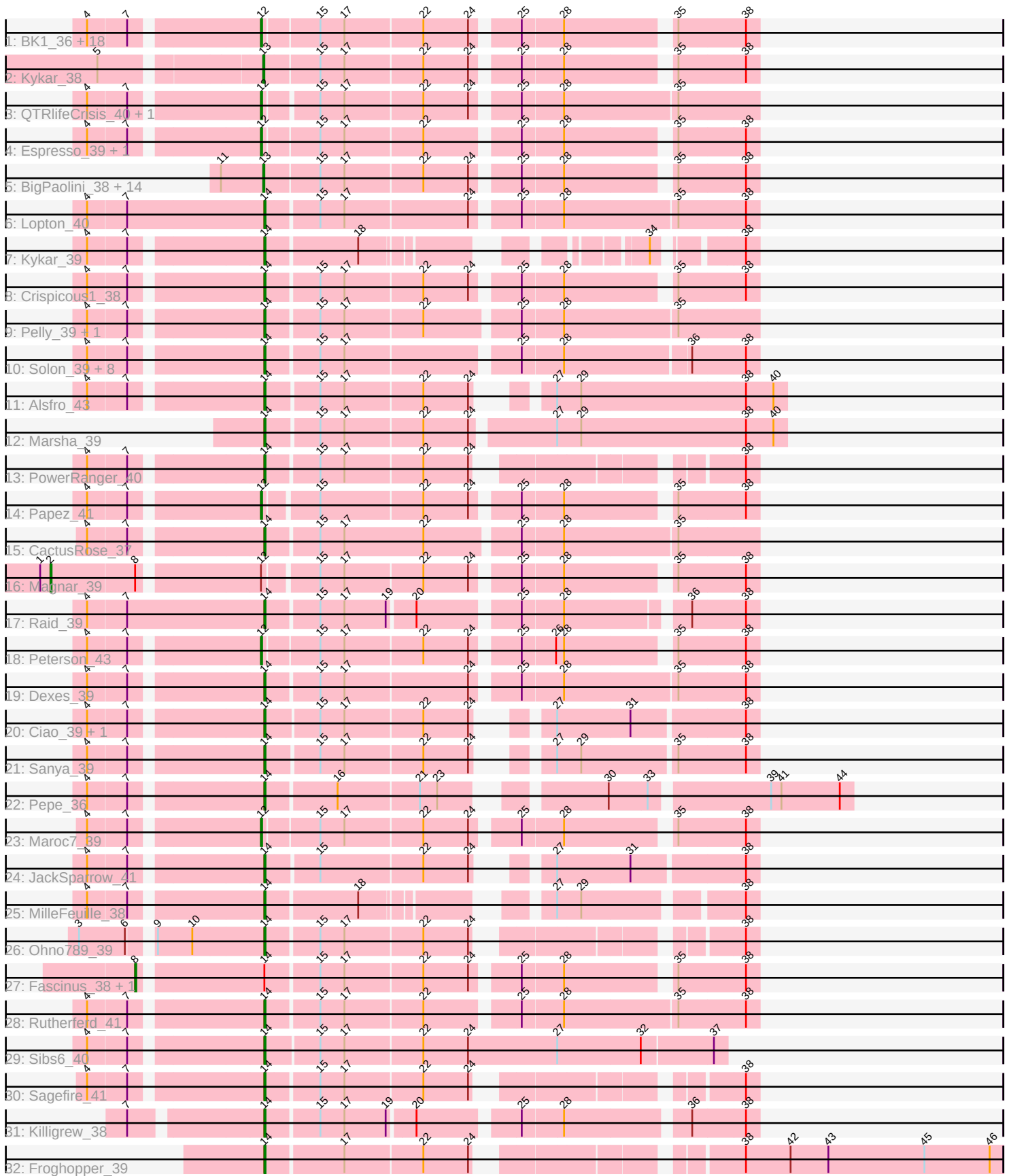


Pham 325134



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 325134 Report

This analysis was run 09/05/26 on database version 662.

Pham number 325134 has 77 members, 2 are drafts.

