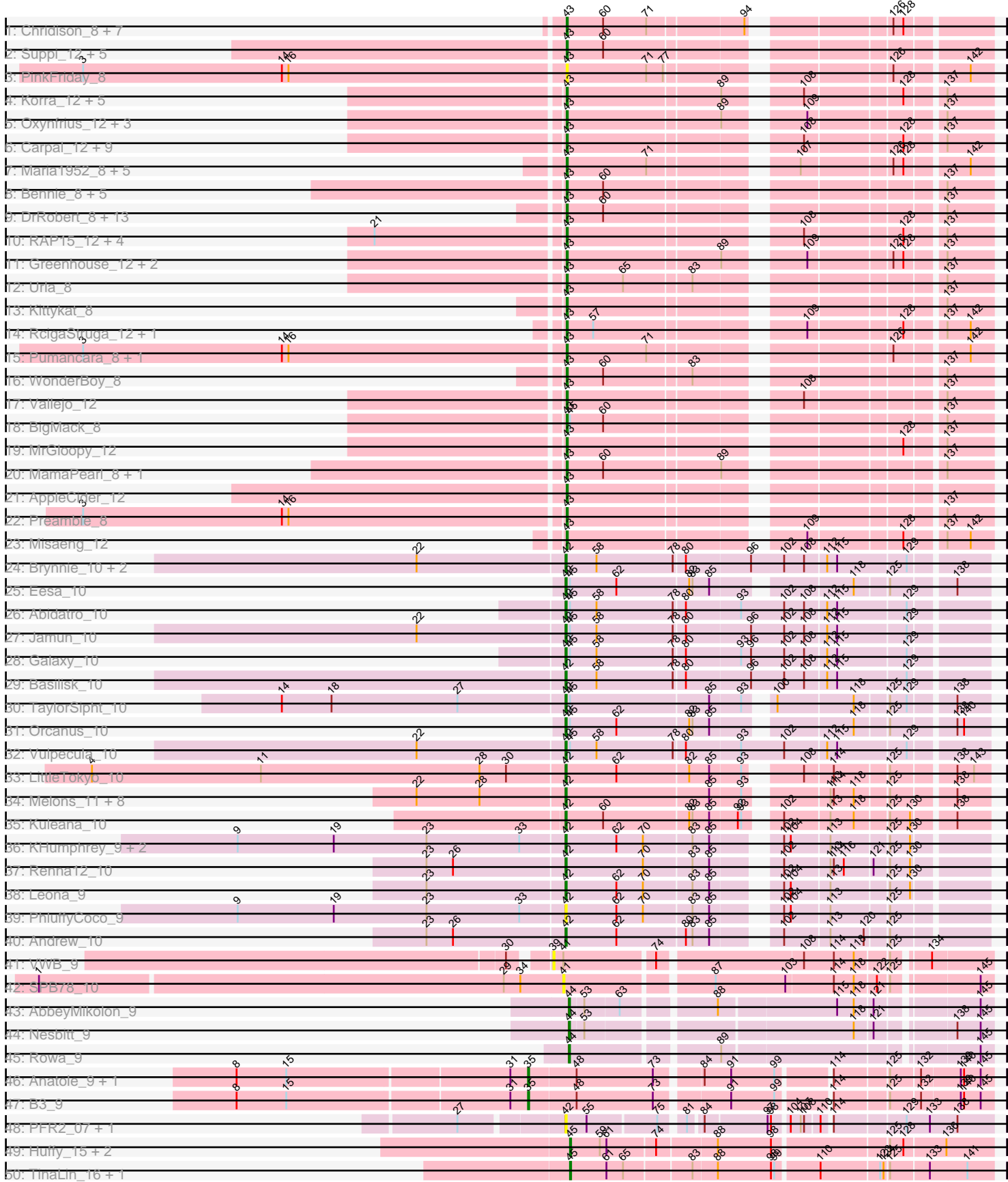
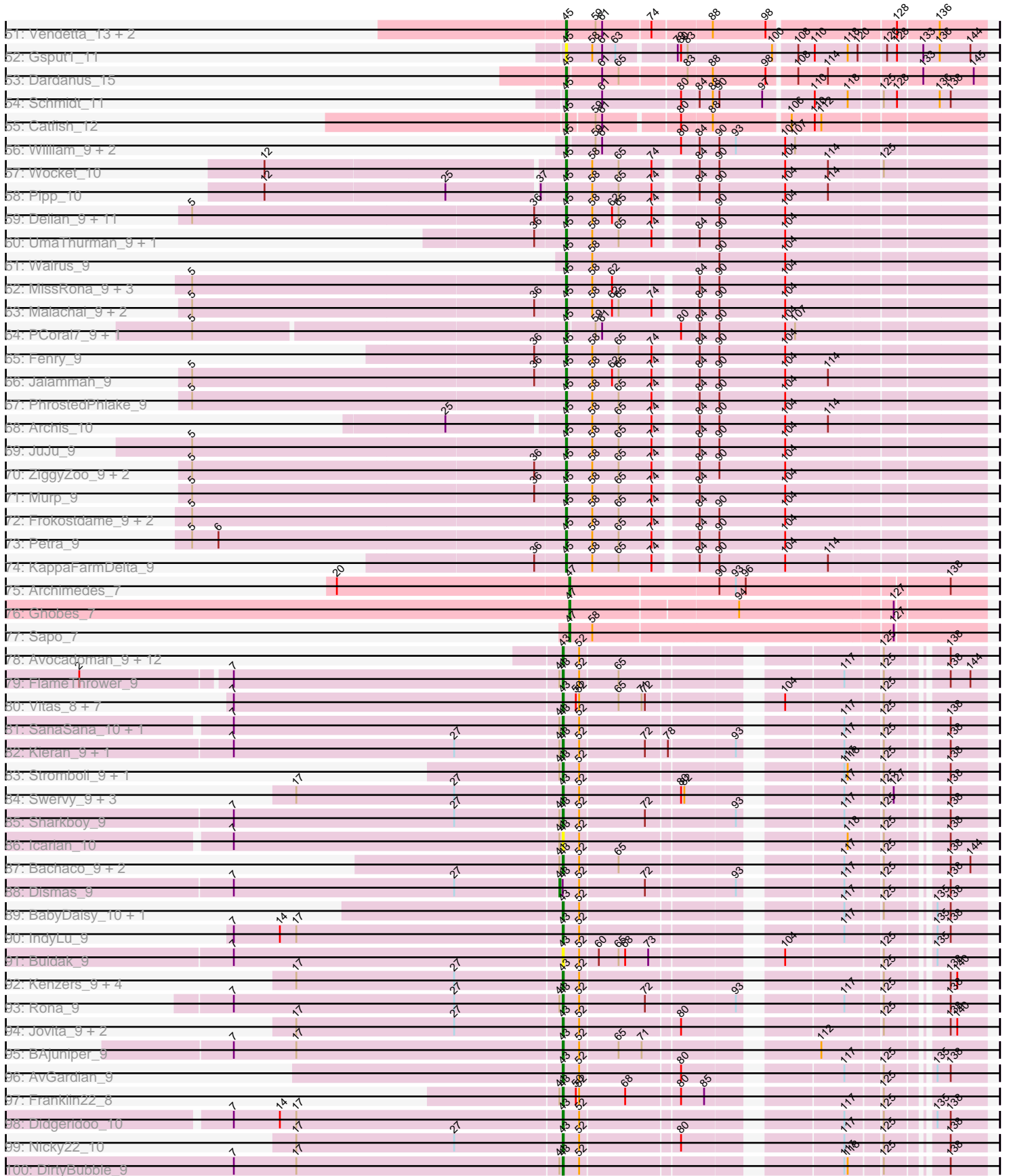


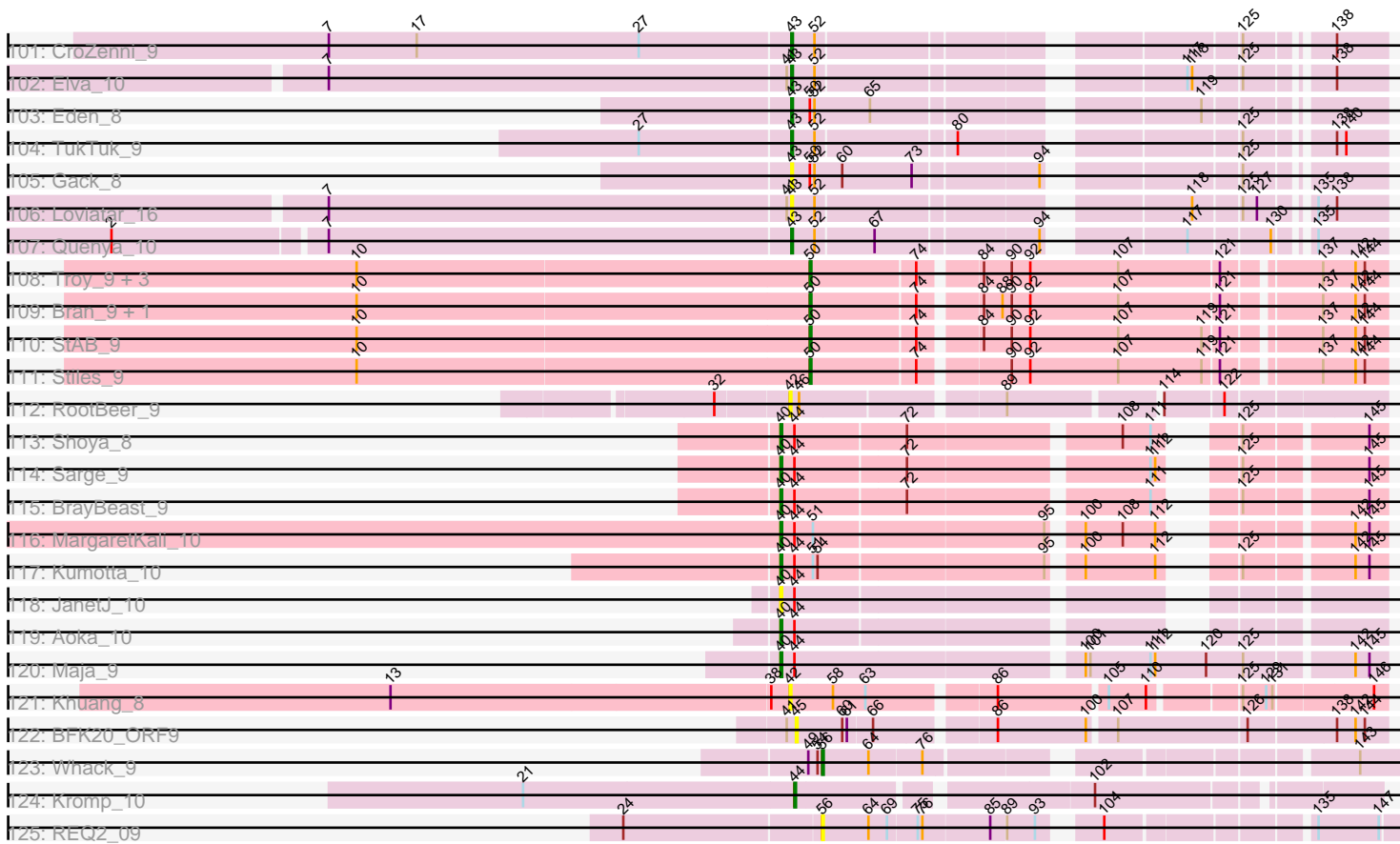
Pham 157535



Pham 157535



Pham 157535



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 157535 Report

This analysis was run 04/13/24 on database version 558.

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

Pham number 157535 has 267 members, 28 are drafts.

Phages represented in each track:

- Track 1 : Chridison\_8, Vulture\_8, HunterDalle\_8, Eunoia\_8, Aledel\_8, OMalley\_8, Riovina\_8, AustinPowers\_8
- Track 2 : Suppi\_12, Canowicakte\_12, Wayne\_12, Litotes\_12, PartyCup\_12, CallieOMalley\_12
- Track 3 : PinkFriday\_8
- Track 4 : Korra\_12, Dino\_12, Wawa\_12, Kalizoi\_12, BrotherBLo\_12, Zorro\_12
- Track 5 : Oxynfrius\_12, Albanese\_12, GreenHearts\_12, Lakshmi\_12
- Track 6 : Carpal\_12, Rozby\_12, Potatoes\_12, Cholula\_12, Fluke\_12, Glenn\_12, TattModd\_12, Riverdale\_12, Immaculata\_12, Beethoven\_12
- Track 7 : Maria1952\_8, KingBob\_8, Temper16\_8, Sergei\_8, Daiboju\_8, Herb\_8
- Track 8 : Bennie\_8, HeadNerd\_8, Moki\_8, Huckleberry\_8, DreamTeam\_8, Gisselle\_8
- Track 9 : DrRobert\_8, Christian\_8, Lennox\_8, Nancia\_8, Makoto\_8, Lucy\_8, CristinaYang\_8, PitaDog\_8, Pterodactyl\_8, LilStuart\_8, Lasagna\_8, ChewChew\_8, OurGirlNessie\_8, Bodacious\_8
- Track 10 : RAP15\_12, Savage2526\_12, Jumboset\_12, MeganNoll\_12, Scuttle\_12
- Track 11 : Greenhouse\_12, Joann\_12, Nubia\_12
- Track 12 : Urla\_8
- Track 13 : Kittykat\_8
- Track 14 : RcigaStruga\_12, Huntingdon\_12
- Track 15 : Pumancara\_8, Supakev\_8
- Track 16 : WonderBoy\_8
- Track 17 : Vallejo\_12
- Track 18 : BigMack\_8
- Track 19 : MrGloopy\_12
- Track 20 : MamaPearl\_8, EstebanJulior\_8
- Track 21 : AppleCider\_12
- Track 22 : Preamble\_8
- Track 23 : Misaeng\_12
- Track 24 : Brynnie\_10, Chickaboom\_9, Ruchi\_10
- Track 25 : Eesa\_10
- Track 26 : Abidatro\_10
- Track 27 : Jamun\_10

