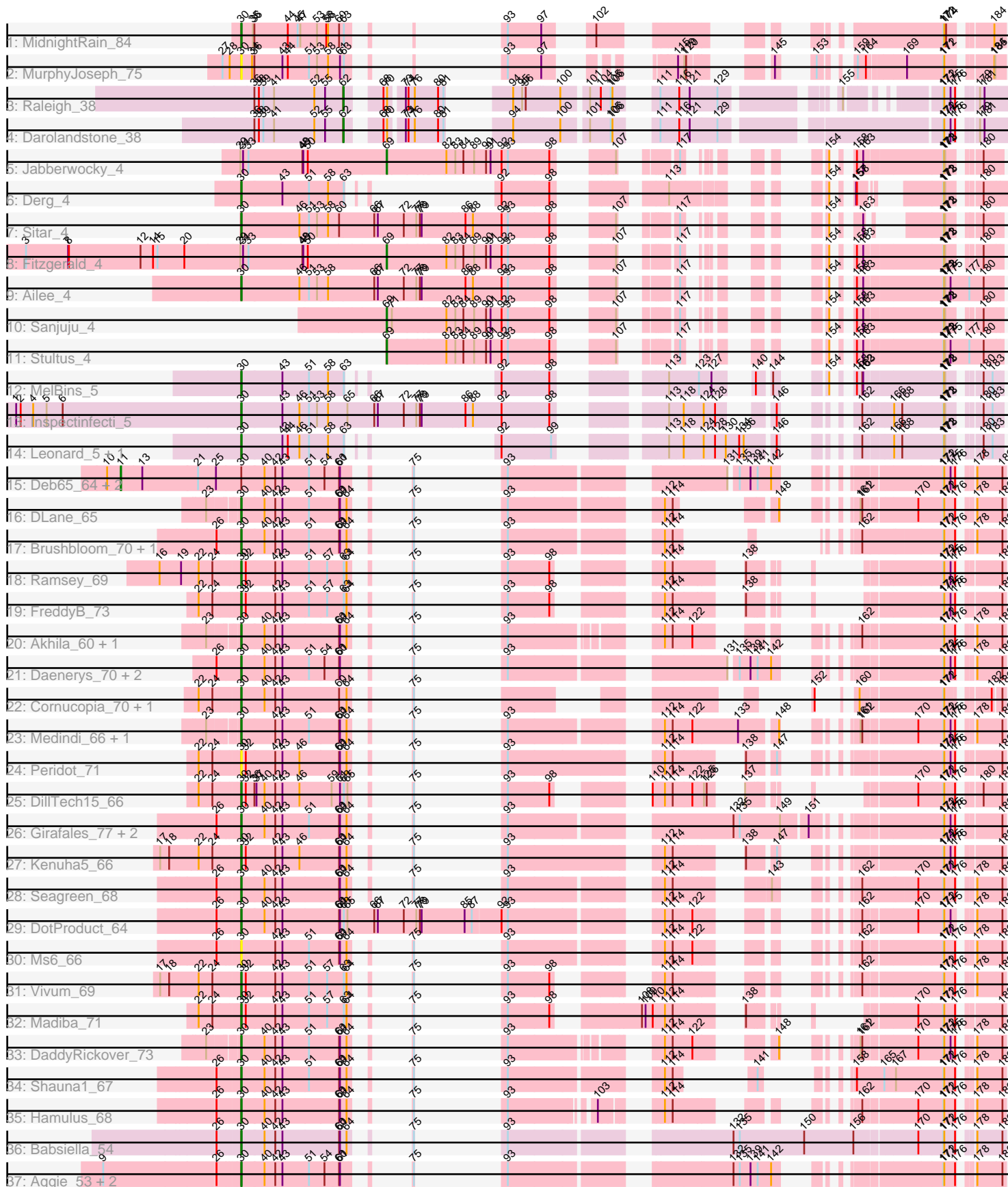


Pham 305085



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 305085 Report

This analysis was run 06/08/26 on database version 649.

Pham number 305085 has 50 members, 4 are drafts.

Phages represented in each track:

