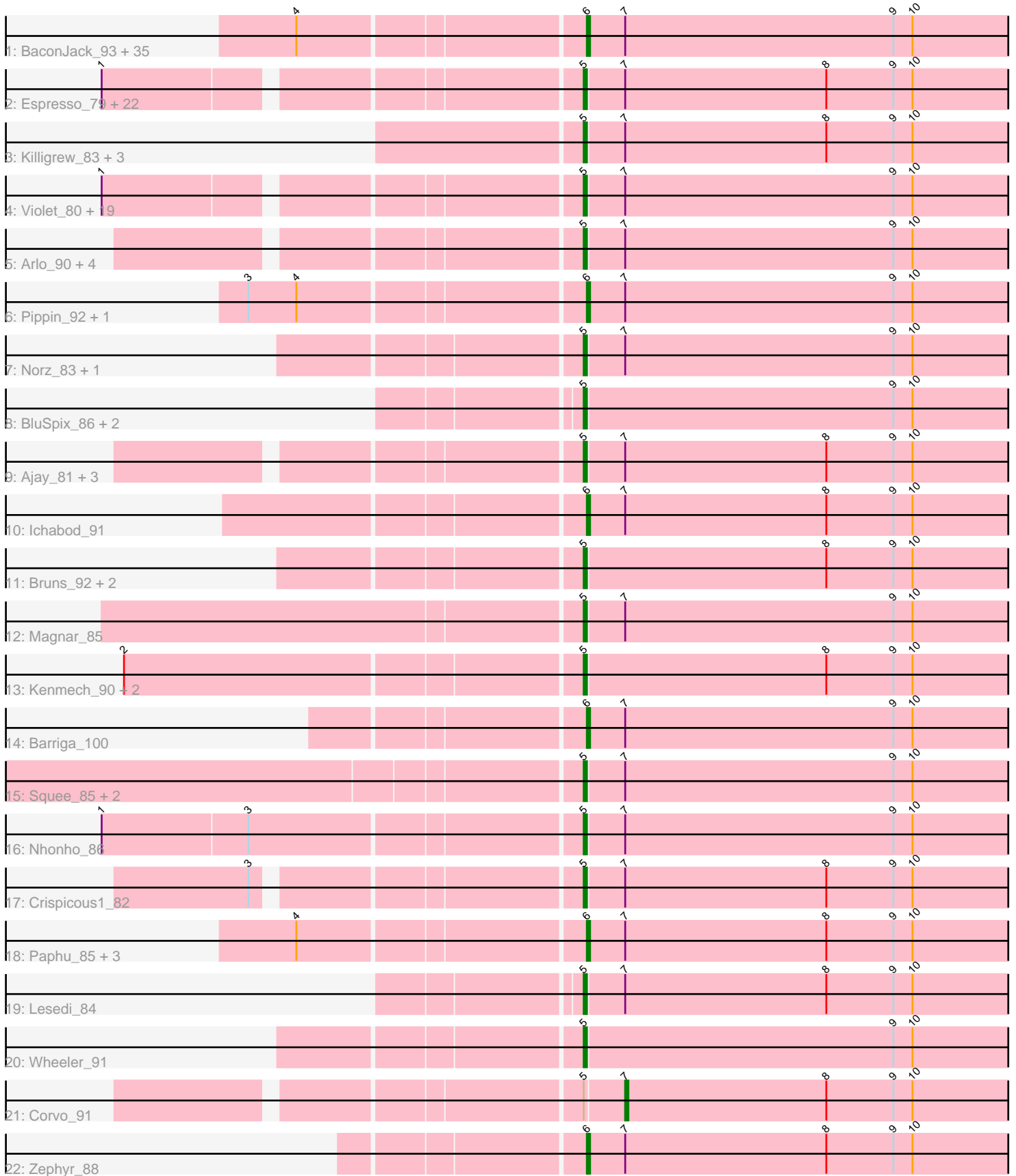


# Pham 85192



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 85192 Report

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

Pham number 85192 has 121 members, 10 are drafts.

Phages represented in each track:

- Track 1 : BaconJack\_93, MPlant7149\_89, Bob3\_89, Applejack\_88, Nerujay\_92, Mule\_91, Sagefire\_85, Abrogate\_870, Lamina13\_92, Bones\_85, Sunshine924\_92, Parliament\_89, RidgeCB\_88, Jerm2\_89, JC27\_93, Marsha\_92, StewieG\_85, SkiPole\_97, Smairt\_96, Tasp14\_86, HarryOW\_90, Jorgensen\_99, Gandalf20\_89, Rohr\_91, Sumter\_86, Ashballer\_90, Bexan\_86, Perseus\_89, JackSparrow\_91, Aeneas\_95, StrongArm\_87, Beatrix\_88, Hami1\_82, BigMau\_90, Solon\_82, Paraselene\_86
- Track 2 : Espresso\_79, BK1\_81, Teodoridan\_90, Marchy\_80, Payneful\_76, Turj99\_83, Hermia\_80, A6\_81, BillKnuckles\_78, SarFire\_92, Thor\_92, Niza\_86, Marcell\_79, Kykar\_85, LilBib\_78, Adahisdi\_81, Oogway\_83, Michley\_87, Traft412\_84, Eyeball\_89, Magnito\_86, Mryolo\_81, PascalRango\_84
- Track 3 : Killigrew\_83, Rubeus\_85, Rufus\_90, Lopton\_86
- Track 4 : Violet\_80, Doom\_79, Chanagan\_82, Treddle\_86, Ohno789\_92, Monet\_89, Bxb1\_81, STLscum\_94, Homines\_75, Big3\_88, Carlyle\_86, MrGordo\_89, ILeeKay\_85, BPBiebs31\_92, NEHalo\_85, AFIS\_85, Fushigi\_82, Pelly\_88, Pepe\_79, SpikeBT\_84
- Track 5 : Arlo\_90, Moose\_91, DrFeelGood\_82, Forsytheast\_92, Dexes\_89
- Track 6 : Pippin\_92, Edtherson\_86
- Track 7 : Norz\_83, Gyzlar\_78
- Track 8 : BluSpix\_86, Alsfro\_97, IgnatiusPatJac\_90
- Track 9 : Ajay\_81, MaryBeth\_88, SwissCheese\_92, MetalQZJ\_86
- Track 10 : Ichabod\_91
- Track 11 : Bruns\_92, Euphoria\_90, DreamCatcher\_95
- Track 12 : Magnar\_85
- Track 13 : Kenmech\_90, Dussy\_85, Abbyshoes\_86
- Track 14 : Barriga\_100
- Track 15 : Squee\_85, Naira\_90, Fenn\_91
- Track 16 : Nhonho\_86
- Track 17 : Crispicous1\_82
- Track 18 : Paphu\_85, Wilkins\_89, Marge\_86, Topgun\_88
- Track 19 : Lesedi\_84
- Track 20 : Wheeler\_91
- Track 21 : Corvo\_91
- Track 22 : Zephyr\_88

