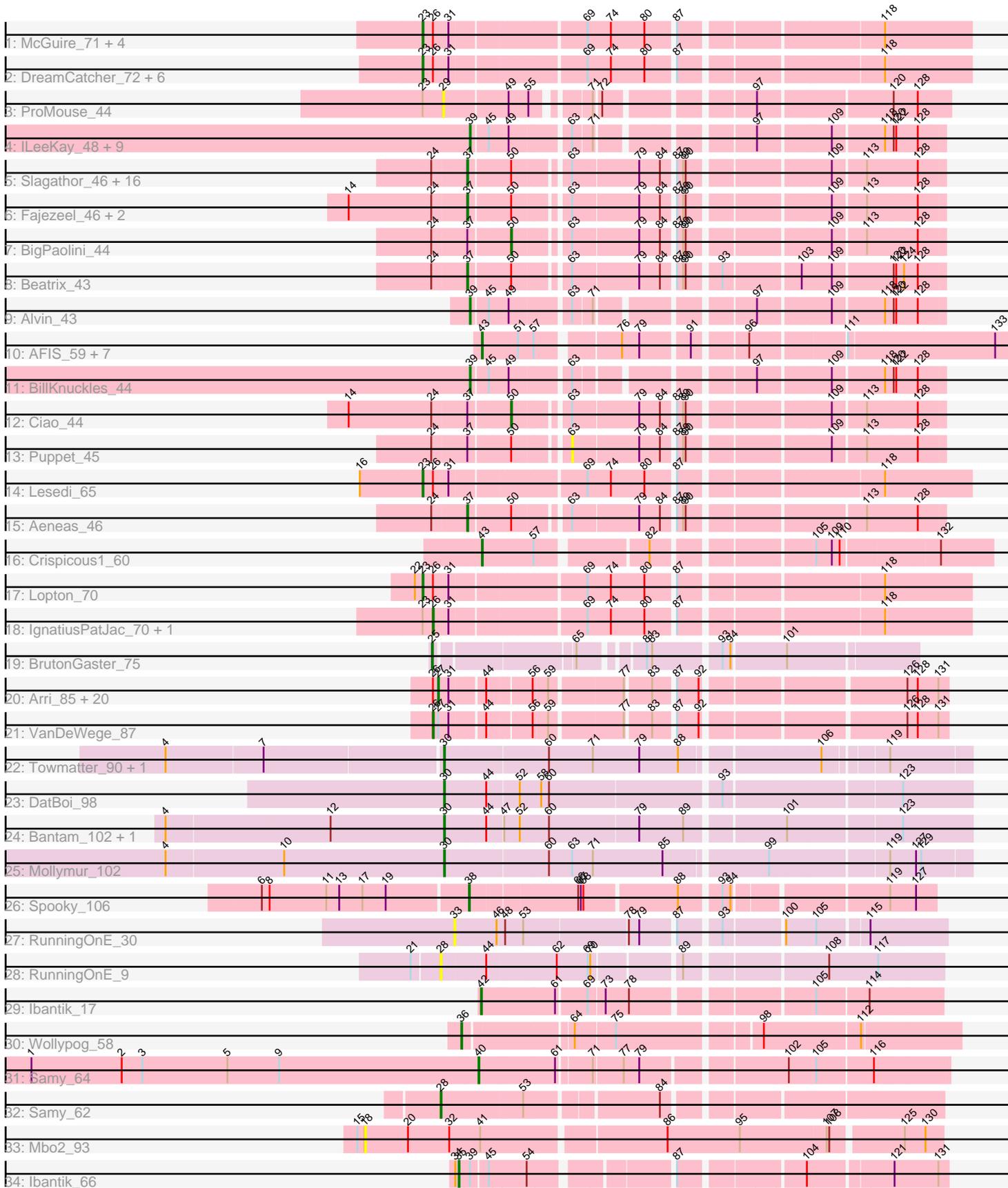# Pham 283667

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 283667 Report

This analysis was run 02/23/26 on database version 636.

Pham number 283667 has 101 members, 7 are drafts.

Phages represented in each track:
• Track 1 : McGuire_71, BluSpix_68, Ichabod_74, Squee_73, McSinger_68
• Track 2 : DreamCatcher_72, GrecoEtereo_71, AFIS_66, Snazzy_68, Bigchungi_69, SarFire_70, Thor_70
• Track 3 : ProMouse_44
• Track 4 : ILeeKay_48, Fushigi_42, Trouble_45, BluSpix_41, IgnatiusPatJac_43, Petruchio_44, Ajay_44, Seanderson_46, Kykar_44, Marco3_46
• Track 5 : Slagathor_46, Naira_45, Marge_44, StrongArm_43, Eyeball_45, Bexan_42, Dexes_44, TheloniousMonk_45, Fenn_45, Rajelicia_45, Arcanine_45, Niza_46, Bones_44, Licorice_47, Ruotula_47, Sagefire_47, Smairt_46
• Track 6 : Fajezeel_46, Greg_46, Pippin_46
• Track 7 : BigPaolini_44
• Track 8 : Beatrix_43
• Track 9 : Alvin_43
• Track 10 : AFIS_59, NEHalo_60, SpikeBT_61, Moose_64, SwissCheese_66, GageAP_64, Forsytheast_64, Bruns_64
• Track 11 : BillKnuckles_44
• Track 12 : Ciao_44
• Track 13 : Puppet_45
• Track 14 : Lesedi_65
• Track 15 : Aeneas_46
• Track 16 : Crispicous1_60
• Track 17 : Lopton_70
• Track 18 : IgnatiusPatJac_70, GMonster_70
• Track 19 : BrutonGaster_75
• Track 20 : Arri_85, PullumCavea_83, SmokingBunny_86, Twister6_84, Wizard_80, Fireball_88, PinkCoffee_86, Gezellig_81, TillyBobJoe_83, Salvador_85, CherryCola_85, Savbucketdawg_80, Evamon_85, Phlop_82, KimmyK_83, Valary_86, RogerDodger_88, Togo_85, Egi03_83, Portcullis_85, Shinji_84
• Track 21 : VanDeWege_87
• Track 22 : Towmatter_90, Daredevil_91
• Track 23 : DatBoi_98
• Track 24 : Bantam_102, SpeedDemon_1040
• Track 25 : Mollymur_102
• Track 26 : Spooky_106
• Track 27 : RunningOnE_30
• Track 28 : RunningOnE_9
• Track 29 : Ibantik_17

- Track 30 : Wollypog_58
- Track 31 : Samy_64
- Track 32 : Samy_62
- Track 33 : Mbo2_93
- Track 34 : Ibantik_66

