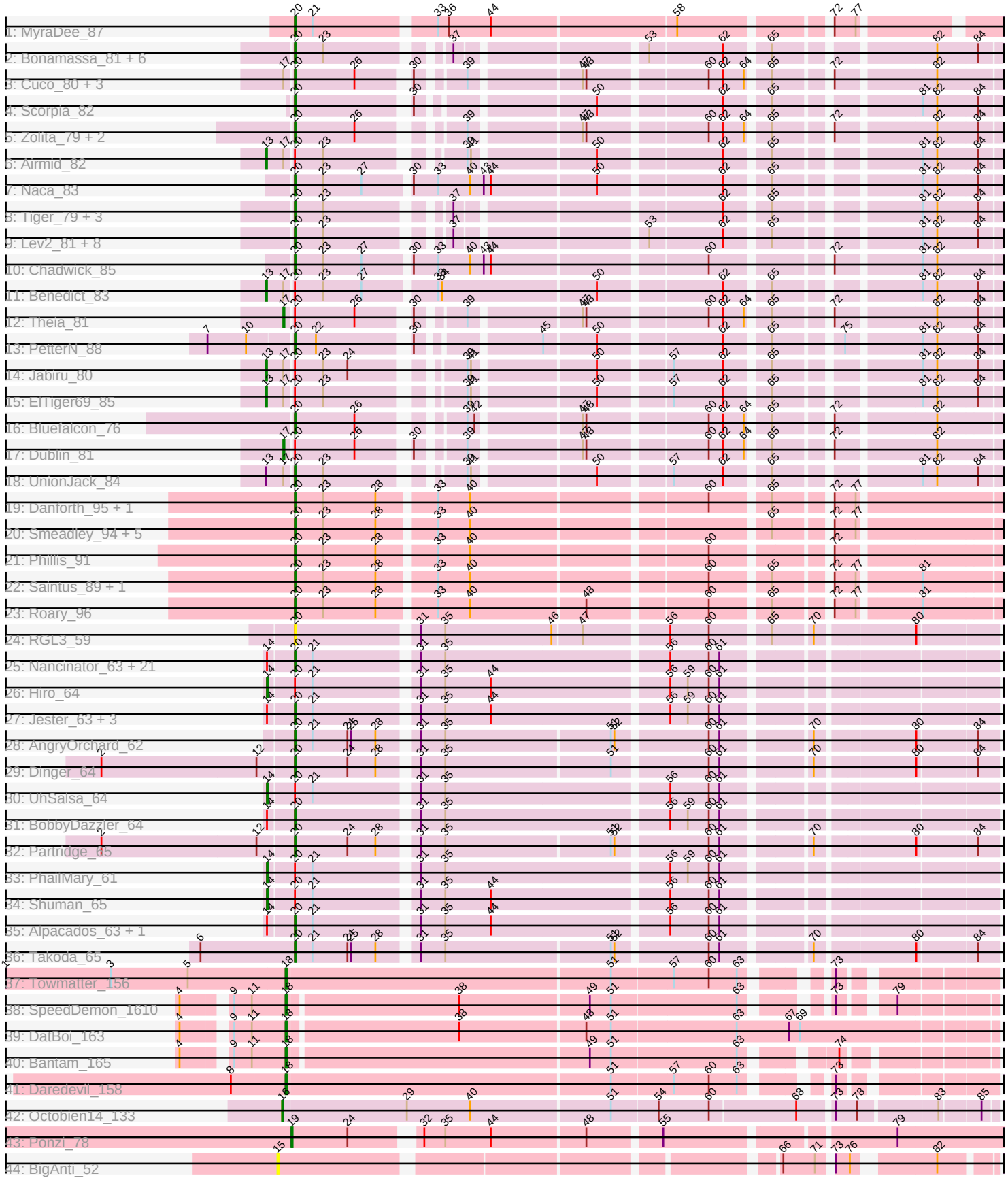
Pham 339539


1: MyraDee_87
2: Bonamassa_81 + 6
3: Cuco_80 + 3
4: Scorpia_82
5: Zolita_79 + 2
6: Airmid_82
7: Naca_83
8: Tiger_79 + 3
9: Lev2_81 + 8
10: Chadwick_85
11: Benedict_83
12: Theia_81
13: PetterN_88
14: Jabiru_80
15: ElTiger69_85
16: Bluefalcon_76
17: Dublin_81
18: UnionJack_84
19: Danforth_95 + 1
20: Smeadley_94 + 5
21: Phillis_91
22: Saintus_89 + 1
23: Roary_96
24: RGL3_59
25: Nancinator_63 + 21
26: Hiro_64
27: Jester_63 + 3
28: AngryOrchard_62
29: Dinger_64
30: OhSalsa_64
31: BobbyDazzler_64
32: Partridge_65
33: PhailMary_61
34: Shuman_65
35: Alpacados_63 + 1
36: Takoda_65
37: Towmatter_156
38: SpeedDemon_1610
39: DatBoi_163
40: Bantam_165
41: Daredevil_158
42: Octobien14_133
43: Ponzi_78
44: BigAnti_52

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 339539 Report

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

WARNING: Pham size does not match number of genes in report. Either unphamerated genes have been added (by you) or starterator has removed genes due to invalid start codon.

Pham number 339539 has 98 members, 4 are drafts.

