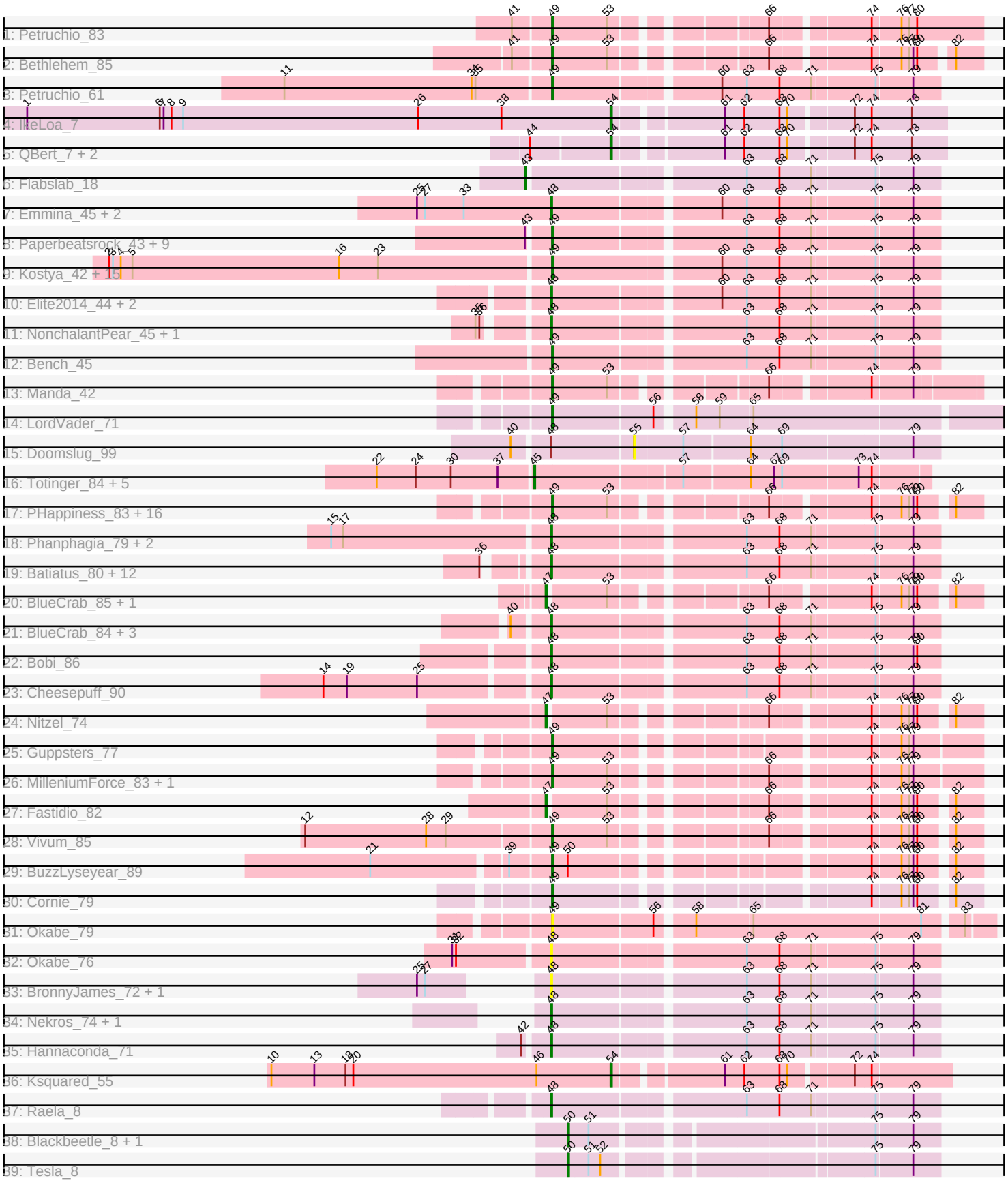
Pham 345550


1: Petruchio_83
2: Bethlehem_85
3: Petruchio_61
4: IlleLoa_7
5: QBert_7 + 2
6: Flabslab_18
7: Emmina_45 + 2
8: Paperbeatsrock_43 + 9
9: Kostya_42 + 15
10: Elite2014_44 + 2
11: NonchalantPear_45 + 1
12: Bench_45
13: Manda_42
14: LordVader_71
15: Doomslug_99
16: Totinger_84 + 5
17: PHappiness_83 + 16
18: Phanphagia_79 + 2
19: Batiatus_80 + 12
20: BlueCrab_85 + 1
21: BlueCrab_84 + 3
22: Bobi_86
23: Cheesepuff_90
24: Nitzel_74
25: Guppsters_77
26: MilleniumForce_83 + 1
27: Fastidio_82
28: Vivum_85
29: BuzzLyseyear_89
30: Cornie_79
31: Okabe_79
32: Okabe_76
33: BronnyJames_72 + 1
34: Nekros_74 + 1
35: Hannaconda_71
36: Ksquared_55
37: Raela_8
38: Blackbeetle_8 + 1
39: Tesla_8

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 345550 Report

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

Pham number 345550 has 113 members, 12 are drafts.

Phages represented in each track:
• Track 1 : Petruchio_83
• Track 2 : Bethlehem_85
• Track 3 : Petruchio_61
• Track 4 : IkeLoa_7
• Track 5 : QBert_7, RoMag_6, JulietS_7
• Track 6 : Flabslab_18
• Track 7 : Emmina_45, Teaspoon_46, Porky_43
• Track 8 : Paperbeatsrock_43, SophKB_41, BadStone_42, Dumbo_44, Tarkin_43, Easy2Say_45, Dusk_42, NelitzaMV_41, Pharsalus_42, Henry_43
• Track 9 : Kostya_42, PhatBacter_44, Nimrod_44, Phaux_43, Murica_43, xkcd_45, Palpatine_44, FireRed_44, HufflyPuff_43, Greep_45, Misfit_43, Terminus_43, Livelaughbron_45, Petra64142_46, Policronamos_44, BugsBunny_42
• Track 10 : Elite2014_44, Lilpickle_44, ChosenOne_45
• Track 11 : NonchalantPear_45, Ukulele_41
• Track 12 : Bench_45
• Track 13 : Manda_42
• Track 14 : LordVader_71
• Track 15 : Doomslug_99
• Track 16 : Totinger_84, Peridot_87, LittleShirley_88, GigiOuiOui_76, Starcevich_82, Vivum_82
• Track 17 : PHappiness_83, Zerg_83, Nimbo_75, RitaG_83, Minnie_78, DotProduct_77, Geralt_76, Hamulus_81, Fruitloop_79, Filuzino_83, OldBen_80, Leperchaun_81, Sandalphon_76, Deb65_76, JoeyJr_83, Daenerys_82, StAnnes_84
• Track 18 : Phanphagia_79, Kingsley_84, Shauna1_80
• Track 19 : Batiatus_80, Eureka_42, Ms6_80, XFactor_76, Ardmore_66, ScottMcG_17, Chuckly_78, Shifa_12, HyRo_13, DLane_82, Stubby_16, Goku_42, Manda_44
• Track 20 : BlueCrab_85, Pacc40_79
• Track 21 : BlueCrab_84, Pacc40_78, Akhila_77, MilanaBonita_76
• Track 22 : Bobi_86
• Track 23 : Cheesepuff_90
• Track 24 : Nitzel_74
• Track 25 : Guppsters_77
• Track 26 : MilleniumForce_83, Pollywog_81
• Track 27 : Fastidio_82
• Track 28 : Vivum_85
• Track 29 : BuzzLyseyear_89

