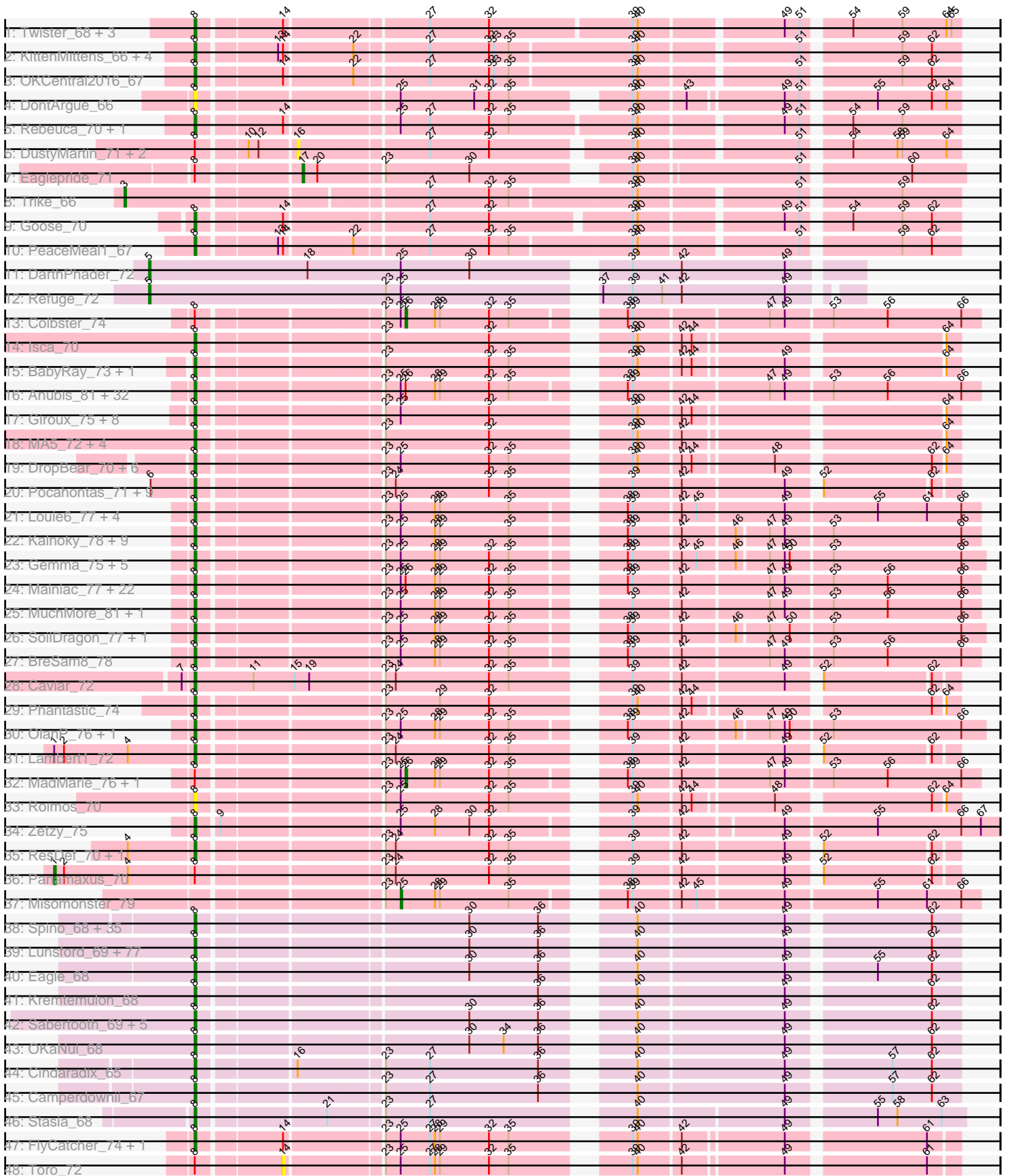


Pham 304669



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 304669 Report

This analysis was run 06/08/26 on database version 649.

Pham number 304669 has 281 members, 26 are drafts.

Phages represented in each track:

- Track 1 : Twister\_68, Edison31\_66, WalterMcMickey\_68, Topanga\_66
- Track 2 : KittenMittens\_66, Chupacabra\_67, Severus\_67, Poompha\_66, Drake94\_67
- Track 3 : OKCentral2016\_67
- Track 4 : DontArgue\_66
- Track 5 : Rebeuca\_70, Kristoff\_68
- Track 6 : DustyMartin\_71, Shapes\_71, Rowdy\_71
- Track 7 : Eaglepride\_71
- Track 8 : Trike\_66
- Track 9 : Goose\_70
- Track 10 : PeaceMeal1\_67
- Track 11 : DarthPhader\_72
- Track 12 : Refuge\_72
- Track 13 : Colbster\_74
- Track 14 : Isca\_70
- Track 15 : BabyRay\_73, Zarafa\_70
- Track 16 : Anubis\_81, Marie\_76, SoYo\_75, Cullens\_78, Gwennie\_73, Ollie\_78, Penny1\_78, Soshari\_80, Beauxregard13\_77, MoneyMay\_77, Hercules11\_78, HashRod\_79, Grif\_76, Sabinator\_76, Fernando\_78, LugYA\_81, Bxz2\_73, AgronaGT15\_75, EpicPhail\_79, GinkgoMaracino\_78, JenCasNa\_79, Croquant\_75, PotatoSplit\_79, Phoxy\_78, Farber\_78, Tiffany\_77, Rummer\_77, Spike509\_78, Phoebe\_79, Taurus\_79, Grum1\_77, Methuselah\_71, P28Green\_78
- Track 17 : Giroux\_75, Pistachio\_72, SaturnRing\_72, Idleandcovert\_73, BlueBird\_75, Clammy\_72, Bugatti\_72, TNguyen7\_73, Puppy\_73
- Track 18 : MA5\_72, JF4\_70, B1\_64, Rockstar\_71, JF2\_70
- Track 19 : DropBear\_70, Marchesa\_70, HelDan\_72, Scout\_71, Heathen\_72, Kachowdy\_70, Fred313\_70
- Track 20 : Pocahontas\_71, Veracruz\_69, QuinnKiro\_71, Popcicle\_72, Noella\_72, Texage\_70, Margo\_72, Norbert\_68, Hookmount\_72, Todacoro\_72
- Track 21 : Louie6\_77, BuzzBuzz\_72, KADY\_75, TinyPebbles\_77, Wooldri\_80
- Track 22 : Kalnoky\_78, JeppNRM\_78, Pawn\_76, Groupthink\_78, Marius\_78, Heliosoles\_75, Kalb97\_78, PurpleHaze\_77, Calvinny\_75, ACFishhook\_75
- Track 23 : Gemma\_75, HaveUMetTed\_78, PhishRPhriends\_74, Reba\_73, Phranny\_74, Manu\_77
- Track 24 : Mainiac\_77, Grub\_76, Daishi\_77, Iowa\_75, MarQuardt\_78, Snickers\_78, Sabia\_76, Pembroke\_78, Bigflo\_75, Stagni\_75, Microwolf\_74, Vix\_74, Watson\_77, LarryKay\_78, StepMih\_77, Montavir\_73, GtownJaz\_78, Malinsilva\_80,

DaHudson\_77, LBerry\_79, Aglet\_79, PGHhamlin\_80, Dieselweasel\_78

- Track 25 : MuchMore\_81, AugsMagnumOpus\_81
- Track 26 : SoilDragon\_77, Jobu08\_74
- Track 27 : BreSam8\_78
- Track 28 : Caviar\_72
- Track 29 : Phantastic\_74
- Track 30 : OlanP\_76, ClownCar\_75
- Track 31 : Lambert1\_72
- Track 32 : MadMarie\_76, Lilith\_76
- Track 33 : Roimos\_70
- Track 34 : Zetzy\_75
- Track 35 : ResDef\_70, EtoileNova\_70
- Track 36 : Panamaxus\_70
- Track 37 : Misomonster\_79
- Track 38 : Spino\_68, Sultana\_69, Maverick\_68, Iracema64\_69, Funston\_68, Phacado\_69, LochMonster\_70, DirtyDunning\_68, Houdini22\_68, PeterPeter\_69, Avle17\_69, Kratak\_68, Mazhar510\_69, JoongJeon\_68, Eris\_68, Happiness\_68, Mayonnaise\_66, MeeZee\_68, BangNhom\_67, LHTSCC\_71, Kyee\_69, NotAPhaseMom\_68, Cerulean\_70, Palestino\_68, JetBlade\_69, SheldonCooper\_69, Cocoaberry\_69, Tinybot\_68, Nemo27\_68, ChampagnePapi\_71, Gadost\_69, Phighter1804\_69, Obama12\_70, Wander\_69, Ulysses\_68, Rosa24\_66
- Track 39 : Lunsford\_69, Kingmustik0402\_69, Medusa\_69, Kamy\_68, Phontbonne\_69, Blackmoor\_68, Skipitt\_68, Eros\_69, Shaka\_67, Huxley\_68, Iceman\_68, KekoraPapaka\_66, Clarenza\_68, Holli\_68, Bartimeaus\_69, Koan\_66, Morrow\_70, Burger\_67, NorthStar\_67, Eurydice\_70, Lorenzo\_69, Pumbaa\_69, SenorClean\_70, Baby16\_69, Ohfah\_70, BubbleTrouble\_68, Citius\_69, Felipe\_70, Deano\_66, Abdiel\_69, Cintron\_69, Bruiser\_68, Taquarus\_68, Alberto7\_70, Roosevelt\_67, Dhanush\_69, Peaches\_67, KFPoly\_68, TinaFeyge\_67, Nyxis\_68, Connomayer\_69, LeoAvram\_68, Commander\_67, Polymorphads\_69, SteMason\_65, Melvin\_71, Eapen\_69, Ruin\_69, Jaykayelowell\_66, Koreni\_68, Scamp\_69, Florean\_69, ICleared\_68, Wilbur\_69, Bombshell\_69, LittleB\_69, Millski\_68, Relief\_68, Flux\_69, Romney\_68, Annyong\_68, TroyPia\_70, Arturo\_66, Maxo\_70, CentreCat\_69, Druantia\_68, Caelakin\_68, Albee\_69, TygerBlood\_69, LittleGuy\_69, LappelDuVide\_69, BellusTerra\_70, Nebs\_70, Thanksgivukkah\_68, Chaph\_69, Lemur\_69, RockieBear\_66, TiroTheta9\_68
- Track 40 : Eagle\_68
- Track 41 : Kremtemulon\_68
- Track 42 : Sabertooth\_69, HamSlice\_65, Broseidon\_69, YoSam321\_69, Pipcraft\_66, Sparxx\_70
- Track 43 : OKaNui\_68
- Track 44 : Cindaradix\_65
- Track 45 : Camperdownii\_67
- Track 46 : Stasia\_68
- Track 47 : FlyCatcher\_74, Sheen\_73
- Track 48 : Toro\_72

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

The start number called the most often in the published annotations is 8, it was called in 246 of the 255 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ACFishhook\_75, Abdiel\_69, Aglet\_79, AgronaGT15\_75, Albee\_69, Alberto7\_70, Annyong\_68, Anubis\_81, Arturo\_66, AugsMagnumOpus\_81, Avle17\_69, B1\_64, Baby16\_69, BabyRay\_73, BangNhom\_67, Bartimeaus\_69, Beauxregard13\_77, BellusTerra\_70, Bigflo\_75, Blackmoor\_68, BlueBird\_75, Bombshell\_69, BreSam8\_78, Broseidon\_69, Bruiser\_68, BubbleTrouble\_68, Bugatti\_72, Burger\_67, BuzzBuzz\_72, Bxz2\_73, Caelakin\_68, Calvinny\_75, Camperdownii\_67, Caviar\_72, CentreCat\_69, Cerulean\_70, ChampagnePapi\_71, Chaph\_69, Chupacabra\_67, Cindaradix\_65, Cintron\_69, Citius\_69, Clammy\_72, Clarenza\_68, ClownCar\_75, Cocoaberry\_69, Commander\_67, Connomayer\_69, Croquant\_75, Cullens\_78, DaHudson\_77, Daishi\_77, Deano\_66, Dhanush\_69, Dieselweasel\_78, DirtyDunning\_68, DontArgue\_66, Drake94\_67, DropBear\_70, Druantia\_68, Eagle\_68, Eapen\_69, Edison31\_66, EpicPhail\_79, Eris\_68, Eros\_69, EtoileNova\_70, Eurydice\_70, Farber\_78, Fernando\_78, Florean\_69, Flux\_69, FlyCatcher\_74, Fred313\_70, Funston\_68, Gadost\_69, Gemma\_75, GingkoMaracino\_78, Giroux\_75, Goose\_70, Grif\_76, Groupthink\_78, Grub\_76, Grum1\_77, GtownJaz\_78, Gwennie\_73, HamSlice\_65, Happiness\_68, HashRod\_79, HaveUMetTed\_78, Heathen\_72, HelDan\_72, Heliosoles\_75, Hercules11\_78, Holli\_68, Hookmount\_72, Houdini22\_68, Huxley\_68, ICleared\_68, Iceman\_68, Idleandcovert\_73, Iracema64\_69, Isca\_70, JF2\_70, JF4\_70, Jaykayelowell\_66, JenCasNa\_79, JeppNRM\_78, JetBlade\_69, Jobu08\_74, JoongJeon\_68, KADY\_75, KFPoly\_68, Kachowdy\_70, Kalb97\_78, Kalnok\_78, Kamy\_68, KekoraPapaka\_66, Kingmustik0402\_69, KittenMittens\_66, Koan\_66, Koreni\_68, Kratark\_68, Kremtemulon\_68, Kristoff\_68, Kye\_69, LBerry\_79, LHTSCC\_71, Lambert1\_72, LappelDuVide\_69, LarryKay\_78, Lemur\_69, LeoAvram\_68, LittleB\_69, LittleGuy\_69, LochMonster\_70, Lorenzo\_69, Louie6\_77, Lowa\_75, LugYA\_81, Lunsford\_69, MA5\_72, Mainiac\_77, Malinsilva\_80, Manu\_77, MarQuardt\_78, Marchesa\_70, Margo\_72, Marie\_76, Marius\_78, Maverick\_68, Maxo\_70, Mayonnaise\_66, Mazhar510\_69, Medusa\_69, MeeZee\_68, Melvin\_71, Methuselah\_71, Microwolf\_74, Millski\_68, MoneyMay\_77, Montavir\_73, Morrow\_70, MuchMore\_81, Nebs\_70, Nemo27\_68, Noella\_72, Norbert\_68, NorthStar\_67, NotAPhaseMom\_68, Nyxis\_68, OKCentral2016\_67, OKaNui\_68, Obama12\_70, Ohfah\_70, OlanP\_76, Ollie\_78, P28Green\_78, PGHhamlin\_80, Palestino\_68, Pawn\_76, PeaceMeal1\_67, Peaches\_67, Pembroke\_78, Penny1\_78, PeterPeter\_69, Phacado\_69, Phantastic\_74, Felipe\_70, Phighter1804\_69, PhishRPhriends\_74, Phoebe\_79, Phontbonne\_69, Phoxy\_78, Phranny\_74, Pipcraft\_66, Pistachio\_72, Pocahontas\_71, Polymorphads\_69, Poompha\_66, Popcicle\_72, PotatoSplit\_79, Pumbaa\_69, Puppy\_73, PurpleHaze\_77, QuinnKiro\_71, Reba\_73, Rebeuca\_70, Relief\_68, ResDef\_70, RockieBear\_66, Rockstar\_71, Roimos\_70, Romney\_68, Roosevelt\_67, Rosa24\_66, Ruin\_69, Rummer\_77, Sabertooth\_69, Sabia\_76, Sabinator\_76, SaturnRing\_72, Scamp\_69, Scout\_71, SenorClean\_70, Severus\_67, Shaka\_67, Sheen\_73, SheldonCooper\_69, Skipitt\_68, Snickers\_78, SoYo\_75, SoilDragon\_77, Soshari\_80, Sparxx\_70, Spike509\_78, Spino\_68, Stagni\_75, Stasia\_68, SteMason\_65, StepMih\_77, Sultana\_69, TNguyen7\_73, Taquarus\_68, Taurus\_79, Texage\_70, Thanksgivukkah\_68, Tiffany\_77, TinaFeyge\_67, TinyPebbles\_77, Tinybot\_68, TiroTheta9\_68, Todacoro\_72, Topanga\_66, TroyPia\_70, Twister\_68, TygerBlood\_69, Ulysses\_68, Veracruz\_69, Vix\_74, WalterMcMickey\_68, Wander\_69, Watson\_77, Wilbur\_69, Wooldri\_80, YoSam321\_69, Zarafa\_70, Zetzy\_75,

