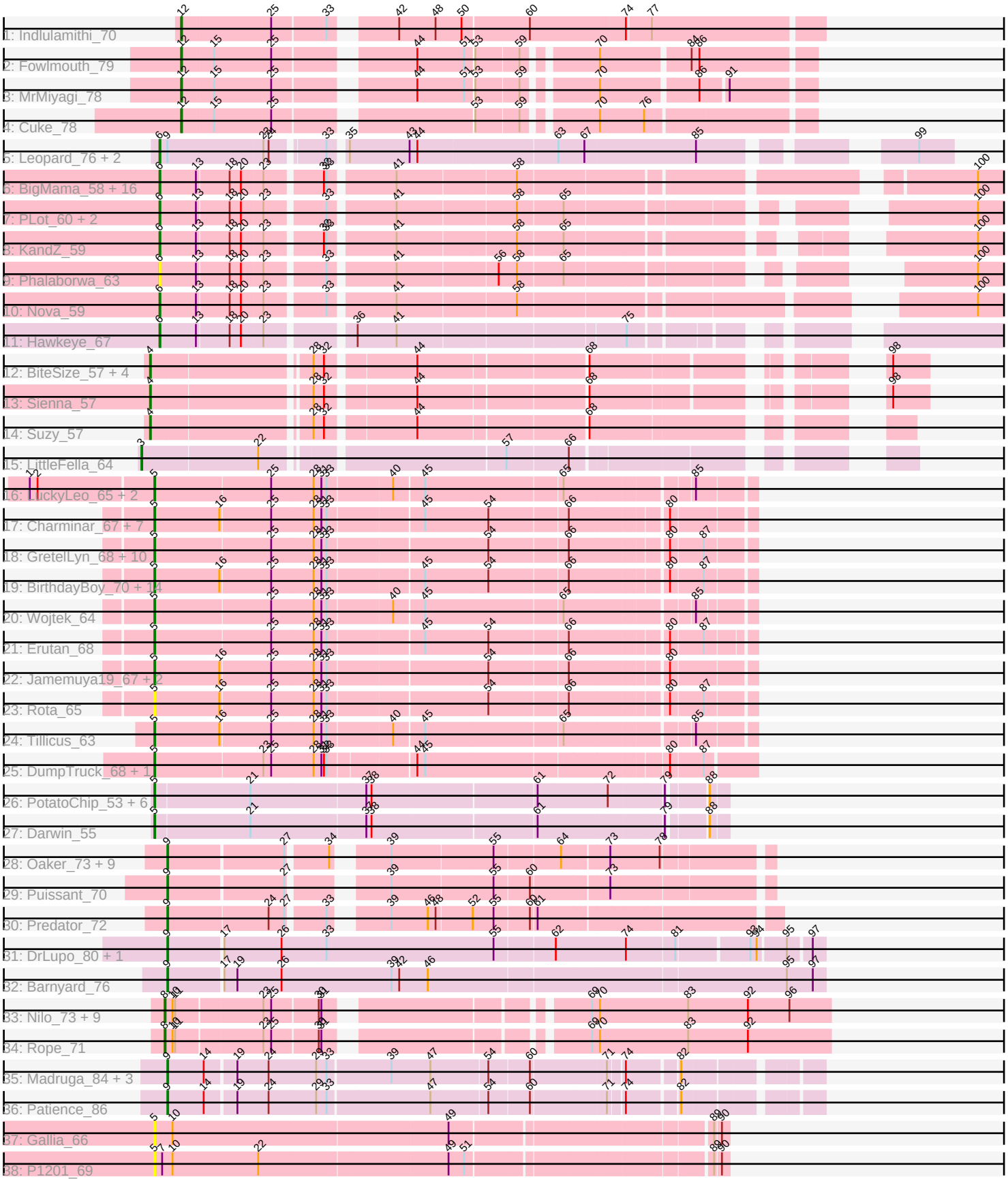
Pham 347390


1: Indlulamithi_70
2: Fowlmouth_79
3: MrMiyagi_78
4: Cuke_78
5: Leopard_76 + 2
6: BigMama_58 + 16
7: PLot_60 + 2
8: KandZ_59
9: Phalaborwa_63
10: Nova_59
11: Hawkeye_67
12: BiteSize_57 + 4
13: Sienna_57
14: Suzy_57
15: LittleFella_64
16: LuckyLeo_65 + 2
17: Charminar_67 + 7
18: GretelLyn_68 + 10
19: BirthdayBoy_70 + 14
20: Wojtek_64
21: Erutan_68
22: Jamemuya19_67 + 2
23: Rota_65
24: Tillicus_63
25: DumpTruck_68 + 1
26: PotatoChip_53 + 6
27: Darwin_55
28: Oaker_73 + 9
29: Puissant_70
30: Predator_72
31: DrLupo_80 + 1
32: Barnyard_76
33: Nilo_73 + 9
34: Rope_71
35: Madruga_84 + 3
36: Patience_86
37: Gallia_66
38: P1201_69

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 347390 Report

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

Pham number 347390 has 126 members, 13 are drafts.

Phages represented in each track:
• Track 1 : Indlulamithi_70
• Track 2 : Fowlmouth_79
• Track 3 : MrMiyagi_78
• Track 4 : Cuke_78
• Track 5 : Leopard_76, Aikoy_77, Onyinye_77
• Track 6 : BigMama_58, Prager_60, Helpful_63, Visconti_61, SirHarley_62, Butterscotch_59, Gumball_60, PBI1_57, Delton_61, WaldoWhy_62, Penelope2018_60, Adjutor_59, Thoth_60, Chill_62, Troll4_60, Giuseppe_61, Mopey_61
• Track 7 : PLot_60, Erk16_59, SuperheroCarly_61
• Track 8 : KandZ_59
• Track 9 : Phalaborwa_63
• Track 10 : Nova_59
• Track 11 : Hawkeye_67
• Track 12 : BiteSize_57, Terapin_58, Beyoncage_57, Djokovic_57, Madi_57
• Track 13 : Sienna_57
• Track 14 : Suzy_57
• Track 15 : LittleFella_64
• Track 16 : LuckyLeo_65, Apeppi_63, Aaravos_62
• Track 17 : Charminar_67, RazorC_68, Genamy16_71, NovaSharks_70, Rumi_69, Stormer_68, Astralis_68, Alyssamiracle_71
• Track 18 : GretelLyn_68, Mima20_68, DoobyDoo_67, Zany_66, Pywacket_65, Jalebi_67, LavAbarElk_68, Yikes_70, Sadboi_69, MoiGyank_71, Sampudon_68
• Track 19 : BirthdayBoy_70, Patos_72, Rukungu_70, Ranch_68, OtterstedtS21_68, Nettle_69, NorManre_72, DaviePasture_68, Alephilan_69, Fulcrum_68, Lambo_66, ParvusTarda_67, Lila22_69, Gibbin_70, GOATification_68
• Track 20 : Wojtek_64
• Track 21 : Erutan_68
• Track 22 : Jamemuya19_67, Riduram_67, Avian_66
• Track 23 : Rota_65
• Track 24 : Tillicus_63
• Track 25 : DumpTruck_68, Xenia2_68
• Track 26 : PotatoChip_53, Kimchi1738_52, C3PO_51, PeteyPab_52, Stickynote_53, Zion_53, Cruella_51
• Track 27 : Darwin_55
• Track 28 : Oaker_73, Konstantine_77, Nish23_75, Damien_73, Thumb_74, BobtimousPrime_76, Cborch11_75, Phreeze_72, Beckerton_72, Megatron06_74

