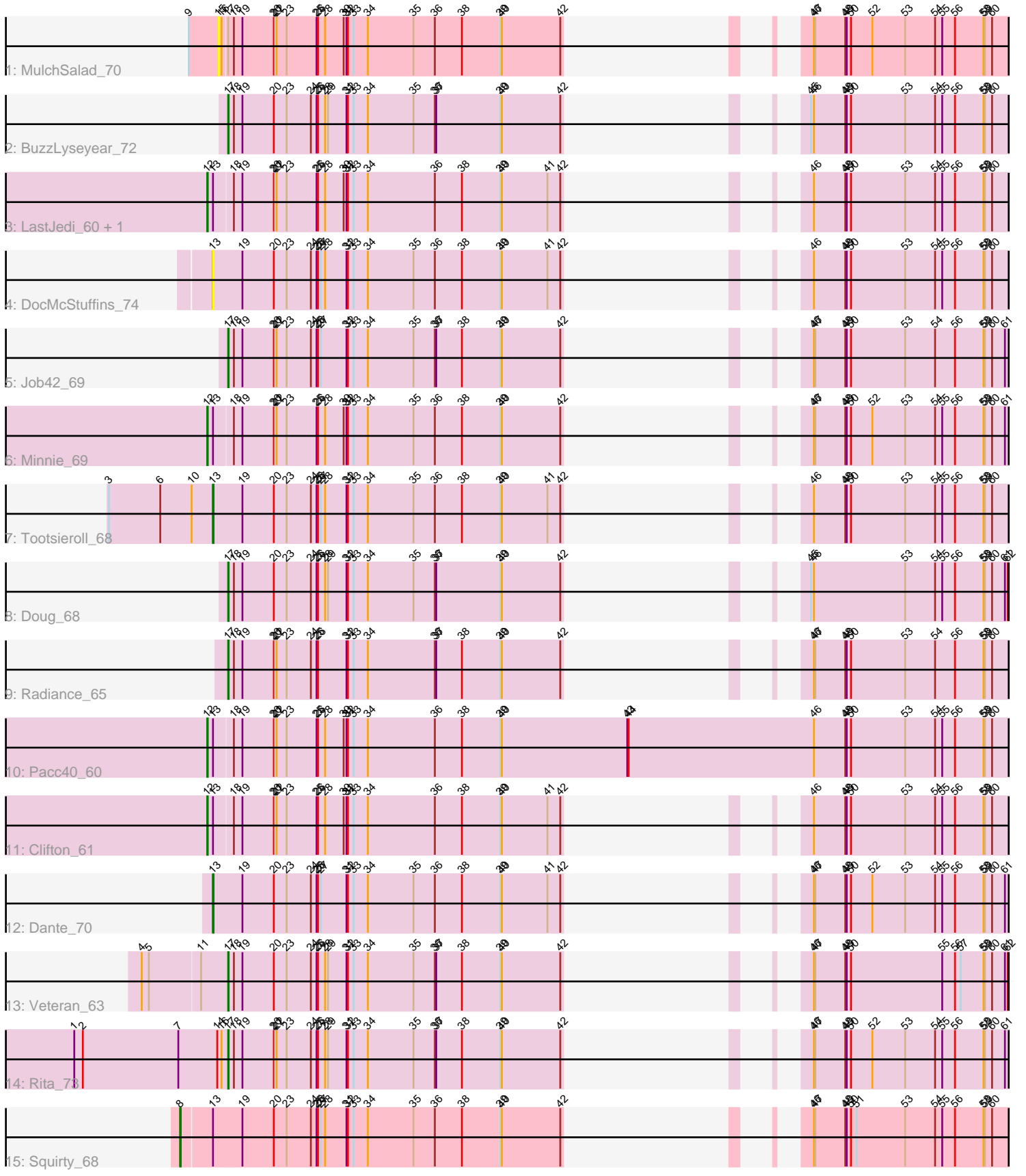


Zoomed Pham 163085



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 163085 Report

This analysis was run 04/28/24 on database version 559.

Pham number 163085 has 16 members, 2 are drafts.

