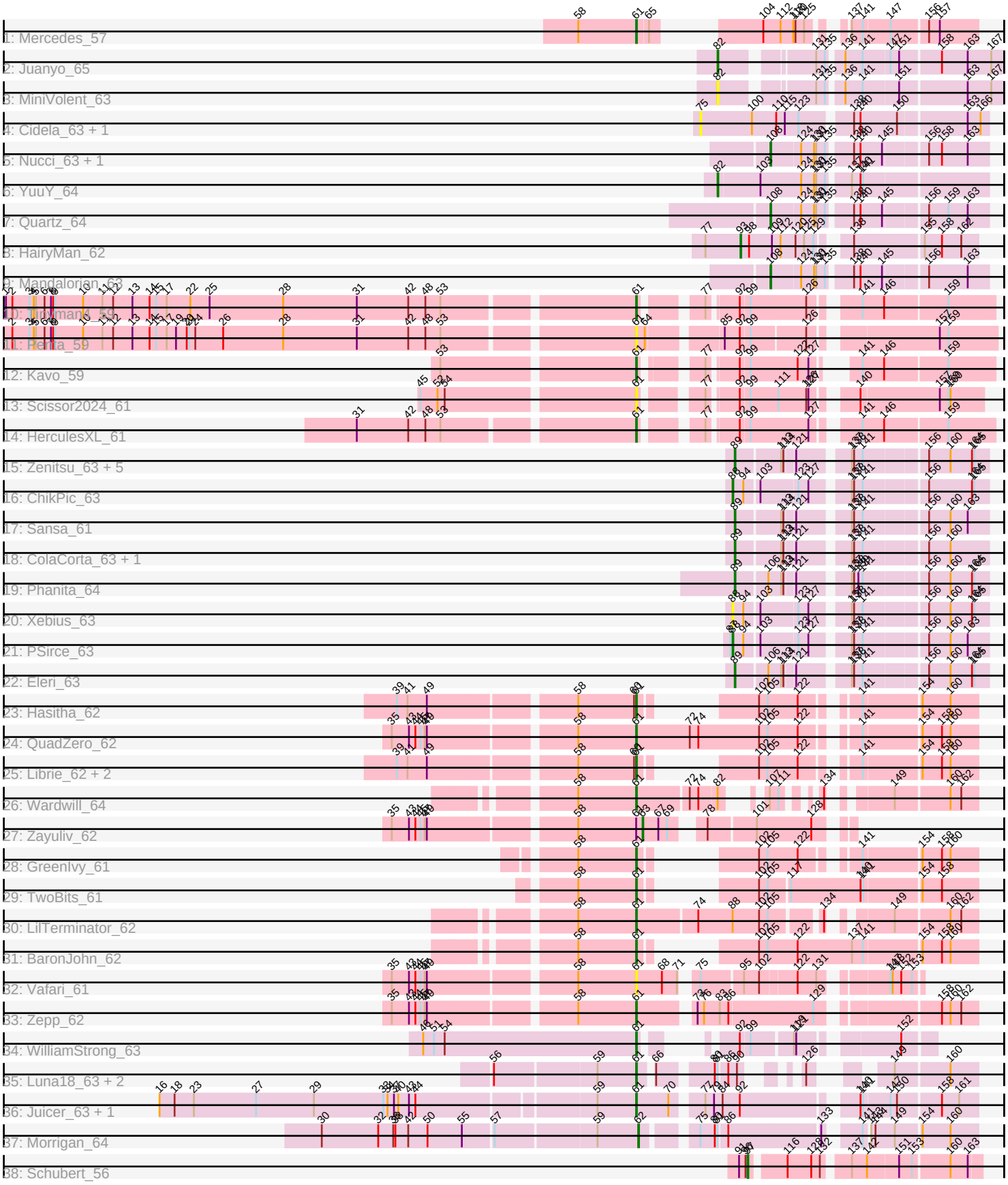
Pham 347713


1: Mercedes_57
2: Juanyo_65
3: MiniVolent_63
4: Cidela_63 + 1
5: Nucci_63 + 1
6: YuuY_64
7: Quartz_64
8: HairyMan_62
9: Mandalorian_63
10: Tinytmanic_59
11: Perita_59
12: Kavo_59
13: Scissor2024_61
14: HerculesXL_61
15: Zenitsu_63 + 5
16: ChikPic_63
17: Sansa_61
18: ColaCorta_63 + 1
19: Phanita_64
20: Xebius_63
21: PSirce_63
22: Eleri_63
23: Hasitha_62
24: QuadZero_62
25: Librie_62 + 2
26: Wardwill_64
27: Zayuliv_62
28: GreenIvy_61
29: TwoBits_61
30: LilTerminator_62
31: BaronJohn_62
32: Vafari_61
33: Zepp_62
34: WilliamStrong_63
35: Luna18_63 + 2
36: Juicer_63 + 1
37: Morrigan_64
38: Schubert_56

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 347713 Report

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

Pham number 347713 has 51 members, 7 are drafts.

Phages represented in each track:
- Track 1 : Mercedes_57
- Track 2 : Juanyo_65
- Track 3 : MiniVolent_63
- Track 4 : Cidela_63, Fabyndrax_63
- Track 5 : Nucci_63, Carostasia_63
- Track 6 : YuuY_64
- Track 7 : Quartz_64
- Track 8 : HairyMan_62
- Track 9 : Mandalorian_63
- Track 10 : Tinyman4_59
- Track 11 : Penta_59
- Track 12 : Kavo_59
- Track 13 : Scissor2024_61
- Track 14 : HerculesXL_61
- Track 15 : Zenitsu_63, Orpington_62, MCubed_63, Saratos_63, Shamu_63, Glamour_62
- Track 16 : ChikPic_63
- Track 17 : Sansa_61
- Track 18 : ColaCorta_63, Andromedas_63
- Track 19 : Phanita_64
- Track 20 : Xebius_63
- Track 21 : PSirce_63
