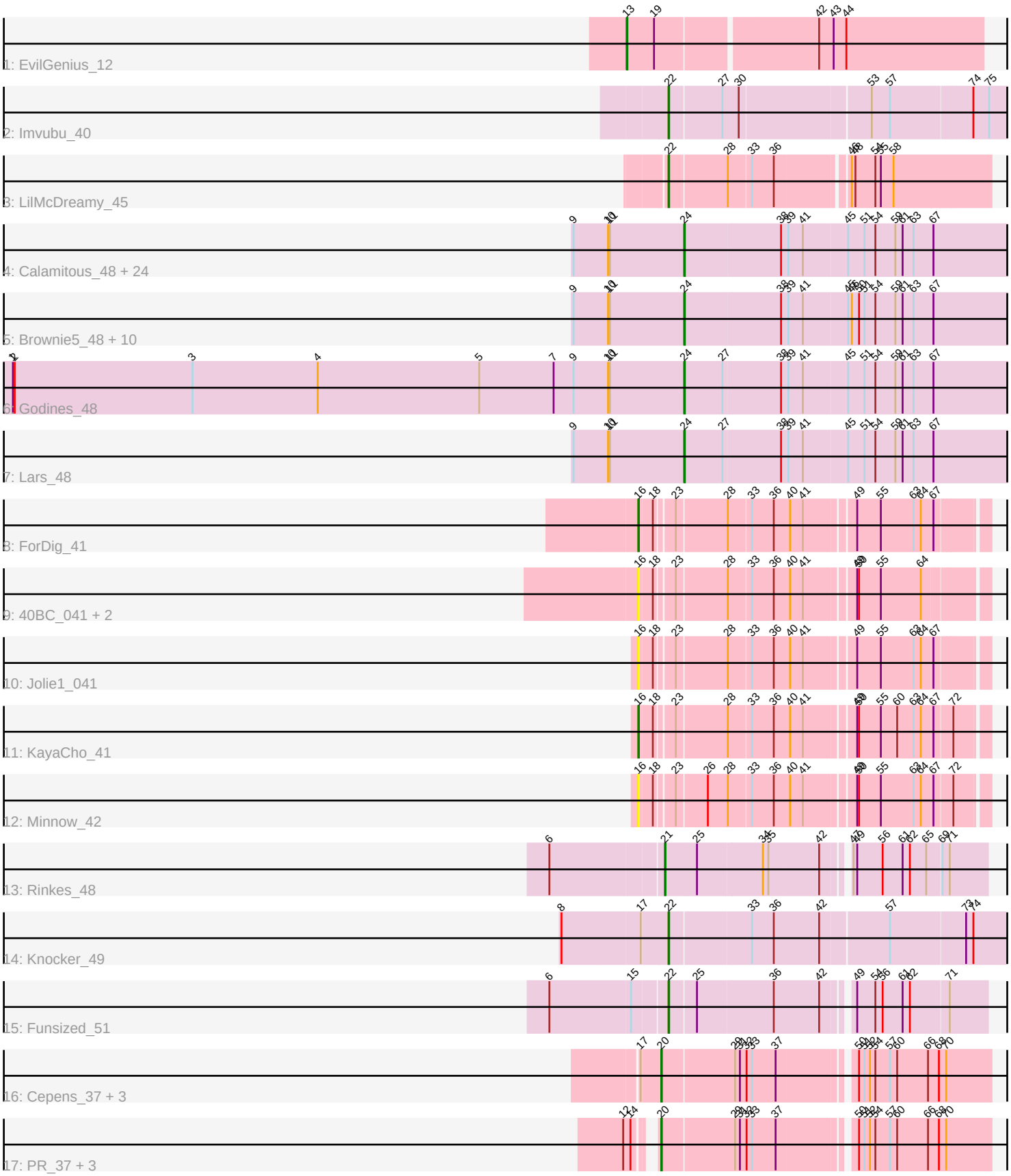
Pham 347653


1: EvilGenius_12
2: Imvubu_40
3: LilMcDreamy_45
4: Calamitous_48 + 24
5: Brownie5_48 + 10
6: Godines_48
7: Lars_48
8: ForDig_41
9: 40BC_041 + 2
10: Jolie1_041
11: KayaCho_41
12: Minnow_42
13: Rinkes_48
14: Knocker_49
15: Funsized_51
16: Cepens_37 + 3
17: PR_37 + 3

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 347653 Report

This analysis was run 11/14/26 on database version 672.