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

The start number called the most often in the published annotations is 37, it was called in 22 of the 94 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
- Aeneas_46, Arcanine_45, Beatrix_43, Bexan_42, Bones_44, Dexes_44, Eyeball_45, Fajezeel_46, Fenn_45, Greg_46, Licorice_47, Marge_44, Naira_45, Niza_46, Pippin_46, Rajelicia_45, Ruotula_47, Sagefire_47, Slagathor_46, Smairt_46, StrongArm_43, TheloniousMonk_45,

Genes that have the "Most Annotated" start but do not call it:
- BigPaolini_44, Ciao_44, Puppet_45,

Genes that do not have the "Most Annotated" start:
- AFIS_59, AFIS_66, Ajay_44, Alvin_43, Arri_85, Bantam_102, Bigchungi_69, BillKnuckles_44, BluSpix_41, BluSpix_68, Bruns_64, BrutonGaster_75, CherryCola_85, Crispicous1_60, Daredevil_91, DatBoi_98, DreamCatcher_72, Egi03_83, Evamon_85, Fireball_88, Forsytheast_64, Fushigi_42, GMonster_70, GageAP_64, Gezellig_81, GrecoEtereo_71, ILeeKay_48, Ibantik_17, Ibantik_66, Ichabod_74, IgnatiusPatJac_43, IgnatiusPatJac_70, KimmyK_83, Kykar_44, Lesedi_65, Lopton_70, Marco3_46, Mbo2_93, McGuire_71, McSinger_68, Mollymur_102, Moose_64, NEHalo_60, Petruchio_44, Phlop_82, PinkCoffee_86, Portcullis_85, ProMouse_44, PullumCavea_83, RogerDodger_88, RunningOnE_30, RunningOnE_9, Salvador_85, Samy_62, Samy_64, SarFire_70, Savbucketdawg_80, Seanderson_46, Shinji_84, SmokingBunny_86, Snazzy_68, SpeedDemon_1040, SpikeBT_61, Spooky_106, Squee_73, SwissCheese_66, Thor_70, TillyBobJoe_83, Togo_85, Towmatter_90, Trouble_45, Twister6_84, Valary_86, VanDeWege_87, Wizard_80, Wollypog_58,

Summary by start number:

Start 18:
- Found in 1 of 101 (1.0%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Mbo2_93 (singleton),

Start 23:
- Found in 17 of 101 (16.8%) of genes in pham
- Manual Annotations of this start: 14 of 94
- Called 82.4% of time when present
- Phage (with cluster) where this start called: AFIS_66 (A1), Bigchungi_69 (A1), BluSpix_68 (A1), DreamCatcher_72 (A1), GrecoEtereo_71 (A1), Ichabod_74 (A1),

Lesedi_65 (A1), Lopton_70 (A1), McGuire_71 (A1), McSinger_68 (A1), SarFire_70 (A1), Snazzy_68 (A1), Squee_73 (A1), Thor_70 (A1),

Start 25:
• Found in 1 of 101 (1.0%) of genes in pham
• Manual Annotations of this start: 1 of 94
• Called 100.0% of time when present
• Phage (with cluster) where this start called: BrutonGaster_75 (CQ2),

Start 26:
• Found in 38 of 101 (37.6%) of genes in pham
• Manual Annotations of this start: 3 of 94
• Called 7.9% of time when present
• Phage (with cluster) where this start called: GMonster_70 (A1), IgnatiusPatJac_70 (A1), VanDeWege_87 (DC1),

Start 27:
• Found in 22 of 101 (21.8%) of genes in pham
• Manual Annotations of this start: 19 of 94
• Called 95.5% of time when present
• Phage (with cluster) where this start called: Arri_85 (DC1), CherryCola_85 (DC1), Egi03_83 (DC1), Evamon_85 (DC1), Fireball_88 (DC1), Gezellig_81 (DC1), KimmyK_83 (DC1), Phlop_82 (DC1), PinkCoffee_86 (DC1), Portcullis_85 (DC1), PullumCavea_83 (DC1), RogerDodger_88 (DC1), Salvador_85 (DC1), Savbucketdawg_80 (DC1), Shinji_84 (DC1), SmokingBunny_86 (DC1), TillyBobJoe_83 (DC1), Togo_85 (DC1), Twister6_84 (DC1), Valary_86 (DC1), Wizard_80 (DC1),

Start 28:
• Found in 2 of 101 (2.0%) of genes in pham
• Manual Annotations of this start: 1 of 94
• Called 100.0% of time when present
• Phage (with cluster) where this start called: RunningOnE_9 (UNK), Samy_62 (singleton),

Start 29:
• Found in 1 of 101 (1.0%) of genes in pham
• No Manual Annotations of this start.
• Called 100.0% of time when present
• Phage (with cluster) where this start called: ProMouse_44 (A1),

Start 30:
• Found in 6 of 101 (5.9%) of genes in pham
• Manual Annotations of this start: 6 of 94
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Bantam_102 (DL), Daredevil_91 (DL), DatBoi_98 (DL), Mollymur_102 (DL), SpeedDemon_1040 (DL), Towmatter_90 (DL),

Start 33:
• Found in 1 of 101 (1.0%) of genes in pham
• No Manual Annotations of this start.
• Called 100.0% of time when present
• Phage (with cluster) where this start called: RunningOnE_30 (UNK),

Start 35:
• Found in 1 of 101 (1.0%) of genes in pham
• Manual Annotations of this start: 1 of 94
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Ibantik_66 (singleton),

Start 36:
• Found in 1 of 101 (1.0%) of genes in pham
• Manual Annotations of this start: 1 of 94
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Wollypog_58 (singleton),

Start 37:
• Found in 25 of 101 (24.8%) of genes in pham
• Manual Annotations of this start: 22 of 94
• Called 88.0% of time when present
• Phage (with cluster) where this start called: Aeneas_46 (A1), Arcanine_45 (A1), Beatrix_43 (A1), Bexan_42 (A1), Bones_44 (A1), Dexes_44 (A1), Eyeball_45 (A1), Fajezeel_46 (A1), Fenn_45 (A1), Greg_46 (A1), Licorice_47 (A1), Marge_44 (A1), Naira_45 (A1), Niza_46 (A1), Pippin_46 (A1), Rajelicia_45 (A1), Ruotula_47 (A1), Sagefire_47 (A1), Slagathor_46 (A1), Smairt_46 (A1), StrongArm_43 (A1), TheloniousMonk_45 (A1),

Start 38:
• Found in 1 of 101 (1.0%) of genes in pham
• Manual Annotations of this start: 1 of 94
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Spooky_106 (DN2),

