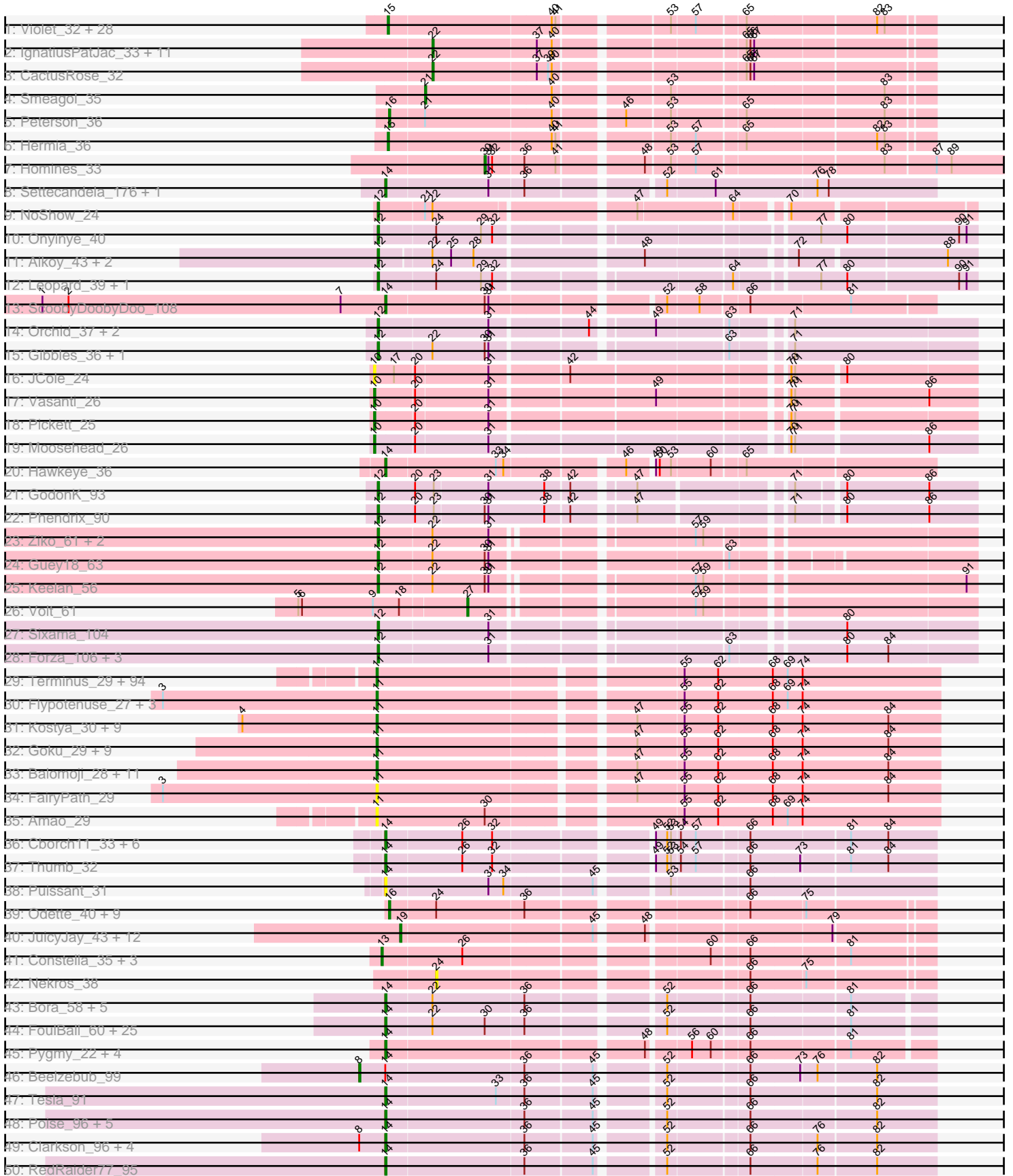
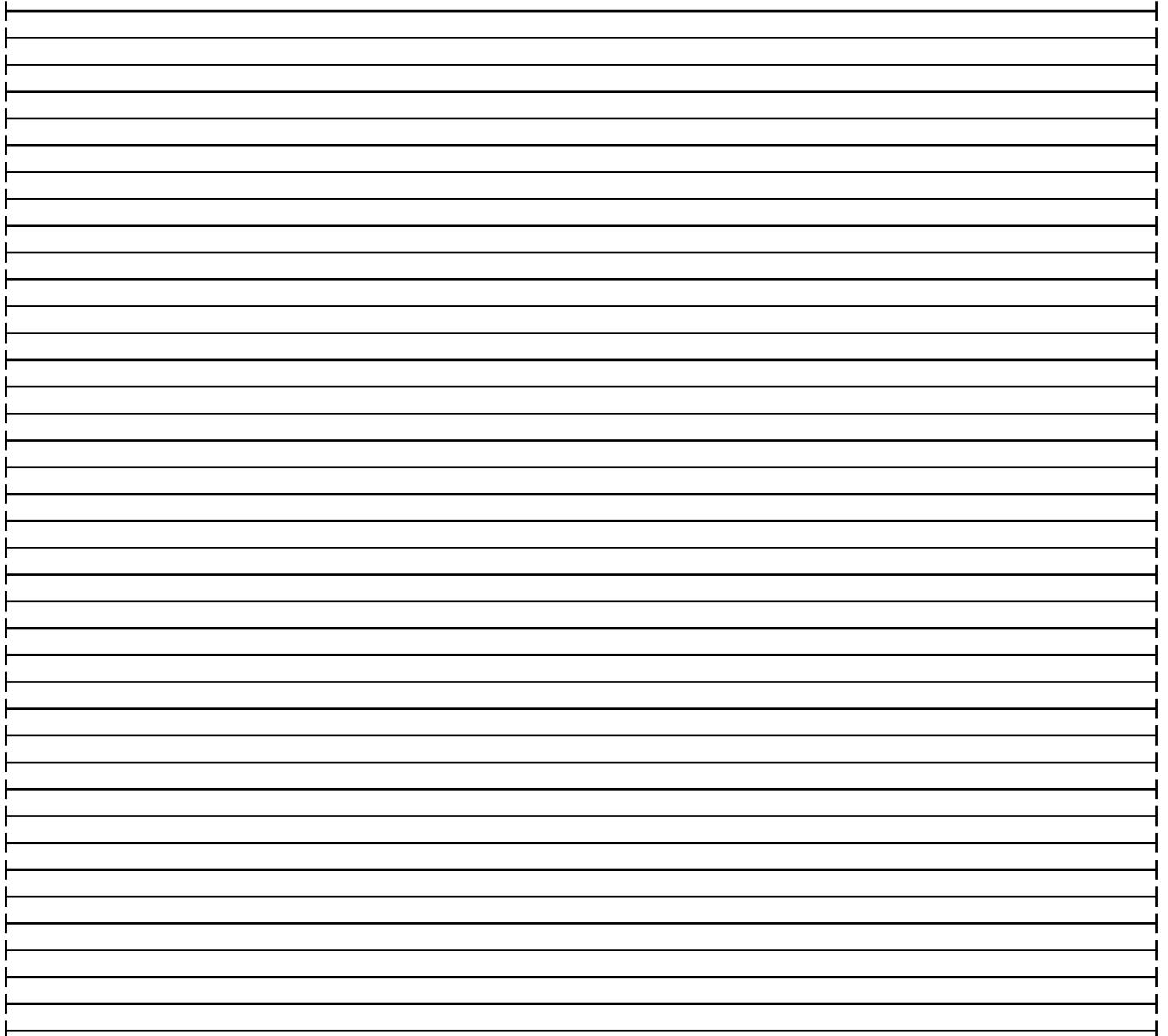
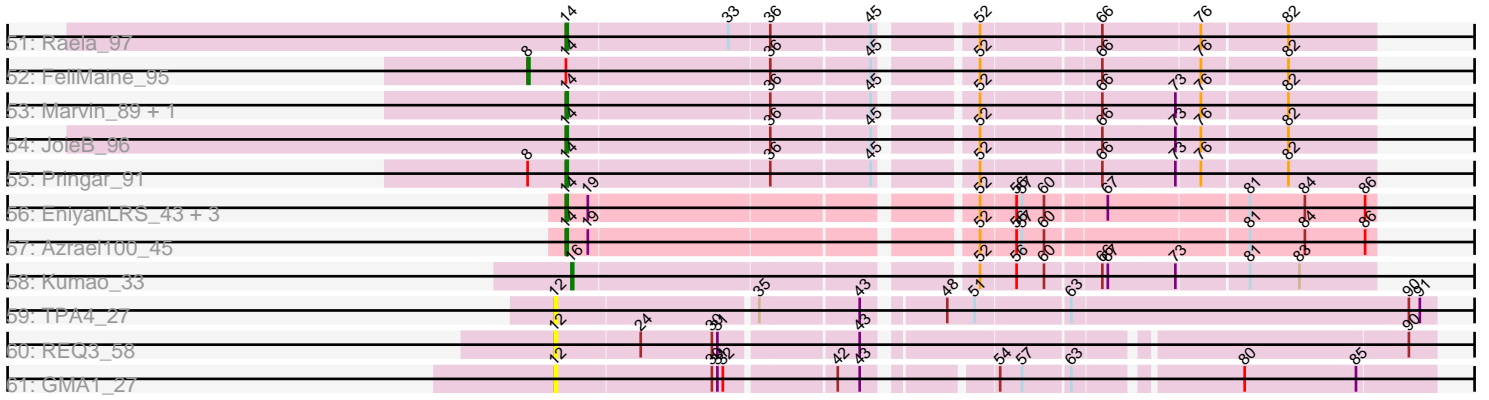


Pham 215749



Pham 215749



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 215749 Report

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

Pham number 215749 has 315 members, 30 are drafts.

Phages represented in each track:

- Track 1 : Violet\_32, MetalQZJ\_33, Euphoria\_33, Eyeball\_33, Graduation\_35, LunarLander\_35, GrecoEtereo\_35, SwissCheese\_35, PherrisBueller\_34, Kenmech\_36, Forsytheast\_33, BaconJack\_36, ILeeKay\_35, Bones\_33, RidgeCB\_33, MaryBeth\_33, Tripl3t\_34, Bruns\_32, Corvo\_34, Dreamboat\_34, Licorice\_35, Abbyshoes\_35, Jasper\_34, Dussy\_34, Cueylyss\_33, Hope4ever\_33, Papez\_35, Moose\_33, Beatrix\_33
- Track 2 : IgnatiusPatJac\_33, HarryOW\_34, HanShotFirst\_33, LilBib\_34, Smairt\_34, Wilkins\_33, Topgun\_33, Dexes\_34, Phlippers\_32, JC27\_35, Pelly\_34, ProMouse\_32
- Track 3 : CactusRose\_32
- Track 4 : Smeagol\_35
- Track 5 : Peterson\_36
- Track 6 : Hermia\_36
- Track 7 : Homines\_33
- Track 8 : Settecandela\_176, Phrappuccino\_176
- Track 9 : NoShow\_24
- Track 10 : Onyinye\_40
- Track 11 : Aikoy\_43, Leopard\_43, Onyinye\_44
- Track 12 : Leopard\_39, Aikoy\_39
- Track 13 : ScoobyDoobyDoo\_108
- Track 14 : Orchid\_37, PatrickStar\_38, Kampe\_38
- Track 15 : Gibbles\_36, RobinSparkles\_40
- Track 16 : JCole\_24
- Track 17 : Vasanti\_26
- Track 18 : Pickett\_25
- Track 19 : Moosehead\_26
- Track 20 : Hawkeye\_36
- Track 21 : GodonK\_93
- Track 22 : Phendrix\_90
- Track 23 : Ziko\_61, Ronaldo\_61, Fryberger\_58
- Track 24 : Guey18\_63
- Track 25 : Keelan\_56
- Track 26 : Volt\_61
- Track 27 : Sixama\_104
- Track 28 : Forza\_106, Boopy\_106, BlueNGold\_105, Mareelih\_104
- Track 29 : Terminus\_29, Palpatine\_29, BaboJay\_28, 244\_31, Gemini\_32, Murica\_28, ChosenOne\_29, Maxxinista\_30, Moldemort\_30, Emmina\_30, Tarkin\_31, Hoonter\_31, JeTaime\_31, Bruin\_29, Gage\_31, Cjw1\_29, BugsBunny\_27, Kimchi\_31,

ShereKhan\_31, HanKaySha\_30, ChotaBhai\_29, Contagion\_28, Argent26\_31, Wiggins\_32, HufflyPuff\_28, Saints25\_30, Lilpickle\_28, Qualification\_30, Easy2Say\_31, StolenFromERC\_31, Inca\_28, Paperbeatsrock\_31, Holt\_30, DrDrey\_30, FireRed\_29, Mosby\_28, FoghornLeghorn\_28, PhatBacter\_29, StormChicken\_29, Nimrod\_29, Phaux\_28, Manda\_30, Dumbo\_29, Rimmer\_28, StellaBean\_29, Petra64142\_31, MadamMonkfish\_29, TBrady12\_31, Xandras\_31, RiverMonster\_29, Elph10\_30, Teaspoon\_30, Pumpkin\_31, Tomaszewski\_28, Thimble\_29, Ukulele\_29, Pat3\_28, Buck\_28, Czyszczonek\_30, Sassay\_28, xkcd\_30, NoSleep\_30, Becksu\_29, Filch\_30, Porky\_29, Kanye\_31, Elite2014\_28, Hopey\_31, YassJohnny\_30, Phrux\_29, BigBubba\_30, SophKB\_29, Stank\_32, GoldenSpark\_31, Highbury\_30, Thresher\_30, Miniwave\_29, Stark\_30, OrionPax\_30, AmericanBeauty\_31, Lilizi\_31, Willez\_28, DoctorDiddles\_29, Goldilocks\_30, MISSy\_28, GooberAzure\_31, Simpliphy\_30, Bench\_31, Lilac\_31, Murphy\_30, Pharsalus\_30, MPhalcon\_28, Misfit\_29, Cookies\_29, Adnama\_32

- Track 30 : Flypotenuse\_27, Harella\_28, Youngblood\_29, Glexan\_27
- Track 31 : Kostya\_30, Daikon\_28, ShamWow\_29, BilboSwaggins\_29, Henry\_30, Toto\_29, CrystalP\_29, IHOP\_29, Phaja\_29, Mindy\_29
- Track 32 : Goku\_29, Bask21\_29, Icee\_28, SirDuracell\_28, Sotrice96\_29, NelitzaMV\_29, Marshmallow\_29, Cactus\_30, Eureka\_29, Command613\_30
- Track 33 : Balomoji\_28, Dusk\_28, BadStone\_28, Gator\_27, Tuco\_30, Barbarian\_28, ABCat\_28, Myrale\_29, TeardropMSU\_28, Rakim\_30, Traaww1\_27, Asriel\_28
- Track 34 : FairyPath\_29
- Track 35 : Amao\_29
- Track 36 : Cborch11\_33, Phreeze\_32, Beckerton\_32, Oaker\_32, Megatron06\_34, Konstantine\_37, Damien\_32
- Track 37 : Thumb\_32
- Track 38 : Puissant\_31
- Track 39 : Odette\_40, Dove\_38, Rearden\_35, Bombitas\_37, Yeet\_39, NihilNomen\_40, Hughesyang\_39, Schatzie\_38, Ejimix\_41, Pound\_42
- Track 40 : JuicyJay\_43, Halley\_41, Beem\_41, Phoebus\_40, HokkenD\_36, Klein\_41, ThreeRngTarjay\_39, Kalah2\_41, Bagrid\_40, Dallas\_42, Zelink\_42, Redno2\_39, EricMillard\_41
- Track 41 : Constella\_35, Marleymoo\_45, Thibault\_37, Bobby\_42
- Track 42 : Nekros\_38
- Track 43 : Bora\_58, Winget\_61, Zakhe101\_60, Firecracker\_61, Dylan\_60, Corndog\_63
- Track 44 : FoulBall\_60, Krili\_59, SchoolBus\_60, Idergollasper\_60, Schuy\_61, Zebo\_59, Blessica\_61, JangDynasty\_60, Wogge42\_59, Shida\_60, YungJamal\_65, Catdawg\_60, NiebruSaylor\_59, TelAviv\_57, Vorrps\_60, Ryadel\_64, Ashwin\_62, KingPhillip3\_59, Alkhayr\_58, Wildflower\_60, Murai\_61, Smooch\_63, Familton\_61, Mori\_60, MadKillah\_61, Vagabond\_60
- Track 45 : Pygmy\_22, Island3\_23, Brujita\_23, Bogie\_22, Shipwreck\_22
- Track 46 : Beelzebub\_99
- Track 47 : Tesla\_91
- Track 48 : Poise\_96, MosMoris\_91, Caprice\_88, Blackbeetle\_96, Gattaca\_94, GoongGoong\_93
- Track 49 : Clarkson\_96, Corazon\_90, LittleLaf\_93, Lilbit\_93, Huphlepuuff\_97
- Track 50 : RedRaider77\_95
- Track 51 : Raela\_97
- Track 52 : FeliMaine\_95
- Track 53 : Marvin\_89, VasuNzinga\_93
- Track 54 : JoieB\_96
- Track 55 : Pringar\_91

