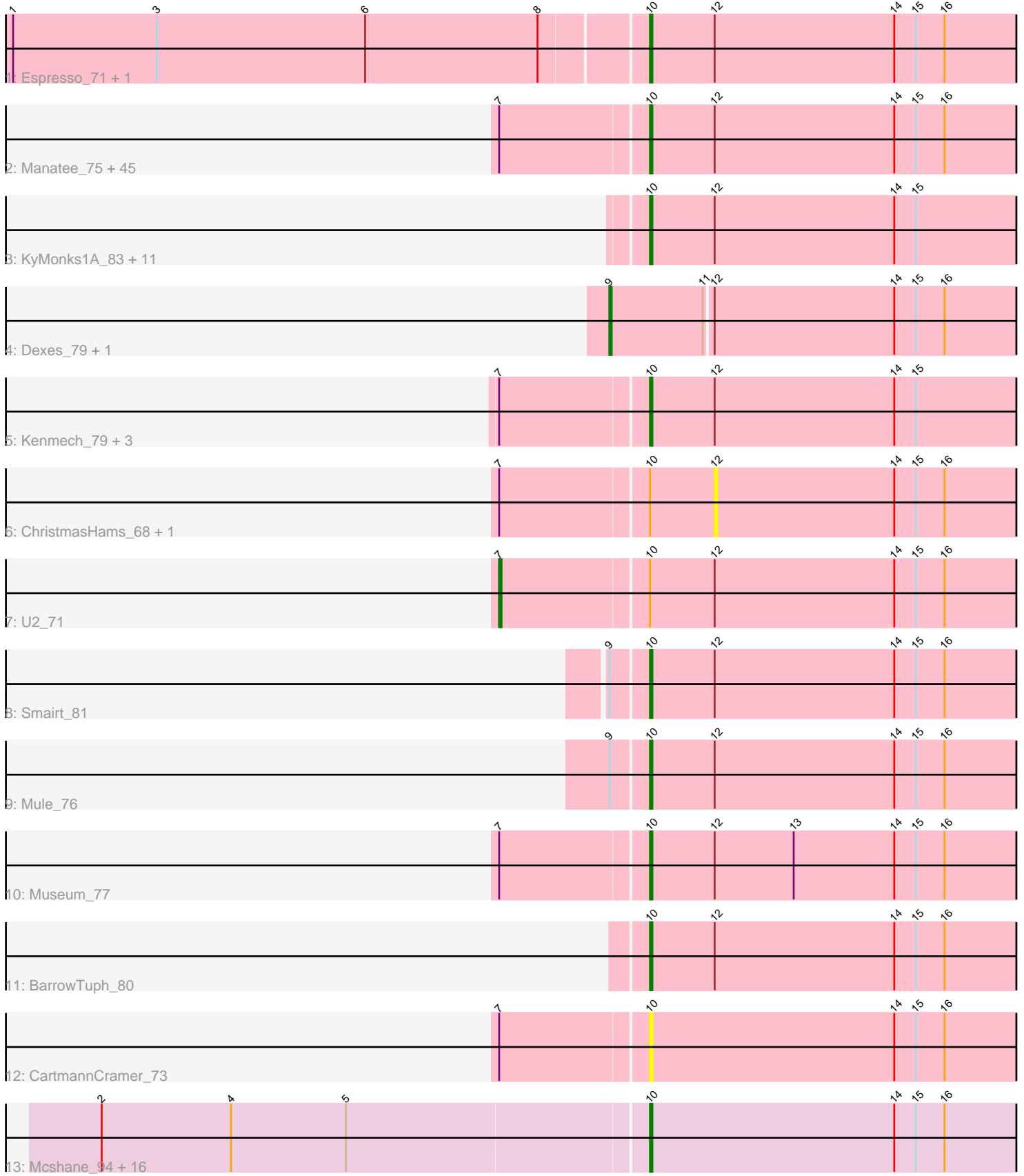


# Pham 300001



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 300001 Report

This analysis was run 06/08/26 on database version 649.

Pham number 300001 has 91 members, 9 are drafts.

Phages represented in each track:

