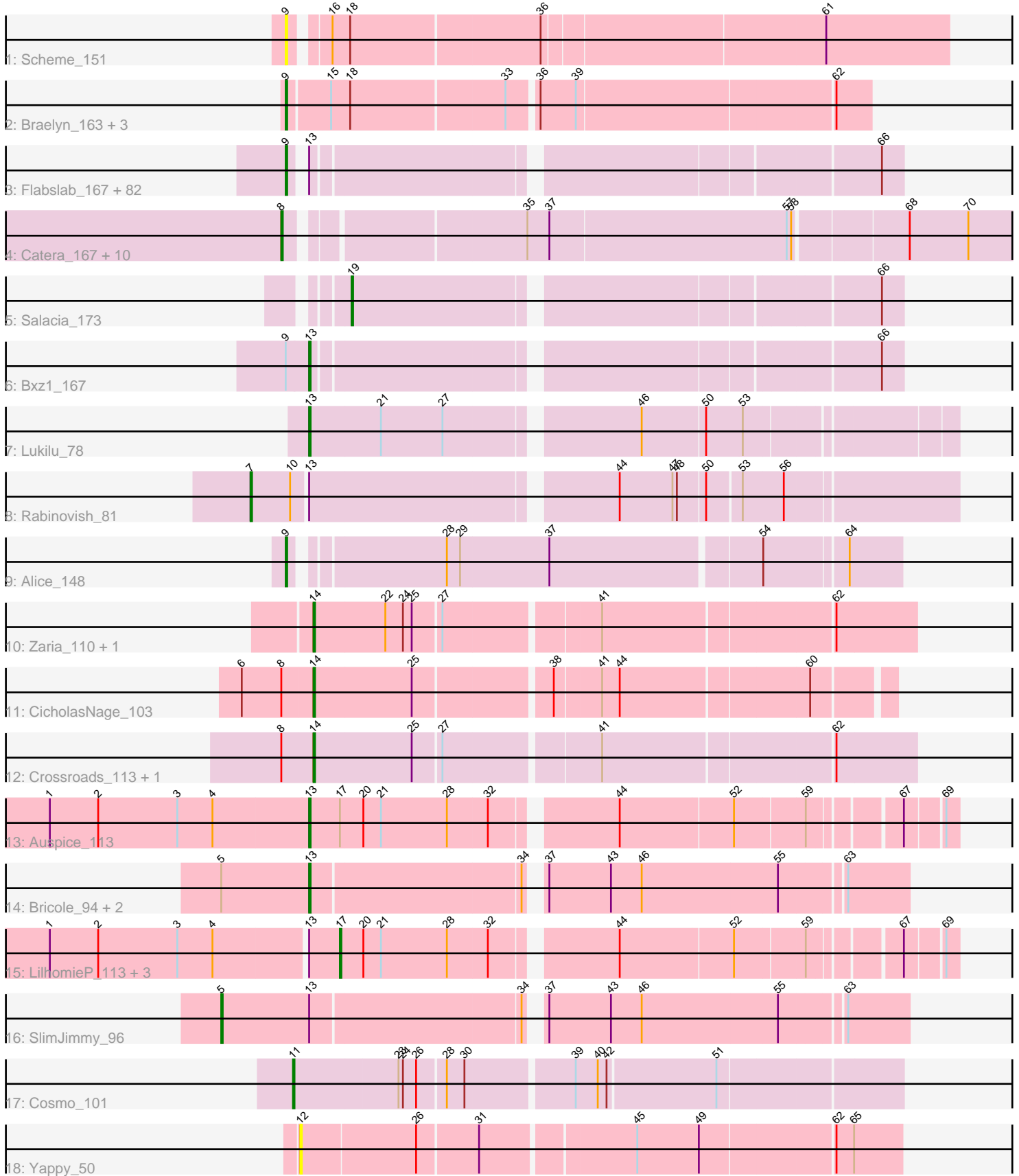


Pham 183590



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 183590 Report

This analysis was run 11/02/24 on database version 579.

Pham number 183590 has 120 members, 7 are drafts.

Phages represented in each track:

- Track 1 : Scheme\_151
- Track 2 : Braelyn\_163, Persimmon\_161, Navo\_159, WhereRU\_160
- Track 3 : Flabslab\_167, Trinitium\_170, EmToTheThree\_173, Shrimp\_174, Ading\_173, Janiyra\_176, Phlegm\_176, Capablanca\_175, Tortoise16\_170, ChickenPhender\_169, Phusco\_171, Ngannou\_169, Nidhogg\_172, Blackbrain\_168, Turret\_167, BananaFence\_170, Gabriel\_174, Chargie21\_170, Shifa\_162, McGee\_173, Pio\_179, Drazdys\_172, StubbySaigey\_175, InigoMontoya\_175, Domi\_166, Asterius\_169, Yucca\_170, Bonray\_173, Pleione\_174, Fludd\_173, Khaleesi\_170, Cactojaque\_168, LifeSavor\_170, SilverDipper\_174, Patter\_172, Gamgam\_173, Littleton\_173, Matsumoto\_170, Wally\_171, LinStu\_169, HyRo\_161, Chomp\_172, Babyland\_175, Dietrick\_162, Darko\_171, DTDevon\_174, Pivoine\_172, Audrick\_175, Jessibeth14\_171, PurduePete\_171, Sebata\_172, Lee7\_170, CindyLou\_174, Roots515\_175, Melpomini\_165, ValleyTerrace\_172, ErnieJ\_166, Kboogie\_175, Naija\_172, ArcherS7\_173, Delylah\_172, ChaylaJr\_169, Burrough\_174, Yassified\_168, Astraea\_167, Amataga\_172, EasyJones\_175, Quasimodo\_175, Breeniome\_173, Momo\_171, McWolfish\_169, Zeenon\_172, Shelob\_172, Loanshark\_169, Ghost\_171, Basquiat\_170, Napoleon13\_169, BackyardAgain\_169, EmmaElysia\_173, SmallFry\_172, LolaVinca\_172, Latch\_172, Atlantean\_171
- Track 4 : Catera\_167, Kamryn\_171, NoodleTree\_178, Rizal\_166, YemiJoy2021\_171, Tainan\_174, Dandelion\_178, Mikro\_169, Mangeria\_172, StephanieG\_170, RoMag\_167
- Track 5 : Salacia\_173
- Track 6 : Bxz1\_167
- Track 7 : Lukilu\_78
- Track 8 : Rabinovish\_81
- Track 9 : Alice\_148
- Track 10 : Zaria\_110, Calm\_111
- Track 11 : CicholasNage\_103
- Track 12 : Crossroads\_113, MkaliMitinis3\_113
- Track 13 : Auspice\_113
- Track 14 : Bricole\_94, Glaske16\_97, PegLeg\_96
- Track 15 : LilhomieP\_113, Skinny\_118, Glaske16\_116, PegLeg\_117
- Track 16 : SlimJimmy\_96
- Track 17 : Cosmo\_101
- Track 18 : Yappy\_50