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

The start number called the most often in the published annotations is 5, it was called in 68 of the 111 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- A6\_81, AFIS\_85, Abbyshoes\_86, Adahisdi\_81, Ajay\_81, Alsfro\_97, Arlo\_90, BK1\_81, BPBiebs31\_92, Big3\_88, BillKnuckles\_78, BluSpix\_86, Bruns\_92, Bxb1\_81, Carlyle\_86, Chanagan\_82, Crispicous1\_82, Dexes\_89, Doom\_79, DrFeelGood\_82, DreamCatcher\_95, Dussy\_85, Espresso\_79, Euphoria\_90, Eyeball\_89, Fenn\_91, Forsytheast\_92, Fushigi\_82, Gyzlar\_78, Hermia\_80, Homines\_75, ILeeKay\_85, IgnatiusPatJac\_90, Kenmech\_90, Killigrew\_83, Kykar\_85, Lesedi\_84, LilBib\_78, Lopton\_86, Magnar\_85, Magnito\_86, Marcell\_79, Marchy\_80, MaryBeth\_88, MetalQZJ\_86, Michley\_87, Monet\_89, Moose\_91, MrGordo\_89, Mryolo\_81, NEHalo\_85, Naira\_90, Nhonho\_86, Niza\_86, Norz\_83, Ohno789\_92, Oogway\_83, PascalRango\_84, Payneful\_76, Pelly\_88, Pepe\_79, Rubeus\_85, Rufus\_90, STLscum\_94, SarFire\_92, SpikeBT\_84, Squee\_85, SwissCheese\_92, Teodoridan\_90, Thor\_92, Traft412\_84, Treddle\_86, Turj99\_83, Violet\_80, Wheeler\_91,

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

- Corvo\_91,

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

- Abrogate\_870, Aeneas\_95, Applejack\_88, Ashballer\_90, BaconJack\_93, Barriga\_100, Beatrix\_88, Bexan\_86, BigMau\_90, Bob3\_89, Bones\_85, Edtherson\_86, Gandalf20\_89, Hami1\_82, HarryOW\_90, Ichabod\_91, JC27\_93, JackSparrow\_91, Jerm2\_89, Jorgensen\_99, Lamina13\_92, MPlant7149\_89, Marge\_86, Marsha\_92, Mule\_91, Nerujay\_92, Paphu\_85, Paraselene\_86, Parliament\_89, Perseus\_89, Pippin\_92, RidgeCB\_88, Rohr\_91, Sagefire\_85, SkiPole\_97, Smairt\_96, Solon\_82, StewieG\_85, StrongArm\_87, Sumter\_86, Sunshine924\_92, Tasp14\_86, Topgun\_88, Wilkins\_89, Zephyr\_88,

### **Summary by start number:**

Start 5:

- Found in 76 of 121 ( 62.8% ) of genes in pham
- Manual Annotations of this start: 68 of 111
- Called 98.7% of time when present
- Phage (with cluster) where this start called: A6\_81 (A1), AFIS\_85 (A1), Abbyshoes\_86 (A1), Adahisdi\_81 (A1), Ajay\_81 (A1), Alsfro\_97 (A1), Arlo\_90 (A1), BK1\_81 (A1), BPBiebs31\_92 (A1), Big3\_88 (A1), BillKnuckles\_78 (A1), BluSpix\_86 (A1), Bruns\_92 (A1), Bxb1\_81 (A1), Carlyle\_86 (A1), Chanagan\_82 (A1), Crispicous1\_82 (A1), Dexes\_89 (A1), Doom\_79 (A1), DrFeelGood\_82 (A1), DreamCatcher\_95 (A1), Dussy\_85 (A1), Espresso\_79 (A1), Euphoria\_90 (A1), Eyeball\_89 (A1), Fenn\_91 (A1), Forsytheast\_92 (A1), Fushigi\_82 (A1), Gyzlar\_78 (A1), Hermia\_80 (A1), Homines\_75 (A1), ILeeKay\_85 (A1), IgnatiusPatJac\_90 (A1), Kenmech\_90 (A1), Killigrew\_83 (A1), Kykar\_85 (A1), Lesedi\_84 (A1), LilBib\_78 (A1), Lopton\_86 (A1), Magnar\_85 (A1), Magnito\_86 (A1), Marcell\_79 (A1), Marchy\_80 (A1), MaryBeth\_88 (A1), MetalQZJ\_86 (A1), Michley\_87 (A1), Monet\_89 (A1), Moose\_91 (A1), MrGordo\_89 (A1), Mryolo\_81 (A1), NEHalo\_85 (A1), Naira\_90 (A1), Nhonho\_86 (A1), Niza\_86 (A1), Norz\_83 (A1), Ohno789\_92 (A1), Oogway\_83 (A1),

PascalRango\_84 (A1), Payneful\_76 (A1), Pelly\_88 (A1), Pepe\_79 (A1), Rubeus\_85 (A1), Rufus\_90 (A1), STLscum\_94 (A1), SarFire\_92 (A1), SpikeBT\_84 (A1), Squee\_85 (A1), SwissCheese\_92 (A1), Teodoridan\_90 (A1), Thor\_92 (A1), Traft412\_84 (A1), Treddle\_86 (A1), Turj99\_83 (A1), Violet\_80 (A1), Wheeler\_91 (A1),

