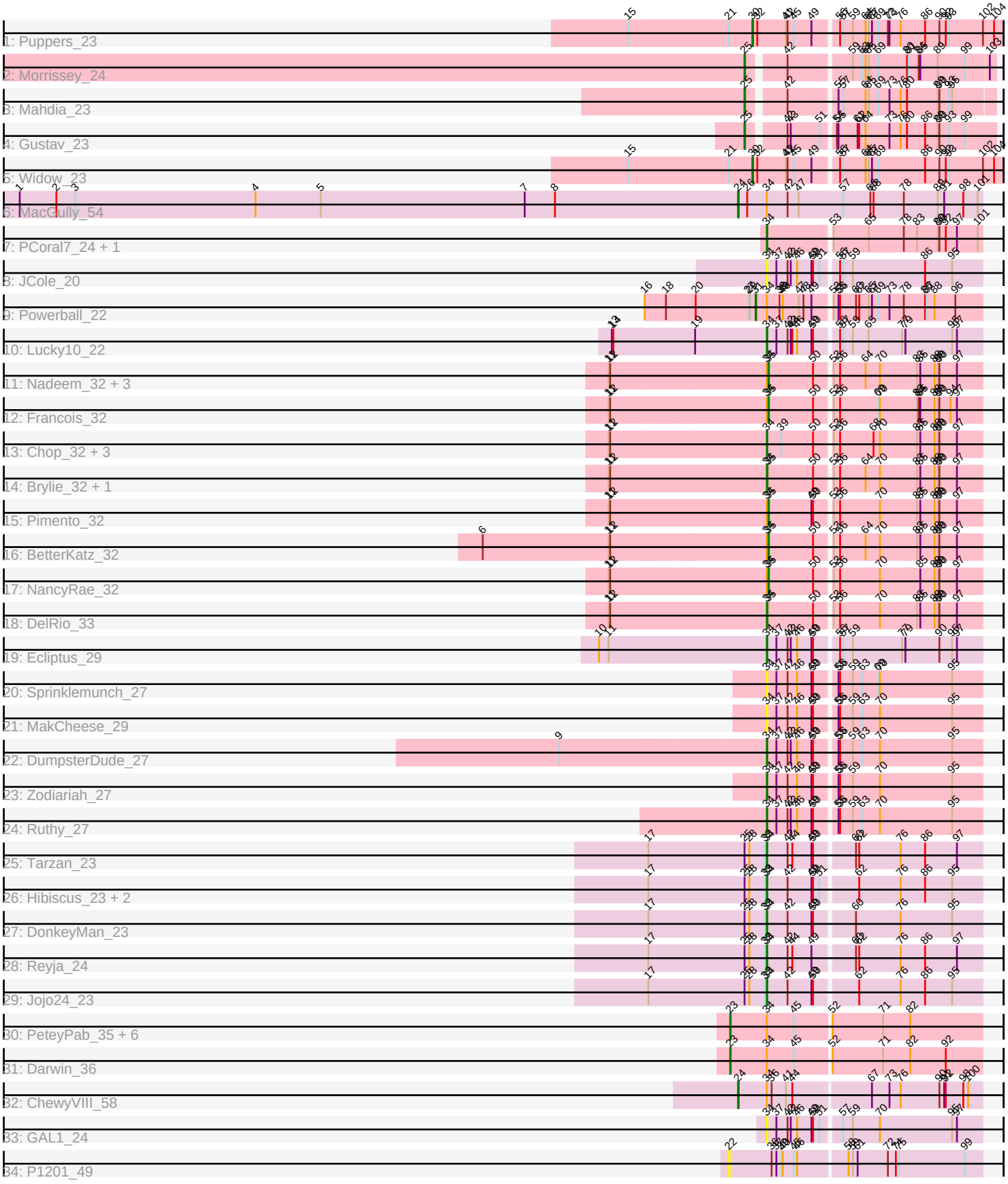
Pham 283901


1: Puppers_23
2: Morrissey_24
3: Mahdia_23
4: Gustav_23
5: Widow_23
6: MacGully_54
7: PCoral7_24 + 1
8: JCole_20
9: Powerball_22
10: Lucky10_22
11: Nadeem_32 + 3
12: Francois_32
13: Chop_32 + 3
14: Brylie_32 + 1
15: Pimento_32
16: BetterKatz_32
17: NancyRae_32
18: DelRio_33
19: Ecliptus_29
20: Sprinklemunch_27
21: MakCheese_29
22: DumpsterDude_27
23: Zodiariah_27
24: Ruthy_27
25: Tarzan_23
26: Hibiscus_23 + 2
27: DonkeyMan_23
28: Reyja_24
29: Jojo24_23
30: PeteyPab_35 + 6
31: Darwin_36
32: ChewyVIII_58
33: GAL1_24
34: P1201_49

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 283901 Report

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

Pham number 283901 has 50 members, 6 are drafts.

Phages represented in each track:
- Track 1 : Puppers_23
- Track 2 : Morrissey_24
- Track 3 : Mahdia_23
- Track 4 : Gustav_23
- Track 5 : Widow_23
- Track 6 : MacGully_54
- Track 7 : PCoral7_24, Toast_24
- Track 8 : JCole_20
- Track 9 : Powerball_22
- Track 10 : Lucky10_22
- Track 11 : Nadeem_32, WheatThin_32, Parada_32, Mulch_32
- Track 12 : Francois_32
- Track 13 : Chop_32, Hamood_32, Ayotoya_32, GrandSlam_32
- Track 14 : Brylie_32, Bock_32
- Track 15 : Pimento_32
- Track 16 : BetterKatz_32
- Track 17 : NancyRae_32
- Track 18 : DelRio_33
- Track 19 : Ecliptus_29
- Track 20 : Sprinklemunch_27
- Track 21 : MakCheese_29
- Track 22 : DumpsterDude_27
- Track 23 : Zodiariah_27
- Track 24 : Ruthy_27
- Track 25 : Tarzan_23
- Track 26 : Hibiscus_23, Heinz_24, Santhid_23
- Track 27 : DonkeyMan_23
- Track 28 : Reyja_24
- Track 29 : Jojo24_23