Phages represented in each track:
• Track 1 : MyraDee_87
• Track 2 : Bonamassa_81, Micasa_82, George_75, HuhtaEnerson15_79, LittleCherry_79, Milcery_79, Tarynearal_81
• Track 3 : Cuco_80, MarysWell_81, Coog_78, Midas2_78
• Track 4 : Scorpia_82
• Track 5 : Zolita_79, Ghoulboy_81, SydNat_80
• Track 6 : Airmid_82
• Track 7 : Naca_83
• Track 8 : Tiger_79, Phlorence_79, AgentM_80, Conspiracy_81
• Track 9 : Lev2_81, PickleBack_82, ForGetIt_82, Twigg_81, Jovo_79, Florence1_79, Prinashe11_81, Discoknowium_78, Aragog_81
• Track 10 : Chadwick_85
• Track 11 : Benedict_83
• Track 12 : Theia_81
• Track 13 : PetterN_88
• Track 14 : Jabiru_80
• Track 15 : ElTiger69_85
• Track 16 : Bluefalcon_76
• Track 17 : Dublin_81
• Track 18 : UnionJack_84
• Track 19 : Danforth_95, Stephig9_95
• Track 20 : Smeadley_94, Expelliarmus_91, Dixon_93, Caitlin_93, Groundhog_91, Astro_93
• Track 21 : Phillis_91
• Track 22 : Saintus_89, NearlyHeadless_95
• Track 23 : Roary_96
• Track 24 : RGL3_59
• Track 25 : Nancinator_63, RexFury_63, Espica_65, Naiad_63, Gollum_64, Bonanza_65, Belenaria_65, Natosaleda_63, Alatin_63, Bradshaw_64, Rasputin_64, Swann_64, RER2_58, CosmicSans_64, Rhodalysa_64, Krishelle_64, TWAMP_64, Yogi_65, StCroix_63, AppleCloud_61, Lillie_64, Erik_64
• Track 26 : Hiro_64
• Track 27 : Jester_63, Yoncess_63, Harlequin_64, Bryce_63

• Track 28 : AngryOrchard_62
• Track 29 : Dinger_64
• Track 30 : UhSalsa_64
• Track 31 : BobbyDazzler_64
• Track 32 : Partridge_65
• Track 33 : PhailMary_61
• Track 34 : Shuman_65
• Track 35 : Alpacados_63, Phrankenstein_64
• Track 36 : Takoda_65
• Track 37 : Towmatter_156
• Track 38 : SpeedDemon_1610
• Track 39 : DatBoi_163
• Track 40 : Bantam_165
• Track 41 : Daredevil_158
• Track 42 : Octobien14_133
• Track 43 : Ponzi_78
• Track 44 : BigAnti_52

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

The start number called the most often in the published annotations is 20, it was called in 77 of the 94 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• AgentM_80, Alatin_63, Alpacados_63, AngryOrchard_62, AppleCloud_61, Aragog_81, Astro_93, Belenaria_65, Bluefalcon_76, BobbyDazzler_64, Bonamassa_81, Bonanza_65, Bradshaw_64, Bryce_63, Caitlin_93, Chadwick_85, Conspiracy_81, Coog_78, CosmicSans_64, Cuco_80, Danforth_95, Dinger_64, Discoknowium_78, Dixon_93, Erik_64, Espica_65, Expelliarmus_91, Florence1_79, ForGetIt_82, George_75, Ghoulboy_81, Gollum_64, Groundhog_91, Harlequin_64, HuhtaEnerson15_79, Jester_63, Jovo_79, Krishelle_64, Lev2_81, Lillie_64, LittleCherry_79, MarysWell_81, Micasa_82, Midas2_78, Milcery_79, MyraDee_87, Naca_83, Naiad_63, Nancinator_63, Natosaleda_63, NearlyHeadless_95, Partridge_65, PetterN_88, Phillis_91, Phlorence_79, Phrankenstein_64, PickleBack_82, Prinashe11_81, RER2_58, RGL3_59, Rasputin_64, RexFury_63, Rhodalysa_64, Roary_96, Saintus_89, Scorpia_82, Smeadley_94, StCroix_63, Stephig9_95, Swann_64, SydNat_80, TWAMP_64, Takoda_65, Tarynearal_81, Tiger_79, Twigg_81, UnionJack_84, Yogi_65, Yoncess_63, Zolita_79,

Genes that have the "Most Annotated" start but do not call it:
• Airmid_82, Benedict_83, Dublin_81, ElTiger69_85, Hiro_64, Jabiru_80, PhailMary_61, Shuman_65, Theia_81, UhSalsa_64,

Genes that do not have the "Most Annotated" start:
• Bantam_165, BigAnti_52, Daredevil_158, DatBoi_163, Octobien14_133, Ponzi_78, SpeedDemon_1610, Towmatter_156,

Summary by start number:

Start 13:

• Found in 5 of 98 (5.1%) of genes in pham
• Manual Annotations of this start: 4 of 94
• Called 80.0% of time when present
• Phage (with cluster) where this start called: Airmid_82 (A5), Benedict_83 (A5), ElTiger69_85 (A5), Jabiru_80 (A5),

Start 14:
• Found in 33 of 98 (33.7%) of genes in pham
• Manual Annotations of this start: 4 of 94
• Called 12.1% of time when present
• Phage (with cluster) where this start called: Hiro_64 (CA), PhailMary_61 (CA), Shuman_65 (CA), UhSalsa_64 (CA),

Start 15:
• Found in 1 of 98 (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: BigAnti_52 (singleton),

Start 16:
• Found in 1 of 98 (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: Octobien14_133 (DU1),

Start 17:
• Found in 11 of 98 (11.2%) of genes in pham
• Manual Annotations of this start: 2 of 94
• Called 18.2% of time when present
• Phage (with cluster) where this start called: Dublin_81 (A5), Theia_81 (A5),

Start 18:
• Found in 5 of 98 (5.1%) of genes in pham
• Manual Annotations of this start: 5 of 94
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Bantam_165 (DL), Daredevil_158 (DL), DatBoi_163 (DL), SpeedDemon_1610 (DL), Towmatter_156 (DL),

Start 19:
• Found in 1 of 98 (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: Ponzi_78 (singleton),

Start 20:
• Found in 90 of 98 (91.8%) of genes in pham
• Manual Annotations of this start: 77 of 94
• Called 88.9% of time when present
• Phage (with cluster) where this start called: AgentM_80 (A5), Alatin_63 (CA), Alpacados_63 (CA), AngryOrchard_62 (CA), AppleCloud_61 (CA), Aragog_81 (A5), Astro_93 (A8), Belenaria_65 (CA), Bluefalcon_76 (A5), BobbyDazzler_64 (CA), Bonamassa_81 (A5), Bonanza_65 (CA), Bradshaw_64 (CA), Bryce_63 (CA), Caitlin_93 (A8), Chadwick_85 (A5), Conspiracy_81 (A5), Coog_78 (A5),

