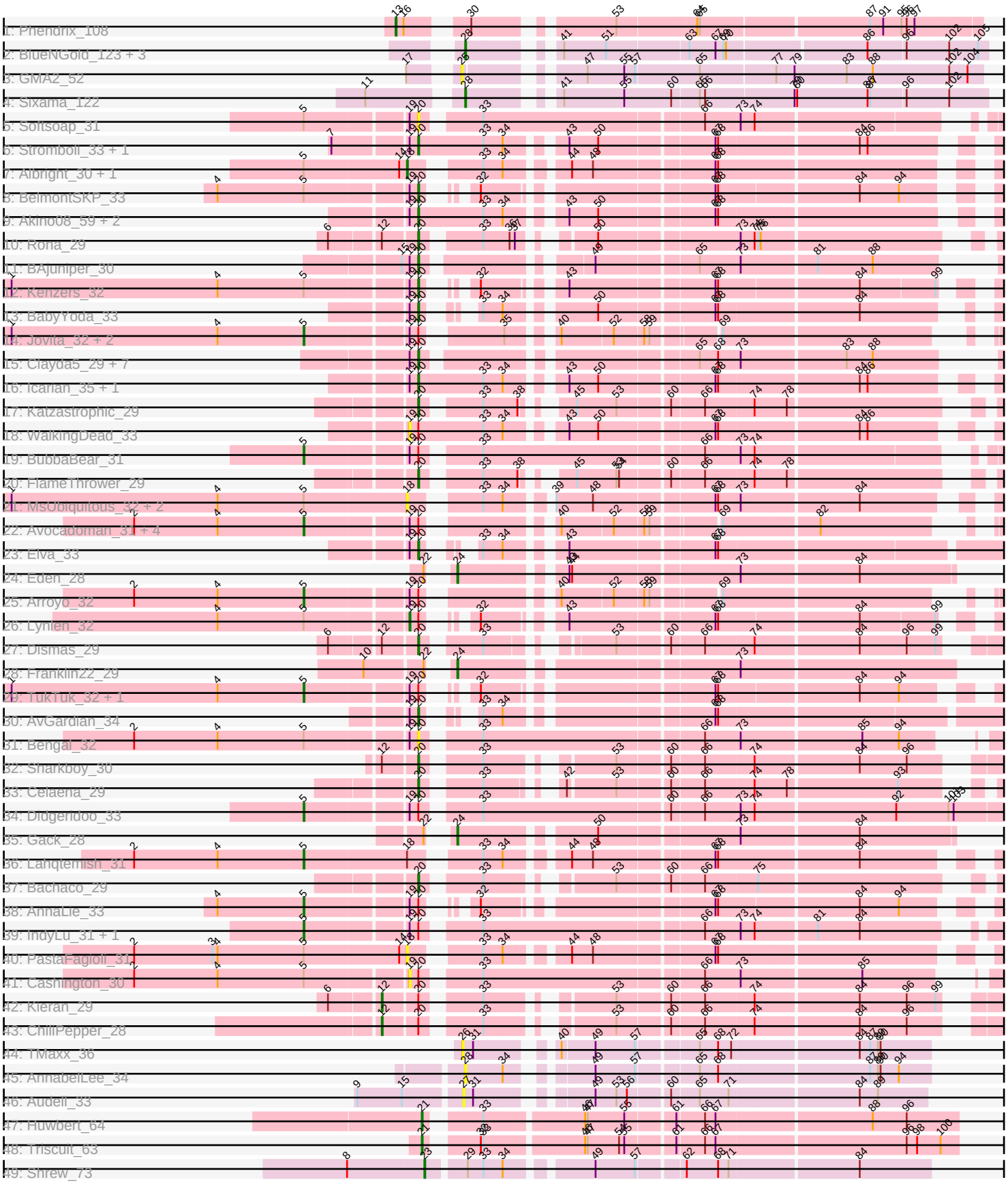
Pham 216116


1: Phendrix_108
2: BlueNGold_123 + 3
3: GMA2_52
4: Sixama_122
5: Softsoap_31
6: Stromboli_33 + 1
7: Albright_30 + 1
8: BelmontSKP_33
9: Akino08_59 + 2
10: Rona_29
11: BAjuniper_30
12: Kenzers_32
13: BabyYoda_33
14: Jovita_32 + 2
15: Clayda5_29 + 7
16: Icarian_35 + 1
17: Katzastrophic_29
18: WalkingDead_33
19: BubbaBear_31
20: FlameThrower_29
21: MsObliquitous_32 + 2
22: Avocadoman_31 + 4
23: Elva_33
24: Eden_28
25: Arroyo_32
26: Lynlen_32
27: Dismas_29
28: Franklin22_29
29: TukTuk_32 + 1
30: AvGardian_34
31: Bengal_32
32: Sharkboy_30
33: Celaena_29
34: Didgeridoo_33
35: Gack_28
36: Lanqtemish_31
37: Bachaco_29
38: AnnaLie_33
39: IndyLu_31 + 1
40: PastaFagioli_31
41: Cashington_30
42: Kieran_29
43: ChiliPepper_28
44: TMaxx_36
45: AnnabelLee_34
46: Audell_33
47: Huwbert_64
48: Triscuit_63
49: Shrew_73

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 216116 Report

This analysis was run 02/22/25 on database version 588.

