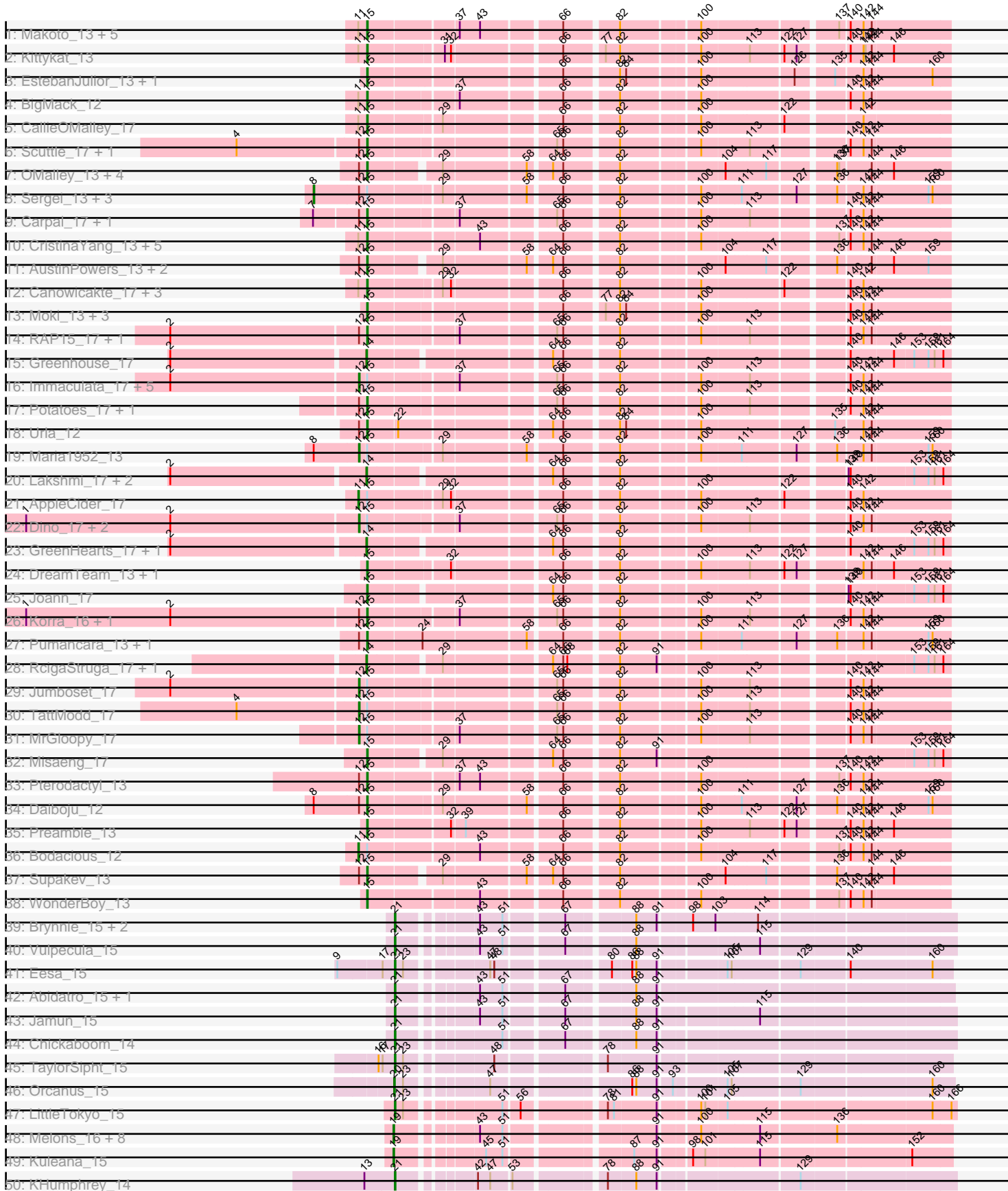
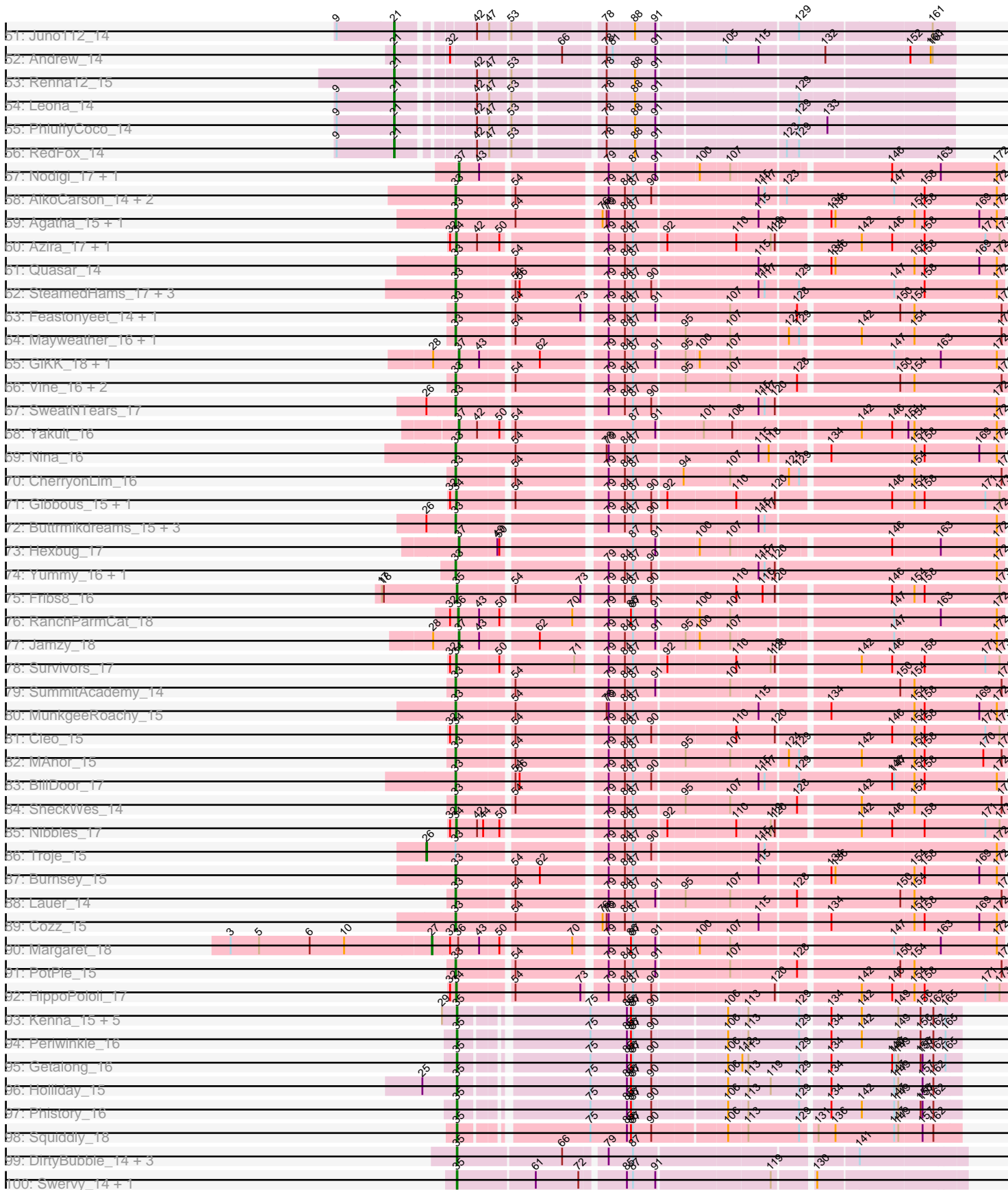


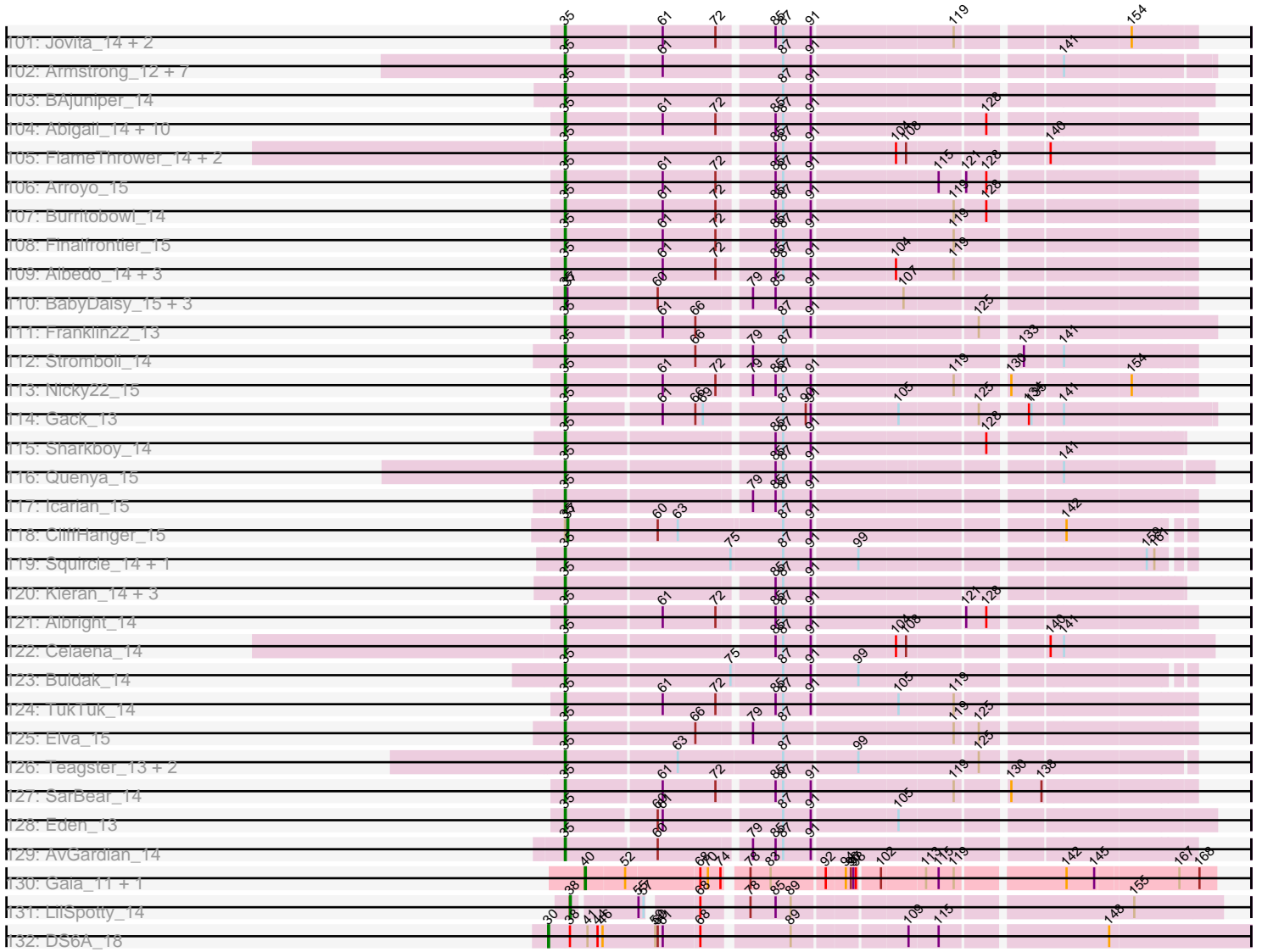
Pham 215793



Pham 215793



Pham 215793



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 215793 Report

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

Pham number 215793 has 248 members, 0 are drafts.

Phages represented in each track:

- Track 1 : Makoto\_13, PitaDog\_13, DrRobert\_13, OurGirlNessie\_13, Christian\_13, Lucy\_13
- Track 2 : Kittykat\_13
- Track 3 : EstebanJulior\_13, MamaPearl\_13
- Track 4 : BigMack\_12
- Track 5 : CallieOMalley\_17
- Track 6 : Scuttle\_17, Riverdale\_17
- Track 7 : OMalley\_13, Eunoia\_13, Aledel\_12, Chridison\_13, Riovina\_13
- Track 8 : Sergei\_13, KingBob\_13, Herb\_13, Temper16\_13
- Track 9 : Carpal\_17, Beethoven\_17
- Track 10 : CristinaYang\_13, Lasagna\_13, LilStuart\_13, ChewChew\_13, Nancia\_13, Lennox\_13
- Track 11 : AustinPowers\_13, HunterDalle\_13, Vulture\_13
- Track 12 : Canowicakte\_17, Suppi\_17, Wayne\_16, Litotes\_17
- Track 13 : Moki\_13, Huckleberry\_13, HeadNerd\_12, Bennie\_13
- Track 14 : RAP15\_17, Vallejo\_17
- Track 15 : Greenhouse\_17
- Track 16 : Immaculata\_17, Glenn\_17, Rozby\_17, Savage2526\_17, MeganNoll\_16, Kalizoi\_17
- Track 17 : Potatoes\_17, Cholula\_17
- Track 18 : Urla\_12
- Track 19 : Maria1952\_13
- Track 20 : Lakshmi\_17, Albanese\_17, Oxynfrius\_17
- Track 21 : AppleCider\_17
- Track 22 : Dino\_17, BrotherBLo\_17, Zorro\_17
- Track 23 : GreenHearts\_17, Nubia\_16
- Track 24 : DreamTeam\_13, Gisselle\_13
- Track 25 : Joann\_17
- Track 26 : Korra\_16, Wawa\_17
- Track 27 : Pumancara\_13, PinkFriday\_13
- Track 28 : RcigaStruga\_17, Huntingdon\_17
- Track 29 : Jumboset\_17
- Track 30 : TattModd\_17
- Track 31 : MrGloopy\_17
- Track 32 : Misaeng\_17
- Track 33 : Pterodactyl\_13
- Track 34 : Daiboju\_12

- Track 35 : Preamble\_13
- Track 36 : Bodacious\_12
- Track 37 : Supakev\_13
- Track 38 : WonderBoy\_13
- Track 39 : Brynnie\_15, Basilisk\_15, Ruchi\_15
- Track 40 : Vulpecula\_15
- Track 41 : Eesa\_15
- Track 42 : Abidatro\_15, Galaxy\_15
- Track 43 : Jamun\_15
- Track 44 : Chickaboom\_14
- Track 45 : TaylorSipht\_15
- Track 46 : Orcanus\_15
- Track 47 : LittleTokyo\_15
- Track 48 : Melons\_16, Amelia\_16, Polka\_15, Cote\_16, Lunar\_15, Coral\_15, Daob\_16, Kepler\_15, HannahPhantana\_16
- Track 49 : Kuleana\_15
- Track 50 : KHumphrey\_14
- Track 51 : Juno112\_14
- Track 52 : Andrew\_14
- Track 53 : Renna12\_15
- Track 54 : Leona\_14
- Track 55 : PhluffyCoco\_14
- Track 56 : RedFox\_14
- Track 57 : Nodigi\_17, Orla\_17
- Track 58 : AikoCarson\_14, Amok\_14, Emalyn\_14
- Track 59 : Agatha\_15, Axym\_15
- Track 60 : Azira\_17, MaVan\_17
- Track 61 : Quasar\_14
- Track 62 : SteamedHams\_17, Tolls\_17, Yarn\_14, AndPeggy\_14
- Track 63 : Feastonyeet\_14, BigChungus\_14
- Track 64 : Mayweather\_16, Pons\_15
- Track 65 : GiKK\_18, Button\_16
- Track 66 : Vine\_16, KayGee\_15, Elinal\_16
- Track 67 : SweatNTears\_17
- Track 68 : Yakult\_16
- Track 69 : Nina\_16
- Track 70 : CherryonLim\_16
- Track 71 : Gibbous\_15, Dre3\_15
- Track 72 : Buttrmlkdreams\_15, Biskit\_16, SketchMex\_14, MScarn\_17
- Track 73 : Hexbug\_17
- Track 74 : Yummy\_16, Horseradish\_16
- Track 75 : Fribs8\_16
- Track 76 : RanchParmCat\_18
- Track 77 : Jamzy\_18
- Track 78 : Survivors\_17
- Track 79 : SummitAcademy\_14
- Track 80 : MunkgeeRoachy\_15
- Track 81 : Cleo\_15
- Track 82 : MAnor\_15
- Track 83 : BillDoor\_17
- Track 84 : SheckWes\_14
- Track 85 : Nibbles\_17
- Track 86 : Troje\_15