Start 39:
• Found in 13 of 101 (12.9%) of genes in pham
• Manual Annotations of this start: 12 of 94
• Called 92.3% of time when present
• Phage (with cluster) where this start called: Ajay_44 (A1), Alvin_43 (A1), BillKnuckles_44 (A1), BluSpix_41 (A1), Fushigi_42 (A1), ILeeKay_48 (A1), IgnatiusPatJac_43 (A1), Kykar_44 (A1), Marco3_46 (A1), Petruchio_44 (A1), Seanderson_46 (A1), Trouble_45 (A1),

Start 40:
• Found in 1 of 101 (1.0%) of genes in pham
• Manual Annotations of this start: 1 of 94
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Samy_64 (singleton),

Start 42:
• Found in 1 of 101 (1.0%) of genes in pham
• Manual Annotations of this start: 1 of 94
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Ibantik_17 (singleton),

Start 43:
• Found in 9 of 101 (8.9%) of genes in pham

• Manual Annotations of this start: 9 of 94
• Called 100.0% of time when present
• Phage (with cluster) where this start called: AFIS_59 (A1), Bruns_64 (A1), Crispicous1_60 (A1), Forsytheast_64 (A1), GageAP_64 (A1), Moose_64 (A1), NEHalo_60 (A1), SpikeBT_61 (A1), SwissCheese_66 (A1),

Start 50:
• Found in 25 of 101 (24.8%) of genes in pham
• Manual Annotations of this start: 2 of 94
• Called 8.0% of time when present
• Phage (with cluster) where this start called: BigPaolini_44 (A1), Ciao_44 (A1),

Start 63:
• Found in 38 of 101 (37.6%) of genes in pham
• No Manual Annotations of this start.
• Called 2.6% of time when present
• Phage (with cluster) where this start called: Puppet_45 (A1),

Summary by clusters:

There are 7 clusters represented in this pham: singleton, DL, A1, DN2, CQ2, UNK, DC1,

Info for manual annotations of cluster A1:
•Start number 23 was manually annotated 14 times for cluster A1.
•Start number 26 was manually annotated 2 times for cluster A1.
•Start number 37 was manually annotated 22 times for cluster A1.
•Start number 39 was manually annotated 12 times for cluster A1.
•Start number 43 was manually annotated 9 times for cluster A1.
•Start number 50 was manually annotated 2 times for cluster A1.

Info for manual annotations of cluster CQ2:
•Start number 25 was manually annotated 1 time for cluster CQ2.

Info for manual annotations of cluster DC1:
•Start number 26 was manually annotated 1 time for cluster DC1.
•Start number 27 was manually annotated 19 times for cluster DC1.

Info for manual annotations of cluster DL:
•Start number 30 was manually annotated 6 times for cluster DL.

Info for manual annotations of cluster DN2:
•Start number 38 was manually annotated 1 time for cluster DN2.

Gene Information:

Gene: AFIS_59 Start: 40536, Stop: 39979, Start Num: 43
Candidate Starts for AFIS_59:
(Start: 43 @40536 has 9 MA's), (51, 40494), (57, 40476), (76, 40392), (79, 40374), (91, 40323), (96, 40269), (111, 40167), (133, 39999),

Gene: AFIS_66 Start: 43840, Stop: 43262, Start Num: 23
Candidate Starts for AFIS_66:
(Start: 23 @43840 has 14 MA's), (Start: 26 @43828 has 3 MA's), (31, 43810), (69, 43669), (74, 43642), (80, 43603), (87, 43573), (118, 43360),

Gene: Aeneas_46 Start: 33206, Stop: 32721, Start Num: 37
Candidate Starts for Aeneas_46:
(24, 33245), (Start: 37 @33206 has 22 MA's), (Start: 50 @33164 has 2 MA's), (63, 33110), (79, 33035), (84, 33011), (87, 32999), (89, 32993), (90, 32990), (113, 32807), (128, 32750),

Gene: Ajay_44 Start: 32810, Stop: 32334, Start Num: 39
Candidate Starts for Ajay_44:
(Start: 39 @32810 has 12 MA's), (45, 32792), (49, 32771), (63, 32708), (71, 32687), (97, 32534), (109, 32456), (118, 32399), (120, 32390), (122, 32387), (128, 32363),

Gene: Alvin_43 Start: 33331, Stop: 32855, Start Num: 39
Candidate Starts for Alvin_43:
(Start: 39 @33331 has 12 MA's), (45, 33313), (49, 33292), (63, 33229), (71, 33208), (97, 33055), (109, 32977), (118, 32920), (120, 32911), (122, 32908), (128, 32884),

Gene: Arcanine_45 Start: 32773, Stop: 32288, Start Num: 37
Candidate Starts for Arcanine_45:
(24, 32812), (Start: 37 @32773 has 22 MA's), (Start: 50 @32731 has 2 MA's), (63, 32677), (79, 32602), (84, 32578), (87, 32566), (89, 32560), (90, 32557), (109, 32410), (113, 32374), (128, 32317),

Gene: Arri_85 Start: 56022, Stop: 55507, Start Num: 27
Candidate Starts for Arri_85:
(Start: 26 @56028 has 3 MA's), (Start: 27 @56022 has 19 MA's), (31, 56010), (44, 55974), (56, 55929), (59, 55914), (77, 55836), (83, 55809), (87, 55788), (92, 55764), (126, 55554), (128, 55542), (131, 55518),

Gene: Bantam_102 Start: 67594, Stop: 68172, Start Num: 30
Candidate Starts for Bantam_102:
(4, 67276), (12, 67462), (Start: 30 @67594 has 6 MA's), (44, 67642), (47, 67660), (52, 67678), (60, 67711), (79, 67813), (89, 67864), (101, 67966), (123, 68092),

Gene: Beatrix_43 Start: 34176, Stop: 33691, Start Num: 37
Candidate Starts for Beatrix_43:
(24, 34215), (Start: 37 @34176 has 22 MA's), (Start: 50 @34134 has 2 MA's), (63, 34080), (79, 34005), (84, 33981), (87, 33969), (89, 33963), (90, 33960), (93, 33927), (103, 33846), (109, 33813), (120, 33747), (122, 33744), (124, 33735), (128, 33720),

Gene: Bexan_42 Start: 33854, Stop: 33369, Start Num: 37
Candidate Starts for Bexan_42:
(24, 33893), (Start: 37 @33854 has 22 MA's), (Start: 50 @33812 has 2 MA's), (63, 33758), (79, 33683), (84, 33659), (87, 33647), (89, 33641), (90, 33638), (109, 33491), (113, 33455), (128, 33398),

