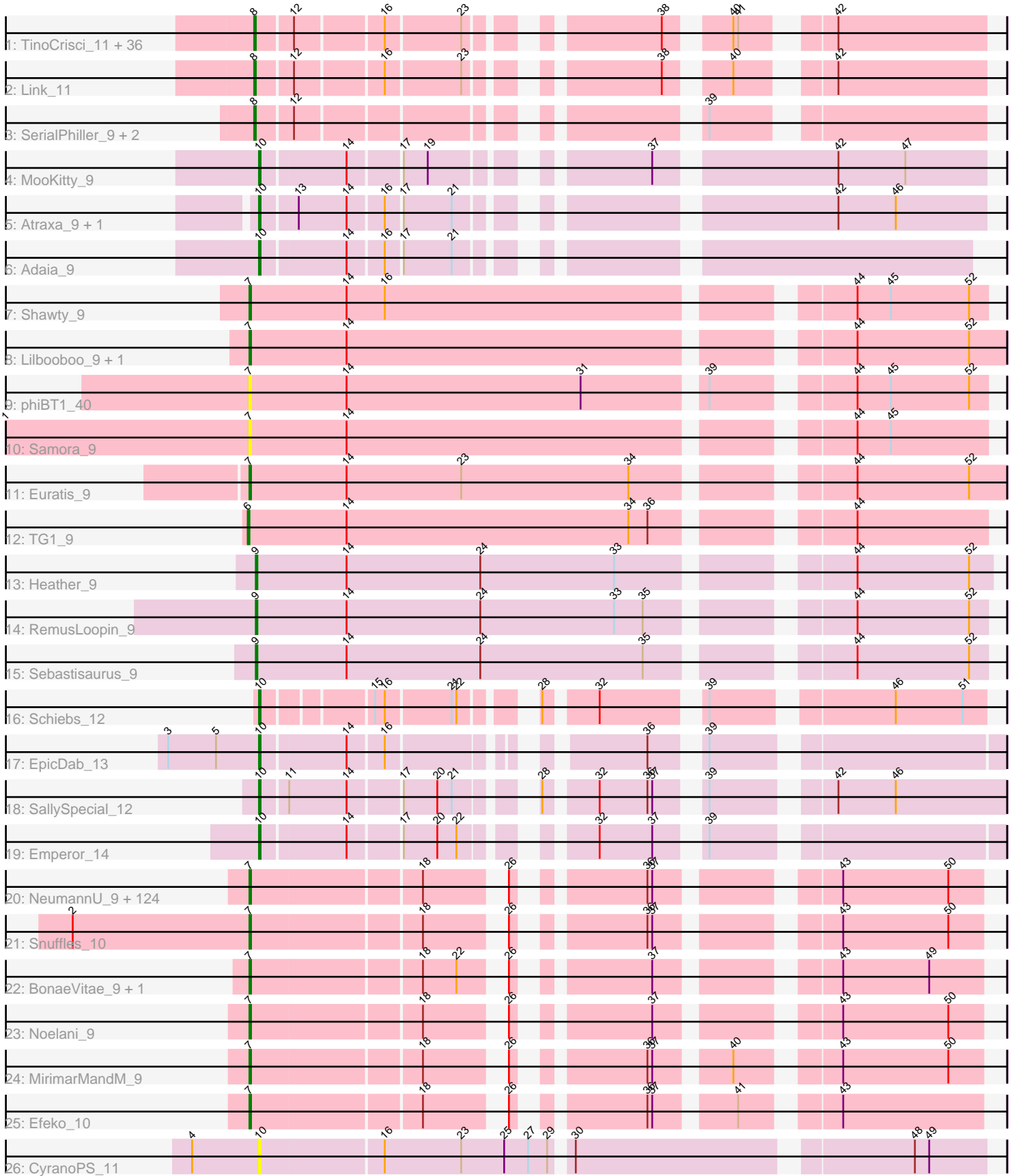


# Pham 168003



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 168003 Report

This analysis was run 07/09/24 on database version 566.

WARNING: Pham size does not match number of genes in report. Either unphamerated genes have been added (by you) or starterator has removed genes due to invalid start codon.

Pham number 168003 has 191 members, 23 are drafts.

Phages represented in each track:

- Track 1 : TinoCrisci\_11, Massimo\_11, Decurro\_11, Saphira\_11, Ronnie\_11, Elkhorn\_11, Arby\_11, CGermain\_11, Jessica\_12, Mariposa\_11, Guntur\_11, Toulouse\_10, Dewayne\_11, Courtney3\_11, Taj14\_11, StewieGriff\_11, Moloch\_11, Copper\_11, KylieMac\_12, Prospero\_11, Hunnie\_11, Swenson\_11, Chestnut\_11, Seume\_11, Laila\_12, LouisXIV\_11, Blair\_11, Lore\_11, Muttlie\_11, TymAbreu\_11, Stratus\_11, Yank\_11, Maggie\_11, Sourignavong\_12, Sandman\_11, Inspire2\_11, Azathoth\_11
- Track 2 : Link\_11
- Track 3 : SerialPhiller\_9, Kels\_9, Arielagos\_9
- Track 4 : MooKitty\_9
- Track 5 : Atraxa\_9, Sputnik\_9
- Track 6 : Adai\_9
- Track 7 : Shawty\_9
- Track 8 : Lilbooboo\_9, Vash\_9
- Track 9 : phiBT1\_40
- Track 10 : Samora\_9
- Track 11 : Euratis\_9
- Track 12 : TG1\_9
- Track 13 : Heather\_9
- Track 14 : RemusLoopin\_9
- Track 15 : Sebastisaurus\_9
- Track 16 : Schiebs\_12
- Track 17 : EpicDab\_13
- Track 18 : SallySpecial\_12
- Track 19 : Emperor\_14
- Track 20 : NeumannU\_9, Livingwater\_9, KillerTomato\_9, Goobery\_9, Luxx\_9, Majesty\_9, Alucard\_9, Namsahir\_9, Erin\_9, Nobel\_9, Minima\_9, Ciel\_9, Scamander\_9, Baine\_9, ManAs\_9, JoBros\_9, Lola20\_9, Yasuo\_9, Jahseh\_9, Slizam\_9, Eightball\_9, MrGreen\_9, Vanisius\_9, RoscoWindex\_9, JRok\_9, BarBear\_9, Aztec\_9, Owens\_9, TimoTea\_9, Avvas\_9, Gillker\_9, Gabbspett\_9, Biscayne\_9, JooneeDee\_9, McShie\_9, SantasSleigh\_9, Gardevoir\_9, Ekko14\_9, Elspeth\_9, Bradley2\_9, Dooby\_9, Cayde6\_9, Dongwon\_9, Astro16\_9, Jannah\_9, Lunatic\_9, TeddyBoy\_9, BrokMonster\_9, GoldenBlanche\_9, Concrete\_9,

MasterPitts\_9, Quaker\_9, LionelHutz\_9, Sippinontea\_9, MelBee03\_9, Miaurora\_9, Belthelas\_9, Charbie\_9, Otwor\_9, JaimeB\_9, Trireme\_9, TomBrady12\_9, Kaijohn\_9, Picnic\_9, TinyTruffula\_9, Bodhi17\_9, LaviMo\_9, Sara\_9, Slentz\_9, DaftyDuck\_9, PoRanda\_9, Rhogar\_9, Bintii\_9, Godfather\_9, HarperAnne\_9, VitulaEligans\_9, Oaklynn\_9, PaoPu\_9, KyriosFaba\_9, Puddles3\_9, Bullzi2019\_9, Anseraureola\_9, BinkBonk\_9, Maneater\_9, Josuke\_9, Pondwater\_9, Yubaba\_9, Yami\_9, BurtonThePup\_9, Burgy\_9, Cazares\_9, YertPhresh\_9, Chatham\_9, Hulk\_9, PuffyCat\_9, Octopus\_9, Danimal\_9, Rhysand\_9, Sage7\_9, Stem\_9, LemonPepper\_9, EdEric\_9, Jerky\_9, SeaWolves\_9, Loca\_9, Douggie\_9, Leafy\_9, Publix\_9, Scrunchy\_9, Upsilon\_9, Hernandez44\_9, Clownery\_9, Horacetta\_9, Aries55\_9, Danno\_9, Wolfpack\_9, Kevanna\_9, Niffler\_9, BoomRoasted\_9, Kojax4\_9, Cheesecake\_9, Bri160\_9, KayPaulus\_9, Azizam\_9, Witch\_9

