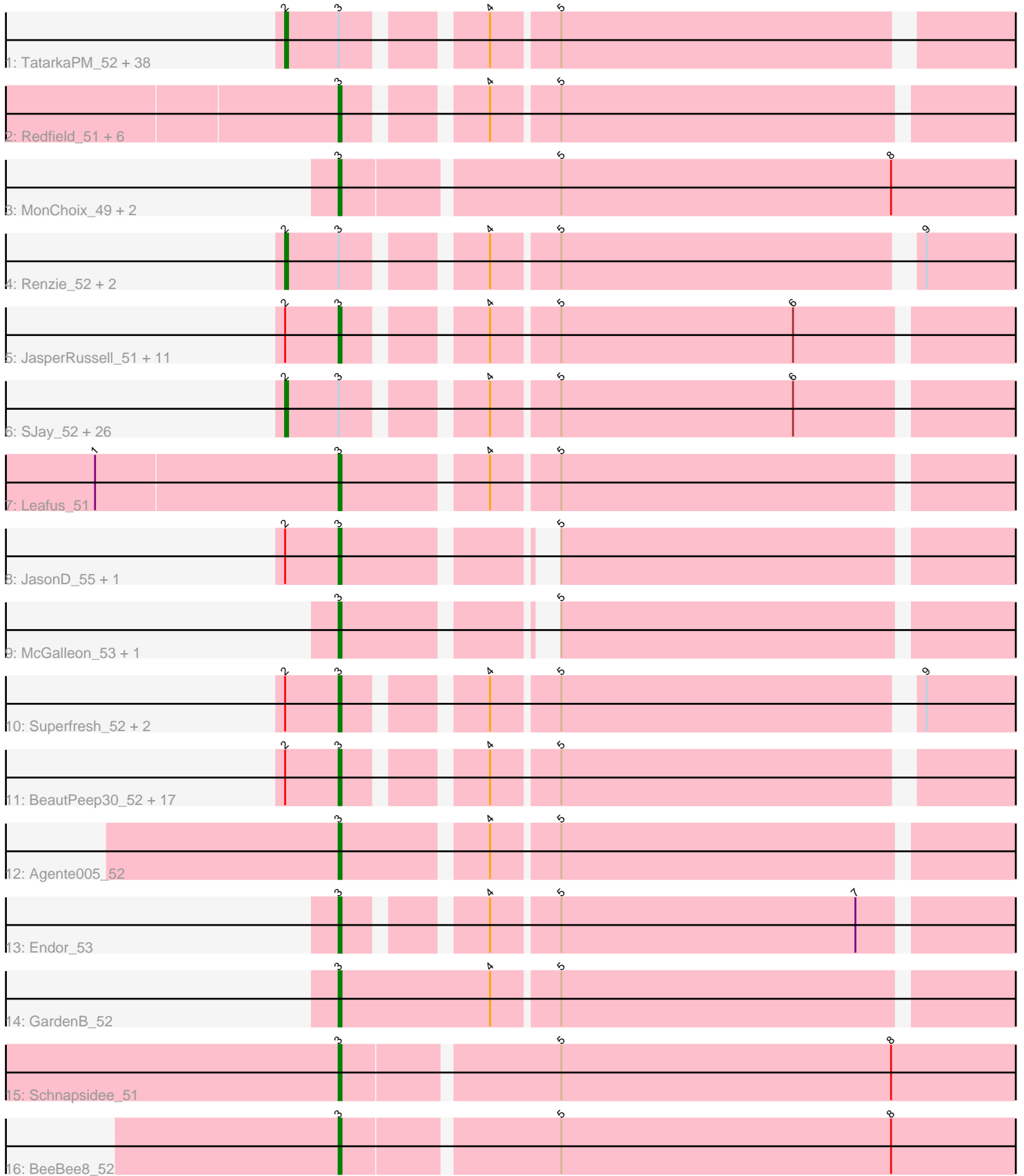


Pham 224408



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 224408 Report

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

Pham number 224408 has 122 members, 7 are drafts.

Phages represented in each track:

- Track 1 : TatarkaPM\_52, BonesMcCoy\_52, Den3\_52, Ioannes\_52, PhredFlintston\_52, TinSulphur\_53, Inventa\_52, Exploradora\_51, Greys\_52, Thorongil\_52, Blage\_52, StirfryIV\_51, ParleG\_52, Alyxandracam\_52, BigRedClifford\_52, Velene\_52, MillyPhilly\_52, WildNOut\_52, Sedgewig\_51, Rappheph\_52, Knox\_52, Clancy\_51, Janus167\_51, Strathdee\_52, Lovelyunicorn\_52, Byron23\_53, Pherferi\_52, Convict\_52, Phiderman\_52, Shee\_52, Phireproof\_52, PuppyEggo\_52, Gubbabump\_51, StingRay\_51, Riyhil\_52, NickSell\_52, Ludgate\_52, Vispistious\_52, Bandik\_52
- Track 2 : Redfield\_51, Raccoon\_51, Balsa\_50, Stormbreaker8\_50, Hamlet\_51, Etna\_51, Peppino\_51
- Track 3 : MonChoix\_49, Anilorac\_52, FarmerDoug\_51
- Track 4 : Renzie\_52, Dave\_52, Antoinette\_52
- Track 5 : JasperRussell\_51, Benjalauen\_52, Dothraki\_52, Asta\_51, Duocatuli\_51, Baines\_51, RosieMae\_53, Rog141\_51, KannH\_51, Figueroism\_52, Jerbirus\_53, Kale\_51
- Track 6 : SJay\_52, Klimt\_52, Erla\_51, AranulaLuti\_51, Aubergine\_51, Stanktossa\_51, Garey24\_52, Bonino\_51, Nattles\_51, SonOfLevi\_52, ManRay\_51, Gershwin\_51, Winzigespinne\_51, TeddyBear\_51, Espinosa\_51, Pocket\_51, Chamuel\_51, Calix\_51, Gelo\_51, Oats\_51, Christoph\_51, AlexAdler\_52, Nagem\_52, HankSprout\_52, Etta\_51, Tenda\_51, Chako\_51
- Track 7 : Leafus\_51
- Track 8 : JasonD\_55, Acosta\_54
- Track 9 : McGalleon\_53, Jenos\_54
- Track 10 : Superfresh\_52, Peep\_52, JeriBeth\_53
- Track 11 : BeautPeep30\_52, AxiPup\_52, Oxtober96\_53, Symere\_53, HungryHenry\_51, Raptor\_52, Robinson\_52, HanSolo\_51, Ilzat\_51, ShaiHulud\_53, Thompsone\_52, Papafritta\_51, Teagan\_52, Gargoyle\_52, MrWorldwide\_52, MaeLinda\_52, Martin\_53, Kurt1\_52
- Track 12 : Agente005\_52
- Track 13 : Endor\_53
- Track 14 : GardenB\_52
- Track 15 : Schnapsidee\_51
- Track 16 : BeeBee8\_52