- Track 22 : Eleri_63
- Track 23 : Hasitha_62
- Track 24 : QuadZero_62
- Track 25 : Librie_62, CaptainRex_62, Fulton_62
- Track 26 : Wardwill_64
- Track 27 : Zayuliv_62
- Track 28 : GreenIvy_61
- Track 29 : TwoBits_61
- Track 30 : LilTerminator_62
- Track 31 : BaronJohn_62
- Track 32 : Vafari_61
- Track 33 : Zepp_62
- Track 34 : WilliamStrong_63
- Track 35 : Luna18_63, KatChan_62, Chepli_63
- Track 36 : Juicer_63, Jemerald_63

• Track 37 : Morrigan_64
• Track 38 : Schubert_56

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

The start number called the most often in the published annotations is 61, it was called in 21 of the 44 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• BaronJohn_62, CaptainRex_62, Chepli_63, Fulton_62, GreenIvy_61, Hasitha_62, HerculesXL_61, Jemerald_63, Juicer_63, KatChan_62, Kavo_59, Librie_62, LilTerminator_62, Luna18_63, Mercedes_57, Penta_59, QuadZero_62, Scissor2024_61, Tinyman4_59, TwoBits_61, Vafari_61, Wardwill_64, WilliamStrong_63, Zepp_62,

Genes that have the "Most Annotated" start but do not call it:
• Zayuliv_62,

Genes that do not have the "Most Annotated" start:
• Andromedas_63, Carostasia_63, ChikPic_63, Cidela_63, ColaCorta_63, Eleri_63, Fabyndrax_63, Glamour_62, HairyMan_62, Juanyo_65, MCubed_63, Mandalorian_63, MiniVolent_63, Morrigan_64, Nucci_63, Orpington_62, PSirce_63, Phanita_64, Quartz_64, Sansa_61, Saratos_63, Schubert_56, Shamu_63, Xebius_63, YuuY_64, Zenitsu_63,

Summary by start number:

Start 61:
• Found in 25 of 51 (49.0%) of genes in pham
• Manual Annotations of this start: 21 of 44
• Called 96.0% of time when present
• Phage (with cluster) where this start called: BaronJohn_62 (EA5), CaptainRex_62 (EA5), Chepli_63 (EA6), Fulton_62 (EA5), GreenIvy_61 (EA5), Hasitha_62 (EA5), HerculesXL_61 (EA11), Jemerald_63 (EA6), Juicer_63 (EA6), KatChan_62 (EA6), Kavo_59 (EA11), Librie_62 (EA5), LilTerminator_62 (EA5), Luna18_63 (EA6), Mercedes_57 (EA), Penta_59 (EA11), QuadZero_62 (EA5), Scissor2024_61 (EA11), Tinyman4_59 (EA11), TwoBits_61 (EA5), Vafari_61 (EA5), Wardwill_64 (EA5), WilliamStrong_63 (EA6), Zepp_62 (EA5),

Start 62:
• Found in 1 of 51 (2.0%) of genes in pham
• Manual Annotations of this start: 1 of 44
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Morrigan_64 (EA6),

Start 63:
• Found in 1 of 51 (2.0%) of genes in pham
• Manual Annotations of this start: 1 of 44
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Zayuliv_62 (EA5),

Start 75:
• Found in 4 of 51 (7.8%) of genes in pham
• No Manual Annotations of this start.
• Called 50.0% of time when present
• Phage (with cluster) where this start called: Cidela_63 (EA10), Fabyndrax_63 (EA10),

Start 82:
• Found in 4 of 51 (7.8%) of genes in pham
• Manual Annotations of this start: 2 of 44
• Called 75.0% of time when present
• Phage (with cluster) where this start called: Juanyo_65 (EA10), MiniVolent_63 (EA10), YuuY_64 (EA10),

Start 88:
• Found in 4 of 51 (7.8%) of genes in pham
• Manual Annotations of this start: 2 of 44
• Called 75.0% of time when present
• Phage (with cluster) where this start called: ChikPic_63 (EA2), PSirce_63 (EA2), Xebius_63 (EA2),

Start 89:
• Found in 11 of 51 (21.6%) of genes in pham
• Manual Annotations of this start: 11 of 44
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Andromedas_63 (EA2), ColaCorta_63 (EA2), Eleri_63 (EA2), Glamour_62 (EA2), MCubed_63 (EA2), Orpington_62 (EA2), Phanita_64 (EA2), Sansa_61 (EA2), Saratos_63 (EA2), Shamu_63 (EA2), Zenitsu_63 (EA2),

Start 93:
• Found in 1 of 51 (2.0%) of genes in pham
• Manual Annotations of this start: 1 of 44
• Called 100.0% of time when present
• Phage (with cluster) where this start called: HairyMan_62 (EA10),

Start 97:
• Found in 1 of 51 (2.0%) of genes in pham
• Manual Annotations of this start: 1 of 44
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Schubert_56 (EA8),

Start 108:
• Found in 4 of 51 (7.8%) of genes in pham
• Manual Annotations of this start: 4 of 44
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Carostasia_63 (EA10), Mandalorian_63 (EA10), Nucci_63 (EA10), Quartz_64 (EA10),

Summary by clusters:

There are 7 clusters represented in this pham: EA11, EA10, EA, EA8, EA2, EA5, EA6,

Info for manual annotations of cluster EA:
•Start number 61 was manually annotated 1 time for cluster EA.

Info for manual annotations of cluster EA10:
•Start number 82 was manually annotated 2 times for cluster EA10.
•Start number 93 was manually annotated 1 time for cluster EA10.
•Start number 108 was manually annotated 4 times for cluster EA10.

Info for manual annotations of cluster EA11:
•Start number 61 was manually annotated 3 times for cluster EA11.

Info for manual annotations of cluster EA2:
•Start number 88 was manually annotated 2 times for cluster EA2.
•Start number 89 was manually annotated 11 times for cluster EA2.

Info for manual annotations of cluster EA5:
•Start number 61 was manually annotated 11 times for cluster EA5.
•Start number 63 was manually annotated 1 time for cluster EA5.