• Track 29 : Puissant_70
• Track 30 : Predator_72
• Track 31 : DrLupo_80, AmandaPanda_80
• Track 32 : Barnyard_76
• Track 33 : Nilo_73, Papyrus_71, Riparian_73, Yelo_70, Zenon_73, Send513_71, Gimesa_72, Candle_69, Weiss13_71, MontyDev_73
• Track 34 : Rope_71
• Track 35 : Madruga_84, Labelle_85, SuperSonics_85, Demikore_87
• Track 36 : Patience_86
• Track 37 : Gallia_66
• Track 38 : P1201_69

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

The start number called the most often in the published annotations is 5, it was called in 48 of the 113 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Aaravos_62, Alephilan_69, Alyssamiracle_71, Apeppi_63, Astralis_68, Avian_66, BirthdayBoy_70, C3PO_51, Charminar_67, Cruella_51, Darwin_55, DaviePasture_68, DoobyDoo_67, DumpTruck_68, Erutan_68, Fulcrum_68, GOATification_68, Gallia_66, Genamy16_71, Gibbin_70, GretelLyn_68, Jalebi_67, Jamemuya19_67, Kimchi1738_52, Lambo_66, LavAbarElk_68, Lila22_69, LuckyLeo_65, Mima20_68, MoiGyank_71, Nettle_69, NorManre_72, NovaSharks_70, OtterstedtS21_68, P1201_69, ParvusTarda_67, Patos_72, PeteyPab_52, PotatoChip_53, Pywacket_65, Ranch_68, RazorC_68, Riduram_67, Rota_65, Rukungu_70, Rumi_69, Sadboi_69, Sampudon_68, Stickynote_53, Stormer_68, Tillicus_63, Wojtek_64, Xenia2_68, Yikes_70, Zany_66, Zion_53,

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

Genes that do not have the "Most Annotated" start:
• Adjutor_59, Aikoy_77, AmandaPanda_80, Barnyard_76, Beckerton_72, Beyoncage_57, BigMama_58, BiteSize_57, BobtimousPrime_76, Butterscotch_59, Candle_69, Cborch11_75, Chill_62, Cuke_78, Damien_73, Delton_61, Demikore_87, Djokovic_57, DrLupo_80, Erk16_59, Fowlmouth_79, Gimesa_72, Giuseppe_61, Gumball_60, Hawkeye_67, Helpful_63, Indlulamithi_70, KandZ_59, Konstantine_77, Labelle_85, Leopard_76, LittleFella_64, Madi_57, Madruga_84, Megatron06_74, MontyDev_73, Mopey_61, MrMiyagi_78, Nilo_73, Nish23_75, Nova_59, Oaker_73, Onyinye_77, PBI1_57, PLot_60, Papyrus_71, Patience_86, Penelope2018_60, Phalaborwa_63, Phreeze_72, Prager_60, Predator_72, Puissant_70, Riparian_73, Rope_71, Send513_71, Sienna_57, SirHarley_62, SuperSonics_85, SuperheroCarly_61, Suzy_57, Terapin_58, Thoth_60, Thumb_74, Troll4_60, Visconti_61, WaldoWhy_62, Weiss13_71, Yelo_70, Zenon_73,

Summary by start number:

Start 3:
• Found in 1 of 126 (0.8%) of genes in pham

• Manual Annotations of this start: 1 of 113
• Called 100.0% of time when present
• Phage (with cluster) where this start called: LittleFella_64 (DG2),

Start 4:
• Found in 7 of 126 (5.6%) of genes in pham
• Manual Annotations of this start: 7 of 113
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Beyoncage_57 (DG1), BiteSize_57 (DG1), Djokovic_57 (DG1), Madi_57 (DG1), Sienna_57 (DG1), Suzy_57 (DG1), Terapin_58 (DG1),

Start 5:
• Found in 56 of 126 (44.4%) of genes in pham
• Manual Annotations of this start: 48 of 113
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Aaravos_62 (DV), Alephilan_69 (DV), Alyssamiracle_71 (DV), Apeppi_63 (DV), Astralis_68 (DV), Avian_66 (DV), BirthdayBoy_70 (DV), C3PO_51 (EN), Charminar_67 (DV), Cruella_51 (EN), Darwin_55 (EN), DaviePasture_68 (DV), DoobyDoo_67 (DV), DumpTruck_68 (DV), Erutan_68 (DV), Fulcrum_68 (DV), GOATification_68 (DV), Gallia_66 (singleton), Genamy16_71 (DV), Gibbin_70 (DV), GretelLyn_68 (DV), Jalebi_67 (DV), Jamemuya19_67 (DV), Kimchi1738_52 (EN), Lambo_66 (DV), LavAbarElk_68 (DV), Lila22_69 (DV), LuckyLeo_65 (DV), Mima20_68 (DV), MoiGyank_71 (DV), Nettle_69 (DV), NorManre_72 (DV), NovaSharks_70 (DV), OtterstedtS21_68 (DV), P1201_69 (singleton), ParvusTarda_67 (DV), Patos_72 (DV), PeteyPab_52 (EN), PotatoChip_53 (EN), Pywacket_65 (DV), Ranch_68 (DV), RazorC_68 (DV), Riduram_67 (DV), Rota_65 (DV), Rukungu_70 (DV), Rumi_69 (DV), Sadboi_69 (DV), Sampudon_68 (DV), Stickynote_53 (EN), Stormer_68 (DV), Tillicus_63 (DV), Wojtek_64 (DV), Xenia2_68 (DV), Yikes_70 (DV), Zany_66 (DV), Zion_53 (EN),

Start 6:
• Found in 27 of 126 (21.4%) of genes in pham
• Manual Annotations of this start: 26 of 113
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Adjutor_59 (D1), Aikoy_77 (AE), BigMama_58 (D1), Butterscotch_59 (D1), Chill_62 (D1), Delton_61 (D1), Erk16_59 (D1), Giuseppe_61 (D1), Gumball_60 (D1), Hawkeye_67 (D2), Helpful_63 (D1), KandZ_59 (D1), Leopard_76 (AE), Mopey_61 (D1), Nova_59 (D1), Onyinye_77 (AE), PBI1_57 (D1), PLot_60 (D1), Penelope2018_60 (D1), Phalaborwa_63 (D1), Prager_60 (D1), SirHarley_62 (D1), SuperheroCarly_61 (D1), Thoth_60 (D1), Troll4_60 (D1), Visconti_61 (D1), WaldoWhy_62 (D1),

Start 8:
• Found in 11 of 126 (8.7%) of genes in pham
• Manual Annotations of this start: 10 of 113
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Candle_69 (R), Gimesa_72 (R), MontyDev_73 (R), Nilo_73 (R), Papyrus_71 (R), Riparian_73 (R), Rope_71 (R), Send513_71 (R), Weiss13_71 (R), Yelo_70 (R), Zenon_73 (R),