- Track 1 : MidnightRain_84
- Track 2 : MurphyJoseph_75
- Track 3 : Raleigh_38
- Track 4 : Darolandstone_38
- Track 5 : Jabberwocky_4
- Track 6 : Derg_4
- Track 7 : Sitar_4
- Track 8 : Fitzgerald_4
- Track 9 : Ailee_4
- Track 10 : Sanjuju_4
- Track 11 : Stultus_4
- Track 12 : MelBins_5
- Track 13 : Inspectinfecti_5
- Track 14 : Leonard_5, Phinally_5
- Track 15 : Deb65_64, Nimbo_63, Geralt_64
- Track 16 : DLane_65
- Track 17 : Brushbloom_70, Batiatus_66
- Track 18 : Ramsey_69
- Track 19 : FreddyB_73
- Track 20 : Akhila_60, MilanaBonita_59
- Track 21 : Daenerys_70, PHappiness_71, OldBen_68
- Track 22 : Cornucopia_70, VRedHorse_68
- Track 23 : Medindi_66, Filuzino_68
- Track 24 : Peridot_71
- Track 25 : DillTech15_66
- Track 26 : Girafales_77, Quico_77, Florinda_80
- Track 27 : Kenuha5_66
- Track 28 : Seagreen_68
- Track 29 : DotProduct_64
- Track 30 : Ms6_66
- Track 31 : Vivum_69
- Track 32 : Madiba_71
- Track 33 : DaddyRickover_73
- Track 34 : Shauna1_67
- Track 35 : Hamulus_68
- Track 36 : Babsiella_54
- Track 37 : Aggie_53, Silvy_53, Philonius_55

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

The start number called the most often in the published annotations is 30, it was called in 37 of the 46 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aggie_53, Ailee_4, Akhila_60, Babsiella_54, Batiatus_66, Brushbloom_70, Cornucopia_70, DLane_65, DaddyRickover_73, Daenerys_70, Derg_4, DillTech15_66, DotProduct_64, Filuzino_68, Florinda_80, FreddyB_73, Girafales_77, Hamulus_68, Inspectinfecti_5, Kenuha5_66, Leonard_5, Madiba_71, Medindi_66, MelBins_5, MidnightRain_84, MilanaBonita_59, Ms6_66, MurphyJoseph_75, OldBen_68, PHappiness_71, Peridot_71, Philonius_55, Phinally_5, Quico_77, Ramsey_69, Seagreen_68, Shauna1_67, Silvy_53, Sitar_4, VRedHorse_68, Vivum_69,

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

- Deb65_64, Geralt_64, Nimbo_63,

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

- Darolandstone_38, Fitzgerald_4, Jabberwocky_4, Raleigh_38, Sanjuju_4, Stultus_4,

Summary by start number:

Start 11:

- Found in 3 of 50 (6.0%) of genes in pham
- Manual Annotations of this start: 3 of 46
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Deb65_64 (F1), Geralt_64 (F1), Nimbo_63 (F1),

Start 30:

- Found in 44 of 50 (88.0%) of genes in pham
- Manual Annotations of this start: 37 of 46
- Called 93.2% of time when present
- Phage (with cluster) where this start called: Aggie_53 (N), Ailee_4 (DE1), Akhila_60 (F1), Babsiella_54 (I1), Batiatus_66 (F1), Brushbloom_70 (F1), Cornucopia_70 (F1), DLane_65 (F1), DaddyRickover_73 (F1), Daenerys_70 (F1), Derg_4 (DE1), DillTech15_66 (F1), DotProduct_64 (F1), Filuzino_68 (F1), Florinda_80 (F1), FreddyB_73 (F1), Girafales_77 (F1), Hamulus_68 (F1), Inspectinfecti_5 (DE2), Kenuha5_66 (F1), Leonard_5 (DE2), Madiba_71 (F1), Medindi_66 (F1), MelBins_5 (DE2), MidnightRain_84 (AY), MilanaBonita_59 (F1), Ms6_66 (F1), MurphyJoseph_75 (AY), OldBen_68 (F1), PHappiness_71 (F1), Peridot_71 (F1), Philonius_55 (N), Phinally_5 (DE2), Quico_77 (F1), Ramsey_69 (F1), Seagreen_68 (F1), Shauna1_67 (F1), Silvy_53 (N), Sitar_4 (DE1), VRedHorse_68 (F1), Vivum_69 (F1),

Start 62:

- Found in 2 of 50 (4.0%) of genes in pham
- Manual Annotations of this start: 2 of 46
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Darolandstone_38 (BC2), Raleigh_38 (BC2),

Start 69:

- Found in 4 of 50 (8.0%) of genes in pham
- Manual Annotations of this start: 4 of 46
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Fitzgerald_4 (DE1), Jabberwocky_4 (DE1), Sanjuju_4 (DE1), Stultus_4 (DE1),

Summary by clusters:

There are 7 clusters represented in this pham: F1, I1, DE1, DE2, N, AY, BC2,

Info for manual annotations of cluster AY:

- Start number 30 was manually annotated 1 time for cluster AY.

Info for manual annotations of cluster BC2:

- Start number 62 was manually annotated 2 times for cluster BC2.

Info for manual annotations of cluster DE1:

- Start number 30 was manually annotated 3 times for cluster DE1.
- Start number 69 was manually annotated 4 times for cluster DE1.

Info for manual annotations of cluster DE2:

- Start number 30 was manually annotated 4 times for cluster DE2.