Info for manual annotations of cluster EA6:
•Start number 61 was manually annotated 6 times for cluster EA6.
•Start number 62 was manually annotated 1 time for cluster EA6.

Info for manual annotations of cluster EA8:
•Start number 97 was manually annotated 1 time for cluster EA8.

Gene Information:

Gene: Andromedas_63 Start: 39976, Stop: 40287, Start Num: 89
Candidate Starts for Andromedas_63:
(Start: 89 @39976 has 11 MA's), (113, 40033), (114, 40036), (121, 40048), (137, 40108), (138, 40111), (141, 40123), (156, 40204), (160, 40234),

Gene: BaronJohn_62 Start: 39818, Stop: 40186, Start Num: 61
Candidate Starts for BaronJohn_62:
(58, 39737), (Start: 61 @39818 has 21 MA's), (102, 39890), (105, 39902), (122, 39944), (137, 40019), (141, 40034), (154, 40109), (158, 40136), (160, 40148),

Gene: CaptainRex_62 Start: 39228, Stop: 39563, Start Num: 61
Candidate Starts for CaptainRex_62:
(39, 38916), (41, 38931), (49, 38958), (58, 39147), (60, 39225), (Start: 61 @39228 has 21 MA's), (102, 39300), (105, 39312), (122, 39354), (141, 39411), (154, 39486), (158, 39513), (160, 39525),

Gene: Carostasia_63 Start: 40023, Stop: 40301, Start Num: 108
Candidate Starts for Carostasia_63:
(Start: 108 @40023 has 4 MA's), (124, 40062), (130, 40080), (131, 40083), (135, 40095), (138, 40125), (140, 40134), (145, 40164), (156, 40218), (158, 40236), (163, 40272),

Gene: Chepli_63 Start: 39731, Stop: 40042, Start Num: 61
Candidate Starts for Chepli_63:

(56, 39542), (59, 39677), (Start: 61 @39731 has 21 MA's), (66, 39746), (80, 39809), (81, 39812), (86, 39824), (90, 39836), (126, 39872), (149, 39932), (160, 40004),

Gene: ChikPic_63 Start: 39809, Stop: 40126, Start Num: 88
Candidate Starts for ChikPic_63:
(Start: 88 @39809 has 2 MA's), (94, 39824), (103, 39842), (123, 39890), (127, 39902), (137, 39947), (138, 39950), (141, 39962), (156, 40043), (164, 40103), (165, 40106),

Gene: Cidela_63 Start: 41004, Stop: 41375, Start Num: 75
Candidate Starts for Cidela_63:
(75, 41004), (100, 41076), (110, 41106), (115, 41118), (123, 41136), (138, 41196), (140, 41205), (150, 41256), (163, 41346), (166, 41364),

Gene: ColaCorta_63 Start: 39976, Stop: 40287, Start Num: 89
Candidate Starts for ColaCorta_63:
(Start: 89 @39976 has 11 MA's), (113, 40033), (114, 40036), (121, 40048), (137, 40108), (138, 40111), (141, 40123), (156, 40204), (160, 40234),

Gene: Eleri_63 Start: 39848, Stop: 40159, Start Num: 89
Candidate Starts for Eleri_63:
(Start: 89 @39848 has 11 MA's), (106, 39887), (113, 39905), (114, 39908), (121, 39920), (137, 39980), (138, 39983), (141, 39995), (156, 40076), (160, 40106), (164, 40136), (165, 40139),

Gene: Fabyndrax_63 Start: 41016, Stop: 41387, Start Num: 75
Candidate Starts for Fabyndrax_63:
(75, 41016), (100, 41088), (110, 41118), (115, 41130), (123, 41148), (138, 41208), (140, 41217), (150, 41268), (163, 41358), (166, 41376),

Gene: Fulton_62 Start: 39229, Stop: 39564, Start Num: 61
Candidate Starts for Fulton_62:
(39, 38917), (41, 38932), (49, 38959), (58, 39148), (60, 39226), (Start: 61 @39229 has 21 MA's), (102, 39301), (105, 39313), (122, 39355), (141, 39412), (154, 39487), (158, 39514), (160, 39526),