Start 9:
• Found in 23 of 126 (18.3%) of genes in pham

• Manual Annotations of this start: 17 of 113
• Called 87.0% of time when present
• Phage (with cluster) where this start called: AmandaPanda_80 (H2), Barnyard_76 (H2), Beckerton_72 (H1), BobtimousPrime_76 (H1), Cborch11_75 (H1), Damien_73 (H1), Demikore_87 (U), DrLupo_80 (H2), Konstantine_77 (H1), Labelle_85 (U), Madruga_84 (U), Megatron06_74 (H1), Nish23_75 (H1), Oaker_73 (H1), Patience_86 (U), Phreeze_72 (H1), Predator_72 (H1), Puissant_70 (H1), SuperSonics_85 (U), Thumb_74 (H1),

Start 12:
• Found in 4 of 126 (3.2%) of genes in pham
• Manual Annotations of this start: 4 of 113
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Cuke_78 (AC), Fowlmouth_79 (AC), Indlulamithi_70 (AC), MrMiyagi_78 (AC),

Summary by clusters:

There are 13 clusters represented in this pham: AC, EN, AE, H2, H1, singleton, DG2, R, U, DV, DG1, D2, D1,

Info for manual annotations of cluster AC:
•Start number 12 was manually annotated 4 times for cluster AC.

Info for manual annotations of cluster AE:
•Start number 6 was manually annotated 3 times for cluster AE.

Info for manual annotations of cluster D1:
•Start number 6 was manually annotated 22 times for cluster D1.

Info for manual annotations of cluster D2:
•Start number 6 was manually annotated 1 time for cluster D2.

Info for manual annotations of cluster DG1:
•Start number 4 was manually annotated 7 times for cluster DG1.

Info for manual annotations of cluster DG2:
•Start number 3 was manually annotated 1 time for cluster DG2.

Info for manual annotations of cluster DV:
•Start number 5 was manually annotated 40 times for cluster DV.

Info for manual annotations of cluster EN:
•Start number 5 was manually annotated 8 times for cluster EN.

Info for manual annotations of cluster H1:
•Start number 9 was manually annotated 11 times for cluster H1.

Info for manual annotations of cluster H2:
•Start number 9 was manually annotated 2 times for cluster H2.

Info for manual annotations of cluster R:
•Start number 8 was manually annotated 10 times for cluster R.

Info for manual annotations of cluster U:
•Start number 9 was manually annotated 4 times for cluster U.

Gene Information:

Gene: Aaravos_62 Start: 45846, Stop: 46496, Start Num: 5
Candidate Starts for Aaravos_62:
(1, 45708), (2, 45717), (Start: 5 @45846 has 48 MA's), (25, 45978), (28, 46026), (31, 46035), (33, 46041), (40, 46113), (45, 46146), (65, 46299), (85, 46434),

Gene: Adjutor_59 Start: 45290, Stop: 46228, Start Num: 6
Candidate Starts for Adjutor_59:
(Start: 6 @45290 has 26 MA's), (13, 45332), (18, 45368), (20, 45380), (23, 45404), (32, 45464), (33, 45467), (41, 45536), (58, 45668), (100, 46130),

Gene: Aikoy_77 Start: 52913, Stop: 53719, Start Num: 6
Candidate Starts for Aikoy_77:
(Start: 6 @52913 has 26 MA's), (Start: 9 @52922 has 17 MA's), (23, 53030), (24, 53036), (33, 53090), (35, 53105), (43, 53174), (44, 53183), (63, 53339), (67, 53369), (85, 53495), (99, 53681),

Gene: Alephilan_69 Start: 46737, Stop: 47387, Start Num: 5
Candidate Starts for Alephilan_69:
(Start: 5 @46737 has 48 MA's), (16, 46812), (25, 46869), (28, 46917), (31, 46926), (33, 46932), (45, 47037), (54, 47109), (66, 47196), (80, 47298), (87, 47334),

Gene: Alyssamiracle_71 Start: 45734, Stop: 46384, Start Num: 5
Candidate Starts for Alyssamiracle_71:
(Start: 5 @45734 has 48 MA's), (16, 45809), (25, 45866), (28, 45914), (31, 45923), (33, 45929), (45, 46034), (54, 46106), (66, 46193), (80, 46295),

Gene: AmandaPanda_80 Start: 53815, Stop: 54534, Start Num: 9
Candidate Starts for AmandaPanda_80:
(Start: 9 @53815 has 17 MA's), (17, 53875), (26, 53941), (33, 53992), (55, 54184), (62, 54250), (74, 54328), (81, 54382), (93, 54460), (94, 54466), (95, 54496), (97, 54520),

Gene: Apeppi_63 Start: 45907, Stop: 46557, Start Num: 5
Candidate Starts for Apeppi_63:
(1, 45769), (2, 45778), (Start: 5 @45907 has 48 MA's), (25, 46039), (28, 46087), (31, 46096), (33, 46102), (40, 46174), (45, 46207), (65, 46360), (85, 46495),

Gene: Astralis_68 Start: 45313, Stop: 45963, Start Num: 5
Candidate Starts for Astralis_68:
(Start: 5 @45313 has 48 MA's), (16, 45388), (25, 45445), (28, 45493), (31, 45502), (33, 45508), (45, 45613), (54, 45685), (66, 45772), (80, 45874),

Gene: Avian_66 Start: 45462, Stop: 46112, Start Num: 5
Candidate Starts for Avian_66:
(Start: 5 @45462 has 48 MA's), (16, 45537), (25, 45594), (28, 45642), (31, 45651), (33, 45657), (54, 45834), (66, 45921), (80, 46023),

Gene: Barnyard_76 Start: 52606, Stop: 53343, Start Num: 9
Candidate Starts for Barnyard_76:
(Start: 9 @52606 has 17 MA's), (17, 52666), (19, 52681), (26, 52732), (39, 52858), (42, 52867), (46, 52900), (95, 53299), (97, 53329),

Gene: Beckerton_72 Start: 54217, Stop: 54837, Start Num: 9
Candidate Starts for Beckerton_72:
(Start: 9 @54217 has 17 MA's), (27, 54346), (34, 54388), (39, 54433), (55, 54547), (64, 54619), (73, 54670), (78, 54724),

Gene: Beyoncage_57 Start: 42734, Stop: 43477, Start Num: 4
Candidate Starts for Beyoncage_57:
(Start: 4 @42734 has 7 MA's), (28, 42902), (32, 42914), (44, 43007), (68, 43190), (98, 43436),

Gene: BigMama_58 Start: 45366, Stop: 46301, Start Num: 6
Candidate Starts for BigMama_58:
(Start: 6 @45366 has 26 MA's), (13, 45408), (18, 45444), (20, 45456), (23, 45480), (32, 45540), (33, 45543), (41, 45612), (58, 45744), (100, 46203),

Gene: BirthdayBoy_70 Start: 47059, Stop: 47709, Start Num: 5
Candidate Starts for BirthdayBoy_70:
(Start: 5 @47059 has 48 MA's), (16, 47134), (25, 47191), (28, 47239), (31, 47248), (33, 47254), (45, 47359), (54, 47431), (66, 47518), (80, 47620), (87, 47656),

Gene: BiteSize_57 Start: 42820, Stop: 43563, Start Num: 4
Candidate Starts for BiteSize_57:
(Start: 4 @42820 has 7 MA's), (28, 42988), (32, 43000), (44, 43093), (68, 43276), (98, 43522),

