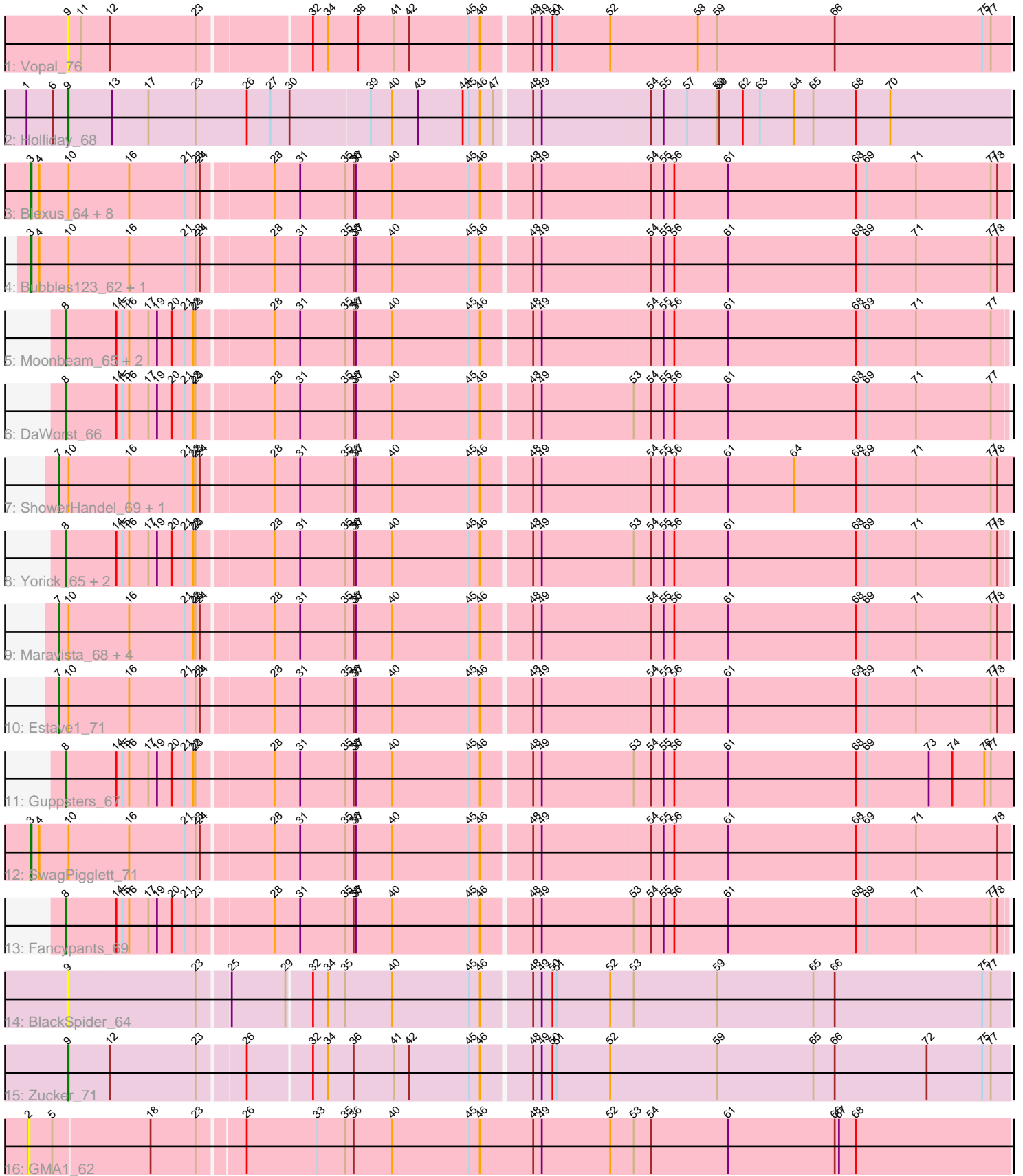


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Note: Tracks are now grouped by subcluster and scaled. Switching in subcluster is indicated by changes in track color. Track scale is now set by default to display the region 30 bp upstream of start 1 to 30 bp downstream of the last possible start. 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 216390 Report

This analysis was run 02/22/25 on database version 588.

Pham number 216390 has 34 members, 3 are drafts.