Gene: Glamour_62 Start: 39706, Stop: 40017, Start Num: 89
Candidate Starts for Glamour_62:
(Start: 89 @39706 has 11 MA's), (113, 39763), (114, 39766), (121, 39778), (137, 39838), (138, 39841), (141, 39853), (156, 39934), (160, 39964), (164, 39994), (165, 39997),

Gene: GreenIvy_61 Start: 39603, Stop: 39938, Start Num: 61
Candidate Starts for GreenIvy_61:
(58, 39522), (Start: 61 @39603 has 21 MA's), (102, 39675), (105, 39687), (122, 39729), (141, 39786), (154, 39861), (158, 39888), (160, 39900),

Gene: HairyMan_62 Start: 40887, Stop: 41183, Start Num: 93
Candidate Starts for HairyMan_62:
(77, 40839), (Start: 93 @40887 has 1 MA's), (98, 40899), (109, 40929), (112, 40941), (120, 40962), (125, 40974), (129, 40986), (138, 41016), (155, 41109), (158, 41133), (162, 41160),

Gene: Hasitha_62 Start: 39239, Stop: 39574, Start Num: 61
Candidate Starts for Hasitha_62:
(39, 38927), (41, 38942), (49, 38969), (58, 39158), (60, 39236), (Start: 61 @39239 has 21 MA's), (102, 39311), (105, 39323), (122, 39365), (141, 39422), (154, 39497), (160, 39536),

Gene: HerculesXL_61 Start: 38678, Stop: 39088, Start Num: 61
Candidate Starts for HerculesXL_61:
(31, 38312), (42, 38384), (48, 38408), (53, 38429), (Start: 61 @38678 has 21 MA's), (77, 38744), (92, 38777), (99, 38789), (127, 38867), (141, 38915), (146, 38942), (159, 39026),

Gene: Jemerald_63 Start: 40506, Stop: 40928, Start Num: 61
Candidate Starts for Jemerald_63:
(16, 39861), (18, 39882), (23, 39909), (27, 39996), (29, 40077), (33, 40173), (34, 40179), (37, 40188), (40, 40194), (43, 40209), (44, 40218), (59, 40452), (Start: 61 @40506 has 21 MA's), (70, 40551), (77, 40584), (79, 40596), (84, 40608), (92, 40632), (140, 40773), (141, 40776), (147, 40812), (150, 40821), (158, 40878), (161, 40902),

Gene: Juanyo_65 Start: 40605, Stop: 40952, Start Num: 82
Candidate Starts for Juanyo_65:
(Start: 82 @40605 has 2 MA's), (131, 40710), (135, 40722), (136, 40740), (141, 40764), (147, 40800), (151, 40812), (158, 40866), (163, 40902), (167, 40935),

Gene: Juicer_63 Start: 40506, Stop: 40928, Start Num: 61
Candidate Starts for Juicer_63:
(16, 39861), (18, 39882), (23, 39909), (27, 39996), (29, 40077), (33, 40173), (34, 40179), (37, 40188), (40, 40194), (43, 40209), (44, 40218), (59, 40452), (Start: 61 @40506 has 21 MA's), (70, 40551), (77, 40584), (79, 40596), (84, 40608), (92, 40632), (140, 40773), (141, 40776), (147, 40812), (150, 40821), (158, 40878), (161, 40902),

Gene: KatChan_62 Start: 39748, Stop: 40059, Start Num: 61
Candidate Starts for KatChan_62:
(56, 39559), (59, 39694), (Start: 61 @39748 has 21 MA's), (66, 39763), (80, 39826), (81, 39829), (86, 39841), (90, 39853), (126, 39889), (149, 39949), (160, 40021),

Gene: Kavo_59 Start: 38739, Stop: 39128, Start Num: 61
Candidate Starts for Kavo_59:
(53, 38481), (Start: 61 @38739 has 21 MA's), (77, 38802), (92, 38835), (99, 38847), (122, 38910), (127, 38925), (141, 38955), (146, 38982), (159, 39066),