- Track 1 : Espresso\_71, Gandalf20\_76
- Track 2 : Manatee\_75, PattyP\_77, Kanely\_80, Makemake\_80, Tote\_73, Dulcie\_78, Altman\_81, BPBiabs31\_82, MetalQZJ\_74, Sibs6\_77, PSullivan\_75, Licorice\_79, Sorpresa\_76, HarryOW\_78, Swole\_78, AFIS\_74, Burton\_78, GrecoEtereo\_81, Moose\_79, Perseus\_77, Zeeculate\_73, Euphoria\_78, PascalRango\_75, BluSpix\_75, ConceptII\_83, SwissCheese\_81, Corvo\_79, Pari\_82, SpikeBT\_74, Pita2\_78, Tasp14\_76, IgnatiusPatJac\_77, MaryBeth\_75, Lopton\_76, Parliament\_78, Gwendoluna\_81, Bethlehem\_80, Sandaddy\_75, MPlant7149\_77, Forsytheast\_79, Aeneas\_82, KBG\_75, BaconJack\_79, JuliaChild\_78, EnzoK\_78, Watermelon\_80
- Track 3 : KyMonks1A\_83, Niza\_77, Levia\_71, Puppet\_72, NEHalo\_73, Lesedi\_74, STLscum\_83, Eyeball\_76, Molly\_77, Mryolo\_72, PhineBark\_73, Ohno789\_80
- Track 4 : Dexes\_79, Paphu\_72
- Track 5 : Kenmech\_79, Arlo\_77, Abbyshoes\_77, Dussy\_76
- Track 6 : ChristmasHams\_68, StewieG\_73
- Track 7 : U2\_71
- Track 8 : Smairt\_81
- Track 9 : Mule\_76
- Track 10 : Museum\_77
- Track 11 : BarrowTuph\_80
- Track 12 : CartmannCramer\_73
- Track 13 : Mcshane\_94, FleetyMac\_96, True\_93, Olak\_94, Selr12\_96, Slatt\_94, Orwigg\_93, DirtJuice\_93, Burr\_94, Scrick\_93, Cornbread\_92, BoogieWoogie\_93, Megamind20\_94, Andre\_96, Charles1\_95, Pacifista\_94, FremontTroll\_92

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

The start number called the most often in the published annotations is 10, it was called in 79 of the 82 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AFIS\_74, Abbyshoes\_77, Aeneas\_82, Altman\_81, Andre\_96, Arlo\_77, BPBiabs31\_82, BaconJack\_79, BarrowTuph\_80, Bethlehem\_80, BluSpix\_75, BoogieWoogie\_93, Burr\_94, Burton\_78, CartmannCramer\_73, Charles1\_95, ConceptII\_83, Cornbread\_92, Corvo\_79, DirtJuice\_93, Dulcie\_78, Dussy\_76,

EnzoK\_78, Espresso\_71, Euphoria\_78, Eyeball\_76, FleetyMac\_96, Forsytheast\_79, FremontTroll\_92, Gandalf20\_76, GrecoEtereo\_81, Gwendoluna\_81, HarryOW\_78, IgnatiusPatJac\_77, JuliaChild\_78, KBG\_75, Kanely\_80, Kenmech\_79, KyMonks1A\_83, Lesedi\_74, Levia\_71, Licorice\_79, Lopton\_76, MPlant7149\_77, Makemake\_80, Manatee\_75, MaryBeth\_75, Mcshane\_94, Megamind20\_94, MetalQZJ\_74, Molly\_77, Moose\_79, Mryolo\_72, Mule\_76, Museum\_77, NEHalo\_73, Niza\_77, Ohno789\_80, Olak\_94, Orwigg\_93, PSullivan\_75, Pacifista\_94, Pari\_82, Parliament\_78, PascalRango\_75, PattyP\_77, Perseus\_77, PhineBark\_73, Pita2\_78, Puppet\_72, STLscum\_83, Sandaddy\_75, Scrick\_93, Selr12\_96, Sibs6\_77, Slatt\_94, Smairt\_81, Sorpresa\_76, SpikeBT\_74, SwissCheese\_81, Swole\_78, Tasp14\_76, Tote\_73, True\_93, Watermelon\_80, Zeeculate\_73,

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

- ChristmasHams\_68, StewieG\_73, U2\_71,

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

- Dexes\_79, Paphu\_72,

### Summary by start number:

Start 7:

- Found in 55 of 91 ( 60.4% ) of genes in pham
- Manual Annotations of this start: 1 of 82
- Called 1.8% of time when present
- Phage (with cluster) where this start called: U2\_71 (A1),

Start 9:

- Found in 4 of 91 ( 4.4% ) of genes in pham
- Manual Annotations of this start: 2 of 82
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Dexes\_79 (A1), Paphu\_72 (A1),

Start 10:

- Found in 89 of 91 ( 97.8% ) of genes in pham
- Manual Annotations of this start: 79 of 82
- Called 96.6% of time when present
- Phage (with cluster) where this start called: AFIS\_74 (A1), Abbyshoes\_77 (A1), Aeneas\_82 (A1), Altman\_81 (A1), Andre\_96 (B1), Arlo\_77 (A1), BPBiebs31\_82 (A1), BaconJack\_79 (A1), BarrowTuph\_80 (A1), Bethlehem\_80 (A1), BluSpix\_75 (A1), BoogieWoogie\_93 (B1), Burr\_94 (B1), Burton\_78 (A1), CartmannCramer\_73 (A1), Charles1\_95 (B1), ConceptII\_83 (A1), Cornbread\_92 (B1), Corvo\_79 (A1), DirtJuice\_93 (B1), Dulcie\_78 (A1), Dussy\_76 (A1), EnzoK\_78 (A1), Espresso\_71 (A1), Euphoria\_78 (A1), Eyeball\_76 (A1), FleetyMac\_96 (B1), Forsytheast\_79 (A1), FremontTroll\_92 (B1), Gandalf20\_76 (A1), GrecoEtereo\_81 (A1), Gwendoluna\_81 (A1), HarryOW\_78 (A1), IgnatiusPatJac\_77 (A1), JuliaChild\_78 (A1), KBG\_75 (A1), Kanely\_80 (A1), Kenmech\_79 (A1), KyMonks1A\_83 (A1), Lesedi\_74 (A1), Levia\_71 (A1), Licorice\_79 (A1), Lopton\_76 (A1), MPlant7149\_77 (A1), Makemake\_80 (A1), Manatee\_75 (A1), MaryBeth\_75 (A1), Mcshane\_94 (B1), Megamind20\_94 (B1), MetalQZJ\_74 (A1), Molly\_77 (A1), Moose\_79 (A1), Mryolo\_72 (A1), Mule\_76 (A1), Museum\_77 (A1), NEHalo\_73 (A1), Niza\_77 (A1), Ohno789\_80 (A1), Olak\_94 (B1), Orwigg\_93 (B1), PSullivan\_75 (A1), Pacifista\_94 (B1), Pari\_82 (A1), Parliament\_78 (A1), PascalRango\_75 (A1), PattyP\_77 (A1), Perseus\_77 (A1), PhineBark\_73 (A1), Pita2\_78 (A1), Puppet\_72 (A1), STLscum\_83 (A1), Sandaddy\_75 (A1), Scrick\_93

(B1), Selr12\_96 (B1), Sibs6\_77 (A1), Slatt\_94 (B1), Smairt\_81 (A1), Sorpresa\_76 (A1), SpikeBT\_74 (A1), SwissCheese\_81 (A1), Swole\_78 (A1), Tasp14\_76 (A1), Tote\_73 (A1), True\_93 (B1), Watermelon\_80 (A1), Zeeculate\_73 (A1),

Start 12:

- Found in 73 of 91 ( 80.2% ) of genes in pham
- No Manual Annotations of this start.
- Called 2.7% of time when present
- Phage (with cluster) where this start called: ChristmasHams\_68 (A1), StewieG\_73 (A1),

### **Summary by clusters:**

There are 2 clusters represented in this pham: A1, B1,

Info for manual annotations of cluster A1:

- Start number 7 was manually annotated 1 time for cluster A1.
- Start number 9 was manually annotated 2 times for cluster A1.
- Start number 10 was manually annotated 66 times for cluster A1.

Info for manual annotations of cluster B1:

- Start number 10 was manually annotated 13 times for cluster B1.

### **Gene Information:**

Gene: AFIS\_74 Start: 47687, Stop: 47508, Start Num: 10

Candidate Starts for AFIS\_74:

(Start: 7 @47747 has 1 MA's), (Start: 10 @47687 has 79 MA's), (12, 47660), (14, 47585), (15, 47576), (16, 47564),

Gene: Abbyshoes\_77 Start: 46940, Stop: 46761, Start Num: 10

Candidate Starts for Abbyshoes\_77:

(Start: 7 @47000 has 1 MA's), (Start: 10 @46940 has 79 MA's), (12, 46913), (14, 46838), (15, 46829),

Gene: Aeneas\_82 Start: 49299, Stop: 49120, Start Num: 10

Candidate Starts for Aeneas\_82:

(Start: 7 @49359 has 1 MA's), (Start: 10 @49299 has 79 MA's), (12, 49272), (14, 49197), (15, 49188), (16, 49176),

Gene: Altman\_81 Start: 48326, Stop: 48147, Start Num: 10

Candidate Starts for Altman\_81:

(Start: 7 @48386 has 1 MA's), (Start: 10 @48326 has 79 MA's), (12, 48299), (14, 48224), (15, 48215), (16, 48203),

Gene: Andre\_96 Start: 65480, Stop: 65301, Start Num: 10

Candidate Starts for Andre\_96:

(2, 65705), (4, 65651), (5, 65603), (Start: 10 @65480 has 79 MA's), (14, 65378), (15, 65369), (16, 65357),

Gene: Arlo\_77 Start: 47734, Stop: 47555, Start Num: 10

Candidate Starts for Arlo\_77:

(Start: 7 @47794 has 1 MA's), (Start: 10 @47734 has 79 MA's), (12, 47707), (14, 47632), (15, 47623),

Gene: BPBiibs31\_82 Start: 48846, Stop: 48667, Start Num: 10

Candidate Starts for BPBiibs31\_82:

(Start: 7 @48906 has 1 MA's), (Start: 10 @48846 has 79 MA's), (12, 48819), (14, 48744), (15, 48735), (16, 48723),

