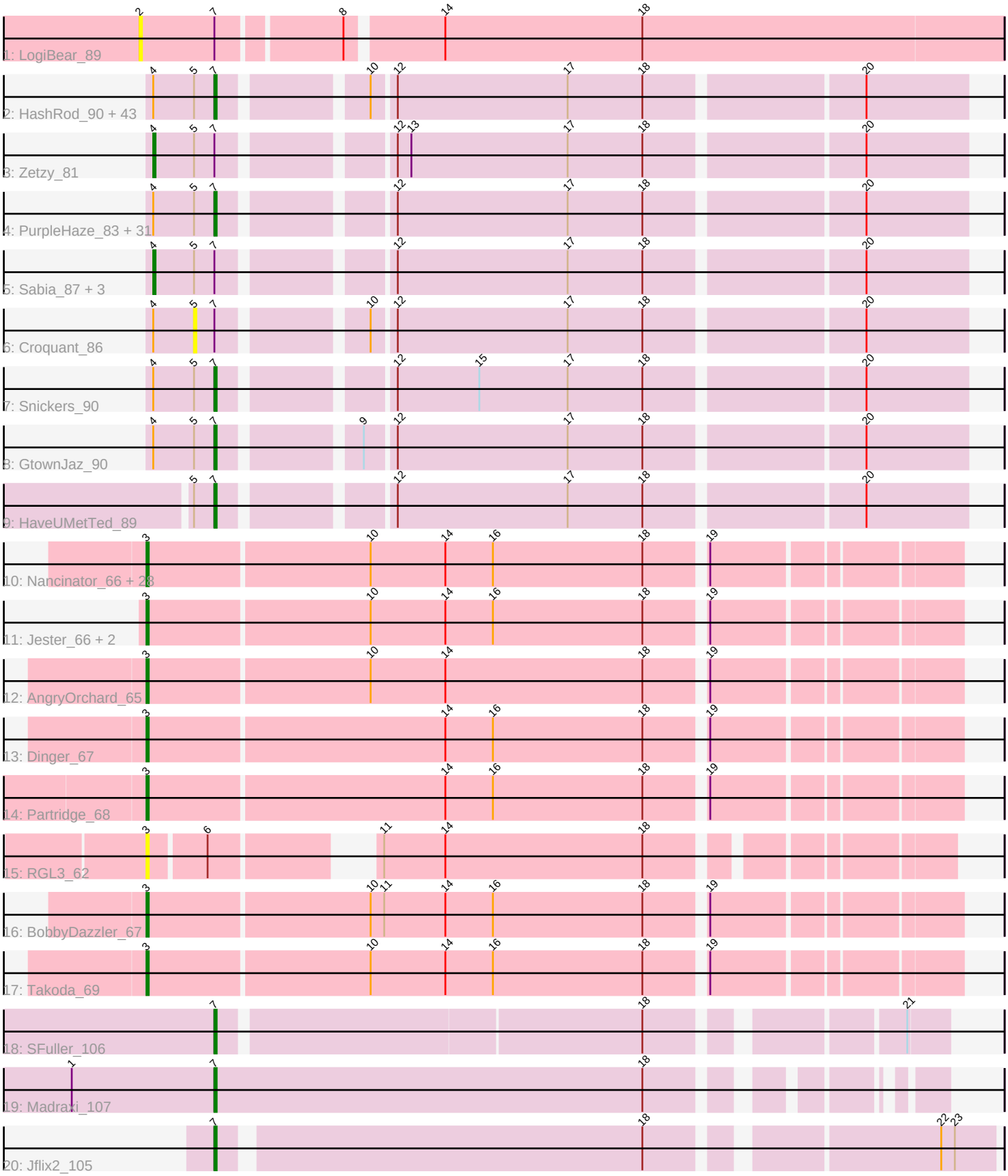
Pham 338100


1: LogiBear_89
2: HashRod_90 + 43
3: Zetzy_81
4: PurpleHaze_83 + 31
5: Sabia_87 + 3
6: Croquant_86
7: Snickers_90
8: GtownJaz_90
9: HaveUMetTed_89
10: Nancinator_66 + 28
11: Jester_66 + 2
12: AngryOrchard_65
13: Dinger_67
14: Partridge_68
15: RGL3_62
16: BobbyDazzler_67
17: Takoda_69
18: SFuller_106
19: Madraxi_107
20: Jflix2_105

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 338100 Report

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

Pham number 338100 has 127 members, 5 are drafts.

Phages represented in each track:
• Track 1 : LogiBear_89
• Track 2 : HashRod_90, LugYA_92, Rummer_88, TinyPebbles_88, Bxz2_84, Daishi_88, Penny1_89, Tiffany_88, KADY_86, Soshari_91, Sabinator_87, Methuselah_82, Cullens_90, Misomonster_85, MoneyMay_89, EpicPhail_90, Grum1_89, JenCasNa_90, LarryKay_89, Wooldri_91, Louie6_88, PGHhamlin_92, AgronaGT15_81, PotatoSplit_90, MarQuardt_89, Spike509_90, Hercules11_89, Taurus_90, Montavir_84, Beauxregard13_88, SoYo_86, Aglet_90, Gwennie_89, GingkoMaracino_89, P28Green_89, Fernando_90, BuzzBuzz_83, Vix_85, JHC117_84, Colbster_85, Marie_87, Dieselweasel_90, Phoebe_90, Grif_87
• Track 3 : Zetzy_81
• Track 4 : PurpleHaze_83, Pawn_87, Groupthink_89, PhishRPhriends_85, Gemma_86, Mainiac_89, Manu_88, Stagni_86, Kalb97_89, Jobu08_85, ClownCar_88, JeppNRM_89, Lowa_90, Microwolf_85, Malinsilva_93, Kalnoky_89, Watson_89, Ollie_90, Pembroke_90, Lilith_87, Reba_84, Heliosoles_86, OlanP_87, Phranny_81, BreSam8_90, DaHudson_89, StepMih_90, MadMarie_87, Grub_87, Marius_89, LBerry_91, Calvinny_88
• Track 5 : Sabia_87, SoilDragon_90, Bigflo_87, Anubis_94
• Track 6 : Croquant_86
• Track 7 : Snickers_90
• Track 8 : GtownJaz_90
• Track 9 : HaveUMetTed_89
• Track 10 : Nancinator_66, Espica_68, Yoncess_66, RexFury_66, Naiad_66, Alatin_66, Gollum_67, UhSalsa_67, Belenaria_68, Natosaleda_66, Hiro_67, Bonanza_68, RER2_61, Rasputin_67, Bradshaw_67, AppleCloud_64, Swann_67, CosmicSans_67, Rhodalysa_67, Krishelle_67, PhailMary_64, Shuman_68, Yogi_68, Alpacados_66, TWAMP_67, StCroix_66, Phrankenstein_67, Lillie_67, Erik_67
• Track 11 : Jester_66, Harlequin_67, Bryce_66
• Track 12 : AngryOrchard_65
• Track 13 : Dinger_67
• Track 14 : Partridge_68
• Track 15 : RGL3_62
• Track 16 : BobbyDazzler_67
• Track 17 : Takoda_69
• Track 18 : SFuller_106
• Track 19 : Madraxi_107
• Track 20 : Jflix2_105