- Track 21 : Snuffles\_10
- Track 22 : BonaeVitae\_9, Naby\_9
- Track 23 : Noelani\_9
- Track 24 : MirimarMandM\_9
- Track 25 : Efeko\_10
- Track 26 : CyranoPS\_11

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

The start number called the most often in the published annotations is 7, it was called in 115 of the 168 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Alucard\_9, Anseraureola\_9, Aries55\_9, Astro16\_9, Avvas\_9, Azizam\_9, Aztec\_9, Baine\_9, BarBear\_9, Belthelas\_9, BinkBonk\_9, Bintii\_9, Biscayne\_9, Bodhi17\_9, BonaeVitae\_9, BoomRoasted\_9, Bradley2\_9, Bri160\_9, BrokMonster\_9, Bullzi2019\_9, Burgy\_9, BurtonThePup\_9, Cayde6\_9, Cazares\_9, Charbie\_9, Chatham\_9, Cheesecake\_9, Ciel\_9, Clownery\_9, Concrete\_9, DaftyDuck\_9, Danimal\_9, Danno\_9, Dongwon\_9, Dooby\_9, Douggie\_9, EdEric\_9, Efeko\_10, Eightball\_9, Ekko14\_9, Elspeth\_9, Erin\_9, Euratis\_9, Gabbspett\_9, Gardevoir\_9, Gillker\_9, Godfather\_9, GoldenBlanche\_9, Goobery\_9, HarperAnne\_9, Hernandez44\_9, Horacetta\_9, Hulk\_9, JRok\_9, Jahseh\_9, JaimeB\_9, Jannah\_9, Jerky\_9, JoBros\_9, JooneeDee\_9, Josuke\_9, Kaijohn\_9, KayPaulus\_9, Kevanna\_9, KillerTomato\_9, Kojax4\_9, KyriosFaba\_9, LaviMo\_9, Leafy\_9, LemonPepper\_9, Lilbooboo\_9, LionelHutz\_9, Livingwater\_9, Loca\_9, Lola20\_9, Lunatic\_9, Luxx\_9, Majesty\_9, ManAs\_9, Maneater\_9, MasterPitts\_9, McShie\_9, MelBee03\_9, Miaurora\_9, Minima\_9, MirimarMandM\_9, MrGreen\_9, Naby\_9, Namsahir\_9, NeumannU\_9, Niffler\_9, Nobel\_9, Noelani\_9, Oaklynn\_9, Octopus\_9, Otwor\_9, Owens\_9, PaoPu\_9, Picnic\_9, PoRanda\_9, Pondwater\_9, Publix\_9, Puddles3\_9, PuffyCat\_9, Quaker\_9, Rhogar\_9, Rhysand\_9, RoscoWindex\_9, Sage7\_9, Samora\_9, SantasSleigh\_9, Sara\_9, Scamander\_9, Scrunchy\_9, SeaWolves\_9, Shawty\_9, Sippinontea\_9, Slentz\_9, Slizam\_9, Snuffles\_10, Stem\_9, TeddyBoy\_9, TimoTea\_9, TinyTruffula\_9, TomBrady12\_9, Trireme\_9, Upsilon\_9, Vanisius\_9, Vash\_9, VitulaEligans\_9, Witch\_9, Wolfpack\_9, Yami\_9, Yasuo\_9, YertPhresh\_9, Yubaba\_9, phiBT1\_40,

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

-

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

- Adaa\_9, Arby\_11, Arielagos\_9, Atraxa\_9, Azathoth\_11, Blair\_11, CGermain\_11, Chestnut\_11, Copper\_11, Courtney3\_11, CyranoPS\_11, Decurro\_11, Dewayne\_11, Elkhorn\_11, Emperor\_14, EpicDab\_13, Guntur\_11, Heather\_9, Hunnie\_11, Inspire2\_11, Jessica\_12, Kels\_9, KylieMac\_12, Laila\_12, Link\_11, Lore\_11, LouisXIV\_11, Maggie\_11, Mariposa\_11, Massimo\_11, Moloch\_11, MooKitty\_9, Muttie\_11, Prospero\_11, RemusLoopin\_9, Ronnie\_11, SallySpecial\_12, Sandman\_11, Saphira\_11, Schiebs\_12, Sebastisaurus\_9, SerialPhiller\_9, Seume\_11, Sourignavong\_12, Sputnik\_9, StewieGriff\_11, Stratus\_11, Swenson\_11, TG1\_9, Taj14\_11, TinoCrisci\_11, Toulouse\_10, TymAbreu\_11, Yank\_11,

### Summary by start number:

Start 6:

- Found in 1 of 191 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 168
- Called 100.0% of time when present
- Phage (with cluster) where this start called: TG1\_9 (BB1),

Start 7:

- Found in 137 of 191 ( 71.7% ) of genes in pham
- Manual Annotations of this start: 115 of 168
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alucard\_9 (EE), Anseraureola\_9 (EE), Aries55\_9 (EE), Astro16\_9 (EE), Avvas\_9 (EE), Azizam\_9 (EE), Aztec\_9 (EE), Baine\_9 (EE), BarBear\_9 (EE), Belthelas\_9 (EE), BinkBonk\_9 (EE), Bintii\_9 (EE), Biscayne\_9 (EE), Bodhi17\_9 (EE), BonaeVitae\_9 (EE), BoomRoasted\_9 (EE), Bradley2\_9 (EE), Bri160\_9 (EE), BrokMonster\_9 (EE), Bullzi2019\_9 (EE), Burgy\_9 (EE), BurtonThePup\_9 (EE), Cayde6\_9 (EE), Cazares\_9 (EE), Charbie\_9 (EE), Chatham\_9 (EE), Cheesecake\_9 (EE), Ciel\_9 (EE), Clownery\_9 (EE), Concrete\_9 (EE), DaftyDuck\_9 (EE), Danimal\_9 (EE), Danno\_9 (EE), Dongwon\_9 (EE), Dooby\_9 (EE), Duggie\_9 (EE), EdElric\_9 (EE), Efeke\_10 (EE), Eightball\_9 (EE), Ekko14\_9 (EE), Elspeth\_9 (EE), Erin\_9 (EE), Euratis\_9 (BB1), Gabbspett\_9 (EE), Gardevoir\_9 (EE), Gillker\_9 (EE), Godfather\_9 (EE), GoldenBlanche\_9 (EE), Goobery\_9 (EE), HarperAnne\_9 (EE), Hernandez44\_9 (EE), Horacetta\_9 (EE), Hulk\_9 (EE), JRok\_9 (EE), Jahseh\_9 (EE), JaimeB\_9 (EE), Jannah\_9 (EE), Jerky\_9 (EE), JoBros\_9 (EE), JooneeDee\_9 (EE), Josuke\_9 (EE), Kaijohn\_9 (EE), KayPaulus\_9 (EE), Kevanna\_9 (EE), KillerTomato\_9 (EE), Kojax4\_9 (EE), KyriosFaba\_9 (EE), LaviMo\_9 (EE), Leafy\_9 (EE), LemonPepper\_9 (EE), Lilbooboo\_9 (BB1), LionelHutz\_9 (EE), Livingwater\_9 (EE), Loca\_9 (EE), Lola20\_9 (EE), Lunatic\_9 (EE), Luxx\_9 (EE), Majesty\_9 (EE), ManAs\_9 (EE), Maneater\_9 (EE), MasterPitts\_9 (EE), McShie\_9 (EE), MelBee03\_9 (EE), Miaurora\_9 (EE), Minima\_9 (EE), MirimarMandM\_9 (EE), MrGreen\_9 (EE), Naby\_9 (EE), Namsahir\_9 (EE), NeumannU\_9 (EE), Niffler\_9 (EE), Nobel\_9 (EE), Noelani\_9 (EE), Oaklynn\_9 (EE), Octopus\_9 (EE), Otwor\_9 (EE), Owens\_9 (EE), PaoPu\_9 (EE), Picnic\_9 (EE), PoRanda\_9 (EE), Pondwater\_9 (EE), Publix\_9 (EE), Puddles3\_9 (EE), PuffyCat\_9 (EE), Quaker\_9 (EE), Rhogar\_9 (EE), Rhysand\_9 (EE), RoscoWindex\_9 (EE), Sage7\_9 (EE), Samora\_9 (BB1), SantasSleigh\_9 (EE), Sara\_9 (EE), Scamander\_9 (EE), Scrunchy\_9 (EE), SeaWolves\_9 (EE), Shawty\_9 (BB1), Sippinontea\_9 (EE), Slentz\_9 (EE), Slizam\_9 (EE), Snuffles\_10 (EE), Stem\_9 (EE), TeddyBoy\_9 (EE), TimoTea\_9 (EE), TinyTruffula\_9 (EE), TomBrady12\_9 (EE), Trireme\_9 (EE), Upsilon\_9 (EE), Vanisius\_9 (EE), Vash\_9 (BB1), VitulaEligans\_9 (EE), Witch\_9 (EE), Wolfpack\_9

