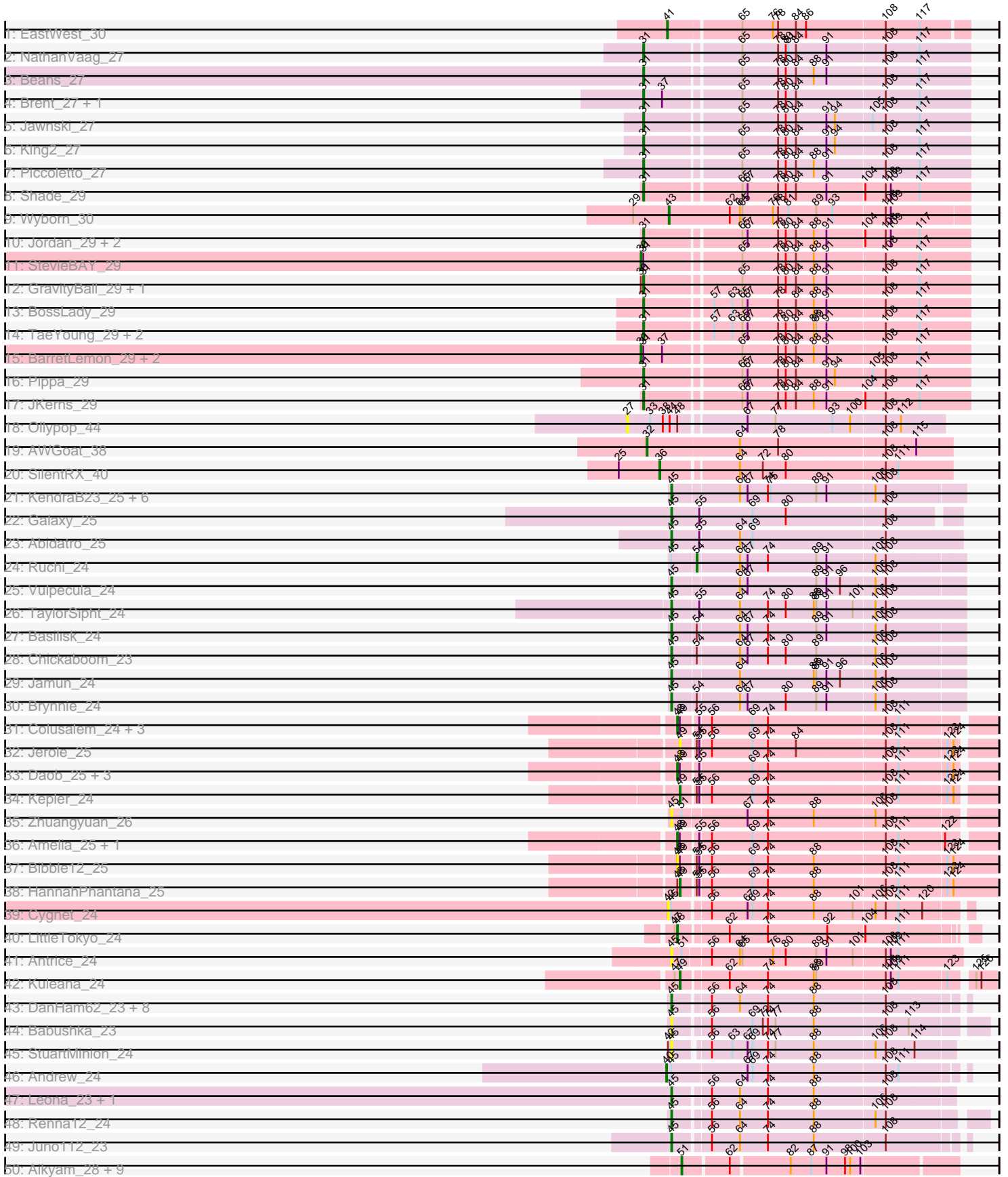
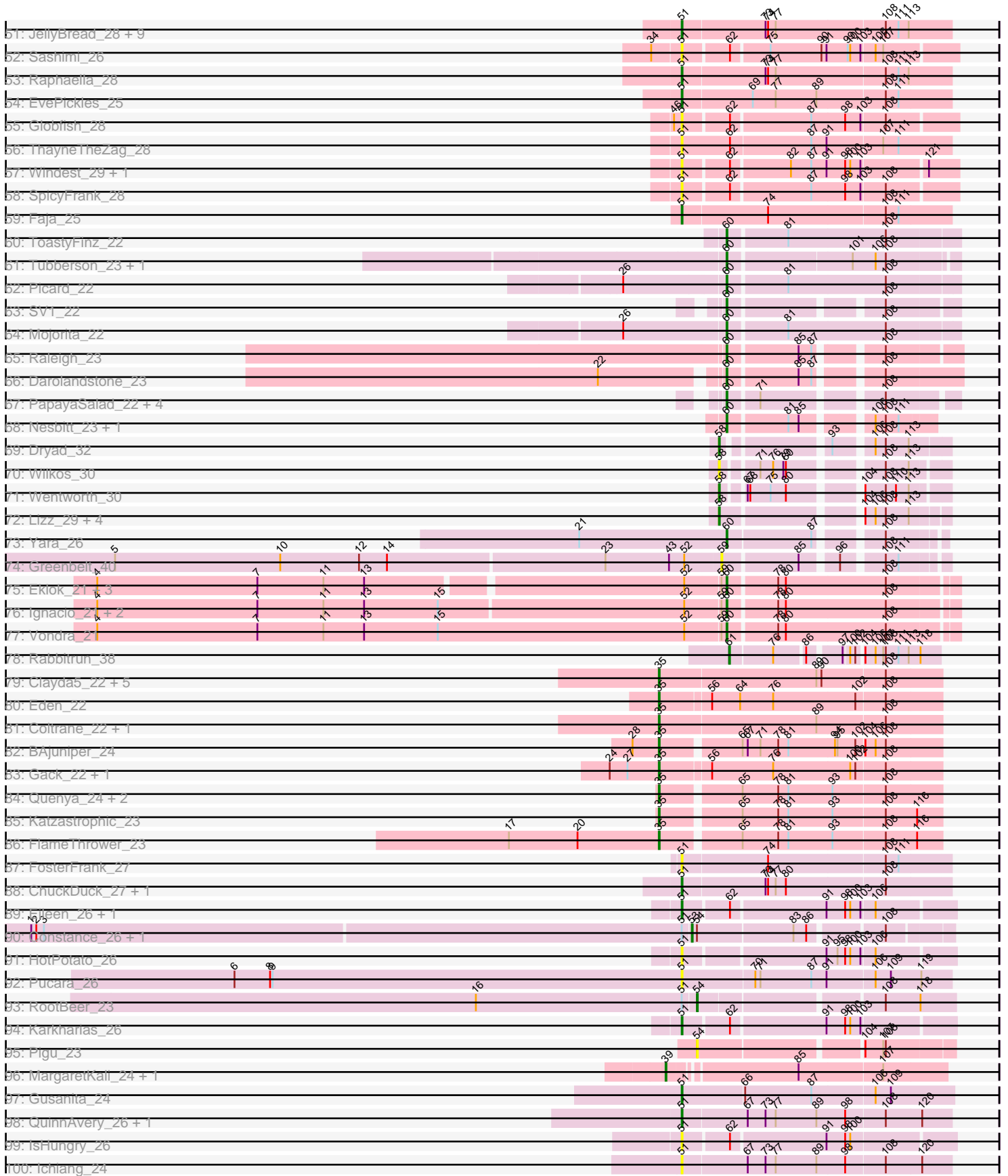


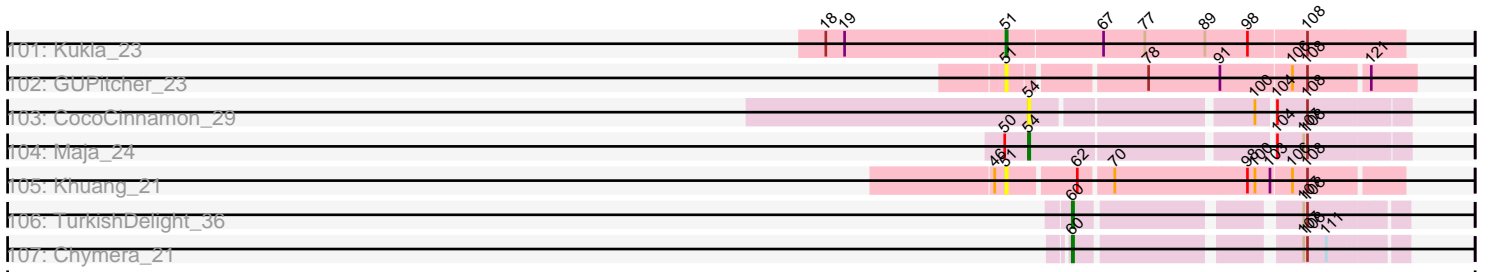
Pham 215875



Pham 215875



Pham 215875



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 215875 Report

This analysis was run 02/22/25 on database version 588.

WARNING: Pham size does not match number of genes in report. Either unphamerated genes have been added (by you) or starterator has removed genes due to invalid start codon.

Pham number 215875 has 185 members, 54 are drafts.