- Track 30 : PeteyPab_35, C3PO_33, Stickynote_35, PotatoChip_36, Zion_36, Kimchi1738_33, Cruella_33
- Track 31 : Darwin_36
- Track 32 : ChewyVIII_58
- Track 33 : GAL1_24
- Track 34 : P1201_49

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

The start number called the most often in the published annotations is 34, it was called in 20 of the 44 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Ayotoya_32, Bock_32, Brylie_32, Chop_32, DelRio_33, DonkeyMan_23, DumpsterDude_27, Ecliptus_29, GAL1_24, GrandSlam_32, Hamood_32, Heinz_24, Hibiscus_23, JCole_20, Jojo24_23, Lucky10_22, MakCheese_29, PCoral7_24, Reyja_24, Ruthy_27, Santhid_23, Sprinklemunch_27, Tarzan_23, Toast_24, Zodiariah_27,

Genes that have the "Most Annotated" start but do not call it:
• BetterKatz_32, C3PO_33, ChewyVIII_58, Cruella_33, Darwin_36, Francois_32, Kimchi1738_33, MacGully_54, Mulch_32, Nadeem_32, NancyRae_32, Parada_32, PeteyPab_35, Pimento_32, PotatoChip_36, Powerball_22, Stickynote_35, WheatThin_32, Zion_36,

Genes that do not have the "Most Annotated" start:
• Gustav_23, Mahdia_23, Morrissey_24, P1201_49, Puppers_23, Widow_23,

Summary by start number:

Start 22:
• Found in 1 of 50 (2.0%) of genes in pham
• No Manual Annotations of this start.
• Called 100.0% of time when present
• Phage (with cluster) where this start called: P1201_49 (singleton),

Start 23:
• Found in 8 of 50 (16.0%) of genes in pham
• Manual Annotations of this start: 8 of 44
• Called 100.0% of time when present
• Phage (with cluster) where this start called: C3PO_33 (EN), Cruella_33 (EN), Darwin_36 (EN), Kimchi1738_33 (EN), PeteyPab_35 (EN), PotatoChip_36 (EN), Stickynote_35 (EN), Zion_36 (EN),