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

The start number called the most often in the published annotations is 9, it was called in 84 of the 113 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Ading\_173, Alice\_148, Amataga\_172, ArcherS7\_173, Asterius\_169, Astraea\_167, Atlantean\_171, Audrick\_175, Babyland\_175, BackyardAgain\_169, BananaFence\_170, Basquiat\_170, Blackbrain\_168, Bonray\_173, Braelyn\_163, Breeniome\_173, Burrough\_174, Cactojaque\_168, Capablanca\_175, Chargie21\_170, ChaylaJr\_169, ChickenPhender\_169, Chomp\_172, CindyLou\_174, DTDevon\_174, Darko\_171, Delylah\_172, Dietrick\_162, Domi\_166, Drazdys\_172, EasyJones\_175, EmToTheThree\_173, EmmaElysia\_173, ErnieJ\_166, Flabslab\_167, Fludd\_173, Gabriel\_174, Gamgam\_173, Ghost\_171, HyRo\_161, InigoMontoya\_175, Janiyra\_176, Jessibeth14\_171, Kboogie\_175, Khaleesi\_170, Latch\_172, Lee7\_170, LifeSavor\_170, LinStu\_169, Littleton\_173, Loanshark\_169, LolaVinca\_172, Matsumoto\_170, McGee\_173, McWolfish\_169, Melpomini\_165, Momo\_171, Naija\_172, Napoleon13\_169, Navo\_159, Ngannou\_169, Nidhogg\_172, Patter\_172, Persimmon\_161, Phlegm\_176, Phusco\_171, Pio\_179, Pivoine\_172, Pleione\_174, PurduePete\_171, Quasimodo\_175, Roots515\_175, Scheme\_151, Sebata\_172, Shelob\_172, Shifa\_162, Shrimp\_174, SilverDipper\_174, SmallFry\_172, StubbySaigey\_175, Tortoise16\_170, Trinitium\_170, Turret\_167, ValleyTerrace\_172, Wally\_171, WhereRU\_160, Yassified\_168, Yucca\_170, Zeenon\_172,

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

- Bxz1\_167,

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

- Auspice\_113, Bricole\_94, Calm\_111, Catera\_167, CicholasNage\_103, Cosmo\_101, Crossroads\_113, Dandelion\_178, Glaske16\_116, Glaske16\_97, Kamryn\_171, LilhomieP\_113, Lukilu\_78, Mangeria\_172, Mikro\_169, MkaliMitinis3\_113, NoodleTree\_178, PegLeg\_117, PegLeg\_96, Rabinovish\_81, Rizal\_166, RoMag\_167, Salacia\_173, Skinny\_118, SlimJimmy\_96, StephanieG\_170, Tainan\_174, Yappy\_50, YemiJoy2021\_171, Zaria\_110,

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

Start 5:

- Found in 4 of 120 ( 3.3% ) of genes in pham
- Manual Annotations of this start: 1 of 113
- Called 25.0% of time when present
- Phage (with cluster) where this start called: SlimJimmy\_96 (M1),

Start 7:

- Found in 1 of 120 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 113
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Rabinovish\_81 (C1),

Start 8:

- Found in 14 of 120 ( 11.7% ) of genes in pham
- Manual Annotations of this start: 10 of 113

- Called 78.6% of time when present
- Phage (with cluster) where this start called: Catera\_167 (C1), Dandelion\_178 (C1), Kamryn\_171 (C1), Mangeria\_172 (C1), Mikro\_169 (C1), NoodleTree\_178 (C1), Rizal\_166 (C1), RoMag\_167 (C1), StephanieG\_170 (C1), Tainan\_174 (C1), YemiJoy2021\_171 (C1),

