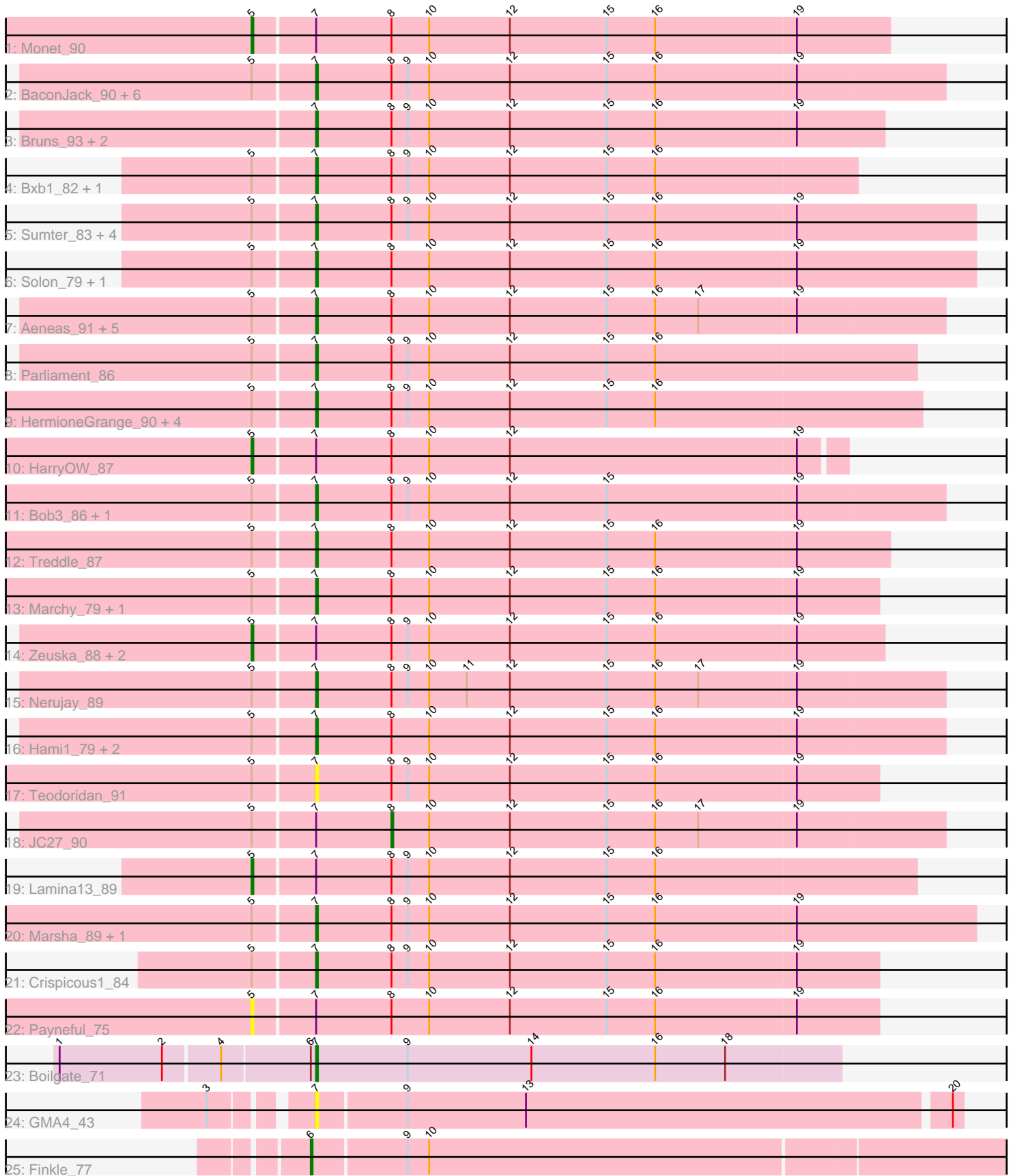


Pham 116472



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 116472 Report

This analysis was run 04/28/24 on database version 559.

Pham number 116472 has 55 members, 7 are drafts.

