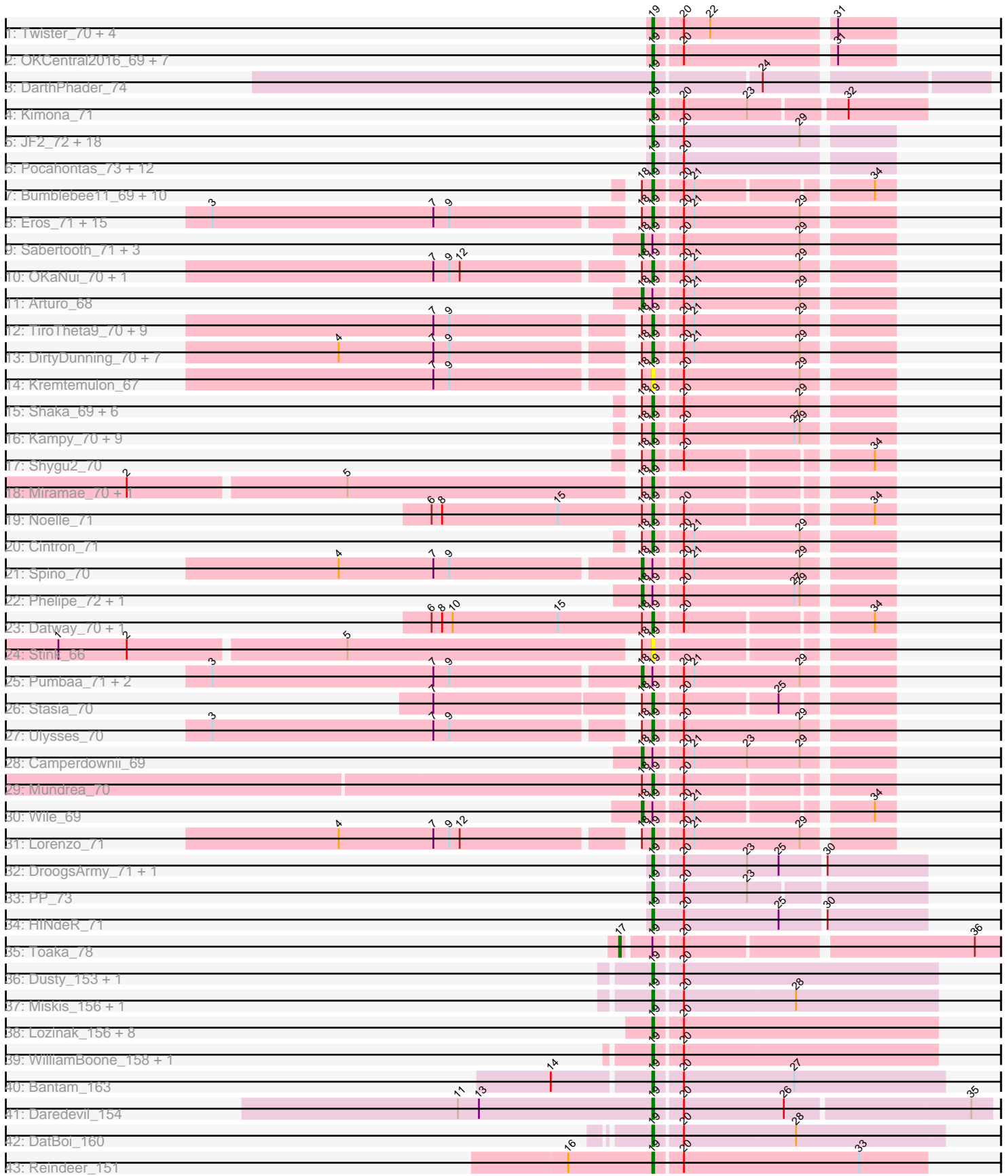


Pham 156171



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 156171 Report

This analysis was run 04/12/24 on database version 558.

Pham number 156171 has 161 members, 12 are drafts.

Phages represented in each track:

- Track 1 : Twister\_70, Rebeuca\_72, Edison31\_66, WalterMcMickey\_70, Kristoff\_70
- Track 2 : OKCentral2016\_69, Severus\_69, Chupacabra\_69, Poompha\_68, Drake94\_69, KittenMittens\_68, Goose\_72, PeaceMeal1\_69
- Track 3 : DarthPhader\_74
- Track 4 : Kimona\_71
- Track 5 : JF2\_72, Giroux\_73, Pistachio\_75, BabyRay\_75, Idleandcovert\_75, BlueBird\_77, HelDan\_74, JF4\_72, Isca\_72, Phantastic\_76, B1\_66, Bugatti\_74, Puppy\_75, Fred313\_72, SaturnRing\_74, Heathen\_74, TNguyen7\_75, Scout\_73, MA5\_74
- Track 6 : Pocahontas\_73, QuinnKiro\_73, Veracruz\_71, Panamaxus\_72, Popcicle\_74, Noella\_75, ResDef\_72, Texage\_72, Norbert\_70, Lambert1\_74, Margo\_74, Hookmount\_74, Todacoro\_74
- Track 7 : Bumblebee11\_69, AbbysRanger\_70, Perplexer\_70, Cici\_70, Achebe\_69, Morpher26\_70, Katalie136\_70, Backyardigan\_68, Wizard007\_70, PetiteSangsue\_70, Badger\_69
- Track 8 : Eros\_71, Lunsford\_69, NorthStar\_69, Skipitt\_70, Iceman\_70, Jaykayelowell\_68, Connomayer\_71, Taquarus\_70, TygerBlood\_71, Albee\_71, Koreni\_70, Pipcraft\_68, Scamp\_71, Flux\_71, LittleB\_71, Chaph\_71
- Track 9 : Sabertooth\_71, BangNhom\_69, LHTSCC\_73, ChampagnePapi\_73
- Track 10 : OKaNui\_70, Phontbonne\_71
- Track 11 : Arturo\_68
- Track 12 : TiroTheta9\_70, Holli\_70, Deano\_68, Roosevelt\_69, Florean\_71, Alberto7\_72, Citius\_71, Baby16\_71, LappelDuVide\_67, Kingmustik0402\_71
- Track 13 : DirtyDunning\_70, Mazhar510\_71, PeterPeter\_71, Kyee\_71, Nemo27\_70, Tinybot\_70, Phighter1804\_71, LochMonster\_72
- Track 14 : Kremtemulon\_67
- Track 15 : Shaka\_69, Obama12\_72, Happiness\_70, SheldonCooper\_71, JetBlade\_71, Cindaradix\_67, Cerulean\_72
- Track 16 : Kampy\_70, Eagle\_70, Ohfah\_72, TroyPia\_72, LeoAvram\_70, CentreCat\_71, Polymorphads\_71, Maxo\_73, Eurydice\_72, Nebs\_72
- Track 17 : Shygu2\_70
- Track 18 : Miramae\_70, AvatarAhPeg\_70
- Track 19 : Noelle\_71
- Track 20 : Cintron\_71
- Track 21 : Spino\_70
- Track 22 : Phelipe\_72, BellusTerra\_72
- Track 23 : Datway\_70, Xena\_69

- Track 24 : Stink\_66
- Track 25 : Pumbaa\_71, YoSam321\_71, Relief\_70
- Track 26 : Stasia\_70
- Track 27 : Ulysses\_70
- Track 28 : Camperdownii\_69
- Track 29 : Mundrea\_70
- Track 30 : Wile\_69
- Track 31 : Lorenzo\_71
- Track 32 : DroogsArmy\_71, Timshel\_72
- Track 33 : PP\_73
- Track 34 : HINdeR\_71
- Track 35 : Toaka\_78
- Track 36 : Dusty\_153, Engineer\_158
- Track 37 : Miskis\_156, Aphelion\_156
- Track 38 : Lozinak\_156, Bachita\_159, Toniann\_156, Norvs\_154, Smoothie\_157, PhinkBoden\_154, ClubL\_157, Abscondus\_155, Cucurbita\_155
- Track 39 : WilliamBoone\_158, Culver\_156
- Track 40 : Bantam\_163
- Track 41 : Daredevil\_154
- Track 42 : DatBoi\_160
- Track 43 : Reindeer\_151