Gene: BaconJack\_79 Start: 49001, Stop: 48822, Start Num: 10

Candidate Starts for BaconJack\_79:

(Start: 7 @49061 has 1 MA's), (Start: 10 @49001 has 79 MA's), (12, 48974), (14, 48899), (15, 48890), (16, 48878),

Gene: BarrowTuph\_80 Start: 48047, Stop: 47868, Start Num: 10

Candidate Starts for BarrowTuph\_80:

(Start: 10 @48047 has 79 MA's), (12, 48020), (14, 47945), (15, 47936), (16, 47924),

Gene: Bethlehem\_80 Start: 49886, Stop: 49707, Start Num: 10

Candidate Starts for Bethlehem\_80:

(Start: 7 @49946 has 1 MA's), (Start: 10 @49886 has 79 MA's), (12, 49859), (14, 49784), (15, 49775), (16, 49763),

Gene: BluSpix\_75 Start: 42535, Stop: 42356, Start Num: 10

Candidate Starts for BluSpix\_75:

(Start: 7 @42595 has 1 MA's), (Start: 10 @42535 has 79 MA's), (12, 42508), (14, 42433), (15, 42424), (16, 42412),

Gene: BoogieWoogie\_93 Start: 65043, Stop: 64864, Start Num: 10

Candidate Starts for BoogieWoogie\_93:

(2, 65268), (4, 65214), (5, 65166), (Start: 10 @65043 has 79 MA's), (14, 64941), (15, 64932), (16, 64920),

Gene: Burr\_94 Start: 65083, Stop: 64904, Start Num: 10

Candidate Starts for Burr\_94:

(2, 65308), (4, 65254), (5, 65206), (Start: 10 @65083 has 79 MA's), (14, 64981), (15, 64972), (16, 64960),

Gene: Burton\_78 Start: 49278, Stop: 49099, Start Num: 10

Candidate Starts for Burton\_78:

(Start: 7 @49338 has 1 MA's), (Start: 10 @49278 has 79 MA's), (12, 49251), (14, 49176), (15, 49167), (16, 49155),

Gene: CartmannCramer\_73 Start: 48022, Stop: 47843, Start Num: 10

Candidate Starts for CartmannCramer\_73:

(Start: 7 @48082 has 1 MA's), (Start: 10 @48022 has 79 MA's), (14, 47920), (15, 47911), (16, 47899),

Gene: Charles1\_95 Start: 65391, Stop: 65212, Start Num: 10

Candidate Starts for Charles1\_95:

(2, 65616), (4, 65562), (5, 65514), (Start: 10 @65391 has 79 MA's), (14, 65289), (15, 65280), (16, 65268),

Gene: ChristmasHams\_68 Start: 44004, Stop: 43852, Start Num: 12

Candidate Starts for ChristmasHams\_68:

(Start: 7 @44091 has 1 MA's), (Start: 10 @44031 has 79 MA's), (12, 44004), (14, 43929), (15, 43920), (16, 43908),

Gene: ConceptII\_83 Start: 49427, Stop: 49248, Start Num: 10

Candidate Starts for ConceptII\_83:

(Start: 7 @49487 has 1 MA's), (Start: 10 @49427 has 79 MA's), (12, 49400), (14, 49325), (15, 49316), (16, 49304),

Gene: Cornbread\_92 Start: 65265, Stop: 65086, Start Num: 10

Candidate Starts for Cornbread\_92:

(2, 65490), (4, 65436), (5, 65388), (Start: 10 @65265 has 79 MA's), (14, 65163), (15, 65154), (16, 65142),

Gene: Corvo\_79 Start: 48769, Stop: 48590, Start Num: 10

Candidate Starts for Corvo\_79:

(Start: 7 @48829 has 1 MA's), (Start: 10 @48769 has 79 MA's), (12, 48742), (14, 48667), (15, 48658), (16, 48646),

Gene: Dexes\_79 Start: 50024, Stop: 49830, Start Num: 9

Candidate Starts for Dexes\_79:

(Start: 9 @50024 has 2 MA's), (11, 49985), (12, 49982), (14, 49907), (15, 49898), (16, 49886),

Gene: DirtJuice\_93 Start: 65529, Stop: 65350, Start Num: 10

Candidate Starts for DirtJuice\_93:

(2, 65754), (4, 65700), (5, 65652), (Start: 10 @65529 has 79 MA's), (14, 65427), (15, 65418), (16, 65406),

Gene: Dulcie\_78 Start: 49375, Stop: 49196, Start Num: 10

Candidate Starts for Dulcie\_78:

(Start: 7 @49435 has 1 MA's), (Start: 10 @49375 has 79 MA's), (12, 49348), (14, 49273), (15, 49264), (16, 49252),

Gene: Dussy\_76 Start: 46960, Stop: 46781, Start Num: 10

Candidate Starts for Dussy\_76:

(Start: 7 @47020 has 1 MA's), (Start: 10 @46960 has 79 MA's), (12, 46933), (14, 46858), (15, 46849),

Gene: EnzoK\_78 Start: 45301, Stop: 45122, Start Num: 10

Candidate Starts for EnzoK\_78:

(Start: 7 @45361 has 1 MA's), (Start: 10 @45301 has 79 MA's), (12, 45274), (14, 45199), (15, 45190), (16, 45178),

Gene: Espresso\_71 Start: 45863, Stop: 45684, Start Num: 10

Candidate Starts for Espresso\_71:

(1, 46124), (3, 46064), (6, 45977), (8, 45905), (Start: 10 @45863 has 79 MA's), (12, 45836), (14, 45761), (15, 45752), (16, 45740),

Gene: Euphoria\_78 Start: 47780, Stop: 47601, Start Num: 10

Candidate Starts for Euphoria\_78:

(Start: 7 @47840 has 1 MA's), (Start: 10 @47780 has 79 MA's), (12, 47753), (14, 47678), (15, 47669), (16, 47657),

Gene: Eyeball\_76 Start: 47065, Stop: 46886, Start Num: 10

Candidate Starts for Eyeball\_76:

(Start: 10 @47065 has 79 MA's), (12, 47038), (14, 46963), (15, 46954),

Gene: FleetyMac\_96 Start: 65262, Stop: 65083, Start Num: 10

Candidate Starts for FleetyMac\_96:

(2, 65487), (4, 65433), (5, 65385), (Start: 10 @65262 has 79 MA's), (14, 65160), (15, 65151), (16, 65139),

Gene: Forsytheast\_79 Start: 47803, Stop: 47624, Start Num: 10

Candidate Starts for Forsytheast\_79:

(Start: 7 @47863 has 1 MA's), (Start: 10 @47803 has 79 MA's), (12, 47776), (14, 47701), (15, 47692), (16, 47680),

Gene: FremontTroll\_92 Start: 65688, Stop: 65509, Start Num: 10

Candidate Starts for FremontTroll\_92:

(2, 65913), (4, 65859), (5, 65811), (Start: 10 @65688 has 79 MA's), (14, 65586), (15, 65577), (16, 65565),

Gene: Gandalf20\_76 Start: 47148, Stop: 46969, Start Num: 10

Candidate Starts for Gandalf20\_76:

(1, 47409), (3, 47349), (6, 47262), (8, 47190), (Start: 10 @47148 has 79 MA's), (12, 47121), (14, 47046), (15, 47037), (16, 47025),

Gene: GrecoEtereo\_81 Start: 48777, Stop: 48598, Start Num: 10

Candidate Starts for GrecoEtereo\_81:

(Start: 7 @48837 has 1 MA's), (Start: 10 @48777 has 79 MA's), (12, 48750), (14, 48675), (15, 48666), (16, 48654),

Gene: Gwendoluna\_81 Start: 48614, Stop: 48435, Start Num: 10

Candidate Starts for Gwendoluna\_81:

(Start: 7 @48674 has 1 MA's), (Start: 10 @48614 has 79 MA's), (12, 48587), (14, 48512), (15, 48503), (16, 48491),

Gene: HarryOW\_78 Start: 48825, Stop: 48646, Start Num: 10

Candidate Starts for HarryOW\_78:

(Start: 7 @48885 has 1 MA's), (Start: 10 @48825 has 79 MA's), (12, 48798), (14, 48723), (15, 48714), (16, 48702),

Gene: IgnatiusPatJac\_77 Start: 46480, Stop: 46301, Start Num: 10

Candidate Starts for IgnatiusPatJac\_77:

(Start: 7 @46540 has 1 MA's), (Start: 10 @46480 has 79 MA's), (12, 46453), (14, 46378), (15, 46369), (16, 46357),

Gene: JuliaChild\_78 Start: 47708, Stop: 47529, Start Num: 10

Candidate Starts for JuliaChild\_78:

(Start: 7 @47768 has 1 MA's), (Start: 10 @47708 has 79 MA's), (12, 47681), (14, 47606), (15, 47597), (16, 47585),

Gene: KBG\_75 Start: 48363, Stop: 48184, Start Num: 10

Candidate Starts for KBG\_75:

(Start: 7 @48423 has 1 MA's), (Start: 10 @48363 has 79 MA's), (12, 48336), (14, 48261), (15, 48252), (16, 48240),

Gene: Kanely\_80 Start: 48103, Stop: 47924, Start Num: 10

Candidate Starts for Kanely\_80:

(Start: 7 @48163 has 1 MA's), (Start: 10 @48103 has 79 MA's), (12, 48076), (14, 48001), (15, 47992), (16, 47980),

Gene: Kenmech\_79 Start: 48086, Stop: 47907, Start Num: 10

Candidate Starts for Kenmech\_79:

(Start: 7 @48146 has 1 MA's), (Start: 10 @48086 has 79 MA's), (12, 48059), (14, 47984), (15, 47975),