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

The start number called the most often in the published annotations is 7, it was called in 81 of the 122 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Aglet_90, AgronaGT15_81, Beauxregard13_88, BreSam8_90, BuzzBuzz_83, Bxz2_84, Calvinny_88, ClownCar_88, Colbster_85, Cullens_90, DaHudson_89, Daishi_88, Dieselweasel_90, EpicPhail_90, Fernando_90, Gemma_86, GingkoMaracino_89, Grif_87, Groupthink_89, Grub_87, Grum1_89, GtownJaz_90, Gwennie_89, HashRod_90, HaveUMetTed_89, Heliosoles_86, Hercules11_89, JHC117_84, JenCasNa_90, JeppNRM_89, Jflix2_105, Jobu08_85, KADY_86, Kalb97_89, Kalnoky_89, LBerry_91, LarryKay_89, Lilith_87, Louie6_88, Lowa_90, LugYA_92, MadMarie_87, Madraxi_107, Mainiac_89, Malinsilva_93, Manu_88, MarQuardt_89, Marie_87, Marius_89, Methuselah_82, Microwolf_85, Misomonster_85, MoneyMay_89, Montavir_84, OlanP_87, Ollie_90, P28Green_89, PGHhamlin_92, Pawn_87, Pembroke_90, Penny1_89, PhishRPhriends_85, Phoebe_90, Phranny_81, PotatoSplit_90, PurpleHaze_83, Reba_84, Rummer_88, SFuller_106, Sabinator_87, Snickers_90, SoYo_86, Soshari_91, Spike509_90, Stagni_86, StepMih_90, Taurus_90, Tiffany_88, TinyPebbles_88, Vix_85, Watson_89, Wooldri_91,

Genes that have the "Most Annotated" start but do not call it:
• Anubis_94, Bigflo_87, Croquant_86, LogiBear_89, Sabia_87, SoilDragon_90, Zetzy_81,

Genes that do not have the "Most Annotated" start:
• Alatin_66, Alpacados_66, AngryOrchard_65, AppleCloud_64, Belenaria_68, BobbyDazzler_67, Bonanza_68, Bradshaw_67, Bryce_66, CosmicSans_67, Dinger_67, Erik_67, Espica_68, Gollum_67, Harlequin_67, Hiro_67, Jester_66, Krishelle_67, Lillie_67, Naiad_66, Nancinator_66, Natosaleda_66, Partridge_68, PhailMary_64, Phrankenstein_67, RER2_61, RGL3_62, Rasputin_67, RexFury_66, Rhodalysa_67, Shuman_68, StCroix_66, Swann_67, TWAMP_67, Takoda_69, UhSalsa_67, Yogi_68, Yoncess_66,

Summary by start number:

Start 2:
• Found in 1 of 127 (0.8%) of genes in pham
• No Manual Annotations of this start.
• Called 100.0% of time when present
• Phage (with cluster) where this start called: LogiBear_89 (A15),

Start 3:
• Found in 38 of 127 (29.9%) of genes in pham
• Manual Annotations of this start: 36 of 122
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Alatin_66 (CA), Alpacados_66 (CA), AngryOrchard_65 (CA), AppleCloud_64 (CA), Belenaria_68 (CA), BobbyDazzler_67 (CA), Bonanza_68 (CA), Bradshaw_67 (CA), Bryce_66 (CA), CosmicSans_67 (CA),

Dinger_67 (CA), Erik_67 (CA), Espica_68 (CA), Gollum_67 (CA), Harlequin_67 (CA), Hiro_67 (CA), Jester_66 (CA), Krishelle_67 (CA), Lillie_67 (CA), Naiad_66 (CA), Nancinator_66 (CA), Natosaleda_66 (CA), Partridge_68 (CA), PhailMary_64 (CA), Phrankenstein_67 (CA), RER2_61 (CA), RGL3_62 (CA), Rasputin_67 (CA), RexFury_66 (CA), Rhodalysa_67 (CA), Shuman_68 (CA), StCroix_66 (CA), Swann_67 (CA), TWAMP_67 (CA), Takoda_69 (CA), UhSalsa_67 (CA), Yogi_68 (CA), Yoncess_66 (CA),

Start 4:
• Found in 84 of 127 (66.1%) of genes in pham
• Manual Annotations of this start: 5 of 122
• Called 6.0% of time when present
• Phage (with cluster) where this start called: Anubis_94 (A3), Bigflo_87 (A3), Sabia_87 (A3), SoilDragon_90 (A3), Zetzy_81 (A3),

Start 5:
• Found in 85 of 127 (66.9%) of genes in pham
• No Manual Annotations of this start.
• Called 1.2% of time when present
• Phage (with cluster) where this start called: Croquant_86 (A3),

Start 7:
• Found in 89 of 127 (70.1%) of genes in pham
• Manual Annotations of this start: 81 of 122
• Called 92.1% of time when present
• Phage (with cluster) where this start called: Aglet_90 (A3), AgronaGT15_81 (A3), Beauxregard13_88 (A3), BreSam8_90 (A3), BuzzBuzz_83 (A3), Bxz2_84 (A3), Calvinny_88 (A3), ClownCar_88 (A3), Colbster_85 (A3), Cullens_90 (A3), DaHudson_89 (A3), Daishi_88 (A3), Dieselweasel_90 (A3), EpicPhail_90 (A3), Fernando_90 (A3), Gemma_86 (A3), GingkoMaracino_89 (A3), Grif_87 (A3), Groupthink_89 (A3), Grub_87 (A3), Grum1_89 (A3), GtownJaz_90 (A3), Gwennie_89 (A3), HashRod_90 (A3), HaveUMetTed_89 (A3), Heliosoles_86 (A3), Hercules11_89 (A3), JHC117_84 (A3), JenCasNa_90 (A3), JeppNRM_89 (A3), Jflix2_105 (CF), Jobu08_85 (A3), KADY_86 (A3), Kalb97_89 (A3), Kalnoky_89 (A3), LBerry_91 (A3), LarryKay_89 (A3), Lilith_87 (A3), Louie6_88 (A3), Lowa_90 (A3), LugYA_92 (A3), MadMarie_87 (A3), Madraxi_107 (CF), Mainiac_89 (A3), Malinsilva_93 (A3), Manu_88 (A3), MarQuardt_89 (A3), Marie_87 (A3), Marius_89 (A3), Methuselah_82 (A3), Microwolf_85 (A3), Misomonster_85 (A3), MoneyMay_89 (A3), Montavir_84 (A3), OlanP_87 (A3), Ollie_90 (A3), P28Green_89 (A3), PGHhamlin_92 (A3), Pawn_87 (A3), Pembroke_90 (A3), Penny1_89 (A3), PhishRPhriends_85 (A3), Phoebe_90 (A3), Phranny_81 (A3), PotatoSplit_90 (A3), PurpleHaze_83 (A3), Reba_84 (A3), Rummer_88 (A3), SFuller_106 (CF), Sabinator_87 (A3), Snickers_90 (A3), SoYo_86 (A3), Soshari_91 (A3), Spike509_90 (A3), Stagni_86 (A3), StepMih_90 (A3), Taurus_90 (A3), Tiffany_88 (A3), TinyPebbles_88 (A3), Vix_85 (A3), Watson_89 (A3), Wooldri_91 (A3),