Start 24:
• Found in 2 of 50 (4.0%) of genes in pham
• Manual Annotations of this start: 2 of 44
• Called 100.0% of time when present
• Phage (with cluster) where this start called: ChewyVIII_58 (singleton), MacGully_54 (CR7),

Start 25:
• Found in 10 of 50 (20.0%) of genes in pham
• Manual Annotations of this start: 3 of 44
• Called 30.0% of time when present
• Phage (with cluster) where this start called: Gustav_23 (CD), Mahdia_23 (CD), Morrissey_24 (CD),

Start 30:

• Found in 2 of 50 (4.0%) of genes in pham
• Manual Annotations of this start: 2 of 44
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Puppers_23 (CD), Widow_23 (CD),

Start 31:
• Found in 1 of 50 (2.0%) of genes in pham
• Manual Annotations of this start: 1 of 44
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Powerball_22 (CZ4),

Start 34:
• Found in 44 of 50 (88.0%) of genes in pham
• Manual Annotations of this start: 20 of 44
• Called 56.8% of time when present
• Phage (with cluster) where this start called: Ayotoya_32 (DI), Bock_32 (DI), Brylie_32 (DI), Chop_32 (DI), DelRio_33 (DI), DonkeyMan_23 (DY), DumpsterDude_27 (DW), Ecliptus_29 (DN), GAL1_24 (singleton), GrandSlam_32 (DI), Hamood_32 (DI), Heinz_24 (DY), Hibiscus_23 (DY), JCole_20 (CZ2), Jojo24_23 (DY), Lucky10_22 (DH), MakCheese_29 (DW), PCoral7_24 (CV), Reyja_24 (DY), Ruthy_27 (DW), Santhid_23 (DY), Sprinklemunch_27 (DW), Tarzan_23 (DY), Toast_24 (CV), Zodiariah_27 (DW),

Start 35:
• Found in 11 of 50 (22.0%) of genes in pham
• Manual Annotations of this start: 8 of 44
• Called 72.7% of time when present
• Phage (with cluster) where this start called: BetterKatz_32 (DI), Francois_32 (DI), Mulch_32 (DI), Nadeem_32 (DI), NancyRae_32 (DI), Parada_32 (DI), Pimento_32 (DI), WheatThin_32 (DI),

Summary by clusters:

There are 12 clusters represented in this pham: DN, singleton, EN, CR7, DH, DI, CZ2, CZ4, CD, DY, DW, CV,

Info for manual annotations of cluster CD:
•Start number 25 was manually annotated 3 times for cluster CD.
•Start number 30 was manually annotated 2 times for cluster CD.

Info for manual annotations of cluster CR7:
•Start number 24 was manually annotated 1 time for cluster CR7.

Info for manual annotations of cluster CV:
•Start number 34 was manually annotated 2 times for cluster CV.

Info for manual annotations of cluster CZ4:
•Start number 31 was manually annotated 1 time for cluster CZ4.

Info for manual annotations of cluster DH:
•Start number 34 was manually annotated 1 time for cluster DH.

Info for manual annotations of cluster DI:
•Start number 34 was manually annotated 7 times for cluster DI.
•Start number 35 was manually annotated 8 times for cluster DI.

Info for manual annotations of cluster DN:
•Start number 34 was manually annotated 1 time for cluster DN.

Info for manual annotations of cluster DW:
•Start number 34 was manually annotated 3 times for cluster DW.

Info for manual annotations of cluster DY:
•Start number 34 was manually annotated 6 times for cluster DY.

Info for manual annotations of cluster EN:
•Start number 23 was manually annotated 8 times for cluster EN.