• Track 30 : Cornie_79
• Track 31 : Okabe_79
• Track 32 : Okabe_76
• Track 33 : BronnyJames_72, Shaboozey_71
• Track 34 : Nekros_74, Phalconet_77
• Track 35 : Hannaconda_71
• Track 36 : Ksquared_55
• Track 37 : Raela_8
• Track 38 : Blackbeetle_8, Poise_8
• Track 39 : Tesla_8

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

The start number called the most often in the published annotations is 49, it was called in 51 of the 101 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• BadStone_42, Bench_45, Bethlehem_85, BugsBunny_42, BuzzLyseyear_89, Cornie_79, Daenerys_82, Deb65_76, DotProduct_77, Dumbo_44, Dusk_42, Easy2Say_45, Filuzino_83, FireRed_44, Fruitloop_79, Geralt_76, Greep_45, Guppsters_77, Hamulus_81, Henry_43, HufflyPuff_43, JoeyJr_83, Kostya_42, Leperchaun_81, Livelaughbron_45, LordVader_71, Manda_42, MilleniumForce_83, Minnie_78, Misfit_43, Murica_43, NelitzaMV_41, Nimbo_75, Nimrod_44, Okabe_79, OldBen_80, PHappiness_83, Palpatine_44, Paperbeatsrock_43, Petra64142_46, Petruchio_61, Petruchio_83, Pharsalus_42, PhatBacter_44, Phaux_43, Policronamos_44, Pollywog_81, RitaG_83, Sandalphon_76, SophKB_41, StAnnes_84, Tarkin_43, Terminus_43, Vivum_85, Zerg_83, xkcd_45,

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

Genes that do not have the "Most Annotated" start:
• Akhila_77, Ardmore_66, Batiatus_80, Blackbeetle_8, BlueCrab_84, BlueCrab_85, Bobi_86, BronnyJames_72, Cheesepuff_90, ChosenOne_45, Chuckly_78, DLane_82, Doomslug_99, Elite2014_44, Emmina_45, Eureka_42, Fastidio_82, Flabslab_18, GigiOuiOui_76, Goku_42, Hannaconda_71, HyRo_13, IkeLoa_7, JulietS_7, Kingsley_84, Ksquared_55, Lilpickle_44, LittleShirley_88, Manda_44, MilanaBonita_76, Ms6_80, Nekros_74, Nitzel_74, NonchalantPear_45, Okabe_76, Pacc40_78, Pacc40_79, Peridot_87, Phalconet_77, Phanphagia_79, Poise_8, Porky_43, QBert_7, Raela_8, RoMag_6, ScottMcG_17, Shaboozey_71, Shauna1_80, Shifa_12, Starcevich_82, Stubby_16, Teaspoon_46, Tesla_8, Totinger_84, Ukulele_41, Vivum_82, XFactor_76,

Summary by start number:

Start 43:
• Found in 11 of 113 (9.7%) of genes in pham
• Manual Annotations of this start: 1 of 101
• Called 9.1% of time when present
• Phage (with cluster) where this start called: Flabslab_18 (C1),

Start 45:
• Found in 6 of 113 (5.3%) of genes in pham
• Manual Annotations of this start: 6 of 101
• Called 100.0% of time when present
• Phage (with cluster) where this start called: GigiOuiOui_76 (F1), LittleShirley_88 (F1), Peridot_87 (F1), Starcevich_82 (F1), Totinger_84 (F1), Vivum_82 (F1),

Start 47:
• Found in 4 of 113 (3.5%) of genes in pham
• Manual Annotations of this start: 4 of 101
• Called 100.0% of time when present
• Phage (with cluster) where this start called: BlueCrab_85 (F1), Fastidio_82 (F1), Nitzel_74 (F1), Pacc40_79 (F1),

Start 48:
• Found in 38 of 113 (33.6%) of genes in pham
• Manual Annotations of this start: 31 of 101
• Called 97.4% of time when present
• Phage (with cluster) where this start called: Akhila_77 (F1), Ardmore_66 (F1), Batiatus_80 (F1), BlueCrab_84 (F1), Bobi_86 (F1), BronnyJames_72 (J), Cheesepuff_90 (F1), ChosenOne_45 (E), Chuckly_78 (F1), DLane_82 (F1), Elite2014_44 (E), Emmina_45 (E), Eureka_42 (E), Goku_42 (E), Hannaconda_71 (J), HyRo_13 (C1), Kingsley_84 (F1), Lilpickle_44 (E), Manda_44 (E), MilanaBonita_76 (F1), Ms6_80 (F1), Nekros_74 (J), NonchalantPear_45 (E), Okabe_76 (F8), Pacc40_78 (F1), Phalconet_77 (F1), Phanphagia_79 (F1), Porky_43 (E), Raela_8 (S), ScottMcG_17 (C1), Shaboozey_71 (J), Shauna1_80 (F1), Shifa_12 (C1), Stubby_16 (C1), Teaspoon_46 (E), Ukulele_41 (E), XFactor_76 (F1),