CosmicSans_64 (CA), Cuco_80 (A5), Danforth_95 (A8), Dinger_64 (CA), Discoknowium_78 (A5), Dixon_93 (A8), Erik_64 (CA), Espica_65 (CA), Expelliarmus_91 (A8), Florence1_79 (A5), ForGetIt_82 (A5), George_75 (A5), Ghoulboy_81 (A5), Gollum_64 (CA), Groundhog_91 (A8), Harlequin_64 (CA), HuhtaEnerson15_79 (A5), Jester_63 (CA), Jovo_79 (A5), Krishelle_64 (CA), Lev2_81 (A5), Lillie_64 (CA), LittleCherry_79 (A5), MarysWell_81 (A5), Micasa_82 (A5), Midas2_78 (A5), Milcery_79 (A5), MyraDee_87 (A18), Naca_83 (A5), Naiad_63 (CA), Nancinator_63 (CA), Natosaleda_63 (CA), NearlyHeadless_95 (A8), Partridge_65 (CA), PetterN_88 (A5), Phillis_91 (A8), Phlorence_79 (A5), Phrankenstein_64 (CA), PickleBack_82 (A5), Prinashe11_81 (A5), RER2_58 (CA), RGL3_59 (CA), Rasputin_64 (CA), RexFury_63 (CA), Rhodalysa_64 (CA), Roary_96 (A8), Saintus_89 (A8), Scorpia_82 (A5), Smeadley_94 (A8), StCroix_63 (CA), Stephig9_95 (A8), Swann_64 (CA), SydNat_80 (A5), TWAMP_64 (CA), Takoda_65 (CA), Tarynearal_81 (A5), Tiger_79 (A5), Twigg_81 (A5), UnionJack_84 (A5), Yogi_65 (CA), Yoncess_63 (CA), Zolita_79 (A5),

Summary by clusters:

There are 7 clusters represented in this pham: DL, CA, A18, A5, DU1, A8, singleton,

Info for manual annotations of cluster A18:
•Start number 20 was manually annotated 1 time for cluster A18.

Info for manual annotations of cluster A5:
•Start number 13 was manually annotated 4 times for cluster A5.
•Start number 17 was manually annotated 2 times for cluster A5.
•Start number 20 was manually annotated 32 times for cluster A5.

Info for manual annotations of cluster A8:
•Start number 20 was manually annotated 12 times for cluster A8.

Info for manual annotations of cluster CA:
•Start number 14 was manually annotated 4 times for cluster CA.
•Start number 20 was manually annotated 32 times for cluster CA.

Info for manual annotations of cluster DL:
•Start number 18 was manually annotated 5 times for cluster DL.

Info for manual annotations of cluster DU1:
•Start number 16 was manually annotated 1 time for cluster DU1.

Gene Information:

Gene: AgentM_80 Start: 46929, Stop: 46414, Start Num: 20
Candidate Starts for AgentM_80:
(Start: 20 @46929 has 77 MA's), (23, 46905), (37, 46818), (62, 46614), (65, 46581), (81, 46476), (82, 46464), (84, 46431),

Gene: Airmid_82 Start: 47299, Stop: 46763, Start Num: 13
Candidate Starts for Airmid_82:

(Start: 13 @47299 has 4 MA's), (Start: 17 @47284 has 2 MA's), (Start: 20 @47278 has 77 MA's), (23, 47254), (39, 47158), (41, 47155), (50, 47059), (62, 46963), (65, 46930), (81, 46825), (82, 46813), (84, 46780),

Gene: Alatin_63 Start: 43109, Stop: 42558, Start Num: 20
Candidate Starts for Alatin_63:
(Start: 14 @43130 has 4 MA's), (Start: 20 @43109 has 77 MA's), (21, 43094), (31, 43013), (35, 42992), (56, 42809), (60, 42776), (61, 42767),

Gene: Alpacados_63 Start: 42932, Stop: 42381, Start Num: 20
Candidate Starts for Alpacados_63:
(Start: 14 @42953 has 4 MA's), (Start: 20 @42932 has 77 MA's), (21, 42917), (31, 42836), (35, 42815), (44, 42776), (56, 42632), (60, 42599), (61, 42590),

Gene: AngryOrchard_62 Start: 43154, Stop: 42606, Start Num: 20
Candidate Starts for AngryOrchard_62:
(Start: 20 @43154 has 77 MA's), (21, 43139), (24, 43109), (25, 43106), (28, 43085), (31, 43058), (35, 43037), (51, 42899), (52, 42896), (60, 42824), (61, 42815), (70, 42749), (80, 42671), (84, 42623),

Gene: AppleCloud_61 Start: 42826, Stop: 42275, Start Num: 20
Candidate Starts for AppleCloud_61:
(Start: 14 @42847 has 4 MA's), (Start: 20 @42826 has 77 MA's), (21, 42811), (31, 42730), (35, 42709), (56, 42526), (60, 42493), (61, 42484),

Gene: Aragog_81 Start: 47226, Stop: 46711, Start Num: 20
Candidate Starts for Aragog_81:
(Start: 20 @47226 has 77 MA's), (23, 47202), (37, 47115), (53, 46971), (62, 46911), (65, 46878), (81, 46773), (82, 46761), (84, 46728),

Gene: Astro_93 Start: 48792, Stop: 48250, Start Num: 20
Candidate Starts for Astro_93:
(Start: 20 @48792 has 77 MA's), (23, 48768), (28, 48723), (33, 48678), (40, 48651), (65, 48417), (72, 48378), (77, 48360),

Gene: Bantam_165 Start: 88764, Stop: 88222, Start Num: 18
Candidate Starts for Bantam_165:
(4, 88839), (9, 88806), (11, 88791), (Start: 18 @88764 has 5 MA's), (49, 88515), (51, 88497), (63, 88392), (74, 88332),