Summary by clusters:

There are 4 clusters represented in this pham: A15, A3, CA, CF,

Info for manual annotations of cluster A3:
•Start number 4 was manually annotated 5 times for cluster A3.

•Start number 7 was manually annotated 78 times for cluster A3.

Info for manual annotations of cluster CA:
•Start number 3 was manually annotated 36 times for cluster CA.

Info for manual annotations of cluster CF:
•Start number 7 was manually annotated 3 times for cluster CF.

Gene Information:

Gene: Aglet_90 Start: 48472, Stop: 48164, Start Num: 7
Candidate Starts for Aglet_90:
(Start: 4 @48499 has 5 MA's), (5, 48481), (Start: 7 @48472 has 81 MA's), (10, 48415), (12, 48406), (17, 48331), (18, 48298), (20, 48208),

Gene: AgronaGT15_81 Start: 46449, Stop: 46141, Start Num: 7
Candidate Starts for AgronaGT15_81:
(Start: 4 @46476 has 5 MA's), (5, 46458), (Start: 7 @46449 has 81 MA's), (10, 46392), (12, 46383), (17, 46308), (18, 46275), (20, 46185),

Gene: Alatin_66 Start: 44950, Stop: 44609, Start Num: 3
Candidate Starts for Alatin_66:
(Start: 3 @44950 has 36 MA's), (10, 44854), (14, 44821), (16, 44800), (18, 44734), (19, 44710),

Gene: Alpacados_66 Start: 44773, Stop: 44432, Start Num: 3
Candidate Starts for Alpacados_66:
(Start: 3 @44773 has 36 MA's), (10, 44677), (14, 44644), (16, 44623), (18, 44557), (19, 44533),

Gene: AngryOrchard_65 Start: 44992, Stop: 44651, Start Num: 3
Candidate Starts for AngryOrchard_65:
(Start: 3 @44992 has 36 MA's), (10, 44896), (14, 44863), (18, 44776), (19, 44752),

Gene: Anubis_94 Start: 48476, Stop: 48141, Start Num: 4
Candidate Starts for Anubis_94:
(Start: 4 @48476 has 5 MA's), (5, 48458), (Start: 7 @48449 has 81 MA's), (12, 48383), (17, 48308), (18, 48275), (20, 48185),

Gene: AppleCloud_64 Start: 44667, Stop: 44326, Start Num: 3
Candidate Starts for AppleCloud_64:
(Start: 3 @44667 has 36 MA's), (10, 44571), (14, 44538), (16, 44517), (18, 44451), (19, 44427),

Gene: Beauxregard13_88 Start: 48480, Stop: 48172, Start Num: 7
Candidate Starts for Beauxregard13_88:
(Start: 4 @48507 has 5 MA's), (5, 48489), (Start: 7 @48480 has 81 MA's), (10, 48423), (12, 48414), (17, 48339), (18, 48306), (20, 48216),

Gene: Belenaria_68 Start: 44815, Stop: 44474, Start Num: 3
Candidate Starts for Belenaria_68:
(Start: 3 @44815 has 36 MA's), (10, 44719), (14, 44686), (16, 44665), (18, 44599), (19, 44575),

Gene: Bigflo_87 Start: 48584, Stop: 48249, Start Num: 4

Candidate Starts for Bigflo_87:
(Start: 4 @48584 has 5 MA's), (5, 48566), (Start: 7 @48557 has 81 MA's), (12, 48491), (17, 48416), (18, 48383), (20, 48293),

Gene: BobbyDazzler_67 Start: 44921, Stop: 44580, Start Num: 3
Candidate Starts for BobbyDazzler_67:
(Start: 3 @44921 has 36 MA's), (10, 44825), (11, 44819), (14, 44792), (16, 44771), (18, 44705), (19, 44681),

Gene: Bonanza_68 Start: 45225, Stop: 44884, Start Num: 3
Candidate Starts for Bonanza_68:
(Start: 3 @45225 has 36 MA's), (10, 45129), (14, 45096), (16, 45075), (18, 45009), (19, 44985),

Gene: Bradshaw_67 Start: 44883, Stop: 44542, Start Num: 3
Candidate Starts for Bradshaw_67:
(Start: 3 @44883 has 36 MA's), (10, 44787), (14, 44754), (16, 44733), (18, 44667), (19, 44643),

Gene: BreSam8_90 Start: 48551, Stop: 48243, Start Num: 7
Candidate Starts for BreSam8_90:
(Start: 4 @48578 has 5 MA's), (5, 48560), (Start: 7 @48551 has 81 MA's), (12, 48485), (17, 48410), (18, 48377), (20, 48287),

Gene: Bryce_66 Start: 44629, Stop: 44288, Start Num: 3
Candidate Starts for Bryce_66:
(Start: 3 @44629 has 36 MA's), (10, 44533), (14, 44500), (16, 44479), (18, 44413), (19, 44389),

Gene: BuzzBuzz_83 Start: 48505, Stop: 48197, Start Num: 7
Candidate Starts for BuzzBuzz_83:
(Start: 4 @48532 has 5 MA's), (5, 48514), (Start: 7 @48505 has 81 MA's), (10, 48448), (12, 48439), (17, 48364), (18, 48331), (20, 48241),

Gene: Bxz2_84 Start: 48512, Stop: 48204, Start Num: 7
Candidate Starts for Bxz2_84:
(Start: 4 @48539 has 5 MA's), (5, 48521), (Start: 7 @48512 has 81 MA's), (10, 48455), (12, 48446), (17, 48371), (18, 48338), (20, 48248),