Pham number 216116 has 74 members, 14 are drafts.

Phages represented in each track:
• Track 1 : Phendrix_108
• Track 2 : BlueNGold_123, Mareelih_122, Forza_124, Boopy_124
• Track 3 : GMA2_52
• Track 4 : Sixama_122
• Track 5 : Softsoap_31
• Track 6 : Stromboli_33, DirtyBubble_32
• Track 7 : Albright_30, CroZenni_31
• Track 8 : BelmontSKP_33
• Track 9 : Akino08_59, SanaSana_35, Loviatar_57
• Track 10 : Rona_29
• Track 11 : BAjuniper_30
• Track 12 : Kenzers_32
• Track 13 : BabyYoda_33
• Track 14 : Jovita_32, Swervy_32, SarBear_31
• Track 15 : Clayda5_29, Bernstein_28, Rollins_28, Coltrane_28, Armstrong_28, Skylord_28, Vitas_28, Brahms_28
• Track 16 : Icarian_35, Stoor_33
• Track 17 : Katzastrophic_29
• Track 18 : WalkingDead_33
• Track 19 : BubbaBear_31
• Track 20 : FlameThrower_29
• Track 21 : MsUbiquitous_32, Jabb_32, CupcakePrincess_32
• Track 22 : Avocadoman_31, Burritobowl_31, DickRichards_31, Doobus_31, LimaBean_31
• Track 23 : Elva_33
• Track 24 : Eden_28
• Track 25 : Arroyo_32
• Track 26 : Lynlen_32
• Track 27 : Dismas_29
• Track 28 : Franklin22_29
• Track 29 : TukTuk_32, Albedo_32
• Track 30 : AvGardian_34
• Track 31 : Bengal_32
• Track 32 : Sharkboy_30
• Track 33 : Celaena_29
• Track 34 : Didgeridoo_33
• Track 35 : Gack_28

• Track 36 : Lahqtemish_31
• Track 37 : Bachaco_29
• Track 38 : AnnaLie_33
• Track 39 : IndyLu_31, BabyDaisy_31
• Track 40 : PastaFagioli_31
• Track 41 : Cashington_30
• Track 42 : Kieran_29
• Track 43 : ChiliPepper_28
• Track 44 : TMaxx_36
• Track 45 : AnnabelLee_34
• Track 46 : Audell_33
• Track 47 : Huwbert_64
• Track 48 : Triscuit_63
• Track 49 : Shrew_73

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 26 of the 60 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Akino08_59, Armstrong_28, AvGardian_34, BAjuniper_30, BabyYoda_33, Bachaco_29, BelmontSKP_33, Bengal_32, Bernstein_28, Brahms_28, Celaena_29, Clayda5_29, Coltrane_28, DirtyBubble_32, Dismas_29, Elva_33, FlameThrower_29, Icarian_35, Katzastrophic_29, Kenzers_32, Loviatar_57, Rollins_28, Rona_29, SanaSana_35, Sharkboy_30, Skylord_28, Softsoap_31, Stoor_33, Stromboli_33, Vitas_28,

Genes that have the "Most Annotated" start but do not call it:
• Albedo_32, AnnaLie_33, Arroyo_32, Avocadoman_31, BabyDaisy_31, BubbaBear_31, Burritobowl_31, Cashington_30, ChiliPepper_28, DickRichards_31, Didgeridoo_33, Doobus_31, IndyLu_31, Jovita_32, Kieran_29, LimaBean_31, Lynlen_32, SarBear_31, Swervy_32, TukTuk_32, WalkingDead_33,

Genes that do not have the "Most Annotated" start:
• Albright_30, AnnabelLee_34, Audell_33, BlueNGold_123, Boopy_124, CroZenni_31, CupcakePrincess_32, Eden_28, Forza_124, Franklin22_29, GMA2_52, Gack_28, Huwbert_64, Jabb_32, Lahqtemish_31, Mareelih_122, MsUbiquitous_32, PastaFagioli_31, Phendrix_108, Shrew_73, Sixama_122, TMaxx_36, Triscuit_63,

Summary by start number:

Start 5:
• Found in 29 of 74 (39.2%) of genes in pham
• Manual Annotations of this start: 17 of 60
• Called 58.6% of time when present
• Phage (with cluster) where this start called: Albedo_32 (EB), AnnaLie_33 (EB), Arroyo_32 (EB), Avocadoman_31 (EB), BabyDaisy_31 (EB), BubbaBear_31 (EB), Burritobowl_31 (EB), DickRichards_31 (EB), Didgeridoo_33 (EB), Doobus_31 (EB), IndyLu_31 (EB), Jovita_32 (EB), Lahqtemish_31 (EB), LimaBean_31 (EB),

SarBear_31 (EB), Swervy_32 (EB), TukTuk_32 (EB),

Start 12:
• Found in 5 of 74 (6.8%) of genes in pham
• Manual Annotations of this start: 2 of 60
• Called 40.0% of time when present
• Phage (with cluster) where this start called: ChiliPepper_28 (EB), Kieran_29 (EB),

