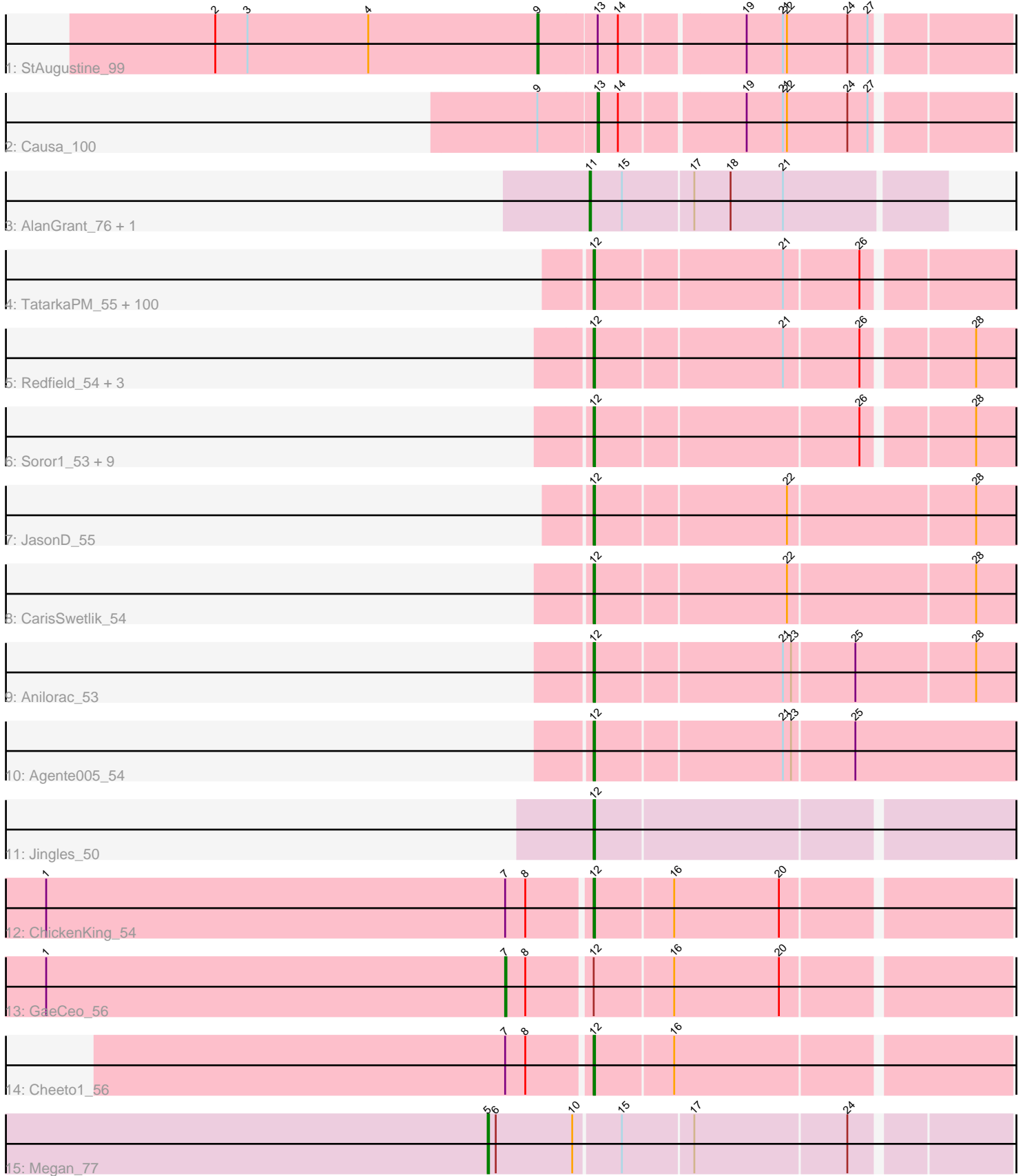


Pham 304809



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 304809 Report

This analysis was run 06/08/26 on database version 649.

Pham number 304809 has 128 members, 6 are drafts.

Phages represented in each track:

- Track 1 : StAugustine\_99
- Track 2 : Causa\_100
- Track 3 : AlanGrant\_76, Vincenzo\_75
- Track 4 : TatarkaPM\_55, Renzie\_55, Den3\_55, Vispistious\_55, Benjalauren\_55, loannes\_55, PhredFlintston\_55, Thompsone\_55, AranulaLuti\_54, TinSulphur\_56, BonesMcCoy\_55, Erla\_54, Kouch\_55, Inventa\_55, Dothraki\_55, Stanktossa\_54, Aubergine\_54, Exploradora\_54, Garey24\_55, Bonino\_54, Chamuel\_54, Greys\_55, KellyGreen\_56, Thorongil\_55, Asta\_54, SonOfLevi\_55, Strathdee\_55, Nattles\_54, ManRay\_54, StirfryIV\_54, Winzigespinne\_54, TeddyBear\_54, Gershwin\_54, BeautPeep30\_55, Peep\_55, Superfresh\_55, BigRedClifford\_55, JeriBeth\_54, Velene\_55, AxiPup\_55, Oxtober96\_56, Phireproof\_55, Symere\_54, Espinosa\_54, Convict\_55, MillyPhilly\_55, Raptor\_55, HungryHenry\_54, Dave\_55, Papafritta\_54, Calix\_54, Robinson\_55, Rog141\_54, RosieMae\_54, WildNOut\_55, Rapheph\_55, HanSolo\_54, Sedgewig\_54, Antoinette\_55, Ilzat\_54, Gelo\_54, Klimt\_55, Knox\_55, KannH\_54, Janus167\_54, Clancy\_54, Oats\_54, GoingMerry\_56, Lovelyunicorn\_55, Pocket\_54, Teagan\_55, Byron23\_56, ParleG\_55, Pherferi\_55, Zada\_56, Figueroism\_55, Gargoyle\_55, Duocatuli\_54, Phiderman\_55, Christoph\_54, MrWorldwide\_55, Blage\_55, AlexAdler\_55, ShaiHulud\_55, Etta\_54, Shee\_55, HankSprout\_55, PuppyEggo\_55, JasperRussell\_54, Gubbabump\_54, CoraRita\_56, StingRay\_54, Kurt1\_55, Riyhil\_55, NickSell\_55, Tenda\_54, Martin\_56, Jerbirus\_56, Ludgate\_55, Kale\_54, Chako\_54
- Track 5 : Redfield\_54, Etna\_54, MonChoix\_52, BeeBee8\_55
- Track 6 : Soror1\_53, Leafus\_54, KingJulien\_53, Raccoon\_54, Balsa\_53, Stormbreaker8\_53, Hamlet\_54, Schnapsidee\_54, PhillyPhantom\_54, Peppino\_54
- Track 7 : JasonD\_55
- Track 8 : CarisSwetlik\_54
- Track 9 : Anilorac\_53
- Track 10 : Agente005\_54
- Track 11 : Jingles\_50
- Track 12 : ChickenKing\_54
- Track 13 : GaeCeo\_56
- Track 14 : Cheeto1\_56
- Track 15 : Megan\_77

