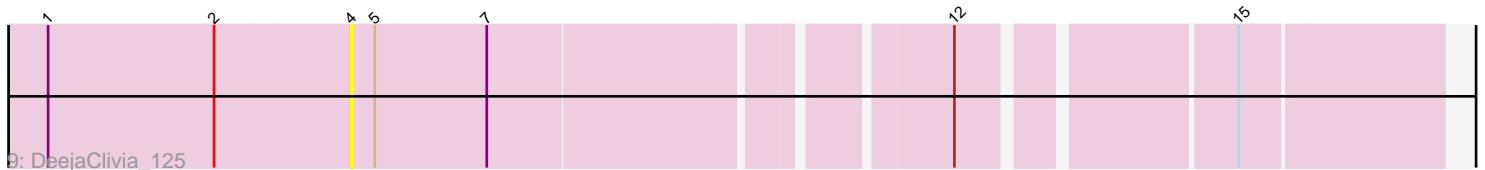
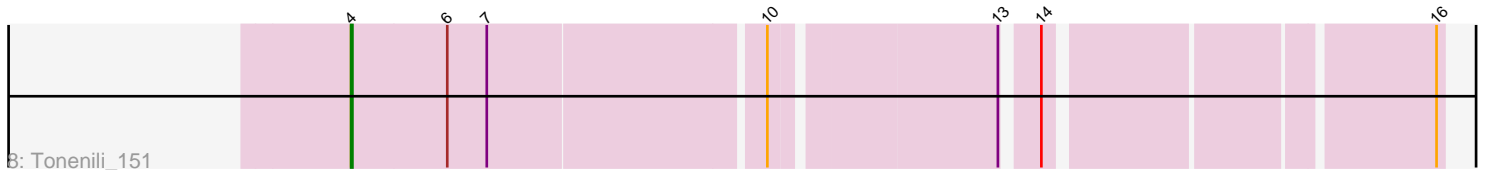
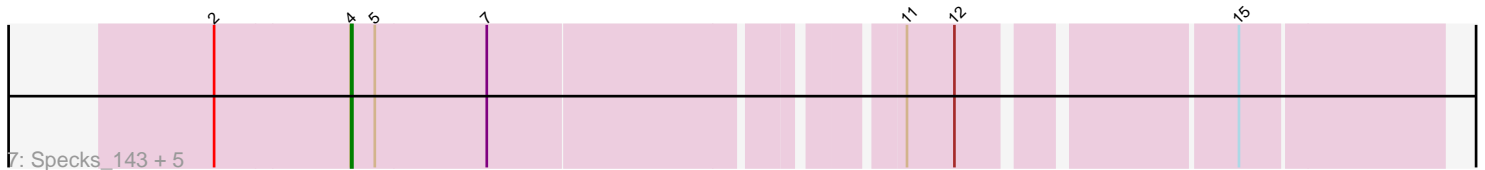
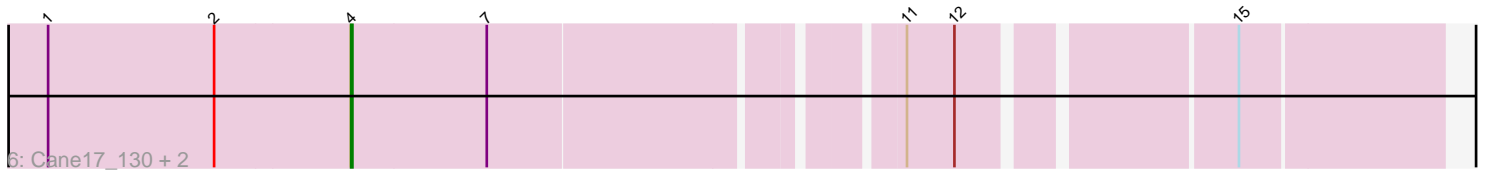
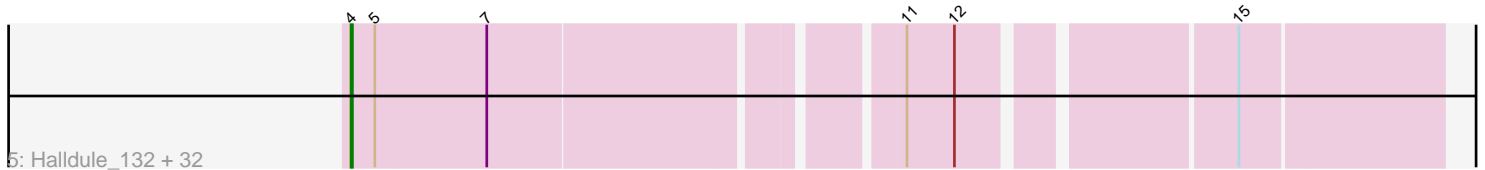
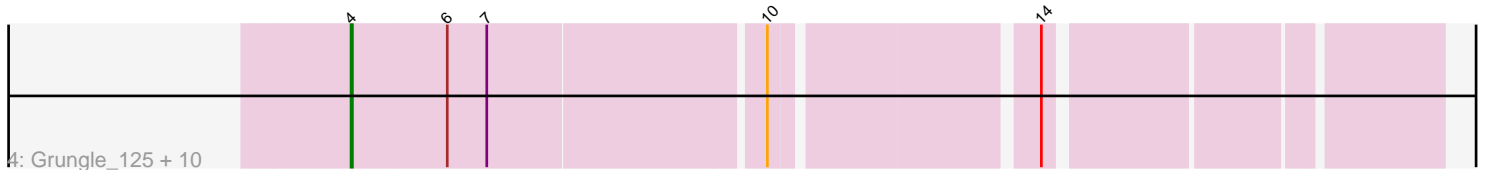
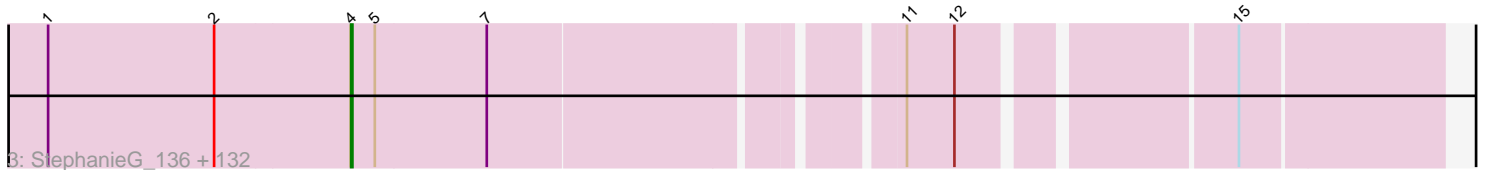
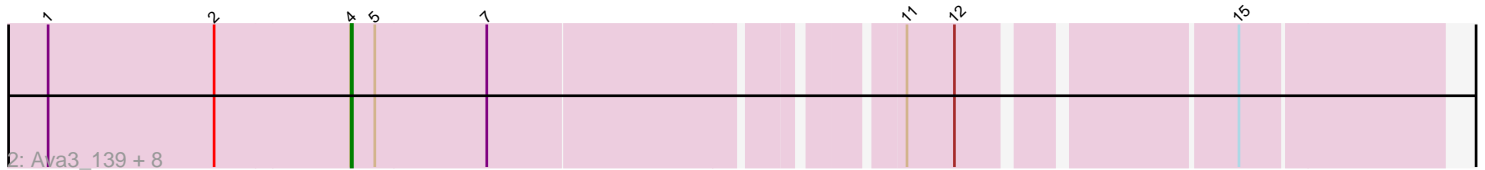
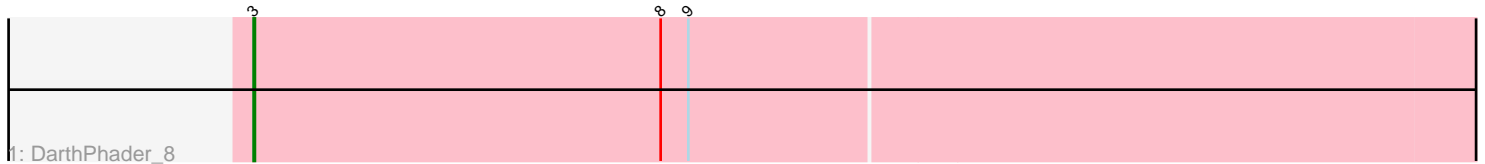


# Pham 215859



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 215859 Report

This analysis was run 02/22/25 on database version 588.

Pham number 215859 has 198 members, 25 are drafts.

Phages represented in each track:

- Track 1 : DarthPhader\_8
- Track 2 : Ava3\_139, DrPhinkDaddy\_137, FoxtrotP1\_138, Ewok\_139, Kamryn\_138, Nidhogg\_140, Jezreel\_136, Lethe\_138, ZygoTaiga\_136
- Track 3 : StephanieG\_136, ArcherS7\_137, Delilah\_138, EasyJones\_141, NedWong\_139, Maby2021\_138, StubbySaigey\_142, Cactojaque\_134, Iota\_133, EmToTheThree\_140, Pleione\_141, Momo\_138, Domi\_131, Alice\_131, TinyTim\_138, NoodleTree\_145, EmmaElysia\_139, Phox\_135, DirtMonster\_132, Mangeria\_138, NuevoMundo\_143, Tyke\_138, Gamgam\_139, BigCity\_146, Yucca\_137, FrayBell\_143, Bxz1\_135, Belieber\_134, Sprinklers\_134, Ablatia\_137, Fongie\_136, Wally\_137, Demodog\_145, Bangla1971\_139, Atlantean\_138, Pivoine\_138, BackyardAgain\_135, Capablanca\_141, Dietrick\_130, JigglyPuff\_146, Nappy\_140, SrishMeg2525\_137, Jessibeth14\_137, ParkTD\_139, Tortoise16\_135, Lee7\_136, McWolfish\_136, Latch\_139, IkeLoa\_132, GlutenPhree\_138, Drazdys\_136, Daffodil\_143, ValleyTerrace\_139, Kboogie\_142, Dandelion\_143, Matsumoto\_135, Caravan\_132, Bigswole\_141, Chomp\_138, BeanWater\_130, Stubby\_131, Willis\_139, Morizzled23\_139, Pio\_142, Roots515\_137, Ading\_138, Amataga\_139, Gizmo\_143, Shelob\_140, Loanshark\_137, Tainan\_141, Breeniome\_137, Burrough\_138, Fludd\_139, BadAgartude\_134, RoMag\_133, Basquiat\_135, Yassified\_135, Rizal\_133, Littleton\_138, Megamind\_137, Patter\_139, Cali\_133, SilverDipper\_140, Grasshills\_145, McGee\_140, Bread\_137, Babyland\_140, LolaVinca\_138, Khaleesi\_137, Ngannou\_135, Rahel\_137, Rabinovish\_137, Issimir\_136, ChickenPhender\_134, LordLeafolot\_142, I3\_143, Shrimp\_138, Janiyra\_141, Norm\_139, JPickles\_135, Phlegm\_142, YemiJoy2021\_139, Darko\_138, Chergie21\_135, Bipolarisk\_137, Turret\_134, Audrick\_141, Ghost\_137, MoMoMixon\_138, Naval22\_143, Erdmann\_138, Phusco\_138, Zalkecks\_139, ET08\_126, EggyFarm\_146, Zeenon\_139, Concombre\_144, FudgeTart\_136, Shaqnato\_131, Izajani\_138, InigoMontoya\_141, Pier\_142, Gabriel\_138, Naija\_138, Salacia\_142, PurduePete\_138, Asterius\_141, MikeLiesIn\_139, Catera\_134, Delylah\_141, Mikro\_135, SVoro\_136
- Track 4 : Grungle\_125, Sebata\_138, Lukilu\_128, LRRHood\_131, Blackdragon\_134, HyRo\_129, LinStu\_136, Koguma\_135, Sauce\_138, Shifa\_127, Pinkcreek\_129
- Track 5 : Halldule\_132, Essence\_135, Derek\_137, Jemmno\_138, Jaygup\_138, Shnickers\_138, ScottMcG\_134, QBert\_132, Spud\_137, Flabslab\_133, Trinitium\_136, DTDevon\_138, YoungMoneyMata\_140, Jediah\_141, ChaylaJr\_134, Bonray\_139, CindyLou\_140, Adlitam\_139, JulietS\_133, Guwapp\_137, JustHall\_136, ShiaLabeouf\_137, Ronan\_132, Spec\_134, Blackbrain\_134, LifeSavor\_136, Napoleon13\_134, SmallFry\_138, CharlieB\_135, ErnieJ\_132, Quasimodo\_140,

Melpomini\_132, JayJay\_143

- Track 6 : Cane17\_130, Blubba\_130, Colt\_130
- Track 7 : Specks\_143, InterFolia\_144, Primadonna\_132, Astraea\_134, Teardrop\_137, BananaFence\_137
- Track 8 : Tonenili\_151
- Track 9 : DeejaClivia\_125

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

The start number called the most often in the published annotations is 4, it was called in 172 of the 173 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Ablatia\_137, Ading\_138, Adlitam\_139, Alice\_131, Amataga\_139, ArcherS7\_137, Asterius\_141, Astraea\_134, Atlantean\_138, Audrick\_141, Ava3\_139, Babyland\_140, BackyardAgain\_135, BadAgartude\_134, BananaFence\_137, Bangla1971\_139, Basquiat\_135, BeanWater\_130, Belieber\_134, BigCity\_146, Bigswole\_141, Bipolarisk\_137, Blackbrain\_134, Blackdragon\_134, Blubba\_130, Bonray\_139, Bread\_137, Breeniome\_137, Burrough\_138, Bxz1\_135, Cactojaque\_134, Cali\_133, Cane17\_130, Capablanca\_141, Caravan\_132, Catera\_134, Chargie21\_135, CharlieB\_135, ChaylaJr\_134, ChickenPhender\_134, Chomp\_138, CindyLou\_140, Colt\_130, Concombre\_144, DTDevon\_138, Daffodil\_143, Dandelion\_143, Darko\_138, DeejaClivia\_125, Delilah\_138, Delylah\_141, Demodog\_145, Derek\_137, Dietrick\_130, DirtMonster\_132, Domi\_131, DrPhinkDaddy\_137, Drazdys\_136, ET08\_126, EasyJones\_141, EggyFarm\_146, EmToTheThree\_140, EmmaElysia\_139, Erdmann\_138, ErnieJ\_132, Essence\_135, Ewok\_139, Flabslab\_133, Fludd\_139, Fongie\_136, FoxtrotP1\_138, FrayBell\_143, FudgeTart\_136, Gabriel\_138, Gamgam\_139, Ghost\_137, Gizmo\_143, GlutenPhree\_138, Grasshills\_145, Grungle\_125, Guwapp\_137, Halldule\_132, HyRo\_129, I3\_143, IkeLoa\_132, InigoMontoya\_141, InterFolia\_144, Iota\_133, Issimir\_136, Izajani\_138, JPickles\_135, Janiyra\_141, JayJay\_143, Jaygup\_138, Jedediah\_141, Jemmno\_138, Jessibeth14\_137, Jezreel\_136, JigglyPuff\_146, JulietS\_133, JustHall\_136, Kamryn\_138, Kboogie\_142, Khaleesi\_137, Koguma\_135, LRRHood\_131, Latch\_139, Lee7\_136, Lethe\_138, LifeSavor\_136, LinStu\_136, Littleton\_138, Loanshark\_137, LolaVinca\_138, LordLeafolot\_142, Lukilu\_128, Maby2021\_138, Mangeria\_138, Matsumoto\_135, McGee\_140, McWolfish\_136, Megamind\_137, Melpomini\_132, MikeLiesIn\_139, Mikro\_135, MoMoMixon\_138, Momo\_138, Morizzled23\_139, Naija\_138, Napoleon13\_134, Nappy\_140, Naval22\_143, NedWong\_139, Ngannou\_135, Nidhogg\_140, NoodleTree\_145, Norm\_139, NuevoMundo\_143, ParkTD\_139, Patter\_139, Phlegm\_142, Phox\_135, Phusco\_138, Pier\_142, Pinkcreek\_129, Pio\_142, Pivoine\_138, Pleione\_141, Primadonna\_132, PurduePete\_138, QBert\_132, Quasimodo\_140, Rabinovish\_137, Rahel\_137, Rizal\_133, RoMag\_133, Ronan\_132, Roots515\_137, SVoro\_136, Salacia\_142, Sauce\_138, ScottMcG\_134, Sebata\_138, Shaqnato\_131, Shelob\_140, ShiaLabeouf\_137, Shifa\_127, Shnickers\_138, Shrimp\_138, SilverDipper\_140, SmallFry\_138, Spec\_134, Specks\_143, Sprinklers\_134, Spud\_137, SrishMeg2525\_137, StephanieG\_136, StubbySaigey\_142, Stubby\_131, Tainan\_141, Teardrop\_137, TinyTim\_138, Tonenili\_151, Tortoise16\_135, Trinitium\_136, Turret\_134, Tyke\_138, ValleyTerrace\_139, Wally\_137, Willis\_139, Yassified\_135, YemiJoy2021\_139, YoungMoneyMata\_140, Yucca\_137, Zalkecks\_139, Zeenon\_139,

ZygoTaiga\_136,

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

- 

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

- DarthPhader\_8,

### Summary by start number:

Start 3:

- Found in 1 of 198 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 173
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DarthPhader\_8 (A12),

Start 4:

- Found in 197 of 198 ( 99.5% ) of genes in pham
- Manual Annotations of this start: 172 of 173
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ablatia\_137 (C1), Ading\_138 (C1), Adlitam\_139 (C1), Alice\_131 (C1), Amataga\_139 (C1), ArcherS7\_137 (C1), Asterius\_141 (C1), Astraea\_134 (C1), Atlantean\_138 (C1), Audrick\_141 (C1), Ava3\_139 (C1), Babyland\_140 (C1), BackyardAgain\_135 (C1), BadAgartude\_134 (C1), BananaFence\_137 (C1), Bangla1971\_139 (C1), Basquiat\_135 (C1), BeanWater\_130 (C1), Belieber\_134 (C1), BigCity\_146 (C1), Bigswole\_141 (C1), Bipolarisk\_137 (C1), Blackbrain\_134 (C1), Blackdragon\_134 (C1), Blubba\_130 (C1), Bonray\_139 (C1), Bread\_137 (C1), Breeniome\_137 (C1), Burrough\_138 (C1), Bxz1\_135 (C1), Cactojaque\_134 (C1), Cali\_133 (C1), Cane17\_130 (C1), Capablanca\_141 (C1), Caravan\_132 (C1), Catera\_134 (C1), Chargie21\_135 (C1), CharlieB\_135 (C1), ChaylaJr\_134 (C1), ChickenPhender\_134 (C1), Chomp\_138 (C1), CindyLou\_140 (C1), Colt\_130 (C1), Concombre\_144 (C1), DTDevon\_138 (C1), Daffodil\_143 (C1), Dandelion\_143 (C1), Darko\_138 (C1), DeejaClivia\_125 (C1), Delilah\_138 (C1), Delylah\_141 (C1), Demodog\_145 (C1), Derek\_137 (C1), Dietrick\_130 (C1), DirtMonster\_132 (C1), Domi\_131 (C1), DrPhinkDaddy\_137 (C1), Drazdys\_136 (C1), ET08\_126 (C1), EasyJones\_141 (C1), EggyFarm\_146 (C1), EmToTheThree\_140 (C1), EmmaElysia\_139 (C1), Erdmann\_138 (C1), ErnieJ\_132 (C1), Essence\_135 (C1), Ewok\_139 (C1), Flabslab\_133 (C1), Fludd\_139 (C1), Fongie\_136 (C1), FoxtrotP1\_138 (C1), FrayBell\_143 (C1), FudgeTart\_136 (C1), Gabriel\_138 (C1), Gamgam\_139 (C1), Ghost\_137 (C1), Gizmo\_143 (C1), GlutenPhree\_138 (C1), Grasshills\_145 (C1), Grungle\_125 (C1), Guwapp\_137 (C1), Halldule\_132 (C1), HyRo\_129 (C1), I3\_143 (C1), IkeLoa\_132 (C1), InigoMontoya\_141 (C1), InterFolia\_144 (C1), Iota\_133 (C1), Issimir\_136 (C1), Izajani\_138 (C1), JPickles\_135 (C1), Janiyra\_141 (C1), JayJay\_143 (C1), Jaygup\_138 (C1), Jedediah\_141 (C1), Jemmno\_138 (C1), Jessibeth14\_137 (C1), Jezreel\_136 (C1), JigglyPuff\_146 (C1), JulietS\_133 (C1), JustHall\_136 (C1), Kamryn\_138 (C1), Kboogie\_142 (C1), Khaleesi\_137 (C1), Koguma\_135 (C1), LRRHood\_131 (C1), Latch\_139 (C1), Lee7\_136 (C1), Lethe\_138 (C1), LifeSavor\_136 (C1), LinStu\_136 (C1), Littleton\_138 (C1), Loanshark\_137 (C1), LolaVinca\_138 (C1), LordLeafolot\_142 (C1), Lukilu\_128 (C1), Maby2021\_138 (C1), Mangeria\_138 (C1), Matsumoto\_135 (C1), McGee\_140 (C1), McWolfish\_136 (C1), Megamind\_137 (C1), Melpomini\_132 (C1), MikeLiesIn\_139 (C1), Mikro\_135 (C1), MoMoMixon\_138 (C1), Momo\_138 (C1), Morizzled23\_139 (C1), Naija\_138 (C1), Napoleon13\_134 (C1),