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

The start number called the most often in the published annotations is 19, it was called in 135 of the 149 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AbbysRanger\_70, Abscondus\_155, Achebe\_69, Albee\_71, Alberto7\_72, Aphelion\_156, AvatarAhPeg\_70, B1\_66, Baby16\_71, BabyRay\_75, Bachita\_159, Backyardigan\_68, Badger\_69, Bantam\_163, BlueBird\_77, Bugatti\_74, Bumblebee11\_69, CentreCat\_71, Cerulean\_72, Chaph\_71, Chupacabra\_69, Cici\_70, Cindaradix\_67, Cintron\_71, Citius\_71, ClubL\_157, Connomayer\_71, Cucurbita\_155, Culver\_156, Daredevil\_154, DarthPhader\_74, DatBoi\_160, Datway\_70, Deano\_68, DirtyDunning\_70, Drake94\_69, DroogsArmy\_71, Dusty\_153, Eagle\_70, Edison31\_66, Engineer\_158, Eros\_71, Eurydice\_72, Floean\_71, Flux\_71, Fred313\_72, Giroux\_73, Goose\_72, HINdeR\_71, Happiness\_70, Heathen\_74, HelDan\_74, Holli\_70, Hookmount\_74, Iceman\_70, Idleandcovert\_75, Isca\_72, JF2\_72, JF4\_72, Jaykayelowell\_68, JetBlade\_71, Kampy\_70, Katalie136\_70, Kimona\_71, Kingmustik0402\_71, KittenMittens\_68, Koreni\_70, Kremtemulon\_67, Kristoff\_70, Kyee\_71, Lambert1\_74, LappelDuVide\_67, LeoAvram\_70, LittleB\_71, LochMonster\_72, Lorenzo\_71, Lozinak\_156, Lunsford\_69, MA5\_74, Margo\_74, Maxo\_73, Mazhar510\_71, Miramae\_70, Miskis\_156, Morpher26\_70, Mundrea\_70, Nebs\_72, Nemo27\_70, Noella\_75, Noelle\_71, Norbert\_70, NorthStar\_69, Norvs\_154, OKCentral2016\_69, OKaNui\_70, Obama12\_72, Ohfah\_72, PP\_73, Panamaxus\_72, PeaceMeal1\_69, Perplexer\_70, PeterPeter\_71, PetiteSangsue\_70, Phantastic\_76, Phighter1804\_71, PhinkBoden\_154, Phontbonne\_71, Pipcraft\_68, Pistachio\_75, Pocahontas\_73, Polymorphads\_71, Poompha\_68, Popcicle\_74, Puppy\_75, QuinnKiro\_73, Rebeuca\_72, Reindeer\_151, ResDef\_72, Roosevelt\_69, SaturnRing\_74, Scamp\_71, Scout\_73, Severus\_69, Shaka\_69, SheldonCooper\_71,

Shygu2\_70, Skipitt\_70, Smoothie\_157, Stasia\_70, Stink\_66, TNguyen7\_75, Taquarus\_70, Texage\_72, Timshel\_72, Tinybot\_70, TiroTheta9\_70, Todacoro\_74, Toniann\_156, TroyPia\_72, Twister\_70, TygerBlood\_71, Ulysses\_70, Veracruz\_71, WalterMcMickey\_70, WilliamBoone\_158, Wizard007\_70, Xena\_69,

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

- Arturo\_68, BangNhom\_69, BellusTerra\_72, Camperdownii\_69, ChampagnePapi\_73, LHTSCC\_73, Phelipe\_72, Pumbaa\_71, Relief\_70, Sabertooth\_71, Spino\_70, Toaka\_78, Wile\_69, YoSam321\_71,

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

- 

### Summary by start number:

Start 17:

- Found in 1 of 161 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 149
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Toaka\_78 (A9),

Start 18:

- Found in 90 of 161 ( 55.9% ) of genes in pham
- Manual Annotations of this start: 13 of 149
- Called 14.4% of time when present
- Phage (with cluster) where this start called: Arturo\_68 (A4), BangNhom\_69 (A4), BellusTerra\_72 (A4), Camperdownii\_69 (A4), ChampagnePapi\_73 (A4), LHTSCC\_73 (A4), Phelipe\_72 (A4), Pumbaa\_71 (A4), Relief\_70 (A4), Sabertooth\_71 (A4), Spino\_70 (A4), Wile\_69 (A4), YoSam321\_71 (A4),

Start 19:

- Found in 161 of 161 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 135 of 149
- Called 91.3% of time when present
- Phage (with cluster) where this start called: AbbysRanger\_70 (A4), Abscondus\_155 (CQ), Achebe\_69 (A4), Albee\_71 (A4), Alberto7\_72 (A4), Aphelion\_156 (CQ1), AvatarAhPeg\_70 (A4), B1\_66 (A3), Baby16\_71 (A4), BabyRay\_75 (A3), Bachita\_159 (CQ1), Backyardigan\_68 (A4), Badger\_69 (A4), Bantam\_163 (DL), BlueBird\_77 (A3), Bugatti\_74 (A3), Bumblebee11\_69 (A4), CentreCat\_71 (A4), Cerulean\_72 (A4), Chaph\_71 (A4), Chupacabra\_69 (A10), Cici\_70 (A4), Cindaradix\_67 (A4), Cintron\_71 (A4), Citius\_71 (A4), ClubL\_157 (CQ1), Connomayer\_71 (A4), Cucurbita\_155 (CQ1), Culver\_156 (CQ1), Daredevil\_154 (DL), DarthPhader\_74 (A12), DatBoi\_160 (DL), Datway\_70 (A4), Deano\_68 (A4), DirtyDunning\_70 (A4), Drake94\_69 (A10), DroogsArmy\_71 (A7), Dusty\_153 (CQ), Eagle\_70 (A4), Edison31\_66 (A10), Engineer\_158 (CQ1), Eros\_71 (A4), Eurydice\_72 (A4), Floean\_71 (A4), Flux\_71 (A4), Fred313\_72 (A3), Giroux\_73 (A3), Goose\_72 (A10), HINdeR\_71 (A7), Happiness\_70 (A4), Heathen\_74 (A3), HelDan\_74 (A3), Holli\_70 (A4), Hookmount\_74 (A3), Iceman\_70 (A4), Idleandcovert\_75 (A3), Isca\_72 (A3), JF2\_72 (A3), JF4\_72 (A3), Jaykayelowell\_68 (A4), JetBlade\_71 (A4), Kampy\_70 (A4), Katalie136\_70 (A4), Kimona\_71 (A19), Kingmustik0402\_71 (A4), KittenMittens\_68 (A10), Koreni\_70 (A4), Kremtemulon\_67 (A4), Kristoff\_70 (A10), Kyee\_71 (A4), Lambert1\_74 (A3), LappelDuVide\_67 (A4), LeoAvram\_70 (A4), LittleB\_71 (A4), LochMonster\_72 (A4), Lorenzo\_71 (A4), Lozinak\_156 (CQ1), Lunsford\_69 (A4),