- Track 56 : EniyanLRS\_43, Wildcat\_46, MaryV\_46, Cosmo\_46
- Track 57 : Azrael100\_45
- Track 58 : Kumao\_33
- Track 59 : TPA4\_27
- Track 60 : REQ3\_58
- Track 61 : GMA1\_27

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

The start number called the most often in the published annotations is 11, it was called in 123 of the 285 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 244\_31, ABCat\_28, Adnama\_32, Amao\_29, AmericanBeauty\_31, Argent26\_31, Asriel\_28, BaboJay\_28, BadStone\_28, Balomoji\_28, Barbarian\_28, Bask21\_29, Becksu\_29, Bench\_31, BigBubba\_30, BilboSwaggins\_29, Bruin\_29, Buck\_28, BugsBunny\_27, Cactus\_30, ChosenOne\_29, ChotaBhai\_29, Cjw1\_29, Command613\_30, Contagion\_28, Cookies\_29, CrystalP\_29, Czystoczon1\_30, Daikon\_28, DoctorDiddles\_29, DrDrey\_30, Dumbo\_29, Dusk\_28, Easy2Say\_31, Elite2014\_28, Elph10\_30, Emmina\_30, Eureka\_29, FairyPath\_29, Filch\_30, FireRed\_29, Flypotenuse\_27, FoghornLeghorn\_28, Gage\_31, Gator\_27, Gemini\_32, Glexan\_27, Goku\_29, GoldenSpark\_31, Goldilocks\_30, GooberAzure\_31, HanKaySha\_30, Harella\_28, Henry\_30, Highbury\_30, Holt\_30, Hoonter\_31, Hopey\_31, HufflyPuff\_28, IHOP\_29, Icee\_28, Inca\_28, JeTaime\_31, Kanye\_31, Kimchi\_31, Kostya\_30, Lilac\_31, Lilizi\_31, Lilpickle\_28, MISSy\_28, MPhalcon\_28, MadamMonkfish\_29, Manda\_30, Marshmallow\_29, Maxxinista\_30, Mindy\_29, Miniwave\_29, Misfit\_29, Moldemort\_30, Mosby\_28, Murica\_28, Murphy\_30, Myrale\_29, NelitzaMV\_29, Nimrod\_29, NoSleep\_30, OrionPax\_30, Palpatine\_29, Paperbeatsrock\_31, Pat3\_28, Petra64142\_31, Phaja\_29, Pharsalus\_30, PhatBacter\_29, Phaux\_28, Phrux\_29, Porky\_29, Pumpkin\_31, Quallification\_30, Rakim\_30, Rimmer\_28, RiverMonster\_29, Saints25\_30, Sassay\_28, ShamWow\_29, ShereKhan\_31, Simpliphy\_30, SirDuracell\_28, SophKB\_29, Sotrice96\_29, Stank\_32, Stark\_30, StellaBean\_29, StolenFromERC\_31, StormChicken\_29, TBrady12\_31, Tarkin\_31, TeardropMSU\_28, Teaspoon\_30, Terminus\_29, Thimble\_29, Thresher\_30, Tomaszewski\_28, Toto\_29, Traaww1\_27, Tuco\_30, Ukulele\_29, Wiggins\_32, Willez\_28, Xandras\_31, YassJohnny\_30, Youngblood\_29, xkcd\_30,

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

- 

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

- Abbyshoes\_35, Aikoy\_39, Aikoy\_43, Alkhayr\_58, Ashwin\_62, Azrael100\_45, BaconJack\_36, Bagrid\_40, Beatrix\_33, Beckerton\_32, Beelzebub\_99, Beem\_41, Blackbeetle\_96, Blessica\_61, BlueNGold\_105, Bobby\_42, Bogie\_22, Bombitas\_37, Bones\_33, Boopy\_106, Bora\_58, Brujita\_23, Bruns\_32, CactusRose\_32, Caprice\_88, Catdawg\_60, Cborch11\_33, Clarkson\_96, Constella\_35, Corazon\_90, Corndog\_63, Corvo\_34, Cosmo\_46, Cueylyss\_33, Dallas\_42, Damien\_32, Dexes\_34, Dove\_38, Dreamboat\_34, Dussy\_34, Dylan\_60, Ejimix\_41, EniyanLRS\_43, EricMillard\_41, Euphoria\_33, Eyeball\_33, Familton\_61, FeliMaine\_95, Firecracker\_61, Forsytheast\_33, Forza\_106, FoulBall\_60, Fryberger\_58, GMA1\_27, Gattaca\_94,

Gibbles\_36, GodonK\_93, GoongGoong\_93, Graduation\_35, GrecoEtereo\_35, Guey18\_63, Halley\_41, HanShotFirst\_33, HarryOW\_34, Hawkeye\_36, Hermia\_36, HokkenD\_36, Homines\_33, Hope4ever\_33, Hughesyang\_39, Huphlepuuff\_97, ILeeKay\_35, Idergollasper\_60, IgnatiusPatJac\_33, Island3\_23, JC27\_35, JCole\_24, JangDynasty\_60, Jasper\_34, JoieB\_96, JuicyJay\_43, Kalah2\_41, Kampe\_38, Keelan\_56, Kenmech\_36, KingPhillip3\_59, Klein\_41, Konstantine\_37, Krili\_59, Kumao\_33, Leopard\_39, Leopard\_43, Licorice\_35, LilBib\_34, Lilbit\_93, LittleLaf\_93, LunarLander\_35, MadKillah\_61, Mareelih\_104, Marleymoo\_45, Marvin\_89, MaryBeth\_33, MaryV\_46, Megatron06\_34, MetalQZJ\_33, Moose\_33, Moosehead\_26, Mori\_60, MosMoris\_91, Murai\_61, Nekros\_38, NiebruSaylor\_59, NihilNomen\_40, NoShow\_24, Oaker\_32, Odette\_40, Onyinye\_40, Onyinye\_44, Orchid\_37, Papez\_35, PatrickStar\_38, Pelly\_34, Peterson\_36, Phendrix\_90, PherrisBueller\_34, Phlippers\_32, Phoebus\_40, Phrappuccino\_176, Phreeze\_32, Pickett\_25, Poise\_96, Pound\_42, Pringar\_91, ProMouse\_32, Puissant\_31, Pygmy\_22, REQ3\_58, Raela\_97, Rearden\_35, RedRaider77\_95, Redno2\_39, RidgeCB\_33, RobinSparkles\_40, Ronaldo\_61, Ryadel\_64, Schatzie\_38, SchoolBus\_60, Schuy\_61, ScoobyDoobyDoo\_108, Settecandela\_176, Shida\_60, Shipwreck\_22, Sixama\_104, Smairt\_34, Smeagol\_35, Smooch\_63, SwissCheese\_35, TPA4\_27, TelAviv\_57, Tesla\_91, Thibault\_37, ThreeRngTarjay\_39, Thumb\_32, Topgun\_33, Tripl3t\_34, Vagabond\_60, Vasanti\_26, VasuNzinga\_93, Violet\_32, Volt\_61, Vorrrps\_60, Wildcat\_46, Wildflower\_60, Wilkins\_33, Winget\_61, Wogge42\_59, Yeet\_39, YungJamal\_65, Zakhe101\_60, Zebo\_59, Zelink\_42, Ziko\_61,

### Summary by start number:

#### Start 8:

- Found in 8 of 315 ( 2.5% ) of genes in pham
- Manual Annotations of this start: 2 of 285
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Beelzebub\_99 (S), FeliMaine\_95 (S),

#### Start 10:

- Found in 4 of 315 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 3 of 285
- Called 100.0% of time when present
- Phage (with cluster) where this start called: JCole\_24 (CZ2), Moosehead\_26 (CZ6), Pickett\_25 (CZ2), Vasanti\_26 (CZ2),

#### Start 11:

- Found in 133 of 315 ( 42.2% ) of genes in pham
- Manual Annotations of this start: 123 of 285
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 244\_31 (E), ABCat\_28 (E), Adnama\_32 (E), Amao\_29 (E), AmericanBeauty\_31 (E), Argent26\_31 (E), Asriel\_28 (E), BaboJay\_28 (E), BadStone\_28 (E), Balomoji\_28 (E), Barbarian\_28 (E), Bask21\_29 (E), Becksu\_29 (E), Bench\_31 (E), BigBubba\_30 (E), BilboSwaggins\_29 (E), Bruin\_29 (E), Buck\_28 (E), BugsBunny\_27 (E), Cactus\_30 (E), ChosenOne\_29 (E), ChotaBhai\_29 (E), Cjw1\_29 (E), Command613\_30 (E), Contagion\_28 (E), Cookies\_29 (E), CrystalP\_29 (E), Czyszczon1\_30 (E), Daikon\_28 (E), DoctorDiddles\_29 (E), DrDrey\_30 (E), Dumbo\_29 (E), Dusk\_28 (E), Easy2Say\_31 (E), Elite2014\_28 (E), Elph10\_30 (E), Emmina\_30 (E), Eureka\_29 (E), FairyPath\_29 (E), Filch\_30 (E), FireRed\_29 (E), Flypotenuse\_27 (E), FoghornLeghorn\_28 (E),

Gage\_31 (E), Gator\_27 (E), Gemini\_32 (E), Glexan\_27 (E), Goku\_29 (E), GoldenSpark\_31 (E), Goldilocks\_30 (E), GooberAzure\_31 (E), HanKaySha\_30 (E), Harella\_28 (E), Henry\_30 (E), Highbury\_30 (E), Holt\_30 (E), Hoonter\_31 (E), Hokey\_31 (E), HufflyPuff\_28 (E), IHOP\_29 (E), Icee\_28 (E), Inca\_28 (E), JeTaime\_31 (E), Kanye\_31 (E), Kimchi\_31 (E), Kostya\_30 (E), Lilac\_31 (E), Lilizi\_31 (E), Lilpickle\_28 (E), MISSy\_28 (E), MPhalcon\_28 (E), MadamMonkfish\_29 (E), Manda\_30 (E), Marshmallow\_29 (E), Maxxinista\_30 (E), Mindy\_29 (E), Miniwave\_29 (E), Misfit\_29 (E), Moldemort\_30 (E), Mosby\_28 (E), Murica\_28 (E), Murphy\_30 (E), Myrale\_29 (E), NelitzaMV\_29 (E), Nimrod\_29 (E), NoSleep\_30 (E), OrionPax\_30 (E), Palpatine\_29 (E), Paperbeatsrock\_31 (E), Pat3\_28 (E), Petra64142\_31 (E), Phaja\_29 (E), Pharsalus\_30 (E), PhatBacter\_29 (E), Phaux\_28 (E), Phrux\_29 (E), Porky\_29 (E), Pumpkin\_31 (E), Qualification\_30 (E), Rakim\_30 (E), Rimmer\_28 (E), RiverMonster\_29 (E), Saints25\_30 (E), Sassay\_28 (E), ShamWow\_29 (E), ShereKhan\_31 (E), Simpliphy\_30 (E), SirDuracell\_28 (E), SophKB\_29 (E), Sotrice96\_29 (E), Stank\_32 (E), Stark\_30 (E), StellaBean\_29 (E), StolenFromERC\_31 (E), StormChicken\_29 (E), TBrady12\_31 (E), Tarkin\_31 (E), TeardropMSU\_28 (E), Teaspoon\_30 (E), Terminus\_29 (E), Thimble\_29 (E), Thresher\_30 (E), Tomaszewski\_28 (E), Toto\_29 (E), Traaww1\_27 (E), Tuco\_30 (E), Ukulele\_29 (E), Wiggin\_32 (E), Willez\_28 (E), Xandras\_31 (E), YassJohnny\_30 (E), Youngblood\_29 (E), xkcd\_30 (E),

#### Start 12:

- Found in 27 of 315 ( 8.6% ) of genes in pham
- Manual Annotations of this start: 24 of 285
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aikoy\_39 (AE), Aikoy\_43 (AE), BlueNGold\_105 (DS), Boopy\_106 (DS), Forza\_106 (DS), Fryberger\_58 (DP), GMA1\_27 (singleton), Gibbles\_36 (CX), GodonK\_93 (DK), Guey18\_63 (DP), Kampe\_38 (CX), Keelan\_56 (DP), Leopard\_39 (AE), Leopard\_43 (AE), Mareelih\_104 (DS), NoShow\_24 (AB), Onyinye\_40 (AE), Onyinye\_44 (AE), Orchid\_37 (CX), PatrickStar\_38 (CX), Phendrix\_90 (DK), REQ3\_58 (singleton), RobinSparkles\_40 (CX), Ronaldo\_61 (DP), Sixama\_104 (DS), TPA4\_27 (singleton), Ziko\_61 (DP),

#### Start 13:

- Found in 4 of 315 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 3 of 285
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bobby\_42 (J), Constella\_35 (J), Marleymoo\_45 (J), Thibault\_37 (J),

#### Start 14:

- Found in 75 of 315 ( 23.8% ) of genes in pham
- Manual Annotations of this start: 65 of 285
- Called 97.3% of time when present
- Phage (with cluster) where this start called: Alkhayr\_58 (O), Ashwin\_62 (O), Azrael100\_45 (V), Beckerton\_32 (H1), Blackbeetle\_96 (S), Blessica\_61 (O), Bogie\_22 (P1), Bora\_58 (O), Brujita\_23 (I1), Caprice\_88 (S), Catdawg\_60 (O), Cborch11\_33 (H1), Clarkson\_96 (S), Corazon\_90 (S), Corndog\_63 (O), Cosmo\_46 (V), Damien\_32 (H1), Dylan\_60 (O), EniyanLRS\_43 (V), Familton\_61 (O), Firecracker\_61 (O), FoulBall\_60 (O), Gattaca\_94 (S), GoongGoong\_93 (S), Hawkeye\_36 (D2), Huphlepuuff\_97 (S), Idergollasper\_60 (O), Island3\_23 (I1), JangDynasty\_60 (O), JoieB\_96 (S), KingPhillip3\_59 (O), Konstantine\_37 (H1), Kriili\_59 (O), Lilbit\_93 (S), LittleLaf\_93 (S), MadKillah\_61 (O), Marvin\_89 (S),

MaryV\_46 (V), Megatron06\_34 (H1), Mori\_60 (O), MosMoris\_91 (S), Murai\_61 (O), NiebruSaylor\_59 (O), Oaker\_32 (H1), Phrappuccino\_176 (AA), Phreeze\_32 (H1), Poise\_96 (S), Pringar\_91 (S), Puissant\_31 (H1), Pygmy\_22 (P1), Raela\_97 (S), RedRaider77\_95 (S), Ryadel\_64 (O), SchoolBus\_60 (O), Schuy\_61 (O), ScoobyDoobyDoo\_108 (C2), Settecandela\_176 (AA), Shida\_60 (O), Shipwreck\_22 (P1), Smooch\_63 (O), TelAviv\_57 (O), Tesla\_91 (S), Thumb\_32 (H1), Vagabond\_60 (O), VasuNzinga\_93 (S), Vorrps\_60 (O), Wildcat\_46 (V), Wildflower\_60 (O), Winget\_61 (O), Wogge42\_59 (O), YungJamal\_65 (O), Zakhe101\_60 (O), Zebo\_59 (O),