Phages represented in each track:

- Track 1 : EastWest\_30
- Track 2 : NathanVaag\_27
- Track 3 : Beans\_27
- Track 4 : Brent\_27, Franzy\_27
- Track 5 : Jawnski\_27
- Track 6 : King2\_27
- Track 7 : Piccoletto\_27
- Track 8 : Shade\_29
- Track 9 : Wyborn\_30
- Track 10 : Jordan\_29, Zartrosa\_29, Sonny\_29
- Track 11 : StevieBAY\_29
- Track 12 : GravityBall\_29, BigDome\_29
- Track 13 : BossLady\_29
- Track 14 : TaeYoung\_29, Martha\_29, Grekaycon\_29
- Track 15 : BarretLemon\_29, Timinator\_29, LeeroyJ\_29
- Track 16 : Pippa\_29
- Track 17 : JKerns\_29
- Track 18 : Ollypop\_44
- Track 19 : AWGoat\_38
- Track 20 : SilentRX\_40
- Track 21 : KendraB23\_25, Toad24\_25, Pelletreau\_25, Westrich\_25, Gravel\_25, Orcanus\_24, Eesa\_24
- Track 22 : Galaxy\_25
- Track 23 : Abidatro\_25
- Track 24 : Ruchi\_24
- Track 25 : Vulpecula\_24
- Track 26 : TaylorSipht\_24
- Track 27 : Basilisk\_24
- Track 28 : Chickaboom\_23
- Track 29 : Jamun\_24
- Track 30 : Brynnie\_24
- Track 31 : Colusalem\_24, Bedetta\_25, Polka\_24, OtsoOtso\_24
- Track 32 : Jerole\_25

- Track 33 : Daob\_25, Melons\_25, Cote\_25, Lunar\_25
- Track 34 : Kepler\_24
- Track 35 : Zhuangyuan\_26
- Track 36 : Amelia\_25, Coral\_24
- Track 37 : Bibble12\_25
- Track 38 : HannahPhantana\_25
- Track 39 : Cygnet\_24
- Track 40 : LittleTokyo\_24
- Track 41 : Antrice\_24
- Track 42 : Kuleana\_24
- Track 43 : DanHam62\_23, Atlantica\_23, HamCheese\_23, Camara\_23, Glotell\_24, KHumphrey\_23, PhluffyCoco\_23, AmiCi24\_23, RedFox\_23
- Track 44 : Babushka\_23
- Track 45 : StuartMinion\_24
- Track 46 : Andrew\_24
- Track 47 : Leona\_23, Rattail\_23
- Track 48 : Renna12\_24
- Track 49 : Juno112\_23
- Track 50 : Aikyam\_28, CookieBear\_29, RadFad\_28, Richie\_28, Auxilium\_28, MaterMagnus\_28, Hillester\_28, YoungHarleezy\_28, MidnightRain\_28, BenchScraper\_28
- Track 51 : JellyBread\_28, Vopal\_29, Phrank15\_27, MUWow\_27, Isolde\_28, Sakai\_28, BillyTP\_28, Lawnathon\_28, Gorpy\_28, AdaS\_28
- Track 52 : Sashimi\_26
- Track 53 : Raphaella\_28
- Track 54 : EvePickles\_25
- Track 55 : Globfish\_28
- Track 56 : ThayneTheZag\_28
- Track 57 : Windest\_29, BlueShadow\_29
- Track 58 : SpicyFrank\_28
- Track 59 : Faja\_25
- Track 60 : ToastyFinz\_22
- Track 61 : Tubberson\_23, SoJo\_23
- Track 62 : Picard\_22
- Track 63 : SV1\_22
- Track 64 : Mojorita\_22
- Track 65 : Raleigh\_23
- Track 66 : Darolandstone\_23
- Track 67 : PapayaSalad\_22, Bioscum\_22, Austintatious\_22, Ididsumtinwong\_22, Lishka\_21
- Track 68 : Nesbitt\_23, AbbeyMikolon\_23
- Track 69 : Dryad\_32
- Track 70 : Wilkos\_30
- Track 71 : Wentworth\_30
- Track 72 : Lizz\_29, PHTowN\_29, Gibson\_29, Rooney\_29, ShakeNBake\_29
- Track 73 : Yara\_26
- Track 74 : Greenbelt\_40
- Track 75 : Eklok\_21, AxeJC\_21, Piccadilly\_21, Eastland\_21
- Track 76 : Ignacio\_21, HFrancette\_21, Cumberbatch\_21
- Track 77 : Vondra\_21
- Track 78 : Rabbitrun\_38
- Track 79 : Clayda5\_22, Skylord\_22, Rollins\_22, Bernstein\_22, Armstrong\_22, Vitas\_22

- Track 80 : Eden\_22
- Track 81 : Coltrane\_22, Brahms\_22
- Track 82 : BAJuniper\_24
- Track 83 : Gack\_22, Franklin22\_23
- Track 84 : Quenya\_24, Celaena\_23, Bachaco\_23
- Track 85 : Katzastrophic\_23
- Track 86 : FlameThrower\_23
- Track 87 : FosterFrank\_27
- Track 88 : ChuckDuck\_27, KayMoney\_27
- Track 89 : Eileen\_26, Peas\_26
- Track 90 : Constance\_26, PeggyLeg03\_26
- Track 91 : HotPotato\_26
- Track 92 : Pucara\_26
- Track 93 : RootBeer\_23
- Track 94 : Karkharias\_26
- Track 95 : Pigu\_23
- Track 96 : MargaretKali\_24, Kumotta\_24
- Track 97 : Gusanita\_24
- Track 98 : QuinnAvery\_26, Halloweekend\_24
- Track 99 : IsHungry\_26
- Track 100 : Ichiang\_24
- Track 101 : Kukla\_23
- Track 102 : GUPitcher\_23
- Track 103 : CocoCinnamon\_29
- Track 104 : Maja\_24
- Track 105 : Khuang\_21
- Track 106 : TurkishDelight\_36
- Track 107 : Chymera\_21

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

The start number called the most often in the published annotations is 60, it was called in 25 of the 131 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AbbeyMikolon\_23, Austintatious\_22, AxeJC\_21, Bioscum\_22, Chymera\_21, Cumberbatch\_21, Darolandstone\_23, Eastland\_21, Eklok\_21, HFrancette\_21, Ididsumtinwong\_22, Ignacio\_21, Lishka\_21, Mojourita\_22, Nesbitt\_23, PapayaSalad\_22, Picard\_22, Piccadilly\_21, Raleigh\_23, SV1\_22, SoJo\_23, ToastyFinz\_22, Tubberson\_23, TurkishDelight\_36, Vondra\_21, Yara\_26,

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

- 

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

- AWGoat\_38, Abidatro\_25, AdaS\_28, Aikyam\_28, Amelia\_25, AmiCi24\_23, Andrew\_24, Antrice\_24, Armstrong\_22, Atlantica\_23, Auxilium\_28, BAJuniper\_24, Babushka\_23, Bachaco\_23, BarretLemon\_29, Basilisk\_24, Beans\_27, Bedetta\_25, BenchScraper\_28, Bernstein\_22, Bibble12\_25, BigDome\_29, BillyTP\_28, BlueShadow\_29, BossLady\_29, Brahms\_22, Brent\_27, Brynnie\_24, Camara\_23,

Celaena\_23, Chickaboom\_23, ChuckDuck\_27, Clayda5\_22, CocoCinnamon\_29, Coltrane\_22, Colusalem\_24, Constance\_26, CookieBear\_29, Coral\_24, Cote\_25, Cygnet\_24, DanHam62\_23, Daob\_25, Dryad\_32, EastWest\_30, Eden\_22, Eesa\_24, Eileen\_26, EvePickles\_25, Faja\_25, FlameThrower\_23, FosterFrank\_27, Franklin22\_23, Franzy\_27, GUPitcher\_23, Gack\_22, Galaxy\_25, Gibson\_29, Globfish\_28, Glotell\_24, Gorpy\_28, Gravel\_25, GravityBall\_29, Greenbelt\_40, Grekaycon\_29, Gusanita\_24, Halloweekend\_24, HamCheese\_23, HannahPhantana\_25, Hillester\_28, HotPotato\_26, Ichiang\_24, IsHungry\_26, Isolde\_28, JKerns\_29, Jamun\_24, Jawnski\_27, JellyBread\_28, Jerole\_25, Jordan\_29, Juno112\_23, KHumphrey\_23, Karkharias\_26, Katzastrophic\_23, KayMoney\_27, KendraB23\_25, Kepler\_24, Khuang\_21, King2\_27, Kukla\_23, Kuleana\_24, Kumotta\_24, Lawnathon\_28, LeeroyJ\_29, Leona\_23, LittleTokyo\_24, Lizz\_29, Lunar\_25, MUWow\_27, Maja\_24, MargaretKali\_24, Martha\_29, MaterMagnus\_28, Melons\_25, MidnightRain\_28, NathanVaag\_27, Ollypop\_44, Orcanus\_24, OtsoOtso\_24, PHTown\_29, Peas\_26, PeggyLeg03\_26, Pelletreau\_25, PhluffyCoco\_23, Phrank15\_27, Piccoletto\_27, Pigu\_23, Pippa\_29, Polka\_24, Pucara\_26, Quenya\_24, QuinnAvery\_26, Rabbitrun\_38, RadFad\_28, Raphaella\_28, Rattail\_23, RedFox\_23, Renna12\_24, Richie\_28, Rollins\_22, Rooney\_29, RootBeer\_23, Ruchi\_24, Sakai\_28, Sashimi\_26, Shade\_29, ShakeNBake\_29, SilentRX\_40, Skylord\_22, Sonny\_29, SpicyFrank\_28, StevieBAY\_29, StuartMinion\_24, TaeYoung\_29, TaylorSipht\_24, ThayneTheZag\_28, Timinator\_29, Toad24\_25, Vitas\_22, Vopal\_29, Vulpecula\_24, Wentworth\_30, Westrich\_25, Wilkos\_30, Windest\_29, Wyborn\_30, YoungHarleezy\_28, Zartrosa\_29, Zhuangyuan\_26,

### Summary by start number:

#### Start 27:

- Found in 3 of 185 ( 1.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Ollypop\_44 (AP2),

#### Start 30:

- Found in 6 of 185 ( 3.2% ) of genes in pham
- Manual Annotations of this start: 4 of 131
- 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 31:

- Found in 23 of 185 ( 12.4% ) of genes in pham
- Manual Annotations of this start: 18 of 131
- 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 32:

- Found in 1 of 185 ( 0.5% ) of genes in pham

- Manual Annotations of this start: 1 of 131
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AWGoat\_38 (AP4),

#### Start 35:

- Found in 17 of 185 ( 9.2% ) of genes in pham
- Manual Annotations of this start: 17 of 131
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Armstrong\_22 (EB), BAjuniper\_24 (EB), Bachaco\_23 (EB), Bernstein\_22 (EB), Brahms\_22 (EB), Celaena\_23 (EB), Clayda5\_22 (EB), Coltrane\_22 (EB), Eden\_22 (EB), FlameThrower\_23 (EB), Franklin22\_23 (EB), Gack\_22 (EB), Katzastrophic\_23 (EB), Quenya\_24 (EB), Rollins\_22 (EB), Skylord\_22 (EB), Vitas\_22 (EB),

#### Start 36:

- Found in 1 of 185 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 131
- Called 100.0% of time when present
- Phage (with cluster) where this start called: SilentRX\_40 (AP4),

#### Start 39:

- Found in 2 of 185 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 2 of 131
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kumotta\_24 (FB), MargaretKali\_24 (FB),

#### Start 40:

- Found in 1 of 185 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 131
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Andrew\_24 (AS3),

#### Start 41:

- Found in 1 of 185 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 131
- Called 100.0% of time when present
- Phage (with cluster) where this start called: EastWest\_30 (AO),

#### Start 42:

- Found in 2 of 185 ( 1.1% ) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Cygnet\_24 (AS2),

#### Start 43:

- Found in 2 of 185 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 1 of 131
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Wyborn\_30 (AO2),

#### Start 45:

- Found in 35 of 185 ( 18.9% ) of genes in pham
- Manual Annotations of this start: 16 of 131