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

The start number called the most often in the published annotations is 12, it was called in 116 of the 122 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Agente005\_54, AlexAdler\_55, Anilorac\_53, Antoinette\_55, AranulaLuti\_54, Asta\_54, Aubergine\_54, AxiPup\_55, Balsa\_53, BeautPeep30\_55, BeeBee8\_55, Benjalauren\_55, BigRedClifford\_55, Blage\_55, BonesMcCoy\_55, Bonino\_54, Byron23\_56, Calix\_54, CarisSwetlik\_54, Chako\_54, Chamuel\_54, Cheeto1\_56, ChickenKing\_54, Christoph\_54, Clancy\_54, Convict\_55, CoraRita\_56, Dave\_55, Den3\_55, Dothraki\_55, Duocatuli\_54, Erla\_54, Espinosa\_54, Etna\_54, Etta\_54, Exploradora\_54, Figueroism\_55, Garey24\_55, Gargoyle\_55, Gelo\_54, Gershwin\_54, GoingMerry\_56, Greys\_55, Gubbabump\_54, Hamlet\_54, HanSolo\_54, HankSprout\_55, HungryHenry\_54, Ilzat\_54, Inventa\_55, Ioannes\_55, Janus167\_54, JasonD\_55, JasperRussell\_54, Jerbirus\_56, JeriBeth\_54, Jingles\_50, Kale\_54, KannH\_54, KellyGreen\_56, KingJulien\_53, Klimt\_55, Knox\_55, Kouch\_55, Kurt1\_55, Leafus\_54, Lovelyunicorn\_55, Ludgate\_55, ManRay\_54, Martin\_56, MillyPhilly\_55, MonChoix\_52, MrWorldwide\_55, Nattles\_54, NickSell\_55, Oats\_54, Oxtober96\_56, Papafritta\_54, ParleG\_55, Peep\_55, Peppino\_54, Pherferi\_55, Phiderman\_55, PhillyPhantom\_54, Phireproof\_55, PhredFlintston\_55, Pocket\_54, PuppyEggo\_55, Raccoon\_54, Rapheph\_55, Raptor\_55, Redfield\_54, Renzie\_55, Riyhil\_55, Robinson\_55, Rog141\_54, RosieMae\_54, Schnapsidee\_54, Sedgewig\_54, ShaiHulud\_55, Shee\_55, SonOfLevi\_55, Soror1\_53, Stanktossa\_54, StingRay\_54, StirfryIV\_54, Stormbreaker8\_53, Strathdee\_55, Superfresh\_55, Symere\_54, TatarkaPM\_55, Teagan\_55, TeddyBear\_54, Tenda\_54, Thompsone\_55, Thorongil\_55, TinSulphur\_56, Velene\_55, Vispistious\_55, WildNOOut\_55, Winzigespinne\_54, Zada\_56,

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

- GaeCeo\_56,

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

- AlanGrant\_76, Causa\_100, Megan\_77, StAugustine\_99, Vincenzo\_75,

### Summary by start number:

Start 5:

- Found in 1 of 128 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 122
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Megan\_77 (EC),

Start 7:

- Found in 3 of 128 ( 2.3% ) of genes in pham
- Manual Annotations of this start: 1 of 122
- Called 33.3% of time when present
- Phage (with cluster) where this start called: GaeCeo\_56 (EA9),

Start 9:

- Found in 2 of 128 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 1 of 122
- Called 50.0% of time when present
- Phage (with cluster) where this start called: StAugustine\_99 (AI),

Start 11:

- Found in 2 of 128 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 2 of 122
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AlanGrant\_76 (B4), Vincenzo\_75 (B4),

Start 12:

- Found in 123 of 128 ( 96.1% ) of genes in pham
- Manual Annotations of this start: 116 of 122
- Called 99.2% of time when present
- Phage (with cluster) where this start called: Agente005\_54 (EA1), AlexAdler\_55 (EA1), Anilorac\_53 (EA1), Antoinette\_55 (EA1), AranulaLuti\_54 (EA1), Asta\_54 (EA1), Aubergine\_54 (EA1), AxiPup\_55 (EA1), Balsa\_53 (EA1), BeautPeep30\_55 (EA1), BeeBee8\_55 (EA1), Benjalauen\_55 (EA1), BigRedClifford\_55 (EA1), Blage\_55 (EA1), BonesMcCoy\_55 (EA1), Bonino\_54 (EA1), Byron23\_56 (EA1), Calix\_54 (EA1), CarisSwetlik\_54 (EA1), Chako\_54 (EA1), Chamuel\_54 (EA1), Cheeto1\_56 (EA9), ChickenKing\_54 (EA9), Christoph\_54 (EA1), Clancy\_54 (EA1), Convict\_55 (EA1), CoraRita\_56 (EA1), Dave\_55 (EA1), Den3\_55 (EA1), Dothraki\_55 (EA1), Duocatuli\_54 (EA1), Erla\_54 (EA1), Espinosa\_54 (EA1), Etna\_54 (EA1), Etta\_54 (EA1), Exploradora\_54 (EA1), Figueroism\_55 (EA1), Garey24\_55 (EA1), Gargoyle\_55 (EA1), Gelo\_54 (EA1), Gershwin\_54 (EA1), GoingMerry\_56 (EA1), Greys\_55 (EA1), Gubbabump\_54 (EA1), Hamlet\_54 (EA1), HanSolo\_54 (EA1), HankSprout\_55 (EA1), HungryHenry\_54 (EA1), Ilzat\_54 (EA1), Inventa\_55 (EA1), Ioannes\_55 (EA1), Janus167\_54 (EA1), JasonD\_55 (EA1), JasperRussell\_54 (EA1), Jerbirus\_56 (EA1), JeriBeth\_54 (EA1), Jingles\_50 (EA4), Kale\_54 (EA1), KannH\_54 (EA1), KellyGreen\_56 (EA1), KingJulien\_53 (EA1), Klimt\_55 (EA1), Knox\_55 (EA1), Kouch\_55 (EA1), Kurt1\_55 (EA1), Leafus\_54 (EA1), Lovelyunicorn\_55 (EA1), Ludgate\_55 (EA1), ManRay\_54 (EA1), Martin\_56 (EA1), MillyPhilly\_55 (EA1), MonChoix\_52 (EA1), MrWorldwide\_55 (EA1), Nattles\_54 (EA1), NickSell\_55 (EA1), Oats\_54 (EA1), Oxtober96\_56 (EA1), Papafritta\_54 (EA1), ParleG\_55 (EA1), Peep\_55 (EA1), Peppino\_54 (EA1), Pherferi\_55 (EA1), Phiderman\_55 (EA1), PhillyPhantom\_54 (EA1), Phireproof\_55 (EA1), PhredFlintston\_55 (EA1), Pocket\_54 (EA1), PuppyEggo\_55 (EA1), Raccoon\_54 (EA1), Rappheph\_55 (EA1), Raptor\_55 (EA1), Redfield\_54 (EA1), Renzie\_55 (EA1), Riyhil\_55 (EA1), Robinson\_55 (EA1), Rog141\_54 (EA1), RosieMae\_54 (EA1), Schnapsidee\_54 (EA1), Sedgewig\_54 (EA1), ShaiHulud\_55 (EA1), Shee\_55 (EA1), SonOfLevi\_55 (EA1), Soror1\_53 (EA1), Stanktossa\_54 (EA1), StingRay\_54 (EA1), StirfryIV\_54 (EA1), Stormbreaker8\_53 (EA1), Strathdee\_55 (EA1), Superfresh\_55 (EA1), Symere\_54 (EA1), TatarkaPM\_55 (EA1), Teagan\_55 (EA1), TeddyBear\_54 (EA1), Tenda\_54 (EA1), Thompsone\_55 (EA1), Thorongil\_55 (EA1), TinSulphur\_56 (EA1), Velene\_55 (EA1), Vispistious\_55 (EA1), WildNOut\_55 (EA1), Winzigespinne\_54 (EA1), Zada\_56 (EA1),

Start 13:

- Found in 2 of 128 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 1 of 122
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Causa\_100 (AI),

**Summary by clusters:**

There are 6 clusters represented in this pham: EA9, AI, EC, B4, EA1, EA4,

Info for manual annotations of cluster AI:

- Start number 9 was manually annotated 1 time for cluster AI.
- Start number 13 was manually annotated 1 time for cluster AI.

Info for manual annotations of cluster B4:

- Start number 11 was manually annotated 2 times for cluster B4.

Info for manual annotations of cluster EA1:

- Start number 12 was manually annotated 113 times for cluster EA1.

Info for manual annotations of cluster EA4:

- Start number 12 was manually annotated 1 time for cluster EA4.

Info for manual annotations of cluster EA9:

- Start number 7 was manually annotated 1 time for cluster EA9.
- Start number 12 was manually annotated 2 times for cluster EA9.

Info for manual annotations of cluster EC:

- Start number 5 was manually annotated 1 time for cluster EC.