#### Start 15:

- Found in 30 of 315 ( 9.5% ) of genes in pham
- Manual Annotations of this start: 29 of 285
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abbyshoes\_35 (A1), BaconJack\_36 (A1), Beatrix\_33 (A1), Bones\_33 (A1), Bruns\_32 (A1), Corvo\_34 (A1), Cueyllyss\_33 (A1), Dreamboat\_34 (A1), Dussy\_34 (A1), Euphoria\_33 (A1), Eyeball\_33 (A1), Forsytheast\_33 (A1), Graduation\_35 (A1), GrecoEtereo\_35 (A1), Hermia\_36 (A1), Hope4ever\_33 (A1), ILeeKay\_35 (A1), Jasper\_34 (A1), Kenmech\_36 (A1), Licorice\_35 (A1), LunarLander\_35 (A1), MaryBeth\_33 (A1), MetalQZJ\_33 (A1), Moose\_33 (A1), Papez\_35 (A1), PherrisBueller\_34 (A1), RidgeCB\_33 (A1), SwissCheese\_35 (A1), Tripl3t\_34 (A1), Violet\_32 (A1),

#### Start 16:

- Found in 12 of 315 ( 3.8% ) of genes in pham
- Manual Annotations of this start: 10 of 285
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bombitas\_37 (J), Dove\_38 (J), Ejimix\_41 (J), Hughesyang\_39 (J), Kumao\_33 (singleton), NihilNomen\_40 (J), Odette\_40 (J), Peterson\_36 (A1), Pound\_42 (J), Rearden\_35 (J), Schatzie\_38 (J), Yeet\_39 (J),

#### Start 19:

- Found in 18 of 315 ( 5.7% ) of genes in pham
- Manual Annotations of this start: 12 of 285
- Called 72.2% of time when present
- Phage (with cluster) where this start called: Bagrid\_40 (J), Beem\_41 (J), Dallas\_42 (J), EricMillard\_41 (J), Halley\_41 (J), HokkenD\_36 (J), JuicyJay\_43 (J), Kalah2\_41 (J), Klein\_41 (J), Phoebus\_40 (J), Redno2\_39 (J), ThreeRngTarjay\_39 (J), Zelink\_42 (J),

#### Start 21:

- Found in 3 of 315 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 285
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Smeagol\_35 (A1),

#### Start 22:

- Found in 56 of 315 ( 17.8% ) of genes in pham
- Manual Annotations of this start: 11 of 285
- Called 23.2% of time when present
- Phage (with cluster) where this start called: CactusRose\_32 (A1), Dexes\_34 (A1), HanShotFirst\_33 (A1), HarryOW\_34 (A1), IgnatiusPatJac\_33 (A1), JC27\_35 (A1), LilBib\_34 (A1), Pelly\_34 (A1), Phlippers\_32 (A1), ProMouse\_32 (A1), Smairt\_34 (A1),



Topgun\_33 (A1), Wilkins\_33 (A1),

Start 24:

- Found in 15 of 315 ( 4.8% ) of genes in pham
- No Manual Annotations of this start.
- Called 6.7% of time when present
- Phage (with cluster) where this start called: Nekros\_38 (J),

Start 27:

- Found in 1 of 315 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 285
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Volt\_61 (DP),

Start 30:

- Found in 36 of 315 ( 11.4% ) of genes in pham
- Manual Annotations of this start: 1 of 285
- Called 2.8% of time when present
- Phage (with cluster) where this start called: Homines\_33 (A1),

### **Summary by clusters:**

There are 21 clusters represented in this pham: AA, singleton, H1, E, DK, P1, C2, CZ2, J, CZ6, O, A1, I1, S, CX, DP, V, AE, D2, DS, AB,

Info for manual annotations of cluster A1:

- Start number 15 was manually annotated 29 times for cluster A1.
- Start number 16 was manually annotated 1 time for cluster A1.
- Start number 21 was manually annotated 1 time for cluster A1.
- Start number 22 was manually annotated 11 times for cluster A1.
- Start number 30 was manually annotated 1 time for cluster A1.

Info for manual annotations of cluster AA:

- Start number 14 was manually annotated 2 times for cluster AA.

Info for manual annotations of cluster AB:

- Start number 12 was manually annotated 1 time for cluster AB.

Info for manual annotations of cluster AE:

- Start number 12 was manually annotated 6 times for cluster AE.

Info for manual annotations of cluster C2:

- Start number 14 was manually annotated 1 time for cluster C2.

Info for manual annotations of cluster CX:

- Start number 12 was manually annotated 5 times for cluster CX.

Info for manual annotations of cluster CZ2:

- Start number 10 was manually annotated 2 times for cluster CZ2.

Info for manual annotations of cluster CZ6:

- Start number 10 was manually annotated 1 time for cluster CZ6.

Info for manual annotations of cluster D2:

- Start number 14 was manually annotated 1 time for cluster D2.

Info for manual annotations of cluster DK:

- Start number 12 was manually annotated 2 times for cluster DK.

Info for manual annotations of cluster DP:

- Start number 12 was manually annotated 5 times for cluster DP.
- Start number 27 was manually annotated 1 time for cluster DP.

Info for manual annotations of cluster DS:

- Start number 12 was manually annotated 5 times for cluster DS.

Info for manual annotations of cluster E:

- Start number 11 was manually annotated 123 times for cluster E.

Info for manual annotations of cluster H1:

- Start number 14 was manually annotated 8 times for cluster H1.

Info for manual annotations of cluster I1:

- Start number 14 was manually annotated 2 times for cluster I1.

Info for manual annotations of cluster J:

- Start number 13 was manually annotated 3 times for cluster J.
- Start number 16 was manually annotated 8 times for cluster J.
- Start number 19 was manually annotated 12 times for cluster J.

Info for manual annotations of cluster O:

- Start number 14 was manually annotated 28 times for cluster O.

Info for manual annotations of cluster P1:

- Start number 14 was manually annotated 3 times for cluster P1.

Info for manual annotations of cluster S:

- Start number 8 was manually annotated 2 times for cluster S.
- Start number 14 was manually annotated 15 times for cluster S.

Info for manual annotations of cluster V:

- Start number 14 was manually annotated 5 times for cluster V.

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

Gene: 244\_31 Start: 28830, Stop: 29258, Start Num: 11

Candidate Starts for 244\_31:

(Start: 11 @28830 has 123 MA's), (55, 29055), (62, 29082), (68, 29124), (69, 29136), (74, 29148),

Gene: ABCat\_28 Start: 28541, Stop: 28969, Start Num: 11

Candidate Starts for ABCat\_28:

(Start: 11 @28541 has 123 MA's), (47, 28730), (55, 28766), (62, 28793), (68, 28835), (74, 28859), (84, 28928),

Gene: Abbysshoes\_35 Start: 27637, Stop: 28038, Start Num: 15

Candidate Starts for Abbysshoes\_35:

(Start: 15 @27637 has 29 MA's), (40, 27763), (41, 27766), (53, 27844), (57, 27862), (65, 27898), (82, 27997), (83, 28003),

Gene: Adnama\_32 Start: 29057, Stop: 29485, Start Num: 11

Candidate Starts for Adnama\_32:

(Start: 11 @29057 has 123 MA's), (55, 29282), (62, 29309), (68, 29351), (69, 29363), (74, 29375),

Gene: Aikoy\_43 Start: 34014, Stop: 34448, Start Num: 12

Candidate Starts for Aikoy\_43:

(Start: 12 @34014 has 24 MA's), (Start: 22 @34053 has 11 MA's), (25, 34068), (28, 34086), (48, 34209), (72, 34314), (88, 34425),

Gene: Aikoy\_39 Start: 29482, Stop: 29922, Start Num: 12

Candidate Starts for Aikoy\_39:

(Start: 12 @29482 has 24 MA's), (24, 29527), (29, 29563), (32, 29572), (64, 29740), (77, 29800), (80, 29821), (90, 29908), (91, 29914),

Gene: Alkhayr\_58 Start: 39815, Stop: 40216, Start Num: 14

Candidate Starts for Alkhayr\_58:

(Start: 14 @39815 has 65 MA's), (Start: 22 @39851 has 11 MA's), (Start: 30 @39893 has 1 MA's), (36, 39923), (52, 40019), (66, 40079), (81, 40154),

Gene: Amao\_29 Start: 27754, Stop: 28182, Start Num: 11

Candidate Starts for Amao\_29:

(Start: 11 @27754 has 123 MA's), (Start: 30 @27841 has 1 MA's), (55, 27979), (62, 28006), (68, 28048), (69, 28060), (74, 28072),

Gene: AmericanBeauty\_31 Start: 28537, Stop: 28965, Start Num: 11

Candidate Starts for AmericanBeauty\_31:

(Start: 11 @28537 has 123 MA's), (55, 28762), (62, 28789), (68, 28831), (69, 28843), (74, 28855),

Gene: Argent26\_31 Start: 28540, Stop: 28968, Start Num: 11

Candidate Starts for Argent26\_31:

(Start: 11 @28540 has 123 MA's), (55, 28765), (62, 28792), (68, 28834), (69, 28846), (74, 28858),

Gene: Ashwin\_62 Start: 40585, Stop: 40986, Start Num: 14

Candidate Starts for Ashwin\_62:

(Start: 14 @40585 has 65 MA's), (Start: 22 @40621 has 11 MA's), (Start: 30 @40663 has 1 MA's), (36, 40693), (52, 40789), (66, 40849), (81, 40924),

Gene: Asriel\_28 Start: 27410, Stop: 27838, Start Num: 11

Candidate Starts for Asriel\_28:

(Start: 11 @27410 has 123 MA's), (47, 27599), (55, 27635), (62, 27662), (68, 27704), (74, 27728), (84, 27797),

Gene: Azrael100\_45 Start: 35022, Stop: 35429, Start Num: 14

Candidate Starts for Azrael100\_45:

(Start: 14 @35022 has 65 MA's), (Start: 19 @35034 has 12 MA's), (52, 35226), (56, 35244), (57, 35247), (60, 35259), (81, 35361), (84, 35391), (86, 35424),

Gene: BaboJay\_28 Start: 28100, Stop: 28528, Start Num: 11

Candidate Starts for BaboJay\_28:

(Start: 11 @28100 has 123 MA's), (55, 28325), (62, 28352), (68, 28394), (69, 28406), (74, 28418),

Gene: BaconJack\_36 Start: 27957, Stop: 28358, Start Num: 15

Candidate Starts for BaconJack\_36:

(Start: 15 @27957 has 29 MA's), (40, 28083), (41, 28086), (53, 28164), (57, 28182), (65, 28218), (82, 28317), (83, 28323),

Gene: BadStone\_28 Start: 28541, Stop: 28969, Start Num: 11

Candidate Starts for BadStone\_28:

(Start: 11 @28541 has 123 MA's), (47, 28730), (55, 28766), (62, 28793), (68, 28835), (74, 28859), (84, 28928),

Gene: Bagrid\_40 Start: 33113, Stop: 33502, Start Num: 19

Candidate Starts for Bagrid\_40:

(Start: 19 @33113 has 12 MA's), (45, 33260), (48, 33293), (79, 33428),

Gene: Balomoji\_28 Start: 28275, Stop: 28703, Start Num: 11

Candidate Starts for Balomoji\_28:

(Start: 11 @28275 has 123 MA's), (47, 28464), (55, 28500), (62, 28527), (68, 28569), (74, 28593), (84, 28662),

Gene: Barbarian\_28 Start: 27410, Stop: 27838, Start Num: 11

Candidate Starts for Barbarian\_28:

(Start: 11 @27410 has 123 MA's), (47, 27599), (55, 27635), (62, 27662), (68, 27704), (74, 27728), (84, 27797),

Gene: Bask21\_29 Start: 27727, Stop: 28155, Start Num: 11

Candidate Starts for Bask21\_29:

(Start: 11 @27727 has 123 MA's), (47, 27916), (55, 27952), (62, 27979), (68, 28021), (74, 28045), (84, 28114),

Gene: Beatrix\_33 Start: 28872, Stop: 29273, Start Num: 15

Candidate Starts for Beatrix\_33:

(Start: 15 @28872 has 29 MA's), (40, 28998), (41, 29001), (53, 29079), (57, 29097), (65, 29133), (82, 29232), (83, 29238),

Gene: Beckerton\_32 Start: 31246, Stop: 31653, Start Num: 14

Candidate Starts for Beckerton\_32:

(Start: 14 @31246 has 65 MA's), (26, 31306), (32, 31330), (49, 31441), (52, 31450), (53, 31453), (54, 31459), (57, 31471), (66, 31510), (81, 31585), (84, 31615),

Gene: Becksu\_29 Start: 28733, Stop: 29161, Start Num: 11

Candidate Starts for Becksu\_29:

(Start: 11 @28733 has 123 MA's), (55, 28958), (62, 28985), (68, 29027), (69, 29039), (74, 29051),

Gene: Beelzebub\_99 Start: 55639, Stop: 56067, Start Num: 8

Candidate Starts for Beelzebub\_99:

(Start: 8 @55639 has 2 MA's), (Start: 14 @55660 has 65 MA's), (36, 55768), (45, 55819), (52, 55864), (66, 55924), (73, 55963), (76, 55975), (82, 56020),

Gene: Beem\_41 Start: 33679, Stop: 34068, Start Num: 19

Candidate Starts for Beem\_41:

(Start: 19 @33679 has 12 MA's), (45, 33826), (48, 33859), (79, 33994),

Gene: Bench\_31 Start: 28410, Stop: 28838, Start Num: 11

Candidate Starts for Bench\_31:

(Start: 11 @28410 has 123 MA's), (55, 28635), (62, 28662), (68, 28704), (69, 28716), (74, 28728),

Gene: BigBubba\_30 Start: 28313, Stop: 28741, Start Num: 11

Candidate Starts for BigBubba\_30:

(Start: 11 @28313 has 123 MA's), (55, 28538), (62, 28565), (68, 28607), (69, 28619), (74, 28631),

Gene: BilboSwaggins\_29 Start: 28549, Stop: 28977, Start Num: 11

Candidate Starts for BilboSwaggins\_29:

(4, 28441), (Start: 11 @28549 has 123 MA's), (47, 28738), (55, 28774), (62, 28801), (68, 28843), (74, 28867), (84, 28936),

Gene: Blackbeetle\_96 Start: 55161, Stop: 55568, Start Num: 14

Candidate Starts for Blackbeetle\_96:

(Start: 14 @55161 has 65 MA's), (36, 55269), (45, 55320), (52, 55365), (66, 55425), (82, 55521),

Gene: Blessica\_61 Start: 40414, Stop: 40815, Start Num: 14

Candidate Starts for Blessica\_61:

(Start: 14 @40414 has 65 MA's), (Start: 22 @40450 has 11 MA's), (Start: 30 @40492 has 1 MA's), (36, 40522), (52, 40618), (66, 40678), (81, 40753),

Gene: BlueNGold\_105 Start: 64502, Stop: 64939, Start Num: 12

Candidate Starts for BlueNGold\_105:

(Start: 12 @64502 has 24 MA's), (31, 64589), (63, 64757), (80, 64838), (84, 64871),

Gene: Bobby\_42 Start: 34506, Stop: 34910, Start Num: 13

Candidate Starts for Bobby\_42:

(Start: 13 @34506 has 3 MA's), (26, 34569), (60, 34746), (66, 34773), (81, 34848),

Gene: Bogie\_22 Start: 22761, Stop: 23162, Start Num: 14

Candidate Starts for Bogie\_22:

(Start: 14 @22761 has 65 MA's), (48, 22953), (56, 22983), (60, 22998), (66, 23025), (81, 23100),

Gene: Bombitas\_37 Start: 32684, Stop: 33082, Start Num: 16

Candidate Starts for Bombitas\_37:

(Start: 16 @32684 has 10 MA's), (24, 32720), (36, 32789), (66, 32945), (75, 32987),