Nappy\_140 (C1), Naval22\_143 (C1), NedWong\_139 (C1), Ngannou\_135 (C1), Nidhogg\_140 (C1), NoodleTree\_145 (C1), Norm\_139 (C1), NuevoMundo\_143 (C1), ParkTD\_139 (C1), Patter\_139 (C1), Phlegm\_142 (C1), Phox\_135 (C1), Phusco\_138 (C1), Pier\_142 (C1), Pinkcreek\_129 (C1), Pio\_142 (C1), Pivoine\_138 (C1), Pleione\_141 (C1), Primadonna\_132 (C1), PurduePete\_138 (C1), QBert\_132 (C1), Quasimodo\_140 (C1), Rabinovish\_137 (C1), Rahel\_137 (C1), Rizal\_133 (C1), RoMag\_133 (C1), Ronan\_132 (C1), Roots515\_137 (C1), SVoro\_136 (C1), Salacia\_142 (C1), Sauce\_138 (C1), ScottMcG\_134 (C1), Sebata\_138 (C1), Shaqnato\_131 (C1), Shelob\_140 (C1), ShiaLabeouf\_137 (C1), Shifa\_127 (C1), Shnickers\_138 (C1), Shrimp\_138 (C1), SilverDipper\_140 (C1), SmallFry\_138 (C1), Spec\_134 (C1), Specks\_143 (C1), Sprinklers\_134 (C1), Spud\_137 (C1), SrishMeg2525\_137 (C1), StephanieG\_136 (C1), StubbySaigey\_142 (C1), Stubby\_131 (C1), Tainan\_141 (C1), Teardrop\_137 (C1), TinyTim\_138 (C1), Tonenili\_151 (C1), Tortoise16\_135 (C1), Trinitium\_136 (C1), Turret\_134 (C1), Tyke\_138 (C1), ValleyTerrace\_139 (C1), Wally\_137 (C1), Willis\_139 (C1), Yassified\_135 (C1), YemiJoy2021\_139 (C1), YoungMoneyMata\_140 (C1), Yucca\_137 (C1), Zalkecks\_139 (C1), Zeenon\_139 (C1), ZygoTaiga\_136 (C1),

### **Summary by clusters:**

There are 2 clusters represented in this pham: C1, A12,

Info for manual annotations of cluster A12:

- Start number 3 was manually annotated 1 time for cluster A12.

Info for manual annotations of cluster C1:

- Start number 4 was manually annotated 172 times for cluster C1.

### **Gene Information:**

Gene: Ablatia\_137 Start: 79628, Stop: 80383, Start Num: 4

Candidate Starts for Ablatia\_137:

(1, 79400), (2, 79526), (Start: 4 @79628 has 172 MA's), (5, 79646), (7, 79730), (11, 80012), (12, 80048), (15, 80234),

Gene: Ading\_138 Start: 79597, Stop: 80352, Start Num: 4

Candidate Starts for Ading\_138:

(1, 79369), (2, 79495), (Start: 4 @79597 has 172 MA's), (5, 79615), (7, 79699), (11, 79981), (12, 80017), (15, 80203),

Gene: Adlitam\_139 Start: 80093, Stop: 80848, Start Num: 4

Candidate Starts for Adlitam\_139:

(Start: 4 @80093 has 172 MA's), (5, 80111), (7, 80195), (11, 80477), (12, 80513), (15, 80699),

Gene: Alice\_131 Start: 79318, Stop: 80073, Start Num: 4

Candidate Starts for Alice\_131:

(1, 79090), (2, 79216), (Start: 4 @79318 has 172 MA's), (5, 79336), (7, 79420), (11, 79702), (12, 79738), (15, 79924),

Gene: Amataga\_139 Start: 79338, Stop: 80093, Start Num: 4

Candidate Starts for Amataga\_139:

(1, 79110), (2, 79236), (Start: 4 @79338 has 172 MA's), (5, 79356), (7, 79440), (11, 79722), (12, 79758), (15, 79944),

Gene: ArcherS7\_137 Start: 79177, Stop: 79932, Start Num: 4

Candidate Starts for ArcherS7\_137:

(1, 78949), (2, 79075), (Start: 4 @79177 has 172 MA's), (5, 79195), (7, 79279), (11, 79561), (12, 79597), (15, 79783),

Gene: Asterius\_141 Start: 79853, Stop: 80608, Start Num: 4

Candidate Starts for Asterius\_141:

(1, 79625), (2, 79751), (Start: 4 @79853 has 172 MA's), (5, 79871), (7, 79955), (11, 80237), (12, 80273), (15, 80459),

Gene: Astraea\_134 Start: 78618, Stop: 79373, Start Num: 4

Candidate Starts for Astraea\_134:

(2, 78516), (Start: 4 @78618 has 172 MA's), (5, 78636), (7, 78720), (11, 79002), (12, 79038), (15, 79224),

Gene: Atlantean\_138 Start: 79338, Stop: 80093, Start Num: 4

Candidate Starts for Atlantean\_138:

(1, 79110), (2, 79236), (Start: 4 @79338 has 172 MA's), (5, 79356), (7, 79440), (11, 79722), (12, 79758), (15, 79944),

Gene: Audrick\_141 Start: 79317, Stop: 80072, Start Num: 4

Candidate Starts for Audrick\_141:

(1, 79089), (2, 79215), (Start: 4 @79317 has 172 MA's), (5, 79335), (7, 79419), (11, 79701), (12, 79737), (15, 79923),

Gene: Ava3\_139 Start: 79762, Stop: 80517, Start Num: 4

Candidate Starts for Ava3\_139:

(1, 79534), (2, 79660), (Start: 4 @79762 has 172 MA's), (5, 79780), (7, 79864), (11, 80146), (12, 80182), (15, 80368),

Gene: Babyland\_140 Start: 79416, Stop: 80171, Start Num: 4

Candidate Starts for Babyland\_140:

(1, 79188), (2, 79314), (Start: 4 @79416 has 172 MA's), (5, 79434), (7, 79518), (11, 79800), (12, 79836), (15, 80022),

Gene: BackyardAgain\_135 Start: 78765, Stop: 79520, Start Num: 4

Candidate Starts for BackyardAgain\_135:

(1, 78537), (2, 78663), (Start: 4 @78765 has 172 MA's), (5, 78783), (7, 78867), (11, 79149), (12, 79185), (15, 79371),

Gene: BadAgartude\_134 Start: 80064, Stop: 80819, Start Num: 4

Candidate Starts for BadAgartude\_134:

(1, 79836), (2, 79962), (Start: 4 @80064 has 172 MA's), (5, 80082), (7, 80166), (11, 80448), (12, 80484), (15, 80670),

Gene: BananaFence\_137 Start: 80018, Stop: 80773, Start Num: 4

Candidate Starts for BananaFence\_137:

(2, 79916), (Start: 4 @80018 has 172 MA's), (5, 80036), (7, 80120), (11, 80402), (12, 80438), (15, 80624),

Gene: Bangla1971\_139 Start: 79307, Stop: 80062, Start Num: 4  
Candidate Starts for Bangla1971\_139:  
(1, 79079), (2, 79205), (Start: 4 @79307 has 172 MA's), (5, 79325), (7, 79409), (11, 79691), (12, 79727), (15, 79913),

Gene: Basquiat\_135 Start: 78916, Stop: 79671, Start Num: 4  
Candidate Starts for Basquiat\_135:  
(1, 78688), (2, 78814), (Start: 4 @78916 has 172 MA's), (5, 78934), (7, 79018), (11, 79300), (12, 79336), (15, 79522),

Gene: BeanWater\_130 Start: 79616, Stop: 80371, Start Num: 4  
Candidate Starts for BeanWater\_130:  
(1, 79388), (2, 79514), (Start: 4 @79616 has 172 MA's), (5, 79634), (7, 79718), (11, 80000), (12, 80036), (15, 80222),

Gene: Belieber\_134 Start: 79091, Stop: 79846, Start Num: 4  
Candidate Starts for Belieber\_134:  
(1, 78863), (2, 78989), (Start: 4 @79091 has 172 MA's), (5, 79109), (7, 79193), (11, 79475), (12, 79511), (15, 79697),

Gene: BigCity\_146 Start: 82288, Stop: 83043, Start Num: 4  
Candidate Starts for BigCity\_146:  
(1, 82060), (2, 82186), (Start: 4 @82288 has 172 MA's), (5, 82306), (7, 82390), (11, 82672), (12, 82708), (15, 82894),

Gene: Bigswole\_141 Start: 81573, Stop: 82328, Start Num: 4  
Candidate Starts for Bigswole\_141:  
(1, 81345), (2, 81471), (Start: 4 @81573 has 172 MA's), (5, 81591), (7, 81675), (11, 81957), (12, 81993), (15, 82179),

Gene: Bipolarisk\_137 Start: 80030, Stop: 80785, Start Num: 4  
Candidate Starts for Bipolarisk\_137:  
(1, 79802), (2, 79928), (Start: 4 @80030 has 172 MA's), (5, 80048), (7, 80132), (11, 80414), (12, 80450), (15, 80636),