Start 13:
• Found in 1 of 74 (1.4%) of genes in pham
• Manual Annotations of this start: 1 of 60
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Phendrix_108 (DK),

Start 18:
• Found in 7 of 74 (9.5%) of genes in pham
• Manual Annotations of this start: 2 of 60
• Called 85.7% of time when present
• Phage (with cluster) where this start called: Albright_30 (EB), CroZenni_31 (EB), CupcakePrincess_32 (EB), Jabb_32 (EB), MsUbiquitous_32 (EB), PastaFagioli_31 (EB),

Start 19:
• Found in 42 of 74 (56.8%) of genes in pham
• Manual Annotations of this start: 1 of 60
• Called 7.1% of time when present
• Phage (with cluster) where this start called: Cashington_30 (EB), Lynlen_32 (EB), WalkingDead_33 (EB),

Start 20:
• Found in 51 of 74 (68.9%) of genes in pham
• Manual Annotations of this start: 26 of 60
• Called 58.8% of time when present
• Phage (with cluster) where this start called: Akino08_59 (EB), Armstrong_28 (EB), AvGardian_34 (EB), BAjuniper_30 (EB), BabyYoda_33 (EB), Bachaco_29 (EB), BelmontSKP_33 (EB), Bengal_32 (EB), Bernstein_28 (EB), Brahms_28 (EB), Celaena_29 (EB), Clayda5_29 (EB), Coltrane_28 (EB), DirtyBubble_32 (EB), Dismas_29 (EB), Elva_33 (EB), FlameThrower_29 (EB), Icarian_35 (EB), Katzastrophic_29 (EB), Kenzers_32 (EB), Loviatar_57 (EB), Rollins_28 (EB), Rona_29 (EB), SanaSana_35 (EB), Sharkboy_30 (EB), Skylord_28 (EB), Softsoap_31 (EB), Stoor_33 (EB), Stromboli_33 (EB), Vitas_28 (EB),

Start 21:
• Found in 2 of 74 (2.7%) of genes in pham
• Manual Annotations of this start: 2 of 60
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Huwbert_64 (GG), Triscuit_63 (GG),

Start 23:
• Found in 1 of 74 (1.4%) of genes in pham
• Manual Annotations of this start: 1 of 60
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Shrew_73 (singleton),

Start 24:
• Found in 3 of 74 (4.1%) of genes in pham
• Manual Annotations of this start: 3 of 60
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Eden_28 (EB), Franklin22_29 (EB), Gack_28 (EB),

Start 25:
• Found in 1 of 74 (1.4%) of genes in pham
• No Manual Annotations of this start.
• Called 100.0% of time when present
• Phage (with cluster) where this start called: GMA2_52 (DS),

Start 26:
• Found in 1 of 74 (1.4%) of genes in pham
• No Manual Annotations of this start.
• Called 100.0% of time when present
• Phage (with cluster) where this start called: TMaxx_36 (FR),

Start 27:
• Found in 1 of 74 (1.4%) of genes in pham
• No Manual Annotations of this start.
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Audell_33 (FR),

Start 28:
• Found in 6 of 74 (8.1%) of genes in pham
• Manual Annotations of this start: 5 of 60
• Called 100.0% of time when present
• Phage (with cluster) where this start called: AnnabelLee_34 (FR), BlueNGold_123 (DS), Boopy_124 (DS), Forza_124 (DS), Mareelih_122 (DS), Sixama_122 (DS),

Summary by clusters:

There are 6 clusters represented in this pham: FR, DK, singleton, EB, GG, DS,

Info for manual annotations of cluster DK:
•Start number 13 was manually annotated 1 time for cluster DK.

Info for manual annotations of cluster DS:
•Start number 28 was manually annotated 5 times for cluster DS.

Info for manual annotations of cluster EB:
•Start number 5 was manually annotated 17 times for cluster EB.
•Start number 12 was manually annotated 2 times for cluster EB.
•Start number 18 was manually annotated 2 times for cluster EB.
•Start number 19 was manually annotated 1 time for cluster EB.
•Start number 20 was manually annotated 26 times for cluster EB.
•Start number 24 was manually annotated 3 times for cluster EB.

Info for manual annotations of cluster GG:

•Start number 21 was manually annotated 2 times for cluster GG.

Gene Information:

Gene: Akino08_59 Start: 24925, Stop: 25521, Start Num: 20
Candidate Starts for Akino08_59:
(Start: 19 @24916 has 1 MA's), (Start: 20 @24925 has 26 MA's), (33, 25000), (34, 25021), (43, 25072), (50, 25105), (67, 25228), (68, 25231),

Gene: Albedo_32 Start: 22977, Stop: 23642, Start Num: 5
Candidate Starts for Albedo_32:
(1, 22641), (4, 22878), (Start: 5 @22977 has 17 MA's), (Start: 19 @23085 has 1 MA's), (Start: 20 @23094 has 26 MA's), (32, 23118), (67, 23346), (68, 23349), (84, 23502), (94, 23547),

