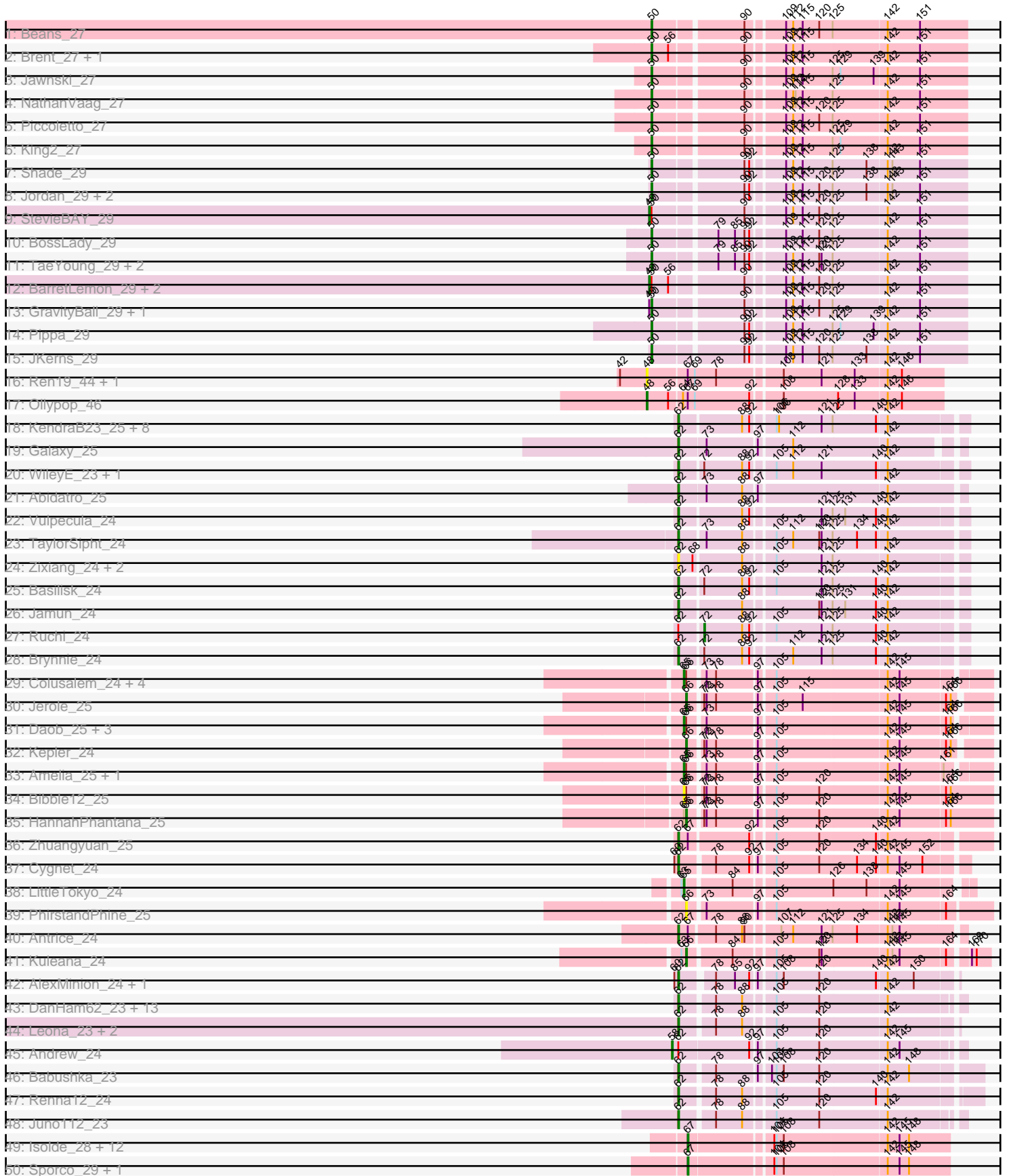
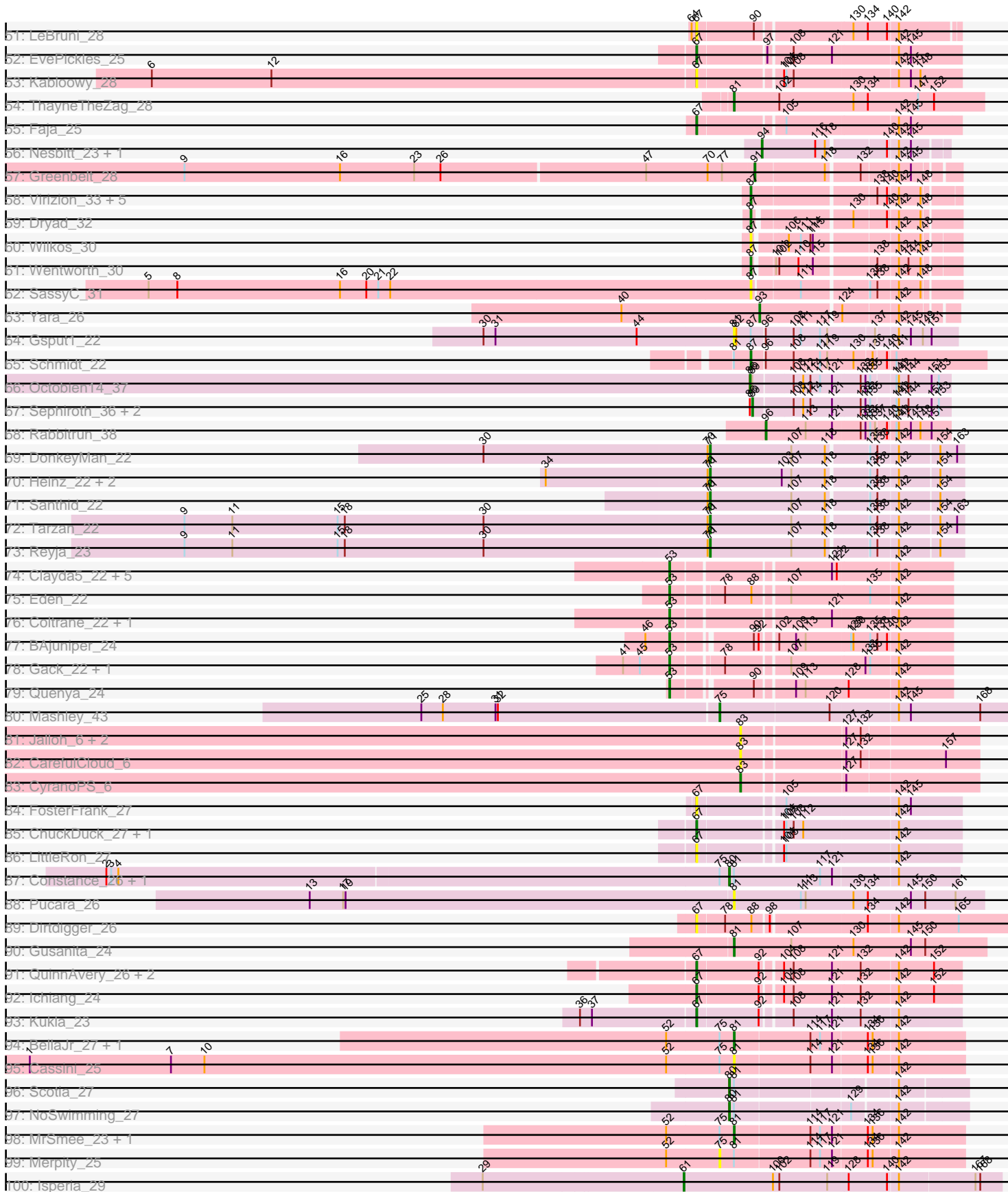


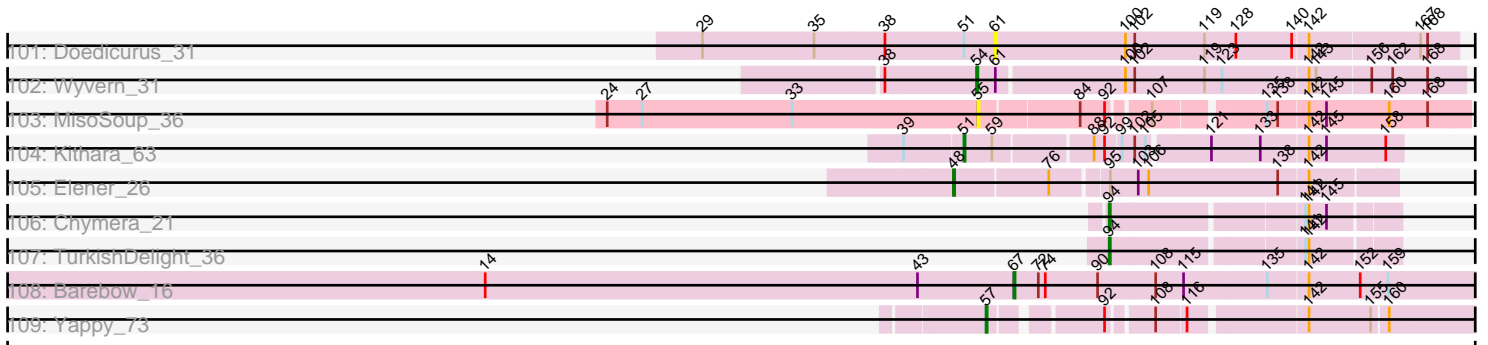
Pham 294450



Pham 294450



# Pham 294450



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 294450 Report

This analysis was run 04/18/26 on database version 643.

Pham number 294450 has 191 members, 50 are drafts.

Phages represented in each track:

- Track 1 : Beans\_27
- Track 2 : Brent\_27, Franzy\_27
- Track 3 : Jawnski\_27
- Track 4 : NathanVaag\_27
- Track 5 : Piccoletto\_27
- Track 6 : King2\_27
- Track 7 : Shade\_29
- Track 8 : Jordan\_29, Zartrosa\_29, Sonny\_29
- Track 9 : StevieBAY\_29
- Track 10 : BossLady\_29
- Track 11 : TaeYoung\_29, Martha\_29, Grekaycon\_29
- Track 12 : BarretLemon\_29, Timinator\_29, LeeroyJ\_29
- Track 13 : GravityBall\_29, BigDome\_29
- Track 14 : Pippa\_29
- Track 15 : JKerns\_29
- Track 16 : Ren19\_44, Nikan\_46
- Track 17 : Ollypop\_46
- Track 18 : KendraB23\_25, Amanises\_25, Toad24\_25, Pelletreau\_25, Westrich\_25, Gravel\_25, Shen\_25, Eesa\_24, Orcanus\_24
- Track 19 : Galaxy\_25
- Track 20 : WileyE\_23, Chickaboom\_23
- Track 21 : Abidatro\_25
- Track 22 : Vulpecula\_24
- Track 23 : TaylorSipht\_24
- Track 24 : Zixiang\_24, Niblet\_24, Chicken\_24
- Track 25 : Basilisk\_24
- Track 26 : Jamun\_24
- Track 27 : Ruchi\_24
- Track 28 : Brynnie\_24
- Track 29 : Colusalem\_24, Pineda\_25, Bedetta\_25, OtsoOtso\_24, Polka\_24
- Track 30 : Jerole\_25
- Track 31 : Daob\_25, Melons\_25, Cote\_25, Lunar\_25
- Track 32 : Kepler\_24
- Track 33 : Amelia\_25, Coral\_24
- Track 34 : Bibble12\_25
- Track 35 : HannahPhantana\_25
- Track 36 : Zhuangyuan\_25