Info for manual annotations of cluster F1:

- Start number 11 was manually annotated 3 times for cluster F1.
- Start number 30 was manually annotated 25 times for cluster F1.

Info for manual annotations of cluster I1:

- Start number 30 was manually annotated 1 time for cluster I1.

Info for manual annotations of cluster N:

- Start number 30 was manually annotated 3 times for cluster N.

Gene Information:

Gene: Aggie_53 Start: 35734, Stop: 37386, Start Num: 30

Candidate Starts for Aggie_53:

(9, 35296), (26, 35668), (Start: 30 @35734 has 37 MA's), (40, 35809), (42, 35845), (43, 35869), (51, 35956), (54, 36007), (60, 36055), (61, 36058), (75, 36106), (93, 36127), (132, 36757), (135, 36778), (139, 36814), (141, 36838), (142, 36883), (171, 37234), (172, 37237), (176, 37267), (178, 37294), (186, 37375),

Gene: Ailee_4 Start: 2435, Stop: 4309, Start Num: 30

Candidate Starts for Ailee_4:

(Start: 30 @2435 has 37 MA's), (46, 2627), (51, 2657), (53, 2684), (58, 2720), (66, 2873), (67, 2885), (72, 2972), (77, 3014), (78, 3026), (79, 3032), (86, 3176), (88, 3200), (92, 3296), (93, 3317), (98, 3452), (107, 3557), (117, 3653), (154, 3821), (158, 3842), (163, 3863), (171, 4112), (172, 4115), (173, 4118),

(175, 4136), (177, 4199), (180, 4247),

Gene: Akhila_60 Start: 39092, Stop: 40543, Start Num: 30

Candidate Starts for Akhila_60:

(23, 39011), (Start: 30 @39092 has 37 MA's), (40, 39167), (42, 39203), (43, 39227), (60, 39413), (61, 39416), (64, 39437), (75, 39464), (93, 39485), (112, 39830), (114, 39851), (122, 39911), (162, 40151), (171, 40391), (172, 40394), (176, 40424), (178, 40451), (186, 40532),

Gene: Babsiella_54 Start: 36714, Stop: 38561, Start Num: 30

Candidate Starts for Babsiella_54:

(26, 36648), (Start: 30 @36714 has 37 MA's), (40, 36789), (42, 36825), (43, 36849), (60, 37035), (61, 37038), (64, 37059), (75, 37086), (93, 37107), (132, 37737), (135, 37758), (150, 37974), (156, 38139), (170, 38331), (171, 38409), (172, 38412), (176, 38442), (178, 38469), (186, 38550),

Gene: Batiatus_66 Start: 42780, Stop: 44096, Start Num: 30

Candidate Starts for Batiatus_66:

(26, 42714), (Start: 30 @42780 has 37 MA's), (40, 42855), (42, 42891), (43, 42915), (51, 43002), (60, 43101), (61, 43104), (64, 43125), (75, 43152), (93, 43173), (112, 43572), (114, 43593), (162, 43695), (171, 43944), (172, 43947), (176, 43977), (178, 44004), (186, 44085),

Gene: Brushbloom_70 Start: 43712, Stop: 45028, Start Num: 30

Candidate Starts for Brushbloom_70:

(26, 43646), (Start: 30 @43712 has 37 MA's), (40, 43787), (42, 43823), (43, 43847), (51, 43934), (60, 44033), (61, 44036), (64, 44057), (75, 44084), (93, 44105), (112, 44504), (114, 44525), (162, 44627), (171, 44876), (172, 44879), (176, 44909), (178, 44936), (186, 45017),

Gene: Cornucopia_70 Start: 43350, Stop: 44651, Start Num: 30

Candidate Starts for Cornucopia_70:

(22, 43227), (24, 43269), (Start: 30 @43350 has 37 MA's), (40, 43425), (42, 43461), (43, 43485), (60, 43671), (64, 43695), (75, 43722), (152, 44238), (160, 44259), (171, 44508), (172, 44511), (182, 44616), (186, 44640),

Gene: DLane_65 Start: 42636, Stop: 44030, Start Num: 30

Candidate Starts for DLane_65:

(23, 42555), (Start: 30 @42636 has 37 MA's), (40, 42711), (42, 42747), (43, 42771), (51, 42858), (60, 42957), (61, 42960), (64, 42981), (75, 43008), (93, 43029), (112, 43428), (114, 43449), (148, 43554), (161, 43632), (162, 43638), (170, 43800), (171, 43878), (172, 43881), (176, 43911), (178, 43938), (186, 44019),

Gene: DaddyRickover_73 Start: 45172, Stop: 46629, Start Num: 30

Candidate Starts for DaddyRickover_73:

(23, 45091), (Start: 30 @45172 has 37 MA's), (40, 45247), (42, 45283), (43, 45307), (51, 45394), (60, 45493), (61, 45496), (64, 45517), (75, 45544), (93, 45565), (112, 45910), (114, 45931), (122, 45991), (148, 46153), (161, 46231), (162, 46237), (170, 46399), (171, 46477), (172, 46480), (175, 46501), (176, 46510), (178, 46537), (186, 46618),

Gene: Daenerys_70 Start: 45291, Stop: 46922, Start Num: 30

Candidate Starts for Daenerys_70:

(26, 45210), (Start: 30 @45291 has 37 MA's), (40, 45366), (42, 45402), (43, 45426), (51, 45513), (54, 45564), (60, 45612), (61, 45615), (75, 45663), (93, 45684), (131, 46293), (135, 46314), (139, 46350), (141, 46374), (142, 46419), (171, 46770), (172, 46773), (175, 46794), (176, 46803), (178, 46830), (186, 46911),

Gene: Darolandstone_38 Start: 28753, Stop: 30447, Start Num: 62

Candidate Starts for Darolandstone_38:

(36, 28456), (38, 28471), (39, 28486), (41, 28522), (52, 28657), (55, 28693), (Start: 62 @28753 has 2 MA's), (68, 28831), (70, 28843), (73, 28885), (74, 28894), (76, 28915), (80, 28993), (81, 29011), (94, 29080), (100, 29233), (101, 29308), (105, 29377), (106, 29383), (111, 29452), (116, 29512), (121, 29545), (129, 29635), (171, 30283), (172, 30286), (175, 30307), (176, 30316), (179, 30352), (181, 30367),

Gene: Deb65_64 Start: 42619, Stop: 44643, Start Num: 11

Candidate Starts for Deb65_64:

(10, 42574), (Start: 11 @42619 has 3 MA's), (13, 42688), (21, 42871), (25, 42928), (Start: 30 @43012 has 37 MA's), (40, 43087), (42, 43123), (43, 43147), (51, 43234), (54, 43285), (60, 43333), (61, 43336), (75, 43384), (93, 43405), (131, 44014), (135, 44035), (139, 44071), (141, 44095), (142, 44140), (171, 44491), (172, 44494), (175, 44515), (176, 44524), (178, 44551), (186, 44632),

Gene: Derg_4 Start: 2405, Stop: 3790, Start Num: 30

Candidate Starts for Derg_4:

(Start: 30 @2405 has 37 MA's), (43, 2540), (51, 2627), (58, 2690), (63, 2741), (92, 2777), (98, 2933), (113, 3158), (154, 3425), (157, 3443), (158, 3446), (171, 3617), (172, 3620), (173, 3623), (180, 3701),

Gene: DillTech15_66 Start: 41528, Stop: 42871, Start Num: 30

Candidate Starts for DillTech15_66:

(22, 41405), (24, 41447), (Start: 30 @41528 has 37 MA's), (32, 41543), (36, 41570), (37, 41576), (40, 41603), (42, 41639), (43, 41663), (46, 41720), (59, 41825), (61, 41852), (63, 41864), (65, 41876), (75, 41900), (93, 41921), (98, 42056), (110, 42206), (112, 42242), (114, 42263), (122, 42323), (125, 42359), (126, 42368), (137, 42395), (170, 42638), (171, 42719), (172, 42722), (176, 42752), (180, 42800), (186, 42860),

Gene: DotProduct_64 Start: 41819, Stop: 43810, Start Num: 30

Candidate Starts for DotProduct_64:

(26, 41753), (Start: 30 @41819 has 37 MA's), (40, 41894), (42, 41930), (43, 41954), (60, 42140), (61, 42143), (63, 42155), (65, 42167), (66, 42257), (67, 42269), (72, 42356), (77, 42398), (78, 42410), (79, 42416), (85, 42560), (87, 42584), (92, 42677), (93, 42698), (112, 43097), (114, 43118), (122, 43178), (162, 43418), (170, 43580), (171, 43658), (172, 43661), (175, 43682), (178, 43718), (186, 43799),

Gene: Filuzino_68 Start: 42971, Stop: 44581, Start Num: 30

Candidate Starts for Filuzino_68:

(23, 42890), (Start: 30 @42971 has 37 MA's), (42, 43082), (43, 43106), (51, 43193), (60, 43292), (61, 43295), (64, 43316), (75, 43343), (93, 43364), (112, 43763), (114, 43784), (122, 43844), (133, 43994), (148, 44105), (161, 44183), (162, 44189), (170, 44351), (171, 44429), (172, 44432), (175, 44453), (176, 44462), (178, 44489), (186, 44570),

Gene: Fitzgerald_4 Start: 2397, Stop: 3731, Start Num: 69

Candidate Starts for Fitzgerald_4:

(3, 1218), (7, 1359), (8, 1362), (12, 1602), (14, 1644), (15, 1659), (20, 1749), (29, 1923), (31, 1932), (33, 1950), (48, 2127), (49, 2130), (50, 2142), (Start: 69 @2397 has 4 MA's), (82, 2589), (83, 2619), (84, 2646), (89, 2682), (90, 2718), (91, 2733), (92, 2769), (93, 2790), (98, 2925), (107, 3030), (117, 3126), (154, 3294), (158, 3315), (163, 3336), (171, 3585), (172, 3588), (173, 3591), (180, 3669),

Gene: Florinda_80 Start: 44991, Stop: 46736, Start Num: 30

Candidate Starts for Florinda_80:

(26, 44925), (Start: 30 @44991 has 37 MA's), (40, 45066), (42, 45102), (43, 45126), (51, 45213), (60, 45312), (61, 45315), (64, 45336), (75, 45363), (93, 45384), (132, 46014), (135, 46035), (149, 46170),

(151, 46251), (171, 46584), (172, 46587), (175, 46608), (176, 46617), (186, 46725),

Gene: FreddyB_73 Start: 44628, Stop: 45971, Start Num: 30

Candidate Starts for FreddyB_73:

(22, 44505), (24, 44547), (Start: 30 @44628 has 37 MA's), (32, 44643), (42, 44739), (43, 44763), (51, 44850), (57, 44910), (63, 44964), (64, 44973), (75, 45000), (93, 45021), (98, 45156), (112, 45342), (114, 45363), (138, 45498), (171, 45819), (172, 45822), (175, 45843), (176, 45852), (186, 45960),

Gene: Geralt_64 Start: 42618, Stop: 44642, Start Num: 11

Candidate Starts for Geralt_64:

(10, 42573), (Start: 11 @42618 has 3 MA's), (13, 42687), (21, 42870), (25, 42927), (Start: 30 @43011 has 37 MA's), (40, 43086), (42, 43122), (43, 43146), (51, 43233), (54, 43284), (60, 43332), (61, 43335), (75, 43383), (93, 43404), (131, 44013), (135, 44034), (139, 44070), (141, 44094), (142, 44139), (171, 44490), (172, 44493), (175, 44514), (176, 44523), (178, 44550), (186, 44631),

Gene: Girafales_77 Start: 44782, Stop: 46527, Start Num: 30

Candidate Starts for Girafales_77:

(26, 44716), (Start: 30 @44782 has 37 MA's), (40, 44857), (42, 44893), (43, 44917), (51, 45004), (60, 45103), (61, 45106), (64, 45127), (75, 45154), (93, 45175), (132, 45805), (135, 45826), (149, 45961), (151, 46042), (171, 46375), (172, 46378), (175, 46399), (176, 46408), (186, 46516),

Gene: Hamulus_68 Start: 43189, Stop: 44649, Start Num: 30

Candidate Starts for Hamulus_68:

(26, 43123), (Start: 30 @43189 has 37 MA's), (40, 43264), (42, 43300), (43, 43324), (60, 43510), (61, 43513), (64, 43534), (75, 43561), (93, 43582), (103, 43828), (112, 43936), (114, 43957), (162, 44257), (170, 44419), (171, 44497), (172, 44500), (176, 44530), (178, 44557), (186, 44638),

Gene: Inspectinfecti_5 Start: 2791, Stop: 4749, Start Num: 30

Candidate Starts for Inspectinfecti_5:

(1, 2047), (2, 2062), (4, 2104), (5, 2149), (6, 2203), (Start: 30 @2791 has 37 MA's), (43, 2926), (46, 2983), (51, 3013), (53, 3040), (58, 3076), (65, 3139), (66, 3229), (67, 3241), (72, 3328), (77, 3370), (78, 3382), (79, 3388), (86, 3532), (88, 3556), (92, 3652), (98, 3808), (113, 4033), (118, 4075), (124, 4138), (128, 4174), (146, 4270), (162, 4360), (166, 4444), (168, 4471), (171, 4603), (172, 4606), (173, 4609), (180, 4687), (183, 4717),

Gene: Jabberwocky_4 Start: 2397, Stop: 3731, Start Num: 69

Candidate Starts for Jabberwocky_4:

(29, 1923), (31, 1932), (33, 1950), (48, 2127), (49, 2130), (50, 2142), (Start: 69 @2397 has 4 MA's), (82, 2589), (83, 2619), (84, 2646), (89, 2682), (90, 2718), (91, 2733), (92, 2769), (93, 2790), (98, 2925), (107, 3030), (117, 3126), (154, 3294), (158, 3315), (163, 3336), (171, 3585), (172, 3588), (173, 3591), (180, 3669),

Gene: Kenuha5_66 Start: 44310, Stop: 45839, Start Num: 30

Candidate Starts for Kenuha5_66:

(17, 44061), (18, 44091), (22, 44187), (24, 44229), (Start: 30 @44310 has 37 MA's), (32, 44325), (42, 44421), (43, 44445), (46, 44502), (60, 44631), (61, 44634), (64, 44655), (75, 44682), (93, 44703), (112, 45117), (114, 45138), (138, 45273), (147, 45354), (171, 45687), (172, 45690), (175, 45711), (176, 45720), (186, 45828),

Gene: Leonard_5 Start: 2785, Stop: 4344, Start Num: 30

Candidate Starts for Leonard_5:

(Start: 30 @2785 has 37 MA's), (43, 2920), (44, 2938), (46, 2977), (51, 3007), (58, 3070), (63, 3121), (92, 3157), (99, 3319), (113, 3538), (118, 3580), (124, 3643), (128, 3679), (130, 3715), (134, 3760),

(136, 3775), (146, 3862), (162, 3952), (166, 4039), (168, 4066), (171, 4198), (172, 4201), (173, 4204), (180, 4282), (183, 4312),

Gene: Madiba_71 Start: 44963, Stop: 46402, Start Num: 30

Candidate Starts for Madiba_71:

(22, 44840), (24, 44882), (Start: 30 @44963 has 37 MA's), (32, 44978), (42, 45074), (43, 45098), (51, 45185), (57, 45245), (63, 45299), (64, 45308), (75, 45335), (93, 45356), (98, 45491), (108, 45698), (109, 45710), (110, 45734), (112, 45770), (114, 45791), (138, 45926), (170, 46169), (171, 46250), (172, 46253), (176, 46283), (186, 46391),

Gene: Medindi_66 Start: 41626, Stop: 43236, Start Num: 30

Candidate Starts for Medindi_66:

(23, 41545), (Start: 30 @41626 has 37 MA's), (42, 41737), (43, 41761), (51, 41848), (60, 41947), (61, 41950), (64, 41971), (75, 41998), (93, 42019), (112, 42418), (114, 42439), (122, 42499), (133, 42649), (148, 42760), (161, 42838), (162, 42844), (170, 43006), (171, 43084), (172, 43087), (175, 43108), (176, 43117), (178, 43144), (186, 43225),

Gene: MelBins_5 Start: 2786, Stop: 4273, Start Num: 30

Candidate Starts for MelBins_5:

(Start: 30 @2786 has 37 MA's), (43, 2921), (51, 3008), (58, 3071), (63, 3122), (92, 3158), (98, 3314), (113, 3539), (123, 3632), (127, 3674), (140, 3737), (144, 3773), (154, 3836), (158, 3857), (162, 3875), (163, 3878), (171, 4127), (172, 4130), (173, 4133), (180, 4211), (183, 4241),

Gene: MidnightRain_84 Start: 45169, Stop: 46623, Start Num: 30

Candidate Starts for MidnightRain_84:

(Start: 30 @45169 has 37 MA's), (35, 45208), (36, 45211), (44, 45322), (45, 45355), (47, 45364), (53, 45418), (56, 45448), (58, 45454), (60, 45490), (63, 45505), (93, 45562), (97, 45673), (102, 45751), (171, 46465), (172, 46468), (174, 46474), (184, 46585),

Gene: MilanaBonita_59 Start: 39092, Stop: 40543, Start Num: 30

Candidate Starts for MilanaBonita_59:

(23, 39011), (Start: 30 @39092 has 37 MA's), (40, 39167), (42, 39203), (43, 39227), (60, 39413), (61, 39416), (64, 39437), (75, 39464), (93, 39485), (112, 39830), (114, 39851), (122, 39911), (162, 40151), (171, 40391), (172, 40394), (176, 40424), (178, 40451), (186, 40532),

Gene: Ms6_66 Start: 38754, Stop: 40259, Start Num: 30

Candidate Starts for Ms6_66:

(26, 38688), (Start: 30 @38754 has 37 MA's), (42, 38865), (43, 38889), (51, 38976), (60, 39075), (61, 39078), (64, 39099), (75, 39126), (93, 39147), (112, 39546), (114, 39567), (122, 39627), (162, 39867), (171, 40107), (172, 40110), (176, 40140), (178, 40167), (186, 40248),

Gene: MurphyJoseph_75 Start: 42444, Stop: 43799, Start Num: 30

Candidate Starts for MurphyJoseph_75:

(27, 42384), (28, 42408), (Start: 30 @42444 has 37 MA's), (34, 42480), (36, 42486), (43, 42579), (44, 42597), (51, 42666), (53, 42693), (58, 42729), (61, 42768), (63, 42780), (93, 42837), (97, 42948), (115, 43128), (119, 43149), (120, 43155), (145, 43296), (153, 43332), (159, 43383), (164, 43404), (169, 43521), (171, 43641), (172, 43644), (184, 43761), (185, 43764),