Gene: Blackbrain\_134 Start: 78801, Stop: 79556, Start Num: 4  
Candidate Starts for Blackbrain\_134:  
(Start: 4 @78801 has 172 MA's), (5, 78819), (7, 78903), (11, 79185), (12, 79221), (15, 79407),

Gene: Blackdragon\_134 Start: 79445, Stop: 80200, Start Num: 4  
Candidate Starts for Blackdragon\_134:  
(Start: 4 @79445 has 172 MA's), (6, 79517), (7, 79547), (10, 79748), (14, 79928),

Gene: Blubba\_130 Start: 81163, Stop: 81918, Start Num: 4  
Candidate Starts for Blubba\_130:  
(1, 80935), (2, 81061), (Start: 4 @81163 has 172 MA's), (7, 81265), (11, 81547), (12, 81583), (15, 81769),

Gene: Bonray\_139 Start: 80672, Stop: 81427, Start Num: 4  
Candidate Starts for Bonray\_139:  
(Start: 4 @80672 has 172 MA's), (5, 80690), (7, 80774), (11, 81056), (12, 81092), (15, 81278),

Gene: Bread\_137 Start: 79848, Stop: 80603, Start Num: 4

Candidate Starts for Bread\_137:

(1, 79620), (2, 79746), (Start: 4 @79848 has 172 MA's), (5, 79866), (7, 79950), (11, 80232), (12, 80268), (15, 80454),

Gene: Breeniome\_137 Start: 78206, Stop: 78961, Start Num: 4

Candidate Starts for Breeniome\_137:

(1, 77978), (2, 78104), (Start: 4 @78206 has 172 MA's), (5, 78224), (7, 78308), (11, 78590), (12, 78626), (15, 78812),

Gene: Burrough\_138 Start: 80357, Stop: 81112, Start Num: 4

Candidate Starts for Burrough\_138:

(1, 80129), (2, 80255), (Start: 4 @80357 has 172 MA's), (5, 80375), (7, 80459), (11, 80741), (12, 80777), (15, 80963),

Gene: Bxz1\_135 Start: 81560, Stop: 82315, Start Num: 4

Candidate Starts for Bxz1\_135:

(1, 81332), (2, 81458), (Start: 4 @81560 has 172 MA's), (5, 81578), (7, 81662), (11, 81944), (12, 81980), (15, 82166),

Gene: Cactojaque\_134 Start: 78908, Stop: 79663, Start Num: 4

Candidate Starts for Cactojaque\_134:

(1, 78680), (2, 78806), (Start: 4 @78908 has 172 MA's), (5, 78926), (7, 79010), (11, 79292), (12, 79328), (15, 79514),

Gene: Cali\_133 Start: 80359, Stop: 81114, Start Num: 4

Candidate Starts for Cali\_133:

(1, 80131), (2, 80257), (Start: 4 @80359 has 172 MA's), (5, 80377), (7, 80461), (11, 80743), (12, 80779), (15, 80965),

Gene: Cane17\_130 Start: 81221, Stop: 81976, Start Num: 4

Candidate Starts for Cane17\_130:

(1, 80993), (2, 81119), (Start: 4 @81221 has 172 MA's), (7, 81323), (11, 81605), (12, 81641), (15, 81827),

Gene: Capablanca\_141 Start: 81088, Stop: 81843, Start Num: 4

Candidate Starts for Capablanca\_141:

(1, 80860), (2, 80986), (Start: 4 @81088 has 172 MA's), (5, 81106), (7, 81190), (11, 81472), (12, 81508), (15, 81694),

Gene: Caravan\_132 Start: 79716, Stop: 80471, Start Num: 4

Candidate Starts for Caravan\_132:

(1, 79488), (2, 79614), (Start: 4 @79716 has 172 MA's), (5, 79734), (7, 79818), (11, 80100), (12, 80136), (15, 80322),

Gene: Catera\_134 Start: 78623, Stop: 79378, Start Num: 4

Candidate Starts for Catera\_134:

(1, 78395), (2, 78521), (Start: 4 @78623 has 172 MA's), (5, 78641), (7, 78725), (11, 79007), (12, 79043), (15, 79229),

Gene: Chargie21\_135 Start: 78916, Stop: 79671, Start Num: 4

Candidate Starts for Chargie21\_135:

(1, 78688), (2, 78814), (Start: 4 @78916 has 172 MA's), (5, 78934), (7, 79018), (11, 79300), (12, 79336), (15, 79522),



Gene: CharlieB\_135 Start: 79242, Stop: 79997, Start Num: 4  
Candidate Starts for CharlieB\_135:  
(Start: 4 @79242 has 172 MA's), (5, 79260), (7, 79344), (11, 79626), (12, 79662), (15, 79848),

Gene: ChaylaJr\_134 Start: 78724, Stop: 79479, Start Num: 4  
Candidate Starts for ChaylaJr\_134:  
(Start: 4 @78724 has 172 MA's), (5, 78742), (7, 78826), (11, 79108), (12, 79144), (15, 79330),

Gene: ChickenPhender\_134 Start: 78548, Stop: 79303, Start Num: 4  
Candidate Starts for ChickenPhender\_134:  
(1, 78320), (2, 78446), (Start: 4 @78548 has 172 MA's), (5, 78566), (7, 78650), (11, 78932), (12, 78968), (15, 79154),

Gene: Chomp\_138 Start: 80627, Stop: 81382, Start Num: 4  
Candidate Starts for Chomp\_138:  
(1, 80399), (2, 80525), (Start: 4 @80627 has 172 MA's), (5, 80645), (7, 80729), (11, 81011), (12, 81047), (15, 81233),

Gene: CindyLou\_140 Start: 80667, Stop: 81422, Start Num: 4  
Candidate Starts for CindyLou\_140:  
(Start: 4 @80667 has 172 MA's), (5, 80685), (7, 80769), (11, 81051), (12, 81087), (15, 81273),

Gene: Colt\_130 Start: 81338, Stop: 82093, Start Num: 4  
Candidate Starts for Colt\_130:  
(1, 81110), (2, 81236), (Start: 4 @81338 has 172 MA's), (7, 81440), (11, 81722), (12, 81758), (15, 81944),

Gene: Concombres\_144 Start: 82521, Stop: 83276, Start Num: 4  
Candidate Starts for Concombres\_144:  
(1, 82293), (2, 82419), (Start: 4 @82521 has 172 MA's), (5, 82539), (7, 82623), (11, 82905), (12, 82941), (15, 83127),

Gene: DTDevon\_138 Start: 80389, Stop: 81144, Start Num: 4  
Candidate Starts for DTDevon\_138:  
(Start: 4 @80389 has 172 MA's), (5, 80407), (7, 80491), (11, 80773), (12, 80809), (15, 80995),

Gene: Daffodil\_143 Start: 80330, Stop: 81085, Start Num: 4  
Candidate Starts for Daffodil\_143:  
(1, 80102), (2, 80228), (Start: 4 @80330 has 172 MA's), (5, 80348), (7, 80432), (11, 80714), (12, 80750), (15, 80936),

Gene: Dandelion\_143 Start: 82522, Stop: 83277, Start Num: 4  
Candidate Starts for Dandelion\_143:  
(1, 82294), (2, 82420), (Start: 4 @82522 has 172 MA's), (5, 82540), (7, 82624), (11, 82906), (12, 82942), (15, 83128),

Gene: Darko\_138 Start: 80022, Stop: 80777, Start Num: 4  
Candidate Starts for Darko\_138:  
(1, 79794), (2, 79920), (Start: 4 @80022 has 172 MA's), (5, 80040), (7, 80124), (11, 80406), (12, 80442), (15, 80628),

Gene: DarthPhader\_8 Start: 5319, Stop: 6242, Start Num: 3

Candidate Starts for DarthPhader\_8:  
(Start: 3 @5319 has 1 MA's), (8, 5628), (9, 5649),

Gene: DeejaClivia\_125 Start: 76688, Stop: 77443, Start Num: 4  
Candidate Starts for DeejaClivia\_125:  
(1, 76460), (2, 76586), (Start: 4 @76688 has 172 MA's), (5, 76706), (7, 76790), (12, 77108), (15, 77294),

Gene: Delilah\_138 Start: 80484, Stop: 81239, Start Num: 4  
Candidate Starts for Delilah\_138:  
(1, 80256), (2, 80382), (Start: 4 @80484 has 172 MA's), (5, 80502), (7, 80586), (11, 80868), (12, 80904), (15, 81090),

Gene: Delylah\_141 Start: 80023, Stop: 80778, Start Num: 4  
Candidate Starts for Delylah\_141:  
(1, 79795), (2, 79921), (Start: 4 @80023 has 172 MA's), (5, 80041), (7, 80125), (11, 80407), (12, 80443), (15, 80629),

Gene: Demodog\_145 Start: 82530, Stop: 83285, Start Num: 4  
Candidate Starts for Demodog\_145:  
(1, 82302), (2, 82428), (Start: 4 @82530 has 172 MA's), (5, 82548), (7, 82632), (11, 82914), (12, 82950), (15, 83136),

Gene: Derek\_137 Start: 79949, Stop: 80704, Start Num: 4  
Candidate Starts for Derek\_137:  
(Start: 4 @79949 has 172 MA's), (5, 79967), (7, 80051), (11, 80333), (12, 80369), (15, 80555),

Gene: Dietrick\_130 Start: 78025, Stop: 78780, Start Num: 4  
Candidate Starts for Dietrick\_130:  
(1, 77797), (2, 77923), (Start: 4 @78025 has 172 MA's), (5, 78043), (7, 78127), (11, 78409), (12, 78445), (15, 78631),

Gene: DirtMonster\_132 Start: 79283, Stop: 80038, Start Num: 4  
Candidate Starts for DirtMonster\_132:  
(1, 79055), (2, 79181), (Start: 4 @79283 has 172 MA's), (5, 79301), (7, 79385), (11, 79667), (12, 79703), (15, 79889),

Gene: Domi\_131 Start: 79362, Stop: 80117, Start Num: 4  
Candidate Starts for Domi\_131:  
(1, 79134), (2, 79260), (Start: 4 @79362 has 172 MA's), (5, 79380), (7, 79464), (11, 79746), (12, 79782), (15, 79968),

