (32, 64155), (33, 64179), (37, 64302), (39, 64458), (58, 65403), (60, 65427), (62, 65436), (70, 65763), (75, 65838), (78, 65910), (79, 65919), (83, 66057), (88, 66144), (95, 66441), (96, 66453), (97, 66459), (99, 66480), (100, 66513), (104, 66642), (105, 66654), (109, 66699), (111, 66780), (112, 66801), (115, 66924), (118, 66939), (130, 67296), (131, 67305), (138, 67623), (144, 67674), (147, 67743), (149, 67758), (151, 67800), (159, 68100), (162, 68139), (168, 68256), (175, 68472), (177, 68526), (187, 68625), (188, 68700), (191, 68730), (192, 68817), (198, 68925), (199, 68937), (205, 69087), (209, 69153), (214, 69330), (215, 69372), (223, 69729), (224, 69750), (225, 69762), (233, 69894), (234, 70038), (237, 70245), (240, 70335), (242, 70377), (246, 70449), (248, 70560), (251, 70650), (254, 70719), (259, 70944), (261, 70995), (266, 71238), (272, 71376), (276, 71541), (279, 71664), (281, 71742), (282, 71763), (283, 71802), (294, 72339), (295, 72375), (297, 72423), (306, 72645), (323, 73149), (329, 73377), (333, 73461), (334, 73485), (335, 73503), (346, 73692), (347, 73695), (355, 73992), (360, 74163), (367, 74349), (368, 74355), (375, 74583), (376, 74592), (377, 74598), (378, 74607), (379, 74613), (380, 74640), (381, 74667), (382, 74694), (386, 74823), (388, 74877), (390, 74985), (391, 74991), (393, 75018), (395, 75039), (396, 75042), (399, 75120), (402, 75204), (404, 75222), (407, 75396), (416, 75510), (417, 75642), (419, 75711), (424, 75810), (427, 75840), (430, 75873), (433, 75891), (436, 75972), (437, 76038), (440, 76074), (452, 76440), (463, 76602), (464, 76611),

Gene: Mimi\_94 Start: 63072, Stop: 75872, Start Num: 1

Candidate Starts for Mimi\_94:

(Start: 1 @63072 has 3 MA's), (5, 63150), (13, 63435), (16, 63501), (20, 63603), (30, 64182), (49, 65211), (50, 65271), (54, 65520), (65, 65796), (134, 67056), (139, 67263), (140, 67266), (142, 67287), (157, 67638), (161, 67755), (167, 67830), (180, 68202), (184, 68325), (196, 68685), (202, 68808), (206, 68871), (207, 68880), (208, 68898), (211, 68931), (218, 69324), (221, 69495), (226, 69546), (227, 69567), (228, 69588), (231, 69675), (257, 69981), (267, 70401), (270, 70506), (285, 70986), (286, 71016), (290, 71301), (291, 71391), (292, 71448), (298, 71655), (310, 71859), (317, 71997), (319, 72120), (328, 72405), (337, 72780), (338, 72786), (339, 72795), (344, 72861), (348, 72882), (354, 73164), (361, 73389), (370, 73689), (406, 74529), (410, 74583), (411, 74586), (417, 74760), (420, 74865), (421, 74880), (422, 74883), (423, 74898), (425, 74916), (426, 74922), (429, 74970), (432, 74988), (445, 75279), (450, 75411), (453, 75549), (461, 75684), (464, 75699),

Gene: Panchaali\_91 Start: 60813, Stop: 73469, Start Num: 2

Candidate Starts for Panchaali\_91:

(Start: 2 @60813 has 1 MA's), (8, 61014), (12, 61095), (15, 61191), (40, 62340), (42, 62388), (43, 62547), (47, 62700), (52, 62985), (53, 63009), (61, 63189), (74, 63438), (90, 63675), (92, 63816), (94, 63873), (119, 64272), (122, 64356), (124, 64410), (131, 64539), (141, 64878), (143, 64908), (145, 64917), (148, 64989), (152, 65037), (155, 65160), (156, 65175), (170, 65490), (172, 65577), (183, 65760), (192, 65907), (193, 65913), (194, 65928), (201, 65970), (203, 66012), (204, 66033), (214, 66309), (215, 66351), (217, 66447), (223, 66705), (225, 66738), (230, 66828), (233, 66870), (234, 67014), (239, 67287), (244, 67383), (247, 67476), (248, 67542), (260, 67935), (261, 67980), (263, 68055), (265, 68217), (266, 68223), (272, 68361), (276, 68526), (277, 68574), (279, 68649), (281, 68727), (282, 68748), (283, 68787), (287, 68871), (288, 69096), (289, 69114), (296, 69159), (308, 69417), (309, 69465), (314, 69540), (321, 69807), (322, 69855), (325, 69930), (326, 69957), (330, 70137), (331, 70188), (349, 70485), (363, 71031), (365, 71055), (369, 71190), (371, 71268), (373, 71307), (375, 71343), (387, 71613), (394, 71790), (398, 71847), (400, 71940), (402, 71958), (405, 72036), (409, 72159), (417, 72357), (421, 72462), (424, 72498), (428, 72528), (434, 72600), (439, 72753), (444, 72849), (447, 72909), (449, 73005), (462, 73281),