Gene: Calvinny_88 Start: 48309, Stop: 48001, Start Num: 7
Candidate Starts for Calvinny_88:
(Start: 4 @48336 has 5 MA's), (5, 48318), (Start: 7 @48309 has 81 MA's), (12, 48243), (17, 48168), (18, 48135), (20, 48045),

Gene: ClownCar_88 Start: 48303, Stop: 47995, Start Num: 7
Candidate Starts for ClownCar_88:
(Start: 4 @48330 has 5 MA's), (5, 48312), (Start: 7 @48303 has 81 MA's), (12, 48237), (17, 48162), (18, 48129), (20, 48039),

Gene: Colbster_85 Start: 48480, Stop: 48172, Start Num: 7
Candidate Starts for Colbster_85:
(Start: 4 @48507 has 5 MA's), (5, 48489), (Start: 7 @48480 has 81 MA's), (10, 48423), (12, 48414), (17, 48339), (18, 48306), (20, 48216),

Gene: CosmicSans_67 Start: 44874, Stop: 44533, Start Num: 3
Candidate Starts for CosmicSans_67:

(Start: 3 @44874 has 36 MA's), (10, 44778), (14, 44745), (16, 44724), (18, 44658), (19, 44634),

Gene: Croquant_86 Start: 48486, Stop: 48169, Start Num: 5
Candidate Starts for Croquant_86:
(Start: 4 @48504 has 5 MA's), (5, 48486), (Start: 7 @48477 has 81 MA's), (10, 48420), (12, 48411), (17, 48336), (18, 48303), (20, 48213),

Gene: Cullens_90 Start: 48474, Stop: 48166, Start Num: 7
Candidate Starts for Cullens_90:
(Start: 4 @48501 has 5 MA's), (5, 48483), (Start: 7 @48474 has 81 MA's), (10, 48417), (12, 48408), (17, 48333), (18, 48300), (20, 48210),

Gene: DaHudson_89 Start: 48550, Stop: 48242, Start Num: 7
Candidate Starts for DaHudson_89:
(Start: 4 @48577 has 5 MA's), (5, 48559), (Start: 7 @48550 has 81 MA's), (12, 48484), (17, 48409), (18, 48376), (20, 48286),

Gene: Daishi_88 Start: 47346, Stop: 47038, Start Num: 7
Candidate Starts for Daishi_88:
(Start: 4 @47373 has 5 MA's), (5, 47355), (Start: 7 @47346 has 81 MA's), (10, 47289), (12, 47280), (17, 47205), (18, 47172), (20, 47082),

Gene: Dieselweasel_90 Start: 48478, Stop: 48170, Start Num: 7
Candidate Starts for Dieselweasel_90:
(Start: 4 @48505 has 5 MA's), (5, 48487), (Start: 7 @48478 has 81 MA's), (10, 48421), (12, 48412), (17, 48337), (18, 48304), (20, 48214),

Gene: Dinger_67 Start: 45010, Stop: 44669, Start Num: 3
Candidate Starts for Dinger_67:
(Start: 3 @45010 has 36 MA's), (14, 44881), (16, 44860), (18, 44794), (19, 44770),

Gene: EpicPhail_90 Start: 48480, Stop: 48172, Start Num: 7
Candidate Starts for EpicPhail_90:
(Start: 4 @48507 has 5 MA's), (5, 48489), (Start: 7 @48480 has 81 MA's), (10, 48423), (12, 48414), (17, 48339), (18, 48306), (20, 48216),

Gene: Erik_67 Start: 44705, Stop: 44364, Start Num: 3
Candidate Starts for Erik_67:
(Start: 3 @44705 has 36 MA's), (10, 44609), (14, 44576), (16, 44555), (18, 44489), (19, 44465),

Gene: Espica_68 Start: 44815, Stop: 44474, Start Num: 3
Candidate Starts for Espica_68:
(Start: 3 @44815 has 36 MA's), (10, 44719), (14, 44686), (16, 44665), (18, 44599), (19, 44575),

Gene: Fernando_90 Start: 48474, Stop: 48166, Start Num: 7
Candidate Starts for Fernando_90:
(Start: 4 @48501 has 5 MA's), (5, 48483), (Start: 7 @48474 has 81 MA's), (10, 48417), (12, 48408), (17, 48333), (18, 48300), (20, 48210),

Gene: Gemma_86 Start: 48306, Stop: 47998, Start Num: 7
Candidate Starts for Gemma_86:
(Start: 4 @48333 has 5 MA's), (5, 48315), (Start: 7 @48306 has 81 MA's), (12, 48240), (17, 48165), (18, 48132), (20, 48042),

Gene: GingkoMaracino_89 Start: 48357, Stop: 48049, Start Num: 7
Candidate Starts for GingkoMaracino_89:
(Start: 4 @48384 has 5 MA's), (5, 48366), (Start: 7 @48357 has 81 MA's), (10, 48300), (12, 48291), (17, 48216), (18, 48183), (20, 48093),

Gene: Gollum_67 Start: 44816, Stop: 44475, Start Num: 3
Candidate Starts for Gollum_67:
(Start: 3 @44816 has 36 MA's), (10, 44720), (14, 44687), (16, 44666), (18, 44600), (19, 44576),

Gene: Grif_87 Start: 48553, Stop: 48245, Start Num: 7
Candidate Starts for Grif_87:
(Start: 4 @48580 has 5 MA's), (5, 48562), (Start: 7 @48553 has 81 MA's), (10, 48496), (12, 48487), (17, 48412), (18, 48379), (20, 48289),

Gene: Groupthink_89 Start: 48308, Stop: 48000, Start Num: 7
Candidate Starts for Groupthink_89:
(Start: 4 @48335 has 5 MA's), (5, 48317), (Start: 7 @48308 has 81 MA's), (12, 48242), (17, 48167), (18, 48134), (20, 48044),

Gene: Grub_87 Start: 48550, Stop: 48242, Start Num: 7
Candidate Starts for Grub_87:
(Start: 4 @48577 has 5 MA's), (5, 48559), (Start: 7 @48550 has 81 MA's), (12, 48484), (17, 48409), (18, 48376), (20, 48286),

Gene: Grum1_89 Start: 48479, Stop: 48171, Start Num: 7
Candidate Starts for Grum1_89:
(Start: 4 @48506 has 5 MA's), (5, 48488), (Start: 7 @48479 has 81 MA's), (10, 48422), (12, 48413), (17, 48338), (18, 48305), (20, 48215),