Gene: Albright_30 Start: 22216, Stop: 22803, Start Num: 18
Candidate Starts for Albright_30:
(Start: 5 @22099 has 17 MA's), (14, 22207), (Start: 18 @22216 has 2 MA's), (33, 22276), (34, 22297), (44, 22354), (48, 22378), (67, 22507), (68, 22510),

Gene: AnnaLie_33 Start: 23260, Stop: 23925, Start Num: 5
Candidate Starts for AnnaLie_33:
(4, 23161), (Start: 5 @23260 has 17 MA's), (Start: 19 @23368 has 1 MA's), (Start: 20 @23377 has 26 MA's), (32, 23401), (67, 23629), (68, 23632), (84, 23785), (94, 23830),

Gene: AnnabelLee_34 Start: 22212, Stop: 21736, Start Num: 28
Candidate Starts for AnnabelLee_34:
(Start: 28 @22212 has 5 MA's), (34, 22170), (49, 22098), (57, 22053), (65, 21990), (68, 21969), (87, 21804), (89, 21795), (90, 21792), (94, 21771),

Gene: Armstrong_28 Start: 20941, Stop: 21507, Start Num: 20
Candidate Starts for Armstrong_28:
(Start: 19 @20932 has 1 MA's), (Start: 20 @20941 has 26 MA's), (65, 21208), (68, 21229), (73, 21253), (83, 21367), (88, 21397),

Gene: Arroyo_32 Start: 23288, Stop: 23941, Start Num: 5
Candidate Starts for Arroyo_32:
(2, 23093), (4, 23189), (Start: 5 @23288 has 17 MA's), (Start: 19 @23396 has 1 MA's), (Start: 20 @23405 has 26 MA's), (40, 23513), (52, 23570), (58, 23600), (59, 23606), (69, 23672),

Gene: Audell_33 Start: 24613, Stop: 24143, Start Num: 27
Candidate Starts for Audell_33:
(9, 24724), (15, 24673), (27, 24613), (31, 24604), (49, 24499), (53, 24475), (56, 24463), (60, 24421), (65, 24391), (71, 24358), (84, 24217), (89, 24196),

Gene: AvGardian_34 Start: 23607, Stop: 24188, Start Num: 20
Candidate Starts for AvGardian_34:
(Start: 19 @23598 has 1 MA's), (Start: 20 @23607 has 26 MA's), (33, 23631), (34, 23652), (67, 23859), (68, 23862),

Gene: Avocadoman_31 Start: 22453, Stop: 23106, Start Num: 5
Candidate Starts for Avocadoman_31:

(2, 22258), (4, 22354), (Start: 5 @22453 has 17 MA's), (Start: 19 @22561 has 1 MA's), (Start: 20 @22570 has 26 MA's), (40, 22678), (52, 22735), (58, 22765), (59, 22771), (69, 22837), (82, 22942),

Gene: BAjuniper_30 Start: 23839, Stop: 24396, Start Num: 20
Candidate Starts for BAjuniper_30:
(15, 23821), (Start: 19 @23830 has 1 MA's), (Start: 20 @23839 has 26 MA's), (49, 23992), (65, 24100), (73, 24145), (81, 24226), (88, 24289),

Gene: BabyDaisy_31 Start: 22831, Stop: 23553, Start Num: 5
Candidate Starts for BabyDaisy_31:
(Start: 5 @22831 has 17 MA's), (Start: 19 @22939 has 1 MA's), (Start: 20 @22948 has 26 MA's), (33, 23002), (66, 23245), (73, 23284), (74, 23299), (81, 23365), (84, 23413),

Gene: BabyYoda_33 Start: 24127, Stop: 24666, Start Num: 20
Candidate Starts for BabyYoda_33:
(Start: 19 @24118 has 1 MA's), (Start: 20 @24127 has 26 MA's), (33, 24151), (34, 24172), (50, 24256), (67, 24379), (68, 24382), (84, 24535),

Gene: Bachaco_29 Start: 24051, Stop: 24608, Start Num: 20
Candidate Starts for Bachaco_29:
(Start: 20 @24051 has 26 MA's), (33, 24105), (53, 24216), (60, 24270), (66, 24306), (75, 24363),

Gene: BelmontSKP_33 Start: 23377, Stop: 23925, Start Num: 20
Candidate Starts for BelmontSKP_33:
(4, 23161), (Start: 5 @23260 has 17 MA's), (Start: 19 @23368 has 1 MA's), (Start: 20 @23377 has 26 MA's), (32, 23401), (67, 23629), (68, 23632), (84, 23785), (94, 23830),

Gene: Bengal_32 Start: 22963, Stop: 23553, Start Num: 20
Candidate Starts for Bengal_32:
(2, 22651), (4, 22747), (Start: 5 @22846 has 17 MA's), (Start: 19 @22954 has 1 MA's), (Start: 20 @22963 has 26 MA's), (33, 23017), (66, 23260), (73, 23299), (85, 23431), (94, 23473),

Gene: Bernstein_28 Start: 20996, Stop: 21562, Start Num: 20
Candidate Starts for Bernstein_28:
(Start: 19 @20987 has 1 MA's), (Start: 20 @20996 has 26 MA's), (65, 21263), (68, 21284), (73, 21308), (83, 21422), (88, 21452),