Gene: Librie_62 Start: 39228, Stop: 39563, Start Num: 61
Candidate Starts for Librie_62:
(39, 38916), (41, 38931), (49, 38958), (58, 39147), (60, 39225), (Start: 61 @39228 has 21 MA's), (102, 39300), (105, 39312), (122, 39354), (141, 39411), (154, 39486), (158, 39513), (160, 39525),

Gene: LilTerminator_62 Start: 39240, Stop: 39647, Start Num: 61
Candidate Starts for LilTerminator_62:
(58, 39159), (Start: 61 @39240 has 21 MA's), (74, 39321), (Start: 88 @39369 has 2 MA's), (102, 39405), (105, 39417), (134, 39477), (149, 39537), (160, 39609), (162, 39624),

Gene: Luna18_63 Start: 39748, Stop: 40059, Start Num: 61
Candidate Starts for Luna18_63:
(56, 39559), (59, 39694), (Start: 61 @39748 has 21 MA's), (66, 39763), (80, 39826), (81, 39829), (86, 39841), (90, 39853), (126, 39889), (149, 39949), (160, 40021),

Gene: MCubed_63 Start: 39863, Stop: 40174, Start Num: 89
Candidate Starts for MCubed_63:
(Start: 89 @39863 has 11 MA's), (113, 39920), (114, 39923), (121, 39935), (137, 39995), (138, 39998), (141, 40010), (156, 40091), (160, 40121), (164, 40151), (165, 40154),

Gene: Mandalorian_63 Start: 40034, Stop: 40312, Start Num: 108
Candidate Starts for Mandalorian_63:
(Start: 108 @40034 has 4 MA's), (124, 40073), (130, 40091), (131, 40094), (135, 40106), (138, 40136), (140, 40145), (145, 40175), (156, 40229), (163, 40283),

Gene: Mercedes_57 Start: 39485, Stop: 39826, Start Num: 61
Candidate Starts for Mercedes_57:
(58, 39404), (Start: 61 @39485 has 21 MA's), (65, 39500), (104, 39575), (112, 39599), (118, 39617), (120, 39620), (125, 39632), (137, 39659), (141, 39674), (147, 39710), (156, 39758), (157, 39773),

Gene: MiniVolent_63 Start: 40572, Stop: 40919, Start Num: 82
Candidate Starts for MiniVolent_63:
(Start: 82 @40572 has 2 MA's), (131, 40677), (135, 40689), (136, 40707), (141, 40731), (151, 40779), (163, 40869), (167, 40902),

Gene: Morrigan_64 Start: 39803, Stop: 40204, Start Num: 62
Candidate Starts for Morrigan_64:
(30, 39377), (32, 39455), (36, 39476), (38, 39479), (42, 39497), (50, 39524), (55, 39572), (57, 39611), (59, 39746), (Start: 62 @39803 has 1 MA's), (75, 39863), (80, 39881), (81, 39884), (86, 39896), (133, 40019), (141, 40055), (143, 40061), (144, 40067), (149, 40094), (154, 40127), (160, 40166),

Gene: Nucci_63 Start: 40003, Stop: 40281, Start Num: 108
Candidate Starts for Nucci_63:
(Start: 108 @40003 has 4 MA's), (124, 40042), (130, 40060), (131, 40063), (135, 40075), (138, 40105), (140, 40114), (145, 40144), (156, 40198), (158, 40216), (163, 40252),

Gene: Orpington_62 Start: 39721, Stop: 40032, Start Num: 89
Candidate Starts for Orpington_62:
(Start: 89 @39721 has 11 MA's), (113, 39778), (114, 39781), (121, 39793), (137, 39853), (138, 39856), (141, 39868), (156, 39949), (160, 39979), (164, 40009), (165, 40012),

Gene: PSirce_63 Start: 40001, Stop: 40318, Start Num: 88
Candidate Starts for PSirce_63:
(87, 39998), (Start: 88 @40001 has 2 MA's), (94, 40016), (103, 40034), (123, 40082), (127, 40094), (137, 40139), (138, 40142), (141, 40154), (156, 40235), (160, 40265), (163, 40289),

