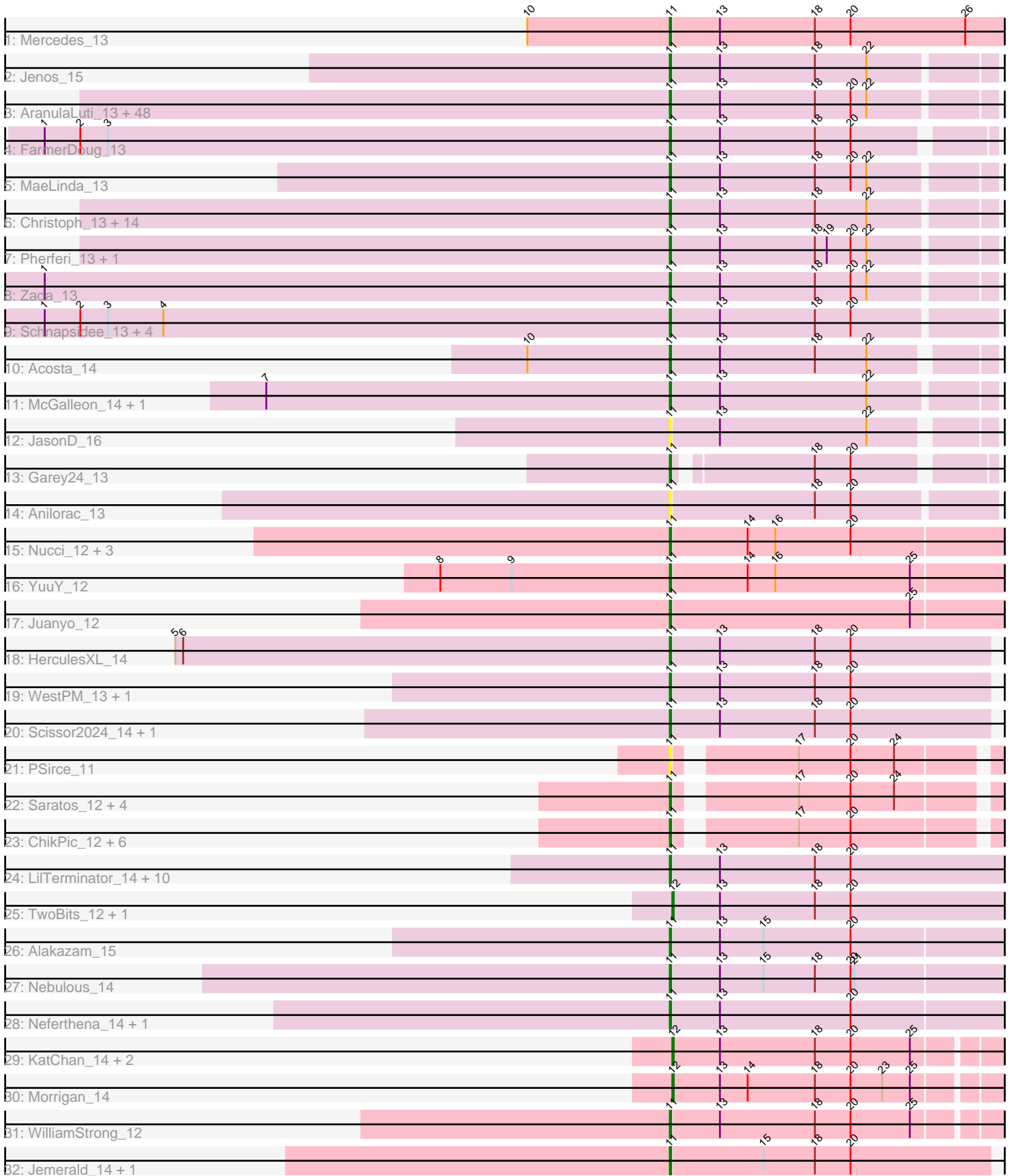


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Note: Tracks are now grouped by subcluster and scaled. Switching in subcluster is indicated by changes in track color. Track scale is now set by default to display the region 30 bp upstream of start 1 to 30 bp downstream of the last possible start. 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 224398 Report

This analysis was run 03/28/25 on database version 593.

Pham number 224398 has 130 members, 14 are drafts.

Phages represented in each track:

- Track 1 : Mercedes\_13
- Track 2 : Jenos\_15
- Track 3 : AranulaLuti\_13, Ilzat\_13, HanSolo\_13, Teagan\_13, Janus167\_13, KannH\_13, Phriends\_13, JasperRussell\_13, RosieMae\_13, Rog141\_13, Sedgewig\_13, MrWorldwide\_13, Rapheph\_13, Byron23\_13, Nagem\_13, Shee\_13, NickSell\_13, Gargoyle\_13, Gubbabump\_13, Martin\_14, Jerbirus\_13, HankSprout\_14, Chako\_13, Bandik\_13, Ludgate\_13, TatarkaPM\_13, Exploradora\_13, SJay\_13, PhredFlintston\_13, Benjalauren\_13, TinSulphur\_13, StingRay\_13, Riyhil\_13, Inventa\_13, JeriBeth\_13, Dothraki\_13, OldNelly\_13, Papafritta\_13, StirfryIV\_13, ParleG\_13, BeautPeep30\_13, Stanktossa\_13, Duocatuli\_13, Symere\_13, Clancy\_13, Winzigespinne\_13, HungryHenry\_13, Phiderman\_13, Phireproof\_13
- Track 4 : FarmerDoug\_13
- Track 5 : MaeLinda\_13
- Track 6 : Christoph\_13, Delphidian\_13, Oats\_13, Tenda\_13, Kale\_13, ManRay\_13, Bonino\_13, SoilGremlin\_13, Asta\_13, Gershwin\_13, TeddyBear\_13, Aubergine\_13, MillyPhilly\_13, Espinosa\_13, Pocket\_13
- Track 7 : Pherferi\_13, Kurt1\_13
- Track 8 : Zada\_13
- Track 9 : Schnapsidee\_13, Peppino\_13, Raccoon\_13, BeeBee8\_14, Redfield\_13
- Track 10 : Acosta\_14
- Track 11 : McGalleon\_14, CarisSwetlik\_16
- Track 12 : JasonD\_16
- Track 13 : Garey24\_13
- Track 14 : Anilorac\_13
- Track 15 : Nucci\_12, Carostasia\_12, Mandalorian\_12, Quartz\_12
- Track 16 : YuuY\_12
- Track 17 : Juanyo\_12
- Track 18 : HerculesXL\_14
- Track 19 : WestPM\_13, Schimmels22\_14
- Track 20 : Scissor2024\_14, Tinyman4\_14
- Track 21 : PSirce\_11
- Track 22 : Saratos\_12, Finny\_12, Eleri\_12, Glamour\_11, Shamu\_12
- Track 23 : ChikPic\_12, Sansa\_11, Zenitsu\_12, MCubed\_12, ColaCorta\_12, Andromedas\_12, Phanita\_11
- Track 24 : LilTerminator\_14, Hasitha\_14, CaptainRex\_14, Greenlvy\_14, Zepp\_15, Fulton\_14, Librie\_14, QuadZero\_14, Zayuliv\_14, Wardwill\_15, BaronJohn\_14
- Track 25 : TwoBits\_12, Ixel\_13