(EE), Yami\_9 (EE), Yasuo\_9 (EE), YertPhresh\_9 (EE), Yubaba\_9 (EE), phiBT1\_40 (BB1),

Start 8:

- Found in 41 of 191 ( 21.5% ) of genes in pham
- Manual Annotations of this start: 41 of 168
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Arby\_11 (AN), Arielagos\_9 (AN), Azathoth\_11 (AN), Blair\_11 (AN), CGermain\_11 (AN), Chestnut\_11 (AN), Copper\_11 (AN), Courtney3\_11 (AN), Decurro\_11 (AN), Dewayne\_11 (AN), Elkhorn\_11 (AN), Guntur\_11 (AN), Hunnie\_11 (AN), Inspire2\_11 (AN), Jessica\_12 (AN), Kels\_9 (AN), KylieMac\_12 (AN), Laila\_12 (AN), Link\_11 (AN), Lore\_11 (AN), LouisXIV\_11 (AN), Maggie\_11 (AN), Mariposa\_11 (AN), Massimo\_11 (AN), Moloch\_11 (AN), Muttie\_11 (AN), Prospero\_11 (AN), Ronnie\_11 (AN), Sandman\_11 (AN), Saphira\_11 (AN), SerialPhiller\_9 (AN), Seume\_11 (AN), Sourignavong\_12 (AN), StewieGriff\_11 (AN), Stratus\_11 (AN), Swenson\_11 (AN), Taj14\_11 (AN), TinoCrisci\_11 (AN), Toulouse\_10 (AN), TymAbreu\_11 (AN), Yank\_11 (AN),

Start 9:

- Found in 3 of 191 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 3 of 168
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Heather\_9 (BB2), RemusLoopin\_9 (BB2), Sebastisaurus\_9 (BB2),

Start 10:

- Found in 9 of 191 ( 4.7% ) of genes in pham
- Manual Annotations of this start: 8 of 168
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Adaia\_9 (AX), Atraxa\_9 (AX), CyranoPS\_11 (singleton), Emperor\_14 (DM), EpicDab\_13 (DM), MooKitty\_9 (AX), SallySpecial\_12 (DM), Schiebs\_12 (CW3), Sputnik\_9 (AX),

### **Summary by clusters:**

There are 8 clusters represented in this pham: singleton, DM, EE, CW3, AN, AX, BB2, BB1,

Info for manual annotations of cluster AN:

- Start number 8 was manually annotated 41 times for cluster AN.

Info for manual annotations of cluster AX:

- Start number 10 was manually annotated 4 times for cluster AX.

Info for manual annotations of cluster BB1:

- Start number 6 was manually annotated 1 time for cluster BB1.
- Start number 7 was manually annotated 4 times for cluster BB1.

Info for manual annotations of cluster BB2:

- Start number 9 was manually annotated 3 times for cluster BB2.

Info for manual annotations of cluster CW3:

- Start number 10 was manually annotated 1 time for cluster CW3.

Info for manual annotations of cluster DM:

- Start number 10 was manually annotated 3 times for cluster DM.

Info for manual annotations of cluster EE:

- Start number 7 was manually annotated 111 times for cluster EE.

### **Gene Information:**

Gene: Adaia\_9 Start: 6008, Stop: 6397, Start Num: 10

Candidate Starts for Adaia\_9:

(Start: 10 @6008 has 8 MA's), (14, 6059), (16, 6080), (17, 6089), (21, 6119),

Gene: Alucard\_9 Start: 6590, Stop: 6973, Start Num: 7

Candidate Starts for Alucard\_9:

(Start: 7 @6590 has 115 MA's), (18, 6692), (26, 6731), (36, 6794), (37, 6797), (43, 6887), (50, 6953),

Gene: Anseraureola\_9 Start: 6613, Stop: 6996, Start Num: 7

Candidate Starts for Anseraureola\_9:

(Start: 7 @6613 has 115 MA's), (18, 6715), (26, 6754), (36, 6817), (37, 6820), (43, 6910), (50, 6976),

Gene: Arby\_11 Start: 6436, Stop: 6813, Start Num: 8

Candidate Starts for Arby\_11:

(Start: 8 @6436 has 41 MA's), (12, 6457), (16, 6508), (23, 6553), (38, 6646), (40, 6676), (41, 6679), (42, 6721),

Gene: Arielagos\_9 Start: 6075, Stop: 6452, Start Num: 8

Candidate Starts for Arielagos\_9:

(Start: 8 @6075 has 41 MA's), (12, 6096), (39, 6300),

Gene: Aries55\_9 Start: 6601, Stop: 6984, Start Num: 7

Candidate Starts for Aries55\_9:

(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: Astro16\_9 Start: 6601, Stop: 6984, Start Num: 7

Candidate Starts for Astro16\_9:

(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: Atraxa\_9 Start: 6088, Stop: 6486, Start Num: 10

Candidate Starts for Atraxa\_9:

(Start: 10 @6088 has 8 MA's), (13, 6109), (14, 6139), (16, 6160), (17, 6169), (21, 6199), (42, 6394), (46, 6430),

Gene: Avvas\_9 Start: 6601, Stop: 6984, Start Num: 7

Candidate Starts for Avvas\_9:

(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: Azathoth\_11 Start: 6436, Stop: 6813, Start Num: 8

Candidate Starts for Azathoth\_11:

(Start: 8 @6436 has 41 MA's), (12, 6457), (16, 6508), (23, 6553), (38, 6646), (40, 6676), (41, 6679), (42, 6721),

Gene: Azizam\_9 Start: 6589, Stop: 6972, Start Num: 7  
Candidate Starts for Azizam\_9:  
(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: Aztec\_9 Start: 6589, Stop: 6972, Start Num: 7  
Candidate Starts for Aztec\_9:  
(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: Baine\_9 Start: 6586, Stop: 6969, Start Num: 7  
Candidate Starts for Baine\_9:  
(Start: 7 @6586 has 115 MA's), (18, 6688), (26, 6727), (36, 6790), (37, 6793), (43, 6883), (50, 6949),

Gene: BarBear\_9 Start: 6601, Stop: 6984, Start Num: 7  
Candidate Starts for BarBear\_9:  
(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: Belthelas\_9 Start: 6640, Stop: 7023, Start Num: 7  
Candidate Starts for Belthelas\_9:  
(Start: 7 @6640 has 115 MA's), (18, 6742), (26, 6781), (36, 6844), (37, 6847), (43, 6937), (50, 7003),

Gene: BinkBonk\_9 Start: 6601, Stop: 6984, Start Num: 7  
Candidate Starts for BinkBonk\_9:  
(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: Bintii\_9 Start: 6622, Stop: 7005, Start Num: 7  
Candidate Starts for Bintii\_9:  
(Start: 7 @6622 has 115 MA's), (18, 6724), (26, 6763), (36, 6826), (37, 6829), (43, 6919), (50, 6985),

Gene: Biscayne\_9 Start: 6649, Stop: 7032, Start Num: 7  
Candidate Starts for Biscayne\_9:  
(Start: 7 @6649 has 115 MA's), (18, 6751), (26, 6790), (36, 6853), (37, 6856), (43, 6946), (50, 7012),

Gene: Blair\_11 Start: 6435, Stop: 6812, Start Num: 8  
Candidate Starts for Blair\_11:  
(Start: 8 @6435 has 41 MA's), (12, 6456), (16, 6507), (23, 6552), (38, 6645), (40, 6675), (41, 6678),  
(42, 6720),