Gene Information:

Gene: Ayotoya_32 Start: 27588, Stop: 27977, Start Num: 34
Candidate Starts for Ayotoya_32:
(11, 27300), (12, 27303), (Start: 34 @27588 has 20 MA's), (39, 27615), (50, 27672), (53, 27699), (56, 27711), (68, 27774), (70, 27786), (83, 27855), (85, 27861), (88, 27888), (89, 27894), (90, 27897), (97, 27930),

Gene: BetterKatz_32 Start: 27064, Stop: 27450, Start Num: 35
Candidate Starts for BetterKatz_32:
(6, 26536), (11, 26773), (12, 26776), (Start: 34 @27061 has 20 MA's), (Start: 35 @27064 has 8 MA's), (50, 27145), (53, 27172), (56, 27184), (64, 27232), (70, 27259), (83, 27328), (85, 27334), (88, 27361), (89, 27367), (90, 27370), (97, 27403),

Gene: Bock_32 Start: 26811, Stop: 27200, Start Num: 34
Candidate Starts for Bock_32:
(11, 26523), (12, 26526), (Start: 34 @26811 has 20 MA's), (Start: 35 @26814 has 8 MA's), (50, 26895), (53, 26922), (56, 26934), (64, 26982), (70, 27009), (83, 27078), (85, 27084), (88, 27111), (89, 27117), (90, 27120), (97, 27153),

Gene: Brylie_32 Start: 26799, Stop: 27188, Start Num: 34
Candidate Starts for Brylie_32:
(11, 26511), (12, 26514), (Start: 34 @26799 has 20 MA's), (Start: 35 @26802 has 8 MA's), (50, 26883), (53, 26910), (56, 26922), (64, 26970), (70, 26997), (83, 27066), (85, 27072), (88, 27099), (89, 27105), (90, 27108), (97, 27141),

Gene: C3PO_33 Start: 30588, Stop: 31046, Start Num: 23
Candidate Starts for C3PO_33:
(Start: 23 @30588 has 8 MA's), (Start: 34 @30657 has 20 MA's), (45, 30708), (52, 30768), (71, 30861), (82, 30912),

Gene: ChewyVIII_58 Start: 40904, Stop: 41350, Start Num: 24
Candidate Starts for ChewyVIII_58:
(Start: 24 @40904 has 2 MA's), (Start: 34 @40958 has 20 MA's), (36, 40967), (41, 40994), (44, 41006), (67, 41144), (73, 41177), (76, 41198), (90, 41270), (91, 41279), (92, 41282), (98, 41315), (100, 41324),

Gene: Chop_32 Start: 27336, Stop: 27725, Start Num: 34
Candidate Starts for Chop_32:
(11, 27048), (12, 27051), (Start: 34 @27336 has 20 MA's), (39, 27363), (50, 27420), (53, 27447), (56, 27459), (68, 27522), (70, 27534), (83, 27603), (85, 27609), (88, 27636), (89, 27642), (90, 27645), (97, 27678),

Gene: Cruella_33 Start: 30588, Stop: 31046, Start Num: 23
Candidate Starts for Cruella_33:
(Start: 23 @30588 has 8 MA's), (Start: 34 @30657 has 20 MA's), (45, 30708), (52, 30768), (71, 30861), (82, 30912),

Gene: Darwin_36 Start: 30273, Stop: 30731, Start Num: 23
Candidate Starts for Darwin_36:
(Start: 23 @30273 has 8 MA's), (Start: 34 @30342 has 20 MA's), (45, 30393), (52, 30453), (71, 30546), (82, 30597), (92, 30663),

Gene: DelRio_33 Start: 27807, Stop: 28196, Start Num: 34
Candidate Starts for DelRio_33:
(11, 27519), (12, 27522), (Start: 34 @27807 has 20 MA's), (Start: 35 @27810 has 8 MA's), (50, 27891), (53, 27918), (56, 27930), (70, 28005), (83, 28074), (85, 28080), (88, 28107), (89, 28113), (90, 28116), (97, 28149),

Gene: DonkeyMan_23 Start: 18871, Stop: 19260, Start Num: 34
Candidate Starts for DonkeyMan_23:
(17, 18649), (Start: 25 @18829 has 3 MA's), (28, 18838), (33, 18868), (Start: 34 @18871 has 20 MA's), (42, 18910), (49, 18952), (50, 18955), (60, 19024), (76, 19108), (95, 19204),