Gene: GtownJaz_90 Start: 48558, Stop: 48250, Start Num: 7
Candidate Starts for GtownJaz_90:
(Start: 4 @48585 has 5 MA's), (5, 48567), (Start: 7 @48558 has 81 MA's), (9, 48504), (12, 48492), (17, 48417), (18, 48384), (20, 48294),

Gene: Gwennie_89 Start: 48480, Stop: 48172, Start Num: 7
Candidate Starts for Gwennie_89:
(Start: 4 @48507 has 5 MA's), (5, 48489), (Start: 7 @48480 has 81 MA's), (10, 48423), (12, 48414), (17, 48339), (18, 48306), (20, 48216),

Gene: Harlequin_67 Start: 44664, Stop: 44323, Start Num: 3
Candidate Starts for Harlequin_67:
(Start: 3 @44664 has 36 MA's), (10, 44568), (14, 44535), (16, 44514), (18, 44448), (19, 44424),

Gene: HashRod_90 Start: 48501, Stop: 48193, Start Num: 7
Candidate Starts for HashRod_90:
(Start: 4 @48528 has 5 MA's), (5, 48510), (Start: 7 @48501 has 81 MA's), (10, 48444), (12, 48435), (17, 48360), (18, 48327), (20, 48237),

Gene: HaveUMetTed_89 Start: 48296, Stop: 47988, Start Num: 7
Candidate Starts for HaveUMetTed_89:
(5, 48305), (Start: 7 @48296 has 81 MA's), (12, 48230), (17, 48155), (18, 48122), (20, 48032),

Gene: Heliosoles_86 Start: 48312, Stop: 48004, Start Num: 7
Candidate Starts for Heliosoles_86:
(Start: 4 @48339 has 5 MA's), (5, 48321), (Start: 7 @48312 has 81 MA's), (12, 48246), (17, 48171), (18, 48138), (20, 48048),

Gene: Hercules11_89 Start: 48488, Stop: 48180, Start Num: 7
Candidate Starts for Hercules11_89:
(Start: 4 @48515 has 5 MA's), (5, 48497), (Start: 7 @48488 has 81 MA's), (10, 48431), (12, 48422), (17, 48347), (18, 48314), (20, 48224),

Gene: Hiro_67 Start: 45135, Stop: 44794, Start Num: 3
Candidate Starts for Hiro_67:
(Start: 3 @45135 has 36 MA's), (10, 45039), (14, 45006), (16, 44985), (18, 44919), (19, 44895),

Gene: JHC117_84 Start: 48474, Stop: 48166, Start Num: 7
Candidate Starts for JHC117_84:
(Start: 4 @48501 has 5 MA's), (5, 48483), (Start: 7 @48474 has 81 MA's), (10, 48417), (12, 48408), (17, 48333), (18, 48300), (20, 48210),

Gene: JenCasNa_90 Start: 48474, Stop: 48166, Start Num: 7
Candidate Starts for JenCasNa_90:
(Start: 4 @48501 has 5 MA's), (5, 48483), (Start: 7 @48474 has 81 MA's), (10, 48417), (12, 48408), (17, 48333), (18, 48300), (20, 48210),

Gene: JeppNRM_89 Start: 48310, Stop: 48002, Start Num: 7
Candidate Starts for JeppNRM_89:
(Start: 4 @48337 has 5 MA's), (5, 48319), (Start: 7 @48310 has 81 MA's), (12, 48244), (17, 48169), (18, 48136), (20, 48046),

Gene: Jester_66 Start: 44595, Stop: 44254, Start Num: 3
Candidate Starts for Jester_66:
(Start: 3 @44595 has 36 MA's), (10, 44499), (14, 44466), (16, 44445), (18, 44379), (19, 44355),

Gene: Jflix2_105 Start: 60673, Stop: 60356, Start Num: 7
Candidate Starts for Jflix2_105:
(Start: 7 @60673 has 81 MA's), (18, 60493), (22, 60379), (23, 60373),

Gene: Jobu08_85 Start: 48384, Stop: 48076, Start Num: 7
Candidate Starts for Jobu08_85:
(Start: 4 @48411 has 5 MA's), (5, 48393), (Start: 7 @48384 has 81 MA's), (12, 48318), (17, 48243), (18, 48210), (20, 48120),

Gene: KADY_86 Start: 48506, Stop: 48198, Start Num: 7
Candidate Starts for KADY_86:
(Start: 4 @48533 has 5 MA's), (5, 48515), (Start: 7 @48506 has 81 MA's), (10, 48449), (12, 48440), (17, 48365), (18, 48332), (20, 48242),

Gene: Kalb97_89 Start: 47678, Stop: 47370, Start Num: 7
Candidate Starts for Kalb97_89:
(Start: 4 @47705 has 5 MA's), (5, 47687), (Start: 7 @47678 has 81 MA's), (12, 47612), (17, 47537), (18, 47504), (20, 47414),

Gene: Kalnoky_89 Start: 48305, Stop: 47997, Start Num: 7

Candidate Starts for Kalnoky_89:
(Start: 4 @48332 has 5 MA's), (5, 48314), (Start: 7 @48305 has 81 MA's), (12, 48239), (17, 48164), (18, 48131), (20, 48041),

Gene: Krishelle_67 Start: 45243, Stop: 44902, Start Num: 3
Candidate Starts for Krishelle_67:
(Start: 3 @45243 has 36 MA's), (10, 45147), (14, 45114), (16, 45093), (18, 45027), (19, 45003),

Gene: LBerry_91 Start: 48561, Stop: 48253, Start Num: 7
Candidate Starts for LBerry_91:
(Start: 4 @48588 has 5 MA's), (5, 48570), (Start: 7 @48561 has 81 MA's), (12, 48495), (17, 48420), (18, 48387), (20, 48297),

Gene: LarryKay_89 Start: 48510, Stop: 48202, Start Num: 7
Candidate Starts for LarryKay_89:
(Start: 4 @48537 has 5 MA's), (5, 48519), (Start: 7 @48510 has 81 MA's), (10, 48453), (12, 48444), (17, 48369), (18, 48336), (20, 48246),

Gene: Lilith_87 Start: 48550, Stop: 48242, Start Num: 7
Candidate Starts for Lilith_87:
(Start: 4 @48577 has 5 MA's), (5, 48559), (Start: 7 @48550 has 81 MA's), (12, 48484), (17, 48409), (18, 48376), (20, 48286),

Gene: Lillie_67 Start: 44874, Stop: 44533, Start Num: 3
Candidate Starts for Lillie_67:
(Start: 3 @44874 has 36 MA's), (10, 44778), (14, 44745), (16, 44724), (18, 44658), (19, 44634),

Gene: LogiBear_89 Start: 48885, Stop: 48517, Start Num: 2
Candidate Starts for LogiBear_89:
(2, 48885), (Start: 7 @48852 has 81 MA's), (8, 48801), (14, 48762), (18, 48675),

