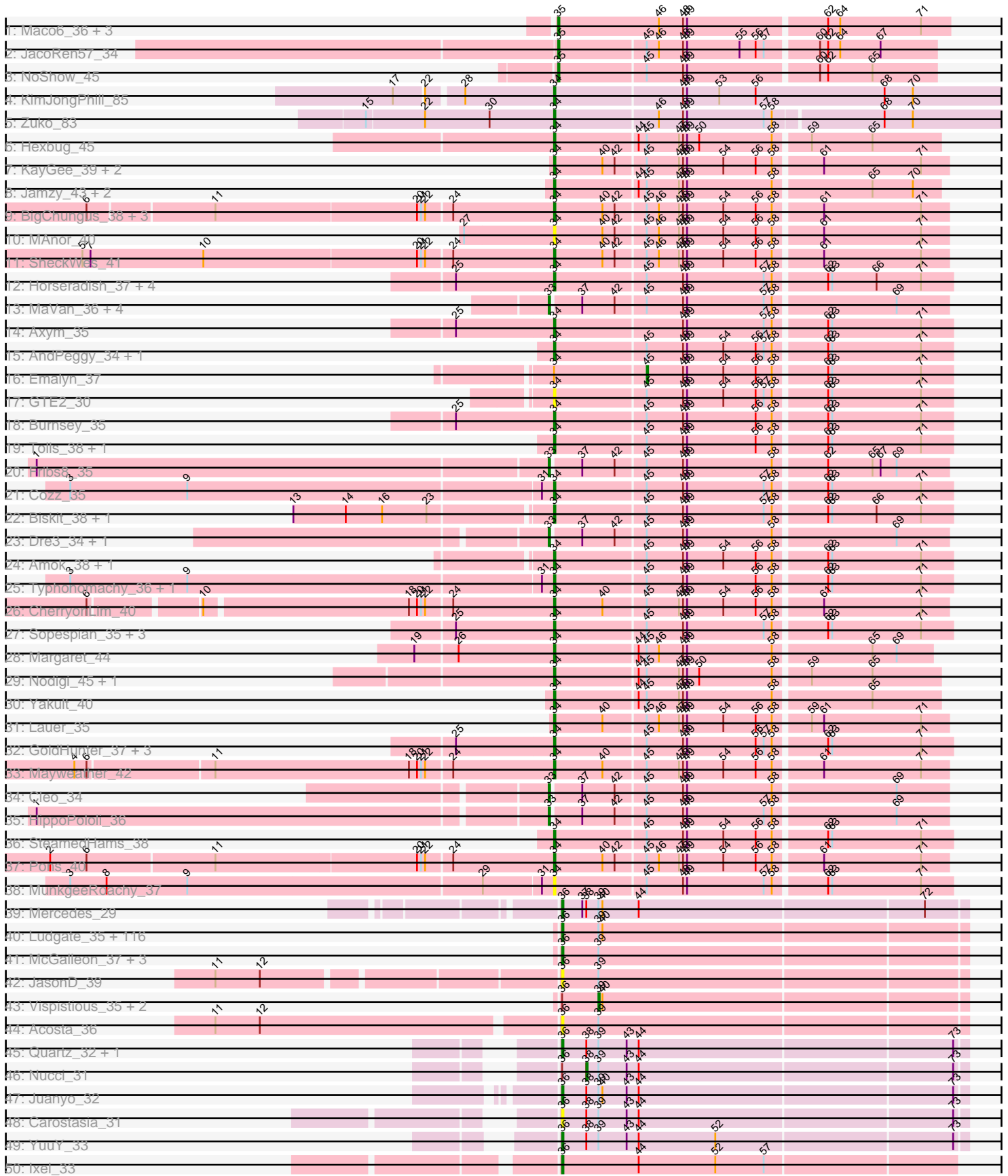
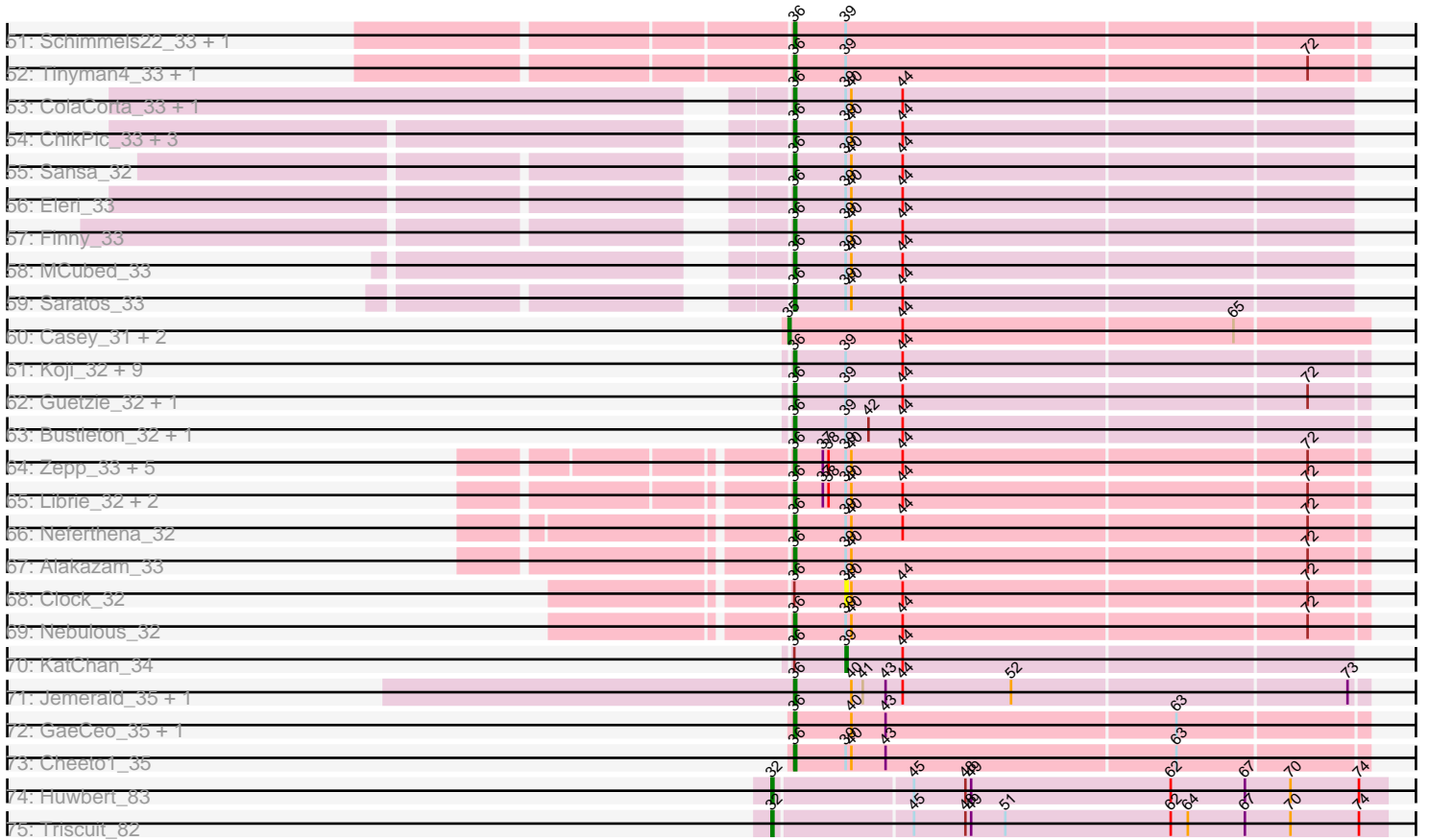


Pham 166424





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 166424 Report

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

Pham number 166424 has 256 members, 31 are drafts.

Phages represented in each track:

- Track 1 : Maco6\_36, FF47\_37, 8UZL\_38, Muddy\_38
- Track 2 : JacoRen57\_34
- Track 3 : NoShow\_45
- Track 4 : KimJongPhill\_85
- Track 5 : Zuko\_83
- Track 6 : Hexbug\_45
- Track 7 : KayGee\_39, Elinal\_42, Vine\_41
- Track 8 : Jamzy\_43, GiKK\_43, Button\_41
- Track 9 : BigChungus\_38, SummitAcademy\_38, PotPie\_39, Feastonyeet\_38
- Track 10 : MAnor\_40
- Track 11 : SheckWes\_41
- Track 12 : Horseradish\_37, Buttrmilkdreams\_37, Yummy\_37, Troje\_37, MScarn\_38
- Track 13 : MaVan\_36, Azira\_36, Nibbles\_35, Zareef\_38, Survivors\_36
- Track 14 : Axym\_35
- Track 15 : AndPeggy\_34, BillDoor\_37
- Track 16 : Emalyn\_37
- Track 17 : GTE2\_30
- Track 18 : Burnsey\_35
- Track 19 : Tolls\_38, Yarn\_34
- Track 20 : Fribs8\_35
- Track 21 : Cozz\_35
- Track 22 : Biskit\_38, SketchMex\_36
- Track 23 : Dre3\_34, Gibbous\_34
- Track 24 : Amok\_38, AikoCarson\_38
- Track 25 : Typhonmachy\_36, Nina\_36
- Track 26 : CherryonLim\_40
- Track 27 : Sopespian\_35, RedBaron\_38, SweatNTears\_37, PsychoKiller\_35
- Track 28 : Margaret\_44
- Track 29 : Nodigi\_45, Orla\_45
- Track 30 : Yakult\_40
- Track 31 : Lauer\_35
- Track 32 : GoldHunter\_37, Elliott\_36, Agatha\_35, Quasar\_36
- Track 33 : Mayweather\_42
- Track 34 : Cleo\_34
- Track 35 : HippoPololi\_36
- Track 36 : SteamedHams\_38
- Track 37 : Pons\_40

- Track 38 : MunkgeeRoachy\_37
- Track 39 : Mercedes\_29
- Track 40 : Ludgate\_35, SonOfLevi\_34, ManRay\_34, Asta\_34, Strathdee\_35, Dothraki\_35, Nattles\_34, Thorongil\_35, TeddyBear\_34, Balsa\_34, BigRedClifford\_35, Velene\_35, Etta\_34, Shee\_35, Erla\_34, Phiderman\_35, Christoph\_34, Duocatuli\_34, MrWorldwide\_35, Raptor\_35, Oxtober96\_35, Phireproof\_35, KannH\_34, Espinosa\_34, Hamlet\_34, Blage\_35, Peppino\_34, MillyPhilly\_35, HankSprout\_35, StirfryIV\_35, Jerbirus\_35, Kurt1\_35, Knox\_35, Robinson\_35, Bandik\_35, Raccoon\_34, Chamuel\_34, Redfield\_34, Alyxandracam\_35, Antoinette\_35, AranulaLuti\_34, Janus167\_34, TinSulphur\_35, AxiPup\_35, Clancy\_34, Stanktossa\_35, JeriBeth\_35, MaeLinda\_35, Etna\_34, Pfriends\_35, KingJulien\_34, Aubergine\_34, Superfresh\_35, Pherferi\_35, Agente005\_35, Byron23\_35, Bonino\_34, Gargoyle\_35, Rog141\_34, Garey24\_34, Rapheph\_35, HanSolo\_34, SoilGremlin\_35, BonesMcCoy\_35, Gubbabump\_34, Calix\_34, Nagem\_35, ShaiHulud\_35, BeautPeep30\_35, Gershwin\_34, Winzigespinne\_34, PuppyEggo\_35, TatarkaPM\_35, Peep\_35, Tenda\_34, Riyhil\_35, Baines\_34, Ilzat\_34, Martin\_36, Inventa\_35, Convict\_35, BeeBee8\_35, AlexAdler\_35, Papafritta\_34, Kale\_34, HungryHenry\_34, OldNelly\_35, Chako\_34, Pocket\_34, Dave\_35, Sedgewig\_34, Stormbreaker8\_34, WildNOut\_35, SJay\_35, Den3\_35, Gelo\_34, PhredFlintston\_35, Thompsone\_35, Ioannes\_35, GardenB\_34, Leafus\_34, StingRay\_34, Figueroism\_35, Benjalauren\_35, MonChoix\_33, FarmerDoug\_34, Teagan\_35, Endor\_35, Oats\_34, ParleG\_35, Delphidian\_36, JasperRussell\_34, Lovelyunicorn\_35, Klimt\_34, Schnapsidee\_34, Zada\_35, Renzie\_35
- Track 41 : McGalleon\_37, Jenos\_38, Morrigan\_34, Schubert\_32
- Track 42 : JasonD\_39
- Track 43 : Vispistious\_35, NickSell\_36, Greys\_35
- Track 44 : Acosta\_36
- Track 45 : Quartz\_32, Mandalorian\_31
- Track 46 : Nucci\_31
- Track 47 : Juanyo\_32
- Track 48 : Carostasia\_31
- Track 49 : YuuY\_33
- Track 50 : Ixel\_33
- Track 51 : Schimmels22\_33, WestPM\_31
- Track 52 : Tinyman4\_33, HerculesXL\_33
- Track 53 : ColaCorta\_33, Andromedas\_33
- Track 54 : ChikPic\_33, Glamour\_32, Zenitsu\_33, Shamu\_33
- Track 55 : Sansa\_32
- Track 56 : Eleri\_33
- Track 57 : Finny\_33
- Track 58 : MCubed\_33
- Track 59 : Saratos\_33
- Track 60 : Casey\_31, Pikmin\_31, Pajaza\_31
- Track 61 : Koji\_32, Sinatra\_32, Lucky3\_32, PrincePhergus\_32, BouleyBill\_33, Luna18\_34, WilliamStrong\_33, Kauala\_32, Golden\_32, Chepli\_34
- Track 62 : Guetzie\_32, SirVictor\_32
- Track 63 : Bustleton\_32, Pherbot\_32
- Track 64 : Zepp\_33, QuadZero\_32, Zayuliv\_32, LilTerminator\_33, Fulton\_33, Hasitha\_32
- Track 65 : Librie\_32, CaptainRex\_32, Greenlvy\_32
- Track 66 : Neferthena\_32
- Track 67 : Alakazam\_33
- Track 68 : Clock\_32