Gene: BlueNGold_123 Start: 79020, Stop: 78475, Start Num: 28
Candidate Starts for BlueNGold_123:
(Start: 28 @79020 has 5 MA's), (41, 78942), (51, 78894), (63, 78804), (67, 78774), (69, 78765), (70, 78762), (86, 78609), (96, 78567), (102, 78519), (105, 78486),

Gene: Boopy_124 Start: 79032, Stop: 78487, Start Num: 28
Candidate Starts for Boopy_124:
(Start: 28 @79032 has 5 MA's), (41, 78954), (51, 78906), (63, 78816), (67, 78786), (69, 78777), (70, 78774), (86, 78621), (96, 78579), (102, 78531), (105, 78498),

Gene: Brahms_28 Start: 20943, Stop: 21509, Start Num: 20
Candidate Starts for Brahms_28:
(Start: 19 @20934 has 1 MA's), (Start: 20 @20943 has 26 MA's), (65, 21210), (68, 21231), (73, 21255), (83, 21369), (88, 21399),

Gene: BubbaBear_31 Start: 22778, Stop: 23494, Start Num: 5

Candidate Starts for BubbaBear_31:
(Start: 5 @22778 has 17 MA's), (Start: 19 @22886 has 1 MA's), (Start: 20 @22895 has 26 MA's), (33, 22949), (66, 23192), (73, 23231), (74, 23246),

Gene: Burritobowl_31 Start: 22845, Stop: 23498, Start Num: 5
Candidate Starts for Burritobowl_31:
(2, 22650), (4, 22746), (Start: 5 @22845 has 17 MA's), (Start: 19 @22953 has 1 MA's), (Start: 20 @22962 has 26 MA's), (40, 23070), (52, 23127), (58, 23157), (59, 23163), (69, 23229), (82, 23334),

Gene: Cashington_30 Start: 22242, Stop: 22841, Start Num: 19
Candidate Starts for Cashington_30:
(2, 21939), (4, 22035), (Start: 5 @22134 has 17 MA's), (Start: 19 @22242 has 1 MA's), (Start: 20 @22251 has 26 MA's), (33, 22305), (66, 22548), (73, 22587), (85, 22719),

Gene: Celaena_29 Start: 23736, Stop: 24290, Start Num: 20
Candidate Starts for Celaena_29:
(Start: 20 @23736 has 26 MA's), (33, 23790), (42, 23847), (53, 23898), (60, 23952), (66, 23988), (74, 24042), (78, 24078), (93, 24198),

Gene: ChiliPepper_28 Start: 23178, Stop: 23786, Start Num: 12
Candidate Starts for ChiliPepper_28:
(Start: 12 @23178 has 2 MA's), (Start: 20 @23214 has 26 MA's), (33, 23268), (53, 23379), (60, 23433), (66, 23469), (74, 23523), (84, 23637), (96, 23691),

Gene: Clayda5_29 Start: 20930, Stop: 21496, Start Num: 20
Candidate Starts for Clayda5_29:
(Start: 19 @20921 has 1 MA's), (Start: 20 @20930 has 26 MA's), (65, 21197), (68, 21218), (73, 21242), (83, 21356), (88, 21386),

Gene: Coltrane_28 Start: 20943, Stop: 21509, Start Num: 20
Candidate Starts for Coltrane_28:
(Start: 19 @20934 has 1 MA's), (Start: 20 @20943 has 26 MA's), (65, 21210), (68, 21231), (73, 21255), (83, 21369), (88, 21399),

Gene: CroZenni_31 Start: 22800, Stop: 23387, Start Num: 18
Candidate Starts for CroZenni_31:
(Start: 5 @22683 has 17 MA's), (14, 22791), (Start: 18 @22800 has 2 MA's), (33, 22860), (34, 22881), (44, 22938), (48, 22962), (67, 23091), (68, 23094),

Gene: CupcakePrincess_32 Start: 23092, Stop: 23676, Start Num: 18
Candidate Starts for CupcakePrincess_32:
(1, 22639), (4, 22876), (Start: 5 @22975 has 17 MA's), (Start: 18 @23092 has 2 MA's), (33, 23152), (34, 23173), (39, 23212), (48, 23254), (67, 23383), (68, 23386), (73, 23410), (84, 23539),

Gene: DickRichards_31 Start: 23174, Stop: 23827, Start Num: 5
Candidate Starts for DickRichards_31:
(2, 22979), (4, 23075), (Start: 5 @23174 has 17 MA's), (Start: 19 @23282 has 1 MA's), (Start: 20 @23291 has 26 MA's), (40, 23399), (52, 23456), (58, 23486), (59, 23492), (69, 23558), (82, 23663),

Gene: Didgeridoo_33 Start: 23183, Stop: 23950, Start Num: 5
Candidate Starts for Didgeridoo_33:
(Start: 5 @23183 has 17 MA's), (Start: 19 @23291 has 1 MA's), (Start: 20 @23300 has 26 MA's), (33, 23354), (60, 23561), (66, 23597), (73, 23636), (74, 23651), (92, 23807), (101, 23867), (103, 23873),