Gene: BigPaolini_44 Start: 31801, Stop: 31358, Start Num: 50
Candidate Starts for BigPaolini_44:
(24, 31882), (Start: 37 @31843 has 22 MA's), (Start: 50 @31801 has 2 MA's), (63, 31747), (79, 31672), (84, 31648), (87, 31636), (89, 31630), (90, 31627), (109, 31480), (113, 31444), (128, 31387),

Gene: Bigchungi_69 Start: 44593, Stop: 44015, Start Num: 23
Candidate Starts for Bigchungi_69:
(Start: 23 @44593 has 14 MA's), (Start: 26 @44581 has 3 MA's), (31, 44563), (69, 44422), (74, 44395), (80, 44356), (87, 44326), (118, 44113),

Gene: BillKnuckles_44 Start: 33515, Stop: 33039, Start Num: 39
Candidate Starts for BillKnuckles_44:
(Start: 39 @33515 has 12 MA's), (45, 33497), (49, 33476), (63, 33413), (97, 33239), (109, 33161), (118, 33104), (120, 33095), (122, 33092), (128, 33068),

Gene: BluSpix_68 Start: 40281, Stop: 39703, Start Num: 23
Candidate Starts for BluSpix_68:
(Start: 23 @40281 has 14 MA's), (Start: 26 @40269 has 3 MA's), (31, 40251), (69, 40110), (74, 40083), (80, 40044), (87, 40014), (118, 39801),

Gene: BluSpix_41 Start: 28937, Stop: 28461, Start Num: 39
Candidate Starts for BluSpix_41:
(Start: 39 @28937 has 12 MA's), (45, 28919), (49, 28898), (63, 28835), (71, 28814), (97, 28661), (109, 28583), (118, 28526), (120, 28517), (122, 28514), (128, 28490),

Gene: Bones_44 Start: 33339, Stop: 32854, Start Num: 37
Candidate Starts for Bones_44:
(24, 33378), (Start: 37 @33339 has 22 MA's), (Start: 50 @33297 has 2 MA's), (63, 33243), (79, 33168), (84, 33144), (87, 33132), (89, 33126), (90, 33123), (109, 32976), (113, 32940), (128, 32883),

Gene: Bruns_64 Start: 41012, Stop: 40455, Start Num: 43
Candidate Starts for Bruns_64:
(Start: 43 @41012 has 9 MA's), (51, 40970), (57, 40952), (76, 40868), (79, 40850), (91, 40799), (96, 40745), (111, 40643), (133, 40475),

Gene: BrutonGaster_75 Start: 52573, Stop: 53064, Start Num: 25
Candidate Starts for BrutonGaster_75:
(Start: 25 @52573 has 1 MA's), (65, 52717), (81, 52774), (83, 52780), (93, 52852), (94, 52861), (101, 52921),

Gene: CherryCola_85 Start: 56435, Stop: 55920, Start Num: 27
Candidate Starts for CherryCola_85:
(Start: 26 @56441 has 3 MA's), (Start: 27 @56435 has 19 MA's), (31, 56423), (44, 56387), (56, 56342), (59, 56327), (77, 56249), (83, 56222), (87, 56201), (92, 56177), (126, 55967), (128, 55955), (131, 55931),

Gene: Ciao_44 Start: 32944, Stop: 32501, Start Num: 50
Candidate Starts for Ciao_44:
(14, 33121), (24, 33025), (Start: 37 @32986 has 22 MA's), (Start: 50 @32944 has 2 MA's), (63, 32890), (79, 32815), (84, 32791), (87, 32779), (89, 32773), (90, 32770), (109, 32623), (113, 32587), (128, 32530),

Gene: Crispicous1_60 Start: 40522, Stop: 39992, Start Num: 43
Candidate Starts for Crispicous1_60:
(Start: 43 @40522 has 9 MA's), (57, 40462), (82, 40348), (105, 40186), (109, 40168), (110, 40159), (132, 40051),

Gene: Daredevil_91 Start: 63069, Stop: 63638, Start Num: 30

Candidate Starts for Daredevil_91:
(4, 62760), (7, 62871), (Start: 30 @63069 has 6 MA's), (60, 63186), (71, 63237), (79, 63291), (88, 63336), (106, 63480), (119, 63546),

Gene: DatBoi_98 Start: 66730, Stop: 67308, Start Num: 30
Candidate Starts for DatBoi_98:
(Start: 30 @66730 has 6 MA's), (44, 66778), (52, 66814), (58, 66838), (60, 66847), (93, 67036), (123, 67228),

Gene: Dexes_44 Start: 33602, Stop: 33117, Start Num: 37
Candidate Starts for Dexes_44:
(24, 33641), (Start: 37 @33602 has 22 MA's), (Start: 50 @33560 has 2 MA's), (63, 33506), (79, 33431), (84, 33407), (87, 33395), (89, 33389), (90, 33386), (109, 33239), (113, 33203), (128, 33146),

Gene: DreamCatcher_72 Start: 44845, Stop: 44267, Start Num: 23
Candidate Starts for DreamCatcher_72:
(Start: 23 @44845 has 14 MA's), (Start: 26 @44833 has 3 MA's), (31, 44815), (69, 44674), (74, 44647), (80, 44608), (87, 44578), (118, 44365),

Gene: Egi03_83 Start: 55457, Stop: 54942, Start Num: 27
Candidate Starts for Egi03_83:
(Start: 26 @55463 has 3 MA's), (Start: 27 @55457 has 19 MA's), (31, 55445), (44, 55409), (56, 55364), (59, 55349), (77, 55271), (83, 55244), (87, 55223), (92, 55199), (126, 54989), (128, 54977), (131, 54953),

Gene: Evamon_85 Start: 55834, Stop: 55319, Start Num: 27
Candidate Starts for Evamon_85:
(Start: 26 @55840 has 3 MA's), (Start: 27 @55834 has 19 MA's), (31, 55822), (44, 55786), (56, 55741), (59, 55726), (77, 55648), (83, 55621), (87, 55600), (92, 55576), (126, 55366), (128, 55354), (131, 55330),

Gene: Eyeball_45 Start: 33249, Stop: 32764, Start Num: 37
Candidate Starts for Eyeball_45:
(24, 33288), (Start: 37 @33249 has 22 MA's), (Start: 50 @33207 has 2 MA's), (63, 33153), (79, 33078), (84, 33054), (87, 33042), (89, 33036), (90, 33033), (109, 32886), (113, 32850), (128, 32793),

Gene: Fajezeel_46 Start: 33359, Stop: 32874, Start Num: 37
Candidate Starts for Fajezeel_46:
(14, 33494), (24, 33398), (Start: 37 @33359 has 22 MA's), (Start: 50 @33317 has 2 MA's), (63, 33263), (79, 33188), (84, 33164), (87, 33152), (89, 33146), (90, 33143), (109, 32996), (113, 32960), (128, 32903),