Pham number 347653 has 59 members, 6 are drafts.

Phages represented in each track:
• Track 1 : EvilGenius_12
• Track 2 : Imvubu_40
• Track 3 : LilMcDreamy_45
• Track 4 : Calamitous_48, Tres_48, Phantasmagoria_48, Boyle_48, TA17A_49, Laurie_47, West99_48, LizLemon_48, Allegro_48, Blocker23_48, Sabella_47, Rhinoforte_48, Coffee_48, Kolhan_48, Opia_48, Faze9_47, MasterPo_48, Lephleur_48, FrenchFry_48, ItsyBitsy1_48, Vic9_00047, Bananafish_48, PrinceCharming_48, Kheth_48, Holeinone_48
• Track 5 : Brownie5_48, Hedgerow_48, Eaglehorse_48, Kaleb_48, Arbiter_47, LilSmirk_48, Rosebush_47, Qyrzula_45, Ares_48, Glass_48, Tinciduntsolum_49
• Track 6 : Godines_48
• Track 7 : Lars_48
• Track 8 : ForDig_41
• Track 9 : 40BC_041, Hosp_039, 39HC_041
• Track 10 : Jolie1_041
• Track 11 : KayaCho_41
• Track 12 : Minnow_42
• Track 13 : Rinkes_48
• Track 14 : Knocker_49
• Track 15 : Funsized_51
• Track 16 : Cepens_37, Jeon_37, GodPhather_38, Argie_38
• Track 17 : PR_37, Megabear_37, D12_36, Taptic_37

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

The start number called the most often in the published annotations is 24, it was called in 37 of the 53 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Allegro_48, Arbiter_47, Ares_48, Bananafish_48, Blocker23_48, Boyle_48, Brownie5_48, Calamitous_48, Coffee_48, Eaglehorse_48, Faze9_47, FrenchFry_48, Glass_48, Godines_48, Hedgerow_48, Holeinone_48, ItsyBitsy1_48, Kaleb_48, Kheth_48, Kolhan_48, Lars_48, Laurie_47, Lephleur_48, LilSmirk_48, LizLemon_48, MasterPo_48, Opia_48, Phantasmagoria_48, PrinceCharming_48, Qyrzula_45,

Rhinoforte_48, Rosebush_47, Sabella_47, TA17A_49, Tinciduntsolum_49, Tres_48, Vic9_00047, West99_48,

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

Genes that do not have the "Most Annotated" start:
• 39HC_041, 40BC_041, Argie_38, Cepens_37, D12_36, EvilGenius_12, ForDig_41, Funsized_51, GodPhather_38, Hosp_039, Imvubu_40, Jeon_37, Jolie1_041, KayaCho_41, Knocker_49, LilMcDreamy_45, Megabear_37, Minnow_42, PR_37, Rinkes_48, Taptic_37,

Summary by start number:

Start 13:
• Found in 1 of 59 (1.7%) of genes in pham
• Manual Annotations of this start: 1 of 53
• Called 100.0% of time when present
• Phage (with cluster) where this start called: EvilGenius_12 (A2),

Start 16:
• Found in 7 of 59 (11.9%) of genes in pham
• Manual Annotations of this start: 2 of 53
• Called 100.0% of time when present
• Phage (with cluster) where this start called: 39HC_041 (B6), 40BC_041 (B6), ForDig_41 (B6), Hosp_039 (B6), Jolie1_041 (B6), KayaCho_41 (B6), Minnow_42 (B6),

Start 20:
• Found in 8 of 59 (13.6%) of genes in pham
• Manual Annotations of this start: 8 of 53
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Argie_38 (W), Cepens_37 (W), D12_36 (W), GodPhather_38 (W), Jeon_37 (W), Megabear_37 (W), PR_37 (W), Taptic_37 (W),

Start 21:
• Found in 1 of 59 (1.7%) of genes in pham
• Manual Annotations of this start: 1 of 53
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Rinkes_48 (B9),

Start 22:
• Found in 4 of 59 (6.8%) of genes in pham
• Manual Annotations of this start: 4 of 53
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Funsized_51 (B9), Imvubu_40 (B10), Knocker_49 (B9), LilMcDreamy_45 (B12),

Start 24:
• Found in 38 of 59 (64.4%) of genes in pham
• Manual Annotations of this start: 37 of 53
• Called 100.0% of time when present