Gene: DirtyBubble_32 Start: 23754, Stop: 24350, Start Num: 20
Candidate Starts for DirtyBubble_32:
(7, 23667), (Start: 19 @23745 has 1 MA's), (Start: 20 @23754 has 26 MA's), (33, 23829), (34, 23850), (43, 23901), (50, 23934), (67, 24057), (68, 24060), (84, 24213), (86, 24222),

Gene: Dismas_29 Start: 23391, Stop: 23957, Start Num: 20
Candidate Starts for Dismas_29:
(6, 23304), (Start: 12 @23355 has 2 MA's), (Start: 20 @23391 has 26 MA's), (33, 23445), (53, 23550), (60, 23604), (66, 23640), (74, 23694), (84, 23808), (96, 23862), (99, 23895),

Gene: Doobus_31 Start: 22620, Stop: 23273, Start Num: 5
Candidate Starts for Doobus_31:
(2, 22425), (4, 22521), (Start: 5 @22620 has 17 MA's), (Start: 19 @22728 has 1 MA's), (Start: 20 @22737 has 26 MA's), (40, 22845), (52, 22902), (58, 22932), (59, 22938), (69, 23004), (82, 23109),

Gene: Eden_28 Start: 21161, Stop: 21682, Start Num: 24
Candidate Starts for Eden_28:
(22, 21152), (Start: 24 @21161 has 3 MA's), (43, 21263), (44, 21266), (73, 21446), (84, 21575),

Gene: Elva_33 Start: 23789, Stop: 24370, Start Num: 20
Candidate Starts for Elva_33:
(Start: 19 @23780 has 1 MA's), (Start: 20 @23789 has 26 MA's), (33, 23813), (34, 23834), (43, 23885), (67, 24041), (68, 24044),

Gene: FlameThrower_29 Start: 23222, Stop: 23782, Start Num: 20
Candidate Starts for FlameThrower_29:
(Start: 20 @23222 has 26 MA's), (33, 23276), (38, 23315), (45, 23345), (53, 23390), (54, 23393), (60, 23444), (66, 23480), (74, 23534), (78, 23570),

Gene: Forza_124 Start: 78948, Stop: 78403, Start Num: 28
Candidate Starts for Forza_124:
(Start: 28 @78948 has 5 MA's), (41, 78870), (51, 78822), (63, 78732), (67, 78702), (69, 78693), (70, 78690), (86, 78537), (96, 78495), (102, 78447), (105, 78414),

Gene: Franklin22_29 Start: 21323, Stop: 21847, Start Num: 24
Candidate Starts for Franklin22_29:
(10, 21251), (22, 21314), (Start: 24 @21323 has 3 MA's), (73, 21608),

Gene: GMA2_52 Start: 53375, Stop: 52827, Start Num: 25
Candidate Starts for GMA2_52:
(17, 53411), (25, 53375), (47, 53270), (55, 53228), (57, 53216), (65, 53144), (77, 53060), (79, 53039), (83, 52979), (88, 52949), (102, 52865), (104, 52844),

Gene: Gack_28 Start: 21205, Stop: 21726, Start Num: 24
Candidate Starts for Gack_28:
(22, 21196), (Start: 24 @21205 has 3 MA's), (50, 21340), (73, 21490), (84, 21619),

Gene: Huwbert_64 Start: 39565, Stop: 40128, Start Num: 21
Candidate Starts for Huwbert_64:
(Start: 21 @39565 has 2 MA's), (33, 39613), (46, 39721), (47, 39724), (55, 39766), (61, 39817), (66, 39847), (67, 39859), (88, 40030), (96, 40069),

Gene: Icarian_35 Start: 24388, Stop: 24984, Start Num: 20
Candidate Starts for Icarian_35:
(Start: 19 @24379 has 1 MA's), (Start: 20 @24388 has 26 MA's), (33, 24463), (34, 24484), (43, 24535), (50, 24568), (67, 24691), (68, 24694), (84, 24847), (86, 24856),

Gene: IndyLu_31 Start: 22792, Stop: 23514, Start Num: 5
Candidate Starts for IndyLu_31:
(Start: 5 @22792 has 17 MA's), (Start: 19 @22900 has 1 MA's), (Start: 20 @22909 has 26 MA's), (33, 22963), (66, 23206), (73, 23245), (74, 23260), (81, 23326), (84, 23374),

Gene: Jabb_32 Start: 23092, Stop: 23676, Start Num: 18
Candidate Starts for Jabb_32:
(1, 22639), (4, 22876), (Start: 5 @22975 has 17 MA's), (Start: 18 @23092 has 2 MA's), (33, 23152), (34, 23173), (39, 23212), (48, 23254), (67, 23383), (68, 23386), (73, 23410), (84, 23539),

Gene: Jovita_32 Start: 23039, Stop: 23692, Start Num: 5
Candidate Starts for Jovita_32:
(1, 22703), (4, 22940), (Start: 5 @23039 has 17 MA's), (Start: 19 @23147 has 1 MA's), (Start: 20 @23156 has 26 MA's), (35, 23225), (40, 23264), (52, 23321), (58, 23351), (59, 23357), (69, 23423),