Gene: Nimbo_63 Start: 42621, Stop: 44645, Start Num: 11

Candidate Starts for Nimbo_63:

(10, 42576), (Start: 11 @42621 has 3 MA's), (13, 42690), (21, 42873), (25, 42930), (Start: 30 @43014 has 37 MA's), (40, 43089), (42, 43125), (43, 43149), (51, 43236), (54, 43287), (60, 43335), (61, 43338), (75, 43386), (93, 43407), (131, 44016), (135, 44037), (139, 44073), (141, 44097), (142, 44142), (171,

44493), (172, 44496), (175, 44517), (176, 44526), (178, 44553), (186, 44634),

Gene: OldBen_68 Start: 44406, Stop: 46037, Start Num: 30

Candidate Starts for OldBen_68:

(26, 44325), (Start: 30 @44406 has 37 MA's), (40, 44481), (42, 44517), (43, 44541), (51, 44628), (54, 44679), (60, 44727), (61, 44730), (75, 44778), (93, 44799), (131, 45408), (135, 45429), (139, 45465), (141, 45489), (142, 45534), (171, 45885), (172, 45888), (175, 45909), (176, 45918), (178, 45945), (186, 46026),

Gene: PHappiness_71 Start: 45235, Stop: 46866, Start Num: 30

Candidate Starts for PHappiness_71:

(26, 45154), (Start: 30 @45235 has 37 MA's), (40, 45310), (42, 45346), (43, 45370), (51, 45457), (54, 45508), (60, 45556), (61, 45559), (75, 45607), (93, 45628), (131, 46237), (135, 46258), (139, 46294), (141, 46318), (142, 46363), (171, 46714), (172, 46717), (175, 46738), (176, 46747), (178, 46774), (186, 46855),

Gene: Peridot_71 Start: 43687, Stop: 45216, Start Num: 30

Candidate Starts for Peridot_71:

(22, 43564), (24, 43606), (Start: 30 @43687 has 37 MA's), (32, 43702), (42, 43798), (43, 43822), (46, 43879), (60, 44008), (61, 44011), (64, 44032), (75, 44059), (93, 44080), (112, 44494), (114, 44515), (138, 44650), (147, 44731), (171, 45064), (172, 45067), (175, 45088), (176, 45097), (186, 45205),

Gene: Philonius_55 Start: 35263, Stop: 36915, Start Num: 30

Candidate Starts for Philonius_55:

(9, 34825), (26, 35197), (Start: 30 @35263 has 37 MA's), (40, 35338), (42, 35374), (43, 35398), (51, 35485), (54, 35536), (60, 35584), (61, 35587), (75, 35635), (93, 35656), (132, 36286), (135, 36307), (139, 36343), (141, 36367), (142, 36412), (171, 36763), (172, 36766), (176, 36796), (178, 36823), (186, 36904),

Gene: Phinally_5 Start: 2785, Stop: 4341, Start Num: 30

Candidate Starts for Phinally_5:

(Start: 30 @2785 has 37 MA's), (43, 2920), (44, 2938), (46, 2977), (51, 3007), (58, 3070), (63, 3121), (92, 3157), (99, 3319), (113, 3538), (118, 3580), (124, 3643), (128, 3679), (130, 3715), (134, 3760), (136, 3775), (146, 3862), (162, 3952), (166, 4036), (168, 4063), (171, 4195), (172, 4198), (173, 4201), (180, 4279), (183, 4309),

Gene: Quico_77 Start: 44811, Stop: 46556, Start Num: 30

Candidate Starts for Quico_77:

(26, 44745), (Start: 30 @44811 has 37 MA's), (40, 44886), (42, 44922), (43, 44946), (51, 45033), (60, 45132), (61, 45135), (64, 45156), (75, 45183), (93, 45204), (132, 45834), (135, 45855), (149, 45990), (151, 46071), (171, 46404), (172, 46407), (175, 46428), (176, 46437), (186, 46545),

Gene: Raleigh_38 Start: 29256, Stop: 30815, Start Num: 62

Candidate Starts for Raleigh_38:

(36, 28959), (38, 28974), (39, 28989), (41, 29025), (52, 29160), (55, 29196), (Start: 62 @29256 has 2 MA's), (68, 29334), (70, 29346), (73, 29388), (74, 29397), (76, 29418), (80, 29496), (81, 29514), (94, 29583), (95, 29610), (96, 29622), (100, 29736), (101, 29811), (104, 29847), (105, 29880), (106, 29886), (111, 29955), (116, 30015), (121, 30048), (129, 30138), (155, 30435), (171, 30651), (172, 30654), (175, 30675), (176, 30684), (179, 30720), (181, 30735),