Start 49:
• Found in 56 of 113 (49.6%) of genes in pham
• Manual Annotations of this start: 51 of 101
• Called 100.0% of time when present
• Phage (with cluster) where this start called: BadStone_42 (E), Bench_45 (E), Bethlehem_85 (A1), BugsBunny_42 (E), BuzzLyseyear_89 (F1), Cornie_79 (F5), Daenerys_82 (F1), Deb65_76 (F1), DotProduct_77 (F1), Dumbo_44 (E), Dusk_42 (E), Easy2Say_45 (E), Filuzino_83 (F1), FireRed_44 (E), Fruitloop_79 (F1), Geralt_76 (F1), Greep_45 (E), Guppsters_77 (F1), Hamulus_81 (F1), Henry_43 (E), HufflyPuff_43 (E), JoeyJr_83 (F1), Kostya_42 (E), Leperchaun_81 (F1), Livelaughbron_45 (E), LordVader_71 (F), Manda_42 (E), MilleniumForce_83 (F1), Minnie_78 (F1), Misfit_43 (E), Murica_43 (E), NelitzaMV_41 (E), Nimbo_75 (F1), Nimrod_44 (E), Okabe_79 (F8), OldBen_80 (F1), PHappiness_83 (F1), Palpatine_44 (E), Paperbeatsrock_43 (E), Petra64142_46 (E), Petruchio_61 (A1), Petruchio_83 (A1), Pharsalus_42 (E), PhatBacter_44 (E), Phaux_43 (E), Policronamos_44 (E), Pollywog_81 (F1), RitaG_83 (F1), Sandalphon_76 (F1), SophKB_41 (E), StAnnes_84 (F1), Tarkin_43 (E), Terminus_43 (E), Vivum_85 (F1), Zerg_83 (F1), xkcd_45 (E),

Start 50:
• Found in 4 of 113 (3.5%) of genes in pham
• Manual Annotations of this start: 3 of 101
• Called 75.0% of time when present
• Phage (with cluster) where this start called: Blackbeetle_8 (S), Poise_8 (S), Tesla_8 (S),

Start 54:
• Found in 5 of 113 (4.4%) of genes in pham
• Manual Annotations of this start: 5 of 101
• Called 100.0% of time when present
• Phage (with cluster) where this start called: IkeLoa_7 (C1), JulietS_7 (C1), Ksquared_55 (P1), QBert_7 (C1), RoMag_6 (C1),

Start 55:
• Found in 1 of 113 (0.9%) of genes in pham
• No Manual Annotations of this start.
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Doomslug_99 (F),

Summary by clusters:

There are 10 clusters represented in this pham: F1, P1, E, F5, F, F8, J, A1, S, C1,

Info for manual annotations of cluster A1:
•Start number 49 was manually annotated 3 times for cluster A1.

Info for manual annotations of cluster C1:
•Start number 43 was manually annotated 1 time for cluster C1.
•Start number 48 was manually annotated 4 times for cluster C1.
•Start number 54 was manually annotated 4 times for cluster C1.

Info for manual annotations of cluster E:
•Start number 48 was manually annotated 11 times for cluster E.
•Start number 49 was manually annotated 24 times for cluster E.

Info for manual annotations of cluster F:
•Start number 49 was manually annotated 1 time for cluster F.

Info for manual annotations of cluster F1:
•Start number 45 was manually annotated 6 times for cluster F1.
•Start number 47 was manually annotated 4 times for cluster F1.
•Start number 48 was manually annotated 14 times for cluster F1.
•Start number 49 was manually annotated 22 times for cluster F1.

Info for manual annotations of cluster F5:
•Start number 49 was manually annotated 1 time for cluster F5.

Info for manual annotations of cluster J:
•Start number 48 was manually annotated 1 time for cluster J.

Info for manual annotations of cluster P1:
•Start number 54 was manually annotated 1 time for cluster P1.

Info for manual annotations of cluster S:
•Start number 48 was manually annotated 1 time for cluster S.
•Start number 50 was manually annotated 3 times for cluster S.

Gene Information:

Gene: Akhila_77 Start: 47736, Stop: 48011, Start Num: 48
Candidate Starts for Akhila_77:
(40, 47712), (Start: 48 @47736 has 31 MA's), (63, 47871), (68, 47895), (71, 47919), (75, 47964), (79, 47991),

Gene: Ardmore_66 Start: 43412, Stop: 43687, Start Num: 48
Candidate Starts for Ardmore_66:
(36, 43376), (Start: 48 @43412 has 31 MA's), (63, 43547), (68, 43571), (71, 43595), (75, 43640), (79, 43667),

Gene: BadStone_42 Start: 35749, Stop: 35474, Start Num: 49
Candidate Starts for BadStone_42:
(Start: 43 @35764 has 1 MA's), (Start: 49 @35749 has 51 MA's), (63, 35614), (68, 35590), (71, 35566), (75, 35521), (79, 35494),

Gene: Batiatus_80 Start: 48821, Stop: 49096, Start Num: 48
Candidate Starts for Batiatus_80:
(36, 48785), (Start: 48 @48821 has 31 MA's), (63, 48956), (68, 48980), (71, 49004), (75, 49049), (79, 49076),

Gene: Bench_45 Start: 35386, Stop: 35111, Start Num: 49
Candidate Starts for Bench_45:
(Start: 49 @35386 has 51 MA's), (63, 35251), (68, 35227), (71, 35203), (75, 35158), (79, 35131),

Gene: Bethlehem_85 Start: 50979, Stop: 50701, Start Num: 49
Candidate Starts for Bethlehem_85:
(41, 51003), (Start: 49 @50979 has 51 MA's), (53, 50937), (66, 50841), (74, 50775), (76, 50754), (77, 50748), (79, 50745), (80, 50742), (82, 50721),

Gene: Blackbeetle_8 Start: 2539, Stop: 2790, Start Num: 50
Candidate Starts for Blackbeetle_8:
(Start: 50 @2539 has 3 MA's), (51, 2554), (75, 2743), (79, 2770),

Gene: BlueCrab_85 Start: 50477, Stop: 50755, Start Num: 47
Candidate Starts for BlueCrab_85:
(Start: 47 @50477 has 4 MA's), (53, 50519), (66, 50615), (74, 50681), (76, 50702), (77, 50708), (79, 50711), (80, 50714), (82, 50735),

Gene: BlueCrab_84 Start: 50205, Stop: 50480, Start Num: 48
Candidate Starts for BlueCrab_84:
(40, 50181), (Start: 48 @50205 has 31 MA's), (63, 50340), (68, 50364), (71, 50388), (75, 50433), (79, 50460),

Gene: Bobi_86 Start: 50927, Stop: 51202, Start Num: 48
Candidate Starts for Bobi_86:
(Start: 48 @50927 has 31 MA's), (63, 51062), (68, 51086), (71, 51110), (75, 51155), (79, 51182), (80, 51185),