- Track 37 : Cygnet\_24
- Track 38 : LittleTokyo\_24
- Track 39 : PhirstandPhine\_25
- Track 40 : Antrice\_24
- Track 41 : Kuleana\_24
- Track 42 : AlexMinion\_24, StuartMinion\_23
- Track 43 : DanHam62\_23, AdoptaAdorbs\_23, PhluffyCoco\_23, Atlantica\_23, Oppalora\_23, AmiCi24\_23, HamCheese\_23, Camara\_23, Glotell\_23, Laphuphu24k\_23, KHumphrey\_23, Amphitrite\_23, Fingolfin\_23, RedFox\_23
- Track 44 : Leona\_23, Rattail\_23, Azaz\_23
- Track 45 : Andrew\_24
- Track 46 : Babushka\_23
- Track 47 : Renna12\_24
- Track 48 : Juno112\_23
- Track 49 : Isolde\_28, Vopal\_29, Phrank15\_27, MUWow\_27, JellyBread\_28, Sakai\_28, NewKitty\_29, BillyTP\_28, Mapleville\_28, SonDevVon\_27, Lawnathon\_28, Gorpy\_28, AdaS\_28
- Track 50 : Sporco\_29, Raphaella\_28
- Track 51 : LeBruni\_28
- Track 52 : EvePickles\_25
- Track 53 : Kabloowy\_28
- Track 54 : ThayneTheZag\_28
- Track 55 : Faja\_25
- Track 56 : Nesbitt\_23, AbbeyMikolon\_23
- Track 57 : Greenbelt\_28
- Track 58 : Virizion\_33, PHTowN\_29, Gibson\_29, Rooney\_29, Lizz\_29, ShakeNBake\_29
- Track 59 : Dryad\_32
- Track 60 : Wilkos\_30
- Track 61 : Wentworth\_30
- Track 62 : SassyC\_31
- Track 63 : Yara\_26
- Track 64 : Gspu1\_22
- Track 65 : Schmidt\_22
- Track 66 : Octobien14\_37
- Track 67 : Sephiroth\_36, Syleon\_36, Kudrefre\_35
- Track 68 : Rabbitrun\_38
- Track 69 : DonkeyMan\_22
- Track 70 : Heinz\_22, Hibiscus\_22, Jojo24\_22
- Track 71 : Santhid\_22
- Track 72 : Tarzan\_22
- Track 73 : Reyja\_23
- Track 74 : Clayda5\_22, Rollins\_22, Skylord\_22, Armstrong\_22, Bernstein\_22, Vitas\_22
- Track 75 : Eden\_22
- Track 76 : Coltrane\_22, Brahms\_22
- Track 77 : BAjuniper\_24
- Track 78 : Gack\_22, Franklin22\_23
- Track 79 : Quenya\_24
- Track 80 : Mashley\_43
- Track 81 : Jalloh\_6, HorseRider\_6, TailX7\_6
- Track 82 : CarefulCloud\_6
- Track 83 : CyranoPS\_6

- Track 84 : FosterFrank\_27
- Track 85 : ChuckDuck\_27, KayMoney\_27
- Track 86 : LittleRon\_27
- Track 87 : Constance\_26, PeggyLeg03\_26
- Track 88 : Pucara\_26
- Track 89 : Dirdigger\_26
- Track 90 : Gusanita\_24
- Track 91 : QuinnAvery\_26, BigSherm\_25, Halloweekend\_24
- Track 92 : Ichiang\_24
- Track 93 : Kukla\_23
- Track 94 : BellaJr\_27, BlackSpider\_25
- Track 95 : Cassini\_25
- Track 96 : Scotia\_27
- Track 97 : NoSwimming\_27
- Track 98 : MrSmee\_23, Skitty\_23
- Track 99 : Merpity\_25
- Track 100 : Isperia\_29
- Track 101 : Doedicurus\_31
- Track 102 : Wyvern\_31
- Track 103 : MisoSoup\_36
- Track 104 : Kithara\_63
- Track 105 : Elener\_26
- Track 106 : Chymera\_21
- Track 107 : TurkishDelight\_36
- Track 108 : Barebow\_16
- Track 109 : Yappy\_73

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

The start number called the most often in the published annotations is 62, it was called in 28 of the 141 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Abidatro\_25, AdoptaAdorbs\_23, AlexMinion\_24, Amanises\_25, AmiCi24\_23, Amphitrite\_23, Antrice\_24, Atlantica\_23, Azaz\_23, Babushka\_23, Basilisk\_24, Brynnie\_24, Camara\_23, Chickaboom\_23, Chicken\_24, Cygnet\_24, DanHam62\_23, Eesa\_24, Fingolfin\_23, Galaxy\_25, Glotell\_23, Gravel\_25, HamCheese\_23, Jamun\_24, Juno112\_23, KHumphrey\_23, KendraB23\_25, Laphuphu24k\_23, Leona\_23, Niblet\_24, Oppalora\_23, Orcanus\_24, Pelletreau\_25, PhluffyCoco\_23, Rattail\_23, RedFox\_23, Renna12\_24, Shen\_25, StuartMinion\_23, TaylorSipht\_24, Toad24\_25, Vulpecula\_24, Westrich\_25, WileyE\_23, Zhuangyuan\_25, Zixiang\_24,

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

- Andrew\_24, Ruchi\_24,

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

- AbbeyMikolon\_23, AdaS\_28, Amelia\_25, Armstrong\_22, BAjuniper\_24, Barebow\_16, BarretLemon\_29, Beans\_27, Bedetta\_25, BellaJr\_27, Bernstein\_22, Bibble12\_25, BigDome\_29, BigSherm\_25, BillyTP\_28, BlackSpider\_25, BossLady\_29, Brahms\_22, Brent\_27, CarefulCloud\_6, Cassini\_25, ChuckDuck\_27,

Chymera\_21, Clayda5\_22, Coltrane\_22, Colusalem\_24, Constance\_26, Coral\_24, Cote\_25, CyranoPS\_6, Daob\_25, Dirdigger\_26, Doedicurus\_31, DonkeyMan\_22, Dryad\_32, Eden\_22, Elener\_26, EvePickles\_25, Faja\_25, FosterFrank\_27, Franklin22\_23, Franzy\_27, Gack\_22, Gibson\_29, Gorpy\_28, GravityBall\_29, Greenbelt\_28, Grekaycon\_29, Gspu1\_22, Gusanita\_24, Halloweekend\_24, HannahPhantana\_25, Heinz\_22, Hibiscus\_22, HorseRider\_6, Ichiang\_24, Isolde\_28, Isperia\_29, JKerns\_29, Jalloh\_6, Jawnski\_27, JellyBread\_28, Jerole\_25, Jojo24\_22, Jordan\_29, Kabloowy\_28, KayMoney\_27, Kepler\_24, King2\_27, Kithara\_63, Kudrefre\_35, Kukla\_23, Kuleana\_24, Lawnathon\_28, LeBruni\_28, LeeroyJ\_29, LittleRon\_27, LittleTokyo\_24, Lizz\_29, Lunar\_25, MUWow\_27, Mapleville\_28, Martha\_29, Mashley\_43, Melons\_25, Merpity\_25, MisoSoup\_36, MrSmee\_23, NathanVaag\_27, Nesbitt\_23, NewKitty\_29, Nikan\_46, NoSwimming\_27, Octobien14\_37, Ollypop\_46, OtsoOtso\_24, PHTowN\_29, PeggyLeg03\_26, PhirstandPhine\_25, Phrank15\_27, Piccoletto\_27, Pineda\_25, Pippa\_29, Polka\_24, Pucara\_26, Quenya\_24, QuinnAvery\_26, Rabbitrun\_38, Raphaella\_28, Ren19\_44, Reyja\_23, Rollins\_22, Rooney\_29, Sakai\_28, Santhid\_22, SassyC\_31, Schmidt\_22, Scotia\_27, Sephiroth\_36, Shade\_29, ShakeNBake\_29, Skitty\_23, Skylord\_22, SonDevVon\_27, Sonny\_29, Sporco\_29, StevieBAY\_29, Syleon\_36, TaeYoung\_29, TailX7\_6, Tarzan\_22, ThayneTheZag\_28, Timinator\_29, TurkishDelight\_36, Virizion\_33, Vitas\_22, Vopal\_29, Wentworth\_30, Wilkos\_30, Wyvern\_31, Yappy\_73, Yara\_26, Zartrosa\_29,

### Summary by start number:

#### Start 48:

- Found in 4 of 191 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 2 of 141
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Elener\_26 (singleton), Nikan\_46 (AP2), Ollypop\_46 (AP2), Ren19\_44 (AP2),

#### Start 49:

- Found in 6 of 191 ( 3.1% ) of genes in pham
- Manual Annotations of this start: 4 of 141
- Called 66.7% of time when present
- Phage (with cluster) where this start called: BarretLemon\_29 (AO2), LeeroyJ\_29 (AO2), StevieBAY\_29 (AO2), Timinator\_29 (AO2),

#### Start 50:

- Found in 23 of 191 ( 12.0% ) of genes in pham
- Manual Annotations of this start: 18 of 141
- Called 82.6% of time when present
- Phage (with cluster) where this start called: Beans\_27 (AO1), BigDome\_29 (AO2), BossLady\_29 (AO2), Brent\_27 (AO1), Franzy\_27 (AO1), GravityBall\_29 (AO2), Grekaycon\_29 (AO2), JKerns\_29 (AO2), Jawnski\_27 (AO1), Jordan\_29 (AO2), King2\_27 (AO1), Martha\_29 (AO2), NathanVaag\_27 (AO1), Piccoletto\_27 (AO1), Pippa\_29 (AO2), Shade\_29 (AO2), Sonny\_29 (AO2), TaeYoung\_29 (AO2), Zartrosa\_29 (AO2),

#### Start 51:

- Found in 2 of 191 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 141
- Called 50.0% of time when present

- Phage (with cluster) where this start called: Kithara\_63 (singleton),

#### Start 53:

- Found in 13 of 191 ( 6.8% ) of genes in pham
- Manual Annotations of this start: 13 of 141
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Armstrong\_22 (EB), BAjuniper\_24 (EB), Bernstein\_22 (EB), Brahms\_22 (EB), Clayda5\_22 (EB), Coltrane\_22 (EB), Eden\_22 (EB), Franklin22\_23 (EB), Gack\_22 (EB), Quenya\_24 (EB), Rollins\_22 (EB), Skylord\_22 (EB), Vitas\_22 (EB),

#### Start 54:

- Found in 1 of 191 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 141
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Wyvern\_31 (GJ),

#### Start 55:

- Found in 1 of 191 ( 0.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: MisoSoup\_36 (GM),

#### Start 57:

- Found in 1 of 191 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 141
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Yappy\_73 (singleton),

#### Start 58:

- Found in 1 of 191 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 141
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Andrew\_24 (AS3),

#### Start 61:

- Found in 3 of 191 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 1 of 141
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Doedicurus\_31 (GJ), Isperia\_29 (GJ),

#### Start 62:

- Found in 48 of 191 ( 25.1% ) of genes in pham
- Manual Annotations of this start: 28 of 141
- Called 95.8% of time when present
- Phage (with cluster) where this start called: Abidatro\_25 (AS1), AdoptaAdorbs\_23 (AS3), AlexMinion\_24 (AS3), Amanises\_25 (AS1), AmiCi24\_23 (AS3), Amphitrite\_23 (AS3), Antrice\_24 (AS2), Atlantica\_23 (AS3), Azaz\_23 (AS3), Babushka\_23 (AS3), Basilisk\_24 (AS1), Brynnie\_24 (AS1), Camara\_23 (AS3), Chickaboom\_23 (AS1), Chicken\_24 (AS1), Cygnet\_24 (AS2), DanHam62\_23 (AS3), Eesa\_24 (AS1), Fingolfin\_23 (AS3), Galaxy\_25 (AS1), Glotell\_23 (AS3), Gravel\_25 (AS1), HamCheese\_23 (AS3), Jamun\_24 (AS1), Juno112\_23 (AS3), KHumphrey\_23 (AS3), KendraB23\_25 (AS1), Laphuphu24k\_23 (AS3), Leona\_23 (AS3), Niblet\_24 (AS1),