- Called 91.4% of time when present
- Phage (with cluster) where this start called: Abidatro\_25 (AS1), AmiCi24\_23 (AS3), Antrice\_24 (AS2), Atlantica\_23 (AS3), Babushka\_23 (AS3), Basilisk\_24 (AS1), Brynnie\_24 (AS1), Camara\_23 (AS3), Chickaboom\_23 (AS1), DanHam62\_23 (AS3), Eesa\_24 (AS1), Galaxy\_25 (AS1), Glotell\_24 (AS3), Gravel\_25 (AS1), HamCheese\_23 (AS3), Jamun\_24 (AS1), Juno112\_23 (AS3), KHumphrey\_23 (AS3), KendraB23\_25 (AS1), Leona\_23 (AS3), Orcanus\_24 (AS1), Pelletreau\_25 (AS1), PhluffyCoco\_23 (AS3), Rattail\_23 (AS3), RedFox\_23 (AS3), Renna12\_24 (AS3), StuartMinion\_24 (AS3), TaylorSipht\_24 (AS1), Toad24\_25 (AS1), Vulpecula\_24 (AS1), Westrich\_25 (AS1), Zhuangyuan\_26 (AS2),

#### Start 48:

- Found in 14 of 185 ( 7.6% ) of genes in pham
- Manual Annotations of this start: 8 of 131
- Called 85.7% 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), Polka\_24 (AS2),

#### Start 49:

- Found in 15 of 185 ( 8.1% ) of genes in pham
- Manual Annotations of this start: 3 of 131
- Called 26.7% of time when present
- Phage (with cluster) where this start called: HannahPhantana\_25 (AS2), Jerole\_25 (AS2), Kepler\_24 (AS2), Kuleana\_24 (AS2),

#### Start 51:

- Found in 50 of 185 ( 27.0% ) of genes in pham
- Manual Annotations of this start: 20 of 131
- Called 90.0% of time when present
- Phage (with cluster) where this start called: AdaS\_28 (AY), Aikyam\_28 (AY), Auxilium\_28 (AY), BenchScraper\_28 (AY), BillyTP\_28 (AY), BlueShadow\_29 (AY), ChuckDuck\_27 (FA), CookieBear\_29 (AY), Eileen\_26 (FA), EvePickles\_25 (AY), Faja\_25 (AY), FosterFrank\_27 (FA), GUPitcher\_23 (FJ), Globfish\_28 (AY), Gorpy\_28 (AY), Gusanita\_24 (FF), Halloweekend\_24 (FF), Hillester\_28 (AY), HotPotato\_26 (FA), Ichiang\_24 (FF), IsHungry\_26 (FF), Isolde\_28 (AY), JellyBread\_28 (AY), Karkharias\_26 (FA), KayMoney\_27 (FA), Khuang\_21 (FS), Kukla\_23 (FJ), Lawnathon\_28 (AY), MUWow\_27 (AY), MaterMagnus\_28 (AY), MidnightRain\_28 (AY), Peas\_26 (FA), Phrank15\_27 (AY), Pucara\_26 (FA), QuinnAvery\_26 (FF), RadFad\_28 (AY), Raphaella\_28 (AY), Richie\_28 (AY), Sakai\_28 (AY), Sashimi\_26 (AY), SpicyFrank\_28 (AY), ThayneTheZag\_28 (AY), Vopal\_29 (AY), Windest\_29 (AY), YoungHarleezy\_28 (AY),

#### Start 53:

- Found in 2 of 185 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 2 of 131
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Constance\_26 (FA), PeggyLeg03\_26 (FA),

#### Start 54:

- Found in 14 of 185 ( 7.6% ) of genes in pham

- Manual Annotations of this start: 3 of 131
- Called 35.7% of time when present
- Phage (with cluster) where this start called: CocoCinnamon\_29 (FO), Maja\_24 (FO), Pigu\_23 (FB), RootBeer\_23 (FA), Ruchi\_24 (AS1),

Start 58:

- Found in 8 of 185 ( 4.3% ) of genes in pham
- Manual Annotations of this start: 7 of 131
- Called 100.0% 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), ShakeNBake\_29 (BN), Wentworth\_30 (BN), Wilkos\_30 (BN),

Start 59:

- Found in 9 of 185 ( 4.9% ) of genes in pham
- No Manual Annotations of this start.
- Called 11.1% of time when present
- Phage (with cluster) where this start called: Greenbelt\_40 (BN),

Start 60:

- Found in 26 of 185 ( 14.1% ) of genes in pham
- Manual Annotations of this start: 25 of 131
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AbbeyMikolon\_23 (BL), Austintatious\_22 (BC3), AxeJC\_21 (BP), Bioscum\_22 (BC3), Chymera\_21 (singleton), Cumberbatch\_21 (BP), Darolandstone\_23 (BC2), Eastland\_21 (BP), Eklok\_21 (BP), HFrancette\_21 (BP), Ididsumtinwong\_22 (BC3), Ignacio\_21 (BP), Lishka\_21 (BC3), Moajorita\_22 (BC1), Nesbitt\_23 (BL), PapayaSalad\_22 (BC3), Picard\_22 (BC1), Piccadilly\_21 (BP), Raleigh\_23 (BC2), SV1\_22 (BC1), SoJo\_23 (BC1), ToastyFinz\_22 (BC1), Tubberson\_23 (BC1), TurkishDelight\_36 (singleton), Vondra\_21 (BP), Yara\_26 (BN),

Start 61:

- Found in 1 of 185 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 131
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Rabbitrun\_38 (DU2),

### Summary by clusters:

There are 24 clusters represented in this pham: singleton, FS, AP2, BN, AP4, FA, FB, BP, FF, FJ, FO, BL, DU2, AS3, AS2, AS1, AO, EB, AO2, AO1, AY, BC1, BC2, BC3,

Info for manual annotations of cluster AO:

- Start number 41 was manually annotated 1 time for cluster AO.

Info for manual annotations of cluster AO1:

- Start number 31 was manually annotated 7 times for cluster AO1.

Info for manual annotations of cluster AO2:

- Start number 30 was manually annotated 4 times for cluster AO2.
- Start number 31 was manually annotated 11 times for cluster AO2.
- Start number 43 was manually annotated 1 time for cluster AO2.

Info for manual annotations of cluster AP4:

- Start number 32 was manually annotated 1 time for cluster AP4.
- Start number 36 was manually annotated 1 time for cluster AP4.

Info for manual annotations of cluster AS1:

- Start number 45 was manually annotated 10 times for cluster AS1.
- Start number 54 was manually annotated 1 time for cluster AS1.

Info for manual annotations of cluster AS2:

- Start number 48 was manually annotated 8 times for cluster AS2.
- Start number 49 was manually annotated 3 times for cluster AS2.

Info for manual annotations of cluster AS3:

- Start number 40 was manually annotated 1 time for cluster AS3.
- Start number 45 was manually annotated 6 times for cluster AS3.

Info for manual annotations of cluster AY:

- Start number 51 was manually annotated 13 times for cluster AY.

Info for manual annotations of cluster BC1:

- Start number 60 was manually annotated 6 times for cluster BC1.

Info for manual annotations of cluster BC2:

- Start number 60 was manually annotated 2 times for cluster BC2.

Info for manual annotations of cluster BC3:

- Start number 60 was manually annotated 4 times for cluster BC3.

Info for manual annotations of cluster BL:

- Start number 60 was manually annotated 2 times for cluster BL.

Info for manual annotations of cluster BN:

- Start number 58 was manually annotated 7 times for cluster BN.
- Start number 60 was manually annotated 1 time for cluster BN.

Info for manual annotations of cluster BP:

- Start number 60 was manually annotated 8 times for cluster BP.

Info for manual annotations of cluster DU2:

- Start number 61 was manually annotated 1 time for cluster DU2.

Info for manual annotations of cluster EB:

- Start number 35 was manually annotated 17 times for cluster EB.

Info for manual annotations of cluster FA:

- Start number 51 was manually annotated 4 times for cluster FA.
- Start number 53 was manually annotated 2 times for cluster FA.
- Start number 54 was manually annotated 1 time for cluster FA.

Info for manual annotations of cluster FB:

- Start number 39 was manually annotated 2 times for cluster FB.

Info for manual annotations of cluster FF:

- Start number 51 was manually annotated 2 times for cluster FF.

Info for manual annotations of cluster FJ:

- Start number 51 was manually annotated 1 time for cluster FJ.

Info for manual annotations of cluster FO:

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

### **Gene Information:**

Gene: AWGoat\_38 Start: 34355, Stop: 34708, Start Num: 32

Candidate Starts for AWGoat\_38:

(Start: 32 @34355 has 1 MA's), (64, 34463), (78, 34508), (108, 34631), (115, 34667),

Gene: AbbeyMikolon\_23 Start: 18386, Stop: 18598, Start Num: 60

Candidate Starts for AbbeyMikolon\_23:

(Start: 60 @18386 has 25 MA's), (81, 18452), (85, 18464), (106, 18530), (108, 18542), (111, 18557),

Gene: Abidatro\_25 Start: 18908, Stop: 19243, Start Num: 45

Candidate Starts for Abidatro\_25:

(Start: 45 @18908 has 16 MA's), (55, 18941), (64, 18986), (69, 19001), (108, 19154),

Gene: AdaS\_28 Start: 20360, Stop: 20668, Start Num: 51

Candidate Starts for AdaS\_28:

(Start: 51 @20360 has 20 MA's), (73, 20456), (74, 20459), (77, 20468), (108, 20594), (111, 20609), (113, 20621),

Gene: Aikyam\_28 Start: 20431, Stop: 20736, Start Num: 51

Candidate Starts for Aikyam\_28:

(Start: 51 @20431 has 20 MA's), (62, 20482), (82, 20548), (87, 20572), (91, 20590), (98, 20611), (100, 20617), (103, 20629),

Gene: Amelia\_25 Start: 18043, Stop: 18393, Start Num: 48

Candidate Starts for Amelia\_25:

(Start: 48 @18043 has 8 MA's), (Start: 49 @18046 has 3 MA's), (55, 18064), (56, 18076), (69, 18124), (74, 18142), (108, 18277), (111, 18292), (122, 18343),

Gene: AmiCi24\_23 Start: 17621, Stop: 17944, Start Num: 45

Candidate Starts for AmiCi24\_23:

(Start: 45 @17621 has 16 MA's), (56, 17660), (64, 17693), (74, 17726), (88, 17780), (108, 17861),

Gene: Andrew\_24 Start: 18042, Stop: 18377, Start Num: 40

Candidate Starts for Andrew\_24:

(Start: 40 @18042 has 1 MA's), (Start: 45 @18048 has 16 MA's), (67, 18135), (69, 18141), (74, 18159), (88, 18213), (108, 18294), (111, 18309),