Phages represented in each track:

- Track 1 : Monet_90
- Track 2 : BaconJack_90, Ashballer_87, Abrogate_840, Rutherford_87, RidgeCB_85, Jorgensen_96, JackSparrow_88
- Track 3 : Bruns_93, DreamCatcher_96, Euphoria_91
- Track 4 : Bxb1_82, Edtherson_83
- Track 5 : Sumter_83, Dulcie_87, SkiPole_94, Gyzlar_79, Pippin_89
- Track 6 : Solon_79, Paraselene_83
- Track 7 : Aeneas_91, Perseus_86, Smairt_93, Mule_88, Trouble_86, PhrostyMug_90
- Track 8 : Parliament_86
- Track 9 : HermioneGrange_90, BigMau_87, Jerm2_86, Rohr_88, MPlant7149_86
- Track 10 : HarryOW_87
- Track 11 : Bob3_86, Gandalf20_86
- Track 12 : Treddle_87
- Track 13 : Marchy_79, Homines_81
- Track 14 : Zeuska_88, Applejack_85, StewieG_82
- Track 15 : Nerujay_89
- Track 16 : Hami1_79, Alvin_83, Tasp14_83
- Track 17 : Teodoridan_91
- Track 18 : JC27_90
- Track 19 : Lamina13_89
- Track 20 : Marsha_89, Sunshine924_89
- Track 21 : Crispicous1_84
- Track 22 : Payneful_75
- Track 23 : Boilgate_71
- Track 24 : GMA4_43
- Track 25 : Finkle_77

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 42 of the 48 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Abrogate_840, Aeneas_91, Alvin_83, Ashballer_87, BaconJack_90, BigMau_87, Bob3_86, Boilgate_71, Bruns_93, Bxb1_82, Crispicous1_84, DreamCatcher_96, Dulcie_87, Edtherson_83, Euphoria_91, GMA4_43, Gandalf20_86, Gyzlar_79, Hami1_79, HermioneGrange_90, Homines_81, JackSparrow_88, Jerm2_86, Jorgensen_96, MPlant7149_86, Marchy_79, Marsha_89, Mule_88, Nerujay_89, Paraselene_83, Parliament_86, Perseus_86, PhrostyMug_90, Pippin_89, RidgeCB_85, Rohr_88, Rutherford_87, SkiPole_94, Smairt_93, Solon_79, Sumter_83, Sunshine924_89, Tasp14_83, Teodoridan_91, Treddle_87, Trouble_86,

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

- Applejack_85, HarryOW_87, JC27_90, Lamina13_89, Monet_90, Payneful_75, StewieG_82, Zeuska_88,

Genes that do not have the "Most Annotated" start:

- Finkle_77,

Summary by start number:

Start 5:

- Found in 49 of 55 (89.1%) of genes in pham
- Manual Annotations of this start: 4 of 48
- Called 14.3% of time when present
- Phage (with cluster) where this start called: Applejack_85 (A1), HarryOW_87 (A1), Lamina13_89 (A1), Monet_90 (A1), Payneful_75 (A1), StewieG_82 (A1), Zeuska_88 (A1),

Start 6:

- Found in 2 of 55 (3.6%) of genes in pham
- Manual Annotations of this start: 1 of 48
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Finkle_77 (singleton),

Start 7:

- Found in 54 of 55 (98.2%) of genes in pham
- Manual Annotations of this start: 42 of 48
- Called 85.2% of time when present
- Phage (with cluster) where this start called: Abrogate_840 (A1), Aeneas_91 (A1), Alvin_83 (A1), Ashballer_87 (A1), BaconJack_90 (A1), BigMau_87 (A1), Bob3_86 (A1), Boilgate_71 (K8), Bruns_93 (A1), Bxb1_82 (A1), Crispicous1_84 (A1), DreamCatcher_96 (A1), Dulcie_87 (A1), Edtherson_83 (A1), Euphoria_91 (A1), GMA4_43 (singleton), Gandalf20_86 (A1), Gyzlar_79 (A1), Hami1_79 (A1), HermioneGrange_90 (A1), Homines_81 (A1), JackSparrow_88 (A1), Jerm2_86 (A1), Jorgensen_96 (A1), MPlant7149_86 (A1), Marchy_79 (A1), Marsha_89 (A1), Mule_88 (A1), Nerujay_89 (A1), Paraselene_83 (A1), Parliament_86 (A1), Perseus_86 (A1), PhrostyMug_90 (A1), Pippin_89 (A1), RidgeCB_85 (A1), Rohr_88 (A1), Rutherford_87 (A1), SkiPole_94 (A1), Smairt_93 (A1), Solon_79 (A1), Sumter_83 (A1), Sunshine924_89 (A1), Tasp14_83 (A1), Teodoridan_91 (A1), Treddle_87 (A1), Trouble_86 (A1),