Oppalora\_23 (AS3), Orcanus\_24 (AS1), Pelletreau\_25 (AS1), PhluffyCoco\_23 (AS3), Rattail\_23 (AS3), RedFox\_23 (AS3), Renna12\_24 (AS3), Shen\_25 (AS1), StuartMinion\_23 (AS3), TaylorSipht\_24 (AS1), Toad24\_25 (AS1), Vulpecula\_24 (AS1), Westrich\_25 (AS1), WileyE\_23 (AS1), Zhuangyuan\_25 (AS2), Zixiang\_24 (AS1),

Start 65:

- Found in 14 of 191 ( 7.3% ) of genes in pham
- Manual Annotations of this start: 10 of 141
- Called 92.9% of time when present
- Phage (with cluster) where this start called: Amelia\_25 (AS2), Bedetta\_25 (AS2), Bible12\_25 (AS2), Colusalem\_24 (AS2), Coral\_24 (AS2), Cote\_25 (AS2), Daob\_25 (AS2), LittleTokyo\_24 (AS2), Lunar\_25 (AS2), Melons\_25 (AS2), OtsoOtso\_24 (AS2), Pineda\_25 (AS2), Polka\_24 (AS2),

Start 66:

- Found in 17 of 191 ( 8.9% ) of genes in pham
- Manual Annotations of this start: 4 of 141
- Called 29.4% of time when present
- Phage (with cluster) where this start called: HannahPhantana\_25 (AS2), Jerole\_25 (AS2), Kepler\_24 (AS2), Kuleana\_24 (AS2), PhirstandPhine\_25 (AS2),

Start 67:

- Found in 35 of 191 ( 18.3% ) of genes in pham
- Manual Annotations of this start: 19 of 141
- Called 85.7% of time when present
- Phage (with cluster) where this start called: AdaS\_28 (AY), Barebow\_16 (singleton), BigSherm\_25 (FF), BillyTP\_28 (AY), ChuckDuck\_27 (FA), Dirtdigger\_26 (FF), EvePickles\_25 (AY), Faja\_25 (AY), FosterFrank\_27 (FA), Gorpy\_28 (AY), Halloween\_24 (FF), Ichiang\_24 (FF), Isolde\_28 (AY), JellyBread\_28 (AY), Kabloowy\_28 (AY), KayMoney\_27 (FA), Kukla\_23 (FJ), Lawnathon\_28 (AY), LeBruni\_28 (AY), LittleRon\_27 (FA), MUWow\_27 (AY), Mapleville\_28 (AY), NewKitty\_29 (AY), Phrank15\_27 (AY), QuinnAvery\_26 (FF), Raphaella\_28 (AY), Sakai\_28 (AY), SonDevVon\_27 (AY), Sporco\_29 (AY), Vopal\_29 (AY),

Start 71:

- Found in 7 of 191 ( 3.7% ) of genes in pham
- Manual Annotations of this start: 7 of 141
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DonkeyMan\_22 (DY), Heinz\_22 (DY), Hibiscus\_22 (DY), Jojo24\_22 (DY), Reyja\_23 (DY), Santhid\_22 (DY), Tarzan\_22 (DY),

Start 72:

- Found in 10 of 191 ( 5.2% ) of genes in pham
- Manual Annotations of this start: 1 of 141
- Called 10.0% of time when present
- Phage (with cluster) where this start called: Ruchi\_24 (AS1),

Start 75:

- Found in 9 of 191 ( 4.7% ) of genes in pham
- Manual Annotations of this start: 1 of 141
- Called 22.2% of time when present

- Phage (with cluster) where this start called: Mashley\_43 (EG), Merpity\_25 (FQ),

#### Start 80:

- Found in 4 of 191 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 4 of 141
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Constance\_26 (FA), NoSwimming\_27 (FO), PeggyLeg03\_26 (FA), Scotia\_27 (FO),

#### Start 81:

- Found in 15 of 191 ( 7.9% ) of genes in pham
- Manual Annotations of this start: 5 of 141
- Called 60.0% of time when present
- Phage (with cluster) where this start called: BellaJr\_27 (FN), BlackSpider\_25 (FN), Cassini\_25 (FN), Gspu1\_22 (CU2), Gusanita\_24 (FF), MrSmee\_23 (FQ), Pucara\_26 (FA), Skitty\_23 (FQ), ThayneTheZag\_28 (AY),

#### Start 83:

- Found in 5 of 191 ( 2.6% ) of genes in pham
- Manual Annotations of this start: 1 of 141
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CarefulCloud\_6 (ER), CyranoPS\_6 (ER), HorseRider\_6 (ER), Jalloh\_6 (ER), TailX7\_6 (ER),

#### Start 86:

- Found in 4 of 191 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 1 of 141
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Octobien14\_37 (DU1),

#### Start 87:

- Found in 12 of 191 ( 6.3% ) of genes in pham
- Manual Annotations of this start: 8 of 141
- Called 91.7% of time when present
- Phage (with cluster) where this start called: Dryad\_32 (BN), Gibson\_29 (BN), Lizz\_29 (BN), PHTowN\_29 (BN), Rooney\_29 (BN), SassyC\_31 (BN), Schmidt\_22 (CU4), ShakeNBake\_29 (BN), Virizion\_33 (BN), Wentworth\_30 (BN), Wilkos\_30 (BN),

#### Start 89:

- Found in 4 of 191 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 3 of 141
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Kudrefre\_35 (DU1), Sephiroth\_36 (DU1), Syleon\_36 (DU1),

#### Start 91:

- Found in 1 of 191 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 141
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Greenbelt\_28 (BN),

#### Start 93:

- Found in 1 of 191 ( 0.5% ) of genes in pham

- Manual Annotations of this start: 1 of 141
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Yara\_26 (BN),

Start 94:

- Found in 4 of 191 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 4 of 141
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AbbeyMikolon\_23 (BL), Chymera\_21 (singleton), Nesbitt\_23 (BL), TurkishDelight\_36 (singleton),

Start 96:

- Found in 3 of 191 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 1 of 141
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Rabbitrun\_38 (DU2),

### **Summary by clusters:**

There are 26 clusters represented in this pham: FQ, singleton, BL, BN, FA, FF, DY, FJ, FN, FO, CU4, CU2, AP2, DU1, DU2, AS3, AS2, AS1, EG, EB, AO2, AO1, AY, GM, GJ, ER,

Info for manual annotations of cluster AO1:

- Start number 50 was manually annotated 7 times for cluster AO1.

Info for manual annotations of cluster AO2:

- Start number 49 was manually annotated 4 times for cluster AO2.
- Start number 50 was manually annotated 11 times for cluster AO2.

Info for manual annotations of cluster AP2:

- Start number 48 was manually annotated 1 time for cluster AP2.

Info for manual annotations of cluster AS1:

- Start number 62 was manually annotated 12 times for cluster AS1.
- Start number 72 was manually annotated 1 time for cluster AS1.

Info for manual annotations of cluster AS2:

- Start number 62 was manually annotated 3 times for cluster AS2.
- Start number 65 was manually annotated 10 times for cluster AS2.
- Start number 66 was manually annotated 4 times for cluster AS2.

Info for manual annotations of cluster AS3:

- Start number 58 was manually annotated 1 time for cluster AS3.
- Start number 62 was manually annotated 13 times for cluster AS3.

Info for manual annotations of cluster AY:

- Start number 67 was manually annotated 12 times for cluster AY.
- Start number 81 was manually annotated 1 time for cluster AY.

Info for manual annotations of cluster BL:

- Start number 94 was manually annotated 2 times for cluster BL.

Info for manual annotations of cluster BN:

- Start number 87 was manually annotated 7 times for cluster BN.
- Start number 91 was manually annotated 1 time for cluster BN.
- Start number 93 was manually annotated 1 time for cluster BN.

Info for manual annotations of cluster CU4:

- Start number 87 was manually annotated 1 time for cluster CU4.

Info for manual annotations of cluster DU1:

- Start number 86 was manually annotated 1 time for cluster DU1.
- Start number 89 was manually annotated 3 times for cluster DU1.

Info for manual annotations of cluster DU2:

- Start number 96 was manually annotated 1 time for cluster DU2.

Info for manual annotations of cluster DY:

- Start number 71 was manually annotated 7 times for cluster DY.

Info for manual annotations of cluster EB:

- Start number 53 was manually annotated 13 times for cluster EB.

Info for manual annotations of cluster EG:

- Start number 75 was manually annotated 1 time for cluster EG.

Info for manual annotations of cluster ER:

- Start number 83 was manually annotated 1 time for cluster ER.

Info for manual annotations of cluster FA:

- Start number 67 was manually annotated 2 times for cluster FA.
- Start number 80 was manually annotated 2 times for cluster FA.

Info for manual annotations of cluster FF:

- Start number 67 was manually annotated 3 times for cluster FF.
- Start number 81 was manually annotated 1 time for cluster FF.

Info for manual annotations of cluster FJ:

- Start number 67 was manually annotated 1 time for cluster FJ.

Info for manual annotations of cluster FN:

- Start number 81 was manually annotated 1 time for cluster FN.

Info for manual annotations of cluster FO:

- Start number 80 was manually annotated 2 times for cluster FO.

Info for manual annotations of cluster FQ:

- Start number 81 was manually annotated 2 times for cluster FQ.

Info for manual annotations of cluster GJ:

- Start number 54 was manually annotated 1 time for cluster GJ.
- Start number 61 was manually annotated 1 time for cluster GJ.

**Gene Information:**

Gene: AbbeyMikolon\_23 Start: 18386, Stop: 18598, Start Num: 94

Candidate Starts for AbbeyMikolon\_23:

(Start: 94 @18386 has 4 MA's), (116, 18452), (118, 18464), (140, 18530), (142, 18542), (145, 18557),

Gene: Abidatro\_25 Start: 18908, Stop: 19243, Start Num: 62

Candidate Starts for Abidatro\_25:

(Start: 62 @18908 has 28 MA's), (73, 18941), (88, 18986), (97, 19001), (142, 19154),

Gene: AdaS\_28 Start: 20360, Stop: 20668, Start Num: 67

Candidate Starts for AdaS\_28:

(Start: 67 @20360 has 19 MA's), (104, 20456), (105, 20459), (108, 20468), (142, 20594), (145, 20609), (148, 20621),

Gene: AdoptaAdorbs\_23 Start: 17622, Stop: 17945, Start Num: 62

Candidate Starts for AdoptaAdorbs\_23:

(Start: 62 @17622 has 28 MA's), (78, 17661), (88, 17694), (105, 17727), (120, 17781), (142, 17862),

Gene: AlexMinion\_24 Start: 17655, Stop: 17969, Start Num: 62

Candidate Starts for AlexMinion\_24:

(60, 17652), (Start: 62 @17655 has 28 MA's), (78, 17691), (85, 17715), (92, 17733), (97, 17739), (105, 17757), (108, 17766), (120, 17811), (140, 17880), (142, 17892), (150, 17925),

Gene: Amanises\_25 Start: 19185, Stop: 19517, Start Num: 62

Candidate Starts for Amanises\_25:

(Start: 62 @19185 has 28 MA's), (88, 19260), (92, 19269), (105, 19293), (106, 19296), (121, 19350), (125, 19362), (140, 19416), (142, 19428),