- Track 69 : Nebulous\_32
- Track 70 : KatChan\_34
- Track 71 : Jemerald\_35, Juicer\_35
- Track 72 : GaeCeo\_35, ChickenKing\_34
- Track 73 : Cheeto1\_35
- Track 74 : Huwbert\_83
- Track 75 : Triscuit\_82

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

The start number called the most often in the published annotations is 36, it was called in 161 of the 225 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Acosta\_36, Agente005\_35, Alakazam\_33, AlexAdler\_35, Alyxandracam\_35, Andromedas\_33, Antoinette\_35, AranulaLuti\_34, Asta\_34, Aubergine\_34, AxiPup\_35, Baines\_34, Balsa\_34, Bandik\_35, BeautPeep30\_35, BeeBee8\_35, Benjalauren\_35, BigRedClifford\_35, Blage\_35, BonesMcCoy\_35, Bonino\_34, BouleyBill\_33, Bustleton\_32, Byron23\_35, Calix\_34, CaptainRex\_32, Carostasia\_31, Chako\_34, Chamuel\_34, Cheeto1\_35, Chepli\_34, ChickenKing\_34, ChikPic\_33, Christoph\_34, Clancy\_34, ColaCorta\_33, Convict\_35, Dave\_35, Delphidian\_36, Den3\_35, Dothraki\_35, Duocatuli\_34, Eleri\_33, Endor\_35, Erla\_34, Espinosa\_34, Etna\_34, Etta\_34, FarmerDoug\_34, Figueroism\_35, Finny\_33, Fulton\_33, GaeCeo\_35, GardenB\_34, Garey24\_34, Gargoyle\_35, Gelo\_34, Gershwin\_34, Glamour\_32, Golden\_32, GreenIvy\_32, Gubbabump\_34, Guetzie\_32, Hamlet\_34, HanSolo\_34, HankSprout\_35, Hasitha\_32, HerculesXL\_33, HungryHenry\_34, Ilzat\_34, Inventa\_35, Ioannes\_35, Ixel\_33, Janus167\_34, JasonD\_39, JasperRussell\_34, Jemerald\_35, Jenos\_38, Jerbirus\_35, JeriBeth\_35, Juanyo\_32, Juicer\_35, Kale\_34, KannH\_34, Kauala\_32, KingJulien\_34, Klimt\_34, Knox\_35, Koji\_32, Kurt1\_35, Leafus\_34, Librie\_32, LilTerminator\_33, Lovelyunicorn\_35, Lucky3\_32, Ludgate\_35, Luna18\_34, MCubed\_33, MaeLinda\_35, ManRay\_34, Mandalorian\_31, Martin\_36, McGalleon\_37, Mercedes\_29, MillyPhilly\_35, MonChoix\_33, Morrigan\_34, MrWorldwide\_35, Nagem\_35, Nattles\_34, Nebulous\_32, Neferthena\_32, Oats\_34, OldNelly\_35, Oxtober96\_35, Papafritta\_34, ParleG\_35, Peep\_35, Peppino\_34, Pherbot\_32, Pherferi\_35, Phiderman\_35, Phireproof\_35, PhredFlintston\_35, Phriends\_35, Pocket\_34, PrincePhergus\_32, PuppyEggo\_35, QuadZero\_32, Quartz\_32, Raccoon\_34, Rapheph\_35, Raptor\_35, Redfield\_34, Renzie\_35, Riyhil\_35, Robinson\_35, Rog141\_34, SJay\_35, Sansa\_32, Saratos\_33, Schimmels22\_33, Schnapsidee\_34, Schubert\_32, Sedgewig\_34, ShaiHulud\_35, Shamu\_33, Shee\_35, Sinatra\_32, SirVictor\_32, SoilGremlin\_35, SonOfLevi\_34, Stanktossa\_35, StingRay\_34, StirfryIV\_35, Stormbreaker8\_34, Strathdee\_35, Superfresh\_35, TatarkaPM\_35, Teagan\_35, TeddyBear\_34, Tenda\_34, Thompsone\_35, Thorongil\_35, TinSulphur\_35, Tinyman4\_33, Velene\_35, WestPM\_31, WildNOut\_35, WilliamStrong\_33, Winzigespinne\_34, YuuY\_33, Zada\_35, Zayuliv\_32, Zenitsu\_33, Zepp\_33,

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

- Clock\_32, Greys\_35, KatChan\_34, NickSell\_36, Nucci\_31, Vispistious\_35,

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

- 8UZL\_38, Agatha\_35, AikoCarson\_38, Amok\_38, AndPeggy\_34, Axym\_35, Azira\_36, BigChungus\_38, BillDoor\_37, Biskit\_38, Burnsey\_35, Button\_41, Buttrmlkdreams\_37, Casey\_31, CherryonLim\_40, Cleo\_34, Cozz\_35, Dre3\_34, Elinal\_42, Elliott\_36, Emalyn\_37, FF47\_37, Feastonyeet\_38, Fribs8\_35, GTE2\_30, GiKK\_43, Gibbous\_34, GoldHunter\_37, Hexbug\_45, HippoPololi\_36, Horseradish\_37, Huwbert\_83, JacoRen57\_34, Jamzy\_43, KayGee\_39, KimJongPhill\_85, Lauer\_35, MAnor\_40, MScarn\_38, MaVan\_36, Maco6\_36, Margaret\_44, Mayweather\_42, Muddy\_38, MunkgeeRoachy\_37, Nibbles\_35, Nina\_36, NoShow\_45, Nodigi\_45, Orla\_45, Pajaza\_31, Pikmin\_31, Pons\_40, PotPie\_39, PsychoKiller\_35, Quasar\_36, RedBaron\_38, SheckWes\_41, SketchMex\_36, Sopespian\_35, SteamedHams\_38, SummitAcademy\_38, Survivors\_36, SweatNTears\_37, Tolls\_38, Triscuit\_82, Troje\_37, Typhonmarchy\_36, Vine\_41, Yakult\_40, Yarn\_34, Yummy\_37, Zareef\_38, Zuko\_83,

### Summary by start number:

#### Start 32:

- Found in 2 of 256 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 2 of 225
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Huwbert\_83 (GG), Triscuit\_82 (GG),

#### Start 33:

- Found in 10 of 256 ( 3.9% ) of genes in pham
- Manual Annotations of this start: 9 of 225
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Azira\_36 (CT), Cleo\_34 (CT), Dre3\_34 (CT), Fribs8\_35 (CT), Gibbous\_34 (CT), HippoPololi\_36 (CT), MaVan\_36 (CT), Nibbles\_35 (CT), Survivors\_36 (CT), Zareef\_38 (CT),

#### Start 34:

- Found in 53 of 256 ( 20.7% ) of genes in pham
- Manual Annotations of this start: 42 of 225
- Called 98.1% of time when present
- Phage (with cluster) where this start called: Agatha\_35 (CT), AikoCarson\_38 (CT), Amok\_38 (CT), AndPeggy\_34 (CT), Axym\_35 (CT), BigChungus\_38 (CT), BillDoor\_37 (CT), Biskit\_38 (CT), Burnsey\_35 (CT), Button\_41 (CT), Buttrmlkdreams\_37 (CT), CherryonLim\_40 (CT), Cozz\_35 (CT), Elinal\_42 (CT), Elliott\_36 (CT), Feastonyeet\_38 (CT), GTE2\_30 (CT), GiKK\_43 (CT), GoldHunter\_37 (CT), Hexbug\_45 (CT), Horseradish\_37 (CT), Jamzy\_43 (CT), KayGee\_39 (CT), KimJongPhill\_85 (BR), Lauer\_35 (CT), MAnor\_40 (CT), MScarn\_38 (CT), Margaret\_44 (CT), Mayweather\_42 (CT), MunkgeeRoachy\_37 (CT), Nina\_36 (CT), Nodigi\_45 (CT), Orla\_45 (CT), Pons\_40 (CT), PotPie\_39 (CT), PsychoKiller\_35 (CT), Quasar\_36 (CT), RedBaron\_38 (CT), SheckWes\_41 (CT), SketchMex\_36 (CT), Sopespian\_35 (CT), SteamedHams\_38 (CT), SummitAcademy\_38 (CT), SweatNTears\_37 (CT), Tolls\_38 (CT), Troje\_37 (CT), Typhonmarchy\_36 (CT), Vine\_41 (CT), Yakult\_40 (CT), Yarn\_34 (CT), Yummy\_37 (CT), Zuko\_83 (BR),

#### Start 35:

- Found in 9 of 256 ( 3.5% ) of genes in pham
- Manual Annotations of this start: 7 of 225
- Called 100.0% of time when present

- Phage (with cluster) where this start called: 8UZL\_38 (AB), Casey\_31 (EA3), FF47\_37 (AB), JacoRen57\_34 (AB), Maco6\_36 (AB), Muddy\_38 (AB), NoShow\_45 (AB), Pajaza\_31 (EA3), Pikmin\_31 (EA3),

Start 36:

- Found in 182 of 256 ( 71.1% ) of genes in pham
- Manual Annotations of this start: 161 of 225
- Called 96.7% of time when present
- Phage (with cluster) where this start called: Acosta\_36 (EA1), Agente005\_35 (EA1), Alakazam\_33 (EA5), AlexAdler\_35 (EA1), Alyxandracam\_35 (EA1), Andromedas\_33 (EA2), Antoinette\_35 (EA1), AranulaLuti\_34 (EA1), Asta\_34 (EA1), Aubergine\_34 (EA1), AxiPup\_35 (EA1), Baines\_34 (EA1), Balsa\_34 (EA1), Bandik\_35 (EA1), BeautPeep30\_35 (EA1), BeeBee8\_35 (EA1), Benjalauren\_35 (EA1), BigRedClifford\_35 (EA1), Blage\_35 (EA1), BonesMcCoy\_35 (EA1), Bonino\_34 (EA1), BouleyBill\_33 (EA4), Bustleton\_32 (EA4), Byron23\_35 (EA1), Calix\_34 (EA1), CaptainRex\_32 (EA5), Carostasia\_31 (EA10), Chako\_34 (EA1), Chamuel\_34 (EA1), Cheeto1\_35 (EA9), Chepli\_34 (EA6), ChickenKing\_34 (EA9), ChikPic\_33 (EA2), Christoph\_34 (EA1), Clancy\_34 (EA1), ColaCorta\_33 (EA2), Convict\_35 (EA1), Dave\_35 (EA1), Delphidian\_36 (EA1), Den3\_35 (EA1), Dothraki\_35 (EA1), Duocatuli\_34 (EA1), Eleri\_33 (EA2), Endor\_35 (EA1), Erla\_34 (EA1), Espinosa\_34 (EA1), Etna\_34 (EA1), Etta\_34 (EA1), FarmerDoug\_34 (EA1), Figueroism\_35 (EA1), Finny\_33 (EA2), Fulton\_33 (EA5), GaeCeo\_35 (EA9), GardenB\_34 (EA1), Garey24\_34 (EA1), Gargoyle\_35 (EA1), Gelo\_34 (EA1), Gershwin\_34 (EA1), Glamour\_32 (EA2), Golden\_32 (EA4), Greenlvy\_32 (EA5), Gubbabump\_34 (EA1), Guetzie\_32 (EA4), Hamlet\_34 (EA1), HanSolo\_34 (EA1), HankSprout\_35 (EA1), Hasitha\_32 (EA5), HerculesXL\_33 (EA11), HungryHenry\_34 (EA1), Ilzat\_34 (EA1), Inventa\_35 (EA1), Ioannes\_35 (EA1), Ixel\_33 (EA11), Janus167\_34 (EA1), JasonD\_39 (EA1), JasperRussell\_34 (EA1), Jemerald\_35 (EA6), Jenos\_38 (EA1), Jerbirus\_35 (EA1), JeriBeth\_35 (EA1), Juanyo\_32 (EA10), Juicer\_35 (EA6), Kale\_34 (EA1), KannH\_34 (EA1), Kauala\_32 (EA4), KingJulien\_34 (EA1), Klimt\_34 (EA1), Knox\_35 (EA1), Koji\_32 (EA4), Kurt1\_35 (EA1), Leafus\_34 (EA1), Librie\_32 (EA5), LilTerminator\_33 (EA5), Lovelyunicorn\_35 (EA1), Lucky3\_32 (EA4), Ludgate\_35 (EA1), Luna18\_34 (EA6), MCubed\_33 (EA2), MaeLinda\_35 (EA1), ManRay\_34 (EA1), Mandalorian\_31 (EA10), Martin\_36 (EA1), McGalleon\_37 (EA1), Mercedes\_29 (EA), MillyPhilly\_35 (EA1), MonChoix\_33 (EA1), Morrigan\_34 (EA6), MrWorldwide\_35 (EA1), Nagem\_35 (EA1), Nattles\_34 (EA1), Nebulous\_32 (EA5), Neferthena\_32 (EA5), Oats\_34 (EA1), OldNelly\_35 (EA1), Oxtober96\_35 (EA1), Papafritta\_34 (EA1), ParleG\_35 (EA1), Peep\_35 (EA1), Peppino\_34 (EA1), Pherbot\_32 (EA4), Pherferi\_35 (EA1), Phiderman\_35 (EA1), Phireproof\_35 (EA1), PhredFlintston\_35 (EA1), Phriends\_35 (EA1), Pocket\_34 (EA1), PrincePhergus\_32 (EA4), PuppyEggo\_35 (EA1), QuadZero\_32 (EA5), Quartz\_32 (EA10), Raccoon\_34 (EA1), Rappheph\_35 (EA1), Raptor\_35 (EA1), Redfield\_34 (EA1), Renzie\_35 (EA1), Riyhil\_35 (EA1), Robinson\_35 (EA1), Rog141\_34 (EA1), SJay\_35 (EA1), Sansa\_32 (EA2), Saratos\_33 (EA2), Schimmels22\_33 (EA11), Schnapsidee\_34 (EA1), Schubert\_32 (EA8), Sedgewig\_34 (EA1), ShaiHulud\_35 (EA1), Shamu\_33 (EA2), Shee\_35 (EA1), Sinatra\_32 (EA4), SirVictor\_32 (EA4), SoilGremlin\_35 (EA1), SonOfLevi\_34 (EA1), Stanktossa\_35 (EA1), StingRay\_34 (EA1), StirfryIV\_35 (EA1), Stormbreaker8\_34 (EA1), Strathdee\_35 (EA1), Superfresh\_35 (EA1), TatarkaPM\_35 (EA1), Teagan\_35 (EA1), TeddyBear\_34 (EA1), Tenda\_34 (EA1), Thompsone\_35 (EA1), Thorongil\_35 (EA1), TinSulphur\_35 (EA1), Tinyman4\_33 (EA11), Velene\_35 (EA1), WestPM\_31 (EA11), WildNOut\_35 (EA1), WilliamStrong\_33 (EA6), Winzigespinne\_34 (EA1), YuuY\_33 (EA10), Zada\_35 (EA1), Zayuliv\_32 (EA5), Zenitsu\_33 (EA2), Zepp\_33 (EA5),