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

Gene: Agente005\_54 Start: 37813, Stop: 37499, Start Num: 12

Candidate Starts for Agente005\_54:

(Start: 12 @37813 has 116 MA's), (21, 37678), (23, 37672), (25, 37627),

Gene: AlanGrant\_76 Start: 63236, Stop: 62979, Start Num: 11

Candidate Starts for AlanGrant\_76:

(Start: 11 @63236 has 2 MA's), (15, 63212), (17, 63161), (18, 63134), (21, 63095),

Gene: AlexAdler\_55 Start: 38033, Stop: 37737, Start Num: 12

Candidate Starts for AlexAdler\_55:

(Start: 12 @38033 has 116 MA's), (21, 37898), (26, 37844),

Gene: Anilorac\_53 Start: 37720, Stop: 37409, Start Num: 12

Candidate Starts for Anilorac\_53:

(Start: 12 @37720 has 116 MA's), (21, 37585), (23, 37579), (25, 37534), (28, 37447),

Gene: Antoinette\_55 Start: 38058, Stop: 37762, Start Num: 12

Candidate Starts for Antoinette\_55:

(Start: 12 @38058 has 116 MA's), (21, 37923), (26, 37869),

Gene: AranulaLuti\_54 Start: 37751, Stop: 37449, Start Num: 12

Candidate Starts for AranulaLuti\_54:

(Start: 12 @37751 has 116 MA's), (21, 37616), (26, 37562),

Gene: Asta\_54 Start: 37755, Stop: 37459, Start Num: 12

Candidate Starts for Asta\_54:

(Start: 12 @37755 has 116 MA's), (21, 37620), (26, 37566),

Gene: Aubergine\_54 Start: 37755, Stop: 37459, Start Num: 12

Candidate Starts for Aubergine\_54:

(Start: 12 @37755 has 116 MA's), (21, 37620), (26, 37566),

Gene: AxiPup\_55 Start: 37970, Stop: 37674, Start Num: 12

Candidate Starts for AxiPup\_55:

(Start: 12 @37970 has 116 MA's), (21, 37835), (26, 37781),

Gene: Balsa\_53 Start: 37838, Stop: 37536, Start Num: 12

Candidate Starts for Balsa\_53:

(Start: 12 @37838 has 116 MA's), (26, 37649), (28, 37574),

Gene: BeautPeep30\_55 Start: 38008, Stop: 37706, Start Num: 12

Candidate Starts for BeautPeep30\_55:

(Start: 12 @38008 has 116 MA's), (21, 37873), (26, 37819),

Gene: BeeBee8\_55 Start: 38012, Stop: 37710, Start Num: 12

Candidate Starts for BeeBee8\_55:

(Start: 12 @38012 has 116 MA's), (21, 37877), (26, 37823), (28, 37748),

Gene: Benjalauren\_55 Start: 37761, Stop: 37465, Start Num: 12

Candidate Starts for Benjalauren\_55:

(Start: 12 @37761 has 116 MA's), (21, 37626), (26, 37572),

Gene: BigRedClifford\_55 Start: 37997, Stop: 37701, Start Num: 12

Candidate Starts for BigRedClifford\_55:

(Start: 12 @37997 has 116 MA's), (21, 37862), (26, 37808),

Gene: Blage\_55 Start: 37997, Stop: 37701, Start Num: 12

Candidate Starts for Blage\_55:

(Start: 12 @37997 has 116 MA's), (21, 37862), (26, 37808),

Gene: BonesMcCoy\_55 Start: 37997, Stop: 37701, Start Num: 12

Candidate Starts for BonesMcCoy\_55:

(Start: 12 @37997 has 116 MA's), (21, 37862), (26, 37808),

Gene: Bonino\_54 Start: 37734, Stop: 37438, Start Num: 12

Candidate Starts for Bonino\_54:

(Start: 12 @37734 has 116 MA's), (21, 37599), (26, 37545),

Gene: Byron23\_56 Start: 38005, Stop: 37703, Start Num: 12

Candidate Starts for Byron23\_56:

(Start: 12 @38005 has 116 MA's), (21, 37870), (26, 37816),

Gene: Calix\_54 Start: 37741, Stop: 37445, Start Num: 12

Candidate Starts for Calix\_54:

(Start: 12 @37741 has 116 MA's), (21, 37606), (26, 37552),

Gene: CarisSwetlik\_54 Start: 37811, Stop: 37500, Start Num: 12

Candidate Starts for CarisSwetlik\_54:

(Start: 12 @37811 has 116 MA's), (22, 37673), (28, 37538),

Gene: Causa\_100 Start: 71095, Stop: 70808, Start Num: 13

Candidate Starts for Causa\_100:

(Start: 9 @71137 has 1 MA's), (Start: 13 @71095 has 1 MA's), (14, 71080), (19, 70993), (21, 70966), (22, 70963), (24, 70918), (27, 70903),

Gene: Chako\_54 Start: 37751, Stop: 37449, Start Num: 12

Candidate Starts for Chako\_54:

(Start: 12 @37751 has 116 MA's), (21, 37616), (26, 37562),

Gene: Chamuel\_54 Start: 37767, Stop: 37471, Start Num: 12

Candidate Starts for Chamuel\_54:

(Start: 12 @37767 has 116 MA's), (21, 37632), (26, 37578),

Gene: Cheeto1\_56 Start: 38137, Stop: 37841, Start Num: 12

Candidate Starts for Cheeto1\_56:

(Start: 7 @38197 has 1 MA's), (8, 38182), (Start: 12 @38137 has 116 MA's), (16, 38080),

Gene: ChickenKing\_54 Start: 38291, Stop: 37995, Start Num: 12

Candidate Starts for ChickenKing\_54:

(1, 38693), (Start: 7 @38351 has 1 MA's), (8, 38336), (Start: 12 @38291 has 116 MA's), (16, 38234), (20, 38156),

Gene: Christoph\_54 Start: 37754, Stop: 37458, Start Num: 12

Candidate Starts for Christoph\_54:

(Start: 12 @37754 has 116 MA's), (21, 37619), (26, 37565),

Gene: Clancy\_54 Start: 37754, Stop: 37452, Start Num: 12

Candidate Starts for Clancy\_54:

(Start: 12 @37754 has 116 MA's), (21, 37619), (26, 37565),

Gene: Convict\_55 Start: 37997, Stop: 37701, Start Num: 12

Candidate Starts for Convict\_55:

(Start: 12 @37997 has 116 MA's), (21, 37862), (26, 37808),

Gene: CoraRita\_56 Start: 37724, Stop: 37422, Start Num: 12

Candidate Starts for CoraRita\_56:

(Start: 12 @37724 has 116 MA's), (21, 37589), (26, 37535),

Gene: Dave\_55 Start: 38058, Stop: 37762, Start Num: 12

Candidate Starts for Dave\_55:

(Start: 12 @38058 has 116 MA's), (21, 37923), (26, 37869),

Gene: Den3\_55 Start: 38002, Stop: 37706, Start Num: 12

Candidate Starts for Den3\_55:

(Start: 12 @38002 has 116 MA's), (21, 37867), (26, 37813),

Gene: Dothraki\_55 Start: 38005, Stop: 37703, Start Num: 12

Candidate Starts for Dothraki\_55:

(Start: 12 @38005 has 116 MA's), (21, 37870), (26, 37816),

Gene: Duocatuli\_54 Start: 37751, Stop: 37449, Start Num: 12

Candidate Starts for Duocatuli\_54:

(Start: 12 @37751 has 116 MA's), (21, 37616), (26, 37562),

Gene: Erla\_54 Start: 37738, Stop: 37442, Start Num: 12

Candidate Starts for Erla\_54:

(Start: 12 @37738 has 116 MA's), (21, 37603), (26, 37549),

Gene: Espinosa\_54 Start: 37753, Stop: 37457, Start Num: 12

Candidate Starts for Espinosa\_54:

(Start: 12 @37753 has 116 MA's), (21, 37618), (26, 37564),

Gene: Etna\_54 Start: 37891, Stop: 37589, Start Num: 12

Candidate Starts for Etna\_54:

(Start: 12 @37891 has 116 MA's), (21, 37756), (26, 37702), (28, 37627),

Gene: Etta\_54 Start: 37742, Stop: 37446, Start Num: 12

Candidate Starts for Etta\_54:

(Start: 12 @37742 has 116 MA's), (21, 37607), (26, 37553),

Gene: Exploradora\_54 Start: 37703, Stop: 37407, Start Num: 12

Candidate Starts for Exploradora\_54:

(Start: 12 @37703 has 116 MA's), (21, 37568), (26, 37514),

Gene: Figueroism\_55 Start: 37998, Stop: 37696, Start Num: 12

Candidate Starts for Figueroism\_55:

(Start: 12 @37998 has 116 MA's), (21, 37863), (26, 37809),

Gene: GaeCeo\_56 Start: 38584, Stop: 38228, Start Num: 7

Candidate Starts for GaeCeo\_56:

(1, 38926), (Start: 7 @38584 has 1 MA's), (8, 38569), (Start: 12 @38524 has 116 MA's), (16, 38467), (20, 38389),

Gene: Garey24\_55 Start: 37721, Stop: 37425, Start Num: 12

Candidate Starts for Garey24\_55:

(Start: 12 @37721 has 116 MA's), (21, 37586), (26, 37532),

Gene: Gargoyle\_55 Start: 38002, Stop: 37706, Start Num: 12

Candidate Starts for Gargoyle\_55:

(Start: 12 @38002 has 116 MA's), (21, 37867), (26, 37813),

Gene: Gelo\_54 Start: 37748, Stop: 37452, Start Num: 12

Candidate Starts for Gelo\_54:

(Start: 12 @37748 has 116 MA's), (21, 37613), (26, 37559),

Gene: Gershwin\_54 Start: 37755, Stop: 37459, Start Num: 12

Candidate Starts for Gershwin\_54:

(Start: 12 @37755 has 116 MA's), (21, 37620), (26, 37566),

Gene: GoingMerry\_56 Start: 37980, Stop: 37684, Start Num: 12

Candidate Starts for GoingMerry\_56:

(Start: 12 @37980 has 116 MA's), (21, 37845), (26, 37791),

Gene: Greys\_55 Start: 37998, Stop: 37702, Start Num: 12

Candidate Starts for Greys\_55:

(Start: 12 @37998 has 116 MA's), (21, 37863), (26, 37809),

Gene: Gubbabump\_54 Start: 37693, Stop: 37397, Start Num: 12

Candidate Starts for Gubbabump\_54:  
(Start: 12 @37693 has 116 MA's), (21, 37558), (26, 37504),

Gene: Hamlet\_54 Start: 37931, Stop: 37629, Start Num: 12  
Candidate Starts for Hamlet\_54:  
(Start: 12 @37931 has 116 MA's), (26, 37742), (28, 37667),

Gene: HanSolo\_54 Start: 37703, Stop: 37407, Start Num: 12  
Candidate Starts for HanSolo\_54:  
(Start: 12 @37703 has 116 MA's), (21, 37568), (26, 37514),

Gene: HankSprout\_55 Start: 37622, Stop: 37326, Start Num: 12  
Candidate Starts for HankSprout\_55:  
(Start: 12 @37622 has 116 MA's), (21, 37487), (26, 37433),

Gene: HungryHenry\_54 Start: 37715, Stop: 37413, Start Num: 12  
Candidate Starts for HungryHenry\_54:  
(Start: 12 @37715 has 116 MA's), (21, 37580), (26, 37526),

Gene: Ilzat\_54 Start: 37725, Stop: 37423, Start Num: 12  
Candidate Starts for Ilzat\_54:  
(Start: 12 @37725 has 116 MA's), (21, 37590), (26, 37536),

Gene: Inventa\_55 Start: 38002, Stop: 37700, Start Num: 12  
Candidate Starts for Inventa\_55:  
(Start: 12 @38002 has 116 MA's), (21, 37867), (26, 37813),