Gene: BronnyJames_72 Start: 46237, Stop: 45962, Start Num: 48

Candidate Starts for BronnyJames_72:
(25, 46285), (27, 46279), (Start: 48 @46237 has 31 MA's), (63, 46102), (68, 46078), (71, 46054), (75, 46009), (79, 45982),

Gene: BugsBunny_42 Start: 35155, Stop: 34877, Start Num: 49
Candidate Starts for BugsBunny_42:
(2, 35491), (3, 35488), (4, 35482), (5, 35473), (16, 35314), (23, 35284), (Start: 49 @35155 has 51 MA's), (60, 35035), (63, 35017), (68, 34993), (71, 34969), (75, 34924), (79, 34897),

Gene: BuzzLyseyear_89 Start: 52060, Stop: 52338, Start Num: 49
Candidate Starts for BuzzLyseyear_89:
(21, 51934), (39, 52030), (Start: 49 @52060 has 51 MA's), (Start: 50 @52072 has 3 MA's), (74, 52264), (76, 52285), (77, 52291), (79, 52294), (80, 52297), (82, 52318),

Gene: Cheesepuff_90 Start: 49461, Stop: 49736, Start Num: 48
Candidate Starts for Cheesepuff_90:
(14, 49299), (19, 49317), (25, 49371), (Start: 48 @49461 has 31 MA's), (63, 49596), (68, 49620), (71, 49644), (75, 49689), (79, 49716),

Gene: ChosenOne_45 Start: 34885, Stop: 34610, Start Num: 48
Candidate Starts for ChosenOne_45:
(Start: 48 @34885 has 31 MA's), (60, 34768), (63, 34750), (68, 34726), (71, 34702), (75, 34657), (79, 34630),

Gene: Chuckly_78 Start: 46153, Stop: 46428, Start Num: 48
Candidate Starts for Chuckly_78:
(36, 46117), (Start: 48 @46153 has 31 MA's), (63, 46288), (68, 46312), (71, 46336), (75, 46381), (79, 46408),

Gene: Cornie_79 Start: 47817, Stop: 48095, Start Num: 49
Candidate Starts for Cornie_79:
(Start: 49 @47817 has 51 MA's), (74, 48021), (76, 48042), (77, 48048), (79, 48051), (80, 48054), (82, 48075),

Gene: DLane_82 Start: 50043, Stop: 50318, Start Num: 48
Candidate Starts for DLane_82:
(36, 50007), (Start: 48 @50043 has 31 MA's), (63, 50178), (68, 50202), (71, 50226), (75, 50271), (79, 50298),

Gene: Daenerys_82 Start: 50903, Stop: 51181, Start Num: 49
Candidate Starts for Daenerys_82:
(Start: 49 @50903 has 51 MA's), (53, 50945), (66, 51041), (74, 51107), (76, 51128), (77, 51134), (79, 51137), (80, 51140), (82, 51161),

Gene: Deb65_76 Start: 48625, Stop: 48903, Start Num: 49
Candidate Starts for Deb65_76:
(Start: 49 @48625 has 51 MA's), (53, 48667), (66, 48763), (74, 48829), (76, 48850), (77, 48856), (79, 48859), (80, 48862), (82, 48883),

Gene: Doomslug_99 Start: 51985, Stop: 52209, Start Num: 55
Candidate Starts for Doomslug_99:
(40, 51901), (Start: 48 @51925 has 31 MA's), (55, 51985), (57, 52021), (64, 52069), (69, 52093), (79, 52189),

Gene: DotProduct_77 Start: 47382, Stop: 47660, Start Num: 49
Candidate Starts for DotProduct_77:
(Start: 49 @47382 has 51 MA's), (53, 47424), (66, 47520), (74, 47586), (76, 47607), (77, 47613), (79, 47616), (80, 47619), (82, 47640),

Gene: Dumbo_44 Start: 35105, Stop: 34830, Start Num: 49
Candidate Starts for Dumbo_44:
(Start: 43 @35120 has 1 MA's), (Start: 49 @35105 has 51 MA's), (63, 34970), (68, 34946), (71, 34922), (75, 34877), (79, 34850),

Gene: Dusk_42 Start: 35409, Stop: 35134, Start Num: 49
Candidate Starts for Dusk_42:
(Start: 43 @35424 has 1 MA's), (Start: 49 @35409 has 51 MA's), (63, 35274), (68, 35250), (71, 35226), (75, 35181), (79, 35154),

Gene: Easy2Say_45 Start: 36649, Stop: 36374, Start Num: 49
Candidate Starts for Easy2Say_45:
(Start: 43 @36664 has 1 MA's), (Start: 49 @36649 has 51 MA's), (63, 36514), (68, 36490), (71, 36466), (75, 36421), (79, 36394),

Gene: Elite2014_44 Start: 34884, Stop: 34609, Start Num: 48
Candidate Starts for Elite2014_44:
(Start: 48 @34884 has 31 MA's), (60, 34767), (63, 34749), (68, 34725), (71, 34701), (75, 34656), (79, 34629),

Gene: Emmina_45 Start: 35184, Stop: 34909, Start Num: 48
Candidate Starts for Emmina_45:
(25, 35286), (27, 35280), (33, 35250), (Start: 48 @35184 has 31 MA's), (60, 35067), (63, 35049), (68, 35025), (71, 35001), (75, 34956), (79, 34929),

Gene: Eureka_42 Start: 35560, Stop: 35285, Start Num: 48
Candidate Starts for Eureka_42:
(36, 35596), (Start: 48 @35560 has 31 MA's), (63, 35425), (68, 35401), (71, 35377), (75, 35332), (79, 35305),

Gene: Fastidio_82 Start: 46279, Stop: 46557, Start Num: 47
Candidate Starts for Fastidio_82:
(Start: 47 @46279 has 4 MA's), (53, 46321), (66, 46417), (74, 46483), (76, 46504), (77, 46510), (79, 46513), (80, 46516), (82, 46537),

Gene: Filuzino_83 Start: 51185, Stop: 51463, Start Num: 49
Candidate Starts for Filuzino_83:
(Start: 49 @51185 has 51 MA's), (53, 51227), (66, 51323), (74, 51389), (76, 51410), (77, 51416), (79, 51419), (80, 51422), (82, 51443),

Gene: FireRed_44 Start: 35594, Stop: 35316, Start Num: 49
Candidate Starts for FireRed_44:
(2, 35930), (3, 35927), (4, 35921), (5, 35912), (16, 35753), (23, 35723), (Start: 49 @35594 has 51 MA's), (60, 35474), (63, 35456), (68, 35432), (71, 35408), (75, 35363), (79, 35336),