Gene: Louie6_88 Start: 48507, Stop: 48199, Start Num: 7
Candidate Starts for Louie6_88:
(Start: 4 @48534 has 5 MA's), (5, 48516), (Start: 7 @48507 has 81 MA's), (10, 48450), (12, 48441), (17, 48366), (18, 48333), (20, 48243),

Gene: Lowa_90 Start: 48549, Stop: 48241, Start Num: 7
Candidate Starts for Lowa_90:
(Start: 4 @48576 has 5 MA's), (5, 48558), (Start: 7 @48549 has 81 MA's), (12, 48483), (17, 48408), (18, 48375), (20, 48285),

Gene: LugYA_92 Start: 48475, Stop: 48167, Start Num: 7
Candidate Starts for LugYA_92:
(Start: 4 @48502 has 5 MA's), (5, 48484), (Start: 7 @48475 has 81 MA's), (10, 48418), (12, 48409), (17, 48334), (18, 48301), (20, 48211),

Gene: MadMarie_87 Start: 48558, Stop: 48250, Start Num: 7
Candidate Starts for MadMarie_87:
(Start: 4 @48585 has 5 MA's), (5, 48567), (Start: 7 @48558 has 81 MA's), (12, 48492), (17, 48417), (18, 48384), (20, 48294),

Gene: Madraxi_107 Start: 62702, Stop: 62415, Start Num: 7
Candidate Starts for Madraxi_107:

(1, 62765), (Start: 7 @62702 has 81 MA's), (18, 62513),

Gene: Mainiac_89 Start: 48550, Stop: 48242, Start Num: 7
Candidate Starts for Mainiac_89:
(Start: 4 @48577 has 5 MA's), (5, 48559), (Start: 7 @48550 has 81 MA's), (12, 48484), (17, 48409), (18, 48376), (20, 48286),

Gene: Malinsilva_93 Start: 48549, Stop: 48241, Start Num: 7
Candidate Starts for Malinsilva_93:
(Start: 4 @48576 has 5 MA's), (5, 48558), (Start: 7 @48549 has 81 MA's), (12, 48483), (17, 48408), (18, 48375), (20, 48285),

Gene: Manu_88 Start: 48312, Stop: 48004, Start Num: 7
Candidate Starts for Manu_88:
(Start: 4 @48339 has 5 MA's), (5, 48321), (Start: 7 @48312 has 81 MA's), (12, 48246), (17, 48171), (18, 48138), (20, 48048),

Gene: MarQuardt_89 Start: 48478, Stop: 48170, Start Num: 7
Candidate Starts for MarQuardt_89:
(Start: 4 @48505 has 5 MA's), (5, 48487), (Start: 7 @48478 has 81 MA's), (10, 48421), (12, 48412), (17, 48337), (18, 48304), (20, 48214),

Gene: Marie_87 Start: 48474, Stop: 48166, Start Num: 7
Candidate Starts for Marie_87:
(Start: 4 @48501 has 5 MA's), (5, 48483), (Start: 7 @48474 has 81 MA's), (10, 48417), (12, 48408), (17, 48333), (18, 48300), (20, 48210),

Gene: Marius_89 Start: 48305, Stop: 47997, Start Num: 7
Candidate Starts for Marius_89:
(Start: 4 @48332 has 5 MA's), (5, 48314), (Start: 7 @48305 has 81 MA's), (12, 48239), (17, 48164), (18, 48131), (20, 48041),

Gene: Methuselah_82 Start: 48500, Stop: 48192, Start Num: 7
Candidate Starts for Methuselah_82:
(Start: 4 @48527 has 5 MA's), (5, 48509), (Start: 7 @48500 has 81 MA's), (10, 48443), (12, 48434), (17, 48359), (18, 48326), (20, 48236),

Gene: Microwolf_85 Start: 48573, Stop: 48265, Start Num: 7
Candidate Starts for Microwolf_85:
(Start: 4 @48600 has 5 MA's), (5, 48582), (Start: 7 @48573 has 81 MA's), (12, 48507), (17, 48432), (18, 48399), (20, 48309),

Gene: Misomonster_85 Start: 46112, Stop: 45804, Start Num: 7
Candidate Starts for Misomonster_85:
(Start: 4 @46139 has 5 MA's), (5, 46121), (Start: 7 @46112 has 81 MA's), (10, 46055), (12, 46046), (17, 45971), (18, 45938), (20, 45848),

Gene: MoneyMay_89 Start: 48474, Stop: 48166, Start Num: 7
Candidate Starts for MoneyMay_89:
(Start: 4 @48501 has 5 MA's), (5, 48483), (Start: 7 @48474 has 81 MA's), (10, 48417), (12, 48408), (17, 48333), (18, 48300), (20, 48210),

Gene: Montavir_84 Start: 48476, Stop: 48168, Start Num: 7

Candidate Starts for Montavir_84:
(Start: 4 @48503 has 5 MA's), (5, 48485), (Start: 7 @48476 has 81 MA's), (10, 48419), (12, 48410), (17, 48335), (18, 48302), (20, 48212),

Gene: Naiad_66 Start: 44896, Stop: 44555, Start Num: 3
Candidate Starts for Naiad_66:
(Start: 3 @44896 has 36 MA's), (10, 44800), (14, 44767), (16, 44746), (18, 44680), (19, 44656),

Gene: Nancinator_66 Start: 44213, Stop: 43872, Start Num: 3
Candidate Starts for Nancinator_66:
(Start: 3 @44213 has 36 MA's), (10, 44117), (14, 44084), (16, 44063), (18, 43997), (19, 43973),

Gene: Natosaleda_66 Start: 44814, Stop: 44473, Start Num: 3
Candidate Starts for Natosaleda_66:
(Start: 3 @44814 has 36 MA's), (10, 44718), (14, 44685), (16, 44664), (18, 44598), (19, 44574),

Gene: OlanP_87 Start: 48483, Stop: 48175, Start Num: 7
Candidate Starts for OlanP_87:
(Start: 4 @48510 has 5 MA's), (5, 48492), (Start: 7 @48483 has 81 MA's), (12, 48417), (17, 48342), (18, 48309), (20, 48219),

Gene: Ollie_90 Start: 48428, Stop: 48120, Start Num: 7
Candidate Starts for Ollie_90:
(Start: 4 @48455 has 5 MA's), (5, 48437), (Start: 7 @48428 has 81 MA's), (12, 48362), (17, 48287), (18, 48254), (20, 48164),