Gene: Penta_59 Start: 38887, Stop: 39330, Start Num: 61
Candidate Starts for Penta_59:
(2, 38041), (3, 38065), (4, 38071), (5, 38074), (6, 38086), (7, 38095), (8, 38098), (9, 38101), (10, 38140), (11, 38167), (12, 38182), (13, 38209), (14, 38233), (15, 38242), (17, 38257), (19, 38269), (20, 38284), (21, 38287), (24, 38296), (26, 38335), (28, 38419), (31, 38521), (42, 38593), (48, 38617), (53, 38638), (Start: 61 @38887 has 21 MA's), (64, 38899), (85, 38989), (92, 39010), (99, 39022), (126, 39094), (157, 39250), (159, 39262),

Gene: Phanita_64 Start: 39773, Stop: 40084, Start Num: 89
Candidate Starts for Phanita_64:
(Start: 89 @39773 has 11 MA's), (106, 39812), (113, 39830), (114, 39833), (121, 39845), (137, 39905), (138, 39908), (139, 39914), (141, 39920), (156, 40001), (160, 40031), (164, 40061), (165, 40064),

Gene: QuadZero_62 Start: 39331, Stop: 39765, Start Num: 61
Candidate Starts for QuadZero_62:

(35, 39013), (43, 39037), (44, 39046), (45, 39052), (47, 39058), (49, 39061), (58, 39250), (Start: 61 @39331 has 21 MA's), (72, 39406), (74, 39418), (102, 39502), (105, 39514), (122, 39556), (141, 39613), (154, 39688), (158, 39715), (160, 39727),

Gene: Quartz_64 Start: 40147, Stop: 40425, Start Num: 108
Candidate Starts for Quartz_64:
(Start: 108 @40147 has 4 MA's), (124, 40186), (130, 40204), (131, 40207), (135, 40219), (138, 40249), (140, 40258), (145, 40288), (156, 40342), (159, 40369), (163, 40396),

Gene: Sansa_61 Start: 39788, Stop: 40099, Start Num: 89
Candidate Starts for Sansa_61:
(Start: 89 @39788 has 11 MA's), (113, 39845), (114, 39848), (121, 39860), (137, 39920), (138, 39923), (141, 39935), (156, 40016), (160, 40046), (163, 40070),

Gene: Saratos_63 Start: 39832, Stop: 40143, Start Num: 89
Candidate Starts for Saratos_63:
(Start: 89 @39832 has 11 MA's), (113, 39889), (114, 39892), (121, 39904), (137, 39964), (138, 39967), (141, 39979), (156, 40060), (160, 40090), (164, 40120), (165, 40123),

Gene: Schubert_56 Start: 38451, Stop: 38738, Start Num: 97
Candidate Starts for Schubert_56:
(91, 38439), (96, 38448), (Start: 97 @38451 has 1 MA's), (116, 38493), (128, 38526), (132, 38538), (137, 38568), (142, 38589), (151, 38631), (153, 38649), (160, 38697), (163, 38721),

Gene: Scissor2024_61 Start: 38650, Stop: 39051, Start Num: 61
Candidate Starts for Scissor2024_61:
(45, 38365), (52, 38389), (54, 38398), (Start: 61 @38650 has 21 MA's), (77, 38716), (92, 38749), (99, 38761), (111, 38797), (126, 38836), (127, 38839), (140, 38884), (157, 38992), (159, 39004), (160, 39007),

Gene: Shamu_63 Start: 39721, Stop: 40032, Start Num: 89
Candidate Starts for Shamu_63:
(Start: 89 @39721 has 11 MA's), (113, 39778), (114, 39781), (121, 39793), (137, 39853), (138, 39856), (141, 39868), (156, 39949), (160, 39979), (164, 40009), (165, 40012),