Gene: DrPhinkDaddy\_137 Start: 80542, Stop: 81297, Start Num: 4  
Candidate Starts for DrPhinkDaddy\_137:  
(1, 80314), (2, 80440), (Start: 4 @80542 has 172 MA's), (5, 80560), (7, 80644), (11, 80926), (12, 80962), (15, 81148),

Gene: Drazdys\_136 Start: 79013, Stop: 79768, Start Num: 4  
Candidate Starts for Drazdys\_136:  
(1, 78785), (2, 78911), (Start: 4 @79013 has 172 MA's), (5, 79031), (7, 79115), (11, 79397), (12, 79433), (15, 79619),

Gene: ET08\_126 Start: 79003, Stop: 79758, Start Num: 4

Candidate Starts for ET08\_126:

(1, 78775), (2, 78901), (Start: 4 @79003 has 172 MA's), (5, 79021), (7, 79105), (11, 79387), (12, 79423), (15, 79609),

Gene: EasyJones\_141 Start: 79570, Stop: 80325, Start Num: 4

Candidate Starts for EasyJones\_141:

(1, 79342), (2, 79468), (Start: 4 @79570 has 172 MA's), (5, 79588), (7, 79672), (11, 79954), (12, 79990), (15, 80176),

Gene: EggyFarm\_146 Start: 82288, Stop: 83043, Start Num: 4

Candidate Starts for EggyFarm\_146:

(1, 82060), (2, 82186), (Start: 4 @82288 has 172 MA's), (5, 82306), (7, 82390), (11, 82672), (12, 82708), (15, 82894),

Gene: EmToTheThree\_140 Start: 81282, Stop: 82037, Start Num: 4

Candidate Starts for EmToTheThree\_140:

(1, 81054), (2, 81180), (Start: 4 @81282 has 172 MA's), (5, 81300), (7, 81384), (11, 81666), (12, 81702), (15, 81888),

Gene: EmmaElysia\_139 Start: 79557, Stop: 80312, Start Num: 4

Candidate Starts for EmmaElysia\_139:

(1, 79329), (2, 79455), (Start: 4 @79557 has 172 MA's), (5, 79575), (7, 79659), (11, 79941), (12, 79977), (15, 80163),

Gene: Erdmann\_138 Start: 80331, Stop: 81086, Start Num: 4

Candidate Starts for Erdmann\_138:

(1, 80103), (2, 80229), (Start: 4 @80331 has 172 MA's), (5, 80349), (7, 80433), (11, 80715), (12, 80751), (15, 80937),

Gene: ErnieJ\_132 Start: 78300, Stop: 79055, Start Num: 4

Candidate Starts for ErnieJ\_132:

(Start: 4 @78300 has 172 MA's), (5, 78318), (7, 78402), (11, 78684), (12, 78720), (15, 78906),

Gene: Essence\_135 Start: 79179, Stop: 79934, Start Num: 4

Candidate Starts for Essence\_135:

(Start: 4 @79179 has 172 MA's), (5, 79197), (7, 79281), (11, 79563), (12, 79599), (15, 79785),

Gene: Ewok\_139 Start: 79708, Stop: 80463, Start Num: 4

Candidate Starts for Ewok\_139:

(1, 79480), (2, 79606), (Start: 4 @79708 has 172 MA's), (5, 79726), (7, 79810), (11, 80092), (12, 80128), (15, 80314),

Gene: Flabslab\_133 Start: 77890, Stop: 78645, Start Num: 4

Candidate Starts for Flabslab\_133:

(Start: 4 @77890 has 172 MA's), (5, 77908), (7, 77992), (11, 78274), (12, 78310), (15, 78496),

Gene: Fludd\_139 Start: 79356, Stop: 80111, Start Num: 4

Candidate Starts for Fludd\_139:

(1, 79128), (2, 79254), (Start: 4 @79356 has 172 MA's), (5, 79374), (7, 79458), (11, 79740), (12, 79776), (15, 79962),

Gene: Fongie\_136 Start: 79921, Stop: 80676, Start Num: 4

Candidate Starts for Fongie\_136:

(1, 79693), (2, 79819), (Start: 4 @79921 has 172 MA's), (5, 79939), (7, 80023), (11, 80305), (12, 80341), (15, 80527),

Gene: FoxtrotP1\_138 Start: 81491, Stop: 82246, Start Num: 4

Candidate Starts for FoxtrotP1\_138:

(1, 81263), (2, 81389), (Start: 4 @81491 has 172 MA's), (5, 81509), (7, 81593), (11, 81875), (12, 81911), (15, 82097),

Gene: FrayBell\_143 Start: 80655, Stop: 81410, Start Num: 4

Candidate Starts for FrayBell\_143:

(1, 80427), (2, 80553), (Start: 4 @80655 has 172 MA's), (5, 80673), (7, 80757), (11, 81039), (12, 81075), (15, 81261),

Gene: FudgeTart\_136 Start: 79361, Stop: 80116, Start Num: 4

Candidate Starts for FudgeTart\_136:

(1, 79133), (2, 79259), (Start: 4 @79361 has 172 MA's), (5, 79379), (7, 79463), (11, 79745), (12, 79781), (15, 79967),

Gene: Gabriel\_138 Start: 78585, Stop: 79340, Start Num: 4

Candidate Starts for Gabriel\_138:

(1, 78357), (2, 78483), (Start: 4 @78585 has 172 MA's), (5, 78603), (7, 78687), (11, 78969), (12, 79005), (15, 79191),

Gene: Gamgam\_139 Start: 79328, Stop: 80083, Start Num: 4

Candidate Starts for Gamgam\_139:

(1, 79100), (2, 79226), (Start: 4 @79328 has 172 MA's), (5, 79346), (7, 79430), (11, 79712), (12, 79748), (15, 79934),

Gene: Ghost\_137 Start: 79338, Stop: 80093, Start Num: 4

Candidate Starts for Ghost\_137:

(1, 79110), (2, 79236), (Start: 4 @79338 has 172 MA's), (5, 79356), (7, 79440), (11, 79722), (12, 79758), (15, 79944),

Gene: Gizmo\_143 Start: 81960, Stop: 82715, Start Num: 4

Candidate Starts for Gizmo\_143:

(1, 81732), (2, 81858), (Start: 4 @81960 has 172 MA's), (5, 81978), (7, 82062), (11, 82344), (12, 82380), (15, 82566),

Gene: GlutenPhree\_138 Start: 79338, Stop: 80093, Start Num: 4

Candidate Starts for GlutenPhree\_138:

(1, 79110), (2, 79236), (Start: 4 @79338 has 172 MA's), (5, 79356), (7, 79440), (11, 79722), (12, 79758), (15, 79944),

Gene: Grasshills\_145 Start: 82288, Stop: 83043, Start Num: 4

Candidate Starts for Grasshills\_145:

(1, 82060), (2, 82186), (Start: 4 @82288 has 172 MA's), (5, 82306), (7, 82390), (11, 82672), (12, 82708), (15, 82894),

Gene: Grungle\_125 Start: 76603, Stop: 77358, Start Num: 4

Candidate Starts for Grungle\_125:

(Start: 4 @76603 has 172 MA's), (6, 76675), (7, 76705), (10, 76906), (14, 77086),

Gene: Guwapp\_137 Start: 78750, Stop: 79505, Start Num: 4

Candidate Starts for Guwapp\_137:

(Start: 4 @78750 has 172 MA's), (5, 78768), (7, 78852), (11, 79134), (12, 79170), (15, 79356),

Gene: Halldule\_132 Start: 77629, Stop: 78384, Start Num: 4

Candidate Starts for Halldule\_132:

(Start: 4 @77629 has 172 MA's), (5, 77647), (7, 77731), (11, 78013), (12, 78049), (15, 78235),

Gene: HyRo\_129 Start: 79281, Stop: 80036, Start Num: 4

Candidate Starts for HyRo\_129:

(Start: 4 @79281 has 172 MA's), (6, 79353), (7, 79383), (10, 79584), (14, 79764),

Gene: I3\_143 Start: 80816, Stop: 81571, Start Num: 4

Candidate Starts for I3\_143:

(1, 80588), (2, 80714), (Start: 4 @80816 has 172 MA's), (5, 80834), (7, 80918), (11, 81200), (12, 81236), (15, 81422),

Gene: IkeLoa\_132 Start: 79236, Stop: 79991, Start Num: 4

Candidate Starts for IkeLoa\_132:

(1, 79008), (2, 79134), (Start: 4 @79236 has 172 MA's), (5, 79254), (7, 79338), (11, 79620), (12, 79656), (15, 79842),

Gene: InigoMontoya\_141 Start: 79299, Stop: 80054, Start Num: 4

Candidate Starts for InigoMontoya\_141:

(1, 79071), (2, 79197), (Start: 4 @79299 has 172 MA's), (5, 79317), (7, 79401), (11, 79683), (12, 79719), (15, 79905),

Gene: InterFolia\_144 Start: 81590, Stop: 82345, Start Num: 4

Candidate Starts for InterFolia\_144:

(2, 81488), (Start: 4 @81590 has 172 MA's), (5, 81608), (7, 81692), (11, 81974), (12, 82010), (15, 82196),

Gene: Iota\_133 Start: 79287, Stop: 80042, Start Num: 4

Candidate Starts for Iota\_133:

(1, 79059), (2, 79185), (Start: 4 @79287 has 172 MA's), (5, 79305), (7, 79389), (11, 79671), (12, 79707), (15, 79893),

Gene: Issimir\_136 Start: 80295, Stop: 81050, Start Num: 4

Candidate Starts for Issimir\_136:

(1, 80067), (2, 80193), (Start: 4 @80295 has 172 MA's), (5, 80313), (7, 80397), (11, 80679), (12, 80715), (15, 80901),

Gene: Izajani\_138 Start: 80501, Stop: 81256, Start Num: 4

Candidate Starts for Izajani\_138:

(1, 80273), (2, 80399), (Start: 4 @80501 has 172 MA's), (5, 80519), (7, 80603), (11, 80885), (12, 80921), (15, 81107),

Gene: JPickles\_135 Start: 78090, Stop: 78845, Start Num: 4

Candidate Starts for JPickles\_135:

(1, 77862), (2, 77988), (Start: 4 @78090 has 172 MA's), (5, 78108), (7, 78192), (11, 78474), (12, 78510), (15, 78696),

Gene: Janiyra\_141 Start: 80265, Stop: 81020, Start Num: 4

Candidate Starts for Janiyra\_141:

(1, 80037), (2, 80163), (Start: 4 @80265 has 172 MA's), (5, 80283), (7, 80367), (11, 80649), (12, 80685), (15, 80871),

Gene: JayJay\_143 Start: 81296, Stop: 82051, Start Num: 4

Candidate Starts for JayJay\_143:

(Start: 4 @81296 has 172 MA's), (5, 81314), (7, 81398), (11, 81680), (12, 81716), (15, 81902),

Gene: Jaygup\_138 Start: 79615, Stop: 80370, Start Num: 4

Candidate Starts for Jaygup\_138:

(Start: 4 @79615 has 172 MA's), (5, 79633), (7, 79717), (11, 79999), (12, 80035), (15, 80221),

Gene: Jedediah\_141 Start: 80148, Stop: 80903, Start Num: 4

Candidate Starts for Jedediah\_141:

(Start: 4 @80148 has 172 MA's), (5, 80166), (7, 80250), (11, 80532), (12, 80568), (15, 80754),

Gene: Jemmno\_138 Start: 79595, Stop: 80350, Start Num: 4

Candidate Starts for Jemmno\_138:

(Start: 4 @79595 has 172 MA's), (5, 79613), (7, 79697), (11, 79979), (12, 80015), (15, 80201),

Gene: Jessibeth14\_137 Start: 80127, Stop: 80882, Start Num: 4

Candidate Starts for Jessibeth14\_137:

(1, 79899), (2, 80025), (Start: 4 @80127 has 172 MA's), (5, 80145), (7, 80229), (11, 80511), (12, 80547), (15, 80733),

Gene: Jezreel\_136 Start: 80281, Stop: 81036, Start Num: 4

Candidate Starts for Jezreel\_136:

(1, 80053), (2, 80179), (Start: 4 @80281 has 172 MA's), (5, 80299), (7, 80383), (11, 80665), (12, 80701), (15, 80887),

Gene: JigglyPuff\_146 Start: 82445, Stop: 83200, Start Num: 4

Candidate Starts for JigglyPuff\_146:

(1, 82217), (2, 82343), (Start: 4 @82445 has 172 MA's), (5, 82463), (7, 82547), (11, 82829), (12, 82865), (15, 83051),

Gene: JulietS\_133 Start: 77482, Stop: 78237, Start Num: 4

Candidate Starts for JulietS\_133:

(Start: 4 @77482 has 172 MA's), (5, 77500), (7, 77584), (11, 77866), (12, 77902), (15, 78088),

Gene: JustHall\_136 Start: 80123, Stop: 80878, Start Num: 4

Candidate Starts for JustHall\_136:

(Start: 4 @80123 has 172 MA's), (5, 80141), (7, 80225), (11, 80507), (12, 80543), (15, 80729),

Gene: Kamryn\_138 Start: 80933, Stop: 81688, Start Num: 4

Candidate Starts for Kamryn\_138:

(1, 80705), (2, 80831), (Start: 4 @80933 has 172 MA's), (5, 80951), (7, 81035), (11, 81317), (12, 81353), (15, 81539),

Gene: Kboogie\_142 Start: 79288, Stop: 80043, Start Num: 4

Candidate Starts for Kboogie\_142:

(1, 79060), (2, 79186), (Start: 4 @79288 has 172 MA's), (5, 79306), (7, 79390), (11, 79672), (12, 79708), (15, 79894),

Gene: Khaleesi\_137 Start: 80230, Stop: 80985, Start Num: 4

Candidate Starts for Khaleesi\_137:

(1, 80002), (2, 80128), (Start: 4 @80230 has 172 MA's), (5, 80248), (7, 80332), (11, 80614), (12, 80650), (15, 80836),

Gene: Koguma\_135 Start: 77765, Stop: 78520, Start Num: 4

Candidate Starts for Koguma\_135:

(Start: 4 @77765 has 172 MA's), (6, 77837), (7, 77867), (10, 78068), (14, 78248),

Gene: LRRHood\_131 Start: 79573, Stop: 80328, Start Num: 4

Candidate Starts for LRRHood\_131:

(Start: 4 @79573 has 172 MA's), (6, 79645), (7, 79675), (10, 79876), (14, 80056),

Gene: Latch\_139 Start: 79338, Stop: 80093, Start Num: 4

Candidate Starts for Latch\_139:

(1, 79110), (2, 79236), (Start: 4 @79338 has 172 MA's), (5, 79356), (7, 79440), (11, 79722), (12, 79758), (15, 79944),

Gene: Lee7\_136 Start: 80854, Stop: 81609, Start Num: 4

Candidate Starts for Lee7\_136:

(1, 80626), (2, 80752), (Start: 4 @80854 has 172 MA's), (5, 80872), (7, 80956), (11, 81238), (12, 81274), (15, 81460),

Gene: Lethe\_138 Start: 80292, Stop: 81047, Start Num: 4

Candidate Starts for Lethe\_138:

(1, 80064), (2, 80190), (Start: 4 @80292 has 172 MA's), (5, 80310), (7, 80394), (11, 80676), (12, 80712), (15, 80898),

Gene: LifeSavor\_136 Start: 79547, Stop: 80302, Start Num: 4

Candidate Starts for LifeSavor\_136:

(Start: 4 @79547 has 172 MA's), (5, 79565), (7, 79649), (11, 79931), (12, 79967), (15, 80153),

Gene: LinStu\_136 Start: 80182, Stop: 80937, Start Num: 4

Candidate Starts for LinStu\_136:

(Start: 4 @80182 has 172 MA's), (6, 80254), (7, 80284), (10, 80485), (14, 80665),

Gene: Littleton\_138 Start: 79667, Stop: 80422, Start Num: 4

Candidate Starts for Littleton\_138:

(1, 79439), (2, 79565), (Start: 4 @79667 has 172 MA's), (5, 79685), (7, 79769), (11, 80051), (12, 80087), (15, 80273),

Gene: Loanshark\_137 Start: 80198, Stop: 80953, Start Num: 4

Candidate Starts for Loanshark\_137:

(1, 79970), (2, 80096), (Start: 4 @80198 has 172 MA's), (5, 80216), (7, 80300), (11, 80582), (12, 80618), (15, 80804),

Gene: LolaVinca\_138 Start: 80541, Stop: 81296, Start Num: 4

Candidate Starts for LolaVinca\_138:

(1, 80313), (2, 80439), (Start: 4 @80541 has 172 MA's), (5, 80559), (7, 80643), (11, 80925), (12, 80961), (15, 81147),

Gene: LordLeafolot\_142 Start: 81507, Stop: 82262, Start Num: 4

Candidate Starts for LordLeafolot\_142:

(1, 81279), (2, 81405), (Start: 4 @81507 has 172 MA's), (5, 81525), (7, 81609), (11, 81891), (12, 81927), (15, 82113),

Gene: Lukilu\_128 Start: 80583, Stop: 81338, Start Num: 4

Candidate Starts for Lukilu\_128:

(Start: 4 @80583 has 172 MA's), (6, 80655), (7, 80685), (10, 80886), (14, 81066),

Gene: Maby2021\_138 Start: 80314, Stop: 81069, Start Num: 4

Candidate Starts for Maby2021\_138:

(1, 80086), (2, 80212), (Start: 4 @80314 has 172 MA's), (5, 80332), (7, 80416), (11, 80698), (12, 80734), (15, 80920),

Gene: Mangeria\_138 Start: 80384, Stop: 81139, Start Num: 4

Candidate Starts for Mangeria\_138:

(1, 80156), (2, 80282), (Start: 4 @80384 has 172 MA's), (5, 80402), (7, 80486), (11, 80768), (12, 80804), (15, 80990),

Gene: Matsumoto\_135 Start: 79175, Stop: 79930, Start Num: 4

Candidate Starts for Matsumoto\_135:

(1, 78947), (2, 79073), (Start: 4 @79175 has 172 MA's), (5, 79193), (7, 79277), (11, 79559), (12, 79595), (15, 79781),

Gene: McGee\_140 Start: 78929, Stop: 79684, Start Num: 4

Candidate Starts for McGee\_140:

(1, 78701), (2, 78827), (Start: 4 @78929 has 172 MA's), (5, 78947), (7, 79031), (11, 79313), (12, 79349), (15, 79535),

Gene: McWolfish\_136 Start: 80103, Stop: 80858, Start Num: 4

Candidate Starts for McWolfish\_136:

(1, 79875), (2, 80001), (Start: 4 @80103 has 172 MA's), (5, 80121), (7, 80205), (11, 80487), (12, 80523), (15, 80709),

Gene: Megamind\_137 Start: 79987, Stop: 80742, Start Num: 4

Candidate Starts for Megamind\_137:

(1, 79759), (2, 79885), (Start: 4 @79987 has 172 MA's), (5, 80005), (7, 80089), (11, 80371), (12, 80407), (15, 80593),

Gene: Melpomini\_132 Start: 77453, Stop: 78208, Start Num: 4

Candidate Starts for Melpomini\_132:

(Start: 4 @77453 has 172 MA's), (5, 77471), (7, 77555), (11, 77837), (12, 77873), (15, 78059),

Gene: MikeLiesIn\_139 Start: 80344, Stop: 81099, Start Num: 4

Candidate Starts for MikeLiesIn\_139:

(1, 80116), (2, 80242), (Start: 4 @80344 has 172 MA's), (5, 80362), (7, 80446), (11, 80728), (12, 80764), (15, 80950),

Gene: Mikro\_135 Start: 81557, Stop: 82312, Start Num: 4

Candidate Starts for Mikro\_135:

(1, 81329), (2, 81455), (Start: 4 @81557 has 172 MA's), (5, 81575), (7, 81659), (11, 81941), (12, 81977), (15, 82163),

Gene: MoMoMixon\_138 Start: 79820, Stop: 80575, Start Num: 4

Candidate Starts for MoMoMixon\_138:



(1, 79592), (2, 79718), (Start: 4 @79820 has 172 MA's), (5, 79838), (7, 79922), (11, 80204), (12, 80240), (15, 80426),

Gene: Momo\_138 Start: 79338, Stop: 80093, Start Num: 4

Candidate Starts for Momo\_138:

(1, 79110), (2, 79236), (Start: 4 @79338 has 172 MA's), (5, 79356), (7, 79440), (11, 79722), (12, 79758), (15, 79944),