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

The start number called the most often in the published annotations is 2, it was called in 69 of the 115 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AlexAdler\_52, Alyxandracam\_52, Antoinette\_52, AranulaLuti\_51, Aubergine\_51, Bandik\_52, BigRedClifford\_52, Blage\_52, BonesMcCoy\_52, Bonino\_51, Byron23\_53, Calix\_51, Chako\_51, Chamuel\_51, Christoph\_51, Clancy\_51, Convict\_52, Dave\_52, Den3\_52, Erla\_51, Espinosa\_51, Etta\_51, Exploradora\_51, Garey24\_52, Gelo\_51, Gershwin\_51, Greys\_52, Gubbabump\_51, HankSprout\_52, Inventa\_52, Ioannes\_52, Janus167\_51, Klimt\_52, Knox\_52, Lovelyunicorn\_52, Ludgate\_52, ManRay\_51, MillyPhilly\_52, Nagem\_52, Nattles\_51, NickSell\_52, Oats\_51, ParleG\_52, Pherferi\_52, Phiderman\_52, Phireproof\_52, PhredFlintston\_52, Pocket\_51, PuppyEggo\_52, Rapheph\_52, Renzie\_52, Rihhil\_52, SJay\_52, Sedgewig\_51, Shee\_52, SonOfLevi\_52, Stanktossa\_51, StingRay\_51, StirfryIV\_51, Strathtdee\_52, TatarkaPM\_52, TeddyBear\_51, Tenda\_51, Thorongil\_52, TinSulphur\_53, Velene\_52, Vispitious\_52, WildNOut\_52, Winzigespinne\_51,

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

- Acosta\_54, Asta\_51, AxiPup\_52, Baines\_51, BeautPeep30\_52, Benjalauren\_52, Dothraki\_52, Duocatuli\_51, Figueroism\_52, Gargoyle\_52, HanSolo\_51, HungryHenry\_51, Ilzat\_51, JasonD\_55, JasperRussell\_51, Jerbirus\_53, JeriBeth\_53, Kale\_51, KannH\_51, Kurt1\_52, MaeLinda\_52, Martin\_53, MrWorldwide\_52, Oxtober96\_53, Papafritta\_51, Peep\_52, Raptor\_52, Robinson\_52, Rog141\_51, RosieMae\_53, ShaiHulud\_53, Superfresh\_52, Symere\_53, Teagan\_52, Thompsone\_52,

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

- Agente005\_52, Anilorac\_52, Balsa\_50, BeeBee8\_52, Endor\_53, Etna\_51, FarmerDoug\_51, GardenB\_52, Hamlet\_51, Jenos\_54, Leafus\_51, McGalleon\_53, MonChoix\_49, Peppino\_51, Raccoon\_51, Redfield\_51, Schnapsidee\_51, Stormbreaker8\_50,

### Summary by start number:

Start 2:

- Found in 104 of 122 ( 85.2% ) of genes in pham
- Manual Annotations of this start: 69 of 115
- Called 66.3% of time when present
- Phage (with cluster) where this start called: AlexAdler\_52 (EA1), Alyxandracam\_52 (EA1), Antoinette\_52 (EA1), AranulaLuti\_51 (EA1), Aubergine\_51 (EA1), Bandik\_52 (EA1), BigRedClifford\_52 (EA1), Blage\_52 (EA1), BonesMcCoy\_52 (EA1), Bonino\_51 (EA1), Byron23\_53 (EA1), Calix\_51 (EA1), Chako\_51 (EA1), Chamuel\_51 (EA1), Christoph\_51 (EA1), Clancy\_51 (EA1), Convict\_52 (EA1), Dave\_52 (EA1), Den3\_52 (EA1), Erla\_51 (EA1), Espinosa\_51 (EA1), Etta\_51 (EA1), Exploradora\_51 (EA1), Garey24\_52 (EA1), Gelo\_51 (EA1), Gershwin\_51 (EA1), Greys\_52 (EA1), Gubbabump\_51 (EA1), HankSprout\_52 (EA1), Inventa\_52 (EA1), Ioannes\_52 (EA1), Janus167\_51 (EA1), Klimt\_52 (EA1), Knox\_52 (EA1), Lovelyunicorn\_52 (EA1), Ludgate\_52 (EA1), ManRay\_51 (EA1), MillyPhilly\_52 (EA1), Nagem\_52 (EA1), Nattles\_51 (EA1), NickSell\_52 (EA1), Oats\_51 (EA1), ParleG\_52 (EA1), Pherferi\_52 (EA1), Phiderman\_52 (EA1), Phireproof\_52 (EA1), PhredFlintston\_52 (EA1), Pocket\_51 (EA1), PuppyEggo\_52 (EA1), Rapheph\_52 (EA1), Renzie\_52 (EA1), Rihhil\_52 (EA1), SJay\_52 (EA1), Sedgewig\_51 (EA1), Shee\_52 (EA1), SonOfLevi\_52

