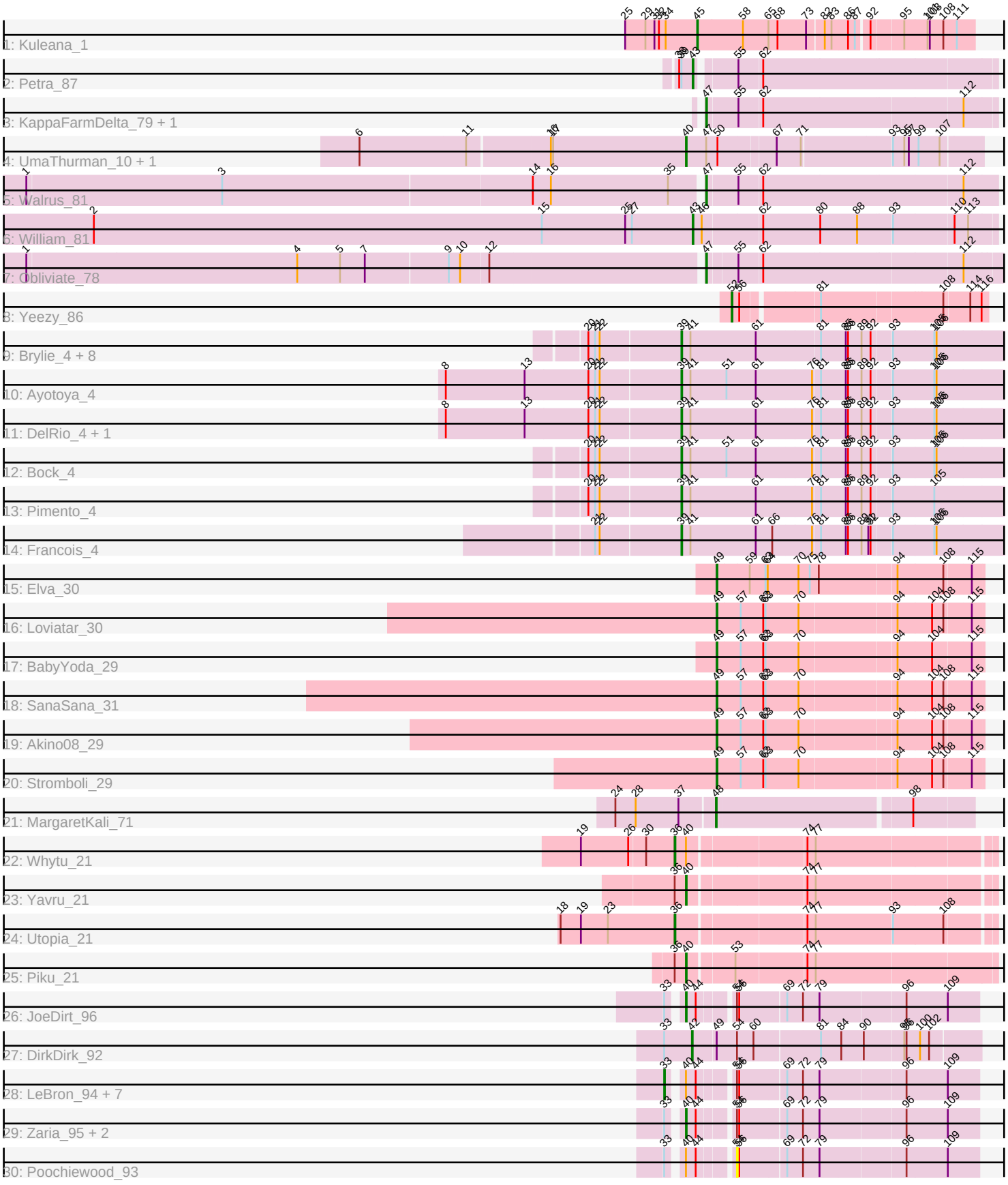
Pham 330948


1: Kuleana_1
2: Petra_87
3: KappaFarmDelta_79 + 1
4: UmaThurman_10 + 1
5: Walrus_81
6: William_81
7: Obliviate_78
8: Yeezy_86
9: Brylie_4 + 8
10: Ayotoya_4
11: DelRio_4 + 1
12: Bock_4
13: Pimento_4
14: Francois_4
15: Elva_30
16: Loviatar_30
17: BabyYoda_29
18: SanaSana_31
19: Akino08_29
20: Stromboli_29
21: MargaretKali_71
22: Whytu_21
23: Yavru_21
24: Utopia_21
25: Piku_21
26: JoeDirt_96
27: DirkDirk_92
28: LeBron_94 + 7
29: Zaria_95 + 2
30: Poochiewood_93

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 330948 Report

This analysis was run 09/05/26 on database version 662.