Start 8:

- Found in 52 of 55 (94.5%) of genes in pham
- Manual Annotations of this start: 1 of 48
- Called 1.9% of time when present

- Phage (with cluster) where this start called: JC27_90 (A1),

Summary by clusters:

There are 3 clusters represented in this pham: A1, singleton, K8,

Info for manual annotations of cluster A1:

- Start number 5 was manually annotated 4 times for cluster A1.
- Start number 7 was manually annotated 41 times for cluster A1.
- Start number 8 was manually annotated 1 time for cluster A1.

Info for manual annotations of cluster K8:

- Start number 7 was manually annotated 1 time for cluster K8.

Gene Information:

Gene: Abrogate_840 Start: 50203, Stop: 49856, Start Num: 7

Candidate Starts for Abrogate_840:

(Start: 5 @50236 has 4 MA's), (Start: 7 @50203 has 42 MA's), (Start: 8 @50161 has 1 MA's), (9, 50152), (10, 50140), (12, 50095), (15, 50041), (16, 50014), (19, 49936),

Gene: Aeneas_91 Start: 51503, Stop: 51156, Start Num: 7

Candidate Starts for Aeneas_91:

(Start: 5 @51536 has 4 MA's), (Start: 7 @51503 has 42 MA's), (Start: 8 @51461 has 1 MA's), (10, 51440), (12, 51395), (15, 51341), (16, 51314), (17, 51290), (19, 51236),

Gene: Alvin_83 Start: 48546, Stop: 48199, Start Num: 7

Candidate Starts for Alvin_83:

(Start: 5 @48579 has 4 MA's), (Start: 7 @48546 has 42 MA's), (Start: 8 @48504 has 1 MA's), (10, 48483), (12, 48438), (15, 48384), (16, 48357), (19, 48279),

Gene: Applejack_85 Start: 47475, Stop: 47110, Start Num: 5

Candidate Starts for Applejack_85:

(Start: 5 @47475 has 4 MA's), (Start: 7 @47442 has 42 MA's), (Start: 8 @47400 has 1 MA's), (9, 47391), (10, 47379), (12, 47334), (15, 47280), (16, 47253), (19, 47175),

Gene: Ashballer_87 Start: 49905, Stop: 49558, Start Num: 7

Candidate Starts for Ashballer_87:

(Start: 5 @49938 has 4 MA's), (Start: 7 @49905 has 42 MA's), (Start: 8 @49863 has 1 MA's), (9, 49854), (10, 49842), (12, 49797), (15, 49743), (16, 49716), (19, 49638),

Gene: BaconJack_90 Start: 51454, Stop: 51107, Start Num: 7

Candidate Starts for BaconJack_90:

(Start: 5 @51487 has 4 MA's), (Start: 7 @51454 has 42 MA's), (Start: 8 @51412 has 1 MA's), (9, 51403), (10, 51391), (12, 51346), (15, 51292), (16, 51265), (19, 51187),

Gene: BigMau_87 Start: 50465, Stop: 50130, Start Num: 7

Candidate Starts for BigMau_87:

(Start: 5 @50498 has 4 MA's), (Start: 7 @50465 has 42 MA's), (Start: 8 @50423 has 1 MA's), (9, 50414), (10, 50402), (12, 50357), (15, 50303), (16, 50276),

Gene: Bob3_86 Start: 49899, Stop: 49552, Start Num: 7

Candidate Starts for Bob3_86:

(Start: 5 @49932 has 4 MA's), (Start: 7 @49899 has 42 MA's), (Start: 8 @49857 has 1 MA's), (9, 49848), (10, 49836), (12, 49791), (15, 49737), (19, 49632),

Gene: Boilgate_71 Start: 52589, Stop: 52879, Start Num: 7

Candidate Starts for Boilgate_71:

(1, 52451), (2, 52508), (4, 52538), (Start: 6 @52586 has 1 MA's), (Start: 7 @52589 has 42 MA's), (9, 52640), (14, 52709), (16, 52778), (18, 52817),

Gene: Bruns_93 Start: 51431, Stop: 51117, Start Num: 7

Candidate Starts for Bruns_93:

(Start: 7 @51431 has 42 MA's), (Start: 8 @51389 has 1 MA's), (9, 51380), (10, 51368), (12, 51323), (15, 51269), (16, 51242), (19, 51164),

Gene: Bxb1_82 Start: 48504, Stop: 48205, Start Num: 7

Candidate Starts for Bxb1_82:

(Start: 5 @48537 has 4 MA's), (Start: 7 @48504 has 42 MA's), (Start: 8 @48462 has 1 MA's), (9, 48453), (10, 48441), (12, 48396), (15, 48342), (16, 48315),

Gene: Crispicous1_84 Start: 48842, Stop: 48531, Start Num: 7

Candidate Starts for Crispicous1_84:

(Start: 5 @48875 has 4 MA's), (Start: 7 @48842 has 42 MA's), (Start: 8 @48800 has 1 MA's), (9, 48791), (10, 48779), (12, 48734), (15, 48680), (16, 48653), (19, 48575),

Gene: DreamCatcher_96 Start: 51470, Stop: 51156, Start Num: 7

Candidate Starts for DreamCatcher_96:

(Start: 7 @51470 has 42 MA's), (Start: 8 @51428 has 1 MA's), (9, 51419), (10, 51407), (12, 51362), (15, 51308), (16, 51281), (19, 51203),

Gene: Dulcie_87 Start: 51649, Stop: 51302, Start Num: 7

Candidate Starts for Dulcie_87:

(Start: 5 @51682 has 4 MA's), (Start: 7 @51649 has 42 MA's), (Start: 8 @51607 has 1 MA's), (9, 51598), (10, 51586), (12, 51541), (15, 51487), (16, 51460), (19, 51382),

Gene: Edtherson_83 Start: 49144, Stop: 48812, Start Num: 7

Candidate Starts for Edtherson_83:

(Start: 5 @49177 has 4 MA's), (Start: 7 @49144 has 42 MA's), (Start: 8 @49102 has 1 MA's), (9, 49093), (10, 49081), (12, 49036), (15, 48982), (16, 48955),

Gene: Euphoria_91 Start: 51996, Stop: 51682, Start Num: 7

Candidate Starts for Euphoria_91:

(Start: 7 @51996 has 42 MA's), (Start: 8 @51954 has 1 MA's), (9, 51945), (10, 51933), (12, 51888), (15, 51834), (16, 51807), (19, 51729),

Gene: Finkle_77 Start: 45289, Stop: 45675, Start Num: 6

Candidate Starts for Finkle_77:

(Start: 6 @45289 has 1 MA's), (9, 45340), (10, 45352),

Gene: GMA4_43 Start: 32065, Stop: 32415, Start Num: 7

Candidate Starts for GMA4_43:

(3, 32020), (Start: 7 @32065 has 42 MA's), (9, 32113), (13, 32179), (20, 32410),

Gene: Gandalf20_86 Start: 49396, Stop: 49049, Start Num: 7

Candidate Starts for Gandalf20_86:

(Start: 5 @49429 has 4 MA's), (Start: 7 @49396 has 42 MA's), (Start: 8 @49354 has 1 MA's), (9, 49345), (10, 49333), (12, 49288), (15, 49234), (19, 49129),

Gene: Gyzlar_79 Start: 46656, Stop: 46345, Start Num: 7

Candidate Starts for Gyzlar_79:

(Start: 5 @46689 has 4 MA's), (Start: 7 @46656 has 42 MA's), (Start: 8 @46614 has 1 MA's), (9, 46605), (10, 46593), (12, 46548), (15, 46494), (16, 46467), (19, 46389),

Gene: Hami1_79 Start: 45522, Stop: 45175, Start Num: 7

Candidate Starts for Hami1_79:

(Start: 5 @45555 has 4 MA's), (Start: 7 @45522 has 42 MA's), (Start: 8 @45480 has 1 MA's), (10, 45459), (12, 45414), (15, 45360), (16, 45333), (19, 45255),