Phages represented in each track:

- Track 1 : Vopal\_76
- Track 2 : Holliday\_68
- Track 3 : Blexus\_64, Ramsey\_65, NormanBulbieJr\_66, Burwell21\_64, Priscilla\_66, MinionDave\_65, CaptainTrips\_64, Cabrinians\_67, Koella\_60
- Track 4 : Bubbles123\_62, Spikelee\_73
- Track 5 : Moonbeam\_65, Jarcob\_65, Emma\_68
- Track 6 : DaWorst\_66
- Track 7 : ShowerHandel\_69, ByChance\_59
- Track 8 : Yorick\_65, Whouxphf\_63, Aubs\_66
- Track 9 : Maravista\_68, Crumble\_61, BobaPhett\_70, Zizzle\_70, Pippy\_65
- Track 10 : Estave1\_71
- Track 11 : Guppsters\_67
- Track 12 : SwagPiggett\_71
- Track 13 : Fancypants\_69
- Track 14 : BlackSpider\_64
- Track 15 : Zucker\_71
- Track 16 : GMA1\_62

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

The start number called the most often in the published annotations is 3, it was called in 12 of the 31 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Blexus\_64, Bubbles123\_62, Burwell21\_64, Cabrinians\_67, CaptainTrips\_64, Koella\_60, MinionDave\_65, NormanBulbieJr\_66, Priscilla\_66, Ramsey\_65, Spikelee\_73, SwagPiggett\_71,

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

- 

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

- Aubs\_66, BlackSpider\_64, BobaPhett\_70, ByChance\_59, Crumble\_61, DaWorst\_66, Emma\_68, Estave1\_71, Fancypants\_69, GMA1\_62, Guppsters\_67,

Holliday\_68, Jarcob\_65, Maravista\_68, Moonbeam\_65, Pippy\_65, ShowerHandel\_69, Vopal\_76, Whouxphf\_63, Yorick\_65, Zizzle\_70, Zucker\_71,

### Summary by start number:

#### Start 2:

- Found in 1 of 34 ( 2.9% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: GMA1\_62 (singleton),

#### Start 3:

- Found in 12 of 34 ( 35.3% ) of genes in pham
- Manual Annotations of this start: 12 of 31
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Blexus\_64 (F1), Bubbles123\_62 (F1), Burwell21\_64 (F1), Cabrinians\_67 (F1), CaptainTrips\_64 (F1), Koella\_60 (F1), MinionDave\_65 (F1), NormanBulbieJr\_66 (F1), Priscilla\_66 (F1), Ramsey\_65 (F1), Spikelee\_73 (F1), SwagPiggett\_71 (F1),

#### Start 7:

- Found in 8 of 34 ( 23.5% ) of genes in pham
- Manual Annotations of this start: 8 of 31
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BobaPhett\_70 (F1), ByChance\_59 (F1), Crumble\_61 (F1), Estave1\_71 (F1), Maravista\_68 (F1), Pippy\_65 (F1), ShowerHandel\_69 (F1), Zizzle\_70 (F1),

#### Start 8:

- Found in 9 of 34 ( 26.5% ) of genes in pham
- Manual Annotations of this start: 9 of 31
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aubs\_66 (F1), DaWorst\_66 (F1), Emma\_68 (F1), Fancypants\_69 (F1), Guppsters\_67 (F1), Jarcob\_65 (F1), Moonbeam\_65 (F1), Whouxphf\_63 (F1), Yorick\_65 (F1),

#### Start 9:

- Found in 4 of 34 ( 11.8% ) of genes in pham
- Manual Annotations of this start: 2 of 31
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BlackSpider\_64 (FN), Holliday\_68 (DN1), Vopal\_76 (AY), Zucker\_71 (FN),

### Summary by clusters:

There are 5 clusters represented in this pham: AY, F1, singleton, DN1, FN,

Info for manual annotations of cluster DN1:

- Start number 9 was manually annotated 1 time for cluster DN1.

Info for manual annotations of cluster F1:

- Start number 3 was manually annotated 12 times for cluster F1.

- Start number 7 was manually annotated 8 times for cluster F1.
- Start number 8 was manually annotated 9 times for cluster F1.

Info for manual annotations of cluster FN:

- Start number 9 was manually annotated 1 time for cluster FN.