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

- Colbster\_74, DustyMartin\_71, Eaglepride\_71, Lilith\_76, MadMarie\_76, Panamaxus\_70, Rowdy\_71, Shapes\_71, Toro\_72,

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

- DarthPhader\_72, Misomonster\_79, Refuge\_72, Trike\_66,

### Summary by start number:

Start 1:

- Found in 2 of 281 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 255
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Panamaxus\_70 (A3),

Start 3:

- Found in 1 of 281 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 255
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Trike\_66 (A10),

Start 5:

- Found in 2 of 281 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 2 of 255
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DarthPhader\_72 (A12), Refuge\_72 (A12),

Start 8:

- Found in 277 of 281 ( 98.6% ) of genes in pham
- Manual Annotations of this start: 246 of 255
- Called 96.8% of time when present
- Phage (with cluster) where this start called: ACFishhook\_75 (A3), Abdiel\_69 (A4), Aglet\_79 (A3), AgronaGT15\_75 (A3), Albee\_69 (A4), Alberto7\_70 (A4), Annyong\_68 (A4), Anubis\_81 (A3), Arturo\_66 (A4), AugsMagnumOpus\_81 (A3), Avle17\_69 (A4), B1\_64 (A3), Baby16\_69 (A4), BabyRay\_73 (A3), BangNhom\_67 (A4), Bartimeaus\_69 (A4), Beauxregard13\_77 (A3), BellusTerra\_70 (A4), Bigflo\_75 (A3), Blackmoor\_68 (A4), BlueBird\_75 (A3), Bombshell\_69 (A4), BreSam8\_78 (A3), Broseidon\_69 (A4), Bruiser\_68 (A4), BubbleTrouble\_68 (A4), Bugatti\_72 (A3), Burger\_67 (A4), BuzzBuzz\_72 (A3), Bxz2\_73 (A3), Caelakin\_68 (A4), Calvinny\_75 (A3), Camperdownii\_67 (A4), Caviar\_72 (A3), CentreCat\_69 (A4), Cerulean\_70 (A4), ChampagnePapi\_71 (A4), Chaph\_69 (A4), Chupacabra\_67 (A10), Cindaradix\_65 (A4), Cintron\_69 (A4), Citius\_69 (A4), Clammy\_72 (A3), Clarenza\_68 (A4), ClownCar\_75 (A3), Cocoaberry\_69 (A4), Commander\_67 (A4), Connomayer\_69 (A4), Croquant\_75 (A3), Cullens\_78 (A3), DaHudson\_77 (A3), Daishi\_77 (A3), Deano\_66 (A4), Dhanush\_69 (A4), Dieselweasel\_78 (A3), DirtyDunning\_68 (A4), DontArgue\_66 (A10), Drake94\_67 (A10), DropBear\_70 (A3), Druantia\_68 (A4), Eagle\_68 (A4), Eapen\_69 (A4), Edison31\_66 (A10), EpicPhail\_79 (A3), Eris\_68 (A4), Eros\_69 (A4), EtoileNova\_70 (A3), Eurydice\_70 (A4), Farber\_78 (A3), Fernando\_78 (A3), Florean\_69 (A4), Flux\_69 (A4), FlyCatcher\_74 (A7), Fred313\_70 (A3), Funston\_68 (A4), Gadost\_69 (A4), Gemma\_75 (A3), GingkoMaracino\_78 (A3), Giroux\_75 (A3), Goose\_70 (A10), Grif\_76 (A3), Groupthink\_78 (A3), Grub\_76 (A3), Grum1\_77 (A3), GtownJaz\_78 (A3), Gwennie\_73 (A3), HamSlice\_65 (A4), Happiness\_68 (A4), HashRod\_79 (A3), HaveUMetTed\_78 (A3), Heathen\_72 (A3), HelDan\_72 (A3), Heliosoles\_75 (A3), Hercules11\_78 (A3), Holli\_68 (A4), Hookmount\_72 (A3), Houdini22\_68 (A4), Huxley\_68 (A4), ICleared\_68 (A4), Iceman\_68 (A4),

Idleandcovert\_73 (A3), Iracema64\_69 (A4), Isca\_70 (A3), JF2\_70 (A3), JF4\_70 (A3), Jaykayelowell\_66 (A4), JenCasNa\_79 (A3), JeppNRM\_78 (A3), JetBlade\_69 (A4), Jobu08\_74 (A3), JoongJeon\_68 (A4), KADY\_75 (A3), KFPoly\_68 (A4), Kachowdy\_70 (A3), Kalb97\_78 (A3), Kalnok\_78 (A3), Kampy\_68 (A4), KekoraPapaka\_66 (A4), Kingmustik0402\_69 (A4), KittenMittens\_66 (A10), Koan\_66 (A4), Koreni\_68 (A4), Kratak\_68 (A4), Kremtemulon\_68 (A4), Kristoff\_68 (A10), Kyee\_69 (A4), LBerry\_79 (A3), LHTSCC\_71 (A4), Lambert1\_72 (A3), LappelDuVide\_69 (A4), LarryKay\_78 (A3), Lemur\_69 (A4), LeoAvram\_68 (A4), LittleB\_69 (A4), LittleGuy\_69 (A4), LochMonster\_70 (A4), Lorenzo\_69 (A4), Louie6\_77 (A3), Iowa\_75 (A3), LugYA\_81 (A3), Lunsford\_69 (A4), MA5\_72 (A3), Mainiac\_77 (A3), Malinsilva\_80 (A3), Manu\_77 (A3), MarQuardt\_78 (A3), Marchesa\_70 (A3), Margo\_72 (A3), Marie\_76 (A3), Marius\_78 (A3), Maverick\_68 (A4), Maxo\_70 (A4), Mayonnaise\_66 (A4), Mazhar510\_69 (A4), Medusa\_69 (A4), MeeZee\_68 (A4), Melvin\_71 (A4), Methuselah\_71 (A3), Microwolf\_74 (A3), Millski\_68 (A4), MoneyMay\_77 (A3), Montavir\_73 (A3), Morrow\_70 (A4), MuchMore\_81 (A3), Nebs\_70 (A4), Nemo27\_68 (A4), Noella\_72 (A3), Norbert\_68 (A3), NorthStar\_67 (A4), NotAPhaseMom\_68 (A4), Nyxis\_68 (A4), OKCentral2016\_67 (A10), OKaNui\_68 (A4), Obama12\_70 (A4), Ohfah\_70 (A4), OlanP\_76 (A3), Ollie\_78 (A3), P28Green\_78 (A3), PGHhamlin\_80 (A3), Palestino\_68 (A4), Pawn\_76 (A3), PeaceMeal1\_67 (A10), Peaches\_67 (A4), Pembroke\_78 (A3), Penny1\_78 (A3), PeterPeter\_69 (A4), Phacado\_69 (A4), Phantastic\_74 (A3), Felipe\_70 (A4), Phighter1804\_69 (A4), PhishRPhriends\_74 (A3), Phoebe\_79 (A3), Phontbonne\_69 (A4), Phoxy\_78 (A3), Phranny\_74 (A3), Pipcraft\_66 (A4), Pistachio\_72 (A3), Pocahontas\_71 (A3), Polymorphads\_69 (A4), Poompha\_66 (A10), Popcicle\_72 (A3), PotatoSplit\_79 (A3), Pumbaa\_69 (A4), Puppy\_73 (A3), PurpleHaze\_77 (A3), QuinnKiro\_71 (A3), Reba\_73 (A3), Rebeuca\_70 (A10), Relief\_68 (A4), ResDef\_70 (A3), RockieBear\_66 (A4), Rockstar\_71 (A3), Roimos\_70 (A3), Romney\_68 (A4), Roosevelt\_67 (A4), Rosa24\_66 (A4), Ruin\_69 (A4), Rummer\_77 (A3), Sabertooth\_69 (A4), Sabia\_76 (A3), Sabinator\_76 (A3), SaturnRing\_72 (A3), Scamp\_69 (A4), Scout\_71 (A3), SenorClean\_70 (A4), Severus\_67 (A10), Shaka\_67 (A4), Sheen\_73 (A7), SheldonCooper\_69 (A4), Skipitt\_68 (A4), Snickers\_78 (A3), SoYo\_75 (A3), SoilDragon\_77 (A3), Soshari\_80 (A3), Sparxx\_70 (A4), Spike509\_78 (A3), Spino\_68 (A4), Stagni\_75 (A3), Stasia\_68 (A4), SteMason\_65 (A4), StepMih\_77 (A3), Sultana\_69 (A4), TNguyen7\_73 (A3), Taquarus\_68 (A4), Taurus\_79 (A3), Texage\_70 (A3), Thanksgivukkah\_68 (A4), Tiffany\_77 (A3), TinaFeyge\_67 (A4), TinyPebbles\_77 (A3), Tinybot\_68 (A4), TiroTheta9\_68 (A4), Todacoro\_72 (A3), Topanga\_66 (A10), TroyPia\_70 (A4), Twister\_68 (A10), TygerBlood\_69 (A4), Ulysses\_68 (A4), Veracruz\_69 (A3), Vix\_74 (A3), WalterMcMickey\_68 (A10), Wander\_69 (A4), Watson\_77 (A3), Wilbur\_69 (A4), Wooldri\_80 (A3), YoSam321\_69 (A4), Zarafa\_70 (A3), Zetzy\_75 (A3),

#### Start 14:

- Found in 17 of 281 ( 6.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 5.9% of time when present
- Phage (with cluster) where this start called: Toro\_72 (A7),

#### Start 16:

- Found in 4 of 281 ( 1.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 75.0% of time when present
- Phage (with cluster) where this start called: DustyMartin\_71 (A10), Rowdy\_71 (A10), Shapes\_71 (A10),

Start 17:

- Found in 1 of 281 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 255
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Eaglepride\_71 (A10),

Start 25:

- Found in 114 of 281 ( 40.6% ) of genes in pham
- Manual Annotations of this start: 1 of 255
- Called 0.9% of time when present
- Phage (with cluster) where this start called: Misomonster\_79 (A3),

Start 26:

- Found in 59 of 281 ( 21.0% ) of genes in pham
- Manual Annotations of this start: 3 of 255
- Called 5.1% of time when present
- Phage (with cluster) where this start called: Colbster\_74 (A3), Lilith\_76 (A3), MadMarie\_76 (A3),

**Summary by clusters:**

There are 5 clusters represented in this pham: A3, A12, A10, A7, A4,

Info for manual annotations of cluster A10:

- Start number 3 was manually annotated 1 time for cluster A10.
- Start number 8 was manually annotated 14 times for cluster A10.
- Start number 17 was manually annotated 1 time for cluster A10.

Info for manual annotations of cluster A12:

- Start number 5 was manually annotated 2 times for cluster A12.

Info for manual annotations of cluster A3:

- Start number 1 was manually annotated 1 time for cluster A3.
- Start number 8 was manually annotated 109 times for cluster A3.
- Start number 25 was manually annotated 1 time for cluster A3.
- Start number 26 was manually annotated 3 times for cluster A3.

Info for manual annotations of cluster A4:

- Start number 8 was manually annotated 122 times for cluster A4.

Info for manual annotations of cluster A7:

- Start number 8 was manually annotated 1 time for cluster A7.

**Gene Information:**

Gene: ACFishhook\_75 Start: 44366, Stop: 43935, Start Num: 8

Candidate Starts for ACFishhook\_75:

(Start: 8 @44366 has 246 MA's), (23, 44264), (Start: 25 @44255 has 1 MA's), (28, 44234), (29, 44231), (35, 44189), (38, 44138), (39, 44135), (42, 44108), (46, 44078), (47, 44060), (49, 44051), (53, 44024), (66, 43946),

Gene: Abdiel\_69 Start: 43590, Stop: 43168, Start Num: 8  
Candidate Starts for Abdiel\_69:  
(Start: 8 @43590 has 246 MA's), (30, 43437), (36, 43395), (40, 43353), (49, 43266), (62, 43185),

Gene: Aglet\_79 Start: 44481, Stop: 44047, Start Num: 8  
Candidate Starts for Aglet\_79:  
(Start: 8 @44481 has 246 MA's), (23, 44379), (Start: 25 @44370 has 1 MA's), (Start: 26 @44367 has 3 MA's), (28, 44349), (29, 44346), (32, 44316), (35, 44304), (38, 44253), (39, 44250), (42, 44223), (47, 44172), (49, 44163), (53, 44136), (56, 44103), (66, 44058),

Gene: AgronaGT15\_75 Start: 44329, Stop: 43895, Start Num: 8  
Candidate Starts for AgronaGT15\_75:  
(Start: 8 @44329 has 246 MA's), (23, 44227), (Start: 25 @44218 has 1 MA's), (Start: 26 @44215 has 3 MA's), (28, 44197), (29, 44194), (32, 44164), (35, 44152), (38, 44101), (39, 44098), (47, 44020), (49, 44011), (53, 43984), (56, 43951), (66, 43906),

Gene: Albee\_69 Start: 43577, Stop: 43155, Start Num: 8  
Candidate Starts for Albee\_69:  
(Start: 8 @43577 has 246 MA's), (30, 43424), (36, 43382), (40, 43340), (49, 43253), (62, 43172),

Gene: Alberto7\_70 Start: 43914, Stop: 43492, Start Num: 8  
Candidate Starts for Alberto7\_70:  
(Start: 8 @43914 has 246 MA's), (30, 43761), (36, 43719), (40, 43677), (49, 43590), (62, 43509),

Gene: Annyong\_68 Start: 43622, Stop: 43200, Start Num: 8  
Candidate Starts for Annyong\_68:  
(Start: 8 @43622 has 246 MA's), (30, 43469), (36, 43427), (40, 43385), (49, 43298), (62, 43217),

Gene: Anubis\_81 Start: 44367, Stop: 43933, Start Num: 8  
Candidate Starts for Anubis\_81:  
(Start: 8 @44367 has 246 MA's), (23, 44265), (Start: 25 @44256 has 1 MA's), (Start: 26 @44253 has 3 MA's), (28, 44235), (29, 44232), (32, 44202), (35, 44190), (38, 44139), (39, 44136), (47, 44058), (49, 44049), (53, 44022), (56, 43989), (66, 43944),

Gene: Arturo\_66 Start: 43704, Stop: 43282, Start Num: 8  
Candidate Starts for Arturo\_66:  
(Start: 8 @43704 has 246 MA's), (30, 43551), (36, 43509), (40, 43467), (49, 43380), (62, 43299),

Gene: AugsMagnumOpus\_81 Start: 44472, Stop: 44038, Start Num: 8  
Candidate Starts for AugsMagnumOpus\_81:  
(Start: 8 @44472 has 246 MA's), (23, 44370), (Start: 25 @44361 has 1 MA's), (28, 44340), (29, 44337), (32, 44307), (35, 44295), (39, 44241), (42, 44214), (47, 44163), (49, 44154), (53, 44127), (56, 44094), (66, 44049),

Gene: Avle17\_69 Start: 43574, Stop: 43152, Start Num: 8  
Candidate Starts for Avle17\_69:  
(Start: 8 @43574 has 246 MA's), (30, 43421), (36, 43379), (40, 43337), (49, 43250), (62, 43169),

