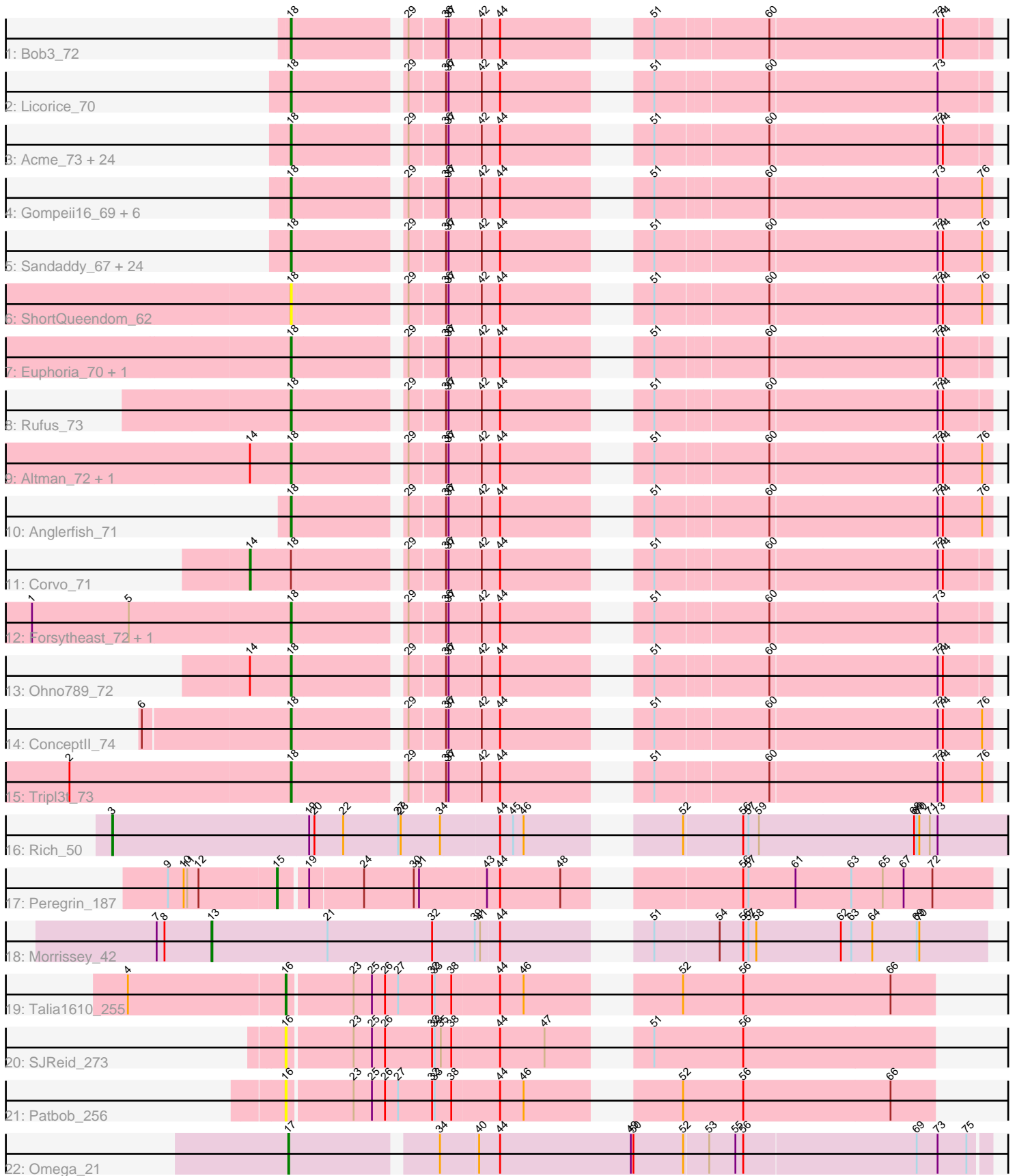


Pham 192517



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 192517 Report

This analysis was run 11/02/24 on database version 579.

Pham number 192517 has 79 members, 6 are drafts.

Phages represented in each track:

- Track 1 : Bob3_72
- Track 2 : Licorice_70
- Track 3 : Acme_73, Parliament_70, Froghopper_68, Jerm2_72, Greg_72, Rubeus_70, Arlo_69, Fajezeel_72, GageAP_72, BigMau_73, Watermelon_72, Lamina13_73, MPlant7149_71, HarryOW_70, Dulcie_70, Atkinbua_75, Zephyr_72, Thor_72, HermioneGrange_73, BPBiabs31_74, Carlyle_70, SarFire_72, Rohr_72, GrecoEtereo_73, KyMonks1A_75
- Track 4 : Gompeii16_69, Chanagan_64, Agaliana_65, PacerPaul_70, BigPaolini_67, Bircsak_69, Francis47_69
- Track 5 : Sandaddy_67, AFIS_67, Rajelicia_71, Buttons_66, Marsha_69, Arcanine_73, Sumter_66, Pippin_70, Scowl_70, Dexes_70, Rhynn_66, Barriga_72, Jorgensen_75, Pari_74, SmeagoI_71, Maroc7_70, Sorpresa_68, Bigfoot_64, Burton_71, StewieG_64, CactusRose_72, Fascinus_66, Pinto_70, Pelly_72, Snazzy_69
- Track 6 : ShortQueendom_62
- Track 7 : Euphoria_70, Bethlehem_72
- Track 8 : Rufus_73
- Track 9 : Altman_72, Kanely_71
- Track 10 : Anglerfish_71
- Track 11 : Corvo_71
- Track 12 : Forsytheast_72, Moose_72
- Track 13 : Ohno789_72
- Track 14 : ConceptII_74
- Track 15 : Tripl3t_73
- Track 16 : Rich_50
- Track 17 : Peregrin_187
- Track 18 : Morrissey_42
- Track 19 : Talia1610_255
- Track 20 : SJReid_273
- Track 21 : Patbob_256
- Track 22 : Omega_21

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

The start number called the most often in the published annotations is 18, it was called in 67 of the 73 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AFIS_67, Acme_73, Agaliana_65, Altman_72, Anglerfish_71, Arcanine_73, Arlo_69, Atkinbua_75, BPBiabs31_74, Barriga_72, Bethlehem_72, BigMau_73, BigPaolini_67, Bigfoot_64, Bircsak_69, Bob3_72, Burton_71, Buttons_66, CactusRose_72, Carlyle_70, Chanagan_64, ConceptII_74, Dexes_70, Dulcie_70, Euphoria_70, Fajezeel_72, Fascinus_66, Forsytheast_72, Francis47_69, FrogHopper_68, GageAP_72, Gompeii16_69, GrecoEtereo_73, Greg_72, HarryOW_70, HermioneGrange_73, Jerm2_72, Jorgensen_75, Kanely_71, KyMonks1A_75, Lamina13_73, Licorice_70, MPlant7149_71, Maroc7_70, Marsha_69, Moose_72, Ohno789_72, PacerPaul_70, Pari_74, Parliament_70, Pelly_72, Pinto_70, Pippin_70, Rajelicia_71, Rhynn_66, Rohr_72, Rubeus_70, Rufus_73, Sandaddy_67, SarFire_72, Scowl_70, ShortQueendom_62, Smeagol_71, Snazzy_69, Sorpresa_68, StewieG_64, Sumter_66, Thor_72, Tripl3t_73, Watermelon_72, Zephyr_72,

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

- Corvo_71,

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

- Morrissey_42, Omega_21, Patbob_256, Peregrin_187, Rich_50, SJReid_273, Talia1610_255,

Summary by start number:

Start 3:

- Found in 1 of 79 (1.3%) of genes in pham
- Manual Annotations of this start: 1 of 73
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Rich_50 (B5),

Start 13:

- Found in 1 of 79 (1.3%) of genes in pham
- Manual Annotations of this start: 1 of 73
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Morrissey_42 (CD),

Start 14:

- Found in 4 of 79 (5.1%) of genes in pham
- Manual Annotations of this start: 1 of 73
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Corvo_71 (A1),

Start 15:

- Found in 1 of 79 (1.3%) of genes in pham
- Manual Annotations of this start: 1 of 73
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Peregrin_187 (CB),

Start 16:

- Found in 3 of 79 (3.8%) of genes in pham
- Manual Annotations of this start: 1 of 73

- Called 100.0% of time when present
- Phage (with cluster) where this start called: Patbob_256 (FC), SJReid_273 (FC), Talia1610_255 (FC),

Start 17:

- Found in 1 of 79 (1.3%) of genes in pham
- Manual Annotations of this start: 1 of 73
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Omega_21 (J),

Start 18:

- Found in 72 of 79 (91.1%) of genes in pham
- Manual Annotations of this start: 67 of 73
- Called 98.6% of time when present
- Phage (with cluster) where this start called: AFIS_67 (A1), Acme_73 (A1), Agaliana_65 (A1), Altman_72 (A1), Anglerfish_71 (A1), Arcanine_73 (A1), Arlo_69 (A1), Atkinbua_75 (A1), BPBiebs31_74 (A1), Barriga_72 (A1), Bethlehem_72 (A1), BigMau_73 (A1), BigPaolini_67 (A1), Bigfoot_64 (A1), Bircsak_69 (A1), Bob3_72 (A1), Burton_71 (A1), Buttons_66 (A1), CactusRose_72 (A1), Carlyle_70 (A1), Chanagan_64 (A1), ConceptII_74 (A1), Dexes_70 (A1), Dulcie_70 (A1), Euphoria_70 (A1), Fajezeel_72 (A1), Fascinus_66 (A1), Forsytheast_72 (A1), Francis47_69 (A1), Froghopper_68 (A1), GageAP_72 (A1), Gompeii16_69 (A1), GrecoEtereo_73 (A1), Greg_72 (A1), HarryOW_70 (A1), HermioneGrange_73 (A1), Jerm2_72 (A1), Jorgensen_75 (A1), Kanely_71 (A1), KyMonks1A_75 (A1), Lamina13_73 (A1), Licorice_70 (A1), MPlant7149_71 (A1), Maroc7_70 (A1), Marsha_69 (A1), Moose_72 (A1), Ohno789_72 (A1), PacerPaul_70 (A1), Pari_74 (A1), Parliament_70 (A1), Pelly_72 (A1), Pinto_70 (A1), Pippin_70 (A1), Rajelicia_71 (A1), Rhynn_66 (A1), Rohr_72 (A1), Rubeus_70 (A1), Rufus_73 (A1), Sandaddy_67 (A1), SarFire_72 (A1), Scowl_70 (A1), ShortQueendom_62 (A1), Smeagol_71 (A1), Snazzy_69 (A1), Sorpresa_68 (A1), StewieG_64 (A1), Sumter_66 (A1), Thor_72 (A1), Tripl3t_73 (A1), Watermelon_72 (A1), Zephyr_72 (A1),

