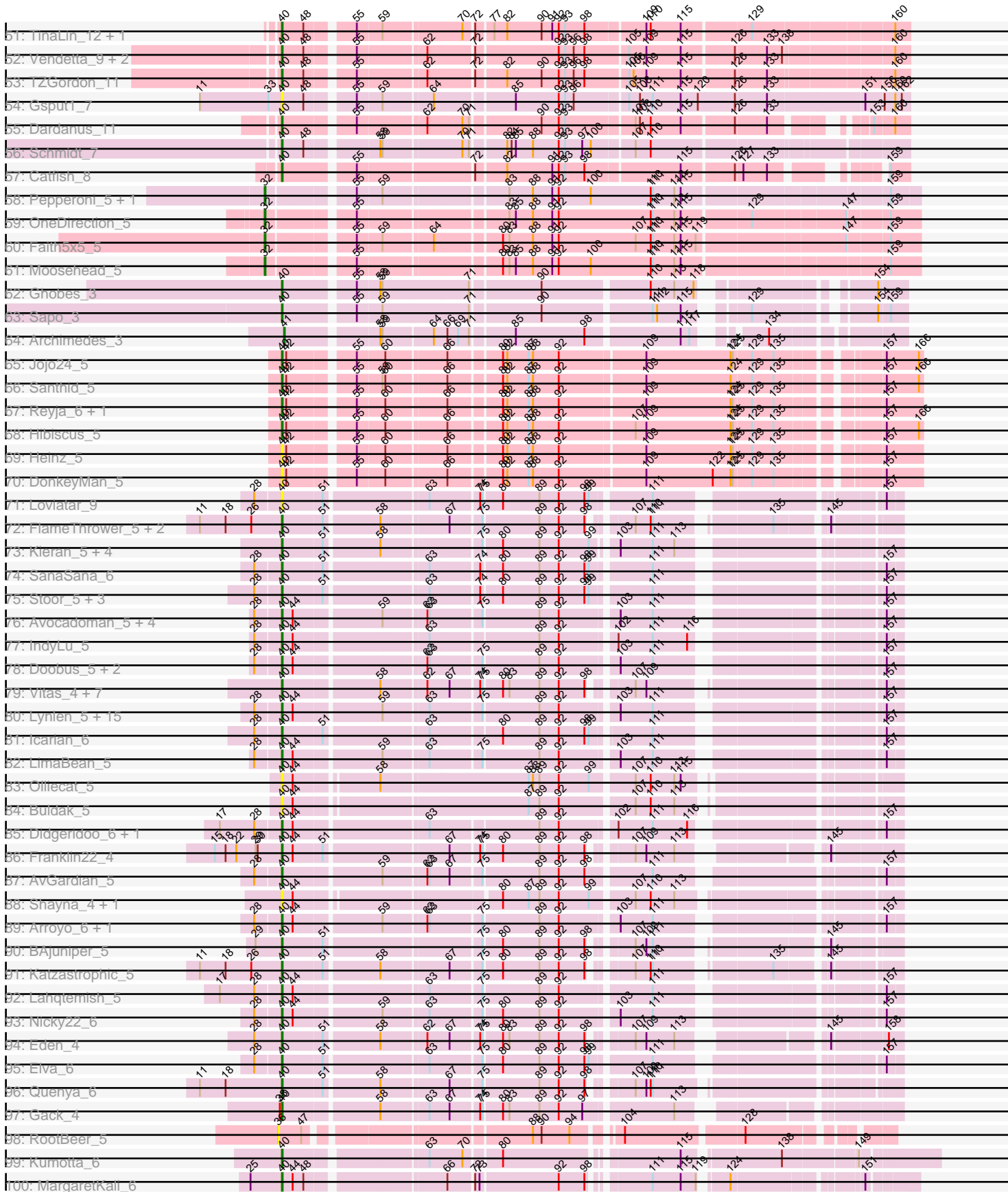
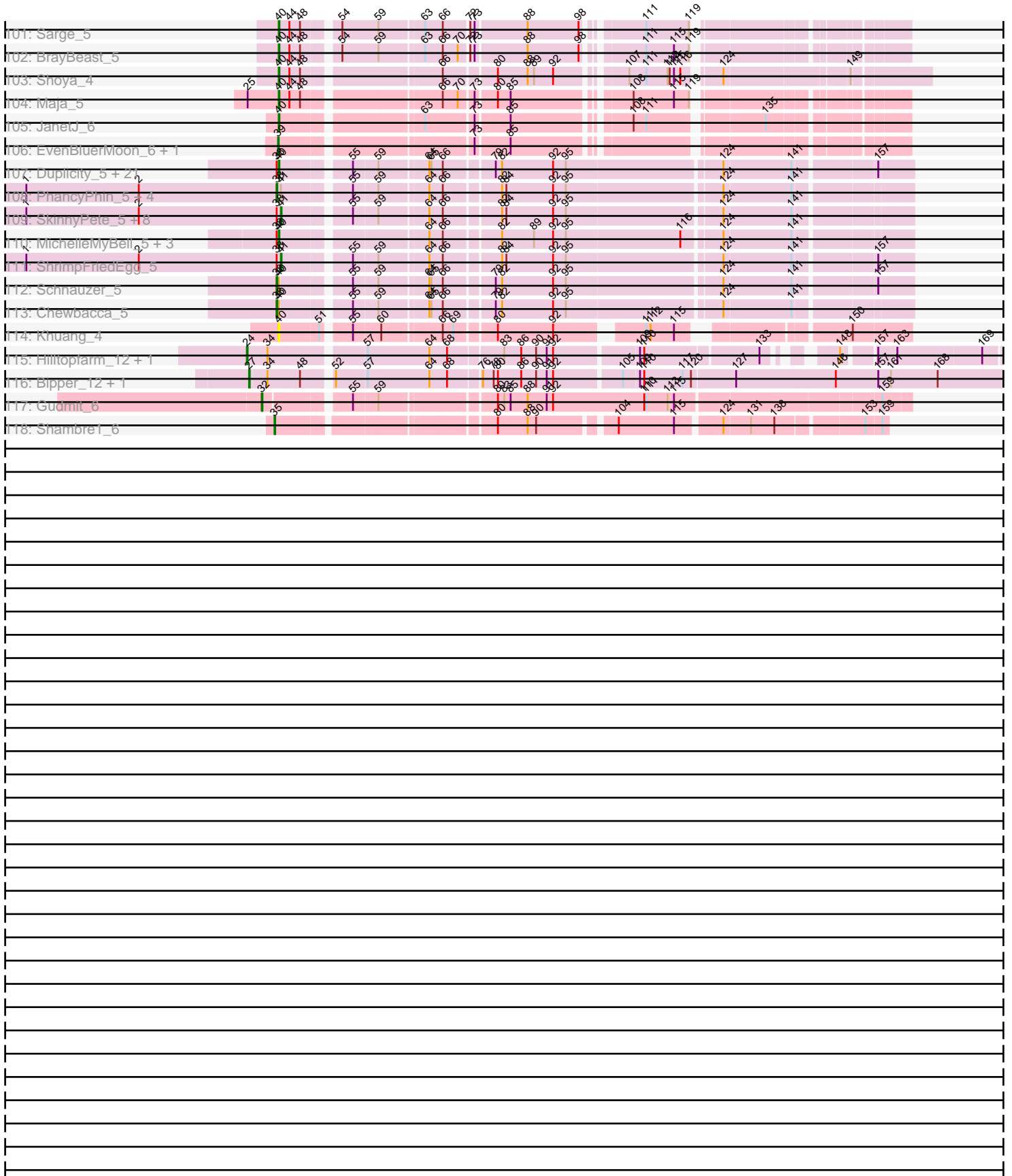


# Pham 171162



Pham 171162



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 171162 Report

This analysis was run 07/10/24 on database version 566.

Pham number 171162 has 271 members, 25 are drafts.

Phages represented in each track:

- Track 1 : Lakshmi\_7, Misaeng\_7, Albanese\_7, Huntingdon\_7, Greenhouse\_7, RcigaStruga\_7
- Track 2 : Chridison\_4
- Track 3 : Fluke\_7
- Track 4 : Scuttle\_7, Vallejo\_7, MrGloopy\_7, BrotherBLo\_7, Dino\_7, Kalizoi\_7, Glenn\_7, Zorro\_7, Korra\_7, MeganNoll\_7, Beethoven\_7, TattModd\_7, Jumboset\_7, Immaculata\_7, Wawa\_7, RAP15\_7, Riverdale\_7, Savage2526\_7, Rozby\_7
- Track 5 : Suppi\_7, CallieOMalley\_7, Canowicakte\_7, AppleCider\_7, Wayne\_7
- Track 6 : Kittykat\_4
- Track 7 : Oxynfrius\_7, Nubia\_7
- Track 8 : Maria1952\_4, KingBob\_4, Temper16\_4, Sergei\_4, Herb\_4, Daiboju\_4
- Track 9 : Carpal\_7, Cholula\_7, Potatoes\_7
- Track 10 : HunterDalle\_4, Riovina\_4, Vulture\_4, Eunoia\_4, OMalley\_4, Aledel\_4
- Track 11 : Lennox\_4
- Track 12 : Urla\_4
- Track 13 : Christian\_4
- Track 14 : Nancia\_4, Makoto\_4, Bodacious\_4, WonderBoy\_4, Pterodactyl\_4, CristinaYang\_4, LilStuart\_4, Lasagna\_4, ChewChew\_4
- Track 15 : PartyCup\_7
- Track 16 : Joann\_7, GreenHearts\_7
- Track 17 : Gisselle\_4, DreamTeam\_4
- Track 18 : HeadNerd\_4, Moki\_4, Bennie\_4, Huckleberry\_4
- Track 19 : Litotes\_7
- Track 20 : Lucy\_4
- Track 21 : Pumancara\_4, Supakev\_4
- Track 22 : BigMack\_4
- Track 23 : PinkFriday\_4
- Track 24 : AustinPowers\_4
- Track 25 : MamaPearl\_4, EstebanJulior\_4
- Track 26 : PitaDog\_4, OurGirlNessie\_4, DrRobert\_4
- Track 27 : Preamble\_4
- Track 28 : Abidatro\_6
- Track 29 : Jamun\_6
- Track 30 : Chickaboom\_5
- Track 31 : Vulpecula\_6
- Track 32 : Galaxy\_6, Basilisk\_6
- Track 33 : Ruchi\_6, Brynnie\_6

- Track 34 : Orcanus\_6
- Track 35 : TaylorSipht\_6
- Track 36 : Eesa\_6
- Track 37 : Amelia\_7, Cote\_7, Lunar\_7, Polka\_6, Melons\_7, Coral\_6, Kepler\_6
- Track 38 : Kuleana\_6
- Track 39 : LittleTokyo\_6
- Track 40 : Daob\_7
- Track 41 : HannahPhantana\_7
- Track 42 : PhluffyCoco\_5, KHumphrey\_5, RedFox\_5
- Track 43 : Juno112\_5
- Track 44 : Andrew\_6
- Track 45 : Renna12\_6
- Track 46 : Leona\_5
- Track 47 : B3\_5
- Track 48 : E1\_5, Anatole\_5
- Track 49 : Upyo\_4
- Track 50 : Huffy\_11, DinoDaryn\_11
- Track 51 : TinaLin\_12, Banquo\_13
- Track 52 : Vendetta\_9, Goib\_10, Splinter\_9
- Track 53 : TZGordon\_11
- Track 54 : Gspu1\_7
- Track 55 : Dardanus\_11
- Track 56 : Schmidt\_7
- Track 57 : Catfish\_8
- Track 58 : Pepperoni\_5, Lton\_5
- Track 59 : OneDirection\_5
- Track 60 : Faith5x5\_5
- Track 61 : Moosehead\_5
- Track 62 : Ghobes\_3
- Track 63 : Sapo\_3
- Track 64 : Archimedes\_3
- Track 65 : Jojo24\_5
- Track 66 : Santhid\_5
- Track 67 : Reyja\_6, Tarzan\_5
- Track 68 : Hibiscus\_5
- Track 69 : Heinz\_5
- Track 70 : DonkeyMan\_5
- Track 71 : Loviatar\_9
- Track 72 : FlameThrower\_5, Bachaco\_5, Celaena\_5
- Track 73 : Kieran\_5, Sharkboy\_5, Dismas\_5, ChiliPepper\_5, Rona\_5
- Track 74 : SanaSana\_6
- Track 75 : Stoor\_5, DirtyBubble\_5, Stromboli\_5, BabyYoda\_5
- Track 76 : Avocadoman\_5, Abigail\_5, Burritobowl\_5, DickRichards\_5, Cashington\_5
- Track 77 : IndyLu\_5
- Track 78 : Doobus\_5, Johnathan\_5, Albright\_5
- Track 79 : Vitas\_4, Bernstein\_4, Clayda5\_4, Brahms\_4, Rollins\_4, Coltrane\_4, Armstrong\_4, Skylord\_4
- Track 80 : Lynlen\_5, QMacho\_6, Finalfrontier\_6, Swervy\_5, TukTuk\_5, Kenzers\_5, BubbaBear\_5, BelmontSKP\_6, Jovita\_5, SarBear\_5, SansAfet\_5, Slay\_5, AnnaLie\_6, Phisb\_5, Eula\_5, Albedo\_5
- Track 81 : Icarian\_6
- Track 82 : LimaBean\_5
- Track 83 : Olliecat\_5

- Track 84 : Buldak\_5
- Track 85 : Didgeridoo\_6, BabyDaisy\_6
- Track 86 : Franklin22\_4
- Track 87 : AvGardian\_5
- Track 88 : Shayna\_4, SunnyD\_4
- Track 89 : Arroyo\_6, CroZenni\_5
- Track 90 : BAjuniper\_5
- Track 91 : Katzastrophic\_5
- Track 92 : Lahqtemish\_5
- Track 93 : Nicky22\_6
- Track 94 : Eden\_4
- Track 95 : Elva\_6
- Track 96 : Quenya\_6
- Track 97 : Gack\_4
- Track 98 : RootBeer\_5
- Track 99 : Kumotta\_6
- Track 100 : MargaretKali\_6
- Track 101 : Sarge\_5
- Track 102 : BrayBeast\_5
- Track 103 : Shoya\_4
- Track 104 : Maja\_5
- Track 105 : JanetJ\_6
- Track 106 : EvenBluerMoon\_6, Aoka\_6
- Track 107 : Duplicity\_5, Carcharodon\_5, Xerxes\_5, Bosection6\_5, Parmesanjohn\_5, Pipsqueaks\_5, Scitech\_5, Andies\_5, Gex\_5, Fulbright\_5, Xeno\_5, Melville\_5, Silvafighter\_5, Journey\_5, Tapioca\_5, Magsby\_5, Philonius\_5, Charlie\_5, Silvy\_5, Aggie\_5, Smurph\_5, Phloss\_5
- Track 108 : PhancyPhin\_5, Shweta\_5, SpongeBob\_5, BabeRuth\_5, Snekmaggedon\_5
- Track 109 : SkinnyPete\_5, Phrann\_5, Raymond7\_5, Jamie19\_5, Redi\_5, Nenae\_5, Panchino\_5, Rebel\_5, Purgamenstris\_5
- Track 110 : MichelleMyBell\_5, Rubeelu\_5, Kevin1\_5, Butters\_5
- Track 111 : ShrimpFriedEgg\_5
- Track 112 : Schnauzer\_5
- Track 113 : Chewbacca\_5
- Track 114 : Khuang\_4
- Track 115 : Hilltopfarm\_12, Typha\_12
- Track 116 : Bipper\_12, Cracklewink\_12
- Track 117 : Gudmit\_6
- Track 118 : Shambre1\_6

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

The start number called the most often in the published annotations is 40, it was called in 107 of the 246 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Abigail\_5, Aggie\_5, Albedo\_5, Albright\_5, Andies\_5, AnnaLie\_6, Armstrong\_4, Arroyo\_6, AvGardian\_5, Avocadoman\_5, BAjuniper\_5, BabyDaisy\_6, BabyYoda\_5, Bachaco\_5, Banquo\_13, BelmontSKP\_6, Bernstein\_4, Bosection6\_5, Brahms\_4,

BrayBeast\_5, BubbaBear\_5, Buldak\_5, Burritobowl\_5, Butters\_5, Carcharodon\_5, Cashington\_5, Catfish\_8, Celaena\_5, Charlie\_5, ChiliPepper\_5, Clayda5\_4, Coltrane\_4, CroZenni\_5, Dardanus\_11, DickRichards\_5, Didgeridoo\_6, DinoDaryn\_11, DirtyBubble\_5, Dismas\_5, DonkeyMan\_5, Doobus\_5, Duplicity\_5, Eden\_4, Elva\_6, Eula\_5, Finalfrontier\_6, FlameThrower\_5, Franklin22\_4, Fulbright\_5, Gack\_4, Gex\_5, Ghobes\_3, Goib\_10, Gsput1\_7, Heinz\_5, Hibiscus\_5, Huffy\_11, Icarian\_6, IndyLu\_5, JanetJ\_6, Johnathan\_5, Jojo24\_5, Journey\_5, Jovita\_5, Katzastrophic\_5, Kenzers\_5, Kevin1\_5, Khuang\_4, Kieran\_5, Kumotta\_6, Lahqtemish\_5, LimaBean\_5, Loviatar\_9, Lynlen\_5, Magsby\_5, Maja\_5, MargaretKali\_6, Melville\_5, MichelleMyBell\_5, Nicky22\_6, Olliecat\_5, Parmesanjohn\_5, Philonius\_5, Phisb\_5, Phloss\_5, Pipsqueaks\_5, QMacho\_6, Quenya\_6, Reyja\_6, Rollins\_4, Rona\_5, Rubeelu\_5, SanaSana\_6, SansAfet\_5, Santhid\_5, Sapo\_3, SarBear\_5, Sarge\_5, Schmidt\_7, Scitech\_5, Sharkboy\_5, Shayna\_4, Shoya\_4, Silvafighter\_5, Silvy\_5, Skylord\_4, Slay\_5, Smurph\_5, Splinter\_9, Stoor\_5, Stromboli\_5, SunnyD\_4, Swervy\_5, TZGordon\_11, Tapioca\_5, Tarzan\_5, TinaLin\_12, TukTuk\_5, Vendetta\_9, Vitas\_4, Xeno\_5, Xerxes\_5,