Gene: Bones\_33 Start: 27330, Stop: 27731, Start Num: 15

Candidate Starts for Bones\_33:

(Start: 15 @27330 has 29 MA's), (40, 27456), (41, 27459), (53, 27537), (57, 27555), (65, 27591), (82, 27690), (83, 27696),

Gene: Boopy\_106 Start: 64514, Stop: 64951, Start Num: 12

Candidate Starts for Boopy\_106:

(Start: 12 @64514 has 24 MA's), (31, 64601), (63, 64769), (80, 64850), (84, 64883),

Gene: Bora\_58 Start: 39771, Stop: 40172, Start Num: 14

Candidate Starts for Bora\_58:

(Start: 14 @39771 has 65 MA's), (Start: 22 @39807 has 11 MA's), (36, 39879), (52, 39975), (66, 40035), (81, 40110),

Gene: Bruin\_29 Start: 28570, Stop: 28998, Start Num: 11  
Candidate Starts for Bruin\_29:  
(Start: 11 @28570 has 123 MA's), (55, 28795), (62, 28822), (68, 28864), (69, 28876), (74, 28888),

Gene: Brujita\_23 Start: 23116, Stop: 23517, Start Num: 14  
Candidate Starts for Brujita\_23:  
(Start: 14 @23116 has 65 MA's), (48, 23308), (56, 23338), (60, 23353), (66, 23380), (81, 23455),

Gene: Bruns\_32 Start: 27352, Stop: 27753, Start Num: 15  
Candidate Starts for Bruns\_32:  
(Start: 15 @27352 has 29 MA's), (40, 27478), (41, 27481), (53, 27559), (57, 27577), (65, 27613), (82, 27712), (83, 27718),

Gene: Buck\_28 Start: 28506, Stop: 28934, Start Num: 11  
Candidate Starts for Buck\_28:  
(Start: 11 @28506 has 123 MA's), (55, 28731), (62, 28758), (68, 28800), (69, 28812), (74, 28824),

Gene: BugsBunny\_27 Start: 28139, Stop: 28567, Start Num: 11  
Candidate Starts for BugsBunny\_27:  
(Start: 11 @28139 has 123 MA's), (55, 28364), (62, 28391), (68, 28433), (69, 28445), (74, 28457),

Gene: Cactus\_30 Start: 27760, Stop: 28188, Start Num: 11  
Candidate Starts for Cactus\_30:  
(Start: 11 @27760 has 123 MA's), (47, 27949), (55, 27985), (62, 28012), (68, 28054), (74, 28078), (84, 28147),

Gene: CactusRose\_32 Start: 27357, Stop: 27725, Start Num: 22  
Candidate Starts for CactusRose\_32:  
(Start: 22 @27357 has 11 MA's), (37, 27438), (39, 27447), (40, 27450), (65, 27585), (66, 27588), (67, 27591),

Gene: Caprice\_88 Start: 55099, Stop: 55506, Start Num: 14  
Candidate Starts for Caprice\_88:  
(Start: 14 @55099 has 65 MA's), (36, 55207), (45, 55258), (52, 55303), (66, 55363), (82, 55459),

Gene: Catdawg\_60 Start: 40150, Stop: 40551, Start Num: 14  
Candidate Starts for Catdawg\_60:  
(Start: 14 @40150 has 65 MA's), (Start: 22 @40186 has 11 MA's), (Start: 30 @40228 has 1 MA's), (36, 40258), (52, 40354), (66, 40414), (81, 40489),

Gene: Cborch11\_33 Start: 30711, Stop: 31118, Start Num: 14  
Candidate Starts for Cborch11\_33:  
(Start: 14 @30711 has 65 MA's), (26, 30771), (32, 30795), (49, 30906), (52, 30915), (53, 30918), (54, 30924), (57, 30936), (66, 30975), (81, 31050), (84, 31080),

Gene: ChosenOne\_29 Start: 27758, Stop: 28186, Start Num: 11  
Candidate Starts for ChosenOne\_29:  
(Start: 11 @27758 has 123 MA's), (55, 27983), (62, 28010), (68, 28052), (69, 28064), (74, 28076),

Gene: ChotaBhai\_29 Start: 27796, Stop: 28224, Start Num: 11  
Candidate Starts for ChotaBhai\_29:  
(Start: 11 @27796 has 123 MA's), (55, 28021), (62, 28048), (68, 28090), (69, 28102), (74, 28114),

Gene: Cjw1\_29 Start: 29310, Stop: 29738, Start Num: 11

Candidate Starts for Cjw1\_29:

(Start: 11 @29310 has 123 MA's), (55, 29535), (62, 29562), (68, 29604), (69, 29616), (74, 29628),

Gene: Clarkson\_96 Start: 55340, Stop: 55747, Start Num: 14

Candidate Starts for Clarkson\_96:

(Start: 8 @55319 has 2 MA's), (Start: 14 @55340 has 65 MA's), (36, 55448), (45, 55499), (52, 55544), (66, 55604), (76, 55655), (82, 55700),

Gene: Command613\_30 Start: 28816, Stop: 29244, Start Num: 11

Candidate Starts for Command613\_30:

(Start: 11 @28816 has 123 MA's), (47, 29005), (55, 29041), (62, 29068), (68, 29110), (74, 29134), (84, 29203),

Gene: Constella\_35 Start: 32452, Stop: 32856, Start Num: 13

Candidate Starts for Constella\_35:

(Start: 13 @32452 has 3 MA's), (26, 32515), (60, 32692), (66, 32719), (81, 32794),

Gene: Contagion\_28 Start: 28054, Stop: 28482, Start Num: 11

Candidate Starts for Contagion\_28:

(Start: 11 @28054 has 123 MA's), (55, 28279), (62, 28306), (68, 28348), (69, 28360), (74, 28372),

Gene: Cookies\_29 Start: 28419, Stop: 28847, Start Num: 11

Candidate Starts for Cookies\_29:

(Start: 11 @28419 has 123 MA's), (55, 28644), (62, 28671), (68, 28713), (69, 28725), (74, 28737),

Gene: Corazon\_90 Start: 55534, Stop: 55941, Start Num: 14

Candidate Starts for Corazon\_90:

(Start: 8 @55513 has 2 MA's), (Start: 14 @55534 has 65 MA's), (36, 55642), (45, 55693), (52, 55738), (66, 55798), (76, 55849), (82, 55894),

Gene: Corndog\_63 Start: 41144, Stop: 41545, Start Num: 14

Candidate Starts for Corndog\_63:

(Start: 14 @41144 has 65 MA's), (Start: 22 @41180 has 11 MA's), (36, 41252), (52, 41348), (66, 41408), (81, 41483),

Gene: Corvo\_34 Start: 28389, Stop: 28790, Start Num: 15

Candidate Starts for Corvo\_34:

(Start: 15 @28389 has 29 MA's), (40, 28515), (41, 28518), (53, 28596), (57, 28614), (65, 28650), (82, 28749), (83, 28755),

Gene: Cosmo\_46 Start: 35023, Stop: 35430, Start Num: 14

Candidate Starts for Cosmo\_46:

(Start: 14 @35023 has 65 MA's), (Start: 19 @35035 has 12 MA's), (52, 35227), (56, 35245), (57, 35248), (60, 35260), (67, 35290), (81, 35362), (84, 35392), (86, 35425),

Gene: CrystalP\_29 Start: 28549, Stop: 28977, Start Num: 11

Candidate Starts for CrystalP\_29:

(4, 28441), (Start: 11 @28549 has 123 MA's), (47, 28738), (55, 28774), (62, 28801), (68, 28843), (74, 28867), (84, 28936),

Gene: Cueyllyss\_33 Start: 27563, Stop: 27964, Start Num: 15

Candidate Starts for Cueyllyss\_33:

(Start: 15 @27563 has 29 MA's), (40, 27689), (41, 27692), (53, 27770), (57, 27788), (65, 27824), (82, 27923), (83, 27929),

Gene: Czyszczone1\_30 Start: 28295, Stop: 28723, Start Num: 11

Candidate Starts for Czyszczone1\_30:

(Start: 11 @28295 has 123 MA's), (55, 28520), (62, 28547), (68, 28589), (69, 28601), (74, 28613),

Gene: Daikon\_28 Start: 28287, Stop: 28715, Start Num: 11

Candidate Starts for Daikon\_28:

(4, 28179), (Start: 11 @28287 has 123 MA's), (47, 28476), (55, 28512), (62, 28539), (68, 28581), (74, 28605), (84, 28674),

Gene: Dallas\_42 Start: 33204, Stop: 33593, Start Num: 19

Candidate Starts for Dallas\_42:

(Start: 19 @33204 has 12 MA's), (45, 33351), (48, 33384), (79, 33519),

Gene: Damien\_32 Start: 30712, Stop: 31119, Start Num: 14

Candidate Starts for Damien\_32:

(Start: 14 @30712 has 65 MA's), (26, 30772), (32, 30796), (49, 30907), (52, 30916), (53, 30919), (54, 30925), (57, 30937), (66, 30976), (81, 31051), (84, 31081),

Gene: Dexes\_34 Start: 28150, Stop: 28518, Start Num: 22

Candidate Starts for Dexes\_34:

(Start: 22 @28150 has 11 MA's), (37, 28231), (40, 28243), (65, 28378), (66, 28381), (67, 28384),

Gene: DoctorDiddles\_29 Start: 27712, Stop: 28140, Start Num: 11

Candidate Starts for DoctorDiddles\_29:

(Start: 11 @27712 has 123 MA's), (55, 27937), (62, 27964), (68, 28006), (69, 28018), (74, 28030),

Gene: Dove\_38 Start: 32683, Stop: 33081, Start Num: 16

Candidate Starts for Dove\_38:

(Start: 16 @32683 has 10 MA's), (24, 32719), (36, 32788), (66, 32944), (75, 32986),

Gene: DrDrey\_30 Start: 29042, Stop: 29470, Start Num: 11

Candidate Starts for DrDrey\_30:

(Start: 11 @29042 has 123 MA's), (55, 29267), (62, 29294), (68, 29336), (69, 29348), (74, 29360),

Gene: Dreamboat\_34 Start: 27395, Stop: 27796, Start Num: 15

Candidate Starts for Dreamboat\_34:

(Start: 15 @27395 has 29 MA's), (40, 27521), (41, 27524), (53, 27602), (57, 27620), (65, 27656), (82, 27755), (83, 27761),

Gene: Dumbo\_29 Start: 28017, Stop: 28445, Start Num: 11

Candidate Starts for Dumbo\_29:

(Start: 11 @28017 has 123 MA's), (55, 28242), (62, 28269), (68, 28311), (69, 28323), (74, 28335),

Gene: Dusk\_28 Start: 28201, Stop: 28629, Start Num: 11

Candidate Starts for Dusk\_28:

(Start: 11 @28201 has 123 MA's), (47, 28390), (55, 28426), (62, 28453), (68, 28495), (74, 28519), (84, 28588),

Gene: Dussy\_34 Start: 27657, Stop: 28058, Start Num: 15



Candidate Starts for Dussy\_34:

(Start: 15 @27657 has 29 MA's), (40, 27783), (41, 27786), (53, 27864), (57, 27882), (65, 27918), (82, 28017), (83, 28023),

Gene: Dylan\_60 Start: 40195, Stop: 40596, Start Num: 14

Candidate Starts for Dylan\_60:

(Start: 14 @40195 has 65 MA's), (Start: 22 @40231 has 11 MA's), (36, 40303), (52, 40399), (66, 40459), (81, 40534),

Gene: Easy2Say\_31 Start: 29800, Stop: 30228, Start Num: 11

Candidate Starts for Easy2Say\_31:

(Start: 11 @29800 has 123 MA's), (55, 30025), (62, 30052), (68, 30094), (69, 30106), (74, 30118),

Gene: Ejimix\_41 Start: 34413, Stop: 34811, Start Num: 16

Candidate Starts for Ejimix\_41:

(Start: 16 @34413 has 10 MA's), (24, 34449), (36, 34518), (66, 34674), (75, 34716),

Gene: Elite2014\_28 Start: 27757, Stop: 28185, Start Num: 11

Candidate Starts for Elite2014\_28:

(Start: 11 @27757 has 123 MA's), (55, 27982), (62, 28009), (68, 28051), (69, 28063), (74, 28075),

Gene: Elph10\_30 Start: 28020, Stop: 28448, Start Num: 11

Candidate Starts for Elph10\_30:

(Start: 11 @28020 has 123 MA's), (55, 28245), (62, 28272), (68, 28314), (69, 28326), (74, 28338),

Gene: Emmina\_30 Start: 28378, Stop: 28806, Start Num: 11

Candidate Starts for Emmina\_30:

(Start: 11 @28378 has 123 MA's), (55, 28603), (62, 28630), (68, 28672), (69, 28684), (74, 28696),

Gene: EniyanLRS\_43 Start: 34721, Stop: 35128, Start Num: 14

Candidate Starts for EniyanLRS\_43:

(Start: 14 @34721 has 65 MA's), (Start: 19 @34733 has 12 MA's), (52, 34925), (56, 34943), (57, 34946), (60, 34958), (67, 34988), (81, 35060), (84, 35090), (86, 35123),

Gene: EricMillard\_41 Start: 33965, Stop: 34354, Start Num: 19

Candidate Starts for EricMillard\_41:

(Start: 19 @33965 has 12 MA's), (45, 34112), (48, 34145), (79, 34280),

Gene: Euphoria\_33 Start: 27428, Stop: 27829, Start Num: 15

Candidate Starts for Euphoria\_33:

(Start: 15 @27428 has 29 MA's), (40, 27554), (41, 27557), (53, 27635), (57, 27653), (65, 27689), (82, 27788), (83, 27794),

Gene: Eureka\_29 Start: 28533, Stop: 28961, Start Num: 11

Candidate Starts for Eureka\_29:

(Start: 11 @28533 has 123 MA's), (47, 28722), (55, 28758), (62, 28785), (68, 28827), (74, 28851), (84, 28920),

Gene: Eyeball\_33 Start: 27233, Stop: 27634, Start Num: 15

Candidate Starts for Eyeball\_33:

(Start: 15 @27233 has 29 MA's), (40, 27359), (41, 27362), (53, 27440), (57, 27458), (65, 27494), (82, 27593), (83, 27599),

Gene: FairyPath\_29 Start: 28745, Stop: 29173, Start Num: 11

Candidate Starts for FairyPath\_29:

(3, 28574), (Start: 11 @28745 has 123 MA's), (47, 28934), (55, 28970), (62, 28997), (68, 29039), (74, 29063), (84, 29132),

Gene: Familton\_61 Start: 40107, Stop: 40508, Start Num: 14

Candidate Starts for Familton\_61:

(Start: 14 @40107 has 65 MA's), (Start: 22 @40143 has 11 MA's), (Start: 30 @40185 has 1 MA's), (36, 40215), (52, 40311), (66, 40371), (81, 40446),

Gene: FeliMaine\_95 Start: 55561, Stop: 55989, Start Num: 8

Candidate Starts for FeliMaine\_95:

(Start: 8 @55561 has 2 MA's), (Start: 14 @55582 has 65 MA's), (36, 55690), (45, 55741), (52, 55786), (66, 55846), (76, 55897), (82, 55942),

Gene: Filch\_30 Start: 28308, Stop: 28736, Start Num: 11

Candidate Starts for Filch\_30:

(Start: 11 @28308 has 123 MA's), (55, 28533), (62, 28560), (68, 28602), (69, 28614), (74, 28626),

Gene: FireRed\_29 Start: 28578, Stop: 29006, Start Num: 11

Candidate Starts for FireRed\_29:

(Start: 11 @28578 has 123 MA's), (55, 28803), (62, 28830), (68, 28872), (69, 28884), (74, 28896),

Gene: Firecracker\_61 Start: 40297, Stop: 40698, Start Num: 14

Candidate Starts for Firecracker\_61:

(Start: 14 @40297 has 65 MA's), (Start: 22 @40333 has 11 MA's), (36, 40405), (52, 40501), (66, 40561), (81, 40636),