Summary by clusters:

There are 6 clusters represented in this pham: CB, J, CD, A1, B5, FC,

Info for manual annotations of cluster A1:

- Start number 14 was manually annotated 1 time for cluster A1.
- Start number 18 was manually annotated 67 times for cluster A1.

Info for manual annotations of cluster B5:

- Start number 3 was manually annotated 1 time for cluster B5.

Info for manual annotations of cluster CB:

- Start number 15 was manually annotated 1 time for cluster CB.

Info for manual annotations of cluster CD:

- Start number 13 was manually annotated 1 time for cluster CD.

Info for manual annotations of cluster FC:

- Start number 16 was manually annotated 1 time for cluster FC.

Info for manual annotations of cluster J:

- Start number 17 was manually annotated 1 time for cluster J.

Gene Information:

Gene: AFIS_67 Start: 44623, Stop: 43913, Start Num: 18

Candidate Starts for AFIS_67:

(Start: 18 @44623 has 67 MA's), (29, 44509), (36, 44473), (37, 44470), (42, 44434), (44, 44413), (51, 44287), (60, 44164), (73, 43975), (74, 43969), (76, 43924),

Gene: Acme_73 Start: 45963, Stop: 45256, Start Num: 18

Candidate Starts for Acme_73:

(Start: 18 @45963 has 67 MA's), (29, 45849), (36, 45813), (37, 45810), (42, 45774), (44, 45753), (51, 45627), (60, 45504), (73, 45315), (74, 45309),

Gene: Agaliana_65 Start: 42001, Stop: 41291, Start Num: 18

Candidate Starts for Agaliana_65:

(Start: 18 @42001 has 67 MA's), (29, 41887), (36, 41851), (37, 41848), (42, 41812), (44, 41791), (51, 41665), (60, 41542), (73, 41353), (76, 41302),

Gene: Altman_72 Start: 44843, Stop: 44133, Start Num: 18

Candidate Starts for Altman_72:

(Start: 14 @44888 has 1 MA's), (Start: 18 @44843 has 67 MA's), (29, 44729), (36, 44693), (37, 44690), (42, 44654), (44, 44633), (51, 44507), (60, 44384), (73, 44195), (74, 44189), (76, 44144),

Gene: Anglerfish_71 Start: 45173, Stop: 44463, Start Num: 18

Candidate Starts for Anglerfish_71:

(Start: 18 @45173 has 67 MA's), (29, 45059), (36, 45023), (37, 45020), (42, 44984), (44, 44963), (51, 44837), (60, 44714), (73, 44525), (74, 44519), (76, 44474),

Gene: Arcanine_73 Start: 45897, Stop: 45187, Start Num: 18

Candidate Starts for Arcanine_73:

(Start: 18 @45897 has 67 MA's), (29, 45783), (36, 45747), (37, 45744), (42, 45708), (44, 45687), (51, 45561), (60, 45438), (73, 45249), (74, 45243), (76, 45198),

Gene: Arlo_69 Start: 44678, Stop: 43971, Start Num: 18

Candidate Starts for Arlo_69:

(Start: 18 @44678 has 67 MA's), (29, 44564), (36, 44528), (37, 44525), (42, 44489), (44, 44468), (51, 44342), (60, 44219), (73, 44030), (74, 44024),

Gene: Atkinbua_75 Start: 45196, Stop: 44489, Start Num: 18

Candidate Starts for Atkinbua_75:

(Start: 18 @45196 has 67 MA's), (29, 45082), (36, 45046), (37, 45043), (42, 45007), (44, 44986), (51, 44860), (60, 44737), (73, 44548), (74, 44542),

Gene: BPBiebs31_74 Start: 45784, Stop: 45077, Start Num: 18

Candidate Starts for BPBiebs31_74:

(Start: 18 @45784 has 67 MA's), (29, 45670), (36, 45634), (37, 45631), (42, 45595), (44, 45574), (51, 45448), (60, 45325), (73, 45136), (74, 45130),