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

- Chewbacca\_5, Schnauzer\_5,

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

- Abidatro\_6, Albanese\_7, Aledel\_4, Amelia\_7, Anatole\_5, Andrew\_6, Aoka\_6, AppleCider\_7, Archimedes\_3, AustinPowers\_4, B3\_5, BabeRuth\_5, Basilisk\_6, Beethoven\_7, Bennie\_4, BigMack\_4, Bipper\_12, Bodacious\_4, BrotherBLo\_7, Brynnie\_6, CallieOMalley\_7, Canowicakte\_7, Carpal\_7, ChewChew\_4, Chickaboom\_5, Cholula\_7, Chridison\_4, Christian\_4, Coral\_6, Cote\_7, Cracklewink\_12, CristinaYang\_4, Daiboju\_4, Daob\_7, Dino\_7, DrRobert\_4, DreamTeam\_4, E1\_5, Eesa\_6, EstebanJulior\_4, Eunoia\_4, EvenBluerMoon\_6, Faith5x5\_5, Fluke\_7, Galaxy\_6, Gisselle\_4, Glenn\_7, GreenHearts\_7, Greenhouse\_7, Gudmit\_6, HannahPhantana\_7, HeadNerd\_4, Herb\_4, Hilltopfarm\_12, Huckleberry\_4, HunterDalle\_4, Huntingdon\_7, Immaculata\_7, Jamie19\_5, Jamun\_6, Joann\_7, Jumboset\_7, Juno112\_5, KHumphrey\_5, Kalizoi\_7, Kepler\_6, KingBob\_4, Kittykat\_4, Korra\_7, Kuleana\_6, Lakshmi\_7, Lasagna\_4, Lennox\_4, Leona\_5, LilStuart\_4, Litotes\_7, LittleTokyo\_6, Lton\_5, Lucy\_4, Lunar\_7, Makoto\_4, MamaPearl\_4, Maria1952\_4, MeganNoll\_7, Melons\_7, Misaeng\_7, Moki\_4, Moosehead\_5, MrGloopy\_7, Nancia\_4, Nенаe\_5, Nubia\_7, OMalley\_4, OneDirection\_5, Orcanus\_6, OurGirlNessie\_4, Oxynfrius\_7, Panchino\_5, PartyCup\_7, Pepperoni\_5, PhancyPhin\_5, PhluffyCoco\_5, Phrann\_5, PinkFriday\_4, PitaDog\_4, Polka\_6, Potatoes\_7, Preamble\_4, Pterodactyl\_4, Pumancara\_4, Purgamenstris\_5, RAP15\_7, Raymond7\_5, RcigaStruga\_7, Rebel\_5, RedFox\_5, Redi\_5, Renna12\_6, Riovina\_4, Riverdale\_7, RootBeer\_5, Rozby\_7, Ruchi\_6, Savage2526\_7, Scuttle\_7, Sergei\_4, Shambre1\_6, ShrimpFriedEgg\_5, Shweta\_5, SkinnyPete\_5, Snekmaggon\_5, SpongeBob\_5, Supakev\_4, Suppi\_7, TattModd\_7, TaylorSipt\_6, Temper16\_4, Typha\_12, Upyo\_4, Urla\_4, Vallejo\_7, Vulpecula\_6, Vulture\_4, Wawa\_7, Wayne\_7, WonderBoy\_4, Zorro\_7,

### Summary by start number:

Start 21:

- Found in 60 of 271 ( 22.1% ) of genes in pham
- Manual Annotations of this start: 3 of 246
- Called 5.0% of time when present

- Phage (with cluster) where this start called: Fluke\_7 (AK), Nubia\_7 (AK), Oxyntrius\_7 (AK),

#### Start 24:

- Found in 2 of 271 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 2 of 246
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Hilltopfarm\_12 (Y), Typha\_12 (Y),

#### Start 27:

- Found in 2 of 271 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 2 of 246
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bipper\_12 (Y), Cracklewink\_12 (Y),

#### Start 32:

- Found in 6 of 271 ( 2.2% ) of genes in pham
- Manual Annotations of this start: 5 of 246
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Faith5x5\_5 (CZ6), Gudmit\_6 (singleton), Lton\_5 (CZ), Moosehead\_5 (CZ6), OneDirection\_5 (CZ6), Pepperoni\_5 (CZ),

#### Start 35:

- Found in 13 of 271 ( 4.8% ) of genes in pham
- Manual Annotations of this start: 12 of 246
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abidatro\_6 (AS1), Basilisk\_6 (AS1), Brynnie\_6 (AS1), Chickaboom\_5 (AS1), Eesa\_6 (AS1), Galaxy\_6 (AS1), Jamun\_6 (AS1), Kuleana\_6 (AS2), Orcanus\_6 (AS1), Ruchi\_6 (AS1), Shambre1\_6 (singleton), TaylorSipt\_6 (AS1), Vulpecula\_6 (AS1),

#### Start 36:

- Found in 1 of 271 ( 0.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: RootBeer\_5 (FA),

#### Start 37:

- Found in 1 of 271 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 246
- Called 100.0% of time when present
- Phage (with cluster) where this start called: LittleTokyo\_6 (AS2),

#### Start 38:

- Found in 47 of 271 ( 17.3% ) of genes in pham
- Manual Annotations of this start: 10 of 246
- Called 21.3% of time when present
- Phage (with cluster) where this start called: Anatole\_5 (BV), B3\_5 (BV), BabeRuth\_5 (N), Chewbacca\_5 (N), E1\_5 (BV), PhancyPhin\_5 (N), Schnauzer\_5 (N), Shweta\_5 (N), Snekmaggedon\_5 (N), SpongeBob\_5 (N),

#### Start 39:

- Found in 2 of 271 ( 0.7% ) of genes in pham



- Manual Annotations of this start: 1 of 246
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aoka\_6 (FO), EvenBluerMoon\_6 (FO),

#### Start 40:

- Found in 124 of 271 ( 45.8% ) of genes in pham
- Manual Annotations of this start: 107 of 246
- Called 98.4% of time when present
- Phage (with cluster) where this start called: Abigail\_5 (EB), Aggie\_5 (N), Albedo\_5 (EB), Albright\_5 (EB), Andies\_5 (N), AnnaLie\_6 (EB), Armstrong\_4 (EB), Arroyo\_6 (EB), AvGardian\_5 (EB), Avocadoman\_5 (EB), BAjuniper\_5 (EB), BabyDaisy\_6 (EB), BabyYoda\_5 (EB), Bachaco\_5 (EB), Banquo\_13 (CU1), BelmontSKP\_6 (EB), Bernstein\_4 (EB), Bosection6\_5 (N), Brahms\_4 (EB), BrayBeast\_5 (FB), BubbaBear\_5 (EB), Buldak\_5 (EB), Burritobowl\_5 (EB), Butters\_5 (N), Carcharodon\_5 (N), Cashington\_5 (EB), Catfish\_8 (CU5), Celaena\_5 (EB), Charlie\_5 (N), ChiliPepper\_5 (EB), Clayda5\_4 (EB), Coltrane\_4 (EB), CroZenni\_5 (EB), Dardanus\_11 (CU3), DickRichards\_5 (EB), Didgeridoo\_6 (EB), DinoDaryn\_11 (CU1), DirtyBubble\_5 (EB), Dismas\_5 (EB), DonkeyMan\_5 (DY), Doobus\_5 (EB), Duplicity\_5 (N), Eden\_4 (EB), Elva\_6 (EB), Eula\_5 (EB), Finalfrontier\_6 (EB), FlameThrower\_5 (EB), Franklin22\_4 (EB), Fulbright\_5 (N), Gack\_4 (EB), Gex\_5 (N), Ghobes\_3 (DA), Goib\_10 (CU1), Gsput1\_7 (CU2), Heinz\_5 (DY), Hibiscus\_5 (DY), Huffy\_11 (CU1), Icarian\_6 (EB), IndyLu\_5 (EB), JanetJ\_6 (FO), Johnathan\_5 (EB), Jojo24\_5 (DY), Journey\_5 (N), Jovita\_5 (EB), Katzastrophic\_5 (EB), Kenzers\_5 (EB), Kevin1\_5 (N), Khuang\_4 (UNK), Kieran\_5 (EB), Kumotta\_6 (FB), Lahqtemish\_5 (EB), LimaBean\_5 (EB), Loviatar\_9 (EB), Lynlen\_5 (EB), Magsby\_5 (N), Maja\_5 (FO), MargaretKali\_6 (FB), Melville\_5 (N), MichelleMyBell\_5 (N), Nicky22\_6 (EB), Olliecat\_5 (EB), Parmesanjohn\_5 (N), Philonius\_5 (N), Phisb\_5 (EB), Phloss\_5 (N), Pipsqueaks\_5 (N), QMacho\_6 (EB), Quenya\_6 (EB), Reyja\_6 (DY), Rollins\_4 (EB), Rona\_5 (EB), Rubeelu\_5 (N), SanaSana\_6 (EB), SansAfet\_5 (EB), Santhid\_5 (DY), Sapo\_3 (DA), SarBear\_5 (EB), Sarge\_5 (FB), Schmidt\_7 (CU4), Scitech\_5 (N), Sharkboy\_5 (EB), Shayna\_4 (EB), Shoya\_4 (FB), Silvafighter\_5 (N), Silvy\_5 (N), Skylord\_4 (EB), Slay\_5 (EB), Smurph\_5 (N), Splinter\_9 (CU1), Stoor\_5 (EB), Stromboli\_5 (EB), SunnyD\_4 (EB), Swervy\_5 (EB), T2Gordon\_11 (CU1), Tapioca\_5 (N), Tarzan\_5 (DY), TinaLin\_12 (CU1), TukTuk\_5 (EB), Vendetta\_9 (CU1), Vitas\_4 (EB), Xeno\_5 (N), Xerxes\_5 (N),

#### Start 41:

- Found in 117 of 271 ( 43.2% ) of genes in pham
- Manual Annotations of this start: 101 of 246
- Called 90.6% of time when present
- Phage (with cluster) where this start called: Albanese\_7 (AK), Aledel\_4 (AK), Amelia\_7 (AS2), Andrew\_6 (AS3), AppleCider\_7 (AK), Archimedes\_3 (DA), AustinPowers\_4 (AK), Beethoven\_7 (AK), Bennie\_4 (AK), BigMack\_4 (AK), Bodacious\_4 (AK), BrotherBLo\_7 (AK), CallieOMalley\_7 (AK), Canowicakte\_7 (AK), Carpal\_7 (AK), ChewChew\_4 (AK), Cholula\_7 (AK), Chridison\_4 (AK), Christian\_4 (AK), Coral\_6 (AS2), Cote\_7 (AS2), CristinaYang\_4 (AK), Daiboju\_4 (AK), Daob\_7 (AS2), Dino\_7 (AK), DrRobert\_4 (AK), DreamTeam\_4 (AK), EstebanJulior\_4 (AK), Eunoia\_4 (AK), Gisselle\_4 (AK), Glenn\_7 (AK), Greenhouse\_7 (AK), HannahPhantana\_7 (AS2), HeadNerd\_4 (AK), Herb\_4 (AK), Huckleberry\_4 (AK), HunterDalle\_4 (AK), Huntingdon\_7 (AK), Immaculata\_7 (AK), Jamie19\_5 (N), Jumboset\_7 (AK), Juno112\_5 (AS3), KHumphrey\_5 (AS3), Kalizoi\_7 (AK), Kepler\_6 (AS2), KingBob\_4 (AK), Kittykat\_4 (AK), Korra\_7 (AK), Lakshmi\_7 (AK), Lasagna\_4 (AK), Lennox\_4 (AK), Leona\_5 (AS3), LilStuart\_4 (AK), Litotes\_7 (AK), Lucy\_4 (AK),

Lunar\_7 (AS2), Makoto\_4 (AK), MamaPearl\_4 (AK), Maria1952\_4 (AK), MeganNoll\_7 (AK), Melons\_7 (AS2), Misaeng\_7 (AK), Moki\_4 (AK), MrGloopy\_7 (AK), Nancia\_4 (AK), Nенаe\_5 (N), OMalley\_4 (AK), OurGirlNessie\_4 (AK), Panchino\_5 (N), PhluffyCoco\_5 (AS3), Phrann\_5 (N), PinkFriday\_4 (AK), PitaDog\_4 (AK), Polka\_6 (AS2), Potatoes\_7 (AK), Preamble\_4 (AK), Pterodactyl\_4 (AK), Pumancara\_4 (AK), Purgamenstris\_5 (N), RAP15\_7 (AK), Raymond7\_5 (N), RcigaStruga\_7 (AK), Rebel\_5 (N), RedFox\_5 (AS3), Redi\_5 (N), Renna12\_6 (AS3), Riovina\_4 (AK), Riverdale\_7 (AK), Rozby\_7 (AK), Savage2526\_7 (AK), Scuttle\_7 (AK), Sergei\_4 (AK), ShrimpFriedEgg\_5 (N), SkinnyPete\_5 (N), Supakev\_4 (AK), Suppi\_7 (AK), TattModd\_7 (AK), Temper16\_4 (AK), Upyo\_4 (CD), Urla\_4 (AK), Vallejo\_7 (AK), Vulture\_4 (AK), Wawa\_7 (AK), Wayne\_7 (AK), WonderBoy\_4 (AK), Zorro\_7 (AK),

Start 43:

- Found in 85 of 271 ( 31.4% ) of genes in pham
- Manual Annotations of this start: 2 of 246
- Called 3.5% of time when present
- Phage (with cluster) where this start called: GreenHearts\_7 (AK), Joann\_7 (AK), PartyCup\_7 (AK),

### Summary by clusters:

There are 23 clusters represented in this pham: singleton, UNK, CZ6, DA, FA, BV, DY, FO, CU5, CU4, CU3, CU2, CU1, AS3, AS2, AS1, AK, EB, CZ, Y, CD, FB, N,

Info for manual annotations of cluster AK:

- Start number 21 was manually annotated 3 times for cluster AK.
- Start number 41 was manually annotated 77 times for cluster AK.
- Start number 43 was manually annotated 2 times for cluster AK.

Info for manual annotations of cluster AS1:

- Start number 35 was manually annotated 10 times for cluster AS1.

Info for manual annotations of cluster AS2:

- Start number 35 was manually annotated 1 time for cluster AS2.
- Start number 37 was manually annotated 1 time for cluster AS2.
- Start number 41 was manually annotated 8 times for cluster AS2.

Info for manual annotations of cluster AS3:

- Start number 41 was manually annotated 4 times for cluster AS3.

Info for manual annotations of cluster BV:

- Start number 38 was manually annotated 3 times for cluster BV.

Info for manual annotations of cluster CD:

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

Info for manual annotations of cluster CU1:

- Start number 40 was manually annotated 8 times for cluster CU1.

Info for manual annotations of cluster CU3:

- Start number 40 was manually annotated 1 time for cluster CU3.

Info for manual annotations of cluster CU4:

- Start number 40 was manually annotated 1 time for cluster CU4.

Info for manual annotations of cluster CU5:

- Start number 40 was manually annotated 1 time for cluster CU5.

Info for manual annotations of cluster CZ:

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

Info for manual annotations of cluster CZ6:

- Start number 32 was manually annotated 3 times for cluster CZ6.

Info for manual annotations of cluster DA:

- Start number 40 was manually annotated 2 times for cluster DA.
- Start number 41 was manually annotated 1 time for cluster DA.

Info for manual annotations of cluster DY:

- Start number 40 was manually annotated 5 times for cluster DY.

Info for manual annotations of cluster EB:

- Start number 40 was manually annotated 60 times for cluster EB.

Info for manual annotations of cluster FB:

- Start number 40 was manually annotated 5 times for cluster FB.

Info for manual annotations of cluster FO:

- Start number 39 was manually annotated 1 time for cluster FO.
- Start number 40 was manually annotated 2 times for cluster FO.

Info for manual annotations of cluster N:

- Start number 38 was manually annotated 7 times for cluster N.
- Start number 40 was manually annotated 22 times for cluster N.
- Start number 41 was manually annotated 10 times for cluster N.

Info for manual annotations of cluster Y:

- Start number 24 was manually annotated 2 times for cluster Y.
- Start number 27 was manually annotated 2 times for cluster Y.

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

Gene: Abidatro\_6 Start: 4661, Stop: 5419, Start Num: 35

Candidate Starts for Abidatro\_6:

(Start: 35 @4661 has 12 MA's), (46, 4688), (56, 4763), (59, 4784), (63, 4841), (66, 4865), (92, 5009), (95, 5027), (101, 5060), (109, 5099), (110, 5105), (111, 5108), (135, 5252), (155, 5375),

Gene: Abigail\_5 Start: 4353, Stop: 5105, Start Num: 40

Candidate Starts for Abigail\_5:

(28, 4320), (Start: 40 @4353 has 107 MA's), (44, 4368), (59, 4482), (62, 4536), (63, 4539), (75, 4605), (89, 4680), (92, 4707), (103, 4779), (111, 4824), (157, 5085),

Gene: Aggie\_5 Start: 3538, Stop: 4344, Start Num: 40

Candidate Starts for Aggie\_5:

(Start: 38 @3535 has 10 MA's), (Start: 40 @3538 has 107 MA's), (55, 3622), (59, 3655), (64, 3718), (65, 3721), (66, 3736), (79, 3799), (82, 3808), (92, 3880), (95, 3898), (124, 4105), (141, 4198), (157, 4300),

Gene: Albanese\_7 Start: 6754, Stop: 7527, Start Num: 41

Candidate Starts for Albanese\_7:

(9, 6631), (Start: 21 @6688 has 3 MA's), (Start: 41 @6754 has 101 MA's), (Start: 43 @6760 has 2 MA's), (48, 6781), (66, 6952), (71, 6982), (79, 7015), (92, 7096), (110, 7225), (135, 7366), (137, 7372),

Gene: Albedo\_5 Start: 4341, Stop: 5093, Start Num: 40

Candidate Starts for Albedo\_5:

(28, 4308), (Start: 40 @4341 has 107 MA's), (44, 4356), (59, 4470), (63, 4527), (75, 4593), (89, 4668), (92, 4695), (103, 4767), (111, 4812), (157, 5073),

Gene: Albright\_5 Start: 4353, Stop: 5105, Start Num: 40

Candidate Starts for Albright\_5:

(28, 4320), (Start: 40 @4353 has 107 MA's), (44, 4368), (62, 4536), (63, 4539), (75, 4605), (89, 4680), (92, 4707), (103, 4779), (111, 4824), (157, 5085),

Gene: Aledel\_4 Start: 4059, Stop: 4832, Start Num: 41

Candidate Starts for Aledel\_4:

(Start: 41 @4059 has 101 MA's), (Start: 43 @4065 has 2 MA's), (48, 4086), (55, 4143), (58, 4173), (59, 4176), (60, 4179), (61, 4203), (66, 4257), (71, 4287), (79, 4320), (92, 4401), (107, 4503), (110, 4524), (137, 4671), (164, 4815),

Gene: Amelia\_7 Start: 4845, Stop: 5600, Start Num: 41

Candidate Starts for Amelia\_7:

(23, 4791), (Start: 41 @4845 has 101 MA's), (45, 4860), (55, 4929), (59, 4962), (64, 5025), (66, 5043), (71, 5073), (87, 5145), (92, 5187), (95, 5205), (108, 5268), (109, 5277), (113, 5316), (123, 5358), (135, 5430), (140, 5451), (142, 5478), (155, 5553),

Gene: Anatole\_5 Start: 4230, Stop: 5030, Start Num: 38

Candidate Starts for Anatole\_5:

(10, 4113), (12, 4122), (Start: 38 @4230 has 10 MA's), (58, 4353), (63, 4413), (66, 4437), (70, 4458), (73, 4476), (80, 4503), (88, 4545), (89, 4554), (90, 4557), (95, 4599), (111, 4683), (114, 4716), (115, 4722), (129, 4794), (131, 4803), (132, 4812),