Gene: Flypotenuse\_27 Start: 28146, Stop: 28574, Start Num: 11

Candidate Starts for Flypotenuse\_27:

(3, 27975), (Start: 11 @28146 has 123 MA's), (55, 28371), (62, 28398), (68, 28440), (69, 28452), (74, 28464),

Gene: FoghornLeghorn\_28 Start: 28054, Stop: 28482, Start Num: 11

Candidate Starts for FoghornLeghorn\_28:

(Start: 11 @28054 has 123 MA's), (55, 28279), (62, 28306), (68, 28348), (69, 28360), (74, 28372),

Gene: Forsytheast\_33 Start: 27667, Stop: 28068, Start Num: 15

Candidate Starts for Forsytheast\_33:

(Start: 15 @27667 has 29 MA's), (40, 27793), (41, 27796), (53, 27874), (57, 27892), (65, 27928), (82, 28027), (83, 28033),

Gene: Forza\_106 Start: 64430, Stop: 64867, Start Num: 12

Candidate Starts for Forza\_106:

(Start: 12 @64430 has 24 MA's), (31, 64517), (63, 64685), (80, 64766), (84, 64799),

Gene: FoulBall\_60 Start: 40101, Stop: 40502, Start Num: 14

Candidate Starts for FoulBall\_60:

(Start: 14 @40101 has 65 MA's), (Start: 22 @40137 has 11 MA's), (Start: 30 @40179 has 1 MA's), (36, 40209), (52, 40305), (66, 40365), (81, 40440),

Gene: Fryberger\_58 Start: 31819, Stop: 32250, Start Num: 12

Candidate Starts for Fryberger\_58:

(Start: 12 @31819 has 24 MA's), (Start: 22 @31861 has 11 MA's), (31, 31906), (57, 32044), (59, 32050),

Gene: GMA1\_27 Start: 21102, Stop: 21533, Start Num: 12

Candidate Starts for GMA1\_27:

(Start: 12 @21102 has 24 MA's), (Start: 30 @21186 has 1 MA's), (31, 21189), (32, 21192), (42, 21246), (43, 21258), (54, 21315), (57, 21327), (63, 21351), (80, 21432), (85, 21492),

Gene: Gage\_31 Start: 28540, Stop: 28968, Start Num: 11

Candidate Starts for Gage\_31:

(Start: 11 @28540 has 123 MA's), (55, 28765), (62, 28792), (68, 28834), (69, 28846), (74, 28858),

Gene: Gator\_27 Start: 28157, Stop: 28585, Start Num: 11

Candidate Starts for Gator\_27:

(Start: 11 @28157 has 123 MA's), (47, 28346), (55, 28382), (62, 28409), (68, 28451), (74, 28475), (84, 28544),

Gene: Gattaca\_94 Start: 55573, Stop: 55980, Start Num: 14

Candidate Starts for Gattaca\_94:

(Start: 14 @55573 has 65 MA's), (36, 55681), (45, 55732), (52, 55777), (66, 55837), (82, 55933),

Gene: Gemini\_32 Start: 29057, Stop: 29485, Start Num: 11

Candidate Starts for Gemini\_32:

(Start: 11 @29057 has 123 MA's), (55, 29282), (62, 29309), (68, 29351), (69, 29363), (74, 29375),

Gene: Gibbles\_36 Start: 39171, Stop: 39608, Start Num: 12

Candidate Starts for Gibbles\_36:

(Start: 12 @39171 has 24 MA's), (Start: 22 @39213 has 11 MA's), (Start: 30 @39255 has 1 MA's), (31, 39258), (63, 39426), (71, 39465),

Gene: Glexan\_27 Start: 28146, Stop: 28574, Start Num: 11

Candidate Starts for Glexan\_27:

(3, 27975), (Start: 11 @28146 has 123 MA's), (55, 28371), (62, 28398), (68, 28440), (69, 28452), (74, 28464),

Gene: GodonK\_93 Start: 56582, Stop: 57016, Start Num: 12

Candidate Starts for GodonK\_93:

(Start: 12 @56582 has 24 MA's), (20, 56612), (23, 56627), (31, 56669), (38, 56714), (42, 56732), (47, 56774), (71, 56882), (80, 56915), (86, 56978),

Gene: Goku\_29 Start: 28262, Stop: 28690, Start Num: 11

Candidate Starts for Goku\_29:

(Start: 11 @28262 has 123 MA's), (47, 28451), (55, 28487), (62, 28514), (68, 28556), (74, 28580), (84, 28649),

Gene: GoldenSpark\_31 Start: 28540, Stop: 28968, Start Num: 11

Candidate Starts for GoldenSpark\_31:

(Start: 11 @28540 has 123 MA's), (55, 28765), (62, 28792), (68, 28834), (69, 28846), (74, 28858),

Gene: Goldilocks\_30 Start: 27960, Stop: 28388, Start Num: 11

Candidate Starts for Goldilocks\_30:

(Start: 11 @27960 has 123 MA's), (55, 28185), (62, 28212), (68, 28254), (69, 28266), (74, 28278),

Gene: GooberAzure\_31 Start: 28540, Stop: 28968, Start Num: 11  
Candidate Starts for GooberAzure\_31:  
(Start: 11 @28540 has 123 MA's), (55, 28765), (62, 28792), (68, 28834), (69, 28846), (74, 28858),

Gene: GoongGoong\_93 Start: 55379, Stop: 55786, Start Num: 14  
Candidate Starts for GoongGoong\_93:  
(Start: 14 @55379 has 65 MA's), (36, 55487), (45, 55538), (52, 55583), (66, 55643), (82, 55739),

Gene: Graduation\_35 Start: 28150, Stop: 28551, Start Num: 15  
Candidate Starts for Graduation\_35:  
(Start: 15 @28150 has 29 MA's), (40, 28276), (41, 28279), (53, 28357), (57, 28375), (65, 28411), (82, 28510), (83, 28516),

Gene: GrecoEtereo\_35 Start: 28237, Stop: 28638, Start Num: 15  
Candidate Starts for GrecoEtereo\_35:  
(Start: 15 @28237 has 29 MA's), (40, 28363), (41, 28366), (53, 28444), (57, 28462), (65, 28498), (82, 28597), (83, 28603),

Gene: Guey18\_63 Start: 33017, Stop: 33448, Start Num: 12  
Candidate Starts for Guey18\_63:  
(Start: 12 @33017 has 24 MA's), (Start: 22 @33059 has 11 MA's), (Start: 30 @33101 has 1 MA's), (31, 33104), (63, 33275),

Gene: Halley\_41 Start: 33678, Stop: 34067, Start Num: 19  
Candidate Starts for Halley\_41:  
(Start: 19 @33678 has 12 MA's), (45, 33825), (48, 33858), (79, 33993),

Gene: HanKaySha\_30 Start: 28292, Stop: 28720, Start Num: 11  
Candidate Starts for HanKaySha\_30:  
(Start: 11 @28292 has 123 MA's), (55, 28517), (62, 28544), (68, 28586), (69, 28598), (74, 28610),

Gene: HanShotFirst\_33 Start: 27403, Stop: 27771, Start Num: 22  
Candidate Starts for HanShotFirst\_33:  
(Start: 22 @27403 has 11 MA's), (37, 27484), (40, 27496), (65, 27631), (66, 27634), (67, 27637),

Gene: Harella\_28 Start: 28662, Stop: 29090, Start Num: 11  
Candidate Starts for Harella\_28:  
(3, 28491), (Start: 11 @28662 has 123 MA's), (55, 28887), (62, 28914), (68, 28956), (69, 28968), (74, 28980),

Gene: HarryOW\_34 Start: 27857, Stop: 28225, Start Num: 22  
Candidate Starts for HarryOW\_34:  
(Start: 22 @27857 has 11 MA's), (37, 27938), (40, 27950), (65, 28085), (66, 28088), (67, 28091),

Gene: Hawkeye\_36 Start: 29723, Stop: 30130, Start Num: 14  
Candidate Starts for Hawkeye\_36:  
(Start: 14 @29723 has 65 MA's), (33, 29810), (34, 29816), (46, 29900), (49, 29918), (50, 29921), (53, 29930), (60, 29960), (65, 29984),

Gene: Henry\_30 Start: 28549, Stop: 28977, Start Num: 11  
Candidate Starts for Henry\_30:  
(4, 28441), (Start: 11 @28549 has 123 MA's), (47, 28738), (55, 28774), (62, 28801), (68, 28843), (74, 28867), (84, 28936),

Gene: Hermia\_36 Start: 28954, Stop: 29355, Start Num: 15

Candidate Starts for Hermia\_36:

(Start: 15 @28954 has 29 MA's), (40, 29080), (41, 29083), (53, 29161), (57, 29179), (65, 29215), (82, 29314), (83, 29320),

Gene: Highbury\_30 Start: 28208, Stop: 28636, Start Num: 11

Candidate Starts for Highbury\_30:

(Start: 11 @28208 has 123 MA's), (55, 28433), (62, 28460), (68, 28502), (69, 28514), (74, 28526),

Gene: HokkenD\_36 Start: 33227, Stop: 33616, Start Num: 19

Candidate Starts for HokkenD\_36:

(Start: 19 @33227 has 12 MA's), (45, 33374), (48, 33407), (79, 33542),

Gene: Holt\_30 Start: 27827, Stop: 28255, Start Num: 11

Candidate Starts for Holt\_30:

(Start: 11 @27827 has 123 MA's), (55, 28052), (62, 28079), (68, 28121), (69, 28133), (74, 28145),

Gene: Homines\_33 Start: 27796, Stop: 28203, Start Num: 30

Candidate Starts for Homines\_33:

(Start: 30 @27796 has 1 MA's), (31, 27799), (32, 27802), (36, 27826), (41, 27850), (48, 27910), (53, 27928), (57, 27946), (83, 28087), (87, 28126), (89, 28138),

Gene: Hoonter\_31 Start: 28540, Stop: 28968, Start Num: 11

Candidate Starts for Hoonter\_31:

(Start: 11 @28540 has 123 MA's), (55, 28765), (62, 28792), (68, 28834), (69, 28846), (74, 28858),

Gene: Hope4ever\_33 Start: 27840, Stop: 28241, Start Num: 15

Candidate Starts for Hope4ever\_33:

(Start: 15 @27840 has 29 MA's), (40, 27966), (41, 27969), (53, 28047), (57, 28065), (65, 28101), (82, 28200), (83, 28206),

Gene: Hokey\_31 Start: 28827, Stop: 29255, Start Num: 11

Candidate Starts for Hokey\_31:

(Start: 11 @28827 has 123 MA's), (55, 29052), (62, 29079), (68, 29121), (69, 29133), (74, 29145),

Gene: HufflyPuff\_28 Start: 28534, Stop: 28962, Start Num: 11

Candidate Starts for HufflyPuff\_28:

(Start: 11 @28534 has 123 MA's), (55, 28759), (62, 28786), (68, 28828), (69, 28840), (74, 28852),

Gene: Hughesyang\_39 Start: 33556, Stop: 33954, Start Num: 16

Candidate Starts for Hughesyang\_39:

(Start: 16 @33556 has 10 MA's), (24, 33592), (36, 33661), (66, 33817), (75, 33859),

Gene: Huphleuff\_97 Start: 55145, Stop: 55552, Start Num: 14

Candidate Starts for Huphleuff\_97:

(Start: 8 @55124 has 2 MA's), (Start: 14 @55145 has 65 MA's), (36, 55253), (45, 55304), (52, 55349), (66, 55409), (76, 55460), (82, 55505),

Gene: IHOP\_29 Start: 28725, Stop: 29153, Start Num: 11

Candidate Starts for IHOP\_29:

(4, 28617), (Start: 11 @28725 has 123 MA's), (47, 28914), (55, 28950), (62, 28977), (68, 29019), (74, 29043), (84, 29112),

Gene: ILeeKay\_35 Start: 27604, Stop: 28005, Start Num: 15

Candidate Starts for ILeeKay\_35:

(Start: 15 @27604 has 29 MA's), (40, 27730), (41, 27733), (53, 27811), (57, 27829), (65, 27865), (82, 27964), (83, 27970),

Gene: Icee\_28 Start: 28207, Stop: 28635, Start Num: 11

Candidate Starts for Icee\_28:

(Start: 11 @28207 has 123 MA's), (47, 28396), (55, 28432), (62, 28459), (68, 28501), (74, 28525), (84, 28594),

Gene: Idergollasper\_60 Start: 40101, Stop: 40502, Start Num: 14

Candidate Starts for Idergollasper\_60:

(Start: 14 @40101 has 65 MA's), (Start: 22 @40137 has 11 MA's), (Start: 30 @40179 has 1 MA's), (36, 40209), (52, 40305), (66, 40365), (81, 40440),

Gene: IgnatiusPatJac\_33 Start: 27718, Stop: 28086, Start Num: 22

Candidate Starts for IgnatiusPatJac\_33:

(Start: 22 @27718 has 11 MA's), (37, 27799), (40, 27811), (65, 27946), (66, 27949), (67, 27952),

Gene: Inca\_28 Start: 27229, Stop: 27657, Start Num: 11

Candidate Starts for Inca\_28:

(Start: 11 @27229 has 123 MA's), (55, 27454), (62, 27481), (68, 27523), (69, 27535), (74, 27547),

Gene: Island3\_23 Start: 23116, Stop: 23517, Start Num: 14

Candidate Starts for Island3\_23:

(Start: 14 @23116 has 65 MA's), (48, 23308), (56, 23338), (60, 23353), (66, 23380), (81, 23455),

Gene: JC27\_35 Start: 28372, Stop: 28740, Start Num: 22

Candidate Starts for JC27\_35:

(Start: 22 @28372 has 11 MA's), (37, 28453), (40, 28465), (65, 28600), (66, 28603), (67, 28606),

Gene: JCole\_24 Start: 20984, Stop: 21424, Start Num: 10

Candidate Starts for JCole\_24:

(Start: 10 @20984 has 3 MA's), (17, 20999), (20, 21014), (31, 21071), (42, 21128), (70, 21284), (71, 21287), (80, 21323),

Gene: JangDynasty\_60 Start: 40187, Stop: 40588, Start Num: 14

Candidate Starts for JangDynasty\_60:

(Start: 14 @40187 has 65 MA's), (Start: 22 @40223 has 11 MA's), (Start: 30 @40265 has 1 MA's), (36, 40295), (52, 40391), (66, 40451), (81, 40526),

Gene: Jasper\_34 Start: 27281, Stop: 27682, Start Num: 15

Candidate Starts for Jasper\_34:

(Start: 15 @27281 has 29 MA's), (40, 27407), (41, 27410), (53, 27488), (57, 27506), (65, 27542), (82, 27641), (83, 27647),

Gene: JeTaime\_31 Start: 29351, Stop: 29779, Start Num: 11

Candidate Starts for JeTaime\_31:

(Start: 11 @29351 has 123 MA's), (55, 29576), (62, 29603), (68, 29645), (69, 29657), (74, 29669),

Gene: JoieB\_96 Start: 55748, Stop: 56155, Start Num: 14

Candidate Starts for JoieB\_96:

(Start: 14 @55748 has 65 MA's), (36, 55856), (45, 55907), (52, 55952), (66, 56012), (73, 56051), (76, 56063), (82, 56108),

Gene: JuicyJay\_43 Start: 35428, Stop: 35817, Start Num: 19

Candidate Starts for JuicyJay\_43:

(Start: 19 @35428 has 12 MA's), (45, 35575), (48, 35608), (79, 35743),

Gene: Kalah2\_41 Start: 34015, Stop: 34404, Start Num: 19

Candidate Starts for Kalah2\_41:

(Start: 19 @34015 has 12 MA's), (45, 34162), (48, 34195), (79, 34330),

Gene: Kampe\_38 Start: 38735, Stop: 39172, Start Num: 12

Candidate Starts for Kampe\_38:

(Start: 12 @38735 has 24 MA's), (31, 38822), (44, 38894), (49, 38936), (63, 38990), (71, 39029),

Gene: Kanye\_31 Start: 29536, Stop: 29964, Start Num: 11

Candidate Starts for Kanye\_31:

(Start: 11 @29536 has 123 MA's), (55, 29761), (62, 29788), (68, 29830), (69, 29842), (74, 29854),

Gene: Keelan\_56 Start: 31817, Stop: 32248, Start Num: 12

Candidate Starts for Keelan\_56:

(Start: 12 @31817 has 24 MA's), (Start: 22 @31859 has 11 MA's), (Start: 30 @31901 has 1 MA's), (31, 31904), (57, 32042), (59, 32048), (91, 32240),

Gene: Kenmech\_36 Start: 28744, Stop: 29145, Start Num: 15

Candidate Starts for Kenmech\_36:

(Start: 15 @28744 has 29 MA's), (40, 28870), (41, 28873), (53, 28951), (57, 28969), (65, 29005), (82, 29104), (83, 29110),

Gene: Kimchi\_31 Start: 28543, Stop: 28971, Start Num: 11

Candidate Starts for Kimchi\_31:

(Start: 11 @28543 has 123 MA's), (55, 28768), (62, 28795), (68, 28837), (69, 28849), (74, 28861),

Gene: KingPhillip3\_59 Start: 40116, Stop: 40517, Start Num: 14

Candidate Starts for KingPhillip3\_59:

(Start: 14 @40116 has 65 MA's), (Start: 22 @40152 has 11 MA's), (Start: 30 @40194 has 1 MA's), (36, 40224), (52, 40320), (66, 40380), (81, 40455),

Gene: Klein\_41 Start: 33239, Stop: 33628, Start Num: 19

Candidate Starts for Klein\_41:

(Start: 19 @33239 has 12 MA's), (45, 33386), (48, 33419), (79, 33554),

Gene: Konstantine\_37 Start: 31913, Stop: 32320, Start Num: 14

Candidate Starts for Konstantine\_37:

(Start: 14 @31913 has 65 MA's), (26, 31973), (32, 31997), (49, 32108), (52, 32117), (53, 32120), (54, 32126), (57, 32138), (66, 32177), (81, 32252), (84, 32282),

Gene: Kostya\_30 Start: 28550, Stop: 28978, Start Num: 11

Candidate Starts for Kostya\_30:

(4, 28442), (Start: 11 @28550 has 123 MA's), (47, 28739), (55, 28775), (62, 28802), (68, 28844), (74, 28868), (84, 28937),

Gene: Krili\_59 Start: 39611, Stop: 40012, Start Num: 14

Candidate Starts for Krili\_59:

(Start: 14 @39611 has 65 MA's), (Start: 22 @39647 has 11 MA's), (Start: 30 @39689 has 1 MA's), (36, 39719), (52, 39815), (66, 39875), (81, 39950),

Gene: Kumao\_33 Start: 30358, Stop: 30762, Start Num: 16

Candidate Starts for Kumao\_33:

(Start: 16 @30358 has 10 MA's), (52, 30559), (56, 30577), (60, 30592), (66, 30619), (67, 30622), (73, 30658), (81, 30694), (83, 30721),

Gene: Leopard\_43 Start: 34302, Stop: 34736, Start Num: 12

Candidate Starts for Leopard\_43:

(Start: 12 @34302 has 24 MA's), (Start: 22 @34341 has 11 MA's), (25, 34356), (28, 34374), (48, 34497), (72, 34602), (88, 34713),

Gene: Leopard\_39 Start: 29770, Stop: 30210, Start Num: 12

Candidate Starts for Leopard\_39:

(Start: 12 @29770 has 24 MA's), (24, 29815), (29, 29851), (32, 29860), (64, 30028), (77, 30088), (80, 30109), (90, 30196), (91, 30202),

Gene: Licorice\_35 Start: 28435, Stop: 28836, Start Num: 15

Candidate Starts for Licorice\_35:

(Start: 15 @28435 has 29 MA's), (40, 28561), (41, 28564), (53, 28642), (57, 28660), (65, 28696), (82, 28795), (83, 28801),

Gene: LilBib\_34 Start: 28680, Stop: 29048, Start Num: 22

Candidate Starts for LilBib\_34:

(Start: 22 @28680 has 11 MA's), (37, 28761), (40, 28773), (65, 28908), (66, 28911), (67, 28914),

Gene: Lilac\_31 Start: 28047, Stop: 28475, Start Num: 11

Candidate Starts for Lilac\_31:

(Start: 11 @28047 has 123 MA's), (55, 28272), (62, 28299), (68, 28341), (69, 28353), (74, 28365),

Gene: Lilbit\_93 Start: 55705, Stop: 56112, Start Num: 14

Candidate Starts for Lilbit\_93:

(Start: 8 @55684 has 2 MA's), (Start: 14 @55705 has 65 MA's), (36, 55813), (45, 55864), (52, 55909), (66, 55969), (76, 56020), (82, 56065),

Gene: Lilizi\_31 Start: 28255, Stop: 28683, Start Num: 11

Candidate Starts for Lilizi\_31:

(Start: 11 @28255 has 123 MA's), (55, 28480), (62, 28507), (68, 28549), (69, 28561), (74, 28573),

Gene: Lilpickle\_28 Start: 27757, Stop: 28185, Start Num: 11

Candidate Starts for Lilpickle\_28:

(Start: 11 @27757 has 123 MA's), (55, 27982), (62, 28009), (68, 28051), (69, 28063), (74, 28075),

Gene: LittleLaf\_93 Start: 55434, Stop: 55841, Start Num: 14

Candidate Starts for LittleLaf\_93:

(Start: 8 @55413 has 2 MA's), (Start: 14 @55434 has 65 MA's), (36, 55542), (45, 55593), (52, 55638), (66, 55698), (76, 55749), (82, 55794),

Gene: LunarLander\_35 Start: 27551, Stop: 27952, Start Num: 15

Candidate Starts for LunarLander\_35:



(Start: 15 @27551 has 29 MA's), (40, 27677), (41, 27680), (53, 27758), (57, 27776), (65, 27812), (82, 27911), (83, 27917),

Gene: MISSy\_28 Start: 28062, Stop: 28490, Start Num: 11

Candidate Starts for MISSy\_28:

(Start: 11 @28062 has 123 MA's), (55, 28287), (62, 28314), (68, 28356), (69, 28368), (74, 28380),

Gene: MPhalcon\_28 Start: 28056, Stop: 28484, Start Num: 11

Candidate Starts for MPhalcon\_28:

(Start: 11 @28056 has 123 MA's), (55, 28281), (62, 28308), (68, 28350), (69, 28362), (74, 28374),

Gene: MadKillah\_61 Start: 39880, Stop: 40281, Start Num: 14

Candidate Starts for MadKillah\_61:

(Start: 14 @39880 has 65 MA's), (Start: 22 @39916 has 11 MA's), (Start: 30 @39958 has 1 MA's), (36, 39988), (52, 40084), (66, 40144), (81, 40219),

Gene: MadamMonkfish\_29 Start: 27968, Stop: 28396, Start Num: 11

Candidate Starts for MadamMonkfish\_29:

(Start: 11 @27968 has 123 MA's), (55, 28193), (62, 28220), (68, 28262), (69, 28274), (74, 28286),

Gene: Manda\_30 Start: 29035, Stop: 29463, Start Num: 11

Candidate Starts for Manda\_30:

(Start: 11 @29035 has 123 MA's), (55, 29260), (62, 29287), (68, 29329), (69, 29341), (74, 29353),

Gene: Mareelih\_104 Start: 63932, Stop: 64369, Start Num: 12

Candidate Starts for Mareelih\_104:

(Start: 12 @63932 has 24 MA's), (31, 64019), (63, 64187), (80, 64268), (84, 64301),

Gene: Marleymoo\_45 Start: 36252, Stop: 36656, Start Num: 13

Candidate Starts for Marleymoo\_45:

(Start: 13 @36252 has 3 MA's), (26, 36315), (60, 36492), (66, 36519), (81, 36594),

Gene: Marshmallow\_29 Start: 28547, Stop: 28975, Start Num: 11

Candidate Starts for Marshmallow\_29:

(Start: 11 @28547 has 123 MA's), (47, 28736), (55, 28772), (62, 28799), (68, 28841), (74, 28865), (84, 28934),

Gene: Marvin\_89 Start: 55227, Stop: 55634, Start Num: 14

Candidate Starts for Marvin\_89:

(Start: 14 @55227 has 65 MA's), (36, 55335), (45, 55386), (52, 55431), (66, 55491), (73, 55530), (76, 55542), (82, 55587),

Gene: MaryBeth\_33 Start: 27595, Stop: 27996, Start Num: 15

Candidate Starts for MaryBeth\_33:

(Start: 15 @27595 has 29 MA's), (40, 27721), (41, 27724), (53, 27802), (57, 27820), (65, 27856), (82, 27955), (83, 27961),

Gene: MaryV\_46 Start: 35008, Stop: 35415, Start Num: 14

Candidate Starts for MaryV\_46:

(Start: 14 @35008 has 65 MA's), (Start: 19 @35020 has 12 MA's), (52, 35212), (56, 35230), (57, 35233), (60, 35245), (67, 35275), (81, 35347), (84, 35377), (86, 35410),

Gene: Maxxinista\_30 Start: 28017, Stop: 28445, Start Num: 11

Candidate Starts for Maxxinista\_30:

(Start: 11 @28017 has 123 MA's), (55, 28242), (62, 28269), (68, 28311), (69, 28323), (74, 28335),

Gene: Megatron06\_34 Start: 31245, Stop: 31652, Start Num: 14

Candidate Starts for Megatron06\_34:

(Start: 14 @31245 has 65 MA's), (26, 31305), (32, 31329), (49, 31440), (52, 31449), (53, 31452), (54, 31458), (57, 31470), (66, 31509), (81, 31584), (84, 31614),

Gene: MetalQZJ\_33 Start: 27595, Stop: 27996, Start Num: 15

Candidate Starts for MetalQZJ\_33:

(Start: 15 @27595 has 29 MA's), (40, 27721), (41, 27724), (53, 27802), (57, 27820), (65, 27856), (82, 27955), (83, 27961),

Gene: Mindy\_29 Start: 28327, Stop: 28755, Start Num: 11

Candidate Starts for Mindy\_29:

(4, 28219), (Start: 11 @28327 has 123 MA's), (47, 28516), (55, 28552), (62, 28579), (68, 28621), (74, 28645), (84, 28714),

Gene: Miniwave\_29 Start: 28747, Stop: 29175, Start Num: 11

Candidate Starts for Miniwave\_29:

(Start: 11 @28747 has 123 MA's), (55, 28972), (62, 28999), (68, 29041), (69, 29053), (74, 29065),

Gene: Misfit\_29 Start: 28637, Stop: 29065, Start Num: 11

Candidate Starts for Misfit\_29:

(Start: 11 @28637 has 123 MA's), (55, 28862), (62, 28889), (68, 28931), (69, 28943), (74, 28955),

Gene: Moldemort\_30 Start: 28292, Stop: 28720, Start Num: 11

Candidate Starts for Moldemort\_30:

(Start: 11 @28292 has 123 MA's), (55, 28517), (62, 28544), (68, 28586), (69, 28598), (74, 28610),

Gene: Moose\_33 Start: 27667, Stop: 28068, Start Num: 15

Candidate Starts for Moose\_33:

(Start: 15 @27667 has 29 MA's), (40, 27793), (41, 27796), (53, 27874), (57, 27892), (65, 27928), (82, 28027), (83, 28033),

Gene: Moosehead\_26 Start: 21145, Stop: 21585, Start Num: 10

Candidate Starts for Moosehead\_26:

(Start: 10 @21145 has 3 MA's), (20, 21175), (31, 21232), (70, 21445), (71, 21448), (86, 21547),

Gene: Mori\_60 Start: 40142, Stop: 40543, Start Num: 14

Candidate Starts for Mori\_60:

(Start: 14 @40142 has 65 MA's), (Start: 22 @40178 has 11 MA's), (Start: 30 @40220 has 1 MA's), (36, 40250), (52, 40346), (66, 40406), (81, 40481),

Gene: MosMoris\_91 Start: 55579, Stop: 55986, Start Num: 14

Candidate Starts for MosMoris\_91:

(Start: 14 @55579 has 65 MA's), (36, 55687), (45, 55738), (52, 55783), (66, 55843), (82, 55939),

Gene: Mosby\_28 Start: 28054, Stop: 28482, Start Num: 11

Candidate Starts for Mosby\_28:

(Start: 11 @28054 has 123 MA's), (55, 28279), (62, 28306), (68, 28348), (69, 28360), (74, 28372),

Gene: Murai\_61 Start: 40323, Stop: 40724, Start Num: 14

Candidate Starts for Murai\_61:

(Start: 14 @40323 has 65 MA's), (Start: 22 @40359 has 11 MA's), (Start: 30 @40401 has 1 MA's), (36, 40431), (52, 40527), (66, 40587), (81, 40662),

Gene: Murica\_28 Start: 28534, Stop: 28962, Start Num: 11

Candidate Starts for Murica\_28:

(Start: 11 @28534 has 123 MA's), (55, 28759), (62, 28786), (68, 28828), (69, 28840), (74, 28852),

Gene: Murphy\_30 Start: 28529, Stop: 28957, Start Num: 11

Candidate Starts for Murphy\_30:

(Start: 11 @28529 has 123 MA's), (55, 28754), (62, 28781), (68, 28823), (69, 28835), (74, 28847),

Gene: Myrale\_29 Start: 28412, Stop: 28840, Start Num: 11

Candidate Starts for Myrale\_29:

(Start: 11 @28412 has 123 MA's), (47, 28601), (55, 28637), (62, 28664), (68, 28706), (74, 28730), (84, 28799),

Gene: Nekros\_38 Start: 33219, Stop: 33581, Start Num: 24

Candidate Starts for Nekros\_38:

(24, 33219), (66, 33444), (75, 33486),

Gene: NelitzaMV\_29 Start: 28617, Stop: 29045, Start Num: 11

Candidate Starts for NelitzaMV\_29:

(Start: 11 @28617 has 123 MA's), (47, 28806), (55, 28842), (62, 28869), (68, 28911), (74, 28935), (84, 29004),

Gene: NiebruSaylor\_59 Start: 39530, Stop: 39931, Start Num: 14

Candidate Starts for NiebruSaylor\_59:

(Start: 14 @39530 has 65 MA's), (Start: 22 @39566 has 11 MA's), (Start: 30 @39608 has 1 MA's), (36, 39638), (52, 39734), (66, 39794), (81, 39869),

Gene: NihilNomen\_40 Start: 33704, Stop: 34102, Start Num: 16

Candidate Starts for NihilNomen\_40:

(Start: 16 @33704 has 10 MA's), (24, 33740), (36, 33809), (66, 33965), (75, 34007),

Gene: Nimrod\_29 Start: 28792, Stop: 29220, Start Num: 11

Candidate Starts for Nimrod\_29:

(Start: 11 @28792 has 123 MA's), (55, 29017), (62, 29044), (68, 29086), (69, 29098), (74, 29110),

Gene: NoShow\_24 Start: 22544, Stop: 22975, Start Num: 12

Candidate Starts for NoShow\_24:

(Start: 12 @22544 has 24 MA's), (Start: 21 @22580 has 1 MA's), (Start: 22 @22586 has 11 MA's), (47, 22733), (64, 22805), (70, 22838),

Gene: NoSleep\_30 Start: 28289, Stop: 28717, Start Num: 11

Candidate Starts for NoSleep\_30:

(Start: 11 @28289 has 123 MA's), (55, 28514), (62, 28541), (68, 28583), (69, 28595), (74, 28607),

Gene: Oaker\_32 Start: 30969, Stop: 31376, Start Num: 14

Candidate Starts for Oaker\_32:

(Start: 14 @30969 has 65 MA's), (26, 31029), (32, 31053), (49, 31164), (52, 31173), (53, 31176), (54, 31182), (57, 31194), (66, 31233), (81, 31308), (84, 31338),

Gene: Odette\_40 Start: 32937, Stop: 33335, Start Num: 16  
Candidate Starts for Odette\_40:  
(Start: 16 @32937 has 10 MA's), (24, 32973), (36, 33042), (66, 33198), (75, 33240),