• Phage (with cluster) where this start called: Allegro_48 (B2), Arbiter_47 (B2), Ares_48 (B2), Bananafish_48 (B2), Blocker23_48 (B2), Boyle_48 (B2), Brownie5_48 (B2), Calamitous_48 (B2), Coffee_48 (B2), Eaglehorse_48 (B2), Faze9_47 (B2), FrenchFry_48 (B2), Glass_48 (B2), Godines_48 (B2), Hedgerow_48 (B2), Holeinone_48 (B2), ItsyBitsy1_48 (B2), Kaleb_48 (B2), Kheth_48 (B2), Kolhan_48 (B2), Lars_48 (B2), Laurie_47 (B2), Lephleur_48 (B2), LilSmirk_48 (B2), LizLemon_48 (B2), MasterPo_48 (B2), Opia_48 (B2), Phantasmagoria_48 (B2), PrinceCharming_48 (B2), Qyrzula_45 (B2), Rhinoforte_48 (B2), Rosebush_47 (B2), Sabella_47 (B2), TA17A_49 (B2), Tinciduntsolum_49 (B2), Tres_48 (B2), Vic9_00047 (B2), West99_48 (B2),

Summary by clusters:

There are 7 clusters represented in this pham: W, B2, B6, A2, B12, B10, B9,

Info for manual annotations of cluster A2:
•Start number 13 was manually annotated 1 time for cluster A2.

Info for manual annotations of cluster B10:
•Start number 22 was manually annotated 1 time for cluster B10.

Info for manual annotations of cluster B12:
•Start number 22 was manually annotated 1 time for cluster B12.

Info for manual annotations of cluster B2:
•Start number 24 was manually annotated 37 times for cluster B2.

Info for manual annotations of cluster B6:
•Start number 16 was manually annotated 2 times for cluster B6.

Info for manual annotations of cluster B9:
•Start number 21 was manually annotated 1 time for cluster B9.
•Start number 22 was manually annotated 2 times for cluster B9.

Info for manual annotations of cluster W:
•Start number 20 was manually annotated 8 times for cluster W.

Gene Information:

Gene: 39HC_041 Start: 39858, Stop: 40382, Start Num: 16
Candidate Starts for 39HC_041:
(Start: 16 @39858 has 2 MA's), (18, 39879), (23, 39906), (28, 39987), (33, 40023), (36, 40059), (40, 40083), (41, 40104), (49, 40179), (50, 40182), (55, 40218), (64, 40284),

Gene: 40BC_041 Start: 39858, Stop: 40382, Start Num: 16
Candidate Starts for 40BC_041:
(Start: 16 @39858 has 2 MA's), (18, 39879), (23, 39906), (28, 39987), (33, 40023), (36, 40059), (40, 40083), (41, 40104), (49, 40179), (50, 40182), (55, 40218), (64, 40284),

Gene: Allegro_48 Start: 42310, Stop: 42843, Start Num: 24
Candidate Starts for Allegro_48:

(9, 42127), (10, 42184), (11, 42187), (Start: 24 @42310 has 37 MA's), (38, 42466), (39, 42475), (41, 42499), (45, 42568), (51, 42595), (54, 42613), (59, 42646), (61, 42658), (63, 42676), (67, 42709),

Gene: Arbiter_47 Start: 42384, Stop: 42920, Start Num: 24
Candidate Starts for Arbiter_47:
(9, 42201), (10, 42258), (11, 42261), (Start: 24 @42384 has 37 MA's), (38, 42540), (39, 42549), (41, 42573), (45, 42645), (46, 42651), (50, 42663), (51, 42672), (54, 42690), (59, 42723), (61, 42735), (63, 42753), (67, 42786),

Gene: Ares_48 Start: 42368, Stop: 42904, Start Num: 24
Candidate Starts for Ares_48:
(9, 42185), (10, 42242), (11, 42245), (Start: 24 @42368 has 37 MA's), (38, 42524), (39, 42533), (41, 42557), (45, 42629), (46, 42635), (50, 42647), (51, 42656), (54, 42674), (59, 42707), (61, 42719), (63, 42737), (67, 42770),

Gene: Argie_38 Start: 38017, Stop: 38526, Start Num: 20
Candidate Starts for Argie_38:
(17, 37987), (Start: 20 @38017 has 8 MA's), (29, 38134), (31, 38140), (32, 38149), (33, 38158), (37, 38197), (50, 38308), (51, 38317), (52, 38326), (54, 38335), (57, 38359), (60, 38371), (66, 38422), (68, 38440), (70, 38452),