Gene: Bodhi17\_9 Start: 6583, Stop: 6966, Start Num: 7  
Candidate Starts for Bodhi17\_9:  
(Start: 7 @6583 has 115 MA's), (18, 6685), (26, 6724), (36, 6787), (37, 6790), (43, 6880), (50, 6946),

Gene: BonaeVitae\_9 Start: 6322, Stop: 6705, Start Num: 7  
Candidate Starts for BonaeVitae\_9:  
(Start: 7 @6322 has 115 MA's), (18, 6424), (22, 6445), (26, 6463), (37, 6529), (43, 6619), (49, 6673),

Gene: BoomRoasted\_9 Start: 6637, Stop: 7020, Start Num: 7  
Candidate Starts for BoomRoasted\_9:  
(Start: 7 @6637 has 115 MA's), (18, 6739), (26, 6778), (36, 6841), (37, 6844), (43, 6934), (50, 7000),

Gene: Bradley2\_9 Start: 6589, Stop: 6972, Start Num: 7  
Candidate Starts for Bradley2\_9:  
(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: Bri160\_9 Start: 6637, Stop: 7020, Start Num: 7  
Candidate Starts for Bri160\_9:  
(Start: 7 @6637 has 115 MA's), (18, 6739), (26, 6778), (36, 6841), (37, 6844), (43, 6934), (50, 7000),

Gene: BrokMonster\_9 Start: 6589, Stop: 6972, Start Num: 7  
Candidate Starts for BrokMonster\_9:  
(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: Bullzi2019\_9 Start: 6610, Stop: 6993, Start Num: 7  
Candidate Starts for Bullzi2019\_9:  
(Start: 7 @6610 has 115 MA's), (18, 6712), (26, 6751), (36, 6814), (37, 6817), (43, 6907), (50, 6973),

Gene: Burgy\_9 Start: 6601, Stop: 6984, Start Num: 7  
Candidate Starts for Burgy\_9:  
(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: BurtonThePup\_9 Start: 6601, Stop: 6984, Start Num: 7  
Candidate Starts for BurtonThePup\_9:  
(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: CGermain\_11 Start: 6436, Stop: 6813, Start Num: 8  
Candidate Starts for CGermain\_11:  
(Start: 8 @6436 has 41 MA's), (12, 6457), (16, 6508), (23, 6553), (38, 6646), (40, 6676), (41, 6679),  
(42, 6721),

Gene: Cayde6\_9 Start: 6586, Stop: 6969, Start Num: 7  
Candidate Starts for Cayde6\_9:  
(Start: 7 @6586 has 115 MA's), (18, 6688), (26, 6727), (36, 6790), (37, 6793), (43, 6883), (50, 6949),

Gene: Cazares\_9 Start: 6580, Stop: 6963, Start Num: 7  
Candidate Starts for Cazares\_9:  
(Start: 7 @6580 has 115 MA's), (18, 6682), (26, 6721), (36, 6784), (37, 6787), (43, 6877), (50, 6943),

Gene: Charbie\_9 Start: 6577, Stop: 6960, Start Num: 7  
Candidate Starts for Charbie\_9:  
(Start: 7 @6577 has 115 MA's), (18, 6679), (26, 6718), (36, 6781), (37, 6784), (43, 6874), (50, 6940),

Gene: Chatham\_9 Start: 6589, Stop: 6972, Start Num: 7  
Candidate Starts for Chatham\_9:  
(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: Cheesecake\_9 Start: 6601, Stop: 6984, Start Num: 7  
Candidate Starts for Cheesecake\_9:  
(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: Chestnut\_11 Start: 6436, Stop: 6813, Start Num: 8  
Candidate Starts for Chestnut\_11:  
(Start: 8 @6436 has 41 MA's), (12, 6457), (16, 6508), (23, 6553), (38, 6646), (40, 6676), (41, 6679),  
(42, 6721),

Gene: Ciel\_9 Start: 6601, Stop: 6984, Start Num: 7  
Candidate Starts for Ciel\_9:



(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: Clownery\_9 Start: 6697, Stop: 7080, Start Num: 7

Candidate Starts for Clownery\_9:

(Start: 7 @6697 has 115 MA's), (18, 6799), (26, 6838), (36, 6901), (37, 6904), (43, 6994), (50, 7060),

Gene: Concrete\_9 Start: 6637, Stop: 7020, Start Num: 7

Candidate Starts for Concrete\_9:

(Start: 7 @6637 has 115 MA's), (18, 6739), (26, 6778), (36, 6841), (37, 6844), (43, 6934), (50, 7000),

Gene: Copper\_11 Start: 6436, Stop: 6813, Start Num: 8

Candidate Starts for Copper\_11:

(Start: 8 @6436 has 41 MA's), (12, 6457), (16, 6508), (23, 6553), (38, 6646), (40, 6676), (41, 6679), (42, 6721),

Gene: Courtney3\_11 Start: 6436, Stop: 6813, Start Num: 8

Candidate Starts for Courtney3\_11:

(Start: 8 @6436 has 41 MA's), (12, 6457), (16, 6508), (23, 6553), (38, 6646), (40, 6676), (41, 6679), (42, 6721),

Gene: CyranoPS\_11 Start: 6740, Stop: 7165, Start Num: 10

Candidate Starts for CyranoPS\_11:

(4, 6698), (Start: 10 @6740 has 8 MA's), (16, 6815), (23, 6863), (25, 6890), (27, 6905), (29, 6917), (30, 6926), (48, 7121), (49, 7130),

Gene: DaftyDuck\_9 Start: 6601, Stop: 6984, Start Num: 7

Candidate Starts for DaftyDuck\_9:

(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: Danimal\_9 Start: 6589, Stop: 6972, Start Num: 7

Candidate Starts for Danimal\_9:

(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: Danno\_9 Start: 6601, Stop: 6984, Start Num: 7

Candidate Starts for Danno\_9:

(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: Decurro\_11 Start: 6437, Stop: 6814, Start Num: 8

Candidate Starts for Decurro\_11:

(Start: 8 @6437 has 41 MA's), (12, 6458), (16, 6509), (23, 6554), (38, 6647), (40, 6677), (41, 6680), (42, 6722),

Gene: Dewayne\_11 Start: 6436, Stop: 6813, Start Num: 8

Candidate Starts for Dewayne\_11:

(Start: 8 @6436 has 41 MA's), (12, 6457), (16, 6508), (23, 6553), (38, 6646), (40, 6676), (41, 6679), (42, 6721),

Gene: Dongwon\_9 Start: 6589, Stop: 6972, Start Num: 7

Candidate Starts for Dongwon\_9:

(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: Dooby\_9 Start: 6589, Stop: 6972, Start Num: 7

Candidate Starts for Dooby\_9:

(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: Douggie\_9 Start: 6583, Stop: 6966, Start Num: 7

Candidate Starts for Douggie\_9:

(Start: 7 @6583 has 115 MA's), (18, 6685), (26, 6724), (36, 6787), (37, 6790), (43, 6880), (50, 6946),

Gene: EdElric\_9 Start: 6589, Stop: 6972, Start Num: 7

Candidate Starts for EdElric\_9:

(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: Efeko\_10 Start: 6490, Stop: 6873, Start Num: 7

Candidate Starts for Efeko\_10:

(Start: 7 @6490 has 115 MA's), (18, 6592), (26, 6631), (36, 6694), (37, 6697), (41, 6739), (43, 6787),

Gene: Eightball\_9 Start: 6601, Stop: 6984, Start Num: 7

Candidate Starts for Eightball\_9:

(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: Ekko14\_9 Start: 6577, Stop: 6960, Start Num: 7

Candidate Starts for Ekko14\_9:

(Start: 7 @6577 has 115 MA's), (18, 6679), (26, 6718), (36, 6781), (37, 6784), (43, 6874), (50, 6940),

Gene: Elkhorn\_11 Start: 6435, Stop: 6812, Start Num: 8

Candidate Starts for Elkhorn\_11:

(Start: 8 @6435 has 41 MA's), (12, 6456), (16, 6507), (23, 6552), (38, 6645), (40, 6675), (41, 6678), (42, 6720),

Gene: Elspeth\_9 Start: 6577, Stop: 6960, Start Num: 7

Candidate Starts for Elspeth\_9:

(Start: 7 @6577 has 115 MA's), (18, 6679), (26, 6718), (36, 6781), (37, 6784), (43, 6874), (50, 6940),