Phages represented in each track:

- Track 1 : BK1_36, Blue_39, Kugel_41, Naira_40, Scowl_39, Ashballer_41, JC27_40, Barriga_39, Fajezeel_41, Seanderson_41, Nhonho_39, Acme_42, Ruotula_41, Greg_41, A6_36, Wheeler_40, Fenn_40, RidgeCB_39, Trouble_40
- Track 2 : Kykar_38
- Track 3 : QTRlifeCrisis_40, CartmannCramer_39
- Track 4 : Espresso_39, Dulcie_38
- Track 5 : BigPaolini_38, Graduation_41, Wilkins_38, Doom_39, ILeeKay_41, KBG_40, Bones_39, Licorice_41, LunarLander_40, Cueylyss_39, Phlippers_37, Eyeball_39, Smairt_40, Topgun_38, Puppet_39
- Track 6 : Lopton_40
- Track 7 : Kykar_39
- Track 8 : Crispicous1_38
- Track 9 : Pelly_39, Ringer_40
- Track 10 : Solon_39, Lamina13_39, Rubeus_39, KyMonks1A_42, Tasp14_40, DrFeelGood_38, Parliament_38, Sumter_38, Jorgensen_39
- Track 11 : Alsfro_43
- Track 12 : Marsha_39
- Track 13 : PowerRanger_40
- Track 14 : Papez_41
- Track 15 : CactusRose_37
- Track 16 : Magnar_39
- Track 17 : Raid_39
- Track 18 : Peterson_43
- Track 19 : Dexes_39
- Track 20 : Ciao_39, Pippin_41
- Track 21 : Sanya_39
- Track 22 : Pepe_36
- Track 23 : Maroc7_39
- Track 24 : JackSparrow_41
- Track 25 : MilleFeuille_38
- Track 26 : Ohno789_39
- Track 27 : Fascinus_38, Bigfoot_37
- Track 28 : Rutherford_41
- Track 29 : Sibs6_40
- Track 30 : Sagefire_41
- Track 31 : Killigrew_38
- Track 32 : Froghopper_39

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

The start number called the most often in the published annotations is 14, it was called in 32 of the 75 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Alsfro_43, CactusRose_37, Ciao_39, Crispicous1_38, Dexes_39, DrFeelGood_38, Froghopper_39, JackSparrow_41, Jorgensen_39, Killigrew_38, KyMonks1A_42, Kykar_39, Lamina13_39, Lopton_40, Marsha_39, MilleFeuille_38, Ohno789_39, Parliament_38, Pelly_39, Pepe_36, Pippin_41, PowerRanger_40, Raid_39, Ringer_40, Rubeus_39, Rutherford_41, Sagefire_41, Sanya_39, Sibs6_40, Solon_39, Sumter_38, Tasp14_40,

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

- Bigfoot_37, Fascinus_38,

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

- A6_36, Acme_42, Ashballer_41, BK1_36, Barriga_39, BigPaolini_38, Blue_39, Bones_39, CartmannCramer_39, Cueylyss_39, Doom_39, Dulcie_38, Espresso_39, Eyeball_39, Fajezeel_41, Fenn_40, Graduation_41, Greg_41, ILeeKay_41, JC27_40, KBG_40, Kugel_41, Kykar_38, Licorice_41, LunarLander_40, Magnar_39, Maroc7_39, Naira_40, Nhonho_39, Papez_41, Peterson_43, Phlippers_37, Puppet_39, QTRlifeCrisis_40, RidgeCB_39, Ruotula_41, Scowl_39, Seanderson_41, Smairt_40, Topgun_38, Trouble_40, Wheeler_40, Wilkins_38,

Summary by start number:

Start 2:

- Found in 1 of 77 (1.3%) of genes in pham
- Manual Annotations of this start: 1 of 75
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Magnar_39 (A1),

Start 8:

- Found in 3 of 77 (3.9%) of genes in pham
- Manual Annotations of this start: 2 of 75
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Bigfoot_37 (A1), Fascinus_38 (A1),

Start 12:

- Found in 27 of 77 (35.1%) of genes in pham
- Manual Annotations of this start: 25 of 75
- Called 96.3% of time when present
- Phage (with cluster) where this start called: A6_36 (A1), Acme_42 (A1), Ashballer_41 (A1), BK1_36 (A1), Barriga_39 (A1), Blue_39 (A1), CartmannCramer_39 (A1), Dulcie_38 (A1), Espresso_39 (A1), Fajezeel_41 (A1), Fenn_40 (A1), Greg_41 (A1), JC27_40 (A1), Kugel_41 (A1), Maroc7_39 (A1), Naira_40 (A1), Nhonho_39 (A1), Papez_41 (A1), Peterson_43 (A1), QTRlifeCrisis_40 (A1), RidgeCB_39 (A1), Ruotula_41 (A1), Scowl_39 (A1), Seanderson_41 (A1),

Trouble_40 (A1), Wheeler_40 (A1),

Start 13:

- Found in 16 of 77 (20.8%) of genes in pham
- Manual Annotations of this start: 15 of 75
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BigPaolini_38 (A1), Bones_39 (A1), Cueylyss_39 (A1), Doom_39 (A1), Eyeball_39 (A1), Graduation_41 (A1), ILeeKay_41 (A1), KBG_40 (A1), Kykar_38 (A1), Licorice_41 (A1), LunarLander_40 (A1), Phlippers_37 (A1), Puppet_39 (A1), Smairt_40 (A1), Topgun_38 (A1), Wilkins_38 (A1),