Gene: Ramsey_69 Start: 45364, Stop: 46707, Start Num: 30

Candidate Starts for Ramsey_69:

(16, 45112), (19, 45184), (22, 45241), (24, 45283), (Start: 30 @45364 has 37 MA's), (32, 45379), (42, 45475), (43, 45499), (51, 45586), (57, 45646), (63, 45700), (64, 45709), (75, 45736), (93, 45757), (98, 45892), (112, 46078), (114, 46099), (138, 46234), (171, 46555), (172, 46558), (175, 46579), (176, 46588), (186, 46696),

Gene: Sanjuju_4 Start: 2435, Stop: 3769, Start Num: 69

Candidate Starts for Sanjuju_4:

(Start: 69 @2435 has 4 MA's), (71, 2450), (82, 2627), (83, 2657), (84, 2684), (89, 2720), (90, 2756), (91, 2771), (92, 2807), (93, 2828), (98, 2963), (107, 3068), (117, 3164), (154, 3332), (158, 3353), (163, 3374), (171, 3623), (172, 3626), (173, 3629), (180, 3707),

Gene: Seagreen_68 Start: 42620, Stop: 44155, Start Num: 30

Candidate Starts for Seagreen_68:

(26, 42554), (Start: 30 @42620 has 37 MA's), (40, 42695), (42, 42731), (43, 42755), (60, 42941), (61, 42944), (64, 42965), (75, 42992), (93, 43013), (112, 43412), (114, 43433), (143, 43649), (162, 43754), (170, 43925), (171, 44003), (172, 44006), (176, 44036), (178, 44063), (186, 44144),

Gene: Shauna1_67 Start: 43160, Stop: 44527, Start Num: 30

Candidate Starts for Shauna1_67:

(26, 43094), (Start: 30 @43160 has 37 MA's), (40, 43235), (42, 43271), (43, 43295), (51, 43382), (60, 43481), (61, 43484), (64, 43505), (75, 43532), (93, 43553), (112, 43952), (114, 43973), (141, 44033), (158, 44105), (165, 44189), (167, 44222), (171, 44375), (172, 44378), (176, 44408), (178, 44435), (186, 44516),

Gene: Silvy_53 Start: 35734, Stop: 37386, Start Num: 30

Candidate Starts for Silvy_53:

(9, 35296), (26, 35668), (Start: 30 @35734 has 37 MA's), (40, 35809), (42, 35845), (43, 35869), (51, 35956), (54, 36007), (60, 36055), (61, 36058), (75, 36106), (93, 36127), (132, 36757), (135, 36778), (139, 36814), (141, 36838), (142, 36883), (171, 37234), (172, 37237), (176, 37267), (178, 37294), (186, 37375),

Gene: Sitar_4 Start: 2434, Stop: 4143, Start Num: 30

Candidate Starts for Sitar_4:

(Start: 30 @2434 has 37 MA's), (46, 2626), (51, 2656), (53, 2683), (58, 2719), (60, 2755), (66, 2872), (67, 2884), (72, 2971), (77, 3013), (78, 3025), (79, 3031), (86, 3175), (88, 3199), (92, 3295), (93, 3316), (98, 3451), (107, 3556), (117, 3652), (154, 3820), (163, 3862), (171, 3997), (172, 4000), (173, 4003), (180, 4081),

Gene: Stultus_4 Start: 2433, Stop: 3818, Start Num: 69

Candidate Starts for Stultus_4:

(Start: 69 @2433 has 4 MA's), (82, 2625), (83, 2655), (84, 2682), (89, 2718), (90, 2754), (91, 2769), (92, 2805), (93, 2826), (98, 2961), (107, 3066), (117, 3162), (154, 3330), (158, 3351), (163, 3372), (171, 3621), (172, 3624), (173, 3627), (175, 3645), (177, 3708), (180, 3756),

Gene: VRedHorse_68 Start: 42168, Stop: 43469, Start Num: 30

Candidate Starts for VRedHorse_68:

(22, 42045), (24, 42087), (Start: 30 @42168 has 37 MA's), (40, 42243), (42, 42279), (43, 42303), (60, 42489), (64, 42513), (75, 42540), (152, 43056), (160, 43077), (171, 43326), (172, 43329), (182, 43434), (186, 43458),

Gene: Vivum_69 Start: 45738, Stop: 47165, Start Num: 30

Candidate Starts for Vivum_69:

(17, 45489), (18, 45519), (22, 45615), (24, 45657), (Start: 30 @45738 has 37 MA's), (32, 45753), (42, 45849), (43, 45873), (51, 45960), (57, 46020), (63, 46074), (64, 46083), (75, 46110), (93, 46131), (98, 46266), (112, 46452), (114, 46473), (162, 46773), (171, 47013), (172, 47016), (176, 47046), (178, 47073), (186, 47154),