Pham number 330948 has 50 members, 1 are drafts.

Phages represented in each track:
• Track 1 : Kuleana_1
• Track 2 : Petra_87
• Track 3 : KappaFarmDelta_79, PhrostedPhlake_86
• Track 4 : UmaThurman_10, Samba_10
• Track 5 : Walrus_81
• Track 6 : William_81
• Track 7 : Obliviate_78
• Track 8 : Yeezy_86
• Track 9 : Brylie_4, GrandSlam_4, Parada_4, NancyRae_4, Chop_4, Hamood_4, Nadeem_4, WheatThin_4, Mulch_4
• Track 10 : Ayotoya_4
• Track 11 : DelRio_4, BetterKatz_4
• Track 12 : Bock_4
• Track 13 : Pimento_4
• Track 14 : Francois_4
• Track 15 : Elva_30
• Track 16 : Loviatar_30
• Track 17 : BabyYoda_29
• Track 18 : SanaSana_31
• Track 19 : Akino08_29
• Track 20 : Stromboli_29
• Track 21 : MargaretKali_71
• Track 22 : Whytu_21
• Track 23 : Yavru_21
• Track 24 : Utopia_21
• Track 25 : Piku_21
• Track 26 : JoeDirt_96
• Track 27 : DirkDirk_92
• Track 28 : LeBron_94, Halena_92, OhShagHennessy_91, Rose5_96, Calm_96, CicholasNage_92, Tyson_96, MAckerman_93
• Track 29 : Zaria_95, Wamburgrxpress_94, Appletree2_94
• Track 30 : Poochiewood_93

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

The start number called the most often in the published annotations is 39, it was called in 15 of the 49 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Ayotoya_4, BetterKatz_4, Bock_4, Brylie_4, Chop_4, DelRio_4, Francois_4, GrandSlam_4, Hamood_4, Mulch_4, Nadeem_4, NancyRae_4, Parada_4, Pimento_4, WheatThin_4,

Genes that have the "Most Annotated" start but do not call it:
• Petra_87,

Genes that do not have the "Most Annotated" start:
• Akino08_29, Appletree2_94, BabyYoda_29, Calm_96, CicholasNage_92, DirkDirk_92, Elva_30, Halena_92, JoeDirt_96, KappaFarmDelta_79, Kuleana_1, LeBron_94, Loviatar_30, MAckerman_93, MargaretKali_71, Obliviate_78, OhShagHennessy_91, PhrostedPhlake_86, Piku_21, Poochiewood_93, Rose5_96, Samba_10, SanaSana_31, Stromboli_29, Tyson_96, UmaThurman_10, Utopia_21, Walrus_81, Wamburgrxpress_94, Whytu_21, William_81, Yavru_21, Yeezy_86, Zaria_95,

Summary by start number:

Start 33:
• Found in 14 of 50 (28.0%) of genes in pham
• Manual Annotations of this start: 8 of 49
• Called 57.1% of time when present
• Phage (with cluster) where this start called: Calm_96 (L1), CicholasNage_92 (L1), Halena_92 (L1), LeBron_94 (L1), MAckerman_93 (L1), OhShagHennessy_91 (L1), Rose5_96 (L1), Tyson_96 (L1),

Start 36:
• Found in 4 of 50 (8.0%) of genes in pham
• Manual Annotations of this start: 2 of 49
• Called 50.0% of time when present
• Phage (with cluster) where this start called: Utopia_21 (FE), Whytu_21 (FE),

Start 39:
• Found in 16 of 50 (32.0%) of genes in pham
• Manual Annotations of this start: 15 of 49
• Called 93.8% of time when present
• Phage (with cluster) where this start called: Ayotoya_4 (DI), BetterKatz_4 (DI), Bock_4 (DI), Brylie_4 (DI), Chop_4 (DI), DelRio_4 (DI), Francois_4 (DI), GrandSlam_4 (DI), Hamood_4 (DI), Mulch_4 (DI), Nadeem_4 (DI), NancyRae_4 (DI), Parada_4 (DI), Pimento_4 (DI), WheatThin_4 (DI),