Gene: Amelia\_25 Start: 18043, Stop: 18393, Start Num: 65

Candidate Starts for Amelia\_25:

(Start: 65 @18043 has 10 MA's), (Start: 66 @18046 has 4 MA's), (73, 18064), (78, 18076), (97, 18124), (105, 18142), (142, 18277), (145, 18292), (161, 18343),

Gene: AmiCi24\_23 Start: 17621, Stop: 17944, Start Num: 62

Candidate Starts for AmiCi24\_23:

(Start: 62 @17621 has 28 MA's), (78, 17660), (88, 17693), (105, 17726), (120, 17780), (142, 17861),

Gene: Amphitrite\_23 Start: 17620, Stop: 17943, Start Num: 62

Candidate Starts for Amphitrite\_23:

(Start: 62 @17620 has 28 MA's), (78, 17659), (88, 17692), (105, 17725), (120, 17779), (142, 17860),

Gene: Andrew\_24 Start: 18042, Stop: 18377, Start Num: 58

Candidate Starts for Andrew\_24:

(Start: 58 @18042 has 1 MA's), (Start: 62 @18048 has 28 MA's), (92, 18135), (97, 18141), (105, 18159), (120, 18213), (142, 18294), (145, 18309),

Gene: Antrice\_24 Start: 18536, Stop: 18868, Start Num: 62

Candidate Starts for Antrice\_24:

(Start: 62 @18536 has 28 MA's), (Start: 67 @18548 has 19 MA's), (78, 18578), (88, 18611), (90, 18614), (107, 18650), (112, 18665), (121, 18701), (125, 18713), (134, 18743), (142, 18779), (143,

18785), (145, 18794),

Gene: Armstrong\_22 Start: 17107, Stop: 17433, Start Num: 53

Candidate Starts for Armstrong\_22:

(Start: 53 @17107 has 13 MA's), (121, 17290), (122, 17296), (142, 17368),

Gene: Atlantica\_23 Start: 17622, Stop: 17945, Start Num: 62

Candidate Starts for Atlantica\_23:

(Start: 62 @17622 has 28 MA's), (78, 17661), (88, 17694), (105, 17727), (120, 17781), (142, 17862),

Gene: Azaz\_23 Start: 17683, Stop: 18000, Start Num: 62

Candidate Starts for Azaz\_23:

(Start: 62 @17683 has 28 MA's), (78, 17722), (88, 17755), (105, 17788), (120, 17842), (142, 17923),

Gene: BAjuniper\_24 Start: 20341, Stop: 20658, Start Num: 53

Candidate Starts for BAjuniper\_24:

(46, 20311), (Start: 53 @20341 has 13 MA's), (90, 20428), (92, 20434), (102, 20449), (109, 20470), (113, 20482), (129, 20536), (130, 20539), (135, 20560), (138, 20569), (140, 20581), (142, 20593),

Gene: Babushka\_23 Start: 17682, Stop: 18029, Start Num: 62

Candidate Starts for Babushka\_23:

(Start: 62 @17682 has 28 MA's), (78, 17721), (97, 17769), (103, 17781), (105, 17787), (108, 17796), (120, 17841), (142, 17922), (148, 17949),

Gene: Barebow\_16 Start: 13052, Stop: 13462, Start Num: 67

Candidate Starts for Barebow\_16:

(14, 12599), (43, 12971), (Start: 67 @13052 has 19 MA's), (Start: 72 @13073 has 1 MA's), (74, 13079), (90, 13124), (108, 13172), (115, 13196), (135, 13265), (142, 13298), (152, 13340), (159, 13364),

Gene: BarretLemon\_29 Start: 25316, Stop: 25687, Start Num: 49

Candidate Starts for BarretLemon\_29:

(Start: 49 @25316 has 4 MA's), (Start: 50 @25319 has 18 MA's), (56, 25340), (90, 25424), (109, 25466), (112, 25475), (115, 25487), (120, 25508), (125, 25523), (142, 25589), (151, 25628),

Gene: Basilisk\_24 Start: 19320, Stop: 19652, Start Num: 62

Candidate Starts for Basilisk\_24:

(Start: 62 @19320 has 28 MA's), (Start: 72 @19347 has 1 MA's), (88, 19395), (92, 19404), (105, 19428), (121, 19485), (125, 19497), (140, 19551), (142, 19563),

Gene: Beans\_27 Start: 24983, Stop: 25351, Start Num: 50

Candidate Starts for Beans\_27:

(Start: 50 @24983 has 18 MA's), (90, 25088), (109, 25130), (112, 25139), (115, 25151), (120, 25172), (125, 25187), (142, 25253), (151, 25292),

Gene: Bedetta\_25 Start: 18047, Stop: 18397, Start Num: 65

Candidate Starts for Bedetta\_25:

(Start: 65 @18047 has 10 MA's), (Start: 66 @18050 has 4 MA's), (73, 18068), (78, 18080), (97, 18128), (105, 18146), (142, 18281), (145, 18296),

Gene: BellaJr\_27 Start: 21288, Stop: 21566, Start Num: 81

Candidate Starts for BellaJr\_27:

(52, 21204), (Start: 75 @21270 has 1 MA's), (Start: 81 @21288 has 5 MA's), (114, 21381), (117, 21393), (121, 21408), (134, 21450), (136, 21456), (142, 21486),

Gene: Bernstein\_22 Start: 17162, Stop: 17488, Start Num: 53

Candidate Starts for Bernstein\_22:

(Start: 53 @17162 has 13 MA's), (121, 17345), (122, 17351), (142, 17423),

Gene: Bible12\_25 Start: 18034, Stop: 18396, Start Num: 65

Candidate Starts for Bible12\_25:

(Start: 65 @18034 has 10 MA's), (Start: 66 @18037 has 4 MA's), (Start: 72 @18052 has 1 MA's), (73, 18055), (78, 18067), (97, 18115), (105, 18133), (120, 18187), (142, 18268), (145, 18283), (164, 18337), (166, 18343),

Gene: BigDome\_29 Start: 25311, Stop: 25679, Start Num: 50

Candidate Starts for BigDome\_29:

(Start: 49 @25308 has 4 MA's), (Start: 50 @25311 has 18 MA's), (90, 25416), (109, 25458), (112, 25467), (115, 25479), (120, 25500), (125, 25515), (142, 25581), (151, 25620),

Gene: BigSherm\_25 Start: 19724, Stop: 20032, Start Num: 67

Candidate Starts for BigSherm\_25:

(Start: 67 @19724 has 19 MA's), (92, 19799), (104, 19820), (108, 19832), (121, 19880), (132, 19913), (142, 19958), (152, 20000),

Gene: BillyTP\_28 Start: 20144, Stop: 20452, Start Num: 67

Candidate Starts for BillyTP\_28:

(Start: 67 @20144 has 19 MA's), (104, 20240), (105, 20243), (108, 20252), (142, 20378), (145, 20393), (148, 20405),

Gene: BlackSpider\_25 Start: 20146, Stop: 20424, Start Num: 81

Candidate Starts for BlackSpider\_25:

(52, 20062), (Start: 75 @20128 has 1 MA's), (Start: 81 @20146 has 5 MA's), (114, 20239), (117, 20251), (121, 20266), (134, 20308), (136, 20314), (142, 20344),

Gene: BossLady\_29 Start: 25299, Stop: 25667, Start Num: 50

Candidate Starts for BossLady\_29:

(Start: 50 @25299 has 18 MA's), (79, 25371), (85, 25392), (90, 25404), (92, 25410), (109, 25446), (115, 25467), (120, 25488), (125, 25503), (142, 25569), (151, 25608),

Gene: Brahms\_22 Start: 17110, Stop: 17436, Start Num: 53

Candidate Starts for Brahms\_22:

(Start: 53 @17110 has 13 MA's), (121, 17293), (142, 17371),

Gene: Brent\_27 Start: 24986, Stop: 25354, Start Num: 50

Candidate Starts for Brent\_27:

(Start: 50 @24986 has 18 MA's), (56, 25007), (90, 25091), (109, 25133), (112, 25142), (115, 25154), (142, 25256), (151, 25295),

Gene: Brynnie\_24 Start: 19128, Stop: 19460, Start Num: 62

Candidate Starts for Brynnie\_24:

(Start: 62 @19128 has 28 MA's), (Start: 72 @19155 has 1 MA's), (88, 19203), (92, 19212), (112, 19257), (121, 19293), (125, 19305), (140, 19359), (142, 19371),

Gene: Camara\_23 Start: 17623, Stop: 17946, Start Num: 62

Candidate Starts for Camara\_23:

(Start: 62 @17623 has 28 MA's), (78, 17662), (88, 17695), (105, 17728), (120, 17782), (142, 17863),

Gene: CarefulCloud\_6 Start: 3802, Stop: 4080, Start Num: 83  
Candidate Starts for CarefulCloud\_6:  
(Start: 83 @3802 has 1 MA's), (127, 3922), (132, 3940), (157, 4039),

Gene: Cassini\_25 Start: 20383, Stop: 20661, Start Num: 81  
Candidate Starts for Cassini\_25:  
(1, 19501), (7, 19678), (10, 19720), (52, 20299), (Start: 75 @20365 has 1 MA's), (Start: 81 @20383 has 5 MA's), (114, 20476), (121, 20503), (134, 20545), (136, 20551), (142, 20581),

Gene: Chickaboom\_23 Start: 18049, Stop: 18381, Start Num: 62  
Candidate Starts for Chickaboom\_23:  
(Start: 62 @18049 has 28 MA's), (Start: 72 @18076 has 1 MA's), (88, 18124), (92, 18133), (105, 18157), (112, 18178), (121, 18214), (140, 18280), (142, 18292),

Gene: Chicken\_24 Start: 19054, Stop: 19386, Start Num: 62  
Candidate Starts for Chicken\_24:  
(Start: 62 @19054 has 28 MA's), (68, 19072), (88, 19129), (105, 19162), (121, 19219), (125, 19231), (142, 19297),

Gene: ChuckDuck\_27 Start: 20261, Stop: 20569, Start Num: 67  
Candidate Starts for ChuckDuck\_27:  
(Start: 67 @20261 has 19 MA's), (104, 20357), (105, 20360), (108, 20369), (112, 20381), (142, 20495),

Gene: Chymera\_21 Start: 17166, Stop: 17393, Start Num: 94  
Candidate Starts for Chymera\_21:  
(Start: 94 @17166 has 4 MA's), (141, 17319), (142, 17322), (145, 17337),

Gene: Clayda5\_22 Start: 17113, Stop: 17439, Start Num: 53  
Candidate Starts for Clayda5\_22:  
(Start: 53 @17113 has 13 MA's), (121, 17296), (122, 17302), (142, 17374),

Gene: Coltrane\_22 Start: 17110, Stop: 17436, Start Num: 53  
Candidate Starts for Coltrane\_22:  
(Start: 53 @17110 has 13 MA's), (121, 17293), (142, 17371),

Gene: Colusalem\_24 Start: 17886, Stop: 18236, Start Num: 65  
Candidate Starts for Colusalem\_24:  
(Start: 65 @17886 has 10 MA's), (Start: 66 @17889 has 4 MA's), (73, 17907), (78, 17919), (97, 17967), (105, 17985), (142, 18120), (145, 18135),

Gene: Constance\_26 Start: 20763, Stop: 21041, Start Num: 80  
Candidate Starts for Constance\_26:  
(2, 19992), (3, 19998), (4, 20007), (Start: 75 @20754 has 1 MA's), (Start: 80 @20763 has 4 MA's), (Start: 81 @20769 has 5 MA's), (117, 20877), (121, 20892), (142, 20970),