Gene: KyMonks1A\_83 Start: 48417, Stop: 48238, Start Num: 10

Candidate Starts for KyMonks1A\_83:

(Start: 10 @48417 has 79 MA's), (12, 48390), (14, 48315), (15, 48306),

Gene: Lesedi\_74 Start: 45574, Stop: 45395, Start Num: 10

Candidate Starts for Lesedi\_74:

(Start: 10 @45574 has 79 MA's), (12, 45547), (14, 45472), (15, 45463),

Gene: Levia\_71 Start: 45112, Stop: 44933, Start Num: 10

Candidate Starts for Levia\_71:

(Start: 10 @45112 has 79 MA's), (12, 45085), (14, 45010), (15, 45001),

Gene: Licorice\_79 Start: 49404, Stop: 49225, Start Num: 10

Candidate Starts for Licorice\_79:

(Start: 7 @49464 has 1 MA's), (Start: 10 @49404 has 79 MA's), (12, 49377), (14, 49302), (15, 49293), (16, 49281),

Gene: Lopton\_76 Start: 48419, Stop: 48240, Start Num: 10

Candidate Starts for Lopton\_76:

(Start: 7 @48479 has 1 MA's), (Start: 10 @48419 has 79 MA's), (12, 48392), (14, 48317), (15, 48308), (16, 48296),

Gene: MPlant7149\_77 Start: 46973, Stop: 46794, Start Num: 10

Candidate Starts for MPlant7149\_77:

(Start: 7 @47033 has 1 MA's), (Start: 10 @46973 has 79 MA's), (12, 46946), (14, 46871), (15, 46862), (16, 46850),

Gene: Makemake\_80 Start: 48024, Stop: 47845, Start Num: 10

Candidate Starts for Makemake\_80:

(Start: 7 @48084 has 1 MA's), (Start: 10 @48024 has 79 MA's), (12, 47997), (14, 47922), (15, 47913), (16, 47901),

Gene: Manatee\_75 Start: 45954, Stop: 45775, Start Num: 10

Candidate Starts for Manatee\_75:

(Start: 7 @46014 has 1 MA's), (Start: 10 @45954 has 79 MA's), (12, 45927), (14, 45852), (15, 45843), (16, 45831),

Gene: MaryBeth\_75 Start: 47244, Stop: 47065, Start Num: 10

Candidate Starts for MaryBeth\_75:

(Start: 7 @47304 has 1 MA's), (Start: 10 @47244 has 79 MA's), (12, 47217), (14, 47142), (15, 47133), (16, 47121),

Gene: Mcshane\_94 Start: 65069, Stop: 64890, Start Num: 10

Candidate Starts for Mcshane\_94:

(2, 65294), (4, 65240), (5, 65192), (Start: 10 @65069 has 79 MA's), (14, 64967), (15, 64958), (16, 64946),

Gene: Megamind20\_94 Start: 65033, Stop: 64854, Start Num: 10

Candidate Starts for Megamind20\_94:

(2, 65258), (4, 65204), (5, 65156), (Start: 10 @65033 has 79 MA's), (14, 64931), (15, 64922), (16, 64910),

Gene: MetalQZJ\_74 Start: 47244, Stop: 47065, Start Num: 10

Candidate Starts for MetalQZJ\_74:

(Start: 7 @47304 has 1 MA's), (Start: 10 @47244 has 79 MA's), (12, 47217), (14, 47142), (15, 47133), (16, 47121),

Gene: Molly\_77 Start: 46630, Stop: 46451, Start Num: 10

Candidate Starts for Molly\_77:

(Start: 10 @46630 has 79 MA's), (12, 46603), (14, 46528), (15, 46519),

Gene: Moose\_79 Start: 47803, Stop: 47624, Start Num: 10

Candidate Starts for Moose\_79:

(Start: 7 @47863 has 1 MA's), (Start: 10 @47803 has 79 MA's), (12, 47776), (14, 47701), (15, 47692), (16, 47680),

Gene: Mryolo\_72 Start: 45588, Stop: 45409, Start Num: 10

Candidate Starts for Mryolo\_72:

(Start: 10 @45588 has 79 MA's), (12, 45561), (14, 45486), (15, 45477),

Gene: Mule\_76 Start: 46670, Stop: 46491, Start Num: 10

Candidate Starts for Mule\_76:

(Start: 9 @46685 has 2 MA's), (Start: 10 @46670 has 79 MA's), (12, 46643), (14, 46568), (15, 46559), (16, 46547),

Gene: Museum\_77 Start: 47693, Stop: 47514, Start Num: 10

Candidate Starts for Museum\_77:

(Start: 7 @47753 has 1 MA's), (Start: 10 @47693 has 79 MA's), (12, 47666), (13, 47633), (14, 47591), (15, 47582), (16, 47570),