Gene: Bananafish_48 Start: 42304, Stop: 42837, Start Num: 24
Candidate Starts for Bananafish_48:
(9, 42121), (10, 42178), (11, 42181), (Start: 24 @42304 has 37 MA's), (38, 42460), (39, 42469), (41, 42493), (45, 42562), (51, 42589), (54, 42607), (59, 42640), (61, 42652), (63, 42670), (67, 42703),

Gene: Blocker23_48 Start: 42422, Stop: 42955, Start Num: 24
Candidate Starts for Blocker23_48:
(9, 42239), (10, 42296), (11, 42299), (Start: 24 @42422 has 37 MA's), (38, 42578), (39, 42587), (41, 42611), (45, 42680), (51, 42707), (54, 42725), (59, 42758), (61, 42770), (63, 42788), (67, 42821),

Gene: Boyle_48 Start: 42423, Stop: 42956, Start Num: 24
Candidate Starts for Boyle_48:
(9, 42240), (10, 42297), (11, 42300), (Start: 24 @42423 has 37 MA's), (38, 42579), (39, 42588), (41, 42612), (45, 42681), (51, 42708), (54, 42726), (59, 42759), (61, 42771), (63, 42789), (67, 42822),

Gene: Brownie5_48 Start: 42435, Stop: 42971, Start Num: 24
Candidate Starts for Brownie5_48:
(9, 42252), (10, 42309), (11, 42312), (Start: 24 @42435 has 37 MA's), (38, 42591), (39, 42600), (41, 42624), (45, 42696), (46, 42702), (50, 42714), (51, 42723), (54, 42741), (59, 42774), (61, 42786), (63, 42804), (67, 42837),

Gene: Calamitous_48 Start: 42309, Stop: 42842, Start Num: 24
Candidate Starts for Calamitous_48:
(9, 42126), (10, 42183), (11, 42186), (Start: 24 @42309 has 37 MA's), (38, 42465), (39, 42474), (41, 42498), (45, 42567), (51, 42594), (54, 42612), (59, 42645), (61, 42657), (63, 42675), (67, 42708),

Gene: Cepens_37 Start: 37732, Stop: 38241, Start Num: 20
Candidate Starts for Cepens_37:
(17, 37702), (Start: 20 @37732 has 8 MA's), (29, 37849), (31, 37855), (32, 37864), (33, 37873), (37, 37912), (50, 38023), (51, 38032), (52, 38041), (54, 38050), (57, 38074), (60, 38086), (66, 38137), (68, 38155), (70, 38167),

Gene: Coffee_48 Start: 42412, Stop: 42945, Start Num: 24
Candidate Starts for Coffee_48:
(9, 42229), (10, 42286), (11, 42289), (Start: 24 @42412 has 37 MA's), (38, 42568), (39, 42577), (41, 42601), (45, 42670), (51, 42697), (54, 42715), (59, 42748), (61, 42760), (63, 42778), (67, 42811),

Gene: D12_36 Start: 38280, Stop: 38789, Start Num: 20
Candidate Starts for D12_36:
(12, 38253), (14, 38262), (Start: 20 @38280 has 8 MA's), (29, 38397), (31, 38403), (32, 38412), (33, 38421), (37, 38460), (50, 38571), (51, 38580), (52, 38589), (54, 38598), (57, 38622), (60, 38634), (66, 38685), (68, 38703), (70, 38715),

Gene: Eaglehorse_48 Start: 42336, Stop: 42872, Start Num: 24
Candidate Starts for Eaglehorse_48:
(9, 42153), (10, 42210), (11, 42213), (Start: 24 @42336 has 37 MA's), (38, 42492), (39, 42501), (41, 42525), (45, 42597), (46, 42603), (50, 42615), (51, 42624), (54, 42642), (59, 42675), (61, 42687), (63, 42705), (67, 42738),

Gene: EvilGenius_12 Start: 6384, Stop: 6953, Start Num: 13
Candidate Starts for EvilGenius_12:
(Start: 13 @6384 has 1 MA's), (19, 6429), (42, 6684), (43, 6708), (44, 6729),

Gene: Faze9_47 Start: 42432, Stop: 42965, Start Num: 24
Candidate Starts for Faze9_47:
(9, 42249), (10, 42306), (11, 42309), (Start: 24 @42432 has 37 MA's), (38, 42588), (39, 42597), (41, 42621), (45, 42690), (51, 42717), (54, 42735), (59, 42768), (61, 42780), (63, 42798), (67, 42831),

