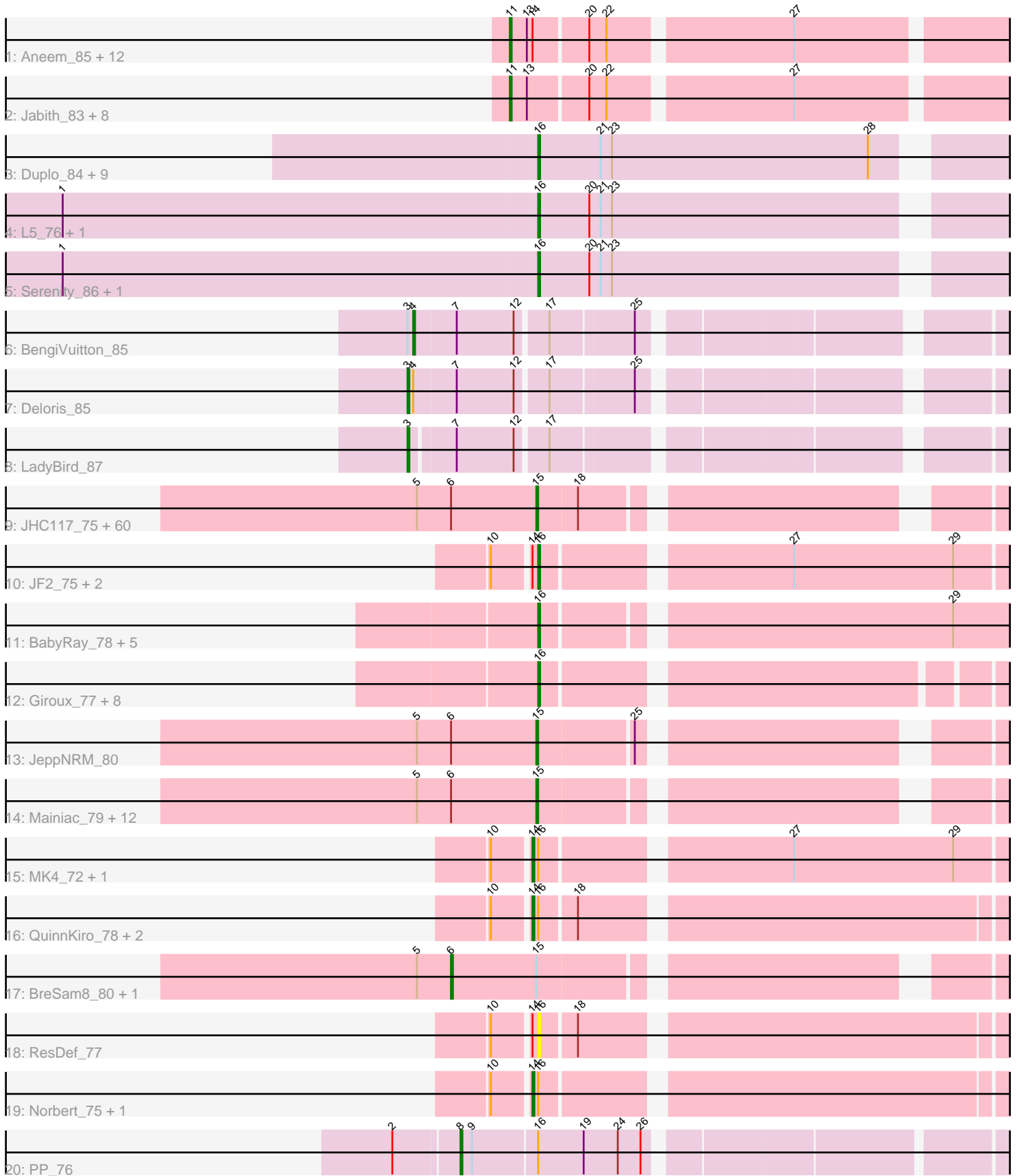


# Pham 157662



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 157662 Report

This analysis was run 04/13/24 on database version 558.

Pham number 157662 has 143 members, 10 are drafts.

Phages represented in each track:

- Track 1 : Aneem\_85, MaCh\_84, TinyTimmy\_82, Orange\_84, Bud\_79, Munch\_84, Joselito\_83, Lucivia\_85, Petersenfast\_78, Bowtie\_81, Flaverint\_85, Mabel\_84, Timothy\_84
- Track 2 : Jabith\_83, Sham4\_80, Et2Brutus\_83, Bachome\_82, Ebony\_84, Insomnia\_82, Mulciber\_82, Gilberta\_81, Snape\_84
- Track 3 : Duplo\_84, AN9\_82, Kerberos\_83, DBQu4n\_83, Pomar16\_83, VC3\_81, ANI8\_82, StarStuff\_83, Tomathan\_83, C3\_75
- Track 4 : L5\_76, Koduck\_83
- Track 5 : Serenity\_86, TopsytheTRex\_82
- Track 6 : BengiVuitton\_85
- Track 7 : Deloris\_85
- Track 8 : LadyBird\_87
- Track 9 : JHC117\_75, Aglet\_81, LugYA\_83, JenCasNa\_81, SoYo\_77, Louie6\_79, Kalnoky\_80, Gemma\_77, Snickers\_76, HaveUMetTed\_80, Pawn\_78, Cullens\_81, Daishi\_79, Penny1\_80, Soshari\_82, SoilDragon\_80, Methuselah\_73, Beauxregard13\_79, MoneyMay\_80, GtownJaz\_80, Hercules11\_80, HashRod\_81, Grif\_78, Marie\_78, Sabinator\_78, OlanP\_78, Fernando\_81, Ollie\_80, Bxz2\_75, EpicPhail\_81, Dieselweasel\_81, Marius\_80, Vix\_76, LarryKay\_80, Taurus\_81, MadMarie\_78, Kalb97\_80, MarQuardt\_80, PotatoSplit\_81, Reba\_75, KADY\_77, Farber\_80, Manu\_79, Phoxy\_80, Tiffany\_79, Anubis\_84, Jobu08\_76, Groupthink\_80, BuzzBuzz\_74, Colbster\_76, Wooldri\_82, LBerry\_81, Rummer\_79, Spike509\_80, Phoebe\_81, PhishRPhriends\_76, GingkoMaracino\_80, P28Green\_80, Grum1\_80, PurpleHaze\_79, Heliosoles\_77
- Track 10 : JF2\_75, JF4\_75, B1\_69
- Track 11 : BabyRay\_78, Fred313\_76, HelDan\_79, MA5\_77, Heathen\_78, Scout\_78
- Track 12 : Giroux\_77, Pistachio\_79, SaturnRing\_79, Idleandcovert\_79, BlueBird\_81, Phantastic\_80, Bugatti\_79, Puppy\_80, TNguyen7\_80
- Track 13 : JeppNRM\_80
- Track 14 : Mainiac\_79, Grub\_78, Pembroke\_80, Malinsilva\_83, Stagni\_77, Sabia\_78, Lilith\_78, AugsMagnumOpus\_83, Microwolf\_76, MuchMore\_83, StepMih\_80, PGHhamlin\_82, DaHudson\_79
- Track 15 : MK4\_72, Isca\_75
- Track 16 : QuinnKiro\_78, Veracruz\_76, Lambert1\_79
- Track 17 : BreSam8\_80, Watson\_79
- Track 18 : ResDef\_77
- Track 19 : Norbert\_75, Margo\_79
- Track 20 : PP\_76