#### Start 9:

- Found in 90 of 120 ( 75.0% ) of genes in pham
- Manual Annotations of this start: 84 of 113
- Called 98.9% of time when present
- Phage (with cluster) where this start called: Ading\_173 (C1), Alice\_148 (C1), Amataga\_172 (C1), ArcherS7\_173 (C1), Asterius\_169 (C1), Astraea\_167 (C1), Atlantean\_171 (C1), Audrick\_175 (C1), Babyland\_175 (C1), BackyardAgain\_169 (C1), BananaFence\_170 (C1), Basquiat\_170 (C1), Blackbrain\_168 (C1), Bonray\_173 (C1), Braelyn\_163 (BE1), Breeniome\_173 (C1), Burrough\_174 (C1), Cactojaque\_168 (C1), Capablanca\_175 (C1), Chargie21\_170 (C1), ChaylaJr\_169 (C1), ChickenPhender\_169 (C1), Chomp\_172 (C1), CindyLou\_174 (C1), DTDevon\_174 (C1), Darko\_171 (C1), Delylah\_172 (C1), Dietrick\_162 (C1), Domi\_166 (C1), Drazdys\_172 (C1), EasyJones\_175 (C1), EmToTheThree\_173 (C1), EmmaElysia\_173 (C1), ErnieJ\_166 (C1), Flabslab\_167 (C1), Fludd\_173 (C1), Gabriel\_174 (C1), Gamgam\_173 (C1), Ghost\_171 (C1), HyRo\_161 (C1), InigoMontoya\_175 (C1), Janiyra\_176 (C1), Jessibeth14\_171 (C1), Kboogie\_175 (C1), Khaleesi\_170 (C1), Latch\_172 (C1), Lee7\_170 (C1), LifeSavor\_170 (C1), LinStu\_169 (C1), Littleton\_173 (C1), Loanshark\_169 (C1), LolaVinca\_172 (C1), Matsumoto\_170 (C1), McGee\_173 (C1), McWolfish\_169 (C1), Melpomini\_165 (C1), Momo\_171 (C1), Naija\_172 (C1), Napoleon13\_169 (C1), Navo\_159 (BE1), Ngannou\_169 (C1), Nidhogg\_172 (C1), Patter\_172 (C1), Persimmon\_161 (BE1), Phlegm\_176 (C1), Phusco\_171 (C1), Pio\_179 (C1), Pivoine\_172 (C1), Pleione\_174 (C1), PurduePete\_171 (C1), Quasimodo\_175 (C1), Roots515\_175 (C1), Scheme\_151 (BE1), Sebata\_172 (C1), Shelob\_172 (C1), Shifa\_162 (C1), Shrimp\_174 (C1), SilverDipper\_174 (C1), SmallFry\_172 (C1), StubbySaigey\_175 (C1), Tortoise16\_170 (C1), Trinitium\_170 (C1), Turret\_167 (C1), ValleyTerrace\_172 (C1), Wally\_171 (C1), WhereRU\_160 (BE1), Yassified\_168 (C1), Yucca\_170 (C1), Zeenon\_172 (C1),

#### Start 11:

- Found in 1 of 120 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 113
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cosmo\_101 (V),

#### Start 12:

- Found in 1 of 120 ( 0.8% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Yappy\_50 (singleton),

#### Start 13:

- Found in 95 of 120 ( 79.2% ) of genes in pham
- Manual Annotations of this start: 6 of 113
- Called 6.3% of time when present
- Phage (with cluster) where this start called: Auspice\_113 (M1), Bricole\_94 (M1), Bxz1\_167 (C1), Glaske16\_97 (M1), Lukilu\_78 (C1), PegLeg\_96 (M1),

Start 14:

- Found in 5 of 120 ( 4.2% ) of genes in pham
- Manual Annotations of this start: 5 of 113
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Calm\_111 (L1), CicholasNage\_103 (L1), Crossroads\_113 (L2), MkaliMitinis3\_113 (L2), Zaria\_110 (L1),

Start 17:

- Found in 5 of 120 ( 4.2% ) of genes in pham
- Manual Annotations of this start: 4 of 113
- Called 80.0% of time when present
- Phage (with cluster) where this start called: Glaske16\_116 (M1), LilhomieP\_113 (M1), PegLeg\_117 (M1), Skinny\_118 (M1),

Start 19:

- Found in 1 of 120 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 113
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Salacia\_173 (C1),

**Summary by clusters:**

There are 7 clusters represented in this pham: singleton, V, M1, L1, L2, C1, BE1,

Info for manual annotations of cluster BE1:

- Start number 9 was manually annotated 4 times for cluster BE1.

Info for manual annotations of cluster C1:

- Start number 7 was manually annotated 1 time for cluster C1.
- Start number 8 was manually annotated 10 times for cluster C1.
- Start number 9 was manually annotated 80 times for cluster C1.
- Start number 13 was manually annotated 2 times for cluster C1.
- Start number 19 was manually annotated 1 time for cluster C1.

Info for manual annotations of cluster L1:

- Start number 14 was manually annotated 3 times for cluster L1.

Info for manual annotations of cluster L2:

- Start number 14 was manually annotated 2 times for cluster L2.

Info for manual annotations of cluster M1:

- Start number 5 was manually annotated 1 time for cluster M1.
- Start number 13 was manually annotated 4 times for cluster M1.
- Start number 17 was manually annotated 4 times for cluster M1.

Info for manual annotations of cluster V:

- Start number 11 was manually annotated 1 time for cluster V.

**Gene Information:**

Gene: Ading\_173 Start: 95509, Stop: 95883, Start Num: 9

Candidate Starts for Ading\_173:

(Start: 9 @95509 has 84 MA's), (Start: 13 @95515 has 6 MA's), (66, 95869),

Gene: Alice\_148 Start: 90900, Stop: 91289, Start Num: 9

Candidate Starts for Alice\_148:

(Start: 9 @90900 has 84 MA's), (28, 90993), (29, 91002), (37, 91062), (54, 91200), (64, 91254),

Gene: Amataga\_172 Start: 93925, Stop: 94299, Start Num: 9

Candidate Starts for Amataga\_172:

(Start: 9 @93925 has 84 MA's), (Start: 13 @93931 has 6 MA's), (66, 94285),

Gene: ArcherS7\_173 Start: 94955, Stop: 95329, Start Num: 9

Candidate Starts for ArcherS7\_173:

(Start: 9 @94955 has 84 MA's), (Start: 13 @94961 has 6 MA's), (66, 95315),

Gene: Asterius\_169 Start: 94642, Stop: 95016, Start Num: 9

Candidate Starts for Asterius\_169:

(Start: 9 @94642 has 84 MA's), (Start: 13 @94648 has 6 MA's), (66, 95002),

Gene: Astraea\_167 Start: 94016, Stop: 94390, Start Num: 9

Candidate Starts for Astraea\_167:

(Start: 9 @94016 has 84 MA's), (Start: 13 @94022 has 6 MA's), (66, 94376),

Gene: Atlantean\_171 Start: 93925, Stop: 94299, Start Num: 9

Candidate Starts for Atlantean\_171:

(Start: 9 @93925 has 84 MA's), (Start: 13 @93931 has 6 MA's), (66, 94285),

Gene: Audrick\_175 Start: 94607, Stop: 94981, Start Num: 9

Candidate Starts for Audrick\_175:

(Start: 9 @94607 has 84 MA's), (Start: 13 @94613 has 6 MA's), (66, 94967),

Gene: Auspice\_113 Start: 60196, Stop: 60597, Start Num: 13

Candidate Starts for Auspice\_113:

(1, 60025), (2, 60058), (3, 60112), (4, 60136), (Start: 13 @60196 has 6 MA's), (Start: 17 @60217 has 4 MA's), (20, 60232), (21, 60244), (28, 60289), (32, 60316), (44, 60391), (52, 60466), (59, 60511), (67, 60565), (69, 60589),

Gene: Babyland\_175 Start: 94702, Stop: 95076, Start Num: 9

Candidate Starts for Babyland\_175:

(Start: 9 @94702 has 84 MA's), (Start: 13 @94708 has 6 MA's), (66, 95062),

Gene: BackyardAgain\_169 Start: 93403, Stop: 93777, Start Num: 9

Candidate Starts for BackyardAgain\_169:

(Start: 9 @93403 has 84 MA's), (Start: 13 @93409 has 6 MA's), (66, 93763),

Gene: BananaFence\_170 Start: 94645, Stop: 95019, Start Num: 9

Candidate Starts for BananaFence\_170:

(Start: 9 @94645 has 84 MA's), (Start: 13 @94651 has 6 MA's), (66, 95005),

Gene: Basquiat\_170 Start: 94229, Stop: 94603, Start Num: 9

Candidate Starts for Basquiat\_170:

(Start: 9 @94229 has 84 MA's), (Start: 13 @94235 has 6 MA's), (66, 94589),

Gene: Blackbrain\_168 Start: 94274, Stop: 94648, Start Num: 9  
Candidate Starts for Blackbrain\_168:  
(Start: 9 @94274 has 84 MA's), (Start: 13 @94280 has 6 MA's), (66, 94634),

Gene: Bonray\_173 Start: 95779, Stop: 96153, Start Num: 9  
Candidate Starts for Bonray\_173:  
(Start: 9 @95779 has 84 MA's), (Start: 13 @95785 has 6 MA's), (66, 96139),

Gene: Braelyn\_163 Start: 91668, Stop: 92042, Start Num: 9  
Candidate Starts for Braelyn\_163:  
(Start: 9 @91668 has 84 MA's), (15, 91695), (18, 91707), (33, 91809), (36, 91827), (39, 91851), (62, 92019),

Gene: Breeniome\_173 Start: 93968, Stop: 94342, Start Num: 9  
Candidate Starts for Breeniome\_173:  
(Start: 9 @93968 has 84 MA's), (Start: 13 @93974 has 6 MA's), (66, 94328),

Gene: Bricole\_94 Start: 56369, Stop: 56746, Start Num: 13  
Candidate Starts for Bricole\_94:  
(Start: 5 @56309 has 1 MA's), (Start: 13 @56369 has 6 MA's), (34, 56507), (37, 56513), (43, 56555), (46, 56576), (55, 56666), (63, 56705),

Gene: Burrough\_174 Start: 96182, Stop: 96556, Start Num: 9  
Candidate Starts for Burrough\_174:  
(Start: 9 @96182 has 84 MA's), (Start: 13 @96188 has 6 MA's), (66, 96542),

Gene: Bxz1\_167 Start: 97386, Stop: 97754, Start Num: 13  
Candidate Starts for Bxz1\_167:  
(Start: 9 @97380 has 84 MA's), (Start: 13 @97386 has 6 MA's), (66, 97740),

Gene: Cactojaque\_168 Start: 94249, Stop: 94623, Start Num: 9  
Candidate Starts for Cactojaque\_168:  
(Start: 9 @94249 has 84 MA's), (Start: 13 @94255 has 6 MA's), (66, 94609),

Gene: Calm\_111 Start: 62392, Stop: 62778, Start Num: 14  
Candidate Starts for Calm\_111:  
(Start: 14 @62392 has 5 MA's), (22, 62440), (24, 62452), (25, 62458), (27, 62476), (41, 62575), (62, 62725),

Gene: Capablanca\_175 Start: 96374, Stop: 96748, Start Num: 9  
Candidate Starts for Capablanca\_175:  
(Start: 9 @96374 has 84 MA's), (Start: 13 @96380 has 6 MA's), (66, 96734),

Gene: Catera\_167 Start: 93327, Stop: 93818, Start Num: 8  
Candidate Starts for Catera\_167:  
(Start: 8 @93327 has 10 MA's), (35, 93474), (37, 93489), (57, 93648), (58, 93651), (68, 93723), (70, 93762),

Gene: Chargie21\_170 Start: 94229, Stop: 94603, Start Num: 9  
Candidate Starts for Chargie21\_170:  
(Start: 9 @94229 has 84 MA's), (Start: 13 @94235 has 6 MA's), (66, 94589),

Gene: ChaylaJr\_169 Start: 94097, Stop: 94471, Start Num: 9

Candidate Starts for ChaylaJr\_169:

(Start: 9 @94097 has 84 MA's), (Start: 13 @94103 has 6 MA's), (66, 94457),

Gene: ChickenPhender\_169 Start: 94376, Stop: 94750, Start Num: 9

Candidate Starts for ChickenPhender\_169:

(Start: 9 @94376 has 84 MA's), (Start: 13 @94382 has 6 MA's), (66, 94736),

Gene: Chomp\_172 Start: 95214, Stop: 95588, Start Num: 9

Candidate Starts for Chomp\_172:

(Start: 9 @95214 has 84 MA's), (Start: 13 @95220 has 6 MA's), (66, 95574),

Gene: CicholasNage\_103 Start: 61458, Stop: 61826, Start Num: 14

Candidate Starts for CicholasNage\_103:

(6, 61410), (Start: 8 @61437 has 10 MA's), (Start: 14 @61458 has 5 MA's), (25, 61524), (38, 61611), (41, 61641), (44, 61653), (60, 61776),

Gene: CindyLou\_174 Start: 95957, Stop: 96331, Start Num: 9

Candidate Starts for CindyLou\_174:

(Start: 9 @95957 has 84 MA's), (Start: 13 @95963 has 6 MA's), (66, 96317),

Gene: Cosmo\_101 Start: 58504, Stop: 58896, Start Num: 11

Candidate Starts for Cosmo\_101:

(Start: 11 @58504 has 1 MA's), (23, 58573), (24, 58576), (26, 58585), (28, 58603), (30, 58615), (39, 58684), (40, 58699), (42, 58705), (51, 58777),

Gene: Crossroads\_113 Start: 63942, Stop: 64328, Start Num: 14

Candidate Starts for Crossroads\_113:

(Start: 8 @63921 has 10 MA's), (Start: 14 @63942 has 5 MA's), (25, 64008), (27, 64026), (41, 64125), (62, 64275),

Gene: DTDevon\_174 Start: 96449, Stop: 96823, Start Num: 9

Candidate Starts for DTDevon\_174:

(Start: 9 @96449 has 84 MA's), (Start: 13 @96455 has 6 MA's), (66, 96809),

Gene: Dandelion\_178 Start: 98582, Stop: 99073, Start Num: 8

Candidate Starts for Dandelion\_178:

(Start: 8 @98582 has 10 MA's), (35, 98729), (37, 98744), (57, 98903), (58, 98906), (68, 98978), (70, 99017),

Gene: Darko\_171 Start: 94649, Stop: 95023, Start Num: 9

Candidate Starts for Darko\_171:

(Start: 9 @94649 has 84 MA's), (Start: 13 @94655 has 6 MA's), (66, 95009),

Gene: Delylah\_172 Start: 94774, Stop: 95148, Start Num: 9

Candidate Starts for Delylah\_172:

(Start: 9 @94774 has 84 MA's), (Start: 13 @94780 has 6 MA's), (66, 95134),

Gene: Dietrick\_162 Start: 93399, Stop: 93773, Start Num: 9

Candidate Starts for Dietrick\_162:

(Start: 9 @93399 has 84 MA's), (Start: 13 @93405 has 6 MA's), (66, 93759),

Gene: Domi\_166 Start: 94567, Stop: 94941, Start Num: 9

Candidate Starts for Domi\_166:



(Start: 9 @94567 has 84 MA's), (Start: 13 @94573 has 6 MA's), (66, 94927),

Gene: Drazdys\_172 Start: 94992, Stop: 95366, Start Num: 9

Candidate Starts for Drazdys\_172:

(Start: 9 @94992 has 84 MA's), (Start: 13 @94998 has 6 MA's), (66, 95352),

Gene: EasyJones\_175 Start: 94911, Stop: 95285, Start Num: 9

Candidate Starts for EasyJones\_175:

(Start: 9 @94911 has 84 MA's), (Start: 13 @94917 has 6 MA's), (66, 95271),

Gene: EmToTheThree\_173 Start: 95871, Stop: 96245, Start Num: 9

Candidate Starts for EmToTheThree\_173:

(Start: 9 @95871 has 84 MA's), (Start: 13 @95877 has 6 MA's), (66, 96231),

Gene: EmmaElysia\_173 Start: 94922, Stop: 95296, Start Num: 9

Candidate Starts for EmmaElysia\_173:

(Start: 9 @94922 has 84 MA's), (Start: 13 @94928 has 6 MA's), (66, 95282),

Gene: ErnieJ\_166 Start: 93651, Stop: 94025, Start Num: 9

Candidate Starts for ErnieJ\_166:

(Start: 9 @93651 has 84 MA's), (Start: 13 @93657 has 6 MA's), (66, 94011),

Gene: Flabslab\_167 Start: 93233, Stop: 93607, Start Num: 9

Candidate Starts for Flabslab\_167:

(Start: 9 @93233 has 84 MA's), (Start: 13 @93239 has 6 MA's), (66, 93593),

Gene: Fludd\_173 Start: 95184, Stop: 95558, Start Num: 9

Candidate Starts for Fludd\_173:

(Start: 9 @95184 has 84 MA's), (Start: 13 @95190 has 6 MA's), (66, 95544),

Gene: Gabriel\_174 Start: 93942, Stop: 94316, Start Num: 9

Candidate Starts for Gabriel\_174:

(Start: 9 @93942 has 84 MA's), (Start: 13 @93948 has 6 MA's), (66, 94302),

Gene: Gamgam\_173 Start: 93915, Stop: 94289, Start Num: 9

Candidate Starts for Gamgam\_173:

(Start: 9 @93915 has 84 MA's), (Start: 13 @93921 has 6 MA's), (66, 94275),

Gene: Ghost\_171 Start: 94628, Stop: 95002, Start Num: 9

Candidate Starts for Ghost\_171:

(Start: 9 @94628 has 84 MA's), (Start: 13 @94634 has 6 MA's), (66, 94988),

Gene: Glaske16\_97 Start: 56773, Stop: 57150, Start Num: 13

Candidate Starts for Glaske16\_97:

(Start: 5 @56713 has 1 MA's), (Start: 13 @56773 has 6 MA's), (34, 56911), (37, 56917), (43, 56959), (46, 56980), (55, 57070), (63, 57109),

Gene: Glaske16\_116 Start: 60940, Stop: 61320, Start Num: 17

Candidate Starts for Glaske16\_116:

(1, 60748), (2, 60781), (3, 60835), (4, 60859), (Start: 13 @60919 has 6 MA's), (Start: 17 @60940 has 4 MA's), (20, 60955), (21, 60967), (28, 61012), (32, 61039), (44, 61114), (52, 61189), (59, 61234), (67, 61288), (69, 61312),

Gene: HyRo\_161 Start: 94254, Stop: 94628, Start Num: 9  
Candidate Starts for HyRo\_161:  
(Start: 9 @94254 has 84 MA's), (Start: 13 @94260 has 6 MA's), (66, 94614),

Gene: InigoMontoya\_175 Start: 94589, Stop: 94963, Start Num: 9  
Candidate Starts for InigoMontoya\_175:  
(Start: 9 @94589 has 84 MA's), (Start: 13 @94595 has 6 MA's), (66, 94949),

Gene: Janiyra\_176 Start: 95606, Stop: 95980, Start Num: 9  
Candidate Starts for Janiyra\_176:  
(Start: 9 @95606 has 84 MA's), (Start: 13 @95612 has 6 MA's), (66, 95966),