Gene: Fenn_45 Start: 34680, Stop: 34195, Start Num: 37
Candidate Starts for Fenn_45:
(24, 34719), (Start: 37 @34680 has 22 MA's), (Start: 50 @34638 has 2 MA's), (63, 34584), (79, 34509), (84, 34485), (87, 34473), (89, 34467), (90, 34464), (109, 34317), (113, 34281), (128, 34224),

Gene: Fireball_88 Start: 56296, Stop: 55781, Start Num: 27
Candidate Starts for Fireball_88:
(Start: 26 @56302 has 3 MA's), (Start: 27 @56296 has 19 MA's), (31, 56284), (44, 56248), (56, 56203), (59, 56188), (77, 56110), (83, 56083), (87, 56062), (92, 56038), (126, 55828), (128, 55816), (131, 55792),

Gene: Forsytheast_64 Start: 41180, Stop: 40623, Start Num: 43
Candidate Starts for Forsytheast_64:
(Start: 43 @41180 has 9 MA's), (51, 41138), (57, 41120), (76, 41036), (79, 41018), (91, 40967), (96, 40913), (111, 40811), (133, 40643),

Gene: Fushigi_42 Start: 30914, Stop: 30438, Start Num: 39
Candidate Starts for Fushigi_42:
(Start: 39 @30914 has 12 MA's), (45, 30896), (49, 30875), (63, 30812), (71, 30791), (97, 30638), (109, 30560), (118, 30503), (120, 30494), (122, 30491), (128, 30467),

Gene: GMonster_70 Start: 44872, Stop: 44306, Start Num: 26
Candidate Starts for GMonster_70:
(Start: 23 @44884 has 14 MA's), (Start: 26 @44872 has 3 MA's), (31, 44854), (69, 44713), (74, 44686), (80, 44647), (87, 44617), (118, 44404),

Gene: GageAP_64 Start: 42203, Stop: 41646, Start Num: 43
Candidate Starts for GageAP_64:
(Start: 43 @42203 has 9 MA's), (51, 42161), (57, 42143), (76, 42059), (79, 42041), (91, 41990), (96, 41936), (111, 41834), (133, 41666),

Gene: Gezellig_81 Start: 55680, Stop: 55165, Start Num: 27
Candidate Starts for Gezellig_81:
(Start: 26 @55686 has 3 MA's), (Start: 27 @55680 has 19 MA's), (31, 55668), (44, 55632), (56, 55587), (59, 55572), (77, 55494), (83, 55467), (87, 55446), (92, 55422), (126, 55212), (128, 55200), (131, 55176),

Gene: GrecoEtereo_71 Start: 44625, Stop: 44047, Start Num: 23
Candidate Starts for GrecoEtereo_71:
(Start: 23 @44625 has 14 MA's), (Start: 26 @44613 has 3 MA's), (31, 44595), (69, 44454), (74, 44427), (80, 44388), (87, 44358), (118, 44145),

Gene: Greg_46 Start: 33359, Stop: 32874, Start Num: 37
Candidate Starts for Greg_46:
(14, 33494), (24, 33398), (Start: 37 @33359 has 22 MA's), (Start: 50 @33317 has 2 MA's), (63, 33263), (79, 33188), (84, 33164), (87, 33152), (89, 33146), (90, 33143), (109, 32996), (113, 32960), (128, 32903),

Gene: ILeeKay_48 Start: 33858, Stop: 33382, Start Num: 39
Candidate Starts for ILeeKay_48:
(Start: 39 @33858 has 12 MA's), (45, 33840), (49, 33819), (63, 33756), (71, 33735), (97, 33582), (109, 33504), (118, 33447), (120, 33438), (122, 33435), (128, 33411),

Gene: Ibantik_17 Start: 6683, Stop: 6195, Start Num: 42
Candidate Starts for Ibantik_17:
(Start: 42 @6683 has 1 MA's), (61, 6599), (69, 6566), (73, 6548), (78, 6521), (105, 6335), (114, 6278),

Gene: Ibantik_66 Start: 28032, Stop: 28526, Start Num: 35
Candidate Starts for Ibantik_66:
(34, 28029), (Start: 35 @28032 has 1 MA's), (Start: 39 @28044 has 12 MA's), (45, 28062), (54, 28104), (87, 28245), (104, 28374), (121, 28464), (131, 28515),

Gene: Ichabod_74 Start: 45654, Stop: 45076, Start Num: 23
Candidate Starts for Ichabod_74:

(Start: 23 @45654 has 14 MA's), (Start: 26 @45642 has 3 MA's), (31, 45624), (69, 45483), (74, 45456), (80, 45417), (87, 45387), (118, 45174),

Gene: IgnatiusPatJac_43 Start: 32882, Stop: 32406, Start Num: 39
Candidate Starts for IgnatiusPatJac_43:
(Start: 39 @32882 has 12 MA's), (45, 32864), (49, 32843), (63, 32780), (71, 32759), (97, 32606), (109, 32528), (118, 32471), (120, 32462), (122, 32459), (128, 32435),

Gene: IgnatiusPatJac_70 Start: 44214, Stop: 43648, Start Num: 26
Candidate Starts for IgnatiusPatJac_70:
(Start: 23 @44226 has 14 MA's), (Start: 26 @44214 has 3 MA's), (31, 44196), (69, 44055), (74, 44028), (80, 43989), (87, 43959), (118, 43746),

Gene: KimmyK_83 Start: 56127, Stop: 55612, Start Num: 27
Candidate Starts for KimmyK_83:
(Start: 26 @56133 has 3 MA's), (Start: 27 @56127 has 19 MA's), (31, 56115), (44, 56079), (56, 56034), (59, 56019), (77, 55941), (83, 55914), (87, 55893), (92, 55869), (126, 55659), (128, 55647), (131, 55623),

Gene: Kykar_44 Start: 32934, Stop: 32458, Start Num: 39
Candidate Starts for Kykar_44:
(Start: 39 @32934 has 12 MA's), (45, 32916), (49, 32895), (63, 32832), (71, 32811), (97, 32658), (109, 32580), (118, 32523), (120, 32514), (122, 32511), (128, 32487),

Gene: Lesedi_65 Start: 42530, Stop: 41952, Start Num: 23
Candidate Starts for Lesedi_65:
(16, 42602), (Start: 23 @42530 has 14 MA's), (Start: 26 @42518 has 3 MA's), (31, 42500), (69, 42359), (74, 42332), (80, 42293), (87, 42263), (118, 42050),