Gene: Ioannes\_55 Start: 38080, Stop: 37784, Start Num: 12  
Candidate Starts for Ioannes\_55:  
(Start: 12 @38080 has 116 MA's), (21, 37945), (26, 37891),

Gene: Janus167\_54 Start: 37730, Stop: 37434, Start Num: 12  
Candidate Starts for Janus167\_54:  
(Start: 12 @37730 has 116 MA's), (21, 37595), (26, 37541),

Gene: JasonD\_55 Start: 37644, Stop: 37333, Start Num: 12  
Candidate Starts for JasonD\_55:  
(Start: 12 @37644 has 116 MA's), (22, 37506), (28, 37371),

Gene: JasperRussell\_54 Start: 37751, Stop: 37449, Start Num: 12  
Candidate Starts for JasperRussell\_54:  
(Start: 12 @37751 has 116 MA's), (21, 37616), (26, 37562),

Gene: Jerbirus\_56 Start: 37745, Stop: 37449, Start Num: 12  
Candidate Starts for Jerbirus\_56:  
(Start: 12 @37745 has 116 MA's), (21, 37610), (26, 37556),

Gene: JeriBeth\_54 Start: 37633, Stop: 37337, Start Num: 12  
Candidate Starts for JeriBeth\_54:  
(Start: 12 @37633 has 116 MA's), (21, 37498), (26, 37444),

Gene: Jingles\_50 Start: 35268, Stop: 34969, Start Num: 12  
Candidate Starts for Jingles\_50:

(Start: 12 @35268 has 116 MA's),

Gene: Kale\_54 Start: 37757, Stop: 37461, Start Num: 12

Candidate Starts for Kale\_54:

(Start: 12 @37757 has 116 MA's), (21, 37622), (26, 37568),

Gene: KannH\_54 Start: 37751, Stop: 37449, Start Num: 12

Candidate Starts for KannH\_54:

(Start: 12 @37751 has 116 MA's), (21, 37616), (26, 37562),

Gene: KellyGreen\_56 Start: 37739, Stop: 37443, Start Num: 12

Candidate Starts for KellyGreen\_56:

(Start: 12 @37739 has 116 MA's), (21, 37604), (26, 37550),

Gene: KingJulien\_53 Start: 37729, Stop: 37427, Start Num: 12

Candidate Starts for KingJulien\_53:

(Start: 12 @37729 has 116 MA's), (26, 37540), (28, 37465),

Gene: Klimt\_55 Start: 37773, Stop: 37477, Start Num: 12

Candidate Starts for Klimt\_55:

(Start: 12 @37773 has 116 MA's), (21, 37638), (26, 37584),

Gene: Knox\_55 Start: 37997, Stop: 37701, Start Num: 12

Candidate Starts for Knox\_55:

(Start: 12 @37997 has 116 MA's), (21, 37862), (26, 37808),

Gene: Kouch\_55 Start: 37703, Stop: 37407, Start Num: 12

Candidate Starts for Kouch\_55:

(Start: 12 @37703 has 116 MA's), (21, 37568), (26, 37514),

Gene: Kurt1\_55 Start: 38002, Stop: 37700, Start Num: 12

Candidate Starts for Kurt1\_55:

(Start: 12 @38002 has 116 MA's), (21, 37867), (26, 37813),

Gene: Leafus\_54 Start: 37994, Stop: 37692, Start Num: 12

Candidate Starts for Leafus\_54:

(Start: 12 @37994 has 116 MA's), (26, 37805), (28, 37730),

Gene: Lovelyunicorn\_55 Start: 37998, Stop: 37702, Start Num: 12

Candidate Starts for Lovelyunicorn\_55:

(Start: 12 @37998 has 116 MA's), (21, 37863), (26, 37809),

Gene: Ludgate\_55 Start: 37999, Stop: 37703, Start Num: 12

Candidate Starts for Ludgate\_55:

(Start: 12 @37999 has 116 MA's), (21, 37864), (26, 37810),

Gene: ManRay\_54 Start: 37755, Stop: 37459, Start Num: 12

Candidate Starts for ManRay\_54:

(Start: 12 @37755 has 116 MA's), (21, 37620), (26, 37566),

Gene: Martin\_56 Start: 38011, Stop: 37709, Start Num: 12

Candidate Starts for Martin\_56:

(Start: 12 @38011 has 116 MA's), (21, 37876), (26, 37822),

Gene: Megan\_77 Start: 50316, Stop: 50684, Start Num: 5  
Candidate Starts for Megan\_77:  
(Start: 5 @50316 has 1 MA's), (6, 50322), (10, 50379), (15, 50412), (17, 50463), (24, 50574),

Gene: MillyPhilly\_55 Start: 37999, Stop: 37697, Start Num: 12  
Candidate Starts for MillyPhilly\_55:  
(Start: 12 @37999 has 116 MA's), (21, 37864), (26, 37810),

Gene: MonChoix\_52 Start: 37644, Stop: 37339, Start Num: 12  
Candidate Starts for MonChoix\_52:  
(Start: 12 @37644 has 116 MA's), (21, 37509), (26, 37455), (28, 37377),

Gene: MrWorldwide\_55 Start: 38009, Stop: 37707, Start Num: 12  
Candidate Starts for MrWorldwide\_55:  
(Start: 12 @38009 has 116 MA's), (21, 37874), (26, 37820),

Gene: Nattles\_54 Start: 37742, Stop: 37446, Start Num: 12  
Candidate Starts for Nattles\_54:  
(Start: 12 @37742 has 116 MA's), (21, 37607), (26, 37553),