Gene: Andies\_5 Start: 3538, Stop: 4344, Start Num: 40

Candidate Starts for Andies\_5:

(Start: 38 @3535 has 10 MA's), (Start: 40 @3538 has 107 MA's), (55, 3622), (59, 3655), (64, 3718), (65, 3721), (66, 3736), (79, 3799), (82, 3808), (92, 3880), (95, 3898), (124, 4105), (141, 4198), (157, 4300),

Gene: Andrew\_6 Start: 4668, Stop: 5420, Start Num: 41

Candidate Starts for Andrew\_6:

(8, 4539), (19, 4596), (Start: 41 @4668 has 101 MA's), (50, 4710), (55, 4752), (59, 4785), (64, 4848), (65, 4851), (66, 4866), (72, 4899), (92, 5010), (95, 5028), (97, 5043), (110, 5106), (111, 5109), (152, 5358), (155, 5376),

Gene: AnnaLie\_6 Start: 4699, Stop: 5451, Start Num: 40

Candidate Starts for AnnaLie\_6:

(28, 4666), (Start: 40 @4699 has 107 MA's), (44, 4714), (59, 4828), (63, 4885), (75, 4951), (89, 5026), (92, 5053), (103, 5125), (111, 5170), (157, 5431),

Gene: Aoka\_6 Start: 5098, Stop: 5856, Start Num: 39

Candidate Starts for Aoka\_6:

(Start: 39 @5098 has 1 MA's), (73, 5341), (85, 5386),

Gene: AppleCider\_7 Start: 6692, Stop: 7474, Start Num: 41

Candidate Starts for AppleCider\_7:

(Start: 41 @6692 has 101 MA's), (Start: 43 @6698 has 2 MA's), (48, 6719), (55, 6776), (60, 6812), (63, 6866), (66, 6890), (79, 6953), (85, 6974), (92, 7034), (110, 7163), (125, 7250), (137, 7310), (164, 7457),

Gene: Archimedes\_3 Start: 3087, Stop: 3833, Start Num: 41

Candidate Starts for Archimedes\_3:

(Start: 41 @3087 has 101 MA's), (58, 3204), (59, 3207), (64, 3273), (66, 3291), (69, 3306), (71, 3321), (85, 3375), (98, 3471), (115, 3594), (117, 3606), (134, 3672),

Gene: Armstrong\_4 Start: 4230, Stop: 4970, Start Num: 40

Candidate Starts for Armstrong\_4:

(Start: 40 @4230 has 107 MA's), (58, 4356), (62, 4413), (67, 4443), (74, 4479), (75, 4482), (80, 4506), (83, 4515), (89, 4557), (92, 4584), (98, 4620), (107, 4662), (109, 4677), (157, 4950),

Gene: Arroyo\_6 Start: 4823, Stop: 5575, Start Num: 40

Candidate Starts for Arroyo\_6:

(28, 4790), (Start: 40 @4823 has 107 MA's), (44, 4838), (59, 4952), (62, 5006), (63, 5009), (75, 5075), (89, 5150), (92, 5177), (103, 5249), (111, 5294), (157, 5555),

Gene: AustinPowers\_4 Start: 4059, Stop: 4835, Start Num: 41

Candidate Starts for AustinPowers\_4:

(Start: 41 @4059 has 101 MA's), (Start: 43 @4065 has 2 MA's), (48, 4086), (58, 4173), (59, 4176), (60, 4179), (61, 4203), (66, 4257), (71, 4287), (92, 4401), (110, 4524), (137, 4671), (164, 4815),

Gene: AvGardian\_5 Start: 4413, Stop: 5171, Start Num: 40

Candidate Starts for AvGardian\_5:

(28, 4380), (Start: 40 @4413 has 107 MA's), (59, 4542), (62, 4596), (63, 4599), (67, 4626), (75, 4665), (89, 4740), (92, 4767), (98, 4803), (111, 4887), (157, 5151),

Gene: Avocadoman\_5 Start: 4411, Stop: 5163, Start Num: 40

Candidate Starts for Avocadoman\_5:

(28, 4378), (Start: 40 @4411 has 107 MA's), (44, 4426), (59, 4540), (62, 4594), (63, 4597), (75, 4663), (89, 4738), (92, 4765), (103, 4837), (111, 4882), (157, 5143),

Gene: B3\_5 Start: 4230, Stop: 5030, Start Num: 38

Candidate Starts for B3\_5:

(10, 4113), (12, 4122), (Start: 38 @4230 has 10 MA's), (58, 4353), (63, 4413), (66, 4437), (70, 4458), (73, 4476), (80, 4503), (88, 4545), (89, 4554), (90, 4557), (95, 4599), (105, 4650), (111, 4683), (114, 4716), (115, 4722), (129, 4794), (131, 4803), (132, 4812),

Gene: BAjuniper\_5 Start: 4412, Stop: 5149, Start Num: 40

Candidate Starts for BAjuniper\_5:

(29, 4376), (Start: 40 @4412 has 107 MA's), (51, 4466), (75, 4664), (80, 4688), (89, 4739), (92, 4766), (98, 4802), (107, 4844), (109, 4859), (111, 4868), (145, 5066),

Gene: BabeRuth\_5 Start: 3549, Stop: 4361, Start Num: 38

Candidate Starts for BabeRuth\_5:

(1, 3195), (2, 3354), (Start: 38 @3549 has 10 MA's), (Start: 41 @3555 has 101 MA's), (55, 3639), (59, 3672), (64, 3735), (66, 3753), (82, 3825), (84, 3831), (92, 3897), (95, 3915), (124, 4122), (141, 4215),

Gene: BabyDaisy\_6 Start: 4605, Stop: 5357, Start Num: 40

Candidate Starts for BabyDaisy\_6:

(17, 4524), (28, 4572), (Start: 40 @4605 has 107 MA's), (44, 4620), (63, 4791), (89, 4932), (92, 4959), (102, 5028), (111, 5076), (116, 5124), (157, 5337),

Gene: BabyYoda\_5 Start: 4609, Stop: 5364, Start Num: 40

Candidate Starts for BabyYoda\_5:

(28, 4576), (Start: 40 @4609 has 107 MA's), (51, 4663), (63, 4795), (74, 4858), (80, 4885), (89, 4936), (92, 4963), (98, 4999), (99, 5005), (111, 5080), (157, 5344),

Gene: Bachaco\_5 Start: 4538, Stop: 5275, Start Num: 40

Candidate Starts for Bachaco\_5:

(11, 4424), (18, 4460), (26, 4496), (Start: 40 @4538 has 107 MA's), (51, 4592), (58, 4664), (67, 4751), (75, 4790), (89, 4865), (92, 4892), (98, 4928), (107, 4970), (110, 4991), (111, 4994), (135, 5132), (145, 5192),

Gene: Banquo\_13 Start: 7501, Stop: 8301, Start Num: 40

Candidate Starts for Banquo\_13:

(Start: 40 @7501 has 107 MA's), (48, 7531), (55, 7588), (59, 7621), (70, 7723), (72, 7735), (77, 7756), (82, 7774), (90, 7822), (91, 7837), (92, 7846), (93, 7855), (98, 7882), (109, 7960), (110, 7966), (115, 8008), (129, 8098), (160, 8281),

Gene: Basilisk\_6 Start: 4924, Stop: 5682, Start Num: 35

Candidate Starts for Basilisk\_6:

(Start: 35 @4924 has 12 MA's), (46, 4951), (55, 5014), (56, 5026), (59, 5047), (63, 5104), (64, 5110), (66, 5128), (92, 5272), (95, 5290), (101, 5323), (109, 5362), (110, 5368), (111, 5371), (135, 5515), (155, 5638),

Gene: Beethoven\_7 Start: 6689, Stop: 7456, Start Num: 41

Candidate Starts for Beethoven\_7:

(13, 6584), (14, 6587), (16, 6602), (Start: 21 @6623 has 3 MA's), (Start: 41 @6689 has 101 MA's), (Start: 43 @6695 has 2 MA's), (48, 6716), (55, 6773), (58, 6803), (60, 6809), (63, 6863), (66, 6887), (71, 6917), (79, 6950), (92, 7031), (95, 7049), (107, 7133), (110, 7154), (137, 7301),

Gene: BelmontSKP\_6 Start: 4699, Stop: 5451, Start Num: 40

Candidate Starts for BelmontSKP\_6:

(28, 4666), (Start: 40 @4699 has 107 MA's), (44, 4714), (59, 4828), (63, 4885), (75, 4951), (89, 5026), (92, 5053), (103, 5125), (111, 5170), (157, 5431),

Gene: Bennie\_4 Start: 4048, Stop: 4815, Start Num: 41

Candidate Starts for Bennie\_4:

(13, 3943), (14, 3946), (16, 3961), (Start: 21 @3982 has 3 MA's), (Start: 41 @4048 has 101 MA's), (Start: 43 @4054 has 2 MA's), (48, 4075), (55, 4132), (60, 4168), (66, 4246), (71, 4276), (79, 4309), (81, 4315), (85, 4330), (92, 4390), (110, 4513), (137, 4660),

Gene: Bernstein\_4 Start: 4290, Stop: 5030, Start Num: 40

Candidate Starts for Bernstein\_4:

(Start: 40 @4290 has 107 MA's), (58, 4416), (62, 4473), (67, 4503), (74, 4539), (75, 4542), (80, 4566), (83, 4575), (89, 4617), (92, 4644), (98, 4680), (107, 4722), (109, 4737), (157, 5010),

Gene: BigMack\_4 Start: 4048, Stop: 4815, Start Num: 41

Candidate Starts for BigMack\_4:

(13, 3943), (14, 3946), (16, 3961), (Start: 21 @3982 has 3 MA's), (Start: 41 @4048 has 101 MA's), (Start: 43 @4054 has 2 MA's), (48, 4075), (55, 4132), (58, 4162), (60, 4168), (64, 4228), (66, 4246), (71, 4276), (79, 4309), (92, 4390), (95, 4408), (110, 4513), (137, 4660),

Gene: Bipper\_12 Start: 7870, Stop: 8895, Start Num: 27

Candidate Starts for Bipper\_12:

(Start: 27 @7870 has 2 MA's), (34, 7891), (48, 7936), (52, 7972), (57, 8014), (64, 8101), (68, 8125), (76, 8167), (78, 8182), (80, 8188), (86, 8221), (90, 8242), (91, 8257), (92, 8266), (105, 8356), (109, 8377), (110, 8383), (117, 8437), (120, 8449), (127, 8509), (146, 8647), (157, 8707), (161, 8725), (168, 8788),

Gene: Bodacious\_4 Start: 4048, Stop: 4815, Start Num: 41

Candidate Starts for Bodacious\_4:

(6, 3907), (9, 3925), (13, 3943), (14, 3946), (16, 3961), (Start: 21 @3982 has 3 MA's), (Start: 41 @4048 has 101 MA's), (Start: 43 @4054 has 2 MA's), (48, 4075), (55, 4132), (58, 4162), (60, 4168), (66, 4246), (71, 4276), (79, 4309), (92, 4390), (95, 4408), (107, 4492), (110, 4513), (137, 4660),

Gene: Bosection6\_5 Start: 3538, Stop: 4344, Start Num: 40

Candidate Starts for Bosection6\_5:

(Start: 38 @3535 has 10 MA's), (Start: 40 @3538 has 107 MA's), (55, 3622), (59, 3655), (64, 3718), (65, 3721), (66, 3736), (79, 3799), (82, 3808), (92, 3880), (95, 3898), (124, 4105), (141, 4198), (157, 4300),

Gene: Brahms\_4 Start: 4230, Stop: 4970, Start Num: 40

Candidate Starts for Brahms\_4:

(Start: 40 @4230 has 107 MA's), (58, 4356), (62, 4413), (67, 4443), (74, 4479), (75, 4482), (80, 4506), (83, 4515), (89, 4557), (92, 4584), (98, 4620), (107, 4662), (109, 4677), (157, 4950),

Gene: BrayBeast\_5 Start: 4000, Stop: 4755, Start Num: 40

Candidate Starts for BrayBeast\_5:

(Start: 40 @4000 has 107 MA's), (44, 4015), (48, 4030), (54, 4072), (59, 4123), (63, 4180), (66, 4204), (70, 4225), (72, 4237), (73, 4243), (88, 4312), (98, 4384), (111, 4450), (115, 4489), (119, 4510),

Gene: BrotherBLo\_7 Start: 6695, Stop: 7462, Start Num: 41

Candidate Starts for BrotherBLo\_7:

(13, 6590), (14, 6593), (16, 6608), (Start: 21 @6629 has 3 MA's), (Start: 41 @6695 has 101 MA's), (Start: 43 @6701 has 2 MA's), (48, 6722), (55, 6779), (58, 6809), (60, 6815), (63, 6869), (66, 6893), (71, 6923), (79, 6956), (92, 7037), (95, 7055), (107, 7139), (110, 7160), (137, 7307),

Gene: Brynnie\_6 Start: 4721, Stop: 5479, Start Num: 35

Candidate Starts for Brynnie\_6:

(Start: 35 @4721 has 12 MA's), (46, 4748), (55, 4811), (56, 4823), (63, 4901), (64, 4907), (66, 4925), (92, 5069), (95, 5087), (101, 5120), (109, 5159), (110, 5165), (111, 5168), (135, 5312), (155, 5435),

Gene: BubbaBear\_5 Start: 4341, Stop: 5093, Start Num: 40

Candidate Starts for BubbaBear\_5:

(28, 4308), (Start: 40 @4341 has 107 MA's), (44, 4356), (59, 4470), (63, 4527), (75, 4593), (89, 4668), (92, 4695), (103, 4767), (111, 4812), (157, 5073),

Gene: Buldak\_5 Start: 4660, Stop: 5427, Start Num: 40

Candidate Starts for Buldak\_5:

(Start: 40 @4660 has 107 MA's), (44, 4675), (87, 4978), (89, 4993), (92, 5020), (107, 5116), (110, 5137), (113, 5170),

Gene: Burritobowl\_5 Start: 4351, Stop: 5103, Start Num: 40

Candidate Starts for Burritobowl\_5:

(28, 4318), (Start: 40 @4351 has 107 MA's), (44, 4366), (59, 4480), (62, 4534), (63, 4537), (75, 4603), (89, 4678), (92, 4705), (103, 4777), (111, 4822), (157, 5083),

Gene: Butters\_5 Start: 3535, Stop: 4341, Start Num: 40

Candidate Starts for Butters\_5:

(Start: 38 @3532 has 10 MA's), (Start: 40 @3535 has 107 MA's), (64, 3715), (66, 3733), (82, 3805), (89, 3850), (92, 3877), (95, 3895), (116, 4054), (124, 4102), (141, 4195),

Gene: CallieOMalley\_7 Start: 6692, Stop: 7474, Start Num: 41

Candidate Starts for CallieOMalley\_7:

(Start: 41 @6692 has 101 MA's), (Start: 43 @6698 has 2 MA's), (48, 6719), (55, 6776), (60, 6812), (63, 6866), (66, 6890), (79, 6953), (85, 6974), (92, 7034), (110, 7163), (125, 7250), (137, 7310), (164, 7457),

Gene: Canowicakte\_7 Start: 6727, Stop: 7509, Start Num: 41

Candidate Starts for Canowicakte\_7:

(Start: 41 @6727 has 101 MA's), (Start: 43 @6733 has 2 MA's), (48, 6754), (55, 6811), (60, 6847), (63, 6901), (66, 6925), (79, 6988), (85, 7009), (92, 7069), (110, 7198), (125, 7285), (137, 7345), (164, 7492),

Gene: Carcharodon\_5 Start: 3538, Stop: 4344, Start Num: 40

Candidate Starts for Carcharodon\_5:

(Start: 38 @3535 has 10 MA's), (Start: 40 @3538 has 107 MA's), (55, 3622), (59, 3655), (64, 3718), (65, 3721), (66, 3736), (79, 3799), (82, 3808), (92, 3880), (95, 3898), (124, 4105), (141, 4198), (157, 4300),

Gene: Carpal\_7 Start: 6695, Stop: 7462, Start Num: 41

Candidate Starts for Carpal\_7:

(9, 6572), (13, 6590), (14, 6593), (16, 6608), (Start: 21 @6629 has 3 MA's), (Start: 41 @6695 has 101 MA's), (Start: 43 @6701 has 2 MA's), (48, 6722), (55, 6779), (58, 6809), (60, 6815), (63, 6869), (66, 6893), (71, 6923), (79, 6956), (92, 7037), (95, 7055), (107, 7139), (110, 7160), (137, 7307),

Gene: Cashington\_5 Start: 4341, Stop: 5093, Start Num: 40

Candidate Starts for Cashington\_5:

(28, 4308), (Start: 40 @4341 has 107 MA's), (44, 4356), (59, 4470), (62, 4524), (63, 4527), (75, 4593), (89, 4668), (92, 4695), (103, 4767), (111, 4812), (157, 5073),

Gene: Catfish\_8 Start: 5463, Stop: 6221, Start Num: 40

Candidate Starts for Catfish\_8:

(Start: 40 @5463 has 107 MA's), (55, 5553), (72, 5703), (82, 5742), (91, 5805), (92, 5814), (93, 5823), (98, 5850), (115, 5976), (126, 6045), (127, 6054), (133, 6087), (159, 6195),

Gene: Celaena\_5 Start: 4475, Stop: 5212, Start Num: 40



Candidate Starts for Celaena\_5:

(11, 4361), (18, 4397), (26, 4433), (Start: 40 @4475 has 107 MA's), (51, 4529), (58, 4601), (67, 4688), (75, 4727), (89, 4802), (92, 4829), (98, 4865), (107, 4907), (110, 4928), (111, 4931), (135, 5069), (145, 5129),

Gene: Charlie\_5 Start: 3538, Stop: 4344, Start Num: 40

Candidate Starts for Charlie\_5:

(Start: 38 @3535 has 10 MA's), (Start: 40 @3538 has 107 MA's), (55, 3622), (59, 3655), (64, 3718), (65, 3721), (66, 3736), (79, 3799), (82, 3808), (92, 3880), (95, 3898), (124, 4105), (141, 4198), (157, 4300),

Gene: ChewChew\_4 Start: 4048, Stop: 4815, Start Num: 41

Candidate Starts for ChewChew\_4:

(6, 3907), (9, 3925), (13, 3943), (14, 3946), (16, 3961), (Start: 21 @3982 has 3 MA's), (Start: 41 @4048 has 101 MA's), (Start: 43 @4054 has 2 MA's), (48, 4075), (55, 4132), (58, 4162), (60, 4168), (66, 4246), (71, 4276), (79, 4309), (92, 4390), (95, 4408), (107, 4492), (110, 4513), (137, 4660),

Gene: Chewbacca\_5 Start: 3535, Stop: 4344, Start Num: 38

Candidate Starts for Chewbacca\_5:

(Start: 38 @3535 has 10 MA's), (Start: 40 @3538 has 107 MA's), (55, 3622), (59, 3655), (64, 3718), (65, 3721), (66, 3736), (79, 3799), (82, 3808), (92, 3880), (95, 3898), (124, 4105), (141, 4198),

Gene: Chickaboom\_5 Start: 4370, Stop: 5128, Start Num: 35

Candidate Starts for Chickaboom\_5:

(Start: 35 @4370 has 12 MA's), (46, 4397), (55, 4460), (59, 4493), (63, 4550), (64, 4556), (66, 4574), (92, 4718), (95, 4736), (109, 4808), (110, 4814), (111, 4817), (135, 4961), (143, 5009), (155, 5084),

Gene: ChiliPepper\_5 Start: 4605, Stop: 5360, Start Num: 40

Candidate Starts for ChiliPepper\_5:

(Start: 40 @4605 has 107 MA's), (51, 4659), (58, 4731), (75, 4857), (80, 4881), (89, 4932), (92, 4959), (99, 5001), (103, 5028), (111, 5073), (113, 5103),

Gene: Cholula\_7 Start: 6740, Stop: 7507, Start Num: 41

Candidate Starts for Cholula\_7:

(9, 6617), (13, 6635), (14, 6638), (16, 6653), (Start: 21 @6674 has 3 MA's), (Start: 41 @6740 has 101 MA's), (Start: 43 @6746 has 2 MA's), (48, 6767), (55, 6824), (58, 6854), (60, 6860), (63, 6914), (66, 6938), (71, 6968), (79, 7001), (92, 7082), (95, 7100), (107, 7184), (110, 7205), (137, 7352),

Gene: Chridison\_4 Start: 4059, Stop: 4835, Start Num: 41

Candidate Starts for Chridison\_4:

(Start: 41 @4059 has 101 MA's), (Start: 43 @4065 has 2 MA's), (48, 4086), (55, 4143), (58, 4173), (59, 4176), (60, 4179), (61, 4203), (66, 4257), (71, 4287), (79, 4320), (92, 4401), (110, 4524), (137, 4671), (164, 4815),

Gene: Christian\_4 Start: 4048, Stop: 4815, Start Num: 41

Candidate Starts for Christian\_4:

(13, 3943), (14, 3946), (16, 3961), (Start: 21 @3982 has 3 MA's), (Start: 41 @4048 has 101 MA's), (Start: 43 @4054 has 2 MA's), (48, 4075), (55, 4132), (58, 4162), (60, 4168), (64, 4228), (66, 4246), (71, 4276), (79, 4309), (92, 4390), (95, 4408), (107, 4492), (110, 4513), (137, 4660),

Gene: Clayda5\_4 Start: 4230, Stop: 4970, Start Num: 40

Candidate Starts for Clayda5\_4:

(Start: 40 @4230 has 107 MA's), (58, 4356), (62, 4413), (67, 4443), (74, 4479), (75, 4482), (80, 4506), (83, 4515), (89, 4557), (92, 4584), (98, 4620), (107, 4662), (109, 4677), (157, 4950),

Gene: Coltrane\_4 Start: 4230, Stop: 4970, Start Num: 40

Candidate Starts for Coltrane\_4:

(Start: 40 @4230 has 107 MA's), (58, 4356), (62, 4413), (67, 4443), (74, 4479), (75, 4482), (80, 4506), (83, 4515), (89, 4557), (92, 4584), (98, 4620), (107, 4662), (109, 4677), (157, 4950),

Gene: Coral\_6 Start: 4684, Stop: 5439, Start Num: 41

Candidate Starts for Coral\_6:

(23, 4630), (Start: 41 @4684 has 101 MA's), (45, 4699), (55, 4768), (59, 4801), (64, 4864), (66, 4882), (71, 4912), (87, 4984), (92, 5026), (95, 5044), (108, 5107), (109, 5116), (113, 5155), (123, 5197), (135, 5269), (140, 5290), (142, 5317), (155, 5392),

Gene: Cote\_7 Start: 4845, Stop: 5600, Start Num: 41

Candidate Starts for Cote\_7:

(23, 4791), (Start: 41 @4845 has 101 MA's), (45, 4860), (55, 4929), (59, 4962), (64, 5025), (66, 5043), (71, 5073), (87, 5145), (92, 5187), (95, 5205), (108, 5268), (109, 5277), (113, 5316), (123, 5358), (135, 5430), (140, 5451), (142, 5478), (155, 5553),

Gene: Cracklewink\_12 Start: 7870, Stop: 8895, Start Num: 27

Candidate Starts for Cracklewink\_12:

(Start: 27 @7870 has 2 MA's), (34, 7891), (48, 7936), (52, 7972), (57, 8014), (64, 8101), (68, 8125), (76, 8167), (78, 8182), (80, 8188), (86, 8221), (90, 8242), (91, 8257), (92, 8266), (105, 8356), (109, 8377), (110, 8383), (117, 8437), (120, 8449), (127, 8509), (146, 8647), (157, 8707), (161, 8725), (168, 8788),

Gene: CristinaYang\_4 Start: 4048, Stop: 4815, Start Num: 41

Candidate Starts for CristinaYang\_4:

(6, 3907), (9, 3925), (13, 3943), (14, 3946), (16, 3961), (Start: 21 @3982 has 3 MA's), (Start: 41 @4048 has 101 MA's), (Start: 43 @4054 has 2 MA's), (48, 4075), (55, 4132), (58, 4162), (60, 4168), (66, 4246), (71, 4276), (79, 4309), (92, 4390), (95, 4408), (107, 4492), (110, 4513), (137, 4660),

Gene: CroZenni\_5 Start: 4353, Stop: 5105, Start Num: 40

Candidate Starts for CroZenni\_5:

(28, 4320), (Start: 40 @4353 has 107 MA's), (44, 4368), (59, 4482), (62, 4536), (63, 4539), (75, 4605), (89, 4680), (92, 4707), (103, 4779), (111, 4824), (157, 5085),

Gene: Daiboju\_4 Start: 4058, Stop: 4834, Start Num: 41

Candidate Starts for Daiboju\_4:

(Start: 41 @4058 has 101 MA's), (Start: 43 @4064 has 2 MA's), (48, 4085), (55, 4142), (58, 4172), (60, 4178), (66, 4256), (71, 4286), (92, 4400), (96, 4421), (110, 4523), (125, 4610), (137, 4670), (164, 4814),

Gene: Daob\_7 Start: 4848, Stop: 5603, Start Num: 41

Candidate Starts for Daob\_7:

(23, 4794), (Start: 41 @4848 has 101 MA's), (45, 4863), (55, 4932), (59, 4965), (64, 5028), (66, 5046), (71, 5076), (87, 5148), (92, 5190), (95, 5208), (109, 5280), (113, 5319), (123, 5361), (135, 5433), (140, 5454), (142, 5481), (155, 5556),

Gene: Dardanus\_11 Start: 6545, Stop: 7303, Start Num: 40

Candidate Starts for Dardanus\_11:

(Start: 40 @6545 has 107 MA's), (55, 6632), (62, 6719), (70, 6767), (71, 6776), (90, 6866), (92, 6890), (93, 6899), (107, 6989), (108, 6995), (110, 7010), (115, 7052), (126, 7121), (133, 7163), (153, 7256), (160, 7283),

Gene: DickRichards\_5 Start: 4818, Stop: 5570, Start Num: 40

Candidate Starts for DickRichards\_5:

(28, 4785), (Start: 40 @4818 has 107 MA's), (44, 4833), (59, 4947), (62, 5001), (63, 5004), (75, 5070), (89, 5145), (92, 5172), (103, 5244), (111, 5289), (157, 5550),

Gene: Didgeridoo\_6 Start: 4605, Stop: 5357, Start Num: 40

Candidate Starts for Didgeridoo\_6:

(17, 4524), (28, 4572), (Start: 40 @4605 has 107 MA's), (44, 4620), (63, 4791), (89, 4932), (92, 4959), (102, 5028), (111, 5076), (116, 5124), (157, 5337),

Gene: Dino\_7 Start: 6695, Stop: 7462, Start Num: 41

Candidate Starts for Dino\_7:

(13, 6590), (14, 6593), (16, 6608), (Start: 21 @6629 has 3 MA's), (Start: 41 @6695 has 101 MA's), (Start: 43 @6701 has 2 MA's), (48, 6722), (55, 6779), (58, 6809), (60, 6815), (63, 6869), (66, 6893), (71, 6923), (79, 6956), (92, 7037), (95, 7055), (107, 7139), (110, 7160), (137, 7307),

Gene: DinoDaryn\_11 Start: 6590, Stop: 7387, Start Num: 40

Candidate Starts for DinoDaryn\_11:

(Start: 40 @6590 has 107 MA's), (48, 6620), (55, 6677), (62, 6764), (70, 6812), (77, 6845), (90, 6911), (92, 6935), (93, 6944), (98, 6971), (107, 7034), (115, 7097), (126, 7166), (133, 7208), (138, 7229), (160, 7367),

Gene: DirtyBubble\_5 Start: 4608, Stop: 5363, Start Num: 40

Candidate Starts for DirtyBubble\_5:

(28, 4575), (Start: 40 @4608 has 107 MA's), (51, 4662), (63, 4794), (74, 4857), (80, 4884), (89, 4935), (92, 4962), (98, 4998), (99, 5004), (111, 5079), (157, 5343),

Gene: Dismas\_5 Start: 4605, Stop: 5360, Start Num: 40

Candidate Starts for Dismas\_5:

(Start: 40 @4605 has 107 MA's), (51, 4659), (58, 4731), (75, 4857), (80, 4881), (89, 4932), (92, 4959), (99, 5001), (103, 5028), (111, 5073), (113, 5103),

Gene: DonkeyMan\_5 Start: 3652, Stop: 4452, Start Num: 40

Candidate Starts for DonkeyMan\_5:

(Start: 40 @3652 has 107 MA's), (42, 3658), (55, 3739), (60, 3775), (66, 3853), (80, 3919), (82, 3925), (87, 3955), (88, 3961), (92, 3997), (109, 4111), (122, 4204), (124, 4228), (125, 4231), (129, 4255), (135, 4285), (157, 4402),

Gene: Doobus\_5 Start: 4575, Stop: 5327, Start Num: 40

Candidate Starts for Doobus\_5:

(28, 4542), (Start: 40 @4575 has 107 MA's), (44, 4590), (62, 4758), (63, 4761), (75, 4827), (89, 4902), (92, 4929), (103, 5001), (111, 5046), (157, 5307),

Gene: DrRobert\_4 Start: 4048, Stop: 4815, Start Num: 41

Candidate Starts for DrRobert\_4:

(13, 3943), (14, 3946), (16, 3961), (Start: 21 @3982 has 3 MA's), (Start: 41 @4048 has 101 MA's), (Start: 43 @4054 has 2 MA's), (48, 4075), (55, 4132), (58, 4162), (60, 4168), (66, 4246), (71, 4276), (79, 4309), (92, 4390), (95, 4408), (107, 4492), (110, 4513), (137, 4660),

Gene: DreamTeam\_4 Start: 4048, Stop: 4815, Start Num: 41

Candidate Starts for DreamTeam\_4:

(13, 3943), (14, 3946), (Start: 21 @3982 has 3 MA's), (Start: 41 @4048 has 101 MA's), (Start: 43 @4054 has 2 MA's), (48, 4075), (55, 4132), (60, 4168), (66, 4246), (71, 4276), (79, 4309), (85, 4330), (92, 4390), (95, 4408), (110, 4513), (137, 4660),

Gene: Duplicity\_5 Start: 3538, Stop: 4344, Start Num: 40

Candidate Starts for Duplicity\_5:

(Start: 38 @3535 has 10 MA's), (Start: 40 @3538 has 107 MA's), (55, 3622), (59, 3655), (64, 3718), (65, 3721), (66, 3736), (79, 3799), (82, 3808), (92, 3880), (95, 3898), (124, 4105), (141, 4198), (157, 4300),

Gene: E1\_5 Start: 4230, Stop: 5030, Start Num: 38

Candidate Starts for E1\_5:

(10, 4113), (12, 4122), (Start: 38 @4230 has 10 MA's), (58, 4353), (63, 4413), (66, 4437), (70, 4458), (73, 4476), (80, 4503), (88, 4545), (89, 4554), (90, 4557), (95, 4599), (111, 4683), (114, 4716), (115, 4722), (129, 4794), (131, 4803), (132, 4812),

Gene: Eden\_4 Start: 4291, Stop: 5025, Start Num: 40

Candidate Starts for Eden\_4:

(28, 4252), (Start: 40 @4291 has 107 MA's), (51, 4345), (58, 4417), (62, 4474), (67, 4504), (74, 4540), (75, 4543), (80, 4567), (83, 4576), (89, 4618), (92, 4645), (98, 4681), (107, 4723), (109, 4738), (113, 4777), (145, 4936), (158, 5005),

Gene: Eesa\_6 Start: 4891, Stop: 5649, Start Num: 35

Candidate Starts for Eesa\_6:

(Start: 35 @4891 has 12 MA's), (46, 4918), (55, 4981), (56, 4993), (59, 5014), (63, 5071), (64, 5077), (66, 5095), (71, 5125), (92, 5239), (95, 5257), (109, 5329), (110, 5335), (111, 5338), (123, 5410), (135, 5482), (139, 5500), (155, 5605),

Gene: Elva\_6 Start: 4677, Stop: 5432, Start Num: 40

Candidate Starts for Elva\_6:

(28, 4644), (Start: 40 @4677 has 107 MA's), (51, 4731), (63, 4863), (75, 4929), (80, 4953), (89, 5004), (92, 5031), (98, 5067), (99, 5073), (111, 5148), (157, 5412),

Gene: EstebanJulior\_4 Start: 4039, Stop: 4806, Start Num: 41

Candidate Starts for EstebanJulior\_4:

(13, 3934), (Start: 21 @3973 has 3 MA's), (Start: 41 @4039 has 101 MA's), (Start: 43 @4045 has 2 MA's), (48, 4066), (55, 4123), (58, 4153), (60, 4159), (66, 4237), (71, 4267), (79, 4300), (92, 4381), (95, 4399), (110, 4504), (137, 4651),

Gene: Eula\_5 Start: 4340, Stop: 5092, Start Num: 40

Candidate Starts for Eula\_5:

(28, 4307), (Start: 40 @4340 has 107 MA's), (44, 4355), (59, 4469), (63, 4526), (75, 4592), (89, 4667), (92, 4694), (103, 4766), (111, 4811), (157, 5072),

Gene: Eunoia\_4 Start: 4059, Stop: 4832, Start Num: 41

Candidate Starts for Eunoia\_4:

(Start: 41 @4059 has 101 MA's), (Start: 43 @4065 has 2 MA's), (48, 4086), (55, 4143), (58, 4173), (59, 4176), (60, 4179), (61, 4203), (66, 4257), (71, 4287), (79, 4320), (92, 4401), (107, 4503), (110, 4524), (137, 4671), (164, 4815),

Gene: EvenBluerMoon\_6 Start: 5096, Stop: 5854, Start Num: 39

Candidate Starts for EvenBluerMoon\_6:

(Start: 39 @5096 has 1 MA's), (73, 5339), (85, 5384),

Gene: Faith5x5\_5 Start: 3480, Stop: 4325, Start Num: 32

Candidate Starts for Faith5x5\_5:

(Start: 32 @3480 has 5 MA's), (55, 3585), (59, 3618), (64, 3681), (80, 3765), (83, 3774), (88, 3807), (91, 3834), (92, 3843), (107, 3951), (110, 3972), (111, 3975), (113, 4005), (115, 4014), (119, 4035), (147, 4230), (159, 4284),

Gene: Finalfrontier\_6 Start: 4846, Stop: 5598, Start Num: 40

Candidate Starts for Finalfrontier\_6:

(28, 4813), (Start: 40 @4846 has 107 MA's), (44, 4861), (59, 4975), (63, 5032), (75, 5098), (89, 5173), (92, 5200), (103, 5272), (111, 5317), (157, 5578),

Gene: FlameThrower\_5 Start: 4471, Stop: 5208, Start Num: 40

Candidate Starts for FlameThrower\_5:

(11, 4357), (18, 4393), (26, 4429), (Start: 40 @4471 has 107 MA's), (51, 4525), (58, 4597), (67, 4684), (75, 4723), (89, 4798), (92, 4825), (98, 4861), (107, 4903), (110, 4924), (111, 4927), (135, 5065), (145, 5125),

Gene: Fluke\_7 Start: 6670, Stop: 7503, Start Num: 21

Candidate Starts for Fluke\_7:

(13, 6631), (14, 6634), (16, 6649), (Start: 21 @6670 has 3 MA's), (Start: 41 @6736 has 101 MA's), (Start: 43 @6742 has 2 MA's), (48, 6763), (55, 6820), (58, 6850), (60, 6856), (63, 6910), (66, 6934), (71, 6964), (79, 6997), (92, 7078), (95, 7096), (107, 7180), (110, 7201), (137, 7348),

Gene: Franklin22\_4 Start: 4286, Stop: 5020, Start Num: 40

Candidate Starts for Franklin22\_4:

(15, 4193), (18, 4208), (22, 4223), (29, 4250), (30, 4253), (Start: 40 @4286 has 107 MA's), (44, 4301), (51, 4340), (67, 4499), (74, 4535), (75, 4538), (80, 4562), (89, 4613), (92, 4640), (98, 4676), (107, 4718), (109, 4733), (113, 4772), (145, 4931),

Gene: Fulbright\_5 Start: 3538, Stop: 4344, Start Num: 40

Candidate Starts for Fulbright\_5:

(Start: 38 @3535 has 10 MA's), (Start: 40 @3538 has 107 MA's), (55, 3622), (59, 3655), (64, 3718), (65, 3721), (66, 3736), (79, 3799), (82, 3808), (92, 3880), (95, 3898), (124, 4105), (141, 4198), (157, 4300),

Gene: Gack\_4 Start: 4335, Stop: 5084, Start Num: 40

Candidate Starts for Gack\_4:

(Start: 38 @4332 has 10 MA's), (Start: 40 @4335 has 107 MA's), (58, 4461), (63, 4521), (67, 4548), (74, 4584), (75, 4587), (80, 4611), (83, 4620), (89, 4662), (92, 4689), (97, 4722), (113, 4836),

Gene: Galaxy\_6 Start: 4670, Stop: 5428, Start Num: 35

Candidate Starts for Galaxy\_6:

(Start: 35 @4670 has 12 MA's), (46, 4697), (55, 4760), (56, 4772), (59, 4793), (63, 4850), (64, 4856), (66, 4874), (92, 5018), (95, 5036), (101, 5069), (109, 5108), (110, 5114), (111, 5117), (135, 5261), (155, 5384),

Gene: Gex\_5 Start: 3538, Stop: 4344, Start Num: 40

Candidate Starts for Gex\_5:

(Start: 38 @3535 has 10 MA's), (Start: 40 @3538 has 107 MA's), (55, 3622), (59, 3655), (64, 3718), (65, 3721), (66, 3736), (79, 3799), (82, 3808), (92, 3880), (95, 3898), (124, 4105), (141, 4198), (157,