Phages represented in each track:

- Track 1 : MulchSalad_70
- Track 2 : BuzzLyseyear_72
- Track 3 : LastJedi_60, Brocalys_61
- Track 4 : DocMcStuffins_74
- Track 5 : Job42_69
- Track 6 : Minnie_69
- Track 7 : Tootsieroll_68
- Track 8 : Doug_68
- Track 9 : Radiance_65
- Track 10 : Pacc40_60
- Track 11 : Clifton_61
- Track 12 : Dante_70
- Track 13 : Veteran_63
- Track 14 : Rita_73
- Track 15 : Squirty_68

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

The start number called the most often in the published annotations is 17, it was called in 6 of the 14 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- BuzzLyseyear_72, Doug_68, Job42_69, Radiance_65, Rita_73, Veteran_63,

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

- MulchSalad_70,

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

- Brocalys_61, Clifton_61, Dante_70, DocMcStuffins_74, LastJedi_60, Minnie_69, Pacc40_60, Squirty_68, Tootsieroll_68,

Summary by start number:

Start 8:

- Found in 1 of 16 (6.2%) of genes in pham
- Manual Annotations of this start: 1 of 14
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Squirty_68 (F3),

Start 12:

- Found in 5 of 16 (31.2%) of genes in pham
- Manual Annotations of this start: 5 of 14
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Brocalys_61 (F1), Clifton_61 (F1), LastJedi_60 (F1), Minnie_69 (F1), Pacc40_60 (F1),

Start 13:

- Found in 9 of 16 (56.2%) of genes in pham
- Manual Annotations of this start: 2 of 14
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Dante_70 (F1), DocMcStuffins_74 (F1), Tootsieroll_68 (F1),

Start 15:

- Found in 1 of 16 (6.2%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: MulchSalad_70 (F),

Start 17:

- Found in 7 of 16 (43.8%) of genes in pham
- Manual Annotations of this start: 6 of 14
- Called 85.7% of time when present
- Phage (with cluster) where this start called: BuzzLyseyear_72 (F1), Doug_68 (F1), Job42_69 (F1), Radiance_65 (F1), Rita_73 (F1), Veteran_63 (F1),

Summary by clusters:

There are 3 clusters represented in this pham: F1, F3, F,

Info for manual annotations of cluster F1:

- Start number 12 was manually annotated 5 times for cluster F1.
- Start number 13 was manually annotated 2 times for cluster F1.
- Start number 17 was manually annotated 6 times for cluster F1.

Info for manual annotations of cluster F3:

- Start number 8 was manually annotated 1 time for cluster F3.

Gene Information:

Gene: Brocalys_61 Start: 39655, Stop: 43206, Start Num: 12

Candidate Starts for Brocalys_61:

(Start: 12 @39655 has 5 MA's), (Start: 13 @39667 has 2 MA's), (18, 39706), (19, 39724), (20, 39790), (21, 39793), (22, 39796), (23, 39817), (25, 39880), (26, 39883), (28, 39898), (30, 39937), (31, 39943),

(32, 39946), (33, 39958), (34, 39988), (36, 40129), (38, 40186), (39, 40267), (40, 40270), (41, 40366), (42, 40393), (46, 40453), (48, 40519), (49, 40522), (50, 40531), (53, 40645), (54, 40708), (55, 40723), (56, 40750), (58, 40810), (59, 40813), (60, 40828), (63, 40900), (65, 40975), (69, 41029), (70, 41134), (71, 41155), (72, 41173), (74, 41293), (75, 41371), (78, 41470), (79, 41479), (80, 41491), (81, 41494), (82, 41557), (83, 41587), (91, 41869), (92, 41902), (93, 41914), (94, 41923), (95, 41932), (96, 41965), (97, 41971), (98, 41995), (99, 42112), (100, 42115), (102, 42148), (103, 42151), (104, 42169), (105, 42271), (106, 42319), (107, 42574), (108, 42607), (109, 42649), (110, 42661), (111, 42676), (112, 42727), (113, 42757), (114, 42775), (115, 42781), (116, 42865), (117, 42871), (118, 42919), (119, 42955), (120, 42973), (121, 43027), (122, 43030), (123, 43060), (124, 43066), (128, 43171),