Gene: Licorice_47 Start: 34445, Stop: 33960, Start Num: 37
Candidate Starts for Licorice_47:
(24, 34484), (Start: 37 @34445 has 22 MA's), (Start: 50 @34403 has 2 MA's), (63, 34349), (79, 34274), (84, 34250), (87, 34238), (89, 34232), (90, 34229), (109, 34082), (113, 34046), (128, 33989),

Gene: Lopton_70 Start: 46302, Stop: 45724, Start Num: 23
Candidate Starts for Lopton_70:
(22, 46311), (Start: 23 @46302 has 14 MA's), (Start: 26 @46290 has 3 MA's), (31, 46272), (69, 46131), (74, 46104), (80, 46065), (87, 46035), (118, 45822),

Gene: Marco3_46 Start: 33679, Stop: 33203, Start Num: 39
Candidate Starts for Marco3_46:
(Start: 39 @33679 has 12 MA's), (45, 33661), (49, 33640), (63, 33577), (71, 33556), (97, 33403), (109, 33325), (118, 33268), (120, 33259), (122, 33256), (128, 33232),

Gene: Marge_44 Start: 33477, Stop: 32992, Start Num: 37
Candidate Starts for Marge_44:
(24, 33516), (Start: 37 @33477 has 22 MA's), (Start: 50 @33435 has 2 MA's), (63, 33381), (79, 33306), (84, 33282), (87, 33270), (89, 33264), (90, 33261), (109, 33114), (113, 33078), (128, 33021),

Gene: Mbo2_93 Start: 66190, Stop: 65546, Start Num: 18
Candidate Starts for Mbo2_93:
(15, 66199), (18, 66190), (20, 66142), (32, 66094), (41, 66058), (86, 65854), (95, 65770), (107, 65671), (108, 65668), (125, 65590), (130, 65566),

Gene: McGuire_71 Start: 44174, Stop: 43596, Start Num: 23
Candidate Starts for McGuire_71:
(Start: 23 @44174 has 14 MA's), (Start: 26 @44162 has 3 MA's), (31, 44144), (69, 44003), (74, 43976), (80, 43937), (87, 43907), (118, 43694),

Gene: McSinger_68 Start: 43534, Stop: 42956, Start Num: 23
Candidate Starts for McSinger_68:
(Start: 23 @43534 has 14 MA's), (Start: 26 @43522 has 3 MA's), (31, 43504), (69, 43363), (74, 43336), (80, 43297), (87, 43267), (118, 43054),

Gene: Mollymur_102 Start: 68397, Stop: 68978, Start Num: 30
Candidate Starts for Mollymur_102:
(4, 68076), (10, 68211), (Start: 30 @68397 has 6 MA's), (60, 68514), (63, 68541), (71, 68565), (85, 68646), (99, 68757), (119, 68886), (127, 68916), (129, 68922),

Gene: Moose_64 Start: 41180, Stop: 40623, Start Num: 43
Candidate Starts for Moose_64:
(Start: 43 @41180 has 9 MA's), (51, 41138), (57, 41120), (76, 41036), (79, 41018), (91, 40967), (96, 40913), (111, 40811), (133, 40643),

Gene: NEHalo_60 Start: 41604, Stop: 41047, Start Num: 43
Candidate Starts for NEHalo_60:
(Start: 43 @41604 has 9 MA's), (51, 41562), (57, 41544), (76, 41460), (79, 41442), (91, 41391), (96, 41337), (111, 41235), (133, 41067),

Gene: Naira_45 Start: 34727, Stop: 34242, Start Num: 37
Candidate Starts for Naira_45:
(24, 34766), (Start: 37 @34727 has 22 MA's), (Start: 50 @34685 has 2 MA's), (63, 34631), (79, 34556), (84, 34532), (87, 34520), (89, 34514), (90, 34511), (109, 34364), (113, 34328), (128, 34271),

Gene: Niza_46 Start: 34104, Stop: 33619, Start Num: 37
Candidate Starts for Niza_46:
(24, 34143), (Start: 37 @34104 has 22 MA's), (Start: 50 @34062 has 2 MA's), (63, 34008), (79, 33933), (84, 33909), (87, 33897), (89, 33891), (90, 33888), (109, 33741), (113, 33705), (128, 33648),

Gene: Petruchio_44 Start: 32947, Stop: 32471, Start Num: 39
Candidate Starts for Petruchio_44:
(Start: 39 @32947 has 12 MA's), (45, 32929), (49, 32908), (63, 32845), (71, 32824), (97, 32671), (109, 32593), (118, 32536), (120, 32527), (122, 32524), (128, 32500),

Gene: Phlop_82 Start: 55730, Stop: 55215, Start Num: 27
Candidate Starts for Phlop_82:
(Start: 26 @55736 has 3 MA's), (Start: 27 @55730 has 19 MA's), (31, 55718), (44, 55682), (56, 55637), (59, 55622), (77, 55544), (83, 55517), (87, 55496), (92, 55472), (126, 55262), (128, 55250), (131, 55226),

Gene: PinkCoffee_86 Start: 55594, Stop: 55079, Start Num: 27
Candidate Starts for PinkCoffee_86:
(Start: 26 @55600 has 3 MA's), (Start: 27 @55594 has 19 MA's), (31, 55582), (44, 55546), (56, 55501), (59, 55486), (77, 55408), (83, 55381), (87, 55360), (92, 55336), (126, 55126), (128, 55114), (131, 55090),

Gene: Pippin_46 Start: 33403, Stop: 32918, Start Num: 37
Candidate Starts for Pippin_46:
(14, 33538), (24, 33442), (Start: 37 @33403 has 22 MA's), (Start: 50 @33361 has 2 MA's), (63, 33307), (79, 33232), (84, 33208), (87, 33196), (89, 33190), (90, 33187), (109, 33040), (113, 33004), (128, 32947),

Gene: Portcullis_85 Start: 55736, Stop: 55221, Start Num: 27
Candidate Starts for Portcullis_85:
(Start: 26 @55742 has 3 MA's), (Start: 27 @55736 has 19 MA's), (31, 55724), (44, 55688), (56, 55643), (59, 55628), (77, 55550), (83, 55523), (87, 55502), (92, 55478), (126, 55268), (128, 55256), (131, 55232),

Gene: ProMouse_44 Start: 33305, Stop: 32802, Start Num: 29
Candidate Starts for ProMouse_44:
(Start: 23 @33329 has 14 MA's), (29, 33305), (49, 33236), (55, 33215), (71, 33164), (72, 33158), (97, 33011), (120, 32867), (128, 32840),