- Track 28 : Galaxy\_10
- Track 29 : Basilisk\_10
- Track 30 : TaylorSipht\_10
- Track 31 : Orcanus\_10
- Track 32 : Vulpecula\_10
- Track 33 : LittleTokyo\_10
- Track 34 : Melons\_11, Coral\_10, Amelia\_11, Polka\_10, Cote\_11, Lunar\_11, Daob\_11, Kepler\_10, HannahPhantana\_11
- Track 35 : Kuleana\_10
- Track 36 : KHumphrey\_9, Juno112\_9, RedFox\_9
- Track 37 : Renna12\_10
- Track 38 : Leona\_9
- Track 39 : PhluffyCoco\_9
- Track 40 : Andrew\_10
- Track 41 : VWB\_9
- Track 42 : SPB78\_10
- Track 43 : AbbeyMikolon\_9
- Track 44 : Nesbitt\_9
- Track 45 : Rowa\_9
- Track 46 : Anatole\_9, E1\_9
- Track 47 : B3\_9
- Track 48 : PFR2\_07, PFR1\_07
- Track 49 : Huffy\_15, TZGordon\_15, DinoDaryn\_15
- Track 50 : TinaLin\_16, Banquo\_17
- Track 51 : Vendetta\_13, Goib\_14, Splinter\_13
- Track 52 : Gspu1\_11
- Track 53 : Dardanus\_15
- Track 54 : Schmidt\_11
- Track 55 : Catfish\_12
- Track 56 : William\_9, Fairfaxidum\_9, PrincePatrick\_9
- Track 57 : Wocket\_10
- Track 58 : Pipp\_10
- Track 59 : Delian\_9, MintFen\_9, Guacamole\_9, Zarbodnamra\_9, Utz\_9, Lysidious\_9, Melba\_9, Barco\_9, CaptainKirk2\_9, BlingBling\_9, JasperJr\_9, Hitter\_9
- Track 60 : UmaThurman\_9, Samba\_9
- Track 61 : Walrus\_9
- Track 62 : MissRona\_9, Azula\_9, Blueberry\_9, Gambino\_9
- Track 63 : Malachai\_9, Begonia\_9, Mellie\_9
- Track 64 : PCoral7\_9, Toast\_9
- Track 65 : Fenry\_9
- Track 66 : Jalammah\_9
- Track 67 : PhrostedPhlake\_9
- Track 68 : Archis\_10
- Track 69 : JuJu\_9
- Track 70 : ZiggyZoo\_9, Obliviate\_9, Wisp\_9
- Track 71 : Murp\_9
- Track 72 : Frokostdame\_9, Blino\_9, CarolAnn\_9
- Track 73 : Petra\_9
- Track 74 : KappaFarmDelta\_9
- Track 75 : Archimedes\_7
- Track 76 : Ghobes\_7
- Track 77 : Sapo\_7

- Track 78 : Avocadoman\_9, Arroyo\_10, Burritobowl\_9, Johnathan\_9, Cashington\_9, Abigail\_9, LimaBean\_9, SansAfet\_9, Doobus\_9, DickRichards\_9, BelmontSKP\_10, Albright\_9, AnnaLie\_10
- Track 79 : FlameThrower\_9
- Track 80 : Vitas\_8, Clayda5\_8, Brahms\_8, Bernstein\_8, Rollins\_8, Coltrane\_8, Armstrong\_8, Skylord\_8
- Track 81 : SanaSana\_10, Stoor\_9
- Track 82 : Kieran\_9, ChiliPepper\_9
- Track 83 : Stromboli\_9, BabyYoda\_9
- Track 84 : Swervy\_9, SarBear\_9, Slay\_9, Finalfrontier\_10
- Track 85 : Sharkboy\_9
- Track 86 : Icarian\_10
- Track 87 : Bachaco\_9, Celaena\_9, Katzastrophic\_9
- Track 88 : Dismas\_9
- Track 89 : BabyDaisy\_10, Lahqtemish\_9
- Track 90 : IndyLu\_9
- Track 91 : Buldak\_9
- Track 92 : Kenzers\_9, Lynlen\_9, Phisb\_9, BubbaBear\_9, Albedo\_9
- Track 93 : Rona\_9
- Track 94 : Jovita\_9, Eula\_9, QMacho\_10
- Track 95 : BAjuniper\_9
- Track 96 : AvGardian\_9
- Track 97 : Franklin22\_8
- Track 98 : Didgeridoo\_10
- Track 99 : Nicky22\_10
- Track 100 : DirtyBubble\_9
- Track 101 : CroZenni\_9
- Track 102 : Elva\_10
- Track 103 : Eden\_8
- Track 104 : TukTuk\_9
- Track 105 : Gack\_8
- Track 106 : Loviatar\_16
- Track 107 : Quenya\_10
- Track 108 : Troy\_9, Lederberg\_9, SamW\_9, Dina\_9
- Track 109 : Bran\_9, Adelaide\_9
- Track 110 : StAB\_9
- Track 111 : Stiles\_9
- Track 112 : RootBeer\_9
- Track 113 : Shoya\_8
- Track 114 : Sarge\_9
- Track 115 : BrayBeast\_9
- Track 116 : MargaretKali\_10
- Track 117 : Kumotta\_10
- Track 118 : JanetJ\_10
- Track 119 : Aoka\_10
- Track 120 : Maja\_9
- Track 121 : Khuang\_8
- Track 122 : BFK20\_ORF9
- Track 123 : Whack\_9
- Track 124 : Kromp\_10
- Track 125 : REQ2\_09

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

The start number called the most often in the published annotations is 43, it was called in 136 of the 239 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Abigail\_9, Albanese\_12, Albedo\_9, Albright\_9, Aledel\_8, AnnaLie\_10, AppleCider\_12, Armstrong\_8, Arroyo\_10, AustinPowers\_8, AvGardian\_9, Avocadoman\_9, BAjuniper\_9, BabyDaisy\_10, BabyYoda\_9, Bachaco\_9, Beethoven\_12, BelmontSKP\_10, Bennie\_8, Bernstein\_8, BigMack\_8, Bodacious\_8, Brahms\_8, BrotherBLo\_12, BubbaBear\_9, Buldak\_9, Burritobowl\_9, CallieOMalley\_12, Canowicakte\_12, Carpal\_12, Cashington\_9, Celaena\_9, ChewChew\_8, ChiliPepper\_9, Cholula\_12, Chridison\_8, Christian\_8, Clayda5\_8, Coltrane\_8, CristinaYang\_8, CroZenni\_9, Daiboju\_8, DickRichards\_9, Didgeridoo\_10, Dino\_12, DirtyBubble\_9, Doobus\_9, DrRobert\_8, DreamTeam\_8, Eden\_8, Elva\_10, EstebanJulior\_8, Eula\_9, Eunoia\_8, Finalfrontier\_10, FlameThrower\_9, Fluke\_12, Franklin22\_8, Gack\_8, Gisselle\_8, Glenn\_12, GreenHearts\_12, Greenhouse\_12, HeadNerd\_8, Herb\_8, Huckleberry\_8, HunterDalle\_8, Huntingdon\_12, Icarian\_10, Immaculata\_12, IndyLu\_9, Joann\_12, Johnathan\_9, Jovita\_9, Jumboset\_12, Kalizoi\_12, Katzastrophic\_9, Kenzers\_9, Kieran\_9, KingBob\_8, Kittykat\_8, Korra\_12, Lahqtemish\_9, Lakshmi\_12, Lasagna\_8, Lennox\_8, LilStuart\_8, LimaBean\_9, Litotes\_12, Loviatar\_16, Lucy\_8, Lynlen\_9, Makoto\_8, MamaPearl\_8, Maria1952\_8, MeganNoll\_12, Misaeng\_12, Moki\_8, MrGloopy\_12, Nancia\_8, Nicky22\_10, Nubia\_12, OMalley\_8, OurGirlNessie\_8, Oxynfrius\_12, PartyCup\_12, Phisb\_9, PinkFriday\_8, PitaDog\_8, Potatoes\_12, Preamble\_8, Pterodactyl\_8, Pumancara\_8, QMacho\_10, Quenya\_10, RAP15\_12, RcigaStruga\_12, Riovina\_8, Riverdale\_12, Rollins\_8, Rona\_9, Rozby\_12, SanaSana\_10, SansAfet\_9, SarBear\_9, Savage2526\_12, Scuttle\_12, Sergei\_8, Sharkboy\_9, Skylord\_8, Slay\_9, Stoor\_9, Stromboli\_9, Supakev\_8, Suppi\_12, Swervy\_9, TattModd\_12, Temper16\_8, TukTuk\_9, Urla\_8, Vallejo\_12, Vitas\_8, Vulture\_8, Wawa\_12, Wayne\_12, WonderBoy\_8, Zorro\_12,

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

- Dismas\_9,

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

- AbbeyMikolon\_9, Abidatro\_10, Adelaide\_9, Amelia\_11, Anatole\_9, Andrew\_10, Aoka\_10, Archimedes\_7, Archis\_10, Azula\_9, B3\_9, BFK20\_ORF9, Banquo\_17, Barco\_9, Basilisk\_10, Begonia\_9, BlingBling\_9, Blino\_9, Blueberry\_9, Bran\_9, BrayBeast\_9, Brynnie\_10, CaptainKirk2\_9, CarolAnn\_9, Catfish\_12, Chickaboom\_9, Coral\_10, Cote\_11, Daob\_11, Dardanus\_15, Delian\_9, Dina\_9, DinoDaryn\_15, E1\_9, Eesa\_10, Fairfaxidum\_9, Fenry\_9, Frokostdame\_9, Galaxy\_10, Gambino\_9, Ghobes\_7, Goib\_14, Gsput1\_11, Guacamole\_9, HannahPhantana\_11, Hitter\_9, Huffy\_15, Jalammah\_9, Jamun\_10, JanetJ\_10, JasperJr\_9, JuJu\_9, Juno112\_9, KHumphrey\_9, KappaFarmDelta\_9, Kepler\_10, Khuang\_8, Kromp\_10, Kuleana\_10, Kumotta\_10, Lederberg\_9, Leona\_9, LittleTokyo\_10, Lunar\_11, Lysidious\_9, Maja\_9, Malachai\_9, MargaretKali\_10, Melba\_9, Mellie\_9, Melons\_11, MintFen\_9, MissRona\_9, Murp\_9, Nesbitt\_9, Obliviate\_9, Orcanus\_10, PCoral7\_9, PFR1\_07, PFR2\_07, Petra\_9, PhluffyCoco\_9, PhrostedPhlake\_9, Pipp\_10, Polka\_10, PrincePatrick\_9, REQ2\_09, RedFox\_9, Renna12\_10, RootBeer\_9, Rowa\_9, Ruchi\_10, SPB78\_10, SamW\_9, Samba\_9, Sapo\_7, Sarge\_9, Schmidt\_11, Shoya\_8, Splinter\_13, StAB\_9, Stiles\_9, TZGordon\_15, TaylorSipht\_10, TinaLin\_16,

Toast\_9, Troy\_9, UmaThurman\_9, Utz\_9, VWB\_9, Vendetta\_13, Vulpecula\_10, Walrus\_9, Whack\_9, William\_9, Wisp\_9, Wocket\_10, Zarbodnamra\_9, ZiggyZoo\_9,

### Summary by start number:

#### Start 35:

- Found in 3 of 267 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 3 of 239
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Anatole\_9 (BV), B3\_9 (BV), E1\_9 (BV),

#### Start 39:

- Found in 1 of 267 ( 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: VWB\_9 (BA),

#### Start 40:

- Found in 8 of 267 ( 3.0% ) of genes in pham
- Manual Annotations of this start: 7 of 239
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aoka\_10 (FO), BrayBeast\_9 (FB), JanetJ\_10 (FO), Kumotta\_10 (FB), Maja\_9 (FO), MargaretKali\_10 (FB), Sarge\_9 (FB), Shoya\_8 (FB),

#### Start 41:

- Found in 21 of 267 ( 7.9% ) of genes in pham
- Manual Annotations of this start: 1 of 239
- Called 9.5% of time when present
- Phage (with cluster) where this start called: Dismas\_9 (EB), SPB78\_10 (BA),

#### Start 42:

- Found in 33 of 267 ( 12.4% ) of genes in pham
- Manual Annotations of this start: 24 of 239
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abidatro\_10 (AS1), Amelia\_11 (AS2), Andrew\_10 (AS3), Basilisk\_10 (AS1), Brynnie\_10 (AS1), Chickaboom\_9 (AS1), Coral\_10 (AS2), Cote\_11 (AS2), Daob\_11 (AS2), Eesa\_10 (AS1), Galaxy\_10 (AS1), HannahPhantana\_11 (AS2), Jamun\_10 (AS1), Juno112\_9 (AS3), KHumphrey\_9 (AS3), Kepler\_10 (AS2), Khuang\_8 (UNK), Kuleana\_10 (AS2), Leona\_9 (AS3), LittleTokyo\_10 (AS2), Lunar\_11 (AS2), Melons\_11 (AS2), Orcanus\_10 (AS1), PFR1\_07 (BX), PFR2\_07 (BX), PhluffyCoco\_9 (AS3), Polka\_10 (AS2), RedFox\_9 (AS3), Renna12\_10 (AS3), RootBeer\_9 (FA), Ruchi\_10 (AS1), TaylorSipt\_10 (AS1), Vulpecula\_10 (AS1),

#### Start 43:

- Found in 148 of 267 ( 55.4% ) of genes in pham
- Manual Annotations of this start: 136 of 239
- Called 99.3% of time when present
- Phage (with cluster) where this start called: Abigail\_9 (EB), Albanese\_12 (AK), Albedo\_9 (EB), Albright\_9 (EB), Aledel\_8 (AK), AnnaLie\_10 (EB), AppleCider\_12 (AK), Armstrong\_8 (EB), Arroyo\_10 (EB), AustinPowers\_8 (AK), AvGardian\_9 (EB), Avocadoman\_9 (EB), BAjuniper\_9 (EB), BabyDaisy\_10 (EB), BabyYoda\_9 (EB),