MA5\_74 (A3), Margo\_74 (A3), Maxo\_73 (A4), Mazhar510\_71 (A4), Miramae\_70 (A4), Miskis\_156 (CQ), Morpher26\_70 (A4), Mundrea\_70 (A4), Nebs\_72 (A4), Nemo27\_70 (A4), Noella\_75 (A3), Noelle\_71 (A4), Norbert\_70 (A3), NorthStar\_69 (A4), Norvs\_154 (CQ), OKCentral2016\_69 (A10), OKaNui\_70 (A4), Obama12\_72 (A4), Ohfah\_72 (A4), PP\_73 (A7), Panamaxus\_72 (A3), PeaceMeal1\_69 (A10), Perplexer\_70 (A4), PeterPeter\_71 (A4), PetiteSangsue\_70 (A4), Phantastic\_76 (A3), Phighter1804\_71 (A4), PhinkBoden\_154 (CQ1), Phontbonne\_71 (A4), Pipcraft\_68 (A4), Pistachio\_75 (A3), Pocahontas\_73 (A3), Polymorphads\_71 (A4), Poompha\_68 (A10), Popcicle\_74 (A3), Puppy\_75 (A3), QuinnKiro\_73 (A3), Rebeuca\_72 (A10), Reindeer\_151 (M1), ResDef\_72 (A3), Roosevelt\_69 (A4), SaturnRing\_74 (A3), Scamp\_71 (A4), Scout\_73 (A3), Severus\_69 (A10), Shaka\_69 (A4), SheldonCooper\_71 (A4), Shygu2\_70 (A4), Skipitt\_70 (A4), Smoothie\_157 (CQ1), Stasia\_70 (A4), Stink\_66 (A4), TNguyen7\_75 (A3), Taquarus\_70 (A4), Texage\_72 (A3), Timshel\_72 (A7), Tinybot\_70 (A4), TiroTheta9\_70 (A4), Todacoro\_74 (A3), Toniann\_156 (CQ1), TroyPia\_72 (A4), Twister\_70 (A10), TygerBlood\_71 (A4), Ulysses\_70 (A4), Veracruz\_71 (A3), WalterMcMickey\_70 (A10), WilliamBoone\_158 (CQ1), Wizard007\_70 (A4), Xena\_69 (A4),

### **Summary by clusters:**

There are 11 clusters represented in this pham: DL, A10, A12, A19, A3, M1, A4, A7, A9, CQ1, CQ,

Info for manual annotations of cluster A10:

- Start number 19 was manually annotated 12 times for cluster A10.

Info for manual annotations of cluster A12:

- Start number 19 was manually annotated 1 time for cluster A12.

Info for manual annotations of cluster A19:

- Start number 19 was manually annotated 1 time for cluster A19.

Info for manual annotations of cluster A3:

- Start number 19 was manually annotated 28 times for cluster A3.

Info for manual annotations of cluster A4:

- Start number 18 was manually annotated 13 times for cluster A4.
- Start number 19 was manually annotated 73 times for cluster A4.

Info for manual annotations of cluster A7:

- Start number 19 was manually annotated 4 times for cluster A7.

Info for manual annotations of cluster A9:

- Start number 17 was manually annotated 1 time for cluster A9.

Info for manual annotations of cluster CQ:

- Start number 19 was manually annotated 1 time for cluster CQ.

Info for manual annotations of cluster CQ1:

- Start number 19 was manually annotated 11 times for cluster CQ1.

Info for manual annotations of cluster DL:

- Start number 19 was manually annotated 3 times for cluster DL.

Info for manual annotations of cluster M1:

•Start number 19 was manually annotated 1 time for cluster M1.

**Gene Information:**

Gene: AbbysRanger\_70 Start: 44685, Stop: 44563, Start Num: 19

Candidate Starts for AbbysRanger\_70:

(Start: 18 @44691 has 13 MA's), (Start: 19 @44685 has 135 MA's), (20, 44670), (21, 44664), (34, 44574),

Gene: Abscondus\_155 Start: 82793, Stop: 82635, Start Num: 19

Candidate Starts for Abscondus\_155:

(Start: 19 @82793 has 135 MA's), (20, 82778),

Gene: Achebe\_69 Start: 44668, Stop: 44546, Start Num: 19

Candidate Starts for Achebe\_69:

(Start: 18 @44674 has 13 MA's), (Start: 19 @44668 has 135 MA's), (20, 44653), (21, 44647), (34, 44557),

Gene: Albee\_71 Start: 44510, Stop: 44382, Start Num: 19

Candidate Starts for Albee\_71:

(3, 44744), (7, 44618), (9, 44609), (Start: 18 @44516 has 13 MA's), (Start: 19 @44510 has 135 MA's), (20, 44495), (21, 44489), (29, 44429),

Gene: Alberto7\_72 Start: 44847, Stop: 44719, Start Num: 19

Candidate Starts for Alberto7\_72:

(7, 44955), (9, 44946), (Start: 18 @44853 has 13 MA's), (Start: 19 @44847 has 135 MA's), (20, 44832), (21, 44826), (29, 44766),

Gene: Aphelion\_156 Start: 83954, Stop: 83796, Start Num: 19

Candidate Starts for Aphelion\_156:

(Start: 19 @83954 has 135 MA's), (20, 83939), (28, 83876),

Gene: Arturo\_68 Start: 44641, Stop: 44507, Start Num: 18

Candidate Starts for Arturo\_68:

(Start: 18 @44641 has 13 MA's), (Start: 19 @44635 has 135 MA's), (20, 44620), (21, 44614), (29, 44554),

Gene: AvatarAhPeg\_70 Start: 44568, Stop: 44446, Start Num: 19

Candidate Starts for AvatarAhPeg\_70:

(2, 44850), (5, 44730), (Start: 18 @44574 has 13 MA's), (Start: 19 @44568 has 135 MA's),

Gene: B1\_66 Start: 43265, Stop: 43137, Start Num: 19

Candidate Starts for B1\_66:

(Start: 19 @43265 has 135 MA's), (20, 43250), (29, 43184),

Gene: Baby16\_71 Start: 44521, Stop: 44393, Start Num: 19

Candidate Starts for Baby16\_71:

(7, 44629), (9, 44620), (Start: 18 @44527 has 13 MA's), (Start: 19 @44521 has 135 MA's), (20, 44506), (21, 44500), (29, 44440),

Gene: BabyRay\_75 Start: 45018, Stop: 44890, Start Num: 19

Candidate Starts for BabyRay\_75:

(Start: 19 @45018 has 135 MA's), (20, 45003), (29, 44937),

Gene: Bachita\_159 Start: 83833, Stop: 83675, Start Num: 19

Candidate Starts for Bachita\_159:

(Start: 19 @83833 has 135 MA's), (20, 83818),

Gene: Backyardigan\_68 Start: 44701, Stop: 44579, Start Num: 19

Candidate Starts for Backyardigan\_68:

(Start: 18 @44707 has 13 MA's), (Start: 19 @44701 has 135 MA's), (20, 44686), (21, 44680), (34, 44590),

Gene: Badger\_69 Start: 44669, Stop: 44547, Start Num: 19

Candidate Starts for Badger\_69:

(Start: 18 @44675 has 13 MA's), (Start: 19 @44669 has 135 MA's), (20, 44654), (21, 44648), (34, 44558),

Gene: BangNhom\_69 Start: 44950, Stop: 44816, Start Num: 18

Candidate Starts for BangNhom\_69:

(Start: 18 @44950 has 13 MA's), (Start: 19 @44944 has 135 MA's), (20, 44929), (29, 44863),

Gene: Bantam\_163 Start: 88026, Stop: 87865, Start Num: 19

Candidate Starts for Bantam\_163:

(14, 88080), (Start: 19 @88026 has 135 MA's), (20, 88011), (27, 87948),

Gene: BellusTerra\_72 Start: 44554, Stop: 44420, Start Num: 18

Candidate Starts for BellusTerra\_72:

(Start: 18 @44554 has 13 MA's), (Start: 19 @44548 has 135 MA's), (20, 44533), (27, 44470), (29, 44467),

Gene: BlueBird\_77 Start: 45089, Stop: 44961, Start Num: 19

Candidate Starts for BlueBird\_77:

(Start: 19 @45089 has 135 MA's), (20, 45074), (29, 45008),

Gene: Bugatti\_74 Start: 45089, Stop: 44961, Start Num: 19

Candidate Starts for Bugatti\_74:

(Start: 19 @45089 has 135 MA's), (20, 45074), (29, 45008),

Gene: Bumblebee11\_69 Start: 44671, Stop: 44549, Start Num: 19

Candidate Starts for Bumblebee11\_69:

(Start: 18 @44677 has 13 MA's), (Start: 19 @44671 has 135 MA's), (20, 44656), (21, 44650), (34, 44560),

Gene: Camperdownii\_69 Start: 44185, Stop: 44051, Start Num: 18

Candidate Starts for Camperdownii\_69:

(Start: 18 @44185 has 13 MA's), (Start: 19 @44179 has 135 MA's), (20, 44164), (21, 44158), (23, 44128), (29, 44098),

Gene: CentreCat\_71 Start: 44547, Stop: 44419, Start Num: 19

Candidate Starts for CentreCat\_71:

(Start: 18 @44553 has 13 MA's), (Start: 19 @44547 has 135 MA's), (20, 44532), (27, 44469), (29, 44466),

Gene: Cerulean\_72 Start: 44945, Stop: 44817, Start Num: 19

Candidate Starts for Cerulean\_72:

(Start: 18 @44951 has 13 MA's), (Start: 19 @44945 has 135 MA's), (20, 44930), (29, 44864),

Gene: ChampagnePapi\_73 Start: 44950, Stop: 44816, Start Num: 18

Candidate Starts for ChampagnePapi\_73:

(Start: 18 @44950 has 13 MA's), (Start: 19 @44944 has 135 MA's), (20, 44929), (29, 44863),

Gene: Chaph\_71 Start: 44521, Stop: 44393, Start Num: 19

Candidate Starts for Chaph\_71:

(3, 44755), (7, 44629), (9, 44620), (Start: 18 @44527 has 13 MA's), (Start: 19 @44521 has 135 MA's), (20, 44506), (21, 44500), (29, 44440),

Gene: Chupacabra\_69 Start: 44351, Stop: 44223, Start Num: 19

Candidate Starts for Chupacabra\_69:

(Start: 19 @44351 has 135 MA's), (20, 44336), (31, 44255),

Gene: Cici\_70 Start: 44686, Stop: 44564, Start Num: 19

Candidate Starts for Cici\_70:

(Start: 18 @44692 has 13 MA's), (Start: 19 @44686 has 135 MA's), (20, 44671), (21, 44665), (34, 44575),

Gene: Cindaradix\_67 Start: 44408, Stop: 44280, Start Num: 19

Candidate Starts for Cindaradix\_67:

(Start: 18 @44414 has 13 MA's), (Start: 19 @44408 has 135 MA's), (20, 44393), (29, 44327),

Gene: Cintron\_71 Start: 44658, Stop: 44530, Start Num: 19

Candidate Starts for Cintron\_71:

(Start: 18 @44664 has 13 MA's), (Start: 19 @44658 has 135 MA's), (20, 44643), (21, 44637), (29, 44577),

Gene: Citius\_71 Start: 44531, Stop: 44403, Start Num: 19

Candidate Starts for Citius\_71:

(7, 44639), (9, 44630), (Start: 18 @44537 has 13 MA's), (Start: 19 @44531 has 135 MA's), (20, 44516), (21, 44510), (29, 44450),

Gene: ClubL\_157 Start: 83085, Stop: 82927, Start Num: 19

Candidate Starts for ClubL\_157:

(Start: 19 @83085 has 135 MA's), (20, 83070),

Gene: Connomayer\_71 Start: 44510, Stop: 44382, Start Num: 19

Candidate Starts for Connomayer\_71:

(3, 44744), (7, 44618), (9, 44609), (Start: 18 @44516 has 13 MA's), (Start: 19 @44510 has 135 MA's), (20, 44495), (21, 44489), (29, 44429),

Gene: Cucurbita\_155 Start: 84146, Stop: 83988, Start Num: 19

Candidate Starts for Cucurbita\_155:

(Start: 19 @84146 has 135 MA's), (20, 84131),

Gene: Culver\_156 Start: 82350, Stop: 82192, Start Num: 19



Candidate Starts for Culver\_156:  
(Start: 19 @82350 has 135 MA's), (20, 82335),

Gene: Daredevil\_154 Start: 84151, Stop: 83966, Start Num: 19  
Candidate Starts for Daredevil\_154:  
(11, 84262), (13, 84250), (Start: 19 @84151 has 135 MA's), (20, 84136), (26, 84079), (35, 83977),

Gene: DarthPhader\_74 Start: 46216, Stop: 46040, Start Num: 19  
Candidate Starts for DarthPhader\_74:  
(Start: 19 @46216 has 135 MA's), (24, 46159),

Gene: DatBoi\_160 Start: 87295, Stop: 87134, Start Num: 19  
Candidate Starts for DatBoi\_160:  
(Start: 19 @87295 has 135 MA's), (20, 87280), (28, 87217),

Gene: Datway\_70 Start: 44680, Stop: 44558, Start Num: 19  
Candidate Starts for Datway\_70:  
(6, 44806), (8, 44800), (10, 44794), (15, 44734), (Start: 18 @44686 has 13 MA's), (Start: 19 @44680 has 135 MA's), (20, 44665), (34, 44569),

Gene: Deano\_68 Start: 44518, Stop: 44390, Start Num: 19  
Candidate Starts for Deano\_68:  
(7, 44626), (9, 44617), (Start: 18 @44524 has 13 MA's), (Start: 19 @44518 has 135 MA's), (20, 44503), (21, 44497), (29, 44437),

Gene: DirtyDunning\_70 Start: 44522, Stop: 44394, Start Num: 19  
Candidate Starts for DirtyDunning\_70:  
(4, 44684), (7, 44630), (9, 44621), (Start: 18 @44528 has 13 MA's), (Start: 19 @44522 has 135 MA's), (20, 44507), (21, 44501), (29, 44441),

Gene: Drake94\_69 Start: 43482, Stop: 43354, Start Num: 19  
Candidate Starts for Drake94\_69:  
(Start: 19 @43482 has 135 MA's), (20, 43467), (31, 43386),

Gene: DroogsArmy\_71 Start: 47818, Stop: 47669, Start Num: 19  
Candidate Starts for DroogsArmy\_71:  
(Start: 19 @47818 has 135 MA's), (20, 47803), (23, 47767), (25, 47749), (30, 47725),

Gene: Dusty\_153 Start: 82822, Stop: 82664, Start Num: 19  
Candidate Starts for Dusty\_153:  
(Start: 19 @82822 has 135 MA's), (20, 82807),

Gene: Eagle\_70 Start: 44569, Stop: 44441, Start Num: 19  
Candidate Starts for Eagle\_70:  
(Start: 18 @44575 has 13 MA's), (Start: 19 @44569 has 135 MA's), (20, 44554), (27, 44491), (29, 44488),

Gene: Edison31\_66 Start: 44218, Stop: 44090, Start Num: 19  
Candidate Starts for Edison31\_66:  
(Start: 19 @44218 has 135 MA's), (20, 44203), (22, 44188), (31, 44122),

Gene: Engineer\_158 Start: 83672, Stop: 83514, Start Num: 19  
Candidate Starts for Engineer\_158:

(Start: 19 @83672 has 135 MA's), (20, 83657),

Gene: Eros\_71 Start: 44512, Stop: 44384, Start Num: 19

Candidate Starts for Eros\_71:

(3, 44746), (7, 44620), (9, 44611), (Start: 18 @44518 has 13 MA's), (Start: 19 @44512 has 135 MA's), (20, 44497), (21, 44491), (29, 44431),

Gene: Eurydice\_72 Start: 44544, Stop: 44416, Start Num: 19

Candidate Starts for Eurydice\_72:

(Start: 18 @44550 has 13 MA's), (Start: 19 @44544 has 135 MA's), (20, 44529), (27, 44466), (29, 44463),

Gene: Florean\_71 Start: 44509, Stop: 44381, Start Num: 19

Candidate Starts for Florean\_71:

(7, 44617), (9, 44608), (Start: 18 @44515 has 13 MA's), (Start: 19 @44509 has 135 MA's), (20, 44494), (21, 44488), (29, 44428),

Gene: Flux\_71 Start: 44508, Stop: 44380, Start Num: 19

Candidate Starts for Flux\_71:

(3, 44742), (7, 44616), (9, 44607), (Start: 18 @44514 has 13 MA's), (Start: 19 @44508 has 135 MA's), (20, 44493), (21, 44487), (29, 44427),

Gene: Fred313\_72 Start: 44707, Stop: 44579, Start Num: 19

Candidate Starts for Fred313\_72:

(Start: 19 @44707 has 135 MA's), (20, 44692), (29, 44626),

Gene: Giroux\_73 Start: 45088, Stop: 44960, Start Num: 19

Candidate Starts for Giroux\_73:

(Start: 19 @45088 has 135 MA's), (20, 45073), (29, 45007),

Gene: Goose\_72 Start: 44162, Stop: 44034, Start Num: 19

Candidate Starts for Goose\_72:

(Start: 19 @44162 has 135 MA's), (20, 44147), (31, 44066),

Gene: HINdeR\_71 Start: 47193, Stop: 47041, Start Num: 19

Candidate Starts for HINdeR\_71:

(Start: 19 @47193 has 135 MA's), (20, 47175), (25, 47121), (30, 47097),

Gene: Happiness\_70 Start: 44527, Stop: 44399, Start Num: 19

Candidate Starts for Happiness\_70:

(Start: 18 @44533 has 13 MA's), (Start: 19 @44527 has 135 MA's), (20, 44512), (29, 44446),

Gene: Heathen\_74 Start: 44802, Stop: 44674, Start Num: 19

Candidate Starts for Heathen\_74:

(Start: 19 @44802 has 135 MA's), (20, 44787), (29, 44721),

Gene: HelDan\_74 Start: 45018, Stop: 44890, Start Num: 19

Candidate Starts for HelDan\_74:

(Start: 19 @45018 has 135 MA's), (20, 45003), (29, 44937),

Gene: Holli\_70 Start: 44300, Stop: 44172, Start Num: 19

Candidate Starts for Holli\_70:

(7, 44408), (9, 44399), (Start: 18 @44306 has 13 MA's), (Start: 19 @44300 has 135 MA's), (20, 44285), (21, 44279), (29, 44219),

Gene: Hookmount\_74 Start: 45042, Stop: 44914, Start Num: 19  
Candidate Starts for Hookmount\_74:  
(Start: 19 @45042 has 135 MA's), (20, 45027),

Gene: Iceman\_70 Start: 44800, Stop: 44672, Start Num: 19  
Candidate Starts for Iceman\_70:  
(3, 45034), (7, 44908), (9, 44899), (Start: 18 @44806 has 13 MA's), (Start: 19 @44800 has 135 MA's), (20, 44785), (21, 44779), (29, 44719),

Gene: Idleandcovert\_75 Start: 45089, Stop: 44961, Start Num: 19  
Candidate Starts for Idleandcovert\_75:  
(Start: 19 @45089 has 135 MA's), (20, 45074), (29, 45008),

Gene: Isca\_72 Start: 44569, Stop: 44441, Start Num: 19  
Candidate Starts for Isca\_72:  
(Start: 19 @44569 has 135 MA's), (20, 44554), (29, 44488),

Gene: JF2\_72 Start: 43265, Stop: 43137, Start Num: 19  
Candidate Starts for JF2\_72:  
(Start: 19 @43265 has 135 MA's), (20, 43250), (29, 43184),

Gene: JF4\_72 Start: 43265, Stop: 43137, Start Num: 19  
Candidate Starts for JF4\_72:  
(Start: 19 @43265 has 135 MA's), (20, 43250), (29, 43184),

Gene: Jaykayelowell\_68 Start: 44503, Stop: 44375, Start Num: 19  
Candidate Starts for Jaykayelowell\_68:  
(3, 44737), (7, 44611), (9, 44602), (Start: 18 @44509 has 13 MA's), (Start: 19 @44503 has 135 MA's), (20, 44488), (21, 44482), (29, 44422),

Gene: JetBlade\_71 Start: 44535, Stop: 44407, Start Num: 19  
Candidate Starts for JetBlade\_71:  
(Start: 18 @44541 has 13 MA's), (Start: 19 @44535 has 135 MA's), (20, 44520), (29, 44454),

Gene: Kamy\_70 Start: 44510, Stop: 44382, Start Num: 19  
Candidate Starts for Kamy\_70:  
(Start: 18 @44516 has 13 MA's), (Start: 19 @44510 has 135 MA's), (20, 44495), (27, 44432), (29, 44429),

Gene: Katalie136\_70 Start: 44671, Stop: 44549, Start Num: 19  
Candidate Starts for Katalie136\_70:  
(Start: 18 @44677 has 13 MA's), (Start: 19 @44671 has 135 MA's), (20, 44656), (21, 44650), (34, 44560),

Gene: Kimona\_71 Start: 43589, Stop: 43443, Start Num: 19  
Candidate Starts for Kimona\_71:  
(Start: 19 @43589 has 135 MA's), (20, 43574), (23, 43538), (32, 43487),

Gene: Kingmustik0402\_71 Start: 44499, Stop: 44371, Start Num: 19  
Candidate Starts for Kingmustik0402\_71:

(7, 44607), (9, 44598), (Start: 18 @44505 has 13 MA's), (Start: 19 @44499 has 135 MA's), (20, 44484), (21, 44478), (29, 44418),

Gene: KittenMittens\_68 Start: 43490, Stop: 43362, Start Num: 19  
Candidate Starts for KittenMittens\_68:  
(Start: 19 @43490 has 135 MA's), (20, 43475), (31, 43394),

Gene: Koreni\_70 Start: 44191, Stop: 44063, Start Num: 19  
Candidate Starts for Koreni\_70:  
(3, 44425), (7, 44299), (9, 44290), (Start: 18 @44197 has 13 MA's), (Start: 19 @44191 has 135 MA's), (20, 44176), (21, 44170), (29, 44110),

Gene: Kremtemulon\_67 Start: 44643, Stop: 44515, Start Num: 19  
Candidate Starts for Kremtemulon\_67:  
(7, 44751), (9, 44742), (Start: 18 @44649 has 13 MA's), (Start: 19 @44643 has 135 MA's), (20, 44628), (29, 44562),

Gene: Kristoff\_70 Start: 44796, Stop: 44668, Start Num: 19  
Candidate Starts for Kristoff\_70:  
(Start: 19 @44796 has 135 MA's), (20, 44781), (22, 44766), (31, 44700),

Gene: Kyee\_71 Start: 44505, Stop: 44377, Start Num: 19  
Candidate Starts for Kyee\_71:  
(4, 44667), (7, 44613), (9, 44604), (Start: 18 @44511 has 13 MA's), (Start: 19 @44505 has 135 MA's), (20, 44490), (21, 44484), (29, 44424),