Start 38:

- Found in 16 of 256 ( 6.2% ) of genes in pham
- Manual Annotations of this start: 1 of 225
- Called 6.2% of time when present
- Phage (with cluster) where this start called: Nucci\_31 (EA10),

Start 39:

- Found in 177 of 256 ( 69.1% ) of genes in pham
- Manual Annotations of this start: 2 of 225
- Called 2.8% of time when present
- Phage (with cluster) where this start called: Clock\_32 (EA5), Greys\_35 (EA1), KatChan\_34 (EA6), NickSell\_36 (EA1), Vispistious\_35 (EA1),

Start 45:

- Found in 64 of 256 ( 25.0% ) of genes in pham
- Manual Annotations of this start: 1 of 225
- Called 1.6% of time when present
- Phage (with cluster) where this start called: Emalyn\_37 (CT),

**Summary by clusters:**

There are 15 clusters represented in this pham: EA9, AB, EA11, EA10, EA6, EA, GG, EA8, BR, EA1, EA3, EA2, EA5, EA4, CT,

Info for manual annotations of cluster AB:

- Start number 35 was manually annotated 4 times for cluster AB.

Info for manual annotations of cluster BR:

- Start number 34 was manually annotated 2 times for cluster BR.

Info for manual annotations of cluster CT:

- Start number 33 was manually annotated 9 times for cluster CT.
- Start number 34 was manually annotated 40 times for cluster CT.
- Start number 45 was manually annotated 1 time for cluster CT.

Info for manual annotations of cluster EA:

- Start number 36 was manually annotated 1 time for cluster EA.

Info for manual annotations of cluster EA1:

- Start number 36 was manually annotated 110 times for cluster EA1.
- Start number 39 was manually annotated 1 time for cluster EA1.

Info for manual annotations of cluster EA10:

- Start number 36 was manually annotated 4 times for cluster EA10.
- Start number 38 was manually annotated 1 time for cluster EA10.

Info for manual annotations of cluster EA11:

- Start number 36 was manually annotated 5 times for cluster EA11.

Info for manual annotations of cluster EA2:

- Start number 36 was manually annotated 11 times for cluster EA2.



Info for manual annotations of cluster EA3:

- Start number 35 was manually annotated 3 times for cluster EA3.

Info for manual annotations of cluster EA4:

- Start number 36 was manually annotated 10 times for cluster EA4.

Info for manual annotations of cluster EA5:

- Start number 36 was manually annotated 10 times for cluster EA5.

Info for manual annotations of cluster EA6:

- Start number 36 was manually annotated 6 times for cluster EA6.
- Start number 39 was manually annotated 1 time for cluster EA6.

Info for manual annotations of cluster EA8:

- Start number 36 was manually annotated 1 time for cluster EA8.

Info for manual annotations of cluster EA9:

- Start number 36 was manually annotated 3 times for cluster EA9.

Info for manual annotations of cluster GG:

- Start number 32 was manually annotated 2 times for cluster GG.

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

Gene: 8UZL\_38 Start: 28660, Stop: 28376, Start Num: 35

Candidate Starts for 8UZL\_38:

(Start: 35 @28660 has 7 MA's), (46, 28585), (48, 28567), (49, 28564), (62, 28465), (64, 28456), (71, 28396),

Gene: Acosta\_36 Start: 24757, Stop: 24464, Start Num: 36

Candidate Starts for Acosta\_36:

(11, 25003), (12, 24970), (Start: 36 @24757 has 161 MA's), (Start: 39 @24730 has 2 MA's),

Gene: Agatha\_35 Start: 26614, Stop: 26327, Start Num: 34

Candidate Starts for Agatha\_35:

(25, 26686), (Start: 34 @26614 has 42 MA's), (Start: 45 @26548 has 1 MA's), (48, 26521), (49, 26518), (56, 26467), (57, 26461), (58, 26455), (62, 26419), (63, 26416), (71, 26350),

Gene: Agente005\_35 Start: 24581, Stop: 24288, Start Num: 36

Candidate Starts for Agente005\_35:

(Start: 36 @24581 has 161 MA's), (Start: 39 @24554 has 2 MA's), (40, 24551),

Gene: AikoCarson\_38 Start: 27454, Stop: 27167, Start Num: 34

Candidate Starts for AikoCarson\_38:

(Start: 34 @27454 has 42 MA's), (Start: 45 @27388 has 1 MA's), (48, 27361), (49, 27358), (54, 27331), (56, 27307), (58, 27295), (62, 27259), (63, 27256), (71, 27190),

Gene: Alakazam\_33 Start: 23875, Stop: 23582, Start Num: 36

Candidate Starts for Alakazam\_33:

(Start: 36 @23875 has 161 MA's), (Start: 39 @23848 has 2 MA's), (40, 23845), (72, 23611),

Gene: AlexAdler\_35 Start: 24357, Stop: 24064, Start Num: 36  
Candidate Starts for AlexAdler\_35:  
(Start: 36 @24357 has 161 MA's), (Start: 39 @24330 has 2 MA's), (40, 24327),

Gene: Alyxandracam\_35 Start: 24366, Stop: 24073, Start Num: 36  
Candidate Starts for Alyxandracam\_35:  
(Start: 36 @24366 has 161 MA's), (Start: 39 @24339 has 2 MA's), (40, 24336),

Gene: Amok\_38 Start: 27478, Stop: 27191, Start Num: 34  
Candidate Starts for Amok\_38:  
(Start: 34 @27478 has 42 MA's), (Start: 45 @27412 has 1 MA's), (48, 27385), (49, 27382), (54, 27355), (56, 27331), (58, 27319), (62, 27283), (63, 27280), (71, 27214),

Gene: AndPeggy\_34 Start: 26881, Stop: 26594, Start Num: 34  
Candidate Starts for AndPeggy\_34:  
(Start: 34 @26881 has 42 MA's), (Start: 45 @26815 has 1 MA's), (48, 26788), (49, 26785), (54, 26758), (56, 26734), (57, 26728), (58, 26722), (62, 26686), (63, 26683), (71, 26617),

Gene: Andromedas\_33 Start: 23980, Stop: 23693, Start Num: 36  
Candidate Starts for Andromedas\_33:  
(Start: 36 @23980 has 161 MA's), (Start: 39 @23953 has 2 MA's), (40, 23950), (44, 23923),

Gene: Antoinette\_35 Start: 24354, Stop: 24061, Start Num: 36  
Candidate Starts for Antoinette\_35:  
(Start: 36 @24354 has 161 MA's), (Start: 39 @24327 has 2 MA's), (40, 24324),

Gene: AranulaLuti\_34 Start: 24051, Stop: 23758, Start Num: 36  
Candidate Starts for AranulaLuti\_34:  
(Start: 36 @24051 has 161 MA's), (Start: 39 @24024 has 2 MA's), (40, 24021),

Gene: Asta\_34 Start: 24064, Stop: 23771, Start Num: 36  
Candidate Starts for Asta\_34:  
(Start: 36 @24064 has 161 MA's), (Start: 39 @24037 has 2 MA's), (40, 24034),

Gene: Aubergine\_34 Start: 24064, Stop: 23771, Start Num: 36  
Candidate Starts for Aubergine\_34:  
(Start: 36 @24064 has 161 MA's), (Start: 39 @24037 has 2 MA's), (40, 24034),

Gene: AxiPup\_35 Start: 24366, Stop: 24073, Start Num: 36  
Candidate Starts for AxiPup\_35:  
(Start: 36 @24366 has 161 MA's), (Start: 39 @24339 has 2 MA's), (40, 24336),

Gene: Axym\_35 Start: 26592, Stop: 26305, Start Num: 34  
Candidate Starts for Axym\_35:  
(25, 26664), (Start: 34 @26592 has 42 MA's), (48, 26499), (49, 26496), (57, 26439), (58, 26433), (62, 26397), (63, 26394), (71, 26328),

Gene: Azira\_36 Start: 27274, Stop: 26990, Start Num: 33  
Candidate Starts for Azira\_36:  
(Start: 33 @27274 has 9 MA's), (37, 27253), (42, 27229), (Start: 45 @27208 has 1 MA's), (48, 27181), (49, 27178), (57, 27121), (58, 27115), (69, 27028),

Gene: Baines\_34 Start: 24051, Stop: 23758, Start Num: 36

Candidate Starts for Baines\_34:

(Start: 36 @24051 has 161 MA's), (Start: 39 @24024 has 2 MA's), (40, 24021),

Gene: Balsa\_34 Start: 24471, Stop: 24178, Start Num: 36

Candidate Starts for Balsa\_34:

(Start: 36 @24471 has 161 MA's), (Start: 39 @24444 has 2 MA's), (40, 24441),

Gene: Bandik\_35 Start: 24362, Stop: 24069, Start Num: 36

Candidate Starts for Bandik\_35:

(Start: 36 @24362 has 161 MA's), (Start: 39 @24335 has 2 MA's), (40, 24332),

Gene: BeautPeep30\_35 Start: 24368, Stop: 24075, Start Num: 36

Candidate Starts for BeautPeep30\_35:

(Start: 36 @24368 has 161 MA's), (Start: 39 @24341 has 2 MA's), (40, 24338),

Gene: BeeBee8\_35 Start: 24638, Stop: 24345, Start Num: 36

Candidate Starts for BeeBee8\_35:

(Start: 36 @24638 has 161 MA's), (Start: 39 @24611 has 2 MA's), (40, 24608),

Gene: Benjalauren\_35 Start: 24061, Stop: 23768, Start Num: 36

Candidate Starts for Benjalauren\_35:

(Start: 36 @24061 has 161 MA's), (Start: 39 @24034 has 2 MA's), (40, 24031),

Gene: BigChungus\_38 Start: 28576, Stop: 28292, Start Num: 34

Candidate Starts for BigChungus\_38:

(6, 28912), (11, 28822), (20, 28675), (21, 28672), (22, 28669), (24, 28651), (Start: 34 @28576 has 42 MA's), (40, 28540), (42, 28531), (Start: 45 @28510 has 1 MA's), (46, 28501), (47, 28486), (48, 28483), (49, 28480), (54, 28453), (56, 28429), (58, 28417), (61, 28384), (71, 28312),

Gene: BigRedClifford\_35 Start: 24366, Stop: 24073, Start Num: 36

Candidate Starts for BigRedClifford\_35:

(Start: 36 @24366 has 161 MA's), (Start: 39 @24339 has 2 MA's), (40, 24336),

Gene: BillDoor\_37 Start: 26558, Stop: 26271, Start Num: 34

Candidate Starts for BillDoor\_37:

(Start: 34 @26558 has 42 MA's), (Start: 45 @26492 has 1 MA's), (48, 26465), (49, 26462), (54, 26435), (56, 26411), (57, 26405), (58, 26399), (62, 26363), (63, 26360), (71, 26294),