Gene: PullumCavea_83 Start: 55907, Stop: 55392, Start Num: 27
Candidate Starts for PullumCavea_83:
(Start: 26 @55913 has 3 MA's), (Start: 27 @55907 has 19 MA's), (31, 55895), (44, 55859), (56, 55814), (59, 55799), (77, 55721), (83, 55694), (87, 55673), (92, 55649), (126, 55439), (128, 55427), (131, 55403),

Gene: Puppet_45 Start: 33423, Stop: 33034, Start Num: 63
Candidate Starts for Puppet_45:
(24, 33558), (Start: 37 @33519 has 22 MA's), (Start: 50 @33477 has 2 MA's), (63, 33423), (79, 33348), (84, 33324), (87, 33312), (89, 33306), (90, 33303), (109, 33156), (113, 33120), (128, 33063),

Gene: Rajelicia_45 Start: 33435, Stop: 32950, Start Num: 37
Candidate Starts for Rajelicia_45:
(24, 33474), (Start: 37 @33435 has 22 MA's), (Start: 50 @33393 has 2 MA's), (63, 33339), (79, 33264), (84, 33240), (87, 33228), (89, 33222), (90, 33219), (109, 33072), (113, 33036), (128, 32979),

Gene: RogerDodger_88 Start: 56495, Stop: 55980, Start Num: 27
Candidate Starts for RogerDodger_88:
(Start: 26 @56501 has 3 MA's), (Start: 27 @56495 has 19 MA's), (31, 56483), (44, 56447), (56, 56402), (59, 56387), (77, 56309), (83, 56282), (87, 56261), (92, 56237), (126, 56027), (128, 56015), (131, 55991),

Gene: RunningOnE_30 Start: 14405, Stop: 13887, Start Num: 33
Candidate Starts for RunningOnE_30:
(33, 14405), (46, 14357), (48, 14348), (53, 14327), (78, 14213), (79, 14201), (87, 14165), (93, 14123), (100, 14060), (105, 14027), (115, 13973),

Gene: RunningOnE_9 Start: 3940, Stop: 3410, Start Num: 28
Candidate Starts for RunningOnE_9:
(21, 3970), (Start: 28 @3940 has 1 MA's), (44, 3892), (62, 3817), (69, 3781), (70, 3778), (89, 3688), (108, 3541), (117, 3484),

Gene: Ruotula_47 Start: 34572, Stop: 34078, Start Num: 37
Candidate Starts for Ruotula_47:
(24, 34611), (Start: 37 @34572 has 22 MA's), (Start: 50 @34530 has 2 MA's), (63, 34476), (79, 34401), (84, 34377), (87, 34365), (89, 34359), (90, 34356), (109, 34200), (113, 34164), (128, 34107),

Gene: Sagefire_47 Start: 34321, Stop: 33836, Start Num: 37
Candidate Starts for Sagefire_47:
(24, 34360), (Start: 37 @34321 has 22 MA's), (Start: 50 @34279 has 2 MA's), (63, 34225), (79, 34150), (84, 34126), (87, 34114), (89, 34108), (90, 34105), (109, 33958), (113, 33922), (128, 33865),

Gene: Salvador_85 Start: 55832, Stop: 55317, Start Num: 27
Candidate Starts for Salvador_85:
(Start: 26 @55838 has 3 MA's), (Start: 27 @55832 has 19 MA's), (31, 55820), (44, 55784), (56, 55739), (59, 55724), (77, 55646), (83, 55619), (87, 55598), (92, 55574), (126, 55364), (128, 55352), (131, 55328),

Gene: Samy_64 Start: 40970, Stop: 41473, Start Num: 40
Candidate Starts for Samy_64:
(1, 40451), (2, 40556), (3, 40580), (5, 40679), (9, 40739), (Start: 40 @40970 has 1 MA's), (61, 41057), (71, 41093), (77, 41126), (79, 41144), (102, 41297), (105, 41327), (116, 41390),

Gene: Samy_62 Start: 37969, Stop: 38490, Start Num: 28
Candidate Starts for Samy_62:
(Start: 28 @37969 has 1 MA's), (53, 38059), (84, 38200),

Gene: SarFire_70 Start: 44563, Stop: 43985, Start Num: 23
Candidate Starts for SarFire_70:
(Start: 23 @44563 has 14 MA's), (Start: 26 @44551 has 3 MA's), (31, 44533), (69, 44392), (74, 44365), (80, 44326), (87, 44296), (118, 44083),

Gene: Savbucketdawg_80 Start: 55174, Stop: 54659, Start Num: 27
Candidate Starts for Savbucketdawg_80:
(Start: 26 @55180 has 3 MA's), (Start: 27 @55174 has 19 MA's), (31, 55162), (44, 55126), (56, 55081), (59, 55066), (77, 54988), (83, 54961), (87, 54940), (92, 54916), (126, 54706), (128, 54694), (131, 54670),

Gene: Seanderson_46 Start: 33923, Stop: 33447, Start Num: 39
Candidate Starts for Seanderson_46:
(Start: 39 @33923 has 12 MA's), (45, 33905), (49, 33884), (63, 33821), (71, 33800), (97, 33647), (109, 33569), (118, 33512), (120, 33503), (122, 33500), (128, 33476),

Gene: Shinji_84 Start: 55913, Stop: 55398, Start Num: 27
Candidate Starts for Shinji_84:
(Start: 26 @55919 has 3 MA's), (Start: 27 @55913 has 19 MA's), (31, 55901), (44, 55865), (56, 55820), (59, 55805), (77, 55727), (83, 55700), (87, 55679), (92, 55655), (126, 55445), (128, 55433), (131, 55409),

Gene: Slagathor_46 Start: 33360, Stop: 32875, Start Num: 37
Candidate Starts for Slagathor_46:
(24, 33399), (Start: 37 @33360 has 22 MA's), (Start: 50 @33318 has 2 MA's), (63, 33264), (79, 33189), (84, 33165), (87, 33153), (89, 33147), (90, 33144), (109, 32997), (113, 32961), (128, 32904),

Gene: Smairt_46 Start: 33659, Stop: 33174, Start Num: 37
Candidate Starts for Smairt_46:
(24, 33698), (Start: 37 @33659 has 22 MA's), (Start: 50 @33617 has 2 MA's), (63, 33563), (79, 33488), (84, 33464), (87, 33452), (89, 33446), (90, 33443), (109, 33296), (113, 33260), (128, 33203),

Gene: SmokingBunny_86 Start: 56828, Stop: 56313, Start Num: 27
Candidate Starts for SmokingBunny_86:
(Start: 26 @56834 has 3 MA's), (Start: 27 @56828 has 19 MA's), (31, 56816), (44, 56780), (56, 56735), (59, 56720), (77, 56642), (83, 56615), (87, 56594), (92, 56570), (126, 56360), (128, 56348), (131, 56324),