### **Gene Information:**

Gene: Aubs\_66 Start: 43049, Stop: 44338, Start Num: 8

Candidate Starts for Aubs\_66:

(Start: 8 @43049 has 9 MA's), (14, 43118), (15, 43127), (16, 43136), (17, 43163), (19, 43175), (20, 43196), (21, 43214), (22, 43226), (23, 43229), (28, 43328), (31, 43364), (35, 43427), (36, 43439), (37, 43442), (40, 43493), (45, 43601), (46, 43616), (48, 43682), (49, 43694), (53, 43820), (54, 43844), (55, 43862), (56, 43877), (61, 43949), (68, 44129), (69, 44144), (71, 44213), (77, 44318), (78, 44327),

Gene: BlackSpider\_64 Start: 36669, Stop: 37961, Start Num: 9

Candidate Starts for BlackSpider\_64:

(Start: 9 @36669 has 2 MA's), (23, 36846), (25, 36885), (29, 36960), (32, 36993), (34, 37014), (35, 37038), (40, 37104), (45, 37212), (46, 37227), (48, 37293), (49, 37305), (50, 37320), (51, 37326), (52, 37401), (53, 37434), (59, 37551), (65, 37686), (66, 37716), (75, 37923), (77, 37935),

Gene: Blexus\_64 Start: 43178, Stop: 44518, Start Num: 3

Candidate Starts for Blexus\_64:

(Start: 3 @43178 has 12 MA's), (4, 43190), (10, 43229), (16, 43313), (21, 43391), (23, 43406), (24, 43412), (28, 43505), (31, 43541), (35, 43604), (36, 43616), (37, 43619), (40, 43670), (45, 43778), (46, 43793), (48, 43859), (49, 43871), (54, 44021), (55, 44039), (56, 44054), (61, 44126), (68, 44306), (69, 44321), (71, 44390), (77, 44495), (78, 44504),

Gene: BobaPhett\_70 Start: 45473, Stop: 46780, Start Num: 7

Candidate Starts for BobaPhett\_70:

(Start: 7 @45473 has 8 MA's), (10, 45485), (16, 45569), (21, 45647), (22, 45659), (23, 45662), (24, 45668), (28, 45761), (31, 45797), (35, 45860), (36, 45872), (37, 45875), (40, 45926), (45, 46034), (46, 46049), (48, 46115), (49, 46127), (54, 46277), (55, 46295), (56, 46310), (61, 46382), (68, 46562), (69, 46577), (71, 46646), (77, 46751), (78, 46760),

Gene: Bubbles123\_62 Start: 42191, Stop: 43537, Start Num: 3

Candidate Starts for Bubbles123\_62:

(Start: 3 @42191 has 12 MA's), (4, 42203), (10, 42242), (16, 42326), (21, 42404), (23, 42419), (24, 42425), (28, 42518), (31, 42554), (35, 42617), (36, 42629), (37, 42632), (40, 42683), (45, 42791), (46, 42806), (48, 42872), (49, 42884), (54, 43034), (55, 43052), (56, 43067), (61, 43139), (68, 43319), (69, 43334), (71, 43403), (77, 43508), (78, 43517),

Gene: Burwell21\_64 Start: 42756, Stop: 44096, Start Num: 3

Candidate Starts for Burwell21\_64:

(Start: 3 @42756 has 12 MA's), (4, 42768), (10, 42807), (16, 42891), (21, 42969), (23, 42984), (24, 42990), (28, 43083), (31, 43119), (35, 43182), (36, 43194), (37, 43197), (40, 43248), (45, 43356), (46, 43371), (48, 43437), (49, 43449), (54, 43599), (55, 43617), (56, 43632), (61, 43704), (68, 43884), (69, 43899), (71, 43968), (77, 44073), (78, 44082),

Gene: ByChance\_59 Start: 38815, Stop: 40122, Start Num: 7

Candidate Starts for ByChance\_59:

(Start: 7 @38815 has 8 MA's), (10, 38827), (16, 38911), (21, 38989), (22, 39001), (23, 39004), (24, 39010), (28, 39103), (31, 39139), (35, 39202), (36, 39214), (37, 39217), (40, 39268), (45, 39376), (46, 39391), (48, 39457), (49, 39469), (54, 39619), (55, 39637), (56, 39652), (61, 39724), (64, 39817), (68, 39904), (69, 39919), (71, 39988), (77, 40093), (78, 40102),