Gene: Belenaria_65 Start: 42974, Stop: 42423, Start Num: 20
Candidate Starts for Belenaria_65:
(Start: 14 @42995 has 4 MA's), (Start: 20 @42974 has 77 MA's), (21, 42959), (31, 42878), (35, 42857), (56, 42674), (60, 42641), (61, 42632),

Gene: Benedict_83 Start: 47142, Stop: 46579, Start Num: 13
Candidate Starts for Benedict_83:
(Start: 13 @47142 has 4 MA's), (Start: 17 @47127 has 2 MA's), (Start: 20 @47121 has 77 MA's), (23, 47097), (27, 47064), (33, 47007), (34, 47004), (50, 46875), (62, 46779), (65, 46746), (81, 46641), (82, 46629), (84, 46596),

Gene: BigAnti_52 Start: 45315, Stop: 45842, Start Num: 15
Candidate Starts for BigAnti_52:
(15, 45315), (66, 45696), (71, 45723), (73, 45732), (76, 45744), (82, 45801),

Gene: Bluefalcon_76 Start: 47511, Stop: 46996, Start Num: 20
Candidate Starts for Bluefalcon_76:
(Start: 20 @47511 has 77 MA's), (26, 47460), (39, 47391), (42, 47385), (47, 47304), (48, 47301), (60, 47208), (62, 47196), (64, 47178), (65, 47163), (72, 47124), (82, 47046),

Gene: BobbyDazzler_64 Start: 43080, Stop: 42529, Start Num: 20
Candidate Starts for BobbyDazzler_64:
(Start: 14 @43101 has 4 MA's), (Start: 20 @43080 has 77 MA's), (31, 42984), (35, 42963), (56, 42780), (59, 42765), (60, 42747), (61, 42738),

Gene: Bonamassa_81 Start: 47268, Stop: 46753, Start Num: 20
Candidate Starts for Bonamassa_81:
(Start: 20 @47268 has 77 MA's), (23, 47244), (37, 47157), (53, 47013), (62, 46953), (65, 46920), (82, 46803), (84, 46770),

Gene: Bonanza_65 Start: 43384, Stop: 42833, Start Num: 20
Candidate Starts for Bonanza_65:
(Start: 14 @43405 has 4 MA's), (Start: 20 @43384 has 77 MA's), (21, 43369), (31, 43288), (35, 43267), (56, 43084), (60, 43051), (61, 43042),

Gene: Bradshaw_64 Start: 43042, Stop: 42491, Start Num: 20
Candidate Starts for Bradshaw_64:
(Start: 14 @43063 has 4 MA's), (Start: 20 @43042 has 77 MA's), (21, 43027), (31, 42946), (35, 42925), (56, 42742), (60, 42709), (61, 42700),

Gene: Bryce_63 Start: 42788, Stop: 42237, Start Num: 20
Candidate Starts for Bryce_63:
(Start: 14 @42809 has 4 MA's), (Start: 20 @42788 has 77 MA's), (21, 42773), (31, 42692), (35, 42671), (44, 42632), (56, 42488), (59, 42473), (60, 42455), (61, 42446),

Gene: Caitlin_93 Start: 48484, Stop: 47942, Start Num: 20
Candidate Starts for Caitlin_93:
(Start: 20 @48484 has 77 MA's), (23, 48460), (28, 48415), (33, 48370), (40, 48343), (65, 48109), (72, 48070), (77, 48052),

Gene: Chadwick_85 Start: 47186, Stop: 46644, Start Num: 20
Candidate Starts for Chadwick_85:
(Start: 20 @47186 has 77 MA's), (23, 47162), (27, 47129), (30, 47093), (33, 47072), (40, 47045), (43, 47033), (44, 47027), (60, 46856), (72, 46772), (81, 46706), (82, 46694),

Gene: Conspiracy_81 Start: 47169, Stop: 46654, Start Num: 20
Candidate Starts for Conspiracy_81:
(Start: 20 @47169 has 77 MA's), (23, 47145), (37, 47058), (62, 46854), (65, 46821), (81, 46716), (82, 46704), (84, 46671),

Gene: Coog_78 Start: 47307, Stop: 46792, Start Num: 20
Candidate Starts for Coog_78:
(Start: 17 @47313 has 2 MA's), (Start: 20 @47307 has 77 MA's), (26, 47256), (30, 47220), (39, 47187), (47, 47100), (48, 47097), (60, 47004), (62, 46992), (64, 46974), (65, 46959), (72, 46920), (82, 46842),

Gene: CosmicSans_64 Start: 43033, Stop: 42482, Start Num: 20
Candidate Starts for CosmicSans_64:

(Start: 14 @43054 has 4 MA's), (Start: 20 @43033 has 77 MA's), (21, 43018), (31, 42937), (35, 42916), (56, 42733), (60, 42700), (61, 42691),

Gene: Cuco_80 Start: 47167, Stop: 46652, Start Num: 20
Candidate Starts for Cuco_80:
(Start: 17 @47173 has 2 MA's), (Start: 20 @47167 has 77 MA's), (26, 47116), (30, 47080), (39, 47047), (47, 46960), (48, 46957), (60, 46864), (62, 46852), (64, 46834), (65, 46819), (72, 46780), (82, 46702),

Gene: Danforth_95 Start: 48946, Stop: 48404, Start Num: 20
Candidate Starts for Danforth_95:
(Start: 20 @48946 has 77 MA's), (23, 48922), (28, 48877), (33, 48832), (40, 48805), (60, 48616), (65, 48571), (72, 48532), (77, 48514),

Gene: Daredevil_158 Start: 85762, Stop: 85220, Start Num: 18
Candidate Starts for Daredevil_158:
(8, 85807), (Start: 18 @85762 has 5 MA's), (51, 85489), (57, 85438), (60, 85408), (63, 85384), (73, 85333),

Gene: DatBoi_163 Start: 88717, Stop: 88133, Start Num: 18
Candidate Starts for DatBoi_163:
(4, 88792), (9, 88759), (11, 88744), (Start: 18 @88717 has 5 MA's), (38, 88576), (48, 88471), (51, 88450), (63, 88345), (67, 88300), (69, 88291),