Gene: Morizzled23\_139 Start: 79693, Stop: 80448, Start Num: 4

Candidate Starts for Morizzled23\_139:

(1, 79465), (2, 79591), (Start: 4 @79693 has 172 MA's), (5, 79711), (7, 79795), (11, 80077), (12, 80113), (15, 80299),

Gene: Naija\_138 Start: 79338, Stop: 80093, Start Num: 4

Candidate Starts for Naija\_138:

(1, 79110), (2, 79236), (Start: 4 @79338 has 172 MA's), (5, 79356), (7, 79440), (11, 79722), (12, 79758), (15, 79944),

Gene: Napoleon13\_134 Start: 77891, Stop: 78646, Start Num: 4

Candidate Starts for Napoleon13\_134:

(Start: 4 @77891 has 172 MA's), (5, 77909), (7, 77993), (11, 78275), (12, 78311), (15, 78497),

Gene: Nappy\_140 Start: 81254, Stop: 82009, Start Num: 4

Candidate Starts for Nappy\_140:

(1, 81026), (2, 81152), (Start: 4 @81254 has 172 MA's), (5, 81272), (7, 81356), (11, 81638), (12, 81674), (15, 81860),

Gene: Naval22\_143 Start: 81787, Stop: 82542, Start Num: 4

Candidate Starts for Naval22\_143:

(1, 81559), (2, 81685), (Start: 4 @81787 has 172 MA's), (5, 81805), (7, 81889), (11, 82171), (12, 82207), (15, 82393),

Gene: NedWong\_139 Start: 80321, Stop: 81076, Start Num: 4

Candidate Starts for NedWong\_139:

(1, 80093), (2, 80219), (Start: 4 @80321 has 172 MA's), (5, 80339), (7, 80423), (11, 80705), (12, 80741), (15, 80927),

Gene: Ngannou\_135 Start: 78320, Stop: 79075, Start Num: 4

Candidate Starts for Ngannou\_135:

(1, 78092), (2, 78218), (Start: 4 @78320 has 172 MA's), (5, 78338), (7, 78422), (11, 78704), (12, 78740), (15, 78926),

Gene: Nidhogg\_140 Start: 80544, Stop: 81299, Start Num: 4

Candidate Starts for Nidhogg\_140:

(1, 80316), (2, 80442), (Start: 4 @80544 has 172 MA's), (5, 80562), (7, 80646), (11, 80928), (12, 80964), (15, 81150),

Gene: NoodleTree\_145 Start: 80414, Stop: 81169, Start Num: 4

Candidate Starts for NoodleTree\_145:

(1, 80186), (2, 80312), (Start: 4 @80414 has 172 MA's), (5, 80432), (7, 80516), (11, 80798), (12, 80834), (15, 81020),

Gene: Norm\_139 Start: 81016, Stop: 81771, Start Num: 4

Candidate Starts for Norm\_139:

(1, 80788), (2, 80914), (Start: 4 @81016 has 172 MA's), (5, 81034), (7, 81118), (11, 81400), (12, 81436), (15, 81622),

Gene: NuevoMundo\_143 Start: 82596, Stop: 83351, Start Num: 4

Candidate Starts for NuevoMundo\_143:

(1, 82368), (2, 82494), (Start: 4 @82596 has 172 MA's), (5, 82614), (7, 82698), (11, 82980), (12, 83016), (15, 83202),

Gene: ParkTD\_139 Start: 80327, Stop: 81082, Start Num: 4

Candidate Starts for ParkTD\_139:

(1, 80099), (2, 80225), (Start: 4 @80327 has 172 MA's), (5, 80345), (7, 80429), (11, 80711), (12, 80747), (15, 80933),

Gene: Patter\_139 Start: 79355, Stop: 80110, Start Num: 4

Candidate Starts for Patter\_139:

(1, 79127), (2, 79253), (Start: 4 @79355 has 172 MA's), (5, 79373), (7, 79457), (11, 79739), (12, 79775), (15, 79961),

Gene: Phlegm\_142 Start: 79338, Stop: 80093, Start Num: 4

Candidate Starts for Phlegm\_142:

(1, 79110), (2, 79236), (Start: 4 @79338 has 172 MA's), (5, 79356), (7, 79440), (11, 79722), (12, 79758), (15, 79944),

Gene: Phox\_135 Start: 80607, Stop: 81362, Start Num: 4

Candidate Starts for Phox\_135:

(1, 80379), (2, 80505), (Start: 4 @80607 has 172 MA's), (5, 80625), (7, 80709), (11, 80991), (12, 81027), (15, 81213),

Gene: Phusco\_138 Start: 79614, Stop: 80369, Start Num: 4

Candidate Starts for Phusco\_138:

(1, 79386), (2, 79512), (Start: 4 @79614 has 172 MA's), (5, 79632), (7, 79716), (11, 79998), (12, 80034), (15, 80220),

Gene: Pier\_142 Start: 82604, Stop: 83359, Start Num: 4

Candidate Starts for Pier\_142:

(1, 82376), (2, 82502), (Start: 4 @82604 has 172 MA's), (5, 82622), (7, 82706), (11, 82988), (12, 83024), (15, 83210),

Gene: Pinkcreek\_129 Start: 77948, Stop: 78703, Start Num: 4

Candidate Starts for Pinkcreek\_129:

(Start: 4 @77948 has 172 MA's), (6, 78020), (7, 78050), (10, 78251), (14, 78431),

Gene: Pio\_142 Start: 82216, Stop: 82971, Start Num: 4

Candidate Starts for Pio\_142:

(1, 81988), (2, 82114), (Start: 4 @82216 has 172 MA's), (5, 82234), (7, 82318), (11, 82600), (12, 82636), (15, 82822),

Gene: Pivoine\_138 Start: 79338, Stop: 80093, Start Num: 4

Candidate Starts for Pivoine\_138:

(1, 79110), (2, 79236), (Start: 4 @79338 has 172 MA's), (5, 79356), (7, 79440), (11, 79722), (12, 79758), (15, 79944),

Gene: Pleione\_141 Start: 80494, Stop: 81249, Start Num: 4

Candidate Starts for Pleione\_141:

(1, 80266), (2, 80392), (Start: 4 @80494 has 172 MA's), (5, 80512), (7, 80596), (11, 80878), (12, 80914), (15, 81100),

Gene: Primadonna\_132 Start: 78979, Stop: 79734, Start Num: 4

Candidate Starts for Primadonna\_132:

(2, 78877), (Start: 4 @78979 has 172 MA's), (5, 78997), (7, 79081), (11, 79363), (12, 79399), (15, 79585),

Gene: PurduePete\_138 Start: 80741, Stop: 81496, Start Num: 4

Candidate Starts for PurduePete\_138:

(1, 80513), (2, 80639), (Start: 4 @80741 has 172 MA's), (5, 80759), (7, 80843), (11, 81125), (12, 81161), (15, 81347),

Gene: QBert\_132 Start: 79331, Stop: 80086, Start Num: 4

Candidate Starts for QBert\_132:

(Start: 4 @79331 has 172 MA's), (5, 79349), (7, 79433), (11, 79715), (12, 79751), (15, 79937),

Gene: Quasimodo\_140 Start: 80755, Stop: 81510, Start Num: 4

Candidate Starts for Quasimodo\_140:

(Start: 4 @80755 has 172 MA's), (5, 80773), (7, 80857), (11, 81139), (12, 81175), (15, 81361),

Gene: Rabinovish\_137 Start: 80939, Stop: 81694, Start Num: 4

Candidate Starts for Rabinovish\_137:

(1, 80711), (2, 80837), (Start: 4 @80939 has 172 MA's), (5, 80957), (7, 81041), (11, 81323), (12, 81359), (15, 81545),

Gene: Rahel\_137 Start: 79216, Stop: 79971, Start Num: 4

Candidate Starts for Rahel\_137:

(1, 78988), (2, 79114), (Start: 4 @79216 has 172 MA's), (5, 79234), (7, 79318), (11, 79600), (12, 79636), (15, 79822),

Gene: Rizal\_133 Start: 78364, Stop: 79119, Start Num: 4

Candidate Starts for Rizal\_133:

(1, 78136), (2, 78262), (Start: 4 @78364 has 172 MA's), (5, 78382), (7, 78466), (11, 78748), (12, 78784), (15, 78970),

Gene: RoMag\_133 Start: 79528, Stop: 80283, Start Num: 4

Candidate Starts for RoMag\_133:

(1, 79300), (2, 79426), (Start: 4 @79528 has 172 MA's), (5, 79546), (7, 79630), (11, 79912), (12, 79948), (15, 80134),

Gene: Ronan\_132 Start: 77477, Stop: 78232, Start Num: 4

Candidate Starts for Ronan\_132:

(Start: 4 @77477 has 172 MA's), (5, 77495), (7, 77579), (11, 77861), (12, 77897), (15, 78083),

Gene: Roots515\_137 Start: 80993, Stop: 81748, Start Num: 4

Candidate Starts for Roots515\_137:

(1, 80765), (2, 80891), (Start: 4 @80993 has 172 MA's), (5, 81011), (7, 81095), (11, 81377), (12, 81413), (15, 81599),

Gene: SVoro\_136 Start: 80701, Stop: 81456, Start Num: 4

Candidate Starts for SVoro\_136:

(1, 80473), (2, 80599), (Start: 4 @80701 has 172 MA's), (5, 80719), (7, 80803), (11, 81085), (12, 81121), (15, 81307),

Gene: Salacia\_142 Start: 80655, Stop: 81410, Start Num: 4

Candidate Starts for Salacia\_142:

(1, 80427), (2, 80553), (Start: 4 @80655 has 172 MA's), (5, 80673), (7, 80757), (11, 81039), (12, 81075), (15, 81261),

Gene: Sauce\_138 Start: 79271, Stop: 80026, Start Num: 4

Candidate Starts for Sauce\_138:

(Start: 4 @79271 has 172 MA's), (6, 79343), (7, 79373), (10, 79574), (14, 79754),

Gene: ScottMcG\_134 Start: 79277, Stop: 80032, Start Num: 4

Candidate Starts for ScottMcG\_134:

(Start: 4 @79277 has 172 MA's), (5, 79295), (7, 79379), (11, 79661), (12, 79697), (15, 79883),