Gene: Barriga_72 Start: 43491, Stop: 42781, Start Num: 18

Candidate Starts for Barriga_72:

(Start: 18 @43491 has 67 MA's), (29, 43377), (36, 43341), (37, 43338), (42, 43302), (44, 43281), (51, 43155), (60, 43032), (73, 42843), (74, 42837), (76, 42792),

Gene: Bethlehem_72 Start: 46702, Stop: 45995, Start Num: 18

Candidate Starts for Bethlehem_72:

(Start: 18 @46702 has 67 MA's), (29, 46588), (36, 46552), (37, 46549), (42, 46513), (44, 46492), (51, 46366), (60, 46243), (73, 46054), (74, 46048),

Gene: BigMau_73 Start: 45592, Stop: 44885, Start Num: 18

Candidate Starts for BigMau_73:

(Start: 18 @45592 has 67 MA's), (29, 45478), (36, 45442), (37, 45439), (42, 45403), (44, 45382), (51, 45256), (60, 45133), (73, 44944), (74, 44938),

Gene: BigPaolini_67 Start: 42940, Stop: 42230, Start Num: 18

Candidate Starts for BigPaolini_67:

(Start: 18 @42940 has 67 MA's), (29, 42826), (36, 42790), (37, 42787), (42, 42751), (44, 42730), (51, 42604), (60, 42481), (73, 42292), (76, 42241),

Gene: Bigfoot_64 Start: 44023, Stop: 43313, Start Num: 18

Candidate Starts for Bigfoot_64:

(Start: 18 @44023 has 67 MA's), (29, 43909), (36, 43873), (37, 43870), (42, 43834), (44, 43813), (51, 43687), (60, 43564), (73, 43375), (74, 43369), (76, 43324),

Gene: Bircsak_69 Start: 46296, Stop: 45586, Start Num: 18

Candidate Starts for Bircsak_69:

(Start: 18 @46296 has 67 MA's), (29, 46182), (36, 46146), (37, 46143), (42, 46107), (44, 46086), (51, 45960), (60, 45837), (73, 45648), (76, 45597),

Gene: Bob3_72 Start: 44862, Stop: 44155, Start Num: 18

Candidate Starts for Bob3_72:

(Start: 18 @44862 has 67 MA's), (29, 44748), (36, 44712), (37, 44709), (42, 44673), (44, 44652), (51, 44526), (60, 44403), (73, 44214), (74, 44208),

Gene: Burton_71 Start: 46277, Stop: 45567, Start Num: 18

Candidate Starts for Burton_71:

(Start: 18 @46277 has 67 MA's), (29, 46163), (36, 46127), (37, 46124), (42, 46088), (44, 46067), (51, 45941), (60, 45818), (73, 45629), (74, 45623), (76, 45578),

Gene: Buttons_66 Start: 41990, Stop: 41280, Start Num: 18

Candidate Starts for Buttons_66:

(Start: 18 @41990 has 67 MA's), (29, 41876), (36, 41840), (37, 41837), (42, 41801), (44, 41780), (51, 41654), (60, 41531), (73, 41342), (74, 41336), (76, 41291),

Gene: CactusRose_72 Start: 45043, Stop: 44333, Start Num: 18

Candidate Starts for CactusRose_72:

(Start: 18 @45043 has 67 MA's), (29, 44929), (36, 44893), (37, 44890), (42, 44854), (44, 44833), (51, 44707), (60, 44584), (73, 44395), (74, 44389), (76, 44344),

Gene: Carlyle_70 Start: 43385, Stop: 42678, Start Num: 18

Candidate Starts for Carlyle_70:

(Start: 18 @43385 has 67 MA's), (29, 43271), (36, 43235), (37, 43232), (42, 43196), (44, 43175), (51, 43049), (60, 42926), (73, 42737), (74, 42731),

Gene: Chanagan_64 Start: 42260, Stop: 41550, Start Num: 18

Candidate Starts for Chanagan_64:

(Start: 18 @42260 has 67 MA's), (29, 42146), (36, 42110), (37, 42107), (42, 42071), (44, 42050), (51, 41924), (60, 41801), (73, 41612), (76, 41561),

Gene: Conceptll_74 Start: 46071, Stop: 45361, Start Num: 18

Candidate Starts for Conceptll_74:

(6, 46236), (Start: 18 @46071 has 67 MA's), (29, 45957), (36, 45921), (37, 45918), (42, 45882), (44, 45861), (51, 45735), (60, 45612), (73, 45423), (74, 45417), (76, 45372),

Gene: Corvo_71 Start: 45749, Stop: 44997, Start Num: 14

Candidate Starts for Corvo_71:

(Start: 14 @45749 has 1 MA's), (Start: 18 @45704 has 67 MA's), (29, 45590), (36, 45554), (37, 45551), (42, 45515), (44, 45494), (51, 45368), (60, 45245), (73, 45056), (74, 45050),

Gene: Dexes_70 Start: 46320, Stop: 45610, Start Num: 18

Candidate Starts for Dexes_70:

(Start: 18 @46320 has 67 MA's), (29, 46206), (36, 46170), (37, 46167), (42, 46131), (44, 46110), (51, 45984), (60, 45861), (73, 45672), (74, 45666), (76, 45621),

Gene: Dulcie_70 Start: 46210, Stop: 45503, Start Num: 18

Candidate Starts for Dulcie_70:

(Start: 18 @46210 has 67 MA's), (29, 46096), (36, 46060), (37, 46057), (42, 46021), (44, 46000), (51, 45874), (60, 45751), (73, 45562), (74, 45556),

Gene: Euphoria_70 Start: 44720, Stop: 44013, Start Num: 18

Candidate Starts for Euphoria_70:

(Start: 18 @44720 has 67 MA's), (29, 44606), (36, 44570), (37, 44567), (42, 44531), (44, 44510), (51, 44384), (60, 44261), (73, 44072), (74, 44066),

Gene: Fajezeel_72 Start: 45253, Stop: 44546, Start Num: 18

Candidate Starts for Fajezeel_72:

(Start: 18 @45253 has 67 MA's), (29, 45139), (36, 45103), (37, 45100), (42, 45064), (44, 45043), (51, 44917), (60, 44794), (73, 44605), (74, 44599),

Gene: Fascinus_66 Start: 44537, Stop: 43827, Start Num: 18

Candidate Starts for Fascinus_66:

(Start: 18 @44537 has 67 MA's), (29, 44423), (36, 44387), (37, 44384), (42, 44348), (44, 44327), (51, 44201), (60, 44078), (73, 43889), (74, 43883), (76, 43838),

Gene: Forsytheast_72 Start: 44800, Stop: 44093, Start Num: 18

Candidate Starts for Forsytheast_72:

(1, 45094), (5, 44983), (Start: 18 @44800 has 67 MA's), (29, 44686), (36, 44650), (37, 44647), (42, 44611), (44, 44590), (51, 44464), (60, 44341), (73, 44152),

Gene: Francis47_69 Start: 45845, Stop: 45135, Start Num: 18

Candidate Starts for Francis47_69:

(Start: 18 @45845 has 67 MA's), (29, 45731), (36, 45695), (37, 45692), (42, 45656), (44, 45635), (51, 45509), (60, 45386), (73, 45197), (76, 45146),

Gene: Froghopper_68 Start: 43859, Stop: 43152, Start Num: 18

Candidate Starts for Froghopper_68:

(Start: 18 @43859 has 67 MA's), (29, 43745), (36, 43709), (37, 43706), (42, 43670), (44, 43649), (51, 43523), (60, 43400), (73, 43211), (74, 43205),

Gene: GageAP_72 Start: 46033, Stop: 45326, Start Num: 18

Candidate Starts for GageAP_72:

(Start: 18 @46033 has 67 MA's), (29, 45919), (36, 45883), (37, 45880), (42, 45844), (44, 45823), (51, 45697), (60, 45574), (73, 45385), (74, 45379),

Gene: Gompeii16_69 Start: 46297, Stop: 45587, Start Num: 18

Candidate Starts for Gompeii16_69:

(Start: 18 @46297 has 67 MA's), (29, 46183), (36, 46147), (37, 46144), (42, 46108), (44, 46087), (51, 45961), (60, 45838), (73, 45649), (76, 45598),

Gene: GrecoEtereo_73 Start: 45729, Stop: 45022, Start Num: 18

Candidate Starts for GrecoEtereo_73:

(Start: 18 @45729 has 67 MA's), (29, 45615), (36, 45579), (37, 45576), (42, 45540), (44, 45519), (51, 45393), (60, 45270), (73, 45081), (74, 45075),

Gene: Greg_72 Start: 45253, Stop: 44546, Start Num: 18

Candidate Starts for Greg_72:

(Start: 18 @45253 has 67 MA's), (29, 45139), (36, 45103), (37, 45100), (42, 45064), (44, 45043), (51, 44917), (60, 44794), (73, 44605), (74, 44599),

Gene: HarryOW_70 Start: 45658, Stop: 44951, Start Num: 18

Candidate Starts for HarryOW_70:

(Start: 18 @45658 has 67 MA's), (29, 45544), (36, 45508), (37, 45505), (42, 45469), (44, 45448), (51, 45322), (60, 45199), (73, 45010), (74, 45004),

Gene: HermioneGrange_73 Start: 46086, Stop: 45379, Start Num: 18

Candidate Starts for HermioneGrange_73:

(Start: 18 @46086 has 67 MA's), (29, 45972), (36, 45936), (37, 45933), (42, 45897), (44, 45876), (51, 45750), (60, 45627), (73, 45438), (74, 45432),

Gene: Jerm2_72 Start: 46156, Stop: 45449, Start Num: 18

Candidate Starts for Jerm2_72:

(Start: 18 @46156 has 67 MA's), (29, 46042), (36, 46006), (37, 46003), (42, 45967), (44, 45946), (51, 45820), (60, 45697), (73, 45508), (74, 45502),