Bachaco\_9 (EB), Beethoven\_12 (AK), BelmontSKP\_10 (EB), Bennie\_8 (AK), Bernstein\_8 (EB), BigMack\_8 (AK), Bodacious\_8 (AK), Brahms\_8 (EB), BrotherBLo\_12 (AK), BubbaBear\_9 (EB), Buldak\_9 (EB), Burritobowl\_9 (EB), CallieOMalley\_12 (AK), Canowicakte\_12 (AK), Carpal\_12 (AK), Cashington\_9 (EB), Celaena\_9 (EB), ChewChew\_8 (AK), ChiliPepper\_9 (EB), Cholula\_12 (AK), Chridison\_8 (AK), Christian\_8 (AK), Clayda5\_8 (EB), Coltrane\_8 (EB), CristinaYang\_8 (AK), CroZenni\_9 (EB), Daiboju\_8 (AK), DickRichards\_9 (EB), Didgeridoo\_10 (EB), Dino\_12 (AK), DirtyBubble\_9 (EB), Doobus\_9 (EB), DrRobert\_8 (AK), DreamTeam\_8 (AK), Eden\_8 (EB), Elva\_10 (EB), EstebanJulior\_8 (AK), Eula\_9 (EB), Eunoia\_8 (AK), Finalfrontier\_10 (EB), FlameThrower\_9 (EB), Fluke\_12 (AK), Franklin22\_8 (EB), Gack\_8 (EB), Gisselle\_8 (AK), Glenn\_12 (AK), GreenHearts\_12 (AK), Greenhouse\_12 (AK), HeadNerd\_8 (AK), Herb\_8 (AK), Huckleberry\_8 (AK), HunterDalle\_8 (AK), Huntingdon\_12 (AK), Icarian\_10 (EB), Immaculata\_12 (AK), IndyLu\_9 (EB), Joann\_12 (AK), Johnathan\_9 (EB), Jovita\_9 (EB), Jumboset\_12 (AK), Kalizoi\_12 (AK), Katzastrophic\_9 (EB), Kenzers\_9 (EB), Kieran\_9 (EB), KingBob\_8 (AK), Kittykat\_8 (AK), Korra\_12 (AK), Lahqtemish\_9 (EB), Lakshmi\_12 (AK), Lasagna\_8 (AK), Lennox\_8 (AK), LilStuart\_8 (AK), LimaBean\_9 (EB), Litotes\_12 (AK), Loviatar\_16 (EB), Lucy\_8 (AK), Lynlen\_9 (EB), Makoto\_8 (AK), MamaPearl\_8 (AK), Maria1952\_8 (AK), MeganNoll\_12 (AK), Misaeng\_12 (AK), Moki\_8 (AK), MrGloopy\_12 (AK), Nancia\_8 (AK), Nicky22\_10 (EB), Nubia\_12 (AK), OMalley\_8 (AK), OurGirlNessie\_8 (AK), Oxynfrius\_12 (AK), PartyCup\_12 (AK), Phisb\_9 (EB), PinkFriday\_8 (AK), PitaDog\_8 (AK), Potatoes\_12 (AK), Preamble\_8 (AK), Pterodactyl\_8 (AK), Pumancara\_8 (AK), QMacho\_10 (EB), Quenya\_10 (EB), RAP15\_12 (AK), RcigaStruga\_12 (AK), Riovina\_8 (AK), Riverdale\_12 (AK), Rollins\_8 (EB), Rona\_9 (EB), Rozby\_12 (AK), SanaSana\_10 (EB), SansAfet\_9 (EB), SarBear\_9 (EB), Savage2526\_12 (AK), Scuttle\_12 (AK), Sergei\_8 (AK), Sharkboy\_9 (EB), Skylord\_8 (EB), Slay\_9 (EB), Stoor\_9 (EB), Stromboli\_9 (EB), Supakev\_8 (AK), Suppi\_12 (AK), Swervy\_9 (EB), TattModd\_12 (AK), Temper16\_8 (AK), TukTuk\_9 (EB), Urla\_8 (AK), Vallejo\_12 (AK), Vitas\_8 (EB), Vulture\_8 (AK), Wawa\_12 (AK), Wayne\_12 (AK), WonderBoy\_8 (AK), Zorro\_12 (AK),

#### Start 44:

- Found in 12 of 267 ( 4.5% ) of genes in pham
- Manual Annotations of this start: 4 of 239
- Called 33.3% of time when present
- Phage (with cluster) where this start called: AbbeyMikolon\_9 (BL), Kromp\_10 (singleton), Nesbitt\_9 (BL), Rowa\_9 (BL),

#### Start 45:

- Found in 64 of 267 ( 24.0% ) of genes in pham
- Manual Annotations of this start: 52 of 239
- Called 87.5% of time when present
- Phage (with cluster) where this start called: Archis\_10 (CV), Azula\_9 (CV), BFK20\_ORF9 (singleton), Banquo\_17 (CU1), Barco\_9 (CV), Begonia\_9 (CV), BlingBling\_9 (CV), Blino\_9 (CV), Blueberry\_9 (CV), CaptainKirk2\_9 (CV), CarolAnn\_9 (CV), Catfish\_12 (CU5), Dardanus\_15 (CU3), Delian\_9 (CV), DinoDaryn\_15 (CU1), Fairfaxidum\_9 (CV), Fenry\_9 (CV), Frokostdame\_9 (CV), Gambino\_9 (CV), Goib\_14 (CU1), Gspu1\_11 (CU2), Guacamole\_9 (CV), Hitter\_9 (CV), Huffy\_15 (CU1), Jalamah\_9 (CV), JasperJr\_9 (CV), JuJu\_9 (CV), KappaFarmDelta\_9 (CV), Lysidious\_9 (CV), Malachai\_9 (CV), Melba\_9 (CV), Mellie\_9 (CV), MintFen\_9 (CV), MissRona\_9 (CV), Murp\_9 (CV), Oblivate\_9 (CV), PCoral7\_9 (CV), Petra\_9 (CV), PhrostedPhlake\_9 (CV), Pipp\_10 (CV), PrincePatrick\_9 (CV), Samba\_9 (CV), Schmidt\_11 (CU4), Splinter\_13 (CU1), TZGordon\_15 (CU1), TinaLin\_16 (CU1),

Toast\_9 (CV), UmaThurman\_9 (CV), Utz\_9 (CV), Vendetta\_13 (CU1), Walrus\_9 (CV), William\_9 (CV), Wisp\_9 (CV), Wocket\_10 (CV), Zarbodnamra\_9 (CV), ZiggyZoo\_9 (CV),

Start 47:

- Found in 3 of 267 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 3 of 239
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Archimedes\_7 (DA), Ghobes\_7 (DA), Sapo\_7 (DA),

Start 50:

- Found in 19 of 267 ( 7.1% ) of genes in pham
- Manual Annotations of this start: 8 of 239
- Called 42.1% of time when present
- Phage (with cluster) where this start called: Adelaide\_9 (EP), Bran\_9 (EP), Dina\_9 (EP), Lederberg\_9 (EP), SamW\_9 (EP), StAB\_9 (EP), Stiles\_9 (EP), Troy\_9 (EP),

Start 56:

- Found in 2 of 267 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 239
- Called 100.0% of time when present
- Phage (with cluster) where this start called: REQ2\_09 (singleton), Whack\_9 (singleton),

### **Summary by clusters:**

There are 22 clusters represented in this pham: singleton, BA, BL, DA, FA, BV, BX, FO, CU5, CU4, CU3, CU2, CU1, EP, AS3, AS2, AS1, AK, EB, UNK, CV, FB,

Info for manual annotations of cluster AK:

- Start number 43 was manually annotated 80 times for cluster AK.

Info for manual annotations of cluster AS1:

- Start number 42 was manually annotated 10 times for cluster AS1.

Info for manual annotations of cluster AS2:

- Start number 42 was manually annotated 10 times for cluster AS2.

Info for manual annotations of cluster AS3:

- Start number 42 was manually annotated 4 times for cluster AS3.

Info for manual annotations of cluster BL:

- Start number 44 was manually annotated 3 times for cluster BL.

Info for manual annotations of cluster BV:

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

Info for manual annotations of cluster CU1:

- Start number 45 was manually annotated 8 times for cluster CU1.

Info for manual annotations of cluster CU3:

- Start number 45 was manually annotated 1 time for cluster CU3.

Info for manual annotations of cluster CU4:

- Start number 45 was manually annotated 1 time for cluster CU4.

Info for manual annotations of cluster CU5:

- Start number 45 was manually annotated 1 time for cluster CU5.

Info for manual annotations of cluster CV:

- Start number 45 was manually annotated 41 times for cluster CV.

Info for manual annotations of cluster DA:

- Start number 47 was manually annotated 3 times for cluster DA.

Info for manual annotations of cluster EB:

- Start number 41 was manually annotated 1 time for cluster EB.
- Start number 43 was manually annotated 56 times for cluster EB.

Info for manual annotations of cluster EP:

- Start number 50 was manually annotated 8 times for cluster EP.

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 40 was manually annotated 2 times for cluster FO.

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

Gene: AbbeyMikolon\_9 Start: 7191, Stop: 7532, Start Num: 44

Candidate Starts for AbbeyMikolon\_9:

(Start: 44 @7191 has 4 MA's), (53, 7203), (63, 7233), (88, 7308), (115, 7410), (118, 7425), (121, 7440), (145, 7521),

Gene: Abidatro\_10 Start: 7704, Stop: 8066, Start Num: 42

Candidate Starts for Abidatro\_10:

(Start: 42 @7704 has 24 MA's), (Start: 45 @7707 has 52 MA's), (58, 7731), (78, 7800), (80, 7809), (93, 7857), (102, 7896), (108, 7914), (112, 7932), (115, 7941), (129, 8001),

Gene: Abigail\_9 Start: 7444, Stop: 7773, Start Num: 43

Candidate Starts for Abigail\_9:

(Start: 43 @7444 has 136 MA's), (52, 7459), (125, 7696), (138, 7741),

Gene: Adelaide\_9 Start: 6873, Stop: 7217, Start Num: 50

Candidate Starts for Adelaide\_9:

(10, 6582), (Start: 50 @6873 has 8 MA's), (74, 6939), (84, 6972), (88, 6984), (90, 6990), (92, 7002), (107, 7059), (121, 7122), (137, 7176), (142, 7197), (144, 7203),

Gene: Albanese\_12 Start: 9846, Stop: 10184, Start Num: 43  
Candidate Starts for Albanese\_12:  
(Start: 43 @9846 has 136 MA's), (89, 9978), (109, 10035), (137, 10143),

Gene: Albedo\_9 Start: 7316, Stop: 7645, Start Num: 43  
Candidate Starts for Albedo\_9:  
(17, 7076), (27, 7220), (Start: 43 @7316 has 136 MA's), (52, 7331), (125, 7568), (138, 7613), (140, 7619),

Gene: Albright\_9 Start: 7325, Stop: 7654, Start Num: 43  
Candidate Starts for Albright\_9:  
(Start: 43 @7325 has 136 MA's), (52, 7340), (125, 7577), (138, 7622),

Gene: Aledel\_8 Start: 6923, Stop: 7261, Start Num: 43  
Candidate Starts for Aledel\_8:  
(Start: 43 @6923 has 136 MA's), (60, 6956), (71, 6995), (94, 7076), (126, 7181), (128, 7190),

Gene: Amelia\_11 Start: 7903, Stop: 8244, Start Num: 42  
Candidate Starts for Amelia\_11:  
(22, 7771), (28, 7828), (Start: 42 @7903 has 24 MA's), (85, 8029), (93, 8056), (113, 8116), (114, 8119), (118, 8137), (125, 8164), (138, 8215),

Gene: Anatole\_9 Start: 6977, Stop: 7360, Start Num: 35  
Candidate Starts for Anatole\_9:  
(8, 6722), (15, 6767), (31, 6962), (Start: 35 @6977 has 3 MA's), (48, 7019), (73, 7088), (84, 7124), (91, 7148), (99, 7187), (114, 7229), (125, 7274), (132, 7298), (139, 7331), (140, 7334), (145, 7349),

Gene: Andrew\_10 Start: 7691, Stop: 8029, Start Num: 42  
Candidate Starts for Andrew\_10:  
(23, 7568), (26, 7592), (Start: 42 @7691 has 24 MA's), (62, 7736), (80, 7796), (83, 7802), (85, 7817), (102, 7862), (113, 7901), (120, 7931), (125, 7949),

Gene: AnnaLie\_10 Start: 7671, Stop: 8000, Start Num: 43  
Candidate Starts for AnnaLie\_10:  
(Start: 43 @7671 has 136 MA's), (52, 7686), (125, 7923), (138, 7968),

Gene: Aoka\_10 Start: 8106, Stop: 8438, Start Num: 40  
Candidate Starts for Aoka\_10:  
(Start: 40 @8106 has 7 MA's), (Start: 44 @8115 has 4 MA's),

Gene: AppleCider\_12 Start: 9802, Stop: 10140, Start Num: 43  
Candidate Starts for AppleCider\_12:  
(Start: 43 @9802 has 136 MA's),

Gene: Archimedes\_7 Start: 6004, Stop: 6366, Start Num: 47  
Candidate Starts for Archimedes\_7:  
(20, 5794), (Start: 47 @6004 has 3 MA's), (90, 6136), (93, 6151), (96, 6160), (138, 6334),

Gene: Archis\_10 Start: 7171, Stop: 7533, Start Num: 45  
Candidate Starts for Archis\_10:  
(25, 7069), (Start: 45 @7171 has 52 MA's), (58, 7195), (65, 7219), (74, 7249), (84, 7282), (90, 7300), (104, 7360), (114, 7399),

Gene: Armstrong\_8 Start: 7093, Stop: 7425, Start Num: 43

Candidate Starts for Armstrong\_8:

(7, 6796), (Start: 43 @7093 has 136 MA's), (Start: 50 @7105 has 8 MA's), (52, 7108), (65, 7144), (71, 7165), (72, 7168), (104, 7267), (125, 7348),

Gene: Arroyo\_10 Start: 7795, Stop: 8124, Start Num: 43

Candidate Starts for Arroyo\_10:

(Start: 43 @7795 has 136 MA's), (52, 7810), (125, 8047), (138, 8092),

Gene: AustinPowers\_8 Start: 6924, Stop: 7262, Start Num: 43

Candidate Starts for AustinPowers\_8:

(Start: 43 @6924 has 136 MA's), (60, 6957), (71, 6996), (94, 7077), (126, 7182), (128, 7191),

Gene: AvGardian\_9 Start: 7373, Stop: 7702, Start Num: 43

Candidate Starts for AvGardian\_9:

(Start: 43 @7373 has 136 MA's), (52, 7388), (80, 7472), (117, 7595), (125, 7625), (135, 7658), (138, 7670),

Gene: Avocadoman\_9 Start: 7383, Stop: 7712, Start Num: 43

Candidate Starts for Avocadoman\_9:

(Start: 43 @7383 has 136 MA's), (52, 7398), (125, 7635), (138, 7680),

Gene: Azula\_9 Start: 6835, Stop: 7194, Start Num: 45

Candidate Starts for Azula\_9:

(5, 6499), (Start: 45 @6835 has 52 MA's), (58, 6859), (62, 6877), (84, 6943), (90, 6961), (104, 7021),

Gene: B3\_9 Start: 6977, Stop: 7360, Start Num: 35

Candidate Starts for B3\_9:

(8, 6722), (15, 6767), (31, 6962), (Start: 35 @6977 has 3 MA's), (48, 7019), (73, 7088), (91, 7148), (99, 7187), (114, 7229), (125, 7274), (132, 7298), (139, 7331), (140, 7334), (145, 7349),

Gene: BAjuniper\_9 Start: 7266, Stop: 7598, Start Num: 43

Candidate Starts for BAjuniper\_9:

(7, 6969), (17, 7026), (Start: 43 @7266 has 136 MA's), (52, 7281), (65, 7314), (71, 7335), (112, 7470),

Gene: BFK20\_ORF9 Start: 6860, Stop: 7216, Start Num: 45

Candidate Starts for BFK20\_ORF9:

(Start: 41 @6854 has 1 MA's), (Start: 45 @6860 has 52 MA's), (60, 6890), (61, 6893), (66, 6908), (86, 6977), (100, 7034), (107, 7049), (126, 7130), (138, 7184), (142, 7196), (144, 7202),

Gene: BabyDaisy\_10 Start: 7544, Stop: 7873, Start Num: 43

Candidate Starts for BabyDaisy\_10:

(Start: 43 @7544 has 136 MA's), (52, 7559), (117, 7766), (125, 7796), (135, 7829), (138, 7841),

Gene: BabyYoda\_9 Start: 7566, Stop: 7895, Start Num: 43

Candidate Starts for BabyYoda\_9:

(Start: 41 @7563 has 1 MA's), (Start: 43 @7566 has 136 MA's), (52, 7581), (117, 7788), (118, 7791), (125, 7818), (138, 7863),

Gene: Bachaco\_9 Start: 7457, Stop: 7786, Start Num: 43

Candidate Starts for Bachaco\_9:

(Start: 41 @7454 has 1 MA's), (Start: 43 @7457 has 136 MA's), (52, 7472), (65, 7505), (117, 7679), (125, 7709), (138, 7754), (144, 7772),

Gene: Banquo\_17 Start: 10497, Stop: 10856, Start Num: 45

Candidate Starts for Banquo\_17:

(Start: 45 @10497 has 52 MA's), (61, 10530), (65, 10545), (83, 10602), (88, 10623), (98, 10671), (99, 10674), (110, 10710), (123, 10761), (124, 10764), (125, 10767), (133, 10800), (141, 10833),

Gene: Barco\_9 Start: 6959, Stop: 7321, Start Num: 45

Candidate Starts for Barco\_9:

(5, 6623), (36, 6932), (Start: 45 @6959 has 52 MA's), (58, 6983), (62, 7001), (65, 7007), (74, 7037), (90, 7088), (104, 7148),

Gene: Basilisk\_10 Start: 8028, Stop: 8390, Start Num: 42

Candidate Starts for Basilisk\_10:

(Start: 42 @8028 has 24 MA's), (58, 8055), (78, 8124), (80, 8133), (96, 8190), (102, 8220), (108, 8238), (112, 8256), (115, 8265), (129, 8325),

Gene: Beethoven\_12 Start: 9762, Stop: 10100, Start Num: 43

Candidate Starts for Beethoven\_12:

(Start: 43 @9762 has 136 MA's), (108, 9948), (128, 10029), (137, 10059),

Gene: Begonia\_9 Start: 6962, Stop: 7324, Start Num: 45

Candidate Starts for Begonia\_9:

(5, 6626), (36, 6935), (Start: 45 @6962 has 52 MA's), (58, 6986), (62, 7004), (65, 7010), (74, 7040), (84, 7073), (90, 7091), (104, 7151),

Gene: BelmontSKP\_10 Start: 7671, Stop: 8000, Start Num: 43

Candidate Starts for BelmontSKP\_10:

(Start: 43 @7671 has 136 MA's), (52, 7686), (125, 7923), (138, 7968),

Gene: Bennie\_8 Start: 6907, Stop: 7245, Start Num: 43

Candidate Starts for Bennie\_8:

(Start: 43 @6907 has 136 MA's), (60, 6940), (137, 7204),

Gene: Bernstein\_8 Start: 7153, Stop: 7485, Start Num: 43

Candidate Starts for Bernstein\_8:

(7, 6856), (Start: 43 @7153 has 136 MA's), (Start: 50 @7165 has 8 MA's), (52, 7168), (65, 7204), (71, 7225), (72, 7228), (104, 7327), (125, 7408),

Gene: BigMack\_8 Start: 6907, Stop: 7245, Start Num: 43

Candidate Starts for BigMack\_8:

(Start: 43 @6907 has 136 MA's), (Start: 45 @6910 has 52 MA's), (60, 6940), (137, 7204),

Gene: BlingBling\_9 Start: 6959, Stop: 7321, Start Num: 45

Candidate Starts for BlingBling\_9:

(5, 6623), (36, 6932), (Start: 45 @6959 has 52 MA's), (58, 6983), (62, 7001), (65, 7007), (74, 7037), (90, 7088), (104, 7148),

Gene: Blino\_9 Start: 6859, Stop: 7221, Start Num: 45

Candidate Starts for Blino\_9:

(5, 6523), (Start: 45 @6859 has 52 MA's), (58, 6883), (65, 6907), (74, 6937), (84, 6970), (90, 6988), (104, 7048),

Gene: Blueberry\_9 Start: 6835, Stop: 7194, Start Num: 45

Candidate Starts for Blueberry\_9:

(5, 6499), (Start: 45 @6835 has 52 MA's), (58, 6859), (62, 6877), (84, 6943), (90, 6961), (104, 7021),

Gene: Bodacious\_8 Start: 6905, Stop: 7243, Start Num: 43

Candidate Starts for Bodacious\_8:

(Start: 43 @6905 has 136 MA's), (60, 6938), (137, 7202),

Gene: Brahms\_8 Start: 7093, Stop: 7425, Start Num: 43

Candidate Starts for Brahms\_8:

(7, 6796), (Start: 43 @7093 has 136 MA's), (Start: 50 @7105 has 8 MA's), (52, 7108), (65, 7144), (71, 7165), (72, 7168), (104, 7267), (125, 7348),

Gene: Bran\_9 Start: 6878, Stop: 7222, Start Num: 50

Candidate Starts for Bran\_9:

(10, 6587), (Start: 50 @6878 has 8 MA's), (74, 6944), (84, 6977), (88, 6989), (90, 6995), (92, 7007), (107, 7064), (121, 7127), (137, 7181), (142, 7202), (144, 7208),

Gene: BrayBeast\_9 Start: 7001, Stop: 7333, Start Num: 40

Candidate Starts for BrayBeast\_9:

(Start: 40 @7001 has 7 MA's), (Start: 44 @7010 has 4 MA's), (72, 7079), (111, 7223), (125, 7250), (145, 7322),

Gene: BrotherBLo\_12 Start: 9769, Stop: 10107, Start Num: 43

Candidate Starts for BrotherBLo\_12:

(Start: 43 @9769 has 136 MA's), (89, 9901), (108, 9955), (128, 10036), (137, 10066),

Gene: Brynnie\_10 Start: 7840, Stop: 8202, Start Num: 42

Candidate Starts for Brynnie\_10:

(22, 7708), (Start: 42 @7840 has 24 MA's), (58, 7867), (78, 7936), (80, 7945), (96, 8002), (102, 8032), (108, 8050), (112, 8068), (115, 8077), (129, 8137),

Gene: BubbaBear\_9 Start: 7316, Stop: 7645, Start Num: 43

Candidate Starts for BubbaBear\_9:

(17, 7076), (27, 7220), (Start: 43 @7316 has 136 MA's), (52, 7331), (125, 7568), (138, 7613), (140, 7619),

Gene: Buldak\_9 Start: 7601, Stop: 7930, Start Num: 43

Candidate Starts for Buldak\_9:

(7, 7304), (Start: 43 @7601 has 136 MA's), (52, 7616), (60, 7631), (65, 7649), (68, 7655), (73, 7676), (104, 7772), (125, 7853), (135, 7886),

Gene: Burritobowl\_9 Start: 7352, Stop: 7681, Start Num: 43

Candidate Starts for Burritobowl\_9:

(Start: 43 @7352 has 136 MA's), (52, 7367), (125, 7604), (138, 7649),

Gene: CallieOMalley\_12 Start: 9802, Stop: 10140, Start Num: 43

Candidate Starts for CallieOMalley\_12:

(Start: 43 @9802 has 136 MA's), (60, 9835),

Gene: Canowicakte\_12 Start: 9837, Stop: 10175, Start Num: 43

Candidate Starts for Canowicakte\_12:

(Start: 43 @9837 has 136 MA's), (60, 9870),

Gene: CaptainKirk2\_9 Start: 6959, Stop: 7321, Start Num: 45

Candidate Starts for CaptainKirk2\_9:

(5, 6623), (36, 6932), (Start: 45 @6959 has 52 MA's), (58, 6983), (62, 7001), (65, 7007), (74, 7037), (90, 7088), (104, 7148),

Gene: CarolAnn\_9 Start: 6858, Stop: 7220, Start Num: 45

Candidate Starts for CarolAnn\_9:

(5, 6522), (Start: 45 @6858 has 52 MA's), (58, 6882), (65, 6906), (74, 6936), (84, 6969), (90, 6987), (104, 7047),

Gene: Carpal\_12 Start: 9769, Stop: 10107, Start Num: 43

Candidate Starts for Carpal\_12:

(Start: 43 @9769 has 136 MA's), (108, 9955), (128, 10036), (137, 10066),

Gene: Cashington\_9 Start: 7342, Stop: 7671, Start Num: 43

Candidate Starts for Cashington\_9:

(Start: 43 @7342 has 136 MA's), (52, 7357), (125, 7594), (138, 7639),

Gene: Catfish\_12 Start: 8464, Stop: 8817, Start Num: 45

Candidate Starts for Catfish\_12:

(Start: 45 @8464 has 52 MA's), (59, 8488), (61, 8494), (80, 8557), (88, 8584), (106, 8650), (110, 8671), (112, 8677),

Gene: Celaena\_9 Start: 7394, Stop: 7723, Start Num: 43

Candidate Starts for Celaena\_9:

(Start: 41 @7391 has 1 MA's), (Start: 43 @7394 has 136 MA's), (52, 7409), (65, 7442), (117, 7616), (125, 7646), (138, 7691), (144, 7709),

Gene: ChewChew\_8 Start: 6904, Stop: 7242, Start Num: 43

Candidate Starts for ChewChew\_8:

(Start: 43 @6904 has 136 MA's), (60, 6937), (137, 7201),

Gene: Chickaboom\_9 Start: 7385, Stop: 7747, Start Num: 42

Candidate Starts for Chickaboom\_9:

(22, 7253), (Start: 42 @7385 has 24 MA's), (58, 7412), (78, 7481), (80, 7490), (96, 7547), (102, 7577), (108, 7595), (112, 7613), (115, 7622), (129, 7682),

Gene: ChiliPepper\_9 Start: 7553, Stop: 7882, Start Num: 43

Candidate Starts for ChiliPepper\_9:

(7, 7256), (27, 7457), (Start: 41 @7550 has 1 MA's), (Start: 43 @7553 has 136 MA's), (52, 7568), (72, 7625), (78, 7643), (93, 7700), (117, 7775), (125, 7805), (138, 7850),

Gene: Cholula\_12 Start: 9814, Stop: 10152, Start Num: 43

Candidate Starts for Cholula\_12:

(Start: 43 @9814 has 136 MA's), (108, 10000), (128, 10081), (137, 10111),

Gene: Chridison\_8 Start: 6924, Stop: 7262, Start Num: 43

Candidate Starts for Chridison\_8:

(Start: 43 @6924 has 136 MA's), (60, 6957), (71, 6996), (94, 7077), (126, 7182), (128, 7191),

Gene: Christian\_8 Start: 6905, Stop: 7243, Start Num: 43



Candidate Starts for Christian\_8:  
(Start: 43 @6905 has 136 MA's), (60, 6938), (137, 7202),

Gene: Clayda5\_8 Start: 7093, Stop: 7425, Start Num: 43  
Candidate Starts for Clayda5\_8:  
(7, 6796), (Start: 43 @7093 has 136 MA's), (Start: 50 @7105 has 8 MA's), (52, 7108), (65, 7144), (71, 7165), (72, 7168), (104, 7267), (125, 7348),

Gene: Coltrane\_8 Start: 7093, Stop: 7425, Start Num: 43  
Candidate Starts for Coltrane\_8:  
(7, 6796), (Start: 43 @7093 has 136 MA's), (Start: 50 @7105 has 8 MA's), (52, 7108), (65, 7144), (71, 7165), (72, 7168), (104, 7267), (125, 7348),

Gene: Coral\_10 Start: 7742, Stop: 8083, Start Num: 42  
Candidate Starts for Coral\_10:  
(22, 7610), (28, 7667), (Start: 42 @7742 has 24 MA's), (85, 7868), (93, 7895), (113, 7955), (114, 7958), (118, 7976), (125, 8003), (138, 8054),

Gene: Cote\_11 Start: 7903, Stop: 8244, Start Num: 42  
Candidate Starts for Cote\_11:  
(22, 7771), (28, 7828), (Start: 42 @7903 has 24 MA's), (85, 8029), (93, 8056), (113, 8116), (114, 8119), (118, 8137), (125, 8164), (138, 8215),

Gene: CristinaYang\_8 Start: 6905, Stop: 7243, Start Num: 43  
Candidate Starts for CristinaYang\_8:  
(Start: 43 @6905 has 136 MA's), (60, 6938), (137, 7202),

Gene: CroZenni\_9 Start: 7325, Stop: 7654, Start Num: 43  
Candidate Starts for CroZenni\_9:  
(7, 7028), (17, 7085), (27, 7229), (Start: 43 @7325 has 136 MA's), (52, 7340), (125, 7577), (138, 7622),

Gene: Daiboju\_8 Start: 6925, Stop: 7263, Start Num: 43  
Candidate Starts for Daiboju\_8:  
(Start: 43 @6925 has 136 MA's), (71, 6997), (107, 7108), (126, 7183), (128, 7192), (142, 7243),

Gene: Daob\_11 Start: 7906, Stop: 8247, Start Num: 42  
Candidate Starts for Daob\_11:  
(22, 7774), (28, 7831), (Start: 42 @7906 has 24 MA's), (85, 8032), (93, 8059), (113, 8119), (114, 8122), (118, 8140), (125, 8167), (138, 8218),