Gene: Antrice\_24 Start: 18536, Stop: 18868, Start Num: 45

Candidate Starts for Antrice\_24:

(Start: 45 @18536 has 16 MA's), (Start: 51 @18548 has 20 MA's), (56, 18578), (64, 18611), (65, 18614), (76, 18650), (80, 18665), (89, 18701), (91, 18713), (101, 18743), (108, 18779), (109, 18785), (111, 18794),

Gene: Armstrong\_22 Start: 17107, Stop: 17433, Start Num: 35  
Candidate Starts for Armstrong\_22:  
(Start: 35 @17107 has 17 MA's), (89, 17290), (90, 17296), (108, 17368),

Gene: Atlantica\_23 Start: 17622, Stop: 17945, Start Num: 45  
Candidate Starts for Atlantica\_23:  
(Start: 45 @17622 has 16 MA's), (56, 17661), (64, 17694), (74, 17727), (88, 17781), (108, 17862),

Gene: Austintatious\_22 Start: 17098, Stop: 17331, Start Num: 60  
Candidate Starts for Austintatious\_22:  
(Start: 60 @17098 has 25 MA's), (71, 17131), (108, 17254),

Gene: Auxilium\_28 Start: 20421, Stop: 20726, Start Num: 51  
Candidate Starts for Auxilium\_28:  
(Start: 51 @20421 has 20 MA's), (62, 20472), (82, 20538), (87, 20562), (91, 20580), (98, 20601), (100, 20607), (103, 20619),

Gene: AxeJC\_21 Start: 17926, Stop: 18183, Start Num: 60  
Candidate Starts for AxeJC\_21:  
(4, 17209), (7, 17398), (11, 17476), (13, 17524), (52, 17881), (59, 17920), (Start: 60 @17926 has 25 MA's), (78, 17980), (80, 17989), (108, 18106),

Gene: BAjuniper\_24 Start: 20341, Stop: 20658, Start Num: 35  
Candidate Starts for BAjuniper\_24:  
(28, 20311), (Start: 35 @20341 has 17 MA's), (65, 20428), (67, 20434), (71, 20449), (78, 20470), (81, 20482), (94, 20536), (95, 20539), (102, 20560), (104, 20569), (106, 20581), (108, 20593),

Gene: Babushka\_23 Start: 17682, Stop: 18029, Start Num: 45  
Candidate Starts for Babushka\_23:  
(Start: 45 @17682 has 16 MA's), (56, 17721), (69, 17769), (72, 17781), (74, 17787), (77, 17796), (88, 17841), (108, 17922), (113, 17949),

Gene: Bachaco\_23 Start: 20374, Stop: 20691, Start Num: 35  
Candidate Starts for Bachaco\_23:  
(Start: 35 @20374 has 17 MA's), (65, 20461), (78, 20503), (81, 20515), (93, 20566), (108, 20626),

Gene: BarretLemon\_29 Start: 25316, Stop: 25687, Start Num: 30  
Candidate Starts for BarretLemon\_29:  
(Start: 30 @25316 has 4 MA's), (Start: 31 @25319 has 18 MA's), (37, 25340), (65, 25424), (78, 25466), (80, 25475), (84, 25487), (88, 25508), (91, 25523), (108, 25589), (117, 25628),

Gene: Basilisk\_24 Start: 19320, Stop: 19652, Start Num: 45  
Candidate Starts for Basilisk\_24:  
(Start: 45 @19320 has 16 MA's), (Start: 54 @19347 has 3 MA's), (64, 19395), (67, 19404), (74, 19428), (89, 19485), (91, 19497), (106, 19551), (108, 19563),

Gene: Beans\_27 Start: 24983, Stop: 25351, Start Num: 31  
Candidate Starts for Beans\_27:

(Start: 31 @24983 has 18 MA's), (65, 25088), (78, 25130), (80, 25139), (84, 25151), (88, 25172), (91, 25187), (108, 25253), (117, 25292),

Gene: Bedetta\_25 Start: 18047, Stop: 18397, Start Num: 48

Candidate Starts for Bedetta\_25:

(Start: 48 @18047 has 8 MA's), (Start: 49 @18050 has 3 MA's), (55, 18068), (56, 18080), (69, 18128), (74, 18146), (108, 18281), (111, 18296),

Gene: BenchScraper\_28 Start: 20436, Stop: 20741, Start Num: 51

Candidate Starts for BenchScraper\_28:

(Start: 51 @20436 has 20 MA's), (62, 20487), (82, 20553), (87, 20577), (91, 20595), (98, 20616), (100, 20622), (103, 20634),

Gene: Bernstein\_22 Start: 17162, Stop: 17488, Start Num: 35

Candidate Starts for Bernstein\_22:

(Start: 35 @17162 has 17 MA's), (89, 17345), (90, 17351), (108, 17423),

Gene: Bible12\_25 Start: 18034, Stop: 18396, Start Num: 48

Candidate Starts for Bible12\_25:

(Start: 48 @18034 has 8 MA's), (Start: 49 @18037 has 3 MA's), (Start: 54 @18052 has 3 MA's), (55, 18055), (56, 18067), (69, 18115), (74, 18133), (88, 18187), (108, 18268), (111, 18283), (123, 18337), (124, 18343),

Gene: BigDome\_29 Start: 25311, Stop: 25679, Start Num: 31

Candidate Starts for BigDome\_29:

(Start: 30 @25308 has 4 MA's), (Start: 31 @25311 has 18 MA's), (65, 25416), (78, 25458), (80, 25467), (84, 25479), (88, 25500), (91, 25515), (108, 25581), (117, 25620),

Gene: BillyTP\_28 Start: 20144, Stop: 20452, Start Num: 51

Candidate Starts for BillyTP\_28:

(Start: 51 @20144 has 20 MA's), (73, 20240), (74, 20243), (77, 20252), (108, 20378), (111, 20393), (113, 20405),

Gene: Bioscum\_22 Start: 17134, Stop: 17367, Start Num: 60

Candidate Starts for Bioscum\_22:

(Start: 60 @17134 has 25 MA's), (71, 17167), (108, 17290),

Gene: BlueShadow\_29 Start: 20421, Stop: 20726, Start Num: 51

Candidate Starts for BlueShadow\_29:

(Start: 51 @20421 has 20 MA's), (62, 20472), (82, 20538), (87, 20562), (91, 20580), (98, 20601), (100, 20607), (103, 20619), (121, 20691),

Gene: BossLady\_29 Start: 25299, Stop: 25667, Start Num: 31

Candidate Starts for BossLady\_29:

(Start: 31 @25299 has 18 MA's), (57, 25371), (63, 25392), (65, 25404), (67, 25410), (78, 25446), (84, 25467), (88, 25488), (91, 25503), (108, 25569), (117, 25608),

Gene: Brahms\_22 Start: 17110, Stop: 17436, Start Num: 35

Candidate Starts for Brahms\_22:

(Start: 35 @17110 has 17 MA's), (89, 17293), (108, 17371),

Gene: Brent\_27 Start: 24986, Stop: 25354, Start Num: 31

Candidate Starts for Brent\_27:

(Start: 31 @24986 has 18 MA's), (37, 25007), (65, 25091), (78, 25133), (80, 25142), (84, 25154), (108, 25256), (117, 25295),

Gene: Brynnie\_24 Start: 19128, Stop: 19460, Start Num: 45

Candidate Starts for Brynnie\_24:

(Start: 45 @19128 has 16 MA's), (Start: 54 @19155 has 3 MA's), (64, 19203), (67, 19212), (80, 19257), (89, 19293), (91, 19305), (106, 19359), (108, 19371),

Gene: Camara\_23 Start: 17623, Stop: 17946, Start Num: 45

Candidate Starts for Camara\_23:

(Start: 45 @17623 has 16 MA's), (56, 17662), (64, 17695), (74, 17728), (88, 17782), (108, 17863),

Gene: Celaena\_23 Start: 20322, Stop: 20639, Start Num: 35

Candidate Starts for Celaena\_23:

(Start: 35 @20322 has 17 MA's), (65, 20409), (78, 20451), (81, 20463), (93, 20514), (108, 20574),

Gene: Chickaboom\_23 Start: 18049, Stop: 18381, Start Num: 45

Candidate Starts for Chickaboom\_23:

(Start: 45 @18049 has 16 MA's), (Start: 54 @18076 has 3 MA's), (64, 18124), (67, 18133), (74, 18157), (80, 18178), (89, 18214), (106, 18280), (108, 18292),

Gene: ChuckDuck\_27 Start: 20261, Stop: 20569, Start Num: 51

Candidate Starts for ChuckDuck\_27:

(Start: 51 @20261 has 20 MA's), (73, 20357), (74, 20360), (77, 20369), (80, 20381), (108, 20495),

Gene: Chymera\_21 Start: 17166, Stop: 17393, Start Num: 60

Candidate Starts for Chymera\_21:

(Start: 60 @17166 has 25 MA's), (107, 17319), (108, 17322), (111, 17337),

Gene: Clayda5\_22 Start: 17113, Stop: 17439, Start Num: 35

Candidate Starts for Clayda5\_22:

(Start: 35 @17113 has 17 MA's), (89, 17296), (90, 17302), (108, 17374),

Gene: CocoCinnamon\_29 Start: 20011, Stop: 20283, Start Num: 54

Candidate Starts for CocoCinnamon\_29:

(Start: 54 @20011 has 3 MA's), (100, 20170), (104, 20182), (108, 20206),

Gene: Coltrane\_22 Start: 17110, Stop: 17436, Start Num: 35

Candidate Starts for Coltrane\_22:

(Start: 35 @17110 has 17 MA's), (89, 17293), (108, 17371),

Gene: Colusalem\_24 Start: 17886, Stop: 18236, Start Num: 48

Candidate Starts for Colusalem\_24:

(Start: 48 @17886 has 8 MA's), (Start: 49 @17889 has 3 MA's), (55, 17907), (56, 17919), (69, 17967), (74, 17985), (108, 18120), (111, 18135),

Gene: Constance\_26 Start: 20763, Stop: 21041, Start Num: 53

Candidate Starts for Constance\_26:

(1, 19992), (2, 19998), (3, 20007), (Start: 51 @20754 has 20 MA's), (Start: 53 @20763 has 2 MA's), (Start: 54 @20769 has 3 MA's), (83, 20877), (86, 20892), (108, 20970),

Gene: CookieBear\_29 Start: 20421, Stop: 20726, Start Num: 51

Candidate Starts for CookieBear\_29:

(Start: 51 @20421 has 20 MA's), (62, 20472), (82, 20538), (87, 20562), (91, 20580), (98, 20601), (100, 20607), (103, 20619),