Gene: Flabslab_18 Start: 6033, Stop: 6323, Start Num: 43
Candidate Starts for Flabslab_18:

(Start: 43 @6033 has 1 MA's), (63, 6183), (68, 6207), (71, 6231), (75, 6276), (79, 6303),

Gene: Fruitloop_79 Start: 49022, Stop: 49300, Start Num: 49
Candidate Starts for Fruitloop_79:
(Start: 49 @49022 has 51 MA's), (53, 49064), (66, 49160), (74, 49226), (76, 49247), (77, 49253), (79, 49256), (80, 49259), (82, 49280),

Gene: Geralt_76 Start: 48623, Stop: 48901, Start Num: 49
Candidate Starts for Geralt_76:
(Start: 49 @48623 has 51 MA's), (53, 48665), (66, 48761), (74, 48827), (76, 48848), (77, 48854), (79, 48857), (80, 48860), (82, 48881),

Gene: GigiOuiOui_76 Start: 47877, Stop: 48161, Start Num: 45
Candidate Starts for GigiOuiOui_76:
(22, 47760), (24, 47790), (30, 47817), (37, 47853), (Start: 45 @47877 has 6 MA's), (57, 47982), (64, 48030), (67, 48048), (69, 48054), (73, 48111), (74, 48120),

Gene: Goku_42 Start: 35289, Stop: 35014, Start Num: 48
Candidate Starts for Goku_42:
(36, 35325), (Start: 48 @35289 has 31 MA's), (63, 35154), (68, 35130), (71, 35106), (75, 35061), (79, 35034),

Gene: Greep_45 Start: 35886, Stop: 35608, Start Num: 49
Candidate Starts for Greep_45:
(2, 36222), (3, 36219), (4, 36213), (5, 36204), (16, 36045), (23, 36015), (Start: 49 @35886 has 51 MA's), (60, 35766), (63, 35748), (68, 35724), (71, 35700), (75, 35655), (79, 35628),

Gene: Guppsters_77 Start: 47008, Stop: 47292, Start Num: 49
Candidate Starts for Guppsters_77:
(Start: 49 @47008 has 51 MA's), (74, 47212), (76, 47233), (77, 47239), (79, 47242),

Gene: Hamulus_81 Start: 48864, Stop: 49142, Start Num: 49
Candidate Starts for Hamulus_81:
(Start: 49 @48864 has 51 MA's), (53, 48906), (66, 49002), (74, 49068), (76, 49089), (77, 49095), (79, 49098), (80, 49101), (82, 49122),

Gene: Hannaconda_71 Start: 46308, Stop: 46033, Start Num: 48
Candidate Starts for Hannaconda_71:
(42, 46323), (Start: 48 @46308 has 31 MA's), (63, 46173), (68, 46149), (71, 46125), (75, 46080), (79, 46053),

Gene: Henry_43 Start: 35628, Stop: 35353, Start Num: 49
Candidate Starts for Henry_43:
(Start: 43 @35643 has 1 MA's), (Start: 49 @35628 has 51 MA's), (63, 35493), (68, 35469), (71, 35445), (75, 35400), (79, 35373),

Gene: HufflyPuff_43 Start: 35550, Stop: 35272, Start Num: 49
Candidate Starts for HufflyPuff_43:
(2, 35886), (3, 35883), (4, 35877), (5, 35868), (16, 35709), (23, 35679), (Start: 49 @35550 has 51 MA's), (60, 35430), (63, 35412), (68, 35388), (71, 35364), (75, 35319), (79, 35292),

Gene: HyRo_13 Start: 5432, Stop: 5707, Start Num: 48
Candidate Starts for HyRo_13:

(36, 5396), (Start: 48 @5432 has 31 MA's), (63, 5567), (68, 5591), (71, 5615), (75, 5660), (79, 5687),

Gene: IkeLoa_7 Start: 3049, Stop: 3285, Start Num: 54
Candidate Starts for IkeLoa_7:
(1, 2605), (6, 2707), (7, 2710), (8, 2716), (9, 2725), (26, 2905), (38, 2968), (Start: 54 @3049 has 5 MA's), (61, 3124), (62, 3139), (68, 3166), (70, 3172), (72, 3217), (74, 3229), (78, 3259),

Gene: JoeyJr_83 Start: 50528, Stop: 50806, Start Num: 49
Candidate Starts for JoeyJr_83:
(Start: 49 @50528 has 51 MA's), (53, 50570), (66, 50666), (74, 50732), (76, 50753), (77, 50759), (79, 50762), (80, 50765), (82, 50786),

Gene: JulietS_7 Start: 2148, Stop: 2384, Start Num: 54
Candidate Starts for JulietS_7:
(44, 2091), (Start: 54 @2148 has 5 MA's), (61, 2223), (62, 2238), (68, 2265), (70, 2271), (72, 2316), (74, 2328), (78, 2358),

Gene: Kingsley_84 Start: 51337, Stop: 51612, Start Num: 48
Candidate Starts for Kingsley_84:
(15, 51175), (17, 51184), (Start: 48 @51337 has 31 MA's), (63, 51472), (68, 51496), (71, 51520), (75, 51565), (79, 51592),

Gene: Kostya_42 Start: 35041, Stop: 34763, Start Num: 49
Candidate Starts for Kostya_42:
(2, 35377), (3, 35374), (4, 35368), (5, 35359), (16, 35200), (23, 35170), (Start: 49 @35041 has 51 MA's), (60, 34921), (63, 34903), (68, 34879), (71, 34855), (75, 34810), (79, 34783),

Gene: Ksquared_55 Start: 38040, Stop: 38279, Start Num: 54
Candidate Starts for Ksquared_55:
(10, 37779), (13, 37812), (18, 37836), (20, 37842), (46, 37983), (Start: 54 @38040 has 5 MA's), (61, 38115), (62, 38130), (68, 38157), (70, 38163), (72, 38208), (74, 38220),

Gene: Leperchaun_81 Start: 49762, Stop: 50040, Start Num: 49
Candidate Starts for Leperchaun_81:
(Start: 49 @49762 has 51 MA's), (53, 49804), (66, 49900), (74, 49966), (76, 49987), (77, 49993), (79, 49996), (80, 49999), (82, 50020),

Gene: Lilpickle_44 Start: 34884, Stop: 34609, Start Num: 48
Candidate Starts for Lilpickle_44:
(Start: 48 @34884 has 31 MA's), (60, 34767), (63, 34749), (68, 34725), (71, 34701), (75, 34656), (79, 34629),