Gene: Emperor\_14 Start: 8556, Stop: 8945, Start Num: 10

Candidate Starts for Emperor\_14:

(Start: 10 @8556 has 8 MA's), (14, 8607), (17, 8637), (20, 8658), (22, 8670), (32, 8727), (37, 8760), (39, 8781),

Gene: EpicDab\_13 Start: 8521, Stop: 8904, Start Num: 10

Candidate Starts for EpicDab\_13:

(3, 8464), (5, 8494), (Start: 10 @8521 has 8 MA's), (14, 8572), (16, 8593), (36, 8716), (39, 8740),

Gene: Erin\_9 Start: 6589, Stop: 6972, Start Num: 7

Candidate Starts for Erin\_9:

(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: Euratis\_9 Start: 7251, Stop: 7694, Start Num: 7

Candidate Starts for Euratis\_9:

(Start: 7 @7251 has 115 MA's), (14, 7311), (23, 7383), (34, 7488), (44, 7602), (52, 7671),

Gene: Gabbspett\_9 Start: 6694, Stop: 7077, Start Num: 7

Candidate Starts for Gabbspett\_9:

(Start: 7 @6694 has 115 MA's), (18, 6796), (26, 6835), (36, 6898), (37, 6901), (43, 6991), (50, 7057),

Gene: Gardevoir\_9 Start: 6590, Stop: 6973, Start Num: 7

Candidate Starts for Gardevoir\_9:

(Start: 7 @6590 has 115 MA's), (18, 6692), (26, 6731), (36, 6794), (37, 6797), (43, 6887), (50, 6953),

Gene: Gillker\_9 Start: 6589, Stop: 6972, Start Num: 7

Candidate Starts for Gillker\_9:

(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: Godfather\_9 Start: 6601, Stop: 6984, Start Num: 7

Candidate Starts for Godfather\_9:

(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: GoldenBlanche\_9 Start: 6589, Stop: 6972, Start Num: 7

Candidate Starts for GoldenBlanche\_9:

(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: Goobery\_9 Start: 6601, Stop: 6984, Start Num: 7

Candidate Starts for Goobery\_9:

(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: Guntur\_11 Start: 6436, Stop: 6813, Start Num: 8

Candidate Starts for Guntur\_11:

(Start: 8 @6436 has 41 MA's), (12, 6457), (16, 6508), (23, 6553), (38, 6646), (40, 6676), (41, 6679), (42, 6721),

Gene: HarperAnne\_9 Start: 6577, Stop: 6960, Start Num: 7

Candidate Starts for HarperAnne\_9:

(Start: 7 @6577 has 115 MA's), (18, 6679), (26, 6718), (36, 6781), (37, 6784), (43, 6874), (50, 6940),

Gene: Heather\_9 Start: 7289, Stop: 7720, Start Num: 9

Candidate Starts for Heather\_9:

(Start: 9 @7289 has 3 MA's), (14, 7346), (24, 7430), (33, 7514), (44, 7637), (52, 7706),

Gene: Hernandez44\_9 Start: 6694, Stop: 7077, Start Num: 7

Candidate Starts for Hernandez44\_9:

(Start: 7 @6694 has 115 MA's), (18, 6796), (26, 6835), (36, 6898), (37, 6901), (43, 6991), (50, 7057),

Gene: Horacetta\_9 Start: 6589, Stop: 6972, Start Num: 7

Candidate Starts for Horacetta\_9:

(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: Hulk\_9 Start: 6601, Stop: 6984, Start Num: 7

Candidate Starts for Hulk\_9:

(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: Hunnie\_11 Start: 6436, Stop: 6813, Start Num: 8

Candidate Starts for Hunnie\_11:

(Start: 8 @6436 has 41 MA's), (12, 6457), (16, 6508), (23, 6553), (38, 6646), (40, 6676), (41, 6679), (42, 6721),

Gene: Inspire2\_11 Start: 6436, Stop: 6813, Start Num: 8

Candidate Starts for Inspire2\_11:

(Start: 8 @6436 has 41 MA's), (12, 6457), (16, 6508), (23, 6553), (38, 6646), (40, 6676), (41, 6679), (42, 6721),

Gene: JRok\_9 Start: 6586, Stop: 6969, Start Num: 7  
Candidate Starts for JRok\_9:  
(Start: 7 @6586 has 115 MA's), (18, 6688), (26, 6727), (36, 6790), (37, 6793), (43, 6883), (50, 6949),

Gene: Jahseh\_9 Start: 6589, Stop: 6972, Start Num: 7  
Candidate Starts for Jahseh\_9:  
(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: JaimeB\_9 Start: 6601, Stop: 6984, Start Num: 7  
Candidate Starts for JaimeB\_9:  
(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: Jannah\_9 Start: 6589, Stop: 6972, Start Num: 7  
Candidate Starts for Jannah\_9:  
(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: Jerky\_9 Start: 6673, Stop: 7056, Start Num: 7  
Candidate Starts for Jerky\_9:  
(Start: 7 @6673 has 115 MA's), (18, 6775), (26, 6814), (36, 6877), (37, 6880), (43, 6970), (50, 7036),

Gene: Jessica\_12 Start: 6436, Stop: 6813, Start Num: 8  
Candidate Starts for Jessica\_12:  
(Start: 8 @6436 has 41 MA's), (12, 6457), (16, 6508), (23, 6553), (38, 6646), (40, 6676), (41, 6679),  
(42, 6721),

Gene: JoBros\_9 Start: 6590, Stop: 6973, Start Num: 7  
Candidate Starts for JoBros\_9:  
(Start: 7 @6590 has 115 MA's), (18, 6692), (26, 6731), (36, 6794), (37, 6797), (43, 6887), (50, 6953),

Gene: JooneeDee\_9 Start: 6622, Stop: 7005, Start Num: 7  
Candidate Starts for JooneeDee\_9:  
(Start: 7 @6622 has 115 MA's), (18, 6724), (26, 6763), (36, 6826), (37, 6829), (43, 6919), (50, 6985),

Gene: Josuke\_9 Start: 6601, Stop: 6984, Start Num: 7  
Candidate Starts for Josuke\_9:  
(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: Kaijohn\_9 Start: 6592, Stop: 6975, Start Num: 7  
Candidate Starts for Kaijohn\_9:  
(Start: 7 @6592 has 115 MA's), (18, 6694), (26, 6733), (36, 6796), (37, 6799), (43, 6889), (50, 6955),

Gene: KayPaulus\_9 Start: 6583, Stop: 6966, Start Num: 7  
Candidate Starts for KayPaulus\_9:  
(Start: 7 @6583 has 115 MA's), (18, 6685), (26, 6724), (36, 6787), (37, 6790), (43, 6880), (50, 6946),

Gene: Kels\_9 Start: 6000, Stop: 6377, Start Num: 8  
Candidate Starts for Kels\_9:  
(Start: 8 @6000 has 41 MA's), (12, 6021), (39, 6225),

Gene: Kevanna\_9 Start: 6583, Stop: 6966, Start Num: 7  
Candidate Starts for Kevanna\_9:  
(Start: 7 @6583 has 115 MA's), (18, 6685), (26, 6724), (36, 6787), (37, 6790), (43, 6880), (50, 6946),

Gene: KillerTomato\_9 Start: 6637, Stop: 7020, Start Num: 7  
Candidate Starts for KillerTomato\_9:  
(Start: 7 @6637 has 115 MA's), (18, 6739), (26, 6778), (36, 6841), (37, 6844), (43, 6934), (50, 7000),

Gene: Kojax4\_9 Start: 6601, Stop: 6984, Start Num: 7  
Candidate Starts for Kojax4\_9:  
(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: KylieMac\_12 Start: 6422, Stop: 6799, Start Num: 8  
Candidate Starts for KylieMac\_12:  
(Start: 8 @6422 has 41 MA's), (12, 6443), (16, 6494), (23, 6539), (38, 6632), (40, 6662), (41, 6665),  
(42, 6707),

Gene: KyriosFaba\_9 Start: 6589, Stop: 6972, Start Num: 7  
Candidate Starts for KyriosFaba\_9:  
(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: Laila\_12 Start: 6435, Stop: 6812, Start Num: 8  
Candidate Starts for Laila\_12:  
(Start: 8 @6435 has 41 MA's), (12, 6456), (16, 6507), (23, 6552), (38, 6645), (40, 6675), (41, 6678),  
(42, 6720),