Gene: B1\_64 Start: 42264, Stop: 41851, Start Num: 8  
Candidate Starts for B1\_64:  
(Start: 8 @42264 has 246 MA's), (23, 42162), (32, 42099), (39, 42030), (40, 42027), (42, 42003), (64, 41859),

Gene: Baby16\_69 Start: 43588, Stop: 43166, Start Num: 8

Candidate Starts for Baby16\_69:

(Start: 8 @43588 has 246 MA's), (30, 43435), (36, 43393), (40, 43351), (49, 43264), (62, 43183),

Gene: BabyRay\_73 Start: 44020, Stop: 43607, Start Num: 8

Candidate Starts for BabyRay\_73:

(Start: 8 @44020 has 246 MA's), (23, 43918), (32, 43855), (35, 43843), (39, 43786), (40, 43783), (42, 43759), (44, 43753), (49, 43702), (64, 43615),

Gene: BangNhom\_67 Start: 44016, Stop: 43594, Start Num: 8

Candidate Starts for BangNhom\_67:

(Start: 8 @44016 has 246 MA's), (30, 43863), (36, 43821), (40, 43779), (49, 43692), (62, 43611),

Gene: Bartimeaus\_69 Start: 43579, Stop: 43157, Start Num: 8

Candidate Starts for Bartimeaus\_69:

(Start: 8 @43579 has 246 MA's), (30, 43426), (36, 43384), (40, 43342), (49, 43255), (62, 43174),

Gene: Beauxregard13\_77 Start: 44484, Stop: 44050, Start Num: 8

Candidate Starts for Beauxregard13\_77:

(Start: 8 @44484 has 246 MA's), (23, 44382), (Start: 25 @44373 has 1 MA's), (Start: 26 @44370 has 3 MA's), (28, 44352), (29, 44349), (32, 44319), (35, 44307), (38, 44256), (39, 44253), (47, 44175), (49, 44166), (53, 44139), (56, 44106), (66, 44061),

Gene: BellusTerra\_70 Start: 43617, Stop: 43195, Start Num: 8

Candidate Starts for BellusTerra\_70:

(Start: 8 @43617 has 246 MA's), (30, 43464), (36, 43422), (40, 43380), (49, 43293), (62, 43212),

Gene: Bigflo\_75 Start: 44480, Stop: 44046, Start Num: 8

Candidate Starts for Bigflo\_75:

(Start: 8 @44480 has 246 MA's), (23, 44378), (Start: 25 @44369 has 1 MA's), (Start: 26 @44366 has 3 MA's), (28, 44348), (29, 44345), (32, 44315), (35, 44303), (38, 44252), (39, 44249), (42, 44222), (47, 44171), (49, 44162), (53, 44135), (56, 44102), (66, 44057),

Gene: Blackmoor\_68 Start: 43579, Stop: 43157, Start Num: 8

Candidate Starts for Blackmoor\_68:

(Start: 8 @43579 has 246 MA's), (30, 43426), (36, 43384), (40, 43342), (49, 43255), (62, 43174),

Gene: BlueBird\_75 Start: 44091, Stop: 43678, Start Num: 8

Candidate Starts for BlueBird\_75:

(Start: 8 @44091 has 246 MA's), (23, 43989), (Start: 25 @43980 has 1 MA's), (32, 43926), (39, 43857), (40, 43854), (42, 43830), (44, 43824), (64, 43686),

Gene: Bombshell\_69 Start: 43574, Stop: 43152, Start Num: 8

Candidate Starts for Bombshell\_69:

(Start: 8 @43574 has 246 MA's), (30, 43421), (36, 43379), (40, 43337), (49, 43250), (62, 43169),

Gene: BreSam8\_78 Start: 44474, Stop: 44040, Start Num: 8

Candidate Starts for BreSam8\_78:

(Start: 8 @44474 has 246 MA's), (23, 44372), (Start: 25 @44363 has 1 MA's), (28, 44342), (29, 44339), (32, 44309), (35, 44297), (38, 44246), (39, 44243), (42, 44216), (47, 44165), (49, 44156), (53, 44129), (56, 44096), (66, 44051),

Gene: Broseidon\_69 Start: 43579, Stop: 43157, Start Num: 8

Candidate Starts for Broseidon\_69:

(Start: 8 @43579 has 246 MA's), (30, 43426), (36, 43384), (40, 43342), (49, 43255), (62, 43174),

Gene: Bruiser\_68 Start: 43577, Stop: 43155, Start Num: 8

Candidate Starts for Bruiser\_68:

(Start: 8 @43577 has 246 MA's), (30, 43424), (36, 43382), (40, 43340), (49, 43253), (62, 43172),

Gene: BubbleTrouble\_68 Start: 43604, Stop: 43182, Start Num: 8

Candidate Starts for BubbleTrouble\_68:

(Start: 8 @43604 has 246 MA's), (30, 43451), (36, 43409), (40, 43367), (49, 43280), (62, 43199),

Gene: Bugatti\_72 Start: 44091, Stop: 43678, Start Num: 8

Candidate Starts for Bugatti\_72:

(Start: 8 @44091 has 246 MA's), (23, 43989), (Start: 25 @43980 has 1 MA's), (32, 43926), (39, 43857), (40, 43854), (42, 43830), (44, 43824), (64, 43686),

Gene: Burger\_67 Start: 43577, Stop: 43155, Start Num: 8

Candidate Starts for Burger\_67:

(Start: 8 @43577 has 246 MA's), (30, 43424), (36, 43382), (40, 43340), (49, 43253), (62, 43172),

Gene: BuzzBuzz\_72 Start: 44508, Stop: 44074, Start Num: 8

Candidate Starts for BuzzBuzz\_72:

(Start: 8 @44508 has 246 MA's), (23, 44406), (Start: 25 @44397 has 1 MA's), (28, 44376), (29, 44373), (35, 44331), (38, 44280), (39, 44277), (42, 44250), (45, 44241), (49, 44190), (55, 44136), (61, 44106), (66, 44085),

Gene: Bxz2\_73 Start: 44515, Stop: 44081, Start Num: 8

Candidate Starts for Bxz2\_73:

(Start: 8 @44515 has 246 MA's), (23, 44413), (Start: 25 @44404 has 1 MA's), (Start: 26 @44401 has 3 MA's), (28, 44383), (29, 44380), (32, 44350), (35, 44338), (38, 44287), (39, 44284), (47, 44206), (49, 44197), (53, 44170), (56, 44137), (66, 44092),

Gene: Caelakin\_68 Start: 43577, Stop: 43155, Start Num: 8

Candidate Starts for Caelakin\_68:

(Start: 8 @43577 has 246 MA's), (30, 43424), (36, 43382), (40, 43340), (49, 43253), (62, 43172),

Gene: Calvinny\_75 Start: 44294, Stop: 43863, Start Num: 8

Candidate Starts for Calvinny\_75:

(Start: 8 @44294 has 246 MA's), (23, 44192), (Start: 25 @44183 has 1 MA's), (28, 44162), (29, 44159), (35, 44117), (38, 44066), (39, 44063), (42, 44036), (46, 44006), (47, 43988), (49, 43979), (53, 43952), (66, 43874),

Gene: Camperdownii\_67 Start: 43251, Stop: 42829, Start Num: 8

Candidate Starts for Camperdownii\_67:

(Start: 8 @43251 has 246 MA's), (23, 43149), (27, 43122), (36, 43056), (40, 43014), (49, 42927), (57, 42870), (62, 42846),

Gene: Caviar\_72 Start: 44057, Stop: 43635, Start Num: 8

Candidate Starts for Caviar\_72:

(7, 44063), (Start: 8 @44057 has 246 MA's), (11, 44021), (15, 43997), (19, 43988), (23, 43946), (24, 43940), (32, 43883), (35, 43871), (39, 43814), (42, 43787), (49, 43727), (52, 43712), (62, 43649),

Gene: CentreCat\_69 Start: 43616, Stop: 43194, Start Num: 8

Candidate Starts for CentreCat\_69:

(Start: 8 @43616 has 246 MA's), (30, 43463), (36, 43421), (40, 43379), (49, 43292), (62, 43211),

Gene: Cerulean\_70 Start: 44017, Stop: 43595, Start Num: 8

Candidate Starts for Cerulean\_70:

(Start: 8 @44017 has 246 MA's), (30, 43864), (36, 43822), (40, 43780), (49, 43693), (62, 43612),

Gene: ChampagnePapi\_71 Start: 44016, Stop: 43594, Start Num: 8

Candidate Starts for ChampagnePapi\_71:

(Start: 8 @44016 has 246 MA's), (30, 43863), (36, 43821), (40, 43779), (49, 43692), (62, 43611),

Gene: Chaph\_69 Start: 43588, Stop: 43166, Start Num: 8

Candidate Starts for Chaph\_69:

(Start: 8 @43588 has 246 MA's), (30, 43435), (36, 43393), (40, 43351), (49, 43264), (62, 43183),

Gene: Chupacabra\_67 Start: 43379, Stop: 42948, Start Num: 8

Candidate Starts for Chupacabra\_67:

(Start: 8 @43379 has 246 MA's), (13, 43334), (14, 43331), (22, 43292), (27, 43250), (32, 43214), (33, 43211), (35, 43202), (39, 43130), (40, 43127), (51, 43037), (59, 42983), (62, 42965),

Gene: Cindaradix\_65 Start: 43479, Stop: 43057, Start Num: 8

Candidate Starts for Cindaradix\_65:

(Start: 8 @43479 has 246 MA's), (16, 43425), (23, 43377), (27, 43350), (36, 43284), (40, 43242), (49, 43155), (57, 43098), (62, 43074),

Gene: Cintron\_69 Start: 43727, Stop: 43305, Start Num: 8

Candidate Starts for Cintron\_69:

(Start: 8 @43727 has 246 MA's), (30, 43574), (36, 43532), (40, 43490), (49, 43403), (62, 43322),

Gene: Citius\_69 Start: 43598, Stop: 43176, Start Num: 8

Candidate Starts for Citius\_69:

(Start: 8 @43598 has 246 MA's), (30, 43445), (36, 43403), (40, 43361), (49, 43274), (62, 43193),

Gene: Clammy\_72 Start: 44091, Stop: 43678, Start Num: 8

Candidate Starts for Clammy\_72:

(Start: 8 @44091 has 246 MA's), (23, 43989), (Start: 25 @43980 has 1 MA's), (32, 43926), (39, 43857), (40, 43854), (42, 43830), (44, 43824), (64, 43686),

Gene: Clarenza\_68 Start: 43574, Stop: 43152, Start Num: 8

Candidate Starts for Clarenza\_68:

(Start: 8 @43574 has 246 MA's), (30, 43421), (36, 43379), (40, 43337), (49, 43250), (62, 43169),

Gene: ClownCar\_75 Start: 44290, Stop: 43856, Start Num: 8

Candidate Starts for ClownCar\_75:

(Start: 8 @44290 has 246 MA's), (23, 44188), (Start: 25 @44179 has 1 MA's), (28, 44158), (29, 44155), (32, 44125), (35, 44113), (38, 44062), (39, 44059), (42, 44032), (46, 44002), (47, 43984), (49, 43975), (50, 43972), (53, 43948), (66, 43870),

Gene: Cocoaberry\_69 Start: 43581, Stop: 43159, Start Num: 8

Candidate Starts for Cocoaberry\_69:

(Start: 8 @43581 has 246 MA's), (30, 43428), (36, 43386), (40, 43344), (49, 43257), (62, 43176),

Gene: Colbster\_74 Start: 44370, Stop: 44050, Start Num: 26

Candidate Starts for Colbster\_74:

(Start: 8 @44484 has 246 MA's), (23, 44382), (Start: 25 @44373 has 1 MA's), (Start: 26 @44370 has 3 MA's), (28, 44352), (29, 44349), (32, 44319), (35, 44307), (38, 44256), (39, 44253), (47, 44175), (49, 44166), (53, 44139), (56, 44106), (66, 44061),

Gene: Commander\_67 Start: 43576, Stop: 43154, Start Num: 8

Candidate Starts for Commander\_67:

(Start: 8 @43576 has 246 MA's), (30, 43423), (36, 43381), (40, 43339), (49, 43252), (62, 43171),

Gene: Connomayer\_69 Start: 43577, Stop: 43155, Start Num: 8

Candidate Starts for Connomayer\_69:

(Start: 8 @43577 has 246 MA's), (30, 43424), (36, 43382), (40, 43340), (49, 43253), (62, 43172),

Gene: Croquant\_75 Start: 44481, Stop: 44044, Start Num: 8

Candidate Starts for Croquant\_75:

(Start: 8 @44481 has 246 MA's), (23, 44379), (Start: 25 @44370 has 1 MA's), (Start: 26 @44367 has 3 MA's), (28, 44349), (29, 44346), (32, 44316), (35, 44304), (38, 44250), (39, 44247), (47, 44169), (49, 44160), (53, 44133), (56, 44100), (66, 44055),

Gene: Cullens\_78 Start: 44483, Stop: 44046, Start Num: 8

Candidate Starts for Cullens\_78:

(Start: 8 @44483 has 246 MA's), (23, 44381), (Start: 25 @44372 has 1 MA's), (Start: 26 @44369 has 3 MA's), (28, 44351), (29, 44348), (32, 44318), (35, 44306), (38, 44252), (39, 44249), (47, 44171), (49, 44162), (53, 44135), (56, 44102), (66, 44057),

Gene: DaHudson\_77 Start: 44473, Stop: 44039, Start Num: 8

Candidate Starts for DaHudson\_77:

(Start: 8 @44473 has 246 MA's), (23, 44371), (Start: 25 @44362 has 1 MA's), (Start: 26 @44359 has 3 MA's), (28, 44341), (29, 44338), (32, 44308), (35, 44296), (38, 44245), (39, 44242), (42, 44215), (47, 44164), (49, 44155), (53, 44128), (56, 44095), (66, 44050),

Gene: Daishi\_77 Start: 43348, Stop: 42914, Start Num: 8

Candidate Starts for Daishi\_77:

(Start: 8 @43348 has 246 MA's), (23, 43246), (Start: 25 @43237 has 1 MA's), (Start: 26 @43234 has 3 MA's), (28, 43216), (29, 43213), (32, 43183), (35, 43171), (38, 43120), (39, 43117), (42, 43090), (47, 43039), (49, 43030), (53, 43003), (56, 42970), (66, 42925),

Gene: DARTHPhader\_72 Start: 45280, Stop: 44870, Start Num: 5

Candidate Starts for DARTHPhader\_72:

(Start: 5 @45280 has 2 MA's), (18, 45184), (Start: 25 @45127 has 1 MA's), (30, 45085), (39, 45004), (42, 44974), (49, 44911),

Gene: Deano\_66 Start: 43585, Stop: 43163, Start Num: 8

Candidate Starts for Deano\_66:

(Start: 8 @43585 has 246 MA's), (30, 43432), (36, 43390), (40, 43348), (49, 43261), (62, 43180),

Gene: Dhanush\_69 Start: 43580, Stop: 43158, Start Num: 8

Candidate Starts for Dhanush\_69:

(Start: 8 @43580 has 246 MA's), (30, 43427), (36, 43385), (40, 43343), (49, 43256), (62, 43175),

Gene: Dieselweasel\_78 Start: 44482, Stop: 44048, Start Num: 8

Candidate Starts for Dieselweasel\_78:

(Start: 8 @44482 has 246 MA's), (23, 44380), (Start: 25 @44371 has 1 MA's), (Start: 26 @44368 has 3 MA's), (28, 44350), (29, 44347), (32, 44317), (35, 44305), (38, 44254), (39, 44251), (42, 44224), (47, 44173), (49, 44164), (53, 44137), (56, 44104), (66, 44059),

Gene: DirtyDunning\_68 Start: 43592, Stop: 43170, Start Num: 8

Candidate Starts for DirtyDunning\_68:

(Start: 8 @43592 has 246 MA's), (30, 43439), (36, 43397), (40, 43355), (49, 43268), (62, 43187),