- Track 87 : Burnsey\_15
- Track 88 : Lauer\_14
- Track 89 : Cozz\_15
- Track 90 : Margaret\_18
- Track 91 : PotPie\_15
- Track 92 : HippoPololi\_17
- Track 93 : Kenna\_15, Lutum\_16, Leroy\_16, BENtherdunthat\_16, Horus\_16, Asapag\_16
- Track 94 : Periwinkle\_16
- Track 95 : Getalong\_16
- Track 96 : Holliday\_15
- Track 97 : Phistory\_16
- Track 98 : Squiddly\_18
- Track 99 : DirtyBubble\_14, Stoor\_14, SanaSana\_15, BabyYoda\_14
- Track 100 : Swervy\_14, Slay\_14
- Track 101 : Jovita\_14, QMacho\_15, Eula\_14
- Track 102 : Armstrong\_12, Clayda5\_13, Rollins\_12, Coltrane\_12, Vitas\_13, Brahms\_12, Bernstein\_12, Skylord\_13
- Track 103 : BAJuniper\_14
- Track 104 : Abigail\_14, DickRichards\_14, Avocadoman\_14, LimaBean\_14, Kenzers\_14, Johnathan\_14, CroZenni\_14, SansAfet\_14, BelmontSKP\_15, Lynlen\_14, AnnaLie\_15
- Track 105 : FlameThrower\_14, Bachaco\_14, Katzastrophic\_14
- Track 106 : Arroyo\_15
- Track 107 : Burritobowl\_14
- Track 108 : Finalfrontier\_15
- Track 109 : Albedo\_14, BubbaBear\_14, Doobus\_14, Phisb\_14
- Track 110 : BabyDaisy\_15, Didgeridoo\_15, IndyLu\_14, Lahqtemish\_14
- Track 111 : Franklin22\_13
- Track 112 : Stromboli\_14
- Track 113 : Nicky22\_15
- Track 114 : Gack\_13
- Track 115 : Sharkboy\_14
- Track 116 : Quenya\_15
- Track 117 : Icarian\_15
- Track 118 : CliffHanger\_15
- Track 119 : Squirrel\_14, Olliecat\_14
- Track 120 : Kieran\_14, Rona\_14, ChiliPepper\_14, Dismas\_14
- Track 121 : Albright\_14
- Track 122 : Celaena\_14
- Track 123 : Buldak\_14
- Track 124 : TukTuk\_14
- Track 125 : Elva\_15
- Track 126 : Teagster\_13, Shayna\_13, SunnyD\_13
- Track 127 : SarBear\_14
- Track 128 : Eden\_13
- Track 129 : AvGardian\_14
- Track 130 : Gaia\_11, Nebkiss\_12
- Track 131 : LilSpotty\_14
- Track 132 : DS6A\_18

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

The start number called the most often in the published annotations is 35, it was called in 79 of the 248 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Abigail\_14, Albedo\_14, Albright\_14, AnnaLie\_15, Armstrong\_12, Arroyo\_15, Asapag\_16, AvGardian\_14, Avocadoman\_14, BAJuniper\_14, BENtherdunthat\_16, BabyDaisy\_15, BabyYoda\_14, Bachaco\_14, BelmontSKP\_15, Bernstein\_12, Brahms\_12, BubbaBear\_14, Buldak\_14, Burritobowl\_14, Celaena\_14, ChiliPepper\_14, Clayda5\_13, Coltrane\_12, CroZenni\_14, DickRichards\_14, Didgeridoo\_15, DirtyBubble\_14, Dismas\_14, Doobus\_14, Eden\_13, Elva\_15, Eula\_14, Finalfrontier\_15, FlameThrower\_14, Franklin22\_13, Fribs8\_16, Gack\_13, Getalong\_16, Holliday\_15, Horus\_16, Icarian\_15, IndyLu\_14, Johnathan\_14, Jovita\_14, Katzastrophic\_14, Kenna\_15, Kenzers\_14, Kieran\_14, Lahqtemish\_14, Leroy\_16, LimaBean\_14, Lutum\_16, Lynlen\_14, Nicky22\_15, Olliecat\_14, Periwinkle\_16, Phisb\_14, Phistory\_16, QMacho\_15, Quenya\_15, Rollins\_12, Rona\_14, SanaSana\_15, SansAfet\_14, SarBear\_14, Sharkboy\_14, Shayna\_13, Skylord\_13, Slay\_14, Squiddly\_18, Squirrel\_14, Stoor\_14, Stromboli\_14, SunnyD\_13, Swervy\_14, Teagster\_13, TukTuk\_14, Vitas\_13,

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

- CliffHanger\_15,

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

- Abidatro\_15, Agatha\_15, AikoCarson\_14, Albanese\_17, Aledel\_12, Amelia\_16, Amok\_14, AndPeggy\_14, Andrew\_14, AppleCider\_17, AustinPowers\_13, Axym\_15, Azira\_17, Basilisk\_15, Beethoven\_17, Bennie\_13, BigChungus\_14, BigMack\_12, BillDoor\_17, Biskit\_16, Bodacious\_12, BrotherBLo\_17, Brynnie\_15, Burnsey\_15, Button\_16, Buttrmilkdreams\_15, CallieOMalley\_17, Canowicakte\_17, Carpal\_17, CherryonLim\_16, ChewChew\_13, Chickaboom\_14, Cholula\_17, Chridison\_13, Christian\_13, Cleo\_15, Coral\_15, Cote\_16, Cozz\_15, CristinaYang\_13, DS6A\_18, Daiboju\_12, Daob\_16, Dino\_17, DrRobert\_13, Dre3\_15, DreamTeam\_13, Eesa\_15, Elinal\_16, Emalyn\_14, EstebanJulior\_13, Eunoia\_13, Feastonyeet\_14, Gaia\_11, Galaxy\_15, GiKK\_18, Gibbous\_15, Gisselle\_13, Glenn\_17, GreenHearts\_17, Greenhouse\_17, HannahPhantana\_16, HeadNerd\_12, Herb\_13, Hexbug\_17, HippoPololi\_17, Horseradish\_16, Huckleberry\_13, HunterDalle\_13, Huntingdon\_17, Immaculata\_17, Jamun\_15, Jamzy\_18, Joann\_17, Jumboset\_17, Juno112\_14, KHumphrey\_14, Kalizoi\_17, KayGee\_15, Kepler\_15, KingBob\_13, Kittykat\_13, Korra\_16, Kuleana\_15, Lakshmi\_17, Lasagna\_13, Lauer\_14, Lennox\_13, Leona\_14, LilSpotty\_14, LilStuart\_13, Litotes\_17, LittleTokyo\_15, Lucy\_13, Lunar\_15, MAnor\_15, MScarn\_17, MaVan\_17, Makoto\_13, MamaPearl\_13, Margaret\_18, Maria1952\_13, Mayweather\_16, MeganNoll\_16, Melons\_16, Misaeng\_17, Moki\_13, MrGloopy\_17, MunkgeeRoachy\_15, Nancia\_13, Nebkiss\_12, Nibbles\_17, Nina\_16, Nodigi\_17, Nubia\_16, OMalley\_13, Orcanus\_15, Orla\_17, OurGirlNessie\_13, Oxynfrius\_17, PhluffyCoco\_14, PinkFriday\_13, PitaDog\_13, Polka\_15, Pons\_15, PotPie\_15, Potatoes\_17, Preamble\_13, Pterodactyl\_13, Pumancara\_13, Quasar\_14, RAP15\_17, RanchParmCat\_18, RcigaStruga\_17, RedFox\_14, Renna12\_15, Rivovina\_13, Riverdale\_17, Rozby\_17, Ruchi\_15, Savage2526\_17, Scuttle\_17, Sergei\_13, SheckWes\_14, SketchMex\_14, SteamedHams\_17, SummitAcademy\_14, Supakev\_13, Suppi\_17, Survivors\_17, SweatNTears\_17, TattModd\_17, TaylorSipht\_15, Temper16\_13, Tolls\_17, Troje\_15, Urla\_12, Vallejo\_17, Vine\_16,

Vulpecula\_15, Vulture\_13, Wawa\_17, Wayne\_16, WonderBoy\_13, Yakult\_16, Yarn\_14, Yummy\_16, Zorro\_17,

### Summary by start number:

#### Start 8:

- Found in 6 of 248 ( 2.4% ) of genes in pham
- Manual Annotations of this start: 4 of 248
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Herb\_13 (AK), KingBob\_13 (AK), Sergej\_13 (AK), Temper16\_13 (AK),

#### Start 11:

- Found in 21 of 248 ( 8.5% ) of genes in pham
- Manual Annotations of this start: 2 of 248
- Called 9.5% of time when present
- Phage (with cluster) where this start called: AppleCider\_17 (AK), Bodacious\_12 (AK),

#### Start 12:

- Found in 41 of 248 ( 16.5% ) of genes in pham
- Manual Annotations of this start: 13 of 248
- Called 31.7% of time when present
- Phage (with cluster) where this start called: BrotherBLo\_17 (AK), Dino\_17 (AK), Glenn\_17 (AK), Immaculata\_17 (AK), Jumboset\_17 (AK), Kalizoi\_17 (AK), Maria1952\_13 (AK), MeganNoll\_16 (AK), MrGloopy\_17 (AK), Rozby\_17 (AK), Savage2526\_17 (AK), TattModd\_17 (AK), Zorro\_17 (AK),

#### Start 14:

- Found in 8 of 248 ( 3.2% ) of genes in pham
- Manual Annotations of this start: 8 of 248
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Albanese\_17 (AK), GreenHearts\_17 (AK), Greenhouse\_17 (AK), Huntingdon\_17 (AK), Lakshmi\_17 (AK), Nubia\_16 (AK), Oxyfnrius\_17 (AK), RcigaStruga\_17 (AK),

#### Start 15:

- Found in 74 of 248 ( 29.8% ) of genes in pham
- Manual Annotations of this start: 55 of 248
- Called 74.3% of time when present
- Phage (with cluster) where this start called: Aledel\_12 (AK), AustinPowers\_13 (AK), Beethoven\_17 (AK), Bennie\_13 (AK), BigMack\_12 (AK), CallieOMalley\_17 (AK), Canowicakte\_17 (AK), Carpal\_17 (AK), ChewChew\_13 (AK), Cholula\_17 (AK), Chridison\_13 (AK), Christian\_13 (AK), CristinaYang\_13 (AK), Daiboju\_12 (AK), DrRobert\_13 (AK), DreamTeam\_13 (AK), EstebanJulior\_13 (AK), Eunoia\_13 (AK), Gisselle\_13 (AK), HeadNerd\_12 (AK), Huckleberry\_13 (AK), HunterDalle\_13 (AK), Joann\_17 (AK), Kittykat\_13 (AK), Korra\_16 (AK), Lasagna\_13 (AK), Lennox\_13 (AK), LilStuart\_13 (AK), Litotes\_17 (AK), Lucy\_13 (AK), Makoto\_13 (AK), MamaPearl\_13 (AK), Misaeng\_17 (AK), Moki\_13 (AK), Nancia\_13 (AK), OMalley\_13 (AK), OurGirlNessie\_13 (AK), PinkFriday\_13 (AK), PitaDog\_13 (AK), Potatoes\_17 (AK), Preamble\_13 (AK), Pterodactyl\_13 (AK), Pumancara\_13 (AK), RAP15\_17 (AK), Rivovina\_13 (AK), Riverdale\_17 (AK), Scuttle\_17 (AK), Supakev\_13 (AK), Suppi\_17 (AK), Urla\_12 (AK), Vallejo\_17 (AK), Vulture\_13 (AK), Wawa\_17 (AK), Wayne\_16



(AK), WonderBoy\_13 (AK),

Start 19:

- Found in 10 of 248 ( 4.0% ) of genes in pham
- Manual Annotations of this start: 10 of 248
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amelia\_16 (AS2), Coral\_15 (AS2), Cote\_16 (AS2), Daob\_16 (AS2), HannahPhantana\_16 (AS2), Kepler\_15 (AS2), Kuleana\_15 (AS2), Lunar\_15 (AS2), Melons\_16 (AS2), Polka\_15 (AS2),

Start 20:

- Found in 1 of 248 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 248
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Orcanus\_15 (AS1),

Start 21:

- Found in 18 of 248 ( 7.3% ) of genes in pham
- Manual Annotations of this start: 18 of 248
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abidatro\_15 (AS1), Andrew\_14 (AS3), Basilisk\_15 (AS1), Brynnie\_15 (AS1), Chickaboom\_14 (AS1), Eesa\_15 (AS1), Galaxy\_15 (AS1), Jamun\_15 (AS1), Juno112\_14 (AS3), KHumphrey\_14 (AS3), Leona\_14 (AS3), LittleTokyo\_15 (AS2), PhluffyCoco\_14 (AS3), RedFox\_14 (AS3), Rennan12\_15 (AS3), Ruchi\_15 (AS1), TaylorSipht\_15 (AS1), Vulpecula\_15 (AS1),

Start 26:

- Found in 6 of 248 ( 2.4% ) of genes in pham
- Manual Annotations of this start: 1 of 248
- Called 16.7% of time when present
- Phage (with cluster) where this start called: Troje\_15 (CT),

Start 27:

- Found in 1 of 248 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 248
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Margaret\_18 (CT),

Start 30:

- Found in 1 of 248 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 248
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DS6A\_18 (singleton),

Start 33:

- Found in 36 of 248 ( 14.5% ) of genes in pham
- Manual Annotations of this start: 35 of 248
- Called 97.2% of time when present
- Phage (with cluster) where this start called: Agatha\_15 (CT), AikoCarson\_14 (CT), Amok\_14 (CT), AndPeggy\_14 (CT), Axym\_15 (CT), BigChungus\_14 (CT), BillDoor\_17 (CT), Biskit\_16 (CT), Burnsey\_15 (CT), Buttrmlkdreams\_15 (CT), CherryonLim\_16 (CT), Cozz\_15 (CT), Elinal\_16 (CT), Emalyn\_14 (CT), Feastonyet\_14 (CT), Horseradish\_16 (CT), KayGee\_15 (CT), Lauer\_14 (CT),

MAnor\_15 (CT), MScarn\_17 (CT), Mayweather\_16 (CT), MunkgeeRoachy\_15 (CT), Nina\_16 (CT), Pons\_15 (CT), PotPie\_15 (CT), Quasar\_14 (CT), SheckWes\_14 (CT), SketchMex\_14 (CT), SteamedHams\_17 (CT), SummitAcademy\_14 (CT), SweatNTears\_17 (CT), Tolls\_17 (CT), Vine\_16 (CT), Yarn\_14 (CT), Yummy\_16 (CT),