Gene: Sebata\_138 Start: 80740, Stop: 81495, Start Num: 4

Candidate Starts for Sebata\_138:

(Start: 4 @80740 has 172 MA's), (6, 80812), (7, 80842), (10, 81043), (14, 81223),

Gene: Shaqnato\_131 Start: 78321, Stop: 79076, Start Num: 4

Candidate Starts for Shaqnato\_131:

(1, 78093), (2, 78219), (Start: 4 @78321 has 172 MA's), (5, 78339), (7, 78423), (11, 78705), (12, 78741), (15, 78927),

Gene: Shelob\_140 Start: 81123, Stop: 81878, Start Num: 4

Candidate Starts for Shelob\_140:

(1, 80895), (2, 81021), (Start: 4 @81123 has 172 MA's), (5, 81141), (7, 81225), (11, 81507), (12, 81543), (15, 81729),

Gene: ShiaLabeouf\_137 Start: 79651, Stop: 80406, Start Num: 4

Candidate Starts for ShiaLabeouf\_137:

(Start: 4 @79651 has 172 MA's), (5, 79669), (7, 79753), (11, 80035), (12, 80071), (15, 80257),

Gene: Shifa\_127 Start: 78547, Stop: 79302, Start Num: 4

Candidate Starts for Shifa\_127:

(Start: 4 @78547 has 172 MA's), (6, 78619), (7, 78649), (10, 78850), (14, 79030),

Gene: Shnickers\_138 Start: 79615, Stop: 80370, Start Num: 4

Candidate Starts for Shnickers\_138:

(Start: 4 @79615 has 172 MA's), (5, 79633), (7, 79717), (11, 79999), (12, 80035), (15, 80221),

Gene: Shrimp\_138 Start: 80334, Stop: 81089, Start Num: 4

Candidate Starts for Shrimp\_138:

(1, 80106), (2, 80232), (Start: 4 @80334 has 172 MA's), (5, 80352), (7, 80436), (11, 80718), (12, 80754), (15, 80940),

Gene: SilverDipper\_140 Start: 79338, Stop: 80093, Start Num: 4

Candidate Starts for SilverDipper\_140:

(1, 79110), (2, 79236), (Start: 4 @79338 has 172 MA's), (5, 79356), (7, 79440), (11, 79722), (12, 79758), (15, 79944),

Gene: SmallFry\_138 Start: 78840, Stop: 79595, Start Num: 4

Candidate Starts for SmallFry\_138:

(Start: 4 @78840 has 172 MA's), (5, 78858), (7, 78942), (11, 79224), (12, 79260), (15, 79446),

Gene: Spec\_134 Start: 79380, Stop: 80135, Start Num: 4

Candidate Starts for Spec\_134:

(Start: 4 @79380 has 172 MA's), (5, 79398), (7, 79482), (11, 79764), (12, 79800), (15, 79986),

Gene: Specks\_143 Start: 81505, Stop: 82260, Start Num: 4

Candidate Starts for Specks\_143:

(2, 81403), (Start: 4 @81505 has 172 MA's), (5, 81523), (7, 81607), (11, 81889), (12, 81925), (15, 82111),

Gene: Sprinklers\_134 Start: 78896, Stop: 79651, Start Num: 4

Candidate Starts for Sprinklers\_134:

(1, 78668), (2, 78794), (Start: 4 @78896 has 172 MA's), (5, 78914), (7, 78998), (11, 79280), (12, 79316), (15, 79502),

Gene: Spud\_137 Start: 80401, Stop: 81156, Start Num: 4

Candidate Starts for Spud\_137:

(Start: 4 @80401 has 172 MA's), (5, 80419), (7, 80503), (11, 80785), (12, 80821), (15, 81007),

Gene: SrishMeg2525\_137 Start: 80423, Stop: 81178, Start Num: 4

Candidate Starts for SrishMeg2525\_137:

(1, 80195), (2, 80321), (Start: 4 @80423 has 172 MA's), (5, 80441), (7, 80525), (11, 80807), (12, 80843), (15, 81029),

Gene: StephanieG\_136 Start: 81233, Stop: 81988, Start Num: 4

Candidate Starts for StephanieG\_136:

(1, 81005), (2, 81131), (Start: 4 @81233 has 172 MA's), (5, 81251), (7, 81335), (11, 81617), (12, 81653), (15, 81839),

Gene: Stubby\_131 Start: 78863, Stop: 79618, Start Num: 4

Candidate Starts for Stubby\_131:

(1, 78635), (2, 78761), (Start: 4 @78863 has 172 MA's), (5, 78881), (7, 78965), (11, 79247), (12, 79283), (15, 79469),

Gene: StubbySaigey\_142 Start: 79498, Stop: 80253, Start Num: 4

Candidate Starts for StubbySaigey\_142:

(1, 79270), (2, 79396), (Start: 4 @79498 has 172 MA's), (5, 79516), (7, 79600), (11, 79882), (12, 79918), (15, 80104),

Gene: Tainan\_141 Start: 80828, Stop: 81583, Start Num: 4

Candidate Starts for Tainan\_141:

(1, 80600), (2, 80726), (Start: 4 @80828 has 172 MA's), (5, 80846), (7, 80930), (11, 81212), (12, 81248), (15, 81434),

Gene: Teardrop\_137 Start: 78829, Stop: 79584, Start Num: 4

Candidate Starts for Teardrop\_137:

(2, 78727), (Start: 4 @78829 has 172 MA's), (5, 78847), (7, 78931), (11, 79213), (12, 79249), (15, 79435),

Gene: TinyTim\_138 Start: 80081, Stop: 80836, Start Num: 4

Candidate Starts for TinyTim\_138:

(1, 79853), (2, 79979), (Start: 4 @80081 has 172 MA's), (5, 80099), (7, 80183), (11, 80465), (12, 80501), (15, 80687),

Gene: Tonenili\_151 Start: 82838, Stop: 83593, Start Num: 4

Candidate Starts for Tonenili\_151:

(Start: 4 @82838 has 172 MA's), (6, 82910), (7, 82940), (10, 83141), (13, 83300), (14, 83321), (16, 83588),

Gene: Tortoise16\_135 Start: 79440, Stop: 80195, Start Num: 4

Candidate Starts for Tortoise16\_135:

(1, 79212), (2, 79338), (Start: 4 @79440 has 172 MA's), (5, 79458), (7, 79542), (11, 79824), (12, 79860), (15, 80046),

Gene: Trinitium\_136 Start: 79264, Stop: 80019, Start Num: 4

Candidate Starts for Trinitium\_136:

(Start: 4 @79264 has 172 MA's), (5, 79282), (7, 79366), (11, 79648), (12, 79684), (15, 79870),

Gene: Turret\_134 Start: 78709, Stop: 79464, Start Num: 4

Candidate Starts for Turret\_134:

(1, 78481), (2, 78607), (Start: 4 @78709 has 172 MA's), (5, 78727), (7, 78811), (11, 79093), (12, 79129), (15, 79315),

Gene: Tyke\_138 Start: 80736, Stop: 81491, Start Num: 4

Candidate Starts for Tyke\_138:

(1, 80508), (2, 80634), (Start: 4 @80736 has 172 MA's), (5, 80754), (7, 80838), (11, 81120), (12, 81156), (15, 81342),

Gene: ValleyTerrace\_139 Start: 79338, Stop: 80093, Start Num: 4

Candidate Starts for ValleyTerrace\_139:

(1, 79110), (2, 79236), (Start: 4 @79338 has 172 MA's), (5, 79356), (7, 79440), (11, 79722), (12, 79758), (15, 79944),

Gene: Wally\_137 Start: 78859, Stop: 79614, Start Num: 4

Candidate Starts for Wally\_137:

(1, 78631), (2, 78757), (Start: 4 @78859 has 172 MA's), (5, 78877), (7, 78961), (11, 79243), (12, 79279), (15, 79465),

Gene: Willis\_139 Start: 80226, Stop: 80981, Start Num: 4

Candidate Starts for Willis\_139:

(1, 79998), (2, 80124), (Start: 4 @80226 has 172 MA's), (5, 80244), (7, 80328), (11, 80610), (12, 80646), (15, 80832),

Gene: Yassified\_135 Start: 78936, Stop: 79691, Start Num: 4

Candidate Starts for Yassified\_135:

(1, 78708), (2, 78834), (Start: 4 @78936 has 172 MA's), (5, 78954), (7, 79038), (11, 79320), (12, 79356), (15, 79542),

Gene: YemiJoy2021\_139 Start: 80318, Stop: 81073, Start Num: 4

Candidate Starts for YemiJoy2021\_139:

(1, 80090), (2, 80216), (Start: 4 @80318 has 172 MA's), (5, 80336), (7, 80420), (11, 80702), (12, 80738), (15, 80924),

Gene: YoungMoneyMata\_140 Start: 79964, Stop: 80719, Start Num: 4

Candidate Starts for YoungMoneyMata\_140:

(Start: 4 @79964 has 172 MA's), (5, 79982), (7, 80066), (11, 80348), (12, 80384), (15, 80570),

Gene: Yucca\_137 Start: 80000, Stop: 80755, Start Num: 4

Candidate Starts for Yucca\_137:

(1, 79772), (2, 79898), (Start: 4 @80000 has 172 MA's), (5, 80018), (7, 80102), (11, 80384), (12, 80420), (15, 80606),

Gene: Zalkecks\_139 Start: 80001, Stop: 80756, Start Num: 4

Candidate Starts for Zalkecks\_139:

(1, 79773), (2, 79899), (Start: 4 @80001 has 172 MA's), (5, 80019), (7, 80103), (11, 80385), (12, 80421), (15, 80607),

Gene: Zeenon\_139 Start: 80086, Stop: 80841, Start Num: 4

Candidate Starts for Zeenon\_139:

(1, 79858), (2, 79984), (Start: 4 @80086 has 172 MA's), (5, 80104), (7, 80188), (11, 80470), (12, 80506), (15, 80692),

Gene: ZygoTaiga\_136 Start: 81246, Stop: 82001, Start Num: 4

Candidate Starts for ZygoTaiga\_136:

(1, 81018), (2, 81144), (Start: 4 @81246 has 172 MA's), (5, 81264), (7, 81348), (11, 81630), (12, 81666), (15, 81852),