Gene: BuzzLyseyear_72 Start: 43958, Stop: 47470, Start Num: 17

Candidate Starts for BuzzLyseyear_72:

(Start: 17 @43958 has 6 MA's), (18, 43970), (19, 43988), (20, 44054), (23, 44081), (24, 44132), (25, 44144), (26, 44147), (28, 44162), (29, 44168), (31, 44207), (32, 44210), (33, 44222), (34, 44252), (35, 44348), (36, 44393), (37, 44396), (39, 44531), (40, 44534), (42, 44657), (45, 44711), (46, 44717), (48, 44783), (49, 44786), (50, 44795), (53, 44909), (54, 44972), (55, 44987), (56, 45014), (58, 45074), (59, 45077), (60, 45092), (63, 45164), (64, 45212), (65, 45239), (69, 45293), (72, 45437), (73, 45452), (74, 45557), (75, 45635), (78, 45734), (79, 45743), (80, 45755), (81, 45758), (82, 45821), (86, 45944), (91, 46133), (92, 46166), (93, 46178), (94, 46187), (95, 46196), (96, 46229), (97, 46235), (98, 46259), (99, 46376), (100, 46379), (102, 46412), (103, 46415), (104, 46433), (105, 46535), (106, 46583), (107, 46838), (108, 46871), (110, 46925), (111, 46940), (112, 46991), (113, 47021), (114, 47039), (115, 47045), (116, 47129), (117, 47135), (118, 47183), (119, 47219), (120, 47237), (121, 47291), (122, 47294), (123, 47324), (124, 47330), (126, 47372), (127, 47408), (128, 47435),

Gene: Clifton_61 Start: 40006, Stop: 43557, Start Num: 12

Candidate Starts for Clifton_61:

(Start: 12 @40006 has 5 MA's), (Start: 13 @40018 has 2 MA's), (18, 40057), (19, 40075), (20, 40141), (21, 40144), (22, 40147), (23, 40168), (25, 40231), (26, 40234), (28, 40249), (30, 40288), (31, 40294), (32, 40297), (33, 40309), (34, 40339), (36, 40480), (38, 40537), (39, 40618), (40, 40621), (41, 40717), (42, 40744), (46, 40804), (48, 40870), (49, 40873), (50, 40882), (53, 40996), (54, 41059), (55, 41074), (56, 41101), (58, 41161), (59, 41164), (60, 41179), (63, 41251), (65, 41326), (68, 41368), (69, 41380), (70, 41485), (71, 41506), (72, 41524), (74, 41644), (75, 41722), (76, 41749), (77, 41758), (78, 41821), (80, 41842), (81, 41845), (82, 41908), (83, 41938), (91, 42220), (92, 42253), (93, 42265), (94, 42274), (95, 42283), (96, 42316), (97, 42322), (98, 42346), (99, 42463), (100, 42466), (102, 42499), (103, 42502), (104, 42520), (105, 42622), (106, 42670), (107, 42925), (108, 42958), (109, 43000), (110, 43012), (111, 43027), (112, 43078), (113, 43108), (114, 43126), (115, 43132), (116, 43216), (117, 43222), (118, 43270), (119, 43306), (120, 43324), (121, 43378), (122, 43381), (123, 43411), (124, 43417), (128, 43522),

Gene: Dante_70 Start: 44090, Stop: 47632, Start Num: 13

Candidate Starts for Dante_70:

(Start: 13 @44090 has 2 MA's), (19, 44150), (20, 44216), (23, 44243), (24, 44294), (25, 44306), (26, 44309), (27, 44315), (31, 44369), (32, 44372), (33, 44384), (34, 44414), (35, 44510), (36, 44555), (38, 44612), (39, 44693), (40, 44696), (41, 44792), (42, 44819), (46, 44879), (47, 44882), (48, 44945), (49, 44948), (50, 44957), (52, 45002), (53, 45071), (54, 45134), (55, 45149), (56, 45176), (58, 45236), (59, 45239), (60, 45254), (61, 45281), (63, 45326), (64, 45374), (65, 45401), (66, 45404), (68, 45443), (69, 45455), (70, 45560), (72, 45599), (73, 45614), (74, 45719), (75, 45797), (76, 45824), (77, 45833), (78, 45896), (80, 45917), (82, 45983), (86, 46106), (88, 46187), (89, 46196), (91, 46295), (92, 46328), (93, 46340), (94, 46349), (95, 46358), (96, 46391), (97, 46397), (98, 46421), (99, 46538), (100, 46541), (102, 46574), (103, 46577), (104, 46595), (105, 46697), (106, 46745), (107, 47000), (108, 47033), (110, 47087), (111, 47102), (112, 47153), (113, 47183), (114, 47201), (115, 47207), (116, 47291), (117, 47297), (118, 47345), (119, 47381), (120, 47399), (121, 47453), (122, 47456), (123, 47486), (124, 47492), (126, 47534), (128, 47597),