Start 34:

- Found in 8 of 248 ( 3.2% ) of genes in pham
- Manual Annotations of this start: 8 of 248
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Azira\_17 (CT), Cleo\_15 (CT), Dre3\_15 (CT), Gibbous\_15 (CT), HippoPololi\_17 (CT), MaVan\_17 (CT), Nibbles\_17 (CT), Survivors\_17 (CT),

Start 35:

- Found in 80 of 248 ( 32.3% ) of genes in pham
- Manual Annotations of this start: 79 of 248
- Called 98.8% of time when present
- Phage (with cluster) where this start called: Abigail\_14 (EB), Albedo\_14 (EB), Albright\_14 (EB), AnnaLie\_15 (EB), Armstrong\_12 (EB), Arroyo\_15 (EB), Asapag\_16 (DN1), AvGuardian\_14 (EB), Avocadoman\_14 (EB), BAJuniper\_14 (EB), BENTherdunthat\_16 (DN1), BabyDaisy\_15 (EB), BabyYoda\_14 (EB), Bachaco\_14 (EB), BelmontSKP\_15 (EB), Bernstein\_12 (EB), Brahms\_12 (EB), BubbaBear\_14 (EB), Buldak\_14 (EB), Burritobowl\_14 (EB), Celaena\_14 (EB), ChiliPepper\_14 (EB), Clayda5\_13 (EB), Coltrane\_12 (EB), CroZenni\_14 (EB), DickRichards\_14 (EB), Didgeridoo\_15 (EB), DirtyBubble\_14 (EB), Dismas\_14 (EB), Doobus\_14 (EB), Eden\_13 (EB), Elva\_15 (EB), Eula\_14 (EB), Finalfrontier\_15 (EB), FlameThrower\_14 (EB), Franklin22\_13 (EB), Fribs8\_16 (CT), Gack\_13 (EB), Getalong\_16 (DN1), Holliday\_15 (DN1), Horus\_16 (DN1), Icarian\_15 (EB), IndyLu\_14 (EB), Johnathan\_14 (EB), Jovita\_14 (EB), Katzastrophic\_14 (EB), Kenna\_15 (DN1), Kenzers\_14 (EB), Kieran\_14 (EB), Lahqtemish\_14 (EB), Leroy\_16 (DN1), LimaBean\_14 (EB), Lutum\_16 (DN1), Lynlen\_14 (EB), Nicky22\_15 (EB), Olliecat\_14 (EB), Periwinkle\_16 (DN1), Phisb\_14 (EB), Phistory\_16 (DN1), QMacho\_15 (EB), Quenya\_15 (EB), Rollins\_12 (EB), Rona\_14 (EB), SanaSana\_15 (EB), SansAfet\_14 (EB), SarBear\_14 (EB), Sharkboy\_14 (EB), Shayna\_13 (EB), Skylord\_13 (EB), Slay\_14 (EB), Squiddly\_18 (DN2), Squiracle\_14 (EB), Stoor\_14 (EB), Stromboli\_14 (EB), SunnyD\_13 (EB), Swervy\_14 (EB), Teagster\_13 (EB), TukTuk\_14 (EB), Vitas\_13 (EB),

Start 36:

- Found in 2 of 248 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 248
- Called 50.0% of time when present
- Phage (with cluster) where this start called: RanchParmCat\_18 (CT),

Start 37:

- Found in 36 of 248 ( 14.5% ) of genes in pham
- Manual Annotations of this start: 8 of 248
- Called 22.2% of time when present
- Phage (with cluster) where this start called: Button\_16 (CT), CliffHanger\_15 (EB), GiKK\_18 (CT), Hexbug\_17 (CT), Jamzy\_18 (CT), Nodigi\_17 (CT), Orla\_17 (CT), Yakult\_16 (CT),

Start 38:

- Found in 2 of 248 ( 0.8% ) of genes in pham

- Manual Annotations of this start: 1 of 248
- Called 50.0% of time when present
- Phage (with cluster) where this start called: LilSpotty\_14 (singleton),

Start 40:

- Found in 2 of 248 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 2 of 248
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gaia\_11 (X), Nebkiss\_12 (X),

### **Summary by clusters:**

There are 10 clusters represented in this pham: AS3, AS2, AS1, AK, singleton, EB, DN1, DN2, X, CT,

Info for manual annotations of cluster AK:

- Start number 8 was manually annotated 4 times for cluster AK.
- Start number 11 was manually annotated 2 times for cluster AK.
- Start number 12 was manually annotated 13 times for cluster AK.
- Start number 14 was manually annotated 8 times for cluster AK.
- Start number 15 was manually annotated 55 times for cluster AK.

Info for manual annotations of cluster AS1:

- Start number 20 was manually annotated 1 time for cluster AS1.
- Start number 21 was manually annotated 10 times for cluster AS1.

Info for manual annotations of cluster AS2:

- Start number 19 was manually annotated 10 times for cluster AS2.
- Start number 21 was manually annotated 1 time for cluster AS2.

Info for manual annotations of cluster AS3:

- Start number 21 was manually annotated 7 times for cluster AS3.

Info for manual annotations of cluster CT:

- Start number 26 was manually annotated 1 time for cluster CT.
- Start number 27 was manually annotated 1 time for cluster CT.
- Start number 33 was manually annotated 35 times for cluster CT.
- Start number 34 was manually annotated 8 times for cluster CT.
- Start number 35 was manually annotated 1 time for cluster CT.
- Start number 36 was manually annotated 1 time for cluster CT.
- Start number 37 was manually annotated 7 times for cluster CT.

Info for manual annotations of cluster DN1:

- Start number 35 was manually annotated 10 times for cluster DN1.

Info for manual annotations of cluster DN2:

- Start number 35 was manually annotated 1 time for cluster DN2.

Info for manual annotations of cluster EB:

- Start number 35 was manually annotated 67 times for cluster EB.
- Start number 37 was manually annotated 1 time for cluster EB.

Info for manual annotations of cluster X:

- Start number 40 was manually annotated 2 times for cluster X.

**Gene Information:**

Gene: Abidatro\_15 Start: 9744, Stop: 10471, Start Num: 21

Candidate Starts for Abidatro\_15:

(Start: 21 @9744 has 18 MA's), (43, 9840), (51, 9873), (67, 9948), (88, 10035), (91, 10065),

Gene: Abigail\_14 Start: 9362, Stop: 10053, Start Num: 35

Candidate Starts for Abigail\_14:

(Start: 35 @9362 has 79 MA's), (61, 9473), (72, 9536), (85, 9593), (87, 9602), (91, 9635), (128, 9827),

Gene: Agatha\_15 Start: 8885, Stop: 9639, Start Num: 33

Candidate Starts for Agatha\_15:

(Start: 33 @8885 has 35 MA's), (54, 8969), (76, 9083), (78, 9089), (79, 9092), (84, 9116), (87, 9128), (115, 9299), (134, 9389), (136, 9395), (154, 9509), (158, 9524), (169, 9605), (172, 9629),

Gene: AikoCarson\_14 Start: 8613, Stop: 9367, Start Num: 33

Candidate Starts for AikoCarson\_14:

(Start: 33 @8613 has 35 MA's), (54, 8685), (79, 8808), (84, 8832), (87, 8844), (90, 8871), (115, 9015), (117, 9024), (123, 9051), (147, 9210), (158, 9252), (172, 9357),

Gene: Albanese\_17 Start: 11894, Stop: 12654, Start Num: 14

Candidate Starts for Albanese\_17:

(2, 11618), (Start: 14 @11894 has 8 MA's), (64, 12131), (66, 12146), (82, 12218), (139, 12512), (140, 12515), (153, 12602), (159, 12623), (161, 12632), (164, 12644),

Gene: Albedo\_14 Start: 9208, Stop: 9899, Start Num: 35

Candidate Starts for Albedo\_14:

(Start: 35 @9208 has 79 MA's), (61, 9319), (72, 9382), (85, 9439), (87, 9448), (91, 9481), (104, 9574), (119, 9640),

Gene: Albright\_14 Start: 9243, Stop: 9934, Start Num: 35

Candidate Starts for Albright\_14:

(Start: 35 @9243 has 79 MA's), (61, 9354), (72, 9417), (85, 9474), (87, 9483), (91, 9516), (121, 9684), (128, 9708),

Gene: Aledel\_12 Start: 8974, Stop: 9731, Start Num: 15

Candidate Starts for Aledel\_12:

(Start: 12 @8965 has 13 MA's), (Start: 15 @8974 has 55 MA's), (29, 9067), (58, 9181), (64, 9208), (66, 9223), (82, 9295), (104, 9433), (117, 9487), (136, 9574), (137, 9577), (144, 9619), (146, 9649),

Gene: Amelia\_16 Start: 9644, Stop: 10362, Start Num: 19

Candidate Starts for Amelia\_16:

(Start: 19 @9644 has 10 MA's), (43, 9740), (51, 9773), (91, 9965), (100, 10016), (115, 10097), (136, 10202),

Gene: Amok\_14 Start: 8613, Stop: 9367, Start Num: 33

Candidate Starts for Amok\_14:

(Start: 33 @8613 has 35 MA's), (54, 8685), (79, 8808), (84, 8832), (87, 8844), (90, 8871), (115, 9015), (117, 9024), (123, 9051), (147, 9210), (158, 9252), (172, 9357),

Gene: AndPeggy\_14 Start: 8901, Stop: 9655, Start Num: 33

Candidate Starts for AndPeggy\_14:

(Start: 33 @8901 has 35 MA's), (54, 8973), (56, 8979), (79, 9096), (84, 9120), (87, 9132), (90, 9159), (115, 9303), (117, 9312), (129, 9357), (147, 9498), (158, 9540), (172, 9645),

Gene: Andrew\_14 Start: 9438, Stop: 10162, Start Num: 21

Candidate Starts for Andrew\_14:

(Start: 21 @9438 has 18 MA's), (32, 9498), (66, 9639), (78, 9690), (81, 9699), (91, 9759), (105, 9846), (115, 9891), (132, 9981), (152, 10098), (160, 10128), (161, 10131),

Gene: AnnaLie\_15 Start: 9652, Stop: 10343, Start Num: 35

Candidate Starts for AnnaLie\_15:

(Start: 35 @9652 has 79 MA's), (61, 9763), (72, 9826), (85, 9883), (87, 9892), (91, 9925), (128, 10117),

Gene: AppleCider\_17 Start: 11828, Stop: 12606, Start Num: 11

Candidate Starts for AppleCider\_17:

(Start: 11 @11828 has 2 MA's), (Start: 15 @11840 has 55 MA's), (29, 11939), (32, 11951), (66, 12095), (82, 12167), (100, 12272), (122, 12383), (140, 12464), (142, 12482),

Gene: Armstrong\_12 Start: 8785, Stop: 9494, Start Num: 35

Candidate Starts for Armstrong\_12:

(Start: 35 @8785 has 79 MA's), (61, 8893), (87, 9025), (91, 9058), (141, 9325),

Gene: Arroyo\_15 Start: 9713, Stop: 10404, Start Num: 35

Candidate Starts for Arroyo\_15:

(Start: 35 @9713 has 79 MA's), (61, 9824), (72, 9887), (85, 9944), (87, 9953), (91, 9986), (115, 10127), (121, 10154), (128, 10178),

Gene: Asapag\_16 Start: 8335, Stop: 9014, Start Num: 35

Candidate Starts for Asapag\_16:

(29, 8314), (Start: 35 @8335 has 79 MA's), (75, 8500), (85, 8554), (86, 8560), (87, 8563), (90, 8590), (106, 8689), (113, 8716), (129, 8791), (134, 8827), (142, 8872), (149, 8926), (156, 8956), (162, 8974), (165, 8992),

Gene: AustinPowers\_13 Start: 8975, Stop: 9732, Start Num: 15

Candidate Starts for AustinPowers\_13:

(Start: 12 @8966 has 13 MA's), (Start: 15 @8975 has 55 MA's), (29, 9068), (58, 9182), (64, 9209), (66, 9224), (82, 9296), (104, 9434), (117, 9488), (136, 9575), (144, 9620), (146, 9650), (159, 9701),

Gene: AvGardian\_14 Start: 9267, Stop: 9958, Start Num: 35

Candidate Starts for AvGardian\_14:

(Start: 35 @9267 has 79 MA's), (60, 9372), (79, 9471), (85, 9498), (87, 9507), (91, 9540),

Gene: Avocadoman\_14 Start: 9305, Stop: 9996, Start Num: 35

Candidate Starts for Avocadoman\_14:

(Start: 35 @9305 has 79 MA's), (61, 9416), (72, 9479), (85, 9536), (87, 9545), (91, 9578), (128, 9770),

Gene: Axym\_15 Start: 8885, Stop: 9639, Start Num: 33

Candidate Starts for Axym\_15:

(Start: 33 @8885 has 35 MA's), (54, 8969), (76, 9083), (78, 9089), (79, 9092), (84, 9116), (87, 9128), (115, 9299), (134, 9389), (136, 9395), (154, 9509), (158, 9524), (169, 9605), (172, 9629),

Gene: Azira\_17 Start: 9884, Stop: 10629, Start Num: 34

Candidate Starts for Azira\_17:

(32, 9875), (Start: 34 @9884 has 8 MA's), (42, 9914), (50, 9944), (79, 10079), (84, 10103), (87, 10115), (92, 10160), (110, 10253), (119, 10301), (120, 10307), (142, 10418), (146, 10463), (158, 10508), (171, 10598), (173, 10619),

Gene: BAjuniper\_14 Start: 8933, Stop: 9645, Start Num: 35

Candidate Starts for BAjuniper\_14:

(Start: 35 @8933 has 79 MA's), (87, 9173), (91, 9206),

Gene: BENtherdunthat\_16 Start: 8335, Stop: 9014, Start Num: 35

Candidate Starts for BENtherdunthat\_16:

(29, 8314), (Start: 35 @8335 has 79 MA's), (75, 8500), (85, 8554), (86, 8560), (87, 8563), (90, 8590), (106, 8689), (113, 8716), (129, 8791), (134, 8827), (142, 8872), (149, 8926), (156, 8956), (162, 8974), (165, 8992),

Gene: BabyDaisy\_15 Start: 9464, Stop: 10155, Start Num: 35

Candidate Starts for BabyDaisy\_15:

(Start: 35 @9464 has 79 MA's), (Start: 37 @9467 has 8 MA's), (60, 9569), (79, 9668), (85, 9695), (91, 9737), (107, 9839),

Gene: BabyYoda\_14 Start: 9464, Stop: 10155, Start Num: 35

Candidate Starts for BabyYoda\_14:

(Start: 35 @9464 has 79 MA's), (66, 9614), (79, 9668), (87, 9704), (141, 10004),

Gene: Bachaco\_14 Start: 9138, Stop: 9847, Start Num: 35

Candidate Starts for Bachaco\_14:

(Start: 35 @9138 has 79 MA's), (85, 9369), (87, 9378), (91, 9411), (104, 9504), (108, 9516), (140, 9660),

Gene: Basilisk\_15 Start: 10064, Stop: 10794, Start Num: 21

Candidate Starts for Basilisk\_15:

(Start: 21 @10064 has 18 MA's), (43, 10160), (51, 10193), (67, 10268), (88, 10355), (91, 10385), (98, 10430), (103, 10463), (114, 10520),

Gene: Beethoven\_17 Start: 11795, Stop: 12561, Start Num: 15

Candidate Starts for Beethoven\_17:

(7, 11723), (Start: 12 @11786 has 13 MA's), (Start: 15 @11795 has 55 MA's), (Start: 37 @11915 has 8 MA's), (65, 12041), (66, 12050), (82, 12122), (100, 12227), (113, 12293), (140, 12419), (142, 12437), (144, 12449),

Gene: BelmontSKP\_15 Start: 9652, Stop: 10343, Start Num: 35

Candidate Starts for BelmontSKP\_15:

(Start: 35 @9652 has 79 MA's), (61, 9763), (72, 9826), (85, 9883), (87, 9892), (91, 9925), (128, 10117),

Gene: Bennie\_13 Start: 8948, Stop: 9714, Start Num: 15

Candidate Starts for Bennie\_13:

(Start: 15 @8948 has 55 MA's), (66, 9203), (77, 9254), (82, 9275), (84, 9284), (100, 9380), (140, 9572), (142, 9590), (144, 9602),

Gene: Bernstein\_12 Start: 8845, Stop: 9554, Start Num: 35

Candidate Starts for Bernstein\_12:

(Start: 35 @8845 has 79 MA's), (61, 8953), (87, 9085), (91, 9118), (141, 9385),

Gene: BigChungus\_14 Start: 8662, Stop: 9410, Start Num: 33

Candidate Starts for BigChungus\_14:

(Start: 33 @8662 has 35 MA's), (54, 8734), (73, 8830), (79, 8857), (84, 8881), (87, 8893), (91, 8926), (107, 9025), (128, 9115), (150, 9256), (154, 9274), (174, 9403),

Gene: BigMack\_12 Start: 8944, Stop: 9710, Start Num: 15

Candidate Starts for BigMack\_12:

(Start: 11 @8932 has 2 MA's), (Start: 15 @8944 has 55 MA's), (Start: 37 @9064 has 8 MA's), (66, 9199), (82, 9271), (100, 9376), (140, 9568), (142, 9586), (144, 9598),

Gene: BillDoor\_17 Start: 8866, Stop: 9620, Start Num: 33

Candidate Starts for BillDoor\_17:

(Start: 33 @8866 has 35 MA's), (54, 8938), (56, 8944), (79, 9061), (84, 9085), (87, 9097), (90, 9124), (115, 9268), (117, 9277), (129, 9322), (146, 9460), (147, 9463), (154, 9490), (158, 9505), (172, 9610),

Gene: Biskit\_16 Start: 8872, Stop: 9626, Start Num: 33

Candidate Starts for Biskit\_16:

(Start: 26 @8830 has 1 MA's), (Start: 33 @8872 has 35 MA's), (79, 9067), (84, 9091), (87, 9103), (90, 9130), (115, 9274), (117, 9283), (172, 9616),

Gene: Bodacious\_12 Start: 8930, Stop: 9711, Start Num: 11

Candidate Starts for Bodacious\_12:

(Start: 11 @8930 has 2 MA's), (Start: 15 @8942 has 55 MA's), (43, 9095), (66, 9200), (82, 9272), (100, 9377), (137, 9557), (140, 9569), (142, 9587), (144, 9599),

Gene: Brahms\_12 Start: 8785, Stop: 9494, Start Num: 35

Candidate Starts for Brahms\_12:

(Start: 35 @8785 has 79 MA's), (61, 8893), (87, 9025), (91, 9058), (141, 9325),

Gene: BrotherBLo\_17 Start: 11792, Stop: 12567, Start Num: 12

Candidate Starts for BrotherBLo\_17:

(1, 11306), (2, 11519), (Start: 12 @11792 has 13 MA's), (Start: 15 @11801 has 55 MA's), (Start: 37 @11921 has 8 MA's), (65, 12047), (66, 12056), (82, 12128), (100, 12233), (113, 12299), (140, 12425), (142, 12443), (144, 12455),

Gene: Brynnie\_15 Start: 9876, Stop: 10606, Start Num: 21

Candidate Starts for Brynnie\_15:

(Start: 21 @9876 has 18 MA's), (43, 9972), (51, 10005), (67, 10080), (88, 10167), (91, 10197), (98, 10242), (103, 10275), (114, 10332),

Gene: BubbaBear\_14 Start: 9208, Stop: 9899, Start Num: 35

Candidate Starts for BubbaBear\_14:

(Start: 35 @9208 has 79 MA's), (61, 9319), (72, 9382), (85, 9439), (87, 9448), (91, 9481), (104, 9574), (119, 9640),

Gene: Buldak\_14 Start: 9315, Stop: 10006, Start Num: 35

Candidate Starts for Buldak\_14:

(Start: 35 @9315 has 79 MA's), (75, 9507), (87, 9567), (91, 9600), (99, 9651),

Gene: Burnsey\_15 Start: 8886, Stop: 9640, Start Num: 33

Candidate Starts for Burnsey\_15:

(Start: 33 @8886 has 35 MA's), (54, 8970), (62, 9006), (79, 9093), (84, 9117), (87, 9129), (115, 9300), (134, 9390), (136, 9396), (154, 9510), (158, 9525), (169, 9606), (172, 9630),

Gene: Burritobowl\_14 Start: 9270, Stop: 9961, Start Num: 35

Candidate Starts for Burritobowl\_14:

(Start: 35 @9270 has 79 MA's), (61, 9381), (72, 9444), (85, 9501), (87, 9510), (91, 9543), (119, 9702), (128, 9735),

Gene: Button\_16 Start: 8897, Stop: 9627, Start Num: 37

Candidate Starts for Button\_16:

(28, 8864), (Start: 37 @8897 has 8 MA's), (43, 8927), (62, 9002), (79, 9089), (84, 9113), (87, 9125), (91, 9158), (95, 9194), (100, 9212), (107, 9254), (147, 9470), (163, 9536), (172, 9617),

Gene: Buttrmlkdreams\_15 Start: 8857, Stop: 9611, Start Num: 33

Candidate Starts for Buttrmlkdreams\_15:

(Start: 26 @8815 has 1 MA's), (Start: 33 @8857 has 35 MA's), (79, 9052), (84, 9076), (87, 9088), (90, 9115), (115, 9259), (117, 9268), (172, 9601),

Gene: CallieOMalley\_17 Start: 11840, Stop: 12606, Start Num: 15

Candidate Starts for CallieOMalley\_17:

(Start: 11 @11828 has 2 MA's), (Start: 15 @11840 has 55 MA's), (29, 11939), (66, 12095), (82, 12167), (100, 12272), (122, 12383), (142, 12482),

Gene: Canowicakte\_17 Start: 11875, Stop: 12641, Start Num: 15

Candidate Starts for Canowicakte\_17:

(Start: 11 @11863 has 2 MA's), (Start: 15 @11875 has 55 MA's), (29, 11974), (32, 11986), (66, 12130), (82, 12202), (100, 12307), (122, 12418), (140, 12499), (142, 12517),

Gene: Carpal\_17 Start: 11802, Stop: 12568, Start Num: 15

Candidate Starts for Carpal\_17:

(7, 11730), (Start: 12 @11793 has 13 MA's), (Start: 15 @11802 has 55 MA's), (Start: 37 @11922 has 8 MA's), (65, 12048), (66, 12057), (82, 12129), (100, 12234), (113, 12300), (140, 12426), (142, 12444), (144, 12456),

Gene: Celaena\_14 Start: 9074, Stop: 9783, Start Num: 35

Candidate Starts for Celaena\_14:

(Start: 35 @9074 has 79 MA's), (85, 9305), (87, 9314), (91, 9347), (104, 9440), (108, 9452), (140, 9596), (141, 9611),

Gene: CherryonLim\_16 Start: 9392, Stop: 10140, Start Num: 33

Candidate Starts for CherryonLim\_16:

(Start: 33 @9392 has 35 MA's), (54, 9464), (79, 9587), (84, 9611), (87, 9623), (94, 9689), (107, 9755), (124, 9833), (129, 9848), (154, 10004), (174, 10133),

Gene: ChewChew\_13 Start: 8941, Stop: 9710, Start Num: 15

Candidate Starts for ChewChew\_13:

(Start: 11 @8929 has 2 MA's), (Start: 15 @8941 has 55 MA's), (43, 9094), (66, 9199), (82, 9271), (100, 9376), (137, 9556), (140, 9568), (142, 9586), (144, 9598),

Gene: Chickaboom\_14 Start: 9421, Stop: 10145, Start Num: 21

Candidate Starts for Chickaboom\_14:

(Start: 21 @9421 has 18 MA's), (51, 9550), (67, 9625), (88, 9712), (91, 9742),



Gene: ChiliPepper\_14 Start: 9439, Stop: 10115, Start Num: 35  
Candidate Starts for ChiliPepper\_14:  
(Start: 35 @9439 has 79 MA's), (85, 9670), (87, 9679), (91, 9712),

Gene: Cholula\_17 Start: 11847, Stop: 12613, Start Num: 15  
Candidate Starts for Cholula\_17:  
(Start: 12 @11838 has 13 MA's), (Start: 15 @11847 has 55 MA's), (65, 12093), (66, 12102), (82, 12174), (100, 12279), (113, 12345), (140, 12471), (142, 12489), (144, 12501),

Gene: Chridison\_13 Start: 8975, Stop: 9732, Start Num: 15  
Candidate Starts for Chridison\_13:  
(Start: 12 @8966 has 13 MA's), (Start: 15 @8975 has 55 MA's), (29, 9068), (58, 9182), (64, 9209), (66, 9224), (82, 9296), (104, 9434), (117, 9488), (136, 9575), (137, 9578), (144, 9620), (146, 9650),

Gene: Christian\_13 Start: 8942, Stop: 9711, Start Num: 15  
Candidate Starts for Christian\_13:  
(Start: 11 @8930 has 2 MA's), (Start: 15 @8942 has 55 MA's), (Start: 37 @9065 has 8 MA's), (43, 9095), (66, 9200), (82, 9272), (100, 9377), (137, 9557), (140, 9569), (142, 9587), (144, 9599),

Gene: Clayda5\_13 Start: 8785, Stop: 9494, Start Num: 35  
Candidate Starts for Clayda5\_13:  
(Start: 35 @8785 has 79 MA's), (61, 8893), (87, 9025), (91, 9058), (141, 9325),

Gene: Cleo\_15 Start: 9174, Stop: 9919, Start Num: 34  
Candidate Starts for Cleo\_15:  
(32, 9165), (Start: 34 @9174 has 8 MA's), (54, 9246), (79, 9369), (84, 9393), (87, 9405), (90, 9432), (110, 9543), (120, 9597), (146, 9753), (154, 9783), (158, 9798), (171, 9888), (173, 9909),

Gene: CliffHanger\_15 Start: 8971, Stop: 9659, Start Num: 37  
Candidate Starts for CliffHanger\_15:  
(Start: 35 @8968 has 79 MA's), (Start: 37 @8971 has 8 MA's), (60, 9073), (63, 9097), (87, 9217), (91, 9250), (142, 9523),

Gene: Coltrane\_12 Start: 8785, Stop: 9494, Start Num: 35  
Candidate Starts for Coltrane\_12:  
(Start: 35 @8785 has 79 MA's), (61, 8893), (87, 9025), (91, 9058), (141, 9325),

Gene: Coral\_15 Start: 9483, Stop: 10201, Start Num: 19  
Candidate Starts for Coral\_15:  
(Start: 19 @9483 has 10 MA's), (43, 9579), (51, 9612), (91, 9804), (100, 9855), (115, 9936), (136, 10041),

Gene: Cote\_16 Start: 9644, Stop: 10362, Start Num: 19  
Candidate Starts for Cote\_16:  
(Start: 19 @9644 has 10 MA's), (43, 9740), (51, 9773), (91, 9965), (100, 10016), (115, 10097), (136, 10202),

Gene: Cozz\_15 Start: 8886, Stop: 9640, Start Num: 33  
Candidate Starts for Cozz\_15:  
(Start: 33 @8886 has 35 MA's), (54, 8970), (76, 9084), (78, 9090), (79, 9093), (84, 9117), (87, 9129), (115, 9300), (134, 9390), (154, 9510), (158, 9525), (169, 9606), (172, 9630),

Gene: CristinaYang\_13 Start: 8942, Stop: 9711, Start Num: 15

Candidate Starts for CristinaYang\_13:

(Start: 11 @8930 has 2 MA's), (Start: 15 @8942 has 55 MA's), (43, 9095), (66, 9200), (82, 9272), (100, 9377), (137, 9557), (140, 9569), (142, 9587), (144, 9599),

Gene: CroZenni\_14 Start: 9243, Stop: 9934, Start Num: 35

Candidate Starts for CroZenni\_14:

(Start: 35 @9243 has 79 MA's), (61, 9354), (72, 9417), (85, 9474), (87, 9483), (91, 9516), (128, 9708),

Gene: DS6A\_18 Start: 11578, Stop: 12356, Start Num: 30

Candidate Starts for DS6A\_18:

(Start: 30 @11578 has 1 MA's), (Start: 38 @11602 has 1 MA's), (41, 11623), (44, 11635), (46, 11641), (59, 11704), (60, 11707), (61, 11713), (68, 11755), (89, 11848), (109, 11971), (115, 12004), (148, 12190),

Gene: Daiboju\_12 Start: 8974, Stop: 9737, Start Num: 15

Candidate Starts for Daiboju\_12:

(Start: 8 @8899 has 4 MA's), (Start: 12 @8965 has 13 MA's), (Start: 15 @8974 has 55 MA's), (29, 9073), (58, 9187), (66, 9229), (82, 9301), (100, 9406), (111, 9460), (127, 9532), (136, 9580), (142, 9613), (144, 9625), (159, 9706), (160, 9712),

Gene: Daob\_16 Start: 9647, Stop: 10365, Start Num: 19

Candidate Starts for Daob\_16:

(Start: 19 @9647 has 10 MA's), (43, 9743), (51, 9776), (91, 9968), (100, 10019), (115, 10100), (136, 10205),

Gene: DickRichards\_14 Start: 9737, Stop: 10428, Start Num: 35

Candidate Starts for DickRichards\_14:

(Start: 35 @9737 has 79 MA's), (61, 9848), (72, 9911), (85, 9968), (87, 9977), (91, 10010), (128, 10202),

Gene: Didgeridoo\_15 Start: 9466, Stop: 10157, Start Num: 35

Candidate Starts for Didgeridoo\_15:

(Start: 35 @9466 has 79 MA's), (Start: 37 @9469 has 8 MA's), (60, 9571), (79, 9670), (85, 9697), (91, 9739), (107, 9841),

Gene: Dino\_17 Start: 11791, Stop: 12566, Start Num: 12

Candidate Starts for Dino\_17:

(1, 11305), (2, 11518), (Start: 12 @11791 has 13 MA's), (Start: 15 @11800 has 55 MA's), (Start: 37 @11920 has 8 MA's), (65, 12046), (66, 12055), (82, 12127), (100, 12232), (113, 12298), (140, 12424), (142, 12442), (144, 12454),

Gene: DirtyBubble\_14 Start: 9472, Stop: 10163, Start Num: 35

Candidate Starts for DirtyBubble\_14:

(Start: 35 @9472 has 79 MA's), (66, 9622), (79, 9676), (87, 9712), (141, 10012),

Gene: Dismas\_14 Start: 9439, Stop: 10115, Start Num: 35

Candidate Starts for Dismas\_14:

(Start: 35 @9439 has 79 MA's), (85, 9670), (87, 9679), (91, 9712),

Gene: Doobus\_14 Start: 9474, Stop: 10165, Start Num: 35

Candidate Starts for Doobus\_14:

(Start: 35 @9474 has 79 MA's), (61, 9585), (72, 9648), (85, 9705), (87, 9714), (91, 9747), (104, 9840), (119, 9906),

Gene: DrRobert\_13 Start: 8942, Stop: 9711, Start Num: 15

Candidate Starts for DrRobert\_13:

(Start: 11 @8930 has 2 MA's), (Start: 15 @8942 has 55 MA's), (Start: 37 @9065 has 8 MA's), (43, 9095), (66, 9200), (82, 9272), (100, 9377), (137, 9557), (140, 9569), (142, 9587), (144, 9599),

Gene: Dre3\_15 Start: 9121, Stop: 9866, Start Num: 34

Candidate Starts for Dre3\_15:

(32, 9112), (Start: 34 @9121 has 8 MA's), (54, 9193), (79, 9316), (84, 9340), (87, 9352), (90, 9379), (92, 9397), (110, 9490), (120, 9544), (146, 9700), (154, 9730), (158, 9745), (171, 9835), (173, 9856),

Gene: DreamTeam\_13 Start: 9012, Stop: 9778, Start Num: 15

Candidate Starts for DreamTeam\_13:

(Start: 15 @9012 has 55 MA's), (32, 9123), (66, 9267), (82, 9339), (100, 9444), (113, 9510), (122, 9555), (127, 9573), (142, 9654), (144, 9666), (146, 9696),

Gene: Eden\_13 Start: 8899, Stop: 9614, Start Num: 35

Candidate Starts for Eden\_13:

(Start: 35 @8899 has 79 MA's), (60, 9001), (61, 9007), (87, 9139), (91, 9172), (105, 9268),

Gene: Eesa\_15 Start: 9662, Stop: 10383, Start Num: 21

Candidate Starts for Eesa\_15:

(9, 9584), (17, 9647), (Start: 21 @9662 has 18 MA's), (23, 9674), (47, 9776), (48, 9782), (80, 9923), (86, 9950), (88, 9956), (91, 9986), (105, 10073), (107, 10079), (129, 10172), (140, 10238), (160, 10355),

Gene: Elinal\_16 Start: 8643, Stop: 9391, Start Num: 33

Candidate Starts for Elinal\_16:

(Start: 33 @8643 has 35 MA's), (54, 8715), (79, 8838), (84, 8862), (87, 8874), (95, 8943), (107, 9006), (128, 9096), (150, 9237), (154, 9255), (174, 9384),

Gene: Elva\_15 Start: 9524, Stop: 10215, Start Num: 35

Candidate Starts for Elva\_15:

(Start: 35 @9524 has 79 MA's), (66, 9674), (79, 9728), (87, 9764), (119, 9956), (125, 9980),

Gene: Emalyn\_14 Start: 8612, Stop: 9366, Start Num: 33

Candidate Starts for Emalyn\_14:

(Start: 33 @8612 has 35 MA's), (54, 8684), (79, 8807), (84, 8831), (87, 8843), (90, 8870), (115, 9014), (117, 9023), (123, 9050), (147, 9209), (158, 9251), (172, 9356),

Gene: EstebanJulior\_13 Start: 8981, Stop: 9747, Start Num: 15

Candidate Starts for EstebanJulior\_13:

(Start: 15 @8981 has 55 MA's), (66, 9236), (82, 9308), (84, 9317), (100, 9413), (126, 9539), (135, 9587), (142, 9623), (144, 9635), (160, 9722),

Gene: Eula\_14 Start: 9244, Stop: 9935, Start Num: 35

Candidate Starts for Eula\_14:

(Start: 35 @9244 has 79 MA's), (61, 9355), (72, 9418), (85, 9475), (87, 9484), (91, 9517), (119, 9676), (154, 9862),

Gene: Eunoia\_13 Start: 8974, Stop: 9731, Start Num: 15

Candidate Starts for Eunoia\_13:

(Start: 12 @8965 has 13 MA's), (Start: 15 @8974 has 55 MA's), (29, 9067), (58, 9181), (64, 9208), (66, 9223), (82, 9295), (104, 9433), (117, 9487), (136, 9574), (137, 9577), (144, 9619), (146, 9649),

Gene: Feastonyeet\_14 Start: 8662, Stop: 9410, Start Num: 33

Candidate Starts for Feastonyeet\_14:

(Start: 33 @8662 has 35 MA's), (54, 8734), (73, 8830), (79, 8857), (84, 8881), (87, 8893), (91, 8926), (107, 9025), (128, 9115), (150, 9256), (154, 9274), (174, 9403),

Gene: Finalfrontier\_15 Start: 9756, Stop: 10447, Start Num: 35

Candidate Starts for Finalfrontier\_15:

(Start: 35 @9756 has 79 MA's), (61, 9867), (72, 9930), (85, 9987), (87, 9996), (91, 10029), (119, 10188),

Gene: FlameThrower\_14 Start: 8962, Stop: 9671, Start Num: 35

Candidate Starts for FlameThrower\_14:

(Start: 35 @8962 has 79 MA's), (85, 9193), (87, 9202), (91, 9235), (104, 9328), (108, 9340), (140, 9484),

Gene: Franklin22\_13 Start: 8878, Stop: 9596, Start Num: 35

Candidate Starts for Franklin22\_13:

(Start: 35 @8878 has 79 MA's), (61, 8986), (66, 9025), (87, 9118), (91, 9151), (125, 9334),

Gene: Fribs8\_16 Start: 9689, Stop: 10434, Start Num: 35

Candidate Starts for Fribs8\_16:

(17, 9578), (18, 9581), (Start: 35 @9689 has 79 MA's), (54, 9761), (73, 9857), (79, 9884), (84, 9908), (87, 9920), (90, 9947), (110, 10058), (116, 10094), (120, 10112), (146, 10268), (154, 10298), (158, 10313), (173, 10424),

Gene: Gack\_13 Start: 8940, Stop: 9655, Start Num: 35

Candidate Starts for Gack\_13:

(Start: 35 @8940 has 79 MA's), (61, 9048), (66, 9087), (69, 9096), (87, 9180), (90, 9207), (91, 9213), (105, 9309), (125, 9396), (134, 9444), (135, 9447), (141, 9480),

Gene: Gaia\_11 Start: 8760, Stop: 9442, Start Num: 40

Candidate Starts for Gaia\_11:

(Start: 40 @8760 has 2 MA's), (52, 8805), (68, 8889), (70, 8898), (74, 8913), (78, 8934), (83, 8958), (92, 9018), (94, 9039), (96, 9045), (97, 9048), (98, 9051), (102, 9075), (113, 9123), (115, 9138), (119, 9156), (142, 9273), (145, 9306), (167, 9399), (168, 9423),

Gene: Galaxy\_15 Start: 9750, Stop: 10477, Start Num: 21

Candidate Starts for Galaxy\_15:

(Start: 21 @9750 has 18 MA's), (43, 9846), (51, 9879), (67, 9954), (88, 10041), (91, 10071),

Gene: Getalong\_16 Start: 8315, Stop: 8997, Start Num: 35

Candidate Starts for Getalong\_16:

(Start: 35 @8315 has 79 MA's), (75, 8480), (85, 8534), (86, 8540), (87, 8543), (90, 8570), (106, 8672), (112, 8690), (113, 8699), (129, 8774), (134, 8810), (146, 8900), (147, 8903), (149, 8909), (156, 8939), (157, 8942), (162, 8957), (165, 8975),

Gene: GiKK\_18 Start: 9200, Stop: 9930, Start Num: 37

Candidate Starts for GiKK\_18:

(28, 9167), (Start: 37 @9200 has 8 MA's), (43, 9230), (62, 9305), (79, 9392), (84, 9416), (87, 9428), (91, 9461), (95, 9497), (100, 9515), (107, 9557), (147, 9773), (163, 9839), (172, 9920),

Gene: Gibbous\_15 Start: 9121, Stop: 9866, Start Num: 34

Candidate Starts for Gibbous\_15:

(32, 9112), (Start: 34 @9121 has 8 MA's), (54, 9193), (79, 9316), (84, 9340), (87, 9352), (90, 9379), (92, 9397), (110, 9490), (120, 9544), (146, 9700), (154, 9730), (158, 9745), (171, 9835), (173, 9856),

Gene: Gisselle\_13 Start: 9012, Stop: 9778, Start Num: 15

Candidate Starts for Gisselle\_13:

(Start: 15 @9012 has 55 MA's), (32, 9123), (66, 9267), (82, 9339), (100, 9444), (113, 9510), (122, 9555), (127, 9573), (142, 9654), (144, 9666), (146, 9696),

Gene: Glenn\_17 Start: 11843, Stop: 12618, Start Num: 12

Candidate Starts for Glenn\_17:

(2, 11570), (Start: 12 @11843 has 13 MA's), (Start: 15 @11852 has 55 MA's), (Start: 37 @11972 has 8 MA's), (65, 12098), (66, 12107), (82, 12179), (100, 12284), (113, 12350), (140, 12476), (142, 12494), (144, 12506),

Gene: GreenHearts\_17 Start: 11941, Stop: 12701, Start Num: 14

Candidate Starts for GreenHearts\_17:

(2, 11665), (Start: 14 @11941 has 8 MA's), (64, 12178), (66, 12193), (82, 12265), (140, 12562), (153, 12649), (159, 12670), (161, 12679), (164, 12691),

Gene: Greenhouse\_17 Start: 11865, Stop: 12625, Start Num: 14

Candidate Starts for Greenhouse\_17:

(2, 11589), (Start: 14 @11865 has 8 MA's), (64, 12102), (66, 12117), (82, 12189), (140, 12486), (146, 12546), (153, 12573), (159, 12594), (161, 12603), (164, 12615),

Gene: HannahPhantana\_16 Start: 9647, Stop: 10365, Start Num: 19

Candidate Starts for HannahPhantana\_16:

(Start: 19 @9647 has 10 MA's), (43, 9743), (51, 9776), (91, 9968), (100, 10019), (115, 10100), (136, 10205),

Gene: HeadNerd\_12 Start: 8948, Stop: 9714, Start Num: 15

Candidate Starts for HeadNerd\_12:

(Start: 15 @8948 has 55 MA's), (66, 9203), (77, 9254), (82, 9275), (84, 9284), (100, 9380), (140, 9572), (142, 9590), (144, 9602),

Gene: Herb\_13 Start: 8899, Stop: 9737, Start Num: 8

Candidate Starts for Herb\_13:

(Start: 8 @8899 has 4 MA's), (Start: 12 @8965 has 13 MA's), (Start: 15 @8974 has 55 MA's), (29, 9073), (58, 9187), (66, 9229), (82, 9301), (100, 9406), (111, 9460), (127, 9532), (136, 9580), (142, 9613), (144, 9625), (159, 9706), (160, 9712),

Gene: Hexbug\_17 Start: 9883, Stop: 10613, Start Num: 37

Candidate Starts for Hexbug\_17:

(Start: 37 @9883 has 8 MA's), (49, 9937), (50, 9940), (87, 10111), (91, 10144), (100, 10198), (107, 10240), (146, 10453), (163, 10522), (172, 10603),

Gene: HippoPololi\_17 Start: 9778, Stop: 10523, Start Num: 34

Candidate Starts for HippoPololi\_17:

(32, 9769), (Start: 34 @9778 has 8 MA's), (54, 9850), (73, 9946), (79, 9973), (84, 9997), (87, 10009), (90, 10036), (120, 10201), (142, 10312), (146, 10357), (154, 10387), (158, 10402), (171, 10492), (173, 10513),

Gene: Holliday\_15 Start: 8319, Stop: 8998, Start Num: 35

Candidate Starts for Holliday\_15:

(25, 8271), (Start: 35 @8319 has 79 MA's), (75, 8484), (85, 8538), (86, 8544), (87, 8547), (90, 8574), (106, 8673), (113, 8700), (119, 8733), (129, 8775), (134, 8811), (147, 8904), (149, 8910), (157, 8943), (162, 8958),

Gene: Horseradish\_16 Start: 8771, Stop: 9525, Start Num: 33

Candidate Starts for Horseradish\_16:

(Start: 33 @8771 has 35 MA's), (79, 8966), (84, 8990), (87, 9002), (90, 9029), (115, 9173), (117, 9182), (120, 9197), (172, 9515),

Gene: Horus\_16 Start: 8335, Stop: 9014, Start Num: 35

Candidate Starts for Horus\_16:

(29, 8314), (Start: 35 @8335 has 79 MA's), (75, 8500), (85, 8554), (86, 8560), (87, 8563), (90, 8590), (106, 8689), (113, 8716), (129, 8791), (134, 8827), (142, 8872), (149, 8926), (156, 8956), (162, 8974), (165, 8992),

Gene: Huckleberry\_13 Start: 8948, Stop: 9714, Start Num: 15

Candidate Starts for Huckleberry\_13:

(Start: 15 @8948 has 55 MA's), (66, 9203), (77, 9254), (82, 9275), (84, 9284), (100, 9380), (140, 9572), (142, 9590), (144, 9602),

Gene: HunterDalle\_13 Start: 8974, Stop: 9731, Start Num: 15

Candidate Starts for HunterDalle\_13:

(Start: 12 @8965 has 13 MA's), (Start: 15 @8974 has 55 MA's), (29, 9067), (58, 9181), (64, 9208), (66, 9223), (82, 9295), (104, 9433), (117, 9487), (136, 9574), (144, 9619), (146, 9649), (159, 9700),

Gene: Huntingdon\_17 Start: 11851, Stop: 12611, Start Num: 14

Candidate Starts for Huntingdon\_17:

(Start: 14 @11851 has 8 MA's), (29, 11947), (64, 12088), (66, 12103), (68, 12109), (82, 12175), (91, 12229), (153, 12559), (159, 12580), (161, 12589), (164, 12601),

Gene: Icarian\_15 Start: 9446, Stop: 10137, Start Num: 35

Candidate Starts for Icarian\_15:

(Start: 35 @9446 has 79 MA's), (79, 9650), (85, 9677), (87, 9686), (91, 9719),

Gene: Immaculata\_17 Start: 11837, Stop: 12612, Start Num: 12

Candidate Starts for Immaculata\_17:

(2, 11564), (Start: 12 @11837 has 13 MA's), (Start: 15 @11846 has 55 MA's), (Start: 37 @11966 has 8 MA's), (65, 12092), (66, 12101), (82, 12173), (100, 12278), (113, 12344), (140, 12470), (142, 12488), (144, 12500),

Gene: IndyLu\_14 Start: 9288, Stop: 9979, Start Num: 35

Candidate Starts for IndyLu\_14:

(Start: 35 @9288 has 79 MA's), (Start: 37 @9291 has 8 MA's), (60, 9393), (79, 9492), (85, 9519), (91, 9561), (107, 9663),

Gene: Jamun\_15 Start: 10088, Stop: 10812, Start Num: 21

Candidate Starts for Jamun\_15:

(Start: 21 @10088 has 18 MA's), (43, 10184), (51, 10217), (67, 10292), (88, 10379), (91, 10409), (115, 10541),

Gene: Jamzy\_18 Start: 9210, Stop: 9940, Start Num: 37

Candidate Starts for Jamzy\_18:

(28, 9177), (Start: 37 @9210 has 8 MA's), (43, 9240), (62, 9315), (79, 9402), (84, 9426), (87, 9438), (91, 9471), (95, 9507), (100, 9525), (107, 9567), (147, 9783), (172, 9930),