Gene: HarryOW_87 Start: 50779, Stop: 50456, Start Num: 5

Candidate Starts for HarryOW_87:

(Start: 5 @50779 has 4 MA's), (Start: 7 @50746 has 42 MA's), (Start: 8 @50704 has 1 MA's), (10, 50683), (12, 50638), (19, 50479),

Gene: HermioneGrange_90 Start: 50960, Stop: 50625, Start Num: 7

Candidate Starts for HermioneGrange_90:

(Start: 5 @50993 has 4 MA's), (Start: 7 @50960 has 42 MA's), (Start: 8 @50918 has 1 MA's), (9, 50909), (10, 50897), (12, 50852), (15, 50798), (16, 50771),

Gene: Homines_81 Start: 46527, Stop: 46216, Start Num: 7

Candidate Starts for Homines_81:

(Start: 5 @46560 has 4 MA's), (Start: 7 @46527 has 42 MA's), (Start: 8 @46485 has 1 MA's), (10, 46464), (12, 46419), (15, 46365), (16, 46338), (19, 46260),

Gene: JC27_90 Start: 49935, Stop: 49630, Start Num: 8

Candidate Starts for JC27_90:

(Start: 5 @50010 has 4 MA's), (Start: 7 @49977 has 42 MA's), (Start: 8 @49935 has 1 MA's), (10, 49914), (12, 49869), (15, 49815), (16, 49788), (17, 49764), (19, 49710),

Gene: JackSparrow_88 Start: 49415, Stop: 49068, Start Num: 7

Candidate Starts for JackSparrow_88:

(Start: 5 @49448 has 4 MA's), (Start: 7 @49415 has 42 MA's), (Start: 8 @49373 has 1 MA's), (9, 49364), (10, 49352), (12, 49307), (15, 49253), (16, 49226), (19, 49148),

Gene: Jerm2_86 Start: 51029, Stop: 50694, Start Num: 7

Candidate Starts for Jerm2_86:

(Start: 5 @51062 has 4 MA's), (Start: 7 @51029 has 42 MA's), (Start: 8 @50987 has 1 MA's), (9, 50978), (10, 50966), (12, 50921), (15, 50867), (16, 50840),

Gene: Jorgensen_96 Start: 51436, Stop: 51089, Start Num: 7

Candidate Starts for Jorgensen_96:

(Start: 5 @51469 has 4 MA's), (Start: 7 @51436 has 42 MA's), (Start: 8 @51394 has 1 MA's), (9, 51385), (10, 51373), (12, 51328), (15, 51274), (16, 51247), (19, 51169),

Gene: Lamina13_89 Start: 51102, Stop: 50737, Start Num: 5

Candidate Starts for Lamina13_89:

(Start: 5 @51102 has 4 MA's), (Start: 7 @51069 has 42 MA's), (Start: 8 @51027 has 1 MA's), (9, 51018), (10, 51006), (12, 50961), (15, 50907), (16, 50880),

Gene: MPlant7149_86 Start: 49190, Stop: 48855, Start Num: 7

Candidate Starts for MPlant7149_86:

(Start: 5 @49223 has 4 MA's), (Start: 7 @49190 has 42 MA's), (Start: 8 @49148 has 1 MA's), (9, 49139), (10, 49127), (12, 49082), (15, 49028), (16, 49001),

Gene: Marchy_79 Start: 47580, Stop: 47891, Start Num: 7

Candidate Starts for Marchy_79:

(Start: 5 @47547 has 4 MA's), (Start: 7 @47580 has 42 MA's), (Start: 8 @47622 has 1 MA's), (10, 47643), (12, 47688), (15, 47742), (16, 47769), (19, 47847),

Gene: Marsha_89 Start: 52266, Stop: 51901, Start Num: 7

Candidate Starts for Marsha_89:

(Start: 5 @52299 has 4 MA's), (Start: 7 @52266 has 42 MA's), (Start: 8 @52224 has 1 MA's), (9, 52215), (10, 52203), (12, 52158), (15, 52104), (16, 52077), (19, 51999),

Gene: Monet_90 Start: 51369, Stop: 51019, Start Num: 5

Candidate Starts for Monet_90:

(Start: 5 @51369 has 4 MA's), (Start: 7 @51336 has 42 MA's), (Start: 8 @51294 has 1 MA's), (10, 51273), (12, 51228), (15, 51174), (16, 51147), (19, 51069),

Gene: Mule_88 Start: 49284, Stop: 48937, Start Num: 7

Candidate Starts for Mule_88:

(Start: 5 @49317 has 4 MA's), (Start: 7 @49284 has 42 MA's), (Start: 8 @49242 has 1 MA's), (10, 49221), (12, 49176), (15, 49122), (16, 49095), (17, 49071), (19, 49017),

Gene: Nerujay_89 Start: 51029, Stop: 50682, Start Num: 7

Candidate Starts for Nerujay_89:

(Start: 5 @51062 has 4 MA's), (Start: 7 @51029 has 42 MA's), (Start: 8 @50987 has 1 MA's), (9, 50978), (10, 50966), (11, 50945), (12, 50921), (15, 50867), (16, 50840), (17, 50816), (19, 50762),

Gene: Paraselene_83 Start: 48821, Stop: 48456, Start Num: 7

Candidate Starts for Paraselene_83:

(Start: 5 @48854 has 4 MA's), (Start: 7 @48821 has 42 MA's), (Start: 8 @48779 has 1 MA's), (10, 48758), (12, 48713), (15, 48659), (16, 48632), (19, 48554),

Gene: Parliament_86 Start: 51552, Stop: 51220, Start Num: 7

Candidate Starts for Parliament_86:

(Start: 5 @51585 has 4 MA's), (Start: 7 @51552 has 42 MA's), (Start: 8 @51510 has 1 MA's), (9, 51501), (10, 51489), (12, 51444), (15, 51390), (16, 51363),

Gene: Payneful_75 Start: 46639, Stop: 46983, Start Num: 5

Candidate Starts for Payneful_75:

(Start: 5 @46639 has 4 MA's), (Start: 7 @46672 has 42 MA's), (Start: 8 @46714 has 1 MA's), (10, 46735), (12, 46780), (15, 46834), (16, 46861), (19, 46939),

Gene: Perseus_86 Start: 51080, Stop: 50733, Start Num: 7

Candidate Starts for Perseus_86:

(Start: 5 @51113 has 4 MA's), (Start: 7 @51080 has 42 MA's), (Start: 8 @51038 has 1 MA's), (10, 51017), (12, 50972), (15, 50918), (16, 50891), (17, 50867), (19, 50813),

Gene: PhrostyMug_90 Start: 51454, Stop: 51107, Start Num: 7

Candidate Starts for PhrostyMug_90:

(Start: 5 @51487 has 4 MA's), (Start: 7 @51454 has 42 MA's), (Start: 8 @51412 has 1 MA's), (10, 51391), (12, 51346), (15, 51292), (16, 51265), (17, 51241), (19, 51187),

Gene: Pippin_89 Start: 49957, Stop: 49592, Start Num: 7

Candidate Starts for Pippin_89:

(Start: 5 @49990 has 4 MA's), (Start: 7 @49957 has 42 MA's), (Start: 8 @49915 has 1 MA's), (9, 49906), (10, 49894), (12, 49849), (15, 49795), (16, 49768), (19, 49690),

Gene: RidgeCB_85 Start: 48528, Stop: 48196, Start Num: 7

Candidate Starts for RidgeCB_85:

(Start: 5 @48561 has 4 MA's), (Start: 7 @48528 has 42 MA's), (Start: 8 @48486 has 1 MA's), (9, 48477), (10, 48465), (12, 48420), (15, 48366), (16, 48339), (19, 48261),

Gene: Rohr_88 Start: 51280, Stop: 50945, Start Num: 7

Candidate Starts for Rohr_88:

(Start: 5 @51313 has 4 MA's), (Start: 7 @51280 has 42 MA's), (Start: 8 @51238 has 1 MA's), (9, 51229), (10, 51217), (12, 51172), (15, 51118), (16, 51091),

Gene: Rutherferd_87 Start: 49988, Stop: 49641, Start Num: 7

Candidate Starts for Rutherferd_87:

(Start: 5 @50021 has 4 MA's), (Start: 7 @49988 has 42 MA's), (Start: 8 @49946 has 1 MA's), (9, 49937), (10, 49925), (12, 49880), (15, 49826), (16, 49799), (19, 49721),