Start 14:

- Found in 34 of 77 (44.2%) of genes in pham
- Manual Annotations of this start: 32 of 75
- Called 94.1% of time when present
- Phage (with cluster) where this start called: Alsfro_43 (A1), CactusRose_37 (A1), Ciao_39 (A1), Crispicous1_38 (A1), Dexes_39 (A1), DrFeelGood_38 (A1), FrogHopper_39 (A1), JackSparrow_41 (A1), Jorgensen_39 (A1), Killigrew_38 (A1), KyMonks1A_42 (A1), Kykar_39 (A1), Lamina13_39 (A1), Lopton_40 (A1), Marsha_39 (A1), MilleFeuille_38 (A1), Ohno789_39 (A1), Parliament_38 (A1), Pelly_39 (A1), Pepe_36 (A1), Pippin_41 (A1), PowerRanger_40 (A1), Raid_39 (A1), Ringer_40 (A1), Rubeus_39 (A1), Rutherford_41 (A1), Sagefire_41 (A1), Sanya_39 (A1), Sibs6_40 (A1), Solon_39 (A1), Sumter_38 (A1), Tasp14_40 (A1),

Summary by clusters:

There is one cluster represented in this pham: A1

Info for manual annotations of cluster A1:

- Start number 2 was manually annotated 1 time for cluster A1.
- Start number 8 was manually annotated 2 times for cluster A1.
- Start number 12 was manually annotated 25 times for cluster A1.
- Start number 13 was manually annotated 15 times for cluster A1.
- Start number 14 was manually annotated 32 times for cluster A1.

Gene Information:

Gene: A6_36 Start: 30808, Stop: 30419, Start Num: 12

Candidate Starts for A6_36:

(4, 30943), (7, 30910), (Start: 12 @30808 has 25 MA's), (15, 30763), (17, 30742), (22, 30676), (24, 30637), (25, 30604), (28, 30571), (35, 30487), (38, 30430),

Gene: Acme_42 Start: 32125, Stop: 31736, Start Num: 12

Candidate Starts for Acme_42:

(4, 32260), (7, 32227), (Start: 12 @32125 has 25 MA's), (15, 32080), (17, 32059), (22, 31993), (24, 31954), (25, 31921), (28, 31888), (35, 31804), (38, 31747),

Gene: Alsfro_43 Start: 32185, Stop: 31787, Start Num: 14

Candidate Starts for Alsfro_43:

(4, 32323), (7, 32290), (Start: 14 @32185 has 32 MA's), (15, 32143), (17, 32122), (22, 32056), (24, 32017), (27, 31984), (29, 31963), (38, 31822), (40, 31798),

Gene: Ashballer_41 Start: 32581, Stop: 32192, Start Num: 12

Candidate Starts for Ashballer_41:

(4, 32716), (7, 32683), (Start: 12 @32581 has 25 MA's), (15, 32536), (17, 32515), (22, 32449), (24, 32410), (25, 32377), (28, 32344), (35, 32260), (38, 32203),

Gene: BK1_36 Start: 30808, Stop: 30419, Start Num: 12

Candidate Starts for BK1_36:

(4, 30943), (7, 30910), (Start: 12 @30808 has 25 MA's), (15, 30763), (17, 30742), (22, 30676), (24, 30637), (25, 30604), (28, 30571), (35, 30487), (38, 30430),

Gene: Barriga_39 Start: 31303, Stop: 30914, Start Num: 12

Candidate Starts for Barriga_39:

(4, 31438), (7, 31405), (Start: 12 @31303 has 25 MA's), (15, 31258), (17, 31237), (22, 31171), (24, 31132), (25, 31099), (28, 31066), (35, 30982), (38, 30925),

Gene: BigPaolini_38 Start: 30070, Stop: 29681, Start Num: 13

Candidate Starts for BigPaolini_38:

(11, 30106), (Start: 13 @30070 has 15 MA's), (15, 30025), (17, 30004), (22, 29938), (24, 29899), (25, 29866), (28, 29833), (35, 29749), (38, 29692),

Gene: Bigfoot_37 Start: 31192, Stop: 30707, Start Num: 8

Candidate Starts for Bigfoot_37:

(Start: 8 @31192 has 2 MA's), (Start: 14 @31093 has 32 MA's), (15, 31051), (17, 31030), (22, 30964), (24, 30925), (25, 30892), (28, 30859), (35, 30775), (38, 30718),