Start 6:

- Found in 45 of 121 ( 37.2% ) of genes in pham
- Manual Annotations of this start: 42 of 111
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abrogate\_870 (A1), Aeneas\_95 (A1), Applejack\_88 (A1), Ashballer\_90 (A1), BaconJack\_93 (A1), Barriga\_100 (A1), Beatrix\_88 (A1), Bexan\_86 (A1), BigMau\_90 (A1), Bob3\_89 (A1), Bones\_85 (A1), Edtherson\_86 (A1), Gandalf20\_89 (A1), Hami1\_82 (A1), HarryOW\_90 (A1), Ichabod\_91 (A1), JC27\_93 (A1), JackSparrow\_91 (A1), Jerm2\_89 (A1), Jorgensen\_99 (A1), Lamina13\_92 (A1), MPlant7149\_89 (A1), Marge\_86 (A1), Marsha\_92 (A1), Mule\_91 (A1), Nerujay\_92 (A1), Paphu\_85 (A1), Paraselene\_86 (A1), Parliament\_89 (A1), Perseus\_89 (A1), Pippin\_92 (A1), RidgeCB\_88 (A1), Rohr\_91 (A1), Sagefire\_85 (A1), SkiPole\_97 (A1), Smairt\_96 (A1), Solon\_82 (A1), StewieG\_85 (A1), StrongArm\_87 (A1), Sumter\_86 (A1), Sunshine924\_92 (A1), Tasp14\_86 (A1), Topgun\_88 (A1), Wilkins\_89 (A1), Zephyr\_88 (A1),

Start 7:

- Found in 111 of 121 ( 91.7% ) of genes in pham
- Manual Annotations of this start: 1 of 111
- Called 0.9% of time when present
- Phage (with cluster) where this start called: Corvo\_91 (A1),

### Summary by clusters:

There is one cluster represented in this pham: A1

Info for manual annotations of cluster A1:

- Start number 5 was manually annotated 68 times for cluster A1.
- Start number 6 was manually annotated 42 times for cluster A1.
- Start number 7 was manually annotated 1 time for cluster A1.

### Gene Information:

Gene: A6\_81 Start: 47723, Stop: 47568, Start Num: 5

Candidate Starts for A6\_81:

(1, 47861), (Start: 5 @47723 has 68 MA's), (Start: 7 @47711 has 1 MA's), (8, 47648), (9, 47627), (10, 47621),

Gene: AFIS\_85 Start: 50465, Stop: 50310, Start Num: 5

Candidate Starts for AFIS\_85:

(1, 50603), (Start: 5 @50465 has 68 MA's), (Start: 7 @50453 has 1 MA's), (9, 50369), (10, 50363),

Gene: Abbyshoes\_86 Start: 50070, Stop: 49915, Start Num: 5

Candidate Starts for Abbyshoes\_86:

(2, 50208), (Start: 5 @50070 has 68 MA's), (8, 49995), (9, 49974), (10, 49968),

Gene: Abrogate\_870 Start: 50653, Stop: 50808, Start Num: 6

Candidate Starts for Abrogate\_870:

(4, 50569), (Start: 6 @50653 has 42 MA's), (Start: 7 @50665 has 1 MA's), (9, 50749), (10, 50755),

Gene: Adahisdi\_81 Start: 49910, Stop: 49755, Start Num: 5

Candidate Starts for Adahisdi\_81:

(1, 50048), (Start: 5 @49910 has 68 MA's), (Start: 7 @49898 has 1 MA's), (8, 49835), (9, 49814), (10, 49808),

Gene: Aeneas\_95 Start: 51953, Stop: 52108, Start Num: 6

Candidate Starts for Aeneas\_95:

(4, 51869), (Start: 6 @51953 has 42 MA's), (Start: 7 @51965 has 1 MA's), (9, 52049), (10, 52055),

Gene: Ajay\_81 Start: 48236, Stop: 48081, Start Num: 5

Candidate Starts for Ajay\_81:

(Start: 5 @48236 has 68 MA's), (Start: 7 @48224 has 1 MA's), (8, 48161), (9, 48140), (10, 48134),

Gene: Alsfro\_97 Start: 50466, Stop: 50621, Start Num: 5

Candidate Starts for Alsfro\_97:

(Start: 5 @50466 has 68 MA's), (9, 50562), (10, 50568),

Gene: Applejack\_88 Start: 47892, Stop: 48047, Start Num: 6

Candidate Starts for Applejack\_88:

(4, 47808), (Start: 6 @47892 has 42 MA's), (Start: 7 @47904 has 1 MA's), (9, 47988), (10, 47994),

Gene: Arlo\_90 Start: 50666, Stop: 50511, Start Num: 5

Candidate Starts for Arlo\_90:

(Start: 5 @50666 has 68 MA's), (Start: 7 @50654 has 1 MA's), (9, 50570), (10, 50564),

Gene: Ashballer\_90 Start: 50355, Stop: 50510, Start Num: 6

Candidate Starts for Ashballer\_90:

(4, 50271), (Start: 6 @50355 has 42 MA's), (Start: 7 @50367 has 1 MA's), (9, 50451), (10, 50457),

Gene: BK1\_81 Start: 47723, Stop: 47568, Start Num: 5

Candidate Starts for BK1\_81:

(1, 47861), (Start: 5 @47723 has 68 MA's), (Start: 7 @47711 has 1 MA's), (8, 47648), (9, 47627), (10, 47621),

Gene: BPBiebs31\_92 Start: 51541, Stop: 51386, Start Num: 5

Candidate Starts for BPBiebs31\_92:

(1, 51679), (Start: 5 @51541 has 68 MA's), (Start: 7 @51529 has 1 MA's), (9, 51445), (10, 51439),

Gene: BaconJack\_93 Start: 51904, Stop: 52059, Start Num: 6

Candidate Starts for BaconJack\_93:

(4, 51820), (Start: 6 @51904 has 42 MA's), (Start: 7 @51916 has 1 MA's), (9, 52000), (10, 52006),

Gene: Barriga\_100 Start: 51695, Stop: 51850, Start Num: 6

Candidate Starts for Barriga\_100:

(Start: 6 @51695 has 42 MA's), (Start: 7 @51707 has 1 MA's), (9, 51791), (10, 51797),

Gene: Beatrix\_88 Start: 50550, Stop: 50705, Start Num: 6

Candidate Starts for Beatrix\_88:

(4, 50466), (Start: 6 @50550 has 42 MA's), (Start: 7 @50562 has 1 MA's), (9, 50646), (10, 50652),

Gene: Bexan\_86 Start: 50326, Stop: 50481, Start Num: 6

Candidate Starts for Bexan\_86:

(4, 50242), (Start: 6 @50326 has 42 MA's), (Start: 7 @50338 has 1 MA's), (9, 50422), (10, 50428),

Gene: Big3\_88 Start: 51715, Stop: 51560, Start Num: 5

Candidate Starts for Big3\_88:

(1, 51853), (Start: 5 @51715 has 68 MA's), (Start: 7 @51703 has 1 MA's), (9, 51619), (10, 51613),

Gene: BigMau\_90 Start: 50915, Stop: 51070, Start Num: 6

Candidate Starts for BigMau\_90:

(4, 50831), (Start: 6 @50915 has 42 MA's), (Start: 7 @50927 has 1 MA's), (9, 51011), (10, 51017),

Gene: BillKnuckles\_78 Start: 49136, Stop: 48981, Start Num: 5

Candidate Starts for BillKnuckles\_78:

(1, 49274), (Start: 5 @49136 has 68 MA's), (Start: 7 @49124 has 1 MA's), (8, 49061), (9, 49040), (10, 49034),

Gene: BluSpix\_86 Start: 45802, Stop: 45957, Start Num: 5

Candidate Starts for BluSpix\_86:

(Start: 5 @45802 has 68 MA's), (9, 45898), (10, 45904),

Gene: Bob3\_89 Start: 50349, Stop: 50504, Start Num: 6

Candidate Starts for Bob3\_89:

(4, 50265), (Start: 6 @50349 has 42 MA's), (Start: 7 @50361 has 1 MA's), (9, 50445), (10, 50451),

Gene: Bones\_85 Start: 50800, Stop: 50955, Start Num: 6

Candidate Starts for Bones\_85:

(4, 50716), (Start: 6 @50800 has 42 MA's), (Start: 7 @50812 has 1 MA's), (9, 50896), (10, 50902),

Gene: Bruns\_92 Start: 50874, Stop: 50719, Start Num: 5

Candidate Starts for Bruns\_92:

(Start: 5 @50874 has 68 MA's), (8, 50799), (9, 50778), (10, 50772),

Gene: Bxb1\_81 Start: 47928, Stop: 47773, Start Num: 5

Candidate Starts for Bxb1\_81:

(1, 48066), (Start: 5 @47928 has 68 MA's), (Start: 7 @47916 has 1 MA's), (9, 47832), (10, 47826),

Gene: Carlyle\_86 Start: 49254, Stop: 49099, Start Num: 5

Candidate Starts for Carlyle\_86:

(1, 49392), (Start: 5 @49254 has 68 MA's), (Start: 7 @49242 has 1 MA's), (9, 49158), (10, 49152),

Gene: Chanagan\_82 Start: 48819, Stop: 48664, Start Num: 5

Candidate Starts for Chanagan\_82:

(1, 48957), (Start: 5 @48819 has 68 MA's), (Start: 7 @48807 has 1 MA's), (9, 48723), (10, 48717),

Gene: Corvo\_91 Start: 52104, Stop: 51961, Start Num: 7

Candidate Starts for Corvo\_91:

(Start: 5 @52116 has 68 MA's), (Start: 7 @52104 has 1 MA's), (8, 52041), (9, 52020), (10, 52014),

Gene: Crispicous1\_82 Start: 47556, Stop: 47401, Start Num: 5

Candidate Starts for Crispicous1\_82:

(3, 47649), (Start: 5 @47556 has 68 MA's), (Start: 7 @47544 has 1 MA's), (8, 47481), (9, 47460), (10, 47454),

Gene: Dexes\_89 Start: 52706, Stop: 52551, Start Num: 5

Candidate Starts for Dexes\_89:

(Start: 5 @52706 has 68 MA's), (Start: 7 @52694 has 1 MA's), (9, 52610), (10, 52604),

Gene: Doom\_79 Start: 48748, Stop: 48593, Start Num: 5

Candidate Starts for Doom\_79:

(1, 48886), (Start: 5 @48748 has 68 MA's), (Start: 7 @48736 has 1 MA's), (9, 48652), (10, 48646),

Gene: DrFeelGood\_82 Start: 48536, Stop: 48381, Start Num: 5

Candidate Starts for DrFeelGood\_82:

(Start: 5 @48536 has 68 MA's), (Start: 7 @48524 has 1 MA's), (9, 48440), (10, 48434),

Gene: DreamCatcher\_95 Start: 50913, Stop: 50758, Start Num: 5

Candidate Starts for DreamCatcher\_95:

(Start: 5 @50913 has 68 MA's), (8, 50838), (9, 50817), (10, 50811),

Gene: Dussy\_85 Start: 50090, Stop: 49935, Start Num: 5

Candidate Starts for Dussy\_85:

(2, 50228), (Start: 5 @50090 has 68 MA's), (8, 50015), (9, 49994), (10, 49988),

Gene: Edtherson\_86 Start: 49594, Stop: 49749, Start Num: 6

Candidate Starts for Edtherson\_86:

(3, 49495), (4, 49510), (Start: 6 @49594 has 42 MA's), (Start: 7 @49606 has 1 MA's), (9, 49690), (10, 49696),

Gene: Espresso\_79 Start: 48605, Stop: 48450, Start Num: 5

Candidate Starts for Espresso\_79:

(1, 48743), (Start: 5 @48605 has 68 MA's), (Start: 7 @48593 has 1 MA's), (8, 48530), (9, 48509), (10, 48503),

Gene: Euphoria\_90 Start: 51439, Stop: 51284, Start Num: 5

Candidate Starts for Euphoria\_90:

(Start: 5 @51439 has 68 MA's), (8, 51364), (9, 51343), (10, 51337),

Gene: Eyeball\_89 Start: 49855, Stop: 50010, Start Num: 5

Candidate Starts for Eyeball\_89:

(1, 49717), (Start: 5 @49855 has 68 MA's), (Start: 7 @49867 has 1 MA's), (8, 49930), (9, 49951), (10, 49957),

Gene: Fenn\_91 Start: 50859, Stop: 50704, Start Num: 5

Candidate Starts for Fenn\_91:

(Start: 5 @50859 has 68 MA's), (Start: 7 @50847 has 1 MA's), (9, 50763), (10, 50757),

Gene: Forsytheast\_92 Start: 51090, Stop: 50935, Start Num: 5

Candidate Starts for Forsytheast\_92:

(Start: 5 @51090 has 68 MA's), (Start: 7 @51078 has 1 MA's), (9, 50994), (10, 50988),

Gene: Fushigi\_82 Start: 48105, Stop: 47950, Start Num: 5

Candidate Starts for Fushigi\_82:

(1, 48243), (Start: 5 @48105 has 68 MA's), (Start: 7 @48093 has 1 MA's), (9, 48009), (10, 48003),

Gene: Gandalf20\_89 Start: 49846, Stop: 50001, Start Num: 6

Candidate Starts for Gandalf20\_89:

(4, 49762), (Start: 6 @49846 has 42 MA's), (Start: 7 @49858 has 1 MA's), (9, 49942), (10, 49948),

Gene: Gyzlar\_78 Start: 46078, Stop: 45923, Start Num: 5

Candidate Starts for Gyzlar\_78:

(Start: 5 @46078 has 68 MA's), (Start: 7 @46066 has 1 MA's), (9, 45982), (10, 45976),

Gene: Hami1\_82 Start: 45972, Stop: 46127, Start Num: 6

Candidate Starts for Hami1\_82:

(4, 45888), (Start: 6 @45972 has 42 MA's), (Start: 7 @45984 has 1 MA's), (9, 46068), (10, 46074),

Gene: HarryOW\_90 Start: 51196, Stop: 51351, Start Num: 6

Candidate Starts for HarryOW\_90:

(4, 51112), (Start: 6 @51196 has 42 MA's), (Start: 7 @51208 has 1 MA's), (9, 51292), (10, 51298),

Gene: Hermia\_80 Start: 47974, Stop: 47819, Start Num: 5

Candidate Starts for Hermia\_80:

(1, 48112), (Start: 5 @47974 has 68 MA's), (Start: 7 @47962 has 1 MA's), (8, 47899), (9, 47878), (10, 47872),

Gene: Homines\_75 Start: 44684, Stop: 44529, Start Num: 5

Candidate Starts for Homines\_75:

(1, 44822), (Start: 5 @44684 has 68 MA's), (Start: 7 @44672 has 1 MA's), (9, 44588), (10, 44582),

Gene: ILeeKay\_85 Start: 48714, Stop: 48559, Start Num: 5

Candidate Starts for ILeeKay\_85:

(1, 48852), (Start: 5 @48714 has 68 MA's), (Start: 7 @48702 has 1 MA's), (9, 48618), (10, 48612),

Gene: Ichabod\_91 Start: 51338, Stop: 51183, Start Num: 6

Candidate Starts for Ichabod\_91:

(Start: 6 @51338 has 42 MA's), (Start: 7 @51326 has 1 MA's), (8, 51263), (9, 51242), (10, 51236),

Gene: IgnatiusPatJac\_90 Start: 49747, Stop: 49902, Start Num: 5

Candidate Starts for IgnatiusPatJac\_90:

(Start: 5 @49747 has 68 MA's), (9, 49843), (10, 49849),

Gene: JC27\_93 Start: 50427, Stop: 50582, Start Num: 6

Candidate Starts for JC27\_93:

(4, 50343), (Start: 6 @50427 has 42 MA's), (Start: 7 @50439 has 1 MA's), (9, 50523), (10, 50529),

Gene: JackSparrow\_91 Start: 49865, Stop: 50020, Start Num: 6

Candidate Starts for JackSparrow\_91:

(4, 49781), (Start: 6 @49865 has 42 MA's), (Start: 7 @49877 has 1 MA's), (9, 49961), (10, 49967),

Gene: Jerm2\_89 Start: 51479, Stop: 51634, Start Num: 6

Candidate Starts for Jerm2\_89:

(4, 51395), (Start: 6 @51479 has 42 MA's), (Start: 7 @51491 has 1 MA's), (9, 51575), (10, 51581),

Gene: Jorgensen\_99 Start: 51886, Stop: 52041, Start Num: 6

Candidate Starts for Jorgensen\_99:

(4, 51802), (Start: 6 @51886 has 42 MA's), (Start: 7 @51898 has 1 MA's), (9, 51982), (10, 51988),



Gene: Kenmech\_90 Start: 51216, Stop: 51061, Start Num: 5

Candidate Starts for Kenmech\_90:

(2, 51354), (Start: 5 @51216 has 68 MA's), (8, 51141), (9, 51120), (10, 51114),

Gene: Killigrew\_83 Start: 48920, Stop: 48765, Start Num: 5

Candidate Starts for Killigrew\_83:

(Start: 5 @48920 has 68 MA's), (Start: 7 @48908 has 1 MA's), (8, 48845), (9, 48824), (10, 48818),

Gene: Kykar\_85 Start: 49033, Stop: 48878, Start Num: 5

Candidate Starts for Kykar\_85:

(1, 49171), (Start: 5 @49033 has 68 MA's), (Start: 7 @49021 has 1 MA's), (8, 48958), (9, 48937), (10, 48931),

Gene: Lamina13\_92 Start: 51519, Stop: 51674, Start Num: 6

Candidate Starts for Lamina13\_92:

(4, 51435), (Start: 6 @51519 has 42 MA's), (Start: 7 @51531 has 1 MA's), (9, 51615), (10, 51621),

Gene: Lesedi\_84 Start: 48861, Stop: 48706, Start Num: 5

Candidate Starts for Lesedi\_84:

(Start: 5 @48861 has 68 MA's), (Start: 7 @48849 has 1 MA's), (8, 48786), (9, 48765), (10, 48759),

Gene: LilBib\_78 Start: 48886, Stop: 48731, Start Num: 5

Candidate Starts for LilBib\_78:

(1, 49024), (Start: 5 @48886 has 68 MA's), (Start: 7 @48874 has 1 MA's), (8, 48811), (9, 48790), (10, 48784),

Gene: Lopton\_86 Start: 51138, Stop: 50983, Start Num: 5

Candidate Starts for Lopton\_86:

(Start: 5 @51138 has 68 MA's), (Start: 7 @51126 has 1 MA's), (8, 51063), (9, 51042), (10, 51036),

Gene: MPlant7149\_89 Start: 49640, Stop: 49795, Start Num: 6

Candidate Starts for MPlant7149\_89:

(4, 49556), (Start: 6 @49640 has 42 MA's), (Start: 7 @49652 has 1 MA's), (9, 49736), (10, 49742),

Gene: Magnar\_85 Start: 49250, Stop: 49095, Start Num: 5

Candidate Starts for Magnar\_85:

(Start: 5 @49250 has 68 MA's), (Start: 7 @49238 has 1 MA's), (9, 49154), (10, 49148),

Gene: Magnito\_86 Start: 49283, Stop: 49128, Start Num: 5

Candidate Starts for Magnito\_86:

(1, 49421), (Start: 5 @49283 has 68 MA's), (Start: 7 @49271 has 1 MA's), (8, 49208), (9, 49187), (10, 49181),

Gene: Marcell\_79 Start: 47568, Stop: 47413, Start Num: 5

Candidate Starts for Marcell\_79:

(1, 47706), (Start: 5 @47568 has 68 MA's), (Start: 7 @47556 has 1 MA's), (8, 47493), (9, 47472), (10, 47466),

Gene: Marchy\_80 Start: 48135, Stop: 48290, Start Num: 5

Candidate Starts for Marchy\_80:

(1, 47997), (Start: 5 @48135 has 68 MA's), (Start: 7 @48147 has 1 MA's), (8, 48210), (9, 48231), (10, 48237),

Gene: Marge\_86 Start: 49530, Stop: 49685, Start Num: 6

Candidate Starts for Marge\_86:

(4, 49446), (Start: 6 @49530 has 42 MA's), (Start: 7 @49542 has 1 MA's), (8, 49605), (9, 49626), (10, 49632),

Gene: Marsha\_92 Start: 52716, Stop: 52871, Start Num: 6

Candidate Starts for Marsha\_92:

(4, 52632), (Start: 6 @52716 has 42 MA's), (Start: 7 @52728 has 1 MA's), (9, 52812), (10, 52818),

Gene: MaryBeth\_88 Start: 50591, Stop: 50436, Start Num: 5

Candidate Starts for MaryBeth\_88:

(Start: 5 @50591 has 68 MA's), (Start: 7 @50579 has 1 MA's), (8, 50516), (9, 50495), (10, 50489),

Gene: MetalQZJ\_86 Start: 50591, Stop: 50436, Start Num: 5

Candidate Starts for MetalQZJ\_86:

(Start: 5 @50591 has 68 MA's), (Start: 7 @50579 has 1 MA's), (8, 50516), (9, 50495), (10, 50489),

Gene: Michley\_87 Start: 49610, Stop: 49455, Start Num: 5

Candidate Starts for Michley\_87:

(1, 49748), (Start: 5 @49610 has 68 MA's), (Start: 7 @49598 has 1 MA's), (8, 49535), (9, 49514), (10, 49508),

Gene: Monet\_89 Start: 50761, Stop: 50606, Start Num: 5

Candidate Starts for Monet\_89:

(1, 50899), (Start: 5 @50761 has 68 MA's), (Start: 7 @50749 has 1 MA's), (9, 50665), (10, 50659),

Gene: Moose\_91 Start: 51090, Stop: 50935, Start Num: 5

Candidate Starts for Moose\_91:

(Start: 5 @51090 has 68 MA's), (Start: 7 @51078 has 1 MA's), (9, 50994), (10, 50988),

Gene: MrGordo\_89 Start: 49461, Stop: 49306, Start Num: 5

Candidate Starts for MrGordo\_89:

(1, 49599), (Start: 5 @49461 has 68 MA's), (Start: 7 @49449 has 1 MA's), (9, 49365), (10, 49359),

Gene: Mryolo\_81 Start: 47954, Stop: 47799, Start Num: 5

Candidate Starts for Mryolo\_81:

(1, 48092), (Start: 5 @47954 has 68 MA's), (Start: 7 @47942 has 1 MA's), (8, 47879), (9, 47858), (10, 47852),

Gene: Mule\_91 Start: 49734, Stop: 49889, Start Num: 6

Candidate Starts for Mule\_91:

(4, 49650), (Start: 6 @49734 has 42 MA's), (Start: 7 @49746 has 1 MA's), (9, 49830), (10, 49836),

Gene: NEHalo\_85 Start: 49275, Stop: 49120, Start Num: 5

Candidate Starts for NEHalo\_85:

(1, 49413), (Start: 5 @49275 has 68 MA's), (Start: 7 @49263 has 1 MA's), (9, 49179), (10, 49173),

Gene: Naira\_90 Start: 50991, Stop: 50836, Start Num: 5

Candidate Starts for Naira\_90:

(Start: 5 @50991 has 68 MA's), (Start: 7 @50979 has 1 MA's), (9, 50895), (10, 50889),

Gene: Nerujay\_92 Start: 51482, Stop: 51637, Start Num: 6

Candidate Starts for Nerujay\_92:

(4, 51398), (Start: 6 @51482 has 42 MA's), (Start: 7 @51494 has 1 MA's), (9, 51578), (10, 51584),

Gene: Nhonho\_86 Start: 50408, Stop: 50563, Start Num: 5

Candidate Starts for Nhonho\_86:

(1, 50264), (3, 50309), (Start: 5 @50408 has 68 MA's), (Start: 7 @50420 has 1 MA's), (9, 50504), (10, 50510),

Gene: Niza\_86 Start: 50414, Stop: 50259, Start Num: 5

Candidate Starts for Niza\_86:

(1, 50552), (Start: 5 @50414 has 68 MA's), (Start: 7 @50402 has 1 MA's), (8, 50339), (9, 50318), (10, 50312),

Gene: Norz\_83 Start: 51456, Stop: 51301, Start Num: 5

Candidate Starts for Norz\_83:

(Start: 5 @51456 has 68 MA's), (Start: 7 @51444 has 1 MA's), (9, 51360), (10, 51354),

Gene: Ohno789\_92 Start: 51555, Stop: 51400, Start Num: 5

Candidate Starts for Ohno789\_92:

(1, 51693), (Start: 5 @51555 has 68 MA's), (Start: 7 @51543 has 1 MA's), (9, 51459), (10, 51453),

Gene: Oogway\_83 Start: 49951, Stop: 49796, Start Num: 5

Candidate Starts for Oogway\_83:

(1, 50089), (Start: 5 @49951 has 68 MA's), (Start: 7 @49939 has 1 MA's), (8, 49876), (9, 49855), (10, 49849),

Gene: Paphu\_85 Start: 48858, Stop: 49013, Start Num: 6

Candidate Starts for Paphu\_85:

(4, 48774), (Start: 6 @48858 has 42 MA's), (Start: 7 @48870 has 1 MA's), (8, 48933), (9, 48954), (10, 48960),

Gene: Paraselene\_86 Start: 49271, Stop: 49426, Start Num: 6

Candidate Starts for Paraselene\_86:

(4, 49187), (Start: 6 @49271 has 42 MA's), (Start: 7 @49283 has 1 MA's), (9, 49367), (10, 49373),

Gene: Parliament\_89 Start: 52002, Stop: 52157, Start Num: 6

Candidate Starts for Parliament\_89:

(4, 51918), (Start: 6 @52002 has 42 MA's), (Start: 7 @52014 has 1 MA's), (9, 52098), (10, 52104),

Gene: PascalRango\_84 Start: 48984, Stop: 48829, Start Num: 5

Candidate Starts for PascalRango\_84:

(1, 49122), (Start: 5 @48984 has 68 MA's), (Start: 7 @48972 has 1 MA's), (8, 48909), (9, 48888), (10, 48882),

Gene: Payneful\_76 Start: 47227, Stop: 47382, Start Num: 5

Candidate Starts for Payneful\_76:

(1, 47089), (Start: 5 @47227 has 68 MA's), (Start: 7 @47239 has 1 MA's), (8, 47302), (9, 47323), (10, 47329),

Gene: Pelly\_88 Start: 52319, Stop: 52164, Start Num: 5

Candidate Starts for Pelly\_88:

(1, 52457), (Start: 5 @52319 has 68 MA's), (Start: 7 @52307 has 1 MA's), (9, 52223), (10, 52217),

Gene: Pepe\_79 Start: 47300, Stop: 47145, Start Num: 5

Candidate Starts for Pepe\_79:

(1, 47438), (Start: 5 @47300 has 68 MA's), (Start: 7 @47288 has 1 MA's), (9, 47204), (10, 47198),

Gene: Perseus\_89 Start: 51530, Stop: 51685, Start Num: 6

Candidate Starts for Perseus\_89:

(4, 51446), (Start: 6 @51530 has 42 MA's), (Start: 7 @51542 has 1 MA's), (9, 51626), (10, 51632),

Gene: Pippin\_92 Start: 50407, Stop: 50562, Start Num: 6

Candidate Starts for Pippin\_92:

(3, 50308), (4, 50323), (Start: 6 @50407 has 42 MA's), (Start: 7 @50419 has 1 MA's), (9, 50503), (10, 50509),

Gene: RidgeCB\_88 Start: 48978, Stop: 49133, Start Num: 6

Candidate Starts for RidgeCB\_88:

(4, 48894), (Start: 6 @48978 has 42 MA's), (Start: 7 @48990 has 1 MA's), (9, 49074), (10, 49080),

Gene: Rohr\_91 Start: 51730, Stop: 51885, Start Num: 6

Candidate Starts for Rohr\_91:

(4, 51646), (Start: 6 @51730 has 42 MA's), (Start: 7 @51742 has 1 MA's), (9, 51826), (10, 51832),

Gene: Rubeus\_85 Start: 47783, Stop: 47628, Start Num: 5

Candidate Starts for Rubeus\_85:

(Start: 5 @47783 has 68 MA's), (Start: 7 @47771 has 1 MA's), (8, 47708), (9, 47687), (10, 47681),

Gene: Rufus\_90 Start: 51100, Stop: 50945, Start Num: 5

Candidate Starts for Rufus\_90:

(Start: 5 @51100 has 68 MA's), (Start: 7 @51088 has 1 MA's), (8, 51025), (9, 51004), (10, 50998),

Gene: STLscum\_94 Start: 50390, Stop: 50235, Start Num: 5

Candidate Starts for STLscum\_94:

(1, 50528), (Start: 5 @50390 has 68 MA's), (Start: 7 @50378 has 1 MA's), (9, 50294), (10, 50288),

Gene: Sagefire\_85 Start: 49874, Stop: 50029, Start Num: 6

Candidate Starts for Sagefire\_85:

(4, 49790), (Start: 6 @49874 has 42 MA's), (Start: 7 @49886 has 1 MA's), (9, 49970), (10, 49976),

Gene: SarFire\_92 Start: 51928, Stop: 51773, Start Num: 5

Candidate Starts for SarFire\_92:

(1, 52066), (Start: 5 @51928 has 68 MA's), (Start: 7 @51916 has 1 MA's), (8, 51853), (9, 51832), (10, 51826),

Gene: SkiPole\_97 Start: 51267, Stop: 51422, Start Num: 6

Candidate Starts for SkiPole\_97:

(4, 51183), (Start: 6 @51267 has 42 MA's), (Start: 7 @51279 has 1 MA's), (9, 51363), (10, 51369),

Gene: Smairt\_96 Start: 52921, Stop: 53076, Start Num: 6

Candidate Starts for Smairt\_96:

(4, 52837), (Start: 6 @52921 has 42 MA's), (Start: 7 @52933 has 1 MA's), (9, 53017), (10, 53023),

Gene: Solon\_82 Start: 47584, Stop: 47739, Start Num: 6

Candidate Starts for Solon\_82:

(4, 47500), (Start: 6 @47584 has 42 MA's), (Start: 7 @47596 has 1 MA's), (9, 47680), (10, 47686),

Gene: SpikeBT\_84 Start: 48919, Stop: 48764, Start Num: 5

Candidate Starts for SpikeBT\_84:

(1, 49057), (Start: 5 @48919 has 68 MA's), (Start: 7 @48907 has 1 MA's), (9, 48823), (10, 48817),

Gene: Squee\_85 Start: 49363, Stop: 49208, Start Num: 5

Candidate Starts for Squee\_85:

(Start: 5 @49363 has 68 MA's), (Start: 7 @49351 has 1 MA's), (9, 49267), (10, 49261),

Gene: StewieG\_85 Start: 47510, Stop: 47665, Start Num: 6

Candidate Starts for StewieG\_85:

(4, 47426), (Start: 6 @47510 has 42 MA's), (Start: 7 @47522 has 1 MA's), (9, 47606), (10, 47612),

Gene: StrongArm\_87 Start: 50454, Stop: 50609, Start Num: 6

Candidate Starts for StrongArm\_87:

(4, 50370), (Start: 6 @50454 has 42 MA's), (Start: 7 @50466 has 1 MA's), (9, 50550), (10, 50556),

Gene: Sumter\_86 Start: 50916, Stop: 51071, Start Num: 6

Candidate Starts for Sumter\_86:

(4, 50832), (Start: 6 @50916 has 42 MA's), (Start: 7 @50928 has 1 MA's), (9, 51012), (10, 51018),

Gene: Sunshine924\_92 Start: 49452, Stop: 49607, Start Num: 6

Candidate Starts for Sunshine924\_92:

(4, 49368), (Start: 6 @49452 has 42 MA's), (Start: 7 @49464 has 1 MA's), (9, 49548), (10, 49554),

Gene: SwissCheese\_92 Start: 50561, Stop: 50406, Start Num: 5

Candidate Starts for SwissCheese\_92:

(Start: 5 @50561 has 68 MA's), (Start: 7 @50549 has 1 MA's), (8, 50486), (9, 50465), (10, 50459),

Gene: Tasp14\_86 Start: 49682, Stop: 49837, Start Num: 6

Candidate Starts for Tasp14\_86:

(4, 49598), (Start: 6 @49682 has 42 MA's), (Start: 7 @49694 has 1 MA's), (9, 49778), (10, 49784),

Gene: Teodoridan\_90 Start: 49615, Stop: 49460, Start Num: 5

Candidate Starts for Teodoridan\_90:

(1, 49753), (Start: 5 @49615 has 68 MA's), (Start: 7 @49603 has 1 MA's), (8, 49540), (9, 49519), (10, 49513),

Gene: Thor\_92 Start: 51286, Stop: 51131, Start Num: 5

Candidate Starts for Thor\_92:

(1, 51424), (Start: 5 @51286 has 68 MA's), (Start: 7 @51274 has 1 MA's), (8, 51211), (9, 51190), (10, 51184),

Gene: Topgun\_88 Start: 49080, Stop: 49235, Start Num: 6

Candidate Starts for Topgun\_88:

(4, 48996), (Start: 6 @49080 has 42 MA's), (Start: 7 @49092 has 1 MA's), (8, 49155), (9, 49176), (10, 49182),

Gene: Traft412\_84 Start: 49780, Stop: 49625, Start Num: 5

Candidate Starts for Traft412\_84:

(1, 49918), (Start: 5 @49780 has 68 MA's), (Start: 7 @49768 has 1 MA's), (8, 49705), (9, 49684), (10, 49678),

Gene: Treddle\_86 Start: 50405, Stop: 50250, Start Num: 5

Candidate Starts for Treddle\_86:

(1, 50543), (Start: 5 @50405 has 68 MA's), (Start: 7 @50393 has 1 MA's), (9, 50309), (10, 50303),

Gene: Turj99\_83 Start: 49891, Stop: 49736, Start Num: 5

Candidate Starts for Turj99\_83:

(1, 50029), (Start: 5 @49891 has 68 MA's), (Start: 7 @49879 has 1 MA's), (8, 49816), (9, 49795), (10, 49789),

Gene: Violet\_80 Start: 49431, Stop: 49276, Start Num: 5

Candidate Starts for Violet\_80:

(1, 49569), (Start: 5 @49431 has 68 MA's), (Start: 7 @49419 has 1 MA's), (9, 49335), (10, 49329),

Gene: Wheeler\_91 Start: 51263, Stop: 51108, Start Num: 5

Candidate Starts for Wheeler\_91:

(Start: 5 @51263 has 68 MA's), (9, 51167), (10, 51161),

Gene: Wilkins\_89 Start: 49010, Stop: 49165, Start Num: 6

Candidate Starts for Wilkins\_89:

(4, 48926), (Start: 6 @49010 has 42 MA's), (Start: 7 @49022 has 1 MA's), (8, 49085), (9, 49106), (10, 49112),

Gene: Zephyr\_88 Start: 50701, Stop: 50546, Start Num: 6

Candidate Starts for Zephyr\_88:

(Start: 6 @50701 has 42 MA's), (Start: 7 @50689 has 1 MA's), (8, 50626), (9, 50605), (10, 50599),