Gene: ForDig_41 Start: 39840, Stop: 40361, Start Num: 16
Candidate Starts for ForDig_41:
(Start: 16 @39840 has 2 MA's), (18, 39861), (23, 39888), (28, 39969), (33, 40005), (36, 40041), (40, 40065), (41, 40086), (49, 40161), (55, 40200), (63, 40254), (64, 40266), (67, 40284),

Gene: FrenchFry_48 Start: 42426, Stop: 42959, Start Num: 24
Candidate Starts for FrenchFry_48:
(9, 42243), (10, 42300), (11, 42303), (Start: 24 @42426 has 37 MA's), (38, 42582), (39, 42591), (41, 42615), (45, 42684), (51, 42711), (54, 42729), (59, 42762), (61, 42774), (63, 42792), (67, 42825),

Gene: Funsized_51 Start: 44809, Stop: 45291, Start Num: 22
Candidate Starts for Funsized_51:
(6, 44626), (15, 44758), (Start: 22 @44809 has 4 MA's), (25, 44848), (36, 44971), (42, 45043), (49, 45082), (54, 45112), (56, 45124), (61, 45157), (62, 45169), (71, 45229),

Gene: Glass_48 Start: 42426, Stop: 42962, Start Num: 24
Candidate Starts for Glass_48:
(9, 42243), (10, 42300), (11, 42303), (Start: 24 @42426 has 37 MA's), (38, 42582), (39, 42591), (41, 42615), (45, 42687), (46, 42693), (50, 42705), (51, 42714), (54, 42732), (59, 42765), (61, 42777), (63, 42795), (67, 42828),

Gene: GodPhather_38 Start: 38496, Stop: 39005, Start Num: 20
Candidate Starts for GodPhather_38:
(17, 38466), (Start: 20 @38496 has 8 MA's), (29, 38613), (31, 38619), (32, 38628), (33, 38637), (37, 38676), (50, 38787), (51, 38796), (52, 38805), (54, 38814), (57, 38838), (60, 38850), (66, 38901), (68, 38919), (70, 38931),

Gene: Godines_48 Start: 42368, Stop: 42901, Start Num: 24
Candidate Starts for Godines_48:
(1, 41258), (2, 41261), (3, 41555), (4, 41762), (5, 42029), (7, 42152), (9, 42185), (10, 42242), (11, 42245), (Start: 24 @42368 has 37 MA's), (27, 42431), (38, 42524), (39, 42533), (41, 42557), (45, 42626), (51, 42653), (54, 42671), (59, 42704), (61, 42716), (63, 42734), (67, 42767),

Gene: Hedgerow_48 Start: 42408, Stop: 42944, Start Num: 24
Candidate Starts for Hedgerow_48:
(9, 42225), (10, 42282), (11, 42285), (Start: 24 @42408 has 37 MA's), (38, 42564), (39, 42573), (41, 42597), (45, 42669), (46, 42675), (50, 42687), (51, 42696), (54, 42714), (59, 42747), (61, 42759), (63, 42777), (67, 42810),

Gene: Holeinone_48 Start: 42288, Stop: 42821, Start Num: 24
Candidate Starts for Holeinone_48:
(9, 42105), (10, 42162), (11, 42165), (Start: 24 @42288 has 37 MA's), (38, 42444), (39, 42453), (41, 42477), (45, 42546), (51, 42573), (54, 42591), (59, 42624), (61, 42636), (63, 42654), (67, 42687),

Gene: Hosp_039 Start: 38050, Stop: 38574, Start Num: 16
Candidate Starts for Hosp_039:
(Start: 16 @38050 has 2 MA's), (18, 38071), (23, 38098), (28, 38179), (33, 38215), (36, 38251), (40, 38275), (41, 38296), (49, 38371), (50, 38374), (55, 38410), (64, 38476),

Gene: Imvubu_40 Start: 38839, Stop: 39363, Start Num: 22
Candidate Starts for Imvubu_40:
(Start: 22 @38839 has 4 MA's), (27, 38923), (30, 38950), (53, 39151), (57, 39181), (74, 39310), (75, 39334),