Gene: Blue_39 Start: 32220, Stop: 31831, Start Num: 12

Candidate Starts for Blue_39:

(4, 32355), (7, 32322), (Start: 12 @32220 has 25 MA's), (15, 32175), (17, 32154), (22, 32088), (24, 32049), (25, 32016), (28, 31983), (35, 31899), (38, 31842),

Gene: Bones_39 Start: 31565, Stop: 31176, Start Num: 13

Candidate Starts for Bones_39:

(11, 31601), (Start: 13 @31565 has 15 MA's), (15, 31520), (17, 31499), (22, 31433), (24, 31394), (25, 31361), (28, 31328), (35, 31244), (38, 31187),

Gene: CactusRose_37 Start: 31224, Stop: 30820, Start Num: 14

Candidate Starts for CactusRose_37:

(4, 31362), (7, 31329), (Start: 14 @31224 has 32 MA's), (15, 31182), (17, 31161), (22, 31092), (25, 31017), (28, 30984), (35, 30888),

Gene: CartmannCramer_39 Start: 33929, Stop: 33531, Start Num: 12

Candidate Starts for CartmannCramer_39:

(4, 34064), (7, 34031), (Start: 12 @33929 has 25 MA's), (15, 33887), (17, 33866), (22, 33800), (24, 33761), (25, 33728), (28, 33695), (35, 33599),

Gene: Ciao_39 Start: 31578, Stop: 31207, Start Num: 14

Candidate Starts for Ciao_39:

(4, 31716), (7, 31683), (Start: 14 @31578 has 32 MA's), (15, 31533), (17, 31512), (22, 31446), (24, 31407), (27, 31374), (31, 31311), (38, 31218),

Gene: Crispicous1_38 Start: 31219, Stop: 30833, Start Num: 14

Candidate Starts for Crispicous1_38:

(4, 31357), (7, 31324), (Start: 14 @31219 has 32 MA's), (15, 31177), (17, 31156), (22, 31090), (24, 31051), (25, 31018), (28, 30985), (35, 30901), (38, 30844),

Gene: Cueylyss_39 Start: 31798, Stop: 31409, Start Num: 13

Candidate Starts for Cueylyss_39:

(11, 31834), (Start: 13 @31798 has 15 MA's), (15, 31753), (17, 31732), (22, 31666), (24, 31627), (25, 31594), (28, 31561), (35, 31477), (38, 31420),

Gene: Dexes_39 Start: 32195, Stop: 31797, Start Num: 14

Candidate Starts for Dexes_39:

(4, 32333), (7, 32300), (Start: 14 @32195 has 32 MA's), (15, 32153), (17, 32132), (24, 32027), (25, 31994), (28, 31961), (35, 31865), (38, 31808),

Gene: Doom_39 Start: 31991, Stop: 31602, Start Num: 13

Candidate Starts for Doom_39:

(11, 32027), (Start: 13 @31991 has 15 MA's), (15, 31946), (17, 31925), (22, 31859), (24, 31820), (25, 31787), (28, 31754), (35, 31670), (38, 31613),

Gene: DrFeelGood_38 Start: 32091, Stop: 31696, Start Num: 14

Candidate Starts for DrFeelGood_38:

(4, 32229), (7, 32196), (Start: 14 @32091 has 32 MA's), (15, 32049), (17, 32028), (25, 31890), (28, 31857), (36, 31752), (38, 31707),

Gene: Dulcie_38 Start: 31335, Stop: 30940, Start Num: 12

Candidate Starts for Dulcie_38:

(4, 31470), (7, 31437), (Start: 12 @31335 has 25 MA's), (15, 31296), (17, 31275), (22, 31209), (25, 31137), (28, 31104), (35, 31008), (38, 30951),

Gene: Espresso_39 Start: 31915, Stop: 31526, Start Num: 12

Candidate Starts for Espresso_39:

(4, 32050), (7, 32017), (Start: 12 @31915 has 25 MA's), (15, 31870), (17, 31849), (22, 31783), (25, 31711), (28, 31678), (35, 31594), (38, 31537),

Gene: Eyeball_39 Start: 31468, Stop: 31082, Start Num: 13

Candidate Starts for Eyeball_39:

(11, 31504), (Start: 13 @31468 has 15 MA's), (15, 31426), (17, 31405), (22, 31339), (24, 31300), (25, 31267), (28, 31234), (35, 31150), (38, 31093),

Gene: Fajezeel_41 Start: 31954, Stop: 31565, Start Num: 12

Candidate Starts for Fajezeel_41:

(4, 32089), (7, 32056), (Start: 12 @31954 has 25 MA's), (15, 31909), (17, 31888), (22, 31822), (24, 31783), (25, 31750), (28, 31717), (35, 31633), (38, 31576),