Gene: Coral\_24 Start: 17882, Stop: 18232, Start Num: 48

Candidate Starts for Coral\_24:

(Start: 48 @17882 has 8 MA's), (Start: 49 @17885 has 3 MA's), (55, 17903), (56, 17915), (69, 17963), (74, 17981), (108, 18116), (111, 18131), (122, 18182),

Gene: Cote\_25 Start: 18034, Stop: 18384, Start Num: 48

Candidate Starts for Cote\_25:

(Start: 48 @18034 has 8 MA's), (Start: 49 @18037 has 3 MA's), (55, 18055), (69, 18115), (74, 18133), (108, 18268), (111, 18283), (123, 18337), (124, 18343),

Gene: Cumberbatch\_21 Start: 17942, Stop: 18202, Start Num: 60

Candidate Starts for Cumberbatch\_21:

(4, 17210), (7, 17399), (11, 17477), (13, 17525), (15, 17612), (52, 17897), (59, 17936), (Start: 60 @17942 has 25 MA's), (78, 17996), (80, 18005), (108, 18122),

Gene: Cygnet\_24 Start: 18684, Stop: 19016, Start Num: 42

Candidate Starts for Cygnet\_24:

(42, 18684), (Start: 45 @18687 has 16 MA's), (56, 18726), (67, 18768), (69, 18774), (74, 18792), (88, 18846), (101, 18891), (106, 18915), (108, 18927), (111, 18942), (120, 18969),

Gene: DanHam62\_23 Start: 17622, Stop: 17945, Start Num: 45

Candidate Starts for DanHam62\_23:

(Start: 45 @17622 has 16 MA's), (56, 17661), (64, 17694), (74, 17727), (88, 17781), (108, 17862),

Gene: Daob\_25 Start: 18039, Stop: 18389, Start Num: 48

Candidate Starts for Daob\_25:

(Start: 48 @18039 has 8 MA's), (Start: 49 @18042 has 3 MA's), (55, 18060), (69, 18120), (74, 18138), (108, 18273), (111, 18288), (123, 18342), (124, 18348),

Gene: Darolandstone\_23 Start: 19517, Stop: 19762, Start Num: 60

Candidate Starts for Darolandstone\_23:

(22, 19388), (Start: 60 @19517 has 25 MA's), (85, 19595), (87, 19610), (108, 19673),

Gene: Dryad\_32 Start: 21653, Stop: 21880, Start Num: 58

Candidate Starts for Dryad\_32:

(Start: 58 @21653 has 7 MA's), (93, 21758), (106, 21797), (108, 21809), (113, 21836),

Gene: EastWest\_30 Start: 25176, Stop: 25514, Start Num: 41

Candidate Starts for EastWest\_30:

(Start: 41 @25176 has 1 MA's), (65, 25257), (76, 25293), (78, 25299), (84, 25320), (86, 25332), (108, 25422), (117, 25461),

Gene: Eastland\_21 Start: 17911, Stop: 18168, Start Num: 60

Candidate Starts for Eastland\_21:

(4, 17194), (7, 17383), (11, 17461), (13, 17509), (52, 17866), (59, 17905), (Start: 60 @17911 has 25 MA's), (78, 17965), (80, 17974), (108, 18091),

Gene: Eden\_22 Start: 17389, Stop: 17712, Start Num: 35

Candidate Starts for Eden\_22:

(Start: 35 @17389 has 17 MA's), (56, 17446), (64, 17479), (76, 17518), (102, 17614), (108, 17647),



Gene: Eesa\_24 Start: 19277, Stop: 19609, Start Num: 45

Candidate Starts for Eesa\_24:

(Start: 45 @19277 has 16 MA's), (64, 19352), (67, 19361), (74, 19385), (75, 19388), (89, 19442), (91, 19454), (106, 19508), (108, 19520),

Gene: Eileen\_26 Start: 20113, Stop: 20415, Start Num: 51

Candidate Starts for Eileen\_26:

(Start: 51 @20113 has 20 MA's), (62, 20164), (91, 20272), (98, 20293), (100, 20299), (103, 20311), (106, 20326),

Gene: Eklok\_21 Start: 17926, Stop: 18183, Start Num: 60

Candidate Starts for Eklok\_21:

(4, 17209), (7, 17398), (11, 17476), (13, 17524), (52, 17881), (59, 17920), (Start: 60 @17926 has 25 MA's), (78, 17980), (80, 17989), (108, 18106),

Gene: EvePickles\_25 Start: 18992, Stop: 19300, Start Num: 51

Candidate Starts for EvePickles\_25:

(Start: 51 @18992 has 20 MA's), (69, 19073), (77, 19100), (89, 19148), (108, 19226), (111, 19241),

Gene: Faja\_25 Start: 18886, Stop: 19194, Start Num: 51

Candidate Starts for Faja\_25:

(Start: 51 @18886 has 20 MA's), (74, 18985), (108, 19120), (111, 19135),

Gene: FlameThrower\_23 Start: 19859, Stop: 20176, Start Num: 35

Candidate Starts for FlameThrower\_23:

(17, 19682), (20, 19763), (Start: 35 @19859 has 17 MA's), (65, 19946), (78, 19988), (81, 20000), (93, 20051), (108, 20111), (116, 20147),

Gene: FosterFrank\_27 Start: 20334, Stop: 20642, Start Num: 51

Candidate Starts for FosterFrank\_27:

(Start: 51 @20334 has 20 MA's), (74, 20433), (108, 20568), (111, 20583),

Gene: Franklin22\_23 Start: 17574, Stop: 17897, Start Num: 35

Candidate Starts for Franklin22\_23:

(24, 17517), (27, 17538), (Start: 35 @17574 has 17 MA's), (56, 17631), (76, 17703), (100, 17793), (102, 17799), (108, 17832),

Gene: Franzy\_27 Start: 24985, Stop: 25353, Start Num: 31

Candidate Starts for Franzy\_27:

(Start: 31 @24985 has 18 MA's), (37, 25006), (65, 25090), (78, 25132), (80, 25141), (84, 25153), (108, 25255), (117, 25294),

Gene: GUPitcher\_23 Start: 18548, Stop: 18850, Start Num: 51

Candidate Starts for GUPitcher\_23:

(Start: 51 @18548 has 20 MA's), (78, 18647), (91, 18704), (106, 18758), (108, 18770), (121, 18815),

Gene: Gack\_22 Start: 17460, Stop: 17783, Start Num: 35

Candidate Starts for Gack\_22:

(24, 17403), (27, 17424), (Start: 35 @17460 has 17 MA's), (56, 17517), (76, 17589), (100, 17679), (102, 17685), (108, 17718),

Gene: Galaxy\_25 Start: 19013, Stop: 19336, Start Num: 45

Candidate Starts for Galaxy\_25:

(Start: 45 @19013 has 16 MA's), (55, 19046), (69, 19106), (80, 19145), (108, 19259),

Gene: Gibson\_29 Start: 20816, Stop: 21049, Start Num: 58

Candidate Starts for Gibson\_29:

(Start: 58 @20816 has 7 MA's), (104, 20957), (106, 20969), (108, 20981), (113, 21008),

Gene: Globfish\_28 Start: 20655, Stop: 20960, Start Num: 51

Candidate Starts for Globfish\_28:

(46, 20646), (Start: 51 @20655 has 20 MA's), (62, 20706), (87, 20796), (98, 20835), (103, 20853), (108, 20880),

Gene: Glotell\_24 Start: 17620, Stop: 17943, Start Num: 45

Candidate Starts for Glotell\_24:

(Start: 45 @17620 has 16 MA's), (56, 17659), (64, 17692), (74, 17725), (88, 17779), (108, 17860),

Gene: Gorpy\_28 Start: 20369, Stop: 20677, Start Num: 51

Candidate Starts for Gorpy\_28:

(Start: 51 @20369 has 20 MA's), (73, 20465), (74, 20468), (77, 20477), (108, 20603), (111, 20618), (113, 20630),

Gene: Gravel\_25 Start: 19183, Stop: 19515, Start Num: 45

Candidate Starts for Gravel\_25:

(Start: 45 @19183 has 16 MA's), (64, 19258), (67, 19267), (74, 19291), (75, 19294), (89, 19348), (91, 19360), (106, 19414), (108, 19426),

Gene: GravityBall\_29 Start: 25318, Stop: 25686, Start Num: 31

Candidate Starts for GravityBall\_29:

(Start: 30 @25315 has 4 MA's), (Start: 31 @25318 has 18 MA's), (65, 25423), (78, 25465), (80, 25474), (84, 25486), (88, 25507), (91, 25522), (108, 25588), (117, 25627),

Gene: Greenbelt\_40 Start: 20069, Stop: 20296, Start Num: 59

Candidate Starts for Greenbelt\_40:

(5, 19364), (10, 19559), (12, 19652), (14, 19685), (23, 19937), (Start: 43 @20012 has 1 MA's), (52, 20030), (59, 20069), (85, 20153), (96, 20189), (108, 20231), (111, 20246),

Gene: Grekaycon\_29 Start: 25245, Stop: 25613, Start Num: 31

Candidate Starts for Grekaycon\_29:

(Start: 31 @25245 has 18 MA's), (57, 25317), (63, 25338), (65, 25350), (67, 25356), (78, 25392), (80, 25401), (84, 25413), (88, 25434), (89, 25437), (91, 25449), (108, 25515), (117, 25554),

Gene: Gusanita\_24 Start: 19423, Stop: 19737, Start Num: 51

Candidate Starts for Gusanita\_24:

(Start: 51 @19423 has 20 MA's), (66, 19495), (87, 19573), (106, 19645), (109, 19663),

Gene: HFrancette\_21 Start: 17957, Stop: 18214, Start Num: 60

Candidate Starts for HFrancette\_21:

(4, 17225), (7, 17414), (11, 17492), (13, 17540), (15, 17627), (52, 17912), (59, 17951), (Start: 60 @17957 has 25 MA's), (78, 18011), (80, 18020), (108, 18137),

Gene: Halloweekend\_24 Start: 19350, Stop: 19658, Start Num: 51

Candidate Starts for Halloweekend\_24:

(Start: 51 @19350 has 20 MA's), (67, 19425), (73, 19446), (77, 19458), (89, 19506), (98, 19539), (108, 19584), (120, 19626),

Gene: HamCheese\_23 Start: 17622, Stop: 17930, Start Num: 45

Candidate Starts for HamCheese\_23:

(Start: 45 @17622 has 16 MA's), (56, 17661), (64, 17694), (74, 17727), (88, 17781), (108, 17862),

Gene: HannahPhantana\_25 Start: 18037, Stop: 18396, Start Num: 49

Candidate Starts for HannahPhantana\_25:

(Start: 48 @18034 has 8 MA's), (Start: 49 @18037 has 3 MA's), (Start: 54 @18052 has 3 MA's), (55, 18055), (56, 18067), (69, 18115), (74, 18133), (88, 18187), (108, 18268), (111, 18283), (123, 18337), (124, 18343),

Gene: Hillester\_28 Start: 20421, Stop: 20726, Start Num: 51

Candidate Starts for Hillester\_28:

(Start: 51 @20421 has 20 MA's), (62, 20472), (82, 20538), (87, 20562), (91, 20580), (98, 20601), (100, 20607), (103, 20619),

Gene: HotPotato\_26 Start: 20119, Stop: 20421, Start Num: 51

Candidate Starts for HotPotato\_26:

(Start: 51 @20119 has 20 MA's), (91, 20278), (95, 20290), (98, 20299), (100, 20305), (103, 20317), (106, 20332),

Gene: Ichiang\_24 Start: 19369, Stop: 19677, Start Num: 51

Candidate Starts for Ichiang\_24:

(Start: 51 @19369 has 20 MA's), (67, 19444), (73, 19465), (77, 19477), (89, 19525), (98, 19558), (108, 19603), (120, 19645),

Gene: Ididsumtinwong\_22 Start: 17134, Stop: 17367, Start Num: 60

Candidate Starts for Ididsumtinwong\_22:

(Start: 60 @17134 has 25 MA's), (71, 17167), (108, 17290),

Gene: Ignacio\_21 Start: 17957, Stop: 18214, Start Num: 60

Candidate Starts for Ignacio\_21:

(4, 17225), (7, 17414), (11, 17492), (13, 17540), (15, 17627), (52, 17912), (59, 17951), (Start: 60 @17957 has 25 MA's), (78, 18011), (80, 18020), (108, 18137),

Gene: IsHungry\_26 Start: 19976, Stop: 20278, Start Num: 51

Candidate Starts for IsHungry\_26:

(Start: 51 @19976 has 20 MA's), (62, 20027), (91, 20135), (98, 20156), (100, 20162),

Gene: Isolde\_28 Start: 20195, Stop: 20503, Start Num: 51

Candidate Starts for Isolde\_28:

(Start: 51 @20195 has 20 MA's), (73, 20291), (74, 20294), (77, 20303), (108, 20429), (111, 20444), (113, 20456),

Gene: JKerns\_29 Start: 25272, Stop: 25640, Start Num: 31

Candidate Starts for JKerns\_29:

(Start: 31 @25272 has 18 MA's), (65, 25377), (67, 25383), (78, 25419), (80, 25428), (84, 25440), (88, 25461), (91, 25476), (104, 25518), (108, 25542), (117, 25581),

Gene: Jamun\_24 Start: 18726, Stop: 19058, Start Num: 45

Candidate Starts for Jamun\_24:

(Start: 45 @18726 has 16 MA's), (64, 18801), (88, 18888), (89, 18891), (91, 18903), (96, 18918), (106, 18957), (108, 18969),

Gene: Jawnski\_27 Start: 24995, Stop: 25363, Start Num: 31

Candidate Starts for Jawnski\_27:

(Start: 31 @24995 has 18 MA's), (65, 25100), (78, 25142), (80, 25151), (84, 25163), (91, 25199), (94, 25208), (105, 25250), (108, 25265), (117, 25304),

Gene: JellyBread\_28 Start: 20353, Stop: 20661, Start Num: 51

Candidate Starts for JellyBread\_28:

(Start: 51 @20353 has 20 MA's), (73, 20449), (74, 20452), (77, 20461), (108, 20587), (111, 20602), (113, 20614),

Gene: Jerole\_25 Start: 18034, Stop: 18381, Start Num: 49

Candidate Starts for Jerole\_25:

(Start: 49 @18034 has 3 MA's), (Start: 54 @18049 has 3 MA's), (55, 18052), (56, 18064), (69, 18112), (74, 18130), (84, 18163), (108, 18265), (111, 18280), (123, 18334), (124, 18340),

Gene: Jordan\_29 Start: 25242, Stop: 25610, Start Num: 31

Candidate Starts for Jordan\_29:

(Start: 31 @25242 has 18 MA's), (65, 25347), (67, 25353), (78, 25389), (80, 25398), (84, 25410), (88, 25431), (91, 25446), (104, 25488), (108, 25512), (109, 25518), (117, 25551),

Gene: Juno112\_23 Start: 17622, Stop: 17945, Start Num: 45

Candidate Starts for Juno112\_23:

(Start: 45 @17622 has 16 MA's), (56, 17661), (64, 17694), (74, 17727), (88, 17781), (108, 17862),

Gene: KHumphrey\_23 Start: 17620, Stop: 17943, Start Num: 45

Candidate Starts for KHumphrey\_23:

(Start: 45 @17620 has 16 MA's), (56, 17659), (64, 17692), (74, 17725), (88, 17779), (108, 17860),

Gene: Karkharias\_26 Start: 20115, Stop: 20417, Start Num: 51

Candidate Starts for Karkharias\_26:

(Start: 51 @20115 has 20 MA's), (62, 20166), (91, 20274), (98, 20295), (100, 20301), (103, 20313),

Gene: Katzastrophic\_23 Start: 19980, Stop: 20297, Start Num: 35

Candidate Starts for Katzastrophic\_23:

(Start: 35 @19980 has 17 MA's), (65, 20067), (78, 20109), (81, 20121), (93, 20172), (108, 20232), (116, 20268),

Gene: KayMoney\_27 Start: 20265, Stop: 20573, Start Num: 51

Candidate Starts for KayMoney\_27:

(Start: 51 @20265 has 20 MA's), (73, 20361), (74, 20364), (77, 20373), (80, 20385), (108, 20499),

Gene: KendraB23\_25 Start: 19185, Stop: 19517, Start Num: 45

Candidate Starts for KendraB23\_25:

(Start: 45 @19185 has 16 MA's), (64, 19260), (67, 19269), (74, 19293), (75, 19296), (89, 19350), (91, 19362), (106, 19416), (108, 19428),

Gene: Kepler\_24 Start: 17872, Stop: 18219, Start Num: 49

Candidate Starts for Kepler\_24:

(Start: 49 @17872 has 3 MA's), (Start: 54 @17887 has 3 MA's), (55, 17890), (56, 17902), (69, 17950), (74, 17968), (108, 18103), (111, 18118), (123, 18172), (124, 18178),

Gene: Khuang\_21 Start: 17688, Stop: 17984, Start Num: 51

Candidate Starts for Khuang\_21:

(46, 17679), (Start: 51 @17688 has 20 MA's), (62, 17739), (70, 17763), (98, 17868), (100, 17874), (103, 17886), (106, 17901), (108, 17913),

Gene: King2\_27 Start: 24982, Stop: 25350, Start Num: 31

Candidate Starts for King2\_27:

(Start: 31 @24982 has 18 MA's), (65, 25087), (78, 25129), (80, 25138), (84, 25150), (91, 25186), (94, 25195), (108, 25252), (117, 25291),

Gene: Kukla\_23 Start: 18379, Stop: 18687, Start Num: 51

Candidate Starts for Kukla\_23:

(18, 18238), (19, 18253), (Start: 51 @18379 has 20 MA's), (67, 18454), (77, 18487), (89, 18535), (98, 18568), (108, 18613),

Gene: Kuleana\_24 Start: 17910, Stop: 18254, Start Num: 49

Candidate Starts for Kuleana\_24:

(47, 17904), (Start: 49 @17910 has 3 MA's), (62, 17961), (74, 18006), (88, 18060), (89, 18063), (108, 18141), (109, 18147), (111, 18156), (123, 18210), (125, 18231), (126, 18237),

Gene: Kumotta\_24 Start: 18861, Stop: 19166, Start Num: 39

Candidate Starts for Kumotta\_24:

(Start: 39 @18861 has 2 MA's), (85, 18996), (107, 19092),

Gene: Lawnathon\_28 Start: 20289, Stop: 20597, Start Num: 51

Candidate Starts for Lawnathon\_28:

(Start: 51 @20289 has 20 MA's), (73, 20385), (74, 20388), (77, 20397), (108, 20523), (111, 20538), (113, 20550),

Gene: LeeroyJ\_29 Start: 25315, Stop: 25686, Start Num: 30

Candidate Starts for LeeroyJ\_29:

(Start: 30 @25315 has 4 MA's), (Start: 31 @25318 has 18 MA's), (37, 25339), (65, 25423), (78, 25465), (80, 25474), (84, 25486), (88, 25507), (91, 25522), (108, 25588), (117, 25627),

Gene: Leona\_23 Start: 17683, Stop: 18000, Start Num: 45

Candidate Starts for Leona\_23:

(Start: 45 @17683 has 16 MA's), (56, 17722), (64, 17755), (74, 17788), (88, 17842), (108, 17923),

Gene: Lishka\_21 Start: 17098, Stop: 17331, Start Num: 60

Candidate Starts for Lishka\_21:

(Start: 60 @17098 has 25 MA's), (71, 17131), (108, 17254),

Gene: LittleTokyo\_24 Start: 17866, Stop: 18186, Start Num: 48

Candidate Starts for LittleTokyo\_24:

(47, 17863), (Start: 48 @17866 has 8 MA's), (62, 17917), (74, 17962), (92, 18031), (104, 18073), (111, 18112),

Gene: Lizz\_29 Start: 20625, Stop: 20858, Start Num: 58

Candidate Starts for Lizz\_29:

(Start: 58 @20625 has 7 MA's), (104, 20766), (106, 20778), (108, 20790), (113, 20817),

Gene: Lunar\_25 Start: 18034, Stop: 18384, Start Num: 48

Candidate Starts for Lunar\_25:

(Start: 48 @18034 has 8 MA's), (Start: 49 @18037 has 3 MA's), (55, 18055), (69, 18115), (74, 18133), (108, 18268), (111, 18283), (123, 18337), (124, 18343),

Gene: MUWow\_27 Start: 20453, Stop: 20761, Start Num: 51

Candidate Starts for MUWow\_27:

(Start: 51 @20453 has 20 MA's), (73, 20549), (74, 20552), (77, 20561), (108, 20687), (111, 20702), (113, 20714),

Gene: Maja\_24 Start: 18850, Stop: 19128, Start Num: 54

Candidate Starts for Maja\_24:

(50, 18832), (Start: 54 @18850 has 3 MA's), (104, 19027), (107, 19048), (108, 19051),

Gene: MargaretKali\_24 Start: 18496, Stop: 18801, Start Num: 39

Candidate Starts for MargaretKali\_24:

(Start: 39 @18496 has 2 MA's), (85, 18631), (107, 18727),

Gene: Martha\_29 Start: 25246, Stop: 25614, Start Num: 31

Candidate Starts for Martha\_29:

(Start: 31 @25246 has 18 MA's), (57, 25318), (63, 25339), (65, 25351), (67, 25357), (78, 25393), (80, 25402), (84, 25414), (88, 25435), (89, 25438), (91, 25450), (108, 25516), (117, 25555),

Gene: MaterMagnus\_28 Start: 20431, Stop: 20736, Start Num: 51

Candidate Starts for MaterMagnus\_28:

(Start: 51 @20431 has 20 MA's), (62, 20482), (82, 20548), (87, 20572), (91, 20590), (98, 20611), (100, 20617), (103, 20629),

Gene: Melons\_25 Start: 18034, Stop: 18384, Start Num: 48

Candidate Starts for Melons\_25:

(Start: 48 @18034 has 8 MA's), (Start: 49 @18037 has 3 MA's), (55, 18055), (69, 18115), (74, 18133), (108, 18268), (111, 18283), (123, 18337), (124, 18343),

Gene: MidnightRain\_28 Start: 20420, Stop: 20725, Start Num: 51

Candidate Starts for MidnightRain\_28:

(Start: 51 @20420 has 20 MA's), (62, 20471), (82, 20537), (87, 20561), (91, 20579), (98, 20600), (100, 20606), (103, 20618),

Gene: Mojarita\_22 Start: 17147, Stop: 17407, Start Num: 60

Candidate Starts for Mojarita\_22:

(26, 17030), (Start: 60 @17147 has 25 MA's), (81, 17213), (108, 17327),

Gene: NathanVaag\_27 Start: 24958, Stop: 25326, Start Num: 31

Candidate Starts for NathanVaag\_27:

(Start: 31 @24958 has 18 MA's), (65, 25063), (78, 25105), (80, 25114), (81, 25117), (84, 25126), (91, 25162), (108, 25228), (117, 25267),

Gene: Nesbitt\_23 Start: 18458, Stop: 18670, Start Num: 60

Candidate Starts for Nesbitt\_23:

(Start: 60 @18458 has 25 MA's), (81, 18524), (85, 18536), (106, 18602), (108, 18614), (111, 18629),

Gene: Ollypop\_44 Start: 35786, Stop: 36139, Start Num: 27

Candidate Starts for Ollypop\_44:

(27, 35786), (33, 35813), (38, 35828), (44, 35834), (Start: 48 @35843 has 8 MA's), (67, 35912), (77, 35945), (93, 36011), (100, 36032), (108, 36071), (112, 36089),

Gene: Orcanus\_24 Start: 18977, Stop: 19309, Start Num: 45

Candidate Starts for Orcanus\_24:

(Start: 45 @18977 has 16 MA's), (64, 19052), (67, 19061), (74, 19085), (75, 19088), (89, 19142), (91, 19154), (106, 19208), (108, 19220),

Gene: OtsoOtso\_24 Start: 17889, Stop: 18239, Start Num: 48

Candidate Starts for OtsoOtso\_24:

(Start: 48 @17889 has 8 MA's), (Start: 49 @17892 has 3 MA's), (55, 17910), (56, 17922), (69, 17970), (74, 17988), (108, 18123), (111, 18138),

Gene: PHTowN\_29 Start: 20623, Stop: 20856, Start Num: 58

Candidate Starts for PHTowN\_29:

(Start: 58 @20623 has 7 MA's), (104, 20764), (106, 20776), (108, 20788), (113, 20815),

Gene: PapayaSalad\_22 Start: 17109, Stop: 17342, Start Num: 60

Candidate Starts for PapayaSalad\_22:

(Start: 60 @17109 has 25 MA's), (71, 17142), (108, 17265),

Gene: Peas\_26 Start: 20113, Stop: 20415, Start Num: 51

Candidate Starts for Peas\_26:

(Start: 51 @20113 has 20 MA's), (62, 20164), (91, 20272), (98, 20293), (100, 20299), (103, 20311), (106, 20326),

Gene: PeggyLeg03\_26 Start: 20763, Stop: 21041, Start Num: 53

Candidate Starts for PeggyLeg03\_26:

(1, 19992), (2, 19998), (3, 20007), (Start: 51 @20754 has 20 MA's), (Start: 53 @20763 has 2 MA's), (Start: 54 @20769 has 3 MA's), (83, 20877), (86, 20892), (108, 20970),

Gene: Pelletreau\_25 Start: 19183, Stop: 19515, Start Num: 45

Candidate Starts for Pelletreau\_25:

(Start: 45 @19183 has 16 MA's), (64, 19258), (67, 19267), (74, 19291), (75, 19294), (89, 19348), (91, 19360), (106, 19414), (108, 19426),

Gene: PhluffyCoco\_23 Start: 17622, Stop: 17930, Start Num: 45

Candidate Starts for PhluffyCoco\_23:

(Start: 45 @17622 has 16 MA's), (56, 17661), (64, 17694), (74, 17727), (88, 17781), (108, 17862),

Gene: Phrank15\_27 Start: 20294, Stop: 20602, Start Num: 51

Candidate Starts for Phrank15\_27:

(Start: 51 @20294 has 20 MA's), (73, 20390), (74, 20393), (77, 20402), (108, 20528), (111, 20543), (113, 20555),

Gene: Picard\_22 Start: 17138, Stop: 17398, Start Num: 60

Candidate Starts for Picard\_22:

(26, 17024), (Start: 60 @17138 has 25 MA's), (81, 17204), (108, 17318),

Gene: Piccadilly\_21 Start: 17910, Stop: 18167, Start Num: 60

Candidate Starts for Piccadilly\_21:

(4, 17193), (7, 17382), (11, 17460), (13, 17508), (52, 17865), (59, 17904), (Start: 60 @17910 has 25 MA's), (78, 17964), (80, 17973), (108, 18090),

Gene: Piccoletto\_27 Start: 24960, Stop: 25328, Start Num: 31

Candidate Starts for Piccoletto\_27:

(Start: 31 @24960 has 18 MA's), (65, 25065), (78, 25107), (80, 25116), (84, 25128), (88, 25149), (91, 25164), (108, 25230), (117, 25269),

Gene: Pigu\_23 Start: 17919, Stop: 18197, Start Num: 54

Candidate Starts for Pigu\_23:

(Start: 54 @17919 has 3 MA's), (104, 18096), (107, 18117), (108, 18120),

Gene: Pippa\_29 Start: 25371, Stop: 25739, Start Num: 31

Candidate Starts for Pippa\_29:

(Start: 31 @25371 has 18 MA's), (65, 25476), (67, 25482), (78, 25518), (80, 25527), (84, 25539), (91, 25575), (94, 25584), (105, 25626), (108, 25641), (117, 25680),

Gene: Polka\_24 Start: 17889, Stop: 18239, Start Num: 48

Candidate Starts for Polka\_24:

(Start: 48 @17889 has 8 MA's), (Start: 49 @17892 has 3 MA's), (55, 17910), (56, 17922), (69, 17970), (74, 17988), (108, 18123), (111, 18138),

Gene: Pucara\_26 Start: 20288, Stop: 20599, Start Num: 51

Candidate Starts for Pucara\_26:

(6, 19760), (8, 19802), (9, 19805), (Start: 51 @20288 has 20 MA's), (70, 20372), (71, 20378), (87, 20438), (91, 20456), (106, 20510), (109, 20528), (119, 20564),

Gene: Quenya\_24 Start: 19845, Stop: 20162, Start Num: 35

Candidate Starts for Quenya\_24:

(Start: 35 @19845 has 17 MA's), (65, 19932), (78, 19974), (81, 19986), (93, 20037), (108, 20097),

Gene: QuinnAvery\_26 Start: 19733, Stop: 20041, Start Num: 51

Candidate Starts for QuinnAvery\_26:

(Start: 51 @19733 has 20 MA's), (67, 19808), (73, 19829), (77, 19841), (89, 19889), (98, 19922), (108, 19967), (120, 20009),

Gene: Rabbitrun\_38 Start: 31471, Stop: 31689, Start Num: 61

Candidate Starts for Rabbitrun\_38:

(Start: 61 @31471 has 1 MA's), (76, 31519), (86, 31552), (97, 31585), (100, 31591), (102, 31597), (104, 31603), (106, 31615), (107, 31624), (108, 31627), (111, 31642), (113, 31654), (118, 31666),

Gene: RadFad\_28 Start: 20421, Stop: 20726, Start Num: 51

Candidate Starts for RadFad\_28:

(Start: 51 @20421 has 20 MA's), (62, 20472), (82, 20538), (87, 20562), (91, 20580), (98, 20601), (100, 20607), (103, 20619),

Gene: Raleigh\_23 Start: 19748, Stop: 19987, Start Num: 60

Candidate Starts for Raleigh\_23:

(Start: 60 @19748 has 25 MA's), (85, 19826), (87, 19841), (108, 19904),

Gene: Raphaella\_28 Start: 20360, Stop: 20668, Start Num: 51

Candidate Starts for Raphaella\_28:

(Start: 51 @20360 has 20 MA's), (73, 20456), (74, 20459), (77, 20468), (108, 20594), (111, 20609), (113, 20621),



Gene: Rattail\_23 Start: 17683, Stop: 18000, Start Num: 45  
Candidate Starts for Rattail\_23:  
(Start: 45 @17683 has 16 MA's), (56, 17722), (64, 17755), (74, 17788), (88, 17842), (108, 17923),

Gene: RedFox\_23 Start: 17622, Stop: 17945, Start Num: 45  
Candidate Starts for RedFox\_23:  
(Start: 45 @17622 has 16 MA's), (56, 17661), (64, 17694), (74, 17727), (88, 17781), (108, 17862),

Gene: Renna12\_24 Start: 17975, Stop: 18319, Start Num: 45  
Candidate Starts for Renna12\_24:  
(Start: 45 @17975 has 16 MA's), (56, 18014), (64, 18047), (74, 18080), (88, 18134), (106, 18203),  
(108, 18215),

Gene: Richie\_28 Start: 20436, Stop: 20741, Start Num: 51  
Candidate Starts for Richie\_28:  
(Start: 51 @20436 has 20 MA's), (62, 20487), (82, 20553), (87, 20577), (91, 20595), (98, 20616), (100,  
20622), (103, 20634),

Gene: Rollins\_22 Start: 17162, Stop: 17488, Start Num: 35  
Candidate Starts for Rollins\_22:  
(Start: 35 @17162 has 17 MA's), (89, 17345), (90, 17351), (108, 17423),

Gene: Rooney\_29 Start: 20813, Stop: 21046, Start Num: 58  
Candidate Starts for Rooney\_29:  
(Start: 58 @20813 has 7 MA's), (104, 20954), (106, 20966), (108, 20978), (113, 21005),