Gene: Dinger_64 Start: 43172, Stop: 42624, Start Num: 20
Candidate Starts for Dinger_64:
(2, 43334), (12, 43202), (Start: 20 @43172 has 77 MA's), (24, 43127), (28, 43103), (31, 43076), (35, 43055), (51, 42917), (60, 42842), (61, 42833), (70, 42767), (80, 42689), (84, 42641),

Gene: Discoknowium_78 Start: 46686, Stop: 46171, Start Num: 20
Candidate Starts for Discoknowium_78:
(Start: 20 @46686 has 77 MA's), (23, 46662), (37, 46575), (53, 46431), (62, 46371), (65, 46338), (81, 46233), (82, 46221), (84, 46188),

Gene: Dixon_93 Start: 48351, Stop: 47809, Start Num: 20
Candidate Starts for Dixon_93:
(Start: 20 @48351 has 77 MA's), (23, 48327), (28, 48282), (33, 48237), (40, 48210), (65, 47976), (72, 47937), (77, 47919),

Gene: Dublin_81 Start: 47445, Stop: 46924, Start Num: 17
Candidate Starts for Dublin_81:
(Start: 17 @47445 has 2 MA's), (Start: 20 @47439 has 77 MA's), (26, 47388), (30, 47352), (39, 47319), (47, 47232), (48, 47229), (60, 47136), (62, 47124), (64, 47106), (65, 47091), (72, 47052), (82, 46974),

Gene: ElTiger69_85 Start: 47563, Stop: 47027, Start Num: 13
Candidate Starts for ElTiger69_85:
(Start: 13 @47563 has 4 MA's), (Start: 17 @47548 has 2 MA's), (Start: 20 @47542 has 77 MA's), (23, 47518), (39, 47422), (41, 47419), (50, 47323), (57, 47269), (62, 47227), (65, 47194), (81, 47089), (82, 47077), (84, 47044),

Gene: Erik_64 Start: 42864, Stop: 42313, Start Num: 20
Candidate Starts for Erik_64:
(Start: 14 @42885 has 4 MA's), (Start: 20 @42864 has 77 MA's), (21, 42849), (31, 42768), (35, 42747), (56, 42564), (60, 42531), (61, 42522),

Gene: Espica_65 Start: 42974, Stop: 42423, Start Num: 20
Candidate Starts for Espica_65:
(Start: 14 @42995 has 4 MA's), (Start: 20 @42974 has 77 MA's), (21, 42959), (31, 42878), (35, 42857), (56, 42674), (60, 42641), (61, 42632),

Gene: Expelliarmus_91 Start: 48565, Stop: 48023, Start Num: 20
Candidate Starts for Expelliarmus_91:
(Start: 20 @48565 has 77 MA's), (23, 48541), (28, 48496), (33, 48451), (40, 48424), (65, 48190), (72, 48151), (77, 48133),

Gene: Florence1_79 Start: 47057, Stop: 46542, Start Num: 20
Candidate Starts for Florence1_79:
(Start: 20 @47057 has 77 MA's), (23, 47033), (37, 46946), (53, 46802), (62, 46742), (65, 46709), (81, 46604), (82, 46592), (84, 46559),

Gene: ForGetIt_82 Start: 47476, Stop: 46961, Start Num: 20
Candidate Starts for ForGetIt_82:
(Start: 20 @47476 has 77 MA's), (23, 47452), (37, 47365), (53, 47221), (62, 47161), (65, 47128), (81, 47023), (82, 47011), (84, 46978),

Gene: George_75 Start: 47439, Stop: 46924, Start Num: 20
Candidate Starts for George_75:
(Start: 20 @47439 has 77 MA's), (23, 47415), (37, 47328), (53, 47184), (62, 47124), (65, 47091), (82, 46974), (84, 46941),

Gene: Ghoulboy_81 Start: 47442, Stop: 46927, Start Num: 20
Candidate Starts for Ghoulboy_81:
(Start: 20 @47442 has 77 MA's), (26, 47391), (39, 47322), (47, 47235), (48, 47232), (60, 47139), (62, 47127), (64, 47109), (65, 47094), (72, 47055), (82, 46977), (84, 46944),

Gene: Gollum_64 Start: 42975, Stop: 42424, Start Num: 20
Candidate Starts for Gollum_64:
(Start: 14 @42996 has 4 MA's), (Start: 20 @42975 has 77 MA's), (21, 42960), (31, 42879), (35, 42858), (56, 42675), (60, 42642), (61, 42633),

Gene: Groundhog_91 Start: 48621, Stop: 48079, Start Num: 20
Candidate Starts for Groundhog_91:
(Start: 20 @48621 has 77 MA's), (23, 48597), (28, 48552), (33, 48507), (40, 48480), (65, 48246), (72, 48207), (77, 48189),

Gene: Harlequin_64 Start: 42823, Stop: 42272, Start Num: 20
Candidate Starts for Harlequin_64:
(Start: 14 @42844 has 4 MA's), (Start: 20 @42823 has 77 MA's), (21, 42808), (31, 42727), (35, 42706), (44, 42667), (56, 42523), (59, 42508), (60, 42490), (61, 42481),

Gene: Hiro_64 Start: 43315, Stop: 42743, Start Num: 14
Candidate Starts for Hiro_64:
(Start: 14 @43315 has 4 MA's), (Start: 20 @43294 has 77 MA's), (21, 43279), (31, 43198), (35, 43177), (44, 43138), (56, 42994), (59, 42979), (60, 42961), (61, 42952),

Gene: HuhtaEnerson15_79 Start: 47200, Stop: 46685, Start Num: 20
Candidate Starts for HuhtaEnerson15_79:

(Start: 20 @47200 has 77 MA's), (23, 47176), (37, 47089), (53, 46945), (62, 46885), (65, 46852), (82, 46735), (84, 46702),

Gene: Jabiru_80 Start: 46717, Stop: 46181, Start Num: 13
Candidate Starts for Jabiru_80:
(Start: 13 @46717 has 4 MA's), (Start: 17 @46702 has 2 MA's), (Start: 20 @46696 has 77 MA's), (23, 46672), (24, 46651), (39, 46576), (41, 46573), (50, 46477), (57, 46423), (62, 46381), (65, 46348), (81, 46243), (82, 46231), (84, 46198),

