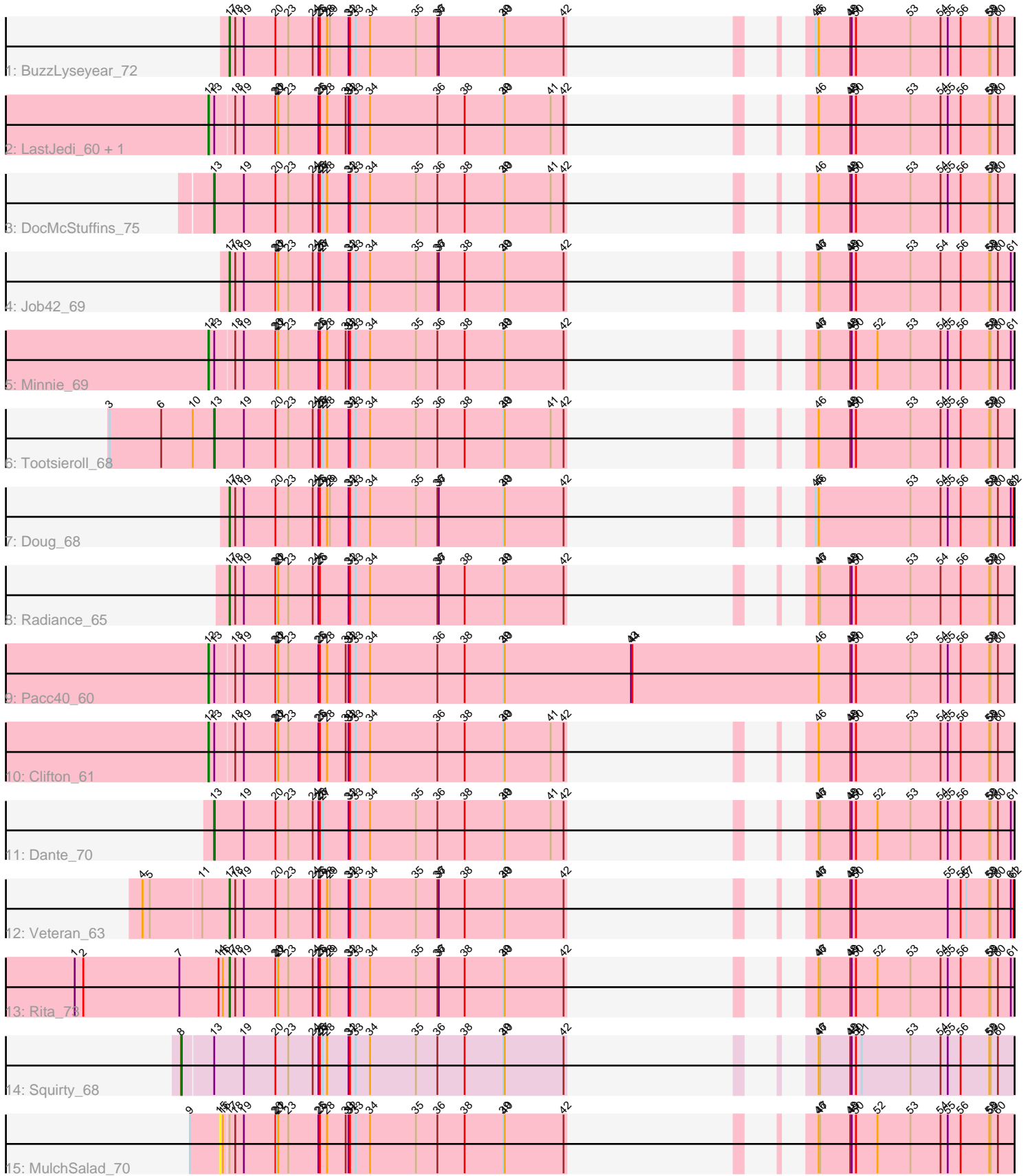


# Zoomed Pham 303747



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 303747 Report

This analysis was run 06/12/26 on database version 650.

Pham number 303747 has 16 members, 1 are drafts.

Phages represented in each track:

- Track 1 : BuzzLyseyear\_72
- Track 2 : LastJedi\_60, Brocalys\_61
- Track 3 : DocMcStuffins\_75
- Track 4 : Job42\_69
- Track 5 : Minnie\_69
- Track 6 : Tootsieroll\_68
- Track 7 : Doug\_68
- Track 8 : Radiance\_65
- Track 9 : Pacc40\_60
- Track 10 : Clifton\_61
- Track 11 : Dante\_70
- Track 12 : Veteran\_63
- Track 13 : Rita\_73
- Track 14 : Squirty\_68
- Track 15 : MulchSalad\_70

### ***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 15 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\_75, 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 15
- 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 15
- 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: 3 of 15
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Dante\_70 (F1), DocMcStuffins\_75 (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 (F7),

#### Start 17:

- Found in 7 of 16 ( 43.8% ) of genes in pham
- Manual Annotations of this start: 6 of 15
- 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, F7,

#### Info for manual annotations of cluster F1:

- Start number 12 was manually annotated 5 times for cluster F1.
- Start number 13 was manually annotated 3 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 3 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 3 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 3 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\_75 Start: 46780, Stop: 50322, Start Num: 13

Candidate Starts for DocMcStuffins\_75:

(Start: 13 @46780 has 3 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 3 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 3 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 3 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 3 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 3 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),