Gene: NickSell\_55 Start: 38012, Stop: 37710, Start Num: 12  
Candidate Starts for NickSell\_55:  
(Start: 12 @38012 has 116 MA's), (21, 37877), (26, 37823),

Gene: Oats\_54 Start: 37755, Stop: 37459, Start Num: 12  
Candidate Starts for Oats\_54:  
(Start: 12 @37755 has 116 MA's), (21, 37620), (26, 37566),

Gene: Oxtober96\_56 Start: 37998, Stop: 37702, Start Num: 12  
Candidate Starts for Oxtober96\_56:  
(Start: 12 @37998 has 116 MA's), (21, 37863), (26, 37809),

Gene: Papafritta\_54 Start: 37760, Stop: 37458, Start Num: 12  
Candidate Starts for Papafritta\_54:  
(Start: 12 @37760 has 116 MA's), (21, 37625), (26, 37571),

Gene: ParleG\_55 Start: 38009, Stop: 37707, Start Num: 12  
Candidate Starts for ParleG\_55:  
(Start: 12 @38009 has 116 MA's), (21, 37874), (26, 37820),

Gene: Peep\_55 Start: 38055, Stop: 37759, Start Num: 12  
Candidate Starts for Peep\_55:  
(Start: 12 @38055 has 116 MA's), (21, 37920), (26, 37866),

Gene: Peppino\_54 Start: 37824, Stop: 37522, Start Num: 12  
Candidate Starts for Peppino\_54:  
(Start: 12 @37824 has 116 MA's), (26, 37635), (28, 37560),

Gene: Pherferi\_55 Start: 38002, Stop: 37700, Start Num: 12  
Candidate Starts for Pherferi\_55:  
(Start: 12 @38002 has 116 MA's), (21, 37867), (26, 37813),

Gene: Phiderman\_55 Start: 37999, Stop: 37697, Start Num: 12  
Candidate Starts for Phiderman\_55:  
(Start: 12 @37999 has 116 MA's), (21, 37864), (26, 37810),

Gene: PhillyPhantom\_54 Start: 37825, Stop: 37523, Start Num: 12  
Candidate Starts for PhillyPhantom\_54:  
(Start: 12 @37825 has 116 MA's), (26, 37636), (28, 37561),

Gene: Phireproof\_55 Start: 38008, Stop: 37706, Start Num: 12  
Candidate Starts for Phireproof\_55:  
(Start: 12 @38008 has 116 MA's), (21, 37873), (26, 37819),

Gene: PhredFlintston\_55 Start: 38002, Stop: 37700, Start Num: 12  
Candidate Starts for PhredFlintston\_55:  
(Start: 12 @38002 has 116 MA's), (21, 37867), (26, 37813),

Gene: Pocket\_54 Start: 37782, Stop: 37486, Start Num: 12  
Candidate Starts for Pocket\_54:  
(Start: 12 @37782 has 116 MA's), (21, 37647), (26, 37593),

Gene: PuppyEggo\_55 Start: 38003, Stop: 37707, Start Num: 12  
Candidate Starts for PuppyEggo\_55:  
(Start: 12 @38003 has 116 MA's), (21, 37868), (26, 37814),

Gene: Raccoon\_54 Start: 37795, Stop: 37493, Start Num: 12  
Candidate Starts for Raccoon\_54:  
(Start: 12 @37795 has 116 MA's), (26, 37606), (28, 37531),

Gene: Rapheph\_55 Start: 38002, Stop: 37700, Start Num: 12  
Candidate Starts for Rapheph\_55:  
(Start: 12 @38002 has 116 MA's), (21, 37867), (26, 37813),

Gene: Raptor\_55 Start: 38000, Stop: 37704, Start Num: 12  
Candidate Starts for Raptor\_55:  
(Start: 12 @38000 has 116 MA's), (21, 37865), (26, 37811),

Gene: Redfield\_54 Start: 37837, Stop: 37535, Start Num: 12  
Candidate Starts for Redfield\_54:  
(Start: 12 @37837 has 116 MA's), (21, 37702), (26, 37648), (28, 37573),

Gene: Renzie\_55 Start: 38058, Stop: 37762, Start Num: 12  
Candidate Starts for Renzie\_55:  
(Start: 12 @38058 has 116 MA's), (21, 37923), (26, 37869),

Gene: Riyhil\_55 Start: 38012, Stop: 37710, Start Num: 12  
Candidate Starts for Riyhil\_55:  
(Start: 12 @38012 has 116 MA's), (21, 37877), (26, 37823),

Gene: Robinson\_55 Start: 38074, Stop: 37778, Start Num: 12  
Candidate Starts for Robinson\_55:  
(Start: 12 @38074 has 116 MA's), (21, 37939), (26, 37885),

Gene: Rog141\_54 Start: 37745, Stop: 37449, Start Num: 12

Candidate Starts for Rog141\_54:  
(Start: 12 @37745 has 116 MA's), (21, 37610), (26, 37556),

Gene: RosieMae\_54 Start: 37806, Stop: 37504, Start Num: 12  
Candidate Starts for RosieMae\_54:  
(Start: 12 @37806 has 116 MA's), (21, 37671), (26, 37617),

Gene: Schnapsidee\_54 Start: 37869, Stop: 37567, Start Num: 12  
Candidate Starts for Schnapsidee\_54:  
(Start: 12 @37869 has 116 MA's), (26, 37680), (28, 37605),

Gene: Sedgewig\_54 Start: 37707, Stop: 37405, Start Num: 12  
Candidate Starts for Sedgewig\_54:  
(Start: 12 @37707 has 116 MA's), (21, 37572), (26, 37518),