Gene: DumpsterDude_27 Start: 25118, Stop: 25507, Start Num: 34
Candidate Starts for DumpsterDude_27:
(9, 24746), (Start: 34 @25118 has 20 MA's), (37, 25136), (42, 25157), (43, 25163), (46, 25175), (49, 25199), (50, 25202), (55, 25238), (56, 25241), (59, 25265), (63, 25283), (70, 25316), (95, 25451),

Gene: Ecliptus_29 Start: 22305, Stop: 22694, Start Num: 34
Candidate Starts for Ecliptus_29:
(10, 21999), (11, 22017), (Start: 34 @22305 has 20 MA's), (37, 22323), (42, 22344), (43, 22350), (46, 22362), (49, 22386), (50, 22389), (56, 22428), (57, 22434), (59, 22452), (77, 22545), (79, 22551), (90, 22614), (95, 22638), (97, 22647),

Gene: Francois_32 Start: 26828, Stop: 27214, Start Num: 35
Candidate Starts for Francois_32:
(11, 26537), (12, 26540), (Start: 34 @26825 has 20 MA's), (Start: 35 @26828 has 8 MA's), (50, 26909), (53, 26936), (56, 26948), (69, 27020), (70, 27023), (83, 27092), (84, 27095), (85, 27098), (88, 27125), (89, 27131), (90, 27134), (94, 27155), (97, 27167),

Gene: GAL1_24 Start: 20564, Stop: 20953, Start Num: 34
Candidate Starts for GAL1_24:
(Start: 34 @20564 has 20 MA's), (37, 20582), (42, 20603), (43, 20609), (46, 20621), (49, 20645), (50, 20648), (51, 20660), (57, 20693), (59, 20711), (70, 20762), (95, 20897), (97, 20906),

Gene: GrandSlam_32 Start: 27336, Stop: 27725, Start Num: 34
Candidate Starts for GrandSlam_32:

(11, 27048), (12, 27051), (Start: 34 @27336 has 20 MA's), (39, 27363), (50, 27420), (53, 27447), (56, 27459), (68, 27522), (70, 27534), (83, 27603), (85, 27609), (88, 27636), (89, 27642), (90, 27645), (97, 27678),

Gene: Gustav_23 Start: 19270, Stop: 19707, Start Num: 25
Candidate Starts for Gustav_23:
(Start: 25 @19270 has 3 MA's), (42, 19333), (43, 19339), (51, 19390), (54, 19411), (55, 19414), (61, 19450), (62, 19453), (64, 19465), (73, 19510), (76, 19531), (80, 19543), (86, 19576), (89, 19600), (90, 19603), (93, 19621), (99, 19651),

Gene: Hamood_32 Start: 27336, Stop: 27725, Start Num: 34
Candidate Starts for Hamood_32:
(11, 27048), (12, 27051), (Start: 34 @27336 has 20 MA's), (39, 27363), (50, 27420), (53, 27447), (56, 27459), (68, 27522), (70, 27534), (83, 27603), (85, 27609), (88, 27636), (89, 27642), (90, 27645), (97, 27678),

Gene: Heinz_24 Start: 18963, Stop: 19352, Start Num: 34
Candidate Starts for Heinz_24:
(17, 18741), (Start: 25 @18921 has 3 MA's), (28, 18930), (33, 18960), (Start: 34 @18963 has 20 MA's), (42, 19002), (49, 19044), (50, 19047), (51, 19059), (62, 19122), (76, 19200), (86, 19245), (95, 19296),

Gene: Hibiscus_23 Start: 18911, Stop: 19300, Start Num: 34
Candidate Starts for Hibiscus_23:
(17, 18689), (Start: 25 @18869 has 3 MA's), (28, 18878), (33, 18908), (Start: 34 @18911 has 20 MA's), (42, 18950), (49, 18992), (50, 18995), (51, 19007), (62, 19070), (76, 19148), (86, 19193), (95, 19244),