Gene: Tinyman4_59 Start: 38673, Stop: 39083, Start Num: 61
Candidate Starts for Tinyman4_59:
(1, 37818), (2, 37827), (3, 37851), (4, 37857), (5, 37860), (6, 37872), (7, 37881), (8, 37884), (9, 37887), (10, 37926), (11, 37953), (12, 37968), (13, 37995), (14, 38019), (15, 38028), (17, 38043), (22, 38076), (25, 38103), (28, 38205), (31, 38307), (42, 38379), (48, 38403), (53, 38424), (Start: 61 @38673 has 21 MA's), (77, 38739), (92, 38772), (99, 38784), (126, 38859), (141, 38910), (146, 38937), (159, 39021),

Gene: TwoBits_61 Start: 39613, Stop: 39975, Start Num: 61
Candidate Starts for TwoBits_61:
(58, 39532), (Start: 61 @39613 has 21 MA's), (102, 39685), (105, 39697), (117, 39724), (140, 39820), (141, 39823), (154, 39898), (158, 39925),

Gene: Vafari_61 Start: 39252, Stop: 39584, Start Num: 61
Candidate Starts for Vafari_61:
(35, 38934), (43, 38958), (44, 38967), (45, 38973), (47, 38979), (49, 38982), (58, 39171), (Start: 61 @39252 has 21 MA's), (68, 39288), (71, 39309), (75, 39321), (95, 39375), (102, 39396), (122, 39444), (131, 39468), (147, 39543), (148, 39546), (152, 39558), (153, 39573),

Gene: Wardwill_64 Start: 39387, Stop: 39722, Start Num: 61
Candidate Starts for Wardwill_64:
(58, 39306), (Start: 61 @39387 has 21 MA's), (72, 39456), (74, 39468), (Start: 82 @39492 has 2 MA's), (107, 39513), (111, 39525), (134, 39552), (149, 39612), (160, 39684), (162, 39699),

Gene: WilliamStrong_63 Start: 40172, Stop: 40447, Start Num: 61
Candidate Starts for WilliamStrong_63:
(46, 39875), (51, 39890), (54, 39905), (Start: 61 @40172 has 21 MA's), (92, 40229), (99, 40241), (119, 40292), (121, 40295), (152, 40406),

Gene: Xebius_63 Start: 39832, Stop: 40149, Start Num: 88
Candidate Starts for Xebius_63:
(Start: 88 @39832 has 2 MA's), (94, 39847), (103, 39865), (123, 39913), (127, 39925), (137, 39970), (138, 39973), (141, 39985), (156, 40066), (160, 40096), (164, 40126), (165, 40129),

Gene: YuuY_64 Start: 40548, Stop: 40904, Start Num: 82
Candidate Starts for YuuY_64:
(Start: 82 @40548 has 2 MA's), (103, 40605), (124, 40662), (130, 40680), (131, 40683), (135, 40695), (137, 40722), (140, 40734), (141, 40737),

Gene: Zayuliv_62 Start: 39911, Stop: 40141, Start Num: 63
Candidate Starts for Zayuliv_62:
(35, 39584), (43, 39608), (44, 39617), (45, 39623), (47, 39629), (49, 39632), (58, 39821), (Start: 61 @39902 has 21 MA's), (Start: 63 @39911 has 1 MA's), (67, 39932), (69, 39944), (78, 39971), (101, 40031), (128, 40103),

Gene: Zenitsu_63 Start: 39868, Stop: 40179, Start Num: 89
Candidate Starts for Zenitsu_63:
(Start: 89 @39868 has 11 MA's), (113, 39925), (114, 39928), (121, 39940), (137, 40000), (138, 40003), (141, 40015), (156, 40096), (160, 40126), (164, 40156), (165, 40159),

Gene: Zepp_62 Start: 39460, Stop: 39873, Start Num: 61
Candidate Starts for Zepp_62:
(35, 39142), (43, 39166), (44, 39175), (45, 39181), (47, 39187), (49, 39190), (58, 39379), (Start: 61 @39460 has 21 MA's), (73, 39526), (76, 39535), (83, 39556), (86, 39568), (129, 39679), (158, 39823), (160, 39835), (162, 39850),