(EA1), Stanktossa\_51 (EA1), StingRay\_51 (EA1), StirfryIV\_51 (EA1), Strathdee\_52 (EA1), TatarkaPM\_52 (EA1), TeddyBear\_51 (EA1), Tenda\_51 (EA1), Thorongil\_52 (EA1), TinSulphur\_53 (EA1), Velene\_52 (EA1), Vispistious\_52 (EA1), WildNOut\_52 (EA1), Winzigespinne\_51 (EA1),

Start 3:

- Found in 122 of 122 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 46 of 115
- Called 43.4% of time when present
- Phage (with cluster) where this start called: Acosta\_54 (EA1), Agente005\_52 (EA1), Anilorac\_52 (EA1), Asta\_51 (EA1), AxiPup\_52 (EA1), Baines\_51 (EA1), Balsa\_50 (EA1), BeautPeep30\_52 (EA1), BeeBee8\_52 (EA1), Benjalauren\_52 (EA1), Dothraki\_52 (EA1), Duocatuli\_51 (EA1), Endor\_53 (EA1), Etna\_51 (EA1), FarmerDoug\_51 (EA1), Figueroism\_52 (EA1), GardenB\_52 (EA1), Gargoyle\_52 (EA1), Hamlet\_51 (EA1), HanSolo\_51 (EA1), HungryHenry\_51 (EA1), Ilzat\_51 (EA1), JasonD\_55 (EA1), JasperRussell\_51 (EA1), Jenos\_54 (EA1), Jerbirus\_53 (EA1), JeriBeth\_53 (EA1), Kale\_51 (EA1), KannH\_51 (EA1), Kurt1\_52 (EA1), Leafus\_51 (EA1), MaeLinda\_52 (EA1), Martin\_53 (EA1), McGalleon\_53 (EA1), MonChoix\_49 (EA1), MrWorldwide\_52 (EA1), Oxtober96\_53 (EA1), Papafritta\_51 (EA1), Peep\_52 (EA1), Peppino\_51 (EA1), Raccoon\_51 (EA1), Raptor\_52 (EA1), Redfield\_51 (EA1), Robinson\_52 (EA1), Rog141\_51 (EA1), RosieMae\_53 (EA1), Schnapsidee\_51 (EA1), ShaiHulud\_53 (EA1), Stormbreaker8\_50 (EA1), Superfresh\_52 (EA1), Symere\_53 (EA1), Teagan\_52 (EA1), Thompsone\_52 (EA1),

### Summary by clusters:

There is one cluster represented in this pham: EA1

Info for manual annotations of cluster EA1:

- Start number 2 was manually annotated 69 times for cluster EA1.
- Start number 3 was manually annotated 46 times for cluster EA1.

### Gene Information:

Gene: Acosta\_54 Start: 37147, Stop: 36935, Start Num: 3

Candidate Starts for Acosta\_54:

(Start: 2 @37165 has 69 MA's), (Start: 3 @37147 has 46 MA's), (5, 37090),

Gene: Agente005\_52 Start: 37041, Stop: 36820, Start Num: 3

Candidate Starts for Agente005\_52:

(Start: 3 @37041 has 46 MA's), (4, 36996), (5, 36975),

Gene: AlexAdler\_52 Start: 37010, Stop: 36777, Start Num: 2

Candidate Starts for AlexAdler\_52:

(Start: 2 @37010 has 69 MA's), (Start: 3 @36992 has 46 MA's), (4, 36953), (5, 36932), (6, 36854),

Gene: Alyxandracam\_52 Start: 37017, Stop: 36787, Start Num: 2

Candidate Starts for Alyxandracam\_52:

(Start: 2 @37017 has 69 MA's), (Start: 3 @36999 has 46 MA's), (4, 36960), (5, 36939),

Gene: Anilorac\_52 Start: 36999, Stop: 36760, Start Num: 3

Candidate Starts for Anilorac\_52:

(Start: 3 @36999 has 46 MA's), (5, 36930), (8, 36819),

Gene: Antoinette\_52 Start: 37007, Stop: 36777, Start Num: 2

Candidate Starts for Antoinette\_52:

(Start: 2 @37007 has 69 MA's), (Start: 3 @36989 has 46 MA's), (4, 36950), (5, 36929), (9, 36815),

Gene: AranulaLuti\_51 Start: 36722, Stop: 36489, Start Num: 2

Candidate Starts for AranulaLuti\_51:

(Start: 2 @36722 has 69 MA's), (Start: 3 @36704 has 46 MA's), (4, 36665), (5, 36644), (6, 36566),

Gene: Asta\_51 Start: 36714, Stop: 36499, Start Num: 3

Candidate Starts for Asta\_51:

(Start: 2 @36732 has 69 MA's), (Start: 3 @36714 has 46 MA's), (4, 36675), (5, 36654), (6, 36576),

Gene: Aubergine\_51 Start: 36732, Stop: 36499, Start Num: 2

Candidate Starts for Aubergine\_51:

(Start: 2 @36732 has 69 MA's), (Start: 3 @36714 has 46 MA's), (4, 36675), (5, 36654), (6, 36576),

Gene: AxiPup\_52 Start: 36968, Stop: 36756, Start Num: 3

Candidate Starts for AxiPup\_52:

(Start: 2 @36986 has 69 MA's), (Start: 3 @36968 has 46 MA's), (4, 36929), (5, 36908),

Gene: Baines\_51 Start: 36707, Stop: 36492, Start Num: 3

Candidate Starts for Baines\_51:

(Start: 2 @36725 has 69 MA's), (Start: 3 @36707 has 46 MA's), (4, 36668), (5, 36647), (6, 36569),

Gene: Balsa\_50 Start: 36805, Stop: 36584, Start Num: 3

Candidate Starts for Balsa\_50:

(Start: 3 @36805 has 46 MA's), (4, 36760), (5, 36739),

Gene: Bandik\_52 Start: 37012, Stop: 36782, Start Num: 2

Candidate Starts for Bandik\_52:

(Start: 2 @37012 has 69 MA's), (Start: 3 @36994 has 46 MA's), (4, 36955), (5, 36934),

Gene: BeautPeep30\_52 Start: 37000, Stop: 36788, Start Num: 3

Candidate Starts for BeautPeep30\_52:

(Start: 2 @37018 has 69 MA's), (Start: 3 @37000 has 46 MA's), (4, 36961), (5, 36940),

Gene: BeeBee8\_52 Start: 36985, Stop: 36755, Start Num: 3

Candidate Starts for BeeBee8\_52:

(Start: 3 @36985 has 46 MA's), (5, 36916), (8, 36805),

Gene: Benjalauren\_52 Start: 36720, Stop: 36505, Start Num: 3

Candidate Starts for Benjalauren\_52:

(Start: 2 @36738 has 69 MA's), (Start: 3 @36720 has 46 MA's), (4, 36681), (5, 36660), (6, 36582),

Gene: BigRedClifford\_52 Start: 37013, Stop: 36783, Start Num: 2

Candidate Starts for BigRedClifford\_52:

(Start: 2 @37013 has 69 MA's), (Start: 3 @36995 has 46 MA's), (4, 36956), (5, 36935),

Gene: Blage\_52 Start: 37013, Stop: 36783, Start Num: 2

Candidate Starts for Blage\_52:

(Start: 2 @37013 has 69 MA's), (Start: 3 @36995 has 46 MA's), (4, 36956), (5, 36935),

Gene: BonesMcCoy\_52 Start: 37013, Stop: 36783, Start Num: 2

Candidate Starts for BonesMcCoy\_52:

(Start: 2 @37013 has 69 MA's), (Start: 3 @36995 has 46 MA's), (4, 36956), (5, 36935),

Gene: Bonino\_51 Start: 36711, Stop: 36478, Start Num: 2

Candidate Starts for Bonino\_51:

(Start: 2 @36711 has 69 MA's), (Start: 3 @36693 has 46 MA's), (4, 36654), (5, 36633), (6, 36555),

Gene: Byron23\_53 Start: 37015, Stop: 36785, Start Num: 2

Candidate Starts for Byron23\_53:

(Start: 2 @37015 has 69 MA's), (Start: 3 @36997 has 46 MA's), (4, 36958), (5, 36937),

Gene: Calix\_51 Start: 36718, Stop: 36485, Start Num: 2

Candidate Starts for Calix\_51:

(Start: 2 @36718 has 69 MA's), (Start: 3 @36700 has 46 MA's), (4, 36661), (5, 36640), (6, 36562),

Gene: Chako\_51 Start: 36722, Stop: 36489, Start Num: 2

Candidate Starts for Chako\_51:

(Start: 2 @36722 has 69 MA's), (Start: 3 @36704 has 46 MA's), (4, 36665), (5, 36644), (6, 36566),

Gene: Chamuel\_51 Start: 36744, Stop: 36511, Start Num: 2

Candidate Starts for Chamuel\_51:

(Start: 2 @36744 has 69 MA's), (Start: 3 @36726 has 46 MA's), (4, 36687), (5, 36666), (6, 36588),

Gene: Christoph\_51 Start: 36731, Stop: 36498, Start Num: 2

Candidate Starts for Christoph\_51:

(Start: 2 @36731 has 69 MA's), (Start: 3 @36713 has 46 MA's), (4, 36674), (5, 36653), (6, 36575),

Gene: Clancy\_51 Start: 36764, Stop: 36534, Start Num: 2

Candidate Starts for Clancy\_51:

(Start: 2 @36764 has 69 MA's), (Start: 3 @36746 has 46 MA's), (4, 36707), (5, 36686),

Gene: Convict\_52 Start: 37013, Stop: 36783, Start Num: 2

Candidate Starts for Convict\_52:

(Start: 2 @37013 has 69 MA's), (Start: 3 @36995 has 46 MA's), (4, 36956), (5, 36935),

Gene: Dave\_52 Start: 37007, Stop: 36777, Start Num: 2

Candidate Starts for Dave\_52:

(Start: 2 @37007 has 69 MA's), (Start: 3 @36989 has 46 MA's), (4, 36950), (5, 36929), (9, 36815),

Gene: Den3\_52 Start: 37018, Stop: 36788, Start Num: 2

Candidate Starts for Den3\_52:

(Start: 2 @37018 has 69 MA's), (Start: 3 @37000 has 46 MA's), (4, 36961), (5, 36940),

Gene: Dothraki\_52 Start: 36997, Stop: 36785, Start Num: 3

Candidate Starts for Dothraki\_52:

(Start: 2 @37015 has 69 MA's), (Start: 3 @36997 has 46 MA's), (4, 36958), (5, 36937), (6, 36859),

Gene: Duocatuli\_51 Start: 36704, Stop: 36489, Start Num: 3

Candidate Starts for Duocatuli\_51:

(Start: 2 @36722 has 69 MA's), (Start: 3 @36704 has 46 MA's), (4, 36665), (5, 36644), (6, 36566),

Gene: Endor\_53 Start: 37239, Stop: 37024, Start Num: 3  
Candidate Starts for Endor\_53:  
(Start: 3 @37239 has 46 MA's), (4, 37200), (5, 37179), (7, 37080),

Gene: Erla\_51 Start: 36715, Stop: 36482, Start Num: 2  
Candidate Starts for Erla\_51:  
(Start: 2 @36715 has 69 MA's), (Start: 3 @36697 has 46 MA's), (4, 36658), (5, 36637), (6, 36559),

Gene: Espinosa\_51 Start: 36730, Stop: 36497, Start Num: 2  
Candidate Starts for Espinosa\_51:  
(Start: 2 @36730 has 69 MA's), (Start: 3 @36712 has 46 MA's), (4, 36673), (5, 36652), (6, 36574),