Gene: ShaiHulud\_55 Start: 38012, Stop: 37716, Start Num: 12  
Candidate Starts for ShaiHulud\_55:  
(Start: 12 @38012 has 116 MA's), (21, 37877), (26, 37823),

Gene: Shee\_55 Start: 37999, Stop: 37697, Start Num: 12  
Candidate Starts for Shee\_55:  
(Start: 12 @37999 has 116 MA's), (21, 37864), (26, 37810),

Gene: SonOfLevi\_55 Start: 37773, Stop: 37477, Start Num: 12  
Candidate Starts for SonOfLevi\_55:  
(Start: 12 @37773 has 116 MA's), (21, 37638), (26, 37584),

Gene: Soror1\_53 Start: 37744, Stop: 37442, Start Num: 12  
Candidate Starts for Soror1\_53:  
(Start: 12 @37744 has 116 MA's), (26, 37555), (28, 37480),

Gene: StAugustine\_99 Start: 72844, Stop: 72515, Start Num: 9  
Candidate Starts for StAugustine\_99:  
(2, 73084), (3, 73060), (4, 72970), (Start: 9 @72844 has 1 MA's), (Start: 13 @72802 has 1 MA's), (14, 72787), (19, 72700), (21, 72673), (22, 72670), (24, 72625), (27, 72610),

Gene: Stanktossa\_54 Start: 38002, Stop: 37700, Start Num: 12  
Candidate Starts for Stanktossa\_54:  
(Start: 12 @38002 has 116 MA's), (21, 37867), (26, 37813),

Gene: StingRay\_54 Start: 37797, Stop: 37501, Start Num: 12  
Candidate Starts for StingRay\_54:  
(Start: 12 @37797 has 116 MA's), (21, 37662), (26, 37608),

Gene: StirfryIV\_54 Start: 37718, Stop: 37416, Start Num: 12  
Candidate Starts for StirfryIV\_54:  
(Start: 12 @37718 has 116 MA's), (21, 37583), (26, 37529),

Gene: Stormbreaker8\_53 Start: 37730, Stop: 37428, Start Num: 12  
Candidate Starts for Stormbreaker8\_53:  
(Start: 12 @37730 has 116 MA's), (26, 37541), (28, 37466),

Gene: Strathdee\_55 Start: 38002, Stop: 37706, Start Num: 12

Candidate Starts for Strathdee\_55:

(Start: 12 @38002 has 116 MA's), (21, 37867), (26, 37813),

Gene: Superfresh\_55 Start: 38058, Stop: 37762, Start Num: 12

Candidate Starts for Superfresh\_55:

(Start: 12 @38058 has 116 MA's), (21, 37923), (26, 37869),

Gene: Symere\_54 Start: 37717, Stop: 37415, Start Num: 12

Candidate Starts for Symere\_54:

(Start: 12 @37717 has 116 MA's), (21, 37582), (26, 37528),

Gene: TatarkaPM\_55 Start: 38012, Stop: 37710, Start Num: 12

Candidate Starts for TatarkaPM\_55:

(Start: 12 @38012 has 116 MA's), (21, 37877), (26, 37823),

Gene: Teagan\_55 Start: 37993, Stop: 37697, Start Num: 12

Candidate Starts for Teagan\_55:

(Start: 12 @37993 has 116 MA's), (21, 37858), (26, 37804),

Gene: TeddyBear\_54 Start: 37755, Stop: 37459, Start Num: 12

Candidate Starts for TeddyBear\_54:

(Start: 12 @37755 has 116 MA's), (21, 37620), (26, 37566),

Gene: Tenda\_54 Start: 37753, Stop: 37457, Start Num: 12

Candidate Starts for Tenda\_54:

(Start: 12 @37753 has 116 MA's), (21, 37618), (26, 37564),

Gene: Thompsone\_55 Start: 38000, Stop: 37704, Start Num: 12

Candidate Starts for Thompsone\_55:

(Start: 12 @38000 has 116 MA's), (21, 37865), (26, 37811),

Gene: Thorongil\_55 Start: 37517, Stop: 37221, Start Num: 12

Candidate Starts for Thorongil\_55:

(Start: 12 @37517 has 116 MA's), (21, 37382), (26, 37328),

Gene: TinSulphur\_56 Start: 38008, Stop: 37706, Start Num: 12

Candidate Starts for TinSulphur\_56:

(Start: 12 @38008 has 116 MA's), (21, 37873), (26, 37819),

Gene: Velene\_55 Start: 37998, Stop: 37702, Start Num: 12

Candidate Starts for Velene\_55:

(Start: 12 @37998 has 116 MA's), (21, 37863), (26, 37809),

Gene: Vincenzo\_75 Start: 63266, Stop: 63009, Start Num: 11

Candidate Starts for Vincenzo\_75:

(Start: 11 @63266 has 2 MA's), (15, 63242), (17, 63191), (18, 63164), (21, 63125),

Gene: Vispistious\_55 Start: 38003, Stop: 37707, Start Num: 12

Candidate Starts for Vispistious\_55:

(Start: 12 @38003 has 116 MA's), (21, 37868), (26, 37814),

Gene: WildNOut\_55 Start: 37996, Stop: 37700, Start Num: 12

Candidate Starts for WildNOut\_55:

(Start: 12 @37996 has 116 MA's), (21, 37861), (26, 37807),

Gene: Winzigespinne\_54 Start: 37741, Stop: 37445, Start Num: 12

Candidate Starts for Winzigespinne\_54:

(Start: 12 @37741 has 116 MA's), (21, 37606), (26, 37552),

Gene: Zada\_56 Start: 38015, Stop: 37719, Start Num: 12

Candidate Starts for Zada\_56:

(Start: 12 @38015 has 116 MA's), (21, 37880), (26, 37826),