Gene: Dardanus\_15 Start: 9541, Stop: 9897, Start Num: 45  
Candidate Starts for Dardanus\_15:  
(Start: 45 @9541 has 52 MA's), (61, 9571), (65, 9586), (83, 9643), (88, 9664), (98, 9712), (108, 9736), (114, 9763), (133, 9841), (145, 9886),

Gene: Delian\_9 Start: 6959, Stop: 7321, Start Num: 45  
Candidate Starts for Delian\_9:  
(5, 6623), (36, 6932), (Start: 45 @6959 has 52 MA's), (58, 6983), (62, 7001), (65, 7007), (74, 7037), (90, 7088), (104, 7148),

Gene: DickRichards\_9 Start: 7819, Stop: 8148, Start Num: 43  
Candidate Starts for DickRichards\_9:

(Start: 43 @7819 has 136 MA's), (52, 7834), (125, 8071), (138, 8116),

Gene: Didgeridoo\_10 Start: 7544, Stop: 7873, Start Num: 43

Candidate Starts for Didgeridoo\_10:

(7, 7247), (14, 7289), (17, 7304), (Start: 43 @7544 has 136 MA's), (52, 7559), (117, 7766), (125, 7796), (135, 7829), (138, 7841),

Gene: Dina\_9 Start: 6861, Stop: 7205, Start Num: 50

Candidate Starts for Dina\_9:

(10, 6570), (Start: 50 @6861 has 8 MA's), (74, 6927), (84, 6960), (90, 6978), (92, 6990), (107, 7047), (121, 7110), (137, 7164), (142, 7185), (144, 7191),

Gene: Dino\_12 Start: 9768, Stop: 10106, Start Num: 43

Candidate Starts for Dino\_12:

(Start: 43 @9768 has 136 MA's), (89, 9900), (108, 9954), (128, 10035), (137, 10065),

Gene: DinoDaryn\_15 Start: 9631, Stop: 9990, Start Num: 45

Candidate Starts for DinoDaryn\_15:

(Start: 45 @9631 has 52 MA's), (59, 9658), (61, 9664), (74, 9706), (88, 9757), (98, 9805), (125, 9901), (128, 9913), (136, 9949),

Gene: DirtyBubble\_9 Start: 7574, Stop: 7903, Start Num: 43

Candidate Starts for DirtyBubble\_9:

(7, 7277), (17, 7334), (Start: 41 @7571 has 1 MA's), (Start: 43 @7574 has 136 MA's), (52, 7589), (117, 7796), (118, 7799), (125, 7826), (138, 7871),

Gene: Dismas\_9 Start: 7550, Stop: 7882, Start Num: 41

Candidate Starts for Dismas\_9:

(7, 7256), (27, 7457), (Start: 41 @7550 has 1 MA's), (Start: 43 @7553 has 136 MA's), (52, 7568), (72, 7625), (93, 7700), (117, 7775), (125, 7805), (138, 7850),

Gene: Doobus\_9 Start: 7556, Stop: 7885, Start Num: 43

Candidate Starts for Doobus\_9:

(Start: 43 @7556 has 136 MA's), (52, 7571), (125, 7808), (138, 7853),

Gene: DrRobert\_8 Start: 6905, Stop: 7243, Start Num: 43

Candidate Starts for DrRobert\_8:

(Start: 43 @6905 has 136 MA's), (60, 6938), (137, 7202),

Gene: DreamTeam\_8 Start: 6951, Stop: 7289, Start Num: 43

Candidate Starts for DreamTeam\_8:

(Start: 43 @6951 has 136 MA's), (60, 6984), (137, 7248),

Gene: E1\_9 Start: 6977, Stop: 7360, Start Num: 35

Candidate Starts for E1\_9:

(8, 6722), (15, 6767), (31, 6962), (Start: 35 @6977 has 3 MA's), (48, 7019), (73, 7088), (84, 7124), (91, 7148), (99, 7187), (114, 7229), (125, 7274), (132, 7298), (139, 7331), (140, 7334), (145, 7349),

Gene: Eden\_8 Start: 7182, Stop: 7514, Start Num: 43

Candidate Starts for Eden\_8:

(Start: 43 @7182 has 136 MA's), (Start: 50 @7194 has 8 MA's), (52, 7197), (65, 7233), (119, 7416),

Gene: Eesa\_10 Start: 7902, Stop: 8243, Start Num: 42

Candidate Starts for Eesa\_10:

(Start: 42 @7902 has 24 MA's), (Start: 45 @7905 has 52 MA's), (62, 7947), (82, 8010), (83, 8013), (85, 8028), (118, 8136), (125, 8163), (138, 8214),

Gene: Elva\_10 Start: 7631, Stop: 7960, Start Num: 43

Candidate Starts for Elva\_10:

(7, 7334), (Start: 41 @7628 has 1 MA's), (Start: 43 @7631 has 136 MA's), (52, 7646), (117, 7853), (118, 7856), (125, 7883), (138, 7928),

Gene: EstebanJulior\_8 Start: 6949, Stop: 7287, Start Num: 43

Candidate Starts for EstebanJulior\_8:

(Start: 43 @6949 has 136 MA's), (60, 6982), (89, 7081), (137, 7246),

Gene: Eula\_9 Start: 7323, Stop: 7652, Start Num: 43

Candidate Starts for Eula\_9:

(17, 7083), (27, 7227), (Start: 43 @7323 has 136 MA's), (52, 7338), (80, 7422), (125, 7575), (138, 7620), (140, 7626),

Gene: Eunoia\_8 Start: 6923, Stop: 7261, Start Num: 43

Candidate Starts for Eunoia\_8:

(Start: 43 @6923 has 136 MA's), (60, 6956), (71, 6995), (94, 7076), (126, 7181), (128, 7190),

Gene: Fairfaxidum\_9 Start: 6937, Stop: 7305, Start Num: 45

Candidate Starts for Fairfaxidum\_9:

(Start: 45 @6937 has 52 MA's), (59, 6961), (61, 6967), (80, 7039), (84, 7054), (90, 7072), (93, 7087), (104, 7132), (107, 7141),

Gene: Fenry\_9 Start: 6968, Stop: 7330, Start Num: 45

Candidate Starts for Fenry\_9:

(36, 6941), (Start: 45 @6968 has 52 MA's), (58, 6992), (65, 7016), (74, 7046), (84, 7079), (90, 7097), (104, 7157),

Gene: Finalfrontier\_10 Start: 7834, Stop: 8163, Start Num: 43

Candidate Starts for Finalfrontier\_10:

(17, 7594), (27, 7738), (Start: 43 @7834 has 136 MA's), (52, 7849), (80, 7933), (82, 7936), (117, 8056), (125, 8086), (127, 8095), (138, 8131),

Gene: FlameThrower\_9 Start: 7282, Stop: 7611, Start Num: 43

Candidate Starts for FlameThrower\_9:

(2, 6853), (7, 6985), (Start: 41 @7279 has 1 MA's), (Start: 43 @7282 has 136 MA's), (52, 7297), (65, 7330), (117, 7504), (125, 7534), (138, 7579), (144, 7597),

Gene: Fluke\_12 Start: 9810, Stop: 10148, Start Num: 43

Candidate Starts for Fluke\_12:

(Start: 43 @9810 has 136 MA's), (108, 9996), (128, 10077), (137, 10107),

Gene: Franklin22\_8 Start: 7163, Stop: 7495, Start Num: 43

Candidate Starts for Franklin22\_8:

(Start: 41 @7160 has 1 MA's), (Start: 43 @7163 has 136 MA's), (Start: 50 @7175 has 8 MA's), (52, 7178), (68, 7220), (80, 7265), (85, 7286), (125, 7418),

Gene: Frokostdame\_9 Start: 6954, Stop: 7316, Start Num: 45

Candidate Starts for Frokostdame\_9:

(5, 6618), (Start: 45 @6954 has 52 MA's), (58, 6978), (65, 7002), (74, 7032), (84, 7065), (90, 7083), (104, 7143),

Gene: Gack\_8 Start: 7233, Stop: 7565, Start Num: 43

Candidate Starts for Gack\_8:

(Start: 43 @7233 has 136 MA's), (Start: 50 @7245 has 8 MA's), (52, 7248), (60, 7266), (73, 7311), (94, 7386), (125, 7488),

Gene: Galaxy\_10 Start: 7711, Stop: 8073, Start Num: 42

Candidate Starts for Galaxy\_10:

(Start: 42 @7711 has 24 MA's), (Start: 45 @7714 has 52 MA's), (58, 7738), (78, 7807), (80, 7816), (93, 7864), (96, 7873), (102, 7903), (108, 7921), (112, 7939), (115, 7948), (129, 8008),

Gene: Gambino\_9 Start: 6835, Stop: 7194, Start Num: 45

Candidate Starts for Gambino\_9:

(5, 6499), (Start: 45 @6835 has 52 MA's), (58, 6859), (62, 6877), (84, 6943), (90, 6961), (104, 7021),

Gene: Ghobes\_7 Start: 6056, Stop: 6415, Start Num: 47

Candidate Starts for Ghobes\_7:

(Start: 47 @6056 has 3 MA's), (94, 6203), (127, 6338),

Gene: Gisselle\_8 Start: 6951, Stop: 7289, Start Num: 43

Candidate Starts for Gisselle\_8:

(Start: 43 @6951 has 136 MA's), (60, 6984), (137, 7248),

Gene: Glenn\_12 Start: 9820, Stop: 10158, Start Num: 43

Candidate Starts for Glenn\_12:

(Start: 43 @9820 has 136 MA's), (108, 10006), (128, 10087), (137, 10117),

Gene: Goib\_14 Start: 9406, Stop: 9765, Start Num: 45

Candidate Starts for Goib\_14:

(Start: 45 @9406 has 52 MA's), (59, 9433), (61, 9439), (74, 9481), (88, 9532), (98, 9580), (128, 9688), (136, 9724),

Gene: GreenHearts\_12 Start: 9892, Stop: 10230, Start Num: 43

Candidate Starts for GreenHearts\_12:

(Start: 43 @9892 has 136 MA's), (89, 10024), (109, 10081), (137, 10189),

Gene: Greenhouse\_12 Start: 9817, Stop: 10155, Start Num: 43

Candidate Starts for Greenhouse\_12:

(Start: 43 @9817 has 136 MA's), (89, 9949), (109, 10006), (126, 10075), (128, 10084), (137, 10114),

Gene: Gspu1\_11 Start: 7862, Stop: 8218, Start Num: 45

Candidate Starts for Gspu1\_11:

(Start: 45 @7862 has 52 MA's), (58, 7886), (61, 7895), (63, 7907), (79, 7955), (80, 7958), (83, 7964), (100, 8039), (108, 8057), (110, 8072), (118, 8102), (120, 8111), (126, 8132), (128, 8141), (133, 8162), (136, 8177), (144, 8204),

Gene: Guacamole\_9 Start: 6963, Stop: 7325, Start Num: 45

Candidate Starts for Guacamole\_9:

(5, 6627), (36, 6936), (Start: 45 @6963 has 52 MA's), (58, 6987), (62, 7005), (65, 7011), (74, 7041), (90, 7092), (104, 7152),

Gene: HannahPhantana\_11 Start: 7906, Stop: 8247, Start Num: 42

Candidate Starts for HannahPhantana\_11:

(22, 7774), (28, 7831), (Start: 42 @7906 has 24 MA's), (85, 8032), (93, 8059), (113, 8119), (114, 8122), (118, 8140), (125, 8167), (138, 8218),

Gene: HeadNerd\_8 Start: 6907, Stop: 7245, Start Num: 43

Candidate Starts for HeadNerd\_8:

(Start: 43 @6907 has 136 MA's), (60, 6940), (137, 7204),

Gene: Herb\_8 Start: 6925, Stop: 7263, Start Num: 43

Candidate Starts for Herb\_8:

(Start: 43 @6925 has 136 MA's), (71, 6997), (107, 7108), (126, 7183), (128, 7192), (142, 7243),

Gene: Hitter\_9 Start: 6959, Stop: 7321, Start Num: 45

Candidate Starts for Hitter\_9:

(5, 6623), (36, 6932), (Start: 45 @6959 has 52 MA's), (58, 6983), (62, 7001), (65, 7007), (74, 7037), (90, 7088), (104, 7148),

Gene: Huckleberry\_8 Start: 6907, Stop: 7245, Start Num: 43

Candidate Starts for Huckleberry\_8:

(Start: 43 @6907 has 136 MA's), (60, 6940), (137, 7204),

Gene: Huff\_15 Start: 9631, Stop: 9990, Start Num: 45

Candidate Starts for Huff\_15:

(Start: 45 @9631 has 52 MA's), (59, 9658), (61, 9664), (74, 9706), (88, 9757), (98, 9805), (125, 9901), (128, 9913), (136, 9949),

Gene: HunterDalle\_8 Start: 6923, Stop: 7261, Start Num: 43

Candidate Starts for HunterDalle\_8:

(Start: 43 @6923 has 136 MA's), (60, 6956), (71, 6995), (94, 7076), (126, 7181), (128, 7190),

Gene: Huntingdon\_12 Start: 9803, Stop: 10141, Start Num: 43

Candidate Starts for Huntingdon\_12:

(Start: 43 @9803 has 136 MA's), (57, 9827), (109, 9992), (128, 10070), (137, 10100), (142, 10121),

Gene: Icarian\_10 Start: 7557, Stop: 7886, Start Num: 43

Candidate Starts for Icarian\_10:

(7, 7260), (Start: 41 @7554 has 1 MA's), (Start: 43 @7557 has 136 MA's), (52, 7572), (118, 7782), (125, 7809), (138, 7854),

Gene: Immaculata\_12 Start: 9814, Stop: 10152, Start Num: 43

Candidate Starts for Immaculata\_12:

(Start: 43 @9814 has 136 MA's), (108, 10000), (128, 10081), (137, 10111),

Gene: IndyLu\_9 Start: 7368, Stop: 7697, Start Num: 43

Candidate Starts for IndyLu\_9:

(7, 7071), (14, 7113), (17, 7128), (Start: 43 @7368 has 136 MA's), (52, 7383), (117, 7590), (135, 7653), (138, 7665),

Gene: Jalamah\_9 Start: 6959, Stop: 7321, Start Num: 45

Candidate Starts for Jalamah\_9:

(5, 6623), (36, 6932), (Start: 45 @6959 has 52 MA's), (58, 6983), (62, 7001), (65, 7007), (74, 7037), (84, 7070), (90, 7088), (104, 7148), (114, 7187),