Gene: LittleShirley_88 Start: 49954, Stop: 50238, Start Num: 45
Candidate Starts for LittleShirley_88:
(22, 49837), (24, 49867), (30, 49894), (37, 49930), (Start: 45 @49954 has 6 MA's), (57, 50059), (64, 50107), (67, 50125), (69, 50131), (73, 50188), (74, 50197),

Gene: Livelaughbron_45 Start: 35680, Stop: 35402, Start Num: 49
Candidate Starts for Livelaughbron_45:
(2, 36016), (3, 36013), (4, 36007), (5, 35998), (16, 35839), (23, 35809), (Start: 49 @35680 has 51 MA's), (60, 35560), (63, 35542), (68, 35518), (71, 35494), (75, 35449), (79, 35422),

Gene: LordVader_71 Start: 44555, Stop: 44884, Start Num: 49

Candidate Starts for LordVader_71:
(Start: 49 @44555 has 51 MA's), (56, 44630), (58, 44654), (59, 44672), (65, 44696),

Gene: Manda_44 Start: 36070, Stop: 35795, Start Num: 48
Candidate Starts for Manda_44:
(36, 36106), (Start: 48 @36070 has 31 MA's), (63, 35935), (68, 35911), (71, 35887), (75, 35842), (79, 35815),

Gene: Manda_42 Start: 35521, Stop: 35240, Start Num: 49
Candidate Starts for Manda_42:
(Start: 49 @35521 has 51 MA's), (53, 35479), (66, 35383), (74, 35317), (79, 35287),

Gene: MilanaBonita_76 Start: 47736, Stop: 48011, Start Num: 48
Candidate Starts for MilanaBonita_76:
(40, 47712), (Start: 48 @47736 has 31 MA's), (63, 47871), (68, 47895), (71, 47919), (75, 47964), (79, 47991),

Gene: MilleniumForce_83 Start: 50034, Stop: 50318, Start Num: 49
Candidate Starts for MilleniumForce_83:
(Start: 49 @50034 has 51 MA's), (53, 50076), (66, 50172), (74, 50238), (76, 50259), (77, 50265), (79, 50268),

Gene: Minnie_78 Start: 50814, Stop: 51092, Start Num: 49
Candidate Starts for Minnie_78:
(Start: 49 @50814 has 51 MA's), (53, 50856), (66, 50952), (74, 51018), (76, 51039), (77, 51045), (79, 51048), (80, 51051), (82, 51072),

Gene: Misfit_43 Start: 35615, Stop: 35337, Start Num: 49
Candidate Starts for Misfit_43:
(2, 35951), (3, 35948), (4, 35942), (5, 35933), (16, 35774), (23, 35744), (Start: 49 @35615 has 51 MA's), (60, 35495), (63, 35477), (68, 35453), (71, 35429), (75, 35384), (79, 35357),

Gene: Ms6_80 Start: 45220, Stop: 45495, Start Num: 48
Candidate Starts for Ms6_80:
(36, 45184), (Start: 48 @45220 has 31 MA's), (63, 45355), (68, 45379), (71, 45403), (75, 45448), (79, 45475),

Gene: Murica_43 Start: 35550, Stop: 35272, Start Num: 49
Candidate Starts for Murica_43:
(2, 35886), (3, 35883), (4, 35877), (5, 35868), (16, 35709), (23, 35679), (Start: 49 @35550 has 51 MA's), (60, 35430), (63, 35412), (68, 35388), (71, 35364), (75, 35319), (79, 35292),

Gene: Nekros_74 Start: 49519, Stop: 49244, Start Num: 48
Candidate Starts for Nekros_74:
(Start: 48 @49519 has 31 MA's), (63, 49384), (68, 49360), (71, 49336), (75, 49291), (79, 49264),

Gene: NelitzaMV_41 Start: 34995, Stop: 34720, Start Num: 49
Candidate Starts for NelitzaMV_41:
(Start: 43 @35010 has 1 MA's), (Start: 49 @34995 has 51 MA's), (63, 34860), (68, 34836), (71, 34812), (75, 34767), (79, 34740),

Gene: Nimbo_75 Start: 48626, Stop: 48904, Start Num: 49
Candidate Starts for Nimbo_75:

(Start: 49 @48626 has 51 MA's), (53, 48668), (66, 48764), (74, 48830), (76, 48851), (77, 48857), (79, 48860), (80, 48863), (82, 48884),

Gene: Nimrod_44 Start: 35808, Stop: 35530, Start Num: 49
Candidate Starts for Nimrod_44:
(2, 36144), (3, 36141), (4, 36135), (5, 36126), (16, 35967), (23, 35937), (Start: 49 @35808 has 51 MA's), (60, 35688), (63, 35670), (68, 35646), (71, 35622), (75, 35577), (79, 35550),

Gene: Nitzel_74 Start: 45944, Stop: 46222, Start Num: 47
Candidate Starts for Nitzel_74:
(Start: 47 @45944 has 4 MA's), (53, 45986), (66, 46082), (74, 46148), (76, 46169), (77, 46175), (79, 46178), (80, 46181), (82, 46202),

Gene: NonchalantPear_45 Start: 35187, Stop: 34912, Start Num: 48
Candidate Starts for NonchalantPear_45:
(35, 35229), (36, 35226), (Start: 48 @35187 has 31 MA's), (63, 35052), (68, 35028), (71, 35004), (75, 34959), (79, 34932),

Gene: Okabe_79 Start: 46162, Stop: 46476, Start Num: 49
Candidate Starts for Okabe_79:
(Start: 49 @46162 has 51 MA's), (56, 46237), (58, 46261), (65, 46303), (81, 46429), (83, 46456),

Gene: Okabe_76 Start: 45613, Stop: 45888, Start Num: 48
Candidate Starts for Okabe_76:
(31, 45544), (32, 45547), (Start: 48 @45613 has 31 MA's), (63, 45748), (68, 45772), (71, 45796), (75, 45841), (79, 45868),

Gene: OldBen_80 Start: 50018, Stop: 50296, Start Num: 49
Candidate Starts for OldBen_80:
(Start: 49 @50018 has 51 MA's), (53, 50060), (66, 50156), (74, 50222), (76, 50243), (77, 50249), (79, 50252), (80, 50255), (82, 50276),

Gene: PHappiness_83 Start: 50847, Stop: 51125, Start Num: 49
Candidate Starts for PHappiness_83:
(Start: 49 @50847 has 51 MA's), (53, 50889), (66, 50985), (74, 51051), (76, 51072), (77, 51078), (79, 51081), (80, 51084), (82, 51105),