Gene: DontArgue\_66 Start: 42344, Stop: 41928, Start Num: 8

Candidate Starts for DontArgue\_66:

(Start: 8 @42344 has 246 MA's), (Start: 25 @42233 has 1 MA's), (31, 42188), (32, 42179), (35, 42167), (39, 42110), (40, 42107), (43, 42080), (49, 42026), (51, 42017), (55, 41978), (62, 41945), (64, 41936),

Gene: Drake94\_67 Start: 42510, Stop: 42079, Start Num: 8

Candidate Starts for Drake94\_67:

(Start: 8 @42510 has 246 MA's), (13, 42465), (14, 42462), (22, 42423), (27, 42381), (32, 42345), (33, 42342), (35, 42333), (39, 42261), (40, 42258), (51, 42168), (59, 42114), (62, 42096),

Gene: DropBear\_70 Start: 44009, Stop: 43596, Start Num: 8

Candidate Starts for DropBear\_70:

(Start: 8 @44009 has 246 MA's), (23, 43907), (Start: 25 @43898 has 1 MA's), (32, 43844), (35, 43832), (39, 43775), (40, 43772), (42, 43748), (44, 43742), (48, 43697), (62, 43610), (64, 43604),

Gene: Druantia\_68 Start: 43580, Stop: 43158, Start Num: 8

Candidate Starts for Druantia\_68:

(Start: 8 @43580 has 246 MA's), (30, 43427), (36, 43385), (40, 43343), (49, 43256), (62, 43175),

Gene: DustyMartin\_71 Start: 43468, Stop: 43097, Start Num: 16

Candidate Starts for DustyMartin\_71:

(Start: 8 @43522 has 246 MA's), (10, 43495), (12, 43489), (16, 43468), (27, 43393), (32, 43357), (39, 43279), (40, 43276), (51, 43186), (54, 43162), (58, 43135), (59, 43132), (64, 43105),

Gene: Eagle\_68 Start: 43638, Stop: 43216, Start Num: 8

Candidate Starts for Eagle\_68:

(Start: 8 @43638 has 246 MA's), (30, 43485), (36, 43443), (40, 43401), (49, 43314), (55, 43266), (62, 43233),

Gene: Eaglepride\_71 Start: 43434, Stop: 43069, Start Num: 17

Candidate Starts for Eaglepride\_71:

(Start: 8 @43491 has 246 MA's), (Start: 17 @43434 has 1 MA's), (20, 43425), (23, 43389), (30, 43338), (39, 43257), (40, 43254), (51, 43161), (60, 43101),

Gene: Eapen\_69 Start: 43572, Stop: 43150, Start Num: 8

Candidate Starts for Eapen\_69:

(Start: 8 @43572 has 246 MA's), (30, 43419), (36, 43377), (40, 43335), (49, 43248), (62, 43167),

Gene: Edison31\_66 Start: 43243, Stop: 42812, Start Num: 8

Candidate Starts for Edison31\_66:

(Start: 8 @43243 has 246 MA's), (14, 43195), (27, 43114), (32, 43078), (39, 42994), (40, 42991), (49, 42910), (51, 42901), (54, 42877), (59, 42847), (64, 42820), (65, 42817),

Gene: EpicPhail\_79 Start: 44484, Stop: 44050, Start Num: 8

Candidate Starts for EpicPhail\_79:

(Start: 8 @44484 has 246 MA's), (23, 44382), (Start: 25 @44373 has 1 MA's), (Start: 26 @44370 has 3 MA's), (28, 44352), (29, 44349), (32, 44319), (35, 44307), (38, 44256), (39, 44253), (47, 44175), (49, 44166), (53, 44139), (56, 44106), (66, 44061),

Gene: Eris\_68 Start: 43592, Stop: 43170, Start Num: 8

Candidate Starts for Eris\_68:

(Start: 8 @43592 has 246 MA's), (30, 43439), (36, 43397), (40, 43355), (49, 43268), (62, 43187),

Gene: Eros\_69 Start: 43579, Stop: 43157, Start Num: 8

Candidate Starts for Eros\_69:

(Start: 8 @43579 has 246 MA's), (30, 43426), (36, 43384), (40, 43342), (49, 43255), (62, 43174),

Gene: EtoileNova\_70 Start: 44052, Stop: 43639, Start Num: 8

Candidate Starts for EtoileNova\_70:

(4, 44091), (Start: 8 @44052 has 246 MA's), (23, 43950), (24, 43944), (32, 43887), (35, 43875), (39, 43818), (42, 43791), (49, 43731), (52, 43716), (62, 43653),

Gene: Eurydice\_70 Start: 43613, Stop: 43191, Start Num: 8

Candidate Starts for Eurydice\_70:

(Start: 8 @43613 has 246 MA's), (30, 43460), (36, 43418), (40, 43376), (49, 43289), (62, 43208),

Gene: Farber\_78 Start: 44470, Stop: 44036, Start Num: 8

Candidate Starts for Farber\_78:

(Start: 8 @44470 has 246 MA's), (23, 44368), (Start: 25 @44359 has 1 MA's), (Start: 26 @44356 has 3 MA's), (28, 44338), (29, 44335), (32, 44305), (35, 44293), (38, 44242), (39, 44239), (47, 44161), (49, 44152), (53, 44125), (56, 44092), (66, 44047),

Gene: Fernando\_78 Start: 44483, Stop: 44046, Start Num: 8

Candidate Starts for Fernando\_78:

(Start: 8 @44483 has 246 MA's), (23, 44381), (Start: 25 @44372 has 1 MA's), (Start: 26 @44369 has 3 MA's), (28, 44351), (29, 44348), (32, 44318), (35, 44306), (38, 44252), (39, 44249), (47, 44171), (49, 44162), (53, 44135), (56, 44102), (66, 44057),

Gene: Florean\_69 Start: 43576, Stop: 43154, Start Num: 8

Candidate Starts for Florean\_69:

(Start: 8 @43576 has 246 MA's), (30, 43423), (36, 43381), (40, 43339), (49, 43252), (62, 43171),

Gene: Flux\_69 Start: 43576, Stop: 43154, Start Num: 8

Candidate Starts for Flux\_69:

(Start: 8 @43576 has 246 MA's), (30, 43423), (36, 43381), (40, 43339), (49, 43252), (62, 43171),

Gene: FlyCatcher\_74 Start: 47594, Stop: 47181, Start Num: 8

Candidate Starts for FlyCatcher\_74:

(Start: 8 @47594 has 246 MA's), (14, 47546), (23, 47492), (Start: 25 @47483 has 1 MA's), (27, 47465), (28, 47462), (29, 47459), (32, 47429), (35, 47417), (39, 47360), (40, 47357), (42, 47333), (49, 47276), (61, 47198),

Gene: Fred313\_70 Start: 43703, Stop: 43290, Start Num: 8

Candidate Starts for Fred313\_70:

(Start: 8 @43703 has 246 MA's), (23, 43601), (Start: 25 @43592 has 1 MA's), (32, 43538), (35, 43526), (39, 43469), (40, 43466), (42, 43442), (44, 43436), (48, 43391), (62, 43304), (64, 43298),

Gene: Funston\_68 Start: 43577, Stop: 43155, Start Num: 8

Candidate Starts for Funston\_68:

(Start: 8 @43577 has 246 MA's), (30, 43424), (36, 43382), (40, 43340), (49, 43253), (62, 43172),

Gene: Gadost\_69 Start: 43581, Stop: 43159, Start Num: 8

Candidate Starts for Gadost\_69:

(Start: 8 @43581 has 246 MA's), (30, 43428), (36, 43386), (40, 43344), (49, 43257), (62, 43176),

Gene: Gemma\_75 Start: 44293, Stop: 43859, Start Num: 8

Candidate Starts for Gemma\_75:

(Start: 8 @44293 has 246 MA's), (23, 44191), (Start: 25 @44182 has 1 MA's), (28, 44161), (29, 44158), (32, 44128), (35, 44116), (38, 44065), (39, 44062), (42, 44035), (45, 44026), (46, 44005), (47, 43987), (49, 43978), (50, 43975), (53, 43951), (66, 43873),

Gene: GingkoMaracino\_78 Start: 44366, Stop: 43932, Start Num: 8

Candidate Starts for GingkoMaracino\_78:

(Start: 8 @44366 has 246 MA's), (23, 44264), (Start: 25 @44255 has 1 MA's), (Start: 26 @44252 has 3 MA's), (28, 44234), (29, 44231), (32, 44201), (35, 44189), (38, 44138), (39, 44135), (47, 44057), (49, 44048), (53, 44021), (56, 43988), (66, 43943),

Gene: Giroux\_75 Start: 44090, Stop: 43677, Start Num: 8

Candidate Starts for Giroux\_75:

(Start: 8 @44090 has 246 MA's), (23, 43988), (Start: 25 @43979 has 1 MA's), (32, 43925), (39, 43856), (40, 43853), (42, 43829), (44, 43823), (64, 43685),

Gene: Goose\_70 Start: 43189, Stop: 42761, Start Num: 8

Candidate Starts for Goose\_70:

(Start: 8 @43189 has 246 MA's), (14, 43141), (27, 43060), (32, 43024), (39, 42943), (40, 42940), (49, 42859), (51, 42850), (54, 42826), (59, 42796), (62, 42778),

Gene: Grif\_76 Start: 44557, Stop: 44120, Start Num: 8

Candidate Starts for Grif\_76:

(Start: 8 @44557 has 246 MA's), (23, 44455), (Start: 25 @44446 has 1 MA's), (Start: 26 @44443 has 3 MA's), (28, 44425), (29, 44422), (32, 44392), (35, 44380), (38, 44326), (39, 44323), (47, 44245), (49, 44236), (53, 44209), (56, 44176), (66, 44131),

Gene: Groupthink\_78 Start: 44294, Stop: 43863, Start Num: 8

Candidate Starts for Groupthink\_78:

(Start: 8 @44294 has 246 MA's), (23, 44192), (Start: 25 @44183 has 1 MA's), (28, 44162), (29, 44159), (35, 44117), (38, 44066), (39, 44063), (42, 44036), (46, 44006), (47, 43988), (49, 43979), (53, 43952), (66, 43874),

Gene: Grub\_76 Start: 44472, Stop: 44038, Start Num: 8

Candidate Starts for Grub\_76:

(Start: 8 @44472 has 246 MA's), (23, 44370), (Start: 25 @44361 has 1 MA's), (Start: 26 @44358 has 3 MA's), (28, 44340), (29, 44337), (32, 44307), (35, 44295), (38, 44244), (39, 44241), (42, 44214), (47, 44163), (49, 44154), (53, 44127), (56, 44094), (66, 44049),

Gene: Grum1\_77 Start: 44483, Stop: 44046, Start Num: 8

Candidate Starts for Grum1\_77:

(Start: 8 @44483 has 246 MA's), (23, 44381), (Start: 25 @44372 has 1 MA's), (Start: 26 @44369 has 3 MA's), (28, 44351), (29, 44348), (32, 44318), (35, 44306), (38, 44252), (39, 44249), (47, 44171), (49, 44162), (53, 44135), (56, 44102), (66, 44057),

Gene: GtownJaz\_78 Start: 44481, Stop: 44047, Start Num: 8

Candidate Starts for GtownJaz\_78:

(Start: 8 @44481 has 246 MA's), (23, 44379), (Start: 25 @44370 has 1 MA's), (Start: 26 @44367 has 3 MA's), (28, 44349), (29, 44346), (32, 44316), (35, 44304), (38, 44253), (39, 44250), (42, 44223), (47, 44172), (49, 44163), (53, 44136), (56, 44103), (66, 44058),

Gene: Gwennie\_73 Start: 44484, Stop: 44050, Start Num: 8

Candidate Starts for Gwennie\_73:

(Start: 8 @44484 has 246 MA's), (23, 44382), (Start: 25 @44373 has 1 MA's), (Start: 26 @44370 has 3 MA's), (28, 44352), (29, 44349), (32, 44319), (35, 44307), (38, 44256), (39, 44253), (47, 44175), (49, 44166), (53, 44139), (56, 44106), (66, 44061),

Gene: HamSlice\_65 Start: 43575, Stop: 43153, Start Num: 8

Candidate Starts for HamSlice\_65:

(Start: 8 @43575 has 246 MA's), (30, 43422), (36, 43380), (40, 43338), (49, 43251), (62, 43170),

Gene: Happiness\_68 Start: 43599, Stop: 43177, Start Num: 8

Candidate Starts for Happiness\_68:

(Start: 8 @43599 has 246 MA's), (30, 43446), (36, 43404), (40, 43362), (49, 43275), (62, 43194),

Gene: HashRod\_79 Start: 44508, Stop: 44074, Start Num: 8

Candidate Starts for HashRod\_79:

(Start: 8 @44508 has 246 MA's), (23, 44406), (Start: 25 @44397 has 1 MA's), (Start: 26 @44394 has 3 MA's), (28, 44376), (29, 44373), (32, 44343), (35, 44331), (38, 44280), (39, 44277), (47, 44199), (49, 44190), (53, 44163), (56, 44130), (66, 44085),

Gene: HaveUMetTed\_78 Start: 44282, Stop: 43848, Start Num: 8

Candidate Starts for HaveUMetTed\_78:

(Start: 8 @44282 has 246 MA's), (23, 44180), (Start: 25 @44171 has 1 MA's), (28, 44150), (29, 44147), (32, 44117), (35, 44105), (38, 44054), (39, 44051), (42, 44024), (45, 44015), (46, 43994), (47, 43976), (49, 43967), (50, 43964), (53, 43940), (66, 43862),

Gene: Heathen\_72 Start: 43798, Stop: 43385, Start Num: 8

Candidate Starts for Heathen\_72:

(Start: 8 @43798 has 246 MA's), (23, 43696), (Start: 25 @43687 has 1 MA's), (32, 43633), (35, 43621), (39, 43564), (40, 43561), (42, 43537), (44, 43531), (48, 43486), (62, 43399), (64, 43393),

Gene: HelDan\_72 Start: 44014, Stop: 43601, Start Num: 8

Candidate Starts for HelDan\_72:

(Start: 8 @44014 has 246 MA's), (23, 43912), (Start: 25 @43903 has 1 MA's), (32, 43849), (35, 43837), (39, 43780), (40, 43777), (42, 43753), (44, 43747), (48, 43702), (62, 43615), (64, 43609),

Gene: Heliosoles\_75 Start: 44297, Stop: 43866, Start Num: 8

Candidate Starts for Heliosoles\_75:

(Start: 8 @44297 has 246 MA's), (23, 44195), (Start: 25 @44186 has 1 MA's), (28, 44165), (29, 44162), (35, 44120), (38, 44069), (39, 44066), (42, 44039), (46, 44009), (47, 43991), (49, 43982), (53, 43955), (66, 43877),

Gene: Hercules11\_78 Start: 44492, Stop: 44055, Start Num: 8

Candidate Starts for Hercules11\_78:

(Start: 8 @44492 has 246 MA's), (23, 44390), (Start: 25 @44381 has 1 MA's), (Start: 26 @44378 has 3 MA's), (28, 44360), (29, 44357), (32, 44327), (35, 44315), (38, 44261), (39, 44258), (47, 44180), (49, 44171), (53, 44144), (56, 44111), (66, 44066),

Gene: Holli\_68 Start: 43367, Stop: 42945, Start Num: 8

Candidate Starts for Holli\_68:

(Start: 8 @43367 has 246 MA's), (30, 43214), (36, 43172), (40, 43130), (49, 43043), (62, 42962),

Gene: Hookmount\_72 Start: 44049, Stop: 43636, Start Num: 8

Candidate Starts for Hookmount\_72:

(6, 44073), (Start: 8 @44049 has 246 MA's), (23, 43947), (24, 43941), (32, 43884), (35, 43872), (39, 43815), (42, 43788), (49, 43728), (52, 43713), (62, 43650),

Gene: Houdini22\_68 Start: 43581, Stop: 43159, Start Num: 8

Candidate Starts for Houdini22\_68:

(Start: 8 @43581 has 246 MA's), (30, 43428), (36, 43386), (40, 43344), (49, 43257), (62, 43176),

Gene: Huxley\_68 Start: 43641, Stop: 43219, Start Num: 8

Candidate Starts for Huxley\_68:

(Start: 8 @43641 has 246 MA's), (30, 43488), (36, 43446), (40, 43404), (49, 43317), (62, 43236),

Gene: ICleared\_68 Start: 43645, Stop: 43223, Start Num: 8

Candidate Starts for ICleared\_68:

(Start: 8 @43645 has 246 MA's), (30, 43492), (36, 43450), (40, 43408), (49, 43321), (62, 43240),

Gene: Iceman\_68 Start: 43866, Stop: 43444, Start Num: 8

Candidate Starts for Iceman\_68:

(Start: 8 @43866 has 246 MA's), (30, 43713), (36, 43671), (40, 43629), (49, 43542), (62, 43461),

Gene: Idleandcovert\_73 Start: 44091, Stop: 43678, Start Num: 8

Candidate Starts for Idleandcovert\_73:

(Start: 8 @44091 has 246 MA's), (23, 43989), (Start: 25 @43980 has 1 MA's), (32, 43926), (39, 43857), (40, 43854), (42, 43830), (44, 43824), (64, 43686),

Gene: Iracema64\_69 Start: 43844, Stop: 43422, Start Num: 8

Candidate Starts for Iracema64\_69:

(Start: 8 @43844 has 246 MA's), (30, 43691), (36, 43649), (40, 43607), (49, 43520), (62, 43439),

Gene: Isca\_70 Start: 43569, Stop: 43156, Start Num: 8

Candidate Starts for Isca\_70:

(Start: 8 @43569 has 246 MA's), (23, 43467), (32, 43404), (39, 43335), (40, 43332), (42, 43308), (44, 43302), (64, 43164),

Gene: JF2\_70 Start: 42264, Stop: 41851, Start Num: 8

Candidate Starts for JF2\_70:

(Start: 8 @42264 has 246 MA's), (23, 42162), (32, 42099), (39, 42030), (40, 42027), (42, 42003), (64, 41859),

Gene: JF4\_70 Start: 42264, Stop: 41851, Start Num: 8

Candidate Starts for JF4\_70:

(Start: 8 @42264 has 246 MA's), (23, 42162), (32, 42099), (39, 42030), (40, 42027), (42, 42003), (64, 41859),

Gene: Jaykayelowell\_66 Start: 43570, Stop: 43148, Start Num: 8

Candidate Starts for Jaykayelowell\_66:

(Start: 8 @43570 has 246 MA's), (30, 43417), (36, 43375), (40, 43333), (49, 43246), (62, 43165),

Gene: JenCasNa\_79 Start: 44483, Stop: 44046, Start Num: 8

Candidate Starts for JenCasNa\_79:

(Start: 8 @44483 has 246 MA's), (23, 44381), (Start: 25 @44372 has 1 MA's), (Start: 26 @44369 has 3 MA's), (28, 44351), (29, 44348), (32, 44318), (35, 44306), (38, 44252), (39, 44249), (47, 44171), (49, 44162), (53, 44135), (56, 44102), (66, 44057),

Gene: JeppNRM\_78 Start: 44295, Stop: 43864, Start Num: 8

Candidate Starts for JeppNRM\_78:

(Start: 8 @44295 has 246 MA's), (23, 44193), (Start: 25 @44184 has 1 MA's), (28, 44163), (29, 44160), (35, 44118), (38, 44067), (39, 44064), (42, 44037), (46, 44007), (47, 43989), (49, 43980), (53, 43953), (66, 43875),

Gene: JetBlade\_69 Start: 43607, Stop: 43185, Start Num: 8

Candidate Starts for JetBlade\_69:

(Start: 8 @43607 has 246 MA's), (30, 43454), (36, 43412), (40, 43370), (49, 43283), (62, 43202),

Gene: Jobu08\_74 Start: 44311, Stop: 43877, Start Num: 8

Candidate Starts for Jobu08\_74:

(Start: 8 @44311 has 246 MA's), (23, 44209), (Start: 25 @44200 has 1 MA's), (28, 44179), (29, 44176), (32, 44146), (35, 44134), (38, 44083), (39, 44080), (42, 44053), (46, 44023), (47, 44005), (50, 43993), (53, 43969), (66, 43891),

Gene: JoongJeon\_68 Start: 43574, Stop: 43152, Start Num: 8

Candidate Starts for JoongJeon\_68:

(Start: 8 @43574 has 246 MA's), (30, 43421), (36, 43379), (40, 43337), (49, 43250), (62, 43169),

Gene: KADY\_75 Start: 44508, Stop: 44074, Start Num: 8

Candidate Starts for KADY\_75:

(Start: 8 @44508 has 246 MA's), (23, 44406), (Start: 25 @44397 has 1 MA's), (28, 44376), (29, 44373), (35, 44331), (38, 44280), (39, 44277), (42, 44250), (45, 44241), (49, 44190), (55, 44136), (61, 44106), (66, 44085),

Gene: KFPoly\_68 Start: 43571, Stop: 43149, Start Num: 8

Candidate Starts for KFPoly\_68:

(Start: 8 @43571 has 246 MA's), (30, 43418), (36, 43376), (40, 43334), (49, 43247), (62, 43166),

Gene: Kachowdy\_70 Start: 44050, Stop: 43637, Start Num: 8

Candidate Starts for Kachowdy\_70:

(Start: 8 @44050 has 246 MA's), (23, 43948), (Start: 25 @43939 has 1 MA's), (32, 43885), (35, 43873), (39, 43816), (40, 43813), (42, 43789), (44, 43783), (48, 43738), (62, 43651), (64, 43645),

Gene: Kalb97\_78 Start: 44293, Stop: 43862, Start Num: 8

Candidate Starts for Kalb97\_78:

(Start: 8 @44293 has 246 MA's), (23, 44191), (Start: 25 @44182 has 1 MA's), (28, 44161), (29, 44158), (35, 44116), (38, 44065), (39, 44062), (42, 44035), (46, 44005), (47, 43987), (49, 43978), (53, 43951), (66, 43873),

Gene: Kalnoky\_78 Start: 44291, Stop: 43860, Start Num: 8

Candidate Starts for Kalnoky\_78:

(Start: 8 @44291 has 246 MA's), (23, 44189), (Start: 25 @44180 has 1 MA's), (28, 44159), (29, 44156), (35, 44114), (38, 44063), (39, 44060), (42, 44033), (46, 44003), (47, 43985), (49, 43976), (53, 43949), (66, 43871),

Gene: Kamy\_68 Start: 43579, Stop: 43157, Start Num: 8  
Candidate Starts for Kamy\_68:  
(Start: 8 @43579 has 246 MA's), (30, 43426), (36, 43384), (40, 43342), (49, 43255), (62, 43174),

Gene: KekoraPapaka\_66 Start: 43577, Stop: 43155, Start Num: 8  
Candidate Starts for KekoraPapaka\_66:  
(Start: 8 @43577 has 246 MA's), (30, 43424), (36, 43382), (40, 43340), (49, 43253), (62, 43172),

Gene: Kingmustik0402\_69 Start: 43566, Stop: 43144, Start Num: 8  
Candidate Starts for Kingmustik0402\_69:  
(Start: 8 @43566 has 246 MA's), (30, 43413), (36, 43371), (40, 43329), (49, 43242), (62, 43161),

Gene: KittenMittens\_66 Start: 42518, Stop: 42087, Start Num: 8  
Candidate Starts for KittenMittens\_66:  
(Start: 8 @42518 has 246 MA's), (13, 42473), (14, 42470), (22, 42431), (27, 42389), (32, 42353), (33, 42350), (35, 42341), (39, 42269), (40, 42266), (51, 42176), (59, 42122), (62, 42104),

Gene: Koan\_66 Start: 43577, Stop: 43155, Start Num: 8  
Candidate Starts for Koan\_66:  
(Start: 8 @43577 has 246 MA's), (30, 43424), (36, 43382), (40, 43340), (49, 43253), (62, 43172),

Gene: Koreni\_68 Start: 43258, Stop: 42836, Start Num: 8  
Candidate Starts for Koreni\_68:  
(Start: 8 @43258 has 246 MA's), (30, 43105), (36, 43063), (40, 43021), (49, 42934), (62, 42853),

Gene: Kratak\_68 Start: 43614, Stop: 43192, Start Num: 8  
Candidate Starts for Kratak\_68:  
(Start: 8 @43614 has 246 MA's), (30, 43461), (36, 43419), (40, 43377), (49, 43290), (62, 43209),

Gene: Kremtemulon\_68 Start: 43710, Stop: 43288, Start Num: 8  
Candidate Starts for Kremtemulon\_68:  
(Start: 8 @43710 has 246 MA's), (36, 43515), (40, 43473), (49, 43386), (62, 43305),

Gene: Kristoff\_68 Start: 43820, Stop: 43389, Start Num: 8  
Candidate Starts for Kristoff\_68:  
(Start: 8 @43820 has 246 MA's), (14, 43772), (Start: 25 @43709 has 1 MA's), (27, 43691), (32, 43655), (35, 43643), (39, 43571), (40, 43568), (49, 43487), (51, 43478), (54, 43454), (59, 43424),

Gene: Kyee\_69 Start: 43575, Stop: 43153, Start Num: 8  
Candidate Starts for Kyee\_69:  
(Start: 8 @43575 has 246 MA's), (30, 43422), (36, 43380), (40, 43338), (49, 43251), (62, 43170),

Gene: LBerry\_79 Start: 44484, Stop: 44050, Start Num: 8  
Candidate Starts for LBerry\_79:  
(Start: 8 @44484 has 246 MA's), (23, 44382), (Start: 25 @44373 has 1 MA's), (Start: 26 @44370 has 3 MA's), (28, 44352), (29, 44349), (32, 44319), (35, 44307), (38, 44256), (39, 44253), (42, 44226), (47, 44175), (49, 44166), (53, 44139), (56, 44106), (66, 44061),

Gene: LHTSCC\_71 Start: 44016, Stop: 43594, Start Num: 8  
Candidate Starts for LHTSCC\_71:  
(Start: 8 @44016 has 246 MA's), (30, 43863), (36, 43821), (40, 43779), (49, 43692), (62, 43611),

Gene: Lambert1\_72 Start: 44048, Stop: 43635, Start Num: 8

Candidate Starts for Lambert1\_72:

(Start: 1 @44132 has 1 MA's), (2, 44126), (4, 44087), (Start: 8 @44048 has 246 MA's), (23, 43946), (24, 43940), (32, 43883), (35, 43871), (39, 43814), (42, 43787), (49, 43727), (52, 43712), (62, 43649),

Gene: LappelDuVide\_69 Start: 43576, Stop: 43154, Start Num: 8

Candidate Starts for LappelDuVide\_69:

(Start: 8 @43576 has 246 MA's), (30, 43423), (36, 43381), (40, 43339), (49, 43252), (62, 43171),

Gene: LarryKay\_78 Start: 44512, Stop: 44075, Start Num: 8

Candidate Starts for LarryKay\_78:

(Start: 8 @44512 has 246 MA's), (23, 44410), (Start: 25 @44401 has 1 MA's), (Start: 26 @44398 has 3 MA's), (28, 44380), (29, 44377), (32, 44347), (35, 44335), (38, 44284), (39, 44281), (42, 44254), (47, 44203), (49, 44194), (53, 44164), (56, 44131), (66, 44086),

Gene: Lemur\_69 Start: 43574, Stop: 43152, Start Num: 8

Candidate Starts for Lemur\_69:

(Start: 8 @43574 has 246 MA's), (30, 43421), (36, 43379), (40, 43337), (49, 43250), (62, 43169),

Gene: LeoAvram\_68 Start: 43607, Stop: 43185, Start Num: 8

Candidate Starts for LeoAvram\_68:

(Start: 8 @43607 has 246 MA's), (30, 43454), (36, 43412), (40, 43370), (49, 43283), (62, 43202),

Gene: Lilith\_76 Start: 44359, Stop: 44039, Start Num: 26

Candidate Starts for Lilith\_76:

(Start: 8 @44473 has 246 MA's), (23, 44371), (Start: 25 @44362 has 1 MA's), (Start: 26 @44359 has 3 MA's), (28, 44341), (29, 44338), (32, 44308), (35, 44296), (38, 44245), (39, 44242), (42, 44215), (47, 44164), (49, 44155), (53, 44128), (56, 44095), (66, 44050),

Gene: LittleB\_69 Start: 43578, Stop: 43156, Start Num: 8

Candidate Starts for LittleB\_69:

(Start: 8 @43578 has 246 MA's), (30, 43425), (36, 43383), (40, 43341), (49, 43254), (62, 43173),

Gene: LittleGuy\_69 Start: 43473, Stop: 43051, Start Num: 8

Candidate Starts for LittleGuy\_69:

(Start: 8 @43473 has 246 MA's), (30, 43320), (36, 43278), (40, 43236), (49, 43149), (62, 43068),

Gene: LochMonster\_70 Start: 43816, Stop: 43394, Start Num: 8

Candidate Starts for LochMonster\_70:

(Start: 8 @43816 has 246 MA's), (30, 43663), (36, 43621), (40, 43579), (49, 43492), (62, 43411),

Gene: Lorenzo\_69 Start: 43577, Stop: 43155, Start Num: 8

Candidate Starts for Lorenzo\_69:

(Start: 8 @43577 has 246 MA's), (30, 43424), (36, 43382), (40, 43340), (49, 43253), (62, 43172),

Gene: Louie6\_77 Start: 44510, Stop: 44076, Start Num: 8

Candidate Starts for Louie6\_77:

(Start: 8 @44510 has 246 MA's), (23, 44408), (Start: 25 @44399 has 1 MA's), (28, 44378), (29, 44375), (35, 44333), (38, 44282), (39, 44279), (42, 44252), (45, 44243), (49, 44192), (55, 44138), (61, 44108), (66, 44087),

Gene: Lowa\_75 Start: 44472, Stop: 44038, Start Num: 8

Candidate Starts for Lowa\_75:

(Start: 8 @44472 has 246 MA's), (23, 44370), (Start: 25 @44361 has 1 MA's), (Start: 26 @44358 has 3 MA's), (28, 44340), (29, 44337), (32, 44307), (35, 44295), (38, 44244), (39, 44241), (42, 44214), (47, 44163), (49, 44154), (53, 44127), (56, 44094), (66, 44049),

Gene: LugYA\_81 Start: 44484, Stop: 44047, Start Num: 8

Candidate Starts for LugYA\_81:

(Start: 8 @44484 has 246 MA's), (23, 44382), (Start: 25 @44373 has 1 MA's), (Start: 26 @44370 has 3 MA's), (28, 44352), (29, 44349), (32, 44319), (35, 44307), (38, 44253), (39, 44250), (47, 44172), (49, 44163), (53, 44136), (56, 44103), (66, 44058),

Gene: Lunsford\_69 Start: 43571, Stop: 43149, Start Num: 8

Candidate Starts for Lunsford\_69:

(Start: 8 @43571 has 246 MA's), (30, 43418), (36, 43376), (40, 43334), (49, 43247), (62, 43166),

Gene: MA5\_72 Start: 43473, Stop: 43060, Start Num: 8

Candidate Starts for MA5\_72:

(Start: 8 @43473 has 246 MA's), (23, 43371), (32, 43308), (39, 43239), (40, 43236), (42, 43212), (64, 43068),

Gene: MadMarie\_76 Start: 44367, Stop: 44047, Start Num: 26

Candidate Starts for MadMarie\_76:

(Start: 8 @44481 has 246 MA's), (23, 44379), (Start: 25 @44370 has 1 MA's), (Start: 26 @44367 has 3 MA's), (28, 44349), (29, 44346), (32, 44316), (35, 44304), (38, 44253), (39, 44250), (42, 44223), (47, 44172), (49, 44163), (53, 44136), (56, 44103), (66, 44058),