Gene: BobtimousPrime_76 Start: 54519, Stop: 55139, Start Num: 9
Candidate Starts for BobtimousPrime_76:
(Start: 9 @54519 has 17 MA's), (27, 54648), (34, 54690), (39, 54735), (55, 54849), (64, 54921), (73, 54972), (78, 55026),

Gene: Butterscotch_59 Start: 45350, Stop: 46279, Start Num: 6
Candidate Starts for Butterscotch_59:
(Start: 6 @45350 has 26 MA's), (13, 45392), (18, 45428), (20, 45440), (23, 45464), (32, 45524), (33, 45527), (41, 45596), (58, 45728), (100, 46181),

Gene: C3PO_51 Start: 44310, Stop: 43690, Start Num: 5
Candidate Starts for C3PO_51:
(Start: 5 @44310 has 48 MA's), (21, 44202), (37, 44073), (38, 44067), (61, 43884), (72, 43806), (79, 43746), (88, 43707),

Gene: Candle_69 Start: 53817, Stop: 54518, Start Num: 8
Candidate Starts for Candle_69:
(Start: 8 @53817 has 10 MA's), (10, 53826), (11, 53829), (23, 53925), (25, 53934), (30, 53985), (31, 53988), (69, 54243), (70, 54252), (83, 54354), (92, 54423), (96, 54471),

Gene: Cborch11_75 Start: 53763, Stop: 54383, Start Num: 9
Candidate Starts for Cborch11_75:
(Start: 9 @53763 has 17 MA's), (27, 53892), (34, 53934), (39, 53979), (55, 54093), (64, 54165), (73, 54216), (78, 54270),

Gene: Charminar_67 Start: 44970, Stop: 45620, Start Num: 5
Candidate Starts for Charminar_67:
(Start: 5 @44970 has 48 MA's), (16, 45045), (25, 45102), (28, 45150), (31, 45159), (33, 45165), (45, 45270), (54, 45342), (66, 45429), (80, 45531),

Gene: Chill_62 Start: 45413, Stop: 46312, Start Num: 6
Candidate Starts for Chill_62:
(Start: 6 @45413 has 26 MA's), (13, 45455), (18, 45491), (20, 45503), (23, 45527), (32, 45587), (33, 45590), (41, 45659), (58, 45791), (100, 46214),

Gene: Cruella_51 Start: 44310, Stop: 43690, Start Num: 5
Candidate Starts for Cruella_51:
(Start: 5 @44310 has 48 MA's), (21, 44202), (37, 44073), (38, 44067), (61, 43884), (72, 43806), (79, 43746), (88, 43707),

Gene: Cuke_78 Start: 47129, Stop: 47785, Start Num: 12
Candidate Starts for Cuke_78:
(Start: 12 @47129 has 4 MA's), (15, 47165), (25, 47231), (53, 47432), (59, 47480), (70, 47552), (76, 47603),

Gene: Damien_73 Start: 53725, Stop: 54345, Start Num: 9
Candidate Starts for Damien_73:
(Start: 9 @53725 has 17 MA's), (27, 53854), (34, 53896), (39, 53941), (55, 54055), (64, 54127), (73, 54178), (78, 54232),

Gene: Darwin_55 Start: 43791, Stop: 43171, Start Num: 5
Candidate Starts for Darwin_55:
(Start: 5 @43791 has 48 MA's), (21, 43683), (37, 43554), (38, 43548), (61, 43365), (79, 43227), (88, 43188),

Gene: DaviePasture_68 Start: 46646, Stop: 47296, Start Num: 5
Candidate Starts for DaviePasture_68:
(Start: 5 @46646 has 48 MA's), (16, 46721), (25, 46778), (28, 46826), (31, 46835), (33, 46841), (45, 46946), (54, 47018), (66, 47105), (80, 47207), (87, 47243),

Gene: Delton_61 Start: 45748, Stop: 46677, Start Num: 6
Candidate Starts for Delton_61:
(Start: 6 @45748 has 26 MA's), (13, 45790), (18, 45826), (20, 45838), (23, 45862), (32, 45922), (33, 45925), (41, 45994), (58, 46126), (100, 46579),

Gene: Demikore_87 Start: 55914, Stop: 56600, Start Num: 9
Candidate Starts for Demikore_87:
(Start: 9 @55914 has 17 MA's), (14, 55956), (19, 55989), (24, 56025), (29, 56079), (33, 56091), (39, 56160), (47, 56205), (54, 56268), (60, 56313), (71, 56394), (74, 56409), (82, 56463),

Gene: Djokovic_57 Start: 42733, Stop: 43476, Start Num: 4
Candidate Starts for Djokovic_57:
(Start: 4 @42733 has 7 MA's), (28, 42901), (32, 42913), (44, 43006), (68, 43189), (98, 43435),

Gene: DoobyDoo_67 Start: 45520, Stop: 46170, Start Num: 5
Candidate Starts for DoobyDoo_67:
(Start: 5 @45520 has 48 MA's), (25, 45652), (28, 45700), (31, 45709), (33, 45715), (54, 45892), (66, 45979), (80, 46081), (87, 46117),

Gene: DrLupo_80 Start: 53815, Stop: 54534, Start Num: 9
Candidate Starts for DrLupo_80:
(Start: 9 @53815 has 17 MA's), (17, 53875), (26, 53941), (33, 53992), (55, 54184), (62, 54250), (74, 54328), (81, 54382), (93, 54460), (94, 54466), (95, 54496), (97, 54520),

Gene: DumpTruck_68 Start: 45709, Stop: 46362, Start Num: 5
Candidate Starts for DumpTruck_68:
(Start: 5 @45709 has 48 MA's), (23, 45832), (25, 45841), (28, 45889), (31, 45898), (32, 45901), (33, 45904), (44, 45997), (45, 46006), (80, 46270), (87, 46306),

Gene: Erk16_59 Start: 45452, Stop: 46342, Start Num: 6
Candidate Starts for Erk16_59:
(Start: 6 @45452 has 26 MA's), (13, 45494), (18, 45530), (20, 45542), (23, 45566), (33, 45629), (41, 45698), (58, 45830), (65, 45878), (100, 46244),

Gene: Erutan_68 Start: 46162, Stop: 46809, Start Num: 5
Candidate Starts for Erutan_68:
(Start: 5 @46162 has 48 MA's), (25, 46294), (28, 46342), (31, 46351), (33, 46357), (45, 46462), (54, 46534), (66, 46621), (80, 46723), (87, 46759),

Gene: Fowlmouth_79 Start: 49705, Stop: 50358, Start Num: 12
Candidate Starts for Fowlmouth_79:
(Start: 12 @49705 has 4 MA's), (15, 49741), (25, 49807), (44, 49945), (51, 49999), (53, 50008), (59, 50056), (70, 50128), (84, 50224), (86, 50233),

Gene: Fulcrum_68 Start: 46367, Stop: 47017, Start Num: 5
Candidate Starts for Fulcrum_68:
(Start: 5 @46367 has 48 MA's), (16, 46442), (25, 46499), (28, 46547), (31, 46556), (33, 46562), (45, 46667), (54, 46739), (66, 46826), (80, 46928), (87, 46964),

Gene: GOATification_68 Start: 46367, Stop: 47017, Start Num: 5
Candidate Starts for GOATification_68:
(Start: 5 @46367 has 48 MA's), (16, 46442), (25, 46499), (28, 46547), (31, 46556), (33, 46562), (45, 46667), (54, 46739), (66, 46826), (80, 46928), (87, 46964),