Gene: Etna\_51 Start: 36852, Stop: 36631, Start Num: 3  
Candidate Starts for Etna\_51:  
(Start: 3 @36852 has 46 MA's), (4, 36807), (5, 36786),

Gene: Etta\_51 Start: 36719, Stop: 36486, Start Num: 2  
Candidate Starts for Etta\_51:  
(Start: 2 @36719 has 69 MA's), (Start: 3 @36701 has 46 MA's), (4, 36662), (5, 36641), (6, 36563),

Gene: Exploradora\_51 Start: 36719, Stop: 36489, Start Num: 2  
Candidate Starts for Exploradora\_51:  
(Start: 2 @36719 has 69 MA's), (Start: 3 @36701 has 46 MA's), (4, 36662), (5, 36641),

Gene: FarmerDoug\_51 Start: 36768, Stop: 36529, Start Num: 3  
Candidate Starts for FarmerDoug\_51:  
(Start: 3 @36768 has 46 MA's), (5, 36699), (8, 36588),

Gene: Figueroism\_52 Start: 36991, Stop: 36776, Start Num: 3  
Candidate Starts for Figueroism\_52:  
(Start: 2 @37009 has 69 MA's), (Start: 3 @36991 has 46 MA's), (4, 36952), (5, 36931), (6, 36853),

Gene: GardenB\_52 Start: 37010, Stop: 36783, Start Num: 3  
Candidate Starts for GardenB\_52:  
(Start: 3 @37010 has 46 MA's), (4, 36959), (5, 36938),

Gene: Garey24\_52 Start: 36698, Stop: 36465, Start Num: 2  
Candidate Starts for Garey24\_52:  
(Start: 2 @36698 has 69 MA's), (Start: 3 @36680 has 46 MA's), (4, 36641), (5, 36620), (6, 36542),

Gene: Gargoyle\_52 Start: 37000, Stop: 36788, Start Num: 3  
Candidate Starts for Gargoyle\_52:  
(Start: 2 @37018 has 69 MA's), (Start: 3 @37000 has 46 MA's), (4, 36961), (5, 36940),

Gene: Gelo\_51 Start: 36725, Stop: 36492, Start Num: 2  
Candidate Starts for Gelo\_51:  
(Start: 2 @36725 has 69 MA's), (Start: 3 @36707 has 46 MA's), (4, 36668), (5, 36647), (6, 36569),

Gene: Gershwin\_51 Start: 36732, Stop: 36499, Start Num: 2  
Candidate Starts for Gershwin\_51:  
(Start: 2 @36732 has 69 MA's), (Start: 3 @36714 has 46 MA's), (4, 36675), (5, 36654), (6, 36576),

Gene: Greys\_52 Start: 37014, Stop: 36784, Start Num: 2

Candidate Starts for Greys\_52:

(Start: 2 @37014 has 69 MA's), (Start: 3 @36996 has 46 MA's), (4, 36957), (5, 36936),

Gene: Gubbabump\_51 Start: 36709, Stop: 36479, Start Num: 2

Candidate Starts for Gubbabump\_51:

(Start: 2 @36709 has 69 MA's), (Start: 3 @36691 has 46 MA's), (4, 36652), (5, 36631),

Gene: Hamlet\_51 Start: 36797, Stop: 36576, Start Num: 3

Candidate Starts for Hamlet\_51:

(Start: 3 @36797 has 46 MA's), (4, 36752), (5, 36731),

Gene: HanSolo\_51 Start: 36701, Stop: 36489, Start Num: 3

Candidate Starts for HanSolo\_51:

(Start: 2 @36719 has 69 MA's), (Start: 3 @36701 has 46 MA's), (4, 36662), (5, 36641),

Gene: HankSprout\_52 Start: 36599, Stop: 36366, Start Num: 2

Candidate Starts for HankSprout\_52:

(Start: 2 @36599 has 69 MA's), (Start: 3 @36581 has 46 MA's), (4, 36542), (5, 36521), (6, 36443),

Gene: HungryHenry\_51 Start: 36706, Stop: 36494, Start Num: 3

Candidate Starts for HungryHenry\_51:

(Start: 2 @36724 has 69 MA's), (Start: 3 @36706 has 46 MA's), (4, 36667), (5, 36646),

Gene: Ilzat\_51 Start: 36717, Stop: 36505, Start Num: 3

Candidate Starts for Ilzat\_51:

(Start: 2 @36735 has 69 MA's), (Start: 3 @36717 has 46 MA's), (4, 36678), (5, 36657),

Gene: Inventa\_52 Start: 37012, Stop: 36782, Start Num: 2

Candidate Starts for Inventa\_52:

(Start: 2 @37012 has 69 MA's), (Start: 3 @36994 has 46 MA's), (4, 36955), (5, 36934),

Gene: Ioannes\_52 Start: 37016, Stop: 36786, Start Num: 2

Candidate Starts for Ioannes\_52:

(Start: 2 @37016 has 69 MA's), (Start: 3 @36998 has 46 MA's), (4, 36959), (5, 36938),

Gene: Janus167\_51 Start: 36746, Stop: 36516, Start Num: 2

Candidate Starts for Janus167\_51:

(Start: 2 @36746 has 69 MA's), (Start: 3 @36728 has 46 MA's), (4, 36689), (5, 36668),

Gene: JasonD\_55 Start: 36928, Stop: 36716, Start Num: 3

Candidate Starts for JasonD\_55:

(Start: 2 @36946 has 69 MA's), (Start: 3 @36928 has 46 MA's), (5, 36871),

Gene: JasperRussell\_51 Start: 36704, Stop: 36489, Start Num: 3

Candidate Starts for JasperRussell\_51:

(Start: 2 @36722 has 69 MA's), (Start: 3 @36704 has 46 MA's), (4, 36665), (5, 36644), (6, 36566),