Gene: LHTSCC\_73 Start: 44950, Stop: 44816, Start Num: 18  
Candidate Starts for LHTSCC\_73:  
(Start: 18 @44950 has 13 MA's), (Start: 19 @44944 has 135 MA's), (20, 44929), (29, 44863),

Gene: Lambert1\_74 Start: 45043, Stop: 44915, Start Num: 19  
Candidate Starts for Lambert1\_74:  
(Start: 19 @45043 has 135 MA's), (20, 45028),

Gene: LappelDuVide\_67 Start: 44509, Stop: 44381, Start Num: 19  
Candidate Starts for LappelDuVide\_67:  
(7, 44617), (9, 44608), (Start: 18 @44515 has 13 MA's), (Start: 19 @44509 has 135 MA's), (20, 44494), (21, 44488), (29, 44428),

Gene: LeoAvram\_70 Start: 44538, Stop: 44410, Start Num: 19  
Candidate Starts for LeoAvram\_70:  
(Start: 18 @44544 has 13 MA's), (Start: 19 @44538 has 135 MA's), (20, 44523), (27, 44460), (29, 44457),

Gene: LittleB\_71 Start: 44511, Stop: 44383, Start Num: 19  
Candidate Starts for LittleB\_71:  
(3, 44745), (7, 44619), (9, 44610), (Start: 18 @44517 has 13 MA's), (Start: 19 @44511 has 135 MA's), (20, 44496), (21, 44490), (29, 44430),

Gene: LochMonster\_72 Start: 44746, Stop: 44618, Start Num: 19  
Candidate Starts for LochMonster\_72:  
(4, 44908), (7, 44854), (9, 44845), (Start: 18 @44752 has 13 MA's), (Start: 19 @44746 has 135 MA's), (20, 44731), (21, 44725), (29, 44665),

Gene: Lorenzo\_71 Start: 44508, Stop: 44380, Start Num: 19  
Candidate Starts for Lorenzo\_71:  
(4, 44670), (7, 44616), (9, 44607), (12, 44601), (Start: 18 @44514 has 13 MA's), (Start: 19 @44508 has 135 MA's), (20, 44493), (21, 44487), (29, 44427),

Gene: Lozinak\_156 Start: 83674, Stop: 83516, Start Num: 19  
Candidate Starts for Lozinak\_156:  
(Start: 19 @83674 has 135 MA's), (20, 83659),

Gene: Lunsford\_69 Start: 44503, Stop: 44375, Start Num: 19  
Candidate Starts for Lunsford\_69:  
(3, 44737), (7, 44611), (9, 44602), (Start: 18 @44509 has 13 MA's), (Start: 19 @44503 has 135 MA's), (20, 44488), (21, 44482), (29, 44422),

Gene: MA5\_74 Start: 44473, Stop: 44345, Start Num: 19  
Candidate Starts for MA5\_74:  
(Start: 19 @44473 has 135 MA's), (20, 44458), (29, 44392),

Gene: Margo\_74 Start: 45068, Stop: 44940, Start Num: 19  
Candidate Starts for Margo\_74:  
(Start: 19 @45068 has 135 MA's), (20, 45053),

Gene: Maxo\_73 Start: 44510, Stop: 44382, Start Num: 19  
Candidate Starts for Maxo\_73:  
(Start: 18 @44516 has 13 MA's), (Start: 19 @44510 has 135 MA's), (20, 44495), (27, 44432), (29, 44429),

Gene: Mazhar510\_71 Start: 44508, Stop: 44380, Start Num: 19  
Candidate Starts for Mazhar510\_71:  
(4, 44670), (7, 44616), (9, 44607), (Start: 18 @44514 has 13 MA's), (Start: 19 @44508 has 135 MA's), (20, 44493), (21, 44487), (29, 44427),

Gene: Miramae\_70 Start: 44230, Stop: 44108, Start Num: 19  
Candidate Starts for Miramae\_70:  
(2, 44512), (5, 44392), (Start: 18 @44236 has 13 MA's), (Start: 19 @44230 has 135 MA's),

Gene: Miskis\_156 Start: 82703, Stop: 82545, Start Num: 19  
Candidate Starts for Miskis\_156:  
(Start: 19 @82703 has 135 MA's), (20, 82688), (28, 82625),

Gene: Morpher26\_70 Start: 44692, Stop: 44570, Start Num: 19  
Candidate Starts for Morpher26\_70:  
(Start: 18 @44698 has 13 MA's), (Start: 19 @44692 has 135 MA's), (20, 44677), (21, 44671), (34, 44581),

Gene: Mundrea\_70 Start: 44689, Stop: 44567, Start Num: 19  
Candidate Starts for Mundrea\_70:  
(Start: 18 @44695 has 13 MA's), (Start: 19 @44689 has 135 MA's), (20, 44674),

Gene: Nebs\_72 Start: 44547, Stop: 44419, Start Num: 19  
Candidate Starts for Nebs\_72:

(Start: 18 @44553 has 13 MA's), (Start: 19 @44547 has 135 MA's), (20, 44532), (27, 44469), (29, 44466),

Gene: Nemo27\_70 Start: 44506, Stop: 44378, Start Num: 19

Candidate Starts for Nemo27\_70:

(4, 44668), (7, 44614), (9, 44605), (Start: 18 @44512 has 13 MA's), (Start: 19 @44506 has 135 MA's), (20, 44491), (21, 44485), (29, 44425),

Gene: Noella\_75 Start: 45044, Stop: 44916, Start Num: 19

Candidate Starts for Noella\_75:

(Start: 19 @45044 has 135 MA's), (20, 45029),

Gene: Noelle\_71 Start: 45009, Stop: 44887, Start Num: 19

Candidate Starts for Noelle\_71:

(6, 45135), (8, 45129), (15, 45063), (Start: 18 @45015 has 13 MA's), (Start: 19 @45009 has 135 MA's), (20, 44994), (34, 44898),

Gene: Norbert\_70 Start: 45041, Stop: 44913, Start Num: 19

Candidate Starts for Norbert\_70:

(Start: 19 @45041 has 135 MA's), (20, 45026),

Gene: NorthStar\_69 Start: 44510, Stop: 44382, Start Num: 19

Candidate Starts for NorthStar\_69:

(3, 44744), (7, 44618), (9, 44609), (Start: 18 @44516 has 13 MA's), (Start: 19 @44510 has 135 MA's), (20, 44495), (21, 44489), (29, 44429),

Gene: Norvs\_154 Start: 82865, Stop: 82707, Start Num: 19

Candidate Starts for Norvs\_154:

(Start: 19 @82865 has 135 MA's), (20, 82850),

Gene: OKCentral2016\_69 Start: 43589, Stop: 43461, Start Num: 19

Candidate Starts for OKCentral2016\_69:

(Start: 19 @43589 has 135 MA's), (20, 43574), (31, 43493),

Gene: OKaNui\_70 Start: 44560, Stop: 44432, Start Num: 19

Candidate Starts for OKaNui\_70:

(7, 44668), (9, 44659), (12, 44653), (Start: 18 @44566 has 13 MA's), (Start: 19 @44560 has 135 MA's), (20, 44545), (21, 44539), (29, 44479),

Gene: Obama12\_72 Start: 44928, Stop: 44800, Start Num: 19

Candidate Starts for Obama12\_72:

(Start: 18 @44934 has 13 MA's), (Start: 19 @44928 has 135 MA's), (20, 44913), (29, 44847),

Gene: Ohfah\_72 Start: 44547, Stop: 44419, Start Num: 19

Candidate Starts for Ohfah\_72:

(Start: 18 @44553 has 13 MA's), (Start: 19 @44547 has 135 MA's), (20, 44532), (27, 44469), (29, 44466),