Gene: Onyinye\_40 Start: 29649, Stop: 30089, Start Num: 12  
Candidate Starts for Onyinye\_40:  
(Start: 12 @29649 has 24 MA's), (24, 29694), (29, 29730), (32, 29739), (77, 29967), (80, 29988), (90, 30075), (91, 30081),

Gene: Onyinye\_44 Start: 34181, Stop: 34615, Start Num: 12  
Candidate Starts for Onyinye\_44:  
(Start: 12 @34181 has 24 MA's), (Start: 22 @34220 has 11 MA's), (25, 34235), (28, 34253), (48, 34376), (72, 34481), (88, 34592),

Gene: Orchid\_37 Start: 38736, Stop: 39173, Start Num: 12  
Candidate Starts for Orchid\_37:  
(Start: 12 @38736 has 24 MA's), (31, 38823), (44, 38895), (49, 38937), (63, 38991), (71, 39030),

Gene: OrionPax\_30 Start: 28295, Stop: 28723, Start Num: 11  
Candidate Starts for OrionPax\_30:  
(Start: 11 @28295 has 123 MA's), (55, 28520), (62, 28547), (68, 28589), (69, 28601), (74, 28613),

Gene: Palpatine\_29 Start: 28564, Stop: 28992, Start Num: 11  
Candidate Starts for Palpatine\_29:  
(Start: 11 @28564 has 123 MA's), (55, 28789), (62, 28816), (68, 28858), (69, 28870), (74, 28882),

Gene: Paperbeatsrock\_31 Start: 29530, Stop: 29958, Start Num: 11  
Candidate Starts for Paperbeatsrock\_31:  
(Start: 11 @29530 has 123 MA's), (55, 29755), (62, 29782), (68, 29824), (69, 29836), (74, 29848),

Gene: Papez\_35 Start: 29148, Stop: 29549, Start Num: 15  
Candidate Starts for Papez\_35:  
(Start: 15 @29148 has 29 MA's), (40, 29274), (41, 29277), (53, 29355), (57, 29373), (65, 29409), (82, 29508), (83, 29514),

Gene: Pat3\_28 Start: 27276, Stop: 27704, Start Num: 11  
Candidate Starts for Pat3\_28:  
(Start: 11 @27276 has 123 MA's), (55, 27501), (62, 27528), (68, 27570), (69, 27582), (74, 27594),

Gene: PatrickStar\_38 Start: 38735, Stop: 39172, Start Num: 12  
Candidate Starts for PatrickStar\_38:  
(Start: 12 @38735 has 24 MA's), (31, 38822), (44, 38894), (49, 38936), (63, 38990), (71, 39029),

Gene: Pelly\_34 Start: 28171, Stop: 28539, Start Num: 22  
Candidate Starts for Pelly\_34:  
(Start: 22 @28171 has 11 MA's), (37, 28252), (40, 28264), (65, 28399), (66, 28402), (67, 28405),

Gene: Peterson\_36 Start: 29362, Stop: 29763, Start Num: 16  
Candidate Starts for Peterson\_36:  
(Start: 16 @29362 has 10 MA's), (Start: 21 @29389 has 1 MA's), (40, 29488), (46, 29536), (53, 29569), (65, 29623), (83, 29728),

Gene: Petra64142\_31 Start: 29010, Stop: 29438, Start Num: 11

Candidate Starts for Petra64142\_31:

(Start: 11 @29010 has 123 MA's), (55, 29235), (62, 29262), (68, 29304), (69, 29316), (74, 29328),

Gene: Phaja\_29 Start: 28725, Stop: 29153, Start Num: 11

Candidate Starts for Phaja\_29:

(4, 28617), (Start: 11 @28725 has 123 MA's), (47, 28914), (55, 28950), (62, 28977), (68, 29019), (74, 29043), (84, 29112),

Gene: Pharsalus\_30 Start: 29330, Stop: 29758, Start Num: 11

Candidate Starts for Pharsalus\_30:

(Start: 11 @29330 has 123 MA's), (55, 29555), (62, 29582), (68, 29624), (69, 29636), (74, 29648),

Gene: PhatBacter\_29 Start: 28578, Stop: 29006, Start Num: 11

Candidate Starts for PhatBacter\_29:

(Start: 11 @28578 has 123 MA's), (55, 28803), (62, 28830), (68, 28872), (69, 28884), (74, 28896),

Gene: Phaux\_28 Start: 28576, Stop: 29004, Start Num: 11

Candidate Starts for Phaux\_28:

(Start: 11 @28576 has 123 MA's), (55, 28801), (62, 28828), (68, 28870), (69, 28882), (74, 28894),

Gene: Phendrix\_90 Start: 56293, Stop: 56727, Start Num: 12

Candidate Starts for Phendrix\_90:

(Start: 12 @56293 has 24 MA's), (20, 56323), (23, 56338), (Start: 30 @56377 has 1 MA's), (31, 56380), (38, 56425), (42, 56443), (47, 56485), (71, 56593), (80, 56626), (86, 56689),

Gene: PherrisBueller\_34 Start: 27304, Stop: 27705, Start Num: 15

Candidate Starts for PherrisBueller\_34:

(Start: 15 @27304 has 29 MA's), (40, 27430), (41, 27433), (53, 27511), (57, 27529), (65, 27565), (82, 27664), (83, 27670),

Gene: Phlippers\_32 Start: 28552, Stop: 28920, Start Num: 22

Candidate Starts for Phlippers\_32:

(Start: 22 @28552 has 11 MA's), (37, 28633), (40, 28645), (65, 28780), (66, 28783), (67, 28786),

Gene: Phoebus\_40 Start: 33965, Stop: 34354, Start Num: 19

Candidate Starts for Phoebus\_40:

(Start: 19 @33965 has 12 MA's), (45, 34112), (48, 34145), (79, 34280),

Gene: Phrappuccino\_176 Start: 115819, Stop: 116232, Start Num: 14

Candidate Starts for Phrappuccino\_176:

(Start: 14 @115819 has 65 MA's), (31, 115900), (36, 115927), (52, 116023), (61, 116059), (76, 116137), (78, 116146),

Gene: Phreeze\_32 Start: 30712, Stop: 31119, Start Num: 14

Candidate Starts for Phreeze\_32:

(Start: 14 @30712 has 65 MA's), (26, 30772), (32, 30796), (49, 30907), (52, 30916), (53, 30919), (54, 30925), (57, 30937), (66, 30976), (81, 31051), (84, 31081),

Gene: Phrux\_29 Start: 28291, Stop: 28719, Start Num: 11

Candidate Starts for Phrux\_29:

(Start: 11 @28291 has 123 MA's), (55, 28516), (62, 28543), (68, 28585), (69, 28597), (74, 28609),

Gene: Pickett\_25 Start: 20874, Stop: 21314, Start Num: 10

Candidate Starts for Pickett\_25:

(Start: 10 @20874 has 3 MA's), (20, 20904), (31, 20961), (70, 21174), (71, 21177),

Gene: Poise\_96 Start: 55161, Stop: 55568, Start Num: 14

Candidate Starts for Poise\_96:

(Start: 14 @55161 has 65 MA's), (36, 55269), (45, 55320), (52, 55365), (66, 55425), (82, 55521),

Gene: Porky\_29 Start: 28387, Stop: 28815, Start Num: 11

Candidate Starts for Porky\_29:

(Start: 11 @28387 has 123 MA's), (55, 28612), (62, 28639), (68, 28681), (69, 28693), (74, 28705),

Gene: Pound\_42 Start: 34935, Stop: 35333, Start Num: 16

Candidate Starts for Pound\_42:

(Start: 16 @34935 has 10 MA's), (24, 34971), (36, 35040), (66, 35196), (75, 35238),

Gene: Pringar\_91 Start: 54946, Stop: 55353, Start Num: 14

Candidate Starts for Pringar\_91:

(Start: 8 @54925 has 2 MA's), (Start: 14 @54946 has 65 MA's), (36, 55054), (45, 55105), (52, 55150), (66, 55210), (73, 55249), (76, 55261), (82, 55306),

Gene: ProMouse\_32 Start: 27975, Stop: 28343, Start Num: 22

Candidate Starts for ProMouse\_32:

(Start: 22 @27975 has 11 MA's), (37, 28056), (40, 28068), (65, 28203), (66, 28206), (67, 28209),

Gene: Puissant\_31 Start: 31180, Stop: 31587, Start Num: 14

Candidate Starts for Puissant\_31:

(Start: 14 @31180 has 65 MA's), (31, 31261), (34, 31273), (45, 31339), (53, 31387), (66, 31444),

Gene: Pumpkin\_31 Start: 28627, Stop: 29055, Start Num: 11

Candidate Starts for Pumpkin\_31:

(Start: 11 @28627 has 123 MA's), (55, 28852), (62, 28879), (68, 28921), (69, 28933), (74, 28945),

Gene: Pygmy\_22 Start: 22761, Stop: 23162, Start Num: 14

Candidate Starts for Pygmy\_22:

(Start: 14 @22761 has 65 MA's), (48, 22953), (56, 22983), (60, 22998), (66, 23025), (81, 23100),

Gene: Quallification\_30 Start: 28756, Stop: 29184, Start Num: 11

Candidate Starts for Quallification\_30:

(Start: 11 @28756 has 123 MA's), (55, 28981), (62, 29008), (68, 29050), (69, 29062), (74, 29074),

Gene: REQ3\_58 Start: 37388, Stop: 37825, Start Num: 12

Candidate Starts for REQ3\_58:

(Start: 12 @37388 has 24 MA's), (24, 37433), (Start: 30 @37472 has 1 MA's), (31, 37475), (43, 37544), (90, 37811),

Gene: Raela\_97 Start: 55712, Stop: 56119, Start Num: 14

Candidate Starts for Raela\_97:

(Start: 14 @55712 has 65 MA's), (33, 55799), (36, 55820), (45, 55871), (52, 55916), (66, 55976), (76, 56027), (82, 56072),

Gene: Rakim\_30 Start: 28655, Stop: 29083, Start Num: 11

Candidate Starts for Rakim\_30:

(Start: 11 @28655 has 123 MA's), (47, 28844), (55, 28880), (62, 28907), (68, 28949), (74, 28973), (84, 29042),

Gene: Rearden\_35 Start: 29956, Stop: 30354, Start Num: 16

Candidate Starts for Rearden\_35:

(Start: 16 @29956 has 10 MA's), (24, 29992), (36, 30061), (66, 30217), (75, 30259),

Gene: RedRaider77\_95 Start: 55106, Stop: 55513, Start Num: 14

Candidate Starts for RedRaider77\_95:

(Start: 14 @55106 has 65 MA's), (36, 55214), (45, 55265), (52, 55310), (66, 55370), (76, 55421), (82, 55466),

Gene: Redno2\_39 Start: 33428, Stop: 33817, Start Num: 19

Candidate Starts for Redno2\_39:

(Start: 19 @33428 has 12 MA's), (45, 33575), (48, 33608), (79, 33743),

Gene: RidgeCB\_33 Start: 27235, Stop: 27636, Start Num: 15

Candidate Starts for RidgeCB\_33:

(Start: 15 @27235 has 29 MA's), (40, 27361), (41, 27364), (53, 27442), (57, 27460), (65, 27496), (82, 27595), (83, 27601),

Gene: Rimmer\_28 Start: 28116, Stop: 28544, Start Num: 11

Candidate Starts for Rimmer\_28:

(Start: 11 @28116 has 123 MA's), (55, 28341), (62, 28368), (68, 28410), (69, 28422), (74, 28434),

Gene: RiverMonster\_29 Start: 28305, Stop: 28733, Start Num: 11

Candidate Starts for RiverMonster\_29:

(Start: 11 @28305 has 123 MA's), (55, 28530), (62, 28557), (68, 28599), (69, 28611), (74, 28623),

Gene: RobinSparkles\_40 Start: 39653, Stop: 40090, Start Num: 12

Candidate Starts for RobinSparkles\_40:

(Start: 12 @39653 has 24 MA's), (Start: 22 @39695 has 11 MA's), (Start: 30 @39737 has 1 MA's), (31, 39740), (63, 39908), (71, 39947),

Gene: Ronaldo\_61 Start: 32718, Stop: 33149, Start Num: 12

Candidate Starts for Ronaldo\_61:

(Start: 12 @32718 has 24 MA's), (Start: 22 @32760 has 11 MA's), (31, 32805), (57, 32943), (59, 32949),

Gene: Ryadel\_64 Start: 40911, Stop: 41312, Start Num: 14

Candidate Starts for Ryadel\_64:

(Start: 14 @40911 has 65 MA's), (Start: 22 @40947 has 11 MA's), (Start: 30 @40989 has 1 MA's), (36, 41019), (52, 41115), (66, 41175), (81, 41250),

Gene: Saints25\_30 Start: 28208, Stop: 28636, Start Num: 11

Candidate Starts for Saints25\_30:

(Start: 11 @28208 has 123 MA's), (55, 28433), (62, 28460), (68, 28502), (69, 28514), (74, 28526),

Gene: Sassay\_28 Start: 28054, Stop: 28482, Start Num: 11

Candidate Starts for Sassay\_28:

(Start: 11 @28054 has 123 MA's), (55, 28279), (62, 28306), (68, 28348), (69, 28360), (74, 28372),

Gene: Schatzie\_38 Start: 32685, Stop: 33083, Start Num: 16

Candidate Starts for Schatzie\_38:

(Start: 16 @32685 has 10 MA's), (24, 32721), (36, 32790), (66, 32946), (75, 32988),

Gene: SchoolBus\_60 Start: 40095, Stop: 40496, Start Num: 14

Candidate Starts for SchoolBus\_60:

(Start: 14 @40095 has 65 MA's), (Start: 22 @40131 has 11 MA's), (Start: 30 @40173 has 1 MA's), (36, 40203), (52, 40299), (66, 40359), (81, 40434),

Gene: Schuy\_61 Start: 39886, Stop: 40287, Start Num: 14

Candidate Starts for Schuy\_61:

(Start: 14 @39886 has 65 MA's), (Start: 22 @39922 has 11 MA's), (Start: 30 @39964 has 1 MA's), (36, 39994), (52, 40090), (66, 40150), (81, 40225),

Gene: ScoobyDoobyDoo\_108 Start: 59606, Stop: 60013, Start Num: 14

Candidate Starts for ScoobyDoobyDoo\_108:

(1, 59330), (2, 59351), (7, 59570), (Start: 14 @59606 has 65 MA's), (Start: 30 @59684 has 1 MA's), (31, 59687), (52, 59810), (58, 59834), (66, 59870), (81, 59948),

Gene: Settecandela\_176 Start: 115819, Stop: 116232, Start Num: 14

Candidate Starts for Settecandela\_176:

(Start: 14 @115819 has 65 MA's), (31, 115900), (36, 115927), (52, 116023), (61, 116059), (76, 116137), (78, 116146),

Gene: ShamWow\_29 Start: 28549, Stop: 28977, Start Num: 11

Candidate Starts for ShamWow\_29:

(4, 28441), (Start: 11 @28549 has 123 MA's), (47, 28738), (55, 28774), (62, 28801), (68, 28843), (74, 28867), (84, 28936),

Gene: ShereKhan\_31 Start: 29533, Stop: 29961, Start Num: 11

Candidate Starts for ShereKhan\_31:

(Start: 11 @29533 has 123 MA's), (55, 29758), (62, 29785), (68, 29827), (69, 29839), (74, 29851),

Gene: Shida\_60 Start: 39793, Stop: 40194, Start Num: 14

Candidate Starts for Shida\_60:

(Start: 14 @39793 has 65 MA's), (Start: 22 @39829 has 11 MA's), (Start: 30 @39871 has 1 MA's), (36, 39901), (52, 39997), (66, 40057), (81, 40132),

Gene: Shipwreck\_22 Start: 22739, Stop: 23140, Start Num: 14

Candidate Starts for Shipwreck\_22:

(Start: 14 @22739 has 65 MA's), (48, 22931), (56, 22961), (60, 22976), (66, 23003), (81, 23078),

Gene: Simpliphy\_30 Start: 28295, Stop: 28723, Start Num: 11

Candidate Starts for Simpliphy\_30:

(Start: 11 @28295 has 123 MA's), (55, 28520), (62, 28547), (68, 28589), (69, 28601), (74, 28613),

Gene: SirDuracell\_28 Start: 27214, Stop: 27642, Start Num: 11

Candidate Starts for SirDuracell\_28:

(Start: 11 @27214 has 123 MA's), (47, 27403), (55, 27439), (62, 27466), (68, 27508), (74, 27532), (84, 27601),

Gene: Sixama\_104 Start: 63936, Stop: 64373, Start Num: 12

Candidate Starts for Sixama\_104:

(Start: 12 @63936 has 24 MA's), (31, 64023), (80, 64272),



Gene: Smairt\_34 Start: 28184, Stop: 28552, Start Num: 22

Candidate Starts for Smairt\_34:

(Start: 22 @28184 has 11 MA's), (37, 28265), (40, 28277), (65, 28412), (66, 28415), (67, 28418),

Gene: Smeagol\_35 Start: 28818, Stop: 29192, Start Num: 21

Candidate Starts for Smeagol\_35:

(Start: 21 @28818 has 1 MA's), (40, 28917), (53, 28998), (83, 29157),

Gene: Smooch\_63 Start: 41815, Stop: 42216, Start Num: 14

Candidate Starts for Smooch\_63:

(Start: 14 @41815 has 65 MA's), (Start: 22 @41851 has 11 MA's), (Start: 30 @41893 has 1 MA's), (36, 41923), (52, 42019), (66, 42079), (81, 42154),

Gene: SophKB\_29 Start: 28549, Stop: 28977, Start Num: 11

Candidate Starts for SophKB\_29:

(Start: 11 @28549 has 123 MA's), (55, 28774), (62, 28801), (68, 28843), (69, 28855), (74, 28867),

Gene: Sotrice96\_29 Start: 28503, Stop: 28931, Start Num: 11

Candidate Starts for Sotrice96\_29:

(Start: 11 @28503 has 123 MA's), (47, 28692), (55, 28728), (62, 28755), (68, 28797), (74, 28821), (84, 28890),

Gene: Stank\_32 Start: 29056, Stop: 29484, Start Num: 11

Candidate Starts for Stank\_32:

(Start: 11 @29056 has 123 MA's), (55, 29281), (62, 29308), (68, 29350), (69, 29362), (74, 29374),

Gene: Stark\_30 Start: 28308, Stop: 28736, Start Num: 11

Candidate Starts for Stark\_30:

(Start: 11 @28308 has 123 MA's), (55, 28533), (62, 28560), (68, 28602), (69, 28614), (74, 28626),

Gene: StellaBean\_29 Start: 28549, Stop: 28977, Start Num: 11

Candidate Starts for StellaBean\_29:

(Start: 11 @28549 has 123 MA's), (55, 28774), (62, 28801), (68, 28843), (69, 28855), (74, 28867),

Gene: StolenFromERC\_31 Start: 28540, Stop: 28968, Start Num: 11

Candidate Starts for StolenFromERC\_31:

(Start: 11 @28540 has 123 MA's), (55, 28765), (62, 28792), (68, 28834), (69, 28846), (74, 28858),

Gene: StormChicken\_29 Start: 28724, Stop: 29152, Start Num: 11

Candidate Starts for StormChicken\_29:

(Start: 11 @28724 has 123 MA's), (55, 28949), (62, 28976), (68, 29018), (69, 29030), (74, 29042),

Gene: SwissCheese\_35 Start: 28167, Stop: 28568, Start Num: 15

Candidate Starts for SwissCheese\_35:

(Start: 15 @28167 has 29 MA's), (40, 28293), (41, 28296), (53, 28374), (57, 28392), (65, 28428), (82, 28527), (83, 28533),

Gene: TBrady12\_31 Start: 28540, Stop: 28968, Start Num: 11

Candidate Starts for TBrady12\_31:

(Start: 11 @28540 has 123 MA's), (55, 28765), (62, 28792), (68, 28834), (69, 28846), (74, 28858),

Gene: TPA4\_27 Start: 25382, Stop: 25834, Start Num: 12

Candidate Starts for TPA4\_27:

(Start: 12 @25382 has 24 MA's), (35, 25487), (43, 25538), (48, 25574), (51, 25589), (63, 25637), (90, 25820), (91, 25826),

Gene: Tarkin\_31 Start: 29539, Stop: 29967, Start Num: 11

Candidate Starts for Tarkin\_31:

(Start: 11 @29539 has 123 MA's), (55, 29764), (62, 29791), (68, 29833), (69, 29845), (74, 29857),

Gene: TeardropMSU\_28 Start: 28449, Stop: 28877, Start Num: 11

Candidate Starts for TeardropMSU\_28:

(Start: 11 @28449 has 123 MA's), (47, 28638), (55, 28674), (62, 28701), (68, 28743), (74, 28767), (84, 28836),

Gene: Teaspoon\_30 Start: 28503, Stop: 28931, Start Num: 11

Candidate Starts for Teaspoon\_30:

(Start: 11 @28503 has 123 MA's), (55, 28728), (62, 28755), (68, 28797), (69, 28809), (74, 28821),

Gene: TelAviv\_57 Start: 40068, Stop: 40469, Start Num: 14

Candidate Starts for TelAviv\_57:

(Start: 14 @40068 has 65 MA's), (Start: 22 @40104 has 11 MA's), (Start: 30 @40146 has 1 MA's), (36, 40176), (52, 40272), (66, 40332), (81, 40407),

Gene: Terminus\_29 Start: 28637, Stop: 29065, Start Num: 11

Candidate Starts for Terminus\_29:

(Start: 11 @28637 has 123 MA's), (55, 28862), (62, 28889), (68, 28931), (69, 28943), (74, 28955),

Gene: Tesla\_91 Start: 54955, Stop: 55362, Start Num: 14

Candidate Starts for Tesla\_91:

(Start: 14 @54955 has 65 MA's), (33, 55042), (36, 55063), (45, 55114), (52, 55159), (66, 55219), (82, 55315),

Gene: Thibault\_37 Start: 33811, Stop: 34215, Start Num: 13

Candidate Starts for Thibault\_37:

(Start: 13 @33811 has 3 MA's), (26, 33874), (60, 34051), (66, 34078), (81, 34153),

Gene: Thimble\_29 Start: 27500, Stop: 27928, Start Num: 11

Candidate Starts for Thimble\_29:

(Start: 11 @27500 has 123 MA's), (55, 27725), (62, 27752), (68, 27794), (69, 27806), (74, 27818),

Gene: ThreeRngTarjay\_39 Start: 33815, Stop: 34204, Start Num: 19

Candidate Starts for ThreeRngTarjay\_39:

(Start: 19 @33815 has 12 MA's), (45, 33962), (48, 33995), (79, 34130),

Gene: Thresher\_30 Start: 29304, Stop: 29732, Start Num: 11

Candidate Starts for Thresher\_30:

(Start: 11 @29304 has 123 MA's), (55, 29529), (62, 29556), (68, 29598), (69, 29610), (74, 29622),

Gene: Thumb\_32 Start: 30709, Stop: 31116, Start Num: 14

Candidate Starts for Thumb\_32:

(Start: 14 @30709 has 65 MA's), (26, 30769), (32, 30793), (49, 30904), (52, 30913), (53, 30916), (54, 30922), (57, 30934), (66, 30973), (73, 31012), (81, 31048), (84, 31078),

Gene: Tomaszewski\_28 Start: 28147, Stop: 28575, Start Num: 11

Candidate Starts for Tomaszewski\_28:

(Start: 11 @28147 has 123 MA's), (55, 28372), (62, 28399), (68, 28441), (69, 28453), (74, 28465),

Gene: Topgun\_33 Start: 27344, Stop: 27712, Start Num: 22

Candidate Starts for Topgun\_33:

(Start: 22 @27344 has 11 MA's), (37, 27425), (40, 27437), (65, 27572), (66, 27575), (67, 27578),

Gene: Toto\_29 Start: 28549, Stop: 28977, Start Num: 11

Candidate Starts for Toto\_29:

(4, 28441), (Start: 11 @28549 has 123 MA's), (47, 28738), (55, 28774), (62, 28801), (68, 28843), (74, 28867), (84, 28936),

Gene: Traaww1\_27 Start: 28187, Stop: 28615, Start Num: 11

Candidate Starts for Traaww1\_27:

(Start: 11 @28187 has 123 MA's), (47, 28376), (55, 28412), (62, 28439), (68, 28481), (74, 28505), (84, 28574),

Gene: Tripl3t\_34 Start: 28311, Stop: 28712, Start Num: 15

Candidate Starts for Tripl3t\_34:

(Start: 15 @28311 has 29 MA's), (40, 28437), (41, 28440), (53, 28518), (57, 28536), (65, 28572), (82, 28671), (83, 28677),

Gene: Tuco\_30 Start: 29057, Stop: 29485, Start Num: 11

Candidate Starts for Tuco\_30:

(Start: 11 @29057 has 123 MA's), (47, 29246), (55, 29282), (62, 29309), (68, 29351), (74, 29375), (84, 29444),

Gene: Ukulele\_29 Start: 28308, Stop: 28736, Start Num: 11

Candidate Starts for Ukulele\_29:

(Start: 11 @28308 has 123 MA's), (55, 28533), (62, 28560), (68, 28602), (69, 28614), (74, 28626),

Gene: Vagabond\_60 Start: 39931, Stop: 40332, Start Num: 14

Candidate Starts for Vagabond\_60:

(Start: 14 @39931 has 65 MA's), (Start: 22 @39967 has 11 MA's), (Start: 30 @40009 has 1 MA's), (36, 40039), (52, 40135), (66, 40195), (81, 40270),

Gene: Vasanti\_26 Start: 21864, Stop: 22304, Start Num: 10

Candidate Starts for Vasanti\_26:

(Start: 10 @21864 has 3 MA's), (20, 21894), (31, 21951), (49, 22074), (70, 22164), (71, 22167), (86, 22266),

Gene: VasuNzinga\_93 Start: 55038, Stop: 55445, Start Num: 14

Candidate Starts for VasuNzinga\_93:

(Start: 14 @55038 has 65 MA's), (36, 55146), (45, 55197), (52, 55242), (66, 55302), (73, 55341), (76, 55353), (82, 55398),

Gene: Violet\_32 Start: 27984, Stop: 28385, Start Num: 15

Candidate Starts for Violet\_32:

(Start: 15 @27984 has 29 MA's), (40, 28110), (41, 28113), (53, 28191), (57, 28209), (65, 28245), (82, 28344), (83, 28350),

Gene: Volt\_61 Start: 32951, Stop: 33313, Start Num: 27

Candidate Starts for Volt\_61:

(5, 32819), (6, 32822), (9, 32879), (18, 32900), (Start: 27 @32951 has 1 MA's), (57, 33107), (59, 33113),

Gene: Vorrps\_60 Start: 40143, Stop: 40544, Start Num: 14

Candidate Starts for Vorrps\_60:

(Start: 14 @40143 has 65 MA's), (Start: 22 @40179 has 11 MA's), (Start: 30 @40221 has 1 MA's), (36, 40251), (52, 40347), (66, 40407), (81, 40482),

Gene: Wiggin\_32 Start: 29054, Stop: 29482, Start Num: 11

Candidate Starts for Wiggin\_32:

(Start: 11 @29054 has 123 MA's), (55, 29279), (62, 29306), (68, 29348), (69, 29360), (74, 29372),

Gene: Wildcat\_46 Start: 35018, Stop: 35425, Start Num: 14

Candidate Starts for Wildcat\_46:

(Start: 14 @35018 has 65 MA's), (Start: 19 @35030 has 12 MA's), (52, 35222), (56, 35240), (57, 35243), (60, 35255), (67, 35285), (81, 35357), (84, 35387), (86, 35420),

Gene: Wildflower\_60 Start: 39655, Stop: 40056, Start Num: 14

Candidate Starts for Wildflower\_60:

(Start: 14 @39655 has 65 MA's), (Start: 22 @39691 has 11 MA's), (Start: 30 @39733 has 1 MA's), (36, 39763), (52, 39859), (66, 39919), (81, 39994),

Gene: Wilkins\_33 Start: 27275, Stop: 27643, Start Num: 22

Candidate Starts for Wilkins\_33:

(Start: 22 @27275 has 11 MA's), (37, 27356), (40, 27368), (65, 27503), (66, 27506), (67, 27509),

Gene: Willez\_28 Start: 28054, Stop: 28482, Start Num: 11

Candidate Starts for Willez\_28:

(Start: 11 @28054 has 123 MA's), (55, 28279), (62, 28306), (68, 28348), (69, 28360), (74, 28372),

Gene: Winget\_61 Start: 40361, Stop: 40762, Start Num: 14

Candidate Starts for Winget\_61:

(Start: 14 @40361 has 65 MA's), (Start: 22 @40397 has 11 MA's), (36, 40469), (52, 40565), (66, 40625), (81, 40700),

Gene: Wogge42\_59 Start: 39802, Stop: 40203, Start Num: 14

Candidate Starts for Wogge42\_59:

(Start: 14 @39802 has 65 MA's), (Start: 22 @39838 has 11 MA's), (Start: 30 @39880 has 1 MA's), (36, 39910), (52, 40006), (66, 40066), (81, 40141),

Gene: Xandras\_31 Start: 28540, Stop: 28968, Start Num: 11

Candidate Starts for Xandras\_31:

(Start: 11 @28540 has 123 MA's), (55, 28765), (62, 28792), (68, 28834), (69, 28846), (74, 28858),

Gene: YassJohnny\_30 Start: 29065, Stop: 29493, Start Num: 11

Candidate Starts for YassJohnny\_30:

(Start: 11 @29065 has 123 MA's), (55, 29290), (62, 29317), (68, 29359), (69, 29371), (74, 29383),

Gene: Yeet\_39 Start: 32930, Stop: 33328, Start Num: 16

Candidate Starts for Yeet\_39:

(Start: 16 @32930 has 10 MA's), (24, 32966), (36, 33035), (66, 33191), (75, 33233),

Gene: Youngblood\_29 Start: 28710, Stop: 29138, Start Num: 11

Candidate Starts for Youngblood\_29:

(3, 28539), (Start: 11 @28710 has 123 MA's), (55, 28935), (62, 28962), (68, 29004), (69, 29016), (74, 29028),

Gene: YungJamal\_65 Start: 41553, Stop: 41954, Start Num: 14

Candidate Starts for YungJamal\_65:

(Start: 14 @41553 has 65 MA's), (Start: 22 @41589 has 11 MA's), (Start: 30 @41631 has 1 MA's), (36, 41661), (52, 41757), (66, 41817), (81, 41892),

Gene: Zakhe101\_60 Start: 40199, Stop: 40600, Start Num: 14

Candidate Starts for Zakhe101\_60:

(Start: 14 @40199 has 65 MA's), (Start: 22 @40235 has 11 MA's), (36, 40307), (52, 40403), (66, 40463), (81, 40538),

Gene: Zebo\_59 Start: 40104, Stop: 40505, Start Num: 14

Candidate Starts for Zebo\_59:

(Start: 14 @40104 has 65 MA's), (Start: 22 @40140 has 11 MA's), (Start: 30 @40182 has 1 MA's), (36, 40212), (52, 40308), (66, 40368), (81, 40443),

Gene: Zelink\_42 Start: 34759, Stop: 35148, Start Num: 19

Candidate Starts for Zelink\_42:

(Start: 19 @34759 has 12 MA's), (45, 34906), (48, 34939), (79, 35074),

Gene: Ziko\_61 Start: 32704, Stop: 33135, Start Num: 12

Candidate Starts for Ziko\_61:

(Start: 12 @32704 has 24 MA's), (Start: 22 @32746 has 11 MA's), (31, 32791), (57, 32929), (59, 32935),

Gene: xkcd\_30 Start: 28719, Stop: 29147, Start Num: 11

Candidate Starts for xkcd\_30:

(Start: 11 @28719 has 123 MA's), (55, 28944), (62, 28971), (68, 29013), (69, 29025), (74, 29037),