Gene: Jessibeth14\_171 Start: 95454, Stop: 95828, Start Num: 9  
Candidate Starts for Jessibeth14\_171:  
(Start: 9 @95454 has 84 MA's), (Start: 13 @95460 has 6 MA's), (66, 95814),

Gene: Kamryn\_171 Start: 95693, Stop: 96184, Start Num: 8  
Candidate Starts for Kamryn\_171:  
(Start: 8 @95693 has 10 MA's), (35, 95840), (37, 95855), (57, 96014), (58, 96017), (68, 96089), (70, 96128),

Gene: Kboogie\_175 Start: 94611, Stop: 94985, Start Num: 9  
Candidate Starts for Kboogie\_175:  
(Start: 9 @94611 has 84 MA's), (Start: 13 @94617 has 6 MA's), (66, 94971),

Gene: Khaleesi\_170 Start: 94921, Stop: 95295, Start Num: 9  
Candidate Starts for Khaleesi\_170:  
(Start: 9 @94921 has 84 MA's), (Start: 13 @94927 has 6 MA's), (66, 95281),

Gene: Latch\_172 Start: 93925, Stop: 94299, Start Num: 9  
Candidate Starts for Latch\_172:  
(Start: 9 @93925 has 84 MA's), (Start: 13 @93931 has 6 MA's), (66, 94285),

Gene: Lee7\_170 Start: 96301, Stop: 96675, Start Num: 9  
Candidate Starts for Lee7\_170:  
(Start: 9 @96301 has 84 MA's), (Start: 13 @96307 has 6 MA's), (66, 96661),

Gene: LifeSavor\_170 Start: 94834, Stop: 95208, Start Num: 9  
Candidate Starts for LifeSavor\_170:  
(Start: 9 @94834 has 84 MA's), (Start: 13 @94840 has 6 MA's), (66, 95194),

Gene: LilhomieP\_113 Start: 61111, Stop: 61491, Start Num: 17  
Candidate Starts for LilhomieP\_113:  
(1, 60919), (2, 60952), (3, 61006), (4, 61030), (Start: 13 @61090 has 6 MA's), (Start: 17 @61111 has 4 MA's), (20, 61126), (21, 61138), (28, 61183), (32, 61210), (44, 61285), (52, 61360), (59, 61405), (67, 61459), (69, 61483),

Gene: LinStu\_169 Start: 94979, Stop: 95353, Start Num: 9  
Candidate Starts for LinStu\_169:  
(Start: 9 @94979 has 84 MA's), (Start: 13 @94985 has 6 MA's), (66, 95339),

Gene: Littleton\_173 Start: 95085, Stop: 95459, Start Num: 9  
Candidate Starts for Littleton\_173:

(Start: 9 @95085 has 84 MA's), (Start: 13 @95091 has 6 MA's), (66, 95445),

Gene: Loanshark\_169 Start: 94795, Stop: 95169, Start Num: 9

Candidate Starts for Loanshark\_169:

(Start: 9 @94795 has 84 MA's), (Start: 13 @94801 has 6 MA's), (66, 95155),

Gene: LolaVinca\_172 Start: 96204, Stop: 96578, Start Num: 9

Candidate Starts for LolaVinca\_172:

(Start: 9 @96204 has 84 MA's), (Start: 13 @96210 has 6 MA's), (66, 96564),

Gene: Lukilu\_78 Start: 31246, Stop: 30839, Start Num: 13

Candidate Starts for Lukilu\_78:

(Start: 13 @31246 has 6 MA's), (21, 31198), (27, 31156), (46, 31036), (50, 30994), (53, 30970),

Gene: Mangeria\_172 Start: 95675, Stop: 96166, Start Num: 8

Candidate Starts for Mangeria\_172:

(Start: 8 @95675 has 10 MA's), (35, 95822), (37, 95837), (57, 95996), (58, 95999), (68, 96071), (70, 96110),

Gene: Matsumoto\_170 Start: 94599, Stop: 94973, Start Num: 9

Candidate Starts for Matsumoto\_170:

(Start: 9 @94599 has 84 MA's), (Start: 13 @94605 has 6 MA's), (66, 94959),

Gene: McGee\_173 Start: 94353, Stop: 94727, Start Num: 9

Candidate Starts for McGee\_173:

(Start: 9 @94353 has 84 MA's), (Start: 13 @94359 has 6 MA's), (66, 94713),

Gene: McWolfish\_169 Start: 94692, Stop: 95066, Start Num: 9

Candidate Starts for McWolfish\_169:

(Start: 9 @94692 has 84 MA's), (Start: 13 @94698 has 6 MA's), (66, 95052),

Gene: Melpomini\_165 Start: 92899, Stop: 93273, Start Num: 9

Candidate Starts for Melpomini\_165:

(Start: 9 @92899 has 84 MA's), (Start: 13 @92905 has 6 MA's), (66, 93259),

Gene: Mikro\_169 Start: 96317, Stop: 96808, Start Num: 8

Candidate Starts for Mikro\_169:

(Start: 8 @96317 has 10 MA's), (35, 96464), (37, 96479), (57, 96638), (58, 96641), (68, 96713), (70, 96752),

Gene: MkaliMitinis3\_113 Start: 63922, Stop: 64308, Start Num: 14

Candidate Starts for MkaliMitinis3\_113:

(Start: 8 @63901 has 10 MA's), (Start: 14 @63922 has 5 MA's), (25, 63988), (27, 64006), (41, 64105), (62, 64255),

Gene: Momo\_171 Start: 93925, Stop: 94299, Start Num: 9

Candidate Starts for Momo\_171:

(Start: 9 @93925 has 84 MA's), (Start: 13 @93931 has 6 MA's), (66, 94285),

Gene: Naija\_172 Start: 94628, Stop: 95002, Start Num: 9

Candidate Starts for Naija\_172:

(Start: 9 @94628 has 84 MA's), (Start: 13 @94634 has 6 MA's), (66, 94988),

Gene: Napoleon13\_169 Start: 93888, Stop: 94262, Start Num: 9  
Candidate Starts for Napoleon13\_169:  
(Start: 9 @93888 has 84 MA's), (Start: 13 @93894 has 6 MA's), (66, 94248),