Gene: Gallia_66 Start: 51818, Stop: 51195, Start Num: 5
Candidate Starts for Gallia_66:
(Start: 5 @51818 has 48 MA's), (10, 51797), (49, 51485), (89, 51209), (90, 51203),

Gene: Genamy16_71 Start: 45720, Stop: 46370, Start Num: 5
Candidate Starts for Genamy16_71:
(Start: 5 @45720 has 48 MA's), (16, 45795), (25, 45852), (28, 45900), (31, 45909), (33, 45915), (45, 46020), (54, 46092), (66, 46179), (80, 46281),

Gene: Gibbin_70 Start: 47172, Stop: 47822, Start Num: 5
Candidate Starts for Gibbin_70:
(Start: 5 @47172 has 48 MA's), (16, 47247), (25, 47304), (28, 47352), (31, 47361), (33, 47367), (45, 47472), (54, 47544), (66, 47631), (80, 47733), (87, 47769),

Gene: Gimesa_72 Start: 53688, Stop: 54389, Start Num: 8
Candidate Starts for Gimesa_72:

(Start: 8 @53688 has 10 MA's), (10, 53697), (11, 53700), (23, 53796), (25, 53805), (30, 53856), (31, 53859), (69, 54114), (70, 54123), (83, 54225), (92, 54294), (96, 54342),

Gene: Giuseppe_61 Start: 45318, Stop: 46226, Start Num: 6
Candidate Starts for Giuseppe_61:
(Start: 6 @45318 has 26 MA's), (13, 45360), (18, 45396), (20, 45408), (23, 45432), (32, 45492), (33, 45495), (41, 45564), (58, 45696), (100, 46128),

Gene: GretelLyn_68 Start: 47034, Stop: 47684, Start Num: 5
Candidate Starts for GretelLyn_68:
(Start: 5 @47034 has 48 MA's), (25, 47166), (28, 47214), (31, 47223), (33, 47229), (54, 47406), (66, 47493), (80, 47595), (87, 47631),

Gene: Gumball_60 Start: 45810, Stop: 46748, Start Num: 6
Candidate Starts for Gumball_60:
(Start: 6 @45810 has 26 MA's), (13, 45852), (18, 45888), (20, 45900), (23, 45924), (32, 45984), (33, 45987), (41, 46056), (58, 46188), (100, 46650),

Gene: Hawkeye_67 Start: 45685, Stop: 46557, Start Num: 6
Candidate Starts for Hawkeye_67:
(Start: 6 @45685 has 26 MA's), (13, 45727), (18, 45763), (20, 45775), (23, 45799), (36, 45886), (41, 45931), (75, 46177),

Gene: Helpful_63 Start: 45679, Stop: 46587, Start Num: 6
Candidate Starts for Helpful_63:
(Start: 6 @45679 has 26 MA's), (13, 45721), (18, 45757), (20, 45769), (23, 45793), (32, 45853), (33, 45856), (41, 45925), (58, 46057), (100, 46489),

Gene: Indlulamithi_70 Start: 50440, Stop: 51132, Start Num: 12
Candidate Starts for Indlulamithi_70:
(Start: 12 @50440 has 4 MA's), (25, 50542), (33, 50602), (42, 50659), (48, 50701), (50, 50731), (60, 50806), (74, 50914), (77, 50941),

Gene: Jalebi_67 Start: 47387, Stop: 48037, Start Num: 5
Candidate Starts for Jalebi_67:
(Start: 5 @47387 has 48 MA's), (25, 47519), (28, 47567), (31, 47576), (33, 47582), (54, 47759), (66, 47846), (80, 47948), (87, 47984),

Gene: Jamemuya19_67 Start: 45325, Stop: 45975, Start Num: 5
Candidate Starts for Jamemuya19_67:
(Start: 5 @45325 has 48 MA's), (16, 45400), (25, 45457), (28, 45505), (31, 45514), (33, 45520), (54, 45697), (66, 45784), (80, 45886),

Gene: KandZ_59 Start: 45476, Stop: 46372, Start Num: 6
Candidate Starts for KandZ_59:
(Start: 6 @45476 has 26 MA's), (13, 45518), (18, 45554), (20, 45566), (23, 45590), (32, 45650), (33, 45653), (41, 45722), (58, 45854), (65, 45902), (100, 46274),

Gene: Kimchi1738_52 Start: 44287, Stop: 43667, Start Num: 5
Candidate Starts for Kimchi1738_52:
(Start: 5 @44287 has 48 MA's), (21, 44179), (37, 44050), (38, 44044), (61, 43861), (72, 43783), (79, 43723), (88, 43684),

Gene: Konstantine_77 Start: 54556, Stop: 55176, Start Num: 9
Candidate Starts for Konstantine_77:
(Start: 9 @54556 has 17 MA's), (27, 54685), (34, 54727), (39, 54772), (55, 54886), (64, 54958), (73, 55009), (78, 55063),

Gene: Labelle_85 Start: 55748, Stop: 56434, Start Num: 9
Candidate Starts for Labelle_85:
(Start: 9 @55748 has 17 MA's), (14, 55790), (19, 55823), (24, 55859), (29, 55913), (33, 55925), (39, 55994), (47, 56039), (54, 56102), (60, 56147), (71, 56228), (74, 56243), (82, 56297),

Gene: Lambo_66 Start: 46164, Stop: 46814, Start Num: 5
Candidate Starts for Lambo_66:
(Start: 5 @46164 has 48 MA's), (16, 46239), (25, 46296), (28, 46344), (31, 46353), (33, 46359), (45, 46464), (54, 46536), (66, 46623), (80, 46725), (87, 46761),

Gene: LavAbarElk_68 Start: 45974, Stop: 46624, Start Num: 5
Candidate Starts for LavAbarElk_68:
(Start: 5 @45974 has 48 MA's), (25, 46106), (28, 46154), (31, 46163), (33, 46169), (54, 46346), (66, 46433), (80, 46535), (87, 46571),

Gene: Leopard_76 Start: 53219, Stop: 54025, Start Num: 6
Candidate Starts for Leopard_76:
(Start: 6 @53219 has 26 MA's), (Start: 9 @53228 has 17 MA's), (23, 53336), (24, 53342), (33, 53396), (35, 53411), (43, 53480), (44, 53489), (63, 53645), (67, 53675), (85, 53801), (99, 53987),

Gene: Lila22_69 Start: 47116, Stop: 47766, Start Num: 5
Candidate Starts for Lila22_69:
(Start: 5 @47116 has 48 MA's), (16, 47191), (25, 47248), (28, 47296), (31, 47305), (33, 47311), (45, 47416), (54, 47488), (66, 47575), (80, 47677), (87, 47713),

Gene: LittleFella_64 Start: 45483, Stop: 46235, Start Num: 3
Candidate Starts for LittleFella_64:
(Start: 3 @45483 has 1 MA's), (22, 45615), (57, 45867), (66, 45936),

Gene: LuckyLeo_65 Start: 45907, Stop: 46557, Start Num: 5
Candidate Starts for LuckyLeo_65:
(1, 45769), (2, 45778), (Start: 5 @45907 has 48 MA's), (25, 46039), (28, 46087), (31, 46096), (33, 46102), (40, 46174), (45, 46207), (65, 46360), (85, 46495),