Gene: Coral\_24 Start: 17882, Stop: 18232, Start Num: 65  
Candidate Starts for Coral\_24:  
(Start: 65 @17882 has 10 MA's), (Start: 66 @17885 has 4 MA's), (73, 17903), (78, 17915), (97, 17963), (105, 17981), (142, 18116), (145, 18131), (161, 18182),

Gene: Cote\_25 Start: 18034, Stop: 18384, Start Num: 65  
Candidate Starts for Cote\_25:

(Start: 65 @18034 has 10 MA's), (Start: 66 @18037 has 4 MA's), (73, 18055), (97, 18115), (105, 18133), (142, 18268), (145, 18283), (164, 18337), (166, 18343),

Gene: Cygnet\_24 Start: 18687, Stop: 19016, Start Num: 62

Candidate Starts for Cygnet\_24:

(60, 18684), (Start: 62 @18687 has 28 MA's), (78, 18726), (92, 18768), (97, 18774), (105, 18792), (120, 18846), (134, 18891), (140, 18915), (142, 18927), (145, 18942), (152, 18969),

Gene: CyranoPS\_6 Start: 3800, Stop: 4078, Start Num: 83

Candidate Starts for CyranoPS\_6:

(Start: 83 @3800 has 1 MA's), (127, 3920),

Gene: DanHam62\_23 Start: 17622, Stop: 17945, Start Num: 62

Candidate Starts for DanHam62\_23:

(Start: 62 @17622 has 28 MA's), (78, 17661), (88, 17694), (105, 17727), (120, 17781), (142, 17862),

Gene: Daob\_25 Start: 18039, Stop: 18389, Start Num: 65

Candidate Starts for Daob\_25:

(Start: 65 @18039 has 10 MA's), (Start: 66 @18042 has 4 MA's), (73, 18060), (97, 18120), (105, 18138), (142, 18273), (145, 18288), (164, 18342), (166, 18348),

Gene: Dirdigger\_26 Start: 19487, Stop: 19855, Start Num: 67

Candidate Starts for Dirdigger\_26:

(Start: 67 @19487 has 19 MA's), (78, 19520), (88, 19553), (98, 19571), (134, 19685), (142, 19721), (165, 19790),

Gene: Doedicurus\_31 Start: 20880, Stop: 21266, Start Num: 61

Candidate Starts for Doedicurus\_31:

(29, 20634), (35, 20730), (38, 20787), (Start: 51 @20853 has 1 MA's), (Start: 61 @20880 has 1 MA's), (100, 20991), (102, 20997), (119, 21057), (128, 21081), (140, 21129), (142, 21141), (167, 21234), (168, 21240),

Gene: DonkeyMan\_22 Start: 18572, Stop: 18871, Start Num: 71

Candidate Starts for DonkeyMan\_22:

(30, 18290), (70, 18569), (Start: 71 @18572 has 7 MA's), (107, 18674), (118, 18716), (135, 18761), (138, 18770), (142, 18794), (154, 18842), (163, 18863),

Gene: Dryad\_32 Start: 21653, Stop: 21880, Start Num: 87

Candidate Starts for Dryad\_32:

(Start: 87 @21653 has 8 MA's), (130, 21758), (140, 21797), (142, 21809), (148, 21836),

Gene: Eden\_22 Start: 17389, Stop: 17712, Start Num: 53

Candidate Starts for Eden\_22:

(Start: 53 @17389 has 13 MA's), (78, 17446), (88, 17479), (107, 17518), (135, 17614), (142, 17647),

Gene: Eesa\_24 Start: 19277, Stop: 19609, Start Num: 62

Candidate Starts for Eesa\_24:

(Start: 62 @19277 has 28 MA's), (88, 19352), (92, 19361), (105, 19385), (106, 19388), (121, 19442), (125, 19454), (140, 19508), (142, 19520),

Gene: Elener\_26 Start: 21147, Stop: 21506, Start Num: 48

Candidate Starts for Elener\_26:

(Start: 48 @21147 has 2 MA's), (76, 21225), (95, 21267), (103, 21291), (106, 21300), (138, 21411), (142, 21435),

Gene: EvePickles\_25 Start: 18992, Stop: 19300, Start Num: 67

Candidate Starts for EvePickles\_25:

(Start: 67 @18992 has 19 MA's), (97, 19073), (108, 19100), (121, 19148), (142, 19226), (145, 19241),

Gene: Faja\_25 Start: 18886, Stop: 19194, Start Num: 67

Candidate Starts for Faja\_25:

(Start: 67 @18886 has 19 MA's), (105, 18985), (142, 19120), (145, 19135),

Gene: Fingolfin\_23 Start: 17623, Stop: 17946, Start Num: 62

Candidate Starts for Fingolfin\_23:

(Start: 62 @17623 has 28 MA's), (78, 17662), (88, 17695), (105, 17728), (120, 17782), (142, 17863),

Gene: FosterFrank\_27 Start: 20334, Stop: 20642, Start Num: 67

Candidate Starts for FosterFrank\_27:

(Start: 67 @20334 has 19 MA's), (105, 20433), (142, 20568), (145, 20583),

Gene: Franklin22\_23 Start: 17574, Stop: 17897, Start Num: 53

Candidate Starts for Franklin22\_23:

(41, 17517), (45, 17538), (Start: 53 @17574 has 13 MA's), (78, 17631), (107, 17703), (133, 17793), (135, 17799), (142, 17832),

Gene: Franzy\_27 Start: 24985, Stop: 25353, Start Num: 50

Candidate Starts for Franzy\_27:

(Start: 50 @24985 has 18 MA's), (56, 25006), (90, 25090), (109, 25132), (112, 25141), (115, 25153), (142, 25255), (151, 25294),

Gene: Gack\_22 Start: 17460, Stop: 17783, Start Num: 53

Candidate Starts for Gack\_22:

(41, 17403), (45, 17424), (Start: 53 @17460 has 13 MA's), (78, 17517), (107, 17589), (133, 17679), (135, 17685), (142, 17718),

Gene: Galaxy\_25 Start: 19013, Stop: 19336, Start Num: 62

Candidate Starts for Galaxy\_25:

(Start: 62 @19013 has 28 MA's), (73, 19046), (97, 19106), (112, 19145), (142, 19259),

Gene: Gibson\_29 Start: 20816, Stop: 21049, Start Num: 87

Candidate Starts for Gibson\_29:

(Start: 87 @20816 has 8 MA's), (138, 20957), (140, 20969), (142, 20981), (148, 21008),

Gene: Glotell\_23 Start: 17620, Stop: 17943, Start Num: 62

Candidate Starts for Glotell\_23:

(Start: 62 @17620 has 28 MA's), (78, 17659), (88, 17692), (105, 17725), (120, 17779), (142, 17860),

Gene: Gorpy\_28 Start: 20369, Stop: 20677, Start Num: 67

Candidate Starts for Gorpy\_28:

(Start: 67 @20369 has 19 MA's), (104, 20465), (105, 20468), (108, 20477), (142, 20603), (145, 20618), (148, 20630),

Gene: Gravel\_25 Start: 19183, Stop: 19515, Start Num: 62

Candidate Starts for Gravel\_25:

(Start: 62 @19183 has 28 MA's), (88, 19258), (92, 19267), (105, 19291), (106, 19294), (121, 19348), (125, 19360), (140, 19414), (142, 19426),

Gene: GravityBall\_29 Start: 25318, Stop: 25686, Start Num: 50

Candidate Starts for GravityBall\_29:

(Start: 49 @25315 has 4 MA's), (Start: 50 @25318 has 18 MA's), (90, 25423), (109, 25465), (112, 25474), (115, 25486), (120, 25507), (125, 25522), (142, 25588), (151, 25627),

Gene: Greenbelt\_28 Start: 20069, Stop: 20296, Start Num: 91

Candidate Starts for Greenbelt\_28:

(9, 19364), (16, 19559), (23, 19652), (26, 19685), (47, 19937), (70, 20012), (77, 20030), (Start: 91 @20069 has 1 MA's), (118, 20153), (132, 20189), (142, 20231), (145, 20246),

Gene: Grekaycon\_29 Start: 25245, Stop: 25613, Start Num: 50

Candidate Starts for Grekaycon\_29:

(Start: 50 @25245 has 18 MA's), (79, 25317), (85, 25338), (90, 25350), (92, 25356), (109, 25392), (112, 25401), (115, 25413), (120, 25434), (121, 25437), (125, 25449), (142, 25515), (151, 25554),

Gene: Gspu1\_22 Start: 18136, Stop: 18396, Start Num: 81

Candidate Starts for Gspu1\_22:

(30, 17824), (31, 17839), (44, 18016), (Start: 81 @18136 has 5 MA's), (82, 18139), (Start: 87 @18157 has 8 MA's), (Start: 96 @18172 has 1 MA's), (108, 18205), (111, 18214), (117, 18238), (119, 18247), (137, 18301), (142, 18325), (145, 18340), (149, 18355), (151, 18364),

Gene: Gusanita\_24 Start: 19423, Stop: 19737, Start Num: 81

Candidate Starts for Gusanita\_24:

(Start: 81 @19423 has 5 MA's), (107, 19495), (130, 19573), (145, 19645), (150, 19663),

Gene: Halloweekend\_24 Start: 19350, Stop: 19658, Start Num: 67

Candidate Starts for Halloweekend\_24:

(Start: 67 @19350 has 19 MA's), (92, 19425), (104, 19446), (108, 19458), (121, 19506), (132, 19539), (142, 19584), (152, 19626),

Gene: HamCheese\_23 Start: 17622, Stop: 17930, Start Num: 62

Candidate Starts for HamCheese\_23:

(Start: 62 @17622 has 28 MA's), (78, 17661), (88, 17694), (105, 17727), (120, 17781), (142, 17862),

Gene: HannahPhantana\_25 Start: 18037, Stop: 18396, Start Num: 66

Candidate Starts for HannahPhantana\_25:

(Start: 65 @18034 has 10 MA's), (Start: 66 @18037 has 4 MA's), (Start: 72 @18052 has 1 MA's), (73, 18055), (78, 18067), (97, 18115), (105, 18133), (120, 18187), (142, 18268), (145, 18283), (164, 18337), (166, 18343),

Gene: Heinz\_22 Start: 18664, Stop: 18963, Start Num: 71

Candidate Starts for Heinz\_22:

(34, 18460), (70, 18661), (Start: 71 @18664 has 7 MA's), (103, 18754), (107, 18766), (118, 18808), (135, 18853), (138, 18862), (142, 18886), (154, 18934),

Gene: Hibiscus\_22 Start: 18612, Stop: 18911, Start Num: 71

Candidate Starts for Hibiscus\_22:

(34, 18408), (70, 18609), (Start: 71 @18612 has 7 MA's), (103, 18702), (107, 18714), (118, 18756), (135, 18801), (138, 18810), (142, 18834), (154, 18882),

Gene: HorseRider\_6 Start: 3802, Stop: 4080, Start Num: 83

Candidate Starts for HorseRider\_6:

(Start: 83 @3802 has 1 MA's), (127, 3922), (132, 3940),

Gene: Ichiang\_24 Start: 19369, Stop: 19677, Start Num: 67

Candidate Starts for Ichiang\_24:

(Start: 67 @19369 has 19 MA's), (92, 19444), (104, 19465), (108, 19477), (121, 19525), (132, 19558), (142, 19603), (152, 19645),

Gene: Isolde\_28 Start: 20195, Stop: 20503, Start Num: 67

Candidate Starts for Isolde\_28:

(Start: 67 @20195 has 19 MA's), (104, 20291), (105, 20294), (108, 20303), (142, 20429), (145, 20444), (148, 20456),