Gene: LaviMo\_9 Start: 6601, Stop: 6984, Start Num: 7  
Candidate Starts for LaviMo\_9:  
(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: Leafy\_9 Start: 6607, Stop: 6990, Start Num: 7  
Candidate Starts for Leafy\_9:  
(Start: 7 @6607 has 115 MA's), (18, 6709), (26, 6748), (36, 6811), (37, 6814), (43, 6904), (50, 6970),

Gene: LemonPepper\_9 Start: 6589, Stop: 6972, Start Num: 7  
Candidate Starts for LemonPepper\_9:  
(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: Lilbooboo\_9 Start: 7270, Stop: 7713, Start Num: 7  
Candidate Starts for Lilbooboo\_9:  
(Start: 7 @7270 has 115 MA's), (14, 7330), (44, 7621), (52, 7690),

Gene: Link\_11 Start: 6436, Stop: 6813, Start Num: 8  
Candidate Starts for Link\_11:  
(Start: 8 @6436 has 41 MA's), (12, 6457), (16, 6508), (23, 6553), (38, 6646), (40, 6676), (42, 6721),

Gene: LionelHutz\_9 Start: 6601, Stop: 6984, Start Num: 7  
Candidate Starts for LionelHutz\_9:  
(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: Livingwater\_9 Start: 6583, Stop: 6966, Start Num: 7  
Candidate Starts for Livingwater\_9:  
(Start: 7 @6583 has 115 MA's), (18, 6685), (26, 6724), (36, 6787), (37, 6790), (43, 6880), (50, 6946),

Gene: Loca\_9 Start: 6610, Stop: 6993, Start Num: 7  
Candidate Starts for Loca\_9:

(Start: 7 @6610 has 115 MA's), (18, 6712), (26, 6751), (36, 6814), (37, 6817), (43, 6907), (50, 6973),

Gene: Lola20\_9 Start: 6586, Stop: 6969, Start Num: 7

Candidate Starts for Lola20\_9:

(Start: 7 @6586 has 115 MA's), (18, 6688), (26, 6727), (36, 6790), (37, 6793), (43, 6883), (50, 6949),

Gene: Lore\_11 Start: 6435, Stop: 6812, Start Num: 8

Candidate Starts for Lore\_11:

(Start: 8 @6435 has 41 MA's), (12, 6456), (16, 6507), (23, 6552), (38, 6645), (40, 6675), (41, 6678), (42, 6720),

Gene: LouisXIV\_11 Start: 6436, Stop: 6813, Start Num: 8

Candidate Starts for LouisXIV\_11:

(Start: 8 @6436 has 41 MA's), (12, 6457), (16, 6508), (23, 6553), (38, 6646), (40, 6676), (41, 6679), (42, 6721),

Gene: Lunatic\_9 Start: 6580, Stop: 6963, Start Num: 7

Candidate Starts for Lunatic\_9:

(Start: 7 @6580 has 115 MA's), (18, 6682), (26, 6721), (36, 6784), (37, 6787), (43, 6877), (50, 6943),

Gene: Luxx\_9 Start: 6613, Stop: 6996, Start Num: 7

Candidate Starts for Luxx\_9:

(Start: 7 @6613 has 115 MA's), (18, 6715), (26, 6754), (36, 6817), (37, 6820), (43, 6910), (50, 6976),

Gene: Maggie\_11 Start: 6436, Stop: 6813, Start Num: 8

Candidate Starts for Maggie\_11:

(Start: 8 @6436 has 41 MA's), (12, 6457), (16, 6508), (23, 6553), (38, 6646), (40, 6676), (41, 6679), (42, 6721),

Gene: Majesty\_9 Start: 6601, Stop: 6984, Start Num: 7

Candidate Starts for Majesty\_9:

(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: ManAs\_9 Start: 6589, Stop: 6972, Start Num: 7

Candidate Starts for ManAs\_9:

(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: Maneater\_9 Start: 6577, Stop: 6960, Start Num: 7

Candidate Starts for Maneater\_9:

(Start: 7 @6577 has 115 MA's), (18, 6679), (26, 6718), (36, 6781), (37, 6784), (43, 6874), (50, 6940),

Gene: Mariposa\_11 Start: 6436, Stop: 6813, Start Num: 8

Candidate Starts for Mariposa\_11:

(Start: 8 @6436 has 41 MA's), (12, 6457), (16, 6508), (23, 6553), (38, 6646), (40, 6676), (41, 6679), (42, 6721),

Gene: Massimo\_11 Start: 6436, Stop: 6813, Start Num: 8

Candidate Starts for Massimo\_11:

(Start: 8 @6436 has 41 MA's), (12, 6457), (16, 6508), (23, 6553), (38, 6646), (40, 6676), (41, 6679), (42, 6721),

Gene: MasterPitts\_9 Start: 6601, Stop: 6984, Start Num: 7

Candidate Starts for MasterPitts\_9:

(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: McShie\_9 Start: 6589, Stop: 6972, Start Num: 7

Candidate Starts for McShie\_9:

(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: MelBee03\_9 Start: 6583, Stop: 6966, Start Num: 7

Candidate Starts for MelBee03\_9:

(Start: 7 @6583 has 115 MA's), (18, 6685), (26, 6724), (36, 6787), (37, 6790), (43, 6880), (50, 6946),

Gene: Miaurora\_9 Start: 6697, Stop: 7080, Start Num: 7

Candidate Starts for Miaurora\_9:

(Start: 7 @6697 has 115 MA's), (18, 6799), (26, 6838), (36, 6901), (37, 6904), (43, 6994), (50, 7060),

Gene: Minima\_9 Start: 6589, Stop: 6972, Start Num: 7

Candidate Starts for Minima\_9:

(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: MirimarMandM\_9 Start: 6664, Stop: 7047, Start Num: 7

Candidate Starts for MirimarMandM\_9:

(Start: 7 @6664 has 115 MA's), (18, 6766), (26, 6805), (36, 6868), (37, 6871), (40, 6910), (43, 6961), (50, 7027),

Gene: Moloch\_11 Start: 6510, Stop: 6887, Start Num: 8

Candidate Starts for Moloch\_11:

(Start: 8 @6510 has 41 MA's), (12, 6531), (16, 6582), (23, 6627), (38, 6720), (40, 6750), (41, 6753), (42, 6795),

Gene: MooKitty\_9 Start: 5991, Stop: 6389, Start Num: 10

Candidate Starts for MooKitty\_9:

(Start: 10 @5991 has 8 MA's), (14, 6042), (17, 6072), (19, 6087), (37, 6195), (42, 6297), (47, 6339),

Gene: MrGreen\_9 Start: 6604, Stop: 6987, Start Num: 7

Candidate Starts for MrGreen\_9:

(Start: 7 @6604 has 115 MA's), (18, 6706), (26, 6745), (36, 6808), (37, 6811), (43, 6901), (50, 6967),

Gene: Muttie\_11 Start: 6437, Stop: 6814, Start Num: 8

Candidate Starts for Muttie\_11:

(Start: 8 @6437 has 41 MA's), (12, 6458), (16, 6509), (23, 6554), (38, 6647), (40, 6677), (41, 6680), (42, 6722),

Gene: Naby\_9 Start: 6322, Stop: 6705, Start Num: 7

Candidate Starts for Naby\_9:

(Start: 7 @6322 has 115 MA's), (18, 6424), (22, 6445), (26, 6463), (37, 6529), (43, 6619), (49, 6673),

Gene: Namsahir\_9 Start: 6652, Stop: 7035, Start Num: 7

Candidate Starts for Namsahir\_9:

(Start: 7 @6652 has 115 MA's), (18, 6754), (26, 6793), (36, 6856), (37, 6859), (43, 6949), (50, 7015),

Gene: NeumannU\_9 Start: 6601, Stop: 6984, Start Num: 7

Candidate Starts for NeumannU\_9:

(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: Niffler\_9 Start: 6670, Stop: 7053, Start Num: 7  
Candidate Starts for Niffler\_9:  
(Start: 7 @6670 has 115 MA's), (18, 6772), (26, 6811), (36, 6874), (37, 6877), (43, 6967), (50, 7033),

Gene: Nobel\_9 Start: 6697, Stop: 7080, Start Num: 7  
Candidate Starts for Nobel\_9:  
(Start: 7 @6697 has 115 MA's), (18, 6799), (26, 6838), (36, 6901), (37, 6904), (43, 6994), (50, 7060),