Start 40:
• Found in 18 of 50 (36.0%) of genes in pham
• Manual Annotations of this start: 8 of 49
• Called 44.4% of time when present
• Phage (with cluster) where this start called: Appletree2_94 (L1), JoeDirt_96 (L1), Piku_21 (FE), Samba_10 (CV), UmaThurman_10 (CV), Wamburgrxpress_94 (L1), Yavru_21 (FE), Zaria_95 (L1),

Start 42:
• Found in 1 of 50 (2.0%) of genes in pham
• Manual Annotations of this start: 1 of 49
• Called 100.0% of time when present
• Phage (with cluster) where this start called: DirkDirk_92 (L1),

Start 43:
• Found in 2 of 50 (4.0%) of genes in pham
• Manual Annotations of this start: 2 of 49
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Petra_87 (CV), William_81 (CV),

Start 45:
• Found in 1 of 50 (2.0%) of genes in pham
• Manual Annotations of this start: 1 of 49
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Kuleana_1 (AS2),

Start 47:
• Found in 6 of 50 (12.0%) of genes in pham
• Manual Annotations of this start: 4 of 49
• Called 66.7% of time when present
• Phage (with cluster) where this start called: KappaFarmDelta_79 (CV), Obliviate_78 (CV), PhrostedPhlake_86 (CV), Walrus_81 (CV),

Start 48:
• Found in 1 of 50 (2.0%) of genes in pham
• Manual Annotations of this start: 1 of 49
• Called 100.0% of time when present
• Phage (with cluster) where this start called: MargaretKali_71 (FB),

Start 49:
• Found in 7 of 50 (14.0%) of genes in pham
• Manual Annotations of this start: 6 of 49
• Called 85.7% of time when present
• Phage (with cluster) where this start called: Akino08_29 (EB), BabyYoda_29 (EB), Elva_30 (EB), Loviatar_30 (EB), SanaSana_31 (EB), Stromboli_29 (EB),

Start 52:
• Found in 1 of 50 (2.0%) of genes in pham
• Manual Annotations of this start: 1 of 49
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Yeezy_86 (CZ3),

Start 54:
• Found in 14 of 50 (28.0%) of genes in pham
• No Manual Annotations of this start.
• Called 7.1% of time when present
• Phage (with cluster) where this start called: Poochiewood_93 (L1),

Summary by clusters:

There are 8 clusters represented in this pham: AS2, DI, CZ3, EB, FB, FE, L1, CV,

Info for manual annotations of cluster AS2:
•Start number 45 was manually annotated 1 time for cluster AS2.

Info for manual annotations of cluster CV:
•Start number 40 was manually annotated 2 times for cluster CV.
•Start number 43 was manually annotated 2 times for cluster CV.
•Start number 47 was manually annotated 4 times for cluster CV.

Info for manual annotations of cluster CZ3:
•Start number 52 was manually annotated 1 time for cluster CZ3.

Info for manual annotations of cluster DI:
•Start number 39 was manually annotated 15 times for cluster DI.

Info for manual annotations of cluster EB:
•Start number 49 was manually annotated 6 times for cluster EB.

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

Info for manual annotations of cluster FE:
•Start number 36 was manually annotated 2 times for cluster FE.
•Start number 40 was manually annotated 2 times for cluster FE.

Info for manual annotations of cluster L1:
•Start number 33 was manually annotated 8 times for cluster L1.
•Start number 40 was manually annotated 4 times for cluster L1.
•Start number 42 was manually annotated 1 time for cluster L1.

Gene Information:

Gene: Akino08_29 Start: 23558, Stop: 23893, Start Num: 49
Candidate Starts for Akino08_29:
(Start: 49 @23558 has 6 MA's), (57, 23588), (62, 23618), (63, 23621), (70, 23663), (94, 23786), (104, 23831), (108, 23846), (115, 23879),

Gene: Appletree2_94 Start: 59026, Stop: 59382, Start Num: 40
Candidate Starts for Appletree2_94:
(Start: 33 @59011 has 8 MA's), (Start: 40 @59026 has 8 MA's), (44, 59038), (54, 59077), (56, 59080), (69, 59137), (72, 59158), (79, 59179), (96, 59287), (109, 59341),