Gene: Jester_63 Start: 42754, Stop: 42203, Start Num: 20
Candidate Starts for Jester_63:
(Start: 14 @42775 has 4 MA's), (Start: 20 @42754 has 77 MA's), (21, 42739), (31, 42658), (35, 42637), (44, 42598), (56, 42454), (59, 42439), (60, 42421), (61, 42412),

Gene: Jovo_79 Start: 47732, Stop: 47217, Start Num: 20
Candidate Starts for Jovo_79:
(Start: 20 @47732 has 77 MA's), (23, 47708), (37, 47621), (53, 47477), (62, 47417), (65, 47384), (81, 47279), (82, 47267), (84, 47234),

Gene: Krishelle_64 Start: 43402, Stop: 42851, Start Num: 20
Candidate Starts for Krishelle_64:
(Start: 14 @43423 has 4 MA's), (Start: 20 @43402 has 77 MA's), (21, 43387), (31, 43306), (35, 43285), (56, 43102), (60, 43069), (61, 43060),

Gene: Lev2_81 Start: 47085, Stop: 46570, Start Num: 20
Candidate Starts for Lev2_81:
(Start: 20 @47085 has 77 MA's), (23, 47061), (37, 46974), (53, 46830), (62, 46770), (65, 46737), (81, 46632), (82, 46620), (84, 46587),

Gene: Lillie_64 Start: 43033, Stop: 42482, Start Num: 20
Candidate Starts for Lillie_64:
(Start: 14 @43054 has 4 MA's), (Start: 20 @43033 has 77 MA's), (21, 43018), (31, 42937), (35, 42916), (56, 42733), (60, 42700), (61, 42691),

Gene: LittleCherry_79 Start: 46791, Stop: 46276, Start Num: 20
Candidate Starts for LittleCherry_79:
(Start: 20 @46791 has 77 MA's), (23, 46767), (37, 46680), (53, 46536), (62, 46476), (65, 46443), (82, 46326), (84, 46293),

Gene: MarysWell_81 Start: 47682, Stop: 47167, Start Num: 20
Candidate Starts for MarysWell_81:
(Start: 17 @47688 has 2 MA's), (Start: 20 @47682 has 77 MA's), (26, 47631), (30, 47595), (39, 47562), (47, 47475), (48, 47472), (60, 47379), (62, 47367), (64, 47349), (65, 47334), (72, 47295), (82, 47217),

Gene: Micasa_82 Start: 47456, Stop: 46941, Start Num: 20
Candidate Starts for Micasa_82:
(Start: 20 @47456 has 77 MA's), (23, 47432), (37, 47345), (53, 47201), (62, 47141), (65, 47108), (82, 46991), (84, 46958),

Gene: Midas2_78 Start: 47307, Stop: 46792, Start Num: 20
Candidate Starts for Midas2_78:
(Start: 17 @47313 has 2 MA's), (Start: 20 @47307 has 77 MA's), (26, 47256), (30, 47220), (39, 47187), (47, 47100), (48, 47097), (60, 47004), (62, 46992), (64, 46974), (65, 46959), (72, 46920), (82, 46842),

Gene: Milcery_79 Start: 47085, Stop: 46570, Start Num: 20
Candidate Starts for Milcery_79:
(Start: 20 @47085 has 77 MA's), (23, 47061), (37, 46974), (53, 46830), (62, 46770), (65, 46737), (82, 46620), (84, 46587),

Gene: MyraDee_87 Start: 47060, Stop: 46521, Start Num: 20
Candidate Starts for MyraDee_87:
(Start: 20 @47060 has 77 MA's), (21, 47045), (33, 46949), (36, 46940), (44, 46904), (58, 46751), (72, 46640), (77, 46622),

Gene: Naca_83 Start: 47759, Stop: 47217, Start Num: 20
Candidate Starts for Naca_83:
(Start: 20 @47759 has 77 MA's), (23, 47735), (27, 47702), (30, 47666), (33, 47645), (40, 47618), (43, 47606), (44, 47600), (50, 47513), (62, 47417), (65, 47384), (81, 47279), (82, 47267), (84, 47234),

Gene: Naiad_63 Start: 43055, Stop: 42504, Start Num: 20
Candidate Starts for Naiad_63:
(Start: 14 @43076 has 4 MA's), (Start: 20 @43055 has 77 MA's), (21, 43040), (31, 42959), (35, 42938), (56, 42755), (60, 42722), (61, 42713),

Gene: Nancinator_63 Start: 42372, Stop: 41821, Start Num: 20
Candidate Starts for Nancinator_63:
(Start: 14 @42393 has 4 MA's), (Start: 20 @42372 has 77 MA's), (21, 42357), (31, 42276), (35, 42255), (56, 42072), (60, 42039), (61, 42030),

Gene: Natosaleda_63 Start: 42973, Stop: 42422, Start Num: 20
Candidate Starts for Natosaleda_63:
(Start: 14 @42994 has 4 MA's), (Start: 20 @42973 has 77 MA's), (21, 42958), (31, 42877), (35, 42856), (56, 42673), (60, 42640), (61, 42631),

Gene: NearlyHeadless_95 Start: 48683, Stop: 48141, Start Num: 20
Candidate Starts for NearlyHeadless_95:
(Start: 20 @48683 has 77 MA's), (23, 48659), (28, 48614), (33, 48569), (40, 48542), (60, 48353), (65, 48308), (72, 48269), (77, 48251), (81, 48203),

Gene: Octobien14_133 Start: 70642, Stop: 70064, Start Num: 16
Candidate Starts for Octobien14_133:
(Start: 16 @70642 has 1 MA's), (29, 70537), (40, 70483), (51, 70366), (54, 70327), (60, 70285), (68, 70213), (73, 70186), (78, 70168), (83, 70105), (85, 70075),