Gene: Fascinus_38 Start: 31341, Stop: 30856, Start Num: 8

Candidate Starts for Fascinus_38:

(Start: 8 @31341 has 2 MA's), (Start: 14 @31242 has 32 MA's), (15, 31200), (17, 31179), (22, 31113), (24, 31074), (25, 31041), (28, 31008), (35, 30924), (38, 30867),

Gene: Fenn_40 Start: 33278, Stop: 32889, Start Num: 12

Candidate Starts for Fenn_40:

(4, 33413), (7, 33380), (Start: 12 @33278 has 25 MA's), (15, 33233), (17, 33212), (22, 33146), (24, 33107), (25, 33074), (28, 33041), (35, 32957), (38, 32900),

Gene: Froghopper_39 Start: 31445, Stop: 30870, Start Num: 14

Candidate Starts for Froghopper_39:

(Start: 14 @31445 has 32 MA's), (17, 31382), (22, 31316), (24, 31277), (38, 31094), (42, 31055), (43, 31022), (45, 30938), (46, 30881),

Gene: Graduation_41 Start: 32385, Stop: 31996, Start Num: 13

Candidate Starts for Graduation_41:

(11, 32421), (Start: 13 @32385 has 15 MA's), (15, 32340), (17, 32319), (22, 32253), (24, 32214), (25, 32181), (28, 32148), (35, 32064), (38, 32007),

Gene: Greg_41 Start: 31954, Stop: 31565, Start Num: 12

Candidate Starts for Greg_41:

(4, 32089), (7, 32056), (Start: 12 @31954 has 25 MA's), (15, 31909), (17, 31888), (22, 31822), (24, 31783), (25, 31750), (28, 31717), (35, 31633), (38, 31576),

Gene: ILeeKay_41 Start: 31835, Stop: 31446, Start Num: 13

Candidate Starts for ILeeKay_41:

(11, 31871), (Start: 13 @31835 has 15 MA's), (15, 31790), (17, 31769), (22, 31703), (24, 31664), (25, 31631), (28, 31598), (35, 31514), (38, 31457),

Gene: JC27_40 Start: 32151, Stop: 31762, Start Num: 12

Candidate Starts for JC27_40:

(4, 32286), (7, 32253), (Start: 12 @32151 has 25 MA's), (15, 32106), (17, 32085), (22, 32019), (24, 31980), (25, 31947), (28, 31914), (35, 31830), (38, 31773),

Gene: JackSparrow_41 Start: 32458, Stop: 32090, Start Num: 14

Candidate Starts for JackSparrow_41:

(4, 32596), (7, 32563), (Start: 14 @32458 has 32 MA's), (15, 32416), (22, 32329), (24, 32290), (27, 32257), (31, 32194), (38, 32101),

Gene: Jorgensen_39 Start: 31573, Stop: 31178, Start Num: 14

Candidate Starts for Jorgensen_39:

(4, 31711), (7, 31678), (Start: 14 @31573 has 32 MA's), (15, 31531), (17, 31510), (25, 31372), (28, 31339), (36, 31234), (38, 31189),

Gene: KBG_40 Start: 32775, Stop: 32389, Start Num: 13

Candidate Starts for KBG_40:

(11, 32811), (Start: 13 @32775 has 15 MA's), (15, 32733), (17, 32712), (22, 32646), (24, 32607), (25, 32574), (28, 32541), (35, 32457), (38, 32400),

Gene: Killigrew_38 Start: 31704, Stop: 31318, Start Num: 14

Candidate Starts for Killigrew_38:

(7, 31809), (Start: 14 @31704 has 32 MA's), (15, 31662), (17, 31641), (19, 31605), (20, 31584), (25, 31506), (28, 31473), (36, 31374), (38, 31329),

Gene: Kugel_41 Start: 32369, Stop: 31980, Start Num: 12

Candidate Starts for Kugel_41:

(4, 32504), (7, 32471), (Start: 12 @32369 has 25 MA's), (15, 32324), (17, 32303), (22, 32237), (24, 32198), (25, 32165), (28, 32132), (35, 32048), (38, 31991),

Gene: KyMonks1A_42 Start: 32238, Stop: 31843, Start Num: 14

Candidate Starts for KyMonks1A_42:

(4, 32376), (7, 32343), (Start: 14 @32238 has 32 MA's), (15, 32196), (17, 32175), (25, 32037), (28, 32004), (36, 31899), (38, 31854),

Gene: Kykar_38 Start: 31208, Stop: 30819, Start Num: 13

Candidate Starts for Kykar_38:

(5, 31334), (Start: 13 @31208 has 15 MA's), (15, 31163), (17, 31142), (22, 31076), (24, 31037), (25, 31004), (28, 30971), (35, 30887), (38, 30830),

Gene: Kykar_39 Start: 31534, Stop: 31205, Start Num: 14

Candidate Starts for Kykar_39:

(4, 31672), (7, 31639), (Start: 14 @31534 has 32 MA's), (18, 31459), (34, 31276), (38, 31216),

Gene: Lamina13_39 Start: 31327, Stop: 30932, Start Num: 14

Candidate Starts for Lamina13_39:

(4, 31465), (7, 31432), (Start: 14 @31327 has 32 MA's), (15, 31285), (17, 31264), (25, 31126), (28, 31093), (36, 30988), (38, 30943),

Gene: Licorice_41 Start: 32666, Stop: 32277, Start Num: 13

Candidate Starts for Licorice_41:

(11, 32702), (Start: 13 @32666 has 15 MA's), (15, 32621), (17, 32600), (22, 32534), (24, 32495), (25, 32462), (28, 32429), (35, 32345), (38, 32288),

Gene: Lopton_40 Start: 33112, Stop: 32714, Start Num: 14

Candidate Starts for Lopton_40:

(4, 33262), (7, 33229), (Start: 14 @33112 has 32 MA's), (15, 33070), (17, 33049), (24, 32944), (25, 32911), (28, 32878), (35, 32782), (38, 32725),

Gene: LunarLander_40 Start: 31792, Stop: 31400, Start Num: 13

Candidate Starts for LunarLander_40:

(11, 31828), (Start: 13 @31792 has 15 MA's), (15, 31744), (17, 31723), (22, 31657), (24, 31618), (25, 31585), (28, 31552), (35, 31468), (38, 31411),

Gene: Magnar_39 Start: 31735, Stop: 31181, Start Num: 2

Candidate Starts for Magnar_39:

(1, 31744), (Start: 2 @31735 has 1 MA's), (Start: 8 @31663 has 2 MA's), (Start: 12 @31567 has 25 MA's), (15, 31525), (17, 31504), (22, 31438), (24, 31399), (25, 31366), (28, 31333), (35, 31249), (38, 31192),

Gene: Maroc7_39 Start: 31555, Stop: 31166, Start Num: 12

Candidate Starts for Maroc7_39:

(4, 31690), (7, 31657), (Start: 12 @31555 has 25 MA's), (15, 31510), (17, 31489), (22, 31423), (24, 31384), (25, 31351), (28, 31318), (35, 31234), (38, 31177),

Gene: Marsha_39 Start: 32753, Stop: 32322, Start Num: 14

Candidate Starts for Marsha_39:

(Start: 14 @32753 has 32 MA's), (15, 32711), (17, 32690), (22, 32624), (24, 32585), (27, 32519), (29, 32498), (38, 32357), (40, 32333),

Gene: MilleFeuille_38 Start: 31688, Stop: 31335, Start Num: 14

Candidate Starts for MilleFeuille_38:

(4, 31826), (7, 31793), (Start: 14 @31688 has 32 MA's), (18, 31613), (27, 31490), (29, 31469), (38, 31346),

Gene: Naira_40 Start: 33325, Stop: 32936, Start Num: 12

Candidate Starts for Naira_40:

(4, 33460), (7, 33427), (Start: 12 @33325 has 25 MA's), (15, 33280), (17, 33259), (22, 33193), (24, 33154), (25, 33121), (28, 33088), (35, 33004), (38, 32947),

Gene: Nhonho_39 Start: 32047, Stop: 31658, Start Num: 12

Candidate Starts for Nhonho_39:

(4, 32182), (7, 32149), (Start: 12 @32047 has 25 MA's), (15, 32002), (17, 31981), (22, 31915), (24, 31876), (25, 31843), (28, 31810), (35, 31726), (38, 31669),

Gene: Ohno789_39 Start: 31676, Stop: 31314, Start Num: 14

Candidate Starts for Ohno789_39:

(3, 31820), (6, 31781), (9, 31766), (10, 31736), (Start: 14 @31676 has 32 MA's), (15, 31634), (17, 31613), (22, 31547), (24, 31508), (38, 31325),

Gene: Papez_41 Start: 33386, Stop: 33000, Start Num: 12

Candidate Starts for Papez_41:

(4, 33521), (7, 33488), (Start: 12 @33386 has 25 MA's), (15, 33344), (22, 33257), (24, 33218), (25, 33185), (28, 33152), (35, 33068), (38, 33011),

Gene: Parliament_38 Start: 31861, Stop: 31466, Start Num: 14

Candidate Starts for Parliament_38:

(4, 31999), (7, 31966), (Start: 14 @31861 has 32 MA's), (15, 31819), (17, 31798), (25, 31660), (28, 31627), (36, 31522), (38, 31477),

Gene: Pelly_39 Start: 32116, Stop: 31715, Start Num: 14

Candidate Starts for Pelly_39:

(4, 32254), (7, 32221), (Start: 14 @32116 has 32 MA's), (15, 32074), (17, 32053), (22, 31987), (25, 31912), (28, 31879), (35, 31783),

Gene: Pepe_36 Start: 29831, Stop: 29379, Start Num: 14

Candidate Starts for Pepe_36:

(4, 29969), (7, 29936), (Start: 14 @29831 has 32 MA's), (16, 29774), (21, 29705), (23, 29690), (30, 29579), (33, 29546), (39, 29450), (41, 29441), (44, 29390),

Gene: Peterson_43 Start: 33973, Stop: 33584, Start Num: 12

Candidate Starts for Peterson_43:

(4, 34108), (7, 34075), (Start: 12 @33973 has 25 MA's), (15, 33928), (17, 33907), (22, 33841), (24, 33802), (25, 33769), (26, 33742), (28, 33736), (35, 33652), (38, 33595),

Gene: Phlippers_37 Start: 32253, Stop: 31864, Start Num: 13

Candidate Starts for Phlippers_37:

(11, 32289), (Start: 13 @32253 has 15 MA's), (15, 32208), (17, 32187), (22, 32121), (24, 32082), (25, 32049), (28, 32016), (35, 31932), (38, 31875),

Gene: Pippin_41 Start: 31995, Stop: 31624, Start Num: 14

Candidate Starts for Pippin_41:

(4, 32133), (7, 32100), (Start: 14 @31995 has 32 MA's), (15, 31950), (17, 31929), (22, 31863), (24, 31824), (27, 31791), (31, 31728), (38, 31635),

Gene: PowerRanger_40 Start: 32737, Stop: 32375, Start Num: 14

Candidate Starts for PowerRanger_40:

(4, 32875), (7, 32842), (Start: 14 @32737 has 32 MA's), (15, 32695), (17, 32674), (22, 32608), (24, 32569), (38, 32386),

Gene: Puppet_39 Start: 31738, Stop: 31349, Start Num: 13

Candidate Starts for Puppet_39:

(11, 31774), (Start: 13 @31738 has 15 MA's), (15, 31693), (17, 31672), (22, 31606), (24, 31567), (25, 31534), (28, 31501), (35, 31417), (38, 31360),

Gene: QTRLifeCrisis_40 Start: 32520, Stop: 32122, Start Num: 12

Candidate Starts for QTRLifeCrisis_40:

(4, 32655), (7, 32622), (Start: 12 @32520 has 25 MA's), (15, 32478), (17, 32457), (22, 32391), (24, 32352), (25, 32319), (28, 32286), (35, 32190),

Gene: Raid_39 Start: 31965, Stop: 31582, Start Num: 14

Candidate Starts for Raid_39:

(4, 32115), (7, 32082), (Start: 14 @31965 has 32 MA's), (15, 31923), (17, 31902), (19, 31866), (20, 31845), (25, 31767), (28, 31734), (36, 31638), (38, 31593),

Gene: RidgeCB_39 Start: 31533, Stop: 31141, Start Num: 12

Candidate Starts for RidgeCB_39:

(4, 31668), (7, 31635), (Start: 12 @31533 has 25 MA's), (15, 31485), (17, 31464), (22, 31398), (24, 31359), (25, 31326), (28, 31293), (35, 31209), (38, 31152),

Gene: Ringer_40 Start: 32383, Stop: 31982, Start Num: 14

Candidate Starts for Ringer_40:

(4, 32521), (7, 32488), (Start: 14 @32383 has 32 MA's), (15, 32341), (17, 32320), (22, 32254), (25, 32179), (28, 32146), (35, 32050),

Gene: Rubeus_39 Start: 30008, Stop: 29613, Start Num: 14

Candidate Starts for Rubeus_39:

(4, 30146), (7, 30113), (Start: 14 @30008 has 32 MA's), (15, 29966), (17, 29945), (25, 29807), (28, 29774), (36, 29669), (38, 29624),

Gene: Ruotula_41 Start: 32835, Stop: 32446, Start Num: 12

Candidate Starts for Ruotula_41:

(4, 32970), (7, 32937), (Start: 12 @32835 has 25 MA's), (15, 32790), (17, 32769), (22, 32703), (24, 32664), (25, 32631), (28, 32598), (35, 32514), (38, 32457),