Gene: Ayotoya_4 Start: 1318, Stop: 1749, Start Num: 39
Candidate Starts for Ayotoya_4:
(8, 1009), (13, 1114), (20, 1198), (21, 1207), (22, 1213), (Start: 39 @1318 has 15 MA's), (41, 1330), (51, 1378), (61, 1417), (76, 1486), (81, 1495), (85, 1528), (86, 1531), (89, 1549), (92, 1561), (93, 1585), (105, 1639), (106, 1642),

Gene: BabyYoda_29 Start: 22760, Stop: 23095, Start Num: 49
Candidate Starts for BabyYoda_29:

(Start: 49 @22760 has 6 MA's), (57, 22790), (62, 22820), (63, 22823), (70, 22865), (94, 22988), (104, 23033), (115, 23081),

Gene: BetterKatz_4 Start: 1319, Stop: 1750, Start Num: 39
Candidate Starts for BetterKatz_4:
(8, 1010), (13, 1115), (20, 1199), (21, 1208), (22, 1214), (Start: 39 @1319 has 15 MA's), (41, 1331), (61, 1418), (76, 1487), (81, 1496), (85, 1529), (86, 1532), (89, 1550), (92, 1562), (93, 1586), (105, 1640), (106, 1643),

Gene: Bock_4 Start: 1066, Stop: 1497, Start Num: 39
Candidate Starts for Bock_4:
(20, 946), (21, 955), (22, 961), (Start: 39 @1066 has 15 MA's), (41, 1078), (51, 1126), (61, 1165), (76, 1234), (81, 1243), (85, 1276), (86, 1279), (89, 1297), (92, 1309), (93, 1333), (105, 1387), (106, 1390),

Gene: Brylie_4 Start: 1066, Stop: 1497, Start Num: 39
Candidate Starts for Brylie_4:
(20, 946), (21, 955), (22, 961), (Start: 39 @1066 has 15 MA's), (41, 1078), (61, 1165), (81, 1243), (85, 1276), (86, 1279), (89, 1297), (92, 1309), (93, 1333), (105, 1387), (106, 1390),

Gene: Calm_96 Start: 59262, Stop: 59633, Start Num: 33
Candidate Starts for Calm_96:
(Start: 33 @59262 has 8 MA's), (Start: 40 @59277 has 8 MA's), (44, 59289), (54, 59328), (56, 59331), (69, 59388), (72, 59409), (79, 59430), (96, 59538), (109, 59592),

Gene: Chop_4 Start: 1066, Stop: 1497, Start Num: 39
Candidate Starts for Chop_4:
(20, 946), (21, 955), (22, 961), (Start: 39 @1066 has 15 MA's), (41, 1078), (61, 1165), (81, 1243), (85, 1276), (86, 1279), (89, 1297), (92, 1309), (93, 1333), (105, 1387), (106, 1390),

Gene: CicholasNage_92 Start: 58915, Stop: 59286, Start Num: 33
Candidate Starts for CicholasNage_92:
(Start: 33 @58915 has 8 MA's), (Start: 40 @58930 has 8 MA's), (44, 58942), (54, 58981), (56, 58984), (69, 59041), (72, 59062), (79, 59083), (96, 59191), (109, 59245),

Gene: DelRio_4 Start: 1318, Stop: 1749, Start Num: 39
Candidate Starts for DelRio_4:
(8, 1009), (13, 1114), (20, 1198), (21, 1207), (22, 1213), (Start: 39 @1318 has 15 MA's), (41, 1330), (61, 1417), (76, 1486), (81, 1495), (85, 1528), (86, 1531), (89, 1549), (92, 1561), (93, 1585), (105, 1639), (106, 1642),

Gene: DirkDirk_92 Start: 58630, Stop: 58995, Start Num: 42
Candidate Starts for DirkDirk_92:
(Start: 33 @58594 has 8 MA's), (Start: 42 @58630 has 1 MA's), (Start: 49 @58660 has 6 MA's), (54, 58687), (60, 58708), (81, 58789), (84, 58816), (90, 58846), (95, 58897), (96, 58900), (100, 58918), (102, 58930),

Gene: Elva_30 Start: 22711, Stop: 23049, Start Num: 49
Candidate Starts for Elva_30:
(Start: 49 @22711 has 6 MA's), (59, 22753), (63, 22774), (64, 22777), (70, 22816), (75, 22831), (78, 22843), (94, 22942), (108, 23002), (115, 23035),