Gene: Biskit\_38 Start: 26909, Stop: 26622, Start Num: 34

Candidate Starts for Biskit\_38:

(13, 27092), (14, 27053), (16, 27026), (23, 26993), (Start: 34 @26909 has 42 MA's), (Start: 45 @26843 has 1 MA's), (48, 26816), (49, 26813), (57, 26756), (58, 26750), (62, 26714), (63, 26711), (66, 26678), (71, 26645),

Gene: Blage\_35 Start: 24366, Stop: 24073, Start Num: 36

Candidate Starts for Blage\_35:

(Start: 36 @24366 has 161 MA's), (Start: 39 @24339 has 2 MA's), (40, 24336),

Gene: BonesMcCoy\_35 Start: 24366, Stop: 24073, Start Num: 36

Candidate Starts for BonesMcCoy\_35:

(Start: 36 @24366 has 161 MA's), (Start: 39 @24339 has 2 MA's), (40, 24336),

Gene: Bonino\_34 Start: 24040, Stop: 23747, Start Num: 36

Candidate Starts for Bonino\_34:

(Start: 36 @24040 has 161 MA's), (Start: 39 @24013 has 2 MA's), (40, 24010),

Gene: BouleyBill\_33 Start: 23931, Stop: 23638, Start Num: 36

Candidate Starts for BouleyBill\_33:

(Start: 36 @23931 has 161 MA's), (Start: 39 @23904 has 2 MA's), (44, 23874),

Gene: Burnsey\_35 Start: 26605, Stop: 26318, Start Num: 34

Candidate Starts for Burnsey\_35:

(25, 26677), (Start: 34 @26605 has 42 MA's), (Start: 45 @26539 has 1 MA's), (48, 26512), (49, 26509), (56, 26458), (58, 26446), (62, 26410), (63, 26407), (71, 26341),

Gene: Bustleton\_32 Start: 23931, Stop: 23638, Start Num: 36

Candidate Starts for Bustleton\_32:

(Start: 36 @23931 has 161 MA's), (Start: 39 @23904 has 2 MA's), (42, 23892), (44, 23874),

Gene: Button\_41 Start: 27875, Stop: 27597, Start Num: 34

Candidate Starts for Button\_41:

(Start: 34 @27875 has 42 MA's), (44, 27815), (Start: 45 @27809 has 1 MA's), (47, 27785), (48, 27782), (49, 27779), (58, 27716), (65, 27647), (70, 27617),

Gene: Buttrmlkdreams\_37 Start: 26891, Stop: 26604, Start Num: 34

Candidate Starts for Buttrmlkdreams\_37:

(25, 26963), (Start: 34 @26891 has 42 MA's), (Start: 45 @26825 has 1 MA's), (48, 26798), (49, 26795), (57, 26738), (58, 26732), (62, 26696), (63, 26693), (66, 26660), (71, 26627),

Gene: Byron23\_35 Start: 24371, Stop: 24078, Start Num: 36

Candidate Starts for Byron23\_35:

(Start: 36 @24371 has 161 MA's), (Start: 39 @24344 has 2 MA's), (40, 24341),

Gene: Calix\_34 Start: 24044, Stop: 23751, Start Num: 36

Candidate Starts for Calix\_34:

(Start: 36 @24044 has 161 MA's), (Start: 39 @24017 has 2 MA's), (40, 24014),

Gene: CaptainRex\_32 Start: 22209, Stop: 21916, Start Num: 36

Candidate Starts for CaptainRex\_32:

(Start: 36 @22209 has 161 MA's), (37, 22194), (Start: 38 @22191 has 1 MA's), (Start: 39 @22182 has 2 MA's), (40, 22179), (44, 22152), (72, 21945),

Gene: Carostasia\_31 Start: 23654, Stop: 23361, Start Num: 36

Candidate Starts for Carostasia\_31:

(Start: 36 @23654 has 161 MA's), (Start: 38 @23636 has 1 MA's), (Start: 39 @23627 has 2 MA's), (43, 23606), (44, 23597), (73, 23369),

Gene: Casey\_31 Start: 23331, Stop: 23032, Start Num: 35

Candidate Starts for Casey\_31:

(Start: 35 @23331 has 7 MA's), (44, 23271), (65, 23100),

Gene: Chako\_34 Start: 24051, Stop: 23758, Start Num: 36

Candidate Starts for Chako\_34:

(Start: 36 @24051 has 161 MA's), (Start: 39 @24024 has 2 MA's), (40, 24021),

Gene: Chamuel\_34 Start: 24046, Stop: 23753, Start Num: 36

Candidate Starts for Chamuel\_34:

(Start: 36 @24046 has 161 MA's), (Start: 39 @24019 has 2 MA's), (40, 24016),

Gene: Cheeto1\_35 Start: 24520, Stop: 24227, Start Num: 36

Candidate Starts for Cheeto1\_35:

(Start: 36 @24520 has 161 MA's), (Start: 39 @24493 has 2 MA's), (40, 24490), (43, 24472), (63, 24322),

Gene: Chepli\_34 Start: 23435, Stop: 23148, Start Num: 36

Candidate Starts for Chepli\_34:

(Start: 36 @23435 has 161 MA's), (Start: 39 @23408 has 2 MA's), (44, 23378),

Gene: CherryonLim\_40 Start: 29723, Stop: 29439, Start Num: 34

Candidate Starts for CherryonLim\_40:

(6, 30050), (10, 29975), (18, 29828), (20, 29822), (21, 29819), (22, 29816), (24, 29798), (Start: 34 @29723 has 42 MA's), (40, 29687), (Start: 45 @29657 has 1 MA's), (47, 29633), (48, 29630), (49, 29627), (54, 29600), (56, 29576), (58, 29564), (61, 29531), (71, 29459),

Gene: ChickenKing\_34 Start: 24433, Stop: 24140, Start Num: 36

Candidate Starts for ChickenKing\_34:

(Start: 36 @24433 has 161 MA's), (40, 24403), (43, 24385), (63, 24235),

Gene: ChikPic\_33 Start: 23996, Stop: 23709, Start Num: 36

Candidate Starts for ChikPic\_33:

(Start: 36 @23996 has 161 MA's), (Start: 39 @23969 has 2 MA's), (40, 23966), (44, 23939),

Gene: Christoph\_34 Start: 24062, Stop: 23769, Start Num: 36

Candidate Starts for Christoph\_34:

(Start: 36 @24062 has 161 MA's), (Start: 39 @24035 has 2 MA's), (40, 24032),

Gene: Clancy\_34 Start: 24096, Stop: 23803, Start Num: 36

Candidate Starts for Clancy\_34:

(Start: 36 @24096 has 161 MA's), (Start: 39 @24069 has 2 MA's), (40, 24066),

Gene: Cleo\_34 Start: 26822, Stop: 26538, Start Num: 33

Candidate Starts for Cleo\_34:

(Start: 33 @26822 has 9 MA's), (37, 26801), (42, 26777), (Start: 45 @26756 has 1 MA's), (48, 26729), (49, 26726), (58, 26663), (69, 26576),

Gene: Clock\_32 Start: 25026, Stop: 24760, Start Num: 39

Candidate Starts for Clock\_32:

(Start: 36 @25053 has 161 MA's), (Start: 39 @25026 has 2 MA's), (40, 25023), (44, 24996), (72, 24789),

Gene: ColaCorta\_33 Start: 23980, Stop: 23693, Start Num: 36

Candidate Starts for ColaCorta\_33:

(Start: 36 @23980 has 161 MA's), (Start: 39 @23953 has 2 MA's), (40, 23950), (44, 23923),

Gene: Convict\_35 Start: 24366, Stop: 24073, Start Num: 36

Candidate Starts for Convict\_35:

(Start: 36 @24366 has 161 MA's), (Start: 39 @24339 has 2 MA's), (40, 24336),

Gene: Cozz\_35 Start: 26594, Stop: 26307, Start Num: 34

Candidate Starts for Cozz\_35:

(3, 26948), (9, 26861), (31, 26603), (Start: 34 @26594 has 42 MA's), (Start: 45 @26528 has 1 MA's), (48, 26501), (49, 26498), (57, 26441), (58, 26435), (62, 26399), (63, 26396), (71, 26330),

Gene: Dave\_35 Start: 24354, Stop: 24061, Start Num: 36

Candidate Starts for Dave\_35:

(Start: 36 @24354 has 161 MA's), (Start: 39 @24327 has 2 MA's), (40, 24324),

Gene: Delphidian\_36 Start: 24365, Stop: 24072, Start Num: 36

Candidate Starts for Delphidian\_36:

(Start: 36 @24365 has 161 MA's), (Start: 39 @24338 has 2 MA's), (40, 24335),

Gene: Den3\_35 Start: 24371, Stop: 24078, Start Num: 36

Candidate Starts for Den3\_35:

(Start: 36 @24371 has 161 MA's), (Start: 39 @24344 has 2 MA's), (40, 24341),

Gene: Dothraki\_35 Start: 24368, Stop: 24075, Start Num: 36

Candidate Starts for Dothraki\_35:

(Start: 36 @24368 has 161 MA's), (Start: 39 @24341 has 2 MA's), (40, 24338),

Gene: Dre3\_34 Start: 26565, Stop: 26281, Start Num: 33

Candidate Starts for Dre3\_34:

(Start: 33 @26565 has 9 MA's), (37, 26544), (42, 26520), (Start: 45 @26499 has 1 MA's), (48, 26472), (49, 26469), (58, 26406), (69, 26319),

Gene: Duocatuli\_34 Start: 24051, Stop: 23758, Start Num: 36

Candidate Starts for Duocatuli\_34:

(Start: 36 @24051 has 161 MA's), (Start: 39 @24024 has 2 MA's), (40, 24021),

Gene: Eleri\_33 Start: 23993, Stop: 23706, Start Num: 36

Candidate Starts for Eleri\_33:

(Start: 36 @23993 has 161 MA's), (Start: 39 @23966 has 2 MA's), (40, 23963), (44, 23936),

Gene: Elinal\_42 Start: 28954, Stop: 28670, Start Num: 34

Candidate Starts for Elinal\_42:

(Start: 34 @28954 has 42 MA's), (40, 28918), (42, 28909), (Start: 45 @28888 has 1 MA's), (47, 28864), (48, 28861), (49, 28858), (54, 28831), (56, 28807), (58, 28795), (61, 28762), (71, 28690),

Gene: Elliott\_36 Start: 26613, Stop: 26326, Start Num: 34

Candidate Starts for Elliott\_36:

(25, 26685), (Start: 34 @26613 has 42 MA's), (Start: 45 @26547 has 1 MA's), (48, 26520), (49, 26517), (56, 26466), (57, 26460), (58, 26454), (62, 26418), (63, 26415), (71, 26349),

Gene: Emalyn\_37 Start: 26583, Stop: 26362, Start Num: 45

Candidate Starts for Emalyn\_37:

(Start: 34 @26649 has 42 MA's), (Start: 45 @26583 has 1 MA's), (48, 26556), (49, 26553), (54, 26526), (56, 26502), (58, 26490), (62, 26454), (63, 26451), (71, 26385),

Gene: Endor\_35 Start: 24698, Stop: 24405, Start Num: 36

Candidate Starts for Endor\_35:

(Start: 36 @24698 has 161 MA's), (Start: 39 @24671 has 2 MA's), (40, 24668),

Gene: Erla\_34 Start: 24044, Stop: 23751, Start Num: 36

Candidate Starts for Erla\_34:

(Start: 36 @24044 has 161 MA's), (Start: 39 @24017 has 2 MA's), (40, 24014),

Gene: Espinosa\_34 Start: 24062, Stop: 23769, Start Num: 36

Candidate Starts for Espinosa\_34:

(Start: 36 @24062 has 161 MA's), (Start: 39 @24035 has 2 MA's), (40, 24032),

Gene: Etna\_34 Start: 24473, Stop: 24180, Start Num: 36

Candidate Starts for Etna\_34:

(Start: 36 @24473 has 161 MA's), (Start: 39 @24446 has 2 MA's), (40, 24443),

Gene: Etta\_34 Start: 24048, Stop: 23755, Start Num: 36

Candidate Starts for Etta\_34:

(Start: 36 @24048 has 161 MA's), (Start: 39 @24021 has 2 MA's), (40, 24018),

Gene: FF47\_37 Start: 28571, Stop: 28287, Start Num: 35

Candidate Starts for FF47\_37:

(Start: 35 @28571 has 7 MA's), (46, 28496), (48, 28478), (49, 28475), (62, 28376), (64, 28367), (71, 28307),

Gene: FarmerDoug\_34 Start: 24339, Stop: 24046, Start Num: 36

Candidate Starts for FarmerDoug\_34:

(Start: 36 @24339 has 161 MA's), (Start: 39 @24312 has 2 MA's), (40, 24309),

Gene: Feastonyeet\_38 Start: 28576, Stop: 28292, Start Num: 34

Candidate Starts for Feastonyeet\_38:

(6, 28912), (11, 28822), (20, 28675), (21, 28672), (22, 28669), (24, 28651), (Start: 34 @28576 has 42 MA's), (40, 28540), (42, 28531), (Start: 45 @28510 has 1 MA's), (46, 28501), (47, 28486), (48, 28483), (49, 28480), (54, 28453), (56, 28429), (58, 28417), (61, 28384), (71, 28312),