Gene: Madi_57 Start: 42811, Stop: 43554, Start Num: 4
Candidate Starts for Madi_57:
(Start: 4 @42811 has 7 MA's), (28, 42979), (32, 42991), (44, 43084), (68, 43267), (98, 43513),

Gene: Madruga_84 Start: 55702, Stop: 56388, Start Num: 9
Candidate Starts for Madruga_84:
(Start: 9 @55702 has 17 MA's), (14, 55744), (19, 55777), (24, 55813), (29, 55867), (33, 55879), (39, 55948), (47, 55993), (54, 56056), (60, 56101), (71, 56182), (74, 56197), (82, 56251),

Gene: Megatron06_74 Start: 54299, Stop: 54919, Start Num: 9
Candidate Starts for Megatron06_74:
(Start: 9 @54299 has 17 MA's), (27, 54428), (34, 54470), (39, 54515), (55, 54629), (64, 54701), (73, 54752), (78, 54806),

Gene: Mima20_68 Start: 46550, Stop: 47200, Start Num: 5
Candidate Starts for Mima20_68:
(Start: 5 @46550 has 48 MA's), (25, 46682), (28, 46730), (31, 46739), (33, 46745), (54, 46922), (66, 47009), (80, 47111), (87, 47147),

Gene: MoiGyank_71 Start: 47315, Stop: 47965, Start Num: 5
Candidate Starts for MoiGyank_71:
(Start: 5 @47315 has 48 MA's), (25, 47447), (28, 47495), (31, 47504), (33, 47510), (54, 47687), (66, 47774), (80, 47876), (87, 47912),

Gene: MontyDev_73 Start: 53458, Stop: 54159, Start Num: 8
Candidate Starts for MontyDev_73:
(Start: 8 @53458 has 10 MA's), (10, 53467), (11, 53470), (23, 53566), (25, 53575), (30, 53626), (31, 53629), (69, 53884), (70, 53893), (83, 53995), (92, 54064), (96, 54112),

Gene: Mopey_61 Start: 45354, Stop: 46232, Start Num: 6
Candidate Starts for Mopey_61:
(Start: 6 @45354 has 26 MA's), (13, 45396), (18, 45432), (20, 45444), (23, 45468), (32, 45528), (33, 45531), (41, 45600), (58, 45732), (100, 46134),

Gene: MrMiyagi_78 Start: 50107, Stop: 50754, Start Num: 12
Candidate Starts for MrMiyagi_78:
(Start: 12 @50107 has 4 MA's), (15, 50143), (25, 50209), (44, 50347), (51, 50401), (53, 50410), (59, 50458), (70, 50530), (86, 50635), (91, 50662),

Gene: Nettle_69 Start: 47070, Stop: 47720, Start Num: 5
Candidate Starts for Nettle_69:
(Start: 5 @47070 has 48 MA's), (16, 47145), (25, 47202), (28, 47250), (31, 47259), (33, 47265), (45, 47370), (54, 47442), (66, 47529), (80, 47631), (87, 47667),

Gene: Nilo_73 Start: 53815, Stop: 54516, Start Num: 8
Candidate Starts for Nilo_73:
(Start: 8 @53815 has 10 MA's), (10, 53824), (11, 53827), (23, 53923), (25, 53932), (30, 53983), (31, 53986), (69, 54241), (70, 54250), (83, 54352), (92, 54421), (96, 54469),

Gene: Nish23_75 Start: 53763, Stop: 54383, Start Num: 9
Candidate Starts for Nish23_75:
(Start: 9 @53763 has 17 MA's), (27, 53892), (34, 53934), (39, 53979), (55, 54093), (64, 54165), (73, 54216), (78, 54270),

Gene: NorManre_72 Start: 47564, Stop: 48214, Start Num: 5
Candidate Starts for NorManre_72:
(Start: 5 @47564 has 48 MA's), (16, 47639), (25, 47696), (28, 47744), (31, 47753), (33, 47759), (45, 47864), (54, 47936), (66, 48023), (80, 48125), (87, 48161),

Gene: Nova_59 Start: 45806, Stop: 46720, Start Num: 6
Candidate Starts for Nova_59:
(Start: 6 @45806 has 26 MA's), (13, 45848), (18, 45884), (20, 45896), (23, 45920), (33, 45983), (41, 46052), (58, 46184), (100, 46622),

Gene: NovaSharks_70 Start: 45311, Stop: 45961, Start Num: 5
Candidate Starts for NovaSharks_70:

(Start: 5 @45311 has 48 MA's), (16, 45386), (25, 45443), (28, 45491), (31, 45500), (33, 45506), (45, 45611), (54, 45683), (66, 45770), (80, 45872),

Gene: Oaker_73 Start: 54328, Stop: 54948, Start Num: 9
Candidate Starts for Oaker_73:
(Start: 9 @54328 has 17 MA's), (27, 54457), (34, 54499), (39, 54544), (55, 54658), (64, 54730), (73, 54781), (78, 54835),

Gene: Onyinye_77 Start: 53086, Stop: 53895, Start Num: 6
Candidate Starts for Onyinye_77:
(Start: 6 @53086 has 26 MA's), (Start: 9 @53095 has 17 MA's), (23, 53203), (24, 53209), (33, 53263), (35, 53278), (43, 53347), (44, 53356), (63, 53512), (67, 53542), (85, 53668), (99, 53857),

Gene: OtterstedtS21_68 Start: 46498, Stop: 47148, Start Num: 5
Candidate Starts for OtterstedtS21_68:
(Start: 5 @46498 has 48 MA's), (16, 46573), (25, 46630), (28, 46678), (31, 46687), (33, 46693), (45, 46798), (54, 46870), (66, 46957), (80, 47059), (87, 47095),

Gene: P1201_69 Start: 52143, Stop: 51520, Start Num: 5
Candidate Starts for P1201_69:
(Start: 5 @52143 has 48 MA's), (7, 52134), (10, 52122), (22, 52023), (49, 51810), (51, 51792), (89, 51534), (90, 51528),

Gene: PBI1_57 Start: 45281, Stop: 46210, Start Num: 6
Candidate Starts for PBI1_57:
(Start: 6 @45281 has 26 MA's), (13, 45323), (18, 45359), (20, 45371), (23, 45395), (32, 45455), (33, 45458), (41, 45527), (58, 45659), (100, 46112),

Gene: PLot_60 Start: 45333, Stop: 46232, Start Num: 6
Candidate Starts for PLot_60:
(Start: 6 @45333 has 26 MA's), (13, 45375), (18, 45411), (20, 45423), (23, 45447), (33, 45510), (41, 45579), (58, 45711), (65, 45759), (100, 46134),

Gene: Papyrus_71 Start: 53425, Stop: 54126, Start Num: 8
Candidate Starts for Papyrus_71:
(Start: 8 @53425 has 10 MA's), (10, 53434), (11, 53437), (23, 53533), (25, 53542), (30, 53593), (31, 53596), (69, 53851), (70, 53860), (83, 53962), (92, 54031), (96, 54079),