Gene: Joann\_17 Start: 11845, Stop: 12605, Start Num: 15

Candidate Starts for Joann\_17:

(Start: 15 @11845 has 55 MA's), (64, 12082), (66, 12097), (82, 12169), (139, 12463), (140, 12466), (153, 12553), (159, 12574), (161, 12583), (164, 12595),

Gene: Johnathan\_14 Start: 9243, Stop: 9934, Start Num: 35

Candidate Starts for Johnathan\_14:

(Start: 35 @9243 has 79 MA's), (61, 9354), (72, 9417), (85, 9474), (87, 9483), (91, 9516), (128, 9708),

Gene: Jovita\_14 Start: 9345, Stop: 10036, Start Num: 35

Candidate Starts for Jovita\_14:

(Start: 35 @9345 has 79 MA's), (61, 9456), (72, 9519), (85, 9576), (87, 9585), (91, 9618), (119, 9777), (154, 9963),

Gene: Jumboset\_17 Start: 11786, Stop: 12561, Start Num: 12

Candidate Starts for Jumboset\_17:

(2, 11513), (Start: 12 @11786 has 13 MA's), (Start: 15 @11795 has 55 MA's), (65, 12041), (66, 12050), (82, 12122), (100, 12227), (113, 12293), (140, 12419), (142, 12437), (144, 12449),

Gene: Juno112\_14 Start: 9061, Stop: 9785, Start Num: 21

Candidate Starts for Juno112\_14:

(9, 8977), (Start: 21 @9061 has 18 MA's), (42, 9154), (47, 9172), (53, 9199), (78, 9313), (88, 9352), (91, 9382), (129, 9568), (161, 9754),

Gene: KHumphrey\_14 Start: 9058, Stop: 9782, Start Num: 21

Candidate Starts for KHumphrey\_14:

(13, 9016), (Start: 21 @9058 has 18 MA's), (42, 9151), (47, 9169), (53, 9196), (78, 9310), (88, 9349), (91, 9379), (129, 9565),

Gene: Kalizoi\_17 Start: 11785, Stop: 12560, Start Num: 12

Candidate Starts for Kalizoi\_17:

(2, 11512), (Start: 12 @11785 has 13 MA's), (Start: 15 @11794 has 55 MA's), (Start: 37 @11914 has 8 MA's), (65, 12040), (66, 12049), (82, 12121), (100, 12226), (113, 12292), (140, 12418), (142, 12436), (144, 12448),

Gene: Katzastrophic\_14 Start: 9137, Stop: 9846, Start Num: 35

Candidate Starts for Katzastrophic\_14:

(Start: 35 @9137 has 79 MA's), (85, 9368), (87, 9377), (91, 9410), (104, 9503), (108, 9515), (140, 9659),

Gene: KayGee\_15 Start: 8643, Stop: 9391, Start Num: 33

Candidate Starts for KayGee\_15:

(Start: 33 @8643 has 35 MA's), (54, 8715), (79, 8838), (84, 8862), (87, 8874), (95, 8943), (107, 9006), (128, 9096), (150, 9237), (154, 9255), (174, 9384),

Gene: Kenna\_15 Start: 8335, Stop: 9014, Start Num: 35

Candidate Starts for Kenna\_15:

(29, 8314), (Start: 35 @8335 has 79 MA's), (75, 8500), (85, 8554), (86, 8560), (87, 8563), (90, 8590), (106, 8689), (113, 8716), (129, 8791), (134, 8827), (142, 8872), (149, 8926), (156, 8956), (162, 8974), (165, 8992),

Gene: Kenzers\_14 Start: 9260, Stop: 9951, Start Num: 35

Candidate Starts for Kenzers\_14:

(Start: 35 @9260 has 79 MA's), (61, 9371), (72, 9434), (85, 9491), (87, 9500), (91, 9533), (128, 9725),

Gene: Kepler\_15 Start: 9482, Stop: 10200, Start Num: 19

Candidate Starts for Kepler\_15:

(Start: 19 @9482 has 10 MA's), (43, 9578), (51, 9611), (91, 9803), (100, 9854), (115, 9935), (136, 10040),

Gene: Kieran\_14 Start: 9442, Stop: 10118, Start Num: 35

Candidate Starts for Kieran\_14:

(Start: 35 @9442 has 79 MA's), (85, 9673), (87, 9682), (91, 9715),

Gene: KingBob\_13 Start: 8899, Stop: 9737, Start Num: 8

Candidate Starts for KingBob\_13:

(Start: 8 @8899 has 4 MA's), (Start: 12 @8965 has 13 MA's), (Start: 15 @8974 has 55 MA's), (29, 9073), (58, 9187), (66, 9229), (82, 9301), (100, 9406), (111, 9460), (127, 9532), (136, 9580), (142, 9613), (144, 9625), (159, 9706), (160, 9712),

Gene: Kittykat\_13 Start: 8984, Stop: 9750, Start Num: 15

Candidate Starts for Kittykat\_13:

(Start: 11 @8972 has 2 MA's), (Start: 15 @8984 has 55 MA's), (31, 9086), (32, 9095), (66, 9239), (77, 9290), (82, 9311), (100, 9416), (113, 9482), (122, 9527), (127, 9545), (140, 9608), (142, 9626), (143, 9629), (144, 9638), (146, 9668),

Gene: Korra\_16 Start: 11800, Stop: 12566, Start Num: 15

Candidate Starts for Korra\_16:

(1, 11305), (2, 11518), (Start: 12 @11791 has 13 MA's), (Start: 15 @11800 has 55 MA's), (Start: 37 @11920 has 8 MA's), (65, 12046), (66, 12055), (82, 12127), (100, 12232), (113, 12298), (140, 12424), (142, 12442), (144, 12454),

Gene: Kuleana\_15 Start: 9441, Stop: 10159, Start Num: 19

Candidate Starts for Kuleana\_15:

(Start: 19 @9441 has 10 MA's), (45, 9546), (51, 9570), (87, 9729), (91, 9762), (98, 9801), (101, 9819), (115, 9894), (152, 10101),

Gene: Lahqtemish\_14 Start: 9360, Stop: 10051, Start Num: 35

Candidate Starts for Lahqtemish\_14:

(Start: 35 @9360 has 79 MA's), (Start: 37 @9363 has 8 MA's), (60, 9465), (79, 9564), (85, 9591), (91, 9633), (107, 9735),

Gene: Lakshmi\_17 Start: 11870, Stop: 12630, Start Num: 14

Candidate Starts for Lakshmi\_17:

(2, 11594), (Start: 14 @11870 has 8 MA's), (64, 12107), (66, 12122), (82, 12194), (139, 12488), (140, 12491), (153, 12578), (159, 12599), (161, 12608), (164, 12620),

Gene: Lasagna\_13 Start: 8942, Stop: 9711, Start Num: 15

Candidate Starts for Lasagna\_13:



(Start: 11 @8930 has 2 MA's), (Start: 15 @8942 has 55 MA's), (43, 9095), (66, 9200), (82, 9272), (100, 9377), (137, 9557), (140, 9569), (142, 9587), (144, 9599),

Gene: Lauer\_14 Start: 8692, Stop: 9440, Start Num: 33

Candidate Starts for Lauer\_14:

(Start: 33 @8692 has 35 MA's), (54, 8764), (79, 8887), (84, 8911), (87, 8923), (91, 8956), (95, 8992), (107, 9055), (128, 9145), (150, 9286), (154, 9304), (174, 9433),

Gene: Lennox\_13 Start: 8942, Stop: 9711, Start Num: 15

Candidate Starts for Lennox\_13:

(Start: 11 @8930 has 2 MA's), (Start: 15 @8942 has 55 MA's), (43, 9095), (66, 9200), (82, 9272), (100, 9377), (137, 9557), (140, 9569), (142, 9587), (144, 9599),

Gene: Leona\_14 Start: 9111, Stop: 9835, Start Num: 21

Candidate Starts for Leona\_14:

(9, 9027), (Start: 21 @9111 has 18 MA's), (42, 9204), (47, 9222), (53, 9249), (78, 9363), (88, 9402), (91, 9432), (129, 9618),

Gene: Leroy\_16 Start: 8336, Stop: 9015, Start Num: 35

Candidate Starts for Leroy\_16:

(29, 8315), (Start: 35 @8336 has 79 MA's), (75, 8501), (85, 8555), (86, 8561), (87, 8564), (90, 8591), (106, 8690), (113, 8717), (129, 8792), (134, 8828), (142, 8873), (149, 8927), (156, 8957), (162, 8975), (165, 8993),

Gene: LilSpotty\_14 Start: 8433, Stop: 9124, Start Num: 38

Candidate Starts for LilSpotty\_14:

(Start: 38 @8433 has 1 MA's), (55, 8502), (57, 8508), (68, 8559), (78, 8604), (85, 8634), (89, 8652), (155, 9021),

Gene: LilStuart\_13 Start: 8942, Stop: 9711, Start Num: 15

Candidate Starts for LilStuart\_13:

(Start: 11 @8930 has 2 MA's), (Start: 15 @8942 has 55 MA's), (43, 9095), (66, 9200), (82, 9272), (100, 9377), (137, 9557), (140, 9569), (142, 9587), (144, 9599),

Gene: LimaBean\_14 Start: 9243, Stop: 9934, Start Num: 35

Candidate Starts for LimaBean\_14:

(Start: 35 @9243 has 79 MA's), (61, 9354), (72, 9417), (85, 9474), (87, 9483), (91, 9516), (128, 9708),

Gene: Litotes\_17 Start: 11825, Stop: 12591, Start Num: 15

Candidate Starts for Litotes\_17:

(Start: 11 @11813 has 2 MA's), (Start: 15 @11825 has 55 MA's), (29, 11924), (32, 11936), (66, 12080), (82, 12152), (100, 12257), (122, 12368), (140, 12449), (142, 12467),

Gene: LittleTokyo\_15 Start: 9395, Stop: 10119, Start Num: 21

Candidate Starts for LittleTokyo\_15:

(Start: 21 @9395 has 18 MA's), (23, 9407), (51, 9524), (56, 9545), (78, 9647), (81, 9656), (91, 9716), (100, 9767), (101, 9773), (105, 9803), (160, 10085), (166, 10112),

Gene: Lucy\_13 Start: 8934, Stop: 9703, Start Num: 15

Candidate Starts for Lucy\_13:

(Start: 11 @8922 has 2 MA's), (Start: 15 @8934 has 55 MA's), (Start: 37 @9057 has 8 MA's), (43, 9087), (66, 9192), (82, 9264), (100, 9369), (137, 9549), (140, 9561), (142, 9579), (144, 9591),

Gene: Lunar\_15 Start: 9644, Stop: 10362, Start Num: 19

Candidate Starts for Lunar\_15:

(Start: 19 @9644 has 10 MA's), (43, 9740), (51, 9773), (91, 9965), (100, 10016), (115, 10097), (136, 10202),

Gene: Lutum\_16 Start: 8335, Stop: 9014, Start Num: 35

Candidate Starts for Lutum\_16:

(29, 8314), (Start: 35 @8335 has 79 MA's), (75, 8500), (85, 8554), (86, 8560), (87, 8563), (90, 8590), (106, 8689), (113, 8716), (129, 8791), (134, 8827), (142, 8872), (149, 8926), (156, 8956), (162, 8974), (165, 8992),

Gene: Lynlen\_14 Start: 9260, Stop: 9951, Start Num: 35

Candidate Starts for Lynlen\_14:

(Start: 35 @9260 has 79 MA's), (61, 9371), (72, 9434), (85, 9491), (87, 9500), (91, 9533), (128, 9725),

Gene: MAnor\_15 Start: 8635, Stop: 9383, Start Num: 33

Candidate Starts for MAnor\_15:

(Start: 33 @8635 has 35 MA's), (54, 8707), (79, 8830), (84, 8854), (87, 8866), (95, 8935), (107, 8998), (124, 9076), (129, 9091), (142, 9172), (154, 9247), (158, 9262), (170, 9349), (174, 9376),

Gene: MScarn\_17 Start: 8857, Stop: 9611, Start Num: 33

Candidate Starts for MScarn\_17:

(Start: 26 @8815 has 1 MA's), (Start: 33 @8857 has 35 MA's), (79, 9052), (84, 9076), (87, 9088), (90, 9115), (115, 9259), (117, 9268), (172, 9601),

Gene: MaVan\_17 Start: 9884, Stop: 10629, Start Num: 34

Candidate Starts for MaVan\_17:

(32, 9875), (Start: 34 @9884 has 8 MA's), (42, 9914), (50, 9944), (79, 10079), (84, 10103), (87, 10115), (92, 10160), (110, 10253), (119, 10301), (120, 10307), (142, 10418), (146, 10463), (158, 10508), (171, 10598), (173, 10619),

Gene: Makoto\_13 Start: 8943, Stop: 9712, Start Num: 15

Candidate Starts for Makoto\_13:

(Start: 11 @8931 has 2 MA's), (Start: 15 @8943 has 55 MA's), (Start: 37 @9066 has 8 MA's), (43, 9096), (66, 9201), (82, 9273), (100, 9378), (137, 9558), (140, 9570), (142, 9588), (144, 9600),

Gene: MamaPearl\_13 Start: 8981, Stop: 9747, Start Num: 15

Candidate Starts for MamaPearl\_13:

(Start: 15 @8981 has 55 MA's), (66, 9236), (82, 9308), (84, 9317), (100, 9413), (126, 9539), (135, 9587), (142, 9623), (144, 9635), (160, 9722),

Gene: Margaret\_18 Start: 9558, Stop: 10321, Start Num: 27

Candidate Starts for Margaret\_18:

(3, 9264), (5, 9306), (6, 9381), (10, 9432), (Start: 27 @9558 has 1 MA's), (32, 9582), (Start: 36 @9591 has 1 MA's), (43, 9621), (50, 9648), (70, 9744), (79, 9783), (86, 9816), (87, 9819), (91, 9852), (100, 9906), (107, 9948), (147, 10164), (163, 10230), (172, 10311),

Gene: Maria1952\_13 Start: 8965, Stop: 9737, Start Num: 12

Candidate Starts for Maria1952\_13:

(Start: 8 @8899 has 4 MA's), (Start: 12 @8965 has 13 MA's), (Start: 15 @8974 has 55 MA's), (29, 9073), (58, 9187), (66, 9229), (82, 9301), (100, 9406), (111, 9460), (127, 9532), (136, 9580), (142, 9613), (144, 9625), (159, 9706), (160, 9712),

Gene: Mayweather\_16 Start: 9265, Stop: 10013, Start Num: 33

Candidate Starts for Mayweather\_16:

(Start: 33 @9265 has 35 MA's), (54, 9337), (79, 9460), (84, 9484), (87, 9496), (95, 9565), (107, 9628), (124, 9706), (129, 9721), (142, 9802), (154, 9877), (174, 10006),

Gene: MeganNoll\_16 Start: 11843, Stop: 12618, Start Num: 12

Candidate Starts for MeganNoll\_16:

(2, 11570), (Start: 12 @11843 has 13 MA's), (Start: 15 @11852 has 55 MA's), (Start: 37 @11972 has 8 MA's), (65, 12098), (66, 12107), (82, 12179), (100, 12284), (113, 12350), (140, 12476), (142, 12494), (144, 12506),

Gene: Melons\_16 Start: 9644, Stop: 10362, Start Num: 19

Candidate Starts for Melons\_16:

(Start: 19 @9644 has 10 MA's), (43, 9740), (51, 9773), (91, 9965), (100, 10016), (115, 10097), (136, 10202),