Gene: JCole_20 Start: 17888, Stop: 18277, Start Num: 34
Candidate Starts for JCole_20:
(Start: 34 @17888 has 20 MA's), (37, 17906), (42, 17927), (43, 17933), (46, 17945), (49, 17969), (50, 17972), (51, 17984), (56, 18011), (57, 18017), (59, 18035), (86, 18170), (95, 18221),

Gene: Jojo24_23 Start: 18908, Stop: 19297, Start Num: 34
Candidate Starts for Jojo24_23:
(17, 18686), (Start: 25 @18866 has 3 MA's), (28, 18875), (33, 18905), (Start: 34 @18908 has 20 MA's), (42, 18947), (49, 18989), (50, 18992), (62, 19067), (76, 19145), (86, 19190), (95, 19241),

Gene: Kimchi1738_33 Start: 29676, Stop: 30134, Start Num: 23
Candidate Starts for Kimchi1738_33:
(Start: 23 @29676 has 8 MA's), (Start: 34 @29745 has 20 MA's), (45, 29796), (52, 29856), (71, 29949), (82, 30000),

Gene: Lucky10_22 Start: 18828, Stop: 19217, Start Num: 34
Candidate Starts for Lucky10_22:
(13, 18546), (14, 18549), (19, 18699), (Start: 34 @18828 has 20 MA's), (37, 18846), (42, 18867), (43, 18873), (44, 18876), (46, 18885), (49, 18909), (50, 18912), (56, 18951), (57, 18957), (59, 18975), (65, 19005), (77, 19068), (79, 19074), (95, 19161), (97, 19170),

Gene: MacGully_54 Start: 36610, Stop: 37059, Start Num: 24
Candidate Starts for MacGully_54:
(1, 35257), (2, 35326), (3, 35362), (4, 35701), (5, 35824), (7, 36208), (8, 36265), (Start: 24 @36610 has 2 MA's), (26, 36625), (Start: 34 @36658 has 20 MA's), (42, 36697), (47, 36718), (57, 36799), (66, 36850), (68, 36856), (78, 36913), (89, 36976), (91, 36988), (98, 37024), (101, 37051),

Gene: Mahdia_23 Start: 18947, Stop: 19378, Start Num: 25
Candidate Starts for Mahdia_23:
(Start: 25 @18947 has 3 MA's), (42, 19010), (55, 19091), (57, 19100), (64, 19142), (65, 19148), (69, 19166), (73, 19187), (76, 19208), (80, 19220), (89, 19277), (90, 19280), (93, 19298), (95, 19304),

Gene: MakCheese_29 Start: 25049, Stop: 25438, Start Num: 34
Candidate Starts for MakCheese_29:
(Start: 34 @25049 has 20 MA's), (37, 25067), (42, 25088), (46, 25106), (49, 25130), (50, 25133), (55, 25169), (56, 25172), (59, 25196), (63, 25214), (70, 25247), (95, 25382),

Gene: Morrissey_24 Start: 20150, Stop: 20584, Start Num: 25
Candidate Starts for Morrissey_24:
(Start: 25 @20150 has 3 MA's), (42, 20213), (59, 20321), (63, 20339), (64, 20345), (65, 20351), (69, 20369), (80, 20423), (81, 20426), (84, 20444), (85, 20447), (89, 20480), (99, 20531), (103, 20573),

Gene: Mulch_32 Start: 26802, Stop: 27188, Start Num: 35
Candidate Starts for Mulch_32:
(11, 26511), (12, 26514), (Start: 34 @26799 has 20 MA's), (Start: 35 @26802 has 8 MA's), (50, 26883), (53, 26910), (56, 26922), (64, 26970), (70, 26997), (83, 27066), (85, 27072), (88, 27099), (89, 27105), (90, 27108), (97, 27141),

Gene: Nadeem_32 Start: 26802, Stop: 27188, Start Num: 35
Candidate Starts for Nadeem_32:
(11, 26511), (12, 26514), (Start: 34 @26799 has 20 MA's), (Start: 35 @26802 has 8 MA's), (50, 26883), (53, 26910), (56, 26922), (64, 26970), (70, 26997), (83, 27066), (85, 27072), (88, 27099), (89, 27105), (90, 27108), (97, 27141),