Gene: PP\_73 Start: 49011, Stop: 48865, Start Num: 19

Candidate Starts for PP\_73:

(Start: 19 @49011 has 135 MA's), (20, 48996), (23, 48960),

Gene: Panamaxus\_72 Start: 45043, Stop: 44915, Start Num: 19

Candidate Starts for Panamaxus\_72:  
(Start: 19 @45043 has 135 MA's), (20, 45028),

Gene: PeaceMeal1\_69 Start: 43491, Stop: 43363, Start Num: 19  
Candidate Starts for PeaceMeal1\_69:  
(Start: 19 @43491 has 135 MA's), (20, 43476), (31, 43395),

Gene: Perplexer\_70 Start: 44668, Stop: 44546, Start Num: 19  
Candidate Starts for Perplexer\_70:  
(Start: 18 @44674 has 13 MA's), (Start: 19 @44668 has 135 MA's), (20, 44653), (21, 44647), (34, 44557),

Gene: PeterPeter\_71 Start: 44504, Stop: 44376, Start Num: 19  
Candidate Starts for PeterPeter\_71:  
(4, 44666), (7, 44612), (9, 44603), (Start: 18 @44510 has 13 MA's), (Start: 19 @44504 has 135 MA's), (20, 44489), (21, 44483), (29, 44423),

Gene: PetiteSangsue\_70 Start: 44671, Stop: 44549, Start Num: 19  
Candidate Starts for PetiteSangsue\_70:  
(Start: 18 @44677 has 13 MA's), (Start: 19 @44671 has 135 MA's), (20, 44656), (21, 44650), (34, 44560),

Gene: Phantastic\_76 Start: 44730, Stop: 44602, Start Num: 19  
Candidate Starts for Phantastic\_76:  
(Start: 19 @44730 has 135 MA's), (20, 44715), (29, 44649),

Gene: Phelipe\_72 Start: 44553, Stop: 44419, Start Num: 18  
Candidate Starts for Phelipe\_72:  
(Start: 18 @44553 has 13 MA's), (Start: 19 @44547 has 135 MA's), (20, 44532), (27, 44469), (29, 44466),

Gene: Phighter1804\_71 Start: 44571, Stop: 44443, Start Num: 19  
Candidate Starts for Phighter1804\_71:  
(4, 44733), (7, 44679), (9, 44670), (Start: 18 @44577 has 13 MA's), (Start: 19 @44571 has 135 MA's), (20, 44556), (21, 44550), (29, 44490),

Gene: PhinkBoden\_154 Start: 83263, Stop: 83105, Start Num: 19  
Candidate Starts for PhinkBoden\_154:  
(Start: 19 @83263 has 135 MA's), (20, 83248),

Gene: Phontbonne\_71 Start: 44405, Stop: 44277, Start Num: 19  
Candidate Starts for Phontbonne\_71:  
(7, 44513), (9, 44504), (12, 44498), (Start: 18 @44411 has 13 MA's), (Start: 19 @44405 has 135 MA's), (20, 44390), (21, 44384), (29, 44324),

Gene: Pipcraft\_68 Start: 44511, Stop: 44383, Start Num: 19  
Candidate Starts for Pipcraft\_68:  
(3, 44745), (7, 44619), (9, 44610), (Start: 18 @44517 has 13 MA's), (Start: 19 @44511 has 135 MA's), (20, 44496), (21, 44490), (29, 44430),

Gene: Pistachio\_75 Start: 44636, Stop: 44508, Start Num: 19  
Candidate Starts for Pistachio\_75:  
(Start: 19 @44636 has 135 MA's), (20, 44621), (29, 44555),

Gene: Pocahontas\_73 Start: 45039, Stop: 44911, Start Num: 19

Candidate Starts for Pocahontas\_73:

(Start: 19 @45039 has 135 MA's), (20, 45024),

Gene: Polymorphads\_71 Start: 44528, Stop: 44400, Start Num: 19

Candidate Starts for Polymorphads\_71:

(Start: 18 @44534 has 13 MA's), (Start: 19 @44528 has 135 MA's), (20, 44513), (27, 44450), (29, 44447),

Gene: Poompha\_68 Start: 43489, Stop: 43361, Start Num: 19

Candidate Starts for Poompha\_68:

(Start: 19 @43489 has 135 MA's), (20, 43474), (31, 43393),

Gene: Popcicle\_74 Start: 45039, Stop: 44911, Start Num: 19

Candidate Starts for Popcicle\_74:

(Start: 19 @45039 has 135 MA's), (20, 45024),

Gene: Pumbaa\_71 Start: 44461, Stop: 44327, Start Num: 18

Candidate Starts for Pumbaa\_71:

(3, 44689), (7, 44563), (9, 44554), (Start: 18 @44461 has 13 MA's), (Start: 19 @44455 has 135 MA's), (20, 44440), (21, 44434), (29, 44374),

Gene: Puppy\_75 Start: 44706, Stop: 44578, Start Num: 19

Candidate Starts for Puppy\_75:

(Start: 19 @44706 has 135 MA's), (20, 44691), (29, 44625),

Gene: QuinnKiro\_73 Start: 45042, Stop: 44914, Start Num: 19

Candidate Starts for QuinnKiro\_73:

(Start: 19 @45042 has 135 MA's), (20, 45027),

Gene: Rebeuca\_72 Start: 44797, Stop: 44669, Start Num: 19

Candidate Starts for Rebeuca\_72:

(Start: 19 @44797 has 135 MA's), (20, 44782), (22, 44767), (31, 44701),

Gene: Reindeer\_151 Start: 77820, Stop: 77668, Start Num: 19

Candidate Starts for Reindeer\_151:

(16, 77868), (Start: 19 @77820 has 135 MA's), (20, 77805), (33, 77706),

Gene: Relief\_70 Start: 44513, Stop: 44379, Start Num: 18

Candidate Starts for Relief\_70:

(3, 44741), (7, 44615), (9, 44606), (Start: 18 @44513 has 13 MA's), (Start: 19 @44507 has 135 MA's), (20, 44492), (21, 44486), (29, 44426),

Gene: ResDef\_72 Start: 45045, Stop: 44917, Start Num: 19

Candidate Starts for ResDef\_72:

(Start: 19 @45045 has 135 MA's), (20, 45030),

Gene: Roosevelt\_69 Start: 44512, Stop: 44384, Start Num: 19

Candidate Starts for Roosevelt\_69:

(7, 44620), (9, 44611), (Start: 18 @44518 has 13 MA's), (Start: 19 @44512 has 135 MA's), (20, 44497), (21, 44491), (29, 44431),



Gene: Sabertooth\_71 Start: 44518, Stop: 44384, Start Num: 18  
Candidate Starts for Sabertooth\_71:  
(Start: 18 @44518 has 13 MA's), (Start: 19 @44512 has 135 MA's), (20, 44497), (29, 44431),

Gene: SaturnRing\_74 Start: 45089, Stop: 44961, Start Num: 19  
Candidate Starts for SaturnRing\_74:  
(Start: 19 @45089 has 135 MA's), (20, 45074), (29, 45008),

Gene: Scamp\_71 Start: 44512, Stop: 44384, Start Num: 19  
Candidate Starts for Scamp\_71:  
(3, 44746), (7, 44620), (9, 44611), (Start: 18 @44518 has 13 MA's), (Start: 19 @44512 has 135 MA's),  
(20, 44497), (21, 44491), (29, 44431),

Gene: Scout\_73 Start: 44265, Stop: 44137, Start Num: 19  
Candidate Starts for Scout\_73:  
(Start: 19 @44265 has 135 MA's), (20, 44250), (29, 44184),

Gene: Severus\_69 Start: 43489, Stop: 43361, Start Num: 19  
Candidate Starts for Severus\_69:  
(Start: 19 @43489 has 135 MA's), (20, 43474), (31, 43393),