Gene: Noelani\_9 Start: 6574, Stop: 6957, Start Num: 7  
Candidate Starts for Noelani\_9:  
(Start: 7 @6574 has 115 MA's), (18, 6676), (26, 6715), (37, 6781), (43, 6871), (50, 6937),

Gene: Oaklynn\_9 Start: 6589, Stop: 6972, Start Num: 7  
Candidate Starts for Oaklynn\_9:  
(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: Octopus\_9 Start: 6589, Stop: 6972, Start Num: 7  
Candidate Starts for Octopus\_9:  
(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: Otwor\_9 Start: 6601, Stop: 6984, Start Num: 7  
Candidate Starts for Otwor\_9:  
(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: Owens\_9 Start: 6601, Stop: 6984, Start Num: 7  
Candidate Starts for Owens\_9:  
(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: PaoPu\_9 Start: 6589, Stop: 6972, Start Num: 7  
Candidate Starts for PaoPu\_9:  
(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: Picnic\_9 Start: 6589, Stop: 6972, Start Num: 7  
Candidate Starts for Picnic\_9:  
(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: PoRanda\_9 Start: 6664, Stop: 7047, Start Num: 7  
Candidate Starts for PoRanda\_9:  
(Start: 7 @6664 has 115 MA's), (18, 6766), (26, 6805), (36, 6868), (37, 6871), (43, 6961), (50, 7027),

Gene: Pondwater\_9 Start: 6589, Stop: 6972, Start Num: 7  
Candidate Starts for Pondwater\_9:  
(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: Prospero\_11 Start: 6436, Stop: 6813, Start Num: 8  
Candidate Starts for Prospero\_11:  
(Start: 8 @6436 has 41 MA's), (12, 6457), (16, 6508), (23, 6553), (38, 6646), (40, 6676), (41, 6679),  
(42, 6721),

Gene: Publix\_9 Start: 6652, Stop: 7035, Start Num: 7  
Candidate Starts for Publix\_9:  
(Start: 7 @6652 has 115 MA's), (18, 6754), (26, 6793), (36, 6856), (37, 6859), (43, 6949), (50, 7015),



Gene: Puddles3\_9 Start: 6589, Stop: 6972, Start Num: 7  
Candidate Starts for Puddles3\_9:  
(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: PuffyCat\_9 Start: 6622, Stop: 7005, Start Num: 7  
Candidate Starts for PuffyCat\_9:  
(Start: 7 @6622 has 115 MA's), (18, 6724), (26, 6763), (36, 6826), (37, 6829), (43, 6919), (50, 6985),

Gene: Quaker\_9 Start: 6583, Stop: 6966, Start Num: 7  
Candidate Starts for Quaker\_9:  
(Start: 7 @6583 has 115 MA's), (18, 6685), (26, 6724), (36, 6787), (37, 6790), (43, 6880), (50, 6946),

Gene: RemusLoopin\_9 Start: 7271, Stop: 7699, Start Num: 9  
Candidate Starts for RemusLoopin\_9:  
(Start: 9 @7271 has 3 MA's), (14, 7328), (24, 7412), (33, 7496), (35, 7514), (44, 7619), (52, 7688),

Gene: Rhogar\_9 Start: 6601, Stop: 6984, Start Num: 7  
Candidate Starts for Rhogar\_9:  
(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: Rhysand\_9 Start: 6601, Stop: 6984, Start Num: 7  
Candidate Starts for Rhysand\_9:  
(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: Ronnie\_11 Start: 6436, Stop: 6813, Start Num: 8  
Candidate Starts for Ronnie\_11:  
(Start: 8 @6436 has 41 MA's), (12, 6457), (16, 6508), (23, 6553), (38, 6646), (40, 6676), (41, 6679),  
(42, 6721),

Gene: RoscoWindex\_9 Start: 6601, Stop: 6984, Start Num: 7  
Candidate Starts for RoscoWindex\_9:  
(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: Sage7\_9 Start: 6601, Stop: 6984, Start Num: 7  
Candidate Starts for Sage7\_9:  
(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: SallySpecial\_12 Start: 7499, Stop: 7891, Start Num: 10  
Candidate Starts for SallySpecial\_12:  
(Start: 10 @7499 has 8 MA's), (11, 7514), (14, 7550), (17, 7580), (20, 7601), (21, 7610), (28, 7643),  
(32, 7670), (36, 7700), (37, 7703), (39, 7724), (42, 7787), (46, 7823),

Gene: Samora\_9 Start: 7299, Stop: 7730, Start Num: 7  
Candidate Starts for Samora\_9:  
(1, 7146), (Start: 7 @7299 has 115 MA's), (14, 7359), (44, 7650), (45, 7671),

Gene: Sandman\_11 Start: 6510, Stop: 6887, Start Num: 8  
Candidate Starts for Sandman\_11:  
(Start: 8 @6510 has 41 MA's), (12, 6531), (16, 6582), (23, 6627), (38, 6720), (40, 6750), (41, 6753),  
(42, 6795),

Gene: SantasSleigh\_9 Start: 6625, Stop: 7008, Start Num: 7  
Candidate Starts for SantasSleigh\_9:

(Start: 7 @6625 has 115 MA's), (18, 6727), (26, 6766), (36, 6829), (37, 6832), (43, 6922), (50, 6988),

Gene: Saphira\_11 Start: 6436, Stop: 6813, Start Num: 8

Candidate Starts for Saphira\_11:

(Start: 8 @6436 has 41 MA's), (12, 6457), (16, 6508), (23, 6553), (38, 6646), (40, 6676), (41, 6679), (42, 6721),

Gene: Sara\_9 Start: 6589, Stop: 6972, Start Num: 7

Candidate Starts for Sara\_9:

(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: Scamander\_9 Start: 6601, Stop: 6984, Start Num: 7

Candidate Starts for Scamander\_9:

(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: Schiebs\_12 Start: 6945, Stop: 7319, Start Num: 10

Candidate Starts for Schiebs\_12:

(Start: 10 @6945 has 8 MA's), (15, 7005), (16, 7011), (21, 7050), (22, 7053), (28, 7083), (32, 7110), (39, 7164), (46, 7263), (51, 7305),

Gene: Scrunchy\_9 Start: 6601, Stop: 6984, Start Num: 7

Candidate Starts for Scrunchy\_9:

(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: SeaWolves\_9 Start: 6589, Stop: 6972, Start Num: 7

Candidate Starts for SeaWolves\_9:

(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: Sebastisaurus\_9 Start: 7297, Stop: 7725, Start Num: 9

Candidate Starts for Sebastisaurus\_9:

(Start: 9 @7297 has 3 MA's), (14, 7354), (24, 7438), (35, 7540), (44, 7645), (52, 7714),

Gene: SerialPhiller\_9 Start: 6075, Stop: 6452, Start Num: 8

Candidate Starts for SerialPhiller\_9:

(Start: 8 @6075 has 41 MA's), (12, 6096), (39, 6300),

Gene: Seume\_11 Start: 6232, Stop: 6609, Start Num: 8

Candidate Starts for Seume\_11:

(Start: 8 @6232 has 41 MA's), (12, 6253), (16, 6304), (23, 6349), (38, 6442), (40, 6472), (41, 6475), (42, 6517),

Gene: Shawty\_9 Start: 7298, Stop: 7729, Start Num: 7

Candidate Starts for Shawty\_9:

(Start: 7 @7298 has 115 MA's), (14, 7358), (16, 7382), (44, 7649), (45, 7670), (52, 7718),

Gene: Sippinontea\_9 Start: 6583, Stop: 6966, Start Num: 7

Candidate Starts for Sippinontea\_9:

(Start: 7 @6583 has 115 MA's), (18, 6685), (26, 6724), (36, 6787), (37, 6790), (43, 6880), (50, 6946),

Gene: Slentz\_9 Start: 6601, Stop: 6984, Start Num: 7

Candidate Starts for Slentz\_9:

(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: Slizam\_9 Start: 6628, Stop: 7011, Start Num: 7  
Candidate Starts for Slizam\_9:  
(Start: 7 @6628 has 115 MA's), (18, 6730), (26, 6769), (36, 6832), (37, 6835), (43, 6925), (50, 6991),