Gene: NancyRae_32 Start: 26811, Stop: 27197, Start Num: 35
Candidate Starts for NancyRae_32:
(11, 26520), (12, 26523), (Start: 34 @26808 has 20 MA's), (Start: 35 @26811 has 8 MA's), (50, 26892), (53, 26919), (56, 26931), (70, 27006), (85, 27081), (88, 27108), (89, 27114), (90, 27117), (97, 27150),

Gene: P1201_49 Start: 36622, Stop: 37077, Start Num: 22
Candidate Starts for P1201_49:
(22, 36622), (36, 36697), (37, 36706), (39, 36715), (40, 36718), (45, 36739), (46, 36745), (58, 36829), (59, 36835), (61, 36844), (72, 36901), (74, 36916), (75, 36922), (99, 37045),

Gene: PCoral7_24 Start: 20696, Stop: 21085, Start Num: 34
Candidate Starts for PCoral7_24:
(Start: 34 @20696 has 20 MA's), (53, 20807), (65, 20873), (78, 20939), (83, 20963), (89, 21002), (90, 21005), (92, 21017), (97, 21038), (101, 21077),

Gene: Parada_32 Start: 26802, Stop: 27188, Start Num: 35
Candidate Starts for Parada_32:
(11, 26511), (12, 26514), (Start: 34 @26799 has 20 MA's), (Start: 35 @26802 has 8 MA's), (50, 26883), (53, 26910), (56, 26922), (64, 26970), (70, 26997), (83, 27066), (85, 27072), (88, 27099), (89, 27105), (90, 27108), (97, 27141),

Gene: PeteyPab_35 Start: 31433, Stop: 31891, Start Num: 23
Candidate Starts for PeteyPab_35:
(Start: 23 @31433 has 8 MA's), (Start: 34 @31502 has 20 MA's), (45, 31553), (52, 31613), (71, 31706), (82, 31757),

Gene: Pimento_32 Start: 26280, Stop: 26666, Start Num: 35
Candidate Starts for Pimento_32:
(11, 25989), (12, 25992), (Start: 34 @26277 has 20 MA's), (Start: 35 @26280 has 8 MA's), (49, 26358), (50, 26361), (53, 26388), (56, 26400), (70, 26475), (83, 26544), (85, 26550), (88, 26577), (89, 26583), (90, 26586), (97, 26619),

Gene: PotatoChip_36 Start: 31435, Stop: 31893, Start Num: 23
Candidate Starts for PotatoChip_36:
(Start: 23 @31435 has 8 MA's), (Start: 34 @31504 has 20 MA's), (45, 31555), (52, 31615), (71, 31708), (82, 31759),

Gene: Powerball_22 Start: 19728, Stop: 20138, Start Num: 31
Candidate Starts for Powerball_22:
(16, 19533), (18, 19572), (20, 19623), (27, 19716), (29, 19719), (Start: 31 @19728 has 1 MA's), (Start: 34 @19746 has 20 MA's), (38, 19770), (39, 19773), (40, 19776), (47, 19806), (48, 19815), (49, 19830), (53, 19860), (55, 19869), (56, 19872), (60, 19902), (62, 19908), (65, 19926), (67, 19932), (69, 19944), (73, 19965), (78, 19992), (86, 20031), (87, 20034), (88, 20049), (96, 20088),

Gene: Puppers_23 Start: 18920, Stop: 19375, Start Num: 30
Candidate Starts for Puppers_23:
(15, 18686), (21, 18875), (Start: 30 @18920 has 2 MA's), (32, 18929), (41, 18983), (42, 18986), (45, 18998), (49, 19028), (56, 19070), (57, 19076), (59, 19094), (64, 19118), (65, 19124), (67, 19130), (69, 19142), (72, 19160), (73, 19163), (76, 19184), (86, 19229), (90, 19256), (92, 19268), (93, 19274), (102, 19337), (104, 19358),

Gene: Reyja_24 Start: 19082, Stop: 19471, Start Num: 34
Candidate Starts for Reyja_24:
(17, 18860), (Start: 25 @19040 has 3 MA's), (28, 19049), (33, 19079), (Start: 34 @19082 has 20 MA's), (42, 19121), (44, 19130), (49, 19163), (60, 19235), (62, 19241), (76, 19319), (86, 19364), (97, 19424),