Gene: Shaka\_69 Start: 44505, Stop: 44377, Start Num: 19  
Candidate Starts for Shaka\_69:  
(Start: 18 @44511 has 13 MA's), (Start: 19 @44505 has 135 MA's), (20, 44490), (29, 44424),

Gene: SheldonCooper\_71 Start: 44945, Stop: 44817, Start Num: 19  
Candidate Starts for SheldonCooper\_71:  
(Start: 18 @44951 has 13 MA's), (Start: 19 @44945 has 135 MA's), (20, 44930), (29, 44864),

Gene: Shygu2\_70 Start: 44723, Stop: 44601, Start Num: 19  
Candidate Starts for Shygu2\_70:  
(Start: 18 @44729 has 13 MA's), (Start: 19 @44723 has 135 MA's), (20, 44708), (34, 44612),

Gene: Skipitt\_70 Start: 44504, Stop: 44376, Start Num: 19  
Candidate Starts for Skipitt\_70:  
(3, 44738), (7, 44612), (9, 44603), (Start: 18 @44510 has 13 MA's), (Start: 19 @44504 has 135 MA's),  
(20, 44489), (21, 44483), (29, 44423),

Gene: Smoothie\_157 Start: 83364, Stop: 83206, Start Num: 19  
Candidate Starts for Smoothie\_157:  
(Start: 19 @83364 has 135 MA's), (20, 83349),

Gene: Spino\_70 Start: 44516, Stop: 44382, Start Num: 18  
Candidate Starts for Spino\_70:  
(4, 44672), (7, 44618), (9, 44609), (Start: 18 @44516 has 13 MA's), (Start: 19 @44510 has 135 MA's),  
(20, 44495), (21, 44489), (29, 44429),

Gene: Stasia\_70 Start: 44731, Stop: 44609, Start Num: 19  
Candidate Starts for Stasia\_70:  
(7, 44842), (Start: 18 @44737 has 13 MA's), (Start: 19 @44731 has 135 MA's), (20, 44716), (25,  
44665),

Gene: Stink\_66 Start: 44510, Stop: 44388, Start Num: 19

Candidate Starts for Stink\_66:

(1, 44831), (2, 44792), (5, 44672), (Start: 18 @44516 has 13 MA's), (Start: 19 @44510 has 135 MA's),

Gene: TNguyen7\_75 Start: 45047, Stop: 44919, Start Num: 19

Candidate Starts for TNguyen7\_75:

(Start: 19 @45047 has 135 MA's), (20, 45032), (29, 44966),

Gene: Taquarus\_70 Start: 44513, Stop: 44385, Start Num: 19

Candidate Starts for Taquarus\_70:

(3, 44747), (7, 44621), (9, 44612), (Start: 18 @44519 has 13 MA's), (Start: 19 @44513 has 135 MA's), (20, 44498), (21, 44492), (29, 44432),

Gene: Texage\_72 Start: 45043, Stop: 44915, Start Num: 19

Candidate Starts for Texage\_72:

(Start: 19 @45043 has 135 MA's), (20, 45028),

Gene: Timshel\_72 Start: 47629, Stop: 47480, Start Num: 19

Candidate Starts for Timshel\_72:

(Start: 19 @47629 has 135 MA's), (20, 47614), (23, 47578), (25, 47560), (30, 47536),

Gene: Tinybot\_70 Start: 44537, Stop: 44409, Start Num: 19

Candidate Starts for Tinybot\_70:

(4, 44699), (7, 44645), (9, 44636), (Start: 18 @44543 has 13 MA's), (Start: 19 @44537 has 135 MA's), (20, 44522), (21, 44516), (29, 44456),

Gene: TiroTheta9\_70 Start: 44504, Stop: 44376, Start Num: 19

Candidate Starts for TiroTheta9\_70:

(7, 44612), (9, 44603), (Start: 18 @44510 has 13 MA's), (Start: 19 @44504 has 135 MA's), (20, 44489), (21, 44483), (29, 44423),

Gene: Toaka\_78 Start: 45406, Stop: 45206, Start Num: 17

Candidate Starts for Toaka\_78:

(Start: 17 @45406 has 1 MA's), (Start: 19 @45391 has 135 MA's), (20, 45376), (36, 45220),

Gene: Todacoro\_74 Start: 45042, Stop: 44914, Start Num: 19

Candidate Starts for Todacoro\_74:

(Start: 19 @45042 has 135 MA's), (20, 45027),

Gene: Toniann\_156 Start: 83006, Stop: 82848, Start Num: 19

Candidate Starts for Toniann\_156:

(Start: 19 @83006 has 135 MA's), (20, 82991),

Gene: TroyPia\_72 Start: 44542, Stop: 44414, Start Num: 19

Candidate Starts for TroyPia\_72:

(Start: 18 @44548 has 13 MA's), (Start: 19 @44542 has 135 MA's), (20, 44527), (27, 44464), (29, 44461),

Gene: Twister\_70 Start: 44343, Stop: 44215, Start Num: 19

Candidate Starts for Twister\_70:

(Start: 19 @44343 has 135 MA's), (20, 44328), (22, 44313), (31, 44247),

Gene: TygerBlood\_71 Start: 44510, Stop: 44382, Start Num: 19

Candidate Starts for TygerBlood\_71:

(3, 44744), (7, 44618), (9, 44609), (Start: 18 @44516 has 13 MA's), (Start: 19 @44510 has 135 MA's), (20, 44495), (21, 44489), (29, 44429),

Gene: Ulysses\_70 Start: 44193, Stop: 44065, Start Num: 19

Candidate Starts for Ulysses\_70:

(3, 44427), (7, 44301), (9, 44292), (Start: 18 @44199 has 13 MA's), (Start: 19 @44193 has 135 MA's), (20, 44178), (29, 44112),

Gene: Veracruz\_71 Start: 45043, Stop: 44915, Start Num: 19

Candidate Starts for Veracruz\_71:

(Start: 19 @45043 has 135 MA's), (20, 45028),

Gene: WalterMcMickey\_70 Start: 44343, Stop: 44215, Start Num: 19

Candidate Starts for WalterMcMickey\_70:

(Start: 19 @44343 has 135 MA's), (20, 44328), (22, 44313), (31, 44247),

Gene: Wile\_69 Start: 44707, Stop: 44579, Start Num: 18

Candidate Starts for Wile\_69:

(Start: 18 @44707 has 13 MA's), (Start: 19 @44701 has 135 MA's), (20, 44686), (21, 44680), (34, 44590),

Gene: WilliamBoone\_158 Start: 81466, Stop: 81308, Start Num: 19

Candidate Starts for WilliamBoone\_158:

(Start: 19 @81466 has 135 MA's), (20, 81451),

Gene: Wizard007\_70 Start: 44427, Stop: 44305, Start Num: 19

Candidate Starts for Wizard007\_70:

(Start: 18 @44433 has 13 MA's), (Start: 19 @44427 has 135 MA's), (20, 44412), (21, 44406), (34, 44316),

Gene: Xena\_69 Start: 44688, Stop: 44566, Start Num: 19

Candidate Starts for Xena\_69:

(6, 44814), (8, 44808), (10, 44802), (15, 44742), (Start: 18 @44694 has 13 MA's), (Start: 19 @44688 has 135 MA's), (20, 44673), (34, 44577),

Gene: YoSam321\_71 Start: 44511, Stop: 44377, Start Num: 18

Candidate Starts for YoSam321\_71:

(3, 44739), (7, 44613), (9, 44604), (Start: 18 @44511 has 13 MA's), (Start: 19 @44505 has 135 MA's), (20, 44490), (21, 44484), (29, 44424),