Gene: Figueroism\_35 Start: 24353, Stop: 24060, Start Num: 36

Candidate Starts for Figueroism\_35:

(Start: 36 @24353 has 161 MA's), (Start: 39 @24326 has 2 MA's), (40, 24323),

Gene: Finny\_33 Start: 24033, Stop: 23746, Start Num: 36

Candidate Starts for Finny\_33:

(Start: 36 @24033 has 161 MA's), (Start: 39 @24006 has 2 MA's), (40, 24003), (44, 23976),

Gene: Fribs8\_35 Start: 26998, Stop: 26714, Start Num: 33

Candidate Starts for Fribs8\_35:

(1, 27373), (Start: 33 @26998 has 9 MA's), (37, 26977), (42, 26953), (Start: 45 @26932 has 1 MA's), (48, 26905), (49, 26902), (58, 26839), (62, 26803), (65, 26770), (67, 26764), (69, 26752),

Gene: Fulton\_33 Start: 22213, Stop: 21920, Start Num: 36

Candidate Starts for Fulton\_33:

(Start: 36 @22213 has 161 MA's), (37, 22198), (Start: 38 @22195 has 1 MA's), (Start: 39 @22186 has 2 MA's), (40, 22183), (44, 22156), (72, 21949),

Gene: GTE2\_30 Start: 26884, Stop: 26597, Start Num: 34

Candidate Starts for GTE2\_30:

(Start: 34 @26884 has 42 MA's), (Start: 45 @26818 has 1 MA's), (48, 26791), (49, 26788), (54, 26761), (56, 26737), (57, 26731), (58, 26725), (62, 26689), (63, 26686), (71, 26620),

Gene: GaeCeo\_35 Start: 24669, Stop: 24376, Start Num: 36  
Candidate Starts for GaeCeo\_35:  
(Start: 36 @24669 has 161 MA's), (40, 24639), (43, 24621), (63, 24471),

Gene: GardenB\_34 Start: 24462, Stop: 24169, Start Num: 36  
Candidate Starts for GardenB\_34:  
(Start: 36 @24462 has 161 MA's), (Start: 39 @24435 has 2 MA's), (40, 24432),

Gene: Garey24\_34 Start: 24027, Stop: 23734, Start Num: 36  
Candidate Starts for Garey24\_34:  
(Start: 36 @24027 has 161 MA's), (Start: 39 @24000 has 2 MA's), (40, 23997),

Gene: Gargoyle\_35 Start: 24368, Stop: 24075, Start Num: 36  
Candidate Starts for Gargoyle\_35:  
(Start: 36 @24368 has 161 MA's), (Start: 39 @24341 has 2 MA's), (40, 24338),

Gene: Gelo\_34 Start: 24048, Stop: 23755, Start Num: 36  
Candidate Starts for Gelo\_34:  
(Start: 36 @24048 has 161 MA's), (Start: 39 @24021 has 2 MA's), (40, 24018),

Gene: Gershwin\_34 Start: 24064, Stop: 23771, Start Num: 36  
Candidate Starts for Gershwin\_34:  
(Start: 36 @24064 has 161 MA's), (Start: 39 @24037 has 2 MA's), (40, 24034),

Gene: GiKK\_43 Start: 28205, Stop: 27927, Start Num: 34  
Candidate Starts for GiKK\_43:  
(Start: 34 @28205 has 42 MA's), (44, 28145), (Start: 45 @28139 has 1 MA's), (47, 28115), (48, 28112), (49, 28109), (58, 28046), (65, 27977), (70, 27947),

Gene: Gibbous\_34 Start: 26565, Stop: 26281, Start Num: 33  
Candidate Starts for Gibbous\_34:  
(Start: 33 @26565 has 9 MA's), (37, 26544), (42, 26520), (Start: 45 @26499 has 1 MA's), (48, 26472), (49, 26469), (58, 26406), (69, 26319),

Gene: Glamour\_32 Start: 23981, Stop: 23694, Start Num: 36  
Candidate Starts for Glamour\_32:  
(Start: 36 @23981 has 161 MA's), (Start: 39 @23954 has 2 MA's), (40, 23951), (44, 23924),

Gene: GoldHunter\_37 Start: 26614, Stop: 26327, Start Num: 34  
Candidate Starts for GoldHunter\_37:  
(25, 26686), (Start: 34 @26614 has 42 MA's), (Start: 45 @26548 has 1 MA's), (48, 26521), (49, 26518), (56, 26467), (57, 26461), (58, 26455), (62, 26419), (63, 26416), (71, 26350),

Gene: Golden\_32 Start: 24032, Stop: 23739, Start Num: 36  
Candidate Starts for Golden\_32:  
(Start: 36 @24032 has 161 MA's), (Start: 39 @24005 has 2 MA's), (44, 23975),

Gene: Greenlvy\_32 Start: 22799, Stop: 22506, Start Num: 36  
Candidate Starts for Greenlvy\_32:  
(Start: 36 @22799 has 161 MA's), (37, 22784), (Start: 38 @22781 has 1 MA's), (Start: 39 @22772 has 2 MA's), (40, 22769), (44, 22742), (72, 22535),

Gene: Greys\_35 Start: 24337, Stop: 24071, Start Num: 39



Candidate Starts for Greys\_35:

(Start: 36 @24364 has 161 MA's), (Start: 39 @24337 has 2 MA's), (40, 24334),

Gene: Gubbabump\_34 Start: 24053, Stop: 23760, Start Num: 36

Candidate Starts for Gubbabump\_34:

(Start: 36 @24053 has 161 MA's), (Start: 39 @24026 has 2 MA's), (40, 24023),

Gene: Guetzie\_32 Start: 24020, Stop: 23727, Start Num: 36

Candidate Starts for Guetzie\_32:

(Start: 36 @24020 has 161 MA's), (Start: 39 @23993 has 2 MA's), (44, 23963), (72, 23756),

Gene: Hamlet\_34 Start: 24471, Stop: 24178, Start Num: 36

Candidate Starts for Hamlet\_34:

(Start: 36 @24471 has 161 MA's), (Start: 39 @24444 has 2 MA's), (40, 24441),

Gene: HanSolo\_34 Start: 24051, Stop: 23758, Start Num: 36

Candidate Starts for HanSolo\_34:

(Start: 36 @24051 has 161 MA's), (Start: 39 @24024 has 2 MA's), (40, 24021),

Gene: HankSprout\_35 Start: 23931, Stop: 23638, Start Num: 36

Candidate Starts for HankSprout\_35:

(Start: 36 @23931 has 161 MA's), (Start: 39 @23904 has 2 MA's), (40, 23901),

Gene: Hasitha\_32 Start: 22225, Stop: 21932, Start Num: 36

Candidate Starts for Hasitha\_32:

(Start: 36 @22225 has 161 MA's), (37, 22210), (Start: 38 @22207 has 1 MA's), (Start: 39 @22198 has 2 MA's), (40, 22195), (44, 22168), (72, 21961),

Gene: HerculesXL\_33 Start: 22687, Stop: 22394, Start Num: 36

Candidate Starts for HerculesXL\_33:

(Start: 36 @22687 has 161 MA's), (Start: 39 @22660 has 2 MA's), (72, 22423),

Gene: Hexbug\_45 Start: 29965, Stop: 29687, Start Num: 34

Candidate Starts for Hexbug\_45:

(Start: 34 @29965 has 42 MA's), (44, 29905), (Start: 45 @29899 has 1 MA's), (47, 29875), (48, 29872), (49, 29869), (50, 29860), (58, 29806), (59, 29782), (65, 29737),

Gene: HippoPololi\_36 Start: 27019, Stop: 26735, Start Num: 33

Candidate Starts for HippoPololi\_36:

(1, 27388), (Start: 33 @27019 has 9 MA's), (37, 26998), (42, 26974), (Start: 45 @26953 has 1 MA's), (48, 26926), (49, 26923), (57, 26866), (58, 26860), (69, 26773),

Gene: Horseradish\_37 Start: 26419, Stop: 26132, Start Num: 34

Candidate Starts for Horseradish\_37:

(25, 26491), (Start: 34 @26419 has 42 MA's), (Start: 45 @26353 has 1 MA's), (48, 26326), (49, 26323), (57, 26266), (58, 26260), (62, 26224), (63, 26221), (66, 26188), (71, 26155),

Gene: HungryHenry\_34 Start: 24062, Stop: 23769, Start Num: 36

Candidate Starts for HungryHenry\_34:

(Start: 36 @24062 has 161 MA's), (Start: 39 @24035 has 2 MA's), (40, 24032),

Gene: Huwbert\_83 Start: 51659, Stop: 51976, Start Num: 32

Candidate Starts for Huwbert\_83:

(Start: 32 @51659 has 2 MA's), (Start: 45 @51728 has 1 MA's), (48, 51755), (49, 51758), (62, 51863), (67, 51902), (70, 51926), (74, 51962),

Gene: Ilzat\_34 Start: 24061, Stop: 23768, Start Num: 36

Candidate Starts for Ilzat\_34:

(Start: 36 @24061 has 161 MA's), (Start: 39 @24034 has 2 MA's), (40, 24031),

Gene: Inventa\_35 Start: 24368, Stop: 24075, Start Num: 36

Candidate Starts for Inventa\_35:

(Start: 36 @24368 has 161 MA's), (Start: 39 @24341 has 2 MA's), (40, 24338),

Gene: loannes\_35 Start: 24366, Stop: 24073, Start Num: 36

Candidate Starts for loannes\_35:

(Start: 36 @24366 has 161 MA's), (Start: 39 @24339 has 2 MA's), (40, 24336),

Gene: Ixel\_33 Start: 22647, Stop: 22360, Start Num: 36

Candidate Starts for Ixel\_33:

(Start: 36 @22647 has 161 MA's), (44, 22590), (52, 22533), (57, 22497),

Gene: JacoRen57\_34 Start: 29387, Stop: 29115, Start Num: 35

Candidate Starts for JacoRen57\_34:

(Start: 35 @29387 has 7 MA's), (Start: 45 @29324 has 1 MA's), (46, 29315), (48, 29297), (49, 29294), (55, 29255), (56, 29243), (57, 29237), (60, 29201), (62, 29195), (64, 29186), (67, 29156),

Gene: Jamzy\_43 Start: 28188, Stop: 27910, Start Num: 34

Candidate Starts for Jamzy\_43:

(Start: 34 @28188 has 42 MA's), (44, 28128), (Start: 45 @28122 has 1 MA's), (47, 28098), (48, 28095), (49, 28092), (58, 28029), (65, 27960), (70, 27930),

Gene: Janus167\_34 Start: 24051, Stop: 23758, Start Num: 36

Candidate Starts for Janus167\_34:

(Start: 36 @24051 has 161 MA's), (Start: 39 @24024 has 2 MA's), (40, 24021),

Gene: JasonD\_39 Start: 24889, Stop: 24596, Start Num: 36

Candidate Starts for JasonD\_39:

(11, 25126), (12, 25093), (Start: 36 @24889 has 161 MA's), (Start: 39 @24862 has 2 MA's),

Gene: JasperRussell\_34 Start: 24051, Stop: 23758, Start Num: 36

Candidate Starts for JasperRussell\_34:

(Start: 36 @24051 has 161 MA's), (Start: 39 @24024 has 2 MA's), (40, 24021),

Gene: Jemerald\_35 Start: 24708, Stop: 24415, Start Num: 36

Candidate Starts for Jemerald\_35:

(Start: 36 @24708 has 161 MA's), (40, 24678), (41, 24672), (43, 24660), (44, 24651), (52, 24594), (73, 24423),

Gene: Jenos\_38 Start: 25549, Stop: 25256, Start Num: 36

Candidate Starts for Jenos\_38:

(Start: 36 @25549 has 161 MA's), (Start: 39 @25522 has 2 MA's),

Gene: Jerbirus\_35 Start: 24051, Stop: 23758, Start Num: 36

Candidate Starts for Jerbirus\_35:

(Start: 36 @24051 has 161 MA's), (Start: 39 @24024 has 2 MA's), (40, 24021),

Gene: JeriBeth\_35 Start: 23908, Stop: 23615, Start Num: 36

Candidate Starts for JeriBeth\_35:

(Start: 36 @23908 has 161 MA's), (Start: 39 @23881 has 2 MA's), (40, 23878),

Gene: Juanyo\_32 Start: 23710, Stop: 23417, Start Num: 36

Candidate Starts for Juanyo\_32:

(Start: 36 @23710 has 161 MA's), (Start: 38 @23692 has 1 MA's), (Start: 39 @23683 has 2 MA's), (40, 23680), (43, 23662), (44, 23653), (73, 23425),

Gene: Juicer\_35 Start: 24708, Stop: 24415, Start Num: 36

Candidate Starts for Juicer\_35:

(Start: 36 @24708 has 161 MA's), (40, 24678), (41, 24672), (43, 24660), (44, 24651), (52, 24594), (73, 24423),

Gene: Kale\_34 Start: 24066, Stop: 23773, Start Num: 36

Candidate Starts for Kale\_34:

(Start: 36 @24066 has 161 MA's), (Start: 39 @24039 has 2 MA's), (40, 24036),

Gene: KannH\_34 Start: 24051, Stop: 23758, Start Num: 36

Candidate Starts for KannH\_34:

(Start: 36 @24051 has 161 MA's), (Start: 39 @24024 has 2 MA's), (40, 24021),

Gene: KatChan\_34 Start: 23414, Stop: 23154, Start Num: 39

Candidate Starts for KatChan\_34:

(Start: 36 @23441 has 161 MA's), (Start: 39 @23414 has 2 MA's), (44, 23384),

Gene: Kauala\_32 Start: 23924, Stop: 23631, Start Num: 36

Candidate Starts for Kauala\_32:

(Start: 36 @23924 has 161 MA's), (Start: 39 @23897 has 2 MA's), (44, 23867),

Gene: KayGee\_39 Start: 28954, Stop: 28670, Start Num: 34

Candidate Starts for KayGee\_39:

(Start: 34 @28954 has 42 MA's), (40, 28918), (42, 28909), (Start: 45 @28888 has 1 MA's), (47, 28864), (48, 28861), (49, 28858), (54, 28831), (56, 28807), (58, 28795), (61, 28762), (71, 28690),

Gene: KimJongPhill\_85 Start: 63717, Stop: 64049, Start Num: 34

Candidate Starts for KimJongPhill\_85:

(17, 63606), (22, 63627), (28, 63651), (Start: 34 @63717 has 42 MA's), (48, 63810), (49, 63813), (53, 63837), (56, 63864), (68, 63960), (70, 63981),

Gene: KingJulien\_34 Start: 24464, Stop: 24171, Start Num: 36

Candidate Starts for KingJulien\_34:

(Start: 36 @24464 has 161 MA's), (Start: 39 @24437 has 2 MA's), (40, 24434),

Gene: Klimt\_34 Start: 24046, Stop: 23753, Start Num: 36

Candidate Starts for Klimt\_34:

(Start: 36 @24046 has 161 MA's), (Start: 39 @24019 has 2 MA's), (40, 24016),

Gene: Knox\_35 Start: 24366, Stop: 24073, Start Num: 36

Candidate Starts for Knox\_35:

(Start: 36 @24366 has 161 MA's), (Start: 39 @24339 has 2 MA's), (40, 24336),

Gene: Koji\_32 Start: 24059, Stop: 23766, Start Num: 36  
Candidate Starts for Koji\_32:  
(Start: 36 @24059 has 161 MA's), (Start: 39 @24032 has 2 MA's), (44, 24002),

Gene: Kurt1\_35 Start: 24368, Stop: 24075, Start Num: 36  
Candidate Starts for Kurt1\_35:  
(Start: 36 @24368 has 161 MA's), (Start: 39 @24341 has 2 MA's), (40, 24338),

Gene: Lauer\_35 Start: 29784, Stop: 29500, Start Num: 34  
Candidate Starts for Lauer\_35:  
(Start: 34 @29784 has 42 MA's), (40, 29748), (Start: 45 @29718 has 1 MA's), (46, 29709), (47, 29694), (48, 29691), (49, 29688), (54, 29661), (56, 29637), (58, 29625), (59, 29601), (61, 29592), (71, 29520),

Gene: Leafus\_34 Start: 24606, Stop: 24313, Start Num: 36  
Candidate Starts for Leafus\_34:  
(Start: 36 @24606 has 161 MA's), (Start: 39 @24579 has 2 MA's), (40, 24576),

Gene: Librie\_32 Start: 22209, Stop: 21916, Start Num: 36  
Candidate Starts for Librie\_32:  
(Start: 36 @22209 has 161 MA's), (37, 22194), (Start: 38 @22191 has 1 MA's), (Start: 39 @22182 has 2 MA's), (40, 22179), (44, 22152), (72, 21945),

Gene: LilTerminator\_33 Start: 22231, Stop: 21938, Start Num: 36  
Candidate Starts for LilTerminator\_33:  
(Start: 36 @22231 has 161 MA's), (37, 22216), (Start: 38 @22213 has 1 MA's), (Start: 39 @22204 has 2 MA's), (40, 22201), (44, 22174), (72, 21967),

Gene: Lovelyunicorn\_35 Start: 24367, Stop: 24074, Start Num: 36  
Candidate Starts for Lovelyunicorn\_35:  
(Start: 36 @24367 has 161 MA's), (Start: 39 @24340 has 2 MA's), (40, 24337),

Gene: Lucky3\_32 Start: 24032, Stop: 23739, Start Num: 36  
Candidate Starts for Lucky3\_32:  
(Start: 36 @24032 has 161 MA's), (Start: 39 @24005 has 2 MA's), (44, 23975),

Gene: Ludgate\_35 Start: 24362, Stop: 24069, Start Num: 36  
Candidate Starts for Ludgate\_35:  
(Start: 36 @24362 has 161 MA's), (Start: 39 @24335 has 2 MA's), (40, 24332),

Gene: Luna18\_34 Start: 23441, Stop: 23154, Start Num: 36  
Candidate Starts for Luna18\_34:  
(Start: 36 @23441 has 161 MA's), (Start: 39 @23414 has 2 MA's), (44, 23384),

Gene: MAnor\_40 Start: 29358, Stop: 29074, Start Num: 34  
Candidate Starts for MAnor\_40:  
(27, 29424), (Start: 34 @29358 has 42 MA's), (40, 29322), (42, 29313), (Start: 45 @29292 has 1 MA's), (46, 29283), (47, 29268), (48, 29265), (49, 29262), (54, 29235), (56, 29211), (58, 29199), (61, 29166), (71, 29094),

Gene: MCubed\_33 Start: 24003, Stop: 23716, Start Num: 36  
Candidate Starts for MCubed\_33:  
(Start: 36 @24003 has 161 MA's), (Start: 39 @23976 has 2 MA's), (40, 23973), (44, 23946),

Gene: MScarn\_38 Start: 26559, Stop: 26272, Start Num: 34

Candidate Starts for MScarn\_38:

(25, 26631), (Start: 34 @26559 has 42 MA's), (Start: 45 @26493 has 1 MA's), (48, 26466), (49, 26463), (57, 26406), (58, 26400), (62, 26364), (63, 26361), (66, 26328), (71, 26295),

Gene: MaVan\_36 Start: 27306, Stop: 27022, Start Num: 33

Candidate Starts for MaVan\_36:

(Start: 33 @27306 has 9 MA's), (37, 27285), (42, 27261), (Start: 45 @27240 has 1 MA's), (48, 27213), (49, 27210), (57, 27153), (58, 27147), (69, 27060),

Gene: Maco6\_36 Start: 27911, Stop: 27627, Start Num: 35

Candidate Starts for Maco6\_36:

(Start: 35 @27911 has 7 MA's), (46, 27836), (48, 27818), (49, 27815), (62, 27716), (64, 27707), (71, 27647),

Gene: MaeLinda\_35 Start: 24369, Stop: 24076, Start Num: 36

Candidate Starts for MaeLinda\_35:

(Start: 36 @24369 has 161 MA's), (Start: 39 @24342 has 2 MA's), (40, 24339),

Gene: ManRay\_34 Start: 24064, Stop: 23771, Start Num: 36

Candidate Starts for ManRay\_34:

(Start: 36 @24064 has 161 MA's), (Start: 39 @24037 has 2 MA's), (40, 24034),

Gene: Mandalorian\_31 Start: 23652, Stop: 23359, Start Num: 36

Candidate Starts for Mandalorian\_31:

(Start: 36 @23652 has 161 MA's), (Start: 38 @23634 has 1 MA's), (Start: 39 @23625 has 2 MA's), (43, 23604), (44, 23595), (73, 23367),

Gene: Margaret\_44 Start: 28911, Stop: 28639, Start Num: 34

Candidate Starts for Margaret\_44:

(19, 29010), (26, 28980), (Start: 34 @28911 has 42 MA's), (44, 28851), (Start: 45 @28845 has 1 MA's), (46, 28836), (48, 28818), (49, 28815), (58, 28752), (65, 28683), (69, 28665),

Gene: Martin\_36 Start: 24368, Stop: 24075, Start Num: 36

Candidate Starts for Martin\_36:

(Start: 36 @24368 has 161 MA's), (Start: 39 @24341 has 2 MA's), (40, 24338),

Gene: Mayweather\_42 Start: 29582, Stop: 29298, Start Num: 34

Candidate Starts for Mayweather\_42:

(4, 29930), (6, 29921), (11, 29831), (18, 29687), (20, 29681), (21, 29678), (22, 29675), (24, 29657), (Start: 34 @29582 has 42 MA's), (40, 29546), (Start: 45 @29516 has 1 MA's), (47, 29492), (48, 29489), (49, 29486), (54, 29459), (56, 29435), (58, 29423), (61, 29390), (71, 29318),

Gene: McGalleon\_37 Start: 25766, Stop: 25473, Start Num: 36

Candidate Starts for McGalleon\_37:

(Start: 36 @25766 has 161 MA's), (Start: 39 @25739 has 2 MA's),

Gene: Mercedes\_29 Start: 21222, Stop: 20929, Start Num: 36

Candidate Starts for Mercedes\_29:

(Start: 36 @21222 has 161 MA's), (37, 21207), (Start: 38 @21204 has 1 MA's), (Start: 39 @21195 has 2 MA's), (40, 21192), (44, 21165), (72, 20958),

Gene: MillyPhilly\_35 Start: 24365, Stop: 24072, Start Num: 36  
Candidate Starts for MillyPhilly\_35:  
(Start: 36 @24365 has 161 MA's), (Start: 39 @24338 has 2 MA's), (40, 24335),

Gene: MonChoix\_33 Start: 24368, Stop: 24075, Start Num: 36  
Candidate Starts for MonChoix\_33:  
(Start: 36 @24368 has 161 MA's), (Start: 39 @24341 has 2 MA's), (40, 24338),

Gene: Morrigan\_34 Start: 23471, Stop: 23184, Start Num: 36  
Candidate Starts for Morrigan\_34:  
(Start: 36 @23471 has 161 MA's), (Start: 39 @23444 has 2 MA's),

Gene: MrWorldwide\_35 Start: 24369, Stop: 24076, Start Num: 36  
Candidate Starts for MrWorldwide\_35:  
(Start: 36 @24369 has 161 MA's), (Start: 39 @24342 has 2 MA's), (40, 24339),

Gene: Muddy\_38 Start: 29135, Stop: 28851, Start Num: 35  
Candidate Starts for Muddy\_38:  
(Start: 35 @29135 has 7 MA's), (46, 29060), (48, 29042), (49, 29039), (62, 28940), (64, 28931), (71, 28871),

Gene: MunkgeeRoachy\_37 Start: 26468, Stop: 26181, Start Num: 34  
Candidate Starts for MunkgeeRoachy\_37:  
(3, 26822), (8, 26795), (9, 26735), (29, 26519), (31, 26477), (Start: 34 @26468 has 42 MA's), (Start: 45 @26402 has 1 MA's), (48, 26375), (49, 26372), (57, 26315), (58, 26309), (62, 26273), (63, 26270), (71, 26204),

Gene: Nagem\_35 Start: 24362, Stop: 24069, Start Num: 36  
Candidate Starts for Nagem\_35:  
(Start: 36 @24362 has 161 MA's), (Start: 39 @24335 has 2 MA's), (40, 24332),

Gene: Nattles\_34 Start: 24051, Stop: 23758, Start Num: 36  
Candidate Starts for Nattles\_34:  
(Start: 36 @24051 has 161 MA's), (Start: 39 @24024 has 2 MA's), (40, 24021),

Gene: Nebulous\_32 Start: 25234, Stop: 24941, Start Num: 36  
Candidate Starts for Nebulous\_32:  
(Start: 36 @25234 has 161 MA's), (Start: 39 @25207 has 2 MA's), (40, 25204), (44, 25177), (72, 24970),

Gene: Neferthena\_32 Start: 24324, Stop: 24031, Start Num: 36  
Candidate Starts for Neferthena\_32:  
(Start: 36 @24324 has 161 MA's), (Start: 39 @24297 has 2 MA's), (40, 24294), (44, 24267), (72, 24060),

Gene: Nibbles\_35 Start: 26990, Stop: 26706, Start Num: 33  
Candidate Starts for Nibbles\_35:  
(Start: 33 @26990 has 9 MA's), (37, 26969), (42, 26945), (Start: 45 @26924 has 1 MA's), (48, 26897), (49, 26894), (57, 26837), (58, 26831), (69, 26744),

Gene: NickSell\_36 Start: 24341, Stop: 24075, Start Num: 39  
Candidate Starts for NickSell\_36:  
(Start: 36 @24368 has 161 MA's), (Start: 39 @24341 has 2 MA's), (40, 24338),

Gene: Nina\_36 Start: 27130, Stop: 26843, Start Num: 34

Candidate Starts for Nina\_36:

(3, 27484), (9, 27397), (31, 27139), (Start: 34 @27130 has 42 MA's), (Start: 45 @27064 has 1 MA's), (48, 27037), (49, 27034), (56, 26983), (58, 26971), (62, 26935), (63, 26932), (71, 26866),

Gene: NoShow\_45 Start: 31933, Stop: 31661, Start Num: 35

Candidate Starts for NoShow\_45:

(Start: 35 @31933 has 7 MA's), (Start: 45 @31870 has 1 MA's), (48, 31843), (49, 31840), (60, 31747), (62, 31741), (65, 31708),

Gene: Nodigi\_45 Start: 29954, Stop: 29676, Start Num: 34

Candidate Starts for Nodigi\_45:

(Start: 34 @29954 has 42 MA's), (44, 29894), (Start: 45 @29888 has 1 MA's), (47, 29864), (48, 29861), (49, 29858), (50, 29849), (58, 29795), (59, 29771), (65, 29726),

Gene: Nucci\_31 Start: 23623, Stop: 23348, Start Num: 38

Candidate Starts for Nucci\_31:

(Start: 36 @23641 has 161 MA's), (Start: 38 @23623 has 1 MA's), (Start: 39 @23614 has 2 MA's), (43, 23593), (44, 23584), (73, 23356),

Gene: Oats\_34 Start: 24064, Stop: 23771, Start Num: 36

Candidate Starts for Oats\_34:

(Start: 36 @24064 has 161 MA's), (Start: 39 @24037 has 2 MA's), (40, 24034),

Gene: OldNelly\_35 Start: 24368, Stop: 24075, Start Num: 36

Candidate Starts for OldNelly\_35:

(Start: 36 @24368 has 161 MA's), (Start: 39 @24341 has 2 MA's), (40, 24338),

Gene: Orla\_45 Start: 29927, Stop: 29649, Start Num: 34

Candidate Starts for Orla\_45:

(Start: 34 @29927 has 42 MA's), (44, 29867), (Start: 45 @29861 has 1 MA's), (47, 29837), (48, 29834), (49, 29831), (50, 29822), (58, 29768), (59, 29744), (65, 29699),

Gene: Oxtober96\_35 Start: 24367, Stop: 24074, Start Num: 36

Candidate Starts for Oxtober96\_35:

(Start: 36 @24367 has 161 MA's), (Start: 39 @24340 has 2 MA's), (40, 24337),

Gene: Pajaza\_31 Start: 23331, Stop: 23032, Start Num: 35

Candidate Starts for Pajaza\_31:

(Start: 35 @23331 has 7 MA's), (44, 23271), (65, 23100),

Gene: Papafritta\_34 Start: 24060, Stop: 23767, Start Num: 36

Candidate Starts for Papafritta\_34:

(Start: 36 @24060 has 161 MA's), (Start: 39 @24033 has 2 MA's), (40, 24030),

Gene: ParleG\_35 Start: 24369, Stop: 24076, Start Num: 36

Candidate Starts for ParleG\_35:

(Start: 36 @24369 has 161 MA's), (Start: 39 @24342 has 2 MA's), (40, 24339),

Gene: Peep\_35 Start: 24354, Stop: 24061, Start Num: 36

Candidate Starts for Peep\_35:

(Start: 36 @24354 has 161 MA's), (Start: 39 @24327 has 2 MA's), (40, 24324),

Gene: Peppino\_34 Start: 24463, Stop: 24170, Start Num: 36  
Candidate Starts for Peppino\_34:  
(Start: 36 @24463 has 161 MA's), (Start: 39 @24436 has 2 MA's), (40, 24433),

Gene: Pherbot\_32 Start: 23930, Stop: 23637, Start Num: 36  
Candidate Starts for Pherbot\_32:  
(Start: 36 @23930 has 161 MA's), (Start: 39 @23903 has 2 MA's), (42, 23891), (44, 23873),

Gene: Pherferi\_35 Start: 24368, Stop: 24075, Start Num: 36  
Candidate Starts for Pherferi\_35:  
(Start: 36 @24368 has 161 MA's), (Start: 39 @24341 has 2 MA's), (40, 24338),

Gene: Phiderman\_35 Start: 24365, Stop: 24072, Start Num: 36  
Candidate Starts for Phiderman\_35:  
(Start: 36 @24365 has 161 MA's), (Start: 39 @24338 has 2 MA's), (40, 24335),

Gene: Phireproof\_35 Start: 24368, Stop: 24075, Start Num: 36  
Candidate Starts for Phireproof\_35:  
(Start: 36 @24368 has 161 MA's), (Start: 39 @24341 has 2 MA's), (40, 24338),

Gene: PhredFlintston\_35 Start: 24368, Stop: 24075, Start Num: 36  
Candidate Starts for PhredFlintston\_35:  
(Start: 36 @24368 has 161 MA's), (Start: 39 @24341 has 2 MA's), (40, 24338),

Gene: Phriends\_35 Start: 24368, Stop: 24075, Start Num: 36  
Candidate Starts for Phriends\_35:  
(Start: 36 @24368 has 161 MA's), (Start: 39 @24341 has 2 MA's), (40, 24338),

Gene: Pikmin\_31 Start: 23331, Stop: 23032, Start Num: 35  
Candidate Starts for Pikmin\_31:  
(Start: 35 @23331 has 7 MA's), (44, 23271), (65, 23100),

Gene: Pocket\_34 Start: 24049, Stop: 23756, Start Num: 36  
Candidate Starts for Pocket\_34:  
(Start: 36 @24049 has 161 MA's), (Start: 39 @24022 has 2 MA's), (40, 24019),

Gene: Pons\_40 Start: 28933, Stop: 28649, Start Num: 34  
Candidate Starts for Pons\_40:  
(2, 29299), (6, 29272), (11, 29179), (20, 29032), (21, 29029), (22, 29026), (24, 29008), (Start: 34 @28933 has 42 MA's), (40, 28897), (42, 28888), (Start: 45 @28867 has 1 MA's), (46, 28858), (47, 28843), (48, 28840), (49, 28837), (54, 28810), (56, 28786), (58, 28774), (61, 28741), (71, 28669),

Gene: PotPie\_39 Start: 29867, Stop: 29583, Start Num: 34  
Candidate Starts for PotPie\_39:  
(6, 30203), (11, 30113), (20, 29966), (21, 29963), (22, 29960), (24, 29942), (Start: 34 @29867 has 42 MA's), (40, 29831), (42, 29822), (Start: 45 @29801 has 1 MA's), (46, 29792), (47, 29777), (48, 29774), (49, 29771), (54, 29744), (56, 29720), (58, 29708), (61, 29675), (71, 29603),

Gene: PrincePhergus\_32 Start: 23933, Stop: 23640, Start Num: 36  
Candidate Starts for PrincePhergus\_32:  
(Start: 36 @23933 has 161 MA's), (Start: 39 @23906 has 2 MA's), (44, 23876),



Gene: PsychoKiller\_35 Start: 26614, Stop: 26327, Start Num: 34  
Candidate Starts for PsychoKiller\_35:  
(25, 26686), (Start: 34 @26614 has 42 MA's), (Start: 45 @26548 has 1 MA's), (48, 26521), (49, 26518), (57, 26461), (58, 26455), (62, 26419), (63, 26416), (71, 26350),

Gene: PuppyEggo\_35 Start: 24366, Stop: 24073, Start Num: 36  
Candidate Starts for PuppyEggo\_35:  
(Start: 36 @24366 has 161 MA's), (Start: 39 @24339 has 2 MA's), (40, 24336),

Gene: QuadZero\_32 Start: 22239, Stop: 21946, Start Num: 36  
Candidate Starts for QuadZero\_32:  
(Start: 36 @22239 has 161 MA's), (37, 22224), (Start: 38 @22221 has 1 MA's), (Start: 39 @22212 has 2 MA's), (40, 22209), (44, 22182), (72, 21975),

Gene: Quartz\_32 Start: 23777, Stop: 23484, Start Num: 36  
Candidate Starts for Quartz\_32:  
(Start: 36 @23777 has 161 MA's), (Start: 38 @23759 has 1 MA's), (Start: 39 @23750 has 2 MA's), (43, 23729), (44, 23720), (73, 23492),

Gene: Quasar\_36 Start: 27216, Stop: 26929, Start Num: 34  
Candidate Starts for Quasar\_36:  
(25, 27288), (Start: 34 @27216 has 42 MA's), (Start: 45 @27150 has 1 MA's), (48, 27123), (49, 27120), (56, 27069), (57, 27063), (58, 27057), (62, 27021), (63, 27018), (71, 26952),

Gene: Raccoon\_34 Start: 24429, Stop: 24136, Start Num: 36  
Candidate Starts for Raccoon\_34:  
(Start: 36 @24429 has 161 MA's), (Start: 39 @24402 has 2 MA's), (40, 24399),

Gene: Rapheph\_35 Start: 24368, Stop: 24075, Start Num: 36  
Candidate Starts for Rapheph\_35:  
(Start: 36 @24368 has 161 MA's), (Start: 39 @24341 has 2 MA's), (40, 24338),

Gene: Raptor\_35 Start: 24366, Stop: 24073, Start Num: 36  
Candidate Starts for Raptor\_35:  
(Start: 36 @24366 has 161 MA's), (Start: 39 @24339 has 2 MA's), (40, 24336),

Gene: RedBaron\_38 Start: 26851, Stop: 26564, Start Num: 34  
Candidate Starts for RedBaron\_38:  
(25, 26923), (Start: 34 @26851 has 42 MA's), (Start: 45 @26785 has 1 MA's), (48, 26758), (49, 26755), (57, 26698), (58, 26692), (62, 26656), (63, 26653), (71, 26587),

Gene: Redfield\_34 Start: 24470, Stop: 24177, Start Num: 36  
Candidate Starts for Redfield\_34:  
(Start: 36 @24470 has 161 MA's), (Start: 39 @24443 has 2 MA's), (40, 24440),

Gene: Renzie\_35 Start: 24354, Stop: 24061, Start Num: 36  
Candidate Starts for Renzie\_35:  
(Start: 36 @24354 has 161 MA's), (Start: 39 @24327 has 2 MA's), (40, 24324),

Gene: Riyhil\_35 Start: 24368, Stop: 24075, Start Num: 36  
Candidate Starts for Riyhil\_35:  
(Start: 36 @24368 has 161 MA's), (Start: 39 @24341 has 2 MA's), (40, 24338),

Gene: Robinson\_35 Start: 24360, Stop: 24067, Start Num: 36  
Candidate Starts for Robinson\_35:  
(Start: 36 @24360 has 161 MA's), (Start: 39 @24333 has 2 MA's), (40, 24330),

Gene: Rog141\_34 Start: 24051, Stop: 23758, Start Num: 36  
Candidate Starts for Rog141\_34:  
(Start: 36 @24051 has 161 MA's), (Start: 39 @24024 has 2 MA's), (40, 24021),

Gene: SJay\_35 Start: 24363, Stop: 24070, Start Num: 36  
Candidate Starts for SJay\_35:  
(Start: 36 @24363 has 161 MA's), (Start: 39 @24336 has 2 MA's), (40, 24333),

Gene: Sansa\_32 Start: 24064, Stop: 23777, Start Num: 36  
Candidate Starts for Sansa\_32:  
(Start: 36 @24064 has 161 MA's), (Start: 39 @24037 has 2 MA's), (40, 24034), (44, 24007),

Gene: Saratos\_33 Start: 23978, Stop: 23691, Start Num: 36  
Candidate Starts for Saratos\_33:  
(Start: 36 @23978 has 161 MA's), (Start: 39 @23951 has 2 MA's), (40, 23948), (44, 23921),

Gene: Schimmels22\_33 Start: 23061, Stop: 22768, Start Num: 36  
Candidate Starts for Schimmels22\_33:  
(Start: 36 @23061 has 161 MA's), (Start: 39 @23034 has 2 MA's),

Gene: Schnapsidee\_34 Start: 24464, Stop: 24171, Start Num: 36  
Candidate Starts for Schnapsidee\_34:  
(Start: 36 @24464 has 161 MA's), (Start: 39 @24437 has 2 MA's), (40, 24434),

Gene: Schubert\_32 Start: 23934, Stop: 23641, Start Num: 36  
Candidate Starts for Schubert\_32:  
(Start: 36 @23934 has 161 MA's), (Start: 39 @23907 has 2 MA's),

Gene: Sedgewig\_34 Start: 24043, Stop: 23750, Start Num: 36  
Candidate Starts for Sedgewig\_34:  
(Start: 36 @24043 has 161 MA's), (Start: 39 @24016 has 2 MA's), (40, 24013),

Gene: ShaiHulud\_35 Start: 24366, Stop: 24073, Start Num: 36  
Candidate Starts for ShaiHulud\_35:  
(Start: 36 @24366 has 161 MA's), (Start: 39 @24339 has 2 MA's), (40, 24336),

Gene: Shamu\_33 Start: 23993, Stop: 23706, Start Num: 36  
Candidate Starts for Shamu\_33:  
(Start: 36 @23993 has 161 MA's), (Start: 39 @23966 has 2 MA's), (40, 23963), (44, 23936),

Gene: SheckWes\_41 Start: 28454, Stop: 28170, Start Num: 34  
Candidate Starts for SheckWes\_41:  
(5, 28799), (7, 28793), (10, 28709), (20, 28553), (21, 28550), (22, 28547), (24, 28529), (Start: 34 @28454 has 42 MA's), (40, 28418), (42, 28409), (Start: 45 @28388 has 1 MA's), (46, 28379), (47, 28364), (48, 28361), (49, 28358), (54, 28331), (56, 28307), (58, 28295), (61, 28262), (71, 28190),

Gene: Shee\_35 Start: 24365, Stop: 24072, Start Num: 36  
Candidate Starts for Shee\_35:  
(Start: 36 @24365 has 161 MA's), (Start: 39 @24338 has 2 MA's), (40, 24335),

Gene: Sinatra\_32 Start: 23929, Stop: 23636, Start Num: 36

Candidate Starts for Sinatra\_32:

(Start: 36 @23929 has 161 MA's), (Start: 39 @23902 has 2 MA's), (44, 23872),

Gene: SirVictor\_32 Start: 24020, Stop: 23727, Start Num: 36

Candidate Starts for SirVictor\_32:

(Start: 36 @24020 has 161 MA's), (Start: 39 @23993 has 2 MA's), (44, 23963), (72, 23756),

Gene: SketchMex\_36 Start: 26909, Stop: 26622, Start Num: 34

Candidate Starts for SketchMex\_36:

(13, 27092), (14, 27053), (16, 27026), (23, 26993), (Start: 34 @26909 has 42 MA's), (Start: 45 @26843 has 1 MA's), (48, 26816), (49, 26813), (57, 26756), (58, 26750), (62, 26714), (63, 26711), (66, 26678), (71, 26645),

Gene: SoilGremlin\_35 Start: 24365, Stop: 24072, Start Num: 36

Candidate Starts for SoilGremlin\_35:

(Start: 36 @24365 has 161 MA's), (Start: 39 @24338 has 2 MA's), (40, 24335),

Gene: SonOfLevi\_34 Start: 24046, Stop: 23753, Start Num: 36

Candidate Starts for SonOfLevi\_34:

(Start: 36 @24046 has 161 MA's), (Start: 39 @24019 has 2 MA's), (40, 24016),

Gene: Sopespian\_35 Start: 26615, Stop: 26328, Start Num: 34

Candidate Starts for Sopespian\_35:

(25, 26687), (Start: 34 @26615 has 42 MA's), (Start: 45 @26549 has 1 MA's), (48, 26522), (49, 26519), (57, 26462), (58, 26456), (62, 26420), (63, 26417), (71, 26351),

Gene: Stanktossa\_35 Start: 24368, Stop: 24075, Start Num: 36

Candidate Starts for Stanktossa\_35:

(Start: 36 @24368 has 161 MA's), (Start: 39 @24341 has 2 MA's), (40, 24338),

Gene: SteamedHams\_38 Start: 27027, Stop: 26740, Start Num: 34

Candidate Starts for SteamedHams\_38:

(Start: 34 @27027 has 42 MA's), (Start: 45 @26961 has 1 MA's), (48, 26934), (49, 26931), (54, 26904), (56, 26880), (58, 26868), (62, 26832), (63, 26829), (71, 26763),

Gene: StingRay\_34 Start: 24061, Stop: 23768, Start Num: 36

Candidate Starts for StingRay\_34:

(Start: 36 @24061 has 161 MA's), (Start: 39 @24034 has 2 MA's), (40, 24031),

Gene: StirfryIV\_35 Start: 24051, Stop: 23758, Start Num: 36

Candidate Starts for StirfryIV\_35:

(Start: 36 @24051 has 161 MA's), (Start: 39 @24024 has 2 MA's), (40, 24021),

Gene: Stormbreaker8\_34 Start: 24464, Stop: 24171, Start Num: 36

Candidate Starts for Stormbreaker8\_34:

(Start: 36 @24464 has 161 MA's), (Start: 39 @24437 has 2 MA's), (40, 24434),

Gene: Strathdee\_35 Start: 24367, Stop: 24074, Start Num: 36

Candidate Starts for Strathdee\_35:

(Start: 36 @24367 has 161 MA's), (Start: 39 @24340 has 2 MA's), (40, 24337),

Gene: SummitAcademy\_38 Start: 28496, Stop: 28212, Start Num: 34

Candidate Starts for SummitAcademy\_38:

(6, 28832), (11, 28742), (20, 28595), (21, 28592), (22, 28589), (24, 28571), (Start: 34 @28496 has 42 MA's), (40, 28460), (42, 28451), (Start: 45 @28430 has 1 MA's), (46, 28421), (47, 28406), (48, 28403), (49, 28400), (54, 28373), (56, 28349), (58, 28337), (61, 28304), (71, 28232),

Gene: Superfresh\_35 Start: 24354, Stop: 24061, Start Num: 36

Candidate Starts for Superfresh\_35:

(Start: 36 @24354 has 161 MA's), (Start: 39 @24327 has 2 MA's), (40, 24324),

Gene: Survivors\_36 Start: 27199, Stop: 26915, Start Num: 33

Candidate Starts for Survivors\_36:

(Start: 33 @27199 has 9 MA's), (37, 27178), (42, 27154), (Start: 45 @27133 has 1 MA's), (48, 27106), (49, 27103), (57, 27046), (58, 27040), (69, 26953),

Gene: SweatNTears\_37 Start: 26511, Stop: 26224, Start Num: 34

Candidate Starts for SweatNTears\_37:

(25, 26583), (Start: 34 @26511 has 42 MA's), (Start: 45 @26445 has 1 MA's), (48, 26418), (49, 26415), (57, 26358), (58, 26352), (62, 26316), (63, 26313), (71, 26247),

Gene: TatarkaPM\_35 Start: 24368, Stop: 24075, Start Num: 36

Candidate Starts for TatarkaPM\_35:

(Start: 36 @24368 has 161 MA's), (Start: 39 @24341 has 2 MA's), (40, 24338),

Gene: Teagan\_35 Start: 24362, Stop: 24069, Start Num: 36

Candidate Starts for Teagan\_35:

(Start: 36 @24362 has 161 MA's), (Start: 39 @24335 has 2 MA's), (40, 24332),

Gene: TeddyBear\_34 Start: 24064, Stop: 23771, Start Num: 36

Candidate Starts for TeddyBear\_34:

(Start: 36 @24064 has 161 MA's), (Start: 39 @24037 has 2 MA's), (40, 24034),

Gene: Tenda\_34 Start: 24062, Stop: 23769, Start Num: 36

Candidate Starts for Tenda\_34:

(Start: 36 @24062 has 161 MA's), (Start: 39 @24035 has 2 MA's), (40, 24032),

Gene: Thompsone\_35 Start: 24366, Stop: 24073, Start Num: 36

Candidate Starts for Thompsone\_35:

(Start: 36 @24366 has 161 MA's), (Start: 39 @24339 has 2 MA's), (40, 24336),

Gene: Thorongil\_35 Start: 24366, Stop: 24073, Start Num: 36

Candidate Starts for Thorongil\_35:

(Start: 36 @24366 has 161 MA's), (Start: 39 @24339 has 2 MA's), (40, 24336),

Gene: TinSulphur\_35 Start: 24368, Stop: 24075, Start Num: 36

Candidate Starts for TinSulphur\_35:

(Start: 36 @24368 has 161 MA's), (Start: 39 @24341 has 2 MA's), (40, 24338),

Gene: Tinyman4\_33 Start: 22687, Stop: 22394, Start Num: 36

Candidate Starts for Tinyman4\_33:

(Start: 36 @22687 has 161 MA's), (Start: 39 @22660 has 2 MA's), (72, 22423),

Gene: Tolls\_38 Start: 27126, Stop: 26839, Start Num: 34

Candidate Starts for Tolls\_38:

(Start: 34 @27126 has 42 MA's), (Start: 45 @27060 has 1 MA's), (48, 27033), (49, 27030), (56, 26979), (58, 26967), (62, 26931), (63, 26928), (71, 26862),

Gene: Triscuit\_82 Start: 51622, Stop: 51939, Start Num: 32

Candidate Starts for Triscuit\_82:

(Start: 32 @51622 has 2 MA's), (Start: 45 @51691 has 1 MA's), (48, 51718), (49, 51721), (51, 51739), (62, 51826), (64, 51835), (67, 51865), (70, 51889), (74, 51925),

Gene: Troje\_37 Start: 26916, Stop: 26629, Start Num: 34

Candidate Starts for Troje\_37:

(25, 26988), (Start: 34 @26916 has 42 MA's), (Start: 45 @26850 has 1 MA's), (48, 26823), (49, 26820), (57, 26763), (58, 26757), (62, 26721), (63, 26718), (66, 26685), (71, 26652),

Gene: Typhonomachy\_36 Start: 26625, Stop: 26338, Start Num: 34

Candidate Starts for Typhonomachy\_36:

(3, 26979), (9, 26892), (31, 26634), (Start: 34 @26625 has 42 MA's), (Start: 45 @26559 has 1 MA's), (48, 26532), (49, 26529), (56, 26478), (58, 26466), (62, 26430), (63, 26427), (71, 26361),

Gene: Velene\_35 Start: 24367, Stop: 24074, Start Num: 36

Candidate Starts for Velene\_35:

(Start: 36 @24367 has 161 MA's), (Start: 39 @24340 has 2 MA's), (40, 24337),

Gene: Vine\_41 Start: 29228, Stop: 28944, Start Num: 34

Candidate Starts for Vine\_41:

(Start: 34 @29228 has 42 MA's), (40, 29192), (42, 29183), (Start: 45 @29162 has 1 MA's), (47, 29138), (48, 29135), (49, 29132), (54, 29105), (56, 29081), (58, 29069), (61, 29036), (71, 28964),

Gene: Vispistious\_35 Start: 24339, Stop: 24073, Start Num: 39

Candidate Starts for Vispistious\_35:

(Start: 36 @24366 has 161 MA's), (Start: 39 @24339 has 2 MA's), (40, 24336),

Gene: WestPM\_31 Start: 22544, Stop: 22251, Start Num: 36

Candidate Starts for WestPM\_31:

(Start: 36 @22544 has 161 MA's), (Start: 39 @22517 has 2 MA's),

Gene: WildNOut\_35 Start: 24366, Stop: 24073, Start Num: 36

Candidate Starts for WildNOut\_35:

(Start: 36 @24366 has 161 MA's), (Start: 39 @24339 has 2 MA's), (40, 24336),

Gene: WilliamStrong\_33 Start: 23765, Stop: 23478, Start Num: 36

Candidate Starts for WilliamStrong\_33:

(Start: 36 @23765 has 161 MA's), (Start: 39 @23738 has 2 MA's), (44, 23708),

Gene: Winzigespinne\_34 Start: 24050, Stop: 23757, Start Num: 36

Candidate Starts for Winzigespinne\_34:

(Start: 36 @24050 has 161 MA's), (Start: 39 @24023 has 2 MA's), (40, 24020),

Gene: Yakult\_40 Start: 28020, Stop: 27742, Start Num: 34

Candidate Starts for Yakult\_40:

(Start: 34 @28020 has 42 MA's), (44, 27960), (Start: 45 @27954 has 1 MA's), (47, 27930), (48, 27927), (49, 27924), (58, 27861), (65, 27792),

Gene: Yarn\_34 Start: 26886, Stop: 26599, Start Num: 34

Candidate Starts for Yarn\_34:

(Start: 34 @26886 has 42 MA's), (Start: 45 @26820 has 1 MA's), (48, 26793), (49, 26790), (56, 26739), (58, 26727), (62, 26691), (63, 26688), (71, 26622),

Gene: Yummy\_37 Start: 26533, Stop: 26246, Start Num: 34

Candidate Starts for Yummy\_37:

(25, 26605), (Start: 34 @26533 has 42 MA's), (Start: 45 @26467 has 1 MA's), (48, 26440), (49, 26437), (57, 26380), (58, 26374), (62, 26338), (63, 26335), (66, 26302), (71, 26269),

Gene: YuuY\_33 Start: 24385, Stop: 24092, Start Num: 36

Candidate Starts for YuuY\_33:

(Start: 36 @24385 has 161 MA's), (Start: 38 @24367 has 1 MA's), (Start: 39 @24358 has 2 MA's), (43, 24337), (44, 24328), (52, 24271), (73, 24100),

Gene: Zada\_35 Start: 24347, Stop: 24054, Start Num: 36

Candidate Starts for Zada\_35:

(Start: 36 @24347 has 161 MA's), (Start: 39 @24320 has 2 MA's), (40, 24317),

Gene: Zareef\_38 Start: 27293, Stop: 27009, Start Num: 33

Candidate Starts for Zareef\_38:

(Start: 33 @27293 has 9 MA's), (37, 27272), (42, 27248), (Start: 45 @27227 has 1 MA's), (48, 27200), (49, 27197), (57, 27140), (58, 27134), (69, 27047),

Gene: Zayuliv\_32 Start: 22821, Stop: 22528, Start Num: 36

Candidate Starts for Zayuliv\_32:

(Start: 36 @22821 has 161 MA's), (37, 22806), (Start: 38 @22803 has 1 MA's), (Start: 39 @22794 has 2 MA's), (40, 22791), (44, 22764), (72, 22557),

Gene: Zenitsu\_33 Start: 24008, Stop: 23721, Start Num: 36

Candidate Starts for Zenitsu\_33:

(Start: 36 @24008 has 161 MA's), (Start: 39 @23981 has 2 MA's), (40, 23978), (44, 23951),

Gene: Zepp\_33 Start: 22289, Stop: 21996, Start Num: 36

Candidate Starts for Zepp\_33:

(Start: 36 @22289 has 161 MA's), (37, 22274), (Start: 38 @22271 has 1 MA's), (Start: 39 @22262 has 2 MA's), (40, 22259), (44, 22232), (72, 22025),

Gene: Zuko\_83 Start: 63560, Stop: 63886, Start Num: 34

Candidate Starts for Zuko\_83:

(15, 63422), (22, 63464), (30, 63512), (Start: 34 @63560 has 42 MA's), (46, 63635), (48, 63653), (49, 63656), (57, 63713), (58, 63719), (68, 63797), (70, 63818),