Gene: Snuffles\_10 Start: 6799, Stop: 7182, Start Num: 7  
Candidate Starts for Snuffles\_10:  
(2, 6688), (Start: 7 @6799 has 115 MA's), (18, 6901), (26, 6940), (36, 7003), (37, 7006), (43, 7096),  
(50, 7162),

Gene: Sourignavong\_12 Start: 6537, Stop: 6914, Start Num: 8  
Candidate Starts for Sourignavong\_12:  
(Start: 8 @6537 has 41 MA's), (12, 6558), (16, 6609), (23, 6654), (38, 6747), (40, 6777), (41, 6780),  
(42, 6822),

Gene: Sputnik\_9 Start: 6088, Stop: 6486, Start Num: 10  
Candidate Starts for Sputnik\_9:  
(Start: 10 @6088 has 8 MA's), (13, 6109), (14, 6139), (16, 6160), (17, 6169), (21, 6199), (42, 6394),  
(46, 6430),

Gene: Stem\_9 Start: 6628, Stop: 7011, Start Num: 7  
Candidate Starts for Stem\_9:  
(Start: 7 @6628 has 115 MA's), (18, 6730), (26, 6769), (36, 6832), (37, 6835), (43, 6925), (50, 6991),

Gene: StewieGriff\_11 Start: 6435, Stop: 6812, Start Num: 8  
Candidate Starts for StewieGriff\_11:  
(Start: 8 @6435 has 41 MA's), (12, 6456), (16, 6507), (23, 6552), (38, 6645), (40, 6675), (41, 6678),  
(42, 6720),

Gene: Stratus\_11 Start: 6510, Stop: 6887, Start Num: 8  
Candidate Starts for Stratus\_11:  
(Start: 8 @6510 has 41 MA's), (12, 6531), (16, 6582), (23, 6627), (38, 6720), (40, 6750), (41, 6753),  
(42, 6795),

Gene: Swenson\_11 Start: 6559, Stop: 6936, Start Num: 8  
Candidate Starts for Swenson\_11:  
(Start: 8 @6559 has 41 MA's), (12, 6580), (16, 6631), (23, 6676), (38, 6769), (40, 6799), (41, 6802),  
(42, 6844),

Gene: TG1\_9 Start: 7279, Stop: 7710, Start Num: 6  
Candidate Starts for TG1\_9:  
(Start: 6 @7279 has 1 MA's), (14, 7339), (34, 7516), (36, 7528), (44, 7630),

Gene: Taj14\_11 Start: 6415, Stop: 6792, Start Num: 8  
Candidate Starts for Taj14\_11:  
(Start: 8 @6415 has 41 MA's), (12, 6436), (16, 6487), (23, 6532), (38, 6625), (40, 6655), (41, 6658),  
(42, 6700),

Gene: TeddyBoy\_9 Start: 6601, Stop: 6984, Start Num: 7  
Candidate Starts for TeddyBoy\_9:  
(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: TimoTea\_9 Start: 6577, Stop: 6960, Start Num: 7  
Candidate Starts for TimoTea\_9:

(Start: 7 @6577 has 115 MA's), (18, 6679), (26, 6718), (36, 6781), (37, 6784), (43, 6874), (50, 6940),

Gene: TinoCrisci\_11 Start: 6436, Stop: 6813, Start Num: 8

Candidate Starts for TinoCrisci\_11:

(Start: 8 @6436 has 41 MA's), (12, 6457), (16, 6508), (23, 6553), (38, 6646), (40, 6676), (41, 6679), (42, 6721),

Gene: TinyTruffula\_9 Start: 6697, Stop: 7080, Start Num: 7

Candidate Starts for TinyTruffula\_9:

(Start: 7 @6697 has 115 MA's), (18, 6799), (26, 6838), (36, 6901), (37, 6904), (43, 6994), (50, 7060),

Gene: TomBrady12\_9 Start: 6628, Stop: 7011, Start Num: 7

Candidate Starts for TomBrady12\_9:

(Start: 7 @6628 has 115 MA's), (18, 6730), (26, 6769), (36, 6832), (37, 6835), (43, 6925), (50, 6991),

Gene: Toulouse\_10 Start: 6232, Stop: 6609, Start Num: 8

Candidate Starts for Toulouse\_10:

(Start: 8 @6232 has 41 MA's), (12, 6253), (16, 6304), (23, 6349), (38, 6442), (40, 6472), (41, 6475), (42, 6517),

Gene: Trireme\_9 Start: 6697, Stop: 7080, Start Num: 7

Candidate Starts for Trireme\_9:

(Start: 7 @6697 has 115 MA's), (18, 6799), (26, 6838), (36, 6901), (37, 6904), (43, 6994), (50, 7060),

Gene: TymAbreu\_11 Start: 6436, Stop: 6813, Start Num: 8

Candidate Starts for TymAbreu\_11:

(Start: 8 @6436 has 41 MA's), (12, 6457), (16, 6508), (23, 6553), (38, 6646), (40, 6676), (41, 6679), (42, 6721),

Gene: Upsilon\_9 Start: 6664, Stop: 7047, Start Num: 7

Candidate Starts for Upsilon\_9:

(Start: 7 @6664 has 115 MA's), (18, 6766), (26, 6805), (36, 6868), (37, 6871), (43, 6961), (50, 7027),

Gene: Vanisius\_9 Start: 6601, Stop: 6984, Start Num: 7

Candidate Starts for Vanisius\_9:

(Start: 7 @6601 has 115 MA's), (18, 6703), (26, 6742), (36, 6805), (37, 6808), (43, 6898), (50, 6964),

Gene: Vash\_9 Start: 7275, Stop: 7718, Start Num: 7

Candidate Starts for Vash\_9:

(Start: 7 @7275 has 115 MA's), (14, 7335), (44, 7626), (52, 7695),

Gene: VitulaEligans\_9 Start: 6673, Stop: 7056, Start Num: 7

Candidate Starts for VitulaEligans\_9:

(Start: 7 @6673 has 115 MA's), (18, 6775), (26, 6814), (36, 6877), (37, 6880), (43, 6970), (50, 7036),

Gene: Witch\_9 Start: 6590, Stop: 6973, Start Num: 7

Candidate Starts for Witch\_9:

(Start: 7 @6590 has 115 MA's), (18, 6692), (26, 6731), (36, 6794), (37, 6797), (43, 6887), (50, 6953),

Gene: Wolfpack\_9 Start: 6583, Stop: 6966, Start Num: 7

Candidate Starts for Wolfpack\_9:

(Start: 7 @6583 has 115 MA's), (18, 6685), (26, 6724), (36, 6787), (37, 6790), (43, 6880), (50, 6946),

Gene: Yami\_9 Start: 6580, Stop: 6963, Start Num: 7

Candidate Starts for Yami\_9:

(Start: 7 @6580 has 115 MA's), (18, 6682), (26, 6721), (36, 6784), (37, 6787), (43, 6877), (50, 6943),

Gene: Yank\_11 Start: 6437, Stop: 6814, Start Num: 8

Candidate Starts for Yank\_11:

(Start: 8 @6437 has 41 MA's), (12, 6458), (16, 6509), (23, 6554), (38, 6647), (40, 6677), (41, 6680), (42, 6722),

Gene: Yasuo\_9 Start: 6586, Stop: 6969, Start Num: 7

Candidate Starts for Yasuo\_9:

(Start: 7 @6586 has 115 MA's), (18, 6688), (26, 6727), (36, 6790), (37, 6793), (43, 6883), (50, 6949),

Gene: YertPhresh\_9 Start: 6589, Stop: 6972, Start Num: 7

Candidate Starts for YertPhresh\_9:

(Start: 7 @6589 has 115 MA's), (18, 6691), (26, 6730), (36, 6793), (37, 6796), (43, 6886), (50, 6952),

Gene: Yubaba\_9 Start: 6590, Stop: 6973, Start Num: 7

Candidate Starts for Yubaba\_9:

(Start: 7 @6590 has 115 MA's), (18, 6692), (26, 6731), (36, 6794), (37, 6797), (43, 6887), (50, 6953),

Gene: phiBT1\_40 Start: 7299, Stop: 7730, Start Num: 7

Candidate Starts for phiBT1\_40:

(Start: 7 @7299 has 115 MA's), (14, 7359), (31, 7506), (39, 7575), (44, 7650), (45, 7671), (52, 7719),