Gene: ParvusTarda_67 Start: 45870, Stop: 46520, Start Num: 5
Candidate Starts for ParvusTarda_67:
(Start: 5 @45870 has 48 MA's), (16, 45945), (25, 46002), (28, 46050), (31, 46059), (33, 46065), (45, 46170), (54, 46242), (66, 46329), (80, 46431), (87, 46467),

Gene: Patience_86 Start: 56615, Stop: 57301, Start Num: 9
Candidate Starts for Patience_86:
(Start: 9 @56615 has 17 MA's), (14, 56657), (19, 56690), (24, 56726), (29, 56780), (33, 56792), (47, 56906), (54, 56969), (60, 57014), (71, 57095), (74, 57110), (82, 57164),

Gene: Patos_72 Start: 47563, Stop: 48213, Start Num: 5
Candidate Starts for Patos_72:
(Start: 5 @47563 has 48 MA's), (16, 47638), (25, 47695), (28, 47743), (31, 47752), (33, 47758), (45, 47863), (54, 47935), (66, 48022), (80, 48124), (87, 48160),

Gene: Penelope2018_60 Start: 45351, Stop: 46253, Start Num: 6
Candidate Starts for Penelope2018_60:
(Start: 6 @45351 has 26 MA's), (13, 45393), (18, 45429), (20, 45441), (23, 45465), (32, 45525), (33, 45528), (41, 45597), (58, 45729), (100, 46155),

Gene: PeteyPab_52 Start: 44571, Stop: 43951, Start Num: 5
Candidate Starts for PeteyPab_52:
(Start: 5 @44571 has 48 MA's), (21, 44463), (37, 44334), (38, 44328), (61, 44145), (72, 44067), (79, 44007), (88, 43968),

Gene: Phalaborwa_63 Start: 45792, Stop: 46670, Start Num: 6
Candidate Starts for Phalaborwa_63:
(Start: 6 @45792 has 26 MA's), (13, 45834), (18, 45870), (20, 45882), (23, 45906), (33, 45969), (41, 46038), (56, 46149), (58, 46170), (65, 46218), (100, 46572),

Gene: Phreeze_72 Start: 53298, Stop: 53918, Start Num: 9
Candidate Starts for Phreeze_72:
(Start: 9 @53298 has 17 MA's), (27, 53427), (34, 53469), (39, 53514), (55, 53628), (64, 53700), (73, 53751), (78, 53805),

Gene: PotatoChip_53 Start: 44573, Stop: 43953, Start Num: 5
Candidate Starts for PotatoChip_53:
(Start: 5 @44573 has 48 MA's), (21, 44465), (37, 44336), (38, 44330), (61, 44147), (72, 44069), (79, 44009), (88, 43970),

Gene: Prager_60 Start: 45370, Stop: 46326, Start Num: 6
Candidate Starts for Prager_60:
(Start: 6 @45370 has 26 MA's), (13, 45412), (18, 45448), (20, 45460), (23, 45484), (32, 45544), (33, 45547), (41, 45616), (58, 45748), (100, 46228),

Gene: Predator_72 Start: 52784, Stop: 53422, Start Num: 9
Candidate Starts for Predator_72:
(Start: 9 @52784 has 17 MA's), (24, 52898), (27, 52916), (33, 52955), (39, 53003), (46, 53045), (48, 53054), (52, 53093), (55, 53117), (60, 53156), (61, 53162),

Gene: Puissant_70 Start: 53461, Stop: 54084, Start Num: 9
Candidate Starts for Puissant_70:
(Start: 9 @53461 has 17 MA's), (27, 53590), (39, 53677), (55, 53791), (60, 53830), (73, 53914),

Gene: Pywacket_65 Start: 47159, Stop: 47809, Start Num: 5
Candidate Starts for Pywacket_65:
(Start: 5 @47159 has 48 MA's), (25, 47291), (28, 47339), (31, 47348), (33, 47354), (54, 47531), (66, 47618), (80, 47720), (87, 47756),

Gene: Ranch_68 Start: 45342, Stop: 45992, Start Num: 5
Candidate Starts for Ranch_68:
(Start: 5 @45342 has 48 MA's), (16, 45417), (25, 45474), (28, 45522), (31, 45531), (33, 45537), (45, 45642), (54, 45714), (66, 45801), (80, 45903), (87, 45939),

Gene: RazorC_68 Start: 45465, Stop: 46115, Start Num: 5
Candidate Starts for RazorC_68:
(Start: 5 @45465 has 48 MA's), (16, 45540), (25, 45597), (28, 45645), (31, 45654), (33, 45660), (45, 45765), (54, 45837), (66, 45924), (80, 46026),

Gene: Riduram_67 Start: 45040, Stop: 45690, Start Num: 5
Candidate Starts for Riduram_67:
(Start: 5 @45040 has 48 MA's), (16, 45115), (25, 45172), (28, 45220), (31, 45229), (33, 45235), (54, 45412), (66, 45499), (80, 45601),

Gene: Riparian_73 Start: 53262, Stop: 53963, Start Num: 8
Candidate Starts for Riparian_73:
(Start: 8 @53262 has 10 MA's), (10, 53271), (11, 53274), (23, 53370), (25, 53379), (30, 53430), (31, 53433), (69, 53688), (70, 53697), (83, 53799), (92, 53868), (96, 53916),

Gene: Rope_71 Start: 53418, Stop: 54119, Start Num: 8
Candidate Starts for Rope_71:
(Start: 8 @53418 has 10 MA's), (10, 53427), (11, 53430), (23, 53526), (25, 53535), (30, 53586), (31, 53589), (69, 53844), (70, 53853), (83, 53955), (92, 54024),

Gene: Rota_65 Start: 46233, Stop: 46883, Start Num: 5
Candidate Starts for Rota_65:
(Start: 5 @46233 has 48 MA's), (16, 46308), (25, 46365), (28, 46413), (31, 46422), (33, 46428), (54, 46605), (66, 46692), (80, 46794), (87, 46830),

Gene: Rukungu_70 Start: 47455, Stop: 48105, Start Num: 5
Candidate Starts for Rukungu_70:
(Start: 5 @47455 has 48 MA's), (16, 47530), (25, 47587), (28, 47635), (31, 47644), (33, 47650), (45, 47755), (54, 47827), (66, 47914), (80, 48016), (87, 48052),

Gene: Rumi_69 Start: 45008, Stop: 45658, Start Num: 5
Candidate Starts for Rumi_69:
(Start: 5 @45008 has 48 MA's), (16, 45083), (25, 45140), (28, 45188), (31, 45197), (33, 45203), (45, 45308), (54, 45380), (66, 45467), (80, 45569),

Gene: Sadboi_69 Start: 47035, Stop: 47685, Start Num: 5
Candidate Starts for Sadboi_69:
(Start: 5 @47035 has 48 MA's), (25, 47167), (28, 47215), (31, 47224), (33, 47230), (54, 47407), (66, 47494), (80, 47596), (87, 47632),

Gene: Sampudon_68 Start: 47387, Stop: 48037, Start Num: 5
Candidate Starts for Sampudon_68:
(Start: 5 @47387 has 48 MA's), (25, 47519), (28, 47567), (31, 47576), (33, 47582), (54, 47759), (66, 47846), (80, 47948), (87, 47984),

Gene: Send513_71 Start: 53796, Stop: 54497, Start Num: 8
Candidate Starts for Send513_71:
(Start: 8 @53796 has 10 MA's), (10, 53805), (11, 53808), (23, 53904), (25, 53913), (30, 53964), (31, 53967), (69, 54222), (70, 54231), (83, 54333), (92, 54402), (96, 54450),