Gene: Jenos\_54 Start: 37661, Stop: 37449, Start Num: 3

Candidate Starts for Jenos\_54:

(Start: 3 @37661 has 46 MA's), (5, 37604),

Gene: Jerbirus\_53 Start: 36704, Stop: 36489, Start Num: 3



Candidate Starts for Jerbirus\_53:

(Start: 2 @36722 has 69 MA's), (Start: 3 @36704 has 46 MA's), (4, 36665), (5, 36644), (6, 36566),

Gene: JeriBeth\_53 Start: 36564, Stop: 36352, Start Num: 3

Candidate Starts for JeriBeth\_53:

(Start: 2 @36582 has 69 MA's), (Start: 3 @36564 has 46 MA's), (4, 36525), (5, 36504), (9, 36390),

Gene: Kale\_51 Start: 36716, Stop: 36501, Start Num: 3

Candidate Starts for Kale\_51:

(Start: 2 @36734 has 69 MA's), (Start: 3 @36716 has 46 MA's), (4, 36677), (5, 36656), (6, 36578),

Gene: KannH\_51 Start: 36704, Stop: 36489, Start Num: 3

Candidate Starts for KannH\_51:

(Start: 2 @36722 has 69 MA's), (Start: 3 @36704 has 46 MA's), (4, 36665), (5, 36644), (6, 36566),

Gene: Klimt\_52 Start: 36750, Stop: 36517, Start Num: 2

Candidate Starts for Klimt\_52:

(Start: 2 @36750 has 69 MA's), (Start: 3 @36732 has 46 MA's), (4, 36693), (5, 36672), (6, 36594),

Gene: Knox\_52 Start: 37013, Stop: 36783, Start Num: 2

Candidate Starts for Knox\_52:

(Start: 2 @37013 has 69 MA's), (Start: 3 @36995 has 46 MA's), (4, 36956), (5, 36935),

Gene: Kurt1\_52 Start: 36994, Stop: 36782, Start Num: 3

Candidate Starts for Kurt1\_52:

(Start: 2 @37012 has 69 MA's), (Start: 3 @36994 has 46 MA's), (4, 36955), (5, 36934),

Gene: Leafus\_51 Start: 36951, Stop: 36730, Start Num: 3

Candidate Starts for Leafus\_51:

(1, 37032), (Start: 3 @36951 has 46 MA's), (4, 36906), (5, 36885),

Gene: Lovelyunicorn\_52 Start: 37014, Stop: 36784, Start Num: 2

Candidate Starts for Lovelyunicorn\_52:

(Start: 2 @37014 has 69 MA's), (Start: 3 @36996 has 46 MA's), (4, 36957), (5, 36936),

Gene: Ludgate\_52 Start: 37015, Stop: 36785, Start Num: 2

Candidate Starts for Ludgate\_52:

(Start: 2 @37015 has 69 MA's), (Start: 3 @36997 has 46 MA's), (4, 36958), (5, 36937),

Gene: MaeLinda\_52 Start: 36998, Stop: 36786, Start Num: 3

Candidate Starts for MaeLinda\_52:

(Start: 2 @37016 has 69 MA's), (Start: 3 @36998 has 46 MA's), (4, 36959), (5, 36938),

Gene: ManRay\_51 Start: 36732, Stop: 36499, Start Num: 2

Candidate Starts for ManRay\_51:

(Start: 2 @36732 has 69 MA's), (Start: 3 @36714 has 46 MA's), (4, 36675), (5, 36654), (6, 36576),

Gene: Martin\_53 Start: 37003, Stop: 36791, Start Num: 3

Candidate Starts for Martin\_53:

(Start: 2 @37021 has 69 MA's), (Start: 3 @37003 has 46 MA's), (4, 36964), (5, 36943),

Gene: McGalleon\_53 Start: 37799, Stop: 37587, Start Num: 3

Candidate Starts for McGalleon\_53:

(Start: 3 @37799 has 46 MA's), (5, 37742),

Gene: MillyPhilly\_52 Start: 37009, Stop: 36779, Start Num: 2

Candidate Starts for MillyPhilly\_52:

(Start: 2 @37009 has 69 MA's), (Start: 3 @36991 has 46 MA's), (4, 36952), (5, 36931),

Gene: MonChoix\_49 Start: 36614, Stop: 36375, Start Num: 3

Candidate Starts for MonChoix\_49:

(Start: 3 @36614 has 46 MA's), (5, 36545), (8, 36434),

Gene: MrWorldwide\_52 Start: 37001, Stop: 36789, Start Num: 3

Candidate Starts for MrWorldwide\_52:

(Start: 2 @37019 has 69 MA's), (Start: 3 @37001 has 46 MA's), (4, 36962), (5, 36941),

Gene: Nagem\_52 Start: 37015, Stop: 36782, Start Num: 2

Candidate Starts for Nagem\_52:

(Start: 2 @37015 has 69 MA's), (Start: 3 @36997 has 46 MA's), (4, 36958), (5, 36937), (6, 36859),

Gene: Nattles\_51 Start: 36719, Stop: 36486, Start Num: 2

Candidate Starts for Nattles\_51:

(Start: 2 @36719 has 69 MA's), (Start: 3 @36701 has 46 MA's), (4, 36662), (5, 36641), (6, 36563),

Gene: NickSell\_52 Start: 37022, Stop: 36792, Start Num: 2

Candidate Starts for NickSell\_52:

(Start: 2 @37022 has 69 MA's), (Start: 3 @37004 has 46 MA's), (4, 36965), (5, 36944),

Gene: Oats\_51 Start: 36732, Stop: 36499, Start Num: 2

Candidate Starts for Oats\_51:

(Start: 2 @36732 has 69 MA's), (Start: 3 @36714 has 46 MA's), (4, 36675), (5, 36654), (6, 36576),