Gene: NEHalo\_73 Start: 46503, Stop: 46324, Start Num: 10

Candidate Starts for NEHalo\_73:

(Start: 10 @46503 has 79 MA's), (12, 46476), (14, 46401), (15, 46392),

Gene: Niza\_77 Start: 47976, Stop: 47797, Start Num: 10

Candidate Starts for Niza\_77:

(Start: 10 @47976 has 79 MA's), (12, 47949), (14, 47874), (15, 47865),

Gene: Ohno789\_80 Start: 48726, Stop: 48547, Start Num: 10

Candidate Starts for Ohno789\_80:

(Start: 10 @48726 has 79 MA's), (12, 48699), (14, 48624), (15, 48615),

Gene: Olak\_94 Start: 65239, Stop: 65060, Start Num: 10

Candidate Starts for Olak\_94:

(2, 65464), (4, 65410), (5, 65362), (Start: 10 @65239 has 79 MA's), (14, 65137), (15, 65128), (16, 65116),

Gene: Orwigg\_93 Start: 64995, Stop: 64816, Start Num: 10

Candidate Starts for Orwigg\_93:

(2, 65220), (4, 65166), (5, 65118), (Start: 10 @64995 has 79 MA's), (14, 64893), (15, 64884), (16, 64872),

Gene: PSullivan\_75 Start: 45776, Stop: 45597, Start Num: 10

Candidate Starts for PSullivan\_75:

(Start: 7 @45836 has 1 MA's), (Start: 10 @45776 has 79 MA's), (12, 45749), (14, 45674), (15, 45665), (16, 45653),

Gene: Pacifista\_94 Start: 65080, Stop: 64901, Start Num: 10

Candidate Starts for Pacifista\_94:

(2, 65305), (4, 65251), (5, 65203), (Start: 10 @65080 has 79 MA's), (14, 64978), (15, 64969), (16, 64957),

Gene: Paphu\_72 Start: 46216, Stop: 46022, Start Num: 9

Candidate Starts for Paphu\_72:

(Start: 9 @46216 has 2 MA's), (11, 46177), (12, 46174), (14, 46099), (15, 46090), (16, 46078),

Gene: Pari\_82 Start: 47570, Stop: 47391, Start Num: 10

Candidate Starts for Pari\_82:

(Start: 7 @47630 has 1 MA's), (Start: 10 @47570 has 79 MA's), (12, 47543), (14, 47468), (15, 47459), (16, 47447),

Gene: Parliament\_78 Start: 49751, Stop: 49572, Start Num: 10

Candidate Starts for Parliament\_78:

(Start: 7 @49811 has 1 MA's), (Start: 10 @49751 has 79 MA's), (12, 49724), (14, 49649), (15, 49640), (16, 49628),

Gene: PascalRango\_75 Start: 46845, Stop: 46666, Start Num: 10

Candidate Starts for PascalRango\_75:

(Start: 7 @46905 has 1 MA's), (Start: 10 @46845 has 79 MA's), (12, 46818), (14, 46743), (15, 46734), (16, 46722),

Gene: PattyP\_77 Start: 47399, Stop: 47220, Start Num: 10

Candidate Starts for PattyP\_77:

(Start: 7 @47459 has 1 MA's), (Start: 10 @47399 has 79 MA's), (12, 47372), (14, 47297), (15, 47288), (16, 47276),

Gene: Perseus\_77 Start: 48832, Stop: 48653, Start Num: 10

Candidate Starts for Perseus\_77:

(Start: 7 @48892 has 1 MA's), (Start: 10 @48832 has 79 MA's), (12, 48805), (14, 48730), (15, 48721), (16, 48709),

Gene: PhineBark\_73 Start: 46130, Stop: 45951, Start Num: 10

Candidate Starts for PhineBark\_73:

(Start: 10 @46130 has 79 MA's), (12, 46103), (14, 46028), (15, 46019),

Gene: Pita2\_78 Start: 47272, Stop: 47093, Start Num: 10

Candidate Starts for Pita2\_78:

(Start: 7 @47332 has 1 MA's), (Start: 10 @47272 has 79 MA's), (12, 47245), (14, 47170), (15, 47161), (16, 47149),

Gene: Puppet\_72 Start: 47489, Stop: 47310, Start Num: 10  
Candidate Starts for Puppet\_72:  
(Start: 10 @47489 has 79 MA's), (12, 47462), (14, 47387), (15, 47378),

Gene: STLscum\_83 Start: 48046, Stop: 47867, Start Num: 10  
Candidate Starts for STLscum\_83:  
(Start: 10 @48046 has 79 MA's), (12, 48019), (14, 47944), (15, 47935),

Gene: Sandaddy\_75 Start: 47426, Stop: 47247, Start Num: 10  
Candidate Starts for Sandaddy\_75:  
(Start: 7 @47486 has 1 MA's), (Start: 10 @47426 has 79 MA's), (12, 47399), (14, 47324), (15, 47315),  
(16, 47303),