Gene: ItsyBitsy1_48 Start: 42290, Stop: 42823, Start Num: 24
Candidate Starts for ItsyBitsy1_48:
(9, 42107), (10, 42164), (11, 42167), (Start: 24 @42290 has 37 MA's), (38, 42446), (39, 42455), (41, 42479), (45, 42548), (51, 42575), (54, 42593), (59, 42626), (61, 42638), (63, 42656), (67, 42689),

Gene: Jeon_37 Start: 38238, Stop: 38747, Start Num: 20
Candidate Starts for Jeon_37:
(17, 38208), (Start: 20 @38238 has 8 MA's), (29, 38355), (31, 38361), (32, 38370), (33, 38379), (37, 38418), (50, 38529), (51, 38538), (52, 38547), (54, 38556), (57, 38580), (60, 38592), (66, 38643), (68, 38661), (70, 38673),

Gene: Jolie1_041 Start: 39828, Stop: 40349, Start Num: 16
Candidate Starts for Jolie1_041:
(Start: 16 @39828 has 2 MA's), (18, 39849), (23, 39876), (28, 39957), (33, 39993), (36, 40029), (40, 40053), (41, 40074), (49, 40149), (55, 40188), (63, 40242), (64, 40254), (67, 40272),

Gene: Kaleb_48 Start: 42423, Stop: 42959, Start Num: 24
Candidate Starts for Kaleb_48:
(9, 42240), (10, 42297), (11, 42300), (Start: 24 @42423 has 37 MA's), (38, 42579), (39, 42588), (41, 42612), (45, 42684), (46, 42690), (50, 42702), (51, 42711), (54, 42729), (59, 42762), (61, 42774), (63, 42792), (67, 42825),

Gene: KayaCho_41 Start: 39832, Stop: 40353, Start Num: 16
Candidate Starts for KayaCho_41:
(Start: 16 @39832 has 2 MA's), (18, 39853), (23, 39880), (28, 39961), (33, 39997), (36, 40033), (40, 40057), (41, 40078), (49, 40153), (50, 40156), (55, 40192), (60, 40219), (63, 40246), (64, 40258), (67,

40276), (72, 40303),

Gene: Kheth_48 Start: 42341, Stop: 42874, Start Num: 24
Candidate Starts for Kheth_48:
(9, 42158), (10, 42215), (11, 42218), (Start: 24 @42341 has 37 MA's), (38, 42497), (39, 42506), (41, 42530), (45, 42599), (51, 42626), (54, 42644), (59, 42677), (61, 42689), (63, 42707), (67, 42740),

Gene: Knocker_49 Start: 43770, Stop: 44288, Start Num: 22
Candidate Starts for Knocker_49:
(8, 43602), (17, 43728), (Start: 22 @43770 has 4 MA's), (33, 43899), (36, 43935), (42, 44007), (57, 44112), (73, 44229), (74, 44241),

Gene: Kolhan_48 Start: 42296, Stop: 42829, Start Num: 24
Candidate Starts for Kolhan_48:
(9, 42113), (10, 42170), (11, 42173), (Start: 24 @42296 has 37 MA's), (38, 42452), (39, 42461), (41, 42485), (45, 42554), (51, 42581), (54, 42599), (59, 42632), (61, 42644), (63, 42662), (67, 42695),

Gene: Lars_48 Start: 42413, Stop: 42946, Start Num: 24
Candidate Starts for Lars_48:
(9, 42230), (10, 42287), (11, 42290), (Start: 24 @42413 has 37 MA's), (27, 42476), (38, 42569), (39, 42578), (41, 42602), (45, 42671), (51, 42698), (54, 42716), (59, 42749), (61, 42761), (63, 42779), (67, 42812),

Gene: Laurie_47 Start: 41812, Stop: 42345, Start Num: 24
Candidate Starts for Laurie_47:
(9, 41629), (10, 41686), (11, 41689), (Start: 24 @41812 has 37 MA's), (38, 41968), (39, 41977), (41, 42001), (45, 42070), (51, 42097), (54, 42115), (59, 42148), (61, 42160), (63, 42178), (67, 42211),

Gene: Lephleur_48 Start: 42306, Stop: 42839, Start Num: 24
Candidate Starts for Lephleur_48:
(9, 42123), (10, 42180), (11, 42183), (Start: 24 @42306 has 37 MA's), (38, 42462), (39, 42471), (41, 42495), (45, 42564), (51, 42591), (54, 42609), (59, 42642), (61, 42654), (63, 42672), (67, 42705),