Gene: Oxtober96\_53 Start: 36996, Stop: 36784, Start Num: 3

Candidate Starts for Oxtober96\_53:

(Start: 2 @37014 has 69 MA's), (Start: 3 @36996 has 46 MA's), (4, 36957), (5, 36936),

Gene: Papafritta\_51 Start: 36752, Stop: 36540, Start Num: 3

Candidate Starts for Papafritta\_51:

(Start: 2 @36770 has 69 MA's), (Start: 3 @36752 has 46 MA's), (4, 36713), (5, 36692),

Gene: ParleG\_52 Start: 37019, Stop: 36789, Start Num: 2

Candidate Starts for ParleG\_52:

(Start: 2 @37019 has 69 MA's), (Start: 3 @37001 has 46 MA's), (4, 36962), (5, 36941),

Gene: Peep\_52 Start: 36986, Stop: 36774, Start Num: 3

Candidate Starts for Peep\_52:

(Start: 2 @37004 has 69 MA's), (Start: 3 @36986 has 46 MA's), (4, 36947), (5, 36926), (9, 36812),

Gene: Peppino\_51 Start: 36791, Stop: 36576, Start Num: 3

Candidate Starts for Peppino\_51:

(Start: 3 @36791 has 46 MA's), (4, 36752), (5, 36731),

Gene: Pherferi\_52 Start: 37012, Stop: 36782, Start Num: 2

Candidate Starts for Pherferi\_52:

(Start: 2 @37012 has 69 MA's), (Start: 3 @36994 has 46 MA's), (4, 36955), (5, 36934),

Gene: Phiderman\_52 Start: 37009, Stop: 36779, Start Num: 2

Candidate Starts for Phiderman\_52:

(Start: 2 @37009 has 69 MA's), (Start: 3 @36991 has 46 MA's), (4, 36952), (5, 36931),

Gene: Phireproof\_52 Start: 37018, Stop: 36788, Start Num: 2

Candidate Starts for Phireproof\_52:

(Start: 2 @37018 has 69 MA's), (Start: 3 @37000 has 46 MA's), (4, 36961), (5, 36940),

Gene: PhredFlintston\_52 Start: 37012, Stop: 36782, Start Num: 2

Candidate Starts for PhredFlintston\_52:

(Start: 2 @37012 has 69 MA's), (Start: 3 @36994 has 46 MA's), (4, 36955), (5, 36934),

Gene: Pocket\_51 Start: 36759, Stop: 36526, Start Num: 2

Candidate Starts for Pocket\_51:

(Start: 2 @36759 has 69 MA's), (Start: 3 @36741 has 46 MA's), (4, 36702), (5, 36681), (6, 36603),

Gene: PuppyEggo\_52 Start: 37019, Stop: 36789, Start Num: 2

Candidate Starts for PuppyEggo\_52:

(Start: 2 @37019 has 69 MA's), (Start: 3 @37001 has 46 MA's), (4, 36962), (5, 36941),

Gene: Raccoon\_51 Start: 36754, Stop: 36533, Start Num: 3

Candidate Starts for Raccoon\_51:

(Start: 3 @36754 has 46 MA's), (4, 36709), (5, 36688),

Gene: Rapheph\_52 Start: 37012, Stop: 36782, Start Num: 2

Candidate Starts for Rapheph\_52:

(Start: 2 @37012 has 69 MA's), (Start: 3 @36994 has 46 MA's), (4, 36955), (5, 36934),

Gene: Raptor\_52 Start: 36998, Stop: 36786, Start Num: 3

Candidate Starts for Raptor\_52:

(Start: 2 @37016 has 69 MA's), (Start: 3 @36998 has 46 MA's), (4, 36959), (5, 36938),

Gene: Redfield\_51 Start: 36799, Stop: 36584, Start Num: 3

Candidate Starts for Redfield\_51:

(Start: 3 @36799 has 46 MA's), (4, 36760), (5, 36739),

Gene: Renzie\_52 Start: 37007, Stop: 36777, Start Num: 2

Candidate Starts for Renzie\_52:

(Start: 2 @37007 has 69 MA's), (Start: 3 @36989 has 46 MA's), (4, 36950), (5, 36929), (9, 36815),

Gene: Riyhil\_52 Start: 37022, Stop: 36792, Start Num: 2

Candidate Starts for Riyhil\_52:

(Start: 2 @37022 has 69 MA's), (Start: 3 @37004 has 46 MA's), (4, 36965), (5, 36944),

Gene: Robinson\_52 Start: 36992, Stop: 36780, Start Num: 3

Candidate Starts for Robinson\_52:

(Start: 2 @37010 has 69 MA's), (Start: 3 @36992 has 46 MA's), (4, 36953), (5, 36932),

Gene: Rog141\_51 Start: 36704, Stop: 36489, Start Num: 3

Candidate Starts for Rog141\_51:

(Start: 2 @36722 has 69 MA's), (Start: 3 @36704 has 46 MA's), (4, 36665), (5, 36644), (6, 36566),

Gene: RosieMae\_53 Start: 36759, Stop: 36544, Start Num: 3  
Candidate Starts for RosieMae\_53:  
(Start: 2 @36777 has 69 MA's), (Start: 3 @36759 has 46 MA's), (4, 36720), (5, 36699), (6, 36621),

Gene: SJay\_52 Start: 37016, Stop: 36783, Start Num: 2  
Candidate Starts for SJay\_52:  
(Start: 2 @37016 has 69 MA's), (Start: 3 @36998 has 46 MA's), (4, 36959), (5, 36938), (6, 36860),

Gene: Schnapsidee\_51 Start: 36828, Stop: 36589, Start Num: 3  
Candidate Starts for Schnapsidee\_51:  
(Start: 3 @36828 has 46 MA's), (5, 36759), (8, 36648),