Gene: Ruthy_27 Start: 23727, Stop: 24116, Start Num: 34
Candidate Starts for Ruthy_27:
(Start: 34 @23727 has 20 MA's), (37, 23745), (42, 23766), (43, 23772), (46, 23784), (49, 23808), (50, 23811), (55, 23847), (56, 23850), (59, 23874), (63, 23892), (70, 23925), (95, 24060),

Gene: Santhid_23 Start: 18916, Stop: 19305, Start Num: 34
Candidate Starts for Santhid_23:
(17, 18694), (Start: 25 @18874 has 3 MA's), (28, 18883), (33, 18913), (Start: 34 @18916 has 20 MA's), (42, 18955), (49, 18997), (50, 19000), (51, 19012), (62, 19075), (76, 19153), (86, 19198), (95, 19249),

Gene: Sprinklemunch_27 Start: 25302, Stop: 25691, Start Num: 34
Candidate Starts for Sprinklemunch_27:
(Start: 34 @25302 has 20 MA's), (37, 25320), (42, 25341), (46, 25359), (49, 25383), (50, 25386), (55, 25422), (56, 25425), (59, 25449), (63, 25467), (69, 25497), (70, 25500), (95, 25635),

Gene: Stickynote_35 Start: 30855, Stop: 31313, Start Num: 23
Candidate Starts for Stickynote_35:
(Start: 23 @30855 has 8 MA's), (Start: 34 @30924 has 20 MA's), (45, 30975), (52, 31035), (71, 31128), (82, 31179),

Gene: Tarzan_23 Start: 18885, Stop: 19274, Start Num: 34
Candidate Starts for Tarzan_23:

(17, 18663), (Start: 25 @18843 has 3 MA's), (28, 18852), (33, 18882), (Start: 34 @18885 has 20 MA's), (42, 18924), (44, 18933), (49, 18966), (50, 18969), (60, 19038), (62, 19044), (76, 19122), (86, 19167), (97, 19227),

Gene: Toast_24 Start: 20696, Stop: 21085, Start Num: 34
Candidate Starts for Toast_24:
(Start: 34 @20696 has 20 MA's), (53, 20807), (65, 20873), (78, 20939), (83, 20963), (89, 21002), (90, 21005), (92, 21017), (97, 21038), (101, 21077),

Gene: WheatThin_32 Start: 26802, Stop: 27188, Start Num: 35
Candidate Starts for WheatThin_32:
(11, 26511), (12, 26514), (Start: 34 @26799 has 20 MA's), (Start: 35 @26802 has 8 MA's), (50, 26883), (53, 26910), (56, 26922), (64, 26970), (70, 26997), (83, 27066), (85, 27072), (88, 27099), (89, 27105), (90, 27108), (97, 27141),

Gene: Widow_23 Start: 18911, Stop: 19366, Start Num: 30
Candidate Starts for Widow_23:
(15, 18677), (21, 18866), (Start: 30 @18911 has 2 MA's), (32, 18920), (41, 18974), (42, 18977), (45, 18989), (49, 19019), (56, 19061), (57, 19067), (64, 19109), (65, 19115), (67, 19121), (69, 19133), (86, 19220), (90, 19247), (92, 19259), (93, 19265), (102, 19328), (104, 19349),

Gene: Zion_36 Start: 31433, Stop: 31891, Start Num: 23
Candidate Starts for Zion_36:
(Start: 23 @31433 has 8 MA's), (Start: 34 @31502 has 20 MA's), (45, 31553), (52, 31613), (71, 31706), (82, 31757),

Gene: Zodiariah_27 Start: 25345, Stop: 25734, Start Num: 34
Candidate Starts for Zodiariah_27:
(Start: 34 @25345 has 20 MA's), (37, 25363), (42, 25384), (46, 25402), (49, 25426), (50, 25429), (55, 25465), (56, 25468), (59, 25492), (70, 25543), (95, 25678),