Gene: LilMcDreamy_45 Start: 41638, Stop: 42135, Start Num: 22
Candidate Starts for LilMcDreamy_45:
(Start: 22 @41638 has 4 MA's), (28, 41728), (33, 41764), (36, 41800), (46, 41908), (48, 41914), (54, 41947), (55, 41956), (58, 41977),

Gene: LilSmirk_48 Start: 42300, Stop: 42836, Start Num: 24
Candidate Starts for LilSmirk_48:
(9, 42117), (10, 42174), (11, 42177), (Start: 24 @42300 has 37 MA's), (38, 42456), (39, 42465), (41, 42489), (45, 42561), (46, 42567), (50, 42579), (51, 42588), (54, 42606), (59, 42639), (61, 42651), (63, 42669), (67, 42702),

Gene: LizLemon_48 Start: 42422, Stop: 42955, Start Num: 24
Candidate Starts for LizLemon_48:
(9, 42239), (10, 42296), (11, 42299), (Start: 24 @42422 has 37 MA's), (38, 42578), (39, 42587), (41, 42611), (45, 42680), (51, 42707), (54, 42725), (59, 42758), (61, 42770), (63, 42788), (67, 42821),

Gene: MasterPo_48 Start: 42309, Stop: 42845, Start Num: 24
Candidate Starts for MasterPo_48:
(9, 42126), (10, 42183), (11, 42186), (Start: 24 @42309 has 37 MA's), (38, 42465), (39, 42474), (41, 42498), (45, 42570), (51, 42597), (54, 42615), (59, 42648), (61, 42660), (63, 42678), (67, 42711),

Gene: Megabear_37 Start: 37653, Stop: 38162, Start Num: 20
Candidate Starts for Megabear_37:
(12, 37626), (14, 37635), (Start: 20 @37653 has 8 MA's), (29, 37770), (31, 37776), (32, 37785), (33, 37794), (37, 37833), (50, 37944), (51, 37953), (52, 37962), (54, 37971), (57, 37995), (60, 38007), (66, 38058), (68, 38076), (70, 38088),

Gene: Minnow_42 Start: 39818, Stop: 40339, Start Num: 16
Candidate Starts for Minnow_42:
(Start: 16 @39818 has 2 MA's), (18, 39839), (23, 39866), (26, 39914), (28, 39947), (33, 39983), (36, 40019), (40, 40043), (41, 40064), (49, 40139), (50, 40142), (55, 40178), (63, 40232), (64, 40244), (67, 40262), (72, 40289),

Gene: Opia_48 Start: 42295, Stop: 42828, Start Num: 24
Candidate Starts for Opia_48:
(9, 42112), (10, 42169), (11, 42172), (Start: 24 @42295 has 37 MA's), (38, 42451), (39, 42460), (41, 42484), (45, 42553), (51, 42580), (54, 42598), (59, 42631), (61, 42643), (63, 42661), (67, 42694),

Gene: PR_37 Start: 38257, Stop: 38766, Start Num: 20
Candidate Starts for PR_37:
(12, 38230), (14, 38239), (Start: 20 @38257 has 8 MA's), (29, 38374), (31, 38380), (32, 38389), (33, 38398), (37, 38437), (50, 38548), (51, 38557), (52, 38566), (54, 38575), (57, 38599), (60, 38611), (66, 38662), (68, 38680), (70, 38692),

Gene: Phantasmagoria_48 Start: 42307, Stop: 42840, Start Num: 24
Candidate Starts for Phantasmagoria_48:
(9, 42124), (10, 42181), (11, 42184), (Start: 24 @42307 has 37 MA's), (38, 42463), (39, 42472), (41, 42496), (45, 42565), (51, 42592), (54, 42610), (59, 42643), (61, 42655), (63, 42673), (67, 42706),

Gene: PrinceCharming_48 Start: 42415, Stop: 42948, Start Num: 24
Candidate Starts for PrinceCharming_48:
(9, 42232), (10, 42289), (11, 42292), (Start: 24 @42415 has 37 MA's), (38, 42571), (39, 42580), (41, 42604), (45, 42673), (51, 42700), (54, 42718), (59, 42751), (61, 42763), (63, 42781), (67, 42814),

Gene: Qyrzula_45 Start: 42454, Stop: 42987, Start Num: 24
Candidate Starts for Qyrzula_45:
(9, 42271), (10, 42328), (11, 42331), (Start: 24 @42454 has 37 MA's), (38, 42610), (39, 42619), (41, 42643), (45, 42712), (46, 42718), (50, 42730), (51, 42739), (54, 42757), (59, 42790), (61, 42802), (63, 42820), (67, 42853),