Gene: Cabrinians\_67 Start: 42834, Stop: 44174, Start Num: 3

Candidate Starts for Cabrinians\_67:

(Start: 3 @42834 has 12 MA's), (4, 42846), (10, 42885), (16, 42969), (21, 43047), (23, 43062), (24, 43068), (28, 43161), (31, 43197), (35, 43260), (36, 43272), (37, 43275), (40, 43326), (45, 43434), (46, 43449), (48, 43515), (49, 43527), (54, 43677), (55, 43695), (56, 43710), (61, 43782), (68, 43962), (69, 43977), (71, 44046), (77, 44151), (78, 44160),

Gene: CaptainTrips\_64 Start: 42569, Stop: 43909, Start Num: 3

Candidate Starts for CaptainTrips\_64:

(Start: 3 @42569 has 12 MA's), (4, 42581), (10, 42620), (16, 42704), (21, 42782), (23, 42797), (24, 42803), (28, 42896), (31, 42932), (35, 42995), (36, 43007), (37, 43010), (40, 43061), (45, 43169), (46, 43184), (48, 43250), (49, 43262), (54, 43412), (55, 43430), (56, 43445), (61, 43517), (68, 43697), (69, 43712), (71, 43781), (77, 43886), (78, 43895),

Gene: Crumble\_61 Start: 38770, Stop: 40077, Start Num: 7

Candidate Starts for Crumble\_61:

(Start: 7 @38770 has 8 MA's), (10, 38782), (16, 38866), (21, 38944), (22, 38956), (23, 38959), (24, 38965), (28, 39058), (31, 39094), (35, 39157), (36, 39169), (37, 39172), (40, 39223), (45, 39331), (46, 39346), (48, 39412), (49, 39424), (54, 39574), (55, 39592), (56, 39607), (61, 39679), (68, 39859), (69, 39874), (71, 39943), (77, 40048), (78, 40057),

Gene: DaWorst\_66 Start: 42381, Stop: 43670, Start Num: 8

Candidate Starts for DaWorst\_66:

(Start: 8 @42381 has 9 MA's), (14, 42450), (15, 42459), (16, 42468), (17, 42495), (19, 42507), (20, 42528), (21, 42546), (22, 42558), (23, 42561), (28, 42660), (31, 42696), (35, 42759), (36, 42771), (37, 42774), (40, 42825), (45, 42933), (46, 42948), (48, 43014), (49, 43026), (53, 43152), (54, 43176), (55, 43194), (56, 43209), (61, 43281), (68, 43461), (69, 43476), (71, 43545), (77, 43650),

Gene: Emma\_68 Start: 42404, Stop: 43693, Start Num: 8

Candidate Starts for Emma\_68:

(Start: 8 @42404 has 9 MA's), (14, 42473), (15, 42482), (16, 42491), (17, 42518), (19, 42530), (20, 42551), (21, 42569), (22, 42581), (23, 42584), (28, 42683), (31, 42719), (35, 42782), (36, 42794), (37, 42797), (40, 42848), (45, 42956), (46, 42971), (48, 43037), (49, 43049), (54, 43199), (55, 43217), (56, 43232), (61, 43304), (68, 43484), (69, 43499), (71, 43568), (77, 43673),

Gene: Estave1\_71 Start: 45232, Stop: 46539, Start Num: 7

Candidate Starts for Estave1\_71:

(Start: 7 @45232 has 8 MA's), (10, 45244), (16, 45328), (21, 45406), (23, 45421), (24, 45427), (28, 45520), (31, 45556), (35, 45619), (36, 45631), (37, 45634), (40, 45685), (45, 45793), (46, 45808), (48, 45874), (49, 45886), (54, 46036), (55, 46054), (56, 46069), (61, 46141), (68, 46321), (69, 46336), (71, 46405), (77, 46510), (78, 46519),

Gene: Fancypants\_69 Start: 43416, Stop: 44705, Start Num: 8

Candidate Starts for Fancypants\_69:

(Start: 8 @43416 has 9 MA's), (14, 43485), (15, 43494), (16, 43503), (17, 43530), (19, 43542), (20, 43563), (21, 43581), (23, 43596), (28, 43695), (31, 43731), (35, 43794), (36, 43806), (37, 43809), (40, 43860), (45, 43968), (46, 43983), (48, 44049), (49, 44061), (53, 44187), (54, 44211), (55, 44229), (56, 44244), (61, 44316), (68, 44496), (69, 44511), (71, 44580), (77, 44685), (78, 44694),

Gene: GMA1\_62 Start: 35817, Stop: 37163, Start Num: 2

Candidate Starts for GMA1\_62:

(2, 35817), (5, 35850), (18, 35982), (23, 36045), (26, 36105), (33, 36198), (35, 36237), (36, 36249), (40, 36303), (45, 36411), (46, 36426), (48, 36501), (49, 36513), (52, 36609), (53, 36639), (54, 36663), (61, 36771), (66, 36921), (67, 36927), (68, 36951),

Gene: Guppsters\_67 Start: 42336, Stop: 43631, Start Num: 8

Candidate Starts for Guppsters\_67:

(Start: 8 @42336 has 9 MA's), (14, 42405), (15, 42414), (16, 42423), (17, 42450), (19, 42462), (20, 42483), (21, 42501), (22, 42513), (23, 42516), (28, 42615), (31, 42651), (35, 42714), (36, 42726), (37, 42729), (40, 42780), (45, 42888), (46, 42903), (48, 42969), (49, 42981), (53, 43107), (54, 43131), (55, 43149), (56, 43164), (61, 43236), (68, 43416), (69, 43431), (73, 43518), (74, 43551), (76, 43596), (77, 43605),

Gene: Holliday\_68 Start: 41613, Stop: 42908, Start Num: 9

Candidate Starts for Holliday\_68:

(1, 41556), (6, 41592), (Start: 9 @41613 has 2 MA's), (13, 41673), (17, 41724), (23, 41790), (26, 41862), (27, 41895), (30, 41919), (39, 42027), (40, 42057), (43, 42093), (44, 42156), (45, 42165), (46, 42180), (47, 42198), (48, 42246), (49, 42258), (54, 42408), (55, 42426), (57, 42459), (59, 42501), (60, 42504), (62, 42537), (63, 42561), (64, 42609), (65, 42636), (68, 42696), (70, 42744),

Gene: Jacob\_65 Start: 42805, Stop: 44094, Start Num: 8

Candidate Starts for Jacob\_65:

(Start: 8 @42805 has 9 MA's), (14, 42874), (15, 42883), (16, 42892), (17, 42919), (19, 42931), (20, 42952), (21, 42970), (22, 42982), (23, 42985), (28, 43084), (31, 43120), (35, 43183), (36, 43195), (37, 43198), (40, 43249), (45, 43357), (46, 43372), (48, 43438), (49, 43450), (54, 43600), (55, 43618), (56, 43633), (61, 43705), (68, 43885), (69, 43900), (71, 43969), (77, 44074),

Gene: Koella\_60 Start: 38732, Stop: 40072, Start Num: 3

Candidate Starts for Koella\_60:

(Start: 3 @38732 has 12 MA's), (4, 38744), (10, 38783), (16, 38867), (21, 38945), (23, 38960), (24, 38966), (28, 39059), (31, 39095), (35, 39158), (36, 39170), (37, 39173), (40, 39224), (45, 39332), (46, 39347), (48, 39413), (49, 39425), (54, 39575), (55, 39593), (56, 39608), (61, 39680), (68, 39860), (69, 39875), (71, 39944), (77, 40049), (78, 40058),

Gene: Maravista\_68 Start: 44721, Stop: 46022, Start Num: 7

Candidate Starts for Maravista\_68:

(Start: 7 @44721 has 8 MA's), (10, 44733), (16, 44817), (21, 44895), (22, 44907), (23, 44910), (24, 44916), (28, 45009), (31, 45045), (35, 45108), (36, 45120), (37, 45123), (40, 45174), (45, 45282), (46, 45297), (48, 45363), (49, 45375), (54, 45525), (55, 45543), (56, 45558), (61, 45630), (68, 45810), (69, 45825), (71, 45894), (77, 45999), (78, 46008),

Gene: MinionDave\_65 Start: 43105, Stop: 44445, Start Num: 3

Candidate Starts for MinionDave\_65:

(Start: 3 @43105 has 12 MA's), (4, 43117), (10, 43156), (16, 43240), (21, 43318), (23, 43333), (24, 43339), (28, 43432), (31, 43468), (35, 43531), (36, 43543), (37, 43546), (40, 43597), (45, 43705), (46, 43720), (48, 43786), (49, 43798), (54, 43948), (55, 43966), (56, 43981), (61, 44053), (68, 44233), (69, 44248), (71, 44317), (77, 44422), (78, 44431),

Gene: Moonbeam\_65 Start: 42333, Stop: 43622, Start Num: 8

Candidate Starts for Moonbeam\_65:

(Start: 8 @42333 has 9 MA's), (14, 42402), (15, 42411), (16, 42420), (17, 42447), (19, 42459), (20, 42480), (21, 42498), (22, 42510), (23, 42513), (28, 42612), (31, 42648), (35, 42711), (36, 42723), (37, 42726), (40, 42777), (45, 42885), (46, 42900), (48, 42966), (49, 42978), (54, 43128), (55, 43146), (56, 43161), (61, 43233), (68, 43413), (69, 43428), (71, 43497), (77, 43602),

Gene: NormanBulbieJr\_66 Start: 42745, Stop: 44085, Start Num: 3

Candidate Starts for NormanBulbieJr\_66:

(Start: 3 @42745 has 12 MA's), (4, 42757), (10, 42796), (16, 42880), (21, 42958), (23, 42973), (24, 42979), (28, 43072), (31, 43108), (35, 43171), (36, 43183), (37, 43186), (40, 43237), (45, 43345), (46, 43360), (48, 43426), (49, 43438), (54, 43588), (55, 43606), (56, 43621), (61, 43693), (68, 43873), (69, 43888), (71, 43957), (77, 44062), (78, 44071),

Gene: Pippy\_65 Start: 42083, Stop: 43390, Start Num: 7

Candidate Starts for Pippy\_65:

(Start: 7 @42083 has 8 MA's), (10, 42095), (16, 42179), (21, 42257), (22, 42269), (23, 42272), (24, 42278), (28, 42371), (31, 42407), (35, 42470), (36, 42482), (37, 42485), (40, 42536), (45, 42644), (46, 42659), (48, 42725), (49, 42737), (54, 42887), (55, 42905), (56, 42920), (61, 42992), (68, 43172), (69, 43187), (71, 43256), (77, 43361), (78, 43370),

Gene: Priscilla\_66 Start: 42844, Stop: 44184, Start Num: 3

Candidate Starts for Priscilla\_66:

(Start: 3 @42844 has 12 MA's), (4, 42856), (10, 42895), (16, 42979), (21, 43057), (23, 43072), (24, 43078), (28, 43171), (31, 43207), (35, 43270), (36, 43282), (37, 43285), (40, 43336), (45, 43444), (46, 43459), (48, 43525), (49, 43537), (54, 43687), (55, 43705), (56, 43720), (61, 43792), (68, 43972), (69, 43987), (71, 44056), (77, 44161), (78, 44170),

Gene: Ramsey\_65 Start: 42573, Stop: 43913, Start Num: 3

Candidate Starts for Ramsey\_65:

(Start: 3 @42573 has 12 MA's), (4, 42585), (10, 42624), (16, 42708), (21, 42786), (23, 42801), (24, 42807), (28, 42900), (31, 42936), (35, 42999), (36, 43011), (37, 43014), (40, 43065), (45, 43173), (46, 43188), (48, 43254), (49, 43266), (54, 43416), (55, 43434), (56, 43449), (61, 43521), (68, 43701), (69, 43716), (71, 43785), (77, 43890), (78, 43899),

Gene: ShowerHandel\_69 Start: 42755, Stop: 44062, Start Num: 7

Candidate Starts for ShowerHandel\_69:

(Start: 7 @42755 has 8 MA's), (10, 42767), (16, 42851), (21, 42929), (22, 42941), (23, 42944), (24, 42950), (28, 43043), (31, 43079), (35, 43142), (36, 43154), (37, 43157), (40, 43208), (45, 43316), (46, 43331), (48, 43397), (49, 43409), (54, 43559), (55, 43577), (56, 43592), (61, 43664), (64, 43757), (68, 43844), (69, 43859), (71, 43928), (77, 44033), (78, 44042),