Gene: Francois_4 Start: 1068, Stop: 1499, Start Num: 39
Candidate Starts for Francois_4:

(21, 957), (22, 963), (Start: 39 @1068 has 15 MA's), (41, 1080), (61, 1167), (66, 1188), (76, 1236), (81, 1245), (85, 1278), (86, 1281), (89, 1299), (91, 1308), (92, 1311), (93, 1335), (105, 1389), (106, 1392),

Gene: GrandSlam_4 Start: 1066, Stop: 1497, Start Num: 39
Candidate Starts for GrandSlam_4:
(20, 946), (21, 955), (22, 961), (Start: 39 @1066 has 15 MA's), (41, 1078), (61, 1165), (81, 1243), (85, 1276), (86, 1279), (89, 1297), (92, 1309), (93, 1333), (105, 1387), (106, 1390),

Gene: Halena_92 Start: 58178, Stop: 58549, Start Num: 33
Candidate Starts for Halena_92:
(Start: 33 @58178 has 8 MA's), (Start: 40 @58193 has 8 MA's), (44, 58205), (54, 58244), (56, 58247), (69, 58304), (72, 58325), (79, 58346), (96, 58454), (109, 58508),

Gene: Hamood_4 Start: 1066, Stop: 1497, Start Num: 39
Candidate Starts for Hamood_4:
(20, 946), (21, 955), (22, 961), (Start: 39 @1066 has 15 MA's), (41, 1078), (61, 1165), (81, 1243), (85, 1276), (86, 1279), (89, 1297), (92, 1309), (93, 1333), (105, 1387), (106, 1390),

Gene: JoeDirt_96 Start: 59868, Stop: 60224, Start Num: 40
Candidate Starts for JoeDirt_96:
(Start: 33 @59853 has 8 MA's), (Start: 40 @59868 has 8 MA's), (44, 59880), (54, 59919), (56, 59922), (69, 59979), (72, 60000), (79, 60021), (96, 60129), (109, 60183),

Gene: KappaFarmDelta_79 Start: 48356, Stop: 48718, Start Num: 47
Candidate Starts for KappaFarmDelta_79:
(Start: 47 @48356 has 4 MA's), (55, 48395), (62, 48425), (112, 48677),

Gene: Kuleana_1 Start: 97, Stop: 444, Start Num: 45
Candidate Starts for Kuleana_1:
(25, 1), (29, 28), (31, 40), (32, 46), (34, 55), (Start: 45 @97 has 1 MA's), (58, 157), (65, 190), (68, 202), (73, 238), (82, 259), (83, 268), (86, 289), (87, 298), (92, 313), (95, 352), (101, 382), (103, 385), (108, 403), (111, 421),

Gene: LeBron_94 Start: 58485, Stop: 58856, Start Num: 33
Candidate Starts for LeBron_94:
(Start: 33 @58485 has 8 MA's), (Start: 40 @58500 has 8 MA's), (44, 58512), (54, 58551), (56, 58554), (69, 58611), (72, 58632), (79, 58653), (96, 58761), (109, 58815),

Gene: Loviatar_30 Start: 23573, Stop: 23908, Start Num: 49
Candidate Starts for Loviatar_30:
(Start: 49 @23573 has 6 MA's), (57, 23603), (62, 23633), (63, 23636), (70, 23678), (94, 23801), (104, 23846), (108, 23861), (115, 23894),

Gene: MAckerman_93 Start: 58171, Stop: 58542, Start Num: 33
Candidate Starts for MAckerman_93:
(Start: 33 @58171 has 8 MA's), (Start: 40 @58186 has 8 MA's), (44, 58198), (54, 58237), (56, 58240), (69, 58297), (72, 58318), (79, 58339), (96, 58447), (109, 58501),

Gene: MargaretKali_71 Start: 38297, Stop: 38623, Start Num: 48
Candidate Starts for MargaretKali_71:
(24, 38168), (28, 38195), (37, 38252), (Start: 48 @38297 has 1 MA's), (98, 38546),

Gene: Mulch_4 Start: 1066, Stop: 1497, Start Num: 39

Candidate Starts for Mulch_4:
(20, 946), (21, 955), (22, 961), (Start: 39 @1066 has 15 MA's), (41, 1078), (61, 1165), (81, 1243), (85, 1276), (86, 1279), (89, 1297), (92, 1309), (93, 1333), (105, 1387), (106, 1390),