Gene: Sienna_57 Start: 42811, Stop: 43554, Start Num: 4
Candidate Starts for Sienna_57:
(Start: 4 @42811 has 7 MA's), (28, 42979), (32, 42991), (44, 43084), (68, 43267), (98, 43513),

Gene: SirHarley_62 Start: 45793, Stop: 46731, Start Num: 6
Candidate Starts for SirHarley_62:

(Start: 6 @45793 has 26 MA's), (13, 45835), (18, 45871), (20, 45883), (23, 45907), (32, 45967), (33, 45970), (41, 46039), (58, 46171), (100, 46633),

Gene: Stickynote_53 Start: 44577, Stop: 43957, Start Num: 5
Candidate Starts for Stickynote_53:
(Start: 5 @44577 has 48 MA's), (21, 44469), (37, 44340), (38, 44334), (61, 44151), (72, 44073), (79, 44013), (88, 43974),

Gene: Stormer_68 Start: 45012, Stop: 45662, Start Num: 5
Candidate Starts for Stormer_68:
(Start: 5 @45012 has 48 MA's), (16, 45087), (25, 45144), (28, 45192), (31, 45201), (33, 45207), (45, 45312), (54, 45384), (66, 45471), (80, 45573),

Gene: SuperSonics_85 Start: 55670, Stop: 56356, Start Num: 9
Candidate Starts for SuperSonics_85:
(Start: 9 @55670 has 17 MA's), (14, 55712), (19, 55745), (24, 55781), (29, 55835), (33, 55847), (39, 55916), (47, 55961), (54, 56024), (60, 56069), (71, 56150), (74, 56165), (82, 56219),

Gene: SuperheroCarly_61 Start: 45467, Stop: 46414, Start Num: 6
Candidate Starts for SuperheroCarly_61:
(Start: 6 @45467 has 26 MA's), (13, 45509), (18, 45545), (20, 45557), (23, 45581), (33, 45644), (41, 45713), (58, 45845), (65, 45893), (100, 46316),

Gene: Suzy_57 Start: 44001, Stop: 44741, Start Num: 4
Candidate Starts for Suzy_57:
(Start: 4 @44001 has 7 MA's), (28, 44169), (32, 44181), (44, 44274), (68, 44457),

Gene: Terapin_58 Start: 42735, Stop: 43478, Start Num: 4
Candidate Starts for Terapin_58:
(Start: 4 @42735 has 7 MA's), (28, 42903), (32, 42915), (44, 43008), (68, 43191), (98, 43437),

Gene: Thoth_60 Start: 45349, Stop: 46320, Start Num: 6
Candidate Starts for Thoth_60:
(Start: 6 @45349 has 26 MA's), (13, 45391), (18, 45427), (20, 45439), (23, 45463), (32, 45523), (33, 45526), (41, 45595), (58, 45727), (100, 46222),

Gene: Thumb_74 Start: 53733, Stop: 54350, Start Num: 9
Candidate Starts for Thumb_74:
(Start: 9 @53733 has 17 MA's), (27, 53862), (34, 53904), (39, 53949), (55, 54063), (64, 54135), (73, 54186), (78, 54237),

Gene: Tillicus_63 Start: 45848, Stop: 46498, Start Num: 5
Candidate Starts for Tillicus_63:
(Start: 5 @45848 has 48 MA's), (16, 45923), (25, 45980), (28, 46028), (31, 46037), (33, 46043), (40, 46115), (45, 46148), (65, 46301), (85, 46436),

Gene: Troll4_60 Start: 45480, Stop: 46388, Start Num: 6
Candidate Starts for Troll4_60:
(Start: 6 @45480 has 26 MA's), (13, 45522), (18, 45558), (20, 45570), (23, 45594), (32, 45654), (33, 45657), (41, 45726), (58, 45858), (100, 46290),

Gene: Visconti_61 Start: 45360, Stop: 46295, Start Num: 6
Candidate Starts for Visconti_61:

(Start: 6 @45360 has 26 MA's), (13, 45402), (18, 45438), (20, 45450), (23, 45474), (32, 45534), (33, 45537), (41, 45606), (58, 45738), (100, 46197),

Gene: WaldoWhy_62 Start: 45413, Stop: 46312, Start Num: 6
Candidate Starts for WaldoWhy_62:
(Start: 6 @45413 has 26 MA's), (13, 45455), (18, 45491), (20, 45503), (23, 45527), (32, 45587), (33, 45590), (41, 45659), (58, 45791), (100, 46214),

Gene: Weiss13_71 Start: 53499, Stop: 54200, Start Num: 8
Candidate Starts for Weiss13_71:
(Start: 8 @53499 has 10 MA's), (10, 53508), (11, 53511), (23, 53607), (25, 53616), (30, 53667), (31, 53670), (69, 53925), (70, 53934), (83, 54036), (92, 54105), (96, 54153),

Gene: Wojtek_64 Start: 45592, Stop: 46239, Start Num: 5
Candidate Starts for Wojtek_64:
(Start: 5 @45592 has 48 MA's), (25, 45724), (28, 45772), (31, 45781), (33, 45787), (40, 45859), (45, 45892), (65, 46045), (85, 46180),

Gene: Xenia2_68 Start: 45594, Stop: 46247, Start Num: 5
Candidate Starts for Xenia2_68:
(Start: 5 @45594 has 48 MA's), (23, 45717), (25, 45726), (28, 45774), (31, 45783), (32, 45786), (33, 45789), (44, 45882), (45, 45891), (80, 46155), (87, 46191),

Gene: Yelo_70 Start: 53878, Stop: 54579, Start Num: 8
Candidate Starts for Yelo_70:
(Start: 8 @53878 has 10 MA's), (10, 53887), (11, 53890), (23, 53986), (25, 53995), (30, 54046), (31, 54049), (69, 54304), (70, 54313), (83, 54415), (92, 54484), (96, 54532),

Gene: Yikes_70 Start: 47481, Stop: 48131, Start Num: 5
Candidate Starts for Yikes_70:
(Start: 5 @47481 has 48 MA's), (25, 47613), (28, 47661), (31, 47670), (33, 47676), (54, 47853), (66, 47940), (80, 48042), (87, 48078),

Gene: Zany_66 Start: 47075, Stop: 47725, Start Num: 5
Candidate Starts for Zany_66:
(Start: 5 @47075 has 48 MA's), (25, 47207), (28, 47255), (31, 47264), (33, 47270), (54, 47447), (66, 47534), (80, 47636), (87, 47672),

Gene: Zenon_73 Start: 53822, Stop: 54523, Start Num: 8
Candidate Starts for Zenon_73:
(Start: 8 @53822 has 10 MA's), (10, 53831), (11, 53834), (23, 53930), (25, 53939), (30, 53990), (31, 53993), (69, 54248), (70, 54257), (83, 54359), (92, 54428), (96, 54476),

Gene: Zion_53 Start: 44571, Stop: 43951, Start Num: 5
Candidate Starts for Zion_53:
(Start: 5 @44571 has 48 MA's), (21, 44463), (37, 44334), (38, 44328), (61, 44145), (72, 44067), (79, 44007), (88, 43968),