Gene: P28Green_89 Start: 48482, Stop: 48174, Start Num: 7
Candidate Starts for P28Green_89:
(Start: 4 @48509 has 5 MA's), (5, 48491), (Start: 7 @48482 has 81 MA's), (10, 48425), (12, 48416), (17, 48341), (18, 48308), (20, 48218),

Gene: PGHhamlin_92 Start: 48549, Stop: 48241, Start Num: 7
Candidate Starts for PGHhamlin_92:
(Start: 4 @48576 has 5 MA's), (5, 48558), (Start: 7 @48549 has 81 MA's), (10, 48492), (12, 48483), (17, 48408), (18, 48375), (20, 48285),

Gene: Partridge_68 Start: 45356, Stop: 45015, Start Num: 3
Candidate Starts for Partridge_68:
(Start: 3 @45356 has 36 MA's), (14, 45227), (16, 45206), (18, 45140), (19, 45116),

Gene: Pawn_87 Start: 48312, Stop: 48004, Start Num: 7
Candidate Starts for Pawn_87:
(Start: 4 @48339 has 5 MA's), (5, 48321), (Start: 7 @48312 has 81 MA's), (12, 48246), (17, 48171), (18, 48138), (20, 48048),

Gene: Pembroke_90 Start: 48558, Stop: 48250, Start Num: 7
Candidate Starts for Pembroke_90:
(Start: 4 @48585 has 5 MA's), (5, 48567), (Start: 7 @48558 has 81 MA's), (12, 48492), (17, 48417), (18, 48384), (20, 48294),

Gene: Penny1_89 Start: 48480, Stop: 48172, Start Num: 7
Candidate Starts for Penny1_89:

(Start: 4 @48507 has 5 MA's), (5, 48489), (Start: 7 @48480 has 81 MA's), (10, 48423), (12, 48414), (17, 48339), (18, 48306), (20, 48216),

Gene: PhailMary_64 Start: 43891, Stop: 43550, Start Num: 3
Candidate Starts for PhailMary_64:
(Start: 3 @43891 has 36 MA's), (10, 43795), (14, 43762), (16, 43741), (18, 43675), (19, 43651),

Gene: PhishRPhriends_85 Start: 47492, Stop: 47184, Start Num: 7
Candidate Starts for PhishRPhriends_85:
(Start: 4 @47519 has 5 MA's), (5, 47501), (Start: 7 @47492 has 81 MA's), (12, 47426), (17, 47351), (18, 47318), (20, 47228),

Gene: Phoebe_90 Start: 48472, Stop: 48164, Start Num: 7
Candidate Starts for Phoebe_90:
(Start: 4 @48499 has 5 MA's), (5, 48481), (Start: 7 @48472 has 81 MA's), (10, 48415), (12, 48406), (17, 48331), (18, 48298), (20, 48208),

Gene: Phrankenstein_67 Start: 44820, Stop: 44479, Start Num: 3
Candidate Starts for Phrankenstein_67:
(Start: 3 @44820 has 36 MA's), (10, 44724), (14, 44691), (16, 44670), (18, 44604), (19, 44580),

Gene: Phranny_81 Start: 45760, Stop: 45452, Start Num: 7
Candidate Starts for Phranny_81:
(Start: 4 @45787 has 5 MA's), (5, 45769), (Start: 7 @45760 has 81 MA's), (12, 45694), (17, 45619), (18, 45586), (20, 45496),

Gene: PotatoSplit_90 Start: 48480, Stop: 48172, Start Num: 7
Candidate Starts for PotatoSplit_90:
(Start: 4 @48507 has 5 MA's), (5, 48489), (Start: 7 @48480 has 81 MA's), (10, 48423), (12, 48414), (17, 48339), (18, 48306), (20, 48216),

Gene: PurpleHaze_83 Start: 46331, Stop: 46023, Start Num: 7
Candidate Starts for PurpleHaze_83:
(Start: 4 @46358 has 5 MA's), (5, 46340), (Start: 7 @46331 has 81 MA's), (12, 46265), (17, 46190), (18, 46157), (20, 46067),

Gene: RER2_61 Start: 41746, Stop: 41405, Start Num: 3
Candidate Starts for RER2_61:
(Start: 3 @41746 has 36 MA's), (10, 41650), (14, 41617), (16, 41596), (18, 41530), (19, 41506),

Gene: RGL3_62 Start: 43307, Stop: 42999, Start Num: 3
Candidate Starts for RGL3_62:
(Start: 3 @43307 has 36 MA's), (6, 43283), (11, 43229), (14, 43202), (18, 43115),

Gene: Rasputin_67 Start: 44844, Stop: 44503, Start Num: 3
Candidate Starts for Rasputin_67:
(Start: 3 @44844 has 36 MA's), (10, 44748), (14, 44715), (16, 44694), (18, 44628), (19, 44604),

Gene: Reba_84 Start: 47148, Stop: 46840, Start Num: 7
Candidate Starts for Reba_84:
(Start: 4 @47175 has 5 MA's), (5, 47157), (Start: 7 @47148 has 81 MA's), (12, 47082), (17, 47007), (18, 46974), (20, 46884),

Gene: RexFury_66 Start: 44904, Stop: 44563, Start Num: 3
Candidate Starts for RexFury_66:
(Start: 3 @44904 has 36 MA's), (10, 44808), (14, 44775), (16, 44754), (18, 44688), (19, 44664),

Gene: Rhodalysa_67 Start: 44874, Stop: 44533, Start Num: 3
Candidate Starts for Rhodalysa_67:
(Start: 3 @44874 has 36 MA's), (10, 44778), (14, 44745), (16, 44724), (18, 44658), (19, 44634),

Gene: Rummer_88 Start: 48504, Stop: 48196, Start Num: 7
Candidate Starts for Rummer_88:
(Start: 4 @48531 has 5 MA's), (5, 48513), (Start: 7 @48504 has 81 MA's), (10, 48447), (12, 48438), (17, 48363), (18, 48330), (20, 48240),

Gene: SFuller_106 Start: 61412, Stop: 61119, Start Num: 7
Candidate Starts for SFuller_106:
(Start: 7 @61412 has 81 MA's), (18, 61232), (21, 61136),

Gene: Sabia_87 Start: 48592, Stop: 48257, Start Num: 4
Candidate Starts for Sabia_87:
(Start: 4 @48592 has 5 MA's), (5, 48574), (Start: 7 @48565 has 81 MA's), (12, 48499), (17, 48424), (18, 48391), (20, 48301),

Gene: Sabinator_87 Start: 48478, Stop: 48170, Start Num: 7
Candidate Starts for Sabinator_87:
(Start: 4 @48505 has 5 MA's), (5, 48487), (Start: 7 @48478 has 81 MA's), (10, 48421), (12, 48412), (17, 48337), (18, 48304), (20, 48214),