Gene: Nadeem_4 Start: 1066, Stop: 1497, Start Num: 39
Candidate Starts for Nadeem_4:
(20, 946), (21, 955), (22, 961), (Start: 39 @1066 has 15 MA's), (41, 1078), (61, 1165), (81, 1243), (85, 1276), (86, 1279), (89, 1297), (92, 1309), (93, 1333), (105, 1387), (106, 1390),

Gene: NancyRae_4 Start: 1066, Stop: 1497, Start Num: 39
Candidate Starts for NancyRae_4:
(20, 946), (21, 955), (22, 961), (Start: 39 @1066 has 15 MA's), (41, 1078), (61, 1165), (81, 1243), (85, 1276), (86, 1279), (89, 1297), (92, 1309), (93, 1333), (105, 1387), (106, 1390),

Gene: Obliviate_78 Start: 47705, Stop: 48070, Start Num: 47
Candidate Starts for Obliviate_78:
(1, 46826), (4, 47183), (5, 47240), (7, 47273), (9, 47381), (10, 47396), (12, 47432), (Start: 47 @47705 has 4 MA's), (55, 47741), (62, 47771), (112, 48023),

Gene: OhShagHennessy_91 Start: 58428, Stop: 58799, Start Num: 33
Candidate Starts for OhShagHennessy_91:
(Start: 33 @58428 has 8 MA's), (Start: 40 @58443 has 8 MA's), (44, 58455), (54, 58494), (56, 58497), (69, 58554), (72, 58575), (79, 58596), (96, 58704), (109, 58758),

Gene: Parada_4 Start: 1066, Stop: 1497, Start Num: 39
Candidate Starts for Parada_4:
(20, 946), (21, 955), (22, 961), (Start: 39 @1066 has 15 MA's), (41, 1078), (61, 1165), (81, 1243), (85, 1276), (86, 1279), (89, 1297), (92, 1309), (93, 1333), (105, 1387), (106, 1390),

Gene: Petra_87 Start: 51015, Stop: 51386, Start Num: 43
Candidate Starts for Petra_87:
(38, 50997), (Start: 39 @51000 has 15 MA's), (Start: 43 @51015 has 2 MA's), (55, 51060), (62, 51090),

Gene: PhrostedPhlake_86 Start: 50781, Stop: 51143, Start Num: 47
Candidate Starts for PhrostedPhlake_86:
(Start: 47 @50781 has 4 MA's), (55, 50820), (62, 50850), (112, 51102),

Gene: Piku_21 Start: 15071, Stop: 15454, Start Num: 40
Candidate Starts for Piku_21:
(Start: 36 @15056 has 2 MA's), (Start: 40 @15071 has 8 MA's), (53, 15128), (74, 15215), (77, 15224),

Gene: Pimento_4 Start: 1066, Stop: 1497, Start Num: 39
Candidate Starts for Pimento_4:
(20, 946), (21, 955), (22, 961), (Start: 39 @1066 has 15 MA's), (41, 1078), (61, 1165), (76, 1234), (81, 1243), (85, 1276), (86, 1279), (89, 1297), (92, 1309), (93, 1333), (105, 1387),

Gene: Poochiewood_93 Start: 59891, Stop: 60196, Start Num: 54
Candidate Starts for Poochiewood_93:
(Start: 33 @59825 has 8 MA's), (Start: 40 @59840 has 8 MA's), (44, 59852), (54, 59891), (56, 59894), (69, 59951), (72, 59972), (79, 59993), (96, 60101), (109, 60155),

Gene: Rose5_96 Start: 59695, Stop: 60066, Start Num: 33
Candidate Starts for Rose5_96:

(Start: 33 @59695 has 8 MA's), (Start: 40 @59710 has 8 MA's), (44, 59722), (54, 59761), (56, 59764), (69, 59821), (72, 59842), (79, 59863), (96, 59971), (109, 60025),

Gene: Samba_10 Start: 7331, Stop: 7696, Start Num: 40
Candidate Starts for Samba_10:
(6, 6908), (11, 7046), (16, 7151), (17, 7154), (Start: 40 @7331 has 8 MA's), (Start: 47 @7358 has 4 MA's), (50, 7373), (67, 7445), (71, 7475), (93, 7586), (95, 7601), (97, 7607), (99, 7619), (107, 7646),