Gene: Misaeng\_17 Start: 11918, Stop: 12678, Start Num: 15

Candidate Starts for Misaeng\_17:

(Start: 15 @11918 has 55 MA's), (29, 12014), (64, 12155), (66, 12170), (82, 12242), (91, 12296), (153, 12626), (159, 12647), (161, 12656), (164, 12668),

Gene: Moki\_13 Start: 8948, Stop: 9714, Start Num: 15

Candidate Starts for Moki\_13:

(Start: 15 @8948 has 55 MA's), (66, 9203), (77, 9254), (82, 9275), (84, 9284), (100, 9380), (140, 9572), (142, 9590), (144, 9602),

Gene: MrGloopy\_17 Start: 11777, Stop: 12552, Start Num: 12

Candidate Starts for MrGloopy\_17:

(Start: 12 @11777 has 13 MA's), (Start: 15 @11786 has 55 MA's), (Start: 37 @11906 has 8 MA's), (65, 12032), (66, 12041), (82, 12113), (100, 12218), (113, 12284), (140, 12410), (142, 12428), (144, 12440),

Gene: MunkgeeRoachy\_15 Start: 8933, Stop: 9687, Start Num: 33

Candidate Starts for MunkgeeRoachy\_15:

(Start: 33 @8933 has 35 MA's), (54, 9017), (78, 9137), (79, 9140), (84, 9164), (87, 9176), (115, 9347), (134, 9437), (154, 9557), (158, 9572), (169, 9653), (172, 9677),

Gene: Nancia\_13 Start: 8942, Stop: 9711, Start Num: 15

Candidate Starts for Nancia\_13:

(Start: 11 @8930 has 2 MA's), (Start: 15 @8942 has 55 MA's), (43, 9095), (66, 9200), (82, 9272), (100, 9377), (137, 9557), (140, 9569), (142, 9587), (144, 9599),

Gene: Nebkiss\_12 Start: 8761, Stop: 9443, Start Num: 40

Candidate Starts for Nebkiss\_12:

(Start: 40 @8761 has 2 MA's), (52, 8806), (68, 8890), (70, 8899), (74, 8914), (78, 8935), (83, 8959), (92, 9019), (94, 9040), (96, 9046), (97, 9049), (98, 9052), (102, 9076), (113, 9124), (115, 9139), (119, 9157), (142, 9274), (145, 9307), (167, 9400), (168, 9424),

Gene: Nibbles\_17 Start: 9884, Stop: 10629, Start Num: 34

Candidate Starts for Nibbles\_17:

(32, 9875), (Start: 34 @9884 has 8 MA's), (42, 9914), (44, 9923), (50, 9944), (79, 10079), (84, 10103), (87, 10115), (92, 10160), (110, 10253), (119, 10301), (120, 10307), (142, 10418), (146, 10463), (158, 10508), (171, 10598), (173, 10619),

Gene: Nicky22\_15 Start: 9691, Stop: 10382, Start Num: 35

Candidate Starts for Nicky22\_15:

(Start: 35 @9691 has 79 MA's), (61, 9802), (72, 9865), (79, 9895), (85, 9922), (87, 9931), (91, 9964), (119, 10123), (130, 10174), (154, 10309),

Gene: Nina\_16 Start: 9918, Stop: 10672, Start Num: 33

Candidate Starts for Nina\_16:

(Start: 33 @9918 has 35 MA's), (54, 10002), (78, 10122), (79, 10125), (84, 10149), (87, 10161), (115, 10332), (118, 10347), (134, 10422), (154, 10542), (158, 10557), (169, 10638), (172, 10662),

Gene: Nodigi\_17 Start: 9874, Stop: 10604, Start Num: 37

Candidate Starts for Nodigi\_17:

(Start: 37 @9874 has 8 MA's), (43, 9904), (79, 10066), (87, 10102), (91, 10135), (100, 10189), (107, 10231), (146, 10444), (163, 10513), (172, 10594),

Gene: Nubia\_16 Start: 11830, Stop: 12590, Start Num: 14

Candidate Starts for Nubia\_16:

(2, 11554), (Start: 14 @11830 has 8 MA's), (64, 12067), (66, 12082), (82, 12154), (140, 12451), (153, 12538), (159, 12559), (161, 12568), (164, 12580),

Gene: OMalley\_13 Start: 8974, Stop: 9731, Start Num: 15

Candidate Starts for OMalley\_13:

(Start: 12 @8965 has 13 MA's), (Start: 15 @8974 has 55 MA's), (29, 9067), (58, 9181), (64, 9208), (66, 9223), (82, 9295), (104, 9433), (117, 9487), (136, 9574), (137, 9577), (144, 9619), (146, 9649),

Gene: Olliecat\_14 Start: 9271, Stop: 9962, Start Num: 35

Candidate Starts for Olliecat\_14:

(Start: 35 @9271 has 79 MA's), (75, 9463), (87, 9523), (91, 9556), (99, 9607), (159, 9919), (161, 9928),

Gene: Orcanus\_15 Start: 9449, Stop: 10170, Start Num: 20

Candidate Starts for Orcanus\_15:

(Start: 20 @9449 has 1 MA's), (23, 9461), (47, 9560), (86, 9734), (88, 9740), (91, 9770), (93, 9788), (105, 9857), (107, 9863), (129, 9956), (160, 10139),

Gene: Orla\_17 Start: 9878, Stop: 10608, Start Num: 37

Candidate Starts for Orla\_17:

(Start: 37 @9878 has 8 MA's), (43, 9908), (79, 10070), (87, 10106), (91, 10139), (100, 10193), (107, 10235), (146, 10448), (163, 10517), (172, 10598),

Gene: OurGirlNessie\_13 Start: 8934, Stop: 9703, Start Num: 15

Candidate Starts for OurGirlNessie\_13:

(Start: 11 @8922 has 2 MA's), (Start: 15 @8934 has 55 MA's), (Start: 37 @9057 has 8 MA's), (43, 9087), (66, 9192), (82, 9264), (100, 9369), (137, 9549), (140, 9561), (142, 9579), (144, 9591),

Gene: Oxynfrius\_17 Start: 11843, Stop: 12603, Start Num: 14

Candidate Starts for Oxynfrius\_17:

(2, 11567), (Start: 14 @11843 has 8 MA's), (64, 12080), (66, 12095), (82, 12167), (139, 12461), (140, 12464), (153, 12551), (159, 12572), (161, 12581), (164, 12593),

Gene: Periwinkle\_16 Start: 8315, Stop: 8994, Start Num: 35

Candidate Starts for Periwinkle\_16:

(Start: 35 @8315 has 79 MA's), (75, 8480), (85, 8534), (86, 8540), (87, 8543), (90, 8570), (106, 8669), (113, 8696), (129, 8771), (134, 8807), (142, 8852), (149, 8906), (156, 8936), (162, 8954), (165, 8972),

Gene: Phisb\_14 Start: 9208, Stop: 9899, Start Num: 35

Candidate Starts for Phisb\_14:

(Start: 35 @9208 has 79 MA's), (61, 9319), (72, 9382), (85, 9439), (87, 9448), (91, 9481), (104, 9574), (119, 9640),

Gene: Phistory\_16 Start: 8304, Stop: 8983, Start Num: 35

Candidate Starts for Phistory\_16:

(Start: 35 @8304 has 79 MA's), (75, 8469), (85, 8523), (86, 8529), (87, 8532), (90, 8559), (106, 8658), (113, 8685), (129, 8760), (134, 8796), (142, 8841), (147, 8889), (149, 8895), (156, 8925), (157, 8928), (162, 8943),

Gene: PhluffyCoco\_14 Start: 9060, Stop: 9784, Start Num: 21

Candidate Starts for PhluffyCoco\_14:

(9, 8976), (Start: 21 @9060 has 18 MA's), (42, 9153), (47, 9171), (53, 9198), (78, 9312), (88, 9351), (91, 9381), (129, 9567), (133, 9606),

Gene: PinkFriday\_13 Start: 8971, Stop: 9743, Start Num: 15

Candidate Starts for PinkFriday\_13:

(Start: 12 @8962 has 13 MA's), (Start: 15 @8971 has 55 MA's), (24, 9049), (58, 9193), (66, 9235), (82, 9307), (100, 9412), (111, 9466), (127, 9538), (136, 9586), (142, 9619), (144, 9631), (159, 9712), (160, 9718),

Gene: PitaDog\_13 Start: 8933, Stop: 9702, Start Num: 15

Candidate Starts for PitaDog\_13:

(Start: 11 @8921 has 2 MA's), (Start: 15 @8933 has 55 MA's), (Start: 37 @9056 has 8 MA's), (43, 9086), (66, 9191), (82, 9263), (100, 9368), (137, 9548), (140, 9560), (142, 9578), (144, 9590),

Gene: Polka\_15 Start: 9483, Stop: 10201, Start Num: 19

Candidate Starts for Polka\_15:

(Start: 19 @9483 has 10 MA's), (43, 9579), (51, 9612), (91, 9804), (100, 9855), (115, 9936), (136, 10041),

Gene: Pons\_15 Start: 8643, Stop: 9391, Start Num: 33

Candidate Starts for Pons\_15:

(Start: 33 @8643 has 35 MA's), (54, 8715), (79, 8838), (84, 8862), (87, 8874), (95, 8943), (107, 9006), (124, 9084), (129, 9099), (142, 9180), (154, 9255), (174, 9384),

Gene: PotPie\_15 Start: 9496, Stop: 10244, Start Num: 33

Candidate Starts for PotPie\_15:

(Start: 33 @9496 has 35 MA's), (54, 9568), (79, 9691), (84, 9715), (87, 9727), (91, 9760), (107, 9859), (128, 9949), (150, 10090), (154, 10108), (174, 10237),

Gene: Potatoes\_17 Start: 11847, Stop: 12613, Start Num: 15

Candidate Starts for Potatoes\_17:

(Start: 12 @11838 has 13 MA's), (Start: 15 @11847 has 55 MA's), (65, 12093), (66, 12102), (82, 12174), (100, 12279), (113, 12345), (140, 12471), (142, 12489), (144, 12501),

Gene: Preamble\_13 Start: 8946, Stop: 9715, Start Num: 15

Candidate Starts for Preamble\_13:

(Start: 15 @8946 has 55 MA's), (32, 9060), (39, 9078), (66, 9204), (82, 9276), (100, 9381), (113, 9447), (122, 9492), (127, 9510), (140, 9573), (142, 9591), (144, 9603), (146, 9633),

Gene: Pterodactyl\_13 Start: 8935, Stop: 9704, Start Num: 15

Candidate Starts for Pterodactyl\_13:

(Start: 12 @8923 has 13 MA's), (Start: 15 @8935 has 55 MA's), (Start: 37 @9058 has 8 MA's), (43, 9088), (66, 9193), (82, 9265), (100, 9370), (137, 9550), (140, 9562), (142, 9580), (144, 9592),

Gene: Pumancara\_13 Start: 8970, Stop: 9742, Start Num: 15

Candidate Starts for Pumancara\_13:

(Start: 12 @8961 has 13 MA's), (Start: 15 @8970 has 55 MA's), (24, 9048), (58, 9192), (66, 9234), (82, 9306), (100, 9411), (111, 9465), (127, 9537), (136, 9585), (142, 9618), (144, 9630), (159, 9711), (160, 9717),

Gene: QMacho\_15 Start: 9727, Stop: 10418, Start Num: 35

Candidate Starts for QMacho\_15:

(Start: 35 @9727 has 79 MA's), (61, 9838), (72, 9901), (85, 9958), (87, 9967), (91, 10000), (119, 10159), (154, 10345),

Gene: Quasar\_14 Start: 9494, Stop: 10248, Start Num: 33

Candidate Starts for Quasar\_14:

(Start: 33 @9494 has 35 MA's), (54, 9578), (79, 9701), (84, 9725), (87, 9737), (115, 9908), (134, 9998), (136, 10004), (154, 10118), (158, 10133), (169, 10214), (172, 10238),

Gene: Quenya\_15 Start: 9138, Stop: 9844, Start Num: 35

Candidate Starts for Quenya\_15:

(Start: 35 @9138 has 79 MA's), (85, 9369), (87, 9378), (91, 9411), (141, 9675),

Gene: RAP15\_17 Start: 11852, Stop: 12618, Start Num: 15

Candidate Starts for RAP15\_17:

(2, 11570), (Start: 12 @11843 has 13 MA's), (Start: 15 @11852 has 55 MA's), (Start: 37 @11972 has 8 MA's), (65, 12098), (66, 12107), (82, 12179), (100, 12284), (113, 12350), (140, 12476), (142, 12494), (144, 12506),

Gene: RanchParmCat\_18 Start: 9591, Stop: 10321, Start Num: 36

Candidate Starts for RanchParmCat\_18:

(32, 9582), (Start: 36 @9591 has 1 MA's), (43, 9621), (50, 9648), (70, 9744), (79, 9783), (86, 9816), (87, 9819), (91, 9852), (100, 9906), (107, 9948), (147, 10164), (163, 10230), (172, 10311),

Gene: RcigaStruga\_17 Start: 11851, Stop: 12611, Start Num: 14

Candidate Starts for RcigaStruga\_17:

(Start: 14 @11851 has 8 MA's), (29, 11947), (64, 12088), (66, 12103), (68, 12109), (82, 12175), (91, 12229), (153, 12559), (159, 12580), (161, 12589), (164, 12601),

Gene: RedFox\_14 Start: 9060, Stop: 9784, Start Num: 21

Candidate Starts for RedFox\_14:

(9, 8976), (Start: 21 @9060 has 18 MA's), (42, 9153), (47, 9171), (53, 9198), (78, 9312), (88, 9351), (91, 9381), (123, 9549), (129, 9567),

Gene: Renna12\_15 Start: 9269, Stop: 9993, Start Num: 21

Candidate Starts for Renna12\_15:

(Start: 21 @9269 has 18 MA's), (42, 9362), (47, 9380), (53, 9407), (78, 9521), (88, 9560), (91, 9590),

Gene: Riovina\_13 Start: 8974, Stop: 9731, Start Num: 15

Candidate Starts for Riovina\_13:

(Start: 12 @8965 has 13 MA's), (Start: 15 @8974 has 55 MA's), (29, 9067), (58, 9181), (64, 9208), (66, 9223), (82, 9295), (104, 9433), (117, 9487), (136, 9574), (137, 9577), (144, 9619), (146, 9649),

Gene: Riverdale\_17 Start: 11782, Stop: 12548, Start Num: 15

Candidate Starts for Riverdale\_17:

(4, 11599), (Start: 12 @11773 has 13 MA's), (Start: 15 @11782 has 55 MA's), (65, 12028), (66, 12037), (82, 12109), (100, 12214), (113, 12280), (140, 12406), (142, 12424), (144, 12436),

Gene: Rollins\_12 Start: 8845, Stop: 9554, Start Num: 35

Candidate Starts for Rollins\_12:

(Start: 35 @8845 has 79 MA's), (61, 8953), (87, 9085), (91, 9118), (141, 9385),

Gene: Rona\_14 Start: 9439, Stop: 10115, Start Num: 35

Candidate Starts for Rona\_14:

(Start: 35 @9439 has 79 MA's), (85, 9670), (87, 9679), (91, 9712),

Gene: Rozby\_17 Start: 11774, Stop: 12549, Start Num: 12

Candidate Starts for Rozby\_17:

(2, 11501), (Start: 12 @11774 has 13 MA's), (Start: 15 @11783 has 55 MA's), (Start: 37 @11903 has 8 MA's), (65, 12029), (66, 12038), (82, 12110), (100, 12215), (113, 12281), (140, 12407), (142, 12425), (144, 12437),