Gene: Snazzy_68 Start: 43855, Stop: 43277, Start Num: 23
Candidate Starts for Snazzy_68:
(Start: 23 @43855 has 14 MA's), (Start: 26 @43843 has 3 MA's), (31, 43825), (69, 43684), (74, 43657), (80, 43618), (87, 43588), (118, 43375),

Gene: SpeedDemon_1040 Start: 70108, Stop: 70686, Start Num: 30
Candidate Starts for SpeedDemon_1040:
(4, 69790), (12, 69976), (Start: 30 @70108 has 6 MA's), (44, 70156), (47, 70174), (52, 70192), (60, 70225), (79, 70327), (89, 70378), (101, 70480), (123, 70606),

Gene: SpikeBT_61 Start: 41461, Stop: 40904, Start Num: 43
Candidate Starts for SpikeBT_61:
(Start: 43 @41461 has 9 MA's), (51, 41419), (57, 41401), (76, 41317), (79, 41299), (91, 41248), (96, 41194), (111, 41092), (133, 40924),

Gene: Spooky_106 Start: 55742, Stop: 56233, Start Num: 38
Candidate Starts for Spooky_106:
(6, 55508), (8, 55517), (11, 55583), (13, 55598), (17, 55625), (19, 55652), (Start: 38 @55742 has 1 MA's), (66, 55859), (67, 55862), (68, 55865), (88, 55967), (93, 56009), (94, 56018), (119, 56180), (127, 56210),

Gene: Squee_73 Start: 44893, Stop: 44315, Start Num: 23
Candidate Starts for Squee_73:
(Start: 23 @44893 has 14 MA's), (Start: 26 @44881 has 3 MA's), (31, 44863), (69, 44722), (74, 44695), (80, 44656), (87, 44626), (118, 44413),

Gene: StrongArm_43 Start: 33982, Stop: 33497, Start Num: 37
Candidate Starts for StrongArm_43:
(24, 34021), (Start: 37 @33982 has 22 MA's), (Start: 50 @33940 has 2 MA's), (63, 33886), (79, 33811), (84, 33787), (87, 33775), (89, 33769), (90, 33766), (109, 33619), (113, 33583), (128, 33526),

Gene: SwissCheese_66 Start: 41680, Stop: 41123, Start Num: 43
Candidate Starts for SwissCheese_66:
(Start: 43 @41680 has 9 MA's), (51, 41638), (57, 41620), (76, 41536), (79, 41518), (91, 41467), (96, 41413), (111, 41311), (133, 41143),

Gene: TheloniousMonk_45 Start: 34368, Stop: 33883, Start Num: 37
Candidate Starts for TheloniousMonk_45:
(24, 34407), (Start: 37 @34368 has 22 MA's), (Start: 50 @34326 has 2 MA's), (63, 34272), (79, 34197), (84, 34173), (87, 34161), (89, 34155), (90, 34152), (109, 34005), (113, 33969), (128, 33912),

Gene: Thor_70 Start: 43921, Stop: 43343, Start Num: 23
Candidate Starts for Thor_70:
(Start: 23 @43921 has 14 MA's), (Start: 26 @43909 has 3 MA's), (31, 43891), (69, 43750), (74, 43723), (80, 43684), (87, 43654), (118, 43441),

Gene: TillyBobJoe_83 Start: 55714, Stop: 55199, Start Num: 27

Candidate Starts for TillyBobJoe_83:
(Start: 26 @55720 has 3 MA's), (Start: 27 @55714 has 19 MA's), (31, 55702), (44, 55666), (56, 55621), (59, 55606), (77, 55528), (83, 55501), (87, 55480), (92, 55456), (126, 55246), (128, 55234), (131, 55210),

Gene: Togo_85 Start: 56828, Stop: 56313, Start Num: 27
Candidate Starts for Togo_85:
(Start: 26 @56834 has 3 MA's), (Start: 27 @56828 has 19 MA's), (31, 56816), (44, 56780), (56, 56735), (59, 56720), (77, 56642), (83, 56615), (87, 56594), (92, 56570), (126, 56360), (128, 56348), (131, 56324),

Gene: Towmatter_90 Start: 63151, Stop: 63720, Start Num: 30
Candidate Starts for Towmatter_90:
(4, 62842), (7, 62953), (Start: 30 @63151 has 6 MA's), (60, 63268), (71, 63319), (79, 63373), (88, 63418), (106, 63562), (119, 63628),

Gene: Trouble_45 Start: 34048, Stop: 33572, Start Num: 39
Candidate Starts for Trouble_45:
(Start: 39 @34048 has 12 MA's), (45, 34030), (49, 34009), (63, 33946), (71, 33925), (97, 33772), (109, 33694), (118, 33637), (120, 33628), (122, 33625), (128, 33601),

Gene: Twister6_84 Start: 55177, Stop: 54662, Start Num: 27
Candidate Starts for Twister6_84:
(Start: 26 @55183 has 3 MA's), (Start: 27 @55177 has 19 MA's), (31, 55165), (44, 55129), (56, 55084), (59, 55069), (77, 54991), (83, 54964), (87, 54943), (92, 54919), (126, 54709), (128, 54697), (131, 54673),

Gene: Valary_86 Start: 56820, Stop: 56305, Start Num: 27
Candidate Starts for Valary_86:
(Start: 26 @56826 has 3 MA's), (Start: 27 @56820 has 19 MA's), (31, 56808), (44, 56772), (56, 56727), (59, 56712), (77, 56634), (83, 56607), (87, 56586), (92, 56562), (126, 56352), (128, 56340), (131, 56316),

Gene: VanDeWege_87 Start: 56351, Stop: 55830, Start Num: 26
Candidate Starts for VanDeWege_87:
(Start: 26 @56351 has 3 MA's), (Start: 27 @56345 has 19 MA's), (31, 56333), (44, 56297), (56, 56252), (59, 56237), (77, 56159), (83, 56132), (87, 56111), (92, 56087), (126, 55877), (128, 55865), (131, 55841),

Gene: Wizard_80 Start: 55680, Stop: 55165, Start Num: 27
Candidate Starts for Wizard_80:
(Start: 26 @55686 has 3 MA's), (Start: 27 @55680 has 19 MA's), (31, 55668), (44, 55632), (56, 55587), (59, 55572), (77, 55494), (83, 55467), (87, 55446), (92, 55422), (126, 55212), (128, 55200), (131, 55176),

Gene: Wollypog_58 Start: 43704, Stop: 44234, Start Num: 36
Candidate Starts for Wollypog_58:
(Start: 36 @43704 has 1 MA's), (64, 43818), (75, 43863), (98, 44016), (112, 44124),