Gene: Spikelee\_73 Start: 44421, Stop: 45761, Start Num: 3

Candidate Starts for Spikelee\_73:

(Start: 3 @44421 has 12 MA's), (4, 44433), (10, 44472), (16, 44556), (21, 44634), (23, 44649), (24, 44655), (28, 44748), (31, 44784), (35, 44847), (36, 44859), (37, 44862), (40, 44913), (45, 45021), (46, 45036), (48, 45102), (49, 45114), (54, 45264), (55, 45282), (56, 45297), (61, 45369), (68, 45549), (69, 45564), (71, 45633), (77, 45738), (78, 45747),

Gene: SwagPigglett\_71 Start: 45063, Stop: 46403, Start Num: 3

Candidate Starts for SwagPigglett\_71:

(Start: 3 @45063 has 12 MA's), (4, 45075), (10, 45114), (16, 45198), (21, 45276), (23, 45291), (24, 45297), (28, 45390), (31, 45426), (35, 45489), (36, 45501), (37, 45504), (40, 45555), (45, 45663), (46, 45678), (48, 45744), (49, 45756), (54, 45906), (55, 45924), (56, 45939), (61, 46011), (68, 46191), (69, 46206), (71, 46275), (78, 46389),

Gene: Vopal\_76 Start: 41915, Stop: 43207, Start Num: 9

Candidate Starts for Vopal\_76:

(Start: 9 @41915 has 2 MA's), (11, 41933), (12, 41972), (23, 42092), (32, 42239), (34, 42260), (38, 42302), (41, 42353), (42, 42374), (45, 42458), (46, 42473), (48, 42539), (49, 42551), (50, 42566), (51, 42572), (52, 42647), (58, 42770), (59, 42797), (66, 42962), (75, 43169), (77, 43181),

Gene: Whouxphf\_63 Start: 42670, Stop: 43959, Start Num: 8

Candidate Starts for Whouxphf\_63:

(Start: 8 @42670 has 9 MA's), (14, 42739), (15, 42748), (16, 42757), (17, 42784), (19, 42796), (20, 42817), (21, 42835), (22, 42847), (23, 42850), (28, 42949), (31, 42985), (35, 43048), (36, 43060), (37, 43063), (40, 43114), (45, 43222), (46, 43237), (48, 43303), (49, 43315), (53, 43441), (54, 43465), (55, 43483), (56, 43498), (61, 43570), (68, 43750), (69, 43765), (71, 43834), (77, 43939), (78, 43948),

Gene: Yorick\_65 Start: 42910, Stop: 44199, Start Num: 8

Candidate Starts for Yorick\_65:

(Start: 8 @42910 has 9 MA's), (14, 42979), (15, 42988), (16, 42997), (17, 43024), (19, 43036), (20, 43057), (21, 43075), (22, 43087), (23, 43090), (28, 43189), (31, 43225), (35, 43288), (36, 43300), (37, 43303), (40, 43354), (45, 43462), (46, 43477), (48, 43543), (49, 43555), (53, 43681), (54, 43705), (55, 43723), (56, 43738), (61, 43810), (68, 43990), (69, 44005), (71, 44074), (77, 44179), (78, 44188),

Gene: Zizzle\_70 Start: 44388, Stop: 45695, Start Num: 7

Candidate Starts for Zizzle\_70:

(Start: 7 @44388 has 8 MA's), (10, 44400), (16, 44484), (21, 44562), (22, 44574), (23, 44577), (24, 44583), (28, 44676), (31, 44712), (35, 44775), (36, 44787), (37, 44790), (40, 44841), (45, 44949), (46, 44964), (48, 45030), (49, 45042), (54, 45192), (55, 45210), (56, 45225), (61, 45297), (68, 45477), (69, 45492), (71, 45561), (77, 45666), (78, 45675),

Gene: Zucker\_71 Start: 40903, Stop: 42195, Start Num: 9

Candidate Starts for Zucker\_71:

(Start: 9 @40903 has 2 MA's), (12, 40960), (23, 41080), (26, 41140), (32, 41227), (34, 41248), (36, 41284), (41, 41341), (42, 41362), (45, 41446), (46, 41461), (48, 41527), (49, 41539), (50, 41554), (51, 41560), (52, 41635), (59, 41785), (65, 41920), (66, 41950), (72, 42079), (75, 42157), (77, 42169),