Gene: Navo\_159 Start: 91049, Stop: 91423, Start Num: 9  
Candidate Starts for Navo\_159:  
(Start: 9 @91049 has 84 MA's), (15, 91076), (18, 91088), (33, 91190), (36, 91208), (39, 91232), (62, 91400),

Gene: Ngannou\_169 Start: 92907, Stop: 93281, Start Num: 9  
Candidate Starts for Ngannou\_169:  
(Start: 9 @92907 has 84 MA's), (Start: 13 @92913 has 6 MA's), (66, 93267),

Gene: Nidhogg\_172 Start: 95203, Stop: 95577, Start Num: 9  
Candidate Starts for Nidhogg\_172:  
(Start: 9 @95203 has 84 MA's), (Start: 13 @95209 has 6 MA's), (66, 95563),

Gene: NoodleTree\_178 Start: 95068, Stop: 95559, Start Num: 8  
Candidate Starts for NoodleTree\_178:  
(Start: 8 @95068 has 10 MA's), (35, 95215), (37, 95230), (57, 95389), (58, 95392), (68, 95464), (70, 95503),

Gene: Patter\_172 Start: 93942, Stop: 94316, Start Num: 9  
Candidate Starts for Patter\_172:  
(Start: 9 @93942 has 84 MA's), (Start: 13 @93948 has 6 MA's), (66, 94302),

Gene: PegLeg\_117 Start: 60989, Stop: 61369, Start Num: 17  
Candidate Starts for PegLeg\_117:  
(1, 60797), (2, 60830), (3, 60884), (4, 60908), (Start: 13 @60968 has 6 MA's), (Start: 17 @60989 has 4 MA's), (20, 61004), (21, 61016), (28, 61061), (32, 61088), (44, 61163), (52, 61238), (59, 61283), (67, 61337), (69, 61361),

Gene: PegLeg\_96 Start: 56344, Stop: 56721, Start Num: 13  
Candidate Starts for PegLeg\_96:  
(Start: 5 @56284 has 1 MA's), (Start: 13 @56344 has 6 MA's), (34, 56482), (37, 56488), (43, 56530), (46, 56551), (55, 56641), (63, 56680),

Gene: Persimmon\_161 Start: 90365, Stop: 90739, Start Num: 9  
Candidate Starts for Persimmon\_161:  
(Start: 9 @90365 has 84 MA's), (15, 90392), (18, 90404), (33, 90506), (36, 90524), (39, 90548), (62, 90716),

Gene: Phlegm\_176 Start: 94628, Stop: 95002, Start Num: 9  
Candidate Starts for Phlegm\_176:  
(Start: 9 @94628 has 84 MA's), (Start: 13 @94634 has 6 MA's), (66, 94988),

Gene: Phusco\_171 Start: 94252, Stop: 94626, Start Num: 9  
Candidate Starts for Phusco\_171:  
(Start: 9 @94252 has 84 MA's), (Start: 13 @94258 has 6 MA's), (66, 94612),

Gene: Pio\_179 Start: 98036, Stop: 98410, Start Num: 9  
Candidate Starts for Pio\_179:  
(Start: 9 @98036 has 84 MA's), (Start: 13 @98042 has 6 MA's), (66, 98396),

Gene: Pivoine\_172 Start: 94628, Stop: 95002, Start Num: 9  
Candidate Starts for Pivoine\_172:  
(Start: 9 @94628 has 84 MA's), (Start: 13 @94634 has 6 MA's), (66, 94988),

Gene: Pleione\_174 Start: 95152, Stop: 95526, Start Num: 9  
Candidate Starts for Pleione\_174:  
(Start: 9 @95152 has 84 MA's), (Start: 13 @95158 has 6 MA's), (66, 95512),

Gene: PurduePete\_171 Start: 95379, Stop: 95753, Start Num: 9  
Candidate Starts for PurduePete\_171:  
(Start: 9 @95379 has 84 MA's), (Start: 13 @95385 has 6 MA's), (66, 95739),

Gene: Quasimodo\_175 Start: 96046, Stop: 96420, Start Num: 9  
Candidate Starts for Quasimodo\_175:  
(Start: 9 @96046 has 84 MA's), (Start: 13 @96052 has 6 MA's), (66, 96406),

Gene: Rabinovish\_81 Start: 31385, Stop: 31834, Start Num: 7  
Candidate Starts for Rabinovish\_81:  
(Start: 7 @31385 has 1 MA's), (10, 31412), (Start: 13 @31421 has 6 MA's), (44, 31616), (47, 31652),  
(48, 31655), (50, 31673), (53, 31694), (56, 31721),

Gene: Rizal\_166 Start: 93071, Stop: 93562, Start Num: 8  
Candidate Starts for Rizal\_166:  
(Start: 8 @93071 has 10 MA's), (35, 93218), (37, 93233), (57, 93392), (58, 93395), (68, 93467), (70,  
93506),

Gene: RoMag\_167 Start: 95115, Stop: 95606, Start Num: 8  
Candidate Starts for RoMag\_167:  
(Start: 8 @95115 has 10 MA's), (35, 95262), (37, 95277), (57, 95436), (58, 95439), (68, 95511), (70,  
95550),

Gene: Roots515\_175 Start: 96466, Stop: 96840, Start Num: 9  
Candidate Starts for Roots515\_175:  
(Start: 9 @96466 has 84 MA's), (Start: 13 @96472 has 6 MA's), (66, 96826),

Gene: Salacia\_173 Start: 95279, Stop: 95626, Start Num: 19  
Candidate Starts for Salacia\_173:  
(Start: 19 @95279 has 1 MA's), (66, 95612),

Gene: Scheme\_151 Start: 90296, Stop: 90724, Start Num: 9  
Candidate Starts for Scheme\_151:  
(Start: 9 @90296 has 84 MA's), (16, 90317), (18, 90329), (36, 90455), (61, 90641),

Gene: Sebata\_172 Start: 96156, Stop: 96530, Start Num: 9  
Candidate Starts for Sebata\_172:  
(Start: 9 @96156 has 84 MA's), (Start: 13 @96162 has 6 MA's), (66, 96516),