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

The start number called the most often in the published annotations is 15, it was called in 73 of the 133 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aglet\_81, Anubis\_84, AugsMagnumOpus\_83, Beauxregard13\_79, BuzzBuzz\_74, Bxz2\_75, Colbster\_76, Cullens\_81, DaHudson\_79, Daishi\_79, Dieselweasel\_81, EpicPhail\_81, Farber\_80, Fernando\_81, Gemma\_77, GingkoMaracino\_80, Grif\_78, Groupthink\_80, Grub\_78, Grum1\_80, GtownJaz\_80, HashRod\_81, HaveUMetTed\_80, Heliosoles\_77, Hercules11\_80, JHC117\_75, JenCasNa\_81, JeppNRM\_80, Jobu08\_76, KADY\_77, Kalb97\_80, Kalnoky\_80, LBerry\_81, LarryKay\_80, Lilith\_78, Louie6\_79, LugYA\_83, MadMarie\_78, Mainiac\_79, Malinsilva\_83, Manu\_79, MarQuardt\_80, Marie\_78, Marius\_80, Methuselah\_73, Microwolf\_76, MoneyMay\_80, MuchMore\_83, OlanP\_78, Ollie\_80, P28Green\_80, PGHhamlin\_82, Pawn\_78, Pembroke\_80, Penny1\_80, PhishRPhriends\_76, Phoebe\_81, Phoxy\_80, PotatoSplit\_81, PurpleHaze\_79, Reba\_75, Rummer\_79, Sabia\_78, Sabinator\_78, Snickers\_76, SoYo\_77, SoilDragon\_80, Soshari\_82, Spike509\_80, Stagni\_77, StepMih\_80, Taurus\_81, Tiffany\_79, Vix\_76, Wooldri\_82,

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

- BreSam8\_80, Watson\_79,

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

- AN9\_82, ANI8\_82, Aneem\_85, B1\_69, BabyRay\_78, Bachome\_82, BengiVuitton\_85, BlueBird\_81, Bowtie\_81, Bud\_79, Bugatti\_79, C3\_75, DBQu4n\_83, Deloris\_85, Duplo\_84, Ebony\_84, Et2Brutus\_83, Flaverint\_85, Fred313\_76, Gilberta\_81, Giroux\_77, Heathen\_78, HelDan\_79, Idleandcovert\_79, Insomnia\_82, Isca\_75, JF2\_75, JF4\_75, Jabith\_83, Joselito\_83, Kerberos\_83, Koduck\_83, L5\_76, LadyBird\_87, Lambert1\_79, Lucivia\_85, MA5\_77, MK4\_72, MaCh\_84, Mabel\_84, Margo\_79, Mulciber\_82, Munch\_84, Norbert\_75, Orange\_84, PP\_76, Petersenfast\_78, Phantastic\_80, Pistachio\_79, Pomar16\_83, Puppy\_80, QuinnKiro\_78, ResDef\_77, SaturnRing\_79, Scout\_78, Serenity\_86, Sham4\_80, Snape\_84, StarStuff\_83, TNguyen7\_80, Timothy\_84, TinyTimmy\_82, TipsytheTRex\_82, Tomathan\_83, VC3\_81, Veracruz\_76,

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

Start 3:

- Found in 3 of 143 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 2 of 133
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Deloris\_85 (A2), LadyBird\_87 (A2),

Start 4:

- Found in 2 of 143 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 133
- Called 50.0% of time when present
- Phage (with cluster) where this start called: BengiVuitton\_85 (A2),

Start 6:

- Found in 77 of 143 ( 53.8% ) of genes in pham
- Manual Annotations of this start: 2 of 133
- Called 2.6% of time when present
- Phage (with cluster) where this start called: BreSam8\_80 (A3), Watson\_79 (A3),

Start 8:

- Found in 1 of 143 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 133
- Called 100.0% of time when present
- Phage (with cluster) where this start called: PP\_76 (A7),

Start 11:

- Found in 22 of 143 ( 15.4% ) of genes in pham
- Manual Annotations of this start: 19 of 133
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aneem\_85 (A11), Bachome\_82 (A11), Bowtie\_81 (A11), Bud\_79 (A11), Ebony\_84 (A11), Et2Brutus\_83 (A11), Flaverint\_85 (A11), Gilberta\_81 (A11), Insomnia\_82 (A11), Jabith\_83 (A11), Joselito\_83 (A11), Lucivia\_85 (A11), MaCh\_84 (A11), Mabel\_84 (A11), Mulciber\_82 (A11), Munch\_84 (A11), Orange\_84 (A11), Petersenfast\_78 (A11), Sham4\_80 (A11), Snape\_84 (A11), Timothy\_84 (A11), TinyTimmy\_82 (A11),

Start 14:

- Found in 24 of 143 ( 16.8% ) of genes in pham
- Manual Annotations of this start: 7 of 133
- Called 29.2% of time when present
- Phage (with cluster) where this start called: Isca\_75 (A3), Lambert1\_79 (A3), MK4\_72 (A3), Margo\_79 (A3), Norbert\_75 (A3), QuinnKiro\_78 (A3), Veracruz\_76 (A3),

Start 15:

- Found in 77 of 143 ( 53.8% ) of genes in pham
- Manual Annotations of this start: 73 of 133
- Called 97.4% of time when present
- Phage (with cluster) where this start called: Aglet\_81 (A3), Anubis\_84 (A3), AugsMagnumOpus\_83 (A3), Beauxregard13\_79 (A3), BuzzBuzz\_74 (A3), Bxz2\_75 (A3), Colbster\_76 (A3), Cullens\_81 (A3), DaHudson\_79 (A3), Daishi\_79 (A3), Dieselweasel\_81 (A3), EpicPhail\_81 (A3), Farber\_80 (A3), Fernando\_81 (A3), Gemma\_77 (A3), GingkoMaracino\_80 (A3), Grif\_78 (A3), Groupthink\_80 (A3), Grub\_78 (A3), Grum1\_80 (A3), GtownJaz\_80 (A3), HashRod\_81 (A3), HaveUMetTed\_80 (A3), Heliosoles\_77 (A3), Hercules11\_80 (A3), JHC117\_75 (A3), JenCasNa\_81 (A3), JeppNRM\_80 (A3), Jobu08\_76 (A3), KADY\_77 (A3), Kalb97\_80 (A3), Kalnoky\_80 (A3), LBerry\_81 (A3), LarryKay\_80 (A3), Lilith\_78 (A3), Louie6\_79 (A3), LugYA\_83 (A3), MadMarie\_78 (A3), Mainiac\_79 (A3), Malinsilva\_83 (A3), Manu\_79 (A3), MarQuardt\_80 (A3), Marie\_78 (A3), Marius\_80 (A3), Methuselah\_73 (A3), Microwolf\_76 (A3), MoneyMay\_80 (A3), MuchMore\_83 (A3), OlanP\_78 (A3), Ollie\_80 (A3), P28Green\_80 (A3), PGHhamlin\_82 (A3), Pawn\_78 (A3), Pembroke\_80 (A3), Penny1\_80 (A3), PhishRPhriends\_76 (A3), Phoebe\_81 (A3), Phoxy\_80 (A3), PotatoSplit\_81 (A3), PurpleHaze\_79 (A3), Reba\_75 (A3), Rummer\_79 (A3), Sabia\_78 (A3), Sabinator\_78 (A3), Snickers\_76 (A3), SoYo\_77 (A3), SoilDragon\_80 (A3), Soshari\_82 (A3), Spike509\_80 (A3), Stagni\_77 (A3), StepMih\_80 (A3),

Taurus\_81 (A3), Tiffany\_79 (A3), Vix\_76 (A3), Wooldri\_82 (A3),

Start 16:

- Found in 41 of 143 ( 28.7% ) of genes in pham
- Manual Annotations of this start: 28 of 133
- Called 80.5% of time when present
- Phage (with cluster) where this start called: AN9\_82 (A2), ANI8\_82 (A2), B1\_69 (A3), BabyRay\_78 (A3), BlueBird\_81 (A3), Bugatti\_79 (A3), C3\_75 (A2), DBQu4n\_83 (A2), Duplo\_84 (A2), Fred313\_76 (A3), Giroux\_77 (A3), Heathen\_78 (A3), HelDan\_79 (A3), Idleandcovert\_79 (A3), JF2\_75 (A3), JF4\_75 (A3), Kerberos\_83 (A2), Koduck\_83 (A2), L5\_76 (A2), MA5\_77 (A3), Phantastic\_80 (A3), Pistachio\_79 (A3), Pomar16\_83 (A2), Puppy\_80 (A3), ResDef\_77 (A3), SaturnRing\_79 (A3), Scout\_78 (A3), Serenity\_86 (A2), StarStuff\_83 (A2), TNguyen7\_80 (A3), TipsytheTRex\_82 (A2), Tomathan\_83 (A2), VC3\_81 (A2),

### **Summary by clusters:**

There are 4 clusters represented in this pham: A3, A2, A11, A7,

Info for manual annotations of cluster A11:

- Start number 11 was manually annotated 19 times for cluster A11.

Info for manual annotations of cluster A2:

- Start number 3 was manually annotated 2 times for cluster A2.
- Start number 4 was manually annotated 1 time for cluster A2.
- Start number 16 was manually annotated 13 times for cluster A2.

Info for manual annotations of cluster A3:

- Start number 6 was manually annotated 2 times for cluster A3.
- Start number 14 was manually annotated 7 times for cluster A3.
- Start number 15 was manually annotated 73 times for cluster A3.
- Start number 16 was manually annotated 15 times for cluster A3.

Info for manual annotations of cluster A7:

- Start number 8 was manually annotated 1 time for cluster A7.

### **Gene Information:**

Gene: AN9\_82 Start: 46132, Stop: 45854, Start Num: 16

Candidate Starts for AN9\_82:

(Start: 16 @46132 has 28 MA's), (21, 46099), (23, 46093), (28, 45958),

Gene: ANI8\_82 Start: 46132, Stop: 45854, Start Num: 16

Candidate Starts for ANI8\_82:

(Start: 16 @46132 has 28 MA's), (21, 46099), (23, 46093), (28, 45958),

Gene: Aglet\_81 Start: 45628, Stop: 45365, Start Num: 15

Candidate Starts for Aglet\_81:

(5, 45691), (Start: 6 @45673 has 2 MA's), (Start: 15 @45628 has 73 MA's), (18, 45607),

Gene: Aneem\_85 Start: 46838, Stop: 46542, Start Num: 11

Candidate Starts for Aneem\_85:

(Start: 11 @46838 has 19 MA's), (13, 46829), (Start: 14 @46826 has 7 MA's), (20, 46799), (22, 46790), (27, 46700),

Gene: Anubis\_84 Start: 45514, Stop: 45251, Start Num: 15

Candidate Starts for Anubis\_84:

(5, 45577), (Start: 6 @45559 has 2 MA's), (Start: 15 @45514 has 73 MA's), (18, 45493),

Gene: AugsMagnumOpus\_83 Start: 45616, Stop: 45353, Start Num: 15

Candidate Starts for AugsMagnumOpus\_83:

(5, 45679), (Start: 6 @45661 has 2 MA's), (Start: 15 @45616 has 73 MA's),

Gene: B1\_69 Start: 43846, Stop: 43562, Start Num: 16

Candidate Starts for B1\_69:

(10, 43867), (Start: 14 @43849 has 7 MA's), (Start: 16 @43846 has 28 MA's), (27, 43726), (29, 43642),

Gene: BabyRay\_78 Start: 45607, Stop: 45326, Start Num: 16

Candidate Starts for BabyRay\_78:

(Start: 16 @45607 has 28 MA's), (29, 45406),

Gene: Bachome\_82 Start: 45718, Stop: 45422, Start Num: 11

Candidate Starts for Bachome\_82:

(Start: 11 @45718 has 19 MA's), (13, 45709), (20, 45679), (22, 45670), (27, 45580),

Gene: Beauxregard13\_79 Start: 45631, Stop: 45368, Start Num: 15

Candidate Starts for Beauxregard13\_79:

(5, 45694), (Start: 6 @45676 has 2 MA's), (Start: 15 @45631 has 73 MA's), (18, 45610),

Gene: BengiVuitton\_85 Start: 47823, Stop: 47497, Start Num: 4

Candidate Starts for BengiVuitton\_85:

(Start: 3 @47826 has 2 MA's), (Start: 4 @47823 has 1 MA's), (7, 47802), (12, 47772), (17, 47757), (25, 47715),

Gene: BlueBird\_81 Start: 46036, Stop: 45764, Start Num: 16

Candidate Starts for BlueBird\_81:

(Start: 16 @46036 has 28 MA's),

Gene: Bowtie\_81 Start: 45445, Stop: 45149, Start Num: 11

Candidate Starts for Bowtie\_81:

(Start: 11 @45445 has 19 MA's), (13, 45436), (Start: 14 @45433 has 7 MA's), (20, 45406), (22, 45397), (27, 45307),

Gene: BreSam8\_80 Start: 45666, Stop: 45358, Start Num: 6

Candidate Starts for BreSam8\_80:

(5, 45684), (Start: 6 @45666 has 2 MA's), (Start: 15 @45621 has 73 MA's),

Gene: Bud\_79 Start: 45275, Stop: 44979, Start Num: 11

Candidate Starts for Bud\_79:

(Start: 11 @45275 has 19 MA's), (13, 45266), (Start: 14 @45263 has 7 MA's), (20, 45236), (22, 45227), (27, 45137),

Gene: Bugatti\_79 Start: 46036, Stop: 45764, Start Num: 16

Candidate Starts for Bugatti\_79:  
(Start: 16 @46036 has 28 MA's),

Gene: BuzzBuzz\_74 Start: 45656, Stop: 45393, Start Num: 15  
Candidate Starts for BuzzBuzz\_74:  
(5, 45719), (Start: 6 @45701 has 2 MA's), (Start: 15 @45656 has 73 MA's), (18, 45635),

Gene: Bxz2\_75 Start: 45663, Stop: 45400, Start Num: 15  
Candidate Starts for Bxz2\_75:  
(5, 45726), (Start: 6 @45708 has 2 MA's), (Start: 15 @45663 has 73 MA's), (18, 45642),

Gene: C3\_75 Start: 46132, Stop: 45854, Start Num: 16  
Candidate Starts for C3\_75:  
(Start: 16 @46132 has 28 MA's), (21, 46099), (23, 46093), (28, 45958),

Gene: Colbster\_76 Start: 45631, Stop: 45368, Start Num: 15  
Candidate Starts for Colbster\_76:  
(5, 45694), (Start: 6 @45676 has 2 MA's), (Start: 15 @45631 has 73 MA's), (18, 45610),

Gene: Cullens\_81 Start: 45630, Stop: 45367, Start Num: 15  
Candidate Starts for Cullens\_81:  
(5, 45693), (Start: 6 @45675 has 2 MA's), (Start: 15 @45630 has 73 MA's), (18, 45609),

Gene: DBQu4n\_83 Start: 47177, Stop: 46899, Start Num: 16  
Candidate Starts for DBQu4n\_83:  
(Start: 16 @47177 has 28 MA's), (21, 47144), (23, 47138), (28, 47003),

Gene: DaHudson\_79 Start: 45620, Stop: 45357, Start Num: 15  
Candidate Starts for DaHudson\_79:  
(5, 45683), (Start: 6 @45665 has 2 MA's), (Start: 15 @45620 has 73 MA's),

Gene: Daishi\_79 Start: 44497, Stop: 44234, Start Num: 15  
Candidate Starts for Daishi\_79:  
(5, 44560), (Start: 6 @44542 has 2 MA's), (Start: 15 @44497 has 73 MA's), (18, 44476),

Gene: Deloris\_85 Start: 47519, Stop: 47190, Start Num: 3  
Candidate Starts for Deloris\_85:  
(Start: 3 @47519 has 2 MA's), (Start: 4 @47516 has 1 MA's), (7, 47495), (12, 47465), (17, 47450),  
(25, 47408),

Gene: Dieselweasel\_81 Start: 45629, Stop: 45366, Start Num: 15  
Candidate Starts for Dieselweasel\_81:  
(5, 45692), (Start: 6 @45674 has 2 MA's), (Start: 15 @45629 has 73 MA's), (18, 45608),

Gene: Duplo\_84 Start: 47234, Stop: 46956, Start Num: 16  
Candidate Starts for Duplo\_84:  
(Start: 16 @47234 has 28 MA's), (21, 47201), (23, 47195), (28, 47060),

Gene: Ebony\_84 Start: 46409, Stop: 46113, Start Num: 11  
Candidate Starts for Ebony\_84:  
(Start: 11 @46409 has 19 MA's), (13, 46400), (20, 46370), (22, 46361), (27, 46271),

Gene: EpicPhail\_81 Start: 45631, Stop: 45368, Start Num: 15

Candidate Starts for EpicPhail\_81:

(5, 45694), (Start: 6 @45676 has 2 MA's), (Start: 15 @45631 has 73 MA's), (18, 45610),

Gene: Et2Brutus\_83 Start: 46372, Stop: 46076, Start Num: 11

Candidate Starts for Et2Brutus\_83:

(Start: 11 @46372 has 19 MA's), (13, 46363), (20, 46333), (22, 46324), (27, 46234),

Gene: Farber\_80 Start: 45617, Stop: 45354, Start Num: 15

Candidate Starts for Farber\_80:

(5, 45680), (Start: 6 @45662 has 2 MA's), (Start: 15 @45617 has 73 MA's), (18, 45596),

Gene: Fernando\_81 Start: 45630, Stop: 45367, Start Num: 15

Candidate Starts for Fernando\_81:

(5, 45693), (Start: 6 @45675 has 2 MA's), (Start: 15 @45630 has 73 MA's), (18, 45609),

Gene: Flaverint\_85 Start: 46836, Stop: 46540, Start Num: 11

Candidate Starts for Flaverint\_85:

(Start: 11 @46836 has 19 MA's), (13, 46827), (Start: 14 @46824 has 7 MA's), (20, 46797), (22, 46788), (27, 46698),

Gene: Fred313\_76 Start: 45666, Stop: 45382, Start Num: 16

Candidate Starts for Fred313\_76:

(Start: 16 @45666 has 28 MA's), (29, 45462),

Gene: Gemma\_77 Start: 45437, Stop: 45174, Start Num: 15

Candidate Starts for Gemma\_77:

(5, 45500), (Start: 6 @45482 has 2 MA's), (Start: 15 @45437 has 73 MA's), (18, 45416),

Gene: Gilberta\_81 Start: 45712, Stop: 45416, Start Num: 11

Candidate Starts for Gilberta\_81:

(Start: 11 @45712 has 19 MA's), (13, 45703), (20, 45673), (22, 45664), (27, 45574),

Gene: GingkoMaracino\_80 Start: 45513, Stop: 45250, Start Num: 15

Candidate Starts for GingkoMaracino\_80:

(5, 45576), (Start: 6 @45558 has 2 MA's), (Start: 15 @45513 has 73 MA's), (18, 45492),

Gene: Giroux\_77 Start: 46035, Stop: 45763, Start Num: 16

Candidate Starts for Giroux\_77:

(Start: 16 @46035 has 28 MA's),

Gene: Grif\_78 Start: 45704, Stop: 45441, Start Num: 15

Candidate Starts for Grif\_78:

(5, 45767), (Start: 6 @45749 has 2 MA's), (Start: 15 @45704 has 73 MA's), (18, 45683),

Gene: Groupthink\_80 Start: 45438, Stop: 45175, Start Num: 15

Candidate Starts for Groupthink\_80:

(5, 45501), (Start: 6 @45483 has 2 MA's), (Start: 15 @45438 has 73 MA's), (18, 45417),

Gene: Grub\_78 Start: 45620, Stop: 45357, Start Num: 15

Candidate Starts for Grub\_78:

(5, 45683), (Start: 6 @45665 has 2 MA's), (Start: 15 @45620 has 73 MA's),

Gene: Grum1\_80 Start: 45630, Stop: 45367, Start Num: 15



Candidate Starts for Grum1\_80:

(5, 45693), (Start: 6 @45675 has 2 MA's), (Start: 15 @45630 has 73 MA's), (18, 45609),

Gene: GtownJaz\_80 Start: 45628, Stop: 45365, Start Num: 15

Candidate Starts for GtownJaz\_80:

(5, 45691), (Start: 6 @45673 has 2 MA's), (Start: 15 @45628 has 73 MA's), (18, 45607),

Gene: HashRod\_81 Start: 45657, Stop: 45394, Start Num: 15

Candidate Starts for HashRod\_81:

(5, 45720), (Start: 6 @45702 has 2 MA's), (Start: 15 @45657 has 73 MA's), (18, 45636),

Gene: HaveUMetTed\_80 Start: 45426, Stop: 45163, Start Num: 15

Candidate Starts for HaveUMetTed\_80:

(5, 45489), (Start: 6 @45471 has 2 MA's), (Start: 15 @45426 has 73 MA's), (18, 45405),

Gene: Heathen\_78 Start: 45754, Stop: 45470, Start Num: 16

Candidate Starts for Heathen\_78:

(Start: 16 @45754 has 28 MA's), (29, 45550),

Gene: HelDan\_79 Start: 45977, Stop: 45693, Start Num: 16

Candidate Starts for HelDan\_79:

(Start: 16 @45977 has 28 MA's), (29, 45773),

Gene: Heliosoles\_77 Start: 45442, Stop: 45179, Start Num: 15

Candidate Starts for Heliosoles\_77:

(5, 45505), (Start: 6 @45487 has 2 MA's), (Start: 15 @45442 has 73 MA's), (18, 45421),

Gene: Hercules11\_80 Start: 45639, Stop: 45376, Start Num: 15

Candidate Starts for Hercules11\_80:

(5, 45702), (Start: 6 @45684 has 2 MA's), (Start: 15 @45639 has 73 MA's), (18, 45618),

Gene: Idleandcovert\_79 Start: 46036, Stop: 45764, Start Num: 16

Candidate Starts for Idleandcovert\_79:

(Start: 16 @46036 has 28 MA's),

Gene: Insomnia\_82 Start: 46556, Stop: 46257, Start Num: 11

Candidate Starts for Insomnia\_82:

(Start: 11 @46556 has 19 MA's), (13, 46547), (20, 46517), (22, 46508), (27, 46418),

Gene: Isca\_75 Start: 45153, Stop: 44866, Start Num: 14

Candidate Starts for Isca\_75:

(10, 45171), (Start: 14 @45153 has 7 MA's), (Start: 16 @45150 has 28 MA's), (27, 45030), (29, 44946),

Gene: JF2\_75 Start: 43846, Stop: 43562, Start Num: 16

Candidate Starts for JF2\_75:

(10, 43867), (Start: 14 @43849 has 7 MA's), (Start: 16 @43846 has 28 MA's), (27, 43726), (29, 43642),

Gene: JF4\_75 Start: 43846, Stop: 43562, Start Num: 16

Candidate Starts for JF4\_75:

(10, 43867), (Start: 14 @43849 has 7 MA's), (Start: 16 @43846 has 28 MA's), (27, 43726), (29, 43642),

Gene: JHC117\_75 Start: 45625, Stop: 45362, Start Num: 15  
Candidate Starts for JHC117\_75:  
(5, 45688), (Start: 6 @45670 has 2 MA's), (Start: 15 @45625 has 73 MA's), (18, 45604),

Gene: Jabith\_83 Start: 46570, Stop: 46274, Start Num: 11  
Candidate Starts for Jabith\_83:  
(Start: 11 @46570 has 19 MA's), (13, 46561), (20, 46531), (22, 46522), (27, 46432),

Gene: JenCasNa\_81 Start: 45630, Stop: 45367, Start Num: 15  
Candidate Starts for JenCasNa\_81:  
(5, 45693), (Start: 6 @45675 has 2 MA's), (Start: 15 @45630 has 73 MA's), (18, 45609),

Gene: JeppNRM\_80 Start: 45440, Stop: 45177, Start Num: 15  
Candidate Starts for JeppNRM\_80:  
(5, 45503), (Start: 6 @45485 has 2 MA's), (Start: 15 @45440 has 73 MA's), (25, 45392),

Gene: Jobu08\_76 Start: 45454, Stop: 45191, Start Num: 15  
Candidate Starts for Jobu08\_76:  
(5, 45517), (Start: 6 @45499 has 2 MA's), (Start: 15 @45454 has 73 MA's), (18, 45433),

Gene: Joselito\_83 Start: 46590, Stop: 46294, Start Num: 11  
Candidate Starts for Joselito\_83:  
(Start: 11 @46590 has 19 MA's), (13, 46581), (Start: 14 @46578 has 7 MA's), (20, 46551), (22, 46542), (27, 46452),

Gene: KADY\_77 Start: 45657, Stop: 45394, Start Num: 15  
Candidate Starts for KADY\_77:  
(5, 45720), (Start: 6 @45702 has 2 MA's), (Start: 15 @45657 has 73 MA's), (18, 45636),

Gene: Kalb97\_80 Start: 44807, Stop: 44451, Start Num: 15  
Candidate Starts for Kalb97\_80:  
(5, 44870), (Start: 6 @44852 has 2 MA's), (Start: 15 @44807 has 73 MA's), (18, 44786),

Gene: Kalnoky\_80 Start: 45435, Stop: 45172, Start Num: 15  
Candidate Starts for Kalnoky\_80:  
(5, 45498), (Start: 6 @45480 has 2 MA's), (Start: 15 @45435 has 73 MA's), (18, 45414),

Gene: Kerberos\_83 Start: 47197, Stop: 46919, Start Num: 16  
Candidate Starts for Kerberos\_83:  
(Start: 16 @47197 has 28 MA's), (21, 47164), (23, 47158), (28, 47023),

Gene: Koduck\_83 Start: 46399, Stop: 46124, Start Num: 16  
Candidate Starts for Koduck\_83:  
(1, 46648), (Start: 16 @46399 has 28 MA's), (20, 46372), (21, 46366), (23, 46360),