4300),

Gene: Ghobes\_3 Start: 3135, Stop: 3887, Start Num: 40

Candidate Starts for Ghobes\_3:

(Start: 40 @3135 has 107 MA's), (55, 3222), (58, 3252), (59, 3255), (71, 3372), (90, 3462), (110, 3603), (113, 3636), (118, 3663), (154, 3849),

Gene: Gisselle\_4 Start: 4048, Stop: 4815, Start Num: 41

Candidate Starts for Gisselle\_4:

(13, 3943), (14, 3946), (Start: 21 @3982 has 3 MA's), (Start: 41 @4048 has 101 MA's), (Start: 43 @4054 has 2 MA's), (48, 4075), (55, 4132), (60, 4168), (66, 4246), (71, 4276), (79, 4309), (85, 4330), (92, 4390), (95, 4408), (110, 4513), (137, 4660),

Gene: Glenn\_7 Start: 6746, Stop: 7513, Start Num: 41

Candidate Starts for Glenn\_7:

(13, 6641), (14, 6644), (16, 6659), (Start: 21 @6680 has 3 MA's), (Start: 41 @6746 has 101 MA's), (Start: 43 @6752 has 2 MA's), (48, 6773), (55, 6830), (58, 6860), (60, 6866), (63, 6920), (66, 6944), (71, 6974), (79, 7007), (92, 7088), (95, 7106), (107, 7190), (110, 7211), (137, 7358),

Gene: Goib\_10 Start: 6360, Stop: 7160, Start Num: 40

Candidate Starts for Goib\_10:

(Start: 40 @6360 has 107 MA's), (48, 6390), (55, 6447), (62, 6534), (72, 6594), (92, 6705), (93, 6714), (96, 6726), (98, 6741), (105, 6798), (109, 6822), (115, 6870), (126, 6939), (133, 6981), (138, 7002), (160, 7140),

Gene: GreenHearts\_7 Start: 6760, Stop: 7527, Start Num: 43

Candidate Starts for GreenHearts\_7:

(9, 6631), (Start: 21 @6688 has 3 MA's), (Start: 41 @6754 has 101 MA's), (Start: 43 @6760 has 2 MA's), (48, 6781), (66, 6952), (71, 6982), (79, 7015), (92, 7096), (110, 7225), (135, 7366), (137, 7372),

Gene: Greenhouse\_7 Start: 6723, Stop: 7496, Start Num: 41

Candidate Starts for Greenhouse\_7:

(9, 6600), (Start: 21 @6657 has 3 MA's), (Start: 41 @6723 has 101 MA's), (Start: 43 @6729 has 2 MA's), (48, 6750), (66, 6921), (71, 6951), (79, 6984), (92, 7065), (110, 7194), (135, 7335), (137, 7341),

Gene: Gspu1\_7 Start: 4923, Stop: 5735, Start Num: 40

Candidate Starts for Gspu1\_7:

(11, 4809), (33, 4905), (Start: 40 @4923 has 107 MA's), (48, 4953), (55, 5010), (59, 5043), (64, 5106), (85, 5208), (92, 5268), (93, 5277), (96, 5289), (105, 5358), (108, 5373), (111, 5391), (115, 5430), (120, 5454), (126, 5505), (133, 5547), (151, 5676), (156, 5700), (160, 5715), (162, 5724),

Gene: Gudmit\_6 Start: 4248, Stop: 5093, Start Num: 32

Candidate Starts for Gudmit\_6:

(Start: 32 @4248 has 5 MA's), (55, 4353), (59, 4386), (80, 4533), (83, 4542), (85, 4551), (88, 4575), (91, 4602), (92, 4611), (110, 4740), (111, 4743), (113, 4773), (115, 4782), (159, 5055),

Gene: HannahPhantana\_7 Start: 4848, Stop: 5603, Start Num: 41

Candidate Starts for HannahPhantana\_7:

(23, 4794), (Start: 41 @4848 has 101 MA's), (45, 4863), (55, 4932), (59, 4965), (64, 5028), (66, 5046), (71, 5076), (87, 5148), (92, 5190), (95, 5208), (108, 5271), (113, 5319), (123, 5361), (135, 5433), (140, 5454), (142, 5481), (155, 5556),

Gene: HeadNerd\_4 Start: 4048, Stop: 4815, Start Num: 41

Candidate Starts for HeadNerd\_4:

(13, 3943), (14, 3946), (16, 3961), (Start: 21 @3982 has 3 MA's), (Start: 41 @4048 has 101 MA's), (Start: 43 @4054 has 2 MA's), (48, 4075), (55, 4132), (60, 4168), (66, 4246), (71, 4276), (79, 4309), (81, 4315), (85, 4330), (92, 4390), (110, 4513), (137, 4660),

Gene: Heinz\_5 Start: 3654, Stop: 4454, Start Num: 40

Candidate Starts for Heinz\_5:

(Start: 40 @3654 has 107 MA's), (42, 3660), (55, 3741), (60, 3777), (66, 3855), (80, 3921), (82, 3927), (87, 3957), (88, 3963), (92, 3999), (109, 4113), (124, 4230), (125, 4233), (129, 4257), (135, 4287), (157, 4404),

Gene: Herb\_4 Start: 4058, Stop: 4834, Start Num: 41

Candidate Starts for Herb\_4:

(Start: 41 @4058 has 101 MA's), (Start: 43 @4064 has 2 MA's), (48, 4085), (55, 4142), (58, 4172), (60, 4178), (66, 4256), (71, 4286), (92, 4400), (96, 4421), (110, 4523), (125, 4610), (137, 4670), (164, 4814),

Gene: Hibiscus\_5 Start: 3654, Stop: 4454, Start Num: 40

Candidate Starts for Hibiscus\_5:

(Start: 40 @3654 has 107 MA's), (42, 3660), (55, 3741), (60, 3777), (66, 3855), (80, 3921), (82, 3927), (87, 3957), (88, 3963), (92, 3999), (107, 4098), (109, 4113), (124, 4230), (125, 4233), (129, 4257), (135, 4287), (157, 4404), (166, 4449),

Gene: Hilltopfarm\_12 Start: 7845, Stop: 8798, Start Num: 24

Candidate Starts for Hilltopfarm\_12:

(Start: 24 @7845 has 2 MA's), (34, 7872), (57, 7995), (64, 8082), (68, 8106), (83, 8178), (86, 8202), (90, 8223), (91, 8238), (92, 8247), (109, 8358), (110, 8364), (133, 8517), (148, 8580), (157, 8616), (163, 8643), (169, 8760),

Gene: Huckleberry\_4 Start: 4048, Stop: 4815, Start Num: 41

Candidate Starts for Huckleberry\_4:

(13, 3943), (14, 3946), (16, 3961), (Start: 21 @3982 has 3 MA's), (Start: 41 @4048 has 101 MA's), (Start: 43 @4054 has 2 MA's), (48, 4075), (55, 4132), (60, 4168), (66, 4246), (71, 4276), (79, 4309), (81, 4315), (85, 4330), (92, 4390), (110, 4513), (137, 4660),

Gene: Huff\_11 Start: 6590, Stop: 7387, Start Num: 40

Candidate Starts for Huff\_11:

(Start: 40 @6590 has 107 MA's), (48, 6620), (55, 6677), (62, 6764), (70, 6812), (77, 6845), (90, 6911), (92, 6935), (93, 6944), (98, 6971), (107, 7034), (115, 7097), (126, 7166), (133, 7208), (138, 7229), (160, 7367),

Gene: HunterDalle\_4 Start: 4059, Stop: 4832, Start Num: 41

Candidate Starts for HunterDalle\_4:

(Start: 41 @4059 has 101 MA's), (Start: 43 @4065 has 2 MA's), (48, 4086), (55, 4143), (58, 4173), (59, 4176), (60, 4179), (61, 4203), (66, 4257), (71, 4287), (79, 4320), (92, 4401), (107, 4503), (110, 4524), (137, 4671), (164, 4815),

Gene: Huntingdon\_7 Start: 6702, Stop: 7475, Start Num: 41

Candidate Starts for Huntingdon\_7:

(9, 6579), (Start: 21 @6636 has 3 MA's), (Start: 41 @6702 has 101 MA's), (Start: 43 @6708 has 2 MA's), (48, 6729), (66, 6900), (71, 6930), (79, 6963), (92, 7044), (110, 7173), (135, 7314), (137, 7320),

Gene: Icarian\_6 Start: 4600, Stop: 5352, Start Num: 40

Candidate Starts for Icarian\_6:

(28, 4567), (Start: 40 @4600 has 107 MA's), (51, 4654), (63, 4786), (80, 4876), (89, 4927), (92, 4954), (98, 4990), (99, 4996), (111, 5068), (157, 5332),

Gene: Immaculata\_7 Start: 6740, Stop: 7507, Start Num: 41

Candidate Starts for Immaculata\_7:

(13, 6635), (14, 6638), (16, 6653), (Start: 21 @6674 has 3 MA's), (Start: 41 @6740 has 101 MA's), (Start: 43 @6746 has 2 MA's), (48, 6767), (55, 6824), (58, 6854), (60, 6860), (63, 6914), (66, 6938), (71, 6968), (79, 7001), (92, 7082), (95, 7100), (107, 7184), (110, 7205), (137, 7352),

Gene: IndyLu\_5 Start: 4429, Stop: 5181, Start Num: 40

Candidate Starts for IndyLu\_5:

(28, 4396), (Start: 40 @4429 has 107 MA's), (44, 4444), (63, 4615), (89, 4756), (92, 4783), (102, 4852), (111, 4900), (116, 4948), (157, 5161),

Gene: Jamie19\_5 Start: 3555, Stop: 4361, Start Num: 41

Candidate Starts for Jamie19\_5:

(1, 3195), (2, 3354), (Start: 38 @3549 has 10 MA's), (Start: 41 @3555 has 101 MA's), (55, 3639), (59, 3672), (64, 3735), (66, 3753), (82, 3825), (84, 3831), (92, 3897), (95, 3915), (124, 4122), (141, 4215),

Gene: Jamun\_6 Start: 4941, Stop: 5699, Start Num: 35

Candidate Starts for Jamun\_6:

(Start: 35 @4941 has 12 MA's), (46, 4968), (55, 5031), (59, 5064), (63, 5121), (64, 5127), (66, 5145), (92, 5289), (95, 5307), (109, 5379), (110, 5385), (111, 5388), (135, 5532), (155, 5655),

Gene: JanetJ\_6 Start: 4872, Stop: 5633, Start Num: 40

Candidate Starts for JanetJ\_6:

(Start: 40 @4872 has 107 MA's), (63, 5052), (73, 5115), (85, 5160), (108, 5304), (111, 5322), (135, 5466),

Gene: Joann\_7 Start: 6700, Stop: 7467, Start Num: 43

Candidate Starts for Joann\_7:

(9, 6571), (Start: 21 @6628 has 3 MA's), (Start: 41 @6694 has 101 MA's), (Start: 43 @6700 has 2 MA's), (48, 6721), (66, 6892), (71, 6922), (79, 6955), (92, 7036), (110, 7165), (135, 7306), (137, 7312),

Gene: Johnathan\_5 Start: 4353, Stop: 5105, Start Num: 40

Candidate Starts for Johnathan\_5:

(28, 4320), (Start: 40 @4353 has 107 MA's), (44, 4368), (62, 4536), (63, 4539), (75, 4605), (89, 4680), (92, 4707), (103, 4779), (111, 4824), (157, 5085),

Gene: Jojo24\_5 Start: 3649, Stop: 4449, Start Num: 40

Candidate Starts for Jojo24\_5:

(Start: 40 @3649 has 107 MA's), (42, 3655), (55, 3736), (60, 3772), (66, 3850), (80, 3916), (82, 3922), (87, 3952), (88, 3958), (92, 3994), (109, 4108), (124, 4225), (125, 4228), (129, 4252), (135, 4282), (157, 4399), (166, 4444),

Gene: Journey\_5 Start: 3538, Stop: 4344, Start Num: 40

Candidate Starts for Journey\_5:

(Start: 38 @3535 has 10 MA's), (Start: 40 @3538 has 107 MA's), (55, 3622), (59, 3655), (64, 3718), (65, 3721), (66, 3736), (79, 3799), (82, 3808), (92, 3880), (95, 3898), (124, 4105), (141, 4198), (157, 4300),

Gene: Jovita\_5 Start: 4466, Stop: 5218, Start Num: 40



Candidate Starts for Jovita\_5:

(28, 4433), (Start: 40 @4466 has 107 MA's), (44, 4481), (59, 4595), (63, 4652), (75, 4718), (89, 4793), (92, 4820), (103, 4892), (111, 4937), (157, 5198),

Gene: Jumboset\_7 Start: 6689, Stop: 7456, Start Num: 41

Candidate Starts for Jumboset\_7:

(13, 6584), (14, 6587), (16, 6602), (Start: 21 @6623 has 3 MA's), (Start: 41 @6689 has 101 MA's), (Start: 43 @6695 has 2 MA's), (48, 6716), (55, 6773), (58, 6803), (60, 6809), (63, 6863), (66, 6887), (71, 6917), (79, 6950), (92, 7031), (95, 7049), (107, 7133), (110, 7154), (137, 7301),

Gene: Juno112\_5 Start: 4281, Stop: 5033, Start Num: 41

Candidate Starts for Juno112\_5:

(23, 4227), (Start: 41 @4281 has 101 MA's), (55, 4365), (59, 4398), (64, 4461), (66, 4479), (92, 4623), (110, 4719), (111, 4722), (135, 4866), (140, 4887), (152, 4971), (155, 4989),

Gene: KHumphrey\_5 Start: 4280, Stop: 5032, Start Num: 41

Candidate Starts for KHumphrey\_5:

(3, 4103), (4, 4121), (5, 4133), (8, 4151), (19, 4208), (Start: 41 @4280 has 101 MA's), (55, 4364), (59, 4397), (64, 4460), (66, 4478), (92, 4622), (110, 4718), (111, 4721), (135, 4865), (140, 4886), (152, 4970), (155, 4988),

Gene: Kalizoi\_7 Start: 6689, Stop: 7456, Start Num: 41

Candidate Starts for Kalizoi\_7:

(13, 6584), (14, 6587), (16, 6602), (Start: 21 @6623 has 3 MA's), (Start: 41 @6689 has 101 MA's), (Start: 43 @6695 has 2 MA's), (48, 6716), (55, 6773), (58, 6803), (60, 6809), (63, 6863), (66, 6887), (71, 6917), (79, 6950), (92, 7031), (95, 7049), (107, 7133), (110, 7154), (137, 7301),

Gene: Katzastrophic\_5 Start: 4538, Stop: 5275, Start Num: 40

Candidate Starts for Katzastrophic\_5:

(11, 4424), (18, 4460), (26, 4496), (Start: 40 @4538 has 107 MA's), (51, 4592), (58, 4664), (67, 4751), (75, 4790), (80, 4814), (89, 4865), (92, 4892), (98, 4928), (107, 4970), (110, 4991), (111, 4994), (135, 5132), (145, 5192),

Gene: Kenzers\_5 Start: 4341, Stop: 5093, Start Num: 40

Candidate Starts for Kenzers\_5:

(28, 4308), (Start: 40 @4341 has 107 MA's), (44, 4356), (59, 4470), (63, 4527), (75, 4593), (89, 4668), (92, 4695), (103, 4767), (111, 4812), (157, 5073),

Gene: Kepler\_6 Start: 4683, Stop: 5438, Start Num: 41

Candidate Starts for Kepler\_6:

(23, 4629), (Start: 41 @4683 has 101 MA's), (45, 4698), (55, 4767), (59, 4800), (64, 4863), (66, 4881), (71, 4911), (87, 4983), (92, 5025), (95, 5043), (108, 5106), (109, 5115), (113, 5154), (123, 5196), (135, 5268), (140, 5289), (142, 5316), (155, 5391),

Gene: Kevin1\_5 Start: 3535, Stop: 4341, Start Num: 40

Candidate Starts for Kevin1\_5:

(Start: 38 @3532 has 10 MA's), (Start: 40 @3535 has 107 MA's), (64, 3715), (66, 3733), (82, 3805), (89, 3850), (92, 3877), (95, 3895), (116, 4054), (124, 4102), (141, 4195),

Gene: Khuang\_4 Start: 3505, Stop: 4266, Start Num: 40

Candidate Starts for Khuang\_4:

(Start: 40 @3505 has 107 MA's), (51, 3559), (55, 3592), (60, 3628), (66, 3706), (69, 3721), (80, 3772), (92, 3850), (111, 3952), (112, 3958), (115, 3991), (150, 4186),

Gene: Kieran\_5 Start: 4605, Stop: 5360, Start Num: 40

Candidate Starts for Kieran\_5:

(Start: 40 @4605 has 107 MA's), (51, 4659), (58, 4731), (75, 4857), (80, 4881), (89, 4932), (92, 4959), (99, 5001), (103, 5028), (111, 5073), (113, 5103),

Gene: KingBob\_4 Start: 4058, Stop: 4834, Start Num: 41

Candidate Starts for KingBob\_4:

(Start: 41 @4058 has 101 MA's), (Start: 43 @4064 has 2 MA's), (48, 4085), (55, 4142), (58, 4172), (60, 4178), (66, 4256), (71, 4286), (92, 4400), (96, 4421), (110, 4523), (125, 4610), (137, 4670), (164, 4814),

Gene: Kittykat\_4 Start: 4045, Stop: 4812, Start Num: 41

Candidate Starts for Kittykat\_4:

(13, 3940), (14, 3943), (Start: 21 @3979 has 3 MA's), (Start: 41 @4045 has 101 MA's), (Start: 43 @4051 has 2 MA's), (48, 4072), (55, 4129), (60, 4165), (66, 4243), (71, 4273), (79, 4306), (85, 4327), (92, 4387), (95, 4405), (110, 4510), (136, 4654), (137, 4657),

Gene: Korra\_7 Start: 6695, Stop: 7462, Start Num: 41

Candidate Starts for Korra\_7:

(13, 6590), (14, 6593), (16, 6608), (Start: 21 @6629 has 3 MA's), (Start: 41 @6695 has 101 MA's), (Start: 43 @6701 has 2 MA's), (48, 6722), (55, 6779), (58, 6809), (60, 6815), (63, 6869), (66, 6893), (71, 6923), (79, 6956), (92, 7037), (95, 7055), (107, 7139), (110, 7160), (137, 7307),

Gene: Kuleana\_6 Start: 4646, Stop: 5404, Start Num: 35

Candidate Starts for Kuleana\_6:

(Start: 35 @4646 has 12 MA's), (55, 4733), (58, 4763), (59, 4766), (66, 4847), (71, 4877), (92, 4991), (109, 5081), (123, 5162), (135, 5234), (140, 5255), (155, 5357),

Gene: Kumotta\_6 Start: 5106, Stop: 5909, Start Num: 40

Candidate Starts for Kumotta\_6:

(Start: 40 @5106 has 107 MA's), (63, 5286), (70, 5331), (80, 5376), (115, 5595), (138, 5712), (149, 5808),