Gene: DocMcStuffins_74 Start: 46780, Stop: 50322, Start Num: 13

Candidate Starts for DocMcStuffins_74:

(Start: 13 @46780 has 2 MA's), (19, 46840), (20, 46906), (23, 46933), (24, 46984), (25, 46996), (26, 46999), (27, 47005), (28, 47014), (31, 47059), (32, 47062), (33, 47074), (34, 47104), (35, 47200), (36, 47245), (38, 47302), (39, 47383), (40, 47386), (41, 47482), (42, 47509), (46, 47569), (48, 47635), (49, 47638), (50, 47647), (53, 47761), (54, 47824), (55, 47839), (56, 47866), (58, 47926), (59, 47929), (60, 47944), (64, 48064), (65, 48091), (66, 48094), (68, 48133), (69, 48145), (72, 48289), (73, 48304), (74, 48409), (75, 48487), (78, 48586), (79, 48595), (80, 48607), (81, 48610), (82, 48673), (86, 48796), (89, 48886), (91, 48985), (92, 49018), (93, 49030), (94, 49039), (95, 49048), (96, 49081), (97, 49087), (98, 49111), (99, 49228), (100, 49231), (101, 49243), (102, 49264), (103, 49267), (104, 49285), (105, 49387), (106, 49435), (107, 49690), (108, 49723), (110, 49777), (111, 49792), (112, 49843), (113, 49873), (114, 49891), (115, 49897), (116, 49981), (117, 49987), (118, 50035), (119, 50071), (120, 50089), (121, 50143), (122, 50146), (123, 50176), (124, 50182), (126, 50224), (128, 50287),

Gene: Doug_68 Start: 42994, Stop: 46506, Start Num: 17

Candidate Starts for Doug_68:

(Start: 17 @42994 has 6 MA's), (18, 43006), (19, 43024), (20, 43090), (23, 43117), (24, 43168), (25, 43180), (26, 43183), (28, 43198), (29, 43204), (31, 43243), (32, 43246), (33, 43258), (34, 43288), (35, 43384), (36, 43429), (37, 43432), (39, 43567), (40, 43570), (42, 43693), (45, 43747), (46, 43753), (53, 43945), (54, 44008), (55, 44023), (56, 44050), (58, 44110), (59, 44113), (60, 44128), (61, 44155), (62, 44161), (63, 44200), (64, 44248), (65, 44275), (66, 44278), (68, 44317), (69, 44329), (70, 44434), (72, 44473), (73, 44488), (74, 44593), (75, 44671), (76, 44698), (77, 44707), (78, 44770), (79, 44779), (80, 44791), (81, 44794), (82, 44857), (86, 44980), (88, 45061), (91, 45169), (92, 45202), (93, 45214), (94, 45223), (95, 45232), (96, 45265), (97, 45271), (98, 45295), (99, 45412), (100, 45415), (102, 45448), (103, 45451), (104, 45469), (105, 45571), (106, 45619), (109, 45949), (110, 45961), (111, 45976), (112, 46027), (113, 46057), (114, 46075), (115, 46081), (116, 46165), (117, 46171), (118, 46219), (119, 46255), (120, 46273), (122, 46330), (123, 46360), (124, 46366), (128, 46471),

Gene: Job42_69 Start: 45077, Stop: 48589, Start Num: 17

Candidate Starts for Job42_69:

(Start: 17 @45077 has 6 MA's), (18, 45089), (19, 45107), (20, 45173), (21, 45176), (22, 45179), (23, 45200), (24, 45251), (25, 45263), (26, 45266), (27, 45272), (31, 45326), (32, 45329), (33, 45341), (34, 45371), (35, 45467), (36, 45512), (37, 45515), (38, 45569), (39, 45650), (40, 45653), (42, 45776), (46, 45836), (47, 45839), (48, 45902), (49, 45905), (50, 45914), (53, 46028), (54, 46091), (56, 46133), (58, 46193), (59, 46196), (60, 46211), (61, 46238), (63, 46283), (64, 46331), (65, 46358), (66, 46361), (68, 46400), (69, 46412), (70, 46517), (72, 46556), (73, 46571), (74, 46676), (75, 46754), (76, 46781), (77, 46790), (78, 46853), (80, 46874), (82, 46940), (83, 46970), (86, 47063), (91, 47252), (92, 47285), (93, 47297), (94, 47306), (95, 47315), (96, 47348), (97, 47354), (98, 47378), (99, 47495), (100, 47498), (102, 47531), (103, 47534), (104, 47552), (105, 47654), (106, 47702), (107, 47957), (108, 47990), (110, 48044), (111, 48059), (112, 48110), (113, 48140), (114, 48158), (115, 48164), (116, 48248), (117, 48254), (118, 48302), (119, 48338), (120, 48356), (121, 48410), (122, 48413), (123, 48443), (124, 48449), (126, 48491), (128, 48554),

Gene: LastJedi_60 Start: 40049, Stop: 43600, Start Num: 12

Candidate Starts for LastJedi_60:

(Start: 12 @40049 has 5 MA's), (Start: 13 @40061 has 2 MA's), (18, 40100), (19, 40118), (20, 40184), (21, 40187), (22, 40190), (23, 40211), (25, 40274), (26, 40277), (28, 40292), (30, 40331), (31, 40337), (32, 40340), (33, 40352), (34, 40382), (36, 40523), (38, 40580), (39, 40661), (40, 40664), (41, 40760), (42, 40787), (46, 40847), (48, 40913), (49, 40916), (50, 40925), (53, 41039), (54, 41102), (55, 41117), (56, 41144), (58, 41204), (59, 41207), (60, 41222), (63, 41294), (65, 41369), (69, 41423), (70, 41528), (71, 41549), (72, 41567), (74, 41687), (75, 41765), (78, 41864), (79, 41873), (80, 41885), (81, 41888), (82, 41951), (83, 41981), (91, 42263), (92, 42296), (93, 42308), (94, 42317), (95, 42326), (96, 42359),

(97, 42365), (98, 42389), (99, 42506), (100, 42509), (102, 42542), (103, 42545), (104, 42563), (105, 42665), (106, 42713), (107, 42968), (108, 43001), (109, 43043), (110, 43055), (111, 43070), (112, 43121), (113, 43151), (114, 43169), (115, 43175), (116, 43259), (117, 43265), (118, 43313), (119, 43349), (120, 43367), (121, 43421), (122, 43424), (123, 43454), (124, 43460), (128, 43565),

Gene: Minnie_69 Start: 44325, Stop: 47966, Start Num: 12

Candidate Starts for Minnie_69:

(Start: 12 @44325 has 5 MA's), (Start: 13 @44337 has 2 MA's), (18, 44376), (19, 44394), (20, 44460), (21, 44463), (22, 44466), (23, 44487), (25, 44550), (26, 44553), (28, 44568), (30, 44607), (31, 44613), (32, 44616), (33, 44628), (34, 44658), (35, 44754), (36, 44799), (38, 44856), (39, 44937), (40, 44940), (42, 45063), (46, 45123), (47, 45126), (48, 45189), (49, 45192), (50, 45201), (52, 45246), (53, 45315), (54, 45378), (55, 45393), (56, 45420), (58, 45480), (59, 45483), (60, 45498), (61, 45525), (63, 45570), (64, 45618), (65, 45645), (66, 45648), (68, 45687), (69, 45699), (70, 45804), (72, 45843), (73, 45858), (74, 45963), (75, 46041), (76, 46068), (77, 46077), (78, 46140), (80, 46161), (81, 46164), (82, 46227), (84, 46353), (85, 46371), (86, 46440), (89, 46530), (91, 46629), (92, 46662), (93, 46674), (94, 46683), (95, 46692), (96, 46725), (97, 46731), (98, 46755), (99, 46872), (100, 46875), (102, 46908), (103, 46911), (104, 46929), (105, 47031), (106, 47079), (107, 47334), (108, 47367), (110, 47421), (111, 47436), (112, 47487), (113, 47517), (114, 47535), (115, 47541), (116, 47625), (117, 47631), (118, 47679), (119, 47715), (120, 47733), (121, 47787), (122, 47790), (123, 47820), (124, 47826), (126, 47868), (127, 47904), (128, 47931),