Gene: Shuman_68 Start: 44825, Stop: 44484, Start Num: 3
Candidate Starts for Shuman_68:
(Start: 3 @44825 has 36 MA's), (10, 44729), (14, 44696), (16, 44675), (18, 44609), (19, 44585),

Gene: Snickers_90 Start: 48530, Stop: 48222, Start Num: 7
Candidate Starts for Snickers_90:
(Start: 4 @48557 has 5 MA's), (5, 48539), (Start: 7 @48530 has 81 MA's), (12, 48464), (15, 48428), (17, 48389), (18, 48356), (20, 48266),

Gene: SoYo_86 Start: 48392, Stop: 48084, Start Num: 7
Candidate Starts for SoYo_86:
(Start: 4 @48419 has 5 MA's), (5, 48401), (Start: 7 @48392 has 81 MA's), (10, 48335), (12, 48326), (17, 48251), (18, 48218), (20, 48128),

Gene: SoilDragon_90 Start: 48027, Stop: 47692, Start Num: 4
Candidate Starts for SoilDragon_90:
(Start: 4 @48027 has 5 MA's), (5, 48009), (Start: 7 @48000 has 81 MA's), (12, 47934), (17, 47859), (18, 47826), (20, 47736),

Gene: Soshari_91 Start: 48500, Stop: 48192, Start Num: 7
Candidate Starts for Soshari_91:
(Start: 4 @48527 has 5 MA's), (5, 48509), (Start: 7 @48500 has 81 MA's), (10, 48443), (12, 48434), (17, 48359), (18, 48326), (20, 48236),

Gene: Spike509_90 Start: 48582, Stop: 48274, Start Num: 7
Candidate Starts for Spike509_90:

(Start: 4 @48609 has 5 MA's), (5, 48591), (Start: 7 @48582 has 81 MA's), (10, 48525), (12, 48516), (17, 48441), (18, 48408), (20, 48318),

Gene: StCroix_66 Start: 44896, Stop: 44555, Start Num: 3
Candidate Starts for StCroix_66:
(Start: 3 @44896 has 36 MA's), (10, 44800), (14, 44767), (16, 44746), (18, 44680), (19, 44656),

Gene: Stagni_86 Start: 48560, Stop: 48252, Start Num: 7
Candidate Starts for Stagni_86:
(Start: 4 @48587 has 5 MA's), (5, 48569), (Start: 7 @48560 has 81 MA's), (12, 48494), (17, 48419), (18, 48386), (20, 48296),

Gene: StepMih_90 Start: 48551, Stop: 48243, Start Num: 7
Candidate Starts for StepMih_90:
(Start: 4 @48578 has 5 MA's), (5, 48560), (Start: 7 @48551 has 81 MA's), (12, 48485), (17, 48410), (18, 48377), (20, 48287),

Gene: Swann_67 Start: 44872, Stop: 44531, Start Num: 3
Candidate Starts for Swann_67:
(Start: 3 @44872 has 36 MA's), (10, 44776), (14, 44743), (16, 44722), (18, 44656), (19, 44632),

Gene: TWAMP_67 Start: 44874, Stop: 44533, Start Num: 3
Candidate Starts for TWAMP_67:
(Start: 3 @44874 has 36 MA's), (10, 44778), (14, 44745), (16, 44724), (18, 44658), (19, 44634),

Gene: Takoda_69 Start: 45200, Stop: 44859, Start Num: 3
Candidate Starts for Takoda_69:
(Start: 3 @45200 has 36 MA's), (10, 45104), (14, 45071), (16, 45050), (18, 44984), (19, 44960),

Gene: Taurus_90 Start: 48474, Stop: 48166, Start Num: 7
Candidate Starts for Taurus_90:
(Start: 4 @48501 has 5 MA's), (5, 48483), (Start: 7 @48474 has 81 MA's), (10, 48417), (12, 48408), (17, 48333), (18, 48300), (20, 48210),

Gene: Tiffany_88 Start: 48364, Stop: 48056, Start Num: 7
Candidate Starts for Tiffany_88:
(Start: 4 @48391 has 5 MA's), (5, 48373), (Start: 7 @48364 has 81 MA's), (10, 48307), (12, 48298), (17, 48223), (18, 48190), (20, 48100),

Gene: TinyPebbles_88 Start: 48508, Stop: 48200, Start Num: 7
Candidate Starts for TinyPebbles_88:
(Start: 4 @48535 has 5 MA's), (5, 48517), (Start: 7 @48508 has 81 MA's), (10, 48451), (12, 48442), (17, 48367), (18, 48334), (20, 48244),

Gene: UhSalsa_67 Start: 44815, Stop: 44474, Start Num: 3
Candidate Starts for UhSalsa_67:
(Start: 3 @44815 has 36 MA's), (10, 44719), (14, 44686), (16, 44665), (18, 44599), (19, 44575),

Gene: Vix_85 Start: 48559, Stop: 48251, Start Num: 7
Candidate Starts for Vix_85:
(Start: 4 @48586 has 5 MA's), (5, 48568), (Start: 7 @48559 has 81 MA's), (10, 48502), (12, 48493), (17, 48418), (18, 48385), (20, 48295),

Gene: Watson_89 Start: 48549, Stop: 48241, Start Num: 7
Candidate Starts for Watson_89:
(Start: 4 @48576 has 5 MA's), (5, 48558), (Start: 7 @48549 has 81 MA's), (12, 48483), (17, 48408), (18, 48375), (20, 48285),

Gene: Wooldri_91 Start: 48385, Stop: 48077, Start Num: 7
Candidate Starts for Wooldri_91:
(Start: 4 @48412 has 5 MA's), (5, 48394), (Start: 7 @48385 has 81 MA's), (10, 48328), (12, 48319), (17, 48244), (18, 48211), (20, 48121),

Gene: Yogi_68 Start: 45225, Stop: 44884, Start Num: 3
Candidate Starts for Yogi_68:
(Start: 3 @45225 has 36 MA's), (10, 45129), (14, 45096), (16, 45075), (18, 45009), (19, 44985),

Gene: Yoncess_66 Start: 44633, Stop: 44292, Start Num: 3
Candidate Starts for Yoncess_66:
(Start: 3 @44633 has 36 MA's), (10, 44537), (14, 44504), (16, 44483), (18, 44417), (19, 44393),

Gene: Zetzy_81 Start: 45966, Stop: 45631, Start Num: 4
Candidate Starts for Zetzy_81:
(Start: 4 @45966 has 5 MA's), (5, 45948), (Start: 7 @45939 has 81 MA's), (12, 45873), (13, 45867), (17, 45798), (18, 45765), (20, 45675),