Gene: Lahqtemish\_5 Start: 4427, Stop: 5179, Start Num: 40

Candidate Starts for Lahqtemish\_5:

(17, 4346), (28, 4394), (Start: 40 @4427 has 107 MA's), (44, 4442), (63, 4613), (75, 4679), (89, 4754), (92, 4781), (111, 4898), (157, 5159),

Gene: Lakshmi\_7 Start: 6730, Stop: 7503, Start Num: 41

Candidate Starts for Lakshmi\_7:

(9, 6607), (Start: 21 @6664 has 3 MA's), (Start: 41 @6730 has 101 MA's), (Start: 43 @6736 has 2 MA's), (48, 6757), (66, 6928), (71, 6958), (79, 6991), (92, 7072), (110, 7201), (135, 7342), (137, 7348),

Gene: Lasagna\_4 Start: 4048, Stop: 4815, Start Num: 41

Candidate Starts for Lasagna\_4:

(6, 3907), (9, 3925), (13, 3943), (14, 3946), (16, 3961), (Start: 21 @3982 has 3 MA's), (Start: 41 @4048 has 101 MA's), (Start: 43 @4054 has 2 MA's), (48, 4075), (55, 4132), (58, 4162), (60, 4168), (66, 4246), (71, 4276), (79, 4309), (92, 4390), (95, 4408), (107, 4492), (110, 4513), (137, 4660),

Gene: Lennox\_4 Start: 4048, Stop: 4815, Start Num: 41

Candidate Starts for Lennox\_4:

(7, 3910), (9, 3925), (13, 3943), (14, 3946), (16, 3961), (Start: 21 @3982 has 3 MA's), (Start: 41 @4048 has 101 MA's), (Start: 43 @4054 has 2 MA's), (48, 4075), (55, 4132), (58, 4162), (60, 4168), (66, 4246), (71, 4276), (79, 4309), (92, 4390), (95, 4408), (107, 4492), (110, 4513), (137, 4660),

Gene: Leona\_5 Start: 4328, Stop: 5080, Start Num: 41

Candidate Starts for Leona\_5:

(Start: 41 @4328 has 101 MA's), (55, 4412), (59, 4445), (66, 4526), (92, 4670), (95, 4688), (110, 4766), (111, 4769), (135, 4913), (140, 4934), (152, 5018), (155, 5036),

Gene: LilStuart\_4 Start: 4048, Stop: 4815, Start Num: 41

Candidate Starts for LilStuart\_4:

(6, 3907), (9, 3925), (13, 3943), (14, 3946), (16, 3961), (Start: 21 @3982 has 3 MA's), (Start: 41 @4048 has 101 MA's), (Start: 43 @4054 has 2 MA's), (48, 4075), (55, 4132), (58, 4162), (60, 4168), (66, 4246), (71, 4276), (79, 4309), (92, 4390), (95, 4408), (107, 4492), (110, 4513), (137, 4660),

Gene: LimaBean\_5 Start: 4353, Stop: 5105, Start Num: 40

Candidate Starts for LimaBean\_5:

(28, 4320), (Start: 40 @4353 has 107 MA's), (44, 4368), (59, 4482), (63, 4539), (75, 4605), (89, 4680), (92, 4707), (103, 4779), (111, 4824), (157, 5085),

Gene: Litotes\_7 Start: 6680, Stop: 7462, Start Num: 41

Candidate Starts for Litotes\_7:

(Start: 41 @6680 has 101 MA's), (Start: 43 @6686 has 2 MA's), (48, 6707), (55, 6764), (59, 6797), (60, 6800), (63, 6854), (66, 6878), (85, 6962), (92, 7022), (110, 7151), (125, 7238), (137, 7298), (164, 7445),

Gene: LittleTokyo\_6 Start: 4619, Stop: 5371, Start Num: 37

Candidate Starts for LittleTokyo\_6:

(Start: 37 @4619 has 1 MA's), (54, 4688), (55, 4703), (58, 4733), (59, 4736), (64, 4799), (66, 4817), (92, 4961), (95, 4979), (100, 5000), (110, 5057), (111, 5060), (118, 5117), (155, 5327),

Gene: Loviatar\_9 Start: 4611, Stop: 5366, Start Num: 40

Candidate Starts for Loviatar\_9:

(28, 4578), (Start: 40 @4611 has 107 MA's), (51, 4665), (63, 4797), (74, 4860), (75, 4863), (80, 4887), (89, 4938), (92, 4965), (98, 5001), (99, 5007), (111, 5082), (157, 5346),

Gene: Lton\_5 Start: 3484, Stop: 4323, Start Num: 32

Candidate Starts for Lton\_5:

(Start: 32 @3484 has 5 MA's), (55, 3589), (59, 3622), (83, 3778), (88, 3811), (91, 3838), (92, 3847), (100, 3892), (110, 3976), (111, 3979), (113, 4009), (115, 4018), (159, 4285),

Gene: Lucy\_4 Start: 4039, Stop: 4806, Start Num: 41

Candidate Starts for Lucy\_4:

(6, 3898), (9, 3916), (13, 3934), (14, 3937), (16, 3952), (Start: 21 @3973 has 3 MA's), (31, 4012), (Start: 41 @4039 has 101 MA's), (Start: 43 @4045 has 2 MA's), (48, 4066), (55, 4123), (58, 4153), (60, 4159), (66, 4237), (71, 4267), (79, 4300), (92, 4381), (95, 4399), (107, 4483), (110, 4504), (137, 4651),

Gene: Lunar\_7 Start: 4845, Stop: 5600, Start Num: 41

Candidate Starts for Lunar\_7:

(23, 4791), (Start: 41 @4845 has 101 MA's), (45, 4860), (55, 4929), (59, 4962), (64, 5025), (66, 5043), (71, 5073), (87, 5145), (92, 5187), (95, 5205), (108, 5268), (109, 5277), (113, 5316), (123, 5358), (135, 5430), (140, 5451), (142, 5478), (155, 5553),

Gene: Lynlen\_5 Start: 4341, Stop: 5093, Start Num: 40

Candidate Starts for Lynlen\_5:

(28, 4308), (Start: 40 @4341 has 107 MA's), (44, 4356), (59, 4470), (63, 4527), (75, 4593), (89, 4668), (92, 4695), (103, 4767), (111, 4812), (157, 5073),

Gene: Magsby\_5 Start: 3538, Stop: 4344, Start Num: 40

Candidate Starts for Magsby\_5:

(Start: 38 @3535 has 10 MA's), (Start: 40 @3538 has 107 MA's), (55, 3622), (59, 3655), (64, 3718), (65, 3721), (66, 3736), (79, 3799), (82, 3808), (92, 3880), (95, 3898), (124, 4105), (141, 4198), (157, 4300),

Gene: Maja\_5 Start: 4417, Stop: 5172, Start Num: 40

Candidate Starts for Maja\_5:

(25, 4375), (Start: 40 @4417 has 107 MA's), (44, 4432), (48, 4447), (66, 4621), (70, 4642), (73, 4660), (80, 4687), (85, 4705), (108, 4849), (115, 4906), (119, 4927),

Gene: Makoto\_4 Start: 4048, Stop: 4815, Start Num: 41

Candidate Starts for Makoto\_4:

(6, 3907), (9, 3925), (13, 3943), (14, 3946), (16, 3961), (Start: 21 @3982 has 3 MA's), (Start: 41 @4048 has 101 MA's), (Start: 43 @4054 has 2 MA's), (48, 4075), (55, 4132), (58, 4162), (60, 4168), (66, 4246), (71, 4276), (79, 4309), (92, 4390), (95, 4408), (107, 4492), (110, 4513), (137, 4660),

Gene: MamaPearl\_4 Start: 4039, Stop: 4806, Start Num: 41

Candidate Starts for MamaPearl\_4:

(13, 3934), (Start: 21 @3973 has 3 MA's), (Start: 41 @4039 has 101 MA's), (Start: 43 @4045 has 2 MA's), (48, 4066), (55, 4123), (58, 4153), (60, 4159), (66, 4237), (71, 4267), (79, 4300), (92, 4381), (95, 4399), (110, 4504), (137, 4651),

Gene: MargaretKali\_6 Start: 4498, Stop: 5253, Start Num: 40

Candidate Starts for MargaretKali\_6:

(25, 4456), (Start: 40 @4498 has 107 MA's), (44, 4513), (48, 4528), (66, 4702), (72, 4735), (73, 4741), (92, 4846), (98, 4882), (111, 4948), (115, 4987), (119, 5008), (124, 5035), (151, 5191),

Gene: Maria1952\_4 Start: 4058, Stop: 4834, Start Num: 41

Candidate Starts for Maria1952\_4:

(Start: 41 @4058 has 101 MA's), (Start: 43 @4064 has 2 MA's), (48, 4085), (55, 4142), (58, 4172), (60, 4178), (66, 4256), (71, 4286), (92, 4400), (96, 4421), (110, 4523), (125, 4610), (137, 4670), (164, 4814),

Gene: MeganNoll\_7 Start: 6746, Stop: 7513, Start Num: 41

Candidate Starts for MeganNoll\_7:

(13, 6641), (14, 6644), (16, 6659), (Start: 21 @6680 has 3 MA's), (Start: 41 @6746 has 101 MA's), (Start: 43 @6752 has 2 MA's), (48, 6773), (55, 6830), (58, 6860), (60, 6866), (63, 6920), (66, 6944), (71, 6974), (79, 7007), (92, 7088), (95, 7106), (107, 7190), (110, 7211), (137, 7358),

Gene: Melons\_7 Start: 4845, Stop: 5600, Start Num: 41

Candidate Starts for Melons\_7:

(23, 4791), (Start: 41 @4845 has 101 MA's), (45, 4860), (55, 4929), (59, 4962), (64, 5025), (66, 5043), (71, 5073), (87, 5145), (92, 5187), (95, 5205), (108, 5268), (109, 5277), (113, 5316), (123, 5358), (135, 5430), (140, 5451), (142, 5478), (155, 5553),

Gene: Melville\_5 Start: 3538, Stop: 4344, Start Num: 40

Candidate Starts for Melville\_5:

(Start: 38 @3535 has 10 MA's), (Start: 40 @3538 has 107 MA's), (55, 3622), (59, 3655), (64, 3718), (65, 3721), (66, 3736), (79, 3799), (82, 3808), (92, 3880), (95, 3898), (124, 4105), (141, 4198), (157, 4300),

Gene: MichelleMyBell\_5 Start: 3549, Stop: 4355, Start Num: 40

Candidate Starts for MichelleMyBell\_5:

(Start: 38 @3546 has 10 MA's), (Start: 40 @3549 has 107 MA's), (64, 3729), (66, 3747), (82, 3819), (89, 3864), (92, 3891), (95, 3909), (116, 4068), (124, 4116), (141, 4209),

Gene: Misaeng\_7 Start: 6767, Stop: 7540, Start Num: 41

Candidate Starts for Misaeng\_7:

(9, 6644), (Start: 21 @6701 has 3 MA's), (Start: 41 @6767 has 101 MA's), (Start: 43 @6773 has 2 MA's), (48, 6794), (66, 6965), (71, 6995), (79, 7028), (92, 7109), (110, 7238), (135, 7379), (137, 7385),

Gene: Moki\_4 Start: 4048, Stop: 4815, Start Num: 41

Candidate Starts for Moki\_4:

(13, 3943), (14, 3946), (16, 3961), (Start: 21 @3982 has 3 MA's), (Start: 41 @4048 has 101 MA's), (Start: 43 @4054 has 2 MA's), (48, 4075), (55, 4132), (60, 4168), (66, 4246), (71, 4276), (79, 4309), (81, 4315), (85, 4330), (92, 4390), (110, 4513), (137, 4660),

Gene: Moosehead\_5 Start: 3474, Stop: 4316, Start Num: 32

Candidate Starts for Moosehead\_5:

(Start: 32 @3474 has 5 MA's), (55, 3579), (80, 3759), (83, 3768), (85, 3777), (88, 3801), (91, 3828), (92, 3837), (100, 3882), (110, 3966), (111, 3969), (113, 3999), (115, 4008), (159, 4275),

Gene: MrGloopy\_7 Start: 6679, Stop: 7446, Start Num: 41

Candidate Starts for MrGloopy\_7:

(13, 6574), (14, 6577), (16, 6592), (Start: 21 @6613 has 3 MA's), (Start: 41 @6679 has 101 MA's), (Start: 43 @6685 has 2 MA's), (48, 6706), (55, 6763), (58, 6793), (60, 6799), (63, 6853), (66, 6877), (71, 6907), (79, 6940), (92, 7021), (95, 7039), (107, 7123), (110, 7144), (137, 7291),

Gene: Nancia\_4 Start: 4048, Stop: 4815, Start Num: 41

Candidate Starts for Nancia\_4:

(6, 3907), (9, 3925), (13, 3943), (14, 3946), (16, 3961), (Start: 21 @3982 has 3 MA's), (Start: 41 @4048 has 101 MA's), (Start: 43 @4054 has 2 MA's), (48, 4075), (55, 4132), (58, 4162), (60, 4168), (66, 4246), (71, 4276), (79, 4309), (92, 4390), (95, 4408), (107, 4492), (110, 4513), (137, 4660),

Gene: Nenae\_5 Start: 3555, Stop: 4361, Start Num: 41

Candidate Starts for Nenae\_5:

(1, 3195), (2, 3354), (Start: 38 @3549 has 10 MA's), (Start: 41 @3555 has 101 MA's), (55, 3639), (59, 3672), (64, 3735), (66, 3753), (82, 3825), (84, 3831), (92, 3897), (95, 3915), (124, 4122), (141, 4215),

Gene: Nicky22\_6 Start: 4815, Stop: 5567, Start Num: 40

Candidate Starts for Nicky22\_6:

(28, 4782), (Start: 40 @4815 has 107 MA's), (44, 4830), (59, 4944), (63, 5001), (75, 5067), (80, 5091), (89, 5142), (92, 5169), (103, 5241), (111, 5286), (157, 5547),

Gene: Nubia\_7 Start: 6624, Stop: 7463, Start Num: 21

Candidate Starts for Nubia\_7:

(9, 6567), (Start: 21 @6624 has 3 MA's), (Start: 41 @6690 has 101 MA's), (Start: 43 @6696 has 2 MA's), (48, 6717), (66, 6888), (71, 6918), (79, 6951), (92, 7032), (110, 7161), (135, 7302), (137, 7308),

Gene: OMalley\_4 Start: 4059, Stop: 4832, Start Num: 41

Candidate Starts for OMalley\_4:

(Start: 41 @4059 has 101 MA's), (Start: 43 @4065 has 2 MA's), (48, 4086), (55, 4143), (58, 4173), (59, 4176), (60, 4179), (61, 4203), (66, 4257), (71, 4287), (79, 4320), (92, 4401), (107, 4503), (110, 4524), (137, 4671), (164, 4815),

Gene: Olliecat\_5 Start: 4616, Stop: 5383, Start Num: 40

Candidate Starts for Olliecat\_5:

(Start: 40 @4616 has 107 MA's), (44, 4631), (58, 4736), (87, 4934), (88, 4940), (89, 4949), (92, 4976), (99, 5018), (107, 5072), (110, 5093), (113, 5126), (115, 5135),

Gene: OneDirection\_5 Start: 3469, Stop: 4311, Start Num: 32

Candidate Starts for OneDirection\_5:

(Start: 32 @3469 has 5 MA's), (55, 3574), (83, 3763), (85, 3772), (88, 3796), (91, 3823), (92, 3832), (110, 3961), (111, 3964), (113, 3994), (115, 4003), (129, 4093), (147, 4216), (159, 4270),

Gene: Orcanus\_6 Start: 4678, Stop: 5439, Start Num: 35

Candidate Starts for Orcanus\_6:

(Start: 35 @4678 has 12 MA's), (46, 4708), (50, 4729), (55, 4771), (56, 4783), (59, 4804), (63, 4861), (64, 4867), (66, 4885), (71, 4915), (92, 5029), (95, 5047), (101, 5080), (109, 5119), (110, 5125), (111, 5128), (123, 5200), (135, 5272), (139, 5290), (155, 5395),

Gene: OurGirlNessie\_4 Start: 4039, Stop: 4806, Start Num: 41

Candidate Starts for OurGirlNessie\_4:

(13, 3934), (14, 3937), (16, 3952), (Start: 21 @3973 has 3 MA's), (Start: 41 @4039 has 101 MA's), (Start: 43 @4045 has 2 MA's), (48, 4066), (55, 4123), (58, 4153), (60, 4159), (66, 4237), (71, 4267), (79, 4300), (92, 4381), (95, 4399), (107, 4483), (110, 4504), (137, 4651),

Gene: Oxynfrius\_7 Start: 6637, Stop: 7476, Start Num: 21

Candidate Starts for Oxynfrius\_7:

(9, 6580), (Start: 21 @6637 has 3 MA's), (Start: 41 @6703 has 101 MA's), (Start: 43 @6709 has 2 MA's), (48, 6730), (66, 6901), (71, 6931), (79, 6964), (92, 7045), (110, 7174), (135, 7315), (137, 7321),

Gene: Panchino\_5 Start: 3555, Stop: 4361, Start Num: 41

Candidate Starts for Panchino\_5:

(1, 3195), (2, 3354), (Start: 38 @3549 has 10 MA's), (Start: 41 @3555 has 101 MA's), (55, 3639), (59, 3672), (64, 3735), (66, 3753), (82, 3825), (84, 3831), (92, 3897), (95, 3915), (124, 4122), (141, 4215),

Gene: Parmesanjohn\_5 Start: 3538, Stop: 4344, Start Num: 40

Candidate Starts for Parmesanjohn\_5:

(Start: 38 @3535 has 10 MA's), (Start: 40 @3538 has 107 MA's), (55, 3622), (59, 3655), (64, 3718), (65, 3721), (66, 3736), (79, 3799), (82, 3808), (92, 3880), (95, 3898), (124, 4105), (141, 4198), (157, 4300),

Gene: PartyCup\_7 Start: 6733, Stop: 7509, Start Num: 43

Candidate Starts for PartyCup\_7:

(Start: 41 @6727 has 101 MA's), (Start: 43 @6733 has 2 MA's), (48, 6754), (55, 6811), (60, 6847), (63, 6901), (66, 6925), (79, 6988), (85, 7009), (89, 7042), (92, 7069), (110, 7198), (125, 7285), (137, 7345), (164, 7492),

Gene: Pepperoni\_5 Start: 3778, Stop: 4617, Start Num: 32

Candidate Starts for Pepperoni\_5:

(Start: 32 @3778 has 5 MA's), (55, 3883), (59, 3916), (83, 4072), (88, 4105), (91, 4132), (92, 4141), (100, 4186), (110, 4270), (111, 4273), (113, 4303), (115, 4312), (159, 4579),

Gene: PhancyPhin\_5 Start: 3549, Stop: 4361, Start Num: 38

Candidate Starts for PhancyPhin\_5:

(1, 3195), (2, 3354), (Start: 38 @3549 has 10 MA's), (Start: 41 @3555 has 101 MA's), (55, 3639), (59, 3672), (64, 3735), (66, 3753), (82, 3825), (84, 3831), (92, 3897), (95, 3915), (124, 4122), (141, 4215),

Gene: Philonius\_5 Start: 3538, Stop: 4344, Start Num: 40

Candidate Starts for Philonius\_5:

(Start: 38 @3535 has 10 MA's), (Start: 40 @3538 has 107 MA's), (55, 3622), (59, 3655), (64, 3718), (65, 3721), (66, 3736), (79, 3799), (82, 3808), (92, 3880), (95, 3898), (124, 4105), (141, 4198), (157, 4300),

Gene: Phisb\_5 Start: 4341, Stop: 5093, Start Num: 40

Candidate Starts for Phisb\_5:

(28, 4308), (Start: 40 @4341 has 107 MA's), (44, 4356), (59, 4470), (63, 4527), (75, 4593), (89, 4668), (92, 4695), (103, 4767), (111, 4812), (157, 5073),

Gene: Phloss\_5 Start: 3538, Stop: 4344, Start Num: 40

Candidate Starts for Phloss\_5:

(Start: 38 @3535 has 10 MA's), (Start: 40 @3538 has 107 MA's), (55, 3622), (59, 3655), (64, 3718), (65, 3721), (66, 3736), (79, 3799), (82, 3808), (92, 3880), (95, 3898), (124, 4105), (141, 4198), (157, 4300),

Gene: PhluffyCoco\_5 Start: 4280, Stop: 5032, Start Num: 41

Candidate Starts for PhluffyCoco\_5:

(3, 4103), (4, 4121), (5, 4133), (8, 4151), (19, 4208), (Start: 41 @4280 has 101 MA's), (55, 4364), (59, 4397), (64, 4460), (66, 4478), (92, 4622), (110, 4718), (111, 4721), (135, 4865), (140, 4886), (152, 4970), (155, 4988),

Gene: Phrann\_5 Start: 3555, Stop: 4361, Start Num: 41

Candidate Starts for Phrann\_5:

(1, 3195), (2, 3354), (Start: 38 @3549 has 10 MA's), (Start: 41 @3555 has 101 MA's), (55, 3639), (59, 3672), (64, 3735), (66, 3753), (82, 3825), (84, 3831), (92, 3897), (95, 3915), (124, 4122), (141, 4215),

Gene: PinkFriday\_4 Start: 4058, Stop: 4834, Start Num: 41

Candidate Starts for PinkFriday\_4:

(Start: 41 @4058 has 101 MA's), (Start: 43 @4064 has 2 MA's), (48, 4085), (55, 4142), (58, 4172), (60, 4178), (66, 4256), (71, 4286), (92, 4400), (96, 4421), (110, 4523), (136, 4667), (137, 4670), (164, 4814),

Gene: Pipsqueaks\_5 Start: 3538, Stop: 4344, Start Num: 40

Candidate Starts for Pipsqueaks\_5:

(Start: 38 @3535 has 10 MA's), (Start: 40 @3538 has 107 MA's), (55, 3622), (59, 3655), (64, 3718), (65, 3721), (66, 3736), (79, 3799), (82, 3808), (92, 3880), (95, 3898), (124, 4105), (141, 4198), (157, 4300),

Gene: PitaDog\_4 Start: 4039, Stop: 4806, Start Num: 41

Candidate Starts for PitaDog\_4:

(13, 3934), (14, 3937), (16, 3952), (Start: 21 @3973 has 3 MA's), (Start: 41 @4039 has 101 MA's), (Start: 43 @4045 has 2 MA's), (48, 4066), (55, 4123), (58, 4153), (60, 4159), (66, 4237), (71, 4267), (79, 4300), (92, 4381), (95, 4399), (107, 4483), (110, 4504), (137, 4651),

Gene: Polka\_6 Start: 4684, Stop: 5439, Start Num: 41

Candidate Starts for Polka\_6:

(23, 4630), (Start: 41 @4684 has 101 MA's), (45, 4699), (55, 4768), (59, 4801), (64, 4864), (66, 4882), (71, 4912), (87, 4984), (92, 5026), (95, 5044), (108, 5107), (109, 5116), (113, 5155), (123, 5197), (135, 5269), (140, 5290), (142, 5317), (155, 5392),

Gene: Potatoes\_7 Start: 6740, Stop: 7507, Start Num: 41

Candidate Starts for Potatoes\_7:

(9, 6617), (13, 6635), (14, 6638), (16, 6653), (Start: 21 @6674 has 3 MA's), (Start: 41 @6740 has 101 MA's), (Start: 43 @6746 has 2 MA's), (48, 6767), (55, 6824), (58, 6854), (60, 6860), (63, 6914), (66, 6938), (71, 6968), (79, 7001), (92, 7082), (95, 7100), (107, 7184), (110, 7205), (137, 7352),

Gene: Preamble\_4 Start: 4048, Stop: 4815, Start Num: 41

Candidate Starts for Preamble\_4:

(9, 3925), (13, 3943), (14, 3946), (Start: 21 @3982 has 3 MA's), (Start: 41 @4048 has 101 MA's), (Start: 43 @4054 has 2 MA's), (48, 4075), (55, 4132), (60, 4168), (66, 4246), (71, 4276), (79, 4309), (85, 4330), (92, 4390), (95, 4408), (110, 4513), (136, 4657), (137, 4660),

Gene: Pterodactyl\_4 Start: 4039, Stop: 4806, Start Num: 41

Candidate Starts for Pterodactyl\_4:

(6, 3898), (9, 3916), (13, 3934), (14, 3937), (16, 3952), (Start: 21 @3973 has 3 MA's), (Start: 41 @4039 has 101 MA's), (Start: 43 @4045 has 2 MA's), (48, 4066), (55, 4123), (58, 4153), (60, 4159), (66, 4237), (71, 4267), (79, 4300), (92, 4381), (95, 4399), (107, 4483), (110, 4504), (137, 4651),

Gene: Pumancara\_4 Start: 4058, Stop: 4834, Start Num: 41

Candidate Starts for Pumancara\_4:

(Start: 41 @4058 has 101 MA's), (Start: 43 @4064 has 2 MA's), (48, 4085), (55, 4142), (58, 4172), (60, 4178), (66, 4256), (71, 4286), (92, 4400), (96, 4421), (110, 4523), (137, 4670), (164, 4814),

Gene: Purgamenstris\_5 Start: 3555, Stop: 4361, Start Num: 41

Candidate Starts for Purgamenstris\_5:

(1, 3195), (2, 3354), (Start: 38 @3549 has 10 MA's), (Start: 41 @3555 has 101 MA's), (55, 3639), (59, 3672), (64, 3735), (66, 3753), (82, 3825), (84, 3831), (92, 3897), (95, 3915), (124, 4122), (141, 4215),

Gene: QMacho\_6 Start: 4823, Stop: 5575, Start Num: 40

Candidate Starts for QMacho\_6:

(28, 4790), (Start: 40 @4823 has 107 MA's), (44, 4838), (59, 4952), (63, 5009), (75, 5075), (89, 5150), (92, 5177), (103, 5249), (111, 5294), (157, 5555),

Gene: Quenya\_6 Start: 4534, Stop: 5280, Start Num: 40

Candidate Starts for Quenya\_6:

(11, 4420), (18, 4456), (Start: 40 @4534 has 107 MA's), (51, 4588), (58, 4660), (67, 4747), (75, 4786), (89, 4861), (92, 4888), (98, 4924), (107, 4966), (109, 4981), (110, 4987), (111, 4990),

Gene: RAP15\_7 Start: 6746, Stop: 7513, Start Num: 41

Candidate Starts for RAP15\_7:

(13, 6641), (14, 6644), (16, 6659), (Start: 21 @6680 has 3 MA's), (Start: 41 @6746 has 101 MA's), (Start: 43 @6752 has 2 MA's), (48, 6773), (55, 6830), (58, 6860), (60, 6866), (63, 6920), (66, 6944), (71, 6974), (79, 7007), (92, 7088), (95, 7106), (107, 7190), (110, 7211), (137, 7358),

Gene: Raymond7\_5 Start: 3555, Stop: 4361, Start Num: 41

Candidate Starts for Raymond7\_5:



(1, 3195), (2, 3354), (Start: 38 @3549 has 10 MA's), (Start: 41 @3555 has 101 MA's), (55, 3639), (59, 3672), (64, 3735), (66, 3753), (82, 3825), (84, 3831), (92, 3897), (95, 3915), (124, 4122), (141, 4215),

Gene: RcigaStruga\_7 Start: 6702, Stop: 7475, Start Num: 41

Candidate Starts for RcigaStruga\_7:

(9, 6579), (Start: 21 @6636 has 3 MA's), (Start: 41 @6702 has 101 MA's), (Start: 43 @6708 has 2 MA's), (48, 6729), (66, 6900), (71, 6930), (79, 6963), (92, 7044), (110, 7173), (135, 7314), (137, 7320),

Gene: Rebel\_5 Start: 3555, Stop: 4361, Start Num: 41

Candidate Starts for Rebel\_5:

(1, 3195), (2, 3354), (Start: 38 @3549 has 10 MA's), (Start: 41 @3555 has 101 MA's), (55, 3639), (59, 3672), (64, 3735), (66, 3753), (82, 3825), (84, 3831), (92, 3897), (95, 3915), (124, 4122), (141, 4215),

Gene: RedFox\_5 Start: 4280, Stop: 5032, Start Num: 41

Candidate Starts for RedFox\_5:

(3, 4103), (4, 4121), (5, 4133), (8, 4151), (19, 4208), (Start: 41 @4280 has 101 MA's), (55, 4364), (59, 4397), (64, 4460), (66, 4478), (92, 4622), (110, 4718), (111, 4721), (135, 4865), (140, 4886), (152, 4970), (155, 4988),

Gene: Redi\_5 Start: 3555, Stop: 4361, Start Num: 41

Candidate Starts for Redi\_5:

(1, 3195), (2, 3354), (Start: 38 @3549 has 10 MA's), (Start: 41 @3555 has 101 MA's), (55, 3639), (59, 3672), (64, 3735), (66, 3753), (82, 3825), (84, 3831), (92, 3897), (95, 3915), (124, 4122), (141, 4215),

Gene: Renna12\_6 Start: 4477, Stop: 5226, Start Num: 41

Candidate Starts for Renna12\_6:

(Start: 41 @4477 has 101 MA's), (50, 4519), (55, 4561), (59, 4594), (66, 4675), (92, 4819), (95, 4837), (110, 4915), (111, 4918), (114, 4951), (123, 4990), (152, 5164), (155, 5182),

Gene: Reyja\_6 Start: 3771, Stop: 4571, Start Num: 40

Candidate Starts for Reyja\_6:

(Start: 40 @3771 has 107 MA's), (42, 3777), (55, 3858), (60, 3894), (66, 3972), (80, 4038), (82, 4044), (87, 4074), (88, 4080), (92, 4116), (109, 4230), (124, 4347), (125, 4350), (129, 4374), (135, 4404), (157, 4521),

Gene: Riovina\_4 Start: 4059, Stop: 4832, Start Num: 41

Candidate Starts for Riovina\_4:

(Start: 41 @4059 has 101 MA's), (Start: 43 @4065 has 2 MA's), (48, 4086), (55, 4143), (58, 4173), (59, 4176), (60, 4179), (61, 4203), (66, 4257), (71, 4287), (79, 4320), (92, 4401), (107, 4503), (110, 4524), (137, 4671), (164, 4815),

Gene: Riverdale\_7 Start: 6677, Stop: 7444, Start Num: 41

Candidate Starts for Riverdale\_7:

(13, 6572), (14, 6575), (16, 6590), (Start: 21 @6611 has 3 MA's), (Start: 41 @6677 has 101 MA's), (Start: 43 @6683 has 2 MA's), (48, 6704), (55, 6761), (58, 6791), (60, 6797), (63, 6851), (66, 6875), (71, 6905), (79, 6938), (92, 7019), (95, 7037), (107, 7121), (110, 7142), (137, 7289),

Gene: Rollins\_4 Start: 4290, Stop: 5030, Start Num: 40

Candidate Starts for Rollins\_4:

(Start: 40 @4290 has 107 MA's), (58, 4416), (62, 4473), (67, 4503), (74, 4539), (75, 4542), (80, 4566), (83, 4575), (89, 4617), (92, 4644), (98, 4680), (107, 4722), (109, 4737), (157, 5010),

Gene: Rona\_5 Start: 4605, Stop: 5360, Start Num: 40

Candidate Starts for Rona\_5:

(Start: 40 @4605 has 107 MA's), (51, 4659), (58, 4731), (75, 4857), (80, 4881), (89, 4932), (92, 4959), (99, 5001), (103, 5028), (111, 5073), (113, 5103),

Gene: RootBeer\_5 Start: 3756, Stop: 4487, Start Num: 36

Candidate Starts for RootBeer\_5:

(36, 3756), (47, 3786), (88, 4062), (90, 4074), (94, 4113), (104, 4164), (128, 4317),

Gene: Rozby\_7 Start: 6677, Stop: 7444, Start Num: 41

Candidate Starts for Rozby\_7:

(13, 6572), (14, 6575), (16, 6590), (Start: 21 @6611 has 3 MA's), (Start: 41 @6677 has 101 MA's), (Start: 43 @6683 has 2 MA's), (48, 6704), (55, 6761), (58, 6791), (60, 6797), (63, 6851), (66, 6875), (71, 6905), (79, 6938), (92, 7019), (95, 7037), (107, 7121), (110, 7142), (137, 7289),

Gene: Rubeelu\_5 Start: 3535, Stop: 4341, Start Num: 40

Candidate Starts for Rubeelu\_5:

(Start: 38 @3532 has 10 MA's), (Start: 40 @3535 has 107 MA's), (64, 3715), (66, 3733), (82, 3805), (89, 3850), (92, 3877), (95, 3895), (116, 4054), (124, 4102), (141, 4195),

Gene: Ruchi\_6 Start: 4924, Stop: 5682, Start Num: 35

Candidate Starts for Ruchi\_6:

(Start: 35 @4924 has 12 MA's), (46, 4951), (55, 5014), (56, 5026), (63, 5104), (64, 5110), (66, 5128), (92, 5272), (95, 5290), (101, 5323), (109, 5362), (110, 5368), (111, 5371), (135, 5515), (155, 5638),

Gene: SanaSana\_6 Start: 4611, Stop: 5366, Start Num: 40

Candidate Starts for SanaSana\_6:

(28, 4578), (Start: 40 @4611 has 107 MA's), (51, 4665), (63, 4797), (74, 4860), (80, 4887), (89, 4938), (92, 4965), (98, 5001), (99, 5007), (111, 5082), (157, 5346),

Gene: SansAfet\_5 Start: 4341, Stop: 5093, Start Num: 40

Candidate Starts for SansAfet\_5:

(28, 4308), (Start: 40 @4341 has 107 MA's), (44, 4356), (59, 4470), (63, 4527), (75, 4593), (89, 4668), (92, 4695), (103, 4767), (111, 4812), (157, 5073),

Gene: Santhid\_5 Start: 3651, Stop: 4451, Start Num: 40

Candidate Starts for Santhid\_5:

(Start: 40 @3651 has 107 MA's), (42, 3657), (55, 3738), (59, 3771), (60, 3774), (66, 3852), (80, 3918), (82, 3924), (87, 3954), (88, 3960), (92, 3996), (109, 4110), (124, 4227), (129, 4254), (135, 4284), (157, 4401), (166, 4446),

Gene: Sapo\_3 Start: 3129, Stop: 3881, Start Num: 40

Candidate Starts for Sapo\_3:

(Start: 40 @3129 has 107 MA's), (55, 3216), (59, 3249), (71, 3366), (90, 3456), (111, 3600), (112, 3606), (115, 3639), (129, 3702), (154, 3843), (159, 3858),

Gene: SarBear\_5 Start: 4340, Stop: 5092, Start Num: 40

Candidate Starts for SarBear\_5:

(28, 4307), (Start: 40 @4340 has 107 MA's), (44, 4355), (59, 4469), (63, 4526), (75, 4592), (89, 4667), (92, 4694), (103, 4766), (111, 4811), (157, 5072),

Gene: Sarge\_5 Start: 4000, Stop: 4755, Start Num: 40

Candidate Starts for Sarge\_5:

(Start: 40 @4000 has 107 MA's), (44, 4015), (48, 4030), (54, 4072), (59, 4123), (63, 4180), (66, 4204), (72, 4237), (73, 4243), (88, 4312), (98, 4384), (111, 4450), (119, 4510),

Gene: Savage2526\_7 Start: 6740, Stop: 7507, Start Num: 41

Candidate Starts for Savage2526\_7:

(13, 6635), (14, 6638), (16, 6653), (Start: 21 @6674 has 3 MA's), (Start: 41 @6740 has 101 MA's), (Start: 43 @6746 has 2 MA's), (48, 6767), (55, 6824), (58, 6854), (60, 6860), (63, 6914), (66, 6938), (71, 6968), (79, 7001), (92, 7082), (95, 7100), (107, 7184), (110, 7205), (137, 7352),

Gene: Schmidt\_7 Start: 4845, Stop: 5636, Start Num: 40

Candidate Starts for Schmidt\_7:

(Start: 40 @4845 has 107 MA's), (48, 4875), (58, 4962), (59, 4965), (70, 5067), (71, 5076), (82, 5118), (84, 5124), (85, 5130), (88, 5154), (92, 5190), (93, 5199), (97, 5223), (100, 5235), (107, 5289), (110, 5310),

Gene: Schnauzer\_5 Start: 3535, Stop: 4344, Start Num: 38

Candidate Starts for Schnauzer\_5:

(Start: 38 @3535 has 10 MA's), (Start: 40 @3538 has 107 MA's), (55, 3622), (59, 3655), (64, 3718), (65, 3721), (66, 3736), (79, 3799), (82, 3808), (92, 3880), (95, 3898), (124, 4105), (141, 4198), (157, 4300),

Gene: Scitech\_5 Start: 3538, Stop: 4344, Start Num: 40

Candidate Starts for Scitech\_5:

(Start: 38 @3535 has 10 MA's), (Start: 40 @3538 has 107 MA's), (55, 3622), (59, 3655), (64, 3718), (65, 3721), (66, 3736), (79, 3799), (82, 3808), (92, 3880), (95, 3898), (124, 4105), (141, 4198), (157, 4300),

Gene: Scuttle\_7 Start: 6746, Stop: 7513, Start Num: 41

Candidate Starts for Scuttle\_7:

(13, 6641), (14, 6644), (16, 6659), (Start: 21 @6680 has 3 MA's), (Start: 41 @6746 has 101 MA's), (Start: 43 @6752 has 2 MA's), (48, 6773), (55, 6830), (58, 6860), (60, 6866), (63, 6920), (66, 6944), (71, 6974), (79, 7007), (92, 7088), (95, 7106), (107, 7190), (110, 7211), (137, 7358),

Gene: Sergei\_4 Start: 4058, Stop: 4834, Start Num: 41

Candidate Starts for Sergei\_4:

(Start: 41 @4058 has 101 MA's), (Start: 43 @4064 has 2 MA's), (48, 4085), (55, 4142), (58, 4172), (60, 4178), (66, 4256), (71, 4286), (92, 4400), (96, 4421), (110, 4523), (125, 4610), (137, 4670), (164, 4814),

Gene: Shambre1\_6 Start: 5256, Stop: 6029, Start Num: 35

Candidate Starts for Shambre1\_6:

(Start: 35 @5256 has 12 MA's), (80, 5532), (88, 5574), (90, 5586), (104, 5682), (115, 5760), (124, 5817), (131, 5853), (138, 5886), (153, 6000), (159, 6021),

Gene: Sharkboy\_5 Start: 4604, Stop: 5359, Start Num: 40

Candidate Starts for Sharkboy\_5:

(Start: 40 @4604 has 107 MA's), (51, 4658), (58, 4730), (75, 4856), (80, 4880), (89, 4931), (92, 4958), (99, 5000), (103, 5027), (111, 5072), (113, 5102),

Gene: Shayna\_4 Start: 4357, Stop: 5115, Start Num: 40

Candidate Starts for Shayna\_4:

(Start: 40 @4357 has 107 MA's), (44, 4372), (80, 4627), (87, 4663), (89, 4678), (92, 4705), (99, 4747), (107, 4801), (110, 4822), (113, 4855),

Gene: Shoya\_4 Start: 3781, Stop: 4581, Start Num: 40

Candidate Starts for Shoya\_4:

(Start: 40 @3781 has 107 MA's), (44, 3796), (48, 3811), (66, 3985), (80, 4051), (88, 4093), (89, 4102), (92, 4129), (107, 4207), (111, 4231), (113, 4261), (114, 4264), (115, 4270), (116, 4279), (124, 4318), (149, 4480),

Gene: ShrimpFriedEgg\_5 Start: 3555, Stop: 4361, Start Num: 41

Candidate Starts for ShrimpFriedEgg\_5:

(1, 3195), (2, 3354), (Start: 38 @3549 has 10 MA's), (Start: 41 @3555 has 101 MA's), (55, 3639), (59, 3672), (64, 3735), (66, 3753), (82, 3825), (84, 3831), (92, 3897), (95, 3915), (124, 4122), (141, 4215), (157, 4317),

Gene: Shweta\_5 Start: 3549, Stop: 4361, Start Num: 38

Candidate Starts for Shweta\_5:

(1, 3195), (2, 3354), (Start: 38 @3549 has 10 MA's), (Start: 41 @3555 has 101 MA's), (55, 3639), (59, 3672), (64, 3735), (66, 3753), (82, 3825), (84, 3831), (92, 3897), (95, 3915), (124, 4122), (141, 4215),

Gene: Silvafighter\_5 Start: 3538, Stop: 4344, Start Num: 40

Candidate Starts for Silvafighter\_5:

(Start: 38 @3535 has 10 MA's), (Start: 40 @3538 has 107 MA's), (55, 3622), (59, 3655), (64, 3718), (65, 3721), (66, 3736), (79, 3799), (82, 3808), (92, 3880), (95, 3898), (124, 4105), (141, 4198), (157, 4300),

Gene: Silvy\_5 Start: 3538, Stop: 4344, Start Num: 40

Candidate Starts for Silvy\_5:

(Start: 38 @3535 has 10 MA's), (Start: 40 @3538 has 107 MA's), (55, 3622), (59, 3655), (64, 3718), (65, 3721), (66, 3736), (79, 3799), (82, 3808), (92, 3880), (95, 3898), (124, 4105), (141, 4198), (157, 4300),

Gene: SkinnyPete\_5 Start: 3555, Stop: 4361, Start Num: 41

Candidate Starts for SkinnyPete\_5:

(1, 3195), (2, 3354), (Start: 38 @3549 has 10 MA's), (Start: 41 @3555 has 101 MA's), (55, 3639), (59, 3672), (64, 3735), (66, 3753), (82, 3825), (84, 3831), (92, 3897), (95, 3915), (124, 4122), (141, 4215),

Gene: Skylord\_4 Start: 4230, Stop: 4970, Start Num: 40

Candidate Starts for Skylord\_4:

(Start: 40 @4230 has 107 MA's), (58, 4356), (62, 4413), (67, 4443), (74, 4479), (75, 4482), (80, 4506), (83, 4515), (89, 4557), (92, 4584), (98, 4620), (107, 4662), (109, 4677), (157, 4950),

Gene: Slay\_5 Start: 4817, Stop: 5569, Start Num: 40

Candidate Starts for Slay\_5:

(28, 4784), (Start: 40 @4817 has 107 MA's), (44, 4832), (59, 4946), (63, 5003), (75, 5069), (89, 5144), (92, 5171), (103, 5243), (111, 5288), (157, 5549),

Gene: Smurph\_5 Start: 3538, Stop: 4344, Start Num: 40

Candidate Starts for Smurph\_5:

(Start: 38 @3535 has 10 MA's), (Start: 40 @3538 has 107 MA's), (55, 3622), (59, 3655), (64, 3718), (65, 3721), (66, 3736), (79, 3799), (82, 3808), (92, 3880), (95, 3898), (124, 4105), (141, 4198), (157, 4300),

Gene: Snekmaggedon\_5 Start: 3549, Stop: 4361, Start Num: 38

Candidate Starts for Snekmaggedon\_5:

(1, 3195), (2, 3354), (Start: 38 @3549 has 10 MA's), (Start: 41 @3555 has 101 MA's), (55, 3639), (59, 3672), (64, 3735), (66, 3753), (82, 3825), (84, 3831), (92, 3897), (95, 3915), (124, 4122), (141, 4215),

Gene: Splinter\_9 Start: 6360, Stop: 7160, Start Num: 40

Candidate Starts for Splinter\_9:

(Start: 40 @6360 has 107 MA's), (48, 6390), (55, 6447), (62, 6534), (72, 6594), (92, 6705), (93, 6714), (96, 6726), (98, 6741), (105, 6798), (109, 6822), (115, 6870), (126, 6939), (133, 6981), (138, 7002), (160, 7140),

Gene: SpongeBob\_5 Start: 3549, Stop: 4361, Start Num: 38

Candidate Starts for SpongeBob\_5:

(1, 3195), (2, 3354), (Start: 38 @3549 has 10 MA's), (Start: 41 @3555 has 101 MA's), (55, 3639), (59, 3672), (64, 3735), (66, 3753), (82, 3825), (84, 3831), (92, 3897), (95, 3915), (124, 4122), (141, 4215),

Gene: Stoor\_5 Start: 4608, Stop: 5363, Start Num: 40

Candidate Starts for Stoor\_5:

(28, 4575), (Start: 40 @4608 has 107 MA's), (51, 4662), (63, 4794), (74, 4857), (80, 4884), (89, 4935), (92, 4962), (98, 4998), (99, 5004), (111, 5079), (157, 5343),

Gene: Stromboli\_5 Start: 4608, Stop: 5363, Start Num: 40

Candidate Starts for Stromboli\_5:

(28, 4575), (Start: 40 @4608 has 107 MA's), (51, 4662), (63, 4794), (74, 4857), (80, 4884), (89, 4935), (92, 4962), (98, 4998), (99, 5004), (111, 5079), (157, 5343),

Gene: SunnyD\_4 Start: 4357, Stop: 5115, Start Num: 40

Candidate Starts for SunnyD\_4:

(Start: 40 @4357 has 107 MA's), (44, 4372), (80, 4627), (87, 4663), (89, 4678), (92, 4705), (99, 4747), (107, 4801), (110, 4822), (113, 4855),

Gene: Supakev\_4 Start: 4058, Stop: 4834, Start Num: 41

Candidate Starts for Supakev\_4:

(Start: 41 @4058 has 101 MA's), (Start: 43 @4064 has 2 MA's), (48, 4085), (55, 4142), (58, 4172), (60, 4178), (66, 4256), (71, 4286), (92, 4400), (96, 4421), (110, 4523), (137, 4670), (164, 4814),

Gene: Suppi\_7 Start: 6727, Stop: 7509, Start Num: 41

Candidate Starts for Suppi\_7:

(Start: 41 @6727 has 101 MA's), (Start: 43 @6733 has 2 MA's), (48, 6754), (55, 6811), (60, 6847), (63, 6901), (66, 6925), (79, 6988), (85, 7009), (92, 7069), (110, 7198), (125, 7285), (137, 7345), (164, 7492),

Gene: Swervy\_5 Start: 4340, Stop: 5092, Start Num: 40

Candidate Starts for Swervy\_5:

(28, 4307), (Start: 40 @4340 has 107 MA's), (44, 4355), (59, 4469), (63, 4526), (75, 4592), (89, 4667), (92, 4694), (103, 4766), (111, 4811), (157, 5072),

Gene: TZGordon\_11 Start: 6505, Stop: 7305, Start Num: 40

Candidate Starts for TZGordon\_11:

(Start: 40 @6505 has 107 MA's), (48, 6535), (55, 6592), (62, 6679), (72, 6739), (82, 6778), (90, 6826), (92, 6850), (93, 6859), (96, 6871), (98, 6886), (105, 6943), (106, 6949), (109, 6967), (115, 7015), (126, 7084), (133, 7126), (160, 7285),

Gene: Tapioca\_5 Start: 3538, Stop: 4344, Start Num: 40

Candidate Starts for Tapioca\_5:

(Start: 38 @3535 has 10 MA's), (Start: 40 @3538 has 107 MA's), (55, 3622), (59, 3655), (64, 3718), (65, 3721), (66, 3736), (79, 3799), (82, 3808), (92, 3880), (95, 3898), (124, 4105), (141, 4198), (157, 4300),

Gene: Tarzan\_5 Start: 3657, Stop: 4457, Start Num: 40

Candidate Starts for Tarzan\_5:

(Start: 40 @3657 has 107 MA's), (42, 3663), (55, 3744), (60, 3780), (66, 3858), (80, 3924), (82, 3930), (87, 3960), (88, 3966), (92, 4002), (109, 4116), (124, 4233), (125, 4236), (129, 4260), (135, 4290), (157, 4407),

Gene: TattModd\_7 Start: 6740, Stop: 7507, Start Num: 41

Candidate Starts for TattModd\_7:

(13, 6635), (14, 6638), (16, 6653), (Start: 21 @6674 has 3 MA's), (Start: 41 @6740 has 101 MA's), (Start: 43 @6746 has 2 MA's), (48, 6767), (55, 6824), (58, 6854), (60, 6860), (63, 6914), (66, 6938), (71, 6968), (79, 7001), (92, 7082), (95, 7100), (107, 7184), (110, 7205), (137, 7352),

Gene: TaylorSipht\_6 Start: 4690, Stop: 5448, Start Num: 35

Candidate Starts for TaylorSipht\_6:

(Start: 35 @4690 has 12 MA's), (Start: 43 @4702 has 2 MA's), (46, 4717), (55, 4780), (56, 4792), (59, 4813), (63, 4870), (64, 4876), (66, 4894), (92, 5038), (95, 5056), (101, 5089), (109, 5128), (110, 5134), (123, 5209), (135, 5281), (139, 5299), (144, 5332), (155, 5404),

Gene: Temper16\_4 Start: 4058, Stop: 4834, Start Num: 41

Candidate Starts for Temper16\_4:

(Start: 41 @4058 has 101 MA's), (Start: 43 @4064 has 2 MA's), (48, 4085), (55, 4142), (58, 4172), (60, 4178), (66, 4256), (71, 4286), (92, 4400), (96, 4421), (110, 4523), (125, 4610), (137, 4670), (164, 4814),

Gene: TinaLin\_12 Start: 7124, Stop: 7924, Start Num: 40

Candidate Starts for TinaLin\_12:

(Start: 40 @7124 has 107 MA's), (48, 7154), (55, 7211), (59, 7244), (70, 7346), (72, 7358), (77, 7379), (82, 7397), (90, 7445), (91, 7460), (92, 7469), (93, 7478), (98, 7505), (109, 7583), (110, 7589), (115, 7631), (129, 7721), (160, 7904),

Gene: TukTuk\_5 Start: 4340, Stop: 5092, Start Num: 40

Candidate Starts for TukTuk\_5:

(28, 4307), (Start: 40 @4340 has 107 MA's), (44, 4355), (59, 4469), (63, 4526), (75, 4592), (89, 4667), (92, 4694), (103, 4766), (111, 4811), (157, 5072),

Gene: Typha\_12 Start: 7815, Stop: 8768, Start Num: 24

Candidate Starts for Typha\_12:

(Start: 24 @7815 has 2 MA's), (34, 7842), (57, 7965), (64, 8052), (68, 8076), (83, 8148), (86, 8172), (90, 8193), (91, 8208), (92, 8217), (109, 8328), (110, 8334), (133, 8487), (148, 8550), (157, 8586), (163, 8613), (169, 8730),

Gene: Upyo\_4 Start: 3520, Stop: 4443, Start Num: 41

Candidate Starts for Upyo\_4:

(20, 3442), (28, 3478), (Start: 41 @3520 has 101 MA's), (49, 3550), (53, 3604), (55, 3622), (63, 3715), (66, 3739), (69, 3754), (97, 3913), (110, 3991), (121, 4063), (130, 4138), (133, 4153), (151, 4291), (165, 4354), (167, 4396),

Gene: Urla\_4 Start: 4039, Stop: 4815, Start Num: 41

Candidate Starts for Urla\_4:

(13, 3934), (Start: 21 @3973 has 3 MA's), (Start: 41 @4039 has 101 MA's), (Start: 43 @4045 has 2 MA's), (48, 4066), (55, 4123), (58, 4153), (60, 4159), (66, 4237), (71, 4267), (79, 4300), (85, 4321), (89, 4354), (92, 4381), (95, 4399), (110, 4504), (136, 4648), (137, 4651),

Gene: Vallejo\_7 Start: 6677, Stop: 7444, Start Num: 41

Candidate Starts for Vallejo\_7:

(13, 6572), (14, 6575), (16, 6590), (Start: 21 @6611 has 3 MA's), (Start: 41 @6677 has 101 MA's), (Start: 43 @6683 has 2 MA's), (48, 6704), (55, 6761), (58, 6791), (60, 6797), (63, 6851), (66, 6875), (71, 6905), (79, 6938), (92, 7019), (95, 7037), (107, 7121), (110, 7142), (137, 7289),

Gene: Vendetta\_9 Start: 6360, Stop: 7160, Start Num: 40

Candidate Starts for Vendetta\_9:

(Start: 40 @6360 has 107 MA's), (48, 6390), (55, 6447), (62, 6534), (72, 6594), (92, 6705), (93, 6714), (96, 6726), (98, 6741), (105, 6798), (109, 6822), (115, 6870), (126, 6939), (133, 6981), (138, 7002), (160, 7140),

Gene: Vitas\_4 Start: 4230, Stop: 4970, Start Num: 40

Candidate Starts for Vitas\_4:

(Start: 40 @4230 has 107 MA's), (58, 4356), (62, 4413), (67, 4443), (74, 4479), (75, 4482), (80, 4506), (83, 4515), (89, 4557), (92, 4584), (98, 4620), (107, 4662), (109, 4677), (157, 4950),

Gene: Vulpecula\_6 Start: 5007, Stop: 5765, Start Num: 35

Candidate Starts for Vulpecula\_6:

(Start: 35 @5007 has 12 MA's), (46, 5034), (55, 5097), (58, 5127), (59, 5130), (63, 5187), (64, 5193), (66, 5211), (92, 5355), (95, 5373), (109, 5445), (110, 5451), (111, 5454), (135, 5598), (155, 5721), (162, 5748),

Gene: Vulture\_4 Start: 4059, Stop: 4832, Start Num: 41

Candidate Starts for Vulture\_4:

(Start: 41 @4059 has 101 MA's), (Start: 43 @4065 has 2 MA's), (48, 4086), (55, 4143), (58, 4173), (59, 4176), (60, 4179), (61, 4203), (66, 4257), (71, 4287), (79, 4320), (92, 4401), (107, 4503), (110, 4524), (137, 4671), (164, 4815),

Gene: Wawa\_7 Start: 6716, Stop: 7483, Start Num: 41

Candidate Starts for Wawa\_7:

(13, 6611), (14, 6614), (16, 6629), (Start: 21 @6650 has 3 MA's), (Start: 41 @6716 has 101 MA's), (Start: 43 @6722 has 2 MA's), (48, 6743), (55, 6800), (58, 6830), (60, 6836), (63, 6890), (66, 6914), (71, 6944), (79, 6977), (92, 7058), (95, 7076), (107, 7160), (110, 7181), (137, 7328),

Gene: Wayne\_7 Start: 6773, Stop: 7555, Start Num: 41

Candidate Starts for Wayne\_7:

(Start: 41 @6773 has 101 MA's), (Start: 43 @6779 has 2 MA's), (48, 6800), (55, 6857), (60, 6893), (63, 6947), (66, 6971), (79, 7034), (85, 7055), (92, 7115), (110, 7244), (125, 7331), (137, 7391), (164, 7538),

Gene: WonderBoy\_4 Start: 4048, Stop: 4815, Start Num: 41

Candidate Starts for WonderBoy\_4:

(6, 3907), (9, 3925), (13, 3943), (14, 3946), (16, 3961), (Start: 21 @3982 has 3 MA's), (Start: 41 @4048 has 101 MA's), (Start: 43 @4054 has 2 MA's), (48, 4075), (55, 4132), (58, 4162), (60, 4168), (66, 4246), (71, 4276), (79, 4309), (92, 4390), (95, 4408), (107, 4492), (110, 4513), (137, 4660),

Gene: Xeno\_5 Start: 3538, Stop: 4344, Start Num: 40

Candidate Starts for Xeno\_5:

(Start: 38 @3535 has 10 MA's), (Start: 40 @3538 has 107 MA's), (55, 3622), (59, 3655), (64, 3718), (65, 3721), (66, 3736), (79, 3799), (82, 3808), (92, 3880), (95, 3898), (124, 4105), (141, 4198), (157, 4300),

Gene: Xerxes\_5 Start: 3538, Stop: 4344, Start Num: 40

Candidate Starts for Xerxes\_5:

(Start: 38 @3535 has 10 MA's), (Start: 40 @3538 has 107 MA's), (55, 3622), (59, 3655), (64, 3718), (65, 3721), (66, 3736), (79, 3799), (82, 3808), (92, 3880), (95, 3898), (124, 4105), (141, 4198), (157, 4300),

Gene: Zorro\_7 Start: 6695, Stop: 7462, Start Num: 41

Candidate Starts for Zorro\_7:

(13, 6590), (14, 6593), (16, 6608), (Start: 21 @6629 has 3 MA's), (Start: 41 @6695 has 101 MA's), (Start: 43 @6701 has 2 MA's), (48, 6722), (55, 6779), (58, 6809), (60, 6815), (63, 6869), (66, 6893), (71, 6923), (79, 6956), (92, 7037), (95, 7055), (107, 7139), (110, 7160), (137, 7307),