Gene: Jorgensen_75 Start: 45374, Stop: 44664, Start Num: 18

Candidate Starts for Jorgensen_75:

(Start: 18 @45374 has 67 MA's), (29, 45260), (36, 45224), (37, 45221), (42, 45185), (44, 45164), (51, 45038), (60, 44915), (73, 44726), (74, 44720), (76, 44675),

Gene: Kanely_71 Start: 44620, Stop: 43910, Start Num: 18

Candidate Starts for Kanely_71:

(Start: 14 @44665 has 1 MA's), (Start: 18 @44620 has 67 MA's), (29, 44506), (36, 44470), (37, 44467), (42, 44431), (44, 44410), (51, 44284), (60, 44161), (73, 43972), (74, 43966), (76, 43921),

Gene: KyMonks1A_75 Start: 45252, Stop: 44545, Start Num: 18

Candidate Starts for KyMonks1A_75:

(Start: 18 @45252 has 67 MA's), (29, 45138), (36, 45102), (37, 45099), (42, 45063), (44, 45042), (51, 44916), (60, 44793), (73, 44604), (74, 44598),

Gene: Lamina13_73 Start: 46395, Stop: 45688, Start Num: 18

Candidate Starts for Lamina13_73:

(Start: 18 @46395 has 67 MA's), (29, 46281), (36, 46245), (37, 46242), (42, 46206), (44, 46185), (51, 46059), (60, 45936), (73, 45747), (74, 45741),

Gene: Licorice_70 Start: 45944, Stop: 45237, Start Num: 18

Candidate Starts for Licorice_70:

(Start: 18 @45944 has 67 MA's), (29, 45830), (36, 45794), (37, 45791), (42, 45755), (44, 45734), (51, 45608), (60, 45485), (73, 45296),

Gene: MPlant7149_71 Start: 43974, Stop: 43267, Start Num: 18

Candidate Starts for MPlant7149_71:

(Start: 18 @43974 has 67 MA's), (29, 43860), (36, 43824), (37, 43821), (42, 43785), (44, 43764), (51, 43638), (60, 43515), (73, 43326), (74, 43320),

Gene: Maroc7_70 Start: 45527, Stop: 44817, Start Num: 18

Candidate Starts for Maroc7_70:

(Start: 18 @45527 has 67 MA's), (29, 45413), (36, 45377), (37, 45374), (42, 45338), (44, 45317), (51, 45191), (60, 45068), (73, 44879), (74, 44873), (76, 44828),

Gene: Marsha_69 Start: 45612, Stop: 44902, Start Num: 18

Candidate Starts for Marsha_69:

(Start: 18 @45612 has 67 MA's), (29, 45498), (36, 45462), (37, 45459), (42, 45423), (44, 45402), (51, 45276), (60, 45153), (73, 44964), (74, 44958), (76, 44913),

Gene: Moose_72 Start: 44800, Stop: 44093, Start Num: 18

Candidate Starts for Moose_72:

(1, 45094), (5, 44983), (Start: 18 @44800 has 67 MA's), (29, 44686), (36, 44650), (37, 44647), (42, 44611), (44, 44590), (51, 44464), (60, 44341), (73, 44152),

Gene: Morrissey_42 Start: 33249, Stop: 32419, Start Num: 13

Candidate Starts for Morrissey_42:

(7, 33312), (8, 33303), (Start: 13 @33249 has 1 MA's), (21, 33117), (32, 32997), (39, 32949), (41, 32943), (44, 32922), (51, 32796), (54, 32724), (56, 32697), (57, 32691), (58, 32682), (62, 32586), (63, 32574), (64, 32550), (69, 32499), (70, 32496),

Gene: Ohno789_72 Start: 45661, Stop: 44954, Start Num: 18

Candidate Starts for Ohno789_72:

(Start: 14 @45706 has 1 MA's), (Start: 18 @45661 has 67 MA's), (29, 45547), (36, 45511), (37, 45508), (42, 45472), (44, 45451), (51, 45325), (60, 45202), (73, 45013), (74, 45007),

Gene: Omega_21 Start: 15554, Stop: 14781, Start Num: 17

Candidate Starts for Omega_21:

(Start: 17 @15554 has 1 MA's), (34, 15398), (40, 15356), (44, 15332), (49, 15182), (50, 15179), (52, 15122), (53, 15095), (55, 15065), (56, 15056), (69, 14861), (73, 14837), (75, 14804),

Gene: PacerPaul_70 Start: 45212, Stop: 44502, Start Num: 18

Candidate Starts for PacerPaul_70:

(Start: 18 @45212 has 67 MA's), (29, 45098), (36, 45062), (37, 45059), (42, 45023), (44, 45002), (51, 44876), (60, 44753), (73, 44564), (76, 44513),

Gene: Pari_74 Start: 44407, Stop: 43697, Start Num: 18

Candidate Starts for Pari_74:

(Start: 18 @44407 has 67 MA's), (29, 44293), (36, 44257), (37, 44254), (42, 44218), (44, 44197), (51, 44071), (60, 43948), (73, 43759), (74, 43753), (76, 43708),

Gene: Parliament_70 Start: 46702, Stop: 45995, Start Num: 18

Candidate Starts for Parliament_70:

(Start: 18 @46702 has 67 MA's), (29, 46588), (36, 46552), (37, 46549), (42, 46513), (44, 46492), (51, 46366), (60, 46243), (73, 46054), (74, 46048),

Gene: Patbob_256 Start: 162530, Stop: 163213, Start Num: 16

Candidate Starts for Patbob_256:

(Start: 16 @162530 has 1 MA's), (23, 162602), (25, 162623), (26, 162638), (27, 162653), (32, 162692), (33, 162695), (38, 162713), (44, 162767), (46, 162794), (52, 162926), (56, 162995), (66, 163163),

Gene: Pelly_72 Start: 46865, Stop: 46155, Start Num: 18

Candidate Starts for Pelly_72:

(Start: 18 @46865 has 67 MA's), (29, 46751), (36, 46715), (37, 46712), (42, 46676), (44, 46655), (51, 46529), (60, 46406), (73, 46217), (74, 46211), (76, 46166),

Gene: Peregrin_187 Start: 99174, Stop: 99926, Start Num: 15

Candidate Starts for Peregrin_187:

(9, 99054), (10, 99072), (11, 99075), (12, 99087), (Start: 15 @99174 has 1 MA's), (19, 99204), (24, 99264), (30, 99321), (31, 99327), (43, 99402), (44, 99417), (48, 99486), (56, 99642), (57, 99648), (61, 99702), (63, 99765), (65, 99801), (67, 99825), (72, 99858),

Gene: Pinto_70 Start: 44629, Stop: 43919, Start Num: 18

Candidate Starts for Pinto_70:

(Start: 18 @44629 has 67 MA's), (29, 44515), (36, 44479), (37, 44476), (42, 44440), (44, 44419), (51, 44293), (60, 44170), (73, 43981), (74, 43975), (76, 43930),

Gene: Pippin_70 Start: 44002, Stop: 43292, Start Num: 18

Candidate Starts for Pippin_70:

(Start: 18 @44002 has 67 MA's), (29, 43888), (36, 43852), (37, 43849), (42, 43813), (44, 43792), (51, 43666), (60, 43543), (73, 43354), (74, 43348), (76, 43303),

Gene: Rajelicia_71 Start: 46405, Stop: 45695, Start Num: 18

Candidate Starts for Rajelicia_71:

(Start: 18 @46405 has 67 MA's), (29, 46291), (36, 46255), (37, 46252), (42, 46216), (44, 46195), (51, 46069), (60, 45946), (73, 45757), (74, 45751), (76, 45706),

Gene: Rhynn_66 Start: 43990, Stop: 43280, Start Num: 18

Candidate Starts for Rhynn_66:

(Start: 18 @43990 has 67 MA's), (29, 43876), (36, 43840), (37, 43837), (42, 43801), (44, 43780), (51, 43654), (60, 43531), (73, 43342), (74, 43336), (76, 43291),

Gene: Rich_50 Start: 47033, Stop: 46050, Start Num: 3

Candidate Starts for Rich_50:

(Start: 3 @47033 has 1 MA's), (19, 46808), (20, 46802), (22, 46769), (27, 46706), (28, 46703), (34, 46658), (44, 46592), (45, 46577), (46, 46565), (52, 46433), (56, 46367), (57, 46361), (59, 46349), (68, 46172), (69, 46169), (70, 46166), (71, 46154), (73, 46145),

Gene: Rohr_72 Start: 46232, Stop: 45525, Start Num: 18

Candidate Starts for Rohr_72:

(Start: 18 @46232 has 67 MA's), (29, 46118), (36, 46082), (37, 46079), (42, 46043), (44, 46022), (51, 45896), (60, 45773), (73, 45584), (74, 45578),

Gene: Rubeus_70 Start: 42734, Stop: 42027, Start Num: 18

Candidate Starts for Rubeus_70:

(Start: 18 @42734 has 67 MA's), (29, 42620), (36, 42584), (37, 42581), (42, 42545), (44, 42524), (51, 42398), (60, 42275), (73, 42086), (74, 42080),

Gene: Rufus_73 Start: 45418, Stop: 44711, Start Num: 18

Candidate Starts for Rufus_73:

(Start: 18 @45418 has 67 MA's), (29, 45304), (36, 45268), (37, 45265), (42, 45229), (44, 45208), (51, 45082), (60, 44959), (73, 44770), (74, 44764),

Gene: SJReid_273 Start: 158434, Stop: 159117, Start Num: 16

Candidate Starts for SJReid_273:

(Start: 16 @158434 has 1 MA's), (23, 158506), (25, 158527), (26, 158542), (32, 158596), (33, 158599), (35, 158605), (38, 158617), (44, 158671), (47, 158722), (51, 158797), (56, 158899),