Gene: Partridge_65 Start: 43518, Stop: 42970, Start Num: 20
Candidate Starts for Partridge_65:
(2, 43680), (12, 43548), (Start: 20 @43518 has 77 MA's), (24, 43473), (28, 43449), (31, 43422), (35, 43401), (51, 43263), (52, 43260), (60, 43188), (61, 43179), (70, 43113), (80, 43035), (84, 42987),

Gene: PetterN_88 Start: 47519, Stop: 47004, Start Num: 20
Candidate Starts for PetterN_88:
(7, 47588), (10, 47555), (Start: 20 @47519 has 77 MA's), (22, 47501), (30, 47432), (45, 47342), (50, 47300), (62, 47204), (65, 47171), (75, 47123), (81, 47066), (82, 47054), (84, 47021),

Gene: PhailMary_61 Start: 42071, Stop: 41499, Start Num: 14
Candidate Starts for PhailMary_61:

(Start: 14 @42071 has 4 MA's), (Start: 20 @42050 has 77 MA's), (21, 42035), (31, 41954), (35, 41933), (56, 41750), (59, 41735), (60, 41717), (61, 41708),

Gene: Phillis_91 Start: 47696, Stop: 47154, Start Num: 20
Candidate Starts for Phillis_91:
(Start: 20 @47696 has 77 MA's), (23, 47672), (28, 47627), (33, 47582), (40, 47555), (60, 47366), (72, 47282),

Gene: Phlorence_79 Start: 46829, Stop: 46314, Start Num: 20
Candidate Starts for Phlorence_79:
(Start: 20 @46829 has 77 MA's), (23, 46805), (37, 46718), (62, 46514), (65, 46481), (81, 46376), (82, 46364), (84, 46331),

Gene: Phrankenstein_64 Start: 42979, Stop: 42428, Start Num: 20
Candidate Starts for Phrankenstein_64:
(Start: 14 @43000 has 4 MA's), (Start: 20 @42979 has 77 MA's), (21, 42964), (31, 42883), (35, 42862), (44, 42823), (56, 42679), (60, 42646), (61, 42637),

Gene: PickleBack_82 Start: 47283, Stop: 46768, Start Num: 20
Candidate Starts for PickleBack_82:
(Start: 20 @47283 has 77 MA's), (23, 47259), (37, 47172), (53, 47028), (62, 46968), (65, 46935), (81, 46830), (82, 46818), (84, 46785),

Gene: Ponzi_78 Start: 52065, Stop: 51508, Start Num: 19
Candidate Starts for Ponzi_78:
(Start: 19 @52065 has 1 MA's), (24, 52017), (32, 51969), (35, 51951), (44, 51912), (48, 51834), (55, 51777), (79, 51597),

Gene: Prinashe11_81 Start: 47295, Stop: 46783, Start Num: 20
Candidate Starts for Prinashe11_81:
(Start: 20 @47295 has 77 MA's), (23, 47271), (37, 47184), (53, 47040), (62, 46980), (65, 46947), (81, 46842), (82, 46830), (84, 46797),

Gene: RER2_58 Start: 39905, Stop: 39354, Start Num: 20
Candidate Starts for RER2_58:
(Start: 14 @39926 has 4 MA's), (Start: 20 @39905 has 77 MA's), (21, 39890), (31, 39809), (35, 39788), (56, 39605), (60, 39572), (61, 39563),

Gene: RGL3_59 Start: 41481, Stop: 40933, Start Num: 20
Candidate Starts for RGL3_59:
(Start: 20 @41481 has 77 MA's), (31, 41385), (35, 41364), (46, 41274), (47, 41250), (56, 41184), (60, 41151), (65, 41106), (70, 41076), (80, 40998),

Gene: Rasputin_64 Start: 43003, Stop: 42452, Start Num: 20
Candidate Starts for Rasputin_64:
(Start: 14 @43024 has 4 MA's), (Start: 20 @43003 has 77 MA's), (21, 42988), (31, 42907), (35, 42886), (56, 42703), (60, 42670), (61, 42661),

Gene: RexFury_63 Start: 43063, Stop: 42512, Start Num: 20
Candidate Starts for RexFury_63:
(Start: 14 @43084 has 4 MA's), (Start: 20 @43063 has 77 MA's), (21, 43048), (31, 42967), (35, 42946), (56, 42763), (60, 42730), (61, 42721),

Gene: Rhodalysa_64 Start: 43033, Stop: 42482, Start Num: 20
Candidate Starts for Rhodalysa_64:
(Start: 14 @43054 has 4 MA's), (Start: 20 @43033 has 77 MA's), (21, 43018), (31, 42937), (35, 42916), (56, 42733), (60, 42700), (61, 42691),

Gene: Roary_96 Start: 48820, Stop: 48278, Start Num: 20
Candidate Starts for Roary_96:
(Start: 20 @48820 has 77 MA's), (23, 48796), (28, 48751), (33, 48706), (40, 48679), (48, 48583), (60, 48490), (65, 48445), (72, 48406), (77, 48388), (81, 48340),

Gene: Saintus_89 Start: 45548, Stop: 45006, Start Num: 20
Candidate Starts for Saintus_89:
(Start: 20 @45548 has 77 MA's), (23, 45524), (28, 45479), (33, 45434), (40, 45407), (60, 45218), (65, 45173), (72, 45134), (77, 45116), (81, 45068),

Gene: Scorpia_82 Start: 47090, Stop: 46575, Start Num: 20
Candidate Starts for Scorpia_82:
(Start: 20 @47090 has 77 MA's), (30, 47003), (50, 46871), (62, 46775), (65, 46742), (81, 46637), (82, 46625), (84, 46592),

Gene: Shuman_65 Start: 43005, Stop: 42433, Start Num: 14
Candidate Starts for Shuman_65:
(Start: 14 @43005 has 4 MA's), (Start: 20 @42984 has 77 MA's), (21, 42969), (31, 42888), (35, 42867), (44, 42828), (56, 42684), (60, 42651), (61, 42642),

Gene: Smeadley_94 Start: 48687, Stop: 48145, Start Num: 20
Candidate Starts for Smeadley_94:
(Start: 20 @48687 has 77 MA's), (23, 48663), (28, 48618), (33, 48573), (40, 48546), (65, 48312), (72, 48273), (77, 48255),