Gene: L5\_76 Start: 46290, Stop: 46015, Start Num: 16  
Candidate Starts for L5\_76:  
(1, 46539), (Start: 16 @46290 has 28 MA's), (20, 46263), (21, 46257), (23, 46251),

Gene: LBerry\_81 Start: 45631, Stop: 45368, Start Num: 15  
Candidate Starts for LBerry\_81:  
(5, 45694), (Start: 6 @45676 has 2 MA's), (Start: 15 @45631 has 73 MA's), (18, 45610),

Gene: LadyBird\_87 Start: 48119, Stop: 47796, Start Num: 3  
Candidate Starts for LadyBird\_87:  
(Start: 3 @48119 has 2 MA's), (7, 48098), (12, 48068), (17, 48053),

Gene: Lambert1\_79 Start: 46002, Stop: 45721, Start Num: 14  
Candidate Starts for Lambert1\_79:  
(10, 46020), (Start: 14 @46002 has 7 MA's), (Start: 16 @45999 has 28 MA's), (18, 45981),

Gene: LarryKay\_80 Start: 45661, Stop: 45398, Start Num: 15  
Candidate Starts for LarryKay\_80:  
(5, 45724), (Start: 6 @45706 has 2 MA's), (Start: 15 @45661 has 73 MA's), (18, 45640),

Gene: Lilith\_78 Start: 45620, Stop: 45357, Start Num: 15  
Candidate Starts for Lilith\_78:  
(5, 45683), (Start: 6 @45665 has 2 MA's), (Start: 15 @45620 has 73 MA's),

Gene: Louie6\_79 Start: 45658, Stop: 45395, Start Num: 15  
Candidate Starts for Louie6\_79:  
(5, 45721), (Start: 6 @45703 has 2 MA's), (Start: 15 @45658 has 73 MA's), (18, 45637),

Gene: Lucivia\_85 Start: 46869, Stop: 46573, Start Num: 11  
Candidate Starts for Lucivia\_85:  
(Start: 11 @46869 has 19 MA's), (13, 46860), (Start: 14 @46857 has 7 MA's), (20, 46830), (22, 46821), (27, 46731),

Gene: LugYA\_83 Start: 45631, Stop: 45368, Start Num: 15  
Candidate Starts for LugYA\_83:  
(5, 45694), (Start: 6 @45676 has 2 MA's), (Start: 15 @45631 has 73 MA's), (18, 45610),

Gene: MA5\_77 Start: 45054, Stop: 44770, Start Num: 16  
Candidate Starts for MA5\_77:  
(Start: 16 @45054 has 28 MA's), (29, 44850),

Gene: MK4\_72 Start: 43576, Stop: 43289, Start Num: 14  
Candidate Starts for MK4\_72:  
(10, 43594), (Start: 14 @43576 has 7 MA's), (Start: 16 @43573 has 28 MA's), (27, 43453), (29, 43369),

Gene: MaCh\_84 Start: 46833, Stop: 46537, Start Num: 11  
Candidate Starts for MaCh\_84:  
(Start: 11 @46833 has 19 MA's), (13, 46824), (Start: 14 @46821 has 7 MA's), (20, 46794), (22, 46785), (27, 46695),

Gene: Mabel\_84 Start: 46834, Stop: 46538, Start Num: 11  
Candidate Starts for Mabel\_84:  
(Start: 11 @46834 has 19 MA's), (13, 46825), (Start: 14 @46822 has 7 MA's), (20, 46795), (22, 46786), (27, 46696),

Gene: MadMarie\_78 Start: 45628, Stop: 45365, Start Num: 15  
Candidate Starts for MadMarie\_78:  
(5, 45691), (Start: 6 @45673 has 2 MA's), (Start: 15 @45628 has 73 MA's), (18, 45607),

Gene: Mainiac\_79 Start: 45620, Stop: 45357, Start Num: 15  
Candidate Starts for Mainiac\_79:  
(5, 45683), (Start: 6 @45665 has 2 MA's), (Start: 15 @45620 has 73 MA's),

Gene: Malinsilva\_83 Start: 45619, Stop: 45356, Start Num: 15  
Candidate Starts for Malinsilva\_83:  
(5, 45682), (Start: 6 @45664 has 2 MA's), (Start: 15 @45619 has 73 MA's),

Gene: Manu\_79 Start: 45442, Stop: 45179, Start Num: 15  
Candidate Starts for Manu\_79:  
(5, 45505), (Start: 6 @45487 has 2 MA's), (Start: 15 @45442 has 73 MA's), (18, 45421),

Gene: MarQuardt\_80 Start: 45629, Stop: 45366, Start Num: 15  
Candidate Starts for MarQuardt\_80:  
(5, 45692), (Start: 6 @45674 has 2 MA's), (Start: 15 @45629 has 73 MA's), (18, 45608),

Gene: Margo\_79 Start: 46027, Stop: 45746, Start Num: 14  
Candidate Starts for Margo\_79:  
(10, 46045), (Start: 14 @46027 has 7 MA's), (Start: 16 @46024 has 28 MA's),

Gene: Marie\_78 Start: 45630, Stop: 45367, Start Num: 15  
Candidate Starts for Marie\_78:  
(5, 45693), (Start: 6 @45675 has 2 MA's), (Start: 15 @45630 has 73 MA's), (18, 45609),

Gene: Marius\_80 Start: 45435, Stop: 45172, Start Num: 15  
Candidate Starts for Marius\_80:  
(5, 45498), (Start: 6 @45480 has 2 MA's), (Start: 15 @45435 has 73 MA's), (18, 45414),

Gene: Methuselah\_73 Start: 45651, Stop: 45388, Start Num: 15  
Candidate Starts for Methuselah\_73:  
(5, 45714), (Start: 6 @45696 has 2 MA's), (Start: 15 @45651 has 73 MA's), (18, 45630),

Gene: Microwolf\_76 Start: 45643, Stop: 45380, Start Num: 15  
Candidate Starts for Microwolf\_76:  
(5, 45706), (Start: 6 @45688 has 2 MA's), (Start: 15 @45643 has 73 MA's),

Gene: MoneyMay\_80 Start: 45630, Stop: 45367, Start Num: 15  
Candidate Starts for MoneyMay\_80:  
(5, 45693), (Start: 6 @45675 has 2 MA's), (Start: 15 @45630 has 73 MA's), (18, 45609),

Gene: MuchMore\_83 Start: 45616, Stop: 45353, Start Num: 15  
Candidate Starts for MuchMore\_83:  
(5, 45679), (Start: 6 @45661 has 2 MA's), (Start: 15 @45616 has 73 MA's),