Gene: Katzastrophic_29 Start: 23340, Stop: 23900, Start Num: 20
Candidate Starts for Katzastrophic_29:
(Start: 20 @23340 has 26 MA's), (33, 23394), (38, 23433), (45, 23463), (53, 23508), (60, 23562), (66, 23598), (74, 23652), (78, 23688),

Gene: Kenzers_32 Start: 23043, Stop: 23639, Start Num: 20
Candidate Starts for Kenzers_32:
(1, 22590), (4, 22827), (Start: 5 @22926 has 17 MA's), (Start: 19 @23034 has 1 MA's), (Start: 20 @23043 has 26 MA's), (32, 23067), (43, 23139), (67, 23295), (68, 23298), (84, 23451), (99, 23535),

Gene: Kieran_29 Start: 23358, Stop: 23966, Start Num: 12
Candidate Starts for Kieran_29:
(6, 23307), (Start: 12 @23358 has 2 MA's), (Start: 20 @23394 has 26 MA's), (33, 23448), (53, 23559), (60, 23613), (66, 23649), (74, 23703), (84, 23817), (96, 23871), (99, 23904),

Gene: Lahqtemish_31 Start: 22843, Stop: 23547, Start Num: 5
Candidate Starts for Lahqtemish_31:
(2, 22648), (4, 22744), (Start: 5 @22843 has 17 MA's), (Start: 18 @22960 has 2 MA's), (33, 23020), (34, 23041), (44, 23098), (48, 23122), (67, 23251), (68, 23254), (84, 23407),

Gene: LimaBean_31 Start: 22389, Stop: 23042, Start Num: 5
Candidate Starts for LimaBean_31:
(2, 22194), (4, 22290), (Start: 5 @22389 has 17 MA's), (Start: 19 @22497 has 1 MA's), (Start: 20 @22506 has 26 MA's), (40, 22614), (52, 22671), (58, 22701), (59, 22707), (69, 22773), (82, 22878),

Gene: Loviatar_57 Start: 24940, Stop: 25536, Start Num: 20
Candidate Starts for Loviatar_57:
(Start: 19 @24931 has 1 MA's), (Start: 20 @24940 has 26 MA's), (33, 25015), (34, 25036), (43, 25087), (50, 25120), (67, 25243), (68, 25246),

Gene: Lynlen_32 Start: 23034, Stop: 23639, Start Num: 19
Candidate Starts for Lynlen_32:

(4, 22827), (Start: 5 @22926 has 17 MA's), (Start: 19 @23034 has 1 MA's), (Start: 20 @23043 has 26 MA's), (32, 23067), (43, 23139), (67, 23295), (68, 23298), (84, 23451), (99, 23535),

Gene: Mareelih_122 Start: 78450, Stop: 77905, Start Num: 28
Candidate Starts for Mareelih_122:
(Start: 28 @78450 has 5 MA's), (41, 78372), (51, 78324), (63, 78234), (67, 78204), (69, 78195), (70, 78192), (86, 78039), (96, 77997), (102, 77949), (105, 77916),

Gene: MsUbiquitous_32 Start: 23092, Stop: 23676, Start Num: 18
Candidate Starts for MsUbiquitous_32:
(1, 22639), (4, 22876), (Start: 5 @22975 has 17 MA's), (Start: 18 @23092 has 2 MA's), (33, 23152), (34, 23173), (39, 23212), (48, 23254), (67, 23383), (68, 23386), (73, 23410), (84, 23539),

Gene: PastaFagioli_31 Start: 22945, Stop: 23532, Start Num: 18
Candidate Starts for PastaFagioli_31:
(2, 22633), (3, 22723), (4, 22729), (Start: 5 @22828 has 17 MA's), (14, 22936), (Start: 18 @22945 has 2 MA's), (33, 23005), (34, 23026), (44, 23083), (48, 23107), (67, 23236), (68, 23239),

Gene: Phendrix_108 Start: 70145, Stop: 69552, Start Num: 13
Candidate Starts for Phendrix_108:
(Start: 13 @70145 has 1 MA's), (16, 70136), (30, 70085), (53, 69953), (64, 69866), (65, 69863), (87, 69677), (91, 69662), (95, 69641), (96, 69635), (97, 69626),

Gene: Rollins_28 Start: 20996, Stop: 21562, Start Num: 20
Candidate Starts for Rollins_28:
(Start: 19 @20987 has 1 MA's), (Start: 20 @20996 has 26 MA's), (65, 21263), (68, 21284), (73, 21308), (83, 21422), (88, 21452),

Gene: Rona_29 Start: 23391, Stop: 23948, Start Num: 20
Candidate Starts for Rona_29:
(6, 23304), (Start: 12 @23355 has 2 MA's), (Start: 20 @23391 has 26 MA's), (33, 23445), (36, 23475), (37, 23481), (50, 23535), (73, 23685), (74, 23700), (75, 23703), (76, 23706),

Gene: SanaSana_35 Start: 24590, Stop: 25186, Start Num: 20
Candidate Starts for SanaSana_35:
(Start: 19 @24581 has 1 MA's), (Start: 20 @24590 has 26 MA's), (33, 24665), (34, 24686), (43, 24737), (50, 24770), (67, 24893), (68, 24896),