Gene: Ruchi\_15 Start: 10010, Stop: 10740, Start Num: 21

Candidate Starts for Ruchi\_15:

(Start: 21 @10010 has 18 MA's), (43, 10106), (51, 10139), (67, 10214), (88, 10301), (91, 10331), (98, 10376), (103, 10409), (114, 10466),

Gene: SanaSana\_15 Start: 9463, Stop: 10154, Start Num: 35

Candidate Starts for SanaSana\_15:

(Start: 35 @9463 has 79 MA's), (66, 9613), (79, 9667), (87, 9703), (141, 10003),

Gene: SansAfet\_14 Start: 9254, Stop: 9945, Start Num: 35

Candidate Starts for SansAfet\_14:

(Start: 35 @9254 has 79 MA's), (61, 9365), (72, 9428), (85, 9485), (87, 9494), (91, 9527), (128, 9719),

Gene: SarBear\_14 Start: 9220, Stop: 9911, Start Num: 35

Candidate Starts for SarBear\_14:

(Start: 35 @9220 has 79 MA's), (61, 9331), (72, 9394), (85, 9451), (87, 9460), (91, 9493), (119, 9652), (130, 9703), (138, 9739),

Gene: Savage2526\_17 Start: 11837, Stop: 12612, Start Num: 12

Candidate Starts for Savage2526\_17:

(2, 11564), (Start: 12 @11837 has 13 MA's), (Start: 15 @11846 has 55 MA's), (Start: 37 @11966 has 8 MA's), (65, 12092), (66, 12101), (82, 12173), (100, 12278), (113, 12344), (140, 12470), (142, 12488), (144, 12500),

Gene: Scuttle\_17 Start: 11851, Stop: 12617, Start Num: 15

Candidate Starts for Scuttle\_17:

(4, 11668), (Start: 12 @11842 has 13 MA's), (Start: 15 @11851 has 55 MA's), (65, 12097), (66, 12106), (82, 12178), (100, 12283), (113, 12349), (140, 12475), (142, 12493), (144, 12505),

Gene: Sergei\_13 Start: 8899, Stop: 9737, Start Num: 8

Candidate Starts for Sergei\_13:

(Start: 8 @8899 has 4 MA's), (Start: 12 @8965 has 13 MA's), (Start: 15 @8974 has 55 MA's), (29, 9073), (58, 9187), (66, 9229), (82, 9301), (100, 9406), (111, 9460), (127, 9532), (136, 9580), (142, 9613), (144, 9625), (159, 9706), (160, 9712),

Gene: Sharkboy\_14 Start: 9438, Stop: 10114, Start Num: 35

Candidate Starts for Sharkboy\_14:

(Start: 35 @9438 has 79 MA's), (85, 9669), (87, 9678), (91, 9711), (128, 9903),

Gene: Shayna\_13 Start: 8829, Stop: 9529, Start Num: 35

Candidate Starts for Shayna\_13:

(Start: 35 @8829 has 79 MA's), (63, 8958), (87, 9081), (99, 9165), (125, 9297),

Gene: SheckWes\_14 Start: 8631, Stop: 9379, Start Num: 33

Candidate Starts for SheckWes\_14:

(Start: 33 @8631 has 35 MA's), (54, 8703), (79, 8826), (84, 8850), (87, 8862), (95, 8931), (107, 8994), (128, 9084), (142, 9168), (154, 9243), (174, 9372),

Gene: SketchMex\_14 Start: 8872, Stop: 9626, Start Num: 33

Candidate Starts for SketchMex\_14:

(Start: 26 @8830 has 1 MA's), (Start: 33 @8872 has 35 MA's), (79, 9067), (84, 9091), (87, 9103), (90, 9130), (115, 9274), (117, 9283), (172, 9616),

Gene: Skylord\_13 Start: 8785, Stop: 9494, Start Num: 35

Candidate Starts for Skylord\_13:

(Start: 35 @8785 has 79 MA's), (61, 8893), (87, 9025), (91, 9058), (141, 9325),

Gene: Slay\_14 Start: 9696, Stop: 10387, Start Num: 35

Candidate Starts for Slay\_14:

(Start: 35 @9696 has 79 MA's), (61, 9807), (72, 9870), (85, 9927), (87, 9936), (91, 9969), (119, 10128), (130, 10179),

Gene: Squiddly\_18 Start: 9737, Stop: 10419, Start Num: 35

Candidate Starts for Squiddly\_18:

(Start: 35 @9737 has 79 MA's), (75, 9902), (85, 9956), (86, 9962), (87, 9965), (90, 9992), (106, 10094), (113, 10121), (129, 10196), (131, 10214), (136, 10238), (147, 10325), (149, 10331), (157, 10364), (162, 10379),

Gene: Squircle\_14 Start: 9270, Stop: 9961, Start Num: 35

Candidate Starts for Squircle\_14:

(Start: 35 @9270 has 79 MA's), (75, 9462), (87, 9522), (91, 9555), (99, 9606), (159, 9918), (161, 9927),

Gene: SteamedHams\_17 Start: 8902, Stop: 9656, Start Num: 33

Candidate Starts for SteamedHams\_17:

(Start: 33 @8902 has 35 MA's), (54, 8974), (56, 8980), (79, 9097), (84, 9121), (87, 9133), (90, 9160), (115, 9304), (117, 9313), (129, 9358), (147, 9499), (158, 9541), (172, 9646),

Gene: Stoor\_14 Start: 9460, Stop: 10151, Start Num: 35

Candidate Starts for Stoor\_14:

(Start: 35 @9460 has 79 MA's), (66, 9610), (79, 9664), (87, 9700), (141, 10000),

Gene: Stromboli\_14 Start: 9463, Stop: 10154, Start Num: 35



Candidate Starts for Stromboli\_14:

(Start: 35 @9463 has 79 MA's), (66, 9613), (79, 9667), (87, 9703), (133, 9961), (141, 10003),

Gene: SummitAcademy\_14 Start: 8711, Stop: 9459, Start Num: 33

Candidate Starts for SummitAcademy\_14:

(Start: 33 @8711 has 35 MA's), (54, 8783), (79, 8906), (84, 8930), (87, 8942), (91, 8975), (107, 9074), (150, 9305), (154, 9323), (174, 9452),

Gene: SunnyD\_13 Start: 8829, Stop: 9529, Start Num: 35

Candidate Starts for SunnyD\_13:

(Start: 35 @8829 has 79 MA's), (63, 8958), (87, 9081), (99, 9165), (125, 9297),

Gene: Supakev\_13 Start: 8976, Stop: 9733, Start Num: 15

Candidate Starts for Supakev\_13:

(Start: 12 @8967 has 13 MA's), (Start: 15 @8976 has 55 MA's), (29, 9069), (58, 9183), (64, 9210), (66, 9225), (82, 9297), (104, 9435), (117, 9489), (136, 9576), (144, 9621), (146, 9651),

Gene: Suppi\_17 Start: 11875, Stop: 12641, Start Num: 15

Candidate Starts for Suppi\_17:

(Start: 11 @11863 has 2 MA's), (Start: 15 @11875 has 55 MA's), (29, 11974), (32, 11986), (66, 12130), (82, 12202), (100, 12307), (122, 12418), (140, 12499), (142, 12517),

Gene: Survivors\_17 Start: 9739, Stop: 10484, Start Num: 34

Candidate Starts for Survivors\_17:

(32, 9730), (Start: 34 @9739 has 8 MA's), (50, 9799), (71, 9898), (79, 9934), (84, 9958), (87, 9970), (92, 10015), (110, 10108), (119, 10156), (120, 10162), (142, 10273), (146, 10318), (158, 10363), (171, 10453), (173, 10474),

Gene: SweatNTears\_17 Start: 9383, Stop: 10137, Start Num: 33

Candidate Starts for SweatNTears\_17:

(Start: 26 @9341 has 1 MA's), (Start: 33 @9383 has 35 MA's), (79, 9578), (84, 9602), (87, 9614), (90, 9641), (115, 9785), (117, 9794), (120, 9809), (172, 10127),

Gene: Swervy\_14 Start: 9220, Stop: 9911, Start Num: 35

Candidate Starts for Swervy\_14:

(Start: 35 @9220 has 79 MA's), (61, 9331), (72, 9394), (85, 9451), (87, 9460), (91, 9493), (119, 9652), (130, 9703),

Gene: TattModd\_17 Start: 11836, Stop: 12611, Start Num: 12

Candidate Starts for TattModd\_17:

(4, 11662), (Start: 12 @11836 has 13 MA's), (Start: 15 @11845 has 55 MA's), (65, 12091), (66, 12100), (82, 12172), (100, 12277), (113, 12343), (140, 12469), (142, 12487), (144, 12499),

Gene: TaylorSipht\_15 Start: 9540, Stop: 10261, Start Num: 21

Candidate Starts for TaylorSipht\_15:

(16, 9516), (17, 9522), (Start: 21 @9540 has 18 MA's), (23, 9552), (48, 9660), (78, 9795), (91, 9864),

Gene: Teagster\_13 Start: 8829, Stop: 9529, Start Num: 35

Candidate Starts for Teagster\_13:

(Start: 35 @8829 has 79 MA's), (63, 8958), (87, 9081), (99, 9165), (125, 9297),

Gene: Temper16\_13 Start: 8899, Stop: 9737, Start Num: 8

Candidate Starts for Temper16\_13:

(Start: 8 @8899 has 4 MA's), (Start: 12 @8965 has 13 MA's), (Start: 15 @8974 has 55 MA's), (29, 9073), (58, 9187), (66, 9229), (82, 9301), (100, 9406), (111, 9460), (127, 9532), (136, 9580), (142, 9613), (144, 9625), (159, 9706), (160, 9712),

Gene: Tolls\_17 Start: 8905, Stop: 9659, Start Num: 33

Candidate Starts for Tolls\_17:

(Start: 33 @8905 has 35 MA's), (54, 8977), (56, 8983), (79, 9100), (84, 9124), (87, 9136), (90, 9163), (115, 9307), (117, 9316), (129, 9361), (147, 9502), (158, 9544), (172, 9649),

Gene: Troje\_15 Start: 8815, Stop: 9611, Start Num: 26

Candidate Starts for Troje\_15:

(Start: 26 @8815 has 1 MA's), (Start: 33 @8857 has 35 MA's), (79, 9052), (84, 9076), (87, 9088), (90, 9115), (115, 9259), (117, 9268), (172, 9601),

Gene: TukTuk\_14 Start: 9280, Stop: 9971, Start Num: 35

Candidate Starts for TukTuk\_14:

(Start: 35 @9280 has 79 MA's), (61, 9391), (72, 9454), (85, 9511), (87, 9520), (91, 9553), (105, 9649), (119, 9712),

Gene: Urla\_12 Start: 8980, Stop: 9749, Start Num: 15

Candidate Starts for Urla\_12:

(Start: 12 @8971 has 13 MA's), (Start: 15 @8980 has 55 MA's), (22, 9022), (64, 9223), (66, 9238), (82, 9310), (84, 9319), (100, 9415), (135, 9589), (142, 9625), (144, 9637),

Gene: Vallejo\_17 Start: 11784, Stop: 12550, Start Num: 15

Candidate Starts for Vallejo\_17:

(2, 11502), (Start: 12 @11775 has 13 MA's), (Start: 15 @11784 has 55 MA's), (Start: 37 @11904 has 8 MA's), (65, 12030), (66, 12039), (82, 12111), (100, 12216), (113, 12282), (140, 12408), (142, 12426), (144, 12438),

Gene: Vine\_16 Start: 9640, Stop: 10388, Start Num: 33

Candidate Starts for Vine\_16:

(Start: 33 @9640 has 35 MA's), (54, 9712), (79, 9835), (84, 9859), (87, 9871), (95, 9940), (107, 10003), (128, 10093), (150, 10234), (154, 10252), (174, 10381),

Gene: Vitas\_13 Start: 8785, Stop: 9494, Start Num: 35

Candidate Starts for Vitas\_13:

(Start: 35 @8785 has 79 MA's), (61, 8893), (87, 9025), (91, 9058), (141, 9325),

Gene: Vulpecula\_15 Start: 10086, Stop: 10810, Start Num: 21

Candidate Starts for Vulpecula\_15:

(Start: 21 @10086 has 18 MA's), (43, 10182), (51, 10215), (67, 10290), (88, 10377), (115, 10539),

Gene: Vulture\_13 Start: 8974, Stop: 9731, Start Num: 15

Candidate Starts for Vulture\_13:

(Start: 12 @8965 has 13 MA's), (Start: 15 @8974 has 55 MA's), (29, 9067), (58, 9181), (64, 9208), (66, 9223), (82, 9295), (104, 9433), (117, 9487), (136, 9574), (144, 9619), (146, 9649), (159, 9700),

Gene: Wawa\_17 Start: 11821, Stop: 12587, Start Num: 15

Candidate Starts for Wawa\_17:

(1, 11326), (2, 11539), (Start: 12 @11812 has 13 MA's), (Start: 15 @11821 has 55 MA's), (Start: 37 @11941 has 8 MA's), (65, 12067), (66, 12076), (82, 12148), (100, 12253), (113, 12319), (140, 12445), (142, 12463), (144, 12475),

Gene: Wayne\_16 Start: 11921, Stop: 12687, Start Num: 15

Candidate Starts for Wayne\_16:

(Start: 11 @11909 has 2 MA's), (Start: 15 @11921 has 55 MA's), (29, 12020), (32, 12032), (66, 12176), (82, 12248), (100, 12353), (122, 12464), (140, 12545), (142, 12563),

Gene: WonderBoy\_13 Start: 8935, Stop: 9704, Start Num: 15

Candidate Starts for WonderBoy\_13:

(Start: 15 @8935 has 55 MA's), (43, 9088), (66, 9193), (82, 9265), (100, 9370), (137, 9550), (140, 9562), (142, 9580), (144, 9592),

Gene: Yakult\_16 Start: 8776, Stop: 9506, Start Num: 37

Candidate Starts for Yakult\_16:

(Start: 37 @8776 has 8 MA's), (42, 8803), (50, 8833), (54, 8845), (87, 9004), (91, 9037), (101, 9097), (108, 9136), (142, 9301), (146, 9346), (151, 9367), (154, 9376), (172, 9496),

Gene: Yarn\_14 Start: 8895, Stop: 9649, Start Num: 33

Candidate Starts for Yarn\_14:

(Start: 33 @8895 has 35 MA's), (54, 8967), (56, 8973), (79, 9090), (84, 9114), (87, 9126), (90, 9153), (115, 9297), (117, 9306), (129, 9351), (147, 9492), (158, 9534), (172, 9639),

Gene: Yummy\_16 Start: 8771, Stop: 9525, Start Num: 33

Candidate Starts for Yummy\_16:

(Start: 33 @8771 has 35 MA's), (79, 8966), (84, 8990), (87, 9002), (90, 9029), (115, 9173), (117, 9182), (120, 9197), (172, 9515),

Gene: Zorro\_17 Start: 11791, Stop: 12566, Start Num: 12

Candidate Starts for Zorro\_17:

(1, 11305), (2, 11518), (Start: 12 @11791 has 13 MA's), (Start: 15 @11800 has 55 MA's), (Start: 37 @11920 has 8 MA's), (65, 12046), (66, 12055), (82, 12127), (100, 12232), (113, 12298), (140, 12424), (142, 12442), (144, 12454),