Gene: Patbob\_95 Start: 63944, Stop: 76600, Start Num: 1

Candidate Starts for Patbob\_95:

(Start: 1 @63944 has 3 MA's), (5, 64022), (13, 64307), (16, 64373), (18, 64403), (30, 65054), (44, 65807), (49, 66083), (50, 66143), (54, 66392), (57, 66479), (89, 67277), (134, 67928), (139, 68135), (140, 68138), (142, 68159), (157, 68510), (161, 68627), (167, 68702), (180, 69074), (184, 69197), (196, 69557), (202, 69680), (207, 69752), (208, 69770), (211, 69803), (218, 70196), (222, 70379), (227, 70439), (228, 70460), (231, 70547), (256, 70778), (257, 70853), (262, 71018), (270, 71378), (286, 71888), (299, 72515), (300, 72521), (303, 72563), (304, 72587), (305, 72590), (312, 72683), (313, 72695), (315, 72731), (316, 72755), (319, 72893), (328, 73178), (341, 73580), (357, 74018), (358, 74030), (361, 74153), (370, 74453), (372, 74498), (389, 74918), (406, 75293), (417, 75512), (419, 75581), (421, 75632), (425, 75668), (432, 75737), (442, 75953), (446, 76034), (457, 76319),

Gene: Phrampa\_88 Start: 61282, Stop: 78105, Start Num: 3

Candidate Starts for Phrampa\_88:

(Start: 1 @61243 has 3 MA's), (3, 61282), (4, 61318), (9, 61468), (21, 61786), (26, 62413), (38, 63214), (41, 63397), (48, 63799), (73, 64750), (102, 65575), (108, 65722), (117, 65959), (127, 66328), (128, 66373), (129, 66376), (137, 66742), (139, 66787), (154, 67033), (163, 67321), (164, 67342), (165, 67363), (169, 67477), (176, 67720), (178, 67738), (179, 67741), (190, 68113), (197, 68440), (215, 68923), (216, 68992), (227, 69343), (228, 69364), (229, 69376), (232, 69454), (235, 69712), (238, 69970), (241, 70027), (242, 70054), (243, 70057), (244, 70078), (247, 70171), (248, 70237), (249, 70306), (250, 70357), (253, 70555), (273, 71620), (274, 71650), (286, 72415), (299, 73042), (300, 73048), (302, 73081), (303, 73090), (304, 73114), (307, 73132), (308, 73144), (316, 73282), (319, 73420), (337, 74080), (338, 74086), (339, 74095), (344, 74161), (345, 74164), (348, 74182), (350, 74251), (352, 74299), (354, 74464), (356, 74551), (366, 74839), (392, 75526), (413, 75931), (415, 75964), (418, 76099), (443, 76549), (451, 76822), (454, 76933), (455, 76942), (456, 76948), (459,

76996), (460, 77032), (461, 77056), (465, 77080), (466, 77125), (468, 77401), (469, 77458), (470, 77638), (471, 78040), (472, 78076), (473, 78100),

Gene: Racecar\_95 Start: 63725, Stop: 76525, Start Num: 1

Candidate Starts for Racecar\_95:

(Start: 1 @63725 has 3 MA's), (5, 63803), (13, 64088), (16, 64154), (20, 64256), (30, 64835), (49, 65864), (50, 65924), (54, 66173), (65, 66449), (134, 67709), (139, 67916), (140, 67919), (142, 67940), (157, 68291), (161, 68408), (167, 68483), (180, 68855), (184, 68978), (196, 69338), (202, 69461), (206, 69524), (207, 69533), (208, 69551), (211, 69584), (218, 69977), (221, 70148), (226, 70199), (227, 70220), (228, 70241), (231, 70328), (257, 70634), (267, 71054), (270, 71159), (285, 71639), (286, 71669), (290, 71954), (291, 72044), (292, 72101), (298, 72308), (310, 72512), (317, 72650), (319, 72773), (328, 73058), (337, 73433), (338, 73439), (339, 73448), (344, 73514), (348, 73535), (354, 73817), (361, 74042), (370, 74342), (406, 75182), (410, 75236), (411, 75239), (417, 75413), (420, 75518), (421, 75533), (422, 75536), (423, 75551), (425, 75569), (426, 75575), (429, 75623), (432, 75641), (445, 75932), (450, 76064), (453, 76202), (461, 76337), (464, 76352),

Gene: ReginaGlobina\_94 Start: 63735, Stop: 76346, Start Num: 2

Candidate Starts for ReginaGlobina\_94:

(Start: 2 @63735 has 1 MA's), (7, 63858), (10, 63984), (14, 64101), (19, 64209), (23, 64434), (24, 64470), (29, 64731), (32, 64908), (33, 64932), (37, 65055), (39, 65211), (55, 66102), (58, 66156), (60, 66180), (62, 66189), (69, 66408), (87, 66690), (104, 66930), (106, 66960), (107, 66969), (109, 66987), (111, 67068), (112, 67089), (115, 67212), (118, 67227), (135, 67476), (144, 67692), (147, 67761), (159, 68121), (162, 68160), (168, 68277), (175, 68493), (177, 68547), (187, 68646), (188, 68721), (191, 68751), (192, 68838), (209, 68904), (214, 69081), (215, 69123), (223, 69480), (224, 69501), (225, 69513), (233, 69645), (234, 69789), (240, 70095), (242, 70137), (246, 70209), (248, 70320), (254, 70479), (261, 70815), (263, 70890), (266, 71058), (270, 71169), (272, 71196), (276, 71361), (279, 71484), (280, 71508), (282, 71583), (283, 71622), (287, 71706), (301, 72147), (311, 72288), (322, 72684), (323, 72714), (324, 72723), (329, 72942), (334, 73050), (335, 73068), (346, 73257), (347, 73260), (355, 73557), (360, 73728), (367, 73914), (368, 73920), (375, 74148), (376, 74157), (377, 74163), (378, 74172), (379, 74178), (380, 74205), (381, 74232), (382, 74259), (386, 74388), (388, 74442), (390, 74550), (391, 74556), (393, 74583), (395, 74604), (396, 74607), (399, 74685), (402, 74769), (404, 74787), (407, 74961), (416, 75075), (417, 75207), (419, 75276), (424, 75375), (427, 75405), (430, 75438), (433, 75456), (436, 75537), (437, 75603), (440, 75639), (452, 76005), (463, 76167), (464, 76176),

Gene: Talia1610\_94 Start: 63090, Stop: 75890, Start Num: 1

Candidate Starts for Talia1610\_94:

(Start: 1 @63090 has 3 MA's), (5, 63168), (13, 63453), (16, 63519), (20, 63621), (30, 64200), (49, 65229), (50, 65289), (54, 65538), (65, 65814), (134, 67074), (139, 67281), (140, 67284), (142, 67305), (157, 67656), (161, 67773), (167, 67848), (180, 68220), (184, 68343), (196, 68703), (202, 68826), (206, 68889), (207, 68898), (208, 68916), (211, 68949), (218, 69342), (221, 69513), (226, 69564), (227, 69585), (228, 69606), (231, 69693), (257, 69999), (267, 70419), (270, 70524), (285, 71004), (286, 71034), (290, 71319), (291, 71409), (292, 71466), (298, 71673), (310, 71877), (317, 72015), (319, 72138), (328, 72423), (337, 72798), (338, 72804), (339, 72813), (344, 72879), (348, 72900), (354, 73182), (361, 73407), (370, 73707), (406, 74547), (410, 74601), (411, 74604), (417, 74778), (420, 74883), (421, 74898), (422, 74901), (423, 74916), (425, 74934), (426, 74940), (429, 74988), (432, 75006), (445, 75297), (450, 75429), (453, 75567), (461, 75702), (464, 75717),

Gene: WaddleDee\_88 Start: 59576, Stop: 71659, Start Num: 2

Candidate Starts for WaddleDee\_88:

(Start: 2 @59576 has 1 MA's), (6, 59684), (15, 59954), (22, 60098), (23, 60272), (25, 60422), (27, 60458), (34, 60806), (35, 60812), (37, 60899), (39, 61055), (45, 61472), (56, 61787), (63, 61853), (64, 61862), (91, 62078), (93, 62186), (110, 62348), (113, 62510), (114, 62555), (119, 62609), (120,

62618), (121, 62672), (123, 62726), (126, 62813), (132, 62933), (136, 63050), (150, 63362), (153, 63425), (158, 63602), (160, 63725), (162, 63746), (166, 63788), (171, 63938), (172, 63992), (173, 64004), (175, 64067), (182, 64241), (185, 64316), (189, 64466), (192, 64631), (195, 64685), (198, 64847), (200, 64901), (201, 64913), (207, 65030), (209, 65075), (210, 65084), (212, 65183), (213, 65249), (214, 65252), (215, 65294), (220, 65576), (223, 65648), (225, 65681), (234, 65957), (239, 66224), (247, 66413), (248, 66479), (252, 66599), (258, 66839), (264, 67061), (266, 67160), (268, 67199), (276, 67463), (281, 67664), (282, 67685), (283, 67724), (284, 67727), (297, 67946), (318, 68051), (320, 68135), (336, 68453), (340, 68534), (342, 68582), (343, 68594), (351, 68741), (355, 68915), (359, 69038), (362, 69203), (374, 69497), (375, 69518), (385, 69695), (386, 69758), (390, 69920), (391, 69926), (397, 70025), (398, 70028), (401, 70127), (402, 70139), (403, 70154), (404, 70157), (405, 70217), (408, 70331), (412, 70361), (417, 70541), (421, 70646), (422, 70649), (424, 70682), (434, 70784), (442, 71000), (447, 71093), (449, 71189), (458, 71375), (464, 71483), (467, 71588),