Gene: Sedgewig\_51 Start: 36717, Stop: 36487, Start Num: 2  
Candidate Starts for Sedgewig\_51:  
(Start: 2 @36717 has 69 MA's), (Start: 3 @36699 has 46 MA's), (4, 36660), (5, 36639),

Gene: ShaiHulud\_53 Start: 37010, Stop: 36798, Start Num: 3  
Candidate Starts for ShaiHulud\_53:  
(Start: 2 @37028 has 69 MA's), (Start: 3 @37010 has 46 MA's), (4, 36971), (5, 36950),

Gene: Shee\_52 Start: 37009, Stop: 36779, Start Num: 2  
Candidate Starts for Shee\_52:  
(Start: 2 @37009 has 69 MA's), (Start: 3 @36991 has 46 MA's), (4, 36952), (5, 36931),

Gene: SonOfLevi\_52 Start: 36750, Stop: 36517, Start Num: 2  
Candidate Starts for SonOfLevi\_52:  
(Start: 2 @36750 has 69 MA's), (Start: 3 @36732 has 46 MA's), (4, 36693), (5, 36672), (6, 36594),

Gene: Stanktossa\_51 Start: 37012, Stop: 36782, Start Num: 2  
Candidate Starts for Stanktossa\_51:  
(Start: 2 @37012 has 69 MA's), (Start: 3 @36994 has 46 MA's), (4, 36955), (5, 36934), (6, 36856),

Gene: StingRay\_51 Start: 36733, Stop: 36503, Start Num: 2  
Candidate Starts for StingRay\_51:  
(Start: 2 @36733 has 69 MA's), (Start: 3 @36715 has 46 MA's), (4, 36676), (5, 36655),

Gene: StirfryIV\_51 Start: 36728, Stop: 36498, Start Num: 2  
Candidate Starts for StirfryIV\_51:  
(Start: 2 @36728 has 69 MA's), (Start: 3 @36710 has 46 MA's), (4, 36671), (5, 36650),

Gene: Stormbreaker8\_50 Start: 36689, Stop: 36468, Start Num: 3  
Candidate Starts for Stormbreaker8\_50:  
(Start: 3 @36689 has 46 MA's), (4, 36644), (5, 36623),

Gene: Strathdee\_52 Start: 37018, Stop: 36788, Start Num: 2  
Candidate Starts for Strathdee\_52:  
(Start: 2 @37018 has 69 MA's), (Start: 3 @37000 has 46 MA's), (4, 36961), (5, 36940),

Gene: Superfresh\_52 Start: 36989, Stop: 36777, Start Num: 3  
Candidate Starts for Superfresh\_52:  
(Start: 2 @37007 has 69 MA's), (Start: 3 @36989 has 46 MA's), (4, 36950), (5, 36929), (9, 36815),

Gene: Symere\_53 Start: 36709, Stop: 36497, Start Num: 3

Candidate Starts for Symere\_53:

(Start: 2 @36727 has 69 MA's), (Start: 3 @36709 has 46 MA's), (4, 36670), (5, 36649),

Gene: TatarkaPM\_52 Start: 37022, Stop: 36792, Start Num: 2

Candidate Starts for TatarkaPM\_52:

(Start: 2 @37022 has 69 MA's), (Start: 3 @37004 has 46 MA's), (4, 36965), (5, 36944),

Gene: Teagan\_52 Start: 36991, Stop: 36779, Start Num: 3

Candidate Starts for Teagan\_52:

(Start: 2 @37009 has 69 MA's), (Start: 3 @36991 has 46 MA's), (4, 36952), (5, 36931),

Gene: TeddyBear\_51 Start: 36732, Stop: 36499, Start Num: 2

Candidate Starts for TeddyBear\_51:

(Start: 2 @36732 has 69 MA's), (Start: 3 @36714 has 46 MA's), (4, 36675), (5, 36654), (6, 36576),

Gene: Tenda\_51 Start: 36730, Stop: 36497, Start Num: 2

Candidate Starts for Tenda\_51:

(Start: 2 @36730 has 69 MA's), (Start: 3 @36712 has 46 MA's), (4, 36673), (5, 36652), (6, 36574),

Gene: Thompsone\_52 Start: 36998, Stop: 36786, Start Num: 3

Candidate Starts for Thompsone\_52:

(Start: 2 @37016 has 69 MA's), (Start: 3 @36998 has 46 MA's), (4, 36959), (5, 36938),

Gene: Thorongil\_52 Start: 36533, Stop: 36303, Start Num: 2

Candidate Starts for Thorongil\_52:

(Start: 2 @36533 has 69 MA's), (Start: 3 @36515 has 46 MA's), (4, 36476), (5, 36455),

Gene: TinSulphur\_53 Start: 37018, Stop: 36788, Start Num: 2

Candidate Starts for TinSulphur\_53:

(Start: 2 @37018 has 69 MA's), (Start: 3 @37000 has 46 MA's), (4, 36961), (5, 36940),

Gene: Velene\_52 Start: 37014, Stop: 36784, Start Num: 2

Candidate Starts for Velene\_52:

(Start: 2 @37014 has 69 MA's), (Start: 3 @36996 has 46 MA's), (4, 36957), (5, 36936),

Gene: Vispistious\_52 Start: 37019, Stop: 36789, Start Num: 2

Candidate Starts for Vispistious\_52:

(Start: 2 @37019 has 69 MA's), (Start: 3 @37001 has 46 MA's), (4, 36962), (5, 36941),

Gene: WildNOut\_52 Start: 37012, Stop: 36782, Start Num: 2

Candidate Starts for WildNOut\_52:

(Start: 2 @37012 has 69 MA's), (Start: 3 @36994 has 46 MA's), (4, 36955), (5, 36934),

Gene: Winzigespinne\_51 Start: 36718, Stop: 36485, Start Num: 2

Candidate Starts for Winzigespinne\_51:

(Start: 2 @36718 has 69 MA's), (Start: 3 @36700 has 46 MA's), (4, 36661), (5, 36640), (6, 36562),