Gene: Rhinoforte_48 Start: 42428, Stop: 42961, Start Num: 24
Candidate Starts for Rhinoforte_48:
(9, 42245), (10, 42302), (11, 42305), (Start: 24 @42428 has 37 MA's), (38, 42584), (39, 42593), (41, 42617), (45, 42686), (51, 42713), (54, 42731), (59, 42764), (61, 42776), (63, 42794), (67, 42827),

Gene: Rinkes_48 Start: 43276, Stop: 43770, Start Num: 21
Candidate Starts for Rinkes_48:
(6, 43096), (Start: 21 @43276 has 1 MA's), (25, 43327), (34, 43432), (35, 43441), (42, 43522), (47, 43555), (49, 43561), (56, 43603), (61, 43636), (62, 43648), (65, 43675), (69, 43696), (71, 43708),

Gene: Rosebush_47 Start: 42423, Stop: 42959, Start Num: 24
Candidate Starts for Rosebush_47:

(9, 42240), (10, 42297), (11, 42300), (Start: 24 @42423 has 37 MA's), (38, 42579), (39, 42588), (41, 42612), (45, 42684), (46, 42690), (50, 42702), (51, 42711), (54, 42729), (59, 42762), (61, 42774), (63, 42792), (67, 42825),

Gene: Sabella_47 Start: 42300, Stop: 42833, Start Num: 24
Candidate Starts for Sabella_47:
(9, 42117), (10, 42174), (11, 42177), (Start: 24 @42300 has 37 MA's), (38, 42456), (39, 42465), (41, 42489), (45, 42558), (51, 42585), (54, 42603), (59, 42636), (61, 42648), (63, 42666), (67, 42699),

Gene: TA17A_49 Start: 42290, Stop: 42823, Start Num: 24
Candidate Starts for TA17A_49:
(9, 42107), (10, 42164), (11, 42167), (Start: 24 @42290 has 37 MA's), (38, 42446), (39, 42455), (41, 42479), (45, 42548), (51, 42575), (54, 42593), (59, 42626), (61, 42638), (63, 42656), (67, 42689),

Gene: Taptic_37 Start: 37653, Stop: 38162, Start Num: 20
Candidate Starts for Taptic_37:
(12, 37626), (14, 37635), (Start: 20 @37653 has 8 MA's), (29, 37770), (31, 37776), (32, 37785), (33, 37794), (37, 37833), (50, 37944), (51, 37953), (52, 37962), (54, 37971), (57, 37995), (60, 38007), (66, 38058), (68, 38076), (70, 38088),

Gene: Tinciduntsolum_49 Start: 42434, Stop: 42970, Start Num: 24
Candidate Starts for Tinciduntsolum_49:
(9, 42251), (10, 42308), (11, 42311), (Start: 24 @42434 has 37 MA's), (38, 42590), (39, 42599), (41, 42623), (45, 42695), (46, 42701), (50, 42713), (51, 42722), (54, 42740), (59, 42773), (61, 42785), (63, 42803), (67, 42836),

Gene: Tres_48 Start: 42303, Stop: 42836, Start Num: 24
Candidate Starts for Tres_48:
(9, 42120), (10, 42177), (11, 42180), (Start: 24 @42303 has 37 MA's), (38, 42459), (39, 42468), (41, 42492), (45, 42561), (51, 42588), (54, 42606), (59, 42639), (61, 42651), (63, 42669), (67, 42702),

Gene: Vic9_00047 Start: 42812, Stop: 43345, Start Num: 24
Candidate Starts for Vic9_00047:
(9, 42629), (10, 42686), (11, 42689), (Start: 24 @42812 has 37 MA's), (38, 42968), (39, 42977), (41, 43001), (45, 43070), (51, 43097), (54, 43115), (59, 43148), (61, 43160), (63, 43178), (67, 43211),

Gene: West99_48 Start: 42423, Stop: 42956, Start Num: 24
Candidate Starts for West99_48:
(9, 42240), (10, 42297), (11, 42300), (Start: 24 @42423 has 37 MA's), (38, 42579), (39, 42588), (41, 42612), (45, 42681), (51, 42708), (54, 42726), (59, 42759), (61, 42771), (63, 42789), (67, 42822),