Gene: Pacc40_78 Start: 49990, Stop: 50265, Start Num: 48
Candidate Starts for Pacc40_78:
(40, 49966), (Start: 48 @49990 has 31 MA's), (63, 50125), (68, 50149), (71, 50173), (75, 50218), (79, 50245),

Gene: Pacc40_79 Start: 50262, Stop: 50540, Start Num: 47
Candidate Starts for Pacc40_79:
(Start: 47 @50262 has 4 MA's), (53, 50304), (66, 50400), (74, 50466), (76, 50487), (77, 50493), (79, 50496), (80, 50499), (82, 50520),

Gene: Palpatine_44 Start: 35580, Stop: 35302, Start Num: 49
Candidate Starts for Palpatine_44:
(2, 35916), (3, 35913), (4, 35907), (5, 35898), (16, 35739), (23, 35709), (Start: 49 @35580 has 51 MA's), (60, 35460), (63, 35442), (68, 35418), (71, 35394), (75, 35349), (79, 35322),

Gene: Paperbeatsrock_43 Start: 35924, Stop: 35649, Start Num: 49

Candidate Starts for Paperbeatsrock_43:
(Start: 43 @35939 has 1 MA's), (Start: 49 @35924 has 51 MA's), (63, 35789), (68, 35765), (71, 35741), (75, 35696), (79, 35669),

Gene: Peridot_87 Start: 49669, Stop: 49953, Start Num: 45
Candidate Starts for Peridot_87:
(22, 49552), (24, 49582), (30, 49609), (37, 49645), (Start: 45 @49669 has 6 MA's), (57, 49774), (64, 49822), (67, 49840), (69, 49846), (73, 49903), (74, 49912),

Gene: Petra64142_46 Start: 36044, Stop: 35766, Start Num: 49
Candidate Starts for Petra64142_46:
(2, 36380), (3, 36377), (4, 36371), (5, 36362), (16, 36203), (23, 36173), (Start: 49 @36044 has 51 MA's), (60, 35924), (63, 35906), (68, 35882), (71, 35858), (75, 35813), (79, 35786),

Gene: Petruchio_83 Start: 47510, Stop: 47223, Start Num: 49
Candidate Starts for Petruchio_83:
(41, 47534), (Start: 49 @47510 has 51 MA's), (53, 47468), (66, 47372), (74, 47306), (76, 47285), (77, 47279), (80, 47273),

Gene: Petruchio_61 Start: 40438, Stop: 40163, Start Num: 49
Candidate Starts for Petruchio_61:
(11, 40639), (34, 40495), (35, 40492), (Start: 49 @40438 has 51 MA's), (60, 40321), (63, 40303), (68, 40279), (71, 40255), (75, 40210), (79, 40183),

Gene: Phalconet_77 Start: 47759, Stop: 48034, Start Num: 48
Candidate Starts for Phalconet_77:
(Start: 48 @47759 has 31 MA's), (63, 47894), (68, 47918), (71, 47942), (75, 47987), (79, 48014),

Gene: Phanphagia_79 Start: 49133, Stop: 49408, Start Num: 48
Candidate Starts for Phanphagia_79:
(15, 48971), (17, 48980), (Start: 48 @49133 has 31 MA's), (63, 49268), (68, 49292), (71, 49316), (75, 49361), (79, 49388),

Gene: Pharsalus_42 Start: 35724, Stop: 35449, Start Num: 49
Candidate Starts for Pharsalus_42:
(Start: 43 @35739 has 1 MA's), (Start: 49 @35724 has 51 MA's), (63, 35589), (68, 35565), (71, 35541), (75, 35496), (79, 35469),

Gene: PhatBacter_44 Start: 35594, Stop: 35316, Start Num: 49
Candidate Starts for PhatBacter_44:
(2, 35930), (3, 35927), (4, 35921), (5, 35912), (16, 35753), (23, 35723), (Start: 49 @35594 has 51 MA's), (60, 35474), (63, 35456), (68, 35432), (71, 35408), (75, 35363), (79, 35336),

Gene: Phaux_43 Start: 35592, Stop: 35314, Start Num: 49
Candidate Starts for Phaux_43:
(2, 35928), (3, 35925), (4, 35919), (5, 35910), (16, 35751), (23, 35721), (Start: 49 @35592 has 51 MA's), (60, 35472), (63, 35454), (68, 35430), (71, 35406), (75, 35361), (79, 35334),

Gene: Poise_8 Start: 2539, Stop: 2790, Start Num: 50
Candidate Starts for Poise_8:
(Start: 50 @2539 has 3 MA's), (51, 2554), (75, 2743), (79, 2770),

Gene: Policronamos_44 Start: 35592, Stop: 35314, Start Num: 49

Candidate Starts for Policronamos_44:
(2, 35928), (3, 35925), (4, 35919), (5, 35910), (16, 35751), (23, 35721), (Start: 49 @35592 has 51 MA's), (60, 35472), (63, 35454), (68, 35430), (71, 35406), (75, 35361), (79, 35334),

Gene: Pollywog_81 Start: 49950, Stop: 50234, Start Num: 49
Candidate Starts for Pollywog_81:
(Start: 49 @49950 has 51 MA's), (53, 49992), (66, 50088), (74, 50154), (76, 50175), (77, 50181), (79, 50184),

Gene: Porky_43 Start: 35192, Stop: 34917, Start Num: 48
Candidate Starts for Porky_43:
(25, 35294), (27, 35288), (33, 35258), (Start: 48 @35192 has 31 MA's), (60, 35075), (63, 35057), (68, 35033), (71, 35009), (75, 34964), (79, 34937),

Gene: QBert_7 Start: 3151, Stop: 3387, Start Num: 54
Candidate Starts for QBert_7:
(44, 3094), (Start: 54 @3151 has 5 MA's), (61, 3226), (62, 3241), (68, 3268), (70, 3274), (72, 3319), (74, 3331), (78, 3361),

Gene: Raela_8 Start: 2919, Stop: 3194, Start Num: 48
Candidate Starts for Raela_8:
(Start: 48 @2919 has 31 MA's), (63, 3054), (68, 3078), (71, 3102), (75, 3147), (79, 3174),

Gene: RitaG_83 Start: 50649, Stop: 50927, Start Num: 49
Candidate Starts for RitaG_83:
(Start: 49 @50649 has 51 MA's), (53, 50691), (66, 50787), (74, 50853), (76, 50874), (77, 50880), (79, 50883), (80, 50886), (82, 50907),