Gene: RootBeer\_23 Start: 17990, Stop: 18268, Start Num: 54  
Candidate Starts for RootBeer\_23:  
(16, 17732), (Start: 51 @17975 has 20 MA's), (Start: 54 @17990 has 3 MA's), (108, 18188), (118,  
18227),

Gene: Ruchi\_24 Start: 19293, Stop: 19598, Start Num: 54  
Candidate Starts for Ruchi\_24:  
(Start: 45 @19266 has 16 MA's), (Start: 54 @19293 has 3 MA's), (64, 19341), (67, 19350), (74, 19374),  
(89, 19431), (91, 19443), (106, 19497), (108, 19509),

Gene: SV1\_22 Start: 17352, Stop: 17588, Start Num: 60  
Candidate Starts for SV1\_22:  
(Start: 60 @17352 has 25 MA's), (108, 17508),

Gene: Sakai\_28 Start: 20369, Stop: 20677, Start Num: 51  
Candidate Starts for Sakai\_28:  
(Start: 51 @20369 has 20 MA's), (73, 20465), (74, 20468), (77, 20477), (108, 20603), (111, 20618),  
(113, 20630),

Gene: Sashimi\_26 Start: 18795, Stop: 19100, Start Num: 51  
Candidate Starts for Sashimi\_26:  
(34, 18762), (Start: 51 @18795 has 20 MA's), (62, 18846), (75, 18888), (90, 18948), (91, 18954), (99,  
18978), (100, 18981), (103, 18993), (106, 19008), (107, 19017),

Gene: Shade\_29 Start: 25212, Stop: 25580, Start Num: 31  
Candidate Starts for Shade\_29:

(Start: 31 @25212 has 18 MA's), (65, 25317), (67, 25323), (78, 25359), (80, 25368), (84, 25380), (91, 25416), (104, 25458), (108, 25482), (109, 25488), (117, 25521),

Gene: ShakeNBake\_29 Start: 20641, Stop: 20874, Start Num: 58

Candidate Starts for ShakeNBake\_29:

(Start: 58 @20641 has 7 MA's), (104, 20782), (106, 20794), (108, 20806), (113, 20833),

Gene: SilentRX\_40 Start: 35414, Stop: 35743, Start Num: 36

Candidate Starts for SilentRX\_40:

(25, 35366), (Start: 36 @35414 has 1 MA's), (64, 35498), (72, 35525), (80, 35552), (108, 35666), (111, 35681),

Gene: Skylord\_22 Start: 17110, Stop: 17436, Start Num: 35

Candidate Starts for Skylord\_22:

(Start: 35 @17110 has 17 MA's), (89, 17293), (90, 17299), (108, 17371),

Gene: SoJo\_23 Start: 19328, Stop: 19582, Start Num: 60

Candidate Starts for SoJo\_23:

(Start: 60 @19328 has 25 MA's), (101, 19466), (106, 19493), (108, 19505),

Gene: Sonny\_29 Start: 25242, Stop: 25610, Start Num: 31

Candidate Starts for Sonny\_29:

(Start: 31 @25242 has 18 MA's), (65, 25347), (67, 25353), (78, 25389), (80, 25398), (84, 25410), (88, 25431), (91, 25446), (104, 25488), (108, 25512), (109, 25518), (117, 25551),

Gene: SpicyFrank\_28 Start: 20656, Stop: 20961, Start Num: 51

Candidate Starts for SpicyFrank\_28:

(Start: 51 @20656 has 20 MA's), (62, 20707), (87, 20797), (98, 20836), (103, 20854), (108, 20881),

Gene: StevieBAY\_29 Start: 25315, Stop: 25686, Start Num: 30

Candidate Starts for StevieBAY\_29:

(Start: 30 @25315 has 4 MA's), (Start: 31 @25318 has 18 MA's), (65, 25423), (78, 25465), (80, 25474), (84, 25486), (88, 25507), (91, 25522), (108, 25588), (117, 25627),

Gene: StuartMinion\_24 Start: 17655, Stop: 17969, Start Num: 45

Candidate Starts for StuartMinion\_24:

(42, 17652), (Start: 45 @17655 has 16 MA's), (56, 17691), (63, 17715), (67, 17733), (69, 17739), (74, 17757), (77, 17766), (88, 17811), (106, 17880), (108, 17892), (114, 17925),

Gene: TaeYoung\_29 Start: 25246, Stop: 25614, Start Num: 31

Candidate Starts for TaeYoung\_29:

(Start: 31 @25246 has 18 MA's), (57, 25318), (63, 25339), (65, 25351), (67, 25357), (78, 25393), (80, 25402), (84, 25414), (88, 25435), (89, 25438), (91, 25450), (108, 25516), (117, 25555),

Gene: TaylorSipht\_24 Start: 18002, Stop: 18337, Start Num: 45

Candidate Starts for TaylorSipht\_24:

(Start: 45 @18002 has 16 MA's), (55, 18032), (64, 18077), (74, 18110), (80, 18131), (88, 18164), (89, 18167), (91, 18179), (101, 18209), (106, 18233), (108, 18245),

Gene: ThayneTheZag\_28 Start: 20519, Stop: 20830, Start Num: 51

Candidate Starts for ThayneTheZag\_28:

(Start: 51 @20519 has 20 MA's), (62, 20576), (87, 20669), (91, 20687), (107, 20750), (111, 20768),

Gene: Timinator\_29 Start: 25315, Stop: 25686, Start Num: 30

Candidate Starts for Timinator\_29:

(Start: 30 @25315 has 4 MA's), (Start: 31 @25318 has 18 MA's), (37, 25339), (65, 25423), (78, 25465), (80, 25474), (84, 25486), (88, 25507), (91, 25522), (108, 25588), (117, 25627),

Gene: Toad24\_25 Start: 19184, Stop: 19516, Start Num: 45

Candidate Starts for Toad24\_25:

(Start: 45 @19184 has 16 MA's), (64, 19259), (67, 19268), (74, 19292), (75, 19295), (89, 19349), (91, 19361), (106, 19415), (108, 19427),

Gene: ToastyFinz\_22 Start: 19068, Stop: 19331, Start Num: 60

Candidate Starts for ToastyFinz\_22:

(Start: 60 @19068 has 25 MA's), (81, 19134), (108, 19248),

Gene: Tubberson\_23 Start: 19333, Stop: 19587, Start Num: 60

Candidate Starts for Tubberson\_23:

(Start: 60 @19333 has 25 MA's), (101, 19471), (106, 19498), (108, 19510),

Gene: TurkishDelight\_36 Start: 34260, Stop: 34487, Start Num: 60

Candidate Starts for TurkishDelight\_36:

(Start: 60 @34260 has 25 MA's), (107, 34413), (108, 34416),

Gene: Vitas\_22 Start: 17102, Stop: 17428, Start Num: 35

Candidate Starts for Vitas\_22:

(Start: 35 @17102 has 17 MA's), (89, 17285), (90, 17291), (108, 17363),

Gene: Vondra\_21 Start: 17962, Stop: 18219, Start Num: 60

Candidate Starts for Vondra\_21:

(4, 17224), (7, 17413), (11, 17491), (13, 17539), (15, 17626), (52, 17917), (59, 17956), (Start: 60 @17962 has 25 MA's), (78, 18016), (80, 18025), (108, 18142),

Gene: Vopal\_29 Start: 20432, Stop: 20740, Start Num: 51

Candidate Starts for Vopal\_29:

(Start: 51 @20432 has 20 MA's), (73, 20528), (74, 20531), (77, 20540), (108, 20666), (111, 20681), (113, 20693),

Gene: Vulpecula\_24 Start: 18724, Stop: 19056, Start Num: 45

Candidate Starts for Vulpecula\_24:

(Start: 45 @18724 has 16 MA's), (64, 18799), (67, 18808), (89, 18889), (91, 18901), (96, 18916), (106, 18955), (108, 18967),

Gene: Wentworth\_30 Start: 20992, Stop: 21219, Start Num: 58

Candidate Starts for Wentworth\_30:

(Start: 58 @20992 has 7 MA's), (67, 21013), (68, 21016), (75, 21040), (80, 21058), (104, 21127), (108, 21151), (110, 21163), (113, 21178),

Gene: Westrich\_25 Start: 19173, Stop: 19505, Start Num: 45

Candidate Starts for Westrich\_25:

(Start: 45 @19173 has 16 MA's), (64, 19248), (67, 19257), (74, 19281), (75, 19284), (89, 19338), (91, 19350), (106, 19404), (108, 19416),

Gene: Wilkos\_30 Start: 20904, Stop: 21131, Start Num: 58

Candidate Starts for Wilkos\_30:

(Start: 58 @20904 has 7 MA's), (71, 20940), (76, 20955), (79, 20967), (80, 20970), (108, 21063), (113, 21090),

Gene: Windest\_29 Start: 20486, Stop: 20791, Start Num: 51

Candidate Starts for Windest\_29:

(Start: 51 @20486 has 20 MA's), (62, 20537), (82, 20603), (87, 20627), (91, 20645), (98, 20666), (100, 20672), (103, 20684), (121, 20756),

Gene: Wyborn\_30 Start: 25584, Stop: 25931, Start Num: 43

Candidate Starts for Wyborn\_30:

(29, 25542), (Start: 43 @25584 has 1 MA's), (62, 25656), (64, 25668), (65, 25671), (76, 25707), (78, 25713), (81, 25725), (89, 25758), (93, 25776), (108, 25836), (109, 25842),

Gene: Yara\_26 Start: 20240, Stop: 20461, Start Num: 60

Candidate Starts for Yara\_26:

(21, 20069), (Start: 60 @20240 has 25 MA's), (87, 20336), (108, 20399),

Gene: YoungHarleezy\_28 Start: 20434, Stop: 20739, Start Num: 51

Candidate Starts for YoungHarleezy\_28:

(Start: 51 @20434 has 20 MA's), (62, 20485), (82, 20551), (87, 20575), (91, 20593), (98, 20614), (100, 20620), (103, 20632),

Gene: Zartrosa\_29 Start: 25236, Stop: 25604, Start Num: 31

Candidate Starts for Zartrosa\_29:

(Start: 31 @25236 has 18 MA's), (65, 25341), (67, 25347), (78, 25383), (80, 25392), (84, 25404), (88, 25425), (91, 25440), (104, 25482), (108, 25506), (109, 25512), (117, 25545),

Gene: Zhuangyuan\_26 Start: 18457, Stop: 18819, Start Num: 45

Candidate Starts for Zhuangyuan\_26:

(Start: 45 @18457 has 16 MA's), (Start: 51 @18469 has 20 MA's), (67, 18541), (74, 18565), (88, 18619), (106, 18688), (108, 18700),