Gene: Jamun\_10 Start: 8052, Stop: 8414, Start Num: 42

Candidate Starts for Jamun\_10:

(22, 7920), (Start: 42 @8052 has 24 MA's), (Start: 45 @8055 has 52 MA's), (58, 8079), (78, 8148), (80, 8157), (96, 8214), (102, 8244), (108, 8262), (112, 8280), (115, 8289), (129, 8349),

Gene: JanetJ\_10 Start: 7922, Stop: 8254, Start Num: 40

Candidate Starts for JanetJ\_10:

(Start: 40 @7922 has 7 MA's), (Start: 44 @7931 has 4 MA's),

Gene: JasperJr\_9 Start: 6963, Stop: 7325, Start Num: 45

Candidate Starts for JasperJr\_9:

(5, 6627), (36, 6936), (Start: 45 @6963 has 52 MA's), (58, 6987), (62, 7005), (65, 7011), (74, 7041), (90, 7092), (104, 7152),

Gene: Joann\_12 Start: 9795, Stop: 10133, Start Num: 43

Candidate Starts for Joann\_12:

(Start: 43 @9795 has 136 MA's), (89, 9927), (109, 9984), (126, 10053), (128, 10062), (137, 10092),

Gene: Johnathan\_9 Start: 7325, Stop: 7654, Start Num: 43

Candidate Starts for Johnathan\_9:

(Start: 43 @7325 has 136 MA's), (52, 7340), (125, 7577), (138, 7622),

Gene: Jovita\_9 Start: 7424, Stop: 7753, Start Num: 43

Candidate Starts for Jovita\_9:

(17, 7184), (27, 7328), (Start: 43 @7424 has 136 MA's), (52, 7439), (80, 7523), (125, 7676), (138, 7721), (140, 7727),

Gene: JuJu\_9 Start: 6884, Stop: 7246, Start Num: 45

Candidate Starts for JuJu\_9:

(5, 6548), (Start: 45 @6884 has 52 MA's), (58, 6908), (65, 6932), (74, 6962), (84, 6995), (90, 7013), (104, 7073),

Gene: Jumboset\_12 Start: 9763, Stop: 10101, Start Num: 43

Candidate Starts for Jumboset\_12:

(21, 9598), (Start: 43 @9763 has 136 MA's), (108, 9949), (128, 10030), (137, 10060),

Gene: Juno112\_9 Start: 7313, Stop: 7651, Start Num: 42

Candidate Starts for Juno112\_9:

(9, 7019), (19, 7106), (23, 7190), (33, 7274), (Start: 42 @7313 has 24 MA's), (62, 7358), (70, 7382), (83, 7424), (85, 7439), (102, 7484), (104, 7490), (113, 7523), (125, 7571), (130, 7589),

Gene: KHumphrey\_9 Start: 7312, Stop: 7650, Start Num: 42

Candidate Starts for KHumphrey\_9:

(9, 7018), (19, 7105), (23, 7189), (33, 7273), (Start: 42 @7312 has 24 MA's), (62, 7357), (70, 7381), (83, 7423), (85, 7438), (102, 7483), (104, 7489), (113, 7522), (125, 7570), (130, 7588),

Gene: Kalizoi\_12 Start: 9762, Stop: 10100, Start Num: 43

Candidate Starts for Kalizoi\_12:

(Start: 43 @9762 has 136 MA's), (89, 9894), (108, 9948), (128, 10029), (137, 10059),

Gene: KappaFarmDelta\_9 Start: 6997, Stop: 7359, Start Num: 45

Candidate Starts for KappaFarmDelta\_9:

(36, 6970), (Start: 45 @6997 has 52 MA's), (58, 7021), (65, 7045), (74, 7075), (84, 7108), (90, 7126), (104, 7186), (114, 7225),

Gene: Katzastrophic\_9 Start: 7457, Stop: 7786, Start Num: 43

Candidate Starts for Katzastrophic\_9:

(Start: 41 @7454 has 1 MA's), (Start: 43 @7457 has 136 MA's), (52, 7472), (65, 7505), (117, 7679), (125, 7709), (138, 7754), (144, 7772),

Gene: Kenzers\_9 Start: 7339, Stop: 7668, Start Num: 43

Candidate Starts for Kenzers\_9:

(17, 7099), (27, 7243), (Start: 43 @7339 has 136 MA's), (52, 7354), (125, 7591), (138, 7636), (140, 7642),

Gene: Kepler\_10 Start: 7741, Stop: 8082, Start Num: 42

Candidate Starts for Kepler\_10:

(22, 7609), (28, 7666), (Start: 42 @7741 has 24 MA's), (85, 7867), (93, 7894), (113, 7954), (114, 7957), (118, 7975), (125, 8002), (138, 8053),

Gene: Khuang\_8 Start: 6379, Stop: 6729, Start Num: 42

Candidate Starts for Khuang\_8:

(13, 6124), (38, 6367), (Start: 42 @6379 has 24 MA's), (58, 6406), (63, 6427), (86, 6502), (105, 6568), (110, 6592), (125, 6643), (129, 6658), (131, 6661), (146, 6721),

Gene: Kieran\_9 Start: 7556, Stop: 7885, Start Num: 43

Candidate Starts for Kieran\_9:

(7, 7259), (27, 7460), (Start: 41 @7553 has 1 MA's), (Start: 43 @7556 has 136 MA's), (52, 7571), (72, 7628), (78, 7646), (93, 7703), (117, 7778), (125, 7808), (138, 7853),

Gene: KingBob\_8 Start: 6925, Stop: 7263, Start Num: 43

Candidate Starts for KingBob\_8:

(Start: 43 @6925 has 136 MA's), (71, 6997), (107, 7108), (126, 7183), (128, 7192), (142, 7243),

Gene: Kittykat\_8 Start: 6948, Stop: 7286, Start Num: 43

Candidate Starts for Kittykat\_8:

(Start: 43 @6948 has 136 MA's), (137, 7245),

Gene: Korra\_12 Start: 9768, Stop: 10106, Start Num: 43

Candidate Starts for Korra\_12:

(Start: 43 @9768 has 136 MA's), (89, 9900), (108, 9954), (128, 10035), (137, 10065),

Gene: Kromp\_10 Start: 8334, Stop: 8675, Start Num: 44

Candidate Starts for Kromp\_10:

(21, 8160), (Start: 44 @8334 has 4 MA's), (102, 8508),

Gene: Kuleana\_10 Start: 7701, Stop: 8042, Start Num: 42

Candidate Starts for Kuleana\_10:

(Start: 42 @7701 has 24 MA's), (60, 7734), (82, 7809), (83, 7812), (85, 7827), (92, 7851), (93, 7854), (102, 7875), (113, 7914), (118, 7935), (125, 7962), (130, 7980), (138, 8013),

Gene: Kumotta\_10 Start: 7839, Stop: 8171, Start Num: 40

Candidate Starts for Kumotta\_10:

(Start: 40 @7839 has 7 MA's), (Start: 44 @7848 has 4 MA's), (51, 7860), (54, 7863), (95, 8004), (100, 8019), (112, 8064), (125, 8088), (142, 8151), (145, 8160),

Gene: Lahqtemish\_9 Start: 7412, Stop: 7741, Start Num: 43

Candidate Starts for Lahqtemish\_9:

(Start: 43 @7412 has 136 MA's), (52, 7427), (117, 7634), (125, 7664), (135, 7697), (138, 7709),

Gene: Lakshmi\_12 Start: 9822, Stop: 10160, Start Num: 43

Candidate Starts for Lakshmi\_12:

(Start: 43 @9822 has 136 MA's), (89, 9954), (109, 10011), (137, 10119),

Gene: Lasagna\_8 Start: 6905, Stop: 7243, Start Num: 43

Candidate Starts for Lasagna\_8:

(Start: 43 @6905 has 136 MA's), (60, 6938), (137, 7202),

Gene: Lederberg\_9 Start: 6861, Stop: 7205, Start Num: 50

Candidate Starts for Lederberg\_9:

(10, 6570), (Start: 50 @6861 has 8 MA's), (74, 6927), (84, 6960), (90, 6978), (92, 6990), (107, 7047), (121, 7110), (137, 7164), (142, 7185), (144, 7191),

Gene: Lennox\_8 Start: 6905, Stop: 7243, Start Num: 43

Candidate Starts for Lennox\_8:

(Start: 43 @6905 has 136 MA's), (60, 6938), (137, 7202),

Gene: Leona\_9 Start: 7363, Stop: 7701, Start Num: 42

Candidate Starts for Leona\_9:

(23, 7240), (Start: 42 @7363 has 24 MA's), (62, 7408), (70, 7432), (83, 7474), (85, 7489), (102, 7534), (104, 7540), (113, 7573), (125, 7621), (130, 7639),

Gene: LilStuart\_8 Start: 6905, Stop: 7243, Start Num: 43

Candidate Starts for LilStuart\_8:

(Start: 43 @6905 has 136 MA's), (60, 6938), (137, 7202),

Gene: LimaBean\_9 Start: 7325, Stop: 7654, Start Num: 43

Candidate Starts for LimaBean\_9:

(Start: 43 @7325 has 136 MA's), (52, 7340), (125, 7577), (138, 7622),

Gene: Litotes\_12 Start: 9790, Stop: 10128, Start Num: 43

Candidate Starts for Litotes\_12:

(Start: 43 @9790 has 136 MA's), (60, 9823),

Gene: LittleTokyo\_10 Start: 7645, Stop: 7983, Start Num: 42

Candidate Starts for LittleTokyo\_10:

(4, 7219), (11, 7372), (28, 7570), (30, 7594), (Start: 42 @7645 has 24 MA's), (62, 7690), (82, 7753), (85, 7771), (93, 7798), (108, 7834), (114, 7858), (125, 7903), (138, 7954), (143, 7969),

Gene: Loviatar\_16 Start: 7578, Stop: 7907, Start Num: 43

Candidate Starts for Loviatar\_16:

(7, 7281), (Start: 41 @7575 has 1 MA's), (Start: 43 @7578 has 136 MA's), (52, 7593), (118, 7803), (125, 7830), (127, 7839), (135, 7863), (138, 7875),

Gene: Lucy\_8 Start: 6896, Stop: 7234, Start Num: 43

Candidate Starts for Lucy\_8:

(Start: 43 @6896 has 136 MA's), (60, 6929), (137, 7193),



Gene: Lunar\_11 Start: 7903, Stop: 8244, Start Num: 42

Candidate Starts for Lunar\_11:

(22, 7771), (28, 7828), (Start: 42 @7903 has 24 MA's), (85, 8029), (93, 8056), (113, 8116), (114, 8119), (118, 8137), (125, 8164), (138, 8215),

Gene: Lynlen\_9 Start: 7339, Stop: 7668, Start Num: 43

Candidate Starts for Lynlen\_9:

(17, 7099), (27, 7243), (Start: 43 @7339 has 136 MA's), (52, 7354), (125, 7591), (138, 7636), (140, 7642),

Gene: Lysidious\_9 Start: 6959, Stop: 7321, Start Num: 45

Candidate Starts for Lysidious\_9:

(5, 6623), (36, 6932), (Start: 45 @6959 has 52 MA's), (58, 6983), (62, 7001), (65, 7007), (74, 7037), (90, 7088), (104, 7148),

Gene: Maja\_9 Start: 7424, Stop: 7792, Start Num: 40

Candidate Starts for Maja\_9:

(Start: 40 @7424 has 7 MA's), (Start: 44 @7433 has 4 MA's), (100, 7607), (101, 7610), (111, 7649), (112, 7652), (120, 7685), (125, 7709), (142, 7772), (145, 7781),

Gene: Makoto\_8 Start: 6905, Stop: 7243, Start Num: 43

Candidate Starts for Makoto\_8:

(Start: 43 @6905 has 136 MA's), (60, 6938), (137, 7202),

Gene: Malachai\_9 Start: 6962, Stop: 7324, Start Num: 45

Candidate Starts for Malachai\_9:

(5, 6626), (36, 6935), (Start: 45 @6962 has 52 MA's), (58, 6986), (62, 7004), (65, 7010), (74, 7040), (84, 7073), (90, 7091), (104, 7151),

Gene: MamaPearl\_8 Start: 6949, Stop: 7287, Start Num: 43

Candidate Starts for MamaPearl\_8:

(Start: 43 @6949 has 136 MA's), (60, 6982), (89, 7081), (137, 7246),

Gene: MargaretKali\_10 Start: 7474, Stop: 7806, Start Num: 40

Candidate Starts for MargaretKali\_10:

(Start: 40 @7474 has 7 MA's), (Start: 44 @7483 has 4 MA's), (51, 7495), (95, 7639), (100, 7654), (108, 7678), (112, 7699), (142, 7786), (145, 7795),

Gene: Maria1952\_8 Start: 6925, Stop: 7263, Start Num: 43

Candidate Starts for Maria1952\_8:

(Start: 43 @6925 has 136 MA's), (71, 6997), (107, 7108), (126, 7183), (128, 7192), (142, 7243),

Gene: MeganNoll\_12 Start: 9820, Stop: 10158, Start Num: 43

Candidate Starts for MeganNoll\_12:

(21, 9655), (Start: 43 @9820 has 136 MA's), (108, 10006), (128, 10087), (137, 10117),

Gene: Melba\_9 Start: 6959, Stop: 7321, Start Num: 45

Candidate Starts for Melba\_9:

(5, 6623), (36, 6932), (Start: 45 @6959 has 52 MA's), (58, 6983), (62, 7001), (65, 7007), (74, 7037), (90, 7088), (104, 7148),

Gene: Mellie\_9 Start: 6959, Stop: 7321, Start Num: 45

Candidate Starts for Mellie\_9:

(5, 6623), (36, 6932), (Start: 45 @6959 has 52 MA's), (58, 6983), (62, 7001), (65, 7007), (74, 7037), (84, 7070), (90, 7088), (104, 7148),

Gene: Melons\_11 Start: 7903, Stop: 8244, Start Num: 42

Candidate Starts for Melons\_11:

(22, 7771), (28, 7828), (Start: 42 @7903 has 24 MA's), (85, 8029), (93, 8056), (113, 8116), (114, 8119), (118, 8137), (125, 8164), (138, 8215),

Gene: MintFen\_9 Start: 6959, Stop: 7321, Start Num: 45

Candidate Starts for MintFen\_9:

(5, 6623), (36, 6932), (Start: 45 @6959 has 52 MA's), (58, 6983), (62, 7001), (65, 7007), (74, 7037), (90, 7088), (104, 7148),