- Track 26 : Alakazam\_15
- Track 27 : Nebulous\_14
- Track 28 : Neferthena\_14, Clock\_14
- Track 29 : KatChan\_14, Chepli\_14, Luna18\_14
- Track 30 : Morrigan\_14
- Track 31 : WilliamStrong\_12
- Track 32 : Jemerald\_14, Juicer\_14

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

The start number called the most often in the published annotations is 11, it was called in 111 of the 116 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Acosta\_14, Alakazam\_15, Andromedas\_12, Anilorac\_13, AranulaLuti\_13, Asta\_13, Aubergine\_13, Bandik\_13, BaronJohn\_14, BeautPeep30\_13, BeeBee8\_14, Benjalauren\_13, Bonino\_13, Byron23\_13, CaptainRex\_14, CarisSwetlik\_16, Carostasia\_12, Chako\_13, ChikPic\_12, Christoph\_13, Clancy\_13, Clock\_14, ColaCorta\_12, Delphidian\_13, Dothraki\_13, Duocatuli\_13, Eleri\_12, Espinosa\_13, Exploradora\_13, FarmerDoug\_13, Finny\_12, Fulton\_14, Garey24\_13, Gargoyle\_13, Gershwin\_13, Glamour\_11, Greenlvy\_14, Gubbabump\_13, HanSolo\_13, HankSprout\_14, Hasitha\_14, HerculesXL\_14, HungryHenry\_13, Ilzat\_13, Inventa\_13, Janus167\_13, JasonD\_16, JasperRussell\_13, Jemerald\_14, Jenos\_15, Jerbirus\_13, JeriBeth\_13, Juanyo\_12, Juicer\_14, Kale\_13, KannH\_13, Kurt1\_13, Librie\_14, LilTerminator\_14, Ludgate\_13, MCubed\_12, MaeLinda\_13, ManRay\_13, Mandalorian\_12, Martin\_14, McGalleon\_14, Mercedes\_13, MillyPhilly\_13, MrWorldwide\_13, Nagem\_13, Nebulous\_14, Neferthena\_14, NickSell\_13, Nucci\_12, Oats\_13, OldNelly\_13, PSirce\_11, Papafritta\_13, ParleG\_13, Peppino\_13, Phanita\_11, Pherferi\_13, Phiderman\_13, Phireproof\_13, PhredFlintston\_13, Phriends\_13, Pocket\_13, QuadZero\_14, Quartz\_12, Raccoon\_13, Rapheph\_13, Redfield\_13, Riyhil\_13, Rog141\_13, RosieMae\_13, SJay\_13, Sansa\_11, Saratos\_12, Schimmels22\_14, Schnapsidee\_13, Scissor2024\_14, Sedgewig\_13, Shamu\_12, Shee\_13, SoilGremlin\_13, Stanktossa\_13, StingRay\_13, StirfryIV\_13, Symere\_13, TatarkaPM\_13, Teagan\_13, TeddyBear\_13, Tenda\_13, TinSulphur\_13, Tinyman4\_14, Wardwill\_15, WestPM\_13, WilliamStrong\_12, Winzigespinne\_13, YuuY\_12, Zada\_13, Zayuliv\_14, Zenitsu\_12, Zepp\_15,

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

- 

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

- Chepli\_14, Ixel\_13, KatChan\_14, Luna18\_14, Morrigan\_14, TwoBits\_12,

**Summary by start number:**

Start 11:

- Found in 124 of 130 ( 95.4% ) of genes in pham
- Manual Annotations of this start: 111 of 116
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Acosta\_14 (EA1), Alakazam\_15 (EA5), Andromedas\_12 (EA2), Anilorac\_13 (EA1), AranulaLuti\_13 (EA1), Asta\_13 (EA1), Aubergine\_13 (EA1), Bandik\_13 (EA1), BaronJohn\_14 (EA5), BeautPeep30\_13 (EA1), BeeBee8\_14 (EA1), Benjalauen\_13 (EA1), Bonino\_13 (EA1), Byron23\_13 (EA1), CaptainRex\_14 (EA5), CarisSwetlik\_16 (EA1), Carostasia\_12 (EA10), Chako\_13 (EA1), ChikPic\_12 (EA2), Christoph\_13 (EA1), Clancy\_13 (EA1), Clock\_14 (EA5), ColaCorta\_12 (EA2), Delphidian\_13 (EA1), Dothraki\_13 (EA1), Duocatuli\_13 (EA1), Eleri\_12 (EA2), Espinosa\_13 (EA1), Exploradora\_13 (EA1), FarmerDoug\_13 (EA1), Finny\_12 (EA2), Fulton\_14 (EA5), Garey24\_13 (EA1), Gargoyle\_13 (EA1), Gershwin\_13 (EA1), Glamour\_11 (EA2), Greenlvy\_14 (EA5), Gubbabump\_13 (EA1), HanSolo\_13 (EA1), HankSprout\_14 (EA1), Hasitha\_14 (EA5), HerculesXL\_14 (EA11), HungryHenry\_13 (EA1), Ilzat\_13 (EA1), Inventa\_13 (EA1), Janus167\_13 (EA1), JasonD\_16 (EA1), JasperRussell\_13 (EA1), Jemerald\_14 (EA6), Jenos\_15 (EA1), Jerbirus\_13 (EA1), JeriBeth\_13 (EA1), Juanyo\_12 (EA10), Juicer\_14 (EA6), Kale\_13 (EA1), KannH\_13 (EA1), Kurt1\_13 (EA1), Librie\_14 (EA5), LilTerminator\_14 (EA5), Ludgate\_13 (EA1), MCubed\_12 (EA2), MaeLinda\_13 (EA1), ManRay\_13 (EA1), Mandalorian\_12 (EA10), Martin\_14 (EA1), McGalleon\_14 (EA1), Mercedes\_13 (EA1), MillyPhilly\_13 (EA1), MrWorldwide\_13 (EA1), Nagem\_13 (EA1), Nebulous\_14 (EA5), Neferthena\_14 (EA5), NickSell\_13 (EA1), Nucci\_12 (EA10), Oats\_13 (EA1), OldNelly\_13 (EA1), PSirce\_11 (EA2), Papafritta\_13 (EA1), ParleG\_13 (EA1), Peppino\_13 (EA1), Phanita\_11 (EA2), Pherferi\_13 (EA1), Phiderman\_13 (EA1), Phireproof\_13 (EA1), PhredFlintston\_13 (EA1), Phriends\_13 (EA1), Pocket\_13 (EA1), QuadZero\_14 (EA5), Quartz\_12 (EA10), Raccoon\_13 (EA1), Rapheph\_13 (EA1), Redfield\_13 (EA1), Rihhil\_13 (EA1), Rog141\_13 (EA1), RosieMae\_13 (EA1), SJay\_13 (EA1), Sansa\_11 (EA2), Saratos\_12 (EA2), Schimmels22\_14 (EA11), Schnapsidee\_13 (EA1), Scissor2024\_14 (EA11), Sedgewig\_13 (EA1), Shamu\_12 (EA2), Shee\_13 (EA1), SoilGremlin\_13 (EA1), Stanktossa\_13 (EA1), StingRay\_13 (EA1), StirfryIV\_13 (EA1), Symere\_13 (EA1), TatarkaPM\_13 (EA1), Teagan\_13 (EA1), TeddyBear\_13 (EA1), Tenda\_13 (EA1), TinSulphur\_13 (EA1), Tinyman4\_14 (EA11), Wardwill\_15 (EA5), WestPM\_13 (EA11), WilliamStrong\_12 (EA6), Winzigespinne\_13 (EA1), YuuY\_12 (EA10), Zada\_13 (EA1), Zayuliv\_14 (EA5), Zenitsu\_12 (EA2), Zepp\_15 (EA5),

Start 12:

- Found in 6 of 130 ( 4.6% ) of genes in pham
- Manual Annotations of this start: 5 of 116
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Chepli\_14 (EA6), Ixel\_13 (EA11), KatChan\_14 (EA6), Luna18\_14 (EA6), Morigan\_14 (EA6), TwoBits\_12 (EA5),

### Summary by clusters:

There are 7 clusters represented in this pham: EA11, EA10, EA, EA1, EA2, EA5, EA6,

Info for manual annotations of cluster EA:

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

Info for manual annotations of cluster EA1:

- Start number 11 was manually annotated 74 times for cluster EA1.

Info for manual annotations of cluster EA10:

- Start number 11 was manually annotated 6 times for cluster EA10.

Info for manual annotations of cluster EA11:

- Start number 11 was manually annotated 4 times for cluster EA11.
- Start number 12 was manually annotated 1 time for cluster EA11.

Info for manual annotations of cluster EA2:

- Start number 11 was manually annotated 11 times for cluster EA2.

Info for manual annotations of cluster EA5:

- Start number 11 was manually annotated 12 times for cluster EA5.

Info for manual annotations of cluster EA6:

- Start number 11 was manually annotated 3 times for cluster EA6.
- Start number 12 was manually annotated 4 times for cluster EA6.

### ***Gene Information:***

Gene: Acosta\_14 Start: 7873, Stop: 8103, Start Num: 11

Candidate Starts for Acosta\_14:

(10, 7765), (Start: 11 @7873 has 111 MA's), (13, 7909), (18, 7981), (22, 8020),

Gene: Alakazam\_15 Start: 8832, Stop: 9137, Start Num: 11

Candidate Starts for Alakazam\_15:

(Start: 11 @8832 has 111 MA's), (13, 8868), (15, 8901), (20, 8967),

Gene: Andromedas\_12 Start: 7650, Stop: 7910, Start Num: 11

Candidate Starts for Andromedas\_12:

(Start: 11 @7650 has 111 MA's), (17, 7728), (20, 7767),

Gene: Anilorac\_13 Start: 8005, Stop: 8244, Start Num: 11

Candidate Starts for Anilorac\_13:

(Start: 11 @8005 has 111 MA's), (18, 8113), (20, 8140),

Gene: AranulaLuti\_13 Start: 7896, Stop: 8132, Start Num: 11

Candidate Starts for AranulaLuti\_13:

(Start: 11 @7896 has 111 MA's), (13, 7932), (18, 8004), (20, 8031), (22, 8043),

Gene: Asta\_13 Start: 7909, Stop: 8145, Start Num: 11

Candidate Starts for Asta\_13:

(Start: 11 @7909 has 111 MA's), (13, 7945), (18, 8017), (22, 8056),

Gene: Aubergine\_13 Start: 7909, Stop: 8145, Start Num: 11

Candidate Starts for Aubergine\_13:

(Start: 11 @7909 has 111 MA's), (13, 7945), (18, 8017), (22, 8056),

Gene: Bandik\_13 Start: 7600, Stop: 7836, Start Num: 11

Candidate Starts for Bandik\_13:

(Start: 11 @7600 has 111 MA's), (13, 7636), (18, 7708), (20, 7735), (22, 7747),

Gene: BaronJohn\_14 Start: 8032, Stop: 8364, Start Num: 11

Candidate Starts for BaronJohn\_14:

(Start: 11 @8032 has 111 MA's), (13, 8068), (18, 8140), (20, 8167),

Gene: BeautPeep30\_13 Start: 7606, Stop: 7842, Start Num: 11

Candidate Starts for BeautPeep30\_13:

(Start: 11 @7606 has 111 MA's), (13, 7642), (18, 7714), (20, 7741), (22, 7753),

Gene: BeeBee8\_14 Start: 8174, Stop: 8413, Start Num: 11

Candidate Starts for BeeBee8\_14:

(1, 7700), (2, 7727), (3, 7748), (4, 7790), (Start: 11 @8174 has 111 MA's), (13, 8210), (18, 8282), (20, 8309),

Gene: Benjalauren\_13 Start: 7896, Stop: 8132, Start Num: 11

Candidate Starts for Benjalauren\_13:

(Start: 11 @7896 has 111 MA's), (13, 7932), (18, 8004), (20, 8031), (22, 8043),

Gene: Bonino\_13 Start: 7886, Stop: 8122, Start Num: 11

Candidate Starts for Bonino\_13:

(Start: 11 @7886 has 111 MA's), (13, 7922), (18, 7994), (22, 8033),

Gene: Byron23\_13 Start: 7609, Stop: 7845, Start Num: 11

Candidate Starts for Byron23\_13:

(Start: 11 @7609 has 111 MA's), (13, 7645), (18, 7717), (20, 7744), (22, 7756),

Gene: CaptainRex\_14 Start: 8035, Stop: 8367, Start Num: 11

Candidate Starts for CaptainRex\_14:

(Start: 11 @8035 has 111 MA's), (13, 8071), (18, 8143), (20, 8170),

Gene: CarisSwetlik\_16 Start: 8364, Stop: 8600, Start Num: 11

Candidate Starts for CarisSwetlik\_16:

(7, 8058), (Start: 11 @8364 has 111 MA's), (13, 8400), (22, 8511),

Gene: Carostasia\_12 Start: 7815, Stop: 8102, Start Num: 11

Candidate Starts for Carostasia\_12:

(Start: 11 @7815 has 111 MA's), (14, 7872), (16, 7893), (20, 7950),

Gene: Chako\_13 Start: 7896, Stop: 8132, Start Num: 11

Candidate Starts for Chako\_13:

(Start: 11 @7896 has 111 MA's), (13, 7932), (18, 8004), (20, 8031), (22, 8043),

Gene: Chepli\_14 Start: 8030, Stop: 8344, Start Num: 12

Candidate Starts for Chepli\_14:

(Start: 12 @8030 has 5 MA's), (13, 8066), (18, 8138), (20, 8165), (25, 8210),

Gene: ChikPic\_12 Start: 7666, Stop: 7926, Start Num: 11

Candidate Starts for ChikPic\_12:

(Start: 11 @7666 has 111 MA's), (17, 7744), (20, 7783),

Gene: Christoph\_13 Start: 7907, Stop: 8143, Start Num: 11

Candidate Starts for Christoph\_13:

(Start: 11 @7907 has 111 MA's), (13, 7943), (18, 8015), (22, 8054),

Gene: Clancy\_13 Start: 7896, Stop: 8132, Start Num: 11

Candidate Starts for Clancy\_13:

(Start: 11 @7896 has 111 MA's), (13, 7932), (18, 8004), (20, 8031), (22, 8043),

Gene: Clock\_14 Start: 8762, Stop: 9085, Start Num: 11

Candidate Starts for Clock\_14:

(Start: 11 @8762 has 111 MA's), (13, 8798), (20, 8897),

Gene: ColaCorta\_12 Start: 7650, Stop: 7910, Start Num: 11

Candidate Starts for ColaCorta\_12:

(Start: 11 @7650 has 111 MA's), (17, 7728), (20, 7767),

Gene: Delphidian\_13 Start: 7603, Stop: 7839, Start Num: 11

Candidate Starts for Delphidian\_13:

(Start: 11 @7603 has 111 MA's), (13, 7639), (18, 7711), (22, 7750),

Gene: Dothraki\_13 Start: 7606, Stop: 7842, Start Num: 11

Candidate Starts for Dothraki\_13:

(Start: 11 @7606 has 111 MA's), (13, 7642), (18, 7714), (20, 7741), (22, 7753),

Gene: Duocatuli\_13 Start: 7896, Stop: 8132, Start Num: 11

Candidate Starts for Duocatuli\_13:

(Start: 11 @7896 has 111 MA's), (13, 7932), (18, 8004), (20, 8031), (22, 8043),

Gene: Eleri\_12 Start: 7663, Stop: 7923, Start Num: 11

Candidate Starts for Eleri\_12:

(Start: 11 @7663 has 111 MA's), (17, 7741), (20, 7780), (24, 7813),

Gene: Espinosa\_13 Start: 7907, Stop: 8143, Start Num: 11

Candidate Starts for Espinosa\_13:

(Start: 11 @7907 has 111 MA's), (13, 7943), (18, 8015), (22, 8054),

Gene: Exploradora\_13 Start: 7896, Stop: 8132, Start Num: 11

Candidate Starts for Exploradora\_13:

(Start: 11 @7896 has 111 MA's), (13, 7932), (18, 8004), (20, 8031), (22, 8043),

Gene: FarmerDoug\_13 Start: 7731, Stop: 7961, Start Num: 11

Candidate Starts for FarmerDoug\_13:

(1, 7257), (2, 7284), (3, 7305), (Start: 11 @7731 has 111 MA's), (13, 7767), (18, 7839), (20, 7866),

Gene: Finny\_12 Start: 7650, Stop: 7910, Start Num: 11

Candidate Starts for Finny\_12:

(Start: 11 @7650 has 111 MA's), (17, 7728), (20, 7767), (24, 7800),

Gene: Fulton\_14 Start: 8017, Stop: 8349, Start Num: 11

Candidate Starts for Fulton\_14:

(Start: 11 @8017 has 111 MA's), (13, 8053), (18, 8125), (20, 8152),

Gene: Garey24\_13 Start: 7889, Stop: 8104, Start Num: 11

Candidate Starts for Garey24\_13:

(Start: 11 @7889 has 111 MA's), (18, 7982), (20, 8009),

Gene: Gargoyle\_13 Start: 7606, Stop: 7842, Start Num: 11

Candidate Starts for Gargoyle\_13:

(Start: 11 @7606 has 111 MA's), (13, 7642), (18, 7714), (20, 7741), (22, 7753),

Gene: Gershwin\_13 Start: 7909, Stop: 8145, Start Num: 11  
Candidate Starts for Gershwin\_13:  
(Start: 11 @7909 has 111 MA's), (13, 7945), (18, 8017), (22, 8056),

Gene: Glamour\_11 Start: 7651, Stop: 7911, Start Num: 11  
Candidate Starts for Glamour\_11:  
(Start: 11 @7651 has 111 MA's), (17, 7729), (20, 7768), (24, 7801),

Gene: Greenlvy\_14 Start: 8034, Stop: 8366, Start Num: 11  
Candidate Starts for Greenlvy\_14:  
(Start: 11 @8034 has 111 MA's), (13, 8070), (18, 8142), (20, 8169),

Gene: Gubbabump\_13 Start: 7898, Stop: 8134, Start Num: 11  
Candidate Starts for Gubbabump\_13:  
(Start: 11 @7898 has 111 MA's), (13, 7934), (18, 8006), (20, 8033), (22, 8045),

Gene: HanSolo\_13 Start: 7896, Stop: 8132, Start Num: 11  
Candidate Starts for HanSolo\_13:  
(Start: 11 @7896 has 111 MA's), (13, 7932), (18, 8004), (20, 8031), (22, 8043),

Gene: HankSprout\_14 Start: 7776, Stop: 8012, Start Num: 11  
Candidate Starts for HankSprout\_14:  
(Start: 11 @7776 has 111 MA's), (13, 7812), (18, 7884), (20, 7911), (22, 7923),

Gene: Hasitha\_14 Start: 8035, Stop: 8367, Start Num: 11  
Candidate Starts for Hasitha\_14:  
(Start: 11 @8035 has 111 MA's), (13, 8071), (18, 8143), (20, 8170),

Gene: HerculesXL\_14 Start: 8142, Stop: 8444, Start Num: 11  
Candidate Starts for HerculesXL\_14:  
(5, 7767), (6, 7773), (Start: 11 @8142 has 111 MA's), (13, 8178), (18, 8250), (20, 8277),

Gene: HungryHenry\_13 Start: 7897, Stop: 8133, Start Num: 11  
Candidate Starts for HungryHenry\_13:  
(Start: 11 @7897 has 111 MA's), (13, 7933), (18, 8005), (20, 8032), (22, 8044),

Gene: Ilzat\_13 Start: 7896, Stop: 8132, Start Num: 11  
Candidate Starts for Ilzat\_13:  
(Start: 11 @7896 has 111 MA's), (13, 7932), (18, 8004), (20, 8031), (22, 8043),

Gene: Inventa\_13 Start: 7606, Stop: 7842, Start Num: 11  
Candidate Starts for Inventa\_13:  
(Start: 11 @7606 has 111 MA's), (13, 7642), (18, 7714), (20, 7741), (22, 7753),

Gene: Ixel\_13 Start: 7700, Stop: 8020, Start Num: 12  
Candidate Starts for Ixel\_13:  
(Start: 12 @7700 has 5 MA's), (13, 7736), (18, 7808), (20, 7835),

Gene: Janus167\_13 Start: 7896, Stop: 8132, Start Num: 11  
Candidate Starts for Janus167\_13:  
(Start: 11 @7896 has 111 MA's), (13, 7932), (18, 8004), (20, 8031), (22, 8043),

Gene: JasonD\_16 Start: 8034, Stop: 8264, Start Num: 11



Candidate Starts for JasonD\_16:

(Start: 11 @8034 has 111 MA's), (13, 8070), (22, 8181),

Gene: JasperRussell\_13 Start: 7896, Stop: 8132, Start Num: 11

Candidate Starts for JasperRussell\_13:

(Start: 11 @7896 has 111 MA's), (13, 7932), (18, 8004), (20, 8031), (22, 8043),

Gene: Jemerald\_14 Start: 8998, Stop: 9297, Start Num: 11

Candidate Starts for Jemerald\_14:

(Start: 11 @8998 has 111 MA's), (15, 9067), (18, 9106), (20, 9133),

Gene: Jenos\_15 Start: 8355, Stop: 8591, Start Num: 11

Candidate Starts for Jenos\_15:

(Start: 11 @8355 has 111 MA's), (13, 8391), (18, 8463), (22, 8502),

Gene: Jerbirus\_13 Start: 7896, Stop: 8132, Start Num: 11

Candidate Starts for Jerbirus\_13:

(Start: 11 @7896 has 111 MA's), (13, 7932), (18, 8004), (20, 8031), (22, 8043),

Gene: JeriBeth\_13 Start: 7743, Stop: 7979, Start Num: 11

Candidate Starts for JeriBeth\_13:

(Start: 11 @7743 has 111 MA's), (13, 7779), (18, 7851), (20, 7878), (22, 7890),

Gene: Juanyo\_12 Start: 7777, Stop: 8067, Start Num: 11

Candidate Starts for Juanyo\_12:

(Start: 11 @7777 has 111 MA's), (25, 7957),

Gene: Juicer\_14 Start: 8998, Stop: 9297, Start Num: 11

Candidate Starts for Juicer\_14:

(Start: 11 @8998 has 111 MA's), (15, 9067), (18, 9106), (20, 9133),

Gene: Kale\_13 Start: 7911, Stop: 8147, Start Num: 11

Candidate Starts for Kale\_13:

(Start: 11 @7911 has 111 MA's), (13, 7947), (18, 8019), (22, 8058),

Gene: KannH\_13 Start: 7896, Stop: 8132, Start Num: 11

Candidate Starts for KannH\_13:

(Start: 11 @7896 has 111 MA's), (13, 7932), (18, 8004), (20, 8031), (22, 8043),

Gene: KatChan\_14 Start: 8036, Stop: 8350, Start Num: 12

Candidate Starts for KatChan\_14:

(Start: 12 @8036 has 5 MA's), (13, 8072), (18, 8144), (20, 8171), (25, 8216),

Gene: Kurt1\_13 Start: 7606, Stop: 7842, Start Num: 11

Candidate Starts for Kurt1\_13:

(Start: 11 @7606 has 111 MA's), (13, 7642), (18, 7714), (19, 7723), (20, 7741), (22, 7753),

Gene: Librie\_14 Start: 8035, Stop: 8367, Start Num: 11

Candidate Starts for Librie\_14:

(Start: 11 @8035 has 111 MA's), (13, 8071), (18, 8143), (20, 8170),

Gene: LilTerminator\_14 Start: 8041, Stop: 8373, Start Num: 11

Candidate Starts for LilTerminator\_14:

(Start: 11 @8041 has 111 MA's), (13, 8077), (18, 8149), (20, 8176),

Gene: Ludgate\_13 Start: 7600, Stop: 7836, Start Num: 11

Candidate Starts for Ludgate\_13:

(Start: 11 @7600 has 111 MA's), (13, 7636), (18, 7708), (20, 7735), (22, 7747),

Gene: Luna18\_14 Start: 8036, Stop: 8350, Start Num: 12

Candidate Starts for Luna18\_14:

(Start: 12 @8036 has 5 MA's), (13, 8072), (18, 8144), (20, 8171), (25, 8216),

Gene: MCubed\_12 Start: 7675, Stop: 7935, Start Num: 11

Candidate Starts for MCubed\_12:

(Start: 11 @7675 has 111 MA's), (17, 7753), (20, 7792),

Gene: MaeLinda\_13 Start: 7606, Stop: 7842, Start Num: 11

Candidate Starts for MaeLinda\_13:

(Start: 11 @7606 has 111 MA's), (13, 7642), (18, 7714), (20, 7741), (22, 7753),

Gene: ManRay\_13 Start: 7909, Stop: 8145, Start Num: 11

Candidate Starts for ManRay\_13:

(Start: 11 @7909 has 111 MA's), (13, 7945), (18, 8017), (22, 8056),

Gene: Mandalorian\_12 Start: 7814, Stop: 8101, Start Num: 11

Candidate Starts for Mandalorian\_12:

(Start: 11 @7814 has 111 MA's), (14, 7871), (16, 7892), (20, 7949),

Gene: Martin\_14 Start: 7606, Stop: 7842, Start Num: 11

Candidate Starts for Martin\_14:

(Start: 11 @7606 has 111 MA's), (13, 7642), (18, 7714), (20, 7741), (22, 7753),

Gene: McGalleon\_14 Start: 8474, Stop: 8710, Start Num: 11

Candidate Starts for McGalleon\_14:

(7, 8168), (Start: 11 @8474 has 111 MA's), (13, 8510), (22, 8621),

Gene: Mercedes\_13 Start: 7790, Stop: 8113, Start Num: 11

Candidate Starts for Mercedes\_13:

(10, 7682), (Start: 11 @7790 has 111 MA's), (13, 7826), (18, 7898), (20, 7925), (26, 8012),

Gene: MillyPhilly\_13 Start: 7603, Stop: 7839, Start Num: 11

Candidate Starts for MillyPhilly\_13:

(Start: 11 @7603 has 111 MA's), (13, 7639), (18, 7711), (22, 7750),

Gene: Morrigan\_14 Start: 8937, Stop: 9251, Start Num: 12

Candidate Starts for Morrigan\_14:

(Start: 12 @8937 has 5 MA's), (13, 8973), (14, 8994), (18, 9045), (20, 9072), (23, 9096), (25, 9117),

Gene: MrWorldwide\_13 Start: 7606, Stop: 7842, Start Num: 11

Candidate Starts for MrWorldwide\_13:

(Start: 11 @7606 has 111 MA's), (13, 7642), (18, 7714), (20, 7741), (22, 7753),

Gene: Nagem\_13 Start: 7600, Stop: 7836, Start Num: 11

Candidate Starts for Nagem\_13:

(Start: 11 @7600 has 111 MA's), (13, 7636), (18, 7708), (20, 7735), (22, 7747),

Gene: Nebulous\_14 Start: 8771, Stop: 9094, Start Num: 11

Candidate Starts for Nebulous\_14:

(Start: 11 @8771 has 111 MA's), (13, 8807), (15, 8840), (18, 8879), (20, 8906), (21, 8909),

Gene: Neferthema\_14 Start: 8782, Stop: 9105, Start Num: 11

Candidate Starts for Neferthema\_14:

(Start: 11 @8782 has 111 MA's), (13, 8818), (20, 8917),

Gene: NickSell\_13 Start: 7606, Stop: 7842, Start Num: 11

Candidate Starts for NickSell\_13:

(Start: 11 @7606 has 111 MA's), (13, 7642), (18, 7714), (20, 7741), (22, 7753),

Gene: Nucci\_12 Start: 7802, Stop: 8089, Start Num: 11

Candidate Starts for Nucci\_12:

(Start: 11 @7802 has 111 MA's), (14, 7859), (16, 7880), (20, 7937),

Gene: Oats\_13 Start: 7909, Stop: 8145, Start Num: 11

Candidate Starts for Oats\_13:

(Start: 11 @7909 has 111 MA's), (13, 7945), (18, 8017), (22, 8056),

Gene: OldNelly\_13 Start: 7606, Stop: 7842, Start Num: 11

Candidate Starts for OldNelly\_13:

(Start: 11 @7606 has 111 MA's), (13, 7642), (18, 7714), (20, 7741), (22, 7753),

Gene: PSirce\_11 Start: 7662, Stop: 7922, Start Num: 11

Candidate Starts for PSirce\_11:

(Start: 11 @7662 has 111 MA's), (17, 7740), (20, 7779), (24, 7812),

Gene: Papafritta\_13 Start: 7896, Stop: 8132, Start Num: 11

Candidate Starts for Papafritta\_13:

(Start: 11 @7896 has 111 MA's), (13, 7932), (18, 8004), (20, 8031), (22, 8043),

Gene: ParleG\_13 Start: 7606, Stop: 7842, Start Num: 11

Candidate Starts for ParleG\_13:

(Start: 11 @7606 has 111 MA's), (13, 7642), (18, 7714), (20, 7741), (22, 7753),

Gene: Peppino\_13 Start: 8002, Stop: 8241, Start Num: 11

Candidate Starts for Peppino\_13:

(1, 7528), (2, 7555), (3, 7576), (4, 7618), (Start: 11 @8002 has 111 MA's), (13, 8038), (18, 8110), (20, 8137),

Gene: Phanita\_11 Start: 7650, Stop: 7910, Start Num: 11

Candidate Starts for Phanita\_11:

(Start: 11 @7650 has 111 MA's), (17, 7728), (20, 7767),

Gene: Pherferi\_13 Start: 7606, Stop: 7842, Start Num: 11

Candidate Starts for Pherferi\_13:

(Start: 11 @7606 has 111 MA's), (13, 7642), (18, 7714), (19, 7723), (20, 7741), (22, 7753),

Gene: Phiderman\_13 Start: 7603, Stop: 7839, Start Num: 11

Candidate Starts for Phiderman\_13:

(Start: 11 @7603 has 111 MA's), (13, 7639), (18, 7711), (20, 7738), (22, 7750),

Gene: Phireproof\_13 Start: 7606, Stop: 7842, Start Num: 11

Candidate Starts for Phireproof\_13:

(Start: 11 @7606 has 111 MA's), (13, 7642), (18, 7714), (20, 7741), (22, 7753),

Gene: PhredFlintston\_13 Start: 7606, Stop: 7842, Start Num: 11

Candidate Starts for PhredFlintston\_13:

(Start: 11 @7606 has 111 MA's), (13, 7642), (18, 7714), (20, 7741), (22, 7753),

Gene: Phriends\_13 Start: 7606, Stop: 7842, Start Num: 11

Candidate Starts for Phriends\_13:

(Start: 11 @7606 has 111 MA's), (13, 7642), (18, 7714), (20, 7741), (22, 7753),

Gene: Pocket\_13 Start: 7894, Stop: 8130, Start Num: 11

Candidate Starts for Pocket\_13:

(Start: 11 @7894 has 111 MA's), (13, 7930), (18, 8002), (22, 8041),

Gene: QuadZero\_14 Start: 8047, Stop: 8379, Start Num: 11

Candidate Starts for QuadZero\_14:

(Start: 11 @8047 has 111 MA's), (13, 8083), (18, 8155), (20, 8182),

Gene: Quartz\_12 Start: 7815, Stop: 8102, Start Num: 11

Candidate Starts for Quartz\_12:

(Start: 11 @7815 has 111 MA's), (14, 7872), (16, 7893), (20, 7950),

Gene: Raccoon\_13 Start: 8008, Stop: 8247, Start Num: 11

Candidate Starts for Raccoon\_13:

(1, 7534), (2, 7561), (3, 7582), (4, 7624), (Start: 11 @8008 has 111 MA's), (13, 8044), (18, 8116), (20, 8143),

Gene: Rapheph\_13 Start: 7606, Stop: 7842, Start Num: 11

Candidate Starts for Rapheph\_13:

(Start: 11 @7606 has 111 MA's), (13, 7642), (18, 7714), (20, 7741), (22, 7753),

Gene: Redfield\_13 Start: 8010, Stop: 8249, Start Num: 11

Candidate Starts for Redfield\_13:

(1, 7536), (2, 7563), (3, 7584), (4, 7626), (Start: 11 @8010 has 111 MA's), (13, 8046), (18, 8118), (20, 8145),

Gene: Riyhil\_13 Start: 7606, Stop: 7842, Start Num: 11

Candidate Starts for Riyhil\_13:

(Start: 11 @7606 has 111 MA's), (13, 7642), (18, 7714), (20, 7741), (22, 7753),

Gene: Rog141\_13 Start: 7896, Stop: 8132, Start Num: 11

Candidate Starts for Rog141\_13:

(Start: 11 @7896 has 111 MA's), (13, 7932), (18, 8004), (20, 8031), (22, 8043),

Gene: RosieMae\_13 Start: 7896, Stop: 8132, Start Num: 11

Candidate Starts for RosieMae\_13:

(Start: 11 @7896 has 111 MA's), (13, 7932), (18, 8004), (20, 8031), (22, 8043),

Gene: SJay\_13 Start: 7601, Stop: 7837, Start Num: 11

Candidate Starts for SJay\_13:

(Start: 11 @7601 has 111 MA's), (13, 7637), (18, 7709), (20, 7736), (22, 7748),

Gene: Sansa\_11 Start: 7671, Stop: 7931, Start Num: 11

Candidate Starts for Sansa\_11:

(Start: 11 @7671 has 111 MA's), (17, 7749), (20, 7788),

Gene: Saratos\_12 Start: 7651, Stop: 7911, Start Num: 11

Candidate Starts for Saratos\_12:

(Start: 11 @7651 has 111 MA's), (17, 7729), (20, 7768), (24, 7801),

Gene: Schimmels22\_14 Start: 8501, Stop: 8803, Start Num: 11

Candidate Starts for Schimmels22\_14:

(Start: 11 @8501 has 111 MA's), (13, 8537), (18, 8609), (20, 8636),

Gene: Schnapsidee\_13 Start: 8001, Stop: 8240, Start Num: 11

Candidate Starts for Schnapsidee\_13:

(1, 7527), (2, 7554), (3, 7575), (4, 7617), (Start: 11 @8001 has 111 MA's), (13, 8037), (18, 8109), (20, 8136),

Gene: Scissor2024\_14 Start: 8139, Stop: 8441, Start Num: 11

Candidate Starts for Scissor2024\_14:

(Start: 11 @8139 has 111 MA's), (13, 8175), (18, 8247), (20, 8274),

Gene: Sedgewig\_13 Start: 7896, Stop: 8132, Start Num: 11

Candidate Starts for Sedgewig\_13:

(Start: 11 @7896 has 111 MA's), (13, 7932), (18, 8004), (20, 8031), (22, 8043),

Gene: Shamu\_12 Start: 7663, Stop: 7923, Start Num: 11

Candidate Starts for Shamu\_12:

(Start: 11 @7663 has 111 MA's), (17, 7741), (20, 7780), (24, 7813),

Gene: Shee\_13 Start: 7603, Stop: 7839, Start Num: 11

Candidate Starts for Shee\_13:

(Start: 11 @7603 has 111 MA's), (13, 7639), (18, 7711), (20, 7738), (22, 7750),

Gene: SoilGremlin\_13 Start: 7603, Stop: 7839, Start Num: 11

Candidate Starts for SoilGremlin\_13:

(Start: 11 @7603 has 111 MA's), (13, 7639), (18, 7711), (22, 7750),

Gene: Stanktossa\_13 Start: 7606, Stop: 7842, Start Num: 11

Candidate Starts for Stanktossa\_13:

(Start: 11 @7606 has 111 MA's), (13, 7642), (18, 7714), (20, 7741), (22, 7753),

Gene: StingRay\_13 Start: 7896, Stop: 8132, Start Num: 11

Candidate Starts for StingRay\_13:

(Start: 11 @7896 has 111 MA's), (13, 7932), (18, 8004), (20, 8031), (22, 8043),

Gene: StirfryIV\_13 Start: 7896, Stop: 8132, Start Num: 11

Candidate Starts for StirfryIV\_13:

(Start: 11 @7896 has 111 MA's), (13, 7932), (18, 8004), (20, 8031), (22, 8043),

Gene: Symere\_13 Start: 7896, Stop: 8132, Start Num: 11

Candidate Starts for Symere\_13:

(Start: 11 @7896 has 111 MA's), (13, 7932), (18, 8004), (20, 8031), (22, 8043),

Gene: TatarkaPM\_13 Start: 7606, Stop: 7842, Start Num: 11

Candidate Starts for TatarkaPM\_13:

(Start: 11 @7606 has 111 MA's), (13, 7642), (18, 7714), (20, 7741), (22, 7753),

Gene: Teagan\_13 Start: 7600, Stop: 7836, Start Num: 11

Candidate Starts for Teagan\_13:

(Start: 11 @7600 has 111 MA's), (13, 7636), (18, 7708), (20, 7735), (22, 7747),

Gene: TeddyBear\_13 Start: 7909, Stop: 8145, Start Num: 11

Candidate Starts for TeddyBear\_13:

(Start: 11 @7909 has 111 MA's), (13, 7945), (18, 8017), (22, 8056),

Gene: Tenda\_13 Start: 7907, Stop: 8143, Start Num: 11

Candidate Starts for Tenda\_13:

(Start: 11 @7907 has 111 MA's), (13, 7943), (18, 8015), (22, 8054),

Gene: TinSulphur\_13 Start: 7606, Stop: 7842, Start Num: 11

Candidate Starts for TinSulphur\_13:

(Start: 11 @7606 has 111 MA's), (13, 7642), (18, 7714), (20, 7741), (22, 7753),

Gene: Tinyman4\_14 Start: 8142, Stop: 8444, Start Num: 11

Candidate Starts for Tinyman4\_14:

(Start: 11 @8142 has 111 MA's), (13, 8178), (18, 8250), (20, 8277),

Gene: TwoBits\_12 Start: 7838, Stop: 8170, Start Num: 12

Candidate Starts for TwoBits\_12:

(Start: 12 @7838 has 5 MA's), (13, 7874), (18, 7946), (20, 7973),

Gene: Wardwill\_15 Start: 8203, Stop: 8535, Start Num: 11

Candidate Starts for Wardwill\_15:

(Start: 11 @8203 has 111 MA's), (13, 8239), (18, 8311), (20, 8338),

Gene: WestPM\_13 Start: 7980, Stop: 8282, Start Num: 11

Candidate Starts for WestPM\_13:

(Start: 11 @7980 has 111 MA's), (13, 8016), (18, 8088), (20, 8115),

Gene: WilliamStrong\_12 Start: 8631, Stop: 8936, Start Num: 11

Candidate Starts for WilliamStrong\_12:

(Start: 11 @8631 has 111 MA's), (13, 8667), (18, 8739), (20, 8766), (25, 8811),

Gene: Winzigespinne\_13 Start: 7895, Stop: 8131, Start Num: 11

Candidate Starts for Winzigespinne\_13:

(Start: 11 @7895 has 111 MA's), (13, 7931), (18, 8003), (20, 8030), (22, 8042),

Gene: YuuY\_12 Start: 7805, Stop: 8095, Start Num: 11

Candidate Starts for YuuY\_12:

(8, 7631), (9, 7685), (Start: 11 @7805 has 111 MA's), (14, 7862), (16, 7883), (25, 7985),

Gene: Zada\_13 Start: 7597, Stop: 7833, Start Num: 11

Candidate Starts for Zada\_13:

(1, 7123), (Start: 11 @7597 has 111 MA's), (13, 7633), (18, 7705), (20, 7732), (22, 7744),

Gene: Zayuliv\_14 Start: 8023, Stop: 8355, Start Num: 11

Candidate Starts for Zayuliv\_14:

(Start: 11 @8023 has 111 MA's), (13, 8059), (18, 8131), (20, 8158),

Gene: Zenitsu\_12 Start: 7675, Stop: 7935, Start Num: 11

Candidate Starts for Zenitsu\_12:

(Start: 11 @7675 has 111 MA's), (17, 7753), (20, 7792),

Gene: Zepp\_15 Start: 8032, Stop: 8364, Start Num: 11

Candidate Starts for Zepp\_15:

(Start: 11 @8032 has 111 MA's), (13, 8068), (18, 8140), (20, 8167),