Gene: Sandaddy_67 Start: 44367, Stop: 43657, Start Num: 18

Candidate Starts for Sandaddy_67:

(Start: 18 @44367 has 67 MA's), (29, 44253), (36, 44217), (37, 44214), (42, 44178), (44, 44157), (51, 44031), (60, 43908), (73, 43719), (74, 43713), (76, 43668),

Gene: SarFire_72 Start: 45694, Stop: 44987, Start Num: 18

Candidate Starts for SarFire_72:

(Start: 18 @45694 has 67 MA's), (29, 45580), (36, 45544), (37, 45541), (42, 45505), (44, 45484), (51, 45358), (60, 45235), (73, 45046), (74, 45040),

Gene: Scowl_70 Start: 44222, Stop: 43512, Start Num: 18

Candidate Starts for Scowl_70:

(Start: 18 @44222 has 67 MA's), (29, 44108), (36, 44072), (37, 44069), (42, 44033), (44, 44012), (51, 43886), (60, 43763), (73, 43574), (74, 43568), (76, 43523),

Gene: ShortQueendom_62 Start: 42111, Stop: 41401, Start Num: 18

Candidate Starts for ShortQueendom_62:

(Start: 18 @42111 has 67 MA's), (29, 41997), (36, 41961), (37, 41958), (42, 41922), (44, 41901), (51, 41775), (60, 41652), (73, 41463), (74, 41457), (76, 41412),

Gene: Smeagol_71 Start: 46076, Stop: 45366, Start Num: 18

Candidate Starts for Smeagol_71:

(Start: 18 @46076 has 67 MA's), (29, 45962), (36, 45926), (37, 45923), (42, 45887), (44, 45866), (51, 45740), (60, 45617), (73, 45428), (74, 45422), (76, 45377),

Gene: Snazzy_69 Start: 44638, Stop: 43928, Start Num: 18

Candidate Starts for Snazzy_69:

(Start: 18 @44638 has 67 MA's), (29, 44524), (36, 44488), (37, 44485), (42, 44449), (44, 44428), (51, 44302), (60, 44179), (73, 43990), (74, 43984), (76, 43939),

Gene: Sorpresa_68 Start: 44369, Stop: 43659, Start Num: 18

Candidate Starts for Sorpresa_68:

(Start: 18 @44369 has 67 MA's), (29, 44255), (36, 44219), (37, 44216), (42, 44180), (44, 44159), (51, 44033), (60, 43910), (73, 43721), (74, 43715), (76, 43670),

Gene: StewieG_64 Start: 41127, Stop: 40417, Start Num: 18

Candidate Starts for StewieG_64:

(Start: 18 @41127 has 67 MA's), (29, 41013), (36, 40977), (37, 40974), (42, 40938), (44, 40917), (51, 40791), (60, 40668), (73, 40479), (74, 40473), (76, 40428),

Gene: Sumter_66 Start: 44733, Stop: 44023, Start Num: 18

Candidate Starts for Sumter_66:

(Start: 18 @44733 has 67 MA's), (29, 44619), (36, 44583), (37, 44580), (42, 44544), (44, 44523), (51, 44397), (60, 44274), (73, 44085), (74, 44079), (76, 44034),

Gene: Talia1610_255 Start: 162657, Stop: 163340, Start Num: 16

Candidate Starts for Talia1610_255:

(4, 162480), (Start: 16 @162657 has 1 MA's), (23, 162729), (25, 162750), (26, 162765), (27, 162780), (32, 162819), (33, 162822), (38, 162840), (44, 162894), (46, 162921), (52, 163053), (56, 163122), (66, 163290),

Gene: Thor_72 Start: 45052, Stop: 44345, Start Num: 18

Candidate Starts for Thor_72:

(Start: 18 @45052 has 67 MA's), (29, 44938), (36, 44902), (37, 44899), (42, 44863), (44, 44842), (51, 44716), (60, 44593), (73, 44404), (74, 44398),

Gene: Tripl3t_73 Start: 47002, Stop: 46292, Start Num: 18

Candidate Starts for Tripl3t_73:

(2, 47254), (Start: 18 @47002 has 67 MA's), (29, 46888), (36, 46852), (37, 46849), (42, 46813), (44, 46792), (51, 46666), (60, 46543), (73, 46354), (74, 46348), (76, 46303),

Gene: Watermelon_72 Start: 45356, Stop: 44649, Start Num: 18

Candidate Starts for Watermelon_72:

(Start: 18 @45356 has 67 MA's), (29, 45242), (36, 45206), (37, 45203), (42, 45167), (44, 45146), (51, 45020), (60, 44897), (73, 44708), (74, 44702),

Gene: Zephyr_72 Start: 44616, Stop: 43909, Start Num: 18

Candidate Starts for Zephyr_72:

(Start: 18 @44616 has 67 MA's), (29, 44502), (36, 44466), (37, 44463), (42, 44427), (44, 44406), (51, 44280), (60, 44157), (73, 43968), (74, 43962),