Gene: Misaeng\_12 Start: 9868, Stop: 10206, Start Num: 43

Candidate Starts for Misaeng\_12:

(Start: 43 @9868 has 136 MA's), (109, 10057), (128, 10135), (137, 10165), (142, 10186),

Gene: MissRona\_9 Start: 6835, Stop: 7194, Start Num: 45

Candidate Starts for MissRona\_9:

(5, 6499), (Start: 45 @6835 has 52 MA's), (58, 6859), (62, 6877), (84, 6943), (90, 6961), (104, 7021),

Gene: Moki\_8 Start: 6907, Stop: 7245, Start Num: 43

Candidate Starts for Moki\_8:

(Start: 43 @6907 has 136 MA's), (60, 6940), (137, 7204),

Gene: MrGloopy\_12 Start: 9753, Stop: 10091, Start Num: 43

Candidate Starts for MrGloopy\_12:

(Start: 43 @9753 has 136 MA's), (128, 10020), (137, 10050),

Gene: Murp\_9 Start: 7000, Stop: 7362, Start Num: 45

Candidate Starts for Murp\_9:

(5, 6664), (36, 6973), (Start: 45 @7000 has 52 MA's), (58, 7024), (65, 7048), (74, 7078), (84, 7111), (104, 7189),

Gene: Nancia\_8 Start: 6905, Stop: 7243, Start Num: 43

Candidate Starts for Nancia\_8:

(Start: 43 @6905 has 136 MA's), (60, 6938), (137, 7202),

Gene: Nesbitt\_9 Start: 7263, Stop: 7604, Start Num: 44

Candidate Starts for Nesbitt\_9:

(Start: 44 @7263 has 4 MA's), (53, 7275), (118, 7497), (121, 7512), (138, 7572), (145, 7593),

Gene: Nicky22\_10 Start: 7773, Stop: 8102, Start Num: 43

Candidate Starts for Nicky22\_10:

(17, 7533), (27, 7677), (Start: 43 @7773 has 136 MA's), (52, 7788), (80, 7872), (117, 7995), (125, 8025), (138, 8070),

Gene: Nubia\_12 Start: 9782, Stop: 10120, Start Num: 43

Candidate Starts for Nubia\_12:

(Start: 43 @9782 has 136 MA's), (89, 9914), (109, 9971), (126, 10040), (128, 10049), (137, 10079),

Gene: OMalley\_8 Start: 6923, Stop: 7261, Start Num: 43

Candidate Starts for OMalley\_8:

(Start: 43 @6923 has 136 MA's), (60, 6956), (71, 6995), (94, 7076), (126, 7181), (128, 7190),

Gene: Obliviate\_9 Start: 6983, Stop: 7345, Start Num: 45

Candidate Starts for Obliviate\_9:

(5, 6647), (36, 6956), (Start: 45 @6983 has 52 MA's), (58, 7007), (65, 7031), (74, 7061), (84, 7094), (90, 7112), (104, 7172),

Gene: Orcanus\_10 Start: 7692, Stop: 8033, Start Num: 42

Candidate Starts for Orcanus\_10:

(Start: 42 @7692 has 24 MA's), (Start: 45 @7695 has 52 MA's), (62, 7737), (82, 7800), (83, 7803), (85, 7818), (118, 7926), (125, 7953), (138, 8004), (140, 8010),

Gene: OurGirlNessie\_8 Start: 6896, Stop: 7234, Start Num: 43

Candidate Starts for OurGirlNessie\_8:

(Start: 43 @6896 has 136 MA's), (60, 6929), (137, 7193),

Gene: Oxynfrius\_12 Start: 9795, Stop: 10133, Start Num: 43

Candidate Starts for Oxynfrius\_12:

(Start: 43 @9795 has 136 MA's), (89, 9927), (109, 9984), (137, 10092),

Gene: PCoral7\_9 Start: 6937, Stop: 7305, Start Num: 45

Candidate Starts for PCoral7\_9:

(5, 6607), (Start: 45 @6937 has 52 MA's), (59, 6961), (61, 6967), (80, 7039), (84, 7054), (90, 7072), (104, 7132), (107, 7141),

Gene: PFR1\_07 Start: 6932, Stop: 7273, Start Num: 42

Candidate Starts for PFR1\_07:

(27, 6845), (Start: 42 @6932 has 24 MA's), (55, 6950), (75, 7010), (81, 7028), (84, 7037), (97, 7091), (98, 7094), (104, 7106), (107, 7115), (108, 7118), (110, 7130), (114, 7136), (129, 7196), (133, 7217), (138, 7241),

Gene: PFR2\_07 Start: 6932, Stop: 7273, Start Num: 42

Candidate Starts for PFR2\_07:

(27, 6845), (Start: 42 @6932 has 24 MA's), (55, 6950), (75, 7010), (81, 7028), (84, 7037), (97, 7091), (98, 7094), (104, 7106), (107, 7115), (108, 7118), (110, 7130), (114, 7136), (129, 7196), (133, 7217), (138, 7241),

Gene: PartyCup\_12 Start: 9837, Stop: 10175, Start Num: 43

Candidate Starts for PartyCup\_12:

(Start: 43 @9837 has 136 MA's), (60, 9870),

Gene: Petra\_9 Start: 6865, Stop: 7227, Start Num: 45

Candidate Starts for Petra\_9:

(5, 6529), (6, 6553), (Start: 45 @6865 has 52 MA's), (58, 6889), (65, 6913), (74, 6943), (84, 6976), (90, 6994), (104, 7054),

Gene: Phisb\_9 Start: 7316, Stop: 7645, Start Num: 43

Candidate Starts for Phisb\_9:

(17, 7076), (27, 7220), (Start: 43 @7316 has 136 MA's), (52, 7331), (125, 7568), (138, 7613), (140, 7619),

Gene: PhluffyCoco\_9 Start: 7312, Stop: 7650, Start Num: 42

Candidate Starts for PhluffyCoco\_9:

(9, 7018), (19, 7105), (23, 7189), (33, 7273), (Start: 42 @7312 has 24 MA's), (62, 7357), (70, 7381), (83, 7423), (85, 7438), (102, 7483), (104, 7489), (113, 7522), (125, 7570),

Gene: PhrostedPhlake\_9 Start: 7040, Stop: 7402, Start Num: 45

Candidate Starts for PhrostedPhlake\_9:

(5, 6704), (Start: 45 @7040 has 52 MA's), (58, 7064), (65, 7088), (74, 7118), (84, 7151), (90, 7169), (104, 7229),

Gene: PinkFriday\_8 Start: 6926, Stop: 7264, Start Num: 43

Candidate Starts for PinkFriday\_8:

(3, 6494), (14, 6674), (16, 6680), (Start: 43 @6926 has 136 MA's), (71, 6998), (77, 7013), (126, 7184), (142, 7244),

Gene: Pipp\_10 Start: 7195, Stop: 7557, Start Num: 45

Candidate Starts for Pipp\_10:

(12, 6931), (25, 7093), (37, 7174), (Start: 45 @7195 has 52 MA's), (58, 7219), (65, 7243), (74, 7273), (84, 7306), (90, 7324), (104, 7384), (114, 7423),

Gene: PitaDog\_8 Start: 6896, Stop: 7234, Start Num: 43

Candidate Starts for PitaDog\_8:

(Start: 43 @6896 has 136 MA's), (60, 6929), (137, 7193),

Gene: Polka\_10 Start: 7742, Stop: 8083, Start Num: 42

Candidate Starts for Polka\_10:

(22, 7610), (28, 7667), (Start: 42 @7742 has 24 MA's), (85, 7868), (93, 7895), (113, 7955), (114, 7958), (118, 7976), (125, 8003), (138, 8054),

Gene: Potatoes\_12 Start: 9814, Stop: 10152, Start Num: 43

Candidate Starts for Potatoes\_12:

(Start: 43 @9814 has 136 MA's), (108, 10000), (128, 10081), (137, 10111),

Gene: Preamble\_8 Start: 6906, Stop: 7244, Start Num: 43

Candidate Starts for Preamble\_8:

(3, 6477), (14, 6657), (16, 6663), (Start: 43 @6906 has 136 MA's), (137, 7203),

Gene: PrincePatrick\_9 Start: 6938, Stop: 7306, Start Num: 45

Candidate Starts for PrincePatrick\_9:

(Start: 45 @6938 has 52 MA's), (59, 6962), (61, 6968), (80, 7040), (84, 7055), (90, 7073), (93, 7088), (104, 7133), (107, 7142),

Gene: Pterodactyl\_8 Start: 6897, Stop: 7235, Start Num: 43

Candidate Starts for Pterodactyl\_8:

(Start: 43 @6897 has 136 MA's), (60, 6930), (137, 7194),

Gene: Pumancara\_8 Start: 6925, Stop: 7263, Start Num: 43

Candidate Starts for Pumancara\_8:

(3, 6493), (14, 6673), (16, 6679), (Start: 43 @6925 has 136 MA's), (71, 6997), (126, 7183), (142, 7243),

Gene: QMacho\_10 Start: 7806, Stop: 8135, Start Num: 43

Candidate Starts for QMacho\_10:

(17, 7566), (27, 7710), (Start: 43 @7806 has 136 MA's), (52, 7821), (80, 7905), (125, 8058), (138, 8103), (140, 8109),

Gene: Quenya\_10 Start: 7452, Stop: 7781, Start Num: 43

Candidate Starts for Quenya\_10:

(2, 7023), (7, 7155), (Start: 43 @7452 has 136 MA's), (52, 7467), (67, 7503), (94, 7602), (117, 7674), (130, 7722), (135, 7737),

Gene: RAP15\_12 Start: 9820, Stop: 10158, Start Num: 43

Candidate Starts for RAP15\_12:

(21, 9655), (Start: 43 @9820 has 136 MA's), (108, 10006), (128, 10087), (137, 10117),

Gene: REQ2\_09 Start: 6642, Stop: 6971, Start Num: 56

Candidate Starts for REQ2\_09:

(24, 6519), (Start: 56 @6642 has 1 MA's), (64, 6672), (69, 6684), (75, 6702), (76, 6705), (85, 6747), (89, 6756), (93, 6774), (104, 6801), (135, 6918), (147, 6957),

Gene: RcigaStruga\_12 Start: 9803, Stop: 10141, Start Num: 43

Candidate Starts for RcigaStruga\_12:

(Start: 43 @9803 has 136 MA's), (57, 9827), (109, 9992), (128, 10070), (137, 10100), (142, 10121),

Gene: RedFox\_9 Start: 7312, Stop: 7650, Start Num: 42

Candidate Starts for RedFox\_9:

(9, 7018), (19, 7105), (23, 7189), (33, 7273), (Start: 42 @7312 has 24 MA's), (62, 7357), (70, 7381), (83, 7423), (85, 7438), (102, 7483), (104, 7489), (113, 7522), (125, 7570), (130, 7588),

Gene: Renna12\_10 Start: 7512, Stop: 7850, Start Num: 42

Candidate Starts for Renna12\_10:

(23, 7389), (26, 7413), (Start: 42 @7512 has 24 MA's), (70, 7581), (83, 7623), (85, 7638), (102, 7683), (113, 7722), (114, 7725), (116, 7734), (121, 7758), (125, 7770), (130, 7788),

Gene: Riovina\_8 Start: 6923, Stop: 7261, Start Num: 43

Candidate Starts for Riovina\_8:

(Start: 43 @6923 has 136 MA's), (60, 6956), (71, 6995), (94, 7076), (126, 7181), (128, 7190),

Gene: Riverdale\_12 Start: 9751, Stop: 10089, Start Num: 43

Candidate Starts for Riverdale\_12:

(Start: 43 @9751 has 136 MA's), (108, 9937), (128, 10018), (137, 10048),

Gene: Rollins\_8 Start: 7153, Stop: 7485, Start Num: 43

Candidate Starts for Rollins\_8:

(7, 6856), (Start: 43 @7153 has 136 MA's), (Start: 50 @7165 has 8 MA's), (52, 7168), (65, 7204), (71, 7225), (72, 7228), (104, 7327), (125, 7408),

Gene: Rona\_9 Start: 7553, Stop: 7882, Start Num: 43

Candidate Starts for Rona\_9:

(7, 7256), (27, 7457), (Start: 41 @7550 has 1 MA's), (Start: 43 @7553 has 136 MA's), (52, 7568), (72, 7625), (93, 7700), (117, 7775), (125, 7805), (138, 7850),

Gene: RootBeer\_9 Start: 6513, Stop: 6860, Start Num: 42

Candidate Starts for RootBeer\_9:

(32, 6468), (Start: 42 @6513 has 24 MA's), (46, 6519), (89, 6639), (114, 6729), (122, 6765),

Gene: Rowa\_9 Start: 7020, Stop: 7364, Start Num: 44

Candidate Starts for Rowa\_9:

(Start: 44 @7020 has 4 MA's), (89, 7143), (145, 7353),

Gene: Rozby\_12 Start: 9751, Stop: 10089, Start Num: 43

Candidate Starts for Rozby\_12:

(Start: 43 @9751 has 136 MA's), (108, 9937), (128, 10018), (137, 10048),

Gene: Ruchi\_10 Start: 7974, Stop: 8336, Start Num: 42

Candidate Starts for Ruchi\_10:

(22, 7842), (Start: 42 @7974 has 24 MA's), (58, 8001), (78, 8070), (80, 8079), (96, 8136), (102, 8166), (108, 8184), (112, 8202), (115, 8211), (129, 8271),

Gene: SPB78\_10 Start: 7392, Stop: 7745, Start Num: 41

Candidate Starts for SPB78\_10:

(1, 6924), (29, 7338), (34, 7353), (Start: 41 @7392 has 1 MA's), (87, 7515), (103, 7578), (114, 7620), (118, 7638), (122, 7656), (125, 7665), (145, 7734),

Gene: SamW\_9 Start: 6861, Stop: 7205, Start Num: 50

Candidate Starts for SamW\_9:

(10, 6570), (Start: 50 @6861 has 8 MA's), (74, 6927), (84, 6960), (90, 6978), (92, 6990), (107, 7047), (121, 7110), (137, 7164), (142, 7185), (144, 7191),

Gene: Samba\_9 Start: 6960, Stop: 7322, Start Num: 45

Candidate Starts for Samba\_9:

(36, 6933), (Start: 45 @6960 has 52 MA's), (58, 6984), (65, 7008), (74, 7038), (84, 7071), (90, 7089), (104, 7149),

Gene: SanaSana\_10 Start: 7567, Stop: 7896, Start Num: 43

Candidate Starts for SanaSana\_10:

(7, 7270), (Start: 41 @7564 has 1 MA's), (Start: 43 @7567 has 136 MA's), (52, 7582), (117, 7789), (125, 7819), (138, 7864),

Gene: SansAfet\_9 Start: 7336, Stop: 7665, Start Num: 43

Candidate Starts for SansAfet\_9:

(Start: 43 @7336 has 136 MA's), (52, 7351), (125, 7588), (138, 7633),

Gene: Sapo\_7 Start: 6047, Stop: 6409, Start Num: 47

Candidate Starts for Sapo\_7:

(Start: 47 @6047 has 3 MA's), (58, 6068), (127, 6332),

Gene: SarBear\_9 Start: 7299, Stop: 7628, Start Num: 43

Candidate Starts for SarBear\_9:

(17, 7059), (27, 7203), (Start: 43 @7299 has 136 MA's), (52, 7314), (80, 7398), (82, 7401), (117, 7521), (125, 7551), (127, 7560), (138, 7596),

Gene: Sarge\_9 Start: 6912, Stop: 7244, Start Num: 40

Candidate Starts for Sarge\_9:

(Start: 40 @6912 has 7 MA's), (Start: 44 @6921 has 4 MA's), (72, 6990), (111, 7134), (112, 7137), (125, 7161), (145, 7233),

Gene: Savage2526\_12 Start: 9814, Stop: 10152, Start Num: 43

Candidate Starts for Savage2526\_12:

(21, 9649), (Start: 43 @9814 has 136 MA's), (108, 10000), (128, 10081), (137, 10111),

Gene: Schmidt\_11 Start: 7862, Stop: 8224, Start Num: 45

Candidate Starts for Schmidt\_11:

(Start: 45 @7862 has 52 MA's), (61, 7895), (80, 7964), (84, 7979), (88, 7991), (90, 7997), (97, 8036), (110, 8078), (118, 8108), (125, 8135), (128, 8147), (136, 8183), (138, 8192),

Gene: Scuttle\_12 Start: 9820, Stop: 10158, Start Num: 43

Candidate Starts for Scuttle\_12:

(21, 9655), (Start: 43 @9820 has 136 MA's), (108, 10006), (128, 10087), (137, 10117),

Gene: Sergei\_8 Start: 6925, Stop: 7263, Start Num: 43

Candidate Starts for Sergei\_8:

(Start: 43 @6925 has 136 MA's), (71, 6997), (107, 7108), (126, 7183), (128, 7192), (142, 7243),

Gene: Sharkboy\_9 Start: 7552, Stop: 7881, Start Num: 43

Candidate Starts for Sharkboy\_9:

(7, 7255), (27, 7456), (Start: 41 @7549 has 1 MA's), (Start: 43 @7552 has 136 MA's), (52, 7567), (72, 7624), (93, 7699), (117, 7774), (125, 7804), (138, 7849),

Gene: Shoya\_8 Start: 6548, Stop: 6880, Start Num: 40

Candidate Starts for Shoya\_8:

(Start: 40 @6548 has 7 MA's), (Start: 44 @6557 has 4 MA's), (72, 6626), (108, 6752), (111, 6770), (125, 6797), (145, 6869),

Gene: Skylord\_8 Start: 7093, Stop: 7425, Start Num: 43

Candidate Starts for Skylord\_8:

(7, 6796), (Start: 43 @7093 has 136 MA's), (Start: 50 @7105 has 8 MA's), (52, 7108), (65, 7144), (71, 7165), (72, 7168), (104, 7267), (125, 7348),

Gene: Slay\_9 Start: 7775, Stop: 8104, Start Num: 43

Candidate Starts for Slay\_9:

(17, 7535), (27, 7679), (Start: 43 @7775 has 136 MA's), (52, 7790), (80, 7874), (82, 7877), (117, 7997), (125, 8027), (127, 8036), (138, 8072),

Gene: Splinter\_13 Start: 9406, Stop: 9765, Start Num: 45

Candidate Starts for Splinter\_13:

(Start: 45 @9406 has 52 MA's), (59, 9433), (61, 9439), (74, 9481), (88, 9532), (98, 9580), (128, 9688), (136, 9724),

Gene: StAB\_9 Start: 6866, Stop: 7210, Start Num: 50

Candidate Starts for StAB\_9:

(10, 6575), (Start: 50 @6866 has 8 MA's), (74, 6932), (84, 6965), (90, 6983), (92, 6995), (107, 7052), (119, 7106), (121, 7115), (137, 7169), (142, 7190), (144, 7196),

Gene: Stiles\_9 Start: 6860, Stop: 7204, Start Num: 50

Candidate Starts for Stiles\_9:

(10, 6569), (Start: 50 @6860 has 8 MA's), (74, 6926), (90, 6977), (92, 6989), (107, 7046), (119, 7100), (121, 7109), (137, 7163), (142, 7184), (144, 7190),

Gene: Stoor\_9 Start: 7564, Stop: 7893, Start Num: 43

Candidate Starts for Stoor\_9:

(7, 7267), (Start: 41 @7561 has 1 MA's), (Start: 43 @7564 has 136 MA's), (52, 7579), (117, 7786), (125, 7816), (138, 7861),

Gene: Stromboli\_9 Start: 7565, Stop: 7894, Start Num: 43  
Candidate Starts for Stromboli\_9:  
(Start: 41 @7562 has 1 MA's), (Start: 43 @7565 has 136 MA's), (52, 7580), (117, 7787), (118, 7790),  
(125, 7817), (138, 7862),

Gene: Supakev\_8 Start: 6925, Stop: 7263, Start Num: 43  
Candidate Starts for Supakev\_8:  
(3, 6493), (14, 6673), (16, 6679), (Start: 43 @6925 has 136 MA's), (71, 6997), (126, 7183), (142,  
7243),

Gene: Suppi\_12 Start: 9837, Stop: 10175, Start Num: 43  
Candidate Starts for Suppi\_12:  
(Start: 43 @9837 has 136 MA's), (60, 9870),

Gene: Swervy\_9 Start: 7299, Stop: 7628, Start Num: 43  
Candidate Starts for Swervy\_9:  
(17, 7059), (27, 7203), (Start: 43 @7299 has 136 MA's), (52, 7314), (80, 7398), (82, 7401), (117,  
7521), (125, 7551), (127, 7560), (138, 7596),

Gene: TZGordon\_15 Start: 9548, Stop: 9907, Start Num: 45  
Candidate Starts for TZGordon\_15:  
(Start: 45 @9548 has 52 MA's), (59, 9575), (61, 9581), (74, 9623), (88, 9674), (98, 9722), (125, 9818),  
(128, 9830), (136, 9866),

Gene: TattModd\_12 Start: 9814, Stop: 10152, Start Num: 43  
Candidate Starts for TattModd\_12:  
(Start: 43 @9814 has 136 MA's), (108, 10000), (128, 10081), (137, 10111),

Gene: TaylorSipt\_10 Start: 7777, Stop: 8118, Start Num: 42  
Candidate Starts for TaylorSipt\_10:  
(14, 7525), (18, 7570), (27, 7684), (Start: 42 @7777 has 24 MA's), (Start: 45 @7780 has 52 MA's),  
(85, 7903), (93, 7930), (100, 7945), (118, 8011), (125, 8038), (129, 8053), (138, 8089),

Gene: Temper16\_8 Start: 6925, Stop: 7263, Start Num: 43  
Candidate Starts for Temper16\_8:  
(Start: 43 @6925 has 136 MA's), (71, 6997), (107, 7108), (126, 7183), (128, 7192), (142, 7243),

Gene: TinaLin\_16 Start: 10120, Stop: 10479, Start Num: 45  
Candidate Starts for TinaLin\_16:  
(Start: 45 @10120 has 52 MA's), (61, 10153), (65, 10168), (83, 10225), (88, 10246), (98, 10294), (99,  
10297), (110, 10333), (123, 10384), (124, 10387), (125, 10390), (133, 10423), (141, 10456),

Gene: Toast\_9 Start: 6937, Stop: 7305, Start Num: 45  
Candidate Starts for Toast\_9:  
(5, 6607), (Start: 45 @6937 has 52 MA's), (59, 6961), (61, 6967), (80, 7039), (84, 7054), (90, 7072),  
(104, 7132), (107, 7141),

Gene: Troy\_9 Start: 6861, Stop: 7205, Start Num: 50  
Candidate Starts for Troy\_9:  
(10, 6570), (Start: 50 @6861 has 8 MA's), (74, 6927), (84, 6960), (90, 6978), (92, 6990), (107, 7047),  
(121, 7110), (137, 7164), (142, 7185), (144, 7191),

Gene: TukTuk\_9 Start: 7299, Stop: 7628, Start Num: 43



Candidate Starts for TukTuk\_9:

(27, 7203), (Start: 43 @7299 has 136 MA's), (52, 7314), (80, 7398), (125, 7551), (138, 7596), (140, 7602),

Gene: UmaThurman\_9 Start: 6959, Stop: 7321, Start Num: 45

Candidate Starts for UmaThurman\_9:

(36, 6932), (Start: 45 @6959 has 52 MA's), (58, 6983), (65, 7007), (74, 7037), (84, 7070), (90, 7088), (104, 7148),

Gene: Urla\_8 Start: 6952, Stop: 7290, Start Num: 43

Candidate Starts for Urla\_8:

(Start: 43 @6952 has 136 MA's), (65, 7003), (83, 7060), (137, 7249),

Gene: Utz\_9 Start: 6959, Stop: 7321, Start Num: 45

Candidate Starts for Utz\_9:

(5, 6623), (36, 6932), (Start: 45 @6959 has 52 MA's), (58, 6983), (62, 7001), (65, 7007), (74, 7037), (90, 7088), (104, 7148),

Gene: VWB\_9 Start: 7437, Stop: 7799, Start Num: 39

Candidate Starts for VWB\_9:

(30, 7410), (39, 7437), (Start: 41 @7446 has 1 MA's), (74, 7524), (108, 7647), (114, 7674), (118, 7692), (125, 7719), (134, 7746),

Gene: Vallejo\_12 Start: 9752, Stop: 10090, Start Num: 43

Candidate Starts for Vallejo\_12:

(Start: 43 @9752 has 136 MA's), (108, 9938), (137, 10049),

Gene: Vendetta\_13 Start: 9406, Stop: 9765, Start Num: 45

Candidate Starts for Vendetta\_13:

(Start: 45 @9406 has 52 MA's), (59, 9433), (61, 9439), (74, 9481), (88, 9532), (98, 9580), (128, 9688), (136, 9724),

Gene: Vitas\_8 Start: 7093, Stop: 7425, Start Num: 43

Candidate Starts for Vitas\_8:

(7, 6796), (Start: 43 @7093 has 136 MA's), (Start: 50 @7105 has 8 MA's), (52, 7108), (65, 7144), (71, 7165), (72, 7168), (104, 7267), (125, 7348),

Gene: Vulpecula\_10 Start: 8050, Stop: 8412, Start Num: 42

Candidate Starts for Vulpecula\_10:

(22, 7918), (Start: 42 @8050 has 24 MA's), (Start: 45 @8053 has 52 MA's), (58, 8077), (78, 8146), (80, 8155), (93, 8203), (102, 8242), (112, 8278), (115, 8287), (129, 8347),

Gene: Vulture\_8 Start: 6923, Stop: 7261, Start Num: 43

Candidate Starts for Vulture\_8:

(Start: 43 @6923 has 136 MA's), (60, 6956), (71, 6995), (94, 7076), (126, 7181), (128, 7190),

Gene: Walrus\_9 Start: 6871, Stop: 7242, Start Num: 45

Candidate Starts for Walrus\_9:

(Start: 45 @6871 has 52 MA's), (58, 6895), (90, 7009), (104, 7069),

Gene: Wawa\_12 Start: 9789, Stop: 10127, Start Num: 43

Candidate Starts for Wawa\_12:

(Start: 43 @9789 has 136 MA's), (89, 9921), (108, 9975), (128, 10056), (137, 10086),

Gene: Wayne\_12 Start: 9883, Stop: 10221, Start Num: 43

Candidate Starts for Wayne\_12:

(Start: 43 @9883 has 136 MA's), (60, 9916),

Gene: Whack\_9 Start: 6628, Stop: 6957, Start Num: 56

Candidate Starts for Whack\_9:

(49, 6619), (54, 6625), (Start: 56 @6628 has 1 MA's), (64, 6658), (76, 6691), (143, 6928),

Gene: William\_9 Start: 6952, Stop: 7320, Start Num: 45

Candidate Starts for William\_9:

(Start: 45 @6952 has 52 MA's), (59, 6976), (61, 6982), (80, 7054), (84, 7069), (90, 7087), (93, 7102), (104, 7147), (107, 7156),

Gene: Wisp\_9 Start: 6959, Stop: 7321, Start Num: 45

Candidate Starts for Wisp\_9:

(5, 6623), (36, 6932), (Start: 45 @6959 has 52 MA's), (58, 6983), (65, 7007), (74, 7037), (84, 7070), (90, 7088), (104, 7148),

Gene: Wocket\_10 Start: 7236, Stop: 7598, Start Num: 45

Candidate Starts for Wocket\_10:

(12, 6972), (Start: 45 @7236 has 52 MA's), (58, 7260), (65, 7284), (74, 7314), (84, 7347), (90, 7365), (104, 7425), (114, 7464), (125, 7509),

Gene: WonderBoy\_8 Start: 6905, Stop: 7243, Start Num: 43

Candidate Starts for WonderBoy\_8:

(Start: 43 @6905 has 136 MA's), (60, 6938), (83, 7013), (137, 7202),

Gene: Zarbodnamra\_9 Start: 6958, Stop: 7320, Start Num: 45

Candidate Starts for Zarbodnamra\_9:

(5, 6622), (36, 6931), (Start: 45 @6958 has 52 MA's), (58, 6982), (62, 7000), (65, 7006), (74, 7036), (90, 7087), (104, 7147),

Gene: ZiggyZoo\_9 Start: 6983, Stop: 7345, Start Num: 45

Candidate Starts for ZiggyZoo\_9:

(5, 6647), (36, 6956), (Start: 45 @6983 has 52 MA's), (58, 7007), (65, 7031), (74, 7061), (84, 7094), (90, 7112), (104, 7172),

Gene: Zorro\_12 Start: 9768, Stop: 10106, Start Num: 43

Candidate Starts for Zorro\_12:

(Start: 43 @9768 has 136 MA's), (89, 9900), (108, 9954), (128, 10035), (137, 10065),