Gene: Scrick\_93 Start: 65064, Stop: 64885, Start Num: 10  
Candidate Starts for Scrick\_93:  
(2, 65289), (4, 65235), (5, 65187), (Start: 10 @65064 has 79 MA's), (14, 64962), (15, 64953), (16,  
64941),

Gene: Selr12\_96 Start: 65105, Stop: 64926, Start Num: 10  
Candidate Starts for Selr12\_96:  
(2, 65330), (4, 65276), (5, 65228), (Start: 10 @65105 has 79 MA's), (14, 65003), (15, 64994), (16,  
64982),

Gene: Sibs6\_77 Start: 44740, Stop: 44561, Start Num: 10  
Candidate Starts for Sibs6\_77:  
(Start: 7 @44800 has 1 MA's), (Start: 10 @44740 has 79 MA's), (12, 44713), (14, 44638), (15, 44629),  
(16, 44617),

Gene: Slatt\_94 Start: 65345, Stop: 65166, Start Num: 10  
Candidate Starts for Slatt\_94:  
(2, 65570), (4, 65516), (5, 65468), (Start: 10 @65345 has 79 MA's), (14, 65243), (15, 65234), (16,  
65222),

Gene: Smairt\_81 Start: 49860, Stop: 49681, Start Num: 10  
Candidate Starts for Smairt\_81:  
(Start: 9 @49875 has 2 MA's), (Start: 10 @49860 has 79 MA's), (12, 49833), (14, 49758), (15, 49749),  
(16, 49737),

Gene: Sorpresa\_76 Start: 47432, Stop: 47253, Start Num: 10  
Candidate Starts for Sorpresa\_76:  
(Start: 7 @47492 has 1 MA's), (Start: 10 @47432 has 79 MA's), (12, 47405), (14, 47330), (15, 47321),  
(16, 47309),

Gene: SpikeBT\_74 Start: 46360, Stop: 46181, Start Num: 10  
Candidate Starts for SpikeBT\_74:  
(Start: 7 @46420 has 1 MA's), (Start: 10 @46360 has 79 MA's), (12, 46333), (14, 46258), (15, 46249),  
(16, 46237),

Gene: StewieG\_73 Start: 44483, Stop: 44331, Start Num: 12  
Candidate Starts for StewieG\_73:  
(Start: 7 @44570 has 1 MA's), (Start: 10 @44510 has 79 MA's), (12, 44483), (14, 44408), (15, 44399),  
(16, 44387),

Gene: SwissCheese\_81 Start: 47423, Stop: 47244, Start Num: 10

Candidate Starts for SwissCheese\_81:

(Start: 7 @47483 has 1 MA's), (Start: 10 @47423 has 79 MA's), (12, 47396), (14, 47321), (15, 47312), (16, 47300),

Gene: Swole\_78 Start: 47182, Stop: 47003, Start Num: 10

Candidate Starts for Swole\_78:

(Start: 7 @47242 has 1 MA's), (Start: 10 @47182 has 79 MA's), (12, 47155), (14, 47080), (15, 47071), (16, 47059),

Gene: Tasp14\_76 Start: 47470, Stop: 47291, Start Num: 10

Candidate Starts for Tasp14\_76:

(Start: 7 @47530 has 1 MA's), (Start: 10 @47470 has 79 MA's), (12, 47443), (14, 47368), (15, 47359), (16, 47347),

Gene: Tote\_73 Start: 44450, Stop: 44271, Start Num: 10

Candidate Starts for Tote\_73:

(Start: 7 @44510 has 1 MA's), (Start: 10 @44450 has 79 MA's), (12, 44423), (14, 44348), (15, 44339), (16, 44327),

Gene: True\_93 Start: 65063, Stop: 64884, Start Num: 10

Candidate Starts for True\_93:

(2, 65288), (4, 65234), (5, 65186), (Start: 10 @65063 has 79 MA's), (14, 64961), (15, 64952), (16, 64940),

Gene: U2\_71 Start: 47284, Stop: 47045, Start Num: 7

Candidate Starts for U2\_71:

(Start: 7 @47284 has 1 MA's), (Start: 10 @47224 has 79 MA's), (12, 47197), (14, 47122), (15, 47113), (16, 47101),

Gene: Watermelon\_80 Start: 48529, Stop: 48350, Start Num: 10

Candidate Starts for Watermelon\_80:

(Start: 7 @48589 has 1 MA's), (Start: 10 @48529 has 79 MA's), (12, 48502), (14, 48427), (15, 48418), (16, 48406),

Gene: Zeeculate\_73 Start: 47347, Stop: 47168, Start Num: 10

Candidate Starts for Zeeculate\_73:

(Start: 7 @47407 has 1 MA's), (Start: 10 @47347 has 79 MA's), (12, 47320), (14, 47245), (15, 47236), (16, 47224),