Gene: SpeedDemon_1610 Start: 90146, Stop: 89613, Start Num: 18
Candidate Starts for SpeedDemon_1610:
(4, 90221), (9, 90188), (11, 90173), (Start: 18 @90146 has 5 MA's), (38, 90005), (49, 89897), (51, 89879), (63, 89774), (73, 89723), (79, 89687),

Gene: StCroix_63 Start: 43055, Stop: 42504, Start Num: 20
Candidate Starts for StCroix_63:
(Start: 14 @43076 has 4 MA's), (Start: 20 @43055 has 77 MA's), (21, 43040), (31, 42959), (35, 42938), (56, 42755), (60, 42722), (61, 42713),

Gene: Stephig9_95 Start: 49038, Stop: 48496, Start Num: 20
Candidate Starts for Stephig9_95:
(Start: 20 @49038 has 77 MA's), (23, 49014), (28, 48969), (33, 48924), (40, 48897), (60, 48708), (65, 48663), (72, 48624), (77, 48606),

Gene: Swann_64 Start: 43031, Stop: 42480, Start Num: 20
Candidate Starts for Swann_64:
(Start: 14 @43052 has 4 MA's), (Start: 20 @43031 has 77 MA's), (21, 43016), (31, 42935), (35, 42914), (56, 42731), (60, 42698), (61, 42689),

Gene: SydNat_80 Start: 47451, Stop: 46936, Start Num: 20
Candidate Starts for SydNat_80:

(Start: 20 @47451 has 77 MA's), (26, 47400), (39, 47331), (47, 47244), (48, 47241), (60, 47148), (62, 47136), (64, 47118), (65, 47103), (72, 47064), (82, 46986), (84, 46953),

Gene: TWAMP_64 Start: 43033, Stop: 42482, Start Num: 20
Candidate Starts for TWAMP_64:
(Start: 14 @43054 has 4 MA's), (Start: 20 @43033 has 77 MA's), (21, 43018), (31, 42937), (35, 42916), (56, 42733), (60, 42700), (61, 42691),

Gene: Takoda_65 Start: 43208, Stop: 42660, Start Num: 20
Candidate Starts for Takoda_65:
(6, 43289), (Start: 20 @43208 has 77 MA's), (21, 43193), (24, 43163), (25, 43160), (28, 43139), (31, 43112), (35, 43091), (51, 42953), (52, 42950), (60, 42878), (61, 42869), (70, 42803), (80, 42725), (84, 42677),

Gene: Tarynearal_81 Start: 47239, Stop: 46724, Start Num: 20
Candidate Starts for Tarynearal_81:
(Start: 20 @47239 has 77 MA's), (23, 47215), (37, 47128), (53, 46984), (62, 46924), (65, 46891), (82, 46774), (84, 46741),

Gene: Theia_81 Start: 47799, Stop: 47278, Start Num: 17
Candidate Starts for Theia_81:
(Start: 17 @47799 has 2 MA's), (Start: 20 @47793 has 77 MA's), (26, 47742), (30, 47706), (39, 47673), (47, 47586), (48, 47583), (60, 47490), (62, 47478), (64, 47460), (65, 47445), (72, 47406), (82, 47328), (84, 47295),

Gene: Tiger_79 Start: 46750, Stop: 46235, Start Num: 20
Candidate Starts for Tiger_79:
(Start: 20 @46750 has 77 MA's), (23, 46726), (37, 46639), (62, 46435), (65, 46402), (81, 46297), (82, 46285), (84, 46252),

Gene: Towmatter_156 Start: 85944, Stop: 85402, Start Num: 18
Candidate Starts for Towmatter_156:
(1, 86181), (3, 86091), (5, 86025), (Start: 18 @85944 has 5 MA's), (51, 85671), (57, 85620), (60, 85590), (63, 85566), (73, 85515),

Gene: Twigg_81 Start: 47205, Stop: 46693, Start Num: 20
Candidate Starts for Twigg_81:
(Start: 20 @47205 has 77 MA's), (23, 47181), (37, 47094), (53, 46950), (62, 46890), (65, 46857), (81, 46752), (82, 46740), (84, 46707),

Gene: UhSalsa_64 Start: 42995, Stop: 42423, Start Num: 14
Candidate Starts for UhSalsa_64:
(Start: 14 @42995 has 4 MA's), (Start: 20 @42974 has 77 MA's), (21, 42959), (31, 42878), (35, 42857), (56, 42674), (60, 42641), (61, 42632),

Gene: UnionJack_84 Start: 46923, Stop: 46408, Start Num: 20
Candidate Starts for UnionJack_84:
(Start: 13 @46944 has 4 MA's), (Start: 17 @46929 has 2 MA's), (Start: 20 @46923 has 77 MA's), (23, 46899), (39, 46803), (41, 46800), (50, 46704), (57, 46650), (62, 46608), (65, 46575), (81, 46470), (82, 46458), (84, 46425),

Gene: Yogi_65 Start: 43384, Stop: 42833, Start Num: 20
Candidate Starts for Yogi_65:

(Start: 14 @43405 has 4 MA's), (Start: 20 @43384 has 77 MA's), (21, 43369), (31, 43288), (35, 43267), (56, 43084), (60, 43051), (61, 43042),

Gene: Yoncess_63 Start: 42791, Stop: 42240, Start Num: 20
Candidate Starts for Yoncess_63:
(Start: 14 @42812 has 4 MA's), (Start: 20 @42791 has 77 MA's), (21, 42776), (31, 42695), (35, 42674), (44, 42635), (56, 42491), (59, 42476), (60, 42458), (61, 42449),

Gene: Zolita_79 Start: 47434, Stop: 46919, Start Num: 20
Candidate Starts for Zolita_79:
(Start: 20 @47434 has 77 MA's), (26, 47383), (39, 47314), (47, 47227), (48, 47224), (60, 47131), (62, 47119), (64, 47101), (65, 47086), (72, 47047), (82, 46969), (84, 46936),