Gene: Mulciber\_82 Start: 46375, Stop: 46079, Start Num: 11  
Candidate Starts for Mulciber\_82:  
(Start: 11 @46375 has 19 MA's), (13, 46366), (20, 46336), (22, 46327), (27, 46237),

Gene: Munch\_84 Start: 46838, Stop: 46542, Start Num: 11  
Candidate Starts for Munch\_84:  
(Start: 11 @46838 has 19 MA's), (13, 46829), (Start: 14 @46826 has 7 MA's), (20, 46799), (22, 46790), (27, 46700),

Gene: Norbert\_75 Start: 46000, Stop: 45719, Start Num: 14  
Candidate Starts for Norbert\_75:  
(10, 46018), (Start: 14 @46000 has 7 MA's), (Start: 16 @45997 has 28 MA's),

Gene: OlanP\_78 Start: 45614, Stop: 45351, Start Num: 15  
Candidate Starts for OlanP\_78:  
(5, 45677), (Start: 6 @45659 has 2 MA's), (Start: 15 @45614 has 73 MA's), (18, 45593),

Gene: Ollie\_80 Start: 45498, Stop: 45235, Start Num: 15  
Candidate Starts for Ollie\_80:  
(5, 45561), (Start: 6 @45543 has 2 MA's), (Start: 15 @45498 has 73 MA's), (18, 45477),

Gene: Orange\_84 Start: 46388, Stop: 46092, Start Num: 11  
Candidate Starts for Orange\_84:  
(Start: 11 @46388 has 19 MA's), (13, 46379), (Start: 14 @46376 has 7 MA's), (20, 46349), (22, 46340), (27, 46250),

Gene: P28Green\_80 Start: 45633, Stop: 45370, Start Num: 15  
Candidate Starts for P28Green\_80:  
(5, 45696), (Start: 6 @45678 has 2 MA's), (Start: 15 @45633 has 73 MA's), (18, 45612),

Gene: PGHhamlin\_82 Start: 45619, Stop: 45356, Start Num: 15  
Candidate Starts for PGHhamlin\_82:  
(5, 45682), (Start: 6 @45664 has 2 MA's), (Start: 15 @45619 has 73 MA's),

Gene: PP\_76 Start: 49639, Stop: 49325, Start Num: 8  
Candidate Starts for PP\_76:  
(2, 49672), (Start: 8 @49639 has 1 MA's), (9, 49633), (Start: 16 @49600 has 28 MA's), (19, 49576), (24, 49558), (26, 49546),

Gene: Pawn\_78 Start: 45442, Stop: 45179, Start Num: 15  
Candidate Starts for Pawn\_78:  
(5, 45505), (Start: 6 @45487 has 2 MA's), (Start: 15 @45442 has 73 MA's), (18, 45421),

Gene: Pembroke\_80 Start: 45628, Stop: 45365, Start Num: 15  
Candidate Starts for Pembroke\_80:  
(5, 45691), (Start: 6 @45673 has 2 MA's), (Start: 15 @45628 has 73 MA's),

Gene: Penny1\_80 Start: 45631, Stop: 45368, Start Num: 15  
Candidate Starts for Penny1\_80:  
(5, 45694), (Start: 6 @45676 has 2 MA's), (Start: 15 @45631 has 73 MA's), (18, 45610),

Gene: Petersenfast\_78 Start: 45269, Stop: 44973, Start Num: 11  
Candidate Starts for Petersenfast\_78:  
(Start: 11 @45269 has 19 MA's), (13, 45260), (Start: 14 @45257 has 7 MA's), (20, 45230), (22, 45221), (27, 45131),

Gene: Phantastic\_80 Start: 45465, Stop: 45187, Start Num: 16  
Candidate Starts for Phantastic\_80:  
(Start: 16 @45465 has 28 MA's),

Gene: PhishRPhriends\_76 Start: 44622, Stop: 44359, Start Num: 15  
Candidate Starts for PhishRPhriends\_76:

(5, 44685), (Start: 6 @44667 has 2 MA's), (Start: 15 @44622 has 73 MA's), (18, 44601),

Gene: Phoebe\_81 Start: 45623, Stop: 45360, Start Num: 15

Candidate Starts for Phoebe\_81:

(5, 45686), (Start: 6 @45668 has 2 MA's), (Start: 15 @45623 has 73 MA's), (18, 45602),

Gene: Phoxy\_80 Start: 45652, Stop: 45389, Start Num: 15

Candidate Starts for Phoxy\_80:

(5, 45715), (Start: 6 @45697 has 2 MA's), (Start: 15 @45652 has 73 MA's), (18, 45631),

Gene: Pistachio\_79 Start: 45583, Stop: 45311, Start Num: 16

Candidate Starts for Pistachio\_79:

(Start: 16 @45583 has 28 MA's),

Gene: Pomar16\_83 Start: 47270, Stop: 46992, Start Num: 16

Candidate Starts for Pomar16\_83:

(Start: 16 @47270 has 28 MA's), (21, 47237), (23, 47231), (28, 47096),

Gene: PotatoSplit\_81 Start: 45631, Stop: 45368, Start Num: 15

Candidate Starts for PotatoSplit\_81:

(5, 45694), (Start: 6 @45676 has 2 MA's), (Start: 15 @45631 has 73 MA's), (18, 45610),

Gene: Puppy\_80 Start: 45653, Stop: 45381, Start Num: 16

Candidate Starts for Puppy\_80:

(Start: 16 @45653 has 28 MA's),

Gene: PurpleHaze\_79 Start: 45438, Stop: 45175, Start Num: 15

Candidate Starts for PurpleHaze\_79:

(5, 45501), (Start: 6 @45483 has 2 MA's), (Start: 15 @45438 has 73 MA's), (18, 45417),

Gene: QuinnKiro\_78 Start: 46001, Stop: 45720, Start Num: 14

Candidate Starts for QuinnKiro\_78:

(10, 46019), (Start: 14 @46001 has 7 MA's), (Start: 16 @45998 has 28 MA's), (18, 45980),

Gene: Reba\_75 Start: 44278, Stop: 44015, Start Num: 15

Candidate Starts for Reba\_75:

(5, 44341), (Start: 6 @44323 has 2 MA's), (Start: 15 @44278 has 73 MA's), (18, 44257),

Gene: ResDef\_77 Start: 46001, Stop: 45723, Start Num: 16

Candidate Starts for ResDef\_77:

(10, 46022), (Start: 14 @46004 has 7 MA's), (Start: 16 @46001 has 28 MA's), (18, 45983),

Gene: Rummer\_79 Start: 45655, Stop: 45392, Start Num: 15

Candidate Starts for Rummer\_79:

(5, 45718), (Start: 6 @45700 has 2 MA's), (Start: 15 @45655 has 73 MA's), (18, 45634),

Gene: Sabia\_78 Start: 45635, Stop: 45372, Start Num: 15

Candidate Starts for Sabia\_78:

(5, 45698), (Start: 6 @45680 has 2 MA's), (Start: 15 @45635 has 73 MA's),

Gene: Sabinator\_78 Start: 45629, Stop: 45366, Start Num: 15

Candidate Starts for Sabinator\_78:

(5, 45692), (Start: 6 @45674 has 2 MA's), (Start: 15 @45629 has 73 MA's), (18, 45608),

Gene: SaturnRing\_79 Start: 46036, Stop: 45764, Start Num: 16  
Candidate Starts for SaturnRing\_79:  
(Start: 16 @46036 has 28 MA's),

Gene: Scout\_78 Start: 45217, Stop: 44933, Start Num: 16  
Candidate Starts for Scout\_78:  
(Start: 16 @45217 has 28 MA's), (29, 45013),

Gene: Serenity\_86 Start: 46855, Stop: 46580, Start Num: 16  
Candidate Starts for Serenity\_86:  
(1, 47104), (Start: 16 @46855 has 28 MA's), (20, 46828), (21, 46822), (23, 46816),

Gene: Sham4\_80 Start: 45270, Stop: 44971, Start Num: 11  
Candidate Starts for Sham4\_80:  
(Start: 11 @45270 has 19 MA's), (13, 45261), (20, 45231), (22, 45222), (27, 45132),

Gene: Snape\_84 Start: 46377, Stop: 46081, Start Num: 11  
Candidate Starts for Snape\_84:  
(Start: 11 @46377 has 19 MA's), (13, 46368), (20, 46338), (22, 46329), (27, 46239),

Gene: Snickers\_76 Start: 45600, Stop: 45337, Start Num: 15  
Candidate Starts for Snickers\_76:  
(5, 45663), (Start: 6 @45645 has 2 MA's), (Start: 15 @45600 has 73 MA's), (18, 45579),

Gene: SoYo\_77 Start: 45543, Stop: 45280, Start Num: 15  
Candidate Starts for SoYo\_77:  
(5, 45606), (Start: 6 @45588 has 2 MA's), (Start: 15 @45543 has 73 MA's), (18, 45522),

Gene: SoilDragon\_80 Start: 45070, Stop: 44807, Start Num: 15  
Candidate Starts for SoilDragon\_80:  
(5, 45133), (Start: 6 @45115 has 2 MA's), (Start: 15 @45070 has 73 MA's), (18, 45049),

Gene: Soshari\_82 Start: 45651, Stop: 45388, Start Num: 15  
Candidate Starts for Soshari\_82:  
(5, 45714), (Start: 6 @45696 has 2 MA's), (Start: 15 @45651 has 73 MA's), (18, 45630),

Gene: Spike509\_80 Start: 45652, Stop: 45389, Start Num: 15  
Candidate Starts for Spike509\_80:  
(5, 45715), (Start: 6 @45697 has 2 MA's), (Start: 15 @45652 has 73 MA's), (18, 45631),

Gene: Stagni\_77 Start: 45630, Stop: 45367, Start Num: 15  
Candidate Starts for Stagni\_77:  
(5, 45693), (Start: 6 @45675 has 2 MA's), (Start: 15 @45630 has 73 MA's),

Gene: StarStuff\_83 Start: 47232, Stop: 46954, Start Num: 16  
Candidate Starts for StarStuff\_83:  
(Start: 16 @47232 has 28 MA's), (21, 47199), (23, 47193), (28, 47058),

Gene: StepMih\_80 Start: 45621, Stop: 45358, Start Num: 15  
Candidate Starts for StepMih\_80:  
(5, 45684), (Start: 6 @45666 has 2 MA's), (Start: 15 @45621 has 73 MA's),

Gene: TNguyen7\_80 Start: 45994, Stop: 45722, Start Num: 16  
Candidate Starts for TNguyen7\_80:  
(Start: 16 @45994 has 28 MA's),

Gene: Taurus\_81 Start: 45630, Stop: 45367, Start Num: 15  
Candidate Starts for Taurus\_81:  
(5, 45693), (Start: 6 @45675 has 2 MA's), (Start: 15 @45630 has 73 MA's), (18, 45609),

Gene: Tiffany\_79 Start: 45515, Stop: 45252, Start Num: 15  
Candidate Starts for Tiffany\_79:  
(5, 45578), (Start: 6 @45560 has 2 MA's), (Start: 15 @45515 has 73 MA's), (18, 45494),

Gene: Timothy\_84 Start: 46354, Stop: 46058, Start Num: 11  
Candidate Starts for Timothy\_84:  
(Start: 11 @46354 has 19 MA's), (13, 46345), (Start: 14 @46342 has 7 MA's), (20, 46315), (22, 46306), (27, 46216),

Gene: TinyTimmy\_82 Start: 46083, Stop: 45787, Start Num: 11  
Candidate Starts for TinyTimmy\_82:  
(Start: 11 @46083 has 19 MA's), (13, 46074), (Start: 14 @46071 has 7 MA's), (20, 46044), (22, 46035), (27, 45945),

Gene: TipsytheTRex\_82 Start: 46857, Stop: 46582, Start Num: 16  
Candidate Starts for TipsytheTRex\_82:  
(1, 47106), (Start: 16 @46857 has 28 MA's), (20, 46830), (21, 46824), (23, 46818),

Gene: Tomathan\_83 Start: 47310, Stop: 47032, Start Num: 16  
Candidate Starts for Tomathan\_83:  
(Start: 16 @47310 has 28 MA's), (21, 47277), (23, 47271), (28, 47136),

Gene: VC3\_81 Start: 46132, Stop: 45854, Start Num: 16  
Candidate Starts for VC3\_81:  
(Start: 16 @46132 has 28 MA's), (21, 46099), (23, 46093), (28, 45958),

Gene: Veracruz\_76 Start: 46002, Stop: 45721, Start Num: 14  
Candidate Starts for Veracruz\_76:  
(10, 46020), (Start: 14 @46002 has 7 MA's), (Start: 16 @45999 has 28 MA's), (18, 45981),

Gene: Vix\_76 Start: 45710, Stop: 45447, Start Num: 15  
Candidate Starts for Vix\_76:  
(5, 45773), (Start: 6 @45755 has 2 MA's), (Start: 15 @45710 has 73 MA's), (18, 45689),

Gene: Watson\_79 Start: 45664, Stop: 45356, Start Num: 6  
Candidate Starts for Watson\_79:  
(5, 45682), (Start: 6 @45664 has 2 MA's), (Start: 15 @45619 has 73 MA's),

Gene: Wooldri\_82 Start: 45536, Stop: 45273, Start Num: 15  
Candidate Starts for Wooldri\_82:  
(5, 45599), (Start: 6 @45581 has 2 MA's), (Start: 15 @45536 has 73 MA's), (18, 45515),