Gene: Isperia\_29 Start: 20187, Stop: 20573, Start Num: 61

Candidate Starts for Isperia\_29:

(29, 19941), (Start: 61 @20187 has 1 MA's), (100, 20298), (102, 20304), (119, 20364), (128, 20388), (140, 20436), (142, 20448), (167, 20541), (168, 20547),

Gene: JKerns\_29 Start: 25272, Stop: 25640, Start Num: 50

Candidate Starts for JKerns\_29:

(Start: 50 @25272 has 18 MA's), (90, 25377), (92, 25383), (109, 25419), (112, 25428), (115, 25440), (120, 25461), (125, 25476), (138, 25518), (142, 25542), (151, 25581),

Gene: Jalloh\_6 Start: 3801, Stop: 4079, Start Num: 83

Candidate Starts for Jalloh\_6:

(Start: 83 @3801 has 1 MA's), (127, 3921), (132, 3939),

Gene: Jamun\_24 Start: 18726, Stop: 19058, Start Num: 62

Candidate Starts for Jamun\_24:

(Start: 62 @18726 has 28 MA's), (88, 18801), (120, 18888), (121, 18891), (125, 18903), (131, 18918), (140, 18957), (142, 18969),

Gene: Jawnski\_27 Start: 24995, Stop: 25363, Start Num: 50

Candidate Starts for Jawnski\_27:

(Start: 50 @24995 has 18 MA's), (90, 25100), (109, 25142), (112, 25151), (115, 25163), (125, 25199), (129, 25208), (139, 25250), (142, 25265), (151, 25304),

Gene: JellyBread\_28 Start: 20353, Stop: 20661, Start Num: 67

Candidate Starts for JellyBread\_28:

(Start: 67 @20353 has 19 MA's), (104, 20449), (105, 20452), (108, 20461), (142, 20587), (145, 20602), (148, 20614),

Gene: Jerole\_25 Start: 18034, Stop: 18381, Start Num: 66

Candidate Starts for Jerole\_25:

(Start: 66 @18034 has 4 MA's), (Start: 72 @18049 has 1 MA's), (73, 18052), (78, 18064), (97, 18112), (105, 18130), (115, 18163), (142, 18265), (145, 18280), (164, 18334), (166, 18340),

Gene: Jojo24\_22 Start: 18609, Stop: 18908, Start Num: 71

Candidate Starts for Jojo24\_22:

(34, 18405), (70, 18606), (Start: 71 @18609 has 7 MA's), (103, 18699), (107, 18711), (118, 18753), (135, 18798), (138, 18807), (142, 18831), (154, 18879),

Gene: Jordan\_29 Start: 25242, Stop: 25610, Start Num: 50

Candidate Starts for Jordan\_29:

(Start: 50 @25242 has 18 MA's), (90, 25347), (92, 25353), (109, 25389), (112, 25398), (115, 25410), (120, 25431), (125, 25446), (138, 25488), (142, 25512), (143, 25518), (151, 25551),

Gene: Juno112\_23 Start: 17622, Stop: 17945, Start Num: 62

Candidate Starts for Juno112\_23:

(Start: 62 @17622 has 28 MA's), (78, 17661), (88, 17694), (105, 17727), (120, 17781), (142, 17862),

Gene: KHumphrey\_23 Start: 17620, Stop: 17943, Start Num: 62

Candidate Starts for KHumphrey\_23:

(Start: 62 @17620 has 28 MA's), (78, 17659), (88, 17692), (105, 17725), (120, 17779), (142, 17860),

Gene: Kabloowy\_28 Start: 20549, Stop: 20857, Start Num: 67

Candidate Starts for Kabloowy\_28:

(6, 19871), (12, 20021), (Start: 67 @20549 has 19 MA's), (104, 20645), (105, 20648), (108, 20657), (142, 20783), (145, 20798), (148, 20810),

Gene: KayMoney\_27 Start: 20265, Stop: 20573, Start Num: 67

Candidate Starts for KayMoney\_27:

(Start: 67 @20265 has 19 MA's), (104, 20361), (105, 20364), (108, 20373), (112, 20385), (142, 20499),

Gene: KendraB23\_25 Start: 19185, Stop: 19517, Start Num: 62

Candidate Starts for KendraB23\_25:

(Start: 62 @19185 has 28 MA's), (88, 19260), (92, 19269), (105, 19293), (106, 19296), (121, 19350), (125, 19362), (140, 19416), (142, 19428),

Gene: Kepler\_24 Start: 17872, Stop: 18219, Start Num: 66

Candidate Starts for Kepler\_24:

(Start: 66 @17872 has 4 MA's), (Start: 72 @17887 has 1 MA's), (73, 17890), (78, 17902), (97, 17950), (105, 17968), (142, 18103), (145, 18118), (164, 18172), (166, 18178),

Gene: King2\_27 Start: 24982, Stop: 25350, Start Num: 50

Candidate Starts for King2\_27:

(Start: 50 @24982 has 18 MA's), (90, 25087), (109, 25129), (112, 25138), (115, 25150), (125, 25186), (129, 25195), (142, 25252), (151, 25291),

Gene: Kithara\_63 Start: 46188, Stop: 46532, Start Num: 51

Candidate Starts for Kithara\_63:

(39, 46140), (Start: 51 @46188 has 1 MA's), (59, 46212), (88, 46290), (92, 46299), (99, 46311), (102, 46320), (105, 46329), (121, 46377), (133, 46416), (142, 46455), (145, 46470), (158, 46518),

Gene: Kudrefre\_35 Start: 29727, Stop: 29957, Start Num: 89

Candidate Starts for Kudrefre\_35:

(Start: 86 @29724 has 1 MA's), (Start: 89 @29727 has 3 MA's), (108, 29772), (112, 29784), (114, 29793), (121, 29820), (132, 29853), (133, 29859), (135, 29865), (141, 29892), (142, 29895), (144, 29907), (151, 29934), (153, 29943),

Gene: Kukla\_23 Start: 18379, Stop: 18687, Start Num: 67

Candidate Starts for Kukla\_23:

(36, 18238), (37, 18253), (Start: 67 @18379 has 19 MA's), (92, 18454), (108, 18487), (121, 18535), (132, 18568), (142, 18613),

Gene: Kuleana\_24 Start: 17910, Stop: 18254, Start Num: 66

Candidate Starts for Kuleana\_24:

(63, 17904), (Start: 66 @17910 has 4 MA's), (84, 17961), (105, 18006), (120, 18060), (121, 18063), (142, 18141), (143, 18147), (145, 18156), (164, 18210), (169, 18231), (170, 18237),

Gene: Laphuphu24k\_23 Start: 17622, Stop: 17930, Start Num: 62

Candidate Starts for Laphuphu24k\_23:

(Start: 62 @17622 has 28 MA's), (78, 17661), (88, 17694), (105, 17727), (120, 17781), (142, 17862),

Gene: Lawnathon\_28 Start: 20289, Stop: 20597, Start Num: 67

Candidate Starts for Lawnathon\_28:

(Start: 67 @20289 has 19 MA's), (104, 20385), (105, 20388), (108, 20397), (142, 20523), (145, 20538), (148, 20550),

Gene: LeBruni\_28 Start: 20262, Stop: 20564, Start Num: 67

Candidate Starts for LeBruni\_28:

(64, 20256), (Start: 67 @20262 has 19 MA's), (90, 20331), (130, 20442), (134, 20460), (140, 20484), (142, 20496),

Gene: LeeroyJ\_29 Start: 25315, Stop: 25686, Start Num: 49

Candidate Starts for LeeroyJ\_29:

(Start: 49 @25315 has 4 MA's), (Start: 50 @25318 has 18 MA's), (56, 25339), (90, 25423), (109, 25465), (112, 25474), (115, 25486), (120, 25507), (125, 25522), (142, 25588), (151, 25627),

Gene: Leona\_23 Start: 17683, Stop: 18000, Start Num: 62

Candidate Starts for Leona\_23:

(Start: 62 @17683 has 28 MA's), (78, 17722), (88, 17755), (105, 17788), (120, 17842), (142, 17923),

Gene: LittleRon\_27 Start: 20234, Stop: 20542, Start Num: 67

Candidate Starts for LittleRon\_27:

(Start: 67 @20234 has 19 MA's), (104, 20330), (105, 20333), (142, 20468),

Gene: LittleTokyo\_24 Start: 17866, Stop: 18186, Start Num: 65

Candidate Starts for LittleTokyo\_24:

(63, 17863), (Start: 65 @17866 has 10 MA's), (84, 17917), (105, 17962), (126, 18031), (138, 18073), (145, 18112),

Gene: Lizz\_29 Start: 20625, Stop: 20858, Start Num: 87

Candidate Starts for Lizz\_29:

(Start: 87 @20625 has 8 MA's), (138, 20766), (140, 20778), (142, 20790), (148, 20817),

Gene: Lunar\_25 Start: 18034, Stop: 18384, Start Num: 65

Candidate Starts for Lunar\_25:

(Start: 65 @18034 has 10 MA's), (Start: 66 @18037 has 4 MA's), (73, 18055), (97, 18115), (105, 18133), (142, 18268), (145, 18283), (164, 18337), (166, 18343),

Gene: MUWow\_27 Start: 20453, Stop: 20761, Start Num: 67

Candidate Starts for MUWow\_27:

(Start: 67 @20453 has 19 MA's), (104, 20549), (105, 20552), (108, 20561), (142, 20687), (145, 20702), (148, 20714),

Gene: Mapleville\_28 Start: 20359, Stop: 20667, Start Num: 67

Candidate Starts for Mapleville\_28:

(Start: 67 @20359 has 19 MA's), (104, 20455), (105, 20458), (108, 20467), (142, 20593), (145, 20608), (148, 20620),

Gene: Martha\_29 Start: 25246, Stop: 25614, Start Num: 50

Candidate Starts for Martha\_29:

(Start: 50 @25246 has 18 MA's), (79, 25318), (85, 25339), (90, 25351), (92, 25357), (109, 25393), (112, 25402), (115, 25414), (120, 25435), (121, 25438), (125, 25450), (142, 25516), (151, 25555),

Gene: Mashley\_43 Start: 34157, Stop: 34516, Start Num: 75

Candidate Starts for Mashley\_43:

(25, 33788), (28, 33815), (31, 33881), (32, 33884), (Start: 75 @34157 has 1 MA's), (120, 34292), (142, 34373), (145, 34388), (168, 34475),

Gene: Melons\_25 Start: 18034, Stop: 18384, Start Num: 65

Candidate Starts for Melons\_25:

(Start: 65 @18034 has 10 MA's), (Start: 66 @18037 has 4 MA's), (73, 18055), (97, 18115), (105, 18133), (142, 18268), (145, 18283), (164, 18337), (166, 18343),

Gene: Merpity\_25 Start: 18054, Stop: 18350, Start Num: 75

Candidate Starts for Merpity\_25:

(52, 17988), (Start: 75 @18054 has 1 MA's), (Start: 81 @18072 has 5 MA's), (114, 18165), (117, 18177), (121, 18192), (134, 18234), (136, 18240), (142, 18270),

Gene: MisoSoup\_36 Start: 27160, Stop: 27543, Start Num: 55

Candidate Starts for MisoSoup\_36:

(24, 26842), (27, 26872), (33, 27001), (55, 27160), (84, 27241), (92, 27262), (107, 27292), (135, 27376), (138, 27385), (142, 27409), (145, 27424), (160, 27475), (168, 27508),

Gene: MrSmee\_23 Start: 18072, Stop: 18350, Start Num: 81

Candidate Starts for MrSmee\_23:

(52, 17988), (Start: 75 @18054 has 1 MA's), (Start: 81 @18072 has 5 MA's), (114, 18165), (117, 18177), (121, 18192), (134, 18234), (136, 18240), (142, 18270),

Gene: NathanVaag\_27 Start: 24958, Stop: 25326, Start Num: 50

Candidate Starts for NathanVaag\_27:

(Start: 50 @24958 has 18 MA's), (90, 25063), (109, 25105), (112, 25114), (113, 25117), (115, 25126), (125, 25162), (142, 25228), (151, 25267),

Gene: Nesbitt\_23 Start: 18458, Stop: 18670, Start Num: 94

Candidate Starts for Nesbitt\_23:

(Start: 94 @18458 has 4 MA's), (116, 18524), (118, 18536), (140, 18602), (142, 18614), (145, 18629),

Gene: NewKitty\_29 Start: 20590, Stop: 20898, Start Num: 67

Candidate Starts for NewKitty\_29:

(Start: 67 @20590 has 19 MA's), (104, 20686), (105, 20689), (108, 20698), (142, 20824), (145, 20839), (148, 20851),

Gene: Niblet\_24 Start: 19054, Stop: 19386, Start Num: 62

Candidate Starts for Niblet\_24:

(Start: 62 @19054 has 28 MA's), (68, 19072), (88, 19129), (105, 19162), (121, 19219), (125, 19231), (142, 19297),

Gene: Nikan\_46 Start: 34694, Stop: 35047, Start Num: 48

Candidate Starts for Nikan\_46:

(42, 34661), (Start: 48 @34694 has 2 MA's), (Start: 67 @34742 has 19 MA's), (69, 34751), (78, 34778), (108, 34853), (121, 34901), (133, 34940), (142, 34979), (146, 34997),

Gene: NoSwimming\_27 Start: 24543, Stop: 24818, Start Num: 80

Candidate Starts for NoSwimming\_27:

(Start: 80 @24543 has 4 MA's), (Start: 81 @24549 has 5 MA's), (129, 24687), (142, 24738),

Gene: Octobien14\_37 Start: 30411, Stop: 30644, Start Num: 86

Candidate Starts for Octobien14\_37:

(Start: 86 @30411 has 1 MA's), (Start: 89 @30414 has 3 MA's), (108, 30459), (112, 30471), (114, 30480), (117, 30492), (121, 30507), (132, 30540), (133, 30546), (135, 30552), (141, 30579), (142, 30582), (144, 30594), (151, 30621), (153, 30630),

Gene: Ollypop\_46 Start: 35786, Stop: 36139, Start Num: 48

Candidate Starts for Ollypop\_46:

(Start: 48 @35786 has 2 MA's), (56, 35813), (64, 35828), (Start: 67 @35834 has 19 MA's), (69, 35843), (92, 35912), (108, 35945), (128, 36011), (133, 36032), (142, 36071), (146, 36089),

Gene: Oppalora\_23 Start: 17621, Stop: 17944, Start Num: 62

Candidate Starts for Oppalora\_23:

(Start: 62 @17621 has 28 MA's), (78, 17660), (88, 17693), (105, 17726), (120, 17780), (142, 17861),

Gene: Orcanus\_24 Start: 18977, Stop: 19309, Start Num: 62

Candidate Starts for Orcanus\_24:

(Start: 62 @18977 has 28 MA's), (88, 19052), (92, 19061), (105, 19085), (106, 19088), (121, 19142), (125, 19154), (140, 19208), (142, 19220),

Gene: OtsoOtso\_24 Start: 17889, Stop: 18239, Start Num: 65

Candidate Starts for OtsoOtso\_24:

(Start: 65 @17889 has 10 MA's), (Start: 66 @17892 has 4 MA's), (73, 17910), (78, 17922), (97, 17970), (105, 17988), (142, 18123), (145, 18138),

Gene: PHTowN\_29 Start: 20623, Stop: 20856, Start Num: 87

Candidate Starts for PHTowN\_29:

(Start: 87 @20623 has 8 MA's), (138, 20764), (140, 20776), (142, 20788), (148, 20815),

Gene: PeggyLeg03\_26 Start: 20763, Stop: 21041, Start Num: 80

Candidate Starts for PeggyLeg03\_26:

(2, 19992), (3, 19998), (4, 20007), (Start: 75 @20754 has 1 MA's), (Start: 80 @20763 has 4 MA's), (Start: 81 @20769 has 5 MA's), (117, 20877), (121, 20892), (142, 20970),

Gene: Pelletreau\_25 Start: 19183, Stop: 19515, Start Num: 62

Candidate Starts for Pelletreau\_25:

(Start: 62 @19183 has 28 MA's), (88, 19258), (92, 19267), (105, 19291), (106, 19294), (121, 19348), (125, 19360), (140, 19414), (142, 19426),

Gene: PhirstandPhine\_25 Start: 18037, Stop: 18390, Start Num: 66

Candidate Starts for PhirstandPhine\_25:

(Start: 66 @18037 has 4 MA's), (73, 18055), (97, 18115), (105, 18133), (142, 18268), (145, 18283), (164, 18337),

Gene: PhluffyCoco\_23 Start: 17622, Stop: 17930, Start Num: 62

Candidate Starts for PhluffyCoco\_23:

(Start: 62 @17622 has 28 MA's), (78, 17661), (88, 17694), (105, 17727), (120, 17781), (142, 17862),

Gene: Phrank15\_27 Start: 20294, Stop: 20602, Start Num: 67

Candidate Starts for Phrank15\_27:

(Start: 67 @20294 has 19 MA's), (104, 20390), (105, 20393), (108, 20402), (142, 20528), (145, 20543), (148, 20555),

Gene: Piccoletto\_27 Start: 24960, Stop: 25328, Start Num: 50

Candidate Starts for Piccoletto\_27:

(Start: 50 @24960 has 18 MA's), (90, 25065), (109, 25107), (112, 25116), (115, 25128), (120, 25149), (125, 25164), (142, 25230), (151, 25269),

Gene: Pineda\_25 Start: 18045, Stop: 18395, Start Num: 65

Candidate Starts for Pineda\_25:

(Start: 65 @18045 has 10 MA's), (Start: 66 @18048 has 4 MA's), (73, 18066), (78, 18078), (97, 18126), (105, 18144), (142, 18279), (145, 18294),

Gene: Pippa\_29 Start: 25371, Stop: 25739, Start Num: 50

Candidate Starts for Pippa\_29:

(Start: 50 @25371 has 18 MA's), (90, 25476), (92, 25482), (109, 25518), (112, 25527), (115, 25539), (125, 25575), (129, 25584), (139, 25626), (142, 25641), (151, 25680),

Gene: Polka\_24 Start: 17889, Stop: 18239, Start Num: 65

Candidate Starts for Polka\_24:

(Start: 65 @17889 has 10 MA's), (Start: 66 @17892 has 4 MA's), (73, 17910), (78, 17922), (97, 17970), (105, 17988), (142, 18123), (145, 18138),

Gene: Pucara\_26 Start: 20288, Stop: 20599, Start Num: 81

Candidate Starts for Pucara\_26:

(13, 19760), (17, 19802), (19, 19805), (Start: 81 @20288 has 5 MA's), (111, 20372), (113, 20378), (130, 20438), (134, 20456), (145, 20510), (150, 20528), (161, 20564),

Gene: Quenya\_24 Start: 19845, Stop: 20162, Start Num: 53

Candidate Starts for Quenya\_24:

(Start: 53 @19845 has 13 MA's), (90, 19932), (109, 19974), (113, 19986), (128, 20037), (142, 20097),

Gene: QuinnAvery\_26 Start: 19733, Stop: 20041, Start Num: 67

Candidate Starts for QuinnAvery\_26:

(Start: 67 @19733 has 19 MA's), (92, 19808), (104, 19829), (108, 19841), (121, 19889), (132, 19922), (142, 19967), (152, 20009),

Gene: Rabbitrun\_38 Start: 31471, Stop: 31689, Start Num: 96

Candidate Starts for Rabbitrun\_38:

(Start: 96 @31471 has 1 MA's), (113, 31519), (121, 31552), (132, 31585), (133, 31591), (135, 31597), (137, 31603), (140, 31615), (141, 31624), (142, 31627), (145, 31642), (148, 31654), (151, 31666),

Gene: Raphaella\_28 Start: 20360, Stop: 20668, Start Num: 67

Candidate Starts for Raphaella\_28:

(Start: 67 @20360 has 19 MA's), (104, 20456), (105, 20459), (108, 20468), (142, 20594), (145, 20609), (148, 20621),

Gene: Rattail\_23 Start: 17683, Stop: 18000, Start Num: 62

Candidate Starts for Rattail\_23:

(Start: 62 @17683 has 28 MA's), (78, 17722), (88, 17755), (105, 17788), (120, 17842), (142, 17923),

Gene: RedFox\_23 Start: 17622, Stop: 17945, Start Num: 62

Candidate Starts for RedFox\_23:

(Start: 62 @17622 has 28 MA's), (78, 17661), (88, 17694), (105, 17727), (120, 17781), (142, 17862),

Gene: Ren19\_44 Start: 34694, Stop: 35047, Start Num: 48

Candidate Starts for Ren19\_44:

(42, 34661), (Start: 48 @34694 has 2 MA's), (Start: 67 @34742 has 19 MA's), (69, 34751), (78, 34778), (108, 34853), (121, 34901), (133, 34940), (142, 34979), (146, 34997),

Gene: Renna12\_24 Start: 17975, Stop: 18319, Start Num: 62

Candidate Starts for Renna12\_24:

(Start: 62 @17975 has 28 MA's), (78, 18014), (88, 18047), (105, 18080), (120, 18134), (140, 18203), (142, 18215),

Gene: Reyja\_23 Start: 18783, Stop: 19082, Start Num: 71

Candidate Starts for Reyja\_23:

(9, 18126), (11, 18186), (15, 18318), (18, 18327), (30, 18501), (70, 18780), (Start: 71 @18783 has 7 MA's), (107, 18885), (118, 18927), (135, 18972), (138, 18981), (142, 19005), (154, 19053),

Gene: Rollins\_22 Start: 17162, Stop: 17488, Start Num: 53

Candidate Starts for Rollins\_22:

(Start: 53 @17162 has 13 MA's), (121, 17345), (122, 17351), (142, 17423),

Gene: Rooney\_29 Start: 20813, Stop: 21046, Start Num: 87

Candidate Starts for Rooney\_29:

(Start: 87 @20813 has 8 MA's), (138, 20954), (140, 20966), (142, 20978), (148, 21005),

Gene: Ruchi\_24 Start: 19293, Stop: 19598, Start Num: 72

Candidate Starts for Ruchi\_24:

(Start: 62 @19266 has 28 MA's), (Start: 72 @19293 has 1 MA's), (88, 19341), (92, 19350), (105, 19374), (121, 19431), (125, 19443), (140, 19497), (142, 19509),

Gene: Sakai\_28 Start: 20369, Stop: 20677, Start Num: 67

Candidate Starts for Sakai\_28:

(Start: 67 @20369 has 19 MA's), (104, 20465), (105, 20468), (108, 20477), (142, 20603), (145, 20618), (148, 20630),

Gene: Santhid\_22 Start: 18617, Stop: 18916, Start Num: 71

Candidate Starts for Santhid\_22:

(70, 18614), (Start: 71 @18617 has 7 MA's), (107, 18719), (118, 18761), (135, 18806), (138, 18815), (142, 18839), (154, 18887),

Gene: SassyC\_31 Start: 20941, Stop: 21174, Start Num: 87

Candidate Starts for SassyC\_31:

(5, 20191), (8, 20227), (16, 20431), (20, 20464), (21, 20479), (22, 20494), (Start: 87 @20941 has 8 MA's), (111, 20995), (135, 21070), (138, 21079), (142, 21103), (148, 21130),

Gene: Schmidt\_22 Start: 17098, Stop: 17373, Start Num: 87

Candidate Starts for Schmidt\_22:

(Start: 81 @17077 has 5 MA's), (Start: 87 @17098 has 8 MA's), (Start: 96 @17113 has 1 MA's), (108, 17146), (117, 17179), (119, 17188), (130, 17218), (136, 17239), (140, 17254), (141, 17263),

Gene: Scotia\_27 Start: 24546, Stop: 24821, Start Num: 80

Candidate Starts for Scotia\_27:

(Start: 80 @24546 has 4 MA's), (Start: 81 @24552 has 5 MA's), (142, 24741),

Gene: Sephiroth\_36 Start: 29898, Stop: 30128, Start Num: 89

Candidate Starts for Sephiroth\_36:

(Start: 86 @29895 has 1 MA's), (Start: 89 @29898 has 3 MA's), (108, 29943), (112, 29955), (114, 29964), (121, 29991), (132, 30024), (133, 30030), (135, 30036), (141, 30063), (142, 30066), (144, 30078), (151, 30105), (153, 30114),

Gene: Shade\_29 Start: 25212, Stop: 25580, Start Num: 50

Candidate Starts for Shade\_29:

(Start: 50 @25212 has 18 MA's), (90, 25317), (92, 25323), (109, 25359), (112, 25368), (115, 25380), (125, 25416), (138, 25458), (142, 25482), (143, 25488), (151, 25521),

Gene: ShakeNBake\_29 Start: 20641, Stop: 20874, Start Num: 87

Candidate Starts for ShakeNBake\_29:

(Start: 87 @20641 has 8 MA's), (138, 20782), (140, 20794), (142, 20806), (148, 20833),

Gene: Shen\_25 Start: 19184, Stop: 19516, Start Num: 62

Candidate Starts for Shen\_25:

(Start: 62 @19184 has 28 MA's), (88, 19259), (92, 19268), (105, 19292), (106, 19295), (121, 19349), (125, 19361), (140, 19415), (142, 19427),

Gene: Skitty\_23 Start: 18072, Stop: 18350, Start Num: 81

Candidate Starts for Skitty\_23:

(52, 17988), (Start: 75 @18054 has 1 MA's), (Start: 81 @18072 has 5 MA's), (114, 18165), (117, 18177), (121, 18192), (134, 18234), (136, 18240), (142, 18270),

Gene: Skylord\_22 Start: 17110, Stop: 17436, Start Num: 53

Candidate Starts for Skylord\_22:

(Start: 53 @17110 has 13 MA's), (121, 17293), (122, 17299), (142, 17371),

Gene: SonDevVon\_27 Start: 20362, Stop: 20670, Start Num: 67

Candidate Starts for SonDevVon\_27:

(Start: 67 @20362 has 19 MA's), (104, 20458), (105, 20461), (108, 20470), (142, 20596), (145, 20611), (148, 20623),

Gene: Sonny\_29 Start: 25242, Stop: 25610, Start Num: 50

Candidate Starts for Sonny\_29:

(Start: 50 @25242 has 18 MA's), (90, 25347), (92, 25353), (109, 25389), (112, 25398), (115, 25410), (120, 25431), (125, 25446), (138, 25488), (142, 25512), (143, 25518), (151, 25551),

Gene: Sporco\_29 Start: 20417, Stop: 20725, Start Num: 67

Candidate Starts for Sporco\_29:

(Start: 67 @20417 has 19 MA's), (104, 20513), (105, 20516), (108, 20525), (142, 20651), (145, 20666), (148, 20678),

Gene: StevieBAY\_29 Start: 25315, Stop: 25686, Start Num: 49

Candidate Starts for StevieBAY\_29:

(Start: 49 @25315 has 4 MA's), (Start: 50 @25318 has 18 MA's), (90, 25423), (109, 25465), (112, 25474), (115, 25486), (120, 25507), (125, 25522), (142, 25588), (151, 25627),

Gene: StuartMinion\_23 Start: 17655, Stop: 17969, Start Num: 62

Candidate Starts for StuartMinion\_23:

(60, 17652), (Start: 62 @17655 has 28 MA's), (78, 17691), (85, 17715), (92, 17733), (97, 17739), (105, 17757), (108, 17766), (120, 17811), (140, 17880), (142, 17892), (150, 17925),

Gene: Syleon\_36 Start: 29820, Stop: 30050, Start Num: 89

Candidate Starts for Syleon\_36:

(Start: 86 @29817 has 1 MA's), (Start: 89 @29820 has 3 MA's), (108, 29865), (112, 29877), (114, 29886), (121, 29913), (132, 29946), (133, 29952), (135, 29958), (141, 29985), (142, 29988), (144, 30000), (151, 30027), (153, 30036),

Gene: TaeYoung\_29 Start: 25246, Stop: 25614, Start Num: 50

Candidate Starts for TaeYoung\_29:

(Start: 50 @25246 has 18 MA's), (79, 25318), (85, 25339), (90, 25351), (92, 25357), (109, 25393), (112, 25402), (115, 25414), (120, 25435), (121, 25438), (125, 25450), (142, 25516), (151, 25555),

Gene: TailX7\_6 Start: 3802, Stop: 4080, Start Num: 83

Candidate Starts for TailX7\_6:

(Start: 83 @3802 has 1 MA's), (127, 3922), (132, 3940),

Gene: Tarzan\_22 Start: 18586, Stop: 18885, Start Num: 71

Candidate Starts for Tarzan\_22:

(9, 17929), (11, 17989), (15, 18121), (18, 18130), (30, 18304), (70, 18583), (Start: 71 @18586 has 8 MA's), (107, 18688), (118, 18730), (135, 18775), (138, 18784), (142, 18808), (154, 18856), (163, 18877),

Gene: TaylorSipht\_24 Start: 18002, Stop: 18337, Start Num: 62

Candidate Starts for TaylorSipht\_24:

(Start: 62 @18002 has 28 MA's), (73, 18032), (88, 18077), (105, 18110), (112, 18131), (120, 18164), (121, 18167), (125, 18179), (134, 18209), (140, 18233), (142, 18245),

Gene: ThayneTheZag\_28 Start: 20519, Stop: 20830, Start Num: 81

Candidate Starts for ThayneTheZag\_28:

(Start: 81 @20519 has 5 MA's), (102, 20576), (130, 20669), (134, 20687), (147, 20750), (152, 20768),

Gene: Timinator\_29 Start: 25315, Stop: 25686, Start Num: 49

Candidate Starts for Timinator\_29:

(Start: 49 @25315 has 4 MA's), (Start: 50 @25318 has 18 MA's), (56, 25339), (90, 25423), (109, 25465), (112, 25474), (115, 25486), (120, 25507), (125, 25522), (142, 25588), (151, 25627),

Gene: Toad24\_25 Start: 19184, Stop: 19516, Start Num: 62

Candidate Starts for Toad24\_25:

(Start: 62 @19184 has 28 MA's), (88, 19259), (92, 19268), (105, 19292), (106, 19295), (121, 19349), (125, 19361), (140, 19415), (142, 19427),

Gene: TurkishDelight\_36 Start: 34260, Stop: 34487, Start Num: 94

Candidate Starts for TurkishDelight\_36:

(Start: 94 @34260 has 4 MA's), (141, 34413), (142, 34416),

Gene: Virizion\_33 Start: 21012, Stop: 21245, Start Num: 87

Candidate Starts for Virizion\_33:

(Start: 87 @21012 has 8 MA's), (138, 21153), (140, 21165), (142, 21177), (148, 21204),

Gene: Vitas\_22 Start: 17102, Stop: 17428, Start Num: 53

Candidate Starts for Vitas\_22:

(Start: 53 @17102 has 13 MA's), (121, 17285), (122, 17291), (142, 17363),

Gene: Vopal\_29 Start: 20432, Stop: 20740, Start Num: 67

Candidate Starts for Vopal\_29:

(Start: 67 @20432 has 19 MA's), (104, 20528), (105, 20531), (108, 20540), (142, 20666), (145, 20681), (148, 20693),

Gene: Vulpecula\_24 Start: 18724, Stop: 19056, Start Num: 62

Candidate Starts for Vulpecula\_24:

(Start: 62 @18724 has 28 MA's), (88, 18799), (92, 18808), (121, 18889), (125, 18901), (131, 18916), (140, 18955), (142, 18967),

Gene: Wentworth\_30 Start: 20992, Stop: 21219, Start Num: 87

Candidate Starts for Wentworth\_30:

(Start: 87 @20992 has 8 MA's), (101, 21013), (102, 21016), (110, 21040), (115, 21058), (138, 21127), (142, 21151), (144, 21163), (148, 21178),

Gene: Westrich\_25 Start: 19173, Stop: 19505, Start Num: 62

Candidate Starts for Westrich\_25:

(Start: 62 @19173 has 28 MA's), (88, 19248), (92, 19257), (105, 19281), (106, 19284), (121, 19338), (125, 19350), (140, 19404), (142, 19416),

Gene: WileyE\_23 Start: 18049, Stop: 18381, Start Num: 62

Candidate Starts for WileyE\_23:

(Start: 62 @18049 has 28 MA's), (Start: 72 @18076 has 1 MA's), (88, 18124), (92, 18133), (105, 18157), (112, 18178), (121, 18214), (140, 18280), (142, 18292),

Gene: Wilkos\_30 Start: 20904, Stop: 21131, Start Num: 87

Candidate Starts for Wilkos\_30:

(Start: 87 @20904 has 8 MA's), (106, 20940), (111, 20955), (114, 20967), (115, 20970), (142, 21063), (148, 21090),

Gene: Wyvern\_31 Start: 21316, Stop: 21717, Start Num: 54

Candidate Starts for Wyvern\_31:

(38, 21238), (Start: 54 @21316 has 1 MA's), (Start: 61 @21331 has 1 MA's), (100, 21436), (102, 21442), (119, 21502), (123, 21517), (142, 21586), (143, 21592), (156, 21637), (162, 21655), (168, 21685),

Gene: Yappy\_73 Start: 34287, Stop: 34649, Start Num: 57

Candidate Starts for Yappy\_73:

(Start: 57 @34287 has 1 MA's), (92, 34368), (108, 34401), (116, 34425), (142, 34515), (155, 34566), (160, 34578),

Gene: Yara\_26 Start: 20240, Stop: 20461, Start Num: 93

Candidate Starts for Yara\_26:

(40, 20069), (Start: 93 @20240 has 1 MA's), (124, 20336), (142, 20399),

Gene: Zartrosa\_29 Start: 25236, Stop: 25604, Start Num: 50

Candidate Starts for Zartrosa\_29:

(Start: 50 @25236 has 18 MA's), (90, 25341), (92, 25347), (109, 25383), (112, 25392), (115, 25404), (120, 25425), (125, 25440), (138, 25482), (142, 25506), (143, 25512), (151, 25545),

Gene: Zhuangyuan\_25 Start: 18457, Stop: 18819, Start Num: 62

Candidate Starts for Zhuangyuan\_25:

(Start: 62 @18457 has 28 MA's), (Start: 67 @18469 has 19 MA's), (92, 18541), (105, 18565), (120, 18619), (140, 18688), (142, 18700),

Gene: Zixiang\_24 Start: 19055, Stop: 19387, Start Num: 62

Candidate Starts for Zixiang\_24:

(Start: 62 @19055 has 28 MA's), (68, 19073), (88, 19130), (105, 19163), (121, 19220), (125, 19232), (142, 19298),