Gene: RoMag_6 Start: 3000, Stop: 3236, Start Num: 54
Candidate Starts for RoMag_6:
(44, 2943), (Start: 54 @3000 has 5 MA's), (61, 3075), (62, 3090), (68, 3117), (70, 3123), (72, 3168), (74, 3180), (78, 3210),

Gene: Sandalphon_76 Start: 48799, Stop: 49077, Start Num: 49
Candidate Starts for Sandalphon_76:
(Start: 49 @48799 has 51 MA's), (53, 48841), (66, 48937), (74, 49003), (76, 49024), (77, 49030), (79, 49033), (80, 49036), (82, 49057),

Gene: ScottMcG_17 Start: 5737, Stop: 6012, Start Num: 48
Candidate Starts for ScottMcG_17:
(36, 5701), (Start: 48 @5737 has 31 MA's), (63, 5872), (68, 5896), (71, 5920), (75, 5965), (79, 5992),

Gene: Shaboozey_71 Start: 46258, Stop: 45983, Start Num: 48
Candidate Starts for Shaboozey_71:
(25, 46306), (27, 46300), (Start: 48 @46258 has 31 MA's), (63, 46123), (68, 46099), (71, 46075), (75, 46030), (79, 46003),

Gene: Shauna1_80 Start: 49383, Stop: 49658, Start Num: 48
Candidate Starts for Shauna1_80:
(15, 49221), (17, 49230), (Start: 48 @49383 has 31 MA's), (63, 49518), (68, 49542), (71, 49566), (75, 49611), (79, 49638),

Gene: Shifa_12 Start: 4863, Stop: 5138, Start Num: 48

Candidate Starts for Shifa_12:
(36, 4827), (Start: 48 @4863 has 31 MA's), (63, 4998), (68, 5022), (71, 5046), (75, 5091), (79, 5118),

Gene: SophKB_41 Start: 34943, Stop: 34668, Start Num: 49
Candidate Starts for SophKB_41:
(Start: 43 @34958 has 1 MA's), (Start: 49 @34943 has 51 MA's), (63, 34808), (68, 34784), (71, 34760), (75, 34715), (79, 34688),

Gene: StAnnes_84 Start: 50390, Stop: 50668, Start Num: 49
Candidate Starts for StAnnes_84:
(Start: 49 @50390 has 51 MA's), (53, 50432), (66, 50528), (74, 50594), (76, 50615), (77, 50621), (79, 50624), (80, 50627), (82, 50648),

Gene: Starcevich_82 Start: 50235, Stop: 50519, Start Num: 45
Candidate Starts for Starcevich_82:
(22, 50118), (24, 50148), (30, 50175), (37, 50211), (Start: 45 @50235 has 6 MA's), (57, 50340), (64, 50388), (67, 50406), (69, 50412), (73, 50469), (74, 50478),

Gene: Stubby_16 Start: 5996, Stop: 6271, Start Num: 48
Candidate Starts for Stubby_16:
(36, 5960), (Start: 48 @5996 has 31 MA's), (63, 6131), (68, 6155), (71, 6179), (75, 6224), (79, 6251),

Gene: Tarkin_43 Start: 35933, Stop: 35658, Start Num: 49
Candidate Starts for Tarkin_43:
(Start: 43 @35948 has 1 MA's), (Start: 49 @35933 has 51 MA's), (63, 35798), (68, 35774), (71, 35750), (75, 35705), (79, 35678),

Gene: Teaspoon_46 Start: 35899, Stop: 35624, Start Num: 48
Candidate Starts for Teaspoon_46:
(25, 36001), (27, 35995), (33, 35965), (Start: 48 @35899 has 31 MA's), (60, 35782), (63, 35764), (68, 35740), (71, 35716), (75, 35671), (79, 35644),

Gene: Terminus_43 Start: 35615, Stop: 35337, Start Num: 49
Candidate Starts for Terminus_43:
(2, 35951), (3, 35948), (4, 35942), (5, 35933), (16, 35774), (23, 35744), (Start: 49 @35615 has 51 MA's), (60, 35495), (63, 35477), (68, 35453), (71, 35429), (75, 35384), (79, 35357),

Gene: Tesla_8 Start: 2530, Stop: 2781, Start Num: 50
Candidate Starts for Tesla_8:
(Start: 50 @2530 has 3 MA's), (51, 2545), (52, 2554), (75, 2734), (79, 2761),

Gene: Totinger_84 Start: 49031, Stop: 49315, Start Num: 45
Candidate Starts for Totinger_84:
(22, 48914), (24, 48944), (30, 48971), (37, 49007), (Start: 45 @49031 has 6 MA's), (57, 49136), (64, 49184), (67, 49202), (69, 49208), (73, 49265), (74, 49274),

Gene: Ukulele_41 Start: 34868, Stop: 34593, Start Num: 48
Candidate Starts for Ukulele_41:
(35, 34910), (36, 34907), (Start: 48 @34868 has 31 MA's), (63, 34733), (68, 34709), (71, 34685), (75, 34640), (79, 34613),

Gene: Vivum_85 Start: 52067, Stop: 52345, Start Num: 49
Candidate Starts for Vivum_85:

(12, 51884), (28, 51977), (29, 51992), (Start: 49 @52067 has 51 MA's), (53, 52109), (66, 52205), (74, 52271), (76, 52292), (77, 52298), (79, 52301), (80, 52304), (82, 52325),

Gene: Vivum_82 Start: 50921, Stop: 51205, Start Num: 45
Candidate Starts for Vivum_82:
(22, 50804), (24, 50834), (30, 50861), (37, 50897), (Start: 45 @50921 has 6 MA's), (57, 51026), (64, 51074), (67, 51092), (69, 51098), (73, 51155), (74, 51164),

Gene: XFactor_76 Start: 47957, Stop: 48232, Start Num: 48
Candidate Starts for XFactor_76:
(36, 47921), (Start: 48 @47957 has 31 MA's), (63, 48092), (68, 48116), (71, 48140), (75, 48185), (79, 48212),

Gene: Zerg_83 Start: 49449, Stop: 49727, Start Num: 49
Candidate Starts for Zerg_83:
(Start: 49 @49449 has 51 MA's), (53, 49491), (66, 49587), (74, 49653), (76, 49674), (77, 49680), (79, 49683), (80, 49686), (82, 49707),

Gene: xkcd_45 Start: 35735, Stop: 35457, Start Num: 49
Candidate Starts for xkcd_45:
(2, 36071), (3, 36068), (4, 36062), (5, 36053), (16, 35894), (23, 35864), (Start: 49 @35735 has 51 MA's), (60, 35615), (63, 35597), (68, 35573), (71, 35549), (75, 35504), (79, 35477),