Gene: Rutherferd_41 Start: 32762, Stop: 32364, Start Num: 14

Candidate Starts for Rutherferd_41:

(4, 32900), (7, 32867), (Start: 14 @32762 has 32 MA's), (15, 32720), (17, 32699), (22, 32633), (25, 32561), (28, 32528), (35, 32432), (38, 32375),

Gene: Sagefire_41 Start: 32714, Stop: 32352, Start Num: 14

Candidate Starts for Sagefire_41:

(4, 32852), (7, 32819), (Start: 14 @32714 has 32 MA's), (15, 32672), (17, 32651), (22, 32585), (24, 32546), (38, 32363),

Gene: Sanya_39 Start: 32428, Stop: 32060, Start Num: 14

Candidate Starts for Sanya_39:

(4, 32566), (7, 32533), (Start: 14 @32428 has 32 MA's), (15, 32386), (17, 32365), (22, 32299), (24, 32260), (27, 32227), (29, 32206), (35, 32128), (38, 32071),

Gene: Scowl_39 Start: 32206, Stop: 31820, Start Num: 12

Candidate Starts for Scowl_39:

(4, 32341), (7, 32308), (Start: 12 @32206 has 25 MA's), (15, 32164), (17, 32143), (22, 32077), (24, 32038), (25, 32005), (28, 31972), (35, 31888), (38, 31831),

Gene: Seanderson_41 Start: 32540, Stop: 32166, Start Num: 12

Candidate Starts for Seanderson_41:

(4, 32675), (7, 32642), (Start: 12 @32540 has 25 MA's), (15, 32498), (17, 32477), (22, 32411), (24, 32372), (25, 32351), (28, 32318), (35, 32234), (38, 32177),

Gene: Sibs6_40 Start: 30878, Stop: 30486, Start Num: 14

Candidate Starts for Sibs6_40:

(4, 31016), (7, 30983), (Start: 14 @30878 has 32 MA's), (15, 30833), (17, 30812), (22, 30746), (24, 30707), (27, 30629), (32, 30557), (37, 30497),

Gene: Smairt_40 Start: 31886, Stop: 31497, Start Num: 13

Candidate Starts for Smairt_40:

(11, 31922), (Start: 13 @31886 has 15 MA's), (15, 31841), (17, 31820), (22, 31754), (24, 31715), (25, 31682), (28, 31649), (35, 31565), (38, 31508),

Gene: Solon_39 Start: 32007, Stop: 31612, Start Num: 14

Candidate Starts for Solon_39:

(4, 32145), (7, 32112), (Start: 14 @32007 has 32 MA's), (15, 31965), (17, 31944), (25, 31806), (28, 31773), (36, 31668), (38, 31623),

Gene: Sumter_38 Start: 31736, Stop: 31341, Start Num: 14

Candidate Starts for Sumter_38:

(4, 31874), (7, 31841), (Start: 14 @31736 has 32 MA's), (15, 31694), (17, 31673), (25, 31535), (28, 31502), (36, 31397), (38, 31352),

Gene: Tasp14_40 Start: 31951, Stop: 31556, Start Num: 14

Candidate Starts for Tasp14_40:

(4, 32089), (7, 32056), (Start: 14 @31951 has 32 MA's), (15, 31909), (17, 31888), (25, 31750), (28, 31717), (36, 31612), (38, 31567),

Gene: Topgun_38 Start: 31192, Stop: 30803, Start Num: 13

Candidate Starts for Topgun_38:

(11, 31228), (Start: 13 @31192 has 15 MA's), (15, 31147), (17, 31126), (22, 31060), (24, 31021), (25, 30988), (28, 30955), (35, 30871), (38, 30814),

Gene: Trouble_40 Start: 32653, Stop: 32264, Start Num: 12

Candidate Starts for Trouble_40:

(4, 32788), (7, 32755), (Start: 12 @32653 has 25 MA's), (15, 32608), (17, 32587), (22, 32521), (24, 32482), (25, 32449), (28, 32416), (35, 32332), (38, 32275),

Gene: Wheeler_40 Start: 32130, Stop: 31741, Start Num: 12

Candidate Starts for Wheeler_40:

(4, 32265), (7, 32232), (Start: 12 @32130 has 25 MA's), (15, 32085), (17, 32064), (22, 31998), (24, 31959), (25, 31926), (28, 31893), (35, 31809), (38, 31752),

Gene: Wilkins_38 Start: 31125, Stop: 30736, Start Num: 13

Candidate Starts for Wilkins_38:

(11, 31161), (Start: 13 @31125 has 15 MA's), (15, 31080), (17, 31059), (22, 30993), (24, 30954), (25, 30921), (28, 30888), (35, 30804), (38, 30747),