Gene: SkiPole_94 Start: 50817, Stop: 50470, Start Num: 7

Candidate Starts for SkiPole_94:

(Start: 5 @50850 has 4 MA's), (Start: 7 @50817 has 42 MA's), (Start: 8 @50775 has 1 MA's), (9, 50766), (10, 50754), (12, 50709), (15, 50655), (16, 50628), (19, 50550),

Gene: Smairt_93 Start: 52471, Stop: 52124, Start Num: 7

Candidate Starts for Smairt_93:

(Start: 5 @52504 has 4 MA's), (Start: 7 @52471 has 42 MA's), (Start: 8 @52429 has 1 MA's), (10, 52408), (12, 52363), (15, 52309), (16, 52282), (17, 52258), (19, 52204),

Gene: Solon_79 Start: 47134, Stop: 46769, Start Num: 7

Candidate Starts for Solon_79:

(Start: 5 @47167 has 4 MA's), (Start: 7 @47134 has 42 MA's), (Start: 8 @47092 has 1 MA's), (10, 47071), (12, 47026), (15, 46972), (16, 46945), (19, 46867),

Gene: StewieG_82 Start: 47093, Stop: 46713, Start Num: 5

Candidate Starts for StewieG_82:

(Start: 5 @47093 has 4 MA's), (Start: 7 @47060 has 42 MA's), (Start: 8 @47018 has 1 MA's), (9, 47009), (10, 46997), (12, 46952), (15, 46898), (16, 46871), (19, 46793),

Gene: Sumter_83 Start: 50466, Stop: 50101, Start Num: 7

Candidate Starts for Sumter_83:

(Start: 5 @50499 has 4 MA's), (Start: 7 @50466 has 42 MA's), (Start: 8 @50424 has 1 MA's), (9, 50415), (10, 50403), (12, 50358), (15, 50304), (16, 50277), (19, 50199),

Gene: Sunshine924_89 Start: 49002, Stop: 48670, Start Num: 7

Candidate Starts for Sunshine924_89:

(Start: 5 @49035 has 4 MA's), (Start: 7 @49002 has 42 MA's), (Start: 8 @48960 has 1 MA's), (9, 48951), (10, 48939), (12, 48894), (15, 48840), (16, 48813), (19, 48735),

Gene: Tasp14_83 Start: 49232, Stop: 48867, Start Num: 7

Candidate Starts for Tasp14_83:

(Start: 5 @49265 has 4 MA's), (Start: 7 @49232 has 42 MA's), (Start: 8 @49190 has 1 MA's), (10, 49169), (12, 49124), (15, 49070), (16, 49043), (19, 48965),

Gene: Teodoridan_91 Start: 50170, Stop: 49859, Start Num: 7

Candidate Starts for Teodoridan_91:

(Start: 5 @50203 has 4 MA's), (Start: 7 @50170 has 42 MA's), (Start: 8 @50128 has 1 MA's), (9, 50119), (10, 50107), (12, 50062), (15, 50008), (16, 49981), (19, 49903),

Gene: Treddle_87 Start: 50980, Stop: 50663, Start Num: 7

Candidate Starts for Treddle_87:

(Start: 5 @51013 has 4 MA's), (Start: 7 @50980 has 42 MA's), (Start: 8 @50938 has 1 MA's), (10, 50917), (12, 50872), (15, 50818), (16, 50791), (19, 50713),

Gene: Trouble_86 Start: 49909, Stop: 49562, Start Num: 7

Candidate Starts for Trouble_86:

(Start: 5 @49942 has 4 MA's), (Start: 7 @49909 has 42 MA's), (Start: 8 @49867 has 1 MA's), (10, 49846), (12, 49801), (15, 49747), (16, 49720), (17, 49696), (19, 49642),

Gene: Zeuska_88 Start: 51385, Stop: 51038, Start Num: 5

Candidate Starts for Zeuska_88:

(Start: 5 @51385 has 4 MA's), (Start: 7 @51352 has 42 MA's), (Start: 8 @51310 has 1 MA's), (9, 51301), (10, 51289), (12, 51244), (15, 51190), (16, 51163), (19, 51085),