Gene: Mainiac\_77 Start: 44473, Stop: 44039, Start Num: 8

Candidate Starts for Mainiac\_77:

(Start: 8 @44473 has 246 MA's), (23, 44371), (Start: 25 @44362 has 1 MA's), (Start: 26 @44359 has 3 MA's), (28, 44341), (29, 44338), (32, 44308), (35, 44296), (38, 44245), (39, 44242), (42, 44215), (47, 44164), (49, 44155), (53, 44128), (56, 44095), (66, 44050),

Gene: Malinsilva\_80 Start: 44472, Stop: 44038, Start Num: 8

Candidate Starts for Malinsilva\_80:

(Start: 8 @44472 has 246 MA's), (23, 44370), (Start: 25 @44361 has 1 MA's), (Start: 26 @44358 has 3 MA's), (28, 44340), (29, 44337), (32, 44307), (35, 44295), (38, 44244), (39, 44241), (42, 44214), (47, 44163), (49, 44154), (53, 44127), (56, 44094), (66, 44049),

Gene: Manu\_77 Start: 44297, Stop: 43863, Start Num: 8

Candidate Starts for Manu\_77:

(Start: 8 @44297 has 246 MA's), (23, 44195), (Start: 25 @44186 has 1 MA's), (28, 44165), (29, 44162), (32, 44132), (35, 44120), (38, 44069), (39, 44066), (42, 44039), (45, 44030), (46, 44009), (47, 43991), (49, 43982), (50, 43979), (53, 43955), (66, 43877),

Gene: MarQuardt\_78 Start: 44482, Stop: 44048, Start Num: 8

Candidate Starts for MarQuardt\_78:

(Start: 8 @44482 has 246 MA's), (23, 44380), (Start: 25 @44371 has 1 MA's), (Start: 26 @44368 has 3 MA's), (28, 44350), (29, 44347), (32, 44317), (35, 44305), (38, 44254), (39, 44251), (42, 44224), (47, 44173), (49, 44164), (53, 44137), (56, 44104), (66, 44059),

Gene: Marchesa\_70 Start: 44000, Stop: 43587, Start Num: 8

Candidate Starts for Marchesa\_70:

(Start: 8 @44000 has 246 MA's), (23, 43898), (Start: 25 @43889 has 1 MA's), (32, 43835), (35, 43823), (39, 43766), (40, 43763), (42, 43739), (44, 43733), (48, 43688), (62, 43601), (64, 43595),

Gene: Margo\_72 Start: 44074, Stop: 43661, Start Num: 8

Candidate Starts for Margo\_72:

(6, 44098), (Start: 8 @44074 has 246 MA's), (23, 43972), (24, 43966), (32, 43909), (35, 43897), (39, 43840), (42, 43813), (49, 43753), (52, 43738), (62, 43675),

Gene: Marie\_76 Start: 44483, Stop: 44046, Start Num: 8

Candidate Starts for Marie\_76:

(Start: 8 @44483 has 246 MA's), (23, 44381), (Start: 25 @44372 has 1 MA's), (Start: 26 @44369 has 3 MA's), (28, 44351), (29, 44348), (32, 44318), (35, 44306), (38, 44252), (39, 44249), (47, 44171), (49, 44162), (53, 44135), (56, 44102), (66, 44057),

Gene: Marius\_78 Start: 44291, Stop: 43860, Start Num: 8

Candidate Starts for Marius\_78:

(Start: 8 @44291 has 246 MA's), (23, 44189), (Start: 25 @44180 has 1 MA's), (28, 44159), (29, 44156), (35, 44114), (38, 44063), (39, 44060), (42, 44033), (46, 44003), (47, 43985), (49, 43976), (53, 43949), (66, 43871),

Gene: Maverick\_68 Start: 43577, Stop: 43155, Start Num: 8

Candidate Starts for Maverick\_68:

(Start: 8 @43577 has 246 MA's), (30, 43424), (36, 43382), (40, 43340), (49, 43253), (62, 43172),

Gene: Maxo\_70 Start: 43579, Stop: 43157, Start Num: 8

Candidate Starts for Maxo\_70:

(Start: 8 @43579 has 246 MA's), (30, 43426), (36, 43384), (40, 43342), (49, 43255), (62, 43174),

Gene: Mayonnaise\_66 Start: 43577, Stop: 43155, Start Num: 8

Candidate Starts for Mayonnaise\_66:

(Start: 8 @43577 has 246 MA's), (30, 43424), (36, 43382), (40, 43340), (49, 43253), (62, 43172),

Gene: Mazhar510\_69 Start: 43578, Stop: 43156, Start Num: 8

Candidate Starts for Mazhar510\_69:

(Start: 8 @43578 has 246 MA's), (30, 43425), (36, 43383), (40, 43341), (49, 43254), (62, 43173),

Gene: Medusa\_69 Start: 43591, Stop: 43169, Start Num: 8

Candidate Starts for Medusa\_69:

(Start: 8 @43591 has 246 MA's), (30, 43438), (36, 43396), (40, 43354), (49, 43267), (62, 43186),

Gene: MeeZee\_68 Start: 43574, Stop: 43152, Start Num: 8

Candidate Starts for MeeZee\_68:

(Start: 8 @43574 has 246 MA's), (30, 43421), (36, 43379), (40, 43337), (49, 43250), (62, 43169),

Gene: Melvin\_71 Start: 43572, Stop: 43150, Start Num: 8

Candidate Starts for Melvin\_71:

(Start: 8 @43572 has 246 MA's), (30, 43419), (36, 43377), (40, 43335), (49, 43248), (62, 43167),

Gene: Methuselah\_71 Start: 44504, Stop: 44070, Start Num: 8

Candidate Starts for Methuselah\_71:

(Start: 8 @44504 has 246 MA's), (23, 44402), (Start: 25 @44393 has 1 MA's), (Start: 26 @44390 has 3 MA's), (28, 44372), (29, 44369), (32, 44339), (35, 44327), (38, 44276), (39, 44273), (47, 44195), (49, 44186), (53, 44159), (56, 44126), (66, 44081),

Gene: Microwolf\_74 Start: 44496, Stop: 44062, Start Num: 8

Candidate Starts for Microwolf\_74:

(Start: 8 @44496 has 246 MA's), (23, 44394), (Start: 25 @44385 has 1 MA's), (Start: 26 @44382 has 3 MA's), (28, 44364), (29, 44361), (32, 44331), (35, 44319), (38, 44268), (39, 44265), (42, 44238), (47, 44187), (49, 44178), (53, 44151), (56, 44118), (66, 44073),

Gene: Millski\_68 Start: 43578, Stop: 43156, Start Num: 8

Candidate Starts for Millski\_68:

(Start: 8 @43578 has 246 MA's), (30, 43425), (36, 43383), (40, 43341), (49, 43254), (62, 43173),

Gene: Misomonster\_79 Start: 44396, Stop: 44073, Start Num: 25

Candidate Starts for Misomonster\_79:

(23, 44405), (Start: 25 @44396 has 1 MA's), (28, 44375), (29, 44372), (35, 44330), (38, 44279), (39, 44276), (42, 44249), (45, 44240), (49, 44189), (55, 44135), (61, 44105), (66, 44084),

Gene: MoneyMay\_77 Start: 44483, Stop: 44046, Start Num: 8

Candidate Starts for MoneyMay\_77:

(Start: 8 @44483 has 246 MA's), (23, 44381), (Start: 25 @44372 has 1 MA's), (Start: 26 @44369 has 3 MA's), (28, 44351), (29, 44348), (32, 44318), (35, 44306), (38, 44252), (39, 44249), (47, 44171), (49, 44162), (53, 44135), (56, 44102), (66, 44057),

Gene: Montavir\_73 Start: 44480, Stop: 44046, Start Num: 8

Candidate Starts for Montavir\_73:

(Start: 8 @44480 has 246 MA's), (23, 44378), (Start: 25 @44369 has 1 MA's), (Start: 26 @44366 has 3 MA's), (28, 44348), (29, 44345), (32, 44315), (35, 44303), (38, 44252), (39, 44249), (42, 44222), (47, 44171), (49, 44162), (53, 44135), (56, 44102), (66, 44057),

Gene: Morrow\_70 Start: 43619, Stop: 43197, Start Num: 8

Candidate Starts for Morrow\_70:

(Start: 8 @43619 has 246 MA's), (30, 43466), (36, 43424), (40, 43382), (49, 43295), (62, 43214),

Gene: MuchMore\_81 Start: 44472, Stop: 44038, Start Num: 8

Candidate Starts for MuchMore\_81:

(Start: 8 @44472 has 246 MA's), (23, 44370), (Start: 25 @44361 has 1 MA's), (28, 44340), (29, 44337), (32, 44307), (35, 44295), (39, 44241), (42, 44214), (47, 44163), (49, 44154), (53, 44127), (56, 44094), (66, 44049),

Gene: Nebs\_70 Start: 43616, Stop: 43194, Start Num: 8

Candidate Starts for Nebs\_70:

(Start: 8 @43616 has 246 MA's), (30, 43463), (36, 43421), (40, 43379), (49, 43292), (62, 43211),

Gene: Nemo27\_68 Start: 43576, Stop: 43154, Start Num: 8

Candidate Starts for Nemo27\_68:

(Start: 8 @43576 has 246 MA's), (30, 43423), (36, 43381), (40, 43339), (49, 43252), (62, 43171),

Gene: Noella\_72 Start: 44049, Stop: 43636, Start Num: 8

Candidate Starts for Noella\_72:

(6, 44073), (Start: 8 @44049 has 246 MA's), (23, 43947), (24, 43941), (32, 43884), (35, 43872), (39, 43815), (42, 43788), (49, 43728), (52, 43713), (62, 43650),

Gene: Norbert\_68 Start: 44047, Stop: 43634, Start Num: 8

Candidate Starts for Norbert\_68:

(6, 44071), (Start: 8 @44047 has 246 MA's), (23, 43945), (24, 43939), (32, 43882), (35, 43870), (39, 43813), (42, 43786), (49, 43726), (52, 43711), (62, 43648),

Gene: NorthStar\_67 Start: 43577, Stop: 43155, Start Num: 8

Candidate Starts for NorthStar\_67:

(Start: 8 @43577 has 246 MA's), (30, 43424), (36, 43382), (40, 43340), (49, 43253), (62, 43172),

Gene: NotAPhaseMom\_68 Start: 43581, Stop: 43159, Start Num: 8

Candidate Starts for NotAPhaseMom\_68:

(Start: 8 @43581 has 246 MA's), (30, 43428), (36, 43386), (40, 43344), (49, 43257), (62, 43176),

Gene: Nyxis\_68 Start: 43467, Stop: 43045, Start Num: 8

Candidate Starts for Nyxis\_68:

(Start: 8 @43467 has 246 MA's), (30, 43314), (36, 43272), (40, 43230), (49, 43143), (62, 43062),

Gene: OKCentral2016\_67 Start: 42617, Stop: 42186, Start Num: 8

Candidate Starts for OKCentral2016\_67:

(Start: 8 @42617 has 246 MA's), (14, 42569), (22, 42530), (27, 42488), (32, 42452), (33, 42449), (35, 42440), (39, 42368), (40, 42365), (51, 42275), (59, 42221), (62, 42203),

Gene: OKaNui\_68 Start: 43627, Stop: 43205, Start Num: 8

Candidate Starts for OKaNui\_68:

(Start: 8 @43627 has 246 MA's), (30, 43474), (34, 43453), (36, 43432), (40, 43390), (49, 43303), (62, 43222),

Gene: Obama12\_70 Start: 44000, Stop: 43578, Start Num: 8

Candidate Starts for Obama12\_70:

(Start: 8 @44000 has 246 MA's), (30, 43847), (36, 43805), (40, 43763), (49, 43676), (62, 43595),

Gene: Ohfah\_70 Start: 43616, Stop: 43194, Start Num: 8

Candidate Starts for Ohfah\_70:

(Start: 8 @43616 has 246 MA's), (30, 43463), (36, 43421), (40, 43379), (49, 43292), (62, 43211),

Gene: OlanP\_76 Start: 44470, Stop: 44036, Start Num: 8

Candidate Starts for OlanP\_76:

(Start: 8 @44470 has 246 MA's), (23, 44368), (Start: 25 @44359 has 1 MA's), (28, 44338), (29, 44335), (32, 44305), (35, 44293), (38, 44242), (39, 44239), (42, 44212), (46, 44182), (47, 44164), (49, 44155), (50, 44152), (53, 44128), (66, 44050),

Gene: Ollie\_78 Start: 44351, Stop: 43917, Start Num: 8

Candidate Starts for Ollie\_78:

(Start: 8 @44351 has 246 MA's), (23, 44249), (Start: 25 @44240 has 1 MA's), (Start: 26 @44237 has 3 MA's), (28, 44219), (29, 44216), (32, 44186), (35, 44174), (38, 44123), (39, 44120), (47, 44042), (49, 44033), (53, 44006), (56, 43973), (66, 43928),

Gene: P28Green\_78 Start: 44486, Stop: 44049, Start Num: 8

Candidate Starts for P28Green\_78:

(Start: 8 @44486 has 246 MA's), (23, 44384), (Start: 25 @44375 has 1 MA's), (Start: 26 @44372 has 3 MA's), (28, 44354), (29, 44351), (32, 44321), (35, 44309), (38, 44255), (39, 44252), (47, 44174), (49, 44165), (53, 44138), (56, 44105), (66, 44060),

Gene: PGHhamlin\_80 Start: 44472, Stop: 44038, Start Num: 8

Candidate Starts for PGHhamlin\_80:

(Start: 8 @44472 has 246 MA's), (23, 44370), (Start: 25 @44361 has 1 MA's), (Start: 26 @44358 has 3 MA's), (28, 44340), (29, 44337), (32, 44307), (35, 44295), (38, 44244), (39, 44241), (42, 44214), (47,

44163), (49, 44154), (53, 44127), (56, 44094), (66, 44049),

Gene: Palestino\_68 Start: 43577, Stop: 43155, Start Num: 8

Candidate Starts for Palestino\_68:

(Start: 8 @43577 has 246 MA's), (30, 43424), (36, 43382), (40, 43340), (49, 43253), (62, 43172),

Gene: Panamaxus\_70 Start: 44132, Stop: 43635, Start Num: 1

Candidate Starts for Panamaxus\_70:

(Start: 1 @44132 has 1 MA's), (2, 44126), (4, 44087), (Start: 8 @44048 has 246 MA's), (23, 43946), (24, 43940), (32, 43883), (35, 43871), (39, 43814), (42, 43787), (49, 43727), (52, 43712), (62, 43649),

Gene: Pawn\_76 Start: 44298, Stop: 43867, Start Num: 8

Candidate Starts for Pawn\_76:

(Start: 8 @44298 has 246 MA's), (23, 44196), (Start: 25 @44187 has 1 MA's), (28, 44166), (29, 44163), (35, 44121), (38, 44070), (39, 44067), (42, 44040), (46, 44010), (47, 43992), (49, 43983), (53, 43956), (66, 43878),

Gene: PeaceMeal1\_67 Start: 42519, Stop: 42088, Start Num: 8

Candidate Starts for PeaceMeal1\_67:

(Start: 8 @42519 has 246 MA's), (13, 42474), (14, 42471), (22, 42432), (27, 42390), (32, 42354), (35, 42342), (39, 42270), (40, 42267), (51, 42177), (59, 42123), (62, 42105),

Gene: Peaches\_67 Start: 43576, Stop: 43154, Start Num: 8

Candidate Starts for Peaches\_67:

(Start: 8 @43576 has 246 MA's), (30, 43423), (36, 43381), (40, 43339), (49, 43252), (62, 43171),

Gene: Pembroke\_78 Start: 44481, Stop: 44047, Start Num: 8

Candidate Starts for Pembroke\_78:

(Start: 8 @44481 has 246 MA's), (23, 44379), (Start: 25 @44370 has 1 MA's), (Start: 26 @44367 has 3 MA's), (28, 44349), (29, 44346), (32, 44316), (35, 44304), (38, 44253), (39, 44250), (42, 44223), (47, 44172), (49, 44163), (53, 44136), (56, 44103), (66, 44058),

Gene: Penny1\_78 Start: 44484, Stop: 44050, Start Num: 8

Candidate Starts for Penny1\_78:

(Start: 8 @44484 has 246 MA's), (23, 44382), (Start: 25 @44373 has 1 MA's), (Start: 26 @44370 has 3 MA's), (28, 44352), (29, 44349), (32, 44319), (35, 44307), (38, 44256), (39, 44253), (47, 44175), (49, 44166), (53, 44139), (56, 44106), (66, 44061),

Gene: PeterPeter\_69 Start: 43574, Stop: 43152, Start Num: 8

Candidate Starts for PeterPeter\_69:

(Start: 8 @43574 has 246 MA's), (30, 43421), (36, 43379), (40, 43337), (49, 43250), (62, 43169),

Gene: Phacado\_69 Start: 43576, Stop: 43154, Start Num: 8

Candidate Starts for Phacado\_69:

(Start: 8 @43576 has 246 MA's), (30, 43423), (36, 43381), (40, 43339), (49, 43252), (62, 43171),

Gene: Phantastic\_74 Start: 43731, Stop: 43318, Start Num: 8

Candidate Starts for Phantastic\_74:

(Start: 8 @43731 has 246 MA's), (23, 43629), (29, 43596), (32, 43566), (39, 43497), (40, 43494), (42, 43470), (44, 43464), (62, 43332), (64, 43326),

Gene: Phelipe\_70 Start: 43616, Stop: 43194, Start Num: 8

Candidate Starts for Phelipe\_70:

(Start: 8 @43616 has 246 MA's), (30, 43463), (36, 43421), (40, 43379), (49, 43292), (62, 43211),

Gene: Phighter1804\_69 Start: 43641, Stop: 43219, Start Num: 8

Candidate Starts for Phighter1804\_69:

(Start: 8 @43641 has 246 MA's), (30, 43488), (36, 43446), (40, 43404), (49, 43317), (62, 43236),

Gene: PhishRPhriends\_74 Start: 43478, Stop: 43044, Start Num: 8

Candidate Starts for PhishRPhriends\_74:

(Start: 8 @43478 has 246 MA's), (23, 43376), (Start: 25 @43367 has 1 MA's), (28, 43346), (29, 43343), (32, 43313), (35, 43301), (38, 43250), (39, 43247), (42, 43220), (45, 43211), (46, 43190), (47, 43172), (49, 43163), (50, 43160), (53, 43136), (66, 43058),

Gene: Phoebe\_79 Start: 44476, Stop: 44039, Start Num: 8

Candidate Starts for Phoebe\_79:

(Start: 8 @44476 has 246 MA's), (23, 44374), (Start: 25 @44365 has 1 MA's), (Start: 26 @44362 has 3 MA's), (28, 44344), (29, 44341), (32, 44311), (35, 44299), (38, 44245), (39, 44242), (47, 44164), (49, 44155), (53, 44128), (56, 44095), (66, 44050),

Gene: Phontbonne\_69 Start: 43483, Stop: 43061, Start Num: 8

Candidate Starts for Phontbonne\_69:

(Start: 8 @43483 has 246 MA's), (30, 43330), (36, 43288), (40, 43246), (49, 43159), (62, 43078),

Gene: Phoxy\_78 Start: 44505, Stop: 44071, Start Num: 8

Candidate Starts for Phoxy\_78:

(Start: 8 @44505 has 246 MA's), (23, 44403), (Start: 25 @44394 has 1 MA's), (Start: 26 @44391 has 3 MA's), (28, 44373), (29, 44370), (32, 44340), (35, 44328), (38, 44277), (39, 44274), (47, 44196), (49, 44187), (53, 44160), (56, 44127), (66, 44082),

Gene: Phranny\_74 Start: 43461, Stop: 43027, Start Num: 8

Candidate Starts for Phranny\_74:

(Start: 8 @43461 has 246 MA's), (23, 43359), (Start: 25 @43350 has 1 MA's), (28, 43329), (29, 43326), (32, 43296), (35, 43284), (38, 43233), (39, 43230), (42, 43203), (45, 43194), (46, 43173), (47, 43155), (49, 43146), (50, 43143), (53, 43119), (66, 43041),

Gene: Pipcraft\_66 Start: 43577, Stop: 43155, Start Num: 8

Candidate Starts for Pipcraft\_66:

(Start: 8 @43577 has 246 MA's), (30, 43424), (36, 43382), (40, 43340), (49, 43253), (62, 43172),

Gene: Pistachio\_72 Start: 43638, Stop: 43225, Start Num: 8

Candidate Starts for Pistachio\_72:

(Start: 8 @43638 has 246 MA's), (23, 43536), (Start: 25 @43527 has 1 MA's), (32, 43473), (39, 43404), (40, 43401), (42, 43377), (44, 43371), (64, 43233),

Gene: Pocahontas\_71 Start: 44045, Stop: 43632, Start Num: 8

Candidate Starts for Pocahontas\_71:

(6, 44069), (Start: 8 @44045 has 246 MA's), (23, 43943), (24, 43937), (32, 43880), (35, 43868), (39, 43811), (42, 43784), (49, 43724), (52, 43709), (62, 43646),

Gene: Polymorphads\_69 Start: 43597, Stop: 43175, Start Num: 8

Candidate Starts for Polymorphads\_69:

(Start: 8 @43597 has 246 MA's), (30, 43444), (36, 43402), (40, 43360), (49, 43273), (62, 43192),

Gene: Poompha\_66 Start: 42517, Stop: 42086, Start Num: 8

Candidate Starts for Poompha\_66:

(Start: 8 @42517 has 246 MA's), (13, 42472), (14, 42469), (22, 42430), (27, 42388), (32, 42352), (33, 42349), (35, 42340), (39, 42268), (40, 42265), (51, 42175), (59, 42121), (62, 42103),

Gene: Popcicle\_72 Start: 44045, Stop: 43632, Start Num: 8

Candidate Starts for Popcicle\_72:

(6, 44069), (Start: 8 @44045 has 246 MA's), (23, 43943), (24, 43937), (32, 43880), (35, 43868), (39, 43811), (42, 43784), (49, 43724), (52, 43709), (62, 43646),

Gene: PotatoSplit\_79 Start: 44484, Stop: 44050, Start Num: 8

Candidate Starts for PotatoSplit\_79:

(Start: 8 @44484 has 246 MA's), (23, 44382), (Start: 25 @44373 has 1 MA's), (Start: 26 @44370 has 3 MA's), (28, 44352), (29, 44349), (32, 44319), (35, 44307), (38, 44256), (39, 44253), (47, 44175), (49, 44166), (53, 44139), (56, 44106), (66, 44061),

Gene: Pumbaa\_69 Start: 43522, Stop: 43100, Start Num: 8

Candidate Starts for Pumbaa\_69:

(Start: 8 @43522 has 246 MA's), (30, 43369), (36, 43327), (40, 43285), (49, 43198), (62, 43117),

Gene: Puppy\_73 Start: 43710, Stop: 43297, Start Num: 8

Candidate Starts for Puppy\_73:

(Start: 8 @43710 has 246 MA's), (23, 43608), (Start: 25 @43599 has 1 MA's), (32, 43545), (39, 43476), (40, 43473), (42, 43449), (44, 43443), (64, 43305),

Gene: PurpleHaze\_77 Start: 44293, Stop: 43862, Start Num: 8

Candidate Starts for PurpleHaze\_77:

(Start: 8 @44293 has 246 MA's), (23, 44191), (Start: 25 @44182 has 1 MA's), (28, 44161), (29, 44158), (35, 44116), (38, 44065), (39, 44062), (42, 44035), (46, 44005), (47, 43987), (49, 43978), (53, 43951), (66, 43873),

Gene: QuinnKiro\_71 Start: 44048, Stop: 43635, Start Num: 8

Candidate Starts for QuinnKiro\_71:

(6, 44072), (Start: 8 @44048 has 246 MA's), (23, 43946), (24, 43940), (32, 43883), (35, 43871), (39, 43814), (42, 43787), (49, 43727), (52, 43712), (62, 43649),

Gene: Reba\_73 Start: 43134, Stop: 42700, Start Num: 8

Candidate Starts for Reba\_73:

(Start: 8 @43134 has 246 MA's), (23, 43032), (Start: 25 @43023 has 1 MA's), (28, 43002), (29, 42999), (32, 42969), (35, 42957), (38, 42906), (39, 42903), (42, 42876), (45, 42867), (46, 42846), (47, 42828), (49, 42819), (50, 42816), (53, 42792), (66, 42714),

Gene: Rebeuca\_70 Start: 43821, Stop: 43390, Start Num: 8

Candidate Starts for Rebeuca\_70:

(Start: 8 @43821 has 246 MA's), (14, 43773), (Start: 25 @43710 has 1 MA's), (27, 43692), (32, 43656), (35, 43644), (39, 43572), (40, 43569), (49, 43488), (51, 43479), (54, 43455), (59, 43425),

Gene: Refuge\_72 Start: 45324, Stop: 44920, Start Num: 5

Candidate Starts for Refuge\_72:

(Start: 5 @45324 has 2 MA's), (23, 45180), (Start: 25 @45171 has 1 MA's), (37, 45066), (39, 45048), (41, 45030), (42, 45018), (49, 44955),

Gene: Relief\_68 Start: 43574, Stop: 43152, Start Num: 8

Candidate Starts for Relief\_68:

(Start: 8 @43574 has 246 MA's), (30, 43421), (36, 43379), (40, 43337), (49, 43250), (62, 43169),

Gene: ResDef\_70 Start: 44048, Stop: 43635, Start Num: 8

Candidate Starts for ResDef\_70:

(4, 44087), (Start: 8 @44048 has 246 MA's), (23, 43946), (24, 43940), (32, 43883), (35, 43871), (39, 43814), (42, 43787), (49, 43727), (52, 43712), (62, 43649),

Gene: RockieBear\_66 Start: 43577, Stop: 43155, Start Num: 8

Candidate Starts for RockieBear\_66:

(Start: 8 @43577 has 246 MA's), (30, 43424), (36, 43382), (40, 43340), (49, 43253), (62, 43172),

Gene: Rockstar\_71 Start: 43557, Stop: 43144, Start Num: 8

Candidate Starts for Rockstar\_71:

(Start: 8 @43557 has 246 MA's), (23, 43455), (32, 43392), (39, 43323), (40, 43320), (42, 43296), (64, 43152),

Gene: Roimos\_70 Start: 43930, Stop: 43517, Start Num: 8

Candidate Starts for Roimos\_70:

(Start: 8 @43930 has 246 MA's), (23, 43828), (Start: 25 @43819 has 1 MA's), (32, 43765), (35, 43753), (39, 43696), (40, 43693), (42, 43669), (44, 43663), (48, 43618), (62, 43531), (64, 43525),

Gene: Romney\_68 Start: 43574, Stop: 43152, Start Num: 8

Candidate Starts for Romney\_68:

(Start: 8 @43574 has 246 MA's), (30, 43421), (36, 43379), (40, 43337), (49, 43250), (62, 43169),

Gene: Roosevelt\_67 Start: 43579, Stop: 43157, Start Num: 8

Candidate Starts for Roosevelt\_67:

(Start: 8 @43579 has 246 MA's), (30, 43426), (36, 43384), (40, 43342), (49, 43255), (62, 43174),

Gene: Rosa24\_66 Start: 43608, Stop: 43186, Start Num: 8

Candidate Starts for Rosa24\_66:

(Start: 8 @43608 has 246 MA's), (30, 43455), (36, 43413), (40, 43371), (49, 43284), (62, 43203),

Gene: Rowdy\_71 Start: 43468, Stop: 43097, Start Num: 16

Candidate Starts for Rowdy\_71:

(Start: 8 @43522 has 246 MA's), (10, 43495), (12, 43489), (16, 43468), (27, 43393), (32, 43357), (39, 43279), (40, 43276), (51, 43186), (54, 43162), (58, 43135), (59, 43132), (64, 43105),

Gene: Ruin\_69 Start: 43570, Stop: 43148, Start Num: 8

Candidate Starts for Ruin\_69:

(Start: 8 @43570 has 246 MA's), (30, 43417), (36, 43375), (40, 43333), (49, 43246), (62, 43165),

Gene: Rummer\_77 Start: 44508, Stop: 44074, Start Num: 8

Candidate Starts for Rummer\_77:

(Start: 8 @44508 has 246 MA's), (23, 44406), (Start: 25 @44397 has 1 MA's), (Start: 26 @44394 has 3 MA's), (28, 44376), (29, 44373), (32, 44343), (35, 44331), (38, 44280), (39, 44277), (47, 44199), (49, 44190), (53, 44163), (56, 44130), (66, 44085),

Gene: Sabertooth\_69 Start: 43579, Stop: 43157, Start Num: 8

Candidate Starts for Sabertooth\_69:

(Start: 8 @43579 has 246 MA's), (30, 43426), (36, 43384), (40, 43342), (49, 43255), (62, 43174),

Gene: Sabia\_76 Start: 44488, Stop: 44054, Start Num: 8

Candidate Starts for Sabia\_76:

(Start: 8 @44488 has 246 MA's), (23, 44386), (Start: 25 @44377 has 1 MA's), (Start: 26 @44374 has 3 MA's), (28, 44356), (29, 44353), (32, 44323), (35, 44311), (38, 44260), (39, 44257), (42, 44230), (47, 44179), (49, 44170), (53, 44143), (56, 44110), (66, 44065),

Gene: Sabinator\_76 Start: 44482, Stop: 44045, Start Num: 8

Candidate Starts for Sabinator\_76:

(Start: 8 @44482 has 246 MA's), (23, 44380), (Start: 25 @44371 has 1 MA's), (Start: 26 @44368 has 3 MA's), (28, 44350), (29, 44347), (32, 44317), (35, 44305), (38, 44251), (39, 44248), (47, 44170), (49, 44161), (53, 44134), (56, 44101), (66, 44056),

Gene: SaturnRing\_72 Start: 44091, Stop: 43678, Start Num: 8

Candidate Starts for SaturnRing\_72:

(Start: 8 @44091 has 246 MA's), (23, 43989), (Start: 25 @43980 has 1 MA's), (32, 43926), (39, 43857), (40, 43854), (42, 43830), (44, 43824), (64, 43686),

Gene: Scamp\_69 Start: 43579, Stop: 43157, Start Num: 8

Candidate Starts for Scamp\_69:

(Start: 8 @43579 has 246 MA's), (30, 43426), (36, 43384), (40, 43342), (49, 43255), (62, 43174),

Gene: Scout\_71 Start: 43261, Stop: 42848, Start Num: 8

Candidate Starts for Scout\_71:

(Start: 8 @43261 has 246 MA's), (23, 43159), (Start: 25 @43150 has 1 MA's), (32, 43096), (35, 43084), (39, 43027), (40, 43024), (42, 43000), (44, 42994), (48, 42949), (62, 42862), (64, 42856),

Gene: SenorClean\_70 Start: 43577, Stop: 43155, Start Num: 8

Candidate Starts for SenorClean\_70:

(Start: 8 @43577 has 246 MA's), (30, 43424), (36, 43382), (40, 43340), (49, 43253), (62, 43172),

Gene: Severus\_67 Start: 42517, Stop: 42086, Start Num: 8

Candidate Starts for Severus\_67:

(Start: 8 @42517 has 246 MA's), (13, 42472), (14, 42469), (22, 42430), (27, 42388), (32, 42352), (33, 42349), (35, 42340), (39, 42268), (40, 42265), (51, 42175), (59, 42121), (62, 42103),

Gene: Shaka\_67 Start: 43574, Stop: 43152, Start Num: 8

Candidate Starts for Shaka\_67:

(Start: 8 @43574 has 246 MA's), (30, 43421), (36, 43379), (40, 43337), (49, 43250), (62, 43169),

Gene: Shapes\_71 Start: 43468, Stop: 43097, Start Num: 16

Candidate Starts for Shapes\_71:

(Start: 8 @43522 has 246 MA's), (10, 43495), (12, 43489), (16, 43468), (27, 43393), (32, 43357), (39, 43279), (40, 43276), (51, 43186), (54, 43162), (58, 43135), (59, 43132), (64, 43105),

Gene: Sheen\_73 Start: 47483, Stop: 47070, Start Num: 8

Candidate Starts for Sheen\_73:

(Start: 8 @47483 has 246 MA's), (14, 47435), (23, 47381), (Start: 25 @47372 has 1 MA's), (27, 47354), (28, 47351), (29, 47348), (32, 47318), (35, 47306), (39, 47249), (40, 47246), (42, 47222), (49, 47165), (61, 47087),

Gene: SheldonCooper\_69 Start: 44017, Stop: 43595, Start Num: 8

Candidate Starts for SheldonCooper\_69:

(Start: 8 @44017 has 246 MA's), (30, 43864), (36, 43822), (40, 43780), (49, 43693), (62, 43612),

Gene: Skipitt\_68 Start: 43571, Stop: 43149, Start Num: 8  
Candidate Starts for Skipitt\_68:  
(Start: 8 @43571 has 246 MA's), (30, 43418), (36, 43376), (40, 43334), (49, 43247), (62, 43166),

Gene: Snickers\_78 Start: 44453, Stop: 44019, Start Num: 8  
Candidate Starts for Snickers\_78:  
(Start: 8 @44453 has 246 MA's), (23, 44351), (Start: 25 @44342 has 1 MA's), (Start: 26 @44339 has 3 MA's), (28, 44321), (29, 44318), (32, 44288), (35, 44276), (38, 44225), (39, 44222), (42, 44195), (47, 44144), (49, 44135), (53, 44108), (56, 44075), (66, 44030),

Gene: SoYo\_75 Start: 44395, Stop: 43958, Start Num: 8  
Candidate Starts for SoYo\_75:  
(Start: 8 @44395 has 246 MA's), (23, 44293), (Start: 25 @44284 has 1 MA's), (Start: 26 @44281 has 3 MA's), (28, 44263), (29, 44260), (32, 44230), (35, 44218), (38, 44164), (39, 44161), (47, 44083), (49, 44074), (53, 44047), (56, 44014), (66, 43969),

Gene: SoilDragon\_77 Start: 43927, Stop: 43493, Start Num: 8  
Candidate Starts for SoilDragon\_77:  
(Start: 8 @43927 has 246 MA's), (23, 43825), (Start: 25 @43816 has 1 MA's), (28, 43795), (29, 43792), (32, 43762), (35, 43750), (38, 43699), (39, 43696), (42, 43669), (46, 43639), (47, 43621), (50, 43609), (53, 43585), (66, 43507),

Gene: Soshari\_80 Start: 44504, Stop: 44070, Start Num: 8  
Candidate Starts for Soshari\_80:  
(Start: 8 @44504 has 246 MA's), (23, 44402), (Start: 25 @44393 has 1 MA's), (Start: 26 @44390 has 3 MA's), (28, 44372), (29, 44369), (32, 44339), (35, 44327), (38, 44276), (39, 44273), (47, 44195), (49, 44186), (53, 44159), (56, 44126), (66, 44081),

Gene: Sparxx\_70 Start: 43572, Stop: 43150, Start Num: 8  
Candidate Starts for Sparxx\_70:  
(Start: 8 @43572 has 246 MA's), (30, 43419), (36, 43377), (40, 43335), (49, 43248), (62, 43167),

Gene: Spike509\_78 Start: 44505, Stop: 44071, Start Num: 8  
Candidate Starts for Spike509\_78:  
(Start: 8 @44505 has 246 MA's), (23, 44403), (Start: 25 @44394 has 1 MA's), (Start: 26 @44391 has 3 MA's), (28, 44373), (29, 44370), (32, 44340), (35, 44328), (38, 44277), (39, 44274), (47, 44196), (49, 44187), (53, 44160), (56, 44127), (66, 44082),

Gene: Spino\_68 Start: 43580, Stop: 43158, Start Num: 8  
Candidate Starts for Spino\_68:  
(Start: 8 @43580 has 246 MA's), (30, 43427), (36, 43385), (40, 43343), (49, 43256), (62, 43175),

Gene: Stagni\_75 Start: 44483, Stop: 44049, Start Num: 8  
Candidate Starts for Stagni\_75:  
(Start: 8 @44483 has 246 MA's), (23, 44381), (Start: 25 @44372 has 1 MA's), (Start: 26 @44369 has 3 MA's), (28, 44351), (29, 44348), (32, 44318), (35, 44306), (38, 44255), (39, 44252), (42, 44225), (47, 44174), (49, 44165), (53, 44138), (56, 44105), (66, 44060),

Gene: Stasia\_68 Start: 43786, Stop: 43364, Start Num: 8  
Candidate Starts for Stasia\_68:  
(Start: 8 @43786 has 246 MA's), (21, 43714), (23, 43684), (27, 43657), (40, 43549), (49, 43465), (55, 43417), (58, 43405), (63, 43378),

Gene: SteMason\_65 Start: 43574, Stop: 43152, Start Num: 8

Candidate Starts for SteMason\_65:

(Start: 8 @43574 has 246 MA's), (30, 43421), (36, 43379), (40, 43337), (49, 43250), (62, 43169),

Gene: StepMih\_77 Start: 44474, Stop: 44040, Start Num: 8

Candidate Starts for StepMih\_77:

(Start: 8 @44474 has 246 MA's), (23, 44372), (Start: 25 @44363 has 1 MA's), (Start: 26 @44360 has 3 MA's), (28, 44342), (29, 44339), (32, 44309), (35, 44297), (38, 44246), (39, 44243), (42, 44216), (47, 44165), (49, 44156), (53, 44129), (56, 44096), (66, 44051),

Gene: Sultana\_69 Start: 43577, Stop: 43155, Start Num: 8

Candidate Starts for Sultana\_69:

(Start: 8 @43577 has 246 MA's), (30, 43424), (36, 43382), (40, 43340), (49, 43253), (62, 43172),

Gene: TNguyen7\_73 Start: 44051, Stop: 43638, Start Num: 8

Candidate Starts for TNguyen7\_73:

(Start: 8 @44051 has 246 MA's), (23, 43949), (Start: 25 @43940 has 1 MA's), (32, 43886), (39, 43817), (40, 43814), (42, 43790), (44, 43784), (64, 43646),

Gene: Taquarus\_68 Start: 43580, Stop: 43158, Start Num: 8

Candidate Starts for Taquarus\_68:

(Start: 8 @43580 has 246 MA's), (30, 43427), (36, 43385), (40, 43343), (49, 43256), (62, 43175),

Gene: Taurus\_79 Start: 44483, Stop: 44046, Start Num: 8

Candidate Starts for Taurus\_79:

(Start: 8 @44483 has 246 MA's), (23, 44381), (Start: 25 @44372 has 1 MA's), (Start: 26 @44369 has 3 MA's), (28, 44351), (29, 44348), (32, 44318), (35, 44306), (38, 44252), (39, 44249), (47, 44171), (49, 44162), (53, 44135), (56, 44102), (66, 44057),

Gene: Texage\_70 Start: 44049, Stop: 43636, Start Num: 8

Candidate Starts for Texage\_70:

(6, 44073), (Start: 8 @44049 has 246 MA's), (23, 43947), (24, 43941), (32, 43884), (35, 43872), (39, 43815), (42, 43788), (49, 43728), (52, 43713), (62, 43650),

Gene: Thanksgivukkah\_68 Start: 43575, Stop: 43153, Start Num: 8

Candidate Starts for Thanksgivukkah\_68:

(Start: 8 @43575 has 246 MA's), (30, 43422), (36, 43380), (40, 43338), (49, 43251), (62, 43170),

Gene: Tiffany\_77 Start: 44368, Stop: 43931, Start Num: 8

Candidate Starts for Tiffany\_77:

(Start: 8 @44368 has 246 MA's), (23, 44266), (Start: 25 @44257 has 1 MA's), (Start: 26 @44254 has 3 MA's), (28, 44236), (29, 44233), (32, 44203), (35, 44191), (38, 44137), (39, 44134), (47, 44056), (49, 44047), (53, 44020), (56, 43987), (66, 43942),

Gene: TinaFeyge\_67 Start: 43572, Stop: 43150, Start Num: 8

Candidate Starts for TinaFeyge\_67:

(Start: 8 @43572 has 246 MA's), (30, 43419), (36, 43377), (40, 43335), (49, 43248), (62, 43167),

Gene: TinyPebbles\_77 Start: 44510, Stop: 44076, Start Num: 8

Candidate Starts for TinyPebbles\_77:

(Start: 8 @44510 has 246 MA's), (23, 44408), (Start: 25 @44399 has 1 MA's), (28, 44378), (29, 44375), (35, 44333), (38, 44282), (39, 44279), (42, 44252), (45, 44243), (49, 44192), (55, 44138), (61, 44108), (66, 44087),

Gene: Tinybot\_68 Start: 43607, Stop: 43185, Start Num: 8

Candidate Starts for Tinybot\_68:

(Start: 8 @43607 has 246 MA's), (30, 43454), (36, 43412), (40, 43370), (49, 43283), (62, 43202),

Gene: TiroTheta9\_68 Start: 43571, Stop: 43149, Start Num: 8

Candidate Starts for TiroTheta9\_68:

(Start: 8 @43571 has 246 MA's), (30, 43418), (36, 43376), (40, 43334), (49, 43247), (62, 43166),

Gene: Todacoro\_72 Start: 44048, Stop: 43635, Start Num: 8

Candidate Starts for Todacoro\_72:

(6, 44072), (Start: 8 @44048 has 246 MA's), (23, 43946), (24, 43940), (32, 43883), (35, 43871), (39, 43814), (42, 43787), (49, 43727), (52, 43712), (62, 43649),

Gene: Topanga\_66 Start: 43246, Stop: 42815, Start Num: 8

Candidate Starts for Topanga\_66:

(Start: 8 @43246 has 246 MA's), (14, 43198), (27, 43117), (32, 43081), (39, 42997), (40, 42994), (49, 42913), (51, 42904), (54, 42880), (59, 42850), (64, 42823), (65, 42820),

Gene: Toro\_72 Start: 47546, Stop: 47181, Start Num: 14

Candidate Starts for Toro\_72:

(Start: 8 @47594 has 246 MA's), (14, 47546), (23, 47492), (Start: 25 @47483 has 1 MA's), (27, 47465), (28, 47462), (29, 47459), (32, 47429), (35, 47417), (39, 47360), (40, 47357), (42, 47333), (49, 47276), (61, 47198),

Gene: Trike\_66 Start: 42557, Stop: 42090, Start Num: 3

Candidate Starts for Trike\_66:

(Start: 3 @42557 has 1 MA's), (27, 42392), (32, 42356), (35, 42344), (39, 42272), (40, 42269), (51, 42179), (59, 42125),

Gene: TroyPia\_70 Start: 43611, Stop: 43189, Start Num: 8

Candidate Starts for TroyPia\_70:

(Start: 8 @43611 has 246 MA's), (30, 43458), (36, 43416), (40, 43374), (49, 43287), (62, 43206),

Gene: Twister\_68 Start: 43367, Stop: 42936, Start Num: 8

Candidate Starts for Twister\_68:

(Start: 8 @43367 has 246 MA's), (14, 43319), (27, 43238), (32, 43202), (39, 43118), (40, 43115), (49, 43034), (51, 43025), (54, 43001), (59, 42971), (64, 42944), (65, 42941),

Gene: TygerBlood\_69 Start: 43577, Stop: 43155, Start Num: 8

Candidate Starts for TygerBlood\_69:

(Start: 8 @43577 has 246 MA's), (30, 43424), (36, 43382), (40, 43340), (49, 43253), (62, 43172),

Gene: Ulysses\_68 Start: 43263, Stop: 42841, Start Num: 8

Candidate Starts for Ulysses\_68:

(Start: 8 @43263 has 246 MA's), (30, 43110), (36, 43068), (40, 43026), (49, 42939), (62, 42858),

Gene: Veracruz\_69 Start: 44048, Stop: 43635, Start Num: 8

Candidate Starts for Veracruz\_69:

(6, 44072), (Start: 8 @44048 has 246 MA's), (23, 43946), (24, 43940), (32, 43883), (35, 43871), (39, 43814), (42, 43787), (49, 43727), (52, 43712), (62, 43649),

Gene: Vix\_74 Start: 44563, Stop: 44129, Start Num: 8

Candidate Starts for Vix\_74:

(Start: 8 @44563 has 246 MA's), (23, 44461), (Start: 25 @44452 has 1 MA's), (Start: 26 @44449 has 3 MA's), (28, 44431), (29, 44428), (32, 44398), (35, 44386), (38, 44335), (39, 44332), (42, 44305), (47, 44254), (49, 44245), (53, 44218), (56, 44185), (66, 44140),

Gene: WalterMcMickey\_68 Start: 43367, Stop: 42936, Start Num: 8

Candidate Starts for WalterMcMickey\_68:

(Start: 8 @43367 has 246 MA's), (14, 43319), (27, 43238), (32, 43202), (39, 43118), (40, 43115), (49, 43034), (51, 43025), (54, 43001), (59, 42971), (64, 42944), (65, 42941),

Gene: Wander\_69 Start: 43574, Stop: 43152, Start Num: 8

Candidate Starts for Wander\_69:

(Start: 8 @43574 has 246 MA's), (30, 43421), (36, 43379), (40, 43337), (49, 43250), (62, 43169),

Gene: Watson\_77 Start: 44472, Stop: 44038, Start Num: 8

Candidate Starts for Watson\_77:

(Start: 8 @44472 has 246 MA's), (23, 44370), (Start: 25 @44361 has 1 MA's), (Start: 26 @44358 has 3 MA's), (28, 44340), (29, 44337), (32, 44307), (35, 44295), (38, 44244), (39, 44241), (42, 44214), (47, 44163), (49, 44154), (53, 44127), (56, 44094), (66, 44049),

Gene: Wilbur\_69 Start: 43574, Stop: 43152, Start Num: 8

Candidate Starts for Wilbur\_69:

(Start: 8 @43574 has 246 MA's), (30, 43421), (36, 43379), (40, 43337), (49, 43250), (62, 43169),

Gene: Wooldri\_80 Start: 44392, Stop: 43958, Start Num: 8

Candidate Starts for Wooldri\_80:

(Start: 8 @44392 has 246 MA's), (23, 44290), (Start: 25 @44281 has 1 MA's), (28, 44260), (29, 44257), (35, 44215), (38, 44164), (39, 44161), (42, 44134), (45, 44125), (49, 44074), (55, 44020), (61, 43990), (66, 43969),

Gene: YoSam321\_69 Start: 43571, Stop: 43149, Start Num: 8

Candidate Starts for YoSam321\_69:

(Start: 8 @43571 has 246 MA's), (30, 43418), (36, 43376), (40, 43334), (49, 43247), (62, 43166),

Gene: Zarafa\_70 Start: 44023, Stop: 43610, Start Num: 8

Candidate Starts for Zarafa\_70:

(Start: 8 @44023 has 246 MA's), (23, 43921), (32, 43858), (35, 43846), (39, 43789), (40, 43786), (42, 43762), (44, 43756), (49, 43705), (64, 43618),

Gene: Zetzy\_75 Start: 44052, Stop: 43609, Start Num: 8

Candidate Starts for Zetzy\_75:

(Start: 8 @44052 has 246 MA's), (9, 44040), (Start: 25 @43941 has 1 MA's), (28, 43920), (30, 43899), (32, 43887), (39, 43821), (42, 43794), (49, 43737), (55, 43683), (66, 43632), (67, 43620),