Gene: SarBear_31 Start: 22749, Stop: 23402, Start Num: 5
Candidate Starts for SarBear_31:
(1, 22413), (4, 22650), (Start: 5 @22749 has 17 MA's), (Start: 19 @22857 has 1 MA's), (Start: 20 @22866 has 26 MA's), (35, 22935), (40, 22974), (52, 23031), (58, 23061), (59, 23067), (69, 23133),

Gene: Sharkboy_30 Start: 23475, Stop: 24047, Start Num: 20
Candidate Starts for Sharkboy_30:
(Start: 12 @23439 has 2 MA's), (Start: 20 @23475 has 26 MA's), (33, 23529), (53, 23640), (60, 23694), (66, 23730), (74, 23784), (84, 23898), (96, 23952),

Gene: Shrew_73 Start: 43134, Stop: 43658, Start Num: 23
Candidate Starts for Shrew_73:
(8, 43047), (Start: 23 @43134 has 1 MA's), (29, 43173), (33, 43191), (34, 43212), (49, 43296), (57, 43341), (62, 43389), (68, 43425), (71, 43437), (84, 43578),

Gene: Sixama_122 Start: 78458, Stop: 77907, Start Num: 28
Candidate Starts for Sixama_122:
(11, 78548), (Start: 28 @78458 has 5 MA's), (41, 78380), (55, 78311), (60, 78260), (65, 78230), (66, 78224), (79, 78125), (80, 78122), (86, 78041), (87, 78038), (96, 77999), (102, 77951),

Gene: Skylord_28 Start: 20927, Stop: 21493, Start Num: 20
Candidate Starts for Skylord_28:
(Start: 19 @20918 has 1 MA's), (Start: 20 @20927 has 26 MA's), (65, 21194), (68, 21215), (73, 21239), (83, 21353), (88, 21383),

Gene: Softsoap_31 Start: 22801, Stop: 23400, Start Num: 20
Candidate Starts for Softsoap_31:
(Start: 5 @22684 has 17 MA's), (Start: 19 @22792 has 1 MA's), (Start: 20 @22801 has 26 MA's), (33, 22855), (66, 23098), (73, 23137), (74, 23152),

Gene: Stoor_33 Start: 24258, Stop: 24854, Start Num: 20
Candidate Starts for Stoor_33:
(Start: 19 @24249 has 1 MA's), (Start: 20 @24258 has 26 MA's), (33, 24333), (34, 24354), (43, 24405), (50, 24438), (67, 24561), (68, 24564), (84, 24717), (86, 24726),

Gene: Stromboli_33 Start: 24124, Stop: 24720, Start Num: 20
Candidate Starts for Stromboli_33:
(7, 24037), (Start: 19 @24115 has 1 MA's), (Start: 20 @24124 has 26 MA's), (33, 24199), (34, 24220), (43, 24271), (50, 24304), (67, 24427), (68, 24430), (84, 24583), (86, 24592),

Gene: Swervy_32 Start: 22916, Stop: 23569, Start Num: 5
Candidate Starts for Swervy_32:
(1, 22580), (4, 22817), (Start: 5 @22916 has 17 MA's), (Start: 19 @23024 has 1 MA's), (Start: 20 @23033 has 26 MA's), (35, 23102), (40, 23141), (52, 23198), (58, 23228), (59, 23234), (69, 23300),

Gene: TMaxx_36 Start: 22869, Stop: 22390, Start Num: 26
Candidate Starts for TMaxx_36:
(26, 22869), (31, 22857), (40, 22788), (49, 22752), (57, 22707), (65, 22644), (68, 22623), (72, 22608), (84, 22470), (87, 22458), (89, 22449), (90, 22446),

Gene: Triscuit_63 Start: 39489, Stop: 40052, Start Num: 21
Candidate Starts for Triscuit_63:
(Start: 21 @39489 has 2 MA's), (32, 39534), (33, 39537), (46, 39645), (47, 39648), (54, 39684), (55, 39690), (61, 39741), (66, 39771), (67, 39783), (96, 39993), (98, 40005), (100, 40032),

Gene: TukTuk_32 Start: 22975, Stop: 23640, Start Num: 5
Candidate Starts for TukTuk_32:
(1, 22639), (4, 22876), (Start: 5 @22975 has 17 MA's), (Start: 19 @23083 has 1 MA's), (Start: 20 @23092 has 26 MA's), (32, 23116), (67, 23344), (68, 23347), (84, 23500), (94, 23545),

Gene: Vitas_28 Start: 20936, Stop: 21502, Start Num: 20
Candidate Starts for Vitas_28:
(Start: 19 @20927 has 1 MA's), (Start: 20 @20936 has 26 MA's), (65, 21203), (68, 21224), (73, 21248), (83, 21362), (88, 21392),

Gene: WalkingDead_33 Start: 24355, Stop: 24960, Start Num: 19
Candidate Starts for WalkingDead_33:

(Start: 19 @24355 has 1 MA's), (Start: 20 @24364 has 26 MA's), (33, 24439), (34, 24460), (43, 24511), (50, 24544), (67, 24667), (68, 24670), (84, 24823), (86, 24832),