Gene: Shelob\_172 Start: 96186, Stop: 96560, Start Num: 9  
Candidate Starts for Shelob\_172:  
(Start: 9 @96186 has 84 MA's), (Start: 13 @96192 has 6 MA's), (66, 96546),

Gene: Shifa\_162 Start: 94223, Stop: 94597, Start Num: 9

Candidate Starts for Shifa\_162:

(Start: 9 @94223 has 84 MA's), (Start: 13 @94229 has 6 MA's), (66, 94583),

Gene: Shrimp\_174 Start: 95689, Stop: 96063, Start Num: 9

Candidate Starts for Shrimp\_174:

(Start: 9 @95689 has 84 MA's), (Start: 13 @95695 has 6 MA's), (66, 96049),

Gene: SilverDipper\_174 Start: 94624, Stop: 94998, Start Num: 9

Candidate Starts for SilverDipper\_174:

(Start: 9 @94624 has 84 MA's), (Start: 13 @94630 has 6 MA's), (66, 94984),

Gene: Skinny\_118 Start: 61708, Stop: 62088, Start Num: 17

Candidate Starts for Skinny\_118:

(1, 61516), (2, 61549), (3, 61603), (4, 61627), (Start: 13 @61687 has 6 MA's), (Start: 17 @61708 has 4 MA's), (20, 61723), (21, 61735), (28, 61780), (32, 61807), (44, 61882), (52, 61957), (59, 62002), (67, 62056), (69, 62080),

Gene: SlimJimmy\_96 Start: 57692, Stop: 58129, Start Num: 5

Candidate Starts for SlimJimmy\_96:

(Start: 5 @57692 has 1 MA's), (Start: 13 @57752 has 6 MA's), (34, 57890), (37, 57896), (43, 57938), (46, 57959), (55, 58049), (63, 58088),

Gene: SmallFry\_172 Start: 94215, Stop: 94589, Start Num: 9

Candidate Starts for SmallFry\_172:

(Start: 9 @94215 has 84 MA's), (Start: 13 @94221 has 6 MA's), (66, 94575),

Gene: StephanieG\_170 Start: 95942, Stop: 96433, Start Num: 8

Candidate Starts for StephanieG\_170:

(Start: 8 @95942 has 10 MA's), (35, 96089), (37, 96104), (57, 96263), (58, 96266), (68, 96338), (70, 96377),

Gene: StubbySaigey\_175 Start: 94158, Stop: 94532, Start Num: 9

Candidate Starts for StubbySaigey\_175:

(Start: 9 @94158 has 84 MA's), (Start: 13 @94164 has 6 MA's), (66, 94518),

Gene: Tainan\_174 Start: 95500, Stop: 95991, Start Num: 8

Candidate Starts for Tainan\_174:

(Start: 8 @95500 has 10 MA's), (35, 95647), (37, 95662), (57, 95821), (58, 95824), (68, 95896), (70, 95935),

Gene: Tortoise16\_170 Start: 94858, Stop: 95232, Start Num: 9

Candidate Starts for Tortoise16\_170:

(Start: 9 @94858 has 84 MA's), (Start: 13 @94864 has 6 MA's), (66, 95218),

Gene: Trinitium\_170 Start: 94551, Stop: 94925, Start Num: 9

Candidate Starts for Trinitium\_170:

(Start: 9 @94551 has 84 MA's), (Start: 13 @94557 has 6 MA's), (66, 94911),

Gene: Turret\_167 Start: 94133, Stop: 94507, Start Num: 9

Candidate Starts for Turret\_167:

(Start: 9 @94133 has 84 MA's), (Start: 13 @94139 has 6 MA's), (66, 94493),

Gene: ValleyTerrace\_172 Start: 93925, Stop: 94299, Start Num: 9

Candidate Starts for ValleyTerrace\_172:  
(Start: 9 @93925 has 84 MA's), (Start: 13 @93931 has 6 MA's), (66, 94285),

Gene: Wally\_171 Start: 94141, Stop: 94515, Start Num: 9  
Candidate Starts for Wally\_171:  
(Start: 9 @94141 has 84 MA's), (Start: 13 @94147 has 6 MA's), (66, 94501),

Gene: WhereRU\_160 Start: 91117, Stop: 91491, Start Num: 9  
Candidate Starts for WhereRU\_160:  
(Start: 9 @91117 has 84 MA's), (15, 91144), (18, 91156), (33, 91258), (36, 91276), (39, 91300), (62, 91468),

Gene: Yappy\_50 Start: 10118, Stop: 10504, Start Num: 12  
Candidate Starts for Yappy\_50:  
(12, 10118), (26, 10193), (31, 10232), (45, 10331), (49, 10373), (62, 10460), (65, 10472),

Gene: Yassified\_168 Start: 93839, Stop: 94213, Start Num: 9  
Candidate Starts for Yassified\_168:  
(Start: 9 @93839 has 84 MA's), (Start: 13 @93845 has 6 MA's), (66, 94199),

Gene: YemiJoy2021\_171 Start: 95286, Stop: 95777, Start Num: 8  
Candidate Starts for YemiJoy2021\_171:  
(Start: 8 @95286 has 10 MA's), (35, 95433), (37, 95448), (57, 95607), (58, 95610), (68, 95682), (70, 95721),

Gene: Yucca\_170 Start: 94885, Stop: 95259, Start Num: 9  
Candidate Starts for Yucca\_170:  
(Start: 9 @94885 has 84 MA's), (Start: 13 @94891 has 6 MA's), (66, 95245),

Gene: Zaria\_110 Start: 61857, Stop: 62243, Start Num: 14  
Candidate Starts for Zaria\_110:  
(Start: 14 @61857 has 5 MA's), (22, 61905), (24, 61917), (25, 61923), (27, 61941), (41, 62040), (62, 62190),

Gene: Zeenon\_172 Start: 94971, Stop: 95345, Start Num: 9  
Candidate Starts for Zeenon\_172:  
(Start: 9 @94971 has 84 MA's), (Start: 13 @94977 has 6 MA's), (66, 95331),