Gene: MulchSalad_70 Start: 41683, Stop: 45210, Start Num: 15

Candidate Starts for MulchSalad_70:

(9, 41620), (15, 41683), (16, 41689), (Start: 17 @41698 has 6 MA's), (18, 41710), (19, 41728), (20, 41794), (21, 41797), (22, 41800), (23, 41821), (25, 41884), (26, 41887), (28, 41902), (30, 41941), (31, 41947), (32, 41950), (33, 41962), (34, 41992), (35, 42088), (36, 42133), (38, 42190), (39, 42271), (40, 42274), (42, 42397), (46, 42457), (47, 42460), (48, 42523), (49, 42526), (50, 42535), (52, 42580), (53, 42649), (54, 42712), (55, 42727), (56, 42754), (58, 42814), (59, 42817), (60, 42832), (63, 42904), (64, 42952), (65, 42979), (66, 42982), (69, 43033), (72, 43177), (73, 43192), (74, 43297), (75, 43375), (78, 43474), (79, 43483), (80, 43495), (81, 43498), (82, 43561), (86, 43684), (91, 43873), (92, 43906), (93, 43918), (94, 43927), (95, 43936), (96, 43969), (97, 43975), (98, 43999), (99, 44116), (100, 44119), (101, 44131), (102, 44152), (103, 44155), (104, 44173), (105, 44275), (106, 44323), (107, 44578), (108, 44611), (110, 44665), (111, 44680), (112, 44731), (113, 44761), (114, 44779), (115, 44785), (116, 44869), (117, 44875), (118, 44923), (119, 44959), (120, 44977), (121, 45031), (122, 45034), (123, 45064), (124, 45070), (126, 45112), (127, 45148), (128, 45175),

Gene: Pacc40_60 Start: 41101, Stop: 45126, Start Num: 12

Candidate Starts for Pacc40_60:

(Start: 12 @41101 has 5 MA's), (Start: 13 @41113 has 2 MA's), (18, 41152), (19, 41170), (20, 41236), (21, 41239), (22, 41242), (23, 41263), (25, 41326), (26, 41329), (28, 41344), (30, 41383), (31, 41389), (32, 41392), (33, 41404), (34, 41434), (36, 41575), (38, 41632), (39, 41713), (40, 41716), (43, 41980), (44, 41983), (46, 42373), (48, 42439), (49, 42442), (50, 42451), (53, 42565), (54, 42628), (55, 42643), (56, 42670), (58, 42730), (59, 42733), (60, 42748), (65, 42895), (68, 42937), (69, 42949), (72, 43093), (73, 43108), (74, 43213), (75, 43291), (78, 43390), (79, 43399), (80, 43411), (81, 43414), (82, 43477), (86, 43600), (87, 43666), (91, 43789), (92, 43822), (93, 43834), (94, 43843), (95, 43852), (96, 43885), (97, 43891), (98, 43915), (99, 44032), (100, 44035), (102, 44068), (103, 44071), (104, 44089), (105, 44191), (106, 44239), (107, 44494), (108, 44527), (110, 44581), (111, 44596), (112, 44647), (113, 44677), (114, 44695), (115, 44701), (116, 44785), (117, 44791), (118, 44839), (119, 44875), (120, 44893), (121, 44947), (122, 44950), (123, 44980), (124, 44986), (126, 45028), (128, 45091),

Gene: Radiance_65 Start: 42260, Stop: 45772, Start Num: 17

Candidate Starts for Radiance_65:

(Start: 17 @42260 has 6 MA's), (18, 42272), (19, 42290), (20, 42356), (21, 42359), (22, 42362), (23, 42383), (24, 42434), (25, 42446), (26, 42449), (31, 42509), (32, 42512), (33, 42524), (34, 42554), (36, 42695), (37, 42698), (38, 42752), (39, 42833), (40, 42836), (42, 42959), (46, 43019), (47, 43022), (48, 43085), (49, 43088), (50, 43097), (53, 43211), (54, 43274), (56, 43316), (58, 43376), (59, 43379), (60, 43394), (63, 43466), (64, 43514), (65, 43541), (66, 43544), (67, 43550), (69, 43595), (72, 43739), (73, 43754), (74, 43859), (75, 43937), (78, 44036), (79, 44045), (80, 44057), (81, 44060), (82, 44123), (86, 44246), (91, 44435), (92, 44468), (93, 44480), (94, 44489), (95, 44498), (96, 44531), (97, 44537), (98, 44561), (99, 44678), (100, 44681), (102, 44714), (103, 44717), (104, 44735), (105, 44837), (106, 44885), (107, 45140), (108, 45173), (110, 45227), (111, 45242), (112, 45293), (113, 45323), (114, 45341), (115, 45347), (116, 45431), (117, 45437), (118, 45485), (119, 45521), (120, 45539), (121, 45593), (122, 45596), (123, 45626), (124, 45632), (126, 45674), (127, 45710), (128, 45737),

Gene: Rita_73 Start: 42477, Stop: 45989, Start Num: 17

Candidate Starts for Rita_73:

(1, 42156), (2, 42174), (7, 42375), (14, 42456), (16, 42465), (Start: 17 @42477 has 6 MA's), (18, 42489), (19, 42507), (20, 42573), (21, 42576), (22, 42579), (23, 42600), (24, 42651), (25, 42663), (26, 42666), (28, 42681), (29, 42687), (31, 42726), (32, 42729), (33, 42741), (34, 42771), (35, 42867), (36, 42912), (37, 42915), (38, 42969), (39, 43050), (40, 43053), (42, 43176), (46, 43236), (47, 43239), (48, 43302), (49, 43305), (50, 43314), (52, 43359), (53, 43428), (54, 43491), (55, 43506), (56, 43533), (58, 43593), (59, 43596), (60, 43611), (61, 43638), (63, 43683), (64, 43731), (65, 43758), (66, 43761), (68, 43800), (69, 43812), (72, 43956), (73, 43971), (74, 44076), (75, 44154), (78, 44253), (79, 44262), (80, 44274), (81, 44277), (82, 44340), (86, 44463), (91, 44652), (92, 44685), (93, 44697), (94, 44706), (95, 44715), (96, 44748), (97, 44754), (98, 44778), (99, 44895), (100, 44898), (102, 44931), (103, 44934), (104, 44952), (105, 45054), (106, 45102), (107, 45357), (108, 45390), (110, 45444), (111, 45459), (112, 45510), (113, 45540), (114, 45558), (115, 45564), (116, 45648), (117, 45654), (118, 45702), (119, 45738), (120, 45756), (121, 45810), (122, 45813), (123, 45843), (124, 45849), (128, 45954),

Gene: Squirty_68 Start: 43755, Stop: 47360, Start Num: 8

Candidate Starts for Squirty_68:

(Start: 8 @43755 has 1 MA's), (Start: 13 @43818 has 2 MA's), (19, 43878), (20, 43944), (23, 43971), (24, 44022), (25, 44034), (26, 44037), (27, 44043), (28, 44052), (31, 44097), (32, 44100), (33, 44112), (34, 44142), (35, 44238), (36, 44283), (38, 44340), (39, 44421), (40, 44424), (42, 44547), (46, 44607), (47, 44610), (48, 44673), (49, 44676), (50, 44685), (51, 44697), (53, 44799), (54, 44862), (55, 44877), (56, 44904), (58, 44964), (59, 44967), (60, 44982), (63, 45054), (64, 45102), (65, 45129), (66, 45132), (68, 45171), (69, 45183), (72, 45327), (73, 45342), (74, 45447), (75, 45525), (78, 45624), (79, 45633), (80, 45645), (81, 45648), (82, 45711), (83, 45741), (86, 45834), (90, 45972), (91, 46023), (92, 46056), (93, 46068), (94, 46077), (95, 46086), (96, 46119), (97, 46125), (98, 46149), (99, 46266), (100, 46269), (102, 46302), (103, 46305), (104, 46323), (105, 46425), (106, 46473), (107, 46728), (108, 46761), (110, 46815), (111, 46830), (112, 46881), (113, 46911), (114, 46929), (115, 46935), (116, 47019), (117, 47025), (118, 47073), (119, 47109), (120, 47127), (121, 47181), (122, 47184), (123, 47214), (124, 47220), (126, 47262), (128, 47325),

Gene: Tootsieroll_68 Start: 42866, Stop: 46408, Start Num: 13

Candidate Starts for Tootsieroll_68:

(3, 42647), (6, 42755), (10, 42821), (Start: 13 @42866 has 2 MA's), (19, 42926), (20, 42992), (23, 43019), (24, 43070), (25, 43082), (26, 43085), (27, 43091), (28, 43100), (31, 43145), (32, 43148), (33, 43160), (34, 43190), (35, 43286), (36, 43331), (38, 43388), (39, 43469), (40, 43472), (41, 43568), (42, 43595), (46, 43655), (48, 43721), (49, 43724), (50, 43733), (53, 43847), (54, 43910), (55, 43925), (56, 43952), (58, 44012), (59, 44015), (60, 44030), (63, 44102), (64, 44150), (65, 44177), (66, 44180), (67, 44186), (68, 44219), (69, 44231), (72, 44375), (73, 44390), (74, 44495), (75, 44573), (78, 44672), (79, 44681), (80, 44693), (81, 44696), (82, 44759), (86, 44882), (91, 45071), (92, 45104), (93, 45116), (94, 45125), (95, 45134), (96, 45167), (97, 45173), (98, 45197), (99, 45314), (100, 45317), (102, 45350), (103, 45353), (104, 45371), (105, 45473), (106, 45521), (109, 45851), (110, 45863), (111, 45878),

(112, 45929), (113, 45959), (114, 45977), (115, 45983), (116, 46067), (117, 46073), (118, 46121), (119, 46157), (120, 46175), (122, 46232), (123, 46262), (124, 46268), (125, 46304), (128, 46373),

Gene: Veteran_63 Start: 41151, Stop: 44663, Start Num: 17

Candidate Starts for Veteran_63:

(4, 40974), (5, 40989), (11, 41094), (Start: 17 @41151 has 6 MA's), (18, 41163), (19, 41181), (20, 41247), (23, 41274), (24, 41325), (25, 41337), (26, 41340), (28, 41355), (29, 41361), (31, 41400), (32, 41403), (33, 41415), (34, 41445), (35, 41541), (36, 41586), (37, 41589), (38, 41643), (39, 41724), (40, 41727), (42, 41850), (46, 41910), (47, 41913), (48, 41976), (49, 41979), (50, 41988), (55, 42180), (56, 42207), (57, 42219), (58, 42267), (59, 42270), (60, 42285), (61, 42312), (62, 42318), (63, 42357), (64, 42405), (65, 42432), (66, 42435), (67, 42441), (68, 42474), (69, 42486), (70, 42591), (72, 42630), (73, 42645), (74, 42750), (75, 42828), (76, 42855), (77, 42864), (78, 42927), (80, 42948), (81, 42951), (82, 43014), (86, 43137), (91, 43326), (92, 43359), (93, 43371), (94, 43380), (95, 43389), (96, 43422), (97, 43428), (98, 43452), (99, 43569), (100, 43572), (102, 43605), (103, 43608), (104, 43626), (105, 43728), (106, 43776), (107, 44031), (108, 44064), (110, 44118), (111, 44133), (112, 44184), (113, 44214), (114, 44232), (115, 44238), (116, 44322), (117, 44328), (118, 44376), (119, 44412), (120, 44430), (121, 44484), (122, 44487), (123, 44517), (124, 44523), (128, 44628),