Gene: SanaSana_31 Start: 23223, Stop: 23558, Start Num: 49
Candidate Starts for SanaSana_31:
(Start: 49 @23223 has 6 MA's), (57, 23253), (62, 23283), (63, 23286), (70, 23328), (94, 23451), (104, 23496), (108, 23511), (115, 23544),

Gene: Stromboli_29 Start: 22757, Stop: 23092, Start Num: 49
Candidate Starts for Stromboli_29:
(Start: 49 @22757 has 6 MA's), (57, 22787), (62, 22817), (63, 22820), (70, 22862), (94, 22985), (104, 23030), (108, 23045), (115, 23078),

Gene: Tyson_96 Start: 59588, Stop: 59959, Start Num: 33
Candidate Starts for Tyson_96:
(Start: 33 @59588 has 8 MA's), (Start: 40 @59603 has 8 MA's), (44, 59615), (54, 59654), (56, 59657), (69, 59714), (72, 59735), (79, 59756), (96, 59864), (109, 59918),

Gene: UmaThurman_10 Start: 7330, Stop: 7695, Start Num: 40
Candidate Starts for UmaThurman_10:
(6, 6907), (11, 7045), (16, 7150), (17, 7153), (Start: 40 @7330 has 8 MA's), (Start: 47 @7357 has 4 MA's), (50, 7372), (67, 7444), (71, 7474), (93, 7585), (95, 7600), (97, 7606), (99, 7618), (107, 7645),

Gene: Utopia_21 Start: 14585, Stop: 14977, Start Num: 36
Candidate Starts for Utopia_21:
(18, 14435), (19, 14462), (23, 14498), (Start: 36 @14585 has 2 MA's), (74, 14744), (77, 14753), (93, 14852), (108, 14918),

Gene: Walrus_81 Start: 50574, Stop: 50942, Start Num: 47
Candidate Starts for Walrus_81:
(1, 49695), (3, 49953), (14, 50358), (16, 50382), (35, 50538), (Start: 47 @50574 has 4 MA's), (55, 50613), (62, 50643), (112, 50898),

Gene: Wamburgrxpress_94 Start: 59327, Stop: 59683, Start Num: 40
Candidate Starts for Wamburgrxpress_94:
(Start: 33 @59312 has 8 MA's), (Start: 40 @59327 has 8 MA's), (44, 59339), (54, 59378), (56, 59381), (69, 59438), (72, 59459), (79, 59480), (96, 59588), (109, 59642),

Gene: WheatThin_4 Start: 1066, Stop: 1497, Start Num: 39
Candidate Starts for WheatThin_4:
(20, 946), (21, 955), (22, 961), (Start: 39 @1066 has 15 MA's), (41, 1078), (61, 1165), (81, 1243), (85, 1276), (86, 1279), (89, 1297), (92, 1309), (93, 1333), (105, 1387), (106, 1390),

Gene: Whytu_21 Start: 14626, Stop: 15018, Start Num: 36
Candidate Starts for Whytu_21:
(19, 14506), (26, 14569), (30, 14590), (Start: 36 @14626 has 2 MA's), (Start: 40 @14641 has 8 MA's), (74, 14785), (77, 14794),

Gene: William_81 Start: 49629, Stop: 50006, Start Num: 43
Candidate Starts for William_81:
(2, 48831), (15, 49428), (25, 49539), (27, 49548), (Start: 43 @49629 has 2 MA's), (46, 49641), (62, 49716), (80, 49785), (88, 49833), (93, 49875), (110, 49953), (113, 49971),

Gene: Yavru_21 Start: 14451, Stop: 14828, Start Num: 40
Candidate Starts for Yavru_21:
(Start: 36 @14436 has 2 MA's), (Start: 40 @14451 has 8 MA's), (74, 14595), (77, 14604),

Gene: Yeezy_86 Start: 51123, Stop: 51428, Start Num: 52
Candidate Starts for Yeezy_86:
(Start: 52 @51123 has 1 MA's), (56, 51132), (81, 51219), (108, 51372), (114, 51405), (116, 51420),

Gene: Zaria_95 Start: 58742, Stop: 59098, Start Num: 40
Candidate Starts for Zaria_95:
(Start: 33 @58727 has 8 MA's), (Start: 40 @58742 has 8 MA's), (44, 58754), (54, 58793), (56, 58796), (69, 58853), (72, 58874), (79, 58895), (96, 59003), (109, 59057),